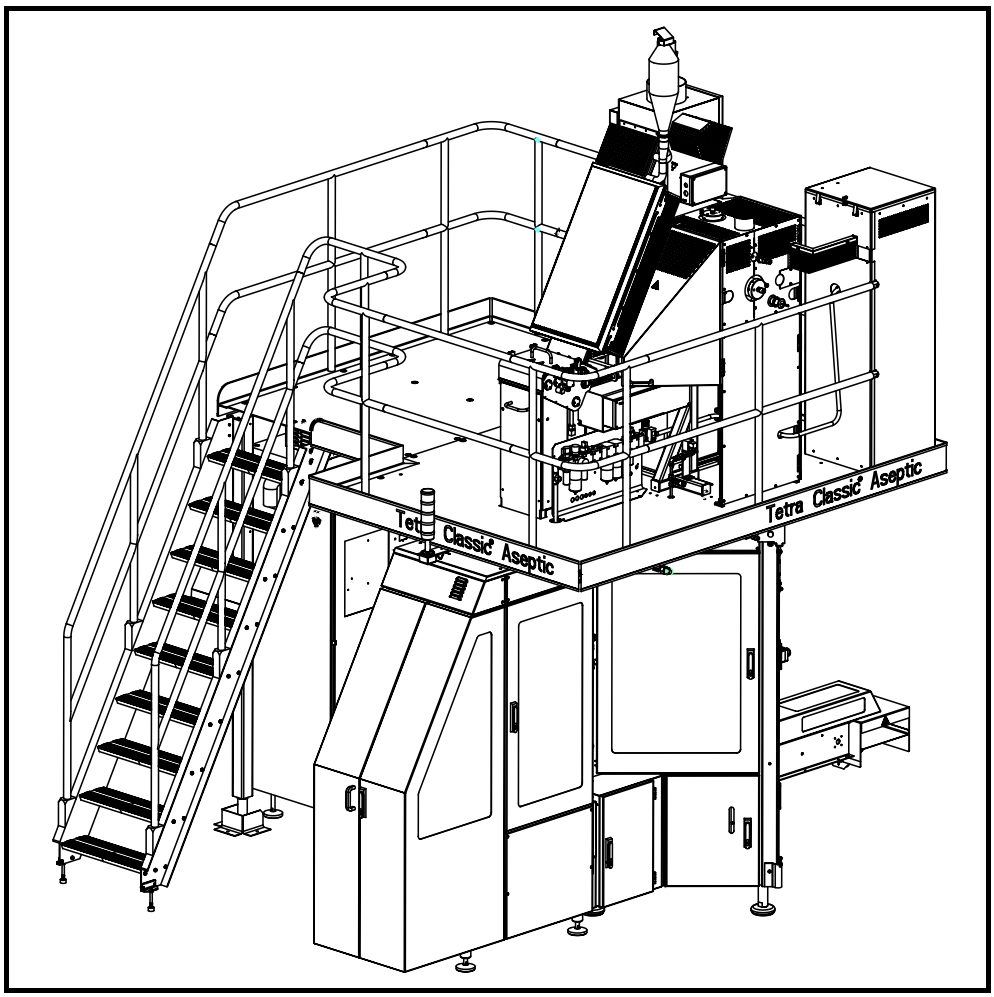
EM

Electrical Manual

Tetra Pak A1

630451-0200



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Tetra Pak

Doc No. EM-85602-0103

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This document is valid for:

Series No/ Machine No Sign.

EM
Electrical Manual

Machine:
Tetra Pak A1
630451-0200

Electrical equipment:
639338-0100

Lead ECM: 83155

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Doc No. EM-85602-0103

Issue 2003-03-27

Tetra Pak
Tetra Pak Carton Ambient AB

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1 Introduction

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About the Introduction Chapter

WARNING! **Risk of serious personal injury.**
To ensure maximum safety, always read the Safety Precautions chapter before operating or servicing the machine or equipment.

This chapter contains basic information about this manual and related Tetra Pak equipment.

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Document Information

Tetra Pak recommends that the delivered information is studied carefully, and above all, ensure its availability to those who will be operating the machine or equipment.

It is important to keep the manual for the life of the machine or equipment and pass the manual on to any subsequent holder or user.

Tetra Pak will not be held responsible for any damage to the machine or equipment caused by not following the instructions given in this manual.

Delivered Documentation

The documents delivered with this machine or equipment include:

- Electrical Manual (EM)
  The purpose of this manual is to provide the service technicians and electricians with information required for service and maintenance
- Installation Manual (IM)
  The purpose of this manual is to provide installation personnel with the information required for installation
- Maintenance Manual (MM)
  The purpose of this manual is to provide the service technicians with information required for maintenance and service
- Operation Manual (OM)
  The purpose of this manual is to provide the operator with information on how to handle and operate the machine or equipment before, during, and after production
- Spare Parts Catalogue (SPC)
  The purpose of this manual is to provide necessary information for ordering spare parts from Tetra Pak

Typographical Conventions

Buttons, TPOP screens, and program steps are printed in CAPITAL LETTERS.

References are underlined.

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Machine Introduction

Intended Use of the Machine or Equipment

The intended use of this Tetra Pak machine is to pack liquid food products.

All other use is prohibited! Tetra Pak will not be held responsible for injury or damage if the machine or equipment is used for any other purpose.

Manufacturer

This Tetra Pak machine or equipment has been manufactured by:

Tetra Pak Carton Ambient AB
Ruben Rausings gata
SE - 221 86 Lund
Sweden

Service

If problems are encountered when operating this machine or equipment, contact the nearest Tetra Pak service station or market company.

Contact the liaison responsible with other inquiries, comments or suggestions for improvement regarding the machine or equipment and its documentation.

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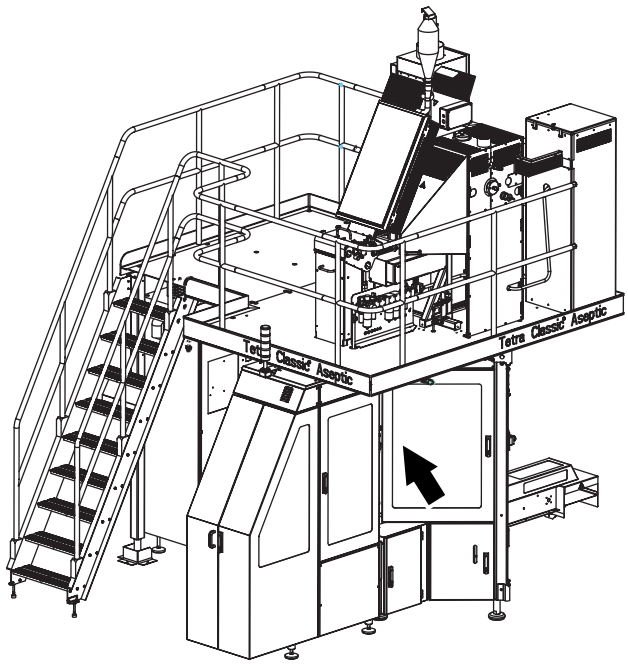
Identification

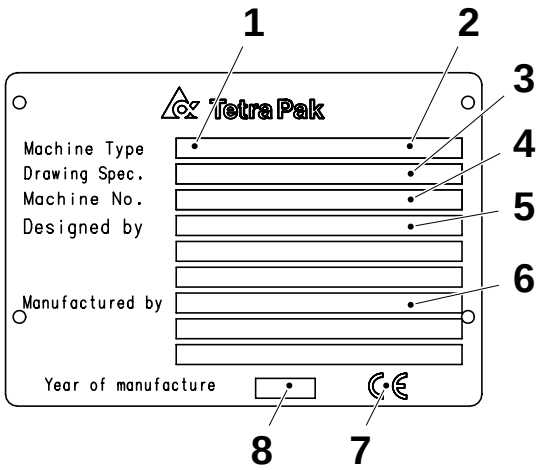
CE Classification

This equipment complies with the basic health and safety regulations of the European Economic Area (EEA).

Machine Plate

The below illustration shows an example of the machine plate and its location on the machine or equipment. The machine plate carries data needed when contacting Tetra Pak concerning this specific machine or equipment.





1 Machine type
2 Volume
3 Drawing specifications
4 Machine serial number
5 Designed by
6 Manufacturer
7 CE mark
8 Year of manufacture

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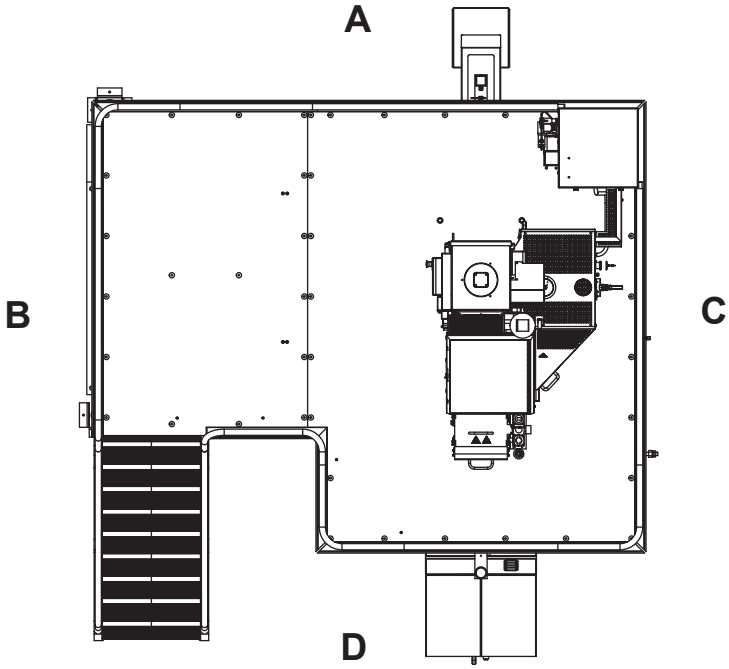
Orientation

The below illustration shows the orientation of the machine or equipment. This directional information will be used throughout this manual.



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A Front
B Right Hand side
C Left Hand side
D Back

Hygiene

To avoid microbiological pollution of the packaging material:

- always keep the doors in the filling room (area) closed and never open any windows when the equipment is in production to prevent contamination via air streams
- never clean the floors or the equipment in the filling room (area) when the equipment is in production
- compressed air used for cleaning purposes is to be used only for cleaning filters and should only be used outside of the filling room (area) or in the final folder compartment of the filling machine
- prepare the splicing of the packaging material as late as possible
- disinfect hands before touching the packaging material, the strip(s), or any other equipment part that may come into contact with the product.Use disinfectant (code H). See the *Technical Data* chapter
- keep hands and gloves clean
- always wear some type of hair protection (cap or hairnet) and clean clothes (preferably white)
- do not wear a watch, ring, necklace, earrings or any other visible jewelry
- clean the platforms, the ladder and the area around the equipment when the equipment is not in production

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Abbreviations Used in this Manual

Abbreviation	Meaning	Translation
approx.	approximately	
CIP	Cleaning In Place	
EM	Electrical Manual	
IM	Installation Manual	
LED	Light Emitting Diode	
LH	Left Hand	
LS	Longitudinal Seal(ing)	
min	Minimum	
max	Maximum	
MM	Maintenance Manual	
OE	Optional Equipment	
OM	Operation Manual	
p/h	packages per hour	
PLC	Programmable Logic Controller	
RH	Right Hand	
RK	Rebuilding Kit	
SA	Strip Applicator	
SPC	Spare Parts Catalogue	
TP	Tetra Pak	
TPMS	Tetra Pak Maintenance System	
TS	Transversal Seal(ing)	

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How to Use this Electrical Manual (E-Plan)

General

How to use this Electrical Manual is an explanation of how to find your way through the chapters in the EM.

The chapters are divided as follows:

xxxxxxx-**0001**	Documents list
xxxxxxx-**0002**	Position summary
xxxxxxx-**0003**	Circuit diagram
xxxxxxx-**0004**	Line summary
xxxxxxx-**0005**	Cabinet terminal summary
xxxxxxx-**0006**	Terminal strip overview
xxxxxxx-**0007**	Cable connection list
xxxxxxx-**0008**	Mains connections
xxxxxxx-**0009**	Mounting drawing (**optional**)
xxxxxxx-**0099**	Engineering change description

The documents in the above-mentioned chapters are identified by:

- a document type number (1)
- a version number (2)
- a page number (3)
- a next page number (4).

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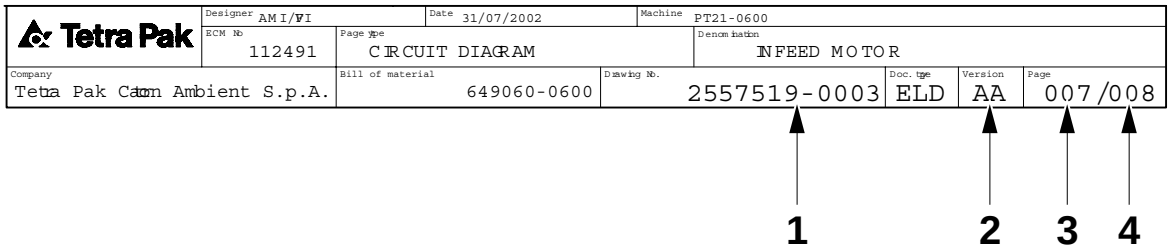

1 Document number
2 Version number
3 Page number
4 Next page number

The page number is the consecutive numbering of the pages which belong to the main number and is used as a reference in the diagrams.

In the **Circuit diagram** the first pages are reserved for distribution terminals and last pages are reserved for pre-connected cables (cables connected to spare terminals and reserved for future use).

The **Mains connection** diagram shows how the machine should be connected to the local supply, the dimensions of the connection cable and the connection of the matching transformer (when used).

The Program documents consist of the PLC listings for this machine.

Enclosed are some examples of how to use the EM.

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Drawing remarks

Designation	Signification in electrical diagram
1	Asu Option
2	Plms Option
3	Splice Detection Option
4	Option
5	Alternative Connection By Plug X119 Or Terminal X300
6	To Be Removed When External Signal Is Used
7	Connection Must Be Removed When Em.stop Is Used
8	Terminator Plug W901 To Be Mounted On The Expansion Rack
9	Connected To Mountingplate With Earth Braid 4mm²
10	Mounting Screw Must Be Fastened
11	Connected To Ground
12	Connected To Ground By Compr.gland
13	2 Turns
14	When Asu Option Is Not Used

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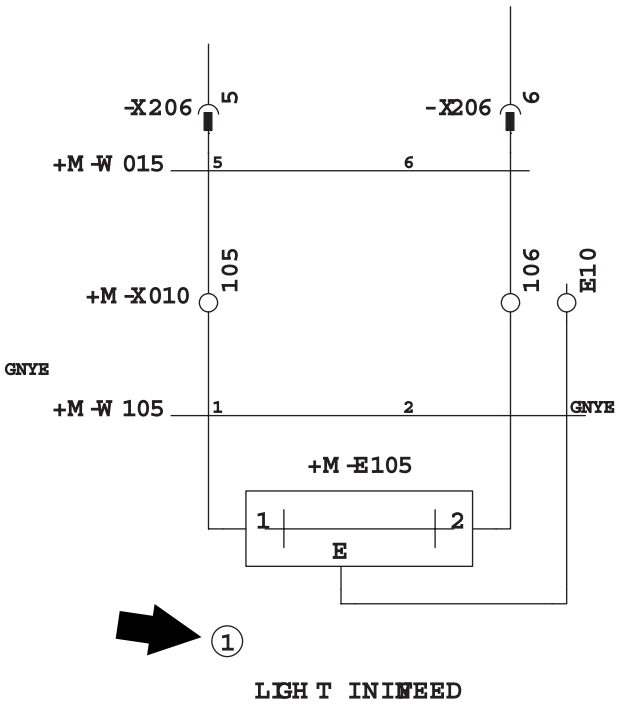

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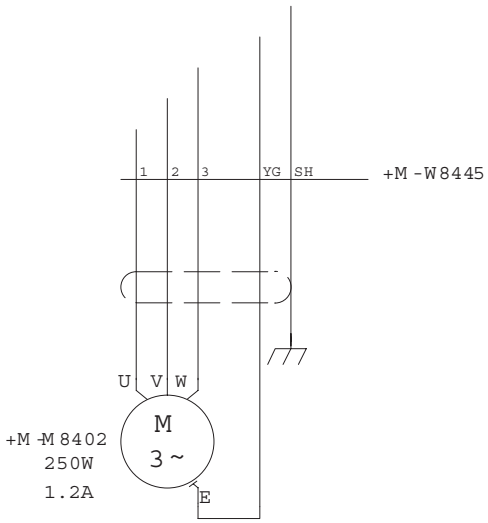
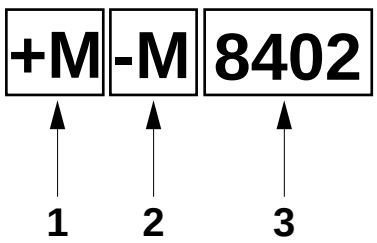
Numbering system for components

The position number is divided into three parts:

- prefix (1)
- function designation (2)
- running number (3).





1 Prefix
2 Function designation
3 Running number

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Prefix (1)

This prefix shows the location of the component.

- the prefix +M indicates that the component is fitted on the machine, outside the electrical cabinet
- the prefix +C indicates that the component is fitted on the electrical cabinet
- the prefix +P indicates that the component is fitted in the control panel.

Note! The location +C is considered as default and it's omitted on all the **Circuit diagram** pages.

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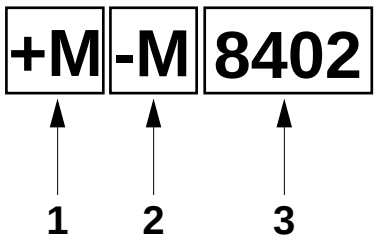
Function designation (2)

The function designation is indicated in accordance with international standards, see table below.

Designation	Signification in electrical diagram
A	Assemblies, Subassemblies
B	Transducers
C	Capacitors
D	Binary element, Delay devices, Storage devices
E	Miscellaneous
F	Protective devices
G	Generators, Power supplies
H	Signalling devices
K	Relays, Contactors
L	Inductors, Reactors
M	Motors
N	Analogue elements
P	Measuring equipment, Testing equipment
Q	Switching devices for power circuits
R	Resistors
S	Switching devices for control circuits selectors
T	Transformers
U	Modulators, Changers
V	Tubes, Semiconductors
W	Transmission paths, Waveguide aerials
X	Terminals, Plugs, Sockets
Y	Electrically operated mechanical devices
Z	Terminations, Hybrids, Filters, Equalizers, Limiters

Running number (3)

The electrical components are numbered in a consecutive non-logical order.



1 Prefix
2 Function designation
3 Running number

Optional equipment

This prefix shows if the component belongs to specific optional equipment.

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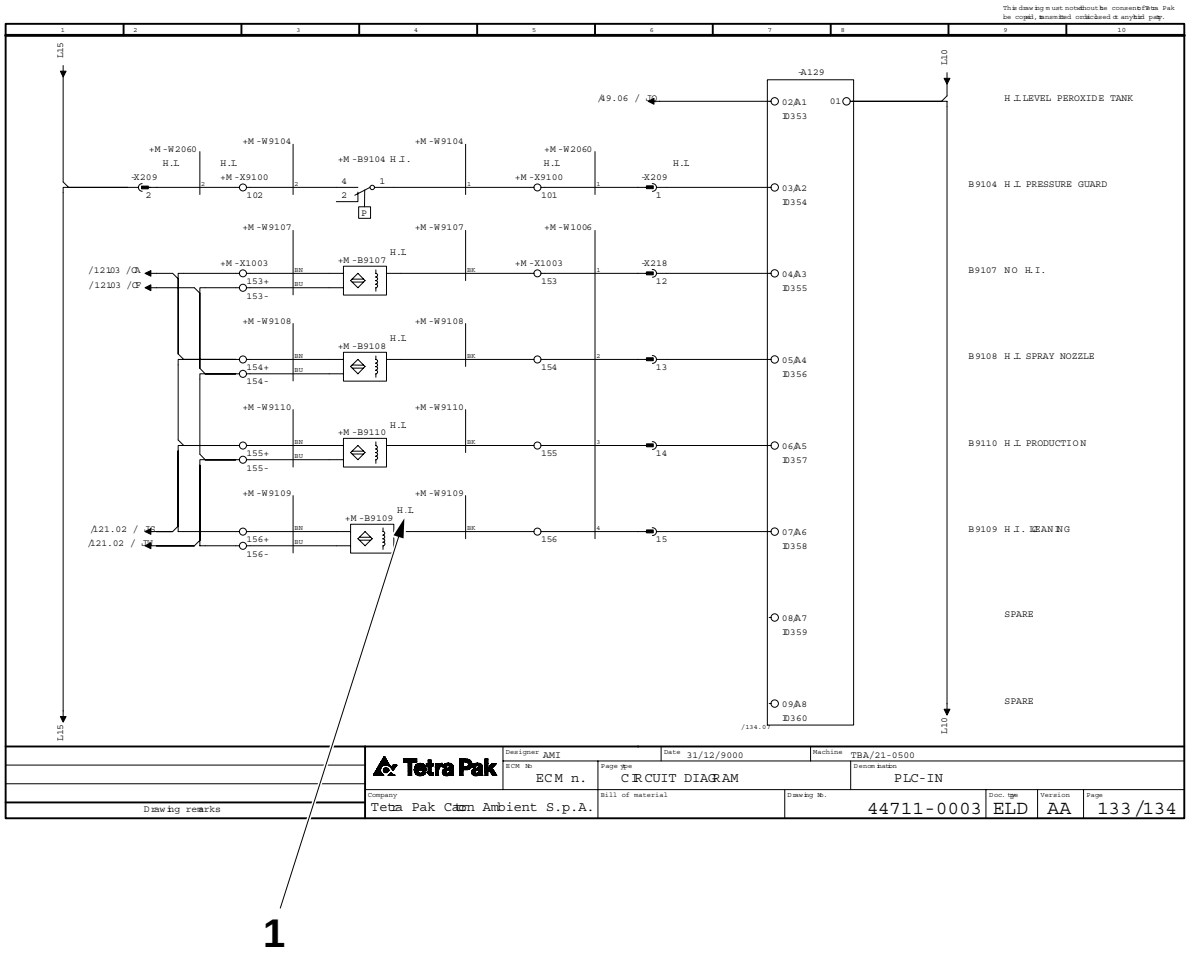

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1 Optional equipment designation

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How to trace a cable

Example: How to trace cable No. +M-W8202

a) Go to the **Cable Connection list** (see illustration)

b) On the right side of the table, find the circuit diagram reference page where the cable +M-W8202 is located (page 005, column 5)

Note! The cables are listed in alphanumerical order.

c) Go to page 005 in the **Circuit diagram** (see illustration)

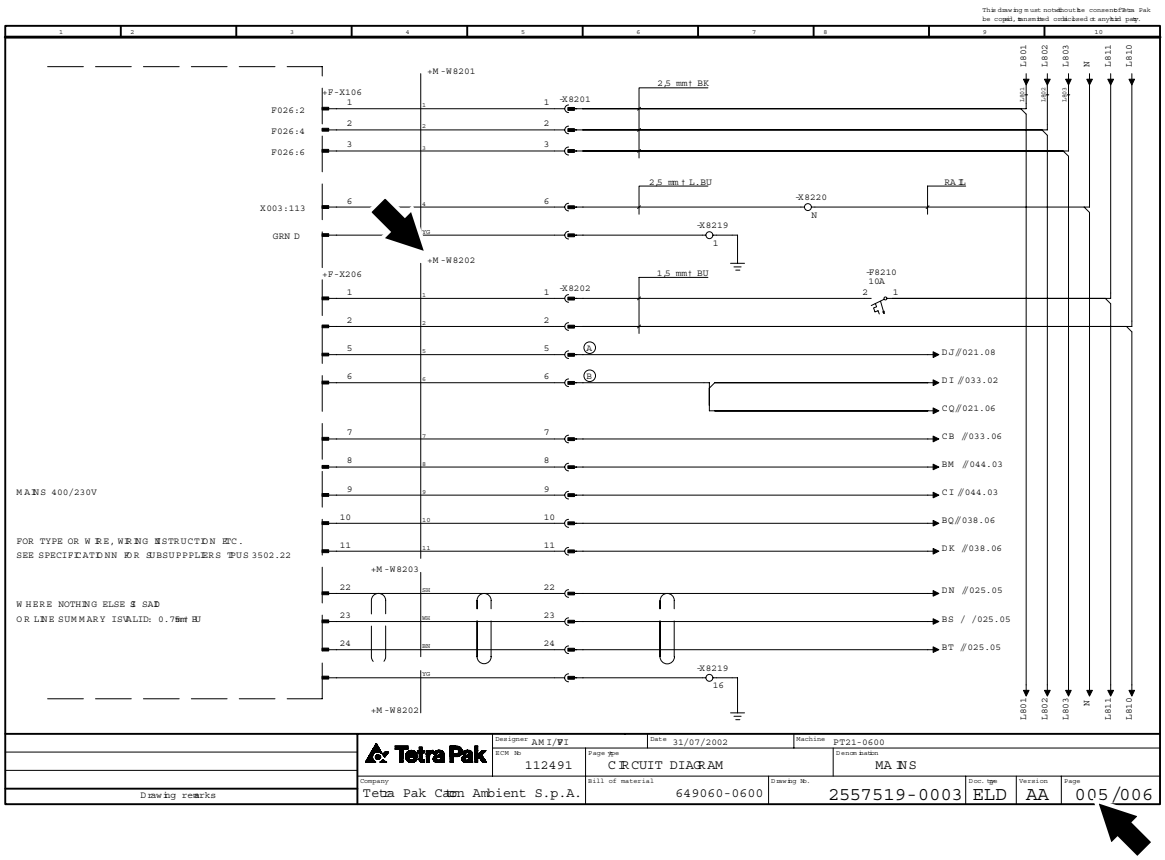
d) Find the cable +M-W8202

Note! In the cable connection list the spare cores are shown.

Cable Connection List of 2557519-0003

Cable	Core	From	To	Page.Col.	Option
+M-W8201	4	+F-X106:6	+C-X8201:6	005.5	
+M-W8201	YG	+F-X106:	+C-X8201:	005.	
+M-W8202	1	+F-X206:1	+C-X8202:1	005.5	
+M-W8202	2	+F-X206:2	+C-X8202:2	005.5	
	3				
	4				
+M-W8202	5	+F-X206:5	+C-X8202:5	005.5	
+M-W8202	6	+F-X206:6	+C-X8202:6	005.5	
+M-W8202	7	+F-X206:7	+C-X8202:7	005.5	
+M-W8202	8	+F-X206:8	+C-X8202:8	005.5	
+M-W8202	9	+F-X206:9	+C-X8202:9	005.5	
+M-W8202	10	+F-X206:10	+C-X8202:10	005.5	
+M-W8202	11	+F-X206:11	+C-X8202:11	005.5	
+M-W8202	YG	+F-X206:	+C-X8202:	005.5	
+M-W8203	WH	+F-X206:23	+C-X8202:23	005.5	

Cable connection list



Circuit diagram

How to trace a component

Example 1: How to trace sensor +M-B8405

a) Go to the **Position summary** (see illustration)

b) On the right side of the table, find the circuit diagram reference page where the component +M-B8405 is located (page 035, column 4)

c) Go to page 035 in the **Circuit diagram** (see illustration)

d) Find the component +M-B8405

e) Note the connections +M-X8402 :1, :2, :3

f) Note the cable +M-W8423

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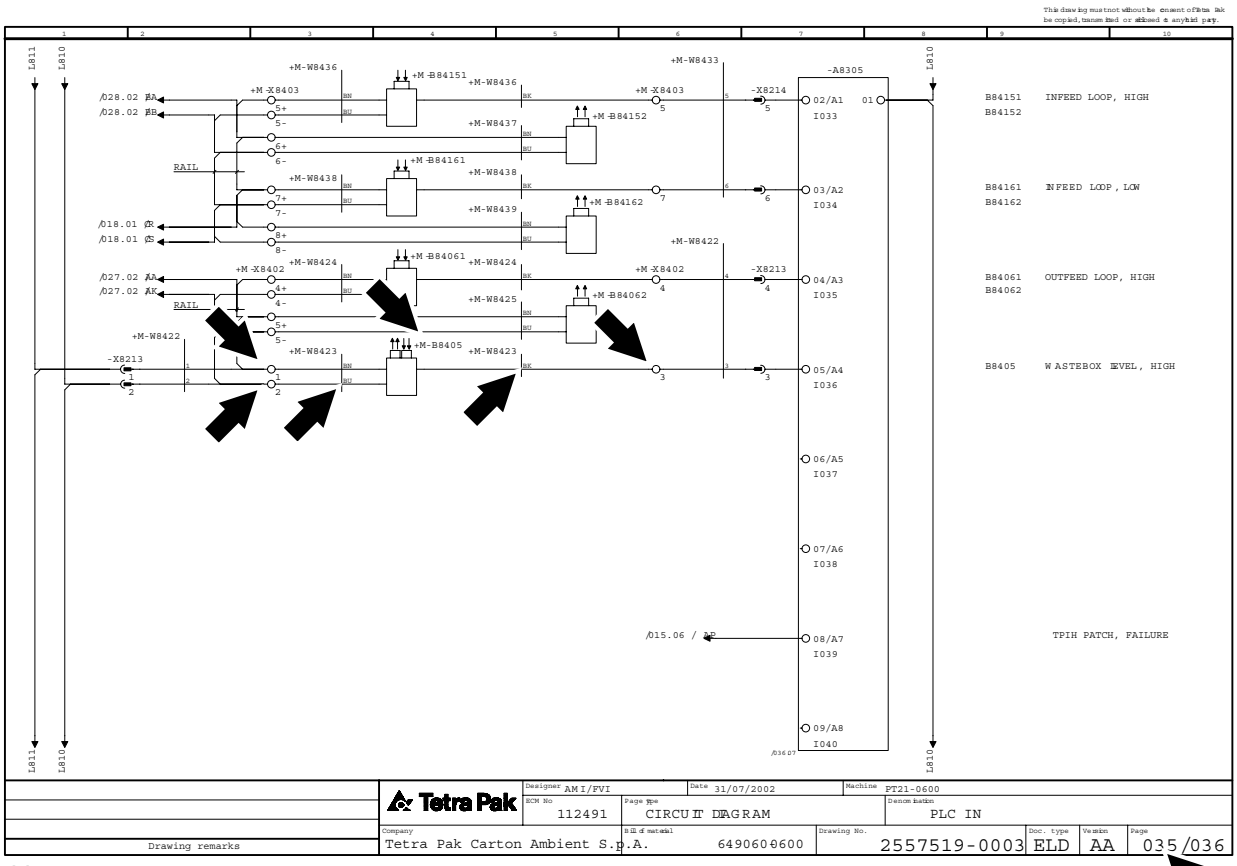
Position summary of 2557519-0003

Component	Page	Opt.	Component	Page	Opt.
+C-A8201	006.7		+M-B8405	035.4	
+C-A8202	021.7		+M-B8408	037.5	
+C-A8205	015.4		+M-B8409	028.4	
+C-A8210	016.3		+M-B8411	028.4	
+C-A8211	017.4		+M-B8413	037.5	
+C-A8212	017.4		+M-B8414	028.4	
+C-A8216	007.5		+M-B8421	027.4	
+C-A8233	008.7		+M-B8422	028.4	
+C-A8250	018.7		+M-B8423	027.4	
+C-A8251	017.8		+M-B8424	027.4	
+C-A8252	022.6		+M-B8426	034.3	
+C-A8301	028.7		+M-B8427	041.3	

Position summary



Position summary

(Cont'd)

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g) Go to the **Terminal strip overview** (see illustration)

h) Find the connections +M-X8402 :1, :2, :3 (on the right side of the table find the circuit diagram reference page where the connections are located)

Note! The **Terminal strip overview** shows how the sensor is connected (in this case via a connection box).

Terminal strip of 2557519-0003

+M-X8402

From	Cable	Int. Jump.	Terminal	Ext. Jump.	Cable	To	Page.Col.	Option	Function text
+C-X8213:1	+M-W8422:1		1		+M-W8423:BN	+M-B8405:	035.3		WASTEBOX LEVEL, HIGH
+C-X8213:2	+M-W8422:2		2		+M-W8423:BU	+M-B8405:	035.3		WASTEBOX LEVEL, HIGH
+C-X8213:3	+M-W8422:3		3		+M-W8423:BK	+M-B8405:	035.6		WASTEBOX LEVEL, HIGH
+C-X8213:4	+M-W8422:4		4		+M-W8424:BK	+M-B84061:	035.6		OUTFEED LOOP, HIGH
			4+		+M-W8424:BN	+M-B84061:	035.3		OUTFEED LOOP, HIGH
			4-		+M-W8424:BU	+M-B84061:	035.3		OUTFEED LOOP, HIGH
			5						
			5+		+M-W8425:BN	+M-B84062:	035.3		OUTFEED LOOP, HIGH
			5-		+M-W8425:BU	+M-B84062:	035.3		OUTFEED LOOP, HIGH
+C-X8213:5	+M-W8422:5		6		+M-W8426:BK	+M-B84071:	027.5		OUTFEED LOOP, LOW
			6+		+M-W8426:BN	+M-B84071:	027.2		OUTFEED LOOP, LOW
			6-		+M-W8426:BU	+M-B84071:	027.2		OUTFEED LOOP, LOW
			7						
			7+		+M-W8427:BN	+M-B84072:	027.2		OUTFEED LOOP, LOW
			7-		+M-W8427:BU	+M-B84072:	027.2		OUTFEED LOOP, LOW
+C-X8213:6	+M-W8422:6		8				040.6		
			8+				040.4		
			8-				040.4		
+C-X8213:7	+M-W8422:7		9				040.6		
			9+				040.4		
			9-				040.4		
+C-X8213:8	+M-W8422:8		10				040.6		
			10+				040.4		
			10-				040.4		
+C-X8213:9	+M-W8422:9		11		+M-W8431:WH	+M-B8411:	028.6		BLACK TAPE, DETECTED
			11+		+M-W8431:RD	+M-B8411:	028.3		BLACK TAPE, DETECTED
			11-		+M-W8431:BK	+M-B8411:	028.3		BLACK TAPE, DETECTED
+C-X8213:10	+M-W8422:10		12				040.6		
			12+				040.4		
			12-				040.4		

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Terminal strip overview

Note! When a cable is supplied with the component (i.e. sensors and photocells) the pin configuration is removed from the symbol in the **Circuit diagram**. The connection information is kept from the cable cores.

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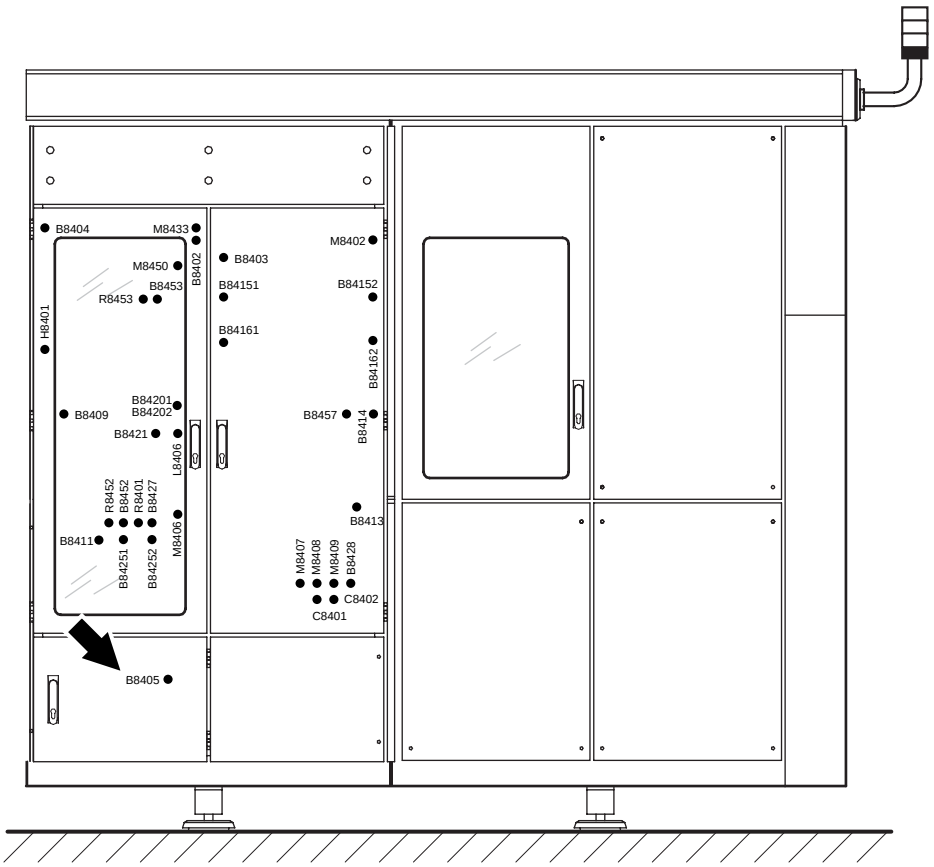
i) The location +M indicates that the component is fitted on the machine

j) Go to the **Component location** chapter to find the position of the component B8405



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Example 2: How to trace contactor +C-K8201

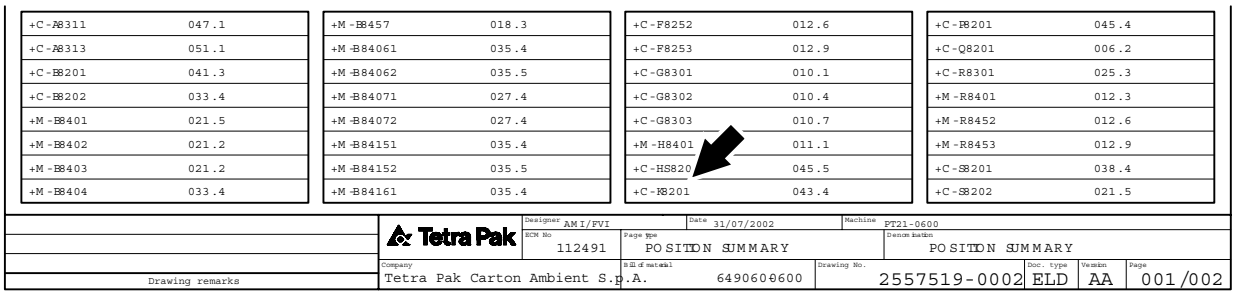
a) Go to the **Position summary** (see illustration)

b) On the right side of the table, find the circuit diagram reference page where the component +C-K8201 is located (page 043, column 4)

c) Go to page 043 in the **Circuit diagram** (see illustration)

d) Find the component +C-K8201

e) Note the contact image on the right side and find the relative contacts page references

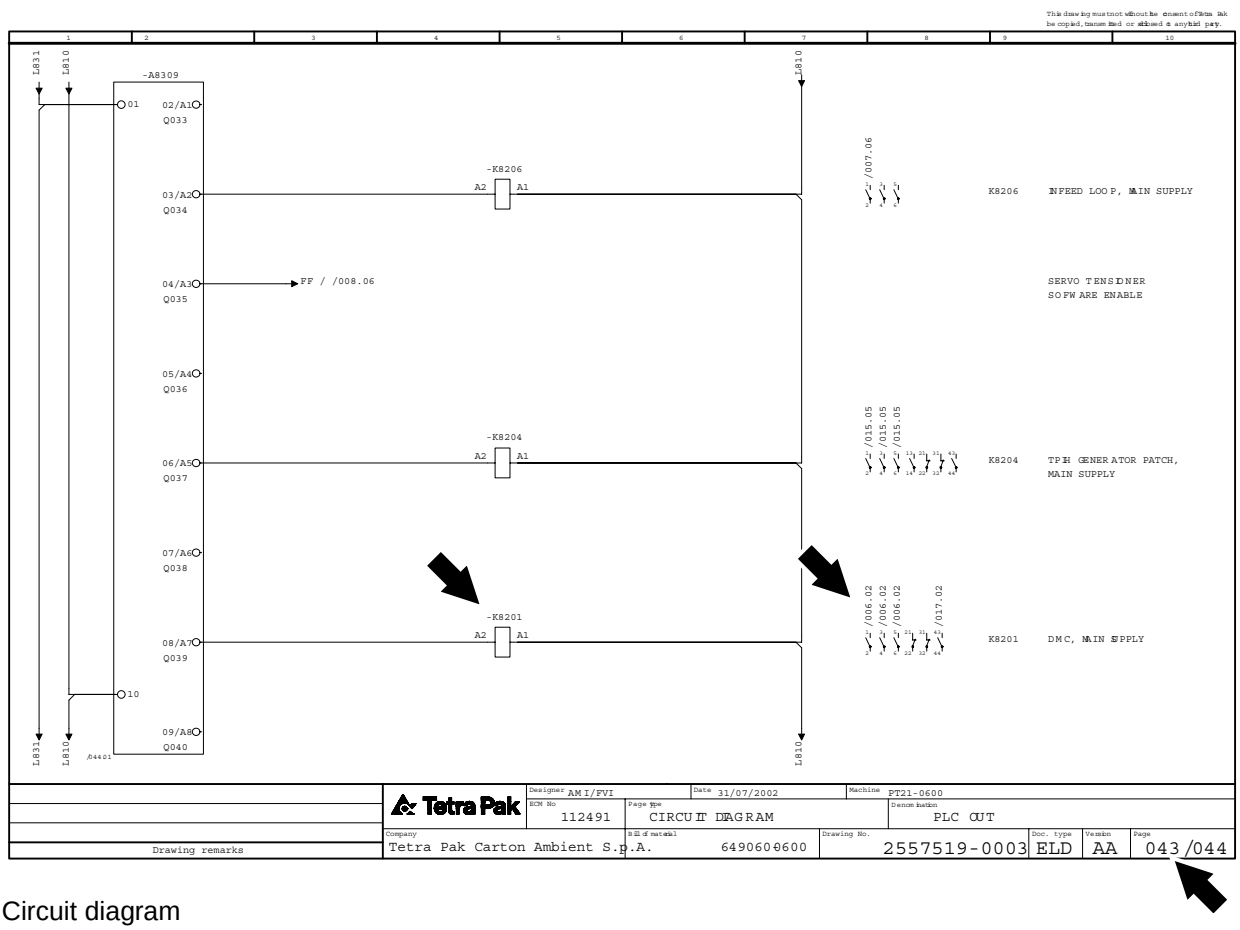


+C-A8311	047.1	+M-B8457	018.3	+C-F8252	012.6	+C-K8201	045.4
+C-A8313	051.1	+M-B84061	035.4	+C-F8253	012.9	+C-Q8201	006.2
+C-B8201	041.3	+M-B84062	035.5	+C-G8301	010.1	+C-R8301	025.3
+C-B8202	033.4	+M-B84071	027.4	+C-G8302	010.4	+M-R8401	012.3
+M-B8401	021.5	+M-B84072	027.4	+C-G8303	010.7	+M-R8452	012.6
+M-B8402	021.2	+M-B84151	035.4	+M-H8401	011.1	+M-R8453	012.9
+M-B8403	021.2	+M-B84152	035.5	+C-HS820	045.5	+C-S8201	038.4
+M-B8404	033.4	+M-B84161	035.4	+C-K8201	043.4	+C-S8202	021.5

Drawing remarks

Tetra Pak | Designer AMI/FVI | Date 31/07/2002 | Machine PT21-0600 | ECM No 112491 | Page type POSITION SUMMARY | Demonstration POSITION SUMMARY | Company Tetra Pak Carton Ambient S.p.A. | Bill of material 6490600600 | Drawing No. 2557519-0002 | Doc. type ELD | Version AA | Page 001/002

Position summary



Circuit diagram

(Cont'd)

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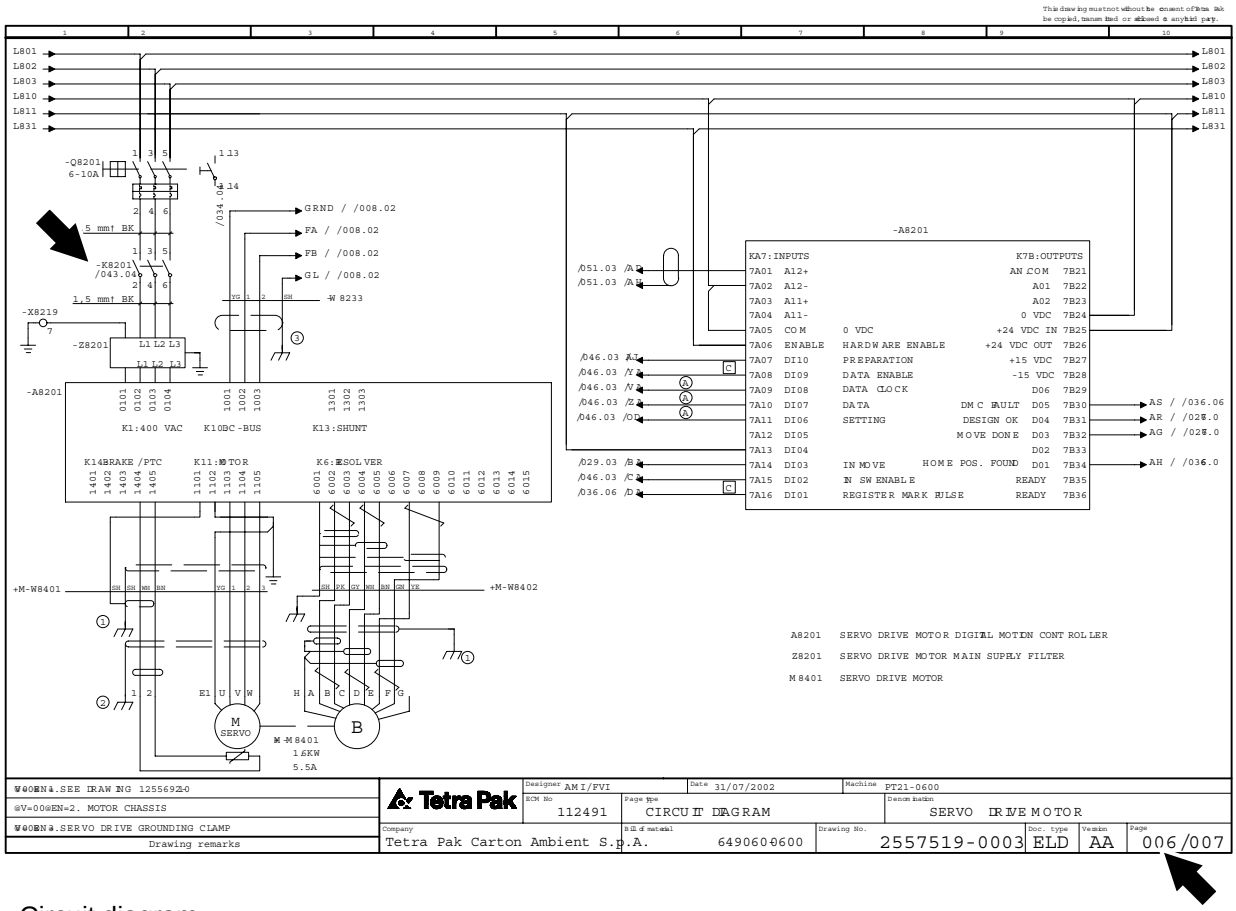
f) Go to page 006, column 2 in the **Circuit diagram** (see illustration)

g) Find the contacts +C-K8201

Note! In case of master and slave component (i.e. coils and contacts), only the master is reported in the **Position summary**. The slave shows the page and the column reference of the master.



Circuit diagram

Supply Voltage/Line Connection Order

The supply voltage in the electrical cabinet is named:

- Power voltage: lines with designation **ending** with 01 - 09 (for example L03 and L803).
- Control voltage: lines with designation **ending** with 10 and above (for example L12 and L812)

The line connection order is shown in the **Line summary**.

How to Trace a Line

Example: Line Connection L810 to the Component +C-A8305

a) Go to the **Circuit diagram** (see illustration)

b) Find the component +C-A8305 (Input module)

c) Note which terminal of +C-A8305 is connected to the line connection L810 (pin 01)

d) Go to the **Line summary** (see illustration)

e) Find the component terminal +C-A8305:01

f) Note the relative upward line terminal connection order +C-XL810:7

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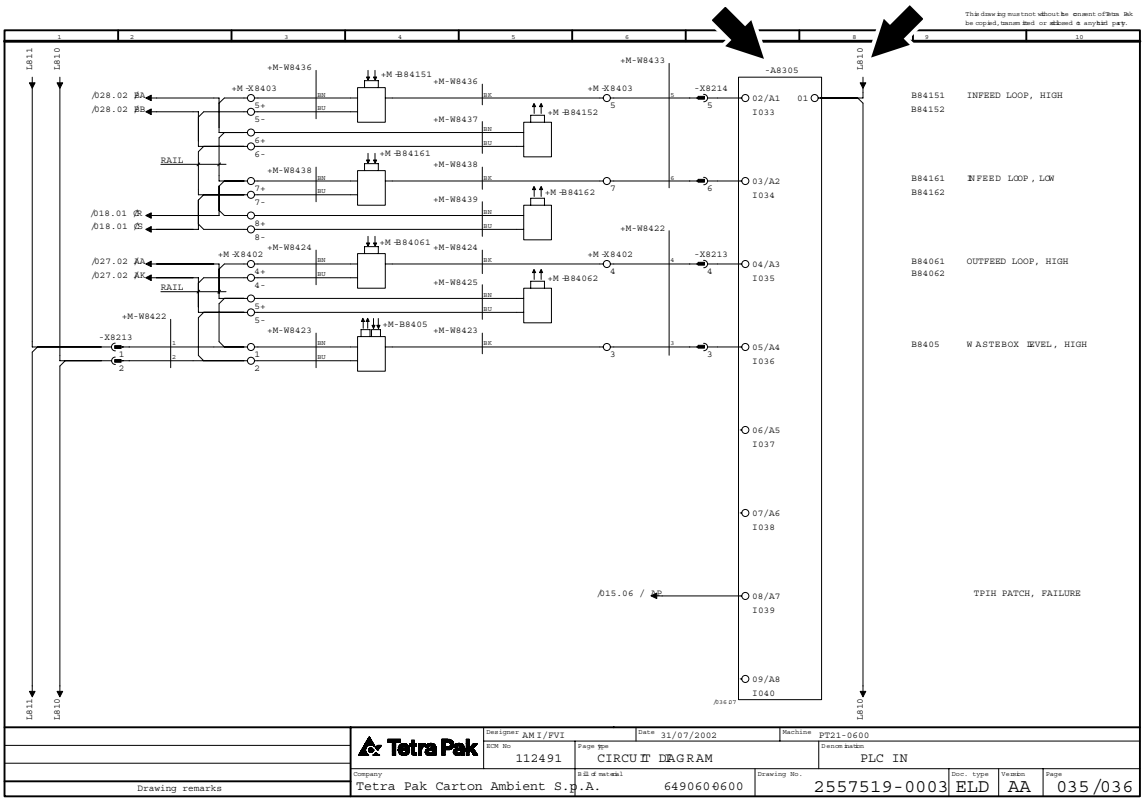


Circuit diagram

Line summary of 2557519-0003

Line	From	Page.Col	To	Page.Col	Area/Color	Opt.
L801	+C-X8201:1	005.5	+C-F8201:1	007.6	2.5 mm² BK	
L801	+C-F8201:1	007.6	+C-F8207.1:1	015.5		
L801	+C-F8207.1:1	015.5	+C-F8211:1	010.2		
L801	+C-F8211:1	010.2	+C-Q8201:1	006.2		
L801	+C-Q8201:1	006.2	+C-F8250:1	012.3		
L802	+C-X8201:2	005.5	+C-F8202:1	011.1	2.5 mm² BK	
L802	+C-F8202:1	011.1	+C-F8207.2:1	015.5		
L802	+C-F8207.2:1	015.5	+C-Q8203:1	006.2		
L803	+C-X8201:3	005.5	+C-F8203:1	011.7	2.5 mm² BK	
L803	+C-F8203:1	011.7	+C-F8207.3:1	015.5		
L803	+C-F8207.3:1	015.5	+C-F8206:1	015.3		
L803	+C-F8206:1	015.3	+C-Q8205:1	006.2		
L810	+C-XL810:1	001.1	+C-X8202:2	005.5	1.50 mm² BU	
L810	+C-XL810:2	001.1	+C-A8252:A2	022.6	0.75 mm² BU	
L810	+C-A8252:A2	022.6	+C-A8252:S24	022.6		
L810	+C-XL810:3	001.2	+C-XL810:4	001.2	1.50 mm² BU	
L810	+C-XL810:5	001.2	+C-A8211:18	017.4	0.75 mm² BU	
L810	+C-A8211:18	017.4	+C-A8301:01	027.8		
L810	+C-A8301:01	027.8	+C-A8211:20	017.4		
L810	+C-A8211:20	017.4	+C-A8212:18	017.4		
L810	+C-A8212:18	017.4	+C-A8212:20	017.4		

	From	Page.Col	To	Page.Col	Area/Color	Opt.
	+C-A8303:10		+C-A8303:20	032.1		
L810	+C-XL810:7	00	+C-A8304:01	033.8	0.75 mm² BU	
L810	+C-A8304:01	033.8	+C-A8305:01	035.8		
L810	+C-A8305:01	035.8	+C-A8306:01	037.8		
L810	+C-XL810:8	001.3	+C-A8309:10	043.1	0.75 mm² BU	
L810	+C-A8309:10	043.1	+C-A8309:20	044.1		
L810	+C-A8309:20	044.1	+C-A8310:10	045.1		
L810	+C-A8310:10	045.1	+C-A8310:20	046.1		
L810	+C-A8310:20	046.1	+C-A8313:18	051.1		
L810	+C-A8313:18	051.1	+C-A8311:10	047.1		
L810	+C-A8311:10	047.1	+C-A8311:20	048.1		
L810	+C-XL810:9	001.3	+C-K8206:A1	043.4	0.75 mm² BU	
L810	+C-K8206:A1	043.4	+C-K8207:10	044.4		
L810	+C-K8207:10	044.4	+C-K8208:10	044.4		
L810	+C-K8208:10	044.4	+C-K8209:10	044.4		
L810	+C-K8209:10	044.4	+C-K8214:10	045.4		
L810	+C-K8214:10	045.4	+C-K8250:10	047.4		
L810	+C-XL810:10	001.4	+C-K8213:4	012.3	0.75 mm² BU	
L810	+C-K8213:4	012.3	+C-K8252:4	012.5		
L810	+C-K8252:4	012.5	+C-K8253:4	012.8		
L810	+C-XL810:11	001.4	+C-K8201:A1	043.4	0.75 mm² BU	

Line summary

EM1.1TS700001_1.fm

How to Trace a Terminal

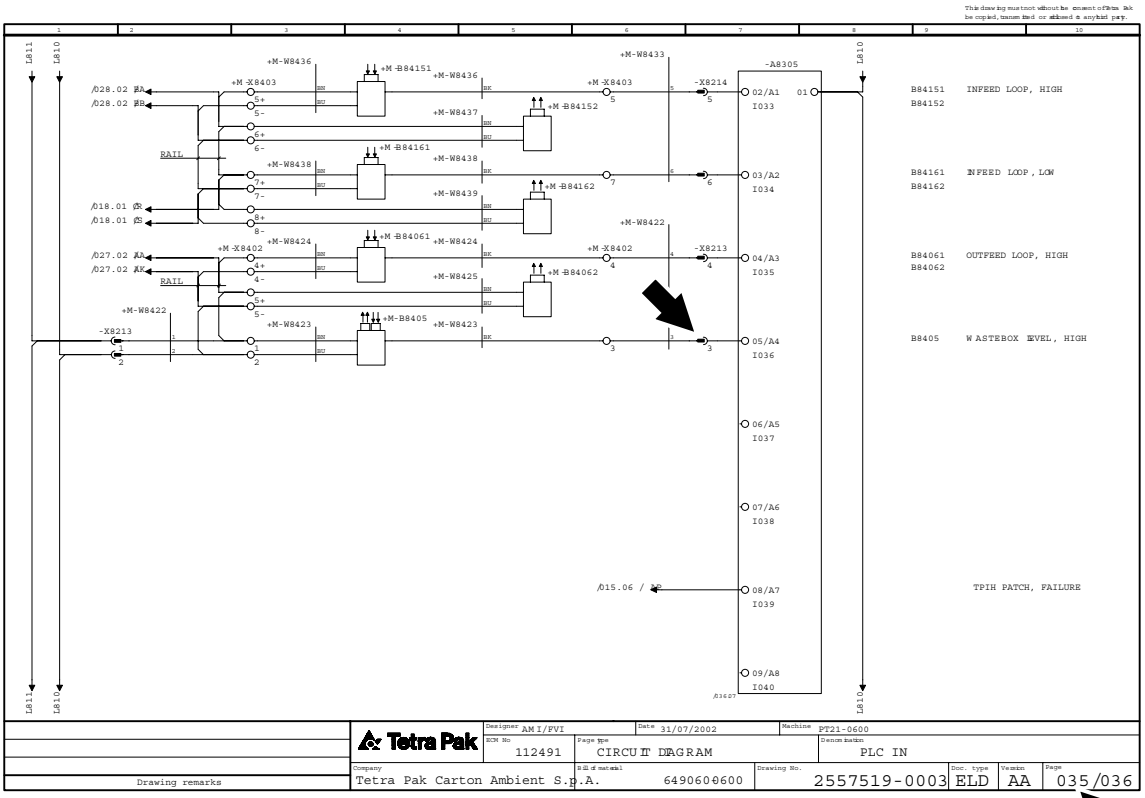
Example 1: Terminal in the Electrical Cabinet +C-X8213:3

a) Go to the **Cabinet terminal summary** (see illustration)

b) Find the terminal +C-X8213:3

c) On the right side of the table, find the circuit diagram reference page where the terminal +C-X8213:3 is located (page 035, column 7)

d) Go to the **Circuit diagram** (see illustration)



Circuit diagram

Cabinet terminal summary 2557519-0003

Terminal	Page .Col	Opt.
+C-X8212:15	032.4	
+C-X8212:16		
+C-X8212:17	031.3	
+C-X8212:18	031.3	
+C-X8212:19	032.8	
+C-X8212:20	039.7	
+C-X8212:21	031.7	
+C-X8212:22	031.7	
+C-X8212:23	034.2	
+C-X8212:24	034.5	
+C-X8212:	031.7	
+C-X8213:1	035.1	
+C-X8213:2	035.7	
+C-X8213:3	035.7	
+C-X8213:4	035.7	
+C-X8213:5	027.6	
+C-X8213:6	040.7	
+C-X8213:7	040.7	
+C-X8213:8	040.7	
+C-X8213:9	028.6	
+C-X8213:10	040.7	

Terminal	Page .Col	Opt.
+C-X8214:7	018.5	
+C-X8214:8	040.7	
+C-X8214:9	040.7	
+C-X8214:10	040.7	
+C-X8214:	040.7	
+C-X8215:1	011.7	
+C-X8215:2	011.8	
+C-X8215:3	011.4	
+C-X8215:4	011.4	
+C-X8215:5	011.10	
+C-X8215:6	011.9	
+C-X8215:	011.9	
+C-X8216:1	027.2	
+C-X8216:2	027.2	
+C-X8216:3	027.6	
+C-X8217:+	041.4	
+C-X8217:-	041.4	
+C-X8219:1	005.7	
+C-X8219:2	053.4	
+C-X8219:3	053.4	
+C-X8219:4		

Cabinet terminal summary

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Example 2:

Terminal Outside the Electrical cabinet +M-X8402:1, :2, :3

a) Go to the **Terminal strip overview** (see illustration)

b) Find the terminal strip page where +M-X8402 is located

c) On the right side of the table, find the circuit diagram reference page where the terminals +M-X8402:1, :2, :3 are located (page 035, column 3)

d) Go to the **Circuit diagram** (see illustration)

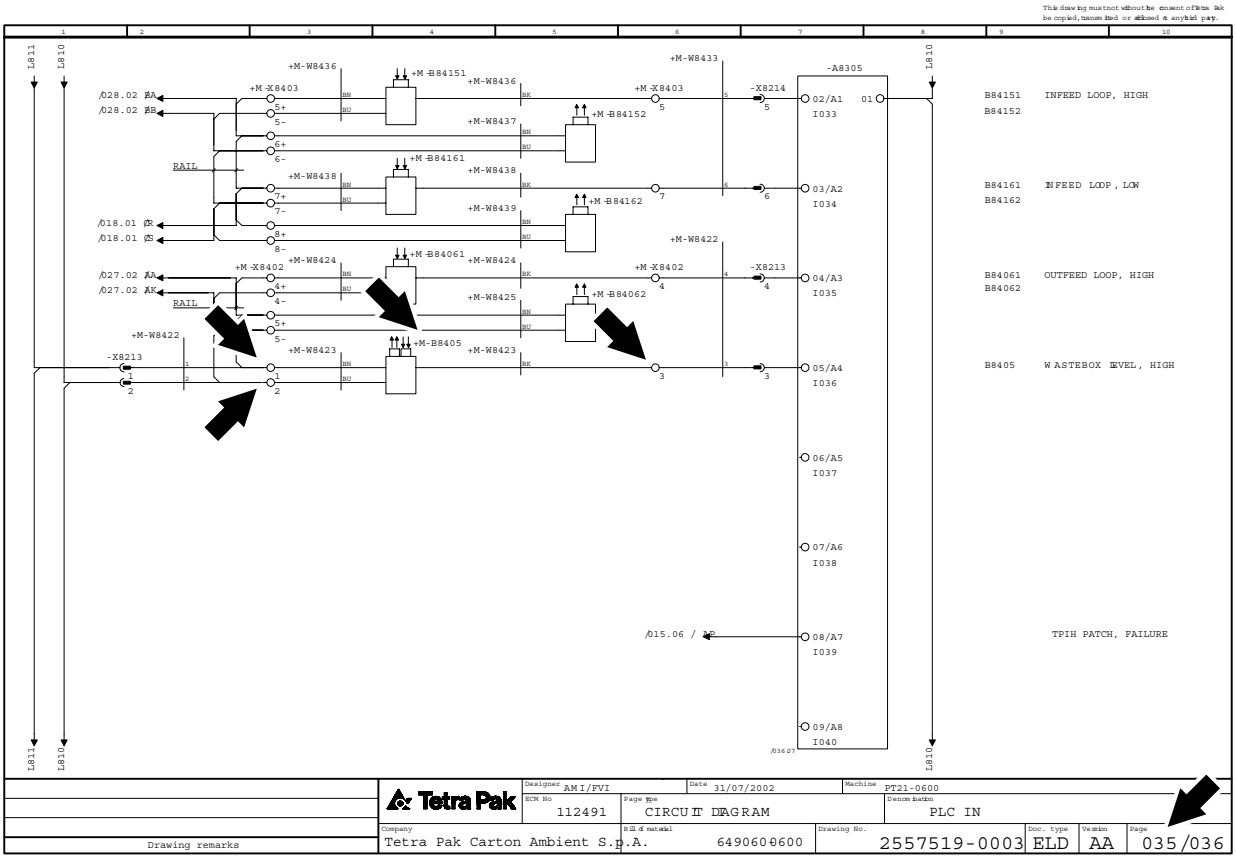
e) Note the component connected +M-B8405

Terminal [illegible] of 2557519-0003

+M-X8402

From	Cable	Jumper	Terminal	External Jumper	Cable	To	Page.Col	Option	Function text
+C-X8213:1	+M-W8422:1		1		+M-W8423:BN	+M-B8405:	035.3		WASTEBOX LEVEL, HIGH
+C-X8213:2	+M-W8422:2		2		+M-W8423:BU	+M-B8405:	035.3		WASTEBOX LEVEL, HIGH
+C-X8213:3	+M-W8422:3		3		+M-W8423:BK	+M-B8405:	035.6		WASTEBOX LEVEL, HIGH
+C-X8213:4	+M-W8422:4		4		+M-W8424:BK	+M-B84061:	035.6		OUTFEED LOOP, HIGH
			4+		+M-W8424:BN	+M-B84061:	035.3		OUTFEED LOOP, HIGH
			4-		+M-W8424:BU	+M-B84061:	035.3		OUTFEED LOOP, HIGH
			5						
			5+		+M-W8425:BN	+M-B84062:	035.3		OUTFEED LOOP, HIGH
			5-		+M-W8425:BU	+M-B84062:	035.3		OUTFEED LOOP, HIGH
+C-X8213:5	+M-W8422:5		6		+M-W8426:BK	+M-B84071:	027.5		OUTFEED LOOP, LOW
			6+		+M-W8426:BN	+M-B84071:	027.2		OUTFEED LOOP, LOW
			6-		+M-W8426:BU	+M-B84071:	027.2		OUTFEED LOOP, LOW
			7						
			7+		+M-W8427:BN	+M-B84072:	027.2		OUTFEED LOOP, LOW
			7-		+M-W8427:BU	+M-B84072:	027.2		OUTFEED LOOP, LOW

Terminal strip overview



Circuit diagram

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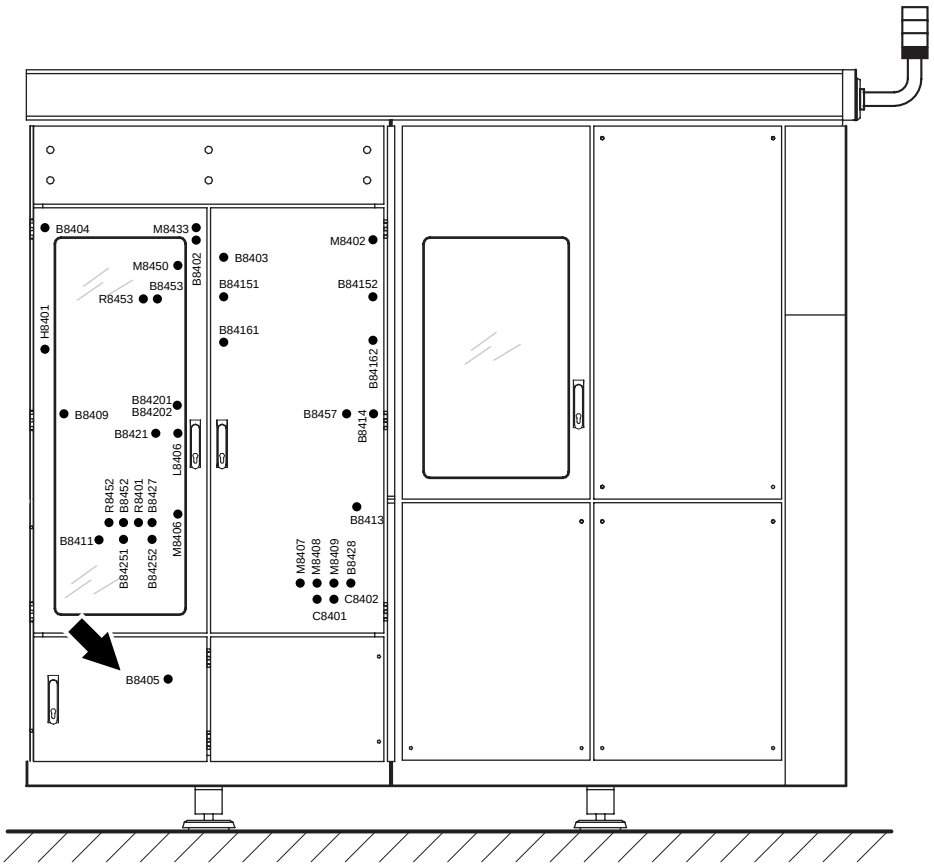
(Cont'd)

f) The location +M indicates that the component is fitted on the machine.

g) Go to the **Component location** chapter to find the position of the component B8405.



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2 Safety Precautions

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Read the Safety Precautions

All persons operating, servicing, adjusting or otherwise working with or near this machine must carefully read and follow all safety instructions in this manual and warning signs on the machine itself. Failure to do so could result in death, serious injury and / or damage to machine.

In case of accident, always call for medical attention immediately.

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Hazard Information



This is the **“safety alert” symbol**. Obey all safety messages that follow this symbol to avoid death or injury.

The following safety alert symbols and signal words are used in this manual and on the machine itself to inform about hazards:



DANGER! indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury.**



WARNING! indicates a potentially hazardous situation which, if not avoided, **could** result in **death or serious injury.**

CAUTION! indicates a potentially hazardous situation which, if not avoided, **may** result in **minor or moderate injury.** It may also be used to alert against unsafe practices.

IMPORTANT! indicates a potentially hazardous situation which, if not avoided, **may** result in **property damage**.

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Requirements on personnel

DANGER!

Risk of immediate danger to life!
Failure to obey the Safety precautions will put your life in danger.
All personnel must regard all electrical equipment as live.

The work is to be carried out in such a way that there is no risk of injury to personnel.

General

During maintenance or service work, the service technician and the electrician are responsible not only for the machine, but for the safety of the personnel in the vicinity of the machine as well!

It is also the responsibility of the service technician and the electrician to ensure that the machine safety devices are fully operational before he/she finishes the maintenance or service work.

Service technician

Only trained or instructed service technicians are allowed to work on the machine.

Service technicians may be:

- technicians employed by **Tetra Pak**

  Tetra Pak technicians are Tetra Pak employees who have completed training courses at the Tetra Pak Technical Training Centres or have equivalent knowledge.
- technicians employed by the **customer**

  Technicians employed by the customer must have the following skills:
  - capable of reading (English or native) technical information
  - able to understand technical drawings
  - basic knowledge of mechanics and electronics
  - basic knowledge of mathematics
  - capable of handling (special) tools

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Electrician

- Electricians should:
- be certified according to local regulations
- have experience of similar types of installations
- have proven skills in reading and working from drawings and cable lists
- have knowledge of local safety regulations for power and automation

Work with the electrical equipment in the machine must be performed by **skilled persons only.**

According to EN 60204-1:1997 clause 3.52 a skilled person is:

– *a person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which electricity can create.*

Machine operator

Only trained or instructed persons are allowed to operate the machine.

The machine operator is an individual that has enough training and/or knowledge to run the equipment in the correct way.

EM1.1TS700002_1.fm

Safety Signs

SPC	2592385-0100

WARNING! **Hazards without safety signs drastically increase the risk of death or serious injury.**
Replace all missing or damaged safety signs immediately.

The table below contains all safety signs that are located on this machine.

Note! The position numbers (Pos) within the table refer to the positions in the illustration(s) in the Location of Safety Signs on page 2-8.

Pos	ISO signs	Pos	ISO signs
	 **Mandatory action.** Wear eye protection.	020/ 030	 **Dangerous Chemicals.** Wear protective equipment.
	 **Mandatory action.** Hearing protection recommended.	070/ 080	 **Harmful vapour.**
	 **Hazardous voltage.** Read Maintenance Manual BEFORE using this socket outlet. Failure to follow maintenance instruction could result in death or serious injury.	090	 **Hazardous voltage.** Will cause death or serious injury. Disconnect power before servicing. Lockout machine.

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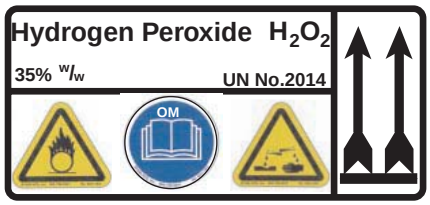
Pos	ISO signs	Pos	ISO signs
010/ 050/ 060	 **Hot surface.** Do not touch. Allow to cool before servicing.	040	 **Moving part can crush and cut.** Do not operate with guard removed. Follow lockout procedure before servicing.
100	 **Hydrogen peroxide.** Corrosive chemical. Can cause serious injury in both liquid and gas form. Hydrogen peroxide may cause irritation or damage if contact with skin, mucous membranes, eyes, or clothes. Wear personal protective.	110	 **Max load sign** No more than 10 persons or 800 kg load may be present on the platform at the same time.

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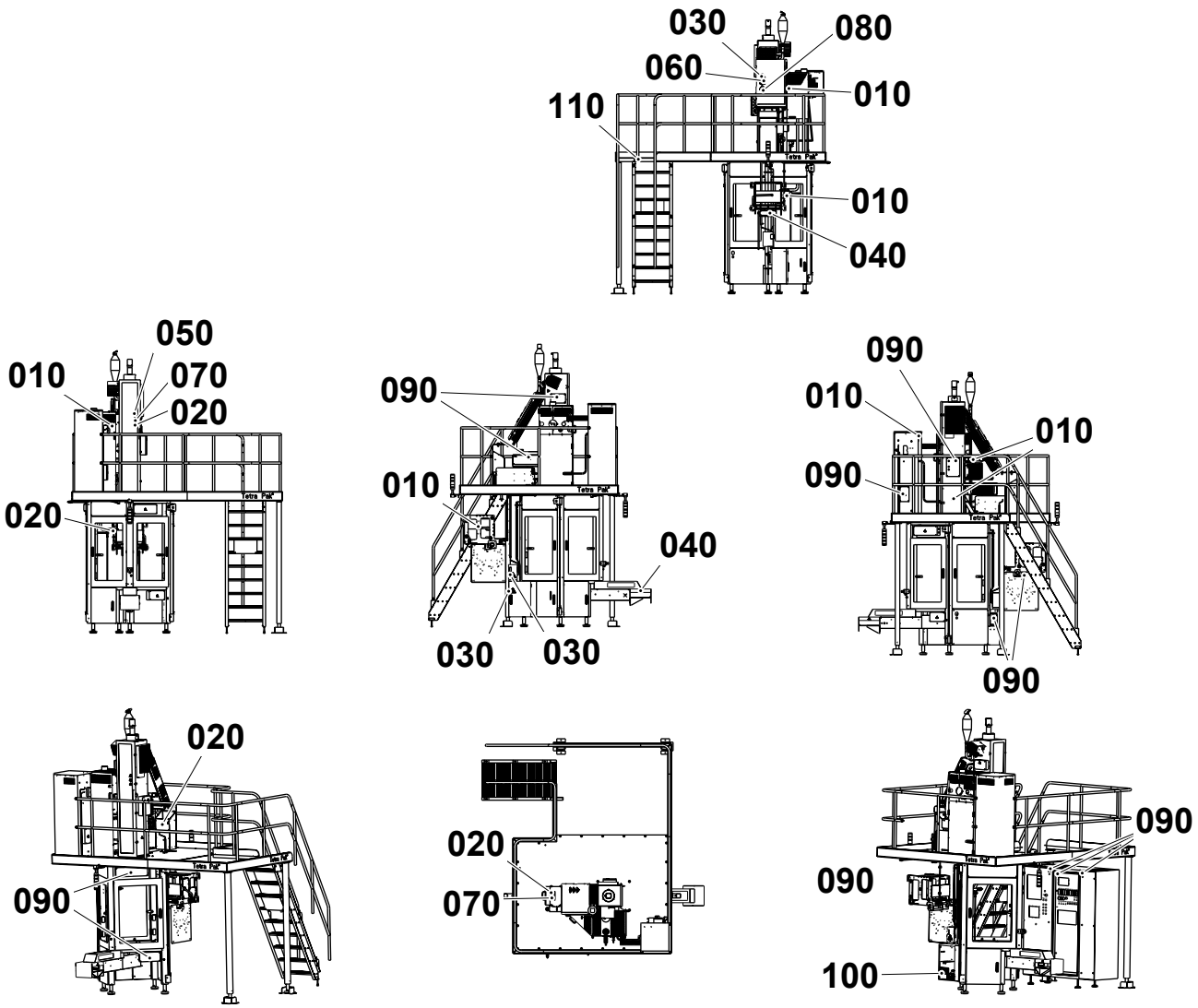
Location of Safety Signs

SPC	2592385-0100

Note! Always ensure that all safety signs on the machine are undamaged and in it's correct position, after installation and maintenance.

The illustration below indicates where the safety signs are located on the machine. The position numbers refer to the table in section Safety Signs on page 2-6.



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Safety Devices

DANGER! **Unshielded hazards.**
Never inch or run the machine if any component of the safety system is inoperative.

All inoperative components of the safety system must be changed immediately.

Note! Activating a safety device, such as an EMERGENCY STOP or opening an interlocked safe guard, does not switch off the power supply to the machine.

Emergency Stop

CAUTION! **Risk of minor personal injury!**
The perioxide bath is not automatically emptied if an EMERGENCY STOP is pushed. This has to be done manually.

Learn the positions of the EMERGENCY STOP devices in order to stop the machine immediately in case of an emergency situation.

To stop production the normal way, see chapter Stop in the Operation Manual.

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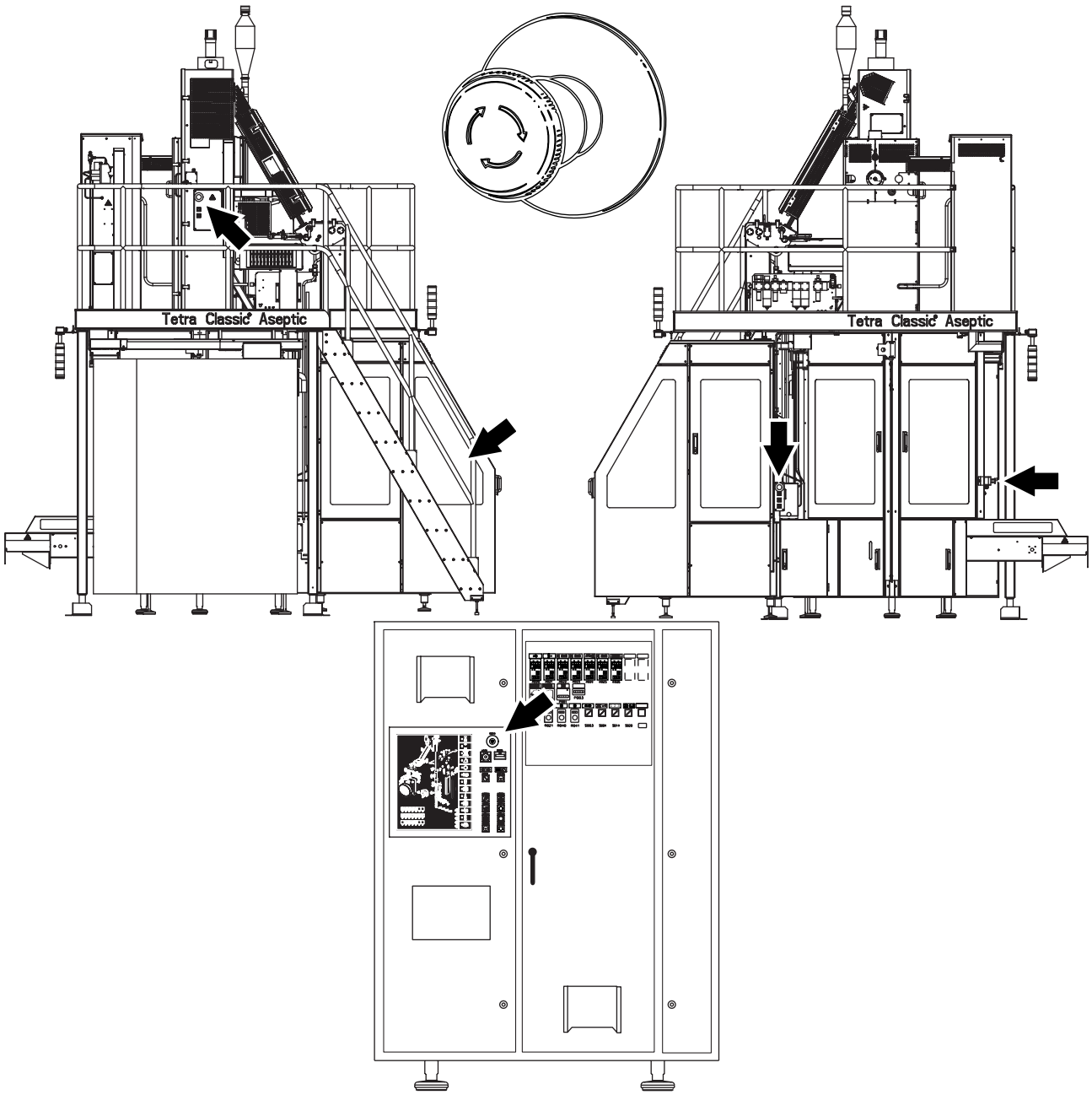
Emergency Stop Push Buttons

Push one of the EMERGENCY STOP push buttons to stop the machine immediately.

Empty the peroxide bath, see Manual emptying of peroxide bath on page 21.

The illustrations below show an emergency stop push button and the arrows indicate the locations on the machine.



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Emergency Stop Wires

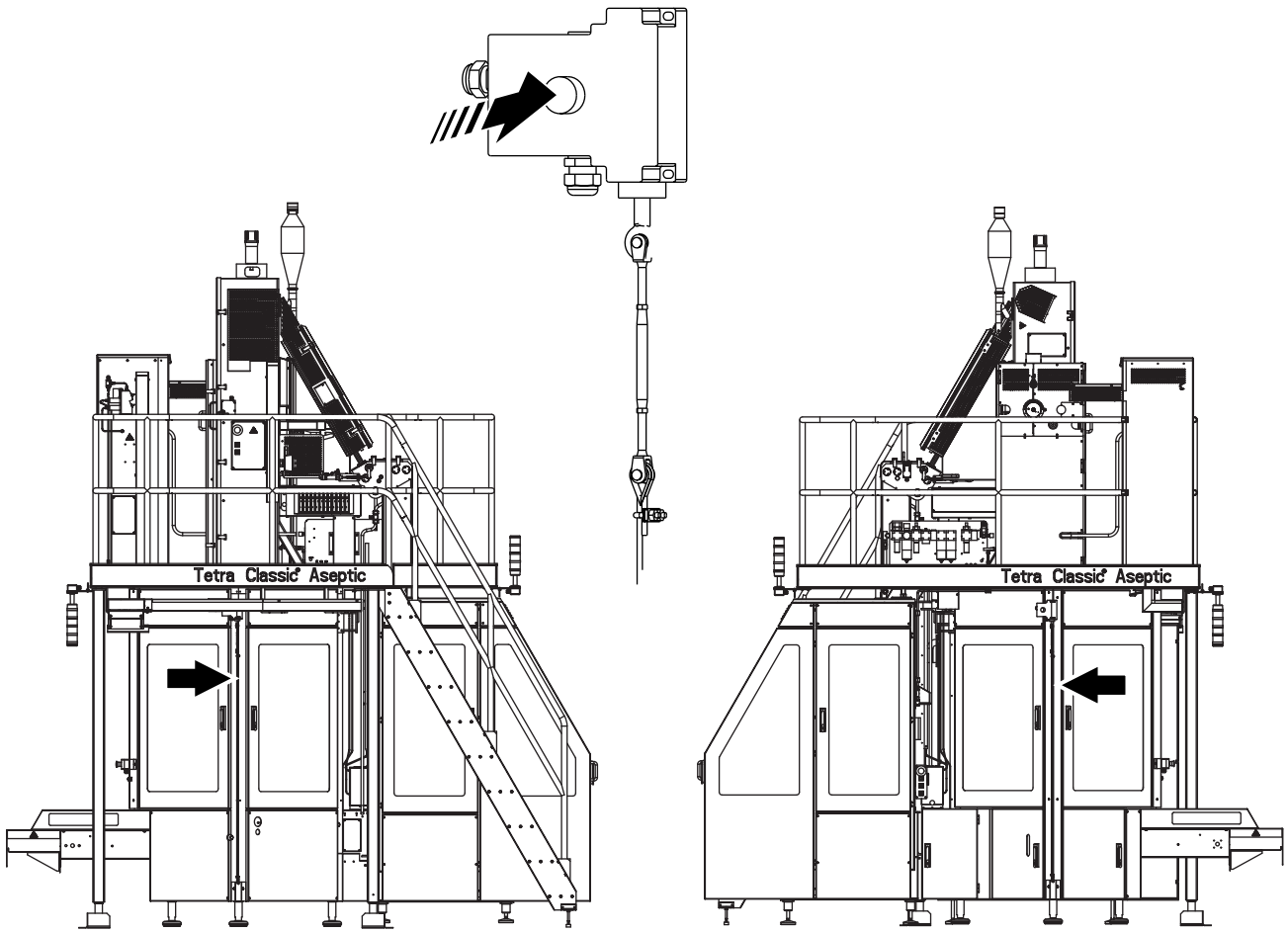
Pull one of the EMERGENCY STOP wires to stop the machine immediately.

Empty the peroxide bath, see Manual emptying of peroxide bath on page 21.

The illustrations below show an emergency stop wire and the arrows indicate the locations on the machine.

Before reseting the emergencystop press the button on the emergency stop wire module, see figure 1.

Figure 1



Location of Emergency stop wires

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Safeguards

DANGER! **Moving machinery.**
Never defeat safety switches.

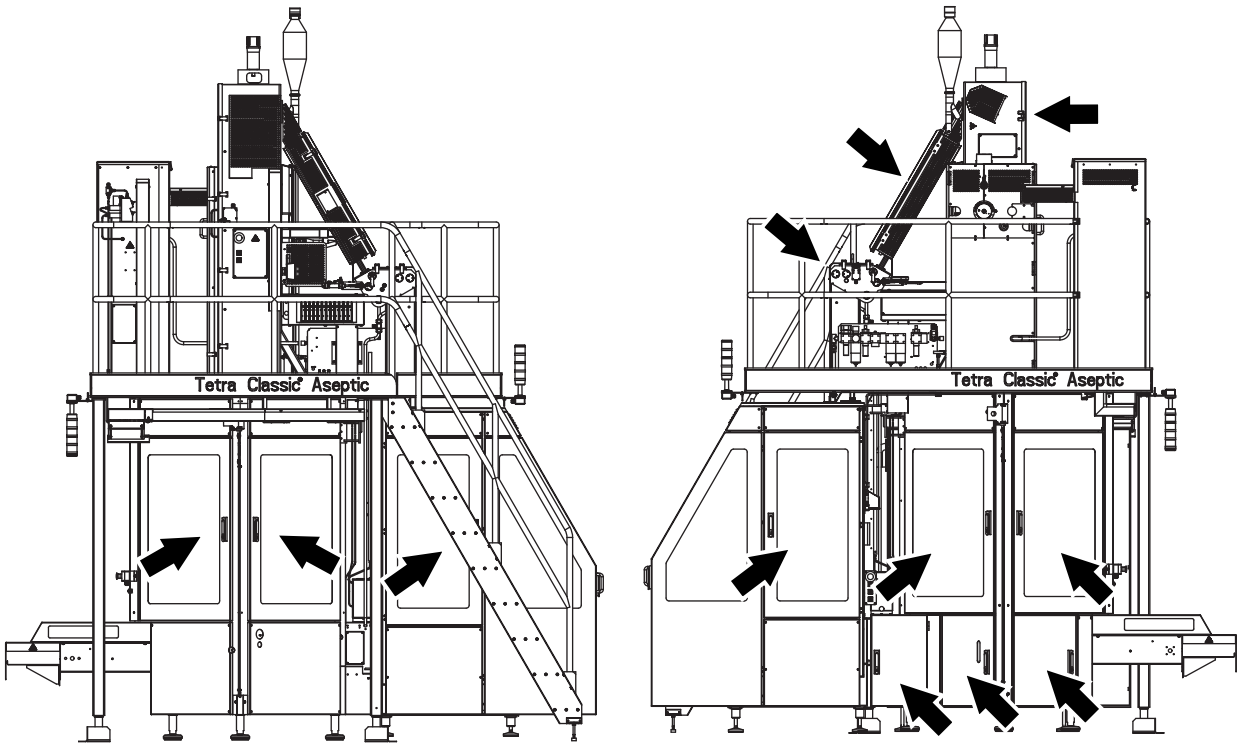
All movable guards, such as doors and covers, leading to hazardous areas are fitted with interlocking devices, usually electric safety switches. These devices are part of the safety system of the machine, and must never be defeated, bypassed or otherwise made inoperative

Safeguarded components may be thermally hot after operation.

After installation and maintenance, check that all safeguards are fitted and in correct operation before the machine is inched or run.

CAUTION! **Machine damage.**
Never stop the machine by opening a movable guard, except in case of emergency.

The illustrations below show all movable guards; locations indicated by arrows.



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Warning Lamp

The machine is fitted with a column of one or several warning lamps.

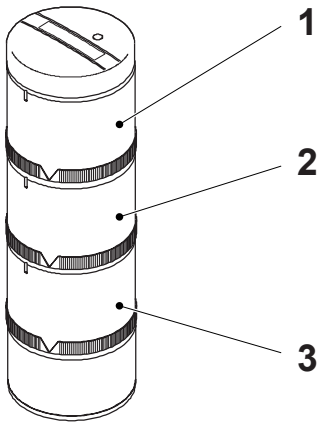
The red light flashes when a **hazardous condition** has occurred, such as an **emergency stop** having been activated.

The yellow light flashes when an condition has occurred which requires action by the operator, such as a door or cover having been opened.

The blue light flashes when operator action is required, such as refilling a magazine.

Note! For a complete list of alarms, refer to the Operation Manual.

The light stops flashing and remain lit when the ALARM RESET button is pressed. After the fault is corrected or the operator takes the appropriate action, the warning light goes off.



1 Red light
2 Yellow light
3 Blue light

EM1.1TS700002_1.fm

Horn Alarm

The horn alarm produces a **sonic warning signal** every time the main motor is about to start.

The warning signal sounds for approximately 3 seconds prior to motor ignition and is intended to alert personnel that **the machine is about to start**.

Personal Protection

Note! Information about personal protection regarding chemical products can be found in the section describing each specific chemical.

Hearing Protection

CAUTION! **Hazardous noise level.**
Risk of impaired hearing.
Hearing protection is recommended.

Jewellery



WARNING! **Risk of entanglement.**
No personal jewellery such as rings, watches, bracelets or necklaces may be worn when performing work on or near the machine.

EM1.1TS700002_1.fm

Hazardous Materials

Hydrogen Peroxide (H_2O_2)

WARNING! **Corrosive chemical.**
Always wear personal protective equipment.

In both liquid and gas form, hydrogen peroxide may cause irritation or damage if in contact with skin, mucous membranes, eyes, or clothes. In case of accident call for medical attention immediately.

Liquid hydrogen peroxide in concentrations lower than 1% is normally considered harmless to humans.

Consult the instructions on the label of the tank or container.

Handling

DANGER! **Explosion.**
Do NOT pour surplus hydrogen peroxide back into the original container.

If contaminated hydrogen peroxide is poured back in the original container with fresh peroxide, or if hydrogen peroxide is allowed to decompose, there is a risk of explosion. Avoid contamination of hydrogen peroxide. It may react with or **form explosive products** with many organic substances such as acetone, cellulose, and ethanol.

CAUTION! **Rapid decomposition.**
Ensure that equipment used for handling and diluting hydrogen peroxide is clean before coming in contact with hydrogen peroxide and neutralized with water after.

Pumps or other **equipment** used for hydrogen peroxide **must be** used **for this purpose only** and must be manufactured from appropriate materials such as stainless steel 316 L, glass, polyethylene, or teflon.

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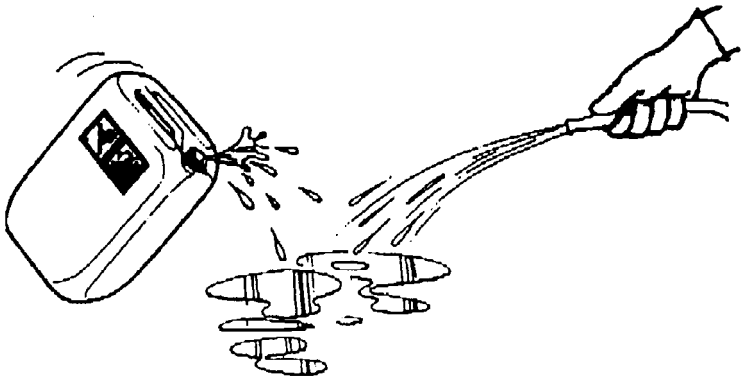
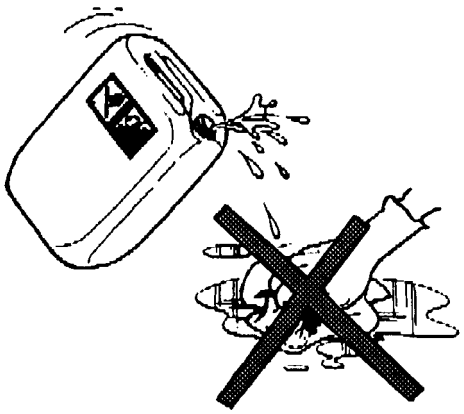
If hydrogen peroxide is spilled, dilute it with large amounts of water and flush it into a drain.



WARNING! **Self-ignition.**
Never wipe with combustible materials, such as rags or paper, as these may self-ignite. In case of fire, cool by using a hose and spray with large quantities of water.



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Disposal

The hydrogen peroxide should be sent for destruction. Some countries allow it to be diluted with water to a concentration below 1% and poured into the drain.

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(Cont'd)

Storage

WARNING! **Emission of oxygen supports fire.**
In case of fire, cool the peroxide containers by spraying with large quantities of water.

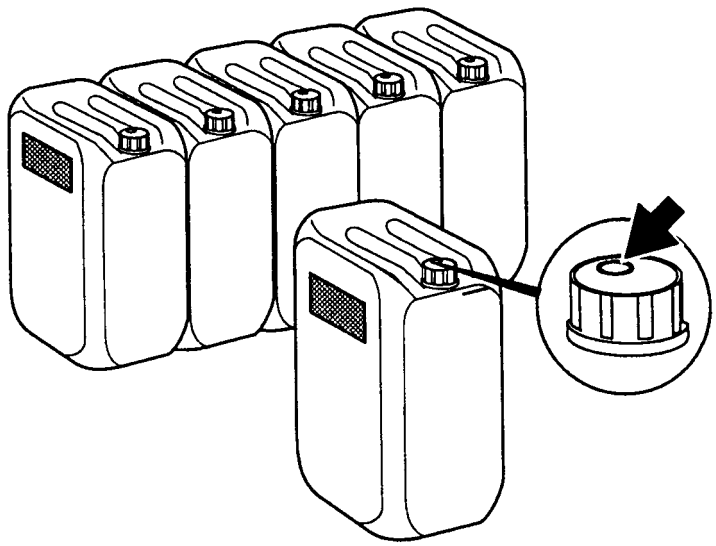
The commercial food grade hydrogen peroxide has been stabilized, but it may decompose into oxygen and water if it is exposed to heat or contaminated by contact with incompatible materials. The decomposition of hydrogen peroxide increases drastically with temperature.

Make sure that the room or area used for storage is

- cool, clean, and well ventilated
- shielded from direct sunlight
- kept free from combustible materials.

Note! Hydrogen peroxide **must** only be stored in the **original container** as delivered by the supplier. Keep the container upright and closed with its **proper ventilation cap**, that allows oxygen to escape. If not, there may be an explosion if decomposition of the peroxide occurs violently. Always make sure that the container is properly closed.

EM1.1TS700002_1.fm



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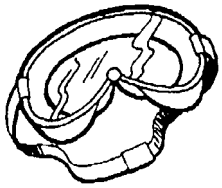
Personal Protective Equipment

Whenever there is a risk of contact with hydrogen peroxide, wear

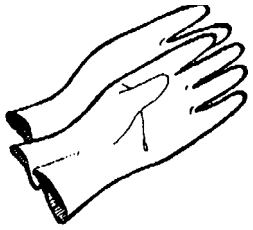
- safety goggles (1)
- protective gloves (2) of neoprene
- shoes (3) made of PVC or PE plastic, or rubber
- apron (4).

Always make sure that

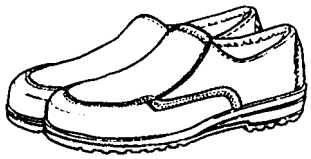
- the showers (5) work
- an eyewash device, movable (6) or wall-mounted (7) is available at or near each machine site
- there are additional washing facilities.



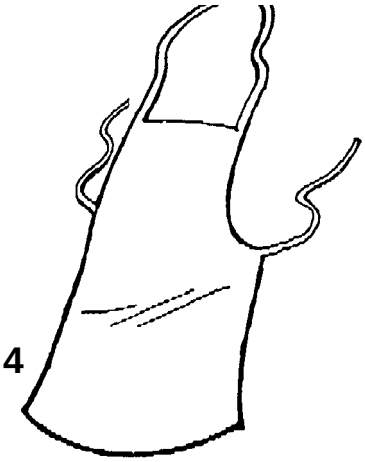
1



2



3



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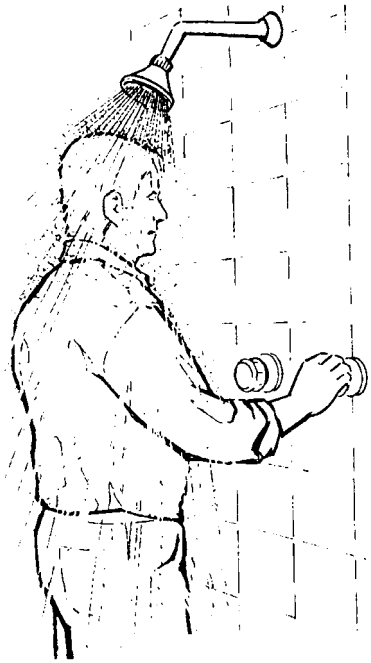

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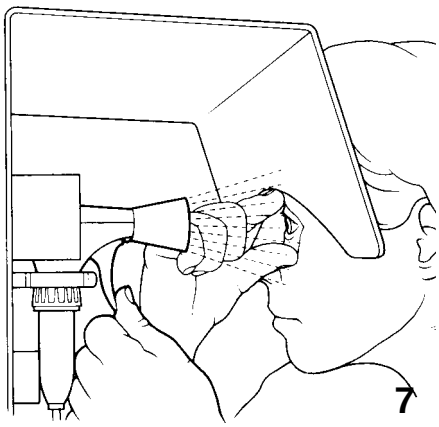


7

1 Safety goggles (TP No 90303-11)
2 Protective gloves (TP No.90303-12)
3 Shoes
4 Apron (TP No. 90303-13)
5 Shower
6 Eyewash device (TP No. 90303-6)
7 Eyewash device

EM1.1TS700002_1.fm

(Cont'd)

(Cont'd)

Emergency Procedures

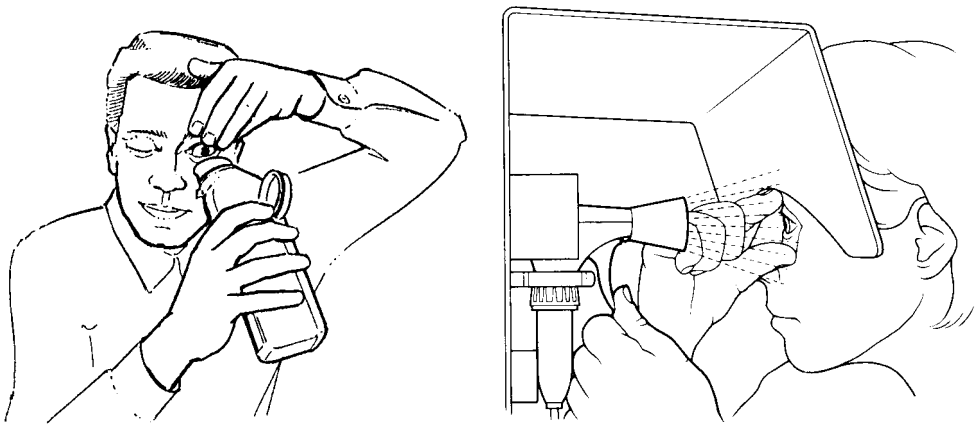
In case of an accident involving hydrogen peroxide, it is very important to rinse the affected area as soon as possible with as much water as possible.

If hydrogen peroxide is swallowed

- drink large amounts of lukewarm water (in order to dilute the peroxide)
- call for medical attention immediately.

If splashes or vapour from hydrogen peroxide come in contact with the eyes

- wash the eyes thoroughly with lukewarm water for 15 minutes (keep eyelids wide apart)
- call for medical attention immediately.



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EM1.1TS700002_1.fm

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If hydrogen peroxide comes into contact with skin or clothes

- rinse immediately with plenty of water
- if skin burns appear call for medical attention immediately
- thoroughly wash the clothes before wearing them again.



If irritation or pain is experienced due to having **inhaled** hydrogen peroxide vapour

- leave the affected area and get some fresh air
- if the symptoms get worse, call for medical attention.

EM1.1TS700002_1.fm

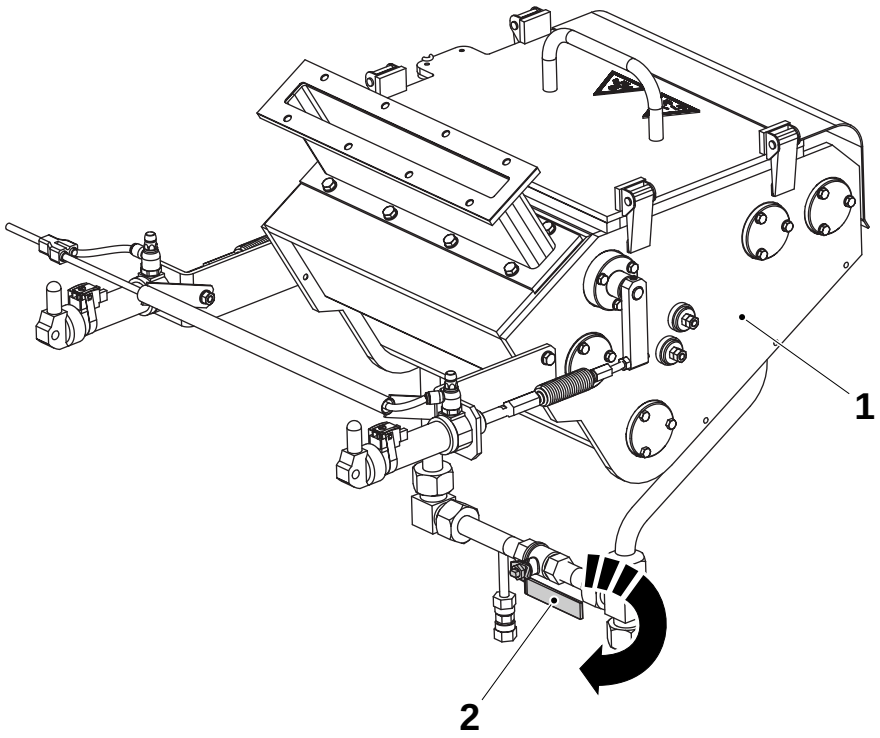
Manual emptying of peroxide bath

If the machine has been stopped by the emergency stop system, or by main power failure, the peroxide bath has to be emptied manually.

WARNING! Make sure to be familiar with the information regarding Hydrogen Peroxide (H2O2) before emptying the peroxide bath.

a) Empty the peroxide bath (1) by opening the drainage valve (2).

b) Make sure that the peroxide bath is empty before closing the drainage valve.



1 Peroxide bath
2 Drainage valve

EM1.1TS700002_1.fm

Supply Systems

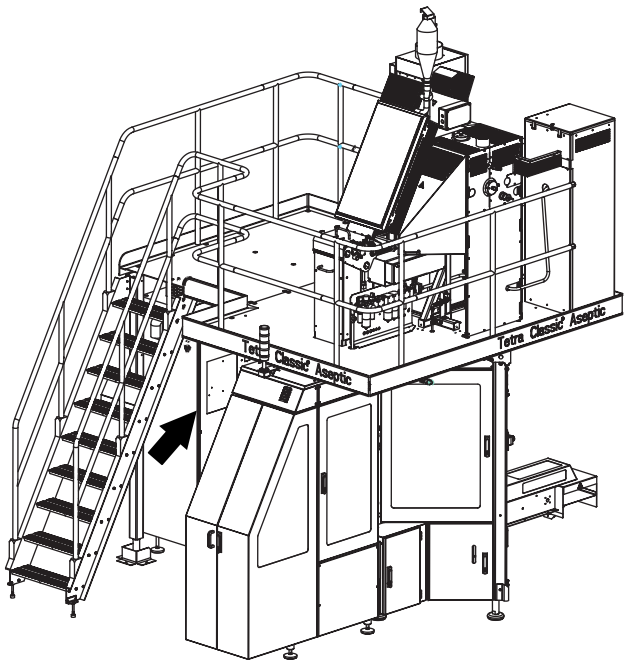
Electrical Cabinet

DANGER! **Hazardous voltage.**
Electric shock will cause death or serious injury.
The **Power Supply Disconnecting Device** must be turned **OFF** and secured with a lock, before any service is carried out inside the electrical cabinet.

Note! The key to the lock must be removed by the service technician or the electrician, and retained in his/her possession until all work is completed.

Make sure that the electrical cabinet doors are locked after performing any kind of work in the electrical cabinet.

The illustration below shows the electrical cabinet; location indicated by arrow.



EM1.1TS700002_1.fm

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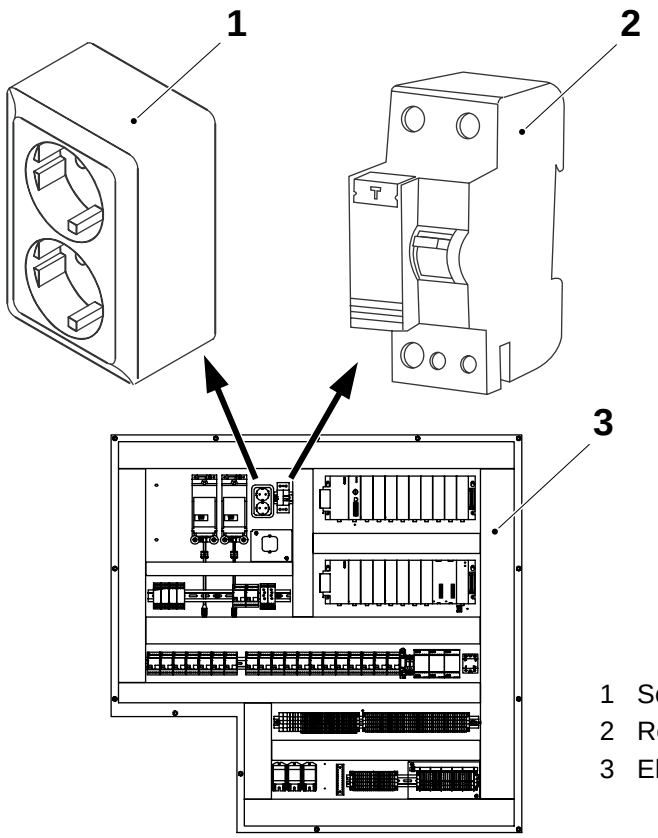
Socket Outlet

WARNING! **Hazardous voltage.**
Read Maintenance Manual BEFORE using this socket outlet.
Failure to follow maintenance instruction could result in death or serious injury.

The illustrations below shows the socket outlet (1) and residual current device (2), and their locations in the electrical cabinet (3).



1 Socket outlet
2 Residual current device
3 Electrical cabinet

EM1.1TS700002_1.fm

Power Supply

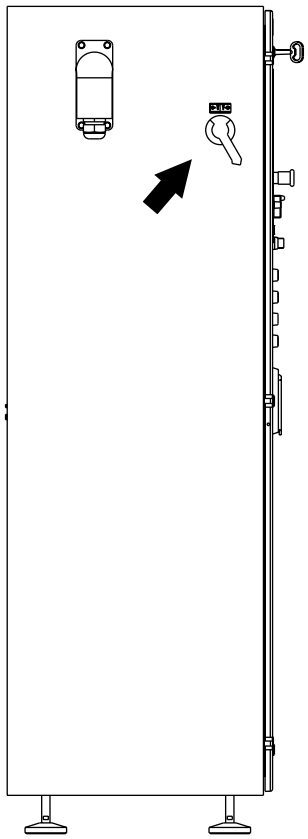
DANGER!

Hazardous voltage and moving machinery.
The **Power Supply Disconnecting Device** must be turned **OFF** and secured with a lock, before any service is carried out.

Note! The key to the lock must be removed by the service technician or the electrician, and retained in his/her possession until all work is completed.

Certain maintenance procedures require supply systems to be turned on. These exceptions are clearly stated in the maintenance manual.

The illustration below shows the power supply disconnecting device and the arrow indicates the location on the machine.



EM1.1TS700002_1.fm

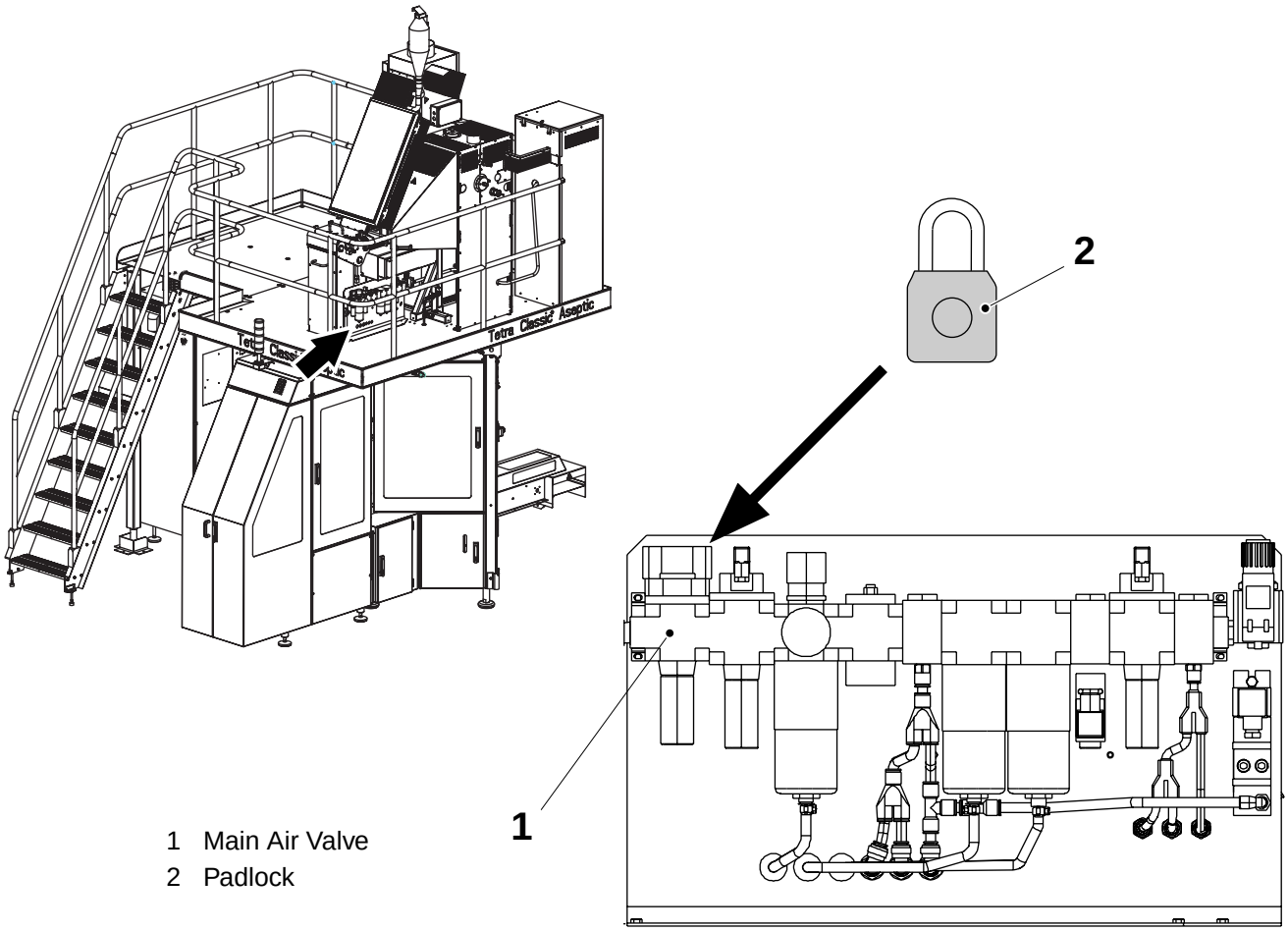
Air Supply

WARNING! **Compressed air and moving machinery.**
The **Main Air Valve** must be turned **OFF** and secured with a lock, before any service is carried out.

Note! The key to the lock must be removed by the service technician and retained in his/her possession until all work is completed.

Certain maintenance procedures require supply systems to be turned on. These exceptions are clearly stated in the maintenance manual.

The illustrations below shows the main air valve (1), the lock (2), and the arrow indicates the location on the machine.



1 Main Air Valve
2 Padlock

EM1.1TS700002_1.fm

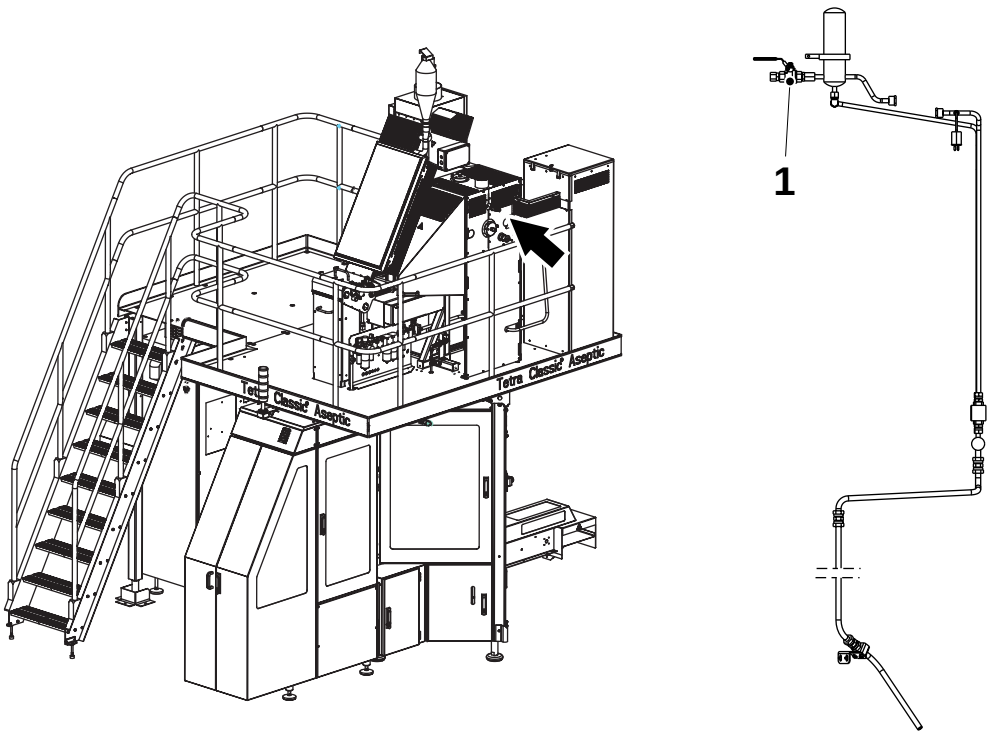
Steam Supply

WARNING! **Hot steam may cause severe burns.**
The **Supply Valve** must be turned **OFF**, the equipment depressurized, and vent all steam safely, before any service is carried out.

Pressurized steam can be discharged unexpectedly. Pipes and components can be extremely hot.

Certain maintenance procedures require supply systems to be turned on. These exceptions are clearly stated in the maintenance manual.

The illustration below shows the steam supply valve (1) and the location on the machine.



EM1.1TS700002_1.fm

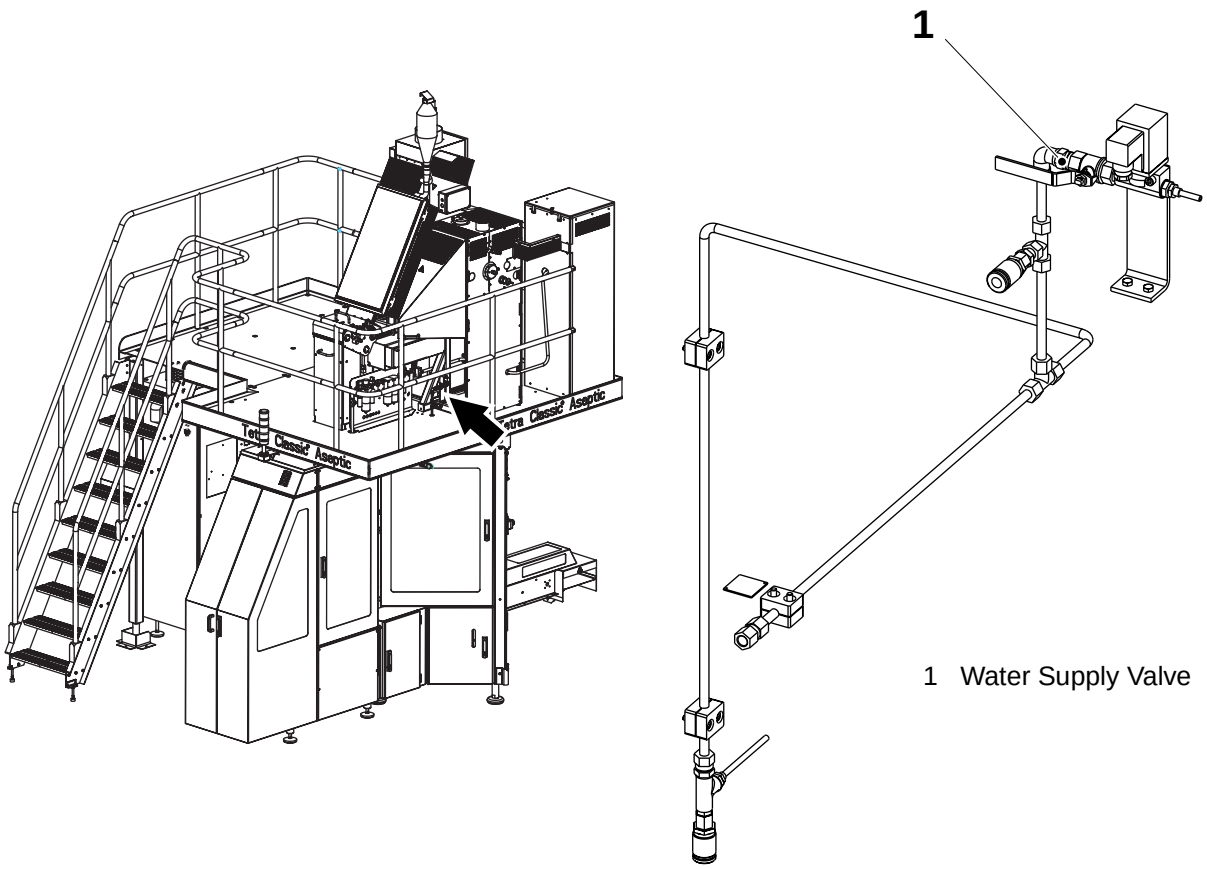
1 Steam Supply Valve

Water Supply

WARNING! **Water under pressure.**
The **Water Supply Valves** must be turned **OFF**, before any service is carried out.

Certain maintenance procedures require supply systems to be turned on. These exceptions are clearly stated in the maintenance manual.

The illustration below shows the water supply valves (1) and the location on the machine.



1 Water Supply Valve

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EM1.1TS700002_1.fm

3 Electrical system description

EM1.1TS700003.fm

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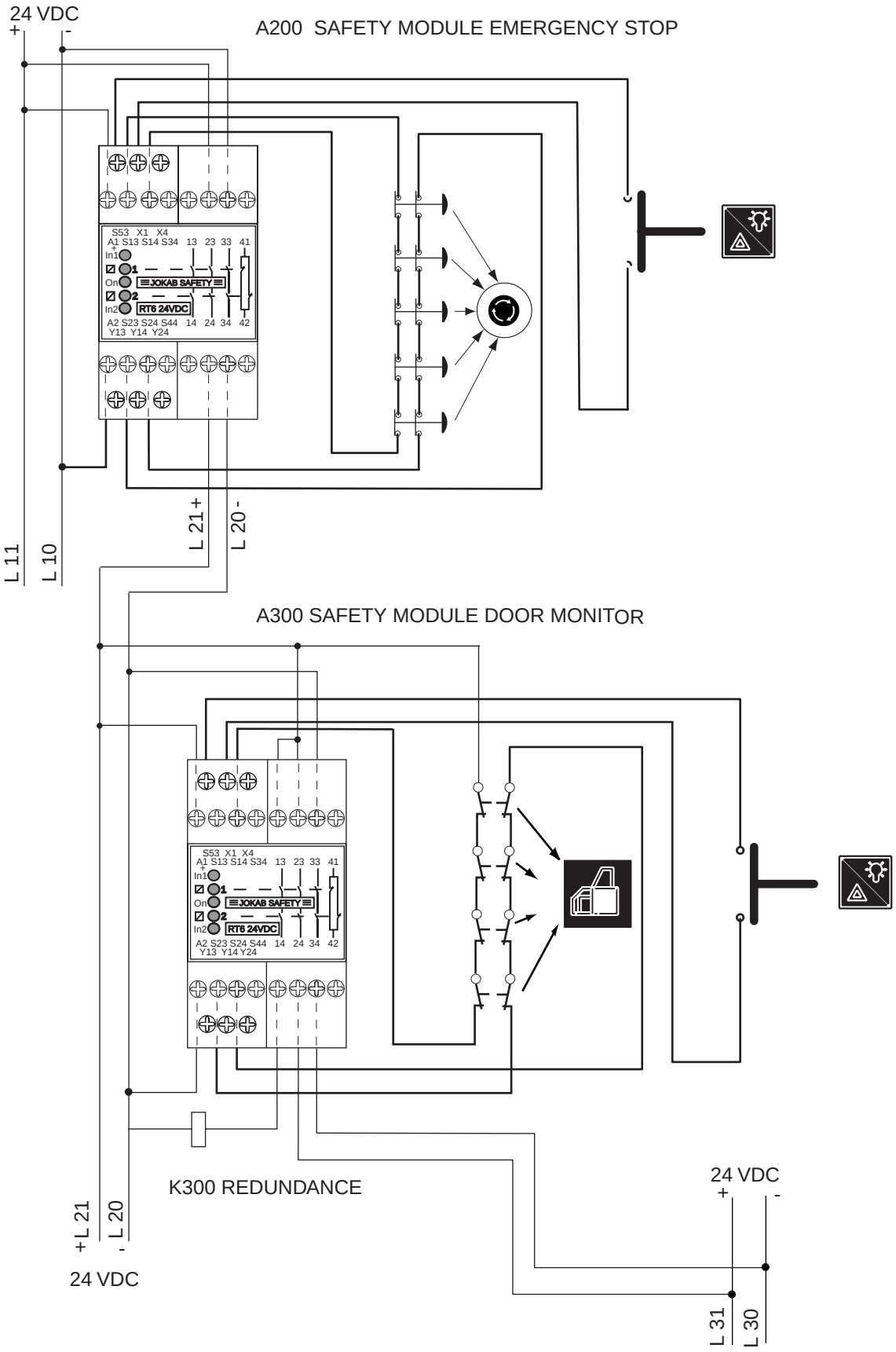
EM1.1TS700003.fm

Safety System



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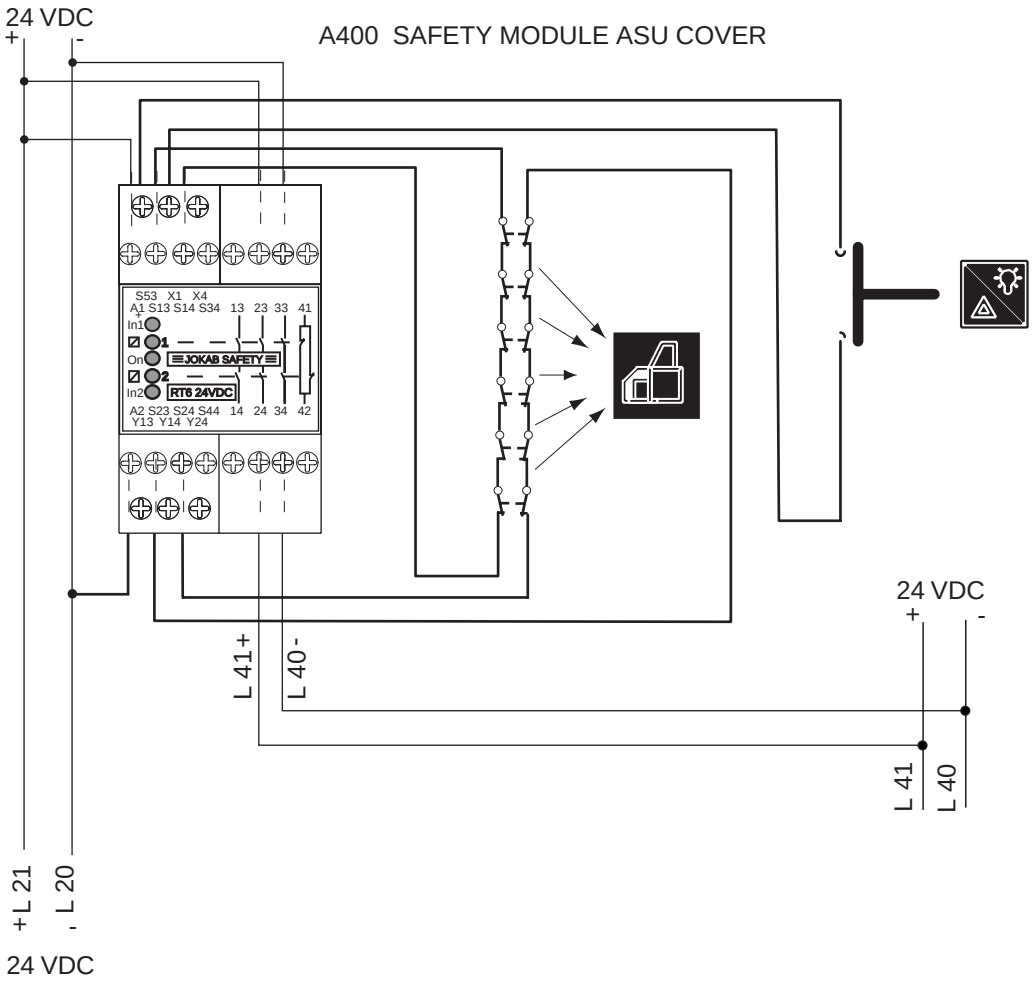

EM1.1TS700003.fm

4 Component location

EM1.1TS700004.fm

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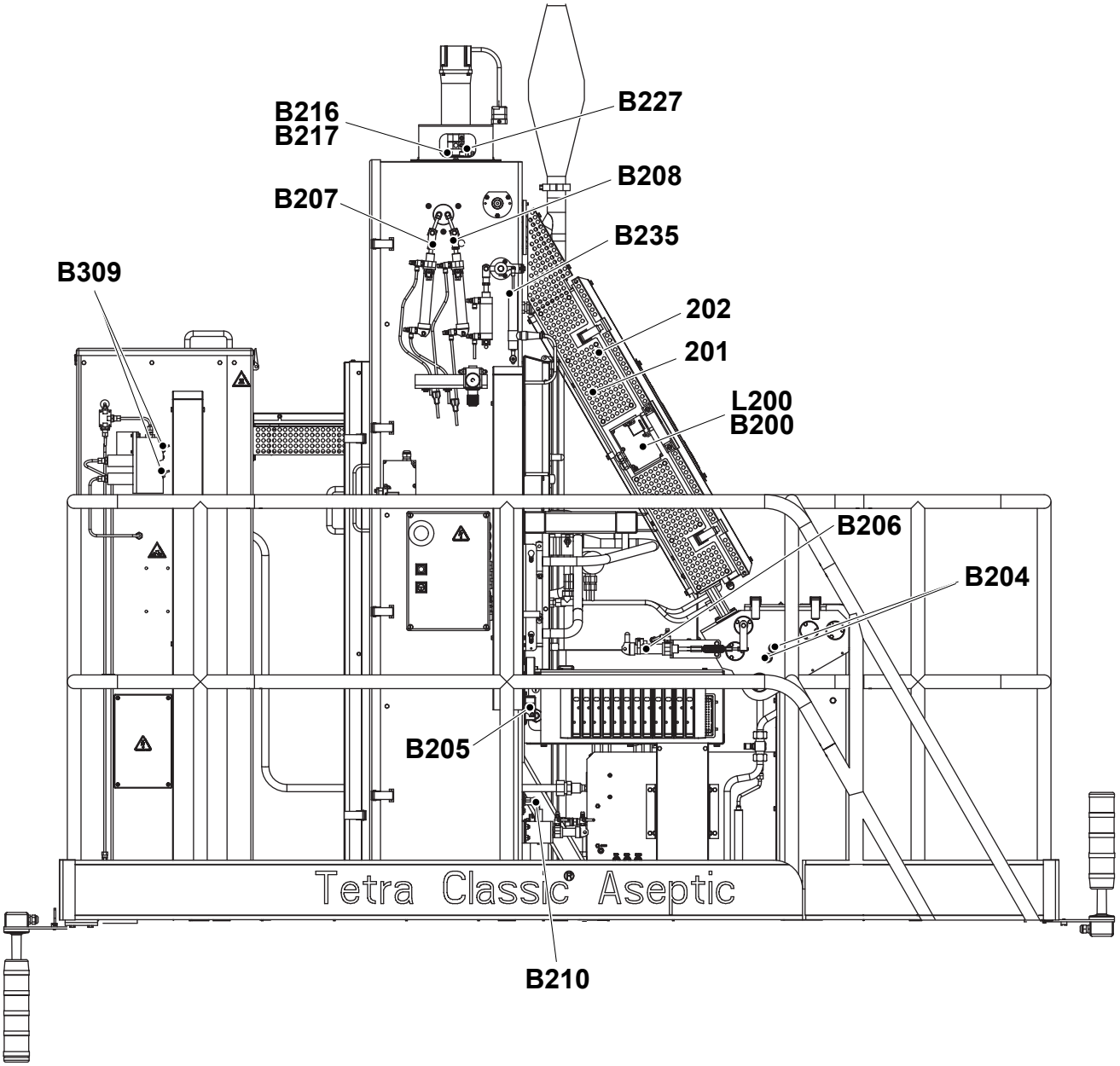
LH side of superstructure 4-4
RH side of machine body 4-5
LH side of machine body 4-6

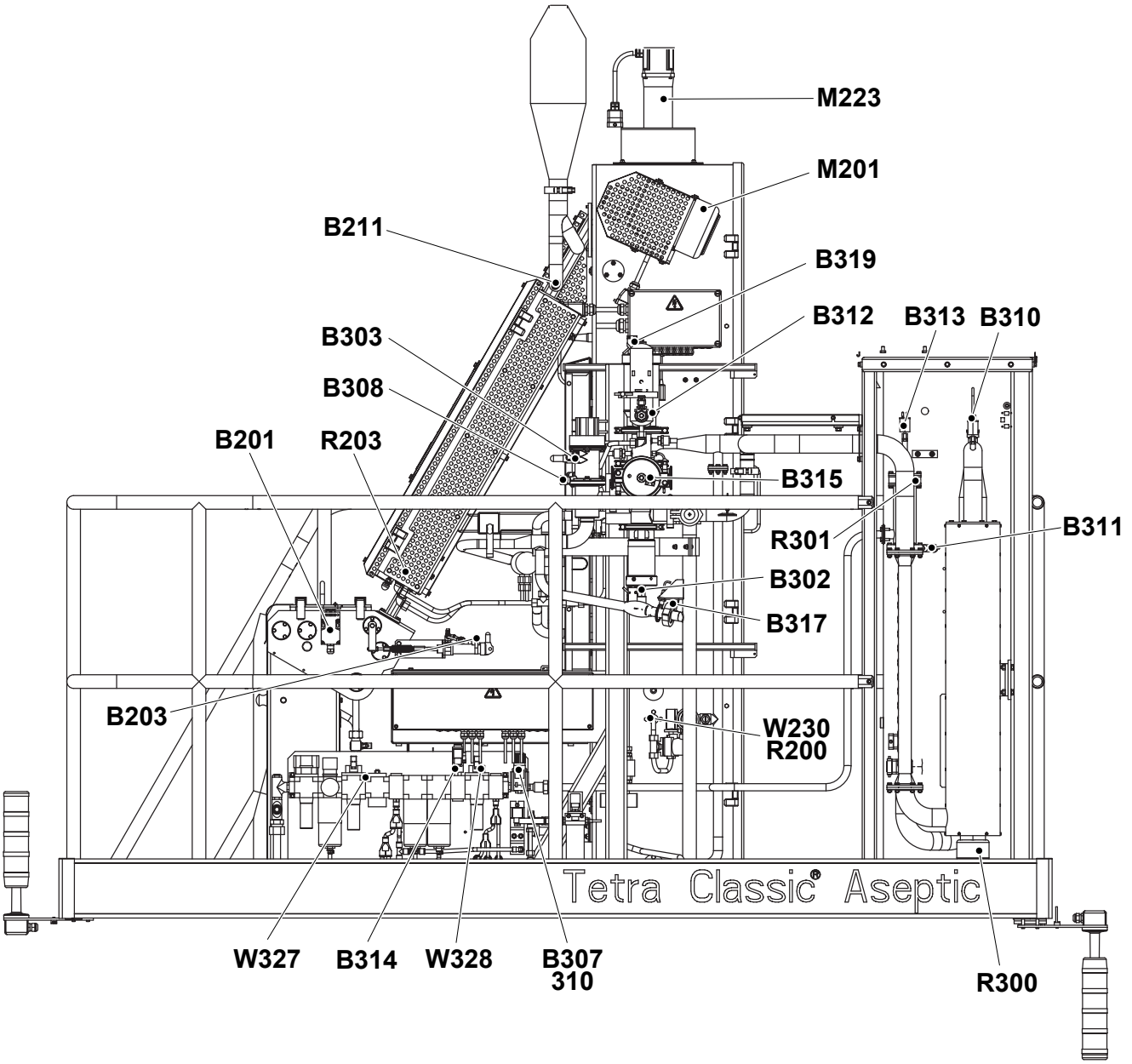
EM1.1TS700004.fm

RH side of superstructure



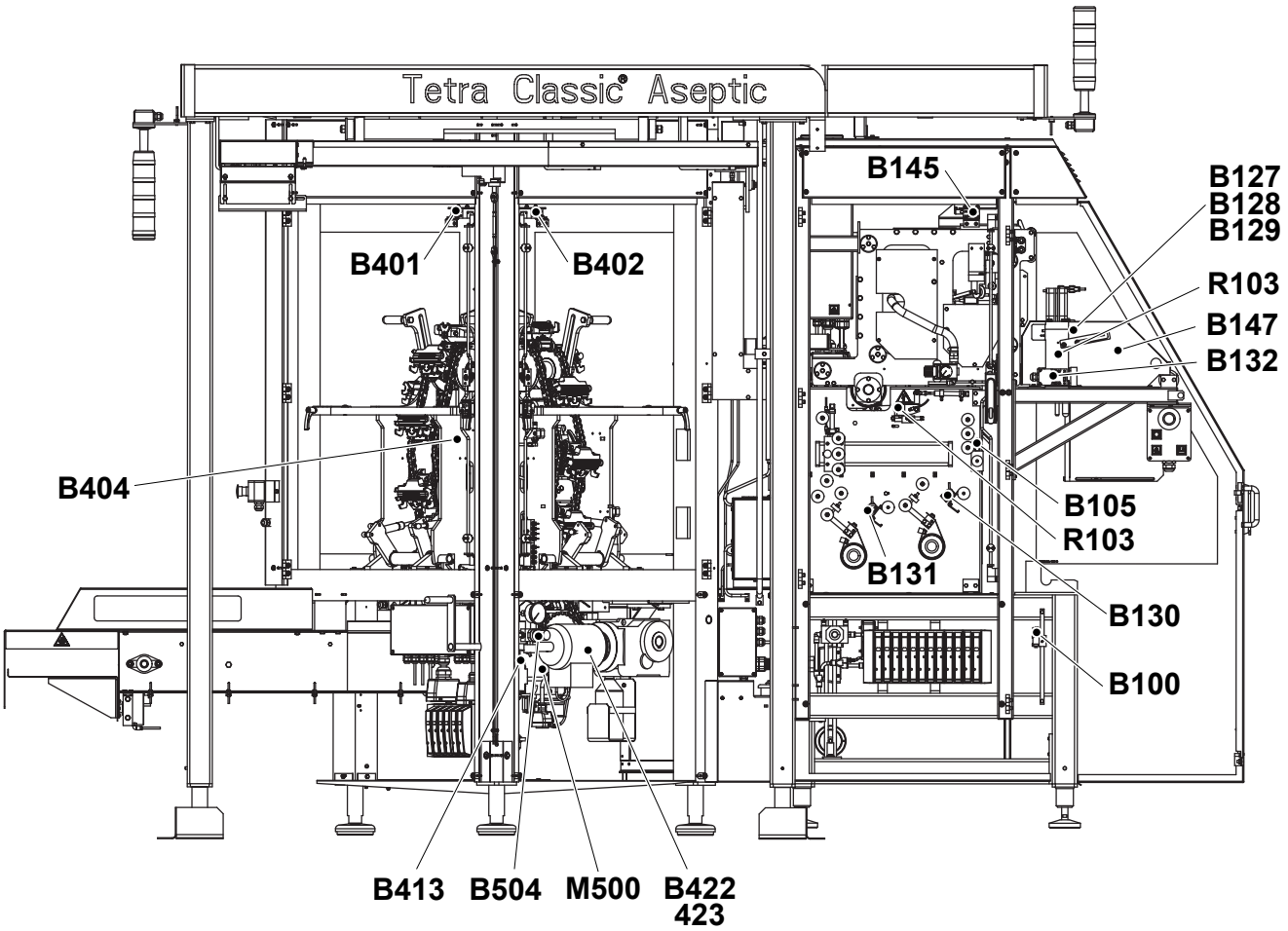
EM1.1TS700004.fm

LH side of superstructure



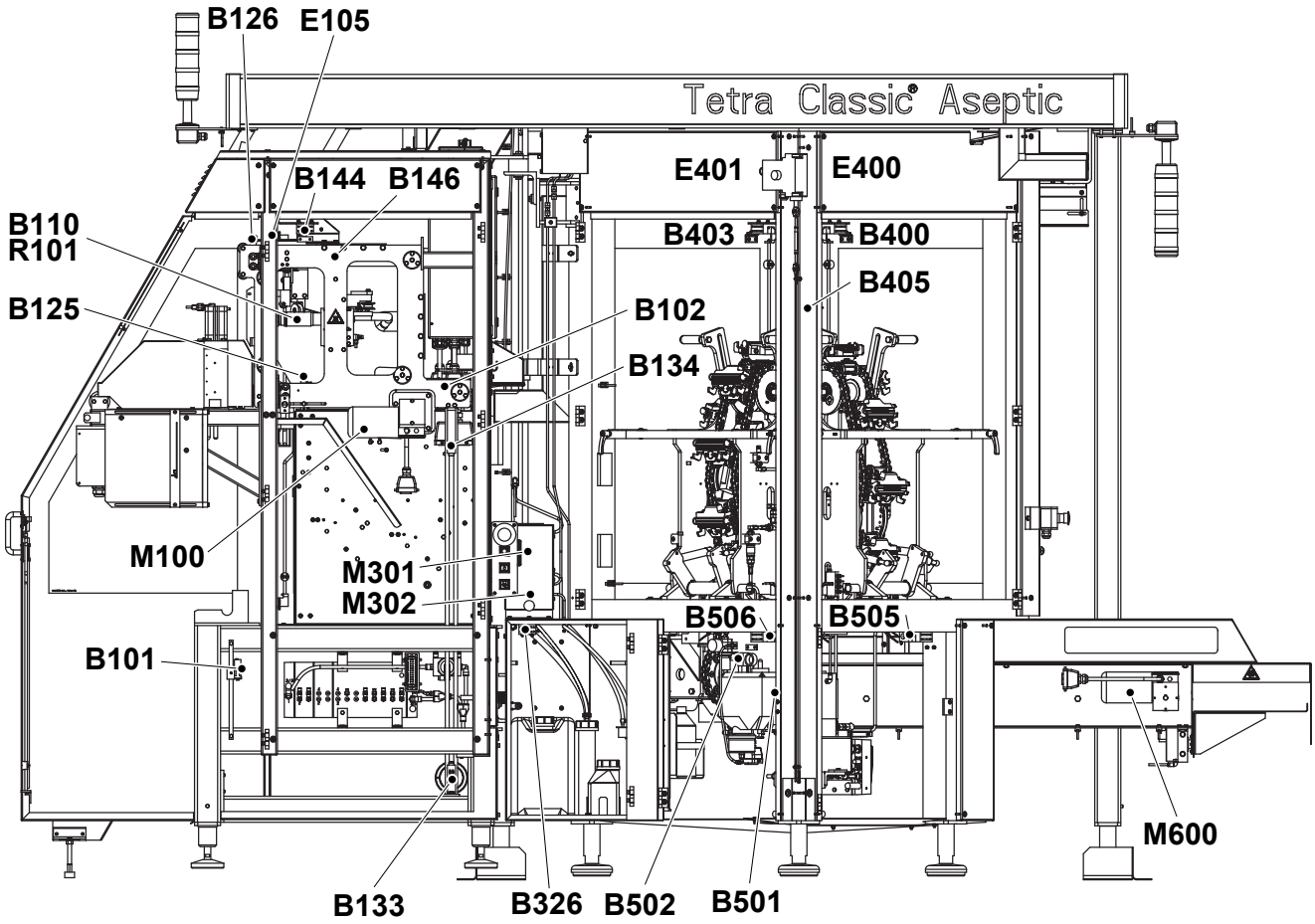
EM1.1TS700004.fm

RH side of machine body



EM1.1TS700004.fm

LH side of machine body



EM1.1TS700004.fm

5 Position summary

EM1.1TS700005.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description . . . . . Identity Prt Vs
POSITION SUMMARY . . . . . 2578566-0002 AA

EM1.1TS700005.fm

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1 2 3 4 5 6 7 8 9 10

Position summary of 2578566-0003

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+C-A010	015 .3	
+C-A012	015 .3	
+C-A015	007 .4	
+C-A020	018 .3	
+C-A021	018 .5	
+C-A022	019 .3	
+C-A023	019 .5	
+P-A023	061 .3	
+C-A024	020 .3	
+C-A025	020 .5	
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+C-A041	011 .5	
+C-A050	017 .5	
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+C-A927	060 .1	
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+M-B101	035 .4	
+M-B102	035 .4	
+M-B104	035 .4	
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+M-B505	027 .3	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type POSITION SUMMARY | Denomination POSITION SUMMARY

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0002 | Doc. type ELD | Version AA | Page 001 / 002

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Position summary of 2578566-0003

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+C-F015	007 .9	
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+P-H072	069 .4	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		POSITION SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0002	ELD	AA	002 / 003

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Position summary of 2578566-0003

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+C-K064	007 .9	
+C-K065	008 .7	
+C-K066	010 .3	
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+C-K090	016 .2	
+C-K300	026 .7	
+C-L001	005 .4	
+C-L003	006 .2	
+C-L004	006 .3	
+C-L005	006 .5	
+M-L200	017 .5	
+M-L202	017 .5	
+M-L400	011 .4	
+M-L401	011 .7	
+M-L402	014 .2	
+M-L403	014 .2	
+M-M100	013 .4	
+M-M201	013 .9	
+M-M223	015 .5	
+M-M301	016 .5	
+M-M302	016 .5	
+M-M500	012 .5	
+M-M600	010 .1	
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+M-P400:2	035 .3	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination POSITION SUMMARY

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0002 | Doc. type ELD | Version AA | Page 003 / 004

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Position summary of 2578566-0003

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+C-Q002	005 .8	
+C-Q004	009 .2	
+C-Q006	010 .1	
+C-Q021	004 .2	
+P-R001	068 .1	
+P-R002	068 .1	
+P-R003	068 .1	
+P-R004	068 .1	
+P-R005	068 .1	
+P-R006	068 .1	
+P-R007	068 .4	
+P-R008	068 .4	
+P-R009	068 .4	
+P-R010	068 .4	
+P-R011	068 .9	
+P-R012	068 .9	
+P-R013	068 .9	
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+C-S003	040 .3	
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+C-S004	040 .3	
+P-S004H	043 .4	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		POSITION SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0002	ELD	AA	004 / 005

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Position summary of 2578566-0003

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+M-S102	044 .4	
+M-S103	044 .4	
+M-S104H	042 .3	
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+C-Z112	013 .3	
+C-Z113	013 .7	
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+C-Z115	013 .8	

Component	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		POSITION SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0002	ELD	AA	005 / 001

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6 Circuit diagram

EM1.1TS700006.fm

Table of contents

CE-list 45159-0100 Electrical document
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Description	Identity Prt Vs
CIRCUIT DIAGRAM	2578566-0003 AA

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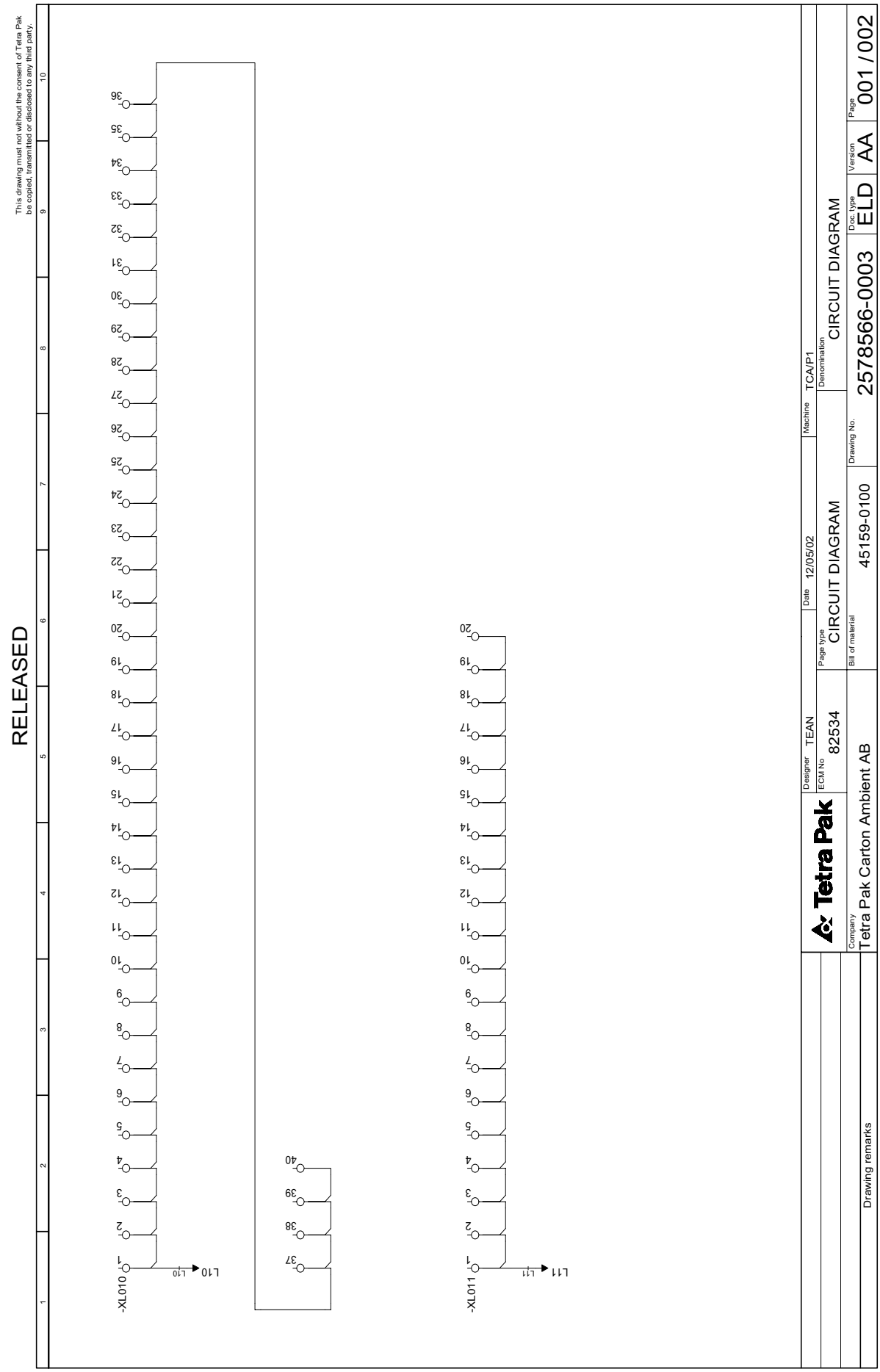

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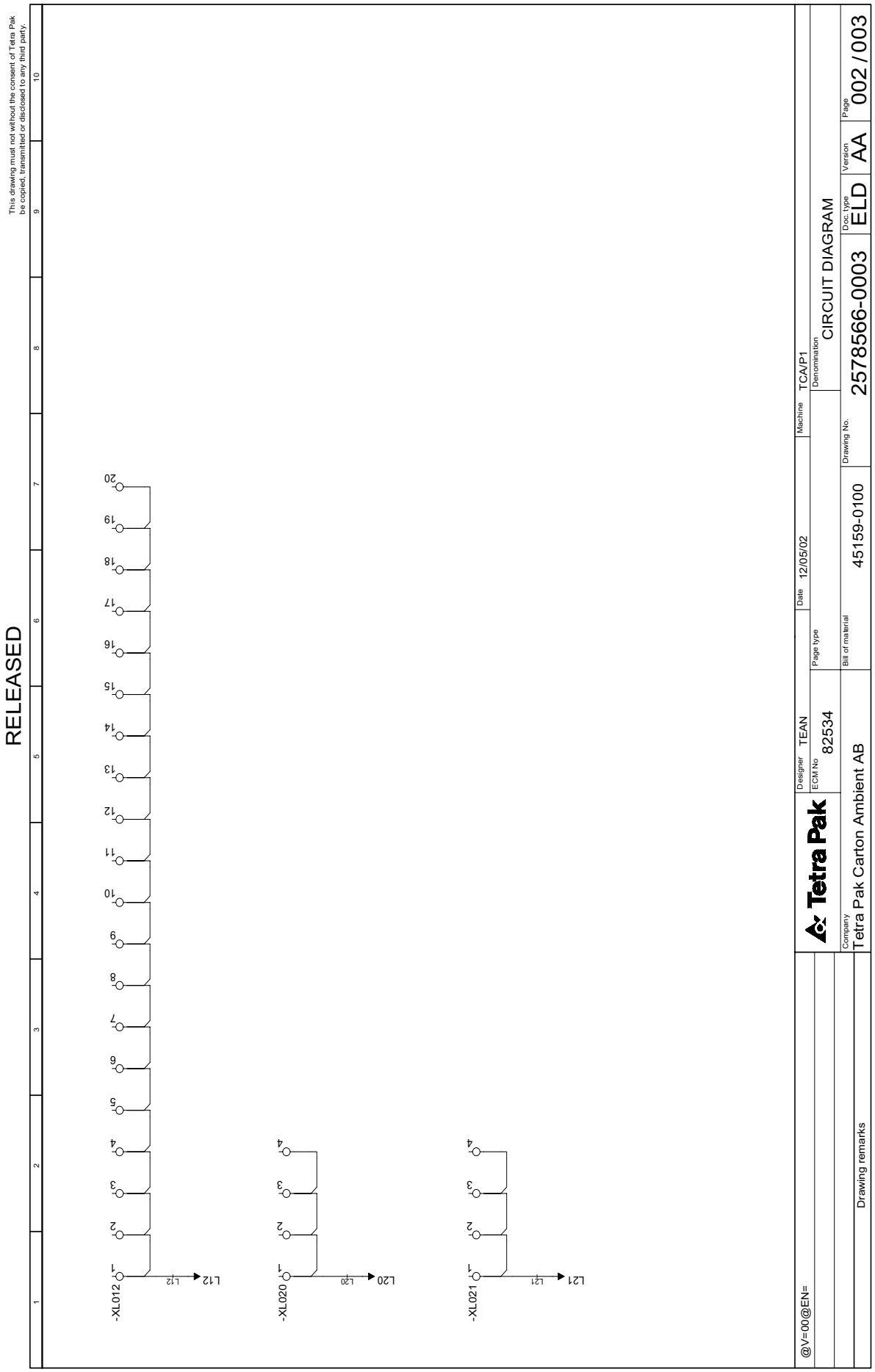

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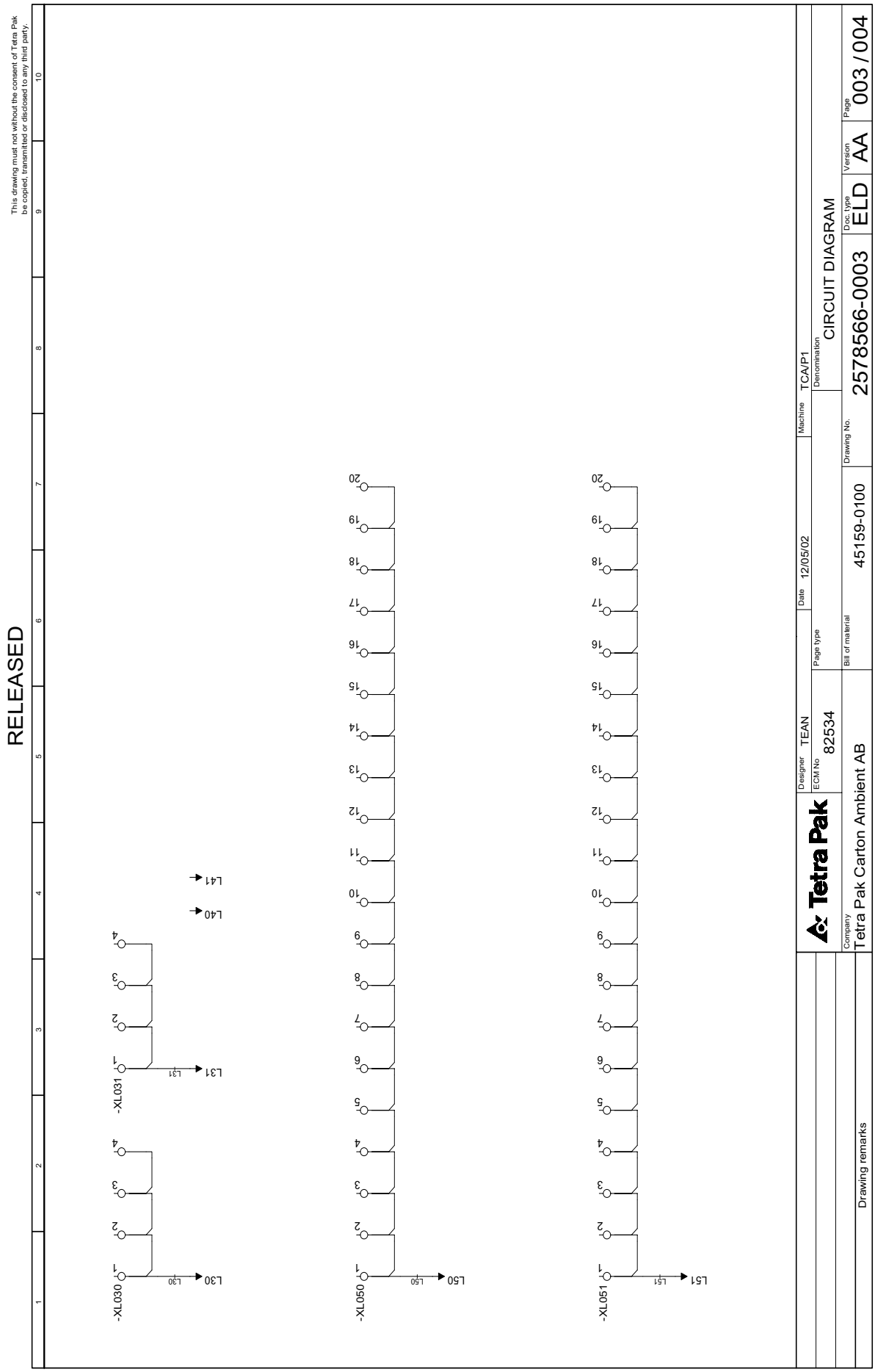

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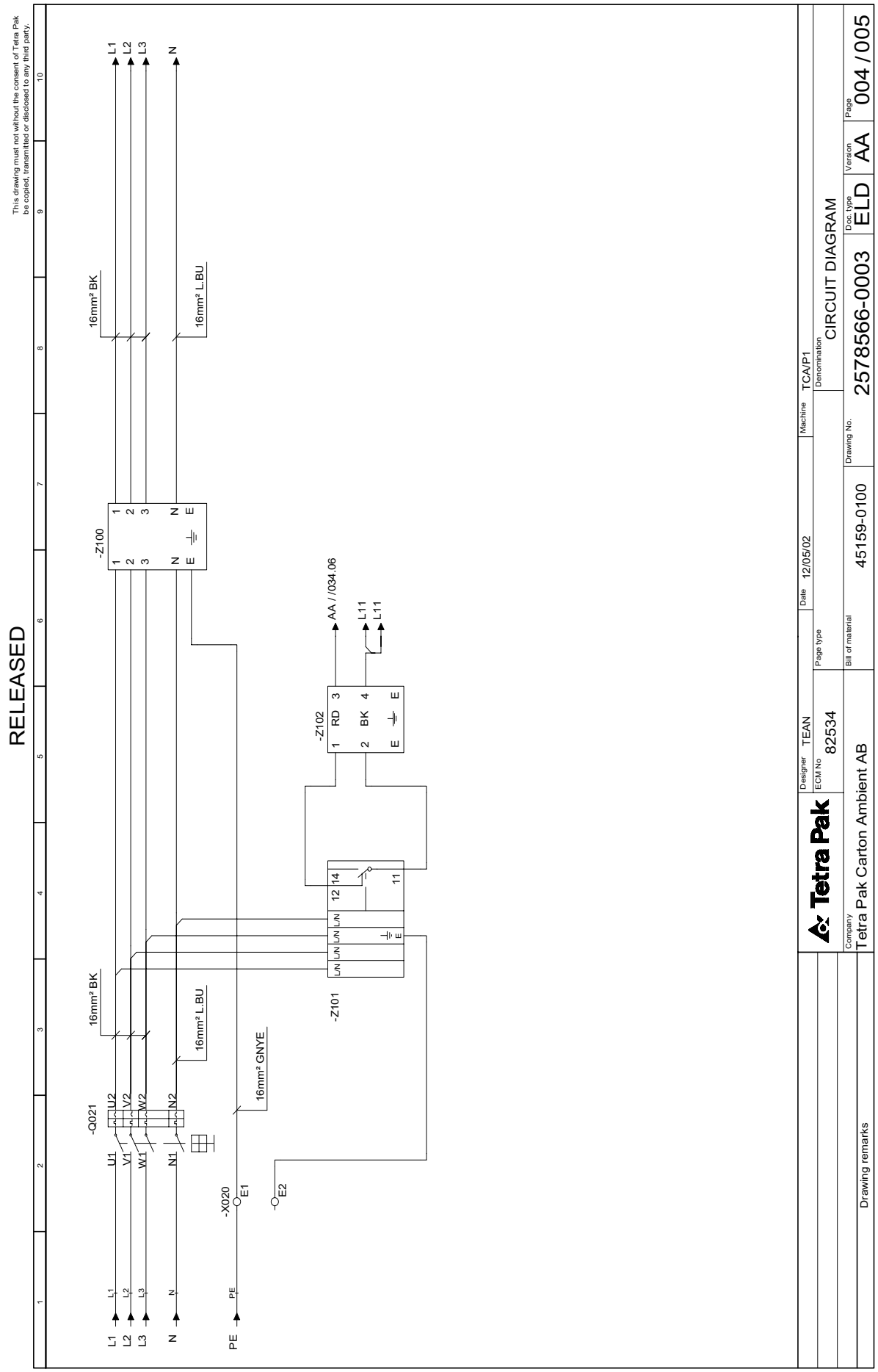

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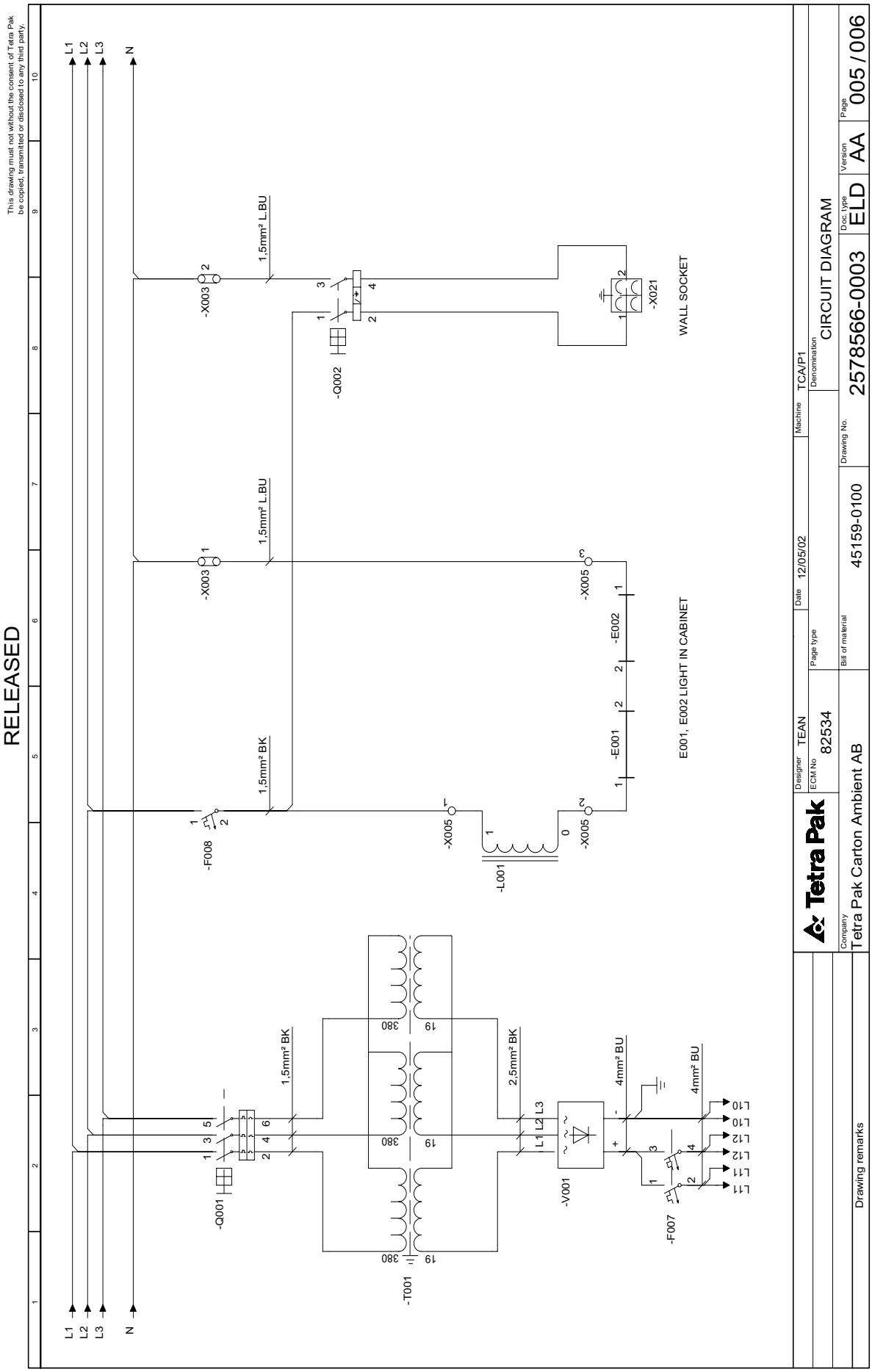

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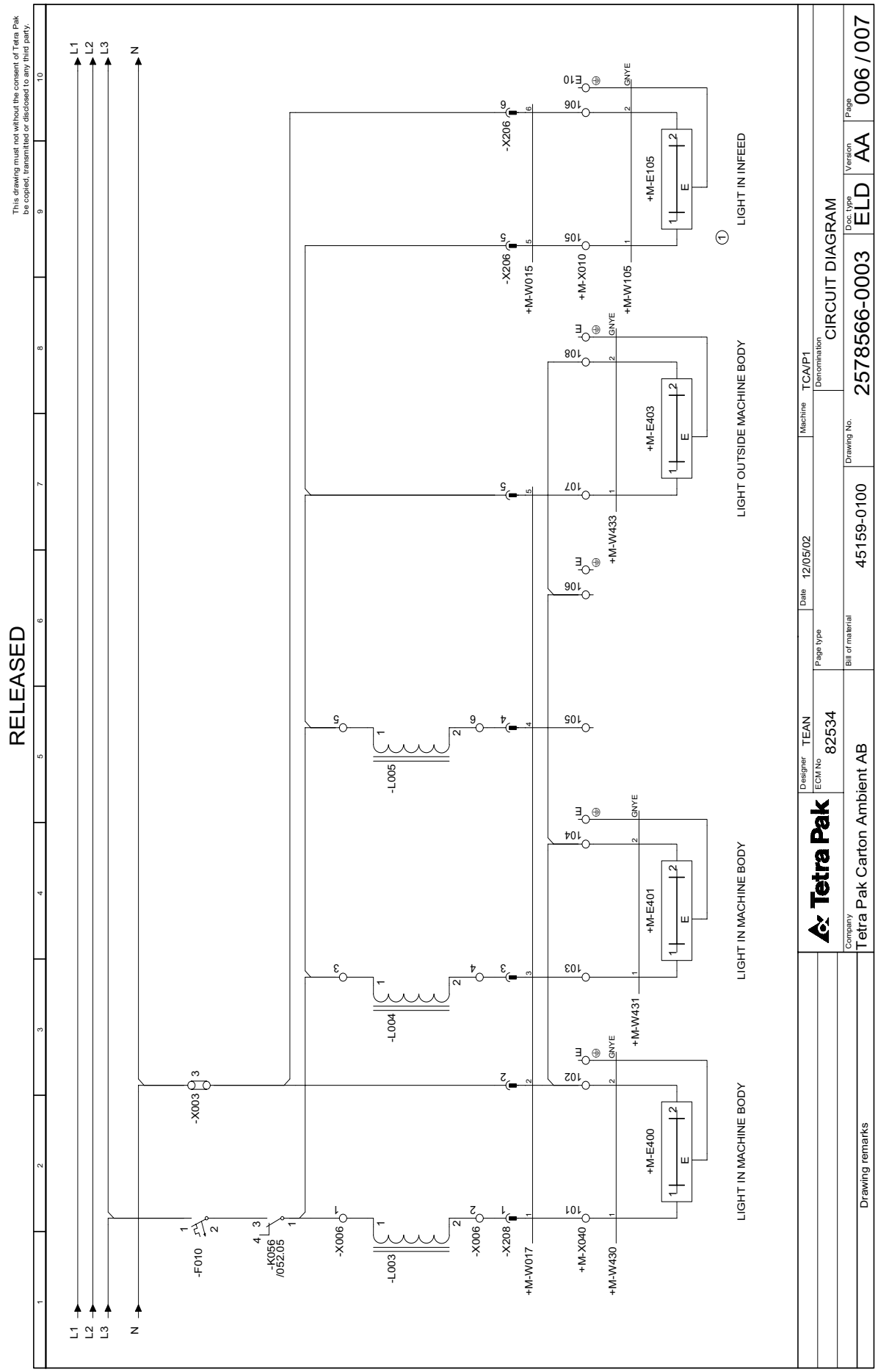

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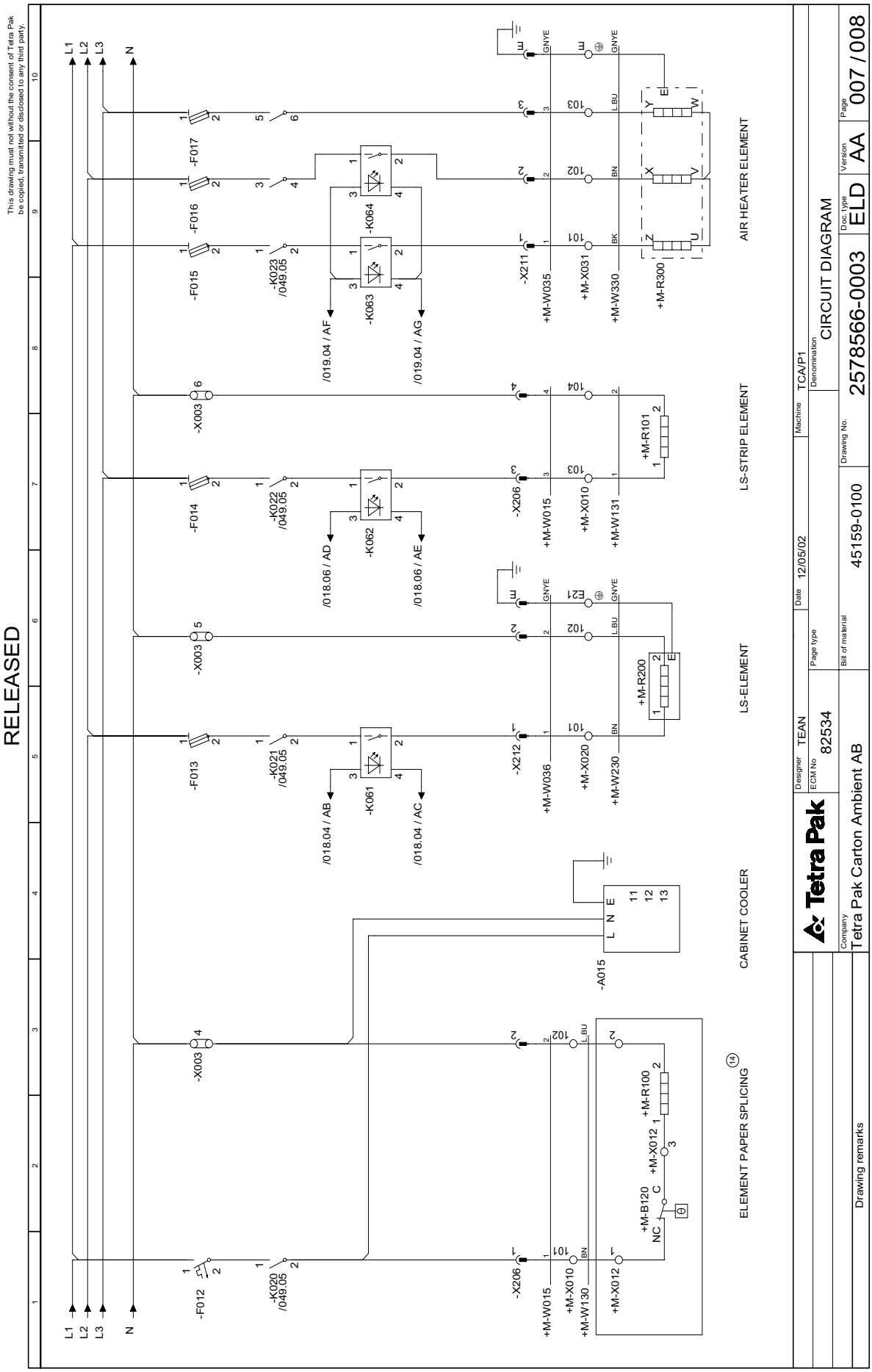

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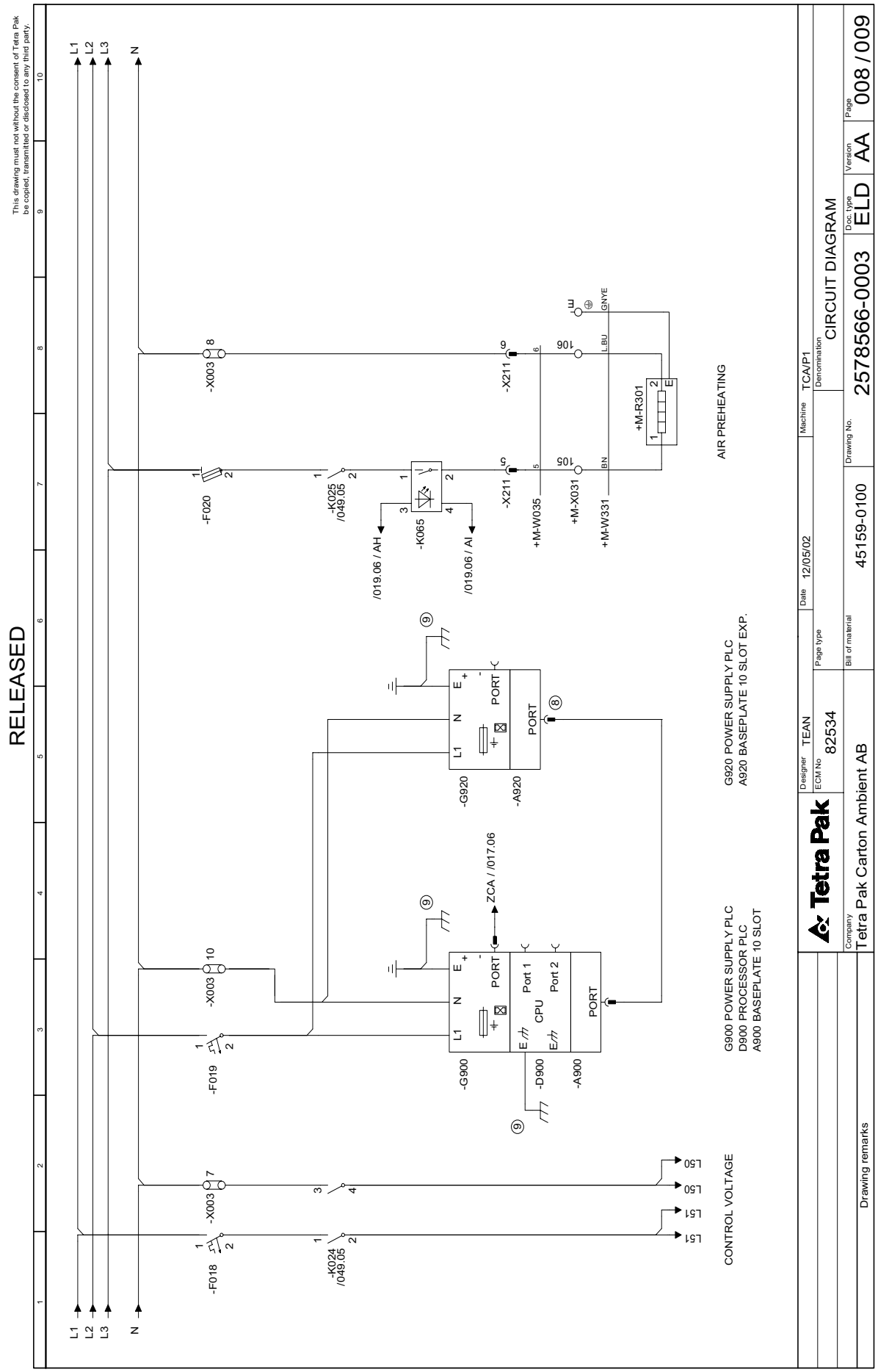

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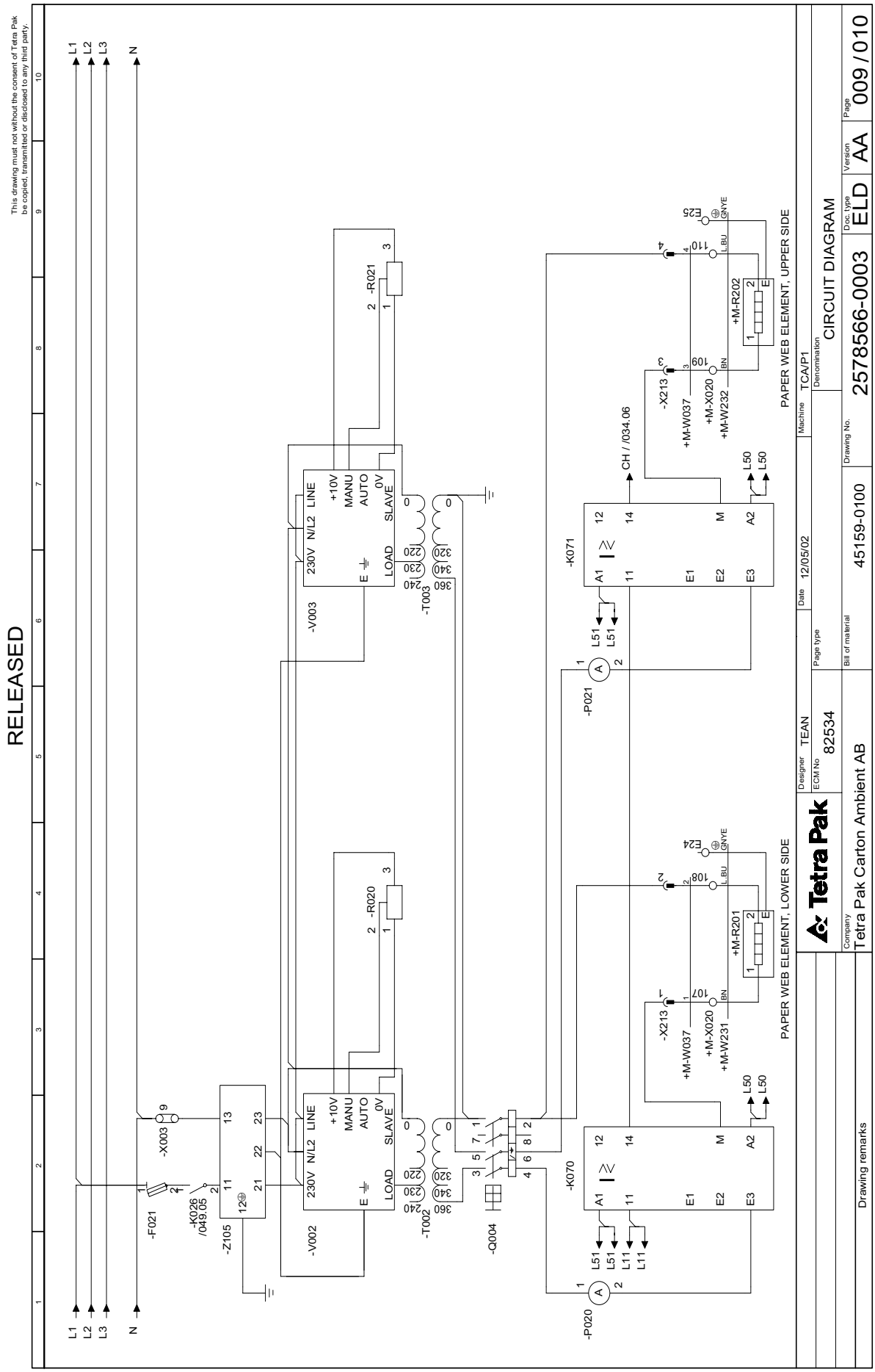

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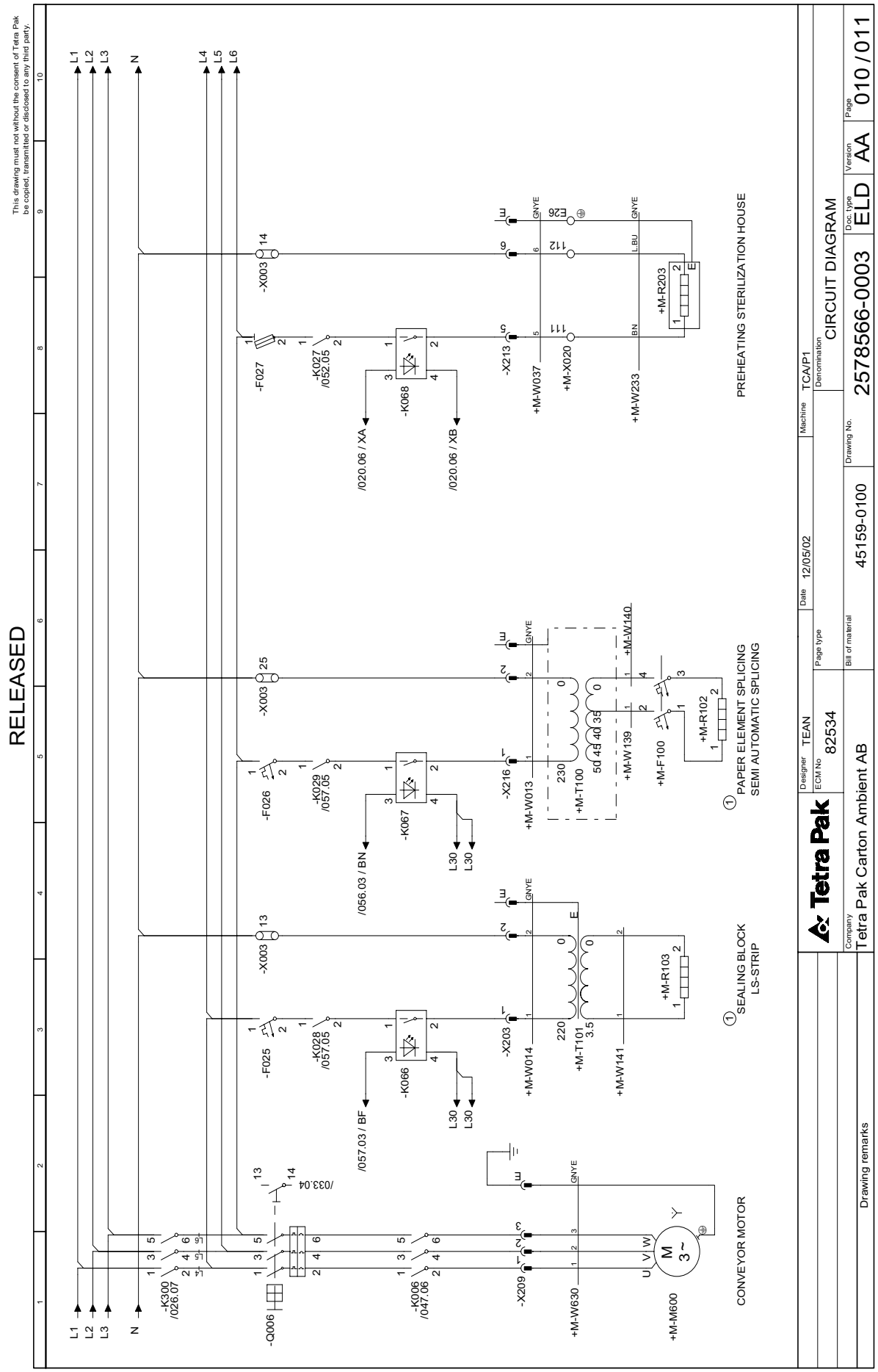

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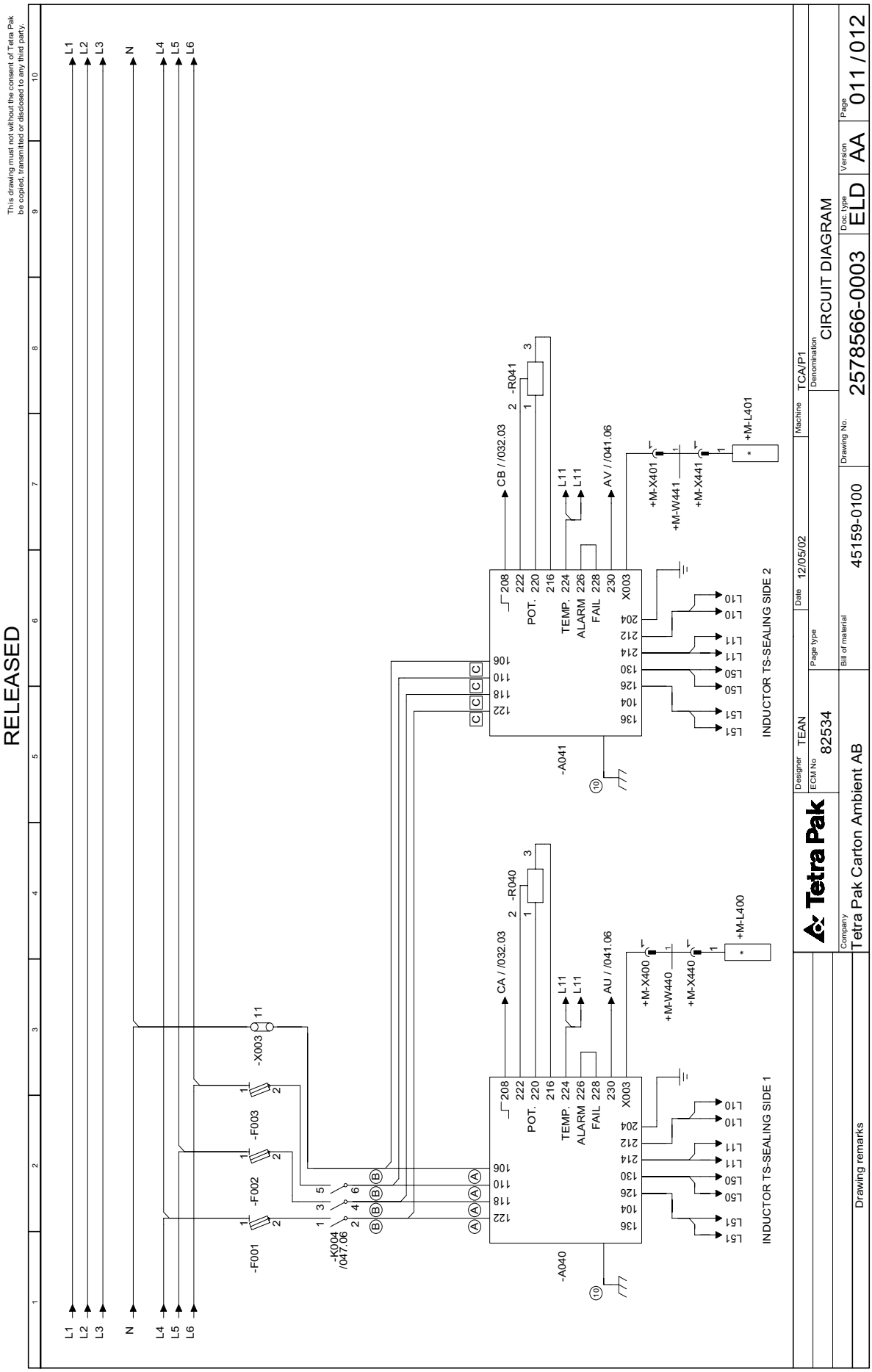

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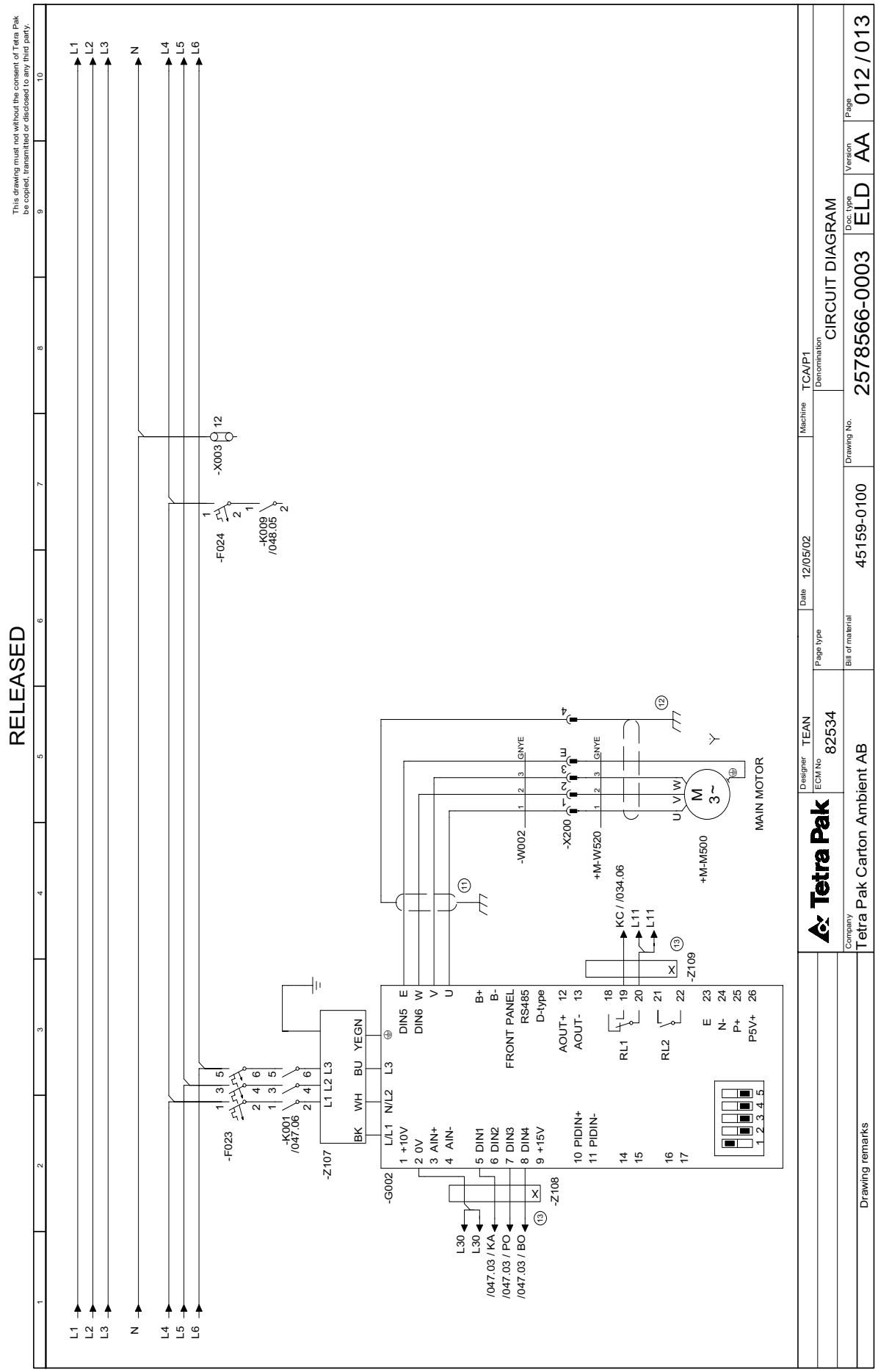

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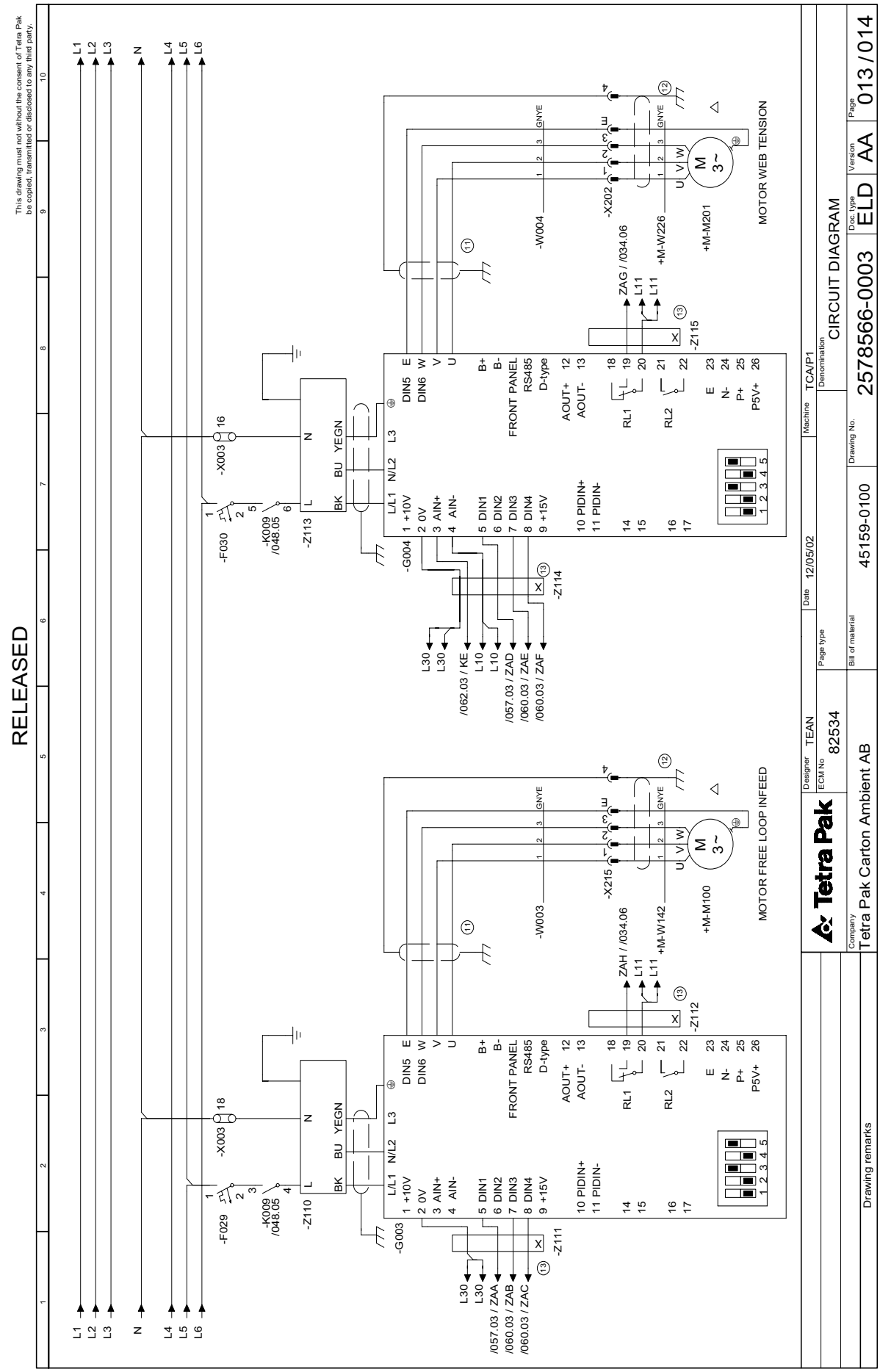

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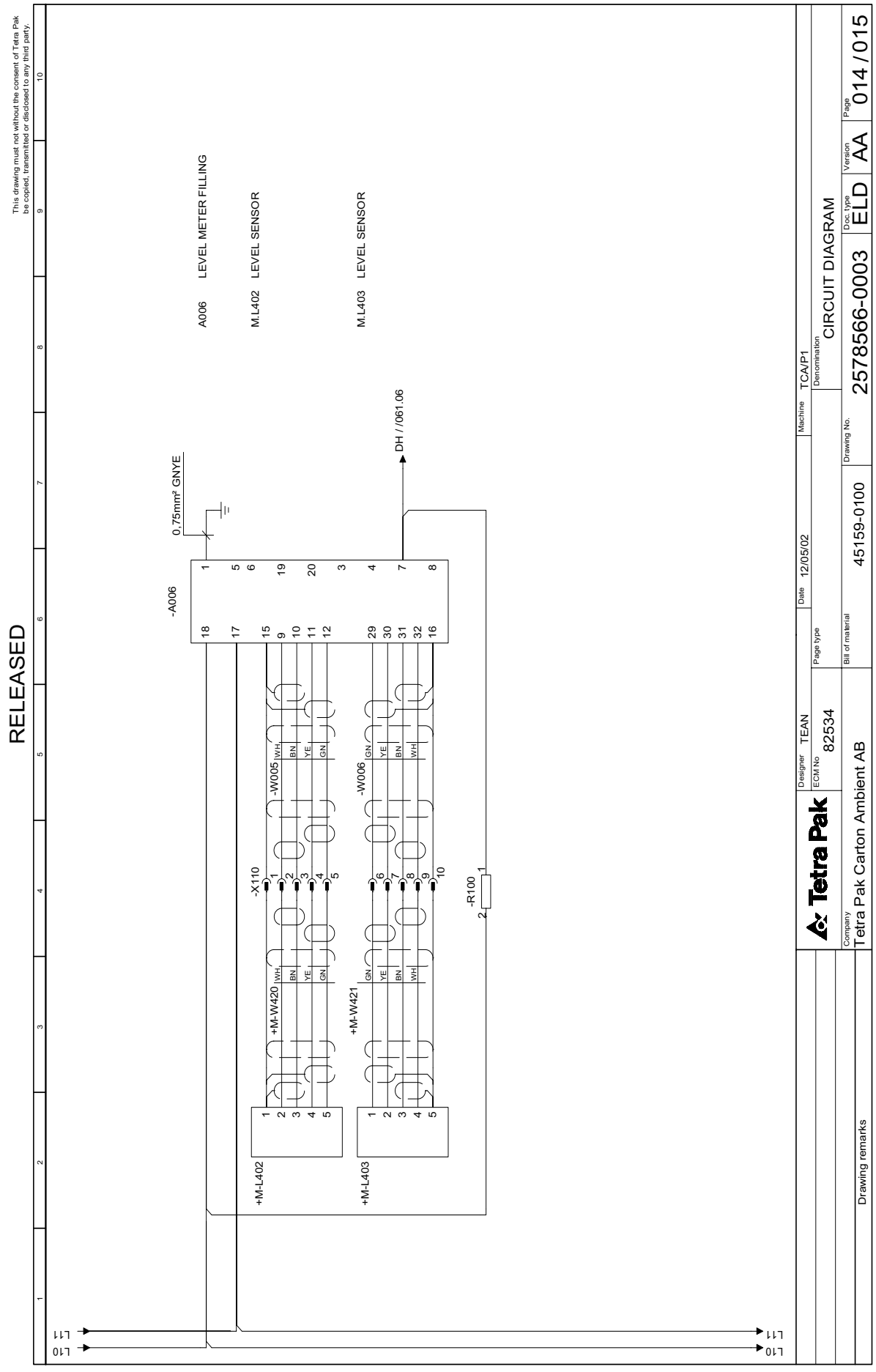

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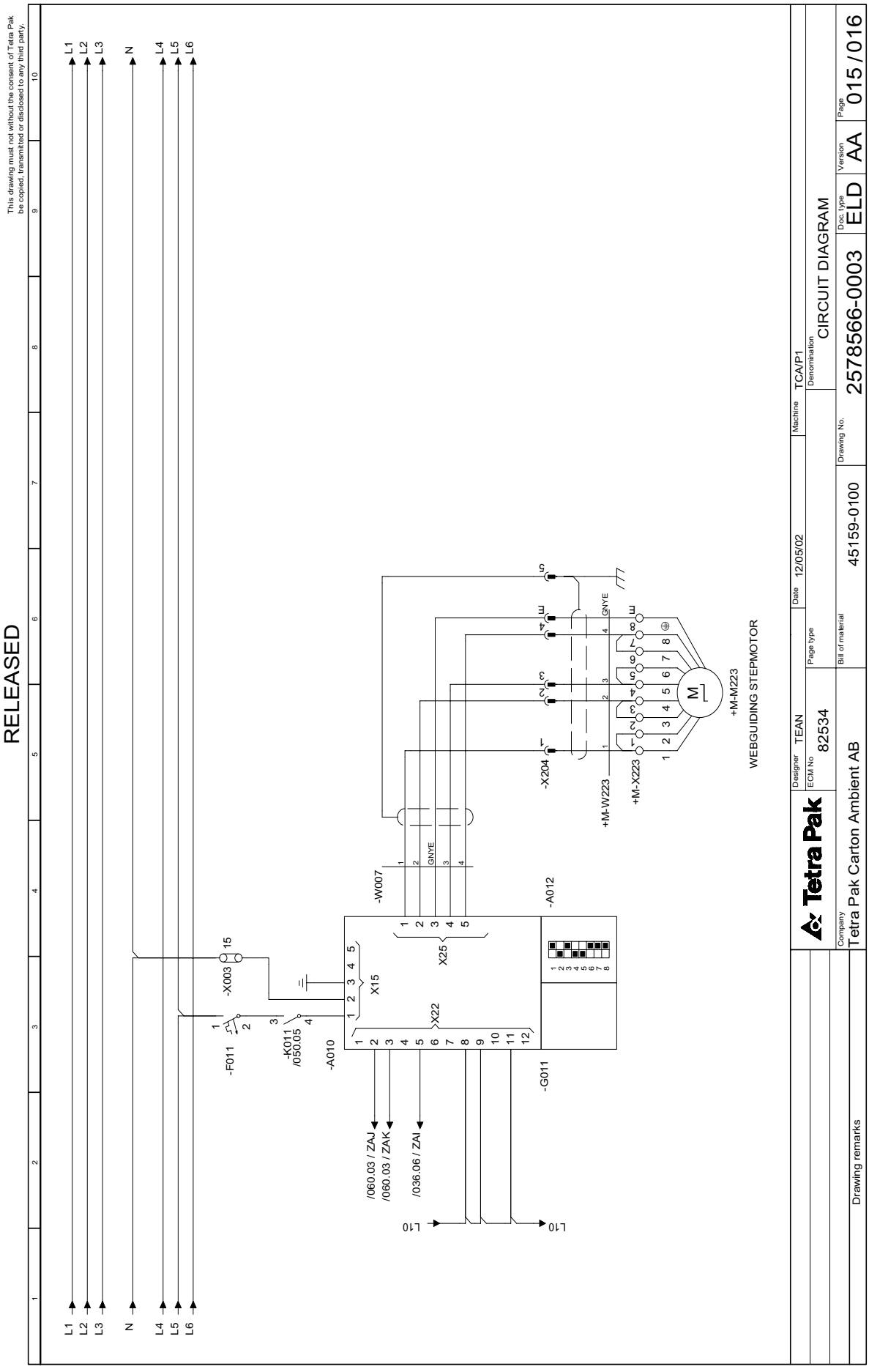

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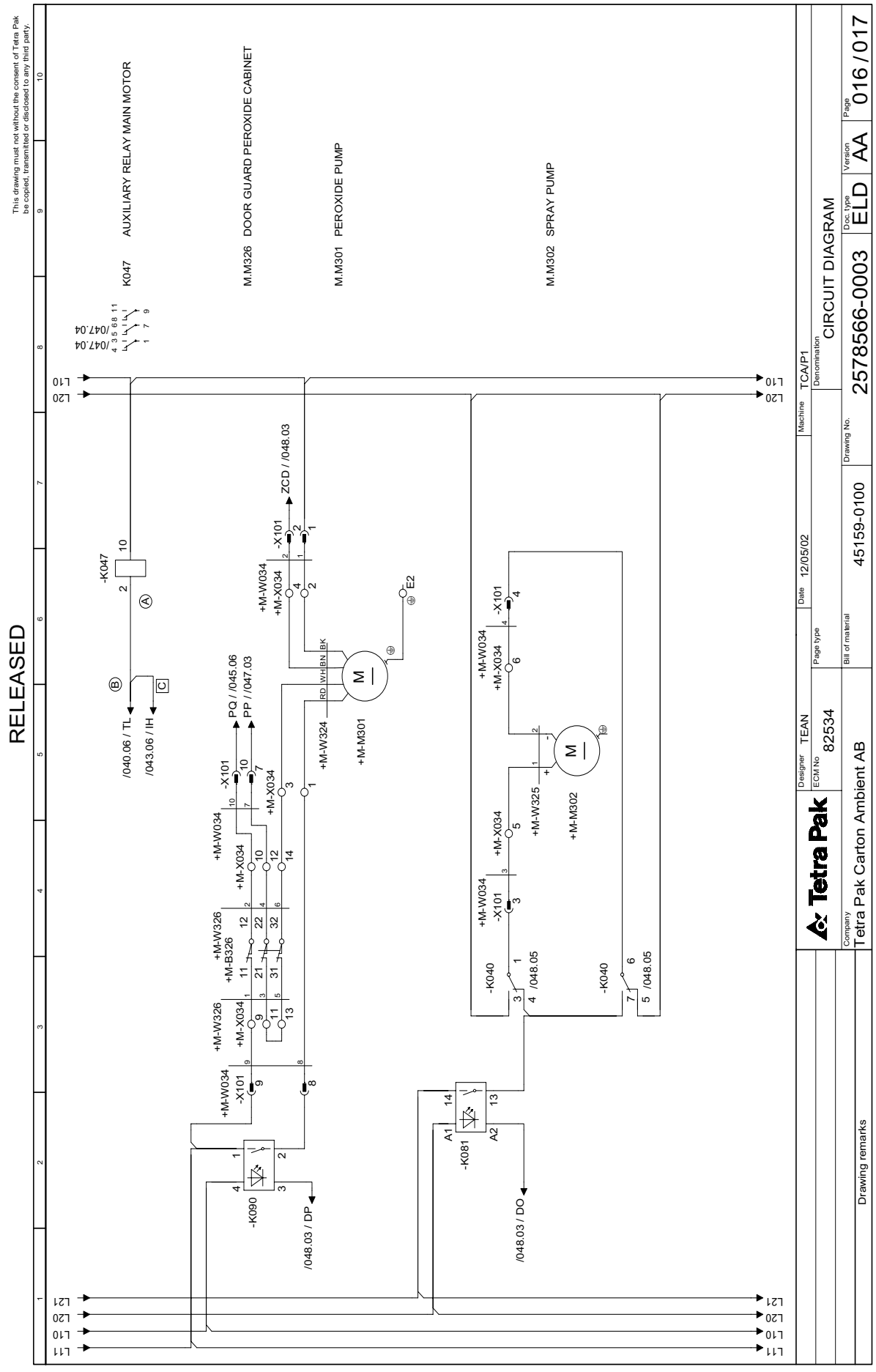

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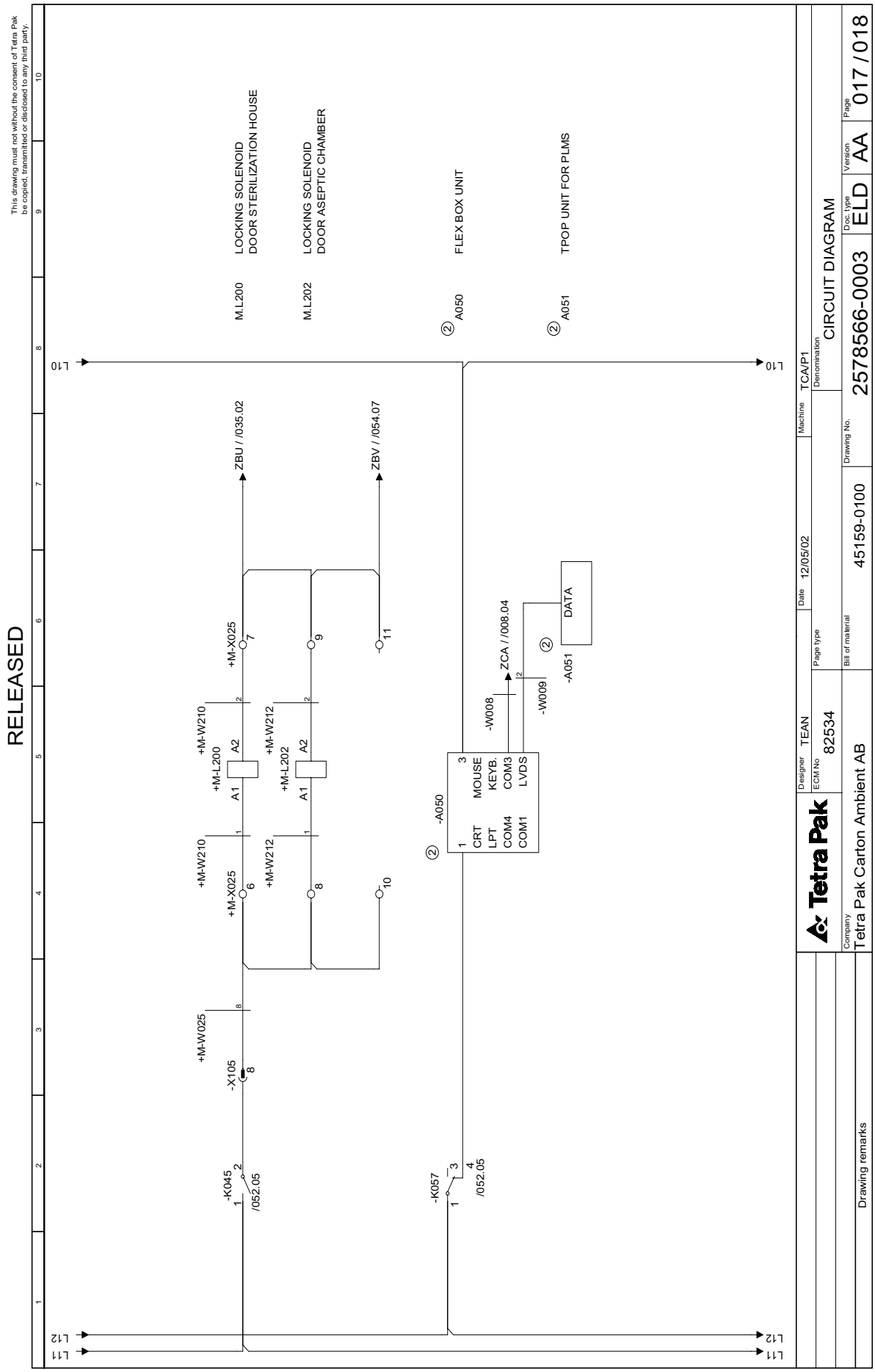

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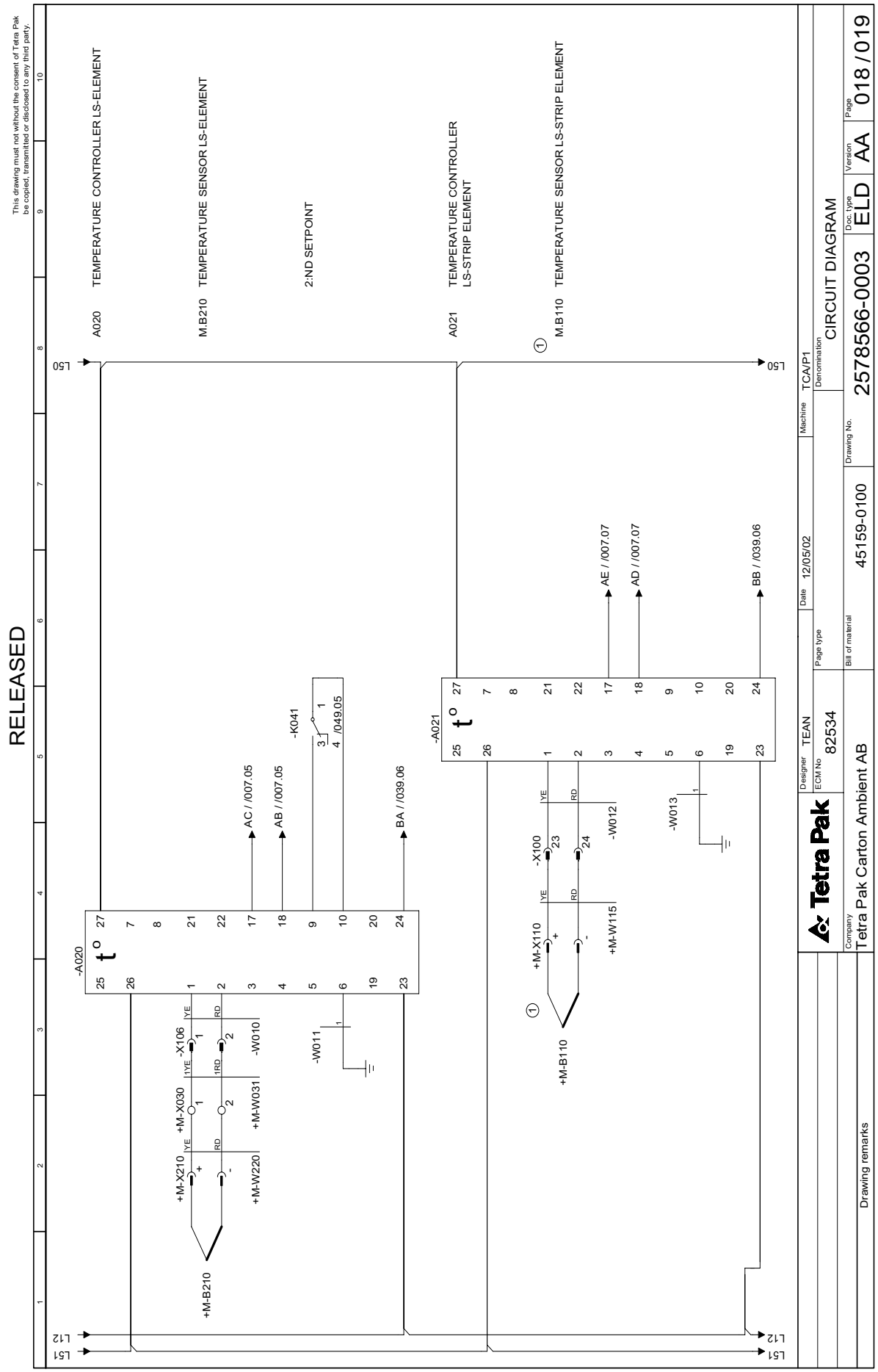

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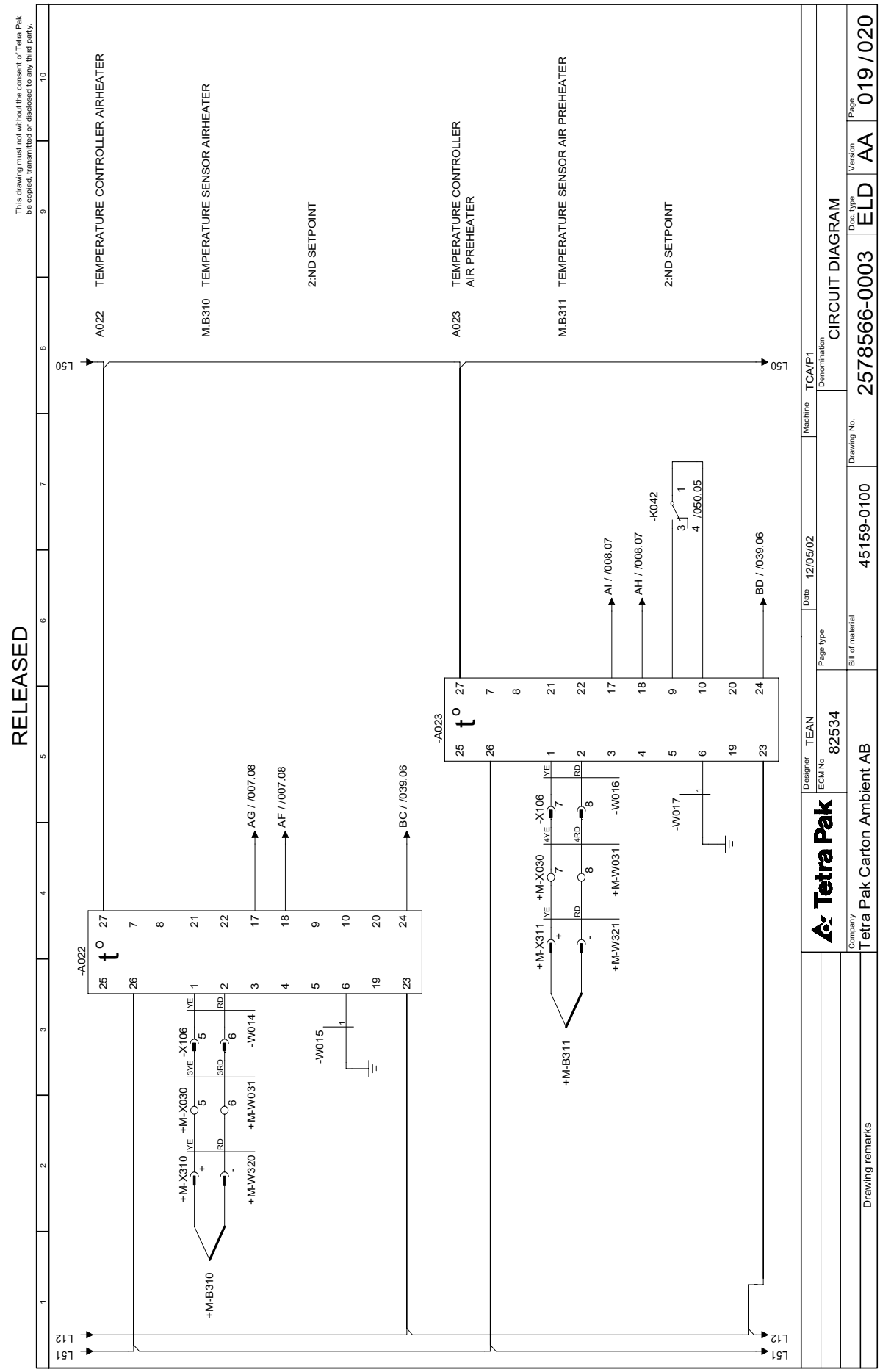

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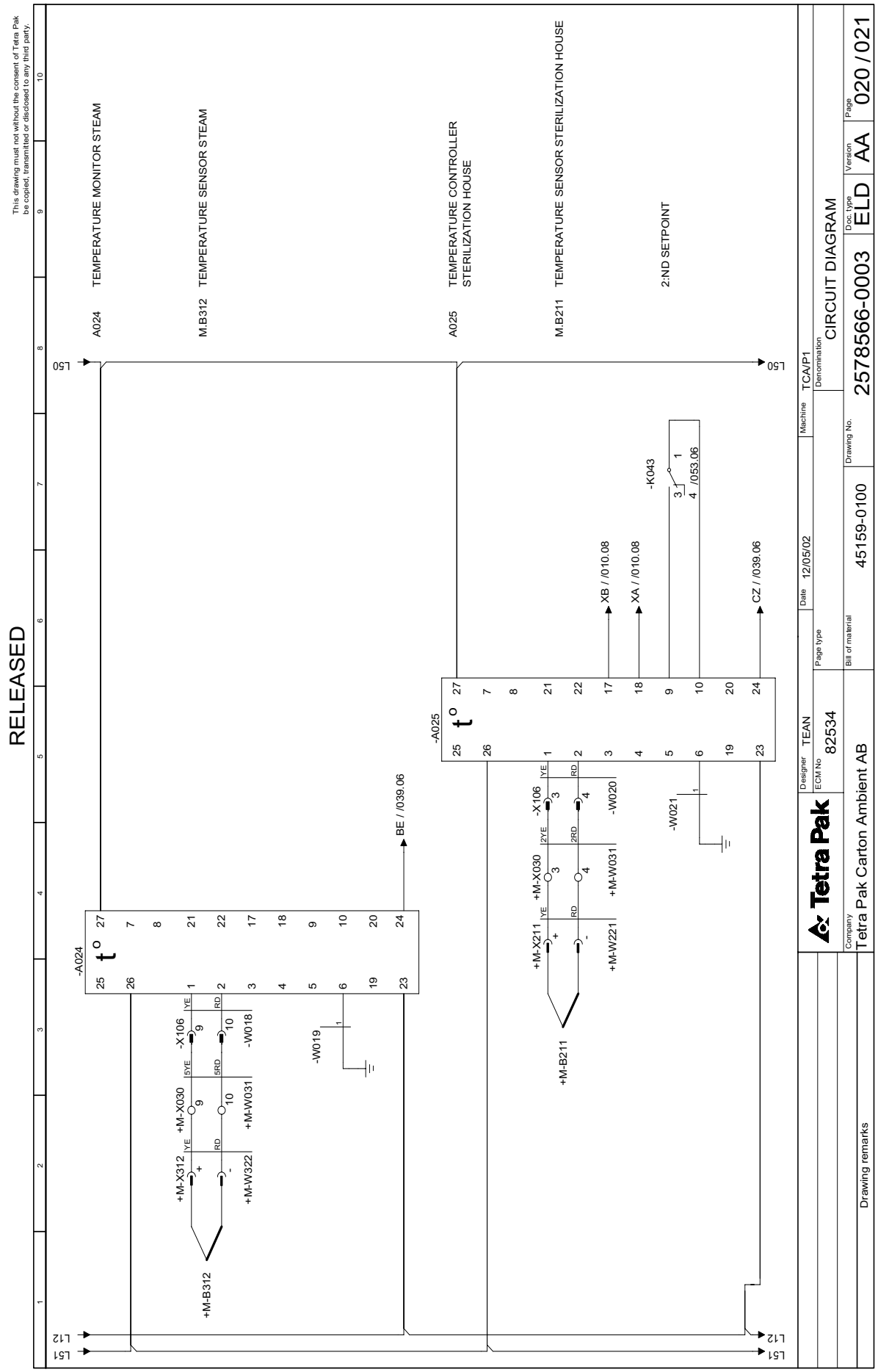

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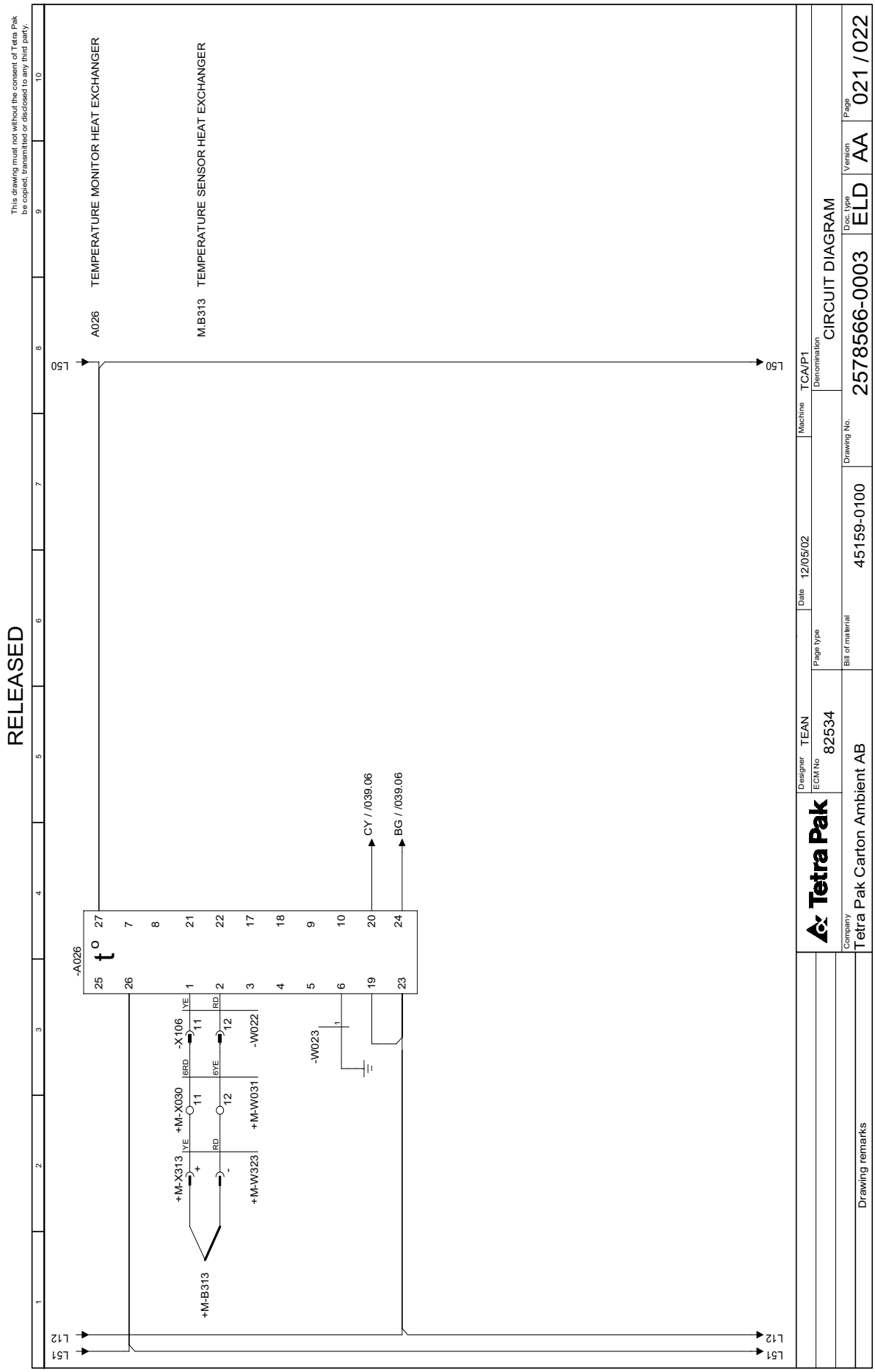

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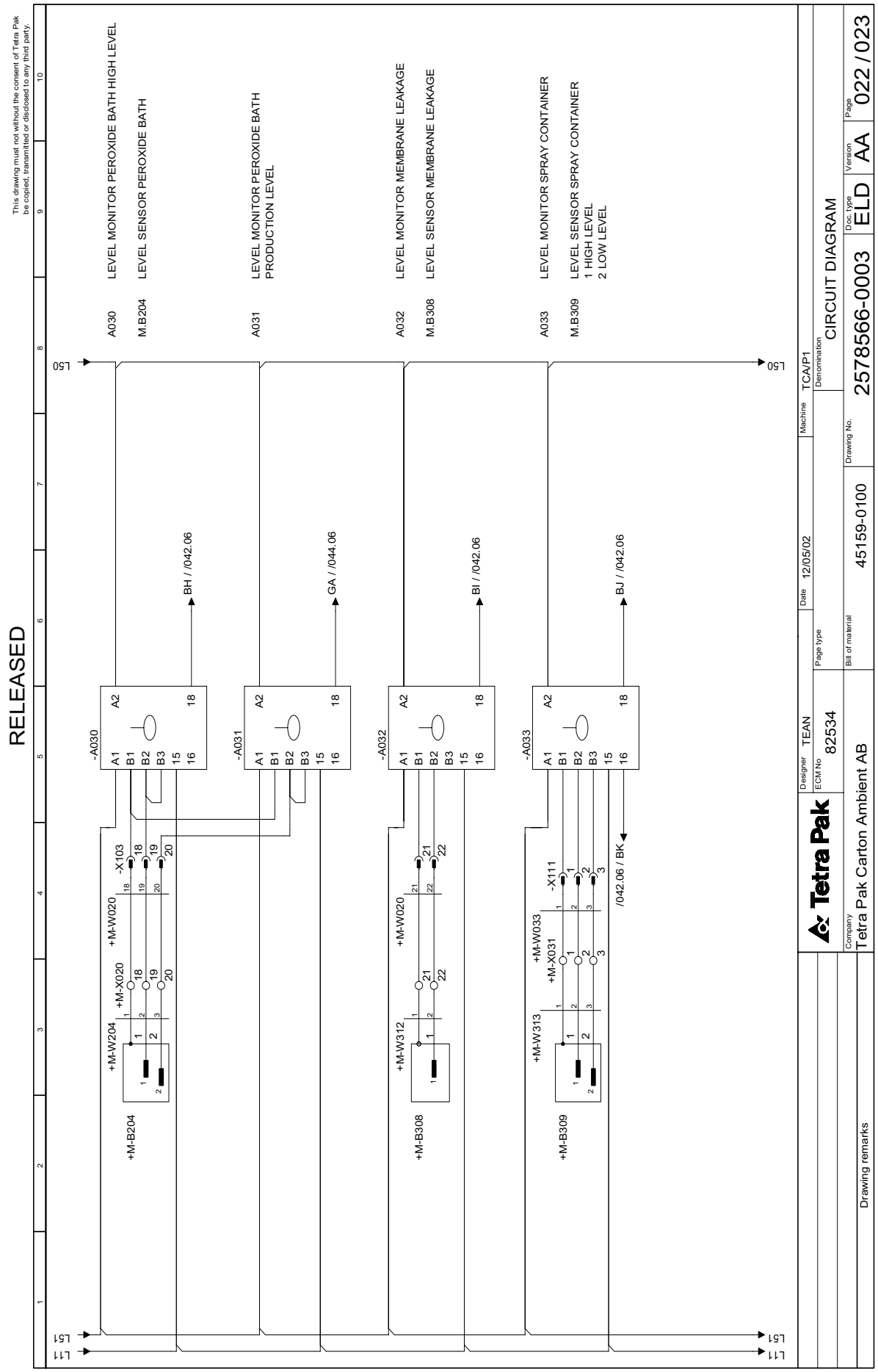

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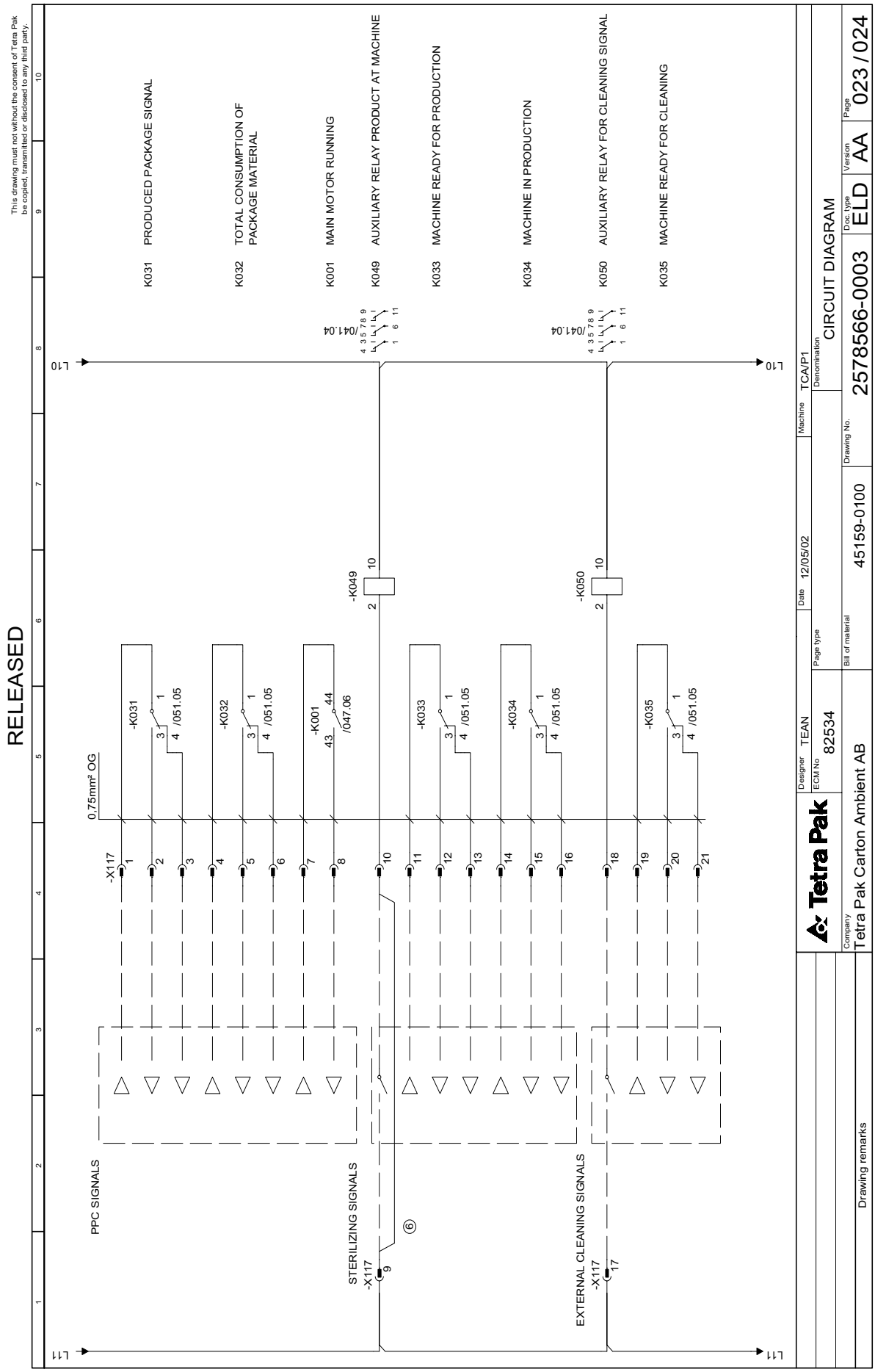

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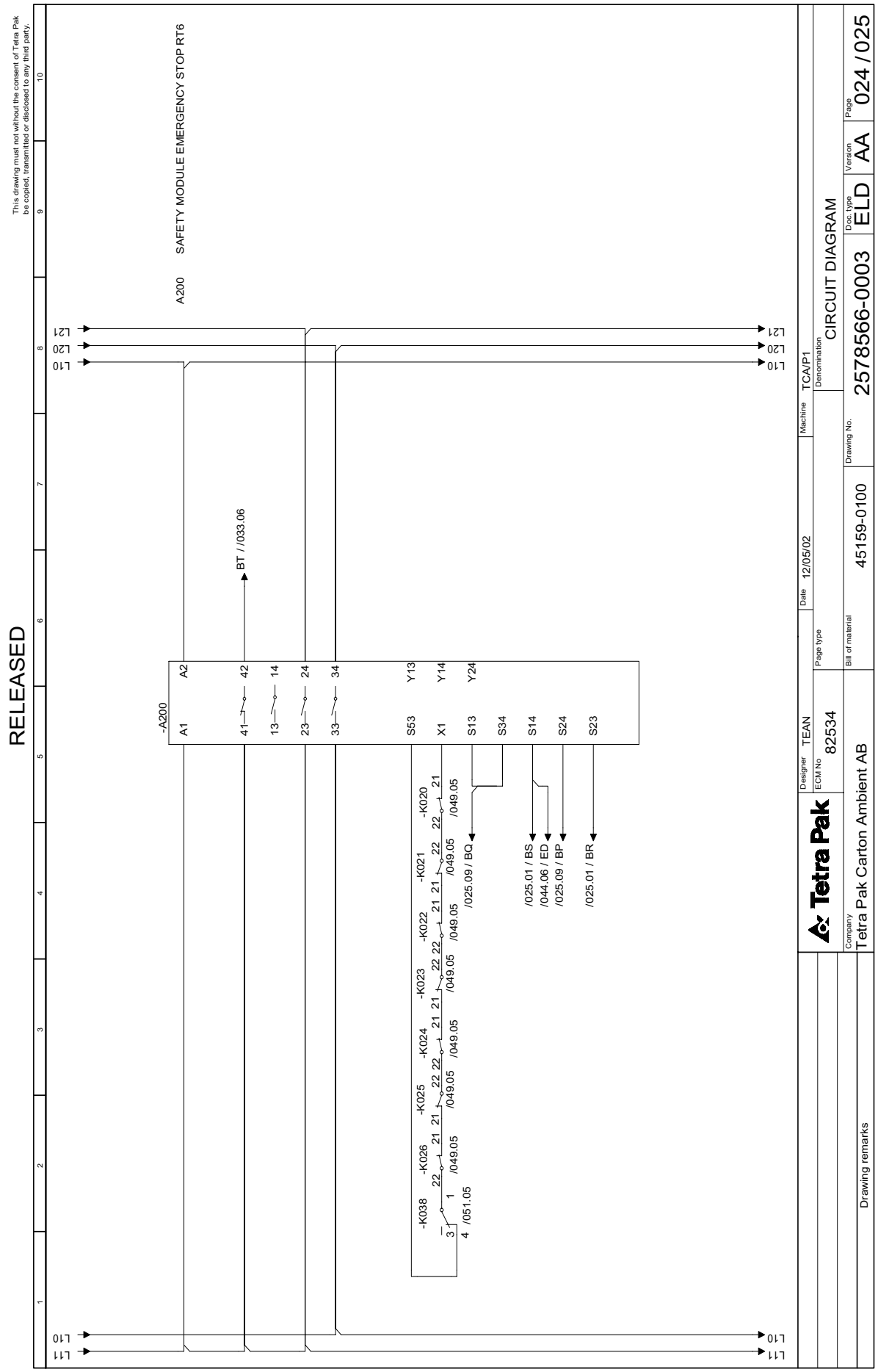

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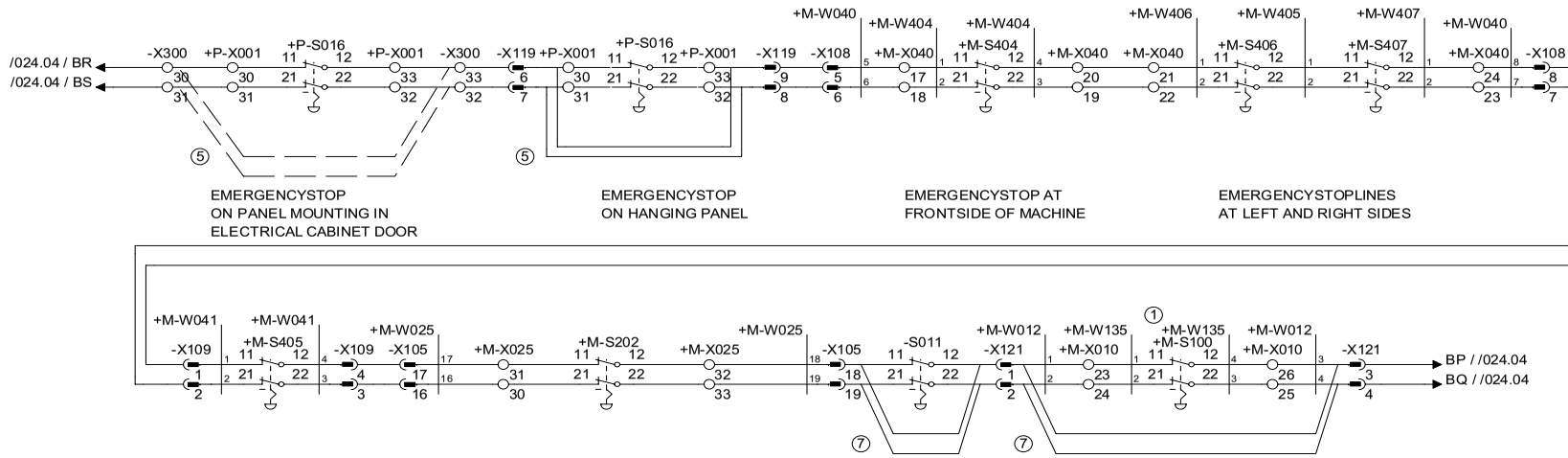

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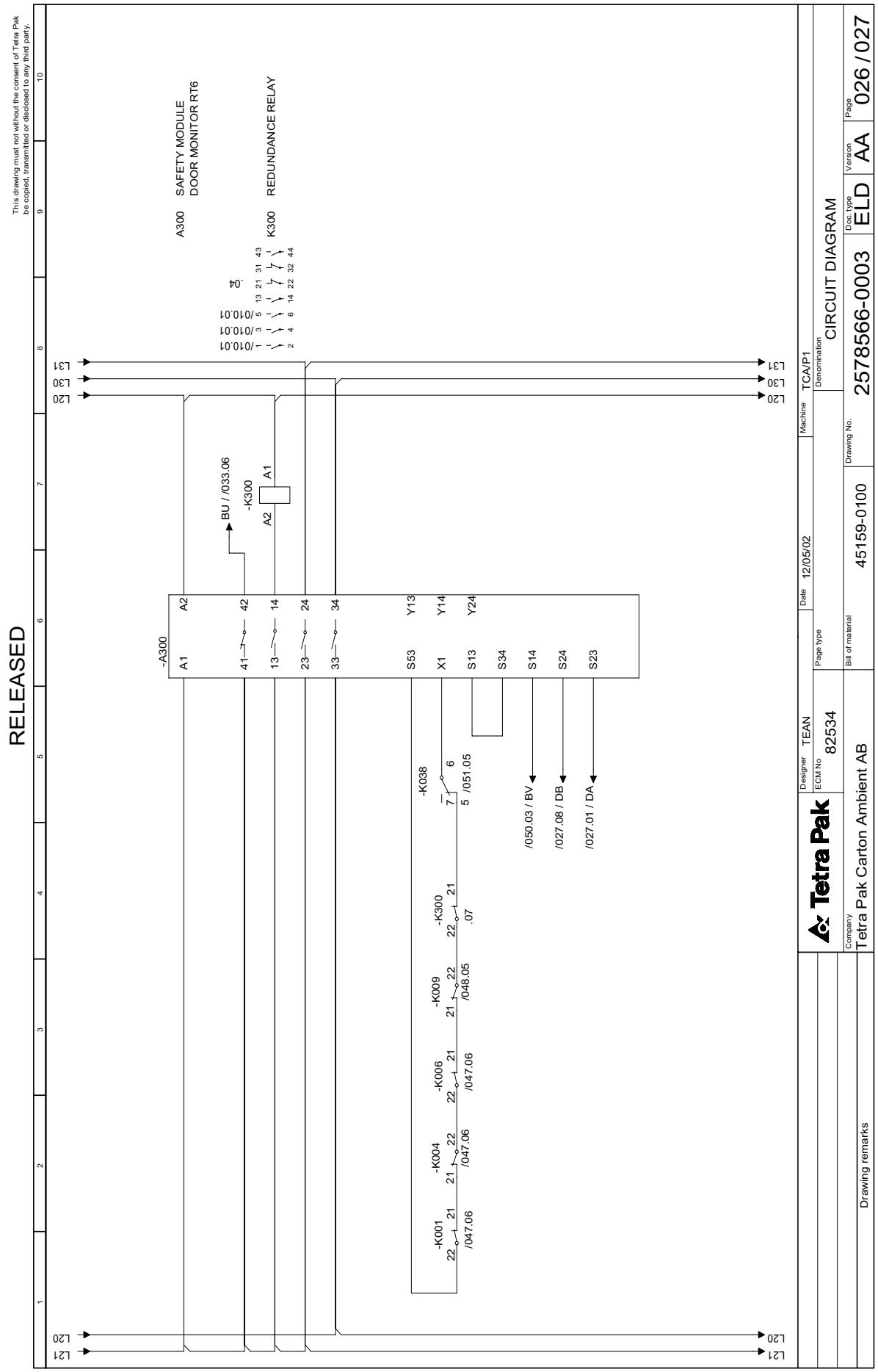
Drawing remarks	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0003	Doc. type ELD	Version AA	Page 025 / 026		



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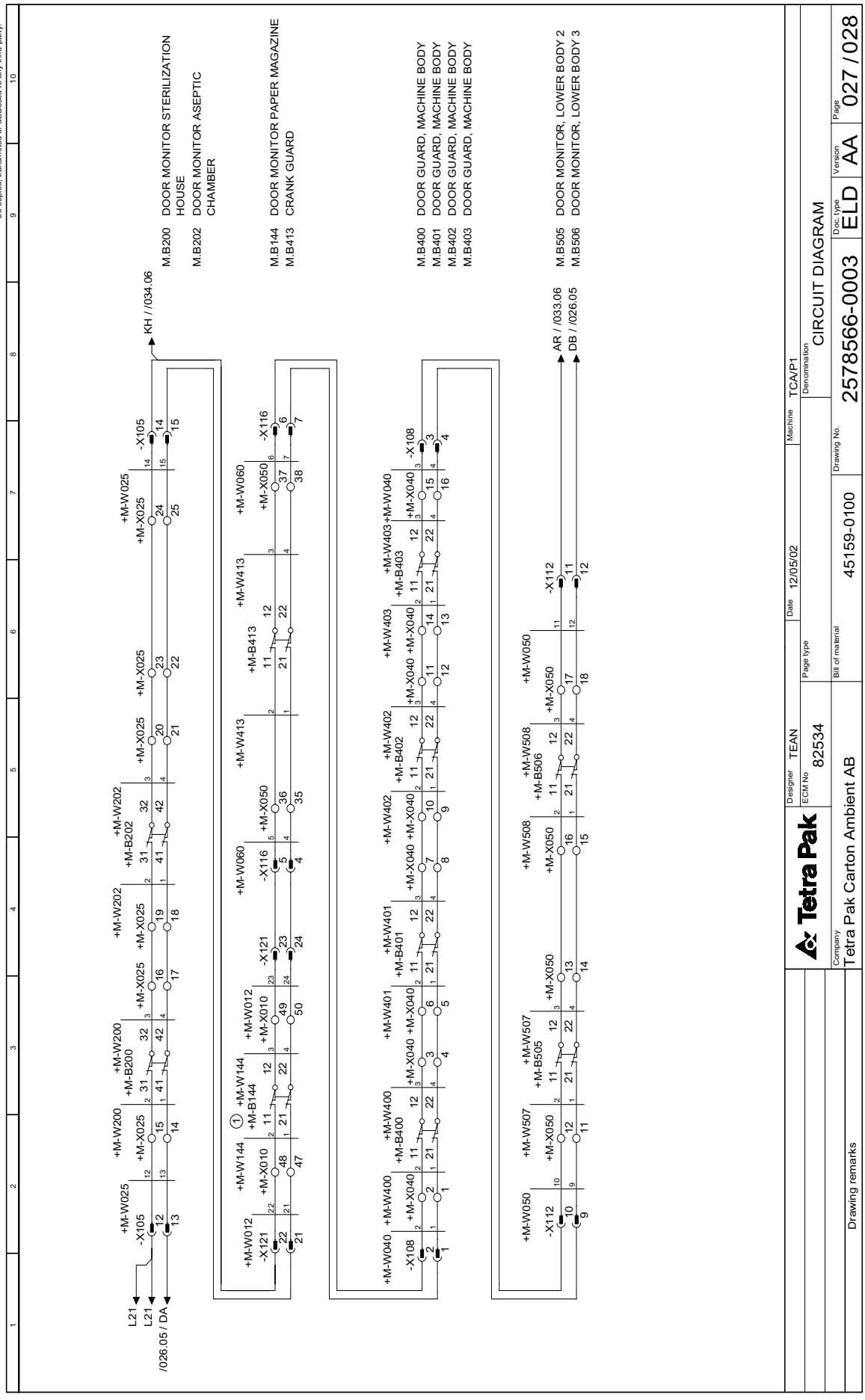

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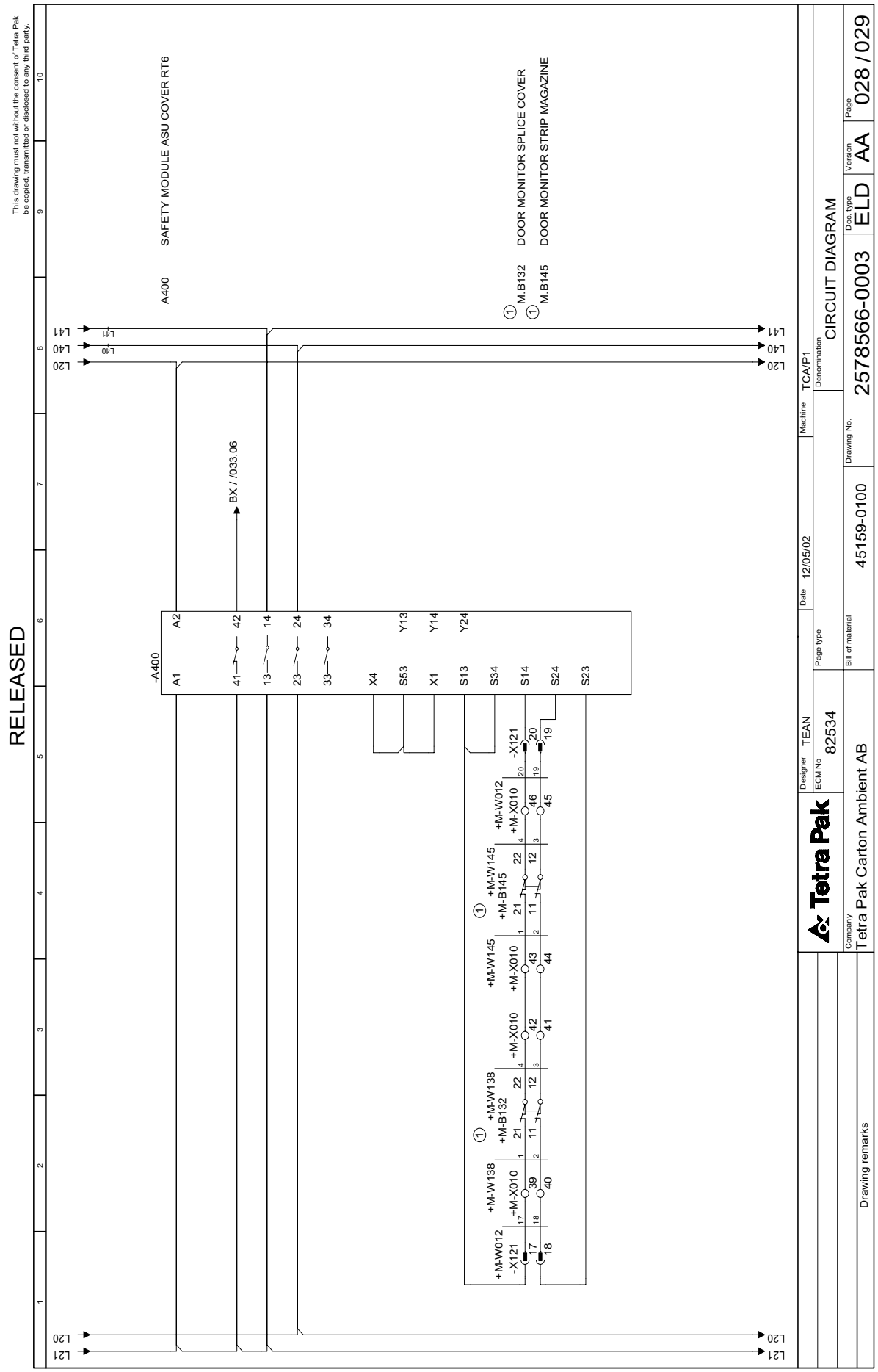

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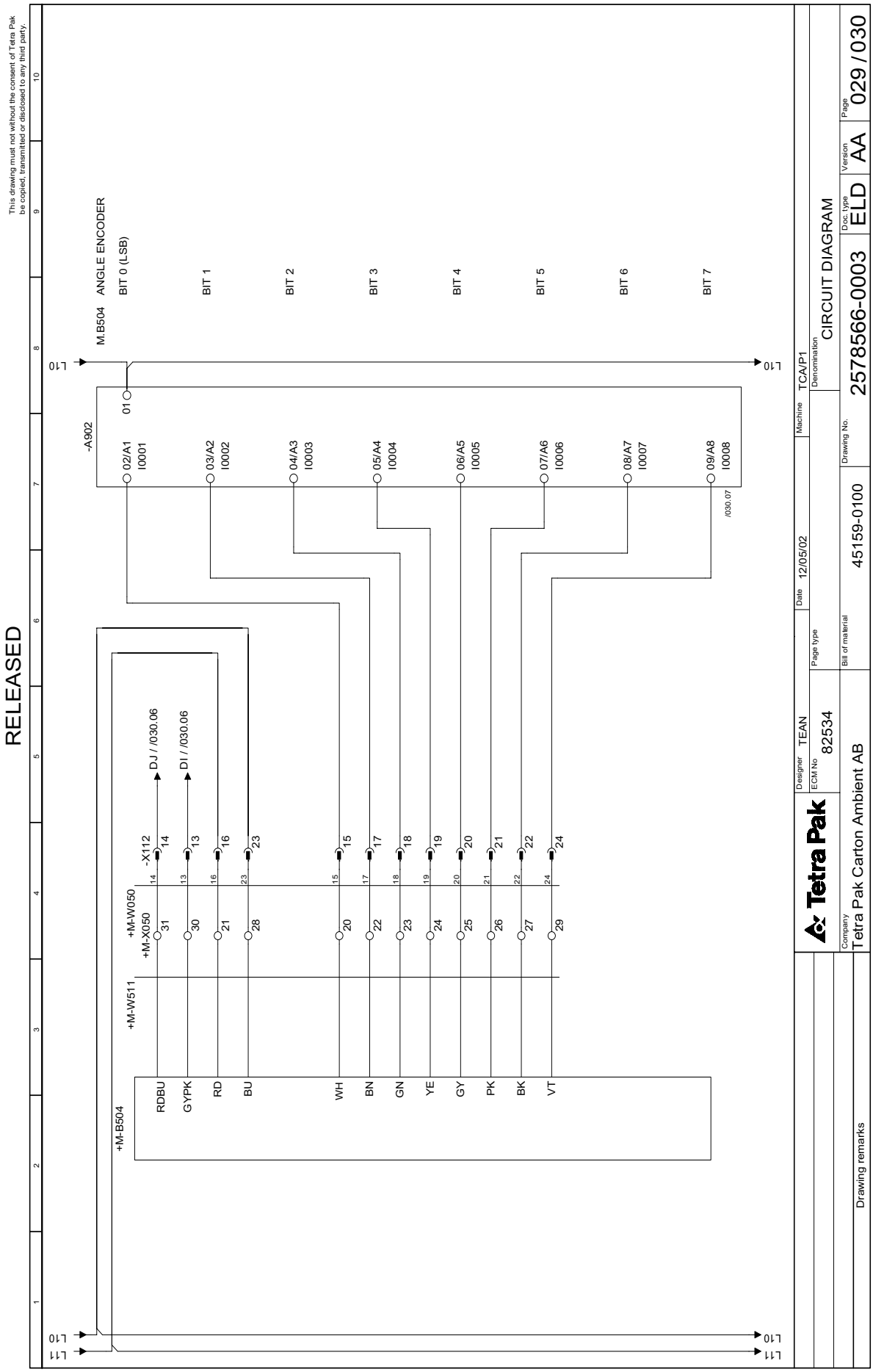

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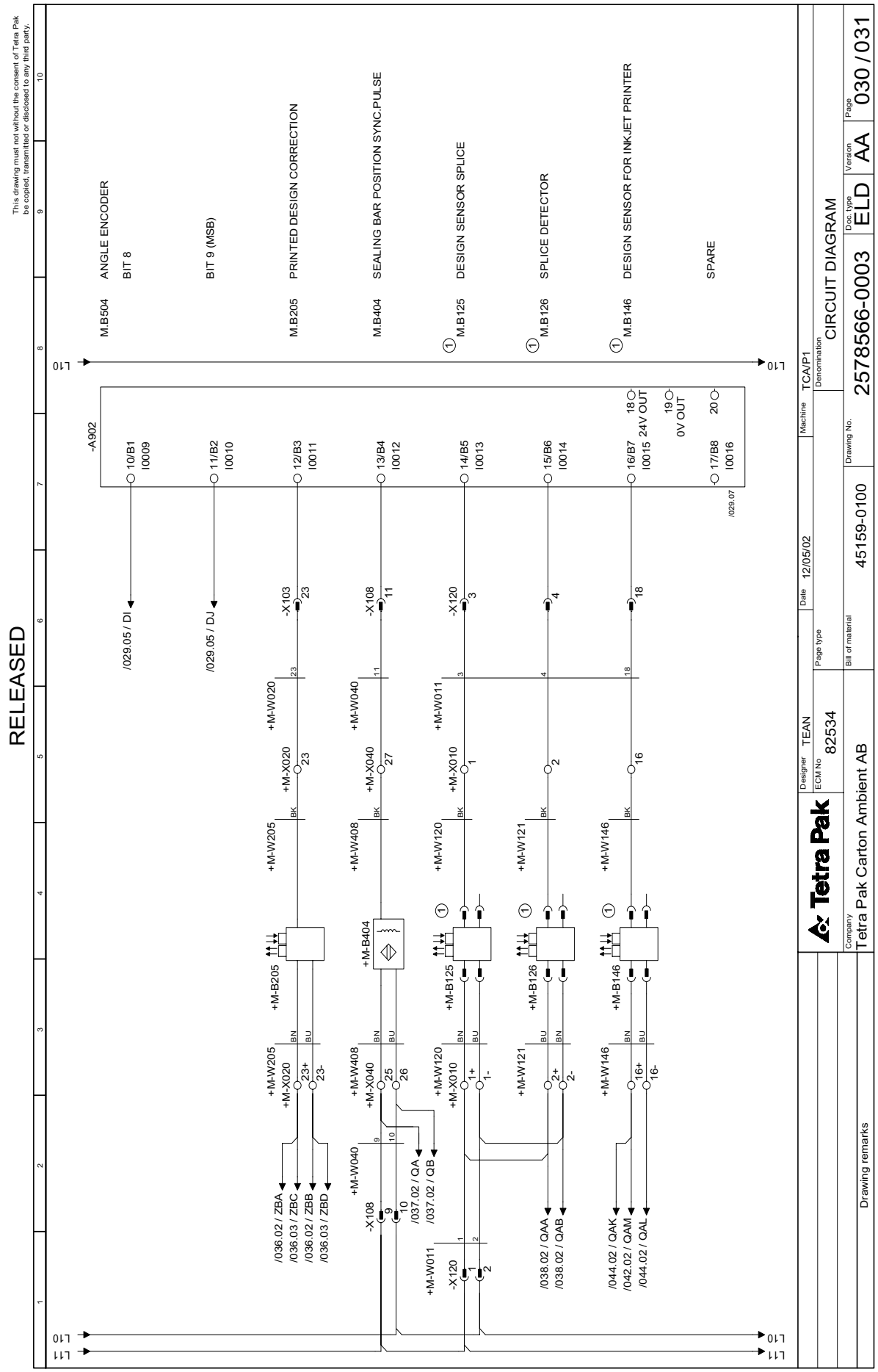

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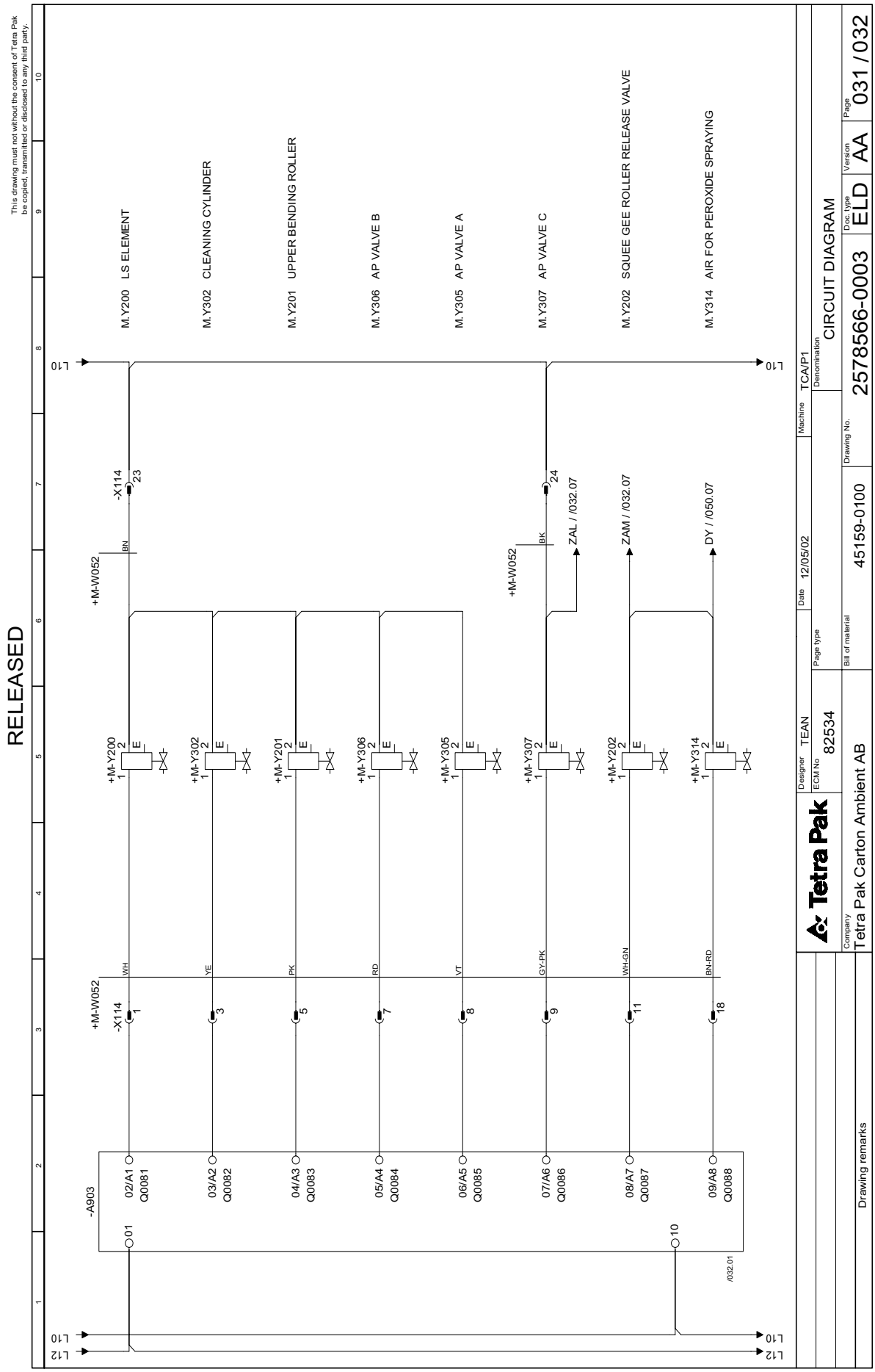

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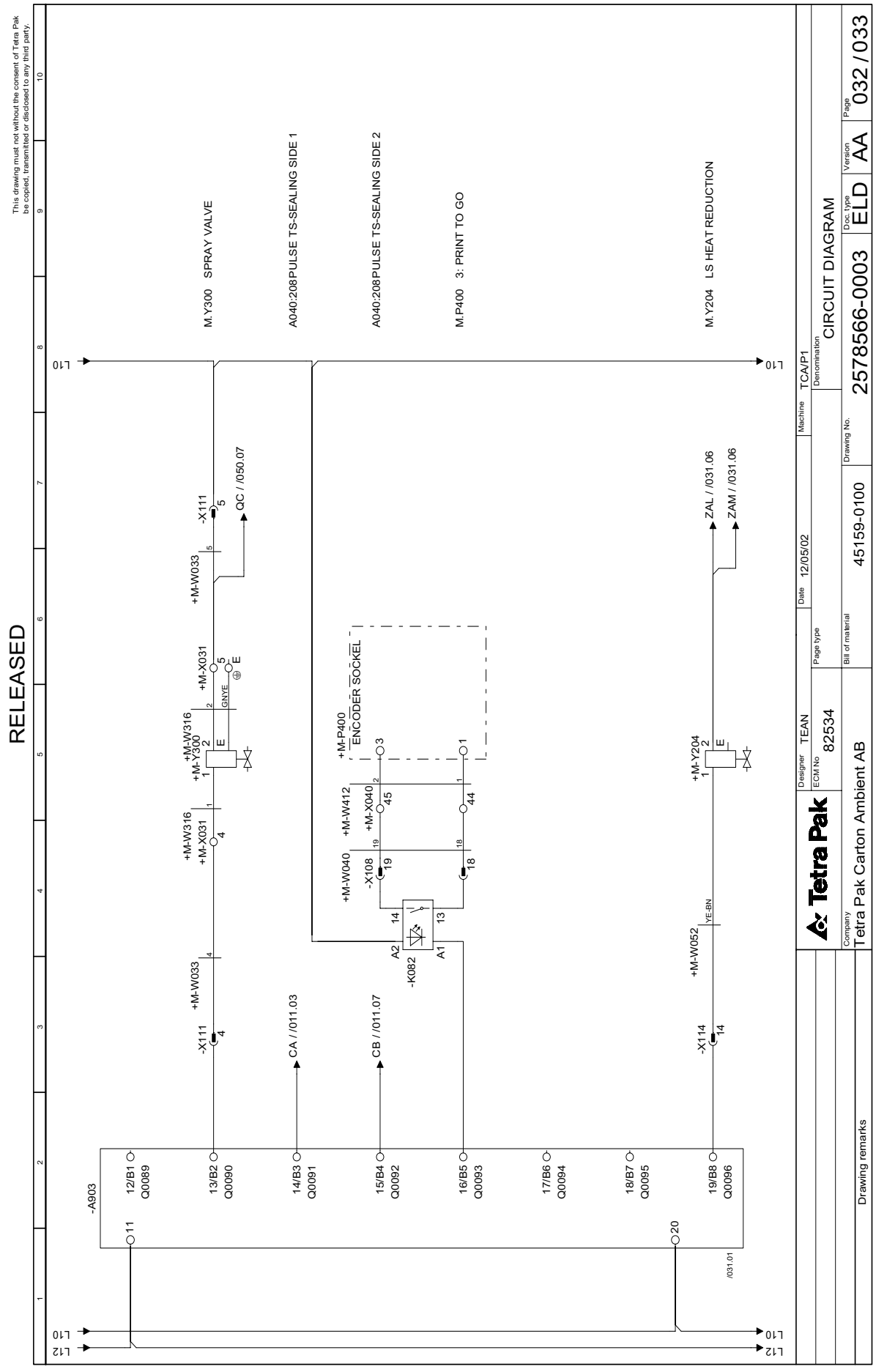

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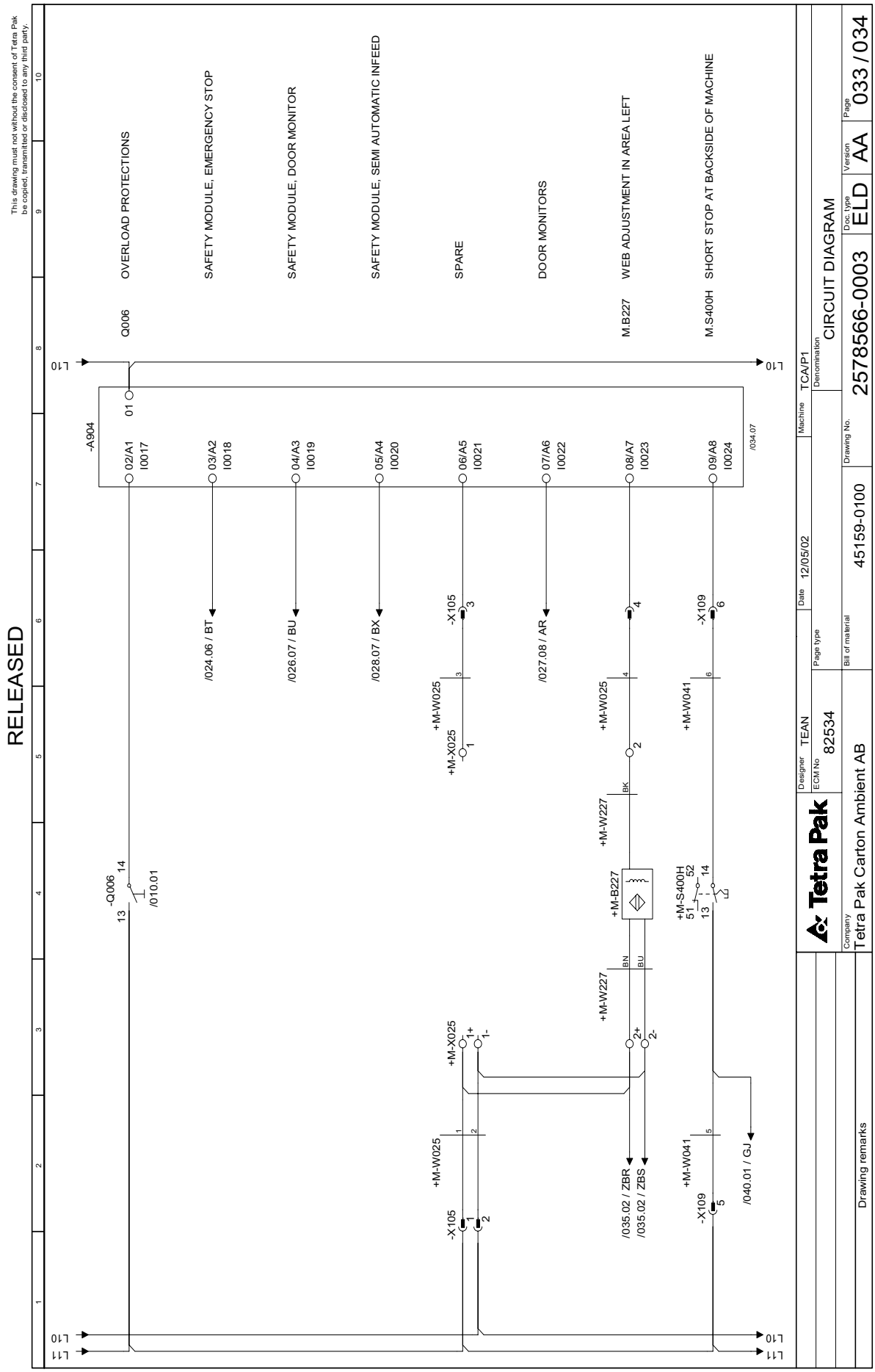

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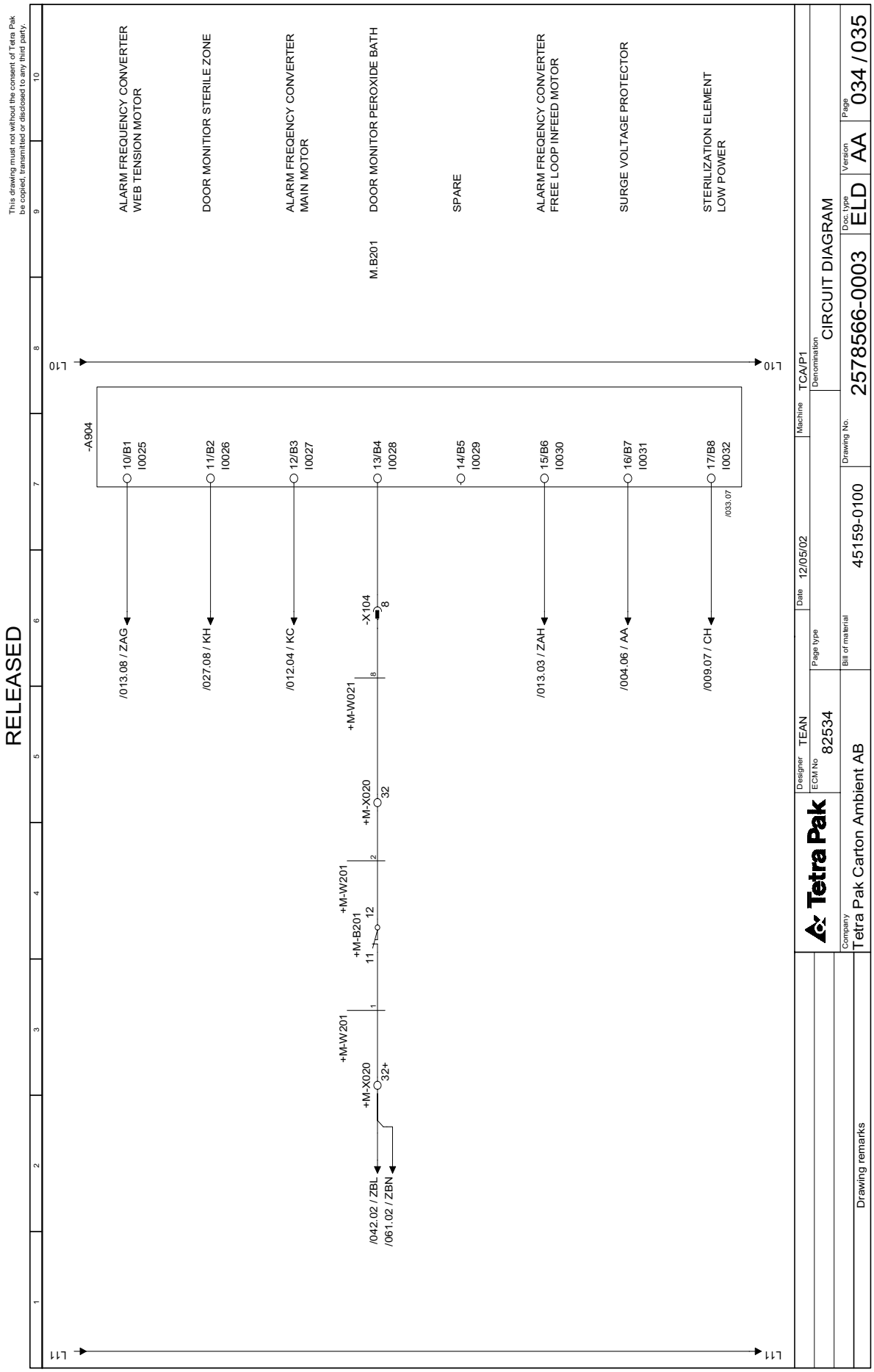

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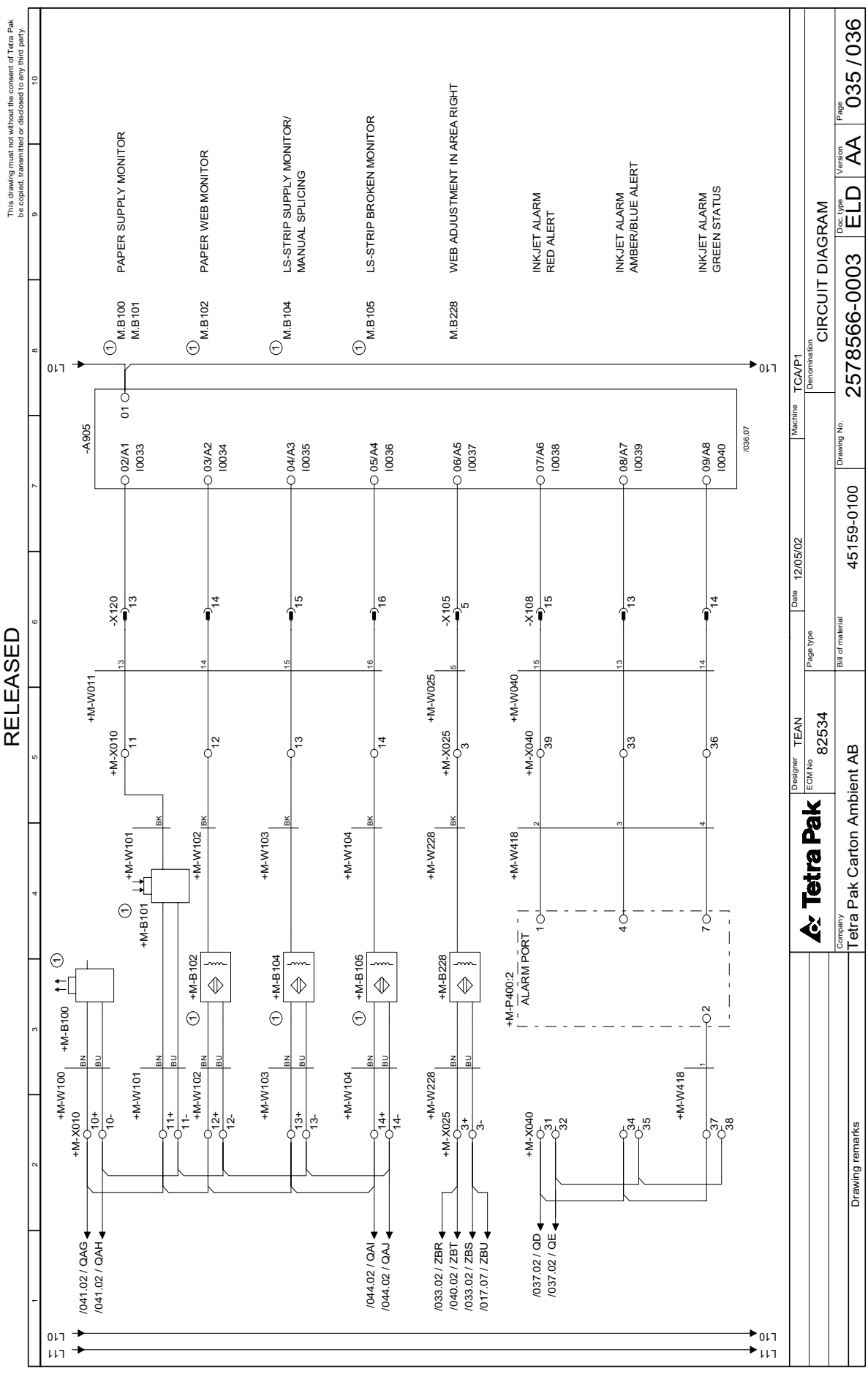

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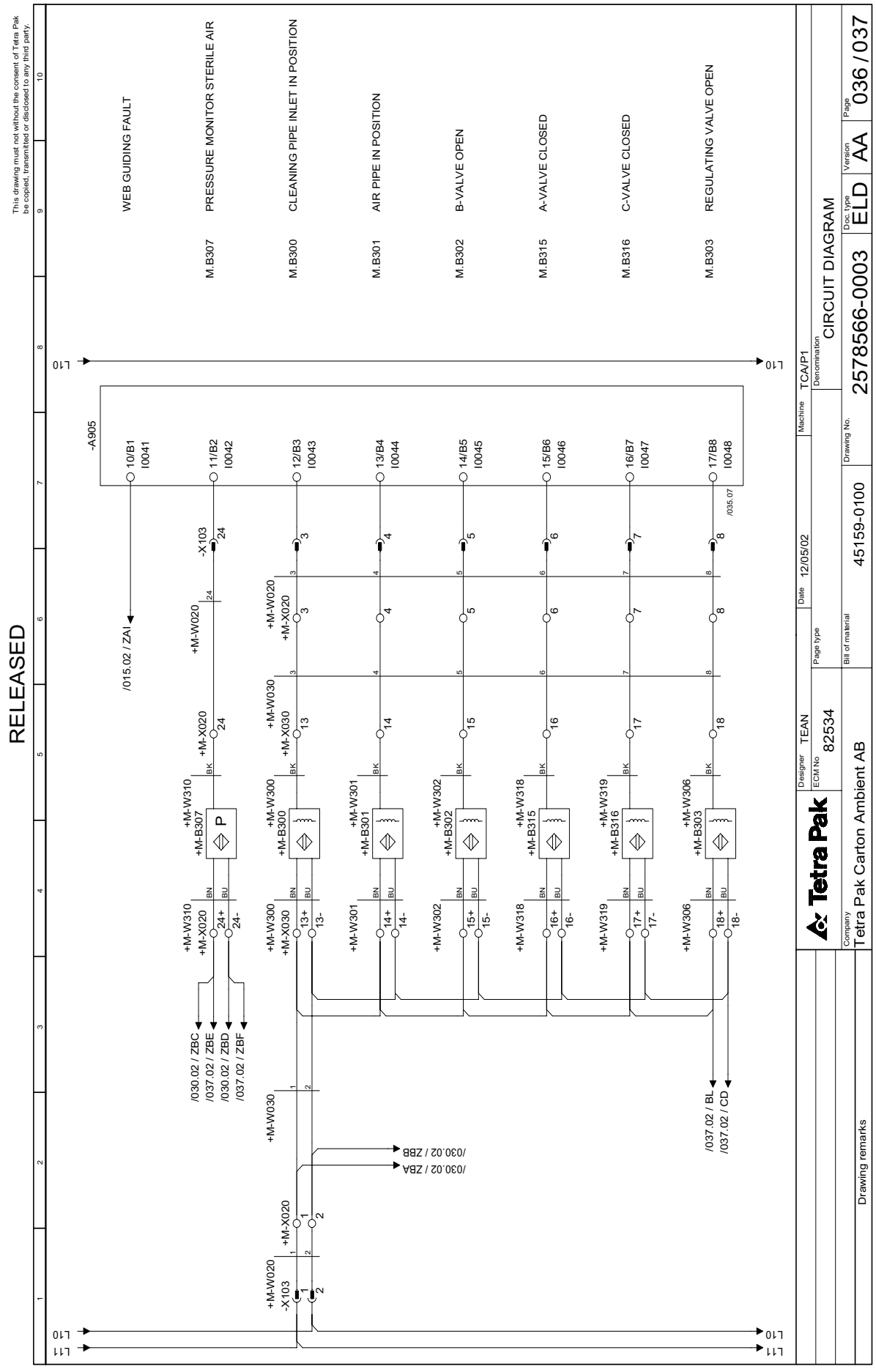

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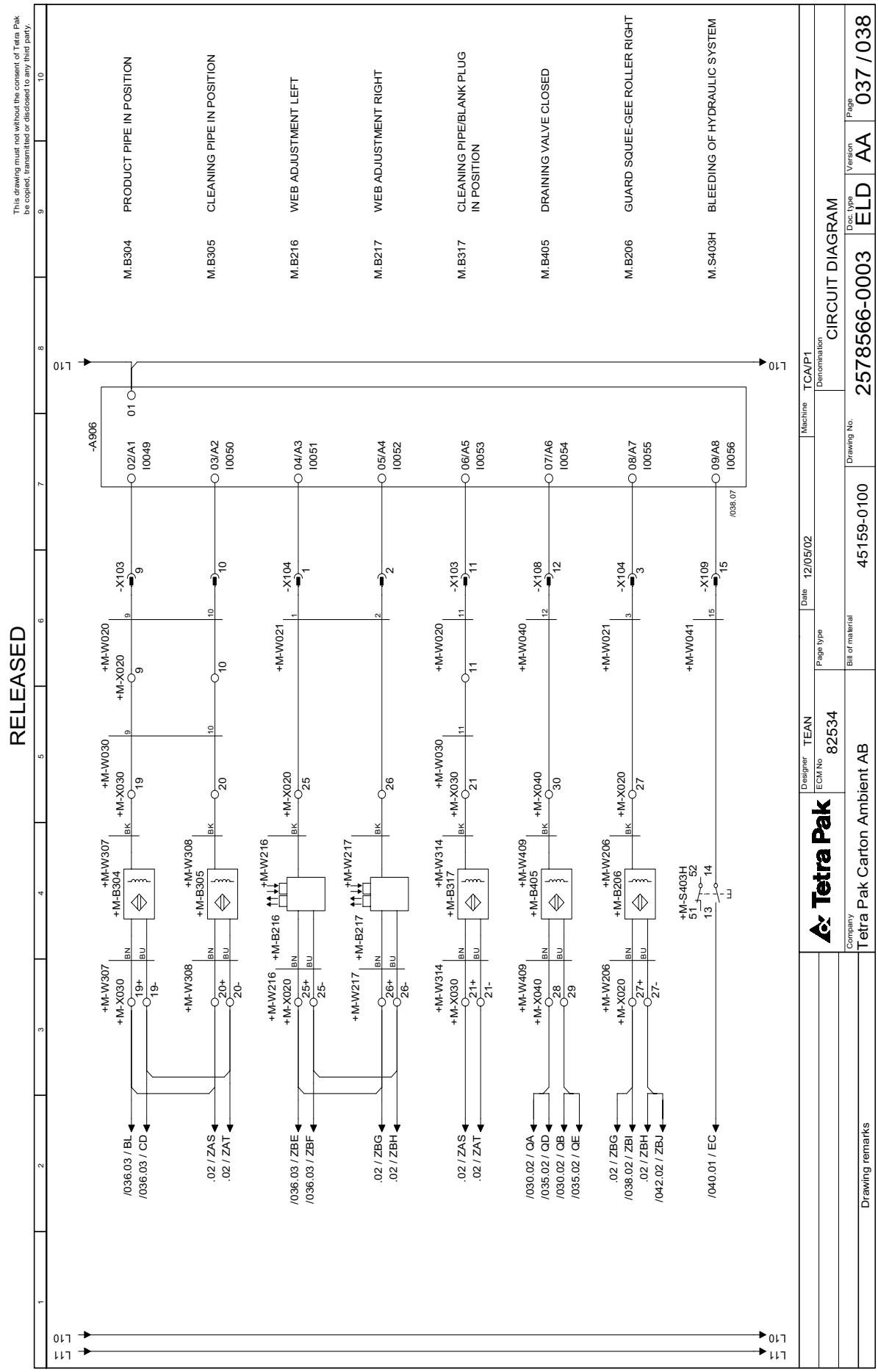

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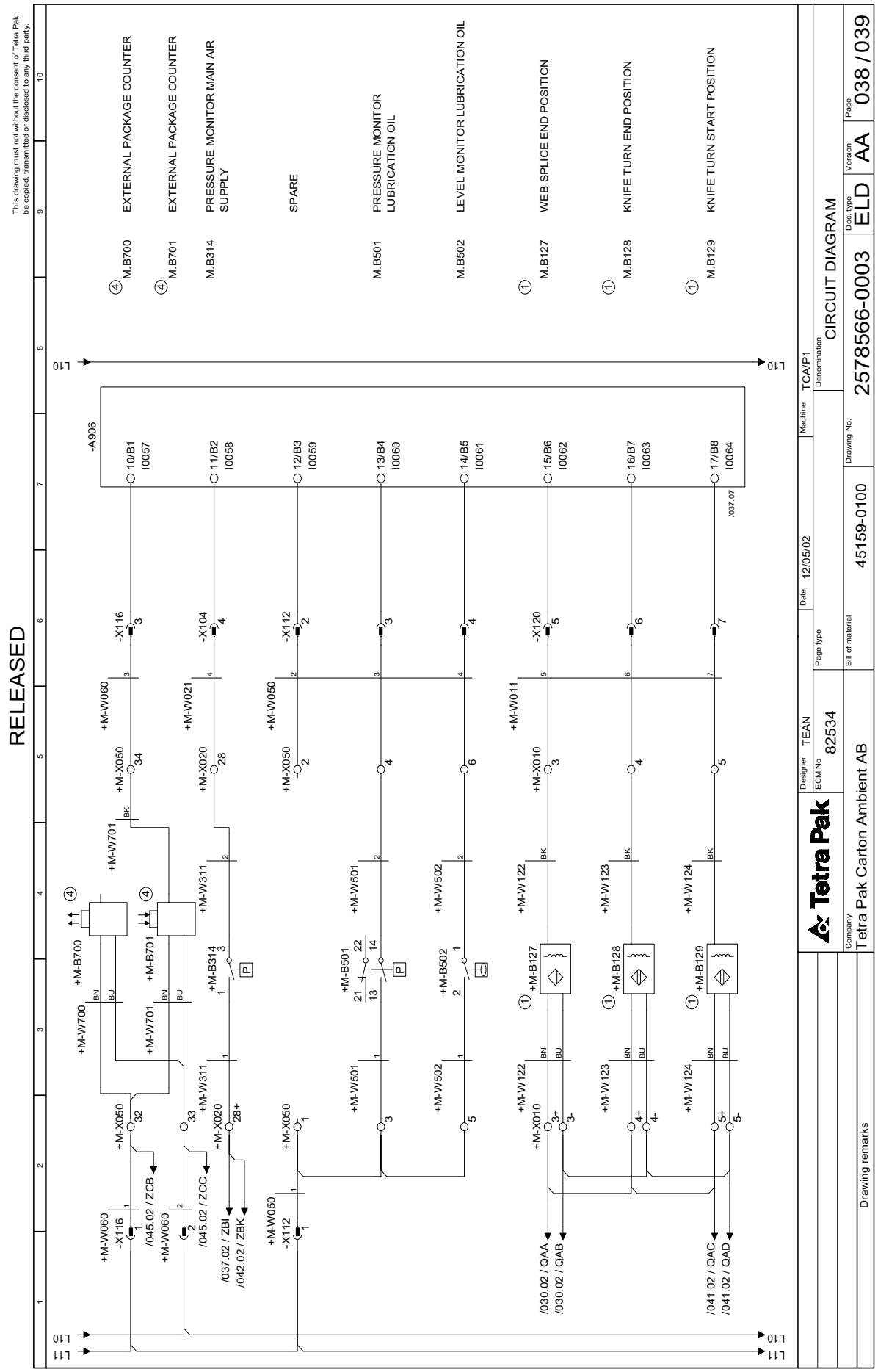

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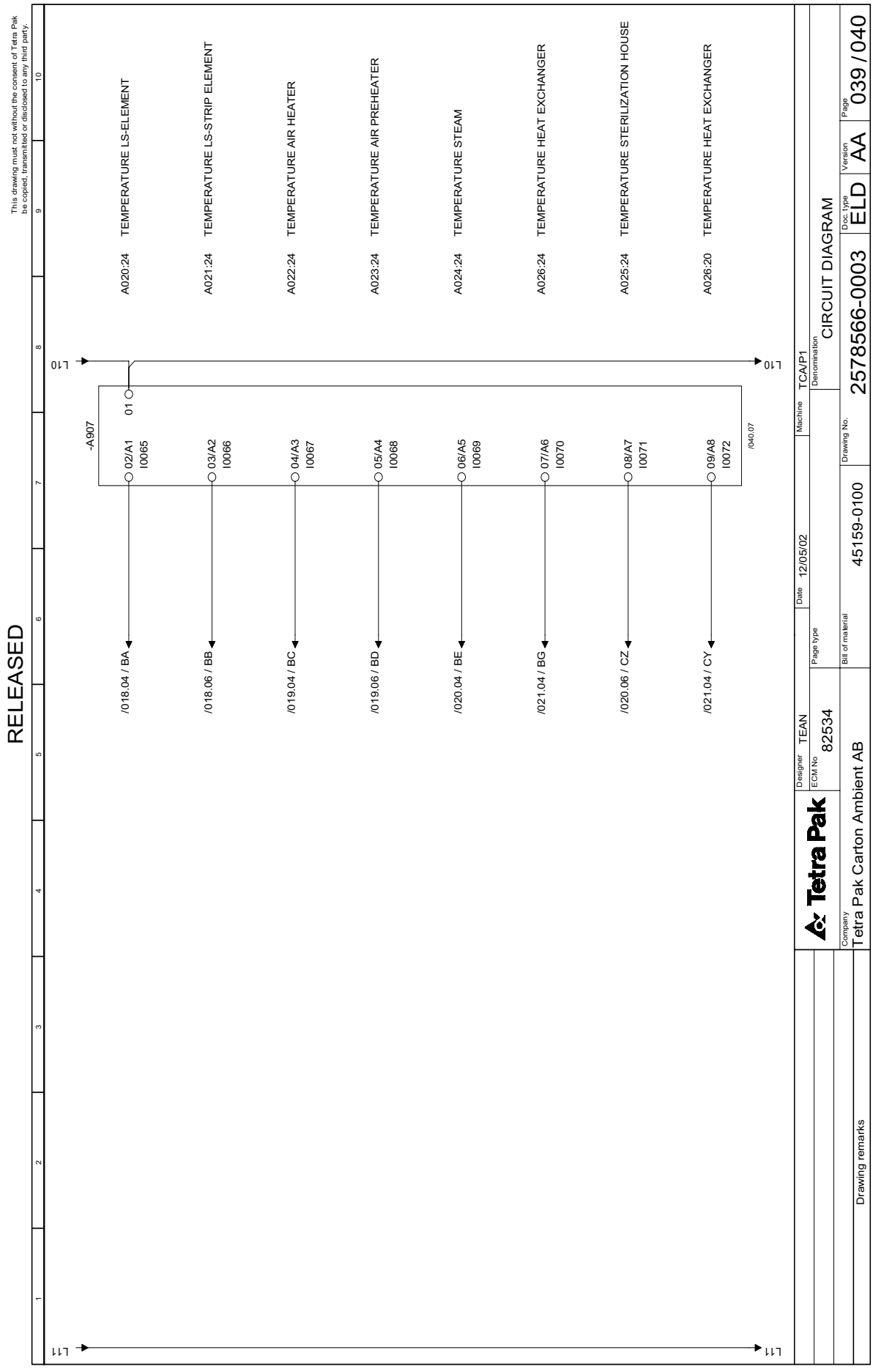

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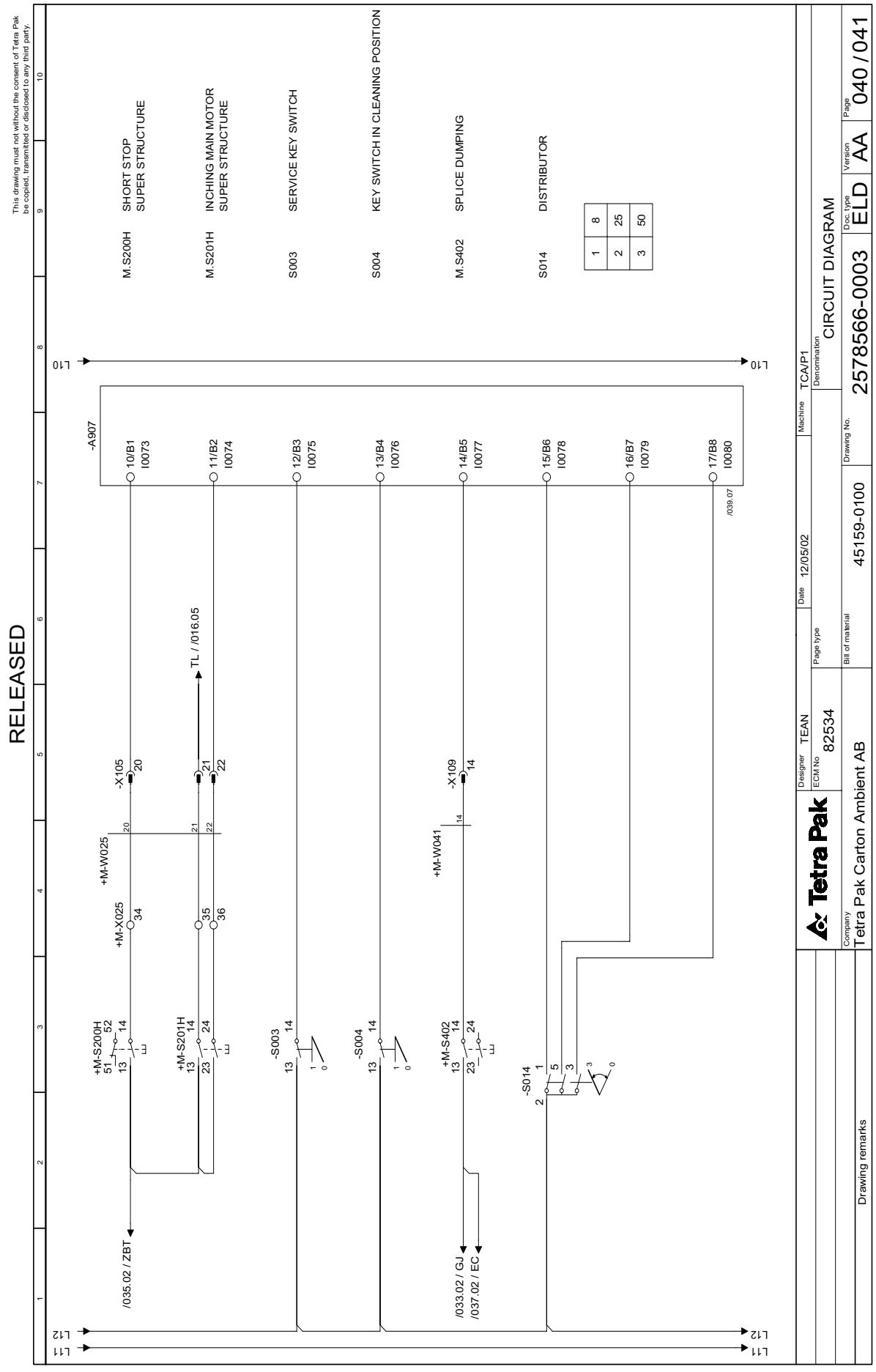

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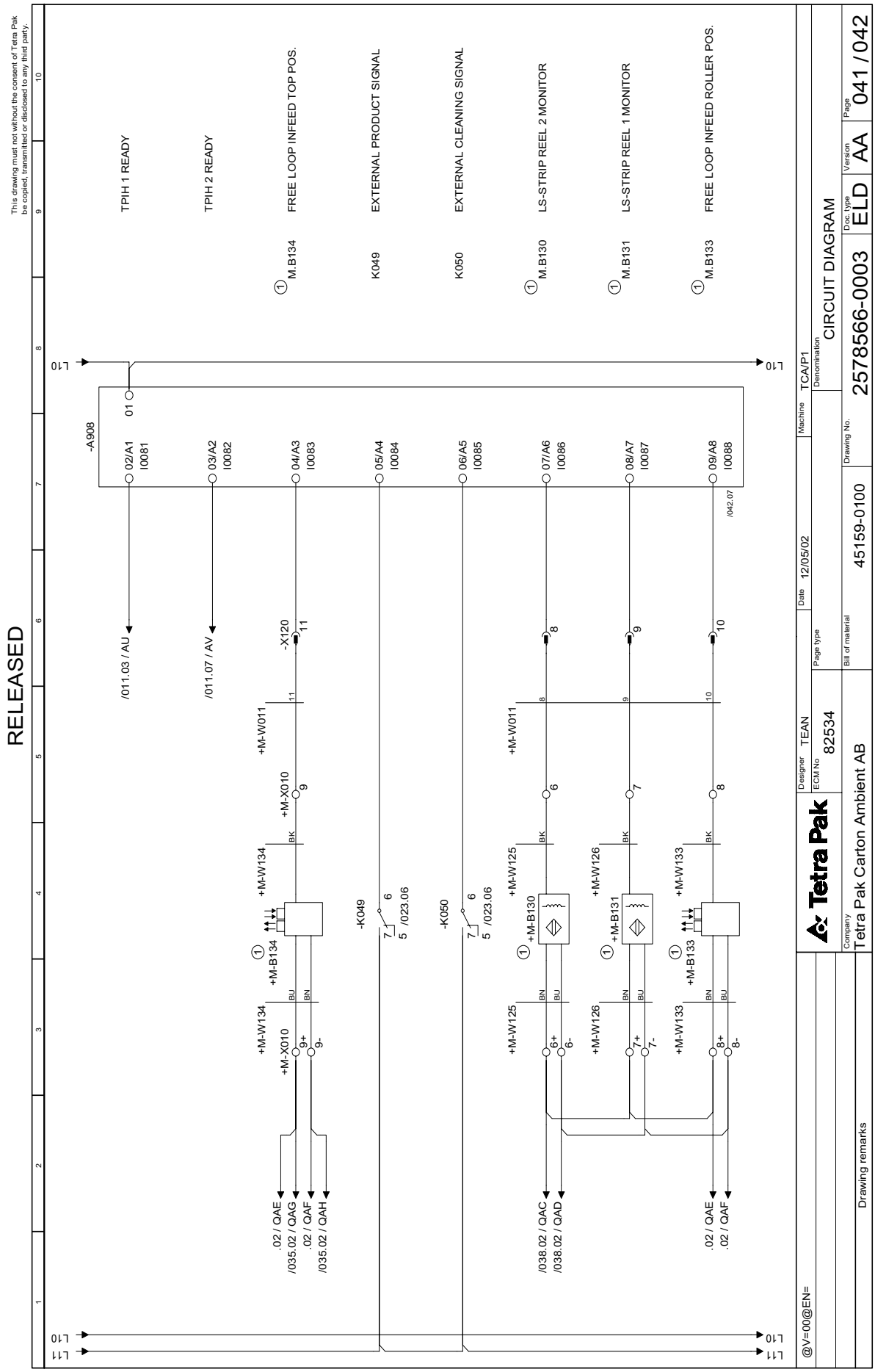

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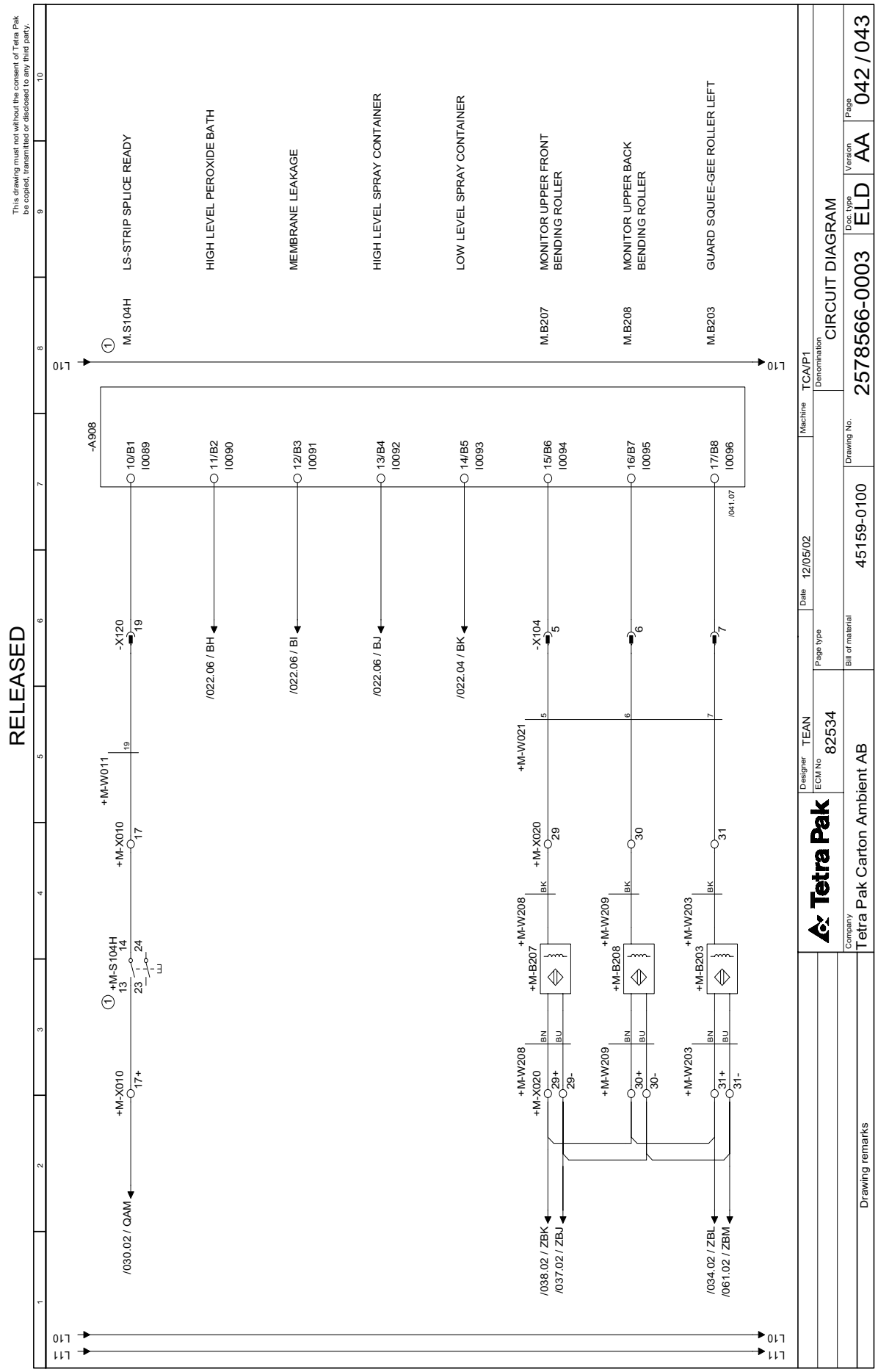

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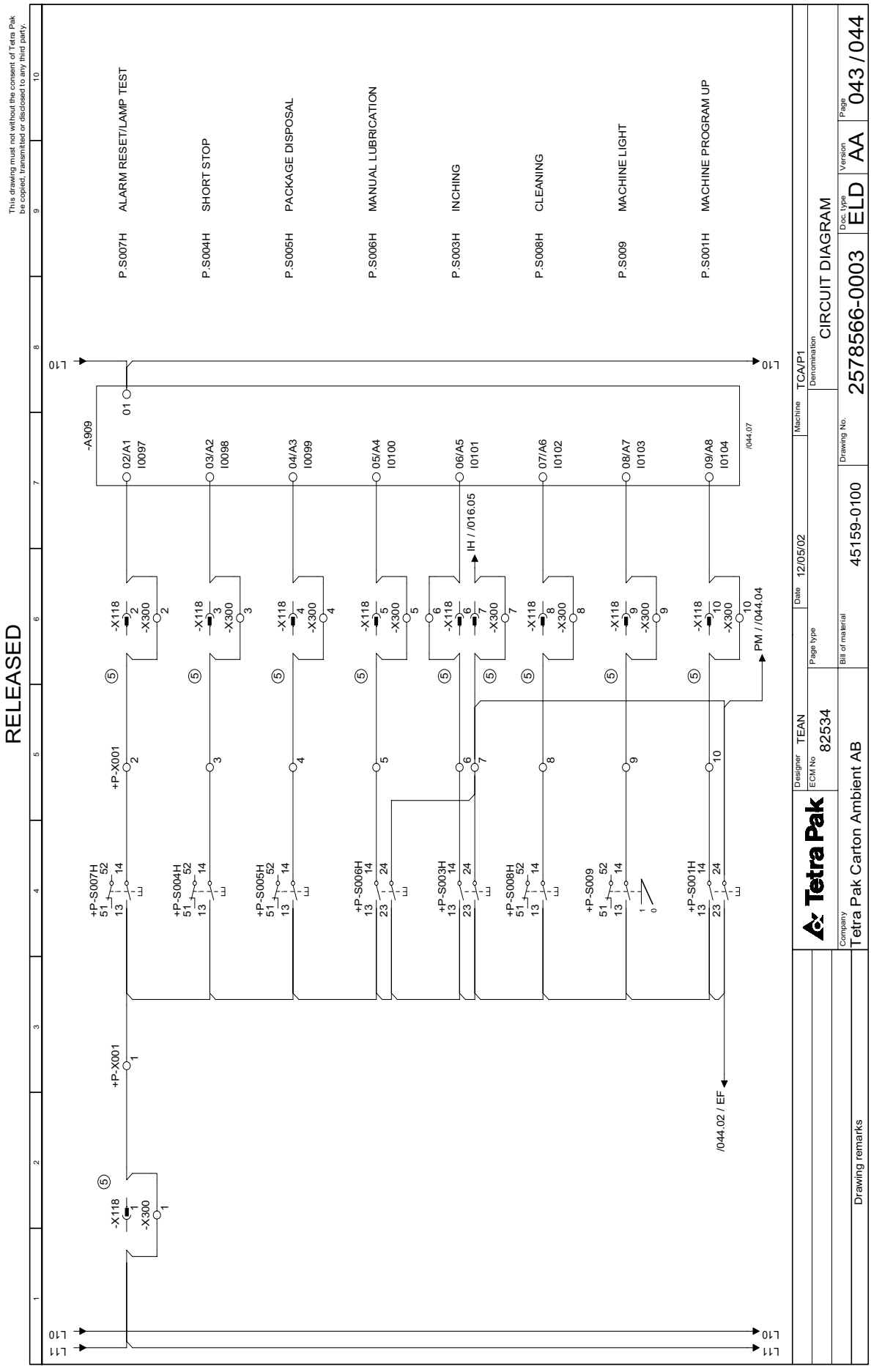

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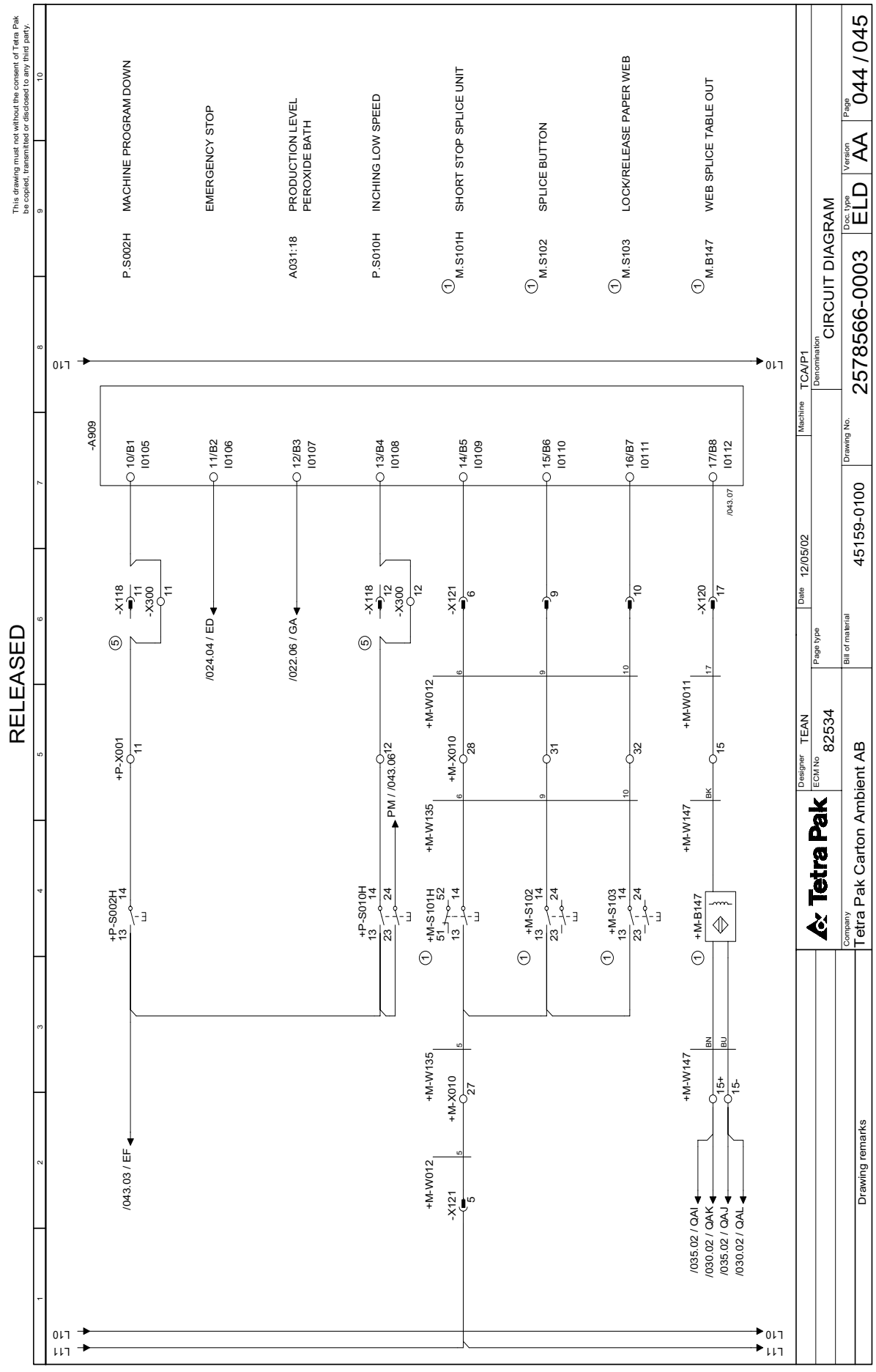

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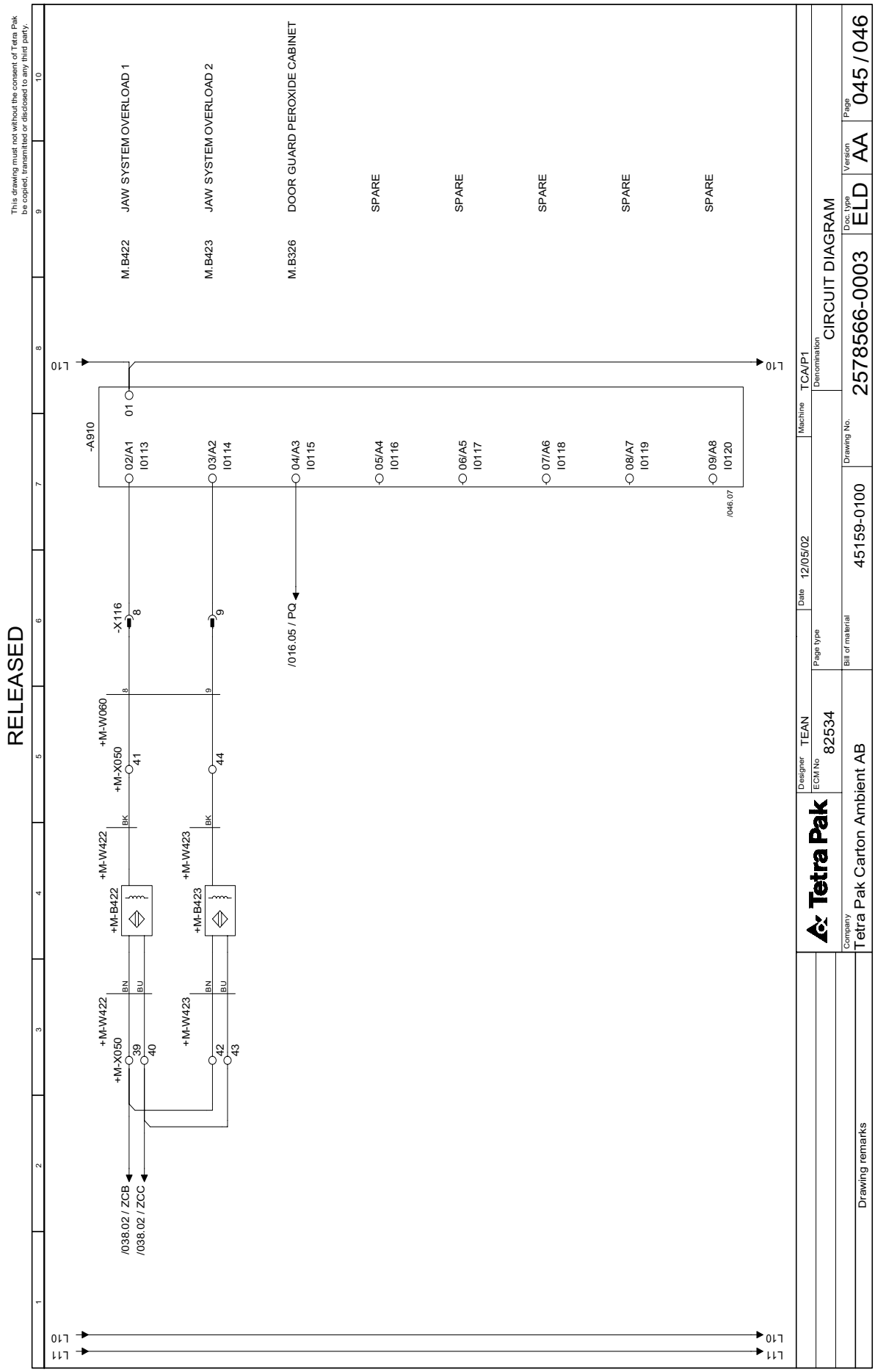

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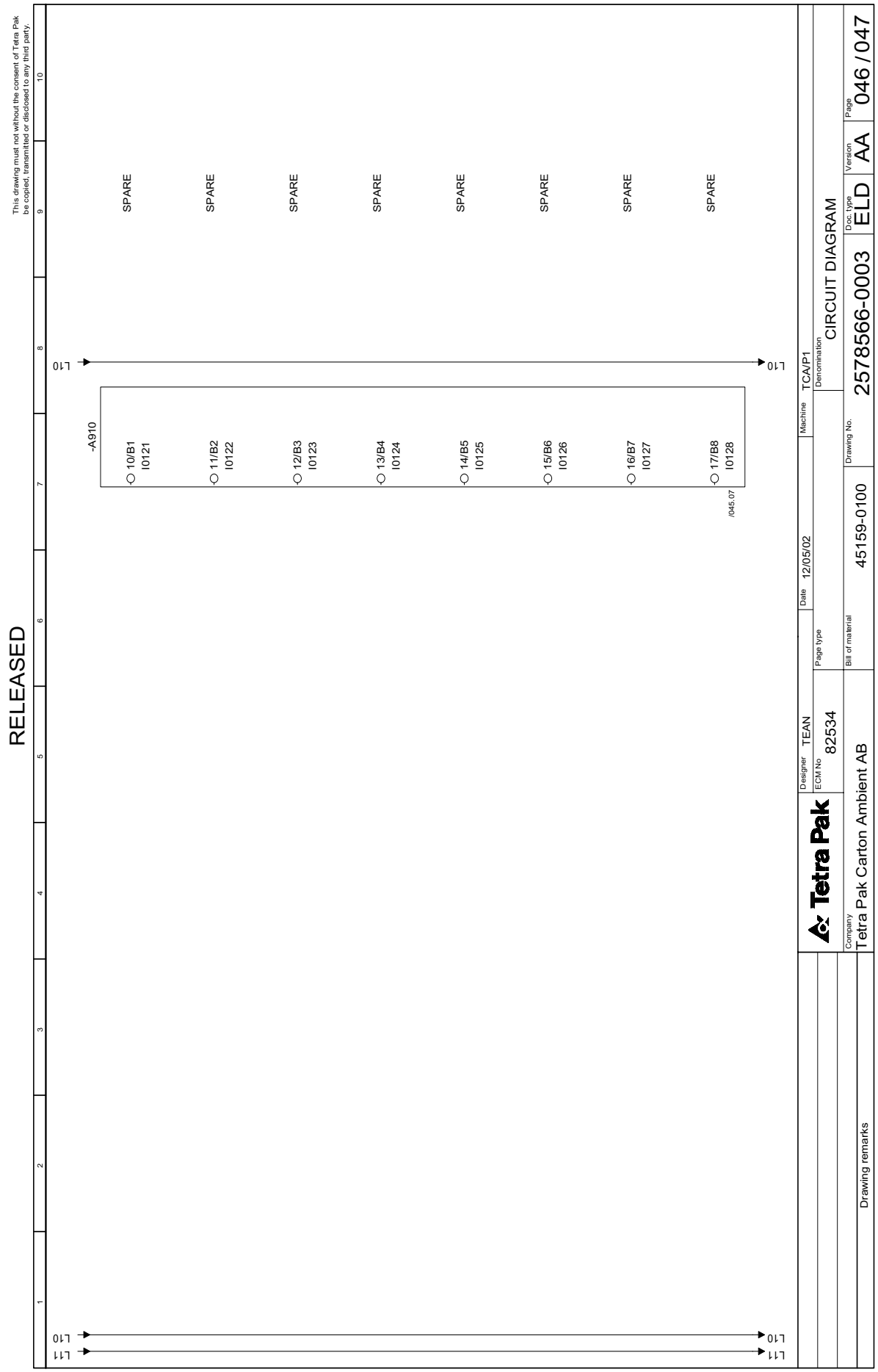

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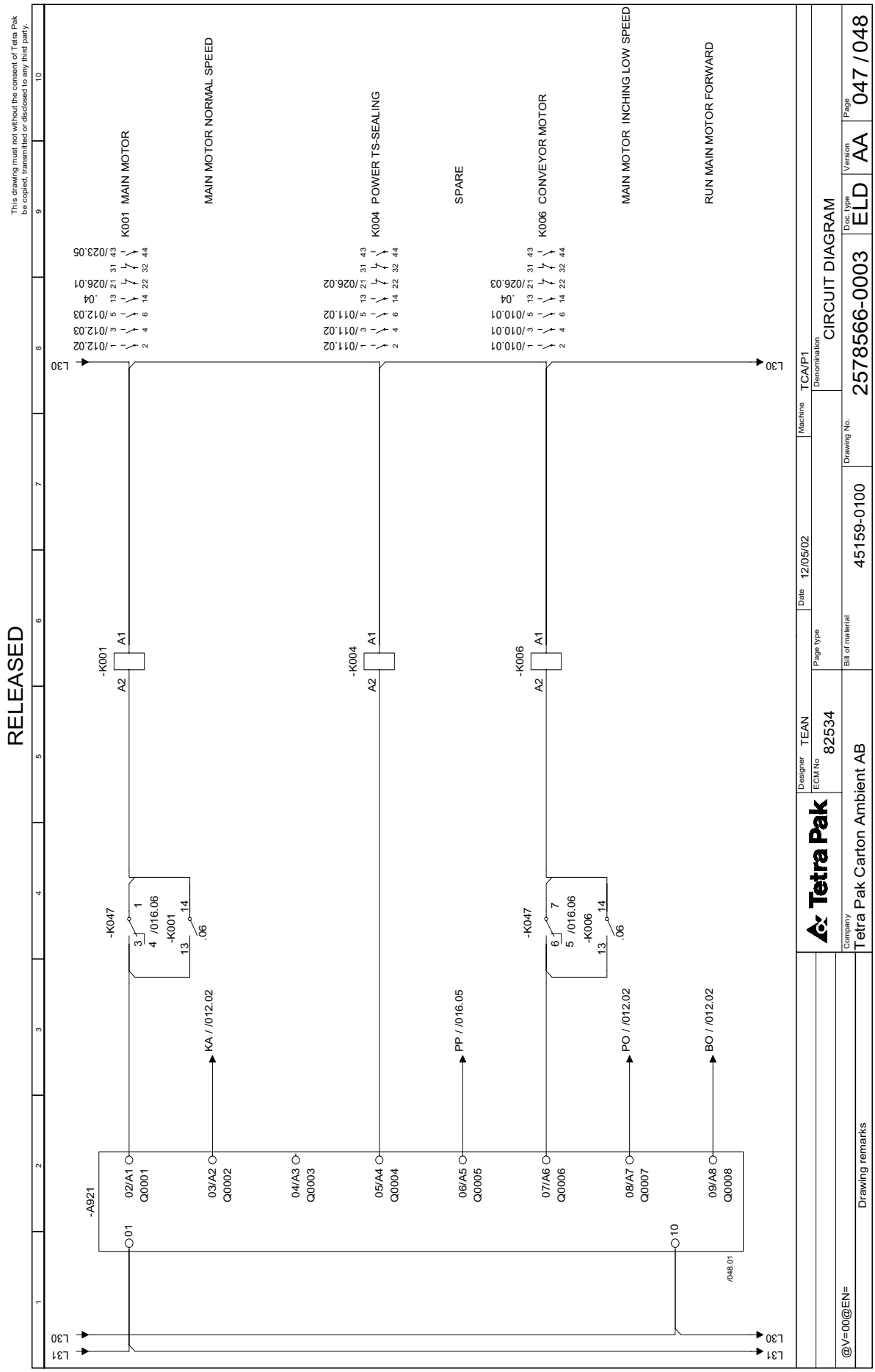

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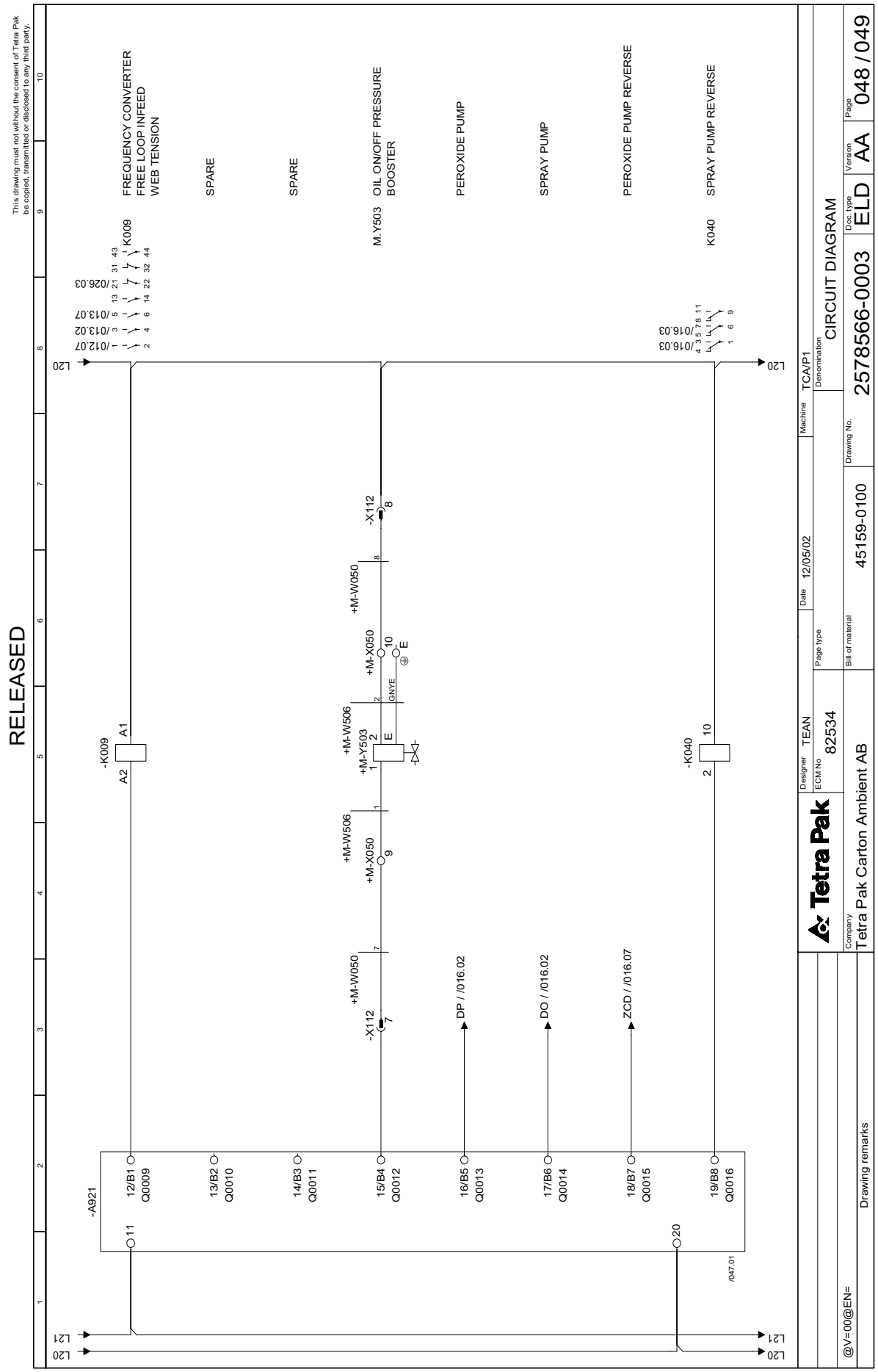
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FREQUENCY CONVERTER
FREE LOOP INFEED
WEB TENSION
SPARE
SPARE
M.Y503 OIL ON/OFF PRESSURE
BOOSTER
PEROXIDE PUMP
SPRAY PUMP
PEROXIDE PUMP REVERSE
K040 SPRAY PUMP REVERSE
-K009
-K040
-A921
-X112
+M-W050
+M-W506
+M-X050
+M-Y503
DP / /016.02
DO / /016.02
ZCD / /016.07
Tetra Pak
Designer TEAN
ECM No 82534
Page type
Date 12/05/02
Bill of material 45159-0100
Drawing No. 2578566-0003
Machine TCA/P1
Denomination CIRCUIT DIAGRAM
Doc. type ELD
Version AA
Page 048 / 049
Company Tetra Pak Carton Ambient AB
Drawing remarks
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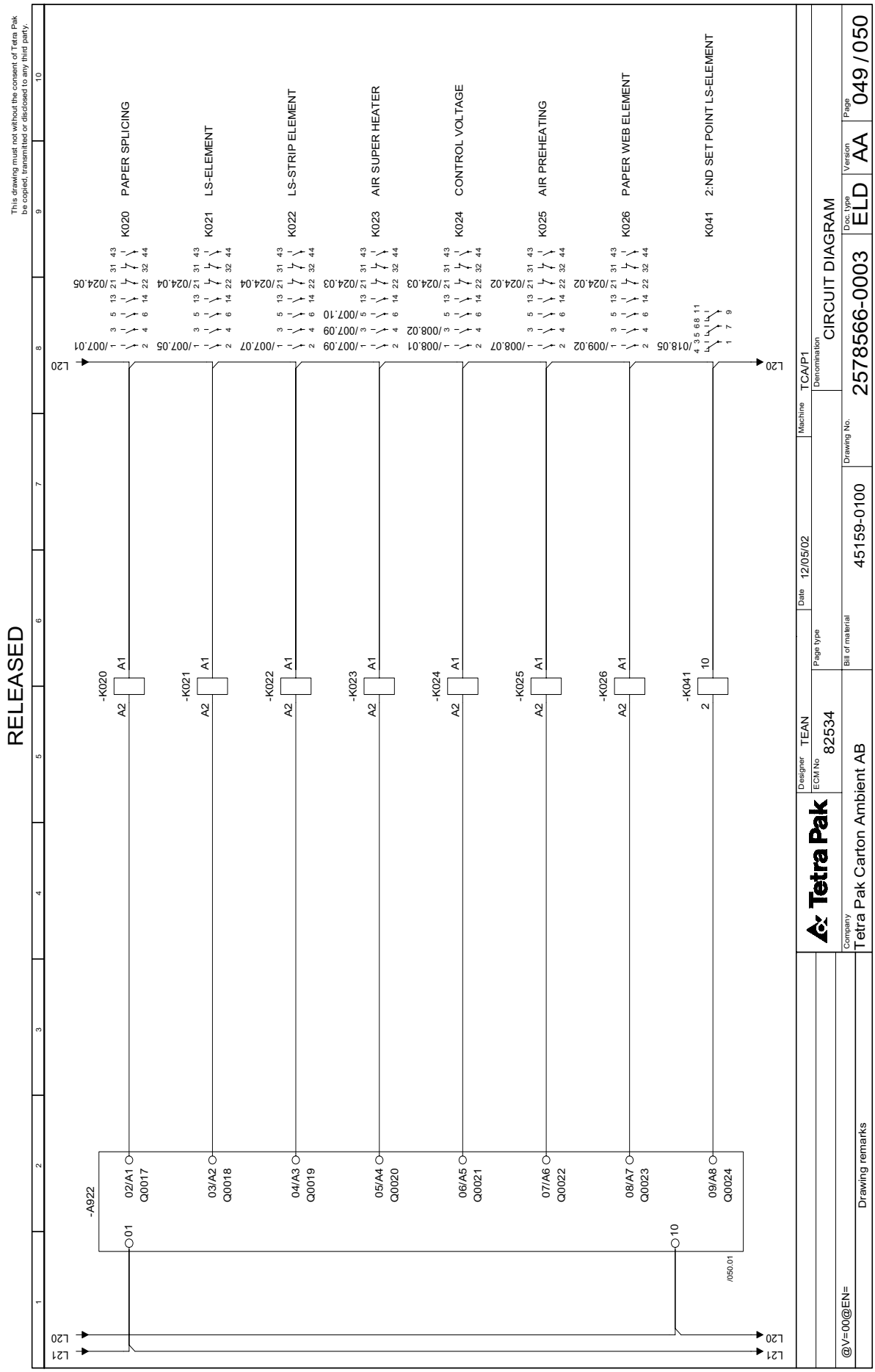

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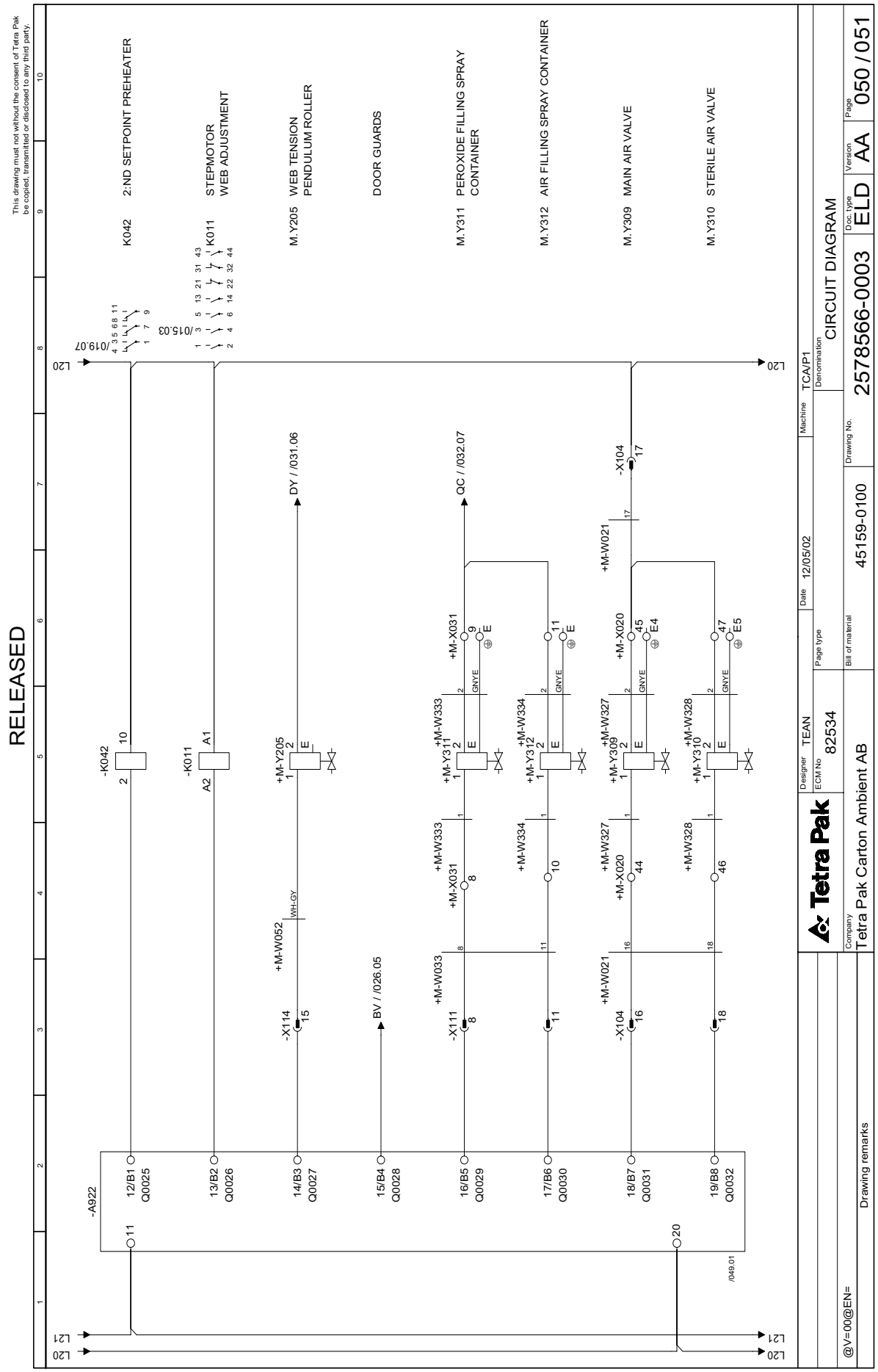

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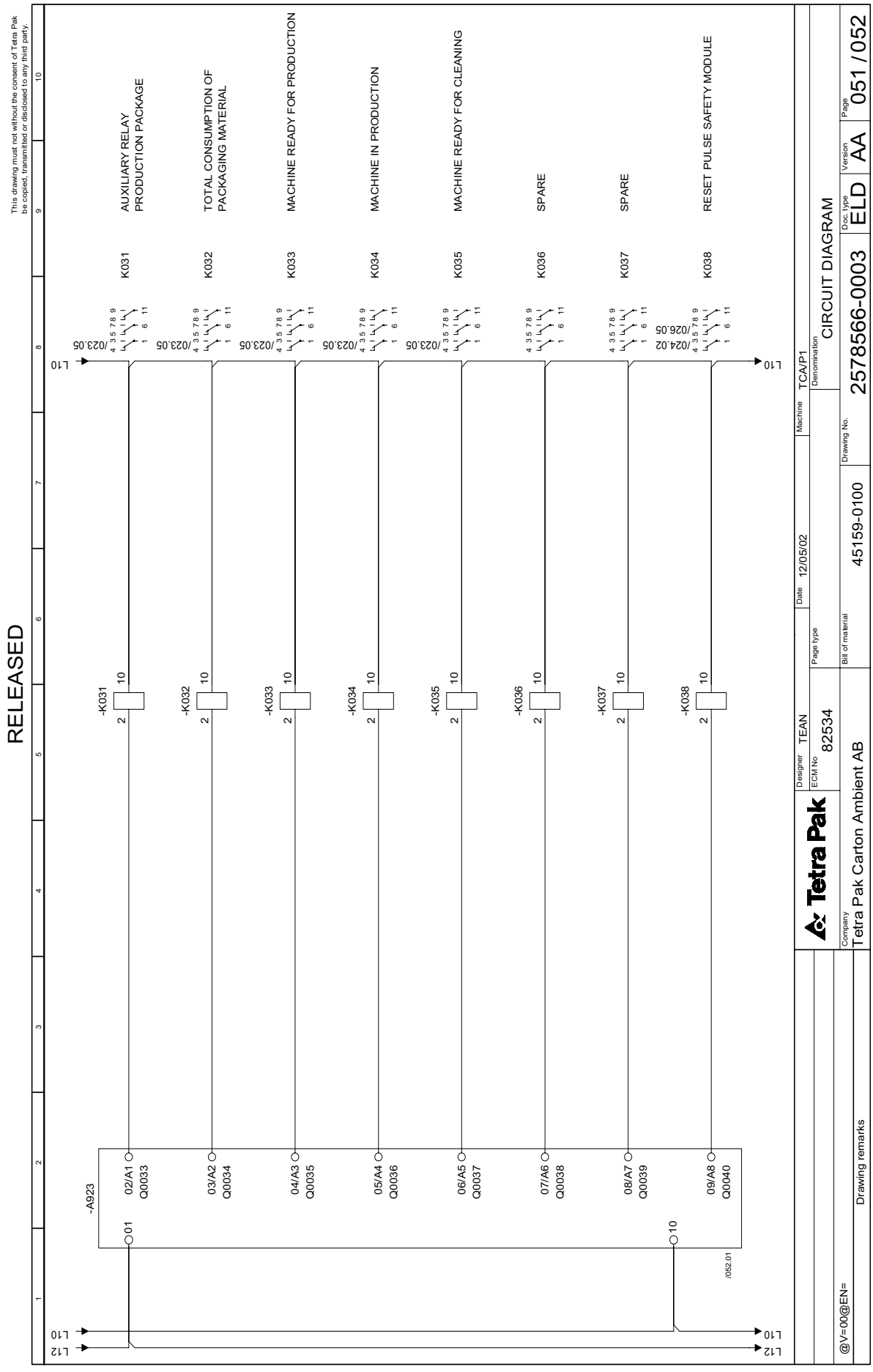

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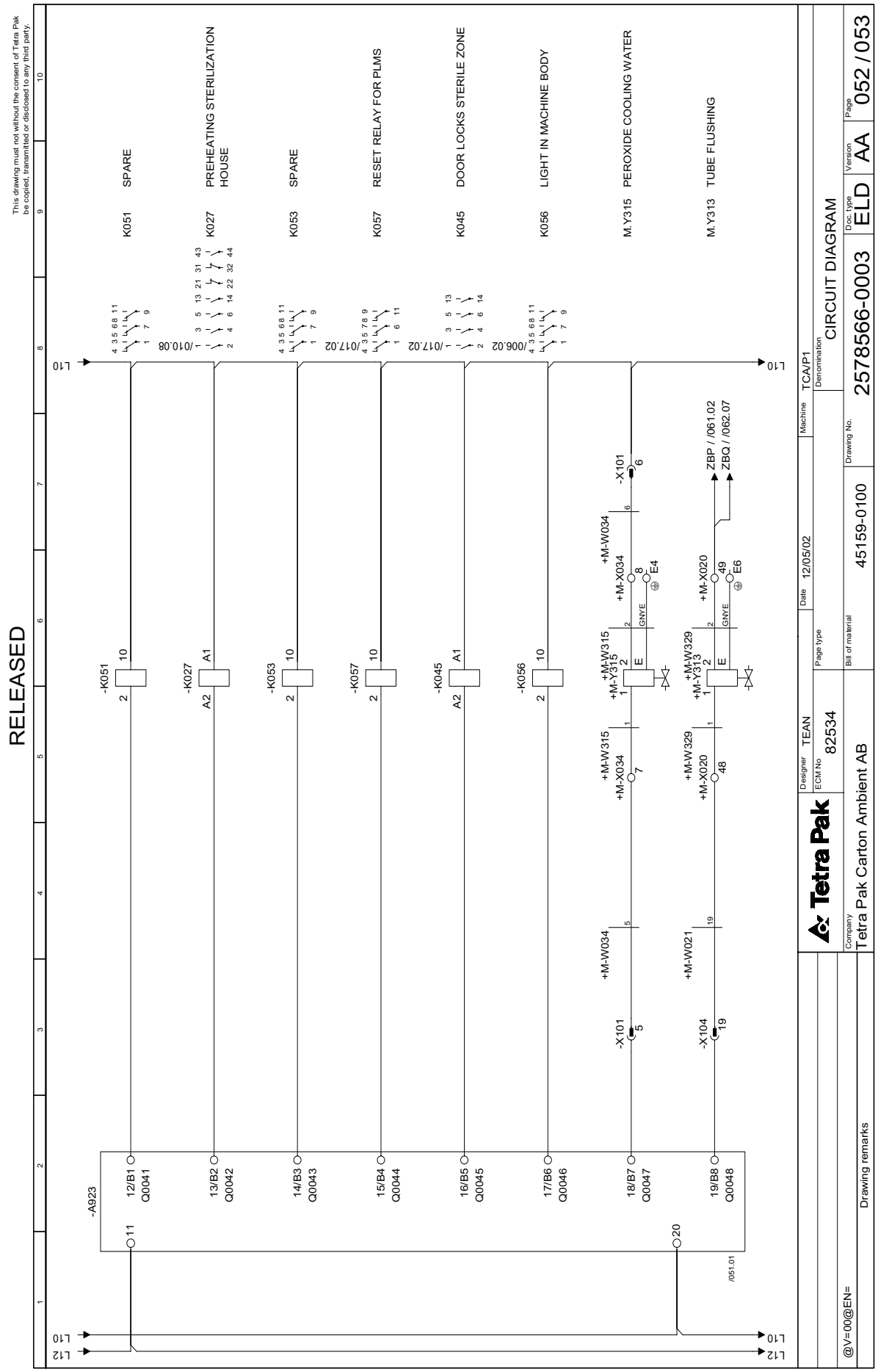

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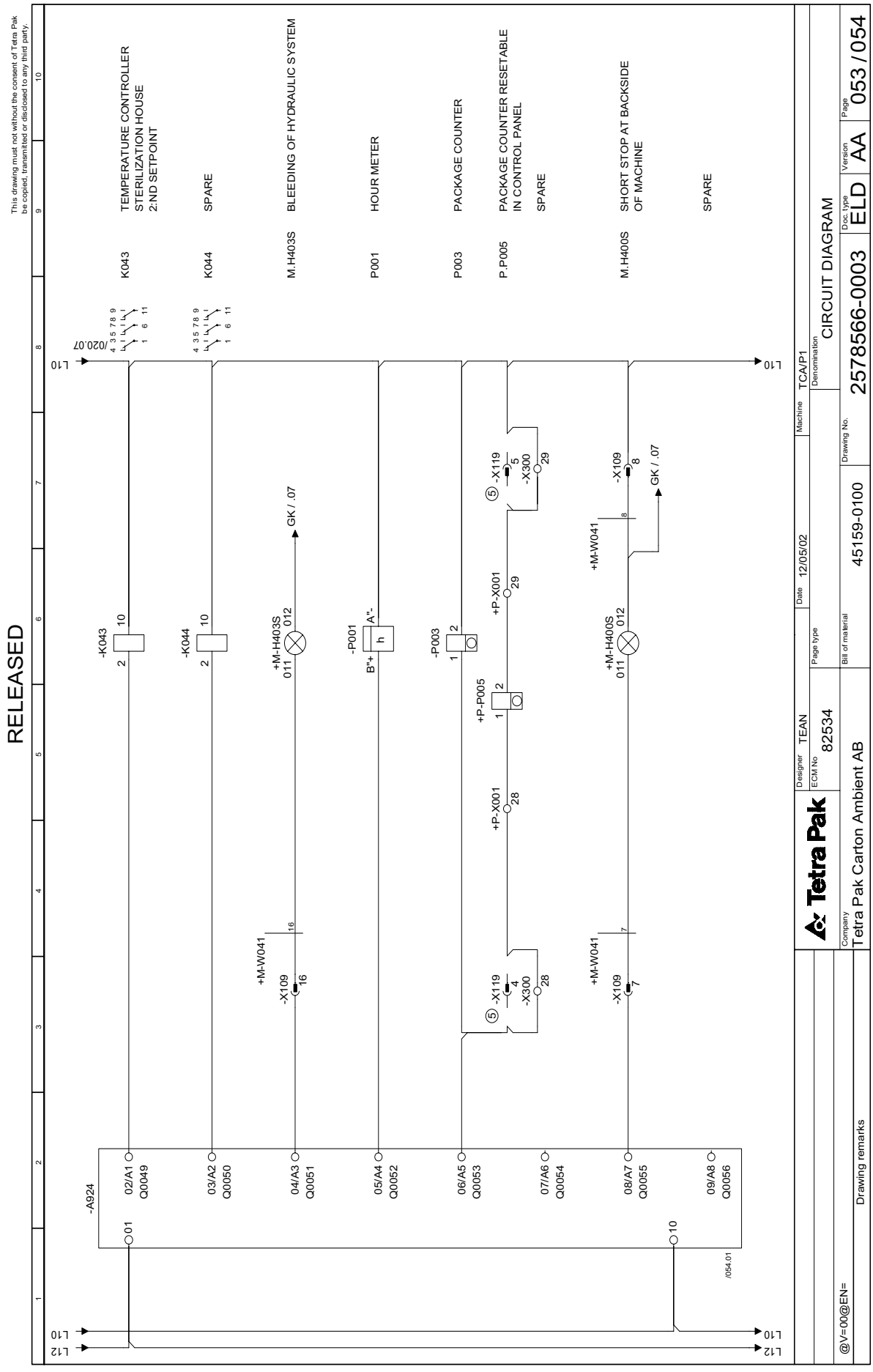

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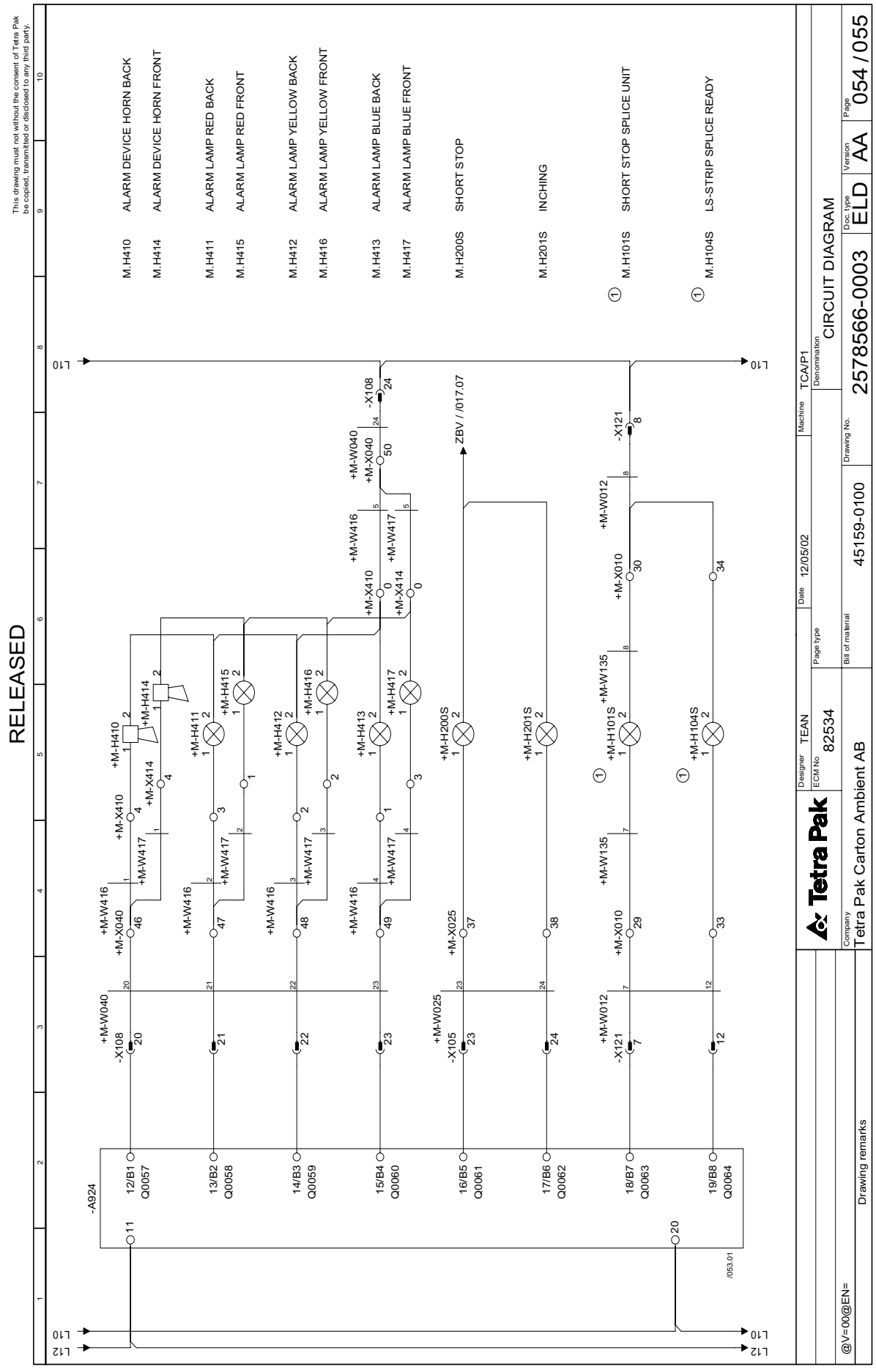

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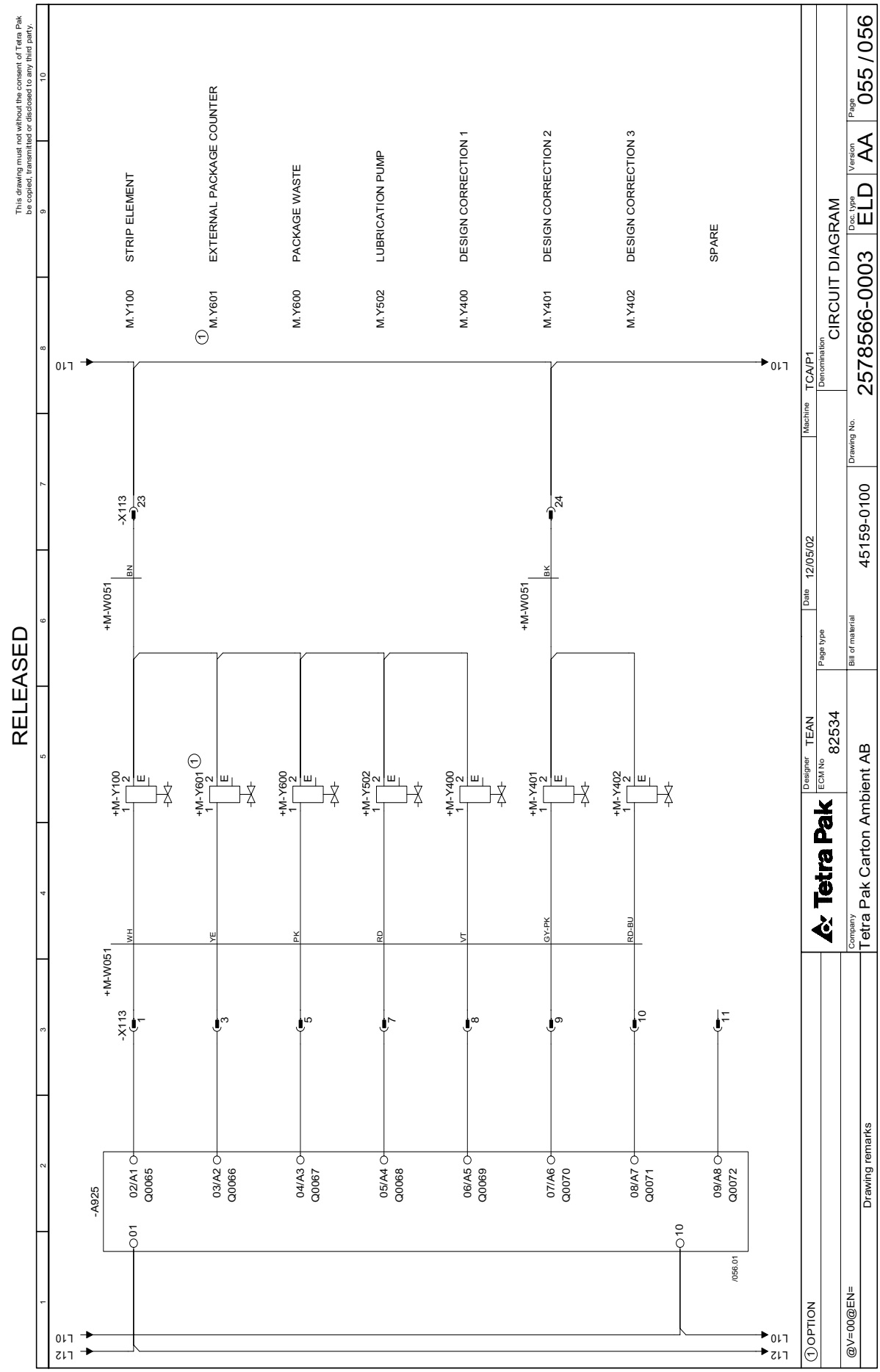

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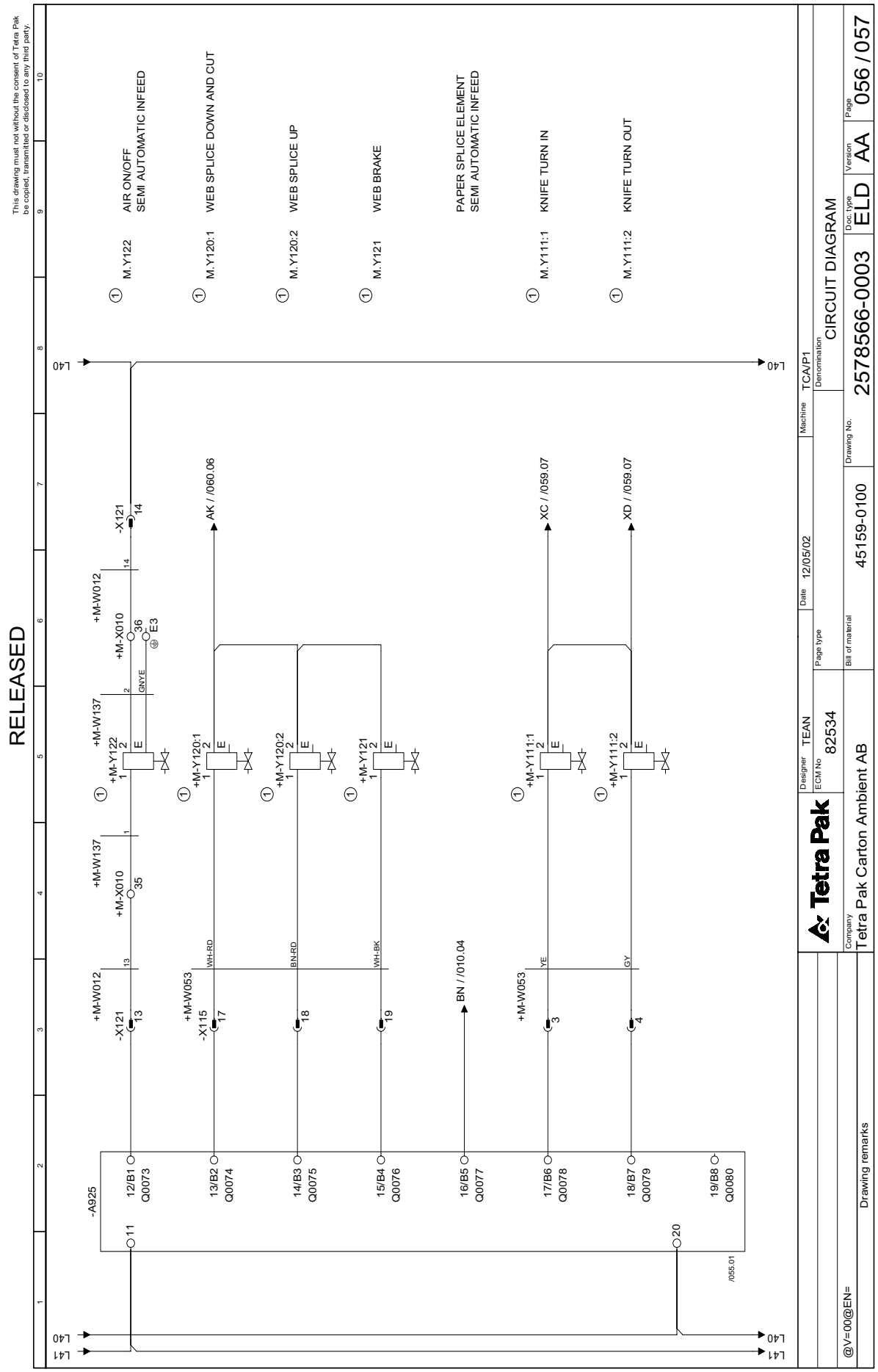

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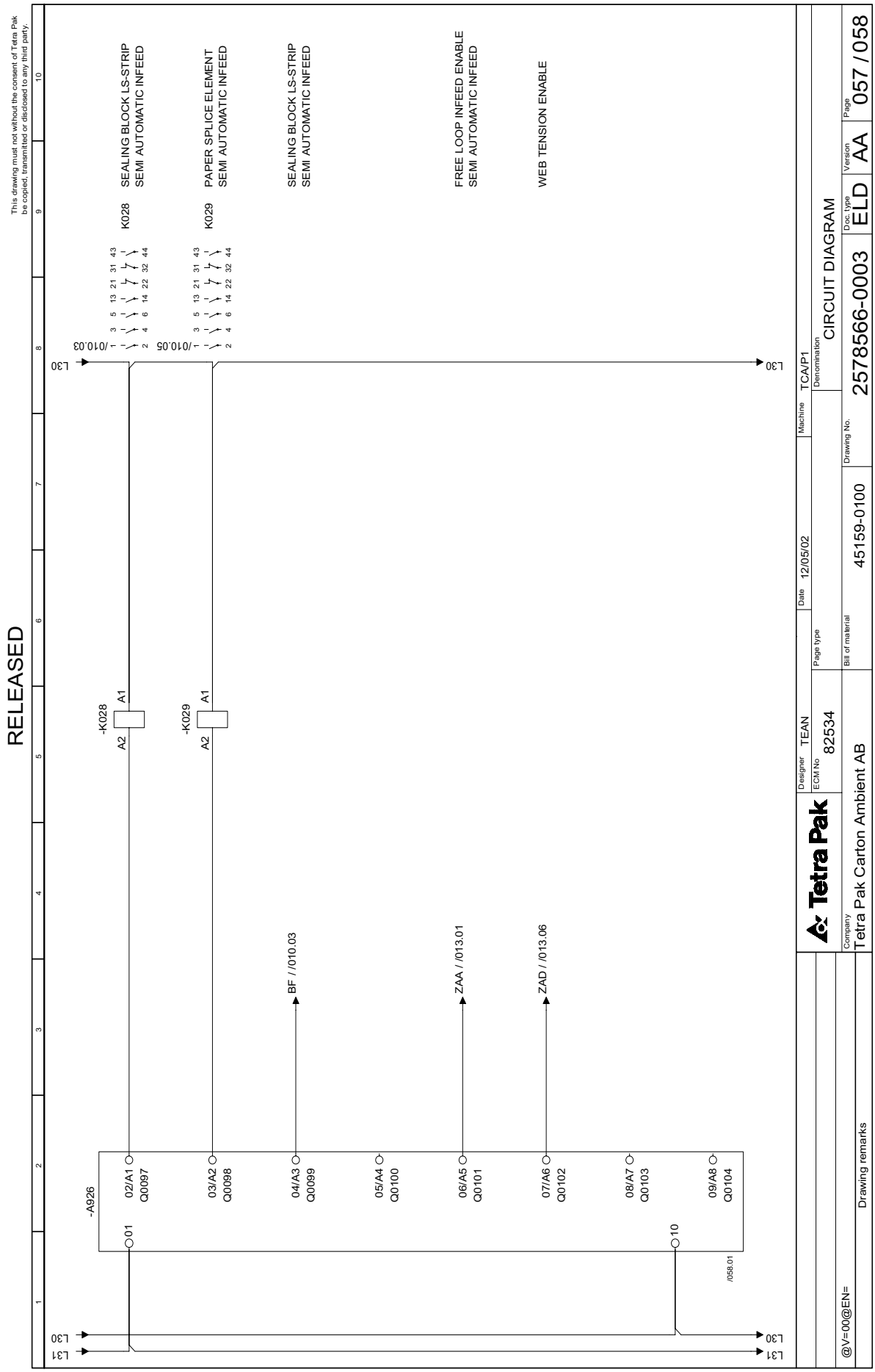

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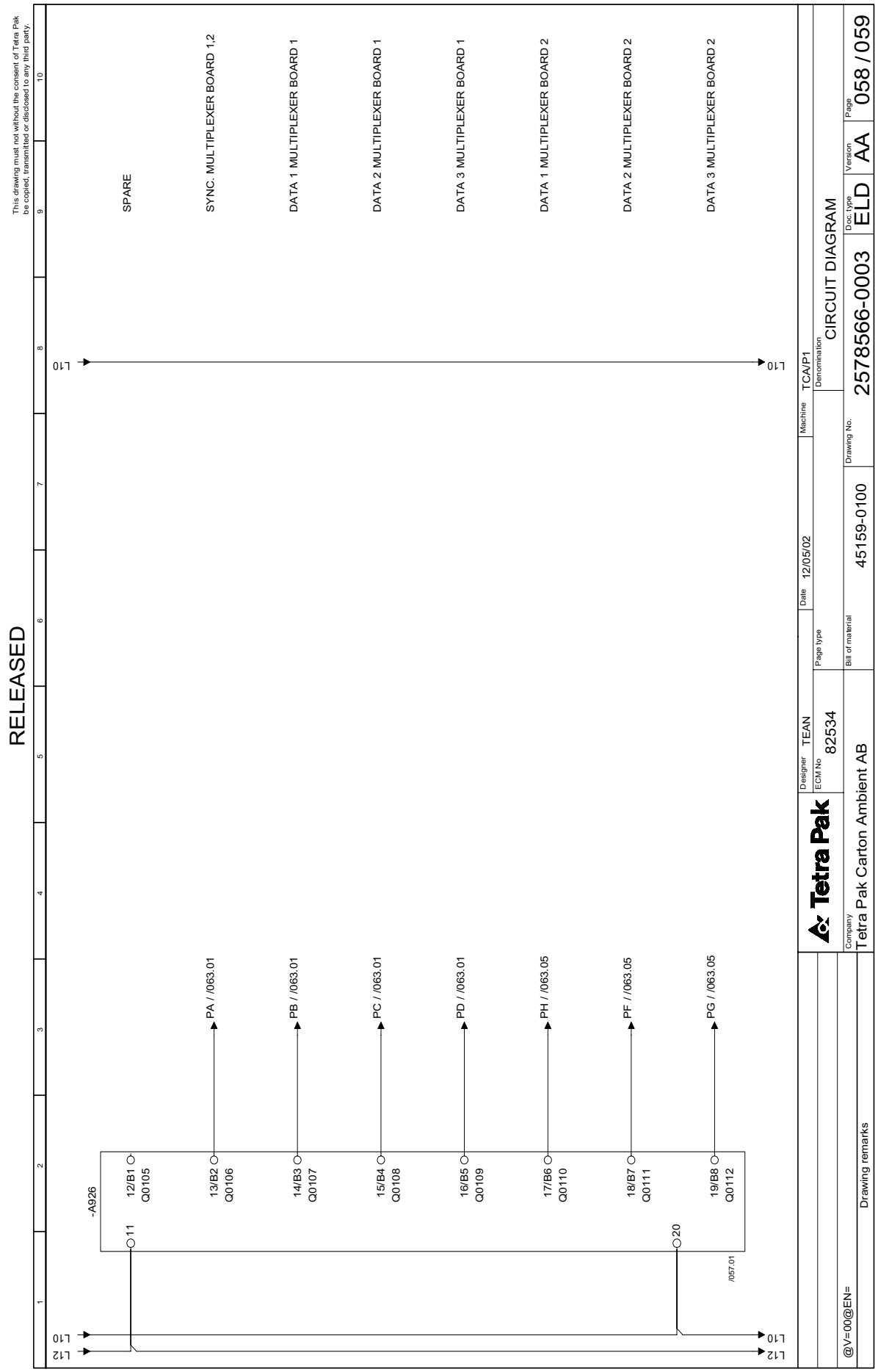

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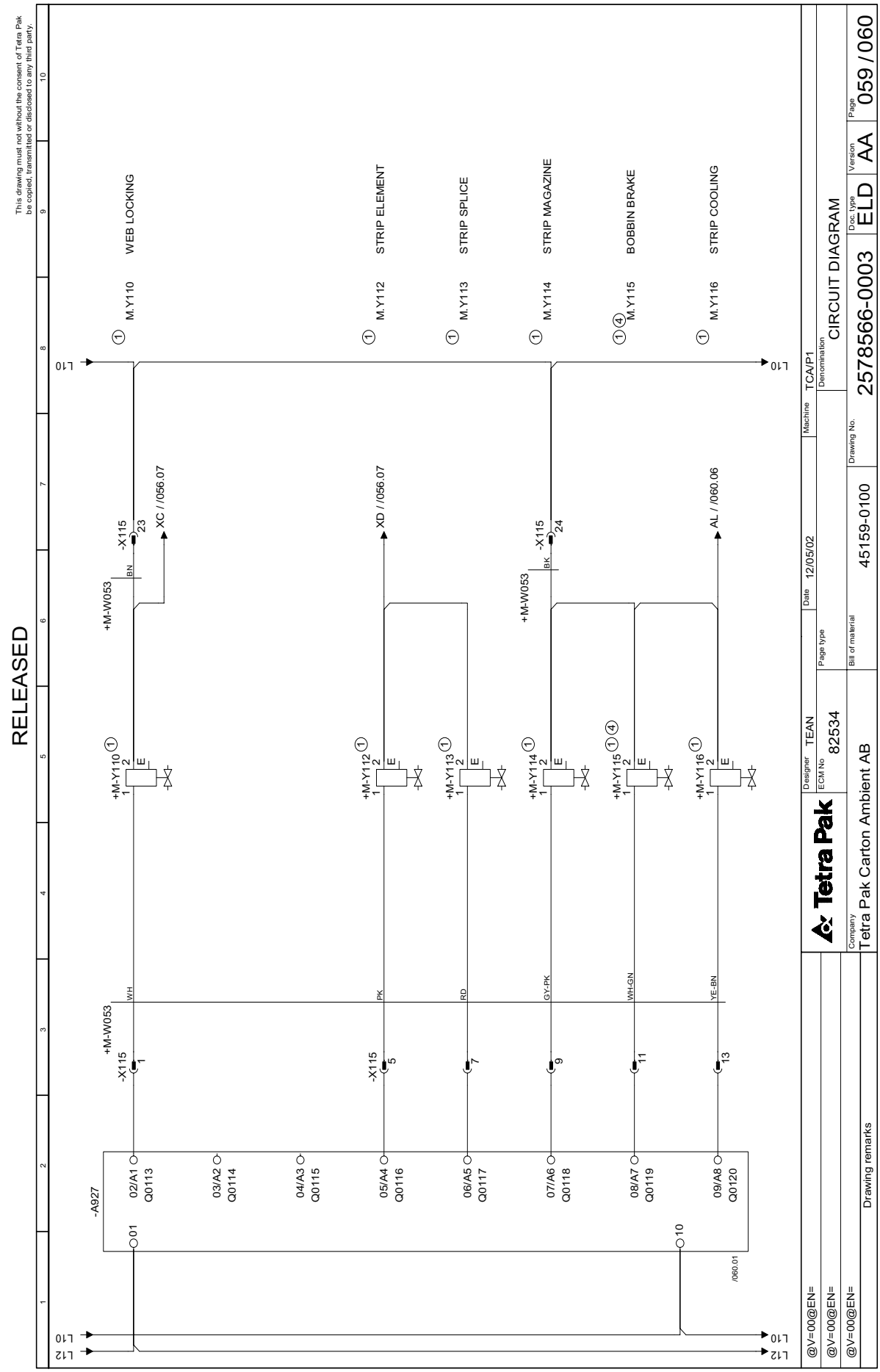

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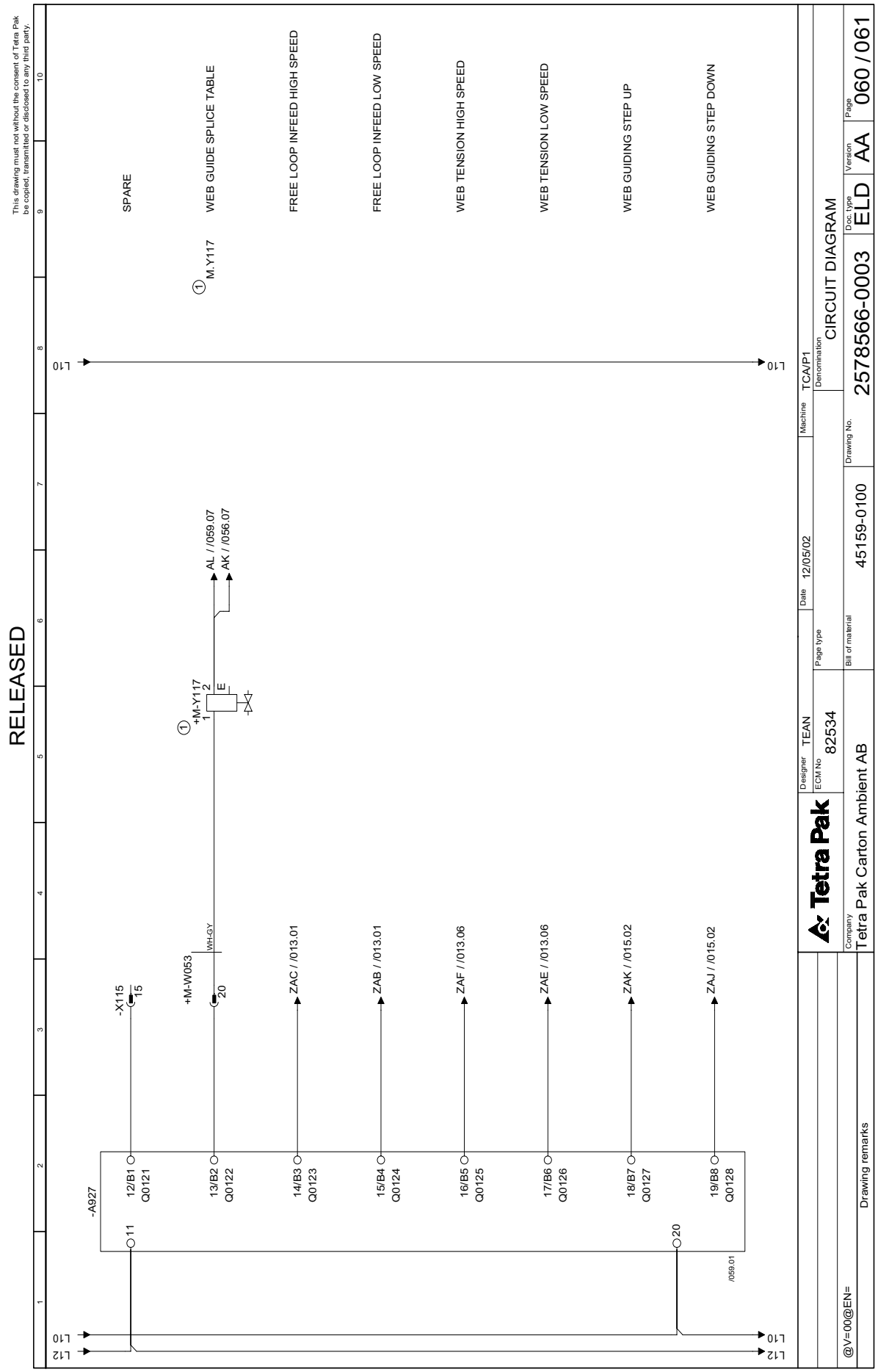

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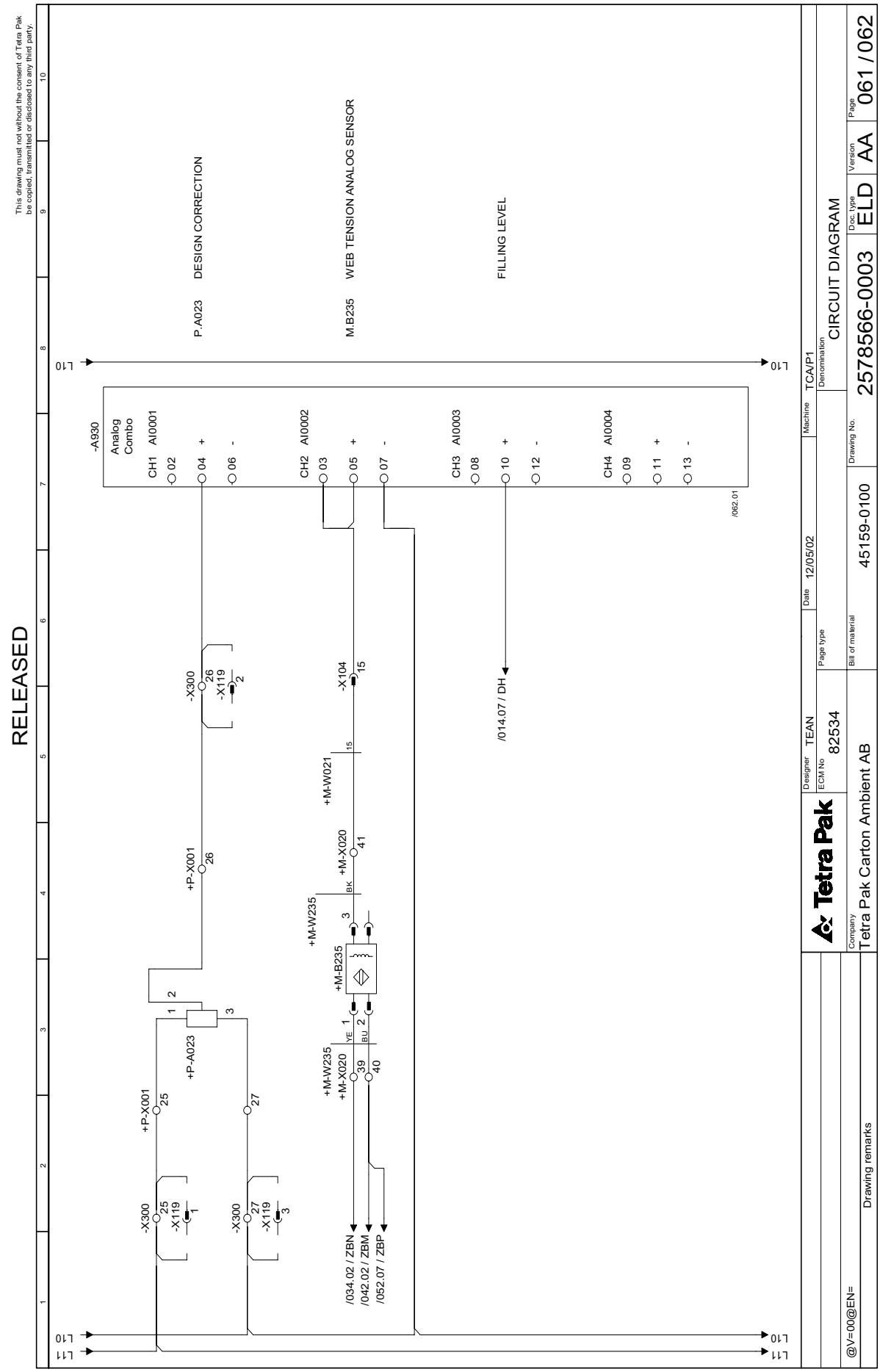

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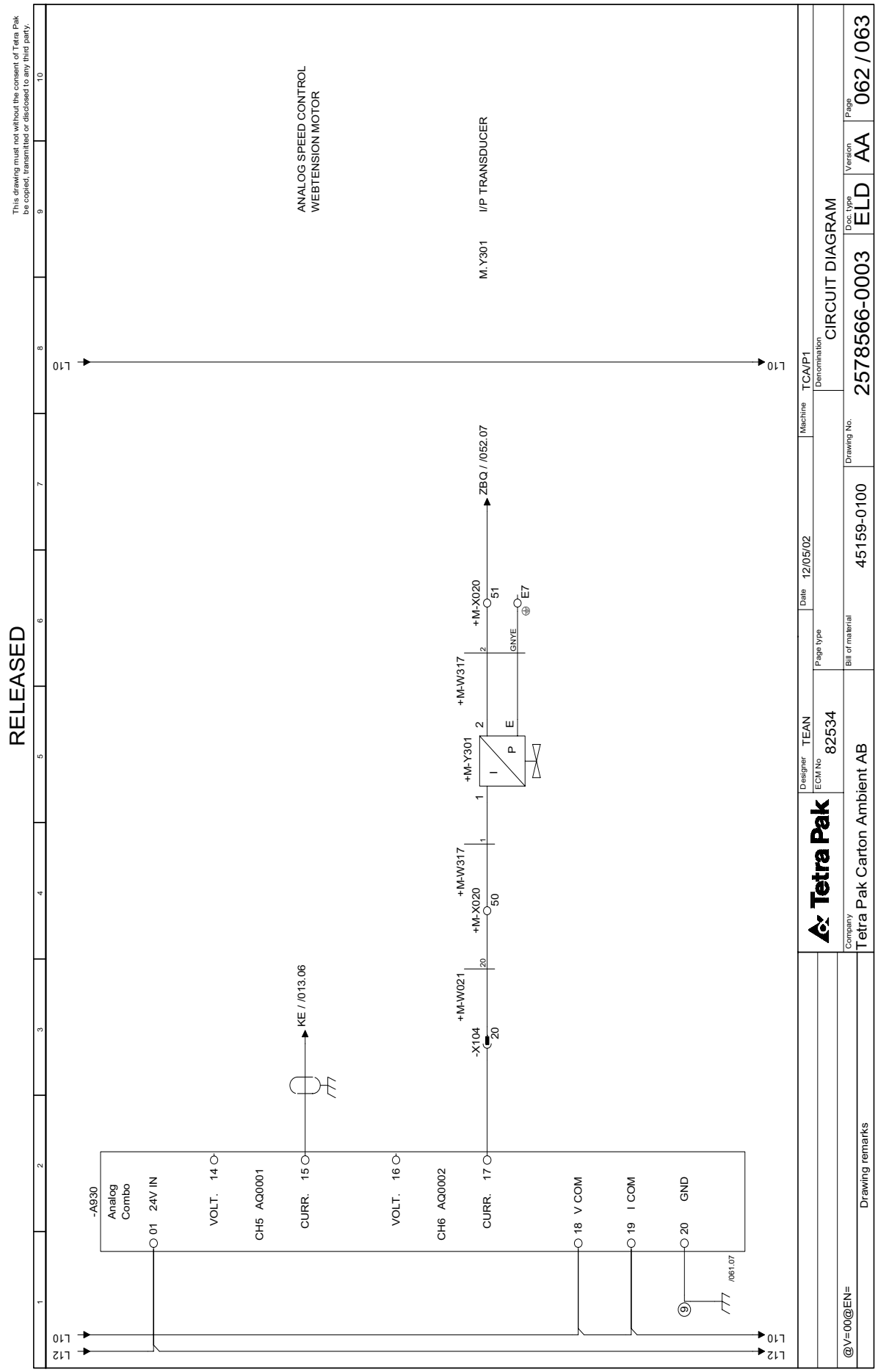

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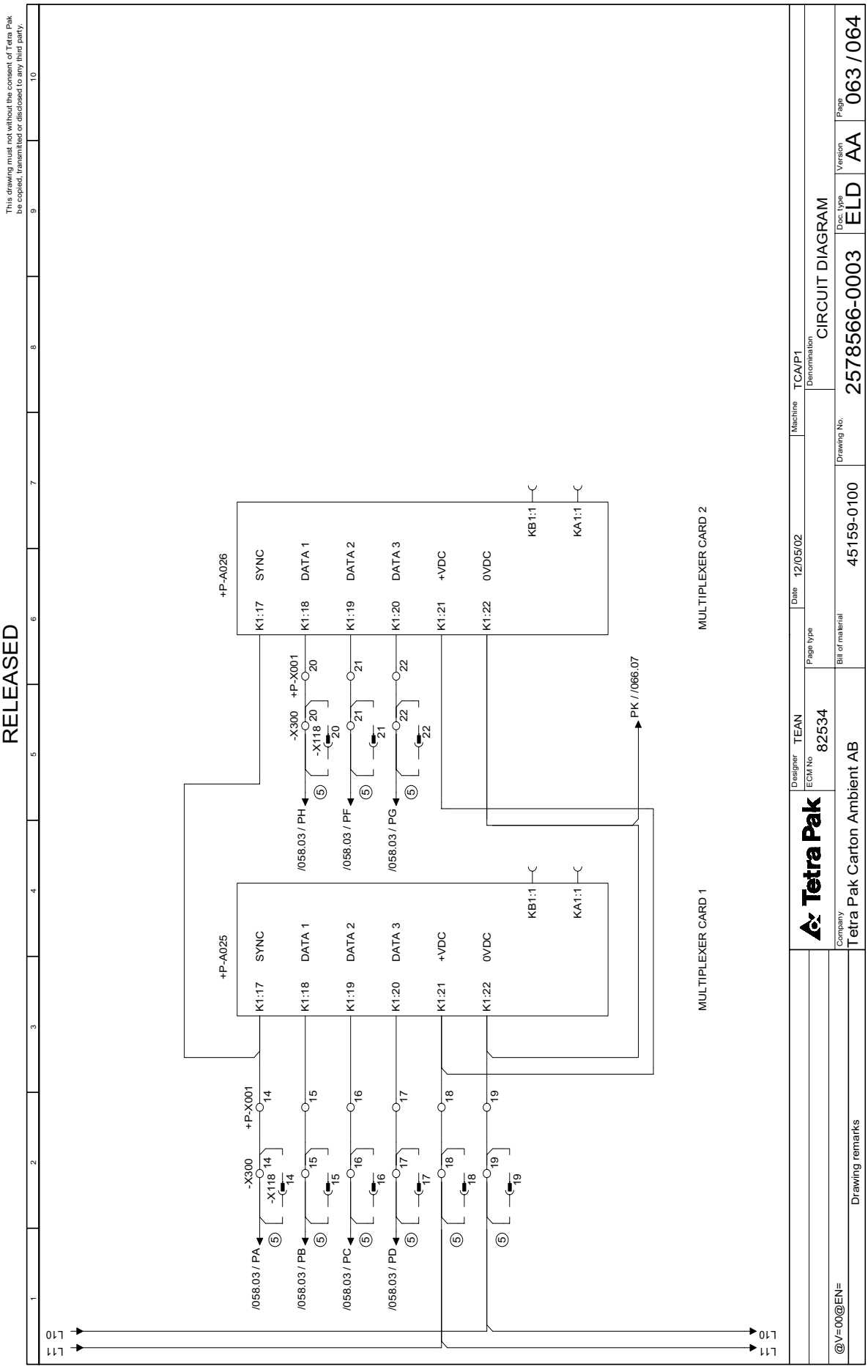

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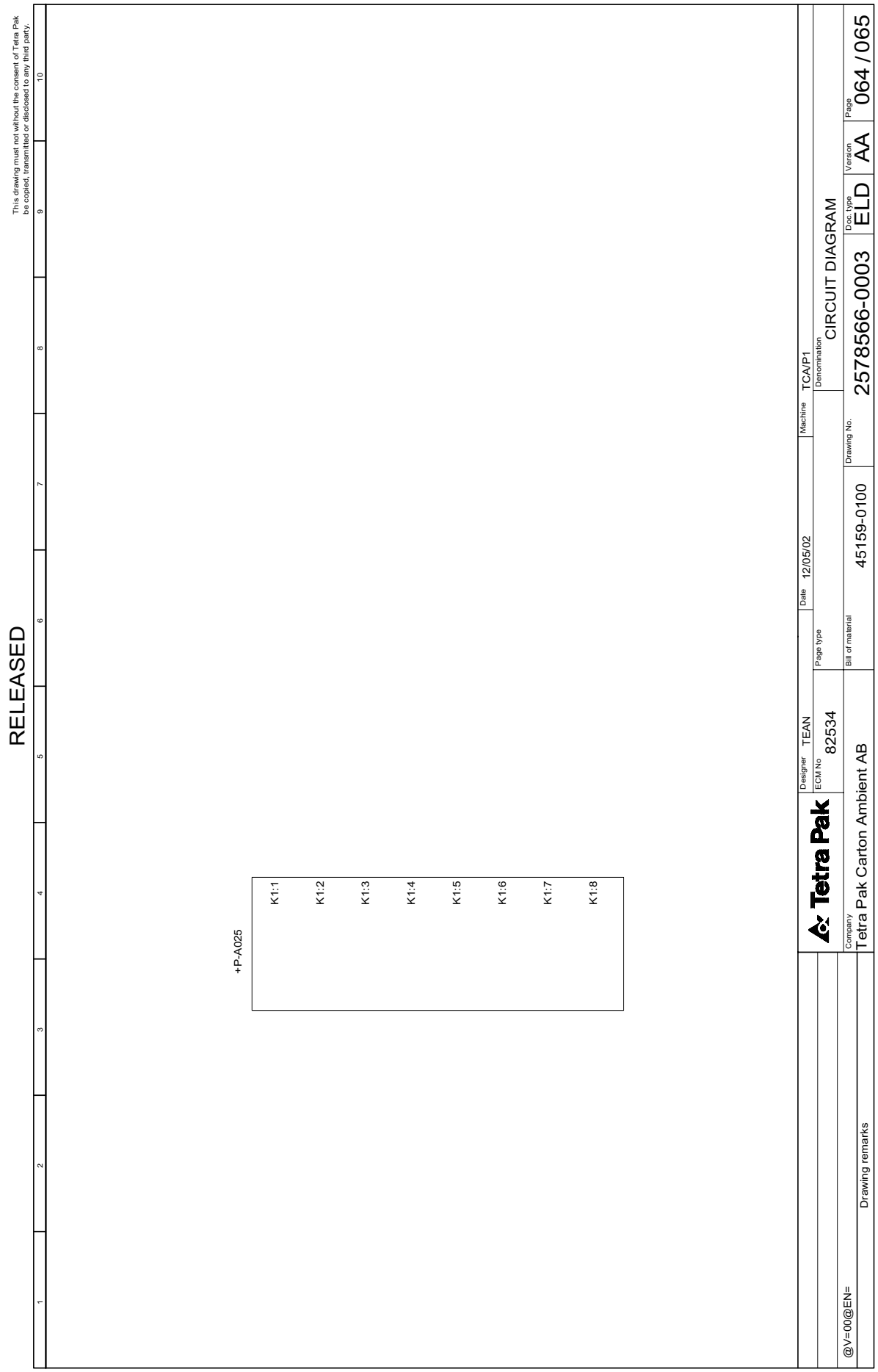

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+P-A025

K1:9

K1:10

K1:11

K1:12

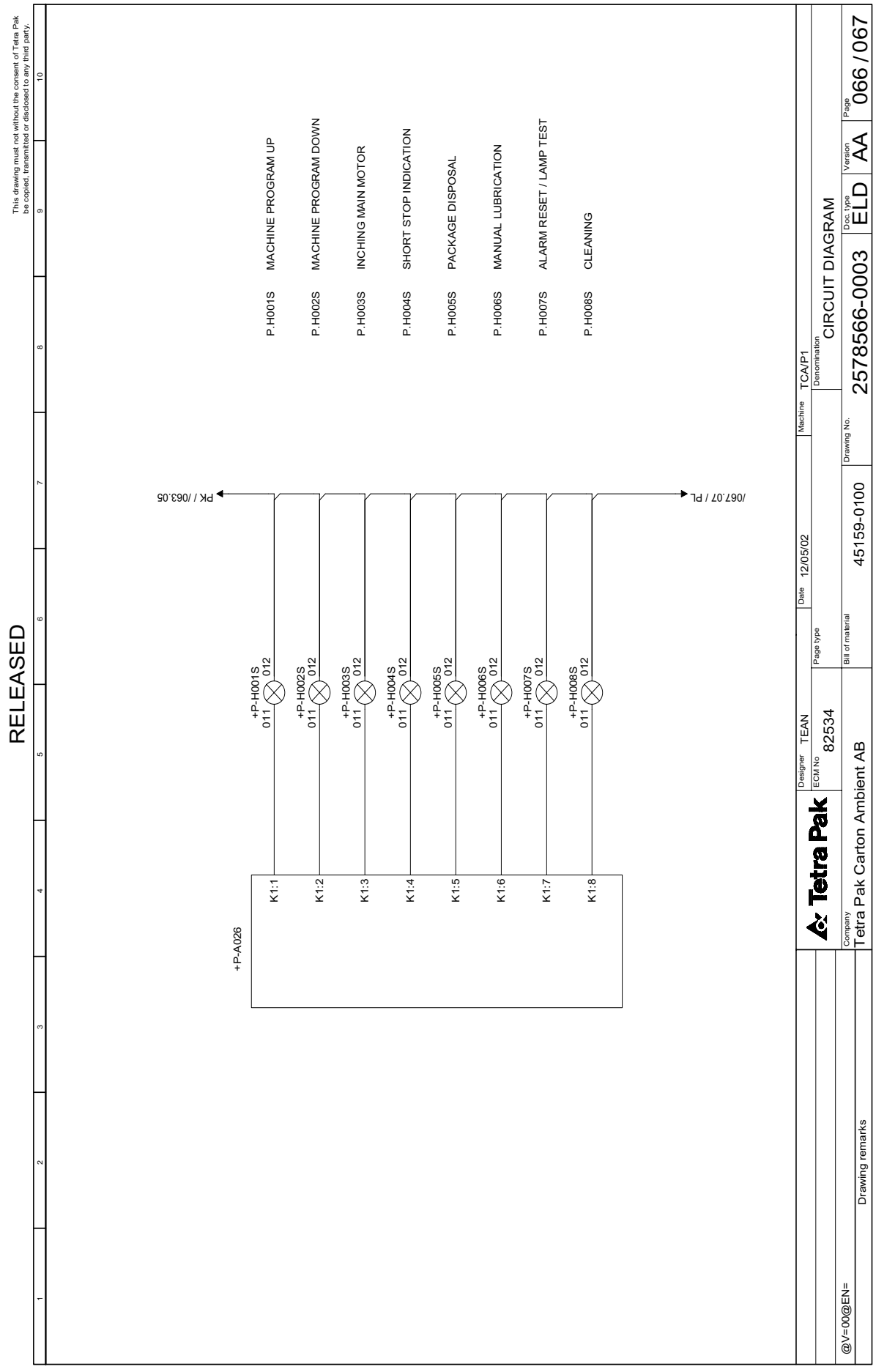
K1:13

K1:14

K1:15

K1:16

	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1			
		ECM No 82534	Page type	Denomination CIRCUIT DIAGRAM			
@V=00@EN=	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0003	Doc. type ELD	Version AA	Page 065 / 066	
Drawing remarks							



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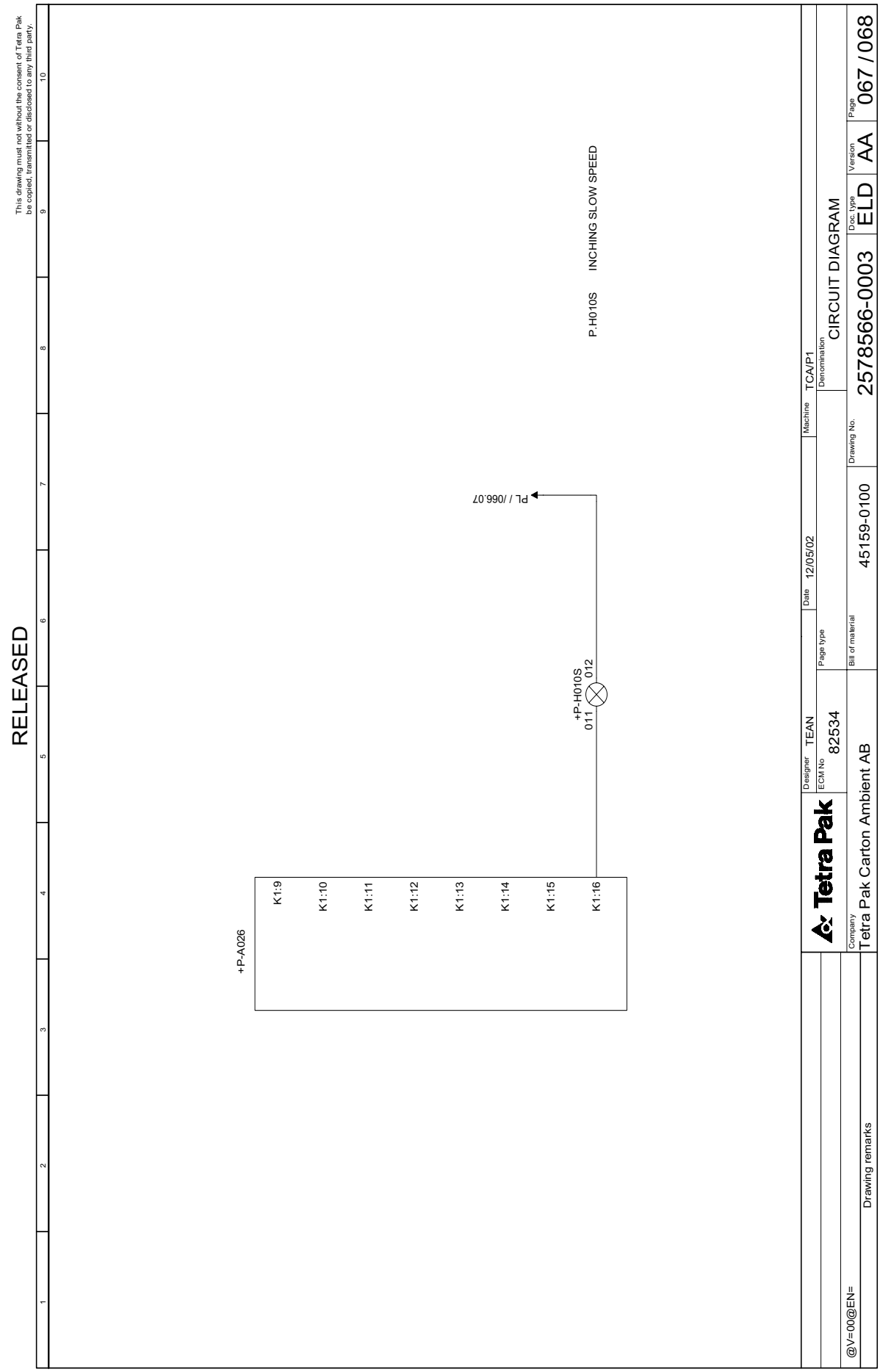

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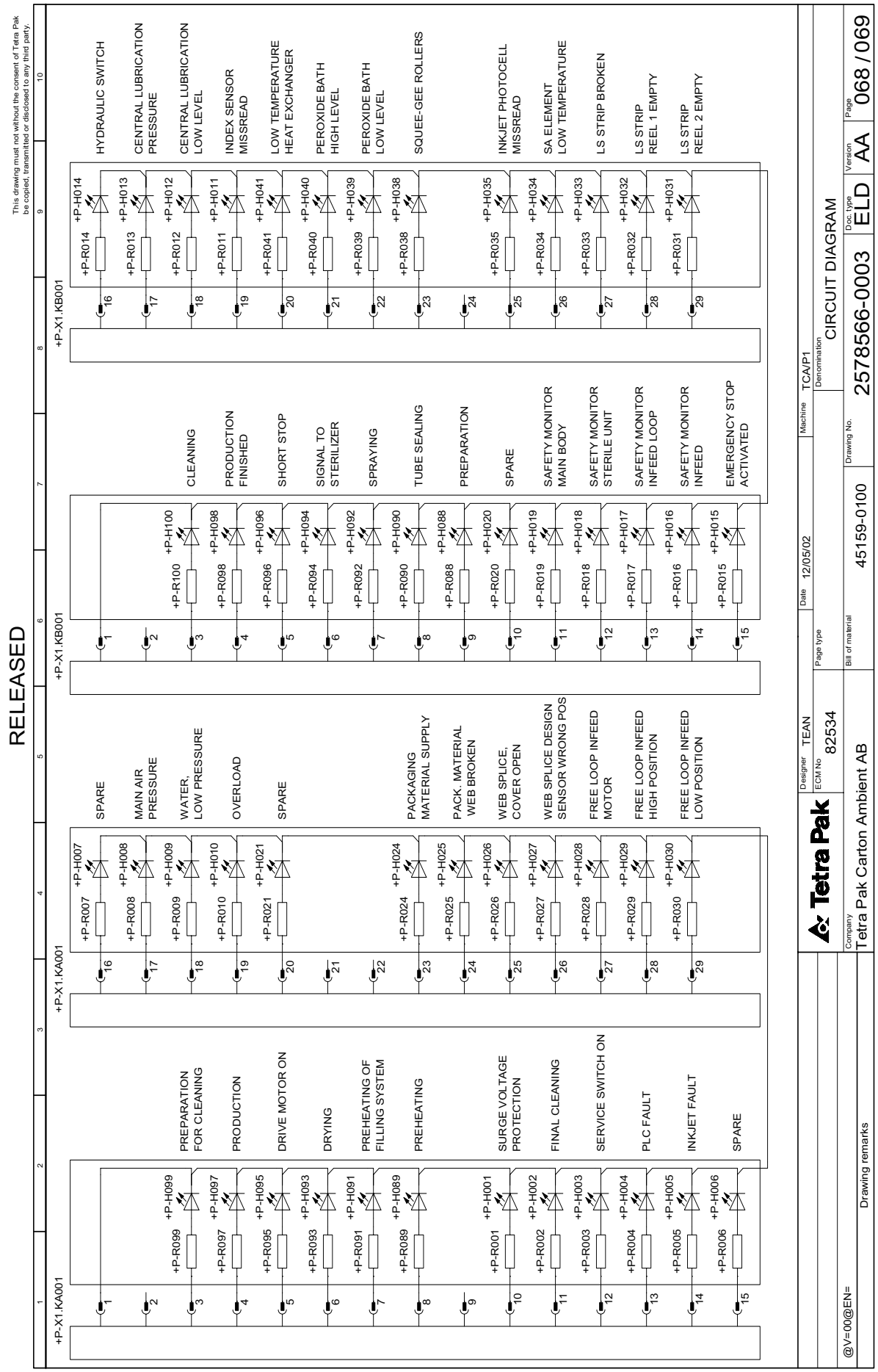

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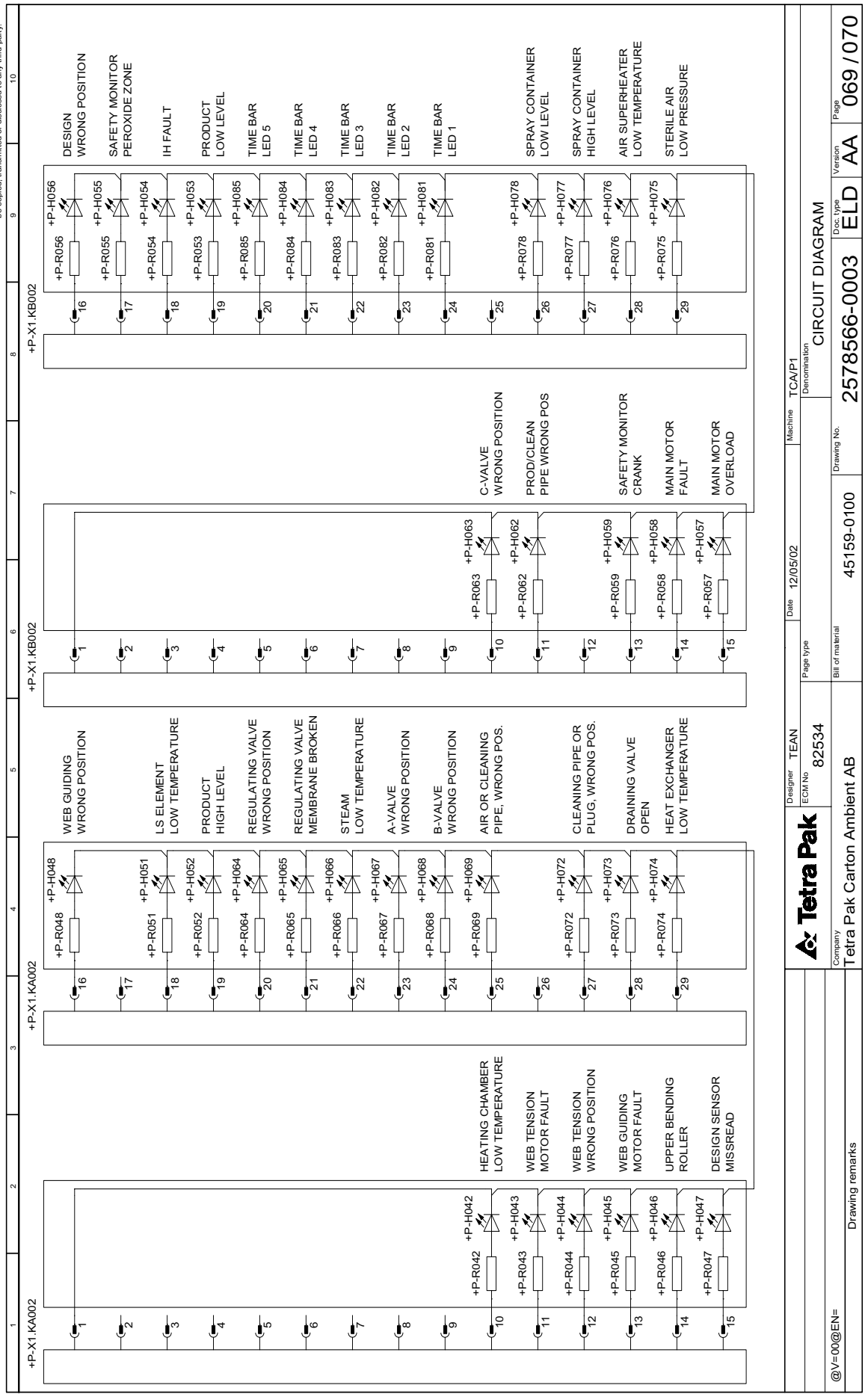

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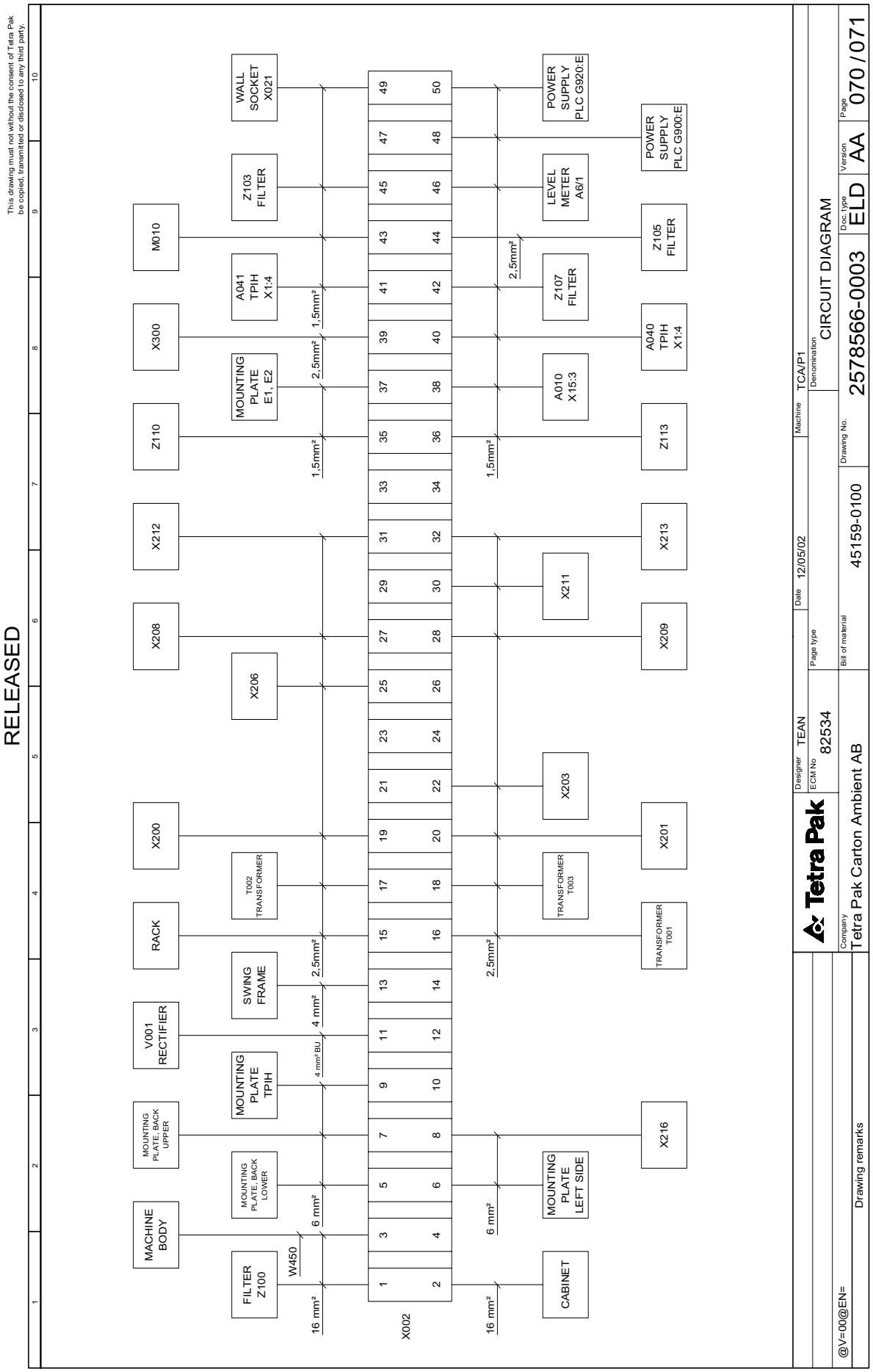

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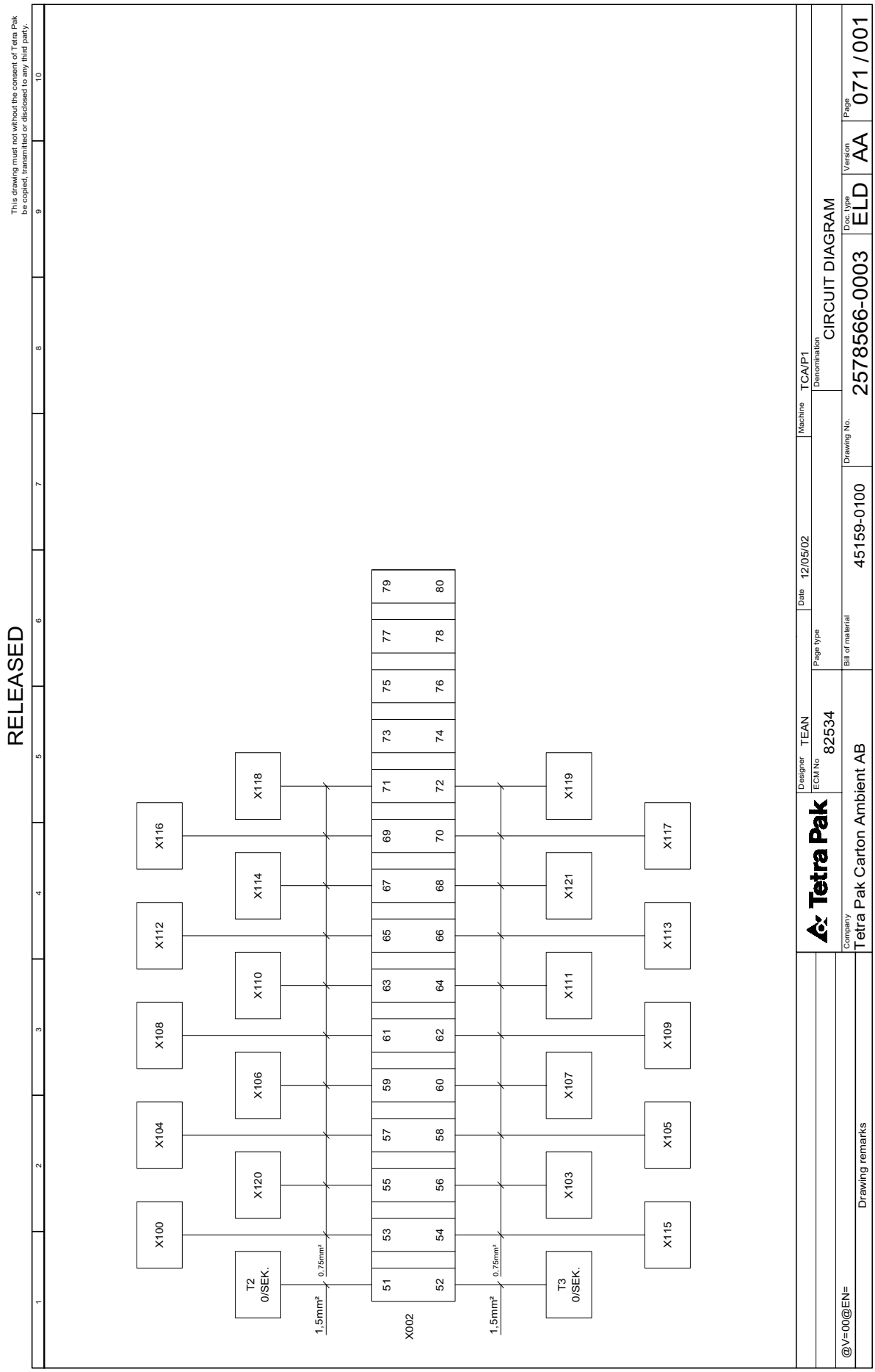

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7 Line summary

EM1.1TS700007.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description . . . . . .Identity Prt Vs
LINE SUMMARY . . . . . .2578566-0004 AA

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Line summary of 2578566-0003

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L1	+C-Z100:1	004 .6	+C-Q001:1	005 .2		
L1	+C-Q001:1	005 .2	+C-F012:1	007 .1		
L1	+C-F012:1	007 .1	+C-F015:1	007 .9		
L1	+C-F015:1	007 .9	+C-F018:1	008 .1		
L1	+C-F018:1	008 .1	+C-F021:1	009 .2		
L1	+C-F021:1	009 .2	+C-K300:1	010 .1		
L2	+C-Q021:V1	004 .2	+C-Z100:2	004 .6		
L2	+C-Z100:2	004 .6	+C-Q001:3	005 .2		
L2	+C-Q001:3	005 .2	+C-F008:1	005 .5		
L2	+C-F008:1	005 .5	+C-F013:1	007 .5		
L2	+C-F013:1	007 .5	+C-F016:1	007 .9		
L2	+C-F016:1	007 .9	+C-F019:1	008 .3		
L2	+C-F019:1	008 .3	+C-K300:3	010 .1		
L3	+C-Q021:W1	004 .2	+C-Z100:3	004 .6		
L3	+C-Z100:3	004 .6	+C-Q001:5	005 .2		
L3	+C-Q001:5	005 .2	+C-F010:1	006 .2		
L3	+C-F010:1	006 .2	+C-F014:1	007 .7		
L3	+C-F014:1	007 .7	+C-F017:1	007 .10		
L3	+C-F017:1	007 .10	+C-F020:1	008 .7		
L3	+C-F020:1	008 .7	+C-K300:5	010 .1		
L4	+C-F001:1	011 .2	+C-F023:1	012 .2		
L4	+C-F023:1	012 .2	+C-F024:1	012 .7		
L4	+C-F024:1	012 .7	+C-F025:1	010 .3		
L4	+C-F025:1	010 .3	+C-K300:2	010 .1		
L4	+C-K300:2	010 .1	+C-Q006:1	010 .1		
L5	+C-F002:1	011 .2	+C-F023:3	012 .2		
L5	+C-F023:3	012 .2	+C-F029:1	013 .2		

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L5	+C-Q006:3	010 .1	+C-F011:1	015 .3		
L6	+C-F003:1	011 .3	+C-F023:5	012 .2		
L6	+C-F023:5	012 .2	+C-F026:1	010 .5		
L6	+C-F026:1	010 .5	+C-F027:1	010 .8		
L6	+C-F027:1	010 .8	+C-F030:1	013 .7		
L6	+C-F030:1	013 .7	+C-K300:6	010 .1		
L6	+C-K300:6	010 .1	+C-Q006:5	010 .1		
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L10	+C-XL010:3	001 .2	+C-K027:A1	052 .5	0,75 BU	
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L10	+C-XL010:7	001 .3	+C-K036:10	051 .5	0,75 BU	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534	LINE SUMMARY	LINE SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
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Line summary of 2578566-0003

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L10	+C-K038:10	051 .5	+C-K045:A1	052 .5	0,75 BU	
L10	+C-XL010:8	001 .3	+C-A200:A2	024 .5	0,75 BU	
L10	+C-A200:A2	024 .5	+C-A200:33	024 .5	0,75 BU	
L10	+C-XL010:9	001 .3	+C-A902:01	029 .8	0,75 BU	
L10	+C-A902:01	029 .8	+C-A903:10	031 .1	0,75 BU	
L10	+C-A903:10	031 .1	+C-A903:20	032 .1	0,75 BU	
L10	+C-A903:20	032 .1	+C-A904:01	033 .8	0,75 BU	
L10	+C-A904:01	033 .8	+C-A905:01	035 .8	0,75 BU	
L10	+C-XL010:10	001 .3	+C-A906:01	037 .8	0,75 BU	
L10	+C-A906:01	037 .8	+C-A907:01	039 .8	0,75 BU	
L10	+C-A907:01	039 .8	+C-A908:01	041 .8	0,75 BU	
L10	+C-A908:01	041 .8	+C-A909:01	043 .8	0,75 BU	
L10	+C-A909:01	043 .8	+C-A910:01	045 .8	0,75 BU	
L10	+C-XL010:11	001 .4	+C-A923:10	051 .1	0,75 BU	
L10	+C-A923:10	051 .1	+C-A923:20	052 .1	0,75 BU	
L10	+C-A923:20	052 .1	+C-A924:10	053 .1	0,75 BU	
L10	+C-A924:10	053 .1	+C-A924:20	054 .1	0,75 BU	
L10	+C-XL010:12	001 .4	+C-A925:10	055 .1	0,75 BU	
L10	+C-A925:10	055 .1	+C-A927:10	059 .1	0,75 BU	
L10	+C-A927:10	059 .1	+C-A927:20	060 .1	0,75 BU	
L10	+C-XL010:13	001 .4	+C-A926:20	058 .1	0,75 BU	
L10	+C-A926:20	058 .1	+C-A930:07	061 .7	0,75 BU	
L10	+C-A930:07	061 .7	+C-A930:18	062 .1	0,75 BU	
L10	+C-A930:18	062 .1	+C-A930:19	062 .1	0,75 BU	
L10	+C-XL010:14	001 .4	+C-X103:2	036 .1	0,75 BU	
L10	+C-XL010:15	001 .5	+C-X111:5	032 .7	0,75 BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L10	+C-X111:5	032 .7	+C-X112:23	029 .4	0,75 BU	
L10	+C-XL010:16	001 .5	+C-K090:4	016 .2	0,75 BU	
L10	+C-XL010:17	001 .5	+C-X108:10	030 .2	0,75 BU	
L10	+C-XL010:18	001 .5	+C-P003:2	053 .6	0,75 BU	
L10	+C-P003:2	053 .6	+C-P001:A"-	053 .6	0,75 BU	
L10	+C-XL010:19	001 .6	+C-X105:2	033 .2	0,75 BU	
L10	+C-XL010:20	001 .6	+C-X116:2	038 .1	0,75 BU	
L10	+C-X116:2	038 .1	+C-X120:2	030 .1	0,75 BU	
L10	+C-X120:2	030 .1	+C-X121:8	054 .7	0,75 BU	
L10	+C-XL010:21	001 .6	+C-X114:23	031 .7	0,75 BU	
L10	+C-X114:23	031 .7	+C-X114:24	031 .7	0,75 BU	
L10	+C-X114:24	031 .7	+C-X115:23	059 .7	0,75 BU	
L10	+C-X115:23	059 .7	+C-X115:24	059 .7	0,75 BU	
L10	+C-XL010:22	001 .6	+C-A040:212	011 .1	0,75 BU	
L10	+C-A040:212	011 .1	+C-A041:212	011 .5	0,75 BU	
L10	+C-XL010:23	001 .7	+C-G004:4	013 .7	0,75 BU	
L10	+C-XL010:24	001 .7	+C-A010:8	015 .3	0,75 BU	
L10	+C-A010:8	015 .3	+C-A010:9	015 .3	0,75 BU	
L10	+C-A010:9	015 .3	+C-A010:11	015 .3	0,75 BU	
L10	+C-XL010:25	001 .7	+C-K082:A2	032 .4	0,75 BU	
L10	+C-XL010:26	001 .7	+C-X108:24	054 .8	0,75 BU	
L10	+C-X108:24	054 .8	+C-X109:8	053 .7	0,75 BU	
L10	+C-XL010:27	001 .8	+C-X113:23	055 .7	0,75 BU	
L10	+C-X113:23	055 .7	+C-X113:24	055 .7	0,75 BU	
L10	+C-XL010:28	001 .8	+C-X300:19	063 .2	0,75 BU	
L10	+C-X300:19	063 .2	+C-X300:27	061 .2	0,75 BU	
L10	+C-X300:27	061 .2	+C-X300:29	053 .7	0,75 BU	
L10	+C-XL010:29	001 .8	+C-A050:3	017 .5	0,75 BU	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		LINE SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0004	ELD	AA	002 / 003

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1 2 3 4 5 6 7 8 9 10

Line summary of 2578566-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L10	+C-XL010:30	001 .8	+C-X101:6	052 .7	0,75 BU	
L10	+C-XL010:31	001 .9	+C-X101:1	016 .7	0,75 BU	
L11	+C-XL011:1	001 .1	+C-F007:2	005 .2	0,75 BU	
L11	+C-XL011:2	001 .1	+C-A006:17	014 .6	0,75 BU	
L11	+C-XL011:3	001 .2	+C-A030:15	022 .5	0,75 BU	
L11	+C-A030:15	022 .5	+C-A031:15	022 .5	0,75 BU	
L11	+C-A031:15	022 .5	+C-A032:15	022 .5	0,75 BU	
L11	+C-A032:15	022 .5	+C-A033:15	022 .5	0,75 BU	
L11	+C-XL011:4	001 .2	+C-A200:A1	024 .5	0,75 BU	
L11	+C-A200:A1	024 .5	+C-A200:23	024 .5	0,75 BU	
L11	+C-A200:23	024 .5	+C-A200:41	024 .5	0,75 BU	
L11	+C-XL011:5	001 .2	+C-K070:11	009 .2	0,75 BU	
L11	+C-XL011:6	001 .2	+C-Z102:4	004 .5	0,75 BU	
L11	+C-XL011:7	001 .3	+C-X117:9	023 .1	0,75 BU	
L11	+C-X117:9	023 .1	+C-X117:17	023 .1	0,75 BU	
L11	+C-X117:17	023 .1	+C-X120:1	030 .1	0,75 BU	
L11	+C-X120:1	030 .1	+C-X121:5	044 .2	0,75 BU	
L11	+C-XL011:8	001 .3	+C-X112:16	029 .4	0,75 BU	
L11	+C-X112:16	029 .4	+C-X109:5	033 .2	0,75 BU	
L11	+C-X109:5	033 .2	+C-X108:9	030 .2	0,75 BU	
L11	+C-XL011:9	001 .3	+C-K045:1	017 .2	0,75 BU	
L11	+C-XL011:10	001 .3	+C-Q006:13	033 .4	0,75 BU	
L11	+C-Q006:13	033 .4	+C-G002:20	012 .2	0,75 BU	
L11	+C-G002:20	012 .2	+C-G003:20	013 .2	0,75 BU	
L11	+C-G003:20	013 .2	+C-G004:20	013 .7	0,75 BU	
L11	+C-XL011:11	001 .4	+C-X101:9	016 .3	0,75 BU	
L11	+C-XL011:12	001 .4	+C-X105:1	033 .2	0,75 BU	
L11	+C-XL011:13	001 .4	+C-A040:214	011 .1	0,75 BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L11	+C-A040:214	011 .1	+C-A040:224	011 .1	0,75 BU	
L11	+C-XL011:14	001 .4	+C-X103:1	036 .1	0,75 BU	
L11	+C-X103:1	036 .1	+C-X112:1	038 .1	0,75 BU	
L11	+C-XL011:15	001 .5	+C-X116:1	038 .1	0,75 BU	
L11	+C-XL011:16	001 .5	+C-A041:214	011 .5	0,75 BU	
L11	+C-A041:214	011 .5	+C-A041:224	011 .5	0,75 BU	
L11	+C-XL011:17	001 .5	+C-K090:1	016 .2	0,75 BU	
L11	+C-XL011:18	001 .5	+C-K049:7	041 .4	0,75 BU	
L11	+C-K049:7	041 .4	+C-K050:7	041 .4	0,75 BU	
L11	+C-XL011:19	001 .6	+C-X300:1	043 .2	0,75 BU	
L11	+C-X300:1	043 .2	+C-X300:18	063 .2	0,75 BU	
L11	+C-X300:18	063 .2	+C-X300:25	061 .2	0,75 BU	
L12	+C-XL012:1	002 .1	+C-F007:4	005 .2	0,75 BU	
L12	+C-XL012:4	002 .2	+C-A020:23	018 .3	0,75 BU	
L12	+C-A020:23	018 .3	+C-A021:23	018 .5	0,75 BU	
L12	+C-A021:23	018 .5	+C-A022:23	019 .3	0,75 BU	
L12	+C-A022:23	019 .3	+C-A023:23	019 .5	0,75 BU	
L12	+C-A023:23	019 .5	+C-A024:23	020 .3	0,75 BU	
L12	+C-A024:23	020 .3	+C-A025:23	020 .5	0,75 BU	
L12	+C-A025:23	020 .5	+C-A026:23	021 .3	0,75 BU	
L12	+C-A026:23	021 .3	+C-A026:19	021 .3	0,75 BU	
L12	+C-XL012:5	002 .2	+C-A930:01	062 .1	0,75 BU	
L12	+C-A930:01	062 .1	+C-S003:13	040 .3	0,75 BU	
L12	+C-S003:13	040 .3	+C-S004:13	040 .3	0,75 BU	
L12	+C-S004:13	040 .3	+C-S014:2	040 .3	0,75 BU	
L12	+C-XL012:6	002 .3	+C-A923:01	051 .1	0,75 BU	
L12	+C-A923:01	051 .1	+C-A923:11	052 .1	0,75 BU	
L12	+C-A923:11	052 .1	+C-A924:01	053 .1	0,75 BU	

	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1				
		ECM No 82534	Page type	Denomination LINE SUMMARY				
Drawing remarks	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0004	Doc. type ELD	Version AA	Page 003 / 004		

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1 2 3 4 5 6 7 8 9 10

Line summary of 2578566-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L12	+C-A924:01	053 .1	+C-A924:11	054 .1	0,75 BU	
L12	+C-XL012:7	002 .3	+C-A925:01	055 .1	0,75 BU	
L12	+C-XL012:8	002 .3	+C-A903:01	031 .1	0,75 BU	
L12	+C-A903:01	031 .1	+C-A903:11	032 .1	0,75 BU	
L12	+C-XL012:9	002 .4	+C-A926:11	058 .1	0,75 BU	
L12	+C-XL012:10	002 .4	+C-A927:01	059 .1	0,75 BU	
L12	+C-A927:01	059 .1	+C-A927:11	060 .1	0,75 BU	
L12	+C-XL012:11	002 .4	+C-K057:1	017 .2	0,75 BU	
L20	+C-XL020:1	002 .1	+C-A200:34	024 .5	0,75 BU	
L20	+C-A200:34	024 .5	+C-K041:10	049 .5	0,75 BU	
L20	+C-K041:10	049 .5	+C-K040:3	016 .3	0,75 BU	
L20	+C-K040:3	016 .3	+C-K040:10	048 .5	0,75 BU	
L20	+C-K040:10	048 .5	+C-K040:5	016 .3	0,75 BU	
L20	+C-K040:5	016 .3	+C-K081:A1	016 .2	0,75 BU	
L20	+C-K081:A1	016 .2	+C-K009:A1	048 .5	0,75 BU	
L20	+C-K009:A1	048 .5	+C-K011:A1	050 .5	0,75 BU	
L20	+C-XL020:2	002 .1	+C-A300:A2	026 .6	0,75 BU	
L20	+C-A300:A2	026 .6	+C-A300:33	026 .6	0,75 BU	
L20	+C-A300:33	026 .6	+C-A400:23	028 .5	0,75 BU	
L20	+C-A400:23	028 .5	+C-A400:A2	028 .5	0,75 BU	
L20	+C-XL020:3	002 .2	+C-K020:A1	049 .5	0,75 BU	
L20	+C-K020:A1	049 .5	+C-K021:A1	049 .5	0,75 BU	
L20	+C-K021:A1	049 .5	+C-K022:A1	049 .5	0,75 BU	
L20	+C-K022:A1	049 .5	+C-K023:A1	049 .5	0,75 BU	
L20	+C-K023:A1	049 .5	+C-K024:A1	049 .5	0,75 BU	
L20	+C-K024:A1	049 .5	+C-K025:A1	049 .5	0,75 BU	
L20	+C-K025:A1	049 .5	+C-K026:A1	049 .5	0,75 BU	
L20	+C-K026:A1	049 .5	+C-K042:10	050 .5	0,75 BU	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L20	+C-K042:10	050 .5	+C-K300:A1	026 .7	0,75 BU	
L20	+C-K300:A1	026 .7	+C-X104:17	050 .7	0,75 BU	
L20	+C-X104:17	050 .7	+C-X112:8	048 .7	0,75 BU	
L20	+C-XL020:4	002 .2	+C-A922:10	049 .1	0,75 BU	
L20	+C-A922:10	049 .1	+C-A922:20	050 .1	0,75 BU	
L20	+C-A922:20	050 .1	+C-A921:20	048 .1	0,75 BU	
L21	+C-XL021:3	002 .2	+C-A400:13	028 .5	0,75 BU	
L21	+C-A400:13	028 .5	+C-A400:41	028 .5	0,75 BU	
L21	+C-A400:41	028 .5	+C-A400:A1	028 .5	0,75 BU	
L21	+C-A400:A1	028 .5	+C-X105:12	027 .2	0,75 BU	
L21	+C-XL021:4	002 .2	+C-A922:01	049 .1	0,75 BU	
L21	+C-A922:01	049 .1	+C-A922:11	050 .1	0,75 BU	
L21	+C-A922:11	050 .1	+C-A921:11	048 .1	0,75 BU	
L21	+C-XL021:1	002 .1	+C-A200:24	024 .5	0,75 BU	
L21	+C-XL021:2	002 .1	+C-A300:A1	026 .6	0,75 BU	
L21	+C-A300:A1	026 .6	+C-A300:13	026 .6	0,75 BU	
L21	+C-A300:13	026 .6	+C-K081:14	016 .2	0,75 BU	
L21	+C-K081:14	016 .2	+C-A300:23	026 .6	0,75 BU	
L21	+C-A300:23	026 .6	+C-A300:41	026 .6	0,75 BU	
L30	+C-XL030:1	003 .1	+C-A300:34	026 .6	0,75 BU	
L30	+C-XL030:3	003 .2	+C-A921:10	047 .1	0,75 BU	
L30	+C-A921:10	047 .1	+C-A926:10	057 .1	0,75 BU	
L30	+C-A926:10	057 .1	+C-G002:2	012 .2	0,75 BU	
L30	+C-G002:2	012 .2	+C-G003:2	013 .2	0,75 BU	
L30	+C-G003:2	013 .2	+C-G004:2	013 .7	0,75 BU	
L30	+C-G004:2	013 .7	+C-K067:4	010 .5	0,75 BU	
L30	+C-K067:4	010 .5	+C-K066:4	010 .3	0,75 BU	
L30	+C-XL030:4	003 .2	+C-K001:A1	047 .6	0,75 BU	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		LINE SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0004	ELD	AA	004 / 005

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Line summary of 2578566-0003

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L30	+C-K001:A1	047 .6	+C-K004:A1	047 .6	0,75 BU	
L30	+C-K004:A1	047 .6	+C-K006:A1	047 .6	0,75 BU	
L30	+C-K006:A1	047 .6	+C-K028:A1	057 .5	0,75 BU	
L30	+C-K028:A1	057 .5	+C-K029:A1	057 .5	0,75 BU	
L31	+C-XL031:1	003 .3	+C-A300:24	026 .6	0,75 BU	
L31	+C-XL031:3	003 .3	+C-A921:01	047 .1	0,75 BU	
L31	+C-A921:01	047 .1	+C-A926:01	057 .1	0,75 BU	
L40	+C-A400:24	028 .5	+C-A925:20	056 .1		
L40	+C-A925:20	056 .1	+C-X121:14	056 .7		
L41	+C-A400:14	028 .5	+C-A925:11	056 .1		
L50	+C-XL050:1	003 .1	+C-K024:4	008 .2	1,50 L.BU	
L50	+C-XL050:2	003 .1	+C-A030:A2	022 .5	1,50 L.BU	
L50	+C-A030:A2	022 .5	+C-A031:A2	022 .5	1,50 L.BU	
L50	+C-A031:A2	022 .5	+C-A032:A2	022 .5	1,50 L.BU	
L50	+C-A032:A2	022 .5	+C-A033:A2	022 .5	1,50 L.BU	
L50	+C-XL050:3	003 .2	+C-K070:A2	009 .2	1,50 L.BU	
L50	+C-K070:A2	009 .2	+C-K071:A2	009 .6	1,50 L.BU	
L50	+C-XL050:4	003 .2	+C-A040:130	011 .1	1,50 L.BU	
L50	+C-A040:130	011 .1	+C-A041:130	011 .5	1,50 L.BU	
L50	+C-XL050:5	003 .2	+C-A020:27	018 .3	1,50 L.BU	
L50	+C-A020:27	018 .3	+C-A021:27	018 .5	1,50 L.BU	
L50	+C-A021:27	018 .5	+C-A022:27	019 .3	1,50 L.BU	
L50	+C-A022:27	019 .3	+C-A023:27	019 .5	1,50 L.BU	
L50	+C-A023:27	019 .5	+C-A024:27	020 .3	1,50 L.BU	
L50	+C-A024:27	020 .3	+C-A025:27	020 .5	1,50 L.BU	
L50	+C-A025:27	020 .5	+C-A026:27	021 .3	1,50 L.BU	
L51	+C-XL051:1	003 .1	+C-K024:2	008 .1	1,50 BK	
L51	+C-XL051:2	003 .1	+C-A030:A1	022 .5	1,50 BK	

Line	From	Page.Col.	To	Page.Col.	Area/Color	Opt.
L51	+C-A030:A1	022 .5	+C-A031:A1	022 .5	1,50 BK	
L51	+C-A031:A1	022 .5	+C-A032:A1	022 .5	1,50 BK	
L51	+C-A032:A1	022 .5	+C-A033:A1	022 .5	1,50 BK	
L51	+C-XL051:4	003 .2	+C-A040:126	011 .1	1,50 BK	
L51	+C-A040:126	011 .1	+C-A041:126	011 .5	1,50 BK	
L51	+C-XL051:5	003 .2	+C-A020:26	018 .3	1,50 BK	
L51	+C-A020:26	018 .3	+C-A021:26	018 .5	1,50 BK	
L51	+C-A021:26	018 .5	+C-A022:26	019 .3	1,50 BK	
L51	+C-A022:26	019 .3	+C-A023:26	019 .5	1,50 BK	
L51	+C-A023:26	019 .5	+C-A024:26	020 .3	1,50 BK	
L51	+C-A024:26	020 .3	+C-A025:26	020 .5	1,50 BK	
L51	+C-A025:26	020 .5	+C-A026:26	021 .3	1,50 BK	
L51	+C-XL051:6	003 .3	+C-K070:A1	009 .2	1,50 BK	
L51	+C-K070:A1	009 .2	+C-K071:A1	009 .6	1,50 BK	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		LINE SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0004	ELD	AA	005 / 001

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EM1.1TS700007.fm

8 Terminal strip overview

EM1.1TS700009.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description	Identity Prt Vs
TERMINAL STRIP OVERVIEW	2578566-0006 AA

EM1.1TS700009.fm

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X010

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X120:3	-W011 :3		1		-W120 :BK	+M-B125:	030 .5		DESIGN SENSOR SPLICE
+C-X120:1	-W011 :1		1+		-W120 :BN	+M-B125:	030 .3		DESIGN SENSOR SPLICE
+C-X120:2	-W011 :2		1-		-W120 :BU	+M-B125:	030 .3		DESIGN SENSOR SPLICE
+C-X120:4	-W011 :4		2		-W121 :BK	+M-B126:	030 .5		SPLICE DETECTOR
			2+		-W121 :BU	+M-B126:	030 .3		SPLICE DETECTOR
			2-		-W121 :BN	+M-B126:	030 .3		SPLICE DETECTOR
+C-X120:5	-W011 :5		3		-W122 :BK	+M-B127:	038 .5		WEB SPLICE END POSITION
			3+		-W122 :BN	+M-B127:	038 .2		WEB SPLICE END POSITION
			3-		-W122 :BU	+M-B127:	038 .2		WEB SPLICE END POSITION
+C-X120:6	-W011 :6		4		-W123 :BK	+M-B128:	038 .5		KNIFE TURN END POSITION
			4+		-W123 :BN	+M-B128:	038 .2		KNIFE TURN END POSITION
			4-		-W123 :BU	+M-B128:	038 .2		KNIFE TURN END POSITION
+C-X120:7	-W011 :7		5		-W124 :BK	+M-B129:	038 .5		KNIFE TURN START POSITION
			5+		-W124 :BN	+M-B129:	038 .2		KNIFE TURN START POSITION
			5-		-W124 :BU	+M-B129:	038 .2		KNIFE TURN START POSITION
+C-X120:8	-W011 :8		6		-W125 :BK	+M-B130:	041 .5		LS-STRIP REEL 2 MONITOR
			6+		-W125 :BN	+M-B130:	041 .3		LS-STRIP REEL 2 MONITOR
			6-		-W125 :BU	+M-B130:	041 .3		LS-STRIP REEL 2 MONITOR
+C-X120:9	-W011 :9		7		-W126 :BK	+M-B131:	041 .5		LS-STRIP REEL 1 MONITOR
			7+		-W126 :BN	+M-B131:	041 .3		LS-STRIP REEL 1 MONITOR
			7-		-W126 :BU	+M-B131:	041 .3		LS-STRIP REEL 1 MONITOR
+C-X120:10	-W011 :10		8		-W133 :BK	+M-B133:	041 .5		FREE LOOP INFEED ROLLER POSITION
			8+		-W133 :BN	+M-B133:	041 .3		FREE LOOP INFEED ROLLER POSITION
			8-		-W133 :BU	+M-B133:	041 .3		FREE LOOP INFEED ROLLER POSITION
+C-X120:11	-W011 :11		9		-W134 :BK	+M-B134:	041 .5		FREE LOOP INFEED TOP POSITION
			9+		-W134 :BU	+M-B134:	041 .3		FREE LOOP INFEED TOP POSITION
			9-		-W134 :BN	+M-B134:	041 .3		FREE LOOP INFEED TOP POSITION
			10						
			10+		-W100 :BN	+M-B100:	035 .2		PAPER SUPPLY MONITOR EMITTER

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534	TERMINAL STRIP OVERVIEW	TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	001 / 002

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X010

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			10-		-W100 :BU	+M-B100:	035 .2		PAPER SUPPLY MONITOR EMITTER
+C-X120:13	-W011 :13		11		-W101 :BK	+M-B101:	035 .5		PAPER SUPPLY MONITOR RECEIVER
			11+		-W101 :BN	+M-B101:	035 .2		PAPER SUPPLY MONITOR RECEIVER
			11-		-W101 :BU	+M-B101:	035 .2		PAPER SUPPLY MONITOR RECEIVER
+C-X120:14	-W011 :14		12		-W102 :BK	+M-B102:	035 .5		PAPER WEB MONITOR
			12+		-W102 :BN	+M-B102:	035 .2		PAPER WEB MONITOR
			12-		-W102 :BU	+M-B102:	035 .2		PAPER WEB MONITOR
+C-X120:15	-W011 :15		13		-W103 :BK	+M-B104:	035 .5		LS-STRIP SUPPLY MONITOR
			13+		-W103 :BN	+M-B104:	035 .2		LS-STRIP SUPPLY MONITOR
			13-		-W103 :BU	+M-B104:	035 .2		LS-STRIP SUPPLY MONITOR
+C-X120:16	-W011 :16		14		-W104 :BK	+M-B105:	035 .5		LS-STRIP BROKEN MONITOR
			14+		-W104 :BN	+M-B105:	035 .2		LS-STRIP BROKEN MONITOR
			14-		-W104 :BU	+M-B105:	035 .2		LS-STRIP BROKEN MONITOR
+C-X120:17	-W011 :17		15		-W147 :BK	+M-B147:	044 .5		WEB SPLICE TARGET
			15+		-W147 :BN	+M-B147:	044 .2		WEB SPLICE TARGET
			15-		-W147 :BU	+M-B147:	044 .2		WEB SPLICE TARGET
+C-X120:18	-W011 :18		16		-W146 :BK	+M-B146:	030 .5		DESIGN SENSOR FOR INKJET PRINTER
			16+		-W146 :BN	+M-B146:	030 .3		DESIGN SENSOR FOR INKJET PRINTER
			16-		-W146 :BU	+M-B146:	030 .3		DESIGN SENSOR FOR INKJET PRINTER
+C-X120:19	-W011 :19		17			+M-S104H:14	042 .4		LS-STRIP SPLICE READY
			17+			+M-S104H:13	042 .3		LS-STRIP SPLICE READY
			17-						
			18						
			18+						
			18-						
			19						
			19+						
			19-						
			20						
			20+						

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	002 / 003

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X010

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			20-						
			21						
			21+						
			21-						
			22						
			22+						
			22-						
+C-X121:1	-W012:1		23		-W135:1	+M-S100:11	025 .7		EMERGENCYSTOP
+C-X121:2	-W012:2		24		-W135:2	+M-S100:21	025 .7		EMERGENCYSTOP
+C-X121:4	-W012:4		25		-W135:3	+M-S100:22	025 .8		EMERGENCYSTOP
+C-X121:3	-W012:3		26		-W135:4	+M-S100:12	025 .8		EMERGENCYSTOP
+C-X121:5	-W012:5		27		-W135:5	+M-S101H:13	044 .2		SHORT STOP SPLICE UNIT
+C-X121:6	-W012:6		28		-W135:6	+M-S101H:14	044 .5		SHORT STOP SPLICE UNIT
+C-X121:7	-W012:7		29		-W135:7	+M-H101S:1	054 .4		SHORT STOP SPLICE UNIT
+C-X121:8	-W012:8		30		-W135:8	+M-H101S:2	054 .6		SHORT STOP SPLICE UNIT
+C-X121:9	-W012:9		31		-W135:9	+M-S102:14	044 .5		SPLICE BUTTON
+C-X121:10	-W012:10		32		-W135:10	+M-S103:14	044 .5		LOCK/RELEASE PAPER WEB
+C-X121:12	-W012:12		33			+M-H104S:1	054 .4		LS-STRIP SPLICE READY
			34			+M-H104S:2	054 .6		LS-STRIP SPLICE READY
			E2						
+C-X121:13	-W012:13		35		-W137:1	+M-Y122:1	056 .4		AIR ON/OFF
+C-X121:14	-W012:14		36		-W137:2	+M-Y122:2	056 .6		AIR ON/OFF
			E3		-W137:GNYE	+M-Y122:E	056 .6		AIR ON/OFF
			37						
			38						
			E4						
+C-X121:17	-W012:17		39		-W138:1	+M-B132:21	028 .2		DOOR MONITOR SPLICE COVER
+C-X121:18	-W012:18		40		-W138:2	+M-B132:11	028 .2		DOOR MONITOR SPLICE COVER
			41		-W138:3	+M-B132:12	028 .3		DOOR MONITOR SPLICE COVER
			42		-W138:4	+M-B132:22	028 .3		DOOR MONITOR SPLICE COVER

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 003 / 004

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X010

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E5						
			43		-W145 :1	+M-B145:21	028 .3		DOOR MONITOR STRIP MAGAZINE
			44		-W145 :2	+M-B145:11	028 .3		DOOR MONITOR STRIP MAGAZINE
+C-X121:19	-W012 :19		45		-W145 :3	+M-B145:12	028 .5		DOOR MONITOR STRIP MAGAZINE
+C-X121:20	-W012 :20		46		-W145 :4	+M-B145:22	028 .5		DOOR MONITOR STRIP MAGAZINE
			E6						
+C-X121:21	-W012 :21		47		-W144 :1	+M-B144:21	027 .2		DOOR MONITOR PAPER MAGAZINE
+C-X121:22	-W012 :22		48		-W144 :2	+M-B144:11	027 .2		DOOR MONITOR PAPER MAGAZINE
+C-X121:23	-W012 :23		49		-W144 :3	+M-B144:12	027 .3		DOOR MONITOR PAPER MAGAZINE
+C-X121:24	-W012 :24		50		-W144 :4	+M-B144:22	027 .3		DOOR MONITOR PAPER MAGAZINE
			E7						
+C-X206:1	-W015 :1		101		-W130 :BN	+M-X012:1	007 .1		
+C-X206:2	-W015 :2		102		-W130 :L.BU	+M-X012:2	007 .3		
			E8						
+C-X206:3	-W015 :3		103		-W131 :1	+M-R101:1	007 .7		LS-STRIP ELEMENT
+C-X206:4	-W015 :4		104		-W131 :2	+M-R101:2	007 .8		LS-STRIP ELEMENT
			E9						
+C-X206:5	-W015 :5		105		-W105 :1	+M-E105:1	006 .9		LIGHT IN INFEED
+C-X206:6	-W015 :6		106		-W105 :2	+M-E105:2	006 .10		LIGHT IN INFEED
			E10		-W105 :GNYE	+M-E105:E	006 .10		LIGHT IN INFEED

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	004 / 005

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X012

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X010:101	-W130 :BN		1			+M-B120:NC	007 .1		THERMO ELEMENT PAPER SPLICING
+M-X010:102	-W130 :L.BU		2			+M-R100:2	007 .3		HEATING ELEMENT PAPER SPLICING
			3			+M-B120:C	007 .2		THERMO ELEMENT PAPER SPLICING
						+M-R100:1			

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD	Version AA / Page 005 / 006

RELEASED

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Terminal strip of 2578566-0003 +M-X020

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X103:1	-W020 :1		1		-W030 :1	+M-X030:13+	036 .2		
+C-X103:2	-W020 :2		2		-W030 :2	+M-X030:13-	036 .2		
+C-X103:3	-W020 :3		3		-W030 :3	+M-X030:13	036 .6		
+C-X103:4	-W020 :4		4		-W030 :4	+M-X030:14	036 .6		
+C-X103:5	-W020 :5		5		-W030 :5	+M-X030:15	036 .6		
+C-X103:6	-W020 :6		6		-W030 :6	+M-X030:16	036 .6		
+C-X103:7	-W020 :7		7		-W030 :7	+M-X030:17	036 .6		
+C-X103:8	-W020 :8		8		-W030 :8	+M-X030:18	036 .6		
+C-X103:9	-W020 :9		9		-W030 :9	+M-X030:19	037 .6		
+C-X103:10	-W020 :10		10		-W030 :10	+M-X030:20	037 .6		
+C-X103:11	-W020 :11		11		-W030 :11	+M-X030:21	037 .6		
			12						
			13						
			14						
			15						
			16						
			17						
			E2						
+C-X103:18	-W020 :18		18		-W204 :1	+M-B204:	022 .3		LEVEL SENSOR PEROXIDE BATH
+C-X103:19	-W020 :19		19		-W204 :2	+M-B204:1	022 .3		LEVEL SENSOR PEROXIDE BATH
+C-X103:20	-W020 :20		20		-W204 :3	+M-B204:2	022 .3		LEVEL SENSOR PEROXIDE BATH
			E3						
+C-X103:21	-W020 :21		21		-W312 :1	+M-B308:	022 .3		LEVEL SENSOR MEMBRANE LEAKAGE
+C-X103:22	-W020 :22		22		-W312 :2	+M-B308:1	022 .3		LEVEL SENSOR MEMBRANE LEAKAGE
			23+		-W205 :BN	+M-B205:	030 .3		PRINTED DESIGN CORRECTION
			23-		-W205 :BU	+M-B205:	030 .3		PRINTED DESIGN CORRECTION
+M-B205:	-W205 :BK		23				030 .5		
+C-X103:23	-W020 :23								
			24+		-W310 :BN	+M-B307:	036 .4		PRESSURE MONITOR STERILE AIR

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 006 / 007

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X020

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			24-		-W310 :BU	+M-B307:	036 .4		PRESSURE MONITOR STERILE AIR
+C-X103:24	-W020 :24		24		-W310 :BK	+M-B307:	036 .5		PRESSURE MONITOR STERILE AIR
			25+		-W216 :BN	+M-B216:	037 .3		WEB ADJUSTMENT LEFT
			25-		-W216 :BU	+M-B216:	037 .3		WEB ADJUSTMENT LEFT
+C-X104:1	-W021 :1		25		-W216 :BK	+M-B216:	037 .5		WEB ADJUSTMENT LEFT
			26+		-W217 :BN	+M-B217:	037 .3		WEB ADJUSTMENT RIGHT
			26-		-W217 :BU	+M-B217:	037 .3		WEB ADJUSTMENT RIGHT
+C-X104:2	-W021 :2		26		-W217 :BK	+M-B217:	037 .5		WEB ADJUSTMENT RIGHT
			27+		-W206 :BN	+M-B206:	037 .3		GUARD SQUEE-GEE ROLLERS
			27-		-W206 :BU	+M-B206:	037 .3		GUARD SQUEE-GEE ROLLERS
+C-X104:3	-W021 :3		27		-W206 :BK	+M-B206:	037 .5		GUARD SQUEE-GEE ROLLERS
			28+		-W311 :1	+M-B314:1	038 .2		PRESSURE MONITOR MAIN AIR SUPPLY
			28-						
+C-X104:4	-W021 :4		28		-W311 :2	+M-B314:3	038 .5		PRESSURE MONITOR MAIN AIR SUPPLY
			29+		-W208 :BN	+M-B207:	042 .3		MONITOR UPPER FRONT BEND. ROLLER
			29-		-W208 :BU	+M-B207:	042 .3		MONITOR UPPER FRONT BEND. ROLLER
+C-X104:5	-W021 :5		29		-W208 :BK	+M-B207:	042 .4		MONITOR UPPER FRONT BEND. ROLLER
			30+		-W209 :BN	+M-B208:	042 .3		MONITOR UPPER BACK BENDING ROLLER
			30-		-W209 :BU	+M-B208:	042 .3		MONITOR UPPER BACK BENDING ROLLER
+C-X104:6	-W021 :6		30		-W209 :BK	+M-B208:	042 .4		MONITOR UPPER BACK BENDING ROLLER
			31+		-W203 :BN	+M-B203:	042 .3		GUARD SQUEE-GEE ROLLER LEFT
			31-		-W203 :BU	+M-B203:	042 .3		
+C-X104:7	-W021 :7		31		-W203 :BK	+M-B203:	042 .4		GUARD SQUEE-GEE ROLLER LEFT
			32+		-W201 :1	+M-B201:11	034 .3		
			32-						
+C-X104:8	-W021 :8		32		-W201 :2	+M-B201:12	034 .5		DOOR MONITOR PEROXIDE BATH
			33+						
			33-						
			33						
			34+						

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 007 / 008

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X020

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			34-						
			34						
			35						
			36						
			37						
			38						
			39		-W235 :YE	+M-B235:1	061 .3		
			40		-W235 :BU	+M-B235:2	061 .3		
+C-X104:15	-W021 :15		41		-W235 :BK	+M-B235:3	061 .4		WEB TENSION ANALOG SENSOR
			42						
			43						
+C-X104:16	-W021 :16		44		-W327 :1	+M-Y309:1	050 .4		MAIN AIR VALVE
+C-X104:17	-W021 :17		45		-W327 :2	+M-Y309:2	050 .6		MAIN AIR VALVE
			E4		-W327 :GNYE	+M-Y309:E	050 .6		MAIN AIR VALVE
+C-X104:18	-W021 :18		46		-W328 :1	+M-Y310:1	050 .4		STERILE AIR VALVE
			47		-W328 :2	+M-Y310:2	050 .6		STERILE AIR VALVE
			E5		-W328 :GNYE	+M-Y310:E	050 .6		STERILE AIR VALVE
+C-X104:19	-W021 :19		48		-W329 :1	+M-Y313:1	052 .5		TUBEFLUSHING
			49		-W329 :2	+M-Y313:2	052 .6		TUBEFLUSHING
			E6		-W329 :GNYE	+M-Y313:E	052 .6		TUBEFLUSHING
+C-X104:20	-W021 :20		50		-W317 :1	+M-Y301:1	062 .4		I/P TRANSDUCER
			51		-W317 :2	+M-Y301:2	062 .6		I/P TRANSDUCER
			E7		-W317 :GNYE	+M-Y301:E	062 .6		I/P TRANSDUCER
			52						
			53						
			E8						
			54						
			55						
			E9						
			56						

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	008 / 009

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003
+M-X020

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			57						
			E10						
+C-X212:1	-W036 :1		101		-W230 :BN	+M-R200:1	007 .5		LS-ELEMENT
+C-X212:2	-W036 :2		102		-W230 :L.BU	+M-R200:2	007 .6		LS-ELEMENT
+C-X212:E	-W036 :GNYE		E21		-W230 :GNYE	+M-R200:E	007 .6		LS-ELEMENT
			103						
			104						
			E22						
			105						
			106						
			E23						
+C-X213:1	-W037 :1		107		-W231 :BN	+M-R201:1	009 .3		PAPER WEB ELEMENT, LOWER SIDE
+C-X213:2	-W037 :2		108		-W231 :L.BU	+M-R201:2	009 .4		PAPER WEB ELEMENT, LOWER SIDE
			E24		-W231 :GNYE	+M-R201:E	009 .4		PAPER WEB ELEMENT, LOWER SIDE
+C-X213:3	-W037 :3		109		-W232 :BN	+M-R202:1	009 .8		PAPER WEB ELEMENT, UPPER SIDE
+C-X213:4	-W037 :4		110		-W232 :L.BU	+M-R202:2	009 .9		PAPER WEB ELEMENT, UPPER SIDE
			E25		-W232 :GNYE	+M-R202:E	009 .9		PAPER WEB ELEMENT, UPPER SIDE
+C-X213:5	-W037 :5		111		-W233 :BN	+M-R203:1	010 .8		PREHEATING STERILIZATION HOUSE
+C-X213:6	-W037 :6		112		-W233 :L.BU	+M-R203:2	010 .9		PREHEATING STERILIZATION HOUSE
+C-X213:E	-W037 :GNYE		E26		-W233 :GNYE	+M-R203:E	010 .9		PREHEATING STERILIZATION HOUSE

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	009 / 010

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

Terminal strip of 2578566-0003 +M-X025

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X105:3	-W025 :3		1				033 .5		
+C-X105:1	-W025 :1		1+				033 .3		
+C-X105:2	-W025 :2		1-				033 .3		
+C-X105:4	-W025 :4		2		-W227 :BK	+M-B227:	033 .5		WEB ADJUSTMENT IN AREA LEFT
			2+		-W227 :BN	+M-B227:	033 .3		WEB ADJUSTMENT IN AREA LEFT
			2-		-W227 :BU	+M-B227:	033 .3		WEB ADJUSTMENT IN AREA LEFT
+C-X105:5	-W025 :5		3		-W228 :BK	+M-B228:	035 .5		WEB ADJUSTMENT IN AREA RIGHT
			3+			+M-S200H:13	035 .2		SHORT STOP SUPERSTRUCTURE
					-W228 :BN	+M-B228:			
			3-		-W228 :BU	+M-B228:	035 .2		
			4						
			4+						
			4-						
			5						
			5+						
			5-						
+C-X105:8	-W025 :8		6		-W210 :1	+M-L200:A1	017 .4		LOCK STERILIZATION HOUSE DOOR
			7		-W210 :2	+M-L200:A2	017 .6		LOCK STERILIZATION HOUSE DOOR
			8		-W212 :1	+M-L202:A1	017 .4		LOCK ASEPTIC CHAMBER DOOR
			9		-W212 :2	+M-L202:A2	017 .6		LOCK ASEPTIC CHAMBER DOOR
			10				017 .4		
			11			+M-H200S:2	017 .6		SHORT STOP LAMP
			12						
			13						
			E2						
+C-X105:13	-W025 :13		14		-W200 :1	+M-B200:41	027 .2		DOOR MONITOR STERILIZATION HOUSE
+C-X105:12	-W025 :12		15		-W200 :2	+M-B200:31	027 .2		DOOR MONITOR STERILIZATION HOUSE
			16		-W200 :3	+M-B200:32	027 .3		DOOR MONITOR STERILIZATION HOUSE
			17		-W200 :4	+M-B200:42	027 .3		DOOR MONITOR STERILIZATION HOUSE

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 010 / 011

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003
+M-X025

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E3						
			18		-W202 :1	+M-B202:41	027 .4		
			19		-W202 :2	+M-B202:31	027 .4		
			20		-W202 :3	+M-B202:32	027 .5		DOOR MONITOR ASEPTIC CHAMBER
			21		-W202 :4	+M-B202:42	027 .5		DOOR MONITOR ASEPTIC CHAMBER
			E4						
			22				027 .6		
			23				027 .6		
+C-X105:14	-W025 :14		24				027 .7		
+C-X105:15	-W025 :15		25				027 .7		
			E5						
			26						
			27						
			28						
			29						
			E6						
+C-X105:16	-W025 :16		30			+M-S202:21	025 .3		EMERGENCY STOP SUPERSTRUCTURE
+C-X105:17	-W025 :17		31			+M-S202:11	025 .3		EMERGENCY STOP SUPERSTRUCTURE
+C-X105:18	-W025 :18		32			+M-S202:12	025 .5		EMERGENCY STOP SUPERSTRUCTURE
+C-X105:19	-W025 :19		33			+M-S202:22	025 .5		EMERGENCY STOP SUPERSTRUCTURE
			E7						
+C-X105:20	-W025 :20		34			+M-S200H:14	040 .4		SHORT STOP SUPERSTRUCTURE
+C-X105:21	-W025 :21		35			+M-S201H:14	040 .4		INCHING MAIN MOTOR SUPERSTRUCTURE
+C-X105:22	-W025 :22		36			+M-S201H:24	040 .4		INCHING MAIN MOTOR SUPERSTRUCTURE
+C-X105:23	-W025 :23		37			+M-H200S:1	054 .4		SHORT STOP LAMP
+C-X105:24	-W025 :24		38			+M-H201S:1	054 .4		INCHING LAMP
			E8						

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	011 / 012

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

Terminal strip of 2578566-0003 +M-X030

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X106:1	-W031 :1YE		1		-W220 :YE	+M-X210:+	018 .2		
+C-X106:2	-W031 :1RD		2		-W220 :RD	+M-X210:-	018 .2		
+C-X106:3	-W031 :2YE		3		-W221 :YE	+M-X211:+	020 .4		
+C-X106:4	-W031 :2RD		4		-W221 :RD	+M-X211:-	020 .4		
+C-X106:5	-W031 :3YE		5		-W320 :YE	+M-X310:+	019 .2		
+C-X106:6	-W031 :3RD		6		-W320 :RD	+M-X310:-	019 .2		
+C-X106:7	-W031 :4YE		7		-W321 :YE	+M-X311:+	019 .4		
+C-X106:8	-W031 :4RD		8		-W321 :RD	+M-X311:-	019 .4		
+C-X106:9	-W031 :5YE		9		-W322 :YE	+M-X312:+	020 .2		
+C-X106:10	-W031 :5RD		10		-W322 :RD	+M-X312:-	020 .2		
+C-X106:11	-W031 :6RD		11		-W323 :YE	+M-X313:+	021 .2		
+C-X106:12	-W031 :6YE		12		-W323 :RD	+M-X313:-	021 .2		
			E2						
+M-X020:1	-W030 :1		13+		-W300 :BN	+M-B300:	036 .4		CLEANING PIPE INLET POSITION
+M-X020:2	-W030 :2		13-		-W300 :BU	+M-B300:	036 .4		CLEANING PIPE INLET POSITION
+M-X020:3	-W030 :3		13		-W300 :BK	+M-B300:	036 .5		CLEANING PIPE INLET POSITION
			14+		-W301 :BN	+M-B301:	036 .4		AIR PIPE POSITION
			14-		-W301 :BU	+M-B301:	036 .4		AIR PIPE POSITION
+M-X020:4	-W030 :4		14		-W301 :BK	+M-B301:	036 .5		AIR PIPE POSITION
			15+		-W302 :BN	+M-B302:	036 .4		B-VALVE OPEN
			15-		-W302 :BU	+M-B302:	036 .4		B-VALVE OPEN
+M-X020:5	-W030 :5		15		-W302 :BK	+M-B302:	036 .5		B-VALVE OPEN
			16+		-W318 :BN	+M-B315:	036 .4		A-VALVE CLOSED
			16-		-W318 :BU	+M-B315:	036 .4		A-VALVE CLOSED
+M-X020:6	-W030 :6		16		-W318 :BK	+M-B315:	036 .5		A-VALVE CLOSED
			17+		-W319 :BN	+M-B316:	036 .4		C-VALVE CLOSED
			17-		-W319 :BU	+M-B316:	036 .4		C-VALVE CLOSED
+M-X020:7	-W030 :7		17		-W319 :BK	+M-B316:	036 .5		C-VALVE CLOSED
			18+		-W306 :BN	+M-B303:	036 .4		REGULATING VALVE CLOSED

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	012 / 013

RELEASED

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Terminal strip of 2578566-0003 +M-X030

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			18-		-W306 :BU	+M-B303:	036 .4		REGULATING VALVE CLOSED
+M-X020:8	-W030 :8		18		-W306 :BK	+M-B303:	036 .5		REGULATING VALVE CLOSED
			19+		-W307 :BN	+M-B304:	037 .3		PRODUCTION PIPE POSITION
			19-		-W307 :BU	+M-B304:	037 .3		PRODUCTION PIPE POSITION
+M-X020:9	-W030 :9		19		-W307 :BK	+M-B304:	037 .5		PRODUCTION PIPE POSITION
			20+		-W308 :BN	+M-B305:	037 .3		CLEANING PIPE POSITION
			20-		-W308 :BU	+M-B305:	037 .3		CLEANING PIPE POSITION
+M-X020:10	-W030 :10		20		-W308 :BK	+M-B305:	037 .5		CLEANING PIPE POSITION
			21+		-W314 :BN	+M-B317:	037 .3		CLEANING PIPE IN POSITION
			21-		-W314 :BU	+M-B317:	037 .3		CLEANING PIPE IN POSITION
+M-X020:11	-W030 :11		21		-W314 :BK	+M-B317:	037 .5		CLEANING PIPE IN POSITION
			22+						
			22-						
			22						
			23+						
			23-						
			23						
			24+						
			24-						
			24						
			25+						
			25-						
			25						
			26+						
			26-						
			26						
			27+						
			27-						
			27						
			E3						

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	013 / 014

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

Terminal strip of 2578566-0003 +M-X031

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E						
+C-X111:1	-W033 :1		1		-W313 :1	+M-B309:	022 .3		LEVEL SENSOR SPRAY CONTAINER
+C-X111:2	-W033 :2		2		-W313 :2	+M-B309:1	022 .3		LEVEL SENSOR SPRAY CONTAINER
+C-X111:3	-W033 :3		3		-W313 :3	+M-B309:2	022 .3		LEVEL SENSOR SPRAY CONTAINER
+C-X111:4	-W033 :4		4		-W316 :1	+M-Y300:1	032 .4		SPRAY VALVE
+C-X111:5	-W033 :5		5		-W316 :2	+M-Y300:2	032 .6		SPRAY VALVE
			E		-W316 :GNYE	+M-Y300:E	032 .6		SPRAY VALVE
			E						
+C-X111:8	-W033 :8		8		-W333 :1	+M-Y311:1	050 .4		PEROXIDE FILLING SPRAY CONTAINER
			9		-W333 :2	+M-Y311:2	050 .6		PEROXIDE FILLING SPRAY CONTAINER
			E		-W333 :GNYE	+M-Y311:E	050 .6		PEROXIDE FILLING SPRAY CONTAINER
+C-X111:11	-W033 :11		10		-W334 :1	+M-Y312:1	050 .4		AIR FILLING SPRAY CONTAINER
			11		-W334 :2	+M-Y312:2	050 .6		AIR FILLING SPRAY CONTAINER
			E		-W334 :GNYE	+M-Y312:E	050 .6		AIR FILLING SPRAY CONTAINER
			12						
			13						
			14						
			15						
			16						
			E						
			E						
			17						
			18						
			19						
			20						
			21						
			22						
			23						
			24						
+C-X211:1	-W035 :1		101		-W330 :BK	+M-R300:Z	007 .9		AIR HEATER ELEMENT

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 014 / 015

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X031

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X211:2	-W035 :2		102		-W330 :BN	+M-R300:X	007 .9		AIR HEATER ELEMENT
+C-X211:3	-W035 :3		103		-W330 :L.BU	+M-R300:Y	007 .10		AIR HEATER ELEMENT
+C-X211:E	-W035 :GNYE		E		-W330 :GNYE	+M-R300:E	007 .10		AIR HEATER ELEMENT
			104						
+C-X211:5	-W035 :5		105		-W331 :BN	+M-R301:1	008 .7		AIR PREHEATING
+C-X211:6	-W035 :6		106		-W331 :L.BU	+M-R301:2	008 .8		AIR PREHEATING
			E		-W331 :GNYE	+M-R301:E	008 .8		AIR PREHEATING
			107						
			108						
			109						
			110						
			111						
			112						
			E						
			E						
			E						
			E						

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 015 / 016

RELEASED

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Terminal strip overview

Terminal strip of 2578566-0003 +M-X034

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E1						
+C-X101:8	-W034 :8		1		-W324 :RD	+M-M301:	016 .5		PEROXIDE PUMP
+C-X101:1	-W034 :1		2		-W324 :BK	+M-M301:	016 .6		PEROXIDE PUMP
			3		-W324 :WH	+M-M301:	016 .5		
+C-X101:2	-W034 :2		4		-W324 :BN	+M-M301:	016 .6		PEROXIDE PUMP
			E2			+M-M301:⏚	016 .6		PEROXIDE PUMP
+C-X101:3	-W034 :3		5		-W325 :1	+M-M302:+	016 .4		SPRAY PUMP
+C-X101:4	-W034 :4		6		-W325 :2	+M-M302:-	016 .6		SPRAY PUMP
			E3						
+C-X101:5	-W034 :5		7		-W315 :1	+M-Y315:1	052 .5		PEROXIDE COOLING WATER
+C-X101:6	-W034 :6		8		-W315 :2	+M-Y315:2	052 .6		PEROXIDE COOLING WATER
			E4		-W315 :GNYE	+M-Y315:E	052 .6		PEROXIDE COOLING WATER
+C-X101:9	-W034 :9		9		-W326 :1	+M-B326:11	016 .3		DOOR GUARD PEROXIDE CABINET
+C-X101:10	-W034 :10		10		-W326 :2	+M-B326:12	016 .4		DOOR GUARD PEROXIDE CABINET
			11		-W326 :3	+M-B326:21	016 .3		DOOR GUARD PEROXIDE CABINET
+C-X101:7	-W034 :7		12		-W326 :4	+M-B326:22	016 .4		DOOR GUARD PEROXIDE CABINET
			13		-W326 :5	+M-B326:31	016 .3		DOOR GUARD PEROXIDE CABINET
			14		-W326 :6	+M-B326:32	016 .4		DOOR GUARD PEROXIDE CABINET
			E5						

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 016 / 017

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X040

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X108:1	-W040 :1		1		-W400 :1	+M-B400:21	027 .2		DOOR GUARD MACHINE BODY
+C-X108:2	-W040 :2		2		-W400 :2	+M-B400:11	027 .2		DOOR GUARD MACHINE BODY
			3		-W400 :3	+M-B400:12	027 .3		DOOR GUARD MACHINE BODY
			4		-W400 :4	+M-B400:22	027 .3		DOOR GUARD MACHINE BODY
			5		-W401 :1	+M-B401:21	027 .3		DOOR GUARD MACHINE BODY
			6		-W401 :2	+M-B401:11	027 .3		DOOR GUARD MACHINE BODY
			7		-W401 :3	+M-B401:12	027 .4		DOOR GUARD MACHINE BODY
			8		-W401 :4	+M-B401:22	027 .4		DOOR GUARD MACHINE BODY
			9		-W402 :1	+M-B402:21	027 .5		DOOR GUARD MACHINE BODY
			10		-W402 :2	+M-B402:11	027 .5		DOOR GUARD MACHINE BODY
			11		-W402 :3	+M-B402:12	027 .6		DOOR GUARD MACHINE BODY
			12		-W402 :4	+M-B402:22	027 .6		DOOR GUARD MACHINE BODY
			13		-W403 :1	+M-B403:21	027 .6		DOOR GUARD MACHINE BODY
			14		-W403 :2	+M-B403:11	027 .6		DOOR GUARD MACHINE BODY
+C-X108:3	-W040 :3		15		-W403 :3	+M-B403:12	027 .7		DOOR GUARD MACHINE BODY
+C-X108:4	-W040 :4		16		-W403 :4	+M-B403:22	027 .7		DOOR GUARD MACHINE BODY
+C-X108:5	-W040 :5		17		-W404 :1	+M-S404:11	025 .6		EMERGENCYSTOP FRONT SIDE
+C-X108:6	-W040 :6		18		-W404 :2	+M-S404:21	025 .6		EMERGENCYSTOP FRONT SIDE
			19		-W404 :3	+M-S404:22	025 .7		EMERGENCYSTOP FRONT SIDE
			20		-W404 :4	+M-S404:12	025 .7		EMERGENCYSTOP FRONT SIDE
			21		-W406 :1	+M-S406:11	025 .7		EMERGENCYSTOP LINES
			22		-W406 :2	+M-S406:21	025 .7		EMERGENCYSTOP LINES
+C-X108:7	-W040 :7		23		-W407 :2	+M-S407:22	025 .9		EMERGENCYSTOP LINES
+C-X108:8	-W040 :8		24		-W407 :1	+M-S407:12	025 .9		EMERGENCYSTOP LINES
+C-X108:9	-W040 :9		25		-W408 :BN	+M-B404:	030 .3		SEALING BAR POSITION
+C-X108:10	-W040 :10		26		-W408 :BU	+M-B404:	030 .3		SEALING BAR POSITION
+C-X108:11	-W040 :11		27		-W408 :BK	+M-B404:	030 .5		SEALING BAR POSITION
			28		-W409 :BN	+M-B405:	037 .3		DRAINING VALVE CLOSED
			29		-W409 :BU	+M-B405:	037 .3		DRAINING VALVE CLOSED
+C-X108:12	-W040 :12		30		-W409 :BK	+M-B405:	037 .5		DRAINING VALVE CLOSED

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	017 / 018

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X040

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			31				035 .2		
			32				035 .2		
+C-X108:13	-W040 :13		33		-W418 :3	+M-P400:2:4	035 .5		INKJET ALARM
			34				035 .2		
			35				035 .2		
+C-X108:14	-W040 :14		36		-W418 :4	+M-P400:2:7	035 .5		INKJET ALARM
			37		-W418 :1	+M-P400:2:2	035 .2		INKJET ALARM
			38				035 .2		
+C-X108:15	-W040 :15		39		-W418 :2	+M-P400:2:1	035 .5		INKJET ALARM
			40						
			41						
			42						
			43						
+C-X108:18	-W040 :18		44		-W412 :1	+M-P400:1	032 .5		INKJET
+C-X108:19	-W040 :19		45		-W412 :2	+M-P400:3	032 .5		INKJET
+C-X108:20	-W040 :20		46		-W416 :1	+M-X410:4	054 .4		
					-W417 :1	+M-X414:4			
+C-X108:21	-W040 :21		47		-W416 :2	+M-X410:3	054 .4		
					-W417 :2	+M-X414:1			
+C-X108:22	-W040 :22		48		-W416 :3	+M-X410:2	054 .4		
					-W417 :3	+M-X414:2			
+C-X108:23	-W040 :23		49		-W416 :4	+M-X410:1	054 .4		
					-W417 :4	+M-X414:3			
+C-X108:24	-W040 :24		50		-W416 :5	+M-X410:0	054 .7		
					-W417 :5	+M-X414:0			
+C-X208:1	-W017 :1		101		-W430 :1	+M-E400:1	006 .2		LIGHT IN MACHINE BODY
+C-X208:2	-W017 :2		102		-W430 :2	+M-E400:2	006 .3		
			E		-W430 :GNYE	+M-E400:E	006 .3		LIGHT IN MACHINE BODY
+C-X208:3	-W017 :3		103		-W431 :1	+M-E401:1	006 .3		LIGHT IN MACHINE BODY
			104		-W431 :2	+M-E401:2	006 .4		

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination TERMINAL STRIP OVERVIEW

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0006 | Doc. type ELD | Version AA | Page 018 / 019

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X040

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
			E		-W431 :GNYE	+M-E401:E	006 .5		LIGHT IN MACHINE BODY
+C-X208:4	-W017 :4		105				006 .5		
			106				006 .6		
			E				006 .6		
+C-X208:5	-W017 :5		107		-W433 :1	+M-E403:1	006 .7		LIGHT OUTSIDE MACHINE BODY
			108		-W433 :2	+M-E403:2	006 .8		
			E		-W433 :GNYE	+M-E403:E	006 .8		LIGHT OUTSIDE MACHINE BODY
			E						
			E						
			E						
			E						
			E						

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		TERMINAL STRIP OVERVIEW

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0006	ELD	AA	019 / 020

Terminal strip overview

RELEASED

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Terminal strip of 2578566-0003 +M-X050

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X112:1	-W050 :1		1				038 .2		
+C-X112:2	-W050 :2		2				038 .5		
			3		-W501 :1	+M-B501:13	038 .2		PRESSURE MONITOR LUBRICATION OIL
+C-X112:3	-W050 :3		4		-W501 :2	+M-B501:14	038 .5		PRESSURE MONITOR LUBRICATION OIL
			5		-W502 :1	+M-B502:2	038 .2		LEVEL MONITOR LUBRICATION OIL
+C-X112:4	-W050 :4		6		-W502 :2	+M-B502:1	038 .5		LEVEL MONITOR LUBRICATION OIL
			7						
			8						
+C-X112:7	-W050 :7		9		-W506 :1	+M-Y503:1	048 .4		OIL ON/OFF PRESSURE BOOSTER
+C-X112:8	-W050 :8		10		-W506 :2	+M-Y503:2	048 .6		OIL ON/OFF PRESSURE BOOSTER
			E		-W506 :GNYE	+M-Y503:E	048 .6		OIL ON/OFF PRESSURE BOOSTER
+C-X112:9	-W050 :9		11		-W507 :1	+M-B505:21	027 .2		DOOR MONITOR LOWER BODY 2
+C-X112:10	-W050 :10		12		-W507 :2	+M-B505:11	027 .2		DOOR MONITOR LOWER BODY 2
			13		-W507 :3	+M-B505:12	027 .3		DOOR MONITOR LOWER BODY 2
			14		-W507 :4	+M-B505:22	027 .3		DOOR MONITOR LOWER BODY 2
			15		-W508 :1	+M-B506:21	027 .4		DOOR MONITOR LOWER BODY 3
			16		-W508 :2	+M-B506:11	027 .4		DOOR MONITOR LOWER BODY 3
+C-X112:11	-W050 :11		17		-W508 :3	+M-B506:12	027 .6		DOOR MONITOR LOWER BODY 3
+C-X112:12	-W050 :12		18		-W508 :4	+M-B506:22	027 .6		DOOR MONITOR LOWER BODY 3
			19						
+C-X112:15	-W050 :15		20		-W511	+M-B504:WH	029 .4		ANGLE ENCODER
+C-X112:16	-W050 :16		21		-W511	+M-B504:RD	029 .4		ANGLE ENCODER
+C-X112:17	-W050 :17		22		-W511	+M-B504:BN	029 .4		ANGLE ENCODER
+C-X112:18	-W050 :18		23		-W511	+M-B504:GN	029 .4		ANGLE ENCODER
+C-X112:19	-W050 :19		24		-W511	+M-B504:YE	029 .4		ANGLE ENCODER
+C-X112:20	-W050 :20		25		-W511	+M-B504:GY	029 .4		ANGLE ENCODER
+C-X112:21	-W050 :21		26		-W511	+M-B504:PK	029 .4		ANGLE ENCODER
+C-X112:22	-W050 :22		27		-W511	+M-B504:BK	029 .4		ANGLE ENCODER
+C-X112:23	-W050 :23		28		-W511	+M-B504:BU	029 .4		ANGLE ENCODER
+C-X112:24	-W050 :24		29		-W511	+M-B504:VT	029 .4		ANGLE ENCODER

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 020 / 021

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003
+M-X050

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X112:13	-W050 :13		30		-W511	+M-B504:GYPK	029 .4		ANGLE ENCODER
+C-X112:14	-W050 :14		31		-W511	+M-B504:RDBU	029 .4		ANGLE ENCODER
+C-X116:1	-W060 :1		32		-W700 :BN	+M-B700:	038 .2		EXTERNAL PACKAGE COUNTER EMITTER
					-W701 :BN	+M-B701:			
+C-X116:2	-W060 :2		33		-W701 :BU	+M-B701:	038 .2		EXTERNAL PACKAGE COUNTER RECEIVER
					-W700 :BU	+M-B700:			
+C-X116:3	-W060 :3		34		-W701 :BK	+M-B701:	038 .5		EXTERNAL PACKAGE COUNTER RECEIVER
+C-X116:4	-W060 :4		35		-W413 :1	+M-B413:21	027 .5		CRANKGUARD
+C-X116:5	-W060 :5		36		-W413 :2	+M-B413:11	027 .5		CRANKGUARD
+C-X116:6	-W060 :6		37		-W413 :3	+M-B413:12	027 .7		CRANKGUARD
+C-X116:7	-W060 :7		38		-W413 :4	+M-B413:22	027 .7		CRANKGUARD
			39		-W422 :BN	+M-B422:	045 .3		JAW SYSTEM OVERLOAD 1
			40		-W422 :BU	+M-B422:	045 .3		JAW SYSTEM OVERLOAD 1
+C-X116:8	-W060 :8		41		-W422 :BK	+M-B422:	045 .5		JAW SYSTEM OVERLOAD 1
			42		-W423 :BN	+M-B423:	045 .3		JAW SYSTEM OVERLOAD 2
			43		-W423 :BU	+M-B423:	045 .3		JAW SYSTEM OVERLOAD 2
+C-X116:9	-W060 :9		44		-W423 :BK	+M-B423:	045 .5		JAW SYSTEM OVERLOAD 2

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 021 / 022	

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X110

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X100:23	-W115:YE		+				018 .4		
+C-X100:24	-W115:RD		-				018 .4		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 022 / 023

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003
+M-X210

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:1	-W220 :YE		+				018 .2		
+M-X030:2	-W220 :RD		-				018 .2		

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 023 / 024

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X211

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:3	-W221 :YE		+				020 .4		
+M-X030:4	-W221 :RD		-				020 .4		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 024 / 025

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X223

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-X204:1	-W223:1		1			+M-M223:1	015 .5		WEBGUIDING STEPMOTOR
			2			+M-M223:2	015 .5		WEBGUIDING STEPMOTOR
			3			+M-M223:3	015 .5		WEBGUIDING STEPMOTOR
+C-X204:2	-W223:2		4			+M-M223:4	015 .5		WEBGUIDING STEPMOTOR
+C-X204:3	-W223:3		5			+M-M223:5	015 .6		WEBGUIDING STEPMOTOR
			6			+M-M223:6	015 .6		WEBGUIDING STEPMOTOR
			7			+M-M223:7	015 .6		WEBGUIDING STEPMOTOR
+C-X204:4	-W223:4		8			+M-M223:8	015 .6		WEBGUIDING STEPMOTOR
+C-X204:E	-W223:GNYE		E			+M-M223:⏚	015 .6		WEBGUIDING STEPMOTOR

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 025 / 026

Terminal strip overview

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X310

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:5	-W320 :YE		+				019 .2		
+M-X030:6	-W320 :RD		-				019 .2		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 026 / 027

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X311

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:7	-W321 :YE		+				019 .4		
+M-X030:8	-W321 :RD		-				019 .4		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 027 / 028

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X312

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:9	-W322 :YE		+				020 .2		
+M-X030:10	-W322 :RD		-				020 .2		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 028 / 029

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003
+M-X313

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X030:11	-W323 :YE		+				021 .2		
+M-X030:12	-W323 :RD		-				021 .2		

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA	Page 029 / 030

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003 +M-X400

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-A040:X003			1		-W440 :1	+M-X440:1	011 .4		

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 030 / 031

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X401

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+C-A041:X003			1		-W441 :1	+M-X441:1	011 .7		

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1		
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW		
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD	Version AA	Page 031 / 032

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X410

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X040:50	-W416 :5		0			+M-H413:2	054 .6		ALARM LAMP BLUE BACK
						+M-H412:2			
+M-X040:49	-W416 :4		1			+M-H413:1	054 .5		ALARM LAMP BLUE BACK
+M-X040:48	-W416 :3		2			+M-H412:1	054 .5		ALARM LAMP YELLOW BACK
+M-X040:47	-W416 :2		3			+M-H411:1	054 .5		ALARM LAMP RED BACK
+M-X040:46	-W416 :1		4			+M-H410:1	054 .5		ALARM DEVICE HORN BACK

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD / Version AA / Page 032 / 033

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X414

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X040:50	-W417:5		0			+M-H417:2	054 .6		ALARM LAMP BLUE FRONT
						+M-H416:2			
+M-X040:47	-W417:2		1			+M-H415:1	054 .5		ALARM LAMP RED FRONT
+M-X040:48	-W417:3		2			+M-H416:1	054 .5		ALARM LAMP YELLOW FRONT
+M-X040:49	-W417:4		3			+M-H417:1	054 .5		ALARM LAMP BLUE FRONT
+M-X040:46	-W417:1		4			+M-H414:1	054 .5		ALARM DEVICE HORN FRONT

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination TERMINAL STRIP OVERVIEW

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0006 | Doc. type ELD | Version AA | Page 033 / 034

RELEASED

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1	2	3	4	5	6	7	8	9	10

Terminal strip of 2578566-0003 +M-X440

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X400:1	-W440 :1		1			+M-L400:1	011 .4		INDUCTOR TS-SEALING SIDE 1

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD	Version AA	Page 034 / 035

RELEASED

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1 2 3 4 5 6 7 8 9 10

Terminal strip of 2578566-0003
+M-X441

From	Cable	Internal Jumper	Terminal	External Jumper	Cable	To	Page.Col.	Option	Function text
+M-X401:1	-W441:1		1			+M-L401:1	011 .7		INDUCTOR TS-SEALING SIDE 2

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination TERMINAL STRIP OVERVIEW	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0006	Doc. type ELD	Version AA / Page 035 / 001

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EM1.1TS700009.fm

9 Cabinet terminal summary

EM1.1TS700008.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description . . . . . Identity Prt Vs
CABINET TERMINAL SUMMARY . . . . . .2578566-0005 AA

EM1.1TS700008.fm

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X003:1	005 .6	
+C-X003:2	005 .8	
+C-X003:3	006 .3	
+C-X003:4	007 .3	
+C-X003:5	007 .6	
+C-X003:6	007 .8	
+C-X003:7	008 .2	
+C-X003:8	008 .8	
+C-X003:9	009 .2	
+C-X003:10	008 .3	
+C-X003:11	011 .3	
+C-X003:12	012 .7	
+C-X003:13	010 .4	
+C-X003:14	010 .9	
+C-X003:15	015 .3	
+C-X003:16	013 .7	
+C-X003:17		
+C-X003:18	013 .2	
+C-X003:19		
+C-X003:20		
+C-X003:21		
+C-X003:22		
+C-X003:23		
+C-X003:24		
+C-X003:25	010 .6	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type CABINET TERMINAL SUMMARY	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 001 / 002

Cabinet terminal summary

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X005:1	005 .5	
+C-X005:2	005 .5	
+C-X005:3	005 .6	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 002 / 003

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X006:1	006 .2	
+C-X006:2	006 .2	
+C-X006:3	006 .3	
+C-X006:4	006 .3	
+C-X006:5	006 .5	
+C-X006:6	006 .5	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
		ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 003 / 004	

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X020:E1	004 .2	
+C-X020:E2	004 .2	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 004 / 005

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X100:1		
+C-X100:2		
+C-X100:3		
+C-X100:4		
+C-X100:5		
+C-X100:6		
+C-X100:7		
+C-X100:8		
+C-X100:9		
+C-X100:10		
+C-X100:11		
+C-X100:12		
+C-X100:13		
+C-X100:14		
+C-X100:15		
+C-X100:16		
+C-X100:17		
+C-X100:18		
+C-X100:19		
+C-X100:20		
+C-X100:21		
+C-X100:22		
+C-X100:23	018 .4	
+C-X100:24	018 .4	
+C-X100:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABINET TERMINAL SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0005	ELD	AA	005 / 006

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X101:1	016 .7	
+C-X101:2	016 .7	
+C-X101:3	016 .4	
+C-X101:4	016 .6	
+C-X101:5	052 .3	
+C-X101:6	052 .7	
+C-X101:7	016 .5	
+C-X101:8	016 .3	
+C-X101:9	016 .3	
+C-X101:10	016 .5	
+C-X101:11		
+C-X101:12		
+C-X101:13		
+C-X101:14		
+C-X101:15		
+C-X101:16		
+C-X101:17		
+C-X101:18		
+C-X101:19		
+C-X101:20		
+C-X101:21		
+C-X101:22		
+C-X101:23		
+C-X101:24		
+C-X101:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABINET TERMINAL SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0005	ELD	AA	006 / 007

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X103:1	036 .1	
+C-X103:2	036 .1	
+C-X103:3	036 .7	
+C-X103:4	036 .7	
+C-X103:5	036 .7	
+C-X103:6	036 .7	
+C-X103:7	036 .7	
+C-X103:8	036 .7	
+C-X103:9	037 .6	
+C-X103:10	037 .6	
+C-X103:11	037 .6	
+C-X103:12		
+C-X103:13		
+C-X103:14		
+C-X103:15		
+C-X103:16		
+C-X103:17		
+C-X103:18	022 .4	
+C-X103:19	022 .4	
+C-X103:20	022 .4	
+C-X103:21	022 .4	
+C-X103:22	022 .4	
+C-X103:23	030 .6	
+C-X103:24	036 .7	
+C-X103:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 007 / 008

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X104:1	037 .6	
+C-X104:2	037 .6	
+C-X104:3	037 .6	
+C-X104:4	038 .6	
+C-X104:5	042 .6	
+C-X104:6	042 .6	
+C-X104:7	042 .6	
+C-X104:8	034 .6	
+C-X104:9		
+C-X104:10		
+C-X104:11		
+C-X104:12		
+C-X104:13		
+C-X104:14		
+C-X104:15	061 .6	
+C-X104:16	050 .3	
+C-X104:17	050 .7	
+C-X104:18	050 .3	
+C-X104:19	052 .3	
+C-X104:20	062 .3	
+C-X104:21		
+C-X104:22		
+C-X104:23		
+C-X104:24		
+C-X104:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 008 / 009

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X105:1	033 .2	
+C-X105:2	033 .2	
+C-X105:3	033 .6	
+C-X105:4	033 .6	
+C-X105:5	035 .6	
+C-X105:6		
+C-X105:7		
+C-X105:8	017 .3	
+C-X105:9		
+C-X105:10		
+C-X105:11		
+C-X105:12	027 .2	
+C-X105:13	027 .2	
+C-X105:14	027 .7	
+C-X105:15	027 .7	
+C-X105:16	025 .3	
+C-X105:17	025 .3	
+C-X105:18	025 .5	
+C-X105:19	025 .5	
+C-X105:20	040 .5	
+C-X105:21	040 .5	
+C-X105:22	040 .5	
+C-X105:23	054 .3	
+C-X105:24	054 .3	
+C-X105:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABINET TERMINAL SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0005	ELD	AA	009 / 010

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X106:1	018 .3	
+C-X106:2	018 .3	
+C-X106:3	020 .5	
+C-X106:4	020 .5	
+C-X106:5	019 .3	
+C-X106:6	019 .3	
+C-X106:7	019 .5	
+C-X106:8	019 .5	
+C-X106:9	020 .3	
+C-X106:10	020 .3	
+C-X106:11	021 .3	
+C-X106:12	021 .3	
+C-X106:13		
+C-X106:14		
+C-X106:15		
+C-X106:16		
+C-X106:17		
+C-X106:18		
+C-X106:19		
+C-X106:20		
+C-X106:21		
+C-X106:22		
+C-X106:23		
+C-X106:24		
+C-X106:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 010 / 011

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 011 / 012

Cabinet terminal summary

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X108:1	027 .1	
+C-X108:2	027 .1	
+C-X108:3	027 .7	
+C-X108:4	027 .7	
+C-X108:5	025 .5	
+C-X108:6	025 .5	
+C-X108:7	025 .9	
+C-X108:8	025 .9	
+C-X108:9	030 .2	
+C-X108:10	030 .2	
+C-X108:11	030 .6	
+C-X108:12	037 .6	
+C-X108:13	035 .6	
+C-X108:14	035 .6	
+C-X108:15	035 .6	
+C-X108:16		
+C-X108:17		
+C-X108:18	032 .4	
+C-X108:19	032 .4	
+C-X108:20	054 .3	
+C-X108:21	054 .3	
+C-X108:22	054 .3	
+C-X108:23	054 .3	
+C-X108:24	054 .8	
+C-X108:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 012 / 013

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X109:1	025 .2	
+C-X109:2	025 .2	
+C-X109:3	025 .3	
+C-X109:4	025 .3	
+C-X109:5	033 .2	
+C-X109:6	033 .6	
+C-X109:7	053 .3	
+C-X109:8	053 .7	
+C-X109:9		
+C-X109:10		
+C-X109:11		
+C-X109:12		
+C-X109:13		
+C-X109:14	040 .5	
+C-X109:15	037 .6	
+C-X109:16	053 .3	
+C-X109:17		
+C-X109:18		
+C-X109:19		
+C-X109:20		
+C-X109:21		
+C-X109:22		
+C-X109:23		
+C-X109:24		
+C-X109:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
	ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD	Version AA / Page 013 / 014

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X110:1	014 .4	
+C-X110:2	014 .4	
+C-X110:3	014 .4	
+C-X110:4	014 .4	
+C-X110:5	014 .4	
+C-X110:6	014 .4	
+C-X110:7	014 .4	
+C-X110:8	014 .4	
+C-X110:9	014 .4	
+C-X110:10	014 .4	
+C-X110:11		
+C-X110:12		
+C-X110:13		
+C-X110:14		
+C-X110:15		
+C-X110:16		
+C-X110:17		
+C-X110:18		
+C-X110:19		
+C-X110:20		
+C-X110:21		
+C-X110:22		
+C-X110:23		
+C-X110:24		
+C-X110:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 014 / 015

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X111:1	022 .4	
+C-X111:2	022 .4	
+C-X111:3	022 .4	
+C-X111:4	032 .3	
+C-X111:5	032 .7	
+C-X111:8	050 .3	
+C-X111:9		
+C-X111:10		
+C-X111:11	050 .3	
+C-X111:12		
+C-X111:13		
+C-X111:14		
+C-X111:15		
+C-X111:16		
+C-X111:17		
+C-X111:18		
+C-X111:19		
+C-X111:20		
+C-X111:21		
+C-X111:22		
+C-X111:23		
+C-X111:24		
+C-X111:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 015 / 016

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X112:1	038 .1	
+C-X112:2	038 .6	
+C-X112:3	038 .6	
+C-X112:4	038 .6	
+C-X112:5		
+C-X112:6		
+C-X112:7	048 .3	
+C-X112:8	048 .7	
+C-X112:9	027 .2	
+C-X112:10	027 .2	
+C-X112:11	027 .6	
+C-X112:12	027 .6	
+C-X112:13	029 .4	
+C-X112:14	029 .4	
+C-X112:15	029 .4	
+C-X112:16	029 .4	
+C-X112:17	029 .4	
+C-X112:18	029 .4	
+C-X112:19	029 .4	
+C-X112:20	029 .4	
+C-X112:21	029 .4	
+C-X112:22	029 .4	
+C-X112:23	029 .4	
+C-X112:24	029 .4	
+C-X112:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 016 / 017

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X113:1	055 .3	
+C-X113:2		
+C-X113:3	055 .3	
+C-X113:4		
+C-X113:5	055 .3	
+C-X113:6		
+C-X113:7	055 .3	
+C-X113:8	055 .3	
+C-X113:9	055 .3	
+C-X113:10	055 .3	
+C-X113:11	055 .3	
+C-X113:12		
+C-X113:13		
+C-X113:14		
+C-X113:15		
+C-X113:16		
+C-X113:17		
+C-X113:18		
+C-X113:19		
+C-X113:20		
+C-X113:21		
+C-X113:22		
+C-X113:23	055 .7	
+C-X113:24	055 .7	
+C-X113:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1	
	ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD	Version AA / Page 017 / 018

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X114:1	031 .3	
+C-X114:2		
+C-X114:3	031 .3	
+C-X114:4		
+C-X114:5	031 .3	
+C-X114:6		
+C-X114:7	031 .3	
+C-X114:8	031 .3	
+C-X114:9	031 .3	
+C-X114:10		
+C-X114:11	031 .3	
+C-X114:12		
+C-X114:13		
+C-X114:14	032 .3	
+C-X114:15	050 .3	
+C-X114:16		
+C-X114:17		
+C-X114:18	031 .3	
+C-X114:19		
+C-X114:20		
+C-X114:21		
+C-X114:22		
+C-X114:23	031 .7	
+C-X114:24	031 .7	
+C-X114:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 018 / 019

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X115:1	059 .3	
+C-X115:2		
+C-X115:3	056 .3	
+C-X115:4	056 .3	
+C-X115:5	059 .3	
+C-X115:6		
+C-X115:7	059 .3	
+C-X115:8		
+C-X115:9	059 .3	
+C-X115:10		
+C-X115:11	059 .3	
+C-X115:12		
+C-X115:13	059 .3	
+C-X115:14		
+C-X115:15	060 .3	
+C-X115:16		
+C-X115:17	056 .3	
+C-X115:18	056 .3	
+C-X115:19	056 .3	
+C-X115:20	060 .3	
+C-X115:21		
+C-X115:22		
+C-X115:23	059 .7	
+C-X115:24	059 .7	
+C-X115:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 019 / 020

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X116:1	038 .1	
+C-X116:2	038 .1	
+C-X116:3	038 .6	
+C-X116:4	027 .4	
+C-X116:5	027 .4	
+C-X116:6	027 .7	
+C-X116:7	027 .7	
+C-X116:8	045 .6	
+C-X116:9	045 .6	
+C-X116:10		
+C-X116:11		
+C-X116:12		
+C-X116:13		
+C-X116:14		
+C-X116:15		
+C-X116:16		
+C-X116:17		
+C-X116:18		
+C-X116:19		
+C-X116:20		
+C-X116:21		
+C-X116:22		
+C-X116:23		
+C-X116:24		
+C-X116:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABINET TERMINAL SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0005	ELD	AA	020 / 021

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X117:1	023 .4	
+C-X117:2	023 .4	
+C-X117:3	023 .4	
+C-X117:4	023 .4	
+C-X117:5	023 .4	
+C-X117:6	023 .4	
+C-X117:7	023 .4	
+C-X117:8	023 .4	
+C-X117:9	023 .1	
+C-X117:10	023 .4	
+C-X117:11	023 .4	
+C-X117:12	023 .4	
+C-X117:13	023 .4	
+C-X117:14	023 .4	
+C-X117:15	023 .4	
+C-X117:16	023 .4	
+C-X117:17	023 .1	
+C-X117:18	023 .4	
+C-X117:19	023 .4	
+C-X117:20	023 .4	
+C-X117:21	023 .4	
+C-X117:22		
+C-X117:23		
+C-X117:24		
+C-X117:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 021 / 022

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X118:1	043 .2	
+C-X118:2	043 .6	
+C-X118:3	043 .6	
+C-X118:4	043 .6	
+C-X118:5	043 .6	
+C-X118:6	043 .6	
+C-X118:7	043 .6	
+C-X118:8	043 .6	
+C-X118:9	043 .6	
+C-X118:10	043 .6	
+C-X118:11	044 .6	
+C-X118:12	044 .6	
+C-X118:13		
+C-X118:14	063 .2	
+C-X118:15	063 .2	
+C-X118:16	063 .2	
+C-X118:17	063 .2	
+C-X118:18	063 .2	
+C-X118:19	063 .2	
+C-X118:20	063 .5	
+C-X118:21	063 .5	
+C-X118:22	063 .5	
+C-X118:23		
+C-X118:24		
+C-X118:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 022 / 023

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X119:1	061 .2	
+C-X119:2	061 .6	
+C-X119:3	061 .2	
+C-X119:4	053 .3	
+C-X119:5	053 .7	
+C-X119:6	025 .3	
+C-X119:7	025 .3	
+C-X119:8	025 .5	
+C-X119:9	025 .5	
+C-X119:10		
+C-X119:11		
+C-X119:12		
+C-X119:13		
+C-X119:14		
+C-X119:15		
+C-X119:16		
+C-X119:17		
+C-X119:18		
+C-X119:19		
+C-X119:20		
+C-X119:21		
+C-X119:22		
+C-X119:23		
+C-X119:24		
+C-X119:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 023 / 024

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X120:1	030 .1	
+C-X120:2	030 .1	
+C-X120:3	030 .6	
+C-X120:4	030 .6	
+C-X120:5	038 .6	
+C-X120:6	038 .6	
+C-X120:7	038 .6	
+C-X120:8	041 .6	
+C-X120:9	041 .6	
+C-X120:10	041 .6	
+C-X120:11	041 .6	
+C-X120:12		
+C-X120:13	035 .6	
+C-X120:14	035 .6	
+C-X120:15	035 .6	
+C-X120:16	035 .6	
+C-X120:17	044 .6	
+C-X120:18	030 .6	
+C-X120:19	042 .6	
+C-X120:20		
+C-X120:21		
+C-X120:22		
+C-X120:23		
+C-X120:24		
+C-X120:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 024 / 025

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X121:1	025 .6	
+C-X121:2	025 .6	
+C-X121:3	025 .8	
+C-X121:4	025 .8	
+C-X121:5	044 .2	
+C-X121:6	044 .6	
+C-X121:7	054 .3	
+C-X121:8	054 .7	
+C-X121:9	044 .6	
+C-X121:10	044 .6	
+C-X121:11		
+C-X121:12	054 .3	
+C-X121:13	056 .3	
+C-X121:14	056 .7	
+C-X121:15		
+C-X121:16		
+C-X121:17	028 .1	
+C-X121:18	028 .1	
+C-X121:19	028 .5	
+C-X121:20	028 .5	
+C-X121:21	027 .2	
+C-X121:22	027 .2	
+C-X121:23	027 .4	
+C-X121:24	027 .4	
+C-X121:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 025 / 026

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X200:1	012 .5	
+C-X200:2	012 .5	
+C-X200:3	012 .5	
+C-X200:4	012 .5	
+C-X200:E	012 .5	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 026 / 027

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1	2	3	4	5	6	7	8	9	10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks	Tetra Pak	Designer TEAN		Date 12/05/02		Machine TCA/P1			
		ECM No 82534		Page type		Denomination CABINET TERMINAL SUMMARY			
	Company Tetra Pak Carton Ambient AB		Bill of material 45159-0100		Drawing No. 2578566-0005		Doc. type ELD	Version AA	Page 027 / 028

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X202:1	013 .9	
+C-X202:2	013 .9	
+C-X202:3	013 .9	
+C-X202:4	013 .10	
+C-X202:5		
+C-X202:6		
+C-X202:E	013 .10	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 028 / 029

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X203:1	010 .3	
+C-X203:2	010 .4	
+C-X203:3		
+C-X203:4		
+C-X203:5		
+C-X203:6		
+C-X203:E	010 .4	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 029 / 030

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X204:1	015 .5	
+C-X204:2	015 .5	
+C-X204:3	015 .6	
+C-X204:4	015 .6	
+C-X204:5	015 .6	
+C-X204:6		
+C-X204:E	015 .6	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 030 / 031

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X206:1	007 .1	
+C-X206:2	007 .3	
+C-X206:3	007 .7	
+C-X206:4	007 .8	
+C-X206:5	006 .9	
+C-X206:6	006 .10	
+C-X206:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 031 / 032

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X208:1	006 .2	
+C-X208:2	006 .3	
+C-X208:3	006 .3	
+C-X208:4	006 .5	
+C-X208:5	006 .7	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 032 / 033

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X209:1	010 .1	
+C-X209:2	010 .1	
+C-X209:3	010 .1	
+C-X209:4		
+C-X209:5		
+C-X209:6		
+C-X209:E	010 .2	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 033 / 034

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X211:1	007 .9	
+C-X211:2	007 .9	
+C-X211:3	007 .10	
+C-X211:5	008 .7	
+C-X211:6	008 .8	
+C-X211:E	007 .10	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 034 / 035

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1	2	3	4	5	6	7	8	9	10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X212:1	007 .5	
+C-X212:2	007 .6	
+C-X212:3		
+C-X212:4		
+C-X212:5		
+C-X212:6		
+C-X212:E	007 .6	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 035 / 036

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X213:1	009 .3	
+C-X213:2	009 .4	
+C-X213:3	009 .8	
+C-X213:4	009 .9	
+C-X213:5	010 .8	
+C-X213:6	010 .9	
+C-X213:E	010 .9	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 036 / 037

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X215:1	013 .4	
+C-X215:2	013 .4	
+C-X215:3	013 .4	
+C-X215:4	013 .5	
+C-X215:5		
+C-X215:6		
+C-X215:E	013 .5	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks	Tetra Pak	Designer TEAN	Date 12/05/02	Machine TCA/P1
		ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY
	Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 037 / 038

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X216:1	010 .5	
+C-X216:2	010 .6	
+C-X216:3		
+C-X216:4		
+C-X216:5		
+C-X216:6		
+C-X216:E	010 .6	

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABINET TERMINAL SUMMARY	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0005	Doc. type ELD / Version AA / Page 038 / 039

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1 2 3 4 5 6 7 8 9 10

Cabinet terminal summary of 2578566-0003

Terminal	Page .Col.	Opt.
+C-X300:1	043 .2	
+C-X300:2	043 .6	
+C-X300:3	043 .6	
+C-X300:4	043 .6	
+C-X300:5	043 .6	
+C-X300:6	043 .6	
+C-X300:7	043 .6	
+C-X300:8	043 .6	
+C-X300:9	043 .6	
+C-X300:10	043 .6	
+C-X300:11	044 .6	
+C-X300:12	044 .6	
+C-X300:13		
+C-X300:14	063 .2	
+C-X300:15	063 .2	
+C-X300:16	063 .2	
+C-X300:17	063 .2	
+C-X300:18	063 .2	
+C-X300:19	063 .2	
+C-X300:20	063 .5	
+C-X300:21	063 .5	
+C-X300:22	063 .5	
+C-X300:23		
+C-X300:24		
+C-X300:25	061 .2	
+C-X300:26	061 .6	
+C-X300:27	061 .2	
+C-X300:28	053 .3	

Terminal	Page .Col.	Opt.
+C-X300:29	053 .7	
+C-X300:30	025 .2	
+C-X300:31	025 .2	
+C-X300:32	025 .3	
+C-X300:33	025 .3	
+C-X300:34		
+C-X300:35		
+C-X300:36		
+C-X300:37		
+C-X300:38		
+C-X300:39		
+C-X300:40		
+C-X300:41		
+C-X300:42		
+C-X300:43		
+C-X300:44		
+C-X300:45		
+C-X300:E		
+C-X300:E		

Terminal	Page .Col.	Opt.

Terminal	Page .Col.	Opt.

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABINET TERMINAL SUMMARY

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0005	ELD	AA	039 / 001

Cabinet terminal summary

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EM1.1TS700008.fm

10 Cable connection list

EM1.1TS700010.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description . . . . . Identity Prt Vs
CABLE CONNECTION LIST . . . . . .2578566-0007 AA

EM1.1TS700010.fm

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+C-W002	1	+C-X200:1	+C-G002:U	012 .2	
+C-W002	2	+C-X200:2	+C-G002:W	012 .2	
+C-W002	3	+C-X200:3	+C-G002:V	012 .2	
+C-W002	GNYE	+C-X200:E	+C-G002:E	012 .2	
+C-W002	SH	+C-X200:4	+C-W002:	012 .4	
+C-W003	1	+C-X215:1	+C-G003:V	013 .2	
+C-W003	2	+C-X215:2	+C-G003:U	013 .2	
+C-W003	3	+C-X215:3	+C-G003:W	013 .2	
+C-W003	GNYE	+C-X215:E	+C-G003:E	013 .2	
+C-W003	SH	+C-X215:4	+C-W003:	013 .4	
+C-W004	1	+C-X202:1	+C-G004:V	013 .7	
+C-W004	2	+C-X202:2	+C-G004:U	013 .7	
+C-W004	3	+C-X202:3	+C-G004:W	013 .7	
+C-W004	GNYE	+C-X202:E	+C-G004:E	013 .7	
+C-W004	SH	+C-X202:4	+C-W004:	013 .9	
+C-W005	WH	+C-X110:2	+C-A006:9	014 .6	
+C-W005	BN	+C-X110:3	+C-A006:10	014 .6	
+C-W005	YE	+C-X110:4	+C-A006:11	014 .6	
+C-W005	GN	+C-X110:5	+C-A006:12	014 .6	
+C-W005	SH	+C-X110:1	+C-A006:15	014 .6	
+C-W005	SH	+C-W005:	+C-A006:15	014 .6	
+C-W005	SH	+C-W005:	+C-A006:15	014 .6	
+C-W006	WH	+C-X110:9	+C-A006:32	014 .6	
+C-W006	BN	+C-X110:8	+C-A006:31	014 .6	
+C-W006	YE	+C-X110:7	+C-A006:30	014 .6	
+C-W006	GN	+C-X110:6	+C-A006:29	014 .6	
+C-W006	SH	+C-X110:10	+C-A006:16	014 .6	

Cable	Core	From	To	Page.Col.	Option
+C-W006	SH	+C-W006:	+C-A006:16	014 .6	
+C-W006	SH	+C-W006:	+C-A006:16	014 .6	
+C-W007	1	+C-X204:1	+C-A010:1	015 .3	
+C-W007	2	+C-X204:2	+C-A010:2	015 .3	
+C-W007	3	+C-X204:3	+C-A010:4	015 .3	
+C-W007	4	+C-X204:4	+C-A010:5	015 .3	
+C-W007	GNYE	+C-X204:E	+C-A010:3	015 .3	
+C-W007	SH	+C-X204:5	+C-W007:	015 .5	
+C-W008		+C-J045:	+C-A050:COM3	008 .5	
+C-W009	2	+C-A050:LVDS	+C-A051:DATA	017 .5	
+C-W010	RD	+C-X106:2	+C-A020:2	018 .3	
+C-W010	YE	+C-X106:1	+C-A020:1	018 .3	
+C-W011	1	+C-J033:	+C-A020:6	018 .3	
+M-W011	1	+C-X120:1	+M-X010:1+	030 .3	
+M-W011	2	+C-X120:2	+M-X010:1-	030 .3	
+M-W011	3	+C-X120:3	+M-X010:1	030 .6	
+M-W011	4	+C-X120:4	+M-X010:2	030 .6	
+M-W011	5	+C-X120:5	+M-X010:3	038 .6	
+M-W011	6	+C-X120:6	+M-X010:4	038 .6	
+M-W011	7	+C-X120:7	+M-X010:5	038 .6	
+M-W011	8	+C-X120:8	+M-X010:6	041 .6	
+M-W011	9	+C-X120:9	+M-X010:7	041 .6	
+M-W011	10	+C-X120:10	+M-X010:8	041 .6	
+M-W011	11	+C-X120:11	+M-X010:9	041 .6	
	12				
+M-W011	13	+C-X120:13	+M-X010:11	035 .6	
+M-W011	14	+C-X120:14	+M-X010:12	035 .6	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type CABLE CONNECTION LIST | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 001 / 002

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W011	15	+C-X120:15	+M-X010:13	035 .6	
+M-W011	16	+C-X120:16	+M-X010:14	035 .6	
+M-W011	17	+C-X120:17	+M-X010:15	044 .6	
+M-W011	18	+C-X120:18	+M-X010:16	030 .6	
+M-W011	19	+C-X120:19	+M-X010:17	042 .6	
	20				
	21				
	22				
	23				
	24				
	GNYE				
+C-W012	RD	+C-X100:24	+C-A021:2	018 .5	
+C-W012	YE	+C-X100:23	+C-A021:1	018 .5	
+M-W012	1	+C-X121:1	+M-X010:23	025 .7	
+M-W012	2	+C-X121:2	+M-X010:24	025 .7	
+M-W012	3	+C-X121:3	+M-X010:26	025 .8	
+M-W012	4	+C-X121:4	+M-X010:25	025 .8	
+M-W012	21	+C-X121:21	+M-X010:47	027 .2	
+M-W012	22	+C-X121:22	+M-X010:48	027 .2	
+M-W012	24	+C-X121:24	+M-X010:50	027 .4	
+M-W012	23	+C-X121:23	+M-X010:49	027 .4	
+M-W012	9	+C-X121:9	+M-X010:31	044 .6	
+M-W012	10	+C-X121:10	+M-X010:32	044 .6	
+M-W012	5	+C-X121:5	+M-X010:27	044 .2	
+M-W012	12	+C-X121:12	+M-X010:33	054 .4	
+M-W012	13	+C-X121:13	+M-X010:35	056 .4	
+M-W012	14	+C-X121:14	+M-X010:36	056 .7	

Cable	Core	From	To	Page.Col.	Option
+M-W012	6	+C-X121:6	+M-X010:28	044 .6	
+M-W012	7	+C-X121:7	+M-X010:29	054 .4	
+M-W012	17	+C-X121:17	+M-X010:39	028 .2	
+M-W012	18	+C-X121:18	+M-X010:40	028 .2	
+M-W012	19	+C-X121:19	+M-X010:45	028 .5	
+M-W012	20	+C-X121:20	+M-X010:46	028 .5	
+M-W012	8	+C-X121:8	+M-X010:30	054 .7	
	22				
	23				
	24				
	GNYE				
+C-W013	1	+C-J034:	+C-A021:6	018 .5	
+M-W013	1	+C-X216:1	+M-T100:230	010 .5	
+M-W013	2	+C-X216:2	+M-T100:0	010 .6	
+M-W013	GNYE	+C-X216:E		.6	
+C-W014	RD	+C-X106:6	+C-A022:2	019 .3	
+C-W014	YE	+C-X106:5	+C-A022:1	019 .3	
+M-W014	1	+C-X203:1	+M-T101:220	010 .3	
+M-W014	2	+C-X203:2	+M-T101:0	010 .4	
+M-W014	GNYE	+C-X203:E	+M-T101:E	010 .4	
+C-W015	1	+C-J035:	+C-A022:6	019 .3	
+M-W015	1	+C-X206:1	+M-X010:101	007 .1	
+M-W015	2	+C-X206:2	+M-X010:102	007 .3	
+M-W015	3	+C-X206:3	+M-X010:103	007 .7	
+M-W015	4	+C-X206:4	+M-X010:104	007 .8	
+M-W015	5	+C-X206:5	+M-X010:105	006 .9	
+M-W015	6	+C-X206:6	+M-X010:106	006 .10	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 002 / 003

RELEASED

This drawing must not without the consent of Tetra Pak be copied, transmitted or disclosed to any third party.

1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
	GNYE				
+C-W016	RD	+C-X106:8	+C-A023:2	019 .5	
+C-W016	YE	+C-X106:7	+C-A023:1	019 .5	
+C-W017	1	+C-J036:	+C-A023:6	019 .5	
+M-W017	1	+C-X208:1	+M-X040:101	006 .2	
+M-W017	2	+C-X208:2	+M-X040:102	006 .3	
+M-W017	3	+C-X208:3	+M-X040:103	006 .3	
+M-W017	4	+C-X208:4	+M-X040:105	006 .5	
+M-W017	5	+C-X208:5	+M-X040:107	006 .7	
	6				
	GNYE				
+C-W018	RD	+C-X106:10	+C-A024:2	020 .3	
+C-W018	YE	+C-X106:9	+C-A024:1	020 .3	
+C-W019	1	+C-J037:	+C-A024:6	020 .3	
+C-W020	RD	+C-X106:4	+C-A025:2	020 .5	
+C-W020	YE	+C-X106:3	+C-A025:1	020 .5	
+M-W020	1	+M-X020:1	+C-X103:1	036 .2	
+M-W020	2	+M-X020:2	+C-X103:2	036 .2	
+M-W020	3	+M-X020:3	+C-X103:3	036 .7	
+M-W020	4	+M-X020:4	+C-X103:4	036 .7	
+M-W020	5	+M-X020:5	+C-X103:5	036 .7	
+M-W020	6	+M-X020:6	+C-X103:6	036 .7	
+M-W020	7	+M-X020:7	+C-X103:7	036 .7	
+M-W020	8	+M-X020:8	+C-X103:8	036 .7	
+M-W020	9	+M-X020:9	+C-X103:9	037 .6	
+M-W020	10	+M-X020:10	+C-X103:10	037 .6	
+M-W020	11	+M-X020:11	+C-X103:11	037 .6	
	12				
	13				
	14				
	15				
	16				
	17				
+M-W020	18	+M-X020:18	+C-X103:18	022 .4	
+M-W020	19	+M-X020:19	+C-X103:19	022 .4	
+M-W020	20	+M-X020:20	+C-X103:20	022 .4	
+M-W020	21	+M-X020:21	+C-X103:21	022 .4	
+M-W020	22	+M-X020:22	+C-X103:22	022 .4	
+M-W020	23	+M-X020:23	+C-X103:23	030 .6	
+M-W020	24	+M-X020:24	+C-X103:24	036 .7	
	GNYE				
+C-W021	1	+C-J038:	+C-A025:6	020 .5	
+M-W021	1	+M-X020:25	+C-X104:1	037 .6	
+M-W021	2	+M-X020:26	+C-X104:2	037 .6	
+M-W021	3	+M-X020:27	+C-X104:3	037 .6	
+M-W021	4	+M-X020:28	+C-X104:4	038 .6	
+M-W021	5	+M-X020:29	+C-X104:5	042 .6	
+M-W021	6	+M-X020:30	+C-X104:6	042 .6	
+M-W021	7	+M-X020:31	+C-X104:7	042 .6	
+M-W021	8	+M-X020:32	+C-X104:8	034 .6	
	9				
	10				
	11				
	12				

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABLE CONNECTION LIST	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0007	Doc. type ELD / Version AA / Page 003 / 004

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W021	15	+M-X020:41	+C-X104:15	061 .6	
	14				
	15				
+M-W021	16	+M-X020:44	+C-X104:16	050 .4	
+M-W021	17	+M-X020:45	+C-X104:17	050 .7	
+M-W021	18	+M-X020:46	+C-X104:18	050 .4	
+M-W021	19	+M-X020:48	+C-X104:19	052 .5	
+M-W021	20	+M-X020:50	+C-X104:20	062 .4	
	21				
	22				
	23				
	24				
	GNYE				
+C-W022	RD	+C-X106:12	+C-A026:2	021 .3	
+C-W022	YE	+C-X106:11	+C-A026:1	021 .3	
+C-W023	1	+C-J039:	+C-A026:6	021 .3	
+M-W025	1	+C-X105:1	+M-X025:1+	033 .3	
+M-W025	2	+C-X105:2	+M-X025:1-	033 .3	
+M-W025	3	+C-X105:3	+M-X025:1	033 .6	
+M-W025	4	+C-X105:4	+M-X025:2	033 .6	
+M-W025	5	+C-X105:5	+M-X025:3	035 .6	
	6				
	7				
+M-W025	8	+C-X105:8	+M-X025:6	017 .4	
	9				
	10				
	11				

Cable	Core	From	To	Page.Col.	Option
+M-W025	12	+C-X105:12	+M-X025:15	027 .2	
+M-W025	13	+C-X105:13	+M-X025:14	027 .2	
+M-W025	14	+C-X105:14	+M-X025:24	027 .7	
+M-W025	15	+C-X105:15	+M-X025:25	027 .7	
+M-W025	16	+C-X105:16	+M-X025:30	025 .3	
+M-W025	17	+C-X105:17	+M-X025:31	025 .3	
+M-W025	18	+C-X105:18	+M-X025:32	025 .5	
+M-W025	19	+C-X105:19	+M-X025:33	025 .5	
+M-W025	20	+C-X105:20	+M-X025:34	040 .5	
+M-W025	21	+C-X105:21	+M-X025:35	040 .5	
+M-W025	22	+C-X105:22	+M-X025:36	040 .5	
+M-W025	23	+C-X105:23	+M-X025:37	054 .4	
+M-W025	24	+C-X105:24	+M-X025:38	054 .4	
	GNYE				
+M-W030	1	+M-X020:1	+M-X030:13+	036 .4	
+M-W030	2	+M-X020:2	+M-X030:13-	036 .4	
+M-W030	3	+M-X020:3	+M-X030:13	036 .6	
+M-W030	4	+M-X020:4	+M-X030:14	036 .6	
+M-W030	5	+M-X020:5	+M-X030:15	036 .6	
+M-W030	6	+M-X020:6	+M-X030:16	036 .6	
+M-W030	7	+M-X020:7	+M-X030:17	036 .6	
+M-W030	8	+M-X020:8	+M-X030:18	036 .6	
+M-W030	9	+M-X020:9	+M-X030:19	037 .6	
+M-W030	10	+M-X020:10	+M-X030:20	037 .6	
+M-W030	11	+M-X020:11	+M-X030:21	037 .6	
	12				
	13				

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	004 / 005

RELEASED

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
	14				
	15				
	16				
	17				
	GNYE				
+M-W031	1YE	+M-X030:1	+C-X106:1	018 .3	
+M-W031	1RD	+M-X030:2	+C-X106:2	018 .3	
+M-W031	2YE	+M-X030:3	+C-X106:3	020 .5	
+M-W031	2RD	+M-X030:4	+C-X106:4	020 .5	
+M-W031	3YE	+M-X030:5	+C-X106:5	019 .3	
+M-W031	3RD	+M-X030:6	+C-X106:6	019 .3	
+M-W031	4YE	+M-X030:7	+C-X106:7	019 .5	
+M-W031	4RD	+M-X030:8	+C-X106:8	019 .5	
+M-W031	5YE	+M-X030:9	+C-X106:9	020 .3	
+M-W031	5RD	+M-X030:10	+C-X106:10	020 .3	
+M-W031	6YE	+M-X030:12	+C-X106:12	021 .3	
+M-W031	6RD	+M-X030:11	+C-X106:11	021 .3	
	YG				
	SCR				
+M-W033	1	+M-X031:1	+C-X111:1	022 .4	
+M-W033	2	+M-X031:2	+C-X111:2	022 .4	
+M-W033	3	+M-X031:3	+C-X111:3	022 .4	
+M-W033	4	+M-X031:4	+C-X111:4	032 .4	
+M-W033	5	+M-X031:5	+C-X111:5	032 .7	
	6				
	7				
+M-W033	8	+M-X031:8	+C-X111:8	050 .4	

Cable	Core	From	To	Page.Col.	Option
	9				
	10				
+M-W033	11	+M-X031:10	+C-X111:11	050 .4	
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
	GNYE				
+M-W034	1	+C-X101:1	+M-X034:2	016 .7	
+M-W034	2	+C-X101:2	+M-X034:4	016 .7	
+M-W034	3	+C-X101:3	+M-X034:5	016 .4	
+M-W034	4	+C-X101:4	+M-X034:6	016 .6	
+M-W034	5	+C-X101:5	+M-X034:7	052 .5	
+M-W034	6	+C-X101:6	+M-X034:8	052 .7	
+M-W034	7	+C-X101:7	+M-X034:12	016 .5	
+M-W034	8	+C-X101:8	+M-X034:1	016 .5	
+M-W034	9	+C-X101:9	+M-X034:9	016 .3	
+M-W034	10	+C-X101:10	+M-X034:10	016 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	005 / 006

RELEASED

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	GNYE				
+M-W035	1	+C-X211:1	+M-X031:101	007 .9	
+M-W035	2	+C-X211:2	+M-X031:102	007 .9	
+M-W035	3	+C-X211:3	+M-X031:103	007 .10	
	4				
+M-W035	5	+C-X211:5	+M-X031:105	008 .7	
+M-W035	6	+C-X211:6	+M-X031:106	008 .8	
+M-W035	GNYE	+C-X211:E	+M-X031:E	007 .10	
+M-W036	1	+C-X212:1	+M-X020:101	007 .5	
+M-W036	2	+C-X212:2	+M-X020:102	007 .6	
	3				
	4				
	5				
	6				
+M-W036	GNYE	+C-X212:E	+M-X020:E21	007 .6	
+M-W037	1	+C-X213:1	+M-X020:107	009 .3	
+M-W037	2	+C-X213:2	+M-X020:108	009 .4	
+M-W037	3	+C-X213:3	+M-X020:109	009 .8	
+M-W037	4	+C-X213:4	+M-X020:110	009 .9	
+M-W037	5	+C-X213:5	+M-X020:111	010 .8	

Cable	Core	From	To	Page.Col.	Option
+M-W037	6	+C-X213:6	+M-X020:112	010 .9	
+M-W037	GNYE	+C-X213:E	+M-X020:E26	010 .9	
+M-W040	1	+C-X108:1	+M-X040:1	027 .2	
+M-W040	2	+C-X108:2	+M-X040:2	027 .2	
+M-W040	3	+C-X108:3	+M-X040:15	027 .7	
+M-W040	4	+C-X108:4	+M-X040:16	027 .7	
+M-W040	5	+C-X108:5	+M-X040:17	025 .6	
+M-W040	6	+C-X108:6	+M-X040:18	025 .6	
+M-W040	7	+C-X108:7	+M-X040:23	025 .9	
+M-W040	8	+C-X108:8	+M-X040:24	025 .9	
+M-W040	9	+C-X108:9	+M-X040:25	030 .3	
+M-W040	10	+C-X108:10	+M-X040:26	030 .3	
+M-W040	11	+C-X108:11	+M-X040:27	030 .6	
+M-W040	12	+C-X108:12	+M-X040:30	037 .6	
+M-W040	13	+C-X108:13	+M-X040:33	035 .6	
+M-W040	14	+C-X108:14	+M-X040:36	035 .6	
+M-W040	15	+C-X108:15	+M-X040:39	035 .6	
	16				
	17				
+M-W040	18	+C-X108:18	+M-X040:44	032 .5	
+M-W040	19	+C-X108:19	+M-X040:45	032 .5	
+M-W040	20	+C-X108:20	+M-X040:46	054 .4	
+M-W040	21	+C-X108:21	+M-X040:47	054 .4	
+M-W040	22	+C-X108:22	+M-X040:48	054 .4	
+M-W040	23	+C-X108:23	+M-X040:49	054 .4	
+M-W040	24	+C-X108:24	+M-X040:50	054 .8	
	GNYE				

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	006 / 007

RELEASED

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W041	1	+C-X109:1	+M-S405:11	025 .2	
+M-W041	2	+C-X109:2	+M-S405:21	025 .2	
+M-W041	3	+C-X109:3	+M-S405:22	025 .3	
+M-W041	4	+C-X109:4	+M-S405:12	025 .3	
+M-W041	5	+C-X109:5	+M-S400H:13	033 .4	
+M-W041	6	+C-X109:6	+M-S400H:14	033 .6	
+M-W041	7	+C-X109:7	+M-H400S:011	053 .6	
+M-W041	8	+C-X109:8	+M-H400S:012	053 .7	
	9				
	10				
	11				
	12				
	13				
+M-W041	14	+C-X109:14	+M-S402:14	040 .5	
+M-W041	15	+C-X109:15	+M-S403H:14	037 .6	
+M-W041	16	+C-X109:16	+M-H403S:011	053 .6	
	17				
	GNYE				
+M-W050	1	+C-X112:1	+M-X050:1	038 .2	
+M-W050	2	+C-X112:2	+M-X050:2	038 .6	
+M-W050	3	+C-X112:3	+M-X050:4	038 .6	
+M-W050	4	+C-X112:4	+M-X050:6	038 .6	
	5				
	6				
+M-W050	7	+C-X112:7	+M-X050:9	048 .4	
+M-W050	8	+C-X112:8	+M-X050:10	048 .7	
+M-W050	9	+C-X112:9	+M-X050:11	027 .2	

Cable	Core	From	To	Page.Col.	Option
+M-W050	10	+C-X112:10	+M-X050:12	027 .2	
+M-W050	11	+C-X112:11	+M-X050:17	027 .6	
+M-W050	12	+C-X112:12	+M-X050:18	027 .6	
+M-W050	13	+C-X112:13	+M-X050:30	029 .4	
+M-W050	14	+C-X112:14	+M-X050:31	029 .4	
+M-W050	15	+C-X112:15	+M-X050:20	029 .4	
+M-W050	16	+C-X112:16	+M-X050:21	029 .4	
+M-W050	17	+C-X112:17	+M-X050:22	029 .4	
+M-W050	18	+C-X112:18	+M-X050:23	029 .4	
+M-W050	19	+C-X112:19	+M-X050:24	029 .4	
+M-W050	20	+C-X112:20	+M-X050:25	029 .4	
+M-W050	21	+C-X112:21	+M-X050:26	029 .4	
+M-W050	22	+C-X112:22	+M-X050:27	029 .4	
+M-W050	23	+C-X112:23	+M-X050:28	029 .4	
+M-W050	24	+C-X112:24	+M-X050:29	029 .4	
	GNYE				
+M-W051	WH	+C-X113:1	+M-Y100:1	055 .5	
	GN				
+M-W051	YE	+C-X113:3	+M-Y601:1	055 .5	
	GY				
+M-W051	PK	+C-X113:5	+M-Y600:1	055 .5	
	BU				
+M-W051	RD	+C-X113:7	+M-Y502:1	055 .5	
+M-W051	VT	+C-X113:8	+M-Y400:1	055 .5	
+M-W051	GY-PK	+C-X113:9	+M-Y401:1	055 .5	
+M-W051	RD-BU	+C-X113:10	+M-Y402:1	055 .5	
	WH-GN				

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 007 / 008

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
	BN-GN				
	WH-YE				
	YE-BN				
	WH-GY				
	GY-BN				
	WH-PK				
	PK-BN				
	WH-BU				
	BN-BU				
	WH-RD				
	BN-RD				
	WH-BK				
	BN-BK				
+M-W051	BN	+C-X113:23	+M-Y100:2	055 .7	
+M-W051	BK	+C-X113:24	+M-Y401:2	055 .7	
+M-W052	WH	+C-X114:1	+M-Y200:1	031 .5	
	GN				
+M-W052	YE	+C-X114:3	+M-Y302:1	031 .5	
	GY				
+M-W052	PK	+C-X114:5	+M-Y201:1	031 .5	
	BU				
+M-W052	RD	+C-X114:7	+M-Y306:1	031 .5	
+M-W052	VT	+C-X114:8	+M-Y305:1	031 .5	
+M-W052	GY-PK	+C-X114:9	+M-Y307:1	031 .5	
	RD-BU				
+M-W052	WH-GN	+C-X114:11	+M-Y202:1	031 .5	
	BN-GN				

Cable	Core	From	To	Page.Col.	Option
	WH-YE				
+M-W052	YE-BN	+C-X114:14	+M-Y204:1	032 .5	
+M-W052	WH-GY	+C-X114:15	+M-Y205:1	050 .5	
	GY-BN				
	WH-PK				
	PK-BN				
	WH-BU				
	BN-BU				
	WH-RD				
+M-W052	BN-RD	+C-X114:18	+M-Y314:1	031 .5	
	WH-BK				
	BN-BK				
+M-W052	BN	+C-X114:23	+M-Y200:2	031 .7	
+M-W052	BK	+C-X114:24	+M-Y307:2	031 .7	
+M-W053	WH	+C-X115:1	+M-Y110:1	059 .5	
	GN				
+M-W053	YE	+C-X115:3	+M-Y111:1:1	056 .5	
+M-W053	GY	+C-X115:4	+M-Y111:2:1	056 .5	
+M-W053	PK	+C-X115:5	+M-Y112:1	059 .5	
	BU				
+M-W053	RD	+C-X115:7	+M-Y113:1	059 .5	
	VT				
+M-W053	GY-PK	+C-X115:9	+M-Y114:1	059 .5	
	RD-BU				
+M-W053	WH-GN	+C-X115:11	+M-Y115:1	059 .5	
	BN-GN				
	WH-YE				

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	008 / 009

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W053	YE-BN	+C-X115:13	+M-Y116:1	059 .5	
+M-W053	WH-GY	+C-X115:20	+M-Y117:1	060 .5	
	GY-BN				
	WH-PK				
	PK-BN				
	WH-BU				
	BN-BU				
+M-W053	WH-RD	+C-X115:17	+M-Y120:1:1	056 .5	
+M-W053	BN-RD	+C-X115:18	+M-Y120:2:1	056 .5	
+M-W053	WH-BK	+C-X115:19	+M-Y121:1	056 .5	
	BN-BK				
+M-W053	BN	+C-X115:23	+M-Y110:2	059 .7	
+M-W053	BK	+C-X115:24	+M-Y114:2	059 .7	
+M-W060	1	+C-X116:1	+M-X050:32	038 .2	
+M-W060	2	+C-X116:2	+M-X050:33	038 .2	
+M-W060	3	+C-X116:3	+M-X050:34	038 .6	
+M-W060	4	+C-X116:4	+M-X050:35	027 .5	
+M-W060	5	+C-X116:5	+M-X050:36	027 .5	
+M-W060	6	+C-X116:6	+M-X050:37	027 .7	
+M-W060	7	+C-X116:7	+M-X050:38	027 .7	
+M-W060	8	+C-X116:8	+M-X050:41	045 .6	
+M-W060	9	+C-X116:9	+M-X050:44	045 .6	
	10				
	11				
	GNYE				
+M-W100	BN	+M-X010:10+	+M-B100:	035 .3	
+M-W100	BU	+M-X010:10-	+M-B100:	035 .3	

Cable	Core	From	To	Page.Col.	Option
	BK				
+M-W101	BN	+M-X010:11+	+M-B101:	035 .4	
+M-W101	BU	+M-X010:11-	+M-B101:	035 .4	
+M-W101	BK	+M-X010:11	+M-B101:	035 .5	
+M-W102	BN	+M-X010:12+	+M-B102:	035 .4	
+M-W102	BU	+M-X010:12-	+M-B102:	035 .4	
+M-W102	BK	+M-X010:12	+M-B102:	035 .5	
+M-W103	BN	+M-X010:13+	+M-B104:	035 .4	
+M-W103	BU	+M-X010:13-	+M-B104:	035 .4	
+M-W103	BK	+M-X010:13	+M-B104:	035 .5	
+M-W104	BN	+M-X010:14+	+M-B105:	035 .4	
+M-W104	BU	+M-X010:14-	+M-B105:	035 .4	
+M-W104	BK	+M-X010:14	+M-B105:	035 .5	
+M-W105	2	+M-X010:106	+M-E105:2	006 .10	
+M-W105	1	+M-X010:105	+M-E105:1	006 .9	
+M-W105	GNYE	+M-X010:E10	+M-E105:E	006 .10	
+M-W115	RD	+M-X110:-	+C-X100:24	018 .4	
+M-W115	YE	+M-X110:+	+C-X100:23	018 .4	
+M-W120	BN	+M-X010:1+	+M-B125:	030 .3	
+M-W120	BU	+M-X010:1-	+M-B125:	030 .3	
+M-W120	BK	+M-X010:1	+M-B125:	030 .5	
+M-W121	BN	+M-X010:2-	+M-B126:	030 .3	
+M-W121	BU	+M-X010:2+	+M-B126:	030 .3	
+M-W121	BK	+M-X010:2	+M-B126:	030 .5	
+M-W122	BN	+M-X010:3+	+M-B127:	038 .4	
+M-W122	BU	+M-X010:3-	+M-B127:	038 .4	
+M-W122	BK	+M-X010:3	+M-B127:	038 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	009 / 010

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W123	BN	+M-X010:4+	+M-B128:	038 .4	
+M-W123	BU	+M-X010:4-	+M-B128:	038 .4	
+M-W123	BK	+M-X010:4	+M-B128:	038 .5	
+M-W124	BN	+M-X010:5+	+M-B129:	038 .4	
+M-W124	BU	+M-X010:5-	+M-B129:	038 .4	
+M-W124	BK	+M-X010:5	+M-B129:	038 .5	
+M-W125	BN	+M-X010:6+	+M-B130:	041 .4	
+M-W125	BU	+M-X010:6-	+M-B130:	041 .4	
+M-W125	BK	+M-X010:6	+M-B130:	041 .5	
+M-W126	BN	+M-X010:7+	+M-B131:	041 .4	
+M-W126	BU	+M-X010:7-	+M-B131:	041 .4	
+M-W126	BK	+M-X010:7	+M-B131:	041 .5	
+M-W130	BN	+M-X010:101	+M-X012:1	007 .1	
+M-W130	L.BU	+M-X010:102	+M-X012:2	007 .3	
	GNYE				
+M-W131	2	+M-X010:104	+M-R101:2	007 .8	
+M-W131	1	+M-X010:103	+M-R101:1	007 .7	
	GNYE				
+M-W133	BN	+M-X010:8+	+M-B133:	041 .4	
+M-W133	BU	+M-X010:8-	+M-B133:	041 .4	
+M-W133	BK	+M-X010:8	+M-B133:	041 .5	
+M-W134	BN	+M-X010:9-	+M-B134:	041 .4	
+M-W134	BU	+M-X010:9+	+M-B134:	041 .4	
+M-W134	BK	+M-X010:9	+M-B134:	041 .5	
+M-W135	1	+M-X010:23	+M-S100:11	025 .7	
+M-W135	2	+M-X010:24	+M-S100:21	025 .7	
+M-W135	3	+M-X010:25	+M-S100:22	025 .8	

Cable	Core	From	To	Page.Col.	Option
+M-W135	4	+M-X010:26	+M-S100:12	025 .8	
+M-W135	5	+M-X010:27	+M-S101H:13	044 .4	
+M-W135	6	+M-X010:28	+M-S101H:14	044 .5	
+M-W135	7	+M-X010:29	+M-H101S:1	054 .5	
+M-W135	8	+M-X010:30	+M-H101S:2	054 .6	
+M-W135	9	+M-X010:31	+M-S102:14	044 .5	
+M-W135	10	+M-X010:32	+M-S103:14	044 .5	
	11				
	GNYE				
+M-W137	1	+M-X010:35	+M-Y122:1	056 .5	
+M-W137	2	+M-X010:36	+M-Y122:2	056 .6	
+M-W137	GNYE	+M-X010:E3	+M-Y122:E	056 .6	
+M-W138	1	+M-X010:39	+M-B132:21	028 .3	
+M-W138	2	+M-X010:40	+M-B132:11	028 .3	
+M-W138	3	+M-X010:41	+M-B132:12	028 .3	
+M-W138	4	+M-X010:42	+M-B132:22	028 .3	
	GNYE				
+M-W139	1	+M-T100:35	+M-F100:2	010 .5	
+M-W140	1	+M-T100:0	+M-F100:4	010 .5	
+M-W141	1	+M-T101:3.5	+M-R103:1	010 .3	
+M-W141	2	+M-T101:0	+M-R103:2	010 .3	
	GNYE				
+M-W142	1	+C-X215:1	+M-M100:U	013 .4	
+M-W142	2	+C-X215:2	+M-M100:V	013 .4	
+M-W142	3	+C-X215:3	+M-M100:W	013 .4	
+M-W142	GNYE	+C-X215:E	+M-M100:⏚	013 .5	
+M-W142	SH	+C-X215:4	+C-J010:	013 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	010 / 011

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W144	1	+M-X010:47	+M-B144:21	027 .3	
+M-W144	2	+M-X010:48	+M-B144:11	027 .3	
+M-W144	4	+M-X010:50	+M-B144:22	027 .3	
+M-W144	3	+M-X010:49	+M-B144:12	027 .3	
	GNYE				
+M-W145	1	+M-X010:43	+M-B145:21	028 .4	
+M-W145	2	+M-X010:44	+M-B145:11	028 .4	
+M-W145	3	+M-X010:45	+M-B145:12	028 .5	
+M-W145	4	+M-X010:46	+M-B145:22	028 .5	
	GNYE				
+M-W146	BN	+M-X010:16+	+M-B146:	030 .3	
+M-W146	BU	+M-X010:16-	+M-B146:	030 .3	
+M-W146	BK	+M-X010:16	+M-B146:	030 .5	
+M-W147	BN	+M-X010:15+	+M-B147:	044 .4	
+M-W147	BU	+M-X010:15-	+M-B147:	044 .4	
+M-W147	BK	+M-X010:15	+M-B147:	044 .5	
+M-W200	1	+M-X025:14	+M-B200:41	027 .3	
+M-W200	2	+M-X025:15	+M-B200:31	027 .3	
+M-W200	3	+M-X025:16	+M-B200:32	027 .3	
+M-W200	4	+M-X025:17	+M-B200:42	027 .3	
	GNYE				
+M-W201	1	+M-X020:32+	+M-B201:11	034 .4	
+M-W201	2	+M-X020:32	+M-B201:12	034 .5	
+M-W202	1	+M-X025:18	+M-B202:41	027 .5	
+M-W202	2	+M-X025:19	+M-B202:31	027 .5	
+M-W202	3	+M-X025:20	+M-B202:32	027 .5	
+M-W202	4	+M-X025:21	+M-B202:42	027 .5	

Cable	Core	From	To	Page.Col.	Option
	GNYE				
+M-W203	BN	+M-X020:31+	+M-B203:	042 .4	
+M-W203	BU	+M-X020:31-	+M-B203:	042 .4	
+M-W203	BK	+M-X020:31	+M-B203:	042 .4	
+M-W204	1	+M-X020:18	+M-B204:	022 .3	
+M-W204	2	+M-X020:19	+M-B204:1	022 .3	
+M-W204	3	+M-X020:20	+M-B204:2	022 .3	
	GNYE				
+M-W205	BN	+M-X020:23+	+M-B205:	030 .3	
+M-W205	BU	+M-X020:23-	+M-B205:	030 .3	
+M-W205	BK	+M-X020:23	+M-B205:	030 .5	
+M-W206	BN	+M-X020:27+	+M-B206:	037 .4	
+M-W206	BU	+M-X020:27-	+M-B206:	037 .4	
+M-W206	BK	+M-X020:27	+M-B206:	037 .5	
+M-W208	BN	+M-X020:29+	+M-B207:	042 .4	
+M-W208	BU	+M-X020:29-	+M-B207:	042 .4	
+M-W208	BK	+M-X020:29	+M-B207:	042 .4	
+M-W209	BN	+M-X020:30+	+M-B208:	042 .4	
+M-W209	BU	+M-X020:30-	+M-B208:	042 .4	
+M-W209	BK	+M-X020:30	+M-B208:	042 .4	
+M-W210	1	+M-X025:6	+M-L200:A1	017 .5	
+M-W210	2	+M-X025:7	+M-L200:A2	017 .6	
+M-W212	1	+M-X025:8	+M-L202:A1	017 .5	
+M-W212	2	+M-X025:9	+M-L202:A2	017 .6	
+M-W216	BN	+M-X020:25+	+M-B216:	037 .4	
+M-W216	BU	+M-X020:25-	+M-B216:	037 .4	
+M-W216	BK	+M-X020:25	+M-B216:	037 .5	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 011 / 012

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W217	BN	+M-X020:26+	+M-B217:	037 .4	
+M-W217	BU	+M-X020:26-	+M-B217:	037 .4	
+M-W217	BK	+M-X020:26	+M-B217:	037 .5	
+M-W220	RD	+M-X210:-	+M-X030:2	018 .2	
+M-W220	YE	+M-X210:+	+M-X030:1	018 .2	
+M-W221	RD	+M-X211:-	+M-X030:4	020 .4	
+M-W221	YE	+M-X211:+	+M-X030:3	020 .4	
+M-W223	1	+C-X204:1	+M-X223:1	015 .5	
+M-W223	2	+C-X204:2	+M-X223:4	015 .5	
+M-W223	3	+C-X204:3	+M-X223:5	015 .6	
+M-W223	4	+C-X204:4	+M-X223:8	015 .6	
+M-W223	GNYE	+C-X204:E	+M-X223:E	015 .6	
+M-W223		+C-X204:5	+M-W223:	015 .6	
+M-W226	1	+C-X202:1	+M-M201:U	013 .9	
+M-W226	2	+C-X202:2	+M-M201:V	013 .9	
+M-W226	3	+C-X202:3	+M-M201:W	013 .9	
+M-W226	GNYE	+C-X202:E	+M-M201:⏚	013 .10	
+M-W226	SH	+C-X202:4	+C-J015:	013 .10	
+M-W227	BN	+M-X025:2+	+M-B227:	033 .4	
+M-W227	BU	+M-X025:2-	+M-B227:	033 .4	
+M-W227	BK	+M-X025:2	+M-B227:	033 .5	
+M-W228	BN	+M-X025:3+	+M-B228:	035 .4	
+M-W228	BU	+M-X025:3-	+M-B228:	035 .4	
+M-W228	BK	+M-X025:3	+M-B228:	035 .5	
+M-W230	L.BU	+M-X020:102	+M-R200:2	007 .6	
+M-W230	BN	+M-X020:101	+M-R200:1	007 .5	
+M-W230	GNYE	+M-X020:E21	+M-R200:E	007 .6	

Cable	Core	From	To	Page.Col.	Option
+M-W231	BN	+M-X020:107	+M-R201:1	009 .3	
+M-W231	L.BU	+M-X020:108	+M-R201:2	009 .4	
+M-W231	GNYE	+M-X020:E24	+M-R201:E	009 .4	
+M-W232	BN	+M-X020:109	+M-R202:1	009 .8	
+M-W232	L.BU	+M-X020:110	+M-R202:2	009 .9	
+M-W232	GNYE	+M-X020:E25	+M-R202:E	009 .9	
+M-W233	L.BU	+M-X020:112	+M-R203:2	010 .9	
+M-W233	BN	+M-X020:111	+M-R203:1	010 .8	
+M-W233	GNYE	+M-X020:E26	+M-R203:E	010 .9	
	GN				
	WH				
+M-W235	BK	+M-X020:41	+M-B235:3	061 .4	
+M-W235	YE	+M-X020:39	+M-B235:1	061 .3	
	RD				
+M-W235	BU	+M-X020:40	+M-B235:2	061 .3	
	BN				
	VT				
	SH				
+M-W300	BN	+M-X030:13+	+M-B300:	036 .5	
+M-W300	BU	+M-X030:13-	+M-B300:	036 .5	
+M-W300	BK	+M-X030:13	+M-B300:	036 .5	
+M-W301	BN	+M-X030:14+	+M-B301:	036 .5	
+M-W301	BU	+M-X030:14-	+M-B301:	036 .5	
+M-W301	BK	+M-X030:14	+M-B301:	036 .5	
+M-W302	BN	+M-X030:15+	+M-B302:	036 .5	
+M-W302	BU	+M-X030:15-	+M-B302:	036 .5	
+M-W302	BK	+M-X030:15	+M-B302:	036 .5	

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	012 / 013

RELEASED

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W306	BN	+M-X030:18+	+M-B303:	036 .5	
+M-W306	BU	+M-X030:18-	+M-B303:	036 .5	
+M-W306	BK	+M-X030:18	+M-B303:	036 .5	
+M-W307	BN	+M-X030:19+	+M-B304:	037 .4	
+M-W307	BU	+M-X030:19-	+M-B304:	037 .4	
+M-W307	BK	+M-X030:19	+M-B304:	037 .5	
+M-W308	BN	+M-X030:20+	+M-B305:	037 .4	
+M-W308	BU	+M-X030:20-	+M-B305:	037 .4	
+M-W308	BK	+M-X030:20	+M-B305:	037 .5	
+M-W310	BN	+M-X020:24+	+M-B307:	036 .5	
+M-W310	BU	+M-X020:24-	+M-B307:	036 .5	
+M-W310	BK	+M-X020:24	+M-B307:	036 .5	
+M-W311	1	+M-X020:28+	+M-B314:1	038 .4	
+M-W311	2	+M-X020:28	+M-B314:3	038 .5	
+M-W312	1	+M-X020:21	+M-B308:	022 .3	
+M-W312	2	+M-X020:22	+M-B308:1	022 .3	
+M-W313	1	+M-X031:1	+M-B309:	022 .3	
+M-W313	2	+M-X031:2	+M-B309:1	022 .3	
+M-W313	3	+M-X031:3	+M-B309:2	022 .3	
	GNYE				
+M-W314	BN	+M-X030:21+	+M-B317:	037 .4	
+M-W314	BU	+M-X030:21-	+M-B317:	037 .4	
+M-W314	BK	+M-X030:21	+M-B317:	037 .5	
+M-W315	1	+M-X034:7	+M-Y315:1	052 .5	
+M-W315	2	+M-X034:8	+M-Y315:2	052 .6	
+M-W315	GNYE	+M-X034:E4	+M-Y315:E	052 .6	
+M-W316	1	+M-X031:4	+M-Y300:1	032 .5	

Cable	Core	From	To	Page.Col.	Option
+M-W316	2	+M-X031:5	+M-Y300:2	032 .6	
+M-W316	GNYE	+M-X031:E	+M-Y300:E	032 .6	
+M-W317	1	+M-X020:50	+M-Y301:1	062 .5	
+M-W317	2	+M-X020:51	+M-Y301:2	062 .6	
+M-W317	GNYE	+M-X020:E7	+M-Y301:E	062 .6	
+M-W318	BN	+M-X030:16+	+M-B315:	036 .5	
+M-W318	BU	+M-X030:16-	+M-B315:	036 .5	
+M-W318	BK	+M-X030:16	+M-B315:	036 .5	
+M-W319	BN	+M-X030:17+	+M-B316:	036 .5	
+M-W319	BU	+M-X030:17-	+M-B316:	036 .5	
+M-W319	BK	+M-X030:17	+M-B316:	036 .5	
+M-W320	RD	+M-X310:-	+M-X030:6	019 .2	
+M-W320	YE	+M-X310:+	+M-X030:5	019 .2	
+M-W321	RD	+M-X311:-	+M-X030:8	019 .4	
+M-W321	YE	+M-X311:+	+M-X030:7	019 .4	
+M-W322	RD	+M-X312:-	+M-X030:10	020 .2	
+M-W322	YE	+M-X312:+	+M-X030:9	020 .2	
+M-W323	RD	+M-X313:-	+M-X030:12	021 .2	
+M-W323	YE	+M-X313:+	+M-X030:11	021 .2	
+M-W324	RD	+M-X034:1	+M-M301:	016 .5	
+M-W324	BK	+M-X034:2	+M-M301:	016 .6	
+M-W324	WH	+M-X034:3	+M-M301:	016 .5	
	GN				
+M-W324	BN	+M-X034:4	+M-M301:	016 .6	
	YE				
	OG				
	SH				

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		CABLE CONNECTION LIST

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0007	ELD	AA	013 / 014

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W325	1	+M-X034:5	+M-M302:+	016 .4	
+M-W325	2	+M-X034:6	+M-M302:-	016 .6	
+M-W326	1	+M-X034:9	+M-B326:11	016 .4	
+M-W326	2	+M-X034:10	+M-B326:12	016 .4	
+M-W326	3	+M-X034:11	+M-B326:21	016 .4	
+M-W326	4	+M-X034:12	+M-B326:22	016 .4	
+M-W326	5	+M-X034:13	+M-B326:31	016 .4	
+M-W326	6	+M-X034:14	+M-B326:32	016 .4	
	GNYE				
+M-W327	1	+M-X020:44	+M-Y309:1	050 .5	
+M-W327	2	+M-X020:45	+M-Y309:2	050 .6	
+M-W327	GNYE	+M-X020:E4	+M-Y309:E	050 .6	
+M-W328	1	+M-X020:46	+M-Y310:1	050 .5	
+M-W328	2	+M-X020:47	+M-Y310:2	050 .6	
+M-W328	GNYE	+M-X020:E5	+M-Y310:E	050 .6	
+M-W329	1	+M-X020:48	+M-Y313:1	052 .5	
+M-W329	2	+M-X020:49	+M-Y313:2	052 .6	
+M-W329	GNYE	+M-X020:E6	+M-Y313:E	052 .6	
+M-W330	BK	+M-X031:101	+M-R300:Z	007 .9	
+M-W330	L.BU	+M-X031:103	+M-R300:Y	007 .10	
+M-W330	BN	+M-X031:102	+M-R300:X	007 .9	
+M-W330	GNYE	+M-X031:E	+M-R300:E	007 .10	
+M-W331	BN	+M-X031:105	+M-R301:1	008 .7	
+M-W331	L.BU	+M-X031:106	+M-R301:2	008 .8	
+M-W331	GNYE	+M-X031:E	+M-R301:E	008 .8	
+M-W333	1	+M-X031:8	+M-Y311:1	050 .5	
+M-W333	2	+M-X031:9	+M-Y311:2	050 .6	
+M-W333	GNYE	+M-X031:E	+M-Y311:E	050 .6	
+M-W334	1	+M-X031:10	+M-Y312:1	050 .5	
+M-W334	2	+M-X031:11	+M-Y312:2	050 .6	
+M-W334	GNYE	+M-X031:E	+M-Y312:E	050 .6	
+M-W400	1	+M-X040:1	+M-B400:21	027 .3	
+M-W400	2	+M-X040:2	+M-B400:11	027 .3	
+M-W400	3	+M-X040:3	+M-B400:12	027 .3	
+M-W400	4	+M-X040:4	+M-B400:22	027 .3	
	GNYE				
+M-W401	1	+M-X040:5	+M-B401:21	027 .4	
+M-W401	2	+M-X040:6	+M-B401:11	027 .4	
+M-W401	3	+M-X040:7	+M-B401:12	027 .4	
+M-W401	4	+M-X040:8	+M-B401:22	027 .4	
	GNYE				
+M-W402	1	+M-X040:9	+M-B402:21	027 .5	
+M-W402	2	+M-X040:10	+M-B402:11	027 .5	
+M-W402	3	+M-X040:11	+M-B402:12	027 .6	
+M-W402	4	+M-X040:12	+M-B402:22	027 .6	
	GNYE				
+M-W403	1	+M-X040:13	+M-B403:21	027 .7	
+M-W403	2	+M-X040:14	+M-B403:11	027 .7	
+M-W403	3	+M-X040:15	+M-B403:12	027 .7	
+M-W403	4	+M-X040:16	+M-B403:22	027 .7	
	GNYE				
+M-W404	2	+M-X040:18	+M-S404:21	025 .6	
+M-W404	1	+M-X040:17	+M-S404:11	025 .6	
+M-W404	3	+M-X040:19	+M-S404:22	025 .7	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 014 / 015

RELEASED

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Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W404	4	+M-X040:20	+M-S404:12	025 .7	
	GNYE				
+M-W405	1	+M-S406:12	+M-S407:11	025 .8	
+M-W405	2	+M-S406:22	+M-S407:21	025 .8	
	GNYE				
+M-W406	1	+M-X040:21	+M-S406:11	025 .7	
+M-W406	2	+M-X040:22	+M-S406:21	025 .7	
	GNYE				
+M-W407	1	+M-X040:24	+M-S407:12	025 .9	
+M-W407	2	+M-X040:23	+M-S407:22	025 .9	
	GNYE				
+M-W408	BN	+M-X040:25	+M-B404:	030 .4	
+M-W408	BU	+M-X040:26	+M-B404:	030 .4	
+M-W408	BK	+M-X040:27	+M-B404:	030 .5	
+M-W409	BN	+M-X040:28	+M-B405:	037 .4	
+M-W409	BU	+M-X040:29	+M-B405:	037 .4	
+M-W409	BK	+M-X040:30	+M-B405:	037 .5	
+M-W412	1	+M-X040:44	+M-P400:1	032 .5	
+M-W412	2	+M-X040:45	+M-P400:3	032 .5	
+M-W413	1	+M-X050:35	+M-B413:21	027 .6	
+M-W413	2	+M-X050:36	+M-B413:11	027 .6	
+M-W413	3	+M-X050:37	+M-B413:12	027 .7	
+M-W413	4	+M-X050:38	+M-B413:22	027 .7	
	GNYE				
+M-W416	1	+M-X040:46	+M-X410:4	054 .5	
+M-W416	2	+M-X040:47	+M-X410:3	054 .5	
+M-W416	3	+M-X040:48	+M-X410:2	054 .5	
+M-W416	4	+M-X040:49	+M-X410:1	054 .5	
	5				
+M-W416	5	+M-X040:50	+M-X410:0	054 .7	
	GNYE				
+M-W417	1	+M-X040:46	+M-X414:4	054 .5	
+M-W417	2	+M-X040:47	+M-X414:1	054 .5	
+M-W417	3	+M-X040:48	+M-X414:2	054 .5	
+M-W417	4	+M-X040:49	+M-X414:3	054 .5	
+M-W417	5	+M-X040:50	+M-X414:0	054 .7	
	6				
	GNYE				
+M-W418	1	+M-X040:37	+M-P400:2:2	035 .3	
+M-W418	2	+M-X040:39	+M-P400:2:1	035 .5	
+M-W418	3	+M-X040:33	+M-P400:2:4	035 .5	
+M-W418	4	+M-X040:36	+M-P400:2:7	035 .5	
	GNYE				
+M-W420	WH	+C-X110:2	+M-L402:2	014 .4	
+M-W420	BN	+C-X110:3	+M-L402:3	014 .4	
+M-W420	YE	+C-X110:4	+M-L402:4	014 .4	
+M-W420	GN	+C-X110:5	+M-L402:5	014 .4	
+M-W420	SH	+C-X110:1	+M-L402:1	014 .4	
+M-W420	SH	+M-W420:	+M-L402:1	014 .2	
+M-W420	SH	+M-W420:	+M-L402:1	014 .2	
+M-W421	WH	+C-X110:9	+M-L403:4	014 .4	
+M-W421	BN	+C-X110:8	+M-L403:3	014 .4	
+M-W421	YE	+C-X110:7	+M-L403:2	014 .4	
+M-W421	GN	+C-X110:6	+M-L403:1	014 .4	

Drawing remarks

Tetra Pak

Designer TEAN | Date 12/05/02 | Machine TCA/P1

ECM No 82534 | Page type | Denomination CABLE CONNECTION LIST

Company Tetra Pak Carton Ambient AB | Bill of material 45159-0100 | Drawing No. 2578566-0007 | Doc. type ELD | Version AA | Page 015 / 016

Cable connection list

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W421	SH	+C-X110:10	+M-L403:5	014 .4	
+M-W421	SH	+M-W421:	+M-L403:5	014 .3	
+M-W421	SH	+M-W421:	+M-L403:5	014 .3	
+M-W422	BN	+M-X050:39	+M-B422:	045 .4	
+M-W422	BU	+M-X050:40	+M-B422:	045 .4	
+M-W422	BK	+M-X050:41	+M-B422:	045 .5	
+M-W423	BN	+M-X050:42	+M-B423:	045 .4	
+M-W423	BU	+M-X050:43	+M-B423:	045 .4	
+M-W423	BK	+M-X050:44	+M-B423:	045 .5	
+M-W430	2	+M-X040:102	+M-E400:2	006 .3	
+M-W430	1	+M-X040:101	+M-E400:1	006 .2	
+M-W430	GNYE	+M-X040:E	+M-E400:E	006 .3	
+M-W431	2	+M-X040:104	+M-E401:2	006 .4	
+M-W431	1	+M-X040:103	+M-E401:1	006 .3	
+M-W431	GNYE	+M-X040:E	+M-E401:E	006 .5	
+M-W433	2	+M-X040:108	+M-E403:2	006 .8	
+M-W433	1	+M-X040:107	+M-E403:1	006 .7	
+M-W433	GNYE	+M-X040:E	+M-E403:E	006 .8	
+M-W440	1	+M-X400:1	+M-X440:1	011 .4	
+M-W441	1	+M-X401:1	+M-X441:1	011 .7	
+M-W501	1	+M-X050:3	+M-B501:13	038 .3	
+M-W501	2	+M-X050:4	+M-B501:14	038 .5	
+M-W502	1	+M-X050:5	+M-B502:2	038 .4	
+M-W502	2	+M-X050:6	+M-B502:1	038 .5	
+M-W506	1	+M-X050:9	+M-Y503:1	048 .5	
+M-W506	2	+M-X050:10	+M-Y503:2	048 .6	
+M-W506	GNYE	+M-X050:E	+M-Y503:E	048 .6	

Cable	Core	From	To	Page.Col.	Option
+M-W507	1	+M-X050:11	+M-B505:21	027 .3	
+M-W507	2	+M-X050:12	+M-B505:11	027 .3	
+M-W507	3	+M-X050:13	+M-B505:12	027 .3	
+M-W507	4	+M-X050:14	+M-B505:22	027 .3	
	GNYE				
+M-W508	1	+M-X050:15	+M-B506:21	027 .5	
+M-W508	2	+M-X050:16	+M-B506:11	027 .5	
+M-W508	3	+M-X050:17	+M-B506:12	027 .6	
+M-W508	4	+M-X050:18	+M-B506:22	027 .6	
	GNYE				
+M-W511		+M-X050:31	+M-B504:RDBU	029 .4	
+M-W511		+M-X050:30	+M-B504:GYPK	029 .4	
+M-W511		+M-X050:21	+M-B504:RD	029 .4	
+M-W511		+M-X050:28	+M-B504:BU	029 .4	
+M-W511		+M-X050:20	+M-B504:WH	029 .4	
+M-W511		+M-X050:22	+M-B504:BN	029 .4	
+M-W511		+M-X050:23	+M-B504:GN	029 .4	
+M-W511		+M-X050:24	+M-B504:YE	029 .4	
+M-W511		+M-X050:25	+M-B504:GY	029 .4	
+M-W511		+M-X050:26	+M-B504:PK	029 .4	
+M-W511		+M-X050:27	+M-B504:BK	029 .4	
+M-W511		+M-X050:29	+M-B504:VT	029 .4	
+M-W520	1	+C-X200:1	+M-M500:U	012 .5	
+M-W520	2	+C-X200:2	+M-M500:V	012 .5	
+M-W520	3	+C-X200:3	+M-M500:W	012 .5	
+M-W520	GNYE	+C-X200:E	+M-M500:⏚	012 .5	
+M-W520	SH	+C-X200:4	+C-J022:	012 .5	

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1		
ECM No 82534	Page type	Denomination CABLE CONNECTION LIST		
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0007	Doc. type ELD	Version AA	Page 016 / 017

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1 2 3 4 5 6 7 8 9 10

Cable Connection List of 2578566-0003

Cable	Core	From	To	Page.Col.	Option
+M-W630	1	+C-X209:1	+M-M600:U	010 .1	
+M-W630	2	+C-X209:2	+M-M600:V	010 .1	
+M-W630	3	+C-X209:3	+M-M600:W	010 .1	
+M-W630	GNYE	+C-X209:E	+M-M600:⏚	010 .2	
+M-W700	BN	+M-X050:32	+M-B700:	038 .4	
+M-W700	BU	+M-X050:33	+M-B700:	038 .4	
	BK				
+M-W701	BN	+M-X050:32	+M-B701:	038 .4	
+M-W701	BU	+M-X050:33	+M-B701:	038 .4	
+M-W701	BK	+M-X050:34	+M-B701:	038 .5	

Cable	Core	From	To	Page.Col.	Option

Drawing remarks

Tetra Pak

Designer TEAN	Date 12/05/02	Machine TCA/P1	
ECM No 82534	Page type	Denomination CABLE CONNECTION LIST	
Company Tetra Pak Carton Ambient AB	Bill of material 45159-0100	Drawing No. 2578566-0007	Doc. type ELD / Version AA / Page 017 / 001

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EM1.1TS700010.fm

11 Mains connection

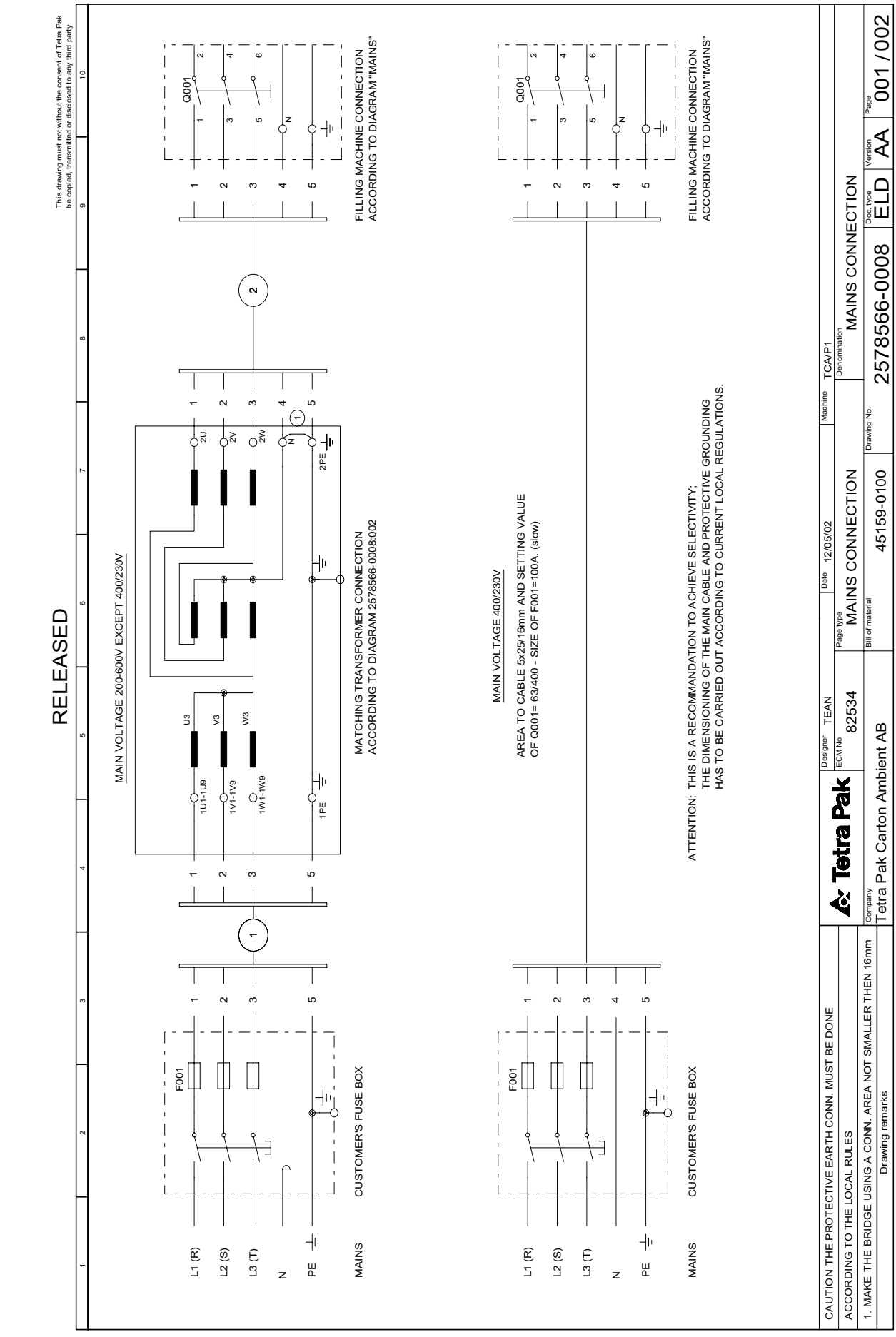
EM1.1TS700011.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description . . . . . Identity Prt Vs
MAINS CONNECTION . . . . . 2578566-0008 AA

EM1.1TS700011.fm



EM1.1TS700011.fm

RELEASED

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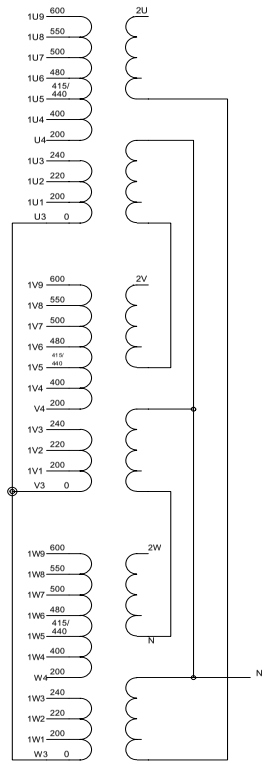
1	2	3	4	5	6	7	8	9	10

MAIN VOLTAGE	FUSES (SLOW) ① F001	AREA TO CU CABLES NO. 1	AREA TO CU CABLES NO. 2	SETTING VALUE Q002	CONNECTIONS ON MATCHING TRANSFORMER MAINS	TAP	CONNECT
V	A	mm²	mm²	A			
600/347 3x600	100	3x16/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U9 1V9 1W9 N ⏚	1U3 - U4 1V3 - V4 1W3 - W4
550/318 3x550	100	3x16/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U8 1V8 1W8 N ⏚	1U3 - U4 1V3 - V4 1W3 - W4
500/289 3x500	125	3x25/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U7 1V7 1W7 N ⏚	1U3 - U4 1V3 - V4 1W3 - W4
480/277 3x480	125	3x25/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U6 1V6 1W6 N ⏚	1U3 - U4 1V3 - V4 1W3 - W4
440/254 3x440	125	3x25/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U5 1V5 1W5 N ⏚	1U2 - U4 1V2 - V4 1W2 - W4
415/240 3x415	125	3x25/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U5 1V5 1W5 N ⏚	1U1 - U4 1V1 - V4 1W1 - W4
3x400 [3×380]	160	3x25/16	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U4 1V4 1W4 N ⏚	1U1 - U4 1V1 - V4 1W1 - W4
240/140 3x240	250	3x70/35	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U3 1V3 1W3 N ⏚	U3 - U4 1U3-1U6 V3 - V4 1V3-1V6 W3 - W4 1W3-1W6
220/127 3x220	250	3x70/35	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U2 1V2 1W2 N ⏚	U3 - U4 1U2-1U5 V3 - V4 1V2-1V5 W3 - W4 1W2-1W5
200/115 3x200	315	3x95/50	4x25/16	63/400	PHASE L1 PHASE L2 PHASE L3 N N GROUND PE	1U1 1V1 1W1 N ⏚	U3 - U4 1U1-1U4 V3 - V4 1V1-1V4 W3 - W4 1W1-1W4

MATCHING TRANSFORMER
90245-0022

Y/Z II-WIRED



1. RECOMMENDED MAIN FUSE TO ACHIEVE SELECTIVITY

Drawing remarks

Tetra Pak

Designer	Date	Machine
TEAN	12/05/02	TCA/P1

ECM No	Page type	Denomination
82534		MAINS CONNECTION

Company	Bill of material	Drawing No.	Doc. type	Version	Page
Tetra Pak Carton Ambient AB	45159-0100	2578566-0008	ELD	AA	002 /

12 Program documents

EM1.1TS700012.fm

Table of contents

CE-list 45159-0100 Electrical document
Lead ECM: 83155

Description	Identity Prt Vs
PLC PROGRAM	45282-0001 AA
PLC PROGRAM	45282-0002 AA
PLC PROGRAM	45282-0005 AA
PLC PROGRAM	45282-0006 AA
PLC PROGRAM	45282-0007 AA
PLC PROGRAM	45282-0008 AA
PLC PROGRAM	45282-0009 AA
PLC PROGRAM	45282-0010 AA
PLC PROGRAM	45282-0011 AA
PLC PROGRAM	45282-0012 AA
PLC PROGRAM	45282-0013 AA
PLC PROGRAM	45282-0014 AA
PLC PROGRAM	45282-0015 AA
PLC PROGRAM	45282-0016 AA
PLC PROGRAM	45282-0017 AA
PLC PROGRAM	45282-0018 AA
PLC PROGRAM	45282-0019 AA
PLC PROGRAM	45282-0020 AA
PLC PROGRAM	45282-0021 AA
PLC PROGRAM	45282-0022 AA
PLC PROGRAM	45282-0023 AA
PLC PROGRAM	45282-0024 AA

EM1.1TS700012.fm

```
¦[     VARIABLE DECLARATIONS      ]
¦
¦[       BLOCK DECLARATIONS       ]

                +-------+
        SUBR  1 ¦  SS   ¦       LANG: LD  (* Step up/down logic               *)
                +-------+

                +-------+
        SUBR  2 ¦  OP   ¦       LANG: LD  (* OP Panel Multiplexer program     *)
                +-------+

                +-------+
        SUBR  3 ¦ ALARM ¦       LANG: LD  (* Alarm administration             *)
                +-------+

                +-------+
        SUBR  4 ¦ENCODER¦       LANG: LD  (* Encoder rollover program         *)
                +-------+

                +-------+
        SUBR  5 ¦OP_IND ¦       LANG: LD  (* Indications on OP Panel          *)
                +-------+

                +-------+
        SUBR  6 ¦ SPRAY ¦       LANG: LD  (* Spraying functions               *)
                +-------+

                +-------+
        SUBR  7 ¦ LUBE  ¦       LANG: LD  (* Lubrication and cleaning         *)
                +-------+

                +-------+
        SUBR  8 ¦  OUT  ¦       LANG: LD  (* Outputs, common to several subs  *)
                +-------+

                +-------+
        SUBR  9 ¦ HEAT  ¦       LANG: LD  (* Heating / Preheating fillsystem  *)
                +-------+

                +-------+
        SUBR 10 ¦ TUBE  ¦       LANG: LD  (* Tube sealing, freeloop control   *)
                +-------+

                +-------+
        SUBR 11 ¦ PROD  ¦       LANG: LD  (* Production and ready for produc. *)
                +-------+

                +-------+
        SUBR 12 ¦DESIGN ¦       LANG: LD  (* Design correction and control    *)
                +-------+

                +-------+
        SUBR 13 ¦FILLING¦       LANG: LD  (* Filling system level regulator   *)
                +-------+

                +-------+
        SUBR 14 ¦ WASTE ¦       LANG: LD  (* Package distribution and waste   *)
                +-------+

                +-------+
        SUBR 15 ¦  JAW  ¦       LANG: LD  (* Jaw fault detection, printing    *)
                +-------+

                +-------+
        SUBR 17 ¦ INIT  ¦       LANG: LD  (* Variable init at powerup         *)
                +-------+

                +-------+
 .001 INTR 0001 ¦1T0001 ¦       LANG: LD  (* Encoder+TS output+design sensor  *)
                +-------+

                +-------+
        SUBR 20 ¦MACH_AD¦       LANG: LD  (* Machine adaption                 *)
                +-------+

                +-------+
        SUBR 21 ¦ ASUB  ¦       LANG: LD  (* New automatic splicing unit      *)
                +-------+

                +-------+
        SUBR 22 ¦FACT_SE¦       LANG: LD  (* Factory setting                  *)
                +-------+

                +-------+
        SUBR 23 ¦CUST_SE¦       LANG: LD  (* Customer settings                *)
                +-------+

                +-------+
        SUBR 24 ¦WEB_GUI¦       LANG: LD  (* Web guiding                      *)
                +-------+
```


EM1.1TS700012.fm

```
                +--------+
        SUBR 19 ¦ PLMS   ¦       LANG: LD  (* PLMS communication              *)
                +--------+

                +--------+
        SUBR 18 ¦  ASU   ¦       LANG: LD  (* Automatic slice unit            *)
                +--------+

¦[     START OF PROGRAM LOGIC     ]
¦
¦ (*****************************************************************************)
¦ (* Variables init at powerup                                                 *)
¦ (*****************************************************************************)
¦
¦FST_SCN                                                                        << RUNG 6  STEP #0003 >>
¦%S0001  +-------------+
+--¦ +---¦ CALL  INIT  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ (*****************************************************************************)
¦ (* Step logic for machine state.                                             *)
¦ (*                                                                           *)
¦ (* Note that positive logic has been used all thru this program.             *)
¦ (* There are no negated coils or coil that says "no this or that active"    *)
¦ (*****************************************************************************)
¦
¦ALW_ON                                                                         << RUNG 8  STEP #0006 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL   SS   +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 9  STEP #0008 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL   OP   +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 10  STEP #0010 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  ALARM +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 11  STEP #0012 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL ENCODER+
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 12  STEP #0014 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL OP_IND +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 13  STEP #0016 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  HEAT  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 14  STEP #0018 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  TUBE  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 15  STEP #0020 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  SPRAY +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 16  STEP #0022 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  PROD  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                                         << RUNG 17  STEP #0024 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL DESIGN +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
```


EM1.1TS700012.fm

```
¦ALW_ON                                                          << RUNG 18  STEP #0026 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL FILLING+
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 19  STEP #0028 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  WASTE +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 20  STEP #0030 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL  LUBE  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 21  STEP #0032 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL   JAW  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 22  STEP #0034 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL   OUT  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 23  STEP #0036 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL   ASU  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦W_GUIDE                                                         << RUNG 24  STEP #0038 >>
¦%M0924  +-------------+
+--¦ +---¦ CALL WEB_GUI+
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦PLMS_ON                                                         << RUNG 25  STEP #0040 >>
¦%M0923  +-------------+
+--¦ +---¦ CALL  PLMS  +
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦ALW_ON                                                          << RUNG 26  STEP #0042 >>
¦%S0007  +-------------+
+--¦ +---¦ CALL MACH_AD+
¦        ¦ (SUBROUTINE)¦
¦        +-------------+
¦
¦[      END OF PROGRAM LOGIC      ]
¦
```

EM1.1TS700012.fm

```
================================================================================
==========  INPUT  (%I)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- -------------------------------------
%I0001   1T0001   ENC_B1   Encoder bit 1 gray
                           -] [- 16
                           -]/[- 16
                           FBIO  5
%I0002   1T0001   ENC_B2   Encoder bit 2 gray
                           -] [- 15
                           -]/[- 15
%I0003   1T0001   ENC_B3   Encoder bit 3 gray
                           -] [- 14
                           -]/[- 14
%I0004   1T0001   ENC_B4   Encoder bit 4 gray
                           -] [- 13
                           -]/[- 13
%I0005   1T0001   ENC_B5   Encoder bit 5 gray
                           -] [- 12
                           -]/[- 12
%I0006   1T0001   ENC_B6   Encoder bit 6 gray
                           -] [- 11
                           -]/[- 11
%I0007   1T0001   ENC_B7   Encoder bit 7 gray
                           -] [- 10
                           -]/[- 10
%I0008   1T0001   ENC_B8   Encoder bit 8 gray
                           -] [- 9
                           -]/[- 9
%I0009   1T0001   ENC_B9   Encoder bit 9 gray
                           -] [- 8
                           -]/[- 8
%I0010   1T0001   ENC_B10  Encoder bit 10 gray
                           -] [- 7
%I0011   ALARM    B205     Design sensor
                           -] [- 80
         1T0001            -] [- 52
%I0012   1T0001   B404     Sensor indication jaw 1 side 1
                           -] [- 34
%I0013   1T0001   B125     Design sensor splice
                           -] [- 56
         ASU               -] [- 54
%I0014   WASTE    B126     Splice detector
                           -]/[- 70
         PLMS              -] [- 98
%I0015   1T0001   B146     Design sensor for Inkjet printer
                           -] [- 58
%I0016   1T0001            Spare
                           FBIO  5
%I0017   ALARM    OVERLD   Overload protections
                           -] [- 227
                           -]/[- 228
         OUT               -] [- 27
%I0018   SS       E_STOP   Safety module, 1=Emergency stop
                           -] [- 19
                           -]/[- 35
         ALARM             -] [- 239,244,307
                           -]/[- 224,243,306,311
         OUT               -]/[- 6,25
         PLMS              -]/[- 71
%I0019   SS       DOOR_SM  Safety module, Door monitor
                           -]/[- 39
         ALARM             -] [- 311
                           -]/[- 310
         OUT               -]/[- 6,16,17,25,35
         PROD              -]/[- 11
         WEB_GUI           -]/[- 8
         ASU               -]/[- 24
%I0020   ALARM    ASU_SM   Safety module, Infeed
                           -]/[- 142
         OP_IND            -] [- 19
         PLMS              -] [- 194
                           -]/[- 73
         ASU               -]/[- 24,37,38,40,41,43,44,56,57
%I0022   SS       B001-    Door monitor (all doors)
                           -] [- 39,48
         ALARM             -] [- 235,247,251,314
                           -]/[- 236,248,252,315
         OUT               -] [- 70
         PROD              -] [- 11
         PLMS              -] [- 73
%I0023   WEB_GUI  B227     Web adjustement in area, Left
                           -] [- 12
                           -]/[- 5
%I0024   OP       S400H    Short stop at backside
                           -] [- 47
%I0025   ALARM    G004_19  Alarm freq. Web tension motor
                           -] [- 43
                           -]/[- 44
%I0026   ALARM    B200-    Door monitor, Sterile zone
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -] [- 223,231,236,248,252,350
                            -]/[- 224,232,351
         OUT                -] [- 54
%I0027   ALARM    G002_19   Alarm freq. Main motor
                            -] [- 227
         OUT                -] [- 27
         PROD               -] [- 45
%I0028   ALARM    B201      Door monitor peroxide bath
                            -] [- 247,251
                            -]/[- 248,252
         SPRAY              -]/[- 20,22
         PROD               -] [- 11
         PLMS               -] [- 73
%I0030   ALARM    G003_19   Alarm freq. Free loop infeed m.
                            -] [- 30
                            -]/[- 31
%I0031   OP_IND   Z102_3    Surge voltage supervision
                            -]/[- 5
%I0032   ALARM    K71_14    Sterilization element low power
                            -] [- 72
                            -]/[- 73
%I0033   ALARM    B100-1    Paper supply monitor
                            -] [- 11
                            -]/[- 10
         ASU                -] [- 31,59
                            -]/[- 59
%I0034   HEAT     B102      Paper web monitor
                            -] [- 42
                            -]/[- 43
         ASU                -] [- 61,62
%I0035   ALARM              Spare
                            -] [- 283
                            -]/[- 282
%I0036   ASU      B105      Broken LS strip monitor
                            -] [- 78,79
%I0037   WEB_GUI  B228      Web adjustment in area, Right
                            -] [- 11
                            -]/[- 5
%I0038   ALARM    INK_RE    InkJet fault, 0=Red alarm
                            -] [- 338
                            -]/[- 339
%I0039   ALARM    INK_YE    InkJet fault, 0=Yellow alarm
                            -] [- 298
                            -]/[- 299
%I0040   ALARM    INK_GR    InkJet status, 1=green (OK)
                            -] [- 298
                            -]/[- 299
%I0041   ALARM    WG_F      Web guiding fault
                            -] [- 61
                            -]/[- 60
%I0042   ALARM    B307      Pressure monitor sterile air
                            -] [- 97
                            -]/[- 98
         HEAT               -] [- 9
%I0043   SS       B300      Cleaning pipe inlet in position
                            -] [- 49
                            -]/[- 37
         ALARM              -] [- 110,113
                            -]/[- 109,114
%I0044   SS       B301      Air pipe in position
                            -] [- 38
                            -]/[- 49
         ALARM              -] [- 109,114
                            -]/[- 110,113
%I0045   ALARM    B302      B-valve open
                            -] [- 137,138
                            -]/[- 137,138
         OP_IND             -] [- 98,99
                            -]/[- 100
         SPRAY              -] [- 36,42
                            -]/[- 39
         HEAT               -] [- 19
                            -]/[- 21
%I0046   ALARM    B315      A-valve closed, no product
                            -] [- 294,295
                            -]/[- 294,295
         PROD               -] [- 30
                            -]/[- 61
%I0047   ALARM    B316      C-valve closed, no steam barrier
                            -] [- 286,287
                            -]/[- 286,287
         LUBE               -] [- 9
         PROD               -] [- 15
%I0048   SS       B303      Regulating valve open
                            -]/[- 37
         ALARM              -] [- 129,134
                            -]/[- 130,133
%I0049   SS       B304      Product pipe in position
                            -] [- 37
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -]/[- 48
         ALARM              -] [- 117,122
                            -]/[- 118,121
%I0050   SS       B305      Cleaning pipe inside in position
                            -] [- 48
                            -]/[- 37
         ALARM              -] [- 118,121
                            -]/[- 117,122
%I0051   WEB_GUI  B216      Web adjustment left
                            -] [- 12
                            -]/[- 11
%I0052   WEB_GUI  B217      Web adjustment right
                            -] [- 12
                            -]/[- 11
%I0053   SS       B317      Cleaning pipe/plug in position
                            -] [- 48
         ALARM              -] [- 370
                            -]/[- 371
%I0054   ALARM    B405      Draining valve closed
                            -] [- 362,363,366
                            -]/[- 362,367
%I0055   ALARM    B206      Guard squee-gee rollers
                            -] [- 68,69
                            -]/[- 68,69
%I0056   OUT      S403H     Bleeding of hydraulic system
                            -] [- 121
%I0057   WASTE    B700-1    External package counter
                            -] [- 8
         PLMS               -] [- 20
%I0058   SS       B314      Pressure monitor main air supply
                            -] [- 111
         ALARM              -] [- 255
                            -]/[- 257
         HEAT               -] [- 33
%I0060   ALARM    B501      Pressure monitor lubrication oil
                            -] [- 203,207,219
                            -]/[- 204,208,220
%I0061   SS       B502      Level monitor lubrication oil
                            -] [- 48
         ALARM              -] [- 211,215
                            -]/[- 212,216
%I0062   ASU      B127      Web splice end position
                            -] [- 25
%I0063   ASU      B128      Knife turn end position
                            -] [- 26
%I0064   ASU      B129      Knife turn start position
                            -] [- 25,27
%I0065   ALARM    A20_24    LS-element temperature OK
                            -] [- 162,167,169
                            -]/[- 164,171
         HEAT               -] [- 7
%I0066   SS       A21_24    SA-element temperature OK
                            -] [- 39,43
         ALARM              -] [- 34
                            -]/[- 36
         HEAT               -] [- 7
         PROD               -] [- 9
%I0067   SS       A22_24    Air heater temperature OK
                            -] [- 42
         ALARM              -] [- 153,157
                            -]/[- 154,159
         PROD               -] [- 9
%I0069   SS       A24_24    Steam temperature OK
                            -] [- 42
         ALARM              -] [- 85,89,93
                            -]/[- 86,90,94
         PROD               -] [- 10
%I0071   ALARM    A25_24    Steril. house temperature OK
                            -] [- 76
                            -]/[- 77
         PROD               -] [- 9
%I0072   OUT      A26_20    Second setpoint for preheater
                            -] [- 52
%I0073   OP       S200H     Short stop superstructure
                            -] [- 47
%I0074   OUT      S201H     Inching main motor, superstruct.
                            -] [- 15
%I0075   SS       S003      Service key switch (1=service)
                            -] [- 14,43,83
                            -]/[- 39,43,82
         ALARM              -] [- 52,351
                            -]/[- 48,69,77,86,90,94,154,232
         OP_IND             -] [- 8
                            -]/[- 102
         SPRAY              -] [- 50
                            -]/[- 11
         LUBE               -]/[- 7,9
         OUT                -] [- 16,17,35,64
                            -]/[- 16,92
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         HEAT               -] [- 12
         TUBE               -]/[- 15
         PROD               -] [- 10,45
                            -]/[- 9,36
         PLMS               -] [- 149
                            -]/[- 13
%I0076   SS       S004      Cleaning switch (1=final clean)
                            -] [- 22,32
         ALARM              -]/[- 90,94
         OP_IND             -] [- 6
         LUBE               -] [- 9
                            -]/[- 9
         OUT                -] [- 134
                            -]/[- 84
         PLMS               -] [- 77
                            -]/[- 75
%I0078   WASTE    S014_1    Distributor setting 1  ( 8 pc )
                            -] [- 8,12,25
%I0079   WASTE    S014_2    Distributor setting 2  ( 25 pc )
                            -] [- 8,13,25
%I0080   WASTE    S014_3    Distributor setting 3  ( 50 pc )
                            -] [- 8,14,25
%I0081   JAW      A40_230   TPIH 1 ready
                            -]/[- 13
%I0082   JAW      A41_230   TPIH 2 ready
                            -]/[- 14
%I0083   SS       B134      Free loop infeed top position
                            -] [- 27
         ALARM              -] [- 19
                            -]/[- 18
         PROD               -] [- 7
%I0084   SPRAY    K049      External product signal
                            -] [- 79
         PROD               -] [- 10
%I0085   LUBE     K050      External cleaning completed sign
                            -] [- 10
%I0086   ALARM    B130      Broken LS strip monitor reel 2
                            -] [- 347
                            -]/[- 346
         ASU                -] [- 68
                            -]/[- 72
%I0087   ALARM    B131      Broken LS strip monitor reel 1
                            -] [- 343
                            -]/[- 342
         ASU                -] [- 68
                            -]/[- 72
%I0088   ASU      B133      Free loop infeed roller position
                            -]/[- 53
%I0089   ASU      S104H     LS strip splice ready
                            -] [- 71
%I0090   SS       A30_18    High level peroxide bath
                            -]/[- 43
         ALARM              -] [- 261
                            -]/[- 260
         PROD               -]/[- 9
%I0091   ALARM    A32_18    Membrane leakage
                            -] [- 48,52
                            -]/[- 47
%I0092   ALARM    A33_18    Spray container high level
                            -] [- 14
                            -]/[- 15
         SPRAY              -] [- 28
%I0093   ALARM    A33_16    Spray container low level
                            -] [- 22
                            -]/[- 23
         SPRAY              -] [- 32
%I0094   ALARM    B207      Monitor upper front bending rol.
                            -] [- 269
                            -]/[- 269
%I0095   ALARM    B208      Monitor upper back bending rol.
                            -] [- 270
                            -]/[- 270
%I0096   ALARM    B209      Monitor door Freeloop motor
                            -] [- 68,69
                            -]/[- 68,69
%I0097   OP       S007H     Alarm reset / Lamp test
                            -] [- 43,45
         ALARM              -] [- 403
         JAW                -] [- 16
         PLMS               -] [- 143
%I0098   OP       S004H     Short stop
                            -] [- 47
%I0099   WASTE    S005H     Package disposal
                            -] [- 82
                            -]/[- 5
%I0100   LUBE     S006H     Manual lubrication
                            -] [- 19,31,36,52
                            -]/[- 42
%I0101   OUT      S003H     Inching main motor
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
                           -] [- 15
%I0102   SS       S008H    Cleaning
                           -] [- 91
                           -]/[- 37
%I0103   OUT      S009     Machine light
                           -] [- 94
%I0104   SS       S001H    Machine program up
                           -] [- 7,9
         OUT               -] [- 62,66,137
         TUBE              -] [- 7,9,11,17
                           -]/[- 21
         PROD              -] [- 45
                           -]/[- 7,57
         PLMS              -] [- 110,128
%I0105   SS       S002H    Machine program down
                           -] [- 11,13
         PLMS              -] [- 111,129
%I0106   ALARM    EM-STOP  Emergency stop button
                           -]/[- 240
%I0107   SS       A031_18  Production level peroxide bath
                           -] [- 43
         ALARM             -] [- 55,64,65
                           -]/[- 57
         SPRAY             -] [- 11
                           -]/[- 7
         OUT               -] [- 16
         HEAT              -] [- 35
         PROD              -] [- 9
%I0108   OUT      S010H    Calibration
                           -] [- 17,35,124,137
                           -]/[- 16
%I0109   OP       S101H    Short stop splice unit
                           -] [- 47
%I0110   PLMS     S102     Splice button
                           -] [- 96
         ASU               -] [- 24
%I0111   ASU      S103     Lock / release paper web
                           -] [- 7
%I0112   ALARM    B147     Web splice table out
                           -] [- 141,142
                           -]/[- 141,142
         ASU               -] [- 24
%I0115   SPRAY             -] [- 23

================================================================================
==========  OUTPUT  (%Q)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%Q0001   ALARM    K001     Main motor Contactor
                           -] [- 279
         OP_IND            -] [- 80
         OUT               -] [- 30,35,54,99,124
                           -( )  6
         PROD              -] [- 13
         WEB_GUI           -] [- 8
%Q0002   ALARM    FR1_NVL  Main motor normal speed
                           -] [- 82,248
         LUBE              -] [- 27
         OUT               -] [- 25,27,32,54,62,99,111,135,138,141
                           -]/[- 17,119
                           -( )  13
         HEAT              -] [- 35
         TUBE              -] [- 13
         PROD              -] [- 45
         WASTE             -]/[- 54,56,58,60,62,64
         1T0001            -] [- 60
         WEB_GUI           -] [- 11,12
         PLMS              -] [- 5,7,45,47
         ASU               -] [- 55,59
%Q0004   OUT      K004     Power TS-sealing
                           -( )  30
         PROD              -] [- 45
%Q0005   SPRAY    K090     Main motor brake (1= release)
                           -( )  23
%Q0006   OUT      K006     Conveyor motor
                           -( )  33
%Q0007   ALARM    FR1_LOW  Inching low speed - Main motor
                           -] [- 248
         OP_IND            -] [- 74
         OUT               -] [- 25,32,135,141
                           -( )  23
         PLMS              -] [- 5,7,45,47
         ASU               -]/[- 63,80
%Q0008   OUT      FR1_ENA  Enable VFD main motor
                           -] [- 7,27,124
                           -( )  25
%Q0009   OUT      K009     Contactor for Freeloop VFD
                           -] [- 140
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  ------------------------------------
                            -( )  35
         ASU                -] [- 52
%Q0012   OUT      Y503      Solenoid Hydraulic pump
                            -( )  124
%Q0013   ALARM    K080      Peroxide pump Contactor
                            -] [- 56
         SPRAY              -( )  20
%Q0014   ALARM    K081      Spray pump Contactor
                            -] [- 15
         SPRAY              -( )  54
%Q0015   ALARM    K039      Peroxide pump reverse Contactor
                            -] [- 65
                            -]/[- 56
         SPRAY              -] [- 7
                            -( )  22
%Q0016   ALARM    K040      Spray pump reverse Contactor
                            -]/[- 15
         SPRAY              -( )  55
%Q0017   ALARM    K020      Paper splicing
                            -] [- 82
         OUT                -( )  37
         ASU                -] [- 55
%Q0018   ALARM    K021      LS element
                            -] [- 163,170
         OUT                -( )  40
         HEAT               -] [- 28
%Q0019   ALARM    K022      SA element
                            -] [- 35
         OUT                -( )  43
         HEAT               -] [- 28
%Q0020   ALARM    K023      Air superheater element
                            -] [- 158
         OUT                -( )  46
         HEAT               -] [- 28
%Q0021   OUT      K024      Control voltage and FAN
                            -] [- 17
                            -( )  48
%Q0022   OUT      K025      Air pre heating element
                            -] [- 52
                            -( )  50
         HEAT               -] [- 28
%Q0023   ALARM    K026      Paper web element
                            -] [- 73
         OUT                -( )  54
         PROD               -] [- 45
%Q0024   OUT      K041      Second setpoint LS element
                            -( )  62
%Q0025   OUT      K042      Second setpoint Preheater
                            -( )  52
%Q0026   WEB_GUI  K011      Stepmotor web adjustment
                            -] [- 11,12,13,14
                            -( )  8
%Q0027   OUT      Y205      Web tension pendulum roller
                            -( )  147
%Q0028   OUT      SAFETY    Safety power
                            -( )  70
%Q0029   SPRAY    Y311      Peroxide filling spray container
                            -( )  64
%Q0030   SPRAY    Y312      Air filling spray container
                            -( )  65
%Q0031   ALARM    Y309      Main air valve
                            -] [- 98
         OUT                -( )  72
%Q0032   ALARM    Y310      Sterile air valve
                            -] [- 98
         OUT                -( )  74
%Q0033   WASTE    K031      Production package aux relay
                            -( )  42
%Q0034   OUT      K032      Tot. consump. of packaging mtrl.
                            -( )  76
%Q0035   SPRAY    K033      Machine ready for production
                            -] [- 79
         OUT                -( )  78
%Q0036   OUT      K034      Machine in production
                            -( )  79
%Q0037   OUT      K035      Machine ready for cleaning
                            -( )  80
%Q0040   OUT      K038      Reset pulse safety module
                            -( )  82
%Q0041   ALARM    K051      Temperature monitor steam
                            -] [- 86,90,94
         OUT                -( )  84
%Q0042   OUT      K027      Preheating sterilization house
                            -( )  87
%Q0043   OUT      K053      Temp. monitor heat exchanger
                            -( )  89
%Q0044   PLMS     K057      Reset relay for PLMS
                            -( )  143
%Q0045   OUT      K045      Doorlocks, 1=Locked doors
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -( )  92
%Q0046   OUT      K056      Light in machine body
                            -( )  94
%Q0047   SPRAY              Spare
                            -( )  21
%Q0048   OUT      Y313      Tube flushing
                            -( )  138
%Q0049   OUT      K043      2nd SP Preh. elem. ster. house
                            -( )  96
%Q0050   OUT      K044      Spare
                            -( )  68
%Q0051   OUT      H403S     Bleeding hydraulic system
                            -( )  97
%Q0052   OUT      P001      Hour meter
                            -( )  99
%Q0053   WASTE    P003      Package counter
                            -] [- 42
                            -( )  40
         PLMS               -] [- 13
%Q0055   OUT      H400S     Short stop at backside
                            -( )  101
%Q0057   OUT      H410+4    Alarm device horn
                            -( )  103
%Q0058   ALARM    H411+5    Alarm lamp - red
                            -( )  443
%Q0059   ALARM    H412+6    Alarm lamp - yellow
                            -( )  445
%Q0060   ALARM    H413+7    Alarm lamp - blue
                            -( )  447
%Q0061   OUT      H200S     Short stop superstructure
                            -( )  105
%Q0062   OUT      H201S     Inching superstructure
                            -( )  107
%Q0063   OUT      H101S     Short stop splice unit
                            -( )  109
%Q0064   ASU      H104S     LS-strip splice ready
                            -( )  73
%Q0065   OUT      Y100      SA element, movement ,man.infeed
                            -] [- 113
                            -( )  111
%Q0066   WASTE    Y601      External package distributor
                            -( )  25
%Q0067   WASTE    Y600      Package waste
                            -( )  50
%Q0068   ALARM    Y502      Lubrication pump
                            -] [- 204,208,220
         LUBE               -( )  50
%Q0069   DESIGN   Y400      Design correction (small step)
                            -( )  27
%Q0070   DESIGN   Y401      Design correction (medium step)
                            -( )  28
%Q0071   DESIGN   Y402      Design correction (big steps)
                            -( )  29
%Q0073   ASU      Y122      Air on/off semi automatic infeed
                            -( )  37
%Q0074   ASU      Y120A     Web splice down and cut
                            -]/[- 41
                            -( )  40
%Q0075   ASU      Y120B     Web splice up
                            -( )  41
%Q0076   ASU      Y121      Web brake
                            -( )  38
%Q0077   ASU      K067      PM splice power
                            -( )  51
%Q0078   ASU      Y111A     Knife turn in
                            -( )  44
%Q0079   ASU      Y111B     Knife turn out
                            -]/[- 44
                            -( )  43
%Q0081   OUT      Y200      LS element, movement
                            -( )  118
         1T0001             FBIO  50
%Q0082   OUT      Y302      Cleaning cylinder,force reg open
                            -( )  126
%Q0083   ALARM    Y201      Upper bending roller
                            -] [- 269,270
                            -]/[- 269,270
         SPRAY              -( )  76
%Q0084   ALARM    Y306      AP valve B Sterilization
                            -] [- 137,138
                            -]/[- 137,138
         OUT                -( )  131
%Q0085   ALARM    Y305      AP valve A product
                            -] [- 184,188,294,295
                            -]/[- 294,295
         LUBE               -] [- 9
         OUT                -( )  128
%Q0086   ALARM    Y307      AP valve C Steam barrier (1=OFF)
                            -] [- 286,287
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -]/[- 286,287
         OUT                -( )  134
%Q0087   ALARM    Y202      Squee gee roller valve,0=release
                            -] [- 68,69
                            -]/[- 68,69
         OUT                -( )  137
%Q0088   SPRAY    Y314      Air for peroxide spraying
                            -( )  60
%Q0089   SPRAY    Y308      Spray nozzle cooling
                            -( )  59
%Q0090   ALARM    Y300      Spray valve
                            -] [- 23
         SPRAY              -( )  62
%Q0091   1T0001   A40_208   Pulse TS sealing side 1
                            -] [- 48
                            -( )  46
%Q0092   1T0001   A41_208   Pulse TS sealing side 2
                            -] [- 49
                            -( )  47
%Q0093   1T0001   P400      Inkjet print signal
                            -( )  63
%Q0096   OUT      Y204      LS heat reduction
                            -( )  119
         1T0001             FBIO  50
%Q0097   ASU      K028      Sealing block LS-strip, Infeed
                            -( )  49
%Q0098   ASU      K029      Paper splice element, Infeed
                            -( )  50
%Q0099   ASU      K066      Sealing block LS-strip, Infeed
                            -( )  74
%Q0101   ALARM    FR3_ENA   Free loop infeed enable
                            -] [- 31
         ASU                -( )  53
%Q0102   ALARM    FR4_ENA   Web tension enable
                            -] [- 44
         OUT                -] [- 143,144,145,146
                            -( )  141
%Q0106   OP       MUX_SYN   Sync pulse train
                            -( )  17
%Q0107   OP       B1_DP1    Board 1 Data 1 pulse train
                            -( )  21
%Q0108   OP       B1_DP2    Board 1 Data 2 pulse train
                            -( )  24
%Q0109   OP       B1_DP3    Board 1 data 3 pulse train
                            -( )  27
%Q0110   OP       B2_DP1    Board 2 data 1 pulse train
                            -( )  30
%Q0111   OP       B2_DP2    Board 2 data 2 pulse train
                            -( )  33
%Q0112   OP       B2_DP3    Board 2 data 3 pulse train
                            -( )  36
%Q0113   ALARM    Y110      Web locking
                            -] [- 359
         ASU                -] [- 56
                            -]/[- 57
                            -( )  47
%Q0116   OUT      Y112      SA element, movement
                            -( )  113
%Q0117   ASU      Y113      Strip splice
                            -( )  75
%Q0118   ASU      Y114      Strip magazine
                            -( )  77
%Q0120   ASU      Y116      Strip cooling
                            -( )  76
%Q0121   ALARM    Y117      Web guide splice
                            -] [- 141,142
                            -]/[- 141,142
         ASU                -(S)  56
                            -(R)  57
%Q0123   ASU      FR3_HI    Free loop infeed high speed
                            -( )  53
%Q0124   ASU      FR3_LOW   Free loop infeed low speed
                            -( )  53
%Q0127   WEB_GUI            Web guiding step up
                            -( )  11
%Q0128   WEB_GUI            Web guiding step down
                            -( )  12

================================================================================
==========  INTERNAL  (%M)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0001   SS       STEPUP    Oneshot step up one step
                            -] [- 52,53,54,55,58,59,61,63,69
                            -(^)  7
         ALARM              -] [- 134,180
         OUT                -] [- 29
         PROD               -] [- 55,81
```

TCA/P1
BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0002   SS       STEPU3S   Stepup button pushed 3 sec
                            -(^)  9
         LUBE               -] [- 10
%M0003   SS       STEPDWN   Oneshot step down one step
                            -] [- 73,74,76,78,82,83,87,93
                            -(^)  11
         OUT                -]/[- 17
         PROD               -] [- 7,46,50
         PLMS               -] [- 66
%M0004   SS       STEPD3S   Stepdown button pushed 3 sec
                            -] [- 23,74,85
                            -(^)  13
%M0005   SS       ALM_RST   Oneshot reset alarm
                            -] [- 107
         OP                 -(^)  45
         ALARM              -] [- 6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,37,39,41,43,45,47,49,51,53,55,58,60,62,64,66,68,70,72,
                                  74,76,78,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,
                                  131,133,135,137,139,141,143,145,147,149,151,153,155,157,160,162,165,169,172,174,176,178,181,183,
                                  185,187,189,191,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,223,225,227,229,231,
                                  233,235,237,239,241,243,245,247,249,251,253,255,258,260,262,264,266,268,272,274,276,278,280,282,
                                  284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,318,320,322,324,326,328,330,
                                  332,334,336,338,340,342,344,346,348,350,352,354,356,358,360,362,364,366,368,370,372,374,376,381,
                                  383,385,387
         PLMS               -] [- 100,205,208,211,214,217,220,223,226,232,235,238,241,244,247,250,253
%M0006   OP       SHO_STO   Short stop button oneshot
                            -(^)  47
         PROD               -] [- 17
%M0007   PROD     SHO_STP   Short stop memory
                            -] [- 57
                            -]/[- 7
                            -(SM) 23
                            -(RM) 24
%M0008   ALARM    CAL_RUN   Run main motor in calibration
                            -] [- 279
         OUT                -] [- 17,141
                            -]/[- 13
                            -( )  11
%M0009   SS       AIR_ON    Timer delay air on functions
                            -( )  112
         OUT                -] [- 74
%M0033   SS       SU0CON    Conditions step up to 0
                            -] [- 51
                            -( )  35
%M0034   SS       SU1CON    Conditions step up to 1
                            -] [- 52
                            -( )  36
         OP_IND             -] [- 61,76
                            -]/[- 79
%M0035   SS       SU2CON    Conditions step up to 2
                            -] [- 53
                            -( )  38
         OP_IND             -] [- 62,76
%M0036   SS       SU3CON    Conditions step up to 3
                            -] [- 54
                            -( )  40
         OP_IND             -] [- 63,76
%M0037   SS       SU4CON    Conditions step up to 4
                            -] [- 55
                            -( )  41
         OP_IND             -] [- 64,76
%M0038   SS       SU5CON    Conditions step up to 5
                            -] [- 57
                            -( )  42
%M0039   SS       SU6CON    Conditions step up to 6
                            -] [- 58,69
                            -( )  43
         OP_IND             -] [- 67,76
%M0040   SS       SU7CON    Conditions step up to 7
                            -] [- 59
                            -( )  44
         OP_IND             -] [- 68,76
%M0041   SS       SU8CON    Conditions step up to 8
                            -] [- 60
                            -( )  45
         OP_IND             -] [- 70
%M0042   SS       SU9CON    Conditions step up to 9
                            -] [- 61
                            -( )  46
%M0043   SS       SU10CON   Conditions step up to 10
                            -] [- 62
                            -( )  47
%M0044   SS       SU11CON   Conditions step up to 11
                            -] [- 63
                            -( )  49
         OP_IND             -] [- 73,77
%M0048   SS       FD-1CON   Conditions forcing to -1
                            -] [- 71
                            -( )  19
%M0049   SS       FD0CON    Conditions forcing to 0
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -] [- 73
                            -]/[- 36,47
                            -( )  25
         OP_IND             -] [- 85
%M0050   SS       FD1CON    Conditions forcing to 1
                            -] [- 74
                            -]/[- 37
                            -( )  26
%M0051   SS       FD2CON    Conditions forcing to 2
                            -] [- 76
                            -]/[- 39
                            -( )  27
%M0052   SS       FD3CON    Conditions forcing to 3
                            -] [- 78
                            -]/[- 41
                            -( )  28
%M0053   SS       FD4CON    Conditions forcing to 4
                            -] [- 80
                            -]/[- 42
                            -( )  29
%M0055   SS       FD6CON    Conditions forcing to 6
                            -] [- 87
                            -]/[- 44
                            -( )  30
%M0057   SS       FD10CON   Conditions forcing to 10
                            -] [- 93
                            -]/[- 48
                            -( )  33
%M0058   SS       FD7CON    Conditions forcing to 7
                            -] [- 89
                            -( )  31
%M0064   SS       SS-1_0    Machine in step -1 thru 0
                            -( )  95
         ALARM              -]/[- 257,295
         SPRAY              -] [- 78
         LUBE               -] [- 17
         OUT                -]/[- 16,30,37,48,72
         HEAT               -] [- 5,17
         DESIGN             -] [- 8
         WASTE              -] [- 16,27
                            -]/[- 29
         WEB_GUI            -] [- 7
%M0065   SS       SS0_9     Machine in step 0 thru 9
                            -( )  97
         ALARM              -] [- 109,117,212,240,351
         PLMS               -] [- 71,73
         ASU                -] [- 63,80
%M0066   SS       SS0_8     Machine in step 0 thru 8
                            -] [- 97
                            -( )  96
         ALARM              -] [- 11
         SPRAY              -] [- 34
         ASU                -] [- 59
%M0067   SS       SS2_8     Machine in step 2 thru 8
                            -] [- 96,99
                            -( )  98
         ALARM              -] [- 283
         SPRAY              -] [- 32
         OUT                -] [- 76,89
         PLMS               -] [- 79
%M0068   SS       SS2_9     Machine in step 2 thru 9
                            -] [- 22
                            -( )  99
         ALARM              -] [- 48,52,69,90,110,118,167,208
         OUT                -] [- 74,84
         PROD               -] [- 73
         ASU                -] [- 24,49,50,68
%M0069   SS       SS5_8     Machine in step 5 thru 8
                            -] [- 98
                            -( )  100
         ALARM              -] [- 94,232,261
%M0070   SS       SS10_11   Machine in step 10 thru 11
                            -( )  101
         ALARM              -] [- 113,114,121,122,208,212,303,315,371
         OP_IND             -] [- 83
         LUBE               -] [- 42
         OUT                -] [- 84,134
         FILLING            -] [- 43
%M0097   SS       SS-1      Step-1, SLEEP Dark OpPanel
                            -] [- 51,95
                            FBIO  5,65,67,69,71,73,74,76,78,80,82,83,85,87,89,91,93
         OP_IND             -] [- 79
         SPRAY              -]/[- 22
         LUBE               -]/[- 35
         OUT                -]/[- 33
%M0098   SS       SS0       Step 0, power & air off
                            -] [- 36,47,52,95,96,97
         ALARM              -] [- 133,134,180,378
         OP_IND             -] [- 61,76,79
```

TCA/P1
BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         SPRAY              -] [- 48,52
                            -]/[- 20,21,22
         OUT                -] [- 66
         HEAT               -] [- 12
         TUBE               -] [- 5
         WASTE              -]/[- 18
         PLMS               -] [- 27,84,88
                            -]/[- 5,7
         ASU                -] [- 5,57
%M0099   SS       SS1       Step 1 Preparation
                            -] [- 22,37,53,73,91,96
         ALARM              -] [- 110,118
         OP_IND             -] [- 61,62,74,76,85
         SPRAY              -] [- 48,52,78
         OUT                -] [- 6,16,64,119
                            -]/[- 124,141
         HEAT               -] [- 5,17
         TUBE               -] [- 5
         FILLING            -] [- 41
         PLMS               -] [- 28
%M0100   SS       SS2       Step 2 Preheating
                            -] [- 15,24,25,39,43,54,69,74,98
         ALARM              -] [- 204
         OP_IND             -] [- 62,63,67,76,97
         SPRAY              -] [- 48,52,78
         LUBE               -] [- 21
         OUT                -] [- 16,39,42,45,50,62,87,119,122
         HEAT               -] [- 10,12,17
         TUBE               -] [- 5
         WEB_GUI            -] [- 5
         PLMS               -] [- 29
%M0101   SS       SS3       Step 3 Tube sealing
                            -] [- 24,41,55,76,98
         ALARM              -] [- 248
         OP_IND             -] [- 63,64,76
         SPRAY              -] [- 48,52,78
         LUBE               -] [- 23
         OUT                -] [- 29,39,42,45,50,62,87,111,122
         HEAT               -] [- 17
         TUBE               -] [- 17
         PLMS               -] [- 30
%M0102   SS       SS4       Step 4 Preheating fillsystem
                            -] [- 20,24,28,42,57,78,98
         ALARM              -] [- 130
         OP_IND             -] [- 64
         SPRAY              -] [- 48,52,59,78
         OUT                -] [- 35,45,50,119,122,131,146,147
                            -]/[- 145
         HEAT               -] [- 23
         FILLING            -] [- 42
         PLMS               -] [- 31
%M0103   SS       SS5       Step 5 Spraying and drying
                            -] [- 17,20,24,28,43,58,85,100
         ALARM              -] [- 15,23,130,269,270
         OP_IND             -] [- 65,66,67,76
         SPRAY              -] [- 11,12,42,50,57,76,78
                            -]/[- 11
         OUT                -] [- 16,35,39,42,45,50,54,62,86,91,119,122,131,146,147
                            -]/[- 145
         PROD               -] [- 28
         FILLING            -] [- 42
         PLMS               -] [- 32
%M0104   SS       SS6       Step 6 Signal to/from Sterilizer
                            -] [- 25,44,59,82,83,100
         ALARM              -] [- 77,252,378
         OP_IND             -] [- 67,68,76,101
         SPRAY              -] [- 11,12,79
                            -]/[- 11
         OUT                -] [- 16,39,42,45,54,62,78,86,87,91,119,122,137
         PROD               -] [- 28,42
         FILLING            -] [- 5
         PLMS               -] [- 33,86
%M0105   SS       SS7       Step 7 Drive motor on
                            -] [- 25,45,60,100
         ALARM              -] [- 77,82,86,252
                            -]/[- 94
         OP_IND             -] [- 68,70
         SPRAY              -] [- 82
                            -]/[- 11
         LUBE               -] [- 40
         OUT                -] [- 29,40,42,45,54,56,60,62,66,78,87,91,96,111,119,137
         PROD               -] [- 26,27,28,45
                            -]/[- 5
         FILLING            -]/[- 8
         PLMS               -] [- 19,34
         ASU                -] [- 55
%M0106   SS       SS8       Step 8 Production
                            -] [- 25,46,61,100
         ALARM              -] [- 19,77,82,154,171,184,188,236
```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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         OP_IND             -] [- 70,77
         SPRAY              -]/[- 11
         LUBE               -] [- 40
         OUT                -] [- 40,42,45,54,56,60,62,63,78,79,87,91,96,111,119,122,137
         PROD               -] [- 18,19,21,26,27,28,46
                            -]/[- 5,24,51,75
         FILLING            -]/[- 8
         WASTE              -]/[- 38
         PLMS               -] [- 35,66,67,197
         ASU                -] [- 55
%M0107   SS       SS9       Step 9 Production finished
                            -] [- 25,47,62,87,97,99
         ALARM              -] [- 94,232
         OP_IND             -] [- 67,71,72,77,79
         OUT                -] [- 40,43,46,54,62,91,96,111,134,137
         PROD               -] [- 27,28,81
                            -]/[- 75
         PLMS               -] [- 40
%M0108   SS       SS10      Step 10 Preparation for Cleaning
                            -] [- 48,63,74,101
         ALARM              -] [- 90,94
                            -]/[- 113,121
         OP_IND             -] [- 72,73,77,79
         LUBE               -] [- 10
                            -]/[- 37
         OUT                -] [- 16
         PLMS               -] [- 41
%M0109   SS       SS11      Step 11 Cleaning
                            -] [- 32,33,64,93,101
         ALARM              -] [- 90,94,130,216,220
                            -]/[- 113,121
         OP_IND             -] [- 73,77
         LUBE               -] [- 9
                            -]/[- 15,37
         OUT                -] [- 80,126,130
                            -]/[- 17
         PLMS               -] [- 42,75,77
%M0113   SS       SS5T      Timer spraying and drying
                            -( )  17
         OUT                -] [- 42
%M0120   OP       OP_DAT    Panel mux in data range
                            -] [- 13,15,17,19,23,26,29,32,35
                            -( )  11
%M0121   OP       OP_LTST   Lamp test data active
                            -] [- 21,24,27,30,33,36
                            -( )  15
%M0122   OP       OI_LTOP   LampTst OpPanel Del.On Tmr.Exp
                            -( )  43
         OP_IND             -] [- 92
                            -]/[- 95
%M0123   OP       OI_SCN    One scan done of OpPanel (OS)
                            -] [- 38
                            -]/[- 38
                            -( )  9
%M0124   OP       OI_FLSH   Flash for muxboard 2Hz (fast)
                            -] [- 38,40
                            -]/[- 38
                            -( )  38
         OP_IND             -] [- 10,11,12,13,14,15,16,18,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,
                                   45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,83,84
%M0125   OP       OI_OSF    Oneshot OpPanel flash 2Hz
                            -] [- 41
                            -]/[- 41
                            -(^)  40
%M0126   OP       OI_SFLS   Flash for muxboard 1Hz (medium)
                            -] [- 41
                            -]/[- 41
                            -( )  41
         OP_IND             -] [- 62,63,64,67,68,70,72,73,74,76,77,79,85
%M0129   OP       H88B      Slow inching lamp
                            FBIO  19
         OP_IND             -( )  74
%M0137   OP_IND   H001S     H89 Machine program UP
                            -( )  77
%M0138   OP_IND   H002S     H90 Machine program DOWN
                            -( )  79
%M0139   OP_IND   H003S     H91 Inching main motor
                            -( )  80
         OUT                -] [- 107
%M0140   OP_IND   H004S     H92 Short stop indication
                            -( )  81
%M0141   OP_IND   H005S     H93 Package disposal
                            -( )  82
%M0142   OP_IND   H006S     H94 Manual lubricaton
                            -( )  83
%M0143   OP_IND   H007S     H95 Alarm reset / lamp test
                            -( )  84
%M0144   OP_IND   H008S     H96 Cleaning demand
                            -( )  85
```

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ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0161   OP       H1        Surge voltage protection
                            FBIO  32
         OP_IND             -( )  5
%M0162   OP_IND   H2        Final cleaning
                            -( )  6
%M0163   OP_IND   H3        Service switch ON
                            -( )  8
%M0164   OP_IND   H4        PLC fault
                            -( )  10
%M0165   OP_IND   H5        Inkjet fault
                            -( )  11
%M0168   OP_IND   H8        Main air pressure
                            -( )  12
%M0170   OP_IND   H10       Overload
                            -( )  13
%M0171   OP_IND   H11       Index sensor missread
                            -( )  14
%M0172   OP_IND   H12       Central lubrication, low level
                            -( )  15
%M0173   OP_IND   H13       Central lubrication, pressure
                            -( )  16
%M0174   OP_IND   H14       Hydraulic switch
                            -( )  17
%M0175   OP_IND   H15       Emergency stops activated
                            -( )  18
%M0176   OP_IND   H16       Safety monitors activated,infeed
                            -( )  19
%M0178   OP_IND   H18       Safety monitors activated, ster.
                            -( )  20
%M0179   OP_IND   H19       Safety monitors activated,main b
                            -( )  22
%M0193   OP       H64       Regulating valve, wrong position
                            FBIO  26
         OP_IND             -( )  48
%M0194   OP_IND   H65       Regulating valve, membr. broken
                            -( )  49
%M0195   OP_IND   H66       Steam, low temperature
                            -( )  50
%M0196   OP_IND   H67       A-valve, wrong position
                            -( )  51
%M0197   OP_IND   H68       B-valve, wrong position
                            -( )  52
%M0198   OP_IND   H69       Air or cleaning pipe, wrong pos.
                            -( )  53
%M0200   OP_IND   H72       Cleaning pipe or plug, wrong pos
                            -( )  54
%M0201   OP_IND   H73       Draining valve, open
                            -( )  55
%M0202   OP_IND   H74       Heat exchanger, low temperature
                            -( )  56
%M0203   OP_IND   H75       Sterile air, low pressure
                            -( )  57
%M0204   OP_IND   H76       Air super heater, low temp.
                            -( )  58
%M0205   OP_IND   H77       Spray container, high level
                            -( )  59
%M0206   OP_IND   H78       Spray container, low level
                            -( )  60
%M0208   OP_IND   H81       Time bar, LED1
                            -( )  103
%M0209   OP_IND   H82       Time bar, LED2
                            -( )  104
%M0210   OP_IND   H83       Time bar, LED3
                            -( )  105
%M0211   OP_IND   H84       Time bar, LED4
                            -( )  106
%M0212   OP_IND   H85       Time bar, LED5
                            -( )  107
%M0225   OP       H88       Preparation
                            FBIO  29
         OP_IND             -( )  61
%M0226   OP_IND   H89       Pre heating
                            -( )  62
%M0227   OP_IND   H90       Tube sealing
                            -( )  63
%M0228   OP_IND   H91       Pre heating of filling system
                            -( )  64
%M0229   OP_IND   H92       Spraying
                            -( )  65
%M0230   OP_IND   H93       Drying
                            -( )  66
%M0231   OP_IND   H94       Signal to/from sterilizer
                            -( )  67
%M0232   OP_IND   H95       Drive motor on
                            -( )  68
%M0233   OP_IND   H96       Short stop
                            -] [- 70
                            -]/[- 70
                            -( )  69
```

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BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         OUT               -] [- 101,105,109
%M0234   OP_IND   H97       Production
                           -( )  70
%M0235   OP_IND   H98       Production finished
                           -( )  71
%M0236   OP_IND   H99       Preparation for cleaning
                           -( )  72
%M0237   OP_IND   H100      Cleaning
                           -( )  73
%M0257   OP       H42       Heating chamber, low temperature
                           FBIO  23
         OP_IND            -( )  37
%M0258   OP_IND   H43       Web tension motor fault
                           -( )  38
%M0261   OP_IND   H46       Upper bending roller
                           -( )  39
%M0262   OP_IND   H47       Design sensor missread
                           -( )  40
%M0265   OP_IND   H51       LS element, low temperature
                           -( )  41
%M0266   OP_IND   H52       Product level, high
                           -( )  42
%M0267   OP_IND   H53       Product level, low
                           -( )  43
%M0268   OP_IND   H54       Fault in IH units transv. seal.
                           -( )  44
%M0270   OP_IND   H56       Design, wrong position
                           -( )  45
%M0275   OP_IND   H62       Prod. or clean. pipe, wrong pos.
                           -( )  46
%M0276   OP_IND   H63       C-valve, wrong position
                           -( )  47
%M0289   OP       H21       Spare
                           FBIO  35
%M0292   OP_IND   H24       Packaging material, supply
                           -( )  23
%M0293   OP_IND   H25       Packaging material, web broken
                           -( )  24
%M0294   OP_IND   H26       Web splice, cover open
                           -( )  25
%M0295   OP_IND   H27       Web splice des.sensor, wrong pos
                           -( )  26
%M0296   OP_IND   H28       Free loop motor, infeed
                           -( )  27
%M0297   OP_IND   H29       Free loop infeed, high position
                           -( )  28
%M0299   OP_IND   H31       LS strip reel 2, empty
                           -( )  29
%M0300   OP_IND   H32       LS strip reel 1, empty
                           -( )  30
%M0301   OP_IND   H33       LS strip, broken
                           -( )  31
%M0302   OP_IND   H34       SA element, low temperature
                           -( )  32
%M0305   OP_IND   H38       Squee-gee rollers
                           -( )  33
%M0306   OP_IND   H39       Peroxide bath, low level
                           -( )  34
%M0307   OP_IND   H40       Peroxide bath, high level
                           -( )  35
%M0308   OP_IND   H41       Heating chamber, low power
                           -( )  36
%M0385   SS       RST1      Initial step safety module
                           -] [- 107
                           FBIO  105,108,109
%M0386   SS       RST2      First reset pulse
                           -] [- 103,107
         OUT               -] [- 82
%M0387   SS       RST3      First reset pause
                           -] [- 104,107
%M0388   SS       RST4      Second reset pulse
                           -] [- 103,107
         OUT               -] [- 82
%M0389   SS       RST5      Second reset pause
                           -] [- 104,107
%M0390   SS       RST6      Module reset with power on
                           -] [- 107
%M0391   SS       RST7      Return to RST1
                           -] [- 109
%M0401   SS       RSTSHF1   Shiftbit reset safety module
                           -] [- 108
                           -( )  107
%M0402   SS       RST_PLS   Length of reset pulse
                           -] [- 107
                           -( )  103
%M0403   SS       RST_PAU   Length of reset pause
                           -] [- 107
                           -( )  104
%M0417   HEAT     ENC_SAM   Encoder same value as last scan
```

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BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  ------------------------------------
                            -] [- 38
                            -]/[- 40
                            -( )  37
%M0418   HEAT     ENC_ROT   Encoder is not rotating
                            -] [- 44
                            -( )  38
%M0419   HEAT     WEB_R1    Web monitor on to long
                            -] [- 44
                            -( )  42
%M0420   HEAT     WEB_R2    Web monitor off to long
                            -] [- 44
                            -( )  43
%M0421   OUT      PAPER_F   Paper fault, no heat allowed
                            -]/[- 54
         HEAT               -( )  44
%M0424   WASTE    TENTHOS   Oneshot every 0.1 sec
                            -] [- 48
                            -(^)  47
%M0480   OUT      INC_HSP   Pushbuttoms inching high speed
                            -] [- 16,35,124,137
                            -]/[- 23
                            -( )  15
%M0481   OUT      CON_OFD   Conveyor off delay bit
                            -] [- 33
                            -( )  32
%M0482   SS       INC_TIM   Inching main motor timer
                            -]/[- 38,40,43,44,49
         OP_IND             -] [- 80
         OUT                -] [- 11,13,23,27
                            -]/[- 21
                            -( )  19
%M0483   OP_IND   SINCCON   Conditions slow inching
                            -]/[- 80
         OUT                -] [- 19,21
                            -]/[- 13
                            -( )  17
%M0484   OUT      INC_CON   Conditions normal inching
                            -] [- 19,21,56,60
                            -( )  16
%M0485   OUT      PR_CON    Condition paper valves in PROD
                            -] [- 111
                            -]/[- 119
         PROD               -( )  71
%M0486   OUT      INC_RUN   Main motor running in inching
                            -] [- 111,118
                            -( )  27
%M0487   WASTE    S005HOS   Package disposal button oneshot
                            -] [- 79,81
                            -(^)  5
%M0489   WASTE    PDLONG    Package disposal, > 0,6 sec
                            -] [- 81
                            -]/[- 79
                            -( )  82
%M0490   SS       AIR_TMP   Temp variable for AIR_ON (M0009)
                            -] [- 112
                            -( )  111
%M0491   ALARM    NO_NEW    No new alarms
                            -]/[- 401
                            -( )  400
%M0492   ALARM    NEW_AL    New alarm, not shown on panel
                            -] [- 405
                            -( )  401
%M0493   ALARM    OLD_AL    Only old alarms on panel
                            -] [- 405
                            -(S)  403
                            -(R)  405
%M0494   OUT      SQU_OFD   Squee gee roller off delay bit
                            -] [- 137
                            -( )  135
%M0495   SS       STER_OS   Oneshot when service to sterile
                            -] [- 23
                            -(v)  14
%M0496   OUT      LS_TMP1   Y200 help variable
                            -] [- 118
                            -( )  115
%M0497   OUT      LS_TMP2   Y200 help variable
                            -] [- 118
                            -( )  116
%M0498   OUT      LS_TMP3   Y200 help variable
                            -] [- 118
                            -( )  117
%M0502   ALARM    AC20_ON   Design sensor pulse on
                            -]/[- 82
                            -(^)  80
%M0504   SS       AC24_ST   LS element temp OK 60 sec
                            -] [- 39,43
         ALARM              -( )  167
         PROD               -] [- 9
%M0506   OUT      K1_ONT    Main motor VFD has been on 5 sec
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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -( )  7
%M0507   1T0001   LAST_Q1   Last quadrant was Q1
                            -] [- 28
                            -( )  37
%M0508   1T0001   LAST_Q4   Last quadrant was Q4
                            -] [- 27
                            -( )  38
%M0509   1T0001   Q1        This is quadrant Q1
                            -] [- 27,37
                            -( )  25
%M0510   1T0001   Q4        This is quadrant Q4
                            -] [- 28,38
                            -( )  26
%M0511   1T0001   MARK_OS   OS of particular back
                            -] [- 35
                            -(^)  34
%M0512   SS       CAL       Calibration latch for encoder
                            -]/[- 37
         ALARM              -] [- 279
                            -]/[- 278
         OP_IND             -] [- 74
         OUT                -] [- 11,17
         INIT               -(SM) 64
         1T0001             -] [- 29,35
                            -(RM) 35
%M0513   ALARM    AC1       Packaging material supply (SSTO)
                            -] [- 8,420
                            -]/[- 411
                            -(SM) 7
                            -(RM) 6
                            FBIO  389,395,403,405,451
         PROD               -] [- 17
         PLMS               -] [- 151
%M0514   ALARM    AC2       Packaging material supply (ind)
                            -] [- 12,433,438
                            -(SM) 11
                            -(RM) 10
%M0515   SS       AC3       Spray container, low level
                            -] [- 29
         ALARM              -] [- 16,420
                            -]/[- 411
                            -(SM) 15
                            -(RM) 14
         PLMS               -] [- 152
%M0516   ALARM    AC4       Free loop infeed, high level
                            -] [- 20,420
                            -]/[- 411
                            -(SM) 19
                            -(RM) 18
%M0517   SS       AC5       Spray container, high level
                            -] [- 28
         ALARM              -] [- 24,420
                            -]/[- 411
                            -(SM) 23
                            -(RM) 22
         PLMS               -] [- 153
%M0518   SS       AC6       LS strip, broken
                            -]/[- 43
         ALARM              -] [- 28,420
                            -]/[- 411
                            -(SM) 27
                            -(RM) 26
         PLMS               -] [- 155
%M0519   ALARM    AC7       Free loop motor, Infeed
                            -] [- 32,433,438
                            -(SM) 31
                            -(RM) 30
         PLMS               -] [- 155
%M0520   SS       AC8       SA element, low temperature
                            -] [- 20
         ALARM              -] [- 37,420
                            -]/[- 411
                            -(SM) 36
                            -(RM) 34
         PLMS               -] [- 156
%M0521   ALARM    AC9       Packaging material, web broken
                            -] [- 41,420
                            -]/[- 411
                            -(SM) 40
                            -(RM) 39
         PLMS               -] [- 158
%M0522   ALARM    AC10      Web tension motor
                            -] [- 45,421,433,438
                            -]/[- 411
                            -(SM) 44
                            -(RM) 43
         PLMS               -] [- 158
%M0523   PLMS     AC11      Spare
                            -] [- 158
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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
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%M0524   SS       AC12     Reg.valve,membrane broken, ster.
                           -] [- 22
         ALARM              -] [- 49,421
                            -]/[- 411
                            -(SM) 48
                            -(RM) 47
         PLMS               -] [- 159
%M0525   ALARM    AC13     Reg.valve,membrane broken, serv.
                           -] [- 53,433,438
                            -(SM) 52
                            -(RM) 51
         PLMS               -] [- 159
%M0526   ALARM    AC14     Peroxide bath, low level
                           -] [- 58,421
                            -]/[- 412
                            -(SM) 57
                            -(RM) 55
         PROD               -] [- 18,26
         PLMS               -] [- 162
%M0527   ALARM    AC15     Web guiding motor
                           -] [- 62,421
                            -]/[- 412
                            -(SM) 61
                            -(RM) 60
         PLMS               -] [- 162
%M0528   ALARM    AC16     Peroxide emptying fault
                           -] [- 66,421
                            -]/[- 412
                            -(SM) 65
                            -(RM) 64
         SPRAY              -]/[- 20,22
%M0529   ALARM    AC17     Squee-gee roller, wrong position
                           -] [- 70,422
                            -]/[- 412
                            -(SM) 69
                            -(RM) 68
                            FBIO  389,395
         PROD               -] [- 19
         PLMS               -] [- 160
%M0530   SS       AC18     Low power heating chamber
                           -] [- 21
         ALARM              -] [- 74,422
                            -]/[- 412
                            -(SM) 73
                            -(RM) 72
         PLMS               -] [- 161
%M0531   ALARM    AC19     Low temp heating chamber
                           -] [- 78,422
                            -]/[- 412
                            -(SM) 77
                            -(RM) 76
         PLMS               -] [- 161
%M0532   ALARM    AC20     Design sensor, missread
                           -] [- 83,422
                            -]/[- 412
                            -(SM) 82
                            -(RM) 81
         PROD               -] [- 27
         PLMS               -] [- 167
%M0533   ALARM    AC21     Steam, low temperature
                           -] [- 87,422
                            -]/[- 412
                            -(SM) 86
                            -(RM) 85
         PROD               -] [- 21
         PLMS               -] [- 169
%M0534   ALARM    AC22     Steam, low temp (IND)
                           -] [- 91,433,438
                            -(SM) 90
                            -(RM) 89
         PLMS               -] [- 169
%M0535   SS       AC23     Steam, low temp, FRC 0
                           -] [- 22
         ALARM              -] [- 95,422
                            -]/[- 413
                            -(SM) 94
                            -(RM) 93
         PLMS               -] [- 169
%M0536   SS       AC24     Sterile air, low pressure
                           -] [- 22
         ALARM              -] [- 99,423
                            -]/[- 413
                            -(SM) 98
                            -(RM) 97
         PLMS               -] [- 171
%M0537   ALARM    AC25     Spare
                           -] [- 103
                            -(SM) 102
                            -(RM) 101
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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         PLMS              -] [- 171
%M0538   ALARM    AC26      Spare
                            -] [- 107
                            -(SM) 106
                            -(RM) 105
         PLMS              -] [- 183
%M0539   ALARM    AC27      Air pipe, wrong position
                            -] [- 111,423
                            -]/[- 413
                            -(SM) 110
                            -(RM) 109
         PLMS              -] [- 175
%M0540   ALARM    AC28      Cleaning pipe, wrong position
                            -] [- 115,423
                            -]/[- 413
                            -(SM) 114
                            -(RM) 113
         PLMS              -] [- 175
%M0541   ALARM    AC29      Product pipe, wrong position
                            -] [- 119,423
                            -]/[- 413
                            -(SM) 118
                            -(RM) 117
         PLMS              -] [- 170
%M0542   ALARM    AC30      Cleaning pipe, wrong position
                            -] [- 123,423
                            -]/[- 413
                            -(SM) 122
                            -(RM) 121
         PLMS              -] [- 170
%M0543   ALARM    AC31      Spare
                            -] [- 127
                            -(SM) 126
                            -(RM) 125
         PLMS              -] [- 162
%M0544   SS       AC32      Regulating valve not fully open
                            -] [- 20,32
         ALARM             -] [- 131,424
                            -]/[- 413
                            -(SM) 130
                            -(RM) 129
         PLMS              -] [- 165
%M0545   ALARM    AC33      Regulating valve fully open
                            -] [- 135,424
                            -]/[- 414
                            -(SM) 134
                            -(RM) 133
                            FBIO  389,395
         PLMS              -] [- 165
%M0546   SS       AC34      B-valve, wrong position
                            -] [- 25,28,32
         ALARM             -] [- 139,424
                            -]/[- 414
                            -(SM) 138
                            -(RM) 137
         PLMS              -] [- 176
%M0547   ALARM    AC35      Web guide splice alarm, ACOF
                            -] [- 143,434,439
                            -(SM) 142
                            -(RM) 141
%M0548   ALARM    AC36      PLMS alarm
                            -] [- 147,434,439
                            -(SM) 146
                            -(RM) 145
%M0549   ALARM    AC37      Spare
                            -] [- 151
                            -(SM) 150
                            -(RM) 149
         PLMS              -] [- 176
%M0550   SS       AC38      Low temp air heater, FRC 0
                            -] [- 20
         ALARM             -] [- 155,425
                            -]/[- 414
                            -(SM) 154
                            -(RM) 153
         PLMS              -] [- 177
%M0551   ALARM    AC39      Low temp air heater, (ind)
                            -] [- 160,434,439
                            -(SM) 159
                            -(RM) 157
         PLMS              -] [- 177
%M0552   PLMS     AC40      Spare
                            -] [- 178
%M0553   ALARM    AC41      LS element, low temp (IND)
                            -] [- 165,434,439
                            -(SM) 164
                            -(RM) 162
         PLMS              -] [- 179
%M0554   ALARM    AC42      LS element, low temp (SSTO)
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -] [- 172,425
                            -]/[- 414
                            -(SM) 171
                            -(RM) 169
         PROD               -] [- 19
         PLMS               -] [- 179
%M0555   ALARM    AC43      Spare
                            -] [- 176
                            -(SM) 175
                            -(RM) 174
         PLMS               -] [- 180
%M0556   ALARM    AC44      Product level, high (production)
                            -] [- 181,425
                            -]/[- 414
                            -(SM) 180
                            -(RM) 178
         PROD               -] [- 17
         PLMS               -] [- 180
%M0557   ALARM    AC45      Product level, low (ind)
                            -] [- 185,435,440
                            -(SM) 184
                            -(RM) 183
         PLMS               -] [- 181
%M0558   ALARM    AC46      Product level, low (SSTO)
                            -] [- 189,426
                            -]/[- 414
                            -(SM) 188
                            -(RM) 187
         PROD               -] [- 17
         PLMS               -] [- 181
%M0559   SS       AC47      Fault in IH units transv.sealing
                            -] [- 27
         ALARM              -] [- 193,426
                            -]/[- 414
                            -(SM) 192
                            -(RM) 191
         PROD               -] [- 21
%M0560   ALARM    AC48      Spare
                            -] [- 197
                            -(SM) 196
                            -(RM) 195
%M0561   ALARM    AC49      Spare
                            -] [- 201
                            -(SM) 200
                            -(RM) 199
                            FBIO  389,396
%M0562   SS       AC50      Central lubrication, pressure
                            -] [- 20
         ALARM              -] [- 205,426
                            -]/[- 414
                            -(SM) 204
                            -(RM) 203
         PLMS               -] [- 188
%M0563   ALARM    AC51      Central lubrication, pressure
                            -] [- 209,435,440
                            -(SM) 208
                            -(RM) 207
         PLMS               -] [- 188
%M0564   ALARM    AC52      Central lubrication, oil level
                            -] [- 213,435,440
                            -(SM) 212
                            -(RM) 211
         PLMS               -] [- 189
%M0565   SS       AC53      Central lubrication, oil level
                            -] [- 32
         ALARM              -] [- 217,427
                            -]/[- 415
                            -(SM) 216
                            -(RM) 215
         PLMS               -] [- 189
%M0566   SS       AC54      Central lubrication, pressure
                            -] [- 32
         ALARM              -] [- 221,427
                            -]/[- 415
                            -(SM) 220
                            -(RM) 219
         LUBE               -] [- 42
         PLMS               -] [- 188
%M0567   ALARM    AC55      Safety switch, sterile unit
                            -] [- 225,427
                            -]/[- 415
                            -(SM) 224
                            -(RM) 223
         PLMS               -] [- 191
%M0568   ALARM    AC56      Overload fault
                            -] [- 229,427
                            -]/[- 415
                            -(SM) 228
                            -(RM) 227
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
         PROD               -] [- 19
                            -]/[- 10
         PLMS               -] [- 190
%M0569   SS       AC57      Sterile doors alarm, FRC SS0
                            -] [- 20
         ALARM              -] [- 233,427
                            -]/[- 415
                            -(SM) 232
                            -(RM) 231
         PLMS               -] [- 191
%M0570   ALARM    AC58      Door alarm, short stop
                            -] [- 237,427
                            -]/[- 415
                            -(SM) 236
                            -(RM) 235
         PROD               -] [- 17
         PLMS               -] [- 193
%M0571   ALARM    AC59      Emergency stop button
                            -] [- 241,409
                            -]/[- 407
                            -(SM) 240
                            -(RM) 239
         PLMS               -] [- 192
%M0572   SS       AC60      Emergency stop module
                            -] [- 21
         ALARM              -] [- 245,409
                            -]/[- 407
                            -(SM) 244
                            -(RM) 243
         PLMS               -] [- 192
%M0573   SS       AC61      Door alarm in tube sealing
                            -]/[- 39,43
         ALARM              -] [- 249,428
                            -]/[- 415
                            -(SM) 248
                            -(RM) 247
         PROD               -]/[- 9,10
         PLMS               -] [- 193
%M0574   SS       AC62      Alarm door in ready/sterilizer
                            -]/[- 45
         ALARM              -] [- 253,428
                            -]/[- 415
                            -(SM) 252
                            -(RM) 251
         PROD               -] [- 27
         PLMS               -] [- 193
%M0575   SS       AC63      Main air, low pressure
                            -] [- 21
         ALARM              -] [- 258,428
                            -]/[- 416
                            -(SM) 257
                            -(RM) 255
         PLMS               -] [- 198
%M0576   ALARM    AC64      Peroxide bath, high level
                            -] [- 262,428
                            -]/[- 416
                            -(SM) 261
                            -(RM) 260
         SPRAY              -]/[- 20
         PROD               -] [- 19,26
         PLMS               -] [- 163
%M0577   ALARM    AC65      Spare
                            -] [- 266
                            -(SM) 265
                            -(RM) 264
                            FBIO  390,396
         PLMS               -] [- 163
%M0578   SS       AC66      Upper bending roller, wrong pos.
                            -] [- 28
         ALARM              -] [- 268,272,428
                            -]/[- 416
                            -(SM) 271
                            -(RM) 268
         PLMS               -] [- 164
%M0579   ALARM    AC67      Spare
                            -] [- 274,276
                            -(SM) 275
                            -(RM) 274
         PLMS               -] [- 172
%M0580   SS       AC68      Index sensor, missread
                            -] [- 22
         ALARM              -] [- 280,429
                            -]/[- 416
                            -(SM) 279
                            -(RM) 278
         PLMS               -] [- 196
%M0581   ALARM    AC69      LS strip supply (ind)
                            -] [- 284,435,440
                            -(SM) 283
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -(RM) 282
%M0582   SS       AC70      C-valve, wrong position
                            -] [- 22,32
         ALARM              -] [- 288,429
                            -]/[- 416
                            -(SM) 287
                            -(RM) 286
         PLMS               -] [- 168
%M0583   ALARM    AC71      Spare
                            -] [- 292
                            -(SM) 291
                            -(RM) 290
%M0584   SS       AC72      A-valve, wrong position
                            -] [- 24,33
         ALARM              -] [- 296,429
                            -]/[- 416
                            -(SM) 295
                            -(RM) 294
         PROD               -] [- 27
         PLMS               -] [- 173
%M0585   ALARM    AC73      Inkjet fault, yellow or no green
                            -] [- 300,435,440
                            -(SM) 299
                            -(RM) 298
         PLMS               -] [- 174
%M0586   SS       AC74      Product level, high (cleaning)
                            -] [- 33
         ALARM              -] [- 304,429
                            -]/[- 416
                            -(SM) 303
                            -(RM) 302
         PLMS               -] [- 180
%M0587   SS       AC75      Emergency stop module
                            -] [- 19
         ALARM              -] [- 308,409
                            -]/[- 407
                            -(SM) 307
                            -(RM) 306
         PLMS               -] [- 192
%M0588   ALARM    AC76      Alarm door safety module
                            -] [- 312,429
                            -]/[- 416
                            -(SM) 311
                            -(RM) 310
%M0589   SS       AC77      Safety monitors activated, clean
                            -] [- 33
         ALARM              -] [- 316,429
                            -]/[- 417
                            -(SM) 315
                            -(RM) 314
         PLMS               -] [- 193
%M0590   ALARM    AC78      Spare
                            -] [- 320
                            -(SM) 319
                            -(RM) 318
%M0591   ALARM    AC79      ASU mark not found alarm
                            -] [- 324,435,440
                            -(SM) 323
                            -(RM) 322
         PLMS               -] [- 195
%M0592   ALARM    AC80      Spare
                            -] [- 328
                            -(SM) 327
                            -(RM) 326
         PLMS               -] [- 184
%M0593   ALARM    AC81      Spare
                            -] [- 332
                            -(SM) 331
                            -(RM) 330
                            FBIO  390,396
         PLMS               -] [- 184
%M0594   SS       AC82      Spare
                            -]/[- 40
         ALARM              -] [- 336
                            -(SM) 335
                            -(RM) 334
         PROD               -]/[- 9
         PLMS               -] [- 184
%M0595   ALARM    AC83      Inkjet fault, red
                            -] [- 340,430
                            -]/[- 417
                            -(SM) 339
                            -(RM) 338
         PROD               -] [- 21
%M0596   ALARM    AC84      LS strip reel 1, empty
                            -] [- 344,436,441
                            -(SM) 343
                            -(RM) 342
         PLMS               -] [- 157
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0597   ALARM    AC85      LS strip reel 2, empty
                            -] [- 348,436,441
                            -(SM) 347
                            -(RM) 346
         PLMS               -] [- 154
%M0598   ALARM    AC86      Safety switch, sterile unit
                            -] [- 352,430
                            -]/[- 417
                            -(SM) 351
                            -(RM) 350
         PROD               -] [- 20
         PLMS               -] [- 191
%M0599   ALARM    AC87      ASU design sensor misr. ind.
                            -] [- 356,436,441
                            -(SM) 355
                            -(RM) 354
         PLMS               -] [- 195
%M0600   ALARM    AC88      ASU design sensor misr.short st.
                            -] [- 360,430
                            -]/[- 417
                            -(SM) 359
                            -(RM) 358
         PROD               -] [- 21
         PLMS               -] [- 195
%M0601   SS       AC89      Draining valve closed
                            -] [- 33
         ALARM              -] [- 364,431
                            -]/[- 417
                            -(SM) 363
                            -(RM) 362
         PLMS               -] [- 172
%M0602   ALARM    AC90      Draining valve open
                            -] [- 368,436,441
                            -(SM) 367
                            -(RM) 366
         PLMS               -] [- 172
%M0603   SS       AC91      Cleaning pipe/plug, wrong pos.
                            -] [- 32
         ALARM              -] [- 372,431
                            -]/[- 417
                            -(SM) 371
                            -(RM) 370
         PLMS               -] [- 182
%M0604   ALARM    AC92      Spare
                            -] [- 376
                            -(SM) 375
                            -(RM) 374
         PLMS               -] [- 182
%M0605   ALARM    AC93      Not able to reach design, FD6CON
                            -] [- 383,431
                            -]/[- 417
                            -(SM) 382
                            -(RM) 381
         PROD               -] [- 27
         PLMS               -] [- 166
%M0606   ALARM    AC94      Spare
                            -] [- 387
                            -(SM) 386
                            -(RM) 385
%M0609   ALARM    AC97      FBIO  390,397
%M0625   ALARM    AC113     FBIO  390,397
%M0641   ALARM    AA1       Alarm acknowledge 1
                            -] [- 6,8
                            -]/[- 420
                            -( )  8
         OP_IND             -] [- 23
%M0642   ALARM    AA2       Alarm acknowledge 2
                            -] [- 10,12
                            -]/[- 438
                            -( )  12
         OP_IND             -] [- 23
%M0643   ALARM    AA3       -] [- 14,16
                            -]/[- 420
                            -( )  16
         OP_IND   AA3       -] [- 60
%M0644   ALARM    AA4       -] [- 18,20
                            -]/[- 420
                            -( )  20
         OP_IND   AA4       -] [- 28
%M0645   ALARM    AA5       -] [- 22,24
                            -]/[- 420
                            -( )  24
         OP_IND   AA5       -] [- 59
%M0646   ALARM    AA6       -] [- 26,28
                            -]/[- 420
                            -( )  28
         OP_IND   AA6       -] [- 31
%M0647   ALARM    AA7       -] [- 30,32
                            -]/[- 438
```


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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  ------------------------------------
                            -( )  32
         OP_IND   AA7       -] [- 27
%M0648   ALARM    AA8       -] [- 34,37
                            -]/[- 420
                            -( )  37
         OP_IND   AA8       -] [- 32
%M0649   ALARM    AA9       -] [- 39,41
                            -]/[- 420
                            -( )  41
         OP_IND   AA9       -] [- 24
%M0650   ALARM    AA10      -] [- 43,45
                            -]/[- 421,438
                            -( )  45
         OP_IND   AA10      -] [- 38
%M0652   ALARM    AA12      -] [- 47,49
                            -]/[- 421
                            -( )  49
         OP_IND   AA12      -] [- 49
%M0653   ALARM    AA13      -] [- 51,53
                            -]/[- 438
                            -( )  53
         OP_IND   AA13      -] [- 49
%M0654   ALARM    AA14      -] [- 55,58
                            -]/[- 421
                            -( )  58
         OP_IND   AA14      -] [- 34
%M0655   ALARM    AA15      -] [- 60,62
                            -]/[- 421
                            -( )  62
%M0656   ALARM    AA16      -] [- 64,66
                            -]/[- 421
                            -( )  66
         OP_IND   AA16      -] [- 35
%M0657   ALARM    AA17      -] [- 68,70
                            -]/[- 422
                            -( )  70
         OP_IND   AA17      -] [- 33
%M0658   ALARM    AA18      -] [- 72,74
                            -]/[- 422
                            -( )  74
         OP_IND   AA18      -] [- 36
%M0659   ALARM    AA19      -] [- 76,78
                            -]/[- 422
                            -( )  78
         OP_IND   AA19      -] [- 37
%M0660   ALARM    AA20      -] [- 83
                            -]/[- 422
                            -( )  83
         OP_IND   AA20      -] [- 40
%M0661   ALARM    AA21      -] [- 85,87
                            -]/[- 422
                            -( )  87
         OP_IND   AA21      -] [- 50
%M0662   ALARM    AA22      -] [- 89,91
                            -]/[- 438
                            -( )  91
         OP_IND   AA22      -] [- 50
%M0663   ALARM    AA23      -] [- 93,95
                            -]/[- 422
                            -( )  95
         OP_IND   AA23      -] [- 50
%M0664   ALARM    AA24      -] [- 97,99
                            -]/[- 423
                            -( )  99
         OP_IND   AA24      -] [- 57
%M0665   ALARM    AA25      -] [- 101,103
                            -( )  103
%M0666   ALARM    AA26      -] [- 105,107
                            -( )  107
         OP_IND   AA26      -] [- 56
%M0667   ALARM    AA27      -] [- 109,111
                            -]/[- 423
                            -( )  111
         OP_IND   AA27      -] [- 53
%M0668   ALARM    AA28      -] [- 113,115
                            -]/[- 423
                            -( )  115

         OP_IND   AA28      -] [- 53
%M0669   ALARM    AA29      -] [- 117,119
                            -]/[- 423
                            -( )  119
         OP_IND   AA29      -] [- 46
%M0670   ALARM    AA30      -] [- 121,123
                            -]/[- 423
                            -( )  123
         OP_IND   AA30      -] [- 46
%M0671   ALARM    AA31      -] [- 125,127
                            -( )  127
%M0672   ALARM    AA32      -] [- 129,131
```


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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -]/[- 424
                            -( )  131
         OP_IND   AA32      -] [- 48
%M0673   ALARM    AA33      -] [- 133,135
                            -]/[- 424
                            -( )  135
         OP_IND   AA33      -] [- 48
%M0674   ALARM    AA34      -] [- 137,139
                            -]/[- 424
                            -( )  139
         OP_IND   AA34      -] [- 52
%M0675   ALARM    AA35      -] [- 141,143
                            -]/[- 439
                            -( )  143
         OP_IND   AA35      -] [- 25
%M0676   ALARM    AA36      -] [- 145,147
                            -]/[- 439
                            -( )  147
         OP_IND   AA36      -] [- 10
%M0677   ALARM    AA37      -] [- 149,151
                            -( )  151
%M0678   ALARM    AA38      -] [- 153,155
                            -]/[- 425
                            -( )  155
         OP_IND   AA38      -] [- 58
%M0679   ALARM    AA39      -] [- 157,160
                            -]/[- 439
                            -( )  160
         OP_IND   AA39      -] [- 58
%M0681   ALARM    AA41      -] [- 162,165
                            -]/[- 439
                            -( )  165
         OP_IND   AA41      -] [- 41
%M0682   ALARM    AA42      -] [- 169,172
                            -]/[- 425
                            -( )  172
         OP_IND   AA42      -] [- 41
%M0683   ALARM    AA43      -] [- 174,176
                            -( )  176
%M0684   ALARM    AA44      -] [- 178,181
                            -]/[- 425
                            -( )  181
         OP_IND   AA44      -] [- 42
%M0685   ALARM    AA45      -] [- 183,185
                            -]/[- 440
                            -( )  185
         OP_IND   AA45      -] [- 43
%M0686   ALARM    AA46      -] [- 187,189
                            -]/[- 426
                            -( )  189
         OP_IND   AA46      -] [- 43
%M0687   ALARM    AA47      -] [- 191,193
                            -]/[- 426
                            -( )  193
         OP_IND   AA47      -] [- 44
%M0688   ALARM    AA48      -] [- 197
                            -( )  197
%M0689   ALARM    AA49      -] [- 201
                            -( )  201
%M0690   ALARM    AA50      -] [- 203,205
                            -]/[- 426
                            -( )  205
         OP_IND   AA50      -] [- 16
%M0691   ALARM    AA51      -] [- 207,209
                            -]/[- 440
                            -( )  209
         OP_IND   AA51      -] [- 16
%M0692   ALARM    AA52      -] [- 211,213
                            -]/[- 440
                            -( )  213
%M0693   ALARM    AA53      -] [- 215,217
                            -]/[- 427
                            -( )  217
         OP_IND   AA53      -] [- 15
%M0694   ALARM    AA54      -] [- 219,221
                            -]/[- 427
                            -( )  221
         OP_IND   AA54      -] [- 16
%M0695   ALARM    AA55      -] [- 223,225
                            -]/[- 427
                            -( )  225
         OP_IND   AA55      -] [- 20
%M0696   ALARM    AA56      -] [- 227,229
                            -]/[- 427
                            -( )  229
         OP_IND   AA56      -] [- 13
%M0697   ALARM    AA57      -] [- 231,233
                            -]/[- 427
                            -( )  233
```


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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
         OP_IND   AA57     -] [- 20
%M0698   ALARM    AA58     -] [- 235,237
                           -]/[- 427
                           -( )  237
         OP_IND   AA58     -] [- 21
%M0699   ALARM    AA59     -] [- 239,241
                           -]/[- 409
                           -( )  241
         OP_IND   AA59     -] [- 18
%M0700   ALARM    AA60     -] [- 243,245
                           -]/[- 409
                           -( )  245
         OP_IND   AA60     -] [- 18
%M0701   ALARM    AA61     -] [- 247,249
                           -]/[- 428
                           -( )  249
         OP_IND   AA61     -] [- 21
%M0702   ALARM    AA62     -] [- 251,253
                           -]/[- 428
                           -( )  253
         OP_IND   AA62     -] [- 21
%M0703   ALARM    AA63     -] [- 255,258
                           -]/[- 428
                           -( )  258
         OP_IND   AA63     -] [- 12
%M0704   ALARM    AA64     -] [- 260,262
                           -]/[- 428
                           -( )  262
         OP_IND   AA64     -] [- 35
%M0705   ALARM    AA65     -] [- 264,266
                           -( )  266
%M0706   ALARM    AA66     -] [- 272
                           -]/[- 428
                           -( )  272
         OP_IND   AA66     -] [- 39
%M0707   ALARM    AA67     -] [- 276
                           -( )  276
%M0708   ALARM    AA68     -] [- 278,280
                           -]/[- 429
                           -( )  280
         OP_IND   AA68     -] [- 14
%M0709   ALARM    AA69     -] [- 282,284
                           -]/[- 440
                           -( )  284
%M0710   ALARM    AA70     -] [- 286,288
                           -]/[- 429
                           -( )  288
         OP_IND   AA70     -] [- 18,47
%M0711   ALARM    AA71     -] [- 290,292
                           -( )  292
%M0712   ALARM    AA72     -] [- 294,296
                           -]/[- 429
                           -( )  296
         OP_IND   AA72     -] [- 51
%M0713   ALARM    AA73     -] [- 298,300
                           -]/[- 440
                           -( )  300
         OP_IND   AA73     -] [- 11
%M0714   ALARM    AA74     -] [- 302,304
                           -]/[- 429
                           -( )  304
         OP_IND   AA74     -] [- 42
%M0715   ALARM    AA75     -] [- 306,308
                           -]/[- 409
                           -( )  308
%M0716   ALARM    AA76     -] [- 310,312
                           -]/[- 429
                           -( )  312
         OP_IND   AA76     -] [- 22
%M0717   ALARM    AA77     -] [- 314,316
                           -]/[- 429
                           -( )  316
         OP_IND   AA77     -] [- 21
%M0718   ALARM    AA78     -] [- 320
                           -( )  320
%M0719   ALARM    AA79     -] [- 324
                           -]/[- 440
                           -( )  324
         OP_IND   AA79     -] [- 26
%M0720   ALARM    AA80     -] [- 328
                           -( )  328
%M0721   ALARM    AA81     -] [- 332
                           -( )  332
%M0722   ALARM    AA82     -] [- 334,336
                           -( )  336
%M0723   ALARM    AA83     -] [- 338,340
                           -]/[- 430
                           -( )  340
         OP_IND   AA83     -] [- 11
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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
%M0724   ALARM    AA84      -] [- 342,344
                            -]/[- 441
                            -( )  344
         OP_IND   AA84      -] [- 30
%M0725   ALARM    AA85      -] [- 346,348
                            -]/[- 441
                            -( )  348
         OP_IND   AA85      -] [- 29
%M0726   ALARM    AA86      -] [- 350,352
                            -]/[- 430
                            -( )  352
         OP_IND   AA86      -] [- 20
%M0727   ALARM    AA87      -] [- 356
                            -]/[- 441
                            -( )  356
         OP_IND   AA87      -] [- 26
%M0728   ALARM    AA88      -] [- 360
                            -]/[- 430
                            -( )  360
         OP_IND   AA88      -] [- 26
%M0729   ALARM    AA89      -] [- 362,364
                            -]/[- 431
                            -( )  364
         OP_IND   AA89      -] [- 55
%M0730   ALARM    AA90      -] [- 366,368
                            -]/[- 441
                            -( )  368
         OP_IND   AA90      -] [- 55
%M0731   ALARM    AA91      -] [- 370,372
                            -]/[- 431
                            -( )  372
         OP_IND   AA91      -] [- 54
%M0732   ALARM    AA92      -] [- 374,376
                            -( )  376
%M0733   ALARM    AA93      -] [- 381,383
                            -]/[- 431
                            -( )  383
         OP_IND   AA93      -] [- 45
%M0734   ALARM    AA94      -] [- 387
                            -( )  387
%M0769   ALARM    AL1       Packaging material supply (SSTO)
                            FBIO  392,395,398,403,405,452,454
         OP_IND             -] [- 23
%M0770   OP_IND   AL2       Packaging material supply (ind)
                            -] [- 23
%M0771   OP_IND   AL3       Spray container, low level
                            -] [- 60
%M0772   OP_IND   AL4       Free loop infeed high level
                            -] [- 28
%M0773   OP_IND   AL5       Spray container, high level
                            -] [- 59
%M0774   OP_IND   AL6       LS strip, broken
                            -] [- 31
%M0775   OP_IND   AL7       Free loop motor, Infeed
                            -] [- 27
%M0776   OP_IND   AL8       SA element, low temperature
                            -] [- 32
%M0777   OP_IND   AL9       Packaging material, web broken
                            -] [- 24
%M0778   OP_IND   AL10      Web tension motor
                            -] [- 38
%M0780   OP_IND   AL12      Reg.valve,membrane broken, ster.
                            -] [- 49
%M0781   OP_IND   AL13      Reg.valve,membrane broken, serv.
                            -] [- 49
%M0782   OP_IND   AL14      Peroxide bath, low level
                            -] [- 34
%M0784   OP_IND   AL16      Peroxide emptying fault
                            -] [- 35
%M0785   ALARM    AL17      Squee-gee roller, wrong position
                            FBIO  392,395,398
         OP_IND             -] [- 33
%M0786   OP_IND   AL18      Low power heating chamber
                            -] [- 36
%M0787   OP_IND   AL19      Low temp heating chamber
                            -] [- 37
%M0788   OP_IND   AL20      Design sensor, missread
                            -] [- 40
%M0789   OP_IND   AL21      Steam, low temperature
                            -] [- 50
%M0790   OP_IND   AL22      Steam, low temp (IND)
                            -] [- 50
%M0791   OP_IND   AL23      Steam, low temp, FRC SS0
                            -] [- 50
%M0792   OP_IND   AL24      Sterile air, low pressure
                            -] [- 57
%M0794   OP_IND   AL26      Spare
                            -] [- 56
%M0795   OP_IND   AL27      Air pipe, wrong position
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -] [- 53
%M0796   OP_IND   AL28      Cleaning pipe, wrong position
                            -] [- 53
%M0797   OP_IND   AL29      Product pipe, wrong position
                            -] [- 46
%M0798   OP_IND   AL30      Cleaning pipe, wrong position
                            -] [- 46
%M0800   OP_IND   AL32      Regulating valve not fully open
                            -] [- 48
%M0801   ALARM    AL33      Regulating valve fully open
                            FBIO  392,395,398
         OP_IND             -] [- 48
%M0802   OP_IND   AL34      B-valve, wrong position
                            -] [- 52
%M0803   OP_IND   AL35      Web guide splice alarm, ACOF
                            -] [- 25
%M0804   OP_IND   AL36      PLMS alarm
                            -] [- 10
%M0806   OP_IND   AL38      Low temp air heater, FRC 0
                            -] [- 58
%M0807   OP_IND   AL39      Low temp air heater (ind)
                            -] [- 58
%M0809   OP_IND   AL41      LS element, low temp (IND)
                            -] [- 41
%M0810   OP_IND   AL42      LS element, low temp (SSTO)
                            -] [- 41
%M0812   OP_IND   AL44      Product level, high (production)
                            -] [- 42
%M0813   OP_IND   AL45      Product level, low (ind)
                            -] [- 43
%M0814   OP_IND   AL46      Product level, low (SSTO)
                            -] [- 43
%M0815   OP_IND   AL47      Fault in IH units transv.sealing
                            -] [- 44
%M0817   ALARM    AL49      Spare
                            FBIO  392,396,399
%M0818   OP_IND   AL50      Central lubrication, pressure
                            -] [- 16
%M0819   OP_IND   AL51      Central lubrication, pressure
                            -] [- 16
%M0820   OP_IND   AL52      Central lubrication, oil level
                            -] [- 15
%M0821   OP_IND   AL53      Central lubrication, oil level
                            -] [- 15
%M0822   OP_IND   AL54      Central lubrication, pressure
                            -] [- 16
%M0823   OP_IND   AL55      Safety switch, sterile unit
                            -] [- 20
%M0824   OP_IND   AL56      Overload fault
                            -] [- 13
%M0825   OP_IND   AL57      Sterile doors alarm, FRC 0
                            -] [- 20
%M0826   OP_IND   AL58      Doors alarm, short stop
                            -] [- 21
%M0827   OP_IND   AL59      Emergency stop button
                            -] [- 18
%M0828   OP_IND   AL60      Emergency stop module
                            -] [- 18
%M0829   OP_IND   AL61      Door alarm in tube sealing
                            -] [- 21
%M0830   OP_IND   AL62      Alarm door force steril.
                            -] [- 21
%M0831   OP_IND   AL63      Main air, low pressure
                            -] [- 12
%M0832   OP_IND   AL64      Peroxide bath, high level
                            -] [- 35
%M0833   ALARM    AL65      Spare
                            FBIO  393,396,399
%M0834   OP_IND   AL66      Upper bending roller, wrong pos.
                            -] [- 39
%M0836   OP_IND   AL68      Index sensor, missread
                            -] [- 14
%M0838   OP_IND   AL70      C-valve, wrong position
                            -] [- 47
%M0840   OP_IND   AL72      A-valve, wrong position
                            -] [- 51
%M0841   OP_IND   AL73      Inkjet fault, yellow or no green
                            -] [- 11
%M0842   OP_IND   AL74      Product level, high (cleaning)
                            -] [- 42
%M0843   OP_IND   AL75      Emergency stop module
                            -] [- 18
%M0844   OP_IND   AL76      Alarm door saftey module
                            -] [- 22
%M0845   OP_IND   AL77      Safety monitors activated, clean
                            -] [- 21
%M0847   OP_IND   AL79      ASU mark not found alarm
                            -] [- 26
%M0849   ALARM    AL81      Spare
```

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BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
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                            FBIO  393,396,399
%M0851   OP_IND   AL83      Inkjet fault, red
                            -] [- 11
%M0852   OP_IND   AL84      LS strip reel 1, empty
                            -] [- 30
%M0853   OP_IND   AL85      LS strip reel 2, empty
                            -] [- 29
%M0854   OP_IND   AL86      Safety switch, sterile unit
                            -] [- 20
%M0855   OP_IND   AL87      ASU design sensor misr. ind.
                            -] [- 26
%M0856   OP_IND   AL88      ASU design sensor misr.short st.
                            -] [- 26
%M0857   OP_IND   AL89      Draining valve closed
                            -] [- 55
%M0858   OP_IND   AL90      Draining valve open
                            -] [- 55
%M0859   OP_IND   AL91      Cleaning pipe/plug, wrong pos.
                            -] [- 54
%M0861   OP_IND   AL93      Not able to reach design, FD5CON
                            -] [- 45
%M0865   ALARM    AL97      FBIO  393,397,400
%M0881   ALARM    AL113     FBIO  393,397,400
%M0897   ALARM    AC=0      All alarm condition are 0
                            -] [- 403
                            -]/[- 403,405
                            -( )  390
%M0898   ALARM    AL=0      All alarm bits are 0
                            -] [- 405
                            -( )  393
%M0901   ALARM    AL_RED    Red alarm present
                            -] [- 443
                            -]/[- 445,447
                            -(/)  407
         OP_IND             -] [- 84
%M0902   ALARM    AL_REDF   Red flashing alarm present
                            -]/[- 443
                            -( )  409
         OP_IND             -]/[- 84
%M0903   ALARM    AL_YEL    Yellow alarm present
                            -] [- 445
                            -]/[- 447
                            -(/)  418
         OP_IND             -] [- 84
%M0904   ALARM    AL_YELF   Yellow flashing alarm
                            -]/[- 445
                            -( )  431
         OP_IND             -]/[- 84
%M0905   ALARM    AL_BLU    Blue alarm present
                            -] [- 447
                            -( )  436
         OP_IND             -] [- 84
%M0906   ALARM    AL_BLUF   Blue flashing alarm present
                            -]/[- 447
                            -( )  441
         OP_IND             -]/[- 84
%M0907   ALARM    AH_AIB    Air heater alarm active timer
                            -] [- 159
                            -( )  158
%M0908   ALARM    TAC=1     This alarm condition is 1
                            -]/[- 454
                            -( )  451
%M0909   ALARM    TAL=1     This alarm display bit is 1
                            -] [- 454
                            -( )  452
%M0911   ALARM    AC66A     Upper bending roller alarm front
                            -] [- 271
                            -( )  269
%M0912   ALARM    AC66B     Upper bending roller alarm back
                            -] [- 271
                            -( )  270
%M0913   ASU      ASU_PUL   ASU design sensor one shot
                            -]/[- 55
                            -(^)  54
%M0914   ALARM    ASU_SEN   ASU design sensor missread
                            -] [- 355,359
         ASU                -( )  55
%M0917   MACH_AD  VOL65     Volume adaption, 65 ml
                            -] [- 9
                            -( )  5
         PLMS               -] [- 102
%M0918   MACH_AD  VOL150S   Volume adaption, 150 ml Slim
                            -] [- 15
                            -( )  6
         PLMS               -] [- 103
%M0919   MACH_AD  VOL200B   Volume adaption, 200 ml Base
                            -] [- 21
                            -( )  7
         PLMS               -] [- 105
```

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BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0920   MACH_AD  VOL200S  Volume adaption, 200 ml Slim
                           -] [- 27
                           -( )  8
         PLMS              -] [- 104
%M0921   PLMS     V150S_N  Vol ad 150S golden link
                           -] [- 106
%M0922   PLMS     V200B_N  Vol ad 200B golden link
                           -] [- 107
%M0923   _MAIN    PLMS_ON  1 = PLMS activated
                           -] [- 25
         ALARM             -] [- 146
         MACH_AD           -( )  37
%M0924   _MAIN    W_GUIDE  1 = Web guiding
                           -] [- 24
         MACH_AD           -( )  33
%M0926   SS       F_CLEAN  1 = force cleaning
                           -]/[- 37
         LUBE              -] [- 9
         MACH_AD           -( )  36
%M0928   PLMS     V65S_N   Vol ad 65S golden link
                           -] [- 73
%M0929   ASU      LSS_WA   LS strip waiting for splice
                           -] [- 68,72,73,77
                           -]/[- 72
                           -( )  72
%M0930   ASU      LSS_OS   LS strip button one shot
                           -] [- 72
                           -]/[- 72
                           -(^)  71
%M0931   SS       TCAMODE  1 = Aseptic mode
                           -]/[- 43
         ALARM             -] [- 15,56,77
         SPRAY             -] [- 20,21,54
                           -]/[- 50
         OUT               -] [- 54
         HEAT              -]/[- 23
         PROD              -]/[- 9,45
         MACH_AD           -( )  34
%M0932   ALARM    INKMODE  1 = InkJet mode
                           -] [- 299,339
                           -]/[- 298,338
         MACH_AD           -( )  35
%M0933   ALARM    PER3_ON  Peroxide pump, intermittent run
                           -]/[- 56
         SPRAY             -] [- 18,20
                           -( )  17
%M0934   SPRAY    TEMP_PE  Peroxide pump, timer bit
                           -]/[- 17
                           -( )  18
%M0935   OUT      PRODT    Timer bit Prod. on for 10 min
                           -]/[- 62
         PROD              -( )  28
%M0936   SPRAY    SPRAYLS  SPRAY9 on for 20 min, start LS
                           -( )  37
         OUT               -] [- 39,87
%M0937   SS       SS2T     Timer bit Preheat. on for 5 min
                           -( )  15
         OUT               -] [- 62
%M0938   SPRAY    Y204_ON  LS flow control on in spray&dry
                           -( )  40
         OUT               -] [- 119
%M0940   OUT      TS_OFF   TS power off when STEP UP
                           -]/[- 30
                           -( )  29
%M0941   WEB_GUI  PULSE    Web guiding, Step motor pulse
                           -] [- 11,12,13,14
                           -]/[- 10
                           -( )  10
%M0944   OP_IND   PROD_MB  Memory bit, Production
                           -] [- 101
         OUT               -] [- 65
                           -(S)  63
                           -(R)  64
         PROD              -] [- 28,42
%M0945   OUT      NSTOP_H  Help variable, normal stop
                           -(SM) 65
                           -(RM) 66
         PROD              -]/[- 28
%M0946   SS       NSTOP_C  Cooling time, normal stop
                           -]/[- 44
         OUT               -( )  65
%M0947   ALARM    ASU_PSP  Time to prepare splice
                           -] [- 7
                           -]/[- 6
         ASU               -( )  59
%M0948   ALARM    ASU_PIM  Time to put new paper in magaz.
                           -] [- 7
                           -]/[- 6
         ASU               -( )  60
```


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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M0949   OUT      MAN_MOD   Manual mode
                            -] [- 143
                            -( )  142
%M0950   ASU      ASU_SPL   Memory splice done ASU
                            -] [- 31,57,60
                            -( )  31
%M0951   SS       LSS_BRK   LS strip broken
                            -] [- 27
         ALARM              -] [- 27
         PROD               -] [- 7
         ASU                -( )  80
%M0952   ALARM    LSS_GON   LS strip rotation guard +
                            -]/[- 26
         ASU                -]/[- 80
                            -(^)  78
%M0953   ALARM    LSS_GOF   LS strip rotation guard -
                            -]/[- 26
         ASU                -]/[- 80
                            -(v)  79
%M0955   ALARM    WEB_ON    Paper web rotation guard +
                            -]/[- 39
         ASU                -]/[- 63
                            -(^)  61
%M0956   ALARM    WEB_OFF   Paper web rotation guard -
                            -]/[- 39
         ASU                -]/[- 63
                            -(v)  62
%M0957   SS       WEB_BRK   Paper web broken
                            -] [- 27
         ALARM              -] [- 40
         PROD               -] [- 7
         ASU                -( )  63
%M1025   SPRAY    PER1      Peroxide sequence, initial step
                            -] [- 11
                            FBIO  5,13,15
%M1026   SPRAY    PER2      Filling peroxide bath
                            -] [- 11,20,21,22
%M1027   ALARM    PER3      Peroxide bath level maintained
                            -] [- 56
         SPRAY              -] [- 11,17,20,21,22
%M1028   SPRAY    PER4      Timer fwd to reverse
                            -] [- 9,11
%M1029   SPRAY    PER5      Emptying peroxide bath
                            -] [- 12,20,21,22
%M1030   SPRAY    PER6      Done return to step 1
                            -] [- 15
%M1041   SPRAY    PERSHF1   Shiftbit 1 peroxide functions
                            -] [- 13
                            -( )  11
%M1042   SPRAY    PERSHF2   Shiftbit 2 peroxide functions
                            -] [- 13
                            -( )  12
%M1043   SPRAY    PEREMPT   Peroxide emtying time
                            -] [- 12
                            -( )  7
%M1044   SPRAY    PER4T     Timer bit forward to reverse
                            -] [- 11
                            -( )  9
%M1057   SPRAY    SPRAY1    Spraying sequence, initial step
                            -] [- 42,57
                            FBIO  25,44,46,48,50,52
%M1058   SPRAY    SPRAY2    Clear peroxide pipe
                            -] [- 27,42,57,60,62,65
%M1059   SPRAY    SPRAY3    Open B valve
                            -] [- 42,57,67
%M1060   SPRAY    SPRAY4    Spraycontainer filling, peroxide
                            -] [- 28,42,48,54,57,64,67
%M1061   SPRAY    SPRAY5    Close peroxide in container
                            -] [- 30,42,48,57,67
%M1062   SPRAY    SPRAY6    Air to peroxide container, SPRAY
                            -] [- 32,43,48,60,62,65,67,74
         HEAT               -] [- 31
%M1063   SPRAY    SPRAY7    Depressurize the peroxide system
                            -] [- 33,43,62,67,74
%M1064   SS       SPRAY8    Empty Spraycontainer
                            -]/[- 42
         SPRAY              -] [- 34,43,54,55,64,67,74
%M1065   OP_IND   SPRAY9    Wait for B valve 30 min open
                            -] [- 66,99
                            -]/[- 65
         SPRAY              -] [- 36,43,52,67
         OUT                -] [- 86
%M1066   OP_IND   SPRAY10   B valve closed for 5 min (Cool)
                            -] [- 66,100
                            -]/[- 65
         SPRAY              -] [- 39,43,52
         OUT                -] [- 39,62,86,119
                            -]/[- 50
         HEAT               -] [- 32
```


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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
%M1067   SS       SPRAY11   Spraying/drying completed
                             -] [- 43
         OP_IND              -] [- 66
                             -]/[- 65
         SPRAY               -] [- 43,52
                             -]/[- 50,76
         OUT                 -] [- 16,39,86,119
                             -]/[- 35,50,147
%M1068   SPRAY    SPRAY12   Return to SPRAY1
                             -] [- 46
%M1073   SPRAY    SPRAYS1   Shiftbit 1 spraying
                             -] [- 44
                             -( )  42
%M1074   SPRAY    SPRAYS2   Shiftbit 2 spraying
                             -] [- 44
                             -( )  43
%M1075   SPRAY    SPRAY6T   Timer bit empty spray container
                             -] [- 43
                             -( )  32
%M1076   SPRAY    SPRAY9T   Timer bit B valve open 30 min
                             -] [- 43
                             -( )  36
%M1077   SPRAY    SPRY10T   Timer bit B valve closed 5 min
                             -] [- 43
                             -( )  39
%M1078   SPRAY    SPRAY5T   Timer bit pumping to spraying
                             -] [- 42
                             -( )  30
%M1079   SPRAY    SPRAY8T   Timer bit empty spray container
                             -] [- 43
                             -( )  34
%M1080   SPRAY    SPRAY7T   Timer bit depressurize peroxide
                             -] [- 43
                             -( )  33
%M1081   SPRAY    SPRAY4T   Timer bit Additional filling per
                             -] [- 42
                             -( )  28
%M1082   SPRAY    SPRAY2T   Timer bit clear peroxide pipe
                             -] [- 42
                             -( )  27
%M1084   SPRAY    SPFT1     Racket roller feeder timer
                             -] [- 76
                             -( )  70
%M1085   SPRAY    SPFT2     Interval timer roller feeder
                             -]/[- 69,70
                             -( )  69
%M1086   SPRAY    SPFT3     Racket roller feeder timer 2
                             -] [- 76
                             -( )  72
%M1087   SPRAY    SPFT4     Interval timer roller feeder
                             -]/[- 71,72
                             -( )  71
%M1088   SPRAY    SPFT      Timer fast roller action
                             -] [- 76
                             -]/[- 76
                             -( )  74
%M1089   HEAT     PRF1      Preheating fillsys initial step
                             -] [- 23
                             FBIO  17,24
%M1090   OP_IND   PRF2      B valve open for 15 min
                             -] [- 98
         HEAT                -] [- 19,23,26
%M1091   SPRAY    PRF3      Cooling time for 0,1 sec
                             -] [- 59
         HEAT                -] [- 21,23
%M1092   SS       PRF4      Preheating completed
                             -] [- 42
         SPRAY               -] [- 59
         HEAT                -] [- 23
%M1105   HEAT     PRFSHF1   Shiftbit 1 Preheating
                             -] [- 24
                             -( )  23
%M1106   HEAT     PRF2T     Timer bit B valve, 15 min
                             -] [- 23
                             -( )  19
%M1107   HEAT     PRF3T     Timer bit Cooling for 0,1 min
                             -] [- 23
                             -( )  21
%M1121   TUBE     TUBE1     Tube sealing initial step
                             -] [- 17
                             FBIO  5,19,21
%M1122   TUBE     TUBE2     Horn sounds for 7 sec
                             -] [- 7,17,21,24
         JAW                 -] [- 30,38
%M1123   TUBE     TUBE3     Hydraulic pump on (2 sec)
                             -] [- 9,17,21,24,26
%M1124   TUBE     TUBE4     LS Strip+LS element valve(1 sec)
                             -] [- 11,17,21,23,24,26
%M1125   OUT      TUBE5     Main motor fwd
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -] [- 54,118
                            -]/[- 119
         TUBE               -] [- 13,17,23,26,27
%M1126   TUBE     TUBE6     Spare (design correction)
                            -] [- 18,26
%M1127   TUBE     TUBE7     Spare (design correction)
                            -] [- 18,26
%M1128   SS       TUBE8     Tube sealing completed
                            -] [- 41
         OUT                -]/[- 62
         TUBE               -] [- 18
%M1137   TUBE     TUBESH1   Shiftbit 1 tubesealing
                            -] [- 19
                            -( )  17
%M1138   TUBE     TUBESH2   Shiftbit 2 tubesealing
                            -] [- 19
                            -( )  18
%M1139   TUBE     TUBE2T    Timer bit Horn, tube sealing
                            -] [- 17
                            -( )  7
%M1140   TUBE     TUBE3T    Timer bit Hydr. pump, tube seal.
                            -] [- 17
                            -( )  9
%M1141   TUBE     TUBE4T    Timer bit LS Strip+LS elem.valve
                            -] [- 17
                            -( )  11
%M1142   TUBE     TUBE5T    Timer bit Main motor, tube seal.
                            -] [- 17
                            -( )  13
%M1143   TUBE     TUB_CON   Conditions for tube sealing
                            -] [- 17
                            -( )  15
%M1144   SS       TUB_FD2   Tube forces down to STEP 2
                            -] [- 27
         TUBE               -( )  21
%M1153   PROD     PROD1     Initial step for sequence
                            -] [- 45
                            FBIO  5,48,50,51,53,55,57,61,63
         FILLING            -]/[- 15
%M1154   OUT      PROD2     Main motor power 5 s+C Closed
                            -] [- 133
         PROD               -] [- 7,13,45,57,59,65
         FILLING            -] [- 7
                            -]/[- 15
         PLMS               -] [- 80
%M1155   OUT      PROD3     Main motor run (enable)
                            -] [- 133
         PROD               -] [- 7,45,57,65,68
         FILLING            -]/[- 15
         PLMS               -] [- 80
%M1156   OUT      PROD4     Paper web element on, start reg
                            -] [- 133
         PROD               -] [- 45,65,68,70
         PLMS               -]/[- 81
%M1157   OUT      PROD5     TS sealing ON
                            -] [- 133
         PROD               -] [- 45,65,68,70
         JAW                -] [- 30,38
         PLMS               -]/[- 81
%M1158   OUT      PROD6     Spare step
                            -] [- 133
         PROD               -] [- 46,65,68,70
         PLMS               -]/[- 81
%M1159   OUT      PROD7     Design correction check
                            -] [- 133
         PROD               -] [- 46,50,65,68,70
         PLMS               -]/[- 81
%M1160   OUT      PROD8     Step up to production
                            -] [- 133
         PROD               -] [- 46,50,65,68,70
         PLMS               -]/[- 81
%M1161   SS       PROD9     Full production
                            -] [- 46
         ALARM              -] [- 378,379
         OUT                -] [- 133
         PROD               -] [- 24,46,50,51,53,65,68,70
         WASTE              -]/[- 38
         PLMS               -] [- 197
                            -]/[- 81
%M1162   OUT      PROD10    A valve close (Normal stop)
                            -] [- 134
         PROD               -] [- 30,46,66,68,70
         FILLING            -] [- 8
%M1163   PROD     PROD11    C valve close
                            -] [- 32,47,66,69,71
                            -]/[- 61
%M1164   PROD     PROD12    Spare
                            -] [- 47,66,69,71
                            -]/[- 61
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M1165   PROD     PROD13    Stop main motor
                             -] [- 7,47,71
                             -]/[- 61
%M1166   PROD     PROD14    Spare
                             -] [- 63
%M1168   OP_IND   PROD16    Short stop,close A,  2 sec delay
                             -] [- 69,81
         OUT                 -] [- 134
         PROD                -] [- 23,34,47,66,69,71
         FILLING             -] [- 8
%M1169   SS       PROD17    Short stop
                             -] [- 23
         OP_IND              -] [- 69,77,81,102
         OUT                 -] [- 58,122,134
                             -]/[- 35,60,62,65,124
         PROD                -] [- 36,38,40,47,55,66
         FILLING             -] [- 8
         PLMS                -] [- 34,64
                             -]/[- 35
%M1170   OP_IND   PROD18    Permit step down to normal stop
                             -] [- 69,79,81
         OUT                 -] [- 122
                             -]/[- 124
         PROD                -] [- 7
%M1185   PROD     PROSHF1   Production shiftbit 1
                             -] [- 48
                             -( )  45
%M1186   PROD     PROSHF2   Production shiftbit 2
                             -] [- 48
                             -( )  46
%M1187   PROD     PROSHF3   Production shiftbit 3
                             -] [- 48
                             -( )  47
%M1188   PROD     PROD2T    Timer bit Main motor start
                             -] [- 45
                             -( )  13
%M1189   SS       PRR_CON   Conditions ready for production
                             -] [- 44
         PROD                -] [- 45
                             -]/[- 7
                             -( )  11
%M1191   PROD     PRODCT    Timer bit C valve closed
                             -] [- 45
                             -( )  15
%M1192   OP_IND   SSTOCON   Short stop conditions
                             -]/[- 70,77
         PROD                -] [- 53
                             -]/[- 55
                             -( )  21
%M1194   PROD     PROD10T   Timer bit close A valve
                             -] [- 46
                             -( )  30
%M1195   PROD     PROD11T   Timer bit close C valve
                             -] [- 47
                             -( )  32
%M1197   PROD     NSTOCON   Normal stop conditions
                             -] [- 61
                             -( )  27
%M1198   PROD     PROD16T   Timer bit close A valve
                             -] [- 47
                             -( )  34
%M1199   SS       FD_STE    Force Down to STErilizer signal.
                             -] [- 30
         PROD                -( )  7
%M1200   SS       SST_MAX   Maximum short stop time
                             -] [- 21
         PROD                -( )  36
%M1201   OUT      LS_HIGH   LS high temp condition
                             -( )  60
%M1202   SS       NORSTOT   Maximum time in normal stop
                             -] [- 21
         PROD                -( )  42
%M1203   OUT      LS_T1     First 15 min of prod. timer
                             -]/[- 60
                             -( )  56
%M1204   OUT      LS_T2     First 10 sec after stop timer
                             -] [- 60
                             -( )  58
%M1206   SS       DES_PRD   Design in production range
                             -] [- 45
         ALARM               -] [- 378
                             -]/[- 378
         PROD                -( )  43
%M1207   1T0001   INK_P1    Inkjet print signal package 1
                             -] [- 63
                             -( )  61
%M1208   1T0001   INK_P2    Inkjet print signal package 2
                             -] [- 63
                             -( )  62
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
%M1209   SS       NOT_DES   Not in design range for 3 pacs
                             -] [- 31
         ALARM               -( )  379
%M1210   ALARM    PAC_LIM   Package limit out of design
                             -] [- 382
                             -( )  378
%M1217   LUBE     LUBE1     Lubrication initial step
                             -] [- 35
                             FBIO  17,38,40,42,44,46,48
%M1218   LUBE     LUBE2     Wait for order: pulse lubricant
                             -] [- 35,40,42
%M1219   OP_IND   LUBE3     8 seconds lubricant pulse
                             -] [- 83
         LUBE                -] [- 25,35,50
%M1220   LUBE     LUBE4     Return to LUBE2
                             -] [- 35,44
%M1221   LUBE     LUBE5     Prod: Wait for 5 min main motor
                             -] [- 27,36,42
                             -]/[- 27
%M1222   OP_IND   LUBE6     One pulse of lubricant (8sec)
                             -] [- 83
         LUBE                -] [- 25,36,50
%M1223   LUBE     LUBE7     Return to LUBE5
                             -] [- 36,46
%M1224   OP_IND   LUBE8     Lubrication after cleaning C=0
                             -] [- 77,83
         LUBE                -] [- 29,36
%M1225   OP_IND   LUBE9     5 seconds of step up
                             -] [- 77
         LUBE                -] [- 31,36,42,52,54
         JAW                 -] [- 30,38
%M1226   LUBE     LUBE10    Spare
                             -] [- 36,52,54
%M1227   OP_IND   LUBE11    8 sec lube pulse
                             -] [- 83
         LUBE                -] [- 25,29,37,42,50,54,56
%M1228   LUBE     LUBE12    10 sec waiting period
                             -] [- 33,37,42,54,56
%M1229   LUBE     LUBE13    Count up, if <25 goto LUBE11
                             -] [- 37,42,48,54,56
%M1230   LUBE     LUBE14    Lubrication after clean. done.
                             -] [- 37
%M1233   LUBE     LUBESH1   Shiftbit 1 lubrication
                             -] [- 38
                             -( )  35
%M1234   LUBE     LUBESH2   Shiftbit 2 lubrication
                             -] [- 38
                             -( )  36
%M1235   LUBE     LUBESH3   Shiftbit 3 lubrication
                             -] [- 38
                             -( )  37
%M1236   LUBE     LUB_MAN   Manual lubrication command
                             -] [- 35
                             -(^)  19
%M1237   LUBE     LUB_PRH   Preheating lubrication command
                             -] [- 35
                             -(^)  21
%M1238   LUBE     LUB_TBE   Tube sealing lubrication command
                             -] [- 35
                             -(^)  23
%M1239   LUBE     LUB_PLS   Lube pulse length timer (8sec)
                             -] [- 35,36,37
                             -( )  25
%M1240   LUBE     LUB_PAU   Lube pause length timer (10sec)
                             -] [- 37
                             -( )  33
%M1241   LUBE     LUB_INT   Lube pulse interval timer (5min)
                             -] [- 36
                             -( )  27
%M1242   LUBE     LUB_CNT   Lube pulse counter, lubrication
                             -] [- 37
                             -]/[- 48
                             -( )  29
%M1243   LUBE     LUB9T     Timer bit LUBE button 5 sec
                             -] [- 36
                             -( )  31
%M1249   HEAT     PRE1      Preheating initial step
                             -] [- 12
                             FBIO  5,13,15
%M1250   HEAT     PRE2      Apply air pressure
                             -] [- 12
%M1251   OP_IND   PRE3      Apply power to heaters, wait T.
                             -] [- 97
         OUT                 -] [- 39,42,45,50
         HEAT                -] [- 7,10,12
%M1252   SS       PRE4      Preheating Completed
                             -] [- 40
         OUT                 -] [- 39,42,45,50
                             -]/[- 62
```

TCA/P1
BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
         HEAT              -] [- 12
         TUBE              -] [- 17
%M1253   HEAT     PRE5      -] [- 15
%M1265   HEAT     PRESHF1   Preheating shiftbit 1
                            -] [- 13
                            -( )  12
%M1266   HEAT     PRE_COM   Preheating completed timer
                            -] [- 12
                            -( )  7
%M1268   HEAT     PRE_AT    Preheating air pressure timer
                            -] [- 12
                            -( )  9
%M1269   HEAT     PRE3T     Timer bit Preheating add.heating
                            -] [- 12
                            -( )  10
%M1281   SPRAY    STER1     Initial step sterilizer signals
                            -] [- 79
                            FBIO  78,80,82
%M1282   SPRAY    STER2     Send signal to sterilizer
                            -] [- 79
         OUT               -] [- 78
%M1283   SPRAY    STER3     Await confirm from sterilizer
                            -] [- 79
         OUT               -] [- 78
%M1284   SS       STER4     Ready to go on to Drive motor on
                            -] [- 44
         SPRAY             -] [- 79
         OUT               -] [- 78
%M1297   SPRAY    STERSH1   Shiftbit 1 sterilizer signals
                            -] [- 80
                            -( )  79
%M1313   DESIGN   DES1      Design correction initial step
                            -] [- 12
                            FBIO  8,13
%M1314   ALARM    DES2      Calculate action
                            -] [- 378
         DESIGN            -] [- 12,15,16,17,19,20,21,22,24,25
%M1315   DESIGN   DES3      Reset mark latch
                            -] [- 10,12
%M1316   DESIGN   DES4      Return to DES1
                            -] [- 8
%M1329   DESIGN   DESSHF1   Design correction shiftbit 1
                            -] [- 13
                            -( )  12
%M1332   1T0001   INK_OS    Inkjet, One shot design mark
                            -] [- 59
                            -(^)  58
%M1333   WASTE    RES_CT    Reset total package counter
                            -] [- 34
%M1334   DESIGN   MARK      New marker value recieved
                            -] [- 12
                            -]/[- 12
                            -(RM) 10
         1T0001            -(SM) 53
%M1340   1T0001   DES_OS    Oneshot design sensor edge
                            -] [- 53,54
                            -(^)  52
%M1345   HEAT     EVAC_T    Timer evacuation in step 0
                            -] [- 29
                            -( )  28
%M1346   OUT      EVAC      Evacuation condition.
                            -] [- 72,74
         HEAT              -( )  29
%M1347   HEAT     PERE_T    Peroxide evacuation timer
                            -] [- 32
                            -( )  33
%M1348   OUT      PEVAC     Peroxide evacuation latch
                            -] [- 72,74,92
         HEAT              -] [- 33
                            -(SM) 31
                            -(RM) 32
%M1349   OUT      ASEVAC    Aseptic chamber evac. timer
                            -] [- 72,74,92
         HEAT              -( )  35
%M1361   OUT      TS_COND   Transversal sealing ON
                            -] [- 138
         PROD              -( )  73
         JAW               -] [- 13,14
         1T0001            -] [- 41,42,46,47,50
%M1362   1T0001   TS1_OS    Oneshot start TS side 1
                            -] [- 44
                            -(^)  41
%M1363   1T0001   TS2_OS    Oneshot start TS side 2
                            -] [- 45
                            -(^)  42
%M1377   WASTE    PACK1     Package distribution initial pos
                            -] [- 18
                            FBIO  16,19,21
%M1378   WASTE    PACK2     Wait for production package (1)
```


EM1.1TS700012.fm

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REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -] [- 18
%M1379   WASTE    PACK3     Increment counter
                            -] [- 10,18
%M1380   WASTE    PACK4     Preset reached N=Jump to PACK2
                            -] [- 18,21
%M1381   WASTE    PACK5     Toggle distributor, reset CNT
                            -] [- 10,18,23
                            -]/[- 23
%M1382   WASTE    PACK6     Return to PACK2
                            -] [- 21
%M1393   WASTE    PACKSH1   Package distribution shiftbit 1
                            -] [- 19
                            -( )  18
%M1395   WASTE    PACK_L    Latch right/left distribution
                            -] [- 23,25
                            -]/[- 23
                            -( )  23
%M1396   WASTE    PROD_P    Production package condition
                            -] [- 18
                            -(^)  8
%M1397   WASTE    PA_CNT    Package counter bit
                            -] [- 18
                            -]/[- 21
                            -( )  10
%M1409   WASTE    WASTE1    Package waste initial position
                            -] [- 29
                            FBIO  27,30,36
%M1410   WASTE    WASTE2    Await encoder position
                            -] [- 29
%M1411   WASTE    WASTE3    Shift data one step
                            -] [- 29,32,34,40
         PLMS               -] [- 51,54,57,58,61
%M1412   WASTE    WASTE4    Await encoder position
                            -] [- 29
%M1413   WASTE    WASTE5    Shift data one step
                            -] [- 29,32,34,40
         PLMS               -] [- 51,54,57,58,61
%M1414   WASTE    WASTE6    Return to WASTE2
                            -] [- 36
%M1425   WASTE    WASTSH1   Shiftbit 1 package waste
                            -] [- 30
                            -( )  29
%M1427   WASTE    WS_LSS    Waste due to LS strip splice
                            -] [- 84
                            -(^)  52
%M1428   WASTE    W_LATCH   Waste latch 1=Waste
                            -] [- 48
                            -(SM) 45
                            -(RM) 44
%M1430   WASTE    WS_PER    Waste paper in peroxide bath
                            -] [- 76
                            -(^)  60
%M1431   WASTE    WS_SA     Waste paper at SA Element
                            -] [- 77
                            -(^)  62
%M1432   WASTE    WS_DRY    Waste paper in drying unit
                            -] [- 74
                            -(^)  58
%M1433   WASTE    WS_LS     Waste paper in LS heater
                            -] [- 73
                            -(^)  56
%M1434   WASTE    WS_JAW    Waste paper in jaw system
                            -] [- 72
                            -(^)  54
%M1435   WASTE    WS_ALL    Waste paper from peroxide in
                            -] [- 75
                            -(^)  64
%M1436   WASTE    WS_LOW    Waste due to LOW level error
                            -] [- 72
                            -(^)  66
%M1437   WASTE    WS_HI     Waste due to HI level error
                            -] [- 72
                            -(^)  67
%M1438   WASTE    WS_TS     Waste due to TS fault
                            -] [- 72
                            -(^)  69
%M1439   WASTE    WS_FCT    Waste due to ASU/factory splice
                            -] [- 78
                            -(^)  70
%M1440   WASTE    WS_LSB    Waste due to LS strip broken
                            -] [- 83
                            -(^)  51
%M1441   PROD     FIN1      Finished production initial step
                            -] [- 77,81
                            FBIO  75,82
%M1442   OUT      FIN2      Close C valve
                            -] [- 5
         PROD               -] [- 69,71,81
%M1443   OUT      FIN3      Count 20 packages
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -] [- 5
         PROD               -] [- 69,71,77,81
%M1444   SS       FIN4      Wait 1 minute
                            -] [- 87
         OP_IND             -] [- 67,72,77,79
         OUT                -] [- 5
         PROD               -] [- 79,81
%M1445   OUT      FIN5      Spare
                            -]/[- 40,43,46
         PROD               -] [- 81
%M1446   SS       FIN6      Ready to step to Cleaning fills.
                            -] [- 47
         OUT                -]/[- 40,43,46
         PROD               -] [- 81
         PLMS               -] [- 90
                            -]/[- 83,92
%M1457   PROD     FINSHF1   Finished production shiftbit 1
                            -] [- 82
                            -( )  81
%M1458   PROD     FIN_CNT   Production finished package CNT
                            -] [- 81
                            -( )  77
%M1459   PROD     FIN_TMR   Finished timer 1 minute
                            -] [- 81
                            -( )  79
%M1505   SS       CLEAN1    Cleaning initial pos
                            -] [- 37
         LUBE               -] [- 9
                            FBIO  5,11,13,15
%M1506   OP_IND   CLEAN2    A valve has been open
                            -] [- 85
         LUBE               -] [- 9
         PROD               -] [- 28
%M1507   LUBE     CLEAN3    Wait for C valve closed (final)
                            -] [- 9
%M1508   LUBE     CLEAN4    Cleaning in process
                            -] [- 10,15
%M1509   LUBE     CLEAN5    Spare step
                            -] [- 10,15
%M1510   SS       CLEAN6    Cleaning done
                            -] [- 93
         ALARM              -] [- 362,363
                            -]/[- 367
         LUBE               -] [- 10
%M1511   LUBE     CLEAN7    Return to CLEAN1
                            -] [- 13
%M1521   LUBE     CLEANS1   Cleaning cycle shift bit
                            -] [- 11
                            -( )  9
%M1523   LUBE     CLEANS2   Cleaning cycle shift bit 2
                            -] [- 11
                            -( )  10
%M1524   LUBE     CLEAN     Cleaning efter service mode
                            -] [- 9
                            -(^)  7
%M1601   LUBE     MM_LUB    Main motor contactor,lubrication
                            -( )  54
         OUT                -] [- 5
%M1602   OUT      MM_PRO    Main motor contactor,production
                            -] [- 5
         PROD               -( )  67
%M1603   OUT      MM_IN     Main motor contactor,inching
                            -] [- 5
                            -( )  21
%M1604   OUT      MM_TUB    Main motor contactor, tube seal.
                            -] [- 5
         TUBE               -( )  26
%M1609   LUBE     MR_LUB    Main motor run, lubrication
                            -( )  56
         OUT                -] [- 13
%M1610   OUT      MR_PRO    Main motor run, production
                            -] [- 13,118
         PROD               -( )  69
%M1612   OUT      MR_TUB    Main motor run, tube sealing
                            -] [- 13
         TUBE               -( )  27
%M1617   LUBE     HO_LUB    Horn warning in lubrication
                            -( )  52
         OUT                -] [- 103
%M1618   OUT      HO_TUB    Horn warning in tube sealing
                            -] [- 103
         TUBE               -( )  24
%M1619   OUT      HO_INC    Horn warning in inching
                            -] [- 103
                            -( )  21
%M1620   OUT      HO_PROD   Horn warning in production
                            -] [- 103
         PROD               -( )  59
%M1621   OUT      HO_SST    Last minute of short stop
```


EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -] [- 103
         PROD               -( )  38
%M1622   PROD     DL_SST    Delay in short stop
                            -] [- 47
                            -( )  40
%M1627   OP_IND   HY_BLED   Hydraulic pump bleeding
                            -] [- 17
         OUT                -] [- 97,122,123,124
                            -]/[- 122
                            -( )  122
%M1628   OUT      HY_BLOS   Hydraulic pump bleeding OS
                            -] [- 122
                            -]/[- 122
                            -(^)  121
%M1629   OUT      HY_TMR    Hydraulic pump bleeding timer
                            -]/[- 122
                            -( )  123
%M1649   SPRAY    BV_SPR    B+R Valve open in spraying
                            -( )  67
         OUT                -] [- 131
%M1650   OUT      BV_PRF    B+R valve open in preheatfillsys
                            -] [- 131
         HEAT               -( )  26
%M1681   OUT      LS_TUBE   LS element valves, tube sealing
                            -] [- 111
         TUBE               -( )  23
%M1729   OUT      REG1      Initial pos closed valve
                            -]/[- 134
         FILLING            -] [- 7
                            FBIO  5,9
%M1730   FILLING  REG2      Spare
                            -] [- 7
%M1731   FILLING  REG3      Set booster flow latch
                            -] [- 7,11,22
                            -]/[- 13
%M1732   FILLING  REG4      Closed wait start ramp
                            -] [- 7,15
                            -]/[- 13
%M1733   OUT      REG5      Start ramp increasing flow
                            -] [- 128
         FILLING            -] [- 7,12,16,24,25,27,38,39
                            -]/[- 13
%M1734   ALARM    REG6      Regulator active, filling
                            -] [- 179
         OUT                -] [- 128
         FILLING            -] [- 8,12,35,37,39,48
                            -]/[- 13
         WASTE              -]/[- 38
%M1735   FILLING  REG7      Stop ramp, decreasing flow
                            -] [- 8,18,29,30,32,33
%M1736   FILLING  REG8      Stop with filled tube.
                            -] [- 8,20
%M1737   FILLING  REG9      -] [- 5
%M1745   FILLING  REGSHF1   Shiftbit 1 regulator control
                            -] [- 9
                            -( )  7
%M1746   FILLING  REGSHF2   -] [- 9
                            -( )  8
%M1748   FILLING  REG_MAN   Regulator in "manual mode"
                            -] [- 35
                            -( )  22
%M1749   FILLING  REG5T     Timer bit regulator ramp up
                            -] [- 7
                            -( )  16
%M1750   FILLING  REG7T     Timer bit regulator ramp down
                            -] [- 8
                            -( )  18
%M1751   FILLING  REG_BOS   Booster flow latch
                            -] [- 39
                            -(SM) 11
                            -(RM) 13
%M1752   ALARM    REG_LOW   Level below low alarm level
                            -] [- 184,188
                            -]/[- 183,187
         FILLING            -( )  45
%M1753   ALARM    REG_HI    Level above high alarm level
                            -] [- 179,180,302
                            -]/[- 178,303
         FILLING            -( )  46
%M1754   FILLING  REG_LVL   Regulator level narrow window T
                            -] [- 49,50
                            -( )  48
%M1755   FILLING  REG_LV2   Regulator level OK timer
                            -] [- 51
                            -]/[- 48
                            -( )  50
%M1757   FILLING  REG8T     Timer bit A valve close
                            -] [- 8
                            -( )  20
```

TCA/P1
BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-01:01

EM1.1TS700012.fm

```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
%M1758   FILLING  REG4T     Timer bit delay filling start
                            -] [- 7
                            -( )  15
%M1759   OUT      REG_HH    Level above high level, close A
                            -]/[- 128
         FILLING            -( )  47
%M1761   PROD     AE_MSB    Adjusted encoder MSB
                            -] [- 77
         WASTE              -] [- 29
                            -]/[- 29
         JAW                -] [- 8
                            -]/[- 7
                            -( )  6
         PLMS               -] [- 5,45
                            -]/[- 7,47
%M1762   JAW      S1_SH     Side 1 jaw data oneshot
                            -] [- 23,43
                            -(^)  7
%M1763   JAW      S2_SH     Side 2 jaw data oneshot
                            -] [- 18,40,44,48
                            -(^)  8
%M1764   WASTE    S1_ERR    Jaw Error bit for side 1
                            -] [- 69
         JAW                -(SM) 13
                            -(RM) 43
%M1765   WASTE    S2_ERR    Jaw Error bit for side 2
                            -] [- 69
         JAW                -] [- 18
                            -(SM) 14
                            -(RM) 44
%M1766   JAW      S1_RANG   Side 1 jaw error range
                            -] [- 13
                            -( )  10
%M1767   JAW      S2_RANG   Side 2 jaw error range
                            -] [- 14
                            -( )  11
%M1768   JAW      S1_SFHT   Shift jaw error data for side 1
                            -] [- 25,26,27,28,31
                            -( )  23
%M1769   JAW      S2_SHFT   Shift jaw error data for side 2
                            -] [- 33,34,35,36,41
                            -( )  40
%M1770   OUT      MAINT     Main motor running timer
                            -( )  9
         PROD               -] [- 47
         JAW                -] [- 13,14
         ASU                -] [- 63,68,78,79,80
%M1777   WASTE    WASTESH   Waste shift register 32 bits
                            FBIO  48
%M1796   WASTE    WASTE_P   Waste position in shift reg 1.9s
                            -] [- 50
%M1809   1T0001   ENC1      Encoder bit 1 binary
                            -( )  16
                            FBIO  19
%M1810   1T0001   ENC2      Encoder bit 2 binary
                            -] [- 16
                            -]/[- 16
                            -( )  15
%M1811   1T0001   ENC3      Encoder bit 3 binary
                            -] [- 15
                            -]/[- 15
                            -( )  14
%M1812   1T0001   ENC4      Encoder bit 4 binary
                            -] [- 14
                            -]/[- 14
                            -( )  13
%M1813   1T0001   ENC5      Encoder bit 5 binary
                            -] [- 13
                            -]/[- 13
                            -( )  12
%M1814   1T0001   ENC6      Encoder bit 6 binary
                            -] [- 12
                            -]/[- 12
                            -( )  11
%M1815   1T0001   ENC7      Encoder bit 7 binary
                            -] [- 11
                            -]/[- 11
                            -( )  10
%M1816   1T0001   ENC8      Encoder bit 8 binary
                            -] [- 10
                            -]/[- 10
                            -( )  9
%M1817   1T0001   ENC9      Encoder bit 9 binary
                            -] [- 9
                            -]/[- 9
                            -( )  8
%M1818   1T0001   ENC10     Encoder bit 10 binary
                            -] [- 8
                            -]/[- 8
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -( )  7
%M1883   ASU      ASU_TGL   Toggle ASU grip OS
                            -] [- 8
                            -]/[- 8
                            -(^)  7
%M1884   ASU      ASU_GRP   ASU grip new paper bit
                            -] [- 8,24
                            -]/[- 8,30
                            -( )  8
%M1886   1T0001   ASU_DES   ASU design mark position
                            -(SM) 57
         ASU                -] [- 24,25
                            -(RM) 35
%M1887   1T0001   ASU_OS    ASU design mark position OS
                            -] [- 57
                            -(^)  56
%M1889   ASU      LSS1      LS strip splice sequence
                            -] [- 68
                            FBIO  65,69,70
%M1890   ASU      LSS2      Await one coil empty
                            -] [- 68
%M1891   PLMS     LSS3      Strip seal, strip mag on
                            -] [- 94
         ASU                -] [- 68,75
                            -]/[- 72
%M1892   WASTE    LSS4      Sealing time 1.50 s
                            -] [- 52
         ASU                -] [- 66,68,74,75
%M1893   ASU      LSS5      Cooling time 2.00 s
                            -] [- 67,68,75,76
%M1894   ASU      LSS6      Spare step
                            -] [- 68
%M1895   ASU      LSS7      Return to LSS2
                            -] [- 70
%M1905   ASU      LSSSHF1   Shiftbit 1 LS strip splice
                            -] [- 69
                            -( )  68
%M1907   ASU      LS_SPL    Splice timer LS strip
                            -] [- 68
                            -( )  66
%M1908   ASU      LS_COOL   Cooling timer LS strip
                            -] [- 68
                            -( )  67
%M1925   OUT      A25_ON    Sterile house element on
                            -] [- 87
                            -( )  86
%M1937   OP_IND   LMP1      Lamp test initial step
                            -] [- 92
                            FBIO  86,94,95
%M1938   OP       LMP2      Operator panel & button
                            -] [- 15
         OP_IND             -] [- 87,92
         OUT                -] [- 97,101,105,109
         ASU                -] [- 73
%M1939   ALARM    LMP3      Alarm beacon - Red
                            -] [- 443
         OP_IND             -] [- 88,92
%M1940   ALARM    LMP4      Alarm beacon - Yellow
                            -] [- 445
         OP_IND             -] [- 89,92
%M1941   ALARM    LMP5      Alarm beacon - Blue
                            -] [- 447
         OP_IND             -] [- 90,92
%M1942   OP_IND   LMP6      Alarm beacon - Horn
                            -] [- 91,93
         OUT                -] [- 103
%M1943   OP_IND   LMP7      Return to initial step
                            -] [- 95
%M1953   OP_IND   LMP2T     -] [- 92
                            -( )  87
%M1954   OP_IND   LMP3T     -] [- 92
                            -( )  88
%M1955   OP_IND   LMP4T     -] [- 92
                            -( )  89
%M1956   OP_IND   LMP5T     -] [- 92
                            -( )  90
%M1957   OP_IND   LMP6T     -] [- 93
                            -( )  91
%M1958   OP_IND   LMPSHF1   -] [- 94
                            -( )  92
%M1959   OP_IND   LMPSHF2   -] [- 94
                            -( )  93
%M1960   ALARM    TS_ERR1   3 TS faults on one jaw, side 1
                            -] [- 192
                            -]/[- 191
         JAW                -( )  28
         PLMS               -] [- 202
%M1961   ALARM    TS_ERR2   3 TS faults on one jaw, side 2
                            -] [- 192
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -]/[- 191
         JAW                -( )  36
         PLMS               -] [- 229
%M1962   ALARM    TS_ERR6   6 TS faults in one rotation
                            -] [- 192
                            -]/[- 191
         JAW                -] [- 16
                            -( )  21
%M1963   JAW      TSTEMP1   6 TS faults in one rot, side 1
                            -] [- 21
                            -( )  19
         PLMS               -] [- 227
%M1964   JAW      TSTEMP2   6 TS faults in one rot, side 2
                            -] [- 21
                            -( )  20
         PLMS               -] [- 254
%M1965   MACH_AD  FACTORY   Factory settings
                            -] [- 39
                            -(RM) 39
%M1966   MACH_AD  CUSTOM    Customer settings
                            -] [- 41
                            -(RM) 41
%M1985   ASU      ASU1      Initial position ASU sequence 2
                            -] [- 24
                            -]/[- 56
                            FBIO  5,28,30,33
%M1986   ASU      ASU2      All in position, grip new paper
                            -] [- 8,24,57
                            -]/[- 56
%M1987   ASU      ASU3      Waiting for splice order
                            -] [- 8,24,30,46
                            -]/[- 56
%M1988   1T0001   ASU4      High speed - free loop
                            -] [- 57
         ASU                -] [- 10,11,24,46,53,59
                            -]/[- 35
%M1989   ASU      ASU5      High speed - free loop
                            -] [- 12,24,46,53
%M1990   1T0001   ASU6      Low speed - free loop
                            -] [- 57
         ASU                -] [- 10,25,46,53
                            -]/[- 35,53
%M1991   ASU      ASU7      Stopped motor
                            -] [- 13,25,47
%M1992   ASU      ASU8      -] [- 25,47
%M1993   ASU      ASU9      Lock the old paper (rear cyl.)
                            -] [- 14,25,38,47
%M1994   ASU      ASU10     Sealing down, cut old paper
                            -] [- 25,38,40,47
%M1995   ASU      ASU11     Release grip on new paper
                            -] [- 15,17,26,38,40,51
%M1996   ASU      ASU12     Knife opens to limit switch
                            -] [- 17,26,38,40,43,51
%M1997   ASU      ASU13     Await sealing time end
                            -] [- 17,26,38,40,43,51
%M1998   ASU      ASU14     Cooling time
                            -] [- 18,26,38,40,43
%M1999   ASU      ASU15     Release paper lock (rear cyl.)
                            -] [- 19,26,43
%M2000   ASU      ASU16     Release sealing jaws
                            -] [- 21,27,43
%M2001   ASU      ASU17     Release power to sealing jaws
                            -] [- 22,27,43,51
%M2002   ASU      ASU18     Knife closes to initial position
                            -] [- 27
%M2003   ASU      ASU19     Return to ASUB1
                            -] [- 31,33
%M2017   ASU      ASUSHF1   Splicing unit shift bit 1
                            -] [- 28
                            -( )  24
%M2018   ASU      ASUSHF2   Splicing unit shift bit 2
                            -] [- 28
                            -( )  25
%M2019   ASU      ASUSHF3   Splicing unit shift bit 3
                            -] [- 28
                            -( )  26
%M2020   ASU      ASUSHF4   Splicing unit shift bit 4
                            -] [- 28
                            -( )  27
%M2021   ALARM    ASU4+6T   Timer bit max time wait for B125
                            -] [- 323
         ASU                -] [- 24,25
                            -( )  10
%M2022   ASU      ASU5T     Timer bit high speed free loop
                            -] [- 24
                            -( )  12
%M2023   1T0001   ASU4T     Timer bit
                            -] [- 57
         ASU                -( )  11
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
%M2024   ASU      ASU7T     Timer bit stopped motor freeloop
                            -] [- 25
                            -( )  13
%M2025   ASU      ASU9T     Timer bit lock the old paper
                            -] [- 25
                            -( )  14
%M2026   ASU      ASU11T    Timer bit release grip new paper
                            -] [- 26
                            -( )  15
%M2027   ASU      ASU13T    Timer bit sealing
                            -] [- 26
                            -]/[- 51
                            -( )  17
%M2028   ASU      ASU14T    Timer bit cooling
                            -] [- 26
                            -( )  18
%M2029   ASU      ASU15T    Timer bit release paper lock
                            -] [- 26
                            -( )  19
%M2030   ASU      ASU16T    Timer bit release sealing jaws
                            -] [- 27
                            -( )  21
%M2031   ASU      ASU17T    Timer bit release power sealing
                            -] [- 27
                            -( )  22
%M2049   WEB_GUI  GUI1      Web guiding sequence initial pos
                            -] [- 5
                            FBIO  6,7
%M2050   WEB_GUI  GUI2      -] [- 5,8,11,13,14
%M2051   WEB_GUI  GUI3      -] [- 5,8,12,13
%M2052   WEB_GUI  GUI4      -] [- 5,8,9,11,14
%M2053   WEB_GUI  GUI5      -] [- 11,12
%M2065   WEB_GUI  GUISHF1   Web guiding shiftbit 1
                            -] [- 6
                            -( )  5
%M2067   WEB_GUI  MIDDONE   -] [- 5
                            -( )  14
%M2609   PLMS               PLMS alarm
                            FBIO  256
%M2616   PLMS               PLMS Sterile doors
                            -( )  191
%M2619   PLMS               PLMS Emergency stop active
                            -( )  192
%M2620   PLMS               PLMS Door monitor alarm
                            -( )  193
%M2641   PLMS               PLMS alarm
                            -( )  199
%M2642   PLMS               PLMS Service switch on
                            -( )  149
%M2643   PLMS               PLMS PLC battery low
                            -( )  200
%M2644   PLMS               PLMS Surge volt protection
                            -( )  185
%M2645   PLMS               PLMS Overload
                            -( )  190
%M2673   PLMS               PLMS Low level spray container
                            -( )  152
%M2674   PLMS               PLMS High level spray container
                            -( )  153
%M2675   PLMS               PLMS Reg. Valve membrane broken
                            -( )  159
%M2676   PLMS               PLMS Reg valve not fully open
                            -( )  165
%M2677   PLMS               PLMS C-valve out of pos.
                            -( )  168
%M2678   PLMS               PLMS Low steam temp
                            -( )  169
%M2679   PLMS               PLMS Prod/clean pipe not in pos
                            -( )  170
%M2680   PLMS               PLMS Low pressure sterile air
                            -( )  171
%M2681   PLMS               PLMS Draining valve open
                            -( )  172
%M2682   PLMS               PLMS A-valve out of pos
                            -( )  173
%M2683   PLMS               PLMS Air/clean pipe not in pos
                            -( )  175
%M2684   PLMS               PLMS B-valve out of pos
                            -( )  176
%M2685   PLMS               PLMS Low temp air superheater
                            -( )  177
%M2686   PLMS               PLMS Low temp preheat element
                            -( )  178
%M2687   PLMS               PLMS Low temp LS element
                            -( )  179
%M2688   PLMS               PLMS Cleaning pipe/plug not in s
                            -( )  182
%M2689   PLMS               PLMS spare
                            -( )  183
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%M2690   PLMS               PLMS Main air pressure
                            -( )  198
%M2691   PLMS               PLMS alarm
                            -( )  197
%M2706   PLMS               PLMS Index sensor misread
                            -( )  196
%M2707   PLMS               PLMS Hydralic switch
                            -( )  186
%M2708   PLMS               PLMS Oil pressure, lubr.
                            -( )  188
%M2709   PLMS               PLMS Central lub, low lvl time t
                            -( )  189
%M2710   PLMS               PLMS Water, low pressure
                            -( )  187
%M2711   PLMS               PLMS alarm
                            -( )  227
%M2712   PLMS               PLMS alarm
                            -( )  254
%M2713   PLMS               PLMS alarm
                            -] [- 205
                            -]/[- 206,209,212,215,218,221,225
                            -( )  204
%M2714   PLMS               PLMS alarm
                            -] [- 208
                            -]/[- 203,209,212,215,218,221,224
                            -( )  207
%M2715   PLMS               PLMS alarm
                            -] [- 211
                            -]/[- 203,206,212,215,218,221,224
                            -( )  210
%M2716   PLMS               PLMS alarm
                            -] [- 214
                            -]/[- 203,206,209,215,218,221,224
                            -( )  213
%M2717   PLMS               PLMS alarm
                            -] [- 217
                            -]/[- 203,206,209,212,218,221,224
                            -( )  216
%M2718   PLMS               PLMS alarm
                            -] [- 220
                            -]/[- 203,206,209,212,215,221,224
                            -( )  219
%M2719   PLMS               PLMS alarm
                            -] [- 223
                            -]/[- 203,206,209,212,215,218,224
                            -( )  222
%M2720   PLMS               PLMS alarm
                            -] [- 226
                            -]/[- 204,207,210,213,216,219,222
                            -( )  225
%M2721   PLMS               PLMS alarm
                            -] [- 232
                            -]/[- 233,236,239,242,245,248,252
                            -( )  231
%M2722   PLMS               PLMS alarm
                            -] [- 235
                            -]/[- 230,236,239,242,245,248,251
                            -( )  234
%M2723   PLMS               PLMS alarm
                            -] [- 238
                            -]/[- 230,233,239,242,245,248,251
                            -( )  237
%M2724   PLMS               PLMS alarm
                            -] [- 241
                            -]/[- 230,233,236,242,245,248,251
                            -( )  240
%M2725   PLMS               PLMS alarm
                            -] [- 244
                            -]/[- 230,233,236,239,245,248,251
                            -( )  243
%M2726   PLMS               PLMS alarm
                            -] [- 247
                            -]/[- 230,233,236,239,242,248,251
                            -( )  246
%M2727   PLMS               PLMS alarm
                            -] [- 250
                            -]/[- 230,233,236,239,242,245,251
                            -( )  249
%M2728   PLMS               PLMS alarm
                            -] [- 253
                            -]/[- 231,234,237,240,243,246,249
                            -( )  252
%M2737   PLMS               PLMS Upper bending roller
                            -( )  164
%M2738   PLMS               PLMS Design out of pos
                            -( )  166
%M2739   PLMS               PLMS Design sensor misread
                            -( )  167
%M2740   PLMS               PLMS High product level
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -----------------------------------
                            -( )  180
%M2741   PLMS               PLMS Low product level
                            -( )  181
%M2769   PLMS               PLMS Squee-gee rollers
                            -( )  160
%M2770   PLMS               PLMS Undercurrent heating chambr
                            -( )  161
%M2771   PLMS               PLMS Low level H2O2 bath
                            -( )  162
%M2772   PLMS               PLMS High level H2O2 bath
                            -( )  163
%M2801   PLMS               PLMS Package material supply
                            -( )  151
%M2802   PLMS               PLMS LS strip reel 2 empty
                            -( )  154
%M2803   PLMS               PLMS LS strip broken
                            -( )  155
%M2804   PLMS               PLMS LS strip element low temp
                            -( )  156
%M2805   PLMS               PLMS LS strip reel 1 empty
                            -( )  157
%M2806   PLMS               PLMS Web splice cover open
                            -( )  194
%M2807   PLMS               PLMS Web splice des. Sen. Out os
                            -( )  195
%M2808   PLMS               PLMS Packages material web brokn
                            -( )  158
%M2809   PLMS               PLMS Free loop high/low
                            -( )  184
%M2810   PLMS               PLMS alarm
                            -( )  174
%M2993   PLMS               PLMS Volume
                            -( )  102
                            FBIO  108
%M2994   PLMS               PLMS Volume
                            -( )  103
%M2995   PLMS               PLMS Volume
                            -( )  104
%M2996   PLMS               PLMS Volume
                            -( )  105
%M2997   PLMS               PLMS Volume
                            -( )  106
%M2998   PLMS               PLMS Volume
                            -( )  107
%M3016   PLMS               PLMS Operator interrupted motort
                            -( )  81
%M3017   PLMS               PLMS Short stop
                            -]/[- 197
                            -( )  64
%M3018   PLMS               PLMS Step down from prod
                            -] [- 69
                            -(S)  68
                            -(R)  69
%M3019   PLMS               PLMS Emergency stop
                            -( )  71
%M3020   PLMS               PLMS Door guards
                            -( )  73
%M3021   PLMS               PLMS CIP clean, extern clean
                            -( )  75
%M3022   PLMS               PLMS CIP clean, extern clean
                            -( )  77
%M3026   PLMS               PLMS Start attendance
                            -] [- 80
                            -( )  79
%M3027   PLMS               PLMS Preparation phase
                            -] [- 84,86
                            -( )  83
%M3028   PLMS               PLMS Production phase
                            -] [- 51,54,57,58,61,86,88,90
                            -]/[- 83
                            -( )  86
%M3029   PLMS               PLMS Prod. Phase end zero
                            -( )  88
%M3031   PLMS               PLMS Strip splice
                            -( )  94
%M3032   PLMS               PLMS Paper splice
                            -( )  96
%M3033   PLMS               PLMS Paper splice detected
                            -( )  98
%M3040   PLMS               PLMS DDE OK
                            -] [- 141
                            -(S)  146
                            -(R)  147
%M3041   PLMS     TEST1     PLMS Test1
                            -( )  128
%M3042   PLMS     TEST2     PLMS Test2
                            -( )  129
%M3043   PLMS     TEST3     PLMS Test3
                            -( )  130
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%M3044   PLMS     TEST4    PLMS Test4
                           -( )  131
%M3045   PLMS     TEST5    PLMS Test5
                           -( )  132
%M3046   PLMS     TEST6    PLMS Test6
                           -( )  133
%M3047   PLMS     TEST7    PLMS Test7
                           -( )  134
%M3048   PLMS     TEST8    PLMS Test8
                           -( )  135
%M3049   PLMS              PLMS Attendance on
                           -] [- 83,86
%M3050   PLMS              PLMS Alarm reset
                           -( )  100
%M3052   PLMS     PLMS_WD  PLMS Watchdog to PLMS
                           -] [- 140
                           -]/[- 139
                           -(S)  137
                           -(R)  138
%M3053   PLMS     PLC_WD   PLMS Watchdog to PLC
                           -] [- 138,146
                           -]/[- 137,147
%M3054   PLMS              PLMS Production phase end
                           -] [- 91
                           -(S)  90
                           -(R)  91
%M3055   PLMS              Preperation phase inter.
                           -( )  84
%M3105   PLMS              PLMS Ladder steps
                           -( )  27
                           FBIO  43
%M3106   PLMS              PLMS Ladder steps
                           -( )  28
%M3107   PLMS              PLMS Ladder steps
                           -( )  29
%M3108   PLMS              PLMS Ladder steps
                           -( )  30
%M3109   PLMS              PLMS Ladder steps
                           -( )  31
%M3110   PLMS              PLMS Ladder steps
                           -( )  32
%M3111   PLMS              PLMS Ladder steps
                           -( )  33
%M3112   PLMS              PLMS Ladder steps
                           -] [- 36
                           -]/[- 35
                           -( )  34
%M3113   PLMS              PLMS Ladder steps
                           -] [- 38
                           -]/[- 34
                           -( )  35
%M3114   PLMS              PLMS Ladder steps
                           -( )  40
%M3115   PLMS              PLMS Ladder steps
                           -( )  41
%M3116   PLMS              PLMS Ladder step
                           -( )  42
%M3137   PLMS              PLMS option
                           -( )  110
                           FBIO  126
%M3138   PLMS              PLMS option
                           -( )  111
%M3139   PLMS              PLMS option
                           -( )  112
%M3140   PLMS              PLMS option
                           -( )  113
%M3141   PLMS              PLMS option
                           -( )  114
%M3142   PLMS              PLMS option
                           -( )  115
%M3143   PLMS              PLMS option
                           -( )  116
%M3144   PLMS              PLMS option
                           -( )  117
%M3145   PLMS              PLMS option
                           -( )  118
%M3146   PLMS              PLMS option
                           -( )  119
%M3147   PLMS              PLMS option
                           -( )  120
%M3148   PLMS              PLMS option
                           -( )  121
%M3149   PLMS              PLMS option
                           -( )  122
%M3150   PLMS              PLMS option
                           -( )  123
%M3151   PLMS              PLMS option
                           -( )  124
%M3152   PLMS              PLMS option
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            -( )  125
%M4001   PLMS     COM_SUP   PLMS Communication supervise
                            -(R)  144
%M4002   ALARM    COM_FLT   PLMS Communication fault
                            -] [- 146
                            -]/[- 145
         PLMS               -] [- 143
                            -( )  142
%M4003   PLMS     WD_PLMS   PLMS Watchdog PLMS DDE
                            -] [- 142
                            -( )  141
%M4004   PLMS     WD=0      PLMS Watchdog=0
                            -] [- 142
                            -( )  139
%M4005   PLMS     WD=1      PLMS Watchdog=1
                            -] [- 142
                            -( )  140
%M4006   PLMS               PLMS pkgcnt to cold storage
                            -] [- 20
                            -( )  19

================================================================================
==========  TEMPORARY  (%T)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%T0210   PLMS     WST_P+    PLMS Total waste P+
                            -] [- 46
                            -(^)  45
%T0211   PLMS     PKG_IN-   PLMS Packages in P-
                            -] [- 8,12
                            -(v)  7
%T0212   PLMS     PKG_IN+   PLMS Packages in P+
                            -] [- 6,11
                            -(^)  5
%T0213   PLMS     PKG_OU+   PLMS Package out P+
                            -] [- 14,17
                            -(^)  13
%T0214   PLMS     PKG_TC+   PLMS P+ Packages to cold store
                            -] [- 21,25
                            -(^)  20
%T0219   PLMS     INTERR    PLMS Interupted motorstart P
                            -] [- 81
                            -(v)  80
%T0220   PLMS     DN_PROD   PLMS Step down from production P
                            -] [- 68
                            -(v)  67
%T0221   PLMS     WST_P-    PLMS Total waste P-
                            -] [- 48
                            -(v)  47
%T0222   PLMS               PLMS Press down from prod memory
                            -] [- 68
                            -(S)  66
                            -(R)  68
%T0224   PLMS               Prod end memory bit
                            -]/[- 90
                            -(S)  91
                            -(R)  92
%T0225   PLMS               -] [- 37
                            -(^)  36
%T0226   PLMS               -] [- 39
                            -(^)  38

================================================================================
==========  REGISTER  (%R)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
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%R0002   WASTE    TRASH     Discarded data
                            FBIO  32
%R0100   1T0001   ENC_RAW   Encoder value RAW! Do not use !
                            FBIO  19,21,23,25,26,31,35
%R0101   1T0001   ENC_MSB   DP part of encoder value (=0)
                            FBIO  19
%R0102   1T0001   RAW_CNT   Rawvalue of counter (DP)
                            FBIO  30,31,32
%R0104   1T0001   C1        Prime factor 1 in encoder
                            FBIO  32
         MACH_AD            FBIO  9,15,21,27
%R0106   1T0001   C2        Prime factor 2 in encoder
                            FBIO  32
         MACH_AD            FBIO  9,15,21,27
%R0108   1T0001   CNT_OFS   Raw counter offset (Cal value)
                            FBIO  31,35
%R0110   ENCODER  C5        Turn reduction constant
                            FBIO  5
         MACH_AD            FBIO  10,16,22,28
%R0112   JAW      ADJ_CNT   Adjusted counter (DP)
                            FBIO  6,46
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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
	1T0001		FBIO 32,33
%R0114	1T0001	ENC_ADJ	Adjusted encoder value (0..255)
			FBIO 33,41,42,53
%R0116	1T0001	TEMP	DP. temporary register
			FBIO 32
%R0118	ENCODER	TURN	DP.Number of complete turns
			FBIO 5
	HEAT		FBIO 37,40
	1T0001		FBIO 27,28,29,30
%R0122	HEAT	LAST_T	DP. Last number of turns.
			FBIO 37,40
%R0124	JAW	JAW_NO	Rotating jaw pointer
			FBIO 46,48
%R0126	WASTE	C3	Total jaw number 12,14,16 or 18
			FBIO 80,81
	JAW		FBIO 46
	INIT		FBIO 5
	MACH_AD		FBIO 9,15,21,27
%R0128	1T0001	LAST_E	Last raw encoder value
			FBIO 21,23
%R0130	JAW	C3_HALF	No of jaws in one side (6,7,8,..
			FBIO 23,40
	INIT		FBIO 5
%R0132	DESIGN	DS_POS	Design sensor position
			FBIO 16
	1T0001		FBIO 53,54
%R0135	WASTE	PD_OFFS	Package disposal offset wastereg
			FBIO 80,81
%R0137	DESIGN	DES_CO	Design correction control output
			FBIO 21,22,24,25,27,28,29
%R0139	DESIGN	AD_POS	Adjusted design sensor position
			FBIO 16,17,20
%R0140	PROD	DES_ERR	Error in design correction
			FBIO 43
	DESIGN		FBIO 17
%R0141	OP_IND	RA	Spare
			FBIO 97,98,99,100,101,102
%R0142	OP_IND	RB	Spare
			FBIO 97,98,99,100,101,102,103,104,105,106,107
%R0143	OP_IND	RC	Spare
			FBIO 104,105,106,107
%R0144	OP_IND	RD	Spare
			FBIO 96,97,98,99,100,101,102,103,104,105,106,107
%R0145	WASTE	PAC_PRE	Package counter preset
			FBIO 10,12,13,14
%R0151	FACT_SE	C6	Inkjet reset package number
			FBIO 5
	CUST_SE		FBIO 5
%R0152	FACT_SE	C7	Inkjet reset 7 bit value
			FBIO 5
	CUST_SE		FBIO 5
%R0153	FACT_SE	C8	Inkjet up count 7 bit value
			FBIO 5
	CUST_SE		FBIO 5
%R0154	FACT_SE	C9	Inkjet print 7 bit value
			FBIO 6
	CUST_SE		FBIO 6
%R0155	FACT_SE	C12	Jaw no count pulse
			FBIO 6
	CUST_SE		FBIO 6
%R0156	FACT_SE	C13	Inkjet print 7 bit value side 2
			FBIO 6
	CUST_SE		FBIO 6
%R0160	WEB_GUI	H_AREA	Web guiding Half area
			FBIO 9,14
%R0161	DESIGN	C11	Desired design pos (-127,128)
			FBIO 6
	MACH_AD		FBIO 12,18,24,30
	FACT_SE		FBIO 7
	CUST_SE		FBIO 7
%R0162	DESIGN	POT_PRE	Design potentiometer value
			FBIO 5,6
%R0163	DESIGN	C11_OFS	Offset design correction
			FBIO 15,16
%R0164	DESIGN	C11_ADJ	Adjusted setpoint C11
			FBIO 6,15,17,20
%R0166	DESIGN	DC_1	Design correction new value
			FBIO 19,20,21,22
%R0167	DESIGN	DC_2	Design correction old value
			FBIO 19,21,22
%R0170	ALARM	ACORAL1	AC or AL (alarm1-alarm16)
			FBIO 395,398
%R0171	ALARM	ACORAL2	AC or AL
			FBIO 395,398
%R0172	ALARM	ACORAL3	AC or AL
			FBIO 395,398
%R0173	ALARM	ACORAL4	AC or AL
			FBIO 396,399
%R0174	ALARM	ACORAL5	AC or AL

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			FBIO 396,399
%R0175	ALARM	ACORAL6	AC or AL
			FBIO 396,399
%R0176	ALARM	ACORAL7	AC or AL
			FBIO 397,400
%R0177	ALARM	ACORAL8	AC or AL
			FBIO 397,400
%R0200	OP	OP_C1	Panel data Counter
			FBIO 7,9,11,13,17
%R0201	OP	OP_P1	Panel data Pointer (read)
			FBIO 13,19,23,26,29,32,35
%R0210	ALARM	AL_NO	Number of alarm scanned
			FBIO 449,451,452,454
%R0230	SS	STEP	Actual machine step
			FBIO 67,73,74,76,78,80,82,83,87,89
%R0240	JAW	TSS1	Transversal sealing side 1
			FBIO 10
	1T0001		FBIO 44,46,48
%R0241	JAW	TSS2	Transversal sealing side 2
			FBIO 11
	1T0001		FBIO 45,47,49
%R0242	1T0001	TS1SYNC	Encoder value to start TS side 1
			FBIO 41
	MACH_AD		FBIO 10,16,22,28
%R0243	1T0001	TS2SYNC	Encoder value to start TS side 2
			FBIO 42
	MACH_AD		FBIO 11,17,23,29
%R0244	1T0001	INKSEC1	Inkjet, Start sector 1
			FBIO 61
	MACH_AD		FBIO 12,18,24,30
%R0245	1T0001	INKSEC2	Inkjet, End sector 1
			FBIO 61
	MACH_AD		FBIO 13,19,25,31
%R0246	1T0001	INKSEC3	Inkjet, Start sector 2
			FBIO 62
	MACH_AD		FBIO 13,19,25,31
%R0247	1T0001	INKSEC4	Inkjet, End sector 2
			FBIO 62
	MACH_AD		FBIO 13,19,25,31
%R0248	MACH_AD	PAP_FIN	Paper reel emty
			FBIO 14,20,26,32
	ASU		FBIO 59
%R0250	MACH_AD	ASU5T_C	ASU5T constant
			FBIO 11,17,23,29
	ASU		FBIO 12
%R0251	MACH_AD	ASU4+6C	Maximum time for design mark
			FBIO 11,17,23,29
	ASU		FBIO 10
%R0300	INIT	SE_POS	Sealing Position (DP mm)
			FBIO 8
	FACT_SE		FBIO 9
	CUST_SE		FBIO 9
%R0302	INIT	SE_LEN	Sealing length (DP mm)
			FBIO 10
	FACT_SE		FBIO 9
	CUST_SE		FBIO 9
%R0304	INIT	LS_POS	LS position (DP mm)
			FBIO 13
	FACT_SE		FBIO 9
	CUST_SE		FBIO 9
%R0306	INIT	LS_LEN	LS length (DP mm)
			FBIO 15
	FACT_SE		FBIO 10
	CUST_SE		FBIO 10
%R0308	INIT	HCA_POS	Heating chamber position (DP mm)
			FBIO 18
	FACT_SE		FBIO 10
	CUST_SE		FBIO 10
%R0310	INIT	HCA_LEN	Heating chamber length (DP mm)
			FBIO 20
	FACT_SE		FBIO 10
	CUST_SE		FBIO 10
%R0312	INIT	PER_POS	Peroxide bath position (DP mm)
			FBIO 23
	FACT_SE		FBIO 11
	CUST_SE		FBIO 11
%R0314	INIT	PER_LEN	Peroxide bath length (DP mm)
			FBIO 25
	FACT_SE		FBIO 11
	CUST_SE		FBIO 11
%R0316	INIT	SA_POS	SA position (DP mm)
			FBIO 29
	FACT_SE		FBIO 11
	CUST_SE		FBIO 11
%R0318	INIT	SA_LEN	SA length (DP mm)
			FBIO 31
	FACT_SE		FBIO 12
	CUST_SE		FBIO 12
%R0320	INIT	ALL_POS	All packages position (DP mm)

TCA/P1
BLOCK 01 MAIN FUNCTIONS AND CROSS REFERENCE LIST

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			FBIO 35
	FACT_SE		FBIO 12
	CUST_SE		FBIO 12
%R0322	INIT	ALL_LEN	All packages length (DP mm)
			FBIO 37
	FACT_SE		FBIO 12
	CUST_SE		FBIO 12
%R0324	INIT	FCT_POS	Factory splice position (DP mm)
			FBIO 41
	FACT_SE		FBIO 13
	CUST_SE		FBIO 13
%R0326	INIT	FCT_LEN	Factory splice length (DP mm)
			FBIO 43
	FACT_SE		FBIO 13
	CUST_SE		FBIO 13
%R0330	INIT	C4	Paper length in DP mm
			FBIO 8,10,13,15,18,20,23,25,29,31,35,37,41,43,47,49,53,55
	MACH_AD		FBIO 10,16,22,28
%R0336	INIT	LSB_POS	LS strip broken position (DP mm)
			FBIO 47
	FACT_SE		FBIO 14
	CUST_SE		FBIO 14
%R0338	INIT	LSB_LEN	LS strip broken length (DP mm)
			FBIO 49
	FACT_SE		FBIO 14
	CUST_SE		FBIO 14
%R0340	WASTE	SE_PTR	Pointer to sealing data
			FBIO 72
	INIT		FBIO 8,9,12
%R0342	WASTE	SE_WRD	No of words sealing data
			FBIO 72
	INIT		FBIO 10,11,12
%R0344	WASTE	LS_PTR	Pointer to LS data
			FBIO 73
	INIT		FBIO 13,14,17
%R0346	WASTE	LS_WRD	No of words LS data
			FBIO 73
	INIT		FBIO 15,16,17
%R0348	WASTE	HCA_PTR	Pointer to WEB data
			FBIO 74
	INIT		FBIO 18,19,22
%R0350	WASTE	HCA_WRD	No of words WEB data
			FBIO 74
	INIT		FBIO 20,21,22
%R0352	WASTE	PER_PTR	Pointer to Peroxide data
			FBIO 76
	INIT		FBIO 23,24,27
%R0354	WASTE	PER_WRD	No of words Peroxide data
			FBIO 76
	INIT		FBIO 25,26,27
%R0356	WASTE	SA_PTR	Pointer to SA data
			FBIO 77
	INIT		FBIO 29,30,33
%R0358	WASTE	SA_WRD	No of words SA data
			FBIO 77
	INIT		FBIO 31,32,33
%R0360	WASTE	ALL_PTR	Pointer to ALL data
			FBIO 75
	INIT		FBIO 35,36,39
%R0362	WASTE	ALL_WRD	No of words ALL data
			FBIO 75
	INIT		FBIO 37,38,39
%R0364	WASTE	FCT_PTR	Pointer to splice data
			FBIO 78
	INIT		FBIO 41,42,45
%R0366	WASTE	FCT_WRD	No of words splice data
			FBIO 78
	INIT		FBIO 43,44,45
%R0372	WASTE	LSB_PTR	Pointer to LS strip broken data
			FBIO 83
	INIT		FBIO 47,48,51
%R0374	WASTE	LSB_WRD	No of words LS strip broken data
			FBIO 83
	INIT		FBIO 49,50,51
%R0376	WASTE	LSS_PTR	Pointer to LS strip splice
			FBIO 84
	INIT		FBIO 53,54,57
%R0378	WASTE	LSS_WRD	No of words LS strip splice
			FBIO 84
	INIT		FBIO 55,56,57
%R0380	INIT	LSS_POS	LS strip splice Position (DP mm)
			FBIO 53
	FACT_SE		FBIO 15
	CUST_SE		FBIO 15
%R0382	INIT	LSS_LEN	LS strip splice Length (DP mm)
			FBIO 55
	FACT_SE		FBIO 15
	CUST_SE		FBIO 15
%R0400	WASTE	P_SHIFT	Package shift register (200 reg)

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			FBIO 32,72,73,74,75,76,77,78,79,81,83,84
%R0599	WASTE	LAST_PS	Last package shift register
			FBIO 38,40,44,45
	PLMS		FBIO 45,47,51,54,57,58,61
%R0600	JAW	JW_BPTR	Jaw Bit number pointer
			FBIO 16,18,23,40,48
%R0611	JAW	S1_SHF	Jaw Side 1 error data (10 reg)
			FBIO 16,19,25,26,27,31
%R0621	JAW	S2_SHF	Jaw Side 2 error data (10 reg)
			FBIO 18,20,33,34,35,41
%R0631	JAW	S1_1_TS	Jaws on side 1: 1 TS fault
			FBIO 26,27,30
%R0632	JAW	S1_2_TS	Jaws on side 1: 2 TS faults
			FBIO 25,26,30
%R0633	JAW	S1_3_TS	Jaws on side 1: 3 TS faults
			FBIO 25,28,30
	PLMS		FBIO 202
%R0634	JAW	S2_1_TS	Jaws on side 2: 1 TS fault
			FBIO 34,35,38
%R0635	JAW	S2_2_TS	Jaws on side 2: 2 TS faults
			FBIO 33,34,38
%R0636	JAW	S2_3_TS	Jaws on side 2: 3 TS faults
			FBIO 33,36,38
	PLMS		FBIO 229
%R0637	JAW	TEMP_TS	Temporary register TS faults
			FBIO 25,26,33,34
%R0683	PLMS		PLMS 3 TS fault, copy of R633
			FBIO 202,204,205,207,208,210,211,213,214,216,217,219,220,222,223,225,226
%R0684	PLMS		PLMS 3 TS fault, copy of R636
			FBIO 229,231,232,234,235,237,238,240,241,243,244,246,247,249,250,252,253
%R0700	FILLING	REG_NO	Control registers, filling
			FBIO 35
%R0701	FACT_SE	REG_ALG	FBIO 17
	CUST_SE	REG_ALG	FBIO 17
%R0702	FACT_SE	REG_SMP	FBIO 17
	CUST_SE	REG_SMP	FBIO 17
%R0703	FACT_SE	REG_DB+	FBIO 17
	CUST_SE	REG_DB+	FBIO 17
%R0704	FACT_SE	REG_DB-	FBIO 18
	CUST_SE	REG_DB-	FBIO 18
%R0705	FACT_SE	REG_P	FBIO 18
	CUST_SE	REG_P	FBIO 18
%R0706	FACT_SE	REG_D	FBIO 18
	CUST_SE	REG_D	FBIO 18
%R0707	FACT_SE	REG_I	FBIO 19
	CUST_SE	REG_I	FBIO 19
%R0708	FACT_SE	REG_BIA	FBIO 19
	CUST_SE	REG_BIA	FBIO 19
%R0709	FACT_SE	REG_UCL	FBIO 19
	CUST_SE	REG_UCL	FBIO 19
%R0710	FACT_SE	REL_LCL	FBIO 20
%R0711	FACT_SE	REG_ST	FBIO 20
%R0712	FACT_SE	REG_CFG	FBIO 20
%R0713	FILLING	REG_MC	Regulator manual command
			FBIO 27,33
%R0715	MACH_AD		FBIO 12,18,24,30
%R0728	FACT_SE		FBIO 21
%R0750	FILLING	SP_LVL	Level setpoint
			FBIO 35
	FACT_SE		FBIO 28
	CUST_SE		FBIO 24
%R0752	FILLING	CV_RAW	Regulator output raw (+-32000)
			FBIO 35,37
%R0753	FILLING	CV_NORM	Regulator output scaled down
			FBIO 37
%R0754	FILLING	N_TEMP	Normal flow temporary register
			FBIO 49,51,52
%R0759	FILLING	S-FLOW	Start flow (Approx N-FLOW + X)
			FBIO 39
	FACT_SE		FBIO 28
	CUST_SE		FBIO 24
%R0760	FILLING	N-FLOW	Last known production flow
			FBIO 25,27,30,32,33,37,38,51,52
	FACT_SE		FBIO 28
	CUST_SE		FBIO 24
%R0764	FILLING	C-FLOW	Current flow in ramp up/down
			FBIO 25,27,30,32,33,38
%R0766	FILLING	RU_LEN	Ramp up length in 0.01 sec
			FBIO 25
	FACT_SE		FBIO 29
	CUST_SE		FBIO 25
%R0768	FILLING	RAMP_T	Ramp time since start
			FBIO 24,25,29,30
%R0769	FILLING		DP
			FBIO 24,29
%R0770	FILLING	RD_LEN	Ramp down length in 0.01 sec
			FBIO 30
	FACT_SE		FBIO 29
	CUST_SE		FBIO 25

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R0772	FILLING	T_STOR	Temporary storage ramp calc
			FBIO 25,30
%R0774	WASTE	PACKAGE	Package counter ink1 waste
			FBIO 34
%R0800	OUT	REG_WT	Control registers, web tension
			FBIO 143
%R0801	FACT_SE	WT_ALG	FBIO 23
	CUST_SE	WT_ALG	FBIO 20
%R0802	FACT_SE	WT_SMP	FBIO 23
	CUST_SE	WT_SMP	FBIO 20
%R0803	FACT_SE	WT_DB+	FBIO 23
	CUST_SE	WT_DB+	FBIO 20
%R0804	FACT_SE	WT_DB-	FBIO 24
	CUST_SE	WT_DB-	FBIO 21
%R0805	FACT_SE	WT_P	FBIO 24
	CUST_SE	WT_P	FBIO 21
%R0806	FACT_SE	WT_D	FBIO 24
	CUST_SE	WT_D	FBIO 21
%R0807	FACT_SE	WT_I	FBIO 25
	CUST_SE	WT_I	FBIO 22
%R0808	FACT_SE	WT_BIA	FBIO 25
	CUST_SE	WT_BIA	FBIO 22
%R0809	FACT_SE	WT_UCL	FBIO 25
	CUST_SE	WT_UCL	FBIO 22
%R0810	FACT_SE	WT_LCL	FBIO 26
%R0811	FACT_SE	WT_ST	FBIO 26
%R0812	FACT_SE	WT_CFG	FBIO 26
%R0813	OUT	WT_MC	FBIO 142
%R0815	FACT_SE		FBIO 27
%R0828	FACT_SE		FBIO 27
	CUST_SE		FBIO 23
%R0840	OUT	REG_OUT	Output, web tension
			FBIO 143,144,145
%R8000	WASTE	WC02_D	Waste code 2 data (10 reg)
			FBIO 72
	INIT		FBIO 59
%R8010	WASTE	WC03_D	Waste code 3 data (10 reg)
			FBIO 73
	INIT		FBIO 59
%R8020	WASTE	WC04_D	Waste code 4 data (10 reg)
			FBIO 83
	INIT		FBIO 59
%R8030	WASTE	WC05_D	Waste code 5 data (10 reg)
			FBIO 84
	INIT		FBIO 60
%R8040	WASTE	WC06_D	Waste code 6 data (10 reg)
			FBIO 77
	INIT		FBIO 60
%R8050	WASTE	WC07_D	Waste code 7 data (10 reg)
			FBIO 76
	INIT		FBIO 60
%R8060	INIT	WC08_D	Spare Waste code 8 data (10 reg)
			FBIO 61
%R8070	WASTE	WC09_D	Waste code 9 data (10 reg)
			FBIO 78
	INIT		FBIO 61
%R8080	WASTE	WC10_D	Waste code 10 data (20 reg)
			FBIO 79,81
	INIT		FBIO 61
%R8090	INIT		FBIO 62
%R8100	WASTE	WC90_D	Waste code 90 data (200 reg)
			FBIO 74,75
	INIT		FBIO 62
%R8340	PLMS	PLMS_SP	PLMS Machine step
			FBIO 43
%R8341	PLMS		PLMS Alarm
			FBIO 256
%R8363	PLMS		PLMS Volume
			FBIO 108
%R8367	PLMS		PLMS, Options
			FBIO 126
%R8371	PLMS	PKG_IN	PLMS, Package material in
			FBIO 6,8,9
%R8372	PLMS	PKG_OUT	PLMS, Package material out
			FBIO 14,15
%R8373	PLMS	PKG_TCS	PLMS, Package to coldstore
			FBIO 21,22
%R8375	PLMS		PLMS Packages Wasted Filler Lin1
			FBIO 46,48,49
%R8376	PLMS		PLMS Waste Design correction du.
			FBIO 51,52
%R8377	PLMS		PLMS Packages per tray from PLMS
			FBIO 24,25
%R8378	PLMS		PLMS Waste PaperSplice during p.
			FBIO 57,58,59
%R8379	PLMS		PLMS Waste StripSplice during pn
			FBIO 54,55
%R8381	PLMS		PLMS Manual Waste by operator
			FBIO 61,62

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R8383	PLMS		PLMS Packages in, 1
			FBIO 10,11,12
%R8384	PLMS		PLMS Packages in, 2
			FBIO 10
%R8385	PLMS		PLMS Packages out, 1
			FBIO 16,17
%R8386	PLMS		PLMS Packages out, 2
			FBIO 16
%R8387	PLMS		PLMS Packages to cold storage, 1
			FBIO 23,25
%R8388	PLMS		PLMS Packages to cold storage, 2
			FBIO 23
%R8396	PLMS		PLMS, Nominal capacity
			FBIO 108
%R8500	PLMS		PLMS Delay, manual step down
			FBIO 69
%R8504	PLMS		PLMS Delay, restart TPOP
			FBIO 83
%R8513	PLMS		PLMS Delay WD=0
			FBIO 139
%R8516	PLMS		PLMS Delay WD=1
			FBIO 140
%R8519	PLMS		PLMS Delay watchdog PLMS DDE
			FBIO 141
%R8522	PLMS		PLMS First start sequence interd
			FBIO 81
%R8525	PLMS	DEL8525	PLMS delay, reset alarm
			FBIO 100
%R8528	PLMS	DEL8528	PLMS delay, strip seal
			FBIO 94
%R8531	PLMS	DEL8531	PLMS delay, splice button
			FBIO 96
%R8534	PLMS	DEL8534	PLMS delay, splice detected
			FBIO 98
%R8537	PLMS	DEL8537	PLMS delay, reset flexbox
			FBIO 143
%R8540	PLMS	DLY8540	PLMS delay, level sensor
			FBIO 197
%R8543	PLMS	DLY8543	PLMS delay, 30 min
			FBIO 19
%R8546	PLMS	DLY8546	PLMS delay, 30 min
			FBIO 19
%R8549	PLMS	DLY8549	PLMS delay, prod phase end
			FBIO 91
%R8552	PLMS	DLY8552	PLMS delay, motorstart delay
			FBIO 34
%R8555	PLMS	DLY8555	PLMS delay, production delay
			FBIO 35
%R8560	PLMS		FBIO 138
%R9000	OP	ACC1	Lamp test timer
			FBIO 43
%R9003	SS	ACC2	Step down timer 2 sec
			FBIO 13
%R9006	ASU	ACC3	Paper supply alarm, short stop
			FBIO 59
%R9009	ALARM	ACC4	Spray container low level alarm
			FBIO 15
%R9012	OUT	ACC5	Timer WEB tension
			FBIO 140
%R9015	ALARM	ACC6	Spray container high level alarm
			FBIO 23
%R9018	ALARM	ACC7	LS strip alarm timer
			FBIO 35
%R9021	ALARM	ACC8	LS strip missing time= alarm
			FBIO 36
%R9024	ASU	ACC9	Broken web monitor
			FBIO 63
%R9027	ASU	ACC10	Time to put roller in magazine
			FBIO 60
%R9030	ALARM	ACC11	Membrane leakage timer
			FBIO 48
%R9033	ALARM	ACC12	Peroxide low level alarm
			FBIO 56
%R9036	ALARM	ACC13	Emptying peroxide bath
			FBIO 65
%R9039	ALARM	ACC14	Power cut st. house
			FBIO 73
%R9042	ALARM	ACC15	Design sensor missread on
			FBIO 82
%R9048	ALARM	ACC17	Low temp steam timer
			FBIO 94
%R9051	ALARM	ACC18	Sterile air pressure
			FBIO 98
%R9057	ALARM	ACC20	B valve out of pos
			FBIO 138
%R9066	ALARM	ACC23	Low temp air heater.
			FBIO 159
%R9072	ALARM	ACC25	LS element fail to stabilize.
			FBIO 163

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
%R9075	ALARM	ACC26	LS element unstable.
			FBIO 171
%R9078	ALARM	ACC27	High product level
			FBIO 179
%R9081	ALARM	ACC28	Low product level
			FBIO 184
%R9084	ALARM	ACC29	LS element stable timer
			FBIO 167
%R9087	ALARM	ACC30	Low product level, short stop
			FBIO 188
%R9090	ALARM	ACC31	LS element alarm timer
			FBIO 164
%R9093	ALARM	ACC32	LS element alarm timer
			FBIO 170
%R9096	ALARM	ACC33	Timer oilpressure alarm
			FBIO 204
%R9099	ALARM	ACC34	Timer oilpressure alarm
			FBIO 208
%R9102	ALARM	ACC35	Timer oilpressure alarm
			FBIO 220
%R9105	SPRAY	ACC36	Peroxide emptying timer
			FBIO 7
%R9108	SPRAY	ACC37	Reversing timer peroxide
			FBIO 9
%R9111	LUBE	ACC38	Lube pulse length timer
			FBIO 25
%R9114	LUBE	ACC39	Lube pause length timer
			FBIO 33
%R9117	LUBE	ACC40	Lube interval timer
			FBIO 27
%R9120	LUBE	ACC41	Lube pulse counter
			FBIO 29
%R9123	LUBE	ACC42	Lube 5 sec of step up
			FBIO 31
%R9126	ALARM	ACC43	Timer squee gee roller alarm
			FBIO 69
%R9129	SPRAY	ACC44	Timer empty spray container
			FBIO 32
%R9132	OP_IND	ACC45	B valve opened timer, spraying
			FBIO 99
	SPRAY		FBIO 36,37
%R9133	OP_IND		FBIO 99
%R9135	OP_IND	ACC46	B valve closed timer, spraying
			FBIO 100
	SPRAY		FBIO 39,40
%R9136	OP_IND		FBIO 100
%R9138	SPRAY	ACC47	Timer pumping to spraying H2O2
			FBIO 30
%R9141	HEAT	ACC48	Preheating conditions timer
			FBIO 7
%R9144	OUT	ACC49	Horn timer , tubesealing
			FBIO 117
	TUBE		FBIO 7
%R9147	TUBE	ACC50	Hydraulic timer, tube sealing
			FBIO 9
%R9150	TUBE	ACC51	LS Timer , tube sealing
			FBIO 11
%R9153	TUBE	ACC52	Main motor timer, tube sealing
			FBIO 13
%R9156	OP_IND	ACC53	Fillsys.preheat B valve timer
			FBIO 98
	HEAT		FBIO 19
%R9157	OP_IND		FBIO 98
%R9159	HEAT	ACC54	Fillsys.preheat cooling timer
			FBIO 21
%R9162	OUT	ACC55	Timer main motor start
			FBIO 115
	PROD		FBIO 13
%R9165	ASU	ACC56	Timer ASU4
			FBIO 11
%R9168	ALARM	ACC57	C valve out of position alarm
			FBIO 287
%R9171	ALARM	ACC58	A valve out of position alarm
			FBIO 295
%R9174	HEAT	ACC59	Timer evacuation in step 0
			FBIO 28
%R9177	SS	ACC60	Reset pulse timer
			FBIO 103
%R9180	SS	ACC61	Reset pause timer
			FBIO 104
%R9183	PROD	ACC62	Timer Full production for 15 min
			FBIO 28
%R9186	OUT	ACC63	Enable delay main motor
			FBIO 25
%R9189	OUT	ACC64	Main motor on timer
			FBIO 7,9,142
%R9192	ALARM	ACC65	Timer Web tension alarm
			FBIO 44
%R9195	WASTE	ACC66	Package counter accumulator

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			FBIO 10
%R9198	SPRAY	ACC67	Spraying reverse timer
			FBIO 34
%R9201	OUT	ACC68	B valve delay off, cleaning
			FBIO 130
%R9204	OUT	ACC69	Conveyor off delay bit
			FBIO 32
%R9207	OUT	ACC70	Main motor inching timer
			FBIO 19,116
%R9210	PROD	ACC71	Timer close A valve
			FBIO 30
%R9213	PROD	ACC72	Timer close C valve
			FBIO 32
%R9216	SPRAY	ACC73	Timer peroxide pump off
			FBIO 17
%R9219	SPRAY	ACC74	Timer peroxide pump on
			FBIO 18
%R9222	PROD	ACC75	Close A valve in short stop
			FBIO 34
%R9225	OUT	ACC76	Hydraulic pump bleeding timer
			FBIO 123
%R9228	WASTE	ACC77	Package counter out pulse time
			FBIO 40
%R9231	WASTE	ACC78	Waste on timer
			FBIO 44
%R9234	WASTE	ACC79	Waste off timer
			FBIO 45
%R9237	ALARM	ACC80	Alarm timer jaw index sensor
			FBIO 279
%R9240	ALARM	ACC81	Timer Free loop motor Infeed
			FBIO 31
%R9246	ALARM	ACC83	Low temp steam alarm
			FBIO 86
%R9249	ALARM	ACC84	Low temp steam alarm
			FBIO 90
%R9252	PROD	ACC85	C valve close to A valve open
			FBIO 15
%R9255	ALARM	ACC86	Timer high level peroxide bath
			FBIO 261
%R9258	HEAT	ACC87	Air pressure OK timer
			FBIO 9
%R9261	TUBE	ACC88	LS element delay in tube sealing
			FBIO 23
%R9264	SPRAY	ACC89	Spray valve delay timer
			FBIO 33
%R9267	ALARM	ACC90	Air heater alarm active timer
			FBIO 158
%R9270	OP_IND	ACC91	Maximum short stop time
			FBIO 102
	PROD		FBIO 36,38,40
%R9271	OP_IND		FBIO 102
%R9273	OUT	ACC92	Off delay timer LS Strip
			FBIO 111
%R9276	OUT	ACC93	On delay timer LS strip
			FBIO 111
%R9279	OUT	ACC94	Contactor off delay (=ramp time)
			FBIO 5
%R9282	OP_IND	ACC95	Maximum time in normal stop
			FBIO 101
	OUT		FBIO 65
	PROD		FBIO 42
%R9283	OP_IND		FBIO 101
%R9285	PROD	ACC96	Prod. finished timer 1 minute
			FBIO 79
%R9288	PROD	ACC97	Prod. finished package counter
			FBIO 77
%R9294	OUT	ACC99	Timer off delay squee gee roller
			FBIO 135
%R9297	ALARM	ACC100	Regulating valve alarm timer
			FBIO 130
%R9303	FILLING	ACC102	Ramp timer filling regulator
			FBIO 16,24
%R9306	FILLING	ACC103	Ramp timer filling regulator
			FBIO 18,29
%R9312	ASU	ACC105	Timer 1 New ASU Free loop
			FBIO 52
%R9315	SPRAY	ACC106	Racket feeder timer
			FBIO 69
%R9318	SPRAY	ACC107	Racket feeder timer
			FBIO 70
%R9321	SPRAY	ACC108	Racket feeder timer
			FBIO 71
%R9324	SPRAY	ACC109	Racket feeder timer
			FBIO 72
%R9327	HEAT	ACC110	Encoder survailance
			FBIO 38
%R9330	HEAT	ACC111	Paper web monitor
			FBIO 42
%R9333	HEAT	ACC112	Paper web monitor

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REF.	BLOCK	NICKNAME	REF. DESCRIPTION / CROSS REFERENCES
			FBIO 43
%R9336	ALARM	ACC113	Peroxide alarm timer
			FBIO 57
%R9342	SS	ACC115	Timer air on
			FBIO 111
%R9363	SPRAY	ACC122	Upper bending roller action time
			FBIO 74
%R9366	ALARM	ACC123	Air on alarm timer
			FBIO 257
%R9369	HEAT	ACC124	Peroxide evacuation timer
			FBIO 33
%R9372	HEAT	ACC125	Peroxide in aseptic chamber
			FBIO 35
%R9375	FILLING	ACC126	Regulator level low timer
			FBIO 45
%R9378	FILLING	ACC127	Regulator level high timer
			FBIO 46
%R9381	FILLING	ACC128	Regulator narrow level timer
			FBIO 48
%R9384	FILLING	ACC129	Regulator stability timer
			FBIO 50
%R9387	WASTE	ACC130	Waste LOW level timer
			FBIO 66
%R9390	WASTE	ACC131	Waste High level timer
			FBIO 67
%R9393	OUT	ACC132	Control voltage delay 0.5 sec
			FBIO 48
%R9396	ALARM	ACC133	Upper bending roller alarm ON
			FBIO 269
%R9399	ALARM	ACC134	Upper bending roller alarm OFF
			FBIO 270
%R9402	SS	ACC135	Step up button 3 sec timer
			FBIO 9
%R9408	OUT	ACC137	2nd Setpoint Preheater off delay
			FBIO 52
%R9417	SPRAY	ACC140	Clear peroxide container pipe
			FBIO 27
%R9420	SPRAY	ACC141	Additional filling peroxide
			FBIO 28
%R9453	ASU	ACC152	Timer 2 New ASU free loop
			FBIO 52
%R9456	ASU	ACC153	LS strip sealing timer
			FBIO 66
%R9459	ASU	ACC154	LS strip cooling timer
			FBIO 67
%R9462	FILLING	ACC155	Time delay filling start
			FBIO 15
%R9471	OUT	ACC158	Second setpoint filter timer
			FBIO 52
%R9474	ALARM	ACC159	Filter timer door safety module
			FBIO 311
%R9477	ALARM	ACC160	ASU strip magazine 1 empty timer
			FBIO 343
%R9480	ALARM	ACC161	ASU strip magazine 2 empty timer
			FBIO 347
%R9483	OUT	ACC162	Timer Sterile house element
			FBIO 86
%R9486	OUT	ACC163	First 15 min of production
			FBIO 56
%R9489	OUT	ACC164	First 10 sec after stop
			FBIO 58
%R9492	SS	ACC165	Preheating 10 min
			FBIO 15
	OP_IND		FBIO 97
	HEAT		FBIO 10
%R9493	OP_IND		FBIO 97
%R9495	FILLING	ACC166	Timer Product level high,close A
			FBIO 47
%R9501	ASU	ACC168	ASU design sensor missread
			FBIO 55
%R9507	ASU	ACC170	LS strip broken
			FBIO 80
%R9513	SS	ACC172	Timer SS4
			FBIO 17
%R9519	WASTE	ACC174	Timer Package disposal
			FBIO 82
%R9522	SS	ACC175	Timer Sterile air off
			FBIO 112
%R9528	FILLING	ACC177	Timer A valve close, REG
			FBIO 20
%R9531	OP_IND	ACC178	Timer Lamp test panel & buttons
			FBIO 87
%R9534	OP_IND	ACC179	Timer Lamp test red
			FBIO 88
%R9537	OP_IND	ACC180	Timer Lamp test yellow
			FBIO 89
%R9540	OP_IND	ACC181	Timer Lamp test blue
			FBIO 90
%R9543	OP_IND	ACC182	Timer Lamp test horn

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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
                            FBIO  91
%R9546   OUT      ACC183    Timer 2 Web tension
                            FBIO  140
%R9549   OUT      ACC184    Timer reset TPIH
                            FBIO  29
%R9552   ALARM    ACC185    Timer filter AC56
                            FBIO  228
%R9555   ALARM    ACC186    Timer Web guide splice, ACOF
                            FBIO  142
%R9558   ASU      ACC187    New ASU Timer max time find B125
                            FBIO  10
%R9561   ASU      ACC188    New ASU Timer High speed
                            FBIO  12
%R9564   ASU      ACC189    New ASU Timer Low speed
                            FBIO  13
%R9567   ASU      ACC190    New ASU Timer Lock the old paper
                            FBIO  14
%R9570   ASU      ACC191    New ASU Timer release grip new p
                            FBIO  15
%R9573   ASU      ACC192    New ASU Timer sealing
                            FBIO  17
%R9576   ASU      ACC193    New ASU Timer cooling
                            FBIO  18
%R9579   ASU      ACC194    New ASU Timer release paper lock
                            FBIO  19
%R9582   ASU      ACC195    New ASU Timer release seal. jaws
                            FBIO  21
%R9585   ASU      ACC196    New ASU Timer release power seal
                            FBIO  22
%R9588   WEB_GUI  ACC197    Counter Web guiding 1
                            FBIO  9,13
%R9591   WEB_GUI  ACC198    Counter 2 Web guiding
                            FBIO  14
%R9600   ALARM    ACC201    Counter Packages out of design
                            FBIO  378,379
%R9603   1T0001   ACC202    Counter print signal
                            FBIO  59,60,61,62
%R9620   PLMS               FBIO  39
%R9623   PLMS               FBIO  37

================================================================================
==========  ANALOG INPUT  (%AI)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%AI0001  DESIGN   POT       Potentiometer for design adjust
                            FBIO  5
%AI0002  OUT      WT_SEN    Web tension analog sensor
                            FBIO  142,143
%AI0003  FILLING  LVL_SEN   Level sensor in paper tube
                            FBIO  11,12,35,45,46,47,48
         WASTE              FBIO  66,67
         PLMS               FBIO  197

================================================================================
==========  ANALOG OUTPUT  (%AQ)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%AQ001   OUT      WT_VEL    Web tension VFD velocity
                            FBIO  145,146
%AQ002   FILLING  IP_CON    IP converter for flow control
                            FBIO  37,38,39,41,42,43,49

================================================================================
==========  SYSTEM REFERENCE  (%S)  GLOBAL CROSS REFERENCES
================================================================================
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  --------  -------------------------------------
%S0001   _MAIN    FST_SCN  -] [- 6
         SS       FST_SCN  -] [- 5,105,107
         OP       FST_SCN  -] [- 7
         OP_IND   FST_SCN  -] [- 86
         SPRAY    FST_SCN  -] [- 5,25,78
         LUBE     FST_SCN  -] [- 5,17
         HEAT     FST_SCN  -] [- 5,17
         TUBE     FST_SCN  -] [- 5
         PROD     FST_SCN  -] [- 5,75
         DESIGN   FST_SCN  -] [- 8
         FILLING  FST_SCN  -] [- 5
         WASTE    FST_SCN  -] [- 16,27
         INIT     FST_SCN  -] [- 5,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,32,33,35,36,37,38,39,41,42,43,
                                 44,45,47,48,49,50,51,53,54,55,56,57,59,60,61,62,64
         WEB_GUI  FST_SCN  -] [- 7
         PLMS     FST_SCN  -] [- 24,144
         ASU      FST_SCN  -] [- 5,65
                           -]/[- 8
%S0004   WASTE    T_100MS  -] [- 47
%S0005   ALARM    T_SEC    -] [- 443,445,447
```


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```
REF.     BLOCK    NICKNAME   REF. DESCRIPTION / CROSS REFERENCES
-------  -------  -------- ------------------------------------
%S0007   _MAIN    ALW_ON   -] [- 8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,26
         SS       ALW_ON   -] [- 57,60,62,67,107
         OP       ALW_ON   -] [- 9,11
         ALARM    ALW_ON   -] [- 101,125,149,174,264,274,374,389,392,395,398,449,451,452
         ENCODER  ALW_ON   -] [- 5
         OP_IND   ALW_ON   -] [- 96,103,104,105,106,107
         SPRAY    ALW_ON   -] [- 37,40
         LUBE     ALW_ON   -] [- 10,36
         OUT      ALW_ON   -] [- 9,86,115,116,117,142
         HEAT     ALW_ON   -] [- 37
         TUBE     ALW_ON   -] [- 18
         PROD     ALW_ON   -] [- 43,46,47,81
         DESIGN   ALW_ON   -] [- 5,6,27,28,29
         FILLING  ALW_ON   -] [- 7,45,46,47,52
         WASTE    ALW_ON   -] [- 44,45,66,67,80
         JAW      ALW_ON   -] [- 6,10,11,19,20,46
         1T0001   ALW_ON   -] [- 5,19,21,23,25,26,30,31,32,33,61,62
         MACH_AD  ALW_ON   -] [- 6,33,34,35,37
         FACT_SE  ALW_ON   -] [- 5,6,7,9,10,11,12,13,14,15,17,18,19,20,21,23,24,25,26,27,28,29
         CUST_SE  ALW_ON   -] [- 5,6,7,9,10,11,12,13,14,15,17,18,19,20,21,22,23,24,25
         PLMS     ALW_ON   -] [- 9,10,15,16,22,23,43,49,52,55,59,62,71,108,126,256
         ASU      ALW_ON   -] [- 68
%S0008   SS       ALW_OFF  -] [- 26,64,65,108
         ALARM    ALW_OFF  -] [- 51,61,102,105,106,126,150,175,196,200,265,268,275,283,290,291,319,327,331,334,335,375,381,385,386
         OP_IND   ALW_OFF  -] [- 82,94
         SPRAY    ALW_OFF  -] [- 13,43,44,59,79,80
         LUBE     ALW_OFF  -] [- 11,35,36,38
         OUT      ALW_OFF  -] [- 68,119,143
         HEAT     ALW_OFF  -] [- 13,23,24
         TUBE     ALW_OFF  -] [- 18,19
         PROD     ALW_OFF  -] [- 26,48,81,82
         DESIGN   ALW_OFF  -] [- 13
         FILLING  ALW_OFF  -] [- 9,35
         WASTE    ALW_OFF  -] [- 19,30,32,51
         JAW      ALW_OFF  -] [- 31,41
         1T0001   ALW_OFF  -] [- 30
         MACH_AD  ALW_OFF  -] [- 5,7,8,36
         WEB_GUI  ALW_OFF  -] [- 6
         PLMS     ALW_OFF  -] [- 112,113,114,115,116,117,118,119,120,121,122,123,124,125,130,131,132,133,134,135,185,186,187
         ASU      ALW_OFF  -] [- 28,69
%S0011   OP_IND   OVR_PRE  -] [- 10
         PLMS     OVR_PRE  -] [- 199
%S0014   PLMS     PLC_BAT  -] [- 200
%SA011   OP_IND   LOW_BAT  -] [- 10

================================================================================
==========  IDENTIFIER NAME GLOBAL CROSS REFERENCES
================================================================================
IDENTIFIER   BLOCK    REF. DESCRIPTION / CROSS REFERENCES
----------   -------  -----------------------------------
SS           _MAIN    Step up/down logic
                      CALL  8
OP           _MAIN    OP Panel Multiplexer program
                      CALL  9
ALARM        _MAIN    Alarm administration
                      CALL  10
ENCODER      _MAIN    Encoder rollover program
                      CALL  11
OP_IND       _MAIN    Indications on OP Panel
                      CALL  12
SPRAY        _MAIN    Spraying functions
                      CALL  15
LUBE         _MAIN    Lubrication and cleaning
                      CALL  20
OUT          _MAIN    Outputs, common to several subs
                      CALL  22
HEAT         _MAIN    Heating / Preheating fillsystem
                      CALL  13
TUBE         _MAIN    Tube sealing, freeloop control
                      CALL  14
PROD         _MAIN    Production and ready for produc.
                      CALL  16
DESIGN       _MAIN    Design correction and control
                      CALL  17
FILLING      _MAIN    Filling system level regulator
                      CALL  18
WASTE        _MAIN    Package distribution and waste
                      CALL  19
JAW          _MAIN    Jaw fault detection, printing
                      CALL  21
INIT         _MAIN    Variable init at powerup
                      CALL  6
ASU          _MAIN    Automatic slice unit
                      CALL  23
PLMS         _MAIN    PLMS communication
                      CALL  25
MACH_AD      _MAIN    Machine adaption
                      CALL  26
FACT_SE      MACH_AD  Factory setting
```


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IDENTIFIER	BLOCK	REF. DESCRIPTION / CROSS REFERENCES
		CALL 39
CUST_SE	MACH_AD	Customer settings
		CALL 41
WEB_GUI	_MAIN	Web guiding
		CALL 24

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```
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[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Scan the first card in the first rack (slot 2)                        *)
 (*                                                                       *)
 (* Please note that DO-IO instruction with ALT parameter ONLY works      *)
 (* in RACK 0 !!!                                                         *)
 (*                                                                       *)
 (*************************************************************************)

ALW_ON                                                                    << RUNG 5  STEP #0003 >>
%S0007  +-----+
+--| +---|DO_IO+-
|        |     |
ENC_B1   |     |
%I0001 -|ST   |
|        |     |
%I0016 -|END  |
|        |     |
 CONST -|ALT  |
|   0002 +-----+

 (*************************************************************************)
 (* Graycode conversion to normal binary                                  *)
 (*************************************************************************)

ENC_B10                                                          ENC10    << RUNG 7  STEP #0006 >>
%I0010                                                          %M1818
+--| +-------------------------------------------------------------( )--  (* Encoder bit 10 binary           *)
|                                                                         Cross reference for ENC10
|                                                                         -] [- 8
|                                                                         -]/[- 8
|
 ENC10  ENC_B9                                                    ENC9     << RUNG 8  STEP #0008 >>
%M1818  %I0009                                                  %M1817
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 9 binary            *)
| 0007        |                                                           Cross reference for ENC9
 ENC10  ENC_B9 |                                                          -] [- 9
%M1818  %I0009 |                                                          -]/[- 9
+--|/|-----| +--+
| 0007
|
 ENC9   ENC_B8                                                    ENC8     << RUNG 9  STEP #0014 >>
%M1817  %I0008                                                  %M1816
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 8 binary            *)
| 0008        |                                                           Cross reference for ENC8
 ENC9   ENC_B8 |                                                          -] [- 10
%M1817  %I0008 |                                                          -]/[- 10
+--|/|-----| +--+
| 0008
|
 ENC8   ENC_B7                                                    ENC7     << RUNG 10  STEP #0020 >>
%M1816  %I0007                                                  %M1815
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 7 binary            *)
| 0009        |                                                           Cross reference for ENC7
 ENC8   ENC_B7 |                                                          -] [- 11
%M1816  %I0007 |                                                          -]/[- 11
+--|/|-----| +--+
| 0009
|
 ENC7   ENC_B6                                                    ENC6     << RUNG 11  STEP #0026 >>
%M1815  %I0006                                                  %M1814
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 6 binary            *)
| 0010        |                                                           Cross reference for ENC6
 ENC7   ENC_B6 |                                                          -] [- 12
%M1815  %I0006 |                                                          -]/[- 12
+--|/|-----| +--+
| 0010
|
 ENC6   ENC_B5                                                    ENC5     << RUNG 12  STEP #0032 >>
%M1814  %I0005                                                  %M1813
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 5 binary            *)
| 0011        |                                                           Cross reference for ENC5
 ENC6   ENC_B5 |                                                          -] [- 13
%M1814  %I0005 |                                                          -]/[- 13
+--|/|-----| +--+
| 0011
|
 ENC5   ENC_B4                                                    ENC4     << RUNG 13  STEP #0038 >>
%M1813  %I0004                                                  %M1812
+--| +-----|/|-----------------------------------------------------( )--  (* Encoder bit 4 binary            *)
| 0012        |                                                           Cross reference for ENC4
 ENC5   ENC_B4 |                                                          -] [- 14
%M1813  %I0004 |                                                          -]/[- 14
+--|/|-----| +--+
| 0012
|


                                        TCA/P1
                    BLOCK 02 FAST SCAN 1 ms: ENCODER, TS OUTPUT, DESIGN SENSOR

ECM 122946                    DATE: 20021212                    SIGN: RHN/TAN                    DOC.ID: 45282-02:01
```

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```
| ENC4   ENC_B3                                                          ENC3    << RUNG 14  STEP #0044 >>
|%M1812  %I0003                                                        %M1811
+--| +-----|/+-------------------------------------------------------( )--  (* Encoder bit 3 binary            *)
| 0013          |                                                             Cross reference for ENC3
| ENC4   ENC_B3 |                                                             -] [- 15
|%M1812  %I0003 |                                                             -]/[- 15
+--|/+-----| +--+
| 0013
|
| ENC3   ENC_B2                                                          ENC2    << RUNG 15  STEP #0050 >>
|%M1811  %I0002                                                        %M1810
+--| +-----|/+-------------------------------------------------------( )--  (* Encoder bit 2 binary            *)
| 0014          |                                                             Cross reference for ENC2
| ENC3   ENC_B2 |                                                             -] [- 16
|%M1811  %I0002 |                                                             -]/[- 16
+--|/+-----| +--+
| 0014
|
| ENC2   ENC_B1                                                          ENC1    << RUNG 16  STEP #0056 >>
|%M1810  %I0001                                                        %M1809
+--| +-----|/+-------------------------------------------------------( )--  (* Encoder bit 1 binary            *)
| 0015          |                                                             Cross reference for ENC1
| ENC2   ENC_B1 |                                                             FBIO  19
|%M1810  %I0001 |
+--|/+-----| +--+
| 0015
|
| (*************************************************************************)
| (* After conversion, store the result in R100                            *)
| (*************************************************************************)
|
| (*************************************************************************)
| (* Please note that you must set the bit "CAL" after changing the constants *)
| (* or perform a powerup.                                                 *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 19  STEP #0064 >>
|%S0007  +-----+                +-----+
+--| +---| AND_+----------------|MOVE_+-
|        | WORD|                | INT |
|        |     |                |     |
| ENC1   |     | ENC_RAW        |     | ENC_MSB
|%M1809 -|I1  Q+-%R0100   CONST -|IN  Q+-%R0101
|        |     |           +00000 | LEN |
|        |     |                  |00001|
|        |     |                  |     |
| CONST -|I2   |                  +-----+
|   03FF +-----+
|
| (*************************************************************************)
| (* Check for any change in the encoder value.                            *)
| (*                                                                       *)
| (* The calculations for the adjusted encoder value are rather heavy      *)
| (* and there is a change in the value only in 4 out of 10 fast scans.    *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 21  STEP #0068 >>
|%S0007  +-----+
+--| +---| EQ_ |+-------------------------------------------------N-->>  SAME
|        | INT ||
|        |     ||
|LAST_E  |     ||
|%R0128 -|I1  Q++
|        |     |
|ENC_RAW |     |
|%R0100 -|I2   |
|        +-----+
|
| (*************************************************************************)
| (* Update the last raw encoder value.                                    *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 23  STEP #0072 >>
|%S0007  +-----+
Â--| +---|MOVE_+-
|        | INT |
|        |     |
|ENC_RAW |     | LAST_E
|%R0100 -|IN  Q+-%R0128
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* Detection of Quadrants of the encoder value.                          *)
| (*                                                                       *)
| (* This is used for counting number of encoder revolutions.              *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

```
ALW_ON                                                                  Q1     << RUNG 25  STEP #0075 >>
%S0007  +-----+                                                        %M0509
--| +---| LE_ |+-----------------------------------------------------------( )--  (* This is quadrant Q1             *)
|   |  | INT ||                                                                  Cross reference for Q1
|   |  |     ||                                                                  -] [- 27,37
ENC_RAW |     ||
%R0100 -|I1  Q++
|   |  |     |
| CONST -|I2   |
| +00255 +-----+
|
ALW_ON                                                                  Q4     << RUNG 26  STEP #0078 >>
%S0007  +-----+                                                        %M0510
--| +---| GE_ |+-----------------------------------------------------------( )--  (* This is quadrant Q4             *)
|   |  | INT ||                                                                  Cross reference for Q4
|   |  |     ||                                                                  -] [- 28,38
ENC_RAW |     ||
%R0100 -|I1  Q++
|   |  |     |
| CONST -|I2   |
| +00768 +-----+
|
|  Q1    LAST_Q4                                                          << RUNG 27  STEP #0081 >>
%M0509  %M0508  +-----+
--| +-----| +---| ADD_+-
| 0025    0038   | DINT|
|   |  |     |  |     |
|   |  TURN  |  |     |  TURN
|   |  %R0118 -|I1  Q+-%R0118
|   |  |     |  |     |
|   |  CONST -|I2   |
|   |  +0000000001 +-----+
|
|  Q4    LAST_Q1                                                          << RUNG 28  STEP #0084 >>
%M0510  %M0507  +-----+
--| +-----| +---| SUB_+-
| 0026    0037   | DINT|
|   |  |     |  |     |
|   |  TURN  |  |     |  TURN
|   |  %R0118 -|I1  Q+-%R0118
|   |  |     |  |     |
|   |  CONST -|I2   |
|   |  +0000000001 +-----+
|
|  CAL                                                                    << RUNG 29  STEP #0087 >>
%M0512  +-----+
--| +---|MOVE_+-
| 0035   | INT |
|   |  |     |
|   |  |     |  TURN
| CONST -|IN  Q+-%R0118
| +00000 | LEN |
|   |  |00002|
|   |  |     |
|   |  +-----+
|
ALW_ON                                                                  << RUNG 30  STEP #0089 >>
%S0007  +-----+
--| +---| SHL_|
|   |  | WORD|
|   |  |     |
| TURN   |     |
%R0118 -|IN B2+-
|   |  | LEN |
|   |  |00002|
|   |  |     | RAW_CNT
| CONST -|N   Q+-%R0102
| +00010 |     |
ALW_OFF |     |
%S0008  |     |
--| +---|B1   |
|   |  +-----+
|
ALW_ON                                                                  << RUNG 31  STEP #0092 >>
%S0007          +-----+                                  +-----+
--| +-----------| ADD_+----------------------------------| ADD_+-
|   |           | DINT|                                  | DINT|
|   |           |     |                                  |     |
|   |  RAW_CNT  |     | RAW_CNT          RAW_CNT  |     | RAW_CNT
|   |  %R0102 -|I1  Q+-%R0102          %R0102 -|I1  Q+-%R0102
|   |  |        |     |                          |     |
|   |  ENC_RAW  |     |                  CNT_OFS |     |
|   |  %R0100 -|I2   |                  %R0108 -|I2   |
|   |           +-----+                          +-----+
|
```

TCA/P1
BLOCK 02 FAST SCAN 1 ms: ENCODER, TS OUTPUT, DESIGN SENSOR

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-02:01

EM1.1TS700012.fm

```
|ALW_ON                                                                                    << RUNG 32  STEP #0095 >>
|%S0007          +-----+                                  +-----+
Ã--| +----------| MUL_+----------------------------------| DIV_+-
|                | DINT|                                  | DINT|
|                |     |                                  |     |
|        RAW_CNT |     |  TEMP                    TEMP    |     | ADJ_CNT
|        %R0102 -|I1  Q+-%R0116                 %R0116 -|I1  Q+-%R0112
|                |     |                                  |     |
|          C1    |     |                            C2    |     |
|        %R0104 -|I2   |                          %R0106 -|I2   |
|                +-----+                                  +-----+
|
|ALW_ON                                                                                    << RUNG 33  STEP #0098 >>
|%S0007  +-----+
Ã--| +---| AND_+-
|        | WORD|
|        |     |
|ADJ_CNT |     | ENC_ADJ
|%R0112 -|I1  Q+-%R0114
|        |     |
| CONST -|I2   |
|   00FF +-----+
|
| B404                                                                  MARK_OS  << RUNG 34  STEP #0100 >>
|%I0012                                                                 %M0511
Ã--| +-------------------------------------------------------------------(^)--  (* OS of particular back           *)
|                                                                                 Cross reference for MARK_OS
|                                                                                 -] [- 35
|
|MARK_OS   CAL                                                            CAL    << RUNG 35  STEP #0102 >>
|%M0511  %M0512  +-----+                                                 %M0512
Ã--| +-----| +---| SUB_+-----------------------------------------------------(RM)-  (* Calibration latch for encoder   *)
| 0034    0035   | DINT|                                                          Cross reference for CAL
|                |     |                                                          -] [- 29,35
|                |     | CNT_OFS
|         CONST -|I1  Q+-%R0108
|    +0000000000 |     |
|                |     |
|        ENC_RAW |     |
|        %R0100 -|I2   |
|                +-----+
|
| (*************************************************************************)
| (* Detection of which quadrant that was the last quadrant.               *)
| (*************************************************************************)
|
|  Q1                                                                   LAST_Q1  << RUNG 37  STEP #0107 >>
|%M0509                                                                 %M0507
Ã--| +-------------------------------------------------------------------( )--  (* Last quadrant was Q1            *)
| 0025                                                                            Cross reference for LAST_Q1
|                                                                                 -] [- 28
|
|  Q4                                                                   LAST_Q4  << RUNG 38  STEP #0109 >>
|%M0510                                                                 %M0508
Ã--| +-------------------------------------------------------------------( )--  (* Last quadrant was Q4            *)
| 0026                                                                            Cross reference for LAST_Q4
|                                                                                 -] [- 27
|
+ SAME  :(nested)                                                                 << RUNG 39  STEP #0111 >>
|
| (*************************************************************************)
| (* Pulses for transversal sealing, generation of start conditions.      *)
| (*************************************************************************)
|
|TS_COND                                                                TS1_OS   << RUNG 41  STEP #0113 >>
|%M1361  +-----+                                                        %M1362
+--| +---| GE_ |+-----------------------------------------------------------(^)--  (* Oneshot start TS side 1        *)
|        | INT ||                                                                 Cross reference for TS1_OS
|        |     ||                                                                 -] [- 44
|ENC_ADJ |     ||
|%R0114 -|I1  Q++
|        |     |
|TS1SYNC |     |
|%R0242 -|I2   |
|        +-----+
|
|TS_COND                                                                TS2_OS   << RUNG 42  STEP #0116 >>
|%M1361  +-----+                                                        %M1363
+--| +---| GE_ |+-----------------------------------------------------------(^)--  (* Oneshot start TS side 2        *)
|        | INT ||                                                                 Cross reference for TS2_OS
|        |     ||                                                                 -] [- 45
|ENC_ADJ |     ||
|%R0114 -|I1  Q++
|        |     |
|TS2SYNC |     |
|%R0243 -|I2   |
|        +-----+
|
```


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```
| (*************************************************************************)
| (* Time for transversal sealing.                                         *)
| (* Number of fast scan turns (equals ms if fast scan =1 ms)             *)
| (*************************************************************************)
|
|TS1_OS                                                          << RUNG 44  STEP #0120 >>
|%M1362  +-----+
+--| +---|MOVE_+-
| 0041   | INT |
|        |     |
|        |     |  TSS1
| CONST -|IN  Q+-%R0240
| +00260 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|TS2_OS                                                          << RUNG 45  STEP #0122 >>
|%M1363  +-----+
+--| +---|MOVE_+-
| 0042   | INT |
|        |     |
|        |     |  TSS2
| CONST -|IN  Q+-%R0241
| +00260 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|TS_COND                                                 A40_208 << RUNG 46  STEP #0124 >>
|%M1361  +-----+                                         %Q0091
+--| +---| GT_ |+-------------------------------------------------------( )--  (* Pulse TS sealing side 1          *)
|    | INT ||                                                                 Cross reference for A40_208
|    |     ||                                                                 -] [- 48
| TSS1   |     ||
|%R0240 -|I1  Q++
|        |     |
| CONST -|I2   |
| +00000 +-----+
|
|TS_COND                                                 A41_208 << RUNG 47  STEP #0127 >>
|%M1361  +-----+                                         %Q0092
+--| +---| GT_ |+-------------------------------------------------------( )--  (* Pulse TS sealing side 2          *)
|    | INT ||                                                                 Cross reference for A41_208
|    |     ||                                                                 -] [- 49
| TSS2   |     ||
|%R0241 -|I1  Q++
|        |     |
| CONST -|I2   |
| +00000 +-----+
|
|A40_208                                                         << RUNG 48  STEP #0130 >>
|%Q0091  +-----+
+--| +---| SUB_+-
| 0046   | INT |
|        |     |
| TSS1   |     |  TSS1
|%R0240 -|I1  Q+-%R0240
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|A41_208                                                         << RUNG 49  STEP #0132 >>
|%Q0092  +-----+
+--| +---| SUB_+-
| 0047   | INT |
|        |     |
| TSS2   |     |  TSS2
|%R0241 -|I1  Q+-%R0241
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|TS_COND                                                         << RUNG 50  STEP #0134 >>
|%M1361  +-----+
+--| +---|DO_IO+-
|    |     |
| Y200   |     |
|%Q0081 -|ST   |
|        |     |
| Y204   |     |
|%Q0096 -|END  |
|        |     |
| CONST -|ALT  |
|   0003 +-----+
|
| B205                                                   DES_OS  << RUNG 52  STEP #0137 >>
|%I0011                                                  %M1340
+--| +-------------------------------------------------------------(^)--  (* Oneshot design sensor edge       *)
|                                                                         Cross reference for DES_OS
|                                                                         -] [- 53,54
```


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```
¦DES_OS                                                          MARK    << RUNG 53  STEP #0139 >>
¦%M1340  +-----+                                                 %M1334
+--¦ +---¦MOVE_+-----------------------------------------------(SM)-  (* New marker value recieved       *)
¦ 0052   ¦ INT ¦                                                       Cross reference for MARK
¦        ¦     ¦                                                                NONE
¦ENC_ADJ ¦     ¦ DS_POS
¦%R0114 -¦IN  Q+-%R0132
¦        ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦
¦        +-----+
¦
¦DES_OS                                                                << RUNG 54  STEP #0142 >>
¦%M1340  +-----+
+--¦ +---¦ ADD_+-
¦ 0052   ¦ INT ¦
¦        ¦     ¦
¦DS_POS  ¦     ¦ DS_POS
¦%R0132 -¦I1  Q+-%R0132
¦        ¦     ¦
¦ CONST -¦I2   ¦
¦ +00000 +-----+
¦
¦ (*************************************************************************)
¦ (* ASU mark detection.                                                   *)
¦ (*************************************************************************)
¦
¦ B125                                                           ASU_OS  << RUNG 56  STEP #0145 >>
¦%I0013                                                          %M1887
+--¦ +-------------------------------------------------------------------(^)--  (* ASU design mark position OS      *)
¦                                                                      Cross reference for ASU_OS
¦                                                                      -] [- 57
¦
¦ASU_OS   ASU4    ASU4T                                          ASU_DES  << RUNG 57  STEP #0147 >>
¦%M1887  %M1988  %M2023                                          %M1886
+--¦ +-----¦ +-----¦ +-----------------------------------------------(SM)-  (* ASU design mark position         *)
¦ 0056   ¦             ¦                                               Cross reference for ASU_DES
¦        ¦ ASU6         ¦                                                        NONE
¦        ¦%M1990        ¦
¦        +--¦ +---------+
¦
¦ B146                                                           INK_OS  << RUNG 58  STEP #0153 >>
¦%I0015                                                          %M1332
+--¦ +-------------------------------------------------------------------(^)--  (* Inkjet, One shot design mark     *)
¦                                                                      Cross reference for INK_OS
¦                                                                      -] [- 59
¦
¦INK_OS                                                                << RUNG 59  STEP #0155 >>
¦%M1332  +-----+
+--¦ +---¦MOVE_+-
¦ 0058   ¦ INT ¦
¦        ¦     ¦
¦        ¦     ¦ ACC202
¦ CONST -¦IN  Q+-%R9603
¦ +00000 ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦
¦        +-----+
¦
¦FR1_NVL                                                               << RUNG 60  STEP #0157 >>
¦%Q0002  +-----+
+--¦ +---¦ ADD_+-
¦        ¦ INT ¦
¦        ¦     ¦
¦ACC202  ¦     ¦ ACC202
¦%R9603 -¦I1  Q+-%R9603
¦        ¦     ¦
¦ CONST -¦I2   ¦
¦ +00001 +-----+
¦
¦ALW_ON                                                          INK_P1  << RUNG 61  STEP #0159 >>
¦%S0007  +-----+                                                 %M1207
+--¦ +---¦RANGE¦+-----------------------------------------------( )--  (* Inkjet print signal package 1    *)
¦        ¦ INT ¦¦                                                      Cross reference for INK_P1
¦        ¦     ¦¦                                                      -] [- 63
¦INKSEC2 ¦     ¦¦
¦%R0245 -¦L1  Q++
¦        ¦     ¦
¦INKSEC1 ¦     ¦
¦%R0244 -¦L2   ¦
¦        ¦     ¦
¦ACC202  ¦     ¦
¦%R9603 -¦IN   ¦
¦        +-----+
¦
```


EM1.1TS700012.fm

```
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¦ALW_ON                                                                    INK_P2   << RUNG 62  STEP #0162 >>
¦%S0007  +-----+                                                          %M1208
+--¦ +---¦RANGE¦+-----------------------------------------------------------( )--  (* Inkjet print signal package 2    *)
¦        ¦ INT ¦¦                                                                  Cross reference for INK_P2
¦        ¦     ¦¦                                                                  -] [- 63
¦INKSEC4 ¦     ¦¦
¦%R0247 -¦L1  Q++
¦        ¦     ¦
¦INKSEC3 ¦     ¦
¦%R0246 -¦L2   ¦
¦        ¦     ¦
¦ACC202  ¦     ¦
¦%R9603 -¦IN   ¦
¦        +-----+
¦
¦INK_P1                                                                     P400    << RUNG 63  STEP #0165 >>
¦%M1207                                                                   %Q0093
+--¦ +-----------------------------------------------------------------------( )--  (* Inkjet print signal             *)
¦ 0061  ¦                                                                         Cross reference for P400
¦INK_P2 ¦                                                                                  NONE
¦%M1208 ¦
+--¦ +--+
¦ 0062
¦
¦[    END OF SUBROUTINE LOGIC     ]
¦
```


EM1.1TS700012.fm

```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Initialize the main control sequence.                                 *)
| (*************************************************************************)
|
|FST_SCN                                                                    << RUNG 5  STEP #0003 >>
|%S0001  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|        | CLR_|         | SET_|
|        | WORD|         | WORD|
| SS-1   |     |  SS-1   |     |
|%M0097 -|IN   | %M0097 -|IN   |
|        | LEN |         | LEN |
|        |00001|         |00001|
|        |     |         |     |
|        +-----+  CONST -|BIT  |
|                  00001 +-----+
|
| (*************************************************************************)
| (* Oneshot step up one step                                              *)
| (*************************************************************************)
|
| S001H                                                          STEPUP     << RUNG 7  STEP #0007 >>
|%I0104                                                          %M0001
+--| +-------------------------------------------------------------(^)--  (* Oneshot step up one step         *)
|                                                                           Cross reference for STEPUP
|                                                                           -] [- 52,53,54,55,58,59,61,63,69
|
| (*************************************************************************)
| (* Stepup button pushed 3 seconds. used to end cleaning.                *)
| (*************************************************************************)
|
| S001H                                                          STEPU3S    << RUNG 9  STEP #0010 >>
|%I0104  +-----+                                                 %M0002
+--| +---| TMR +-------------------------------------------------------(^)--  (* Stepup button pushed 3 sec       *)
|        |0.10s|                                                           Cross reference for STEPU3S
|        |     |                                                                    NONE
| CONST -|PV   |
| +00030 |     |
|        +-----+
|        ACC135
|        %R9402
|
| (*************************************************************************)
| (* Oneshot step down one step                                            *)
| (*************************************************************************)
|
| S002H                                                          STEPDWN    << RUNG 11  STEP #0014 >>
|%I0105                                                          %M0003
+--| +-------------------------------------------------------------(^)--  (* Oneshot step down one step       *)
|                                                                           Cross reference for STEPDWN
|                                                                           -] [- 73,74,76,78,82,83,87,93
|
| (*************************************************************************)
| (* Stepdown timer, stepdown button pushed 3 seconds                     *)
| (*************************************************************************)
|
| S002H                                                          STEPD3S    << RUNG 13  STEP #0017 >>
|%I0105  +-----+                                                 %M0004
+--| +---| TMR +-------------------------------------------------------(^)--  (* Stepdown button pushed 3 sec     *)
|        |0.10s|                                                           Cross reference for STEPD3S
|        |     |                                                           -] [- 23,74,85
| CONST -|PV   |
| +00030 |     |
|        +-----+
|         ACC2
|        %R9003
|
| S003                                                           STER_OS    << RUNG 14  STEP #0020 >>
|%I0075                                                          %M0495
+--| +-------------------------------------------------------------(v)--  (* Oneshot when service to sterile  *)
|                                                                           Cross reference for STER_OS
|                                                                           -] [- 23
|
|  SS2                                                            SS2T      << RUNG 15  STEP #0022 >>
|%M0100  +-----+                                                 %M0937
+--| +---| GE_ |+-----------------------------------------------------( )--  (* Timer bit Preheat. on for 5 min  *)
|        | INT ||                                                           Cross reference for SS2T
|        |     ||                                                                    NONE
|ACC165  |     ||
|%R9492 -|I1  Q++
|        |     |
| CONST -|I2   |
| +03000 +-----+
|
| (*************************************************************************)
| (* Timer for SS4 - 25 min                                                *)
| (*************************************************************************)
```

TCA/P1
BLOCK 05 STEP UP/DOWN LOGIC

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-05:01

EM1.1TS700012.fm

```
|  SS5                                                                SS5T    << RUNG 17  STEP #0026 >>
|%M0103  +-----+                                                     %M0113
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer spraying and drying        *)
|        |0.10s|                                                           Cross reference for SS5T
|        |     |                                                                    NONE
| CONST -|PV   |
| +15000 |     |
|        +-----+
|        ACC172
|        %R9513
|
| (*************************************************************************)
| (* Conditions forcing the machine down to a certain step                *)
| (*************************************************************************)
|
|E_STOP                                                              FD-1CON  << RUNG 19  STEP #0030 >>
|%I0018                                                              %M0048
+--| +-------------------------------------------------------------------( )--  (* Conditions forcing to -1         *)
|       |                                                                      Cross reference for FD-1CON
| AC75  |                                                                      -] [- 71
|%M0587 |
+--| +--+
|
| AC32     SS4                                                               << RUNG 20  STEP #0033 >>
|%M0544  %M0102
+--| +-----| +-----------------------------------------------------------------<+>
|       |       |
|       |  SS5  |
|       |%M0103 |
|       +--| +--|
|          |
| AC38     |
|%M0550    |
+--| +-----|
|          |
| AC50     |
|%M0562    |
+--| +-----|
|          |
| AC57     |
|%M0569    |
+--| +-----|
|          |
|  AC8     |
|%M0520    |
+--| +-----+
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 21  STEP #0042 >>
|       |
| AC60  |
|%M0572 |
+--| +--|
|       |
| AC63  |
|%M0575 |
+--| +--|
|       |
|SST_MAX|
|%M1200 |
+--| +--|
|       |
|NORSTOT|
|%M1202 |
+--| +--|
|       |
| AC18  |
|%M0530 |
+--| +--+
|
```

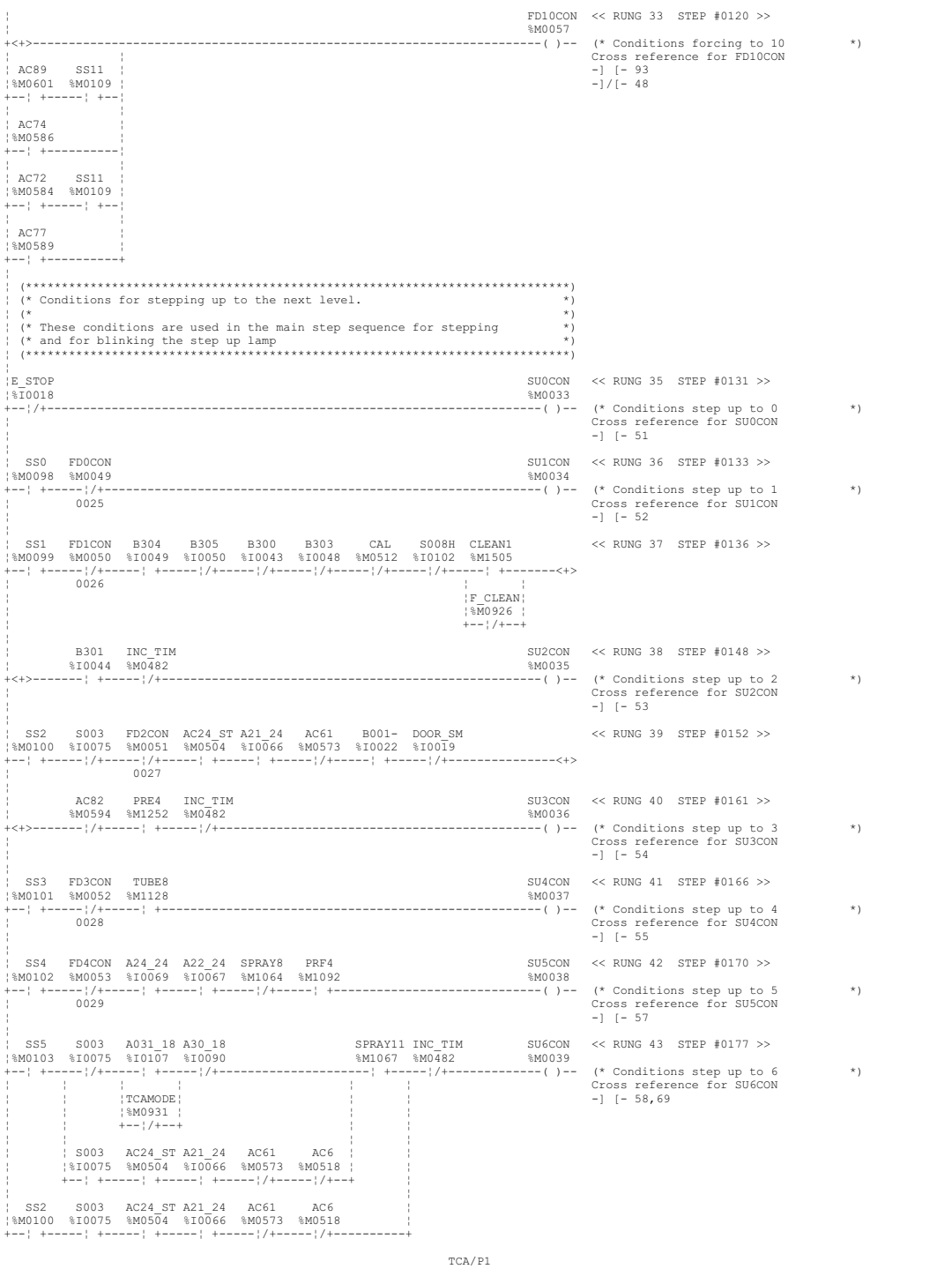

EM1.1TS700012.fm

```
+<+>-------------------------------------------------------------------------<+>  << RUNG 22  STEP #0049 >>
|       |               |
| AC23  |               |
|%M0535 |               |
+--| +--+               |
|                       |
| AC70    SS2_9   S004  |
|%M0582  %M0068  %I0076 |
+--| +-----| +-----| +--|
|       | 0099  |       |
|       |  SS1  |       |
|       |%M0099 |       |
|       +--| +--+       |
|                       |
| AC12                  |
|%M0524                 |
+--| +------------------|
|                       |
| AC24                  |
|%M0536                 |
+--| +------------------|
|                       |
| AC68                  |
|%M0580                 |
+--| +------------------+
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 23  STEP #0061 >>
|                |
|PROD17  STEPD3S|
|%M1169  %M0004 |
+--| +-----| +--|
|         0013  |
|STER_OS        |
|%M0495         |
+--| +----------+
| 0014
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 24  STEP #0067 >>
|                |
|  SS2    AC72  |
|%M0100  %M0584 |
+--| +-----| +--+
|       |
|  SS3  |
|%M0101 |
+--| +--|
|       |
|  SS4  |
|%M0102 |
+--| +--|
|       |
|  SS5  |
|%M0103 |
+--| +--+
|
|                                                                 FD0CON   << RUNG 25  STEP #0075 >>
|                                                                 %M0049
+<+>-------------------------------------------------------------------( )--  (* Conditions forcing to 0          *)
|                |                                                         Cross reference for FD0CON
|  SS2    AC34  |                                                         -] [- 73
|%M0100  %M0546 |                                                         -]/[- 36,47
+--| +-----| +--+
|       |
|  SS6  |
|%M0104 |
+--| +--|
|       |
|  SS7  |
|%M0105 |
+--| +--|
|       |
|  SS8  |
|%M0106 |
+--| +--|
|       |
|  SS9  |
|%M0107 |
+--| +--+
|
|ALW_OFF                                                          FD1CON   << RUNG 26  STEP #0084 >>
|%S0008                                                           %M0050
+--| +-------------------------------------------------------------( )--  (* Conditions forcing to 1          *)
|                                                                         Cross reference for FD1CON
|                                                                         -] [- 74
|                                                                         -]/[- 37
|
```


EM1.1TS700012.fm

```
¦TUB_FD2                                                          FD2CON   << RUNG 27  STEP #0086 >>
¦%M1144                                                           %M0051
+--¦ +-------------------------------------------------------------( )--  (* Conditions forcing to 2          *)
¦       ¦                                                                 Cross reference for FD2CON
¦WEB_BRK¦                                                                 -] [- 76
¦%M0957 ¦                                                                 -]/[- 39
+--¦ +--¦
¦       ¦
¦LSS_BRK¦
¦%M0951 ¦
+--¦ +--¦
¦       ¦
¦ AC47  ¦
¦%M0559 ¦
+--¦ +--¦
¦       ¦
¦ B134  ¦
¦%I0083 ¦
+--¦ +--+
¦
¦  AC5                                                            FD3CON   << RUNG 28  STEP #0092 >>
¦%M0517                                                           %M0052
+--¦ +-------------------------------------------------------------( )--  (* Conditions forcing to 3          *)
¦       ¦       ¦                                                         Cross reference for FD3CON
¦ AC66  ¦       ¦                                                         -] [- 78
¦%M0578 ¦       ¦                                                         -]/[- 41
+--¦ +--+       ¦
¦               ¦
¦ AC34     SS4  ¦
¦%M0546  %M0102 ¦
+--¦ +-----¦ +--¦
¦       ¦       ¦
¦       ¦  SS5  ¦
¦       ¦%M0103 ¦
¦       +--¦ +--+
¦
¦  AC3                                                            FD4CON   << RUNG 29  STEP #0100 >>
¦%M0515                                                           %M0053
+--¦ +-------------------------------------------------------------( )--  (* Conditions forcing to 4          *)
¦                                                                         Cross reference for FD4CON
¦                                                                         -] [- 80
¦                                                                         -]/[- 42
¦
¦FD_STE                                                           FD6CON   << RUNG 30  STEP #0102 >>
¦%M1199                                                           %M0055
+--¦ +-------------------------------------------------------------( )--  (* Conditions forcing to 6          *)
¦                                                                         Cross reference for FD6CON
¦                                                                         -] [- 87
¦                                                                         -]/[- 44
¦
¦NOT_DES                                                          FD7CON   << RUNG 31  STEP #0104 >>
¦%M1209                                                           %M0058
+--¦ +-------------------------------------------------------------( )--  (* Conditions forcing to 7          *)
¦                                                                         Cross reference for FD7CON
¦                                                                         -] [- 89
¦
¦ AC54                                                                    << RUNG 32  STEP #0106 >>
¦%M0566
+--¦ +-----------------------------------------------------------------<+>
¦       ¦       ¦       ¦
¦ AC53  ¦       ¦       ¦
¦%M0565 ¦       ¦       ¦
+--¦ +--¦       ¦       ¦
¦       ¦       ¦       ¦
¦ AC91  ¦       ¦       ¦
¦%M0603 ¦       ¦       ¦
+--¦ +--+       ¦       ¦
¦               ¦       ¦
¦ AC34    SS11  ¦       ¦
¦%M0546  %M0109 ¦       ¦
+--¦ +-----¦ +--+       ¦
¦               ¦       ¦
¦ AC70    SS11    S004  ¦
¦%M0582  %M0109  %I0076 ¦
+--¦ +-----¦ +-----¦ +--¦
¦                       ¦
¦ AC32    SS11          ¦
¦%M0544  %M0109         ¦
+--¦ +-----¦ +----------+
¦
```


EM1.1TS700012.fm



TCA/P1
BLOCK 05 STEP UP/DOWN LOGIC

EM1.1TS700012.fm

```
|  SS6   FD6CON   STER4  PRR_CON NSTOP_C INC_TIM                          SU7CON   << RUNG 44  STEP #0200 >>
|%M0104  %M0055  %M1284  %M1189  %M0946  %M0482                           %M0040
+--| +-----|/+-----| +-----| +-----|/+-----|/+------------------------------( )--  (* Conditions step up to 7          *)
|         0030                                                                     Cross reference for SU7CON
|                                                                                  -] [- 59
|
|  SS7    AC62   DES_PRD                                                  SU8CON   << RUNG 45  STEP #0207 >>
|%M0105  %M0574  %M1206                                                   %M0041
+--| +-----|/+-----| +-------------------------------------------------------( )--  (* Conditions step up to 8          *)
|                                                                                  Cross reference for SU8CON
|                                                                                  -] [- 60
|
|  SS8    PROD9                                                           SU9CON   << RUNG 46  STEP #0211 >>
|%M0106  %M1161                                                           %M0042
+--| +-----| +-------------------------------------------------------------( )--  (* Conditions step up to 9          *)
|                                                                                  Cross reference for SU9CON
|                                                                                  -] [- 61
|
|  SS9    FIN6                                                            SU10CON  << RUNG 47  STEP #0214 >>
|%M0107  %M1446                                                           %M0043
+--| +-----| +-------------------------------------------------------------( )--  (* Conditions step up to 10         *)
|               |                                                                  Cross reference for SU10CON
|  SS0   FD0CON |                                                                  -] [- 62
|%M0098  %M0049 |
+--| +-----|/+--+
|         0025
|
| SS10   FD10CON  B502    B001-   B304    B305    B317                            << RUNG 48  STEP #0220 >>
|%M0108  %M0057  %I0061  %I0022  %I0049  %I0050  %I0053
+--| +-----|/+-----| +-----| +-----|/+-----| +-----| +-------------------------<+>
|         0033
|
|         B300    B301   INC_TIM                                           SU11CON  << RUNG 49  STEP #0228 >>
|        %I0043  %I0044  %M0482                                           %M0044
+<+>-------| +-----|/+-----|/+-----------------------------------------------( )--  (* Conditions step up to 11         *)
|                                                                                  Cross reference for SU11CON
|                                                                                  -] [- 63
|
| (*****************************************************************************)
| (* Ladder to step up one step in the start sequence                        *)
| (*                                                                         *)
| (* In step -1 , sleep, dark operation panel, step up conditions to          *)
| (* reach step 0 (No conditions)                                            *)
| (*****************************************************************************)
|
| SS-1   SU0CON                                                                    << RUNG 51  STEP #0234 >>
|%M0097  %M0033
+--| +-----| +-------------------------------------------------------------------<+>
|         0035
|
|  SS0   STEPUP  SU1CON                                                            << RUNG 52  STEP #0237 >>
|%M0098  %M0001  %M0034
+--| +-----| +-----| +-------------------------------------------------------<+>
|         0007    0036  |
|                       |
+<+>---------------------+
|
|  SS1   STEPUP  SU2CON                                                            << RUNG 53  STEP #0242 >>
|%M0099  %M0001  %M0035
+--| +-----| +-----| +-------------------------------------------------------<+>
|         0007    0038  |
|                       |
+<+>---------------------+
|
|  SS2   STEPUP  SU3CON                                                            << RUNG 54  STEP #0247 >>
|%M0100  %M0001  %M0036
+--| +-----| +-----| +-------------------------------------------------------<+>
|         0007    0040  |
|                       |
+<+>---------------------+
|
|  SS3   STEPUP  SU4CON                                                            << RUNG 55  STEP #0252 >>
|%M0101  %M0001  %M0037
+--| +-----| +-----| +-------------------------------------------------------<+>
|         0007    0041  |
|                       |
+<+>---------------------+
|
| (*****************************************************************************)
| (* Automatic step up from preheating fillsystem to spraying and drying.    *)
| (* This ensures spraying at correct conditions in the machine.              *)
| (*****************************************************************************)
|
|  SS4   ALW_ON  SU5CON                                                            << RUNG 57  STEP #0258 >>
|%M0102  %S0007  %M0038
+--| +-----| +-----| +-------------------------------------------------------<+>
|                 0042  |
|                       |
+<+>---------------------+
|
```

TCA/P1
BLOCK 05 STEP UP/DOWN LOGIC

EM1.1TS700012.fm

```
|  SS5   STEPUP  SU6CON                                                    << RUNG 58  STEP #0263 >>
|%M0103  %M0001  %M0039
+--| +-----| +-----| +-----------------------------------------------------<+>
|         0007    0043  |
|                       |
+<+>-------------------+
|
|  SS6   STEPUP  SU7CON                                                    << RUNG 59  STEP #0268 >>
|%M0104  %M0001  %M0040
+--| +-----| +-----| +-----------------------------------------------------<+>
|         0007    0044  |
|                       |
+<+>-------------------+
|
|  SS7   ALW_ON  SU8CON                                                    << RUNG 60  STEP #0273 >>
|%M0105  %S0007  %M0041
+--| +-----| +-----| +-----------------------------------------------------<+>
|                 0045  |
|                       |
+<+>-------------------+
|
|  SS8   STEPUP  SU9CON                                                    << RUNG 61  STEP #0278 >>
|%M0106  %M0001  %M0042
+--| +-----| +-----| +-----------------------------------------------------<+>
|         0007    0046  |
|                       |
+<+>-------------------+
|
|  SS9   ALW_ON  SU10CON                                                   << RUNG 62  STEP #0283 >>
|%M0107  %S0007  %M0043
+--| +-----| +-----| +-----------------------------------------------------<+>
|                 0047  |
|                       |
+<+>-------------------+
|
| SS10   STEPUP  SU11CON                                                   << RUNG 63  STEP #0288 >>
|%M0108  %M0001  %M0044
+--| +-----| +-----| +-----------------------------------------------------<+>
|         0007    0049  |
|                       |
+<+>-------------------+
|
| SS11   ALW_OFF                                                           << RUNG 64  STEP #0293 >>
|%M0109  %S0008
+--| +-----| +-----------------------------------------------------------<+>
|              |
+<+>------------+
|
|        +-----+                                                           << RUNG 65  STEP #0297 >>
+<+>-----| SHL_|
|        | WORD|
|        |     |
| SS-1   |     |
|%M0097 -|IN B2+-
|        | LEN |
|        |00001|
|        |     |  SS-1
| CONST -|N   Q+-%M0097
| +00001 |     |
|ALW_OFF |     |
|%S0008  |     |
+--| +---|B1   |
|        +-----+
|
| (*************************************************************************)
| (* Machine step decoding.                                                *)
| (*                                                                       *)
| (* Subtraction needed to make range start at -1                          *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 67  STEP #0301 >>
|%S0007  +-----+                 +-----+
+--| +---| BIT_+-----------------| SUB_+-
|        | POS_|                 | INT |
|        | WORD|                 |     |
| SS-1   |     |          STEP   |     |  STEP
|%M0097 -|IN   |         %R0230 -|I1  Q+-%R0230
|        | LEN |                 |     |
|        |00001|                 |     |
|        |     |  STEP           |     |
|        |  POS+-%R0230   CONST -|I2   |
|        +-----+          +00002 +-----+
|
| (*************************************************************************)
| (* Step up from Preheating to Signal to/from sterilizer in service mode.  *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

```
|  SS2   SU6CON  STEPUP                                                    << RUNG 69  STEP #0305 >>
|%M0100  %M0039  %M0001  +-----+         +-----+
+--| +-----| +-----| +---| BLK_+---------| BIT_+-
|         0043    0007   | CLR_|         | SET_|
|                        | WORD|         | WORD|
|                 SS-1   |     |  SS-1   |     |
|                %M0097 -|IN   | %M0097 -|IN   |
|                        | LEN |         | LEN |
|                        |00001|         |00001|
|                        |     |         |     |
|                        +-----+  CONST -|BIT  |
|                                  00008 +-----+
|
| (*************************************************************************)
| (* Conditions forcing down to -1                                        *)
| (*************************************************************************)
|
|FD-1CON                                                                   << RUNG 71  STEP #0311 >>
|%M0048  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
| 0019   | CLR_|         | SET_|
|        | WORD|         | WORD|
| SS-1   |     |  SS-1   |     |
|%M0097 -|IN   | %M0097 -|IN   |
|        | LEN |         | LEN |
|        |00001|         |00001|
|        |     |         |     |
|        +-----+  CONST -|BIT  |
|                  00001 +-----+
|
| (*************************************************************************)
| (* Stepping down to step 0 from 1                                       *)
| (* Forcing to step 0, (bit no 2)                                        *)
| (*************************************************************************)
|
|FD0CON                                                                    << RUNG 73  STEP #0315 >>
|%M0049                  +-----+
+--| +------------------| GT_ |
| 0025          |       | INT |
|  SS1   STEPDWN|       |     |
|%M0099  %M0003 | STEP  |     |         +-----+         +-----+
+--| +-----| +--+%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|         0011           |     |         | CLR_|         | SET_|
|                        |     |         | WORD|         | WORD|
|                        |     |  SS-1   |     |  SS-1   |     |
|                CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|                +00000 +-----+         | LEN |         | LEN |
|                                       |00001|         |00001|
|                                       |     |         |     |
|                                       +-----+  CONST -|BIT  |
|                                                 00002 +-----+
|
|FD1CON                                                                    << RUNG 74  STEP #0322 >>
|%M0050                  +-----+
+--| +------------------| GT_ |
| 0026          |       | INT |
|  SS2   STEPDWN|       |     |
|%M0100  %M0003 | STEP  |     |         +-----+         +-----+
+--| +-----| +--|%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|         0011  |        |     |         | CLR_|         | SET_|
| SS10   STEPD3S|        |     |         | WORD|         | WORD|
|%M0108  %M0004 |        |     |  SS-1   |     |  SS-1   |     |
+--| +-----| +--+ CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|         0013    +00001 +-----+         | LEN |         | LEN |
|                                       |00001|         |00001|
|                                       |     |         |     |
|                                       +-----+  CONST -|BIT  |
|                                                 00003 +-----+
|
| (*************************************************************************)
| (* Stepping down from 3 to 2                                           *)
| (* Stepping down during the tube sealing sequence not possible.        *)
| (*************************************************************************)
|
|FD2CON    SS3                                                             << RUNG 76  STEP #0333 >>
|%M0051  %M0101  +-----+
+--| +-----| +---| GT_ |
| 0027  |       | INT |
|STEPDWN|       |     |
|%M0003 | STEP  |     |         +-----+         +-----+
+--| +--+%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
| 0011           |     |         | CLR_|         | SET_|
|                |     |         | WORD|         | WORD|
|                |     |  SS-1   |     |  SS-1   |     |
|         CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|         +00002 +-----+         | LEN |         | LEN |
|                                 |00001|         |00001|
|                                 |     |         |     |
|                                 +-----+  CONST -|BIT  |
|                                           00004 +-----+
|
```


EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Stepping down from 4 to 3,                                            *)
| (* Forcing down to 3                                                     *)
| (*************************************************************************)
|
|FD3CON                                                                    << RUNG 78  STEP #0340 >>
|%M0052                 +-----+
+--| +-----------------| GT_ |
| 0028          |      | INT |
|  SS4   STEPDWN|      |     |
|%M0102  %M0003 | STEP |     |         +-----+         +-----+
+--| +-----| +--+%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|         0011           |     |         | CLR_|         | SET_|
|                        |     |         | WORD|         | WORD|
|                        |     |  SS-1   |     |  SS-1   |     |
|                CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|                +00003 +-----+         | LEN |         | LEN |
|                                       |00001|         |00001|
|                                       |     |         |     |
|                                       +-----+  CONST -|BIT  |
|                                                 00005 +-----+
|
| (*************************************************************************)
| (* Stepping down from 5 to 4 is not possible.                           *)
| (*                                                                       *)
| (* Forcing down to 4                                                    *)
| (*************************************************************************)
|
|FD4CON                                                                    << RUNG 80  STEP #0348 >>
|%M0053  +-----+
+--| +---| GT_ |
| 0029   | INT |
|        |     |
| STEP   |     |         +-----+         +-----+
|%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|        |     |         | CLR_|         | SET_|
|        |     |         | WORD|         | WORD|
|        |     |  SS-1   |     |  SS-1   |     |
| CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
| +00004 +-----+         | LEN |         | LEN |
|                        |00001|         |00001|
|                        |     |         |     |
|                        +-----+  CONST -|BIT  |
|                                  00006 +-----+
|
| (*************************************************************************)
| (* Stepping down to 5 from 6.                                           *)
| (*************************************************************************)
|
|  SS6   STEPDWN  S003                                                     << RUNG 82  STEP #0353 >>
|%M0104  %M0003  %I0075  +-----+
+--| +-----| +-----|/+---| GT_ |
|         0011           | INT |
|                        |     |
|                STEP    |     |         +-----+         +-----+
|               %R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|                        |     |         | CLR_|         | SET_|
|                        |     |         | WORD|         | WORD|
|                        |     |  SS-1   |     |  SS-1   |     |
|                CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|                +00005 +-----+         | LEN |         | LEN |
|                                       |00001|         |00001|
|                                       |     |         |     |
|                                       +-----+  CONST -|BIT  |
|                                                 00007 +-----+
|
|  SS6   STEPDWN  S003                                                     << RUNG 83  STEP #0359 >>
|%M0104  %M0003  %I0075  +-----+
+--| +-----| +-----| +---| GT_ |
|         0011           | INT |
|                        |     |
|                STEP    |     |         +-----+         +-----+
|               %R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|                        |     |         | CLR_|         | SET_|
|                        |     |         | WORD|         | WORD|
|                        |     |  SS-1   |     |  SS-1   |     |
|                CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
|                +00005 +-----+         | LEN |         | LEN |
|                                       |00001|         |00001|
|                                       |     |         |     |
|                                       +-----+  CONST -|BIT  |
|                                                 00004 +-----+
|
| (*************************************************************************)
| (* Stepping down from spraying and drying to 0 in all modes.            *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

```
|  SS5   STEPD3S                                                          << RUNG 85  STEP #0366 >>
|%M0103  %M0004  +-----+         +-----+
+--| +-----| +---| BLK_+---------| BIT_+-
|         0013   | CLR_|         | SET_|
|                | WORD|         | WORD|
|         SS-1   |     |  SS-1   |     |
|        %M0097 -|IN   | %M0097 -|IN   |
|                | LEN |         | LEN |
|                |00001|         |00001|
|                |     |         |     |
|                +-----+  CONST -|BIT  |
|                          00002 +-----+
|
| (*************************************************************************)
| (* Conditions forcing down to 6                                         *)
| (*************************************************************************)
|
|FD6CON                                                                   << RUNG 87  STEP #0371 >>
|%M0055                          +-----+
+--| +--------------------------|RANGE|
| 0030                 |         | INT |
|  SS9    FIN4   STEPDWN|        |     |
|%M0107  %M1444  %M0003 |        |     |         +-----+         +-----+
+--| +-----| +-----| +--+ CONST -|L1  Q+---------| BLK_+---------| BIT_+-
|                 0011    +00009 |     |         | CLR_|         | SET_|
|                                |     |         | WORD|         | WORD|
|                                |     |  SS-1   |     |  SS-1   |     |
|                         CONST -|L2   | %M0097 -|IN   | %M0097 -|IN   |
|                         +00006 |     |         | LEN |         | LEN |
|                                |     |         |00001|         |00001|
|                         STEP   |     |         |     |         |     |
|                        %R0230 -|IN   |         +-----+  CONST -|BIT  |
|                                +-----+                  00008 +-----+
|
| (*************************************************************************)
| (* Conditions forcing down to 7                                         *)
| (*************************************************************************)
|
|FD7CON                                                                   << RUNG 89  STEP #0380 >>
|%M0058  +-----+
+--| +---| GT_ |
| 0031   | INT |
|        |     |
| STEP   |     |         +-----+         +-----+
|%R0230 -|I1  Q+---------| BLK_+---------| BIT_+-
|        |     |         | CLR_|         | SET_|
|        |     |         | WORD|         | WORD|
|        |     |  SS-1   |     |  SS-1   |     |
| CONST -|I2   | %M0097 -|IN   | %M0097 -|IN   |
| +00007 +-----+         | LEN |         | LEN |
|                        |00001|         |00001|
|                        |     |         |     |
|                        +-----+  CONST -|BIT  |
|                                 00009 +-----+
|
| (*************************************************************************)
| (* Machine step up into Preparation for Cleaning from Preparation       *)
| (*************************************************************************)
|
|  SS1    S008H                                                           << RUNG 91  STEP #0385 >>
|%M0099  %I0102  +-----+         +-----+
+--| +-----| +---| BLK_+---------| BIT_+-
|               | CLR_|         | SET_|
|               | WORD|         | WORD|
|         SS-1  |     |  SS-1   |     |
|        %M0097 -|IN   | %M0097 -|IN   |
|                | LEN |         | LEN |
|                |00001|         |00001|
|                |     |         |     |
|                +-----+  CONST -|BIT  |
|                          00012 +-----+
|
| (*************************************************************************)
| (* Conditions forcing from Cleaning to Preparation for Cleaning.        *)
| (*************************************************************************)
|
| SS11   FD10CON                                                          << RUNG 93  STEP #0390 >>
|%M0109  %M0057          +-----+         +-----+
+--| +-----| +----------| BLK_+---------| BIT_+-
|       | 0033  |       | CLR_|         | SET_|
|       |STEPDWN|       | WORD|         | WORD|
|       |%M0003 | SS-1  |     |  SS-1   |     |
|       +--| +--|%M0097 -|IN   | %M0097 -|IN   |
|       | 0011  |        | LEN |         | LEN |
|       |CLEAN6 |        |00001|         |00001|
|       |%M1510 |        |     |         |     |
|       +--| +--+        +-----+  CONST -|BIT  |
|                                  00012 +-----+
|
```


EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Machine step decoding do NOT change these bits thay are GLOBALY used.    *)
| (*************************************************************************)
|
| SS-1                                                          SS-1_0   << RUNG 95  STEP #0398 >>
|%M0097                                                        %M0064
+--| +-------------------------------------------------------------( )--  (* Machine in step -1 thru 0        *)
|    |                                                                    Cross reference for SS-1_0
|  SS0  |                                                                          NONE
|%M0098 |
+--| +--+
|
|  SS0                                                           SS0_8   << RUNG 96  STEP #0401 >>
|%M0098                                                        %M0066
+--| +-------------------------------------------------------------( )--  (* Machine in step 0 thru 8         *)
|    |                                                                    Cross reference for SS0_8
|  SS1  |                                                                 -] [- 97
|%M0099 |
+--| +--|
|    |
| SS2_8 |
|%M0067 |
+--| +--+
| 0098
|
|  SS0                                                           SS0_9   << RUNG 97  STEP #0405 >>
|%M0098                                                        %M0065
+--| +-------------------------------------------------------------( )--  (* Machine in step 0 thru 9         *)
|    |                                                                    Cross reference for SS0_9
| SS0_8 |                                                                          NONE
|%M0066 |
+--| +--|
| 0096  |
|  SS9  |
|%M0107 |
+--| +--+
|
|  SS2                                                           SS2_8   << RUNG 98  STEP #0409 >>
|%M0100                                                        %M0067
+--| +-------------------------------------------------------------( )--  (* Machine in step 2 thru 8         *)
|    |                                                                    Cross reference for SS2_8
|  SS3  |                                                                 -] [- 96,99
|%M0101 |
+--| +--|
|    |
|  SS4  |
|%M0102 |
+--| +--|
|    |
| SS5_8 |
|%M0069 |
+--| +--+
| 0100
|
| SS2_8                                                          SS2_9   << RUNG 99  STEP #0414 >>
|%M0067                                                        %M0068
+--| +-------------------------------------------------------------( )--  (* Machine in step 2 thru 9         *)
| 0098  |                                                                  Cross reference for SS2_9
|  SS9  |                                                                 -] [- 22
|%M0107 |
+--| +--+
|
|  SS5                                                           SS5_8   << RUNG 100  STEP #0417 >>
|%M0103                                                        %M0069
+--| +-------------------------------------------------------------( )--  (* Machine in step 5 thru 8         *)
|    |                                                                    Cross reference for SS5_8
|  SS6  |                                                                 -] [- 98
|%M0104 |
+--| +--|
|    |
|  SS7  |
|%M0105 |
+--| +--|
|    |
|  SS8  |
|%M0106 |
+--| +--+
|
| SS10                                                          SS10_11  << RUNG 101  STEP #0422 >>
|%M0108                                                        %M0070
+--| +-------------------------------------------------------------( )--  (* Machine in step 10 thru 11       *)
|    |                                                                    Cross reference for SS10_11
| SS11  |                                                                          NONE
|%M0109 |
+--| +--+
|
| (*************************************************************************)
| (* Logic for reset of safety module A200                                 *)
| (*************************************************************************)
|
```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```
| RST2                                                                RST_PLS  << RUNG 103  STEP #0426 >>
|%M0386          +-----+                                              %M0402
+--| +-----------| TMR +-----------------------------------------------( )--  (* Length of reset pulse           *)
|       |        |0.01s|                                                       Cross reference for RST_PLS
| RST4  |        |     |                                                       -] [- 107
|%M0388 |        |     |
+--| +--+ CONST -|PV   |
|         +00010 |     |
|                +-----+
|                 ACC60
|                %R9177
|
| RST3                                                                RST_PAU  << RUNG 104  STEP #0430 >>
|%M0387          +-----+                                              %M0403
+--| +-----------| TMR +-----------------------------------------------( )--  (* Length of reset pause           *)
|       |        |0.01s|                                                       Cross reference for RST_PAU
| RST5  |        |     |                                                       -] [- 107
|%M0389 |        |     |
+--| +--+ CONST -|PV   |
|         +00010 |     |
|                +-----+
|                 ACC61
|                %R9180
|
|FST_SCN                                                                    << RUNG 105  STEP #0434 >>
|%S0001  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|         | CLR_|         | SET_|
|         | WORD|         | WORD|
| RST1    |     |  RST1   |     |
|%M0385 -|IN   | %M0385 -|IN   |
|         | LEN |         | LEN |
|         |00001|         |00001|
|         |     |         |     |
|         +-----+  CONST -|BIT  |
|                   00001 +-----+
|
| (*************************************************************************)
| (* Shift logic for reset of safety module.                              *)
| (*                                                                       *)
| (* This sequence sends two pulses of 0.1 sec to the safety module       *)
| (* to reset it.                                                         *)
| (*************************************************************************)
|
| RST1   ALM_RST                                                      RSTSHF1  << RUNG 107  STEP #0438 >>
|%M0385  %M0005                                                      %M0401
+--| +-----| +-------------------------------------------------------( )--  (* Shiftbit reset safety module     *)
|       |      |                                                             Cross reference for RSTSHF1
|       |FST_SCN|                                                            -] [- 108
|       |%S0001 |
|       +--| +--|
|          |
| RST2   RST_PLS|
|%M0386  %M0402 |
+--| +-----| +--|
|         0103  |
| RST3   RST_PAU|
|%M0387  %M0403 |
+--| +-----| +--|
|         0104  |
| RST4   RST_PLS|
|%M0388  %M0402 |
+--| +-----| +--|
|         0103  |
| RST5   RST_PAU|
|%M0389  %M0403 |
+--| +-----| +--|
|         0104  |
| RST6   ALW_ON |
|%M0390  %S0007 |
+--| +-----| +--+
|
|RSTSHF1                                                                    << RUNG 108  STEP #0458 >>
|%M0401  +-----+
+--| +---| SHL_|
| 0107   | WORD|
|        |     |
| RST1   |     |
|%M0385 -|IN B2+-
|         | LEN |
|         |00001|
|         |     |  RST1
| CONST -|N   Q+-%M0385
| +00001 |     |
|ALW_OFF |     |
|%S0008  |     |
+--| +---|B1   |
|        +-----+
|
```


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```
| RST7                                                                                << RUNG 109  STEP #0461 >>
|%M0391  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|        | CLR_|         | SET_|
|        | WORD|         | WORD|
| RST1   |     |  RST1   |     |
|%M0385 -|IN   | %M0385 -|IN   |
|        | LEN |         | LEN |
|        |00001|         |00001|
|        |     |         |     |
|        +-----+  CONST -|BIT  |
|                  00001 +-----+
|
| (*************************************************************************)
| (* Timer air on.                                                         *)
| (* No sterile air consumption is permitted until air pressure is stable  *)
| (* Sterile air on for a time delay after main air pressure off.          *)
| (*************************************************************************)
|
| B314                                                              AIR_TMP  << RUNG 111  STEP #0465 >>
|%I0058  +-----+                                                    %M0490
+--| +---| TMR +-------------------------------------------------------( )--  (* Temp variable for AIR_ON (M0009) *)
|        |0.10s|                                                             Cross reference for AIR_TMP
|        |     |                                                             -] [- 112
| CONST -|PV   |
| +00060 |     |
|        +-----+
|        ACC115
|        %R9342
|
|AIR_TMP                                                            AIR_ON   << RUNG 112  STEP #0468 >>
|%M0490  +-----+                                                    %M0009
+--| +---|OFDT +-------------------------------------------------------( )--  (* Timer delay air on functions     *)
| 0111   |0.10s|                                                             Cross reference for AIR_ON
|        |     |                                                                       NONE
| CONST -|PV   |
| +00080 |     |
|        +-----+
|        ACC175
|        %R9522
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

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```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* OPERATOR PANEL, MULTIPLEXER BOARD                                     *)
 (* Handling of Serial Pulse Trains to Operator Panel                     *)
 (*************************************************************************)

 (*************************************************************************)
 (*                                                                       *)
 (* Reset after Power Off to secure start from "zero" of the              *)
 (* Synch. Multiplex Train                                                *)
 (*************************************************************************)

 (*************************************************************************)
 (* Mapping of multiplexed data.                                          *)
 (*                                                                       *)
 (* %M129-%M144 Card X1, out 1:1 thru 1:16 16 outputs, H65-H80            *)
 (* %M161-%M180 Card X1, out 2:1 thru 2:20 20 outputs, H01-H20            *)
 (* %M193-%M212 Card X1, out 3:1 thru 3:20 20 outputs, H21-H40            *)
 (*                                                                       *)
 (* %M225-%M240 Card X2, out 1:1 thru 1:16 16 outputs, H81-H96            *)
 (* %M257-%M277 Card X2, out 2:1 thru 2:20 20 outputs, H41-H60            *)
 (* %M289-%M308 Card X2, out 3:1 thru 3:20 20 outputs, H61-H64+16 unassigned *)
 (*************************************************************************)

FST_SCN                                                                  << RUNG 7  STEP #0005 >>
%S0001  +-----+
+--| +---|MOVE_+-
|        | INT |
|        |     |
|        |     |  OP_C1
| CONST -|IN  Q+-%R0200
| +00023 | LEN |
|        |00001|
|        |     |
|        +-----+

 (*************************************************************************)
 (* Generation of a running count register 0,1,2,3, ... ,25,26,27,28-0,1,... *)
 (* as base for multiplexer board data pointer                            *)
 (*                                                                       *)
 (* Generation of a bit (One scan) sync to Mux scan for flashbits.        *)
 (* Items on the panel that uses the mux shall use these flash bits       *)
 (* to assure proper operation.                                           *)
 (*************************************************************************)

ALW_ON                                                          OI_SCN   << RUNG 9  STEP #0008 >>
%S0007  +-----+               +-----+                           %M0123
+--| +---| ADD_+---------------| GT_ |                +------------( )--  (* One scan done of OpPanel (OS)    *)
|        | INT |               | INT |                |                   Cross reference for OI_SCN
|        |     |               |     |                |                   -] [- 38
| OP_C1  |     |  OP_C1   OP_C1|     |         +-----+|                   -]/[- 38
%R0200 -|I1  Q+-%R0200  %R0200 -|I1  Q+---------|MOVE_++
|       |     |               |     |         | INT |
|       |     |               |     |         |     |  OP_C1
| CONST -|I2   |          CONST -|I2   |  CONST -|IN  Q+-%R0200
| +00001 +-----+          +00027 +-----+  +00000 | LEN |
|                                                |00001|
|                                                |     |
|                                                +-----+

 (*************************************************************************)
 (* If the counter is in the range 1 thru 20 data should be outputed      *)
 (* to the multiplexer board(s)                                           *)
 (*************************************************************************)

ALW_ON                                                          OP_DAT   << RUNG 11  STEP #0014 >>
%S0007  +-----+                                                 %M0120
+--| +---| GE_ |               +-------------------------------------------( )--  (* Panel mux in data range          *)
|        | INT |               |                                                  Cross reference for OP_DAT
|        |     |               |                                                  -] [- 13,15,17,19,23,26,29,32,35
| OP_C1  |     |         +-----+|
%R0200 -|I1  Q+---------| LE_ ||
|       |     |         | INT ||
|       |     |         |     ||
|       |     |  OP_C1  |     ||
| CONST -|I2   | %R0200 -|I1  Q++
| +00001 +-----+         |     |
|                        |     |
|                CONST -|I2   |
|                +00020 +-----+

 (*************************************************************************)
 (* The data in the internal bits (multiplexer output status) are fed     *)
 (* to the outputs with the highest bit (bit 20) first so the pointer (R201) *)
 (* has to run backwards thru the bits. 20,19,18,....,3,2,1               *)
 (*************************************************************************)
```


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```
¦OP_DAT                                                                  << RUNG 13  STEP #0019 >>
¦%M0120  +-----+
+--¦ +---¦ SUB_+-
¦ 0011   ¦ INT ¦
¦        ¦     ¦
¦        ¦     ¦  OP_P1
¦ CONST -¦I1  Q+-%R0201
¦ +00021 ¦     ¦
¦        ¦     ¦
¦ OP_C1  ¦     ¦
¦%R0200 -¦I2   ¦
¦        +-----+
¦
¦ (*************************************************************************)
¦ (* Generate a condition for lamp test data to be sent out instead of     *)
¦ (* the real status of the multiplexed data.                              *)
¦ (*                                                                       *)
¦ (*************************************************************************)
¦
¦OP_DAT   LMP2                                                  OP_LTST  << RUNG 15  STEP #0022 >>
¦%M0120  %M1938                                                 %M0121
+--¦ +-----¦ +-------------------------------------------------------( )--  (* Lamp test data active           *)
¦ 0011                                                                    Cross reference for OP_LTST
¦                                                                         -] [- 21,24,27,30,33,36
¦
¦ (*************************************************************************)
¦ (* Sync pulse to multiplexer board(s). This signal is more like          *)
¦ (* a data clock signal.                                                  *)
¦ (*************************************************************************)
¦
¦OP_DAT                                                         MUX_SYN  << RUNG 17  STEP #0026 >>
¦%M0120  +-----+                                                %Q0106
+--¦ +---¦ BIT_¦+-------------------------------------------------------( )--  (* Sync pulse train                *)
¦ 0011   ¦TEST_¦¦                                                         Cross reference for MUX_SYN
¦        ¦ WORD¦¦                                                                  NONE
¦ OP_C1  ¦     ¦¦
¦%R0200 -¦IN  Q++
¦        ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦
¦ CONST -¦BIT  ¦
¦  00001 +-----+
¦
¦ (*************************************************************************)
¦ (* Data to the three data trains of each channel, step 1 decode the      *)
¦ (* status of the internal bit.                                           *)
¦ (* Bit 1 board 1                                                         *)
¦ (*************************************************************************)
¦
¦OP_DAT                                                                  << RUNG 19  STEP #0030 >>
¦%M0120  +-----+
+--¦ +---¦ BIT_¦+-------------------------------------------------------------<+>
¦ 0011   ¦TEST_¦¦
¦        ¦ WORD¦¦
¦ H88B   ¦     ¦¦
¦%M0129 -¦IN  Q++
¦        ¦ LEN ¦
¦        ¦00002¦
¦ OP_P1  ¦     ¦
¦%R0201 -¦BIT  ¦
¦        +-----+
¦
¦ (*************************************************************************)
¦ (* Section 2, send the information to the multiplexer board but adjust for  *)
¦ (* lamp test.                                                            *)
¦ (*************************************************************************)
¦
¦                                                               B1_DP1   << RUNG 21  STEP #0034 >>
¦                                                               %Q0107
+<+>-------------------------------------------------------------------( )--  (* Board 1 Data 1 pulse train      *)
¦      ¦                                                                  Cross reference for B1_DP1
¦OP_LTST¦                                                                         NONE
¦%M0121 ¦
+--¦ +--+
¦ 0015
¦
¦ (*************************************************************************)
¦ (* Bit 2 board 1                                                         *)
¦ (*************************************************************************)
¦
```


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```
|OP_DAT                                                                    << RUNG 23  STEP #0038 >>
|%M0120  +-----+
+--| +---| BIT_|+-------------------------------------------------------------<+>
| 0011   |TEST_||
|        | WORD||
|  H42   |     ||
|%M0257 -|IN  Q++
|        | LEN |
|        |00002|
| OP_P1  |     |
|%R0201 -|BIT  |
|        +-----+
|
|                                                          B1_DP2   << RUNG 24  STEP #0041 >>
|                                                          %Q0108
+<+>-------------------------------------------------------------------( )--  (* Board 1 Data 2 pulse train       *)
|      |                                                                      Cross reference for B1_DP2
|OP_LTST|                                                                           NONE
|%M0121 |
+--| +--+
| 0015
|
| (*************************************************************************)
| (* Bit 3 board 1                                                         *)
| (*************************************************************************)
|
|OP_DAT                                                                    << RUNG 26  STEP #0045 >>
|%M0120  +-----+
+--| +---| BIT_|+-------------------------------------------------------------<+>
| 0011   |TEST_||
|        | WORD||
|  H64   |     ||
|%M0193 -|IN  Q++
|        | LEN |
|        |00002|
| OP_P1  |     |
|%R0201 -|BIT  |
|        +-----+
|
|                                                          B1_DP3   << RUNG 27  STEP #0048 >>
|                                                          %Q0109
+<+>-------------------------------------------------------------------( )--  (* Board 1 data 3 pulse train       *)
|      |                                                                      Cross reference for B1_DP3
|OP_LTST|                                                                           NONE
|%M0121 |
+--| +--+
| 0015
|
| (*************************************************************************)
| (* Bit 1 board 2                                                         *)
| (*************************************************************************)
|
|OP_DAT                                                                    << RUNG 29  STEP #0052 >>
|%M0120  +-----+
+--| +---| BIT_|+-------------------------------------------------------------<+>
| 0011   |TEST_||
|        | WORD||
|  H88   |     ||
|%M0225 -|IN  Q++
|        | LEN |
|        |00002|
| OP_P1  |     |
|%R0201 -|BIT  |
|        +-----+
|
|                                                          B2_DP1   << RUNG 30  STEP #0055 >>
|                                                          %Q0110
+<+>-------------------------------------------------------------------( )--  (* Board 2 data 1 pulse train       *)
|      |                                                                      Cross reference for B2_DP1
|OP_LTST|                                                                           NONE
|%M0121 |
+--| +--+
| 0015
|
| (*************************************************************************)
| (* Bit 2 board 2                                                         *)
| (*************************************************************************)
|
|OP_DAT                                                                    << RUNG 32  STEP #0059 >>
|%M0120  +-----+
+--| +---| BIT_|+-------------------------------------------------------------<+>
| 0011   |TEST_||
|        | WORD||
|  H1    |     ||
|%M0161 -|IN  Q++
|        | LEN |
|        |00002|
| OP_P1  |     |
|%R0201 -|BIT  |
|        +-----+
|
```


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```
                                                                    B2_DP2   << RUNG 33  STEP #0062 >>
                                                                    %Q0111
+<+>-------------------------------------------------------------------( )--  (* Board 2 data 2 pulse train       *)
|       |                                                                   Cross reference for B2_DP2
|OP_LTST|                                                                            NONE
|%M0121 |
+--| +--+
| 0015
|
| (*************************************************************************)
| (* Bit 3 board 2                                                        *)
| (*************************************************************************)
|
|OP_DAT                                                               << RUNG 35  STEP #0066 >>
|%M0120  +-----+
+--| +---| BIT_|+-----------------------------------------------------------<+>
| 0011   |TEST_||
|        | WORD||
|  H21   |     ||
|%M0289 -|IN  Q++
|        | LEN |
|        |00002|
| OP_P1  |     |
|%R0201 -|BIT  |
|        +-----+
|
|                                                                    B2_DP3   << RUNG 36  STEP #0069 >>
|                                                                    %Q0112
+<+>-------------------------------------------------------------------( )--  (* Board 2 data 3 pulse train       *)
|       |                                                                   Cross reference for B2_DP3
|OP_LTST|                                                                            NONE
|%M0121 |
+--| +--+
| 0015
|
| (*************************************************************************)
| (* Generation of multiplexer synchronus flash bits for usage             *)
| (* with signals on the OpPanel.                                          *)
| (*                                                                       *)
| (* First coil is 2Hz, fast flash                                         *)
| (*************************************************************************)
|
|OI_SCN  OI_FLSH                                                     OI_FLSH  << RUNG 38  STEP #0073 >>
|%M0123  %M0124                                                      %M0124
+--| +-----|/+-------------------------------------------------------( )--  (* Flash for muxboard 2Hz (fast)    *)
| 0009    0038  |                                                           Cross reference for OI_FLSH
|OI_FLSH OI_SCN |                                                           -] [- 38,40
|%M0124  %M0123 |                                                           -]/[- 38
+--| +-----|/+--+
| 0038    0009
|
| (*************************************************************************)
| (* Slow flash for mux board 0.5 Hz                                       *)
| (*************************************************************************)
|
|OI_FLSH                                                             OI_OSF   << RUNG 40  STEP #0080 >>
|%M0124                                                              %M0125
+--| +-------------------------------------------------------------(^)--  (* Oneshot OpPanel flash 2Hz        *)
| 0038                                                                      Cross reference for OI_OSF
|                                                                           -] [- 41
|                                                                           -]/[- 41
|
|OI_OSF  OI_SFLS                                                     OI_SFLS  << RUNG 41  STEP #0082 >>
|%M0125  %M0126                                                      %M0126
+--| +-----|/+-------------------------------------------------------( )--  (* Flash for muxboard 1Hz (medium)  *)
| 0040    0041  |                                                           Cross reference for OI_SFLS
|OI_SFLS OI_OSF |                                                           -] [- 41
|%M0126  %M0125 |                                                           -]/[- 41
+--| +-----|/+--+
| 0041    0040
|
| (*************************************************************************)
| (* Lamp test function                                                    *)
| (*************************************************************************)
|
| S007H                                                              OI_LTOP  << RUNG 43  STEP #0089 >>
|%I0097  +-----+                                                     %M0122
+--| +---| TMR +-----------------------------------------------------( )--  (* LampTst OpPanel Del.On Tmr.Exp   *)
|        |0.10s|                                                           Cross reference for OI_LTOP
|        |     |                                                                    NONE
| CONST -|PV   |
| +00015 |     |
|        +-----+
|         ACC1
|        %R9000
|
| (*************************************************************************)
| (* Alarm reset oneshot, used globaly                                     *)
| (*************************************************************************)
|
```


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```
¦ S007H                                                          ALM_RST  << RUNG 45  STEP #0093 >>
¦%I0097                                                          %M0005
+--¦ +-----------------------------------------------------------------(^)--  (* Oneshot reset alarm             *)
¦                                                                             Cross reference for ALM_RST
¦                                                                                     NONE
¦
¦ (*************************************************************************)
¦ (* Short stop pushbuttons                                                *)
¦ (*************************************************************************)
¦
¦ S400H                                                          SHO_STO  << RUNG 47  STEP #0096 >>
¦%I0024                                                          %M0006
+--¦ +-----------------------------------------------------------------(^)--  (* Short stop button oneshot       *)
¦       ¦                                                                     Cross reference for SHO_STO
¦ S200H ¦                                                                             NONE
¦%I0073 ¦
+--¦ +--¦
¦       ¦
¦ S004H ¦
¦%I0098 ¦
+--¦ +--¦
¦       ¦
¦ S101H ¦
¦%I0109 ¦
+--¦ +--+
¦
¦[    END OF SUBROUTINE LOGIC     ]
¦
```


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```
|[    VARIABLE DECLARATIONS     ]
|
|[   START OF SUBROUTINE LOGIC   ]
|
| (*************************************************************************)
| (* There are three alarm bits involved in each alarm                     *)
| (*                                                                       *)
| (* The first is the Alarm Condition bit nicknamed AC                      *)
| (*     this bit is used for machine control.                             *)
| (* The second is the Alarm Acknowledge bit nicknamed AA                  *)
| (*     this bit is used for flashing of lamps.                           *)
| (* The third is the ALarm bit used for the display nicknamed AL          *)
| (*     this bit is used for OpPanel.                                     *)
| (*                                                                       *)
| (* The first alarm that occurs is locked into the AL bits so that        *)
| (* only the first alarm will be displayed on the panel.                  *)
| (* When the first alarm is cleared all other alarms (if any) will be     *)
| (* displayed on the panel.                                              *)
| (*                                                                       *)
| (* The only complication is if two or more alarms appear in             *)
| (* the same PLC scan, then the alarms will be treated as simultanious    *)
| (* and they will both be displayed.                                     *)
| (*************************************************************************)
|
| (*************************************************************************)
| (* Alarm 1: Packaging material supply                                    *)
| (*************************************************************************)
|
|ALM_RST                                                          AC1    << RUNG 6  STEP #0004 >>
|%M0005                                                         %M0513
+--| +-------------------------------------------------------------(RM)-  (* Packaging material supply (SSTO) *)
|                    |                                                    Cross reference for AC1
|  AA1   ASU_PSP ASU_PIM|                                                 -] [- 8,420
|%M0641  %M0947  %M0948 |                                                 -]/[- 411
+--| +-----|/+-----|/+--+                                                 -(SM) 7
| 0008                                                                    FBIO  389,395,403,405,451
|
|ASU_PSP                                                          AC1    << RUNG 7  STEP #0010 >>
|%M0947                                                         %M0513
+--| +-------------------------------------------------------------(SM)-  (* Packaging material supply (SSTO) *)
|       |                                                                 Cross reference for AC1
|ASU_PIM|                                                                 -] [- 8,420
|%M0948 |                                                                 -]/[- 411
+--| +--+                                                                 -(RM) 6
|                                                                         FBIO  389,395,403,405,451
|
|ALM_RST   AC1                                                    AA1    << RUNG 8  STEP #0013 >>
|%M0005  %M0513                                                 %M0641
+--| +-----| +-------------------------------------------------------( )--  (* Alarm acknowledge 1              *)
|       | 0006                                                            Cross reference for AA1
|  AA1  |                                                                 -] [- 6,8
|%M0641 |                                                                 -]/[- 420
+--| +--+
| 0008
|
| (*************************************************************************)
| (* Alarm 2: Packaging material supply (Indication only)                  *)
| (*************************************************************************)
|
|ALM_RST                                                          AC2    << RUNG 10  STEP #0018 >>
|%M0005                                                         %M0514
+--| +-------------------------------------------------------------(RM)-  (* Packaging material supply (ind)  *)
|             |                                                           Cross reference for AC2
|  AA2   B100-1 |                                                         -] [- 12,433,438
|%M0642  %I0033 |                                                         -(SM) 11
+--| +-----|/+--+
| 0012
|
| SS0_8  B100-1                                                   AC2    << RUNG 11  STEP #0023 >>
|%M0066  %I0033                                                 %M0514
+--| +-----| +-------------------------------------------------------(SM)-  (* Packaging material supply (ind)  *)
|                                                                         Cross reference for AC2
|                                                                         -] [- 12,433,438
|                                                                         -(RM) 10
|
|ALM_RST   AC2                                                    AA2    << RUNG 12  STEP #0026 >>
|%M0005  %M0514                                                 %M0642
+--| +-----| +-------------------------------------------------------( )--  (* Alarm acknowledge 2              *)
|       | 0010                                                            Cross reference for AA2
|  AA2  |                                                                 -] [- 10,12
|%M0642 |                                                                 -]/[- 438
+--| +--+
| 0012
|
| (*************************************************************************)
| (* Alarm 3: Spray container, low level                                   *)
| (* Failed to reach high level.                                           *)
| (*************************************************************************)
|
```


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```
|ALM_RST                                                                AC3    << RUNG 14  STEP #0031 >>
|%M0005                                                              %M0515
+--| +-------------------------------------------------------------------(RM)-  (* Spray container, low level       *)
|                 |                                                            Cross reference for AC3
|  AA3   A33_18 |                                                              -] [- 16,420
|%M0643  %I0092 |                                                              -]/[- 411
+--| +-----| +--+                                                              -(SM) 15
| 0016
|
|  SS5    K081    K040   A33_18  TCAMODE                                      AC3    << RUNG 15  STEP #0036 >>
|%M0103  %Q0014  %Q0016  %I0092  %M0931  +-----+                            %M0515
+--| +-----| +-----|/+-----|/+-----| +---| TMR +---------------------------(SM)-  (* Spray container, low level       *)
|                                       |0.10s|                                Cross reference for AC3
|                                       |     |                                -] [- 16,420
|                                CONST -|PV   |                                -]/[- 411
|                                +00900 |     |                                -(RM) 14
|                                       +-----+
|                                        ACC4
|                                       %R9009
|
|ALM_RST   AC3                                                                 AA3    << RUNG 16  STEP #0043 >>
|%M0005  %M0515                                                              %M0643
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA3
|       | 0014                                                                 -] [- 14,16
|  AA3  |                                                                      -]/[- 420
|%M0643 |
+--| +--+
| 0016
|
| (*************************************************************************)
| (* Alarm 4: Free loop infeed high alarm                                  *)
| (* Force the machine to short stop                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                AC4    << RUNG 18  STEP #0048 >>
|%M0005                                                              %M0516
+--| +-------------------------------------------------------------------(RM)-  (* Free loop infeed, high level     *)
|                 |                                                            Cross reference for AC4
|  AA4    B134  |                                                              -] [- 20,420
|%M0644  %I0083 |                                                              -]/[- 411
+--| +-----|/+--+                                                              -(SM) 19
| 0020
|
|  SS8    B134                                                                 AC4    << RUNG 19  STEP #0053 >>
|%M0106  %I0083                                                              %M0516
+--| +-----| +-------------------------------------------------------------(SM)-  (* Free loop infeed, high level     *)
|                                                                              Cross reference for AC4
|                                                                              -] [- 20,420
|                                                                              -]/[- 411
|                                                                              -(RM) 18
|
|ALM_RST   AC4                                                                 AA4    << RUNG 20  STEP #0056 >>
|%M0005  %M0516                                                              %M0644
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA4
|       | 0018                                                                 -] [- 18,20
|  AA4  |                                                                      -]/[- 420
|%M0644 |
+--| +--+
| 0020
|
| (*************************************************************************)
| (* Alarm 5: Spray container, high level                                  *)
| (* Forces machine to step 3                                              *)
| (*************************************************************************)
|
|ALM_RST                                                                AC5    << RUNG 22  STEP #0061 >>
|%M0005                                                              %M0517
+--| +-------------------------------------------------------------------(RM)-  (* Spray container, high level      *)
|                 |                                                            Cross reference for AC5
|  AA5   A33_16 |                                                              -] [- 24,420
|%M0645  %I0093 |                                                              -]/[- 411
+--| +-----| +--+                                                              -(SM) 23
| 0024
|
|  SS5    Y300   A33_16                                                        AC5    << RUNG 23  STEP #0066 >>
|%M0103  %Q0090  %I0093  +-----+                                             %M0517
+--| +-----| +-----|/+---| TMR +-------------------------------------------(SM)-  (* Spray container, high level      *)
|                        |0.10s|                                               Cross reference for AC5
|                        |     |                                               -] [- 24,420
|                 CONST -|PV   |                                               -]/[- 411
|                 +00450 |     |                                               -(RM) 22
|                        +-----+
|                         ACC6
|                        %R9015
|
```


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```
|ALM_RST   AC5                                                          AA5    << RUNG 24  STEP #0071 >>
|%M0005  %M0517                                                       %M0645
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA5
|       | 0022                                                               -] [- 22,24
|  AA5  |                                                                    -]/[- 420
|%M0645 |
+--| +--+
| 0024
|
| (*************************************************************************)
| (* Alarm 6: LS strip broken                                             *)
| (*************************************************************************)
|
|ALM_RST                                                                AC6    << RUNG 26  STEP #0076 >>
|%M0005                                                               %M0518
+--| +-------------------------------------------------------------(RM)-  (* LS strip, broken                *)
|                    |                                                      Cross reference for AC6
|  AA6   LSS_GON LSS_GOF|                                                   -] [- 28,420
|%M0646  %M0952  %M0953 |                                                   -]/[- 411
+--| +-----|/+-----|/+--+                                                   -(SM) 27
| 0028
|
|LSS_BRK                                                                AC6    << RUNG 27  STEP #0082 >>
|%M0951                                                               %M0518
+--| +-------------------------------------------------------------(SM)-  (* LS strip, broken                *)
|                                                                           Cross reference for AC6
|                                                                           -] [- 28,420
|                                                                           -]/[- 411
|                                                                           -(RM) 26
|
|ALM_RST   AC6                                                          AA6    << RUNG 28  STEP #0084 >>
|%M0005  %M0518                                                       %M0646
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA6
|       | 0026                                                               -] [- 26,28
|  AA6  |                                                                    -]/[- 420
|%M0646 |
+--| +--+
| 0028
|
| (*************************************************************************)
| (* Alarm 7: Free loop motor, Infeed                                      *)
| (*************************************************************************)
|
|ALM_RST                                                                AC7    << RUNG 30  STEP #0089 >>
|%M0005                                                               %M0519
+--| +-------------------------------------------------------------(RM)-  (* Free loop motor, Infeed         *)
|              |                                                            Cross reference for AC7
|  AA7   G003_19|                                                           -] [- 32,433,438
|%M0647  %I0030 |                                                           -(SM) 31
+--| +-----| +--+
| 0032
|

|FR3_ENA G003_19                                                        AC7    << RUNG 31  STEP #0094 >>
|%Q0101  %I0030  +-----+                                              %M0519
+--| +-----|/+---| TMR +-------------------------------------------------(SM)-  (* Free loop motor, Infeed         *)
|               |0.10s|                                                       Cross reference for AC7
|               |     |                                                       -] [- 32,433,438
|        CONST -|PV   |                                                       -(RM) 30
|        +00020 |     |
|               +-----+
|                ACC81
|               %R9240
|
|ALM_RST   AC7                                                          AA7    << RUNG 32  STEP #0098 >>
|%M0005  %M0519                                                       %M0647
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA7
|       | 0030                                                               -] [- 30,32
|  AA7  |                                                                    -]/[- 438
|%M0647 |
+--| +--+
| 0032
|
| (*************************************************************************)
| (* Alarm 8: SA element, low temperature                                  *)
| (*************************************************************************)
|
|ALM_RST                                                                AC8    << RUNG 34  STEP #0103 >>
|%M0005                                                               %M0520
+--| +-------------------------------------------------------------(RM)-  (* SA element, low temperature     *)
|              |                                                            Cross reference for AC8
|  AA8   A21_24 |                                                           -] [- 37,420
|%M0648  %I0066 |                                                           -]/[- 411
+--| +-----| +--+                                                           -(SM) 36
| 0037
|
```


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```
| K022                                                                                    << RUNG 35  STEP #0108 >>
|%Q0019  +-----+
+--| +---| TMR +-------------------------------------------------------------<+>
|       |0.10s|
|       |     |
| CONST -|PV   |
| +00900 |     |
|       +-----+
|        ACC7
|        %R9018
|
|        A21_24                                                      AC8    << RUNG 36  STEP #0111 >>
|        %I0066  +-----+                                            %M0520
+<+>------+/+---| TMR +-----------------------------------------------(SM)-  (* SA element, low temperature      *)
|                |0.10s|                                                     Cross reference for AC8
|                |     |                                                     -] [- 37,420
|         CONST -|PV   |                                                     -]/[- 411
|         +00010 |     |                                                     -(RM) 34
|                +-----+
|                 ACC8
|                %R9021
|
|ALM_RST   AC8                                                       AA8    << RUNG 37  STEP #0115 >>
|%M0005  %M0520                                                     %M0648
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA8
|       | 0034                                                                  -] [- 34,37
|  AA8  |                                                                       -]/[- 420
|%M0648 |
+--| +--+
| 0037
|
| (*************************************************************************)
| (* Alarm 9: Packaging material, web broken                                *)
| (*************************************************************************)
|
|ALM_RST                                                             AC9    << RUNG 39  STEP #0120 >>
|%M0005                                                             %M0521
+--| +-----------------------------------------------------------------(RM)-  (* Packaging material, web broken   *)
|                 |                                                           Cross reference for AC9
|  AA9   WEB_ON  WEB_OFF|                                                     -] [- 41,420
|%M0649  %M0955  %M0956 |                                                     -]/[- 411
+--| +-----|/+-----|/+--+                                                     -(SM) 40
| 0041
|
|WEB_BRK                                                             AC9    << RUNG 40  STEP #0126 >>
|%M0957                                                             %M0521
+--| +-----------------------------------------------------------------(SM)-  (* Packaging material, web broken   *)
|                                                                             Cross reference for AC9
|                                                                             -] [- 41,420
|                                                                             -]/[- 411
|                                                                             -(RM) 39
|
|ALM_RST   AC9                                                       AA9    << RUNG 41  STEP #0128 >>
|%M0005  %M0521                                                     %M0649
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA9
|       | 0039                                                                  -] [- 39,41
|  AA9  |                                                                       -]/[- 420
|%M0649 |
+--| +--+
| 0041
|
| (*************************************************************************)
| (* Alarm 10: Web tension motor                                            *)
| (*************************************************************************)
|
|ALM_RST                                                             AC10   << RUNG 43  STEP #0133 >>
|%M0005                                                             %M0522
+--| +-----------------------------------------------------------------(RM)-  (* Web tension motor               *)
|                 |                                                           Cross reference for AC10
| AA10   G004_19|                                                             -] [- 45,421,433,438
|%M0650  %I0025 |                                                             -]/[- 411
+--| +-----| +--+                                                             -(SM) 44
| 0045
|
|FR4_ENA G004_19                                                     AC10   << RUNG 44  STEP #0138 >>
|%Q0102  %I0025  +-----+                                            %M0522
+--| +-----|/+---| TMR +-----------------------------------------------(SM)-  (* Web tension motor               *)
|                |0.10s|                                                     Cross reference for AC10
|                |     |                                                     -] [- 45,421,433,438
|         CONST -|PV   |                                                     -]/[- 411
|         +00020 |     |                                                     -(RM) 43
|                +-----+
|                 ACC65
|                %R9192
|
```

TCA/P1
BLOCK 07 ALARM ADMINISTRATION

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-07:01

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```
|ALM_RST  AC10                                                          AA10    << RUNG 45  STEP #0142 >>
|%M0005  %M0522                                                       %M0650
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA10
|       | 0043                                                               -] [- 43,45
| AA10  |                                                                    -]/[- 421,438
|%M0650 |
+--| +--+
| 0045
|
| (*************************************************************************)
| (* Alarm 12: Regulating valve, membrane broken (not in service mode)     *)
| (* Force to step 0                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC12    << RUNG 47  STEP #0147 >>
|%M0005                                                                %M0524
+--| +-------------------------------------------------------------------(RM)-  (* Reg.valve,membrane broken, ster. *)
|                  |                                                             Cross reference for AC12
| AA12   A32_18 |                                                               -] [- 49,421
|%M0652  %I0091 |                                                               -]/[- 411
+--| +-----|/+--+                                                               -(SM) 48
| 0049
|
| SS2_9  A32_18   S003                                                   AC12    << RUNG 48  STEP #0152 >>
|%M0068  %I0091  %I0075  +-----+                                       %M0524
+--| +-----| +-----|/+---| TMR +-------------------------------------(SM)-  (* Reg.valve,membrane broken, ster. *)
|                        |0.10s|                                             Cross reference for AC12
|                        |     |                                             -] [- 49,421
|                 CONST -|PV   |                                             -]/[- 411
|                 +00100 |     |                                             -(RM) 47
|                        +-----+
|                         ACC11
|                        %R9030
|
|ALM_RST  AC12                                                          AA12    << RUNG 49  STEP #0157 >>
|%M0005  %M0524                                                       %M0652
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA12
|       | 0047                                                               -] [- 47,49
| AA12  |                                                                    -]/[- 421
|%M0652 |
+--| +--+
| 0049
|
| (*************************************************************************)
| (* Alarm 13: Regulating valve, membrane broken (service mode)            *)
| (* Indication only                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC13    << RUNG 51  STEP #0162 >>
|%M0005                                                                %M0525
+--| +-------------------------------------------------------------------(RM)-  (* Reg.valve,membrane broken, serv. *)
|                  |                                                             Cross reference for AC13
| AA13   ALW_OFF|                                                               -] [- 53,433,438
|%M0653  %S0008 |                                                               -(SM) 52
+--| +-----| +--+
| 0053
|
| SS2_9  A32_18   S003                                                   AC13    << RUNG 52  STEP #0167 >>
|%M0068  %I0091  %I0075                                                %M0525
+--| +-----| +-----| +-------------------------------------------------(SM)-  (* Reg.valve,membrane broken, serv. *)
|                                                                               Cross reference for AC13
|                                                                               -] [- 53,433,438
|                                                                               -(RM) 51
|
|ALM_RST  AC13                                                          AA13    << RUNG 53  STEP #0171 >>
|%M0005  %M0525                                                       %M0653
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA13
|       | 0051                                                               -] [- 51,53
| AA13  |                                                                    -]/[- 438
|%M0653 |
+--| +--+
| 0053
|
| (*************************************************************************)
| (* Alarm 14: Peroxide bath low level (indication only)                   *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC14    << RUNG 55  STEP #0176 >>
|%M0005                                                                %M0526
+--| +-------------------------------------------------------------------(RM)-  (* Peroxide bath, low level         *)
|                  |                                                             Cross reference for AC14
| AA14   A031_18|                                                               -] [- 58,421
|%M0654  %I0107 |                                                               -]/[- 412
+--| +-----| +--+                                                               -(SM) 57
| 0058
|
```


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```
| K080            K039   TCAMODE                                          << RUNG 56  STEP #0181 >>
|%Q0013          %Q0015  %M0931  +-----+
+--| +-------------|/+-----| +---| TMR +-------------------------------------<+>
|                 |               |0.10s|
|PER3_ON  PER3    |               |     |
|%M0933  %M1027   |               |     |
+--|/+-----| +---+         CONST -|PV   |
|                           +03500 |     |
|                                  +-----+
|                                   ACC12
|                                  %R9033
|
|        A031_18                                                  AC14    << RUNG 57  STEP #0189 >>
|        %I0107  +-----+                                         %M0526
+<+>------|/+---| TMR +-----------------------------------------(SM)-  (* Peroxide bath, low level         *)
|               |0.10s|                                                 Cross reference for AC14
|               |     |                                                 -] [- 58,421
|         CONST -|PV   |                                                 -]/[- 412
|         +00050 |     |                                                 -(RM) 55
|                +-----+
|                ACC113
|                %R9336
|
|ALM_RST  AC14                                                    AA14    << RUNG 58  STEP #0193 >>
|%M0005  %M0526                                                  %M0654
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA14
|       | 0055                                                            -] [- 55,58
| AA14  |                                                                 -]/[- 421
|%M0654 |
+--| +--+
| 0058
|
| (*************************************************************************)
| (* Alarm 15: Web guiding motor                                           *)
| (*************************************************************************)
|
|ALM_RST                                                          AC15    << RUNG 60  STEP #0198 >>
|%M0005                                                          %M0527
+--| +-------------------------------------------------------------(RM)-  (* Web guiding motor               *)
|                |                                                        Cross reference for AC15
| AA15    WG_F   |                                                        -] [- 62,421
|%M0655  %I0041  |                                                        -]/[- 412
+--| +-----|/+--+                                                        -(SM) 61
| 0062
|
|ALW_OFF  WG_F                                                    AC15    << RUNG 61  STEP #0203 >>
|%S0008  %I0041                                                  %M0527
+--| +-----| +-------------------------------------------------------(SM)-  (* Web guiding motor               *)
|                                                                         Cross reference for AC15
|                                                                         -] [- 62,421
|                                                                         -]/[- 412
|                                                                         -(RM) 60
|
|ALM_RST  AC15                                                    AA15    << RUNG 62  STEP #0206 >>
|%M0005  %M0527                                                  %M0655
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA15
|       | 0060                                                            -] [- 60,62
| AA15  |                                                                 -]/[- 421
|%M0655 |
+--| +--+
| 0062
|
| (*************************************************************************)
| (* Alarm 16: Peroxide emptying fault                                     *)
| (*************************************************************************)
|
|ALM_RST                                                          AC16    << RUNG 64  STEP #0211 >>
|%M0005                                                          %M0528
+--| +-------------------------------------------------------------(RM)-  (* Peroxide emptying fault         *)
|                |                                                        Cross reference for AC16
| AA16   A031_18 |                                                        -] [- 66,421
|%M0656  %I0107  |                                                        -]/[- 412
+--| +-----| +--+                                                        -(SM) 65
| 0066
|
| K039   A031_18                                                  AC16    << RUNG 65  STEP #0216 >>
|%Q0015  %I0107  +-----+                                         %M0528
+--| +-----| +---| TMR +-----------------------------------------(SM)-  (* Peroxide emptying fault         *)
|               |0.10s|                                                 Cross reference for AC16
|               |     |                                                 -] [- 66,421
|         CONST -|PV   |                                                 -]/[- 412
|         +00900 |     |                                                 -(RM) 64
|                +-----+
|                 ACC13
|                %R9036
|
```


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```
|ALM_RST  AC16                                                          AA16    << RUNG 66  STEP #0220 >>
|%M0005  %M0528                                                       %M0656
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA16
|       | 0064                                                                -] [- 64,66
| AA16  |                                                                     -]/[- 421
|%M0656 |
+--| +--+
| 0066
|
| (*************************************************************************)
| (* Alarm 17: Squee-gee roller alarm                                      *)
| (*************************************************************************)
|
|ALM_RST                                                                AC17    << RUNG 68  STEP #0225 >>
|%M0005                                                                %M0529
+--| +-------------------------------------------------------------(RM)-  (* Squee-gee roller, wrong position *)
|                    |                                                       Cross reference for AC17
| AA17    Y202    B206    B209  |                                            -] [- 70,422
|%M0657  %Q0087  %I0055  %I0096 |                                            -]/[- 412
+--| +-----| +-----| +-----| +--|                                            -(SM) 69
| 0070  |                    |                                               FBIO  389,395
|       | Y202    B206    B209  |
|       |%Q0087  %I0055  %I0096 |
|       +--|/+-----|/+-----|/+--+
|
| SS2_9   S003    Y202    B206                                          AC17    << RUNG 69  STEP #0237 >>
|%M0068  %I0075  %Q0087  %I0055          +-----+                       %M0529
+--| +-----|/+-----| +-----|/+----------| TMR +-------------------------(SM)-  (* Squee-gee roller, wrong position *)
|               |       |        |0.10s|                                       Cross reference for AC17
|               |       | B209  |        |     |                               -] [- 70,422
|               |       |%I0096 |        |     |                               -]/[- 412
|               |       +--|/+--| CONST -|PV   |                               -(RM) 68
|               |          | +00020 |     |                               FBIO  389,395
|               | Y202    B206  |        +-----+
|               |%Q0087  %I0055 |         ACC43
|               +--|/+-----| +--|        %R9126
|                  |       |
|                  | B209  |
|                  |%I0096 |
|                  +--| +--+
|
|ALM_RST  AC17                                                          AA17    << RUNG 70  STEP #0251 >>
|%M0005  %M0529                                                        %M0657
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA17
|       | 0068                                                                -] [- 68,70
| AA17  |                                                                     -]/[- 422
|%M0657 |
+--| +--+
| 0070
|
| (*************************************************************************)
| (* Alarm 18: Low power heating chamber                                   *)
| (*************************************************************************)
|
|ALM_RST                                                                AC18    << RUNG 72  STEP #0256 >>
|%M0005                                                                %M0530
+--| +-------------------------------------------------------------(RM)-  (* Low power heating chamber        *)
|             |                                                             Cross reference for AC18
| AA18   K71_14 |                                                           -] [- 74,422
|%M0658  %I0032 |                                                           -]/[- 412
+--| +-----| +--+                                                           -(SM) 73
| 0074
|
| K026   K71_14                                                         AC18    << RUNG 73  STEP #0261 >>
|%Q0023  %I0032  +-----+                                               %M0530
+--| +-----|/+---| TMR +-------------------------------------------------(SM)-  (* Low power heating chamber        *)
|               |0.10s|                                                       Cross reference for AC18
|               |     |                                                       -] [- 74,422
|        CONST -|PV   |                                                       -]/[- 412
|        +00020 |     |                                                       -(RM) 72
|               +-----+
|                ACC14
|               %R9039
|
|ALM_RST  AC18                                                          AA18    << RUNG 74  STEP #0265 >>
|%M0005  %M0530                                                        %M0658
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA18
|       | 0072                                                                -] [- 72,74
| AA18  |                                                                     -]/[- 422
|%M0658 |
+--| +--+
| 0074
|
| (*************************************************************************)
| (* Alarm 19: Low temperature heating chamber                             *)
| (*************************************************************************)
|
```


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```
|ALM_RST                                                                AC19    << RUNG 76  STEP #0270 >>
|%M0005                                                               %M0531
+--| +-------------------------------------------------------------------(RM)-  (* Low temp heating chamber         *)
|                |                                                              Cross reference for AC19
| AA19   A25_24 |                                                              -] [- 78,422
|%M0659  %I0071 |                                                              -]/[- 412
+--| +-----| +--+                                                              -(SM) 77
| 0078
|
|  SS6   A25_24   S003   TCAMODE                                        AC19    << RUNG 77  STEP #0275 >>
|%M0104  %I0071  %I0075  %M0931                                        %M0531
+--| +-----|/+-----|/+-----| +-----------------------------------------(SM)-  (* Low temp heating chamber         *)
|       |                                                                      Cross reference for AC19
|  SS7  |                                                                      -] [- 78,422
|%M0105 |                                                                      -]/[- 412
+--| +--|                                                                     -(RM) 76
|       |
|  SS8  |
|%M0106 |
+--| +--+
|
|ALM_RST  AC19                                                          AA19    << RUNG 78  STEP #0282 >>
|%M0005  %M0531                                                        %M0659
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA19
|       | 0076                                                                 -] [- 76,78
| AA19  |                                                                      -]/[- 422
|%M0659 |
+--| +--+
| 0078
|
| (*************************************************************************)
| (* Alarm 20: Design sensor missread                                      *)
| (* Sensor is on for 4 sec or off for 4 sec.                              *)
| (*************************************************************************)
|
| B205                                                                  AC20_ON  << RUNG 80  STEP #0287 >>
|%I0011                                                                %M0502
+--| +-------------------------------------------------------------------(^)--  (* Design sensor pulse on           *)
|                                                                              Cross reference for AC20_ON
|                                                                              -]/[- 82
|
|ALM_RST                                                                AC20    << RUNG 81  STEP #0289 >>
|%M0005                                                                %M0532
+--| +-------------------------------------------------------------------(RM)-  (* Design sensor, missread          *)
|                                                                              Cross reference for AC20
|                                                                              -] [- 83,422
|                                                                              -]/[- 412
|                                                                              -(SM) 82
|
|  SS7    K020   FR1_NVL AC20_ON                                        AC20    << RUNG 82  STEP #0291 >>
|%M0105  %Q0017  %Q0002  %M0502  +-----+                               %M0532
+--| +-----| +-----| +-----|/+---| TMR +-----------------------------------(SM)-  (* Design sensor, missread          *)
|       |          0080   |0.10s|                                              Cross reference for AC20
|  SS8  |                 |     |                                              -] [- 83,422
|%M0106 |                 |     |                                              -]/[- 412
+--| +--+          CONST -|PV   |                                              -(RM) 81
|                   +00040 |     |
|                          +-----+
|                           ACC15
|                          %R9042
|
|ALM_RST  AC20                                                          AA20    << RUNG 83  STEP #0298 >>
|%M0005  %M0532                                                        %M0660
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA20
|       | 0081                                                                 -] [- 83
| AA20  |                                                                      -]/[- 422
|%M0660 |
+--| +--+
| 0083
|
| (*************************************************************************)
| (* Alarm 21: Steam, low temperature alarm                                *)
| (*************************************************************************)
|
|ALM_RST                                                                AC21    << RUNG 85  STEP #0303 >>
|%M0005                                                                %M0533
+--| +-------------------------------------------------------------------(RM)-  (* Steam, low temperature           *)
|                |                                                             Cross reference for AC21
| AA21   A24_24 |                                                              -] [- 87,422
|%M0661  %I0069 |                                                              -]/[- 412
+--| +-----| +--+                                                              -(SM) 86
| 0087
|
```


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```
|  SS7    S003    K051   A24_24                                          AC21    << RUNG 86  STEP #0308 >>
|%M0105  %I0075  %Q0041  %I0069  +-----+                                %M0533
+--| +-----|/+-----| +-----|/+---| TMR +-----------------------------------(SM)-  (* Steam, low temperature           *)
|                               |0.10s|                                         Cross reference for AC21
|                               |     |                                         -] [- 87,422
|                        CONST -|PV   |                                         -]/[- 412
|                        +01800 |     |                                         -(RM) 85
|                               +-----+
|                                ACC83
|                               %R9246
|
|ALM_RST  AC21                                                           AA21    << RUNG 87  STEP #0314 >>
|%M0005  %M0533                                                         %M0661
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA21
|       | 0085                                                                    -] [- 85,87
| AA21  |                                                                         -]/[- 422
|%M0661 |
+--| +--+
| 0087
|
| (*************************************************************************)
| (* Alarm 22: Low temperature steam                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC22    << RUNG 89  STEP #0319 >>
|%M0005                                                                 %M0534
+--| +-----------------------------------------------------------------(RM)-  (* Steam, low temp (IND)           *)
|                |                                                              Cross reference for AC22
| AA22   A24_24 |                                                              -] [- 91,433,438
|%M0662  %I0069 |                                                              -(SM) 90
+--| +-----| +--+
| 0091
|
| SS2_9           S003    K051   A24_24                                  AC22    << RUNG 90  STEP #0324 >>
|%M0068          %I0075  %Q0041  %I0069  +-----+                        %M0534
+--| +-------------|/+-----| +-----|/+---| TMR +---------------------------(SM)-  (* Steam, low temp (IND)           *)
|       |         |                     |0.10s|                                  Cross reference for AC22
| SS10  |         |                     |     |                                  -] [- 91,433,438
|%M0108 |         |                     |     |                                  -(RM) 89
+--| +--+         |                CONST -|PV   |
|                 |                +01800 |     |
| SS11    S004    |                       +-----+
|%M0109  %I0076   |                        ACC84
+--| +-----|/+--+                         %R9249
|
|ALM_RST  AC22                                                           AA22    << RUNG 91  STEP #0334 >>
|%M0005  %M0534                                                         %M0662
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA22
|       | 0089                                                                    -] [- 89,91
| AA22  |                                                                         -]/[- 438
|%M0662 |
+--| +--+
| 0091
|
| (*************************************************************************)
| (* Alarm 23: Low temp steam                                              *)
| (* This condition shall be active as a step up condition in intermediate *)
| (* cleaning, In final cleaning however this is not needed.               *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC23    << RUNG 93  STEP #0339 >>
|%M0005                                                                 %M0535
+--| +-----------------------------------------------------------------(RM)-  (* Steam, low temp, FRC 0           *)
|                |                                                              Cross reference for AC23
| AA23   A24_24 |                                                              -] [- 95,422
|%M0663  %I0069 |                                                              -]/[- 413
+--| +-----| +--+                                                              -(SM) 94
| 0095
|
| SS5_8    SS7    S003    K051   A24_24                                  AC23    << RUNG 94  STEP #0344 >>
|%M0069  %M0105  %I0075  %Q0041  %I0069  +-----+                        %M0535
+--| +-----|/+-----|/+-----| +-----|/+---| TMR +---------------------------(SM)-  (* Steam, low temp, FRC 0           *)
|                |                     |0.10s|                                  Cross reference for AC23
|  SS9           |                     |     |                                  -] [- 95,422
|%M0107          |                     |     |                                  -]/[- 413
+--| +----------|                CONST -|PV   |                                  -(RM) 93
|                |                +01800 |     |
| SS10           |                       +-----+
|%M0108          |                        ACC17
+--| +----------|                        %R9048
|                |
| SS11    S004   |
|%M0109  %I0076  |
+--| +-----|/+--+
|
```


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```
|ALM_RST  AC23                                                    AA23    << RUNG 95  STEP #0356 >>
|%M0005  %M0535                                                  %M0663
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA23
|       | 0093                                                            -] [- 93,95
| AA23  |                                                                 -]/[- 422
|%M0663 |
+--| +--+
| 0095
|
| (*************************************************************************)
| (* Alarm 24: Sterile air, low pressure                                  *)
| (*************************************************************************)
|
|ALM_RST                                                          AC24    << RUNG 97  STEP #0361 >>
|%M0005                                                          %M0536
+--| +-------------------------------------------------------------(RM)-  (* Sterile air, low pressure        *)
|            |                                                            Cross reference for AC24
| AA24    B307  |                                                         -] [- 99,423
|%M0664  %I0042 |                                                         -]/[- 413
+--| +-----| +--+                                                         -(SM) 98
| 0099
|
| Y309    Y310    B307                                            AC24    << RUNG 98  STEP #0366 >>
|%Q0031  %Q0032  %I0042  +-----+                                 %M0536
+--| +-----| +-----|/+---| TMR +-----------------------------------(SM)-  (* Sterile air, low pressure        *)
|                       |0.10s|                                           Cross reference for AC24
|                       |     |                                           -] [- 99,423
|                CONST -|PV   |                                           -]/[- 413
|                +00010 |     |                                           -(RM) 97
|                       +-----+
|                        ACC18
|                       %R9051
|
|ALM_RST  AC24                                                    AA24    << RUNG 99  STEP #0371 >>
|%M0005  %M0536                                                  %M0664
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA24
|       | 0097                                                            -] [- 97,99
| AA24  |                                                                 -]/[- 423
|%M0664 |
+--| +--+
| 0099
|
| (*************************************************************************)
| (* Alarm 25: Spare                                                      *)
| (*************************************************************************)
|
|ALM_RST                                                          AC25    << RUNG 101  STEP #0376 >>
|%M0005                                                          %M0537
+--| +-------------------------------------------------------------(RM)-  (* Spare                            *)
|            |                                                            Cross reference for AC25
| AA25   ALW_ON |                                                         -] [- 103
|%M0665  %S0007 |                                                         -(SM) 102
+--| +-----| +--+
| 0103
|
|ALW_OFF                                                          AC25    << RUNG 102  STEP #0381 >>
|%S0008                                                          %M0537
+--| +-------------------------------------------------------------(SM)-  (* Spare                            *)
|                                                                         Cross reference for AC25
|                                                                         -] [- 103
|                                                                         -(RM) 101
|
|ALM_RST  AC25                                                    AA25    << RUNG 103  STEP #0383 >>
|%M0005  %M0537                                                  %M0665
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA25
|       | 0101                                                            -] [- 101,103
| AA25  |
|%M0665 |
+--| +--+
| 0103
|
| (*************************************************************************)
| (* Alarm 26: Heat exchanger, low temperature                             *)
| (*************************************************************************)
|
|ALM_RST                                                          AC26    << RUNG 105  STEP #0388 >>
|%M0005                                                          %M0538
+--| +-------------------------------------------------------------(RM)-  (* Spare                            *)
|            |                                                            Cross reference for AC26
| AA26   ALW_OFF|                                                         -] [- 107
|%M0666  %S0008 |                                                         -(SM) 106
+--| +-----| +--+
| 0107
|
|ALW_OFF                                                          AC26    << RUNG 106  STEP #0393 >>
|%S0008                                                          %M0538
+--| +-------------------------------------------------------------(SM)-  (* Spare                            *)
|                                                                         Cross reference for AC26
|                                                                         -] [- 107
|                                                                         -(RM) 105
|
```


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```
¦ALM_RST  AC26                                                    AA26    << RUNG 107  STEP #0395 >>
¦%M0005  %M0538                                                  %M0666
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA26
¦       ¦ 0105                                                            -] [- 105,107
¦ AA26  ¦
¦%M0666 ¦
+--¦ +--+
¦ 0107
¦
¦ (*************************************************************************)
¦ (* Alarm 27: Air pipe, wrong position                                    *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC27    << RUNG 109  STEP #0400 >>
¦%M0005                                                          %M0539
+--¦ +-------------------------------------------------------------(RM)-  (* Air pipe, wrong position         *)
¦                          ¦                                              Cross reference for AC27
¦ AA27    SS0_9   B300    B301  ¦                                         -] [- 111,423
¦%M0667  %M0065  %I0043  %I0044 ¦                                         -]/[- 413
+--¦ +-----¦ +-----¦/+-----¦ +--+                                         -(SM) 110
¦ 0111
¦
¦  SS1    B300                                                     AC27    << RUNG 110  STEP #0407 >>
¦%M0099  %I0043                                                  %M0539
+--¦ +-----¦ +-------------------------------------------------------(SM)-  (* Air pipe, wrong position         *)
¦       ¦       ¦                                                         Cross reference for AC27
¦ SS2_9 ¦ B301  ¦                                                         -] [- 111,423
¦%M0068 ¦%I0044 ¦                                                         -]/[- 413
+--¦ +-----¦/+--+                                                         -(RM) 109
¦
¦ALM_RST  AC27                                                    AA27    << RUNG 111  STEP #0413 >>
¦%M0005  %M0539                                                  %M0667
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA27
¦       ¦ 0109                                                            -] [- 109,111
¦ AA27  ¦                                                                 -]/[- 423
¦%M0667 ¦
+--¦ +--+
¦ 0111
¦
¦ (*************************************************************************)
¦ (* Alarm 28: Cleaning pipe, wrong position                               *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC28    << RUNG 113  STEP #0418 >>
¦%M0005                                                          %M0540
+--¦ +-------------------------------------------------------------(RM)-  (* Cleaning pipe, wrong position    *)
¦                          ¦                                              Cross reference for AC28
¦ AA28   SS10_11  B300    B301  ¦                                         -] [- 115,423
¦%M0668  %M0070  %I0043  %I0044 ¦                                         -]/[- 413
+--¦ +-----¦ +-----¦ +-----¦/+--¦                                         -(SM) 114
¦ 0115  ¦                        ¦
¦       ¦ SS10    SS11          ¦
¦       ¦%M0108  %M0109         ¦
¦       +--¦/+-----¦/+----------+
¦
¦SS10_11  B300                                                    AC28    << RUNG 114  STEP #0429 >>
¦%M0070  %I0043                                                  %M0540
+--¦ +-----¦/+-------------------------------------------------------(SM)-  (* Cleaning pipe, wrong position    *)
¦       ¦       ¦                                                         Cross reference for AC28
¦       ¦ B301  ¦                                                         -] [- 115,423
¦       ¦%I0044 ¦                                                         -]/[- 413
¦       +--¦ +--+                                                         -(RM) 113
¦
¦ALM_RST  AC28                                                    AA28    << RUNG 115  STEP #0434 >>
¦%M0005  %M0540                                                  %M0668
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA28
¦       ¦ 0113                                                            -] [- 113,115
¦ AA28  ¦                                                                 -]/[- 423
¦%M0668 ¦
+--¦ +--+
¦ 0115
¦
¦ (*************************************************************************)
¦ (* Alarm 29: Product pipe not in position                                *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC29    << RUNG 117  STEP #0439 >>
¦%M0005                                                          %M0541
+--¦ +-------------------------------------------------------------(RM)-  (* Product pipe, wrong position     *)
¦                          ¦                                              Cross reference for AC29
¦ AA29    SS0_9   B304    B305  ¦                                         -] [- 119,423
¦%M0669  %M0065  %I0049  %I0050 ¦                                         -]/[- 413
+--¦ +-----¦ +-----¦ +-----¦/+--+                                         -(SM) 118
¦ 0119
¦
```


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```
|  SS1    B304                                                          AC29    << RUNG 118  STEP #0446 >>
|%M0099  %I0049                                                       %M0541
+--| +-----|/|-------------------------------------------------------(SM)-  (* Product pipe, wrong position     *)
|       |      |                                                              Cross reference for AC29
| SS2_9 | B305 |                                                              -] [- 119,423
|%M0068 |%I0050 |                                                             -]/[- 413
+--| +-----| +--+                                                             -(RM) 117
|
|ALM_RST  AC29                                                          AA29    << RUNG 119  STEP #0452 >>
|%M0005  %M0541                                                       %M0669
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA29
|       | 0117                                                               -] [- 117,119
| AA29  |                                                                    -]/[- 423
|%M0669 |
+--| +--+
| 0119
|
| (*************************************************************************)
| (* Alarm 30: Cleaning pipe, wrong position                               *)
| (*************************************************************************)
|
|ALM_RST                                                                AC30    << RUNG 121  STEP #0457 >>
|%M0005                                                               %M0542
+--| +-------------------------------------------------------------(RM)-  (* Cleaning pipe, wrong position    *)
|                          |                                                 Cross reference for AC30
| AA30   SS10_11  B304    B305  |                                            -] [- 123,423
|%M0670  %M0070  %I0049  %I0050 |                                            -]/[- 413
+--| +-----| +-----|/|-----| +--|                                            -(SM) 122
| 0123  |                       |
|       | SS10    SS11          |
|       |%M0108  %M0109         |
|       +--|/|-----|/|----------+
|
|SS10_11  B304                                                          AC30    << RUNG 122  STEP #0468 >>
|%M0070  %I0049                                                       %M0542
+--| +-----| +-------------------------------------------------------(SM)-  (* Cleaning pipe, wrong position    *)
|       |      |                                                              Cross reference for AC30
|       | B305 |                                                              -] [- 123,423
|       |%I0050 |                                                             -]/[- 413
|       +--|/|--+                                                             -(RM) 121
|
|ALM_RST  AC30                                                          AA30    << RUNG 123  STEP #0473 >>
|%M0005  %M0542                                                       %M0670
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA30
|       | 0121                                                               -] [- 121,123
| AA30  |                                                                    -]/[- 423
|%M0670 |
+--| +--+
| 0123
|
| (*************************************************************************)
| (* Alarm 31: Spare                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                AC31    << RUNG 125  STEP #0478 >>
|%M0005                                                               %M0543
+--| +-------------------------------------------------------------(RM)-  (* Spare                            *)
|              |                                                             Cross reference for AC31
| AA31   ALW_ON |                                                            -] [- 127
|%M0671  %S0007 |                                                            -(SM) 126
+--| +-----| +--+
| 0127
|
|ALW_OFF                                                                AC31    << RUNG 126  STEP #0483 >>
|%S0008                                                               %M0543
+--| +-------------------------------------------------------------(SM)-  (* Spare                            *)
|                                                                             Cross reference for AC31
|                                                                             -] [- 127
|                                                                             -(RM) 125
|
|ALM_RST  AC31                                                          AA31    << RUNG 127  STEP #0485 >>
|%M0005  %M0543                                                       %M0671
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA31
|       | 0125                                                               -] [- 125,127
| AA31  |
|%M0671 |
+--| +--+
| 0127
|
| (*************************************************************************)
| (* Alarm 32: Regulating valve not fully open                             *)
| (*************************************************************************)
|
|ALM_RST                                                                AC32    << RUNG 129  STEP #0490 >>
|%M0005                                                               %M0544
+--| +-------------------------------------------------------------(RM)-  (* Regulating valve not fully open  *)
|              |                                                             Cross reference for AC32
| AA32    B303  |                                                            -] [- 131,424
|%M0672  %I0048 |                                                            -]/[- 413
+--| +-----| +--+                                                            -(SM) 130
| 0131
```


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```
|  SS4    B303                                                          AC32    << RUNG 130  STEP #0495 >>
|%M0102  %I0048  +-----+                                              %M0544
+--| +-----|/+---| TMR +-----------------------------------------------(SM)-  (* Regulating valve not fully open  *)
|       |        |0.10s|                                                       Cross reference for AC32
|  SS5  |        |     |                                                       -] [- 131,424
|%M0103 |        |     |                                                       -]/[- 413
+--| +--| CONST -|PV   |                                                       -(RM) 129
|       | +00030 |     |
| SS11  |        +-----+
|%M0109 |        ACC100
+--| +--+        %R9297
|
|ALM_RST  AC32                                                          AA32    << RUNG 131  STEP #0501 >>
|%M0005  %M0544                                                       %M0672
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA32
|       | 0129                                                                -] [- 129,131
| AA32  |                                                                     -]/[- 424
|%M0672 |
+--| +--+
| 0131
|
| (*************************************************************************)
| (* Alarm 33: Regulating valve fully open                                 *)
| (*************************************************************************)
|
|ALM_RST                                                                AC33    << RUNG 133  STEP #0506 >>
|%M0005                                                               %M0545
+--| +-------------------------------------------------------------------(RM)-  (* Regulating valve fully open      *)
|                  |                                                            Cross reference for AC33
| AA33     SS0    B303  |                                                       -] [- 135,424
|%M0673  %M0098  %I0048 |                                                       -]/[- 414
+--| +-----| +-----|/+--+                                                       -(SM) 134
| 0135                                                                         FBIO  389,395
|
|  SS0   STEPUP   B303                                                  AC33    << RUNG 134  STEP #0512 >>
|%M0098  %M0001  %I0048                                               %M0545
+--| +-----| +-----| +-------------------------------------------------(SM)-  (* Regulating valve fully open      *)
|                                                                              Cross reference for AC33
|                                                                              -] [- 135,424
|                                                                              -]/[- 414
|                                                                              -(RM) 133
|                                                                              FBIO  389,395
|
|ALM_RST  AC33                                                          AA33    << RUNG 135  STEP #0516 >>
|%M0005  %M0545                                                       %M0673
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA33
|       | 0133                                                                -] [- 133,135
| AA33  |                                                                     -]/[- 424
|%M0673 |
+--| +--+
| 0135
|
| (*************************************************************************)
| (* Alarm 34: B-valve, wrong position                                     *)
| (*************************************************************************)
|
|ALM_RST                                                                AC34    << RUNG 137  STEP #0521 >>
|%M0005                                                               %M0546
+--| +-------------------------------------------------------------------(RM)-  (* B-valve, wrong position          *)
|                  |                                                            Cross reference for AC34
| AA34    Y306    B302  |                                                      -] [- 139,424
|%M0674  %Q0084  %I0045 |                                                      -]/[- 414
+--| +-----| +-----| +--|                                                      -(SM) 138
| 0139  |              |
|       | Y306    B302  |
|       |%Q0084  %I0045 |
|       +--|/+-----|/+--+

|
| Y306    B302                                                          AC34    << RUNG 138  STEP #0531 >>
|%Q0084  %I0045          +-----+                                      %M0546
+--| +-----|/+----------| TMR +-----------------------------------------(SM)-  (* B-valve, wrong position          *)
|                |       |0.10s|                                               Cross reference for AC34
| Y306    B302  |       |     |                                               -] [- 139,424
|%Q0084  %I0045 |       |     |                                               -]/[- 414
+--|/+-----| +--+ CONST -|PV   |                                               -(RM) 137
|               +00030 |     |
|                      +-----+
|                       ACC20
|                      %R9057
|
|ALM_RST  AC34                                                          AA34    << RUNG 139  STEP #0538 >>
|%M0005  %M0546                                                       %M0674
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA34
|       | 0137                                                                -] [- 137,139
| AA34  |                                                                     -]/[- 424
|%M0674 |
+--| +--+
| 0139
|
```


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```
| (*************************************************************************)
| (* Alarm 35: Web guide splice alarm, automatic check of feedback         *)
| (*************************************************************************)
|
|ALM_RST                                                          AC35    << RUNG 141  STEP #0543 >>
|%M0005                                                          %M0547
+--| +-------------------------------------------------------------(RM)-  (* Web guide splice alarm, ACOF     *)
|                    |                                                    Cross reference for AC35
| AA35    Y117    B147  |                                                 -] [- 143,434,439
|%M0675  %Q0121  %I0112 |                                                 -(SM) 142
+--| +-----| +-----| +--|
| 0143  |               |
|       | Y117    B147  |
|       |%Q0121  %I0112 |
|       +--|/+-----|/+--+
|
|ASU_SM   Y117    B147                                            AC35    << RUNG 142  STEP #0553 >>
|%I0020  %Q0121  %I0112          +-----+                         %M0547
+--|/+-----| +-----|/+-----------| TMR +-------------------------------(SM)-  (* Web guide splice alarm, ACOF     *)
|       |               |        |0.10s|                                    Cross reference for AC35
|       | Y117    B147  |        |     |                                    -] [- 143,434,439
|       |%Q0121  %I0112 |        |     |                                    -(RM) 141
|       +--|/+-----| +--+ CONST -|PV   |
|                       +00030 |     |
|                              +-----+
|                              ACC186
|                              %R9555
|
|ALM_RST  AC35                                                    AA35    << RUNG 143  STEP #0562 >>
|%M0005  %M0547                                                  %M0675
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA35
|       | 0141                                                            -] [- 141,143
| AA35  |                                                                 -]/[- 439
|%M0675 |
+--| +--+
| 0143
|
| (*************************************************************************)
| (* Alarm 36: PLMS alarm                                                  *)
| (*************************************************************************)
|
|ALM_RST                                                          AC36    << RUNG 145  STEP #0567 >>
|%M0005                                                          %M0548
+--| +-------------------------------------------------------------(RM)-  (* PLMS alarm                       *)
|             |                                                           Cross reference for AC36
| AA36   COM_FLT|                                                         -] [- 147,434,439
|%M0676  %M4002 |                                                         -(SM) 146
+--| +-----|/+--+
| 0147
|
|PLMS_ON COM_FLT                                                  AC36    << RUNG 146  STEP #0572 >>
|%M0923  %M4002                                                  %M0548
+--| +-----| +-------------------------------------------------------(SM)-  (* PLMS alarm                       *)
|                                                                         Cross reference for AC36
|                                                                         -] [- 147,434,439
|                                                                         -(RM) 145
|
|ALM_RST  AC36                                                    AA36    << RUNG 147  STEP #0575 >>
|%M0005  %M0548                                                  %M0676
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA36
|       | 0145                                                            -] [- 145,147
| AA36  |                                                                 -]/[- 439
|%M0676 |
+--| +--+
| 0147
|
| (*************************************************************************)
| (* Alarm 37: Spare                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                          AC37    << RUNG 149  STEP #0580 >>
|%M0005                                                          %M0549
+--| +-------------------------------------------------------------(RM)-  (* Spare                           *)
|             |                                                           Cross reference for AC37
| AA37   ALW_ON |                                                         -] [- 151
|%M0677  %S0007 |                                                         -(SM) 150
+--| +-----| +--+
| 0151
|
|ALW_OFF                                                          AC37    << RUNG 150  STEP #0585 >>
|%S0008                                                          %M0549
+--| +-------------------------------------------------------------(SM)-  (* Spare                           *)
|                                                                         Cross reference for AC37
|                                                                         -] [- 151
|                                                                         -(RM) 149
|
```


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```
|ALM_RST  AC37                                                          AA37    << RUNG 151  STEP #0587 >>
|%M0005  %M0549                                                       %M0677
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA37
|       | 0149                                                                  -] [- 149,151
| AA37  |
|%M0677 |
+--| +--+
| 0151
|
| (*************************************************************************)
| (* Alarm 38: Air heater, low temp (Production)                           *)
| (* Force down to step 0                                                 *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC38    << RUNG 153  STEP #0592 >>
|%M0005                                                                %M0550
+--| +-----------------------------------------------------------------(RM)-  (* Low temp air heater, FRC 0       *)
|                 |                                                           Cross reference for AC38
| AA38   A22_24 |                                                             -] [- 155,425
|%M0678  %I0067 |                                                             -]/[- 414
+--| +-----| +--+                                                             -(SM) 154
| 0155
|
|  SS8    S003   A22_24                                                  AC38    << RUNG 154  STEP #0597 >>
|%M0106  %I0075  %I0067                                                %M0550
+--| +-----|/+-----|/+-----------------------------------------------(SM)-  (* Low temp air heater, FRC 0       *)
|                                                                             Cross reference for AC38
|                                                                             -] [- 155,425
|                                                                             -]/[- 414
|                                                                             -(RM) 153
|
|ALM_RST  AC38                                                           AA38    << RUNG 155  STEP #0601 >>
|%M0005  %M0550                                                        %M0678
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA38
|       | 0153                                                                  -] [- 153,155
| AA38  |                                                                       -]/[- 425
|%M0678 |
+--| +--+
| 0155
|
| (*************************************************************************)
| (* Alarm 39: Low temp air heater (Indication only)                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC39    << RUNG 157  STEP #0606 >>
|%M0005                                                                %M0551
+--| +-----------------------------------------------------------------(RM)-  (* Low temp air heater, (ind)       *)
|                 |                                                           Cross reference for AC39
| AA39   A22_24 |                                                             -] [- 160,434,439
|%M0679  %I0067 |                                                             -(SM) 159
+--| +-----| +--+
| 0160
|
| K023                                                                   AH_AIB   << RUNG 158  STEP #0611 >>
|%Q0020  +-----+                                                       %M0907
+--| +---| TMR +-----------------------------------------------------------( )--  (* Air heater alarm active timer    *)
|       |0.10s|                                                                 Cross reference for AH_AIB
|       |     |                                                                 -] [- 159
| CONST -|PV   |
| +13200 |     |
|       +-----+
|        ACC90
|       %R9267
|
|AH_AIB  A22_24                                                          AC39    << RUNG 159  STEP #0614 >>
|%M0907  %I0067  +-----+                                               %M0551
+--| +-----|/+---| TMR +-----------------------------------------------(SM)-  (* Low temp air heater, (ind)       *)
| 0158           |0.10s|                                                       Cross reference for AC39
|                |     |                                                       -] [- 160,434,439
|         CONST -|PV   |                                                       -(RM) 157
|         +00010 |     |
|                +-----+
|                 ACC23
|                %R9066
|
|ALM_RST  AC39                                                           AA39    << RUNG 160  STEP #0618 >>
|%M0005  %M0551                                                        %M0679
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA39
|       | 0157                                                                  -] [- 157,160
| AA39  |                                                                       -]/[- 439
|%M0679 |
+--| +--+
| 0160
|
| (*************************************************************************)
| (* Alarm 41: Low temp LS element                                         *)
| (*************************************************************************)
|
```


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```
¦ALM_RST                                                              AC41    << RUNG 162  STEP #0623 >>
¦%M0005                                                              %M0553
+--¦ +-------------------------------------------------------------------(RM)-  (* LS element, low temp (IND)       *)
¦                ¦                                                            Cross reference for AC41
¦ AA41   A20_24 ¦                                                            -] [- 165,434,439
¦%M0681  %I0065 ¦                                                            -(SM) 164
+--¦ +-----¦ +--+
¦ 0165
¦
¦ K021                                                                       << RUNG 163  STEP #0628 >>
¦%Q0018  +-----+
+--¦ +---¦ TMR +-------------------------------------------------------------<+>
¦        ¦0.10s¦
¦        ¦     ¦
¦ CONST -¦PV   ¦
¦ +04100 ¦     ¦
¦        +-----+
¦         ACC25
¦        %R9072
¦
¦        A20_24                                                              AC41    << RUNG 164  STEP #0631 >>
¦        %I0065  +-----+                                                    %M0553
+<+>------¦/+---¦ TMR +-----------------------------------------------------(SM)-  (* LS element, low temp (IND)       *)
¦                ¦0.10s¦                                                            Cross reference for AC41
¦                ¦     ¦                                                            -] [- 165,434,439
¦         CONST -¦PV   ¦                                                            -(RM) 162
¦         +00150 ¦     ¦
¦                +-----+
¦                 ACC31
¦                %R9090
¦
¦ALM_RST  AC41                                                               AA41    << RUNG 165  STEP #0635 >>
¦%M0005  %M0553                                                             %M0681
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA41
¦       ¦ 0162                                                                     -] [- 162,165
¦ AA41  ¦                                                                          -]/[- 439
¦%M0681 ¦
+--¦ +--+
¦ 0165
¦
¦ (*************************************************************************)
¦ (* LS element lost stability in step 5-7                                 *)
¦ (*                                                                       *)
¦ (* Stability condition : LS signal OK for 60 sec = stability OK:         *)
¦ (*************************************************************************)
¦
¦ SS2_9  A20_24                                                             AC24_ST  << RUNG 167  STEP #0640 >>
¦%M0068  %I0065  +-----+                                                    %M0504
+--¦ +-----¦ +---¦ TMR +-----------------------------------------------------( )--  (* LS element temp OK 60 sec        *)
¦                ¦0.10s¦                                                            Cross reference for AC24_ST
¦                ¦     ¦                                                                    NONE
¦         CONST -¦PV   ¦
¦         +00050 ¦     ¦
¦                +-----+
¦                 ACC29
¦                %R9084
¦
¦ (*************************************************************************)
¦ (* Alarm 42: LS element, low temperature (in Production)                  *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                              AC42    << RUNG 169  STEP #0645 >>
¦%M0005                                                              %M0554
+--¦ +-------------------------------------------------------------------(RM)-  (* LS element, low temp (SSTO)      *)
¦                ¦                                                            Cross reference for AC42
¦ AA42   A20_24 ¦                                                            -] [- 172,425
¦%M0682  %I0065 ¦                                                            -]/[- 414
+--¦ +-----¦ +--+                                                            -(SM) 171
¦ 0172
¦
¦ K021                                                                       << RUNG 170  STEP #0650 >>
¦%Q0018  +-----+
+--¦ +---¦ TMR +-------------------------------------------------------------<+>
¦        ¦0.10s¦
¦        ¦     ¦
¦ CONST -¦PV   ¦
¦ +04100 ¦     ¦
¦        +-----+
¦         ACC32
¦        %R9093
¦
¦          SS8   A20_24                                                      AC42    << RUNG 171  STEP #0653 >>
¦        %M0106  %I0065  +-----+                                            %M0554
+<+>------¦ +-----¦/+---¦ TMR +-----------------------------------------------(SM)-  (* LS element, low temp (SSTO)      *)
¦                        ¦0.10s¦                                                    Cross reference for AC42
¦                        ¦     ¦                                                    -] [- 172,425
¦                 CONST -¦PV   ¦                                                    -]/[- 414
¦                 +00150 ¦     ¦                                                    -(RM) 169
¦                        +-----+
¦                         ACC26
¦                        %R9075
```


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```
|ALM_RST  AC42                                                    AA42    << RUNG 172  STEP #0658 >>
|%M0005  %M0554                                                  %M0682
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA42
|       | 0169                                                          -] [- 169,172
| AA42  |                                                               -]/[- 425
|%M0682 |
+--| +--+
| 0172
|
| (*************************************************************************)
| (* Alarm 43: Spare                                                      *)
| (*************************************************************************)
|
|ALM_RST                                                          AC43    << RUNG 174  STEP #0663 >>
|%M0005                                                          %M0555
+--| +-------------------------------------------------------------(RM)-  (* Spare                              *)
|              |                                                          Cross reference for AC43
| AA43   ALW_ON |                                                         -] [- 176
|%M0683  %S0007 |                                                         -(SM) 175
+--| +-----| +--+
| 0176
|
|ALW_OFF                                                          AC43    << RUNG 175  STEP #0668 >>
|%S0008                                                          %M0555
+--| +-------------------------------------------------------------(SM)-  (* Spare                              *)
|                                                                         Cross reference for AC43
|                                                                         -] [- 176
|                                                                         -(RM) 174
|
|ALM_RST  AC43                                                    AA43    << RUNG 176  STEP #0670 >>
|%M0005  %M0555                                                  %M0683
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA43
|       | 0174                                                          -] [- 174,176
| AA43  |
|%M0683 |
+--| +--+
| 0176
|
| (*************************************************************************)
| (* Alarm 44: High product level (production)                            *)
| (* Force down to short stop                                             *)
| (*************************************************************************)
|
|ALM_RST                                                          AC44    << RUNG 178  STEP #0675 >>
|%M0005                                                          %M0556
+--| +-------------------------------------------------------------(RM)-  (* Product level, high (production) *)
|              |                                                          Cross reference for AC44
| AA44   REG_HI |                                                         -] [- 181,425
|%M0684  %M1753 |                                                         -]/[- 414
+--| +-----|/+--+                                                         -(SM) 180
| 0181
|
| REG6   REG_HI                                                           << RUNG 179  STEP #0680 >>
|%M1734  %M1753  +-----+
+--| +-----| +---| TMR +-------------------------------------------------<+>
|              |0.10s|
|              |     |
|        CONST -|PV   |
|        +00300 |     |
|               +-----+
|                ACC27
|               %R9078
|
|  SS0   REG_HI  STEPUP                                           AC44    << RUNG 180  STEP #0684 >>
|%M0098  %M1753  %M0001                                          %M0556
+--| +-----| +-----| +-------------------------------------------(SM)-  (* Product level, high (production) *)
|                  |                                                      Cross reference for AC44
+<+>----------------+                                                      -] [- 181,425
|                                                                         -]/[- 414
|                                                                         -(RM) 178
|
|ALM_RST  AC44                                                    AA44    << RUNG 181  STEP #0689 >>
|%M0005  %M0556                                                  %M0684
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA44
|       | 0178                                                          -] [- 178,181
| AA44  |                                                               -]/[- 425
|%M0684 |
+--| +--+
| 0181
|
| (*************************************************************************)
| (* Alarm 45: Product level, low (in Production)                         *)
| (* Indication only                                                      *)
| (*************************************************************************)
|
```


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```
¦ALM_RST                                                                AC45    << RUNG 183  STEP #0694 >>
¦%M0005                                                                 %M0557
+--¦ +-------------------------------------------------------------------(RM)-  (* Product level, low (ind)         *)
¦               ¦                                                               Cross reference for AC45
¦ AA45   REG_LOW¦                                                               -] [- 185,435,440
¦%M0685  %M1752 ¦                                                               -(SM) 184
+--¦ +-----¦/+--+
¦ 0185
¦
¦  SS8    Y305   REG_LOW                                                   AC45    << RUNG 184  STEP #0699 >>
¦%M0106  %Q0085  %M1752  +-----+                                         %M0557
+--¦ +-----¦ +-----¦ +---¦ TMR +-----------------------------------------(SM)-  (* Product level, low (ind)         *)
¦                       ¦0.10s¦                                                 Cross reference for AC45
¦                       ¦     ¦                                                 -] [- 185,435,440
¦                CONST -¦PV   ¦                                                 -(RM) 183
¦                +00040 ¦     ¦
¦                       +-----+
¦                        ACC28
¦                       %R9081
¦
¦ALM_RST  AC45                                                          AA45    << RUNG 185  STEP #0704 >>
¦%M0005  %M0557                                                         %M0685
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA45
¦       ¦ 0183                                                                  -] [- 183,185
¦ AA45  ¦                                                                       -]/[- 440
¦%M0685 ¦
+--¦ +--+
¦ 0185
¦
¦ (*************************************************************************)
¦ (* Alarm 46: Product level, low                                          *)
¦ (* Force down to short stop                                              *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                                AC46    << RUNG 187  STEP #0709 >>
¦%M0005                                                                 %M0558
+--¦ +-------------------------------------------------------------------(RM)-  (* Product level, low (SSTO)        *)
¦               ¦                                                               Cross reference for AC46
¦ AA46   REG_LOW¦                                                               -] [- 189,426
¦%M0686  %M1752 ¦                                                               -]/[- 414
+--¦ +-----¦/+--+                                                               -(SM) 188
¦ 0189
¦
¦  SS8    Y305   REG_LOW                                                   AC46    << RUNG 188  STEP #0714 >>
¦%M0106  %Q0085  %M1752  +-----+                                         %M0558
+--¦ +-----¦ +-----¦ +---¦ TMR +-----------------------------------------(SM)-  (* Product level, low (SSTO)        *)
¦                       ¦0.10s¦                                                 Cross reference for AC46
¦                       ¦     ¦                                                 -] [- 189,426
¦                CONST -¦PV   ¦                                                 -]/[- 414
¦                +00200 ¦     ¦                                                 -(RM) 187
¦                       +-----+
¦                        ACC30
¦                       %R9087
¦
¦ALM_RST  AC46                                                          AA46    << RUNG 189  STEP #0719 >>
¦%M0005  %M0558                                                         %M0686
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA46
¦       ¦ 0187                                                                  -] [- 187,189
¦ AA46  ¦                                                                       -]/[- 426
¦%M0686 ¦
+--¦ +--+
¦ 0189
¦
¦ (*************************************************************************)
¦ (* Alarm 47: Fault in IH unit transversal sealing                        *)
¦ (* Three TS faults on one jaw or six TS faults in one rotation           *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                                AC47    << RUNG 191  STEP #0724 >>
¦%M0005                                                                 %M0559
+--¦ +-------------------------------------------------------------------(RM)-  (* Fault in IH units transv.sealing *)
¦                          ¦                                                    Cross reference for AC47
¦ AA47   TS_ERR1 TS_ERR2 TS_ERR6¦                                               -] [- 193,426
¦%M0687  %M1960  %M1961  %M1962 ¦                                               -]/[- 414
+--¦ +-----¦/+-----¦/+-----¦/+--+                                               -(SM) 192
¦ 0193
¦
¦TS_ERR1                                                                AC47    << RUNG 192  STEP #0731 >>
¦%M1960                                                                 %M0559
+--¦ +-------------------------------------------------------------------(SM)-  (* Fault in IH units transv.sealing *)
¦       ¦                                                                       Cross reference for AC47
¦TS_ERR2¦                                                                       -] [- 193,426
¦%M1961 ¦                                                                       -]/[- 414
+--¦ +--¦                                                                       -(RM) 191
¦       ¦
¦TS_ERR6¦
¦%M1962 ¦
+--¦ +--+
¦
```


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```
¦ALM_RST  AC47                                                    AA47    << RUNG 193  STEP #0735 >>
¦%M0005  %M0559                                                  %M0687
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA47
¦       ¦ 0191                                                            -] [- 191,193
¦ AA47  ¦                                                                 -]/[- 426
¦%M0687 ¦
+--¦ +--+
¦ 0193
¦
¦ (*************************************************************************)
¦ (* Alarm 16: Peroxide emptying fault                                     *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC48    << RUNG 195  STEP #0740 >>
¦%M0005                                                          %M0560
+--¦ +-------------------------------------------------------------(RM)-  (* Spare                              *)
¦                                                                         Cross reference for AC48
¦                                                                         -] [- 197
¦                                                                         -(SM) 196
¦
¦ALW_OFF                                                          AC48    << RUNG 196  STEP #0742 >>
¦%S0008                                                          %M0560
+--¦ +-------------------------------------------------------------(SM)-  (* Spare                              *)
¦                                                                         Cross reference for AC48
¦                                                                         -] [- 197
¦                                                                         -(RM) 195
¦
¦ALM_RST  AC48                                                    AA48    << RUNG 197  STEP #0744 >>
¦%M0005  %M0560                                                  %M0688
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA48
¦       ¦ 0195                                                            -] [- 197
¦ AA48  ¦
¦%M0688 ¦
+--¦ +--+
¦ 0197
¦
¦ (*************************************************************************)
¦ (* Alarm 49: Spare                                                       *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC49    << RUNG 199  STEP #0749 >>
¦%M0005                                                          %M0561
+--¦ +-------------------------------------------------------------(RM)-  (* Spare                              *)
¦                                                                         Cross reference for AC49
¦                                                                         -] [- 201
¦                                                                         -(SM) 200
¦                                                                         FBIO  389,396
¦
¦ALW_OFF                                                          AC49    << RUNG 200  STEP #0751 >>
¦%S0008                                                          %M0561
+--¦ +-------------------------------------------------------------(SM)-  (* Spare                              *)
¦                                                                         Cross reference for AC49
¦                                                                         -] [- 201
¦                                                                         -(RM) 199
¦                                                                         FBIO  389,396
¦
¦ALM_RST  AC49                                                    AA49    << RUNG 201  STEP #0753 >>
¦%M0005  %M0561                                                  %M0689
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA49
¦       ¦ 0199                                                            -] [- 201
¦ AA49  ¦
¦%M0689 ¦
+--¦ +--+
¦ 0201
¦
¦ (*************************************************************************)
¦ (* Alarm 50: Oil pressure and level in lubrication system.               *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC50    << RUNG 203  STEP #0758 >>
¦%M0005                                                          %M0562
+--¦ +-------------------------------------------------------------(RM)-  (* Central lubrication, pressure      *)
¦              ¦                                                          Cross reference for AC50
¦ AA50    B501  ¦                                                         -] [- 205,426
¦%M0690  %I0060 ¦                                                         -]/[- 414
+--¦ +-----¦ +--+                                                         -(SM) 204
¦ 0205
¦
¦  SS2    Y502    B501                                               AC50    << RUNG 204  STEP #0763 >>
¦%M0100  %Q0068  %I0060  +-----+                                    %M0562
+--¦ +-----¦ +-----¦/+---¦ TMR +-----------------------------------------(SM)-  (* Central lubrication, pressure      *)
¦                       ¦0.10s¦                                           Cross reference for AC50
¦                       ¦     ¦                                           -] [- 205,426
¦                 CONST -¦PV   ¦                                          -]/[- 414
¦                 +00040 ¦     ¦                                          -(RM) 203
¦                        +-----+
¦                         ACC33
¦                        %R9096
¦
```


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```
|ALM_RST  AC50                                                    AA50    << RUNG 205  STEP #0768 >>
|%M0005  %M0562                                                  %M0690
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA50
|       | 0203                                                            -] [- 203,205
| AA50  |                                                                 -]/[- 426
|%M0690 |
+--| +--+
| 0205
|
| (*************************************************************************)
| (* Alarm 51: Central lubrication, Oil pressure                          *)
| (*************************************************************************)
|
|ALM_RST                                                          AC51    << RUNG 207  STEP #0773 >>
|%M0005                                                          %M0563
+--| +-----------------------------------------------------------------(RM)-  (* Central lubrication, pressure    *)
|                |                                                        Cross reference for AC51
| AA51    B501  |                                                        -] [- 209,435,440
|%M0691  %I0060 |                                                        -(SM) 208
+--| +-----| +--+
| 0209
|
| SS2_9   Y502    B501                                            AC51    << RUNG 208  STEP #0778 >>
|%M0068  %Q0068  %I0060  +-----+                                 %M0563
+--| +-----| +-----|/+---| TMR +-----------------------------------------(SM)-  (* Central lubrication, pressure    *)
|       |              |0.10s|                                             Cross reference for AC51
|SS10_11|              |     |                                             -] [- 209,435,440
|%M0070 |              |     |                                             -(RM) 207
+--| +--+        CONST -|PV   |
|                 +00040 |     |
|                        +-----+
|                         ACC34
|                        %R9099
|
|ALM_RST  AC51                                                    AA51    << RUNG 209  STEP #0784 >>
|%M0005  %M0563                                                  %M0691
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA51
|       | 0207                                                            -] [- 207,209
| AA51  |                                                                 -]/[- 440
|%M0691 |
+--| +--+
| 0209
|
| (*************************************************************************)
| (* Alarm 52: Central lubrication, oil level                             *)
| (*************************************************************************)
|
|ALM_RST                                                          AC52    << RUNG 211  STEP #0789 >>
|%M0005                                                          %M0564
+--| +-----------------------------------------------------------------(RM)-  (* Central lubrication, oil level   *)
|                |                                                        Cross reference for AC52
| AA52    B502  |                                                        -] [- 213,435,440
|%M0692  %I0061 |                                                        -(SM) 212
+--| +-----| +--+
| 0213
|
| SS0_9   B502                                                    AC52    << RUNG 212  STEP #0794 >>
|%M0065  %I0061                                                  %M0564
+--| +-----|/+-------------------------------------------------------(SM)-  (* Central lubrication, oil level   *)
|       |                                                                 Cross reference for AC52
|SS10_11|                                                                 -] [- 213,435,440
|%M0070 |                                                                 -(RM) 211
+--| +--+
|
|ALM_RST  AC52                                                    AA52    << RUNG 213  STEP #0798 >>
|%M0005  %M0564                                                  %M0692
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA52
|       | 0211                                                            -] [- 211,213
| AA52  |                                                                 -]/[- 440
|%M0692 |
+--| +--+
| 0213
|
| (*************************************************************************)
| (* Alarm 53: Central lubrication, Oil level                             *)
| (*************************************************************************)
|
|ALM_RST                                                          AC53    << RUNG 215  STEP #0803 >>
|%M0005                                                          %M0565
+--| +-----------------------------------------------------------------(RM)-  (* Central lubrication, oil level   *)
|                |                                                        Cross reference for AC53
| AA53    B502  |                                                        -] [- 217,427
|%M0693  %I0061 |                                                        -]/[- 415
+--| +-----| +--+                                                        -(SM) 216
| 0217
|
```


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```
| SS11    B502                                                          AC53    << RUNG 216  STEP #0808 >>
|%M0109  %I0061                                                       %M0565
+--| +-----|/+-------------------------------------------------------(SM)-  (* Central lubrication, oil level   *)
|                                                                             Cross reference for AC53
|                                                                             -] [- 217,427
|                                                                             -]/[- 415
|                                                                             -(RM) 215
|
|ALM_RST  AC53                                                          AA53    << RUNG 217  STEP #0811 >>
|%M0005  %M0565                                                       %M0693
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA53
|       | 0215                                                                -] [- 215,217
| AA53  |                                                                     -]/[- 427
|%M0693 |
+--| +--+
| 0217
|
| (*************************************************************************)
| (* Alarm 54: Oil pressure alarm                                          *)
| (*************************************************************************)
|
|ALM_RST                                                                AC54    << RUNG 219  STEP #0816 >>
|%M0005                                                               %M0566
+--| +-------------------------------------------------------------------(RM)-  (* Central lubrication, pressure    *)
|             |                                                               Cross reference for AC54
| AA54    B501  |                                                             -] [- 221,427
|%M0694  %I0060 |                                                             -]/[- 415
+--| +-----| +--+                                                             -(SM) 220
| 0221
|
| SS11    Y502    B501                                                  AC54    << RUNG 220  STEP #0821 >>
|%M0109  %Q0068  %I0060  +-----+                                       %M0566
+--| +-----| +-----|/+---| TMR +-------------------------------------(SM)-  (* Central lubrication, pressure    *)
|                        |0.10s|                                              Cross reference for AC54
|                        |     |                                              -] [- 221,427
|                 CONST -|PV   |                                              -]/[- 415
|                 +00040 |     |                                              -(RM) 219
|                        +-----+
|                         ACC35
|                        %R9102
|
|ALM_RST  AC54                                                          AA54    << RUNG 221  STEP #0826 >>
|%M0005  %M0566                                                       %M0694
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA54
|       | 0219                                                                -] [- 219,221
| AA54  |                                                                     -]/[- 427
|%M0694 |
+--| +--+
| 0221
|
| (*************************************************************************)
| (* Alarm 55: Sterile doors alarm (indication only)                       *)
| (*************************************************************************)
|
|ALM_RST                                                                AC55    << RUNG 223  STEP #0831 >>
|%M0005                                                               %M0567
+--| +-------------------------------------------------------------------(RM)-  (* Safety switch, sterile unit      *)
|             |                                                               Cross reference for AC55
| AA55    B200- |                                                             -] [- 225,427
|%M0695  %I0026 |                                                             -]/[- 415
+--| +-----| +--+                                                             -(SM) 224
| 0225
|
|E_STOP   B200-                                                         AC55    << RUNG 224  STEP #0836 >>
|%I0018  %I0026                                                       %M0567
+--|/+-----|/+-------------------------------------------------------(SM)-  (* Safety switch, sterile unit      *)
|                                                                             Cross reference for AC55
|                                                                             -] [- 225,427
|                                                                             -]/[- 415
|                                                                             -(RM) 223
|
|ALM_RST  AC55                                                          AA55    << RUNG 225  STEP #0839 >>
|%M0005  %M0567                                                       %M0695
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA55
|       | 0223                                                                -] [- 223,225
| AA55  |                                                                     -]/[- 427
|%M0695 |
+--| +--+
| 0225
|
| (*************************************************************************)
| (* Alarm 56: Overload protection                                         *)
| (*************************************************************************)
|
```


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```
¦ALM_RST                                                          AC56    << RUNG 227  STEP #0844 >>
¦%M0005                                                          %M0568
+--¦ +-------------------------------------------------------------(RM)-  (* Overload fault                  *)
¦                  ¦                                                     Cross reference for AC56
¦ AA56   OVERLD  G002_19¦                                                -] [- 229,427
¦%M0696  %I0017  %I0027 ¦                                                -]/[- 415
+--¦ +-----¦ +-----¦ +--+                                                -(SM) 228
¦ 0229
¦
¦OVERLD                                                           AC56    << RUNG 228  STEP #0850 >>
¦%I0017  +-----+                                                 %M0568
+--¦/+---¦ TMR +-------------------------------------------------(SM)-  (* Overload fault                  *)
¦        ¦0.10s¦                                                         Cross reference for AC56
¦        ¦     ¦                                                         -] [- 229,427
¦ CONST -¦PV   ¦                                                         -]/[- 415
¦ +00050 ¦     ¦                                                         -(RM) 227
¦        +-----+
¦        ACC185
¦        %R9552
¦
¦ALM_RST  AC56                                                    AA56    << RUNG 229  STEP #0853 >>
¦%M0005  %M0568                                                  %M0696
+--¦ +----¦ +-----------------------------------------------------( )--  Cross reference for AA56
¦       ¦ 0227                                                           -] [- 227,229
¦ AA56  ¦                                                                -]/[- 427
¦%M0696 ¦
+--¦ +--+
¦ 0229
¦
¦ (*************************************************************************)
¦ (* Alarm 57: Sterilization zone alarm, doors open                       *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC57    << RUNG 231  STEP #0858 >>
¦%M0005                                                          %M0569
+--¦ +-------------------------------------------------------------(RM)-  (* Sterile doors alarm, FRC SS0    *)
¦                ¦                                                       Cross reference for AC57
¦ AA57    B200- ¦                                                        -] [- 233,427
¦%M0697  %I0026 ¦                                                        -]/[- 415
+--¦ +-----¦ +--+                                                        -(SM) 232
¦ 0233
¦
¦ SS5_8   S003    B200-                                           AC57    << RUNG 232  STEP #0863 >>
¦%M0069  %I0075  %I0026                                          %M0569
+--¦ +-----¦/+-----¦/+-------------------------------------------(SM)-  (* Sterile doors alarm, FRC SS0    *)
¦       ¦                                                                Cross reference for AC57
¦  SS9  ¦                                                                -] [- 233,427
¦%M0107 ¦                                                                -]/[- 415
+--¦ +--+                                                                -(RM) 231
¦
¦ALM_RST  AC57                                                    AA57    << RUNG 233  STEP #0868 >>
¦%M0005  %M0569                                                  %M0697
+--¦ +----¦ +-----------------------------------------------------( )--  Cross reference for AA57
¦       ¦ 0231                                                           -] [- 231,233
¦ AA57  ¦                                                                -]/[- 427
¦%M0697 ¦
+--¦ +--+
¦ 0233
¦
¦ (*************************************************************************)
¦ (* Alarm 58: Doors open Alarm                                          *)
¦ (* Force down to short stop                                            *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC58    << RUNG 235  STEP #0873 >>
¦%M0005                                                          %M0570
+--¦ +-------------------------------------------------------------(RM)-  (* Door alarm, short stop          *)
¦                ¦                                                       Cross reference for AC58
¦ AA58    B001- ¦                                                        -] [- 237,427
¦%M0698  %I0022 ¦                                                        -]/[- 415
+--¦ +-----¦ +--+                                                        -(SM) 236
¦ 0237
¦
¦  SS8    B001-   B200-                                           AC58    << RUNG 236  STEP #0878 >>
¦%M0106  %I0022  %I0026                                          %M0570
+--¦ +-----¦/+-----¦ +-------------------------------------------(SM)-  (* Door alarm, short stop          *)
¦                                                                        Cross reference for AC58
¦                                                                        -] [- 237,427
¦                                                                        -]/[- 415
¦                                                                        -(RM) 235
¦
¦ALM_RST  AC58                                                    AA58    << RUNG 237  STEP #0882 >>
¦%M0005  %M0570                                                  %M0698
+--¦ +----¦ +-----------------------------------------------------( )--  Cross reference for AA58
¦       ¦ 0235                                                           -] [- 235,237
¦ AA58  ¦                                                                -]/[- 427
¦%M0698 ¦
+--¦ +--+
¦ 0237
¦
```


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```
| (*************************************************************************)
| (* Alarm 59: Emergency stop button                                       *)
| (*************************************************************************)
|
|ALM_RST                                                          AC59    << RUNG 239  STEP #0887 >>
|%M0005                                                          %M0571
+--| +-------------------------------------------------------------(RM)-  (* Emergency stop button           *)
|                                                                         Cross reference for AC59
| AA59   E_STOP |                                                        -] [- 241,409
|%M0699  %I0018 |                                                        -]/[- 407
+--| +-----| +--+                                                        -(SM) 240
| 0241
|
| SS0_9  EM-STOP                                                  AC59    << RUNG 240  STEP #0892 >>
|%M0065  %I0106                                                  %M0571
+--| +-----|/+-------------------------------------------------------(SM)-  (* Emergency stop button           *)
|                                                                         Cross reference for AC59
|                                                                         -] [- 241,409
|                                                                         -]/[- 407
|                                                                         -(RM) 239
|
|ALM_RST  AC59                                                    AA59    << RUNG 241  STEP #0895 >>
|%M0005  %M0571                                                  %M0699
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA59
|       | 0239                                                            -] [- 239,241
| AA59  |                                                                 -]/[- 409
|%M0699 |
+--| +--+
| 0241
|
| (*************************************************************************)
| (* Alarm 60: Emergency stop module                                       *)
| (* Force down to step 0                                                  *)
| (*************************************************************************)
|
|ALM_RST                                                          AC60    << RUNG 243  STEP #0900 >>
|%M0005                                                          %M0572
+--| +-------------------------------------------------------------(RM)-  (* Emergency stop module           *)
|                                                                         Cross reference for AC60
| AA60   E_STOP |                                                        -] [- 245,409
|%M0700  %I0018 |                                                        -]/[- 407
+--| +-----|/+--+                                                        -(SM) 244
| 0245
|
|E_STOP                                                           AC60    << RUNG 244  STEP #0905 >>
|%I0018                                                          %M0572
+--| +-------------------------------------------------------------(SM)-  (* Emergency stop module           *)
|                                                                         Cross reference for AC60
|                                                                         -] [- 245,409
|                                                                         -]/[- 407
|                                                                         -(RM) 243
|
|ALM_RST  AC60                                                    AA60    << RUNG 245  STEP #0907 >>
|%M0005  %M0572                                                  %M0700
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA60
|       | 0243                                                            -] [- 243,245
| AA60  |                                                                 -]/[- 409
|%M0700 |
+--| +--+
| 0245
|
| (*************************************************************************)
| (* Alarm 61: Door monitor (in tube sealing/inching)                      *)
| (*************************************************************************)
|
|ALM_RST                                                          AC61    << RUNG 247  STEP #0912 >>
|%M0005                                                          %M0573
+--| +-------------------------------------------------------------(RM)-  (* Door alarm in tube sealing      *)
|                    |                                                    Cross reference for AC61
| AA61    B001-   B201  |                                                -] [- 249,428
|%M0701  %I0022  %I0028 |                                                -]/[- 415
+--| +-----| +-----| +--+                                                -(SM) 248
| 0249
|
|  SS3    B001-   B200-  FR1_NVL                                  AC61    << RUNG 248  STEP #0918 >>
|%M0101  %I0022  %I0026  %Q0002                                  %M0573
+--| +-----|/+-----| +-----| +-------------------------------------(SM)-  (* Door alarm in tube sealing      *)
|       |              |       |                                          Cross reference for AC61
|       | B201         |FR1_LOW|                                          -] [- 249,428
|       |%I0028        |%Q0007 |                                          -]/[- 415
|       +--|/+---------| +--+                                            -(RM) 247
|
|ALM_RST  AC61                                                    AA61    << RUNG 249  STEP #0927 >>
|%M0005  %M0573                                                  %M0701
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA61
|       | 0247                                                            -] [- 247,249
| AA61  |                                                                 -]/[- 428
|%M0701 |
+--| +--+
| 0249
|
```


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```
| (*************************************************************************)
| (* Alarm 62: Door alarm (in Signal to sterilizer and Drive motor on)     *)
| (* Force down to step Signal to sterilizer                              *)
| (*************************************************************************)
|
|ALM_RST                                                          AC62    << RUNG 251  STEP #0932 >>
|%M0005                                                         %M0574
+--| +-------------------------------------------------------------(RM)-  (* Alarm door in ready/sterilizer   *)
|                  |                                                      Cross reference for AC62
| AA62    B001-   B201  |                                                 -] [- 253,428
|%M0702  %I0022  %I0028 |                                                 -]/[- 415
+--| +-----| +-----| +--+                                                 -(SM) 252
| 0253
|
|  SS6    B001-   B200-                                           AC62    << RUNG 252  STEP #0938 >>
|%M0104  %I0022  %I0026                                         %M0574
+--| +----|/+-----| +-----------------------------------------------(SM)-  (* Alarm door in ready/sterilizer   *)
|       |                |                                               Cross reference for AC62
|  SS7  | B201           |                                               -] [- 253,428
|%M0105 |%I0028          |                                               -]/[- 415
+--| +-----|/+----------+                                               -(RM) 251
|
|ALM_RST  AC62                                                    AA62    << RUNG 253  STEP #0945 >>
|%M0005  %M0574                                                 %M0702
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA62
|       | 0251                                                          -] [- 251,253
| AA62  |                                                               -]/[- 428
|%M0702 |
+--| +--+
| 0253
|
| (*************************************************************************)
| (* Alarm 63: Main air, low pressure                                     *)
| (* This alarm becomes active only after initial stage of preheating.    *)
| (* The air is applied before any power is applied to heaters.           *)
| (*************************************************************************)
|
|ALM_RST                                                          AC63    << RUNG 255  STEP #0950 >>
|%M0005                                                         %M0575
+--| +-------------------------------------------------------------(RM)-  (* Main air, low pressure           *)
|                  |                                                      Cross reference for AC63
| AA63    B314  |                                                         -] [- 258,428
|%M0703  %I0058 |                                                         -]/[- 416
+--| +-----| +--+                                                         -(SM) 257
| 0258
|
| (*************************************************************************)
| (* Air is permitted a few seconds to achive pressure before alarm.      *)
| (*************************************************************************)
|
|SS-1_0   B314                                                    AC63    << RUNG 257  STEP #0956 >>
|%M0064  %I0058  +-----+                                        %M0575
+--|/+-----|/+---| TMR +-----------------------------------------(SM)-  (* Main air, low pressure           *)
|                |0.10s|                                               Cross reference for AC63
|                |     |                                               -] [- 258,428
|         CONST -|PV   |                                               -]/[- 416
|         +00080 |     |                                               -(RM) 255
|                +-----+
|                ACC123
|                %R9366
|
|ALM_RST  AC63                                                    AA63    << RUNG 258  STEP #0960 >>
|%M0005  %M0575                                                 %M0703
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA63
|       | 0255                                                          -] [- 255,258
| AA63  |                                                               -]/[- 428
|%M0703 |
+--| +--+
| 0258
|
| (*************************************************************************)
| (* Alarm 64: Peroxide bath, high level                                  *)
| (*************************************************************************)
|
|ALM_RST                                                          AC64    << RUNG 260  STEP #0965 >>
|%M0005                                                         %M0576
+--| +-------------------------------------------------------------(RM)-  (* Peroxide bath, high level        *)
|                  |                                                      Cross reference for AC64
| AA64   A30_18 |                                                         -] [- 262,428
|%M0704  %I0090 |                                                         -]/[- 416
+--| +-----|/+--+                                                         -(SM) 261
| 0262
|
```


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```
| SS5_8  A30_18                                                          AC64    << RUNG 261  STEP #0970 >>
|%M0069  %I0090  +-----+                                                %M0576
+--| +-----| +---| TMR +-------------------------------------------------(SM)-  (* Peroxide bath, high level        *)
|               |0.10s|                                                        Cross reference for AC64
|               |     |                                                        -] [- 262,428
|        CONST -|PV   |                                                        -]/[- 416
|        +00100 |     |                                                        -(RM) 260
|               +-----+
|                ACC86
|               %R9255
|
|ALM_RST  AC64                                                           AA64    << RUNG 262  STEP #0974 >>
|%M0005  %M0576                                                          %M0704
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA64
|       | 0260                                                                    -] [- 260,262
| AA64  |                                                                         -]/[- 428
|%M0704 |
+--| +--+
| 0262
|
| (*************************************************************************)
| (* Alarm 65: Spare                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC65    << RUNG 264  STEP #0979 >>
|%M0005                                                                  %M0577
+--| +-------------------------------------------------------------------(RM)-  (* Spare                            *)
|              |                                                                 Cross reference for AC65
| AA65   ALW_ON |                                                                -] [- 266
|%M0705  %S0007 |                                                                -(SM) 265
+--| +-----| +--+                                                                FBIO  390,396
| 0266
|
|ALW_OFF                                                                 AC65    << RUNG 265  STEP #0984 >>
|%S0008                                                                  %M0577
+--| +-------------------------------------------------------------------(SM)-  (* Spare                            *)
|                                                                                 Cross reference for AC65
|                                                                                 -] [- 266
|                                                                                 -(RM) 264
|                                                                                 FBIO  390,396
|
|ALM_RST  AC65                                                           AA65    << RUNG 266  STEP #0986 >>
|%M0005  %M0577                                                          %M0705
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA65
|       | 0264                                                                    -] [- 264,266
| AA65  |
|%M0705 |
+--| +--+
| 0266
|
| (*************************************************************************)
| (* Alarm 66: Upper bending roller, wrong position                        *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC66    << RUNG 268  STEP #0991 >>
|%M0005                                                                  %M0578
+--| +-------------------------------------------------------------------(RM)-  (* Upper bending roller, wrong pos. *)
|              |                                                                 Cross reference for AC66
| AC66   ALW_OFF|                                                                -] [- 268,272,428
|%M0578  %S0008 |                                                                -]/[- 416
+--| +-----| +--+                                                                -(SM) 271
| 0268
|
|  SS5    Y201    B207                                                   AC66A   << RUNG 269  STEP #0996 >>
|%M0103  %Q0083  %I0094          +-----+                                 %M0911
+--| +-----| +-----|/+----------| TMR +-----------------------------------( )--  (* Upper bending roller alarm front *)
|       |            |          |0.10s|                                          Cross reference for AC66A
|       | Y201    B207  |        |     |                                          -] [- 271
|       |%Q0083  %I0094 |        |     |
|       +--|/+-----| +--+ CONST -|PV   |
|                       +00060 |     |
|                              +-----+
|                              ACC133
|                              %R9396
|
|  SS5    Y201    B208                                                   AC66B   << RUNG 270  STEP #1005 >>
|%M0103  %Q0083  %I0095          +-----+                                 %M0912
+--| +-----| +-----|/+----------| TMR +-----------------------------------( )--  (* Upper bending roller alarm back  *)
|       |            |          |0.10s|                                          Cross reference for AC66B
|       | Y201    B208  |        |     |                                          -] [- 271
|       |%Q0083  %I0095 |        |     |
|       +--|/+-----| +--+ CONST -|PV   |
|                       +00060 |     |
|                              +-----+
|                              ACC134
|                              %R9399
|
```


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```
| AC66A                                                                  AC66    << RUNG 271  STEP #1014 >>
|%M0911                                                                %M0578
+--| +-------------------------------------------------------------------(SM)-  (* Upper bending roller, wrong pos. *)
| 0269  |                                                                       Cross reference for AC66
| AC66B |                                                                       -] [- 268,272,428
|%M0912 |                                                                       -]/[- 416
+--| +--+                                                                     -(RM) 268
| 0270
|
|ALM_RST  AC66                                                           AA66    << RUNG 272  STEP #1017 >>
|%M0005  %M0578                                                        %M0706
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA66
|       | 0268                                                                  -] [- 272
| AA66  |                                                                       -]/[- 428
|%M0706 |
+--| +--+
| 0272
|
| (*************************************************************************)
| (* Alarm 67: Spare                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC67    << RUNG 274  STEP #1022 >>
|%M0005                                                                %M0579
+--| +-------------------------------------------------------------------(RM)-  (* Spare                              *)
|             |                                                                 Cross reference for AC67
| AC67   ALW_ON |                                                               -] [- 274,276
|%M0579  %S0007 |                                                               -(SM) 275
+--| +-----| +--+
| 0274
|
|ALW_OFF                                                                 AC67    << RUNG 275  STEP #1027 >>
|%S0008                                                                %M0579
+--| +-------------------------------------------------------------------(SM)-  (* Spare                              *)
|                                                                               Cross reference for AC67
|                                                                               -] [- 274,276
|                                                                               -(RM) 274
|
|ALM_RST  AC67                                                           AA67    << RUNG 276  STEP #1029 >>
|%M0005  %M0579                                                        %M0707
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA67
|       | 0274                                                                  -] [- 276
| AA67  |
|%M0707 |
+--| +--+
| 0276
|
| (*************************************************************************)
| (* Alarm 68: Index sensor, missread: Timeout for index sensor search     *)
| (*************************************************************************)
|
|ALM_RST                                                                 AC68    << RUNG 278  STEP #1034 >>
|%M0005                                                                %M0580
+--| +-------------------------------------------------------------------(RM)-  (* Index sensor, missread           *)
|             |                                                                 Cross reference for AC68
| AA68     CAL  |                                                               -] [- 280,429
|%M0708  %M0512 |                                                               -]/[- 416
+--| +-----|/+--+                                                               -(SM) 279
| 0280
|
| K001   CAL_RUN   CAL                                                   AC68    << RUNG 279  STEP #1039 >>
|%Q0001  %M0008  %M0512  +-----+                                       %M0580
+--| +-----| +-----| +---| TMR +-------------------------------------------(SM)-  (* Index sensor, missread           *)
|                       |0.10s|                                                 Cross reference for AC68
|                       |     |                                                 -] [- 280,429
|                 CONST -|PV   |                                                 -]/[- 416
|                 +01200 |     |                                                 -(RM) 278
|                       +-----+
|                        ACC80
|                       %R9237
|
|ALM_RST  AC68                                                           AA68    << RUNG 280  STEP #1044 >>
|%M0005  %M0580                                                        %M0708
+--| +-----| +-------------------------------------------------------------( )--  Cross reference for AA68
|       | 0278                                                                  -] [- 278,280
| AA68  |                                                                       -]/[- 429
|%M0708 |
+--| +--+
| 0280
|
| (*************************************************************************)
| (* Alarm 69: LS strip supply                                             *)
| (* input do not excist. alarm disabled. use together with manual infeed.*)
| (*************************************************************************)
|
```


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```
¦ALM_RST                                                                AC69    << RUNG 282  STEP #1049 >>
¦%M0005                                                                 %M0581
+--¦ +-------------------------------------------------------------------(RM)-  (* LS strip supply (ind)            *)
¦               ¦                                                               Cross reference for AC69
¦ AA69          ¦                                                               -] [- 284,435,440
¦%M0709  %I0035 ¦                                                               -(SM) 283
+--¦ +-----¦/+--+
¦ 0284
¦
¦ SS2_8          ALW_OFF                                                AC69    << RUNG 283  STEP #1054 >>
¦%M0067  %I0035  %S0008                                                 %M0581
+--¦ +-----¦ +-----¦ +-------------------------------------------------(SM)-  (* LS strip supply (ind)            *)
¦                                                                               Cross reference for AC69
¦                                                                               -] [- 284,435,440
¦                                                                               -(RM) 282
¦
¦ALM_RST  AC69                                                          AA69    << RUNG 284  STEP #1058 >>
¦%M0005  %M0581                                                         %M0709
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA69
¦       ¦ 0282                                                                  -] [- 282,284
¦ AA69  ¦                                                                       -]/[- 440
¦%M0709 ¦
+--¦ +--+
¦ 0284
¦
¦ (*************************************************************************)
¦ (* Alarm 70: C-valve, wrong position                                     *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                                AC70    << RUNG 286  STEP #1063 >>
¦%M0005                                                                 %M0582
+--¦ +-------------------------------------------------------------------(RM)-  (* C-valve, wrong position          *)
¦                   ¦                                                           Cross reference for AC70
¦ AA70    Y307    B316  ¦                                                       -] [- 288,429
¦%M0710  %Q0086  %I0047 ¦                                                       -]/[- 416
+--¦ +-----¦ +-----¦ +--¦                                                       -(SM) 287
¦ 0288  ¦                ¦
¦       ¦ Y307    B316  ¦
¦       ¦%Q0086  %I0047 ¦
¦       +--¦/+-----¦/+--+
¦
¦ Y307    B316                                                          AC70    << RUNG 287  STEP #1073 >>
¦%Q0086  %I0047          +-----+                                       %M0582
+--¦ +-----¦/+----------¦ TMR +-------------------------------------(SM)-  (* C-valve, wrong position          *)
¦               ¦        ¦0.10s¦                                               Cross reference for AC70
¦ Y307    B316  ¦        ¦     ¦                                               -] [- 288,429
¦%Q0086  %I0047 ¦        ¦     ¦                                               -]/[- 416
+--¦/+-----¦ +--+ CONST -¦PV   ¦                                               -(RM) 286
¦               +00072 ¦     ¦
¦                      +-----+
¦                       ACC57
¦                      %R9168
¦
¦ALM_RST  AC70                                                          AA70    << RUNG 288  STEP #1080 >>
¦%M0005  %M0582                                                         %M0710
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA70
¦       ¦ 0286                                                                  -] [- 286,288
¦ AA70  ¦                                                                       -]/[- 429
¦%M0710 ¦
+--¦ +--+
¦ 0288
¦
¦ (*************************************************************************)
¦ (* Alarm 71: Spare                                                       *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                                AC71    << RUNG 290  STEP #1085 >>
¦%M0005                                                                 %M0583
+--¦ +-------------------------------------------------------------------(RM)-  (* Spare                            *)
¦               ¦                                                               Cross reference for AC71
¦ AA71   ALW_OFF¦                                                               -] [- 292
¦%M0711  %S0008 ¦                                                               -(SM) 291
+--¦ +-----¦ +--+
¦ 0292
¦
¦ALW_OFF                                                                AC71    << RUNG 291  STEP #1090 >>
¦%S0008                                                                 %M0583
+--¦ +-------------------------------------------------------------------(SM)-  (* Spare                            *)
¦                                                                               Cross reference for AC71
¦                                                                               -] [- 292
¦                                                                               -(RM) 290
¦
¦ALM_RST  AC71                                                          AA71    << RUNG 292  STEP #1092 >>
¦%M0005  %M0583                                                         %M0711
+--¦ +-----¦ +-------------------------------------------------------------( )--  Cross reference for AA71
¦       ¦ 0290                                                                  -] [- 290,292
¦ AA71  ¦
¦%M0711 ¦
+--¦ +--+
¦ 0292
¦
```


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```
| (*************************************************************************)
| (* Alarm 72: A-valve, wrong position                                     *)
| (*************************************************************************)
|
|ALM_RST                                                          AC72    << RUNG 294  STEP #1097 >>
|%M0005                                                         %M0584
+--| +-------------------------------------------------------------(RM)-  (* A-valve, wrong position          *)
|                                                                         Cross reference for AC72
| AA72    Y305    B315  |                                                 -] [- 296,429
|%M0712  %Q0085  %I0046 |                                                 -]/[- 416
+--| +-----| +-----|/+--|                                                 -(SM) 295
| 0296  |               |
|       | Y305    B315  |
|       |%Q0085  %I0046 |
|       +--|/+-----| +--+
|
| Y305    B315   SS-1_0                                           AC72    << RUNG 295  STEP #1107 >>
|%Q0085  %I0046  %M0064  +-----+                                %M0584
+--| +-----| +-----|/+---| TMR +-------------------------------------(SM)-  (* A-valve, wrong position          *)
|               |        |0.10s|                                           Cross reference for AC72
| Y305    B315  |        |     |                                           -] [- 296,429
|%Q0085  %I0046 |        |     |                                           -]/[- 416
+--|/+-----|/+---+ CONST -|PV   |                                           -(RM) 294
|                 +00030 |     |
|                        +-----+
|                         ACC58
|                        %R9171
|
|ALM_RST  AC72                                                    AA72    << RUNG 296  STEP #1115 >>
|%M0005  %M0584                                                 %M0712
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA72
|       | 0294                                                          -] [- 294,296
| AA72  |                                                               -]/[- 429
|%M0712 |
+--| +--+
| 0296
|
| (*************************************************************************)
| (* Alarm 73: InkJet fault, yellow or not green                          *)
| (*************************************************************************)
|
|ALM_RST                                                          AC73    << RUNG 298  STEP #1120 >>
|%M0005                                                         %M0585
+--| +-------------------------------------------------------------(RM)-  (* Inkjet fault, yellow or no green *)
|                  |                                                      Cross reference for AC73
| AA73   INK_YE  INK_GR |                                                 -] [- 300,435,440
|%M0713  %I0039  %I0040 |                                                 -(SM) 299
+--| +-----| +-----| +--|
| 0300  |               |
|       |INKMODE        |
|       |%M0932         |
|       +--|/+----------+
|
|INKMODE INK_YE                                                   AC73    << RUNG 299  STEP #1128 >>
|%M0932  %I0039                                                 %M0585
+--| +-----|/+-----------------------------------------------------(SM)-  (* Inkjet fault, yellow or no green *)
|       |      |                                                          Cross reference for AC73
|       |INK_GR |                                                         -] [- 300,435,440
|       |%I0040 |                                                         -(RM) 298
|       +--|/+--+
|
|ALM_RST  AC73                                                    AA73    << RUNG 300  STEP #1133 >>
|%M0005  %M0585                                                 %M0713
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA73
|       | 0298                                                          -] [- 298,300
| AA73  |                                                               -]/[- 440
|%M0713 |
+--| +--+
| 0300
|
| (*************************************************************************)
| (* Alarm 74: Cleaning cup missing (high level)                          *)
| (* High level input used for cleaning pipe indication.                 *)
| (*************************************************************************)
|
|ALM_RST                                                          AC74    << RUNG 302  STEP #1138 >>
|%M0005                                                         %M0586
+--| +-------------------------------------------------------------(RM)-  (* Product level, high (cleaning)   *)
|             |                                                           Cross reference for AC74
| AA74   REG_HI |                                                         -] [- 304,429
|%M0714  %M1753 |                                                         -]/[- 416
+--| +-----| +--+                                                         -(SM) 303
| 0304
|
|SS10_11 REG_HI                                                   AC74    << RUNG 303  STEP #1143 >>
|%M0070  %M1753                                                 %M0586
+--| +-----|/+-------------------------------------------------------(SM)-  (* Product level, high (cleaning)   *)
|                                                                         Cross reference for AC74
|                                                                         -] [- 304,429
|                                                                         -]/[- 416
|                                                                         -(RM) 302
```


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```
¦ALM_RST  AC74                                                    AA74    << RUNG 304  STEP #1146 >>
¦%M0005  %M0586                                                  %M0714
+--¦ +-----¦ +-------------------------------------------------( )--  Cross reference for AA74
¦       ¦ 0302                                                        -] [- 302,304
¦ AA74  ¦                                                             -]/[- 429
¦%M0714 ¦
+--¦ +--+
¦ 0304
¦
¦ (*************************************************************************)
¦ (* Alarm 75: Emergency stop module                                       *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC75    << RUNG 306  STEP #1151 >>
¦%M0005                                                          %M0587
+--¦ +---------------------------------------------------------(RM)-  (* Emergency stop module           *)
¦             ¦                                                       Cross reference for AC75
¦ AA75   E_STOP ¦                                                     -] [- 308,409
¦%M0715  %I0018 ¦                                                     -]/[- 407
+--¦ +-----¦/+--+                                                     -(SM) 307
¦ 0308
¦
¦E_STOP                                                           AC75    << RUNG 307  STEP #1156 >>
¦%I0018                                                          %M0587
+--¦ +---------------------------------------------------------(SM)-  (* Emergency stop module           *)
¦                                                                       Cross reference for AC75
¦                                                                     -] [- 308,409
¦                                                                     -]/[- 407
¦                                                                     -(RM) 306
¦
¦ALM_RST  AC75                                                    AA75    << RUNG 308  STEP #1158 >>
¦%M0005  %M0587                                                  %M0715
+--¦ +-----¦ +-------------------------------------------------( )--  Cross reference for AA75
¦       ¦ 0306                                                        -] [- 306,308
¦ AA75  ¦                                                             -]/[- 409
¦%M0715 ¦
+--¦ +--+
¦ 0308
¦
¦ (*************************************************************************)
¦ (* Alarm 76: Safety monitors activated                                   *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC76    << RUNG 310  STEP #1163 >>
¦%M0005                                                          %M0588
+--¦ +---------------------------------------------------------(RM)-  (* Alarm door safety module        *)
¦             ¦                                                       Cross reference for AC76
¦ AA76   DOOR_SM¦                                                     -] [- 312,429
¦%M0716  %I0019 ¦                                                     -]/[- 416
+--¦ +-----¦/+--+                                                     -(SM) 311
¦ 0312
¦
¦E_STOP  DOOR_SM                                                  AC76    << RUNG 311  STEP #1168 >>
¦%I0018  %I0019  +-----+                                         %M0588
+--¦/+-----¦ +---¦ TMR +---------------------------------------(SM)-  (* Alarm door safety module        *)
¦             ¦0.10s¦                                                 Cross reference for AC76
¦             ¦     ¦                                                 -] [- 312,429
¦        CONST -¦PV   ¦                                               -]/[- 416
¦        +00005 ¦     ¦                                               -(RM) 310
¦               +-----+
¦               ACC159
¦               %R9474
¦
¦ALM_RST  AC76                                                    AA76    << RUNG 312  STEP #1172 >>
¦%M0005  %M0588                                                  %M0716
+--¦ +-----¦ +-------------------------------------------------( )--  Cross reference for AA76
¦       ¦ 0310                                                        -] [- 310,312
¦ AA76  ¦                                                             -]/[- 429
¦%M0716 ¦
+--¦ +--+
¦ 0312
¦
¦ (*************************************************************************)
¦ (* Alarm 77: Safety monitors activated (in Cleaning)                     *)
¦ (* Force down to step 10                                                 *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC77    << RUNG 314  STEP #1177 >>
¦%M0005                                                          %M0589
+--¦ +---------------------------------------------------------(RM)-  (* Safety monitors activated, clean *)
¦             ¦                                                       Cross reference for AC77
¦ AA77    B001- ¦                                                     -] [- 316,429
¦%M0717  %I0022 ¦                                                     -]/[- 417
+--¦ +-----¦ +--+                                                     -(SM) 315
¦ 0316
¦
```

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ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-07:01

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```
¦SS10_11  B001-                                                    AC77    << RUNG 315  STEP #1182 >>
¦%M0070  %I0022                                                   %M0589
+--¦ +-----¦/+-------------------------------------------------------(SM)-  (* Safety monitors activated, clean *)
¦                                                                          Cross reference for AC77
¦                                                                          -] [- 316,429
¦                                                                          -]/[- 417
¦                                                                          -(RM) 314
¦
¦ALM_RST  AC77                                                     AA77    << RUNG 316  STEP #1185 >>
¦%M0005  %M0589                                                   %M0717
+--¦ +-----¦ +-----------------------------------------------------( )--  Cross reference for AA77
¦       ¦ 0314                                                             -] [- 314,316
¦ AA77  ¦                                                                  -]/[- 429
¦%M0717 ¦
+--¦ +--+
¦ 0316
¦
¦ (*************************************************************************)
¦ (* Alarm 78: Spare                                                     *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                           AC78    << RUNG 318  STEP #1190 >>
¦%M0005                                                           %M0590
+--¦ +-------------------------------------------------------------(RM)-  (* Spare                              *)
¦                                                                          Cross reference for AC78
¦                                                                          -] [- 320
¦                                                                          -(SM) 319
¦
¦ALW_OFF                                                           AC78    << RUNG 319  STEP #1192 >>
¦%S0008                                                           %M0590
+--¦ +-------------------------------------------------------------(SM)-  (* Spare                              *)
¦                                                                          Cross reference for AC78
¦                                                                          -] [- 320
¦                                                                          -(RM) 318
¦
¦ALM_RST  AC78                                                     AA78    << RUNG 320  STEP #1194 >>
¦%M0005  %M0590                                                   %M0718
+--¦ +-----¦ +-----------------------------------------------------( )--  Cross reference for AA78
¦       ¦ 0318                                                             -] [- 320
¦ AA78  ¦
¦%M0718 ¦
+--¦ +--+
¦ 0320
¦
¦ (*************************************************************************)
¦ (* Alarm 79: Design mark not found in ASU splice                       *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                           AC79    << RUNG 322  STEP #1199 >>
¦%M0005                                                           %M0591
+--¦ +-------------------------------------------------------------(RM)-  (* ASU mark not found alarm          *)
¦                                                                          Cross reference for AC79
¦                                                                          -] [- 324,435,440
¦                                                                          -(SM) 323
¦
¦ASU4+6T                                                           AC79    << RUNG 323  STEP #1201 >>
¦%M2021                                                           %M0591
+--¦ +-------------------------------------------------------------(SM)-  (* ASU mark not found alarm          *)
¦                                                                          Cross reference for AC79
¦                                                                          -] [- 324,435,440
¦                                                                          -(RM) 322
¦
¦ALM_RST  AC79                                                     AA79    << RUNG 324  STEP #1203 >>
¦%M0005  %M0591                                                   %M0719
+--¦ +-----¦ +-----------------------------------------------------( )--  Cross reference for AA79
¦       ¦ 0322                                                             -] [- 324
¦ AA79  ¦                                                                  -]/[- 440
¦%M0719 ¦
+--¦ +--+
¦ 0324
¦
¦ (*************************************************************************)
¦ (* Alarm 80: Spare                                                     *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                           AC80    << RUNG 326  STEP #1208 >>
¦%M0005                                                           %M0592
+--¦ +-------------------------------------------------------------(RM)-  (* Spare                              *)
¦                                                                          Cross reference for AC80
¦                                                                          -] [- 328
¦                                                                          -(SM) 327
¦
¦ALW_OFF                                                           AC80    << RUNG 327  STEP #1210 >>
¦%S0008                                                           %M0592
+--¦ +-------------------------------------------------------------(SM)-  (* Spare                              *)
¦                                                                          Cross reference for AC80
¦                                                                          -] [- 328
¦                                                                          -(RM) 326
¦
```


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```
|ALM_RST  AC80                                                    AA80    << RUNG 328  STEP #1212 >>
|%M0005  %M0592                                                  %M0720
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA80
|       | 0326                                                          -] [- 328
| AA80  |
|%M0720 |
+--| +--+
| 0328
|
| (*************************************************************************)
| (* Alarm 81: Spare                                                      *)
| (*************************************************************************)
|
|ALM_RST                                                          AC81    << RUNG 330  STEP #1217 >>
|%M0005                                                          %M0593
+--| +-------------------------------------------------------------(RM)-  (* Spare                              *)
|                                                                         Cross reference for AC81
|                                                                         -] [- 332
|                                                                         -(SM) 331
|                                                                         FBIO  390,396
|
|ALW_OFF                                                          AC81    << RUNG 331  STEP #1219 >>
|%S0008                                                          %M0593
+--| +-------------------------------------------------------------(SM)-  (* Spare                              *)
|                                                                         Cross reference for AC81
|                                                                         -] [- 332
|                                                                         -(RM) 330
|                                                                         FBIO  390,396
|
|ALM_RST  AC81                                                    AA81    << RUNG 332  STEP #1221 >>
|%M0005  %M0593                                                  %M0721
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA81
|       | 0330                                                          -] [- 332
| AA81  |
|%M0721 |
+--| +--+
| 0332
|
| (*************************************************************************)
| (* Alarm 82: Spare                                                      *)
| (*************************************************************************)
|
|ALM_RST                                                          AC82    << RUNG 334  STEP #1226 >>
|%M0005                                                          %M0594
+--| +-------------------------------------------------------------(RM)-  (* Spare                              *)
|             |                                                           Cross reference for AC82
| AA82   ALW_OFF|                                                         -] [- 336
|%M0722  %S0008 |                                                         -(SM) 335
+--| +-----| +--+
| 0336
|
|ALW_OFF                                                          AC82    << RUNG 335  STEP #1231 >>
|%S0008                                                          %M0594
+--| +-------------------------------------------------------------(SM)-  (* Spare                              *)
|                                                                         Cross reference for AC82
|                                                                         -] [- 336
|                                                                         -(RM) 334
|
|ALM_RST  AC82                                                    AA82    << RUNG 336  STEP #1233 >>
|%M0005  %M0594                                                  %M0722
+--| +-----| +-------------------------------------------------( )--  Cross reference for AA82
|       | 0334                                                          -] [- 334,336
| AA82  |
|%M0722 |
+--| +--+
| 0336
|
| (*************************************************************************)
| (* Alarm 83: InkJet fault, red                                          *)
| (*************************************************************************)
|
|ALM_RST                                                          AC83    << RUNG 338  STEP #1238 >>
|%M0005                                                          %M0595
+--| +-------------------------------------------------------------(RM)-  (* Inkjet fault, red                  *)
|             |                                                           Cross reference for AC83
| AA83   INK_RE |                                                         -] [- 340,430
|%M0723  %I0038 |                                                         -]/[- 417
+--| +-----| +--|                                                         -(SM) 339
| 0340  |       |

|       |INKMODE|
|       |%M0932 |
|       +--|/+--+
|
|INKMODE INK_RE                                                   AC83    << RUNG 339  STEP #1245 >>
|%M0932  %I0038                                                  %M0595
+--| +-----|/+-------------------------------------------------------(SM)-  (* Inkjet fault, red                  *)
|                                                                         Cross reference for AC83
|                                                                         -] [- 340,430
|                                                                         -]/[- 417
|                                                                         -(RM) 338
|
```


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```
|ALM_RST  AC83                                                    AA83    << RUNG 340  STEP #1248 >>
|%M0005  %M0595                                                  %M0723
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA83
|       | 0338                                                            -] [- 338,340
| AA83  |                                                                 -]/[- 430
|%M0723 |
+--| +--+
| 0340
|
| (*************************************************************************)
| (* Alarm 84: LS strip reel 1, empty                                     *)
| (*************************************************************************)
|
|ALM_RST                                                          AC84    << RUNG 342  STEP #1253 >>
|%M0005                                                          %M0596
+--| +-------------------------------------------------------------(RM)-  (* LS strip reel 1, empty          *)
|          |                                                              Cross reference for AC84
| AA84    B131  |                                                         -] [- 344,436,441
|%M0724  %I0087 |                                                         -(SM) 343
+--| +-----|/+--+
| 0344
|
| B131                                                            AC84    << RUNG 343  STEP #1258 >>
|%I0087  +-----+                                                 %M0596
+--| +---| TMR +-------------------------------------------------------(SM)-  (* LS strip reel 1, empty          *)
|        |0.10s|                                                          Cross reference for AC84
|        |     |                                                          -] [- 344,436,441
| CONST -|PV   |                                                          -(RM) 342
| +00025 |     |
|        +-----+
|        ACC160
|        %R9477
|
|ALM_RST  AC84                                                    AA84    << RUNG 344  STEP #1261 >>
|%M0005  %M0596                                                  %M0724
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA84
|       | 0342                                                            -] [- 342,344
| AA84  |                                                                 -]/[- 441
|%M0724 |
+--| +--+
| 0344
|
| (*************************************************************************)
| (* Alarm 85: LS strip reel 2, empty                                     *)
| (*************************************************************************)
|
|ALM_RST                                                          AC85    << RUNG 346  STEP #1266 >>
|%M0005                                                          %M0597
+--| +-------------------------------------------------------------(RM)-  (* LS strip reel 2, empty          *)
|          |                                                              Cross reference for AC85
| AA85    B130  |                                                         -] [- 348,436,441
|%M0725  %I0086 |                                                         -(SM) 347
+--| +-----|/+--+
| 0348
|
| B130                                                            AC85    << RUNG 347  STEP #1271 >>
|%I0086  +-----+                                                 %M0597
+--| +---| TMR +-------------------------------------------------------(SM)-  (* LS strip reel 2, empty          *)
|        |0.10s|                                                          Cross reference for AC85
|        |     |                                                          -] [- 348,436,441
| CONST -|PV   |                                                          -(RM) 346
| +00025 |     |
|        +-----+
|        ACC161
|        %R9480
|
|ALM_RST  AC85                                                    AA85    << RUNG 348  STEP #1274 >>
|%M0005  %M0597                                                  %M0725
+--| +-----| +-------------------------------------------------------( )--  Cross reference for AA85
|       | 0346                                                            -] [- 346,348
| AA85  |                                                                 -]/[- 441
|%M0725 |
+--| +--+
| 0348
|
| (*************************************************************************)
| (* Alarm 86: Safety switch, sterile unit                                *)
| (*************************************************************************)
|
|ALM_RST                                                          AC86    << RUNG 350  STEP #1279 >>
|%M0005                                                          %M0598
+--| +-------------------------------------------------------------(RM)-  (* Safety switch, sterile unit     *)
|          |                                                              Cross reference for AC86
| AA86    B200- |                                                         -] [- 352,430
|%M0726  %I0026 |                                                         -]/[- 417
+--| +-----| +--+                                                         -(SM) 351
| 0352
|
```


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```
| SS0_9   B200-   S003                                                  AC86    << RUNG 351  STEP #1284 >>
|%M0065  %I0026  %I0075                                                %M0598
+--| +-----|/+-----| +-----------------------------------------------(SM)-  (* Safety switch, sterile unit      *)
|                                                                              Cross reference for AC86
|                                                                              -] [- 352,430
|                                                                              -]/[- 417
|                                                                              -(RM) 350
|
|ALM_RST  AC86                                                          AA86    << RUNG 352  STEP #1288 >>
|%M0005  %M0598                                                        %M0726
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA86
|       | 0350                                                                 -] [- 350,352
| AA86  |                                                                      -]/[- 430
|%M0726 |
+--| +--+
| 0352
|
| (*************************************************************************)
| (* Alarm 87: ASU design sensor missread                                  *)
| (* Sensor is on for 4 sec or off for 4 sec.                             *)
| (*************************************************************************)
|
|ALM_RST                                                                AC87    << RUNG 354  STEP #1293 >>
|%M0005                                                                %M0599
+--| +-----------------------------------------------------------------(RM)-  (* ASU design sensor misr. ind.     *)
|                                                                              Cross reference for AC87
|                                                                              -] [- 356,436,441
|                                                                              -(SM) 355
|
|ASU_SEN                                                                AC87    << RUNG 355  STEP #1295 >>
|%M0914                                                                %M0599
+--| +-----------------------------------------------------------------(SM)-  (* ASU design sensor misr. ind.     *)
|                                                                              Cross reference for AC87
|                                                                              -] [- 356,436,441
|                                                                              -(RM) 354
|
|ALM_RST  AC87                                                          AA87    << RUNG 356  STEP #1297 >>
|%M0005  %M0599                                                        %M0727
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA87
|       | 0354                                                                 -] [- 356
| AA87  |                                                                      -]/[- 441
|%M0727 |
+--| +--+
| 0356
|
| (*************************************************************************)
| (* Alarm 88: ASU design sensor missread                                  *)
| (* Force down to short stop                                             *)
| (*************************************************************************)
|
|ALM_RST                                                                AC88    << RUNG 358  STEP #1302 >>
|%M0005                                                                %M0600
+--| +-----------------------------------------------------------------(RM)-  (* ASU design sensor misr.short st. *)
|                                                                              Cross reference for AC88
|                                                                              -] [- 360,430
|                                                                              -]/[- 417
|                                                                              -(SM) 359
|
|ASU_SEN  Y110                                                          AC88    << RUNG 359  STEP #1304 >>
|%M0914  %Q0113                                                        %M0600
+--| +-----| +-----------------------------------------------------------(SM)-  (* ASU design sensor misr.short st. *)
|                                                                              Cross reference for AC88
|                                                                              -] [- 360,430
|                                                                              -]/[- 417
|                                                                              -(RM) 358
|
|ALM_RST  AC88                                                          AA88    << RUNG 360  STEP #1307 >>
|%M0005  %M0600                                                        %M0728
+--| +-----| +-----------------------------------------------------------( )--  Cross reference for AA88
|       | 0358                                                                 -] [- 360
| AA88  |                                                                      -]/[- 430
|%M0728 |
+--| +--+
| 0360
|
| (*************************************************************************)
| (* Alarm 89: Draining valve closed                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                AC89    << RUNG 362  STEP #1312 >>
|%M0005                                                                %M0601
+--| +-----------------------------------------------------------------(RM)-  (* Draining valve closed            *)
|                    |                                                         Cross reference for AC89
| AA89    B405       |                                                         -] [- 364,431
|%M0729  %I0054      |                                                         -]/[- 417
+--| +-----| +--------|                                                         -(SM) 363
| 0364  |            |
|       |CLEAN6   B405  |
|       |%M1510  %I0054 |
|       +--| +-----|/+--+
|
```


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```
¦CLEAN6   B405                                                    AC89    << RUNG 363  STEP #1321 >>
¦%M1510  %I0054                                                  %M0601
+--¦ +-----¦ +-------------------------------------------------------(SM)-  (* Draining valve closed           *)
¦                                                                          Cross reference for AC89
¦                                                                          -] [- 364,431
¦                                                                          -]/[- 417
¦                                                                          -(RM) 362
¦
¦ALM_RST  AC89                                                    AA89    << RUNG 364  STEP #1324 >>
¦%M0005  %M0601                                                  %M0729
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA89
¦       ¦ 0362                                                             -] [- 362,364
¦ AA89  ¦                                                                  -]/[- 431
¦%M0729 ¦
+--¦ +--+
¦ 0364
¦
¦ (*************************************************************************)
¦ (* Alarm 90: Draining valve open                                        *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC90    << RUNG 366  STEP #1329 >>
¦%M0005                                                          %M0602
+--¦ +-------------------------------------------------------------(RM)-  (* Draining valve open             *)
¦             ¦                                                            Cross reference for AC90
¦ AA90    B405  ¦                                                          -] [- 368,436,441
¦%M0730  %I0054 ¦                                                          -(SM) 367
+--¦ +-----¦ +--+
¦ 0368
¦
¦CLEAN6   B405                                                    AC90    << RUNG 367  STEP #1334 >>
¦%M1510  %I0054                                                  %M0602
+--¦/+-----¦/+-------------------------------------------------------(SM)-  (* Draining valve open             *)
¦                                                                          Cross reference for AC90
¦                                                                          -] [- 368,436,441
¦                                                                          -(RM) 366
¦
¦ALM_RST  AC90                                                    AA90    << RUNG 368  STEP #1337 >>
¦%M0005  %M0602                                                  %M0730
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA90
¦       ¦ 0366                                                             -] [- 366,368
¦ AA90  ¦                                                                  -]/[- 441
¦%M0730 ¦
+--¦ +--+
¦ 0368
¦
¦ (*************************************************************************)
¦ (* Alarm 91: Cleaning pipe / plug, wrong position                       *)
¦ (* Force down to SS10                                                   *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC91    << RUNG 370  STEP #1342 >>
¦%M0005                                                          %M0603
+--¦ +-------------------------------------------------------------(RM)-  (* Cleaning pipe/plug, wrong pos.  *)
¦             ¦                                                            Cross reference for AC91
¦ AA91    B317  ¦                                                          -] [- 372,431
¦%M0731  %I0053 ¦                                                          -]/[- 417
+--¦ +-----¦ +--+                                                          -(SM) 371
¦ 0372
¦
¦SS10_11  B317                                                    AC91    << RUNG 371  STEP #1347 >>
¦%M0070  %I0053                                                  %M0603
+--¦ +-----¦/+-------------------------------------------------------(SM)-  (* Cleaning pipe/plug, wrong pos.  *)
¦                                                                          Cross reference for AC91
¦                                                                          -] [- 372,431
¦                                                                          -]/[- 417
¦                                                                          -(RM) 370
¦
¦ALM_RST  AC91                                                    AA91    << RUNG 372  STEP #1350 >>
¦%M0005  %M0603                                                  %M0731
+--¦ +-----¦ +-------------------------------------------------------( )--  Cross reference for AA91
¦       ¦ 0370                                                             -] [- 370,372
¦ AA91  ¦                                                                  -]/[- 431
¦%M0731 ¦
+--¦ +--+
¦ 0372
¦
¦ (*************************************************************************)
¦ (* Alarm 92: Spare                                                     *)
¦ (*************************************************************************)
¦
¦ALM_RST                                                          AC92    << RUNG 374  STEP #1355 >>
¦%M0005                                                          %M0604
+--¦ +-------------------------------------------------------------(RM)-  (* Spare                           *)
¦             ¦                                                            Cross reference for AC92
¦ AA92   ALW_ON ¦                                                          -] [- 376
¦%M0732  %S0007 ¦                                                          -(SM) 375
+--¦ +-----¦ +--+
¦ 0376
¦
```


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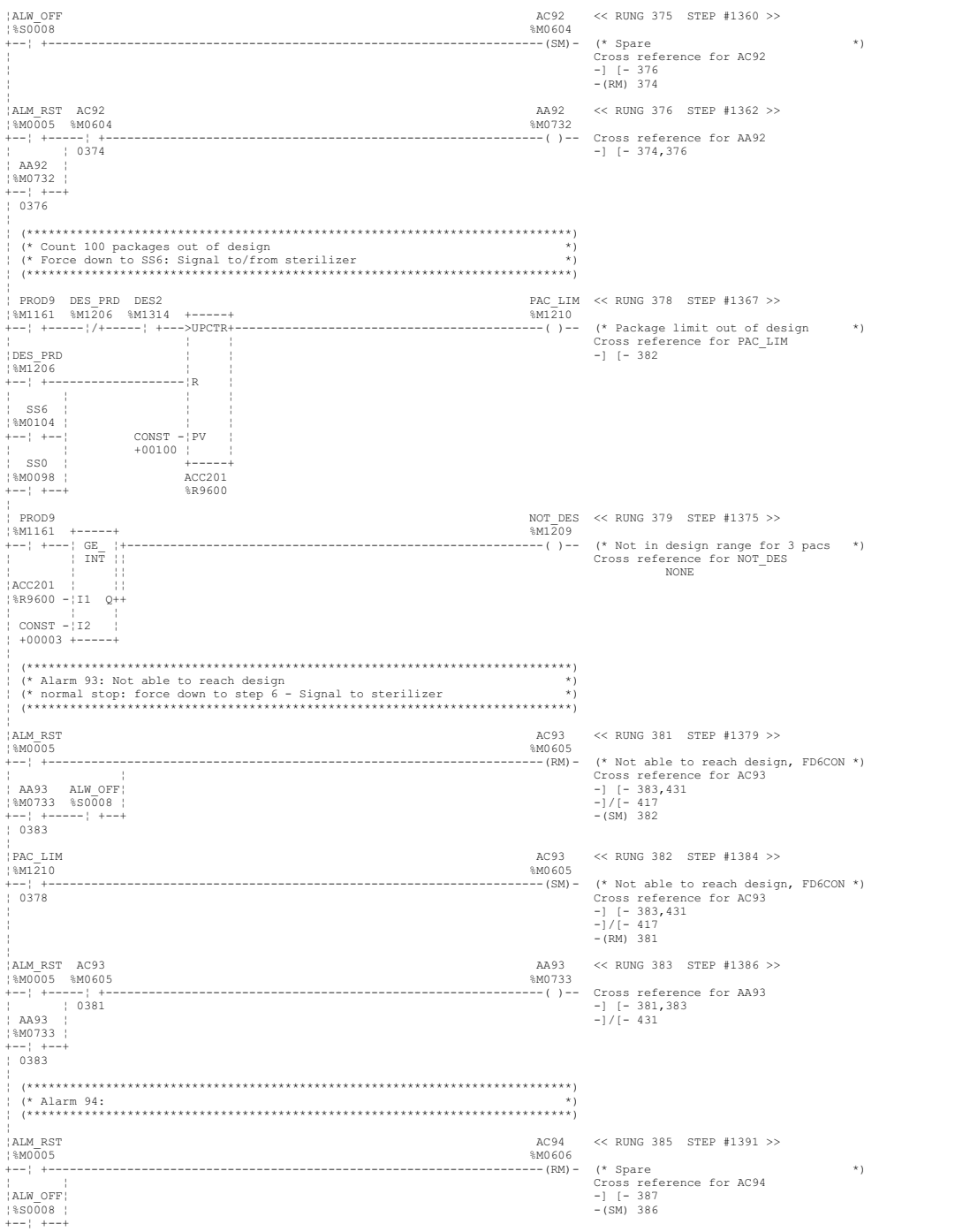

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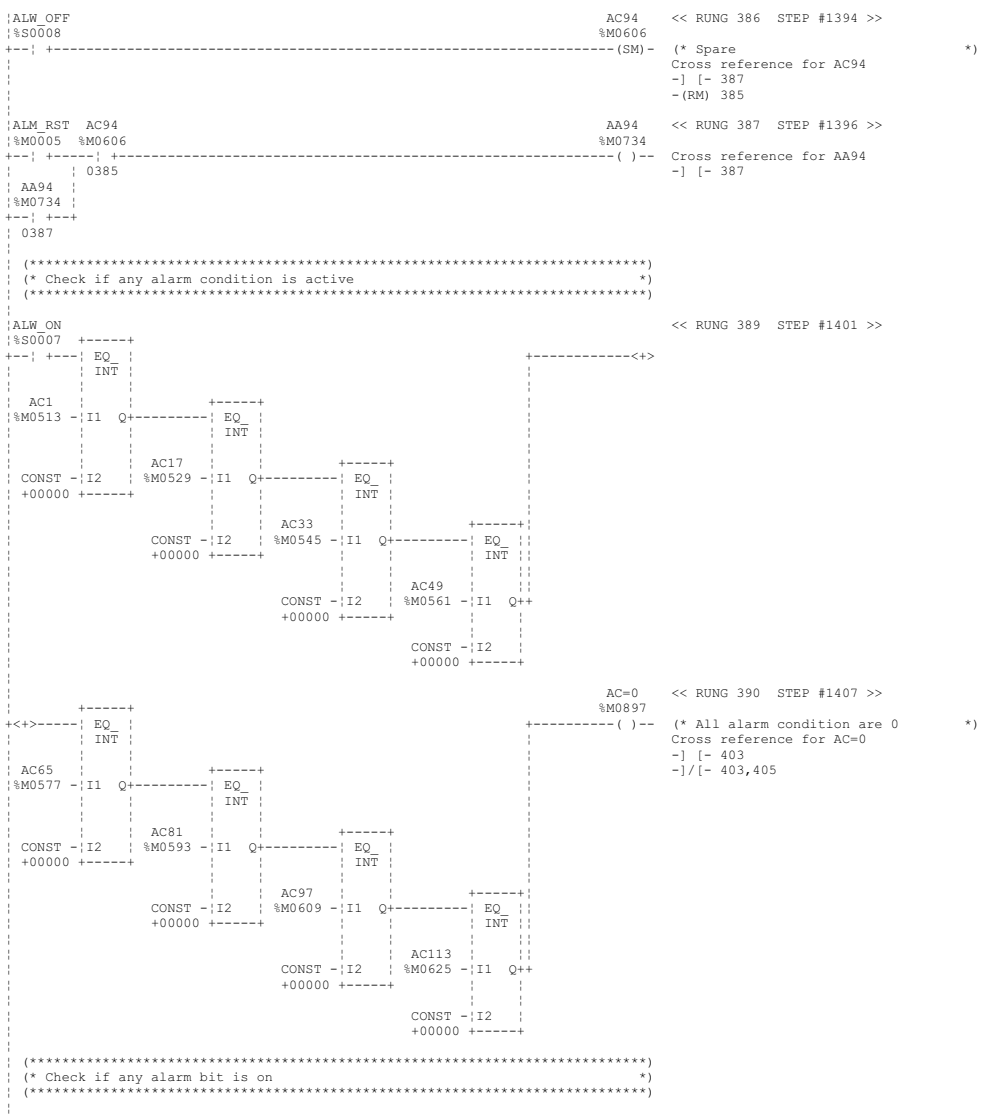
BLOCK 07 ALARM ADMINISTRATION

EM1.1TS700012.fm



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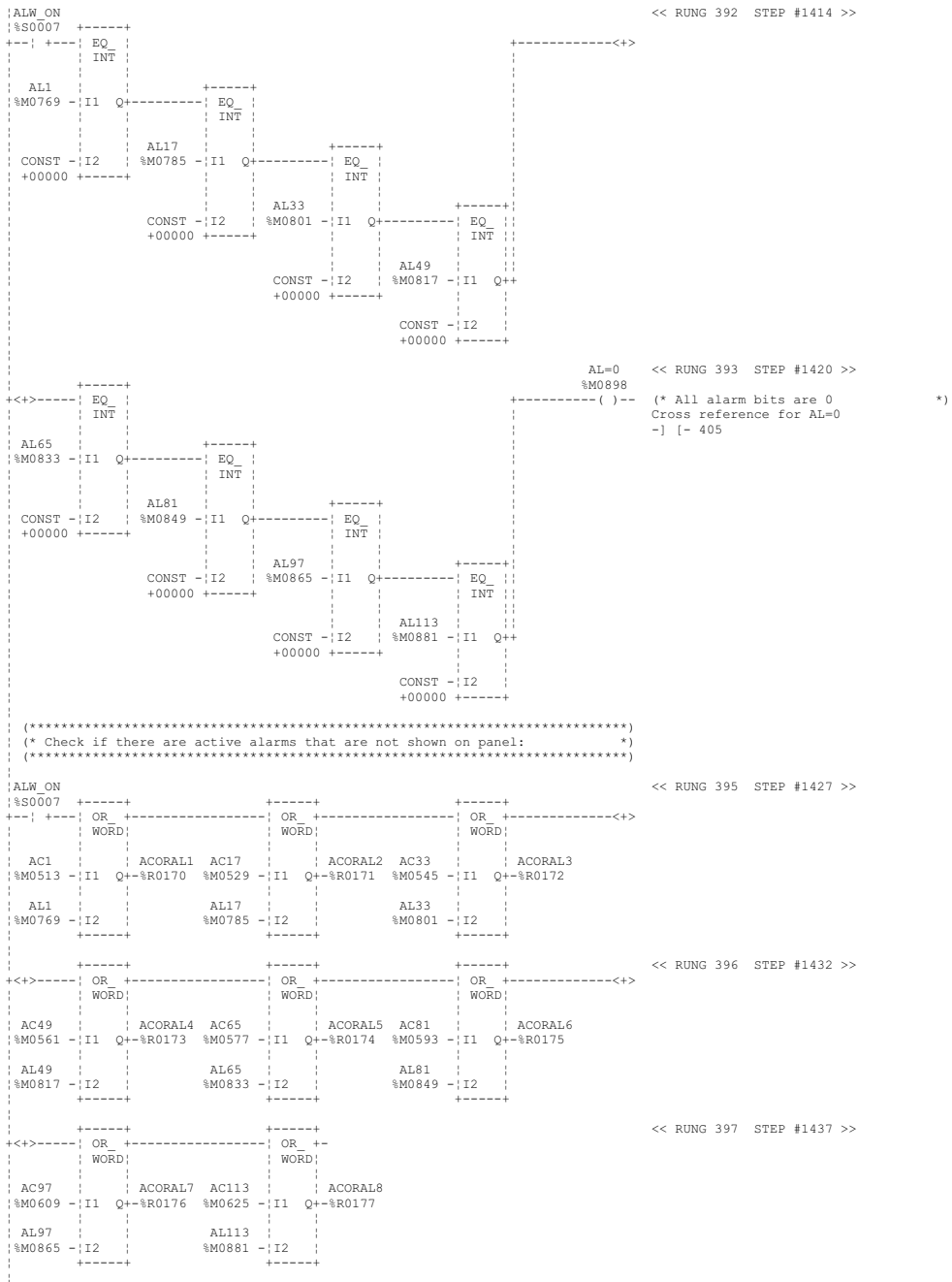

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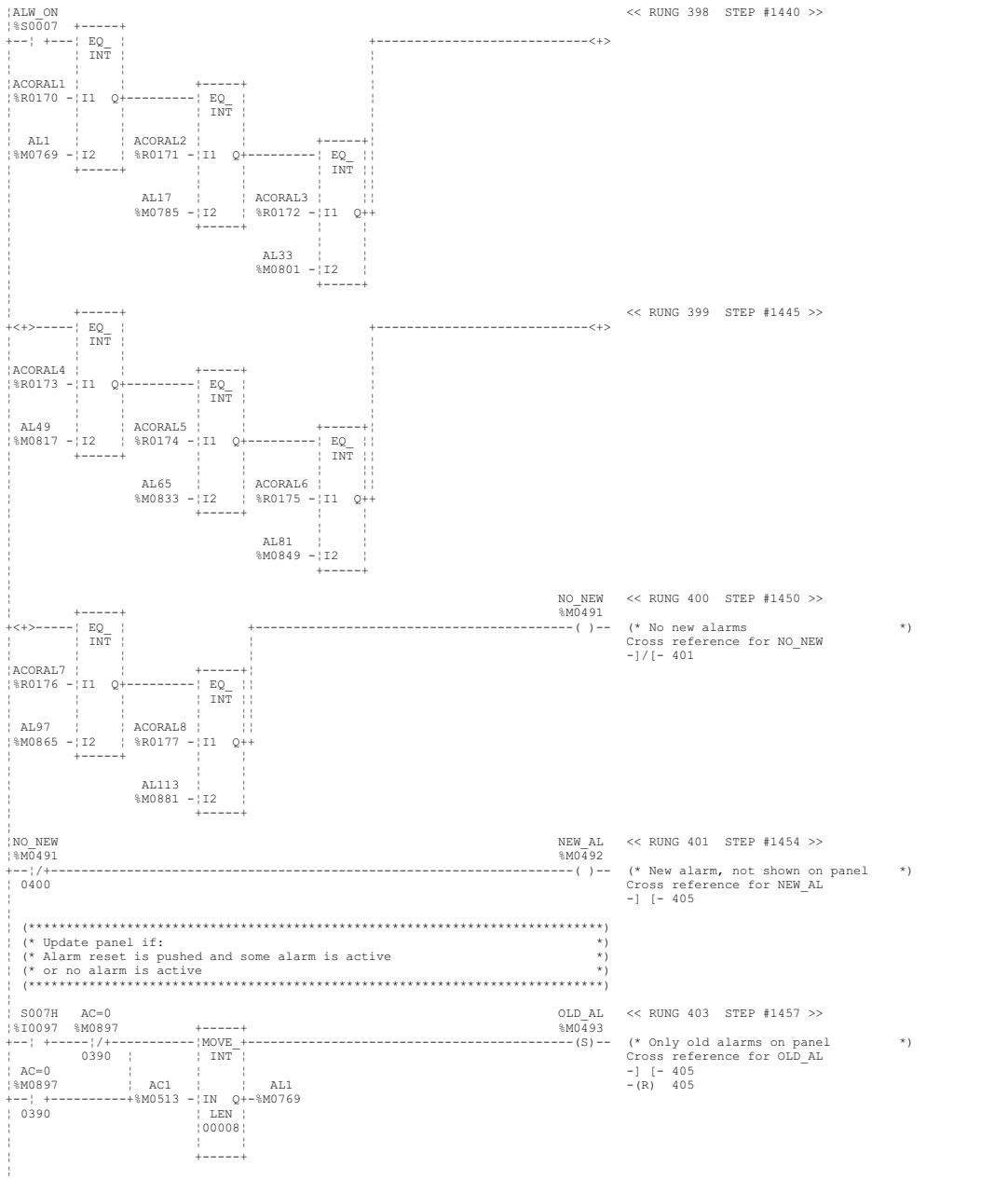

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```
| (*************************************************************************)
| (* Priority handling of alarms.                                          *)
| (*                                                                       *)
| (* The first alarm will be displayed and all other alarms will          *)
| (* have to wait until the first alarm has been cleared.                 *)
| (* If there are more alarms present when the first alarm is             *)
| (* cleared then all remaning alarms will be displaed at once.           *)
| (*                                                                       *)
| (* Update panel if:                                                     *)
| (* no alarms are shown and an alarm occure                             *)
| (* or all old alarms are acknowledged and a new alarm occure.          *)
| (* After updated panel no new alarms are shown                         *)
| (*************************************************************************)
|
| AL=0    AC=0                                                    OLD_AL   << RUNG 405  STEP #1463 >>
|%M0898  %M0897          +-----+                                  %M0493
+--| +-----|/+----------|MOVE_+-----------------------------------------(R)--  (* Only old alarms on panel         *)
| 0393    0390  |        | INT |                                             Cross reference for OLD_AL
|NEW_AL  OLD_AL |        |     |                                             -] [- 405
|%M0492  %M0493 |  AC1   |     |   AL1                                       -(S)  403
+--| +-----| +--+%M0513 -|IN  Q+-%M0769
| 0401    0403          | LEN |
|                       |00008|
|                       |     |
|                       +-----+
|
| (*************************************************************************)
| (* Decoding of alarms for the "Christmas tree"                           *)
| (*                                                                       *)
| (* Red alarms                                                            *)
| (*************************************************************************)
|
| AC59    AC60    AC75                                            AL_RED   << RUNG 407  STEP #1471 >>
|%M0571  %M0572  %M0587                                           %M0901
+--|/+-----|/+-----|/+-----------------------------------------------(/)--  (* Red alarm present               *)
| 0239    0243    0306                                                    Cross reference for AL_RED
|                                                                         -] [- 443
|                                                                         -]/[- 445,447
|
| (*************************************************************************)
| (* Flashing red alarms                                                   *)
| (*************************************************************************)
|
| AC59    AA59                                                    AL_REDF  << RUNG 409  STEP #1476 >>
|%M0571  %M0699                                                   %M0902
+--| +-----|/+-----------------------------------------------------( )--  (* Red flashing alarm present       *)
| 0239    0241  |                                                         Cross reference for AL_REDF
| AC60    AA60  |                                                         -]/[- 443
|%M0572  %M0700 |
+--| +-----|/+--|
| 0243    0245  |
| AC75    AA75  |
|%M0587  %M0715 |
+--| +-----|/+--+
| 0306    0308
|
| (*************************************************************************)
| (* Yellow alarm                                                          *)
| (*************************************************************************)
|
|  AC1     AC3     AC4     AC5     AC6     AC8     AC9    AC10    AC12            << RUNG 411  STEP #1486 >>
|%M0513  %M0515  %M0516  %M0517  %M0518  %M0520  %M0521  %M0522  %M0524
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------<+>
| 0006    0014    0018    0022    0026    0034    0039    0043    0047
|
|         AC14    AC15    AC16    AC17    AC18    AC19    AC20    AC21            << RUNG 412  STEP #1496 >>
|        %M0526  %M0527  %M0528  %M0529  %M0530  %M0531  %M0532  %M0533
+<+>-------|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------<+>
|         0055    0060    0064    0068    0072    0076    0081    0085
|
|         AC23    AC24    AC27    AC28    AC29    AC30    AC32                    << RUNG 413  STEP #1506 >>
|        %M0535  %M0536  %M0539  %M0540  %M0541  %M0542  %M0544
+<+>-------|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+---------------<+>
|         0093    0097    0109    0113    0117    0121    0129
|
|         AC33    AC34    AC38    AC42    AC44    AC46    AC47    AC50            << RUNG 414  STEP #1515 >>
|        %M0545  %M0546  %M0550  %M0554  %M0556  %M0558  %M0559  %M0562
+<+>-------|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------<+>
|         0133    0137    0153    0169    0178    0187    0191    0203
|
|         AC53    AC54    AC55    AC56    AC57    AC58    AC61    AC62            << RUNG 415  STEP #1525 >>
|        %M0565  %M0566  %M0567  %M0568  %M0569  %M0570  %M0573  %M0574
+<+>-------|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------<+>
|         0215    0219    0223    0227    0231    0235    0247    0251
|
|         AC63    AC64    AC66    AC68    AC70    AC72    AC74    AC76            << RUNG 416  STEP #1535 >>
|        %M0575  %M0576  %M0578  %M0580  %M0582  %M0584  %M0586  %M0588
+<+>-------|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------<+>
|         0255    0260    0268    0278    0286    0294    0302    0310
|
```


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```
|         AC77    AC83    AC86    AC88    AC89    AC91    AC93                    << RUNG 417  STEP #1545 >>
|        %M0589  %M0595  %M0598  %M0600  %M0601  %M0603  %M0605
+<+>------¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+---------------<+>
|         0314    0338    0350    0358    0362    0370    0381
|
|                                                                  AL_YEL   << RUNG 418  STEP #1554 >>
|                                                                  %M0903
+<+>-------------------------------------------------------------------(/)--  (* Yellow alarm present             *)
|                                                                             Cross reference for AL_YEL
|                                                                             -] [- 445
|                                                                             -]/[- 447
|
| (*************************************************************************)
| (* Yellow alarm flashing                                                 *)
| (*************************************************************************)
|
|  AC1     AA1                                                                << RUNG 420  STEP #1557 >>
|%M0513  %M0641
+--¦ +-----¦/+-------------------------------------------------------------<+>
| 0006    0008  |
|  AC3     AA3  |
|%M0515  %M0643 |
+--¦ +-----¦/+--¦
| 0014    0016  |
|  AC4     AA4  |
|%M0516  %M0644 |
+--¦ +-----¦/+--¦
| 0018    0020  |
|  AC5     AA5  |
|%M0517  %M0645 |
+--¦ +-----¦/+--¦
| 0022    0024  |
|  AC6     AA6  |
|%M0518  %M0646 |
+--¦ +-----¦/+--¦
| 0026    0028  |
|  AC8     AA8  |
|%M0520  %M0648 |
+--¦ +-----¦/+--¦
| 0034    0037  |
|  AC9     AA9  |
|%M0521  %M0649 |
+--¦ +-----¦/+--+
| 0039    0041
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 421  STEP #1578 >>
|                |
| AC10    AA10  |
|%M0522  %M0650 |
+--¦ +-----¦/+--¦
| 0043    0045  |
| AC12    AA12  |
|%M0524  %M0652 |
+--¦ +-----¦/+--¦
| 0047    0049  |
| AC14    AA14  |
|%M0526  %M0654 |
+--¦ +-----¦/+--¦
| 0055    0058  |
| AC15    AA15  |
|%M0527  %M0655 |
+--¦ +-----¦/+--¦
| 0060    0062  |
| AC16    AA16  |
|%M0528  %M0656 |
+--¦ +-----¦/+--+
| 0064    0066
|
```


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```
+<+>-------------------------------------------------------------------------<+>  << RUNG 422  STEP #1595 >>
|                  |
| AC17    AA17  |
|%M0529  %M0657 |
+--| +-----|/+--|
| 0068    0070  |
| AC18    AA18  |
|%M0530  %M0658 |
+--| +-----|/+--|
| 0072    0074  |
| AC19    AA19  |
|%M0531  %M0659 |
+--| +-----|/+--|
| 0076    0078  |
| AC20    AA20  |
|%M0532  %M0660 |
+--| +-----|/+--|
| 0081    0083  |
| AC21    AA21  |
|%M0533  %M0661 |
+--| +-----|/+--|
| 0085    0087  |
| AC23    AA23  |
|%M0535  %M0663 |
+--| +-----|/+--+
| 0093    0095
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 423  STEP #1615 >>
|                  |
| AC24    AA24  |
|%M0536  %M0664 |
+--| +-----|/+--|
| 0097    0099  |
| AC27    AA27  |
|%M0539  %M0667 |
+--| +-----|/+--|
| 0109    0111  |
| AC28    AA28  |
|%M0540  %M0668 |
+--| +-----|/+--|
| 0113    0115  |
| AC29    AA29  |
|%M0541  %M0669 |
+--| +-----|/+--|
| 0117    0119  |
| AC30    AA30  |
|%M0542  %M0670 |
+--| +-----|/+--+
| 0121    0123
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 424  STEP #1632 >>
|                  |
| AC32    AA32  |
|%M0544  %M0672 |
+--| +-----|/+--|
| 0129    0131  |
| AC33    AA33  |
|%M0545  %M0673 |
+--| +-----|/+--|
| 0133    0135  |
| AC34    AA34  |
|%M0546  %M0674 |
+--| +-----|/+--+
| 0137    0139
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 425  STEP #1643 >>
|                  |
| AC38    AA38  |
|%M0550  %M0678 |
+--| +-----|/+--|
| 0153    0155  |
| AC42    AA42  |
|%M0554  %M0682 |
+--| +-----|/+--|
| 0169    0172  |
| AC44    AA44  |
|%M0556  %M0684 |
+--| +-----|/+--+
| 0178    0181
|
```


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```
+<+>-------------------------------------------------------------------------<+>  << RUNG 426  STEP #1654 >>
|                  |
| AC46    AA46     |
|%M0558  %M0686    |
+--| +-----|/+--|
| 0187    0189     |
| AC47    AA47     |
|%M0559  %M0687    |
+--| +-----|/+--|
| 0191    0193     |
| AC50    AA50     |
|%M0562  %M0690    |
+--| +-----|/+--+
| 0203    0205
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 427  STEP #1665 >>
|                  |
| AC53    AA53     |
|%M0565  %M0693    |
+--| +-----|/+--|
| 0215    0217     |
| AC54    AA54     |
|%M0566  %M0694    |
+--| +-----|/+--|
| 0219    0221     |
| AC55    AA55     |
|%M0567  %M0695    |
+--| +-----|/+--|
| 0223    0225     |
| AC56    AA56     |
|%M0568  %M0696    |
+--| +-----|/+--|
| 0227    0229     |
| AC57    AA57     |
|%M0569  %M0697    |
+--| +-----|/+--|
| 0231    0233     |
| AC58    AA58     |
|%M0570  %M0698    |
+--| +-----|/+--+
| 0235    0237
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 428  STEP #1685 >>
|                  |
| AC61    AA61     |
|%M0573  %M0701    |
+--| +-----|/+--|
| 0247    0249     |
| AC62    AA62     |
|%M0574  %M0702    |
+--| +-----|/+--|
| 0251    0253     |
| AC63    AA63     |
|%M0575  %M0703    |
+--| +-----|/+--|
| 0255    0258     |
| AC64    AA64     |
|%M0576  %M0704    |
+--| +-----|/+--|
| 0260    0262     |
| AC66    AA66     |
|%M0578  %M0706    |
+--| +-----|/+--+
| 0268    0272
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 429  STEP #1702 >>
|                  |
| AC68    AA68     |
|%M0580  %M0708    |
+--| +-----|/+--|
| 0278    0280     |
| AC70    AA70     |
|%M0582  %M0710    |
+--| +-----|/+--|
| 0286    0288     |
| AC72    AA72     |
|%M0584  %M0712    |
+--| +-----|/+--|
| 0294    0296     |
| AC74    AA74     |
|%M0586  %M0714    |
+--| +-----|/+--|
| 0302    0304     |
| AC76    AA76     |
|%M0588  %M0716    |
+--| +-----|/+--|
| 0310    0312     |
| AC77    AA77     |
|%M0589  %M0717    |
+--| +-----|/+--+
| 0314    0316
```


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```
+<+>-------------------------------------------------------------------------<+>  << RUNG 430  STEP #1722 >>
|                 |
| AC83    AA83  |
|%M0595  %M0723 |
+--| +-----|/+--|
| 0338    0340  |
| AC86    AA86  |
|%M0598  %M0726 |
+--| +-----|/+--|
| 0350    0352  |
| AC88    AA88  |
|%M0600  %M0728 |
+--| +-----|/+--+
| 0358    0360
|
|                                                                 AL_YELF  << RUNG 431  STEP #1733 >>
|                                                                 %M0904
+<+>-------------------------------------------------------------------( )--  (* Yellow flashing alarm           *)
|                 |                                                         Cross reference for AL_YELF
| AC89    AA89  |                                                         -]/[- 445
|%M0601  %M0729 |
+--| +-----|/+--|
| 0362    0364  |
| AC91    AA91  |
|%M0603  %M0731 |
+--| +-----|/+--|
| 0370    0372  |
| AC93    AA93  |
|%M0605  %M0733 |
+--| +-----|/+--+
| 0381    0383
|
| (*************************************************************************)
| (* Blue alarms                                                           *)
| (*************************************************************************)
|
|  AC2                                                                      << RUNG 433  STEP #1745 >>
|%M0514
+--| +-------------------------------------------------------------------<+>
| 0010  |
|  AC7  |
|%M0519 |
+--| +--|
| 0030  |
| AC10  |
|%M0522 |
+--| +--|
| 0043  |
| AC13  |
|%M0525 |
+--| +--|
| 0051  |
| AC22  |
|%M0534 |
+--| +--+
| 0089
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 434  STEP #1751 >>
|       |
| AC35  |
|%M0547 |
+--| +--|
| 0141  |
| AC36  |
|%M0548 |
+--| +--|
| 0145  |
| AC39  |
|%M0551 |
+--| +--|
| 0157  |
| AC41  |
|%M0553 |
+--| +--+
| 0162
|
```


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```
+<+>-------------------------------------------------------------------------<+>  << RUNG 435  STEP #1757 >>
|      |
| AC45 |
|%M0557|
+--| +--+
| 0183 |
| AC51 |
|%M0563|
+--| +--+
| 0207 |
| AC52 |
|%M0564|
+--| +--+
| 0211 |
| AC69 |
|%M0581|
+--| +--+
| 0282 |
| AC73 |
|%M0585|
+--| +--+
| 0298 |
| AC79 |
|%M0591|
+--| +--+
| 0322
|
|                                                                 AL_BLU   << RUNG 436  STEP #1765 >>
|                                                                 %M0905
+<+>-------------------------------------------------------------------( )--  (* Blue alarm present              *)
|      |                                                                    Cross reference for AL_BLU
| AC84 |                                                                    -] [- 447
|%M0596|
+--| +--+
| 0342 |
| AC85 |
|%M0597|
+--| +--+
| 0346 |
| AC87 |
|%M0599|
+--| +--+
| 0354 |
| AC90 |
|%M0602|
+--| +--+
| 0366
|
| (*************************************************************************)
| (* Blue flashing alarms.                                                 *)
| (*************************************************************************)
|
|  AC2    AA2                                                                 << RUNG 438  STEP #1772 >>
|%M0514 %M0642
+--| +----|/+-------------------------------------------------------------<+>
| 0010   0012 |
|  AC7    AA7 |
|%M0519 %M0647|
+--| +----|/+--+
| 0030   0032 |
| AC10   AA10 |
|%M0522 %M0650|
+--| +----|/+--+
| 0043   0045 |
| AC13   AA13 |
|%M0525 %M0653|
+--| +----|/+--+
| 0051   0053 |
| AC22   AA22 |
|%M0534 %M0662|
+--| +----|/+--+
| 0089   0091
|
+<+>-------------------------------------------------------------------------<+>  << RUNG 439  STEP #1787 >>
|      |
| AC35   AA35 |
|%M0547 %M0675|
+--| +----|/+--+
| 0141   0143 |
| AC36   AA36 |
|%M0548 %M0676|
+--| +----|/+--+
| 0145   0147 |
| AC39   AA39 |
|%M0551 %M0679|
+--| +----|/+--+
| 0157   0160 |
| AC41   AA41 |
|%M0553 %M0681|
+--| +----|/+--+
| 0162   0165
```


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```
+<+>-------------------------------------------------------------------------<+>  << RUNG 440  STEP #1801 >>
|                 |
| AC45    AA45    |
|%M0557  %M0685   |
+--| +-----|/+--|
| 0183    0185    |
| AC51    AA51    |
|%M0563  %M0691   |
+--| +-----|/+--|
| 0207    0209    |
| AC52    AA52    |
|%M0564  %M0692   |
+--| +-----|/+--|
| 0211    0213    |
| AC69    AA69    |
|%M0581  %M0709   |
+--| +-----|/+--|
| 0282    0284    |
| AC73    AA73    |
|%M0585  %M0713   |
+--| +-----|/+--|
| 0298    0300    |
| AC79    AA79    |
|%M0591  %M0719   |
+--| +-----|/+---+
| 0322    0324
|
|                                                                  AL_BLUF  << RUNG 441  STEP #1821 >>
|                                                                  %M0906
+<+>-------------------------------------------------------------------( )--  (* Blue flashing alarm present      *)
|                 |                                                          Cross reference for AL_BLUF
| AC84    AA84    |                                                          -]/[- 447
|%M0596  %M0724   |
+--| +-----|/+--|
| 0342    0344    |
| AC85    AA85    |
|%M0597  %M0725   |
+--| +-----|/+--|
| 0346    0348    |
| AC87    AA87    |
|%M0599  %M0727   |
+--| +-----|/+--|
| 0354    0356    |
| AC90    AA90    |
|%M0602  %M0730   |
+--| +-----|/+---+
| 0366    0368
|
| (*************************************************************************)
| (* Alarm lamps, only the highest priority color will show.               *)
| (* Red alarm lamp (Beacon)                                               *)
| (*************************************************************************)
|
|AL_RED  AL_REDF                                                   H411+5   << RUNG 443  STEP #1836 >>
|%M0901  %M0902                                                    %Q0058
+--| +-----|/+-----------------------------------------------------------( )--  (* Alarm lamp - red                 *)
| 0407  | 0409  |                                                          Cross reference for H411+5
|       | T_SEC |                                                                    NONE
|       |%S0005 |
|       +--| +--|
|                |
| LMP3           |
|%M1939          |
+--| +----------+
|
| (*************************************************************************)
| (* Yellow alarm lamp (Beacon)                                            *)
| (*************************************************************************)
|
|AL_YEL  AL_YELF AL_RED                                            H412+6   << RUNG 445  STEP #1843 >>
|%M0903  %M0904  %M0901                                            %Q0059
+--| +-----|/+-----|/+-------------------------------------------------( )--  (* Alarm lamp - yellow              *)
| 0418  | 0431  | 0407  |                                                  Cross reference for H412+6
|       | T_SEC |       |                                                            NONE
|       |%S0005 |       |
|       +--| +--+       |
|                       |
| LMP4                  |
|%M1940                 |
+--| +------------------+
|
| (*************************************************************************)
| (* Blue alarm lamp (Beacon)                                              *)
| (*************************************************************************)
|
```


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```
|AL_BLU  AL_BLUF AL_RED  AL_YEL                                          H413+7   << RUNG 447  STEP #1851 >>
|%M0905  %M0906  %M0901  %M0903                                          %Q0060
+--| +-----|/+-----|/+-----|/+----------------------------------------( )--  (* Alarm lamp - blue               *)
| 0436  | 0441  | 0407    0418  |                                          Cross reference for H413+7
|       | T_SEC |               |                                                   NONE
|       |%S0005 |               |
|       +--| +--+               |
|                               |
| LMP5                          |
|%M1941                         |
+--| +--------------------------+
|
| (*************************************************************************)
| (* Alarm reset scanner function.                                         *)
| (* Generates numbers 1,2,3...127,128,1,2,3...                            *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 449  STEP #1860 >>
|%S0007  +-----+                 +-----+
+--| +---| ADD_+-----------------| GT_ |
|         | INT |                 | INT |
|         |     |                 |     |
| AL_NO   |     |  AL_NO   AL_NO  |     |         +-----+
|%R0210 -|I1  Q+-%R0210  %R0210 -|I1  Q+---------|MOVE_+-
|         |     |                 |     |         | INT |
|         |     |                 |     |         |     |
|         |     |                 |     |         |     |  AL_NO
| CONST -|I2   |           CONST -|I2   |  CONST -|IN  Q+-%R0210
| +00001 +-----+           +00128 +-----+  +00001 | LEN |
|                                                  |00001|
|                                                  |     |
|                                                  +-----+
|
| (*************************************************************************)
| (* Check the status of the alarm condition bit and the alarm display bit.  *)
| (* The length of 8 is 8*16 = 128 bits.                                    *)
| (*************************************************************************)
|
|ALW_ON                                                          TAC=1     << RUNG 451  STEP #1865 >>
|%S0007  +-----+                                                 %M0908
+--| +---| BIT_|+-------------------------------------------------------( )--  (* This alarm condition is 1       *)
|         |TEST_||                                                          Cross reference for TAC=1
|         | WORD||                                                          -]/[- 454
|  AC1    |     ||
|%M0513 -|IN  Q++
|         | LEN |
|         |00008|
| AL_NO   |     |
|%R0210 -|BIT  |
|         +-----+
|
|ALW_ON                                                          TAL=1     << RUNG 452  STEP #1868 >>
|%S0007  +-----+                                                 %M0909
+--| +---| BIT_|+-------------------------------------------------------( )--  (* This alarm display bit is 1     *)
|         |TEST_||                                                          Cross reference for TAL=1
|         | WORD||                                                          -] [- 454
|  AL1    |     ||
|%M0769 -|IN  Q++
|         | LEN |
|         |00008|
| AL_NO   |     |
|%R0210 -|BIT  |
|         +-----+
|
| (*************************************************************************)
| (* If the alarm condition is off and the alarm display bit is still on    *)
| (* the alarm display bit (AL) is cleared.                                 *)
| (*************************************************************************)
|
| TAC=1   TAL=1                                                            << RUNG 454  STEP #1872 >>
|%M0908  %M0909  +-----+
+--|/+-----| +---| BIT_+-
| 0451    0452   | CLR_|
|                | WORD|
|          AL1   |     |
|        %M0769 -|IN   |
|                | LEN |
|                |00008|
|         AL_NO  |     |
|        %R0210 -|BIT  |
|                +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


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```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Encoder revolution reduction. Operation required to prevent           *)
 (* Overflow in fast scan calculations of adjusted encoder position.      *)
 (*                                                                       *)
 (* C5 Constant value is found in comments in Fast scan.                  *)
 (*                                                                       *)
 (*************************************************************************)

ALW_ON                                                          << RUNG 5  STEP #0003 >>
%S0007          +-----+
+--+ +----------+ GT_ |
                 | DINT|
                 |     |
         TURN    |     |                 +-----+
        %R0118 -+I1  Q+-----------------+ SUB_+-
                 |     |                 | DINT|
                 |     |                 |     |
          C5     |     |          TURN   |     |  TURN
        %R0110 -+I2   |         %R0118 -+I1  Q+-%R0118
                 +-----+                 |     |
                                         |     |
                                   C5    |     |
                                 %R0110 -+I2   |
                                         +-----+

[    END OF SUBROUTINE LOGIC     ]
```

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```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Multiplexed outputs. Please use flashbits sync. to mux scan.          *)
 (* %M124 and %M126 (fast and slow flash)                                 *)
 (*                                                                       *)
 (* There is no need for lamptest on individual multiplexed outputs.      *)
 (* This is done for all multiplexed outputs by the mux.program.          *)
 (*************************************************************************)

Z102_3                                                          H1     << RUNG 5  STEP #0003 >>
%I0031                                                        %M0161
+--|/+-------------------------------------------------------( )--  (* Surge voltage protection         *)
                                                                     Cross reference for H1
                                                                              NONE

 S004                                                           H2     << RUNG 6  STEP #0005 >>
%I0076                                                        %M0162
+--| +-------------------------------------------------------( )--  (* Final cleaning                   *)
                                                                     Cross reference for H2
                                                                              NONE

 (*************************************************************************)
 (* LED H3: Service key indication,                                       *)
 (* Direct connection of input to indication.                             *)
 (*************************************************************************)

 S003                                                           H3     << RUNG 8  STEP #0008 >>
%I0075                                                        %M0163
+--| +-------------------------------------------------------( )--  (* Service switch ON                *)
                                                                     Cross reference for H3
                                                                              NONE

 (*************************************************************************)
 (* LED H4: PLC fault, forced signal or low battery or PLMS alarm         *)
 (*************************************************************************)

OVR_PRE                                                         H4     << RUNG 10  STEP #0011 >>
%S0011                                                        %M0164
+--| +-------------------------------------------------------( )--  (* PLC fault                        *)
       |       |                                                     Cross reference for H4
LOW_BAT|       |                                                              NONE
%SA011 |       |
+--| +--+       |
                |
 AL36    AA36   |
%M0804  %M0676 |
+--| +-----| +--|
       |       |
       |OI_FLSH|
       |%M0124 |
       +--| +--+

 AL83    AA83                                                   H5     << RUNG 11  STEP #0019 >>
%M0851  %M0723                                                %M0165
+--| +-----| +-------------------------------------------------( )--  (* Inkjet fault                      *)
       |       |                                                     Cross reference for H5
       |OI_FLSH|                                                              NONE
       |%M0124 |
       +--| +--|
                |
 AL73    AA73   |
%M0841  %M0713 |
+--| +-----| +--|
       |       |
       |OI_FLSH|
       |%M0124 |
       +--| +--+

 AL63    AA63                                                   H8     << RUNG 12  STEP #0029 >>
%M0831  %M0703                                                %M0168
+--| +-----| +-------------------------------------------------( )--  (* Main air pressure               *)
       |       |                                                     Cross reference for H8
       |OI_FLSH|                                                              NONE
       |%M0124 |
       +--| +--+

 AL56    AA56                                                   H10    << RUNG 13  STEP #0034 >>
%M0824  %M0696                                                %M0170
+--| +-----| +-------------------------------------------------( )--  (* Overload                        *)
       |       |                                                     Cross reference for H10
       |OI_FLSH|                                                              NONE
       |%M0124 |
       +--| +--+
```


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```
| AL68    AA68                                                          H11    << RUNG 14  STEP #0039 >>
|%M0836  %M0708                                                      %M0171
+--| +-----| +-------------------------------------------------------( )--  (* Index sensor missread           *)
|       |      |                                                             Cross reference for H11
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL52    AA53                                                          H12    << RUNG 15  STEP #0044 >>
|%M0820  %M0693                                                      %M0172
+--| +-----| +-------------------------------------------------------( )--  (* Central lubrication, low level  *)
|       |      |                                                             Cross reference for H12
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--|
|          |    |
| AL53    AA53  |
|%M0821  %M0693 |
+--| +-----| +--|
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL50    AA50                                                          H13    << RUNG 16  STEP #0054 >>
|%M0818  %M0690                                                      %M0173
+--| +-----| +-------------------------------------------------------( )--  (* Central lubrication, pressure   *)
|       |      |                                                             Cross reference for H13
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--|
|          |    |
| AL51    AA51  |
|%M0819  %M0691 |
+--| +-----| +--|
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |    |
| AL54    AA54  |
|%M0822  %M0694 |
+--| +-----| +--|
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|HY_BLED                                                               H14    << RUNG 17  STEP #0069 >>
|%M1627                                                              %M0174
+--| +-------------------------------------------------------------------( )--  (* Hydraulic switch               *)
|                                                                             Cross reference for H14
|                                                                                    NONE
|
| AL59    AA59                                                          H15    << RUNG 18  STEP #0071 >>
|%M0827  %M0699                                                      %M0175
+--| +-----| +-------------------------------------------------------( )--  (* Emergency stops activated       *)
|       |      |                                                             Cross reference for H15
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--|
|          |    |
| AL60    AA60  |
|%M0828  %M0700 |
+--| +-----| +--|
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |    |
| AL75    AA70  |
|%M0843  %M0710 |
+--| +-----| +--|
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|ASU_SM                                                                H16    << RUNG 19  STEP #0086 >>
|%I0020                                                              %M0176
+--| +-------------------------------------------------------------------( )--  (* Safety monitors activated,infeed *)
|                                                                             Cross reference for H16
|                                                                                    NONE
|
```


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```
| AL57    AA57                                                          H18    << RUNG 20  STEP #0088 >>
|%M0825  %M0697                                                      %M0178
+--| +-----| +-------------------------------------------------------( )--  (* Safety monitors activated, ster. *)
|       |     |                                                              Cross reference for H18
|       |OI_FLSH|                                                                NONE
|       |%M0124 |
|       +--| +--|
|          |
| AL55    AA55  |
|%M0823  %M0695 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |
| AL86    AA86  |
|%M0854  %M0726 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL61    AA61                                                          << RUNG 21  STEP #0103 >>
|%M0829  %M0701
+--| +-----| +-------------------------------------------------------------<+>
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |
| AL62    AA62  |
|%M0830  %M0702 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |
| AL58    AA58  |
|%M0826  %M0698 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |
| AL77    AA77  |
|%M0845  %M0717 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|                                                                       H19    << RUNG 22  STEP #0123 >>
|                                                                     %M0179
+<+>-------------------------------------------------------------------( )--  (* Safety monitors activated,main b *)
|                                                                              Cross reference for H19
| AL76    AA76  |                                                                    NONE
|%M0844  %M0716 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|  AL1     AA1                                                          H24    << RUNG 23  STEP #0130 >>
|%M0769  %M0641                                                      %M0292
+--| +-----| +-------------------------------------------------------( )--  (* Packaging material, supply       *)
|       |     |                                                              Cross reference for H24
|       |OI_FLSH|                                                                NONE
|       |%M0124 |
|       +--| +--|
|          |
|  AL2     AA2  |
|%M0770  %M0642 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|  AL9     AA9                                                          H25    << RUNG 24  STEP #0140 >>
|%M0777  %M0649                                                      %M0293
+--| +-----| +-------------------------------------------------------( )--  (* Packaging material, web broken   *)
|       |     |                                                              Cross reference for H25
|       |OI_FLSH|                                                                NONE
|       |%M0124 |
|       +--| +--+
```

TCA/P1
BLOCK 09 INDICATIONS ON OPERATOR PANEL

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```
| AL35    AA35                                                          H26    << RUNG 25  STEP #0145 >>
|%M0803  %M0675                                                      %M0294
+--| +-----| +-------------------------------------------------------( )--  (* Web splice, cover open           *)
|       |     |                                                              Cross reference for H26
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL87    AA87                                                          H27    << RUNG 26  STEP #0150 >>
|%M0855  %M0727                                                      %M0295
+--| +-----| +-------------------------------------------------------( )--  (* Web splice des.sensor, wrong pos *)
|       |     |                                                              Cross reference for H27
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL88    AA88  |
|%M0856  %M0728 |
+--| +-----| +--+
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|          |
| AL79    AA79  |
|%M0847  %M0719 |
+--| +-----| +--+
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|  AL7     AA7                                                          H28    << RUNG 27  STEP #0165 >>
|%M0775  %M0647                                                      %M0296
+--| +-----| +-------------------------------------------------------( )--  (* Free loop motor, infeed          *)
|       |     |                                                              Cross reference for H28
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
|  AL4     AA4                                                          H29    << RUNG 28  STEP #0170 >>
|%M0772  %M0644                                                      %M0297
+--| +-----| +-------------------------------------------------------( )--  (* Free loop infeed, high position  *)
|       |     |                                                              Cross reference for H29
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL85    AA85                                                          H31    << RUNG 29  STEP #0175 >>
|%M0853  %M0725                                                      %M0299
+--| +-----| +-------------------------------------------------------( )--  (* LS strip reel 2, empty           *)
|       |     |                                                              Cross reference for H31
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL84    AA84                                                          H32    << RUNG 30  STEP #0180 >>
|%M0852  %M0724                                                      %M0300
+--| +-----| +-------------------------------------------------------( )--  (* LS strip reel 1, empty           *)
|       |     |                                                              Cross reference for H32
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
|  AL6     AA6                                                          H33    << RUNG 31  STEP #0185 >>
|%M0774  %M0646                                                      %M0301
+--| +-----| +-------------------------------------------------------( )--  (* LS strip, broken                *)
|       |     |                                                              Cross reference for H33
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
|  AL8     AA8                                                          H34    << RUNG 32  STEP #0190 >>
|%M0776  %M0648                                                      %M0302
+--| +-----| +-------------------------------------------------------( )--  (* SA element, low temperature      *)
|       |     |                                                              Cross reference for H34
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL17    AA17                                                          H38    << RUNG 33  STEP #0195 >>
|%M0785  %M0657                                                      %M0305
+--| +-----| +-------------------------------------------------------( )--  (* Squee-gee rollers                *)
|       |     |                                                              Cross reference for H38
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
```


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```
| AL14    AA14                                                    H39    << RUNG 34  STEP #0200 >>
|%M0782  %M0654                                                 %M0306
+--| +-----| +-------------------------------------------------------( )--  (* Peroxide bath, low level         *)
|       |     |                                                          Cross reference for H39
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL64    AA64                                                    H40    << RUNG 35  STEP #0205 >>
|%M0832  %M0704                                                 %M0307
+--| +-----| +-------------------------------------------------------( )--  (* Peroxide bath, high level        *)
|       |     |                                                          Cross reference for H40
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--|
|          |    |
| AL16    AA16  |
|%M0784  %M0656 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL18    AA18                                                    H41    << RUNG 36  STEP #0215 >>
|%M0786  %M0658                                                 %M0308
+--| +-----| +-------------------------------------------------------( )--  (* Heating chamber, low power       *)
|       |     |                                                          Cross reference for H41
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL19    AA19                                                    H42    << RUNG 37  STEP #0220 >>
|%M0787  %M0659                                                 %M0257
+--| +-----| +-------------------------------------------------------( )--  (* Heating chamber, low temperature *)
|       |     |                                                          Cross reference for H42
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL10    AA10                                                    H43    << RUNG 38  STEP #0225 >>
|%M0778  %M0650                                                 %M0258
+--| +-----| +-------------------------------------------------------( )--  (* Web tension motor fault          *)
|       |     |                                                          Cross reference for H43
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL66    AA66                                                    H46    << RUNG 39  STEP #0230 >>
|%M0834  %M0706                                                 %M0261
+--| +-----| +-------------------------------------------------------( )--  (* Upper bending roller             *)
|       |     |                                                          Cross reference for H46
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL20    AA20                                                    H47    << RUNG 40  STEP #0235 >>
|%M0788  %M0660                                                 %M0262
+--| +-----| +-------------------------------------------------------( )--  (* Design sensor missread           *)
|       |     |                                                          Cross reference for H47
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL41    AA41                                                    H51    << RUNG 41  STEP #0240 >>
|%M0809  %M0681                                                 %M0265
+--| +-----| +-------------------------------------------------------( )--  (* LS element, low temperature      *)
|       |     |                                                          Cross reference for H51
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--|
|          |    |
| AL42    AA42  |
|%M0810  %M0682 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
```


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```
| AL44    AA44                                                          H52    << RUNG 42  STEP #0250 >>
|%M0812  %M0684                                                      %M0266
+--| +-----| +-------------------------------------------------------( )--  (* Product level, high             *)
|       |      |                                                             Cross reference for H52
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL74    AA74  |
|%M0842  %M0714 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL45    AA45                                                          H53    << RUNG 43  STEP #0260 >>
|%M0813  %M0685                                                      %M0267
+--| +-----| +-------------------------------------------------------( )--  (* Product level, low              *)
|       |      |                                                             Cross reference for H53
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL46    AA46  |
|%M0814  %M0686 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL47    AA47                                                          H54    << RUNG 44  STEP #0270 >>
|%M0815  %M0687                                                      %M0268
+--| +-----| +-------------------------------------------------------( )--  (* Fault in IH units transv. seal.  *)
|       |      |                                                             Cross reference for H54
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL93    AA93                                                          H56    << RUNG 45  STEP #0275 >>
|%M0861  %M0733                                                      %M0270
+--| +-----| +-------------------------------------------------------( )--  (* Design, wrong position           *)
|       |      |                                                             Cross reference for H56
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL29    AA29                                                          H62    << RUNG 46  STEP #0280 >>
|%M0797  %M0669                                                      %M0275
+--| +-----| +-------------------------------------------------------( )--  (* Prod. or clean. pipe, wrong pos. *)
|       |      |                                                             Cross reference for H62
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL30    AA30  |
|%M0798  %M0670 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL70    AA70                                                          H63    << RUNG 47  STEP #0290 >>
|%M0838  %M0710                                                      %M0276
+--| +-----| +-------------------------------------------------------( )--  (* C-valve, wrong position          *)
|       |      |                                                             Cross reference for H63
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL32    AA32                                                          H64    << RUNG 48  STEP #0295 >>
|%M0800  %M0672                                                      %M0193
+--| +-----| +-------------------------------------------------------( )--  (* Regulating valve, wrong position *)
|       |      |                                                             Cross reference for H64
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL33    AA33  |
|%M0801  %M0673 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
```


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```
| AL12    AA12                                                    H65    << RUNG 49  STEP #0305 >>
|%M0780  %M0652                                                 %M0194
+--| +-----| +-------------------------------------------------------( )--  (* Regulating valve, membr. broken  *)
|       |     |                                                          Cross reference for H65
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--|
|          |
| AL13    AA13  |
|%M0781  %M0653 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL21    AA21                                                    H66    << RUNG 50  STEP #0315 >>
|%M0789  %M0661                                                 %M0195
+--| +-----| +-------------------------------------------------------( )--  (* Steam, low temperature           *)
|       |     |                                                          Cross reference for H66
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--|
|          |
| AL22    AA22  |
|%M0790  %M0662 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--|
|          |
| AL23    AA23  |
|%M0791  %M0663 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL72    AA72                                                    H67    << RUNG 51  STEP #0330 >>
|%M0840  %M0712                                                 %M0196
+--| +-----| +-------------------------------------------------------( )--  (* A-valve, wrong position          *)
|       |     |                                                          Cross reference for H67
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL34    AA34                                                    H68    << RUNG 52  STEP #0335 >>
|%M0802  %M0674                                                 %M0197
+--| +-----| +-------------------------------------------------------( )--  (* B-valve, wrong position          *)
|       |     |                                                          Cross reference for H68
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
| AL27    AA27                                                    H69    << RUNG 53  STEP #0340 >>
|%M0795  %M0667                                                 %M0198
+--| +-----| +-------------------------------------------------------( )--  (* Air or cleaning pipe, wrong pos. *)
|       |     |                                                          Cross reference for H69
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--|
|          |
| AL28    AA28  |
|%M0796  %M0668 |
+--| +-----| +--|
|       |     |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL91    AA91                                                    H72    << RUNG 54  STEP #0350 >>
|%M0859  %M0731                                                 %M0200
+--| +-----| +-------------------------------------------------------( )--  (* Cleaning pipe or plug, wrong pos *)
|       |     |                                                          Cross reference for H72
|       |OI_FLSH|                                                              NONE
|       |%M0124 |
|       +--| +--+
|
```


EM1.1TS700012.fm

```
| AL89    AA89                                                          H73    << RUNG 55  STEP #0355 >>
|%M0857  %M0729                                                       %M0201
+--| +-----| +-------------------------------------------------------( )--  (* Draining valve, open             *)
|       |      |                                                              Cross reference for H73
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL90    AA90  |
|%M0858  %M0730 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
| AL26    AA26                                                          H74    << RUNG 56  STEP #0365 >>
|%M0794  %M0666                                                       %M0202
+--| +-----| +-------------------------------------------------------( )--  (* Heat exchanger, low temperature  *)
|       |      |                                                              Cross reference for H74
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL24    AA24                                                          H75    << RUNG 57  STEP #0370 >>
|%M0792  %M0664                                                       %M0203
+--| +-----| +-------------------------------------------------------( )--  (* Sterile air, low pressure        *)
|       |      |                                                              Cross reference for H75
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
| AL38    AA38                                                          H76    << RUNG 58  STEP #0375 >>
|%M0806  %M0678                                                       %M0204
+--| +-----| +-------------------------------------------------------( )--  (* Air super heater, low temp.      *)
|       |      |                                                              Cross reference for H76
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|          |
| AL39    AA39  |
|%M0807  %M0679 |
+--| +-----| +--+
|       |      |
|       |OI_FLSH|
|       |%M0124 |
|       +--| +--+
|
|  AL5     AA5                                                          H77    << RUNG 59  STEP #0385 >>
|%M0773  %M0645                                                       %M0205
+--| +-----| +-------------------------------------------------------( )--  (* Spray container, high level      *)
|       |      |                                                              Cross reference for H77
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
|  AL3     AA3                                                          H78    << RUNG 60  STEP #0390 >>
|%M0771  %M0643                                                       %M0206
+--| +-----| +-------------------------------------------------------( )--  (* Spray container, low level       *)
|       |      |                                                              Cross reference for H78
|       |OI_FLSH|                                                                    NONE
|       |%M0124 |
|       +--| +--+
|
|  SS0   SU1CON  OI_FLSH                                               H88    << RUNG 61  STEP #0395 >>
|%M0098  %M0034  %M0124                                               %M0225
+--| +-----| +-----| +-------------------------------------------------( )--  (* Preparation                      *)
|                    |                                                         Cross reference for H88
|  SS1               |                                                               NONE
|%M0099              |
+--| +----------------+
|
|  SS1   SU2CON  OI_SFLS                                               H89    << RUNG 62  STEP #0400 >>
|%M0099  %M0035  %M0126                                               %M0226
+--| +-----| +-----| +-------------------------------------------------( )--  (* Pre heating                      *)
|                    |                                                         Cross reference for H89
|  SS2               |                                                               NONE
|%M0100              |
+--| +----------------+
|
|  SS3                                                                 H90    << RUNG 63  STEP #0405 >>
|%M0101                                                               %M0227
+--| +-------------------------------------------------------------------( )--  (* Tube sealing                     *)
|                    |                                                         Cross reference for H90
|  SS2   SU3CON  OI_SFLS|                                                              NONE
|%M0100  %M0036  %M0126 |
+--| +-----| +-----| +--+
|
```


EM1.1TS700012.fm

```
|  SS4                                                                  H91    << RUNG 64  STEP #0411 >>
|%M0102                                                               %M0228
+--| +-------------------------------------------------------------------( )--  (* Pre heating of filling system    *)
|                    |                                                         Cross reference for H91
|  SS3   SU4CON  OI_SFLS|                                                          NONE
|%M0101  %M0037  %M0126 |
+--| +-----| +-----| +--+
|
|  SS5   SPRAY9  SPRAY10 SPRAY11                                        H92    << RUNG 65  STEP #0417 >>
|%M0103  %M1065  %M1066  %M1067                                       %M0229
+--| +-----|/+-----|/+-----|/+-----------------------------------------( )--  (* Spraying                         *)
|                                                                             Cross reference for H92
|                                                                                      NONE
|
|  SS5   SPRAY9                                                         H93    << RUNG 66  STEP #0422 >>
|%M0103  %M1065                                                       %M0230
+--| +-----| +-------------------------------------------------------------( )--  (* Drying                           *)
|       |       |                                                             Cross reference for H93
|       |SPRAY10|                                                                      NONE
|       |%M1066 |
|       +--| +--|
|       |       |
|       |SPRAY11|
|       |%M1067 |
|       +--| +--+
|
|  SS5   SU6CON  OI_SFLS                                                H94    << RUNG 67  STEP #0428 >>
|%M0103  %M0039  %M0126                                               %M0231
+--| +-----| +-----| +-----------------------------------------------------( )--  (* Signal to/from sterilizer        *)
|       |       |       |                                                     Cross reference for H94
|  SS2  |       |       |                                                              NONE
|%M0100 |       |       |
+--| +--+       |       |
|               |       |
|  SS9    FIN4  |       |
|%M0107  %M1444 |       |
+--| +-----| +--+       |
|                       |
|  SS6                  |
|%M0104                 |
+--| +-----------------+
|
|  SS6   SU7CON  OI_SFLS                                                H95    << RUNG 68  STEP #0437 >>
|%M0104  %M0040  %M0126                                               %M0232
+--| +-----| +-----| +-----------------------------------------------------( )--  (* Drive motor on                    *)
|                    |                                                        Cross reference for H95
|  SS7               |                                                                 NONE
|%M0105              |
+--| +-----------------+
|
|PROD16                                                                 H96    << RUNG 69  STEP #0442 >>
|%M1168                                                               %M0233
+--| +-------------------------------------------------------------------( )--  (* Short stop                      *)
|       |                                                                     Cross reference for H96
|PROD17 |                                                                     -] [- 70
|%M1169 |                                                                     -]/[- 70
+--| +--|
|       |
|PROD18 |
|%M1170 |
+--| +--+
|
|  SS7   SU8CON  OI_SFLS                                                H97    << RUNG 70  STEP #0446 >>
|%M0105  %M0041  %M0126                                               %M0234
+--| +-----| +-----| +-----------------------------------------------------( )--  (* Production                      *)
|                |      |                                                     Cross reference for H97
|  H96   SSTOCON|       |                                                              NONE
|%M0233  %M1192 |       |
+--| +-----|/+--+       |
| 0069                  |
|  SS8     H96          |
|%M0106  %M0233         |
+--| +-----|/+----------+
|         0069
|
|  SS9                                                                  H98    << RUNG 71  STEP #0456 >>
|%M0107                                                               %M0235
+--| +-------------------------------------------------------------------( )--  (* Production finished            *)
|                                                                             Cross reference for H98
|                                                                                      NONE
|
|  SS9    FIN4   OI_SFLS                                                H99    << RUNG 72  STEP #0458 >>
|%M0107  %M1444  %M0126                                               %M0236
+--| +-----| +-----| +-----------------------------------------------------( )--  (* Preparation for cleaning        *)
|                    |                                                        Cross reference for H99
| SS10               |                                                                 NONE
|%M0108              |
+--| +-----------------+
|
```

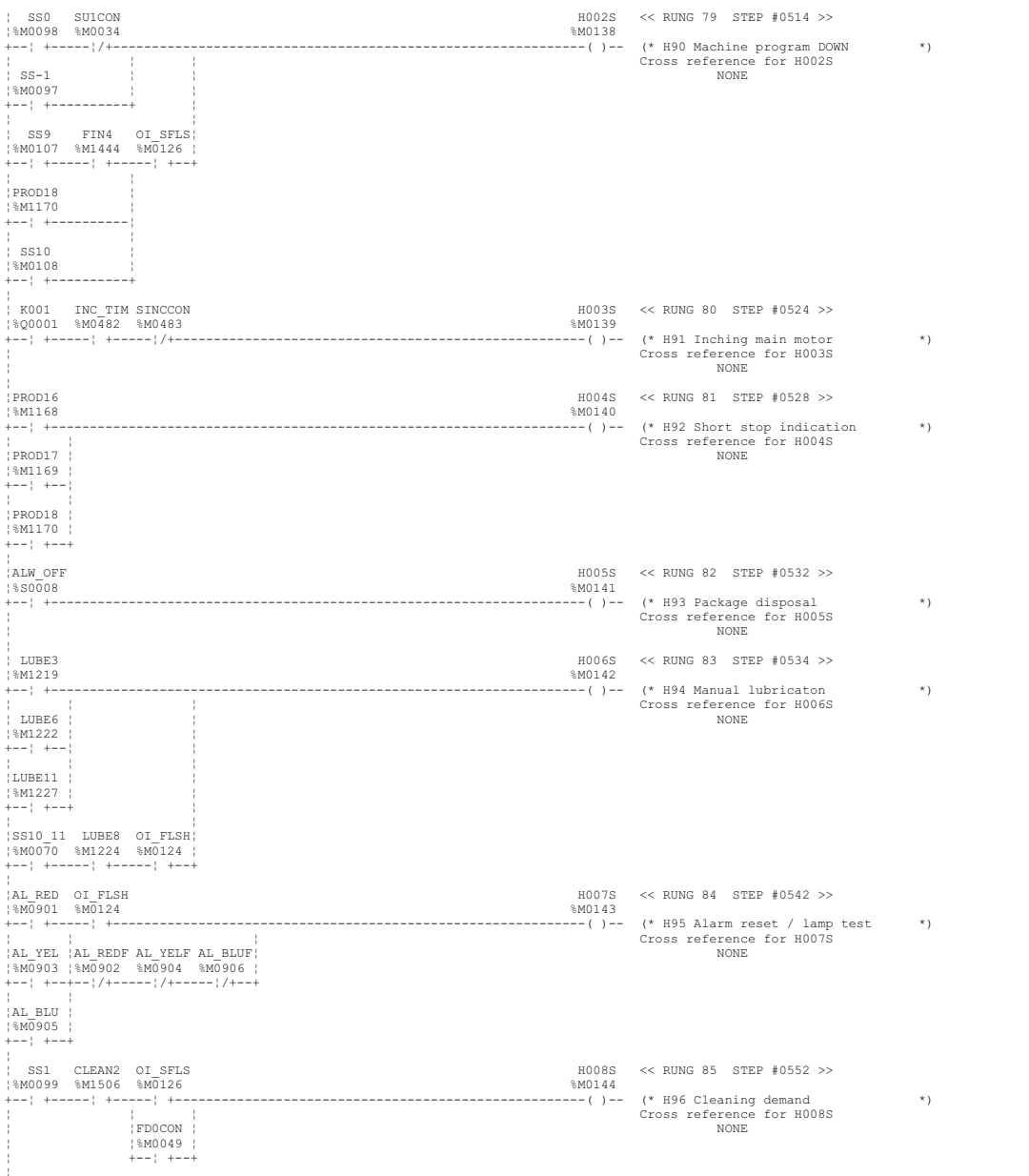
TCA/P1
BLOCK 09 INDICATIONS ON OPERATOR PANEL

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-09:01

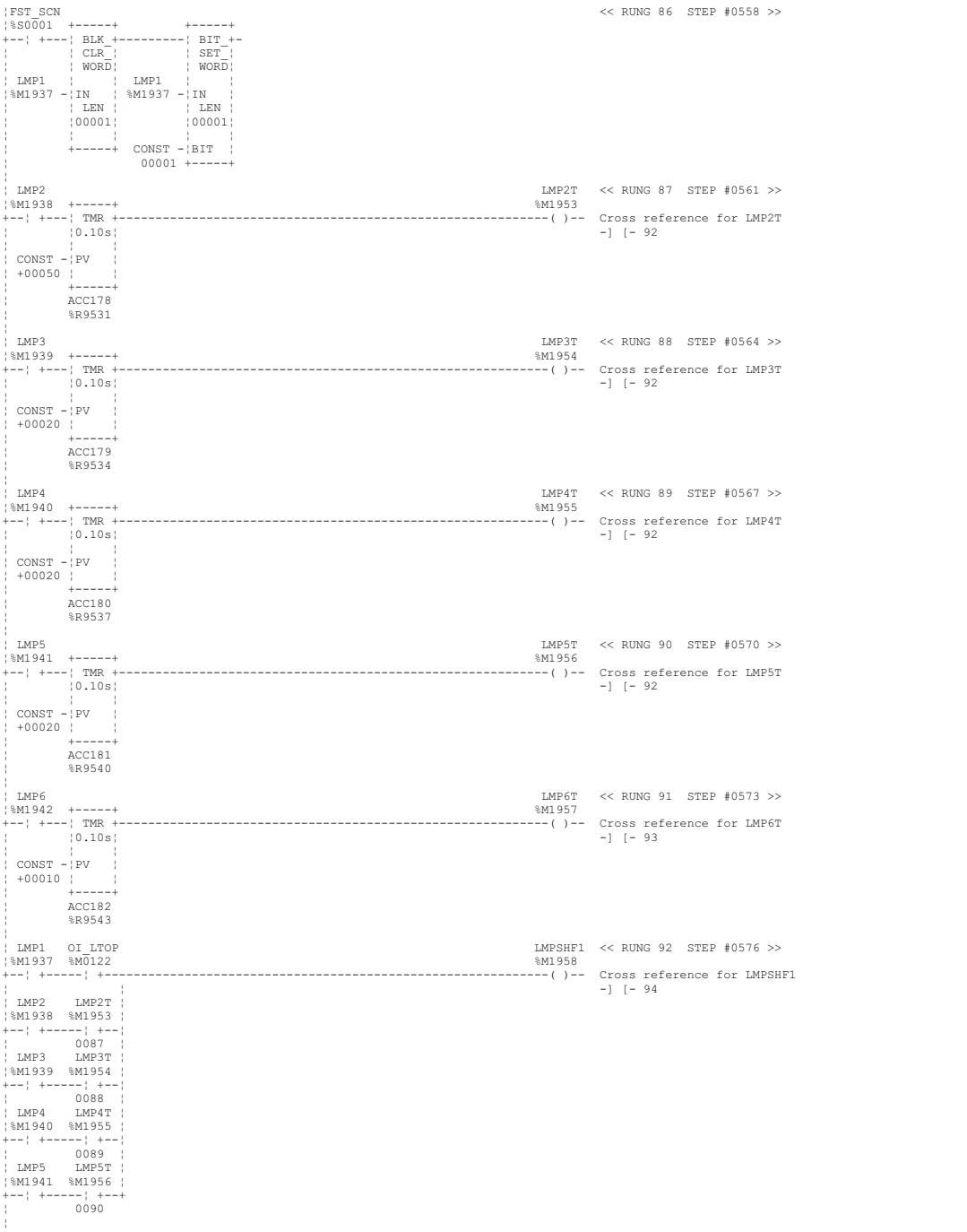
EM1.1TS700012.fm

```
| SS10   SU11CON OI_SFLS                                          H100    << RUNG 73  STEP #0463 >>
|%M0108  %M0044  %M0126                                          %M0237
+--| +-----| +-----| +-----------------------------------------( )--  (* Cleaning                        *)
|                  |                                                    Cross reference for H100
| SS11             |                                                              NONE
|%M0109            |
+--| +-----------------+
|
|  CAL   OI_SFLS   SS1                                            H88B    << RUNG 74  STEP #0468 >>
|%M0512  %M0126  %M0099                                          %M0129
+--| +-----| +-----| +-----------------------------------------( )--  (* Slow inching lamp              *)
|                  |                                                    Cross reference for H88B
|FR1_LOW           |                                                              NONE
|%Q0007            |
+--| +-----------------+
|
| (*************************************************************************)
| (* Indication machine program UP                                        *)
| (*************************************************************************)
|
|  SS0   SU1CON  OI_SFLS                                                  << RUNG 76  STEP #0474 >>
|%M0098  %M0034  %M0126
+--| +-----| +-----| +-----------------------------------------------<+>
|                  |
|  SS1   SU2CON    |
|%M0099  %M0035    |
+--| +-----| +--+  |
|                  |
|  SS2   SU3CON    |
|%M0100  %M0036    |
+--| +-----| +--+  |
|       |          |
|       |SU6CON    |
|       |%M0039    |
|       +--| +--+  |
|                  |
|  SS3   SU4CON    |
|%M0101  %M0037    |
+--| +-----| +--+  |
|                  |
|  SS5   SU6CON    |
|%M0103  %M0039    |
+--| +-----| +--+  |
|                  |
|  SS6   SU7CON    |
|%M0104  %M0040    |
+--| +-----| +--+  |
|                  |
|                                                                 H001S   << RUNG 77  STEP #0495 >>
|                                                                %M0137
+<+>-------------------------------------------------------------------( )--  (* H89 Machine program UP          *)
|                          |                                             Cross reference for H001S
|  SS8   PROD17  SSTOCON OI_SFLS|                                                NONE
|%M0106  %M1169  %M1192  %M0126 |
+--| +-----| +-----|/+-----| +--+
|                  |
|  SS9    FIN4     |
|%M0107  %M1444    |
+--| +-----| +----------+
|                  |
| SS10   SU11CON|  |
|%M0108  %M0044 |  |
+--| +-----| +--+  |
|                  |
| SS11    LUBE8 |  |
|%M0109  %M1224 |  |
+--| +-----| +--+  |
|       |          |
|       | LUBE9 |  |
|       |%M1225 |  |
|       +--| +--+  |
|
| (*************************************************************************)
| (* Indication machine program down.                                      *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

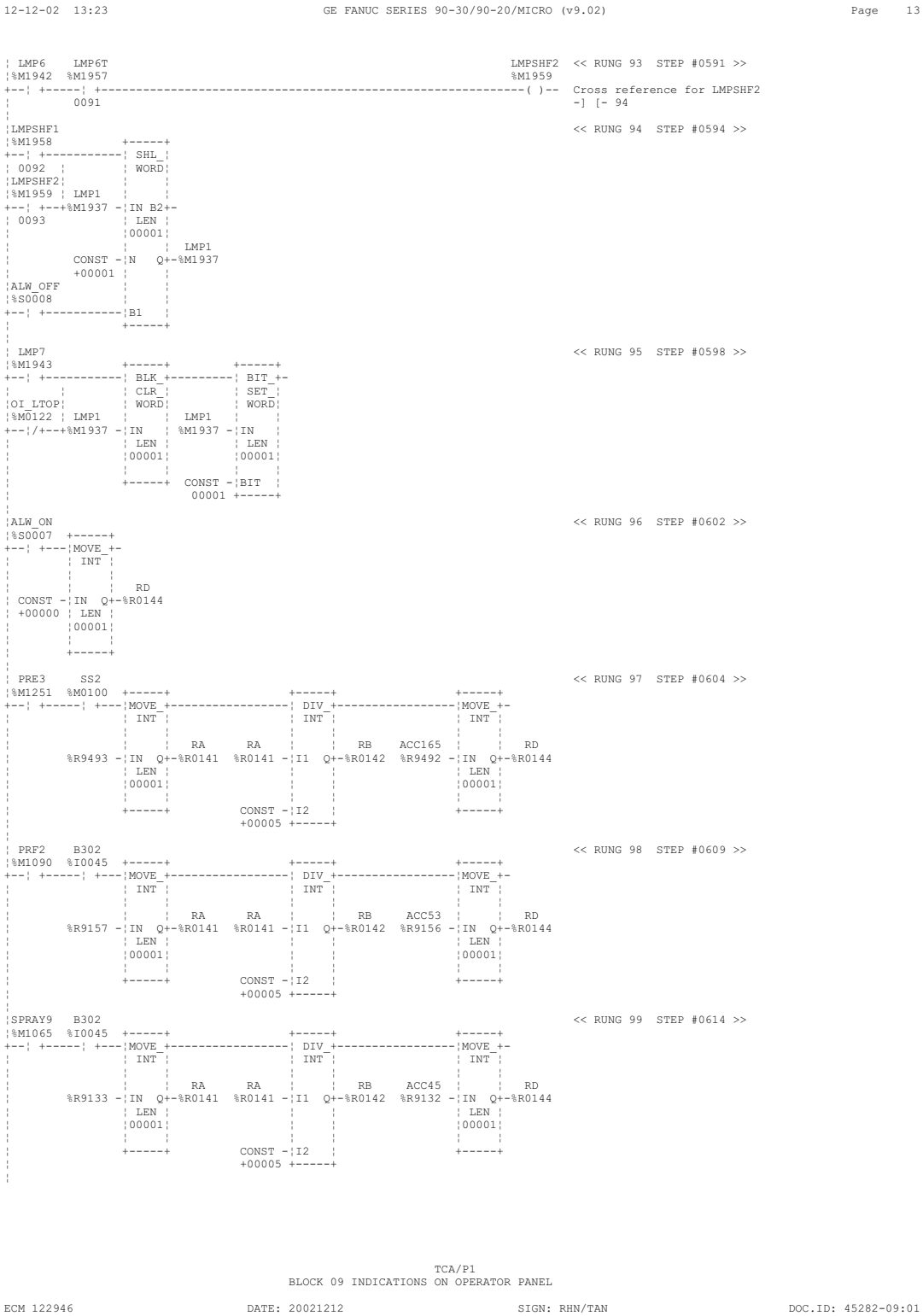


EM1.1TS700012.fm



TCA/P1
BLOCK 09 INDICATIONS ON OPERATOR PANEL

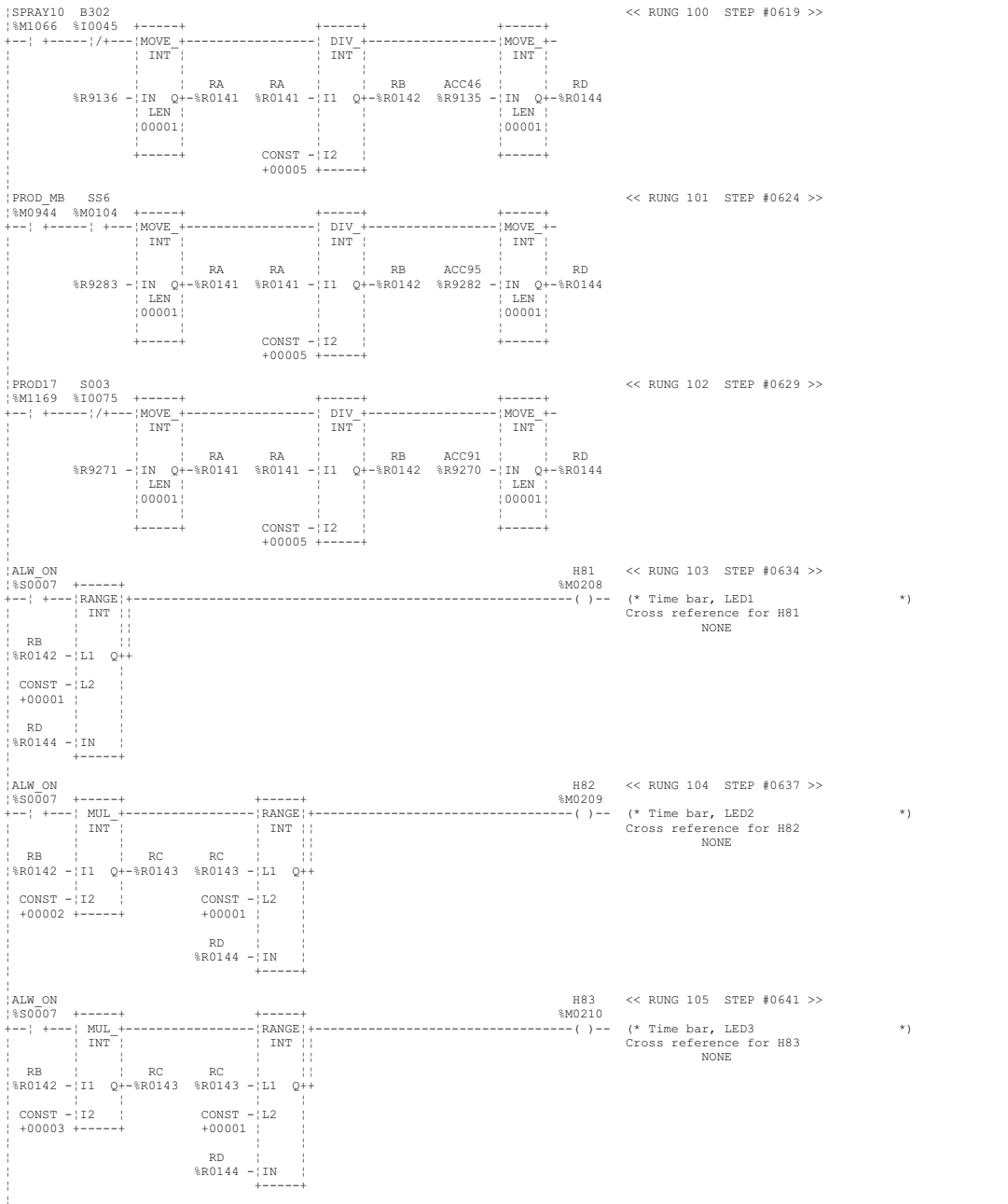
EM1.1TS700012.fm



TCA/P1
BLOCK 09 INDICATIONS ON OPERATOR PANEL

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-09:01

EM1.1TS700012.fm



TCA/P1
BLOCK 09 INDICATIONS ON OPERATOR PANEL

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-09:01

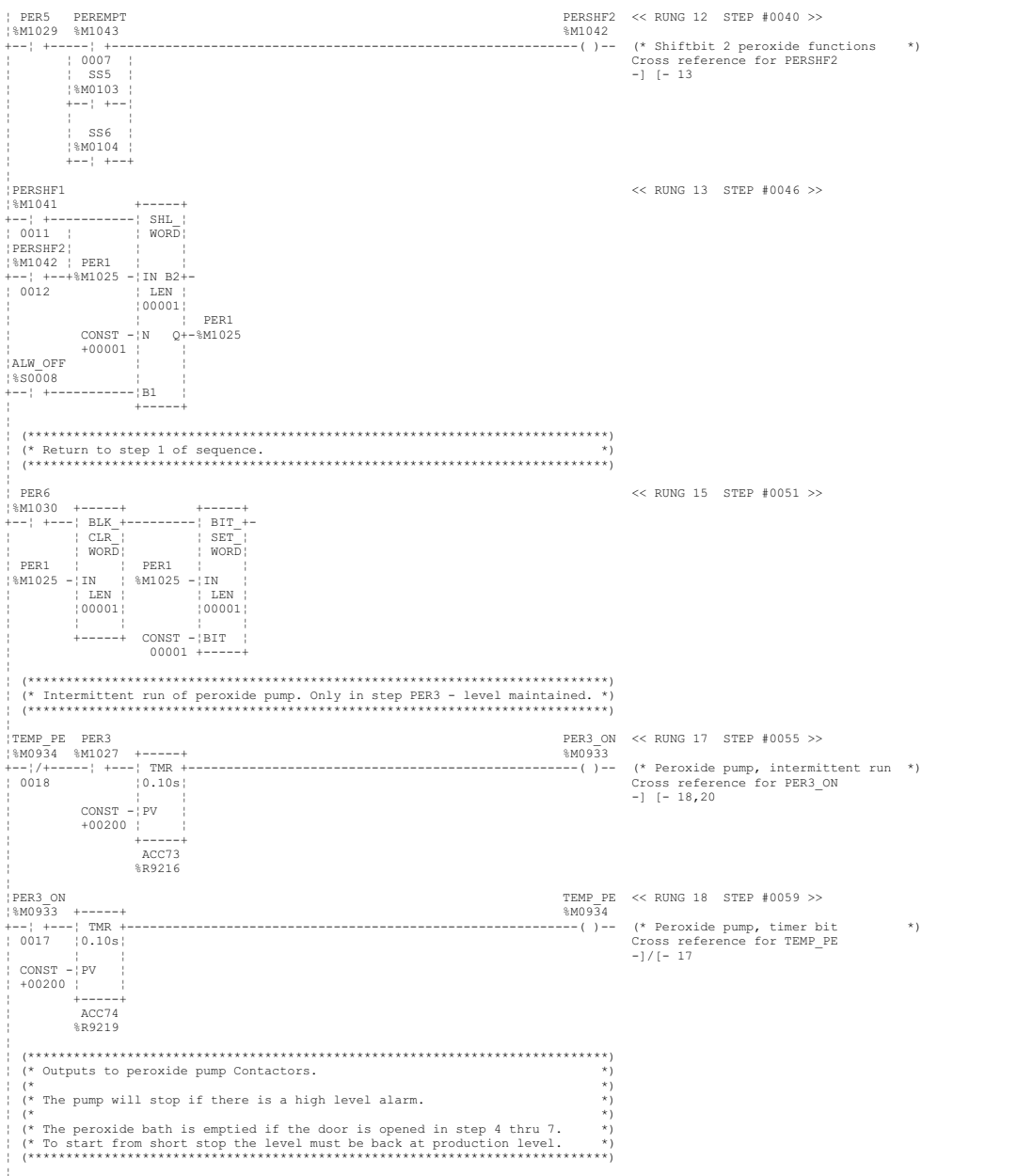
EM1.1TS700012.fm

```
ALW_ON                                                                  H84    << RUNG 106  STEP #0645 >>
%S0007  +-----+                 +-----+                                %M0211
+--| +---| MUL_+-----------------|RANGE|+---------------------------------( )--  (* Time bar, LED4                   *)
|    |  INT |                   | INT ||                                       Cross reference for H84
|    |      |                   |     ||                                              NONE
|  RB     |      |   RC      RC      |     ||
|%R0142 -|I1  Q+-%R0143  %R0143 -|L1  Q++
|    |      |                   |     |
| CONST -|I2    |          CONST -|L2   |
| +00004 +-----+          +00001 |     |
|                                 |     |
|                          RD     |     |
|                        %R0144 -|IN   |
|                                 +-----+
|
ALW_ON                                                                  H85    << RUNG 107  STEP #0649 >>
%S0007  +-----+                 +-----+                                %M0212
+--| +---| MUL_+-----------------|RANGE|+---------------------------------( )--  (* Time bar, LED5                   *)
|    |  INT |                   | INT ||                                       Cross reference for H85
|    |      |                   |     ||                                              NONE
|  RB     |      |   RC      RC      |     ||
|%R0142 -|I1  Q+-%R0143  %R0143 -|L1  Q++
|    |      |                   |     |
| CONST -|I2    |          CONST -|L2   |
| +00005 +-----+          +00001 |     |
|                                 |     |
|                          RD     |     |
|                        %R0144 -|IN   |
|                                 +-----+
|
[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Peroxide bath handling functions.                                     *)
| (*                                                                       *)
| (* Initialize the peroxide sequence.                                     *)
| (* The peroxide pump fills the bath and maintains level from step       *)
| (* Spraying and drying thru Production. The pump reverses and empties    *)
| (* the bath when the machine leaves the steps mentioned above.          *)
| (*************************************************************************)
|
|FST_SCN                                                                    << RUNG 5  STEP #0003 >>
|%S0001  +-----+
+--| +---| EQ_ |
|    |   | INT |
|    |   |     |
| PER1   |     |         +-----+
|%M1025 -|I1  Q+---------| BIT_+-
|        |     |         | SET_|
|        |     |         | WORD|
|        |     |  PER1   |     |
| CONST -|I2   | %M1025 -|IN   |
| +00000 +-----+         | LEN |
|                        |00001|
|                        |     |
|                CONST -|BIT  |
|                 00001 +-----+
|
| (*************************************************************************)
| (* Time with reversal of peroxide pump to empy peroxide bath.            *)
| (*************************************************************************)
|
| K039   A031_18                                                  PEREMPT  << RUNG 7  STEP #0007 >>
|%Q0015  %I0107  +-----+                                          %M1043
+--| +-----|/+---| TMR +-----------------------------------------------( )--  (* Peroxide emtying time           *)
| 0022           |0.10s|                                                      Cross reference for PEREMPT
|                |     |                                                      -] [- 12
|         CONST -|PV   |
|         +02000 |     |
|                +-----+
|                 ACC36
|                %R9105
|
| (*************************************************************************)
| (* Time separation FWD and REW contactors                                 *)
| (*************************************************************************)
|
| PER4                                                             PER4T   << RUNG 9  STEP #0012 >>
|%M1028  +-----+                                                   %M1044
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit forward to reverse     *)
|        |0.10s|                                                            Cross reference for PER4T
|        |     |                                                            -] [- 11
| CONST -|PV   |
| +00005 |     |
|        +-----+
|         ACC37
|        %R9108
|
| (*************************************************************************)
| (* Sequence shift logic.                                                 *)
| (*************************************************************************)
|
| PER1     SS5    S003                                             PERSHF1  << RUNG 11  STEP #0016 >>
|%M1025  %M0103  %I0075                                           %M1041
+--| +-----| +-----|/+-----------------------------------------------( )--  (* Shiftbit 1 peroxide functions    *)
|       |      |                      |                                      Cross reference for PERSHF1
|       |  SS6 |                      |                                      -] [- 13
|       |%M0104|                      |
|       +--| +--+                      |
|                                      |
| PER2   A031_18                       |
|%M1026  %I0107                        |
+--| +-----| +-------------------------|
|       |                              |
|       |  SS5     SS6     SS7     SS8 |
|       |%M0103  %M0104  %M0105  %M0106|
|       +--|/+-----|/+-----|/+-----|/+--|
|                                      |
| PER3     SS5     SS6     SS7     SS8 |
|%M1027  %M0103  %M0104  %M0105  %M0106|
+--| +-----|/+-----|/+-----|/+-----|/+--|
|                                      |
| PER4    PER4T                        |
|%M1028  %M1044                        |
+--| +-----| +-------------------------+
|         0009
|
```


EM1.1TS700012.fm



EM1.1TS700012.fm

```
| PER2            AC64     SS0   TCAMODE                                  K080    << RUNG 20  STEP #0063 >>
|%M1026          %M0576  %M0098  %M0931                                 %Q0013
+--| +-------------|/+-----|/+-----| +-------------------------------------( )--  (* Peroxide pump Contactor          *)
|                 |       |       |                                              Cross reference for K080
| PER3   PER3_ON| B201  |       |                                                        NONE
|%M1027  %M0933 |%I0028 |       |
+--| +-----| +-----|/+--+       |
|         0017                  |
| PER5    AC16                  |
|%M1029  %M0528                 |
+--| +-----|/+-----------------+
|
| PER2     SS0   TCAMODE                                                     << RUNG 21  STEP #0076 >>
|%M1026  %M0098  %M0931                                                  %Q0047
+--| +-----|/+-----| +-------------------------------------------------( )--  (* Spare                              *)
|       |       |                                                              Cross reference for %Q0047
| PER3  |       |                                                                        NONE
|%M1027 |       |
+--| +--+       |
|               |
| PER5          |
|%M1029         |
+--| +----------+
|
| PER5    AC16    SS-1                                                    K039    << RUNG 22  STEP #0082 >>
|%M1029  %M0528  %M0097                                                  %Q0015
+--| +-----|/+-----|/+-------------------------------------------------( )--  (* Peroxide pump reverse Contactor  *)
|                 |                                                            Cross reference for K039
| PER2    B201     SS0  |                                                       -] [- 7
|%M1026  %I0028  %M0098 |
+--| +-----|/+-----|/+--+
|       |
| PER3  |
|%M1027 |
+--| +--+
|
|                                                                        K090    << RUNG 23  STEP #0091 >>
|%I0115                                                                  %Q0005
+--| +-------------------------------------------------------------------( )--  (* Main motor brake (1= release)    *)
|                                                                              Cross reference for K090
|                                                                                        NONE
|
| (*************************************************************************)
| (* Spraying section                                                      *)
| (*                                                                       *)
| (* Initialization of sequence.                                          *)
| (*************************************************************************)
|
|FST_SCN                                                                                 << RUNG 25  STEP #0094 >>
|%S0001  +-----+
+--| +---| EQ_ |
|        | INT |
|        |     |
|SPRAY1  |     |         +-----+
|%M1057 -|I1  Q+---------| BIT_+-
|        |     |         | SET_|
|        |     |         | WORD|
|        |     | SPRAY1  |     |
| CONST -|I2   | %M1057 -|IN   |
| +00000 +-----+         | LEN |
|                        |00001|
|                        |     |
|                CONST -|BIT  |
|                 00001 +-----+
|
|SPRAY2                                                                  SPRAY2T  << RUNG 27  STEP #0098 >>
|%M1058  +-----+                                                         %M1082
+--| +---| TMR +-------------------------------------------------------( )--  (* Timer bit clear peroxide pipe    *)
|        |0.10s|                                                              Cross reference for SPRAY2T
|        |     |                                                              -] [- 42
| CONST -|PV   |
| +00060 |     |
|        +-----+
|        ACC140
|        %R9417
|
|SPRAY4  A33_18                                                          SPRAY4T  << RUNG 28  STEP #0101 >>
|%M1060  %I0092  +-----+                                                 %M1081
+--| +-----| +---| TMR +-------------------------------------------------( )--  (* Timer bit Additional filling per *)
|               |0.10s|                                                          Cross reference for SPRAY4T
|               |     |                                                          -] [- 42
|         CONST -|PV   |
|         +00300 |     |
|                +-----+
|                ACC141
|                %R9420
|
| (*************************************************************************)
| (* Timer between pumping peroxide and spraying it.                       *)
| (*************************************************************************)
|
```

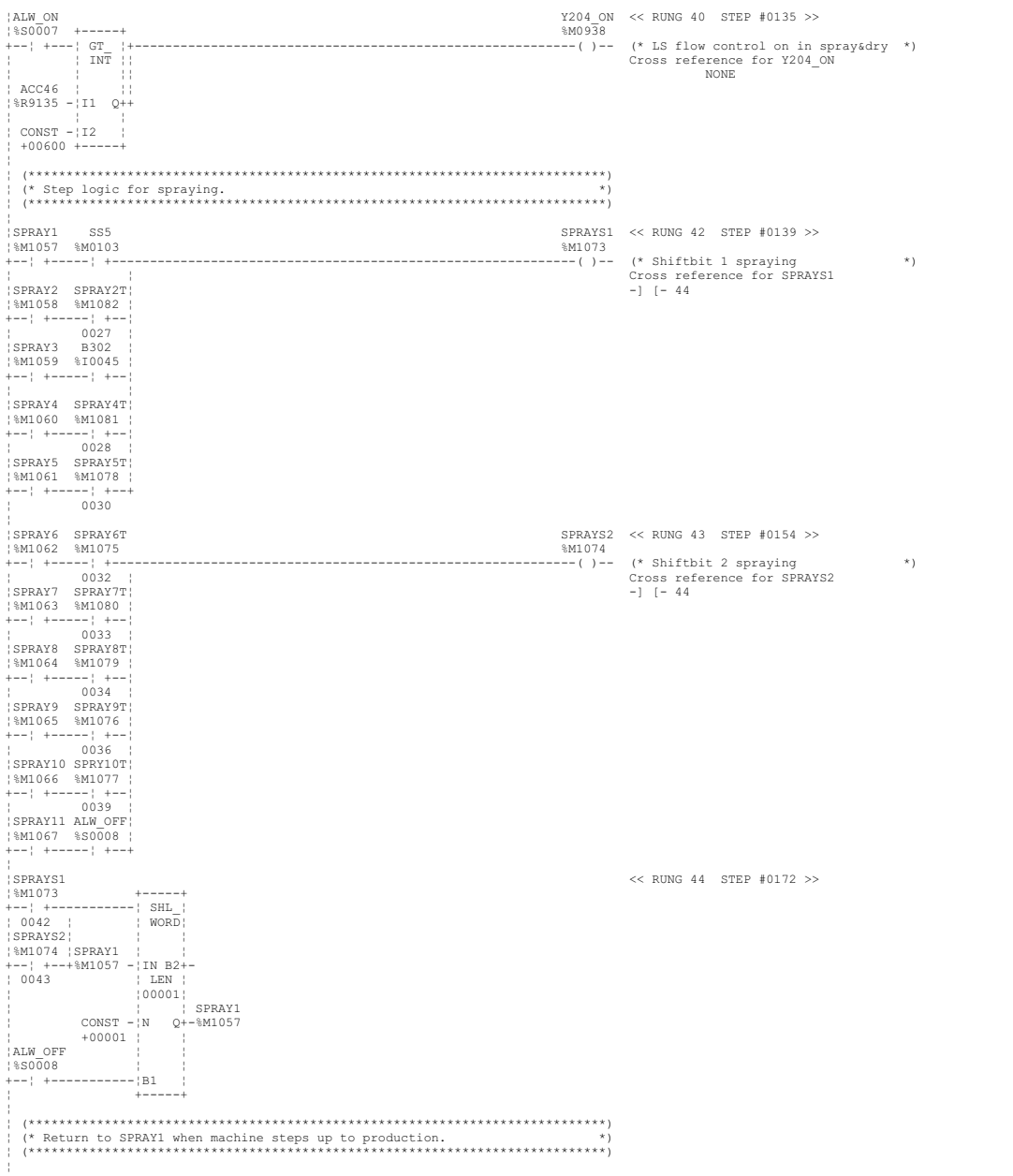
TCA/P1
BLOCK 10 SPRAYING FUNCTIONS

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-10:01

EM1.1TS700012.fm

```
|SPRAY5                                                          SPRAY5T  << RUNG 30  STEP #0106 >>
|%M1061  +-----+                                                 %M1078
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit pumping to spraying    *)
|        |0.10s|                                                          Cross reference for SPRAY5T
|        |     |                                                          -] [- 42
| CONST -|PV   |
| +00020 |     |
|        +-----+
|         ACC47
|        %R9138
|
| (*************************************************************************)
| (* Time to empty the spray container without blowing non sterile air     *)
| (* into the system.                                                      *)
| (*************************************************************************)
|
|SPRAY6   SS2_8  A33_16                                          SPRAY6T  << RUNG 32  STEP #0110 >>
|%M1062  %M0067  %I0093  +-----+                                 %M1075
+--| +-----| +-----| +---| TMR +-----------------------------------( )--  (* Timer bit empty spray container  *)
|                        |0.10s|                                          Cross reference for SPRAY6T
|                        |     |                                          -] [- 43
|                 CONST -|PV   |
|                 +00100 |     |
|                        +-----+
|                         ACC44
|                        %R9129
|
|SPRAY7                                                          SPRAY7T  << RUNG 33  STEP #0115 >>
|%M1063  +-----+                                                 %M1080
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit depressurize peroxide  *)
|        |0.10s|                                                          Cross reference for SPRAY7T
|        |     |                                                          -] [- 43
| CONST -|PV   |
| +00020 |     |
|        +-----+
|         ACC89
|        %R9264
|
|SPRAY8   SS0_8                                                  SPRAY8T  << RUNG 34  STEP #0118 >>
|%M1064  %M0066  +-----+                                         %M1079
+--| +-----| +---| TMR +-----------------------------------------------( )--  (* Timer bit empty spray container  *)
|               |0.10s|                                                  Cross reference for SPRAY8T
|               |     |                                                  -] [- 43
|         CONST -|PV   |
|         +00890 |     |
|                +-----+
|                 ACC67
|                %R9198
|
| (*************************************************************************)
| (* Spraying time of 30 min                                               *)
| (*************************************************************************)
|
|SPRAY9   B302                                                   SPRAY9T  << RUNG 36  STEP #0123 >>
|%M1065  %I0045  +-----+                                         %M1076
+--| +-----| +---| TMR +-----------------------------------------------( )--  (* Timer bit B valve open 30 min    *)
|               |0.10s|                                                  Cross reference for SPRAY9T
|               |     |                                                  -] [- 43
|         CONST -|PV   |
|         +18000 |     |
|                +-----+
|                 ACC45
|                %R9132
|
|ALW_ON                                                          SPRAYLS  << RUNG 37  STEP #0127 >>
|%S0007  +-----+                                                 %M0936
+--| +---| GT_ |+-----------------------------------------------------( )--  (* SPRAY9 on for 20 min, start LS   *)
|        | INT ||                                                          Cross reference for SPRAYLS
|        |     ||                                                                   NONE
| ACC45  |     ||
|%R9132 -|I1  Q++
|        |     |
| CONST -|I2   |
| +00000 +-----+
|
| (*************************************************************************)
| (* Cooling time of 5 min                                                 *)
| (*************************************************************************)
|
|SPRAY10  B302                                                   SPRY10T  << RUNG 39  STEP #0131 >>
|%M1066  %I0045  +-----+                                         %M1077
+--| +-----|/+---| TMR +-----------------------------------------------( )--  (* Timer bit B valve closed 5 min   *)
|               |0.10s|                                                  Cross reference for SPRY10T
|               |     |                                                  -] [- 43
|         CONST -|PV   |
|         +03000 |     |
|                +-----+
|                 ACC46
|                %R9135
|
```


EM1.1TS700012.fm



EM1.1TS700012.fm

```
¦SPRAY12                                                                    << RUNG 46  STEP #0177 >>
¦%M1068  +-----+         +-----+
+--¦ +---¦ BLK_+---------¦ BIT_+-
¦        ¦ CLR_¦         ¦ SET_¦
¦        ¦ WORD¦         ¦ WORD¦
¦SPRAY1  ¦     ¦ SPRAY1  ¦     ¦
¦%M1057 -¦IN   ¦ %M1057 -¦IN   ¦
¦        ¦ LEN ¦         ¦ LEN ¦
¦        ¦00001¦         ¦00001¦
¦        ¦     ¦         ¦     ¦
¦        +-----+  CONST -¦BIT  ¦
¦                  00001 +-----+
¦
¦ (*************************************************************************)
¦ (* Move forward to reversing the peroxide pump if machine steps down       *)
¦ (* prior to spraying completetion.                                         *)
¦ (*************************************************************************)
¦
¦SPRAY4    SS0                                                              << RUNG 48  STEP #0181 >>
¦%M1060  %M0098          +-----+         +-----+
+--¦ +-----¦ +-----------¦ BLK_+---------¦ BIT_+-
¦       ¦       ¦        ¦ CLR_¦         ¦ SET_¦
¦SPRAY5 ¦  SS1  ¦        ¦ WORD¦         ¦ WORD¦
¦%M1061 ¦%M0099 ¦SPRAY1  ¦     ¦ SPRAY1  ¦     ¦
+--¦ +--+--¦ +--¦%M1057 -¦IN   ¦ %M1057 -¦IN   ¦
¦       ¦       ¦        ¦ LEN ¦         ¦ LEN ¦
¦SPRAY6 ¦  SS2  ¦        ¦00001¦         ¦00001¦
¦%M1062 ¦%M0100 ¦        ¦     ¦         ¦     ¦
+--¦ +--+--¦ +--¦        +-----+  CONST -¦BIT  ¦
¦       ¦       ¦                  00007 +-----+
¦       ¦  SS3  ¦
¦       ¦%M0101 ¦
¦       +--¦ +--¦
¦       ¦       ¦
¦       ¦  SS4  ¦
¦       ¦%M0102 ¦
¦       +--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Set spraying and drying completed in service mode or in TC-mode.        *)
¦ (*************************************************************************)
¦
¦  SS5    S003   SPRAY11                                                    << RUNG 50  STEP #0193 >>
¦%M0103  %I0075  %M1067  +-----+         +-----+
+--¦ +-----¦ +-----¦/+---¦ BLK_+---------¦ BIT_+-
¦       ¦       ¦       ¦ CLR_¦         ¦ SET_¦
¦       ¦TCAMODE¦       ¦ WORD¦         ¦ WORD¦
¦       ¦%M0931 ¦SPRAY1  ¦     ¦ SPRAY1  ¦     ¦
¦       +--¦/+--+%M1057 -¦IN   ¦ %M1057 -¦IN   ¦
¦                        ¦ LEN ¦         ¦ LEN ¦
¦                        ¦00001¦         ¦00001¦
¦                        ¦     ¦         ¦     ¦
¦                        +-----+  CONST -¦BIT  ¦
¦                                  00011 +-----+
¦
¦SPRAY9    SS0                                                              << RUNG 52  STEP #0201 >>
¦%M1065  %M0098          +-----+         +-----+
+--¦ +-----¦ +-----------¦ BLK_+---------¦ BIT_+-
¦       ¦       ¦        ¦ CLR_¦         ¦ SET_¦
¦SPRAY10¦  SS1  ¦        ¦ WORD¦         ¦ WORD¦
¦%M1066 ¦%M0099 ¦SPRAY1  ¦     ¦ SPRAY1  ¦     ¦
+--¦ +--+--¦ +--¦%M1057 -¦IN   ¦ %M1057 -¦IN   ¦
¦       ¦       ¦        ¦ LEN ¦         ¦ LEN ¦
¦SPRAY11¦  SS2  ¦        ¦00001¦         ¦00001¦
¦%M1067 ¦%M0100 ¦        ¦     ¦         ¦     ¦
+--¦ +--+--¦ +--¦        +-----+  CONST -¦BIT  ¦
¦       ¦       ¦                  00001 +-----+
¦       ¦  SS3  ¦
¦       ¦%M0101 ¦
¦       +--¦ +--¦
¦       ¦       ¦
¦       ¦  SS4  ¦
¦       ¦%M0102 ¦
¦       +--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Spraying outputs.                                                       *)
¦ (*************************************************************************)
¦
¦SPRAY4  TCAMODE                                                    K081    << RUNG 54  STEP #0213 >>
¦%M1060  %M0931                                                    %Q0014
+--¦ +-----¦ +-------------------------------------------------------( )--  (* Spray pump Contactor            *)
¦       ¦                                                                  Cross reference for K081
¦SPRAY8 ¦                                                                           NONE
¦%M1064 ¦
+--¦ +--+
¦
```


EM1.1TS700012.fm

```
¦SPRAY8                                                          K040    << RUNG 55  STEP #0217 >>
¦%M1064                                                         %Q0016
+--¦ +-----------------------------------------------------------( )--  (* Spray pump reverse Contactor     *)
¦                                                                       Cross reference for K040
¦                                                                                NONE
¦
¦ (*************************************************************************)
¦ (* Peroxide venting spray valve.                                        *)
¦ (*************************************************************************)
¦
¦  SS5   SPRAY1                                                          << RUNG 57  STEP #0220 >>
¦%M0103  %M1057
+--¦ +-----¦ +-----------------------------------------------------------<+>
¦       ¦      ¦
¦       ¦SPRAY2 ¦
¦       ¦%M1058 ¦
¦       +--¦ +--¦
¦          ¦    ¦
¦       ¦SPRAY3 ¦
¦       ¦%M1059 ¦
¦       +--¦ +--¦
¦          ¦    ¦
¦       ¦SPRAY4 ¦
¦       ¦%M1060 ¦
¦       +--¦ +--¦
¦          ¦    ¦
¦       ¦SPRAY5 ¦
¦       ¦%M1061 ¦
¦       +--¦ +--+
¦
¦ (*************************************************************************)
¦ (* This valve is not used any more.                                     *)
¦ (* Sterile tests showed that unsterile air may enter this way.          *)
¦ (*************************************************************************)
¦
¦  SS4    PRF3   ALW_OFF                                                  Y308    << RUNG 59  STEP #0229 >>
¦%M0102  %M1091  %S0008                                                 %Q0089
+--¦ +-----¦ +-----¦ +-----------------------------------------------------( )--  (* Spray nozzle cooling            *)
¦       ¦      ¦                                                                 Cross reference for Y308
¦       ¦ PRF4  ¦                                                                          NONE
¦       ¦%M1092 ¦
¦       +--¦ +--¦
¦          ¦    ¦
+<+>--------+
¦
¦SPRAY2                                                                  Y314    << RUNG 60  STEP #0236 >>
¦%M1058                                                                 %Q0088
+--¦ +-----------------------------------------------------------------( )--  (* Air for peroxide spraying       *)
¦       ¦                                                                       Cross reference for Y314
¦SPRAY6 ¦                                                                                  NONE
¦%M1062 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Spray valve.                                                         *)
¦ (*************************************************************************)
¦
¦SPRAY2                                                                  Y300    << RUNG 62  STEP #0240 >>
¦%M1058                                                                 %Q0090
+--¦ +-----------------------------------------------------------------( )--  (* Spray valve                     *)
¦       ¦                                                                       Cross reference for Y300
¦SPRAY6 ¦                                                                                  NONE
¦%M1062 ¦
+--¦ +--¦
¦       ¦
¦SPRAY7 ¦
¦%M1063 ¦
+--¦ +--+
¦
¦SPRAY4                                                                  Y311    << RUNG 64  STEP #0245 >>
¦%M1060                                                                 %Q0029
+--¦ +-----------------------------------------------------------------( )--  (* Peroxide filling spray container *)
¦       ¦                                                                       Cross reference for Y311
¦SPRAY8 ¦                                                                                  NONE
¦%M1064 ¦
+--¦ +--+
¦
¦SPRAY2                                                                  Y312    << RUNG 65  STEP #0248 >>
¦%M1058                                                                 %Q0030
+--¦ +-----------------------------------------------------------------( )--  (* Air filling spray container      *)
¦       ¦                                                                       Cross reference for Y312
¦SPRAY6 ¦                                                                                  NONE
¦%M1062 ¦
+--¦ +--+
¦
```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```
|SPRAY3                                                          BV_SPR   << RUNG 67  STEP #0252 >>
|%M1059                                                         %M1649
+--| +-----------------------------------------------------------------( )--  (* B+R Valve open in spraying       *)
|       |                                                                    Cross reference for BV_SPR
|SPRAY4 |                                                                             NONE
|%M1060 |
+--| +--|
|       |
|SPRAY5 |
|%M1061 |
+--| +--|
|       |
|SPRAY6 |
|%M1062 |
+--| +--|
|       |
|SPRAY7 |
|%M1063 |
+--| +--|
|       |
|SPRAY8 |
|%M1064 |
+--| +--|
|       |
|SPRAY9 |
|%M1065 |
+--| +--+
|
| (*************************************************************************)
| (* Racket feeder unit.                                                   *)
| (*                                                                       *)
| (* Turns the paper rollers in spraying and drying to get peroxide        *)
| (* under the paper.                                                      *)
| (*************************************************************************)
|
| SPFT2                                                           SPFT2   << RUNG 69  STEP #0261 >>
|%M1085  +-----+                                                 %M1085
+--|/+---| TMR +-----------------------------------------------------( )--  (* Interval timer roller feeder     *)
| 0069   |0.1Os|                                                          Cross reference for SPFT2
|        |     |                                                          -]/[- 69,70
| CONST -|PV   |
| +00056 |     |
|        +-----+
|        ACC106
|        %R9315
|
| SPFT2                                                           SPFT1   << RUNG 70  STEP #0264 >>
|%M1085  +-----+                                                 %M1084
+--|/+---| TMR +-----------------------------------------------------( )--  (* Racket roller feeder timer       *)
| 0069   |0.1Os|                                                          Cross reference for SPFT1
|        |     |                                                          -] [- 76
| CONST -|PV   |
| +00028 |     |
|        +-----+
|        ACC107
|        %R9318
|
| SPFT4                                                           SPFT4   << RUNG 71  STEP #0267 >>
|%M1087  +-----+                                                 %M1087
+--|/+---| TMR +-----------------------------------------------------( )--  (* Interval timer roller feeder     *)
| 0071   |0.1Os|                                                          Cross reference for SPFT4
|        |     |                                                          -]/[- 71,72
| CONST -|PV   |
| +00300 |     |
|        +-----+
|        ACC108
|        %R9321
|
| SPFT4                                                           SPFT3   << RUNG 72  STEP #0270 >>
|%M1087  +-----+                                                 %M1086
+--|/+---| TMR +-----------------------------------------------------( )--  (* Racket roller feeder timer 2     *)
| 0071   |0.1Os|                                                          Cross reference for SPFT3
|        |     |                                                          -] [- 76
| CONST -|PV   |
| +00150 |     |
|        +-----+
|        ACC109
|        %R9324
|
| (*************************************************************************)
| (* Timer for fast action of the bending roller action.                   *)
| (*************************************************************************)
|
```


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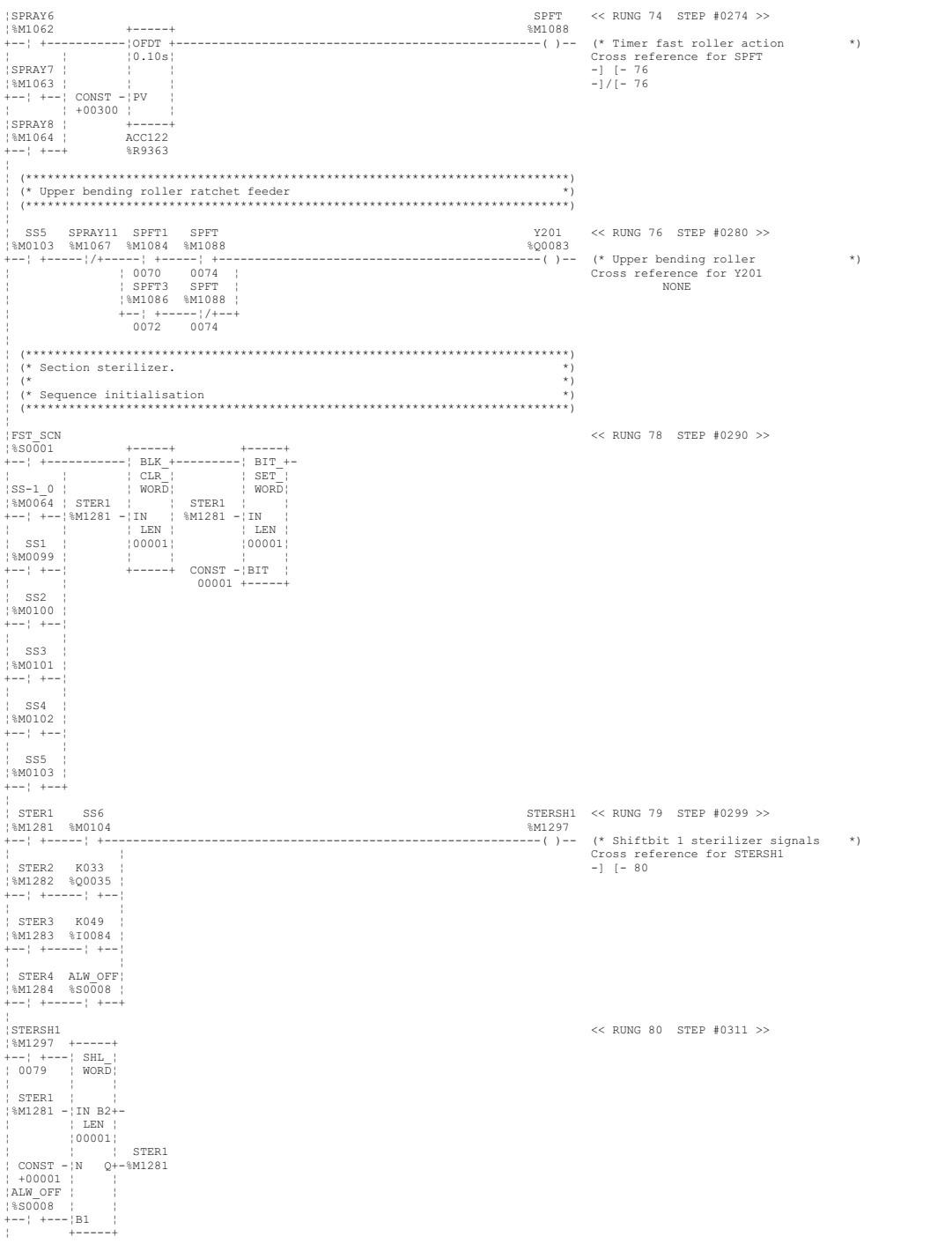


EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Return to STER1 once the machine leaves SS5                           *)
| (*************************************************************************)
|
|  SS7                                                          << RUNG 82  STEP #0315 >>
|%M0105  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|        | CLR_|         | SET_|
|        | WORD|         | WORD|
| STER1  |     |  STER1  |     |
|%M1281 -|IN   | %M1281 -|IN   |
|        | LEN |         | LEN |
|        |00001|         |00001|
|        |     |         |     |
|        +-----+  CONST -|BIT  |
|                 00001 +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Cleaning of fillsystem                                                *)
 (*************************************************************************)

FST_SCN                                                                    << RUNG 5  STEP #0003 >>
%S0001  +-----+
+--+ +---+ EQ_ |
|       | INT |
|       |     |
CLEAN1  |     |         +-----+
%M1505 -|I1  Q+---------| BIT_+-
|       |     |         | SET_|
|       |     |         | WORD|
|       |     | CLEAN1  |     |
 CONST -|I2   | %M1505 -|IN   |
 +00000 +-----+         | LEN |
|                       |00001|
|                       |     |
|                CONST -|BIT  |
|                 00001 +-----+

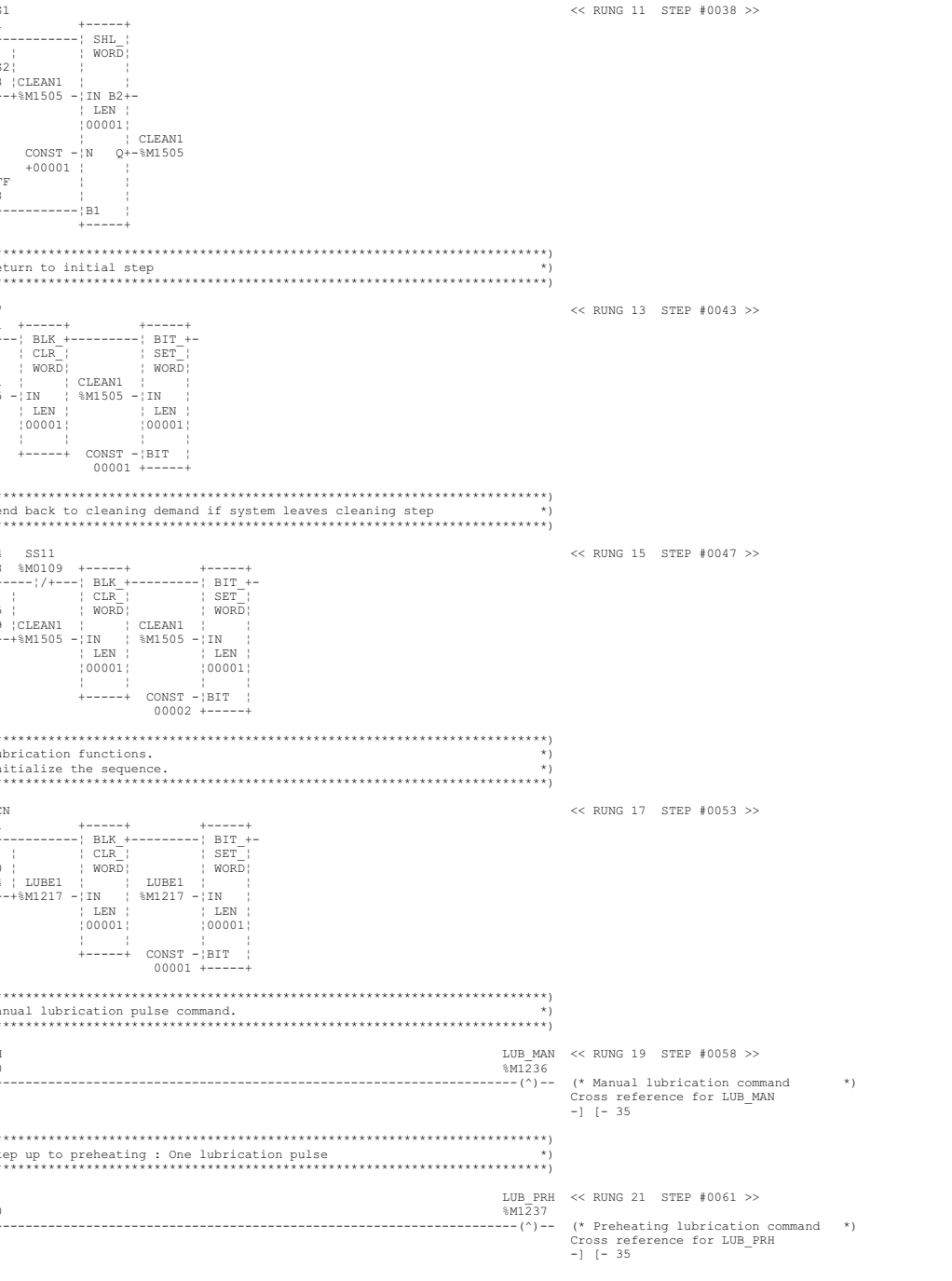
 (*************************************************************************)
 (* Demand cleaning after service mode                                    *)
 (*************************************************************************)

 S003                                                          CLEAN   << RUNG 7  STEP #0007 >>
%I0075                                                        %M1524
+--+/+-------------------------------------------------------------(^)--  (* Cleaning efter service mode      *)
|                                                                         Cross reference for CLEAN
|                                                                         -] [- 9

 (*************************************************************************)
 (* Cleaning sequence shift logic                                         *)
 (*************************************************************************)

CLEAN1   Y305    S003   F_CLEAN                                  CLEANS1  << RUNG 9  STEP #0010 >>
%M1505  %Q0085  %I0075  %M0926                                  %M1521
+--+ +-----+ +-----+/+-----+ +-------------------------------------( )--  (* Cleaning cycle shift bit         *)
|       |              |       |                                          Cross reference for CLEANS1
|       | CLEAN        |       |                                          -] [- 11
|       |%M1524        |       |
|       +--+ +----------+       |
|       | 0007                 |
|       | SS11                 |
|       |%M0109                |
|       +--+ +-----------------+
|                              |
|CLEAN2   SS11                 |
|%M1506  %M0109                |
+--+ +-----+ +-----------------+
|                              |
|CLEAN3   S004    B316         |
|%M1507  %I0076  %I0047        |
+--+ +-----+ +-----+ +---------+
|       |              |
|       | S004         |
|       |%I0076        |
|       +--+/+---------+
|
|CLEAN4   K050                                                  CLEANS2  << RUNG 10  STEP #0027 >>
|%M1508  %I0085                                                 %M1523
+--+ +-----+ +-------------------------------------------------------( )--  (* Cleaning cycle shift bit 2       *)
|       |      |                                                          Cross reference for CLEANS2
|       |STEPU3S|                                                         -] [- 11
|       |%M0002 |
|       +--+ +--+
|                 |
|CLEAN5  ALW_ON   |
|%M1509  %S0007   |
+--+ +-----+ +--+
|                 |
|CLEAN6   SS10    |
|%M1510  %M0108   |
+--+ +-----+ +--+
|
```

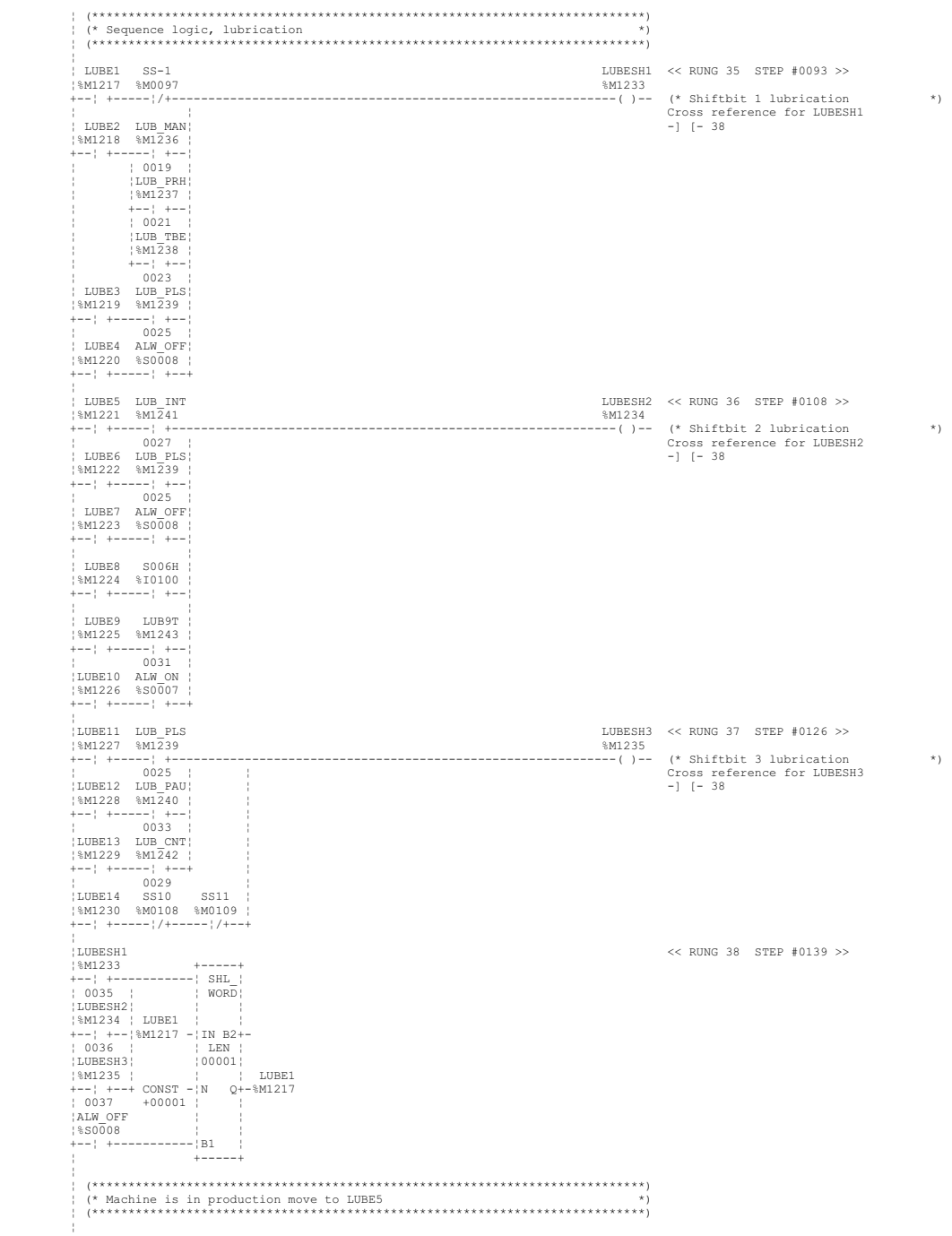

EM1.1TS700012.fm



EM1.1TS700012.fm

```
| (*************************************************************************)
| (* One lubrication puls when stepping up to tube sealing                 *)
| (*************************************************************************)
|
|  SS3                                                          LUB_TBE  << RUNG 23  STEP #0064 >>
|%M0101                                                        %M1238
+--¦ +-------------------------------------------------------------(^)--  (* Tube sealing lubrication command *)
|                                                                        Cross reference for LUB_TBE
|                                                                        -] [- 35
|
| (*************************************************************************)
| (* Timer one lubrication pulse                                         *)
| (*************************************************************************)
|
| LUBE3                                                         LUB_PLS  << RUNG 25  STEP #0067 >>
|%M1219          +-----+                                       %M1239
+--¦ +----------¦ TMR +-------------------------------------------------( )--  (* Lube pulse length timer (8sec)   *)
|        ¦       ¦0.10s¦                                                  Cross reference for LUB_PLS
| LUBE6  ¦       ¦     ¦                                                  -] [- 35,36,37
|%M1222  ¦       ¦     ¦
+--¦ +--¦ CONST -¦PV   ¦
|       ¦ +00080 ¦     ¦
|LUBE11  ¦       +-----+
|%M1227  ¦        ACC38
+--¦ +--+        %R9111
|
| (*************************************************************************)
| (* Intervall between lubrications in production.                         *)
| (*************************************************************************)
|
| LUBE5  FR1_NVL                                                LUB_INT  << RUNG 27  STEP #0073 >>
|%M1221  %Q0002  +-----+                                       %M1241
+--¦ +-----¦ +---¦ONDTR+-------------------------------------------------( )--  (* Lube pulse interval timer (5min) *)
|           ¦0.10s¦                                                        Cross reference for LUB_INT
| LUBE5     ¦     ¦                                                        -] [- 36
|%M1221     ¦     ¦
+--¦/+------¦R    ¦
|          ¦     ¦
|    CONST -¦PV   ¦
|    +03000 ¦     ¦
|           +-----+
|            ACC40
|           %R9117
|
| (*************************************************************************)
| (* Lubrication pulses counter, Lubrication after cleaning                *)
| (*************************************************************************)
|
|LUBE11                                                         LUB_CNT  << RUNG 29  STEP #0079 >>
|%M1227  +-----+                                               %M1242
+--¦ +---¦UPCTR+-------------------------------------------------( )--  (* Lube pulse counter, lubrication  *)
|        ¦     ¦                                                        Cross reference for LUB_CNT
| LUBE8  ¦     ¦                                                        -] [- 37
|%M1224  ¦     ¦                                                        -]/[- 48
+--¦ +---¦R    ¦
|        ¦     ¦
| CONST -¦PV   ¦
| +00025 ¦     ¦
|        +-----+
|         ACC41
|        %R9120
|
| (*************************************************************************)
| (* Start lubrication. 5 sec horn sound.                                  *)
| (*************************************************************************)
|
| LUBE9   S006H                                                  LUB9T   << RUNG 31  STEP #0084 >>
|%M1225  %I0100  +-----+                                       %M1243
+--¦ +-----¦ +---¦ TMR +-------------------------------------------------( )--  (* Timer bit LUBE button 5 sec      *)
|           ¦0.10s¦                                                        Cross reference for LUB9T
|           ¦     ¦                                                        -] [- 36
|    CONST -¦PV   ¦
|    +00050 ¦     ¦
|           +-----+
|            ACC42
|           %R9123
|
| (*************************************************************************)
| (* Lubrication pause timer                                               *)
| (*************************************************************************)
|
|LUBE12                                                         LUB_PAU  << RUNG 33  STEP #0089 >>
|%M1228  +-----+                                               %M1240
+--¦ +---¦ TMR +-------------------------------------------------( )--  (* Lube pause length timer (10sec)  *)
|        ¦0.10s¦                                                        Cross reference for LUB_PAU
|        ¦     ¦                                                        -] [- 37
| CONST -¦PV   ¦
| +00100 ¦     ¦
|        +-----+
|         ACC39
|        %R9114
```


EM1.1TS700012.fm



EM1.1TS700012.fm

```
| LUBE2    SS7                                                                  << RUNG 40  STEP #0145 >>
|%M1218  %M0105          +-----+         +-----+
+--| +-----| +----------| BLK_+---------| BIT_+-
|       |      |         | CLR_|         | SET_|
|       |  SS8 |         | WORD|         | WORD|
|       |%M0106 | LUBE1  |     |  LUBE1  |     |
|       +--| +--+%M1217 -|IN   | %M1217 -|IN   |
|                        | LEN |         | LEN |
|                        |00001|         |00001|
|                        |     |         |     |
|                        +-----+  CONST -|BIT  |
|                                  00005 +-----+
|
| (*************************************************************************)
| (* Lubrication after cleaning, move to LUBE8                              *)
| (*************************************************************************)
|
| LUBE2  SS10_11                                                              << RUNG 42  STEP #0152 >>
|%M1218  %M0070          +-----+         +-----+
+--| +-----| +----------| BLK_+---------| BIT_+-
|       |      |         | CLR_|         | SET_|
| LUBE5 |      |         | WORD|         | WORD|
|%M1221 |      | LUBE1  |     |  LUBE1  |     |
+--| +--+      |%M1217 -|IN   | %M1217 -|IN   |
|              |         | LEN |         | LEN |
| LUBE9   AC54 |         |00001|         |00001|
|%M1225  %M0566|         |     |         |     |
+--| +-----| +--|        +-----+  CONST -|BIT  |
|       |      |                  00008 +-----+
|LUBE11 |      |
|%M1227 |      |
+--| +--|      |
|       |      |
|LUBE12 |      |
|%M1228 |      |
+--| +--|      |
|       |      |
|LUBE13 |      |
|%M1229 |      |
+--| +--+      |
|             |
| LUBE9   S006H |
|%M1225  %I0100 |
+--| +-----|/+--+
|
| (*************************************************************************)
| (* Return to step 2 after completing one lube pulse                       *)
| (*************************************************************************)
|
| LUBE4                                                                       << RUNG 44  STEP #0167 >>
|%M1220  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|       | CLR_|         | SET_|
|       | WORD|         | WORD|
| LUBE1 |     |  LUBE1  |     |
|%M1217 -|IN   | %M1217 -|IN   |
|       | LEN |         | LEN |
|       |00001|         |00001|
|       |     |         |     |
|       +-----+  CONST -|BIT  |
|                 00002 +-----+
|
| (*************************************************************************)
| (* Return to step 5 after production lube pulse                           *)
| (*************************************************************************)
|
| LUBE7                                                                       << RUNG 46  STEP #0171 >>
|%M1223  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|       | CLR_|         | SET_|
|       | WORD|         | WORD|
| LUBE1 |     |  LUBE1  |     |
|%M1217 -|IN   | %M1217 -|IN   |
|       | LEN |         | LEN |
|       |00001|         |00001|
|       |     |         |     |
|       +-----+  CONST -|BIT  |
|                 00005 +-----+
|
| (*************************************************************************)
| (* If the no of lube pulses are less than 25; return to LUBE11 for one more *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

```
¦LUBE13  LUB_CNT                                                          << RUNG 48  STEP #0175 >>
¦%M1229  %M1242  +-----+         +-----+
+--¦ +-----¦/+---¦ BLK_+---------¦ BIT_+-
¦         0029   ¦ CLR_¦         ¦ SET_¦
¦                ¦ WORD¦         ¦ WORD¦
¦         LUBE1  ¦     ¦  LUBE1  ¦     ¦
¦        %M1217 -¦IN   ¦ %M1217 -¦IN   ¦
¦                ¦ LEN ¦         ¦ LEN ¦
¦                ¦00001¦         ¦00001¦
¦                ¦     ¦         ¦     ¦
¦                +-----+  CONST -¦BIT  ¦
¦                          00011 +-----+
¦
¦ (*************************************************************************)
¦ (* Outputs in lubrication.                                               *)
¦ (*************************************************************************)
¦
¦ LUBE3                                                          Y502     << RUNG 50  STEP #0180 >>
¦%M1219                                                         %Q0068
+--¦ +-----------------------------------------------------------------( )--  (* Lubrication pump                *)
¦       ¦                                                                  Cross reference for Y502
¦ LUBE6 ¦                                                                            NONE
¦%M1222 ¦
+--¦ +--¦
¦       ¦
¦LUBE11 ¦
¦%M1227 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Lubrication horn warning.                                             *)
¦ (*************************************************************************)
¦
¦ LUBE9   S006H                                                  HO_LUB   << RUNG 52  STEP #0185 >>
¦%M1225  %I0100                                                 %M1617
+--¦ +-----¦ +-------------------------------------------------------( )--  (* Horn warning in lubrication      *)
¦       ¦                                                                  Cross reference for HO_LUB
¦LUBE10 ¦                                                                            NONE
¦%M1226 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Main motor contactor condition i lubrication                          *)
¦ (*************************************************************************)
¦
¦ LUBE9                                                          MM_LUB   << RUNG 54  STEP #0190 >>
¦%M1225                                                         %M1601
+--¦ +-----------------------------------------------------------------( )--  (* Main motor contactor,lubrication *)
¦       ¦                                                                  Cross reference for MM_LUB
¦LUBE10 ¦                                                                            NONE
¦%M1226 ¦
+--¦ +--¦
¦       ¦
¦LUBE11 ¦
¦%M1227 ¦
+--¦ +--¦
¦       ¦
¦LUBE12 ¦
¦%M1228 ¦
+--¦ +--¦
¦       ¦
¦LUBE13 ¦
¦%M1229 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Main motor run condition in lubrication                               *)
¦ (*************************************************************************)
¦
¦LUBE11                                                          MR_LUB   << RUNG 56  STEP #0197 >>
¦%M1227                                                         %M1609
+--¦ +-----------------------------------------------------------------( )--  (* Main motor run, lubrication      *)
¦       ¦                                                                  Cross reference for MR_LUB
¦LUBE12 ¦                                                                            NONE
¦%M1228 ¦
+--¦ +--¦
¦       ¦
¦LUBE13 ¦
¦%M1229 ¦
+--¦ +--+
¦
¦[    END OF SUBROUTINE LOGIC     ]
¦
```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```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Main motor contactor                                                  *)
| (*************************************************************************)
|
|MM_LUB                                                                    << RUNG 5  STEP #0003 >>
|%M1601          +-----+
+--| +----------|OFDT +-------------------------------------------------<+>
|       |        |0.10s|
|MM_PRO |        |     |
|%M1602 |        |     |
+--| +--| CONST -|PV   |
|       | +00050 |     |
| MM_IN |        +-----+
|%M1603 |         ACC94
+--| +--|        %R9279
| 0021  |
|MM_TUB |
|%M1604 |
+--| +--|
|       |
| FIN2  |
|%M1442 |
+--| +--|
|       |
| FIN3  |
|%M1443 |
+--| +--|
|       |
| FIN4  |
|%M1444 |
+--| +--+
|
|       E_STOP  DOOR_SM                                          K001    << RUNG 6  STEP #0012 >>
|       %I0018  %I0019                                          %Q0001
+<+>-----|/+-----|/+-------------------------------------------( )--  (* Main motor Contactor             *)
|       |                                                               Cross reference for K001
|  SS1  |                                                               -] [- 30,35,54,99,124
|%M0099 |
+--| +--+
|
|FR1_ENA                                                         K1_ONT   << RUNG 7  STEP #0017 >>
|%Q0008  +-----+                                                 %M0506
+--| +--| TMR +-------------------------------------------------( )--  (* Main motor VFD has been on 5 sec *)
| 0025   |0.10s|                                                        Cross reference for K1_ONT
|        |     |                                                                 NONE
| CONST -|PV   |
| +00050 |     |
|        +-----+
|         ACC64
|        %R9189
|
| (*************************************************************************)
| (* Main motor running timer. The TS pulses during start ramp of          *)
| (* VFD are not dependable.                                               *)
| (*************************************************************************)
|
|ALW_ON                                                           MAINT   << RUNG 9  STEP #0021 >>
|%S0007  +-----+                                                  %M1770
+--| +--| GE_ |+-------------------------------------------------( )--  (* Main motor running timer         *)
|       | INT ||                                                        Cross reference for MAINT
|       |     ||                                                                 NONE
| ACC64 |     ||
|%R9189 -|I1  Q++
|       |     |
| CONST -|I2   |
| +00030 +-----+
|
| (*************************************************************************)
| (* Conditions permitting inching of the machine,                         *)
| (* valid for sterile and service mode.                                   *)
| (*************************************************************************)
|
|INC_TIM   CAL                                                    CAL_RUN  << RUNG 11  STEP #0025 >>
|%M0482  %M0512                                                  %M0008
+--| +-----| +-------------------------------------------------( )--  (* Run main motor in calibration    *)
| 0019                                                                   Cross reference for CAL_RUN
|                                                                        -] [- 17,141
|                                                                        -]/[- 13
|
| (*************************************************************************)
| (* Main motor enable of FR drive                                        *)
| (*************************************************************************)
|
```


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```
¦MR_LUB                                                                  FR1_NVL  << RUNG 13  STEP #0029 >>
¦%M1609                                                                  %Q0002
+--¦ +-------------------------------------------------------------------( )--  (* Main motor normal speed          *)
¦       ¦               ¦                                                        Cross reference for FR1_NVL
¦MR_PRO ¦               ¦                                                        -] [- 25,27,32,54,62,99,111,135,138,141
¦%M1610 ¦               ¦                                                        -]/[- 17,119
+--¦ +--¦               ¦
¦       ¦               ¦
¦MR_TUB ¦               ¦
¦%M1612 ¦               ¦
+--¦ +--+               ¦
¦                       ¦
¦INC_TIM CAL_RUN SINCCON¦
¦%M0482  %M0008  %M0483 ¦
+--¦ +-----¦/+-----¦/+--+
¦ 0019    0011    0017
¦
¦ (*************************************************************************)
¦ (* Main motor inching. (jog)                                             *)
¦ (*                                                                       *)
¦ (* Slow inching latch, this latch will run the main motor until          *)
¦ (* a pulse from the jaw sensor is detected.                              *)
¦ (*************************************************************************)
¦
¦ S003H                                                                  INC_HSP  << RUNG 15  STEP #0038 >>
¦%I0101                                                                  %M0480
+--¦ +-------------------------------------------------------------------( )--  (* Pushbuttoms inching high speed   *)
¦       ¦                                                                        Cross reference for INC_HSP
¦ S201H ¦                                                                        -] [- 16,35,124,137
¦%I0074 ¦                                                                        -]/[- 23
+--¦ +--+
¦
¦INC_HSP  S010H    SS1                          DOOR_SM                 INC_CON  << RUNG 16  STEP #0041 >>
¦%M0480  %I0108  %M0099                         %I0019                  %M0484
+--¦ +-----¦/+-----¦ +-----------------------------¦/+--------------------( )--  (* Conditions normal inching        *)
¦ 0015          ¦       ¦                         ¦                              Cross reference for INC_CON
¦               ¦  SS2  ¦                         ¦                              -] [- 19,21,56,60
¦               ¦%M0100 ¦                         ¦
¦               +--¦ +--+                         ¦
¦                  ¦                              ¦
¦               ¦  SS5   SPRAY11  S003   A031_18¦
¦               ¦%M0103  %M1067  %I0075  %I0107 ¦
¦               +--¦ +-----¦ +-----¦/+-----¦ +--¦
¦                  ¦               ¦            ¦
¦               ¦  SS6          ¦               ¦
¦               ¦%M0104         ¦               ¦
¦               +--¦ +----------+               ¦
¦                  ¦                            ¦
¦               ¦ SS10                          ¦
¦               ¦%M0108                         ¦
¦               +--¦ +--------------------------¦
¦                  ¦                            ¦
¦               ¦ S003   SS-1_0                 ¦
¦               ¦%I0075  %M0064                 ¦
¦               +--¦ +-----¦/+------------------+
¦
¦ S010H   S003    K024    SS11   STEPDWN DOOR_SM FR1_NVL                  SINCCON  << RUNG 17  STEP #0058 >>
¦%I0108  %I0075  %Q0021  %M0109  %M0003  %I0019  %Q0002                  %M0483
+--¦ +-----¦ +-----¦ +-----¦/+-----¦/+-----¦/+-----¦/+--------------------( )--  (* Conditions slow inching          *)
¦       ¦       ¦ 0048                          0013                             Cross reference for SINCCON
¦CAL_RUN¦  CAL  ¦                                                                -] [- 19,21
¦%M0008 ¦%M0512 ¦                                                                -]/[- 13
+--¦ +-----¦ +--+
¦ 0011
¦
¦ (*************************************************************************)
¦ (* Timer start delay of main motor from pushing the inching button.      *)
¦ (*************************************************************************)
¦
¦SINCCON                                                                 INC_TIM  << RUNG 19  STEP #0070 >>
¦%M0483          +-----+                                                 %M0482
+--¦ +-----------¦ TMR +-------------------------------------------------( )--  (* Inching main motor timer         *)
¦ 0017  ¦        ¦0.10s¦                                                         Cross reference for INC_TIM
¦INC_CON¦        ¦     ¦                                                         -] [- 11,13,23,27
¦%M0484 ¦        ¦     ¦                                                         -]/[- 21
+--¦ +--+ CONST -¦PV   ¦
¦ 0016    +00050 ¦     ¦
¦               +-----+
¦                ACC70
¦               %R9207
¦
¦ (*************************************************************************)
¦ (* Horn sound in inching.                                                *)
¦ (*************************************************************************)
¦
```

TCA/P1
BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
¦SINCCON INC_TIM                                                    HO_INC   << RUNG 21  STEP #0075 >>
¦%M0483  %M0482                                                     %M1619
+--¦ +-----¦/+-------------------------------------------------------( )--  (* Horn warning in inching          *)
¦ 0017  ¦ 0019                                                              Cross reference for HO_INC
¦INC_CON¦                                                            MM_IN   -] [- 103
¦%M0484 ¦                                                           %M1603
+--¦ +-------------------------------------------------------------------( )--  (* Main motor contactor,inching     *)
¦ 0016                                                                      Cross reference for MM_IN
¦                                                                           -] [- 5
¦
¦ (*************************************************************************)
¦ (* Inching low speed                                                     *)
¦ (*************************************************************************)
¦
¦INC_TIM INC_HSP                                                    FR1_LOW  << RUNG 23  STEP #0083 >>
¦%M0482  %M0480                                                     %Q0007
+--¦ +-----¦/+-------------------------------------------------------( )--  (* Inching low speed - Main motor   *)
¦ 0019    0015                                                              Cross reference for FR1_LOW
¦                                                                           -] [- 25,32,135,141
¦
¦ (*************************************************************************)
¦ (* Enable signal to main motor.                                          *)
¦ (*                                                                       *)
¦ (* Should be applied some time after speed selection bits.               *)
¦ (* (Applies to the Siemens VFD)                                          *)
¦ (*************************************************************************)
¦
¦FR1_NVL E_STOP  DOOR_SM                                            FR1_ENA  << RUNG 25  STEP #0087 >>
¦%Q0002  %I0018  %I0019  +-----+                                    %Q0008
+--¦ +-----¦/+-----¦/+---¦ TMR +-----------------------------------------( )--  (* Enable VFD main motor            *)
¦ 0013  ¦           ¦0.01s¦                                                 Cross reference for FR1_ENA
¦FR1_LOW¦           ¦     ¦                                                 -] [- 7,27,124
¦%Q0007 ¦           ¦     ¦
+--¦ +---+      CONST -¦PV   ¦
¦ 0023         +00010 ¦     ¦
¦              ¦      +-----+
¦               ACC63
¦              %R9186
¦
¦ (*************************************************************************)
¦ (* Condition Main motor is running in inching:                            *)
¦ (* OK to apply LS-Strip element and LS element to produce sealed tube.   *)
¦ (*************************************************************************)
¦
¦INC_TIM FR1_NVL FR1_ENA G002_19 OVERLD                             INC_RUN  << RUNG 27  STEP #0094 >>
¦%M0482  %Q0002  %Q0008  %I0027  %I0017                             %M0486
+--¦ +-----¦ +-----¦ +-----¦ +-----¦ +-------------------------------------( )--  (* Main motor running in inching    *)
¦ 0019    0013    0025                                                      Cross reference for INC_RUN
¦                                                                           -] [- 111,118
¦
¦ (*************************************************************************)
¦ (* TPIH power is applied in both tube sealing and production.            *)
¦ (*************************************************************************)
¦
¦STEPUP    SS3                                                      TS_OFF   << RUNG 29  STEP #0101 >>
¦%M0001  %M0101          +-----+                                    %M0940
+--¦ +-----¦ +----------¦OFDT +-----------------------------------------( )--  (* TS power off when STEP UP        *)
¦       ¦       ¦      ¦0.10s¦                                               Cross reference for TS_OFF
¦       ¦  SS7  ¦      ¦     ¦                                               -]/[- 30
¦       ¦%M0105 ¦      ¦     ¦
¦       +--¦ +--+ CONST -¦PV   ¦
¦             +00010 ¦     ¦
¦                    +-----+
¦                   ACC184
¦                   %R9549
¦
¦SS-1_0   K001   TS_OFF                                              K004    << RUNG 30  STEP #0107 >>
¦%M0064  %Q0001  %M0940                                             %Q0004
+--¦/+-----¦ +-----¦/+-------------------------------------------------( )--  (* Power TS-sealing                 *)
¦         0006    0029                                                      Cross reference for K004
¦                                                                                 NONE
¦
¦ (*************************************************************************)
¦ (* Package conveyor motor, the conveyor will run 30 sec after main       *)
¦ (* motor stop.                                                           *)
¦ (*************************************************************************)
¦
¦FR1_NVL                                                            CON_OFD  << RUNG 32  STEP #0112 >>
¦%Q0002          +-----+                                            %M0481
+--¦ +----------¦OFDT +-----------------------------------------------( )--  (* Conveyor off delay bit           *)
¦ 0013  ¦        ¦0.10s¦                                                    Cross reference for CON_OFD
¦FR1_LOW¦        ¦     ¦                                                    -] [- 33
¦%Q0007 ¦        ¦     ¦
+--¦ +--+ CONST -¦PV   ¦
¦ 0023    +00300 ¦     ¦
¦              +-----+
¦               ACC69
¦              %R9204
¦
```

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BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
| SS-1   CON_OFD                                                    K006    << RUNG 33  STEP #0116 >>
|%M0097  %M0481                                                   %Q0006
+--|/+-----| +-------------------------------------------------------( )--  (* Conveyor motor                    *)
|         0032                                                             Cross reference for K006
|                                                                                  NONE
|
| (*************************************************************************)
| (* Contactor for freeloop motor.                                       *)
| (* Same function as K1 main motor.                                     *)
| (*************************************************************************)
|
| K001           PROD17          DOOR_SM                            K009    << RUNG 35  STEP #0120 >>
|%Q0001          %M1169          %I0019                           %Q0009
+--| +------------|/+-------------|/+-----------------------------( )--  (* Contactor for Freeloop VFD       *)
| 0006  |        |               |                                          Cross reference for K009
|  SS4  |        | S003    S010H |                                          -] [- 140
|%M0102 |        |%I0075  %I0108 |
+--| +--+       +--| +-----| +--|
|                |       |       |
|  SS5   SPRAY11|       |INC_HSP|
|%M0103  %M1067 |       |%M0480 |
+--| +-----|/+--+       +--| +--+
|                         0015
|
| (*************************************************************************)
| (* Paper splicing                                                        *)
| (*************************************************************************)

|
|SS-1_0                                                             K020    << RUNG 37  STEP #0135 >>
|%M0064                                                           %Q0017
+--|/+-------------------------------------------------------------------( )--  (* Paper splicing                   *)
|                                                                          Cross reference for K020
|                                                                                  NONE
|
| (*************************************************************************)
| (* Power to LS element                                                  *)
| (*************************************************************************)
|
|  SS2    PRE3                                                             << RUNG 39  STEP #0138 >>
|%M0100  %M1251
+--| +-----| +-------------------------------------------------------------<+>
|       |       |
|       | PRE4  |
|       |%M1252 |
|       +--| +--|
|          |    |
|  SS3     |    |
|%M0101    |    |
+--| +-----|    |
|          |    |
|  SS5   SPRAY10|
|%M0103  %M1066 |
+--| +-----| +--|
|       |       |
|       |SPRAY11|
|       |%M1067 |
|       +--| +--|
|       |       |
|       |SPRAYLS|
|       |%M0936 |
|       +--| +--|
|          |    |
|  SS6     |    |
|%M0104    |    |
+--| +-----|    |
|                |
|                                                                  K021    << RUNG 40  STEP #0151 >>
|                                                                 %Q0018
+<+>--------------------------------------------------------------------( )--  (* LS element                      *)
|       |               |                                                  Cross reference for K021
|  SS7  |               |                                                           NONE
|%M0105 |               |
+--| +--|               |
|       |               |
|  SS8  |               |
|%M0106 |               |
+--| +--+               |
|                       |
|  SS9    FIN5    FIN6  |
|%M0107  %M1445  %M1446 |
+--| +-----|/+-----|/+--+
|
| (*************************************************************************)
| (* Power to LS strip element                                             *)
| (*************************************************************************)
|
```

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BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
|  SS2    PRE3                                                                  << RUNG 42  STEP #0160 >>
|%M0100  %M1251
+--| +-----| +-------------------------------------------------------------<+>
|       |       |
|       | PRE4  |
|       |%M1252 |
|       +--| +--|
|          |
|  SS3     |
|%M0101    |
+--| +-----|
|          |
|  SS5    SS5T  |
|%M0103  %M0113 |
+--| +-----| +--|
|          |
|  SS6     |
|%M0104    |
+--| +-----|
|          |
|  SS7     |
|%M0105    |
+--| +-----|
|          |
|  SS8     |
|%M0106    |
+--| +-----+
|
|                                                                    K022    << RUNG 43  STEP #0172 >>
|                                                                   %Q0019
+<+>-------------------------------------------------------------------( )--  (* SA element                        *)
|                  |                                                         Cross reference for K022
|  SS9    FIN5    FIN6  |                                                            NONE
|%M0107  %M1445  %M1446 |
+--| +-----|/+-----|/+--+
|
| (*************************************************************************)
| (* Power to AIR SUPERHEATER                                              *)
| (*************************************************************************)
|
|  SS2    PRE3                                                                  << RUNG 45  STEP #0179 >>
|%M0100  %M1251
+--| +-----| +-------------------------------------------------------------<+>
|       |       |
|       | PRE4  |
|       |%M1252 |
|       +--| +--|
|          |
|  SS3     |
|%M0101    |
+--| +-----|
|          |
|  SS4     |
|%M0102    |
+--| +-----|
|          |
|  SS5     |
|%M0103    |
+--| +-----|
|          |
|  SS6     |
|%M0104    |
+--| +-----|
|          |
|  SS7     |
|%M0105    |
+--| +-----|
|          |
|  SS8     |
|%M0106    |
+--| +-----+
|
|                                                                    K023    << RUNG 46  STEP #0190 >>
|                                                                   %Q0020
+<+>-------------------------------------------------------------------( )--  (* Air superheater element          *)
|                  |                                                         Cross reference for K023
|  SS9    FIN5    FIN6  |                                                            NONE
|%M0107  %M1445  %M1446 |
+--| +-----|/+-----|/+--+
|
| (*************************************************************************)
| (* Control voltage.                                                      *)
| (* The control voltage must be delayed 0.3-0.5 sec with respect to power  *)
| (* to the TPIH units. There will be an error on the TPIH units otherwise. *)
| (*************************************************************************)
|
```

TCA/P1
BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
¦SS-1_0                                                                  K024    << RUNG 48  STEP #0197 >>
¦%M0064  +-----+                                                        %Q0021
+--¦/+---¦ TMR +-----------------------------------------------------( )--  (* Control voltage and FAN          *)
¦        ¦0.10s¦                                                              Cross reference for K024
¦        ¦    ¦                                                              -] [- 17
¦ CONST -¦PV   ¦
¦ +00005 ¦    ¦
¦        +-----+
¦        ACC132
¦        %R9393
¦
¦ (*************************************************************************)
¦ (* Air preheater                                                         *)
¦ (*************************************************************************)
¦
¦  SS2    PRE3                                                             K025    << RUNG 50  STEP #0201 >>
¦%M0100  %M1251                                                         %Q0022
+--¦ +-----¦ +-----------------------------------------------------------( )--  (* Air pre heating element          *)
¦       ¦       ¦       ¦                                                      Cross reference for K025
¦       ¦ PRE4  ¦       ¦                                                      -] [- 52
¦       ¦%M1252 ¦       ¦
¦       +--¦ +--¦       ¦
¦          ¦    ¦       ¦
¦  SS3     ¦    ¦       ¦
¦%M0101    ¦    ¦       ¦
+--¦ +-----¦    ¦       ¦
¦          ¦    ¦       ¦
¦  SS4     ¦    ¦       ¦
¦%M0102    ¦    ¦       ¦
+--¦ +-----+    ¦       ¦
¦               ¦       ¦
¦  SS5   SPRAY10 SPRAY11¦
¦%M0103  %M1066  %M1067 ¦
+--¦ +-----¦/+-----¦/+--+
¦
¦ (*************************************************************************)
¦ (* Second setpoint for preheater.                                        *)
¦ (* Reduces preheater setpoint to protect AP valve seals.                 *)
¦ (* %I72 makes a flase signal at powerup of regulator                     *)
¦ (*************************************************************************)
¦
¦ K025   A26_20                                                           K042    << RUNG 52  STEP #0213 >>
¦%Q0022  %I0072  +-----+         +-----+                                %Q0025
+--¦ +-----¦ +---¦ TMR +---------¦OFDT +-----------------------------( )--  (* Second setpoint Preheater         *)
¦ 0050          ¦0.10s¦         ¦0.10s¦                                      Cross reference for K042
¦               ¦     ¦         ¦     ¦                                            NONE
¦        CONST -¦PV   ¦  CONST -¦PV   ¦
¦        +00020 ¦     ¦  +00200 ¦     ¦
¦               +-----+         +-----+
¦               ACC158          ACC137
¦               %R9471          %R9408
¦
¦ (*************************************************************************)
¦ (* Paper web element                                                     *)
¦ (*************************************************************************)
¦
¦  SS5    K001   FR1_NVL PAPER_F  B200-  TCAMODE                           K026    << RUNG 54  STEP #0219 >>
¦%M0103  %Q0001  %Q0002  %M0421  %I0026  %M0931                         %Q0023
+--¦ +-----¦ +-----¦ +-----¦/+-----¦ +-----¦ +---------------------------( )--  (* Paper web element                 *)
¦       ¦ 0006    0013                                                         Cross reference for K026
¦  SS6  ¦                                                                            NONE
¦%M0104 ¦
+--¦ +--¦
¦       ¦
¦  SS7  ¦
¦%M0105 ¦
+--¦ +--¦
¦       ¦
¦  SS8  ¦
¦%M0106 ¦
+--¦ +--¦
¦       ¦
¦  SS9  ¦
¦%M0107 ¦
+--¦ +--¦
¦       ¦
¦ TUBE5 ¦
¦%M1125 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Timer for first 15 minutes of production,                             *)
¦ (*************************************************************************)
¦
```

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BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
|  SS7                                                                  LS_T1   << RUNG 56  STEP #0232 >>
|%M0105          +-----+                                               %M1203
+--| +----------| TMR +-------------------------------------------------( )--  (* First 15 min of prod. timer      *)
|       |        |0.10s|                                                       Cross reference for LS_T1
|  SS8  |        |     |                                                       -]/[- 60
|%M0106 |        |     |
+--| +--| CONST -|PV   |
|       | +00300 |     |
|INC_CON|        +-----+
|%M0484 |        ACC163
+--| +--+        %R9486
| 0016
|
| (*************************************************************************)
| (* Timer for first 10 seconds after short stop.                          *)
| (*************************************************************************)
|
|PROD17                                                                 LS_T2   << RUNG 58  STEP #0238 >>
|%M1169  +-----+                                                        %M1204
+--| +---|OFDT +-------------------------------------------------------( )--  (* First 10 sec after stop timer    *)
|       |0.10s|                                                               Cross reference for LS_T2
|       |     |                                                               -] [- 60
| CONST -|PV   |
| +00300 |     |
|        +-----+
|        ACC164
|        %R9489
|
| (*************************************************************************)
| (* Condition for high LS setpoint.                                       *)
| (* High temp in SS6 & SS7 only and always during the first 15 min.      *)
| (* And during the first 10 seconds after short stop.                    *)
| (*                                                                       *)
| (*************************************************************************)
|
|  SS7    LS_T2  PROD17                                                 LS_HIGH  << RUNG 60  STEP #0242 >>
|%M0105  %M1204  %M1169                                                 %M1201
+--| +-----| +-----|/+-------------------------------------------------( )--  (* LS high temp condition           *)
|       | 0058  |                                                               Cross reference for LS_HIGH
|  SS8  | LS_T1 |                                                                       NONE
|%M0106 |%M1203 |
+--| +--+--|/+--+
|       | 0056
|INC_CON|
|%M0484 |
+--| +--+
| 0016
|
| (*************************************************************************)
| (* Second setpoint LS element,                                           *)
| (* 1 = higher temp during tubesealing                                   *)
| (* 15 first minutes of production                                       *)
| (* 10 first seconds after any stop.                                     *)
| (*************************************************************************)
|
|  SS3    TUBE8                                                          K041    << RUNG 62  STEP #0251 >>
|%M0101  %M1128                                                         %Q0024
+--| +-----|/+-----------------------------------------------------------( )--  (* Second setpoint LS element       *)
|       |       |       |                                                       Cross reference for K041
|       | S001H |       |                                                               NONE
|       |%I0104 |       |
|       +--| +--+       |
|                       |
|  SS2    PRE4    SS2T  |
|%M0100  %M1252  %M0937 |
+--| +-----|/+-----| +--|
|                       |
|  SS5   SPRAY10        |
|%M0103  %M1066         |
+--| +-----| +----------|
|                       |
|  SS6   FR1_NVL        |
|%M0104  %Q0002         |
+--| +-----| +----------|
|         0013          |
|  SS7    PRODT  PROD17 |
|%M0105  %M0935  %M1169 |
+--| +-----|/+-----|/+--+
|       |
|  SS8  |
|%M0106 |
+--| +--|
|       |
|  SS9  |
|%M0107 |
+--| +--+
|
```

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BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-12:01

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```
|  SS8                                                                  PROD_MB  << RUNG 63  STEP #0272 >>
|%M0106                                                                 %M0944
+--| +-----------------------------------------------------------------(S)--  (* Memory bit, Production          *)
|                                                                               Cross reference for PROD_MB
|                                                                               -] [- 65
|                                                                               -(R)  64
|
|  SS1                                                                  PROD_MB  << RUNG 64  STEP #0274 >>
|%M0099                                                                 %M0944
+--| +-----------------------------------------------------------------(R)--  (* Memory bit, Production          *)
|       |                                                                       Cross reference for PROD_MB
| S003  |                                                                       -] [- 65
|%I0075 |                                                                       -(S)  63
+--| +--+
|
|PROD_MB PROD17                                                         NSTOP_H  << RUNG 65  STEP #0277 >>
|%M0944  %M1169  +-----+                                                %M0945
+--| +-----|/+---|RANGE|+-------------------------------------------(SM)-  (* Help variable, normal stop      *)
| 0064           | INT ||                                                       Cross reference for NSTOP_H
|                |     ||                                               NSTOP_C  -(RM) 66
|                |     ||                                               %M0946
|         CONST -|L1   Q+-------------------------------------------( )--  (* Cooling time, normal stop       *)
|         +06000 |     |                                                      Cross reference for NSTOP_C
|                |     |                                                            NONE
|         CONST -|L2   |
|         +12000 |     |
|                |     |
|         ACC95  |     |
|        %R9282 -|IN   |
|                +-----+
|
|  SS7    S001H                                                         NSTOP_H  << RUNG 66  STEP #0282 >>
|%M0105  %I0104                                                         %M0945
+--| +-----| +-----------------------------------------------------------(RM)-  (* Help variable, normal stop      *)
|              |                                                                Cross reference for NSTOP_H
|  SS0         |                                                                -(SM) 65
|%M0098        |
+--| +---------+
|
| (*************************************************************************)
| (*                                                                       *)
| (*************************************************************************)
|
|ALW_OFF                                                                 K044    << RUNG 68  STEP #0287 >>
|%S0008                                                                 %Q0050
+--| +-----------------------------------------------------------------( )--  (* Spare                           *)
|                                                                               Cross reference for K044
|                                                                                     NONE
|
| (*************************************************************************)
| (* Power to safety relay.                                               *)
| (*************************************************************************)
|
| B001-                                                                 SAFETY   << RUNG 70  STEP #0290 >>
|%I0022                                                                 %Q0028
+--| +-----------------------------------------------------------------( )--  (* Safety power                    *)
|                                                                               Cross reference for SAFETY
|                                                                                     NONE
|
| (*************************************************************************)
| (* Evacuation valve.                                                    *)
| (*                                                                       *)
| (* Air on timer is needed to ensure startup of air system.              *)
| (*************************************************************************)
|
| EVAC                                                                   Y309    << RUNG 72  STEP #0293 >>
|%M1346                                                                 %Q0031
+--| +-----------------------------------------------------------------( )--  (* Main air valve                  *)
|       |                                                                       Cross reference for Y309
| PEVAC |                                                                             NONE
|%M1348 |
+--| +--|
|       |
|ASEVAC |
|%M1349 |
+--| +--|
|       |
|SS-1_0 |
|%M0064 |
+--|/+--+
|
| (*************************************************************************)
| (* Sterile air valve                                                     *)
| (*************************************************************************)
|
```

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```
| PEVAC                                                                  Y310    << RUNG 74  STEP #0299 >>
|%M1348                                                                 %Q0032
+--| +-------------------------------------------------------------------( )--  (* Sterile air valve               *)
|       |       |                                                                Cross reference for Y310
|ASEVAC |       |                                                                         NONE
|%M1349 |       |
+--| +--+       |
|          |
| SS2_9  AIR_ON |
|%M0068  %M0009 |
+--| +-----| +--+
|       |
| EVAC  |
|%M1346 |
+--| +--+
|
| (*************************************************************************)
| (* Total consumption of packaging material                               *)
| (*************************************************************************)
|
| SS2_8                                                                  K032    << RUNG 76  STEP #0307 >>
|%M0067                                                                 %Q0034
+--| +-------------------------------------------------------------------( )--  (* Tot. consump. of packaging mtrl. *)
|                                                                                Cross reference for K032
|                                                                                         NONE
|
| (*************************************************************************)
| (* Machine status signals.                                               *)
| (*************************************************************************)
|
|  SS6    STER2                                                          K033    << RUNG 78  STEP #0310 >>
|%M0104  %M1282                                                         %Q0035
+--| +-----| +-------------------------------------------------------------( )--  (* Machine ready for production     *)
|       |       |                                                                Cross reference for K033
|       | STER3 |                                                                         NONE
|       |%M1283 |
|       +--| +--+
|          |
|       | STER4 |
|       |%M1284 |
|       +--| +--+
|          |
|  SS7          |
|%M0105         |
+--| +----------+
|             |
|  SS8          |
|%M0106         |
+--| +----------+
|
|  SS8                                                                   K034    << RUNG 79  STEP #0318 >>
|%M0106                                                                 %Q0036
+--| +-------------------------------------------------------------------( )--  (* Machine in production            *)
|                                                                                Cross reference for K034
|                                                                                         NONE
|
| SS11                                                                   K035    << RUNG 80  STEP #0320 >>
|%M0109                                                                 %Q0037
+--| +-------------------------------------------------------------------( )--  (* Machine ready for cleaning       *)
|                                                                                Cross reference for K035
|                                                                                         NONE
|
| (*************************************************************************)
| (* Reset pulse to safety module.                                        *)
| (*************************************************************************)
|
| RST2                                                                   K038    << RUNG 82  STEP #0323 >>
|%M0386                                                                 %Q0040
+--| +-------------------------------------------------------------------( )--  (* Reset pulse safety module        *)
|       |                                                                        Cross reference for K038
| RST4  |                                                                                 NONE
|%M0388 |
+--| +--+
|
| (*************************************************************************)
| (* Steam temperature monitor                                             *)
| (*************************************************************************)
|
| SS2_9                                                                  K051    << RUNG 84  STEP #0327 >>
|%M0068                                                                 %Q0041
+--| +-------------------------------------------------------------------( )--  (* Temperature monitor steam        *)
|          |                                                                     Cross reference for K051
|SS10_11  S004  |                                                                         NONE
|%M0070  %I0076 |
+--| +-----|/+--+
|
| (*************************************************************************)
| (* Temperature monitor sterile house.                                    *)
| (*************************************************************************)
|
```


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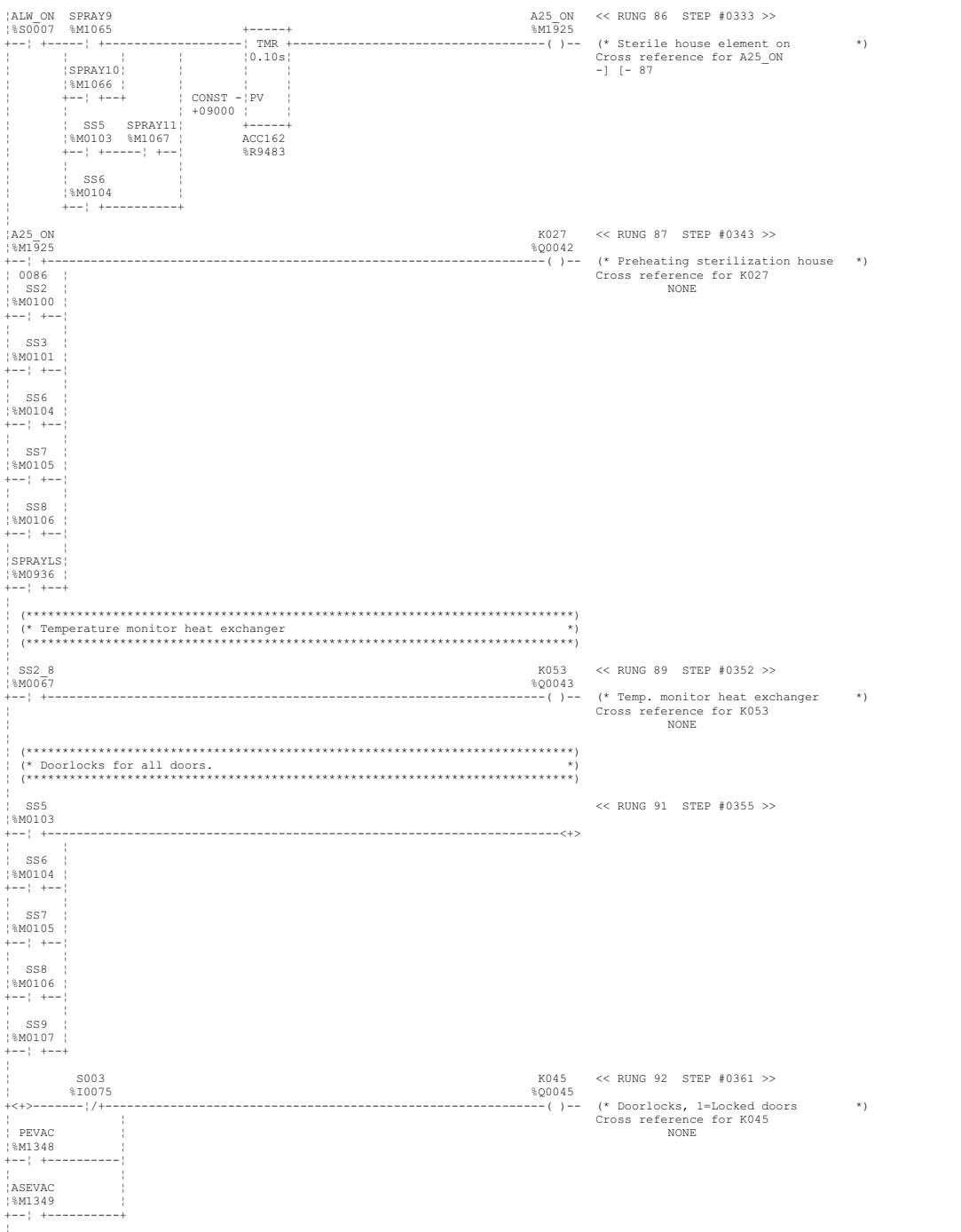

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```
| (*************************************************************************)
| (* Light in machine body                                                 *)
| (*************************************************************************)
|
| S009                                                          K056    << RUNG 94  STEP #0367 >>
|%I0103                                                       %Q0046
+--| +-----------------------------------------------------------( )--  (* Light in machine body            *)
|                                                                       Cross reference for K056
|                                                                                 NONE
|
| (*************************************************************************)
| (* Lamp bleeding of hydraulic system                                   *)
| (*************************************************************************)
|
|  SS7                                                          K043    << RUNG 96  STEP #0370 >>
|%M0105                                                       %Q0049
+--| +-----------------------------------------------------------( )--  (* 2nd SP Preh. elem. ster. house   *)
|    |                                                                  Cross reference for K043
|  SS8  |                                                                         NONE
|%M0106 |
+--| +--|
|    |
|  SS9  |
|%M0107 |
+--| +--+
|
|HY_BLED                                                        H403S   << RUNG 97  STEP #0374 >>
|%M1627                                                       %Q0051
+--| +-----------------------------------------------------------( )--  (* Bleeding hydraulic system        *)
| 0122  |                                                               Cross reference for H403S
| LMP2  |                                                                         NONE
|%M1938 |
+--| +--+
|
| (*************************************************************************)
| (* Total hour meter output. Counts main motor running time.              *)
| (*************************************************************************)
|
| K001   FR1_NVL                                                P001    << RUNG 99  STEP #0378 >>
|%Q0001  %Q0002                                               %Q0052
+--| +-----| +-----------------------------------------------------( )--  (* Hour meter                       *)
| 0006    0013                                                          Cross reference for P001
|                                                                                 NONE
|
| (*************************************************************************)
| (* Short stop lamp at back side of machine                              *)
| (*************************************************************************)
|
|  H96                                                          H400S   << RUNG 101  STEP #0382 >>
|%M0233                                                       %Q0055
+--| +-----------------------------------------------------------( )--  (* Short stop at backside           *)
|    |                                                                  Cross reference for H400S
| LMP2  |                                                                         NONE
|%M1938 |
+--| +--+
|
| (*************************************************************************)
| (* Warning horn                                                          *)
| (*************************************************************************)
|
|HO_LUB                                                         H410+4  << RUNG 103  STEP #0386 >>
|%M1617                                                       %Q0057
+--| +-----------------------------------------------------------( )--  (* Alarm device horn                *)
|    |                                                                  Cross reference for H410+4
|HO_TUB |                                                                         NONE
|%M1618 |
+--| +--|
|    |
|HO_INC |
|%M1619 |
+--| +--|
| 0021  |
|HO_PROD|
|%M1620 |
+--| +--|
|    |
|HO_SST |
|%M1621 |
+--| +--|
|    |
| LMP6  |
|%M1942 |
+--| +--+
|
| (*************************************************************************)
| (* Short stop lamp, superstructure                                       *)
| (*************************************************************************)
|
```


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```
|  H96                                                                  H200S   << RUNG 105  STEP #0394 >>
|%M0233                                                                %Q0061
+--| +-----------------------------------------------------------------( )--  (* Short stop superstructure        *)
|       |                                                                      Cross reference for H200S
| LMP2  |                                                                              NONE
|%M1938 |
+--| +--+
|
| (*************************************************************************)
| (* Inching of main motor lamp                                           *)
| (*************************************************************************)
|
| H003S                                                                 H201S   << RUNG 107  STEP #0398 >>
|%M0139                                                                %Q0062
+--| +-----------------------------------------------------------------( )--  (* Inching superstructure           *)
|                                                                              Cross reference for H201S
|                                                                                      NONE
|
| (*************************************************************************)
| (* Short stop lamp splice unit                                          *)
| (*************************************************************************)
|
|  H96                                                                  H101S   << RUNG 109  STEP #0401 >>
|%M0233                                                                %Q0063
+--| +-----------------------------------------------------------------( )--  (* Short stop splice unit           *)
|       |                                                                      Cross reference for H101S
| LMP2  |                                                                              NONE
|%M1938 |
+--| +--+
|
| (*************************************************************************)
| (* LS Strip element valve, variant without ASU unit.                     *)
| (*************************************************************************)
|
|  SS7   PR_CON                                                         Y100    << RUNG 111  STEP #0405 >>
|%M0105  %M0485          +-----+         +-----+                        %Q0065
+--| +-----| +----------| TMR +---------|OFDT +-------------------------( )--  (* SA element, movement ,man.infeed *)
|       |       |        |0.10s|         |0.10s|                              Cross reference for Y100
|  SS8  |       |        |     |         |     |                              -] [- 113
|%M0106 |       |        |     |         |     |
+--| +--|       | CONST -|PV   |  CONST -|PV   |
|       |       | +00004 |     |  +00008 |     |
|  SS9  |       |        +-----+         +-----+
|%M0107 |       |         ACC93          ACC92
+--| +--+       |        %R9276          %R9273
|               |
|INC_RUN        |
|%M0486         |
+--| +---------+
| 0027          |
|  SS3   LS_TUBE|
|%M0101  %M1681 |
+--| +-----| +--|
|               |
|FR1_NVL        |
|%Q0002         |
+--| +---------+
| 0013
|
| (*************************************************************************)
| (* Variant output for ASU unit                                           *)
| (* %Q45 is for without ASU.                                              *)
| (*************************************************************************)
|
| Y100                                                                  Y112    << RUNG 113  STEP #0418 >>
|%Q0065                                                                %Q0116
+--| +-----------------------------------------------------------------( )--  (* SA element, movement             *)
| 0111                                                                         Cross reference for Y112
|                                                                                      NONE
|
| (*************************************************************************)
| (* LS element valve                                                     *)
| (*************************************************************************)
|
|ALW_ON                                                                 LS_TMP1 << RUNG 115  STEP #0421 >>
|%S0007  +-----+                                                        %M0496
+--| +---| GT_ |+-----------------------------------------------------------( )--  (* Y200 help variable               *)
|       | INT ||                                                               Cross reference for LS_TMP1
|       |     ||                                                               -] [- 118
| ACC55 |     ||
|%R9162 -|I1  Q++
|       |     |
| CONST -|I2   |
| +00065 +-----+
|
```


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```
¦ALW_ON                                                                LS_TMP2  << RUNG 116  STEP #0424 >>
¦%S0007  +-----+                                                       %M0497
+--¦ +---¦ GT_  ¦+-------------------------------------------------------( )--  (* Y200 help variable               *)
¦       ¦ INT ¦¦                                                               Cross reference for LS_TMP2
¦       ¦     ¦¦                                                               -] [- 118
¦ ACC70 ¦     ¦¦
¦%R9207 -¦I1  Q++
¦       ¦     ¦
¦ CONST -¦I2   ¦
¦ +00045 +-----+
¦
¦ALW_ON                                                                LS_TMP3  << RUNG 117  STEP #0427 >>
¦%S0007  +-----+                                                       %M0498
+--¦ +---¦ GT_  ¦+-------------------------------------------------------( )--  (* Y200 help variable               *)
¦       ¦ INT ¦¦                                                               Cross reference for LS_TMP3
¦       ¦     ¦¦                                                               -] [- 118
¦ ACC49 ¦     ¦¦
¦%R9144 -¦I1  Q++
¦       ¦     ¦
¦ CONST -¦I2   ¦
¦ +00065 +-----+
¦
¦LS_TMP1                                                                Y200    << RUNG 118  STEP #0430 >>
¦%M0496                                                                %Q0081
+--¦ +-------------------------------------------------------------------( )--  (* LS element, movement             *)
¦ 0115  ¦                                                                      Cross reference for Y200
¦MR_PRO ¦                                                                               NONE
¦%M1610 ¦
+--¦ +--¦
¦       ¦
¦LS_TMP2¦
¦%M0497 ¦
+--¦ +--¦
¦ 0116  ¦
¦INC_RUN¦
¦%M0486 ¦
+--¦ +--¦
¦ 0027  ¦
¦LS_TMP3¦
¦%M0498 ¦
+--¦ +--¦
¦ 0117  ¦
¦ TUBE5 ¦
¦%M1125 ¦
+--¦ +--+
¦
¦  SS1                  FR1_NVL ALW_OFF                                 Y204    << RUNG 119  STEP #0437 >>
¦%M0099                 %Q0002  %S0008                                 %Q0096
+--¦ +-------------------¦/+-----¦ +-----------------------------------( )--  (* LS heat reduction              *)
¦                       ¦       ¦ 0013                                       Cross reference for Y204
¦  SS2    TUBE5 ¦       ¦                                                              NONE
¦%M0100  %M1125 ¦       ¦
+--¦ +-----¦/+--+       ¦
¦                       ¦
¦  SS4   Y204_ON SPRAY10¦
¦%M0102  %M0938  %M1066 ¦
+--¦ +-----¦ +-----¦ +--¦
¦       ¦               ¦
¦       ¦SPRAY11        ¦
¦       ¦%M1067         ¦
¦       +--¦ +----------¦
¦                       ¦
¦  SS5                  ¦
¦%M0103                 ¦
+--¦ +------------------¦
¦                       ¦
¦  SS6   PR_CON         ¦
¦%M0104  %M0485         ¦
+--¦ +-----¦/+----------+
¦       ¦
¦  SS7  ¦
¦%M0105 ¦
+--¦ +--¦
¦       ¦
¦  SS8  ¦
¦%M0106 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Air powered hydraulic pump.                                           *)
¦ (* Including bleeding function.                                          *)
¦ (*************************************************************************)
¦
¦ S403H                                                                HY_BLOS  << RUNG 121  STEP #0457 >>
¦%I0056                                                                %M1628
+--¦ +-------------------------------------------------------------------(^)--  (* Hydraulic pump bleeding OS       *)
¦                                                                              Cross reference for HY_BLOS
¦                                                                              -] [- 122
¦                                                                              -]/[- 122
¦
```

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BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

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```
|HY_BLOS HY_BLED HY_TMR    SS2                                          HY_BLED  << RUNG 122  STEP #0459 >>
|%M1628  %M1627  %M1629  %M0100                                        %M1627
+--| +-----|/+-----|/+-----| +-----------------------------------------( )--  (* Hydraulic pump bleeding          *)
| 0121    0122  | 0123  |       |       |                                      Cross reference for HY_BLED
|HY_BLOS HY_BLED|       |  SS3  |       |                                      -] [- 97,122,123,124
|%M1628  %M1627 |       |%M0101 |       |                                      -]/[- 122
+--|/+-----| +--+       +--| +--|       |
| 0121    0122          |     |       |
|                       |  SS4  |       |
|                       |%M0102 |       |
|                       +--| +--|       |
|                       |     |       |
|                       |  SS5  |       |
|                       |%M0103 |       |
|                       +--| +--|       |
|                       |     |       |
|                       |  SS6  |       |
|                       |%M0104 |       |
|                       +--| +--+       |
|                       |               |
|                       |  SS8   PROD17 |
|                       |%M0106  %M1169 |
|                       +--| +-----| +--|
|                              |       |
|                              |PROD18 |
|                              |%M1170 |
|                              +--| +--+
|
|HY_BLED                                                             HY_TMR   << RUNG 123  STEP #0477 >>
|%M1627  +-----+                                                     %M1629
+--| +---| TMR +-----------------------------------------------------( )--  (* Hydraulic pump bleeding timer    *)
| 0122   |0.10s|                                                            Cross reference for HY_TMR
|        |     |                                                            -]/[- 122
| CONST -|PV   |
| +01200 |     |
|        +-----+
|         ACC76
|        %R9225
|
|HY_BLED                                                              Y503    << RUNG 124  STEP #0480 >>
|%M1627                                                              %Q0012
+--| +-----------------------------------------------------------------( )--  (* Solenoid Hydraulic pump          *)
| 0122                          |                                              Cross reference for Y503
| K001   PROD17  PROD18    SS1  |                                                       NONE
|%Q0001  %M1169  %M1170  %M0099 |
+--| +-----|/+-----|/+-----|/+--|
| 0006  |               |       |
|       |               |FR1_ENA|
|       |               |%Q0008 |
|       |               +--| +--|
|       |                 0025  |
|       |INC_HSP                |
|       |%M0480                 |
|       +--| +-----------------|
|       | 0015                  |
|       | S010H                 |
|       |%I0108                 |
|       +--| +-----------------+
|
| (*************************************************************************)
| (* Output Y202 Squee gee roller                                         *)
| (*************************************************************************)
|
| SS11                                                                Y302    << RUNG 126  STEP #0493 >>
|%M0109                                                              %Q0082
+--| +-----------------------------------------------------------------( )--  (* Cleaning cylinder,force reg open *)
|                                                                            Cross reference for Y302
|                                                                                     NONE
|
| (*************************************************************************)
| (* AP valve A.                                                          *)
| (*************************************************************************)
|
| REG5   REG_HH                                                       Y305    << RUNG 128  STEP #0496 >>
|%M1733  %M1759                                                      %Q0085
+--| +-----|/+-----------------------------------------------------------( )--  (* AP valve A product               *)
|       |                                                                    Cross reference for Y305
| REG6  |                                                                             NONE
|%M1734 |
+--| +--+
|
| (*************************************************************************)
| (* AP valve B.                                                          *)
| (*                                                                       *)
| (* The timer is to allow the CIP central a few seconds to shut down     *)
| (* the pressure pump. This will help avoiding "hammering".              *)
| (*************************************************************************)
|
```

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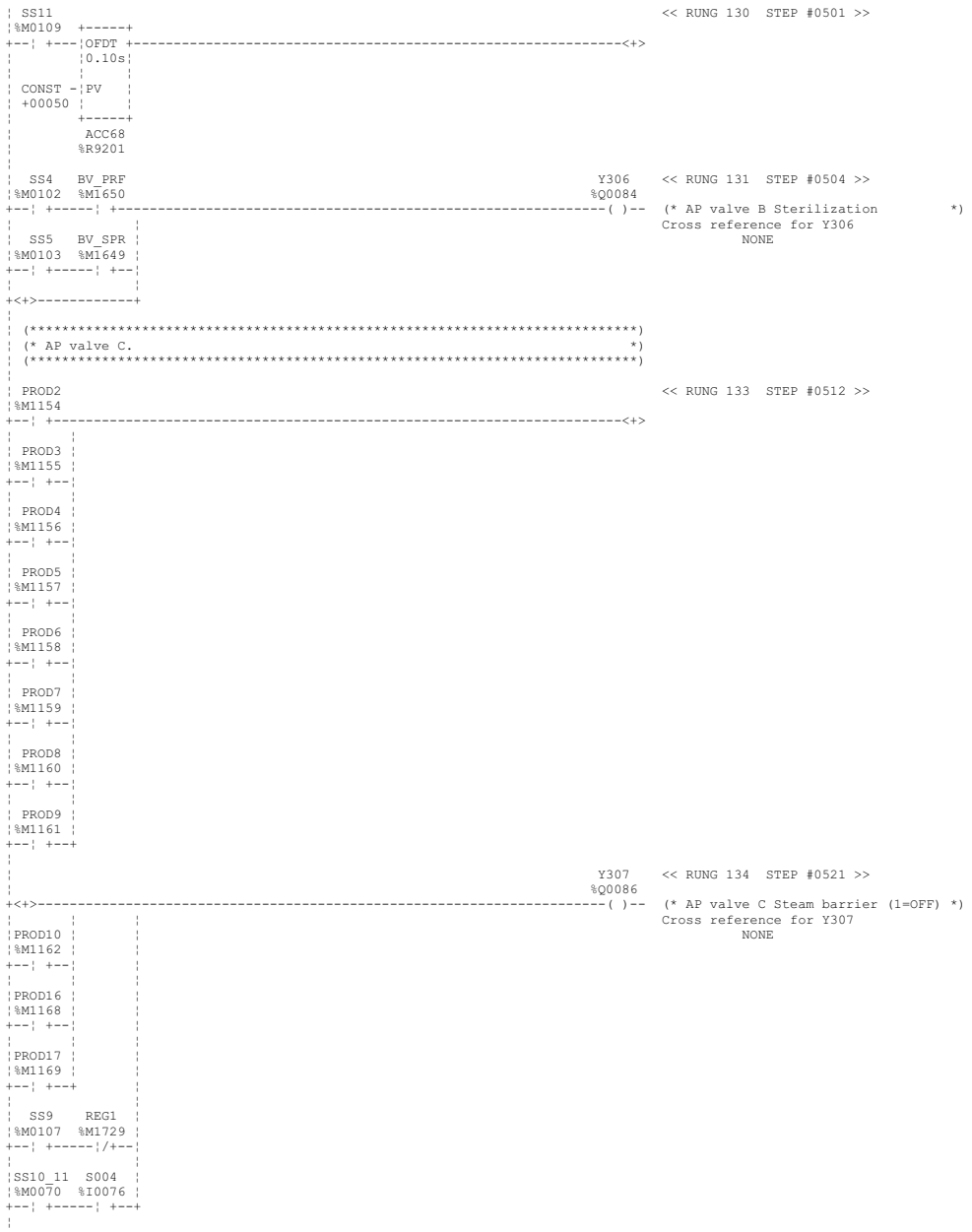
BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

EM1.1TS700012.fm



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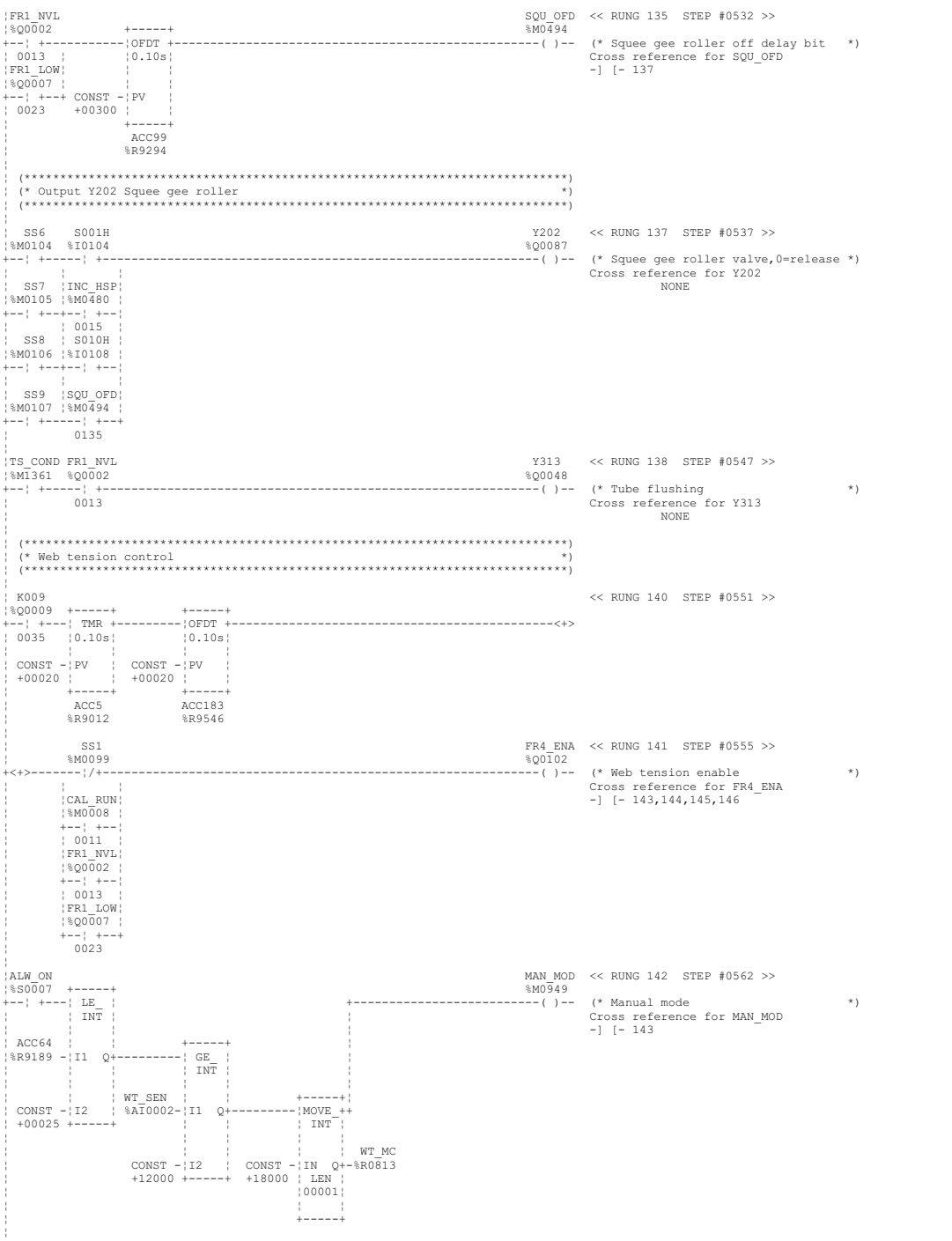
BLOCK 12 OUTPUTS, COMMON TO SEVERAL SUBS

EM1.1TS700012.fm



TCA/P1
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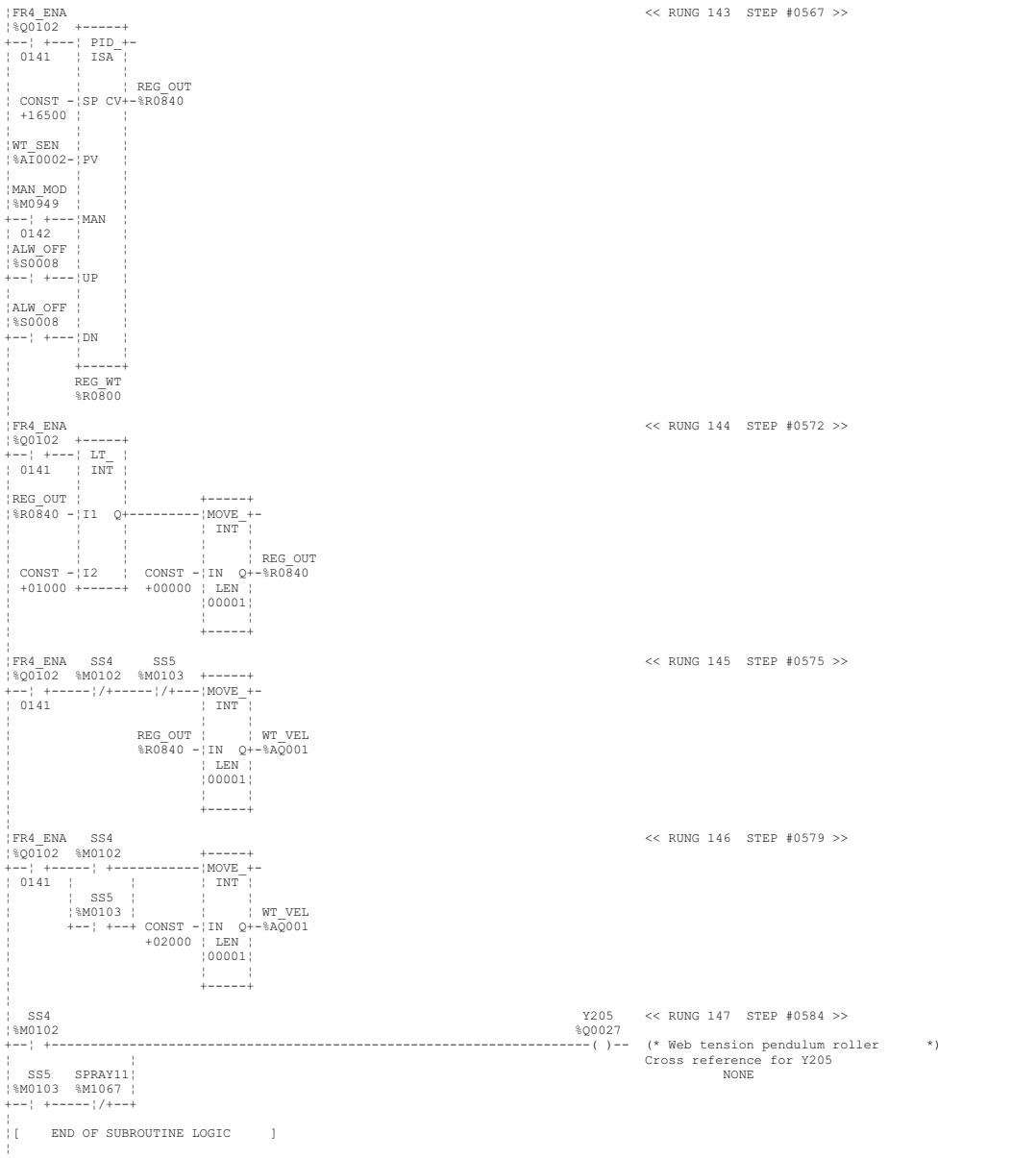
EM1.1TS700012.fm



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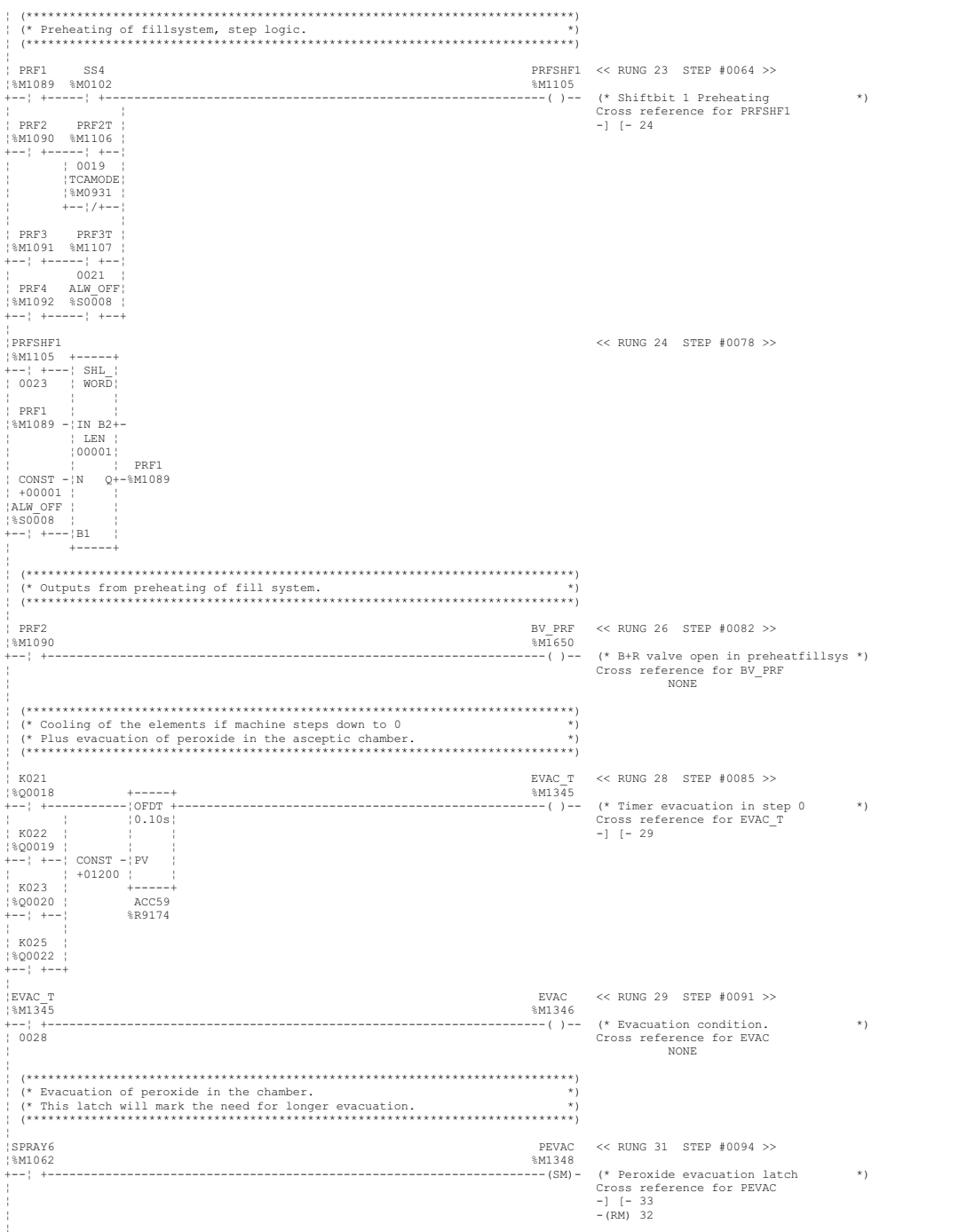
```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Preheating.                                                           *)
| (*                                                                       *)
| (* Initialize sequence.                                                  *)
| (*************************************************************************)
|
|FST_SCN                                                                    << RUNG 5  STEP #0003 >>
|%S0001          +-----+         +-----+
+--| +----------| BLK_+---------| BIT_+-
|       |        | CLR_|         | SET_|
|  SS1  |        | WORD|         | WORD|
|%M0099 | PRE1   |     |  PRE1   |     |
+--| +--|%M1249 -|IN   | %M1249 -|IN   |
|       |        | LEN |         | LEN |
|SS-1_0 |        |00001|         |00001|
|%M0064 |        |     |         |     |
+--| +--+        +-----+  CONST -|BIT  |
|                         00001 +-----+
|
| (*************************************************************************)
| (* Conditions preheating completed                                       *)
| (*************************************************************************)
|
| PRE3   A20_24  A21_24                                          PRE_COM  << RUNG 7  STEP #0009 >>
|%M1251  %I0065  %I0066  +-----+                                 %M1266
+--| +-----| +-----| +---| TMR +-----------------------------------------( )--  (* Preheating completed timer       *)
|                       |0.10s|                                           Cross reference for PRE_COM
|                       |     |                                           -] [- 12
|                CONST -|PV   |
|                +00020 |     |
|                       +-----+
|                        ACC48
|                       %R9141
|
| (*************************************************************************)
| (* Air pressure OK timer. Delay power to heaters.                        *)
| (*************************************************************************)
|
| B307                                                           PRE_AT   << RUNG 9  STEP #0015 >>
|%I0042  +-----+                                                 %M1268
+--| +---| TMR +-----------------------------------------------------( )--  (* Preheating air pressure timer    *)
|       |0.10s|                                                           Cross reference for PRE_AT
|       |     |                                                           -] [- 12
| CONST -|PV   |
| +00020 |     |
|       +-----+
|        ACC87
|       %R9258
|
| PRE3     SS2                                                    PRE3T   << RUNG 10  STEP #0018 >>
|%M1251  %M0100  +-----+                                         %M1269
+--| +-----| +---| TMR +-----------------------------------------------( )--  (* Timer bit Preheating add.heating *)
|               |0.10s|                                                   Cross reference for PRE3T
|               |     |                                                   -] [- 12
|        CONST -|PV   |
|        +06000 |     |
|               +-----+
|               ACC165
|               %R9492
|
| (*************************************************************************)
| (* Preheating step logic.                                                *)
| (*                                                                       *)
| (* The sequence remains in step PRE3 until the system is stepped down to 0  *)
| (* or stepped up to production finished+                                  *)
| (*************************************************************************)
|
| PRE1     SS2                                                   PRESHF1  << RUNG 12  STEP #0023 >>
|%M1249  %M0100                                                  %M1265
+--| +-----| +-----------------------------------------------------( )--  (* Preheating shiftbit 1            *)
|               |       |                                                 Cross reference for PRESHF1
| PRE2   PRE_AT |       |                                                 -] [- 13
|%M1250  %M1268 |       |
+--| +-----| +--+       |
|         0009          |
| PRE3   PRE_COM  PRE3T |
|%M1251  %M1266  %M1269 |
+--| +-----| +-----| +--|
|         0007  | 0010  |
|               | S003  |
|               |%I0075 |
|               +--| +--|
|                  |    |
| PRE4     SS0     |    |
|%M1252  %M0098    |    |
+--| +-----| +-----+----+
|
```


EM1.1TS700012.fm

```
¦PRESHF1                                                                    << RUNG 13  STEP #0038 >>
¦%M1265  +-----+
+--¦ +---¦ SHL_¦
¦ 0012   ¦ WORD¦
¦        ¦     ¦
¦ PRE1   ¦     ¦
¦%M1249 -¦IN B2+-
¦        ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦  PRE1
¦ CONST -¦N   Q+-%M1249
¦ +00001 ¦     ¦
¦ALW_OFF ¦     ¦
¦%S0008  ¦     ¦
+--¦ +---¦B1   ¦
¦        +-----+
¦
¦ (*************************************************************************)
¦ (* Return to step 0 after machine is stepped down.                       *)
¦ (*************************************************************************)
¦
¦ PRE5                                                                      << RUNG 15  STEP #0042 >>
¦%M1253  +-----+         +-----+
+--¦ +---¦ BLK_+---------¦ BIT_+-
¦        ¦ CLR_¦         ¦ SET_¦
¦        ¦ WORD¦         ¦ WORD¦
¦ PRE1   ¦     ¦  PRE1   ¦     ¦
¦%M1249 -¦IN   ¦ %M1249 -¦IN   ¦
¦        ¦ LEN ¦         ¦ LEN ¦
¦        ¦00001¦         ¦00001¦
¦        ¦     ¦         ¦     ¦
¦        +-----+  CONST -¦BIT  ¦
¦                  00001 +-----+
¦
¦ (*************************************************************************)
¦ (* Secition:                                                             *)
¦ (* Preheating of fillsystem                                              *)
¦ (* Initialize the sequence.                                              *)
¦ (*************************************************************************)
¦
¦FST_SCN                                                                    << RUNG 17  STEP #0046 >>
¦%S0001          +-----+         +-----+
+--¦ +-----------¦ BLK_+---------¦ BIT_+-
¦       ¦        ¦ CLR_¦         ¦ SET_¦
¦  SS3  ¦        ¦ WORD¦         ¦ WORD¦
¦%M0101 ¦ PRF1   ¦     ¦  PRF1   ¦     ¦
+--¦ +--¦%M1089 -¦IN   ¦ %M1089 -¦IN   ¦
¦       ¦        ¦ LEN ¦         ¦ LEN ¦
¦  SS2  ¦        ¦00001¦         ¦00001¦
¦%M0100 ¦        ¦     ¦         ¦     ¦
+--¦ +--¦        +-----+  CONST -¦BIT  ¦
¦       ¦                  00001 +-----+
¦  SS1  ¦
¦%M0099 ¦
+--¦ +--¦
¦       ¦
¦SS-1_0 ¦
¦%M0064 ¦
+--¦ +--+
¦
¦ (*************************************************************************)
¦ (* Timer B valve opens to allow hot air thru system.                     *)
¦ (*************************************************************************)
¦
¦ PRF2    B302                                                PRF2T   << RUNG 19  STEP #0054 >>
¦%M1090  %I0045  +-----+                                     %M1106
+--¦ +-----¦ +---¦ TMR +-----------------------------------------( )--  (* Timer bit B valve, 15 min        *)
¦          ¦0.10s¦                                                     Cross reference for PRF2T
¦          ¦     ¦                                                     -] [- 23
¦   CONST -¦PV   ¦
¦   +09000 ¦     ¦
¦          +-----+
¦           ACC53
¦          %R9156
¦
¦ (*************************************************************************)
¦ (* Cooling time                                                          *)
¦ (*************************************************************************)
¦
¦ PRF3    B302                                                PRF3T   << RUNG 21  STEP #0059 >>
¦%M1091  %I0045  +-----+                                     %M1107
+--¦ +-----¦/+---¦ TMR +-----------------------------------------( )--  (* Timer bit Cooling for 0,1 min    *)
¦          ¦0.10s¦                                                     Cross reference for PRF3T
¦          ¦     ¦                                                     -] [- 23
¦   CONST -¦PV   ¦
¦   +00001 ¦     ¦
¦          +-----+
¦           ACC54
¦          %R9159
¦
```


EM1.1TS700012.fm



TCA/P1
BLOCK 13 HEATING / PREHEATING FILLSYSTEM

EM1.1TS700012.fm

```
¦SPRAY10                                                                PEVAC   << RUNG 32  STEP #0096 >>
¦%M1066                                                                 %M1348
+--¦ +-------------------------------------------------------------------(RM)-  (* Peroxide evacuation latch        *)
¦       ¦                                                                       Cross reference for PEVAC
¦PERE_T ¦                                                                       -] [- 33
¦%M1347 ¦                                                                       -(SM) 31
+--¦ +--+
¦ 0033
¦
¦ PEVAC   B314                                                          PERE_T  << RUNG 33  STEP #0099 >>
¦%M1348  %I0058  +-----+                                                %M1347
+--¦ +-----¦ +---¦ TMR +-------------------------------------------------( )--  (* Peroxide evacuation timer        *)
¦ 0032          ¦0.10s¦                                                       Cross reference for PERE_T
¦               ¦     ¦                                                       -] [- 32
¦        CONST -¦PV   ¦
¦        +06000 ¦     ¦
¦               +-----+
¦               ACC124
¦               %R9369
¦
¦ (*************************************************************************)
¦ (* Asceptic chamber evacuation timer.                                   *)
¦ (*                                                                     *)
¦ (* Peroxide hazzard safety timer ! Do not delete or make shorter!      *)
¦ (*************************************************************************)
¦
¦FR1_NVL A031_18                                                        ASEVAC  << RUNG 35  STEP #0104 >>
¦%Q0002  %I0107  +-----+                                                %M1349
+--¦ +-----¦ +---¦OFDT +-------------------------------------------------( )--  (* Aseptic chamber evac. timer      *)
¦               ¦0.10s¦                                                       Cross reference for ASEVAC
¦               ¦     ¦                                                                 NONE
¦        CONST -¦PV   ¦
¦        +00900 ¦     ¦
¦               +-----+
¦               ACC125
¦               %R9372
¦
¦ (*************************************************************************)
¦ (* Fire prevention logic.                                               *)
¦ (*                                                                     *)
¦ (* The encoder shall be turning and the paper web monitor signal       *)
¦ (* shall be OK or no power will be applied to the web elements.        *)
¦ (*                                                                     *)
¦ (* The first check is to ensure rotating encoder. The timer is the maximum  *)
¦ (* time for one revoultion of the encoder.                             *)
¦ (*************************************************************************)
¦
¦ALW_ON                                                                 ENC_SAM << RUNG 37  STEP #0109 >>
¦%S0007          +-----+                                                 %M0417
+--¦ +----------¦ EQ_ ¦+-------------------------------------------------( )--  (* Encoder same value as last scan  *)
¦                ¦ DINT¦¦                                                      Cross reference for ENC_SAM
¦                ¦     ¦¦                                                      -] [- 38
¦         TURN   ¦     ¦¦                                                      -]/[- 40
¦        %R0118 -¦I1  Q++
¦                ¦     ¦
¦        LAST_T  ¦     ¦
¦        %R0122 -¦I2   ¦
¦                +-----+
¦
¦ENC_SAM                                                                ENC_ROT << RUNG 38  STEP #0112 >>
¦%M0417  +-----+                                                        %M0418
+--¦ +---¦ TMR +-------------------------------------------------------( )--  (* Encoder is not rotating          *)
¦ 0037   ¦0.10s¦                                                               Cross reference for ENC_ROT
¦        ¦     ¦                                                               -] [- 44
¦ CONST -¦PV   ¦
¦ +00035 ¦     ¦
¦        +-----+
¦        ACC110
¦        %R9327
¦
¦ (*************************************************************************)
¦ (* Uppdate last number of completed turns of the encoder.              *)
¦ (*************************************************************************)
¦
¦ENC_SAM                                                                                << RUNG 40  STEP #0116 >>
¦%M0417  +-----+
+--¦/+---¦MOVE_+-
¦ 0037   ¦ INT ¦
¦        ¦     ¦
¦ TURN   ¦     ¦ LAST_T
¦%R0118 -¦IN  Q+-%R0122
¦        ¦ LEN ¦
¦        ¦00002¦
¦        ¦     ¦
¦        +-----+
¦
```


EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Paper web monitor function.                                           *)
| (*                                                                       *)
| (* If the signal is on for to long or off for too long there is a paper   *)
| (* problem and the power to the web elements shall be off.               *)
| (*************************************************************************)
|
| B102                                                          WEB_R1   << RUNG 42  STEP #0119 >>
|%I0034  +-----+                                               %M0419
+--| +---| TMR +-------------------------------------------------------( )--  (* Web monitor on to long          *)
|        |0.10s|                                                        Cross reference for WEB_R1
|        |     |                                                        -] [- 44
| CONST -|PV   |
| +00035 |     |
|        +-----+
|        ACC111
|        %R9330
|
| B102                                                          WEB_R2   << RUNG 43  STEP #0122 >>
|%I0034  +-----+                                               %M0420
+--|/+---| TMR +-------------------------------------------------------( )--  (* Web monitor off to long          *)
|        |0.10s|                                                        Cross reference for WEB_R2
|        |     |                                                        -] [- 44
| CONST -|PV   |
| +00035 |     |
|        +-----+
|        ACC112
|        %R9333
|
|ENC_ROT                                                        PAPER_F  << RUNG 44  STEP #0125 >>
|%M0418                                                         %M0421
+--| +-------------------------------------------------------------------( )--  (* Paper fault, no heat allowed    *)
| 0038  |                                                               Cross reference for PAPER_F
|WEB_R1 |                                                                        NONE
|%M0419 |
+--| +--|
| 0042  |
|WEB_R2 |
|%M0420 |
+--| +--+
| 0043
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Init tube sealing sequence.                                           *)
 (*************************************************************************)

FST_SCN                                                                    << RUNG 5  STEP #0003 >>
%S0001          +-----+         +-----+
+--+ +----------+ BLK_+---------+ BIT_+-
|       |       | CLR_|         | SET_|
|  SS0  |       | WORD|         | WORD|
%M0098 | TUBE1  |     |  TUBE1  |     |
+--+ +--|%M1121 -|IN   | %M1121 -|IN   |
|       |       | LEN |         | LEN |
|  SS1  |       |00001|         |00001|
%M0099 |        |     |         |     |
+--+ +--+        +-----+  CONST -|BIT  |
|                          00001 +-----+
|  SS2  |
%M0100 |
+--+ +--+

 (*************************************************************************)
 (* Horn sounding in tube sealing.                                        *)
 (*************************************************************************)

 TUBE2   S001H                                                  TUBE2T   << RUNG 7  STEP #0010 >>
%M1122  %I0104  +-----+                                         %M1139
+--+ +-----+ +---+ TMR +-------------------------------------------( )--  (* Timer bit Horn, tube sealing     *)
               |0.10s|                                                    Cross reference for TUBE2T
               |     |                                                    -] [- 17
        CONST -|PV   |
        +00070 |     |
               +-----+
                ACC49
               %R9144

 (*************************************************************************)
 (* Hydraulic pump on timer in tube sealing                               *)
 (*************************************************************************)

 TUBE3   S001H                                                  TUBE3T   << RUNG 9  STEP #0015 >>
%M1123  %I0104  +-----+                                         %M1140
+--+ +-----+ +---+ TMR +-------------------------------------------( )--  (* Timer bit Hydr. pump, tube seal. *)
               |0.10s|                                                    Cross reference for TUBE3T
               |     |                                                    -] [- 17
        CONST -|PV   |
        +00020 |     |
               +-----+
                ACC50
               %R9147

 (*************************************************************************)
 (* LS strip element valves timer                                         *)
 (*************************************************************************)

 TUBE4   S001H                                                  TUBE4T   << RUNG 11  STEP #0020 >>
%M1124  %I0104  +-----+                                         %M1141
+--+ +-----+ +---+ TMR +-------------------------------------------( )--  (* Timer bit LS Strip+LS elem.valve *)
               |0.10s|                                                    Cross reference for TUBE4T
               |     |                                                    -] [- 17
        CONST -|PV   |
        +00010 |     |
               +-----+
                ACC51
               %R9150

 (*************************************************************************)
 (* Main motor forward in tube sealing                                    *)
 (*************************************************************************)

 TUBE5  FR1_NVL                                                 TUBE5T   << RUNG 13  STEP #0025 >>
%M1125  %Q0002  +-----+                                         %M1142
+--+ +-----+ +---+ TMR +-------------------------------------------( )--  (* Timer bit Main motor, tube seal. *)
               |0.10s|                                                    Cross reference for TUBE5T
               |     |                                                    -] [- 17
        CONST -|PV   |
        +00450 |     |
               +-----+
                ACC52
               %R9153

 (*************************************************************************)
 (* Conditions for starting tube sealing                                  *)
 (*************************************************************************)
```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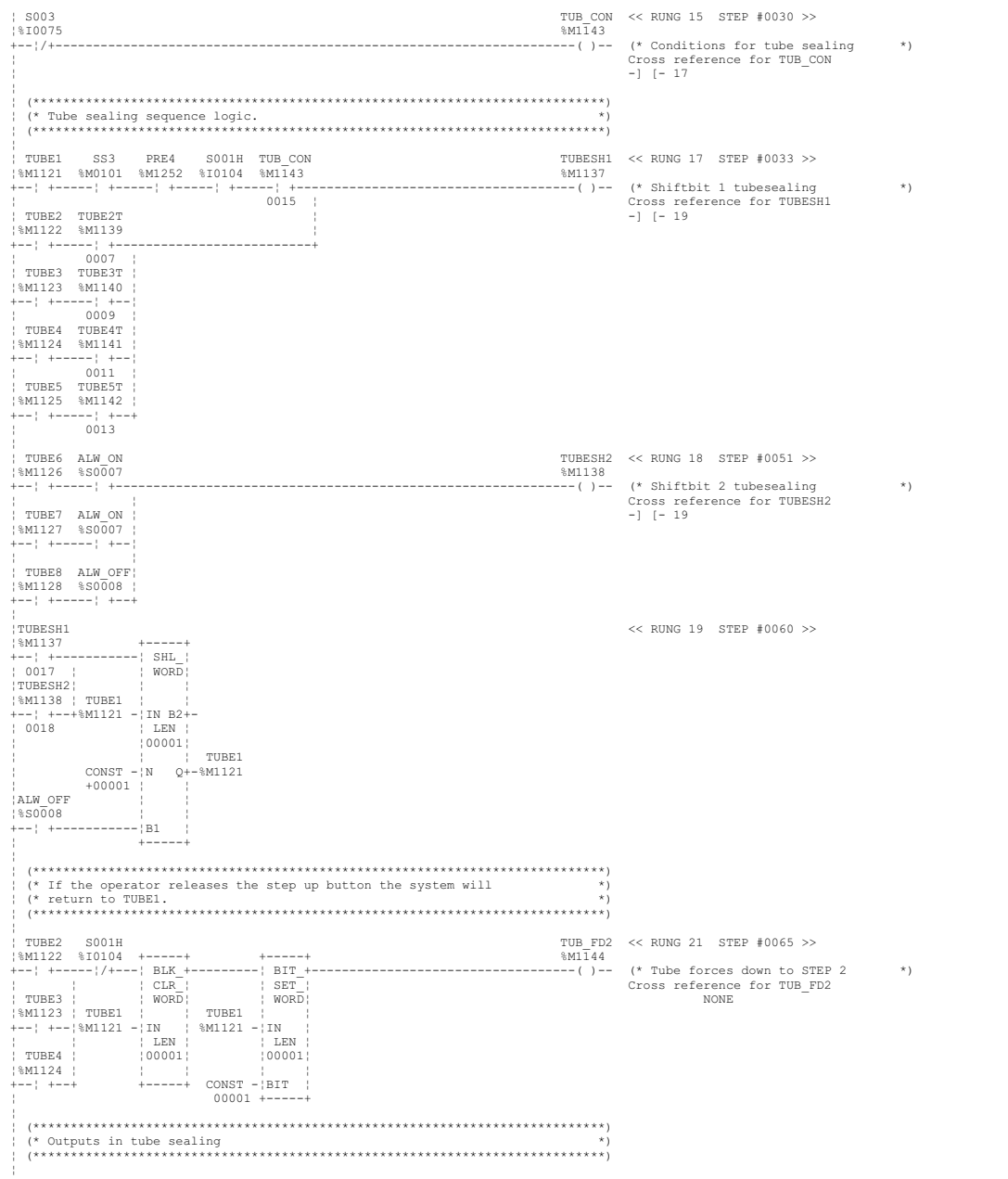

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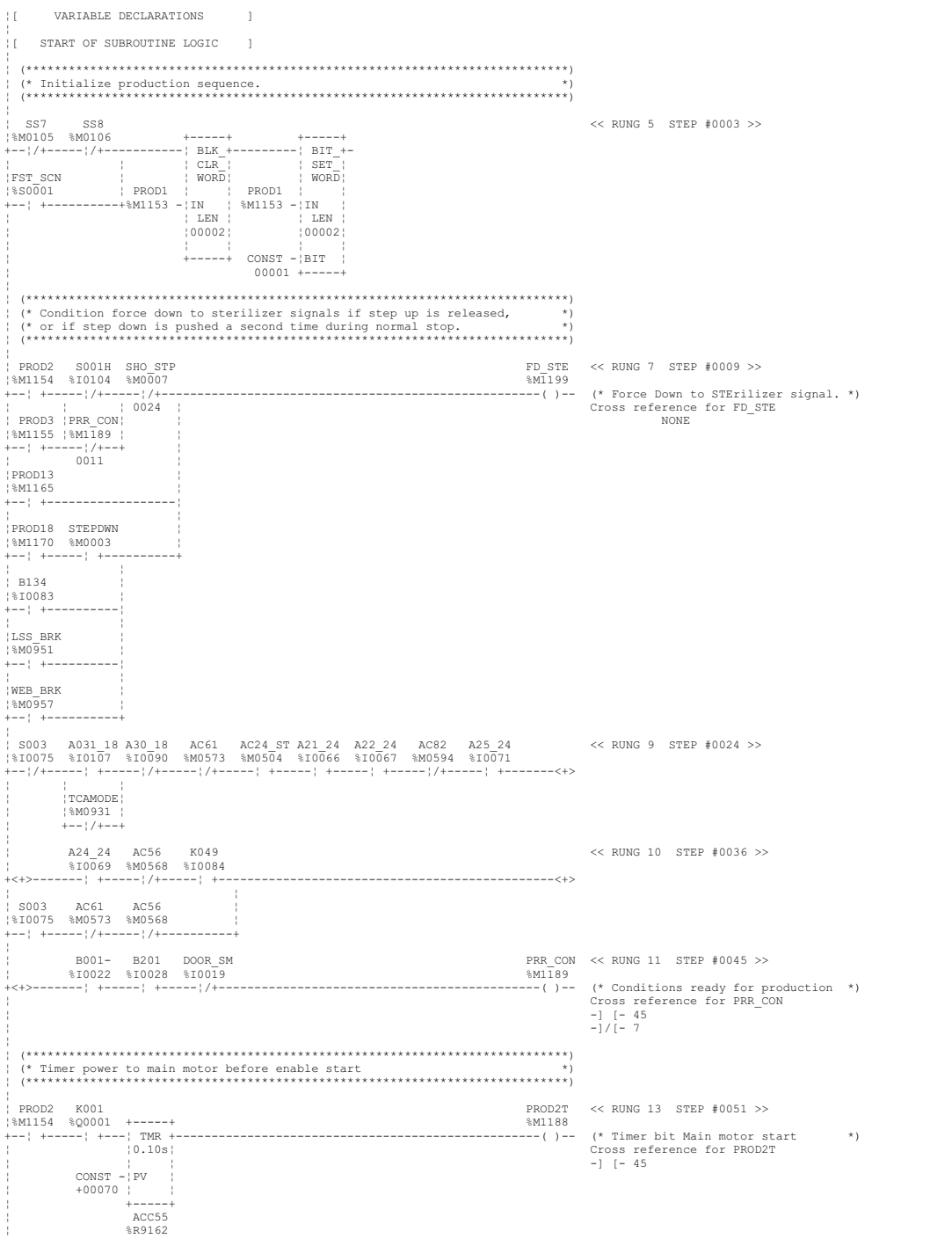
```
| TUBE4                                                                LS_TUBE  << RUNG 23  STEP #0073 >>
|%M1124          +-----+                                              %M1681
+--| +----------| TMR +-----------------------------------------------( )--  (* LS element valves, tube sealing  *)
|       |        |0.10s|                                                      Cross reference for LS_TUBE
| TUBE5 |        |     |                                                                NONE
|%M1125 |        |     |
+--| +--+ CONST -|PV   |
|       +00025   |     |
|                +-----+
|                 ACC88
|                %R9261
|
| TUBE2                                                                HO_TUB   << RUNG 24  STEP #0077 >>
|%M1122                                                                %M1618
+--| +-------------------------------------------------------------------( )--  (* Horn warning in tube sealing     *)
|       |                                                                      Cross reference for HO_TUB
| TUBE3 |                                                                                NONE
|%M1123 |
+--| +--|
|       |
| TUBE4 |
|%M1124 |
+--| +--+
|
| (*************************************************************************)
| (* Main motor in tube sealing                                           *)
| (*************************************************************************)
|
| TUBE3                                                                MM_TUB   << RUNG 26  STEP #0082 >>
|%M1123                                                                %M1604
+--| +-------------------------------------------------------------------( )--  (* Main motor contactor, tube seal. *)
|       |                                                                      Cross reference for MM_TUB
| TUBE4 |                                                                                NONE
|%M1124 |
+--| +--|
|       |
| TUBE5 |
|%M1125 |
+--| +--|
|       |
| TUBE6 |
|%M1126 |
+--| +--|
|       |
| TUBE7 |
|%M1127 |
+--| +--+
|
| TUBE5                                                                MR_TUB   << RUNG 27  STEP #0088 >>
|%M1125                                                                %M1612
+--| +-------------------------------------------------------------------( )--  (* Main motor run, tube sealing     *)
|                                                                              Cross reference for MR_TUB
|                                                                                        NONE
|
|[    END OF SUBROUTINE LOGIC     ]
|
```

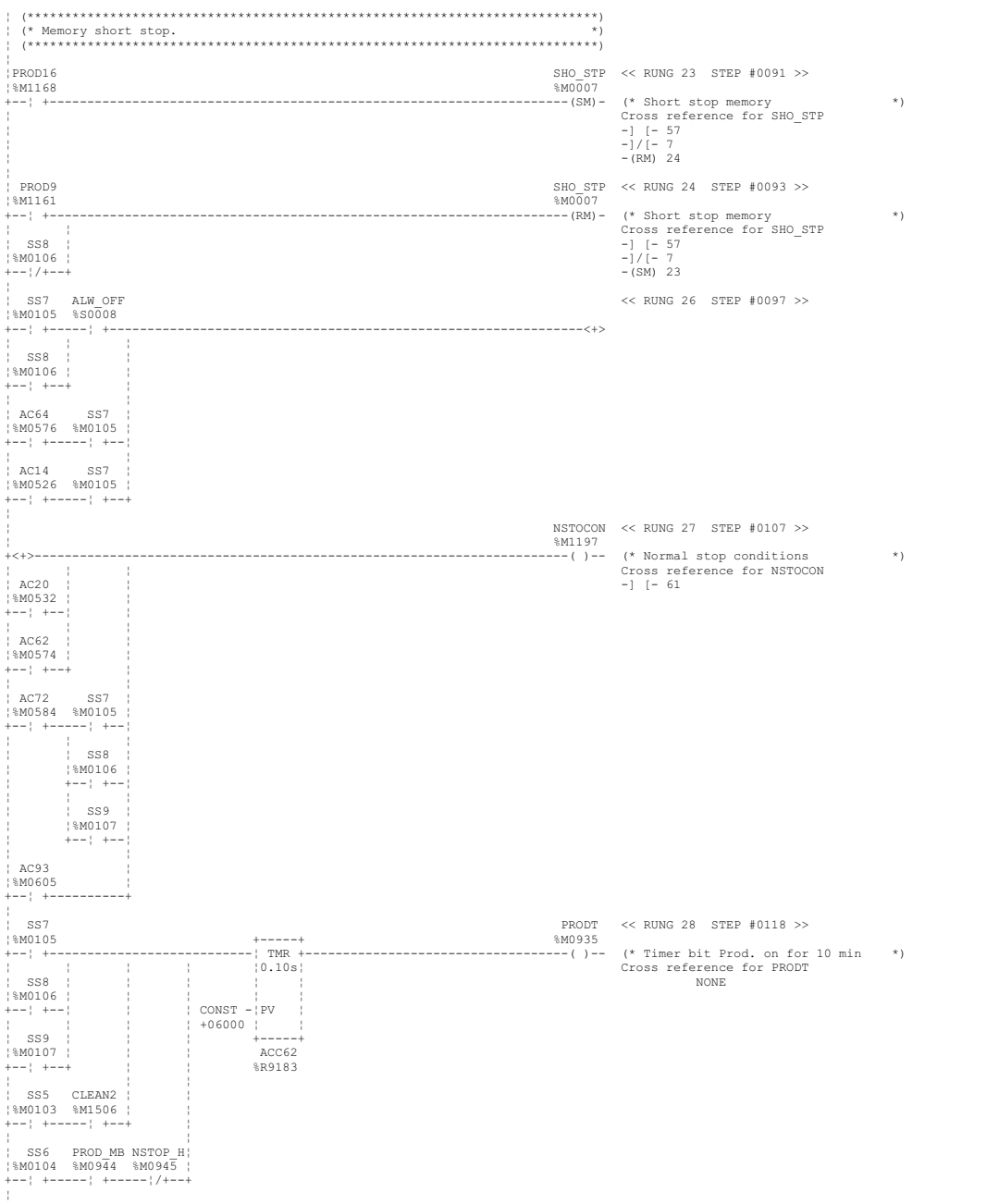

EM1.1TS700012.fm



EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Close C valve timer.                                                  *)
| (*************************************************************************)
|
| B316                                                          PRODCT   << RUNG 15  STEP #0056 >>
|%I0047  +-----+                                               %M1191
+--¦ +---¦ TMR +-------------------------------------------------( )--  (* Timer bit C valve closed        *)
|       |0.10s|                                                        Cross reference for PRODCT
|       |     |                                                        -] [- 45
| CONST -|PV   |
| +00020 |     |
|       +-----+
|        ACC85
|       %R9252
|
| (*************************************************************************)
| (* Short stop condition logic.                                           *)
| (*************************************************************************)
|
|SHO_STO                                                               << RUNG 17  STEP #0060 >>
|%M0006
+--¦ +-------------------------------------------------------------------<+>
|       |
|  AC1  |
|%M0513 |
+--¦ +--¦
|       |
| AC44  |
|%M0556 |
+--¦ +--¦
|       |
| AC46  |
|%M0558 |
+--¦ +--¦
|       |
| AC58  |
|%M0570 |
+--¦ +--+
|
+<+>-------------------------------------------------------------------<+>  << RUNG 18  STEP #0066 >>
|       |
| AC14    SS8   |
|%M0526  %M0106 |
+--¦ +-----¦ +--+
|
+<+>-------------------------------------------------------------------<+>  << RUNG 19  STEP #0071 >>
|       |
| AC64    SS8   |
|%M0576  %M0106 |
+--¦ +-----¦ +--¦
|       |       |
| AC42  |       |
|%M0554 |       |
+--¦ +----------¦
|       |       |
| AC17  |       |
|%M0529 |       |
+--¦ +----------¦
|       |       |
| AC56  |       |
|%M0568 |       |
+--¦ +----------+
|
+<+>-------------------------------------------------------------------<+>  << RUNG 20  STEP #0079 >>
|       |
| AC86  |
|%M0598 |
+--¦ +--+
|
|                                                               SSTOCON  << RUNG 21  STEP #0082 >>
|                                                               %M1192
+<+>-------------------------------------------------------------( )--  (* Short stop conditions           *)
|       |       |                                                      Cross reference for SSTOCON
| AC88  |       |                                                      -] [- 53
|%M0600 |       |                                                      -]/[- 55
+--¦ +--¦       |
|       |       |
| AC83  |       |
|%M0595 |       |
+--¦ +--¦       |
|       |       |
| AC21  |       |
|%M0533 |       |
+--¦ +--+       |
|       |       |
|  SS8    AC47  |
|%M0106  %M0559 |
+--¦ +-----¦ +--+
|
```


EM1.1TS700012.fm



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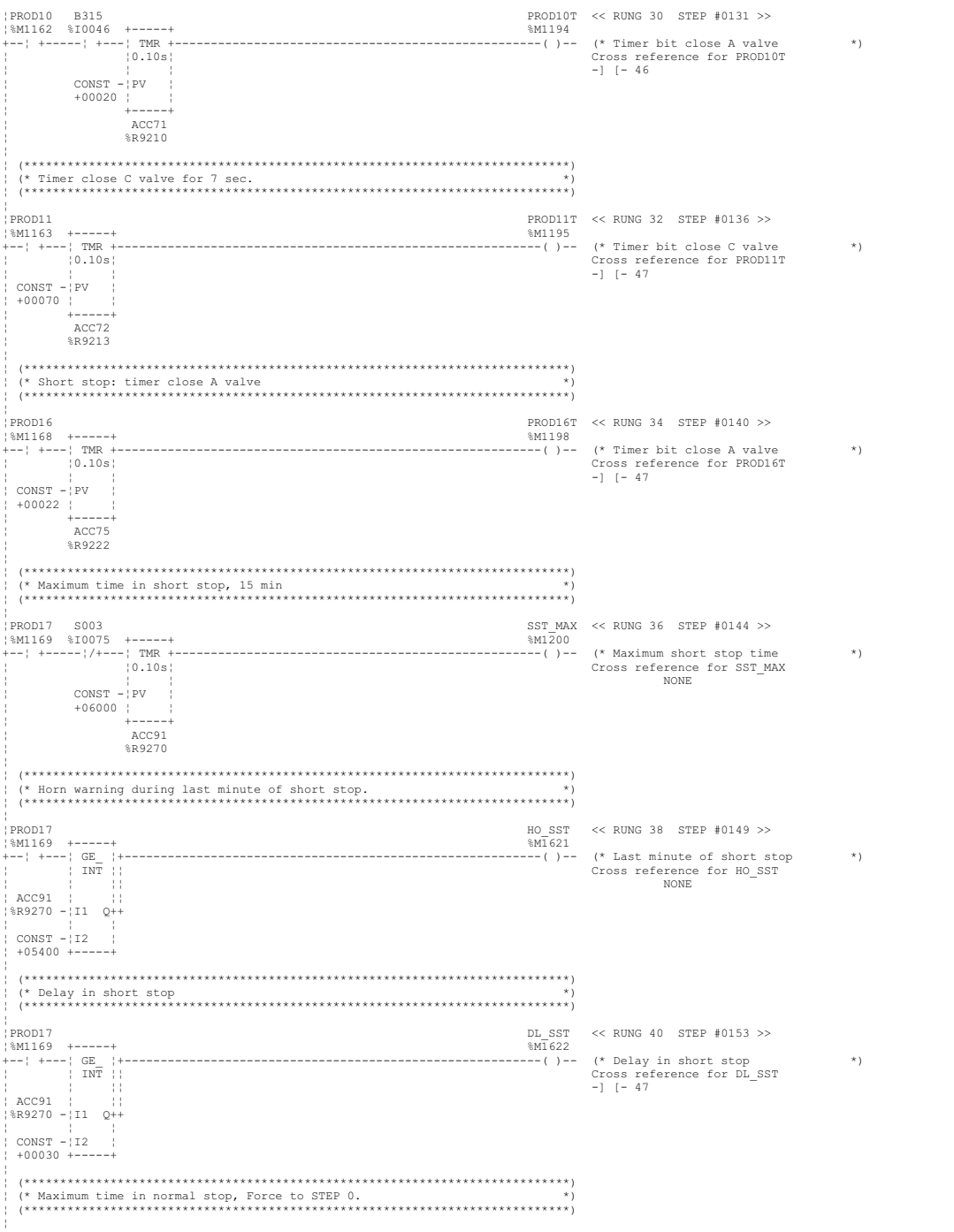

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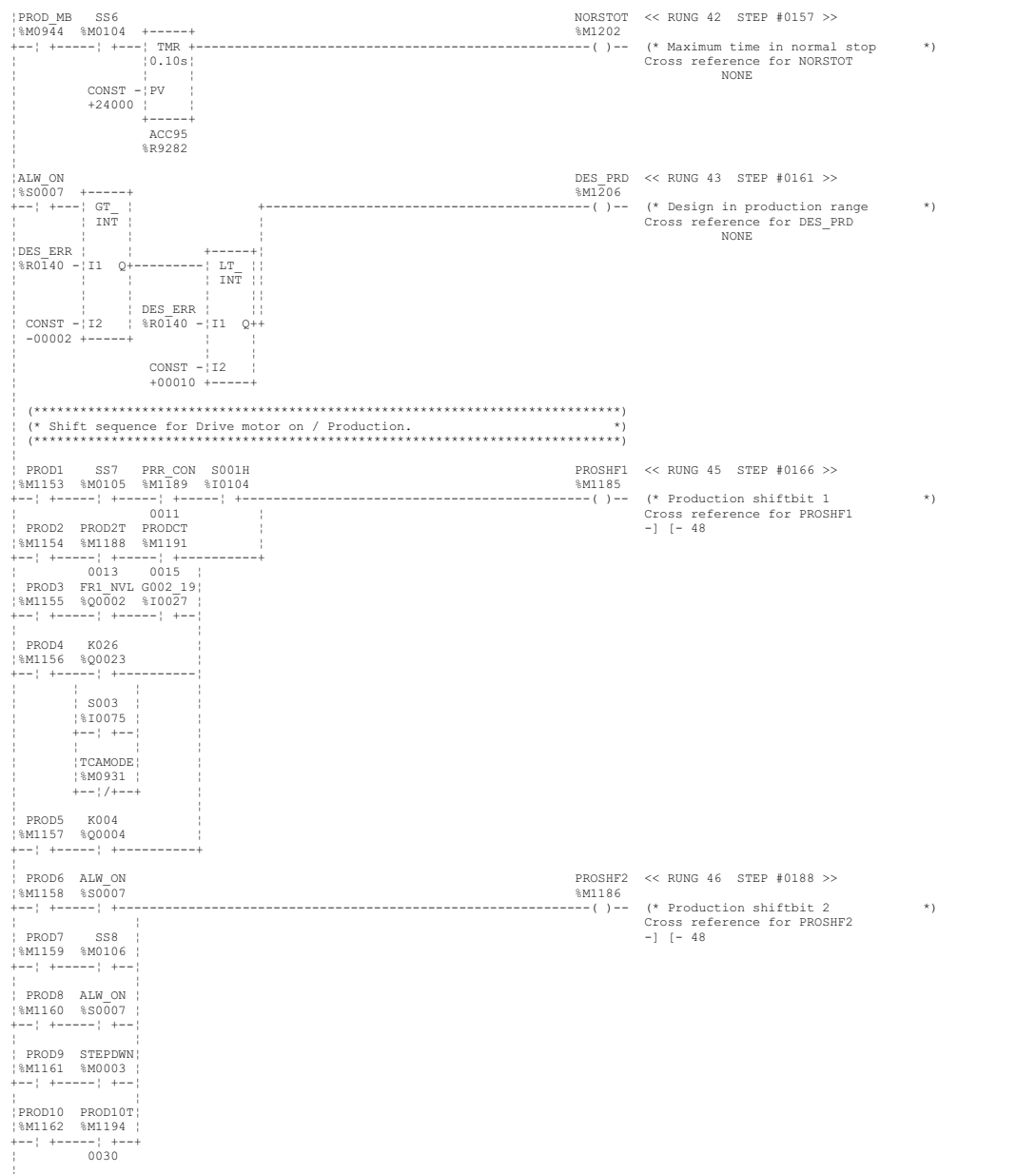


EM1.1TS700012.fm

```
|PROD11  PROD11T                                                    PROSHF3  << RUNG 47  STEP #0203 >>
|%M1163  %M1195                                                    %M1187
+--| +-----| +-----------------------------------------------------( )--  (* Production shiftbit 3           *)
|         0032  |       |                                                  Cross reference for PROSHF3
|PROD12  ALW_ON |       |                                                  -] [- 48
|%M1164  %S0007 |       |
+--| +-----| +--|       |
|               |       |
|PROD13  ALW_ON |       |
|%M1165  %S0007 |       |
+--| +-----| +--|       |
|               |       |
|PROD16  PROD16T|       |
|%M1168  %M1198 |       |
+--| +-----| +--+       |
|         0034          |
|PROD17  DL_SST   MAINT |
|%M1169  %M1622  %M1770 |
+--| +-----| +-----| +--+
|         0040
|
|PROSHF1                                                            << RUNG 48  STEP #0219 >>
|%M1185          +-----+
+--| +----------| SHL_|
| 0045  |        | WORD|
|PROSHF2|        |     |
|%M1186 | PROD1  |     |
+--| +--|%M1153 -|IN B2+-
| 0046  |        | LEN |
|PROSHF3|        |00002|
|%M1187 |        |     |  PROD1
+--| +--+ CONST -|N   Q+-%M1153
| 0047    +00001 |     |
|ALW_OFF         |     |
|%S0008          |     |
+--| +----------|B1   |
|               +-----+
|
| (*************************************************************************)
| (* Normal stop conditions.                                               *)
| (*************************************************************************)
|
| PROD7  STEPDWN                                                    << RUNG 50  STEP #0225 >>
|%M1159  %M0003  +-----+         +-----+
+--| +-----| +---| BLK_+---------| BIT_+-
|       |       | CLR_|         | SET_|
| PROD8 |       | WORD|         | WORD|
|%M1160 | PROD1 |     |  PROD1  |     |
+--| +--|%M1153 -|IN   | %M1153 -|IN   |
|       |       | LEN |         | LEN |
| PROD9 |       |00002|         |00002|
|%M1161 |       |     |         |     |
+--| +--+       +-----+  CONST -|BIT  |
|                        00010 +-----+
|
| PROD9    SS8                                                      << RUNG 51  STEP #0231 >>
|%M1161  %M0106  +-----+         +-----+
+--| +-----|/+---| BLK_+---------| BIT_+-
|               | CLR_|         | SET_|
|               | WORD|         | WORD|
|         PROD1 |     |  PROD1  |     |
|        %M1153 -|IN   | %M1153 -|IN   |
|               | LEN |         | LEN |
|               |00002|         |00002|
|               |     |         |     |
|               +-----+  CONST -|BIT  |
|                         00007 +-----+
|
| (*************************************************************************)
| (* Jump to short stop                                                   *)
| (*************************************************************************)
|
| PROD9  SSTOCON                                                    << RUNG 53  STEP #0236 >>
|%M1161  %M1192  +-----+         +-----+
+--| +-----| +---| BLK_+---------| BIT_+-
|         0021  | CLR_|         | SET_|
|               | WORD|         | WORD|
|         PROD1 |     |  PROD1  |     |
|        %M1153 -|IN   | %M1153 -|IN   |
|               | LEN |         | LEN |
|               |00002|         |00002|
|               |     |         |     |
|               +-----+  CONST -|BIT  |
|                         00016 +-----+
|
| (*************************************************************************)
| (* End short stop                                                       *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm

```
|PROD17  STEPUP  SSTOCON                                                  << RUNG 55  STEP #0241 >>
|%M1169  %M0001  %M1192  +-----+         +-----+
+--| +-----| +-----|/+---| BLK_+---------| BIT_+-
|                  0021   | CLR_|         | SET_|
|                         | WORD|         | WORD|
|                 PROD1   |     |  PROD1  |     |
|                %M1153 -|IN   | %M1153 -|IN   |
|                         | LEN |         | LEN |
|                         |00002|         |00002|
|                         |     |         |     |
|                         +-----+  CONST -|BIT  |
|                                   00002 +-----+
|
| (*************************************************************************)
| (* Return to short stop if button is released.                           *)
| (*************************************************************************)
|
| PROD2   S001H  SHO_STP                                                  << RUNG 57  STEP #0247 >>
|%M1154  %I0104  %M0007  +-----+         +-----+
+--| +-----|/+-----| +---| BLK_+---------| BIT_+-
|       |         0024   | CLR_|         | SET_|
| PROD3 |                | WORD|         | WORD|
|%M1155 |         PROD1  |     |  PROD1  |     |
+--| +--+        %M1153 -|IN   | %M1153 -|IN   |
|                         | LEN |         | LEN |
|                         |00002|         |00002|
|                         |     |         |     |
|                         +-----+  CONST -|BIT  |
|                                   00017 +-----+
|
| (*************************************************************************)
| (* Horn warning in production start                                      *)
| (*************************************************************************)
|
| PROD2                                                          HO_PROD  << RUNG 59  STEP #0254 >>
|%M1154                                                          %M1620
+--| +-----------------------------------------------------------------( )--  (* Horn warning in production       *)
|                                                                            Cross reference for HO_PROD
|                                                                                    NONE
|
| (*************************************************************************)
| (* Close C-valve without flip                                            *)
| (*************************************************************************)
|
| B315   PROD11  PROD12  PROD13  NSTOCON                                  << RUNG 61  STEP #0257 >>
|%I0046  %M1163  %M1164  %M1165  %M1197  +-----+         +-----+
+--|/+-----|/+-----|/+-----|/+-----| +---| BLK_+---------| BIT_+-
|                                  0027   | CLR_|         | SET_|
|                                         | WORD|         | WORD|
|                                  PROD1  |     |  PROD1  |     |
|                                 %M1153 -|IN   | %M1153 -|IN   |
|                                         | LEN |         | LEN |
|                                         |00002|         |00002|
|                                         |     |         |     |
|                                         +-----+  CONST -|BIT  |
|                                           00010 +-----+
|
| (*************************************************************************)
| (* Return to Prod1                                                       *)
| (*************************************************************************)
|
|PROD14                                                                   << RUNG 63  STEP #0265 >>
|%M1166  +-----+         +-----+
+--| +---| BLK_+---------| BIT_+-
|        | CLR_|         | SET_|
|        | WORD|         | WORD|
| PROD1  |     |  PROD1  |     |
|%M1153 -|IN   | %M1153 -|IN   |
|        | LEN |         | LEN |
|        |00002|         |00002|
|        |     |         |     |
|        +-----+  CONST -|BIT  |
|                  00001 +-----+
|
| (*************************************************************************)
| (* Outputs.                                                               *)
| (*************************************************************************)
|
```

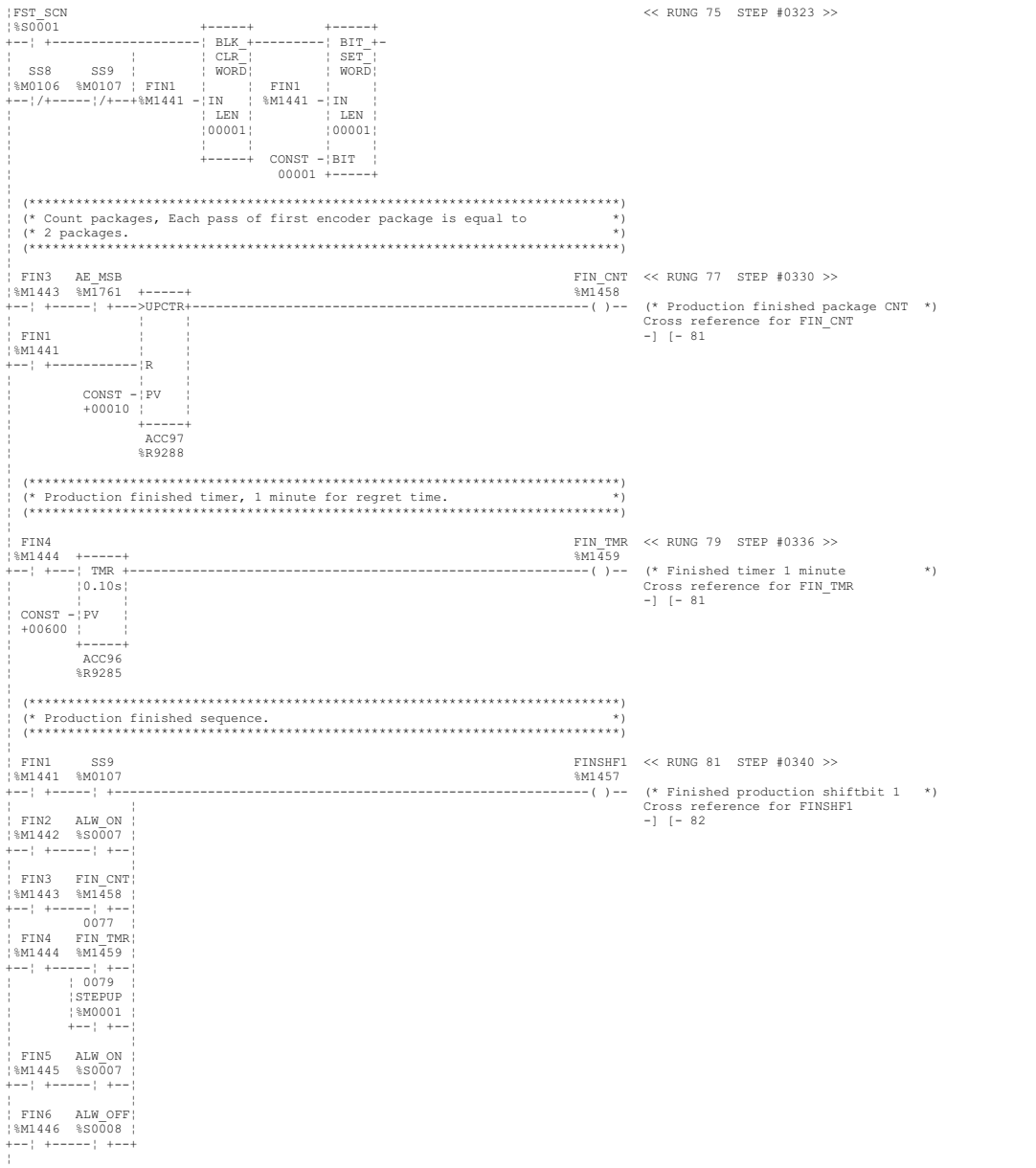

EM1.1TS700012.fm

```
| PROD2                                                                    << RUNG 65  STEP #0269 >>
|%M1154
+--| +-------------------------------------------------------------------<+>
|       |
| PROD3 |
|%M1155 |
+--| +--|
|       |
| PROD4 |
|%M1156 |
+--| +--|
|       |
| PROD5 |
|%M1157 |
+--| +--|
|       |
| PROD6 |
|%M1158 |
+--| +--|
|       |
| PROD7 |
|%M1159 |
+--| +--|
|       |
| PROD8 |
|%M1160 |
+--| +--|
|       |
| PROD9 |
|%M1161 |
+--| +--+
|
+<+>-------------------------------------------------------------------<+>  << RUNG 66  STEP #0278 >>
|       |
|PROD10 |
|%M1162 |
+--| +--|
|       |
|PROD11 |
|%M1163 |
+--| +--|
|       |
|PROD12 |
|%M1164 |
+--| +--|
|       |
|PROD16 |
|%M1168 |
+--| +--|
|       |
|PROD17 |
|%M1169 |
+--| +--+
|
|                                                          MM_PRO   << RUNG 67  STEP #0285 >>
|                                                          %M1602
+<+>-------------------------------------------------------------( )--  (* Main motor contactor,production  *)
|                                                                      Cross reference for MM_PRO
|                                                                                NONE
|
| PROD3                                                                << RUNG 68  STEP #0287 >>
|%M1155
+--| +-------------------------------------------------------------------<+>
|       |
| PROD4 |
|%M1156 |
+--| +--|
|       |
| PROD5 |
|%M1157 |
+--| +--|
|       |
| PROD6 |
|%M1158 |
+--| +--|
|       |
| PROD7 |
|%M1159 |
+--| +--|
|       |
| PROD8 |
|%M1160 |
+--| +--|
|       |
| PROD9 |
|%M1161 |
+--| +--|
|       |
|PROD10 |
|%M1162 |
+--| +--+
```


EM1.1TS700012.fm

```
                                                                    MR_PRO   << RUNG 69  STEP #0296 >>
                                                                    %M1610
+<+>-------------------------------------------------------------------( )--  (* Main motor run, production       *)
|       |                                                                    Cross reference for MR_PRO
|PROD11 |                                                                             NONE
|%M1163 |
+--| +--|
|       |
|PROD12 |
|%M1164 |
+--| +--|
|       |
|PROD16 |
|%M1168 |
+--| +--|
|       |
| FIN2  |
|%M1442 |
+--| +--|
|       |
| FIN3  |
|%M1443 |
+--| +--+
|
| PROD4                                                              << RUNG 70  STEP #0303 >>
|%M1156
+--| +-------------------------------------------------------------------<+>
|       |
| PROD5 |
|%M1157 |
+--| +--|
|       |
| PROD6 |
|%M1158 |
+--| +--|
|       |
| PROD7 |
|%M1159 |
+--| +--|
|       |
| PROD8 |
|%M1160 |
+--| +--|
|       |
| PROD9 |
|%M1161 |
+--| +--|
|       |
|PROD10 |
|%M1162 |
+--| +--+
|
|                                                                    PR_CON   << RUNG 71  STEP #0311 >>
|                                                                    %M0485
+<+>-------------------------------------------------------------------( )--  (* Condition paper valves in PROD   *)
|       |                                                                    Cross reference for PR_CON
|PROD11 |                                                                             NONE
|%M1163 |
+--| +--|
|       |
|PROD12 |
|%M1164 |
+--| +--|
|       |
|PROD13 |
|%M1165 |
+--| +--|
|       |
|PROD16 |
|%M1168 |
+--| +--|
|       |
| FIN2  |
|%M1442 |
+--| +--|
|       |
| FIN3  |
|%M1443 |
+--| +--+
|
| SS2_9                                                              TS_COND  << RUNG 73  STEP #0320 >>
|%M0068                                                              %M1361
+--| +-------------------------------------------------------------------( )--  (* Transversal sealing ON           *)
|                                                                    Cross reference for TS_COND
|                                                                             NONE
|
| (*************************************************************************)
| (* Init FIN sequence                                                    *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm



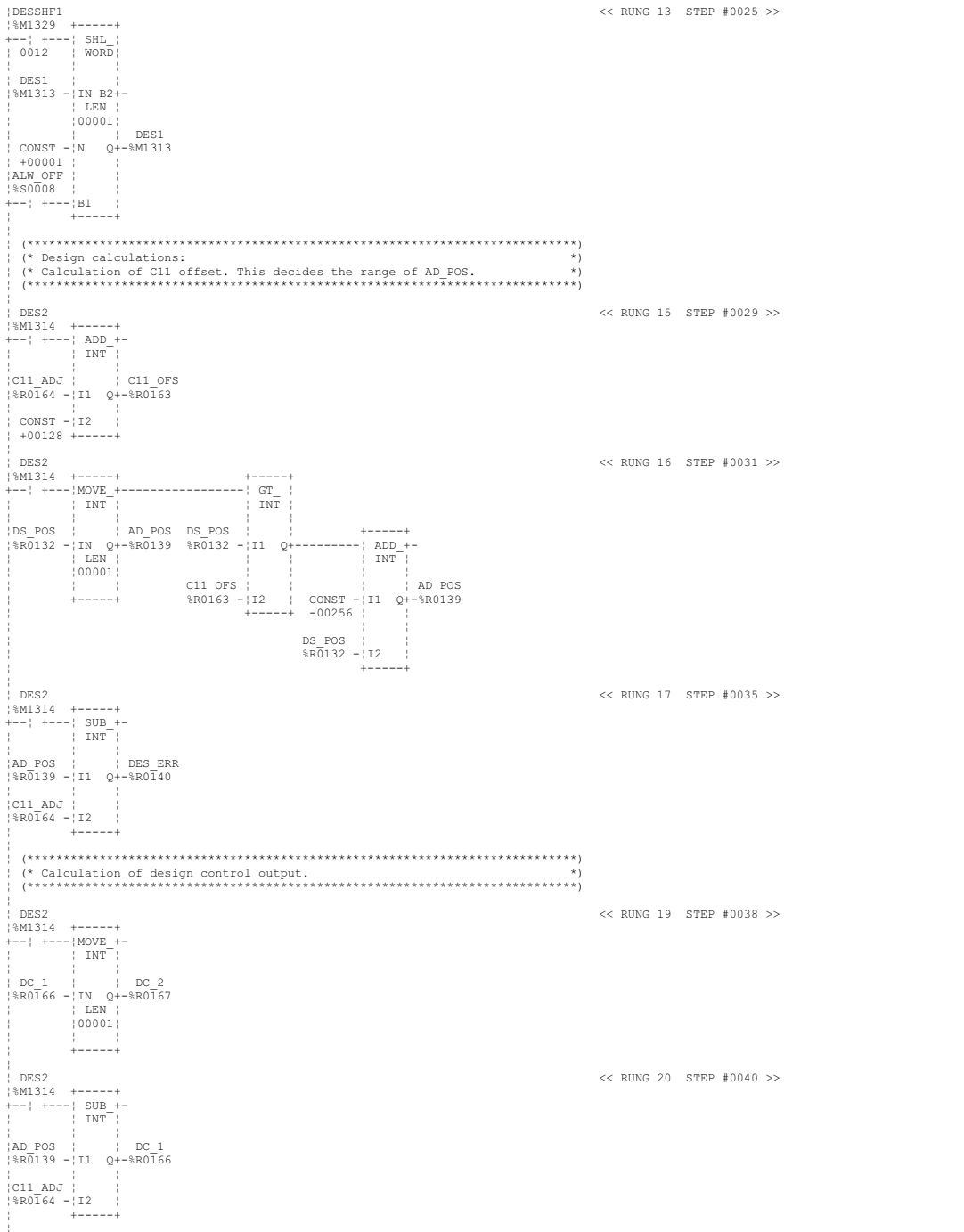
EM1.1TS700012.fm



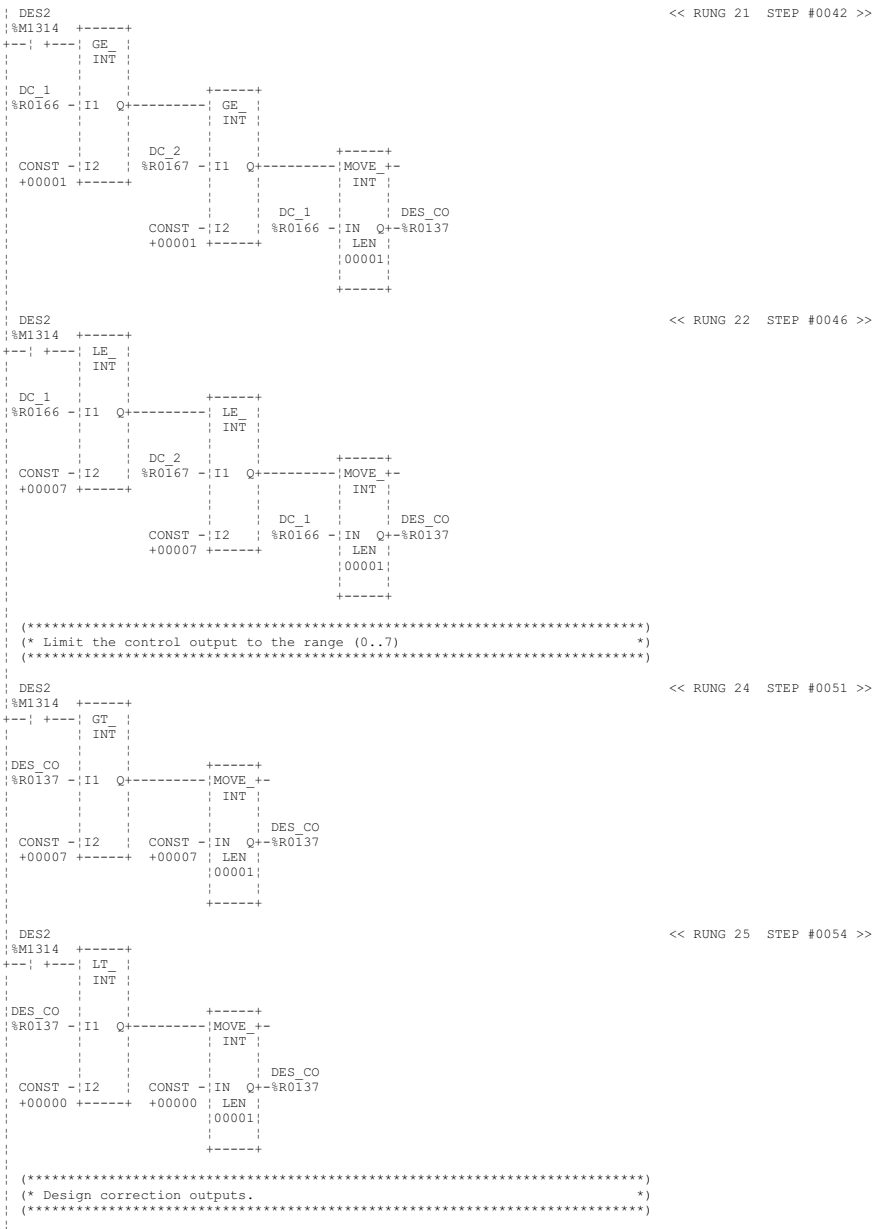
EM1.1TS700012.fm

```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Potentiometer analog scaling to -5,+5 for running design correction.  *)
| (*************************************************************************)
|
|ALW_ON                                                                    << RUNG 5  STEP #0003 >>
|%S0007  +-----+                 +-----+
+--| +---| DIV_+-----------------| SUB_+-
|        | INT |                 | INT |
|        |     |                 |     |
|  POT   |     | POT_PRE POT_PRE |     | POT_PRE
|%AI0001-|I1  Q+-%R0162  %R0162 -|I1  Q+-%R0162
|        |     |                 |     |
| CONST -|I2   |          CONST -|I2   |
| +03199 +-----+          +00005 +-----+
|
|ALW_ON                                                                    << RUNG 6  STEP #0006 >>
|%S0007  +-----+
+--| +---| ADD_+-
|        | INT |
|        |     |
|POT_PRE |     | C11_ADJ
|%R0162 -|I1  Q+-%R0164
|        |     |
|  C11   |     |
|%R0161 -|I2   |
|        +-----+
|
| (*************************************************************************)
| (* Calculation of design control output.                                 *)
| (*************************************************************************)
|
|FST_SCN                                                                   << RUNG 8  STEP #0009 >>
|%S0001          +-----+         +-----+
+--| +-----------| BLK_+---------| BIT_+-
|        |       | CLR_|         | SET_|
|SS-1_0  |       | WORD|         | WORD|
|%M0064 | DES1   |     |  DES1   |     |
+--| +--|%M1313 -|IN   | %M1313 -|IN   |
|       |        | LEN |         | LEN |
| DES4  |        |00001|         |00001|
|%M1316 |        |     |         |     |
+--| +--+        +-----+  CONST -|BIT  |
|                         00001 +-----+
|
| (*************************************************************************)
| (* Latch that indicates that a new design position value                 *)
| (* has been recorded. This is one of the few latches in this program     *)
| (* and the set function is in the fast scan.                             *)
| (*************************************************************************)
|
| DES3                                                              MARK   << RUNG 10  STEP #0015 >>
|%M1315                                                            %M1334
+--| +-----------------------------------------------------------(RM)-  (* New marker value recieved       *)
|                                                                          Cross reference for MARK
|                                                                          -] [- 12
|                                                                          -]/[- 12
|
| (*************************************************************************)
| (* Design correction logic.                                             *)
| (*************************************************************************)
|
| DES1    MARK                                                     DESSHF1  << RUNG 12  STEP #0018 >>
|%M1313  %M1334                                                    %M1329
+--| +-----| +-------------------------------------------------------( )--  (* Design correction shiftbit 1    *)
|         0010  |                                                          Cross reference for DESSHF1
| DES2          |                                                          -] [- 13
|%M1314         |
+--| +----------|
|               |
| DES3    MARK  |
|%M1315  %M1334 |
+--| +-----|/+--+
|         0010
|
```


EM1.1TS700012.fm



EM1.1TS700012.fm



EM1.1TS700012.fm

```
¦ALW_ON                                                          Y400    << RUNG 27  STEP #0058 >>
¦%S0007  +-----+                                                %Q0069
+--¦ +---¦ BIT_¦+-------------------------------------------------( )--  (* Design correction (small step)   *)
¦       ¦TEST_¦¦                                                        Cross reference for Y400
¦       ¦ WORD¦¦                                                                 NONE
¦DES_CO  ¦     ¦¦
¦%R0137 -¦IN  Q++
¦       ¦ LEN ¦
¦       ¦00001¦
¦       ¦     ¦
¦ CONST -¦BIT  ¦
¦  00001 +-----+
¦
¦ALW_ON                                                          Y401    << RUNG 28  STEP #0061 >>
¦%S0007  +-----+                                                %Q0070
+--¦ +---¦ BIT_¦+-------------------------------------------------( )--  (* Design correction (medium step)  *)
¦       ¦TEST_¦¦                                                        Cross reference for Y401
¦       ¦ WORD¦¦                                                                 NONE
¦DES_CO  ¦     ¦¦
¦%R0137 -¦IN  Q++
¦       ¦ LEN ¦
¦       ¦00001¦
¦       ¦     ¦
¦ CONST -¦BIT  ¦
¦  00002 +-----+
¦
¦ALW_ON                                                          Y402    << RUNG 29  STEP #0064 >>
¦%S0007  +-----+                                                %Q0071
+--¦ +---¦ BIT_¦+-------------------------------------------------( )--  (* Design correction (big steps)    *)
¦       ¦TEST_¦¦                                                        Cross reference for Y402
¦       ¦ WORD¦¦                                                                 NONE
¦DES_CO  ¦     ¦¦
¦%R0137 -¦IN  Q++
¦       ¦ LEN ¦
¦       ¦00001¦
¦       ¦     ¦
¦ CONST -¦BIT  ¦
¦  00003 +-----+
¦
¦ (*************************************************************************)
¦ (* Machine test function, REMOVE AFTER TEST PERIOD!                      *)
¦ (*************************************************************************)
¦
¦[    END OF SUBROUTINE LOGIC     ]
¦
```

EM1.1TS700012.fm

```
|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
| (*************************************************************************)
| (* Filling flow control sequence and PID regulator.                      *)
| (*                                                                       *)
| (* Init the sequence.                                                    *)
| (*************************************************************************)
|
|FST_SCN                                                                    << RUNG 5  STEP #0003 >>
|%S0001          +-----+         +-----+
+--| +-----------| BLK_+---------| BIT_+-
|      |         | CLR_|         | SET_|
| REG9  |        | WORD|         | WORD|
|%M1737 | REG1   |     |  REG1   |     |
+--| +--|%M1729 -|IN   | %M1729 -|IN   |
|      |         | LEN |         | LEN |
|  SS6  |        |00001|         |00001|
|%M0104 |        |     |         |     |
+--| +--+        +-----+  CONST -|BIT  |
|                         00001 +-----+
|
| (*************************************************************************)
| (* Step sequence. The flow in the start of the machine will follow       *)
| (* the ramp of the main motor VFD, 3.0 sec to reach the normal flow.     *)
| (* There will be no regulator control during this ramp up, the           *)
| (* program will use the last known good flow setting and ramp            *)
| (* up to this value in proportion to the time elapsed since the          *)
| (* start of main motor.                                                  *)
| (*                                                                       *)
| (*************************************************************************)
|
| REG1    PROD2                                                  REGSHF1  << RUNG 7  STEP #0009 >>
|%M1729  %M1154                                                  %M1745
+--| +-----| +-------------------------------------------------------( )--  (* Shiftbit 1 regulator control     *)
|           |                                                             Cross reference for REGSHF1
| REG2   ALW_ON |                                                         -] [- 9
|%M1730  %S0007 |
+--| +-----| +--|
|           |
| REG3   ALW_ON |
|%M1731  %S0007 |
+--| +-----| +--|
|           |
| REG4    REG4T |
|%M1732  %M1758 |
+--| +-----| +--|
|         0015  |
| REG5    REG5T |
|%M1733  %M1749 |
+--| +-----| +--+
|         0016
|
| REG6   PROD10                                                  REGSHF2  << RUNG 8  STEP #0024 >>
|%M1734  %M1162                                                  %M1746
+--| +-----| +-------------------------------------------------------( )--  Cross reference for REGSHF2
|       |                 |                                               -] [- 9
|       |  SS7     SS8    |
|       |%M0105  %M0106 |
|       +--|/+-----|/+--|
|       |                 |
|       |PROD16           |
|       |%M1168           |
|       +--| +----------|
|       |                 |
|       |PROD17           |
|       |%M1169           |
|       +--| +----------|
|                         |
| REG7    REG7T           |
|%M1735  %M1750           |
+--| +-----| +----------+
|         0018  |
| REG8    REG8T |
|%M1736  %M1757 |
+--| +-----| +--+
|         0020
|
```


EM1.1TS700012.fm

```
¦REGSHF1                                                                    << RUNG 9  STEP #0039 >>
¦%M1745          +-----+
+--¦ +-----------¦ SHL_¦
¦ 0007  ¦        ¦ WORD¦
¦REGSHF2¦        ¦     ¦
¦%M1746 ¦ REG1   ¦     ¦
+--¦ +--+%M1729 -¦IN B2+-
¦ 0008           ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦  REG1
¦         CONST -¦N   Q+-%M1729
¦         +00001 ¦     ¦
¦ALW_OFF         ¦     ¦
¦%S0008          ¦     ¦
+--¦ +-----------¦B1   ¦
¦                +-----+
¦
¦ (*************************************************************************)
¦ (* Booster flow latch function.                                          *)
¦ (*                                                                       *)
¦ (* Feed extra fluid to fill the tube at start.                           *)
¦ (* Activates only if tube is empty.                                      *)
¦ (* This function will deactivate as soon as the level sensor starts to   *)
¦ (* move from the bottom position, thereby transfering control to the PID *)
¦ (* regulator.                                                            *)
¦ (*************************************************************************)
¦
¦ REG3                                                              REG_BOS  << RUNG 11  STEP #0044 >>
¦%M1731  +-----+                                                    %M1751
+--¦ +---¦ LT_ ¦+-----------------------------------------------------(SM)-  (* Booster flow latch               *)
¦        ¦ INT ¦¦                                                           Cross reference for REG_BOS
¦        ¦     ¦¦                                                           -] [- 39
¦LVL_SEN ¦     ¦¦                                                           -(RM) 13
¦%AI0003-¦I1  Q++
¦        ¦     ¦
¦ CONST -¦I2   ¦
¦ +03500 +-----+
¦
¦ REG5                                                                     << RUNG 12  STEP #0047 >>
¦%M1733          +-----+
+--¦ +-----------¦ GT_ ¦+-------------------------------------------------<+>
¦       ¦        ¦ INT ¦¦
¦ REG6  ¦        ¦     ¦¦
¦%M1734 ¦LVL_SEN ¦     ¦¦
+--¦ +--+%AI0003-¦I1  Q++
¦                 ¦    ¦
¦         CONST -¦I2   ¦
¦         +03500 +-----+
¦
¦ REG3    REG4    REG5    REG6                                      REG_BOS  << RUNG 13  STEP #0051 >>
¦%M1731  %M1732  %M1733  %M1734                                     %M1751
+--¦/+-----¦/+-----¦/+-----¦/+-----------------------------------------(RM)-  (* Booster flow latch               *)
¦                  ¦                                                        Cross reference for REG_BOS
+<+>----------------------------+                                           -] [- 39
¦                                                                           -(SM) 11
¦
¦ (*************************************************************************)
¦ (* Timers for up/down ramp timing.                                       *)
¦ (* The accumulated value is used for product valve ramp control.         *)
¦ (*************************************************************************)
¦
¦ PROD1   PROD2   PROD3   REG4                                       REG4T   << RUNG 15  STEP #0058 >>
¦%M1153  %M1154  %M1155  %M1732  +-----+                            %M1758
+--¦/+-----¦/+-----¦/+-----¦ +---¦ TMR +-----------------------------( )--  (* Timer bit delay filling start    *)
¦                             ¦0.01s¦                                       Cross reference for REG4T
¦                             ¦     ¦                                       -] [- 7
¦                       CONST -¦PV   ¦
¦                       +00400 ¦     ¦
¦                              +-----+
¦                              ACC155
¦                              %R9462
¦
¦ REG5                                                               REG5T   << RUNG 16  STEP #0064 >>
¦%M1733  +-----+                                                     %M1749
+--¦ +---¦ TMR +-------------------------------------------------------( )--  (* Timer bit regulator ramp up      *)
¦        ¦0.01s¦                                                             Cross reference for REG5T
¦        ¦     ¦                                                             -] [- 7
¦ CONST -¦PV   ¦
¦ +00200 ¦     ¦
¦        +-----+
¦        ACC102
¦        %R9303
¦
¦ (*************************************************************************)
¦ (* The ramp down is not needed, the regulating valve needs aprox         *)
¦ (* 1 sec to close. There may be a problem with tube level rising         *)
¦ (* at short stop. This is solved by increasing the stop ramp for         *)
¦ (* the main motor VFD.                                                   *)
¦ (*************************************************************************)
¦
```

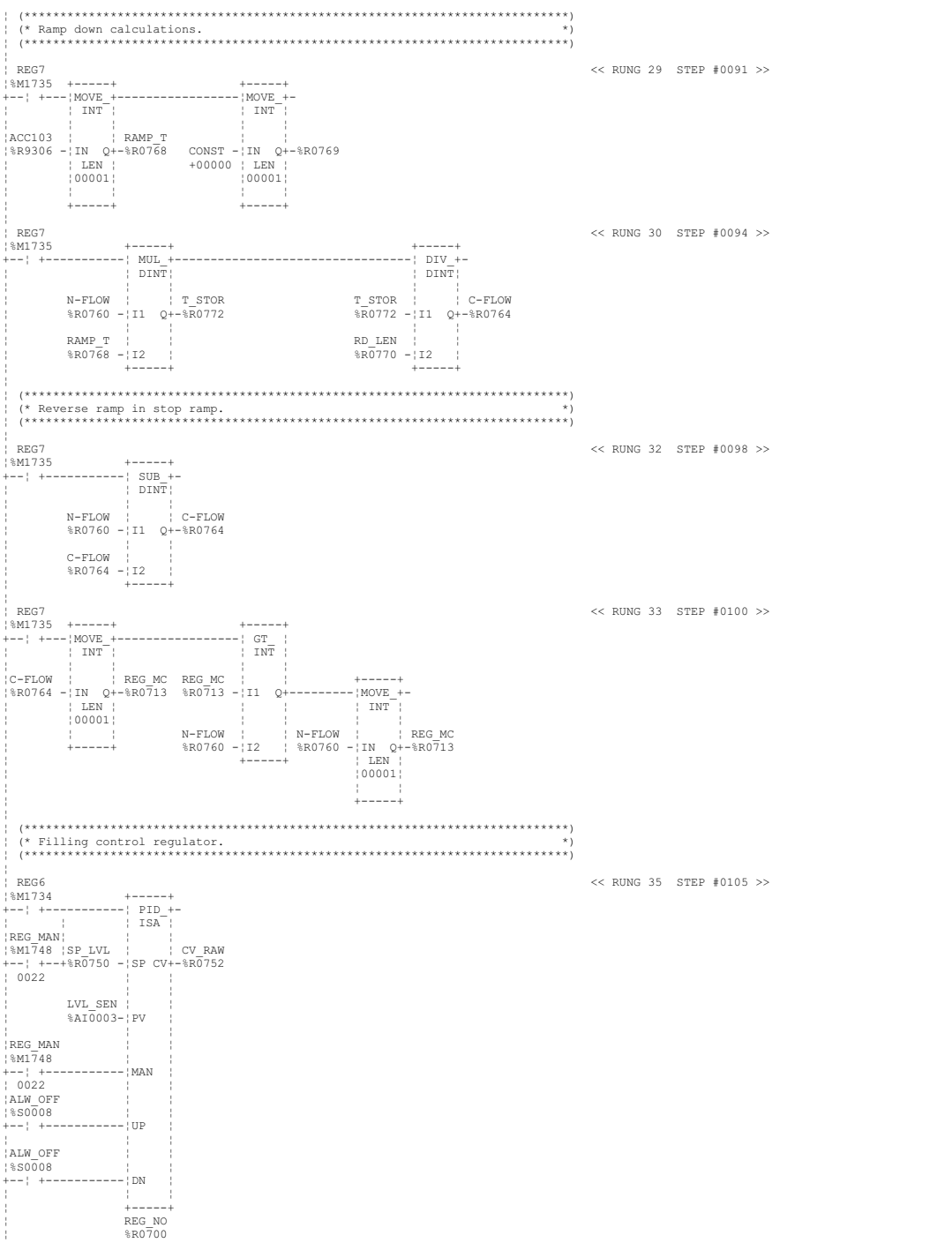
TCA/P1
BLOCK 17 FILLING SYSTEM LEVEL REGULATOR

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-17:01

EM1.1TS700012.fm

```
| REG7                                                                  REG7T   << RUNG 18  STEP #0068 >>
|%M1735  +-----+                                                       %M1750
+--| +---| TMR +-----------------------------------------------------------( )--  (* Timer bit regulator ramp down    *)
|       |0.01s|                                                                  Cross reference for REG7T
|       |     |                                                                  -] [- 8
| CONST -|PV   |
| +00001 |     |
|       +-----+
|       ACC103
|       %R9306
|
| (*************************************************************************)
| (* Timer to wait for A valve to close (2 sec)                           *)
| (*************************************************************************)
|
| REG8                                                                  REG8T   << RUNG 20  STEP #0072 >>
|%M1736  +-----+                                                       %M1757
+--| +---| TMR +-----------------------------------------------------------( )--  (* Timer bit A valve close          *)
|       |0.10s|                                                                  Cross reference for REG8T
|       |     |                                                                  -] [- 8
| CONST -|PV   |
| +00020 |     |
|       +-----+
|       ACC177
|       %R9528
|
| (*************************************************************************)
| (* Regulator in manual mode.                                             *)
| (*                                                                       *)
| (* Note that manual mode is meerly used for bumpless transition into     *)
| (* full level control. (Se GE Fanuc PID regulator description for        *)
| (* more detailed information)                                           *)
| (*************************************************************************)
|
| REG3                                                                  REG_MAN  << RUNG 22  STEP #0076 >>
|%M1731                                                                 %M1748
+--| +-----------------------------------------------------------------( )--  (* Regulator in "manual mode"       *)
|                                                                              Cross reference for REG_MAN
|                                                                              -] [- 35
|
| (*************************************************************************)
| (* Ramp up valve calculation.                                           *)
| (*************************************************************************)
|
| REG5                                                                         << RUNG 24  STEP #0079 >>
|%M1733  +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-
|       | INT |                 | INT |
|       |     |                 |     |
|ACC102 |     | RAMP_T          |     |
|%R9303 -|IN  Q+-%R0768   CONST -|IN  Q+-%R0769
|       | LEN |          +00000 | LEN |
|       |00001|                 |00001|
|       |     |                 |     |
|       +-----+                 +-----+
|
| REG5                                                                         << RUNG 25  STEP #0082 >>
|%M1733          +-----+                                 +-----+
+--| +-----------| MUL_+---------------------------------| DIV_+-
|               | DINT|                                 | DINT|
|               |     |                                 |     |
|       N-FLOW  |     | T_STOR                T_STOR    |     | C-FLOW
|       %R0760 -|I1  Q+-%R0772                %R0772 -|I1  Q+-%R0764
|               |     |                                 |     |
|       RAMP_T  |     |                       RU_LEN    |     |
|       %R0768 -|I2   |                       %R0766 -|I2   |
|               +-----+                                 +-----+
|
| (*************************************************************************)
| (* Control value in manual mode. The manual mode is used in ramp        *)
| (* up and down at start and stop and for prefilling the paper tube.     *)
| (*************************************************************************)
|
| REG5                                                                         << RUNG 27  STEP #0086 >>
|%M1733  +-----+                 +-----+
+--| +---|MOVE_+-----------------| GT_ |
|       | INT |                 | INT |
|       |     |                 |     |
|C-FLOW |     | REG_MC  REG_MC  |     |          +-----+
|%R0764 -|IN  Q+-%R0713  %R0713 -|I1  Q+----------|MOVE_+-
|       | LEN |                 |     |          | INT |
|       |00001|                 |     |          |     |
|       |     |         N-FLOW  |     | N-FLOW   |     | REG_MC
|       +-----+         %R0760 -|I2   | %R0760 -|IN  Q+-%R0713
|                               +-----+          | LEN |
|                                                |00001|
|                                                |     |
|                                                +-----+
|
```


EM1.1TS700012.fm



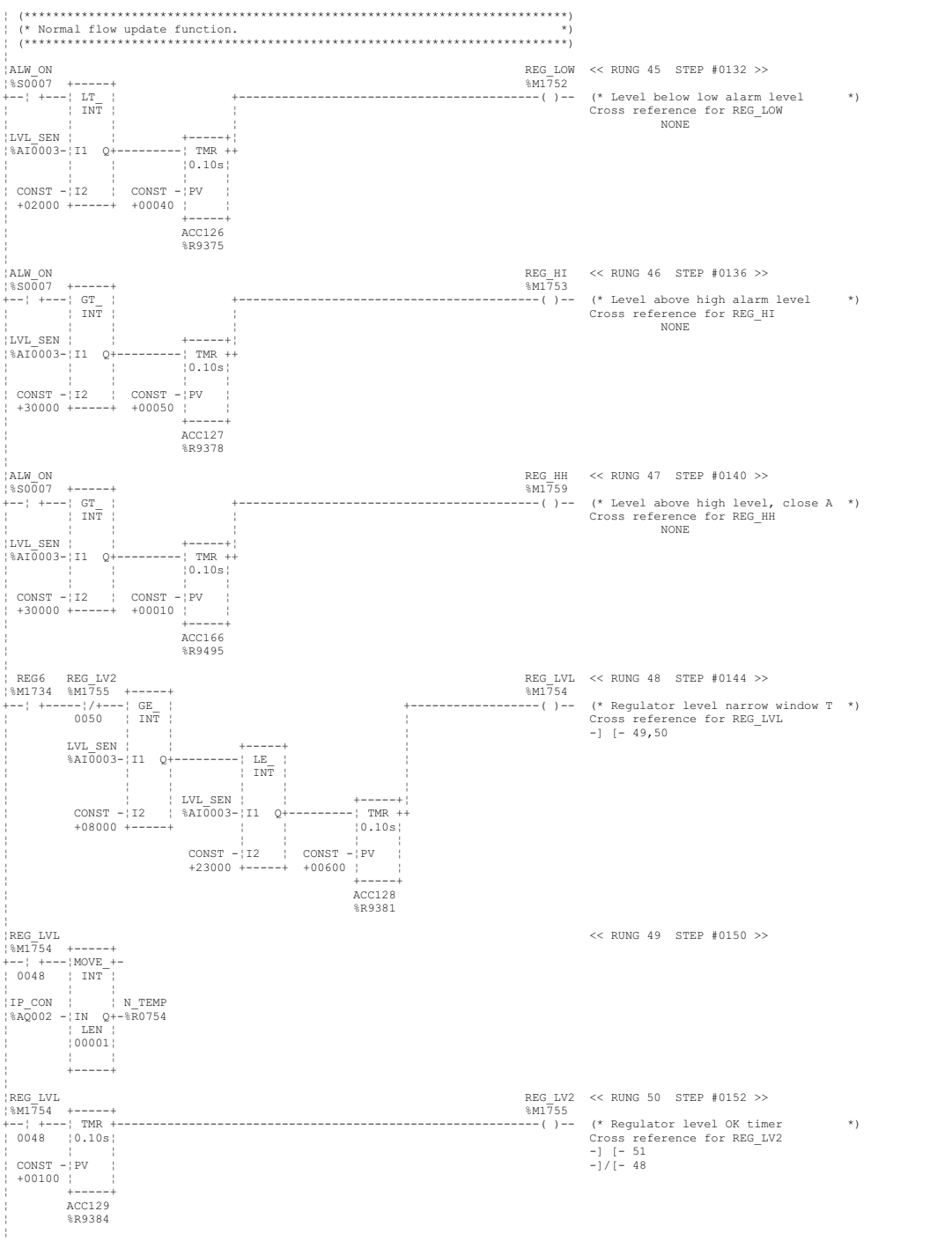
TCA/P1
BLOCK 17 FILLING SYSTEM LEVEL REGULATOR

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-17:01

EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Regulator scale down.                                                 *)
| (* The regulator works better with a large swing in the output and       *)
| (* gain constants not to small ( The integer calculations in the         *)
| (* PLC implementation of the regulator will cause large truncation      *)
| (* errors if the regulator is used directly)                            *)
| (*                                                                       *)
| (* Solution : let the regulator operate with full swing and scale       *)
| (* down the output to fit the application.                              *)
| (*************************************************************************)
|
| REG6                                                                    << RUNG 37  STEP #0112 >>
|%M1734  +-----+                 +-----+
+--| +---| DIV_+-----------------| ADD_+-
|        | INT |                 | INT |
|        |     |                 |     |
|CV_RAW  |     | CV_NORM CV_NORM |     | IP_CON
|%R0752 -|I1  Q+-%R0753  %R0753 -|I1  Q+-%AQ002
|        |     |                 |     |
|        |     |         N-FLOW  |     |
| CONST -|I2   |         %R0760 -|I2   |
| +00016 +-----+                 +-----+
|
| REG5                                                                    << RUNG 38  STEP #0115 >>
|%M1733  +-----+                 +-----+
+--| +---| ADD_+-----------------| GE_ |
|        | INT |                 | INT |
|        |     |                 |     |
|C-FLOW  |     | IP_CON  IP_CON  |     |         +-----+
|%R0764 -|I1  Q+-%AQ002  %AQ002 -|I1  Q+---------|MOVE_+-
|        |     |                 |     |         | INT |
|        |     |                 |     |         |     |
|        |     |                 |     | N-FLOW  |     | IP_CON
| CONST -|I2   |          CONST -|I2   | %R0760 -|IN  Q+-%AQ002
| +00650 +-----+          +09000 +-----+         | LEN |
|                                                |00001|
|                                                |     |
|                                                +-----+
|
| REG5   REG_BOS                                                          << RUNG 39  STEP #0119 >>
|%M1733  %M1751  +-----+
+--| +-----| +---|MOVE_+-
|       | 0013   | INT |
| REG6  |        |     |
|%M1734 |S-FLOW  |     | IP_CON
+--| +--+%R0759 -|IN  Q+-%AQ002
|               | LEN |
|               |00001|
|               |     |
|               +-----+
|
| (*************************************************************************)
| (* Regulating valve is forced in some machine steps:                     *)
| (*************************************************************************)
|
|  SS1                                                                    << RUNG 41  STEP #0124 >>
|%M0099  +-----+
+--| +---|MOVE_+-
|        | INT |
|        |     |
|        |     | IP_CON
| CONST -|IN  Q+-%AQ002
| +00000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|  SS4                                                                    << RUNG 42  STEP #0126 >>
|%M0102          +-----+
+--| +-----------|MOVE_+-
|       |        | INT |
|  SS5  |        |     |
|%M0103 |        |     | IP_CON
+--| +--+ CONST -|IN  Q+-%AQ002
|        +13400 | LEN |
|               |00001|
|               |     |
|               +-----+
|
|SS10_11                                                                  << RUNG 43  STEP #0129 >>
|%M0070  +-----+
+--| +---|MOVE_+-
|        | INT |
|        |     |
|        |     | IP_CON
| CONST -|IN  Q+-%AQ002
| +29000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
```

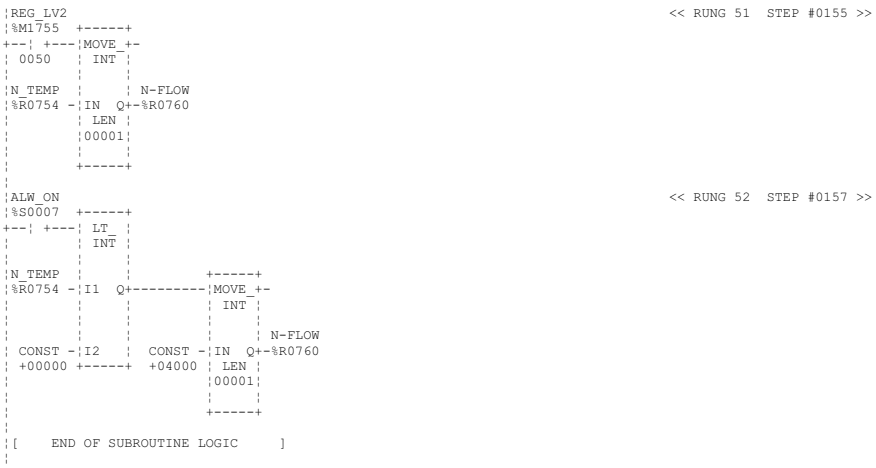

EM1.1TS700012.fm



TCA/P1
BLOCK 17 FILLING SYSTEM LEVEL REGULATOR

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-17:01

EM1.1TS700012.fm



EM1.1TS700012.fm

```
12-12-02  13:44                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page     1


[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Package disposal:                                                     *)
 (* < 0,6 sec = waste package 1-2                                         *)
 (* > 0,6 sec = waste package 1-16                                        *)
 (*************************************************************************)

 S005H                                                          S005HOS  << RUNG 5  STEP #0003 >>
%I0099                                                          %M0487
+--|/|+-----------------------------------------------------------(^)--  (* Package disposal button oneshot  *)
                                                                        Cross reference for S005HOS
                                                                        -] [- 79,81


 (*************************************************************************)
 (* Package distributor.                                                  *)
 (*************************************************************************)

 (*************************************************************************)
 (* Production package condition.                                         *)
 (*************************************************************************)

B700-1  S014_1                                                  PROD_P   << RUNG 8  STEP #0007 >>
%I0057  %I0078                                                  %M1396
+--| +-----| +-----------------------------------------------------(^)--  (* Production package condition     *)
       |     |                                                            Cross reference for PROD_P
       |S014_2 |                                                           -] [- 18
       |%I0079 |
       +--| +--|
       |     |
       |S014_3 |
       |%I0080 |
       +--| +--+

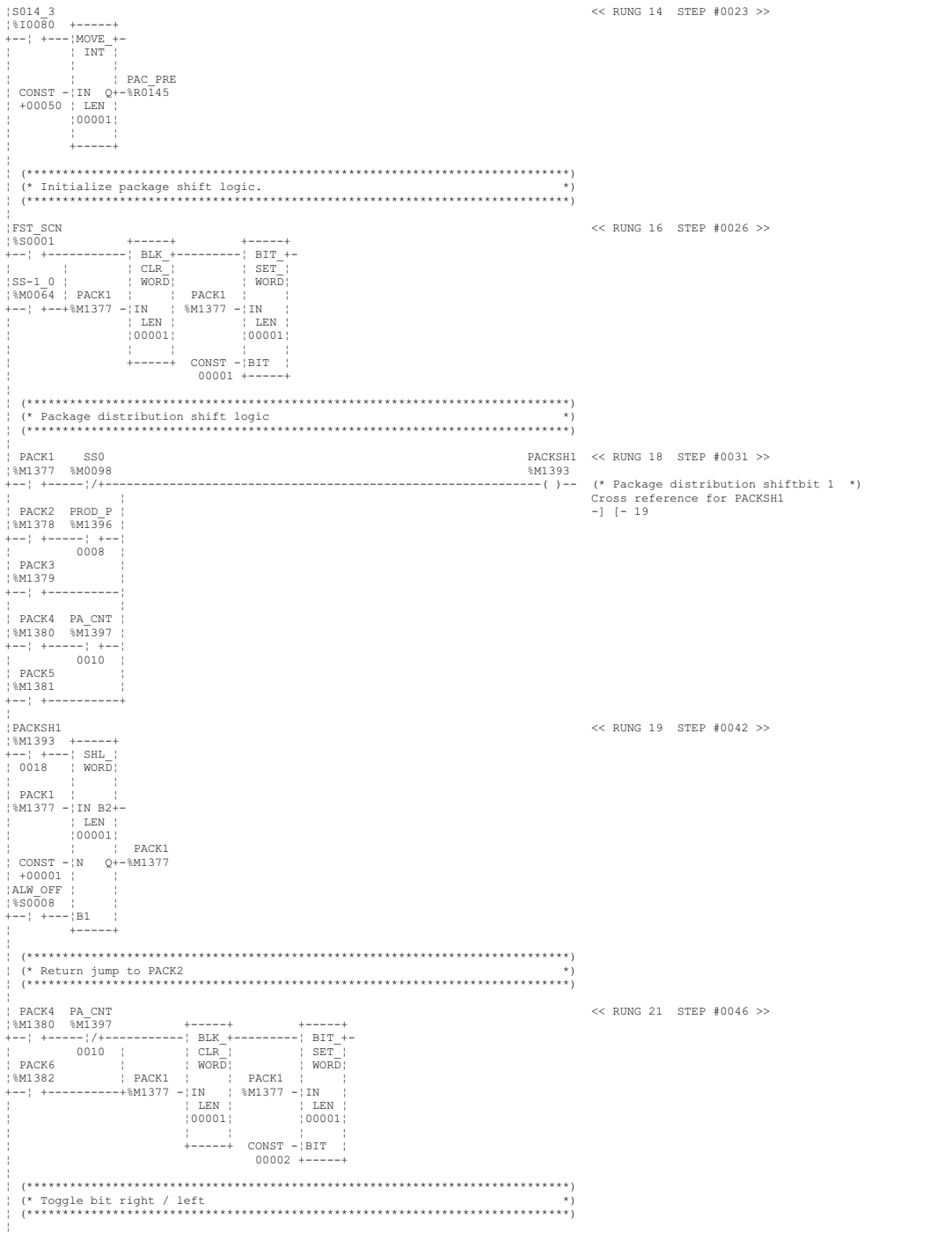
 (*************************************************************************)
 (* Package counter for Right / Left distribution                         *)
 (*************************************************************************)

 PACK3                                                          PA_CNT   << RUNG 10  STEP #0014 >>
%M1379  +-----+                                                 %M1397
+--| +--->UPCTR+-----------------------------------------------( )--  (* Package counter bit              *)
       |     |                                                            Cross reference for PA_CNT
 PACK5 |     |                                                           -] [- 18
%M1381 |     |                                                           -]/[- 21
+--| +---|R    |
       |     |
PAC_PRE|     |
%R0145 -|PV   |
       |     |
       +-----+
        ACC66
       %R9195

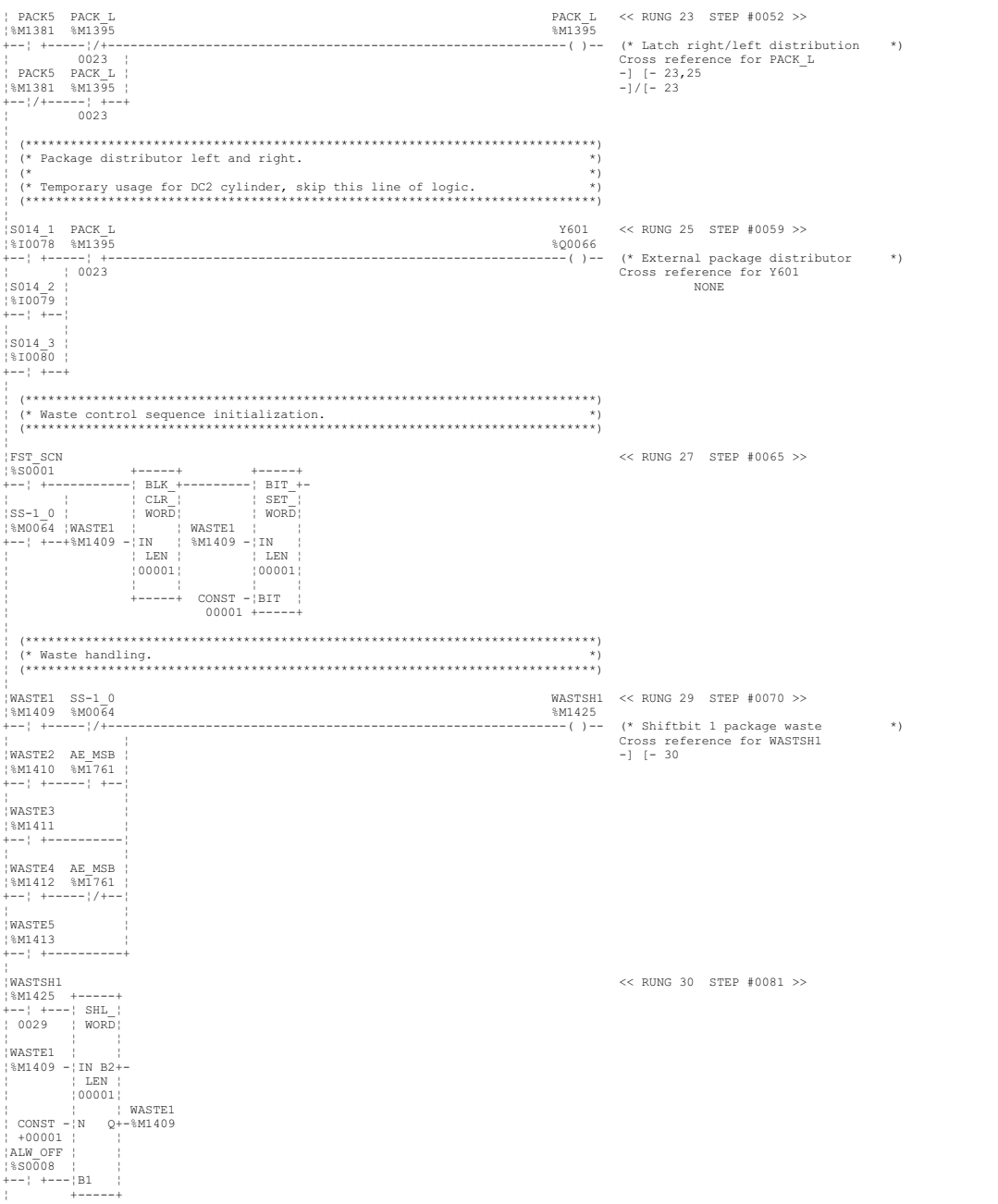
 (*************************************************************************)
 (* Preset selection. 8,25 or 50                                          *)
 (*************************************************************************)

S014_1                                                          << RUNG 12  STEP #0019 >>
%I0078  +-----+
+--| +---|MOVE_+-
       | INT |
       |     |
       |     | PAC_PRE
 CONST -|IN  Q+-%R0145
 +00008 | LEN |
       |00001|
       |     |
       +-----+

S014_2                                                          << RUNG 13  STEP #0021 >>
%I0079  +-----+
+--| +---|MOVE_+-
       | INT |
       |     |
       |     | PAC_PRE
 CONST -|IN  Q+-%R0145
 +00025 | LEN |
       |00001|
       |     |
       +-----+
```



EM1.1TS700012.fm



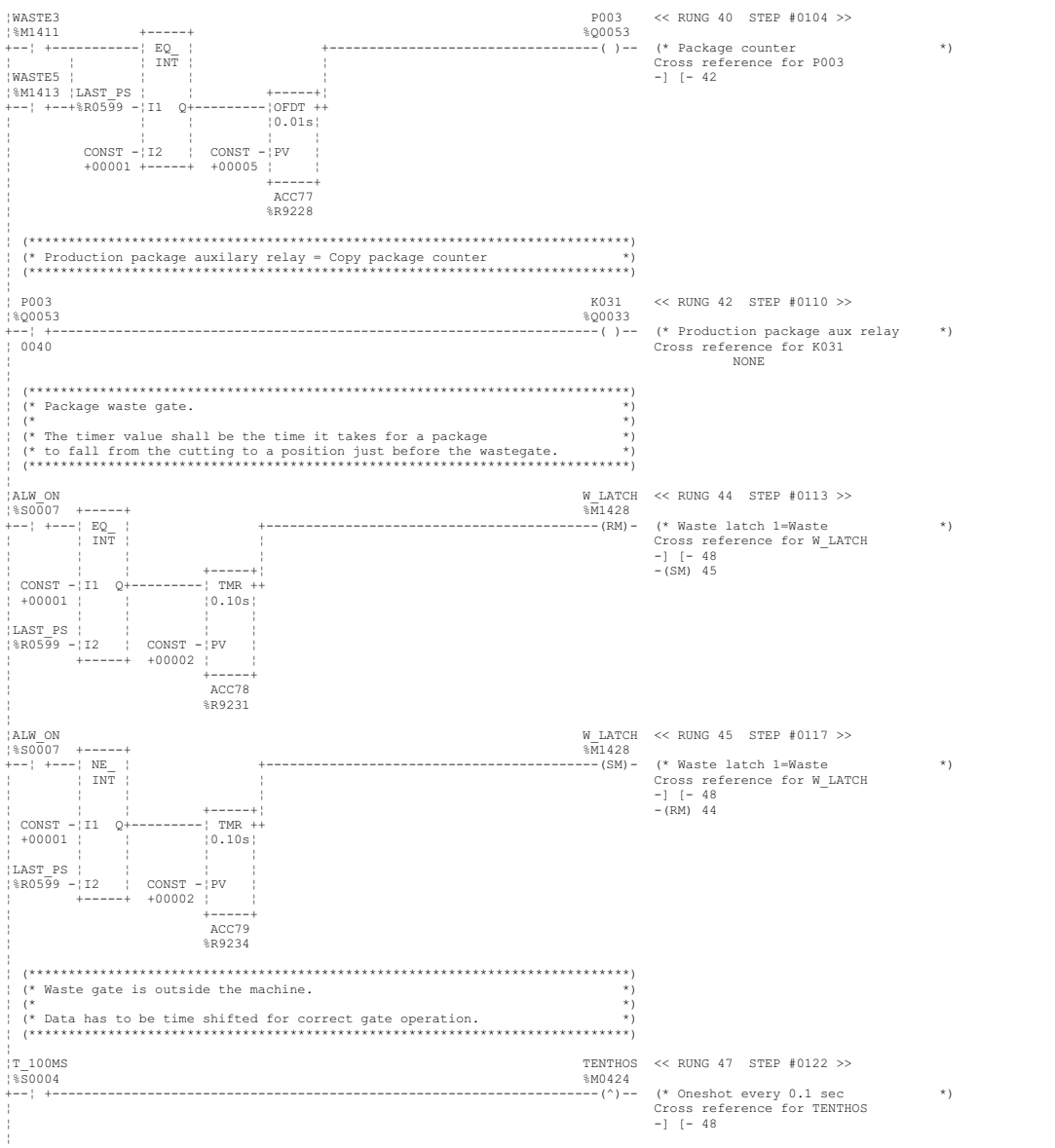
TCA/P1
BLOCK 18 PACKAGE DISTRIBUTIONS AND WASTE

ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-18:01

EM1.1TS700012.fm

```
| (*************************************************************************)
| (* Waste handling shift register.                                        *)
| (*                                                                       *)
| (* The program will always shift ones into the register.                *)
| (* All machine parts that wants to discard packages shall write the      *)
| (* value corresponding to the discard reason. i.e. 2,3,4,5 etc.         *)
| (*************************************************************************)
|
|WASTE3                                                          << RUNG 32  STEP #0085 >>
|%M1411          +-----+
+--| +----------|SHFR_+-
|       |        | WORD|
|WASTE5 |        |     |
|%M1413 |        |     |  TRASH
+--| +--+       +|R   Q+-%R0002
|               ||LEN  |
|ALW_OFF        ||00200|
|%S0008         ||     |
+--| +----------+|     |
|               |     |
|         CONST -|IN   |
|           0001 |     |
|                |     |
|        P_SHIFT |     |
|        %R0400 -|ST   |
|                +-----+
|
| (*************************************************************************)
| (* Package counter inclusive waste packages                              *)
| (*************************************************************************)
|
|WASTE3                                                          << RUNG 34  STEP #0090 >>
|%M1411                   +-----+
+--| +------------------>|UPCTR+-
|       |                 |     |
|WASTE5 |                 |     |
|%M1413 |                 |     |
+--| +--+       +--------|R    |
|               |         |     |
|RES_CT         |         |     |
|%M1333         |         |     |
+--| +----------+       -|PV   |
|                         |     |
|                         +-----+
|                         PACKAGE
|                         %R0774
|
| (*************************************************************************)
| (* Return jump in waste sequence.                                        *)
| (*************************************************************************)
|
|WASTE6                                                          << RUNG 36  STEP #0095 >>
|%M1414  +-----+          +-----+
+--| +---| BLK_+----------| BIT_+-
|       | CLR_|          | SET_|
|       | WORD|          | WORD|
|WASTE1 |     | WASTE1   |     |
|%M1409 -|IN   | %M1409 -|IN   |
|       | LEN |          | LEN |
|       |00001|          |00001|
|       |     |          |     |
|       +-----+  CONST -|BIT  |
|                 00002 +-----+
|
| (*************************************************************************)
| (* Machine not in full production or not in filling mode.                *)
| (* Waste code 8.                                                        *)
| (*************************************************************************)
|
| PROD9                                                          << RUNG 38  STEP #0099 >>
|%M1161          +-----+
+--|/+----------|MOVE_+-
|       |        | INT |
| REG6  |        |     |
|%M1734 |        |     | LAST_PS
+--|/+--| CONST -|IN  Q+-%R0599
|       | +00080 | LEN |
|  SS8  |        |00001|
|%M0106 |        |     |
+--|/+--+        +-----+
|
| (*************************************************************************)
| (* Package counter output.                                               *)
| (*                                                                       *)
| (* Output pulse is 50 ms if package is production package.               *)
| (* Data position is imediatily after the cutting of the package.        *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm



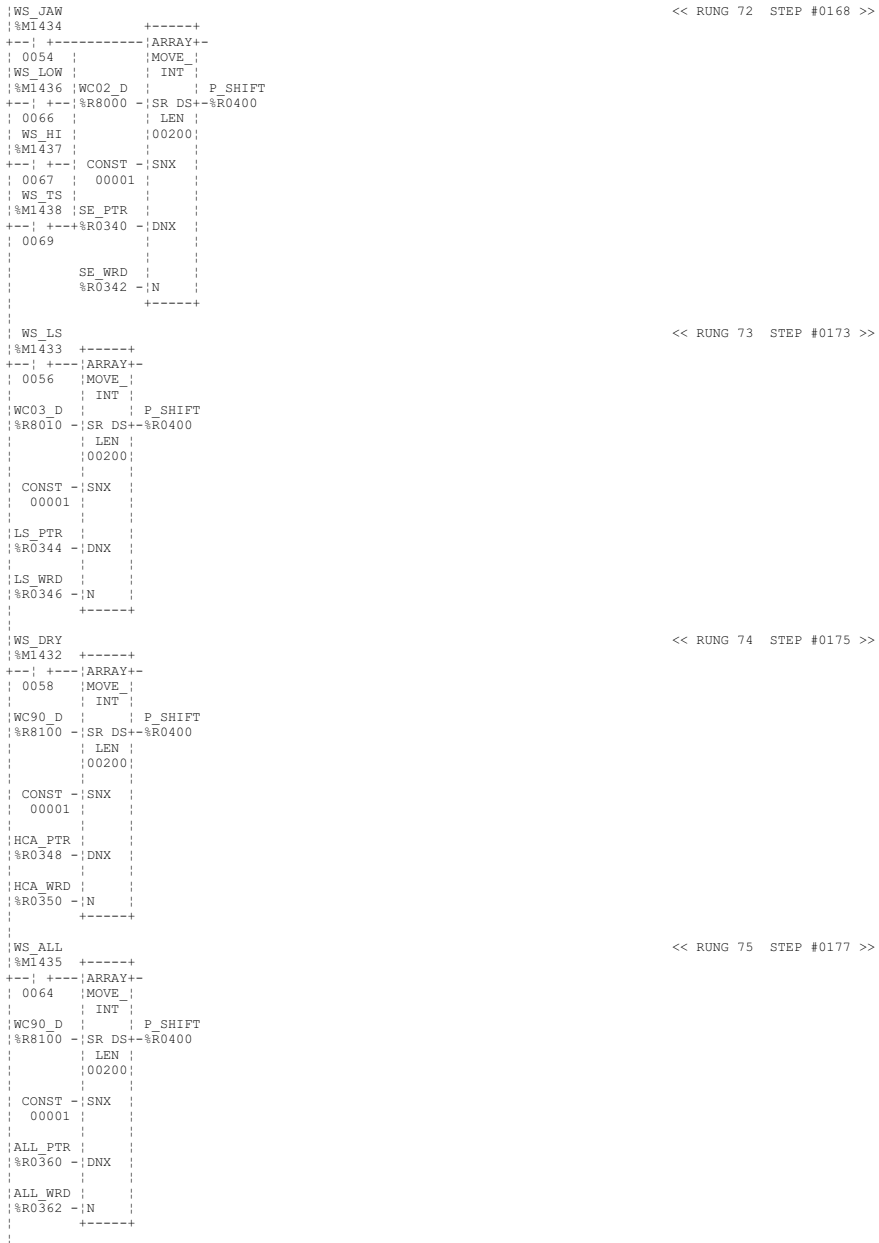
EM1.1TS700012.fm

```
|TENTHOS                                                                  << RUNG 48  STEP #0124 >>
|%M0424  +-----+
+--| +---| SHL_|
| 0047   | WORD|
|        |     |
|WASTESH |     |
|%M1777 -|IN B2+-
|        | LEN |
|        |00002|
|        |     | WASTESH
| CONST -|N   Q+-%M1777
| +00001 |     |
|W_LATCH |     |
|%M1428  |     |
+--| +---|B1   |
| 0044   +-----+
|
| (*************************************************************************)
| (* Read gate data at correct position.                                   *)
| (*                                                                       *)
| (* The read position may need adjustment for conveyor length and speed.  *)
| (*************************************************************************)
|
|WASTE_P                                                    Y600    << RUNG 50  STEP #0128 >>
|%M1796                                                    %Q0067
+--| +-------------------------------------------------------------( )--  (* Package waste                    *)
|                                                                         Cross reference for Y600
|                                                                                   NONE
|
|ALW_OFF                                                   WS_LSB   << RUNG 51  STEP #0130 >>
|%S0008                                                    %M1440
+--| +-------------------------------------------------------------(^)--  (* Waste due to LS strip broken     *)
|                                                                         Cross reference for WS_LSB
|                                                                         -] [- 83
|
| LSS4                                                     WS_LSS   << RUNG 52  STEP #0132 >>
|%M1892                                                    %M1427
+--| +-------------------------------------------------------------(^)--  (* Waste due to LS strip splice     *)
|                                                                         Cross reference for WS_LSS
|                                                                         -] [- 84
|
| (*************************************************************************)
| (* Conditions for wasting paper.                                        *)
| (* Waste paper in jaw entry due to TS unreliable at stop/start          *)
| (*************************************************************************)
|
|FR1_NVL                                                   WS_JAW   << RUNG 54  STEP #0135 >>
|%Q0002                                                    %M1434
+--|/+------------------------------------------------------------(^)--  (* Waste paper in jaw system        *)
|                                                                         Cross reference for WS_JAW
|                                                                         -] [- 72
|
| (*************************************************************************)
| (* Waste paper in LS element at stop.                                   *)
| (*************************************************************************)
|
|FR1_NVL                                                    WS_LS   << RUNG 56  STEP #0138 >>
|%Q0002                                                    %M1433
+--|/+------------------------------------------------------------(^)--  (* Waste paper in LS heater         *)
|                                                                         Cross reference for WS_LS
|                                                                         -] [- 73
|
| (*************************************************************************)
| (* Waste paper in the drying unit at stop.                              *)
| (* The paper will survive a shorter stop, timer will need adjustment    *)
| (* for different types of paper.                                         *)
| (*************************************************************************)
|
|FR1_NVL                                                   WS_DRY   << RUNG 58  STEP #0141 >>
|%Q0002                                                    %M1432
+--|/+------------------------------------------------------------(^)--  (* Waste paper in drying unit       *)
|                                                                         Cross reference for WS_DRY
|                                                                         -] [- 74
|
| (*************************************************************************)
| (* Waste paper in the peroxide bath.                                    *)
| (* The paper may survive a short stop, adjust timer for different       *)
| (* types of paper.                                                      *)
| (*************************************************************************)
|
|FR1_NVL                                                   WS_PER   << RUNG 60  STEP #0144 >>
|%Q0002                                                    %M1430
+--|/+------------------------------------------------------------(^)--  (* Waste paper in peroxide bath     *)
|                                                                         Cross reference for WS_PER
|                                                                         -] [- 76
|
| (*************************************************************************)
| (* Waste paper in the LS strip heater at stop.                          *)
| (*************************************************************************)
|
```

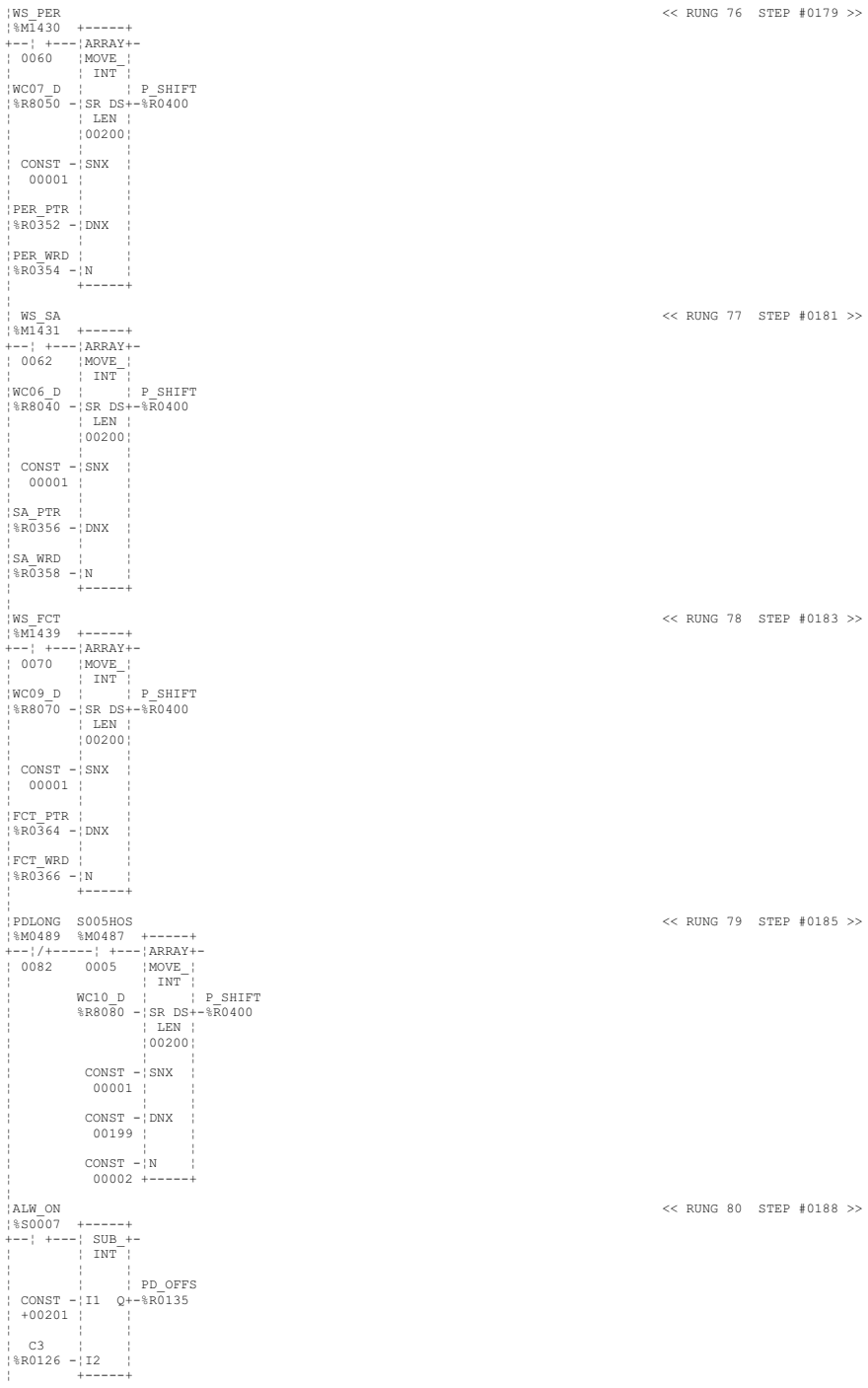

EM1.1TS700012.fm

```
|FR1_NVL                                                                WS_SA   << RUNG 62  STEP #0147 >>
|%Q0002                                                                %M1431
+--|/+-------------------------------------------------------------------(^)--  (* Waste paper at SA Element        *)
|                                                                               Cross reference for WS_SA
|                                                                               -] [- 77
|
| (*************************************************************************)
| (* Startup of the machine: Waste the paper from peroxide bath and in.    *)
| (*************************************************************************)
|
|FR1_NVL                                                                WS_ALL  << RUNG 64  STEP #0150 >>
|%Q0002                                                                %M1435
+--|/+-------------------------------------------------------------------(^)--  (* Waste paper from peroxide in     *)
|                                                                               Cross reference for WS_ALL
|                                                                               -] [- 75
|
| (*************************************************************************)
| (* Incorrect level waste conditions.                                    *)
| (*************************************************************************)
|
|ALW_ON                                                                 WS_LOW  << RUNG 66  STEP #0153 >>
|%S0007  +-----+                                                        %M1436
+--| +---| LT_ |               +-----------------------------------------(^)--  (* Waste due to LOW level error     *)
|    |   | INT |               |                                                 Cross reference for WS_LOW
|    |   |     |               |                                                 -] [- 72
|LVL_SEN |     |         +-----+|
|%AI0003-|I1  Q+---------| TMR ++
|    |   |     |         |0.10s|
|    |   |     |         |     |
| CONST -|I2   |  CONST -|PV   |
| +02000 +-----+  +00040 |     |
|                         +-----+
|                         ACC130
|                         %R9387
|
|ALW_ON                                                                  WS_HI  << RUNG 67  STEP #0157 >>
|%S0007  +-----+                                                        %M1437
+--| +---| GT_ |               +-----------------------------------------(^)--  (* Waste due to HI level error      *)
|    |   | INT |               |                                                 Cross reference for WS_HI
|    |   |     |               |                                                 -] [- 72
|LVL_SEN |     |         +-----+|
|%AI0003-|I1  Q+---------| TMR ++
|    |   |     |         |0.10s|
|    |   |     |         |     |
| CONST -|I2   |  CONST -|PV   |
| +30000 +-----+  +00060 |     |
|                         +-----+
|                         ACC131
|                         %R9390
|
| (*************************************************************************)
| (* Waste paper in jaw system due to TS error, The TS alarm AC47 will      *)
| (* stop the machine.                                                     *)
| (*************************************************************************)
|
|S1_ERR                                                                  WS_TS  << RUNG 69  STEP #0162 >>
|%M1764                                                                 %M1438
+--| +-------------------------------------------------------------------(^)--  (* Waste due to TS fault            *)
|    |                                                                          Cross reference for WS_TS
|S2_ERR |                                                                       -] [- 72
|%M1765 |
+--| +--+
|
| B126                                                                  WS_FCT  << RUNG 70  STEP #0165 >>
|%I0014                                                                 %M1439
+--|/+-------------------------------------------------------------------(^)--  (* Waste due to ASU/factory splice  *)
|                                                                               Cross reference for WS_FCT
|                                                                               -] [- 78
|
| (*************************************************************************)
| (* Various reasons for wasting, writing to the shiftregister            *)
| (*                                                                       *)
| (*************************************************************************)
|
```

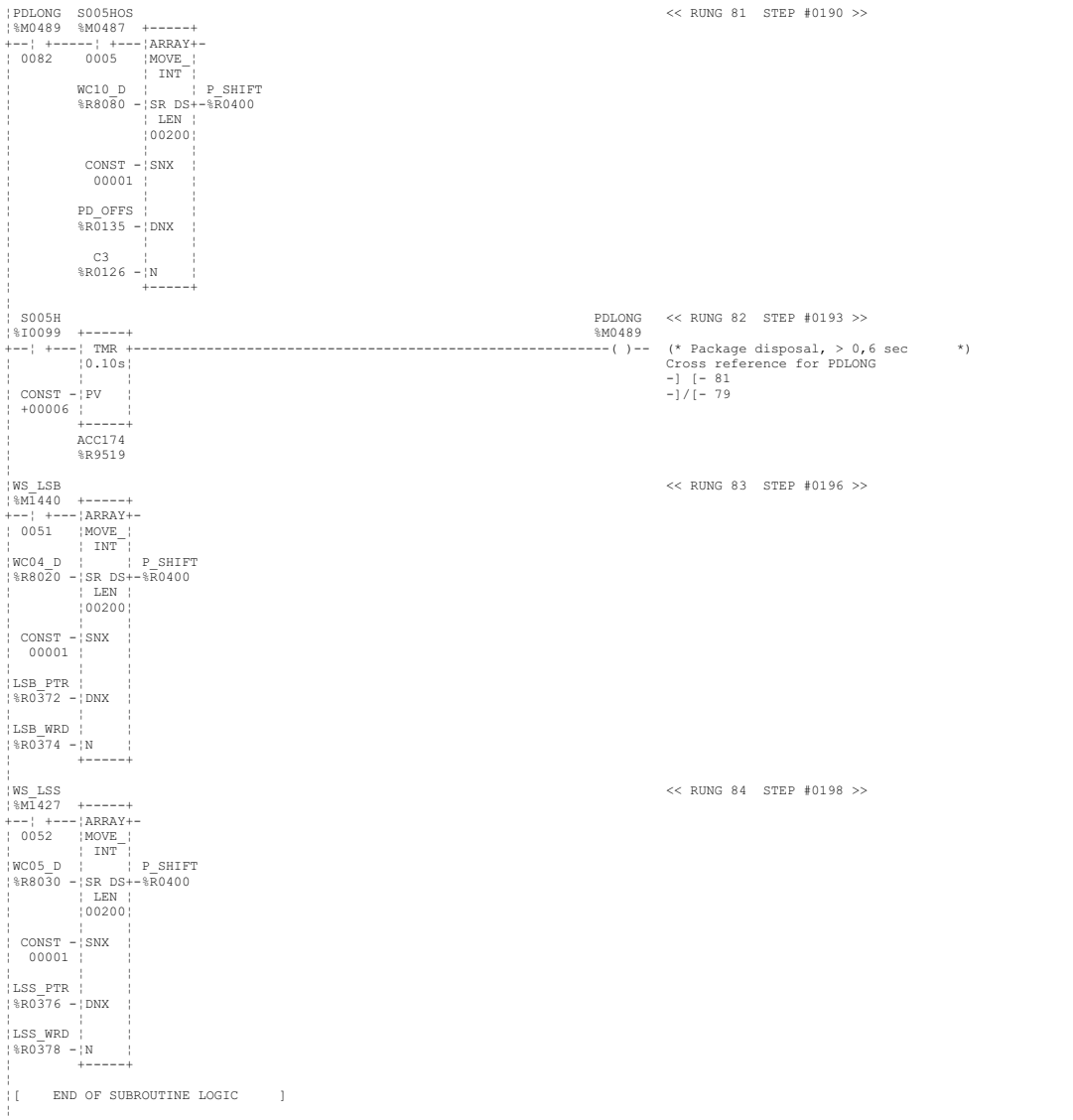

EM1.1TS700012.fm



EM1.1TS700012.fm



EM1.1TS700012.fm



EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Program for jaw diagnostics.                                          *)
 (*                                                                       *)
 (* The output data is in register 611..620 for side 1 and in             *)
 (* register 621..630 for side 2. A Zero value means all is OK.           *)
 (* The data is bit coded so that bit 1 corresponds to jaw 1 etc.         *)
 (* The data is shifted after one complete chain revolution so that       *)
 (* data for the last 10 chain revolutions is available (Aprox 160 packages) *)
 (*                                                                       *)
 (* Note that the data here is NOT accurate if the calibration            *)
 (* request is active ,as after powerup !!!!                              *)
 (*                                                                       *)
 (* Example 1:                                                            *)
 (* If register 622 is equal to 18 (or 00000000 00010010 binary)          *)
 (* By loooking at the binary pattern from right to left the bits         *)
 (* 2 and 5 are one this means that jaw 2 and jaw 5 in side 2 are bad.     *)
 (*                                                                       *)
 (* Example 2:                                                            *)
 (* If register 622 is equal to 255 (or 00000000 11111111 binary)         *)
 (* This would indicate all 8 jaws in side 2 faulty, this is not          *)
 (* the most probable cause: The fault is more likely to be in a          *)
 (* TPIH power unit or a cable (Common to all jaws).                      *)
 (*                                                                       *)
 (*************************************************************************)

 (*************************************************************************)
 (* The MSB in the adjusted counter is extracted.                         *)
 (*************************************************************************)

ALW_ON                                                          AE_MSB   << RUNG 6  STEP #0004 >>
%S0007  +-----+                                                 %M1761
+--| +---| BIT_|+-----------------------------------------------------( )--  (* Adjusted encoder MSB            *)
        |TEST_||                                                          Cross reference for AE_MSB
        | WORD||                                                          -] [- 8
ADJ_CNT |     ||                                                          -]/[- 7
%R0112 -|IN  Q++
        | LEN |
        |00001|
        |     |
 CONST -|BIT  |
  00008 +-----+

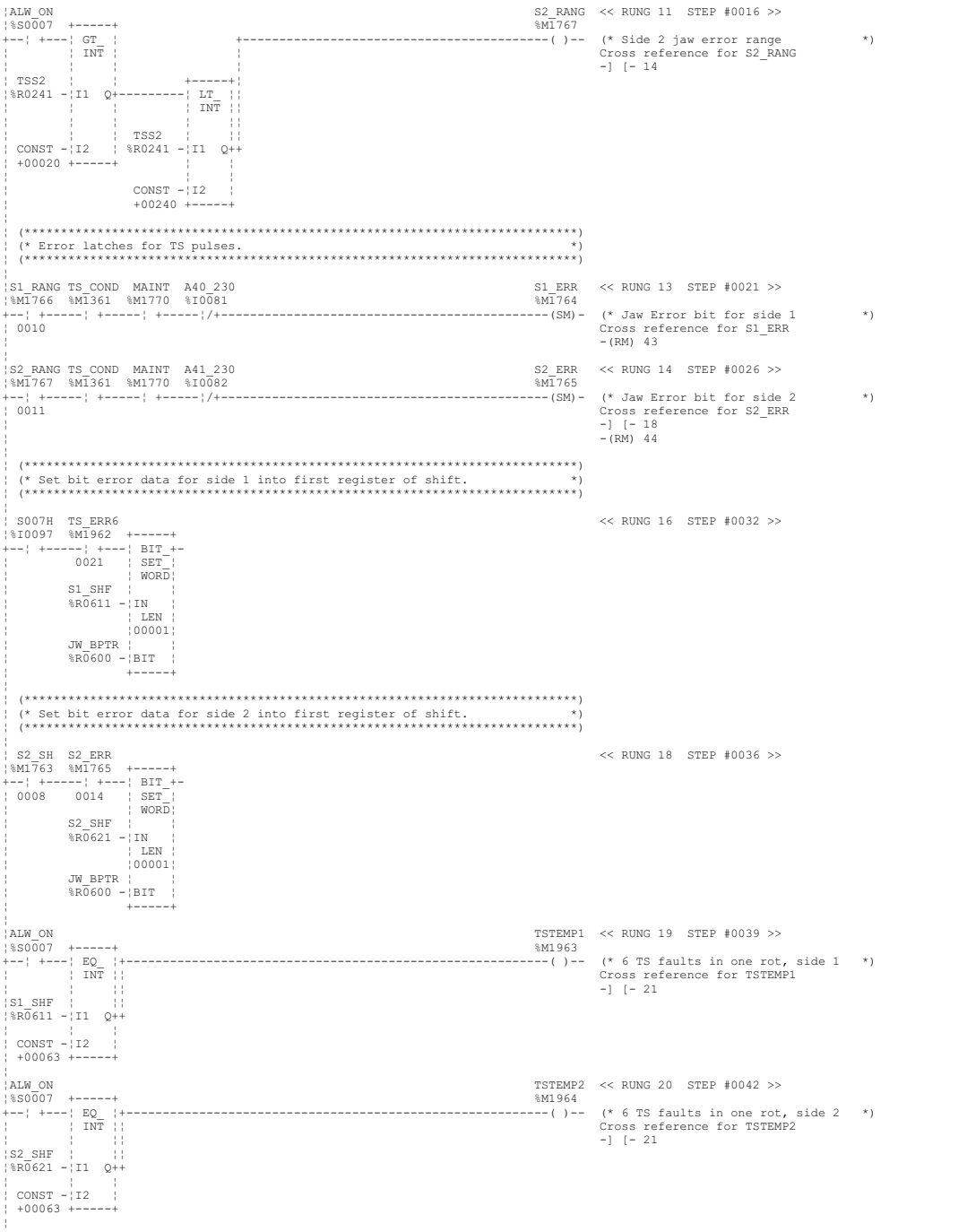
AE_MSB                                                           S1_SH   << RUNG 7  STEP #0007 >>
%M1761                                                          %M1762
+--|/+-----------------------------------------------------------------(^)--  (* Side 1 jaw data oneshot         *)
 0006                                                                    Cross reference for S1_SH
                                                                         -] [- 23,43

AE_MSB                                                           S2_SH   << RUNG 8  STEP #0009 >>
%M1761                                                          %M1763
+--| +-----------------------------------------------------------------(^)--  (* Side 2 jaw data oneshot         *)
 0006                                                                    Cross reference for S2_SH
                                                                         -] [- 18,40,44,48

 (*************************************************************************)
 (* Range detection for checking TS data.                                 *)
 (*                                                                       *)
 (* The constants are adjusted for 260 ms of TS pulse.                    *)
 (*************************************************************************)

ALW_ON                                                          S1_RANG  << RUNG 10  STEP #0012 >>
%S0007  +-----+                                                 %M1766
+--| +---| GT_ |               +-----------------------------------( )--  (* Side 1 jaw error range          *)
        | INT |               |                                          Cross reference for S1_RANG
        |     |               |                                          -] [- 13
 TSS1   |     |         +-----+|
%R0240 -|I1  Q+---------| LT_ ||
        |     |         | INT ||
        |     |         |     ||
        |     |  TSS1   |     ||
 CONST -|I2   | %R0240 -|I1  Q++
 +00020 +-----+         |     |
                        |     |
                CONST -|I2   |
                +00240 +-----+
```

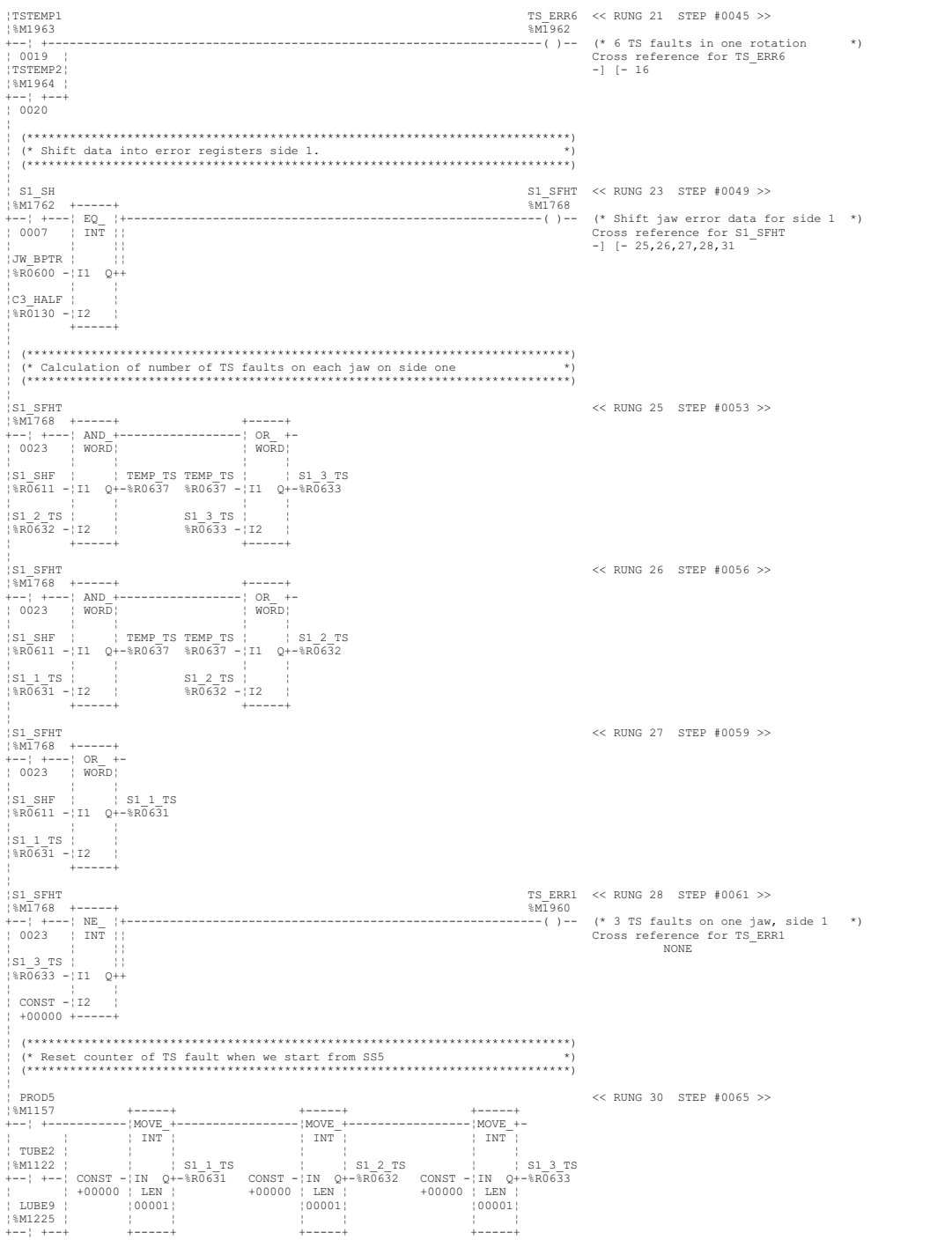

EM1.1TS700012.fm



TCA/P1
BLOCK 19 JAW FAULT DETECTION, PRINTING

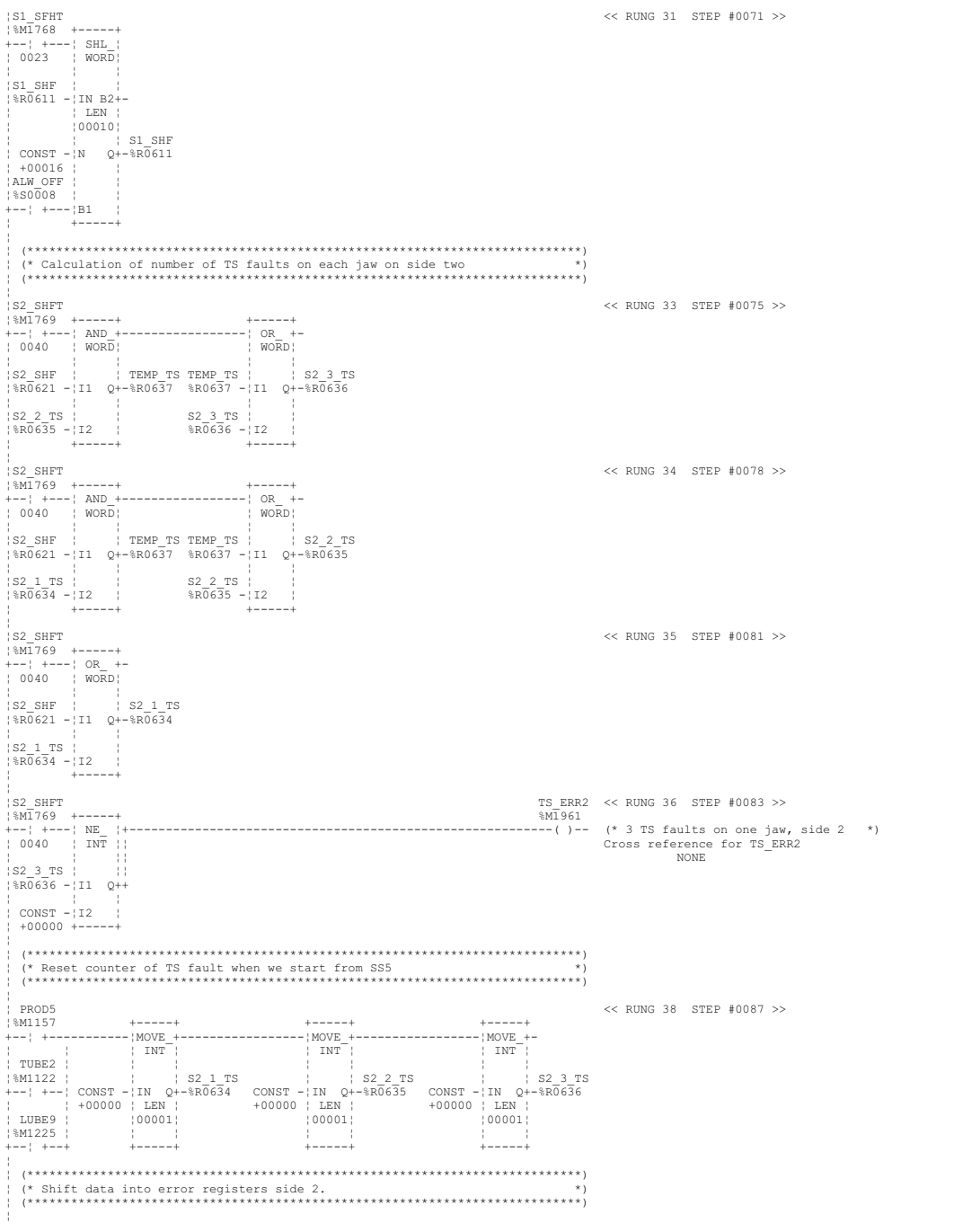
ECM 122946 DATE: 20021212 SIGN: RHN/TAN DOC.ID: 45282-19:01

EM1.1TS700012.fm



TCA/P1
BLOCK 19 JAW FAULT DETECTION, PRINTING

EM1.1TS700012.fm



TCA/P1
BLOCK 19 JAW FAULT DETECTION, PRINTING

EM1.1TS700012.fm

```
| S2_SH                                                                S2_SHFT  << RUNG 40  STEP #0094 >>
|%M1763  +-----+                                                       %M1769
+--| +---| EQ_ |+-----------------------------------------------------( )--  (* Shift jaw error data for side 2  *)
| 0008   | INT ||                                                             Cross reference for S2_SHFT
|        |     ||                                                             -] [- 33,34,35,36,41
|JW_BPTR |     ||
|%R0600 -|I1  Q++
|        |     |
|C3_HALF |     |
|%R0130 -|I2   |
|        +-----+
|
|S2_SHFT                                                                    << RUNG 41  STEP #0097 >>
|%M1769  +-----+
+--| +---| SHL_|
| 0040   | WORD|
|        |     |
|S2_SHF  |     |
|%R0621 -|IN B2+-
|        | LEN |
|        |00010|
|        |     | S2_SHF
| CONST -|N   Q+-%R0621
| +00016 |     |
|ALW_OFF |     |
|%S0008  |     |
+--| +---|B1   |
|        +-----+
|
| (*************************************************************************)
| (* Error latch reset after transfer to shift registers.                 *)
| (*************************************************************************)
|
| S1_SH                                                                S1_ERR   << RUNG 43  STEP #0101 >>
|%M1762                                                                %M1764
+--| +-----------------------------------------------------------------(RM)-  (* Jaw Error bit for side 1         *)
| 0007                                                                       Cross reference for S1_ERR
|                                                                            -(SM) 13
|
| S2_SH                                                                S2_ERR   << RUNG 44  STEP #0103 >>
|%M1763                                                                %M1765
+--| +-----------------------------------------------------------------(RM)-  (* Jaw Error bit for side 2         *)
| 0008                                                                       Cross reference for S2_ERR
|                                                                            -] [- 18
|                                                                            -(SM) 14
|
| (*************************************************************************)
| (* The Adjusted counter holds information on the status of general      *)
| (* jaw position.                                                        *)
| (* The 8 LSB bits of the adjusted counter is identical to the           *)
| (* adjusted encoder. The bits above are usable as pointer to            *)
| (* the jaw number that has passed since last reset of the counting system.  *)
| (* A mod (Division reminder) operation with total number of jaws        *)
| (* provides a proper rolling pointer that works even at the            *)
| (* rollover operation.                                                  *)
| (*************************************************************************)
|
|ALW_ON                                                                     << RUNG 46  STEP #0106 >>
|%S0007          +-----+                                  +-----+
+--| +-----------| DIV_+----------------------------------| MOD_+-
|                | DINT|                                  | DINT|
|                |     |                                  |     |
|        ADJ_CNT |     | JAW_NO                 JAW_NO    |     | JAW_NO
|        %R0112 -|I1  Q+-%R0124                %R0124 -|I1  Q+-%R0124
|                |     |                                  |     |
|                |     |                          C3      |     |
|         CONST -|I2   |                         %R0126 -|I2   |
|    +0000000128 +-----+                                  +-----+
|
| (*************************************************************************)
| (* Jaw bit number, common to both sides.                                *)
| (*************************************************************************)
|
| S2_SH                                                                     << RUNG 48  STEP #0110 >>
|%M1763  +-----+                +-----+
+--| +---| DIV_+----------------| ADD_+-
| 0008   | INT |                | INT |
|        |     |                |     |
|JAW_NO  |     | JW_BPTR JW_BPTR |     | JW_BPTR
|%R0124 -|I1  Q+-%R0600  %R0600 -|I1  Q+-%R0600
|        |     |                |     |
| CONST -|I2   |          CONST -|I2   |
| +00002 +-----+          +00001 +-----+
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Divide number of jaws (total) to get jaws per side.                   *)
 (*************************************************************************)

FST_SCN                                                          << RUNG 5  STEP #0003 >>
%S0001          +-----+
+--| +----------| DIV_+-
|                | DINT|
|                |     |
|          C3    |     | C3_HALF
|        %R0126 -|I1  Q+-%R0130
|                |     |
|         CONST -|I2   |
|    +0000000002 +-----+

 (*************************************************************************)
 (* This block runs only at powerup!!                                     *)
 (*                                                                       *)
 (* This section contains adaptations to various package sizes.           *)
 (* The first adaptation is the waste shift register calculations.        *)
 (*                                                                       *)
 (* All positions of items along the paper are measured from the package  *)
 (* cutting position after the sealing jaws. The distance to i.e. the     *)
 (* peroxide bath is measured in mm from this position and is approx      *)
 (* 7000 mm, this data is entered into the first DP register and remains  *)
 (* the same for a machine regardless of package size! The only adaptation*)
 (* needed once these dimensions are set is the package paper length.     *)
 (*                                                                       *)
 (* Then the length of the bath, or rather the length of paper to         *)
 (* be wasted due to the bath is entered in the next DP register. (500 mm)*)
 (* This means that the distance to the nearest end of the peroxide bath  *)
 (* is 7000 mm and the distance to the far end of the bath is 7500 mm.    *)
 (* All measurements are along the paper.                                 *)
 (*                                                                       *)
 (*************************************************************************)

 (*************************************************************************)
 (* These data has to be set in the machine once and for all              *)
 (*                                                                       *)
 (* R300 The position of the sealing jaw waste position (close to 0 mm)   *)
 (* R302 The length of the sealing jaw waste area (approx 600 mm)         *)
 (*                                                                       *)
 (* R304 The position of the LS element waste position (mm)               *)
 (* R306 The length of the LS element waste position (mm)                 *)
 (*************************************************************************)

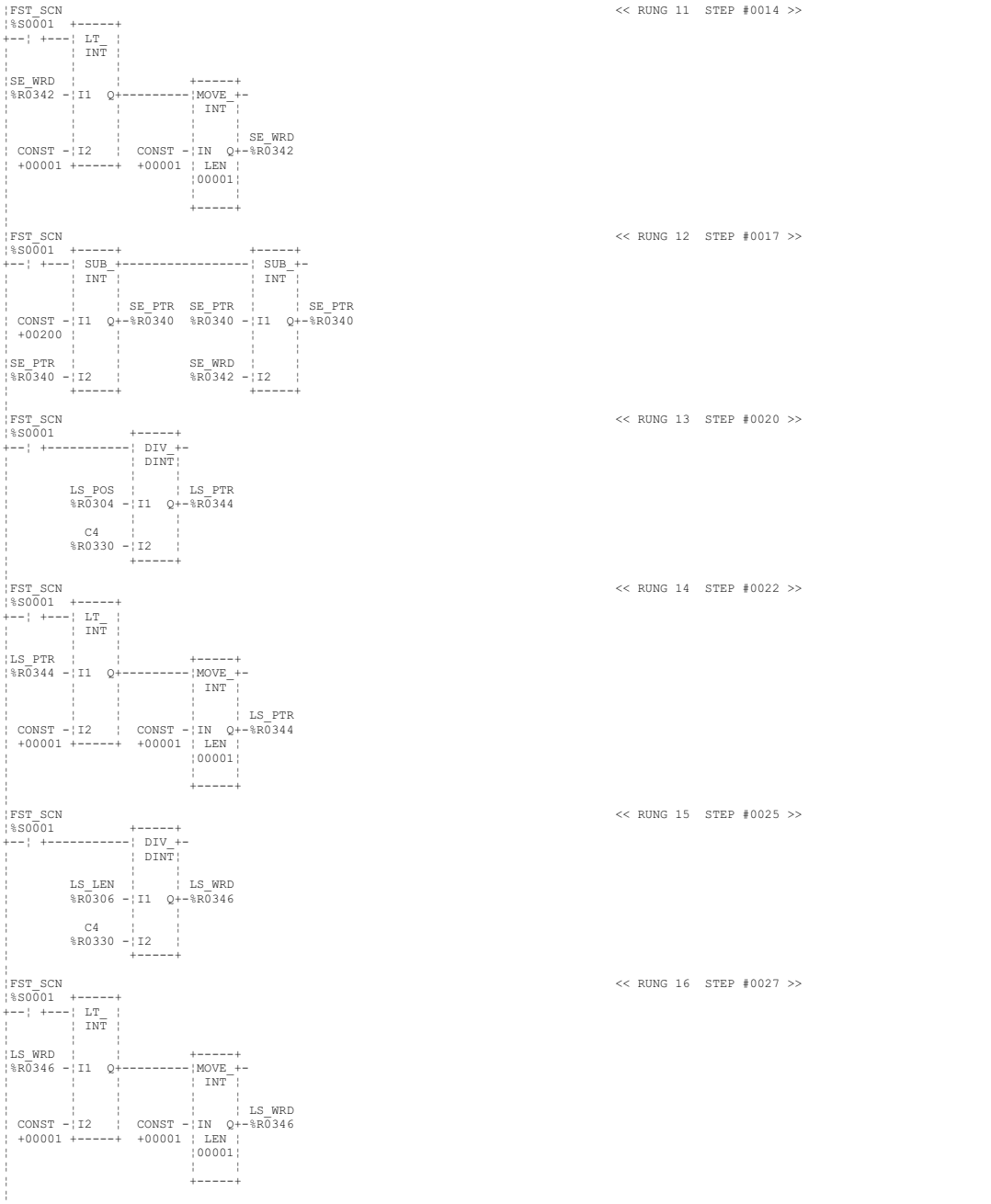
FST_SCN                                                          << RUNG 8  STEP #0007 >>
%S0001          +-----+
+--| +----------| DIV_+-
|                | DINT|
|                |     |
|        SE_POS  |     | SE_PTR
|        %R0300 -|I1  Q+-%R0340
|                |     |
|          C4    |     |
|        %R0330 -|I2   |
|                +-----+

FST_SCN                                                          << RUNG 9  STEP #0009 >>
%S0001  +-----+
+--| +---| LT_ |
|       | INT |
|       |     |
SE_PTR  |     |         +-----+
%R0340 -|I1  Q+---------|MOVE_+-
|       |     |         | INT |
|       |     |         |     |
|       |     |         |     | SE_PTR
 CONST -|I2   |  CONST -|IN  Q+-%R0340
 +00001 +-----+  +00001 | LEN |
|                        |00001|
|                        |     |
|                        +-----+

FST_SCN                                                          << RUNG 10  STEP #0012 >>
%S0001          +-----+
+--| +----------| DIV_+-
|                | DINT|
|                |     |
|        SE_LEN  |     | SE_WRD
|        %R0302 -|I1  Q+-%R0342
|                |     |
|          C4    |     |
|        %R0330 -|I2   |
|                +-----+
```

TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

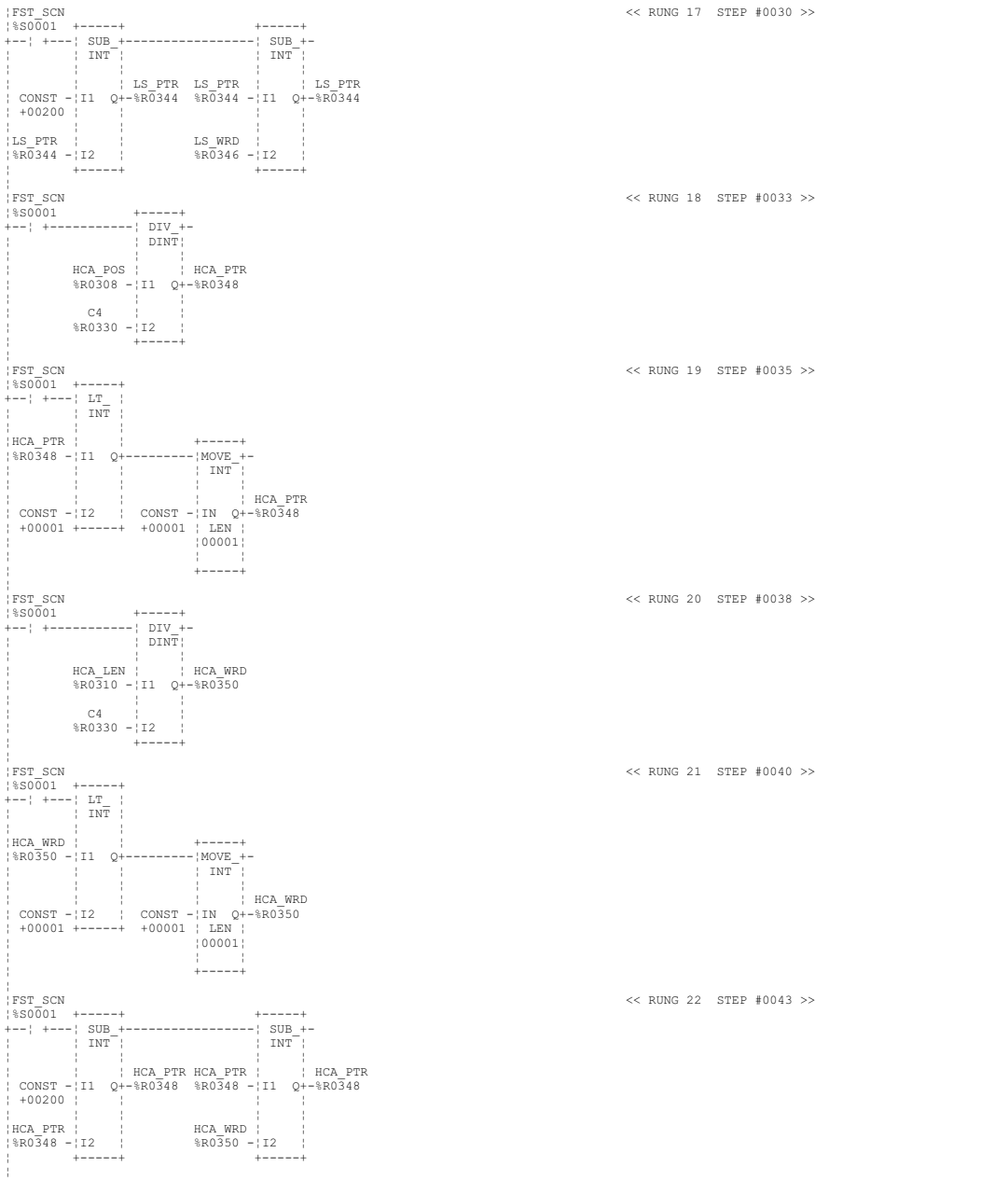
EM1.1TS700012.fm



TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

ECM 122946 DATE: 20021212 SIGN:RHN/TAN DOC.ID: 45282-20:01

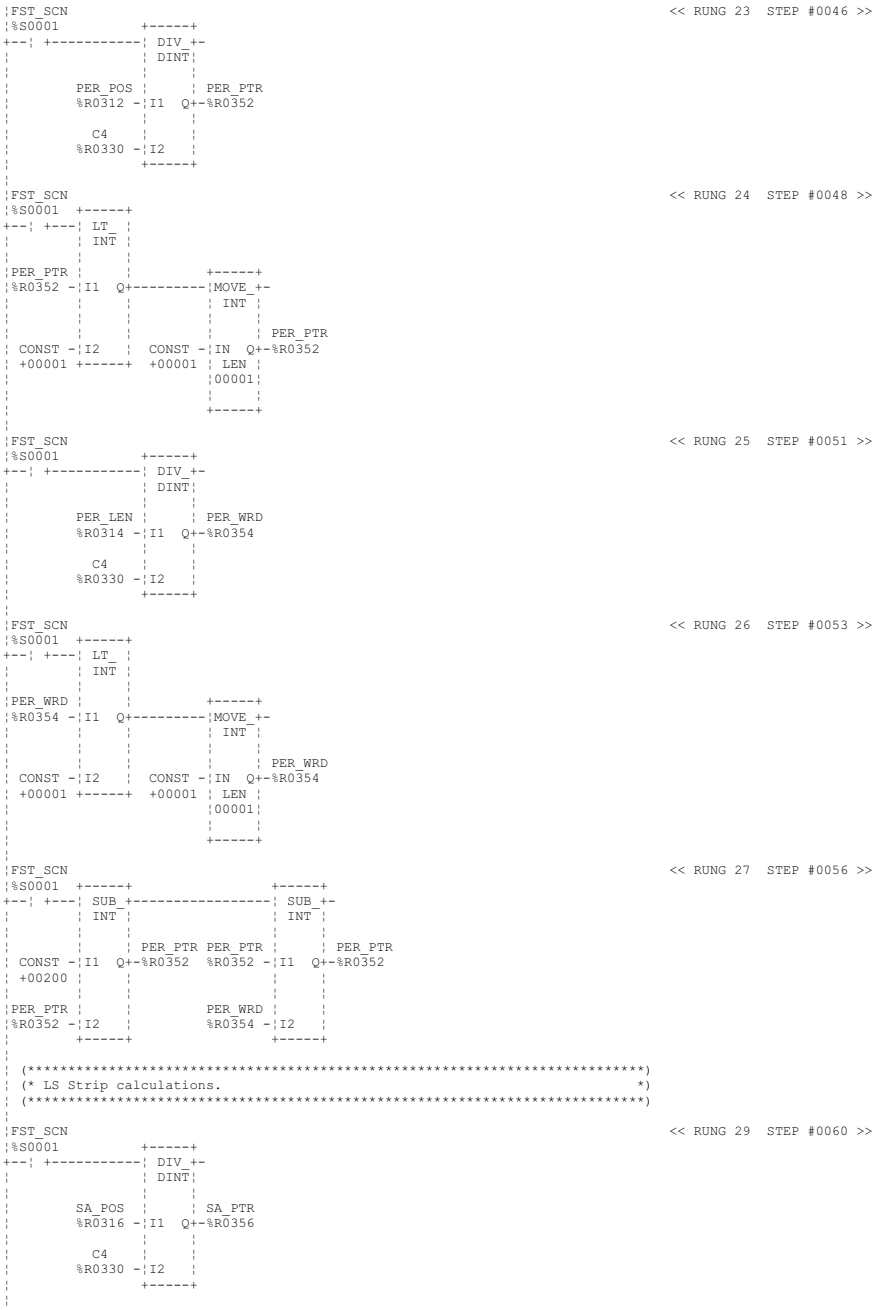
EM1.1TS700012.fm



TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

ECM 122946 DATE: 20021212 SIGN:RHN/TAN DOC.ID: 45282-20:01

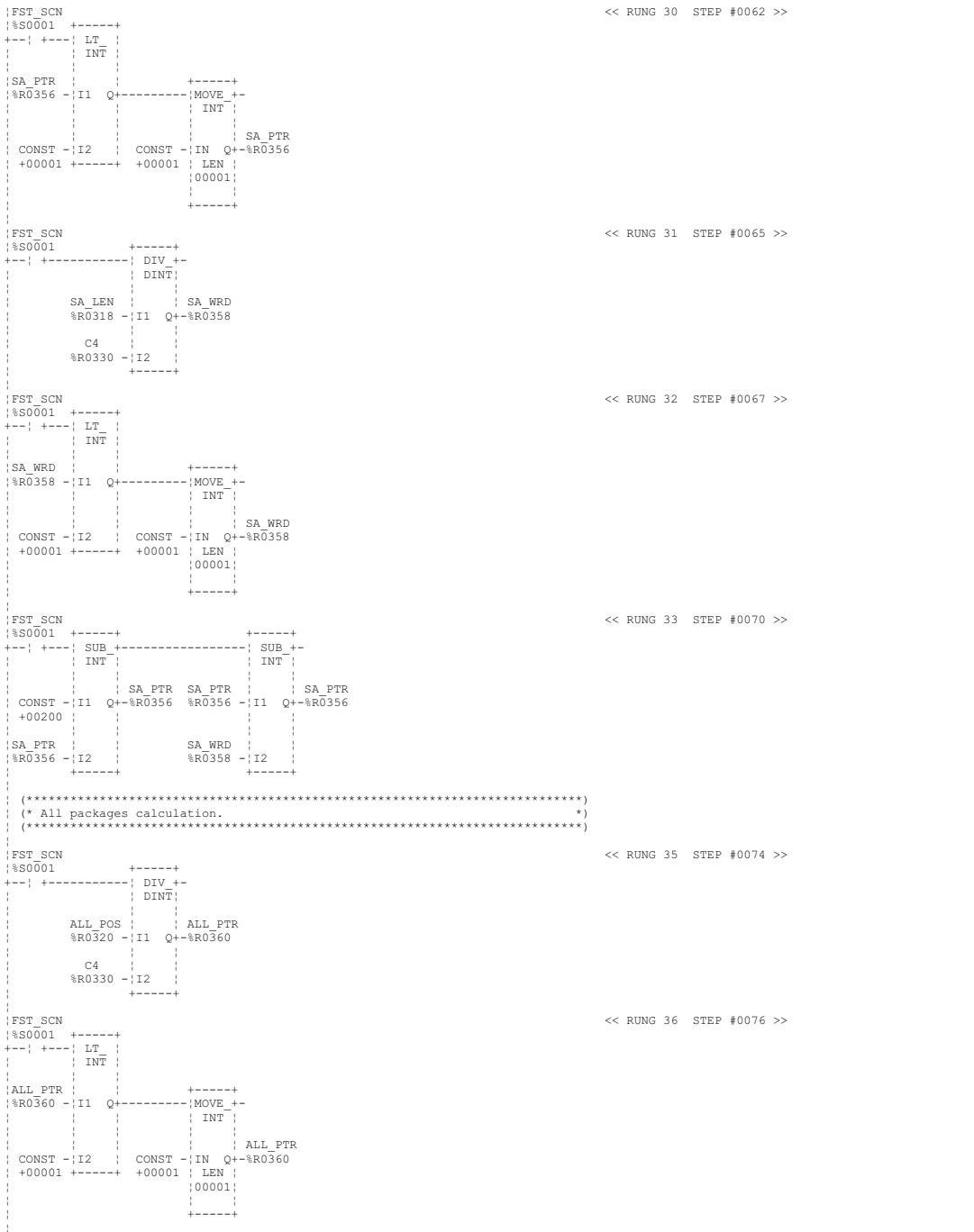
EM1.1TS700012.fm



TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

ECM 122946 DATE: 20021212 SIGN:RHN/TAN DOC.ID: 45282-20:01

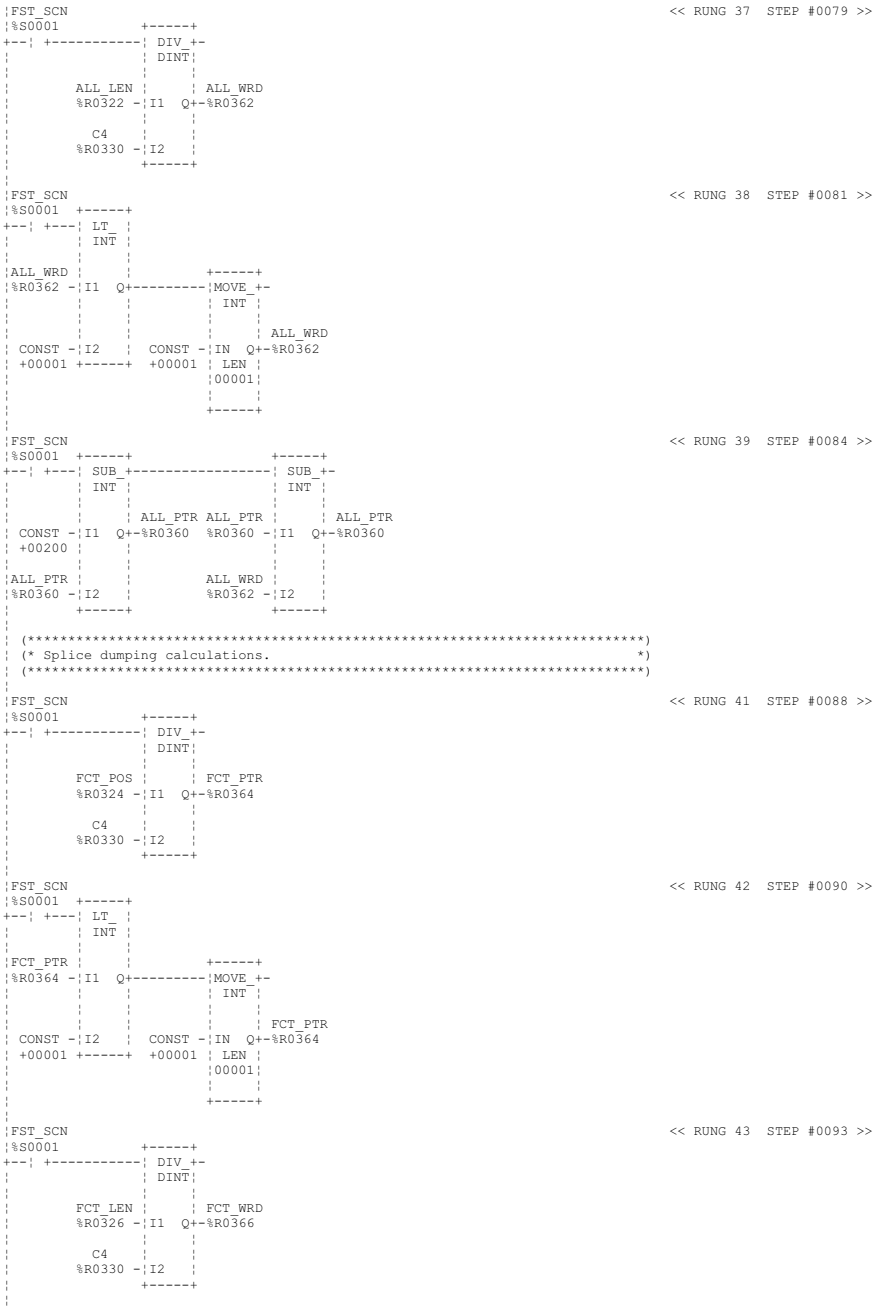
EM1.1TS700012.fm



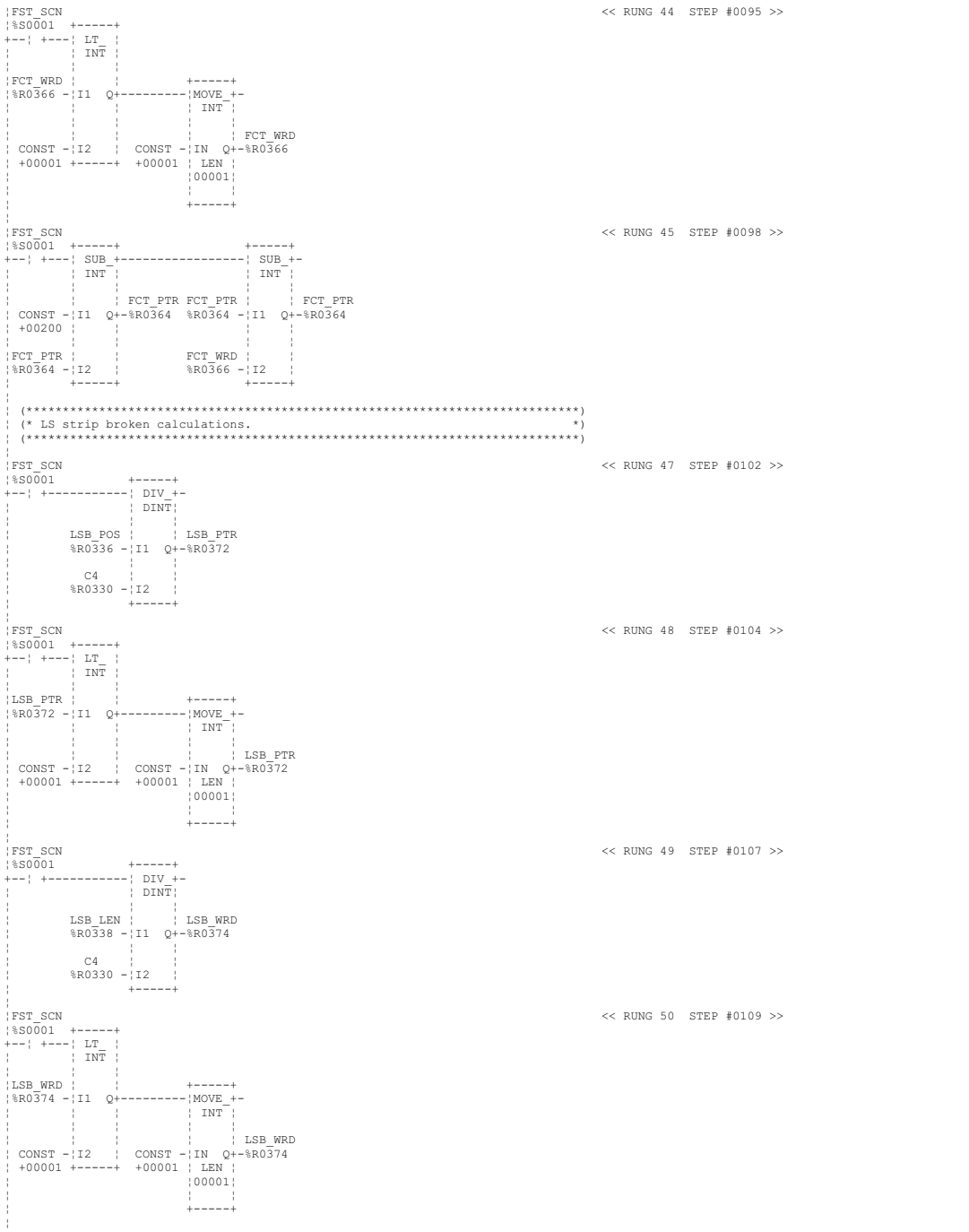
TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

ECM 122946 DATE: 20021212 SIGN:RHN/TAN DOC.ID: 45282-20:01

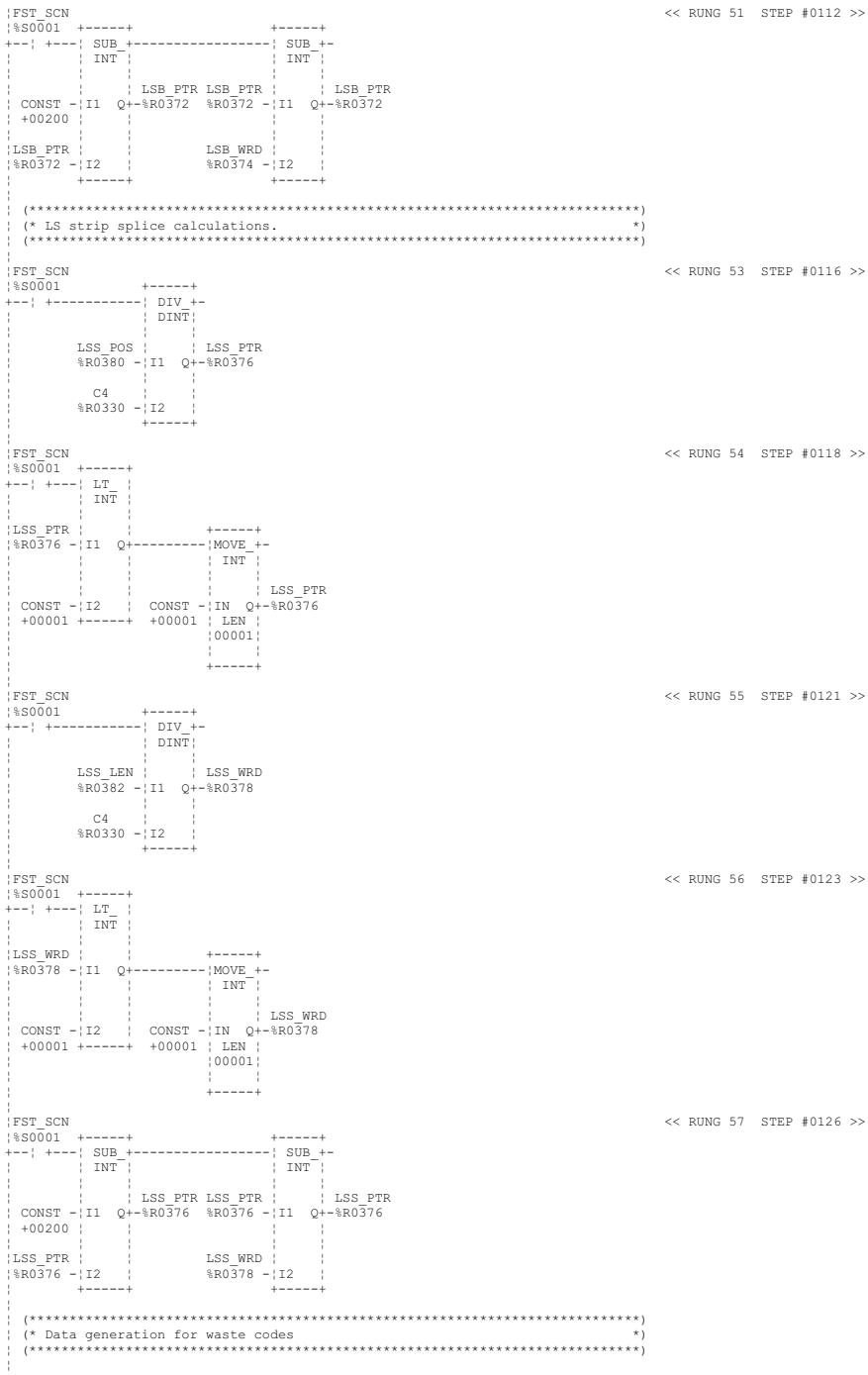
EM1.1TS700012.fm



EM1.1TS700012.fm



EM1.1TS700012.fm



TCA/P1
BLOCK 20 VARIABLE INIT AT POWERUP

ECM 122946 DATE: 20021212 SIGN:RHN/TAN DOC.ID: 45282-20:01

EM1.1TS700012.fm

```
|FST_SCN                                                                    << RUNG 59  STEP #0130 >>
|%S0001  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | WC02_D         |     | WC03_D         |     | WC04_D
| CONST -|IN  Q+-%R8000   CONST -|IN  Q+-%R8010   CONST -|IN  Q+-%R8020
| +00002 | LEN |          +00003 | LEN |          +00004 | LEN |
|        |00010|                |00010|                |00010|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|FST_SCN                                                                    << RUNG 60  STEP #0134 >>
|%S0001  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | WC05_D         |     | WC06_D         |     | WC07_D
| CONST -|IN  Q+-%R8030   CONST -|IN  Q+-%R8040   CONST -|IN  Q+-%R8050
| +00005 | LEN |          +00006 | LEN |          +00007 | LEN |
|        |00010|                |00010|                |00010|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|FST_SCN                                                                    << RUNG 61  STEP #0138 >>
|%S0001  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | WC08_D         |     | WC09_D         |     | WC10_D
| CONST -|IN  Q+-%R8060   CONST -|IN  Q+-%R8070   CONST -|IN  Q+-%R8080
| +00008 | LEN |          +00009 | LEN |          +00010 | LEN |
|        |00010|                |00010|                |00020|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|FST_SCN                                                                    << RUNG 62  STEP #0142 >>
|%S0001  +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |
|        |     |                |     |
|        |     |                |     | WC90_D
| CONST -|IN  Q+-%R8090   CONST -|IN  Q+-%R8100
| +00011 | LEN |          +00090 | LEN |
|        |00010|                |00200|
|        |     |                |     |
|        +-----+                +-----+
|
| (*************************************************************************)
| (* Set order to calibrate the adjusted encoder counting system.          *)
| (*                                                                       *)
| (* Initiates after powerup                                               *)
| (*************************************************************************)
|
|FST_SCN                                                        CAL         << RUNG 64  STEP #0146 >>
|%S0001                                                       %M0512
+--| +-------------------------------------------------------------(SM)-  (* Calibration latch for encoder    *)
|                                                                         Cross reference for CAL
|                                                                                   NONE
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
12-12-02  13:54                    GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                    Page     1


[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* Memory bits for different volumes:                                    *)
 (*************************************************************************)

ALW_OFF                                                              VOL65   << RUNG 5  STEP #0003 >>
%S0008                                                              %M0917
+--| +-----------------------------------------------------------------( )--  (* Volume adaption, 65 ml           *)
                                                                     Cross reference for VOL65
                                                                     -] [- 9

ALW_ON                                                               VOL150S  << RUNG 6  STEP #0005 >>
%S0007                                                              %M0918
+--| +-----------------------------------------------------------------( )--  (* Volume adaption, 150 ml Slim     *)
                                                                     Cross reference for VOL150S
                                                                     -] [- 15

ALW_OFF                                                              VOL200B  << RUNG 7  STEP #0007 >>
%S0008                                                              %M0919
+--| +-----------------------------------------------------------------( )--  (* Volume adaption, 200 ml Base     *)
                                                                     Cross reference for VOL200B
                                                                     -] [- 21

ALW_OFF                                                              VOL200S  << RUNG 8  STEP #0009 >>
%S0008                                                              %M0920
+--| +-----------------------------------------------------------------( )--  (* Volume adaption, 200 ml Slim     *)
                                                                     Cross reference for VOL200S
                                                                     -] [- 27

 VOL65                                                               << RUNG 9  STEP #0011 >>
%M0917  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
 0005    | INT |                | INT |                | INT |
         |     |                |     |                |     |
         |     |   C1           |     |   C2           |     |   C3
 CONST --|IN  Q+-%R0104   CONST --|IN  Q+-%R0106   CONST --|IN  Q+-%R0126
 +00045  | LEN |          +00032  | LEN |          +00016  | LEN |
         |00001|                |00001|                |00001|
         |     |                |     |                |     |
         +-----+                +-----+                +-----+

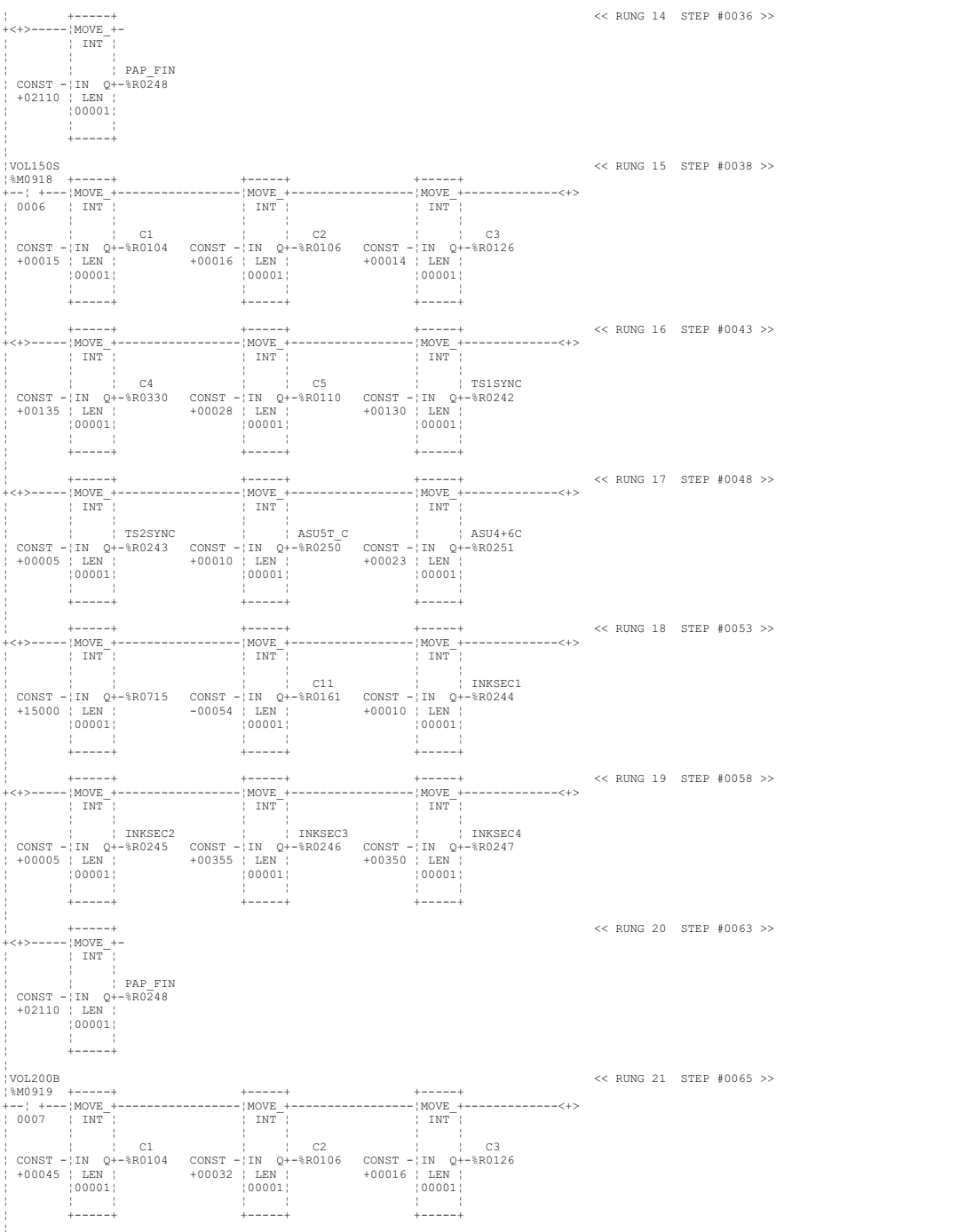
         +-----+                +-----+                +-----+                 << RUNG 10  STEP #0016 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
         | INT |                | INT |                | INT |
         |     |                |     |                |     |
         |     |   C4           |     |   C5           |     |   TS1SYNC
 CONST --|IN  Q+-%R0330   CONST --|IN  Q+-%R0110   CONST --|IN  Q+-%R0242
 +00110  | LEN |          +00064  | LEN |          +00200  | LEN |
         |00001|                |00001|                |00001|
         |     |                |     |                |     |
         +-----+                +-----+                +-----+

         +-----+                +-----+                +-----+                 << RUNG 11  STEP #0021 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
         | INT |                | INT |                | INT |
         |     |                |     |                |     |
         |     | TS2SYNC        |     | ASU5T_C        |     | ASU4+6C
 CONST --|IN  Q+-%R0243   CONST --|IN  Q+-%R0250   CONST --|IN  Q+-%R0251
 +00075  | LEN |          +00000  | LEN |          +00023  | LEN |
         |00001|                |00001|                |00001|
         |     |                |     |                |     |
         +-----+                +-----+                +-----+

         +-----+                +-----+                +-----+                 << RUNG 12  STEP #0026 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
         | INT |                | INT |                | INT |
         |     |                |     |                |     |
         |     |                |     |   C11          |     | INKSEC1
 CONST --|IN  Q+-%R0715   CONST --|IN  Q+-%R0161   CONST --|IN  Q+-%R0244
 +16000  | LEN |          -00078  | LEN |          +00115  | LEN |
         |00001|                |00001|                |00001|
         |     |                |     |                |     |
         +-----+                +-----+                +-----+

         +-----+                +-----+                +-----+                 << RUNG 13  STEP #0031 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
         | INT |                | INT |                | INT |
         |     |                |     |                |     |
         |     | INKSEC2        |     | INKSEC3        |     | INKSEC4
 CONST --|IN  Q+-%R0245   CONST --|IN  Q+-%R0246   CONST --|IN  Q+-%R0247
 +00120  | LEN |          +00385  | LEN |          +00390  | LEN |
         |00001|                |00001|                |00001|
         |     |                |     |                |     |
         +-----+                +-----+                +-----+
```


EM1.1TS700012.fm



TCA/P1
BLOCK 21 MACHINE ADAPTION

EM1.1TS700012.fm

```
|       +-----+                +-----+                +-----+                << RUNG 22  STEP #0070 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     |   C4           |     |   C5           |     | TS1SYNC
| CONST -|IN  Q+-%R0330   CONST -|IN  Q+-%R0110   CONST -|IN  Q+-%R0242
| +00122 | LEN |          +00064 | LEN |          +00209 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                +-----+                +-----+                << RUNG 23  STEP #0075 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | TS2SYNC        |     | ASU5T_C        |     | ASU4+6C
| CONST -|IN  Q+-%R0243   CONST -|IN  Q+-%R0250   CONST -|IN  Q+-%R0251
| +00077 | LEN |          +00000 | LEN |          +00023 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                +-----+                +-----+                << RUNG 24  STEP #0080 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     |                |     | C11            |     | INKSEC1
| CONST -|IN  Q+-%R0715   CONST -|IN  Q+-%R0161   CONST -|IN  Q+-%R0244
| +15000 | LEN |          +00052 | LEN |          +00050 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                +-----+                +-----+                << RUNG 25  STEP #0085 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | INKSEC2        |     | INKSEC3        |     | INKSEC4
| CONST -|IN  Q+-%R0245   CONST -|IN  Q+-%R0246   CONST -|IN  Q+-%R0247
| +00055 | LEN |          +00400 | LEN |          +00405 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                                                              << RUNG 26  STEP #0090 >>
+<+>-----|MOVE_+-
|        | INT |
|        |     |
|        |     | PAP_FIN
| CONST -|IN  Q+-%R0248
| +02110 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|VOL200S                                                                     << RUNG 27  STEP #0092 >>
|%M0920  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
| 0008   | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     |   C1           |     |   C2           |     |   C3
| CONST -|IN  Q+-%R0104   CONST -|IN  Q+-%R0106   CONST -|IN  Q+-%R0126
| +00005 | LEN |          +00006 | LEN |          +00014 | LEN |
|        |00001|                |00001|                |00014|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                +-----+                +-----+                << RUNG 28  STEP #0097 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     |   C4           |     |   C5           |     | TS1SYNC
| CONST -|IN  Q+-%R0330   CONST -|IN  Q+-%R0110   CONST -|IN  Q+-%R0242
| +00145 | LEN |          +00042 | LEN |          +00120 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
|       +-----+                +-----+                +-----+                << RUNG 29  STEP #0102 >>
+<+>-----|MOVE_+----------------|MOVE_+----------------|MOVE_+-------------<+>
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | TS2SYNC        |     | ASU5T_C        |     | ASU4+6C
| CONST -|IN  Q+-%R0243   CONST -|IN  Q+-%R0250   CONST -|IN  Q+-%R0251
| +00249 | LEN |          +00010 | LEN |          +00023 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
```


EM1.1TS700012.fm

```
|       +-----+                 +-----+                 +-----+                 << RUNG 30  STEP #0107 >>
+<+>-----|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-------------<+>
|        | INT |                 | INT |                 | INT |
|        |     |                 |     |                 |     |
|        |     |                 |     |   C11           |     | INKSEC1
| CONST -|IN  Q+-%R0715   CONST -|IN  Q+-%R0161   CONST -|IN  Q+-%R0244
| +16000 | LEN |          -00073 | LEN |          +00115 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
|        +-----+                 +-----+                 +-----+                 << RUNG 31  STEP #0112 >>
+<+>-----|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-------------<+>
|        | INT |                 | INT |                 | INT |
|        |     |                 |     |                 |     |
|        |     | INKSEC2         |     | INKSEC3         |     | INKSEC4
| CONST -|IN  Q+-%R0245   CONST -|IN  Q+-%R0246   CONST -|IN  Q+-%R0247
| +00120 | LEN |          +00380 | LEN |          +00385 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
|        +-----+                                                                 << RUNG 32  STEP #0117 >>
+<+>-----|MOVE_+-
|        | INT |
|        |     |
|        |     | PAP_FIN
| CONST -|IN  Q+-%R0248
| +02110 | LEN |
|        |00001|
|        |     |
|        +-----+
|
|ALW_ON                                                                  W_GUIDE  << RUNG 33  STEP #0119 >>
|%S0007                                                                  %M0924
+--| +-------------------------------------------------------------------( )--  (* 1 = Web guiding                  *)
|                                                                                Cross reference for W_GUIDE
|                                                                                          NONE
|
|ALW_ON                                                                  TCAMODE  << RUNG 34  STEP #0121 >>
|%S0007                                                                  %M0931
+--| +-------------------------------------------------------------------( )--  (* 1 = Aseptic mode               *)
|                                                                                Cross reference for TCAMODE
|                                                                                          NONE
|
|ALW_ON                                                                  INKMODE  << RUNG 35  STEP #0123 >>
|%S0007                                                                  %M0932
+--| +-------------------------------------------------------------------( )--  (* 1 = InkJet mode                *)
|                                                                                Cross reference for INKMODE
|                                                                                          NONE
|
|ALW_OFF                                                                 F_CLEAN  << RUNG 36  STEP #0125 >>
|%S0008                                                                  %M0926
+--| +-------------------------------------------------------------------( )--  (* 1 = force cleaning            *)
|                                                                                Cross reference for F_CLEAN
|                                                                                          NONE
|
|ALW_ON                                                                  PLMS_ON  << RUNG 37  STEP #0127 >>
|%S0007                                                                  %M0923
+--| +-------------------------------------------------------------------( )--  (* 1 = PLMS activated            *)
|                                                                                Cross reference for PLMS_ON
|                                                                                          NONE
|
| (*************************************************************************)
| (* To go back to factory settings:                                      *)
| (* Set FACTORY (%M01965) with function key F12.                         *)
| (* The memory bit is reseted automatically.                             *)
| (*************************************************************************)
|
|FACTORY                                                                 FACTORY  << RUNG 39  STEP #0130 >>
|%M1965  +-------------+                                                 %M1965
+--| +---| CALL FACT_SE+-----------------------------------------------(RM)-  (* Factory settings              *)
| 0039   | (SUBROUTINE)|                                                        Cross reference for FACTORY
|        +-------------+                                                        -] [- 39
|
| (*************************************************************************)
| (* To go back to customer settings:                                     *)
| (* Set CUSTOMER (%M01966) with function key F12.                        *)
| (* The memory bit is reseted automatically.                             *)
| (*************************************************************************)
|
|CUSTOM                                                                  CUSTOM   << RUNG 41  STEP #0134 >>
|%M1966  +-------------+                                                 %M1966
+--| +---| CALL CUST_SE+-----------------------------------------------(RM)-  (* Customer settings              *)
| 0041   | (SUBROUTINE)|                                                        Cross reference for CUSTOM
|        +-------------+                                                        -] [- 41
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

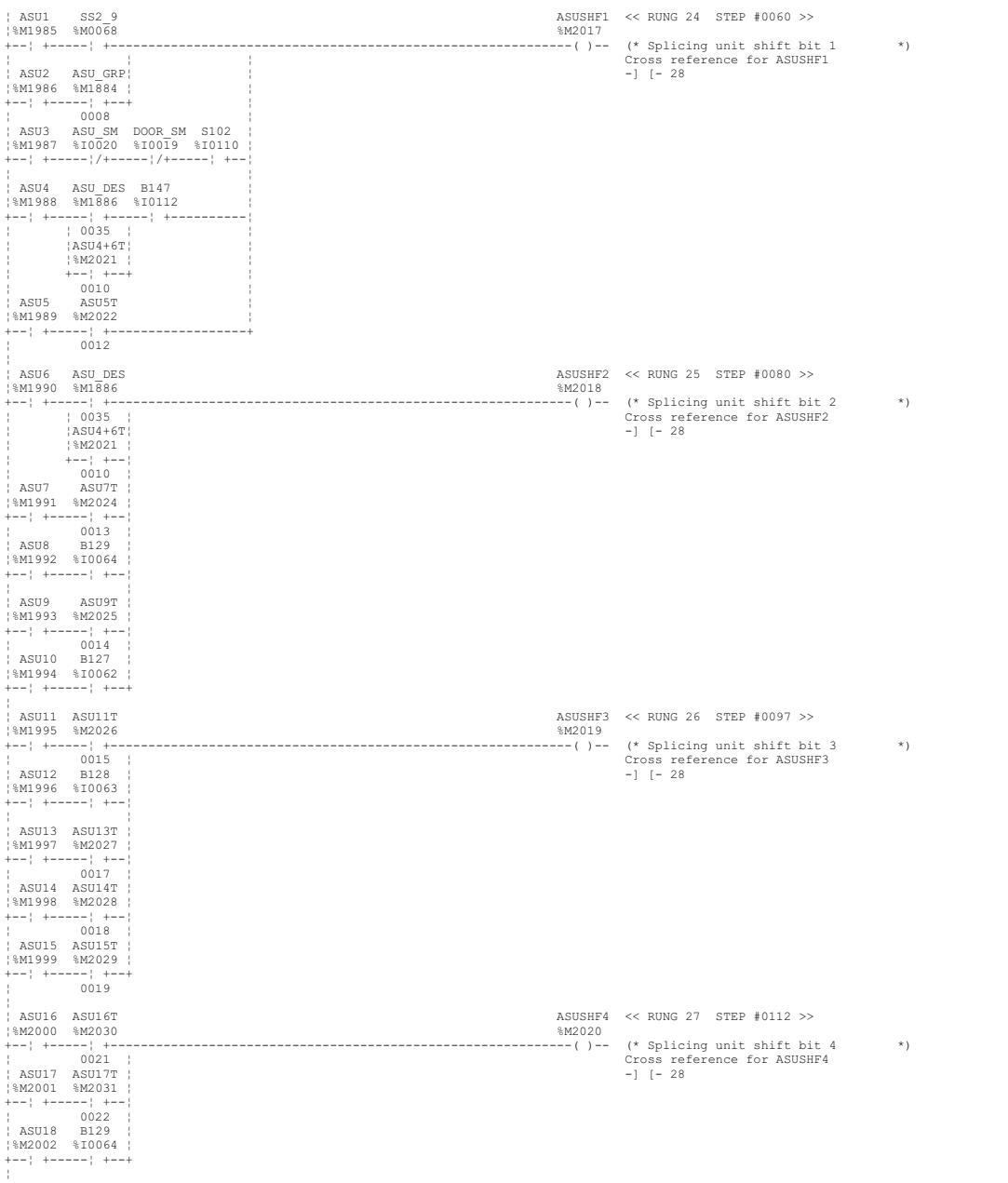
[   START OF SUBROUTINE LOGIC    ]

FST_SCN                                                                  << RUNG 5  STEP #0003 >>
%S0001          +-----+         +-----+
+--| +----------| BLK_+---------| BIT_+-
|       |      | CLR_|         | SET_|
|  SS0  |      | WORD|         | WORD|
|%M0098 | ASU1 |     |  ASU1   |     |
+--| +--+%M1985 -|IN   | %M1985 -|IN   |
|                | LEN |         | LEN |
|                |00002|         |00002|
|                |     |         |     |
|                +-----+  CONST -|BIT  |
|                          00001 +-----+
|
| (*************************************************************************)
| (* ASU grip release toggle control.                                     *)
| (*************************************************************************)
|
| S103                                                          ASU_TGL  << RUNG 7  STEP #0008 >>
|%I0111                                                         %M1883
+--| +-------------------------------------------------------------(^)--  (* Toggle ASU grip OS              *)
|                                                                         Cross reference for ASU_TGL
|                                                                         -] [- 8
|                                                                         -]/[- 8
|
|ASU_TGL ASU_GRP FST_SCN  ASU2                                  ASU_GRP  << RUNG 8  STEP #0010 >>
|%M1883  %M1884  %S0001  %M1986                                 %M1884
+--| +-----+/+-----+/+-----| +-----------------------------------------( )--  (* ASU grip new paper bit          *)
| 0007    0008  |       |       |                                         Cross reference for ASU_GRP
|ASU_TGL ASU_GRP|       | ASU3  |                                         -] [- 8,24
|%M1883  %M1884 |       |%M1987 |                                         -]/[- 8,30
+--|/+-----| +--+       +--| +--+
| 0007    0008
|
| (*************************************************************************)
| (* ASU timers                                                           *)
| (*************************************************************************)
|
| ASU4                                                          ASU4+6T  << RUNG 10  STEP #0021 >>
|%M1988          +-----+                                        %M2021
+--| +----------| TMR +-------------------------------------------( )--  (* Timer bit max time wait for B125 *)
|       |       |0.10s|                                                  Cross reference for ASU4+6T
| ASU6  |       |     |                                                  -] [- 24,25
|%M1990 |ASU4+6C|     |
+--| +--+%R0251 -|PV   |
|                |     |
|                +-----+
|                ACC187
|                %R9558
|
| ASU4                                                           ASU4T   << RUNG 11  STEP #0025 >>
|%M1988  +-----+                                                 %M2023
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit                       *)
|        |0.01s|                                                          Cross reference for ASU4T
|        |     |                                                                   NONE
| CONST -|PV   |
| +00050 |     |
|        +-----+
|         ACC56
|        %R9165
|
| ASU5                                                           ASU5T   << RUNG 12  STEP #0028 >>
|%M1989  +-----+                                                 %M2022
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit high speed free loop   *)
|        |0.01s|                                                          Cross reference for ASU5T
|        |     |                                                          -] [- 24
|ASU5T_C |     |
|%R0250 -|PV   |
|        |     |
|        +-----+
|        ACC188
|        %R9561
|
| ASU7                                                           ASU7T   << RUNG 13  STEP #0031 >>
|%M1991  +-----+                                                 %M2024
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit stopped motor freeloop *)
|        |.001s|                                                          Cross reference for ASU7T
|        |     |                                                          -] [- 25
| CONST -|PV   |
| +00200 |     |
|        +-----+
|        ACC189
|        %R9564
|
```


EM1.1TS700012.fm

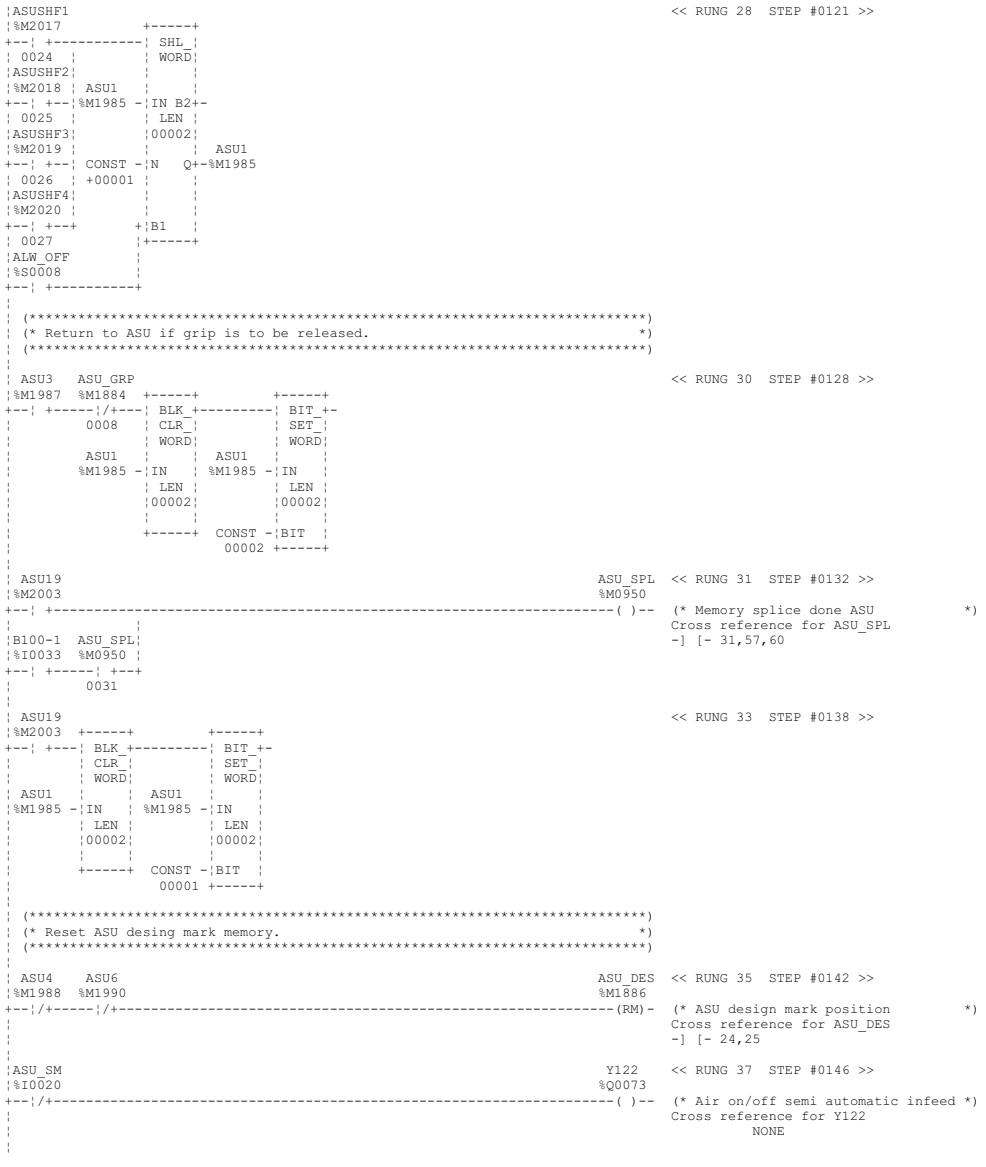
```
| ASU9                                                                ASU9T   << RUNG 14  STEP #0034 >>
|%M1993  +-----+                                                     %M2025
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit lock the old paper     *)
|       |0.10s|                                                             Cross reference for ASU9T
|       |     |                                                             -] [- 25
| CONST -|PV   |
| +00003 |     |
|       +-----+
|       ACC190
|       %R9567
|
| ASU11                                                               ASU11T  << RUNG 15  STEP #0037 >>
|%M1995  +-----+                                                     %M2026
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit release grip new paper *)
|       |0.10s|                                                             Cross reference for ASU11T
|       |     |                                                             -] [- 26
| CONST -|PV   |
| +00003 |     |
|       +-----+
|       ACC191
|       %R9570
|
| (*************************************************************************)
| (* Timer for paper web sealing pulse.                                    *)
| (* 0.70sec initial value.                                                *)
| (*************************************************************************)
|
| ASU11                                                               ASU13T  << RUNG 17  STEP #0041 >>
|%M1995          +-----+                                              %M2027
+--| +----------| TMR +-----------------------------------------------( )--  (* Timer bit sealing               *)
|       |        |0.01s|                                                     Cross reference for ASU13T
| ASU12 |        |     |                                                     -] [- 26
|%M1996 |        |     |                                                     -]/[- 51
+--| +--| CONST -|PV   |
|       | +00070 |     |
| ASU13 |        +-----+
|%M1997 |        ACC192
+--| +--+        %R9573
|
| ASU14                                                               ASU14T  << RUNG 18  STEP #0046 >>
|%M1998  +-----+                                                     %M2028
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit cooling               *)
|       |0.01s|                                                             Cross reference for ASU14T
|       |     |                                                             -] [- 26
| CONST -|PV   |
| +00020 |     |
|       +-----+
|       ACC193
|       %R9576
|
| ASU15                                                               ASU15T  << RUNG 19  STEP #0049 >>
|%M1999  +-----+                                                     %M2029
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit release paper lock     *)
|       |0.10s|                                                             Cross reference for ASU15T
|       |     |                                                             -] [- 26
| CONST -|PV   |
| +00002 |     |
|       +-----+
|       ACC194
|       %R9579
|
| (*************************************************************************)
| (* Pulse timer to heat sealing wire to unstick paper without heating it  *)
| (* to much.                                                              *)
| (*                                                                       *)
| (*************************************************************************)
|
| ASU16                                                               ASU16T  << RUNG 21  STEP #0053 >>
|%M2000  +-----+                                                     %M2030
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit release sealing jaws   *)
|       |0.10s|                                                             Cross reference for ASU16T
|       |     |                                                             -] [- 27
| CONST -|PV   |
| +00002 |     |
|       +-----+
|       ACC195
|       %R9582
|
| ASU17                                                               ASU17T  << RUNG 22  STEP #0056 >>
|%M2001  +-----+                                                     %M2031
+--| +---| TMR +-----------------------------------------------------( )--  (* Timer bit release power sealing  *)
|       |0.10s|                                                             Cross reference for ASU17T
|       |     |                                                             -] [- 27
| CONST -|PV   |
| +00002 |     |
|       +-----+
|       ACC196
|       %R9585
|
```


EM1.1TS700012.fm



TCA/P1
BLOCK 22 AUTOMATIC SPLICE UNIT

EM1.1TS700012.fm



<< RUNG 28 STEP #0121 >>

<< RUNG 30 STEP #0128 >>

<< RUNG 31 STEP #0132 >>

Cross reference for ASU_SPL
-] [- 31,57,60

<< RUNG 33 STEP #0138 >>

<< RUNG 35 STEP #0142 >>

Cross reference for ASU_DES
-] [- 24,25

<< RUNG 37 STEP #0146 >>

Cross reference for Y122
NONE

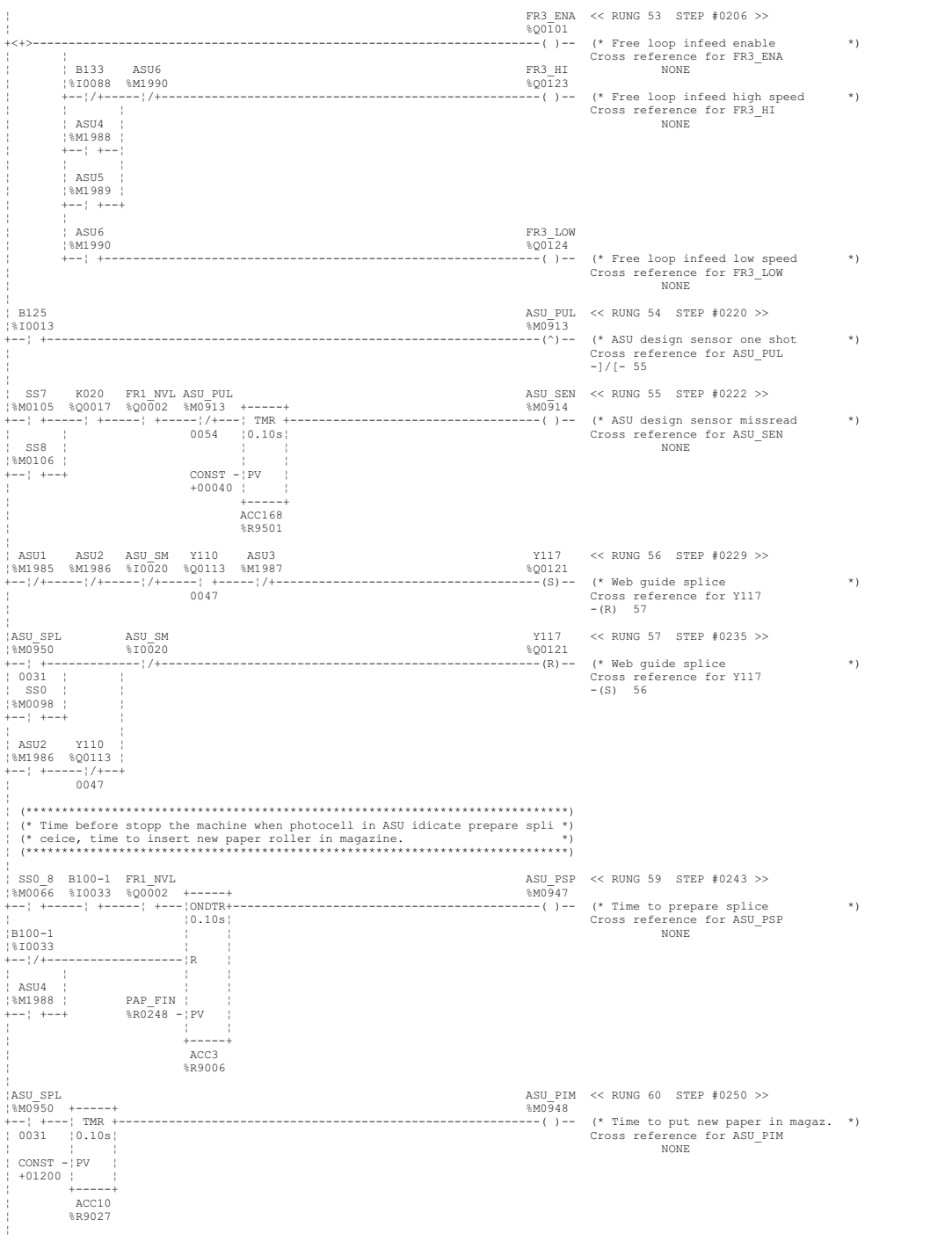
EM1.1TS700012.fm

```
| ASU9   ASU_SM                                                    Y121    << RUNG 38  STEP #0148 >>
|%M1993  %I0020                                                  %Q0076
+--| +-----|/+-------------------------------------------------------( )--  (* Web brake                        *)
|       |                                                                  Cross reference for Y121
| ASU10 |                                                                           NONE
|%M1994 |
+--| +--|
|       |
| ASU11 |
|%M1995 |
+--| +--|
|       |
| ASU12 |
|%M1996 |
+--| +--|
|       |
| ASU13 |
|%M1997 |
+--| +--|
|       |
| ASU14 |
|%M1998 |
+--| +--+
|
| ASU10  ASU_SM                                                    Y120A   << RUNG 40  STEP #0157 >>
|%M1994  %I0020                                                   %Q0074
+--| +-----|/+-------------------------------------------------------( )--  (* Web splice down and cut          *)
|       |                                                                  Cross reference for Y120A
| ASU11 |                                                                  -]/[- 41
|%M1995 |
+--| +--|
|       |
| ASU12 |
|%M1996 |
+--| +--|
|       |
| ASU13 |
|%M1997 |
+--| +--|
|       |
| ASU14 |
|%M1998 |
+--| +--+
|
| Y120A  ASU_SM                                                    Y120B   << RUNG 41  STEP #0164 >>
|%Q0074  %I0020                                                   %Q0075
+--|/+-----|/+-------------------------------------------------------( )--  (* Web splice up                     *)
| 0040                                                                     Cross reference for Y120B
|                                                                                   NONE
|
| ASU12  ASU_SM                                                    Y111B   << RUNG 43  STEP #0168 >>
|%M1996  %I0020                                                   %Q0079
+--| +-----|/+-------------------------------------------------------( )--  (* Knife turn out                   *)
|       |                                                                  Cross reference for Y111B
| ASU13 |                                                                  -]/[- 44
|%M1997 |
+--| +--|
|       |
| ASU14 |
|%M1998 |
+--| +--|
|       |
| ASU15 |
|%M1999 |
+--| +--|
|       |
| ASU16 |
|%M2000 |
+--| +--|
|       |
| ASU17 |
|%M2001 |
+--| +--+
|
| Y111B  ASU_SM                                                    Y111A   << RUNG 44  STEP #0176 >>
|%Q0079  %I0020                                                   %Q0078
+--|/+-----|/+-------------------------------------------------------( )--  (* Knife turn in                    *)
| 0043                                                                     Cross reference for Y111A
|                                                                                   NONE
|
```


EM1.1TS700012.fm

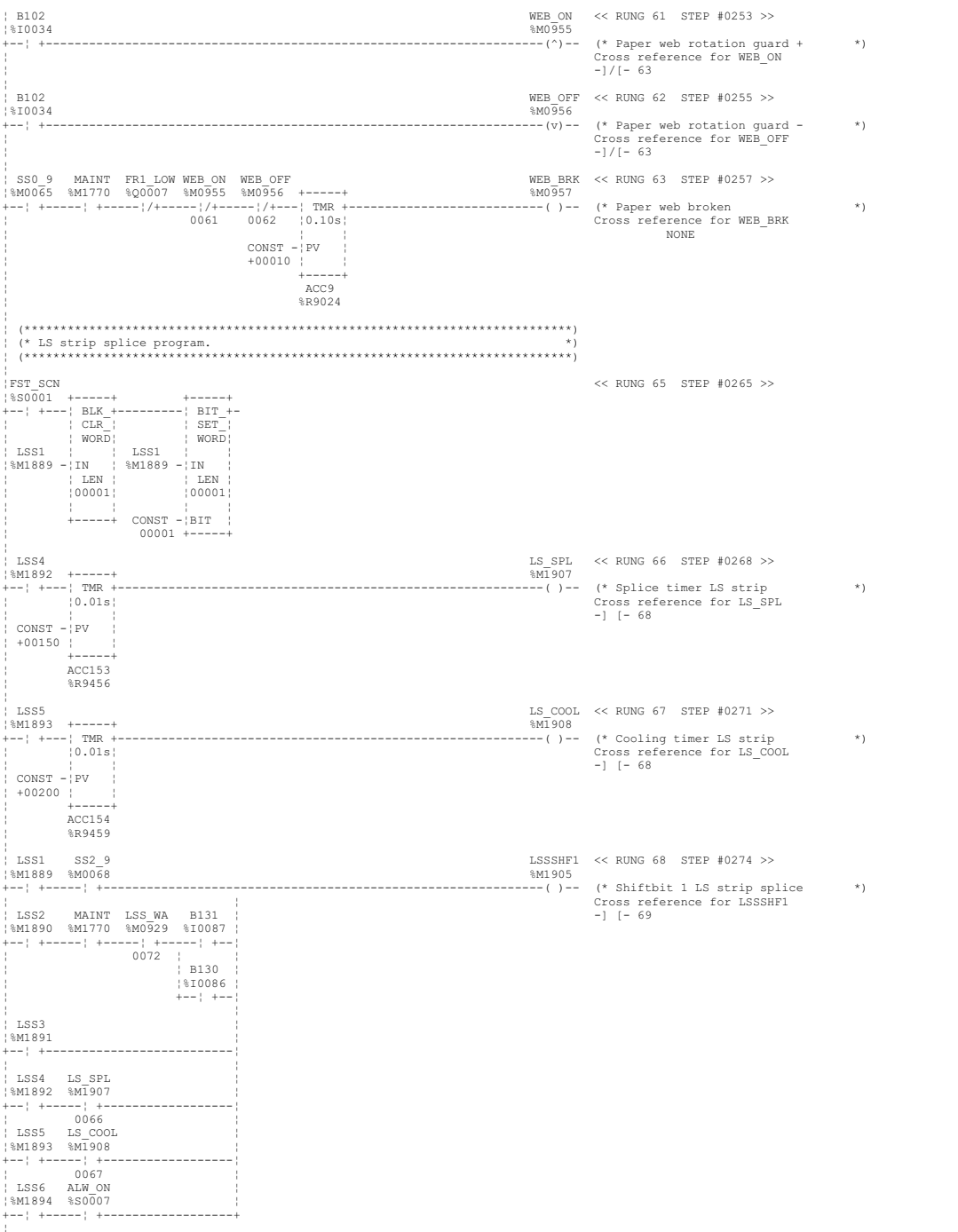
```
| ASU3                                                                                  << RUNG 46  STEP #0180 >>
|%M1987
+--| +-------------------------------------------------------------------------<+>
|       |
| ASU4  |
|%M1988 |
+--| +--|
|       |
| ASU5  |
|%M1989 |
+--| +--|
|       |
| ASU6  |
|%M1990 |
+--| +--+
|
|                                                                        Y110    << RUNG 47  STEP #0185 >>
|                                                                       %Q0113
+<+>-------------------------------------------------------------------( )--  (* Web locking                        *)
|       |                                                                     Cross reference for Y110
| ASU7  |                                                                     -] [- 56
|%M1991 |                                                                     -]/[- 57
+--| +--|
|       |
| ASU8  |
|%M1992 |
+--| +--|
|       |
| ASU9  |
|%M1993 |
+--| +--|
|       |
| ASU10 |
|%M1994 |
+--| +--+
|
| (*************************************************************************)
| (* Power control ASU unit.                                               *)
| (*************************************************************************)
|
| SS2_9                                                                  K028    << RUNG 49  STEP #0192 >>
|%M0068                                                                 %Q0097
+--| +-------------------------------------------------------------------( )--  (* Sealing block LS-strip, Infeed   *)
|                                                                               Cross reference for K028
|                                                                                         NONE
|
| SS2_9                                                                  K029    << RUNG 50  STEP #0194 >>
|%M0068                                                                 %Q0098
+--| +-------------------------------------------------------------------( )--  (* Paper splice element, Infeed     *)
|                                                                               Cross reference for K029
|                                                                                         NONE
|
| ASU11  ASU13T                                                          K067    << RUNG 51  STEP #0196 >>
|%M1995  %M2027                                                         %Q0077
+--| +-----|/+-------------------------------------------------------------( )--  (* PM splice power                  *)
|       | 0017  |                                                               Cross reference for K067
| ASU12 |       |                                                                         NONE
|%M1996 |       |
+--| +--|       |
|       |       |
| ASU13 |       |
|%M1997 |       |
+--| +--+       |
|               |
| ASU17         |
|%M2001         |
+--| +----------+
|
| K009                                                                                  << RUNG 52  STEP #0202 >>
|%Q0009  +-----+         +-----+
+--| +---| TMR +---------|OFDT +-----------------------------------------<+>
|       |0.10s|         |0.10s|
|       |     |         |     |
| CONST -|PV   |  CONST -|PV   |
| +00020 |     |  +00020 |     |
|       +-----+         +-----+
|       ACC105          ACC152
|       %R9312          %R9453
|
```


EM1.1TS700012.fm



TCA/P1
BLOCK 22 AUTOMATIC SPLICE UNIT

EM1.1TS700012.fm



EM1.1TS700012.fm

```
¦LSSSHF1                                                                    << RUNG 69  STEP #0294 >>
¦%M1905  +-----+
+--¦ +---¦ SHL_¦
¦ 0068   ¦ WORD¦
¦        ¦     ¦
¦ LSS1   ¦     ¦
¦%M1889 -¦IN B2+-
¦        ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦  LSS1
¦ CONST -¦N   Q+-%M1889
¦ +00001 ¦     ¦
¦ALW_OFF ¦     ¦
¦%S0008  ¦     ¦
+--¦ +---¦B1   ¦
¦        +-----+
¦
¦ LSS7                                                                      << RUNG 70  STEP #0297 >>
¦%M1895  +-----+         +-----+
+--¦ +---¦ BLK_+---------¦ BIT_+-
¦        ¦ CLR_¦         ¦ SET_¦
¦        ¦ WORD¦         ¦ WORD¦
¦ LSS1   ¦     ¦  LSS1   ¦     ¦
¦%M1889 -¦IN   ¦ %M1889 -¦IN   ¦
¦        ¦ LEN ¦         ¦ LEN ¦
¦        ¦00001¦         ¦00001¦
¦        ¦     ¦         ¦     ¦
¦        +-----+  CONST -¦BIT  ¦
¦                  00002 +-----+
¦
¦ S104H                                                      LSS_OS   << RUNG 71  STEP #0300 >>
¦%I0089                                                      %M0930
+--¦ +-------------------------------------------------------------(^)--  (* LS strip button one shot         *)
¦                                                                        Cross reference for LSS_OS
¦                                                                        -] [- 72
¦                                                                        -]/[- 72
¦
¦LSS_OS  LSS_WA   LSS3    B130    B131                             LSS_WA   << RUNG 72  STEP #0302 >>
¦%M0930  %M0929  %M1891  %I0086  %I0087                           %M0929
+--¦ +-----¦/+-----¦/+-----¦/+-----¦/+-----------------------------( )--  (* LS strip waiting for splice      *)
¦ 0071    0072  ¦                                                        Cross reference for LSS_WA
¦LSS_OS  LSS_WA ¦                                                        -] [- 68,72,73,77
¦%M0930  %M0929 ¦                                                        -]/[- 72
+--¦/+-----¦ +--+
¦ 0071    0072
¦
¦LSS_WA                                                       H104S   << RUNG 73  STEP #0311 >>
¦%M0929                                                      %Q0064
+--¦ +-------------------------------------------------------------( )--  (* LS-strip splice ready            *)
¦ 0072  ¦                                                                Cross reference for H104S
¦ LMP2  ¦                                                                         NONE
¦%M1938 ¦
+--¦ +--+
¦
¦ LSS4                                                        K066    << RUNG 74  STEP #0314 >>
¦%M1892                                                      %Q0099
+--¦ +-------------------------------------------------------------( )--  (* Sealing block LS-strip, Infeed   *)
¦                                                                        Cross reference for K066
¦                                                                                 NONE
¦
¦ LSS3                                                        Y113    << RUNG 75  STEP #0316 >>
¦%M1891                                                      %Q0117
+--¦ +-------------------------------------------------------------( )--  (* Strip splice                      *)
¦     ¦                                                                  Cross reference for Y113
¦ LSS4  ¦                                                                         NONE
¦%M1892 ¦
+--¦ +--¦
¦       ¦
¦ LSS5  ¦
¦%M1893 ¦
+--¦ +--+
¦
¦ LSS5                                                        Y116    << RUNG 76  STEP #0320 >>
¦%M1893                                                      %Q0120
+--¦ +-------------------------------------------------------------( )--  (* Strip cooling                    *)
¦                                                                        Cross reference for Y116
¦                                                                                 NONE
¦
¦LSS_WA                                                       Y114    << RUNG 77  STEP #0322 >>
¦%M0929                                                      %Q0118
+--¦ +-------------------------------------------------------------( )--  (* Strip magazine                   *)
¦ 0072                                                                   Cross reference for Y114
¦                                                                                 NONE
¦
¦ MAINT   B105                                               LSS_GON  << RUNG 78  STEP #0324 >>
¦%M1770  %I0036                                              %M0952
+--¦ +-----¦ +-------------------------------------------------------(^)--  (* LS strip rotation guard +        *)
¦                                                                        Cross reference for LSS_GON
¦                                                                        -]/[- 80
¦
```


EM1.1TS700012.fm

```
| MAINT   B105                                                    LSS_GOF  << RUNG 79  STEP #0327 >>
|%M1770  %I0036                                                   %M0953
+--| +-----| +-------------------------------------------------------------(v)--  (* LS strip rotation guard -        *)
|                                                                               Cross reference for LSS_GOF
|                                                                               -]/[- 80
|
| SS0_9   MAINT  FR1_LOW LSS_GON LSS_GOF                          LSS_BRK  << RUNG 80  STEP #0330 >>
|%M0065  %M1770  %Q0007  %M0952  %M0953  +-----+                  %M0951
+--| +-----| +-----|/+-----|/+-----|/+---| TMR +-------------------------( )--  (* LS strip broken                 *)
|                        0078    0079    |0.10s|                               Cross reference for LSS_BRK
|                                         |     |                                        NONE
|                                 CONST -|PV   |
|                                 +00020 |     |
|                                        +-----+
|                                       ACC170
|                                       %R9507
|
|[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* InkJet parameters                                                     *)
 (*************************************************************************)

ALW_ON                                                                  << RUNG 5  STEP #0003 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     |   C6           |     |   C7           |     |   C8
| CONST -|IN  Q+-%R0151   CONST -|IN  Q+-%R0152   CONST -|IN  Q+-%R0153
| +00007 | LEN |          +00110 | LEN |          +00034 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 6  STEP #0007 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     |   C9           |     |   C12          |     |   C13
| CONST -|IN  Q+-%R0154   CONST -|IN  Q+-%R0155   CONST -|IN  Q+-%R0156
| +00064 | LEN |          +00009 | LEN |          +00013 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 7  STEP #0011 >>
%S0007  +-----+
+--| +---|MOVE_+-
|       | INT |
|       |     |
|       |     |   C11
| CONST -|IN  Q+-%R0161
| -00069 | LEN |
|       |00001|
|       |     |
|       +-----+

 (*************************************************************************)
 (* Waste parameters                                                      *)
 (*************************************************************************)

ALW_ON                                                                  << RUNG 9  STEP #0014 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | SE_POS         |     | SE_LEN         |     | LS_POS
| CONST -|IN  Q+-%R0300   CONST -|IN  Q+-%R0302   CONST -|IN  Q+-%R0304
| +00100 | LEN |          +00750 | LEN |          +01600 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 10  STEP #0018 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | LS_LEN         |     | HCA_POS        |     | HCA_LEN
| CONST -|IN  Q+-%R0306   CONST -|IN  Q+-%R0308   CONST -|IN  Q+-%R0310
| +00500 | LEN |          +04300 | LEN |          +02900 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 11  STEP #0022 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | PER_POS        |     | PER_LEN        |     | SA_POS
| CONST -|IN  Q+-%R0312   CONST -|IN  Q+-%R0314   CONST -|IN  Q+-%R0316
| +06600 | LEN |          +00400 | LEN |          +09750 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+
```

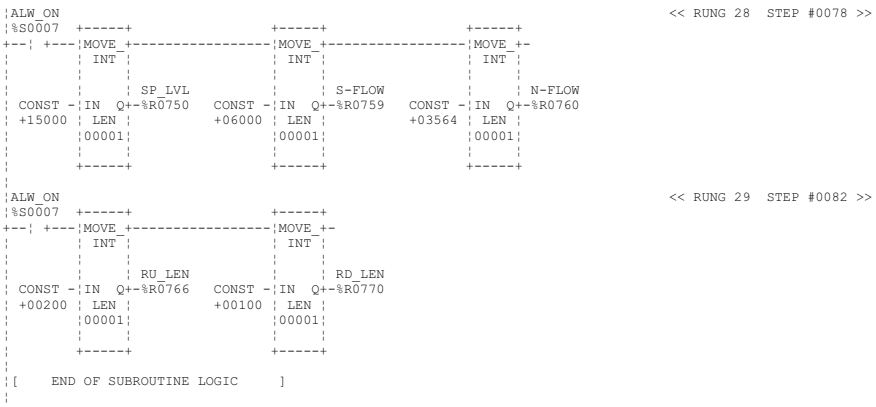

EM1.1TS700012.fm

```
¦ALW_ON                                                                                                  << RUNG 12  STEP #0026 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ SA_LEN          ¦     ¦ ALL_POS         ¦     ¦ ALL_LEN
¦ CONST -¦IN  Q+-%R0318   CONST -¦IN  Q+-%R0320   CONST -¦IN  Q+-%R0322
¦ +00600 ¦ LEN ¦          +00000 ¦ LEN ¦          +13200 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 13  STEP #0030 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ FCT_POS         ¦     ¦ FCT_LEN
¦ CONST -¦IN  Q+-%R0324   CONST -¦IN  Q+-%R0326
¦ +08600 ¦ LEN ¦          +00750 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 14  STEP #0033 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ LSB_POS         ¦     ¦ LSB_LEN
¦ CONST -¦IN  Q+-%R0336   CONST -¦IN  Q+-%R0338
¦ +00000 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 15  STEP #0036 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ LSS_POS         ¦     ¦ LSS_LEN
¦ CONST -¦IN  Q+-%R0380   CONST -¦IN  Q+-%R0382
¦ +13050 ¦ LEN ¦          +01000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ (*************************************************************************)
¦ (* Filling control parameters                                            *)
¦ (*************************************************************************)
¦
¦ALW_ON                                                                                                  << RUNG 17  STEP #0040 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ REG_ALG         ¦     ¦ REG_SMP         ¦     ¦ REG_DB+
¦ CONST -¦IN  Q+-%R0701   CONST -¦IN  Q+-%R0702   CONST -¦IN  Q+-%R0703
¦ +00001 ¦ LEN ¦          +00005 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 18  STEP #0044 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ REG_DB-         ¦     ¦  REG_P          ¦     ¦  REG_D
¦ CONST -¦IN  Q+-%R0704   CONST -¦IN  Q+-%R0705   CONST -¦IN  Q+-%R0706
¦ +00000 ¦ LEN ¦          +00050 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 19  STEP #0048 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦  REG_I          ¦     ¦ REG_BIA         ¦     ¦ REG_UCL
¦ CONST -¦IN  Q+-%R0707   CONST -¦IN  Q+-%R0708   CONST -¦IN  Q+-%R0709
¦ +00220 ¦ LEN ¦          +00000 ¦ LEN ¦          +32000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
```


EM1.1TS700012.fm

```
ALW_ON                                                                  << RUNG 20  STEP #0052 >>
%S0007  +-----+                 +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |                 |  INT |
|    |      |                 |      |                 |      |
|    |      | REL_LCL         |      | REG_ST          |      | REG_CFG
| CONST -|IN  Q+-%R0710   CONST -|IN  Q+-%R0711   CONST -|IN  Q+-%R0712
| -32000 | LEN |          +00000 | LEN |          +00004 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
ALW_ON                                                                  << RUNG 21  STEP #0056 >>
%S0007  +-----+
+--| +---|MOVE_+-
|    |  INT |
|    |      |
| CONST -|IN  Q+-%R0728
| +32000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
 (*************************************************************************)
 (* Web tension control parameters                                        *)
 (*************************************************************************)
|
ALW_ON                                                                  << RUNG 23  STEP #0059 >>
%S0007  +-----+                 +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |                 |  INT |
|    |      |                 |      |                 |      |
|    |      | WT_ALG          |      | WT_SMP          |      | WT_DB+
| CONST -|IN  Q+-%R0801   CONST -|IN  Q+-%R0802   CONST -|IN  Q+-%R0803
| +00001 | LEN |          +00010 | LEN |          +01200 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
ALW_ON                                                                  << RUNG 24  STEP #0063 >>
%S0007  +-----+                 +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |                 |  INT |
|    |      |                 |      |                 |      |
|    |      | WT_DB-          |      |  WT_P           |      |  WT_D
| CONST -|IN  Q+-%R0804   CONST -|IN  Q+-%R0805   CONST -|IN  Q+-%R0806
| +00000 | LEN |          +00050 | LEN |          +00000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
ALW_ON                                                                  << RUNG 25  STEP #0067 >>
%S0007  +-----+                 +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |                 |  INT |
|    |      |                 |      |                 |      |
|    |      |  WT_I           |      | WT_BIA          |      | WT_UCL
| CONST -|IN  Q+-%R0807   CONST -|IN  Q+-%R0808   CONST -|IN  Q+-%R0809
| +00250 | LEN |          +00000 | LEN |          +32000 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
ALW_ON                                                                  << RUNG 26  STEP #0071 >>
%S0007  +-----+                 +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |                 |  INT |
|    |      |                 |      |                 |      |
|    |      | WT_LCL          |      |  WT_ST          |      | WT_CFG
| CONST -|IN  Q+-%R0810   CONST -|IN  Q+-%R0811   CONST -|IN  Q+-%R0812
| +00000 | LEN |          +00000 | LEN |          +00001 | LEN |
|        |00001|                 |00001|                 |00001|
|        |     |                 |     |                 |     |
|        +-----+                 +-----+                 +-----+
|
ALW_ON                                                                  << RUNG 27  STEP #0075 >>
%S0007  +-----+                 +-----+
+--| +---|MOVE_+-----------------|MOVE_+-
|    |  INT |                 |  INT |
|    |      |                 |      |
| CONST -|IN  Q+-%R0815   CONST -|IN  Q+-%R0828
| +16500 | LEN |          +23000 | LEN |
|        |00001|                 |00001|
|        |     |                 |     |
|        +-----+                 +-----+
|
```


EM1.1TS700012.fm



EM1.1TS700012.fm

```
[     VARIABLE DECLARATIONS      ]

[   START OF SUBROUTINE LOGIC    ]

 (*************************************************************************)
 (* InkJet parameters                                                     *)
 (*************************************************************************)

ALW_ON                                                                  << RUNG 5  STEP #0003 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     |   C6           |     |   C7           |     |   C8
| CONST -|IN  Q+-%R0151   CONST -|IN  Q+-%R0152   CONST -|IN  Q+-%R0153
| +00007 | LEN |          +00110 | LEN |          +00034 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 6  STEP #0007 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     |   C9           |     |   C12          |     |   C13
| CONST -|IN  Q+-%R0154   CONST -|IN  Q+-%R0155   CONST -|IN  Q+-%R0156
| +00064 | LEN |          +00009 | LEN |          +00013 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 7  STEP #0011 >>
%S0007  +-----+
+--| +---|MOVE_+-
|       | INT |
|       |     |
|       |     |   C11
| CONST -|IN  Q+-%R0161
| -00069 | LEN |
|       |00001|
|       |     |
|       +-----+

 (*************************************************************************)
 (* Waste parameters                                                      *)
 (*************************************************************************)

ALW_ON                                                                  << RUNG 9  STEP #0014 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | SE_POS         |     | SE_LEN         |     | LS_POS
| CONST -|IN  Q+-%R0300   CONST -|IN  Q+-%R0302   CONST -|IN  Q+-%R0304
| +00100 | LEN |          +00750 | LEN |          +01600 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 10  STEP #0018 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | LS_LEN         |     | HCA_POS        |     | HCA_LEN
| CONST -|IN  Q+-%R0306   CONST -|IN  Q+-%R0308   CONST -|IN  Q+-%R0310
| +00500 | LEN |          +04300 | LEN |          +02900 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+

ALW_ON                                                                  << RUNG 11  STEP #0022 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|       | INT |                | INT |                | INT |
|       |     |                |     |                |     |
|       |     | PER_POS        |     | PER_LEN        |     | SA_POS
| CONST -|IN  Q+-%R0312   CONST -|IN  Q+-%R0314   CONST -|IN  Q+-%R0316
| +06600 | LEN |          +00400 | LEN |          +09750 | LEN |
|       |00001|                |00001|                |00001|
|       |     |                |     |                |     |
|       +-----+                +-----+                +-----+
```


EM1.1TS700012.fm

```
¦ALW_ON                                                                                                  << RUNG 12  STEP #0026 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ SA_LEN          ¦     ¦ ALL_POS         ¦     ¦ ALL_LEN
¦ CONST -¦IN  Q+-%R0318   CONST -¦IN  Q+-%R0320   CONST -¦IN  Q+-%R0322
¦ +00600 ¦ LEN ¦          +00000 ¦ LEN ¦          +13200 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 13  STEP #0030 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ FCT_POS         ¦     ¦ FCT_LEN
¦ CONST -¦IN  Q+-%R0324   CONST -¦IN  Q+-%R0326
¦ +08600 ¦ LEN ¦          +00750 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 14  STEP #0033 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ LSB_POS         ¦     ¦ LSB_LEN
¦ CONST -¦IN  Q+-%R0336   CONST -¦IN  Q+-%R0338
¦ +00000 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 15  STEP #0036 >>
¦%S0007  +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦
¦        ¦     ¦ LSS_POS         ¦     ¦ LSS_LEN
¦ CONST -¦IN  Q+-%R0380   CONST -¦IN  Q+-%R0382
¦ +13050 ¦ LEN ¦          +01000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+
¦
¦ (*************************************************************************)
¦ (* Filling control parameters                                            *)
¦ (*************************************************************************)
¦
¦ALW_ON                                                                                                  << RUNG 17  STEP #0040 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ REG_ALG         ¦     ¦ REG_SMP         ¦     ¦ REG_DB+
¦ CONST -¦IN  Q+-%R0701   CONST -¦IN  Q+-%R0702   CONST -¦IN  Q+-%R0703
¦ +00001 ¦ LEN ¦          +00005 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 18  STEP #0044 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦ REG_DB-         ¦     ¦  REG_P          ¦     ¦  REG_D
¦ CONST -¦IN  Q+-%R0704   CONST -¦IN  Q+-%R0705   CONST -¦IN  Q+-%R0706
¦ +00000 ¦ LEN ¦          +00050 ¦ LEN ¦          +00000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
¦ALW_ON                                                                                                  << RUNG 19  STEP #0048 >>
¦%S0007  +-----+                 +-----+                 +-----+
+--¦ +---¦MOVE_+-----------------¦MOVE_+-----------------¦MOVE_+-
¦        ¦ INT ¦                 ¦ INT ¦                 ¦ INT ¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        ¦     ¦  REG_I          ¦     ¦ REG_BIA         ¦     ¦ REG_UCL
¦ CONST -¦IN  Q+-%R0707   CONST -¦IN  Q+-%R0708   CONST -¦IN  Q+-%R0709
¦ +00220 ¦ LEN ¦          +00000 ¦ LEN ¦          +32000 ¦ LEN ¦
¦        ¦00001¦                 ¦00001¦                 ¦00001¦
¦        ¦     ¦                 ¦     ¦                 ¦     ¦
¦        +-----+                 +-----+                 +-----+
¦
```

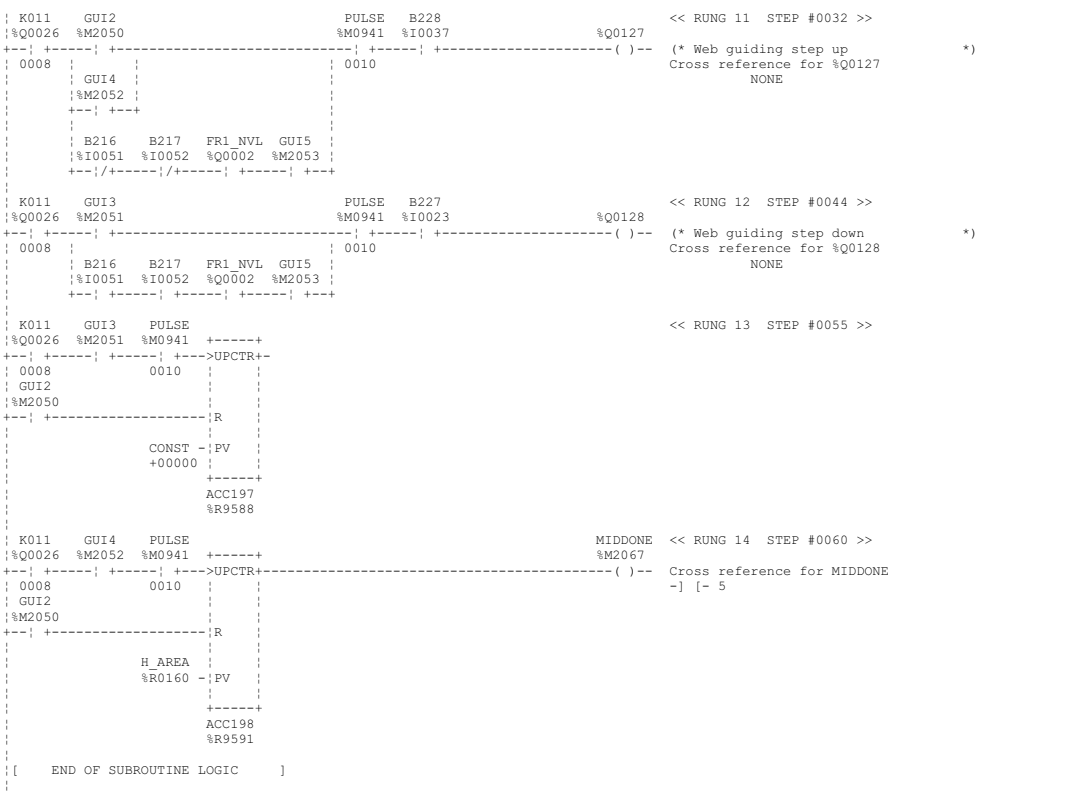

EM1.1TS700012.fm

```
ALW_ON                                                                  << RUNG 20  STEP #0052 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | WT_ALG         |     | WT_SMP         |     | WT_DB+
| CONST -|IN  Q+-%R0801   CONST -|IN  Q+-%R0802   CONST -|IN  Q+-%R0803
| +00001 | LEN |          +00010 | LEN |          +01600 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
ALW_ON                                                                  << RUNG 21  STEP #0056 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | WT_DB-         |     |  WT_P          |     |  WT_D
| CONST -|IN  Q+-%R0804   CONST -|IN  Q+-%R0805   CONST -|IN  Q+-%R0806
| +00000 | LEN |          +00050 | LEN |          +00000 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
ALW_ON                                                                  << RUNG 22  STEP #0060 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     |  WT_I          |     | WT_BIA         |     | WT_UCL
| CONST -|IN  Q+-%R0807   CONST -|IN  Q+-%R0808   CONST -|IN  Q+-%R0809
| +00250 | LEN |          +00000 | LEN |          +32000 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
ALW_ON                                                                  << RUNG 23  STEP #0064 >>
%S0007  +-----+
+--| +---|MOVE_+-
|        | INT |
|        |     |
| CONST -|IN  Q+-%R0828
| +23000 | LEN |
|        |00001|
|        |     |
|        +-----+
|
ALW_ON                                                                  << RUNG 24  STEP #0066 >>
%S0007  +-----+                +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |                | INT |
|        |     |                |     |                |     |
|        |     | SP_LVL         |     | S-FLOW         |     | N-FLOW
| CONST -|IN  Q+-%R0750   CONST -|IN  Q+-%R0759   CONST -|IN  Q+-%R0760
| +15000 | LEN |          +06000 | LEN |          +03564 | LEN |
|        |00001|                |00001|                |00001|
|        |     |                |     |                |     |
|        +-----+                +-----+                +-----+
|
ALW_ON                                                                  << RUNG 25  STEP #0070 >>
%S0007  +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |
|        |     |                |     |
|        |     | RU_LEN         |     | RD_LEN
| CONST -|IN  Q+-%R0766   CONST -|IN  Q+-%R0770
| +00200 | LEN |          +00100 | LEN |
|        |00001|                |00001|
|        |     |                |     |
|        +-----+                +-----+
|
[    END OF SUBROUTINE LOGIC     ]
|
```


EM1.1TS700012.fm

```
[    VARIABLE DECLARATIONS     ]
[   START OF SUBROUTINE LOGIC    ]
 (*************************************************************************)
 (* Shift logic for Web guiding                                           *)
 (*************************************************************************)
 GUI1     SS2                                                  GUISHF1  << RUNG 5  STEP #0003 >>
%M2049  %M0100                                                %M2065
--| +-----| +-------------------------------------------------( )--  (* Web guiding shiftbit 1           *)
                                                                       Cross reference for GUISHF1
 GUI2    B228                                                          -] [- 6
%M2050  %I0037
--| +-----|/+--
 GUI3    B227
%M2051  %I0023
--| +-----|/+--
 GUI4   MIDDONE
%M2052  %M2067
--| +-----| +--+
         0014
GUISHF1                                                               << RUNG 6  STEP #0015 >>
%M2065  +-----+
--| +---| SHL_|
 0005   | WORD|
        |     |
 GUI1   |     |
%M2049 -|IN B2+-
        | LEN |
        |00001|
        |     |  GUI1
 CONST -|N   Q+-%M2049
 +00001 |     |
ALW_OFF |     |
%S0008  |     |
--| +---|B1   |
        +-----+
FST_SCN                                                               << RUNG 7  STEP #0018 >>
%S0001          +-----+         +-----+
--| +-----------| BLK_+---------| BIT_+-
      |         | CLR_|         | SET_|
SS-1_0 |        | WORD|         | WORD|
%M0064 | GUI1   |     |  GUI1   |     |
--| +--+%M2049 -|IN   | %M2049 -|IN   |
                | LEN |         | LEN |
                |00001|         |00001|
                |     |         |     |
                +-----+  CONST -|BIT  |
                          00001 +-----+
 GUI2   DOOR_SM                                                K011    << RUNG 8  STEP #0022 >>
%M2050  %I0019                                                %Q0026
--| +-----|/+-------------------------------------------------( )--  (* Stepmotor web adjustment        *)
      |                                                                Cross reference for K011
 GUI3 |                                                                -] [- 11,12,13,14
%M2051 |
--| +--|
      |
 GUI4 |
%M2052 |
--| +--|
      |
 K001 |
%Q0001 |
--| +--+
 GUI4                                                                 << RUNG 9  STEP #0028 >>
%M2052  +-----+
--| +---| DIV_+-
      | INT |
      |     |
ACC197 |     | H_AREA
%R9588 -|I1  Q+-%R0160
      |     |
 CONST -|I2   |
 +00002 +-----+
 PULSE                                                          PULSE   << RUNG 10  STEP #0030 >>
%M0941                                                         %M0941
--|/+-------------------------------------------------------------( )--  (* Web guiding, Step motor pulse    *)
 0010                                                                  Cross reference for PULSE
                                                                       -] [- 11,12,13,14
                                                                       -]/[- 10
```


EM1.1TS700012.fm



EM1.1TS700012.fm

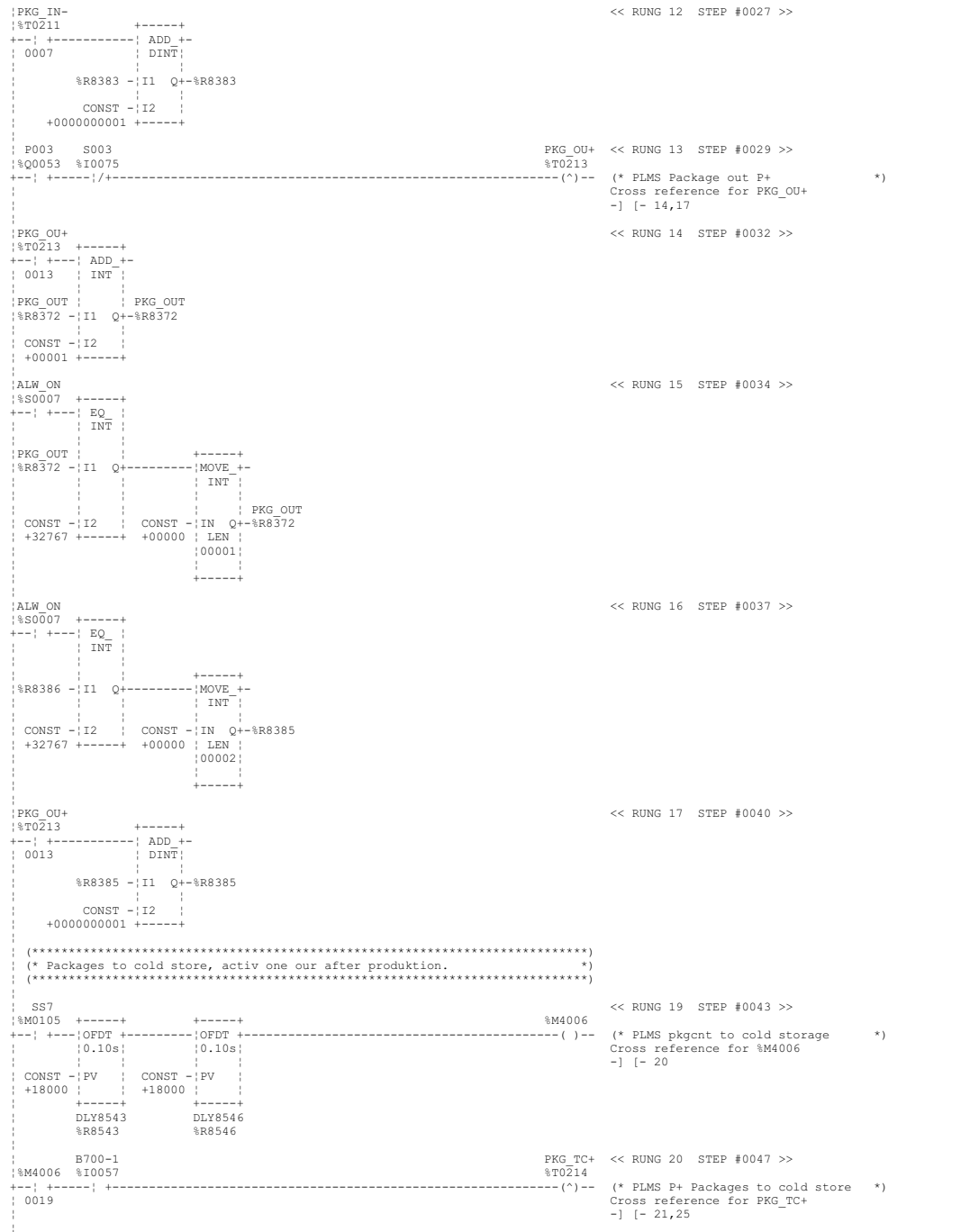
```
12-12-02  14:10                          GE FANUC SERIES 90-30/90-20/MICRO (v9.02)                                Page     1


|[     VARIABLE DECLARATIONS      ]
|
|[   START OF SUBROUTINE LOGIC    ]
|
|  (*************************************************************************)
|  (* Counter number of packages in and out of the machine                  *)
|  (*                                                                       *)
|  (*************************************************************************)
|
|   SS0   FR1_NVL AE_MSB                                                    PKG_IN+  << RUNG 5  STEP #0003 >>
|%M0098  %Q0002  %M1761                                                     %T0212
+--|/+-----| +-----| +-----------------------------------------------------(^)--  (* PLMS Packages in P+              *)
|       |      |                                                                    Cross reference for PKG_IN+
|       |FR1_LOW|                                                                   -] [- 6,11
|       |%Q0007 |
|       +--| +--+
|
|PKG_IN+                                                                          << RUNG 6  STEP #0009 >>
|%T0212  +-----+
+--| +---| ADD_+-
| 0005   | INT |
|        |     |
|PKG_IN  |     | PKG_IN
|%R8371 -|I1  Q+-%R8371
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|   SS0   FR1_NVL AE_MSB                                                    PKG_IN-  << RUNG 7  STEP #0011 >>
|%M0098  %Q0002  %M1761                                                     %T0211
+--|/+-----| +-----|/+-----------------------------------------------------(v)--  (* PLMS Packages in P-              *)
|       |      |                                                                    Cross reference for PKG_IN-
|       |FR1_LOW|                                                                   -] [- 8,12
|       |%Q0007 |
|       +--| +--+
|
|PKG_IN-                                                                          << RUNG 8  STEP #0017 >>
|%T0211  +-----+
+--| +---| ADD_+-
| 0007   | INT |
|        |     |
|PKG_IN  |     | PKG_IN
|%R8371 -|I1  Q+-%R8371
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|ALW_ON                                                                           << RUNG 9  STEP #0019 >>
|%S0007  +-----+
+--| +---| EQ_ |
|        | INT |
|        |     |
|PKG_IN  |     |         +-----+
|%R8371 -|I1  Q+---------|MOVE_+-
|        |     |         | INT |
|        |     |         |     |
|        |     |         |     | PKG_IN
| CONST -|I2   |  CONST -|IN  Q+-%R8371
| +32767 +-----+  +00000 | LEN |
|                        |00001|
|                        |     |
|                        +-----+
|
|ALW_ON                                                                           << RUNG 10  STEP #0022 >>
|%S0007  +-----+
+--| +---| EQ_ |
|        | INT |
|        |     |
|        |     |         +-----+
|%R8384 -|I1  Q+---------|MOVE_+-
|        |     |         | INT |
|        |     |         |     |
| CONST -|I2   |  CONST -|IN  Q+-%R8383
| +32767 +-----+  +00000 | LEN |
|                        |00002|
|                        |     |
|                        +-----+
|
|PKG_IN+                                                                          << RUNG 11  STEP #0025 >>
|%T0212          +-----+
+--| +-----------| ADD_+-
| 0005           | DINT|
|                |     |
|        %R8383 -|I1  Q+-%R8383
|                |     |
|         CONST -|I2   |
|    +0000000001 +-----+
|


                                                TCA/P1
                                        BLOCK 26 PLMS COMMUNICATION

ECM 122946                      DATE: 20021212                  SIGN: JNR/TAN                   DOC.ID: 45282-26:01
```

EM1.1TS700012.fm



TCA/P1
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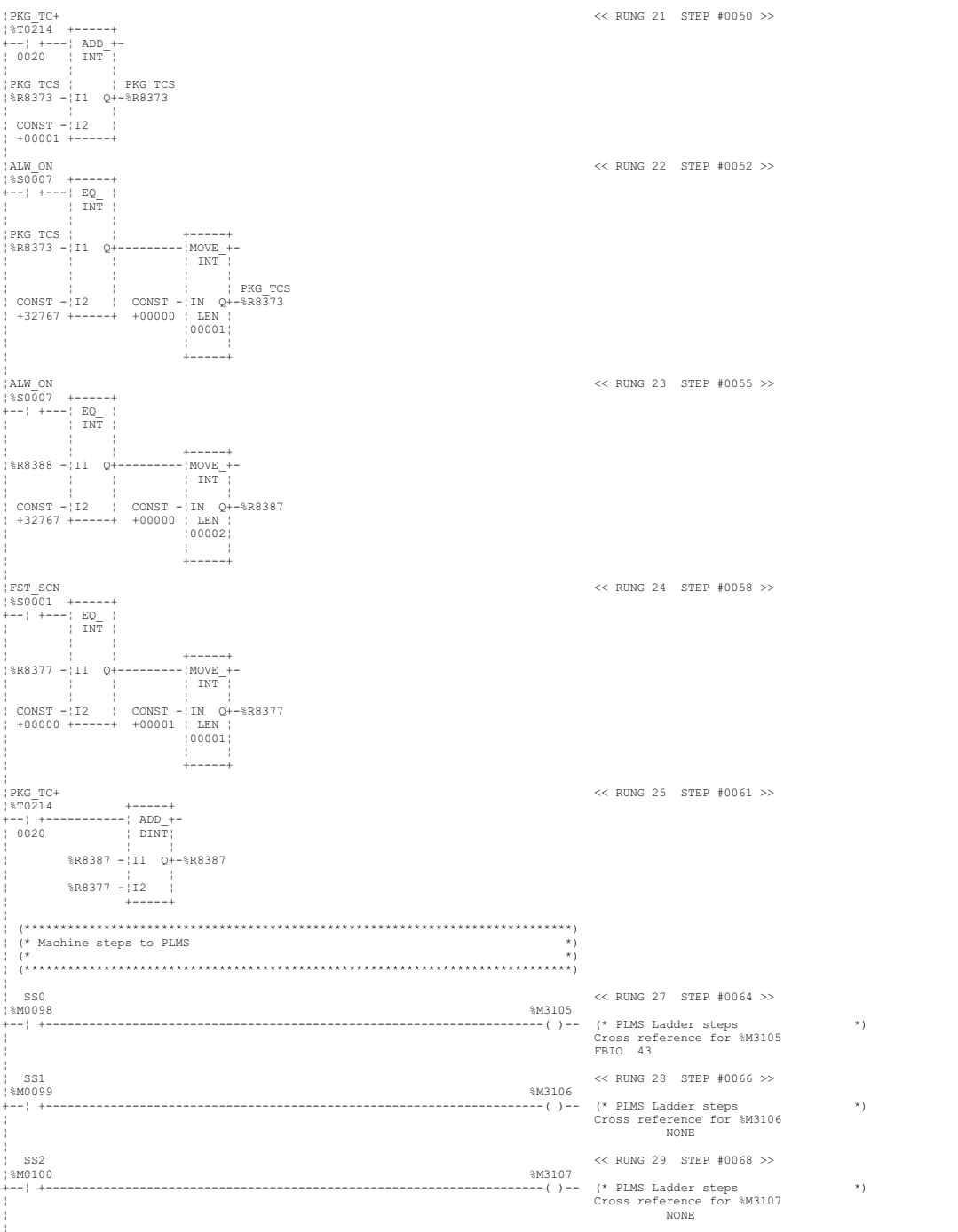
ECM 122946 DATE: 20021212 SIGN: JNR/TAN DOC.ID: 45282-26:01

EM1.1TS700012.fm



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```
|  SS3                                                                                    << RUNG 30  STEP #0070 >>
|%M0101                                                                  %M3108
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3108
|                                                                                                  NONE
|
|  SS4                                                                                    << RUNG 31  STEP #0072 >>
|%M0102                                                                  %M3109
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3109
|                                                                                                  NONE
|
|  SS5                                                                                    << RUNG 32  STEP #0074 >>
|%M0103                                                                  %M3110
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3110
|                                                                                                  NONE
|
|  SS6                                                                                    << RUNG 33  STEP #0076 >>
|%M0104                                                                  %M3111
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3111
|                                                                                                  NONE
|
|  SS7                                                                                    << RUNG 34  STEP #0078 >>
|%M0105  %M3113  +-----+                                                 %M3112
+--| +-----|/|---|OFDT +-------------------------------------------------( )--  (* PLMS Ladder steps                *)
|       | 0035   |.001s|                                                                 Cross reference for %M3112
|PROD17 |        |     |                                                                 -] [- 36
|%M1169 |        |     |                                                                 -]/[- 35
+--| +--+ CONST -|PV   |
|         +00150 |     |
|                +-----+
|                DLY8552
|                %R8552
|
|  SS8   PROD17                                                                           << RUNG 35  STEP #0083 >>
|%M0106  %M1169  %M3112  +-----+                                         %M3113
+--| +-----|/|-----|/|---|OFDT +-----------------------------------------( )--  (* PLMS Ladder steps                *)
|                 0034   |.001s|                                                         Cross reference for %M3113
|                        |     |                                                         -] [- 38
|                 CONST -|PV   |                                                         -]/[- 34
|                 +00150 |     |
|                        +-----+
|                        DLY8555
|                        %R8555
|
|%M3112                                                                  %T0225   << RUNG 36  STEP #0088 >>
+--| +-----------------------------------------------------------------(^)--  Cross reference for %T0225
| 0034                                                                           -] [- 37
|
|%T0225  +-----+                                                                         << RUNG 37  STEP #0090 >>
+--| +---| ADD_+-
| 0036   | INT |
|        |     |
|%R9623 -|I1  Q+-%R9623
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|%M3113                                                                  %T0226   << RUNG 38  STEP #0092 >>
+--| +-----------------------------------------------------------------(^)--  Cross reference for %T0226
| 0035                                                                           -] [- 39
|
|%T0226  +-----+                                                                         << RUNG 39  STEP #0094 >>
+--| +---| ADD_+-
| 0038   | INT |
|        |     |
|%R9620 -|I1  Q+-%R9620
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|  SS9                                                                                    << RUNG 40  STEP #0096 >>
|%M0107                                                                  %M3114
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3114
|                                                                                                  NONE
|
| SS10                                                                                    << RUNG 41  STEP #0098 >>
|%M0108                                                                  %M3115
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder steps                *)
|                                                                                        Cross reference for %M3115
|                                                                                                  NONE
|
| SS11                                                                                    << RUNG 42  STEP #0100 >>
|%M0109                                                                  %M3116
+--| +-----------------------------------------------------------------( )--  (* PLMS Ladder step                 *)
|                                                                                        Cross reference for %M3116
|                                                                                                  NONE
|
```

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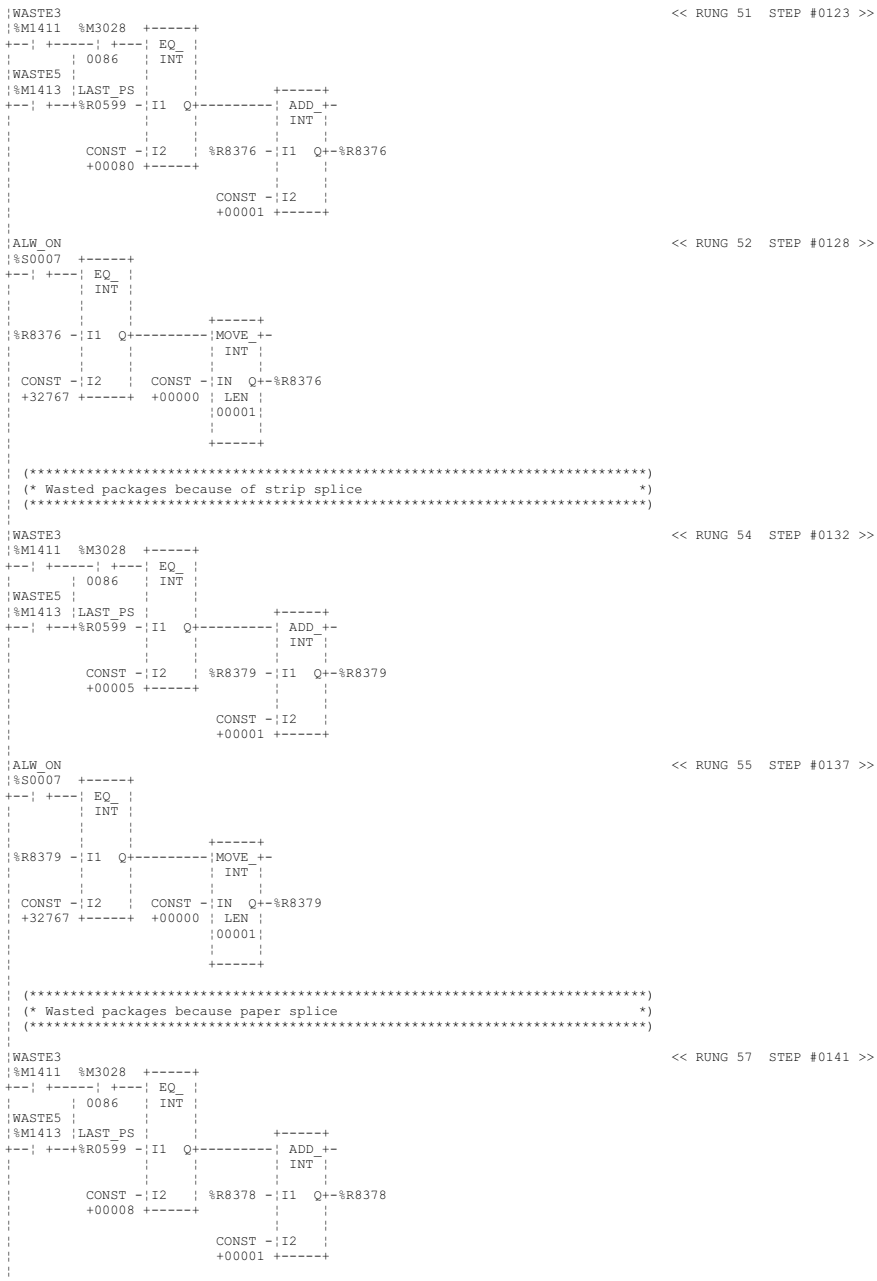
```
|ALW_ON                                                                  << RUNG 43  STEP #0102 >>
|%S0007  +-----+
+--| +---|MOVE_+-
|        | INT |
|        |     |
|        |     | PLMS_SP
|%M3105 -|IN  Q+-%R8340
|        | LEN |
|        |00001|
|        |     |
|        +-----+
|
| (*************************************************************************)
| (* Total wasted packages                                                 *)
| (*                                                                       *)
| (*************************************************************************)
|
|FR1_NVL AE_MSB                                                 WST_P+   << RUNG 45  STEP #0105 >>
|%Q0002  %M1761  +-----+                                        %T0210
+--| +-----| +---| NE_ |+-----------------------------------------------(^)--  (* PLMS Total waste P+             *)
|       |       | INT ||                                                      Cross reference for WST_P+
|FR1_LOW|       |     ||                                                      -] [- 46
|%Q0007 |LAST_PS |     ||
+--| +--+%R0599 -|I1  Q++
|               |     |
|         CONST -|I2   |
|         +00001 +-----+
|
|WST_P+                                                                  << RUNG 46  STEP #0110 >>
|%T0210  +-----+
+--| +---| ADD_+-
| 0045   | INT |
|        |     |
|%R8375 -|I1  Q+-%R8375
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|FR1_NVL AE_MSB                                                 WST_P-   << RUNG 47  STEP #0112 >>
|%Q0002  %M1761  +-----+                                        %T0221
+--| +-----|/+---| NE_ |+-----------------------------------------------(v)--  (* PLMS Total waste P-             *)
|       |       | INT ||                                                      Cross reference for WST_P-
|FR1_LOW|       |     ||                                                      -] [- 48
|%Q0007 |LAST_PS |     ||
+--| +--+%R0599 -|I1  Q++
|               |     |
|         CONST -|I2   |
|         +00001 +-----+
|
|WST_P-                                                                  << RUNG 48  STEP #0117 >>
|%T0221  +-----+
+--| +---| ADD_+-
| 0047   | INT |
|        |     |
|%R8375 -|I1  Q+-%R8375
|        |     |
| CONST -|I2   |
| +00001 +-----+
|
|ALW_ON                                                                  << RUNG 49  STEP #0119 >>
|%S0007  +-----+
+--| +---| EQ_ |
|        | INT |
|        |     |
|        |     |         +-----+
|%R8375 -|I1  Q+---------|MOVE_+-
|        |     |         | INT |
|        |     |         |     |
| CONST -|I2   |  CONST -|IN  Q+-%R8375
| +32767 +-----+  +00000 | LEN |
|                        |00001|
|                        |     |
|                        +-----+
|
| (*************************************************************************)
| (* Wasted packages because design correction system                      *)
| (*************************************************************************)
|
```


EM1.1TS700012.fm



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```
|WASTE3                                                                  << RUNG 58  STEP #0146 >>
|%M1411  %M3028  +-----+
+--| +-----| +---| EQ_ |
|       | 0086   | INT |
|WASTE5 |        |     |
|%M1413 |LAST_PS |     |         +-----+
+--| +--+%R0599 -|I1  Q+---------| ADD_+-
|                |     |         | INT |
|                |     |         |     |
|         CONST -|I2   | %R8378 -|I1  Q+-%R8378
|         +00009 +-----+         |     |
|                                |     |
|                         CONST -|I2   |
|                         +00001 +-----+
|
|ALW_ON                                                                  << RUNG 59  STEP #0151 >>
|%S0007  +-----+
+--| +---| EQ_ |
|       | INT |
|       |     |
|       |     |         +-----+
|%R8378 -|I1  Q+---------|MOVE_+-
|       |     |         | INT |
|       |     |         |     |
| CONST -|I2   |  CONST -|IN  Q+-%R8378
| +32767 +-----+  +00000 | LEN |
|                        |00001|
|                        |     |
|                        +-----+
|
| (*************************************************************************)
| (* Wasted packages, manual by operator                                   *)
| (*************************************************************************)
|
|WASTE3                                                                  << RUNG 61  STEP #0155 >>
|%M1411  %M3028  +-----+
+--| +-----| +---| EQ_ |
|       | 0086   | INT |
|WASTE5 |        |     |
|%M1413 |LAST_PS |     |         +-----+
+--| +--+%R0599 -|I1  Q+---------| ADD_+-
|                |     |         | INT |
|                |     |         |     |
|         CONST -|I2   | %R8381 -|I1  Q+-%R8381
|         +00010 +-----+         |     |
|                                |     |
|                         CONST -|I2   |
|                         +00001 +-----+
|
|ALW_ON                                                                  << RUNG 62  STEP #0160 >>
|%S0007  +-----+
+--| +---| EQ_ |
|       | INT |
|       |     |
|       |     |         +-----+
|%R8381 -|I1  Q+---------|MOVE_+-
|       |     |         | INT |
|       |     |         |     |
| CONST -|I2   |  CONST -|IN  Q+-%R8381
| +32767 +-----+  +00000 | LEN |
|                        |00001|
|                        |     |
|                        +-----+
|
| (*************************************************************************)
| (* Short stop, manual                                                    *)
| (*                                                                       *)
| (*************************************************************************)
|
|PROD17                                                                  << RUNG 64  STEP #0164 >>
|%M1169                                                          %M3017
+--| +-----------------------------------------------------------( )--  (* PLMS Short stop                  *)
|                                                                        Cross reference for %M3017
|                                                                        -]/[- 197
|
| (*************************************************************************)
| (* Step down from production (step down and filling off)                 *)
| (*************************************************************************)
|
|  SS8   STEPDWN                                                         << RUNG 66  STEP #0167 >>
|%M0106  %M0003                                                  %T0222
+--| +-----| +-----------------------------------------------------(S)--  (* PLMS Press down from prod memory *)
|                                                                        Cross reference for %T0222
|                                                                        -] [- 68
|                                                                        -(R)  68
|
|  SS8                                                           DN_PROD  << RUNG 67  STEP #0170 >>
|%M0106                                                          %T0220
+--| +-----------------------------------------------------------(v)--  (* PLMS Step down from production P *)
|                                                                        Cross reference for DN_PROD
|                                                                        -] [- 68
```


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```
|DN_PROD                                                                    << RUNG 68  STEP #0172 >>
|%T0220  %T0222                                                  %M3018
+--| +-----| +-------------------------------------------------------(S)--  (* PLMS Step down from prod         *)
| 0067    0066  |                                                          Cross reference for %M3018
|               |                                                          -] [- 69
|               |                                                %T0222    -(R)  69
|               +-------------------------------------------------(R)--  (* PLMS Press down from prod memory *)
|                                                                          Cross reference for %T0222
|                                                                          -] [- 68
|                                                                          -(S)  66
|
|%M3018  +-----+                                                 %M3018   << RUNG 69  STEP #0176 >>
+--| +---| TMR +-------------------------------------------------(R)--  (* PLMS Step down from prod         *)
| 0068   |0.10s|                                                          Cross reference for %M3018
|        |     |                                                          -] [- 69
| CONST -|PV   |                                                          -(S)  68
| +00020 |     |
|        +-----+
|
|        %R8500
|
| (*************************************************************************)
| (* Emergency stop                                                        *)
| (*************************************************************************)
|
| SS0_9  E_STOP  ALW_ON                                                     << RUNG 71  STEP #0180 >>
|%M0065  %I0018  %S0007                                          %M3019
+--| +-----|/+-----| +-------------------------------------------------( )--  (* PLMS Emergency stop              *)
|                                                                          Cross reference for %M3019
|                                                                                   NONE
|
| (*************************************************************************)
| (* Door guards                                                           *)
| (*************************************************************************)
|
| SS0_9   B001-   B201   ASU_SM                                             << RUNG 73  STEP #0185 >>
|%M0065  %I0022  %I0028  %I0020                                  %M3020
+--| +-----| +-----| +-----|/+-------------------------------------------( )--  (* PLMS Door guards                 *)
|                     |     |                                              Cross reference for %M3020
|                     |V65S_N |                                                   NONE
|                     |%M0928 |
|                     +--| +--+
|
| (*************************************************************************)
| (* CIP clean + parallell cleaning interm.                                *)
| (*************************************************************************)
|
| SS11    S004                                                              << RUNG 75  STEP #0193 >>
|%M0109  %I0076                                                  %M3021
+--| +-----|/+-------------------------------------------------------( )--  (* PLMS CIP clean, extern clean     *)
|                                                                          Cross reference for %M3021
|                                                                                   NONE
|
| (*************************************************************************)
| (* CIP cleaning                                                         *)
| (*************************************************************************)
|
| SS11    S004                                                              << RUNG 77  STEP #0197 >>
|%M0109  %I0076                                                  %M3022
+--| +-----| +-------------------------------------------------------( )--  (* PLMS CIP clean, extern clean     *)
|                                                                          Cross reference for %M3022
|                                                                                   NONE
|
| (*************************************************************************)
| (* Start attendance                                                     *)
| (*************************************************************************)
|
| SS2_8                                                                     << RUNG 79  STEP #0201 >>
|%M0067                                                          %M3026
+--| +-------------------------------------------------------------( )--  (* PLMS Start attendance            *)
|                                                                          Cross reference for %M3026
|                                                                          -] [- 80
|
|         PROD2                                                  INTERR    << RUNG 80  STEP #0203 >>
|%M3026  %M1154                                                  %T0219
+--| +-----| +-------------------------------------------------------(v)--  (* PLMS Interupted motorstart P     *)
| 0079  |       |                                                          Cross reference for INTERR
|       | PROD3 |                                                          -] [- 81
|       |%M1155 |
|       +--| +--+
|
|INTERR   PROD4   PROD5   PROD6   PROD7   PROD8   PROD9                     << RUNG 81  STEP #0208 >>
|%T0219  %M1156  %M1157  %M1158  %M1159  %M1160  %M1161  +-----+  %M3016
+--| +-----|/+-----|/+-----|/+-----|/+-----|/+-----|/+---|OFDT +----------( )--  (* PLMS Operator interrupted motort *)
| 0080                                                  |0.10s|              Cross reference for %M3016
|                                                       |     |                       NONE
|                                                CONST -|PV   |
|                                                +00020 |     |
|                                                       +-----+
|
|                                                       %R8522
```

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```
| (*************************************************************************)
| (* Preparation phase                                                     *)
| (*************************************************************************)
|
|                FIN6                                                     << RUNG 83  STEP #0218 >>
|%M3049  %M3028  %M1446  +-----+                                  %M3027
+--| +-----|/+-----|/+---| TMR +-----------------------------------( )--  (* PLMS Preparation phase          *)
|         0086           |0.10s|                                          Cross reference for %M3027
|                        |     |                                          -] [- 84,86
|                CONST -|PV   |
|                +00020 |     |
|                        +-----+
|
|                %R8504
|
|          SS0                                                            << RUNG 84  STEP #0223 >>
|%M3027  %M0098                                                  %M3055
+--| +-----| +-----------------------------------------------------( )--  (* Preperation phase inter.        *)
| 0083                                                                    Cross reference for %M3055
|                                                                                  NONE
|
| (*************************************************************************)
| (* Production phase                                                    *)
| (*************************************************************************)
|
|          SS6                                                            << RUNG 86  STEP #0227 >>
|%M3027  %M0104                                                  %M3028
+--| +-----| +-----------------------------------------------------( )--  (* PLMS Production phase           *)
| 0083          |                                                         Cross reference for %M3028
|               |                                                         -] [- 51,54,57,58,61,86,88,90
|%M3028  %M3049 |                                                         -]/[- 83
+--| +-----| +--+
| 0086
|
| (*************************************************************************)
| (* Production phase end zero                                             *)
| (*************************************************************************)
|
|          SS0                                                            << RUNG 88  STEP #0234 >>
|%M3028  %M0098                                                  %M3029
+--| +-----| +-----------------------------------------------------( )--  (* PLMS Prod. Phase end zero       *)
| 0086                                                                    Cross reference for %M3029
|                                                                                  NONE
|
| (*************************************************************************)
| (* Production phase end                                                 *)
| (*************************************************************************)
|
|         FIN6                                                            << RUNG 90  STEP #0238 >>
|%M3028  %M1446  %T0224                                          %M3054
+--| +-----| +-----|/+-----------------------------------------------(S)--  (* PLMS Production phase end       *)
| 0086           0092                                                     Cross reference for %M3054
|                                                                         -] [- 91
|                                                                         -(R)  91
|
|%M3054  +-----+                                                  %M3054  << RUNG 91  STEP #0242 >>
+--| +---| TMR +-----------------------------------------------------(R)--  (* PLMS Production phase end       *)
| 0090   |0.10s|                                                          Cross reference for %M3054
|        |     |                                                          -] [- 91
|        |     |                                                  %T0224  -(S)  90
| CONST -|PV   |+-----------------------------------------------------(S)--  (* Prod end memory bit            *)
| +00020 |     |                                                          Cross reference for %T0224
|        +-----+                                                          -]/[- 90
|        DLY8549                                                          -(R)  92
|        %R8549
|
| FIN6                                                                    << RUNG 92  STEP #0246 >>
|%M1446                                                          %T0224
+--|/+-----------------------------------------------------------(R)--  (* Prod end memory bit             *)
|                                                                         Cross reference for %T0224
|                                                                         -]/[- 90
|                                                                         -(S)  91
|
| (*************************************************************************)
| (* Strip splice                                                         *)
| (*************************************************************************)
|
| LSS3                                                                    << RUNG 94  STEP #0249 >>
|%M1891  +-----+                                                  %M3031
+--| +---|OFDT +-----------------------------------------------------( )--  (* PLMS Strip splice               *)
|        |0.10s|                                                          Cross reference for %M3031
|        |     |                                                                    NONE
| CONST -|PV   |
| +00030 |     |
|        +-----+
|        DEL8528
|        %R8528
|
| (*************************************************************************)
| (* Paper splice                                                          *)
| (*************************************************************************)
```


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```
| S102                                                                    << RUNG 96  STEP #0253 >>
|%I0110  +-----+                                                %M3032
+--| +---|OFDT +-----------------------------------------------------( )--  (* PLMS Paper splice               *)
|        |0.10s|                                                        Cross reference for %M3032
|        |     |                                                                NONE
| CONST -|PV   |
| +00030 |     |
|        +-----+
|        DEL8531
|        %R8531
|
| (*************************************************************************)
| (* Paper splice detected                                                *)
| (*************************************************************************)
|
| B126                                                                    << RUNG 98  STEP #0257 >>
|%I0014  +-----+                                                %M3033
+--| +---|OFDT +-----------------------------------------------------( )--  (* PLMS Paper splice detected      *)
|        |0.10s|                                                        Cross reference for %M3033
|        |     |                                                                NONE
| CONST -|PV   |
| +00030 |     |
|        +-----+
|        DEL8534
|        %R8534
|
| (*************************************************************************)
| (* Reset alarm                                                           *)
| (*                                                                       *)
| (*************************************************************************)
|
|ALM_RST                                                                  << RUNG 100  STEP #0261 >>
|%M0005  +-----+                                                %M3050
+--| +---|OFDT +-----------------------------------------------------( )--  (* PLMS Alarm reset                *)
|        |0.10s|                                                        Cross reference for %M3050
|        |     |                                                                NONE
| CONST -|PV   |
| +00020 |     |
|        +-----+
|        DEL8525
|        %R8525
|
| (*************************************************************************)
| (* Volume options, to PLMS                                               *)
| (*************************************************************************)
|
| VOL65                                                                   << RUNG 102  STEP #0265 >>
|%M0917                                                         %M2993
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2993
|                                                                         FBIO  108
|
|VOL150S                                                                  << RUNG 103  STEP #0267 >>
|%M0918                                                         %M2994
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2994
|                                                                                NONE
|
|VOL200S                                                                  << RUNG 104  STEP #0269 >>
|%M0920                                                         %M2995
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2995
|                                                                                NONE
|
|VOL200B                                                                  << RUNG 105  STEP #0271 >>
|%M0919                                                         %M2996
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2996
|                                                                                NONE
|
|V150S_N                                                                  << RUNG 106  STEP #0273 >>
|%M0921                                                         %M2997
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2997
|                                                                                NONE
|
|V200B_N                                                                  << RUNG 107  STEP #0275 >>
|%M0922                                                         %M2998
+--| +-------------------------------------------------------------( )--  (* PLMS Volume                     *)
|                                                                         Cross reference for %M2998
|                                                                                NONE
|
```


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```
ALW_ON                                                                  << RUNG 108  STEP #0277 >>
%S0007  +-----+                +-----+
+--| +---|MOVE_+----------------|MOVE_+-
|        | INT |                | INT |
|        |     |                |     |
%M2993 -|IN  Q+-%R8363  %M2993 -|IN  Q+-%R8396
|        | LEN |                | LEN |
|        |00001|                |00001|
|        |     |                |     |
|        +-----+                +-----+
|
| (*************************************************************************)
| (* Options installed on the machine is transferd to PLMS.               *)
| (*************************************************************************)
|
| S001H                                                                 << RUNG 110  STEP #0281 >>
%I0104                                                    %M3137
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3137
|                                                                       FBIO  126
|
| S002H                                                                 << RUNG 111  STEP #0283 >>
%I0105                                                    %M3138
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3138
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 112  STEP #0285 >>
%S0008                                                    %M3139
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3139
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 113  STEP #0287 >>
%S0008                                                    %M3140
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3140
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 114  STEP #0289 >>
%S0008                                                    %M3141
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3141
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 115  STEP #0291 >>
%S0008                                                    %M3142
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3142
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 116  STEP #0293 >>
%S0008                                                    %M3143
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3143
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 117  STEP #0295 >>
%S0008                                                    %M3144
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3144
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 118  STEP #0297 >>
%S0008                                                    %M3145
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3145
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 119  STEP #0299 >>
%S0008                                                    %M3146
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3146
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 120  STEP #0301 >>
%S0008                                                    %M3147
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3147
|                                                                                 NONE
|
ALW_OFF                                                                 << RUNG 121  STEP #0303 >>
%S0008                                                    %M3148
+--| +-----------------------------------------------------------------( )--  (* PLMS option                      *)
|                                                                       Cross reference for %M3148
|                                                                                 NONE
|
```


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```
ALW_OFF                                                          << RUNG 122  STEP #0305 >>
%S0008                                                %M3149
--| +-------------------------------------------------------------( )--  (* PLMS option                    *)
                                                                 Cross reference for %M3149
                                                                           NONE

ALW_OFF                                                          << RUNG 123  STEP #0307 >>
%S0008                                                %M3150
--| +-------------------------------------------------------------( )--  (* PLMS option                    *)
                                                                 Cross reference for %M3150
                                                                           NONE

ALW_OFF                                                          << RUNG 124  STEP #0309 >>
%S0008                                                %M3151
--| +-------------------------------------------------------------( )--  (* PLMS option                    *)
                                                                 Cross reference for %M3151
                                                                           NONE

ALW_OFF                                                          << RUNG 125  STEP #0311 >>
%S0008                                                %M3152
--| +-------------------------------------------------------------( )--  (* PLMS option                    *)
                                                                 Cross reference for %M3152
                                                                           NONE

ALW_ON                                                           << RUNG 126  STEP #0313 >>
%S0007  +-----+
--| +---|MOVE_+-
        | INT |
        |     |
%M3137 -|IN  Q+-%R8367
        | LEN |
        |00001|
        |     |
        +-----+

 (*************************************************************************)
 (* Testbits                                                              *)
 (*                                                                       *)
 (*************************************************************************)

 S001H                                                 TEST1   << RUNG 128  STEP #0316 >>
%I0104                                                %M3041
--| +-------------------------------------------------------------( )--  (* PLMS Test1                     *)
                                                                 Cross reference for TEST1
                                                                           NONE

 S002H                                                 TEST2   << RUNG 129  STEP #0318 >>
%I0105                                                %M3042
--| +-------------------------------------------------------------( )--  (* PLMS Test2                     *)
                                                                 Cross reference for TEST2
                                                                           NONE

ALW_OFF                                                TEST3   << RUNG 130  STEP #0320 >>
%S0008                                                %M3043
--| +-------------------------------------------------------------( )--  (* PLMS Test3                     *)
                                                                 Cross reference for TEST3
                                                                           NONE

ALW_OFF                                                TEST4   << RUNG 131  STEP #0322 >>
%S0008                                                %M3044
--| +-------------------------------------------------------------( )--  (* PLMS Test4                     *)
                                                                 Cross reference for TEST4
                                                                           NONE

ALW_OFF                                                TEST5   << RUNG 132  STEP #0324 >>
%S0008                                                %M3045
--| +-------------------------------------------------------------( )--  (* PLMS Test5                     *)
                                                                 Cross reference for TEST5
                                                                           NONE

ALW_OFF                                                TEST6   << RUNG 133  STEP #0326 >>
%S0008                                                %M3046
--| +-------------------------------------------------------------( )--  (* PLMS Test6                     *)
                                                                 Cross reference for TEST6
                                                                           NONE

ALW_OFF                                                TEST7   << RUNG 134  STEP #0328 >>
%S0008                                                %M3047
--| +-------------------------------------------------------------( )--  (* PLMS Test7                     *)
                                                                 Cross reference for TEST7
                                                                           NONE

ALW_OFF                                                TEST8   << RUNG 135  STEP #0330 >>
%S0008                                                %M3048
--| +-------------------------------------------------------------( )--  (* PLMS Test8                     *)
                                                                 Cross reference for TEST8
                                                                           NONE
```


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```
|PLC_WD                                                          PLMS_WD  << RUNG 137  STEP #0333 >>
|%M3053                                                         %M3052
+--|/+-------------------------------------------------------------(S)--  (* PLMS Watchdog to PLMS           *)
|                                                                        Cross reference for PLMS_WD
|                                                                        -] [- 140
|                                                                        -]/[- 139
|                                                                        -(R)  138
|
|PLC_WD                                                          PLMS_WD  << RUNG 138  STEP #0335 >>
|%M3053  +-----+                                                 %M3052
+--| +---| TMR +-------------------------------------------------(R)--  (* PLMS Watchdog to PLMS           *)
|    |0.10s|                                                             Cross reference for PLMS_WD
|    |     |                                                             -] [- 140
| CONST -|PV   |                                                         -]/[- 139
| +00020 |     |                                                         -(S)  137
|    +-----+
|
|    %R8560
|
|PLMS_WD                                                          WD=0    << RUNG 139  STEP #0338 >>
|%M3052  +-----+                                                 %M4004
+--|/+---| TMR +-------------------------------------------------( )--  (* PLMS Watchdog=0                 *)
| 0138   |0.10s|                                                         Cross reference for WD=0
|        |     |                                                         -] [- 142
| CONST -|PV   |
| +00200 |     |
|    +-----+
|
|    %R8513
|
|PLMS_WD                                                          WD=1    << RUNG 140  STEP #0341 >>
|%M3052  +-----+                                                 %M4005
+--| +---| TMR +-------------------------------------------------( )--  (* PLMS Watchdog=1                 *)
| 0138   |0.10s|                                                         Cross reference for WD=1
|        |     |                                                         -] [- 142
| CONST -|PV   |
| +00200 |     |
|    +-----+
|
|    %R8516
|
|                                                                 WD_PLMS  << RUNG 141  STEP #0344 >>
|%M3040  +-----+                                                 %M4003
+--| +---| TMR +-------------------------------------------------( )--  (* PLMS Watchdog PLMS DDE          *)
| 0147   |0.10s|                                                         Cross reference for WD_PLMS
|        |     |                                                         -] [- 142
| CONST -|PV   |
| +00050 |     |
|    +-----+
|
|    %R8519
|
| WD=0                                                            COM_FLT  << RUNG 142  STEP #0347 >>
|%M4004                                                          %M4002
+--| +-------------------------------------------------------------( )--  (* PLMS Communication fault       *)
| 0139  |                                                                Cross reference for COM_FLT
| WD=1  |                                                                -] [- 143
|%M4005 |
+--| +--|
| 0140  |
|WD_PLMS|
|%M4003 |
+--| +--+
| 0141
|
|COM_FLT  S007H                                                    K057   << RUNG 143  STEP #0351 >>
|%M4002  %I0097  +-----+                                         %Q0044
+--| +-----| +---|OFDT +-------------------------------------------( )--  (* Reset relay for PLMS           *)
| 0142          |0.10s|                                                   Cross reference for K057
|               |     |                                                            NONE
|         CONST -|PV   |
|         +00030 |     |
|                +-----+
|                DEL8537
|                %R8537
|
|FST_SCN                                                          COM_SUP  << RUNG 144  STEP #0355 >>
|%S0001                                                          %M4001
+--| +-------------------------------------------------------------(R)--  (* PLMS Communication supervise   *)
|                                                                        Cross reference for COM_SUP
|                                                                                 NONE
|
| (*****************************************************************************)
| (* PLMS DDE OK                                                              *)
| (*                                                                          *)
| (* Check if communication works                                            *)
| (*                                                                          *)
| (*****************************************************************************)
|
```

TCA/P1
BLOCK 26 PLMS COMMUNICATION

ECM 122946 DATE: 20021212 SIGN: JNR/TAN DOC.ID: 45282-26:01

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```
|PLC_WD                                                                    << RUNG 146  STEP #0358 >>
|%M3053                                                          %M3040
+--| +-----------------------------------------------------------------(S)--  (* PLMS DDE OK                        *)
|                                                                          Cross reference for %M3040
|                                                                          -] [- 141
|                                                                          -(R)  147
|
|PLC_WD                                                                    << RUNG 147  STEP #0360 >>
|%M3053                                                          %M3040
+--|/+----------------------------------------------------------------(R)--  (* PLMS DDE OK                        *)
|                                                                          Cross reference for %M3040
|                                                                          -] [- 141
|                                                                          -(S)  146
|
| (*************************************************************************)
| (* Service switch to PLMS                                               *)
| (*************************************************************************)
|
| S003                                                                     << RUNG 149  STEP #0363 >>
|%I0075                                                          %M2642
+--| +-----------------------------------------------------------------( )--  (* PLMS Service switch on            *)
|                                                                          Cross reference for %M2642
|                                                                                   NONE
|
| (*************************************************************************)
| (* Transfer alarm to PLMS                                               *)
| (*************************************************************************)
|
|  AC1                                                                     << RUNG 151  STEP #0366 >>
|%M0513                                                          %M2801
+--| +-----------------------------------------------------------------( )--  (* PLMS Package material supply      *)
|                                                                          Cross reference for %M2801
|                                                                                   NONE
|
|  AC3                                                                     << RUNG 152  STEP #0368 >>
|%M0515                                                          %M2673
+--| +-----------------------------------------------------------------( )--  (* PLMS Low level spray container    *)
|                                                                          Cross reference for %M2673
|                                                                                   NONE
|
|  AC5                                                                     << RUNG 153  STEP #0370 >>
|%M0517                                                          %M2674
+--| +-----------------------------------------------------------------( )--  (* PLMS High level spray container   *)
|                                                                          Cross reference for %M2674
|                                                                                   NONE
|
| AC85                                                                     << RUNG 154  STEP #0372 >>
|%M0597                                                          %M2802
+--| +-----------------------------------------------------------------( )--  (* PLMS LS strip reel 2 empty        *)
|                                                                          Cross reference for %M2802
|                                                                                   NONE
|
|  AC6                                                                     << RUNG 155  STEP #0374 >>
|%M0518                                                          %M2803
+--| +-----------------------------------------------------------------( )--  (* PLMS LS strip broken              *)
|       |                                                                  Cross reference for %M2803
|  AC7  |                                                                           NONE
|%M0519 |
+--| +--+
|
|  AC8                                                                     << RUNG 156  STEP #0377 >>
|%M0520                                                          %M2804
+--| +-----------------------------------------------------------------( )--  (* PLMS LS strip element low temp    *)
|                                                                          Cross reference for %M2804
|                                                                                   NONE
|
| AC84                                                                     << RUNG 157  STEP #0379 >>
|%M0596                                                          %M2805
+--| +-----------------------------------------------------------------( )--  (* PLMS LS strip reel 1 empty        *)
|                                                                          Cross reference for %M2805
|                                                                                   NONE
|
|  AC9                                                                     << RUNG 158  STEP #0381 >>
|%M0521                                                          %M2808
+--| +-----------------------------------------------------------------( )--  (* PLMS Packages material web brokn *)
|       |                                                                  Cross reference for %M2808
| AC10  |                                                                           NONE
|%M0522 |
+--| +--|
|       |
| AC11  |
|%M0523 |
+--| +--+
|
| AC12                                                                     << RUNG 159  STEP #0385 >>
|%M0524                                                          %M2675
+--| +-----------------------------------------------------------------( )--  (* PLMS Reg. Valve membrane broken   *)
|       |                                                                  Cross reference for %M2675
| AC13  |                                                                           NONE
|%M0525 |
+--| +--+
```

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BLOCK 26 PLMS COMMUNICATION

ECM 122946 DATE: 20021212 SIGN: JNR/TAN DOC.ID: 45282-26:01

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```
| AC17                                                                                << RUNG 160  STEP #0388 >>
|%M0529                                                                %M2769
+--| +-----------------------------------------------------------------( )--  (* PLMS Squee-gee rollers           *)
|                                                                                   Cross reference for %M2769
|                                                                                            NONE
|
| AC18                                                                              << RUNG 161  STEP #0390 >>
|%M0530                                                                %M2770
+--| +-----------------------------------------------------------------( )--  (* PLMS Undercurrent heating chambr *)
|       |                                                                           Cross reference for %M2770
| AC19  |                                                                                    NONE
|%M0531 |
+--| +--+
|
| AC14                                                                              << RUNG 162  STEP #0393 >>
|%M0526                                                                %M2771
+--| +-----------------------------------------------------------------( )--  (* PLMS Low level H2O2 bath         *)
|       |                                                                           Cross reference for %M2771
| AC15  |                                                                                    NONE
|%M0527 |
+--| +--|
|       |
| AC31  |
|%M0543 |
+--| +--+
|
| AC64                                                                              << RUNG 163  STEP #0397 >>
|%M0576                                                                %M2772
+--| +-----------------------------------------------------------------( )--  (* PLMS High level H2O2 bath        *)
|       |                                                                           Cross reference for %M2772
| AC65  |                                                                                    NONE
|%M0577 |
+--| +--+
|
| AC66                                                                              << RUNG 164  STEP #0400 >>
|%M0578                                                                %M2737
+--| +-----------------------------------------------------------------( )--  (* PLMS Upper bending roller        *)
|                                                                                   Cross reference for %M2737
|                                                                                            NONE
|
| AC32                                                                              << RUNG 165  STEP #0402 >>
|%M0544                                                                %M2676
+--| +-----------------------------------------------------------------( )--  (* PLMS Reg valve not fully open    *)
|       |                                                                           Cross reference for %M2676
| AC33  |                                                                                    NONE
|%M0545 |
+--| +--+
|
| AC93                                                                              << RUNG 166  STEP #0405 >>
|%M0605                                                                %M2738
+--| +-----------------------------------------------------------------( )--  (* PLMS Design out of pos           *)
|                                                                                   Cross reference for %M2738
|                                                                                            NONE
|
| AC20                                                                              << RUNG 167  STEP #0407 >>
|%M0532                                                                %M2739
+--| +-----------------------------------------------------------------( )--  (* PLMS Design sensor misread       *)
|                                                                                   Cross reference for %M2739
|                                                                                            NONE
|
| AC70                                                                              << RUNG 168  STEP #0409 >>
|%M0582                                                                %M2677
+--| +-----------------------------------------------------------------( )--  (* PLMS C-valve out of pos.         *)
|                                                                                   Cross reference for %M2677
|                                                                                            NONE
|
| AC21                                                                              << RUNG 169  STEP #0411 >>
|%M0533                                                                %M2678
+--| +-----------------------------------------------------------------( )--  (* PLMS Low steam temp              *)
|       |                                                                           Cross reference for %M2678
| AC22  |                                                                                    NONE
|%M0534 |
+--| +--|
|       |
| AC23  |
|%M0535 |
+--| +--+
|
| AC29                                                                              << RUNG 170  STEP #0415 >>
|%M0541                                                                %M2679
+--| +-----------------------------------------------------------------( )--  (* PLMS Prod/clean pipe not in pos  *)
|       |                                                                           Cross reference for %M2679
| AC30  |                                                                                    NONE
|%M0542 |
+--| +--+
|
```


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```
| AC24                                                                                << RUNG 171  STEP #0418 >>
|%M0536                                                                %M2680
+--| +-----------------------------------------------------------------( )--  (* PLMS Low pressure sterile air    *)
|       |                                                                        Cross reference for %M2680
| AC25  |                                                                                 NONE
|%M0537 |
+--| +--+
|
| AC89                                                                                << RUNG 172  STEP #0421 >>
|%M0601                                                                %M2681
+--| +-----------------------------------------------------------------( )--  (* PLMS Draining valve open         *)
|       |                                                                        Cross reference for %M2681
| AC90  |                                                                                 NONE
|%M0602 |
+--| +--+
|       |
| AC67  |
|%M0579 |
+--| +--+
|
| AC72                                                                                << RUNG 173  STEP #0425 >>
|%M0584                                                                %M2682
+--| +-----------------------------------------------------------------( )--  (* PLMS A-valve out of pos          *)
|                                                                                   Cross reference for %M2682
|                                                                                         NONE
|
| AC73                                                                                << RUNG 174  STEP #0427 >>
|%M0585                                                                %M2810
+--| +-----------------------------------------------------------------( )--  (* PLMS alarm                       *)
|                                                                                   Cross reference for %M2810
|                                                                                         NONE
|
| AC27                                                                                << RUNG 175  STEP #0429 >>
|%M0539                                                                %M2683
+--| +-----------------------------------------------------------------( )--  (* PLMS Air/clean pipe not in pos   *)
|       |                                                                        Cross reference for %M2683
| AC28  |                                                                                 NONE
|%M0540 |
+--| +--+
|
| AC34                                                                                << RUNG 176  STEP #0432 >>
|%M0546                                                                %M2684
+--| +-----------------------------------------------------------------( )--  (* PLMS B-valve out of pos          *)
|       |                                                                        Cross reference for %M2684
| AC37  |                                                                                 NONE
|%M0549 |
+--| +--+
|
| AC38                                                                                << RUNG 177  STEP #0435 >>
|%M0550                                                                %M2685
+--| +-----------------------------------------------------------------( )--  (* PLMS Low temp air superheater    *)
|       |                                                                        Cross reference for %M2685
| AC39  |                                                                                 NONE
|%M0551 |
+--| +--+
|
| AC40                                                                                << RUNG 178  STEP #0438 >>
|%M0552                                                                %M2686
+--| +-----------------------------------------------------------------( )--  (* PLMS Low temp preheat element    *)
|                                                                                   Cross reference for %M2686
|                                                                                         NONE
|
| AC41                                                                                << RUNG 179  STEP #0440 >>
|%M0553                                                                %M2687
+--| +-----------------------------------------------------------------( )--  (* PLMS Low temp LS element         *)
|       |                                                                        Cross reference for %M2687
| AC42  |                                                                                 NONE
|%M0554 |
+--| +--+
|
| AC43                                                                                << RUNG 180  STEP #0443 >>
|%M0555                                                                %M2740
+--| +-----------------------------------------------------------------( )--  (* PLMS High product level          *)
|       |                                                                        Cross reference for %M2740
| AC44  |                                                                                 NONE
|%M0556 |
+--| +--+
|       |
| AC74  |
|%M0586 |
+--| +--+
|
| AC45                                                                                << RUNG 181  STEP #0447 >>
|%M0557                                                                %M2741
+--| +-----------------------------------------------------------------( )--  (* PLMS Low product level           *)
|       |                                                                        Cross reference for %M2741
| AC46  |                                                                                 NONE
|%M0558 |
+--| +--+
|
```


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```
| AC91                                                                                  << RUNG 182  STEP #0450 >>
|%M0603                                                                %M2688
+--| +-------------------------------------------------------------------( )--  (* PLMS Cleaning pipe/plug not in s *)
|      |                                                                        Cross reference for %M2688
| AC92 |                                                                                 NONE
|%M0604 |
+--| +--+
|
| AC26                                                                                  << RUNG 183  STEP #0453 >>
|%M0538                                                                %M2689
+--| +-------------------------------------------------------------------( )--  (* PLMS spare                       *)
|                                                                                  Cross reference for %M2689
|                                                                                         NONE
|
| AC80                                                                                  << RUNG 184  STEP #0455 >>
|%M0592                                                                %M2809
+--| +-------------------------------------------------------------------( )--  (* PLMS Free loop high/low         *)
|      |                                                                         Cross reference for %M2809
| AC81 |                                                                                 NONE
|%M0593 |
+--| +--|
|      |
| AC82 |
|%M0594 |
+--| +--+
|
|ALW_OFF                                                                                << RUNG 185  STEP #0459 >>
|%S0008                                                                %M2644
+--| +-------------------------------------------------------------------( )--  (* PLMS Surge volt protection      *)
|                                                                                  Cross reference for %M2644
|                                                                                         NONE
|
|ALW_OFF                                                                                << RUNG 186  STEP #0461 >>
|%S0008                                                                %M2707
+--| +-------------------------------------------------------------------( )--  (* PLMS Hydralic switch           *)
|                                                                                  Cross reference for %M2707
|                                                                                         NONE
|
|ALW_OFF                                                                                << RUNG 187  STEP #0463 >>
|%S0008                                                                %M2710
+--| +-------------------------------------------------------------------( )--  (* PLMS Water, low pressure        *)
|                                                                                  Cross reference for %M2710
|                                                                                         NONE
|
| AC50                                                                                  << RUNG 188  STEP #0465 >>
|%M0562                                                                %M2708
+--| +-------------------------------------------------------------------( )--  (* PLMS Oil pressure, lubr.        *)
|      |                                                                         Cross reference for %M2708
| AC51 |                                                                                 NONE
|%M0563 |
+--| +--|
|      |
| AC54 |
|%M0566 |
+--| +--+
|
| AC52                                                                                  << RUNG 189  STEP #0469 >>
|%M0564                                                                %M2709
+--| +-------------------------------------------------------------------( )--  (* PLMS Central lub, low lvl time t *)
|      |                                                                         Cross reference for %M2709
| AC53 |                                                                                 NONE
|%M0565 |
+--| +--+
|
| AC56                                                                                  << RUNG 190  STEP #0472 >>
|%M0568                                                                %M2645
+--| +-------------------------------------------------------------------( )--  (* PLMS Overload                   *)
|                                                                                  Cross reference for %M2645
|                                                                                         NONE
|
| AC57                                                                                  << RUNG 191  STEP #0474 >>
|%M0569                                                                %M2616
+--| +-------------------------------------------------------------------( )--  (* PLMS Sterile doors              *)
|      |                                                                         Cross reference for %M2616
| AC55 |                                                                                 NONE
|%M0567 |
+--| +--|
|      |
| AC86 |
|%M0598 |
+--| +--+
|
```


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```
| AC59                                                                                    << RUNG 192  STEP #0478 >>
|%M0571                                                                        %M2619
+--| +-------------------------------------------------------------------------( )--  (* PLMS Emergency stop active       *)
|      |                                                                                 Cross reference for %M2619
| AC60 |                                                                                           NONE
|%M0572|
+--| +--|
|      |
| AC75 |
|%M0587|
+--| +--+
|
| AC61                                                                                    << RUNG 193  STEP #0482 >>
|%M0573                                                                        %M2620
+--| +-------------------------------------------------------------------------( )--  (* PLMS Door monitor alarm          *)
|      |                                                                                 Cross reference for %M2620
| AC62 |                                                                                           NONE
|%M0574|
+--| +--|
|      |
| AC58 |
|%M0570|
+--| +--|
|      |
| AC77 |
|%M0589|
+--| +--+
|
|ASU_SM                                                                                   << RUNG 194  STEP #0487 >>
|%I0020                                                                        %M2806
+--| +-------------------------------------------------------------------------( )--  (* PLMS Web splice cover open       *)
|                                                                                        Cross reference for %M2806
|                                                                                                  NONE
|
| AC87                                                                                    << RUNG 195  STEP #0489 >>
|%M0599                                                                        %M2807
+--| +-------------------------------------------------------------------------( )--  (* PLMS Web splice des. Sen. Out os *)
|      |                                                                                 Cross reference for %M2807
| AC88 |                                                                                           NONE
|%M0600|
+--| +--|
|      |
| AC79 |
|%M0591|
+--| +--+
|
| AC68                                                                                    << RUNG 196  STEP #0493 >>
|%M0580                                                                        %M2706
+--| +-------------------------------------------------------------------------( )--  (* PLMS Index sensor misread        *)
|                                                                                        Cross reference for %M2706
|                                                                                                  NONE
|
|  SS8    PROD9                                                                           << RUNG 197  STEP #0495 >>
|%M0106  %M1161  %M3017  +-----+                                                %M2691
+--| +-----| +-----|/+---| LT_ |                +-------------------------( )--  (* PLMS alarm                        *)
|                 0064   | INT |                |                                Cross reference for %M2691
|                        |     |                |                                          NONE
|               LVL_SEN  |     |          +-----+|
|               %AI0003-|I1   Q+---------| TMR ++
|                        |     |          |0.10s|
|                        |     |          |     |
|                CONST -|I2    |  CONST -|PV   |
|                +08000 +-----+  +00100 |     |
|                                       +-----+
|                                       DLY8540
|                                       %R8540
|
| AC63                                                                                    << RUNG 198  STEP #0501 >>
|%M0575                                                                        %M2690
+--| +-------------------------------------------------------------------------( )--  (* PLMS Main air pressure           *)
|                                                                                        Cross reference for %M2690
|                                                                                                  NONE
|
|OVR_PRE                                                                                  << RUNG 199  STEP #0503 >>
|%S0011                                                                        %M2641
+--| +-------------------------------------------------------------------------( )--  (* PLMS alarm                        *)
|                                                                                        Cross reference for %M2641
|                                                                                                  NONE
|
|PLC_BAT                                                                                  << RUNG 200  STEP #0505 >>
|%S0014                                                                        %M2643
+--| +-------------------------------------------------------------------------( )--  (* PLMS PLC battery low             *)
|                                                                                        Cross reference for %M2643
|                                                                                                  NONE
|
```


EM1.1TS700012.fm

```
TS_ERR1                                                                 << RUNG 202  STEP #0508 >>
%M1960  +-----+
+--| +---|MOVE_+-
|   |  INT |
|   |      |
S1_3_TS |     |
%R0633 -|IN  Q+-%R0683
|   | LEN |
|   |00001|
|   |     |
|   +-----+
|
%M2714  %M2715  %M2716  %M2717  %M2718  %M2719                         << RUNG 203  STEP #0510 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+--------------------------<+>
 0207    0210    0213    0216    0219    0222

        %M2720  +-----+                                         %M2713  << RUNG 204  STEP #0517 >>
+<+>-------|/+---| BIT_|+-------------------------------------------( )--  (* PLMS alarm                    *)
         0225   |TEST_|¦                                                 Cross reference for %M2713
                | WORD|¦                                                 -] [- 205
                |     ¦¦                                                 -]/[- 206,209,212,215,218,221,225
        %R0683 -|IN  Q++
                | LEN |
                |00001|
                |     |
         CONST -|BIT  |
          00001 +-----+
|
ALM_RST                                                                 << RUNG 205  STEP #0521 >>
%M0005  %M2713  +-----+
+--| +-----| +---| BIT_+-
|   0204    | CLR_|
|           | WORD|
|           |     |
|       %R0683 -|IN   |
|           | LEN |
|           |00001|
|           |     |
|    CONST -|BIT  |
|     00001 +-----+
|
%M2713  %M2715  %M2716  %M2717  %M2718  %M2719                         << RUNG 206  STEP #0524 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+--------------------------<+>
 0204    0210    0213    0216    0219    0222
|
        %M2720  +-----+                                         %M2714  << RUNG 207  STEP #0531 >>
+<+>-------|/+---| BIT_|+-------------------------------------------( )--  (* PLMS alarm                    *)
         0225   |TEST_|¦                                                 Cross reference for %M2714
                | WORD|¦                                                 -] [- 208
                |     ¦¦                                                 -]/[- 203,209,212,215,218,221,224
        %R0683 -|IN  Q++
                | LEN |
                |00001|
                |     |
         CONST -|BIT  |
          00002 +-----+
|
ALM_RST                                                                 << RUNG 208  STEP #0535 >>
%M0005  %M2714  +-----+
+--| +-----| +---| BIT_+-
|   0207    | CLR_|
|           | WORD|
|           |     |
|       %R0683 -|IN   |
|           | LEN |
|           |00001|
|           |     |
|    CONST -|BIT  |
|     00002 +-----+
|
%M2714  %M2713  %M2716  %M2717  %M2718  %M2719                         << RUNG 209  STEP #0538 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+--------------------------<+>
 0207    0204    0213    0216    0219    0222
|
        %M2720  +-----+                                         %M2715  << RUNG 210  STEP #0545 >>
+<+>-------|/+---| BIT_|+-------------------------------------------( )--  (* PLMS alarm                    *)
         0225   |TEST_|¦                                                 Cross reference for %M2715
                | WORD|¦                                                 -] [- 211
                |     ¦¦                                                 -]/[- 203,206,212,215,218,221,224
        %R0683 -|IN  Q++
                | LEN |
                |00001|
                |     |
         CONST -|BIT  |
          00003 +-----+
|
```


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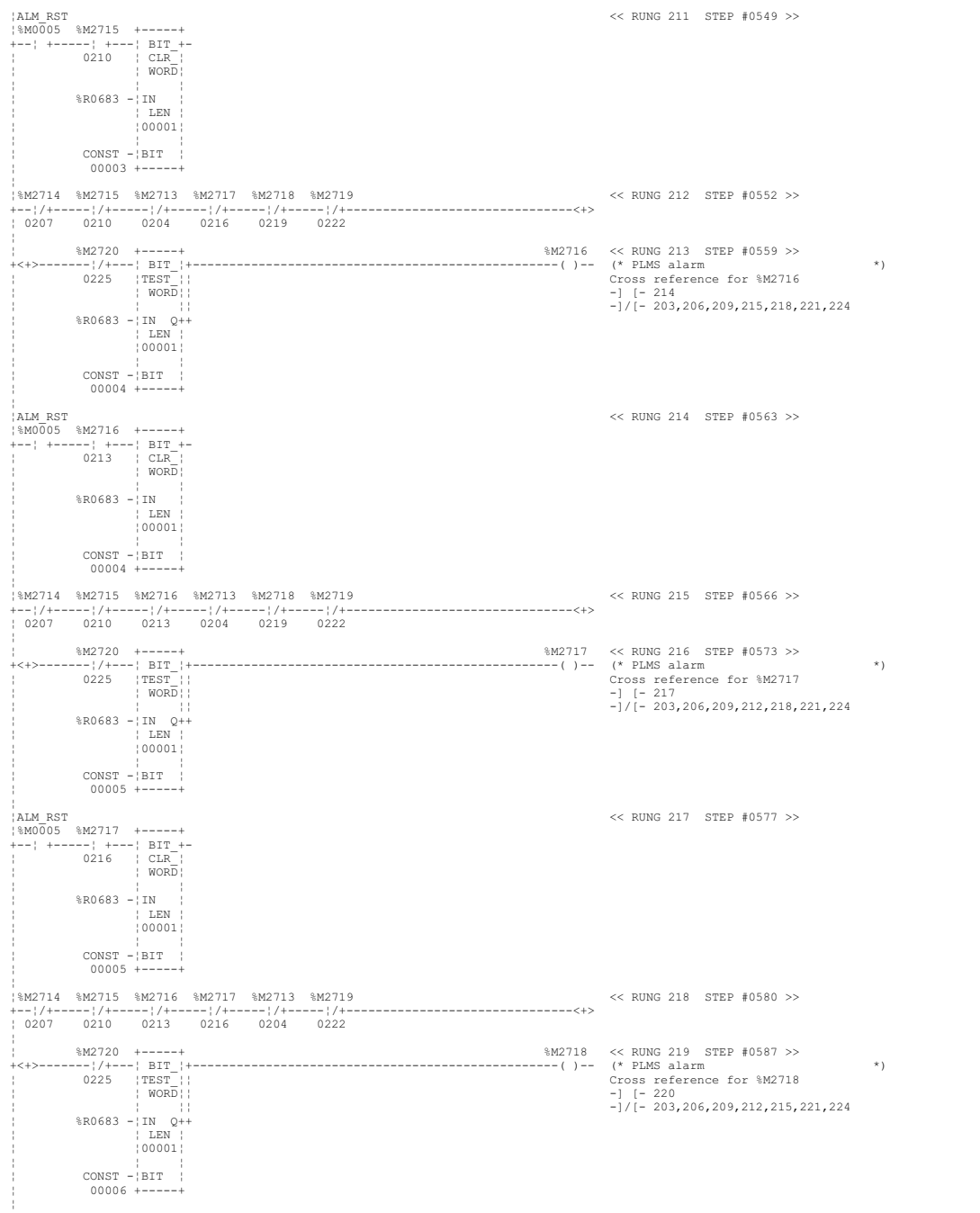

TCA/P1
BLOCK 26 PLMS COMMUNICATION

ECM 122946 DATE: 20021212 SIGN: JNR/TAN DOC.ID: 45282-26:01

EM1.1TS700012.fm

```
¦ALM_RST                                                                  << RUNG 220  STEP #0591 >>
¦%M0005  %M2718  +-----+
+--¦ +-----¦ +---¦ BIT_+-
¦         0219   ¦ CLR_¦
¦                ¦ WORD¦
¦                ¦     ¦
¦        %R0683 -¦IN   ¦
¦                ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦
¦         CONST -¦BIT  ¦
¦          00006 +-----+
¦
¦%M2714  %M2715  %M2716  %M2717  %M2718  %M2713                           << RUNG 221  STEP #0594 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-------------------------------<+>
¦ 0207    0210    0213    0216    0219    0204
¦
¦        %M2720  +-----+                                        %M2719   << RUNG 222  STEP #0601 >>
+<+>-------¦/+---¦ BIT_¦+-------------------------------------------( )--  (* PLMS alarm                    *)
¦         0225   ¦TEST_¦¦                                                Cross reference for %M2719
¦                ¦ WORD¦¦                                               -] [- 223
¦                ¦     ¦¦                                               -]/[- 203,206,209,212,215,218,224
¦        %R0683 -¦IN  Q++
¦                ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦
¦         CONST -¦BIT  ¦
¦          00007 +-----+
¦
¦ALM_RST                                                                  << RUNG 223  STEP #0605 >>
¦%M0005  %M2719  +-----+
+--¦ +-----¦ +---¦ BIT_+-
¦         0222   ¦ CLR_¦
¦                ¦ WORD¦
¦                ¦     ¦
¦        %R0683 -¦IN   ¦
¦                ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦
¦         CONST -¦BIT  ¦
¦          00007 +-----+
¦
¦%M2714  %M2715  %M2716  %M2717  %M2718  %M2719                           << RUNG 224  STEP #0608 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-------------------------------<+>
¦ 0207    0210    0213    0216    0219    0222
¦
¦        %M2713  +-----+                                        %M2720   << RUNG 225  STEP #0615 >>
+<+>-------¦/+---¦ BIT_¦+-------------------------------------------( )--  (* PLMS alarm                    *)
¦         0204   ¦TEST_¦¦                                                Cross reference for %M2720
¦                ¦ WORD¦¦                                               -] [- 226
¦                ¦     ¦¦                                               -]/[- 204,207,210,213,216,219,222
¦        %R0683 -¦IN  Q++
¦                ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦
¦         CONST -¦BIT  ¦
¦          00008 +-----+
¦
¦ALM_RST                                                                  << RUNG 226  STEP #0619 >>
¦%M0005  %M2720  +-----+
+--¦ +-----¦ +---¦ BIT_+-
¦         0225   ¦ CLR_¦
¦                ¦ WORD¦
¦                ¦     ¦
¦        %R0683 -¦IN   ¦
¦                ¦ LEN ¦
¦                ¦00001¦
¦                ¦     ¦
¦         CONST -¦BIT  ¦
¦          00008 +-----+
¦
¦TSTEMP1                                                                  << RUNG 227  STEP #0622 >>
¦%M1963                                                          %M2711
+--¦ +-------------------------------------------------------------( )--  (* PLMS alarm                    *)
¦                                                                         Cross reference for %M2711
¦                                                                                NONE
¦
¦TS_ERR2                                                                  << RUNG 229  STEP #0625 >>
¦%M1961  +-----+
+--¦ +---¦MOVE_+-
¦        ¦ INT ¦
¦        ¦     ¦
¦S2_3_TS ¦     ¦
¦%R0636 -¦IN  Q+-%R0684
¦        ¦ LEN ¦
¦        ¦00001¦
¦        ¦     ¦
¦        +-----+
¦
```


EM1.1TS700012.fm

```
|%M2722  %M2723  %M2724  %M2725  %M2726  %M2727                                  << RUNG 230  STEP #0627 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------------------------------<+>
| 0234    0237    0240    0243    0246    0249
|
|        %M2728  +-----+                                          %M2721   << RUNG 231  STEP #0634 >>
+<+>------|/+---| BIT_|+-----------------------------------------( )--  (* PLMS alarm                        *)
|         0252   |TEST_||                                                 Cross reference for %M2721
|                | WORD||                                                 -] [- 232
|                |     ||                                                 -]/[- 233,236,239,242,245,248,252
|        %R0684 -|IN  Q++
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00001 +-----+
|
|ALM_RST                                                                  << RUNG 232  STEP #0638 >>
|%M0005  %M2721  +-----+
+--| +-----| +---| BIT_+-
|         0231   | CLR_|
|                | WORD|
|                |     |
|        %R0684 -|IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00001 +-----+
|
|%M2721  %M2723  %M2724  %M2725  %M2726  %M2727                                  << RUNG 233  STEP #0641 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------------------------------<+>
| 0231    0237    0240    0243    0246    0249
|
|        %M2728  +-----+                                          %M2722   << RUNG 234  STEP #0648 >>
+<+>------|/+---| BIT_|+-----------------------------------------( )--  (* PLMS alarm                        *)
|         0252   |TEST_||                                                 Cross reference for %M2722
|                | WORD||                                                 -] [- 235
|                |     ||                                                 -]/[- 230,236,239,242,245,248,251
|        %R0684 -|IN  Q++
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00002 +-----+
|
|ALM_RST                                                                  << RUNG 235  STEP #0652 >>
|%M0005  %M2722  +-----+
+--| +-----| +---| BIT_+-
|         0234   | CLR_|
|                | WORD|
|                |     |
|        %R0684 -|IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00002 +-----+
|
|%M2722  %M2721  %M2724  %M2725  %M2726  %M2727                                  << RUNG 236  STEP #0655 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------------------------------<+>
| 0234    0231    0240    0243    0246    0249
|
|        %M2728  +-----+                                          %M2723   << RUNG 237  STEP #0662 >>
+<+>------|/+---| BIT_|+-----------------------------------------( )--  (* PLMS alarm                        *)
|         0252   |TEST_||                                                 Cross reference for %M2723
|                | WORD||                                                 -] [- 238
|                |     ||                                                 -]/[- 230,233,239,242,245,248,251
|        %R0684 -|IN  Q++
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00003 +-----+
|
|ALM_RST                                                                  << RUNG 238  STEP #0666 >>
|%M0005  %M2723  +-----+
+--| +-----| +---| BIT_+-
|         0237   | CLR_|
|                | WORD|
|                |     |
|        %R0684 -|IN   |
|                | LEN |
|                |00001|
|                |     |
|         CONST -|BIT  |
|          00003 +-----+
|
|%M2722  %M2723  %M2721  %M2725  %M2726  %M2727                                  << RUNG 239  STEP #0669 >>
+--|/+-----|/+-----|/+-----|/+-----|/+-----|/+-------------------------------<+>
| 0234    0237    0231    0243    0246    0249
|
```


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```
|        %M2728  +-----+                                                %M2724   << RUNG 240  STEP #0676 >>
+<+>-------¦/+---¦ BIT_¦+-----------------------------------------------( )--  (* PLMS alarm                        *)
|         0252   ¦TEST_¦¦                                                      Cross reference for %M2724
|                ¦ WORD¦¦                                                     -] [- 241
|                ¦     ¦¦                                                     -]/[- 230,233,236,242,245,248,251
|        %R0684 -¦IN  Q++
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00004 +-----+
|
¦ALM_RST                                                                     << RUNG 241  STEP #0680 >>
¦%M0005  %M2724  +-----+
+--¦ +-----¦ +---¦ BIT_+-
|         0240   ¦ CLR_¦
|                ¦ WORD¦
|                ¦     ¦
|        %R0684 -¦IN   ¦
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00004 +-----+
|
¦%M2722  %M2723  %M2724  %M2721  %M2726  %M2727                             << RUNG 242  STEP #0683 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-------------------------------<+>
¦ 0234    0237    0240    0231    0246    0249
|
|        %M2728  +-----+                                                %M2725   << RUNG 243  STEP #0690 >>
+<+>-------¦/+---¦ BIT_¦+-----------------------------------------------( )--  (* PLMS alarm                        *)
|         0252   ¦TEST_¦¦                                                      Cross reference for %M2725
|                ¦ WORD¦¦                                                     -] [- 244
|                ¦     ¦¦                                                     -]/[- 230,233,236,239,245,248,251
|        %R0684 -¦IN  Q++
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00005 +-----+
|
¦ALM_RST                                                                     << RUNG 244  STEP #0694 >>
¦%M0005  %M2725  +-----+
+--¦ +-----¦ +---¦ BIT_+-
|         0243   ¦ CLR_¦
|                ¦ WORD¦
|                ¦     ¦
|        %R0684 -¦IN   ¦
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00005 +-----+
|
¦%M2722  %M2723  %M2724  %M2725  %M2721  %M2727                             << RUNG 245  STEP #0697 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-------------------------------<+>
¦ 0234    0237    0240    0243    0231    0249
|
|        %M2728  +-----+                                                %M2726   << RUNG 246  STEP #0704 >>
+<+>-------¦/+---¦ BIT_¦+-----------------------------------------------( )--  (* PLMS alarm                        *)
|         0252   ¦TEST_¦¦                                                      Cross reference for %M2726
|                ¦ WORD¦¦                                                     -] [- 247
|                ¦     ¦¦                                                     -]/[- 230,233,236,239,242,248,251
|        %R0684 -¦IN  Q++
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00006 +-----+
|
¦ALM_RST                                                                     << RUNG 247  STEP #0708 >>
¦%M0005  %M2726  +-----+
+--¦ +-----¦ +---¦ BIT_+-
|         0246   ¦ CLR_¦
|                ¦ WORD¦
|                ¦     ¦
|        %R0684 -¦IN   ¦
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00006 +-----+
|
¦%M2722  %M2723  %M2724  %M2725  %M2726  %M2721                             << RUNG 248  STEP #0711 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+-------------------------------<+>
¦ 0234    0237    0240    0243    0246    0231
|
```


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```
|        %M2728  +-----+                                          %M2727   << RUNG 249  STEP #0718 >>
+<+>-------¦/+---¦ BIT_¦+-----------------------------------------( )--  (* PLMS alarm                        *)
|         0252   ¦TEST_¦¦                                                 Cross reference for %M2727
|                ¦ WORD¦¦                                                 -] [- 250
|                ¦     ¦¦                                                 -]/[- 230,233,236,239,242,245,251
|        %R0684 -¦IN  Q++
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00007 +-----+
|
¦ALM_RST                                                                 << RUNG 250  STEP #0722 >>
¦%M0005  %M2727  +-----+
+--¦ +-----¦ +---¦ BIT_+-
|         0249   ¦ CLR_¦
|                ¦ WORD¦
|                ¦     ¦
|        %R0684 -¦IN   ¦
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00007 +-----+
|
¦%M2722  %M2723  %M2724  %M2725  %M2726  %M2727                         << RUNG 251  STEP #0725 >>
+--¦/+-----¦/+-----¦/+-----¦/+-----¦/+-----¦/+--------------------------<+>
¦ 0234    0237    0240    0243    0246    0249
|
|        %M2721  +-----+                                          %M2728   << RUNG 252  STEP #0732 >>
+<+>-------¦/+---¦ BIT_¦+-----------------------------------------( )--  (* PLMS alarm                        *)
|         0231   ¦TEST_¦¦                                                 Cross reference for %M2728
|                ¦ WORD¦¦                                                 -] [- 253
|                ¦     ¦¦                                                 -]/[- 231,234,237,240,243,246,249
|        %R0684 -¦IN  Q++
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00008 +-----+
|
¦ALM_RST                                                                 << RUNG 253  STEP #0736 >>
¦%M0005  %M2728  +-----+
+--¦ +-----¦ +---¦ BIT_+-
|         0252   ¦ CLR_¦
|                ¦ WORD¦
|                ¦     ¦
|        %R0684 -¦IN   ¦
|                ¦ LEN ¦
|                ¦00001¦
|                ¦     ¦
|         CONST -¦BIT  ¦
|          00008 +-----+
|
¦TSTEMP2                                                                 << RUNG 254  STEP #0739 >>
¦%M1964                                                          %M2712
+--¦ +-----------------------------------------------------------( )--  (* PLMS alarm                        *)
|                                                                        Cross reference for %M2712
|                                                                                  NONE
|
| (*************************************************************************)
| (* Move alarms to PLMS                                                  *)
| (*************************************************************************)
|
¦ALW_ON                                                                  << RUNG 256  STEP #0742 >>
¦%S0007  +-----+
+--¦ +---¦MOVE_+-
|         ¦ WORD¦
|         ¦     ¦
¦%M2609 -¦IN  Q+-%R8341
|         ¦ LEN ¦
|         ¦00018¦
|         ¦     ¦
|         +-----+
|
¦[    END OF SUBROUTINE LOGIC     ]
¦
```


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Tetra Pak

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