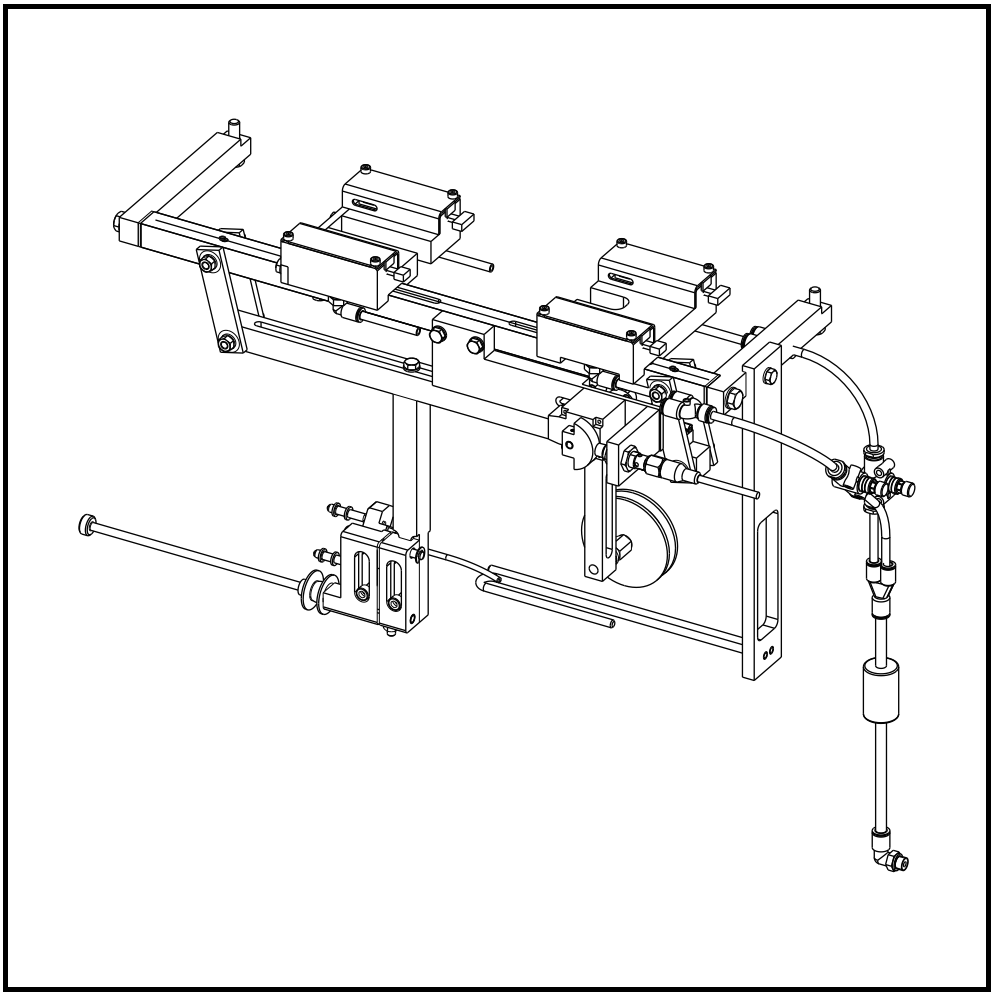
OM

Operation Manual

OK Strip Position Control

3119425-0100

Tetra Pak A3/Compact Flex 0100



WARNING

Read and follow all safety precaution instructions throughout this manual and on safety signs attached to this equipment.

Failure to follow all safety precaution instructions could result in death or serious injury.

Tetra Pak

Doc. No. OM-3191368-0101

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The content of this manual is in accordance with the design and construction of the machine or equipment at the time of publishing. Tetra Pak reserves the right to introduce design modifications without prior notice.

The English language version of this document contains the original instructions. All other language versions are translations of the original instructions.

This document was produced by:

Nihon Tetra Pak K.K.
755-1, Jimba Uenohara
412-0047 Gotemba, Shizuoka
Japan

Additional copies can be ordered from Tetra Pak. When ordering additional copies, always provide the document number.

Doc. No. OM-3191368-0101

Issue 2012-04

This manual is valid for:

Series No. / Machine no. Sign.

OM
Operation Manual

i Introduction
ii Safety Precautions
1 General Description
2 Control Panels
3 Preparation
4 Start
5 Checks
6 Stop
7 Care and Cleaning

OK Strip Position Control 3119425-0100

Machine or equipment configurations that this manual is valid for are described on the next page.

Doc. No. OM-3191368-0101
Issue 2012-04

Tetra Pak
Nihon Tetra Pak K.K.

Valid for:

Name	Drawing Specification and Development Step	Additional Information
Tetra Pak A3/Compact Flex	641550-0100	-

Update Log for Doc. No. OM-3191368-0101

This table shows all changes made to this manual, including installed rebuilding kits, added or removed pages. Page numbering on added pages begins with UP.

Date	Installed Kit	Added Pages (Doc. No.)	Removed Pages	Signature

Date	Installed Kit	Added Pages (Doc. No.)	Removed Pages	Signature

i Introduction

About the Introduction Chapter

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

About the Introduction Chapter i-2

Abbreviations and Terminology i-5

Manual Information i-6

Delivered Manuals i-6

OM i-6

TeM i-6

UP i-6

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Manufacturer i-9

Hygiene i-10

Packaging Material i-10

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Purpose of the OM i-11

Operator Workflow i-11

Support and Feedback i-12

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Abbreviations and Terminology

Abbreviation/Terminology	Meaning	Translation
MM	Maintenance Manual	Maintenance Manual
OM	Operation Manual	Operation Manual
SPC	Spare Parts Catalogue	Spare Parts Catalogue
SPC	Strip Position Control	Strip Position Control
TeM	Technical Manual	Technical Manual
TPOP	Tetra Pak Operator Panel	Tetra Pak Operator Panel
UP	Update Pages	Update Pages

Manual Information

Tetra Pak recommends reading all delivered manuals carefully. Make sure that the delivered manuals are available to personnel who operate or maintain the equipment.

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

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

Delivered Manuals

Manuals delivered with this equipment:

OM

The Operation Manual provides the operator with information on handling and operating the equipment before, during, and after production.

TeM

The Technical Manual provides technicians with information which can be:

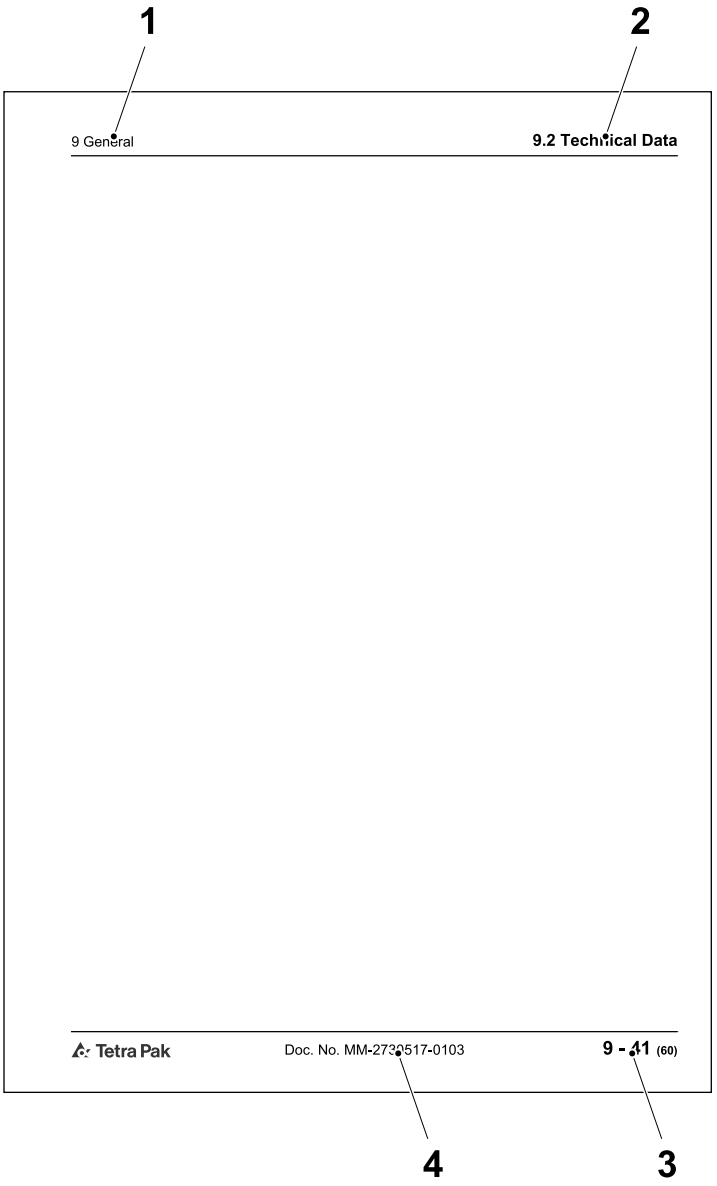
- information required to safely install the equipment
- information required to maintaining the equipment
- information about the machine's/equipment's electrical system
- information necessary to order spare parts from Tetra Pak
- other technical information

UP

The Update Pages provides new pages to update existing machine manuals.

Page Layout

Every main page in a manual contains a header and a footer. The page header contains the chapter name (1) and the section name (2). The page footer contains the page number (3), and the document number (4). See also the Page Numbering section.



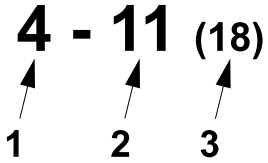
1 Chapter name
2 Section name
3 Page number
4 Document number

Page Numbering

A page number has three parts:

- chapter number (1)
- consecutive page number (2) within the chapter
- total number of pages (3) in the chapter

Note! The letters UP may replace the chapter number (1) if the manual includes update pages. The consecutive page number (2) and the total number of pages (3) of update pages do not follow the existing sequential page numbering of the chapter.



1 Chapter number
2 Consecutive page number
3 Total number of pages

Typographical Conventions

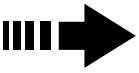
Controls on the operator panel, emergency stop devices, and program steps are printed in CAPITAL LETTERS.

Menu names, button names and other text displayed in software are printed in COURIER.

Cross-references are underlined.

Symbols

Symbols used in illustrations.

	A pointer arrow indicates the position of an object.
	A zoom arrow indicates that an object view is enlarged. The arrow points towards the enlarged view of the object.
	A rotation movement arrow indicates rotational movement of an object. The arrow points in the direction of rotation.
	A straight movement arrow indicates movement of an object. The arrow points in the direction of movement.

Machine Introduction

Intended Use of the Equipment

The intended use of this Tetra Pak equipment is to control the strip position during production..

All other use is prohibited. Tetra Pak will not be held responsible for injury or damage if the equipment is used for any other purpose than the intended use described above.

Manufacturer

This Tetra Pak equipment has been manufactured by

Nihon Tetra Pak K.K.
755-1, Jimba Uenohara
412-0047 Gotemba, Shizuoka
Japan

Hygiene

Packaging Material

Avoid microbiological contamination of the packaging material:

- Always protect your packaging material against contamination.
- Always keep the doors to the filling room (area) closed. To prevent contamination via air streams, never open a window when the machine is in production.
- Never clean the floors or the machine in the filling room (area) when the machine 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 your hands before touching anything that may come into contact with the product. Use code H disinfectant. See the Technical Data chapter of the Maintenance Manual.
- Keep your hands 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 exposed jewellery.

How to Use This OM

Purpose of the OM

The Operation Manual provides operators with information on handling and operating the equipment before, during, and after production.

Operator Workflow

Beginning with Chapter 3, the content is structured to follow the operator workflow, as described below.

Preparation Cycle

a) Preparation

Production Cycle

b) Start

c) Checks

d) Supply of Materials

e) Conversion

f) Change of Product

g) Stop

Care Cycle

h) Care and Cleaning

Support and Feedback

For assistance when operating this equipment, or other inquiries, comments, or suggestions, pose the questions or give feedback on the E-Liaison home page at http://e-liaison.tetrapak.com. If access to the Tetra Pak intranet is not available, contact the nearest Tetra Pak representative.

ii Safety Precautions

Description

Safety Precaution Instructions

WARNING

Read and understand this manual before using the machine.
Failure to follow safety precautions and instructions can result in death or serious injury.

Definition of Lockout Procedure

A lockout procedure is a procedure to put each necessary energy isolating device in its safe position to prevent the energisation of the equipment, such as when a maintenance procedure should be carried out.

A lockout is the use of a device, for example, a padlock, to make sure that an energy isolating device cannot be operated.

An energy isolating device is a mechanical device that physically prevents transmission or release of energy, such as an electrical supply disconnecting device.

Description ii-2

Safety Messages Description ii-5

Personnel Requirements ii-6

Skilled Person ii-6

Instructed Person ii-6

Protective Devices ii-7

Emergency Stop ii-7

Emergency Stop Buttons ii-7

Safeguards ii-7

Indicating Tower ii-9

Audible Alarm ii-9

Safe Manual Handling ii-10

Personal Protection ii-11

Noise ii-11

Entanglement ii-11

Supply Systems ii-12

Power Supply ii-12

Residual Voltage ii-13

Electrical Cabinet ii-13

Socket Outlet ii-14

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Safety Messages Description

A safety message is always accompanied by a safety alert symbol and a signal word.

The safety alert symbol is used to alert about potential personal injury hazards. To avoid hazards, obey all safety messages that follow this symbol.

The following safety alert symbols and signal words are used in this manual to inform the user of hazards.

⚠ **DANGER**	Danger indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**.
⚠ **WARNING**	Warning indicates a potentially hazardous situation which, if not avoided, **could** result in **death or serious injury**.
⚠ **CAUTION**	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.
CAUTION	Caution without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **may** result in **property damage**.

Personnel Requirements

Note! Personnel includes all persons working on or near this equipment.

Only skilled or instructed persons are allowed to work with this equipment.

Skilled Person

A skilled person must have relevant education and experience to enable him or her to identify hazards, analyse risks, and avoid hazards which electricity, machinery, chemicals, other energies, and supply systems on this equipment can create.

Skilled persons must meet local regulations, such as certifications and qualifications for working with these energies and systems.

Instructed Person

An instructed person must be adequately advised or supervised by a skilled person. The skilled person enables the instructed person to identify hazards, analyse risks, and avoid hazards which electricity, machinery, chemicals, other energies, and supply systems on this equipment can create.

Protective Devices

There are different kinds of protective device designed to ensure safe use of the equipment. See the sections below.

WARNING
Hazardous zones.
Hazardous zones are safeguarded and provided with protective devices. Do not inch or run this equipment if any protective device is inoperative.

Change inoperative components of the safety system immediately.

For the locations of safeguards and/or other protective devices not mentioned in this section, see the Maintenance Manual.

DANGER
Hazardous voltage.
Will shock, burn, or cause death.
Hazardous voltage remains ON after activating an EMERGENCY STOP.

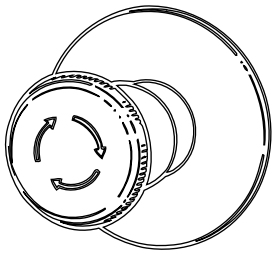
Emergency Stop

Emergency stop devices are used to stop this equipment immediately in an hazardous situation. Learn the positions of all emergency stop devices and how to use them.

Instructions for a normal production stop are included in the Stop chapter of the Operation Manual.

Emergency Stop Buttons

Push one of the EMERGENCY STOP of the filling machine to stop this equipment immediately.



Safeguards

WARNING
Moving machinery parts.
Never defeat or bypass the interlocking devices.

Movable guards, for example, doors and covers leading to hazardous zones, are fitted with interlocking devices where required. These devices are usually electric safety switches that are parts of the safety system and must never be defeated, bypassed, or otherwise made inoperative.

(Cont'd)

(Cont'd)

Where movable guards (doors) are equipped with means to be locked in a nonclosed position, any person with the intention to preside, for any reason, behind such a guard must lock the guard in the nonclosed position by use of a padlock.

Note! For work on the electrical equipment, the electrical power must also be disconnected.

CAUTION
Corners and edges.
Close the doors, guards, or parts of the equipment unless they must be open during work.

CAUTION
Burn hazard.
Parts of the equipment protected by guards may be hot after operation. Allow components to cool down or use personal protective equipment.

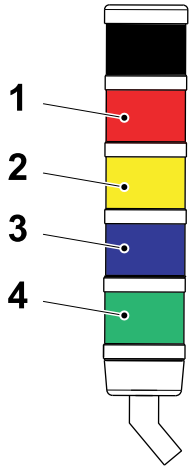
After installation and maintenance, and before this equipment is inched or run, check that all safeguards are in place and that they operate correctly.

CAUTION
Equipment damage.
The equipment can be damaged if it is not stopped in the correct way. Never stop this equipment by opening a movable guard, for example, a door or cover, equipped with an interlocking device.

Indicating Tower

An indicating tower is a column of warning lights:

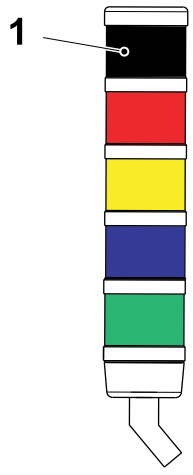
- A red light (1) indicates a hazardous condition. This is a situation that requires immediate action.
- A yellow light (2) indicates an abnormal or impending critical condition. This is a condition calling for action by the operator.
- A blue light (3) indicates that operator action is required.
- A green light (4) indicates a normal condition.



1 Red light
2 Yellow light
3 Blue light
4 Green light

Audible Alarm

The audible alarm (1) produces a warning signal every time this equipment is about to start. The warning signal sounds for approximately three seconds prior to starting to alert personnel.



1 Audible alarm

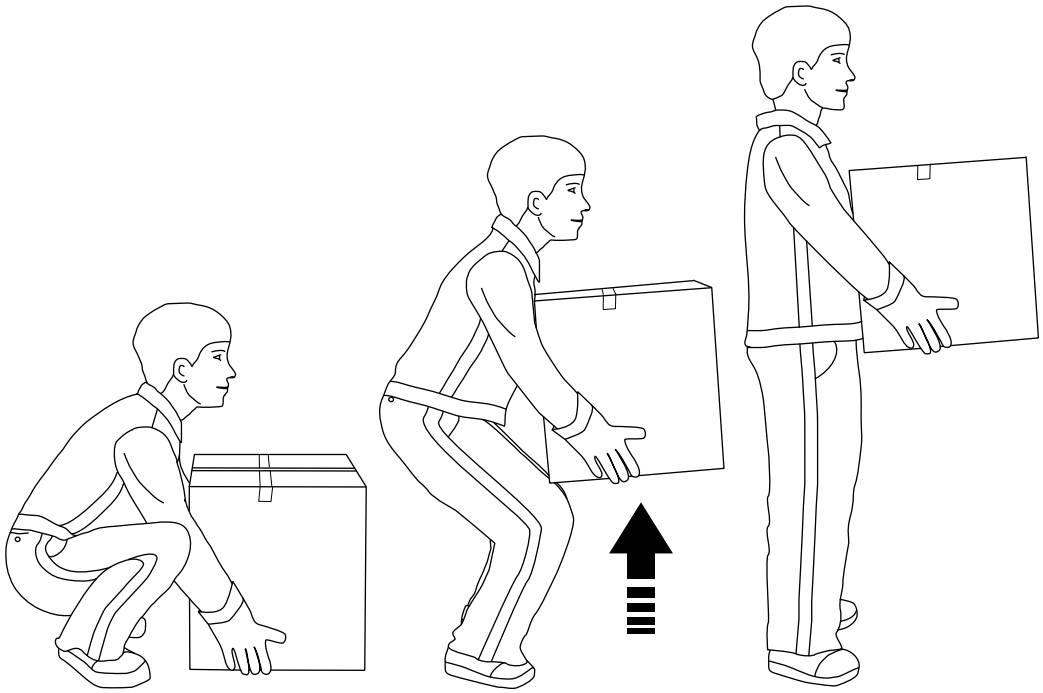
Safe Manual Handling

Use mechanical lifting aids whenever possible. If mechanical lifting aids are not available, do not attempt to lift loads over 23 kg without the assistance of a colleague. Avoid lifting below knee height and above shoulder height. If it is necessary to lift from the floor, follow the instructions below to reduce the risk of back and disc injuries.

- Use safety shoes and be sure that the surface of the floor is not slippery.
- Get close to the load.
- Take a wide stance and find the best positions for your feet.
- Bend your hips and knees, and use your leg muscles.
- Keep the load close to your body.
- Do not twist your body while moving the load.
- Take small steps when turning.

In order to reduce the risk of injury to discs and back muscles, be careful to not bend or twist your back when lifting. Keep the load close to your body to reduce the strain on your back.

To reduce the ergonomic risks to each individual operator, job rotation is recommended, so that recovery and variety are provided.



Personal Protection

This section applies to all personnel at all times when this equipment is in operation. For special personal protective equipment required when handling hazardous substances, see the section.

Noise

WARNING
Hazardous noise.
Can cause impaired hearing.
Wear hearing protection whenever this equipment is in operation.

CAUTION
Hazardous noise.
May cause impaired hearing.
Hearing protection is recommended whenever this equipment is in operation.

Entanglement

WARNING
Risk of entanglement.
Do not wear jewellery or loose clothing when working on or near this equipment. Restrain long hair with, for example, clips or rubber bands.

Supply Systems

Power Supply

DANGER

Hazardous voltage and moving machinery.
The electrical supply disconnecting device must be turned off and secured with a lock before any maintenance.

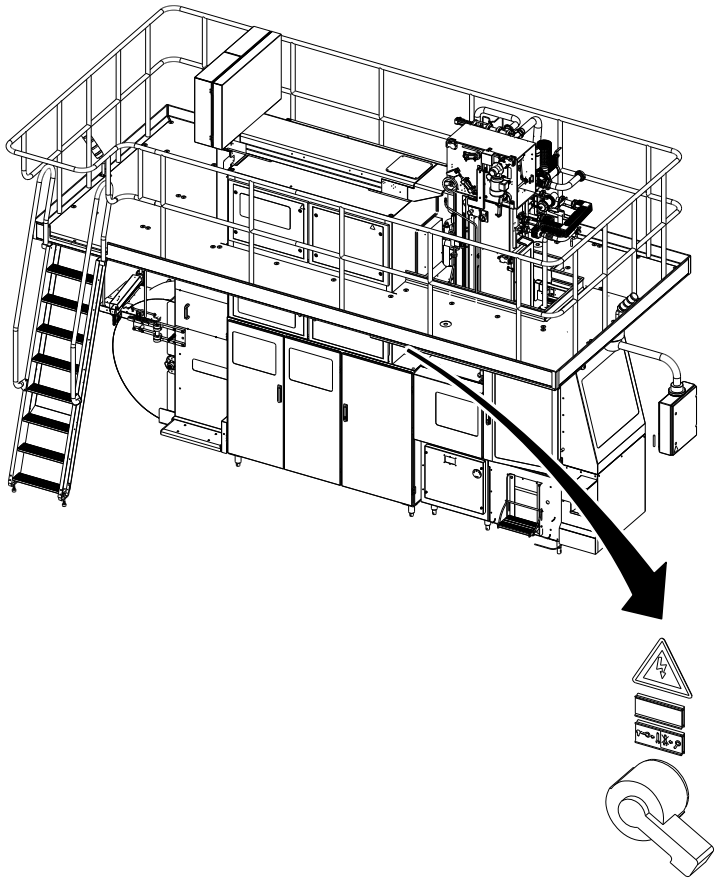
Note! The key to the lock must be removed by the technician and retained in his/her possession until all work is completed.

DANGER

Hazardous voltage can be present with the power supply switched off.
Circuits identified by orange-coloured conductors are not disconnected by the main electrical supply disconnecting device. The location of the electrical supply disconnecting device of these circuits is described in the Maintenance Manual procedures that include work on these types of circuit.

Certain maintenance procedures may require power supply systems to be on. These exceptions are clearly stated in the Maintenance Manual.

The illustrations show the electrical supply disconnecting device and its location.



Residual Voltage

DANGER

Hazardous voltage.
Will shock, burn, or cause death.
After the electrical supply disconnecting device is turned off, residual voltage remains in the capacitor circuits. Wait five minutes before opening the enclosure containing these circuits. Ensure that no residual voltage remains on the capacitors before touching them.

Electrical Cabinet

DANGER

Hazardous voltage.
Will shock, burn, or cause death.
Parts behind doors to electrical enclosures may be live. The electrical supply disconnecting device must be turned off and secured with a lock before maintenance inside the electrical cabinet.

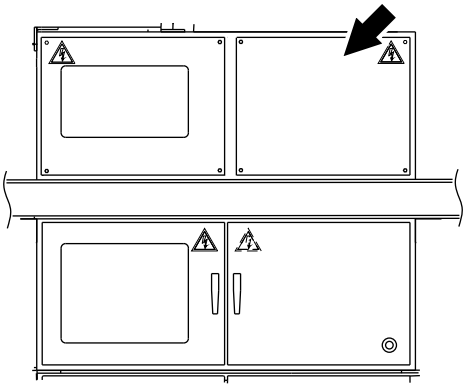
Note! The key to the lock must be removed by the technician and retained in his/her possession until all work is completed.

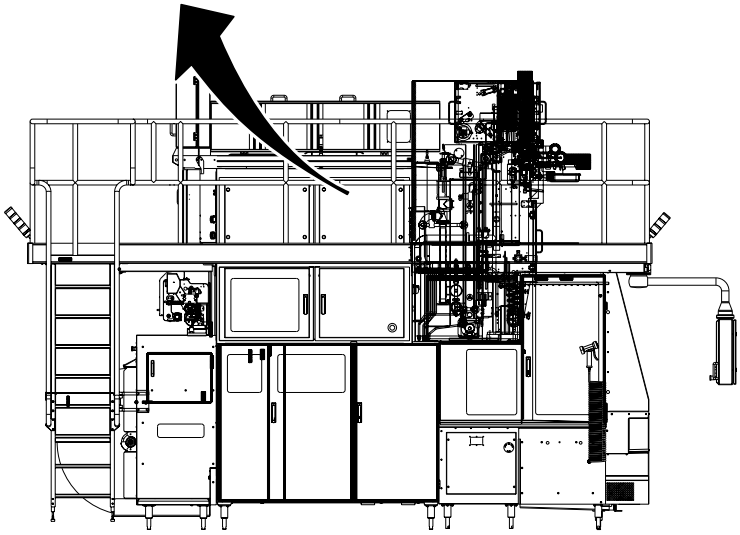
Make sure that the electrical cabinet doors are closed after working inside the electrical cabinet. Doors with locks must be locked.

(Cont'd)

(Cont'd)

The location of each electrical cabinet is shown by an arrow.





Socket Outlet

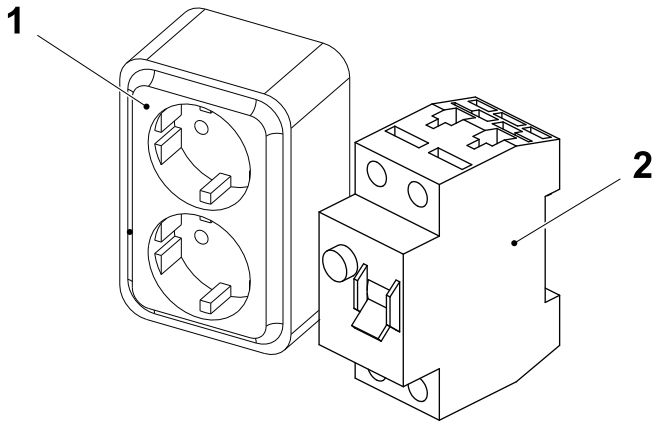
WARNING
Hazardous voltage.
Can shock, burn, or cause death.
Read the Maintenance Manual before using this socket outlet.

(Cont'd)

(Cont'd)

The socket outlet (1) is connected to a residual current device (2) to protect users against electrical shock if there is an earth fault in the connected equipment. The residual current device must be tested each time before the socket outlet is being used. See the MM for test procedure.

The illustrations show the socket outlet, the residual current device, and their locations.



1 Socket outlet
2 Residual current device

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1 General Description

Description

This chapter describes the main parts of the machine and the terminology.

CAUTION

Risk of personal injury or damage to the equipment.
To ensure maximum safety, always read this section and the Safety Precautions carefully before doing any work on the equipment or making any adjustments.

Description 1-2

1.1 Functional Description 1-5

1.2 Main Groups of Equipment 1-6

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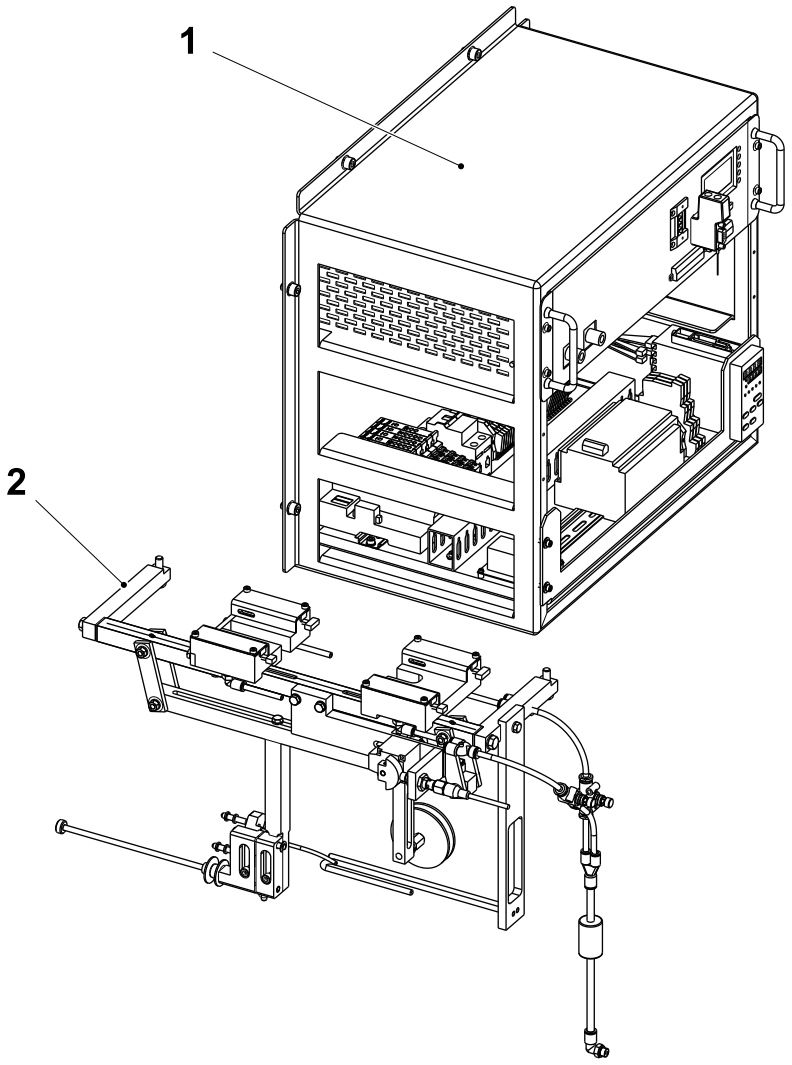
1.1 Functional Description

This rebuilding kit controls the strip position to keep the specification limit, and detects a defected part and sends a signal to the filling machine to discharge the package out of the specification.

1.2 Main Groups of Equipment

This rebuilding kit consists a controller, a sensor unit and TPOP panel.

The controller (1) is located in the electric cabinet of the filling machine, the sensor unit (2) is located in the strip applicator and TPOP panel (3) is located in the control panel.



1 Controller
2 Sensor unit
3 TPOP panel

2 Control Panels

Description

This chapter describes how to navigate through the TPOP, what to do when alarms occur and how to make machine settings.

CAUTION
Risk of damage to the equipment.
This chapter contains instructions for making machine settings. These settings must only be performed by a trained operator.

Description 2-2

2.1 Control Panel 2-5

2.1.1 SPC Operation Window 2-5

2.1.1.1 Operation Buttons 2-7

SPC button 2-7

SPC status display 2-7

Automatic operation button 2-7

Monitor operation button 2-7

Manual operation button 2-7

SPC Disable button/SPC Enable button 2-8

Alarm reset button 2-8

Feed wide button 2-8

Feed narrow button 2-8

Centre adjustment button 2-9

Home position button 2-9

Strip position current value 2-9

Trend button 2-9

Discharged pack counter 2-10

Discharged package packs/min 2-10

Counter reset button 2-10

Exit button 2-10

2.1.1.2 SPC Button Status 2-11

2.1.2 Sensor Controller 2-12

2.1.2.1 Displays and Keys 2-13

Display unit 1 2-13

Display unit 2 2-13

Status display LED 2-14

DISP key 2-14

Down key 2-14

Up key 2-14
PARA key 2-15
RUN key 2-15
ENT key 2-15

2.2 Alarm System 2-16
2.2.1 Position Error 2-17
Indication 2-17
Pack check 2-17
Alarm reset 2-17
2.2.2 System Error 2-18
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Filling machine stop 2-18
Too many package discharge alarm 2-19
Alarm reset 2-19
2.2.3 Error code of Sensor Controller 2-20
2.2.4 Sensor Controller Trouble Shooting 2-21

2.1 Control Panel

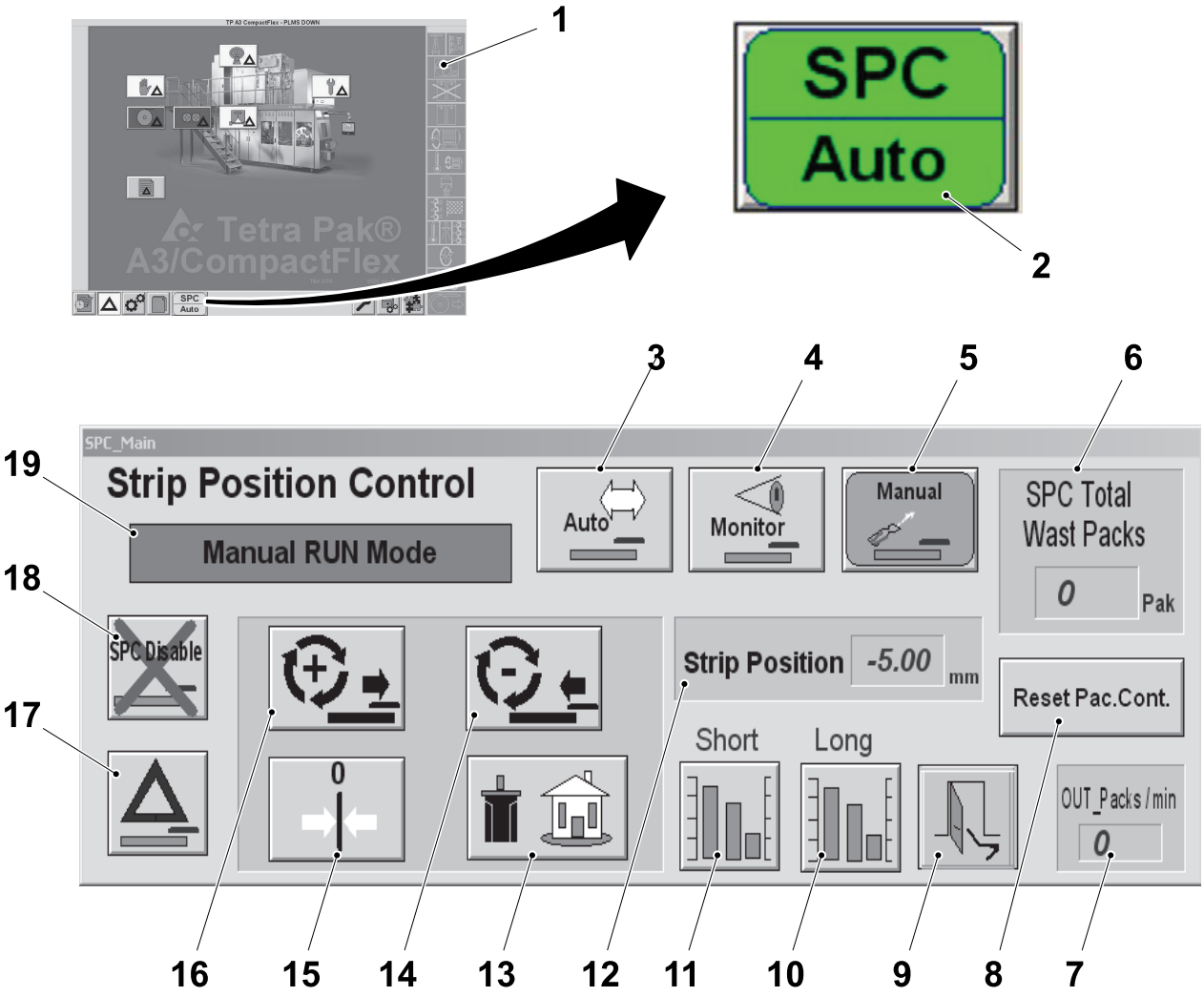
2.1.1 SPC Operation Window

SPC operation window is shown by touching the SPC button (2) on the button bar of the TPOP home (1).

All the SPC settings are accessible through this window.

(Cont'd)

(Cont'd)



1 TPOP home
2 SPC button
3 Automatic operation button
4 Monitor operation button
5 Manual operation button
6 Discharged pack counter
7 Discharged packs/min
8 Counter reset button
9 Exit button
10 Trend button (Long)
11 Trend button (short)
12 Strip position current value
13 Home position button
14 Feed narrow button
15 Centre adjustment button
16 Feed wide button
17 Alarm reset button
18 SPC disable button/SPC enable button
19 SPC status display

2.1.1.1 Operation Buttons



SPC button

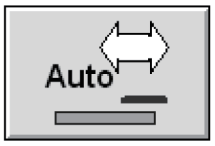
This button is to access SPC window.

`SPC` button indicates the status of the operation.



SPC status display

`SPC status display` indicates the status of the SPC operation.



Automatic operation button

This button is to set Automatic operation.

The strip is fixed during the operations below.

- high speed inching
- tube sealing
- production

The functions below are activated.

- position error
- system error



Monitor operation button

This button is to set monitor operation.

The strip position control function is stopped.

The functions below are activated.

- position error
- system error

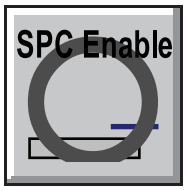


Manual operation button

This button is to set manual operation.

The both functions such as strip position control and position error are stopped.



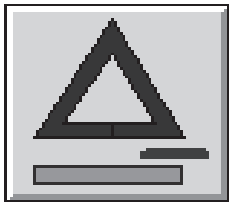


SPC Disable button/SPC Enable button

SPC system can be turn on or off by choosing these two buttons.

Touch and hold `SPC Disable` button for one second or more to disconnect SPC from the filling machine system.

Touch and hold `SPC Enable` button for one second or more to connect SPC to the filling machine system.



Alarm reset button

This button is to reset the alarm on SPC Operation window to turn off the alarm indicator.



Feed wide button

This button is to make the feeding distance wider for 0.1 mm per a touch to the strip LS side.

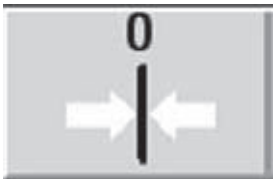
Note! This function is available during Manual Operation.



Feed narrow button

This button is to make the feeding distance narrower for 0.1 mm per a touch to the strip LS side.

Note! This function is available during Manual Operation.



Centre adjustment button

This button is to reset the centre adjustment.

The button is lit during the data registration. When it finished, the light turns off automatically.

- The current paper edge position and strip edge position are the reference values to control the centre adjustment.
- The values are saved to the sensor controller. The strip position data is monitored based on these values.

Note! This function is available during Manual Operation.



Home position button

This button is to start the home position function of the stepping motor.

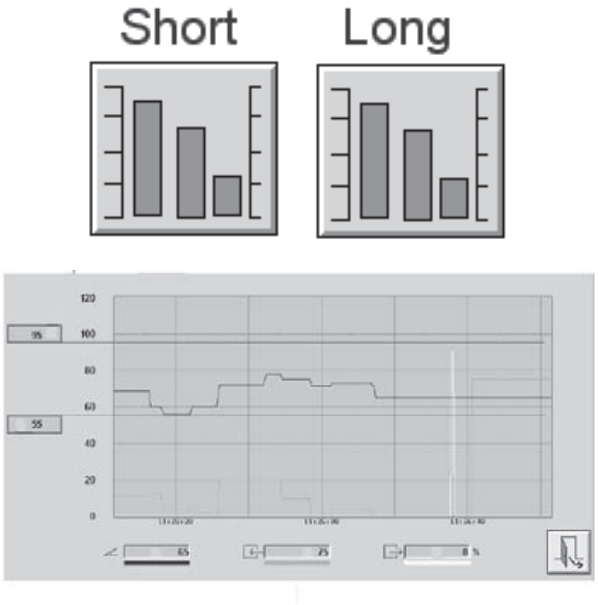
Note! This function is available during the manual operation and the filling machine stop.



Strip position current value

This display shows the current value of strip position.

The value means the relative value at centre adjustment.

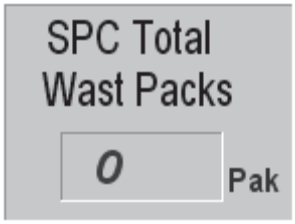


Trend button

These buttons are to show the real time data of the strip position on a graph.

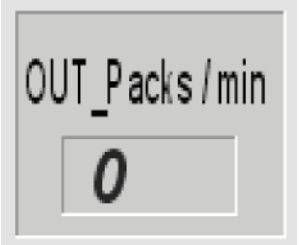
The short trend means the short time interval.

The long trend means to long time interval.



Discharged pack counter

This shows the total number of the discharged packages by the Strip Position Control.



Discharged package packs/min

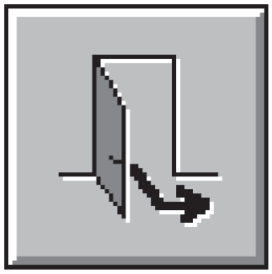
This shows the number of the discharged package for last one minute.



Counter reset button

This button is to reset the package counter.

To reset the number, keep touching the button more than one second.

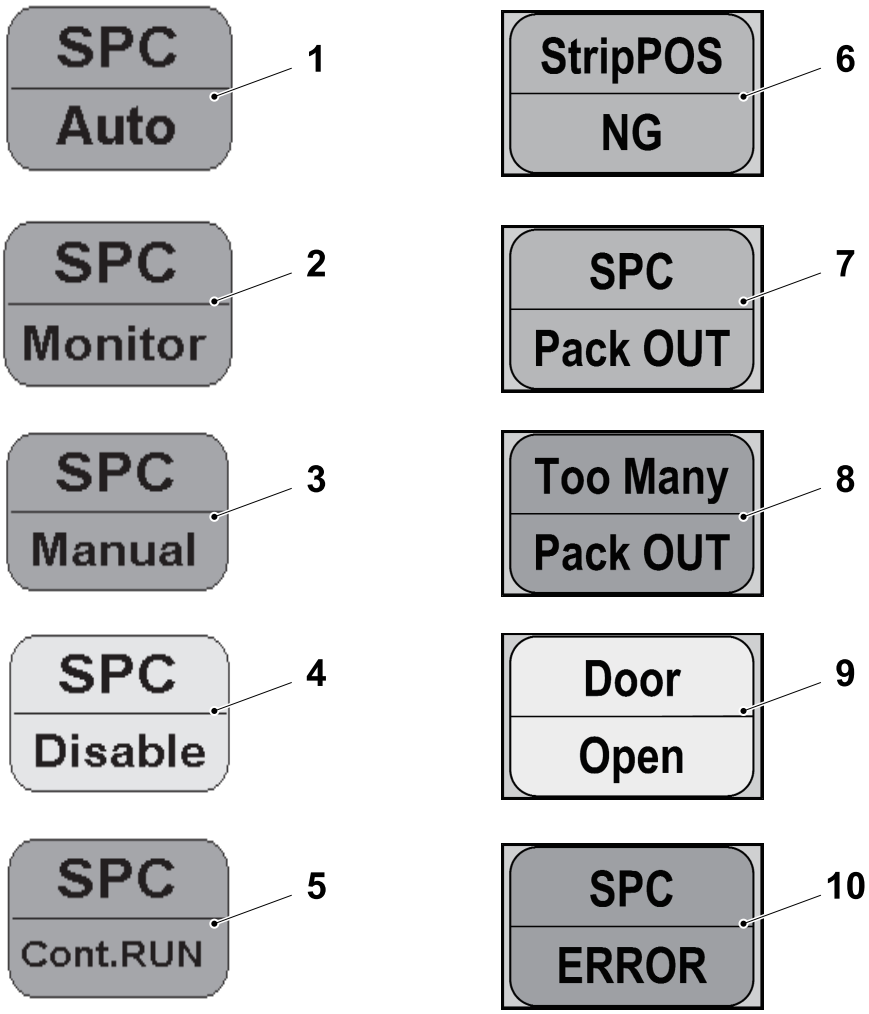


Exit button

This button is to exit from the SPC operation window.

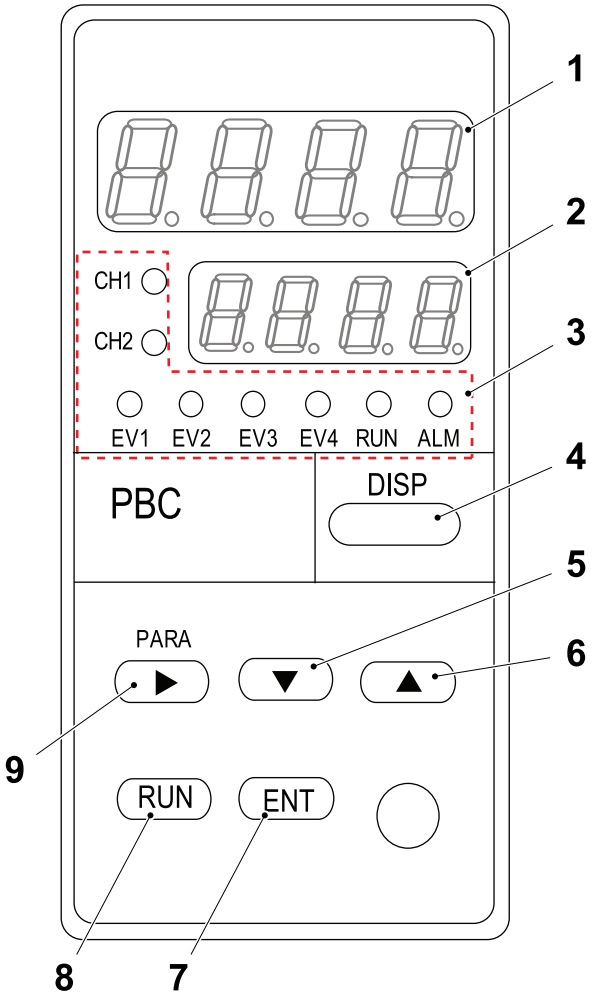
2.1.1.2 SPC Button Status

SPC button indicates the current operation status.



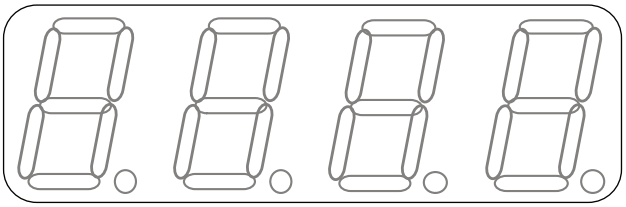
1 Automatic operation
2 Monitor operation
3 Manual operation
4 Disable operation
5 Control running
6 Strip position alarm
7 Discharging packages by SPC
8 Too many package discharge alarm
9 Door open alarm
10 SPC system error alarm

2.1.2 Sensor Controller



1 Display unit1
2 Display unit2
3 Status display LED
4 DISP key
5 Down key
6 Up key
7 ENT key
8 RUN key
9 PARA key

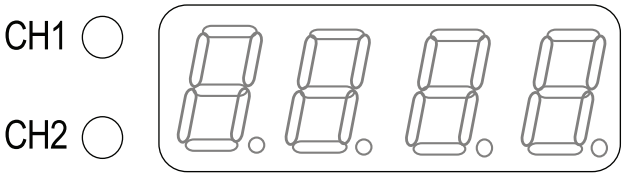
2.1.2.1 Displays and Keys



Display unit 1

`Display unit 1`shows the strip tape edge distance from the reference position which is set as 0 mm. The unit is “mm”.

When an error occurs, the error code flashes on the display

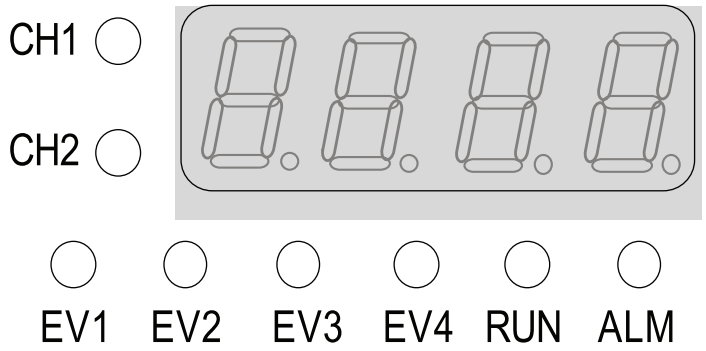


Display unit 2

During the regular operation, `Display unit 2` shows the sheet edge distance from the reference position which is set as 0 mm. The unit is “mm”.

During setting the parameters, `Display unit 2` shows as follows:

- the first digit indicates the function number
- the next three digits indicate the setting description.



Status display LED

CH1, CH2

Those are to selected the channel(s).

During the normal operation, both lamps are on.

In case of an error, the LED where the error occurred starts to flash.

EV1 to EV4

These LEDs indicate the assigned events.

- EV1 is for the position error within the threshold value. This threshold value is set by CH1 High and Low.
- EV2 is for the strip position error which gets wider than the reference position. This threshold value is set by CH2 High.
- EV3 for the strip position error which gets narrower than the reference position. This threshold value is set by CH2 Low.
- EV4 indicates the dust detection in CH2.

RUN and ALM

- RUN indicates RUN mode. It flashes during the adjustment mode
- ALM flashes to indicate the unit trouble(s) or the operation error(s).



DISP key

This is to change the channels.



Down key

This decreases the parameter value.



Up key

This key is to increase the parameter value.



PARA key

This key navigates the adjustment and parameter settings. This moves the cursor when changing the parameters.



RUN key

This key is to set RUN mode.

This key is used to cancel the parameter change during parameter setup.



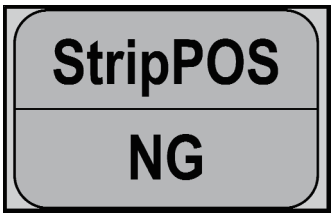
ENT key

This key is to register the modified parameter values.

2.2 Alarm System

2.2.1 Position Error

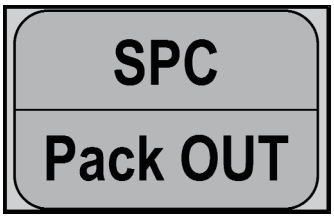




Indication

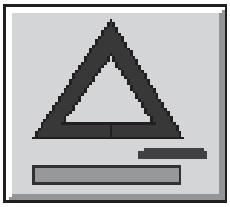
Position error indicator is on when the strip position is out of the position error threshold value.

`SPC` button shows Strip position alarm.



Pack check

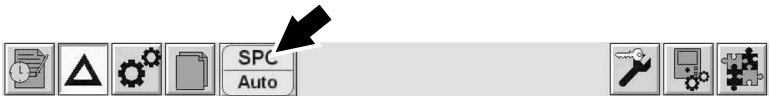
Take packages from discharger unit and check the strip position.

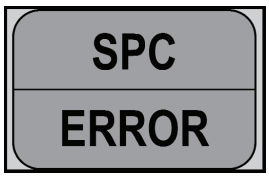


Alarm reset

Reset the alarm on the TPOP display to turns off the position error indicator.

2.2.2 System Error





Indication

During the AUTOMATIC OPERATION, this error can occur when

- The continuous position error (initial value is more than 2 sec.), or
- The stepping motor rotate more than ±100 pulses (correspond to ±90°), or
- The proximity switch, used at stepping motor is OFF, or
- The ERROR LED on the Mitsubishi PLC is ON, or
- Communication error between Mitsubishi PLC and Rockwell.

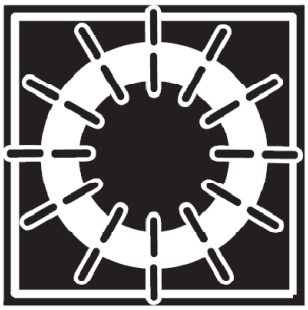
During the MONITOR OPERATION, this error can occur when

- The continuous position error (initial value is more than 2 sec.), or
- The ERROR LED on the Mitsubishi PLC is ON
- Communication error between Mitsubishi PLC and Rockwell.

During the MANUAL OPERATION, this error can occur when

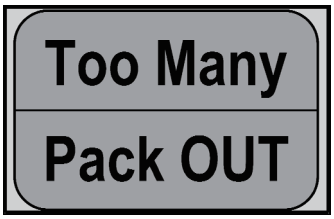
- The ERROR LED on the Mitsubishi PLC is ON
- Communication error between Mitsubishi PLC and Rockwell.

When an error occurs, the filling machine is stopped.



Filling machine stop

The machine stops in SHORT STOP.

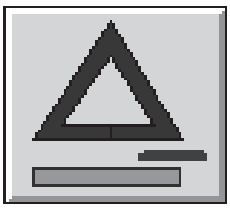




Too many package discharge alarm

Discharged package counter for last one minute.

This turns on when the discharged packages exceed the 20 packs/minutes.



Alarm reset

Reset the alarm on the TPOP display to turns off the position error indicator.

Check the strip of the strip applicator.

Adjust the unit if necessary.

For further adjustment, call for a service engineer.

2.2.3 Error code of Sensor Controller

If this unit detects an error, relevant error code is flashing on the upper display. At the same time, the ALM LED and the status indicator LED of the channel, in which the error occurs, start flashing.

The following describes error codes:

- If multiple errors occur, the total of error codes is flashing on the display. [Example. If the laser beam emitting or receiving part of channel 1 is contaminated and the cable of the sensor head of channel 2 has faulty wiring,"E.r.3.0.” is flashing on the display, and then both the CH1 LED and CH2 LED are flashing.]
- If an error code other than the codes shown below or the total of the codesshown below is displayed, this means that the hardware serious failure occurs inthe PBC. If this happens, replace the PBC.

Display	Cause	Corrective action
E.r.1.0	Leaser emitting or receiving part of the sensor head is smudged.	Wipe off the laser emitting part or receiving part.
	Target inserting direction is incorrect.	Check the edge type with [Function number A] to make sure that the TOP and BOTTOM settings meet the target inserting direction.
	Laser beam alignment and intensity are not adjusted.	Adjust the laser beam alignment and intensity.
	Smudge detect is set even though the target is not opaque.	Edge sensor can detect smudge only when the target object tis completely opaque target. Set the threshold level of the smudge detect to “0”.
	Smudge detect threshold level is too high.	Sensitivity of the smudge detect may vary depending on the mounting condition or external disturbance light. Decrease the smudge detect threshold level.

(Cont’d)

(Cont'd)

E.r.2.0	Sensor head connection is faulty.	Disconnect the connection connector to make sure that the pin is correct (check for dust or pin bend.)
	Sensor head cable had faulty wiring.	Check the sensor head connection. Check the sensor head connection cable for scratch.
	Sensor head is faulty.	Replace the sensor head.
E.r.4.0	HIGH threshlold level is smaller than LOW threshold level.	Change the threshold levels so that the HIGH threshold level is highter than the LOW threshold level.
	Width of hysteresis is larger than the difference between the HIGH and LOW threshold levels.	Change the threshold levels so that the difference between the HIGH and LOW threshold levels is equivalent to or greater than the width of hysteresis.
	Smudge detect threshold level is set in the trasparent target detection.	When setting the transparent target, set the smudge detect threshold level to "0"[%].
	Value((delay time /0.5ms)+averaging count) exceeds "127".	Change the delay time and avaraging count so that ((delay time/0.5ms)+averaging count) is "127" or less.
	Calculation parameters C and D are 0.	Be careful to set correct calculation parameters.

2.2.4 Sensor Controller Trouble Shooting

Contents of trouble	Cause	Corrective action
The unit does not trasit in the RUN mode. (Hold output is ON and RUN_LED is left frashing.)	Factory settings are used, and then the laser beam alignment and intensity are not adjusted.	Select "laser beam alignment and intensity" of [Function number 1], press the ENT key, select "store to EEPROM" of [Function number Y], press the ENT key, and then press the RUN key.
	Unit is still in the adjustment mode.	Press the RUN key.

(Cont'd)

(Cont'd)

Measured data and analog output are kept held, and they do not change.	Operation is not started in the RUN mode.	Refer to the above description.
	Skip-over occus and the edge is mot returned to the skip-over size or less.	Move the target to a value close to the hold value or perform the cancellation of the forced hold. the cancellation of the corced hold may vary depending on the method of edge skip-over of [Function number9].
	TOP/BOTTOM setting does not meet the target direction.	Make the TOP/BOTTOM setting matched with the target direction.
Measured data moves only in a range of 0 to 3.5mm, 3.5 to 7.0mm (1 to 5V setting), -3.5 to 0mm, or 0 to +3.5mm (-1 to +5V setting).	Center is adjusted in the full light receiving or full light shading status.	Move the target to the center position oand readjust the center or set the offset value of the center adjustment to "0".
Measured data is fixed at "0" or 7mm (1 to 5V setting), or at -3.5 or +3.5mm(-5 to +5V setting).	Center adjustment or offset value in faulty. Calculation result exceeds the measurement range.	set the offset value and calculation constant to an appropriate value.
Strip position alarm does not detect.	Threshold value is incorrect.	TeM "Maintenance Instruction" 2.2.1.3-1 Position Error - Adjust Threshold Values
	Target is out of measurement area.	TeM "Maintenance Instruction" 2.3.1-1 Sensor - Adjust Position
Strip position alarm is miss detected.	The sensor head emitter or receiver is dirty.	Wipe off the laser emitting part or receiving part.
	Laser beam alignment and intensity are incorrect.	TeM "Maintenance Instruction" 2.2.1.1-1 Receiver - Adjust Intensity

3 Preparation

Description

This chapter describes how to prepare the machine for PRODUCTION after Care and Cleaning has been performed.

Description 3-2

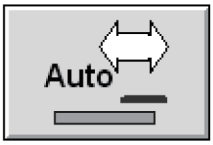
3.1 Automatic Operation 3-5

3.2 Monitor Operation 3-7

3.3 Manual Operation 3-8

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3.1 Automatic Operation



1

Touch `Automatic Operation` Button.

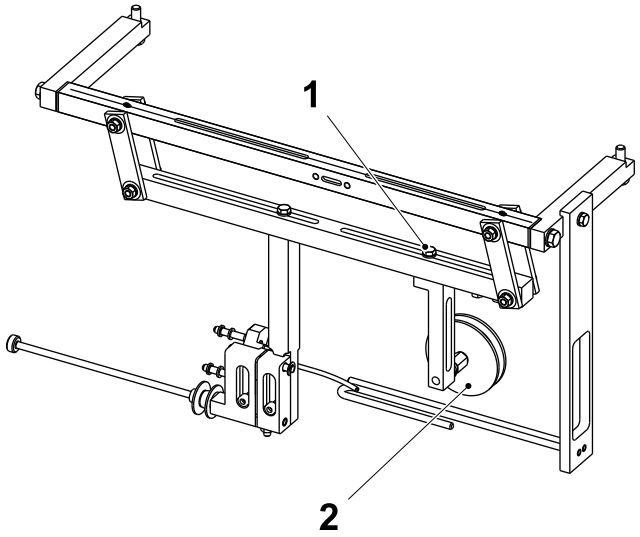
Note! Normally, automatic operation is used.

The functions below are enabled by automatic operation.

- Automatic control of strip position
- Discharging of position error packs
- Filing machine stop when system error occur

The functions below are disabled by automatic operation.

- Manual feeding
- Centre adjustment



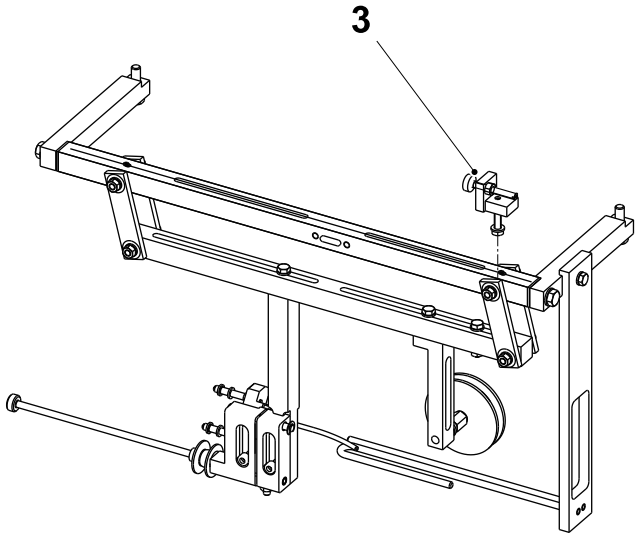
1 Screw
2 Guide wheel

2

Loosen the screw (1).

Slide and adjust the guide wheel (2)to be not touching the packaging material.

Tighten the screw (1).



1 Screw

3

Check that the adjust screw (1) is mounted.

Mount it if required.

3.2 Monitor Operation



1

Touch `Monitor Operation` button.

Automatic control of the strip position is stopped.

The functions below are disabled by monitor operation.

- Manual feeding
- Centre adjustment
- Automatic control of strip position

The functions below are enabled by monitor operation.

- Discharging of position error packs
- Filing machine stop when system error occurs

3.3 Manual Operation



1

Touch `Manual Operation` button.

Automatic control of the strip position is stopped.

This is used during adjustment.

The functions below are disabled by manual operation.

- Automatic control of strip position
- Discharging of position error packs

The functions below are enabled by manual operation.

- Manual feeding
- Centre adjustment
- Filing machine stop when system error occurs.

4 Start

Description

This chapter describes how to start the machine for PRODUCTION after Preparing after Daily Care. To start the machine after a stop, see the Stop section.

CAUTION

Hazardous noise.

Risk of impaired hearing. Hearing protection is recommended whenever this equipment is in operation.

Description 4-2

4.1 Start 4-5

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4.1 Start

As the filling machine starts production, this kit automatically starts.

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5 Checks

Description

This chapter describes the checks to perform when the machine is in step PRODUCTION.

CAUTION

Hazardous noise.

Risk of impaired hearing. Hearing protection is recommended whenever this equipment is in operation.

Description 5-2

5.1 Check Strip Position 5-5

Strip Position Adjustment 5-5

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5.1 Check Strip Position

1

Check the strip position during Package Check s. See the filling machine's OM chapter 5 Check.

If strip position adjustment is required, do the following steps.



Strip Position Adjustment

1

Touch the MANUAL OPERATION button.

2

Start the filling machine operation.



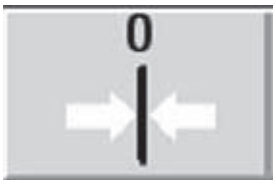


3

On the TPOP, touch the FEED button to change the strip position.

Check the position immediately after the strip applicator.

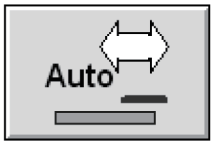
Note! About 0.1mm of Strip position is moved in step of one touch.



4

Touch the CENTER ADJUSTMENT button.

The current sheet edge position and strip edge position are registered as the reference position.



5

Touch the AUTOMATIC OPERATION button.

6 Stop

Description

This chapter describes the different types of stop conditions and how to stop the machine under normal operating conditions.

CAUTION

Hazardous noise.

Risk of impaired hearing. Hearing protection is recommended whenever this equipment is in operation.

CAUTION

Risk of damage to the equipment.

When possible, the machine should normally be stopped in a SHORT STOP during PRODUCTION.

Description 6-2

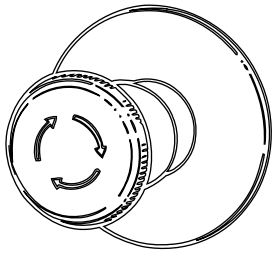
6.1 Emergency Stop 6-5

6.2 Normal Stop 6-6

6.3 Production Finished Stop 6-7

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6.1 Emergency Stop



1
Press the `emergency stop` button of the filling machine.

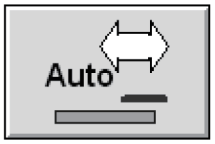
2
Eliminate the cause of the stop and clear any alarms.

3
Step up the filling machine operation according to its operation manual.

6.2 Normal Stop



1
Touch `Manual operation` button to stop automatic operation.



2
Touch `Automatic operation` button to restart automatic operation.

6.3 Production Finished Stop

1

The Strip Position Control is automatically stopped when the filling machine main motor stops or runs low speed mode.

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7 Care and Cleaning

Description

This chapter describes how to clean and maintain the machine. Perform Daily Care after every PRODUCTION run. Perform Weekly care once a week or after every 120 hours of operation.

CAUTION

Risk of minor or moderate injury.

Use only recommended cleaning compounds when cleaning parts which may come into contact with hydrogen peroxide. Cleaning with non-recommended compounds may cause an explosion!

Description 7-2

7.1 Weekly Care 7-5

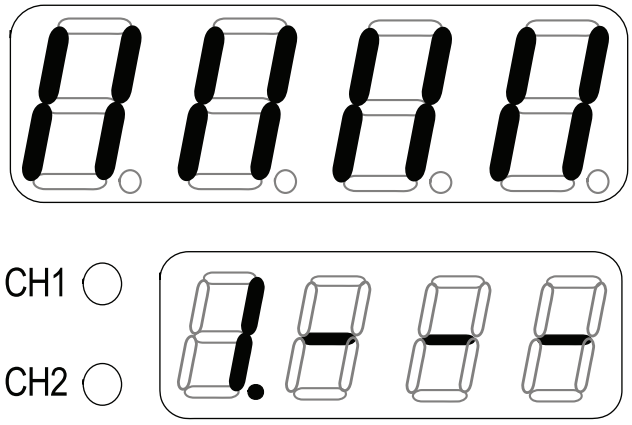
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7.1 Weekly Care

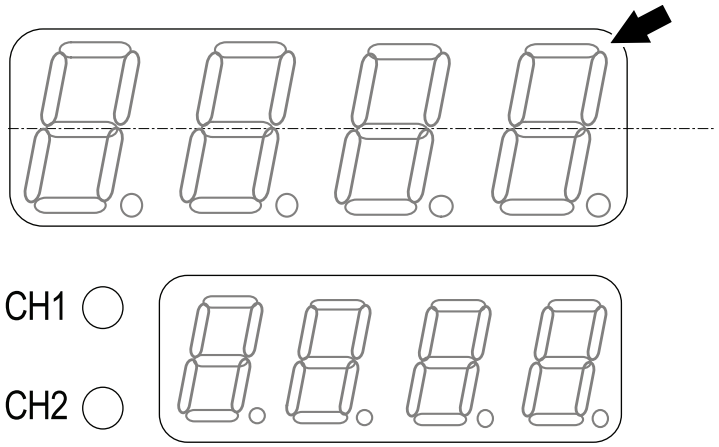
WARNING
Laser Radiation.
Do not stare into beam. Class 1 laser product. Follow the safety instruction of the product. Do not install or remove the sensor head while the power is turned on.

Note! If the sensor head position is shifted or the ambient temperature changes, the light intensity distribution changes, and this can significantly affect accuracy. Periodically perform the inspection below for CH1 and CH2.

1
Stop the filling machine, set to the “Function number 1" receive mode without adding a detecting object.



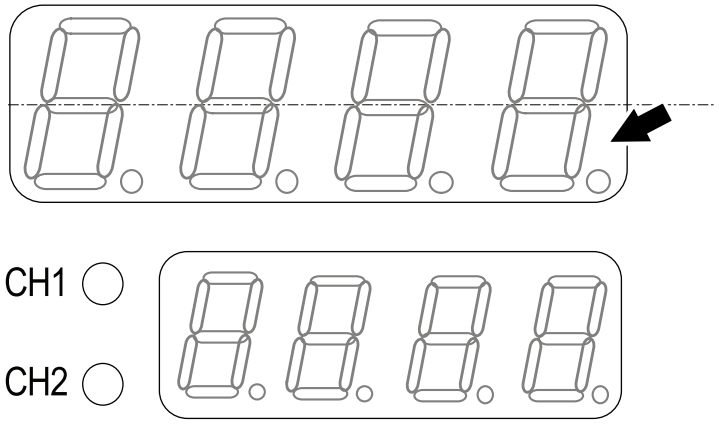
2
check that all 16 segments in the display units are lit.



3
If any of the segments in the top half are off, wipe the sensor head with a soft, lint-free cloth.

Adjust the receiver.

Note! For more detail instruction, see Maintenance Instruction.



4
If any of the segments in the bottom half are off, align the optical axis of the sensors.

Adjust the receiver.

Note! For more detail instruction, see Maintenance Instruction.

OK Strip Position Control
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

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OK Strip Position Control
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 1(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 2(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 1(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 2(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 1(3)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 2(3)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 3(3)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 3(3)
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Doc. No. OM-3191368-0101

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OK Strip Position Control
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Doc. No. OM-3191368-0101

OK Strip Position Control 1(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control 2(2)
3119425-0100 Issue 2012-04
Doc. No. OM-3191368-0101

OK Strip Position Control
3119425-0100 Issue 2012-04
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OK Strip Position Control 1(3)
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