Troubleshooting

11.1 Mechanical problems

Certain problems which could occur during the production cycle, and relevant feasible solutions, have been evaluated in this chapter: please read the instruction manual thoroughly and fully and duly carry out the operations described to avoid said problems from occurring.

11.1.1 Cartoning machine

The carton is not picked up from the magazine

The carton magazine guides are too narrow

Check the adjustments according to the values shown in the scales adjustment sheet.

The suction cups are worn out

Replace the suction cups

The carton is not erected correctly

Carton shaping units are not correctly adjusted

Check the adjustments according to the values shown in the scales adjustment sheet.

The carton is not closed correctly

The closing unit or the contrasts are not adjusted correctly.

Check the adjustments according to the values shown in the scales adjustment sheet.

Machine movements are not phased among one another

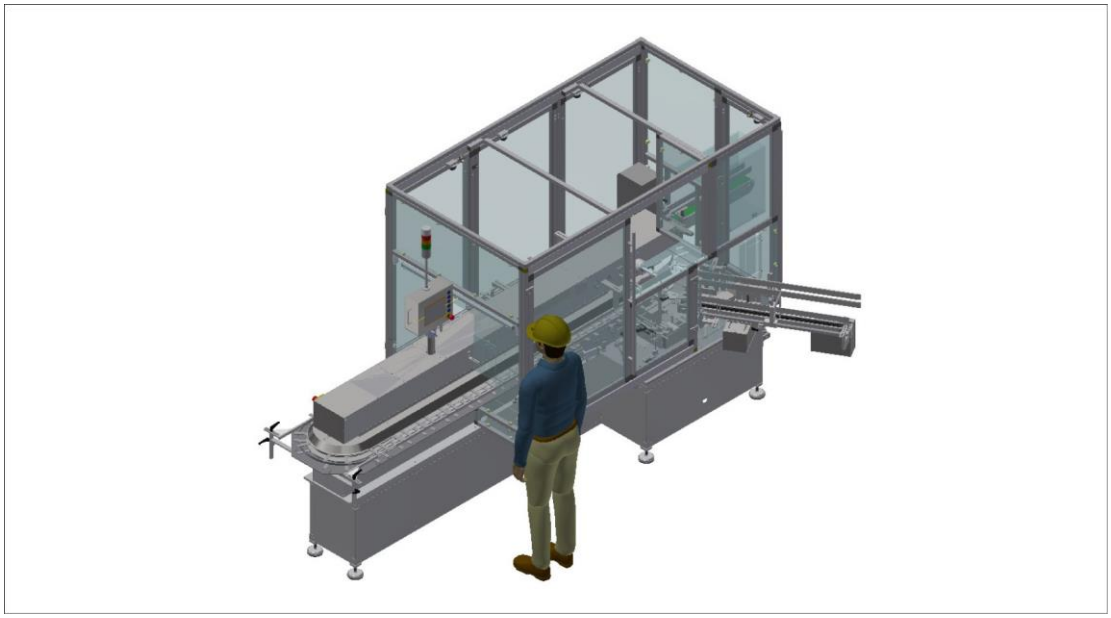
A jam caused a tooth of the transmission belts to spring off.

Restore the machine's mechanical phases.

Check that the transmission belts are taut.

11.1.1.1 Machine phase-setting

The correct working of the machine is conditional on a perfect sequence of all its functions.
All the pieces that can be disassembled are marked and timed through small little colored points; the above references, in line with the phase index, correspond to point 0 (HOME) of electronic phases.
The degree position can be detected by the control lpanel, either on the cam programmer display (when foreseen) positioned on the control panel or within the electrical cabinet.
All the in-phase operations are executed at Romaco site; they never have to be changed since they are pre-arranged for their best working at all conditions.



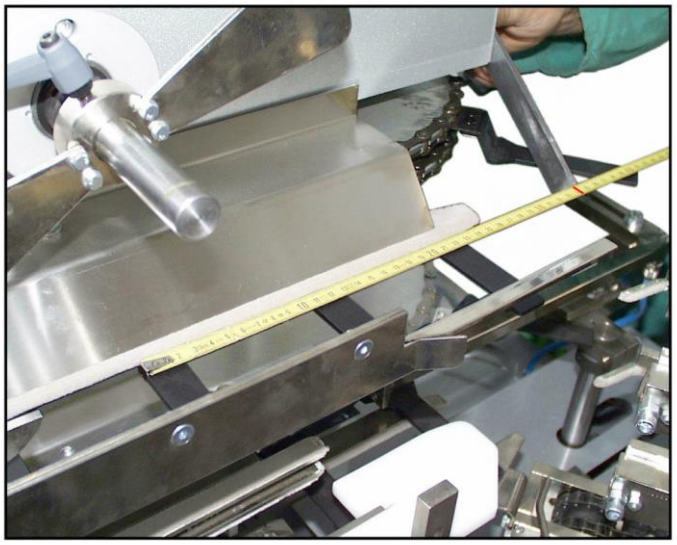
Note:
All the operations that follow can be executed only by qualified technicians.

Note:
All the timing operations that are not being described have to be carried out by Promatic technical assistance team.

Warning!
All the timing operations, if necessary (whatever possible) have to be carried out when the machine is off and electrical panels are without tension.

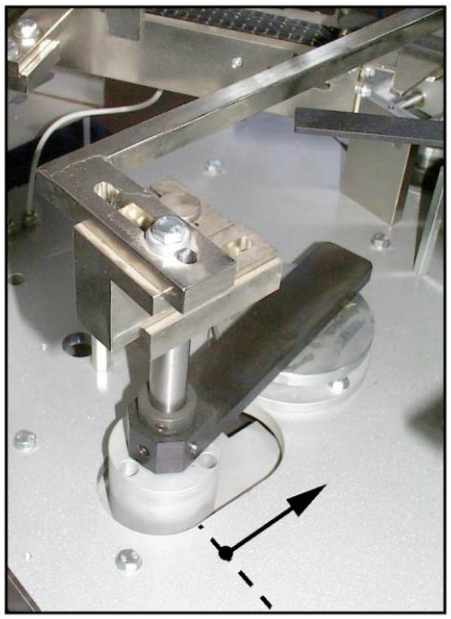
11.1.1.2 Carton conveyor chain

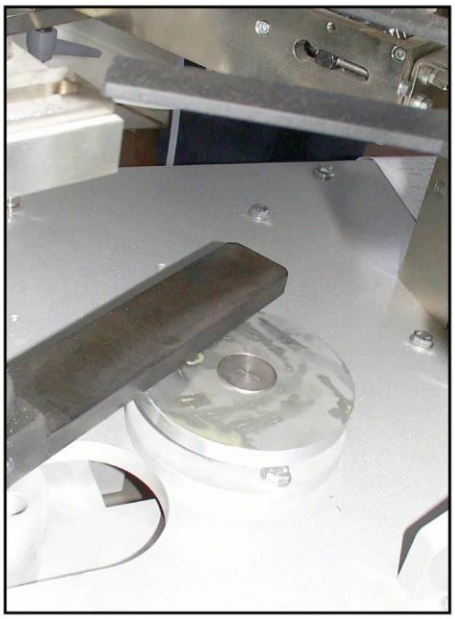
The mechanical zero corresponds to the distance between the external thread of the upper edge and the one of the tooth for cartons holding (337 mm.).



11.1.1.3 Carton suction unit

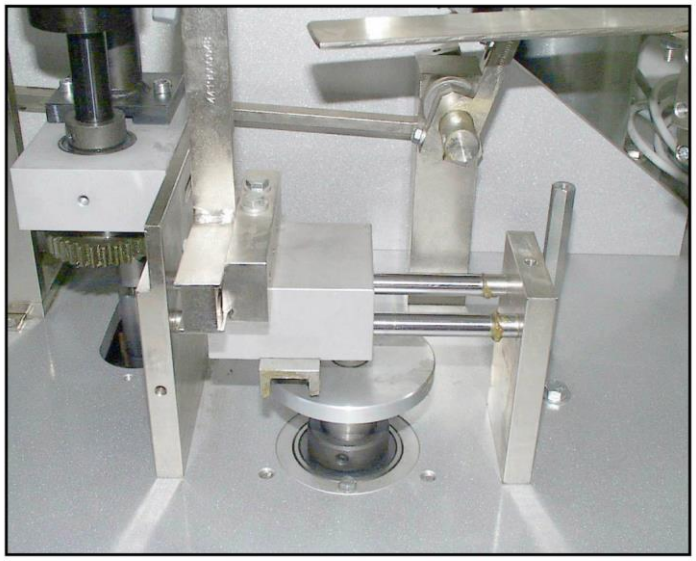
The forward starting position of the carton suction tray corresponds to 275° m/c clockwise cam movement).
The lever for cartons pick-up starts the rotation for the insertion in the teeth of the carton transportation chain at 175° (clockwise cam movement).





11.1.1.4 Unit for mobile guards carton contrast

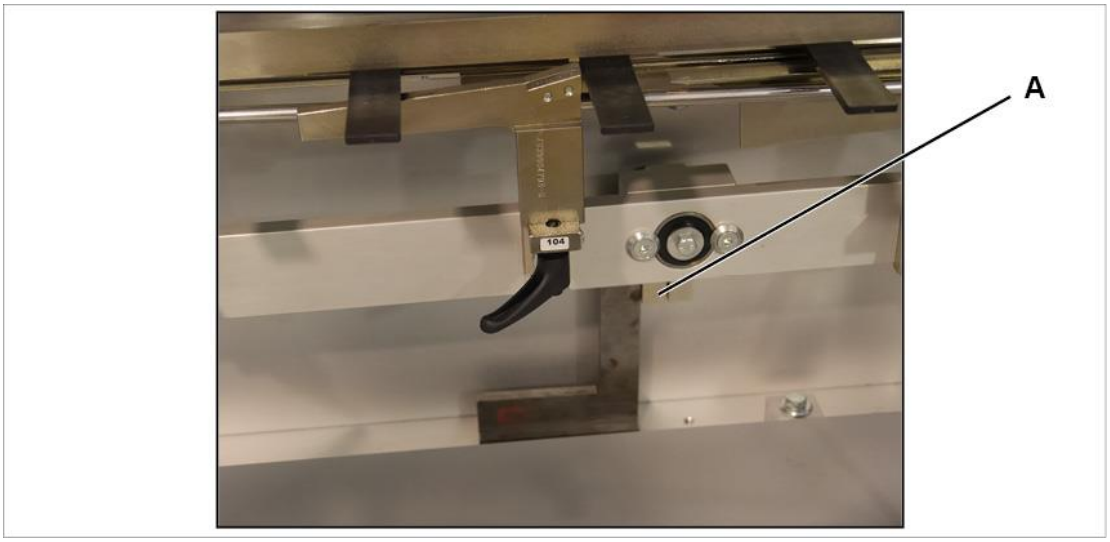
The starting position from left to right of the trolley on which the mobile guards carton contrast are assembled corresponds to 240° machine (clockwise cam movement).



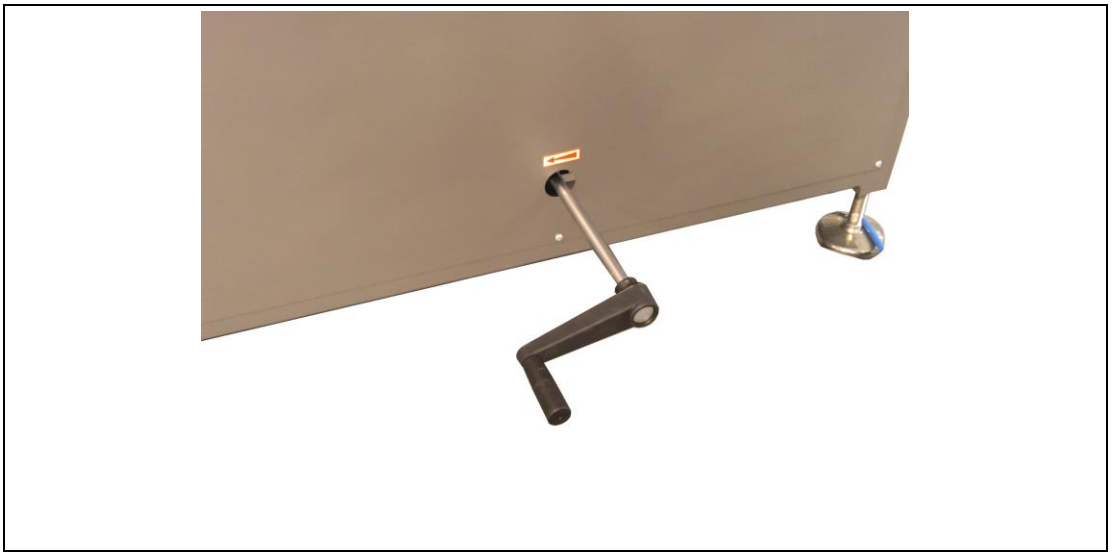
11.1.1.5 Lower closing unit

To obtain the mechanical zero of this unit following the procedure:

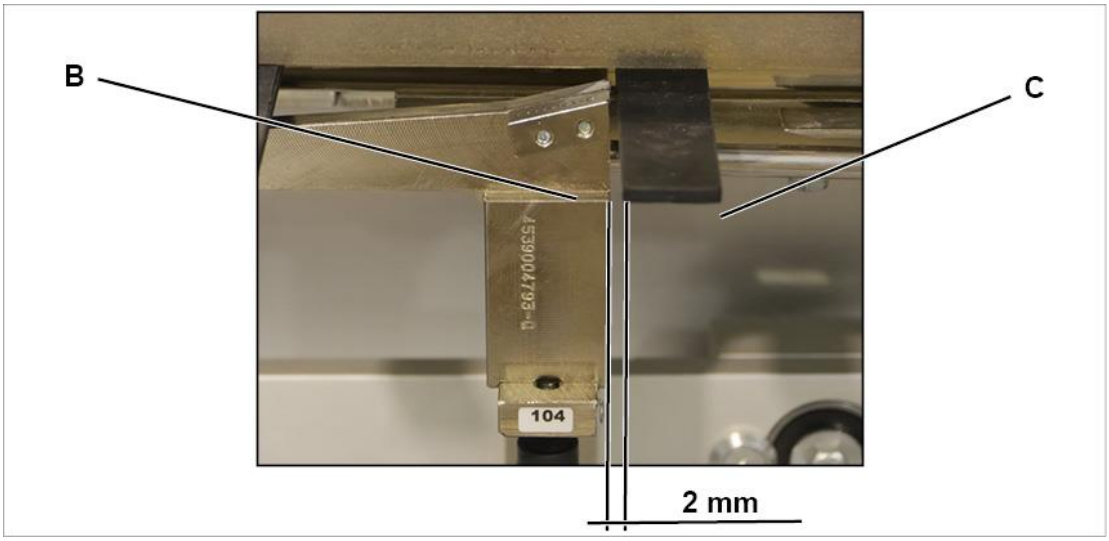
- Make sure the carton conveyor chain is phased.
- Use a bracket to position it as shown in the picture.



- Use the appropriate crank move the cartons conveyor belt to position vertically the clamp A as shown in the picture.

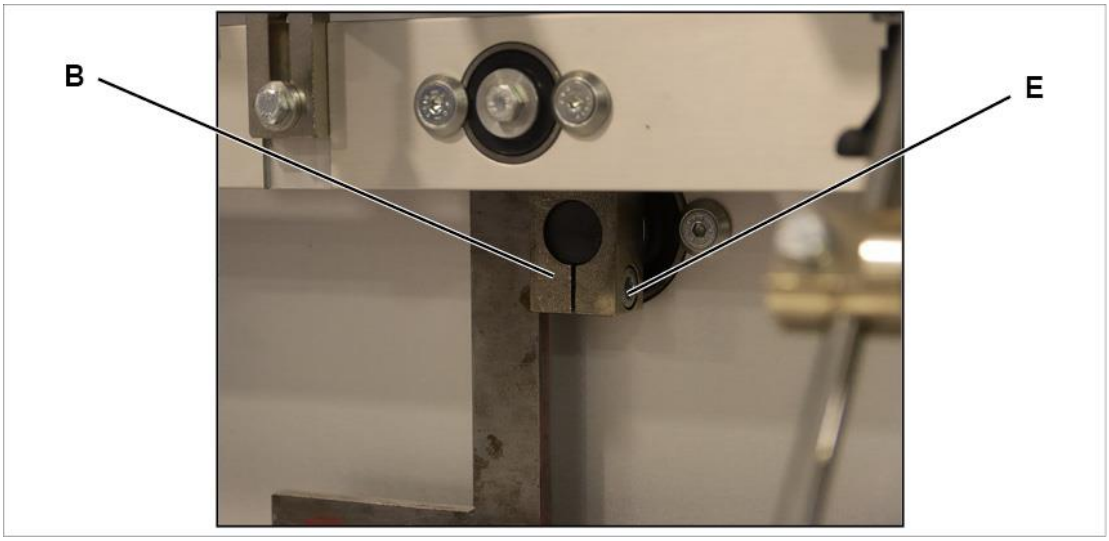


- Verify that in the ideal condition between the carton conveyor tooth C and the closing tooth B there is a distance of 1,5 mm.



If this condition is not verified:

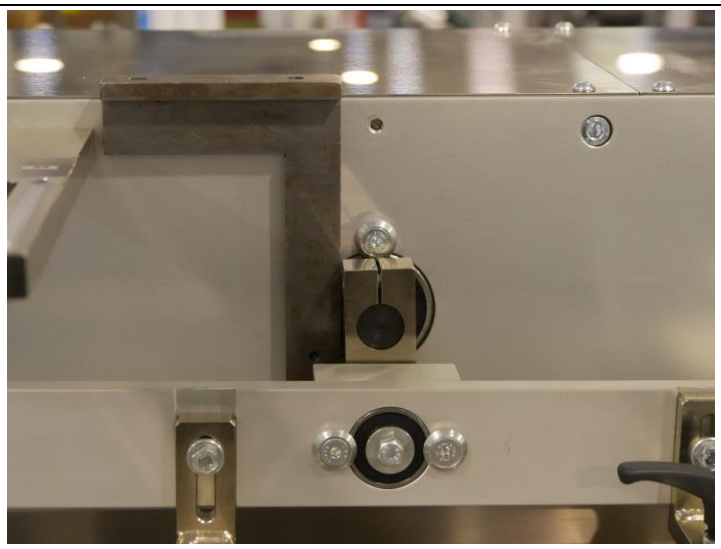
- Loosen the clamp B using the screw E.
- Restore the condition described previously using the lever to move manually the carton conveyor belt.
- Tighten the screw.



11.1.1.6 Upper closing unit

The mechanical zero of this unit is obtained following the procedure used for the lower closing unit, referring to the following image.

- Refer to the top side.

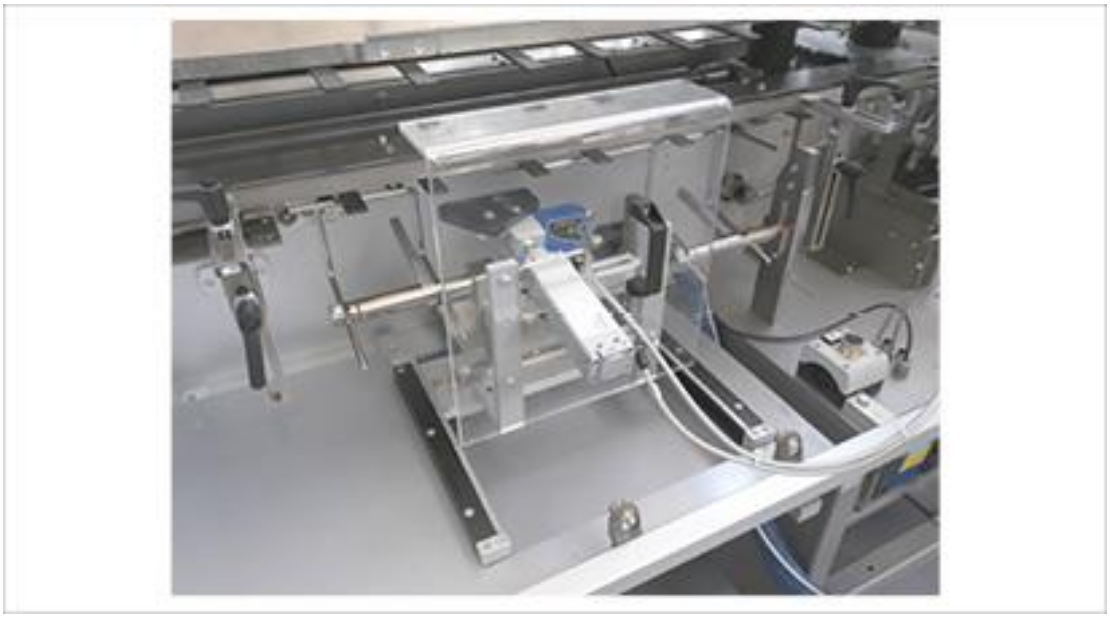


11.1.2 Glue closure

The glue is not applied in the correct position

The glue spray guns are not correctly adjusted
Check the adjustments.
The gun nozzles are dirty or jammed
Using a proper kit (on demand) it is possible to clean the nozzles from the glue dirt residual .
Possibly use a scraper to clean external dirt residual.

Warning!
The glue closure unit works with high temperatures: use safety gloves to handle the parts of this unit.



11.2 Electrical problems

11.2.1 PLC system recovery procedure

11.2.1.1 Prerequisites

- Make sure to have the memory card containing the software available.
- Contact our customer service department.

11.2.1.2 System recovery procedure

Do the following to restore the PLC software to the factory set-up:

- Check the machine and the main switch is turned off.
- Open the PLC cover A.
- Remove the memory card B from its own slot.
- Insert the new memory card containing the original software.
- Close the display A.
- Turn on the machine.

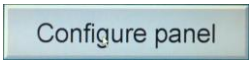
11.2.2 Control panel

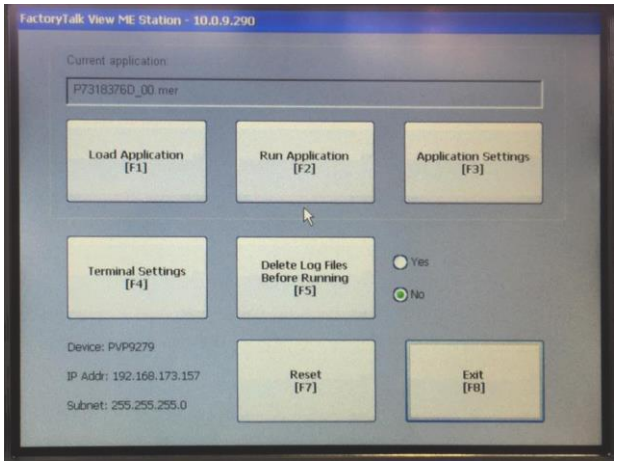
11.2.2.1 How to backup the operator's panel software

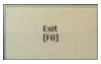
Some preliminary steps are necessary to complete the following procedure:

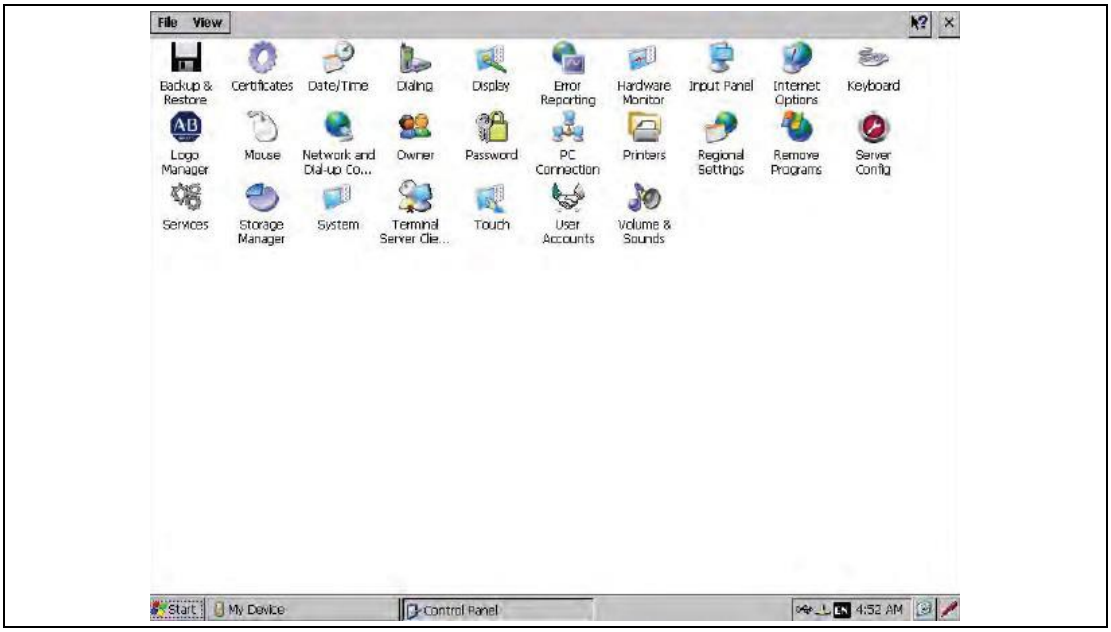
- Use a USB drive with a minumun of 2 GB of availeble space.
- Otherwise make sure to have the memory card containing the original software.
- Connect a hub with at least 3 ports to the panel USB port.
- Connect a mouse to a USB port.
- Connect a keyboard to a USB ports.
- Insert the USB drive into a USB slot.

-  From the operator menu, press the button to access the service/run-time page.

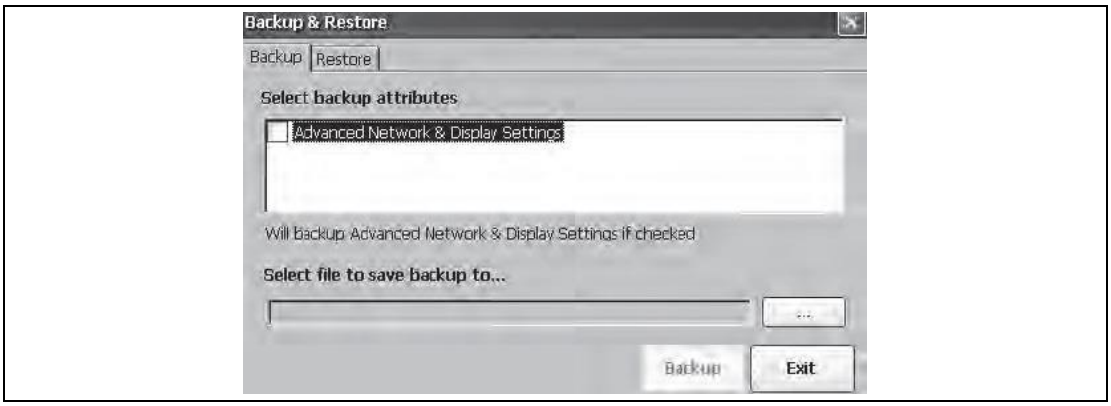
-  Press the button to access the control panel.



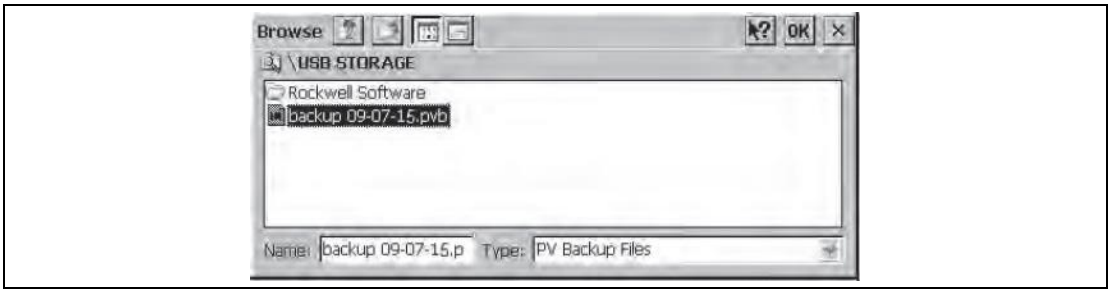
-  Press the button to stop the program and to turn to the operating system window.



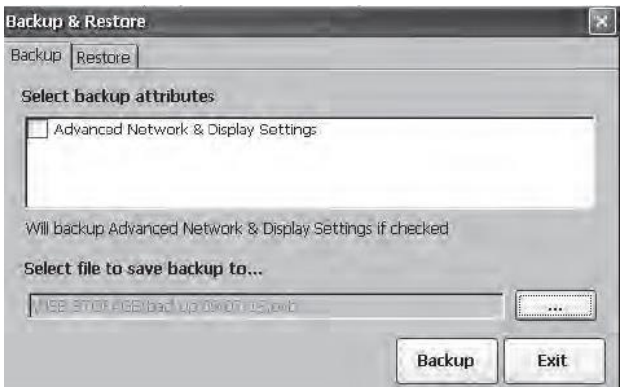
- [redacted] Press the icon to start the backup and restore utility.



- Click the browse ... button on the Backup tab.

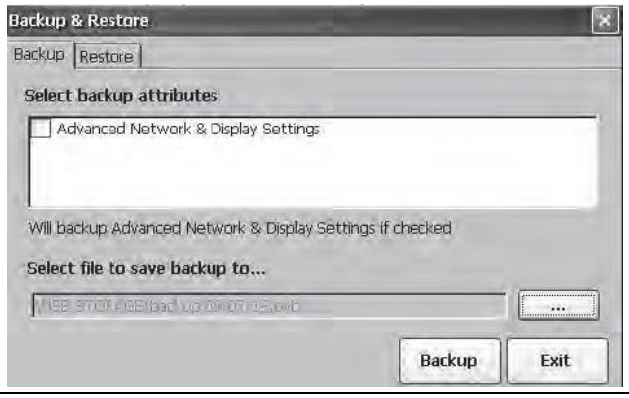


- Select the target location for the back-up file.
- Type a name for the back-up file.
- Back-up files have the .pvb file type.
- Click OK.
-



- Click Backup to start the process.
- A progress bar shows the status of the operation.
- The backup can take a few minutes.
- You receive notification when the backup completes.
-

- Click OK.
- If the file exists, you are asked if you want to overwrite the current file.
- Click Exit to close the Backup & Restore dialog box.
-



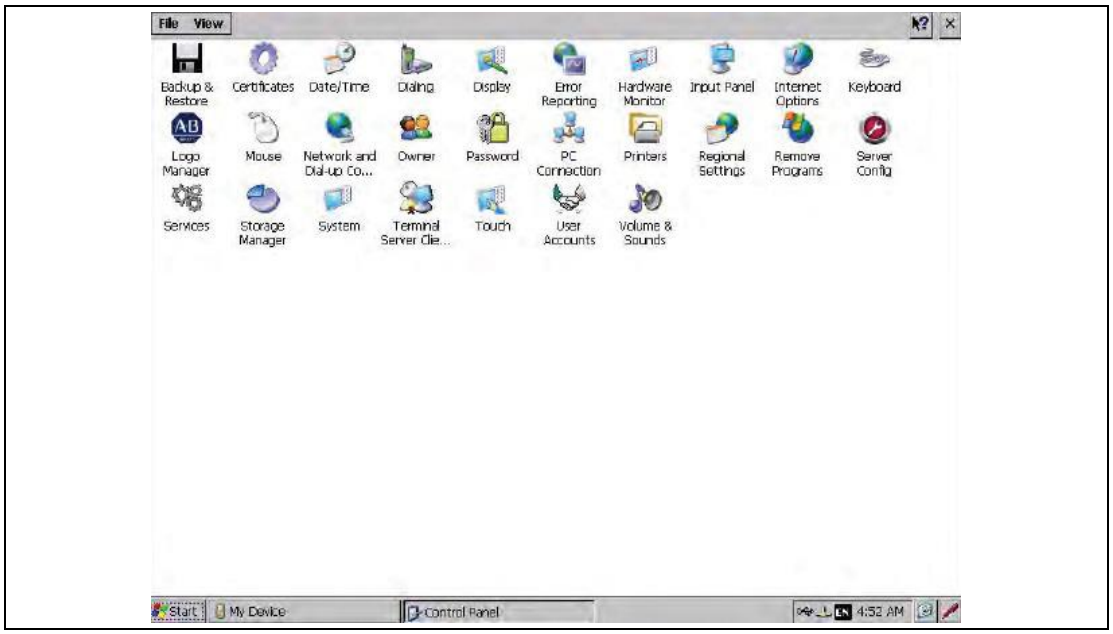
-

11.2.2.2 Restore a Back-up Image

Warning!
Make sure to have the memory card containing the original software available.
Contact our customer service department.

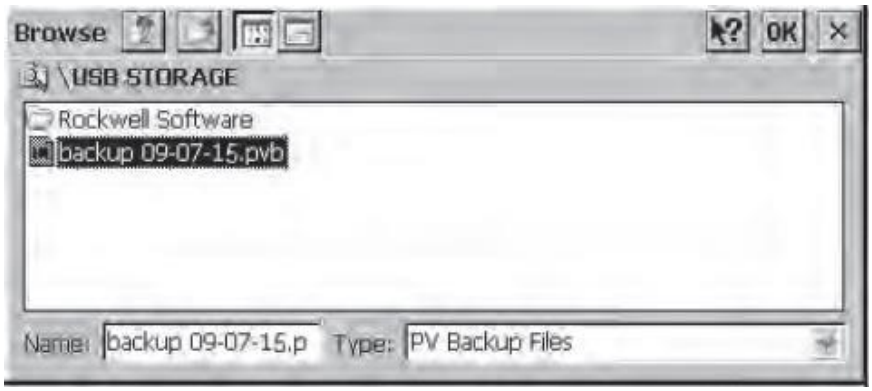
Do the following to restore the software to the factory set-up:

- Insert the USB drive containing the original software into the appropriate slot on the terminal.
- Press the emergency button.
- Turn the switch to ON
- Wait for the HMI panel restart.
- Repeat the previously explained procedure to access the operating system window.

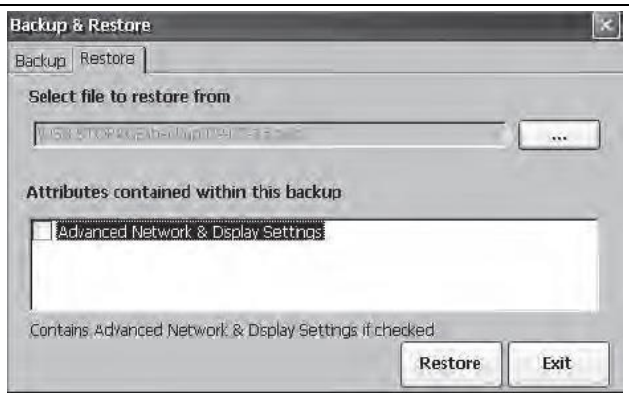


- [redacted] From the operative system window press the icon to start the backup and restore utility.

- Click the Restore tab.
- Click the...browse button to select the back-up file to restore.



- Select the location of the back-up file.
- Select the .pvb back-up file to restore.
- Click OK.



- Click Restore.
- The restore automatically includes advanced network and display settings if you selected this option when performing the backup.
- Click Yes to start the Restore.
- The terminal starts the restore process, which takes few minutes.

Warning!
Do not remove the USB drive, SD card, or power off the terminal during a restore.
This can corrupt the firmware.

- When the restore completes successfully, the terminal restarts.

11.3 Diagnostic

The following pages contain a description of the alarm messages with the associated code number as they appear on the operator panel display. For each message there is a description of the cause and relative solution.
The messages and relative solutions are shown as follows in this manual:

Message text (as shown on display)

Cause text
Solution text

Note:
In order to restore normal operating conditions, and to cancel the alarm message, always press the reset pushbutton.

11.3.1 Troubleshooting

01_Emergency

01-Cause: Emergency relays disconnected. Aux.circuits inactivated.
01-Reinstatement: Press reset button for reinstatement. If the alarm persits check the emergency relays operation.

02_Emergency buttons

02-Cause: Emergency button pressed.
02-Reinstatement: Raise the pressed buttons. If the alarm persists check that the signal from buttons arrives to the proper emeregency relay.

03_Operator guards

03-Cause: Operator guard on.
03-Reinstatement: Close all guard doors. If the alarm persists check that the signal arrives to the proper emergency relay.

04_Compressed air

04-Cause: Compressed air missing or insufficient pressure.
04-Reinstatement: Verify the pressure value. If the alarm persists check the pressure switch adjustement and that the signal arrives to plc.

09_Handwheel

09-Cause: Handwheel connected.
09-Reinstatement: Put the handwheel back to position. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

13_Cartons guide-rail

13- Cause: Cartons upper guide-rail raised.
13-Reinstatement: Position the guide-rail correctly. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

17_No carton reject

17-Cause: No reject of the outgoing carton.
17-Reinstatement: Verify that the last gone out cartons are correct.Check the reject flap operation. If the alarm persists verify: -the control sensor. -the cylinder operation.

18_Reject cylinder

18-Cause: Exit reject cylinder out of position.

18-Reinstatement: Check the cylinder operation or the solenoid valve that operates it. If the alarm persists, check the control sensor good operation

22_Product quantity 1

22-Cause: Wrong product 1 quantity at feeding.

22-Reinstatement: Check the product feeding device. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

23_Product sensor 1

23-Cause: Malfunction of the product 1 presence control sensor.

23-Reinstatement: Verify the sensor adjustment If the alarm persists, check the control sensor good operation and that the signal arives to plc.

24_Cartons load

24-Cause: Cartons magazine at min.load.

24-Reinstatement: Load cartons in the magazine. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

25_Carton missing

25-Cause: Carton lack in the product introduction step.

25-Reinstatement: Eliminate the leaflet in the introduction hopper. Verify the correct position of the cartons in the magazine Verify the vacuum and the suckers.

26_Carton out of pos.

26-Cause: A carton has been noted in the wrong position on the drawing belts.

26-Reinstatement: Remove the carton and start the machine again. If the alarm persists, check the control sensor good operation.

27_Carton sensor

27-Cause: A malfunction of the carton control sensor has been noted.

27-Reinstatement: Verify that there are no cartons out of position. If the alarm persists, check the control sensor good operation.

37_Exit max.load

37-Cause: Maximum load at exit

37-Reinstatement: Verify the download machine

41_Machine drive

41-Cause: The drive is in alarm Note down the alarm's code in the page that displays the axes' status and consult the relevant manual.

43_Overcurrent machine

43-Cause: Too much current was demanded by the motor. If the alarm persists, check for the presence of any mechanical interference and check the datum set in the panel.

44_Home running

50_Manual mode

50-Warning: Machine in manual mode. The wheel button connector is connected (JOG).Remove the JOG connector to pass to automatic mode.

51_Guards off front side

51-Warning: The operator front guards safety devices have been excluded. This way the manual jog run is only possible.

52_Machine ready

52-Warning: Machine is ready for automatic run. Act on run button to start.

53_Automatic run

53-Warning: Machine in automatic run.

54_Guards off rear side

54-Warning: The operator rear guards safety devices have been excluded. This way the manual jog run is only possible.

60_Rejection effected sensor

60-Cause: A malfunction of the rejection effected sensor has been noted.

60-Reinstatement: Verify that there are no carton in the rejection zone If the alarm persists, check the control sensor good operation.

63_Main solenoid valve fault

63-Cause: The main air solenoid valve did not switch its operating state.

63-Reinstatement: Check its connection and working efficiency. If the alarm persists, check pressure switch adjustment

64_Run home procedure

64-Warning: Press the start button to run the search procedures of the zero points.

67_Carton mag.safety sensor 1

67-Cause: Carton magazine safety sensor.

67-Reinstatement: Check the safety sensor device. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

68_Carton mag.safety sensor 2

68-Cause: Carton magazine safety sensor.

68-Reinstatement: Check the safety sensor device. If the alarm persists, check the control sensor good operation and that the signal arives to plc.

72_Outfeed belt inverter

72-Cause: The product outfeed belt motor inverter is alarmed.

72-Reinstatement: Press the emergency button and wait for 15 seconds, then reinstate. If the alarm persists, check the alarm code on the inverter display.

76_Carton correctly opened sensor

76-Cause: A malfunction of the carton control sensor has been noted.

76-Reinstatement: Verify that there are no cartons out of position. If the alarm persists, check the control sensor good operation.

83_Glue level

83-Cause: Minimum glue level. Reset: Fill the gluing unit container up with glue. If the alarm persists, make sure that the signal is received by the plc.

84_Glue unit not ready

84-Cause: The hot gluing unit is in an alarm status or is not ready. Reset: If the alarm persists, consult the relative handbook and make sure that the signal is received by the plc.

90_Reject for "Glue"

90-Warning: Rejection due to carton not glued correctly, caused by a machine stop that prevented it from being closed properly.

91_Reject for "product in carton"

91-Warning: Carton rejection due to product missing. Check the working efficiency of the sensor and that the signal reaches the PLC input.