Beijer
ELECTRONICS

TxB

Service & Maintenance Manual

English

Service and Maintenance Manual for TxB

Foreword

This manual explains how to do service and repair on the operator panel. Please refer to the TxB Installation Manuals and the iX Developer Reference Manual for further information.

Order no: MAEN201

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Contents

1   Safety Precautions

The service technician must read and understand this manual.

1.1   General

- Read the safety precautions carefully.
- Use only parts and accessories manufactured according to specifications of the supplier.
- Read the service instructions carefully before repairing the operator panel.
- Never allow fluids, metal filings or wiring debris to enter any openings in the operator panel. This may cause fire or electrical shock.
- Only qualified personnel may service the operator panel.
- The LCD display liquid contains a powerful irritant. In case of skin contact, wash immediately with plenty of water. In case of eye contact, hold the eye open, flush with plenty of water and get medical attention.
- The supplier neither guarantees that the operator panel is suitable for your particular application, nor assumes responsibility for your product design, installation or operation.
- Observe precautions for handling electrostatic discharge sensitive devices.

1.2   Service and Maintenance

- Only qualified personnel should carry out repairs.
- The agreed warranty applies.
- Before carrying out any cleaning or maintenance operations, disconnect the equipment from the electrical supply.
- Clean the display and surrounding front cover with a soft cloth and mild detergent.
- Replacing the battery incorrectly may result in explosion. Only use batteries recommended by the supplier. During the warranty period, the battery needs to be replaced by an authorized Beijer Electronics service center.
- The battery must be replaced by an authorized Beijer Electronics service center.

1.3   Dismantling and Scrapping

- The operator panel or parts thereof must be recycled according to local regulations.
- The following components contain substances that might be hazardous to health and the environment: lithium battery, electrolytic capacitor and display.

1.4   Appearance of Air in Touch Screen

The layer structure of the touch screen contains air and in rare cases appearance of bubbles can arise. This is purely cosmetic and does not affect any functionality of the operator panel. The appearance can occur under certain environmental conditions such as temperature, humidity, and atmospheric pressure.

2   References

Document	Description
MAxx095D	T7B Installation Manual
MAxx096D	T12B Installation Manual
MAxx097D	T15B Installation Manual

xx corresponds to the following language codes:
- en — English
- de — German
- es — Spanish
- fr — French
- it — Italian
- cn — Simplified Chinese
- tw — Traditional Chinese
- ptbr — Brazilian Portuguese

Installation procedures, technical data, as well cutout and outline dimensions are described in the Installation Manuals. Please refer to the TxB Installation Manuals and iX Developer Reference Manual for further information.

3 TxB Maintenance

3.1 Software

Maintenance of the TxB is similar to maintenance of other iX Panels, with a few important differences described in this document.

It is possible to update the TxB with new system software and to make service settings such as touch calibration, IP settings, self test, etc. These actions are performed by following the procedures described below.

3.1.1 iX Panel

This section is for a panel that has Windows CE 6.0 installed on it, running the iX Runtime.

Update iX Panel Software

In order to update the system software of the iX Panel, you first have to download the **Image Loader** software from the Beijer Electronics website to your PC. Start the Image Loader application on your PC.

You'll see the following dialog:
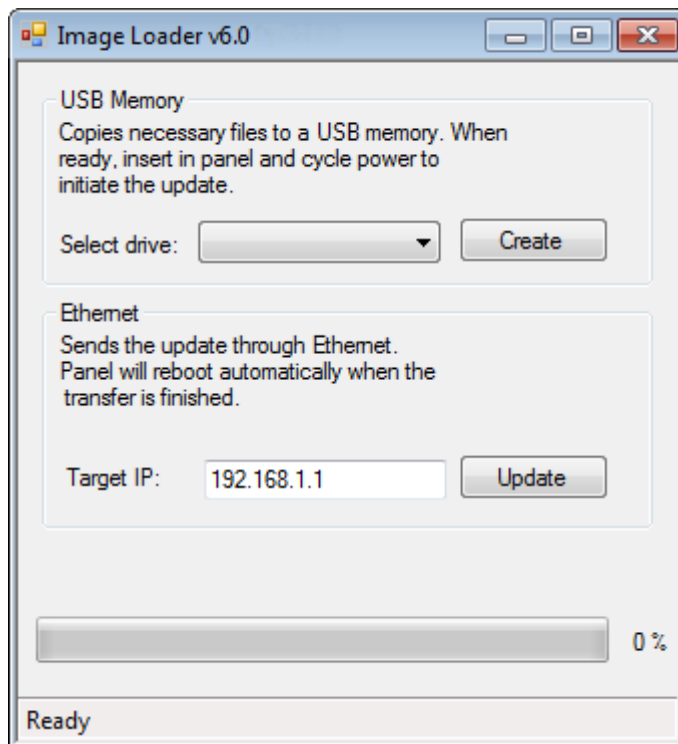
With the Image Loader you can update the system software using two methods, either creating a USB memory stick, or by updating over an Ethernet connection.

Update using USB Memory Stick

Put a USB memory stick into your PC, select the drive and press the **Create** button.

When completed, turn off power to panel, insert the USB memory stick into the panel, and turn on power to the panel. Follow directions on the panel to update the panel software.

Update over Ethernet

In the Image Loader dialog, enter the Target IP address for the panel you want to update. If the panel has a project running, part of the update process closes the running project.
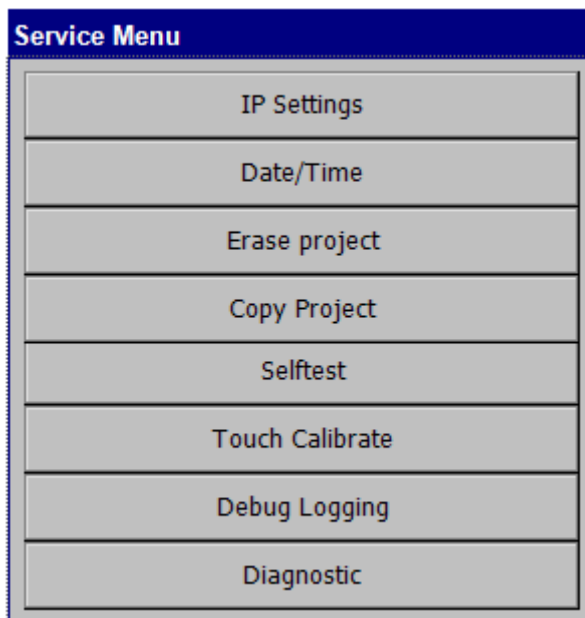
If the Image Loader finds a panel at the IP address, the loader asks if you want to update the panel. A new dialog box appears, showing the current image version on the panel and the version of the update.

After downloading the image over Ethernet, follow the directions on the panel to complete the image update.

Entering the Service Menu

Perform the following steps to enter the service menu:

1. Apply power to the panel.
2. When the hourglass symbol disappears, press a finger on the screen and hold until following message:
   - "**Tap anywhere on screen or touch calibrate starts in 10 seconds.**"
3. Lift the finger and press once again to enter the service menu

Service Menu

IP Settings
Date/Time
Erase project
Copy Project
Selftest
Touch Calibrate
Debug Logging
Diagnostic

Detailed information about the options in the service menu is available in the iX Developer help file, in the Service Menu chapter.

In addition to the descriptions in the iX Developer help file, the TxB service menu also includes a Debug Logging and Diagnostic option. Debug logging is used for service purposes. Selecting this option makes it possible to enable/disable debug logging, and also copying the debug log to a USB memory stick. Diagnostic shows information about the hardware on the panel.

3.2 Hardware

This chapter describes how to maintain the TxB operator panel hardware. The chapter includes general information, hardware tests and certificates, technical data, a hardware replacement guide, and a fault tracing section.

The images in this chapter are illustrative and might differ slightly from reality depending on what panel you are working on.

Note:
Please refer to the Installation Manual for technical details.

3.2.1 General Information

Before the operator panels are approved for market introduction, they are tested by independent authorities. The TxB operator panels are examined by several authorities before being approved for market introduction.

All operator panels are designed to fulfill CE, UL, and other standards.

The quality policy and environmental policy place demands on all suppliers and subcontractors.

3.2.2 Tests

The manufacturer performs extensive hardware testing before the operator panel is approved. Some tests are performed by external testing companies.

All operator panels are submitted to testing before leaving the manufacturer.

3.2.3 Replacement

This section contains instructions on how to replace the operator panel hardware.

Only components included in the latest bill of material and spare parts list are allowed.

3.2.4 General Notes and Precautions

- Pictures are for illustration purposes only and may differ in color and/or detail from the end user's hardware.
- Always disconnect power and I/O cables before servicing.
- Work in an ESD safe environment.
- Observe proper torque specifications when tightening screws.
- Run the self-test application after servicing the operator panel or replacing an assembly.
- If possible, it's recommended to make a backup copy of the operator panel project.

3.2.5   Tools

The following tools are needed to perform maintenance.
- ESD protection
- Torx TX10 screwdriver
- Tweezers
- Wire cutters
- Bent needle nose pliers

3.2.6   Cables

Most of the operator panels use the same type of flex cable connectors.

To release the flex cables from the connector, gently push the two flanges on the cable connector towards the flex cable, or in some cases, a clip above the complete connector.

connector flanges
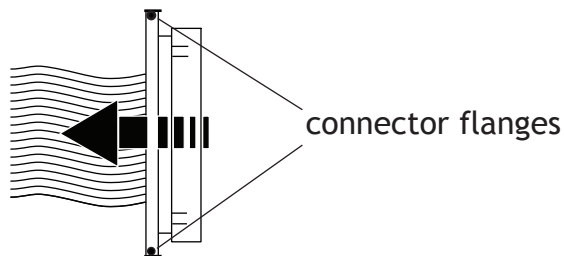
Caution:
The connectors must be unlocked on both sides before removing the cable, otherwise the flex cable may be damaged.
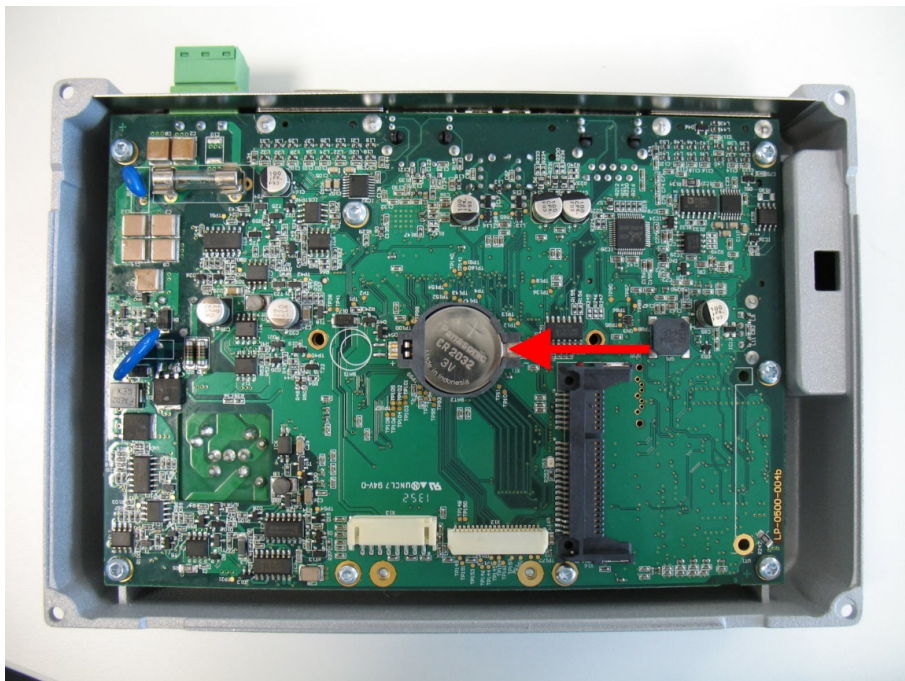
3.2.7 Battery Replacement

1. Disconnect power from the operator panel.

2. Disconnect all cables and remove any USB devices or SD card, if present.

3. Remove the four M3x8 screws and washers that secure the back housing to the operator panel, using a T10 Torx bit. Save the screws and the washers for reassembly.

4. Separate the back housing from the operator panel. Disconnect the front card power and the data cables from the carrier board.

5. Use a pair of tweezers and push the battery gently to the left in order to unlatch it from the battery holder.

6. Replace the battery, make sure that the polarity is correct.

Note:
Recycle the removed battery according to the local regulations.

7. Connect the front card power and the data cables to the carrier board.

8. Secure the back housing to the operator panel with the four M3x10 (or M3x8 without cable tie mounting bracket) screws and washers, using a T10 Torx bit. Tighten the screws to 45 ± 15% N-cm (4 ± 15% lbf-in).

3.2.8 Display Assembly Replacement

1. Disconnect power from the operator panel.
2. Disconnect all cables and remove any USB devices or SD card, if present.
3. Remove the twelve M3x12 screws and washers that secure the back adaptor cover, using a T10 Torx bit. Save the screws and the washers for reassembly.
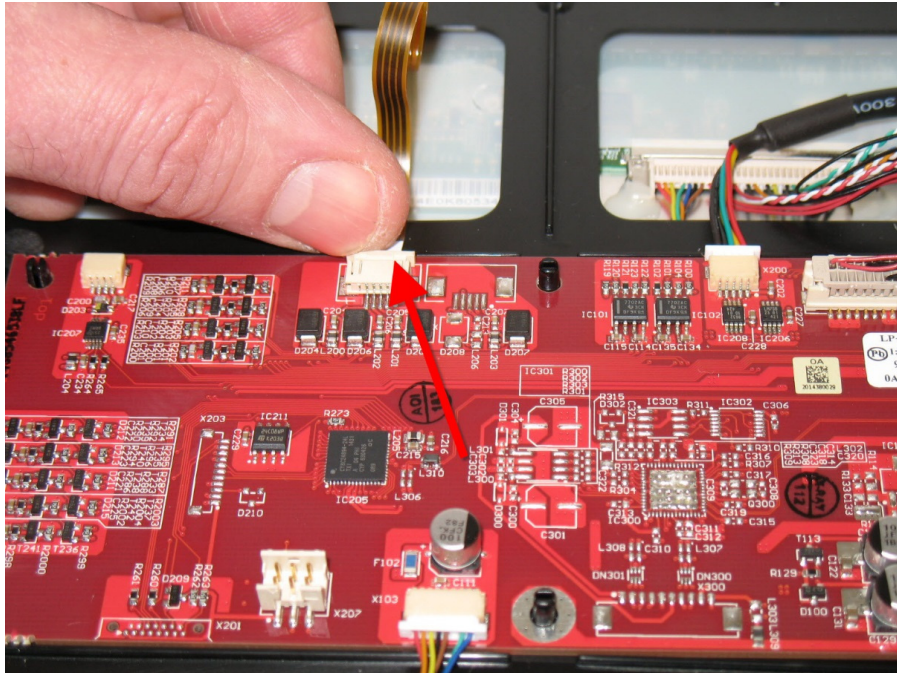
4. Lift to open the back of the operator panel.
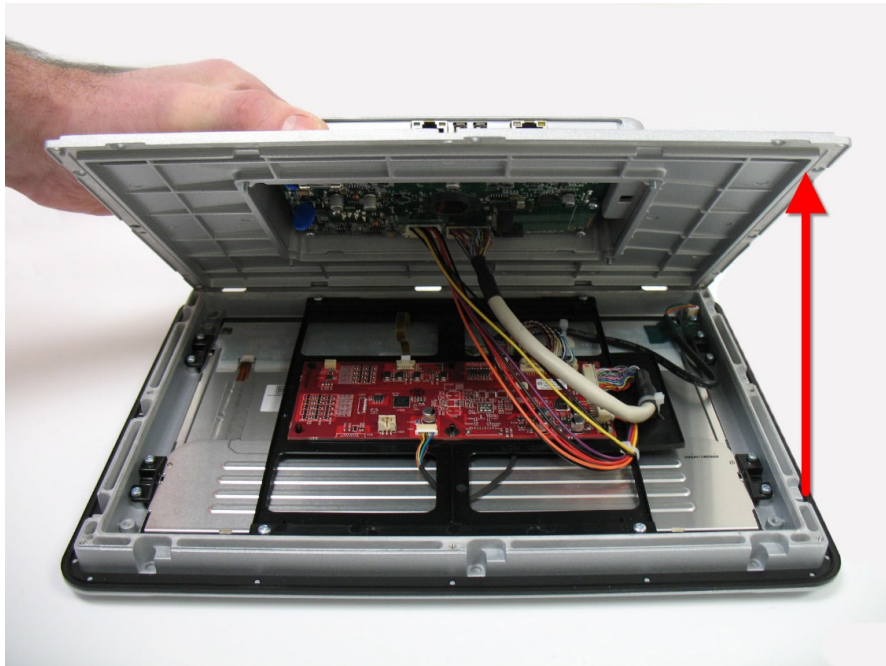
5. Cut the nylon cable ties from the front card power and the data cables. Disconnect the front card power and the data cables from the front card and the carrier board. Set aside both cables and the back of the operator panel.
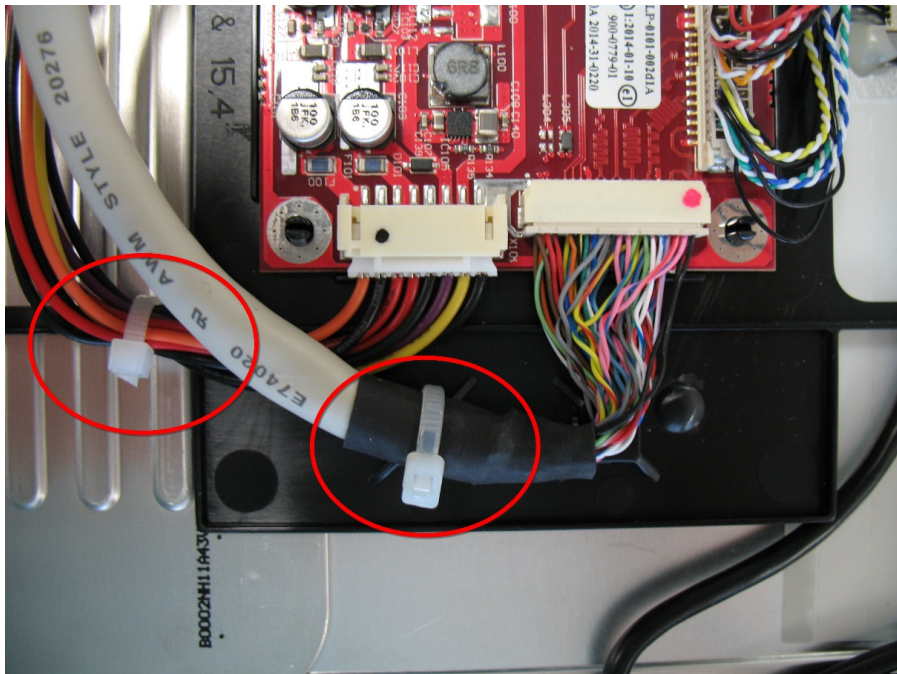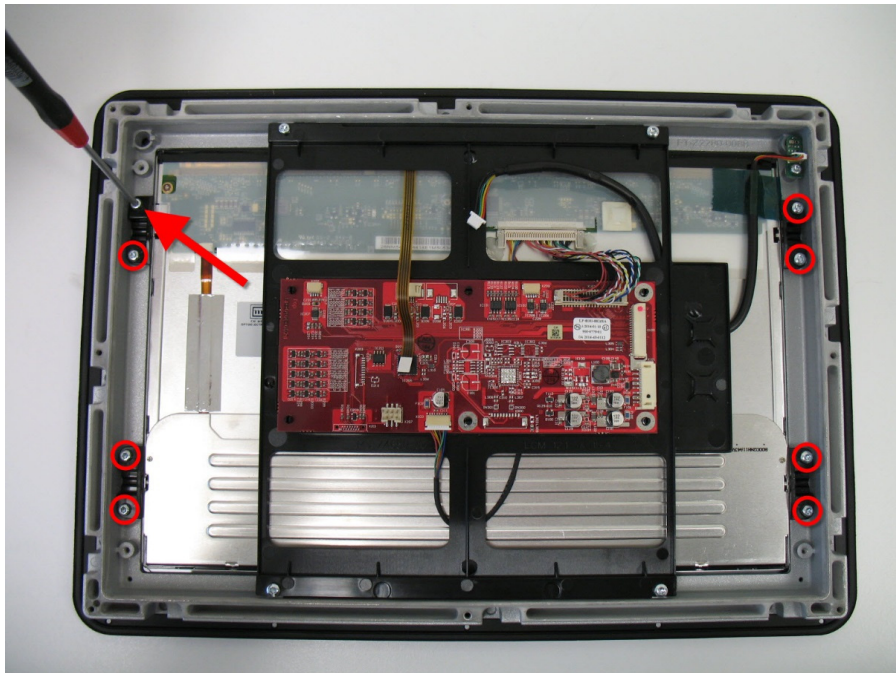
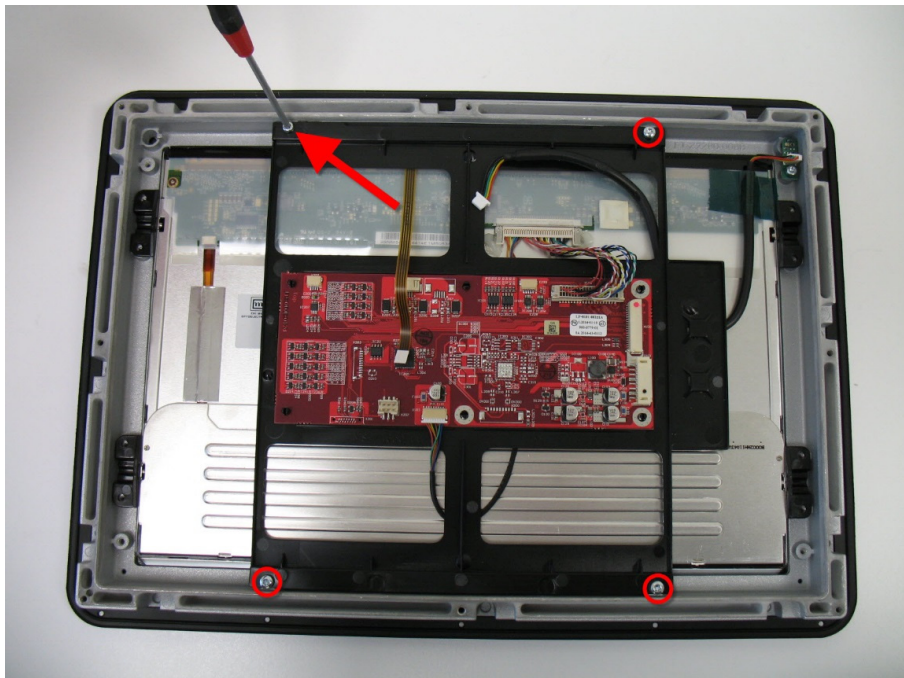6. Disconnect the touchscreen flex cable from the front card.

7. Cut the nylon cable tie that secures the LED cable. Disconnect the LED cable from the front card.
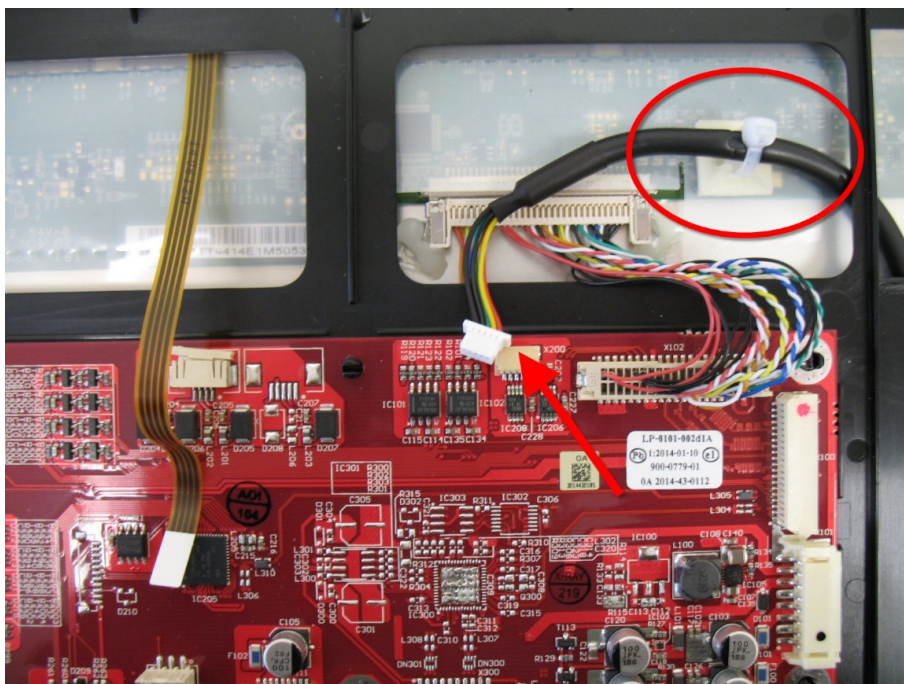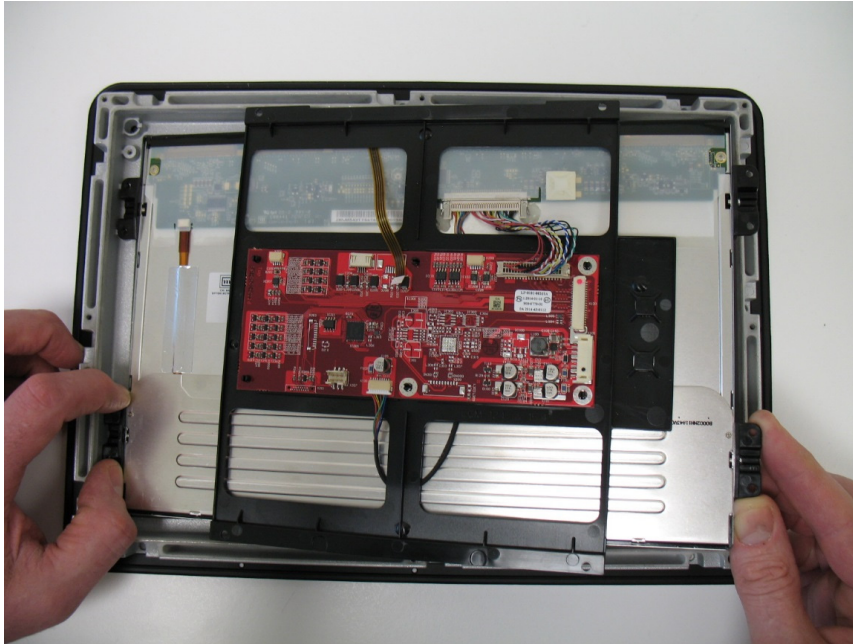
8. Remove the eight M3 screws on the display brackets. Save screws for reassembly.

9. Remove the four M3 screws from the plastic frame. Save the screws for reassembly.

10. Remove the display and front card assembly from the front chassis.

11. Remove the protective film from the front of the new display, if present. Make sure the inside surface of glass is clean.

12. Make sure the rubber gasket is intact and clean. On the T7B the gasket is on inside of the front chassis and on the T12B and the T15B the gasket is on the front of the new display.

13. Place the new display and front card assembly into the front chassis. Secure the plastic frame with the four M3 screws. Tighten the screws to 45 ± 15% N-cm (4 ± 15% lbf-in).

14. Secure the display brackets with the eight M3x6 screws, using a T10 Torx bit. Tighten the screws to 45 ± 15% N-cm.

15. Connect the touch screen flex cable to the front card.

16. Connect the LED cable to the front card. Secure it with a nylon cable tie. Trim off the excess cable tie end. Replace the plastic mounting boss if necessary.
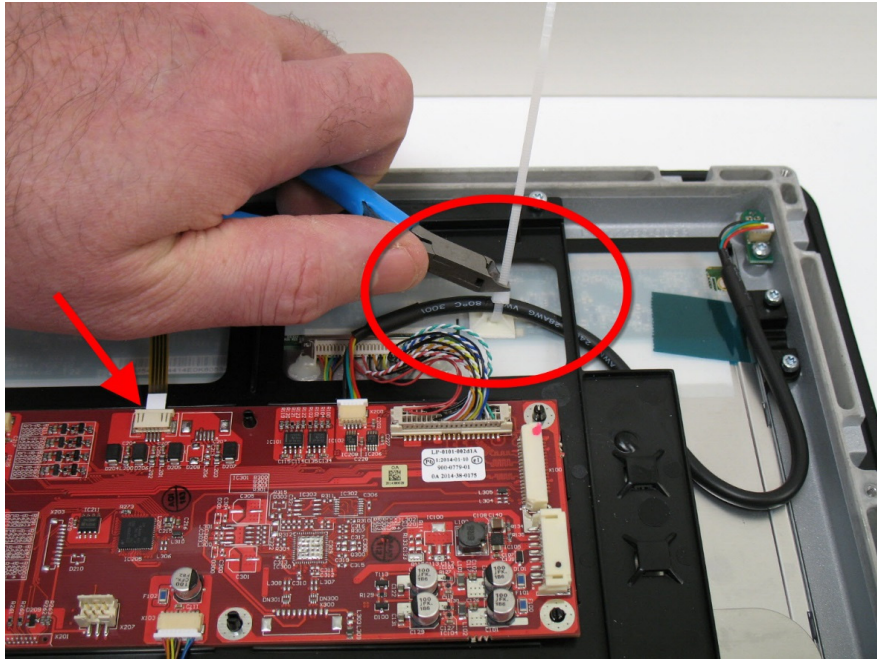
17. Connect the front card power and data cables to the front card. Secure both cables to the front card mounting bracket with nylon cable ties. Trim off the excess cable tie ends.
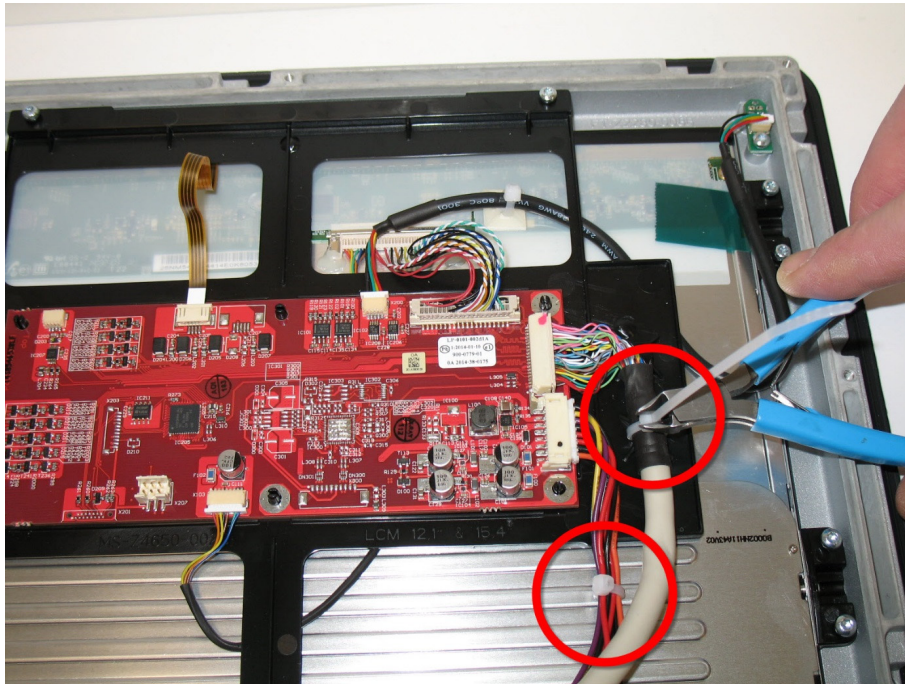
18. Connect the front card power and data cables to the carrier board.

19. Place the back of the operator panel on the front of the operator panel and secure it with the twelve M3x12 screws and washers, using a T10 Torx bit. Tighten the screws to 45 ± 15% N-cm (4 ± 15% lbf-in).

3.2.9 Front Frame Assembly Replacement

1. Disconnect power from the operator panel.
2. Disconnect all cables and remove any USB devices or SD card, if present.

3. Remove the twelve M3x12 screws and washers that secure the back adaptor cover, using a T10 Torx bit. Save screws and washers for reassembly.


4. Lift open the back of the operator panel. Disconnect the front card power and data cables from the carrier board. Set aside the back of the operator panel. Front card power and data cables do not need to be removed from the front card. Images in the steps below are shown without these cables and are for illustrative purposes only.
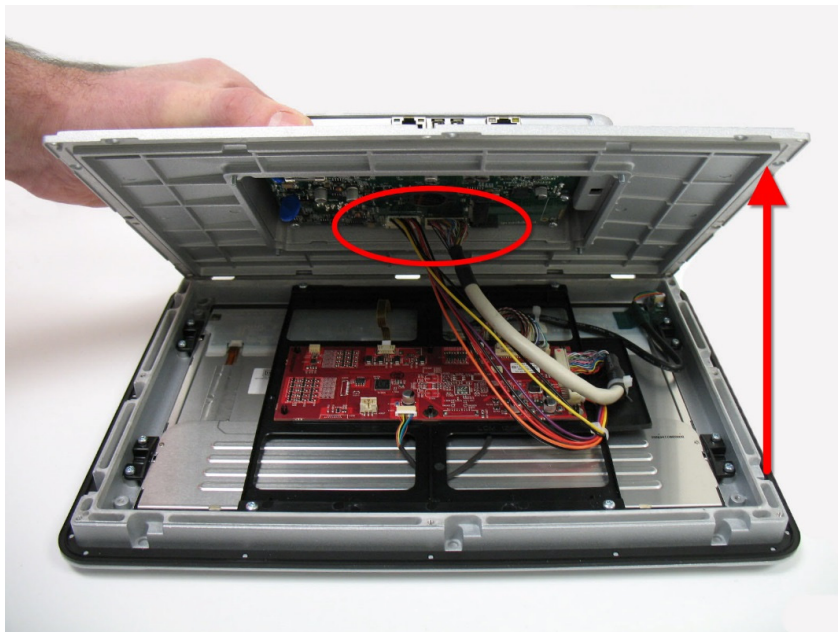
5. Remove the polyimide film tape on the touchscreen flex cable. Disconnect the touchscreen flex cable from the front card.
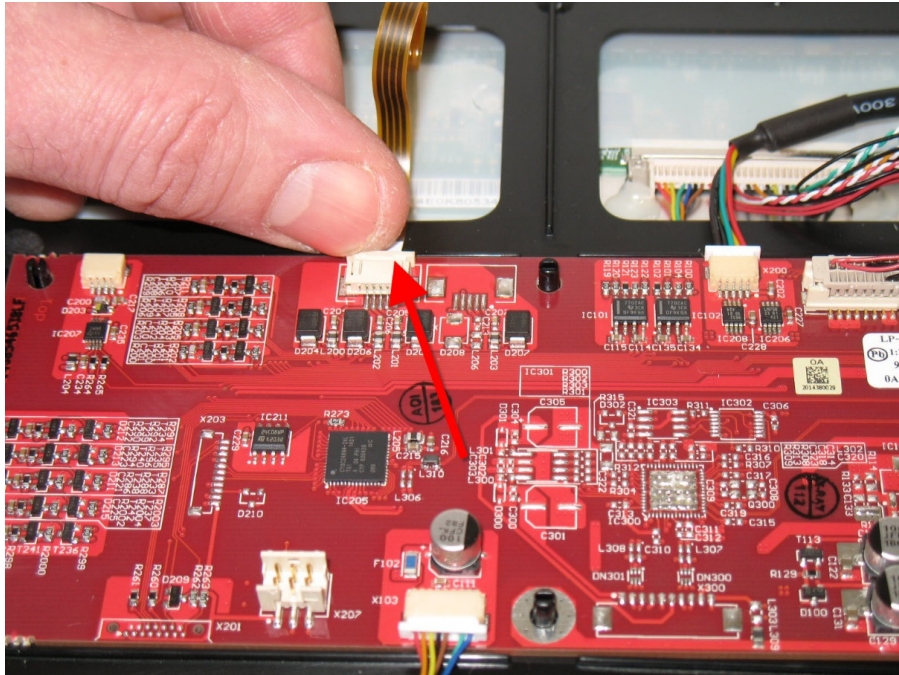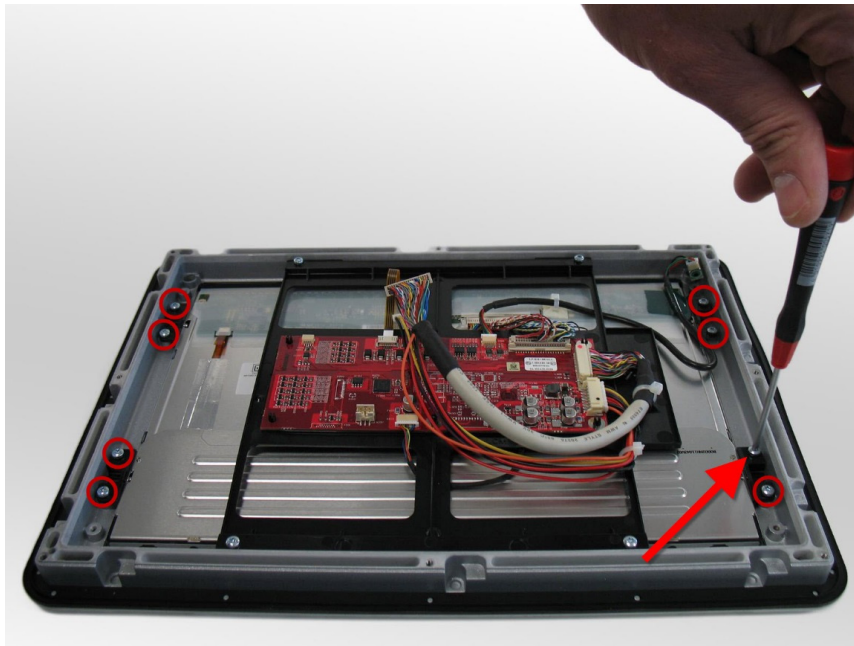

6. Remove the M3x4 screw that secures the LED board using a T10 Torx bit. Save the screw for reassembly.
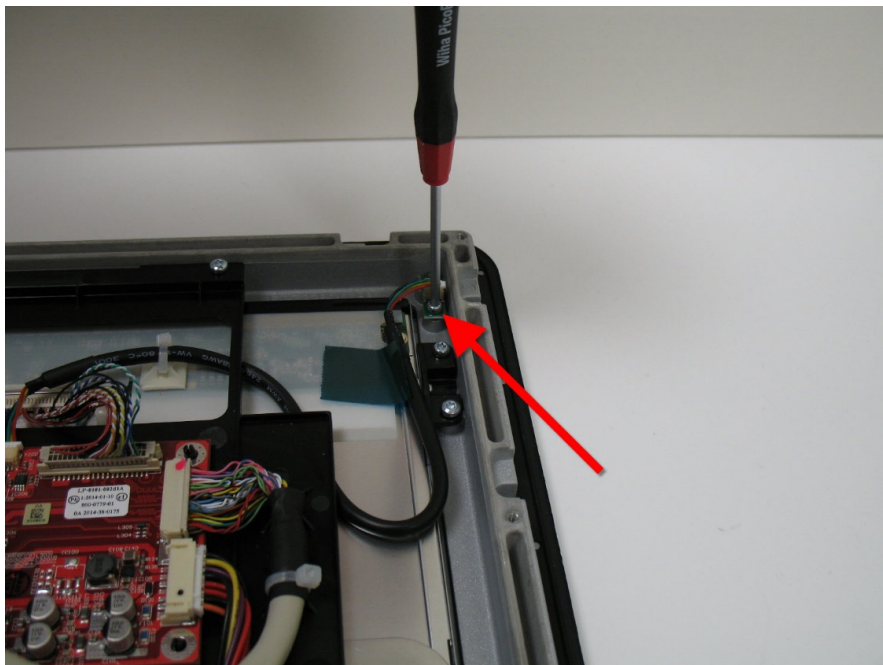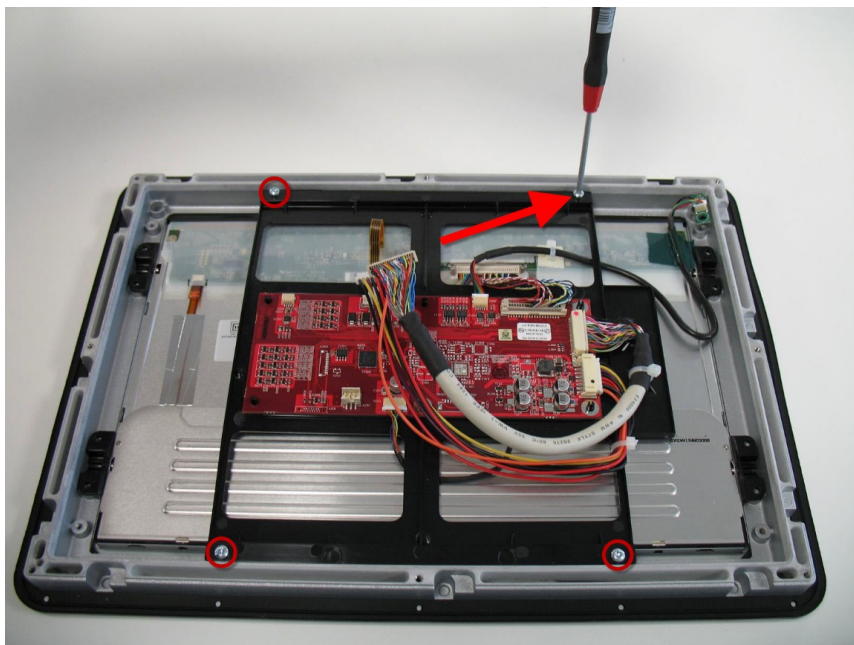

7. Remove the LED board from the mounting boss.

8. Remove the eight M3 screws on the display brackets. Save the screws for reassembly.

9. Remove the four M3 screws from the plastic frame. Save the screws for reassembly.

10. Remove the display and front card assembly from the front chassis.

11. The front frame assembly contains a LED board and cable. This can be used if the LED is not working. If the LED is working properly the LED-board can be removed by unscrewing the M3-screw.

12. Place the display and front card into the new front frame assembly. Secure the plastic frame with the four M3 screws. Tighten the screws to 45 ± 15% N-cm.

13. Secure the display bracket with the eight M3 screws. Tighten the screws to 45 ± 15% N-cm.

14. Connect the touch screen flex cable to the front card.

15. Place the LED board on the mounting boss and secure it with the M3 screw. Tighten the screws to 45 ± 15% N-cm.

16. Connect the front card power and data cables to the carrier board.

17. Place the back of the panel on the front of the panel and secure it with the twelwe M3 screws and washers. Tighten screws to 45 ± 15% N-cm.

3.2.10   Carrier Assembly Replacement

1. Disconnect power from the operator panel.
2. Disconnect all cables and remove any USB devices or SD card, if present.
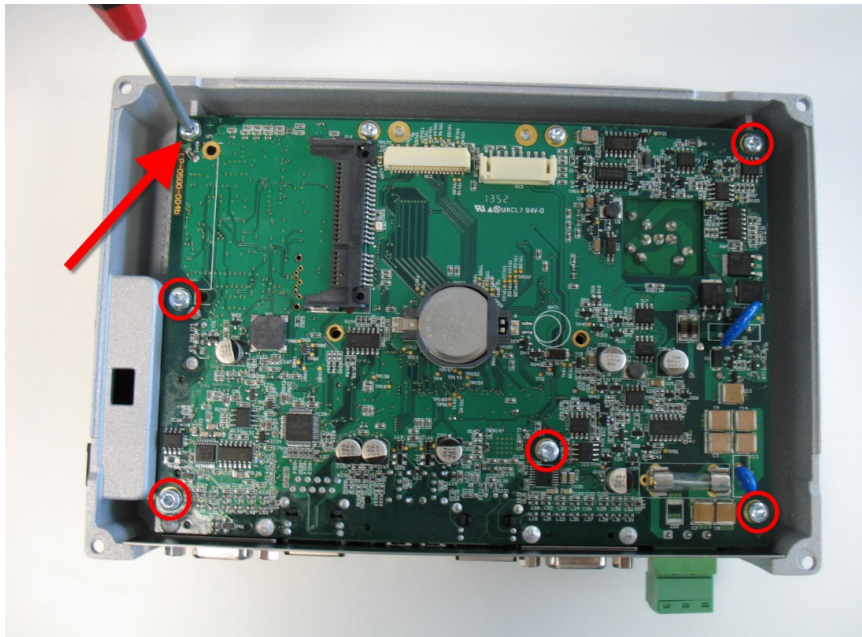
3. Remove the back housing of the operator panel by removing the four Torx M3 screws and washers.
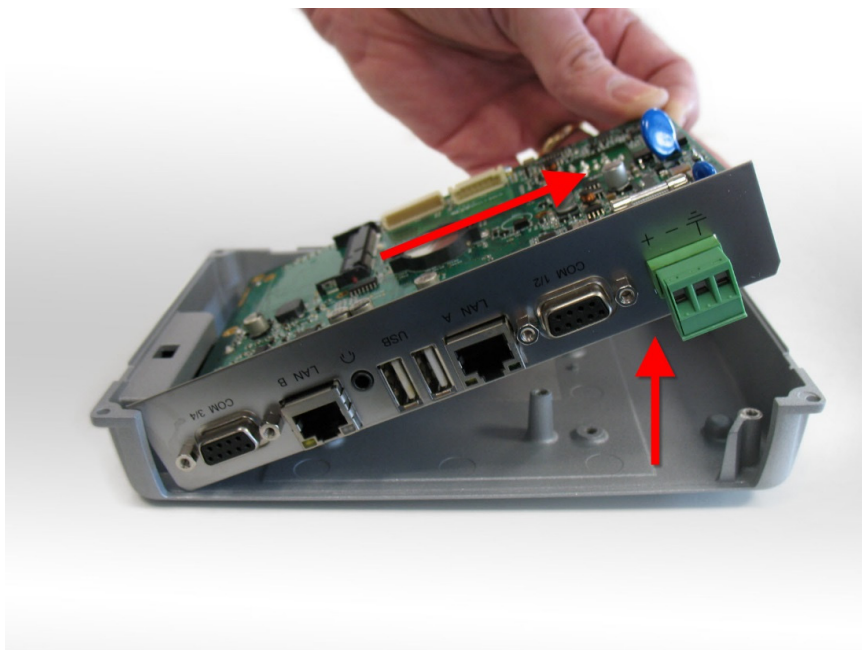

4. Separate the back housing from the operator panel. Disconnect front card power and data cables from the carrier board.
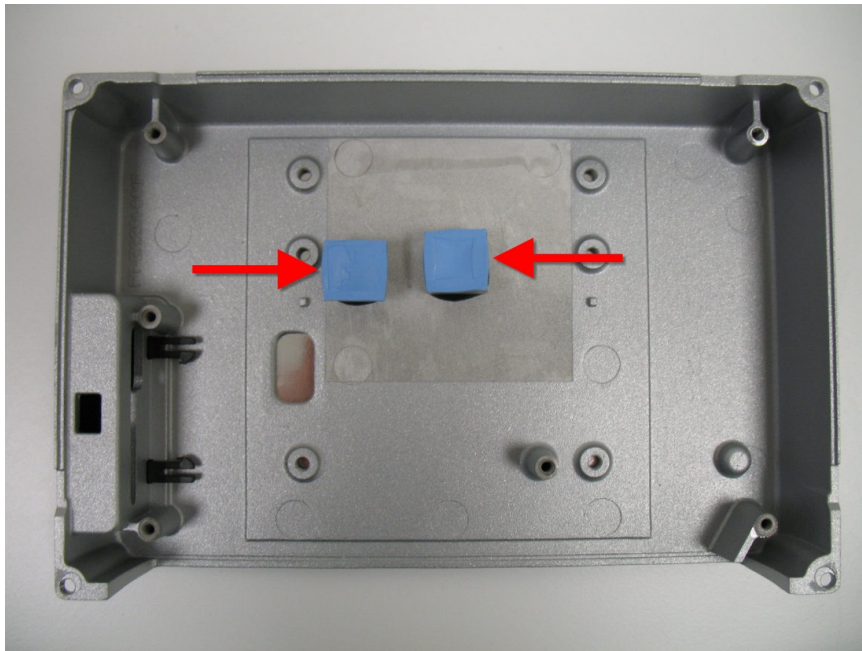
5. Remove the six Torx M3 screws that secure the carrier board to the back housing. Save the screws for reassembly.
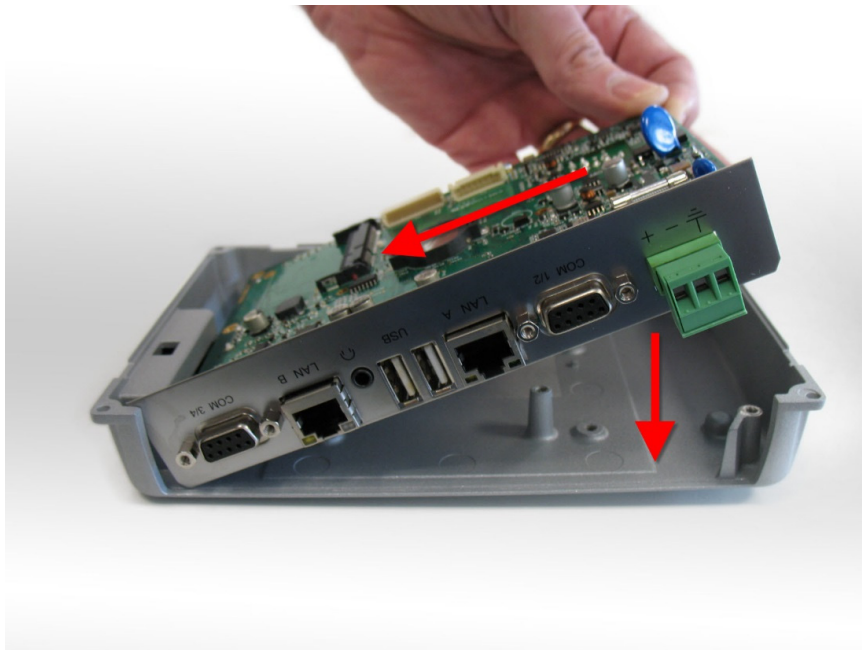

6. Remove the Carrier board from the back housing.

7. Remove the old thermal pads from both of the heat spreaders in the back housing. Clean off any residue from the heat spreaders.

8. Place the new thermal pads on both of the heat spreaders. Make sure the plastic film is removed from both sides of each pad.

9. Place the new carrier board assembly into the back housing by sliding the carrier board into the side of the back housing with the plastic door. Then position the carrier board over the six mounting bosses.

10. Secure the carrier board to the back housing with the six torx M3 screws. Tighten the screws to 45 ± 15% N-cm.

11. Connect the front card power and data cables to the carrier board.

12. Secure the back housing to the operator panel with the four torx M3 screws and washers. Tighten the screws to 45 ± 15% N-cm.

4 Fault Tracing

The following fault tracing list can be used to identify faults in the operator panel.

Problem	Solution
The operator panel is not working properly. Power LED is off.	1. Is the power voltage correct? 2. Does the power supply deliver enough current? 3. Check the fuse.
The operator panel is not communicating with the controller.	1. Check the communication cable between the units. 2. Check that the operator panel has a controller driver downloaded. 3. Check that the correct controller driver is used. 4. Check the communication ports on the CPU board.
The operator panel is working but the backlight is off.	1. Check the backlight dimming. 2. Check that the backlight is connected to the Front Adapter board.
The operator panel is not working, the backlight is off but the power LED is on.	1. Check the backlight dimming. 2. Check the CPU board for burned components. 3. Download new firmware to the operator panel.
The operator panel does not include the latest firmware.	1. Check the versions included with the operator panel. 2. Make sure that a copy of the project is saved to the computer. 3. Download an updated image with the Image Loader and follow the directions.
The touch screen is malfunctioning or is not responding at all.	1. Re-calibrate the touch screen. 2. Check that the flex cable is correctly fitted. 3. Replace the Front of the operator panel.
Lines in display has wrong color or the display picture is shifted.	1. Make sure the display cable is correctly fitted. 2. Make sure the display cable is not folded or damaged in any way. 3. Replace the display cable

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