



Instructions for Installing a Spare iBox

This instruction applies to field replacement of an iBox using a spare iBox.

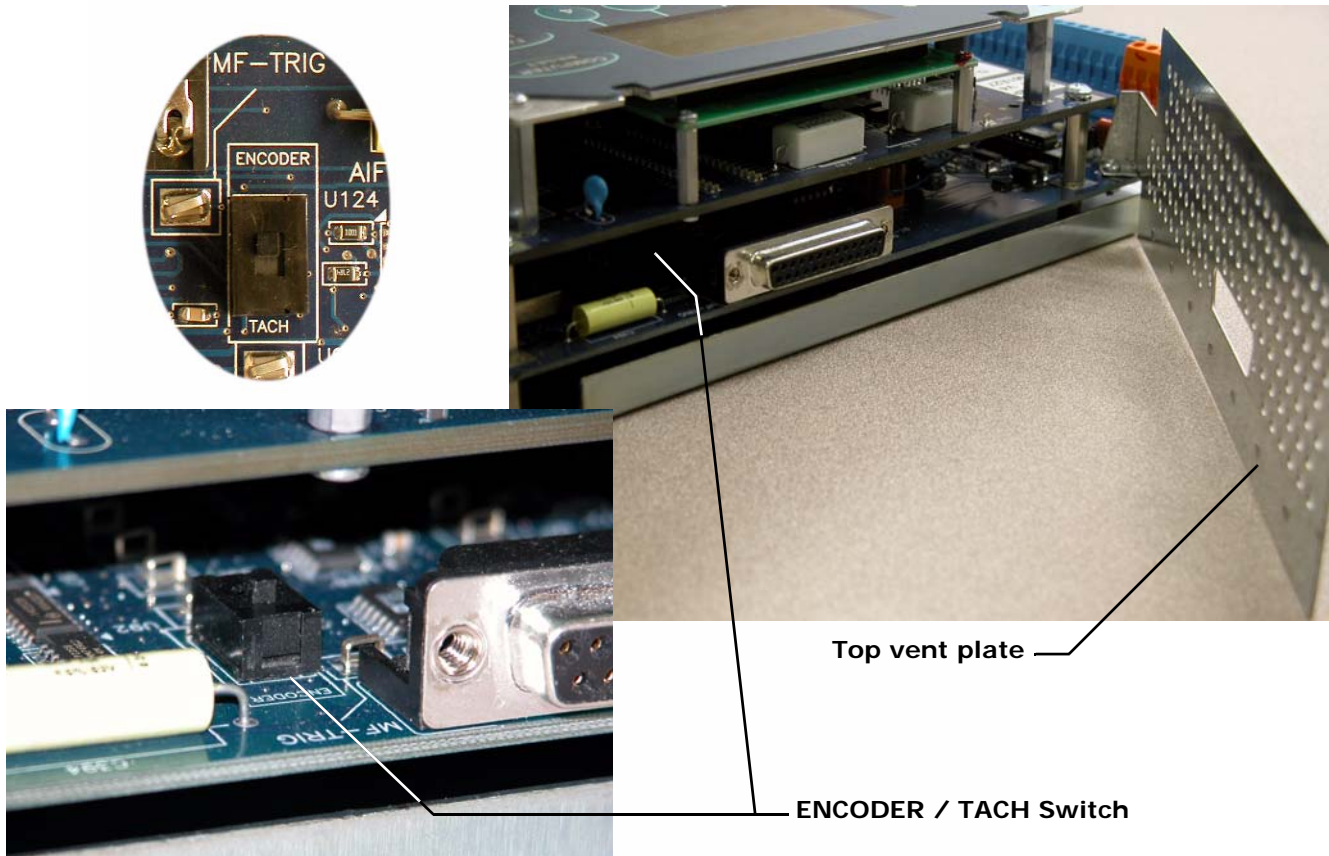
Recommended Tools The following tools are recommend for performing this procedure.

- Medium flat blade screwdriver
- #1 Phillips screwdriver
- 3/16" Nut driver
- MCE screwdriver

Installation Instructions

1. To ensure that no one becomes trapped, capture the car on which the iBox needs to be replaced. Place the iBox CAPTURE switch in the ON position, allow the car to service all remaining calls and then verify that all passengers have exited the car.
2. Place car on Test (iBox TEST switch in the ON position).
3. Place car on Inspection (iBox INSPECTION switch in the INSP. position).
4. If possible, use iView to connect to the malfunctioning controller and save the parameters (File > Configuration File > Save). Write down the location of saved parameters file.
5. Navigate the OBD to obtain the IP Address 1 information and make note of them for later use.
6. Remove power from the controller.
7. Disconnect LAN Ethernet and System Ethernet connections.
8. Disconnect all field wiring terminals and internal terminals connected to the iBox.
9. If there are boards below the iBox, they must be moved down so that they are disconnected from the iBox. Loosen the screws that hold those board(s) to the rail, just enough to allow them to slide down (but do not remove the screws).
10. Remove the screws that fasten the iBox to the iPower Box. Then carefully move the bottom of the iBox out and down to disconnect it from the boards above, and remove the iBox from the controller cabinet.
11. If possible place both the malfunctioning iBox and the replacement iBox on a flat working surface. If that is not possible, at least perform steps 12, 13 and 14 before installing the replacement iBox in the controller.
12. Remove the covers from the iBoxes (use medium flat blade screwdriver if necessary).
13. On the replacement iBox, verify the setting of the Encoder / Tach switch in the upper right corner of the ICE-SAF board. This is most easily accomplished by removing the D-Sub connector jack-screws (using a 3/16" nut driver) and swinging the top-vent plate away from the boards (see Figure 1). The switch must be positioned as follows:
 - ENCODER (up position) = AC drive with velocity encoder connected to the AC drive.
 - TACH (down position) = DC drive or AC drive with velocity encoder connected to the iBox VELOCITY inputs.

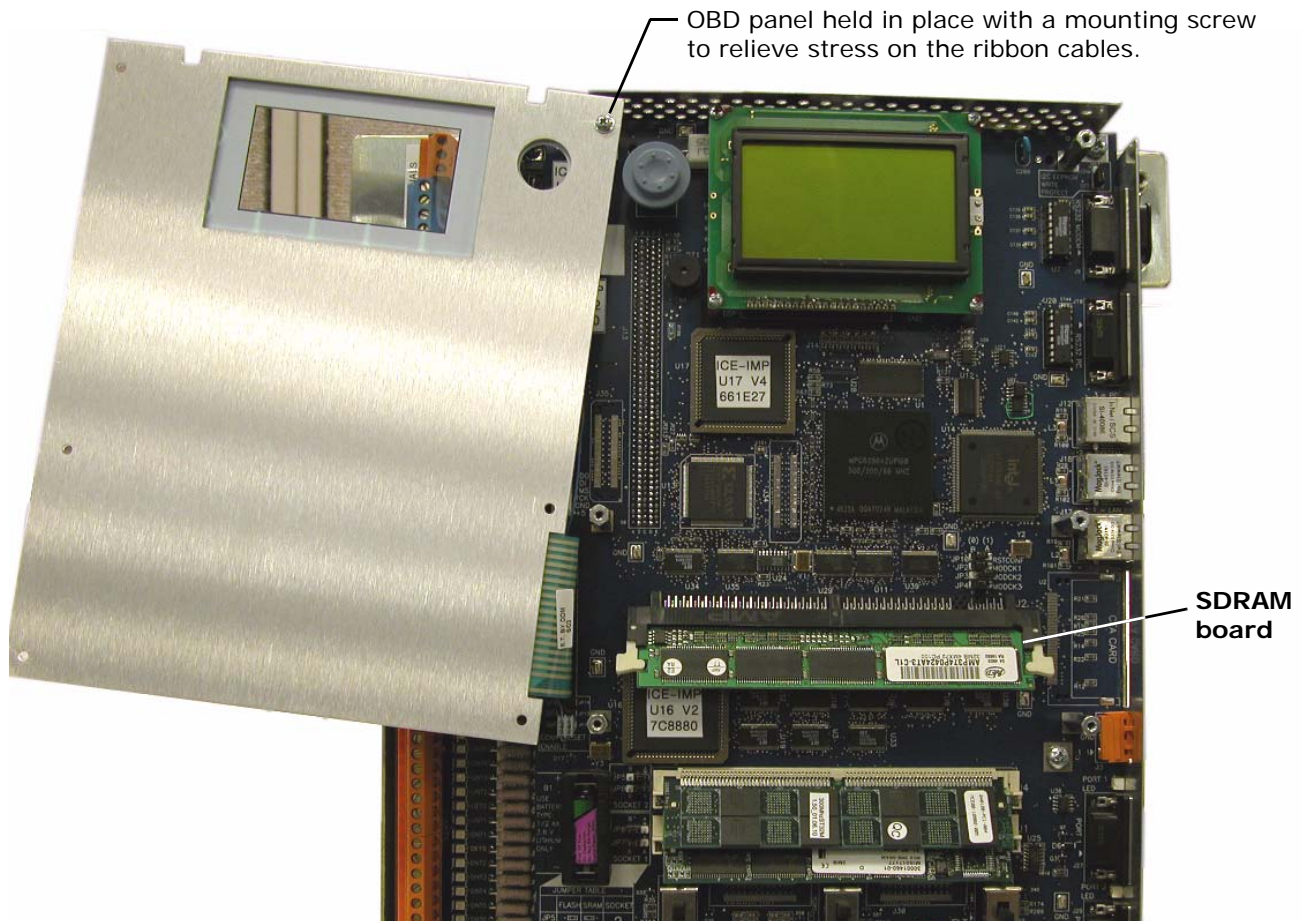
Figure 1. Verifying the setting of the Encoder / Tach Switch



14. Reposition the top-vent plate and re-install the D-Sub connector jack-screws.
15. On both iBoxes, remove the six screws that hold the OBD panel in place (don't loose the star washers). Carefully lift the right side of the OBD panel and swing it open. Take care to not stress the ribbon cables where they connect to the OBD panel, as this will cause damage. If the iBox is in a vertical position, use a mounting screw to fasten one corner of the OBD panel to a standoff to prevent stress on the ribbon cable (see Figure 2).

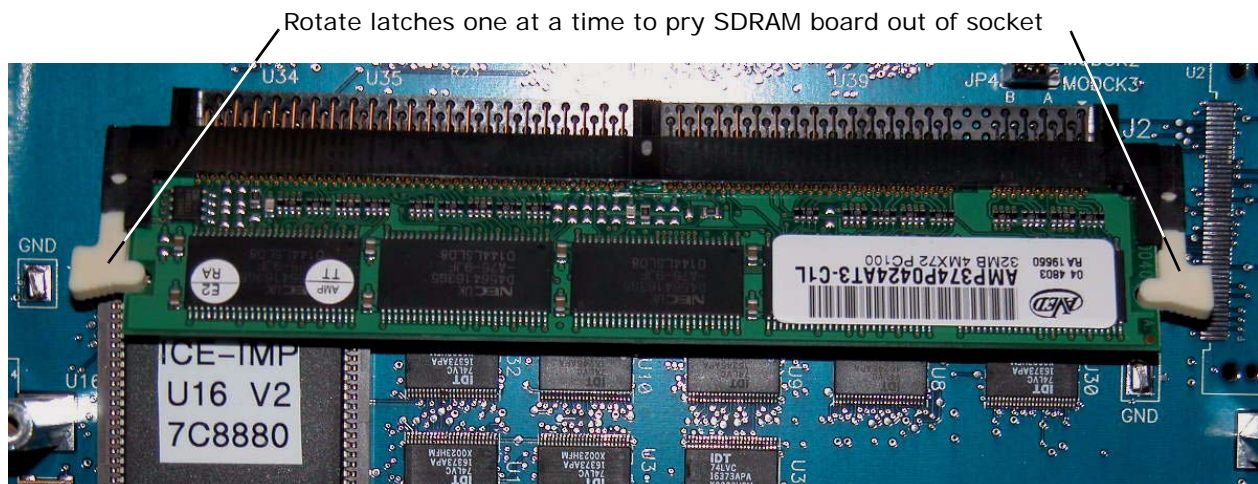
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Figure 2. iBox with OBD Panel rotated to expose SDRAM board



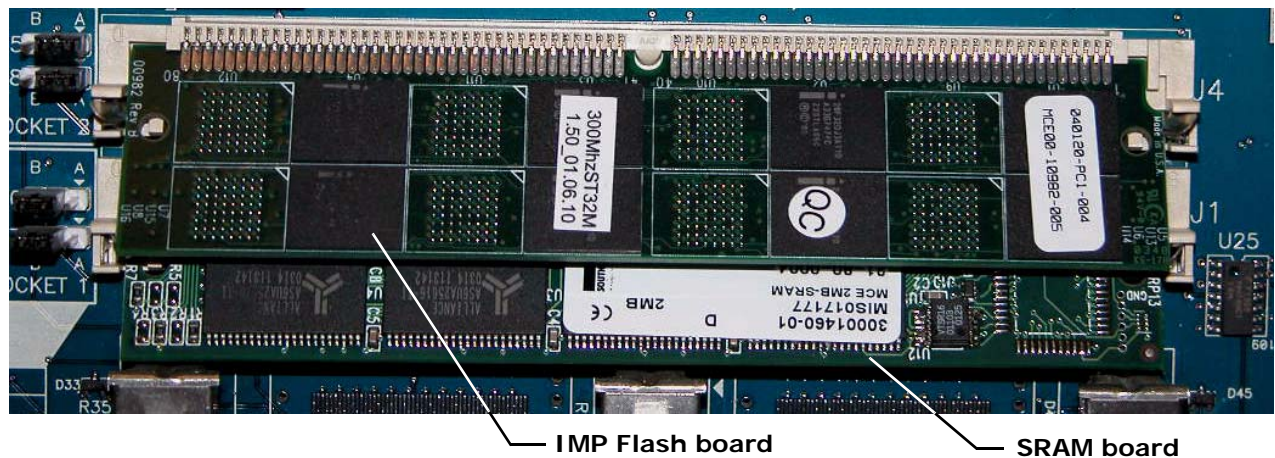
16. With a properly grounded wrist strap attached to your wrist, remove the SDRAM board from the socket (see Figure 3). Rotate the latches out of the notches on each side of the SDRAM board. Then continue to rotate the latches, first one side and then the other, to pry the SDRAM board out of the socket.

Figure 3. SDRAM board (behind iBox OBD panel on ICE-IMP board)

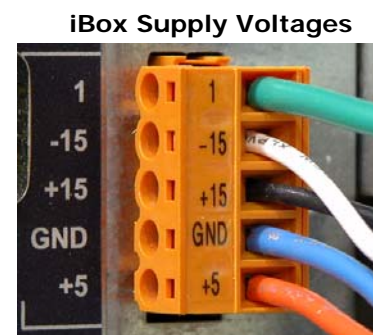


17. Install the SDRAM board from the malfunctioning iBox in the replacement iBox (and vice versa). Position the SDRAM board in the socket and then press first one side and then the other into the socket. Press the latches into the notches on each side of the SDRAM board.
18. Reposition the OBD panel over the standoffs on the ICE-IMP board and re-install the screws and star washers.
19. With a properly grounded wrist strap attached to your wrist, remove IMP Flash and SRAM boards (see Figure 4). Move the latches to the side and gently tilt the boards forward.

Figure 4. IMP Flash and SRAM boards (on ICE-IMP board)



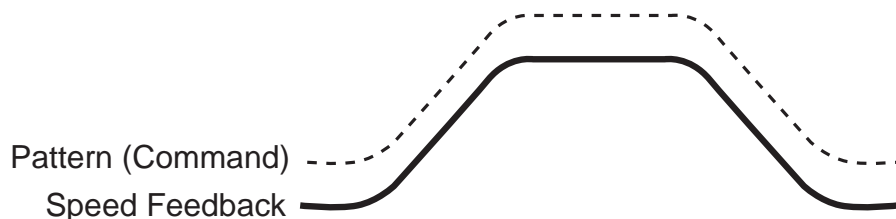
20. Install the IMP Flash and SRAM boards from the malfunctioning iBox in the replacement iBox (and vice versa). Verify that the edge-connector traces on the board line up with the fingers on the connector.
21. Replace the iBox covers.
22. If it hasn't been already, install the replacement iBox in the controller cabinet.
23. Place the iBox INSPECTION switch in the INSP position.
24. Place the iBox CONTROLLER STOP switch in the STOP position.
25. Reinstall the iBox power terminal connector (upper right side) and restore power to the controller.
26. Check iBox power supply voltages and verify that all incoming voltages are correct.
27. Verify that the 2 Bus and 3 Bus voltages are correct. (2 bus = 120VAC, 3 bus = 110VDC)
28. Remove power from the controller.
29. Reconnect all original terminal connectors to iBox.
30. Reconnect LAN Ethernet cable (only) to iBox.
DO NOT RECONNECT THE SYSTEM CABLE.
31. Restore power to the controller.
32. Modify the IP address on the replacement iBox to match what was noted in step 5, and save the IP address.



33. Reboot the iBox (press the Computer Reset button).
34. Launch iView and connect to the controller.
35. Go to the Safety Configuration page and enable (check) the Construction Mode option. Then relearn the safety configuration. Verify that the “Safety Configuration OK” message is displayed in the message box.
36. Check the fault status on iView and make changes required to correct any faults. If you encounter any “Vector checksum or Vector Configuration Cross Check” faults, you will need to relearn the vectors. If you have never done this before, call MCE and a technical support person will assist you.
37. Reset fire service if necessary.

Tach Trimpot adjustment If an analog tachometer is used for speed feedback on a DC drive system (System 12) or a digital speed encoder is directly connected to the AC drive (TORQMAX), please refer to following procedures to adjust the TACH ADJ. trimpot located on the upper right side of the iBox.

1. Display the iView Virtual Oscilloscope.
2. Set Test point 1 = Pattern (Command) and Test point 2 = Speed Feedback.
3. Run the car on Inspection (set the iBox CONTROLLER STOP switch to RUN). Use the iBox ENABLE and UP or DOWN switches to run the car.
4. On the iView Oscilloscope (or a DVM connected between STP1 and STP2), compare the Pattern (Command) and Speed Feedback readouts.
5. Slowly adjust the TACH ADJ. trimpot until car speed, Speed Feedback, matches commanded speed, Pattern (Command). They must match within 0.050 VDC while the car is running at steady state speed. The iPower Box door can be opened slightly to improve access to the TACH ADJ. trimpot. *Turn the pot slowly.* This is a 15 turn trimpot, but the adjustment from maximum to minimum on the virtual oscilloscope is less than 1/2 turn.
6. If the trimpot adjustment is insufficient, adjust the Speed reference scaling parameter up or down in 0.1 increments (Drive > General tab). Remember to Send the value to the controller, and then again adjust the TACH ADJ. trimpot.
7. Repeat procedures 3 through 5, in both up and down directions, until the correct speed is achieved.



Installation Instructions (continued)

38. On iView, go to the Safety Configuration page and disable (uncheck) the Construction Mode option. Then relearn the Safety Configuration.
39. Put car on Test (iBox TEST switch in the ON position).
40. Perform the Terminal Switches Learn operation.
41. Run car on a normal high speed and verify that the speed values from the OBD and iView are correct.
42. Put the car on Automatic/Passenger mode (iBox TEST switch = OFF, INSPECTION switch = NORMAL).
43. Reconnect the System Ethernet Connection and verify that the “SYS COMM” status LED on the iBox is lighted.
44. Verify that the car can answer car calls and hall calls.
45. If not already done, install the SDRAM, IMP Flash and SRAM in the malfunctioning iBox and install the cover.
46. Pack up the malfunctioning iBox in preparation for shipping back to MCE, if it was under Warranty Exchange.