

Bulletin No.	SVC-FSB-0012 Rev A
Release Date	1/23/14
Contact	ngceoservice@ngc.com

Product

All eDrive Configurations

Special Information

INFORMATION: This service bulletin is for informational purposes only. It is intended for use by Northrop Grumman Cutting Edge Optronics (NG CEO) employees and is distributed to non-NG CEO employees as a courtesy. NG CEO assumes no liability for any inaccuracy in the content of this document or for any damage caused by the information or advice provided. Please contact NG CEO Technical Service for further assistance.

NOTE: The TINI module requires firmware to be programmed. The standard practice is to program the firmware for the specific eDrive serial number at NG CEO. Please refer to SVC-FSB-0014, *eDrive System Controller Firmware Programming Instructions*, if needed.

Replace the eDrive TINI Module and Battery

Over time, the battery on the TINI module in 2U and 4U eDrive controllers will lose its ability to store eDrive system settings. The battery, or the entire TINI module, must be replaced. The 4U eDrive configuration has the Expansion module mounted on top of the System Controller, and thus access to the TINI module is blocked by the Expansion module. First remove the Expansion module and then service the TINI module.



WARNING. Hazardous voltages are present during normal operation. Before removing the cover, the power source should be disconnected and a period of 20 minutes allowed for the discharge of stored capacitance. Use a voltmeter to verify all electronics are discharged before touching or grounding of electrical connections.

TINI Module Removal and Replacement

1. Remove the eDrive top cover by removing the 22 Phillips-head attachment screws.
2. The TINI module is on the system controller circuit card.
3. Free the TINI module by pulling outward on the two locking tabs. The TINI module will pop up from the socket. See Figure 1

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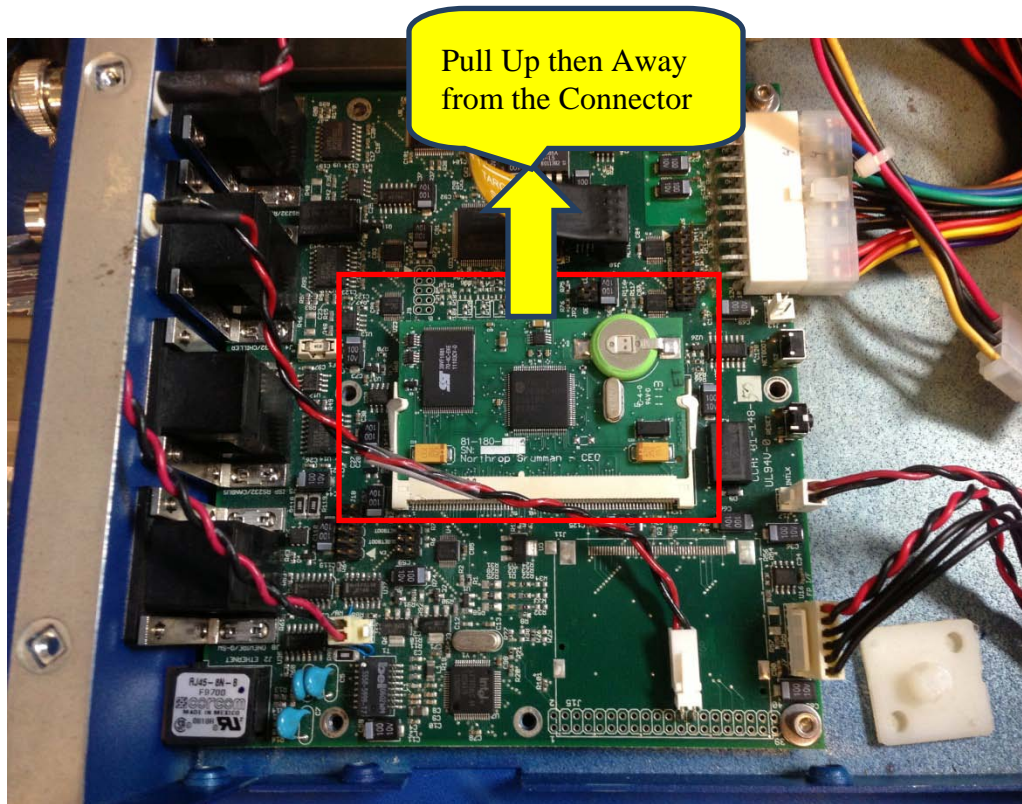


Figure 1, TINI Module

4. Lift the TINI module up.
5. Pull the old TINI module out.

To replace the TINI module battery, see Figure 2

6. Obtain battery BR-1632A/FAN
7. Use a soldering iron and remove the old battery
8. Solder the new battery on the TINI module.
9. Insert the new TINI module.
10. Push down on the edge opposite of the connector to engage the retaining tabs.
11. Install the eDrive top cover.
12. Verify all of the eDrive settings prior to attaching to a load.

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Figure 2 Replaceable TINI Module Battery

Expansion Module CCA Removal and Replacement (4U only)

Removing and replacing the expansion module CCA is straight forward. However, when replacing the unit, care must be taken to insure that connectors do not slide down beside the pins instead of engaging them.

1. Remove top cover of eDrive by removing the 22 Phillips-head attachment screws.
2. Remove the cables from expansion module insuring they are marked with the “J” (jack) number on the circuit card. Marking each cable is important to ensure proper placement during re-assembly. If not currently identified each cable should be marked with a unique identifier. (A fine tip marker can be used to mark each of the two pin connectors.)
3. Use a 7/64 hex driver to remove the nine (9) 6-32x1/4” screws, lock washers and NAS flat washers attaching the existing expansion module CCA (See Figure 3, below). Take care that parts are not dropped into the controller as this may lead to electrical shorting of components.

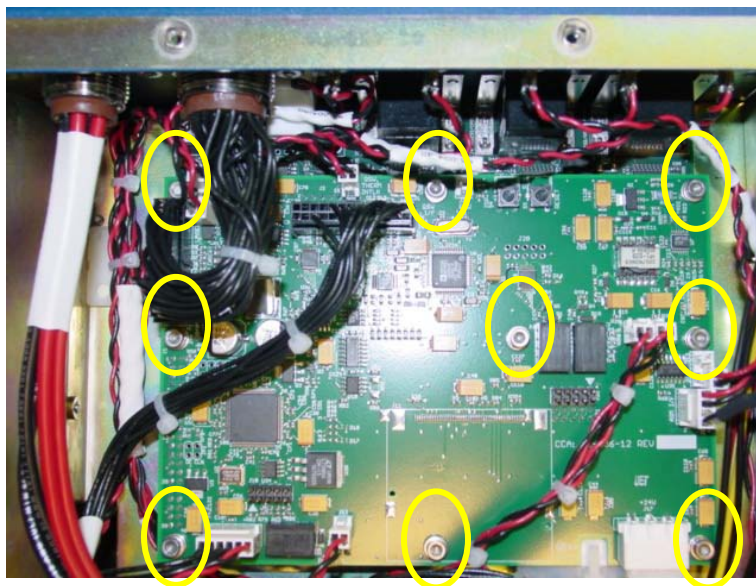


Figure 3 Location of Expansion Module CCA Attachment Hardware

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4. For the following steps, insure ESD procedures are followed while handling the circuit card assembly. Lift the expansion module evenly from both front and back to insure the pins on system controller do not get bent.
5. Follow the steps in the *TINI Module Removal and Replacement* section above to service the TINI module
6. Verify that all of the connector pins on the system controller board (under the expansion module CCA) are straight up and down (not bent). If any of the pins were bent while removing the expansion module, they will need to be straightened before installing the expansion module CCA. Place the expansion module CCA over the system controller card so that screw holes are aligned with each of the stand-offs. Each of the electrical connectors on bottom of the expansion module must align with the pins on system controller board. See Figures 4 and 5, below.

(NOTE: This step is critical. If misaligned, the connectors can slide down beside the pins instead of engaging them and the eDrive will not work.)

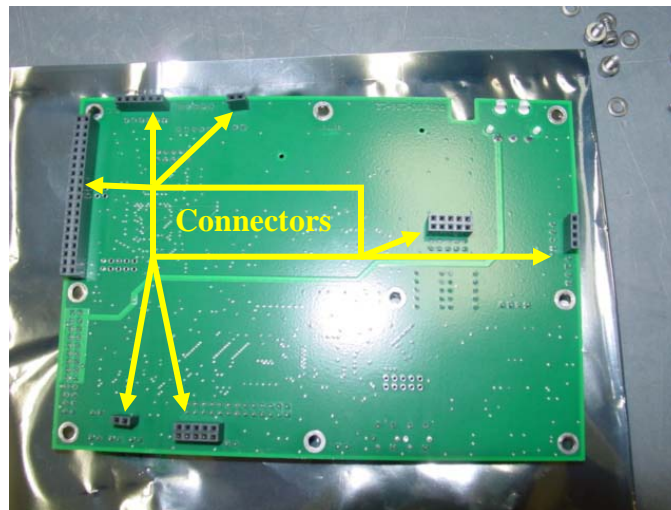


Figure 4 Electrical Connectors on the Back-side of the Expansion Module CCA

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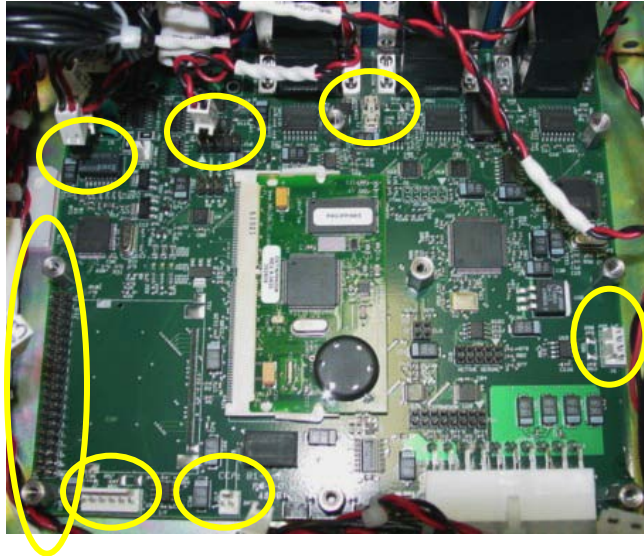


Figure 5 Electrical Connections on System Controller CCA

7. Carefully press the expansion module CCA down until connectors are fully seated and the circuit card rests on the stand-offs per Figure 6, below.

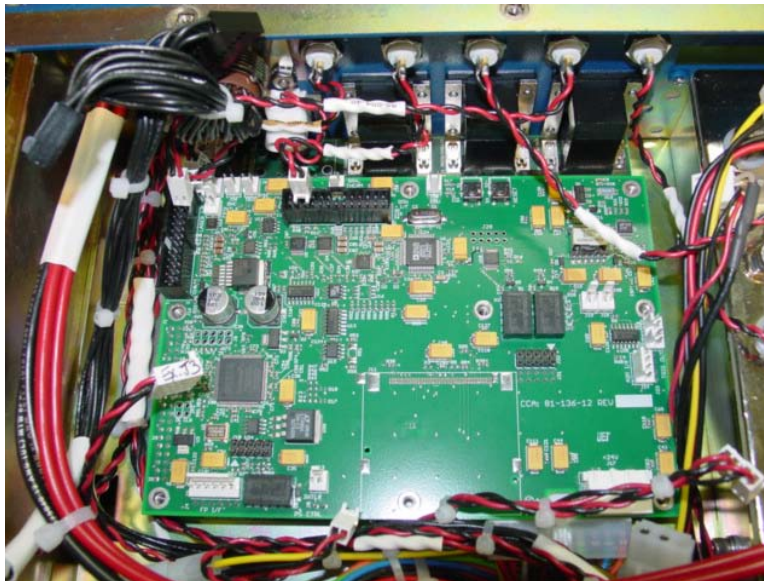


Figure 6 Newly Installed Expansion Module CCA

8. Re-install the screws and washers to hold board in place. Torque each of the screws to 8 inch pounds (Ref; Figure 3, above).

(NOTE: Be especially careful with the screw that goes in the upper left hand corner of this photo. One way to install this screw is to slide the washers onto the shaft of the hex driver and then put the end of the hex driver in the screw hole and allow the washers to slide into place. Once the washers are in place, masking tape or sticky-tac can be used to attach the screw to end of hex driver and install.)

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(CAUTION: Take care that parts are not dropped into the controller as this may lead to electrical shorting of components.)

9. Re-attach each of the connector cables.
10. Re-install the cover to the eDrive.