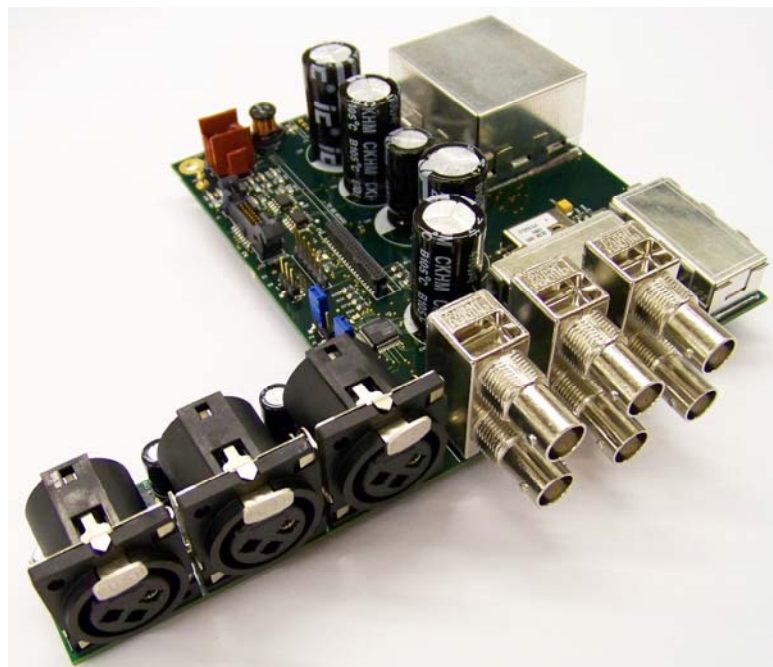




Broadcast Electronics Inc.

4100 North 24th Street, Quincy, Illinois 62305 USA • Phone (217) 224-9600 • Fax (217) 224-9607 • www.bdcast.com • bdcast@bdcast.com



STX Internal Exciter Replacement Application Guide

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STX Internal Exciter Replacement Application Guide

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1 Purpose of this Document

The purpose of this document is to describe the necessary steps required to replace the STX Internal Exciter board in the field.

2 Features

The following is a list of key features implemented in this release.

- Physical replacement of Exciter
- Setup and adjustment

3 Tools / Items Needed

- #1 Philips screw driver
- #2 Philips screw driver
- 9/16" thin wall deep socket
- Split-joint pliers may be used instead of 9/16" socket
- STX Exciter Assembly (919-4000)
- STX Instruction Manual (597-4102) or STX Quick Installation Guide (597-4101)
- Audio test generator
- Modulation Monitor
- Test Load

4 Estimated Setup Time

Providing that you have the tools listed above, it will take approximately 45 minutes to update software, remove the old Exciter from the assembly, re-install the new Exciter and set up audio calibration.

5 Software Update – Controller/Exciter

Step 1 – It is advisable to first upgrade the Controller software to newest version available using the following procedure, or the one in the STX Instruction manual, section 8 entitled; "Software Update – Controller/Exciter." Updated code is available on the Broadcast Electronics website at www.bdcast.com/service. Failure to update the Controller to the newest code could cause communication problems during initialization of the new Exciter.



The software update is performed locally at the transmitter with a direct connection between a PC and the transmitter.

The software update program requires a Windows computer with the following requirements -

- Windows XP – 500 MHz or greater.
- Windows Internet Explorer 6 or 7.

Terminate all other running programs during the download. It is recommended the computer be on the same local network as the transmitter. Once the software is downloaded to the transmitter, the controller must be reset or the AC power cycled (off then on) to load the new version. To update the controller/exciter software, proceed as follows:



NOTE: DO NOT CYCLE THE AC POWER DURING THE UPDATE PROCESS. ENSURE THE CODE HAS BEEN INSTALLED BEFORE AC POWER IS CYCLED.

1. Connect the transmitter to the PC. If a PC is to be directly connected to the transmitter, connect an Ethernet crossover cable between the PC Ethernet port and the transmitter ETHERNET connector. For direct PC connections, the PC must be configured for the I.P. family of the transmitter. Ensure the PC is configured for the transmitter I.P. family.
2. Using Windows Explorer, copy all of the software files to a folder on the hard drive "C:\\" of the PC. Unzip the files (if they have been zipped) ensuring that all of the files remain in the "STXLP Upgrade" directory.
3. On the PC, terminate all running programs.
4. Terminate all transmitter I.P. users.
5. On the PC, using Windows Explorer, navigate to the directory on the hard drive of the PC where you copied the upgrade files to and double click on the **AutoUpdate.exe** application icon.
The AutoUpdate program will appear.

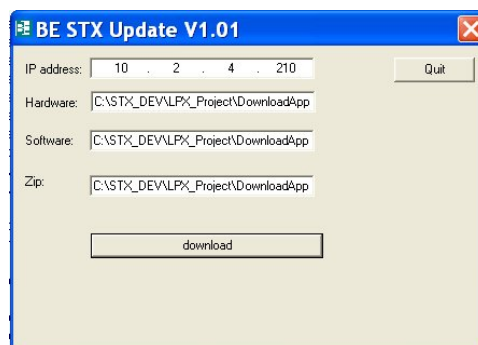


Figure 3. STXLP AutoUpdate Program

6. Once the **AutoUpdate** application has launched, enter the STXLP Transmitter I.P. Address.



NOTE: DO NOT CYCLE THE AC POWER DURING THE FLASH WRITE PROCESS.





NOTE: IF A PROBLEM OCCURS, SELECT CANCEL TO STOP THE DOWNLOAD.

7. Select DOWNLOAD.
The status bar presents the progress of the download and flash writing process. When finished, the new code will automatically start.
8. When finished, select QUIT.
9. Cycle the AC power (operate to off then on) to activate the code.
10. Check the software version using the DIAGNOSTICS TRANSMITTER menu to ensure it updated.
11. If the download fails such as from a lost I.P. connection, repeat the procedure.

6 Remove Exciter from STX chassis.



WARNING: ENSURE ALL PRIMARY POWER IS DISCONNECTED BEFORE PROCEEDING.

Step 2 – Power unit OFF, disconnect all transmitter primary power, remove from rack and place on bench.

Step 3 – Remove the power supply rear cover screws using a #2 Phillips screwdriver.

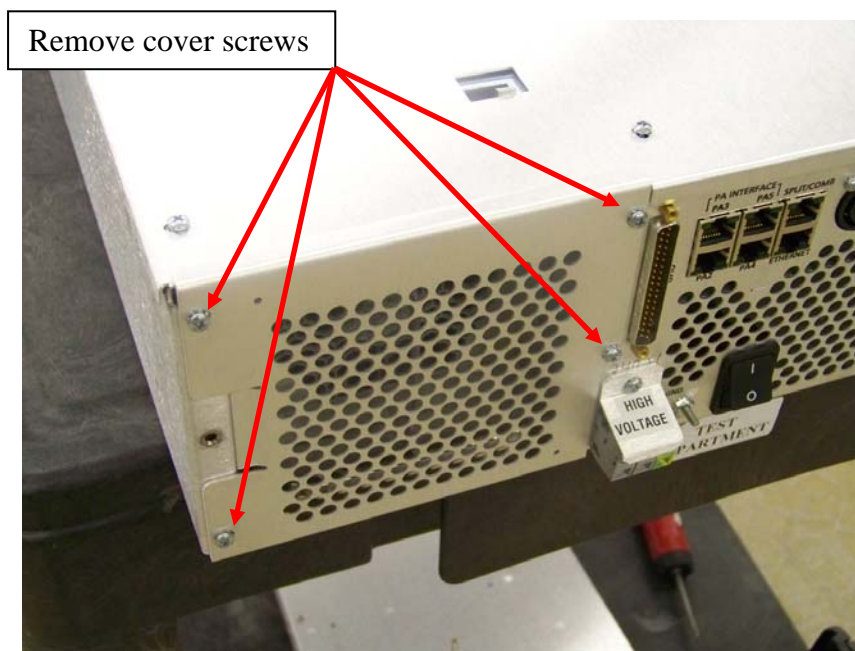


Figure 1. Remove Power Supply rear cover

Step 4 – Remove the 9 transmitter top cover screws using a #2 Philips screwdriver.

Step 5 – Remove the 7 screws from the PA cover using a #1 Philips screwdriver.

Step 6 – Disconnect the cables from the Exciter at J2 and J17.

Step 7 – Remove the #1 Philips screw next to J17.

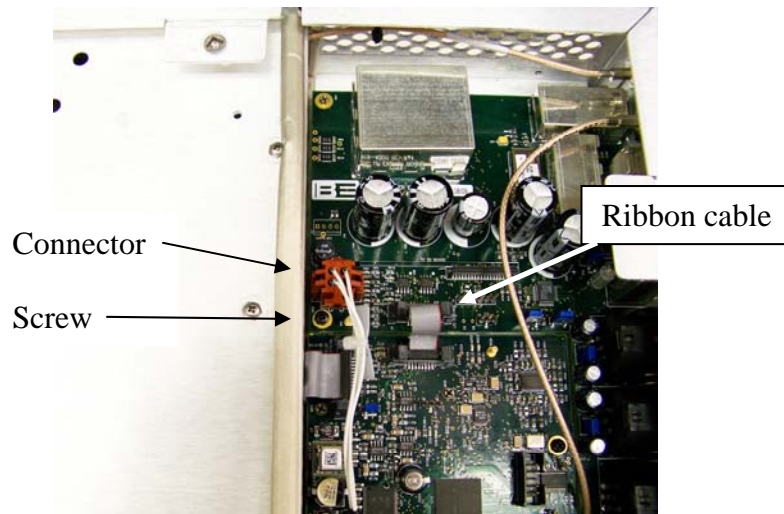


Figure 2
Disconnect cables and remove screw.

Step 8 – Remove the 6 #1 Philips screws from the XLR connectors on the rear panel.

Step 9 – Remove the 6 9/16" hex nuts from the BNC connectors on the rear panel. If a thin wall deep socket is not available, split-joint pliers can be used.



Figure 3
Remove hardware.

Step 10 – Lift the edge of the Exciter board that is closest to the front of the transmitter, detaching it from the spring lock stud and remove the board from the chassis.

7 Reinstall new Exciter into chassis

Step 11 – Insert the new Exciter into the chassis. Lowering it at an angle to feed the rear BNC connectors through the rear panel.

Step 12 – Firmly press the board onto the spring lock stud until it snaps into place.

Step 13 – Reinstall the screw previously removed next to J17 on the board.

Step 14 – On the rear panel reinstall the 6 screws on the XLR connectors and 6 nuts on the BNC connectors.

Step 15 – Replace the PA cover being very cautious not to damage or pinch the wires with the PA cover.

8 Replacing Analog Exciter with Digital Exciter

If replacing a 919-4000 (analog) exciter with a 919-4000-100 (digital) exciter, you must perform these additional steps before final assembly in the next section.

The digital exciter kit will include the new 919-4000-100 exciter, a new wire harness assembly and tie wraps.

Step 16 – Ensure you have updated your software to the latest revision.

Step 17 – If your unit is equipped with the clear plastic power supply retainer, remove it now by rotating the piece out from the top.



Figure 4. Retainer removal

NOTE: Units shipped prior to December 2009 may not include this power supply retainer. This retainer will securely hold the power supply in place during transit and can be permanently installed because it does not impede airflow.

If your transmitter does not have this retainer, contact RF Technical Services and request part number 471-4260 while referencing document (597-4101-003), it will be provided at no charge.

Step 18 – Remove the power supply by grasping the handle and pulling the power supply out.



Figure 5. Remove power supply

Step 19 – Remove the original wire harness to the controller, exciter and LVPS, this harness will be replaced. The original harness wire numbers to be removed are 17, 19, 20, 21 and 22. Cut the tie wraps being careful not to damage the existing wires, and remove the original power supply wires noted above.

Step 20 – Lay the new wire harness in place and connect to the exciter, controller and low voltage power supply.

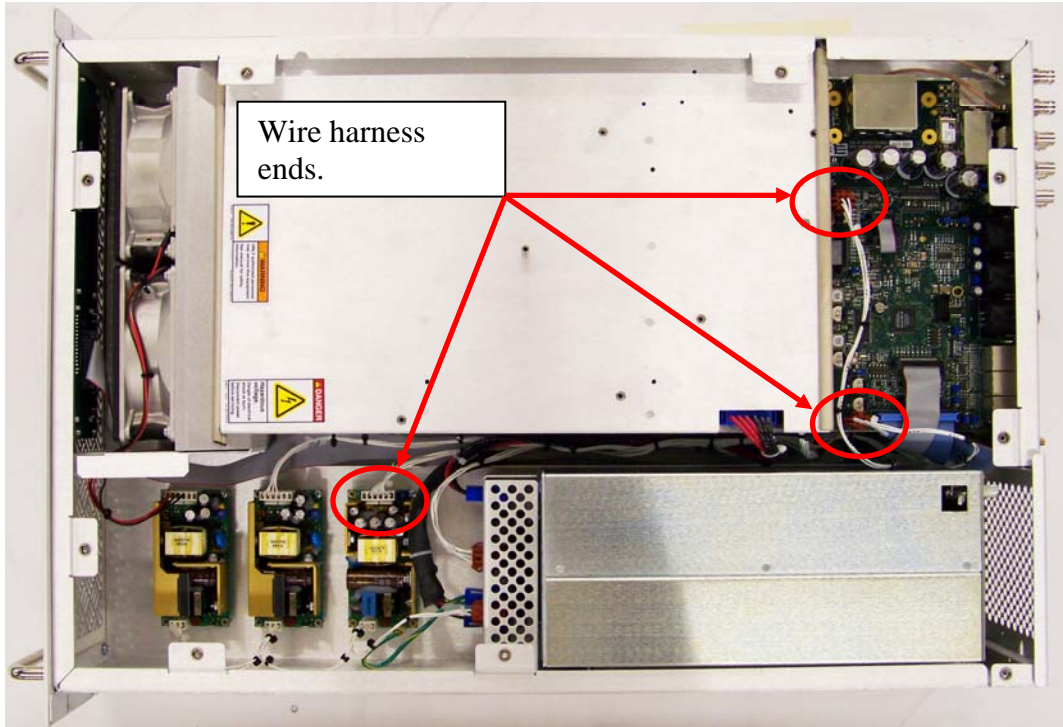


Figure 6
Digital exciter wire harness.

Step 21 – Tie wrap the wire harness in place.

Step 22 – Install the PA power supply removed previously.

9 Final assembly

Step 24 – Replace the transmitter top cover and secure the PA power supply lock by turning the power supply retaining arm counter clockwise to engage it with the transmitter top cover.

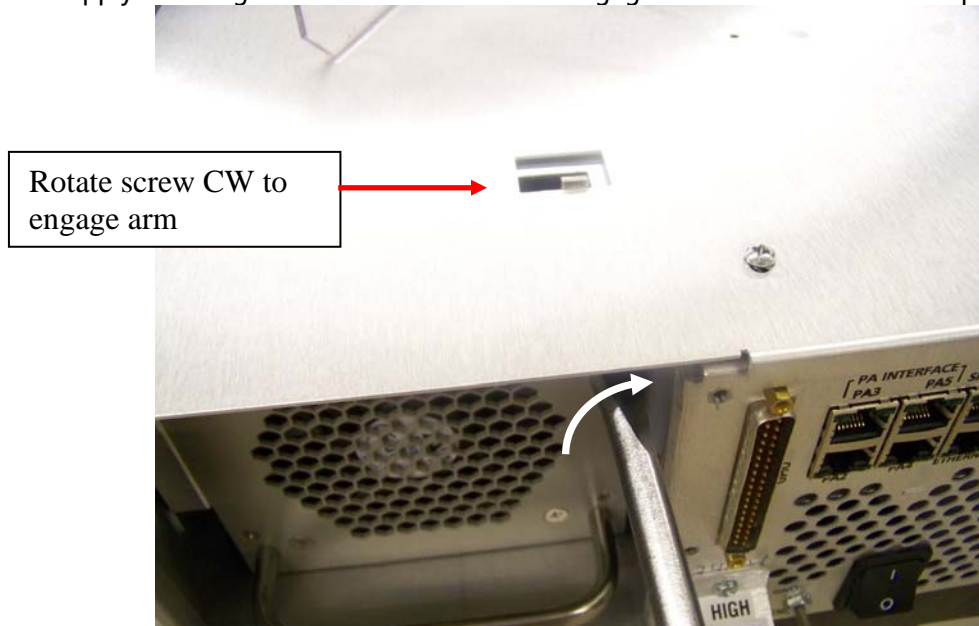


Figure 7. Engage power supply

Step 25 – Replace the plastic retainer and rear cover power supply cover removed earlier using the #2 Phillips screw driver.

10 Calibration

Step 26 – Install the transmitter back into the rack, hooking up input voltage, test load and audio generator source. This can be done on the bench, and then it would not be necessary to do again in the rack.

Step 27 –Following the procedures in STX Quick Installation Guide or Instruction manual starting with the one titled “Calibrate the Audio/SCR/RDS Inputs.” Perform calibrations of:

- Deviation
- AES Audio Input
- Analog R/L Audio Input
- SCA/RDS Input
- Pilot

11 Initial turn-on after Exciter replacement

Step 28 – Install the transmitter in the rack if not done prior to calibration. Connect to antenna and audio input sources.

Step 29 – Turn on the transmitter at low power, preferably 250 watts, and check the operation of the transmitter.



Step 30 – Check Audio Input Level and adjust if needed as outlined in the Installation Guide or Instruction manual titled “Audio Input Level Menu.” Perform for each audio source used; AES, Analog L/R, etc and for the SCA/RDS sources.

Step 31 – Increase power output to full forward power and observe operation.

12 Troubleshooting

12.1 Emergency Control – Backup Controller

If a controller fault occurs, the transmitter will be operating from the backup controller. When this occurs:

- The front panel CNTL LED will flash red.
- Depending on the failure, the LCD display will be blank or frozen.
- The transmitter will operate at the power level entered in the SETUP EMERGENCY PWR menu.
- Ignore all other front panel indicators. The indicators may not provide accurate information.
- The following remote functions will be functional: 1) mute, 2) failsafe, 3) transmitter on, 4) transmitter off, 5) AFC lock status, and 6) fault status.

The transmitter can be operated in this condition for an extended period of time. However, the unit will be operating with no automatic power control.

Typical causes of a controller failure are: 1) an improper download or 2) problems with the power supplies on the controller pcb assembly. To troubleshoot and repair the controller, the transmitter must be removed from on-air operation. To reprogram the software, refer to “Software Update – Controller/Exciter” earlier in this document and re-program the transmitter software.

13 RF Technical Services Contact Information

RF Technical Services -

Telephone: (217) 224-9617

E-Mail: rfservice@bdcast.com

Fax: (217) 224-6258

Web: www.bdcast.com

