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

4MX 25/50

Modifications for Improved Transmitter Muting Application Guide

597-4050-007, Revision C
7/11/07

4MX 25/50

Modifications for Improved Transmitter Muting
Application Guide

©2007 Broadcast Electronics Inc. All rights reserved.

The information in this publication is subject to improvement and change without notice. Although every effort is made to ensure the accuracy of the information in this manual, Broadcast Electronics Inc. accepts no responsibility for any errors or omissions. Broadcast Electronics Inc. reserves the right to modify and improve the design and specifications of the equipment in this manual without notice. Any modifications shall not adversely affect performance of the equipment so modified.

Proprietary Notice

This document contains proprietary data of Broadcast Electronics Inc. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, translated into any other language in any form or by any means, electronic or mechanical, including photocopying or recording, for any purpose, without the express written permission of Broadcast Electronics Inc.

Trademarks

Broadcast Electronics and the BE logo are registered trademarks of Broadcast Electronics Inc.

All other trademarks are property of their respective owners.

Table of Contents

1 Modifications for Improved Muting 1
1.1 Tools / Items Required 1
1.2 Estimated Time for Modifications 1

2 4MX Modifications for Improved Muting 2
2.1 Turn the Transmitter's AC Breaker to OFF 2
2.2 Turn the Service Entrance AC Breaker to OFF 2
2.3 Remove the Remote I/O Access Panel 3
2.4 Remove the Remote I/O PCB Assembly 4
2.5 Loosen the Controller Bracket Kepnuts (in the Remote I/O Cavity) 4
2.6 Disconnect Cabling from the Controller PCB 5
2.7 Remove the Controller PCB Mounting Hardware 5
2.8 Remove the System Controller PCB Assembly from the 4MX 6
2.9 Install the new Controller PCB Assembly into the 4MX 7
2.10 Tighten the Controller Bracket Kepnuts (in the Remote I/O Cavity) 7
2.11 Install Controller PCB Mounting Hardware 8
2.12 Connect Cabling to the Controller PCB Assembly 9
2.13 Install the Remote I/O PCB Assembly 10
2.14 Install the Remote I/O Access Panel 10
2.15 Remove Transmitter Rear Doors 11
2.16 Disconnect Control Cable 11
2.17 Remove Bottom Hardware from Feedthru Connector 11
2.18 Remove Top Hardware from Feedthru Connector 12
2.19 Install Mute Relay Cable (947-5003) 12
2.20 Install New Cable 13
2.21 Install Relay PCB (917-4002) 14
2.22 Connect Control Cable 15
2.23 Install Rear Doors 15
2.24 Turn the Service Entrance AC Breaker to ON 15
2.25 Turn the Transmitter's AC Breaker to ON 15

3 Upgrade Software to Version 42.11.11.2.2.5 (or Newer) 16
3.1 Overview 16
3.2 4MX Software Version Labeling (shown for reference only) 16
3.3 Uploading Software to a 4MX Series Transmitter 16
3.4 Turn the Transmitter's RF Output to ON 22
3.5 Verify Proper Operation 22

4 RF Customer Service Contact Information 22

©2007 Broadcast Electronics Inc.

1 Modifications for Improved Muting

1.1 Tools / Items Required

This document lists the necessary modifications for improved muting of a 4MX 25/50 Transmitter.

Tools:

- ☐ No. 2 Phillips Screwdriver
- ☐ 3/16 Nut Driver
- ☐ 5/16 Nut Driver
- ☐ 3/8 Nut Driver
- ☐ 7/16 Nut Driver
- ☐ Side Cutters

977-4000, 4MX Mute Modification Kit Items

- ☐ P/N 917-0407, Assembly, PCB, Transmitter Controller (with Deviation)
- ☐ P/N 917-4002, Assembly, PCB, 4MX Mute Relay

- ☐ P/N 947-5003, Assembly, Cable, Mute Relay
- ☐ P/N 947-5004. Assembly, Cable, Mute Jumper

- ☐ P/N 402-0000 Tyrap, Qty (10)
- ☐ P/N 402-0006, Tyrap Block, Qty (2)
- ☐ P/N 402-0831, Cable Clamp, Qty (2)

- ☐ P/N 423-8002, 8-32 Brass Hex Nut, Qty (1)
- ☐ P/N 423-8005, #8 Splitlock, Qty (1)

- ☐ P/N 420-0124, 10-32 x 1.5 Screw, Qty (2)
- ☐ P/N 421-0102, 10-32 Kepnut, Qty (2)
- ☐ P/N 423-0002, #10 Splitlock, Qty (2)
- ☐ P/N 441-0101, Standoff 5/16 x 3/8 x 10-32, Qty (2)

- ☐ P/N 421-1003, 1/4-20 Brass Nut
- ☐ P/N 423-1003, 1/4 Brass Splitlock

- ☐ Personal Computer with CD ROM Drive running either Windows 2000 or XP Operating System
- ☐ Version **42.11.11.2.2.5** of 4MX Software (or Newer)
- ☐ Crossover Ethernet Cable (if connecting directly to the transmitter)
- ☐ Straight-Thru Ethernet Cable (if connecting through an Ethernet switch)

1.2 Estimated Time for Modifications

Providing that you have the tools listed and items listed above, it will take approximately 1 hour to upgrade the 4MX Transmitter for Improved Muting.

©2007 Broadcast Electronics Inc.

2 4MX Modifications for Improved Muting

2.1 Turn the Transmitter's AC Breaker to OFF

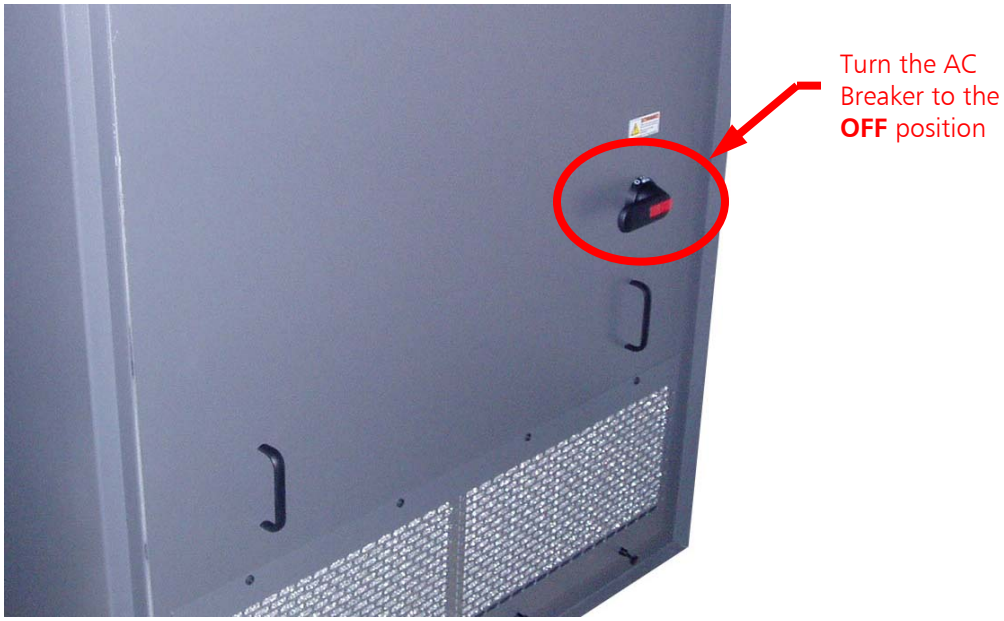


Figure 1 – Turn 4MX AC Breaker to OFF

2.2 Turn the Service Entrance AC Breaker to OFF

<proceed to next page>

©2007 Broadcast Electronics Inc.

2.3 Remove the Remote I/O Access Panel

Step 1 – Using a No. 2 Phillips Screw Driver remove the (2) screws from the right door as shown.

Step 2 – Using a No. 2 Phillips Screw Driver remove the (3) screws from the hinge area as shown

Step 3 – Use the fold-out handle to remove the Remote Control I/O and Audio Input Access Panel

Figure 2 – Remote Control I/O Access Panel Removal

©2007 Broadcast Electronics Inc.

2.4 Remove the Remote I/O PCB Assembly

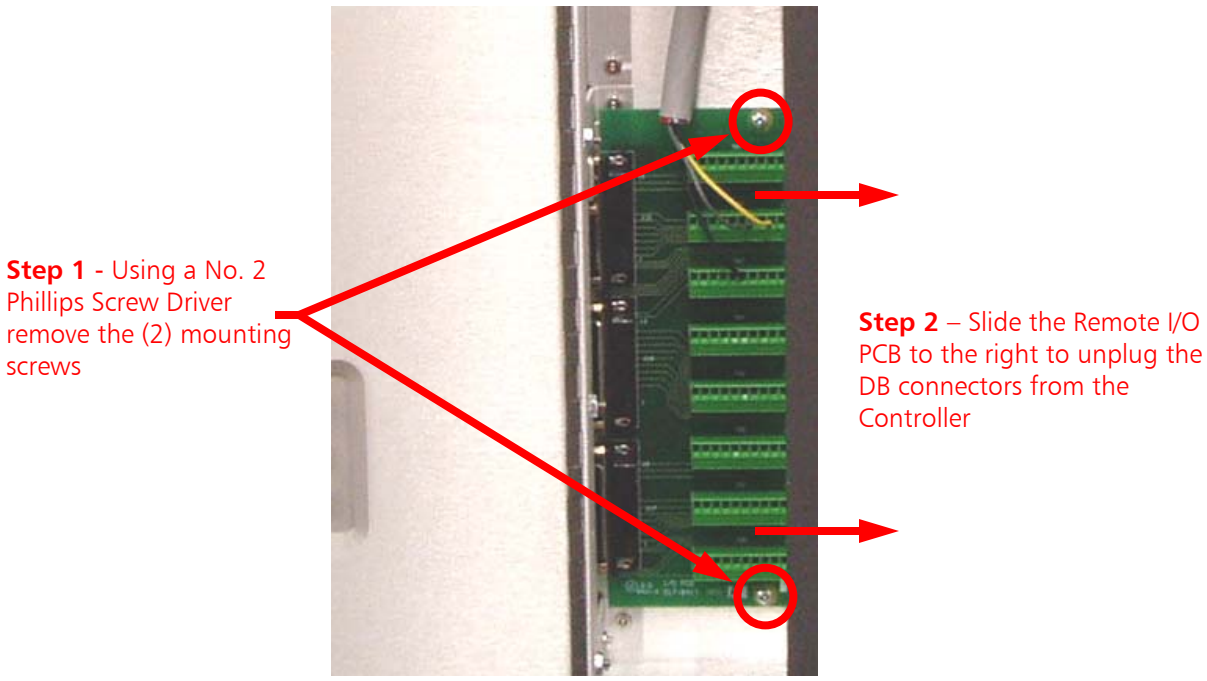


Figure 3 – Remove Remote I/O PCB

2.5 Loosen the Controller Bracket Kepnuts (in the Remote I/O Cavity)

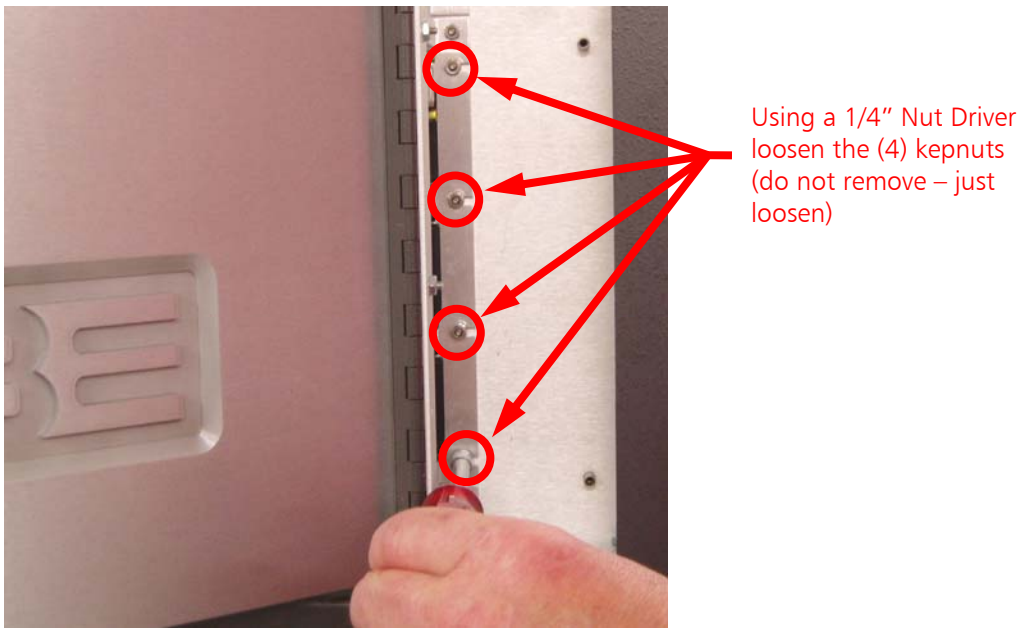


Figure 4 – Loosen System Controller PCB Bracket Kepnuts

©2007 Broadcast Electronics Inc.

2.6 Disconnect Cabling from the Controller PCB

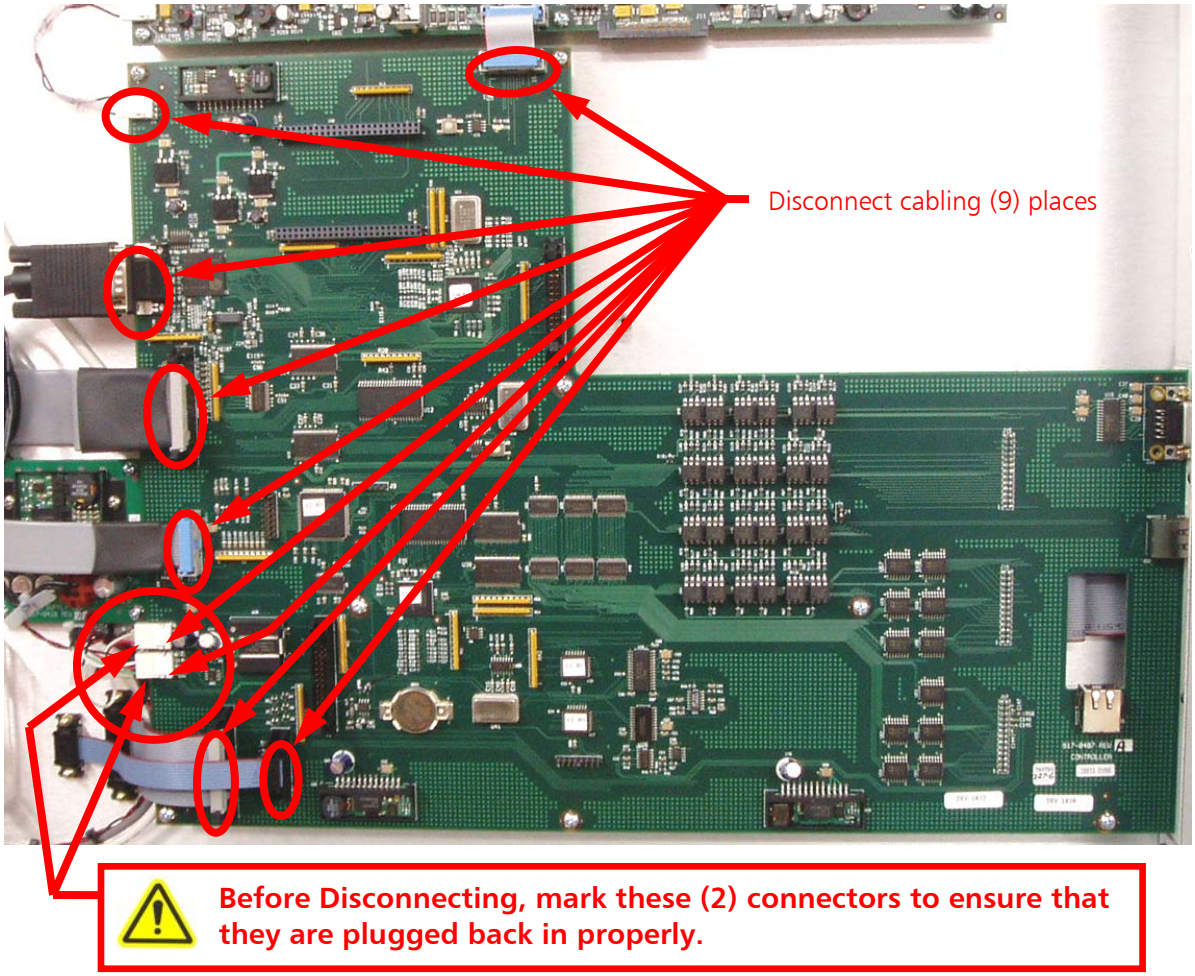


Figure 5 – Disconnect Cabling

2.7 Remove the Controller PCB Mounting Hardware

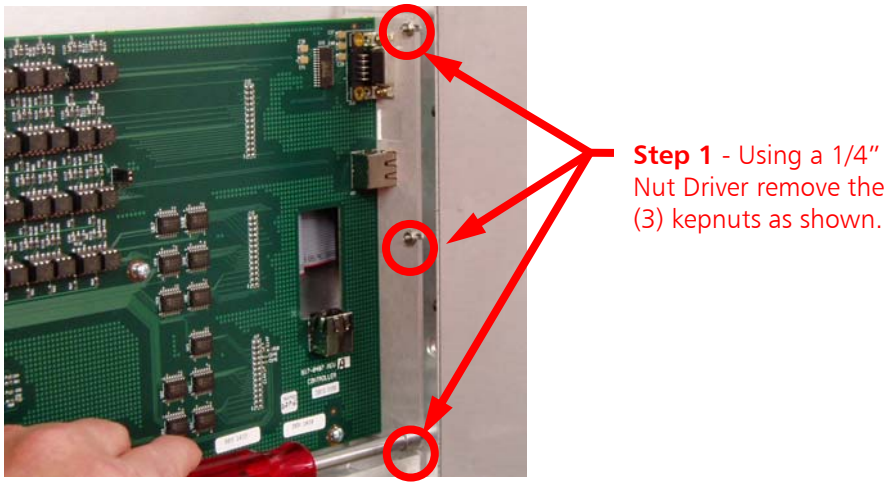


Figure 6 – Remove Kepnuts

©2007 Broadcast Electronics Inc.

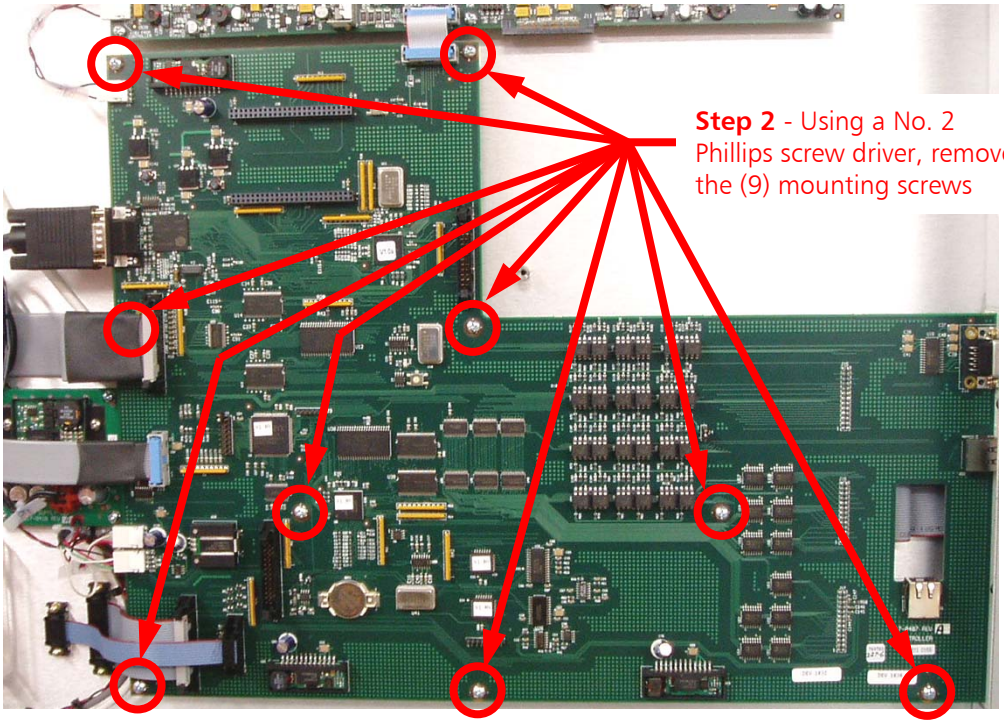


Figure 7 – Remove Mounting Screws

2.8 Remove the System Controller PCB Assembly from the 4MX

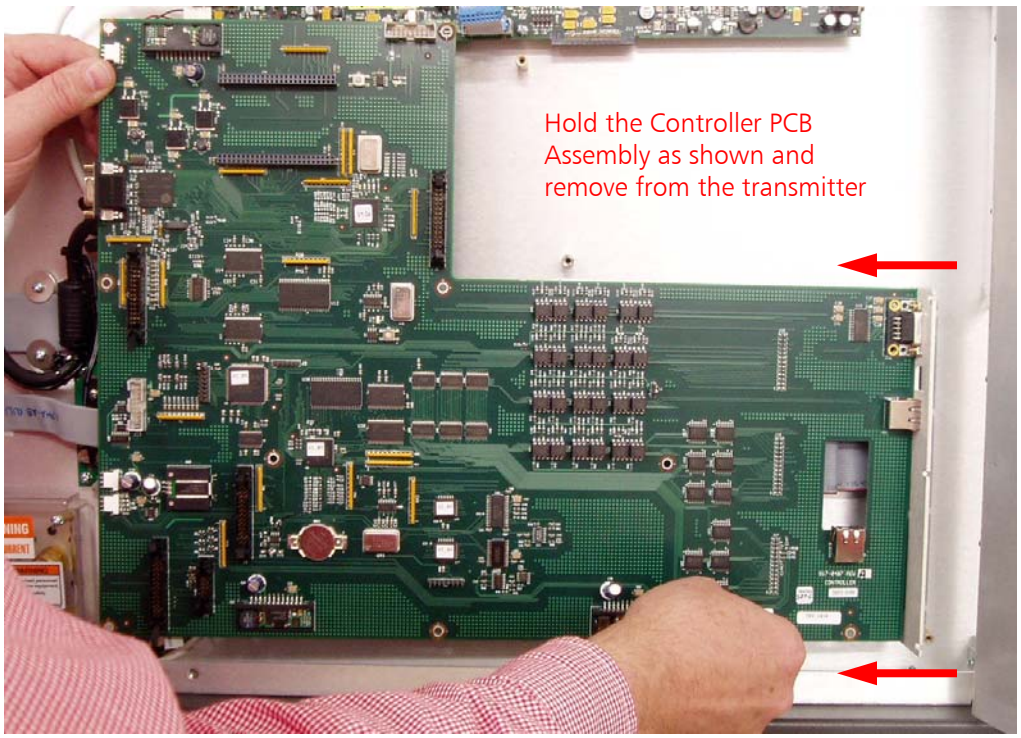


Figure 8 – Remove the Controller PCB from the 4MX

©2007 Broadcast Electronics Inc.

2.9 Install the new Controller PCB Assembly into the 4MX

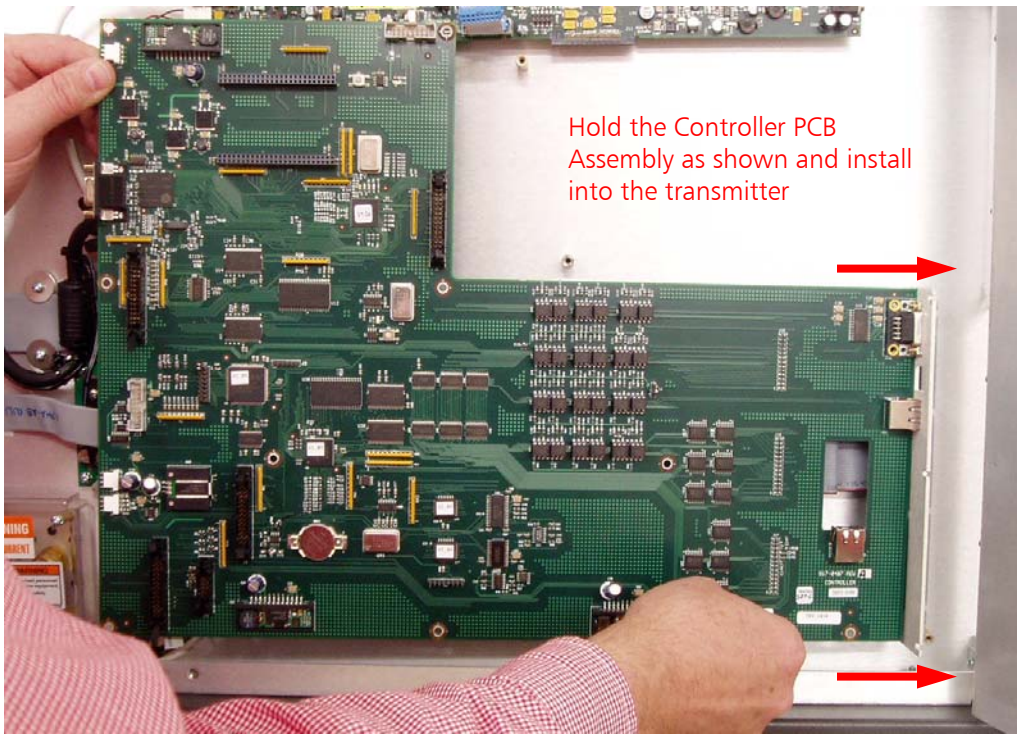


Figure 9 – Install the Controller PCB from the 4MX

2.10 Tighten the Controller Bracket Kepnuts (in the Remote I/O Cavity)

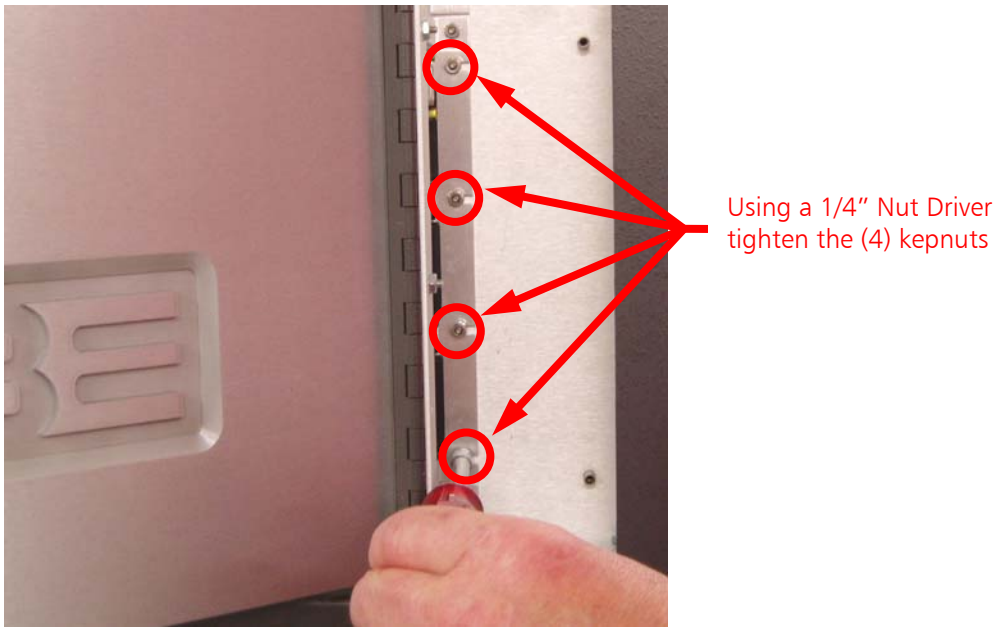


Figure 10 – Tighten System Controller PCB Bracket Kepnuts

©2007 Broadcast Electronics Inc.

2.11 Install Controller PCB Mounting Hardware

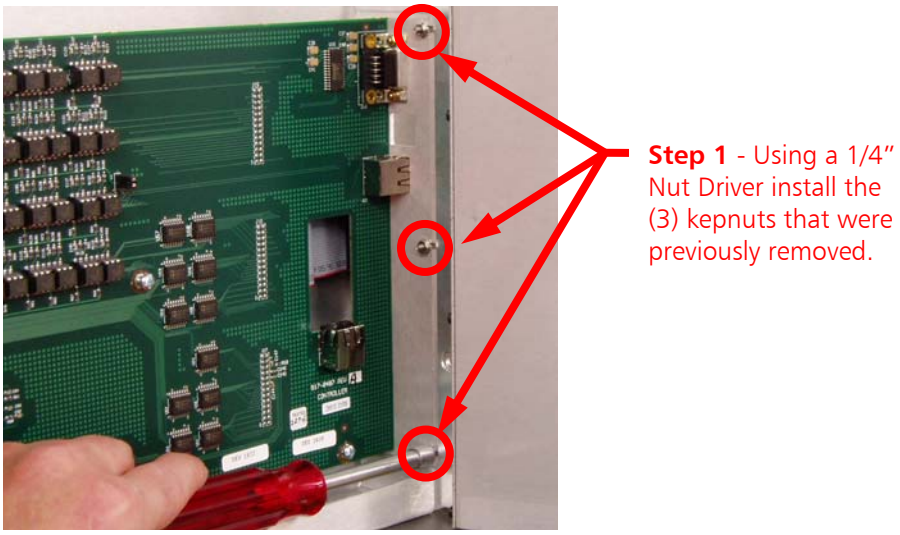


Figure 11 – Install Kepnuts

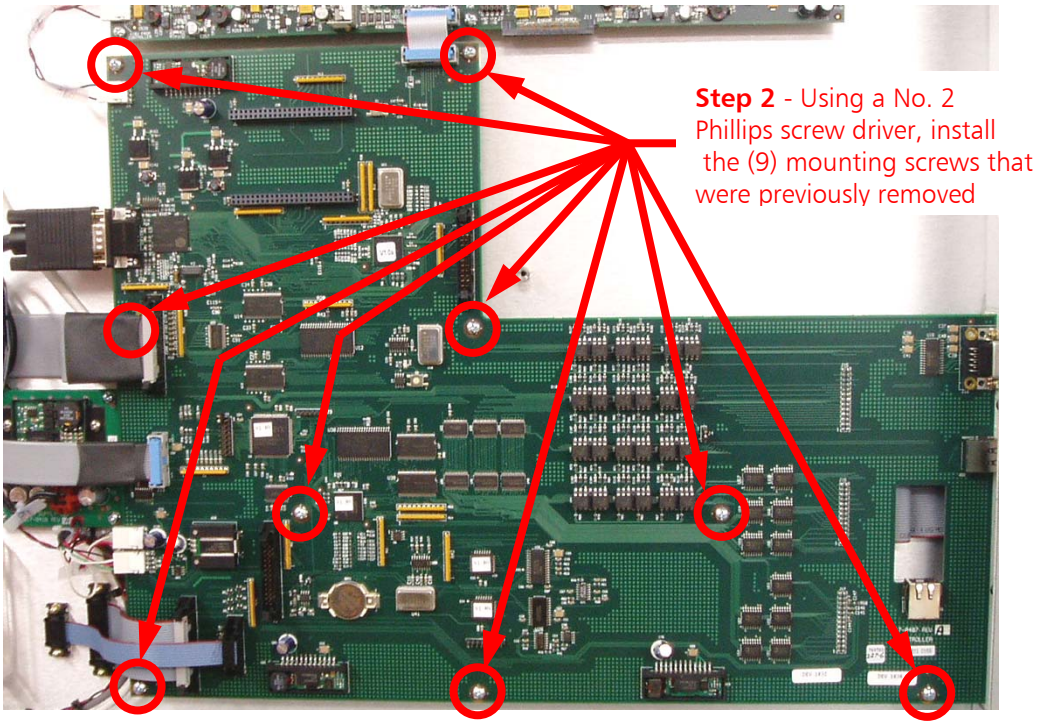
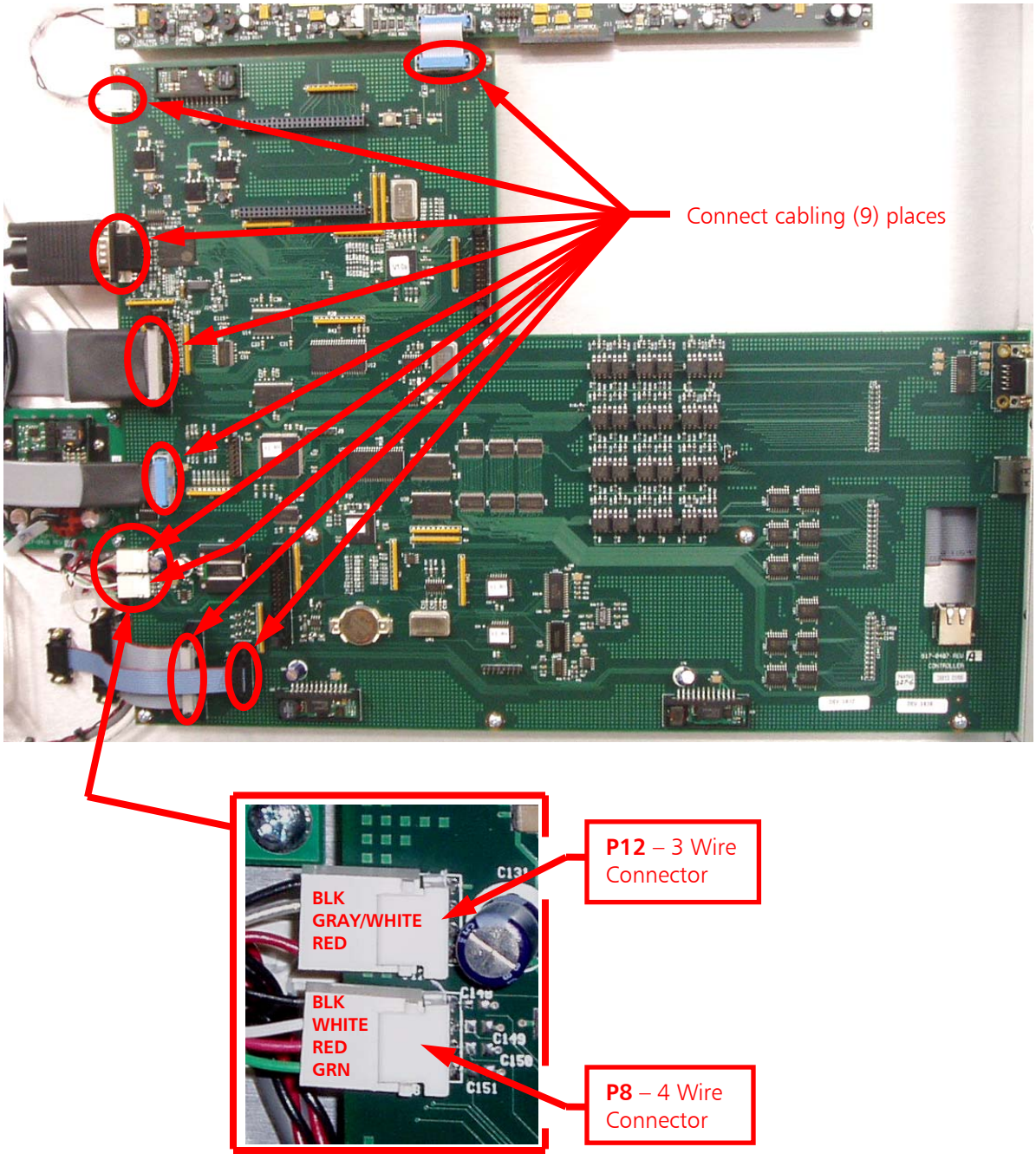


Figure 12 – Install Mounting Screws

©2007 Broadcast Electronics Inc.

2.12 Connect Cabling to the Controller PCB Assembly

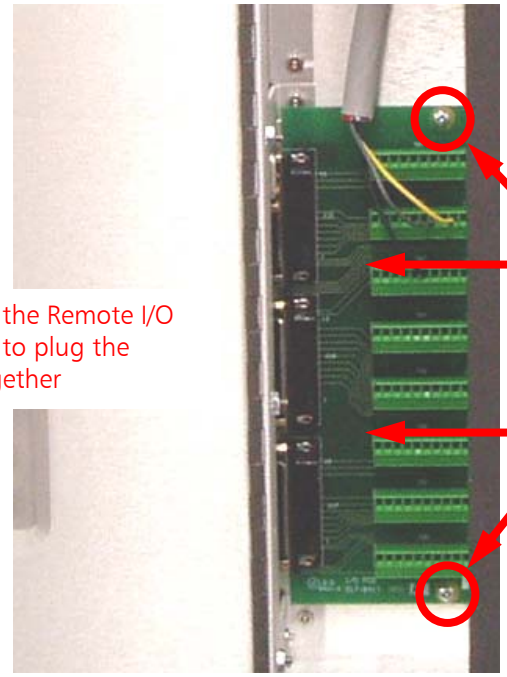


CAUTION - Ensure that these (2) connectors are connected exactly as shown! If these (2) connectors are installed incorrectly, the Controller PCB may be permanently damaged along with other components of the transmitter!

Figure 13 – Connect Cabling

©2007 Broadcast Electronics Inc.

2.13 Install the Remote I/O PCB Assembly



Step 1 – Slide the Remote I/O PCB to the left to plug the connectors together

Step 2 - Using a No. 2 Phillips Screw Driver install the (2) mounting screws

Figure 14 – Install Remote I/O PCB

2.14 Install the Remote I/O Access Panel

Step 1 – Install the Remote I/O Access Panel

Step 2 – Using a No. 2 Phillips Screw Driver remove the (3) screws from the hinge area as shown

Figure 15 – Install the Remote I/O Access Panel

©2007 Broadcast Electronics Inc.

2.15 Remove Transmitter Rear Doors

2.16 Disconnect Control Cable

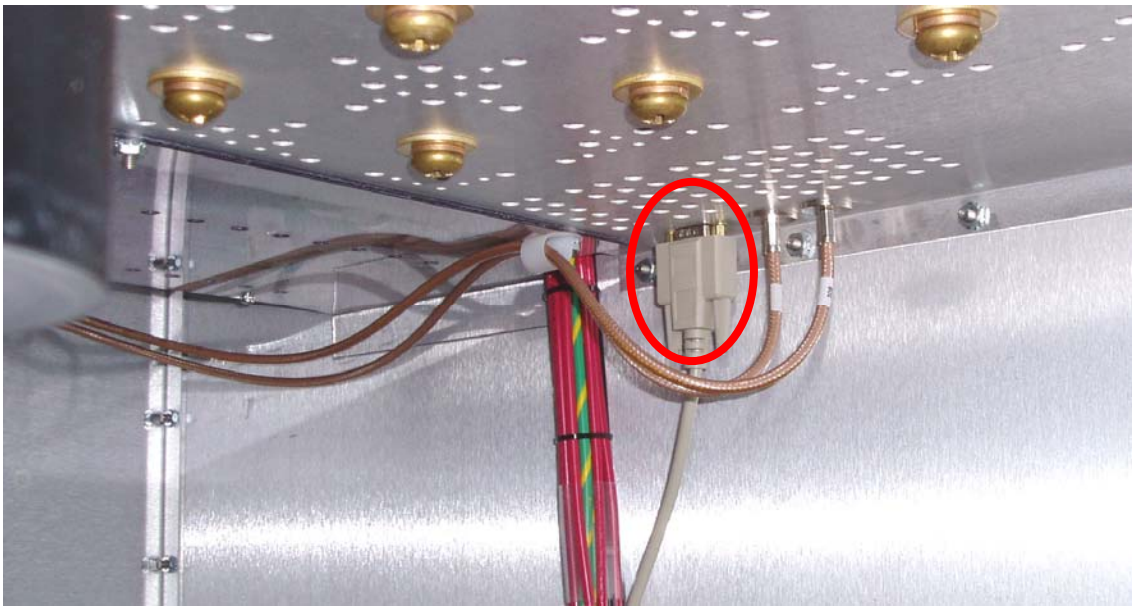


Figure 16 – Disconnect Control Cable

2.17 Remove Bottom Hardware from Feedthru Connector

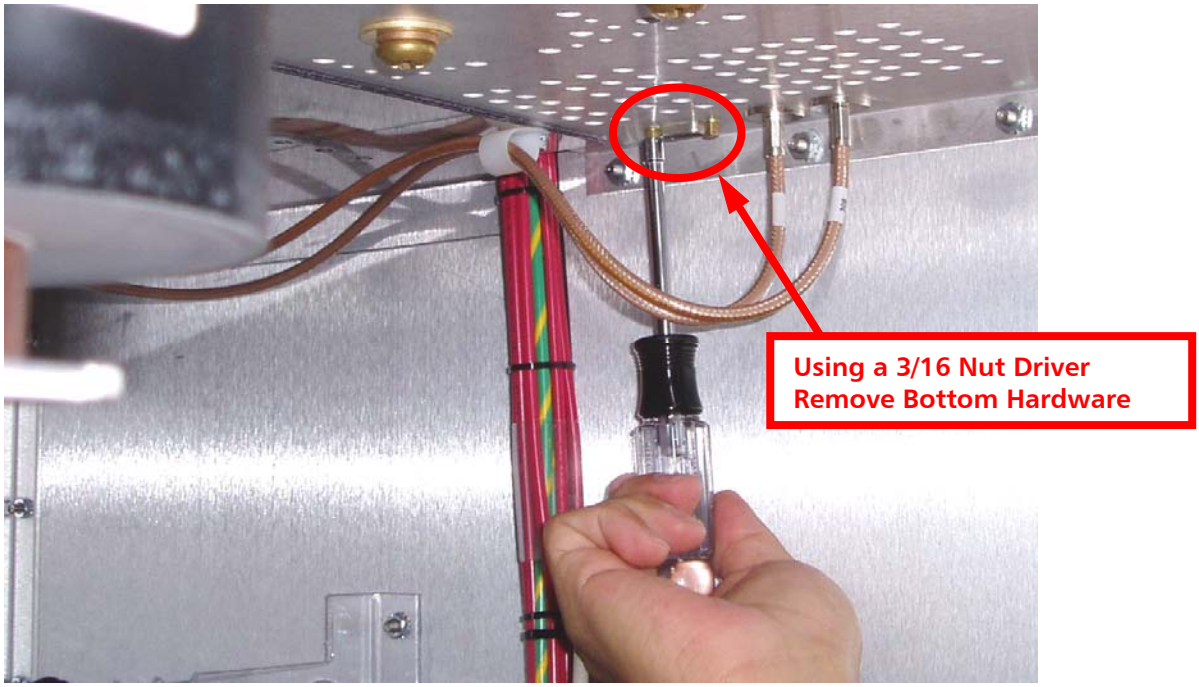


Figure 17 – Feedthru Connector Hardware Removal

©2007 Broadcast Electronics Inc.

2.18 Remove Top Hardware from Feedthru Connector

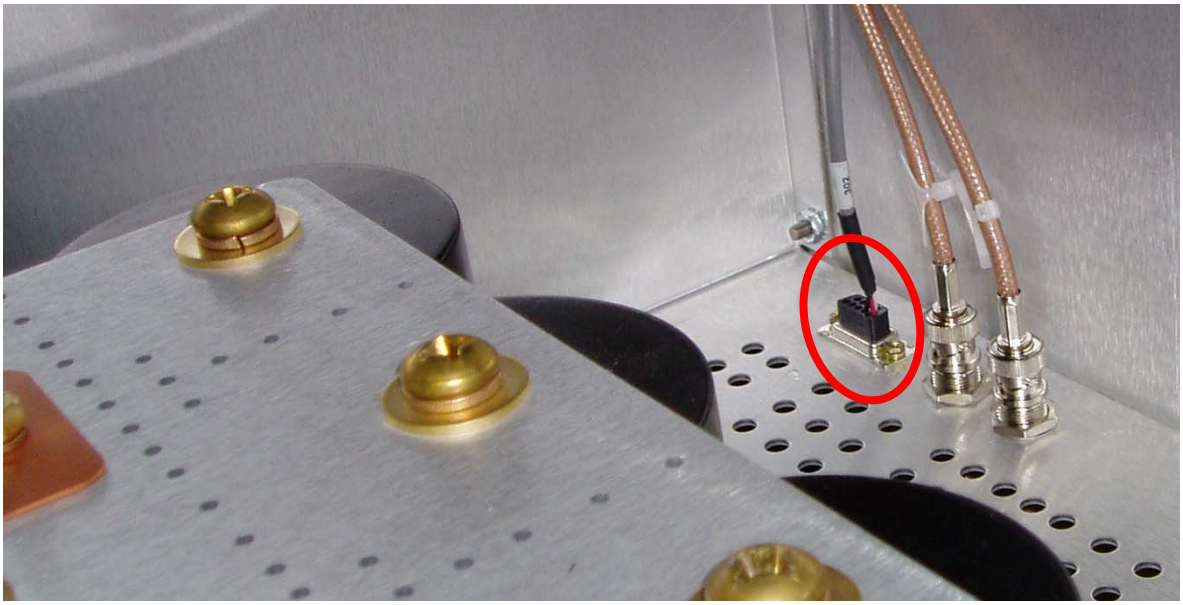


Figure 18 – Feedthru Connector Hardware Removal

2.19 Install Mute Relay Cable (947-5003)

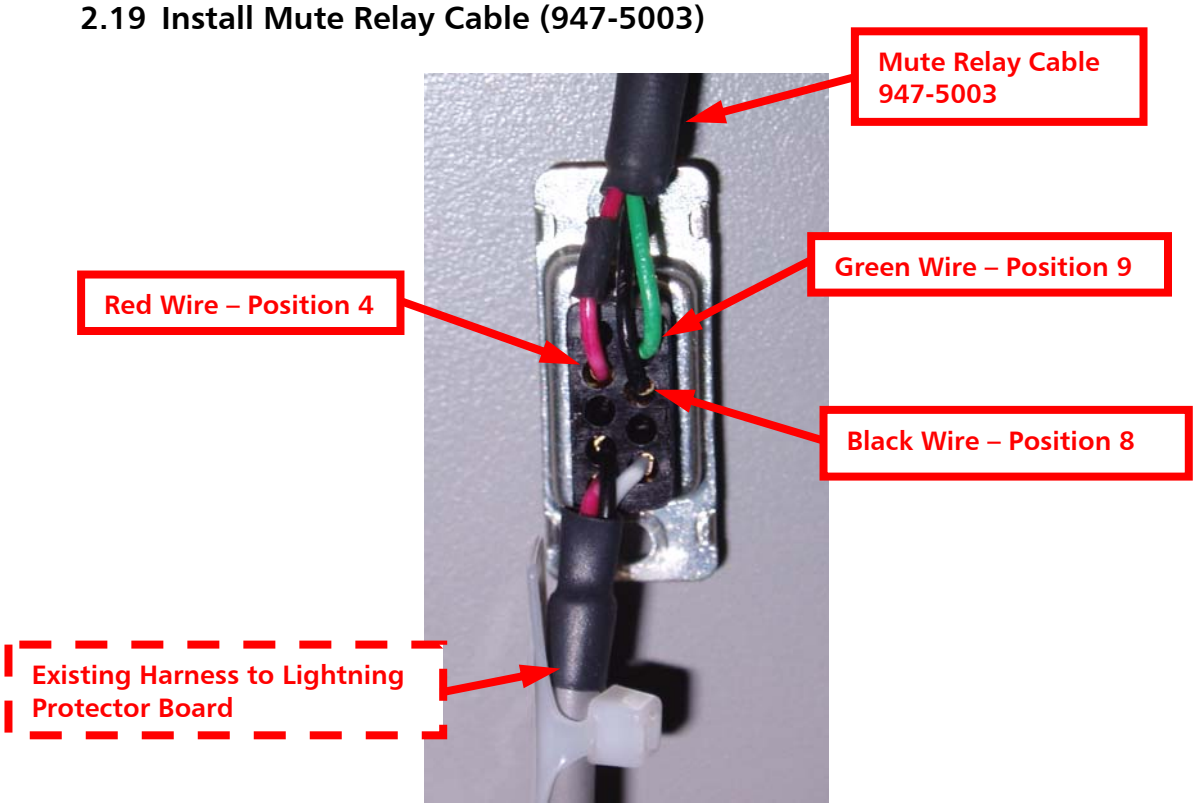


Figure 19 – Install Mute Relay Cable Pins into Connector

©2007 Broadcast Electronics Inc.

2.20 Install New Cable

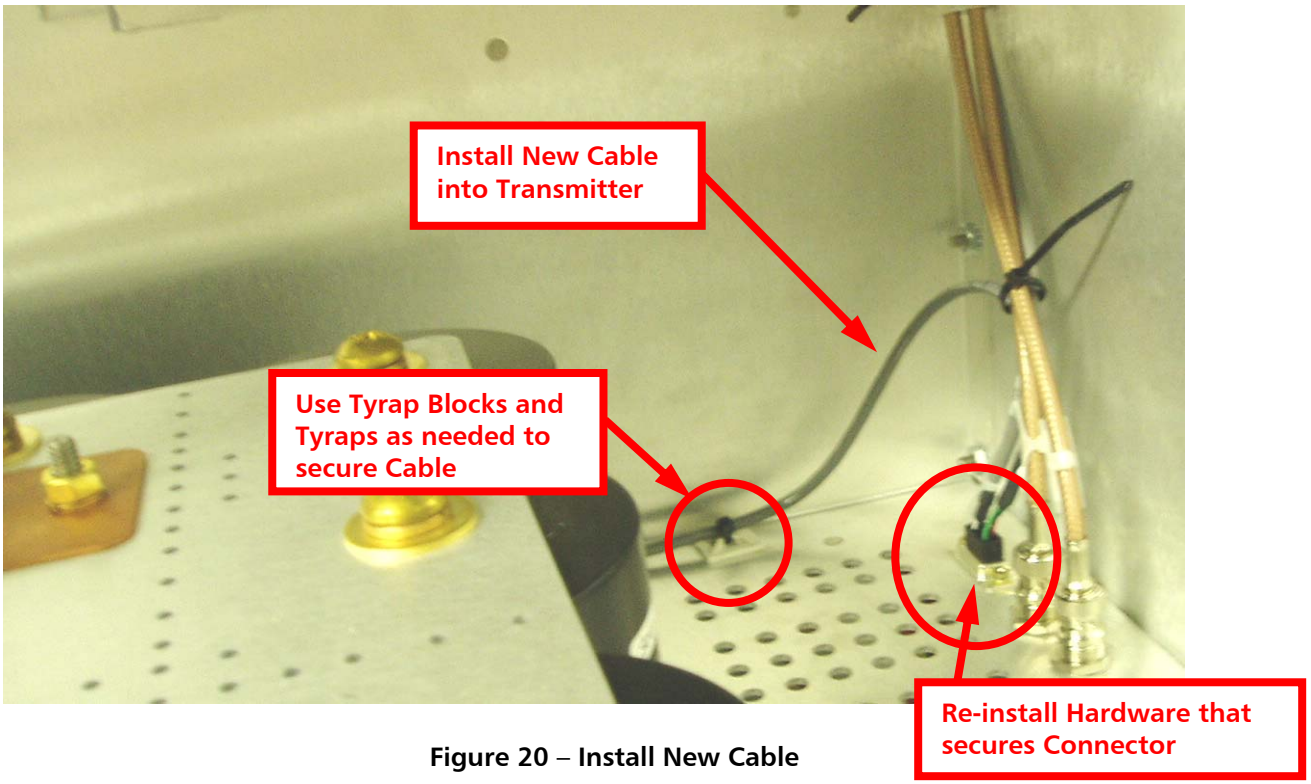


Figure 20 – Install New Cable

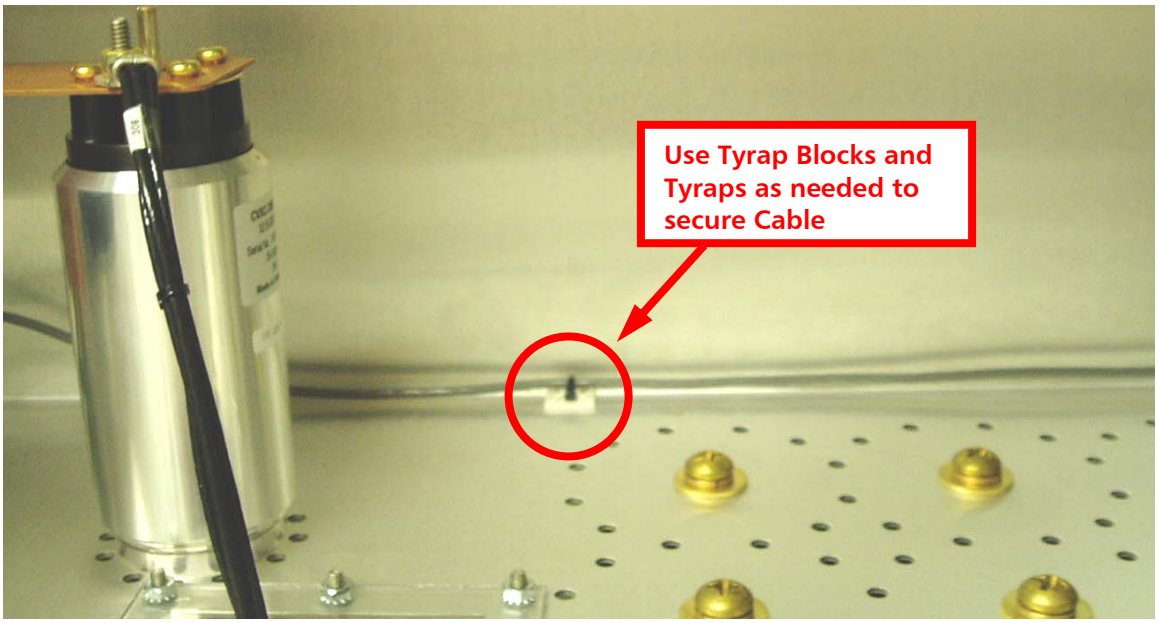


Figure 21 – Install New Cable

©2007 Broadcast Electronics Inc.

2.21 Install Relay PCB (917-4002)

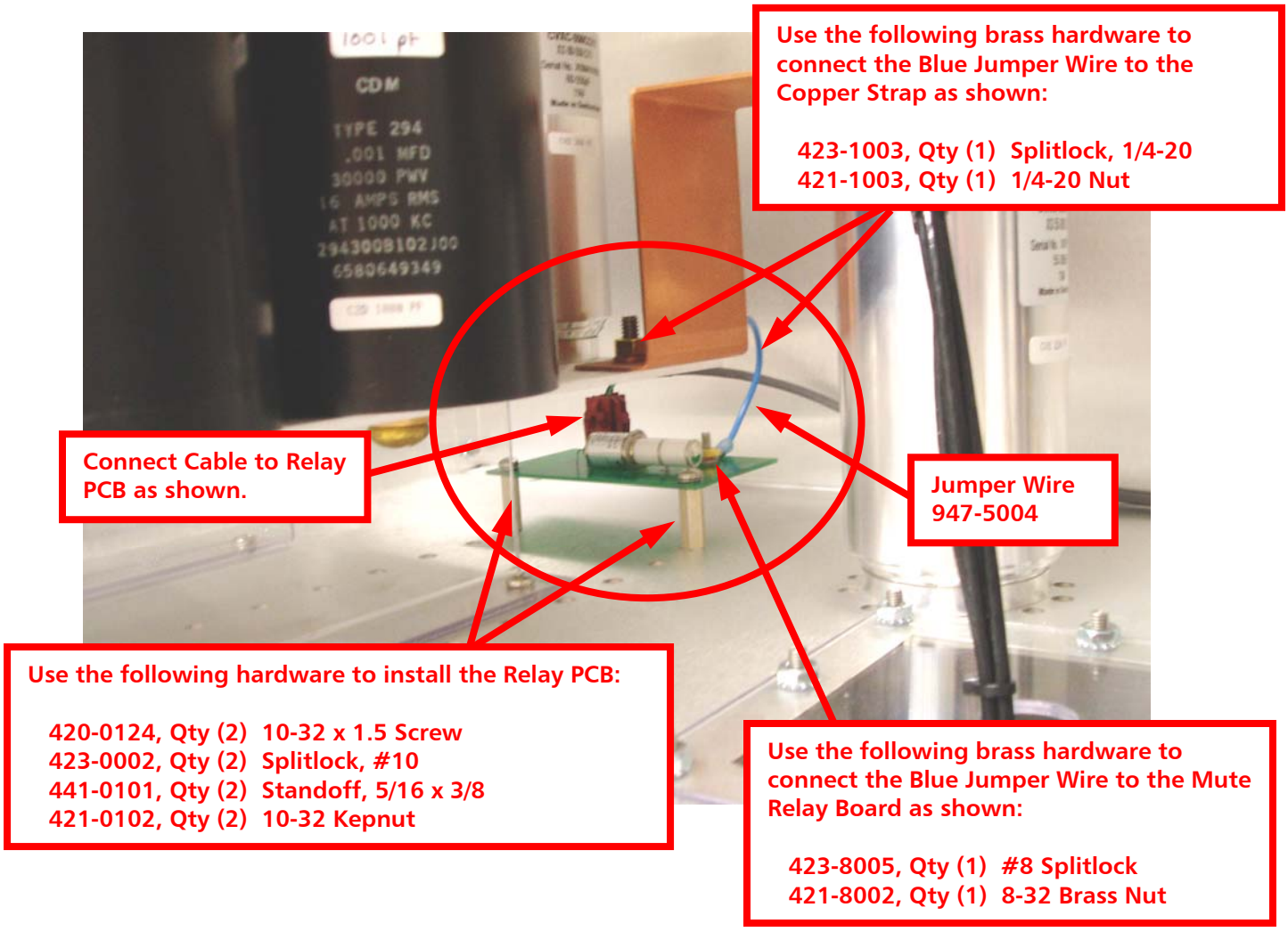


Figure 22 – Install Relay PCB

©2007 Broadcast Electronics Inc.

2.22 Connect Control Cable

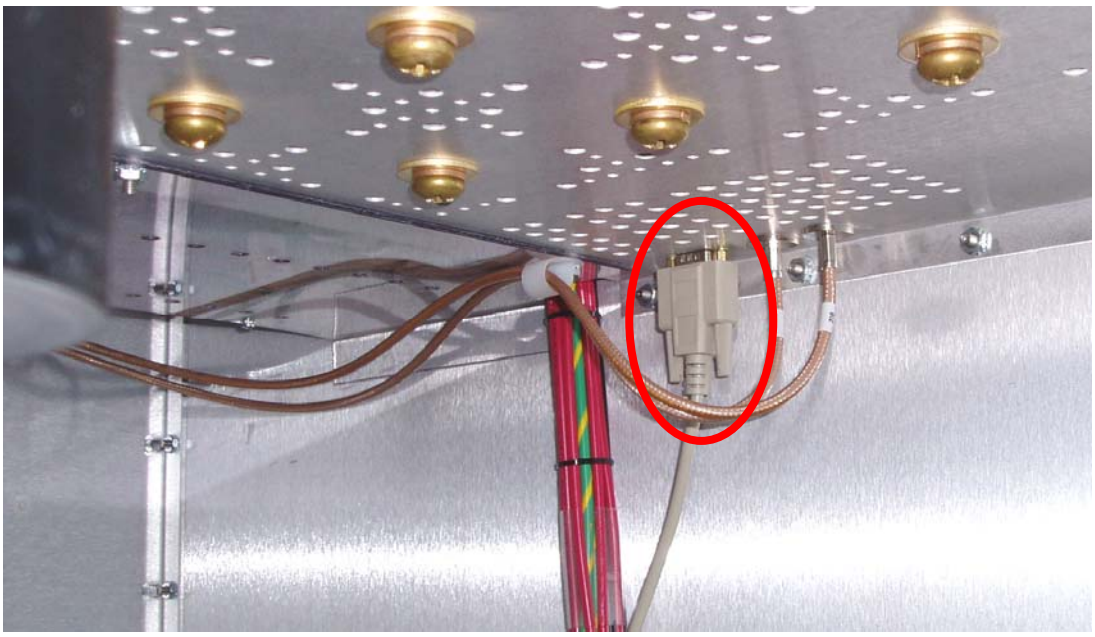


Figure 23 – Connect Control Cable

2.23 Install Rear Doors

2.24 Turn the Service Entrance AC Breaker to ON

2.25 Turn the Transmitter's AC Breaker to ON

©2007 Broadcast Electronics Inc.

3 Upgrade Software to Version 42.11.11.2.2.5 (or Newer)

3.1 Overview

In order for the transmitter to utilize the Mute Relay hardware, software must be upgraded to version 42.11.11.2.2.5 (or newer). Since a new pre-programmed Controller PCB was installed, it is ONLY necessary to upload the Exciter code to the Transmitter.

3.2 4MX Software Version Labeling (shown for reference only)

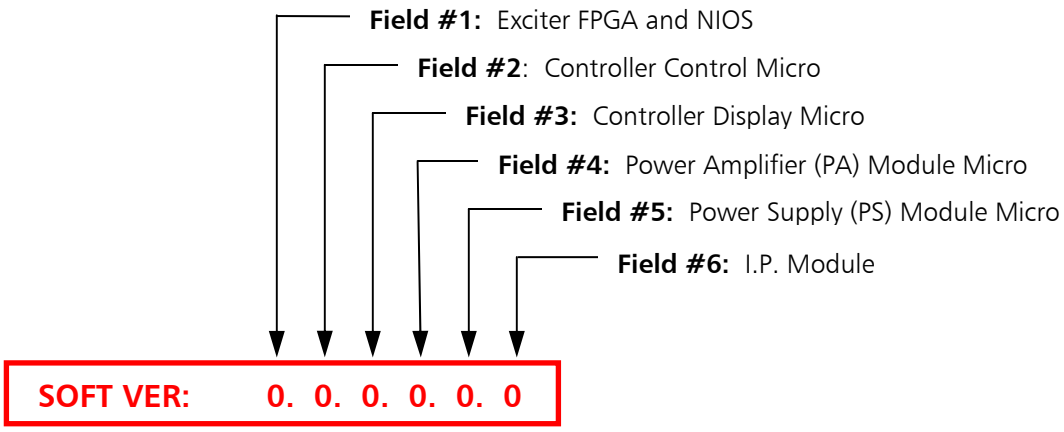


Figure 24 – Software Version Labeling

3.3 Uploading Software to a 4MX Series Transmitter

Step 1 – Using Windows Explorer, copy all of the files from the 4MX Software Upgrade CD (or files downloaded from the B.E. Website) to a folder on the hard drive "C:\" of the personal computer that you are planning to use for the upgrade. Unzip the files (if they have been zipped) ensuring that all of the files remain in the "4MX Upgrade" directory.

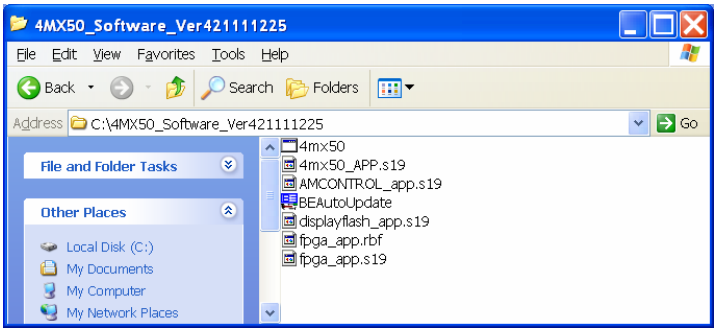


Figure 25 – 4MX Software Upgrade Files

NOTE: The factory default **I.P.** is **10.2.4.102** and the factory default **Subnet Mask** is **255.255.255.255**.

©2007 Broadcast Electronics Inc.

Step 2 – To establish communication via I.P. with the 4MX Transmitter, your PC must be setup in the same I.P. family. On your PC go to **Start -> All Programs -> Accessories -> Communications ->** and select **Network Connections**.

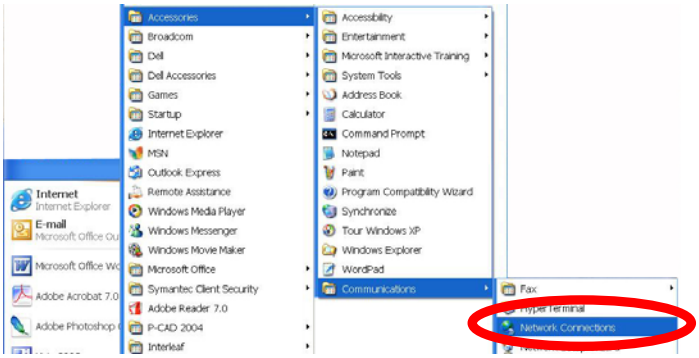


Figure 26 – PC Network Connection Menu

Step 3 – Right click on **Local Area Connection** and select **Properties.**

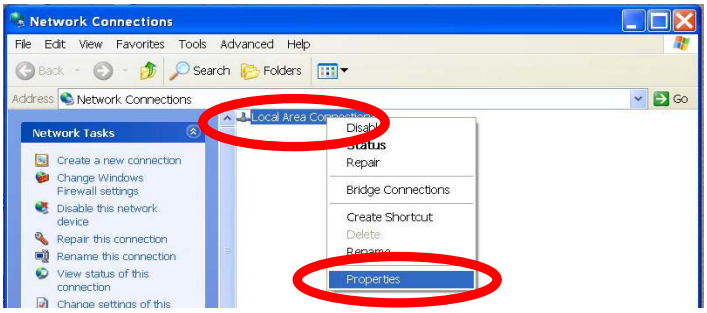


Figure 27 – Local Area Connection Properties

Step 4 – Since the I.P. Address of the 4MX in this example is 10.2.4.102 with a Subnet Mask of 255.255.255.255, we configure the PC with an I.P. of 10.2.4.10 and 255.255.255.0 for the Subnet Mask.

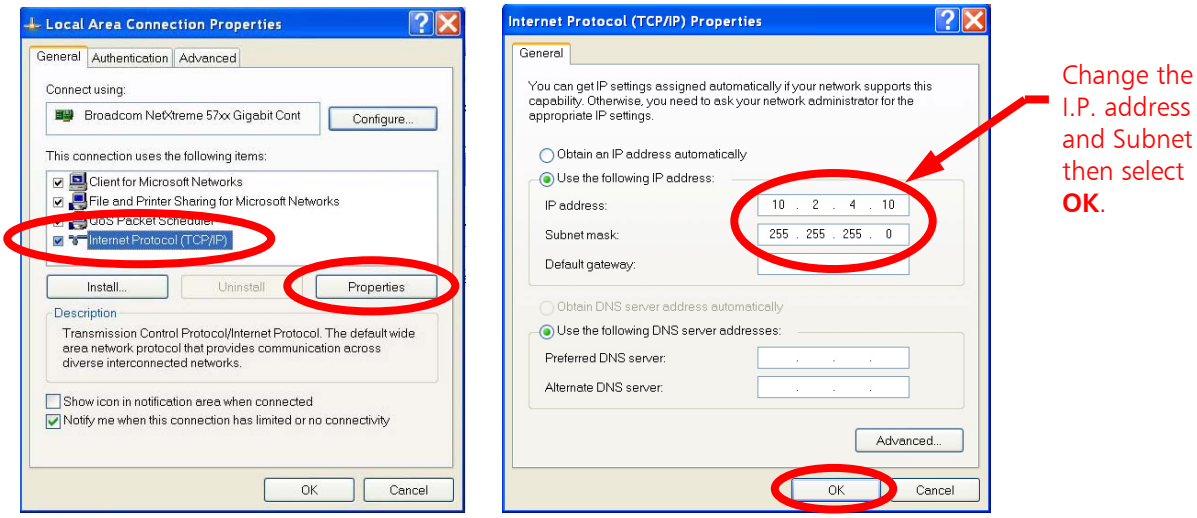


Figure 28 – Configure the I.P. Address of the Personal Computer

©2007 Broadcast Electronics Inc.

Step 5 – Remove the 4MX 's remote control access panel to gain access to the transmitter's Ethernet Port.

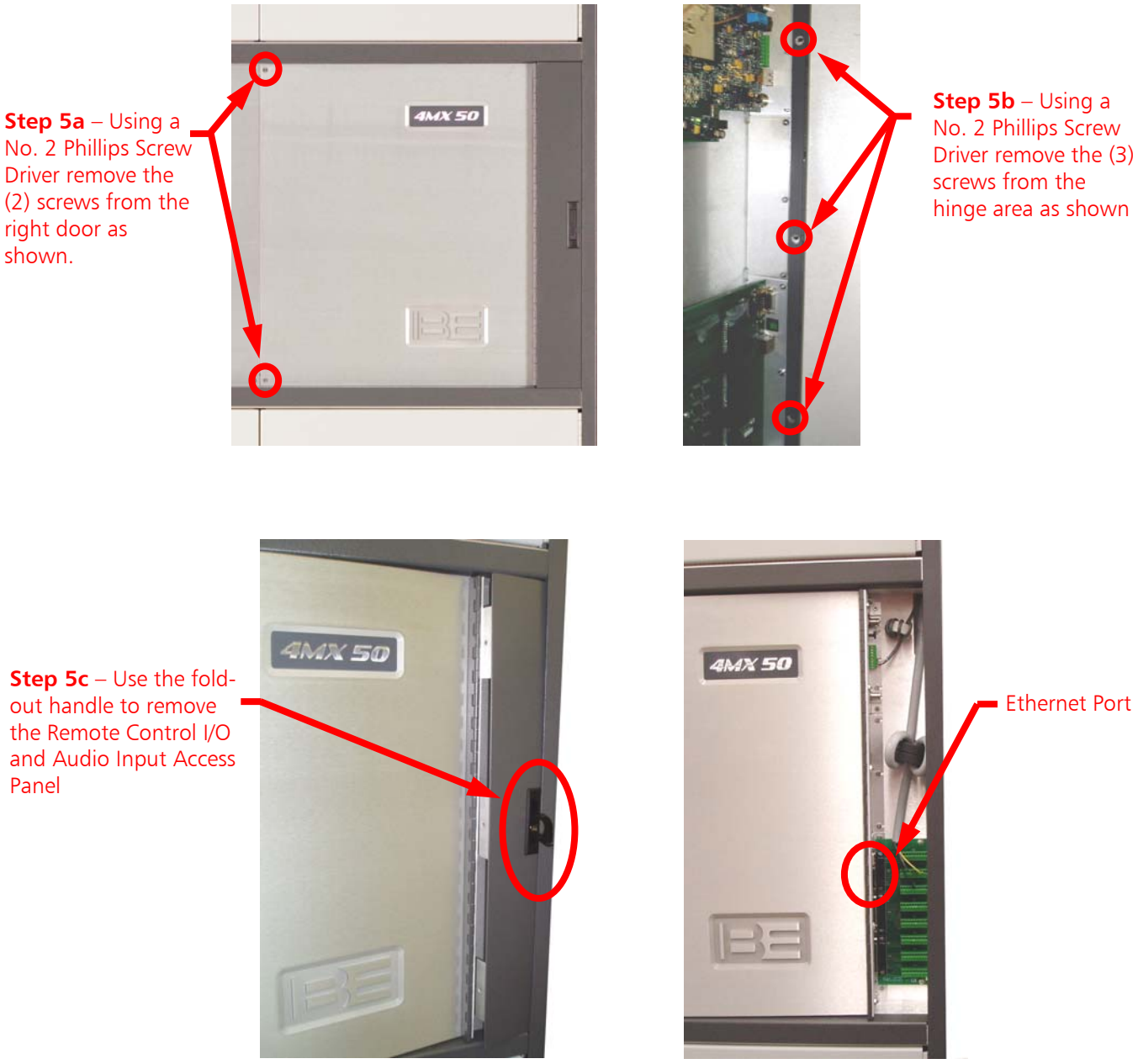


Figure 29 – Remote Control I/O Access Panel Removal

©2007 Broadcast Electronics Inc.

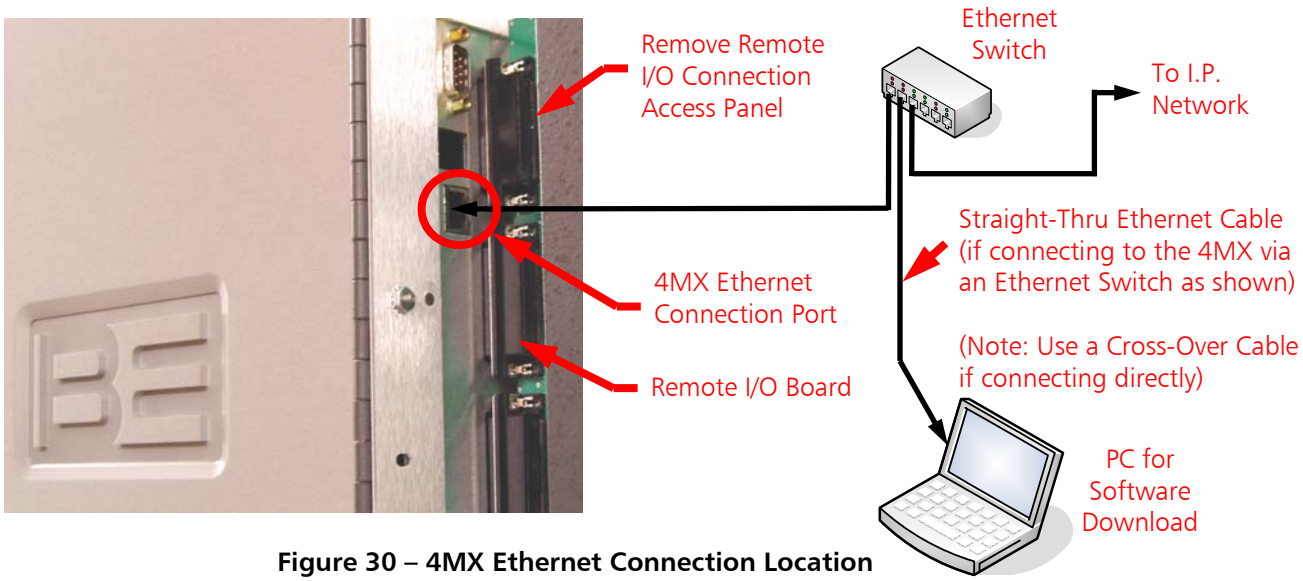


Figure 30 – 4MX Ethernet Connection Location

Step 6 – Next, connect an Ethernet cable from your PC to the 4MX. If connecting to the transmitter via a network switch or hub, use a Straight-Thru Ethernet cable as illustrated. If connecting directly from the PC to the 4MX, use a Cross-Over Ethernet cable (in high RF environments route and wrap the cable through a ferrite ring).

Step 7 – To verify communication, type the transmitter's I.P. address into a web browser. If communication can be established a picture of the 4MX Transmitter Series will appear.

Figure 31 – 4MX Webpage

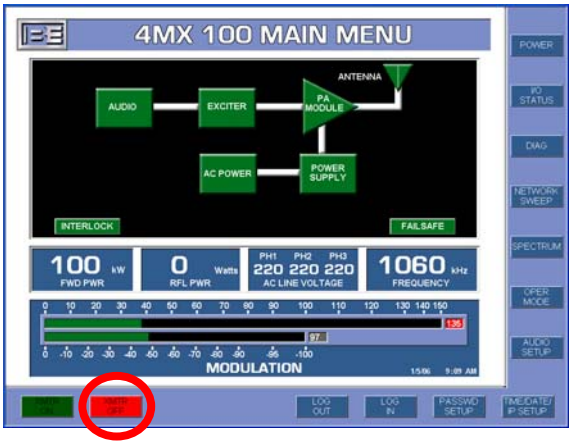
Step 8 – Close web browser.

©2007 Broadcast Electronics Inc.

Step 9 – Turn the transmitter's **RF Output Power OFF** either from the Main Menu or by depressing the front panel button.

NOTE: The 4MX Transmitter's RF Output MUST be OFF during the entire Software Upgrade Process!

NOTE: Ensure that AC Power does remain ON during the Software Upgrade Process! After downloading software to the transmitter, AC Power to the transmitter MUST then be cycled for the upgrades to take effect. Customers should plan for the transmitter to be off of the air for approximately 30 minutes for the entire process.



- OR -

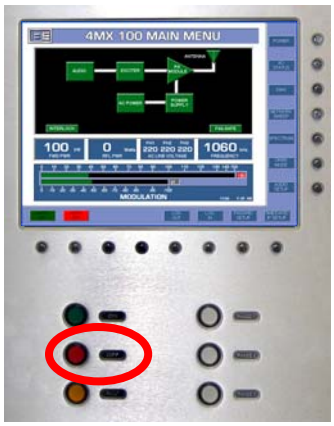


Figure 32 – Turn the RF Output Power OFF

Step 10 – 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 **BEAutoUpdate** application icon.

Figure 33 – Software Update Application Icon

©2007 Broadcast Electronics Inc.

Step 11 – Once the **BEAutoUpdate** application launches, enter the I.P. Address of the 4MX Transmitter, select the Exciter target, and then select **Update**.

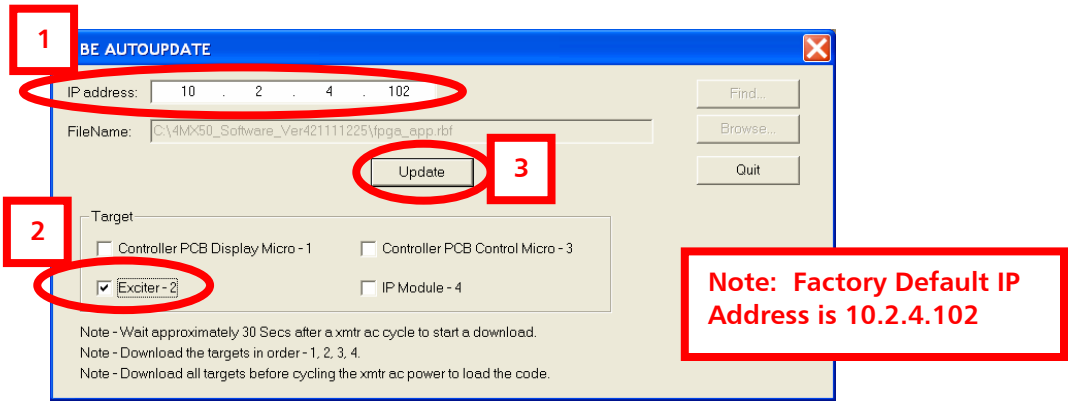


Figure 34 – Software Update Application

Step 12 – Once a "**Target**" has been updated, the following screen will appear. Click **OK** to dismiss.

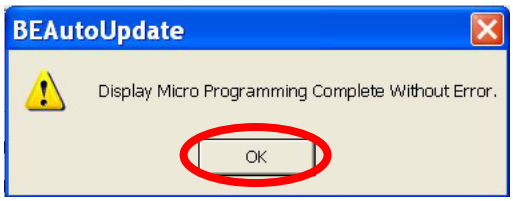


Figure 35 – Software Update Complete

Step 13 – Close the **BEAutoUpdate** application by selecting **"Quit".**

Step 14 – After the Exciter target has been updated, you **MUST** then turn the Transmitter's AC Power **OFF**, and then back **ON** for the software updates to take affect.

Figure 36 – Turn the 4MX AC Breaker OFF then back ON

©2007 Broadcast Electronics Inc.

3.4 Turn the Transmitter's RF Output to ON

3.5 Verify Proper Operation

4 RF Customer Service Contact Information

RF Customer Service -

Telephone: (217) 224-9617
E-Mail: rfservice@bdcast.com
Fax: (217) 224-6258

©2007 Broadcast Electronics Inc.