



FLEX-6300 ATU Installation Guide

December 1, 2015

Thank you for purchasing the FLEX-6300 ATU upgrade. The following guide will provide the necessary step-by-step procedure for installing the ATU upgrade in a FLEX-6300 Signature Series SDR.

Table of Contents	
OBTAINING TECHNICAL SUPPORT	2
GETTING STARTED	3
<i>Packaging and ATU Kit Contents.....</i>	<i>3</i>
<i>Additional Required Tools.....</i>	<i>3</i>
PREPARING FOR THE FLEX-6300 ATU INSTALLATION	4
REMOVING THE FLEX-6300 CHASSIS COVER	4
<i>Removing the Front Side Cover and Top Cover Screws.....</i>	<i>4</i>
<i>Removing the Middle/Rear Side Cover and Rear Top Cover Screws</i>	<i>6</i>
<i>Removing the Top Cover.....</i>	<i>8</i>
INSTALLING THE FLEX-6300 ATU ASSEMBLY	9
<i>Preparing the ATU Assembly</i>	<i>9</i>
<i>Installation of the ATU Assembly into the FLEX-6300.....</i>	<i>10</i>
<i>Connecting the MCX Cable Assemblies.....</i>	<i>13</i>
<i>Installing the ATU12-Pin Jumper.....</i>	<i>15</i>
REINSTALLING THE FLEX-6300 CHASSIS COVER	17
<i>Replacing the Chassis Cover</i>	<i>17</i>
<i>Reinstalling the Long Chassis Screws</i>	<i>19</i>
<i>Reinstalling the Short Chassis Screws.....</i>	<i>21</i>
<i>Applying the ATU Serial Number Label.....</i>	<i>22</i>
VERIFYING THE ATU INSTALLATION	23

Obtaining Technical Support

If you encounter any issues installing your FLEX-6000 accessory, can request technical support by opening a HelpDesk support ticket (helpdesk.flexradio.com) or by calling at 512-535-4713 x2. The preferred method for expedited support is by opening a HelpDesk support ticket.

If you need assistance opening a HelpDesk ticket, please refer to the [HelpDesk Assistance Center](#) home page for step-by-step instructions.

Hours of Operation: Our Technical Support engineers are available Monday – Friday from 9:00am-6:00pm Central Time. If you contact us after business hours, on a holiday or weekend, please leave a detailed message and we will return your call during regular business hours in the order it was received.

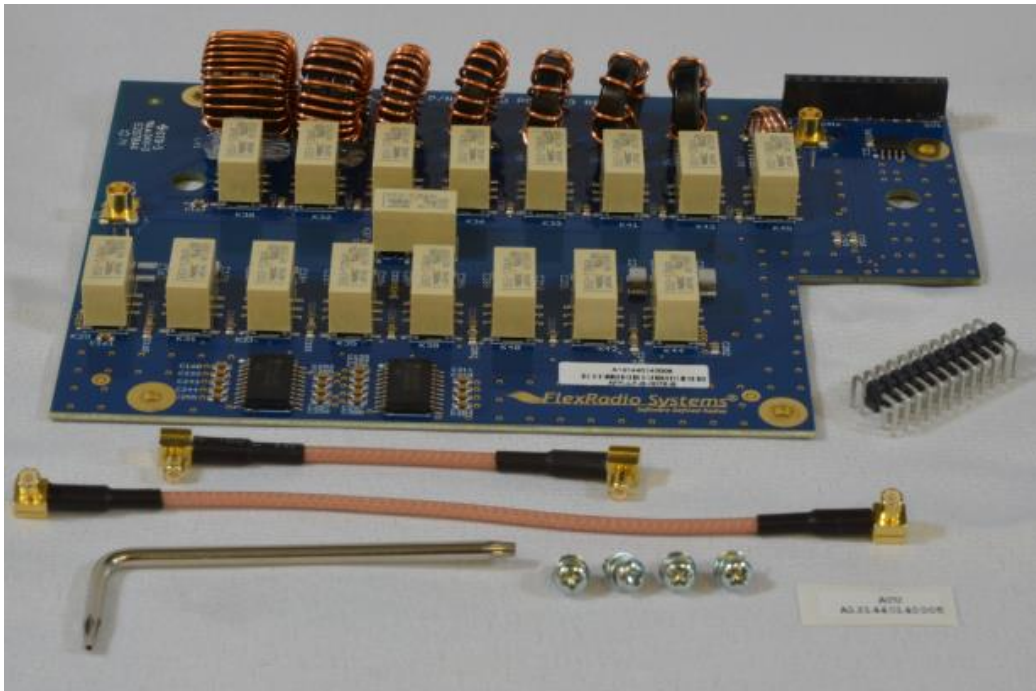
Another great resource of information is our online user community (community.flexradio.com) where FlexRadio Staff and other FlexRadio operators post Ideas, Questions, Praises, Problems and solutions. The Community has powerful search capabilities that allow you to easily locate solutions to questions that others have previously asked.

Getting Started

Packaging and ATU Kit Contents

Remove the FLEX-6300 ATU Kit contents from the packaging and verify that the following items are included before proceeding. Refer to the image below.

- One (1) ATU assembly, FLEX-6300 ATU board
- One (1) Long RG-316 MCX (micro coaxial) cable assembly, 5.2" (13.21 cm)
- One (1) Short RG-316 MCX (micro coaxial) cable assembly, 2.7" (6.86 cm)
- Four (4) Phillips screws with washers, M3 x 6mm
- One (1) 12-pin dual sided jumper
- One (1) TORX L wrench, T10 / T8
- One (1) ATU serial number label with adhesive backing



Additional Required Tools

In addition to the provided TORX wrench, a #2 Phillips screwdriver is required.

Preparing for the FLEX-6300 ATU Installation

If the FLEX-6300 is powered on, power it off by pressing the Power Button and then remove DC power from the radio. Disconnect all cables.

Use a flat, well-lighted surface such as a table or work bench to perform the ATU installation.

You may want to use several small containers to store and organize the chassis screws that will be removed and re-installed as part of the ATU installation.

Make sure to observe basic ESD control procedures to prevent static discharges that may damage sensitive electronics components inside the radio, such as grounding yourself to reduce static electrical build up.

Removing the FLEX-6300 Chassis Cover

The FLEX-6300 chassis cover must be removed before installing the ATU assembly.

Removing the Front Side Cover and Top Cover Screws

Remove the 4-40 X ½" **Front Side Cover TORX screw** using the long portion of the "L" TORX wrench. Retain the Front Side Cover TORX screw for re-installation. The image below shows the removal of the right Front Side Cover TORX screw.



Repeat the previous procedure for removing the TORX front side cover screw on the left side of the FLEX-6300, retaining the screws for re-installation.

After removing the Front Side Cover TORX screws, remove the two (2) 4-40 X ½" **Front Top Cover TORX screws** using the long portion of the "L" TORX wrench. Retain the Front Top Cover TORX screws for re-installation. The image below shows the removal of the left side Front Top Cover TORX screw; the right side Front Top Cover TORX screw has been previously removed.



After removing the two Front Top Cover TORX screws, remove the two (2) 6-32 x 3/8" flat head **Front Side Cover Phillips screws** using a #2 Phillips screwdriver (not provided). Retain the Front Side Cover Phillips screws for re-installation. The image below shows the removal of the top right Front Side Cover Phillips screw; the bottom right Front Side Cover Phillips screw has been previously removed.



Repeat the previous procedure for removing the Phillips Front Side Cover screws on the left side of the FLEX-6300, retaining the screws for re-installation. Keep all removed screws from the previous de-installation steps separate for re-installation marked as “long” screws. When complete, the FLEX-6300 should look like the image shown below.



Removing the Middle/Rear Side Cover and Rear Top Cover Screws

Remove all three (3) 4-40 X 1/4" **Middle and Rear Side Cover TORX screws** located on the right side of the FLEX-6300 using the long portion of the “L” TORX wrench. Repeat this procedure for removing the TORX Middle and Rear Side Cover screw on the left side of the FLEX-6300, retaining all six (6) screws for re-installation. The image below shows the removal of the right Middle and Rear Side Cover TORX screws.



After removing the Middle and Rear Side Cover TORX screws, remove the two (2) 4-40 X ¼" **Rear Top Cover TORX screws** using the long portion of the "L" TORX wrench. Retain the Rear Top Cover TORX screws for re-installation. (Image not provided).

Keep all removed screws from the previous de-installation steps separate for re-installation. These screws are shorter than the previous set of screws removed from the FLEX-6300. When complete, the right side of FLEX-6300 should look like the image shown below with the two sets of screws grouped separately.

NOTE: All top cover screws are removed too.



Removing the Top Cover

With both hands, grasp both sides of the top cover and gently lift upwards to remove the top cover as shown below. Do not rock the rock the cover from side to side as that may bend the side covers.

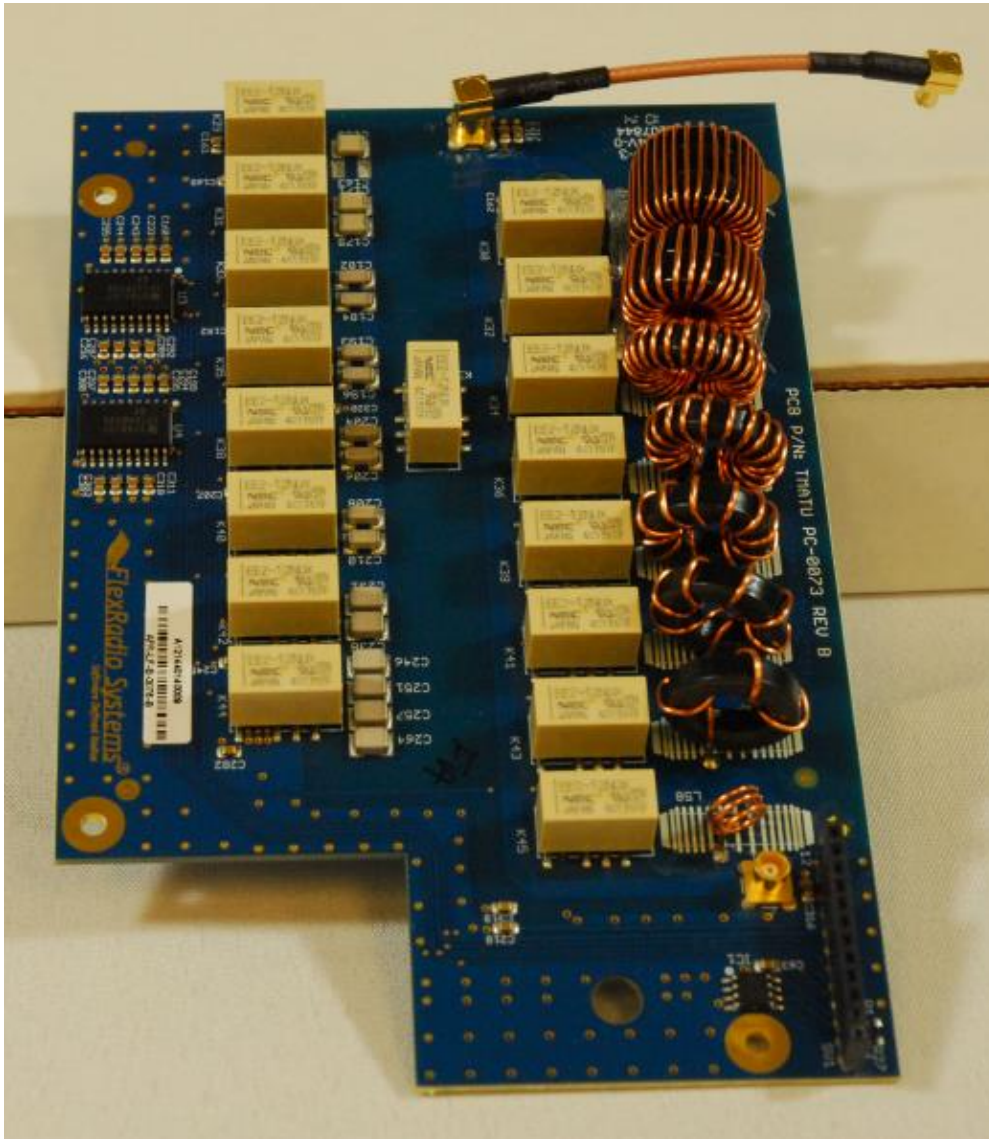


Installing the FLEX-6300 ATU Assembly

Once the top cover has been removed, the ATU assembly can be installed.

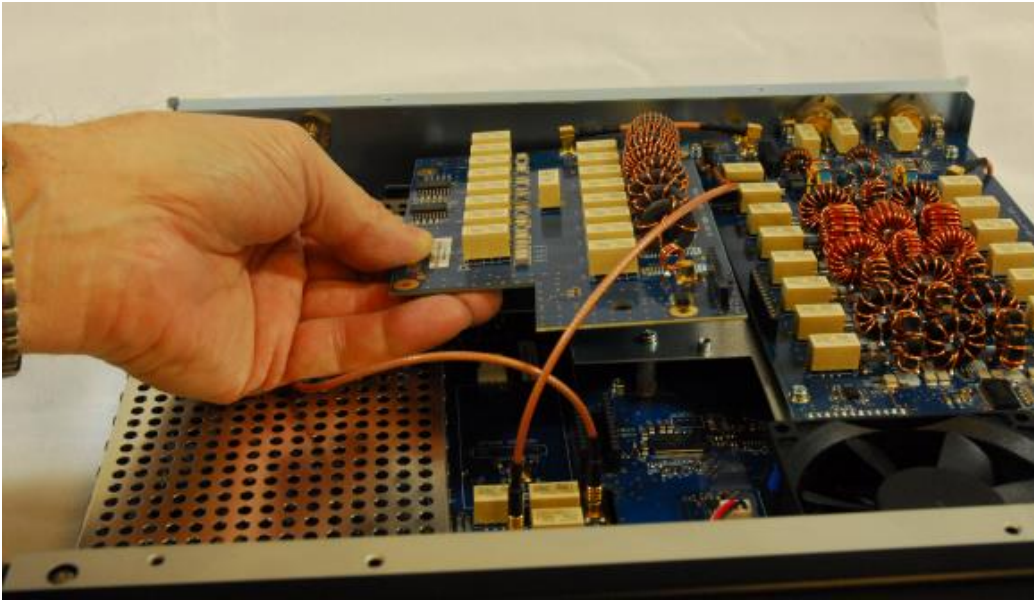
Preparing the ATU Assembly

Locate the short (2.7" / 6.86 cm) RG-316 MCX cable assembly. Carefully insert one end of the mini RG-316 Coax cable assembly into the gold MCX "snap on" connector labeled **X2** on the ATU board by pressing down gently until it is completely seated. The X2 connector is located on the edge of the ATU board, opposite of the notched end as shown below.

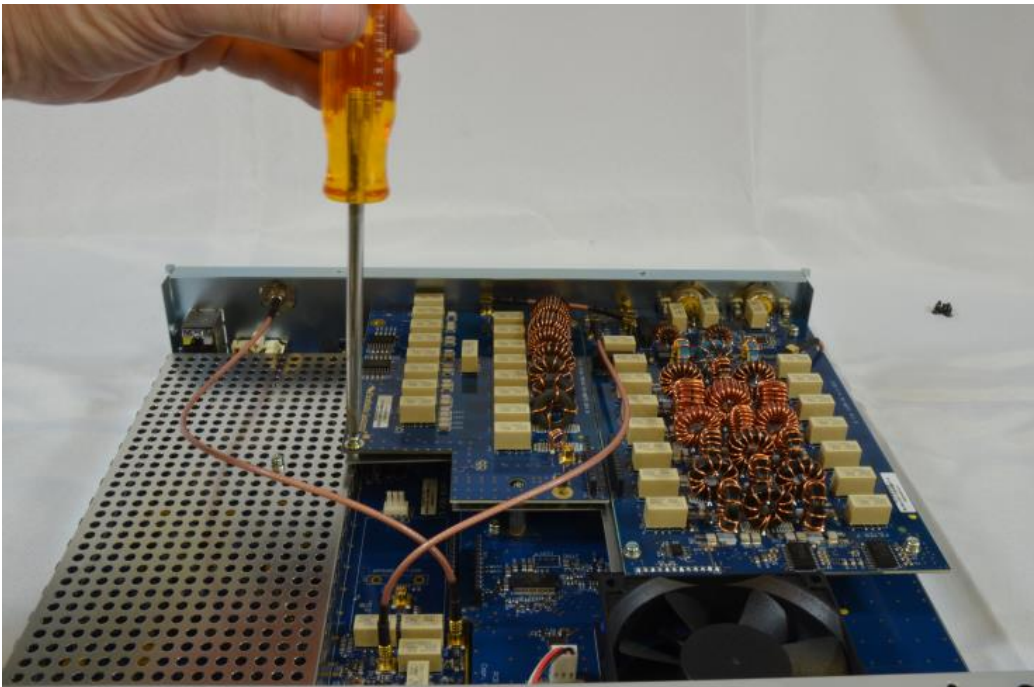


Installation of the ATU Assembly into the FLEX-6300

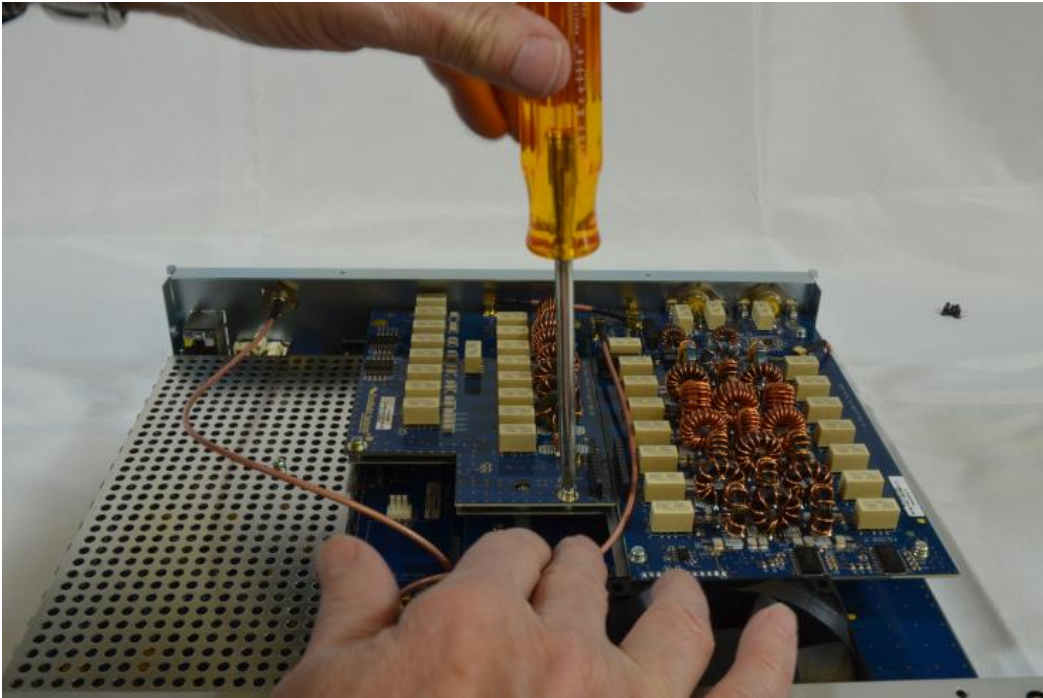
Carefully place the FLEX-6300 ATU assembly in the radio adjacent to the Filter board, aligning up the copper ringed screw “thru” holes on the ATU board with the female mounting holes (threaded spacers) on the metal Filter board RF shield. Note that the hole on the center right hand side of the ATU assembly that does not have a copper ring should have the existing Phillips head screw centered in it when the ATU assembly is properly seated. Refer to the image below of the ATU assembly being seated in the FLEX-6300.



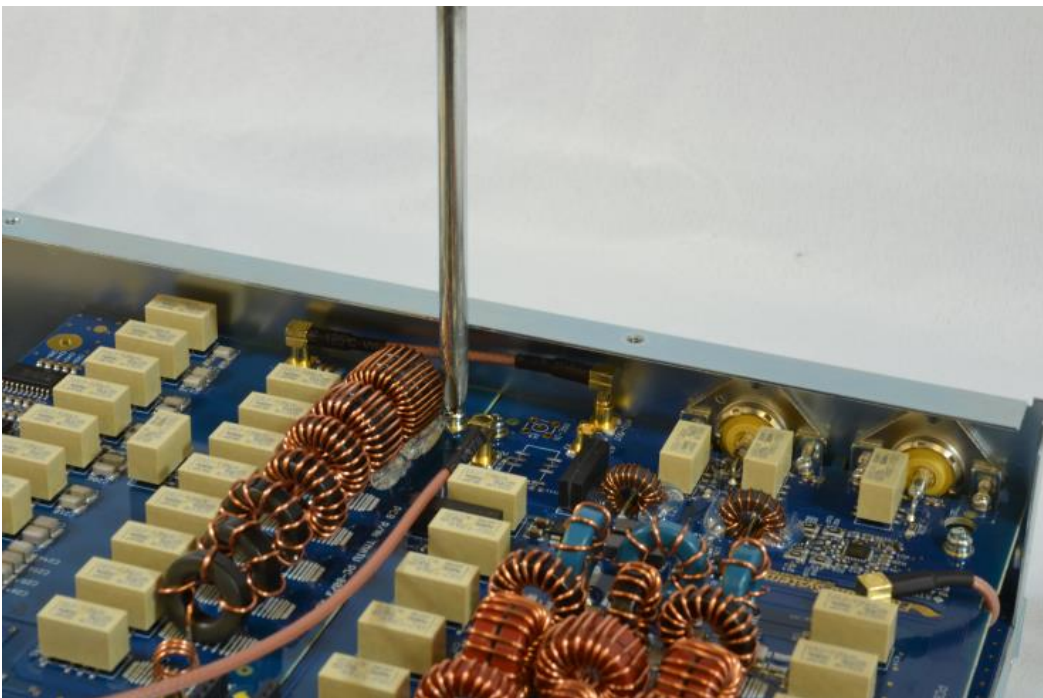
Once the ATU assembly is properly seated, *very loosely* install one (1) M3 x 6mm Phillips head screw using a #2 Phillips screwdriver in the bottom right hand corner mounting hole (facing the front of the FLEX-6300) as shown below. **Do not tighten the screw at this time.**



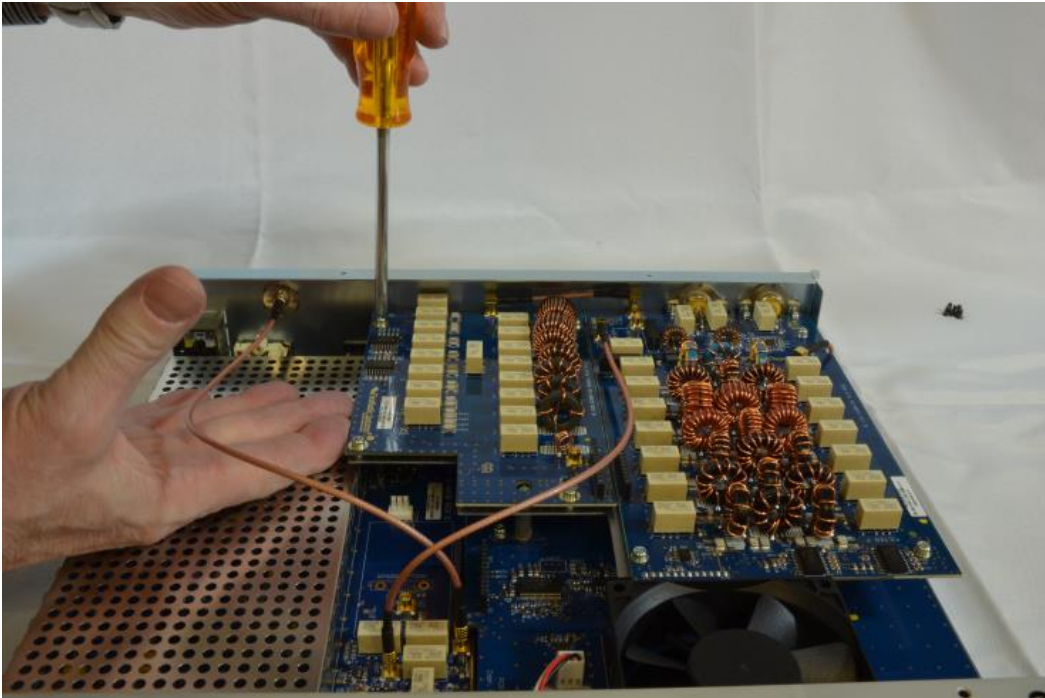
Install one (1) M3 x 6mm Phillips head screw using a #2 Phillips screwdriver in the top right hand corner threaded spacer (facing the front of the FLEX-6300) as shown below. Tighten snugly; do not over tighten the ATU mounting screw.



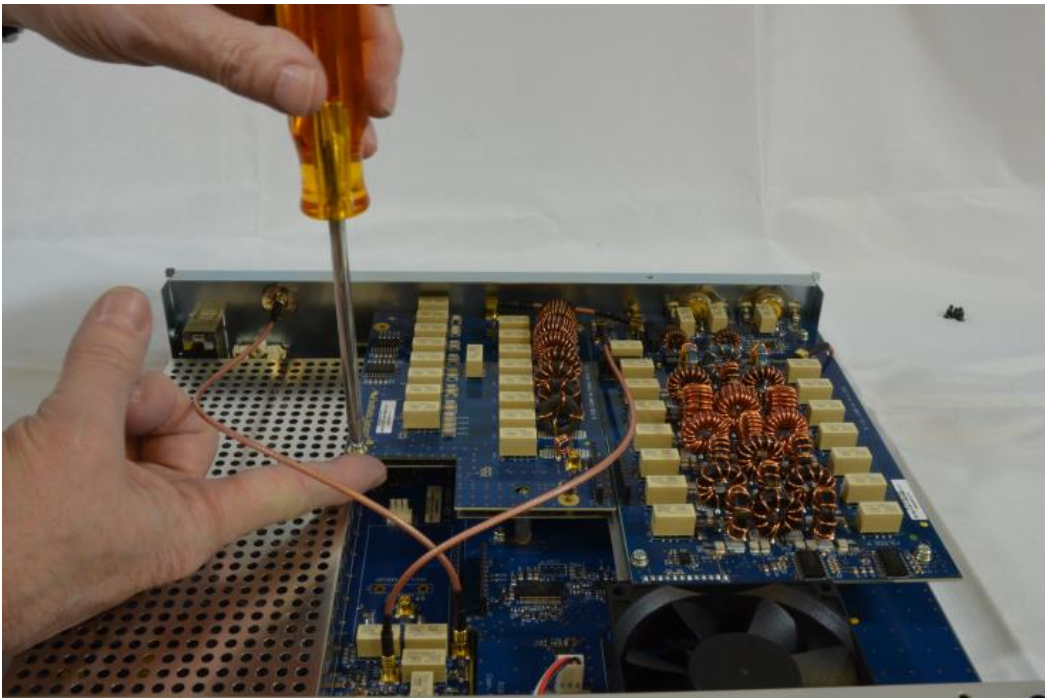
Install one (1) M3 x 6mm Phillips head screw using a #2 Phillips screwdriver in the top left hand corner threaded spacer (facing the rear of the FLEX-6300) as shown below. Tighten snugly; do not over tighten the ATU mounting screw. Be careful not to disturb the ATU inductor coils when installing the mounting screw.



While supporting the metal Filter board RF shield with your fingers to prevent it from being bent downward, install the last M3 x 6mm Phillips head screw using a #2 Phillips screwdriver in the bottom left hand corner threaded spacer mounting hole (facing the rear of the FLEX-6300) as shown below. Tighten snugly; do not over tighten the ATU mounting screw.

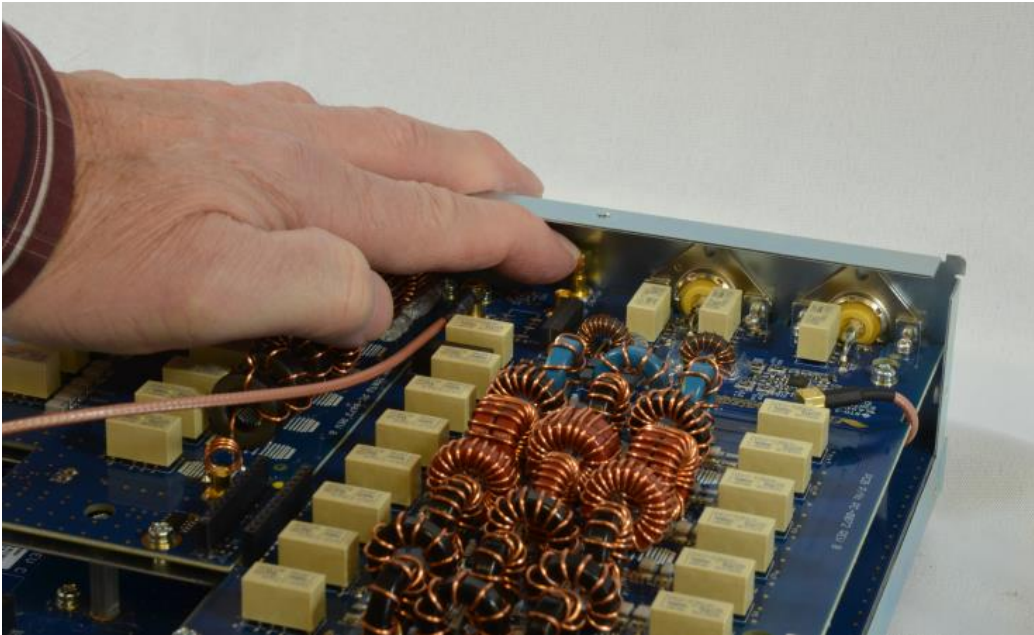


While continuing to support the metal Filter board RF shield with you finger to prevent it from being bent downward, tighten the first M3 x 6mm Phillips head screw using a #2 Phillips screwdriver. Tighten snugly; do not over tighten the ATU mounting screw.

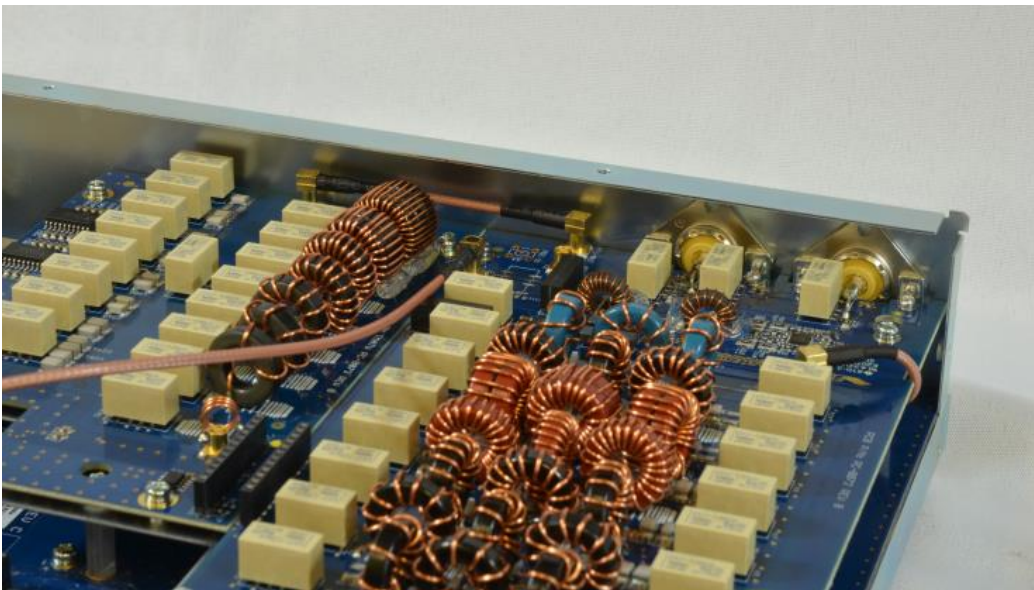


Connecting the MCX Cable Assemblies

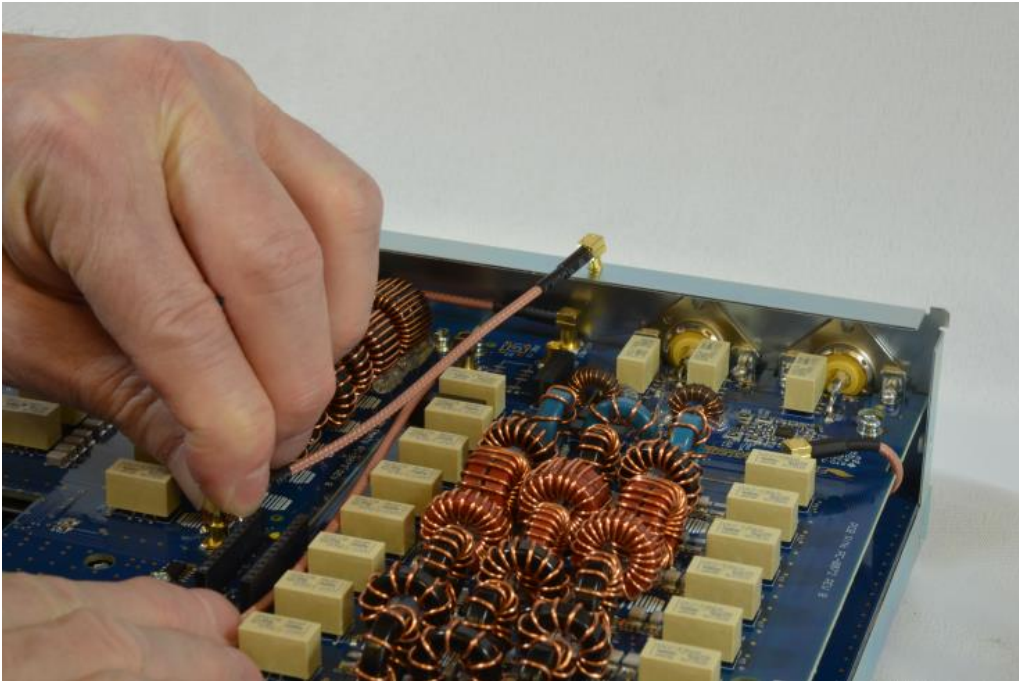
On the Filter printed circuit (PC) board, locate the gold MCX connector labeled **ATU-OUT** adjacent to the back of the radio. Connect the unconnected end of the short RG-316 MCX cable assembly to the **ATU-OUT** MCX connector by carefully inserting it into the gold MCX “snap on” connector and pressing down gently until it is completely seated as shown in the image below. Be careful not to disturb the ATU or Filter inductor coils when installing the short RG-316 MCX cable assembly.



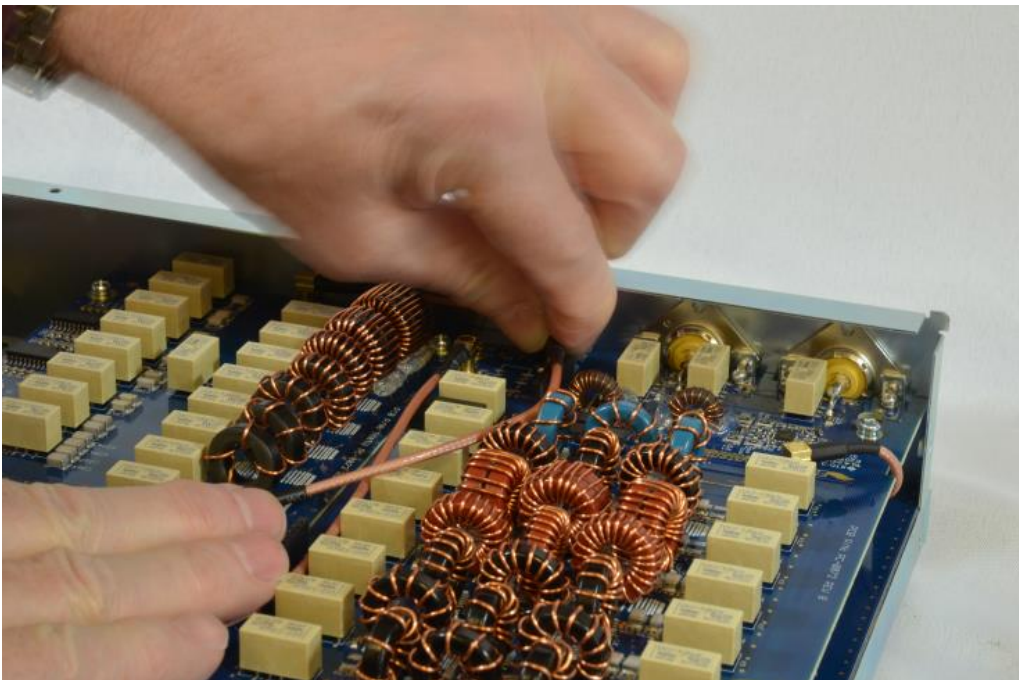
When the short RG-316 MCX cable assembly is properly installed, it should look like the image shown below.



Locate the long 5.2" (13.21 cm) RG-316 MCX cable assembly. Carefully insert one end of the mini RG-316 Coax cable assembly into the gold MCX "snap on" connector labeled **X1** located on the ATU PC board by pressing down gently until it is completely seated. The **X1** MCX connector is located on the edge of the ATU board facing the front of the FLEX-6300, below the black 12-pin connector as shown below.

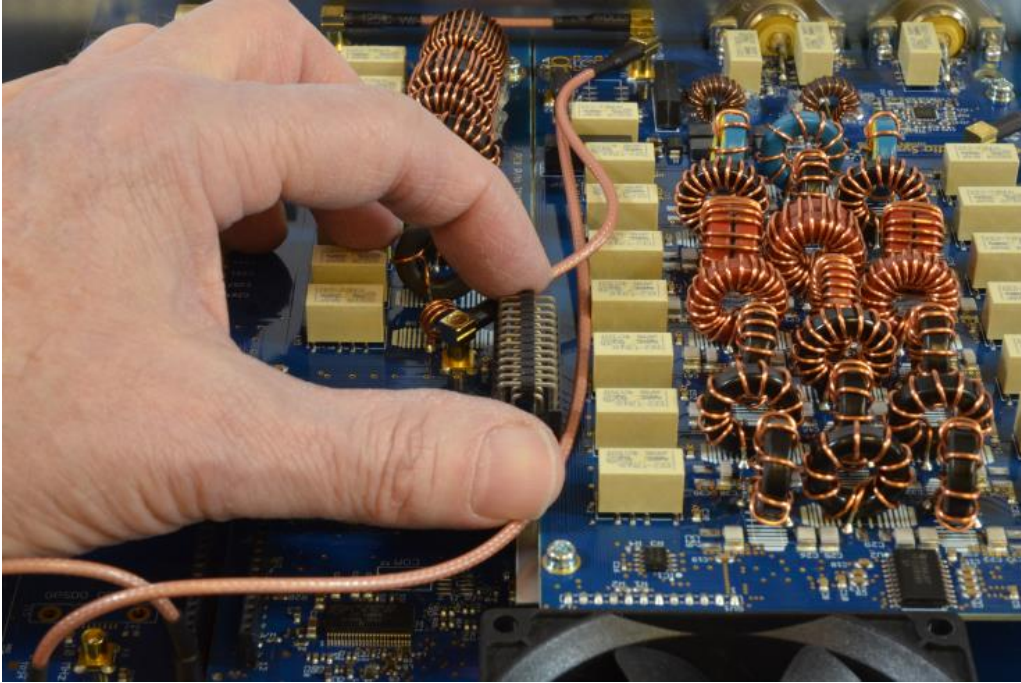


On the Filter PC board, locate the gold MCX connector labeled **ATU-IN** adjacent to the ATU-OUT connector. Connect the unconnected end of the long RG-316 MCX cable assembly to the **ATU-IN** MCX connector by carefully inserting it into the gold MCX "snap on" connector and pressing down gently until it is completely seated as shown in the image below. Be careful not to disturb the ATU or Filter inductor coils when installing the long RG-316 MCX cable assembly.

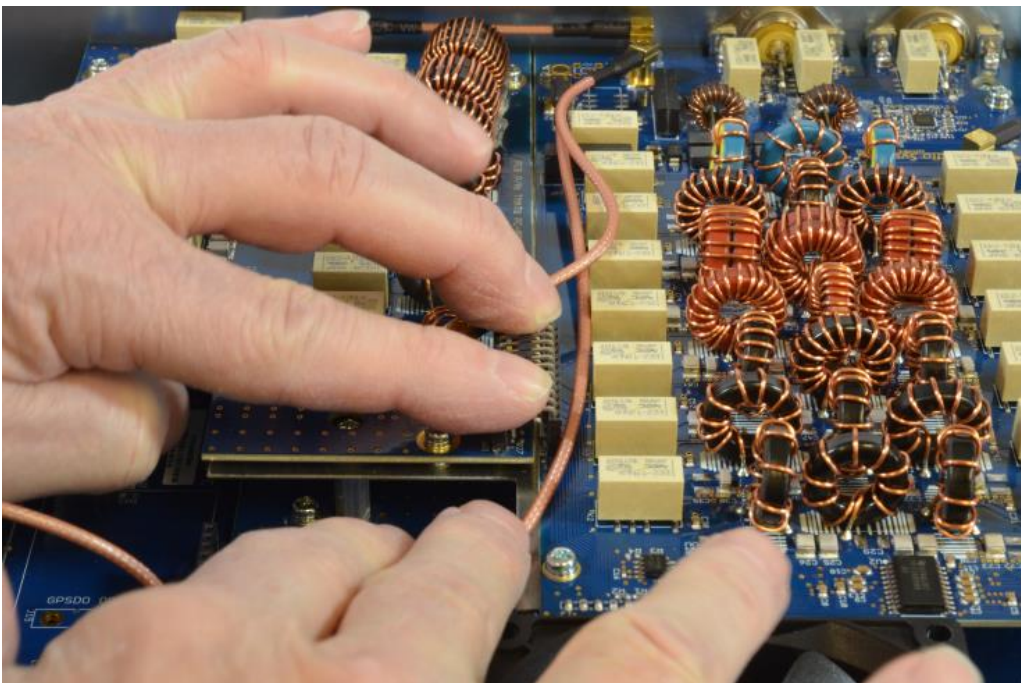


Installing the ATU12-Pin Jumper

Rotate slightly and carefully the ATU end of the long RG-316 MCX cable assembly so the RG-316 coax does not obstruct or cover the 12-pin jumper on the ATU PC board. Locate the 12-pin dual sided jumper. Position the jumper so that all twelve (12) pins bridge the ATU PC board to the Filter PC board as shown in the image below. Be careful not to disturb the ATU inductor coils when installing the 12-pin jumper.



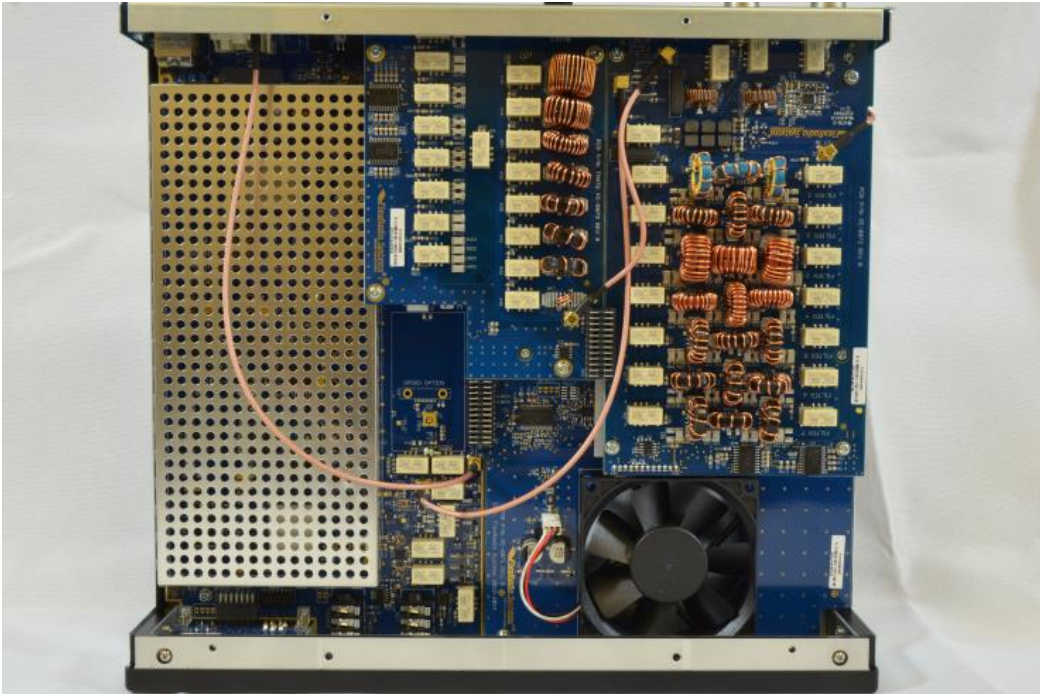
Firmly and without excessive force, press down on both ends of the 12-pin jumper simultaneously to seat the jumper properly in the two sockets as shown in the image below.



Below is an image of the properly installed 12-pin jumper between the ATU and Filter PC boards.



After the ATU PC board is completely installed it should look like the image below.



Reinstalling the FLEX-6300 Chassis Cover

After the ATU assembly is completely installed in the FLEX-6300, re-installation of the chassis cover will complete the AUT installation. During the FLEX-6300 disassembly, there were two sets of screws removed; a set of long and short screws. The set of long screws will be installed first.

Replacing the Chassis Cover

With both hands, grasp both sides of the top cover and gently place the cover on the radio as shown below (one hand was removed to show the proper orientation of the chassis cover on the FLEX-6300). Do not force or rock the cover from side to side as that may bend the side covers.



While installing the ATU assembly, the two (2) front corner bezels may have shifted forward as they are held in place by the Front Side Cover screws that were removed from the chassis during disassembly. If they have shifted forward or fallen out completely, they will need to be reinserted before re-installing the chassis screws. The image below shows the front right bezel shifted outward.



The image below shows the front right bezel being reinserted.



Reinstalling the Long Chassis Screws

Reinstall one (1) 4-40 X ½" **Front Side Cover TORX screw** using the long portion of the "L" TORX wrench. *Be careful **not** to cross-thread the screw and over tighten the Front Side Cover TORX screws.* The image below shows the installation of the center TORX Side Cover screw on the right side of the FLEX-6300.



Repeat the previous procedure for reinstalling the TORX front side cover screw on the left side of the FLEX-6300.

While pressing down on the top cover with your hand as shown below, reinstall the two (2) 4-40 X ½" **Front Top Cover TORX screws** using the long portion of the "L" TORX wrench. *Be careful **not** to cross-thread the screw and over tighten the Front Top Cover TORX screws.*



Repeat the previous procedure for reinstalling the Front Top Cover TORX screw on the left side of the FLEX-6300 as shown below.



Reinstall the two (2) 6-32 x 3/8" flat head **Front Side Cover Phillips screws** using a #2 Phillips screwdriver. *Be careful **not** to cross-thread the screw and over tighten the Front Side Cover Phillips screws.* The image below shows the installation of the top right Front Side Cover Phillips screw; the bottom right Front Side Cover Phillips screw has been previously installed.



Reinstalling the Short Chassis Screws

Reinstall all three (3) 4-40 X ¼" **Middle and Rear Side Cover TORX screws** located on the right side of the FLEX-6300 using the long portion of the "L" TORX wrench. *Be careful **not** to cross-thread the screw and over tighten the Middle and Rear Side Cover TORX screws.* Repeat this procedure for installing the TORX Middle and Rear Side Cover screws on the left side of the FLEX-6300. The image below shows the removal of the right Middle and Rear Side Cover TORX screws.



After reinstalling the Middle and Rear Side Cover TORX screws, install the two (2) 4-40 X ¼" **Rear Top Cover TORX screws** using the long portion of the "L" TORX wrench. *Be careful **not** to cross-thread the screw and over tighten the Rear Top Cover TORX screws.*

Applying the ATU Serial Number Label

After the FLEX-6300 Chassis cover has been reinstalled, attach the ATU serial number label to the back panel of the FLEX-6300. Install the serial number label by removing the release paper from the adhesive backing and place it to the right of the ANT1 and ANT2 SO-239 connectors as shown below.



Verifying the ATU Installation

Replace the FLEX-6300 in its operating position and reconnect all cables, connecting the power cable last. Turn on the FLEX-6300 by pressing the front panel power button. Once the radio has completely booted up, start SmartSDR for Windows and connect to the radio.

Open the Settings->Radio Setup screen and click on the **Radio** tab and verify that the ATU is listed as one of the radio's options as shown below. At this point you may start using the FLEX-6300 ATU. Please refer to the [SmartSDR for Windows Users Guide](#) for details on how to operate the FLEX-6300 ATU.

