

# Radio Modifications

This document provides modifications for the FTM-1/400(X)DRs. Please note that these modifications may not apply to your radio depending upon the purchased configuration or engineering changes. If you choose to make these modifications, you do so at your own risk.

Modifications may involve adding or removing small surface mount components. Special tools are needed for working with these components and it may not be possible to “un-remove” a component.

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## **“MARS” Modification - U.S.A. only**

This modification permits the transmitter to operate on frequencies outside of the Ham bands for the benefit of MARS and other organization’s members who have a legitimate and legal reason for transmitting outside of the Ham bands.

I recommend that you do not perform this modification for the following reasons:

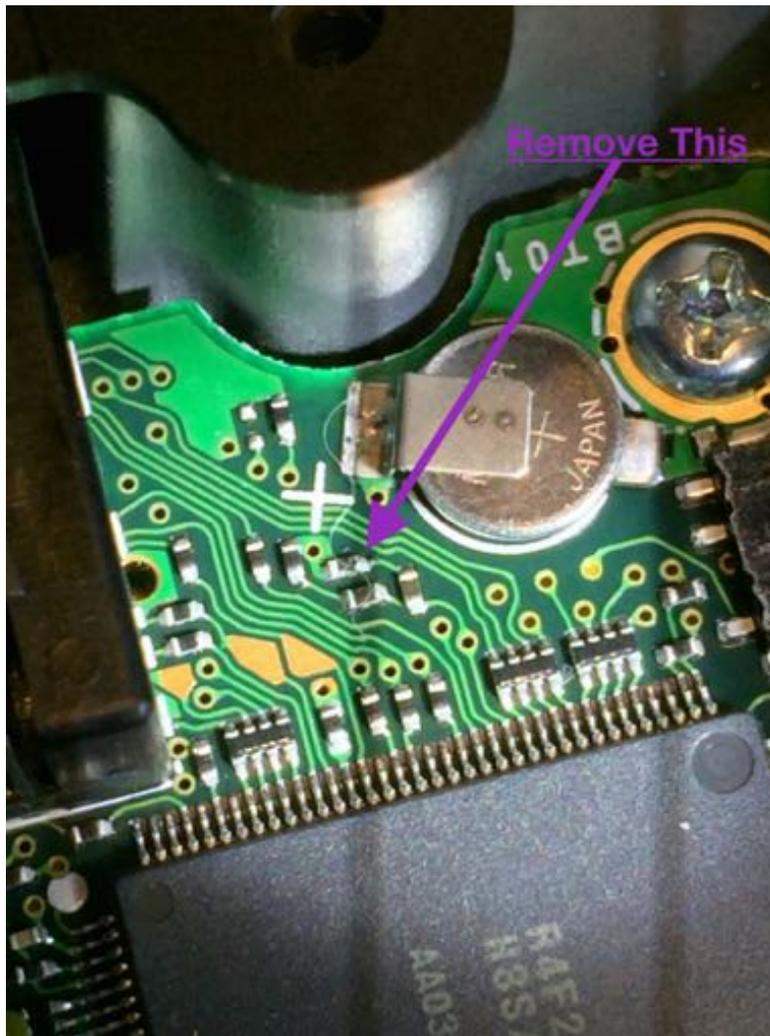
- The transmitter has not been characterized for use outside of the Ham bands. Damage could result due to internal resonances of filters forced to operate away from their intended frequencies.
- The spectral purity of the transmitter may not be good and you may create unintended interference to other services.
- If you use your radio to monitor local services, you may accidentally transmit to those services whereas the unmodified radio would not have permitted the transmission.
- Another antenna may be required. A standard “Ham” antenna’s SWR may be excessively high at the out-of-band frequency.
- Yaesu will be offering firmware updates for this radio. These updates may make certain assumptions about the configuration of the radio and this modification may result in undesired or unpredictable behavior.
- I don’t know about you, but I’d rather keep my radio under warranty.

Okay, so here we go.....

## FTM-400(X)DR MARS Modifications

1. Back-up the radio to the SD card.
2. Remove the radio's cover. There are 8 screws: two along each side of the cover, two at the back, and two towards the front.
3. Carefully lift the cover. Mind the wire that attaches the speaker to the main board. You'll want to disconnect the speaker by gently pulling up on the connector. The DSP may pull away from the main board as you remove the cover. Note that there is a foam material on the cover that is meant to secure the DSP in place. If this happens re-install the DSP by carefully (hammer not needed) reinserting it into the DSP socket.
4. Remove R1548 as indicated in the picture below.
5. Reassemble the radio.
6. Restore the radio to factory defaults.
7. Restore the radio from your backup.
8. The transmitter is now enable to MARS frequencies.

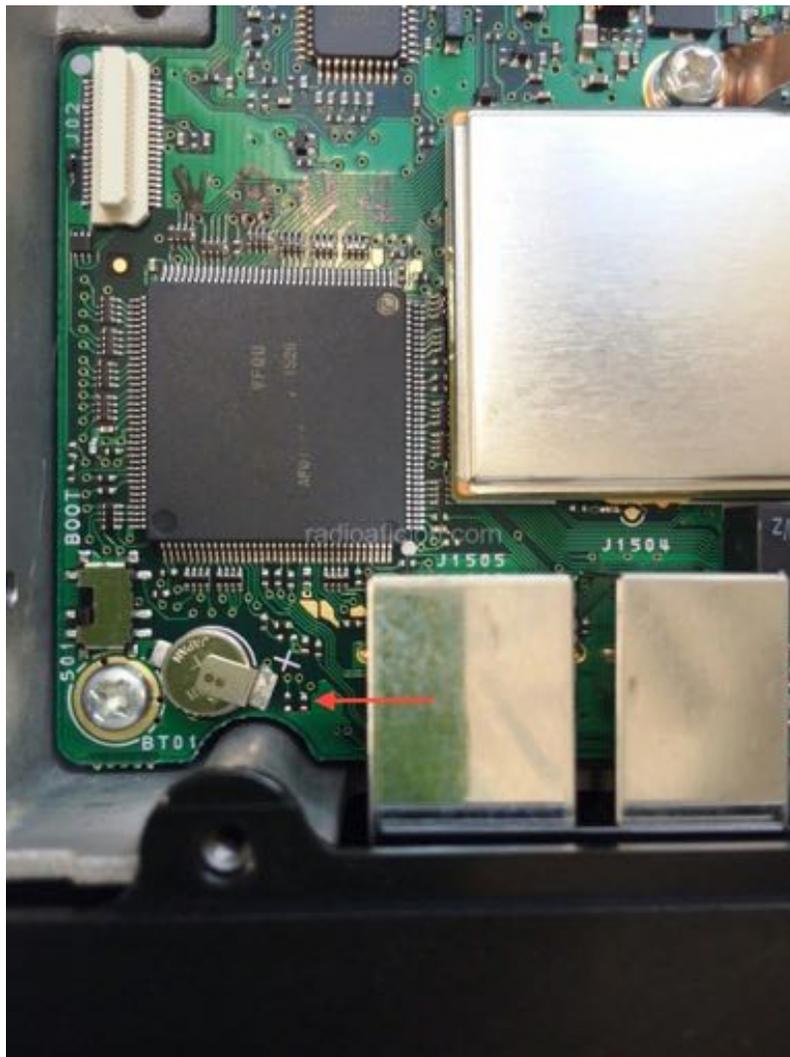
Thanks to N0XOC for the fine iPhone 6 photography! (Note photo was downsampled for the Internet.)



# FTM-100DR MARS Modifications

From <http://radioaficion.com/cms/yaesu-ftm-100-marscap-mod/>

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2. Remove the radio's cover. There are 8 screws: two along each side of the cover, two at the back, and two towards the front.
3. Carefully lift the cover. Mind the wire that attaches the speaker to the main board. You'll want to disconnect the speaker by gently pulling up on the connector. The DSP may pull away from the main board as you remove the cover. Note that there is a foam material on the cover that is meant to secure the DSP in place. If this happens re-install the DSP by carefully (hammer not needed) reinserting it into the DSP socket.
4. Remove R1850 as indicated in the picture below.
5. Reassemble the radio.
6. Restore the radio to factory defaults.
7. Restore the radio from your backup.
8. The transmitter is now enable to MARS frequencies.



## Disclaimer

You use the information in this document at your own risk. Whatever happens to your radio including failure to function, malfunction, generation of interference, spontaneous combustion, electric shock, emotional stress, divorce, loss of friends, clinical depression and tying up repeaters complaining about K9EQ and his documents, before or after viewing this document is your responsibility.

While there is absolutely no blame on our part for any error we make no matter how stupid or unkind, your suggestions or corrections to this document are appreciated and will be considered for inclusion in the next version.

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