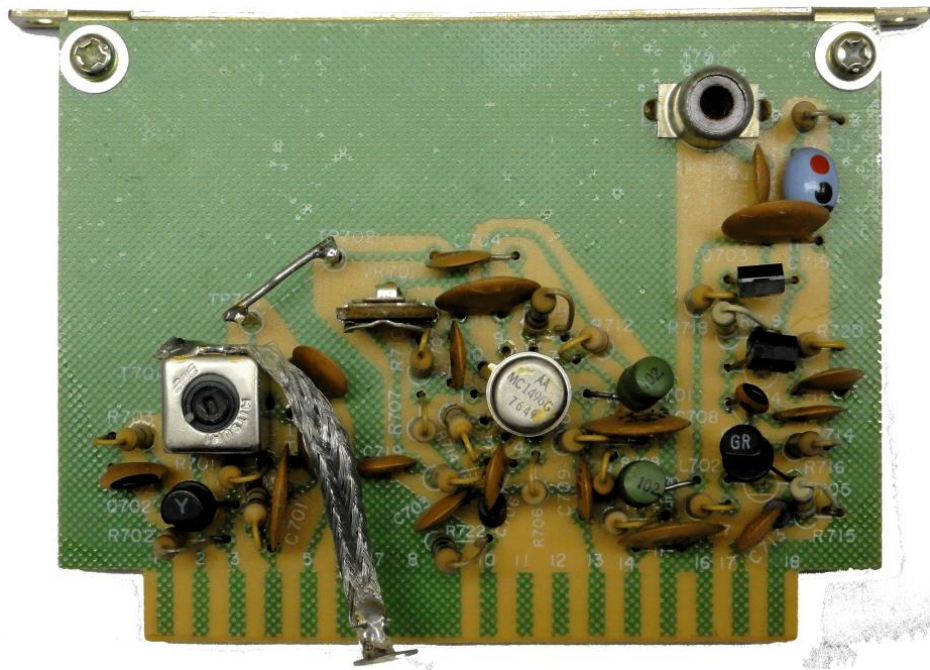


Modification PB-1439A

Premix Unit, Yaesu FT-301D



Modification instructions

April 10, 2019

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Important! Advices or tips for the correct function of the PB-1439A.



Caution! The instructions must be observed carefully.

1 Introduction

On the Premix Unit PB-1439A, Yaesu carried out an official modification and adopted it as a permanent change in the later board versions. This modification should reduce the signal level of the crystal oscillator in transmit mode by about 30%. Too high levels of the oscillator worsen the carrier suppression of the 5MHz VFO signal in the MC1496 mixer.

For this purpose, a capacitive voltage divider was inserted. The capacitor of the voltage divider is only connected when the FT-301 is in transmit mode, because in receive mode these harmonic waves are blocked by the crystal filters.

Unfortunately, the capacitive feedback of the connected capacitor detunes the crystal oscillator significantly, so that the transmission frequency is several 100Hz off the reception frequency.

The following modification removes this problem so that the transmitter sends on the same frequency as you were listening to.

Unfortunately, the VFO carrier suppression is worsening. However, this can be prevented with a small capacitor in series to the oscillator output.

2 Parts lists

piece	components No.	Description
1	C1	15pF Ceramics marked 15 [Component 1]



3 Modifying the Premix-Unit

The "Premix Unit" must be removed from the device, as this is the only way to carry out the necessary interventions.

All modifications should be carried out and checked using the "PB-1439A" Premix Unit diagram.

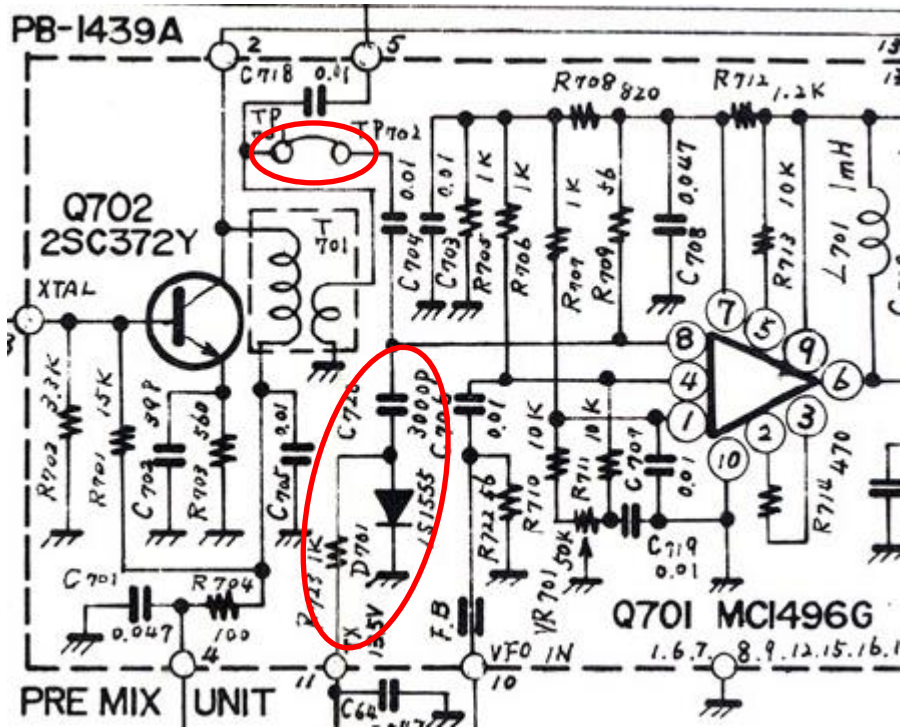


Figure 1

Board layout "Filter Unit" (seen from below)
 Red = Remove elements

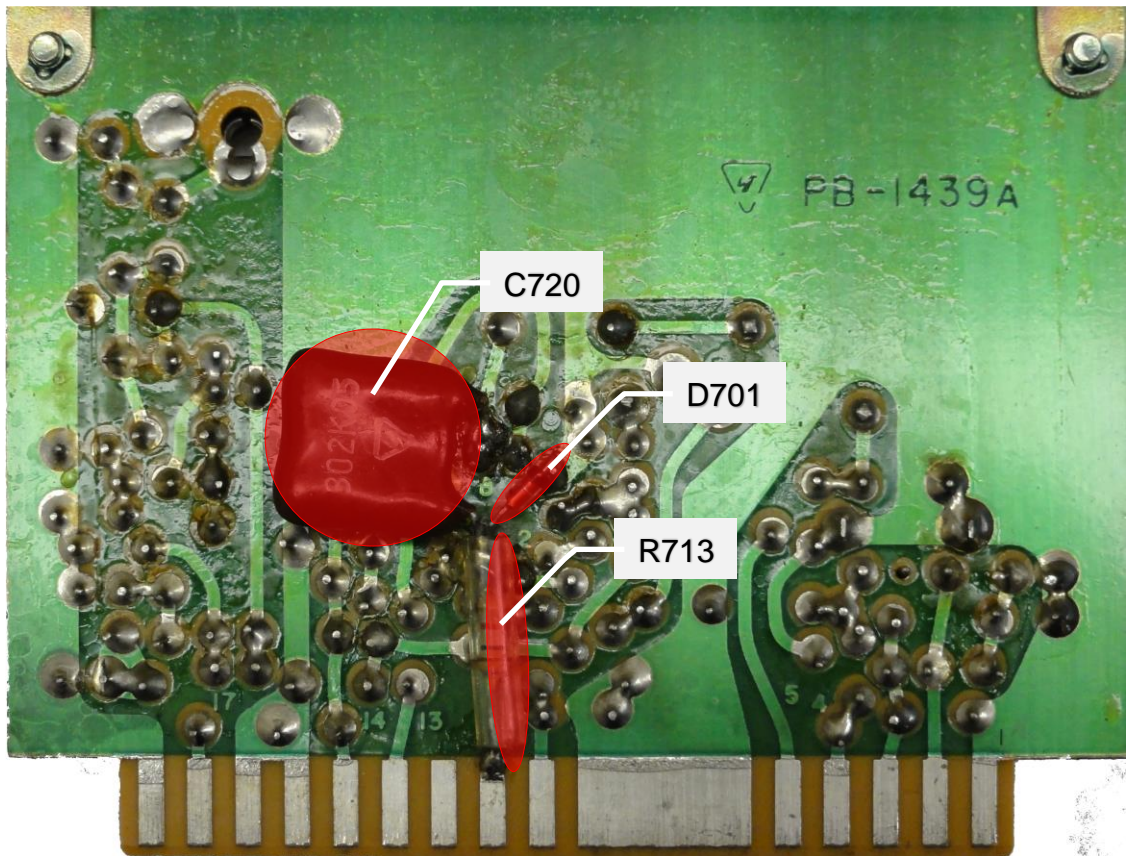



Figure 2

Remove the PB-1435E board from the FT301:
Attention: Disconnect the ground cable from the chassis.

Carefully remove the mica capacitor C720 (3000pF).

Remove the diode D701.

Remove the resistor R713 (1k Ω)

 Attention: There must be no solder on the contact surface of pin 11.

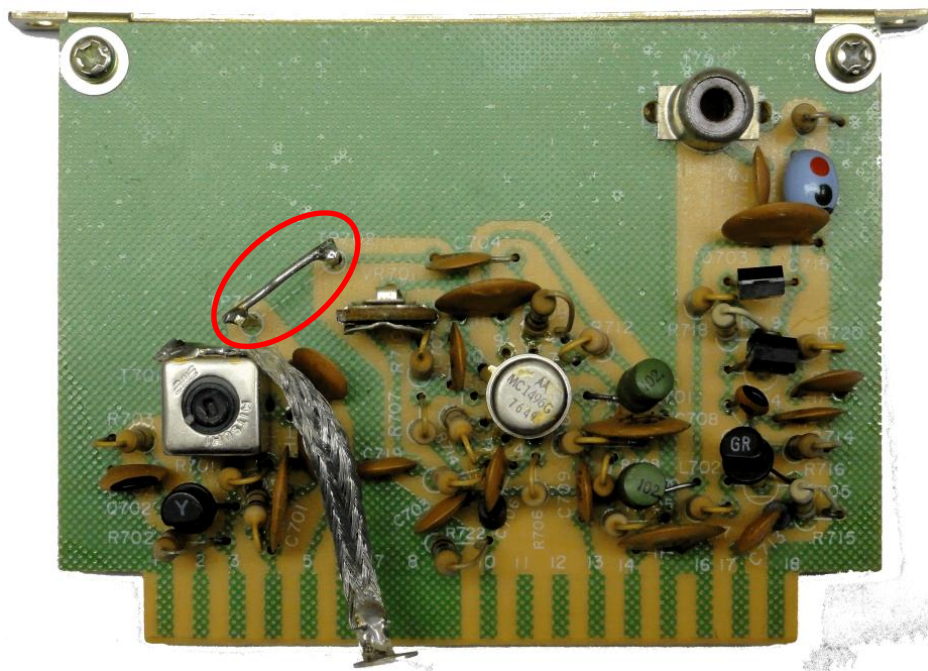


Figure 3

Remove the jumper from TP701 to TP702, which feeds the quartz oscillator signal to the mixer (see Figure 2).

Solder the capacitor C1 (15pF) between TP701 and TP702.

The modification has now been completed.
Replace the PB-1435E board in your FT301 and retighten the ground connection.

4 Operation / Adjustment

- Carry out the adjustment procedure for the "PREMIX CRYSTAL OSZILLATOR" according to the following instructions for each band (except 80m band).
- Set the tape switch to 10D (29.5MHz-30MHz)
- Connect an RF voltmeter to test point TP701.
(not TP702, TP701 → before the newly soldered 15pF capacitor)
- Use the trimming capacitors on the Crystal Unit PB1441A to set the maximum voltage on the RF voltmeter for the band switch positions 160 to 10D (except 80), AUX and JJY.

Since the series capacitors are missing in all crystals, except the JJY crystal, only the JJY frequency can be adjusted exactly. For the adjustment of the JJY/WWV proceed according to the manual.

5 Disclaimer of liability

Any actions based on the information contained in this document are taken at the user's own responsibility. Any liability is excluded, both for direct and indirect damages and consequential damages that may arise in connection with the use of the information contained in this document.