

MOTOROLA MOTRAN
X51LLT series
Low Band Conversion to 6 Meters
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The following instructions are for converting a 50 Watt fully solid state Motran to the 6 Meter band. The instructions will work for any "L" series receiver in any other version radio, so long as the original range of the receiver section was 42 – 50 MHz.

RECEIVER:

Receiver alignment is the same as the procedure given in the service manual. Conversion requires the replacement of three ceramic disc padder capacitors on the oscillator/multiplier board.

Conversion:

Replace C301 (across L301) with an 8 pf N330 ceramic disc capacitor (substitute can be 13 pf.) Motorola part numbers are 8 pf = 21K849319, 13 pf = 21K865054.

Replace C302 (across L302) with a 33 pf N150 ceramic disc capacitor. Motorola part number 21K855809.

Replace C303 (across L303) with a 24 pf N220 ceramic disc capacitor. Motorola part number 21K840845.

Alignment:

Follow procedure in service manual, other than no need to align IF stages. For receivers with "Extender" front ends, it is usually necessary to remove the front end cover plate and inject a signal with a blocking probe to some of the stages closer to the mixer section to be able to get a signal into the receiver, then back your way out to the antenna jack and re-tune all stages. Normal sensitivity is 0.35 microvolt for 20 db quieting.

Extender should be aligned according to the manual. CHP units do not need the sampling frequency changed.

Note- Occasionally the Permakay filter may be defective. Evidence of this is a low or nonexistent meter reading at Pos. 2 on the test set with no signal input. In a total failure of the filter, there is usually no squelch or audio action at all.

TRANSMITTER:

Conversion:

Change C134 on the exciter board to a 27 pf NPO ceramic disc capacitor

Change C135 on the exciter board to a 27 pf N220 ceramic disc capacitor

Remove C149, the silver mica padder, which is across the ceramic variable trimmer on the transmitter main chassis. Removal of the transmitter PA compartment cover is necessary to access this. Be careful as the trimmer can be easily damaged.

When replacing the exciter board, watch out for the spring style heat sink clamp which goes over the TO-5 can transistor near one edge of the board. Do not allow misalignment of the heat sink to collapse and short the transistor, which is fairly easy to do, and which will cause a loss of all exciter board A+ voltage. When this happens, there will be no meter reading on test set position # 1.

Alignment:

Follow the service manual instructions. Most of the slugs on the exciter board, other than the ones in the coils associated with the capacitors changed above, will peak coming out of the coil, i.e. away from the circuit board.

On the driver and final tuning, sometimes the current limiting protection circuitry will activate before a stage can be peaked. Back off until you can get as close as possible to the peak without shutdown occurring.

CHANNEL ELEMENTS:

Receiver: TLN 1081 $F_{\text{crystal}} = \frac{F_{\text{channel}} - 2.5 \text{ MHz}}{3}$

Transmitter: TLN 1082 $F_{\text{crystal}} = \frac{F_{\text{channel}}}{6}$

All crystals HC-6/U with pins cut short to fit element

Crystals available from International Crystal or International will compensate your element with the crystal and return it to you for an extra fee.