

# Repeater Duplexer Tuning

**Equipment To Tune Duplexers:** Receiver, transmitter, sinad, speaker, signal generator, cans.

**Instructions For Tuning Duplexers:** Start by tuning each can separately.

( For initial tuning a handheld can be used, switching between the receive and transmit frequencies.)

With a can connected between the receiver and the signal generator, the sinad hooked to the receiver speaker, inject the receive frequency and tune the ***inductor stub*** for **maximum** pass signal.

Once the **maximum** receive signal is achieved, change the generator and handheld to the transmit frequency and tune the ***notch capacitor*** for **minimum** transmit signal. Go through this procedure about three times until the best pass and reject is accomplished on each can. If the can has the connector on top you can loosen the screws that hold the connector and turn slightly to help increase the reject.

(I.e.: remember to tune equal amount of can for the receive and the transmit.)

Now connect all receive cans together and all transmit cans together. Tune the pass on each set of duplexers and then the reject, the same way that each one was done individually.

Once the best pass and reject is accomplished as a set, then connect the receive duplexers to the receiver and the transmit duplexers to the transmitter. Tee the other end and connect a wattmeter between the duplexers and a dummy load.

To check for desense insert a false-tee between the receiver and the receive cans and inject the receive signal to approximately 12db sinad. Key the transmitter and watch how much the signal drops on the sinad. If desense occurs start by adjusting each ***notch capacitors*** on the receive duplexers to **maximize** the receive signal on the sinad. Go through this a few times to get it the best possible signal. Go to the transmit duplexers and adjust the ***notch capacitors*** to also **maximize** the receive signal.

If desense is eliminated you are done. If desense is still present fine tune the ***inductor stub*** for pass on both receive and transmit duplexers for **maximum** signal, then adjust the ***notch capacitors*** as done previous.

Do this as many times as possible until the desense is eliminated.