

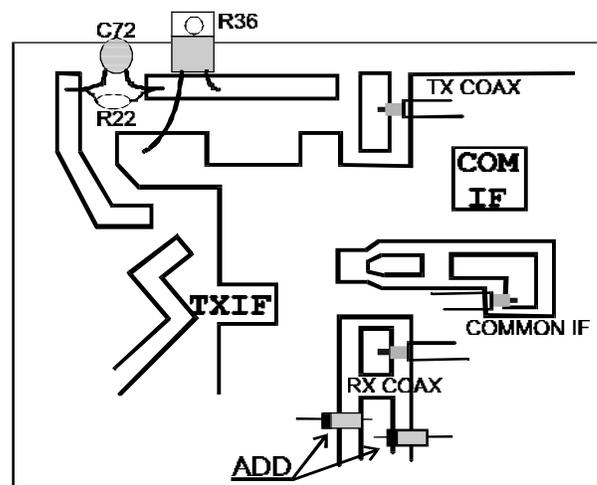
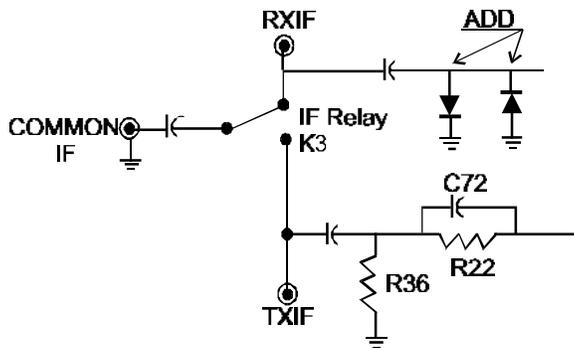
Design Note



From: DEMI R&D Dept.
 To: ALL DEM 903,1296, 2304,3456.5760, and 10368 MHz transverter owners
 DN#: 015
 Date: August 15, 2002
 Re: Sudden drop in receive gain

PROBLEM: It has been found that with all of the transverters listed above, kit or assembled, some owners have experienced a sudden drop in receive gain after a transmission. The problem has been isolated to those owners that use 1 watt and above IF drive level. It is caused by a delay of the push-to-talk circuit in the transverter as compared to the transceiver's transmit signal. It is important to understand that when using the PTT output of a transceiver to key a transverter, everything is keyed at the same time. If the relay change in the transverter is still in process when the transmit level of the transceiver comes up, it will send some RF (less than the specified TX drive level) into the receive path of the transverter. This over time may degrade or instantly damage the IF gain stage or the receive mixer if a gain stage is not being used. This problem is more pronounced in the FM mode or if you use full break-in CW.

SOLUTION: Adding two switching diodes (1N914 type) to the RXIF path to ground in the configuration shown below will solve the problem unless the PTT line is not keyed or fails completely. Two fast switching diodes will conduct a certain level of RF energy to ground and only allow non-destructive level to pass to the MMIC or mixer diode. These diodes will not survive a direct hit of 10 watts but this level should never be in the RX path if the PTT line is keyed correctly. Two diodes will only protect the transverter from a slow transfer or double hit of the PTT line. This "Fix" will be included in all kits and assembled units after 7/1/02.



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