

## TS-850S REPLACEMENT OF D31 AND D4-D5-D6

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### Symptoms:

**D31 FAILED:** No or low receive and/or transmit. High pitched tone in speaker. RXB showing more than 0 volts in transmit or TXB showing more than 0 volts in receive.

**D4, D5 AND/OR D6 FAILED:** “Suck out” of RX signal and or TX output on one or more bands.

**Fix:** Replace affected components on opposite side of RF unit board. These are all type RLS-135 diode. No substitutes are recommended.

Remove power cable and covers of rig. Invert rig. Remove the shiny cover near the rear of the RF unit (left hand board as rig faces you). Remove the flex connectors on the side of the board leading to the IF unit. Remove other coax connectors as needed; MARK THEM to ensure that they go back in the right places. You should be able to fold the board toward you and then to the right side of the rig to work on the back side of the board.

Refer to Fig. 1 for location and orientation of the board.

Fig. 1 LOCATION OF RF UNIT

RF unit is on the left side of the bottom of the rig as it faces you.

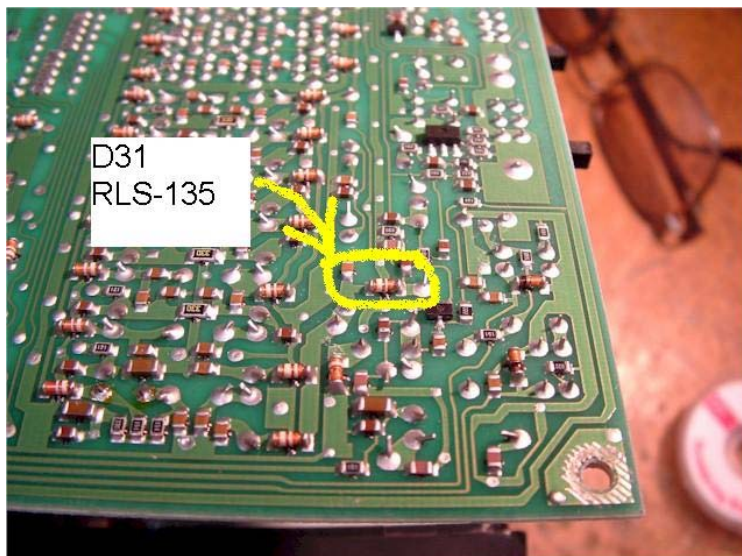


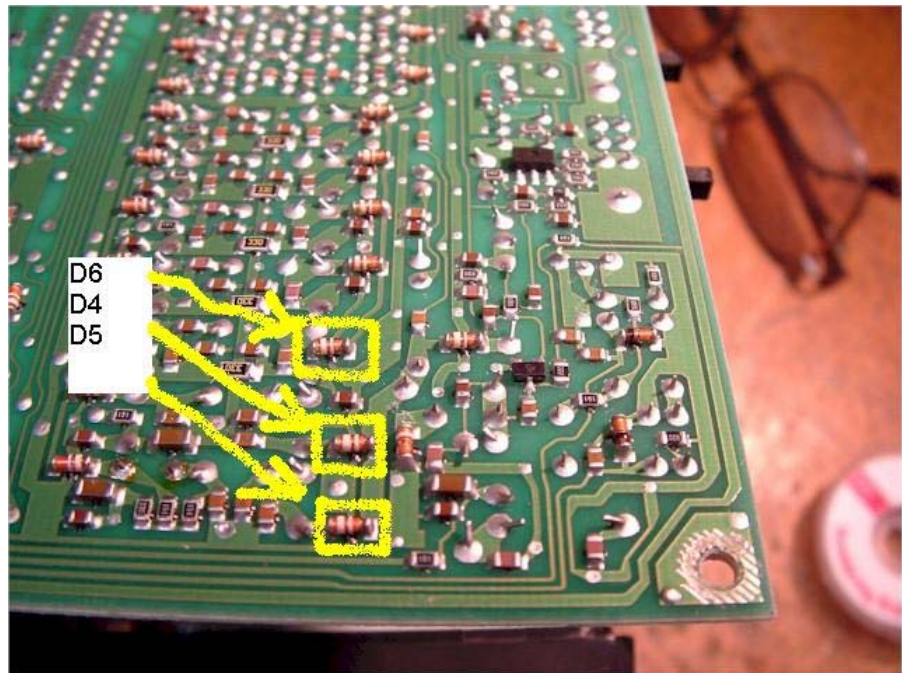
FIG. 2 LOCATION OF D31 ON RF UNIT

Next, using Fig. 2, located D31. Using a GROUNDED temperature-controlled soldering iron and some de-soldering wick, remove the solder from both ends of the diode. With the

soldering iron still in contact with one end of the diode, the adhesive holding the diode to the board should loosen and the diode should be able to be gently pried up with the solder iron tip. Note the orientation of the diode; replace it with the new diode and re-assemble the radio.

If this does not cure the problems, there may be other diodes leaky or shorted on the RF unit; these will most likely be D4, D5 and/or D6, located near D31. They are also of type RLS135. Again, no substitutes are recommended. Use Fig. 3 to located D4, D5 and D6. Others up the line may also be bad but this is rare.

Fig. 3 D6, D4, D5  
LOCATION ON  
RF UNIT



Note that D31, D4, D5, D6 and the rest of the filter switching diodes can be checked IN CIRCUIT with a DVM using the “diode” range. Forward voltage should read from 0.6 to 0.7 volts; reverse should read nothing or open. Other bad diodes may be located this way if needed. The other diodes on the board that are not associated with the RF switching may not read correctly in-circuit; however, these have not been known to fail.