



Some corrections that may significantly improve the already very famous TS-940S receiving performance.

Smiling Gratefulness

I hope that Mr. Bhuda, Jesus, Mohamed, Zarathustra, Ahura Mazda and Others bless my friend and brother Mr. Roland Khalil Gebara, PY1BIM, whose generosity (TS-940S) made me possible to find these radio mistakes.

Mr. R. K. Gebara and I work together to become this planet a better world, without wars.

I am also grateful to Mr. Guisard, PY1BR, to become this new website a brilliant one, and make me an international propaganda boy of this simple radio news.

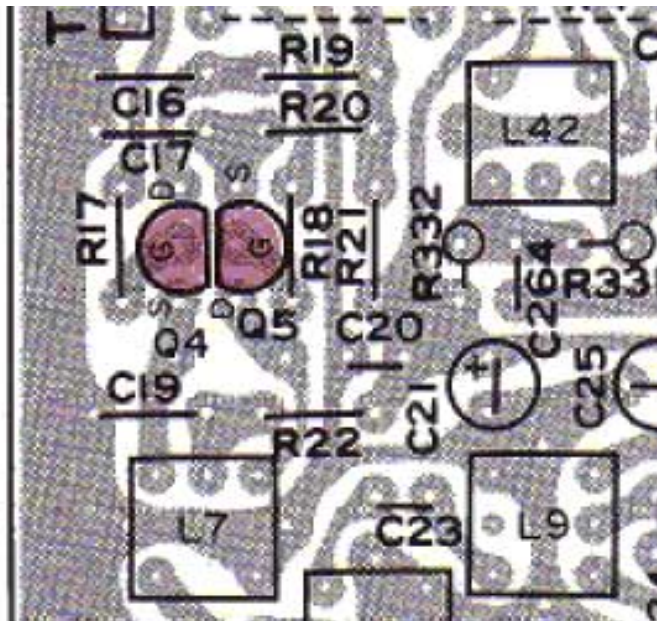
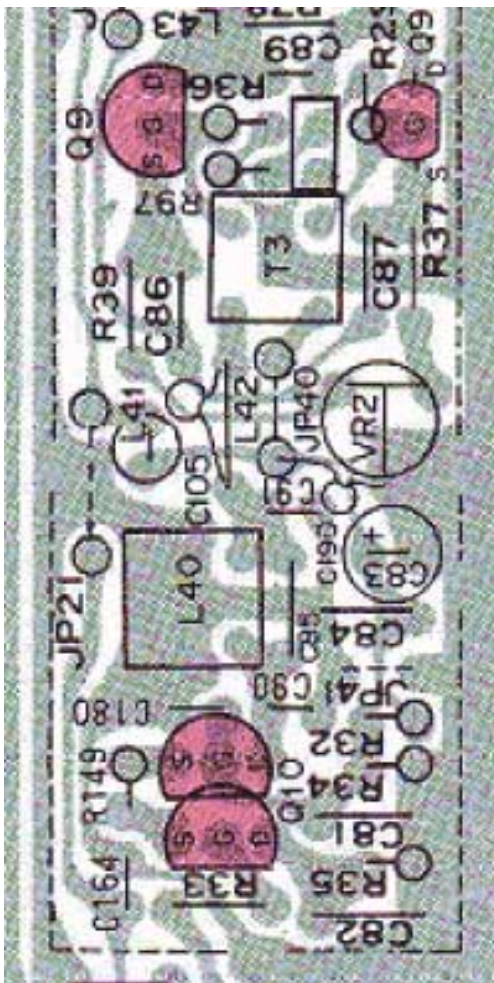


Nelson Ricardo - PY1NR

Dedicated to the Detailists

Are you a TS-940S Rx lover? You should know that it can be even better if you do some corrections.

Two errors that I found, both also showed in the Service Manual, Revised Edition.



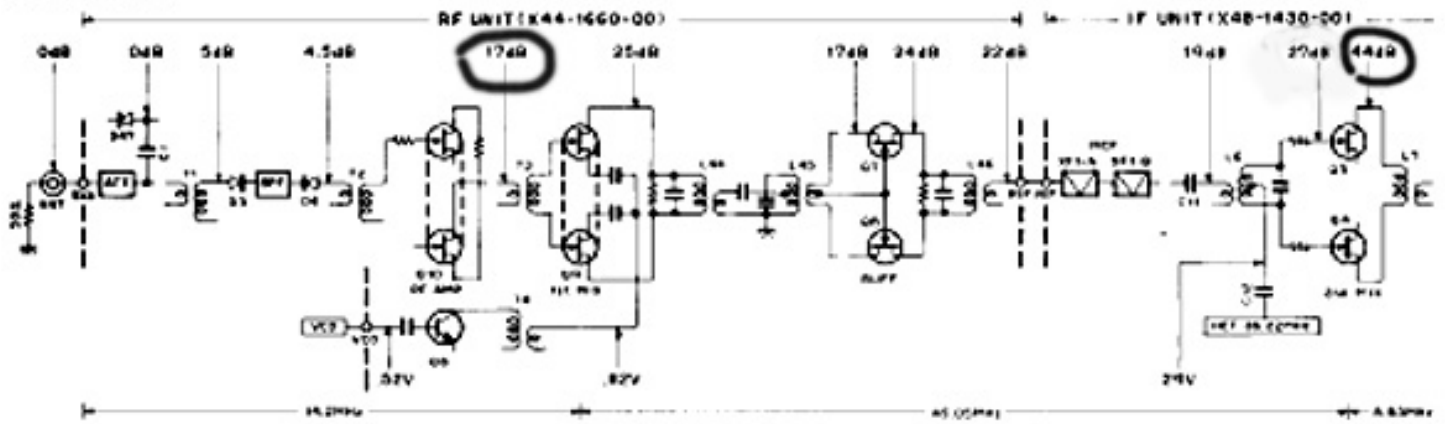
See the FETs Q10 (RF Preamp RF Preamp 2SK125, N-FET, 25V, 0.1A, 0.3W) and Q4 Q5 (2nd balanced mixer, also 2SK125).

The picture above was scanned from the TS-940S Service Manual, Revised Edition. In these pictures the FETs are in the wrong position.

I can assume that thousands of other TS-940S are also waiting to be corrected and perform even better Rx (mistakes "hidden" for almost 20 years!)

Check yourself with instruments, it can be probably more than 10 dB of gain and a better AGC performance. I can't precisely measure the gain improvement.

Remark: It's also very important to check any bad connection, any intermittent problem before these two corrections. Other problems may mask the effects of the two corrections described in this site.

RX SECTION

See the Level Diagram in the Service Manual. With the FETs on the right position, we would have 12.5 dB (17 - 4.5) gain in the RF Preamp, and 17 dB (44 - 27) in the 2nd balanced mixer at the indicated points in the picture above. These gain values are related to the 0 dB input. It would be interesting to measure these gains before the correction. With this measurement we would have an idea about the sensitivity losses due to the two errors.

I laugh a lot when I confirmed both errors! Almost two decades waiting to be corrected!

As I never heard about this problem, I decided to reveal it to the whole world.

My radio was working apparently well. This is the 1st TS-940S that I could observe and analyze in detail its circuits. First I found the RF Preamp FET in a odd position, but only few days after I could focus and see that the cascode circuit was correct in the schematic diagram and wrong in the PC board. It was also wrong in the PC board view pictures in the Service Manual.

I also noticed that a FET was hotter than the other. It was as simple as de-soldered and turn the FET 180° and re-solder it all over again.

I did some tests with the MPF-102 using the Source and Drain swapped and I noticed some gain differences, therefore I don't believe that all FET's are symmetrical regarding the Source and Drain.

The modifications were verified and tested by myself, so if you try this mod on your own equipment, it's on your own risk.

Have fun, revise your TS-940S! Smile!

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