Quantar VHF R2 (150-174MHz), Conversion to R1 (132-154)

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NOTES:

- These instructions assume you have a Range 2 VHF station.
- All capacitors are 5% tolerance, 50V, SMD Size 0805 unless otherwise noted.
- All resistors are 1/8th Watt (1/4W acceptable), 5%, SMD Size 0805 unless otherwise noted.
- *Italics* denote multiple parts of the same type/value.

Exciter

1. *C3200/C3433*: Thru-hole, 0.022uF Film, Change to 0.01uF Film.
2. C3201: 12pF, Change to 15pF.
3. C3202: 10pF, Change to 15pF.
4. C3205: 18pF, Change to 22pF.
5. C3207: 18pF, Change to 22pF.
6. C3232: 15pF, Change to 12pF.
7. L3232: 10mm Shielded, Adjustable, 2.5T, Change to 3.5T (Coilcraft 144-03J12SL, see note)
8. R3251: 6.8K, Change to 8.2K.
9. R3271: 150, Change to 100.
10. R3274: 100, Change to 150.
11. R3436: 2.2K, Change to 2.7K.
12. R3441: 220, Change to 270.
13. *R3442/R3443:* 3.3K, Change to 5.6K.
14. *R3444/R3445:* 12, Change to 18.
15. R3450: 390, Change to 470.
16. R3451: 8.2K, Change to 12K.
17. *R3457/R3460*: 5.6K, Change to 12K.
18. R3700: **Install new, 1K.**
19. R3701: 1K, **Remove and discard.**

125W Power Amp

1. R4162: 20.5K, 1%, Chip, Size 1206, **Install new.**
2. R4163: 10K, 1%, Chip, Size 1206: **Change to zero-ohm jumper.**

NOTE: The positions of R4162 and 4163 are transposed in the Quantar service manual diagram. R4162, instead of being the third part from the right of pin 1 of U4104, is actually the second. R4163 takes up the third position.

Receiver

1. C2040: 10pF, Install New.
2. C2051: 22pF, Change to 15pF.
3. C2052: 27pF, Change to 68pF.
4. C2053: 12pF, Change to 27pF.
5. C2054: 33pF, Change to 47pF.
6. *C2055/C2061*: 22pF, Change to 39pF.
7. *C2057/C2059*: 39pF, Change to 47pF.
8. C2058: 22pF, Change to 33pF.
9. C2062: 39pF, Change to 27pF.
10. C2064: 30pF, Change to 68pF.
11. C2070: 10pF, **Remove and discard.**
12. C2201: 15pF, Change to 12pF.
13. C2202: 15pF, Change to 10pF.
14. C2207: 18pF, Change to 15pF.
15. C2231: 12pF, Change to 15pF.
16. C2232: 10pF, Change to 15pF.
17. C2235: 18pF, Change to 22pF.
18. L2202: 10mm Shielded, Adjustable, 2.5T, Change to 3.5T (Coilcraft 144-03J12SL, see note)
19. R2274: 150, Change to 100.
20. R2415: 3.3K, Change to Zero-Ohm Jumper.
21. R2417: 1.2K, Change to 1K.
22. R2422: 1K, Change to 2.2K.
23. *R2432/R2433:* 10, Change to 12.

POST-CONVERSION ADJUSTMENTS

You should run the station through a full alignment after the conversion is done, and you've programmed the frequencies you want. At the very least, you will likely have to adjust the slugs on the exciter and receiver VCO coils (both of them, each module) down into the form a turn or three (it won't take much).

A good indicator you'll need to adjust those slugs is either an 'RX FAIL' flashing red on the front panel, or the station refusing to lock on the lowest TX deviation set frequency (132.025 MHz).

The 'Metering Screen' in the Quantar software can be of immense help in this regard, as it will display the VCO steering line voltages for both receiver and exciter. Rule-of-thumb is they should all be in a range of 2.5 – 7.5 VDC. The voltages I found, with TX of 145.110 and RX of 144.510, was about 2.7 – 2.8V in the receiver, and 5.09 – 5.138 on the exciter.

Note on L3232 and L2202: These were, originally, Moto P/N 24-85588U05, but Moto has discontinued these. The nearest drop-in replacement I've found is the Coilcraft 144-03J12SL. The Coilcraft part is taller than the Moto original, so the shield covers for the VCO enclosures will not sit 100% flat. I've not noticed this causing any problems so far, but I suppose you can trim a small opening in said covers if you want.