

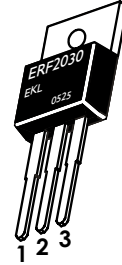
This application note describes how to substitute ERF-2030's for the discontinued Mitsubishi 2SC2166 and 2SC1969 RF transistors in the Magnum S-3, S-6 and S-9 10 meter transceivers.

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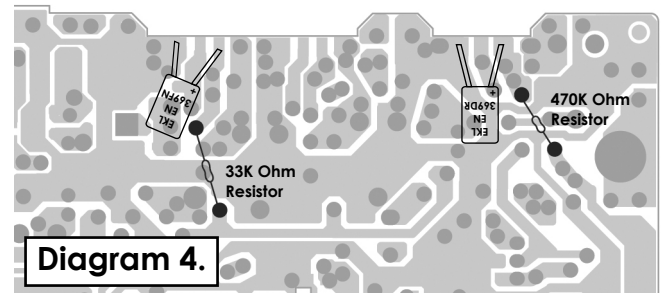
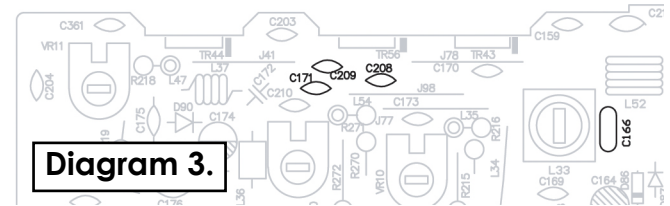
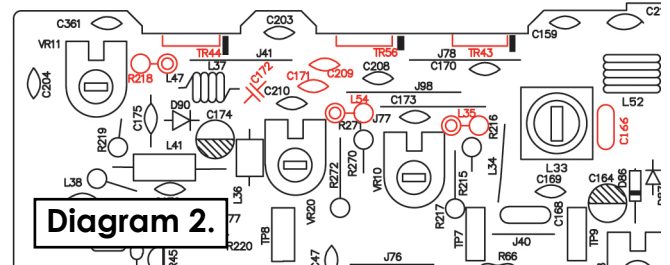
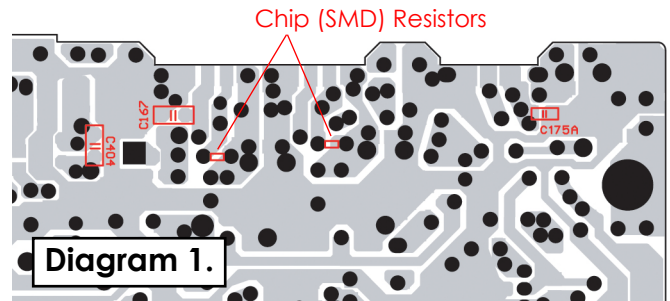
Required Parts:

- 3pc ERF-2030
- 1pc EN-369DR
- 1pc EN-369FN
- 1pc 1500pF Ceramic Disc Capacitor
- 1pc 1000pF, 300V Dipped Silver Mica Capacitor
- 1pc 470K ohm, 1/4 Watt Resistor
- 1pc 33K ohm, 1/4 Watt Resistor
- Insulated Jumper Wire

ERF-2030 Pins:
1. Gate
2. Drain
3. Source



- 1) On the solder side of the main PCB, remove C175A, C167 and C404. See diagram 1.
- 2) On the solder side of the main PCB, remove the 2 chip (SMD) resistors that are across L54 and L35. There are no designators for these resistors. See diagram 1.
- 3) On the component side of the main PCB, remove C166, C172, R218 (with RF bead), L35, L54, C209 and C171. See diagram 2.
- 4) Remove TR43, TR44 and TR56. See diagram 2. **IMPORTANT:** Save ALL mounting hardware for installation of ERF-2030 transistors.
- 5) Install the ERF-2030's at TR43, TR56, and TR44. Install ERF-2030's exactly the same way the 2SC1969's and 2SC2166 were installed, using all the SAME HARDWARE.
- 6) On component side of main PCB, install jumper wire from right hole of C171 to left hole of C208. See diagram 3.
- 7) On component side of main PCB, install 1500pF ceramic disc capacitor at C209. See diagram 3.
- 8) On component side of main PCB, install 1000pF, 300V dipped silver mica capacitor at C166. See diagram 3.
- 9) On the solder side of the main PCB, install 470K ohm resistor from gate of TR44 (the driver) to the junction of R219 & L41. See diagram 4.
- 10) On the solder side of the main PCB, install 33K ohm resistor from gate of TR43 to R217. See diagram 4.
- 11) On the solder side of the main PCB, install the EN-369DR at TR44. **IMPORTANT:** Do NOT stress the leads of the EN-369DR by bending them too aggressively.
 - a) Solder the EN-369DR positive lead (marked +) to the gate pin of the ERF-2030 at TR44.
 - b) Solder the EN-369DR negative lead (unmarked) to the source pin of the ERF-2030 at TR44.
- 12) Install the EN-369FN at TR43. **IMPORTANT:** Do NOT stress the leads of the EN-369FN by bending them too aggressively.
 - a) Solder the EN-369FN positive lead (marked +) to the gate pin of the ERF-2030 at TR43.
 - b) Solder the EN-369FN negative lead (unmarked) to the source pin of the ERF-2030 at TR43.



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