EKL COMPONENTS

# Application Note AN-2030-3a

ERF-2030 High Power Conversion for AM/FM/SSB 10 Meter Radios
Manufactured by Ranger Communications Inc. (RCI)

This application note describes how to substitute a total of three ERF-2030s for the discontinued Mitsubishi 2SC1969, 2SC2312, and 2SC2166 RF transistors in the Galaxy DX77HML, DX88HL, and DX99V 10 meter transceivers. This application note may apply to other similar transceivers manufactured by RCI.

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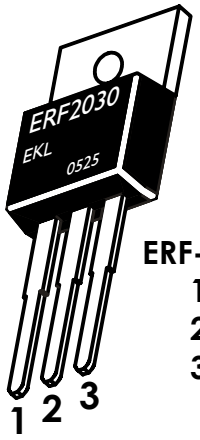
Required Parts:
3pc ERF-2030
1pc EN-369DR
1pc EN-369FN
1pc 480K ohm, 1/4 watt Resistor
1pc 33K ohm, 1/4 Resistor
1pc 1500pF Ceramic Disc Capacitor
1pc 100 ohm, 1/4 watt Resistor
Insulated Jumper Wire




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

1) Remove the 2SC1969 or 2SC2312 at TR43.
2) Remove the 2SC1969 or 2SC2312 at TR56.
3) Remove the 2SC2166 at TR44.
4) Install the ERF-2030's at TR43, TR56, and TR44. Install ERF-2030's exactly the same way the 2SC1969/2312 and 2SC2166 were installed, using all the SAME HARDWARE.
5) Install the EN-369DR at TR44. Install this part on the solder side of the PCB. IMPORTANT: Do NOT stress the leads of the EN-369DR by bending them to aggressively. Bend the leads carefully and make sure that they are as short as possible.
    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.
6) Install the EN-369FN at TR43. Install this part on the solder side of the PCB. IMPORTANT: Do NOT stress the leads of the EN-369FN by bending them to aggressively. Bend the leads carefully and make sure that they are as short as possible.
    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.
7) Remove capacitor at C167.
8) Remove the 22µH choke installed from location R216 to L35.
9) Remove the 22µH choke installed from location R271 to L50.
10) Remove 2.2 ohm resistor and ferrite bead installed from R218 to L47.
11) Remove C209.
12) Install 1500pF capacitor at C209.
13) Remove C171.
14) Install jumper wire from the left hole at C208 to the right hole at C171. See illustration below for radio orientation.
15) Remove resistor at R285.
16) Add 100 ohm resistor at R285.
17) Install the 480K ohm resistor from the right pad at L41 to the pad closest to the back of the radio at C175. It will be easiest to install this part on the solder side of the PCB. See illustration for radio orientation.
18) Install the 33K ohm resistor from the pad (hole) marked R271 to the pad closest to the front of the radio at R272. It will be easiest to install this part on the solder side of the PCB. See illustration for radio orientation.

**The following parts are no longer in the circuit, so they can be removed or left alone - it does not matter.**
VR10, VR11, VR20
C173, C210
R270, R271, R215, R217

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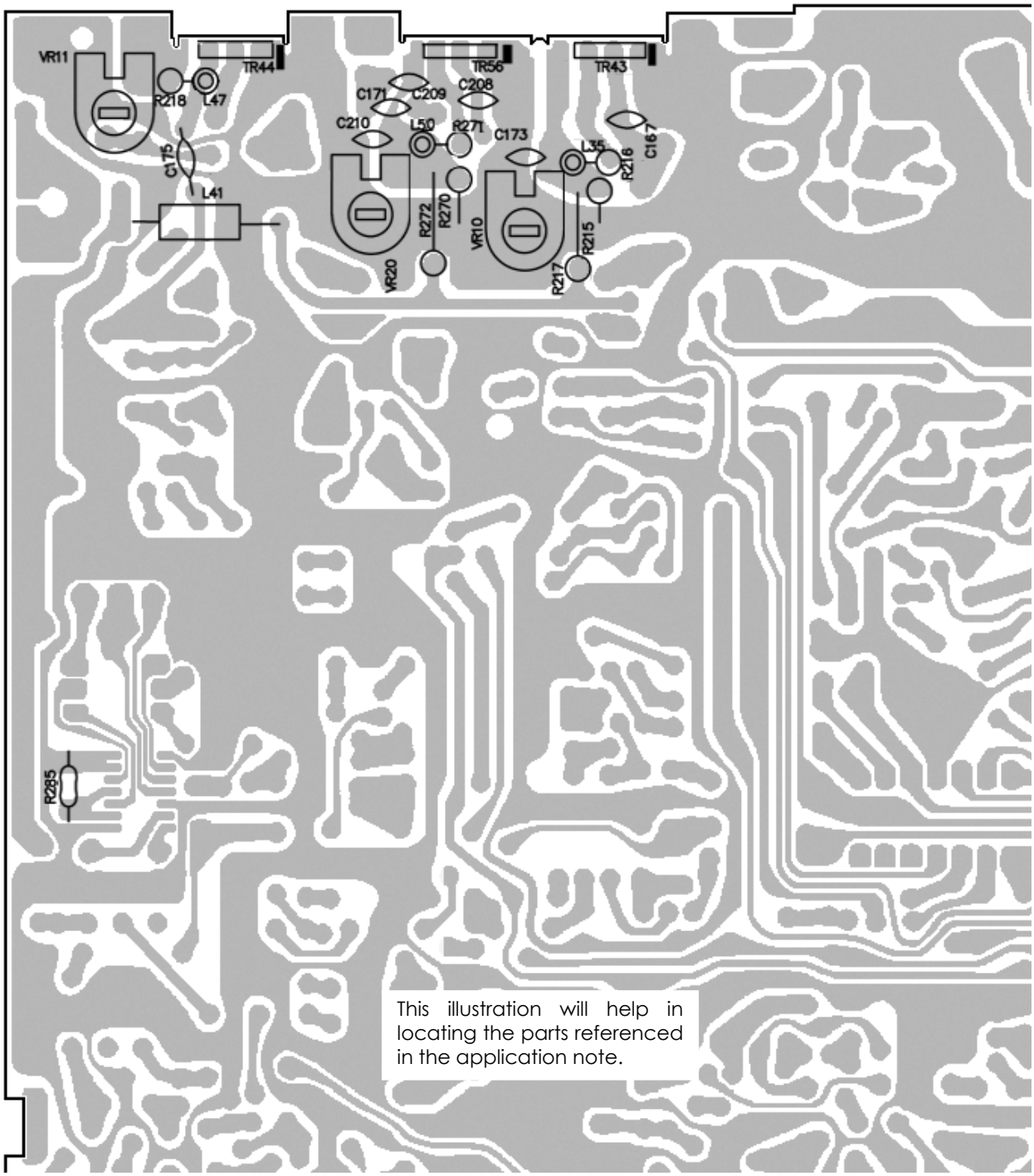


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