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ERF-2030 Single Final Mod Package

Galaxy DX33HML, DX44V, DX55V, DX66V, DX73V

And other AM/FM 10-Meter Radios Manufactured by Ranger Communications Inc. (RCI)
Using the EPT360014B, EPT360014C main Chassis.

If you would like to help us put more manuals online support us.

Rev 1.0

Preliminary Information (There may be updates)

If you would like to help with this project let us know.

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Thank you for any support you can give.

Introduction

Read the complete mod package before starting

NOTE: Exercise a great deal of care with this mod!

Due to the placement, size, and close proximity of the surrounding traces.

If done wrong you could destroy the PCB and / or the transistors.

If you have even the slightest doubts or the proper equipment, it would be wise to have someone else you trust perform the mod for you.

One more thing to think about this mod will void the manufactures warranty, so before you do this it would be a good ideal to fully check out the radio for proper operation before starting this mod.

**Do not contact the manufacturer of the radio if you have problems doing this MOD.
We have a forum setup where you can post your questions.**

SO TAKE YOUR TIME AND DOUBLE CHECK YOUR WORK!!!!

Radio modifications shown here are provided for properly licensed operators only!

The user is solely responsible for making sure that any modifications made to the radio unit must meet all Federal and State Regulations or the Country of use!

Don't cut out components unsolder them that way if you need to go back you can!!!!

I'm glad many of you are finding the discussion on MOSFET's in the CBTricks.com Forum useful and informative.

MOSFET's are fun devices, and capable of making a nice final in your radio. This mod package is to get you started in the world of using MOSFET's in the final RF stage.

You may want to experiment with the driver section and capacitor values in output stage.

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Feel free to share with us your experiences with MOSFET's in the CBTricks.com Modification Talk Forum.

EPT360014B, EPT360014C MOSFET MOD

Modification Overview

This mod package is for installing EKL Components ERF-2030 MOSFET as a final in a Galaxy DX Radios DX33HML, DX44V, DX55V, DX66, DX73V and other AM/FM 10 Meter Radios Manufactured by Ranger Communications Inc. (RCI) Using the EPT360014B, EPT360014C main Chassis.

This MOD Package is base in the information from EKL Components Application Note AN-2030-1A

Single Final Modification - Replaces 2SC1969 with ERF-2030

Required Parts:

1pc ERF-2030
1pc EN-369DR
Thermal Grease
1pc 68Pf Ceramic Disc Capacitor (optional, see note Below.)

Overview Of The Steps For Single Final Modification

- 1) Remove the 2SC1969 at TR43.
- 2) Remove capacitor at C167.
- 3) Remove the 22µH choke installed from location R215 to R216 (This is L35 see PCB layouts and schematic).
- 4) Install the ERF-2030 at TR43. Install ERF-2030 exactly the same way the 2SC1969 was installed, using all the SAME HARDWARE that was used with the 2SC1969.
- 5) Install the EN-369DR at TR43. 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 TR43.
 - b) Solder the EN-369DR negative lead (unmarked) to the source pin of the ERF-2030 at TR43.
- 6) Install a 68pF capacitor across C165 (this step is optional, but should help to maximize output power).

Test posted in the CBTricks Forums

2SC1969:

25.615 - deadkey = 8.5 watts - 28 watts peak
26.965 - deadkey = 9.0 watts - 31 watts peak
27.865 - deadkey = 9.0 watts - 30 watts peak

ERF2030:

25.615 - deadkey = 8.3 watts - 38 watts peak
26.965 - deadkey = 9.5 watts - 43 watts peak
27.865 - deadkey = 9.4 watts - 40 watts peak

Notes:

Peak power readings on IFR1200 Communications test set.

No modulation limiters removed.

Full modulation with no flat topping.

Current draw same on both devices.

68pf cap not recommend (causes less output)

Do not remove L33 slug (required to balance power on upper and lower bands.)

ERF2030 has slight impedance mismatch on the output. (Not bad)

Single Final Modification - Replaces 2SC1969 with ERF-2030

Step	Fig #	Description
1.	1	Remove the 2SC1969 at TR43, C167.
2.	1	Remove the 22μH choke installed from location R215 to R216 (This is L35 see PCB layouts and schematic).
3.	2	Remove C170 if installed in Radio. (This Capacitor may be installed or Not, If it is remove it, location on copper side (See Fig. 2).

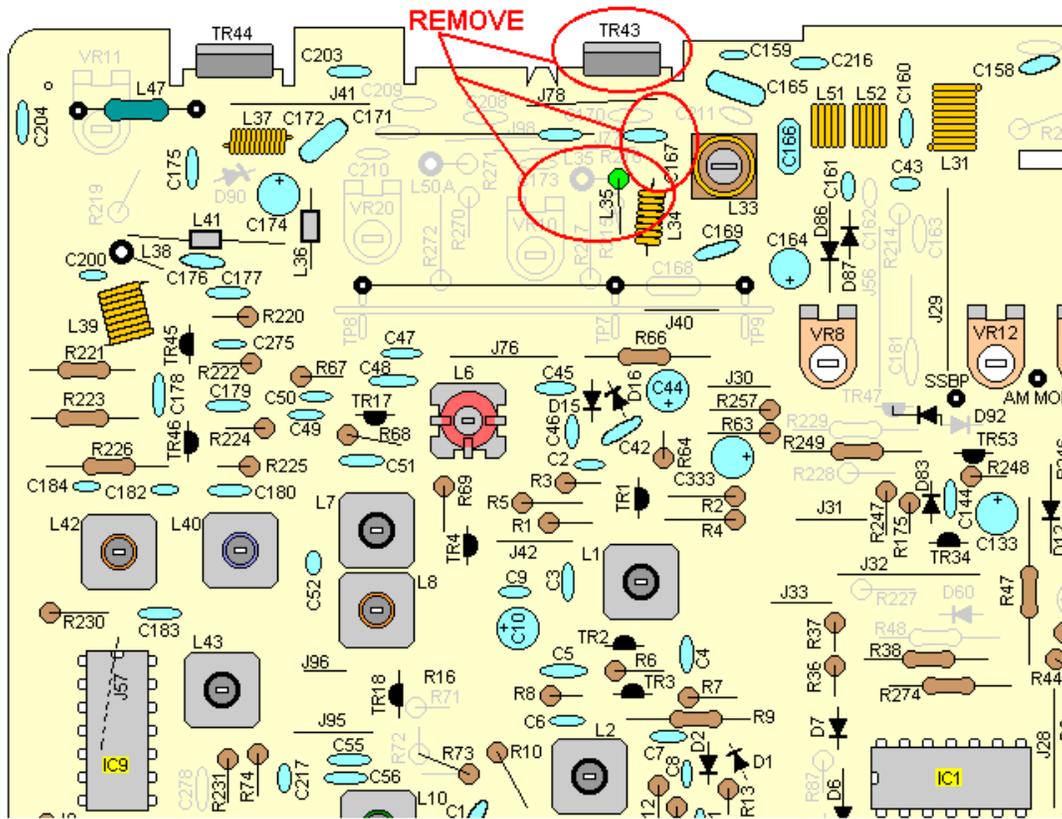
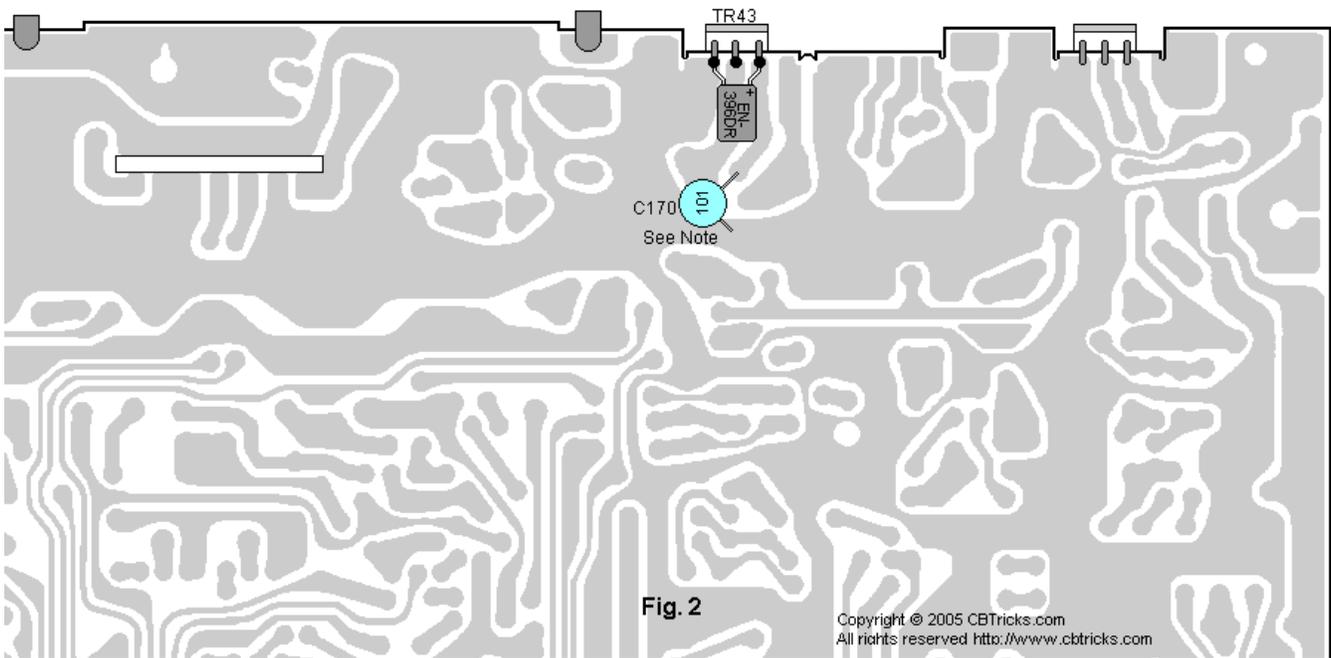


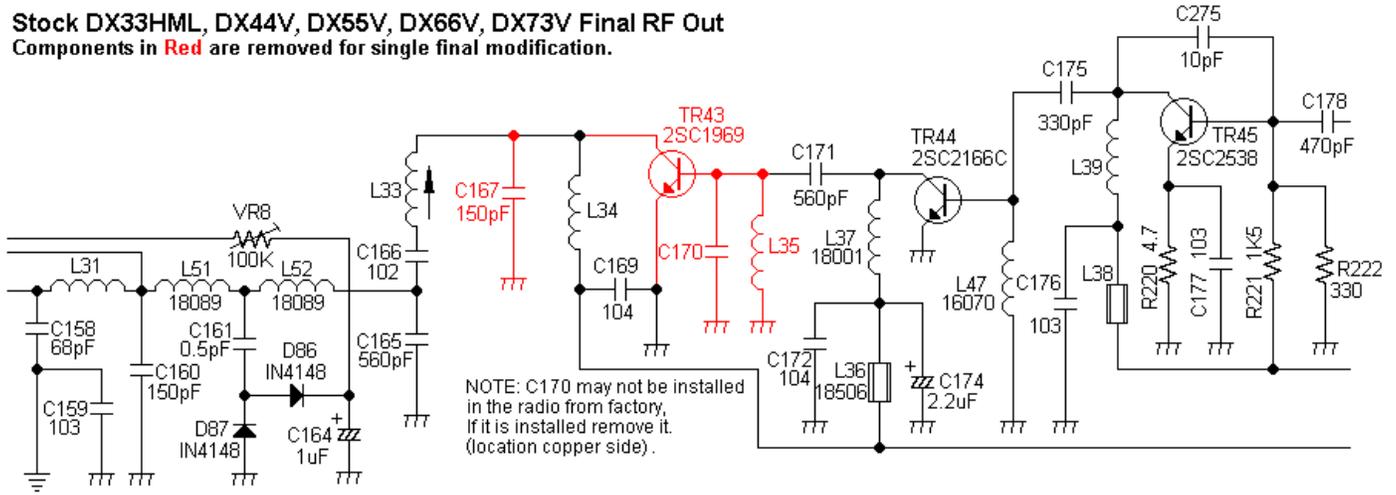
Fig. 1 Copyright © 2005 CBTricks.com
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Step	Fig #	Description
3.	1 or 2	Install the ERF-2030 at TR43. Install ERF-2030 exactly the same way the 2SC1969 was installed, using all the SAME HARDWARE that was used with the 2SC1969. Don't forget to apply thermal grease to the Transistor.
4.	2	Install the EN-369DR at TR43. 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.	2	a) Solder the EN-369DR positive lead (marked +) to the gate pin of the ERF-2030 at TR43.
b.	2	Solder the EN-369DR negative lead (unmarked) to the source pin of the ERF-2030 at TR43.

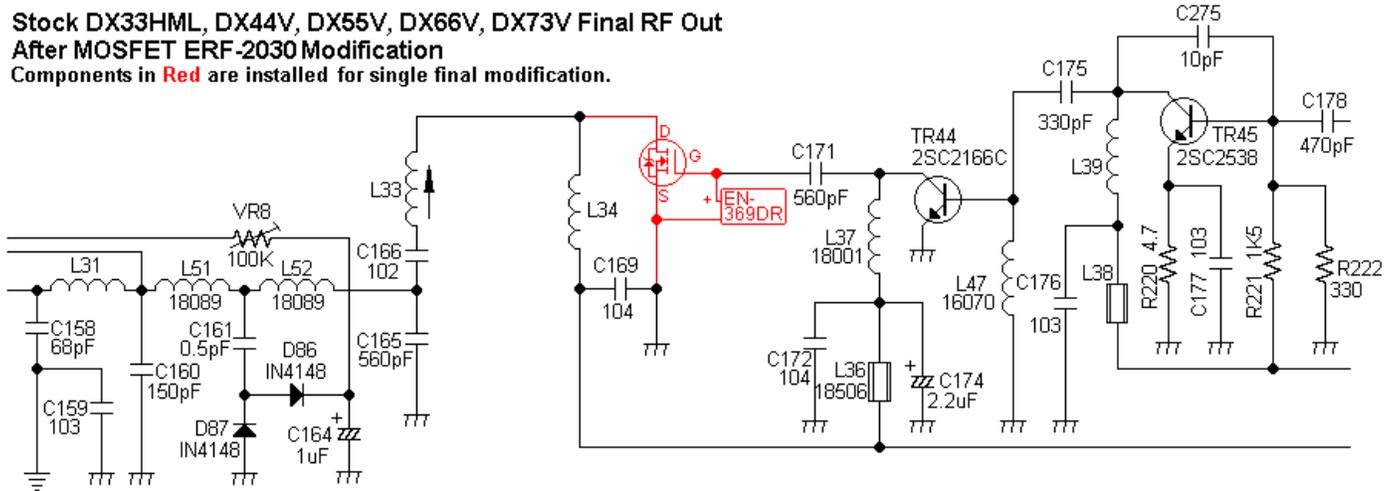


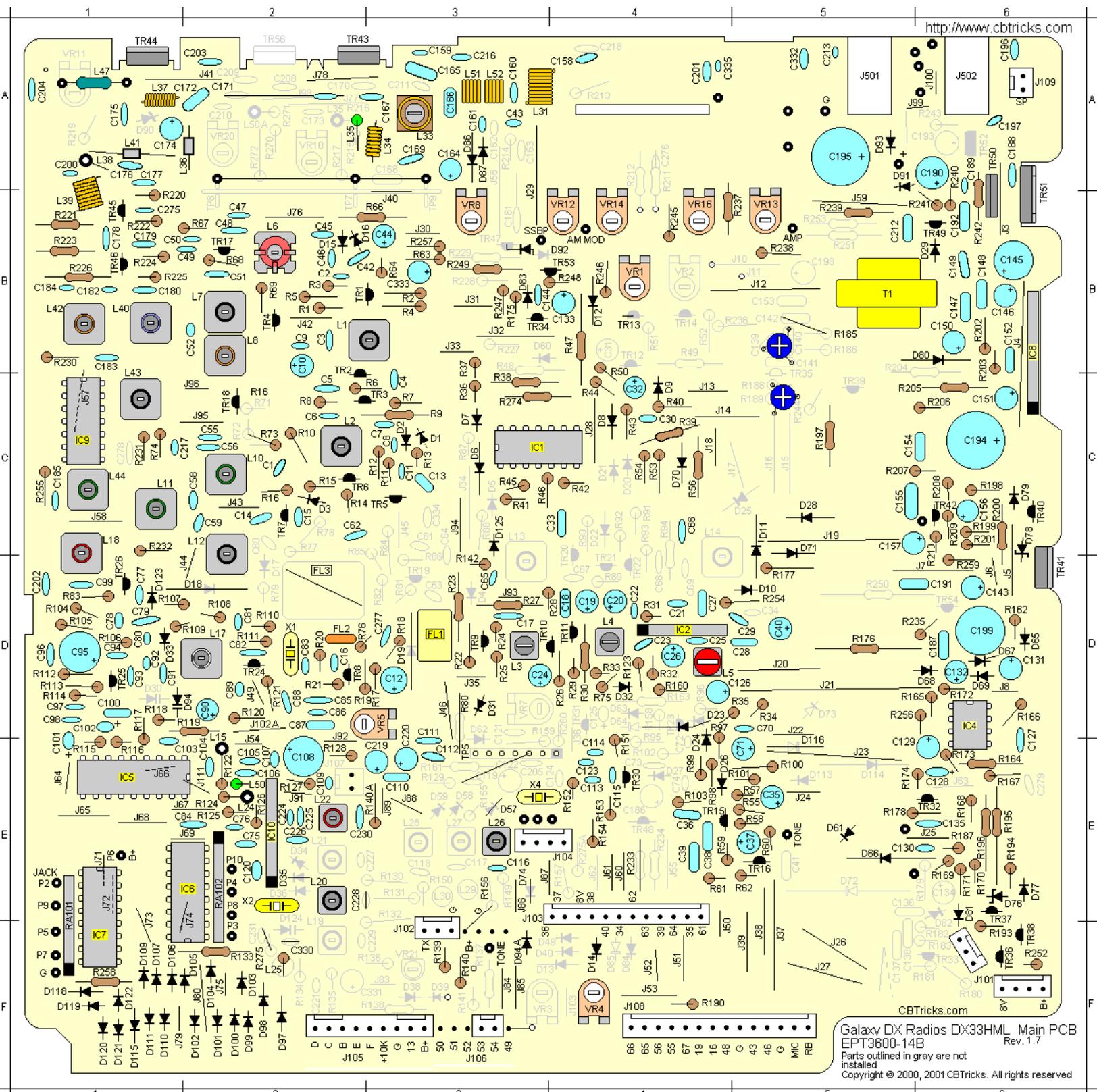
EPT360014B, EPT360014C MOSFET MOD

Stock DX33HML, DX44V, DX55V, DX66V, DX73V Final RF Out
Components in **Red** are removed for single final modification.

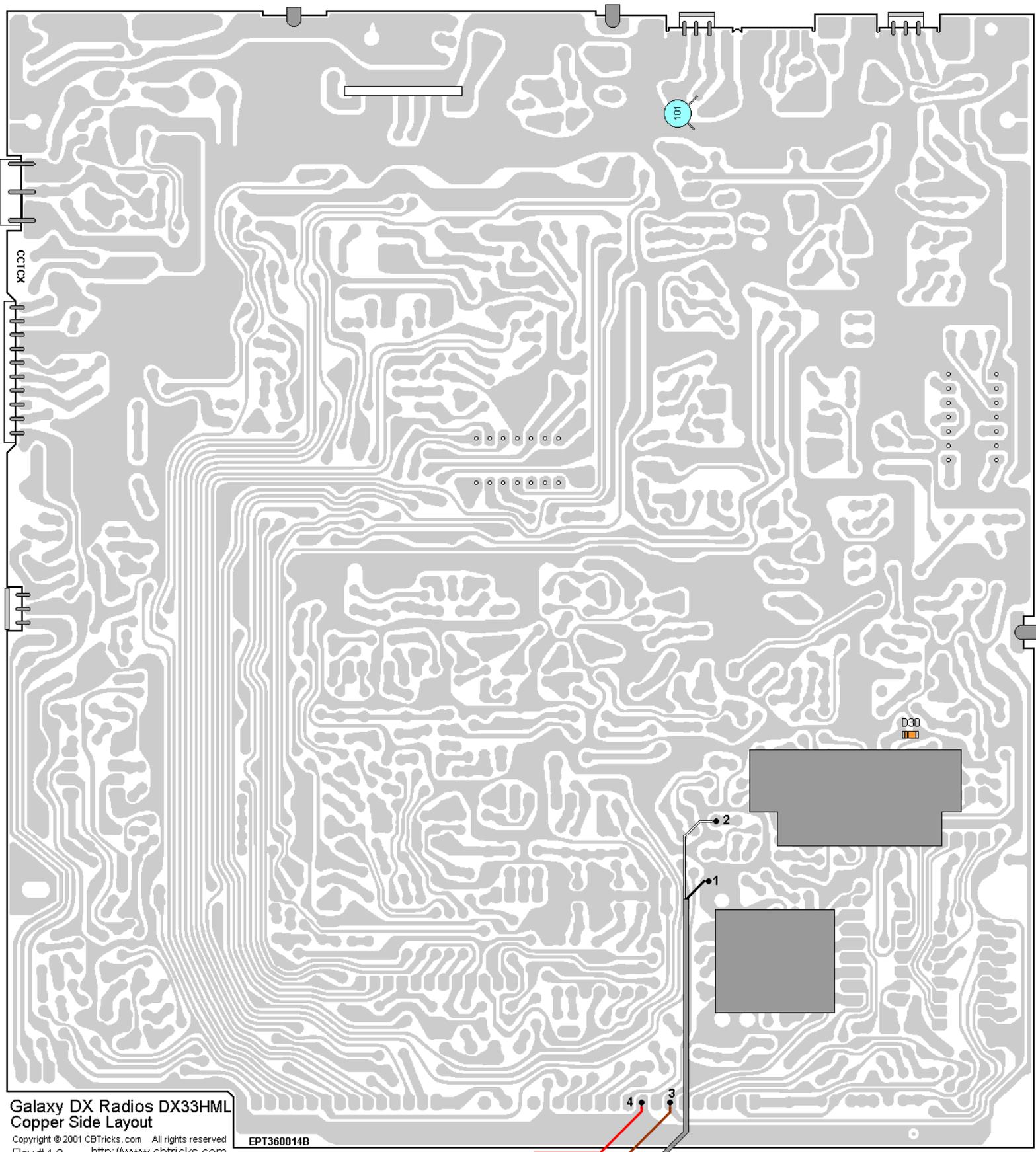


Stock DX33HML, DX44V, DX55V, DX66V, DX73V Final RF Out
After MOSFET ERF-2030 Modification
Components in **Red** are installed for single final modification.





Galaxy DX Radios DX33HML Main PCB
EPT3600-14B
Parts outlined in gray are not installed
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Galaxy DX Radios DX33HML
Copper Side Layout
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EPT360014B

To Frequency Counter connector
on rear panel

