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Galaxy DX949, 959, 2547 ERF-2030 Mod Package

This mod will also work on the following Ranger radios TR-696FD1 and TR-396F.

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

Rev 1.2

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

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.

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.

Galaxy DX949, 959, 2547 ERF-2030 Mod Package

Modification Overview

This mod package is for installing EKL Components ERF-2030 MOSFET as a final in a Galaxy DX949, DX959, or DX2547 CB radio.

This mod will also work on the following Ranger radios TR-696FD1 and TR-396F.

Single Final Modification - Replaces 2SC1969 with ERF-2030

Required Parts:

1pc ERF-2030
1pc EN-369FN
1pc 33K ohm, 1/4 Watt Resistor
1pc Heat shrink tubing
Thermal Grease

Overview Of The Steps For Single Final Modification

- 1) Remove Q47, C203 and L33.
- 2) Install ERF-2030 at **Q47**. Install the ERF-2030 exactly as the 2SC1969 was installed, using all the SAME HARDWARE.
- 3) Install the **EN-369FN** at **Q47**. Install this part on the solder side of the PCB.
 - a) Solder the EN-369FN positive lead (marked +) to the gate pin of the ERF-2030 at Q47.
 - b) Solder the EN-369FN negative lead (unmarked) to the source pin of the ERF-2030 at Q47.
- 4) Install a 33K ohm resistor from the gate pin of the ERF-2030 at Q47, to the end of R244 that is closest to the front of the radio see Fig 2. (Note: insulate the leads of the resistor from the surrounding traces using heat shrink tubing.)

Dual Final Modification - Replaces 2SC1969 with 2pcs ERF-2030

(Note the dual final mod is not recommended for the DX2547 due to power supply limitations I have more research to do in this area.)

Required Parts:

2pc ERF-2030
1pcs EN-369FN
1pc 33K ohm, 1/4 Watt Resistor
1pc Heat shrink tubing
1pc 560pF Ceramic Disc Capacitor
1pc 330pF Ceramic Disc Capacitor
Transistor mounting hardware (Insulator, Washer, Screw/Nut, Thermal Grease)
1pc Heatsink

Overview Of The Steps For Dual Final Modification

- 1) Remove Q47, C203, L33 and C210.
- 2) Install ERF-2030's at Q47 and Q48. Note: Q48 is not installed from the factory. This is an additional final transistor mounting hardware will be required. Install the ERF-2030's exactly as the 2SC1969 was installed, using all the SAME HARDWARE, Install a heatsink with thermal grease on the back of the radio..
- 3) Install the EN-369FN at Q47. Install this part on the solder side of the PCB.
 - a) Solder the EN-369FN positive lead (marked +) to the gate pin of the ERF-2030 at Q47.
 - b) Solder the EN-369FN negative lead (unmarked) to the source pin of the ERF-2030 at Q47.
- 4) Install jumper wire at JP91.
- 5) Install 560pF capacitor at C210.
- 6) Jump C210 and C209 together.
- 7) Add 330pF capacitor across C201
- 8) 4) Install a 33K ohm resistor from the gate pin of the ERF-2030 at Q47, to the end of R244 that is closest to the front of the radio see Fig 5. (Note: insulate the leads of the resistor from the surrounding traces using heat shrink tubing.)

Galaxy DX949, 959, 2547 ERF-2030 Mod Package
Dual Final Modification - Replaces 2SC1969 with 2pcs ERF-2030

Required Parts:

- 2pc ERF-2030
 - 1pcs EN-369FN
 - 1pc 33K ohm, 1/4 Watt Resistor
 - 1pc 560pF Ceramic Disc Capacitor
 - 1pc 330pF Ceramic Disc Capacitor
 - Transistor mounting hardware (Insulator, Washer, Screw, Nut, and Thermal Grease) for Q48.
 - Heatsink with mounting screws
- (Note: the dual final mod is not recommended for the DX2547 due to power supply limitations I have more research to do in this area.)

Step	Fig #	Description
1.	3	Remove Q47, C203, L33 and C210.
2.	N/A	Install ERF-2030's at Q47 and Q48. Note: Q48 is not installed from the factory. Q48 is an additional final Transistor mounting hardware (Insulator, Washer, Screw, Nut, and Thermal Grease) for Q48 will be required. Install the ERF-2030's exactly as the 2SC1969 was installed, using all the SAME HARDWARE. Install a heatsink with thermal grease on the back of the radio. Don't forget to apply thermal grease to Q47 and Q48. NOTE: you will need to remove the Ser. number plate to install the heatsink.

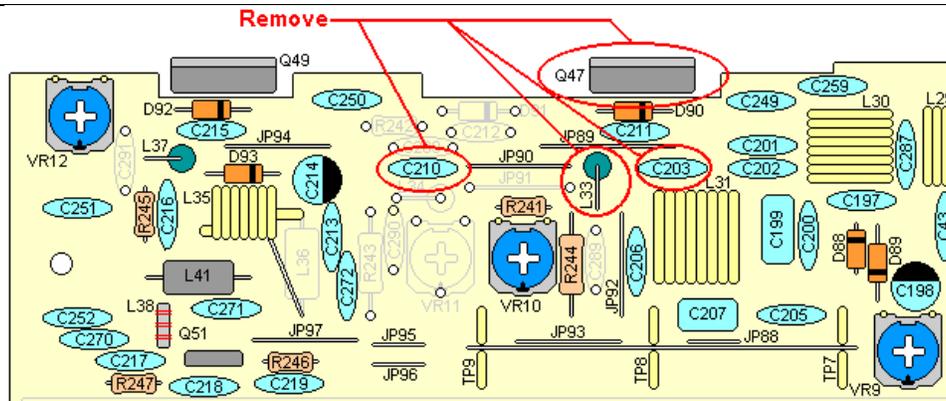


Fig 3

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Step	Fig #	Description
3.	4	Install jumper wire at JP91.
4.	4	Install 560pF capacitor at C210.

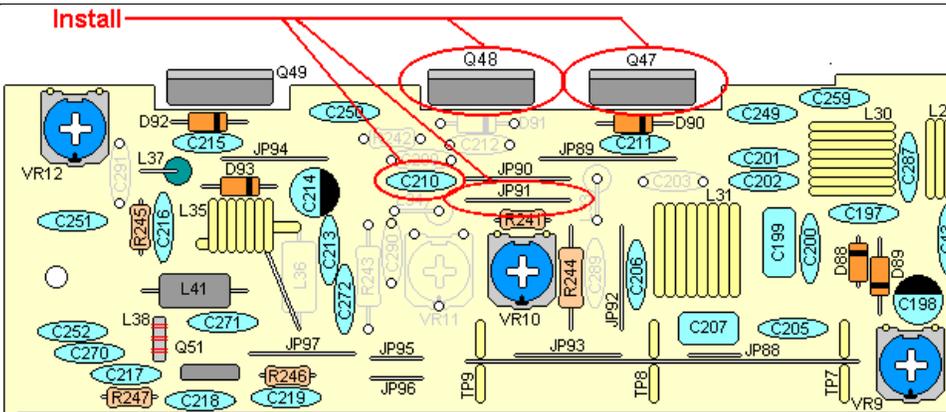
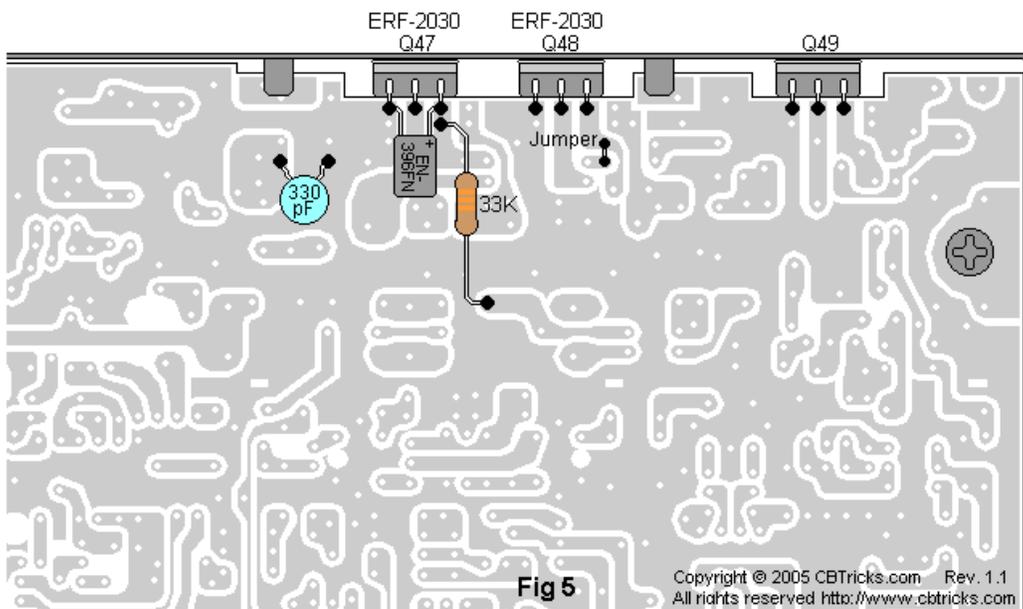


Fig 4

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Step	Fig #	Description
5.	5	Install the EN-369FN at Q47. Install this part on the solder side of the PCB.
a.	5	Solder the EN-369FN positive lead (marked +) to the gate pin of the ERF-2030 at Q47.
b.	5	Solder the EN-369FN negative lead (unmarked) to the source pin of the ERF-2030 at Q47.
6.	5	Jump C210 and C209 together.
7.	5	Add 330pF capacitor across C201.
8.	5	Install a 33K ohm resistor from the gate pin of the ERF-2030 at Q47, to the end of R244 that is closest to the front of the radio. (Note: insulate the leads of the resistor from the surrounding traces using heat shrink tubing.)

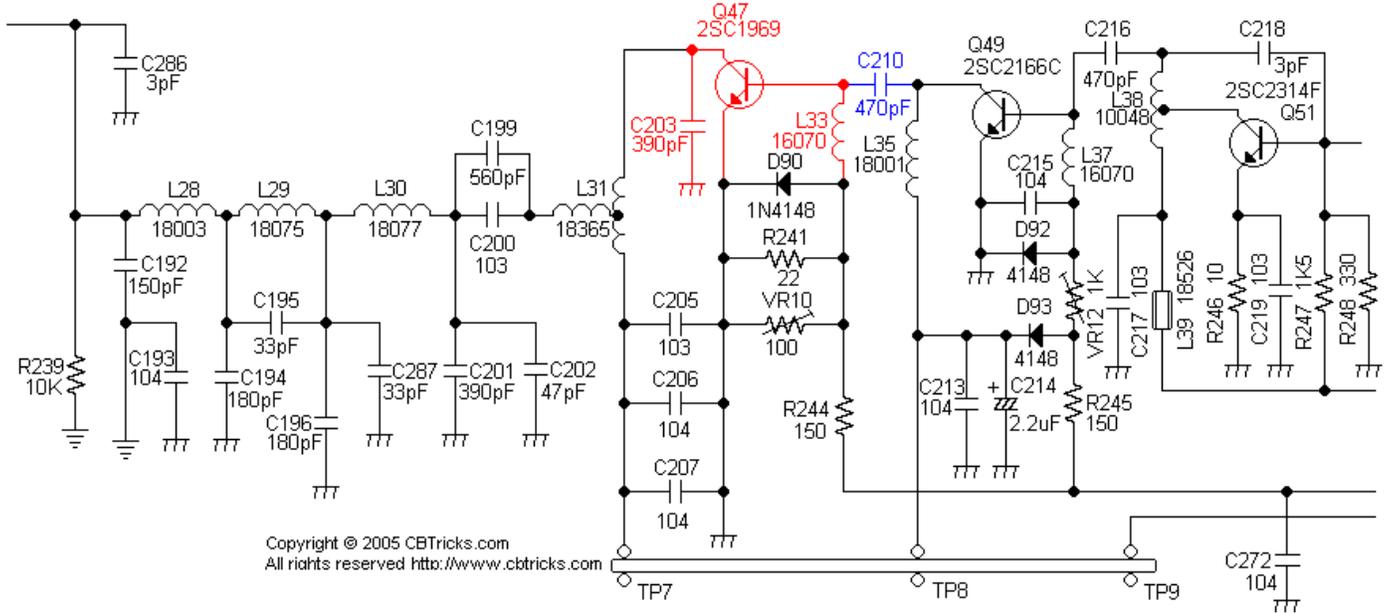


Galaxy DX949, 959, 2547 ERF-2030 Mod Package

Stock DX949, DX959, DX2547 Final RF Out

Components in **Red** are removed for single final modification.

Component in **Blue** is removed also when doing a dual final modification.

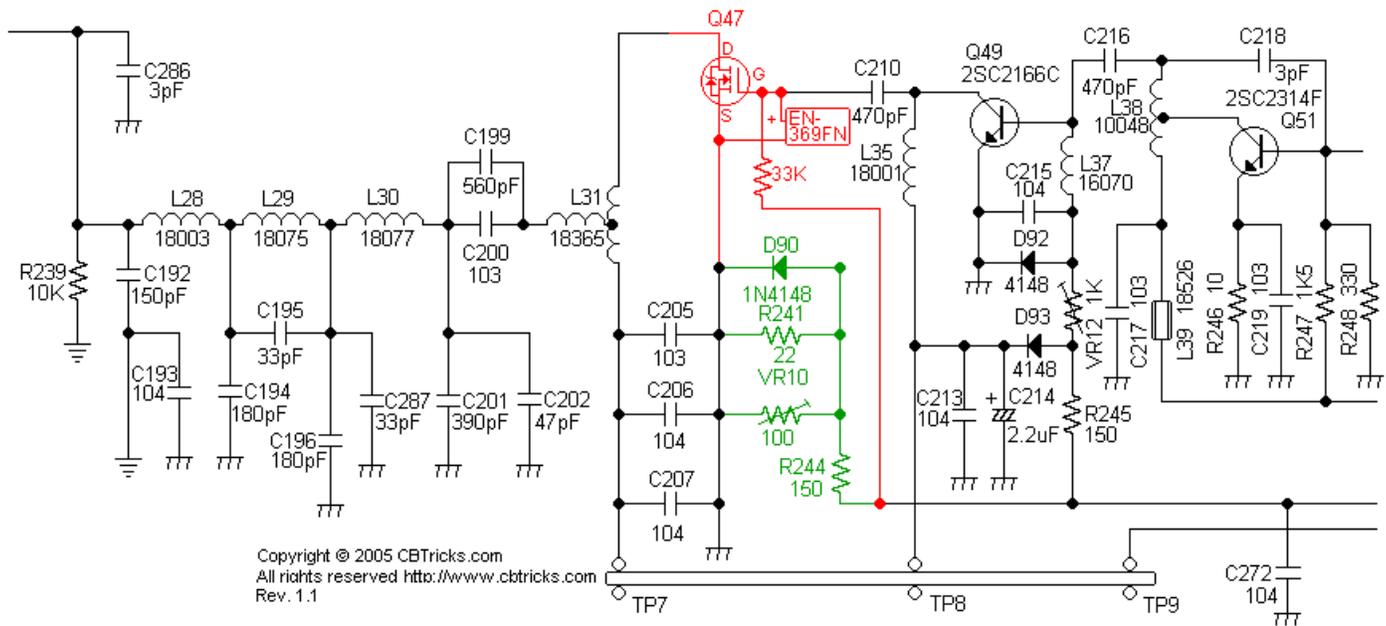


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DX949, DX959, DX2547 Single Final RF Out After MOSFET ERF-2030 Modification

Components in **Red** are installed for single final modification.

Components in **Green** are no longer used but it's best to leave them in radio if you ever need to go back to stock.



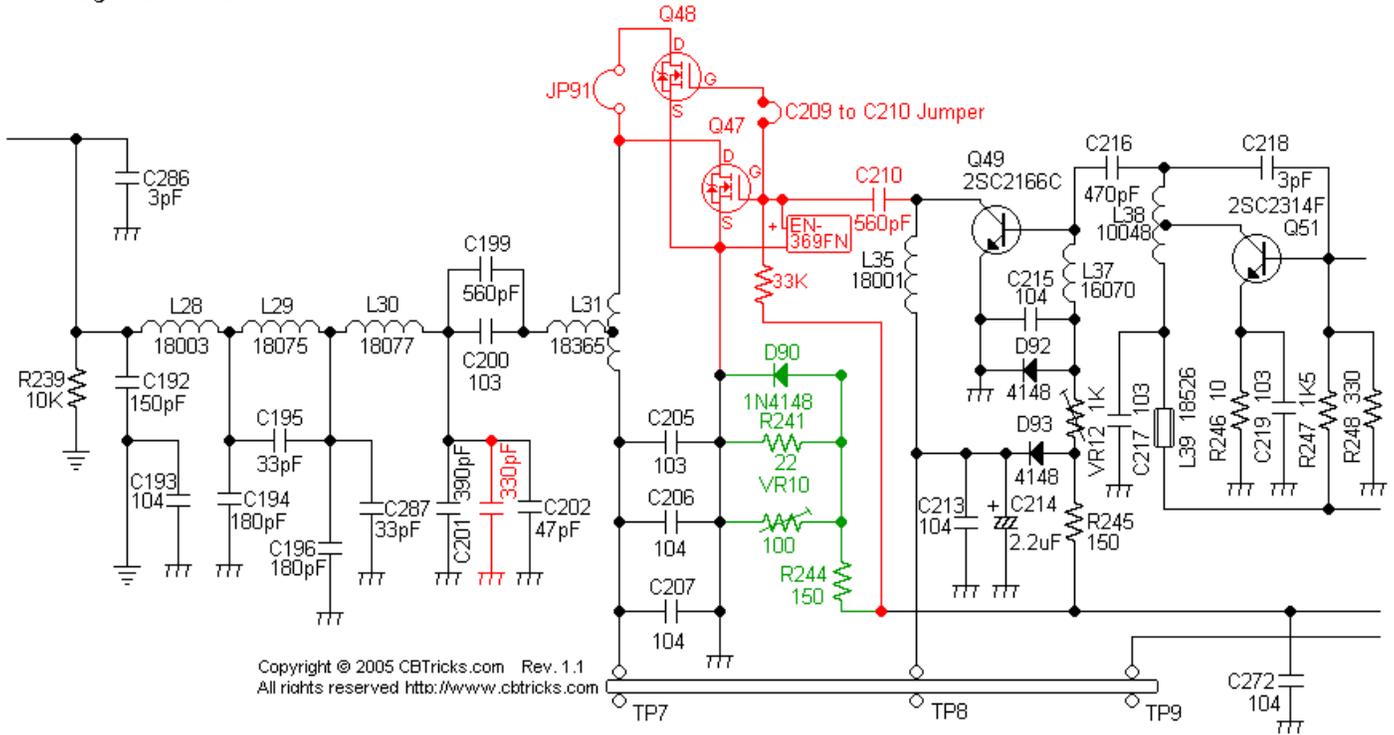
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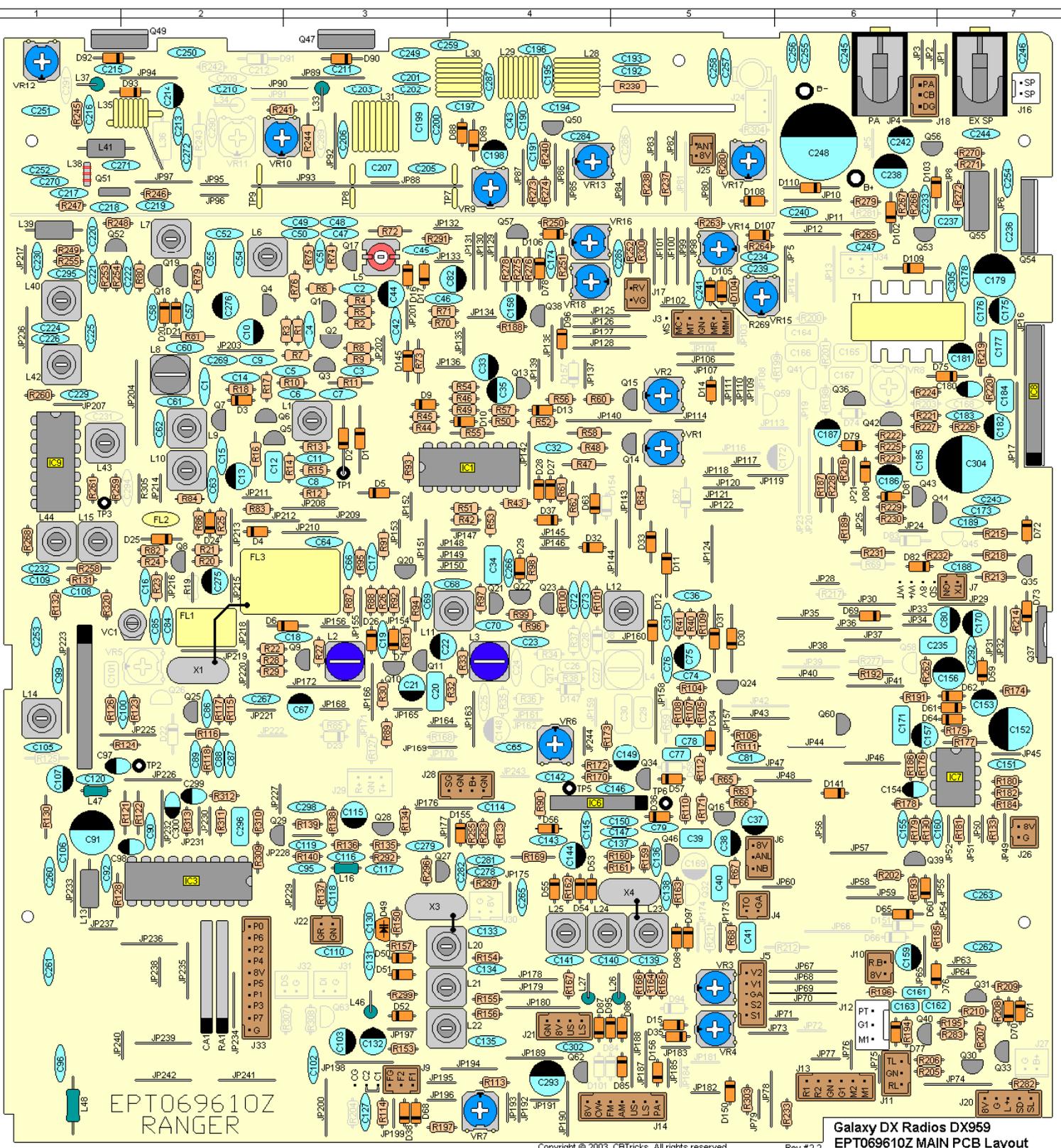
Galaxy DX949, 959, 2547 ERF-2030 Mod Package

DX949, DX959, DX2547 Dual Final RF Out After MOSFET ERF-2030 Modification

Components in **Red** are installed for dual final modification.

Components in **Green** are no longer used but it's best to leave them in radio if you ever need to go back to stock.



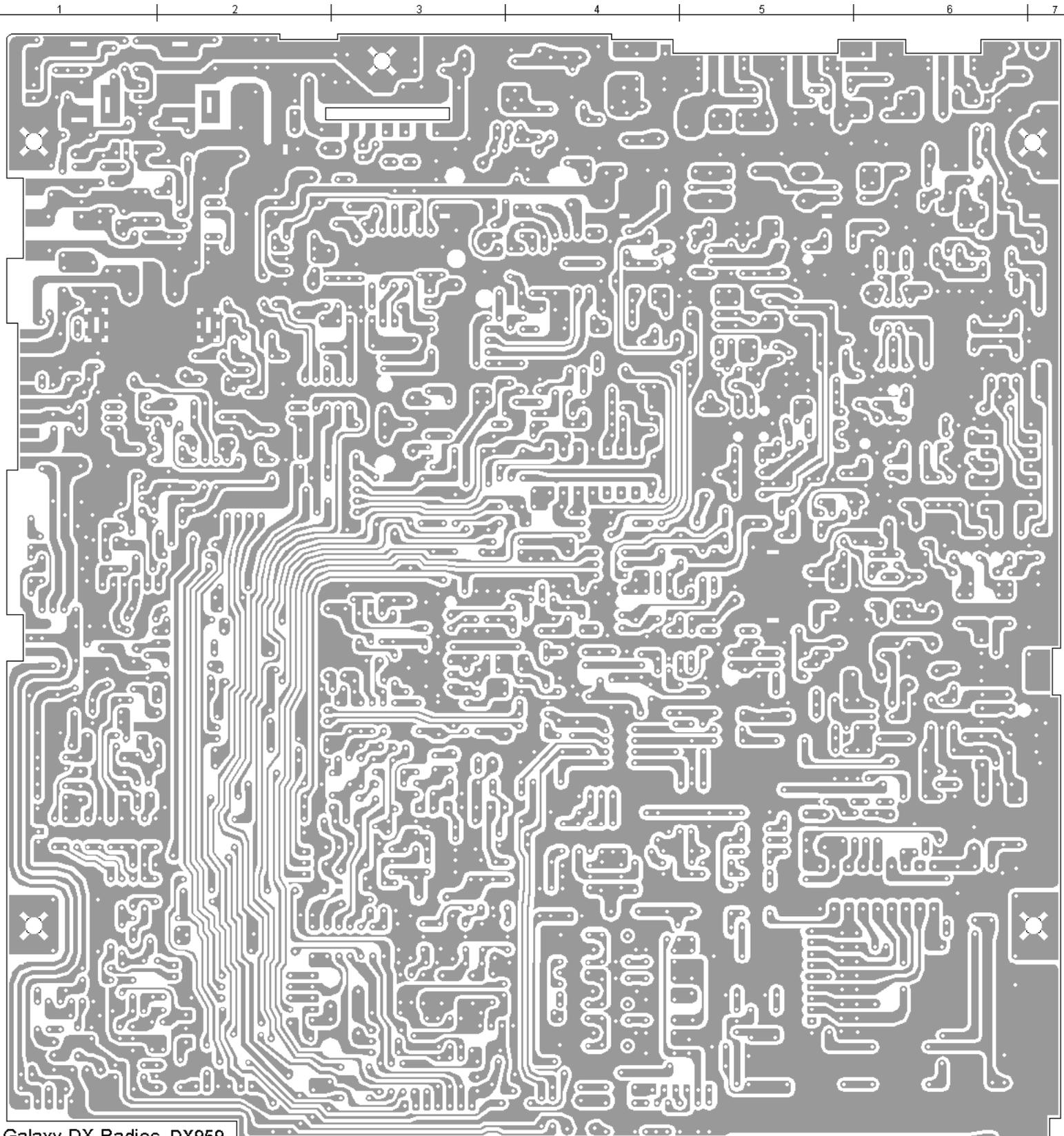


EPT069610Z
RANGER

Galaxy DX Radios DX959
EPT069610Z MAIN PCB Layout

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Rev #2.2



Galaxy DX Radios DX959
EPT069610Z Copper Side Layout
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