## **INSTALLATION INSTRUCTIONS FOR** 800 MHz SYNTHESIZED EXCITER **MODIFICATION KIT 344A3153** (SPK-9009)

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These Installation Instructions cover the replacement of ICOM exciter 19D424075 with the 800 MHz synthesized exciter 19D902262G2 in GE MARC stations.

Refer to the Installation Diagram for additional installation information. The circled numbers on the Installation Diagram correspond to the Step used in the following procedure.



Be careful when removing or installing the SMB Connectors on the new exciter and receiver LO output cables. Refer to Fig. 1 for complete details.

### PROCEDURE

1. Turn power off to repeater. Remove repeater cover plate.

NOTE Save the hardware from the old installation as some of it is used to install the new exciter.

- 2. Remove Local Oscillator ICOM crystal from the receiver.
- Disconnect the Power Amplifier exciter cable at re-3. peater wall (lower left front facing unit). Remove 3-inch Exciter output cable from exciter and repeater door wall (left side-front of unit).

- Remove the two through-hole knockouts (or meter-4. ing switches) from repeater door wall (right sidefront of unit).
- 5. Remove Molex connector from exciter and mark the end facing the front of the repeater as pin 1.
- Remove the four screws with washers from exciter. 6.
- 7. Remove the two standoffs with washers from exciter.
- Remove the old exciter (19D424075). 8.
- 9. Using wire cutters, clip off the plastic housing for pin 1 of the Molex connector (unused pin, blank). NOTE: The old pin 2 has just become pin 1 of this connector. Be sure to mark it Pin 1.
- 10. Using wire cutters, clip off the plastic housing for pins 16-21 of the Molex connector. These 6 pins are unused or blank pins.
- 11. Remove the blue wire going to pin 8 (was pin 9 before the old pin 1 was clipped off) of the Molex connector from the connector.
- 12. Clip the other end of the wire in step #11 at the repeater bulkhead (lower right facing unit). Pull the wire out of the harness and discard.
- 13. Crimp the electrical contacts on each end of the four-inch white wire provided, and connect the white wire between the <u>new</u> pin 1 and pin 14 (new pin 1 after clipping off old pin 1) of the Molex connector.



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- 14. Lower the synthesized exciter (19D902262G2) into cavity with the connector to the right, and with the exciter output connector to the left.
- 15. Screw in the four "same size" standoffs provided into the four holes at the far right side of the exciter casting. Include the washers from old mounts. Secure the standoff finger tight.
- 16. Install the 1/2-inch long screw supplied into the lower left corner of the exciter. Leave loose.
- 17. Install the 1-1/8 inch standoff supplied into the upper left corner of the exciter. Secure the standoff finger tight.
- 18. Tighten all six exciter mounts - Do NOT over-torque!
- 19. Mount the loader board on the four new standoffs over the exciter with the connector on the same side as the exciter connector.
- 20. Secure the loader board with three of the screws and washers from the old exciter mounts. Leave the upper right hole open for the 1-inch standoff.

- 21. Screw the 1-inch standoff into the remaining mounting hole on the loader board.
- 22. Install the new exciter output cable assembly in repeater wall at the lower left-front of unit (see Figure 1).
- 23. Connect exciter output cable to exciter output.
- 24. Install two rubber grommets supplied to the repeater wall where the two knockouts were removed.
- 25. Remove the old local oscillator connector from the receiver. Tuck the old connector and cable down and out of the way.
- 26. Connect one end of the receive local oscillator cable supplied to the receive local oscillator connector on the receiver casting (the same connector that the old cable was removed from in step #25).
- 27. Next, run the other end of the cable of the oscillator cable out through the grommet in the receiver/system chassis and back into the other grommet in the exciter section of the repeater.
- 28. Connect the new local oscillator connector to the exciter REC LO output, (see Figure 1).

- 29. Connect the loader harness from the loader board to the exciter board.
- 30. Re-connect the exciter Molex connector to the exciter board insuring that pin 1 is facing the front of the repeater unit.
- 31. Make sure that the new receive local oscillator cable is out of the way and not lying on top of the interior wall which contacts the cover plate (may be tucked under the edge of the loader board).
- 32. Re-connect Power Amplifier Exciter Output Cable.
- 33. Set the repeater to the proper frequency as directed in the appropriate Maintenance Manual for the loader board.
- 34. Turn the power on to the repeater.
- 35. Adjust the exciter as directed in the appropriate Maintenance Manual for the exciter.
- 36. Replace the cover plate using the old hardware.



Figure 1 - Removing And Installing SMB Connectors

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# PRELIMINARY CHECKS AND ADJUSTMENTS

Before applying power to the station, make sure that the loader board jumpers are set as follows:

**J2**: J2-2 to J2-3 **J3**: J3-1 to J3-2 **J4**: J4-2 to J4-3

Also, follow the frequency programming information as outlined in LBI-31239. Ignore any reference to the FCC channel number. Use the following programming information:

- $F_o = Operating Frequency (transmit) mHz.$
- $F_1$  = Basic Frequency (lowest) from which calculations are made. For most frequencies, use 851.0125 mHz.
- S = Frequency step between channels. Most applications will be .025 kHz.

 $(F_o - F_1 / S = Switch setting code.$ 

Example:  $\frac{865.7375 - 851.0125}{.025} = 589$ 

Use MODE setting "B" (for receivers with 45 MHz. I.F. and using internal reference).





## I. LARGE NUMBERS IN CIRCLES REFER TO STEPS IN INSTALLATION

### EXCITER MODIFICATION KIT 344A3153G1

**NOTE:** Some numbers in symbol column correspond to numbers on the Installation Diagram.

SYMBOL	PART NUMBER	DESCRIPTION
SYMBOL 13 13 14 15 16 17 19 21 22 24 26	PART NUMBER 19A115871P22 19A116781P6 19D902262G2 19B201955P12 N80P13008B6 19B201955P2 19D902207G1 19B201955P11 19B801529G4 5490407P101 19B801529G10	DESCRIPTION Wire, Stranded (4 in). Contact, Electrical (2). Exciter, Synthesized. Spacer, Threaded, 1-1/8 in. (4). Screw, Machine. Spacer, Threaded, 1 in. Loader Board. Spacer, Threaded, 2-1/4 in. Cable, Exciter Output. Grommet, Rubber, (2). Receiver, LO Cable.
29	19A705784P1 N404P13B6	Cable, Loader Board. Washer, Lock (10).

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