KIT-160
S826

DATE 12 May 1964 SHEET 1 OF 8	TMC SPECIFICATION NO. S-826	C
LB COMPILED / LB CHECKED	TITLE:	
APPROVED		

VSWR PROTECTION FOR GPT-40

KIT-160

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 439M

DATE 12 May 1964	TMC SPECIFICATION NO. S-826	C
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LB COMPILED / CHECKED	TITLE: VSWR PROTECTION FOR GPT-40 - KIT-160	
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I. EQUIPMENT AFFECTED

AN/FRT-40 Transmitting Set, Radio

II. PURPOSE

To provide control circuitry to protect transmitter and line from high standing wave ratio.

III. MATERIALS SUPPLIED IN KIT

Item No.	Qty.	TMC Part No.	Description
1.	1	MR165	Meter, SWR
2.	1	RC32GF563J	Resistor
3.	1	RC32GF474J	Resistor
4.	1	RC32GF472J	Resistor
5.	1	CM35F103F03	Capacitor
6.	20 ft.	MWC20(7)U95	Wire, Insulated
7.	20 ft.	MWC20(7)U92	Wire, Insulated
8.	5 ft.	MWC20(7)U7	Wire, Insulated
9.	5 ft.	MWC20(7)U6	Wire, Insulated
10.	30 ft.	CD101-1MW	Cord, Lacing
11.	2	TE-102-2	Terminal, Turret
12.	2	SCBP0440BN4	Screw, Machine
13.	2	LWE04MRN	Lock Washer
14.	2	TE-111-2	Lug, Terminal
15.	1	#30 Twist Drill	
16.	1 ft.	PX-100-1-148	Sleeving, Insulation
17.	8"	BS-100	Solder, Soft

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IV. TOOLS REQUIRED

A. To be provided by installing activity:

1. 1/2" Hand Drill
2. Long nose pliers.
3. Diagonal cutters.
4. 35 watt or larger soldering iron.
5. 6" Philips screwdriver.
6. 6" slotted screwdriver.

V. PROCEDURE

1. Remove all power to the equipment.

2. Place antenna tuner unit on bench and replace SWR meter, MR146, with SWR meter MR165 (Item 1). Retain capacitor C8205 (.01).

3. Install one length of Green/White #20 wire (Item 6) from Pin 16 on J8201 to contact #3 on back of MR165. Also, install one length of Red/White #20 wire (Item 7) from Pin 20 of J8201 to contact #4 on back of MR165. Fit black plastic sleeving (Item 16) over solder connections to J8201, and lace both of these new leads to the existing cable with lacing cord (Item 10).

4. Contact #1 on MR165 connects to the existing input lead from Pin 19 of J8201.

5. Contact #5 on MR165 connects to the existing ground lead.

6. Connect C-8205 (removed from MR146) between contacts #1 and #5 on MR165. The rewired ANTENNA TUNER DRAWER should correspond to the following new schematic:

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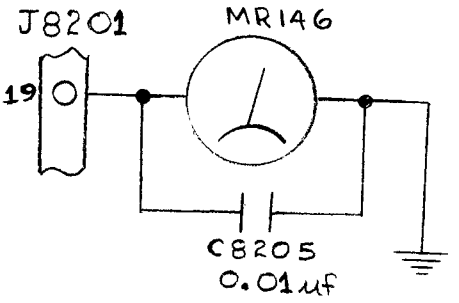
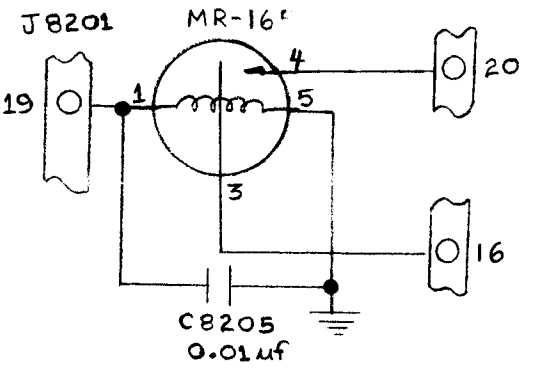
Figure 1

OLD



NEW



7. Replace Antenna Tuner and remove Bias Supply, Relay Panel, Fuse Panel, and Input Box Cover to gain access to J8102, lower feft side of 4th frame.

8. From the rear of the transmitter frame, continue wiring the W/Grn #20 wire from Pin 16 of J8103 to pin small (j) of J8102. Connect Red/White from Pin 20 of J8103 to Pin Small (h) of J8102. Lace the wires to existing cable (Using Item 10), Insulate pins after soldering with (Item 16).

9. On P7102 (mate to 8102), solder Wh/Red wire to Pin h (small) and Wh/Green to Pin j (small). Connect the other end of wires to bias supply plug P7105. The white and red to Pin F of bias supply plug (P7105) and white and green to Pin I of bias supply plug (P7105). Remove existing wire on Pin I, and insulate. Use Item 16 to insulate wires on plugs. Lace wires to existing cables.

10. Remove bias supply from transmitter to a suitable work bench, and remove top and bottom cover.

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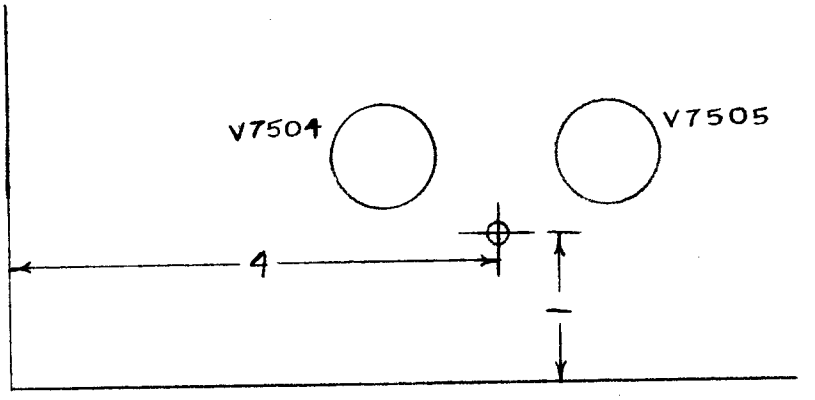
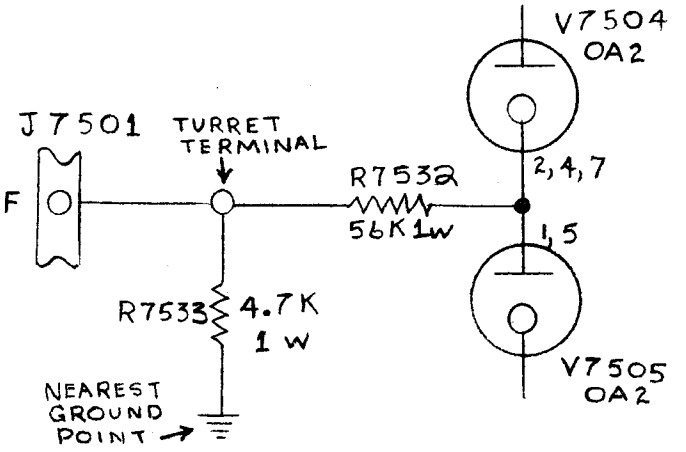
11. Referring to Figure 2, drill a hole with (Item 15) #30 Twist Drill to accommodate (Item #11) TE-102-2, Terminal, Turret.

Figure 2



12. Mount turret terminal, (Item 11), with (Item 12) and (Item 13), screw and washer. Solder the two divider resistors (Item 2 and Item 4 as shown in Figure 3). Solder a length of White/Red #20 wire (Item 6) from turret terminal to bias supply plug J7501, Pin F. Insulate Pin F with Item 16 (sleeving, insulation). Lace wire to existing cable with (Item 10).

Figure 3



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13. Disconnect SWR overload pot (R-7529); cut lead close to main cable; remove pot from bias drawer front panel, and discard.

14. Unscrew pot R-7526 (this will become the new SWR overload pot on the front panel of the bias drawer) and remove tubes V-7504, V-7505, and V-7509.

15. Unsolder the blue wire from Pin 3 on V-7509 and unsolder the 3.3K resistor R-7525 from its ground connection only.

16. Unsolder the blue wire from R-7527, and remove this lead from the main cable. This should completely free pot R-7526.

17. Unsolder and discard C-7514 (0.424 uf) from Pin 7 (V-7509), and ground.

18. Unsolder the Red/White striped lead from Pin 7 (V-7509) and cut it close to the main cable.

19. Unsolder the red lead from L-7506 (not the side with C-7516 attached), and cut it close to the main cable.

20. Solder a 5 foot length of Violet #20 wire (Item 8) to the end contact of R-7526, removing the old wire, but allowing the fixed resistor to remain, and solder a 5 foot length of Blue #20 wire (Item #9) to the center contact of R-7526. Remove old wire.

21. Solder the loose end of the fixed resistor, R-7525, to the terminal lug (Item 14). Slip the lug over R-7526 and secure R-7526 in the SWR overload position on the front panel.

22. Pass the Blue and Violet wires from R-7526 through the rubber grommet on the chassis and solder the Violet wire to Pin 3 on V-7509. Solder the blue wire to R-7527 in place of the blue lead removed in Step 16. Lace the Blue and Violet wires to the main cable.

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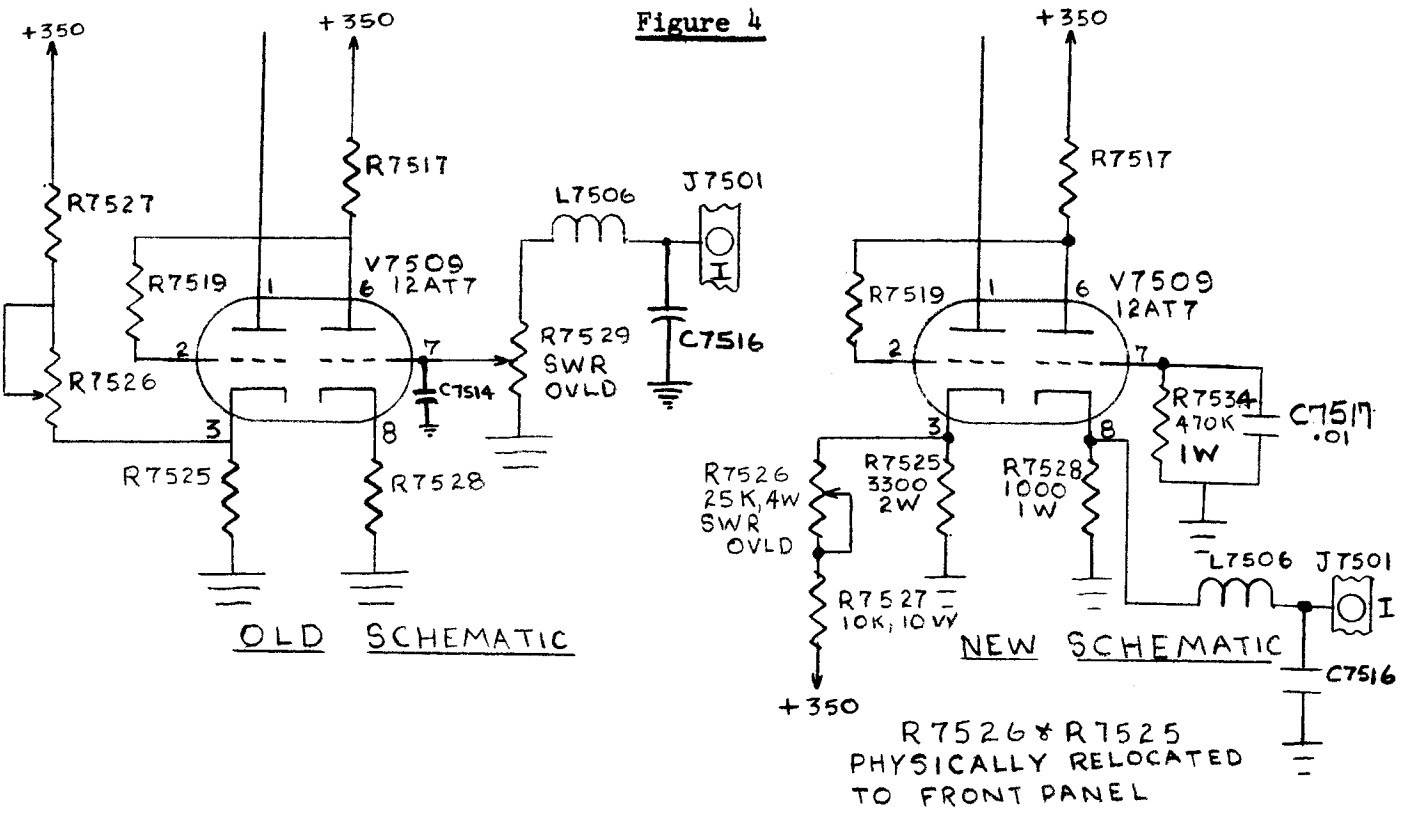
23. Solder the 470K (1W) resistor (Item 3), and the .01 uf capacitor (Item 5) between Pin 7 of V-7509 and ground, (refer to Figure 4).

Figure 4



24. Solder a length of Red/White #20 wire between Pin 8 (V-7509) and the side of L-7506 that was described in Step 19. Lace this new wire to the main cable.

25. Replace tubes V-7504, V-7505 and V-7509. The rewired SWR d-c amplifier should conform to schematic Figure 4.

26. Check connections for security, insulation and loose solder joints.

CAUTION: DO NOT ALLOW OHMMETER TO READ ACROSS MR-165 AS DAMAGE TO THE SWR METER COULD RESULT.

27. Install bias drawer and antenna tuner units into trasnmitter, and check out the SWR overload by setting the MR-165 adjustable arm at a low lev l (approx. 1.5). Turn on and tune transmitter unbalanced output (no output load) until the

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MR-165 indicator touches the adjustable arm. This will trip the SWR overload relay which in turn will remove high voltage.

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REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

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LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
5/14/64		1 of 8		O= ORIGINAL RELEASE FOR PRODUCTION.	
3/24/65	A	2,5,7	13751	Revised shts. 2,5,7 per EMN	
2/16/66	B	2	15791	Revised per EMN	
7/21/66	C	-----	16592	Revised sheets 3,4,5,6,7 as per EMN	