

TMC SPECIFICATION

NO. S 1418

REV:

COMPILED: JF

CHECKED: RW

APPD: QRS

SHEET 1

OF 7

TITLE:

DIRECTIONAL COUPLER KIT (AN/FRT-39)

DIRECTIONAL COUPLER KIT (AN/FRT-39)

KIT 457

TMC SPECIFICATION

NO. S1418

REV:

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APPD:

SHEET 2

OF 7

TITLE:

DIRECTIONAL COUPLER KIT (AN/FRT 39)

1. EQUIPMENT AFFECTED:
 - a. TMC Model GPT-10K GENERAL PURPOSE TRANSMITTERS.
2. PURPOSE:
 - a. Kit 457 provides a direct reading forward and reflected wattmeter which offers the on-site operator a fast and reliable method of determining the output by the transmitter (to within 5%). This represents a considerable improvement in accuracy, especially at lower levels of output power, over the original "thermocouple wattmeter" used in the earlier models of the AN/FRT-39 ().

The actual V.S.W.R. or the amount of reflected power as seen by the transmitter at its output can be measured accurately, especially at the lower power levels.

To determine the actual amount of reflected power in watts select the reflected power position with S1017 and the amount of reflected power is instantaneously displayed on M1004.

S.W.R. as a direct function of the actual forward and R.F. output meter M1004 without any calculations.

The maximum power measureable is 10kw forward and 1kw reflected average.

Kit 457 also provides the operator with a single control ALDC adjustment.

This Kit has been installed at the factory on all the later models of the AN/FRT-39 and on all models renewed through the TMC AN/FRT-39 (V) Refurbishing Program. TMC has made Kit 457 field installable, making it available to users of the AN/FRT-39.

The Kit should require approximately 3.5 man-hours to install.

3. MATERIALS SUPPLIED IN KIT:

<u>ITEM NO.</u>	<u>AMOUNT</u>	<u>DESCRIPTION</u>
1	one ea.	TMC NO. MR170 RF WATTMETER
2	one ea.	TMC NO. CA412-23-23 SINGLE CONDUCTOR CABLE
3	one ea.	TMC NO. A4223 ALDC ASSEMBLY
4	one ea.	TMC NO. RV4NBYS503A POTENTIOMETER & SWITCH
5	one ea.	TMC NO. CA829 CABLE ASSEMBLY
6.	one ea.	TMC NO. LD1775/MS4333 PLATE/SWR SW. ALDC ADJ.
7.	NOT USED	

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<u>ITEM NO.</u>	<u>AMOUNT</u>	<u>DESCRIPTION</u>
8	four ea.	TMC NO. SCBP1032BN8 MOUNTING HARDWARE
9	NOT USED	
10	twelve feet	TMC NO. CD101-1MW LACING CORD
11	NOT USED	
12	NOT USED	
13	one ea.	TMC NO. MP108-2 ALDC KNOB
14	NOT USED	
15	four ea.	TMC NO. WA101-11 FIBER WASHERS
16	NOT USED	
17	one ea.	TMC NO. A3426 COUPLER/BRACKET ASSEMBLY
18	one ea.	TMC NO. NP362-81 NAME PLATE
19	one ea.	TMC NO. MS1588 DRAWING ONLY

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DIRECTIONAL COUPLER KIT (AN/FRT 39)

4. TOOLS REQUIRED:

To be provided by the installing activity.

1. Soldering iron (small tip) and 2 feet solder
2. Medium Phillip's screwdriver
3. Assorted 1/8 to 5/8 spintite wrenches (or equivalent)
4. 6" Pliers, diagonal cutting
5. 6" Pliers, longnose
6. 6" Flat blade screwdriver.
7. Socket and speed wrench for removing outside covers
8. Electric drill, 1/2 inch capacity
9. Half inch drill bit

REMOVE ALL INPUT POWER FROM TRANSMITTER AND SIDE BAND RACK TO BE MODIFIED.

VIEWING TRANSMITTER FROM FRONT:

1. Remove Hi Voltage Rectifier Drawer, AX-103.
2. (not) used
3. Remove RFC Drawer, AX-104, Disconnecting all connectors at rear of drawer.
4. Remove Front Panel PA (glass) window by removing the 10 #8-32 OVALHEAD screws.
5. Remove Right Side Cabinet Cover and Shield.
6. Open Rear Doors and Remove Rear Shield from PA RF Compartment.
7. Disconnect and Remove TC-900 (thermocouple), L-916 and L917 (no longer used.)
8. Disconnect and remove C-1019 and C-1020 (no longer used).
9. Remove RF Output Connector, J-903 and bracket (no longer used)
10. Replace J-903 and bracket removed in step # 9 with item 17 supplied in kit.
11. Connect one end of item # 2 supplied in kit, to center connecting stud of Directional Coupler and other end of item # 2 to E904.

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DIRECTIONAL COUPLER KIT (AN/FRT 39)

12. Disconnect and Remove PA Output Meter (M-1004) and capacitor (C-1001) from PA metering Panel. Discard M1004. Retain C-1011.
13. Mount Item # 1 supplied in kit, in M-1004's location. Install C-1011 across terminals of Item 1.
14. Place Item # 5 (CA829) in right side (front) main frame channel, with P-903 and P-905 (directional coupler connectors) pointing toward top of PA frame.
15. Connect wattmeter connector of Item # 5, tagged # 2, to Forward connector of Directional Coupler and the other connector, tagged # 1, to Reflected 1 kw connector of Directional Coupler.
16. Insert the BROWN SHIELDED LEAD OF CA829 through the opening located on right side of PA meter panel and connect the BROWN WIRE to the (+) positive stud of Item # 1 (wattmeter) connect # 25 BLACK WIRE, to (-) Negative stud of wattmeter and pigtail of black wire to any convenient ground. Using 1/2 inch drill, drill a hole (F) in the bottom of the Front window right side bracket, MS1588, as indicated on the drawing of MS1588, Item 19.
17. Route the CA829 cable end (remaining end pointing downward), that has been placed in right front channel of main frame, through this grommet hole, and lace to existing cable as far as ALDC switch (S-1003).
18. Remove ALDC on/off switch (S-1003) and unsolder the leads from switch.
19. Remove ALDC "adj knob" from R-1004.
20. Remove ALDC control (R-1004) and unsolder the leads from R-1004. Retain lug for use in Step # 26.
21. Using 1/2 inch drill , enlarge hole from which R-1004 was removed, to a diameter of one-half inch, to accommodate Item # 3.
22. Place Item # 6 supplied in Kit, to fit over the two existing holes created in step # 18 and step # 20.
23. Mount Item # 4 supplied in Kit, in hole left empty in step 18. Switch lever down.
24. Mount Item # 3 assembly supplied in Kit, in hole enlarged in step # 21.
25. Attach Item # 13 supplied in Kit, to shaft of Item # 4.

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TITLE:

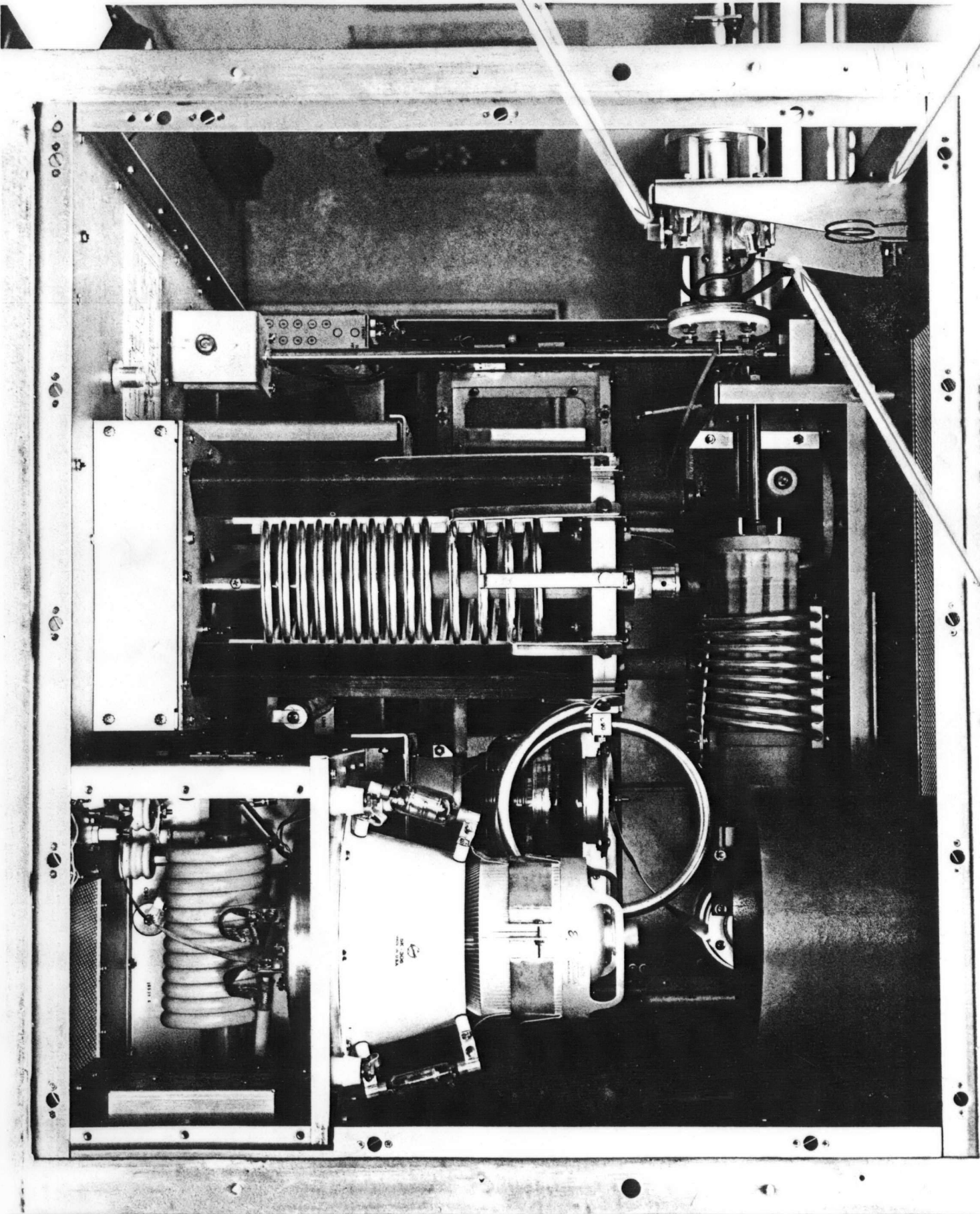
DIRECTIONAL COUPLER KIT (AN/FRT 39)

26. Connect CA829 (Item # 5) cable, to newly installed Items # 3 and # 4 as per Figure # 1 "a" and "b".
27. Replace Hi Voltage Rectifier Drawer, AX-103.
28. Replace RFC Drawer, AX-104, and reconnect all connectors at rear of drawer.
29. Replace Meter Panel at Top Front of Transmitter, using the six # 8-32 screws.
30. Replace Right Side Transmitter shield and Right Side Outside Cover.
31. Replace PA Glass Window with the 10 # 8-32 oval head screws, removed in step # 4.
32. Replace Rear Transmitter RF Shield and close Rear Doors of transmitter and Side Band Rack.
33. Reconnect Antenna or Dummy Load.
34. Check ALDC switch is to OFF position.
35. Apply Item # 13 directly below name plate of relay panel cover.

FORWARD OUTPUT
DD109 1 10KW

A-3426

REFLECTED OUTPUT
DD109-2 1KW →



TMC SPECIFICATION

NO. 51418 925

REV: _____

COMPILED: _____ CHECKED: _____ APPD: _____ SHEET 7 OF 7

TITLE: OUTPUT COUPLER (BIRD) MODIFICATION FOR GPT-10K

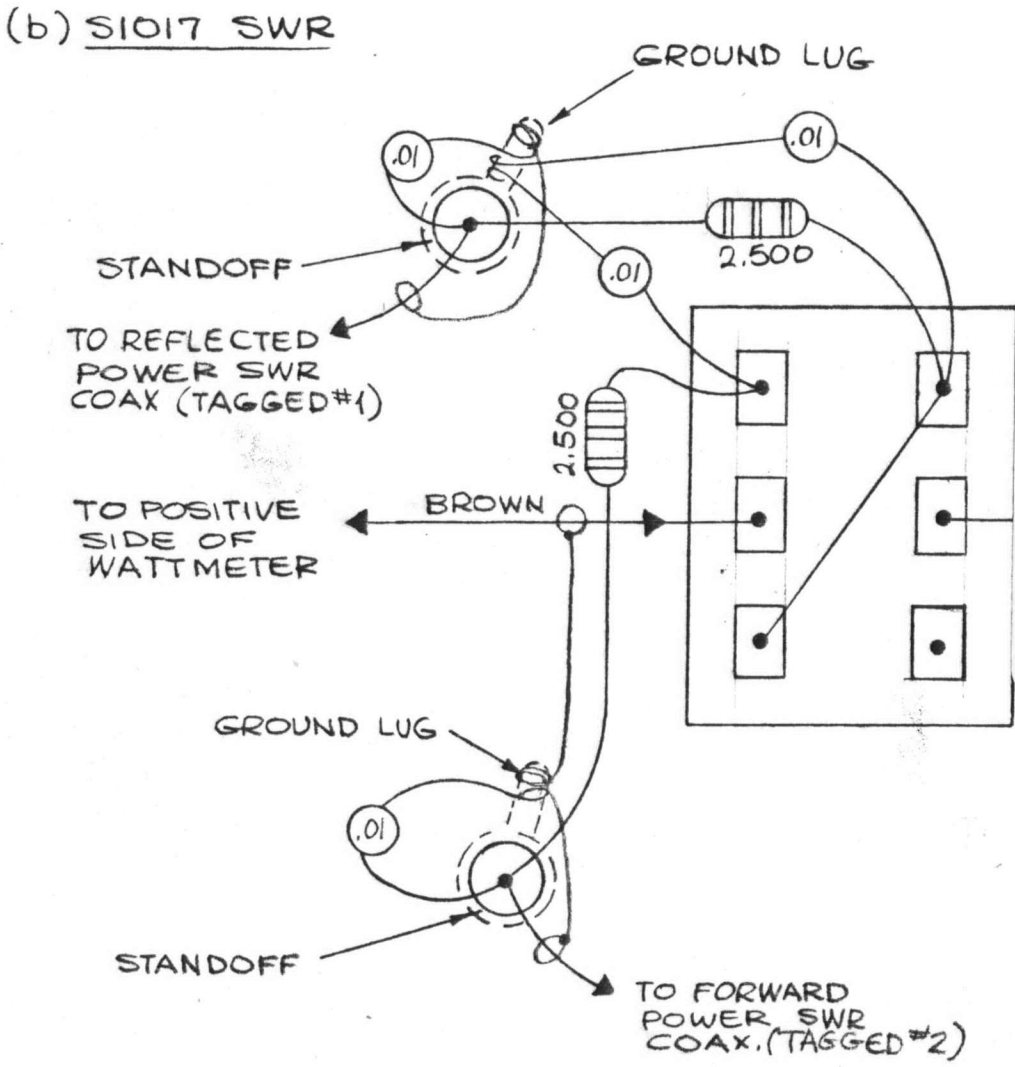
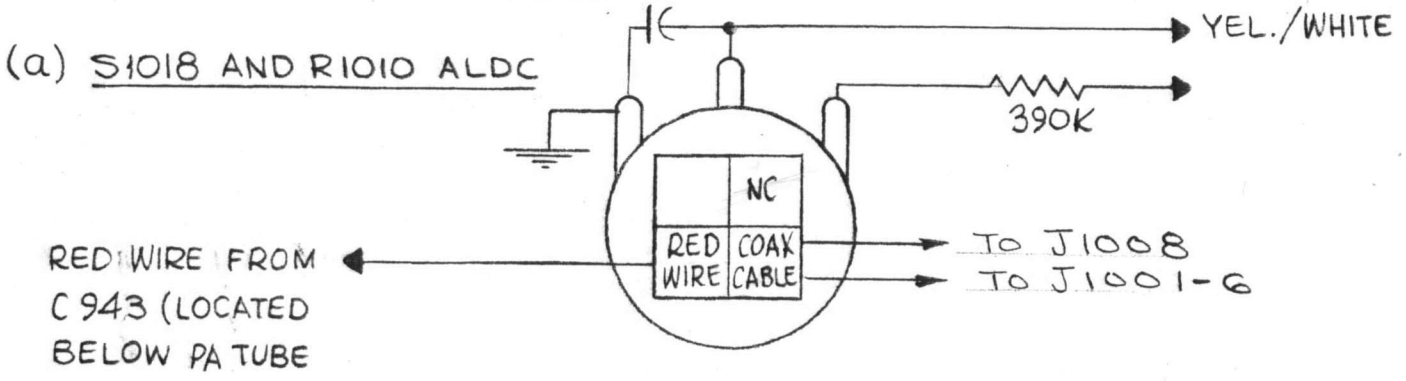


FIG-#1