| TMC SPECIFICATION | | | NO. S 1190 |
|---|---|---|---|
| REV: Ø A B | | | |
| COMPILED: | CHECKED: | APPD: | SHEET 1 OF 19 |
| TITLE: | | | |

IMPROVEMENT MODIFICATION

GPR 92

I. EQUIPMENT AFFECTED:

TMC Model GPR-92, 92A and 92B radio receivers.

II. PURPOSE:

To improve the stability, noise limiters, S-meter and AVC functions.

III. MATERIALS SUPPLIED:

| ITEM NO. | DESCRIPTION |
|---|---|
| 1 | Three each wire shield (11 inches) (MWC 22(7) (SJ92). |
| 2 | Six each TMC No. TE-149-144. Lugs, solder. |
| 3 | One each TMC No. RC20GF102K Resistor, Fixed, Composition 1K Symbol no. R225 |
| 4 | One each TMC No. RV4LAYSA505A. Symbol no. R150 Resistor, Variable, Composition, 5K megohms |
| 5 | Three each TMC No. RC20GF473K. Symbol No. R155, R165, R159. Resistor, Fixed, Composition 47K |
| 6 | Four each TMC No. WL-103-1. Wire braid, (3 inches long) Each lead to have a TMC No. TE-149-144 lug soldered to one end. |
| 7 | One TMC Noise Limiter Board Assembly A4594 Complete with connecting leads. |
| 8 | One each TMC No. RC32GF821K. Symbol No. R176. Resistor, Fixed, Composition 820 ohms. |
| 9 | One each TMC No. RC20GF823K. Resistor, Fixed, Composition 82K Symbol No. R163. |
| 10 | One each TMC No. TE 111-1. Lug, solder. |
| 11 | One each TMC No. TS 128-2. Tube, heat shield. |
| 12 | One each TMC No. LWI50MRN washer, lock, internal |

| ITEM NO. | DESCRIPTION |
|---|---|
| 13 | One each MS 5110 Channel, cable shield. |
| 14 | One each TMC Standoff Terminal Assembly. MS5111 |
| 15 | Miscellaneous hardware to mount Audio Noise Limiter Board and Cable Channel shield, SCBP0440BN8 complete. |
| 16 | Wire, hook-up, 36 inches #22 size. |
| 17 | Sleeving to be used with #22 wire (6 inches). |
| 18 | One set of CK1090 - Corrected Prints (GPR-92A). |

IV. TOOLS REQUIRED (But not furnished):

| ITEM NO. | DESCRIPTION |
|---|---|
| 1 | Pliers, 6 inch, long nose. |
| 2 | Pliers, 6 inch, diagonal cutters. |
| 3 | Screw Driver, Phillips 7 inch. |
| 4 | Screw Driver, Flatblade 7 inch. |
| 5 | Soldering Iron. (small) |
| 6 | Wrench, open end 1/2 inch. |
| 7 | Handdrill, 1/4 inch. |
| 8 | Drill Bit, 9/64 inch. |

V. PROCEDURE:

1. Disconnect all power.

2. Remove top cover of receiver, including the cover over the main tuning and band spread variable capacitors. Locate and remove Filter Can, FL 101. Retain this unit for reinstallation.

3. Turn receiver chassis upside down, and remove bottom cover, including cover over alignment coils. Locate T 129 assembly, disconnect from IFO shield (MS 2642-D) do not unsolder this assembly. Remove IFO shield and and modify as per Figure #1.

4. Starting from the access hole of HFO Casting remove lacing cord around cable to beyond IFO shield, for a total length of two inches beyond the location of the IFO shield (MS 2624-D), so as to expose three RED/WHITE wires leaving from the HFO access hole.

5. Follow these next instructions carefully, pulling back as far as lacing was removed in Step 4. The three RED/WHITE wires removal instructions are as follows:

NOTE: Mark each RED/WHITE lead that was pulled back from its soldered connection. These leads will be required to be reconnected at a different location.

a. Remove one RED/WHITE lead tagged #6, from standoff terminal of C 204 in the HFO section on assembly board A 3267. See Figure 2.

b. Remove one RED/WHITE lead tagged #12, from standoff terminal of R129(22k) in the mixer section of assembly board A-3268. See Figure 2.

c. Remove one RED/WHITE lead tagged #9, from lower bottom terminal connection of wafer switch 1-B, in mixer section. See Figure 2.

6. Install three (3) plastic coated shielded wires as furnished (Item 1), through access hold of HFO. Place one lead in the vicinity of assembly board A 3267, and two wires in mixer section of assembly board A 3268.

7. Pull back the shield of plastic coated wire which was installed in Step 6 to a 3/4 inch and solder shield to the lug furnished (Item 2). Mount lug under 6/32 inch philips screw vicinity of C 204. See Figure 2. Tag this wire #6.

8. Locate the new leads installed in mixer section (Step 6) and pull shield back of one lead to 1-1/2 inches. Pull back shield of the second lead 3/4 inch.

9. Solder the lug to the shield of the lead that has 1-1/2 inch length of it's shield stripped back. Connect the center conductor of this lead to the bottom of wafer switch 1-B terminal where the previous RED/WHITE wire tagged #9 was attached. Install the ground lug attached to the shield of this wire to the 6/32 philips screw on the frontwall HFO casting frame. See Figure 2. Tag this wire #9.

10. With remaining new lead (Step 8), solder center conductor to terminal point of R129 (2.2K), where previous RED/WHITE wire tagged #12 was connected. Mount ground lug (Item 2) under 6/32 philips screw which is located in the vicinity of terminal point to R129. Solder the shield to the ground lug. Tag this wire #12. This completes the modification in the HFO sections.

11. Locate the 3.5mc assembly board A 2508-B. On terminal tie point 18, unsolder and remove black lead from this connection. Pull wire out of cable harness leaving wire out of this harness and reconnect back to terminal point 18.

12. Using a 9/64 bit, drill holes in chassis for the installation of the cable shield channel MS 5110 See Figure 4.

13. Install the modified IFO metal shield (MS 2642-D), insure that the three wires (Step 6), are under the IFO shield modified opening where the previously removed three RED/ WHITE wires were located. See Figure 5.

14. Install cable shield channel MS5110 , (Item 13) with hardware provided (Item 15), over the cable going through the vicinity of assembly board A 2508-B. See Figure 4.

15. Mount the terminal board assembly as furnished in (Item 14) (MS 5111 ) and T 129 coil assembly bracket using the hardware provided to IFO shield (MS 2642-D). As shown in Figure 5. Instructions are as follows:

a. RED/WHITE lead which is tagged #6, to the most inside standoff.

b. RED/WHITE lead which is tagged #12, to the outside standoff.

c. Cut to required length.

17. Connect the center conductors of the three new plastic wires which have been tagged #6, #9 and #12, to the same numbered RED/WHITE wires as connected to the standoff terminal board A (Step 16a, 16b, 16c). Connect the shields of these wires to the metal standoff.

18. Locate assembly board A 2509-D, and perform the following:

a. Remove resistor R159 (12k) and R163 (82k). Connect a resistor (82k) furnished (Item 9), to the land connecting C 113 and C 114 using sleeving provided. The other end of this resistor is to be soldered to the connection where R163 (82k) was removed, on the side near terminal 41 on this assembly board.

b. Connect a 47K resistor provided (Item 5) to the junction of C 231 and where R159 (12k) was removed, using sleeving provided. The other end of this resistor is to be connected to R158 (to the end of the resistor facing the front panel). Use terminal TP58.

19. Remove R155 and R165 (180k) and replace with 47k provided (Item 5).

20. Remove R176 and replace it with a 820 ohm resistor (Item 8).

21. Remove by cutting, the blue wire connecting to terminal point 31 which comes from the IF Gain Control Potentiometer R150. Also remove by cutting, the BLUE/WHITE wire connecting to terminal point 32 which also comes from the IF Gain Control Pot ntiom t r R150. Conn ct a jumper between terminal points 31 and 32. (Cut l ads close to Cable Harness.)

22. Cut off all wires connecting to IF Gain Control Potentiometer R150. Remove this control from chassis. Install a new potentiometer (Item 4), with ground lug connections as described in Step 23.

23. Unsolder the two WHITE wires connected to terminal 42 (AVC). Locate wire tagged in cable harness #18, pull this wire out out of cable harness so as to be able to connect this wire to the center arm of potentiometer that was installed in Step 22. Locate wire which is tagged #16, remove from harness, so as to be in sufficient length so as to be connected to the top arm of potentiometer installed in Step 22. Connect a short piece of hook-up wire (Item 16) to the arm of this potentiometer and the other end connected to terminal 42. The bottom arm is to be grounded to the ground lug. This completes this section.

24. Locate assembly board A 2510-J (see Figure 4), remove R185, R186 (.1meg) and R187, R188, (180k) resistors. Remove C 253 (.1mfd), capacitor, and CR106 (IN34) diode. Connect a jumper between terminal point 117 and terminal point 118 with wire provided (Item 16).

25. On the front panel of the receiver, locate the RF Gain Control Potentiometer R110 (5K). Connect a 1K resistor (Item 3) across the two end terminals of this Potentiometer.

26. Install new Audio Noise Limiter Assembly Board furnished A4594 (Item 7) as follows: (See Figure 6)

    a. Drill holes and mount Audio Noise Limiter Assembly Board as per Figure 8.

    b. Locate a grey lead attached to assembly board, strip off ¼ inch insulation at the end of this lead, and pass lead through gearing assembly frame as to go along cable harness so as to come up to the Noise Limiter Switch S 108.

    c. Loosen the Noise Limiter Switch S 108, be careful not to mar the front panel.

    d. Cut and remove the ground from the terminal of the Noise Limiter Switch.

    e. Connect the grey lead from the Audio Noise Limiter Board Assembly to the terminal of the Noise Limiter Switch S 108, where the ground was removed.

    f. Remove and discard the positioning ring from S 108. Install switch back in the opposite position (upside down), using the lockwasher provided in place of the positioning ring (Item 12).

27. Locate terminal point 107, on assembly board A 2510-J, and remove the center conductor of the coax connecting to it. Connect it to C 253, (.02mmfd) the Noise Limiter Assembly.

28. Disconnect the grey lead on TP 116 of assembly board A 2510-J, and connect it to the junction of R187-CR106-CR108-on Noise Limiter Assy. Bd.

29. Connect the violet lead from the Noise Limiter Assembly to TP 107 on A 2510-J. Connect Black lead on Noise Limiter Assy. to terminal point 101 on A 2510-J. This now completes all work on the Noise Limiter Assembly.

30. Turn the receiver right side up and connect the 4 wires braids as furnished (Item 6) one at each end from the main tuning variable capacitor and one at each end of the tracking variable capacitors. See Figure 8.

31. Remove the tube shield on V107 (HFO Tube), and install new tube shield as provided (Item 11).

32. Install back into original place, Filter FL 101 which was removed in Step 2.

33. Inspect and check all wiring, replace all inside and outside covers and shields.

34. Modification instructions are completed at this point.

## INSTRUCTION BOOK CORRECTIONS

The following corrections should be made to the Parts List Section 6 of either GPR-92 or GPR-92A instruction book depending upon which model GPR-92 receiver was modified, with pen and ink.

| SYMBOL NO. | DESCRIPTION | TMC PART NO. |
|---|---|---|
| R126 | Same as R120. | |
| R150 | Resistor, Variable, Composition: 5 megohms ±20%, .2 Watts | RV4LAYSA505A |
| R155 | Same as R151. | |
| R159 | Same as R151. | |
| R165 | Same as R151. | |
| R176 | Same as R123. | |
| R185 | Resistor, Fixed, Composition: 2.2 megohms ±10%, 1/2 Watt | RC20GF225K |
| R186 | Same as R185. | |
| R187 | Resistor, Fixed, Composition: 240,000 ohms, ±10%, 1/2 Watt | RC20GF244K |
| R188 | Same as R144. | |
| C194 | Same as C104. | |
| C253 | Same as C105. | |
| C279 | Same as C104. | |
| CR106 | Same as IN463. | |
| CR108 | Same as CR106. | |

# TMC SPECIFICATION

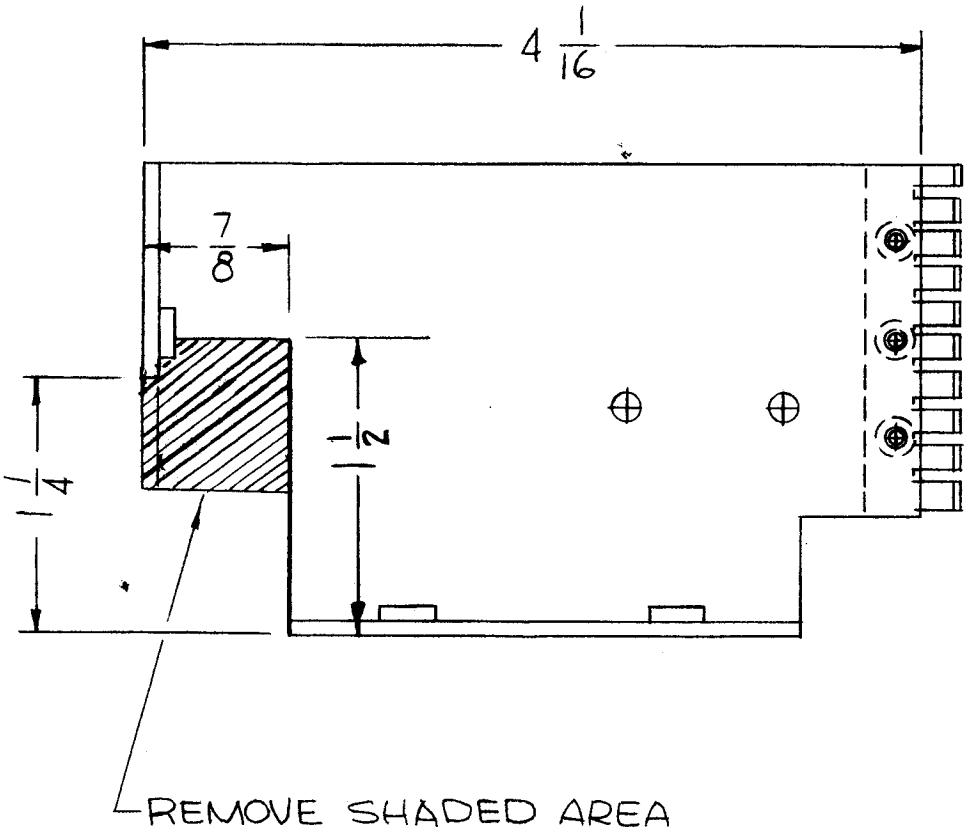
NO. S 1190

REV: A B

COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 12 OF 19

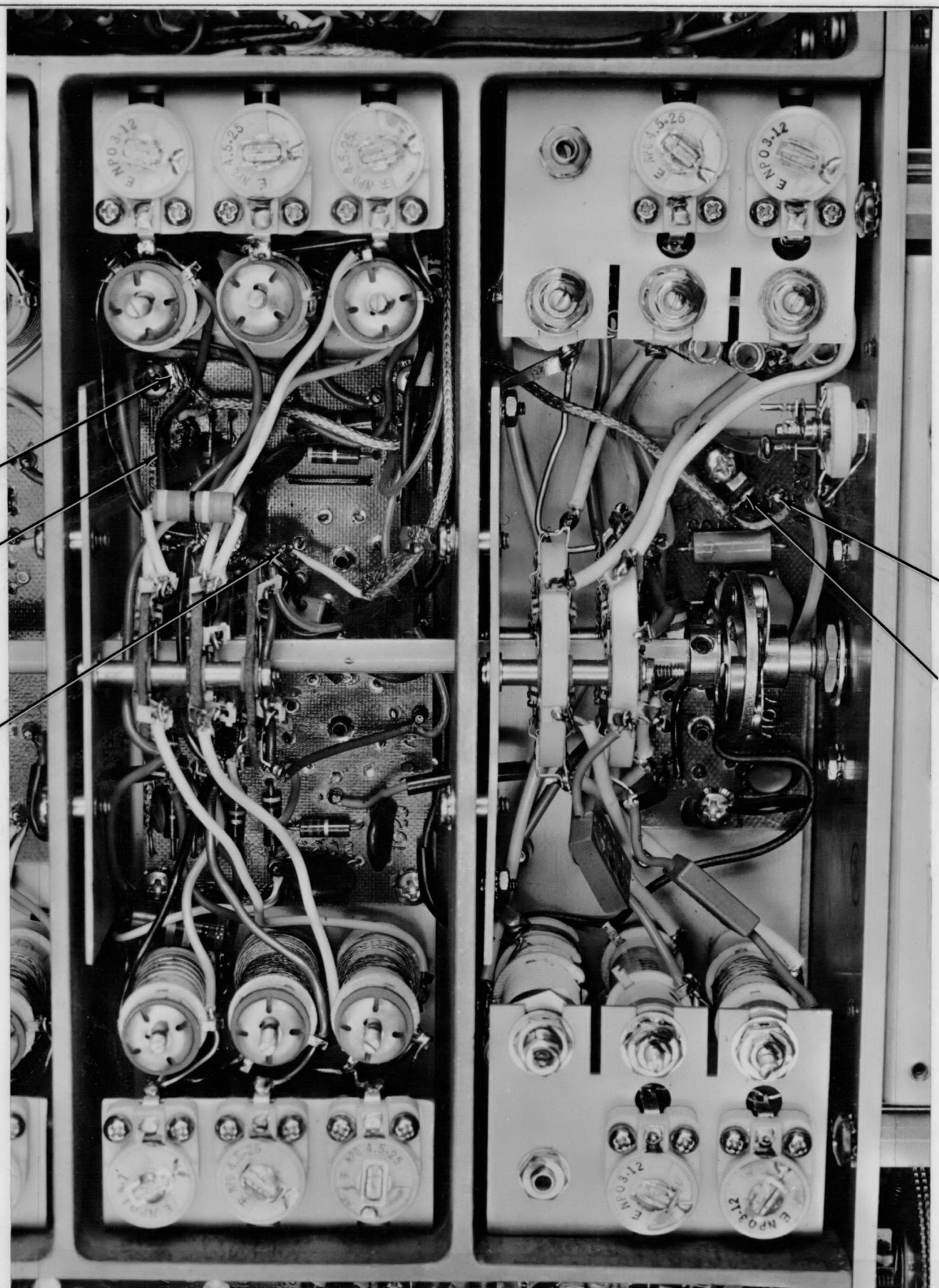
TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #1)

typed by vita




REF: MS2642-D

| TMC SPECIFICATION | | | | NO. S 1190 |
|---|---|---|---|---|
| REV: A B | | | | |
| COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | | SHEET 13 OF 19 |
| TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #2) | | | | |
| typed by vita 4/10/67 | | | | |



# TMC SPECIFICATION

NO. S 1190

REV: A B

COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 14 OF 19

TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #3)

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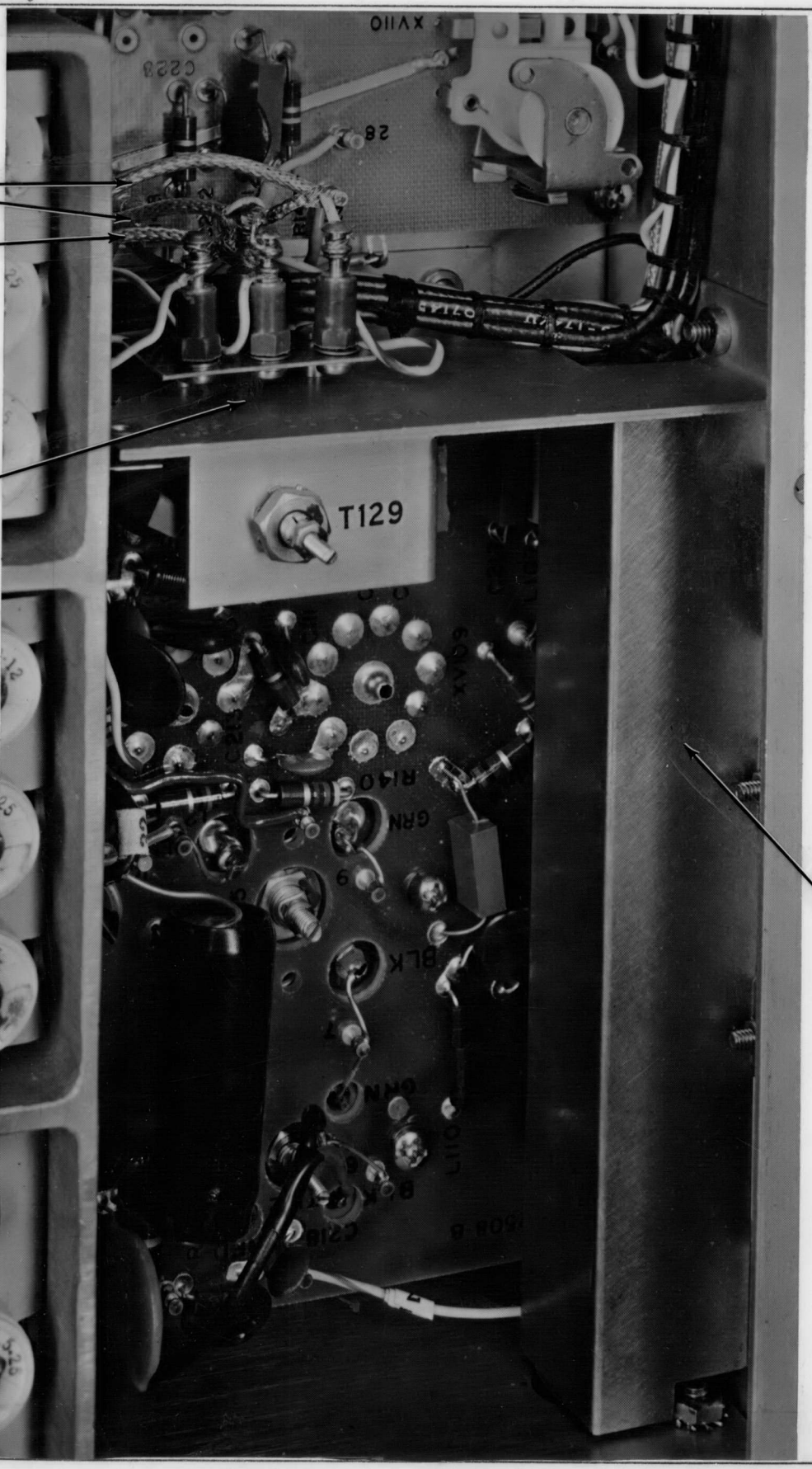


# TMC SPECIFICATION

NO. S 1190

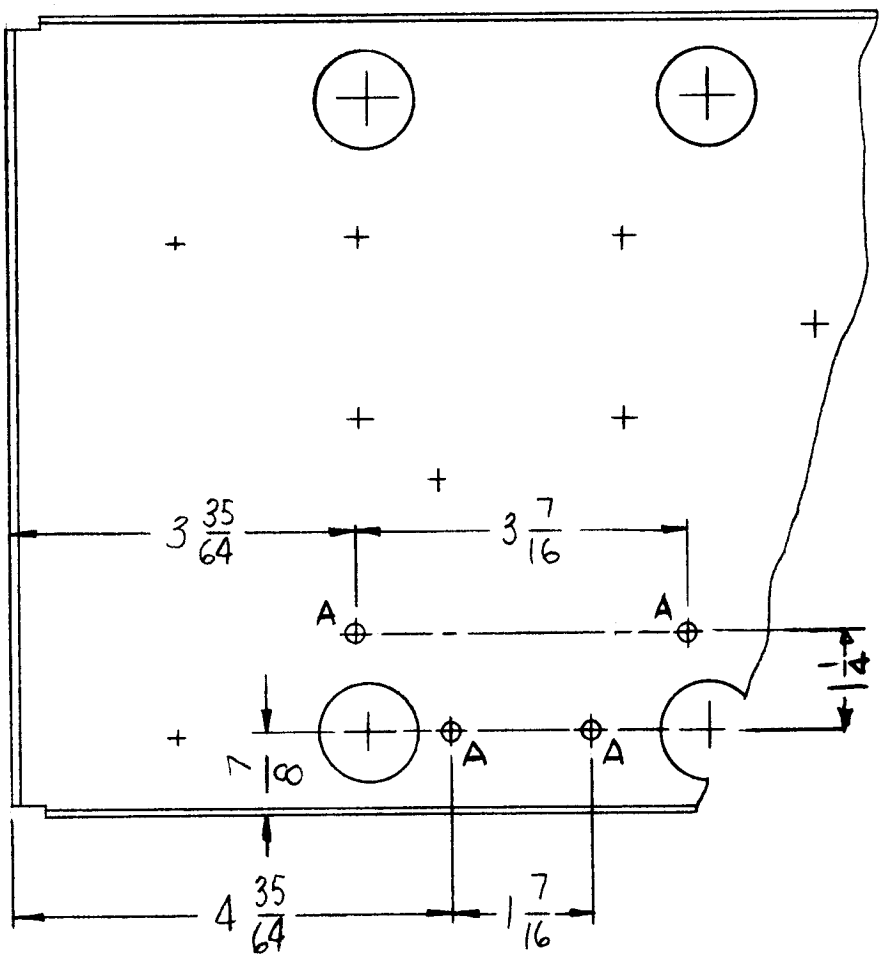
REV: A B

COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 15 OF 19

TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #4)

typed by vita

~HOLE~
A - 9/64 DIA - 4 REQ




REF: MS2968-E

# TMC SPECIFICATION

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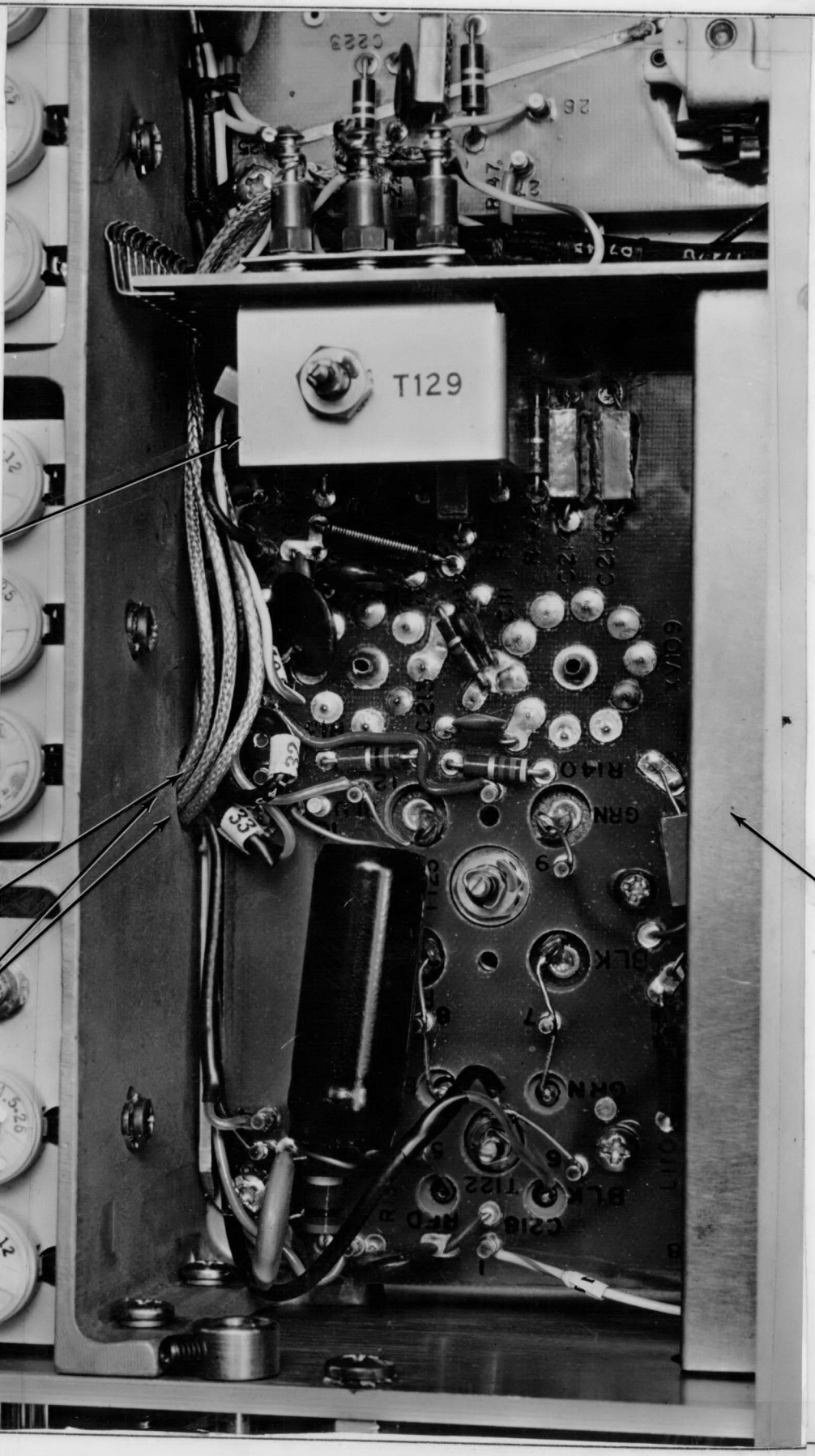
|---|---|---|---|
| REV: A B | | | NO. S 1190 |
| COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 16 OF 19 |

TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #5)

typed by vita 4/10/67



# TMC SPECIFICATION

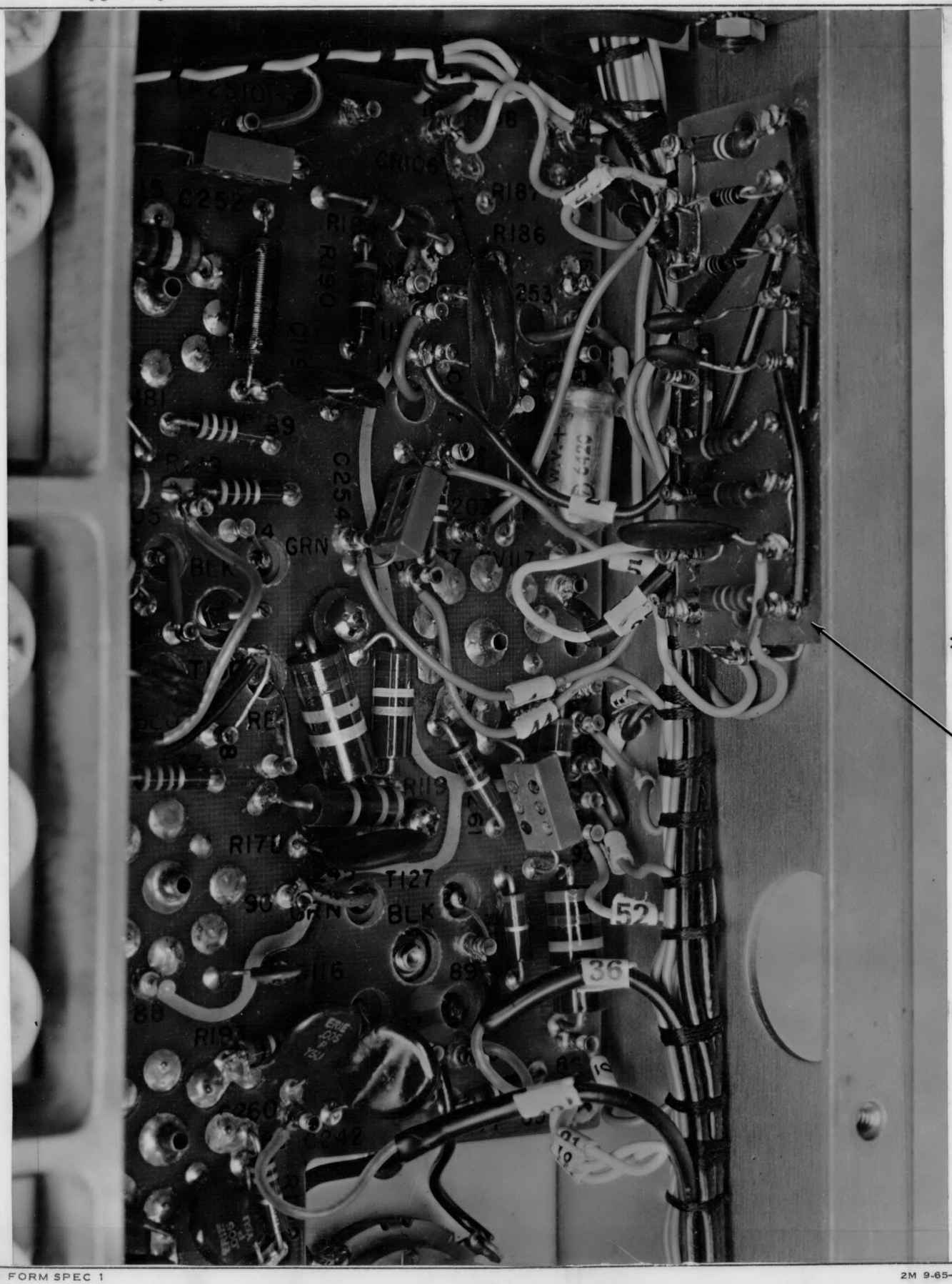
NO. S 1190

REV: A B

COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 17 OF 19

TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #6)

typed by vita 4/10/67



# TMC SPECIFICATION

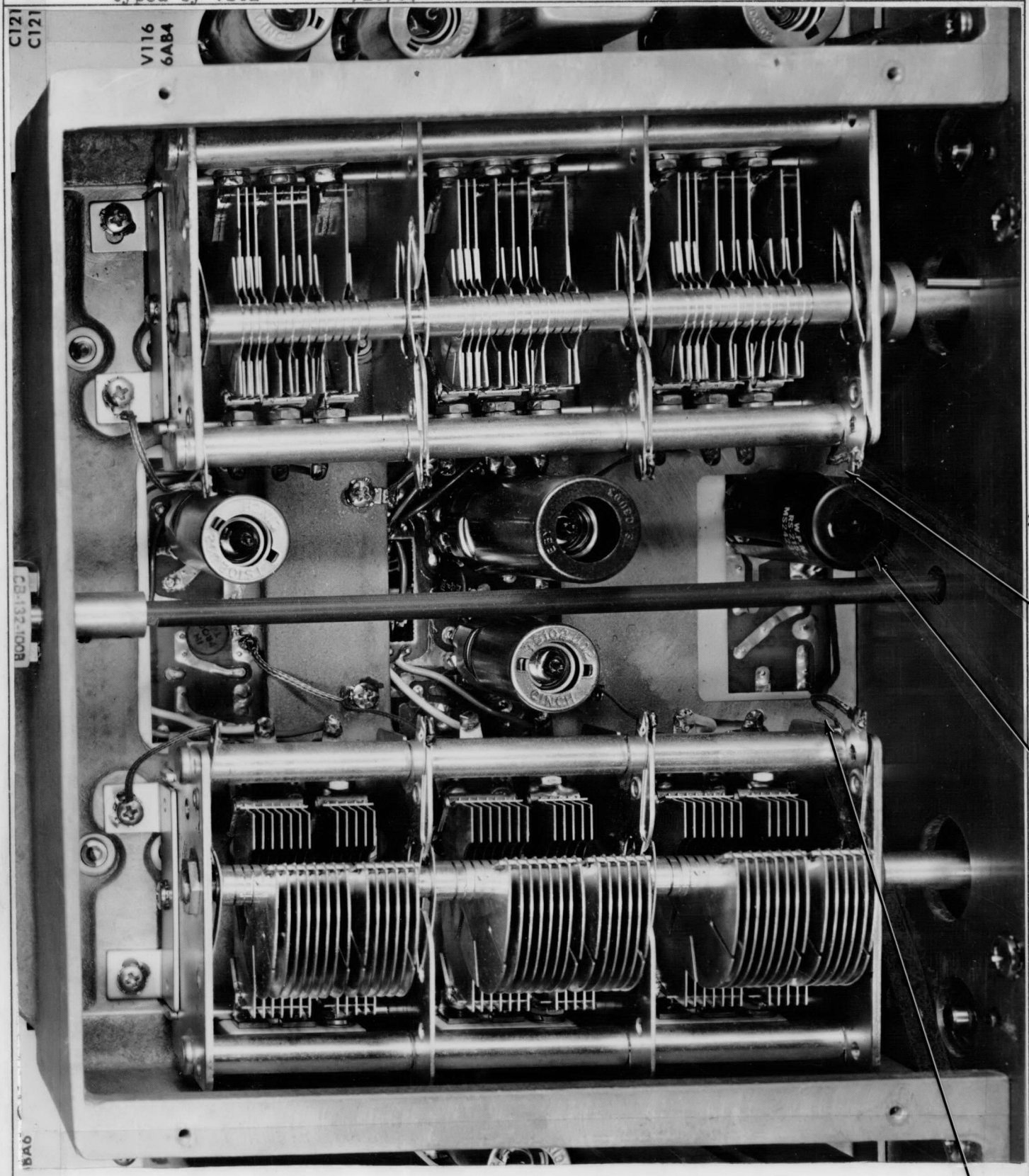
NO. S 1190

REV: A B

COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 18 OF 19

TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #7)

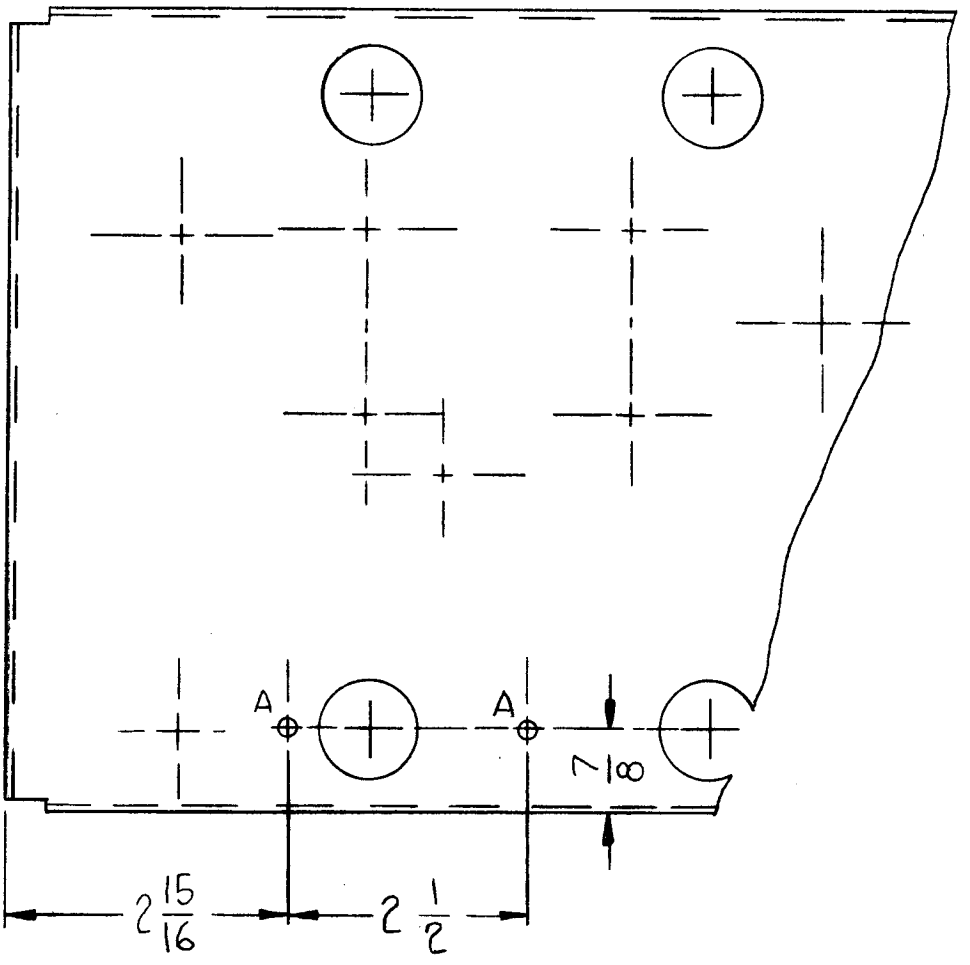
typed by vita 4/10/67



| TMC SPECIFICATION | | | NO. S 1190 |
|---|---|---|---|
| REV: A B | | | |
| COMPILED: CONSTANTINO HOFFMAN | CHECKED: | APPD: | SHEET 19 OF 19 |
| TITLE: GPR-92 IMPROVEMENT MODIFICATIONS (FIGURE #8) | | | |

typed by vita

~HOLE~
A - 9/64 DIA. (2 REQ)




REF: MS2967-E

# REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S 1190
LIST NO.

| DATE | REV. | SHEET | EMN # | DESCRIPTION | APP. |
|---|---|---|---|---|---|
| 5/17/67 | Ø | | | ORIGINAL RELEASE FOR PRODUCTION | |
| 6/20/67 | A | 9,12,15 | 18287 | Revise per EMN | |
| 4/11/68 | B | 9,2 | 18866 | Revise per EMN | |

TMC FORM MLR-1 2-65—AINS.