TMC SPECIFICATION		NO. S 1179
REV: Ø A B C		
COMPILED: D.Costantino	CHECKED:	APPD:
TITLE: GPT200K (AN/FRT-62) Improv ment Modifications.		SHEET 1 OF 9
typed 3/25/67 D.Costantino		

GPT200K (AN/FRT-62)
IMPROVEMENT MODIFICATIONS.

I. EQUIPMENT AFFECTED:

TMC Model GPT-200K (AN/FRT-62 series).

II. PURPOSE:

A. To improve the performance of High Voltage functions of Alpha and Bravo power supplies, and crowbar units.

B. To extend temperature operating range by replacement of thermostatic switches.

III. MATERIALS SUPPLIES:

ITEM NO.	DESCRIPTION
1.	
2.	20Ft. High Voltage Wire, TMC P/N WI-147-2.
3.	30Ft. Teflon Insulation Sleeving, TMC P/N, PX-370-37-7.
4.	12 each, lug terminal, TMC P/N TE-197-6-25.
5.	2 each, Resistors Wirewound, TMC P/N-RA-108-252-25.
6.	2 each, Mounting Board for Resistor change (Item 5) TMC P/N PX-947.
7.	2 each, Resistor mounting bracket (Item 5) TMC P/N MS-4616.
8.	2 each, Resistor mounting rod, TMC P/N PX-931 (Item 5).
9.	2 each, Tape, glass insulating TMC P/N TA-108-7.
10.	2 each, Teflon Sheeting rolls. 6" inches wide, about 5 feet per roll. TMC P/N PX618-1.
11.	2 each, Switches, thermostatic TMC P/N SS107.

IV. TOOLS REQUIRED: (to be furnished by installing activity)

1. Pliers, 6 inch, long nose.
2. Pliers, 6 inch, diagonal cutters.
3. Screwdriver, Philips 7 inch.
4. Soldering Iron (Medium Size).
5. Wrench, openend ½ inch.
6. Hacksaw.

7. Handrill Electric ¼ inch.

V. PROCEDURE:

1. Disconnect all power.

2. Remove High Voltage Solid State power suppli s and crowbar units from Alpha and Bravo power frames. Remove bottom front covers leading into high voltage transformers of these two units.

Op n rear doors and remove both bottom covers in rear of high voltage power transformers.

VI. Modifications to be performed in Alpha Power Supply:

1. Remove all high voltage wiring from the secondary conn ctions of the high voltage transformers (T6004, T6005, T6006).

2. Replace any high voltage wiring that indicates signs of cracking and splitting. All high voltage wiring must have teflon sleeving, prior to being replaced. (Item 3)

3. After high voltage wiring has been installed wrap teflon sheeting, cut to size around each high voltage (Item 10) transformer secondary terminal, with glass tape. (Item 9.)

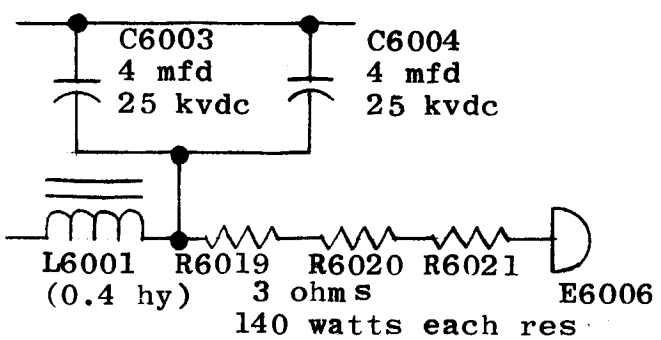
4. Remove the connection from High Voltage Capacitors going from C6003 and C6004, (4mfd 25Kvdc) to the tiepoint of choke L6001 and R6019.

5. Connect a new lead with teflon sleeving, to go from C6003/C6004 tiepoint to terminal E6006 and R6021, R6018 tiepoints.

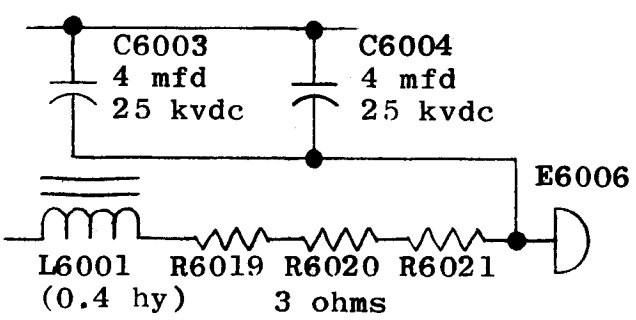
6. This now completes the wiring changes for this power supply.

7. Make pen and ink diagram changes as shown:

BEFORE MODIFICATION:



AFTER MODIFICATION:



VII. Modifications to be performed in Bravo Power Supply:

1. Follow the same instructions for modification of the Bravo power supply, as given in the instructions for Alpha Power supply changes.(Para VI.), with the exception of step 5, and step 6 which ar the same components but with different symbol numbers.

2. After following step 1 through 4 of Para VI., proceed as follows:-

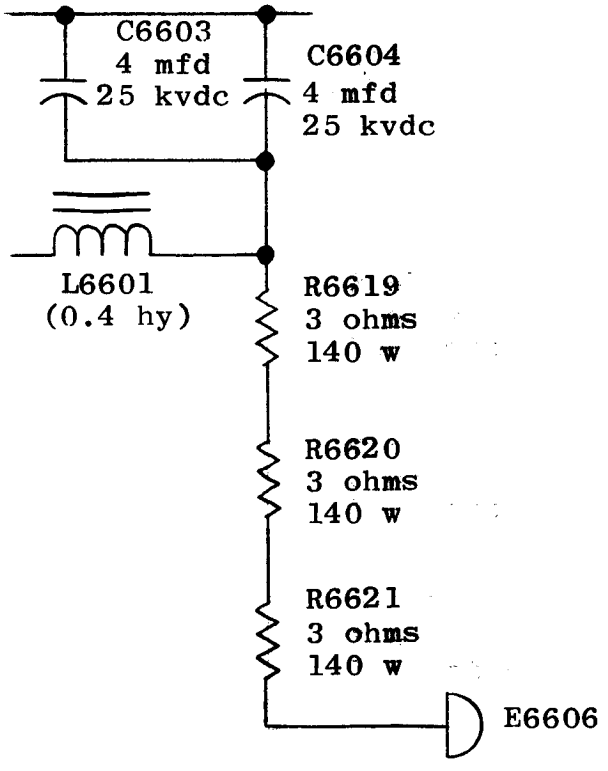
A. Remove the connection from high voltage capacitors going from C6603/C6604,(4mfd 25kvdc) to the tiepoint of choke L6601 and R6619.

B. Connect a new lead with teflon sleeving, to go from C6603/C6604 to the tiepoint of terminal E6606 and R6621,R6618.

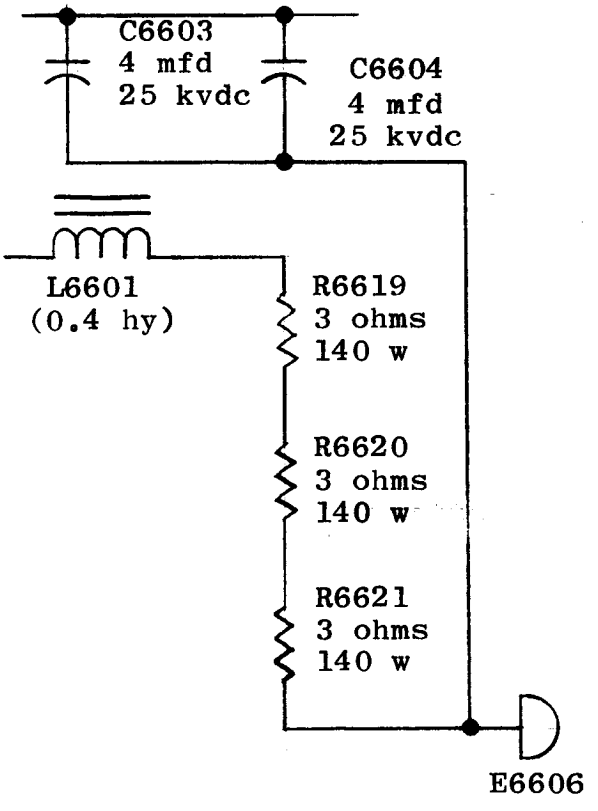
C. This now completes the wiring changes for this power supply.

D. Make pen and ink diagram changes as shown:

BEFORE MODIFICATION:



AFTER MODIFICATION:



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3/26/67 typed by D.Costantino			

VIII. MODIFICATION TO BE PERFORMED IN CROWBAR UNITS ALPHA & BRAVO:

1. Disconnect and remove crowbar units from transmitter. R move top and bottom dust covers.

2. Inspect the following terminals for "STAR" type washers, as these washers have sharppoints, and arc, they are to be remove-d if found, and replaced with split-lock or plain round washers. Ch ck the terminals of E6301,E6302,E6303,E6305,C6304,R6301,R6302,R6303.

3. Disconnect and discard the connection going from terminal E6302 to E6303.

4. Drill a 1/4" hole in the bakelite insulating board in the vicinity of E6305 and C6305 so as to be able to install a new high voltage wire (not required to be teflon sleeved insulated)to go from t rminal E6302 to the tiepoint of R6301 and E6304(Crowbar tube plat cap).

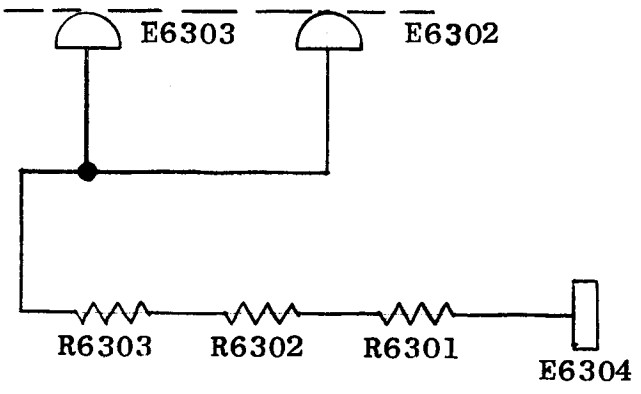
5. Remove and discard the trigger adjust potentiometer R6304. Install a 2.5k-25w resistor (Item 5) with mounting pieces furnished(It ms 6 -8) in place of the removed potentiometer.

6. Both crowbar units are to be modified in the same manner as described above in Step 1-6 of VIII.

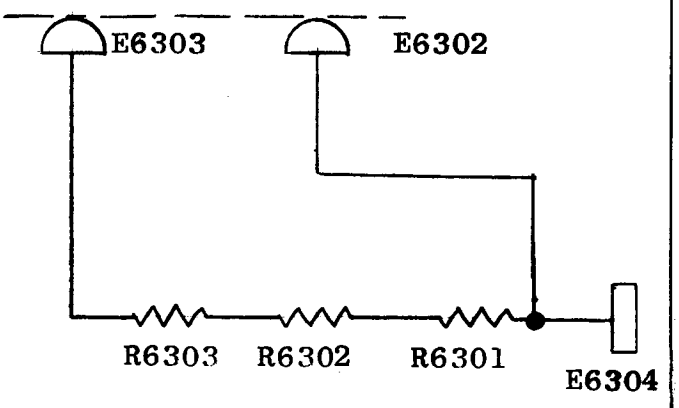
7. Check all wiring, replace dust covers, and install back into pow r supply frames.

8. The following pen and ink changes should be made to sch matics:

BEFORE:



AFTER:



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IX. MODIFICATION OF ALPHA AND BRAVO BIAS RESISTOR R5111,R5112 CONNECTING TERMINAL.

1. The objective of this modification is to change the conn ction t rminal of R5111 and R5112 so as to be connected from the present terminal which is C plus, to the terminal which is C minus to ground.

2. To locate these resistors,they will be found under the Pa final compartment, both are 20k-25w and are located in the vicinity of the R5105/R5110 Bias resistor banks. See Fig.6-1 page 6-7/6-8 of Volum IV Maintenance Instructions GPT200K (1N321) for reference schematic.

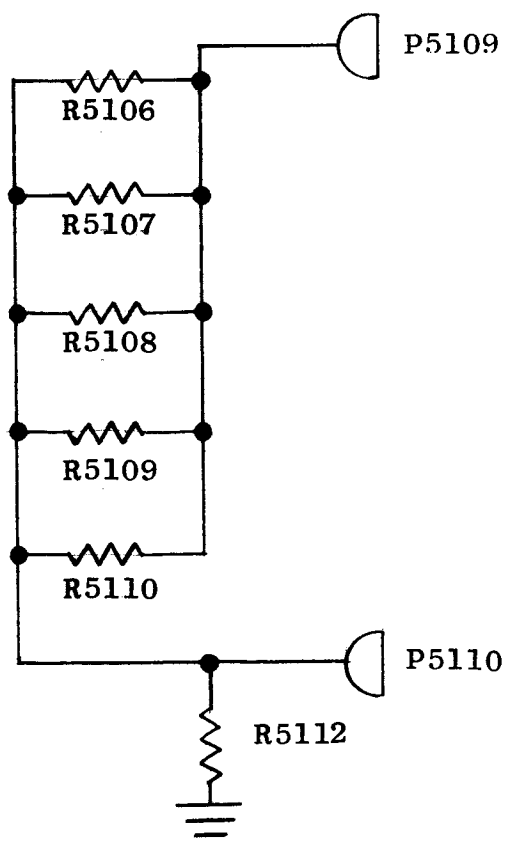
3. Upon the location of R5111, remove the connection going to R5105/P5110. Relocate this connection to R5106/P5109 tiepoints.

4. Upon the location of R5112, remove the connection goin-g to R5110/P5108. Relocate this connection to R5101/P5107 tiepoints.

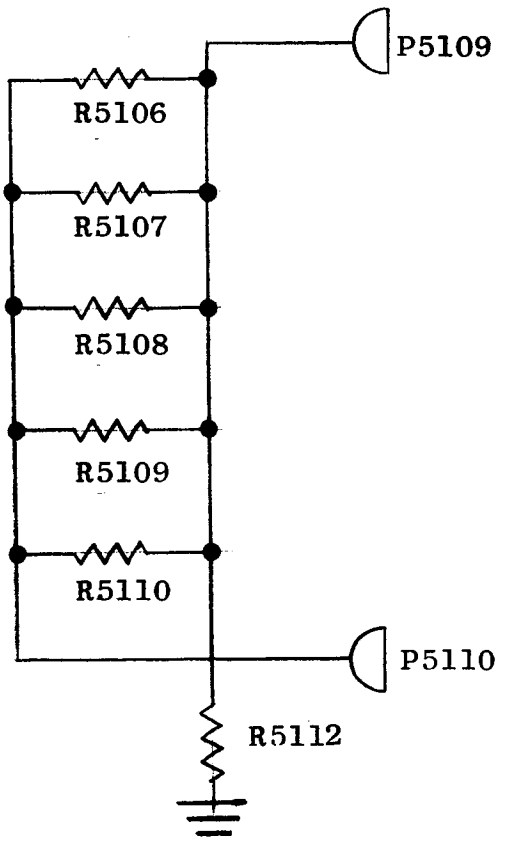
5. This completes this modification.

6. Make the following changes to schematics as shown: Substitute Symbol numbers for Alpha Bias supply schematic changes.

BEFORE: (Bravo Bias (Unit Shown only)



AFTER: (Bravo Bias Unit Shown only)



X. MODIFICATION OF HIGH VOLTAGE ENTRANCE AREA FROM ALPHA POWER SUPPLY TO PA FINAL COMPARTMENT.

1. In the rear of power supply ALPHA compartment, locate the two high voltage wires which enter through two one inch round teflon f dthru bushings, into the PA final compartment, and entering the B plus channel runs.

2. The B plus lead from Bravo power supply and Alpha power supply are connected each separately on a 2 inch long and half inch circumference porcelain insulator near the vicinity of the two teflon feedthru bushings. Tag and disconnect the high voltage leads from Bravo and Alpha pow r supplys, and tag the two high voltage leads coming from the PA final compartment which connect to the high voltage leads removed from Bravo and Alpha supplys.

3. Enter the PA final compartment and remove all covers from the B plus cable channel runs, leading up to the B plus filter box (s e fig 6-1 page 6-7/6-8/ GPT200K IV. Maintenance Manual(1N321). This should be a removal of a total of three shannel shield covers.

4. Tag and remove the two high voltage wires from the channel run inside the PA compartment. One high voltage wire may be whit and the other red in color.

5. Using the two center holes which had the teflon feedthru bushings mounted, remove these bushings and discard. Mark a square area k eping th se two holes in the center as a center line guide, and mark an area of about 3 inches by 3 inches, which is to be cut out and all dg s filed to remove burrs, cover the edges of the cut with teflon sle ving which has been slit so as to remain in place.

6. The object of the cutting out of an area of 3x3 is to p rmit the high voltage leads to enter the PA final compartment without any large amount of bending so as to reduce corona.

7. Insulate with teflon tube (Item 3.)the two high voltage cabl s that come from the B plus filter box, and runs inside the chann l to the Alpha power supply compartment through the cutout as done in st p(5).

8. Use teflon sheeting provided (Item 10),to insulate the channels and then lay the B plus Cable so as not to lay against the transmitt r frame in the channel. Use also sheeting to cover the wire prior to replacing the channel run covers.

9. Replace all covers to the B plus channel runs inside th final tank compartm nt. Connect to th prop r insulator terminals in th Alpha power supply rear compartment, the two high voltag l ads from th PA Final and th two high voltag l ads of Bravo and Alpha HV power supplies.

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X. Continued:

10. Check all wiring and connection terminals. Make certain again that the high voltage lead from power supply Bravo is connected to the l ad going to the "B" connection choke L5308 of the Plate Decoupling N twork as shown in Fig 6-1 of volume IV GPT200K Maint. Instructions. Also that the high voltage lead coming from Alpha supply is going to the "A"connection choke L5309 of the Plate Decoupling Network in th Pa final compartment.

XI. Miscellaneous:

This concludes the modification information for the GPT-200 transmitters. All work should be rechecked and schematics corr ct d. It is requested that TMC NY be notified when modification work is completed . Please address all information to "Customer Technical Service Dept"., include length of time to perform work and serial number of equipment modified.

The following information should be typed and placed within reach of operating personnel, and copies be placed in the operators 200K operating manual.

1. Caution: Always turn the EMERGENCY/TUNE/OPERATE switch S5407 inthe 200K PA frame very SLOWLY from one function point to another. If this switch is turned rapidly, it will fail to carry the DC pulse to the switching matrix networks and no action will appear.

2. Tuning of 200K PA.

When tuning the 200K transmitter on a frequency between 2 to 3 mhz range, the PA LOAD tuning control is set at ØØØ (minimum) Use only PA Tuning and PA output Loading controls to achieve proper output.

When tuning the transmitter on a frequency between 22-28 mhz range, the PA TUNE control is set at ØØØ (minimum),use the PA LOAD control for dipping and PA OUTPUT LOAD control to achieve prop r output.

All operators should be cautioned as to how to read the output KILOWATT meter correctly. A reading of 100KW is not to be exce ded wh n using two tones for testing. A reading of 120Kw is not to be exc eded when using a single tone.

When using 16 tones, the Output Kilowatt Meter will indicate about 27 kw for the proper output for 200KW PEP. This is due to not all ton s ar equal in amplitude and unless precision test tone equipment is used, th formula for determining power output in SSB will not hold strictly tru .

Using th Spectrum Analyzer AN/GRM-33 for s tting up of carri r and lev ls is very instrumental in the proper output p rformanc of the AN/FRT-62 transmitter.

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XII.

Replacement of 200K PA Final Tube Compartment Thermostatic Switches, Symbols S-5005,S-5006, TMC P/N -SS107. This is being done in order to increase the temperature rang of operating functions of this transmitter.

1. Open front and rear PA final Tube compartment doors and shields.

2. Locate two thermostatic switches (Symbols S-5005,S-5006), which are installed approximately over the vicinity of the top of each PA FINAL TUBE V500K, V5002. Unsolder and remov .

3. Install the new furnished thermostatic switches(ITEM 11.) in the place of the removed lower temperature switch s.

4. Correct instruction book parts list to read for description of S-5005,S-5006 as.....Closes at 294 deg F., plus or minus 6 deg F, Opens at 220 deg F., plus or minus 6 deg F.

5. This completes the thermostatic switch change, check all wiring and work. Removed thermostats are to be discarded.

REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK • NEW YORK

S 1179
LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
3/29/67	Ø			ORIGINAL RELEASE FOR PRODUCTION	
4/11/67	A	2	18102	Revised per EMN.	
6/1/67	B	2,3	18261	Revised per EMN.	
11/27/67	C	2	18641	REVISED PER EMN.	