

TMC SPECIFICATION

NO. S-1107

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APPD: *AMM*

SHEET 1 OF 13

TITLE: GPT-10K to GPT-40K MODIFICATION KIT
KIT-106

I. EQUIPMENT AFFECTED

AN/FRT-39() transmitting set, radio, serial No's. 197
and up.

II. PURPOSE

Modification Kit to convert existing GPT-10K's to accept
a 40 kilowatt (PEP) linear radio frequency amplifier.
Kit will include all the necessary parts & instructions.
Kit 106 covers GPT-10K (AN/FRT-39B and later), serial
numbers from 197 and up.

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III. MATERIALS SUPPLIED IN KIT

- 1a. One each, TMC No. A2064, load and switch assembly. One each Bag, (contains hardware to mount A2064) consisting of:
- 1b. Four each, TMC No. NTH2520BN14. Nut, Hex.
- 1c. Four each, TMC No. LWS25MRN. Lockwasher, Split.
- 2a. One each, TMC No. MS 2338. Plate Bowl, Hole Cover. One each Bag, (contains hardware to mount MS 2338) consisting of:
- 2b. Twelve each, TMC No. SCBP0832BN8. Screw, Machine.
- 2c. Twelve each, TMC No. LWEO8MRN. Lockwasher, External.
- 2d. Twelve each, TMC No. NTH0832BN10. Nut, Machine.
- 3a. One each, TMC No. MS 2315. Bracket Emergency Output.
- 3b. One each, TMC No. JJ 177. RF Connector, Female. One each Bag, (contains hardware to mount MS 2315 and JJ 177) consisting of:
- 3c. Six each, TMC No. SCBP1032BN8. Screw, Machine.
- 3d. Eight each, TMC No. LWE10MRN. Lockwasher, External.
- 3e. Eight each, TMC No. NTH1032BN12. Nut, Machine.
- 3f. Two each, TMC No. SCFP1032BN8. Screw, Machine, Flathead.
- 4a. Two each, TMC No. SW 230. Switch, Interlock. One each Bag, (contains hardware to mount SW 230) consisting of:
- 4b. Four each, TMC No. SC 131-0632BN5, Screw, Undercut Flathead.
- 5a. One each, TMC No. AC 108. Counter, Mode, one each Bag, (contains hardware to mount AC 108).
- 5b. One each, TMC No. GR 116, Gear, Bevel.
- 5c. Two each, TMC No. SLHC0832SN3 Setscrew for GR 116.
- 6a. One each, TMC No. A 3427 Switch, Detent Assembly. One each Bag, (contains hardware to mount A 3427) consisting of:
- 6b. Two each, TMC No. SCBP1032BN8, Screw, Machine.
- 6c. Two each, TMC No. LWE10MRN, Lockwasher, External.
- 6d. Two each, TMC No. NTH1032BN12, Nut, Machine.

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- 7a. One each, TMC No. PM 657, Shaft, Horizontal Drive.
- 7b. One each, TMC No. PM 639, Shaft, Vertical Drive. One each bag, (contains Hardware and parts to make A 3427 operational) consisting of:
- 7c. One each, TMC No. PM 658, Coupling, Shaft.
- 7d. Two each, TMC No. SLHC1032SN4, Screw, Allen.
- 7e. One each, TMC No. GR 145, Gear, Bevel 3/8 I.D.
- 7f. One each, TMC No. GR 155, Gear, Bevel 1/2 I.D.
- 7g. Four each, TMC No. SLHC0832SN4, Screw, Allen.
- 7h. One each, TMC No. KY 102-2-0.75SS, Key, 1/8 by 1/8.
- 7i. Five each, TMC No. BB 106-3, Washer, Bearing.
- 8a. One each, TMC No. CA 532, Cable, Interconnect. One each bag, (contains hardware and parts to mount CA 532) consisting of:
- 8b. Three each, TMC No. CU 102-3, Clamp, Plastic.
- 8c. Three each, TMC No. SCFP0632BN8, Screw, Flathead Machine.
- 8d. Three each, TMC No. LWE06MRN, Lockwasher, External.
- 8e. Three each, TMC No. NTH0632BN8, Nut, Machine.
- 8f. Seven (feet), TMC No. CD 101-1 MW, Cord, Lacing.
- 9a. One each, TMC No. MS 2535, Strap, 40K R.F. Input.
- 9b. One each, TMC No. NTH2520BN14, used to mount MS 2535 to unit.
- 9c. One each, TMC No. LWS25MRN, used to mount MS 2535 to unit.

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IV. TOOLS REQUIRED

A. To be provided by installing activity.

1. Pliers, 6 inch long nose.
2. Pliers, 6 inch diagonal cutter.
3. Screwdriver, 5 inch.
4. Allen Wrench, 6-32.
5. Allen Wrench, 8-32.
6. Allen Wrench, 10-32.
7. Wrench open end, 3/8 - 7/16.
8. Wrench, crescent, 10 inch.
9. Wrench, socket, 7/16.
10. Wrenches, socket, 5/8.
11. Soldering Iron, 75 watt.

V. PROCEDURES

Kit is assembled in four procedures.

1. Procedure #1.
Preliminary dis-assembly of GPT 10K in field.
2. Procedure #2.
Final Electro-Mechanical dis-assembly.
3. Procedure #3.
Preparation of field GPT 10K to accept modification.
4. Procedure #4.
Final re-assembly.

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VI. DOCUMENTS SUPPLIED

AX 227	Cabinet Enclosures and Accessories
IN 1060	Assembly Instructions
IN 1098	Assembly Instructions
ID 299	10K Modification
ID 248	Cable Installation
ID 244	Drilling Modification
ID 358	Drilling Modification
A 3427	Detent Switch Assembly
A 2064	Switch and Load Assembly

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PROCEDURE NUMBER ONE

REFERENCES

AX 227
(IN-1060) assembly instructions
Drawing Model GPT 10K (unconverted)

IN 1098 assembly instructions
Drawing Model GPT 10K (converted)

1. Remove AC power from unit.
2. Remove relay panel, front window, driver drawer and HVR drawer from main frame and place aside for later use.
3. Referring to AX 227, remove the following:
 - A. MS 2118, (Door Front Main Frame)
 - B. MS 1647, (Door Rear Main Frame)
 - C. MS 2116, (Panel Right Side Main Frame)

Referring to IN 1098:

- D. MS 1830, shield outer, right side main frame - save.
- E. MS 1592, shield, inner, right side main frame - save.
- F. Remove connecting leads for BI 106 (HV on light) from terminal strip, E3003 mounted under the top of auxiliary frame behind meter panel. Now TS 138 can be removed with next step and save for later use.
- G. MS 1699, panel, top, remove & save.
- H. MS 1648, door, rear, auxiliary frame, do not disturb.
- I. MS 1594, shield rear main frame, remove & save.
- J. MS 1605, bracket, connector, unbal. output - discard.
- K. MS 1633, trim, front, right side main frame, - discard.
(replaced by MS 2026).

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PROCEDURE NUMBER TWO Reference Figure 2

1. Referring to figure 2 remove MS 1544, main control panel R.F. shield and place aside for later use.
2. Referring to figure 2 remove connections from C927 PA tune capacitor, remove capacitor for later use.
3. Referring to figure 2 remove connections from C916, output balance capacitor, remove capacitor for later use.
4. Referring to figure 2 remove connections from C928, PA load capacitor, remove capacitor for later use.
5. Referring to figure 2 remove connections from C1019 and C1020.
6. Referring to figure 2, for dis-assembly of antenna tuner, remove MS 1538 bracket, support, right angle drive and leave in place for later use.
7. Referring to figure 2 remove MS 1537, bracket support, right angle drive and discard.
8. Referring to figure 2 remove PM 547, vertical drive shaft antenna tuner (discard).
9. Remove output load knob on main control panel and save. Now referring to figure 2 remove PM 549 and discard.
10. Remove output load counter, discard counter but retain mounting hardware.
11. Remove all external connections from antenna tuner.
12. Located on top of GPT 10K main frame is four 1/4-20 bolts that hold antenna tuner in place, antenna tuner must be held in place while removing the 1/4-20 bolts, then the antenna tuner assembly can be removed to be replaced later by a switch and load assembly, A 2064.
13. Remove both bowl assemblies to be replaced later by blank cover, MS 2338.

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PROCEDURE NUMBER THREE

NOTE: Disregard the following steps if items concerned already conform.

1. Bracket and Interlocks.

REFERENCE ID 358

- A. On MS 1548 Drill A and B holes to accept emergency output bracket.
- B. On MS 1547 Drill C and D holes.
- C. On Detail K and L Drill holes to accept the front and rear Interlocks Switches.

2. Shield Modifications

REFERENCE ID 244 Sheet 1

- D. On MS 1830 and MS 1592 disregard D holes if items already conform.

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PROCEDURE NUMBER FOUR

REFERENCES ID 248 - Cable Installation
ID 299 - Modification Assembly

1. Remove MS 2338 (cover, bowl hole) from crate and mount using hardware in appropriately marked bag.
2. Mount A 2064, load and switch assembly in same four holes vacated by antenna tuner. Mounting hardware in appropriately marked bag.
3. Mount JJ 177, RF connector to bracket MS 2315 and then mount bracket to MS 1548 using hardware in appropriately marked bag.
4. Mount the two interlock switches SW 230 located with hardware in appropriately marked bag.
5. Mount GR 116 on to AC 108, mode counter. Mount counter in place vacated by output load counter. Use same hardware in the removal of old counter to mount AC 108.
6. Referring to ID 248, mount CA 532, lacing to existing cable with CD 101-3 furnished by kit. Clamp down cable extending to rear interlock using the three (3) CU 102-3 (cable clamps).
7. Mount A 3427, detent switch assembly using hardware in appropriately marked bag. Mount output loading knob on PM 691 extending thru front panel. Set AC 108 to tune position and WS 131 to tune position and mesh the two GR 116. Referring to Ws 131 wiring detail wire CA 532 to WS 131 using rosin core solder.
8. Mount PM 658 to PM 691. Connect PM 657 to PM 658, slide GR 145, (teeth facing toward the front) onto PM 657 behind GR 145 slide on five (5) BB 106-3 and leave loose. Insert PM 639 thru BB 121 mounted on MS 1538, place gear, GR 145 on PM 639 and insert key, KY 102-2-0.75SS and lock with set screws in GR 145.
9. Referring to ID 299 place wiper of mode switch to tune. The vertical drive shaft PM 639 keyway should align with the mode switch shaft keyway, insert item 7H in case #1, KY 102-2-0.75SS and slide coupling, PM 638 down and tighten setscrews. Now tighten down MS 1538 as original, mesh gears GR 145 and GR 155 and tighten. Check work and tighten all loose hardware. By turning output loading knob from tune to oper and then to emergency, both the double wafer WS 131 and the large mode switch must correspond to Mode Counter AC 108 indication.

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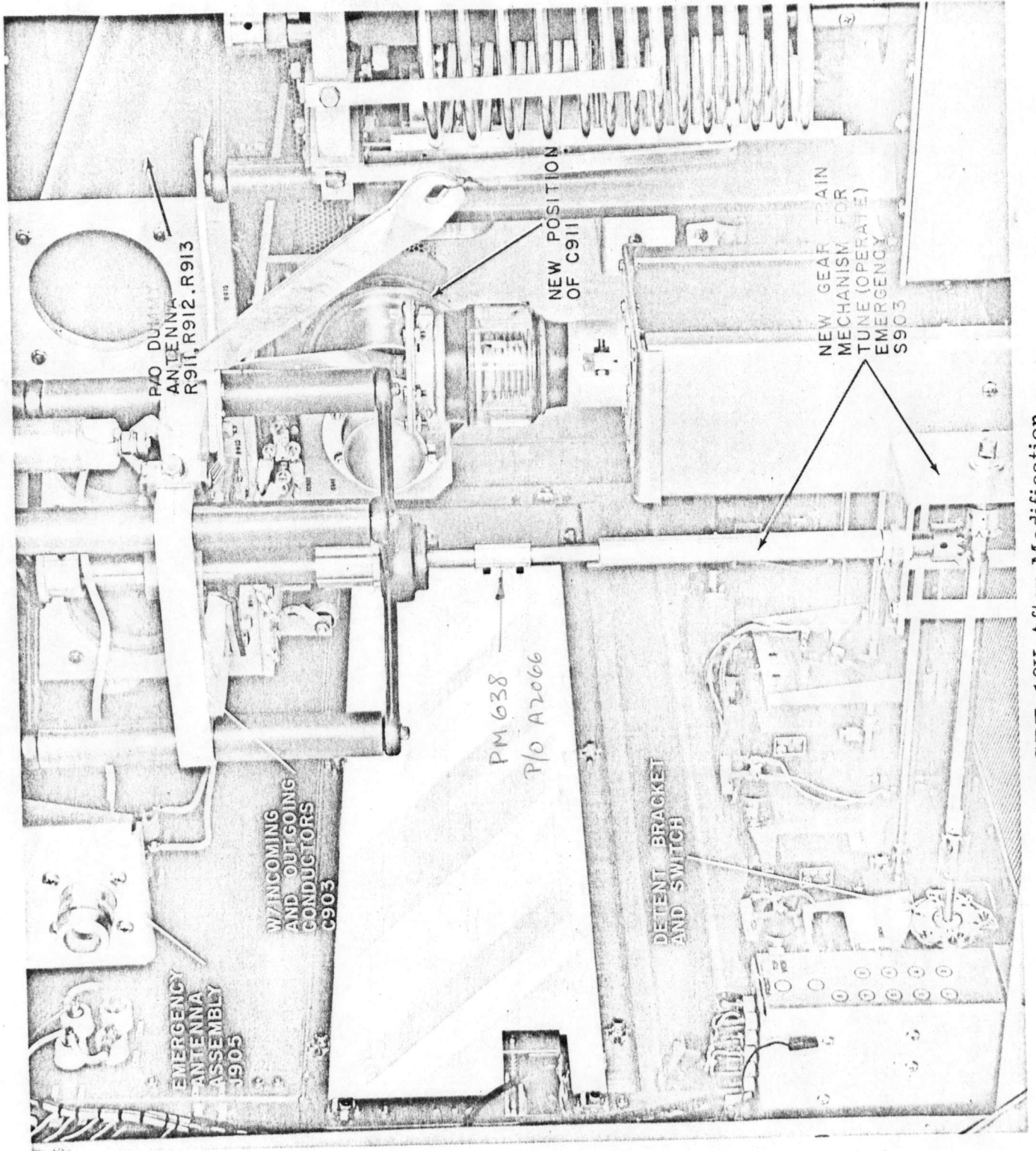
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PROCEDURE NUMBER FOUR CONTINUED

10. Referring to ID 248, connect the two red leads on the rear interlock to common and normally open. On the front interlock connect the red leads to the common and the normally open.
11. Referring to ID 248, connect the Blue and Black/White wire marked 220 VAC to the 0-220 VAC primary position on T800, High Voltage Transformer.
12. Remove the bottom connections on the high voltage on and off switch, replace with White/Violet wire with lug. Remove lug from wires previously taken away from switch, connect the White/Yellow to them and insulate with tape.
13. Remove PA monitor from bottom of 4CX5000 tube compartment and connect IPA monitor cable to its place. Now referring to ID 248 connect RG 174 terminated with JJ 172, RF connector to the PA monitor cable. Now the PA monitor, monitors the 40KW amplifier and the IPA monitors the 10KW amplifier; the driver is no longer monitored.
14. Replace PA tune, C927 and connect as usual. Replace PA load C928, connect as usual, then connect lead from C949 to top with lead from band switch. Replace output balance, C916 and connect lead from operate position of mode switch to the top of C916.

Connect lead from emergency position of mode switch to JJ 177 Emergency output connector.

Connect leads from L916 and L917 to C1019 and C1020 back of meter panel.
15. Connect item 9 MS2535 40K RF input strap to the operate position of SW5903.
16. Replace inner and outer shield to the 10K (ref. ID 244).
17. After all electrical and mechanical items are replaced or installed it would be advisable to check the operation of all control circuits before the completion, that is, mounting of doors, trims and panels.



GPT-10K After Modification
Figure

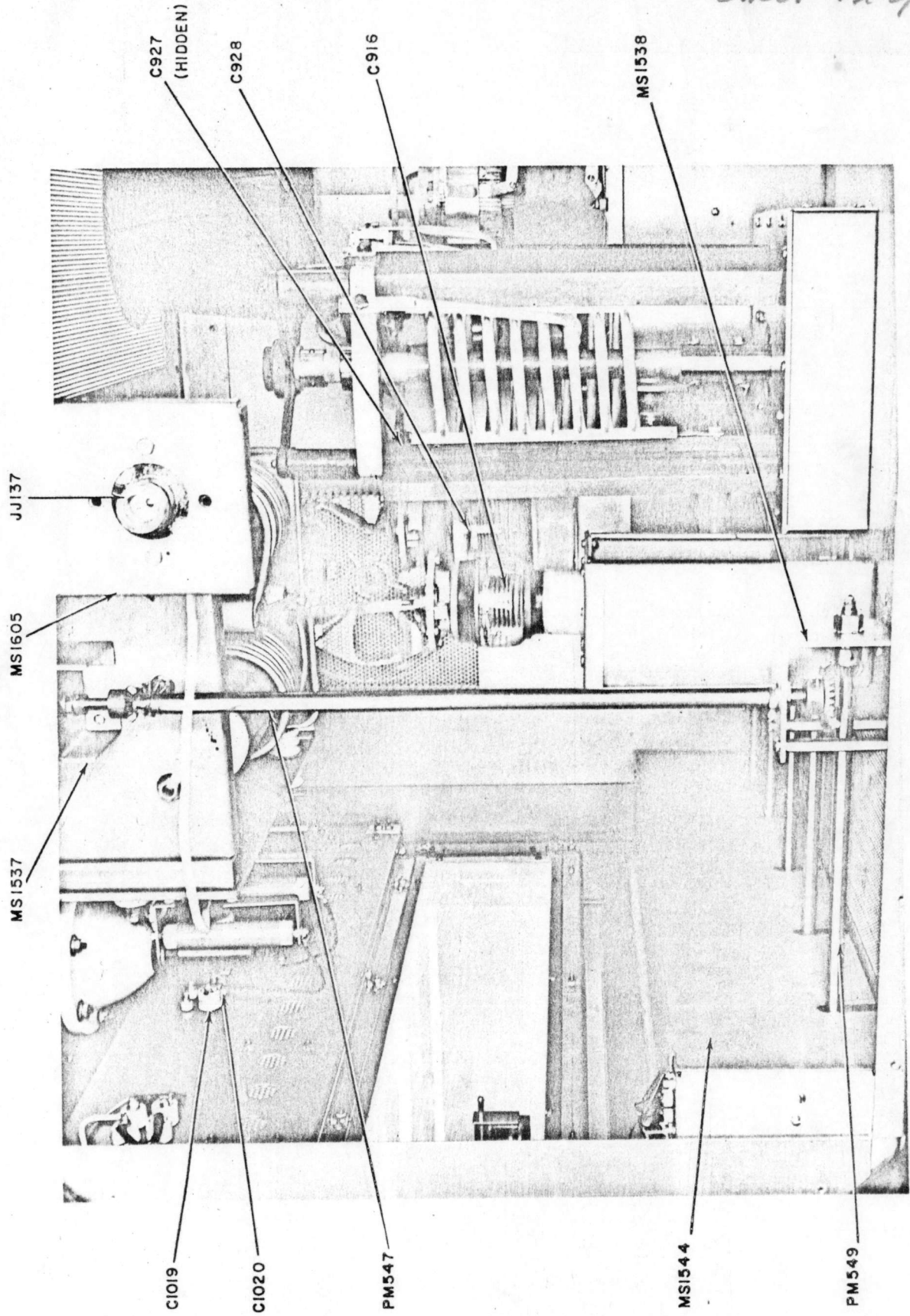


Figure 2. GPT-10K Before Modification

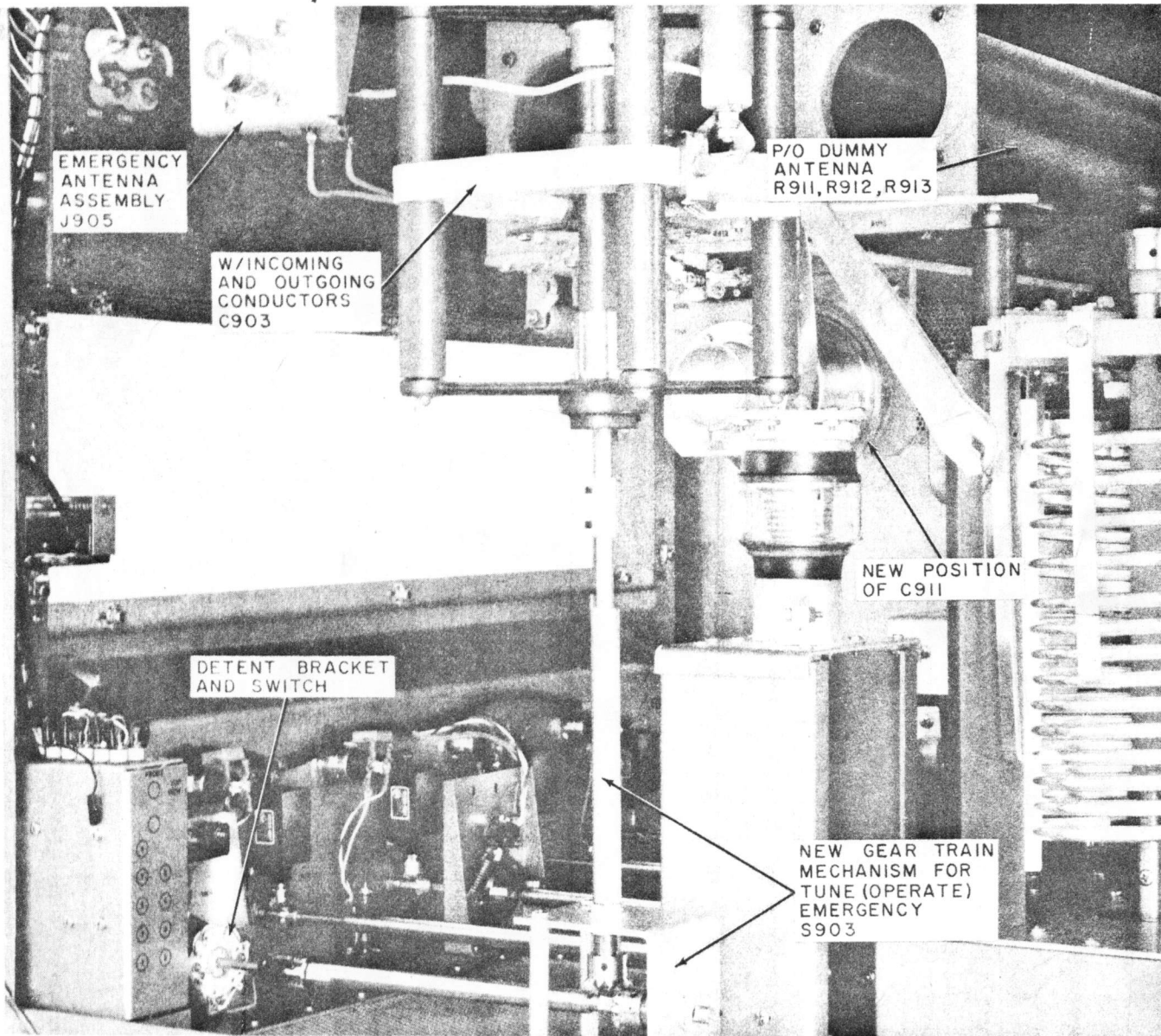


Figure 3-1-12. Modified GPT-10K's PA Compartment with Callouts on Changed Components, 45-Degree Angle Side View

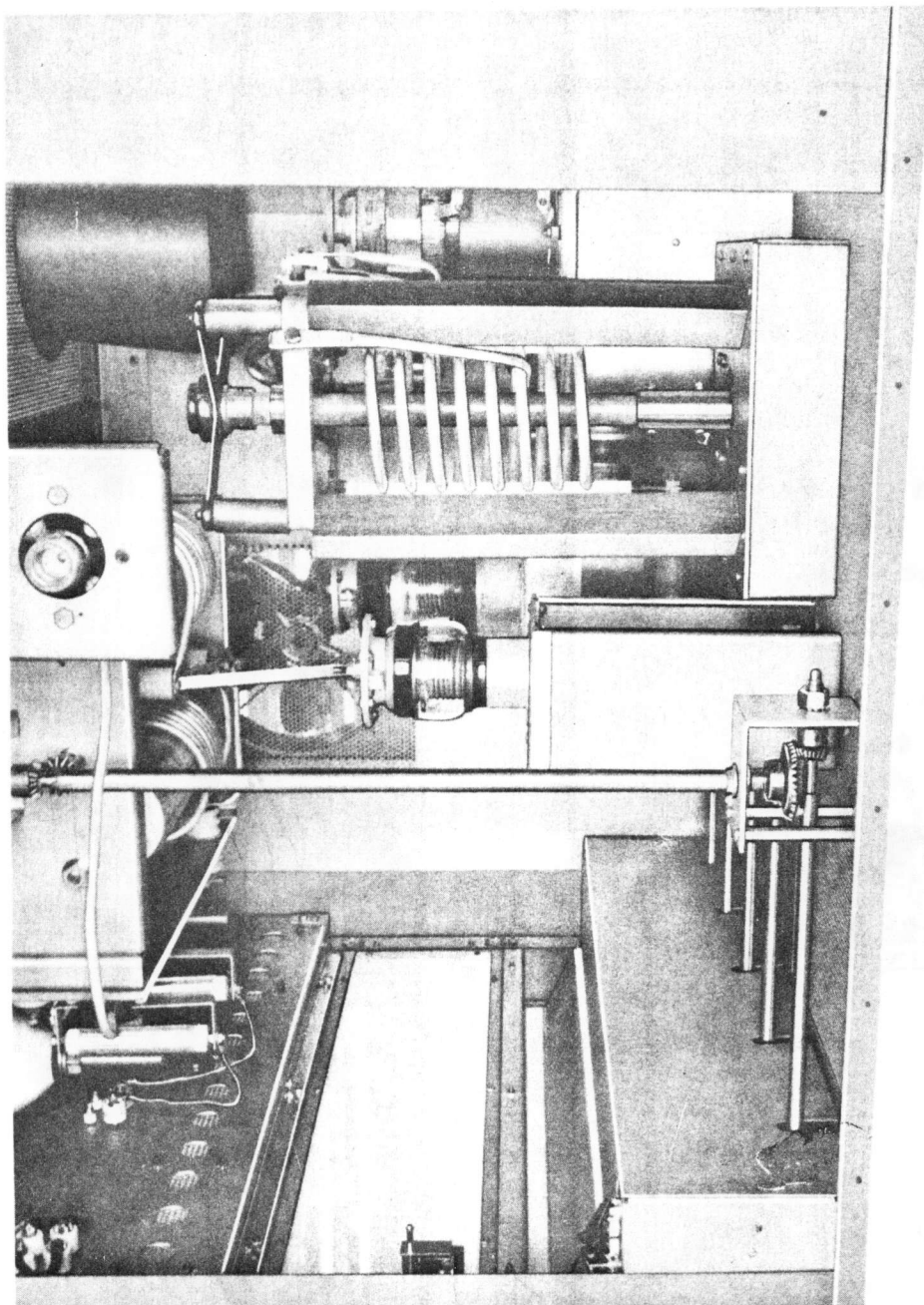


Figure 1-11-b. Side View, PA

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FOREWORD

Specification 596 has been replaced and superseded by Specification 1107.

