MULTI-PRODUCTS COMPANY

Manufacturer of

MULTI-ELMAC

RADIO COMMUNICATIONS

AND CONTROL EQUIPMENT

21470 COOLIDGE HIGHWAY OAK PARK 37, MICH.

FORM NO. M-106

INSTRUCTION BOOK

and

OPERATING MANUAL

Amateur Receiver

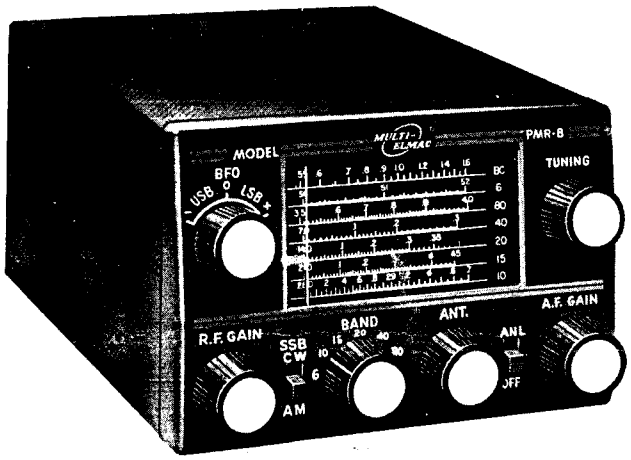
MODEL PMR-8

MULTI-® ELMAC

MULTI-PRODUCTS COMPANY
OAK PARK 37, MICHIGAN

SERIAL NO. 11045

MULTI-PRODUCTS COMPANY



MULTI-ELMAC

RADIO COMMUNICATIONS

AND CONTROL EQUIPMENT

PMR-8 SPECIFICATIONS

SENSITIVITY:

.5 microvolt or better on the high-frequency bands and 2 microvolts or better on the broadcast band for a 10 DB signal to noise ratio.

SELECTIVITY:

6 DB down at ± 3 Kc.
60 DB down at ± 15 Kc.

AUDIO OUTPUT:"

Less than 10% distortion at 1 watt output.

NOISE LIMITER:

Automatic series gate type.

21470 COOLIDGE HIGHWAY **OAK PARK 37, MICH.**

FORM NO. DM-165

Adjust the 20 Meter oscillator coil until the signal is tuned in properly.

Adjust the 20 Meter Antenna and Converter coils for maximum output.

Check the tracking at 14.0 and 14.4 Mc. Correct any error in tracking using trimmer C33-A and the 20 meter oscillator coil adjustment slug. NOTE: The oscillator is on the high side of the signal.

40 METER BAND (7.0 to 7.3 Mc.)

Set the Antenna trimmer in the middle of its range.

Set the Bandswitch on the 40 METER BAND.

Set the receiver Dial and the signal generator to 7.15 Mc.

Adjust the 40 Meter oscillator coil until the signal is tuned in properly.

Adjust the 40 Meter Antenna and Convertor coils for maximum output.

Check the tracking at 7.0 and 7.3 Mc. Correct any error in tracking by using trimmer C33-C and the 40 meter oscillator coil adjustment slug. NOTE: The oscillator is on the high side of the signal.

80 METER BAND (3.5 to 4.0 Mc.)

Set the Antenna trimmer to where the plates are about one quarter meshed. The antenna coil will not track at any other setting.

Set the Bandswitch on the 80 METER BAND.

Set the receiver Dial and the signal generator to 3.75 Mc.

Adjust the 80 Meter oscillator coil until the signal is tuned in properly.

Adjust the 80 Meter Antenna and Converter coils for maximum output.

Check the tracking at 3.5 and 4.0 Mc. Correct any error in tracking by using trimmer C33-E and the 80 meter oscillator coil adjustment slug. NOTE: The oscillator is on the high side of the signal.

BROADCAST BAND (.54 to 1.6 Mc)

Set the Antenna trimmer to where the plates are 90% meshed.

Set the Bandswitch on the BROADCAST BAND.

Set the receiver Dial and the signal generator to 600 kc.

Adjust the broadcast oscillator coil until the signal is tuned in properly.

Adjust the broadcast converter coil for maximum output.

Set the Antenna trimmer to where the plates are 10% meshed.

Set the receiver Dial and signal generator to 1600 kc.

Adjust the broadcast Antenna coil and condenser C20 for maximum output.

Check the tracking at 600 and 1600 kc. Correct any error in tracking by using trimmer C33-G and the broadcast oscillator coil slug. NOTE: The oscillator is on the high side of the signal on this band and the oscillator frequency is relatively high due to the high first intermediate frequency. The broadcast oscillator tunes from 2.778 to 3.838 Mc.

3.7 "S" METER ADJUSTMENT. Remove antenna and short input jack with a piece of bare wire. Adjust potentiometer R-1 until the "S" meter reads zero under this zero signal condition. The "S" meter should read zero when the receiver is turned off. If not, adjust to zero with panel screw adjustment on the meter. If it becomes necessary to replace the second I.F. amplifier tube, a careful selection of tubes must be made since changes in the electrical characteristics of the tube will change the sensitivity of the "S" meter.

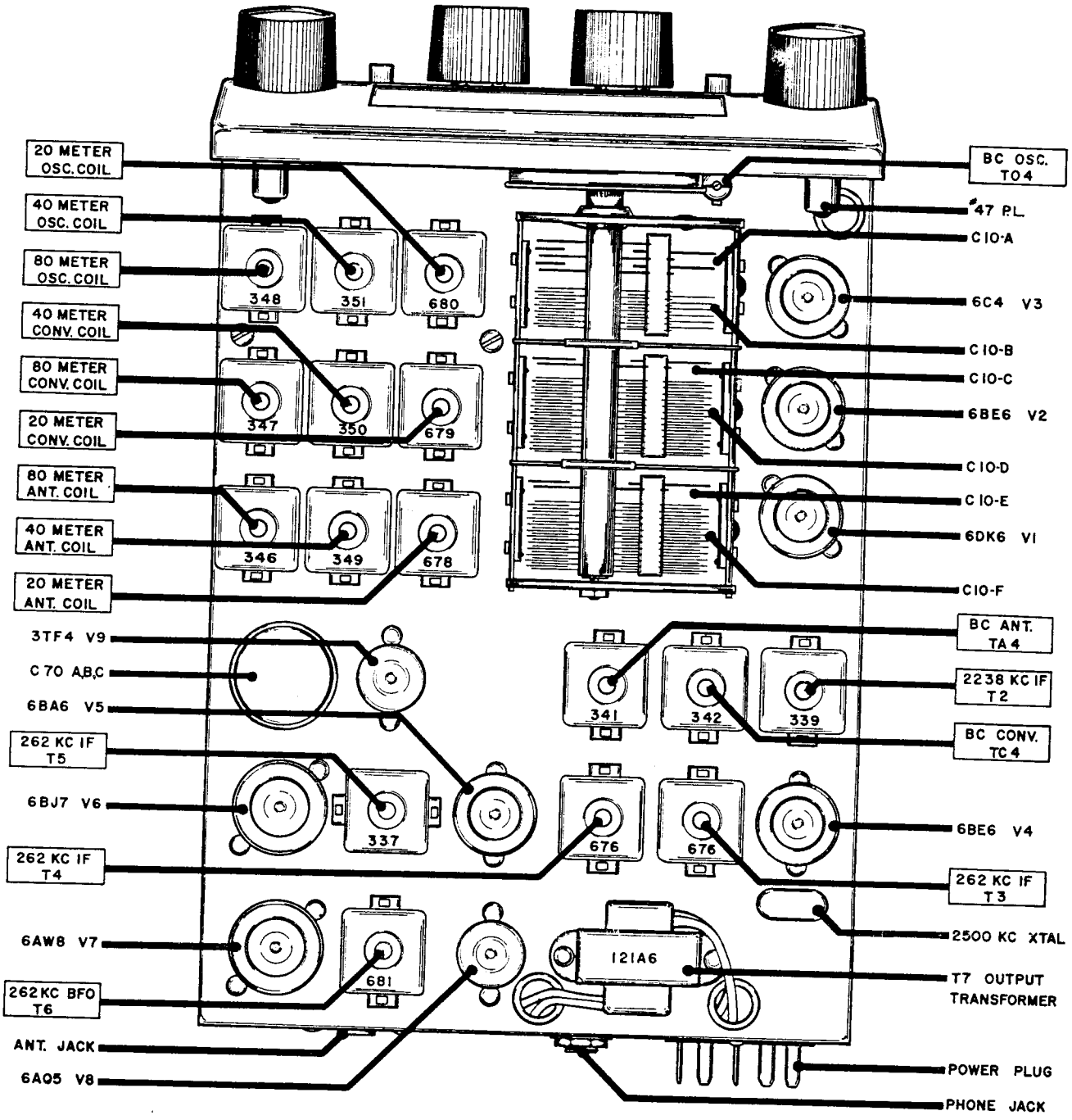


FIGURE 3 PMR-8 TOP VIEW

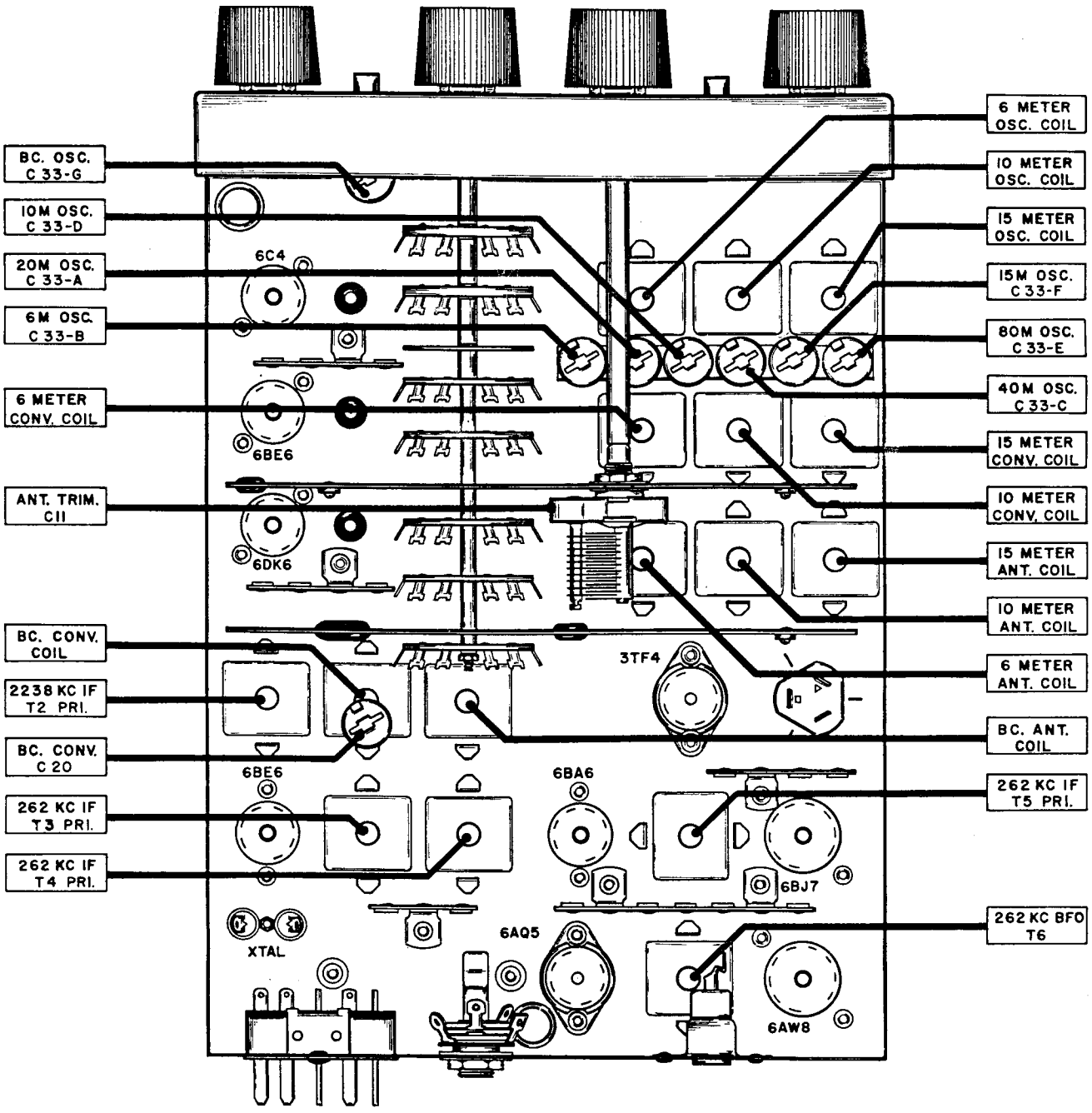
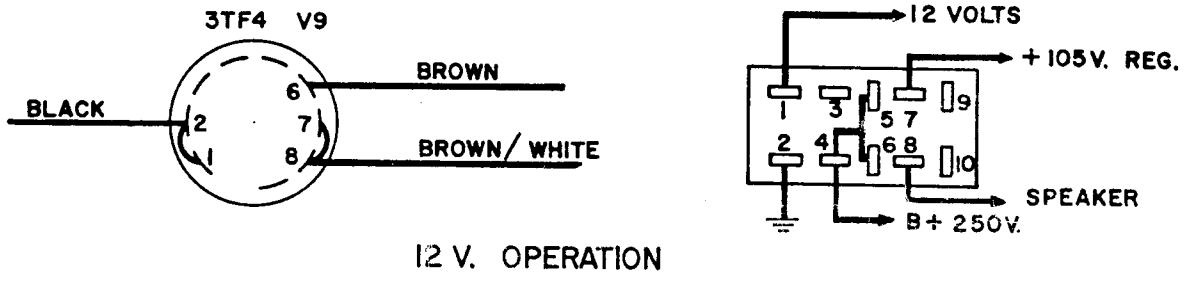
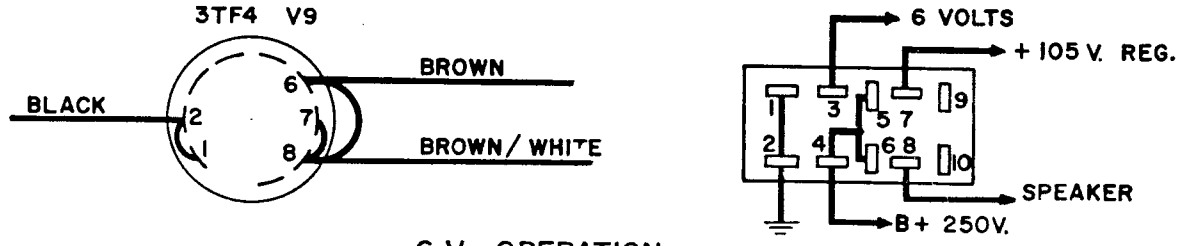


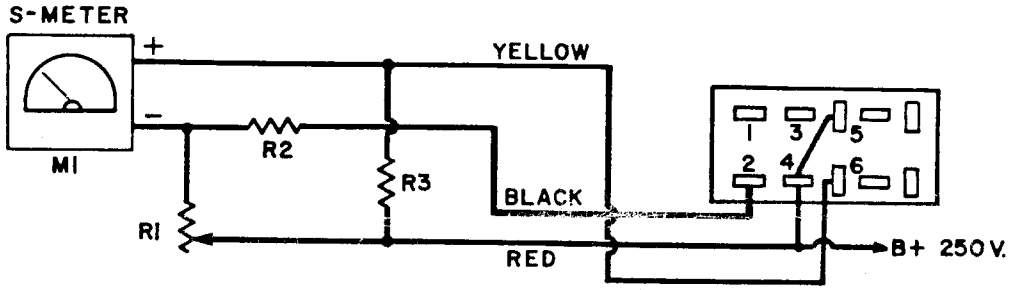
FIGURE 4 PMR-8 BOTTOM VIEW



12 V. OPERATION



6 V. OPERATION



ESS-3 ACCESSORY

FIGURE 5 PMR-8 POWER CONNECTIONS

SECTION 3

SERVICE AND ALIGNMENT

3.1 GENERAL. Satisfactory operation of this receiver depends on several external factors. Before removing a receiver which is performing in an unsatisfactory manner, carefully inspect antenna connections, power cables and plugs, the storage battery and connections (if a vehicular installation), and the A.C. power source (if operated in a fixed location), and the speaker connections. It is an aggravating waste of time and effort to remove and attempt to service a receiver when the trouble is an external one.

(a) ANTENNA. If the receiver has its normal noise level, but signals are very weak, look for a broken antenna lead close to the receiver, or for an open or inoperative antenna relay.

(b) CABLES AND PLUGS. The initial installation should locate all cables and plugs where they will not be exposed to physical shock or subjected to twisting and bending.

(c) FUSES. Check fuses with an ohmmeter. A good fuse has no appreciable resistance.

3.2 TUBES. Even though modern methods of production are producing more reliable tubes than ever, the first source of trouble is most likely to be a defective tube. Tube failure will produce weak signals, intermittent operation, noise, or a completely dead receiver. When checking tubes, mark them as they are removed from the receiver so that they may be returned to their original sockets. Where a tube is changed in any circuit, that circuit should be re-aligned for peak performance as outlined in the section on alignment.

New tubes should be tapped while operating to check for microphonics, which will ruin operation of a mobile receiver.

3.3 CIRCUIT FAILURE. Excluding tubes, the most common source of circuit failure will invariably be found in the dozens of resistors and capacitors within the receiver. A defective resistor or capacitor can usually be found by a point-to-point continuity test, although a careful visual inspection will often show the defective part, such as charred resistors. Figure 6 is an operating voltage and resistance chart and permits a careful check of operating elements. The check should be made with a D.C. voltmeter of 20,000 ohms per volt sensitivity or a vacuum tube voltmeter. All measurements are made using an M1070 power supply. (Any supply may be used that will give the same "B" voltage.)

3.4 GENERAL ALIGNMENT INSTRUCTIONS. Thoroughly familiarize yourself with the layout of all of the coils as shown in Figures 3 and 4 before beginning alignment. All of the coils are in cans including the R.F. and I.F. coils with one exception. The broadcast oscillator coil is located under the chassis near the front of the receiver as can be seen in Figures 3 and 4.

Check the dial cord and the pointer to be certain that there is sufficient tension on the cord, and that the pointer rides free of all obstructions. Before alignment, be sure you have an accurate signal generator. If at all possible, crystals that fall near the alignment frequencies specified are preferred for maximum accuracy. The alignment of the receiver can never be more accurate than the signal generator with which it was aligned.

3.5 I.F. AND B.F.O. ALIGNMENT. Remove the 6C4 oscillator tube.

Set the R.F. gain control in its full clockwise position.

Set the B.F.O. Switch in the AM position. Connect the signal generator through a .001 mfd. mica capacitor to the center section of the tuning capacitor.

Connect a vacuum tube voltmeter from the A.V.C. buss to ground. If a vacuum tube voltmeter is not available, connect a 0 to 10 milliampere meter in series with the lead coming from pin 6 on the receiver power plug.

With the signal generator set at 2238 kc. adjust all of the I.F. slugs for maximum response. (It should be noted that maximum response is a minimum reading on the 0 to 10 milliampere meter.) There are two slugs in T2, T3, T4, and T5 adjustable from the top or bottom of the chassis. A special 3/32" hex screwdriver (General Cement #8606) is necessary for the adjustment of all coils. When adjusting the I.F. coils for maximum response, care should be exercised to keep the output from the signal generator low enough to prevent overload of the receiver. When the I.F. stages have

been aligned, set the B.F.O. switch to CW, SSB position and set the B.F.O. control to zero setting. Adjust the B.F.O. coil, T6, for zero beat. It will be noted that it is not necessary to adjust the 262 kc. amplifier with 262 kc. output from the signal generator. This is true because the crystal oscillator (2500 kc.) derives 262 kc. automatically from the 2238 kc. signal. (2500-2238 equals 262)

Replace the 6C4 tube.

3.6 R. F. ALIGNMENT. Before the R.F. alignment is begun the pointer must be positioned properly in respect to the dial. When the tuning capacitor is completely meshed (closed) the pointer should be aligned with the edge of the black border at the left side of the dial face. If this is not done the receiver may not track properly across the entire tuning range.

Any signal generator used to align this receiver must have a good attenuator. The output from the signal generator should be kept low enough to prevent the A.V.C. from operating.

The Bands may be aligned in any order, but for the sake of this manual, we will start with and align the bands in order.

6 METER BAND (50.0 to 52.0 Mc.)

Set the Antenna trimmer in the middle of its range.

Set the Bandswitch on the 6 METER BAND.

Set the receiver Dial to 50.0 Mc.

Connect a signal generator to the receiver antenna jack and set the generator to 50.0 Mc.

Adjust the 6 Meter oscillator coil until the signal is tuned in properly.

Adjust the 6 Meter Antenna coil and Converter coil for maximum output. Check the tracking at 50.0 Mc. and 52.0 Mc. If tracking is seriously off at these two points the setting of the trimmer C33-B will have to be changed at the high end and the oscillator coil readjusted at the low end of the band. Several trials between the trimmer setting and the coil adjustment may be necessary to achieve proper tracking. NOTE: The oscillator is on the low side of the signal.

10 METER BAND (28.0 to 29.7 Mc.)

Set the Antenna trimmer in the middle of its range.

Set the Bandswitch on the 10 METER BAND.

Set the receiver Dial to 29.0 Mc.

Connect a signal generator to the receiver antenna jack and set the generator to 29.0 Mc.

Adjust the 10 Meter oscillator coil until the signal is tuned in properly.

Adjust the 10 Meter Antenna coil and Converter coil for maximum output.

Check the tracking at 28.0 and 29.7 Mc. If the tracking is off proceed as for 6 meters above using C33-D and the 10 meter oscillator adjusting slug. NOTE: The oscillator is on the low side of the signal.

15 METER BAND (21.0 to 21.45 Mc)

Set the Antenna trimmer in the middle of its range.

Set the Bandswitch on the 15 METER BAND.

Set the receiver Dial and the signal generator to 21.3 Mc.

Adjust 15 Meter oscillator coil until the signal is tuned in properly.

Adjust the 15 Meter Antenna and Converter coils for maximum output.

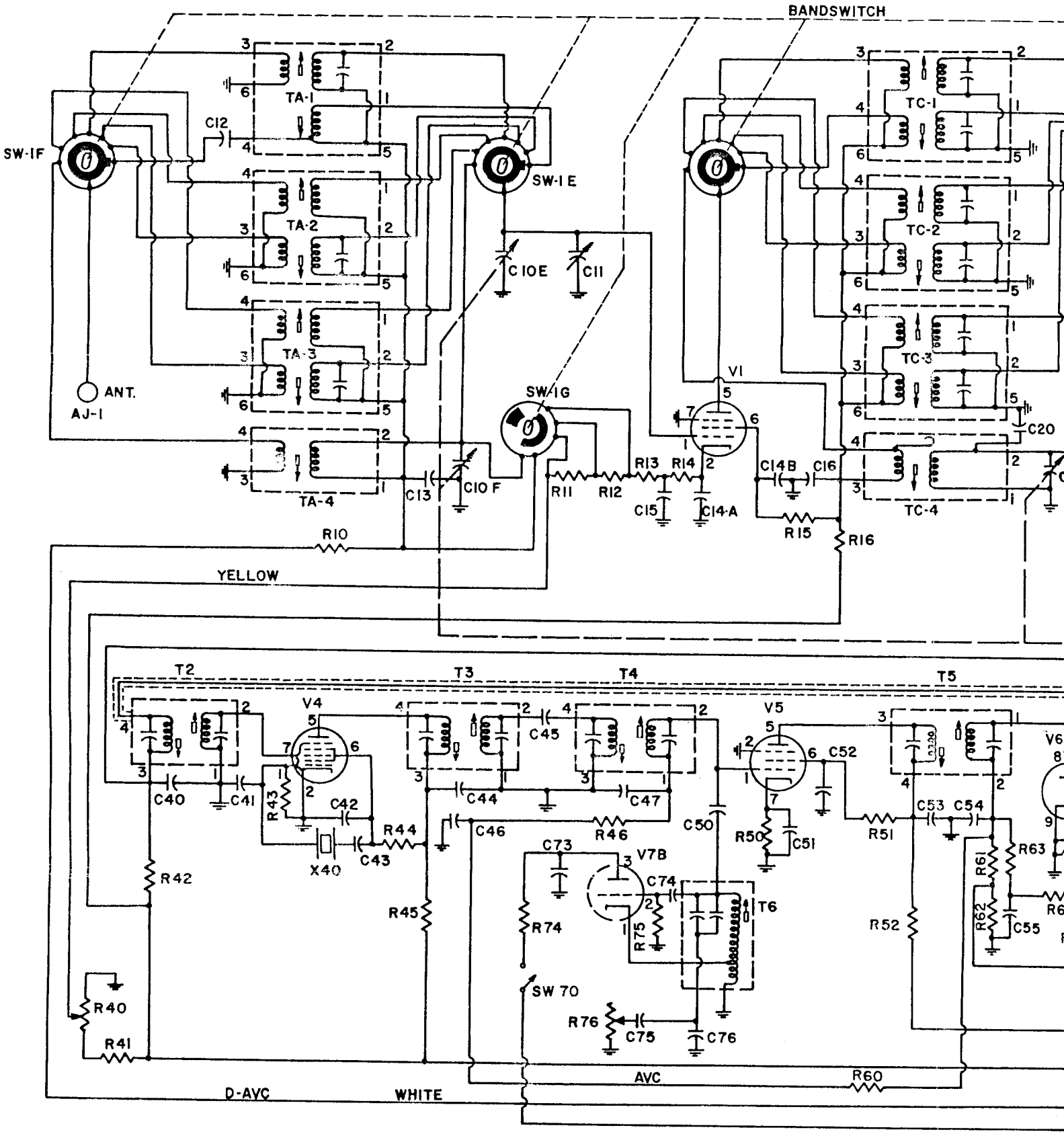
Check the tracking at 21.0 and 21.45 Mc. Correct any error in tracking by using trimmer C33-F and the 15 meter oscillator coil adjustment slug. NOTE: The oscillator is on the low side of the signal.

20 METER BAND (14.0 to 14.4 Mc)

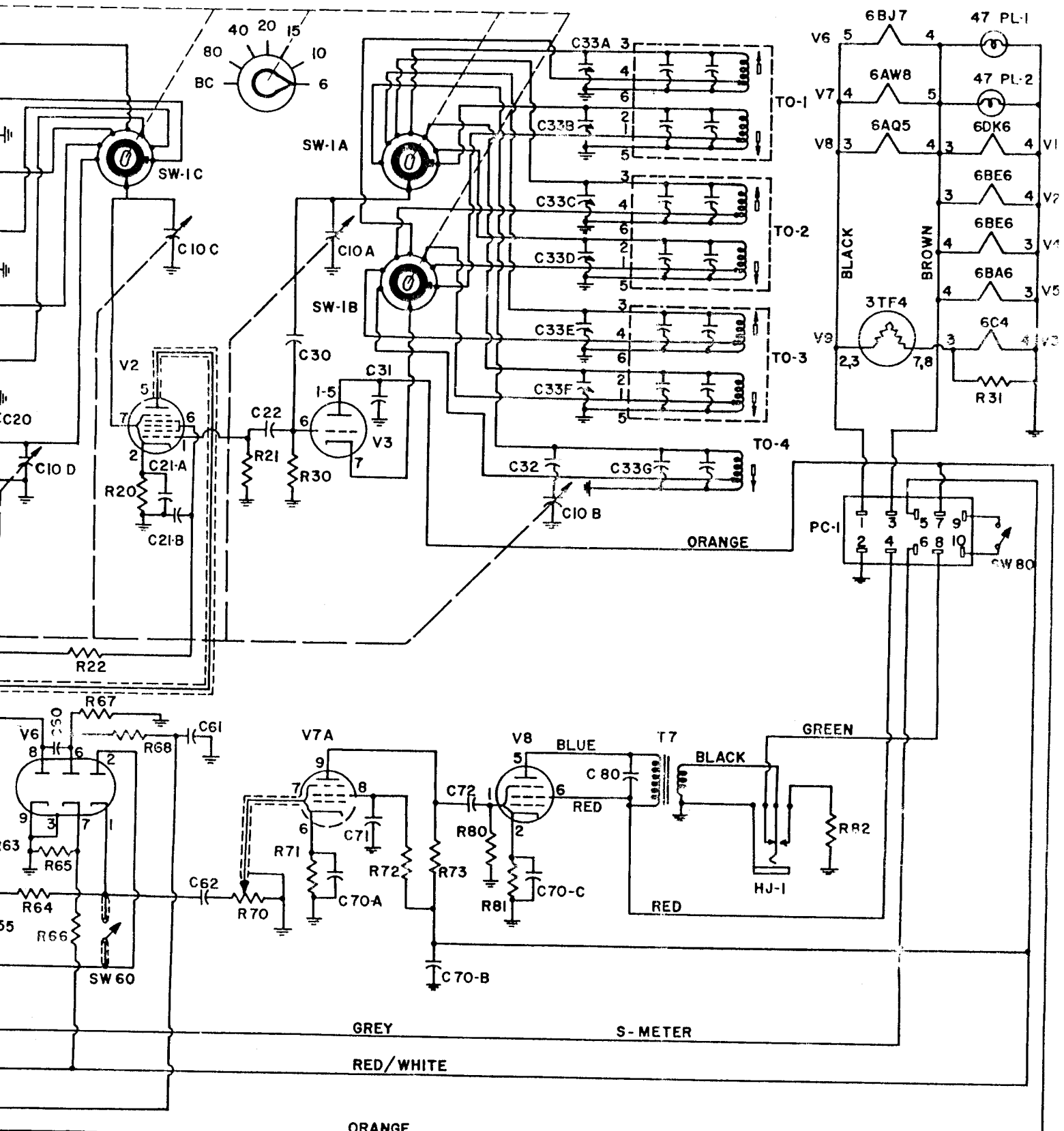
Set the Antenna trimmer in the middle of its range.

Set the Bandswitch on the 20 METER BAND.

Set the receiver Dial and the signal generator to 14.2 Mc.


BANDSWITCH
SW-IF
SW-I E
SW-IG
TA-1
TA-2
TA-3
TA-4
TC-1
TC-2
TC-3
TC-4
C12
C10E
C11
C10 F
C13
C20
ANT.
AJ-1
V1
R10
R11
R12
R13
R14
C14B
C16
C15
C14-A
R15
R16
YELLOW
T2
T3
T4
T5
V4
V5
V6
C40
C41
R43
C42
X40
C43
R44
R42
C45
C44
C47
C46
R46
C50
C52
R50
C51
R51
C53
C54
R61
R63
R62
C55
R52
C73
V7B
C74
T6
R74
R75
R45
SW 70
R76
C75
C76
R40
R41
AVC
R60
D-AVC
WHITE

PMR-8 SCH



SCHEMATIC

MULTI-PRODUCTS CO.
21470 COOLIDGE HIGHWAY
OAK PARK MICHIGAN

SECTION 3

Service and Alignment

3.1 GENERAL. Satisfactory operation of this Trans-citer depends on several factors. Before removing a transmitter which is performing in an unsatisfactory manner, carefully inspect antenna connection, power cables and plugs, the storage battery and its connections (if a vehicular installation), the AC power source (if operated at a fixed location), and the microphone and relay connections. It is an aggravating waste of time and effort to remove and attempt to service a transmitter when the trouble is an external one.

(a) **Antenna.** If the Trans-citer is functioning properly but does not load look for a broken antenna lead, bad relay contacts or inoperative relay, shorted transmission line or antenna insulator.

(b) **Storage battery.** Check periodically the terminal voltage, specific gravity, level of electrolyte, and the tightness of connections. Check the battery voltage at the Trans-citer power plug with the Trans-citer operating and drawing full load.

(c) **Cables and plugs.** The initial installation should locate all cables and plugs where they will not be exposed to physical shock or subjected to twisting and bending.

3.2 TUBES. Even though modern methods produce more reliable tubes than ever, the first source of trouble is likely to be a defective tube. Tube failure will produce low grid drive, low plate current, intermittent operation, or a completely dead transmitter. Where a tube change is made in the R.F. portion of the Trans-citer it should be replaced with the same make of tube. If this is not possible the circuits may have to be realigned according to paragraphs 3.5 and 3.6 of this section.

3.3 CIRCUIT FAILURES. Excluding tubes, the most common source of circuit failure, will invariably be found in the many resistors and capacitors within the Trans-citer. A defective resistor or condenser can usually be found by a point-to-point continuity test, although a careful visual inspection will often show the defective part, such as a charred resistor. The operating voltage chart on page 14 permits a careful check of operating elements. All measurements are taken with the final plate OFF, bandswitch in the 80 meter position, VFO set to 3.8 megacycles, final grid current resonated for maximum grid current, crystal-VFO switch in VFO position, and audio gain control on minimum. A 20,000 ohms per volt meter is used. (DO NOT use a vacuum tube voltmeter since it will read erroneously in an R.F. field). These measurements were taken using a PS-2V power supply and a line voltage of 117 volts AC. Any power supply can be used that will give the same high voltage.

3.4 GENERAL ALIGNMENT INSTRUCTIONS. Thoroughly familiarize yourself with the layout of all coils and tuning adjustments as shown on drawing #216, page 16, before beginning an alignment. Check all brass slug adjusting screws to make sure that they are not worn so much that they will not hold their setting. If they are too worn to be serviceable they must be replaced.
Check the pointer to see that it is aligned properly with respect to the stops on the VFO dial.
Check to see that the sprocket and chain are tight on the switch shafts and that the switches are all in their proper position.

You will need an accurate receiver and an accurate signal generator and/or crystals to spot the amateur band edges.

An alignment job can never be any better than the equipment with which the Trans-citer was aligned.

3.5 VARIABLE FREQUENCY OSCILLATOR ALIGNMENT.

Turn the meter switch to the left "G" position, final off.
Set bandswitch lever to the 80 meter position.

Set VFO-crystal switch to the VFO position.
Set the VFO dial to 3.5 megacycles.
Set signal generator at 3.5 megacycles, tune receiver to 3.5 megacycles.
Apply plate power to VFO.
Adjust screw #1 until a beat is obtained at 3.5 Mc.
Set the VFO dial to 4.0 megacycles.
Set signal generator and receiver to 4.0 megacycles.
Adjust trimmer #2 for a beat at 4.0 megacycles.
Readjust at 3.5 megacycles, then again at 4.0 megacycles.
It may take several excursions between 3.5 and 4.0 megacycles before a good alignment is achieved.

The 160 meter band will automatically be correct after the 80 meter band is correctly aligned.

Set the bandswitch lever to the 10 meter position.
Set the VFO dial to 29 megacycles.
Set the signal generator and receiver to 29 megacyles.
Adjust screw #3 until a beat is obtained at 29 megacycles.
The remainder of the 10 meter band should be correct.

The 40 meter band will be correct after the 10 meter band is aligned.

Set the bandswitch lever to the 20 meter band.
Set the VFO dial to 14.2 megacycles.
Set the signal generator and receiver to 14.2 megacycles.
Adjust trimmer #4 for a beat at 14.2 megacycles.
The remainder of the 20 meter band should be correct.

The 15 meter band will be correct after the 20 meter band is aligned.

3.6 BUFFER — DRIVER ALIGNMENT.

Turn meter switch to the left "G" position, final off.
Set bandswitch lever to the 160 meter position.
Set VFO-crystal switch to the VFO position.
Set the VFO dial to 1900 kilocycles.
Set the final grid tuning condenser at about the half capacity position.
Adjust screw #11 for maximum grid drive as shown on the meter.

Set bandswitch lever to the 80 meter position.
Set VFO dial to 3.75 megacycles.
Set final grid tuning condenser at about the half capacity position.
Adjust screw #12 for maximum grid drive as shown on the meter.

Set bandswitch lever to the 40 meter position.
Set VFO dial to 7.2 megacycles.
Set final grid tuning condenser at about the half capacity position.
Adjust screw #10 for maximum grid drive as shown on the meter.

Set the bandswitch lever to the 15 meter position.
Set the VFO dial to 21.3 megacycles.
Set the final grid tuning condenser at about the half capacity position.
Adjust screw #8 and #9 for maximum grid drive as shown on the meter.

Set the bandswitch lever to the 20 meter position.
Set the VFO dial to 14.2 megacycles.
Set the final grid tuning condenser at about the half capacity position.
Adjust screw #5 for maximum grid drive as shown on the meter.

Set the bandswitch lever to the 10 meter position.
Set the VFO dial to 28.5 megacycles.
Set the final grid tuning condenser at about the half capacity position.
Adjust screw #6 and #7 for maximum grid drive as shown on the meter.

11 meter band operation is possible using crystal control only.

If 11 meter operation is desired, set the bandswitch to the 10 meter position. Insert the proper crystal into the crystal socket and set the VFO—crystal switch to the corresponding position and adjust the final grid tuning condenser for proper grid drive. Tune up the final plate and loading condenser just the same as for 10 meters.

NOTE: When tuning the buffer and driver slugs it is well to use a grid dip meter or wave meter to make sure all the coils are tuned to the proper bands or harmonics.

3.7 WARRANTY. This Trans-citer has been carefully tested and was shipped from the factory in perfect operating condition. If the set arrives damaged in transit, it is important that you file claim immediately with the carrier.

THE MULTI-PRODUCTS COMPANY, warranting this Trans-Citer to be free from defective material and workmanship, agrees to repair or replace, without charge, any defective unit or accessory within 90 (Ninety) days from the date of sale to the original purchaser, providing the equipment is returned to the manufacturer properly packed and shipped prepaid by the owner. All such articles returned under this warranty, must be preceded or accompanied with a letter outlining the defects.

Any failure of the equipment following modification by the user, or occurring through application of power supply voltages other than those specified in this instruction manual shall not constitute a defect within this warranty.

This warranty shall not be in effect if the owners registration card is not properly filled out with the model number, serial number, purchase date, from whom purchased, and forwarded to the MULTI-PRODUCTS COMPANY.

The manufacturer reserves the right to make any changes in this unit without obligating itself with respect to prior production.

4.3 — OPERATING VOLTAGE CHART

PIN No. ➡		1	2	3	4	5	6	7	8	9
TUBE No. ⬇										
V3	6AG5	—9*	1.0	zero (12.6)**	6.3**	120	145	1.0	—	—
V4	6AQ5	—8.5*	6.7	6.3**	zero	220	220	—8.5*	—	—
V5	6146	zero	zero (12.6)**	Note 1	zero	—	zero	6.3**	zero	—
V6	6AU6	zero	zero	6.3**	zero	35	40	1.5	—	—
V7	12AU7	210	zero	7.6	zero	zero (12.6)**	210	zero	7.6	6.3**
V8	5881	zero	zero (12.6)**	Note 1	220	—22.5	—	6.3**	zero	—
V9	5881	zero	6.3**	Note 1	220	—22.5	—	zero	zero	—
V10	OB2	108	zero	—	zero	108	—	zero	—	—

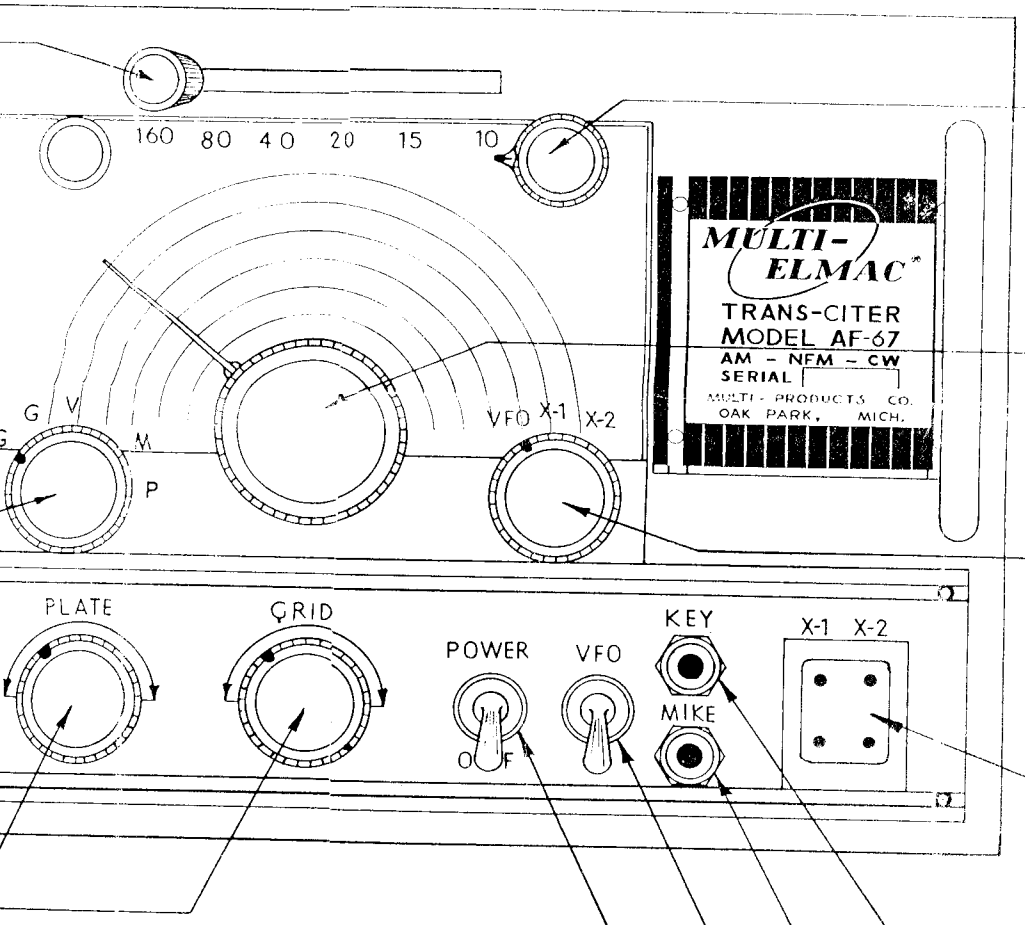
This chart serves only as a guide, individual sets may vary from these readings.

All measurements made with a 20,000 ohms per volt voltmeter, using a PS-2V power supply or equivalent. Bandswitch lever in the 80 meter position, VFO dial set at 3.8 megacycles, audio gain control set at minimum, VFO—CRYSTAL switch set in the VFO position, meter switch set to the first "G" (plate off) position, final grid tuning condenser resonated for maximum grid current, and the AM-NFM-CW switch set in the AM position.

Note 1—These readings depend upon final plate supply voltage.

* These measurements taken with a 100,000 ohm 1 watt carbon resistor on the end of the negative voltmeter probe.

** Either AC or DC. Numbers in brackets are in effect when connected for 12 volt operation.



STEP 8

A.F. GAIN CONTROL

CONTROLS PER-CENTAGE OF MODULATION WHEN USING "AM".

CONTROLS DEVIATION WHEN USING "NBFM".

CONTROLS A.F. GAIN WHEN USING THE ELMAC AF-67 TRANS-CITER AS A SPEECH AMPLIFIER-EXCITER FOR A HIGHER POWER TRANSMITTER.

STEP 4A

V.F.O. CONTROL

A VERNIER DRIVE CONTROL THAT INDICATES THE FREQUENCY OF OPERATION DIRECTLY IN MEGACYCLES.

STEP 3

V.F.O. - CRYSTAL, SELECTOR SWITCH

THE ELMAC AF-67 TRANS-CITER CAN BE OPERATED FROM THE BUILT-IN V.F.O. OR EITHER OF TWO CRYSTALS INSERTED INTO THE SOCKET BELOW.

CRYSTAL SOCKET

WILL HOLD TWO CRYSTALS IN FT 243 HOLDERS.

KEY JACK

USES A TWO CIRCUIT PHONE PLUG SUCH AS PL-55 OR EQUAL.

MICROPHONE JACK

ALSO CARRIES THE PUSH-TO-TALK CIRCUIT. USES A THREE CIRCUIT PHONE PLUG SUCH AS MALLORY TYPE 76 OR EQUAL.

STEP 4B

V.F.O. SPOTTING SWITCH

WHEN IT IS DESIRED TO ZERO-BEAT A SIGNAL FLIP THIS SWITCH TO THE UPPER POSITION. THIS CONNECTS THE V.F.O. B PLUS LEAD TO PIN #8 ON THE POWER PLUG WHICH CAN BE CONNECTED TO THE RECEIVER B SUPPLY.

STEP 1

POWER ON-OFF SWITCH

CONTROLS FILAMENTS ON D.C. OPERATION. CONTROLS THE MAIN A.C. LINE ON 115 VOLT A.C. OPERATION.

OPERATING INSTRUCTIONS

nents and allow about two minutes warm-up time.

desired with bandswitch lever.

of operation desired, crystal or V.F.O. (for these instructions we will .O. operation). Also select type of emission desired; A.M, NFM, or d by a switch on the rear apron of the trans-citer.

al to desired frequency in megacycles.

potting switch to the upper position and turn V.F.O. control until a obtained with the signal on whose frequency you wish to operate. djustment is made flip the V.F.O. spotting switch to down position.

r switch to the first (G) position.

push-to-talk button on the microphone or operate alternate "trans- switch and adjust grid tuning control for proper grid drive (2½ peres).

itch to (P) position and load the transmitter to the antenna as ex- ft. Note: Antenna must be resonant at the frequency on which desired. Grid current should now be checked under load in the osition.

itch to position (M) and check modulator current (when using AM The A.F. gain control located in the upper right corner of the ontrols the per-centage of modulation. Modulator plate current to about 60 to 70% of final amplifier plate current value for 100%

4.4 - CONTROL LAYOUT

BANDSWITCH

SWITCHES ALL CIRCUITS TO THE DESIRED BAND SIMULTANEOUSLY.

STEP 2

METER

HAS THREE SCALES:
0-5 MILLIAMPERES
0-150 MILLIAMPERES
0-750 VOLTS D.C.

METER SWITCH

SIX POSITIONS:

ONE (G) READS FINAL GRID CURRENT WITH FINAL AMPLIFIER OFF. (FINAL IS ON IN ALL OTHER METER SWITCH POSITIONS).

TWO (G) READS FINAL GRID CURRENT WITH THE FINAL AMPLIFIER ON.

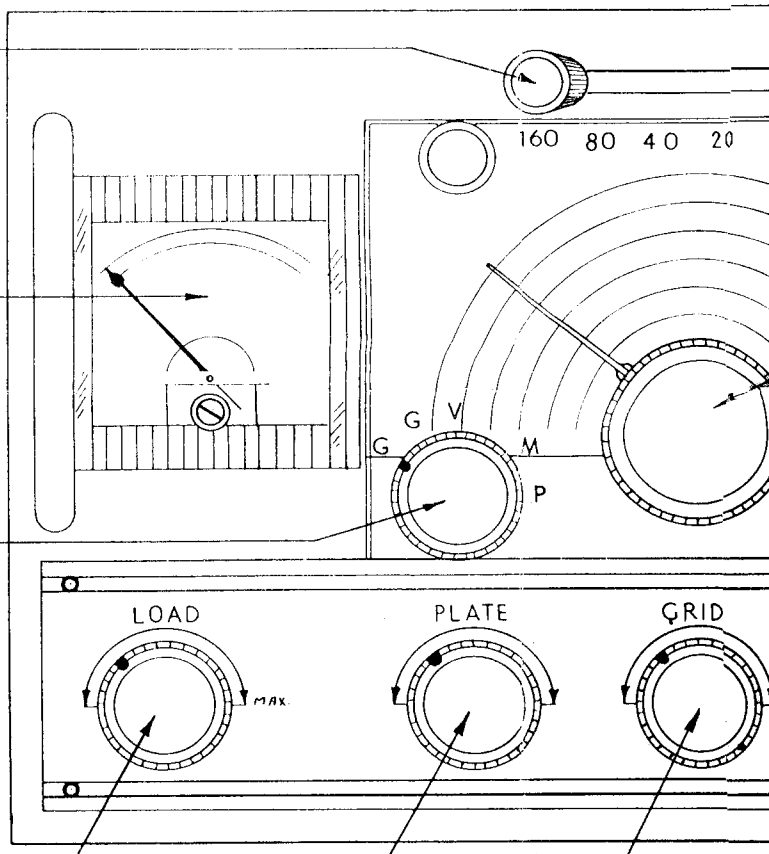
THREE (V) READS FINAL PLATE VOLTAGE.

FOUR (NOT USED).

FIVE (M) READS MODULATOR PLATE CURRENT.

SIX (P) READS FINAL AMPLIFIER PLATE CURRENT.

STEP 5, 7, 8



LOAD CONTROL

PLATE TUNING CONTROL

THESE TWO CONTROLS ARE ALWAYS TUNED TOGETHER.

FIRST WITH THE LOAD CONTROL SET AT MINIMUM (COUNTER-CLOCKWISE) RESONATE PLATE TUNING CONTROL. (METER SWITCH IN POSITION "P" AND TUNE FOR LOWEST PLATE CURRENT)

NEXT TURN LOAD CONTROL CLOCKWISE SLOWLY UNTIL PLATE CURRENT READS APPROXIMATELY 100 TO 120 MILLIAMPERES.

AGAIN RESONATE PLATE TUNING CONTROL.

IF THE PLATE CURRENT DROPS BELOW THE DESIRED PLATE CURRENT INCREASE THE SETTING OF THE LOAD CONTROL.

ALWAYS RESONATE PLATE TUNING CONTROL AFTER LOAD CONTROL HAS BEEN CHANGED.

STEP 7

STEP 7

FINAL GRID TUNING

ADJUST FOR PROPER FINAL GRID CURRENT. (2½ TO 5 MA.)

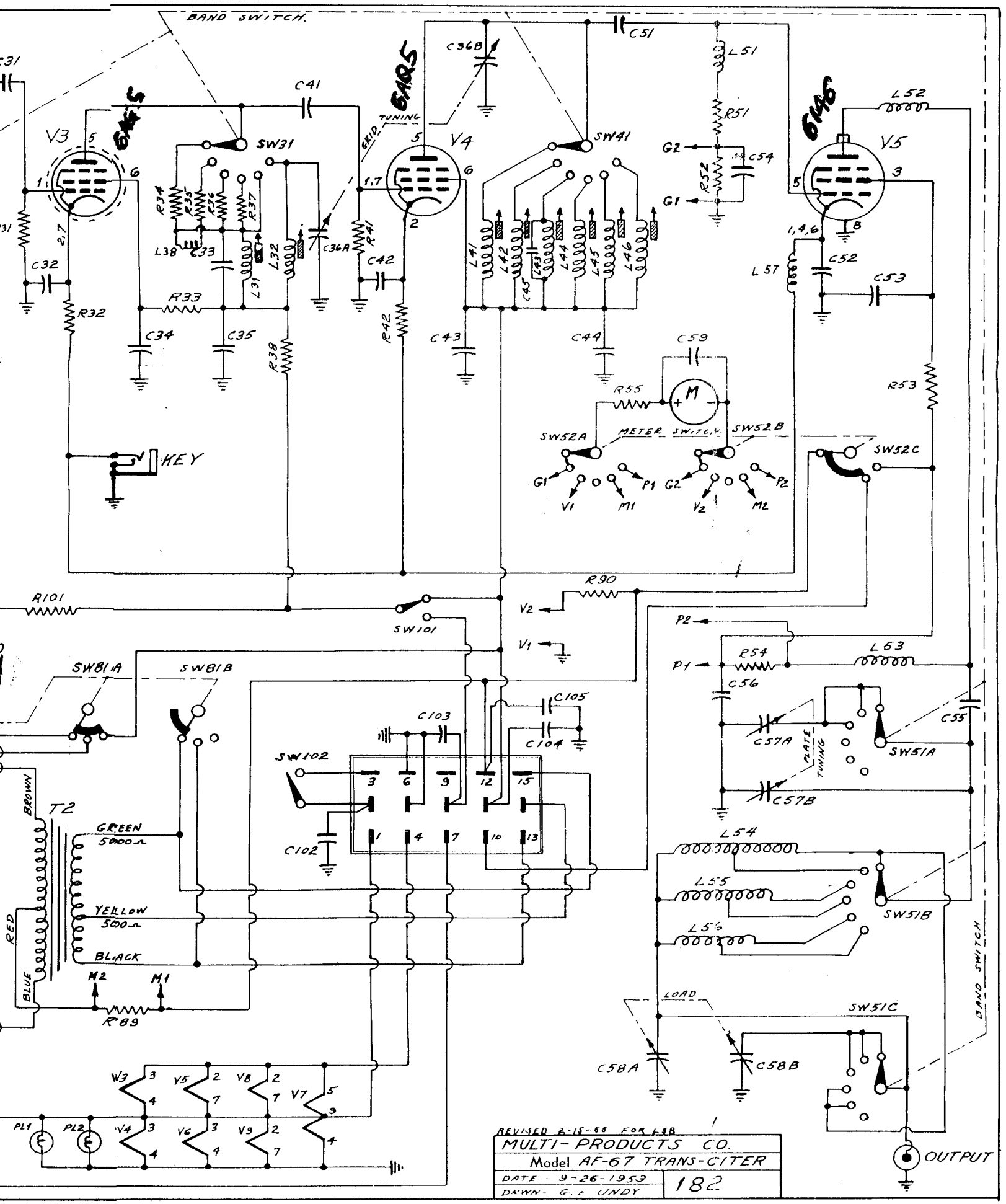
STEP 6

OPERATING INSTRUCTI

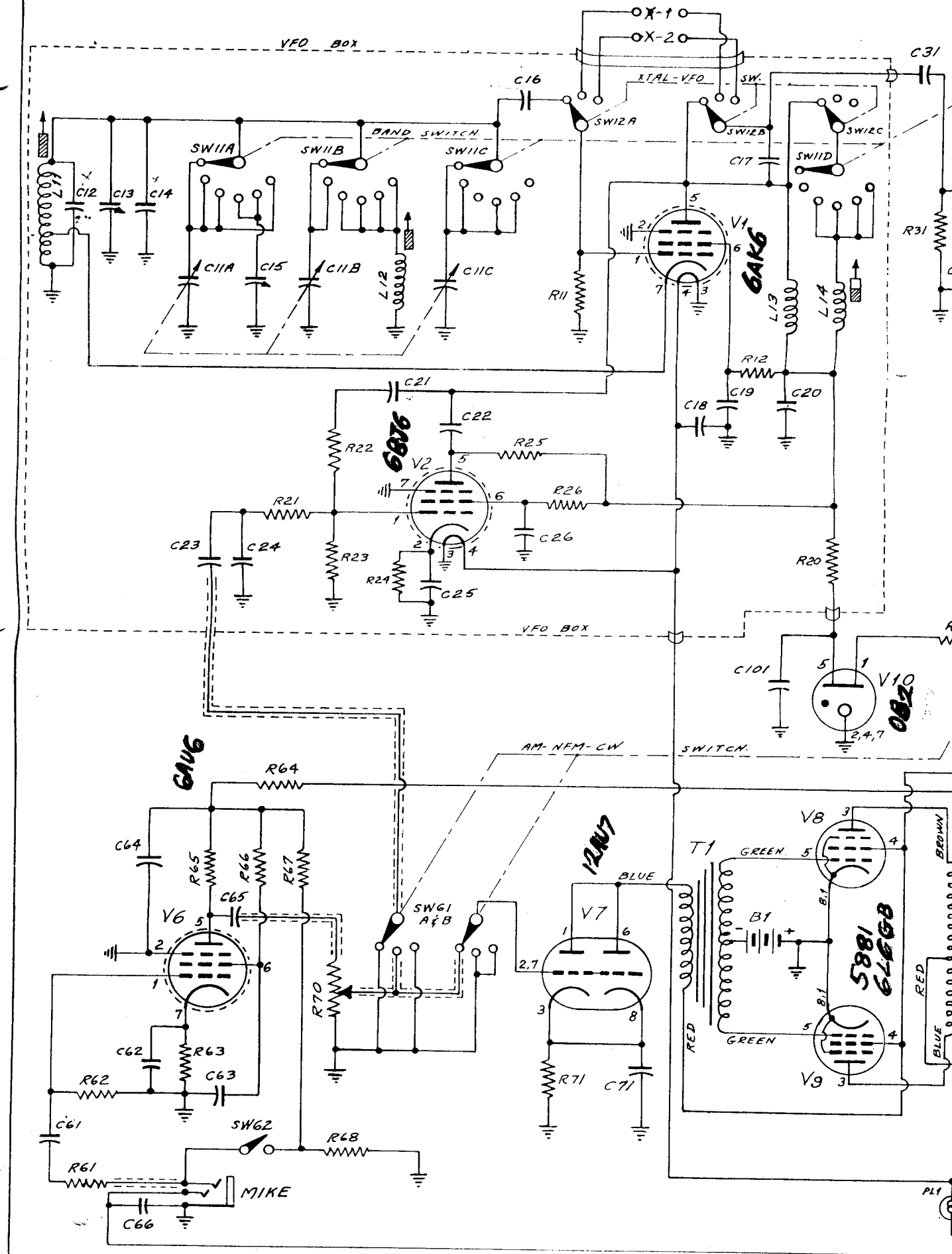
1. Turn on filaments and allow about two minutes wa
2. Select band desired with bandswitch lever.
3. Select type of operation desired, crystal or V.F.O. (I consider V.F.O. operation). Also select type of emi CW. Selected by a switch on the rear apron of the
4a. Set V.F.O. dial to desired frequency in megacycles.

—OR—

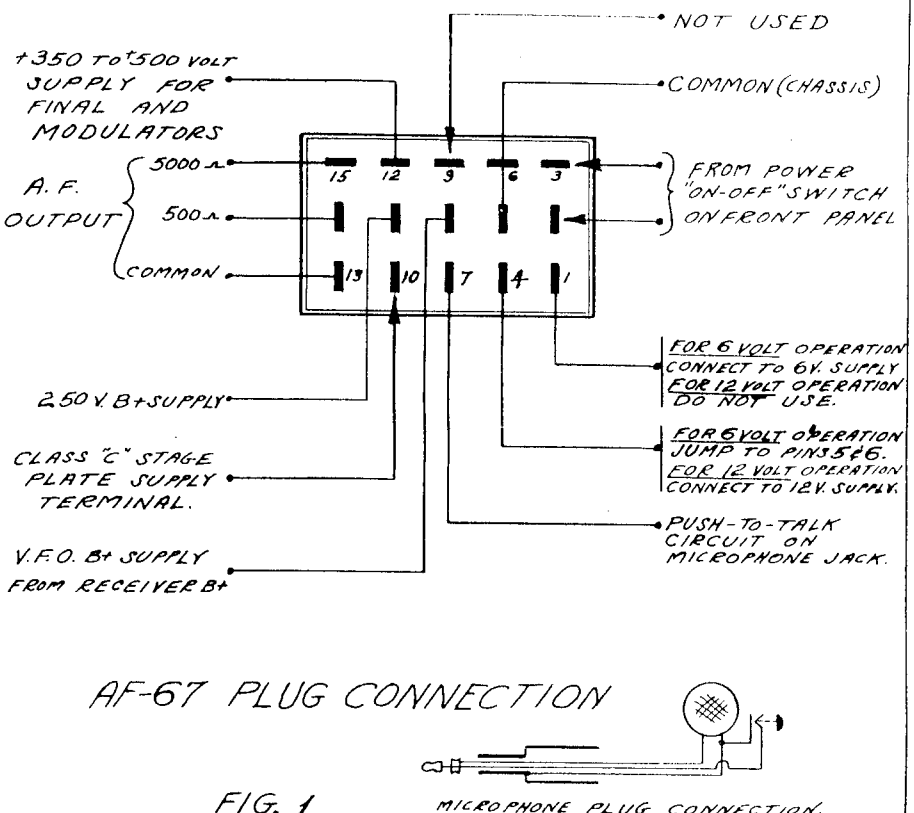
4b. Flip V.F.O. spotting switch to the upper position an zero beat is obtained with the signal on whose fre When this adjustment is made flip the V.F.O. spott
5. Set the meter switch to the first (G) position.
6. Operate the push-to-talk button on the microphone mit-receiver" switch and adjust grid tuning control to 5 milliamperes).
7. Set meter switch to (P) position and load the transi plained at left. Note: Antenna must be resonant operation is desired. Grid current should now be second (G) position.
8. Set meter switch to position (M) and check modula modulation). The A.F. gain control located in the V.F.O. dial controls the per-centage of modulatio should swing to about 60 to 70% of final amplifier modulation.


BAND SWITCH
6AK5
V3
6AR5
V4
6AQ6
V5
TUNING
GRID
C31
C41
C36B
C51
L51
R51
C54
G2
G1
R52
L52
SW31
SW41
C36A
C42
C43
C44
L41
L42
L43
L44
L45
L46
L57
C52
C53
1,4,6
R31
2.7
C32
R32
R33
C34
C35
R38
R42
R41
L38
C33
L31
L32
R34
R35
R36
R37
KEY
C59
R55
M
R53
SW52A
METER SWITCH
SW52B
SW52C
G1
V1
M1
P1
G2
V2
M2
P2
R101
SW101
R90
V2
V1
SW81A
SW81B
C103
C105
C104
SW102
C102
3
6
9
12
15
1
4
7
10
13
T2
BROWN
GREEN
5000Ω
YELLOW
500Ω
BLACK
RED
BLUE
M2
M1
R89
P2
P1
R54
L63
C56
C57A
C57B
PLATE TUNING
C55
SW51A
L54
L55
L56
SW51B
LOAD
C58A
C58B
SW51C
BAND SWITCH
W3
Y5
V8
V7
V4
V6
V9
PL1
PL2
OUTPUT
REVISED 2-15-55 FOR L38
MULTI-PRODUCTS CO.
Model AF-67 TRANS-CITER
DATE - 9-26-1953
DRWN - G. E. UNDY
182

4.7 – SCHEMATIC WIRING DIAGRAM



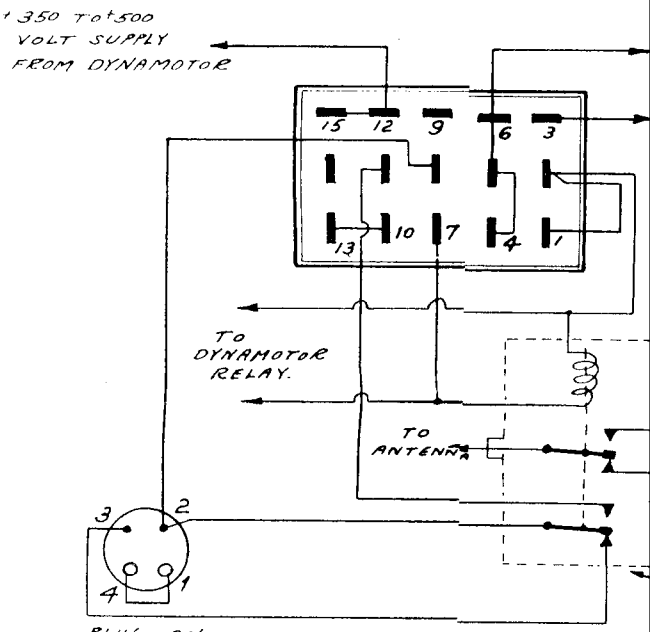
4.6-TYPICAL POWER PLUG CONNECTIONS.



AF-67 PLUG CONNECTION

MICROPHONE PLUG CONNECTION.

FIG. 1

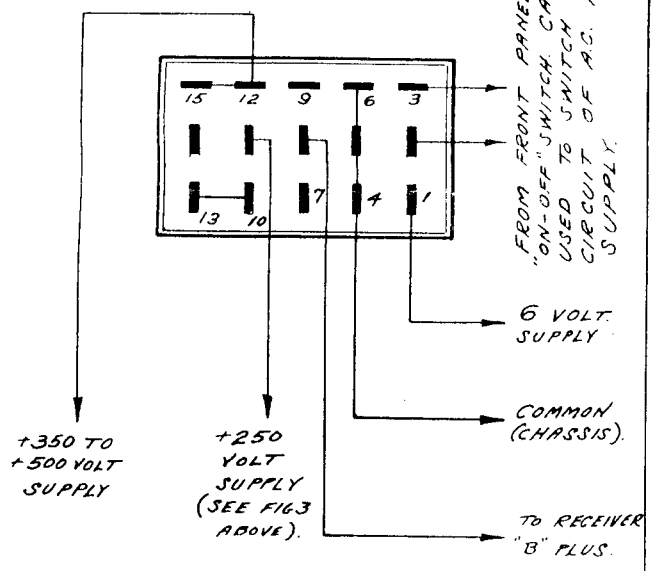


PLUG ON ELMAC PSR-6 POWER SUPPLY

FOR 6 VOLT

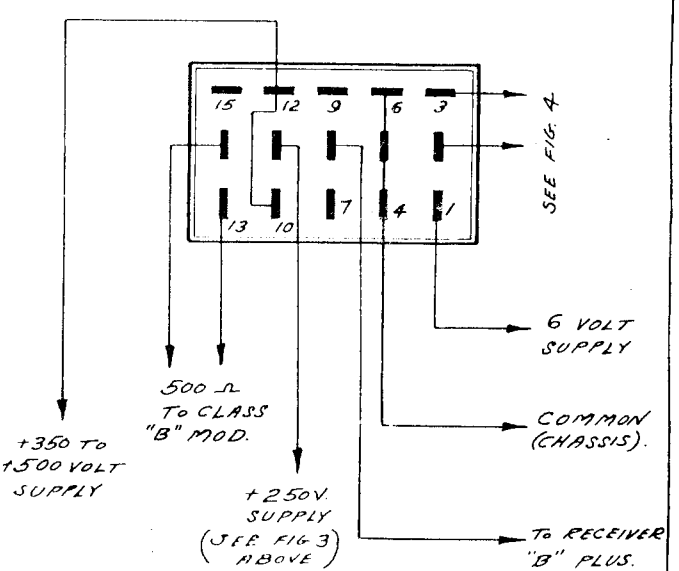
A TYPICAL MOBILE USING AN ELMAC PSR-6 SUPPLY FOR THE +250 VOL

FIG. 2



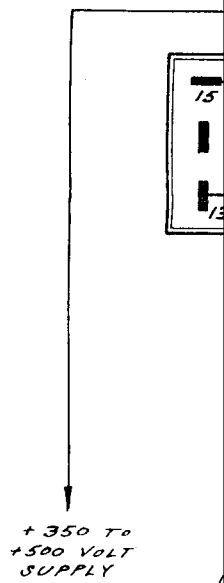
TYPICAL A.C. OPERATION USING AM, NFM, OR CW. EMISSION.

FIG. 4

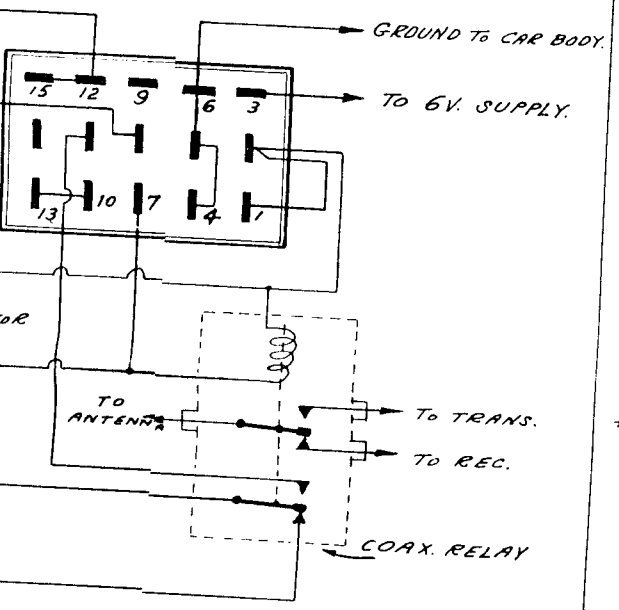


A.C. OPERATED EXCITER AND SPEECH AMPLIFIER.

FIG. 5

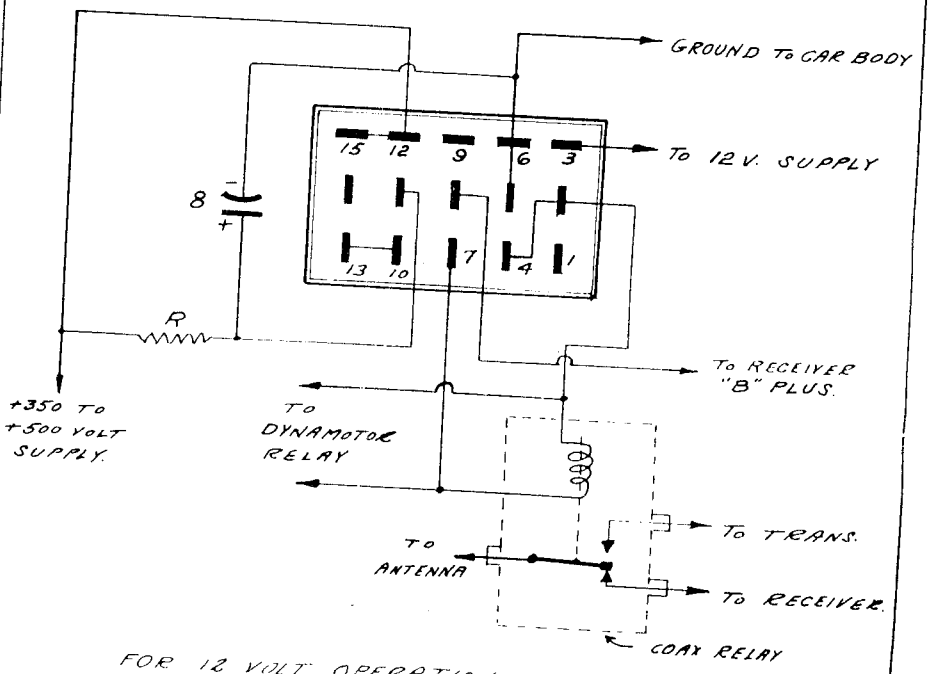


A.C. OPE
CLASS "B



FOR 6 VOLT D.C. OPERATION.

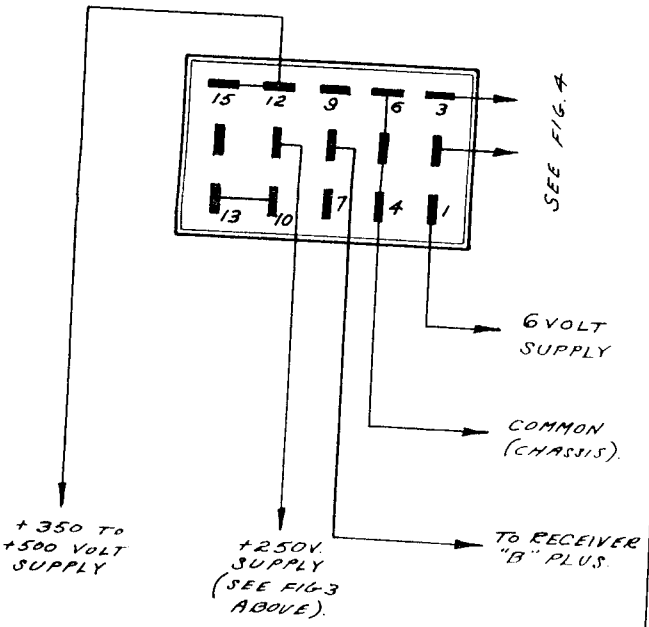
A TYPICAL MOBILE INSTALLATION USING AN ELMAC PSR-6 RECEIVER POWER SUPPLY FOR THE +250 VOLT SUPPLY.



FOR 12 VOLT OPERATION.

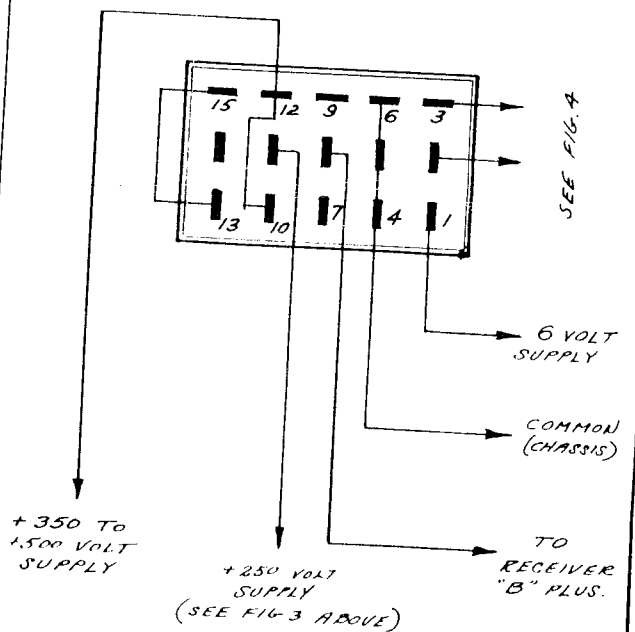
A TYPICAL MOBILE INSTALLATION USING A COMMON HIGH VOLTAGE SUPPLY. THE VALUE OF RESISTOR "R" IS DETERMINED FROM THE CHART

FIG. 3



A.C. OPERATED EXCITER, DRIVING CLASS "B" LINEAR AMPLIFIER. (A.M. ONLY)

FIG. 6



A.C. OPERATED EXCITER DRIVING CLASS "C" AMPLIFIER - NFM OR CW ONLY

FIG 7

RECOMMENDED AF-67 POWER CONNECTIONS 219