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Instruction Manual

SSB COMMUNICATIONS EQUIPMENT GSB-205 SYSTEM

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WARRANTY POLICY

SunAir Electronics warrants each equipment manufactured by it to be free from defects in material or workmanship, under normal use for which intended, for one year from date of installation. SunAir will hereunder replace or repair (at SunAir's discretion) any defective components (excluding tubes, semi-conductors and crystals) which carry the standard Electronic Industries Association warranty of ninety days from installation date.

Any such defective equipment (or component) should be returned, transportation charges prepaid, to SunAir or to a SunAir authorized warranty station. Provided that the failure is within the terms of this warranty and is not due to damage, misuse, improper installation or unauthorized modification or repair, SunAir will either correct any faulty workmanship or replace defective components, within the specified period. Equipment will be returned to the customer, shipping charges C.O.D. Return shipment will be "Best way" unless customer specifies an alternate method.

This Warranty is in lieu of all other guarantees, expressed or implied. The obligation and responsibility of SunAir shall be limited to that expressly provided herein and SunAir shall not be liable for consequential or other damage or expense whatsoever therefor or by reason thereof.

SunAir reserves the right to make changes in design or additions to or improvements in its equipment without obligation to install such additions or improvements in equipment theretofore manufactured.

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SECTION I

GENERAL INFORMATION

A. SYSTEM DESCRIPTION

The SunAir GSB-205 SSB Communication Equipment is a light-weight, 5-channel, 20W PEP, single sideband, transmitting-receiving system. It is designed for Man-Pak, mobile or base station use. The transceiver is housed in a water-resistant case which also contains batteries, antenna, microphone, speaker, battery charger, CW module and other optional accessories.

It is designed to provide short to medium range communications for field and mobile use. When used with a long wire antenna, range can be extended to hundreds of miles.

B. SPECIFICATIONS

Frequency Range	2.0 to 10.0 MHz
Number of Channels	5 single frequency simplex
Channel Frequency Spacing . .	No Restriction
Operating Modes	SSB suppressed carrier
Power Source	12v rechargeable batteries negative ground
Temperature Range	20°C to 50°C
Frequency Stability	NMT \pm 100 Hz variation over temperature range

TRANSMITTER:

Power Output	Up to 20W PEP
Sidetone	100mw, adjustable
Duty Cycle	50%

RECEIVER:

Sensitivity	. . . . .	1uv for 10db S+ -	N
Gain	. . . . .	10uv for 100mv output	N
Selectivity	. . . . .	6db NLT 2150 Hz	
		60db NMT 7150 Hz	
AGC	. . . . .	6db 10uv for 100,000uv	
Audio Output	. . . . .	100mv, headphone and speaker	
Audio Response	. . . . .	NMT 6db 350 to 2500 Hz	
Clarifier	. . . . .	Provided for tone control	

C. EQUIPMENT SUPPLIED

The GSB-205 (Part No. 99700) standard unit consists of the following:

<u>Equipment</u>	<u>SunAir Part No.</u>	<u>Weight</u>
1. Transceiver with One SB Filter, One Channel installed		
2. Case	xxxxxx	
3. Antenna Coupler	99873	
4. Loudspeaker	87424	
5. Microphone	87371	
6. Wire Antenna Kit	99659	
7. DC Cord	60323	

D. EQUIPMENT REQUIRED BUT NOT SUPPLIED

<u>Equipment</u>	<u>SunAir Part No.</u>	<u>Weight</u>
1. Other SB Filters		
2. Additional Channels up to Five Total - Order by Frequency (See V-A)		
3. Handset	87450	
4. Headset	84020	
5. Batteries 8 AH	99877	
6. Batteries 2.6 AH	99878	
7. Battery charger and cord	99657	
8. CW Module with Key	99658	
9. Whip Antenna	71449	
10. Canvas Back Pack	87474	

SECTION II

OPERATING INSTRUCTIONS

The GSB-205 Transceiver has been designed to perform in a variety of operating configurations such as Man-Pak, mobile and base station use.

A. CONFIGURATIONS

The table below shows the equipment recommended for each configuration:

- | | |
|---|--|
| 1. <u>MAN-PAK</u>
For field operation
with short to medium
range communications. | Standard transceiver,
additional filter and
channels as required,
whip antenna, CW module,
key, canvas back pack,
battery charger,
batteries (8 AH and
2.6 AH), handset or
headset, ground radial. |
| 2. <u>MOBILE</u>
For vehicle install-
ation (negative
ground) short to medium
long range communications. | Standard transceiver,
additional filter and
channels as required,
mobile antenna, CW
module and key as
required. |
| 3. <u>BASE STATION</u>
For short to long range
communications to serve
field, mobile and other
base stations. | Standard transceiver, add-
itional filter and
channels as required,
wire antenna, CW module
and key. |

B. OPERATION

1. Voice Communications. Turn the transceiver on and adjust the volume control upward. Select the desired

channel on the transceiver and coupler. Select the desired sideband, either upper or lower.

Note: Antenna coupler channel number must be the same as transceiver channel number for correct operation.

If the whip antenna is being used, longer range communication is possible if the long wire antenna or any 10 meter wire is attached to the ground lug on the rear handle bracket and used as a ground radial. If the radio is mounted in a vehicle, the vehicle will supply the ground plane and the radial will not be needed.

It may be desirable to peak the antenna coupler tuning by adjusting the trimmer control on the coupler front panel. Speak or whistle into the microphone and adjust the trimmer for maximum upscale reading on the panel meter.

When communicating, speak directly into the microphone using a normal voice level. Speaking too low will reduce the power output and too loud could overdrive and distort the output. In the receive mode it may be necessary to adjust the receiver clarifier control for normal voice tone. The clarifier does not affect the transmitter frequency. During the receive mode the meter indicates relative input signal level.

2. CW Operation. CW operation requires that the CW option be installed in the transceiver. This is composed of the panel switch, oscillator board and telegraph key.

For CW operation connect the cable from the key into the mating connector at the bottom front of the case. Turn the transceiver on and switch to the desired sideband. Place the CW switch on the front panel in the "on" position. The transmitter is now ready for CW transmission. Transmit the message and then reactivate the receiver by turning the CW switch off.

Note: The CW switch must be turned "on" for transmit and "off" for receive.

SECTION III

THEORY OF OPERATION

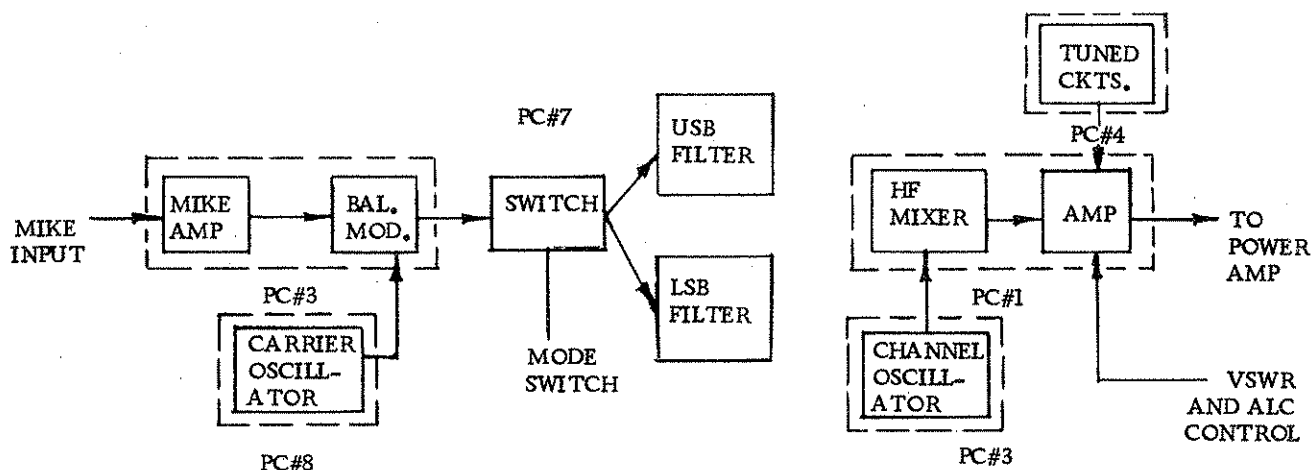
A. GENERAL

In single sideband (SSB) transmission, only one sideband is used to carry the intelligence. Both the carrier and the other sideband generated in the modulation process are suppressed. Thus the entire power capability of the transmitter is utilized to transmit only the necessary portion of the signal. This results in a manyfold improvement over AM transmitters of the same power capability. Battery drain is reduced also as there is no output from the transmitter except under actual speech conditions. That is, the transmitter only responds to actual speech, there being no output between words or any pauses. This is the reason SSB transmitters are rated in peak power, as average power has very little significance in SSB.

SSB receivers also have an advantage over the standard AM receivers as the SSB band width is less than 3 kHz in width. Therefore, less noise is allowed through the receiver, which results in a better signal to noise ratio at low signal levels.

B. EXCITER

The exciter block diagram is shown below.



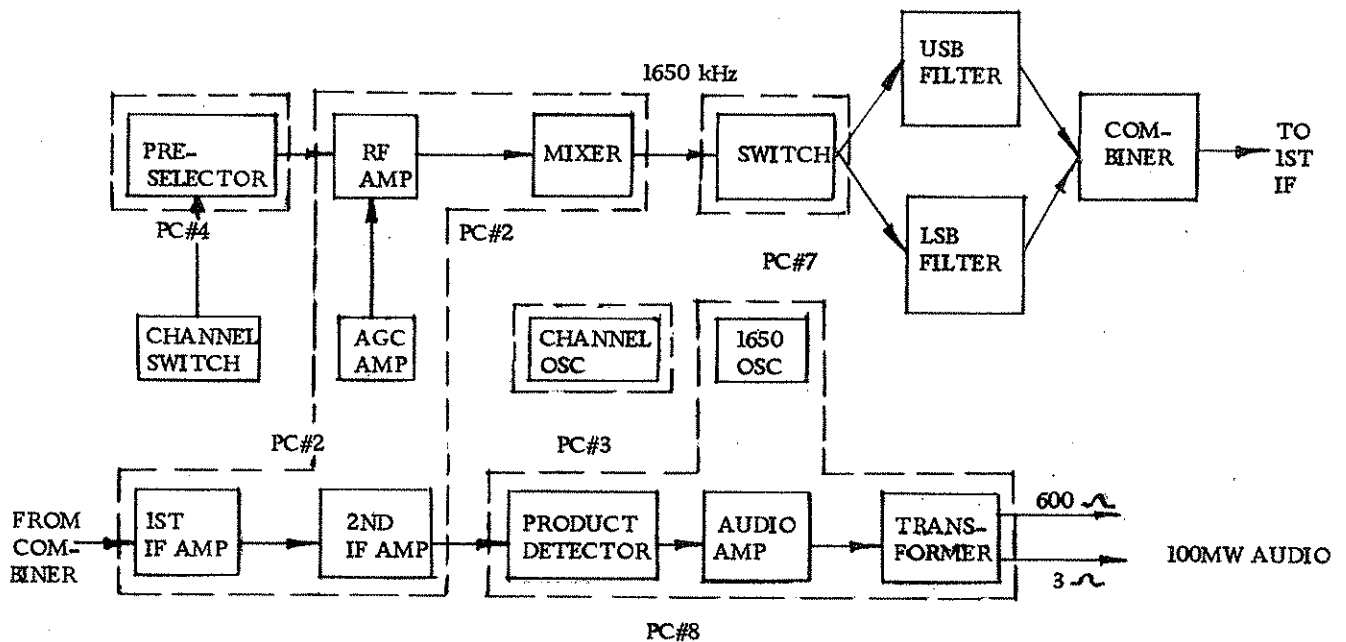
The purpose of the exciter is to accept the voice signal from the microphone, amplify the signal and present it to the balanced modulator. The balanced modulator serves as a modulator for the carrier oscillator (1650 kHz). Both audio sidebands are generated, one above and one below the carrier oscillator. Since the modulator is balanced the carrier oscillator is attenuated approximately 40db and there is no output unless there is an audio signal input.

Since both sidebands are generated in the modulator and only one is transmitted, a filter is used to only allow the selected sideband to pass. The selected sideband (lower sideband for upper sideband operation as frequency inversion occurs in the high frequency mixer) is then routed to the HF mixer. The channel oscillator and selected sideband is mixed in the HF mixer which results in the intelligence being translated up to 1650 kHz above the channel frequency.

The tuned amplifiers following the mixer are tuned to select the difference between the oscillator and the 1650 kHz intelligence. The output is then routed to the power amplifier driver input.

C. RECEIVER

The receiver block diagram is shown below.



As shown in the block diagram, the receiver is a single conversion, conventionally designed unit. A two stage preselector selects the desired band of frequencies and after amplification in the RF amplifier the signal is routed to the mixer. The output of the mixer is 1650 kHz which is switched to the desired filter (either USB or LSB). The signal is further amplified in the two integrated circuit IF amplifiers. The output is rectified by the AGC amplifier which controls the IF amplifier and RF amplifier gain. A signal strength amplifier samples the signal level at this point and drives the front panel meter, indicating received signal strength. Manual gain control is also taken from the AGC amplifier and control the AGC line and audio gain preceeding the audio amplifier.

The IF signal from the 2nd IF amplifier is routed to the product detector along with the 1650 kHz oscillator output. The product detector output is the recovered audio signal and is coupled to a field effect transistor whose conductance is controlled by the manual gain potentiometer. The output of the FET is routed to the integrated circuit audio amplifier whose output is transformer coupled to a loudspeaker. Insertion of the headphone plug interrupts the speaker output and selects the 600 ohm transformer output.

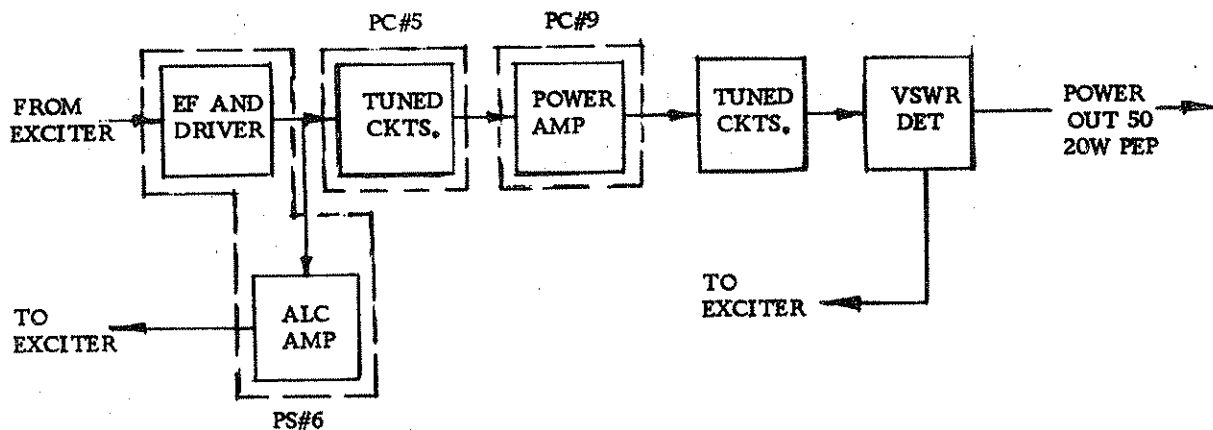
D. SWITCHING AND POWER CONTROL

All switching in the receiver/exciter is accomplished with one wafer switch for channel selection and the mode selector switch on the front panel to select the desired sideband. The switching is accomplished by control of the conductance of the associated diode.

The receiver/exciter AF voltage is switched by the push to talk relay and regulated to 10v by the regulator or PC board.

The power amplifier voltage is also switched by the push to talk relay and is not regulated, coming directly from the A+ line.

E. POWER AMPLIFIER



The power amplifier receives its signal from the exciter (PC#1). It is composed of an emitter follower and tuned driver and a power amplifier to amplify the signal to approximately 20 watt PEP. Final power amplifier is composed of two transistors in parallel operated class AB for linearity purposes. Two circuits, the AGC amplifier and VSWR detector control the level of the exciter output signal and subsequently the power amplifier output. The AGC amplifier samples the driver output and controls the conductance of FET Q108 on PC#1. The VSWR detector monitors the power amplifier load. When the VSWR is within safe limits the detector transistor Q1001 is turned off and does not attenuate the signal through Q108. If the antenna is disconnected or badly detuned, Q1001 starts conducting and lowers the gate signal at Q108 which reduces the power output and prevents damage to the output transistors. The VSWR detector also drives the front panel meter and indicates antenna tuning. For correct tuning the meter reads maximum up-scale and progressively down-scale as the VSWR increases.

F. ANTENNA COUPLER

1. General. The antenna coupler provides the correct impedance match between the power amplifier and either the whip or long wire antenna. When properly adjusted, the coupler transforms either antenna at the selected

channel frequency to a pure 50 ohms resistance to match the 50 ohm output of the power amplifier.

The antenna coupler circuit is an "L" network composed of a series variable capacitor, a shunt inductor in parallel with another variable capacitor. Additionally, an air variable capacitor from antenna to ground is included to allow peaking for the whip or wire antenna. A terminal for a ground radial is installed on the rear handle bracket. Use of the ground radial will increase the effective range of the unit particularly when using the whip antenna.

The meter on the front panel can be used for peaking the antenna system by tuning for a maximum reading. For initial tunings of new channels or a different frequency the use of a thru-line wattmeter is recommended.

The coupler is essentially a group of up to 5 (depending on the number of channels ordered) independent "L" networks using a series capacitor (C1401-10) at the 50 ohm transmitter input and a shunt inductance (L1401) at the output to the antenna. The effective shunt reactance is increased by increasing the parallel capacitance (C1411-20) across the inductor providing $X_c = X_L$. A series capacitor (C1421-5) is inserted in series at the antenna input at frequencies between 6 and 10 MHz to make the antenna appear more capacitive and allow tunings by the "L" sections. A panel mounted variable capacitor is provided to allow for peaking the antenna system under varying conditions.

For Man-Pak operation the coupler should be aligned mounted on the tray and pushed as far into the main case as the coax to the wattmeter will permit. In vehicular mobile operation the coupler should be removed from the base tray and mounted as close to the antenna as possible before alignment. The alignment of the coupler requires the use of a 50 ohm coaxial wattmeter between the radio output and the coupler 50 ohm input. If the whip antenna and long wire antenna are to be used interchangeably, the coupler must be aligned using the whip antenna with the coupler tune knob set on the

crossed line. If either the whip or the long wire antenna will be used exclusively, the unit should be aligned with the coupler knob set approximately in the middle of the range. For Man-Pak use, the coupler must be aligned in an environment free of metallic objects, an open field on a wooden table would be ideal. For fixed operation or vehicular mobile the coupler should be aligned at the installation site.

Due to the poor ground plane afforded any portable HF radio used with a whip, a radial will increase the range of the unit by up to 100% depending upon the frequency. It is recommended that when using the whip antenna, the standard wire antenna be used as a radial if longer range communication is required.

2. Alignment.

- a. Choose the coupler and radio locations.
- b. Connect the wattmeter and antenna (whip with radial or long wire antenna kit).
- c. Set coupler tune knob at proper position.
- d. The coupler has been pretuned at the factory for use as a Man-Pak transceiver for the channel frequencies installed, therefore no alignment should be required on a new radio. However, a check should be made on each channel for forward and reflected power output.
- e. For installation as a vehicular mobile the coupler should be realigned before mounting. A short length of grounding strap should be securely connected to the point of installation and to the coupler mounting screws. No change of components or tap should be necessary. However, should a change be needed, it should be made in the steps outlined under "Frequency Change and Alignment".

SECTION IV
TROUBLESHOOTING

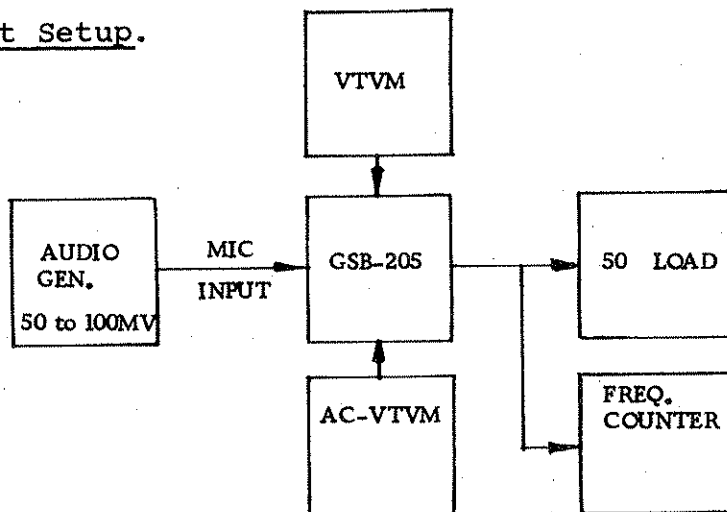
A. EXCITER

As shown in the block diagram in section III-B the exciter active circuits are contained on boards number 1 & 3.

1. Test Equipment Required.

- a. VTVM
- b. Oscilloscope or AC-VTVM
- c. Audio signal generator
- d. Frequency counter
- e. 50 ohm non-inductive load

2. Test Setup.



3. Test Procedure. After connecting the test equipment as shown above refer to the schematic diagrams and component layout drawings and trace the signal through the exciter. The schematic diagrams contain all pertinent wave shapes and voltage measurements. If the channel frequency is checked at the exciter or PA output, it should read the

channel frequency. If it is checked prior to the mixer, it should read the channel frequency plus 1650 kHz.

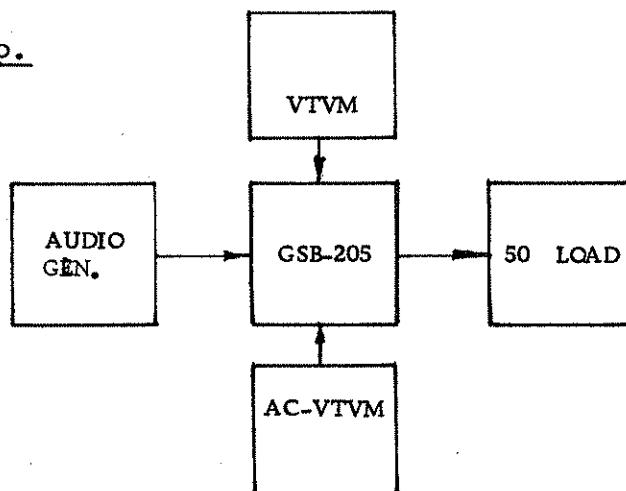
B. POWER AMPLIFIER

The power amplifier circuitry is contained in the front half of the GSB-205 chassis. The block diagram is shown in Section III-E. The VSWR detector has been set at the factory to protect the output transistors from failure when operating into an untuned load or open circuit. Changing this setting could result in transistor failures during antenna coupler tuning or if the load is disconnected while the transmitter is keyed.

1. Test Equipment Required.

- a. VTVM
- b. Oscilloscope or AC-VTVM
- c. 50 ohm non-inductive load
- d. Audio generator

2. Test Setup.



If available, an RF signal generator may be used to inject the channel RF signal directly into the PA emitter follower.

3. Test Procedure. After connecting the test equipment as shown, refer to the schematic diagram and component layout drawings and trace the signal through the circuit. All pertinent voltage and wave forms are shown on the drawings.

C. RECEIVER

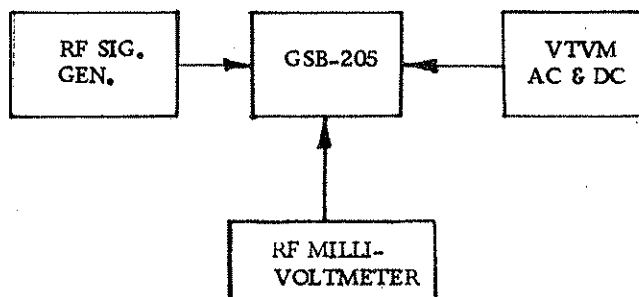
The receiver circuitry is contained on three boards, the RF preselectors are mounted on board 4, the RF amplifier, mixer and IF amplifier are mounted on board 2, and the detector and audio amplifier are mounted on board 8.

The complete receiver may be tested by injecting an RF signal at the antenna input and tracing the signal through to the audio output. If trouble is suspected after the mixer, a 1650 kHz signal may be inserted at the 1st IF amplifier.

1. Test Equipment Required.

- a. RF signal generator
- b. RF millivoltmeter or oscilloscope
- c. VTVM, AC and DC

2. Test Setup.



3. Test Procedure. After setting up the equipment as shown in paragraph 2 refer to the schematic and component layout drawings and trace the signal through the receiver. Receiver tuning is accomplished by setting the RF signal generator to the channel frequency and increase the level until an audio output is received with the gain control full on. Adjust L204 and L203 for maximum output, reduce the input if necessary.

Adjust L201 and L202 for maximum output. Adjust the channel preselector coils on PC4 for maximum output. Set the signal generator to 10MV. Connect the VTVM to pin 4, PC8, and adjust R823 for 4.6 VDC. Connect the AC-VTVM to the speaker terminals and adjust R826 for 100MW output between pins 5 and 6, PC8 (3.5VAC) or 7VAC into 500 ohm load to headphone jack.

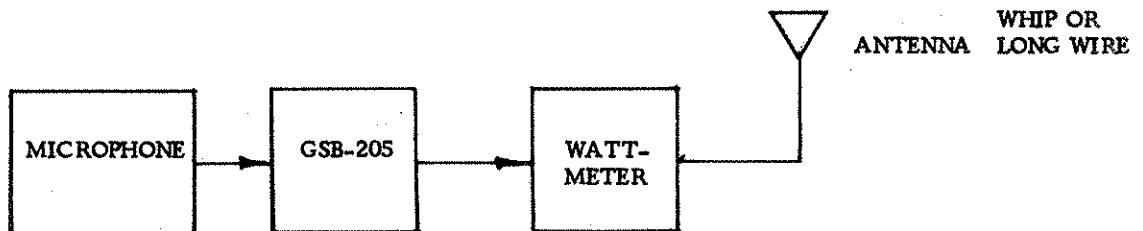
D. ANTENNA COUPLER

The antenna coupler is composed entirely of passive devices, inductors and capacitors and the only maintenance normally required would be tuning because of a frequency or antenna change. The following procedure should be followed to tune the coupler.

1. Equipment Required.

- a. Thru-line wattmeter
- b. Microphone or CW module if installed

2. Test Setup.



3. Test Procedure.

- a. Connect the equipment as shown above. Pull the radio out of the case just far enough to connect the wattmeter.

It is important to leave the radio in the case as it affects the tuning of the coupler. If the radio is to be installed on a frame such as an automobile, it should be tuned at the installation site. If the radio is to be used as a back pack or base station on a wooden table, it should be tuned on the table.

- b. Set the coupler tune knob to the crossed lines on the front panel, if the whip and long wire antenna are to be used interchangeably. If either the whip or the long wire is to be used exclusively, set the knob to center position.
- c. Key and whistle into the microphone (if the CW module is installed, it can be used during tunings using the telegraph key or shorting pins C and D on the key connector).
- d. Adjust the channel shunt capacitor (C1411-15) for a dip in reflected power as shown on the wattmeter. If no dip appears, change the series capacitor (C1401-05) by about 10 turns. Adjust C1411-15 for a dip.
- e. After a dip has been reached, increase the series capacitance by turning the piston screw clockwise, then re-dip the reflected power by means of C1411-15. If this dip is lower than the previous dip, repeat the procedure until the reflected power is zero. If the second dip is higher in reflected power than the first dip, decrease the series capacitance (C1401-05) by turning the piston screw counter-clockwise and repeat this procedure until the reflected power is zero. If a dip in reflected power is still being approached and the shunt capacitor (C1411-15) is at maximum or minimum, it is necessary to change the top on the air dux coil. If the shunt capacitor is at a maximum, more inductance is required, therefore move the top down the coil about 4 turns. If the shunt capacitor is at a minimum, less inductance is required, therefore move the top up the coil about 4 turns. Between 2.0 and 2.6 MHz a fixed shunt capacitor is across the shunt capacitor (C1411-15). A 100pf capacitor is used at 2 MHz and decreases down to zero at 2.6 MHz.

SECTION V

BAND CHANGING

A. FREQUENCY BANDS

The receiver/transmitter frequency spectrum is divided into five bands. Any frequency change that does not exceed the band limit can be made by retuning the receiver/transmitter tuned circuits and changing crystals. There are four frequency determining modules in the radio: the receiver RF preselector, the exciter tuned circuits, the driver tuned circuit and the final PA tuned circuit. The frequency bands and modules are divided as shown in the table below.

BAND	COLOR IDENT.	FREQ. MC	PART NUMBER			
			PRE-SELECTOR MODULE	EXCITER MODULE	DRIVER MODULE	PA MODULE
1	Brown	2.0 - 2.6	99664-1	99665-1	99663-1	99662-1
2	Red	2.6 - 3.5	" -2	" -2	" -2	" -2
3	Orange	3.5 - 4.5	" -3	" -3	" -3	" -3
4	Yellow	4.5 - 6.0	" -4	" -4	" -4	" -4
5	Green	6.0 - 7.9	" -5	" -5	" -5	" -5
6	Blue	7.9 -10.3	" -6	" -6	" -6	" -6

If it becomes necessary to change frequency from one band to another, order the appropriate modules by part number. The channel crystal part number is 81793 and requires that the channel frequency be specified.

B. FREQUENCY CHANGE AND ALIGNMENT

Band changes can easily be made in the field by a qualified technician.

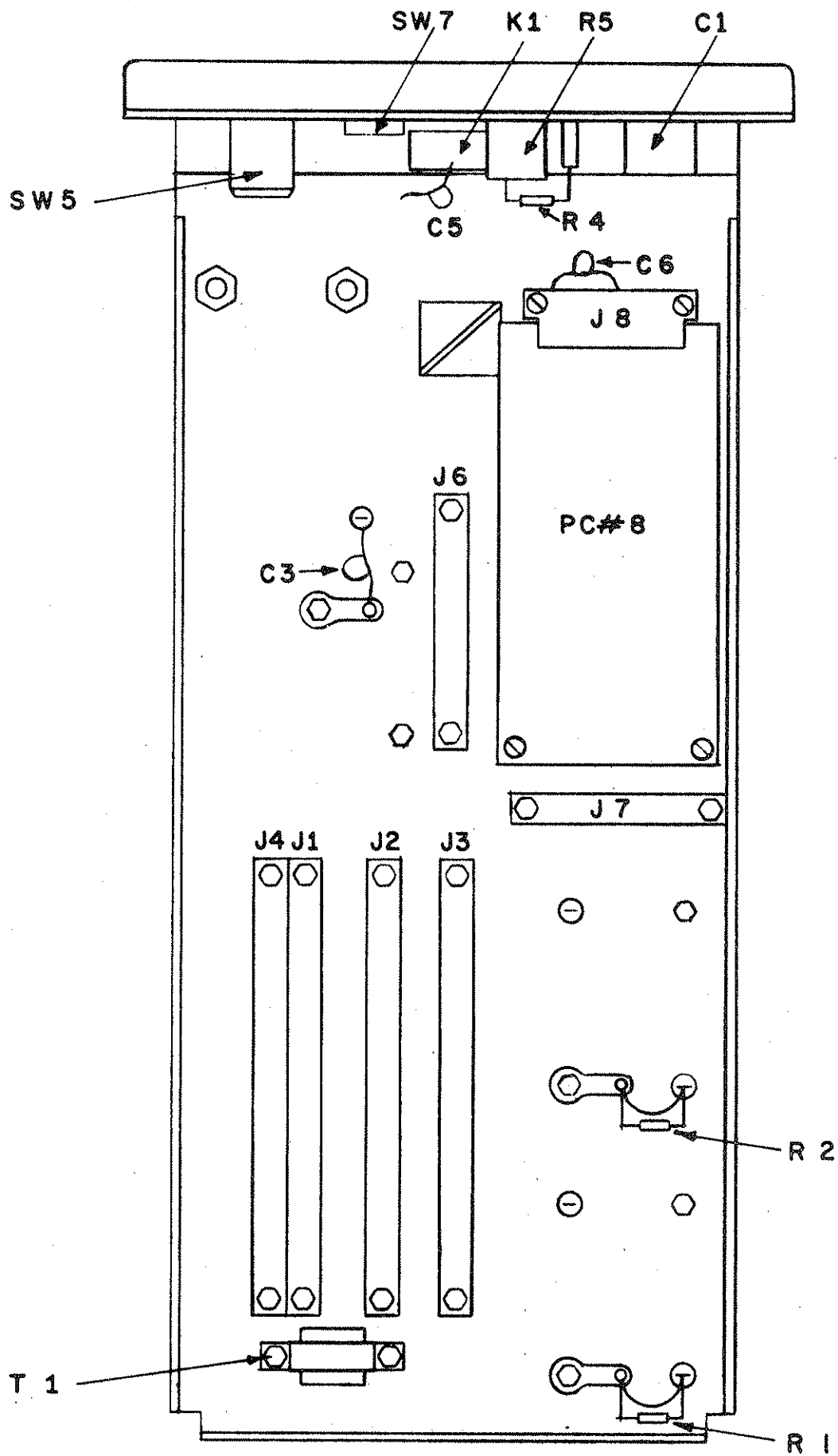
All band changing is accomplished by changing four modules, the preselector, exciter, driver, the PA and the channel crystal. After installing the correct modules as shown in V-A, the modules must be tuned to the correct frequency and the crystal pulled to the channel operating frequency by the glass trimmers located on PC3.

1. Alignment Procedure.

- a. Crystal Frequency. Connect a frequency counter to pin D of PC3 and adjust the appropriate glass trimmer capacitor on PC3 to the channel operating frequency plus 1650 kHz. It should be possible to set the frequency to within ± 0 cycles of the correct frequency.
- b. Receiver. After inserting the preselector module connect the RF signal generator to the antenna input. Connect an AC-VTVM or oscilloscope to the audio output and set signal generator to the center response frequency. Tune the preselector and reduce the generator input until maximum response is achieved with the lowest signal input with the generator tuned to the channel center frequency.
- c. Exciter/Driver/PA. Install all three modules and connect a 50 ohm load to the PA output. Connect an oscilloscope or AC-VTVM or thru-line wattmeter at the antenna output in order to check for maximum response. Key and whistle into the microphone and tune the exciter tuned circuits for maximum output. Then tune the driver circuits, then the PA circuits for maximum response. After complete tuning, the output power should be between 8 and 10 watts while whistling into the microphone.

SECTION VI

ILLUSTRATIONS



GSB-205, BOTTOM VIEW

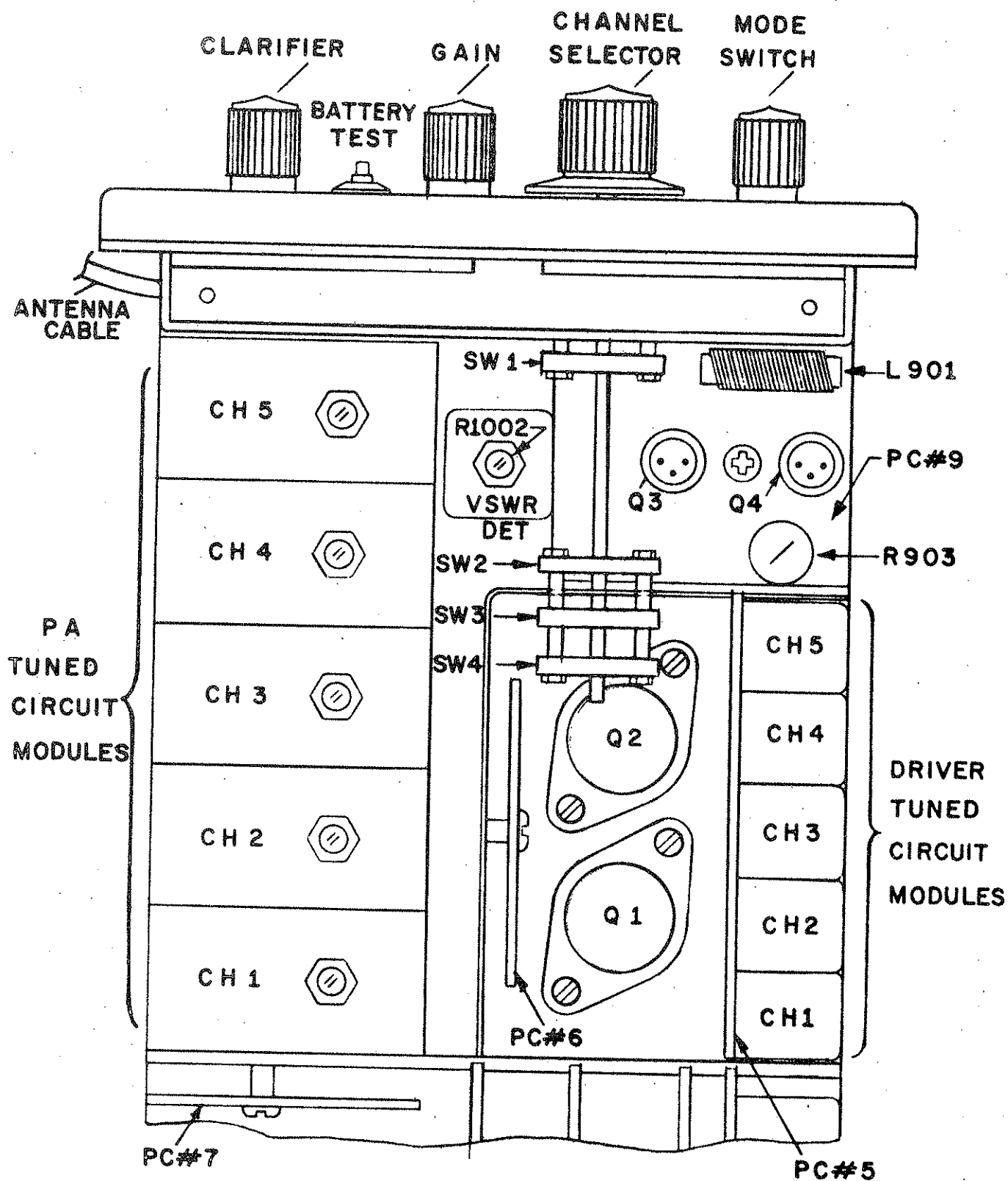
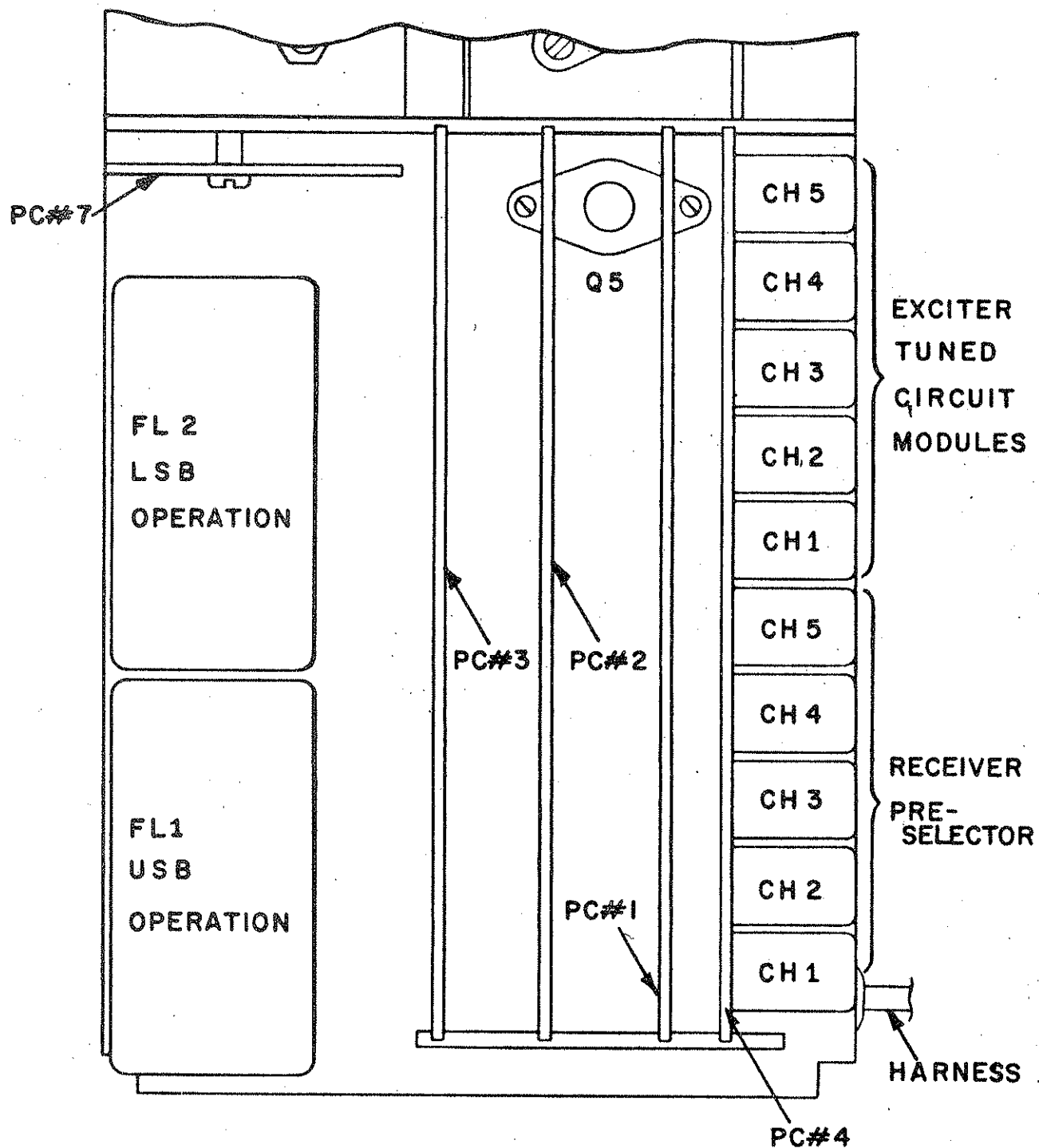
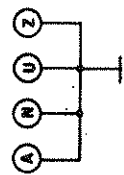


Fig. 2

POWER AMPLIFIER, TOP VIEW

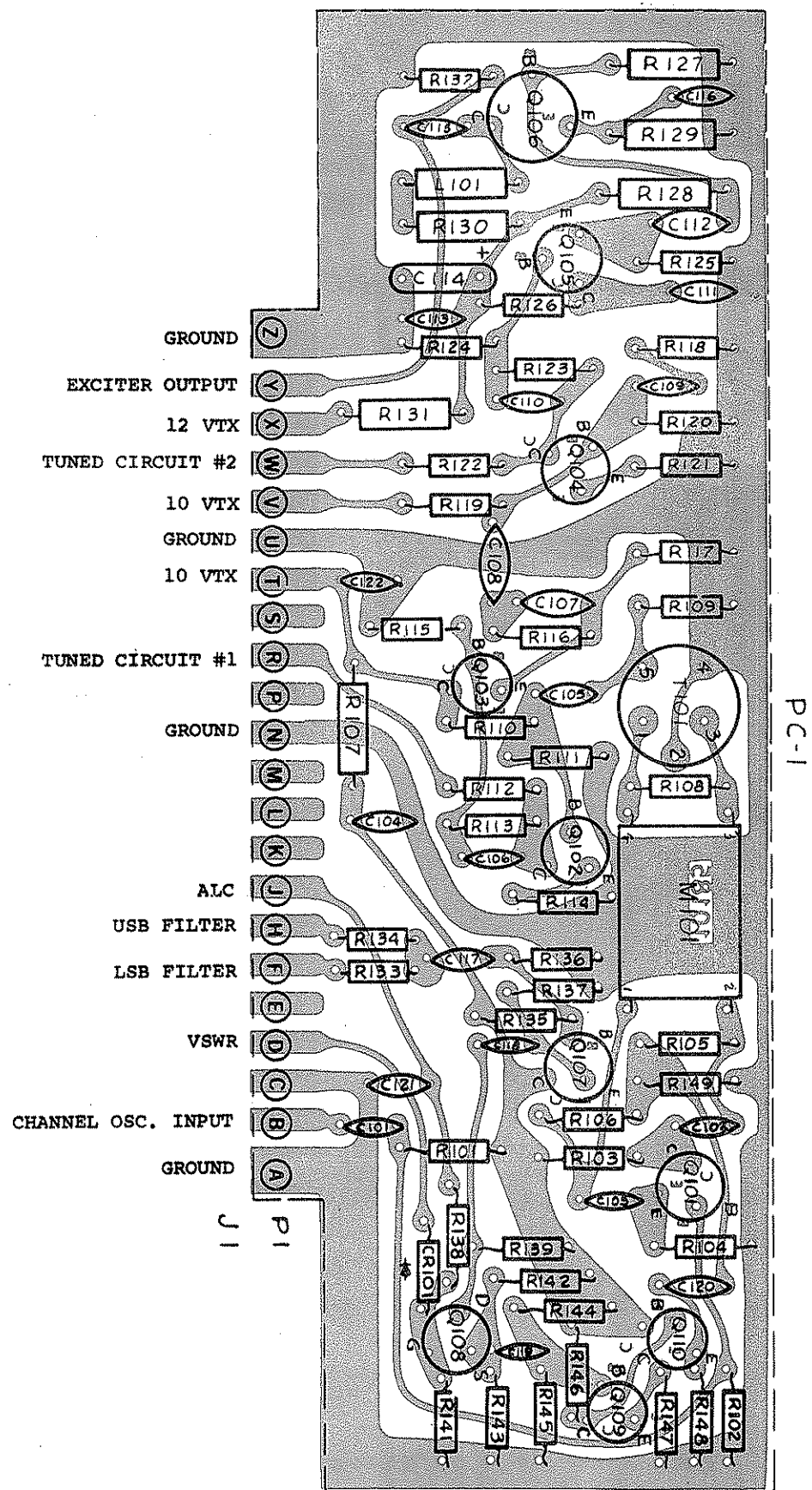


RECEIVER/EXCITER, TOP VIEW



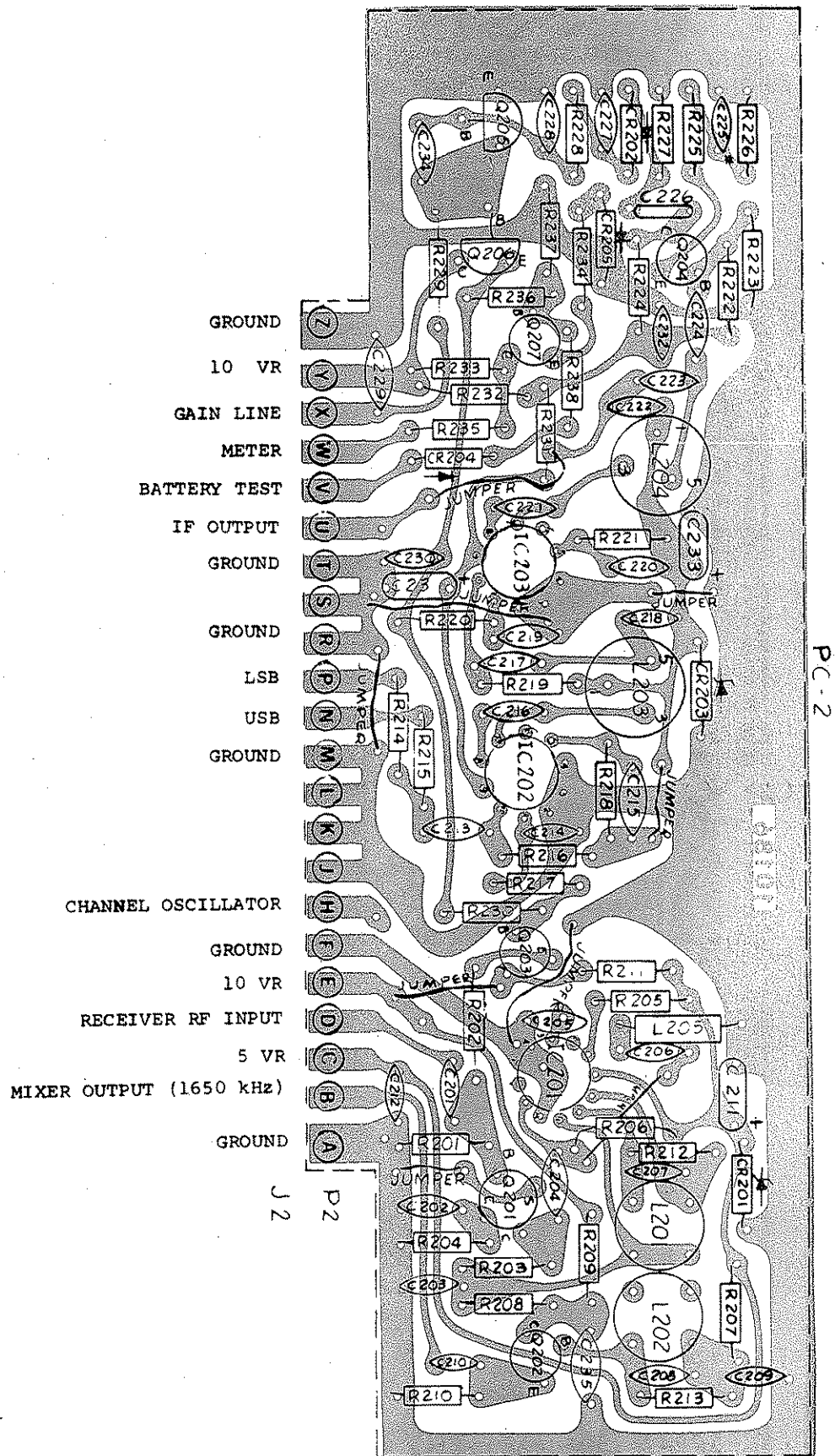
NOTES

EXCITER, SCHEMATIC



EXCITER, PC BOARD - 1

Fig. 4a



RECEIVER, PC BOARD - 2

Fig. 5a.

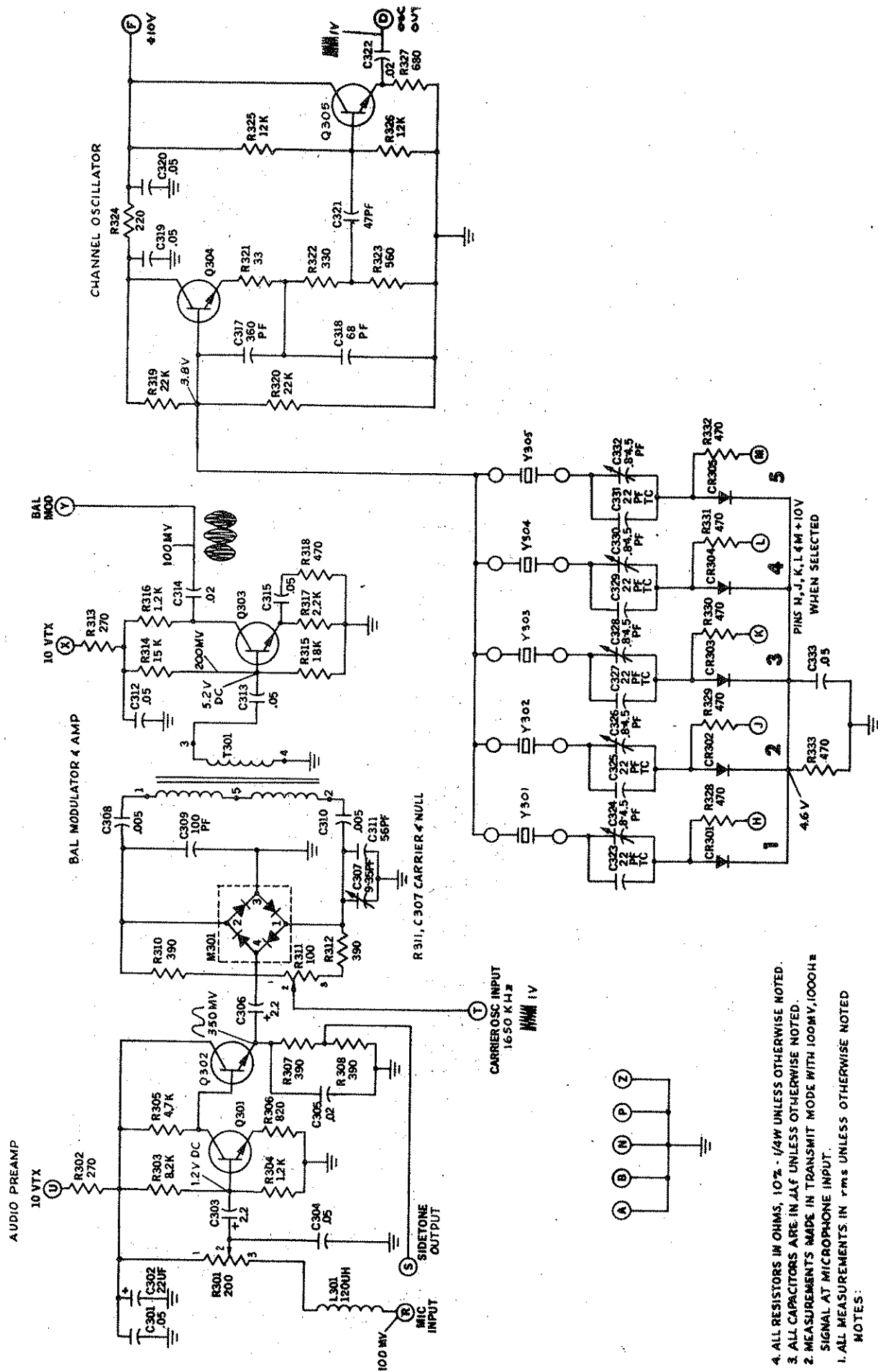
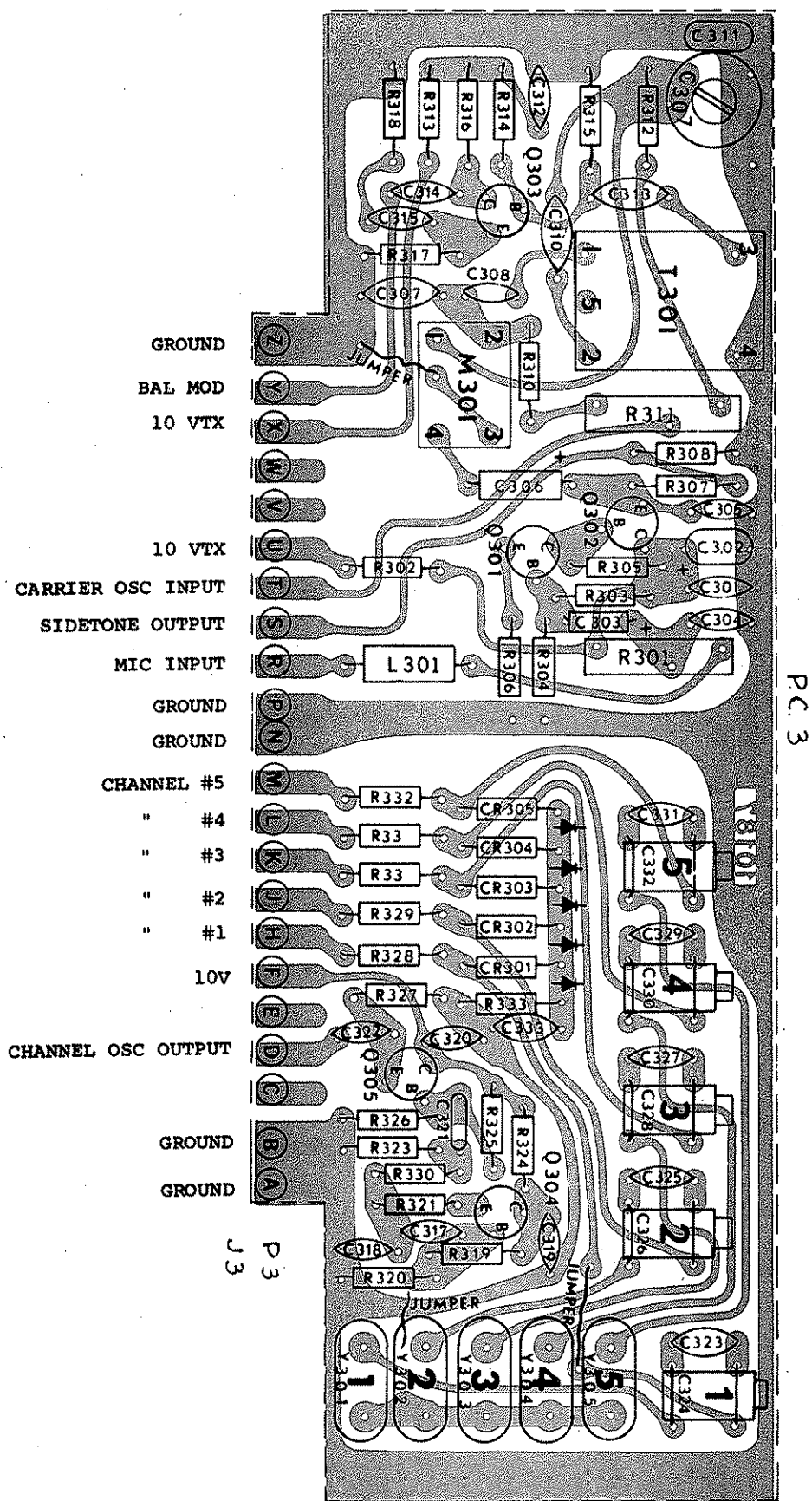


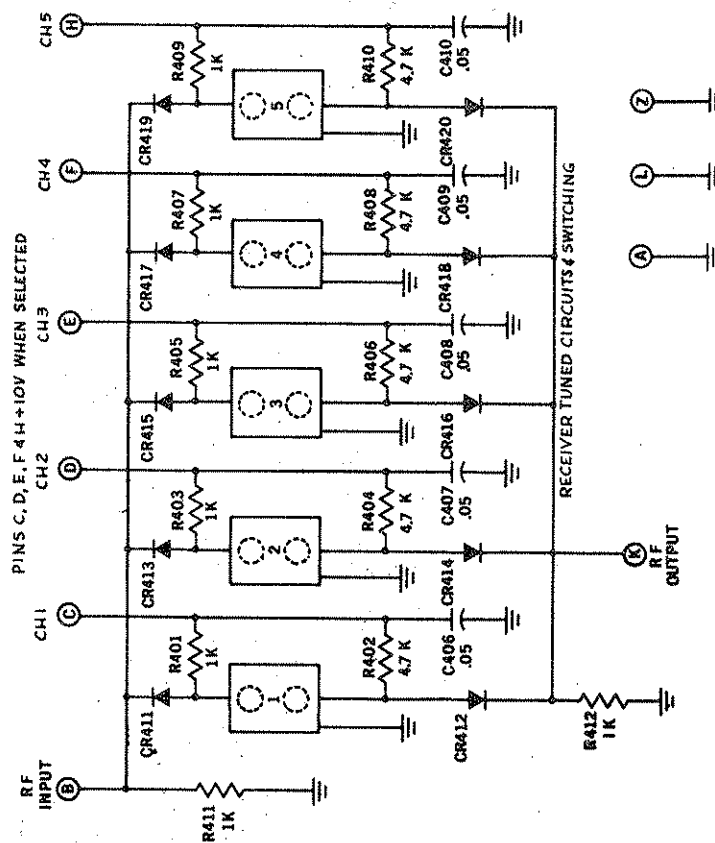
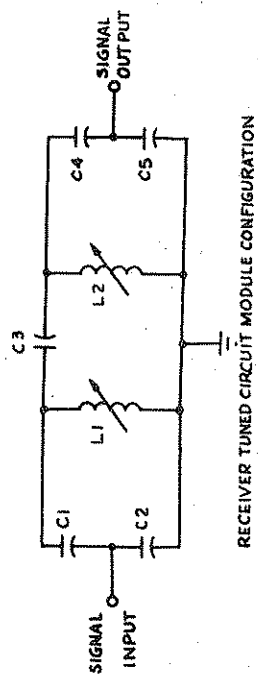
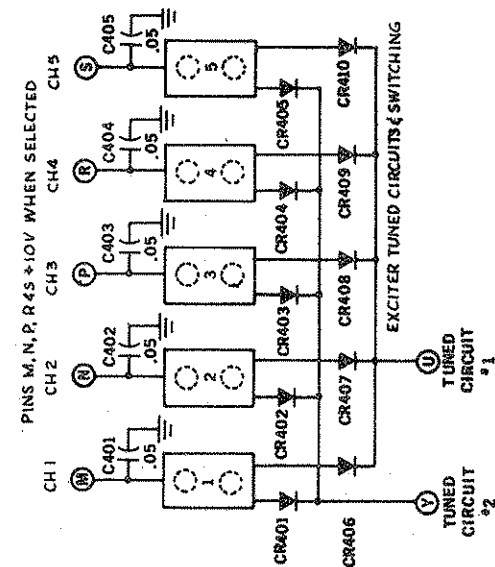
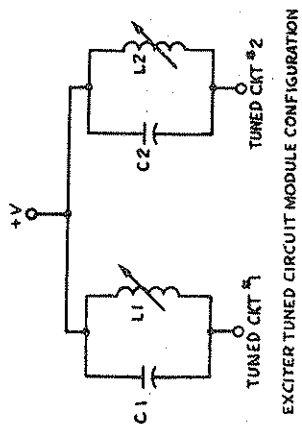
Fig. 6

BAL. MOD. & CHAN. OSC., SCHEMATIC

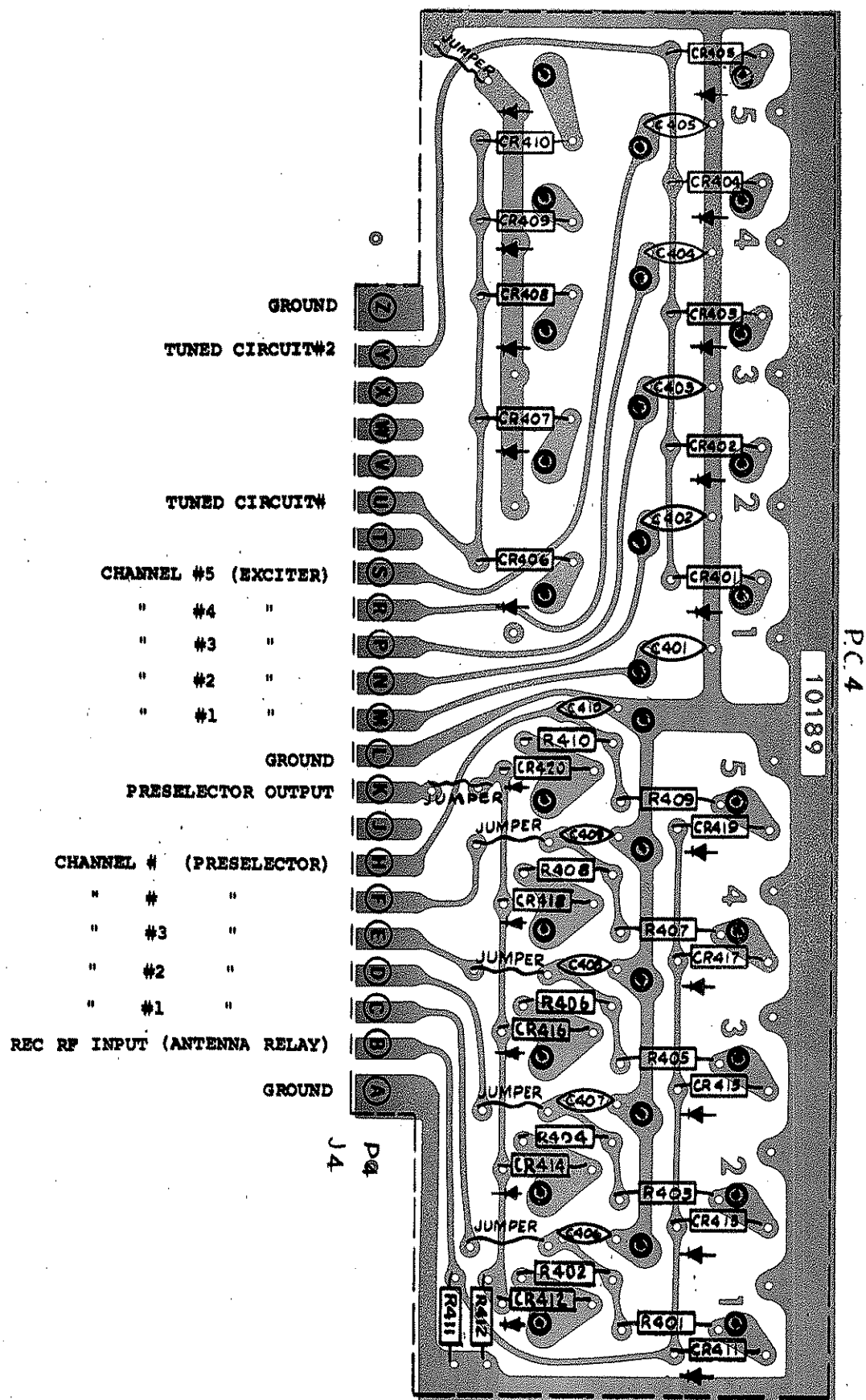


BAL. MOD. & CHAN. OSC., PC BOARD-3

Fig. 6a



- NOTES:
1. ALL CAPACITORS IN μf UNLESS OTHERWISE NOTED.
 2. ALL RESISTORS IN OHMS, 10% - 1/4W UNLESS OTHERWISE NOTED.



PRESELECTOR & EXCITER, PC BOARD - 4

Fig. 7a

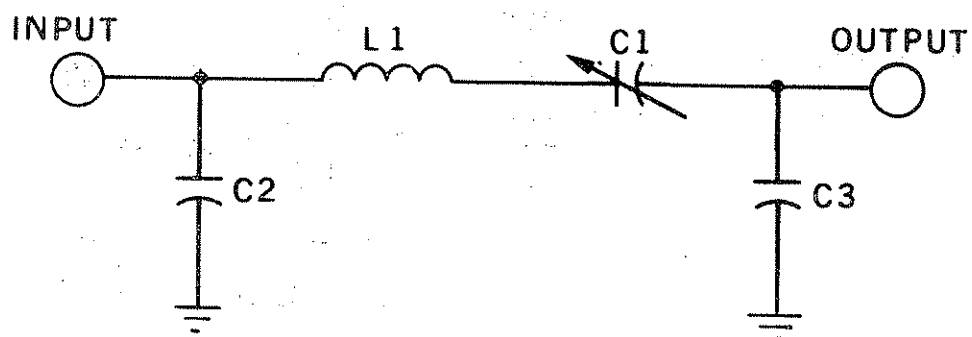
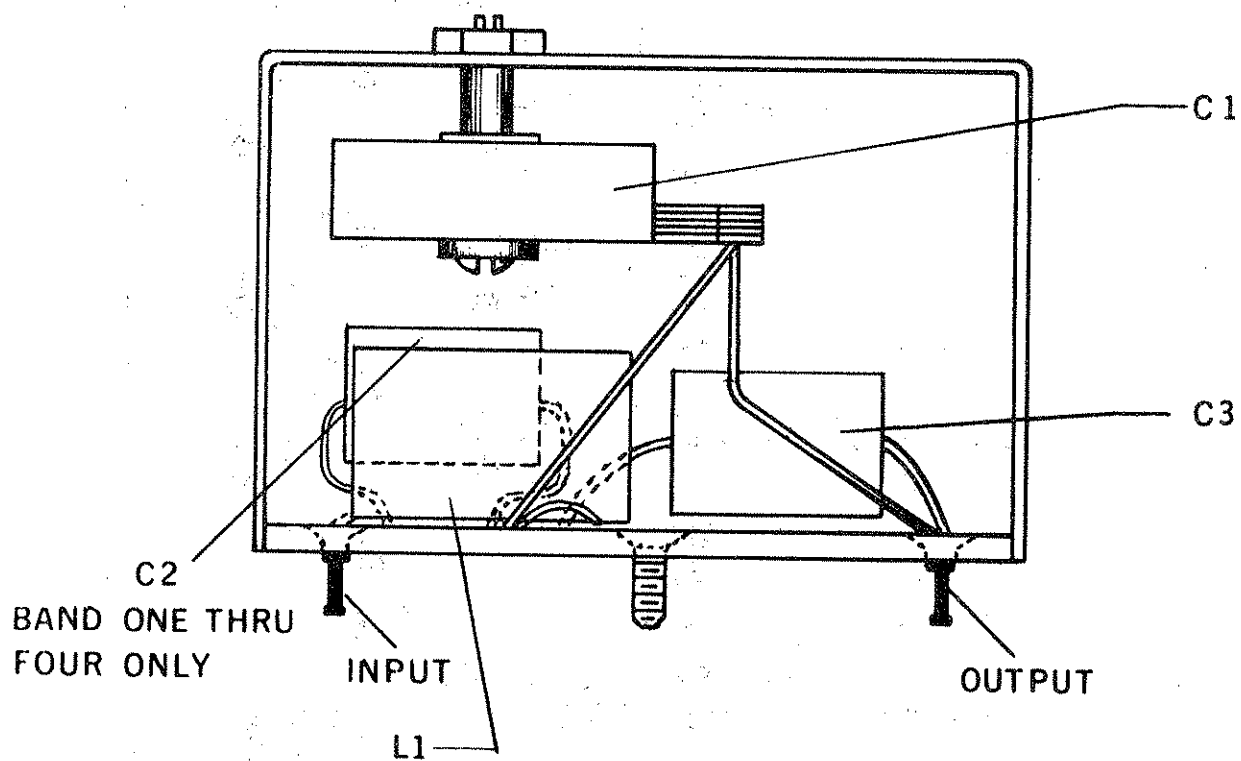
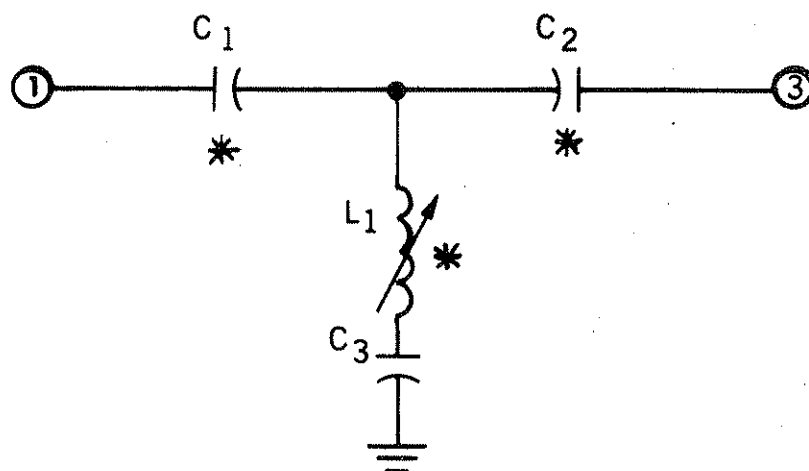
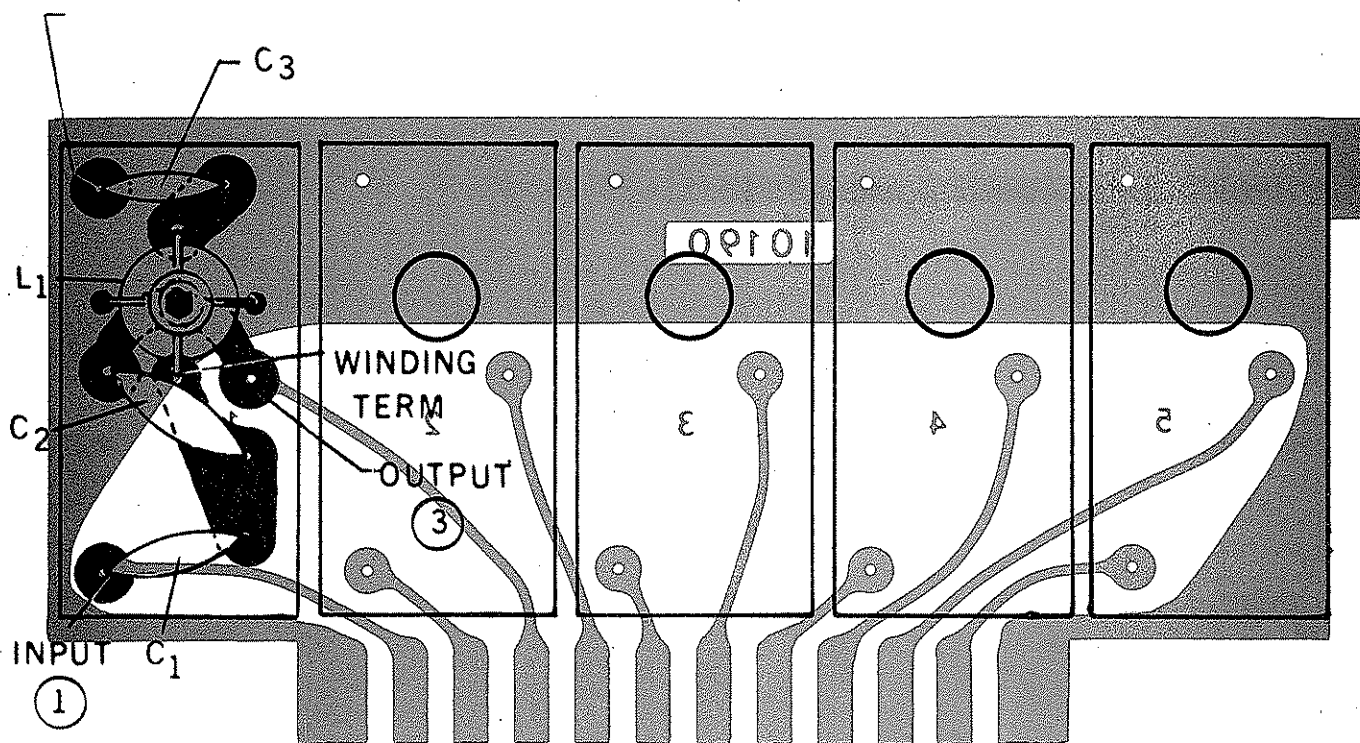
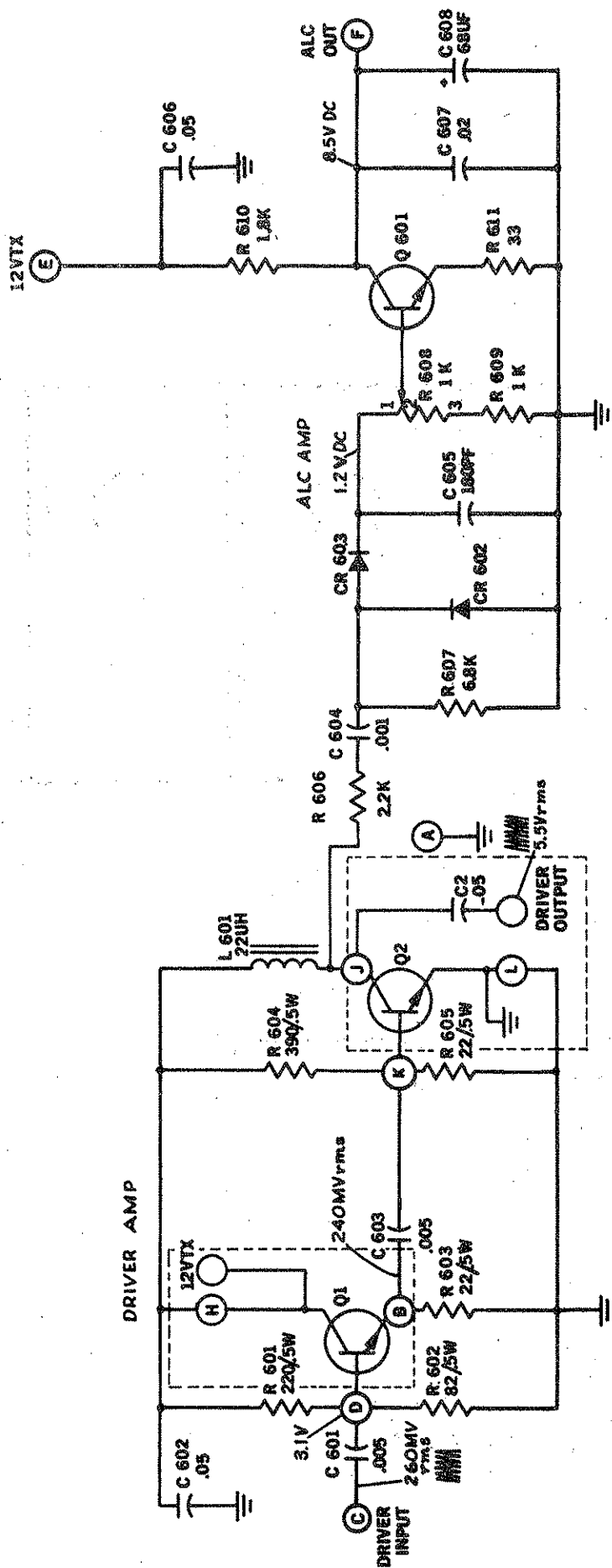


Fig. 8

P.A. TUNED CIRCUIT MODULES



* FREQUENCY DEPENDENT COMPONENTS

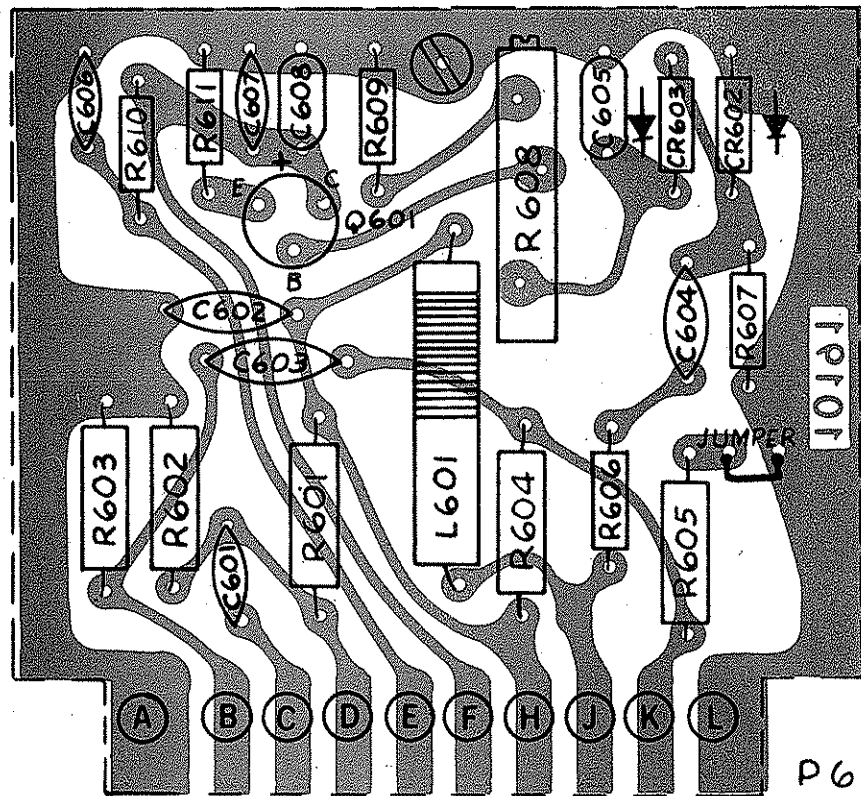


- NOTES:
4. ALL RESISTORS IN OHMS, 10% - 1/4W UNLESS OTHERWISE NOTED.
 3. ALL CAPACITORS IN μF UNLESS OTHERWISE NOTED.
 2. Q1 & Q2 MOUNTED ON CHASSIS.
 1. MEASUREMENTS WITHIN $\pm 10\%$ AND MADE IN TRANSMIT MODE WITH 100MV, 1000Hz AT MICROPHONE INPUT.

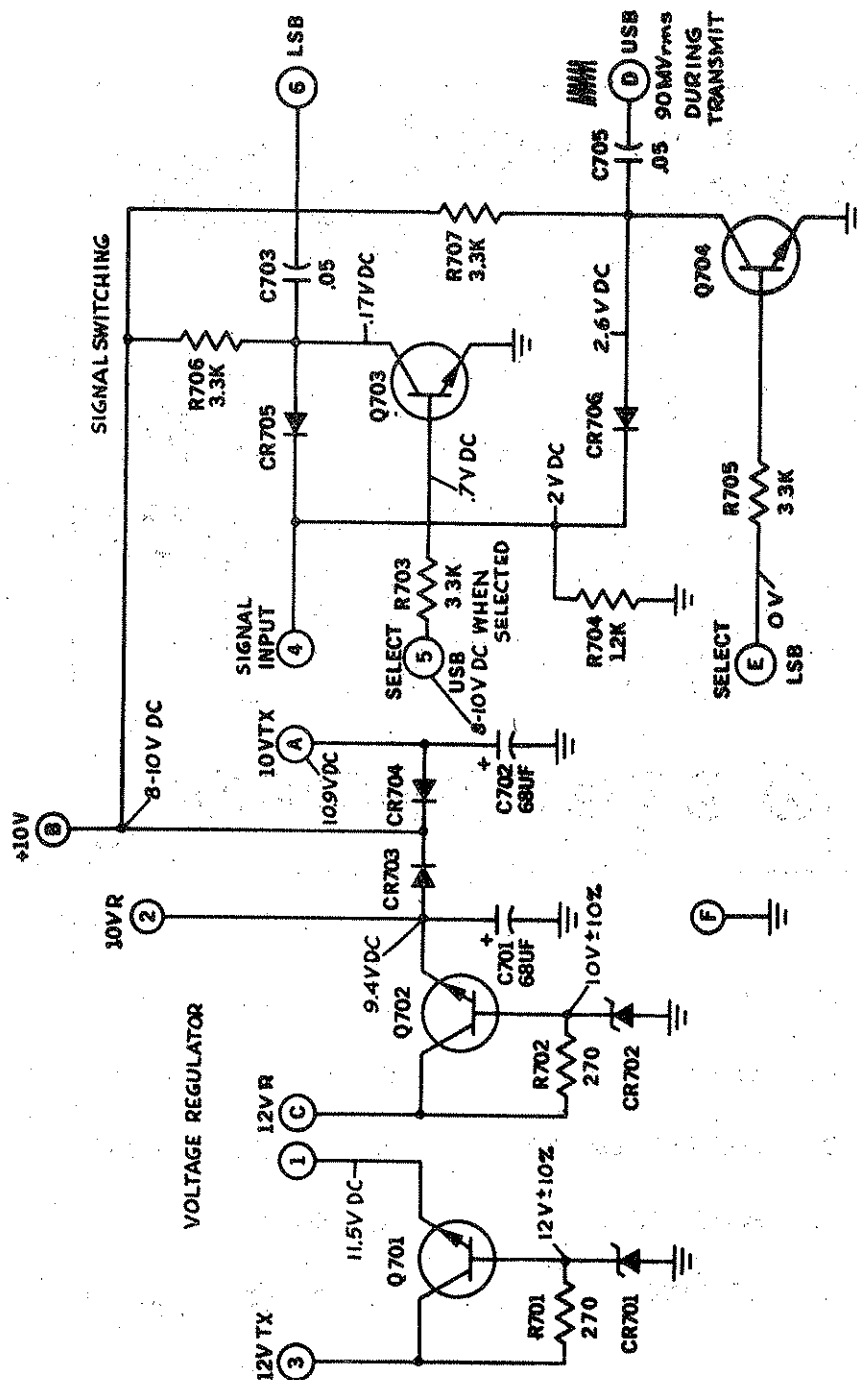
Fig. 9

ALC. & DRIVER BIAS, SCHEMATIC

P.C. 6



- | | |
|-----------------|-----------------|
| A. GROUND | F. ALC OUT |
| B. EMITTER Q1 | H. COLLECTOR Q1 |
| C. DRIVER INPUT | J. COLLECTOR Q2 |
| D. BASE OF Q1 | K. BASE Q2 |
| E. 12 VTX | L. EMITTER Q2 |

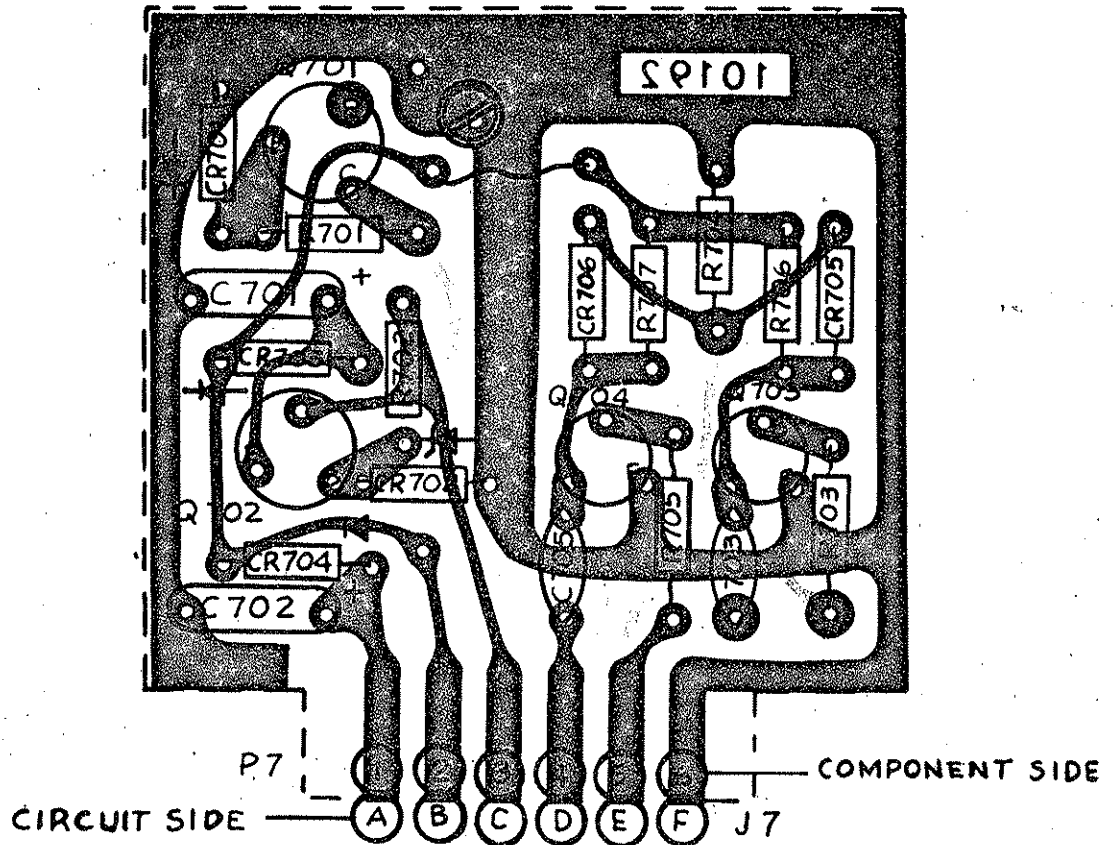


- NOTES:
4. ALL RESISTORS IN OHMS, 10% - 1/4 W UNLESS OTHERWISE NOTED.
 3. ALL CAPACITORS IN μ F UNLESS OTHERWISE NOTED.
 2. USB MODE SELECTED
 1. VOLTAGE READINGS OF Q703 & Q704 STAGES REVERSE WHEN OPPOSIT MODE IS SELECTED.

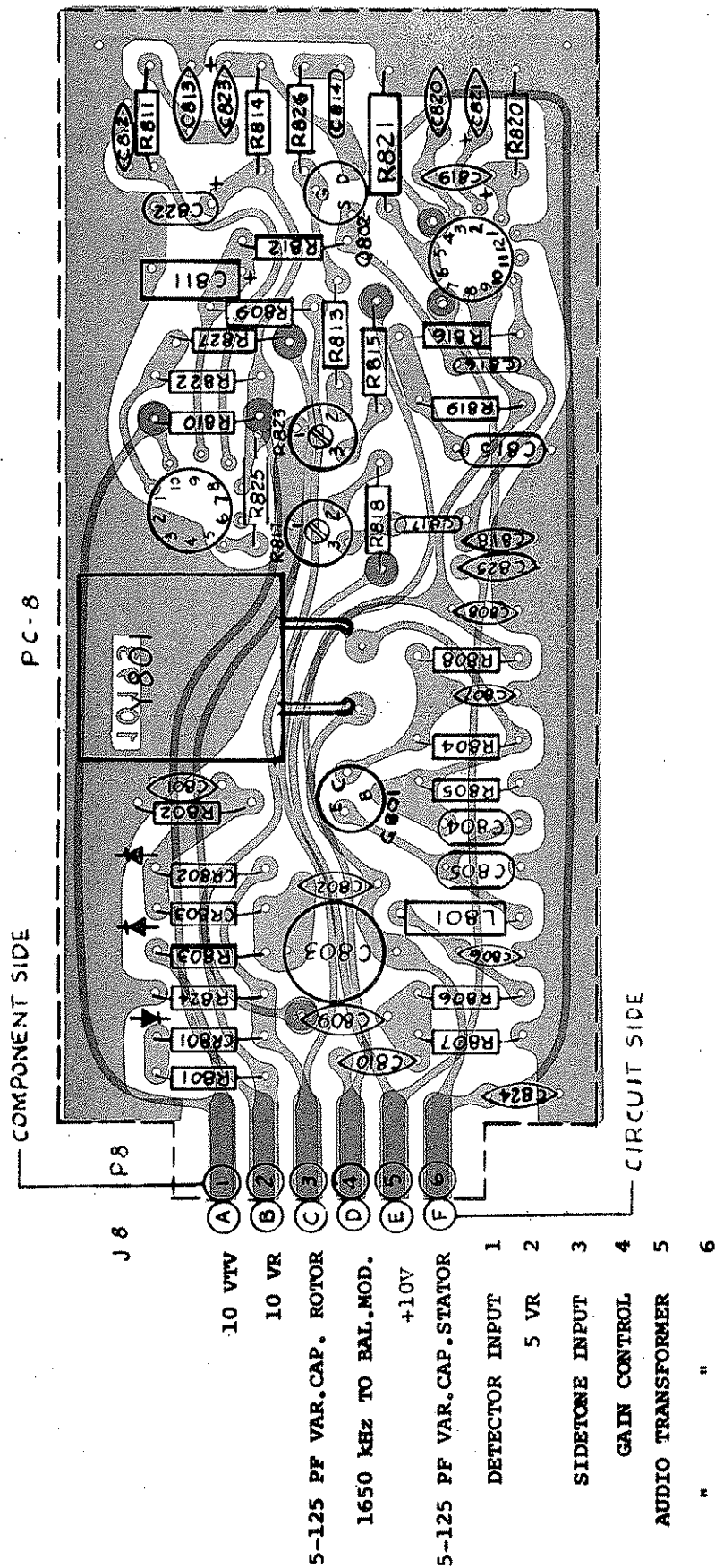
Fig. 10

VOLTAGE REGULATOR & SWITCHING, SCHEMATIC

PC-7

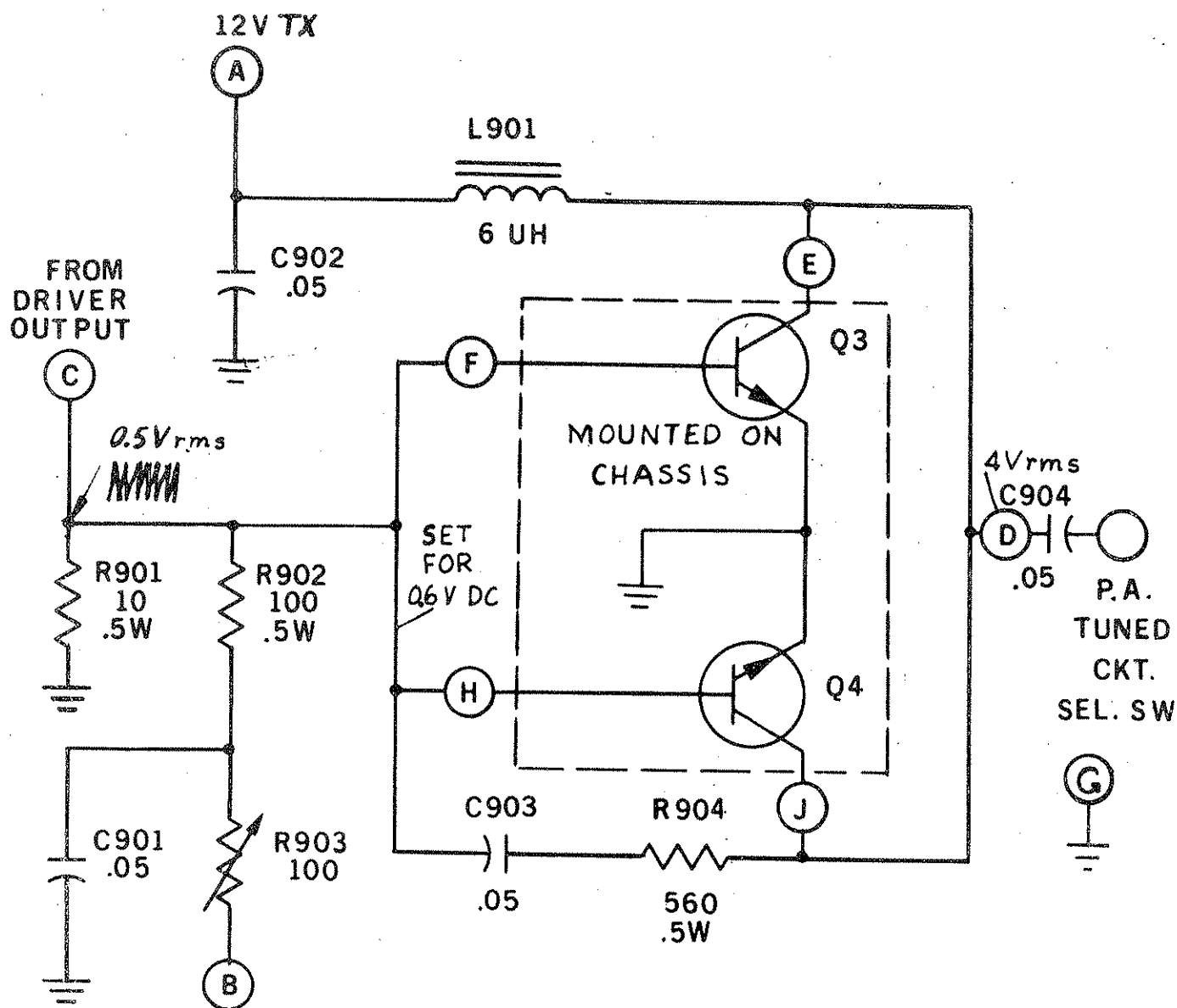


- | | |
|---------------|-----------------|
| A. 10 VTX | 1. 12 VR |
| B. +10V | 2. 10 VR |
| C. 12 VR | 3. 12 VTX |
| D. USB | 4. SIGNAL INPUT |
| E. SELECT LSB | 5. SELECT USB |
| F. GROUND | 6. LSB |



1650 OSC. PROD. DET. AUDIO, PC BOARD-8

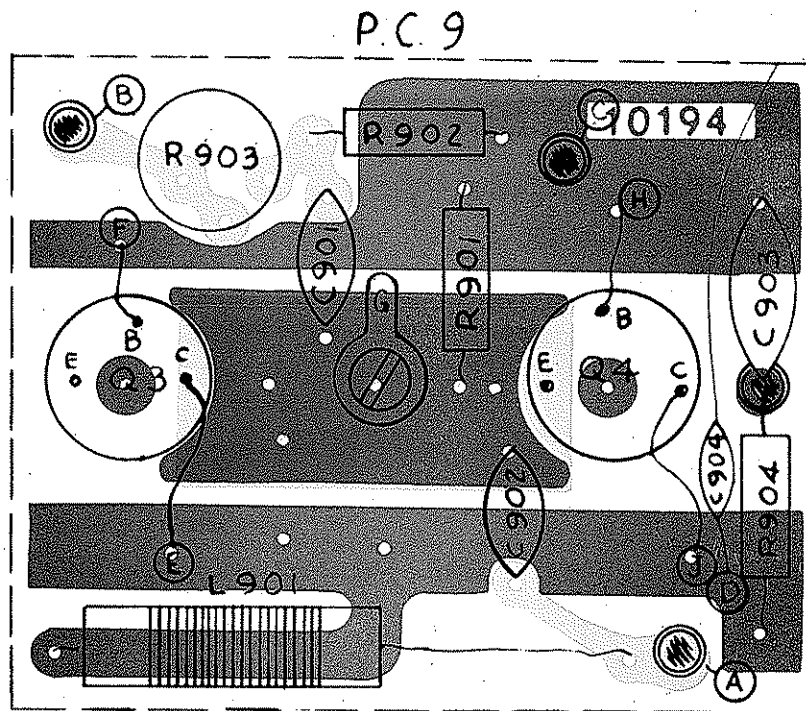
Fig. 11a



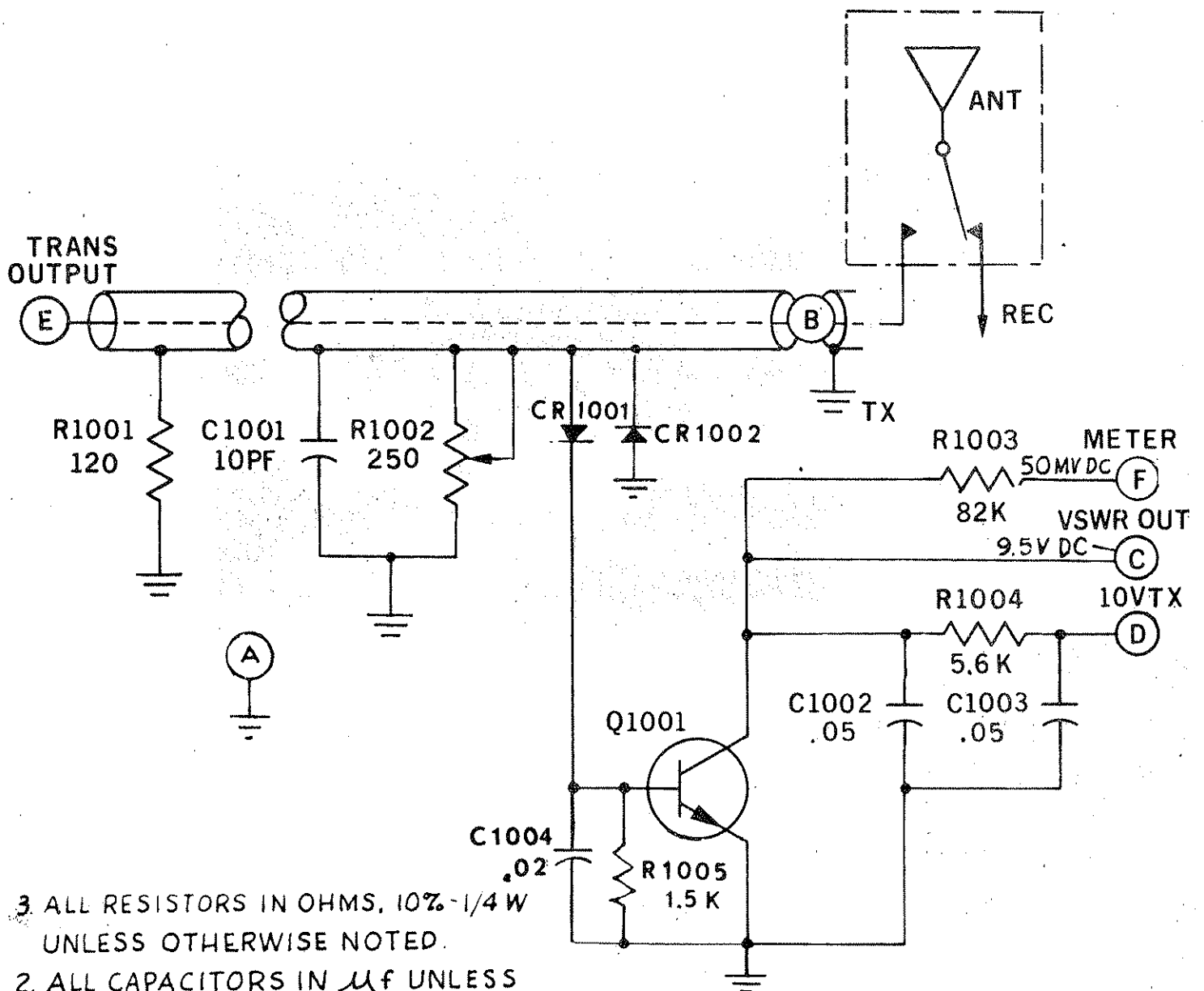
- 10 VTX
- NOTES:
1. MEASUREMENTS WITHIN $\pm 10\%$ & MADE IN TRANSMIT MODE WITH 8 WATTS AVERAGE OUTPUT.
 2. ALL CAPACITORS IN μF UNLESS OTHERWISE NOTED.
 3. ALL RESISTORS IN OHMS, 10% $1/4$ W UNLESS OTHERWISE NOTED.

Fig. 12

POWER AMPLIFIER, SCHEMATIC



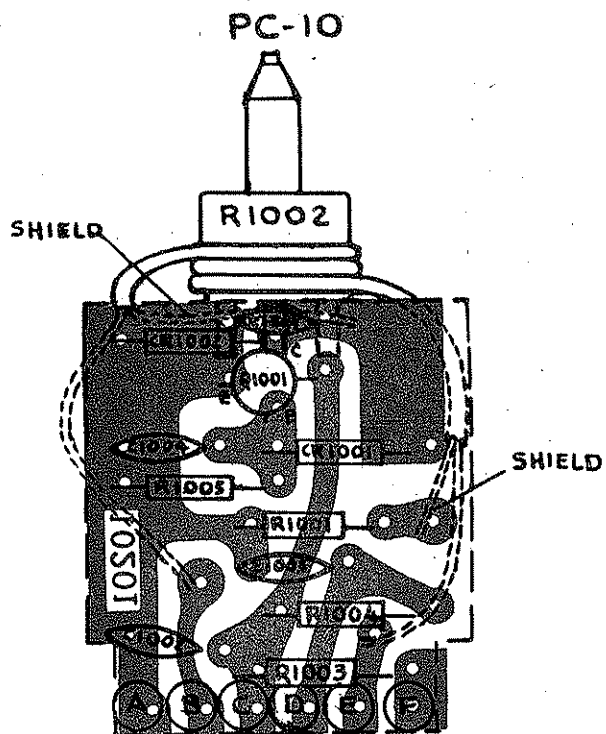
- | | |
|--------------------|-----------------|
| A. 12 VTX | F. BASE Q3 |
| B. 10 VTX | G. GROUND |
| C. FROM DRIVER OUT | H. BASE Q4 |
| D. P.A. TUNED CKT | J. COLLECTOR Q4 |
| E. COLLECTOR Q3 | |



3. ALL RESISTORS IN OHMS, 10% - 1/4 W UNLESS OTHERWISE NOTED.
 2. ALL CAPACITORS IN μ f UNLESS OTHERWISE NOTED.
 1. MEASUREMENTS WITHIN $\pm 10\%$ & MADE IN TRANSMIT MODE WITH 8 WATTS AVERAGE OUTPUT.
- NOTES:

Fig. 13

VSWR DETECTOR, SCHEMATIC



- A. GROUND
- B. TX
- C. VSWR OUT
- D. 10 VTX
- E. TRANS OUT
- F. METER

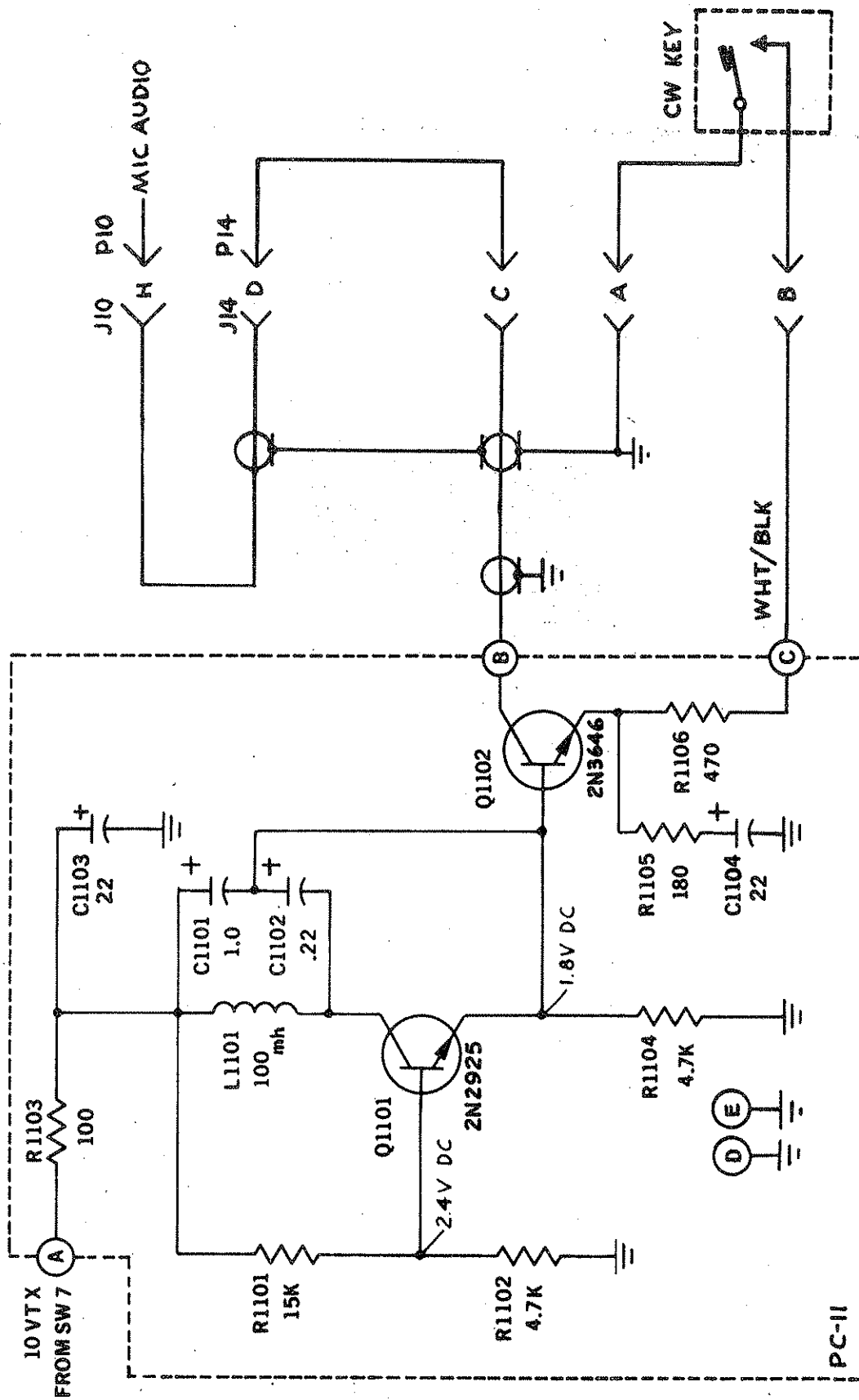
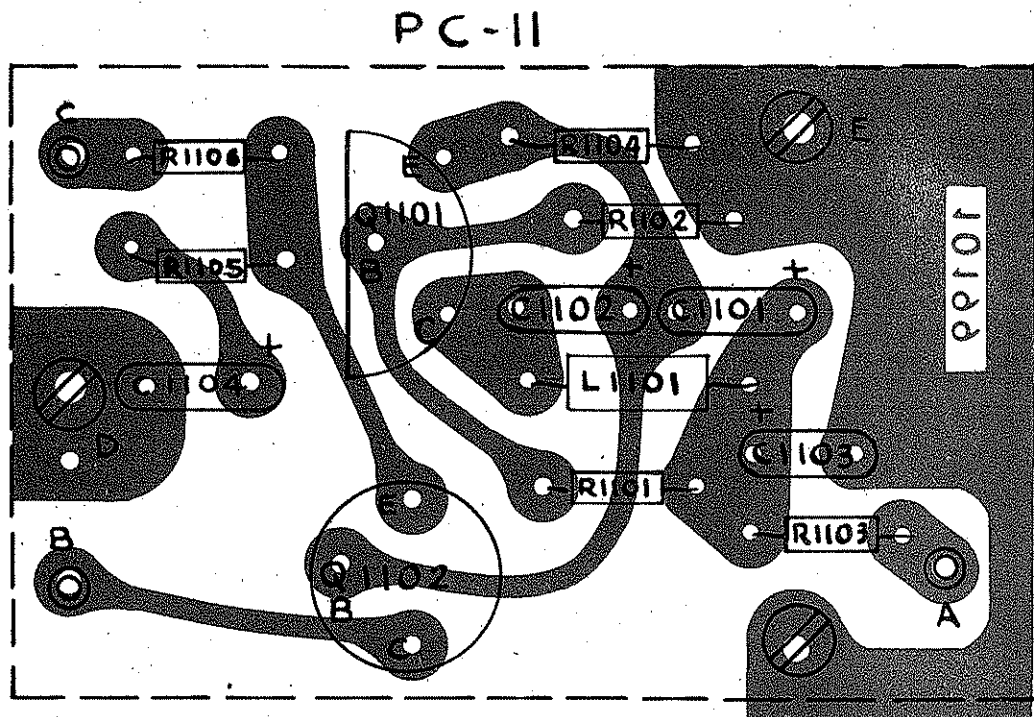


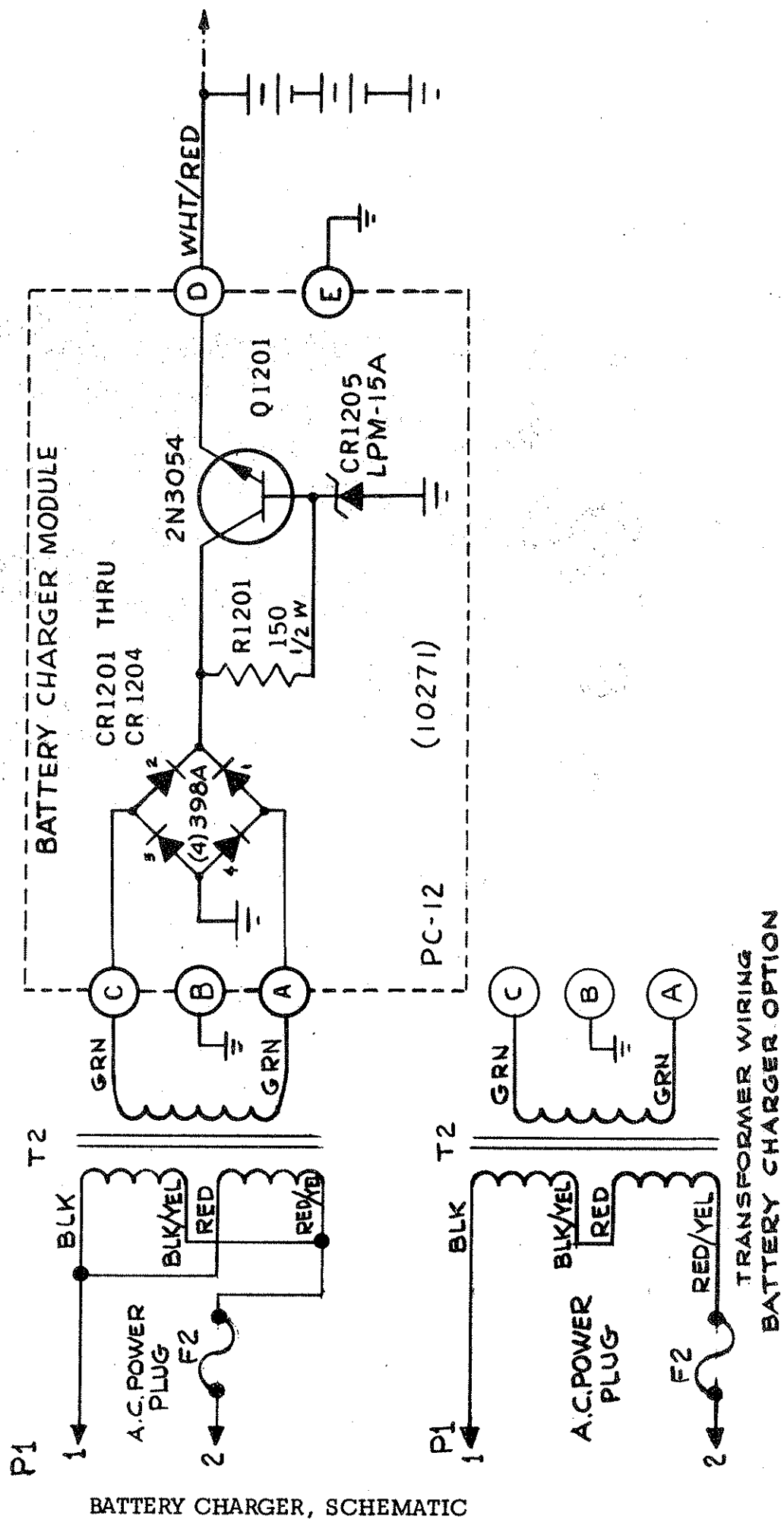
Fig. 14

CW MODE, SCHEMATIC

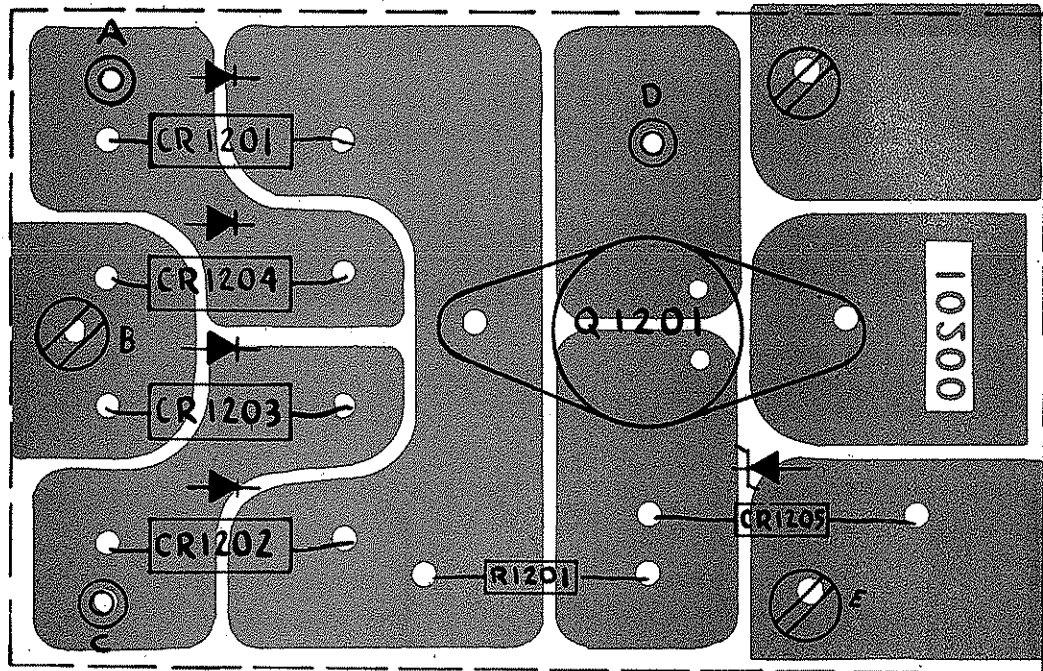


- A. 10VTX FROM SW7
- B. MIC INPUT
- C. CW KEY
- D. GROUND
- E. GROUND

Fig. 15



PC - 12



- A. TRANSFORMER
- B. GROUND
- C. TRANSFORMER
- D. BATTERY
- E. GROUND

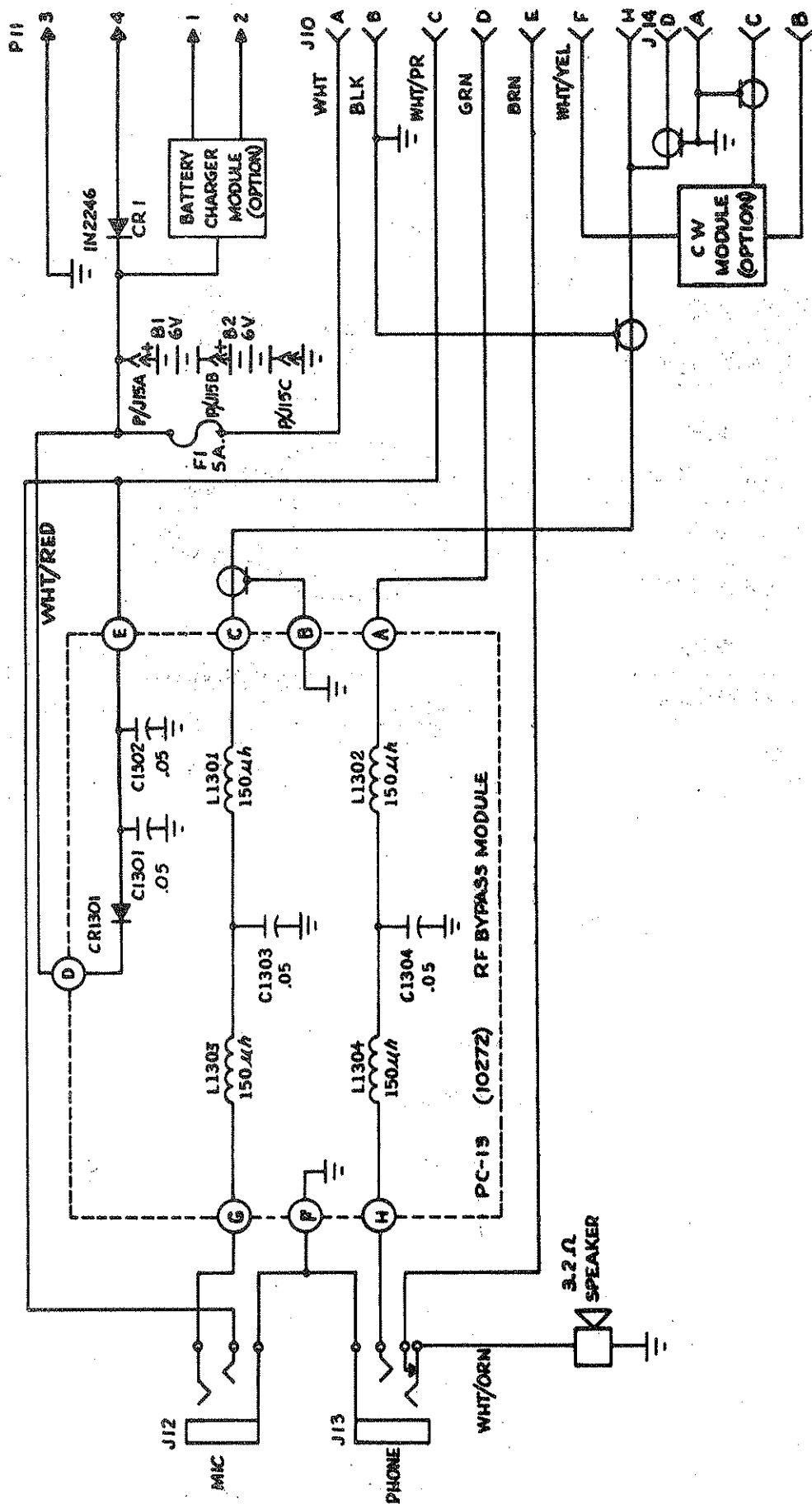
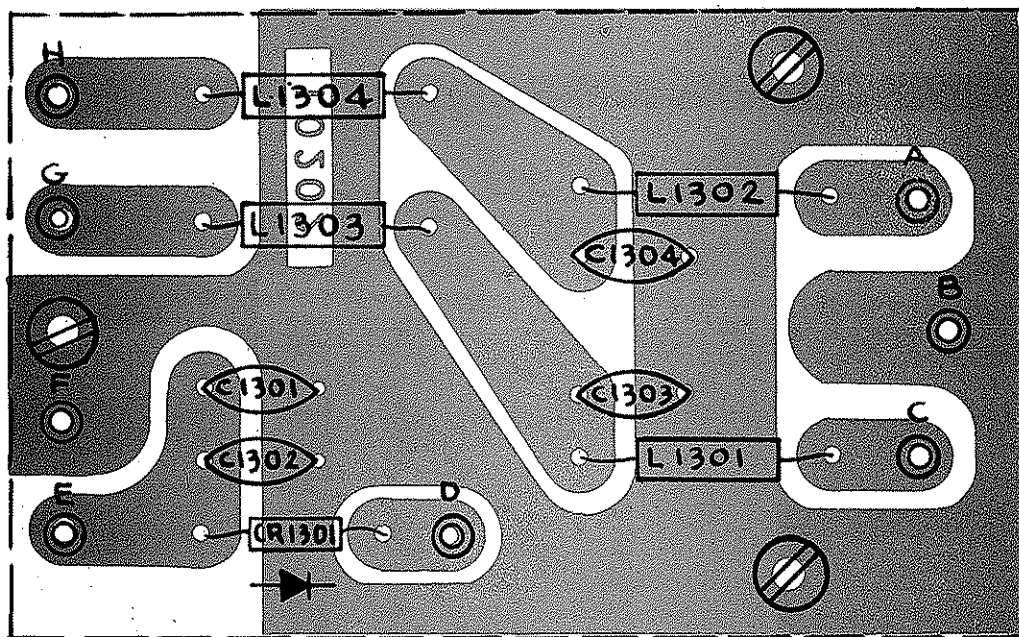


Fig. 16

RF BYPASS, SCHEMATIC

PC - 13



- A. J10-D
- B. J10-B
- C. J10-H
- D. +12V
- E. KEYING ON MIC JACK
- F. MIC & PHONE GROUND
- G. AUDIO INPUT ON MIC JACK
- H. 500 Ohm AUDIO ON PHONE JACK

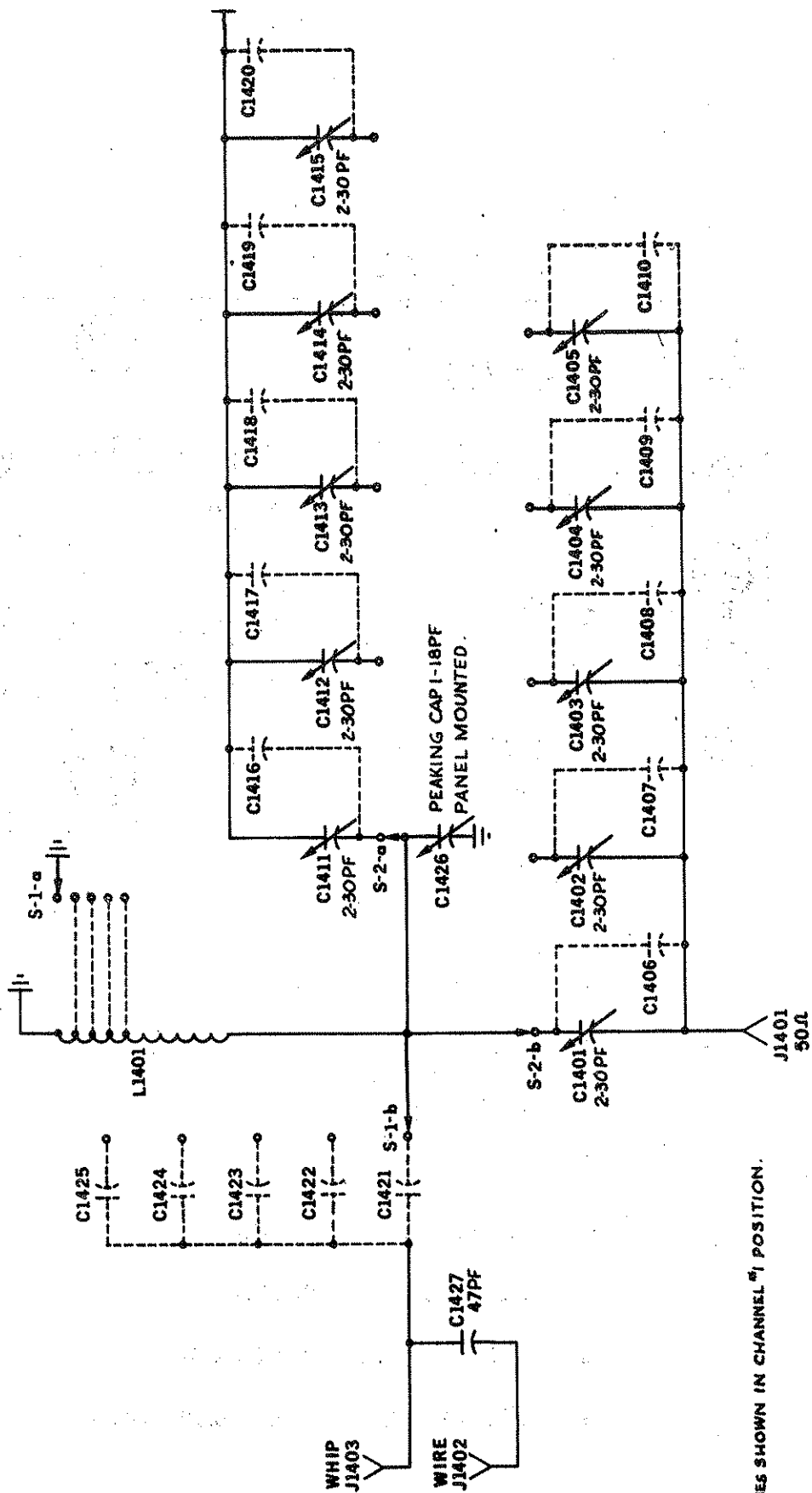
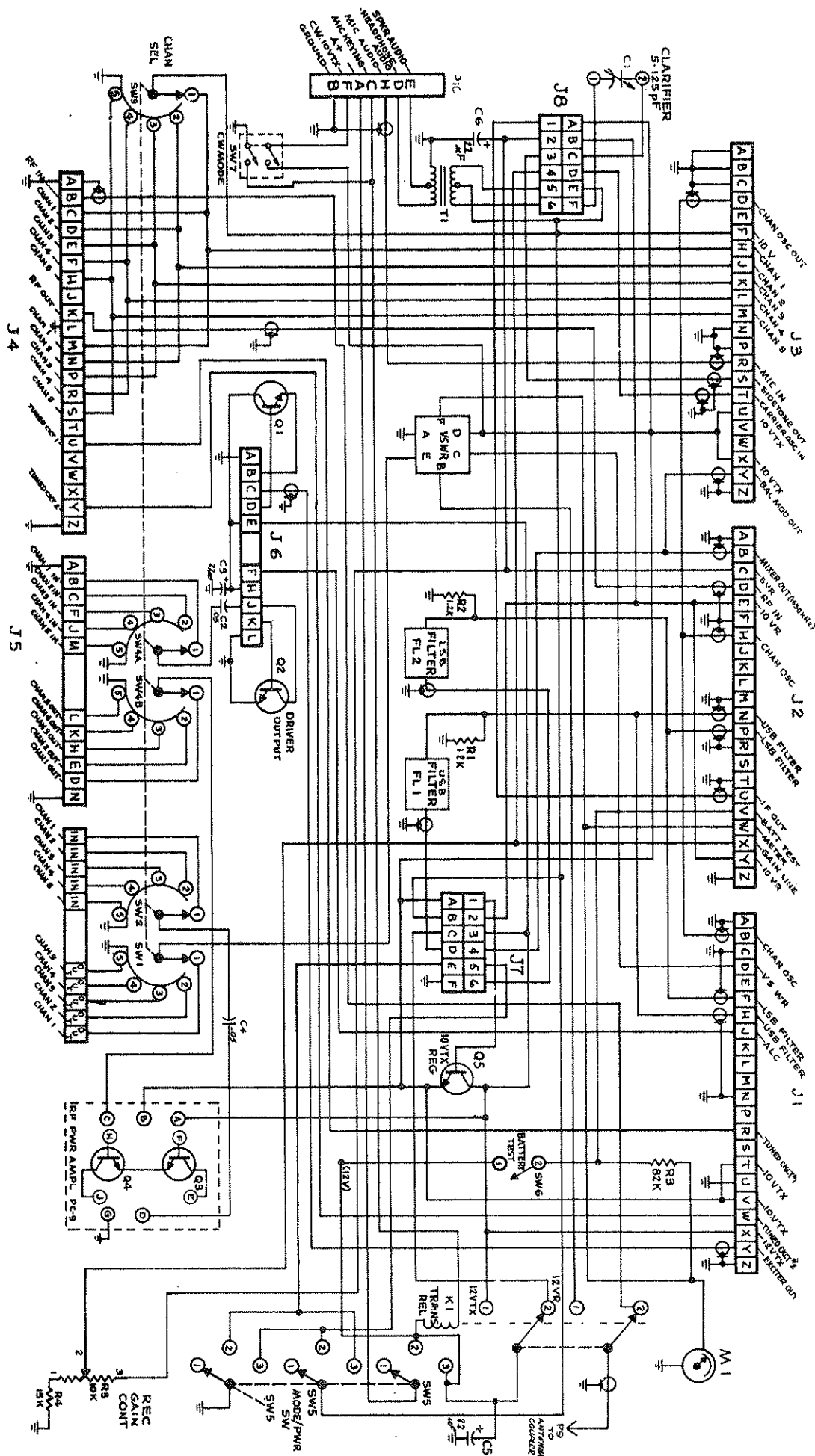


Fig. 17

WIRING CHANGE RCN 1592 4-25-68 a.c.



GSB-205 WIRING DIAGRAM

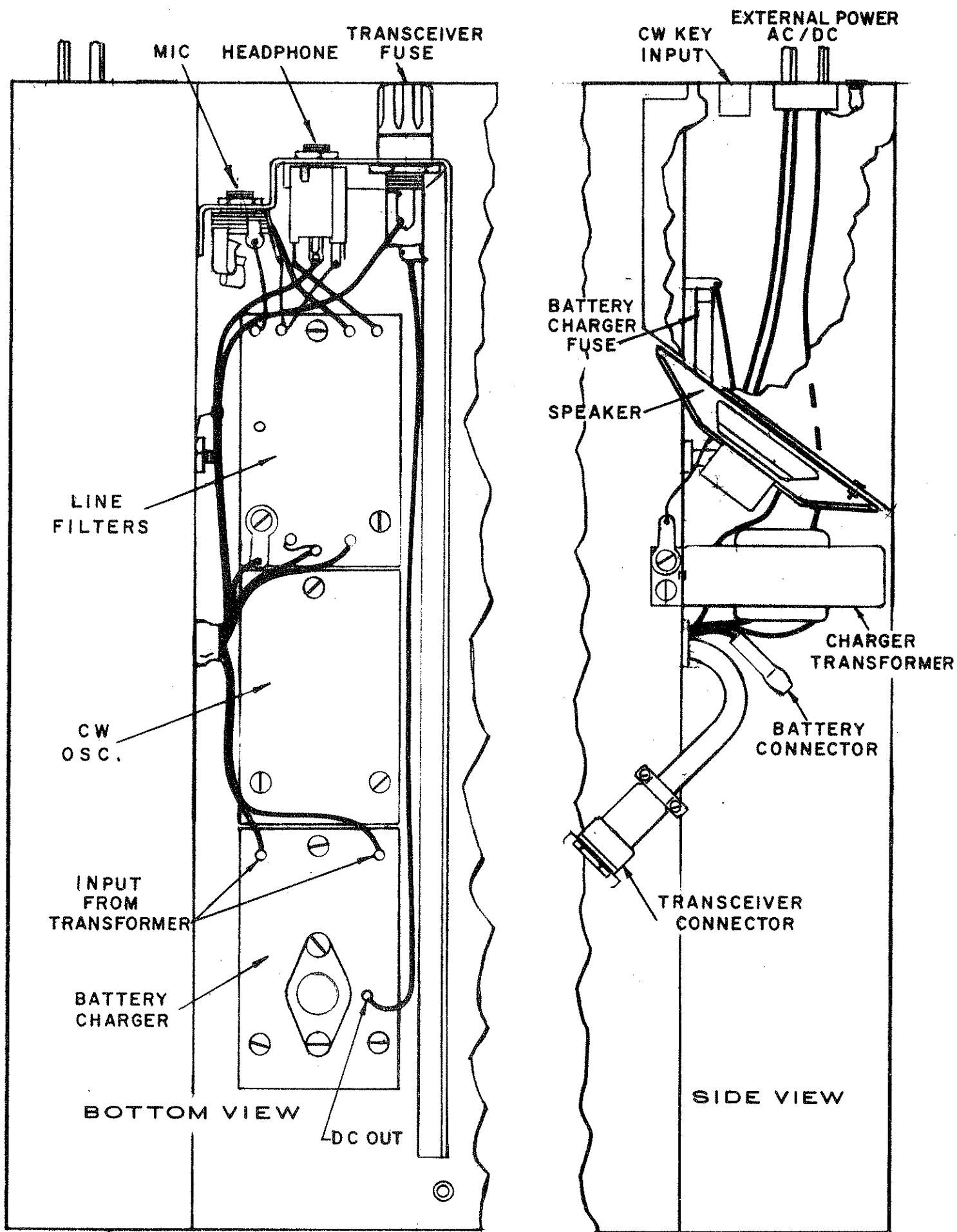


Fig. 18

MOUNTING PLATE DETAIL

SECTION VII

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION				CKT. SYM.	PART NO.	DESCRIPTION			
	99857	EXCITER BOARD - ASSEMBLY				R125	17819	RESISTOR	1.8K COMP.	1/4W	10%
		COMPLETE WITH COMPONENTS				R126	17118	"	100	"	"
PC#1	10185	PC Board For 99857				R127	17091	"	330	"	1/2W
C101	27357	CAPACITOR, DISC. .05uf 25V				R128	17833	"	390	"	"
C102	25098	" " 500pf				R129	17118	"	100	"	"
C103	"	" " "				R130	18837	"	82	"	"
C104	27357	" " .05uf 25V				R131	18473	"	18	"	"
C105	27345	" " .02uf 25V				R132	17091	"	330	"	1/4W
C106	25971	" D. MICA 2pf 100V				R133	17089	"	3.3K	"	"
C107	26078	" " 33pf 100V				R134	"	"	"	"	"
C108	27333	" DISC. .005uf 25V				R135	17792	"	33K	"	"
C109	27357	" " .05uf 25V				R136	17120	"	27K	"	"
C110	26236	" " 4.7pf 25V				R137	17156	"	1K	"	"
C111	27357	" " .05uf 25V				R138	18318	"	12K	"	"
C112	25804	" D. MICA 200pf 100V				R139	"	"	"	"	"
C113	27357	" DISC. .05uf 25V				R141	17144	"	56K	"	"
C114	27412	" TANT. 22uf 15V				R142	17833	"	390	"	"
C115	27357	" DISC. .05uf 25V				R143	17821	"	820	"	"
C116	"	" " .05uf 25V				R144	17077	"	4.7K	"	"
C117	27345	" " .02uf 25V				R145	17663	"	680	"	"
THRU						R146	17821	"	820	"	"
C120	"	" " " "				R147	18655	"	120	"	"
C121	27357	" " .05uf 25V				R148	17156	"	1K	"	"
						R149	17807	"	2.2K	"	"
CR101	44290	DIODE IN914				T101	48911	TRANSFORMER, BALANCED MIXER			
L101	64630	CHOKE					99858	RECEIVER BOARD - ASSEMBLY			
M101	40323	DIODE BRIDGE						COMPLETE WITH COMPONENTS			
Q101	44329	TRANSISTOR 2N3563				PC#2	10186	PC BOARD FOR 99858			
THRU						C201	27357	CAPACITOR, DISC. .05uf 25V			
Q105	"	" " "				C203	"	" " "			
Q106	44472	" RCA 40081				C204	25098	" " 500pf			
Q107	44329	" 2N3563				C205	27357	" " .05uf			
Q108	44393	" 2N4303				C206	28301	" D. MICA 62pf 100V			
Q109	44329	" 2N3563				C207	28325	" " 220pf			
THRU						C208	"	" " "			
Q110	"	" " "				C209	27357	" DISC. .05uf 25V			
R101	17077	RESISTOR 4.7K COMP. 1/4W 10%				C210	"	" " .05uf 25V			
R102	17807	" 2.2K " 1/4W 10%				C211	27412	" TANT. 22uf 15V			
R103	17845	" 270 " " "				C212	27357	" DISC. .05uf 25V			
THRU						C215	"	" " .05uf 25V			
R106	"	" " " " " "				C216	27345	" " .02uf 100V			
R107	16774	" 68 " 1/2W "				C217	27357	" " .05uf 25V			
R108	17132	" 220 " 1/4W "				C219	"	" " .05uf "			
R109	17261	" 470 " " "				C220	"	" " " "			
R110	17041	" 10K " " "				C221	27345	" " .02uf 100V			
R111	"	" " " " " "				C222	27278	" " .0022uf 200V			
R112	17118	" 100 " " "				C223	28064	" D. MICA 250pf 100V			
R113	17223	" 22K " " "				C224	25086	" DISC. 220pf 100V			
R114	17261	" 470 " " "				C226	28337	" " .47uf 100V			
R115	17223	" 22K " " "				C227	27357	" " .05uf 25V			
R116	17261	" 470 " " "				C230	"	" " .05uf 25V			
R117	18186	" 1.2K " " "				C231	27412	" TANT. 22uf 15V			
R118	17273	" 150 " " "				C232	27357	" " .05uf 25V			
R119	17077	" 4.7K " " "				C233	27412	" " 22uf 15V			
R120	17041	" 10K " " "				CR201	44290	DIODE IN914			
R121	17845	" 270 " " "				CR203	40373	" Zener IN5231B			
R122	17118	" 100 " " "				CR204	44290	" IN914			
R123	17041	" 10K " " "				CR205	44290	CHOKE 150uh			
R124	"	" 10K " " "									

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION				
IC1	44446	INTEGRATED CIRCUIT CA3005				
IC2	44458	" " CA3002				
IC3	"	" " "				
L201	47955-1	TRANSFORMER, MIXER				
L202	47955-2	" " "				
L203	48961	" IF				
L204	"	" IF				
L205	64678	CHOKE 150uh				
Q201	44422	TRANSISTOR A466				
Q202	44252	" 2N3646				
Q203	"	" " "				
Q204	"	" " "				
Q205	44434	" MPS2925				
Q206	"	" " "				
Q207	44252	" 2N3646				
R201	17077	RESISTOR	4.7K	COMP.	1/4W	10%
R202	18162		8.2K	"	"	"
R203	17077		4.7K	"	"	"
R204	17156		1K	"	"	"
R205	17819		1.8K	"	"	"
R206	"		1.8K	"	"	"
R207	"		1.8K	"	"	"
R208	18655		120	"	"	"
R209	"		120	"	"	"
R210	17156		1K	"	"	"
R211	17845		270K	"	"	"
R212	17572		18K	"	"	"
R213	"		18K	"	"	"
R214	17144		56K	"	"	"
R215	"		56K	"	"	"
R216	17819		1.8K	"	"	"
R217	18186		1.2K	"	"	"
R218	17819		1.8K	"	"	"
R219	17041		10K	"	"	"
R220	18186		1.2K	"	"	"
R221	17041		10K	"	"	"
R222	17168		82K	"	"	"
R223	18318		12K	"	"	"
R224	17883		3.9K	"	"	"
R225	17273		150	"	"	"
R226	17845		270	"	"	"
R227	17039		100K	"	"	"
R228	17144		56K	"	"	"
R229	"		56K	"	"	"
R230	17819		1.8K	"	"	"
R231	18118		100	"	"	"
R232	17936		47	"	"	"
R233	17572		18K	"	"	"
R234	17156		1K	"	"	"
R235	17106		47K	"	"	"
R236	17223		22K	"	"	"
THRU						
R238	"		"	"	"	"
	99859	BAL. MOD. BOARD ASSEMBLY COMPLETE WITH COMPONENTS				
PC#3	10187	PC BOARD FOR 99859				
C301	27357	CAPACITOR, DISC. .05uf 25V				
C302	25050	" TANT. 22uf 15V				

CKT. SYM.	PART NO.	DESCRIPTION				
C303	24472	CAPACITOR	TANT.	2.2uf	15V	
C304	27357		DISC.	.05uf	25V	
C305	27345		"	.02uf	100V	
C306	24472		TANT.	2.2uf	15V	
C307	24795		TRIMMEX	9-35pf		
C308	27333		DISC.	.005uf	100V	
C309	27981		"	100pf	100V	
C310	27333		"	.005uf	100V	
C311	27462		MICA	56pf	500V	
C312	27357		DISC.	.05uf	25V	
C313	"		"	"	"	
C314	27345		"	.02uf	100V	
C315	27357		"	.05uf	25V	
C317	27515		D. MICA	360pf	500V	
C318	26107		MICA	68pf	500V	
C319	27357		DISC.	.05uf	25V	
C320	"		"	.05uf	25V	
C321	26092		MICA	47pf		
C322	27345		DISC.	.02uf	100V	
C323	25050		"	22pf		
C324	28040		TRIMMER, GLOSS	.8-4.5pf		
C325	25050		DISC.	22pf		
C326	28040		TRIMMER, GLOSS			
C327	25050		DISC.	22pf		
C328	28040		TRIMMER, GLOSS			
C329	25050		DISC.	22pf		
C330	28040		TRIMMER, GLOSS			
C331	25050		DISC.	22pf		
C332	28040		TRIMMER, GLOSS			
C333	27357		DISC.	.05uf	25V	
CR301	40141	DIODE, 1N461				
THRU						
CR305	"	" " "				
L301	64666	CHOKE, 120uh				
M301	40311	DIODE BRIDGE				
Q301	44252	TRANSISTOR	2N3646			
Q302	"		"			
Q303	44329		2N3563			
Q304	"		"			
Q305	44331		2N3643			
R301	33849-3	POTENTIOMETER	200 ohms			
R302	17845		RESISTOR	270	COMP.	1/4W 10%
R303	18162		"	8.2K	"	"
R304	18186		"	1.2K	"	"
R305	17077		"	4.7K	"	"
R306	17821		"	820	"	"
R307	17833		"	390	"	"
R308	"		"	"	"	"
R310	"		"	"	"	"
R311	33849-2		POTENTIOMETER	100 ohms		
R312	17833	RESISTOR	390	COMP.	1/4W	10%
R313	17845		"	270	"	"
R314	17235		"	15K	"	"
R315	17572		"	18K	"	"
R316	18186		"	1.2K	"	"
R317	17807		"	2.2K	"	"
R318	17261		"	470	"	"
R319	17223		"	22K	"	"
R320	"		"	"	"	"

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION						CKT. SYM.	PART NO.	DESCRIPTION			
R321	18253	RESISTOR	33	COMP	1/4W	10%		Q601	44252	TRANSISTOR, 2N3646			
R322	17091	"	330	"	"	"		R601	17285	RESISTOR	220 ohm	1/2W	
R323	18320	"	560	"	"	"		R602	18837	"	82 ohm	"	
R324	17132	"	220	"	"	"		R603	18693	"	22 ohm	"	
R325	18318	"	12K	"	"	"		R604	17326	"	390 ohm	"	
R326	"	"	"	"	"	"		R605	18693	"	22 ohm	"	
R327	17663	"	680	"	"	"		R606	17807	"	2.2K	1/4W	
R328	17261	"	470	"	"	"		R607	17481	"	6.8K	"	
THRU								R608	33848-1	POTENTIOMETER	1K		
R333	"	"	"	"	"	"		R609	17156	RESISTOR	1K	1/4W	
T301	48909	TRANSFORMER, BAL. MOD.						R610	17819	"	1.8K	"	
Y301	81793	CRYSTAL, CHANNEL (FREQUENCY DEPENDENT)						R611	18253	"	33 ohm	"	
THRU													
Y305									99862	VOLTAGE REGULATOR			
	99860	PRESELECTOR & EXCITOR ASSEMBLY COMPLETE WITH COMPONENTS						PC#7	10192	PC BOARD FOR 99862			
PC#4	10189	PC BOARD FOR 99860						C701	28038	CAPACITOR	TANT.	68uf	15V
C401	27357	CAPACITOR	DISC.	.05uf				C702	"	"	"	"	"
THRU	"	"	"	"				C703	27357	"	DISC.	.05uf	25V
C410	"	"	"	"				C705	"	"	"	"	"
CR401	44290	DIODE, IN 914						CR701	40359	DIODE, ZENER IN 4742 12V			
THRU	"	"	"	"				CR702	40385	"	IN 5240B		
CR420	"	"	"	"				CR703	40165	"	10D4		
								CR704	"	"	"		
								CR705	44290	"	IN 914		
								CR706	"	"	"		
R401	17156	RESISTOR	1K	1/4W				Q701	44331	TRANSISTOR 2N 3643			
R402	17077	"	4.7K	"				Q702	44379	"	RCA 40347		
R403	17156	"	1K	"				Q703	44252	"	2N 3646		
R404	17077	"	4.7K	"				Q704	"	"	"		
R405	17156	"	1K	"									
R406	17077	"	4.7K	"				R701	17845	RESISTOR	270 ohm	1/4W	
R407	17156	"	1K	"				R702	"	"	"	"	
R408	17077	"	4.7K	"				R703	17792	"	33K	"	
R409	17156	"	1K	"				R704	18186	"	1.2K	"	
R410	17077	"	4.7K	"				R705	17792	"	33K	"	
R411	17156	"	1K	"				R706	17089	"	3.3K	"	
R412	"	"	1K	"				R707	"	"	"	"	
		(SEE CUSTOMIZING LIST 99875)											
	99861	ALC & DRIVER BIAS							99863	1650 OSCILLATOR & AUDIO BOARD COMPLETE ASS'Y WITH COMPONENTS			
PC#6	10191	PC BOARD FOR 99861						PC#8	10193	PC BOARD FOR 99863			
C601	27333	CAPACITOR	DISC.	.005uf	100V			C801	27357	CAPACITOR	DISC.	.05uf	25V
C602	27357	"	"	.05uf	25V			C802	25062	"	"	27 pf	
C603	27333	"	"	.005uf	100V			C803	24795	"	VARIABLE	9-35 pf	
C604	25684	"	"	.001uf				C804	28313	"	D.MICA	680 pf	
C605	25828	"	D.MICA	180pf				C805	"	"	"	"	
C606	27357	"	DISC.	.05uf	25V			C806	27591	"	"	470 pf	
C607	27345	"	"	.02uf	100V			C807	27345	"	DISC.	.02 uf	
C608	28038	"	TANT.	68uf	15V			C808	"	"	"	"	
								C809	25098	"	"	500 pf	
CR602	44290	DIODE, IN 914						C810	"	"	"	"	
CR603	"	"	"	"				C811	28038	"	TANT.	68 uf	
								C812	27321	"	DISC.	.01 uf	
								C813	"	"	"	"	
L6	63595	CHOKE, MOLDED 22uh						C814	28337	"	"	.47 uf	
								C815	24472	"	TANT.	2.2 uf	15V

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION				CKT. SYM.	PART NO.	DESCRIPTION			
C816	28337	CAPACITOR	DISC.	.47 uf		L901	56334	CHOKE	6 uh		
C817	"	"	"	"		R901	18538	RESISTOR	10 ohm	1/2W	
C818	27345	"	"	.02 uf		R902	17479	"	100 ohm	"	
C819	24472	"	TANT.	2.2 uf	15V	R903	33576	POTENTIOMETER, MOLDED	100 ohm		
C820	27345	"	DISC.	.02 uf		R904	18590	RESISTOR	560 ohm	1/2W	
C821	24472	"	TANT.	2.2 uf	"						
C822	27412	"	TANT.	22 uf	15V		99850	VSWR DETECTOR ASSEMBLY			
C823	24472	"	"	2.2 uf	"	PC#10	10201	PC BOARD FOR 99850			
C824	27357	"	DISC.	.05 uf	25V	C1001	26834	CAPACITOR	10 pf		
C825	"	"	"	"	"	C1002	27357	"	.05 pf	25V	
CR801	44290	DIODE	IN 914			C1003	"	"	"	"	
CR802	"	"	"			C1004	26913	"	.02 pf	"	
CR803	"	"	"			CR1001	44290	DIODE	IN 914		
H801	87187	HEAT SINK				CR1002	"	"	"		
IC801	44458	INTEGRATED CIRCUIT	CA3002			Q1001	44252	TRANSISTOR	2N 3646		
IC802	44460	"	"	CA3020		R1001	18655	RESISTOR	120 ohm	1/4W	
L801	64630	CHOKE	33 uh			R1002	33588	POTENTIOMETER	250 ohm		
Q801	44331	TRANSISTOR	2N 3643			R1003	17168	RESISTOR	82 K	1/4W	
Q802	44393	"	2N 4303			R1004	18306	"	5.6 K	"	
R801	17261	RESISTOR	47 ohm	1/4W	10%	R1005	17247	"	1.5 K	"	
R802	"	"	"	"	"						
R803	"	"	"	"	"		59609	8" CABLE, COAX.	RG-196/U		
R804	17792	"	33 K	"	"						
R805	"	"	"	"	"		99658	C.W. ASSEMBLY			
R806	"	"	100 ohm	"	"			COMPLETE WITH ALL COMPONENTS			
R807	17261	"	47 ohm	"	"	PC#11	10199	PC BOARD FOR 99658			
R808	17273	"	150 ohm	"	"	C1101	28363	CAPACITOR	TANT.	1.0 uf	15V
R809	17792	"	100 ohm	"	"	C1102	28351	"	"	.22 uf	"
R810	17156	"	1K	"	"	C1103	27412	"	"	22 uf	15V
R811	18186	"	1.2K	"	"	C1104	"	"	"	"	"
R812	18306	"	5.6K	"	"	L1101	56401	CHOKE	100 Mh		
R813	17223	"	22K	"	"	Q1101	44434	TRANSISTOR	2N 2925		
R814	17807	"	2.2K	"	"	Q1102	44252	"	2N 3646		
R815	18306	"	5.6K	"	"	R1101	17235	RESISTOR	15 K	1/4W	
R816	17211	"	270K	"	"	R1102	17077	"	4.7 K	"	
R817	33825	POTENTIOMETER	10K			R1103	17118	"	100 ohm	"	
R818	17807	RESISTOR	2.2K	"	"	R1104	17077	"	4.7 K	"	
R819	17778	"	220K	"	"	R1105	17522	"	180 ohm	"	
R820	17077	"	4.7K	"	"	R1106	18411	"	470 ohm	"	
R821	18849	"	1.2 ohm	1/2W	"						
R822	17132	"	220 ohm	1/4W	"		99657	BATTERY CHARGER (ASSEMBLY)			
R823	33825	POTENTIOMETER	10K					COMPLETE WITH ALL COMPONENTS			
R824	17041	RESISTOR	10K	1/4W	"	PC#12	10200	PC BOARD FOR 99657			
R825	17156	"	1K	"	"	CR1201	40397	DIODE, SILICON	3A		
R826	17235	"	15K	"	"	THRU		"	"		
R827	17132	"	220 ohm	"	"	CR1204	"	"	"		
Y801	81779	CRYSTAL	1650 Khz			CR1205	40402	DIODE, ZENER	15V		
						Q1201	44355	TRANSISTOR	2N 3054		
	99864	POWER AMPLIFIER									
		COMPLETE ASS'Y WITH COMPONENTS									
PC#9	10194	PC BOARD FOR 99864									
C901	27357	CAPACITOR	DISC.	.05 uf	25V						
C902	27929	"	"	"	100V						
C903	"	"	"	"	"						
C904	"	"	"	"	"						

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION	CKT. SYM.	PART NO.	DESCRIPTION
R1201	16580	RESISTOR 150 ohm 1/2W			OTHER ACCESSORIES & OPTIONS (COMPLETE)
	86248	FUSE 1/2 A	B1 & B2	99877	BATTERY 8 AH (PAIR)
	84915	FUSE HOLDER	B1 & B2	99878	BATTERY 2.6 AH (PAIR)
	74843	CONNECTOR, A.C. POWER	FL2	81743	FILTER LSB OPERATION
	60323	A.C. COND. (4 ft.)		87474	CANVAS CASE
	48985	TRANSFORMER		84020	HEADPHONES, 500 ohm
				71449	WHIP ANTENNA
	99866	RF BYPASS		87450	HEADSET
PC#13	10202	PC BOARD FOR 99866			
C1301 THRU C1304	27357	CAPACITOR DISC. .05 uf 25V		99856	CHASSIS ASSEMBLY
	"	" " " "	SW4	33784	DETENT & SHAFT, SELECTOR SWITCH
CR1301	44290	DIODE, IN 914		33796	WAFER, SELECTOR SWITCH, DOUBLE (ONE)
L1301 THRU L1304	64678	CHOKE, 150 uh RF	SW1	33801	WAFER, SELECTOR SWITCH SINGLE (THREE)
	"	" " "	SW2	"	" " " "
	"	" " "	SW3	"	" " " "
	99873	ANTENNA COUPLER ASSEMBLY	SW6	33916	SWITCH, PUSH BUTTON
PC#14	10083	PC BOARD FOR 99873		33916-1	NUT DECORATIVE
	33978	CONTROL KNOB, DIAL SKIRTED (CHANNEL SELECTOR)	R5	33928	POTENTIOMETER 10K LINEAR
	33980-1	CONTROL KNOB, SKIRTED (ANTENNA TUNING)	J1, J2, J3 & J4	74817-4	CONNECTOR, PC CARD 22 contact
C1401-1405	24850	CAPACITOR, GLASS TRIMMER	J5	74817-3	" " 12 contact
C1411-1420	"	" " " "	J6	74817-2	" " 10 contact
C1426	28026	" AIR VARIABLE	J7	74817-1	" " 6 dual contact
C1427	24056	" CERAMIC DISC. 47 pf 1 kv	J8	74829	" " "
C1406-1410*	"	" " " "	SW5	33837	SWITCH, 3P3T
C1416-1420*	"	" " " (Used only below 2.6 MHz)	C1	28052	CAPACITOR, VARIABLE
C1421-1425*	"	" " " (Used only between 6 & 9 MHz)	FL1	81731	FILTER, CRYSTAL USB OPERATION
				66365	RELAY, DPDT
J1401	74374	*FREQUENCY DEPENDENT COMP. JACK, BNC COAXIAL	Q5	44355	TRANSISTOR, 2N3054
J1402	74879	BINDING POST	Q1, Q2	44410	" SE9083 (two)
J1403	"	" " "	Q3, Q4	44408	" 38544 RCA (two)
L1	99871	COIL ASSEMBLY, AIR-DUX		33978	KNOB, CHANNEL SELECTOR
L1	63404	COIL, AIR-DUX		33980-1	KNOB, GAIN
SW1401	33813	WAFER, SELECTOR SWITCH		33980-2	KNOB, MODE
SW1402	"	" " "		33980-3	KNOB, CLARIFIER
	33875	DETENT & SHAFT, SELECTOR SWITCH		50158	FEEDTHRU TEFLON
				99869	METER ASSEMBLY
				52211	EXTENSION SHAFT, CLARIFIER CONTROL
P14	87462	KEY ASSEMBLY, TELEGRAPH KEY, TELEGRAPH		74403	CONNECTOR, RF UG. 88/u
J14	74465	PLUG, M4P-LSH10		99847	HARNESS ASSEMBLY
SW7	74570	SOCKET, M4S-LRN		52247-1	PLUG, SNAP BUTTON (.250)
	33461	SWITCH TOGGLE		52247-2	PLUG, SNAP BUTTON (.375)
	15225	GROUND SWITCH		52223	SHOULDER WASHER, TRANSISTOR MOUNTING
				99876	CASE COMPLETE
				86145	GASKET, COVED (32")
			C3, C5, C6	24472	CAPACITOR, TANT. 2.2 uf
			C2, C4	27929	" " " " , CERAMIC DISC. .05/100V
			R1, R2	18186	RESISTOR, FIXED COMP. 1.2 K 1/4W
			R3	17168	" " 82 K "
			R4	17235	" " 15 K "
			T1	48973	TRANSFORMER, AUDIO

PARTS LIST

CKT. SYM.	PART NO.	DESCRIPTION
	51724	BUMPER, RUBBER
J10	74788-1	CONNECTOR, RADIO CHASSIS JACK
P10	74788-2	CONNECTOR, RADIO CHASSIS PLUG
J13	74855	JACK, PHONE
J12	84056	JACK, MICROPHONE
	74881	BINDING POST
	84903	FUSE HOLDER
F1	84898	FUSE 5A
	60323	COND. D.C. (4 ft.)
	87424	SPEAKER
P11	74831	CONNECTOR, EXTERNAL POWER (PLUG)
J11	74843	CONNECTOR, EXTERNAL POWER
	74453	CONNECTOR, SINGLE (PAIR) FOR BATTERY
	99659	ANTENNA KIT, WIRE
	87371	MICROPHONE
CR1	40000	DIODE, SILICON (EXTERNAL D.C. POWER ISOLATION)
	99662	P.A. MODULES
	99662-1	P.A. MODULES FREQ. 2.0 - 2.6 MHz
	99662-2	" " 2.6 - 3.5 MHz
	99662-3	" " 3.5 - 4.5 MHz
	99662-4	" " 4.5 - 6.0 MHz
	99662-5	" " 6.0 - 7.9 MHz
	99662-6	" " 7.9 - 10.3 MHz
	99663	DRIVER MODULES
	99663-1	DRIVER MODULE FREQ. 2.0 - 2.6 MHz
	99663-2	" " 2.6 - 3.5 MHz
	99663-3	" " 3.5 - 4.5 MHz
	99663-4	" " 4.5 - 6.0 MHz
	99663-5	" " 6.0 - 7.9 MHz
	99663-6	" " 7.9 - 10.3 MHz
	99664	PRE-SELECTION MODULES FREQ.
	99664-1	" " 2.0 - 2.6 MHz
	99664-2	" " 2.6 - 3.5 MHz
	99664-3	" " 3.5 - 4.5 MHz
	99664-4	" " 4.5 - 6.0 MHz
	99664-5	" " 6.0 - 7.9 MHz
	99664-6	" " 7.9 - 10.3 MHz
	99665	EXCITER MODULES FREQ.
	99665-1	" " 2.0 - 2.6 MHz
	99665-2	" " 2.6 - 3.5 MHz
	99665-3	" " 3.5 - 4.5 MHz
	99665-4	" " 4.5 - 6.0 MHz
	99665-5	" " 6.0 - 7.9 MHz
	99665-6	" " 7.9 - 10.3 MHz

CKT. SYM.	PART NO.	DESCRIPTION

RECOMMENDED SPARE PARTS LIST

Quantity Required for supporting indicated numbers of units per year				MODEL GSB-205	Voltage 12V		Description	Unit Price	Total Price
1	5	10	25	SunAir P/N					
1	2	3	4	33837			Switch 3P3T		
1	1	2	3	33928			Potentiometer 10K Linear		
1	1	2	3	48973			Transformer Audio		
0	1	1	2	48961			Transformer 1F		
0	1	1	2	47955-1			Transformer Mixer primary		
0	1	1	2	47955-2			Transformer Mixer Secondary		
1	1	2	3	63404			Coil Air Dux Coupler		
0	1	1	2	74879			Binding Post Coupler Output		
0	1	1	2	74881			Binding Post Radial		
0	1	1	2	74817-4			Connector 22 Contact		
1	2	3	5	27345			Capacitor Disc .02 uf		
2	3	5	10	27357			Capacitor Disc .05 uf		
1	2	3	5	27412			Capacitor Tantalum 22 uf		
1	2	3	5	28040			Capacitor Glass Trimmer		
1	1	2	3	28026			Capacitor Variable		
2	4	6	10	24850			Capacitor Variable		
3	6	12	20	44290			Diode IN914		
1	1	2	3	40141			Diode IN461		
1	1	2	3	40165			Diode 10D4		
1	2	3	5	40385			Diode Zener		
1	2	3	5	40373			Diode Zener		
0	1	1	2	81743			Filter, LSB Operation		
0	1	1	2	81731			Filter, USB Operation		
1	2	3	5	99882			Cord DC Power		

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RECOMMENDED SPARE PARTS LIST

Quantity Required for supporting indicated numbers of units per year				MODEL GSB-205	Voltage 12V	Description	Unit Price	Total Price
1	5	10	25					
1	2	3	5	40359		Diode Zener		
0	1	1	3	40323		Diode Ring		
0	1	1	2	40311		Diode Ring		
1	2	3	4	40000		Diode 10A		
2	4	4	8	44408		Transistor (Matched Units)		
1	1	1	2	44355		Transistor 2N3054		
1	1	2	2	44410		Transistor SE9083		
1	1	2	2	44393		Transistor 2N4303		
1	1	2	2	44331		Transistor 2N3643		
1	1	1	2	44472		Transistor 40081		
1	2	3	5	44252		Transistor 2N3646		
2	4	6	10	44329		Transistor 2N3563		
1	1	2	3	44434		Transistor MPS2925		
1	1	2	3	44422		Transistor A466		
1	1	2	3	44379		Transistor 40347		
0	1	2	3	44460		Integrated CKT CA3020		
0	1	2	3	44446		Integrated CKT CA3005		
1	2	3	4	44458		Integrated CKT CA3002		
1	1	2	2	81779		Crystal, Carrier		
2	3	5	10	84898		Fuse 3AG		
1	1	2	3	66365		Relay DPDT		
0	1	1	2	87424		Speaker		
0	1	2	3	99869		Meter Ass'y, Panel		

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