

4. Set generator to Channel 22 frequency. Repeat procedure of step 3. Note tuning dial pointer position with relation to Channel 22 panel marking. If all three check points are off calibration about the same amount in the same direction, the tuning spread is correct and only the tuning slug in coil L21 needs adjusting at the Channel 9 dial setting to bring the unit back into calibration tolerance.
5. If calibration checks OK at Channel 9 and is off at either the Channel 1 or Channel 22 check points, the tuning spread is incorrect and capacitor C23 must be adjusted.
6. In the first instance described under 4, set generator at Channel 9 frequency and tuning dial pointer at Channel 9 panel mark. Using a small insulated hex tuning tool, slowly adjust the tuning slug in oscillator coil L21 for maximum audio recovery as indicated by the output meter. Check calibration at Channel 1 and Channel 22.
7. In the second instance covered under 5, the following adjustments should be made. Set generator to Channel 9 for frequency. Set receiver tuning dial pointer to Channel 9 panel mark. Using an insulated tuning tool, turn the rotor of capacitor C23 in a clockwise direction until it is fully closed. Rotate rotor of C23 in a counterclockwise direction for 1 1/2 turns. Adjust tuning slug in oscillator coil L21 for maximum audio recovery as indicated by the output meter. Check calibration at Channel 1 and Channel 22. If calibration is still not within tolerance, alternately adjust capacitor C23 and tuning slug in L21 until calibration falls within the tolerance limits.
8. Receive crystals installed in the RECEIVE SELECTOR switch assembly crystal sockets can be trimmed exactly to the proper channel frequency by their associated capacitors C26 and C27 as described under paragraph 5, steps (k&l) of Receiver Alignment.

TRANSMITTER ALIGNMENT

The Executive series transmitter alignment can be done with an RF wattmeter , but for a complete check of overall performance the following test equipment will be required.

- a. RF wattmeter
 - b. Frequency meter with an accuracy of at least .0025%-INTERNATIONAL C-12B or equivalent.
 - c. Vacuum Tube Boltmeter-RCA WV-98B or equivalent.
1. Connect an RF wattmeter to the antenna jack on the back panel of the Executive.
 2. Turn the set on and allow 15 minutes for the unit to reach normal operating temperature.
 3. Install channel 1, 9 and 23 crystals in the TRANSMIT SELECTOR switch crystal sockets and set to channel 9.
 4. Key the transmitter by depressing the microphone press-to-talk switch.
 5. Adjust final amplifier tuning capacitor C79 and loading capacitor C78 alternately for maximum output as indicated by the wattmeter.
 6. Tuning Grid Coupling Coils. The bandpass coils L17 and L19 are adjusted with the bottom half of the transceiver case in place as follows:
 - (a) Set VTVM range switch to 150 WDC positive and connect probe to transmitter green TEST JACK. This jack is connected to the screen terminal of the 6CL6 final amplifier tube socket.
 - (b) Set TRANSMIT SELECTOR switch for output on channel 9. Key transmitter and tune 6BH6 plate coil L19 for minimum voltage on VTVM.
 - (c) Tune the 6CL6 grid coil L17 for minimum voltage on the VTVM
 - (d) Tune 6CL6 plate and loading capacitors C79 and C78 for maximum power as indicated by the wattmeter.
 - (e) Remove channel 9 crystal, key transmitter, and check neutralization for no output as indicated by wattmeter. Adjust neutralizing loop L16 if required.
 - (f) Install channel 9 crystal and repeat steps (b) thru (e) until final amplifier is completely neutralized.
 - (g) Now key transmitter and switch transmit selector alternately between channel 1 and channel 23 noting voltage level at test jack as indicated by VTVM. Adjust the 6BH6 plate coil L19 for equal voltage on channels 1 and 23. Leave the 6CL6 grid coil peaked for channel 9.
 - (h) Test jack voltages will be approximately 130 volts DC on channel 9 and 145 volts on channels 1 and 23.

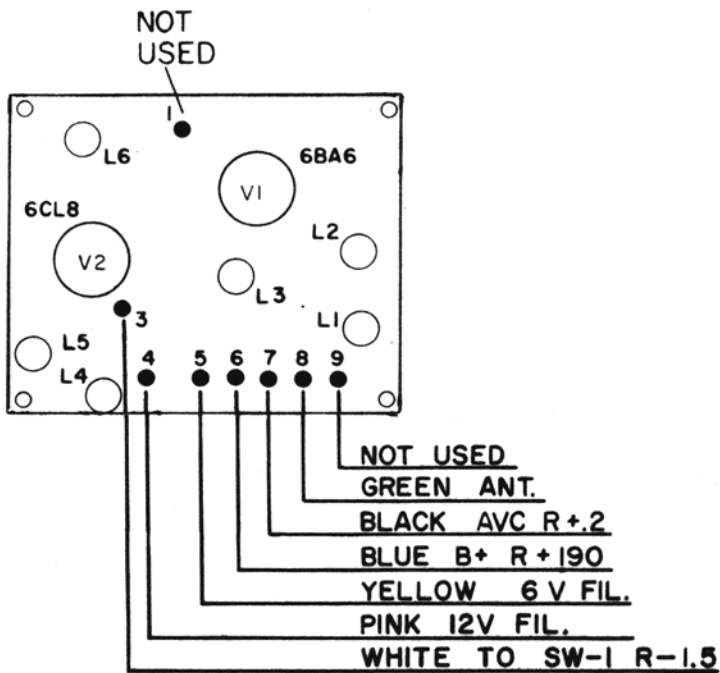
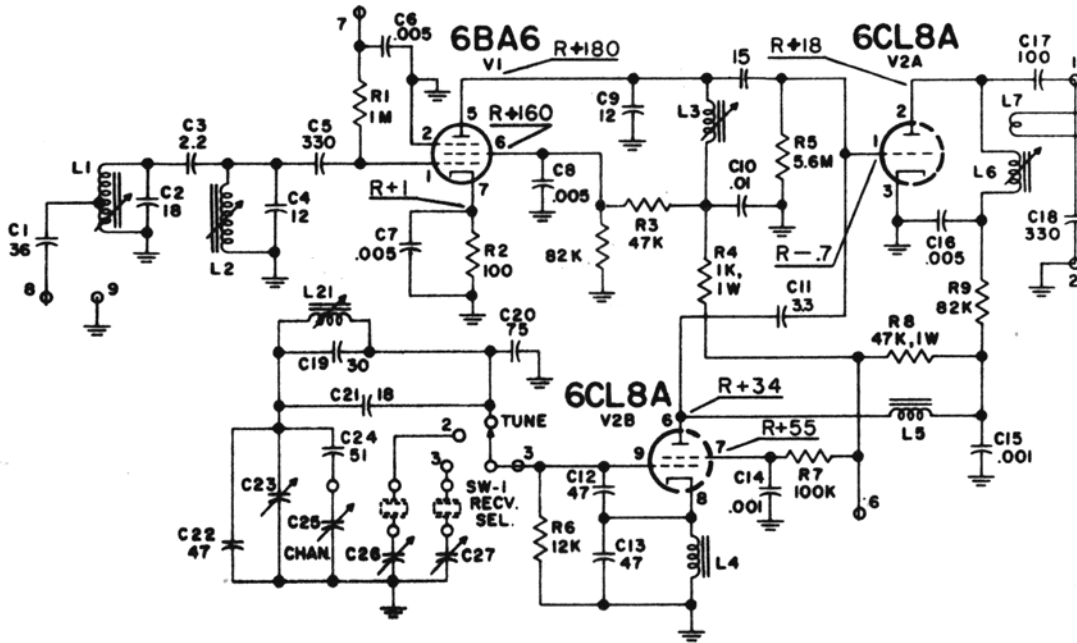
- (i) Seal coupling and neutralization loops in position with RTV compound.
7. The Executive series transmitter has an overall frequency tolerance of .005% or better. UNLESS SUITABLE HIGH-ACCURACY FREQUENCY MEASURING EQUIPMENT IS AVAILABLE, DO NOT ATTEMPT TO ADJUST THE TRANSMITTER FREQUENCY. A small trimmer capacitor C91, is provided to make minor adjustments in the transmitter frequency.
 8. Set TRANSMIT-SELECTOR to the Channel previously used for transmitter alignment. Connect C12B Frequency Meter through the PK-1 pick-up box to the transmitter antenna jack.
 9. Set up Frequency Meter for measurement on channel to be measured. Depress microphone press-to-talk switch and measure the frequency. If the frequency is out of tolerance, adjust trimmer C91 until the transmitter frequency is within tolerance. If this cannot be accomplished within the tuning range of C91, check the other channels in the set. If they can be brought into tolerance with trimmer C91, the crystal can be considered defective and must be replaced. If they cannot be brought into tolerance, possibly either of capacitors C89 or C90 has changed value.
 10. Before replacing either of these components, if possible, the crystals in question should be checked in another Executive transmitter. If they still cannot be brought into tolerance, chances are that the crystals are defective and should be replaced. If they can be brought into tolerance in a like unit, capacitors C89 and C90 should be checked and the defective component replaced.

MICROPHONE GAIN AND SPEECH CLIPPER LEVEL CONTROLS

The Microphone Gain (MIC. GAIN) is located on the Audio board. Access to this control is thru a hole in the back panel of the transceiver. This control varies the output level from microphone amplifier V6A. Output of V6A drives the audio amplifier V6B.

The clipper level control R57 is a small screwdriver adjust potentiometer mounted on the power supply chassis near the front panel just to the right of the speaker.

- (a) Install a dummy load in the Antenna connector
- (b) Turn the MIC GAIN control fully clockwise and then counterclockwise about 1/8th of a turn.
- (c) Turn clipper level control fully clockwise and key microphone. Talk closely into microphone at normal voice level and slowly turn clipper level control counterclockwise until TRANSMIT INDICATOR lamp flickers on voice peaks only.



NOTE

Voltage
Resistance

T- TRANSMIT

R- RECEIVE

VOLTAGE MEASUREMENTS, NO SIGNAL

115V OPERATION.

VOLTAGES WILL VARY FROM 6 TO

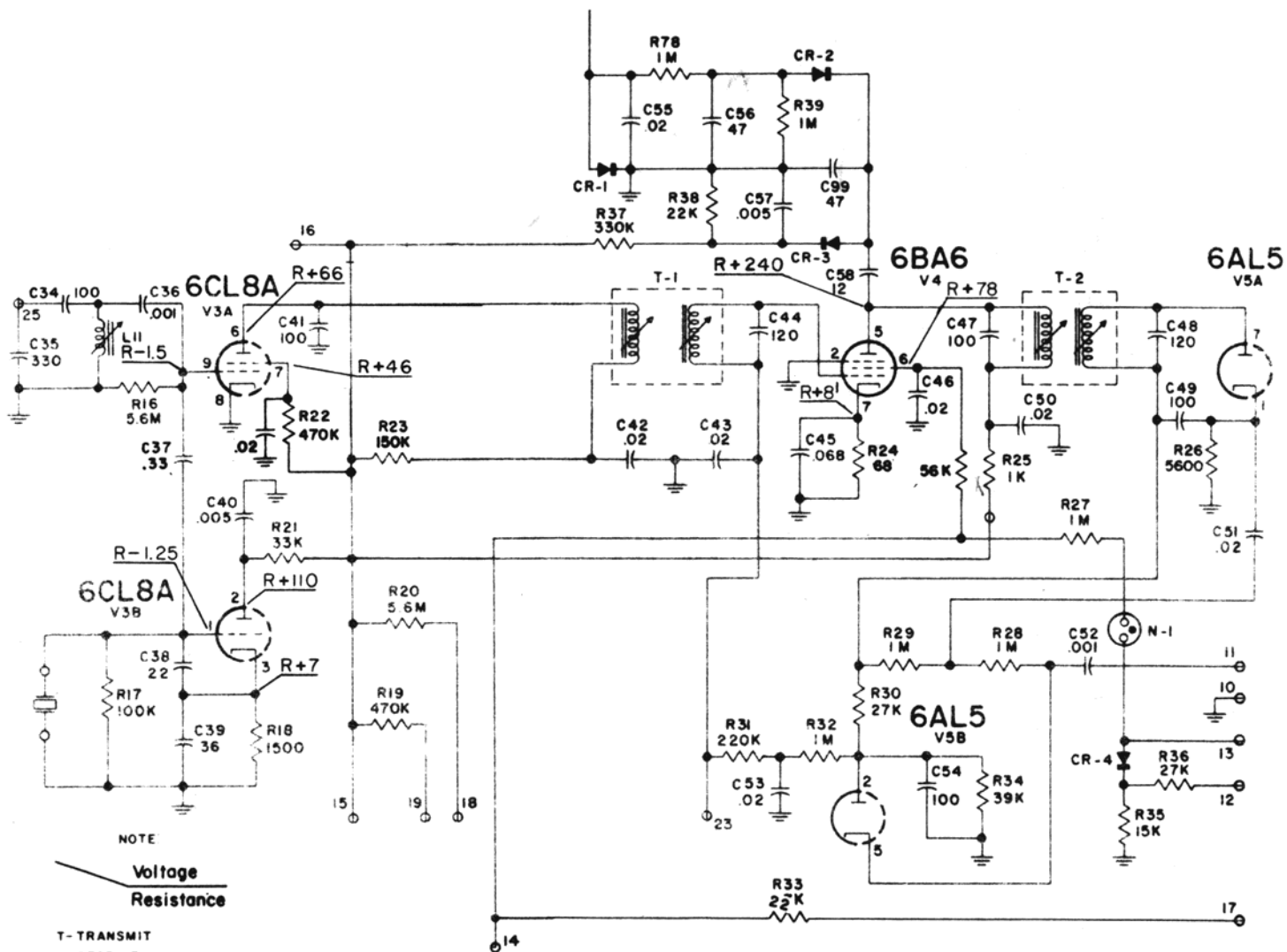
12 TO 115 VOLT OPERATION.

VOLTAGE MEASUREMENTS MADE

WITH VTVM.

ALL READINGS ± 10 %

CONVERTER UNIT MODEL 100 D		
DRAWN BY- <i>SL</i>	CHECKED BY- <i>SL</i>	APPROVED BY
DATE- 4-22-63	DATE- 5-2-63	— —
INTERNATIONAL CRYSTAL MFG. CO., INC. 18 N. LEE, OKLAHOMA CITY, OKLAHOMA		



NOTE

Voltage
Resistance

T- TRANSMIT
R- RECEIVE

VOLTAGE MEASUREMENTS, NO SIGNAL

115 V OPERATION.

VOLTAGES WILL VARY FROM 6 TO

12 TO 115 VOLT OPERATION.

VOLTAGE MEASUREMENTS MADE

WITH VTVM

* SQUELCH OFF TO FULL ON

** CALIBRATE ON

ALL READINGS ±10%

SHIELD-AUDIO OUT GND. 10

WHITE-AUDIO OUT 11

GREEN TO SQUELCH CONTROL R+1.3 TO +100*

PINK TO SW-6

YELLOW JUMPER TO PIN 18

DS BLUE B+ & CAL. SW. R+250

DS BLUE B+ R+250

RED TO SQUELCH CONTROL R+250

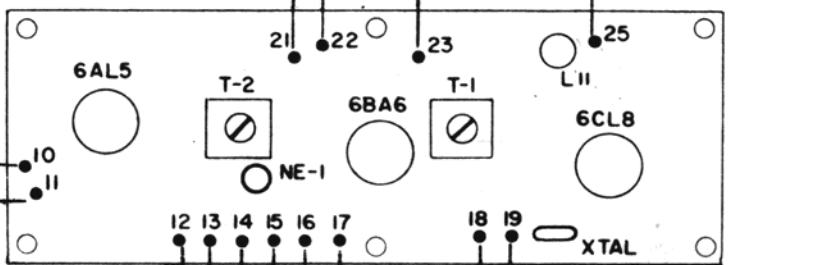
YELLOW 6V. FIL.

PINK 12V. FIL.

BLACK AVC.

R-.3

WHITE 10MC IN



WHITE TO CAL. SW.

R+250 TO +30**

YELLOW TO CAL. SW.

R+250 TO +9**

I.F. UNIT
MODEL 100D

DRAWN BY- <i>[Signature]</i>	CHECKED BY- <i>[Signature]</i>	APPROVED
DATE-4-23-63	DATE-5-2-63	

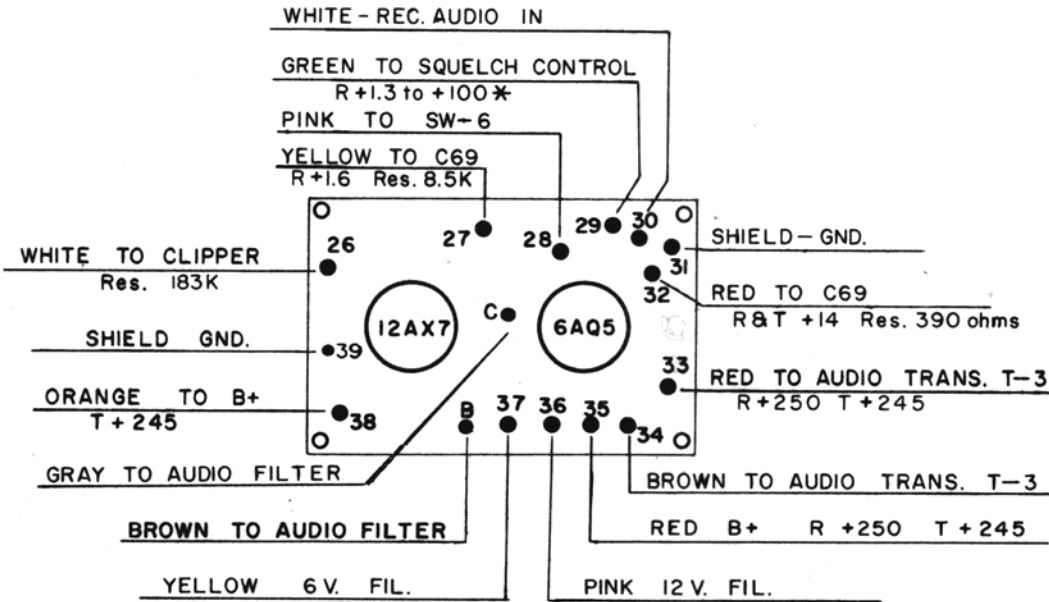
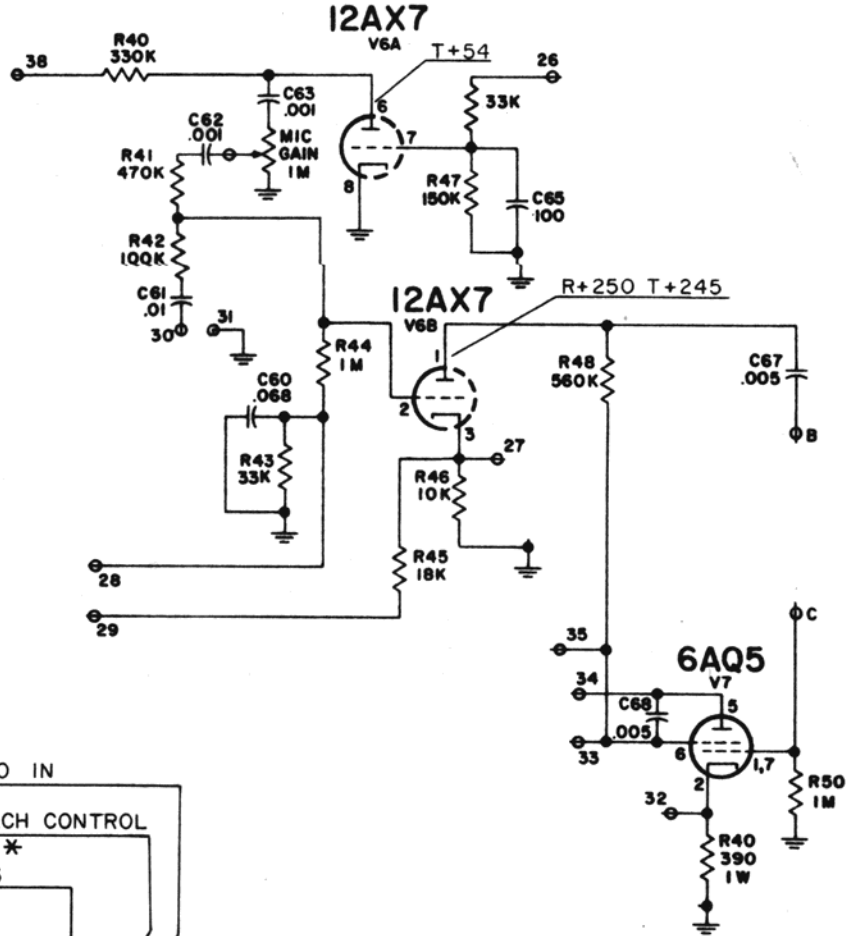
INTERNATIONAL CRYSTAL MFG. CO., INC.
18 N. LEE, OKLAHOMA CITY, OKLAHOMA

NOTE

Voltage
Resistance

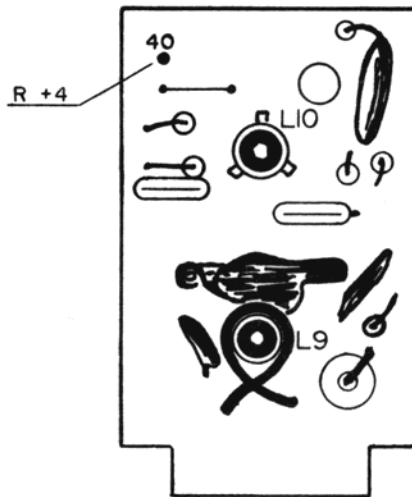
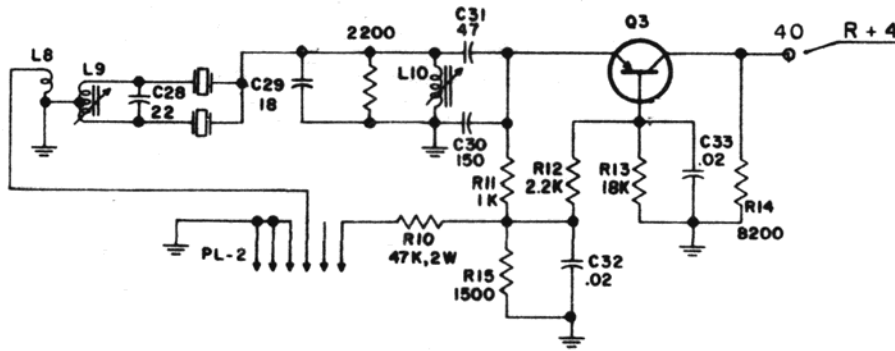
T- TRANSMIT
R- RECEIVE

VOLTAGE MEASUREMENTS, NO SIGNAL
115V OPERATION
VOLTAGES WILL VARY FROM 6 TO
12 TO 115 VOLT OPERATION
VOLTAGE MEASUREMENTS MADE
WITH VTVM
* SQUELCH OFF TO FULL ON
ALL READINGS ± 10%

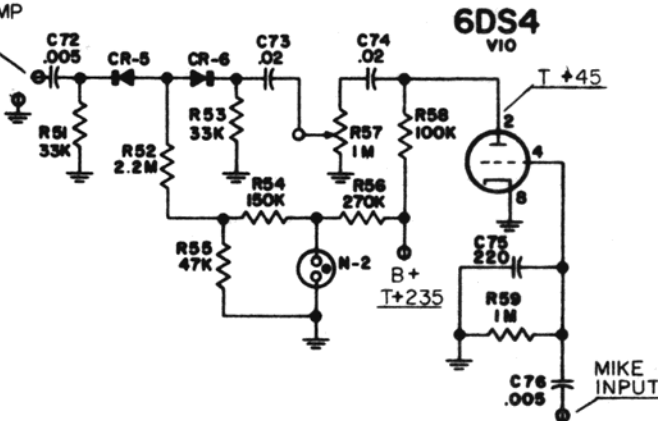


AUDIO UNIT MODEL 100 D		
DRAWN BY- <i>JB</i>	CHECKED BY- <i>BJ</i>	APPROVED BY
DATE-5-2-63	DATE-5-6-63	—
INTERNATIONAL CRYSTAL MFG. CO., INC. 18 N. LEE, OKLAHOMA CITY, OKLAHOMA		

CRYSTAL FILTER

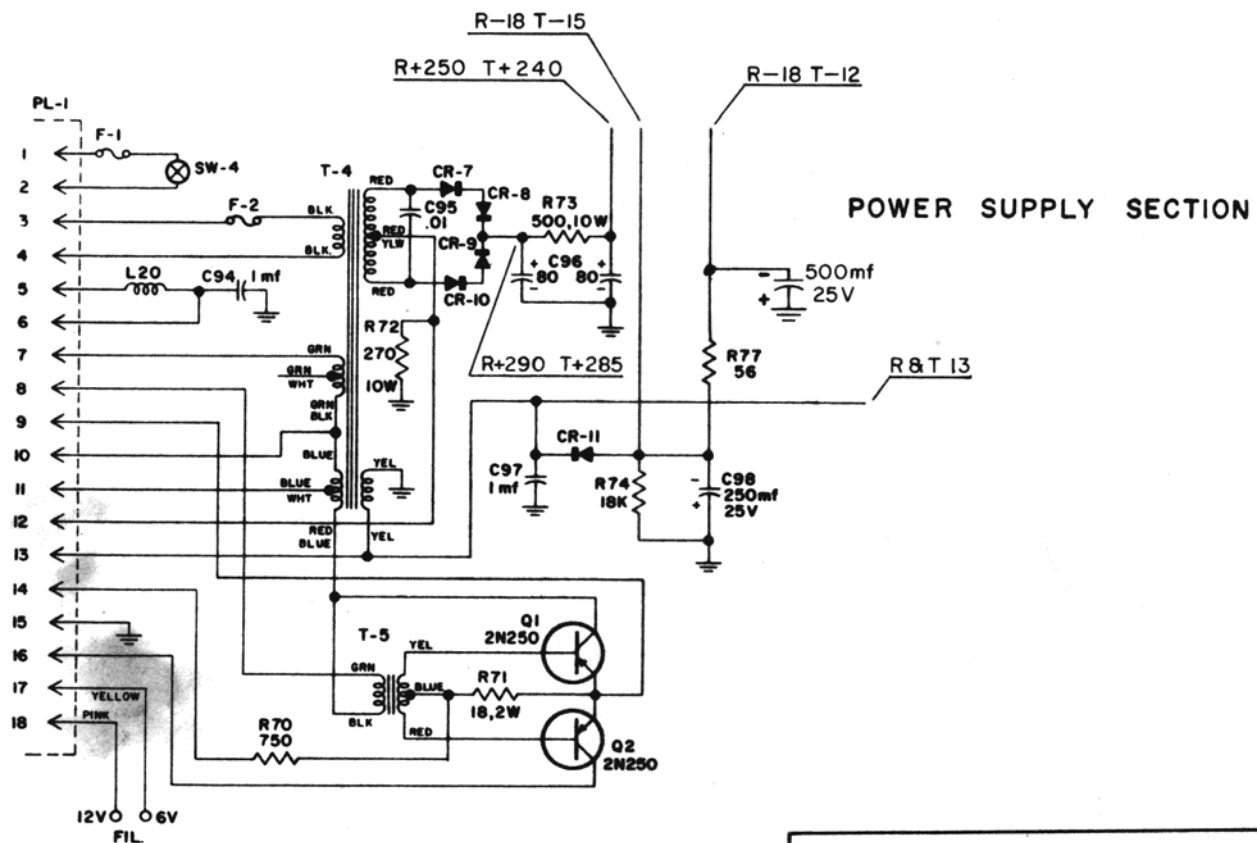
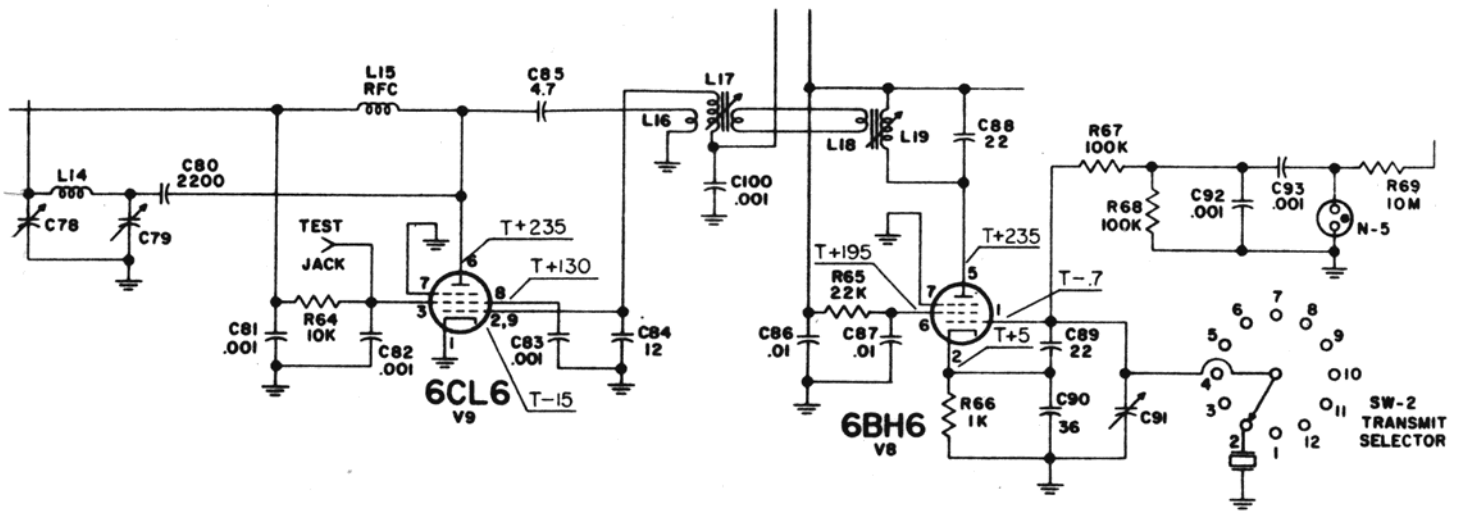


OUTPUT TO
SPEECH AMP
V6



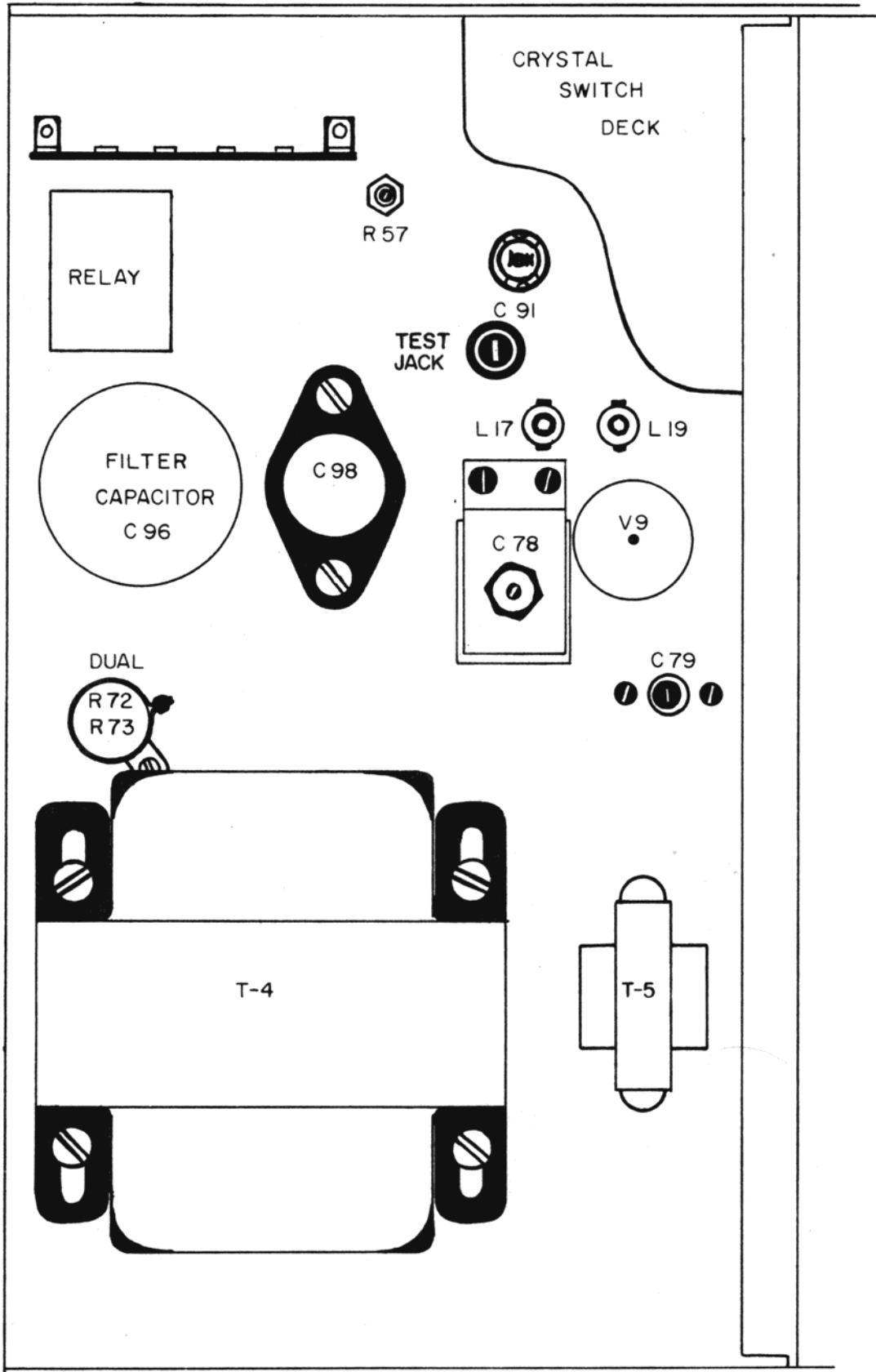
CRYSTAL FILTER & SPEECH CLIPPER STAGES		
DRAWN BY <i>LB</i>	CHECKED BY <i>LB</i>	APPROVED BY
DATE-5-3-63	DATE-5-6-63	—
INTERNATIONAL CRYSTAL MFG. CO., INC. 18 N. LEE, OKLAHOMA CITY, OKLAHOMA		

TRANSMITTER SECTION

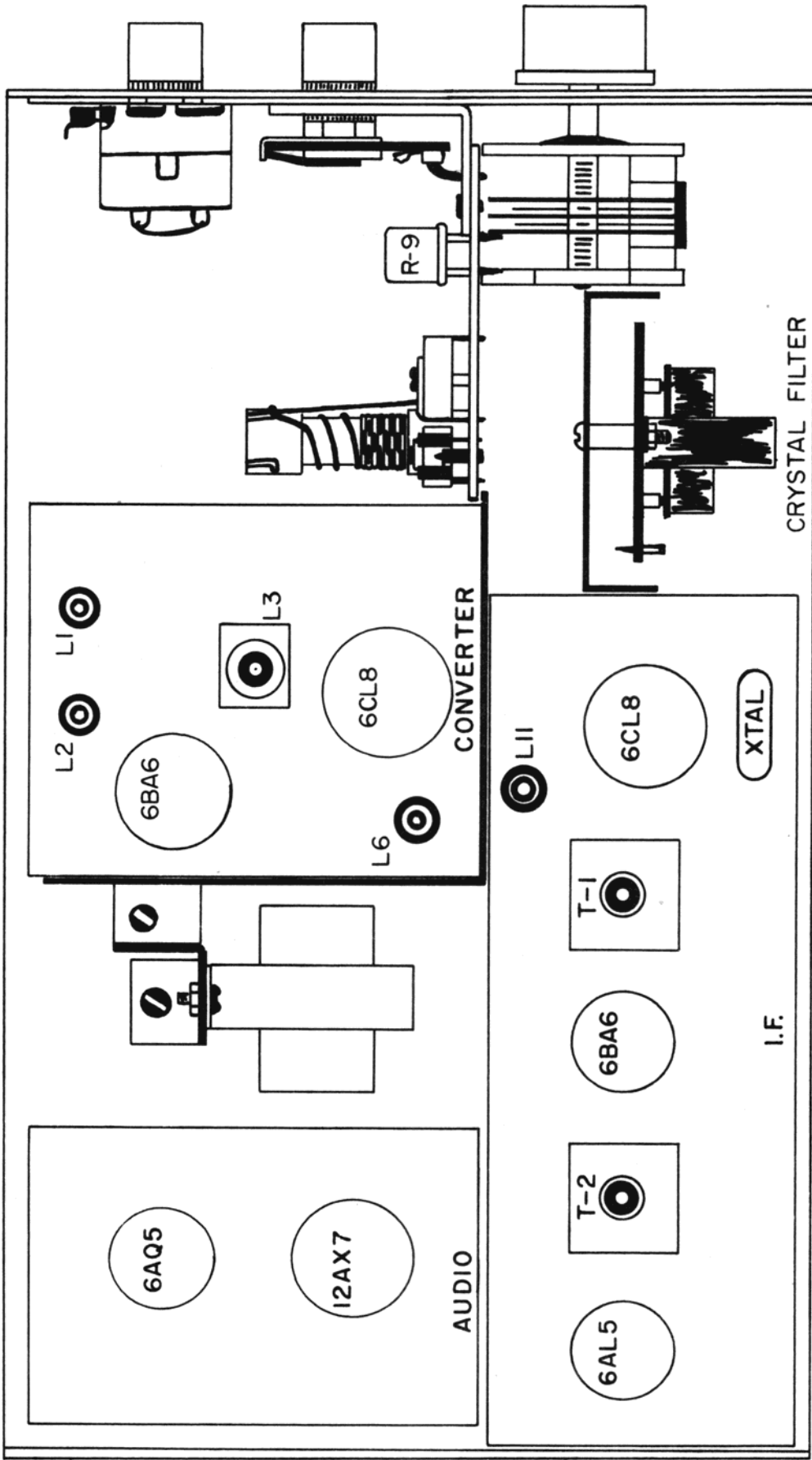


TRANSMITTER & POWER SUPPLY MODEL 100 D		
DRAWN BY—	CHECKED BY—	APPROVED BY—
DATE— 5-1-63	DATE— 5-2-63	—
INTERNATIONAL CRYSTAL MFG. CO., INC. 18 N. LEE, OKLAHOMA CITY, OKLAHOMA		

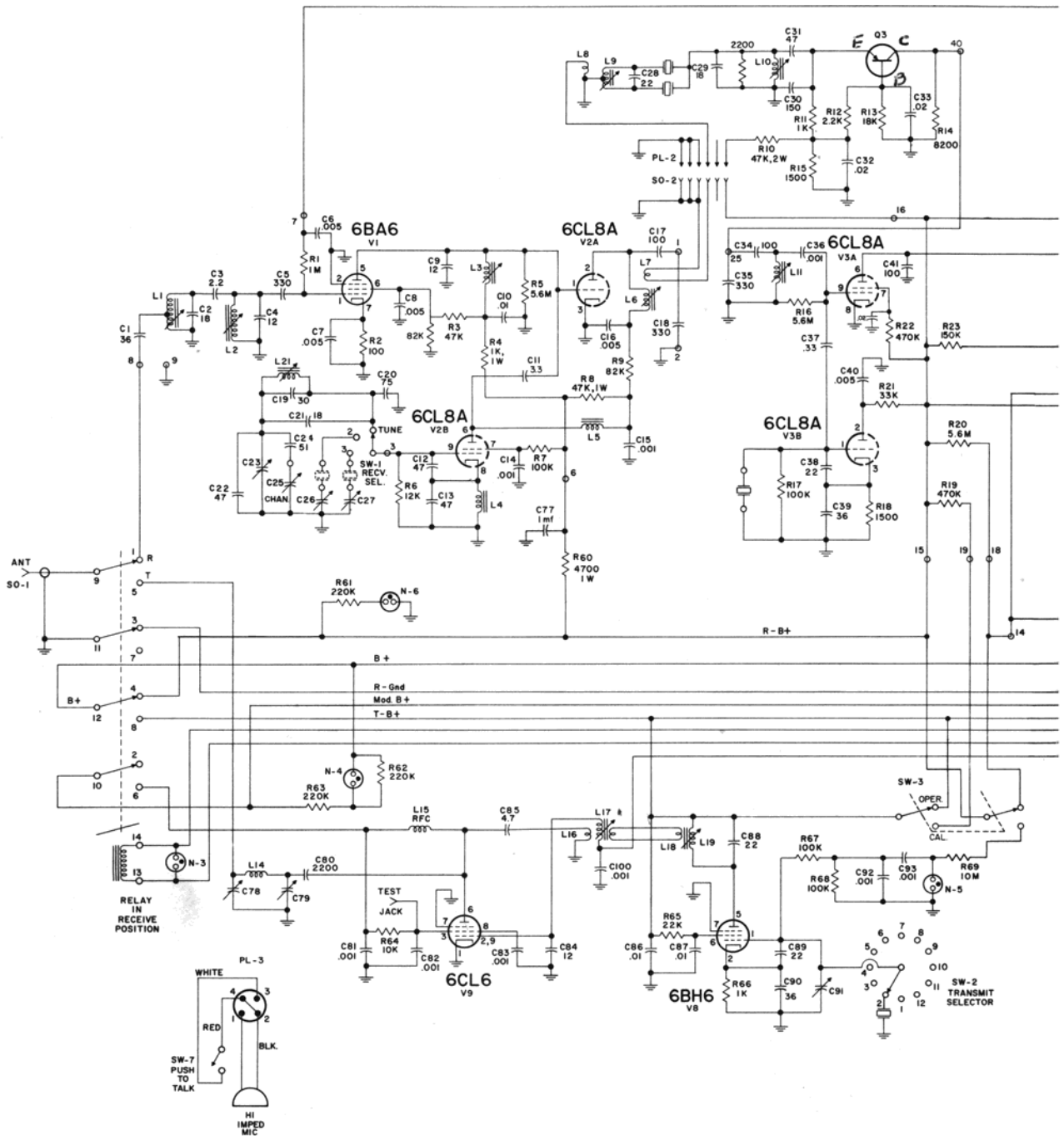
FRONT PANEL

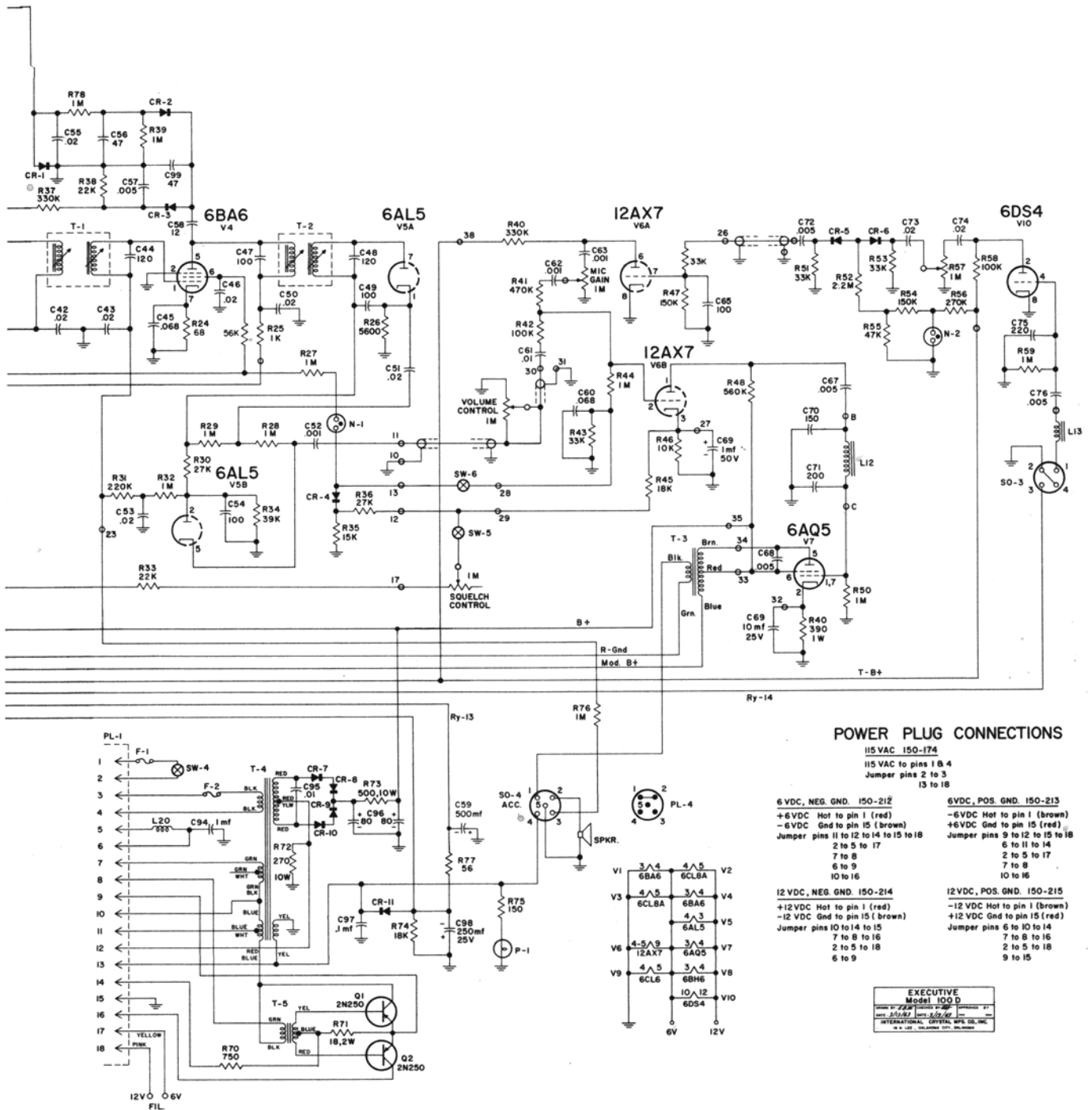


TOP VIEW



RECEIVER SECTION





POWER PLUG CONNECTIONS

115 VAC 150-174
 115 VAC to pins 1 & 4
 Jumper pins 2 to 3
 13 to 18

6 VDC, NEG. GND. 150-212
 +6VDC Hot to pin 1 (red)
 -6VDC Gnd to pin 15 (red)
 Jumper pins 11 to 12 to 14 to 15 to 18
 2 to 5 to 17
 7 to 8
 6 to 9
 10 to 16

6VDC, POS. GND. 150-213
 -6VDC Hot to pin 1 (brown)
 +6VDC Gnd to pin 15 (red)
 Jumper pins 9 to 12 to 15 to 18
 6 to 11 to 14
 2 to 5 to 17
 7 to 8
 10 to 16

12 VDC, NEG. GND. 150-214
 +12 VDC Hot to pin 1 (red)
 -12 VDC Gnd to pin 15 (brown)
 Jumper pins 10 to 14 to 15
 7 to 8 to 16
 2 to 5 to 18
 6 to 9

12VDC, POS. GND. 150-215
 -12 VDC Hot to pin 1 (brown)
 +12 VDC Gnd to pin 15 (red)
 Jumper pins 6 to 10 to 14
 7 to 8 to 16
 2 to 5 to 18
 9 to 15

EXECUTIVE
 Model 100 D
 INTERNATIONAL CRYSTAL WPL CO., INC.
 44-1001 - 1964

WARRANTY

International Crystal Manufacturing Company warrants the parts and tubes in any International Citizen Transceiver to be free from defects in workmanship and material arising from normal usage. Its obligation under this warranty is limited to replacing any such parts or tubes of the receiver which, after regular installation and under normal usage and service, shall be returned within ninety (90) days from the date of original purchase of the set to the authorized dealer from whom the purchase was made and which shall be found to have been thus defective in accordance with the policies established by International Crystal Manufacturing Company.

The obligation of International Crystal Manufacturing Company is limited to making replacement parts available to the purchaser, and does not include either the making or the furnishing of any labor in connection with the installation of such replacement parts nor does it include responsibility for any transportation expense.

International Crystal Manufacturing Company assumes no liability and shall not be liable in any respect for failure to perform or delay in performing its obligations with respect to the above warranty if such failure or delay results, directly or indirectly, from any preference, priority or allocation order issued by the Government or because of any other act of the Government, or by war, conditions of war, inadequate transportation facilities, conditions of weather, acts of God, strikes, lockouts, Governmental controls, or Internationals reasonable requirements for manufacturing purposes, or any cause beyond its control or occurring without its fault, whether the same kind or not.

CONDITIONS AND EXCLUSIONS

This warranty is expressly in lieu of all other agreements and warranties expressed or implied, and International Crystal does not authorize any person to assume for it the obligations contained in this warranty and neither assumes nor authorized any representative or other person to assume for it any other liability in connection with such International units or parts or tubes thereof.

The warranty herein extends only to the original consumer purchaser and is not assignable or transferable and shall not apply to any transceiver or parts or tubes thereof which have been repaired or replaced by anyone else other than an authorized International dealer, service contractor or distributor, or which have been subject to alteration, misuse, negligence or accident, or to the parts or tubes of any receiver which have had the serial number or name altered, defaced or removed.

International Crystal Manufacturing Company is under no obligation to extend this warranty to any unit for which an International registration card has not been completed and mailed to the Company within fifteen (15) days after date of purchase.

UNAUTHORIZED PRACTICES IN BUSINESS AND CITIZENS RADIO SERVICES

An increasing number of reports have reached the Commission concerning the practice of some suppliers of Business and Citizens Radio Services equipment to advise their customers that such equipment may be operated by them prior to the issuance of a radio station license by the Commission. In some instances, sellers have "assigned" radio station call signs to purchasers in conjunction with the sale of radio apparatus and, in a few such cases, these call signs have been identical with those authorized to be used by the manufacturer or seller of the equipment.

A radio station license is required for the use or operation of a radio station in the Business and Citizens Radio Services by Section 301 of the Communications Act. With the exception of certain low power equipment described in Part 15 of the Commission's Rules, the operation of any radio transmission apparatus by a person other than the one to whom the Commission has issued a radio station license is illegal and may result in the imposition of severe criminal sanctions (one year in prison or \$10,000 fine, or both) or in the institution of other enforcement action by the Commission.

Under Section 310 (b) of the Communications Act, the prior consent of the Commission is required for the transfer or assignment of any radio station license or the rights granted thereunder. One who fails to observe this provision by the purported transfer of his operating authority subjects himself to possible license revocation and such other enforcement action as the Commission may consider warranted by the circumstances. The denomination of such unlawful activities as "equipment demonstrations" does not render them less illicit.

This matter is being brought to the attention of manufacturers, distributors and retail vendors of Business and Citizens Radio Service communication equipment in the belief that they share the Commission's conviction that the orderly development of these dynamic special radio services is hampered by the above-described practices and that one who engages in such practices, in addition to the possibility of having drastic enforcement action instituted against him, may be sacrificing for the benefit of an immediate sale the long range good will of a misadvised customer.

It is requested that the foregoing be brought to the attention of the personnel in all organizations concerned in any way with the sale, maintenance or use of Business or Citizens Radio Stations in order that a prompt cessation of unlicensed operation of radio stations in these services may be brought about.

F.C.C. RULES & REGULATIONS

PART 19.72 POSTING OF STATION LICENSE

- (b) The current authorization of each citizens radio station operated as a mobile station or operated at temporary locations may be retained in the permanent records of the station and need not be posted; However, an executed Transmitter Identification Card (FCC Form 452-C, Revised) shall be affixed to each transmitter which is operated as a mobile station or is operated at temporary locations, and to the control equipment of each such transmitter in every case where such transmitter is not in view from the location from which the station is controlled.

- (c) The following information shall be entered on each Transmitter Identification Card (FCC Form 452-C, Revised) which is used for transmitter or station identification in accordance with the foregoing:
 - (1) Name of the station licensee;
 - (2) Station call sign assigned by the Commission (see 19.62);
 - (3) Exact location or locations of the permanent station records;
 - (4) Frequency or frequencies upon which the associated transmitter is adjusted to operate; and
 - (5) Signature of the licensee.