

**This Manual is provided by**  
**CBTricks.com**

Someone who wanted to help you repair your equipment  
scanned this manual.

If you would like to help us put more manuals online support us.

Supporters of CBTricks.com paid for the hosting so you would have this file.

CBTricks.com is a non-commercial personal website was created to help promote the exchange of service, modification, technically oriented information, and historical information aimed at the Citizens Band, GMRS (CB "A" Band), MURS, Amateur Radios and RF Amps.

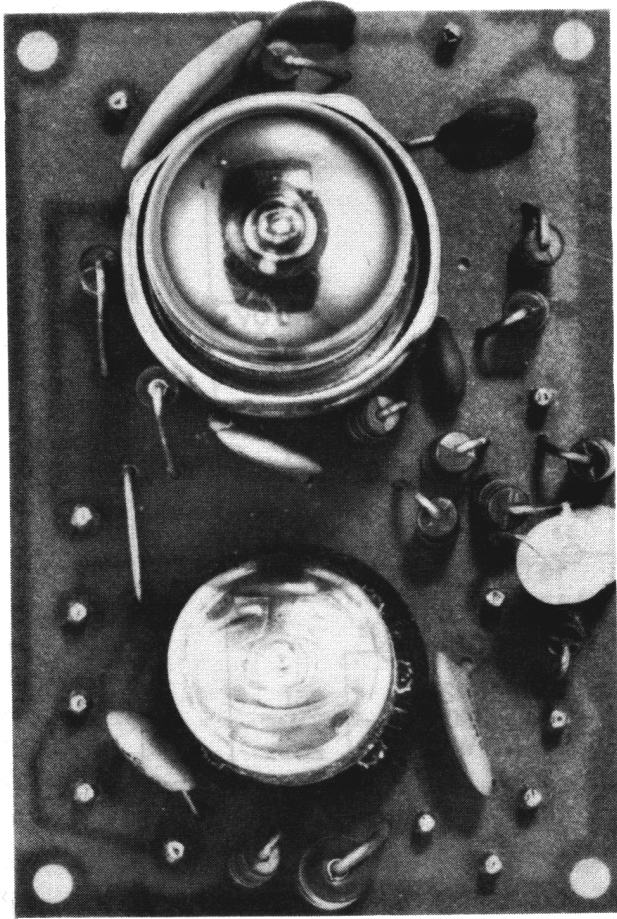
CBTricks.com is not sponsored by or connected to any Retailer, Radio, Antenna Manufacturer or Amp Manufacturer, or affiliated with any site links shown in the links database. The use of product or company names on my web site is not endorsement of that product or company.

If your company would like to provide technical information to be featured on this site I will put up on the site as long as I can do it in a non-commercial way.

The site is supported with donation from users, friends and selling of the Galaxy Service Manual CD to cover some of the costs of having this website on the Internet instead of relying on banner ads, pop-up ads, commercial links, etc. to pay my costs. Thus I do not accept advertising banners or pop-up/pop-under advertising or other marketing/sales links or gimmicks on my website.

ALL the money from donations is used for CBTricks.com I didn't do all the work to make money (I have a day job). This work was not done for someone else to make money also, for example the ebay CD sellers.

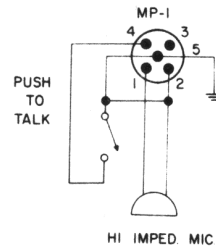
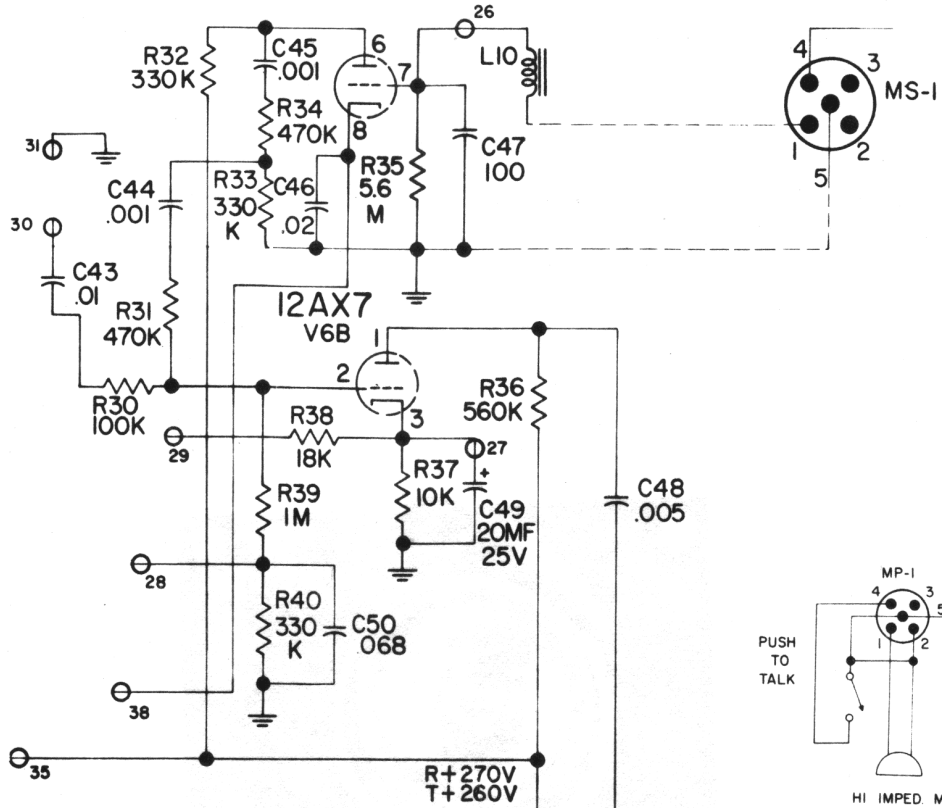
All Trademarks, Logos, and Brand Names are the property of their respective owners.  
This information is not provided by, or affiliated in any way with any radio or antenna Manufacturers.  
Thank you for any support you can give.



## AUDIO UNIT

# 12AX7

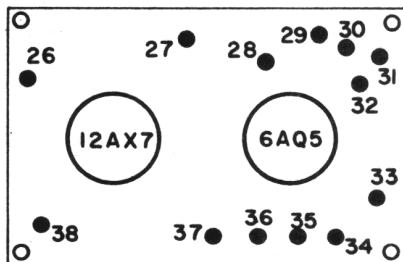
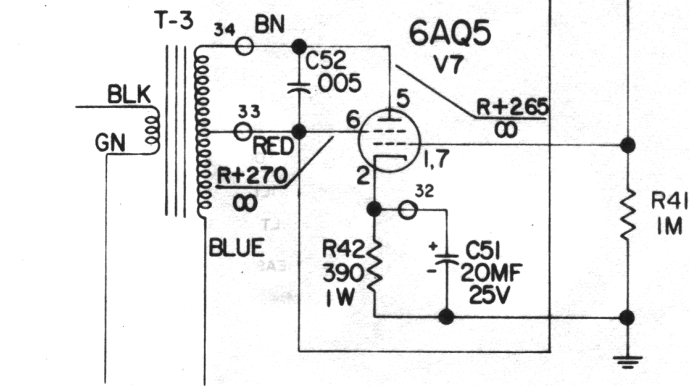
V6A



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.



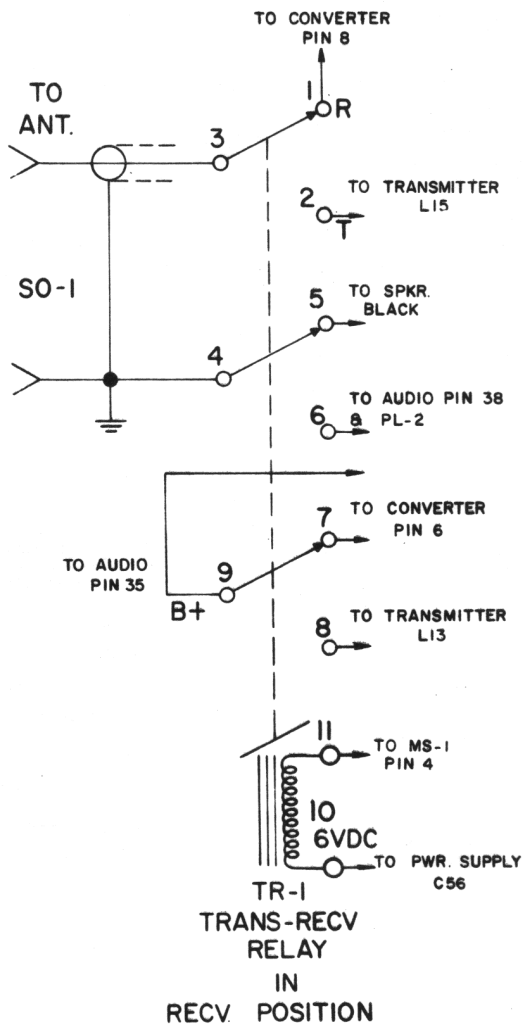
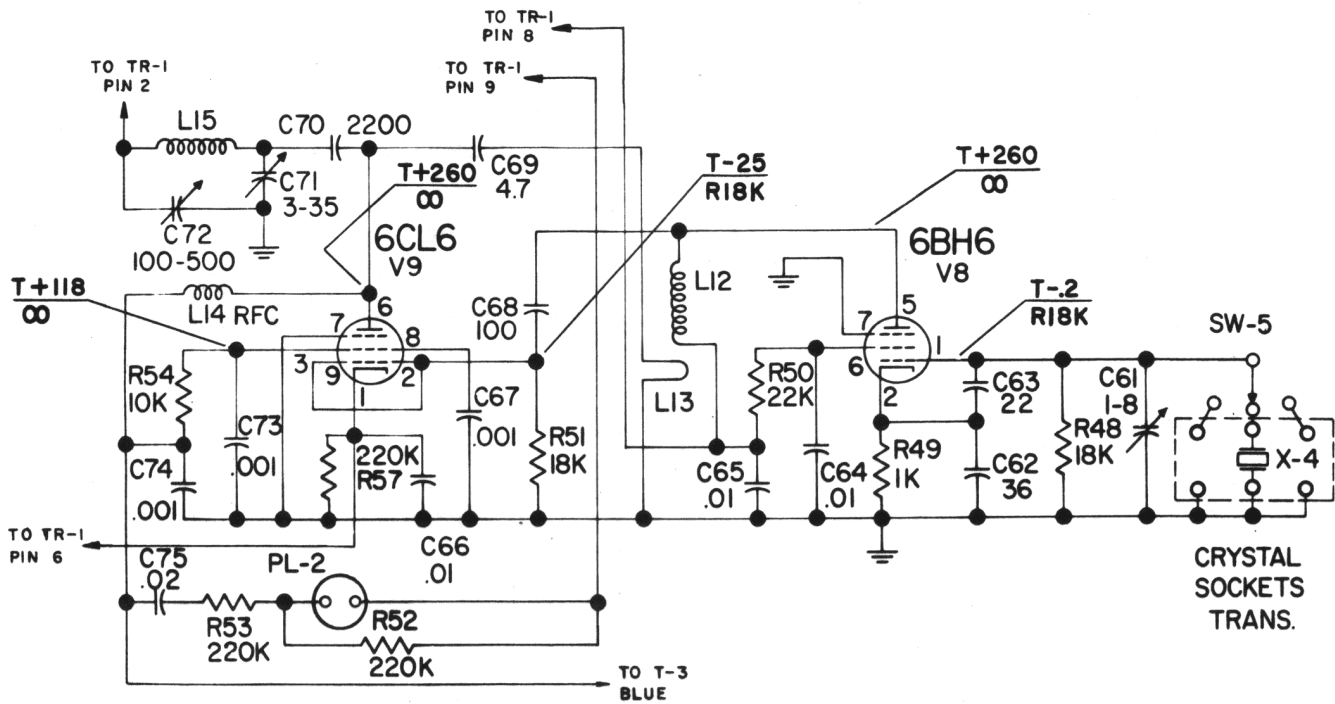
### POWER PIN CONNECTIONS

- |                   |                          |
|-------------------|--------------------------|
| 26 MIC. IN        | 32 TO C51                |
| 27 TO C49         | 33 TO TRANS. B+          |
| 28 TO SW-3 & SQ   | 34 TO TRANS. PLATE       |
| AUDIO GRID        | 35 B+                    |
| 29 TO SQ. CONTROL | 36 12V FIL.              |
| 30 AUDIO IN       | 37 6V FIL.               |
| 31 GND            | 38 CATHODE TO TR-1 PIN 6 |

### AUDIO UNIT MODEL 50

DRAWN BY- <i>WJ</i>	CHECKED BY- <i>WJR</i>	APPROVED BY- <i>WJR</i>
DATE- 5-5-61	DATE- <i>WJR</i>	

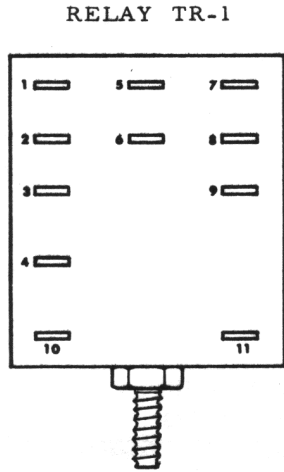
INTERNATIONAL CRYSTAL MFG. CO., INC.  
18 N. LEE, OKLAHOMA CITY, OKLAHOMA



**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.

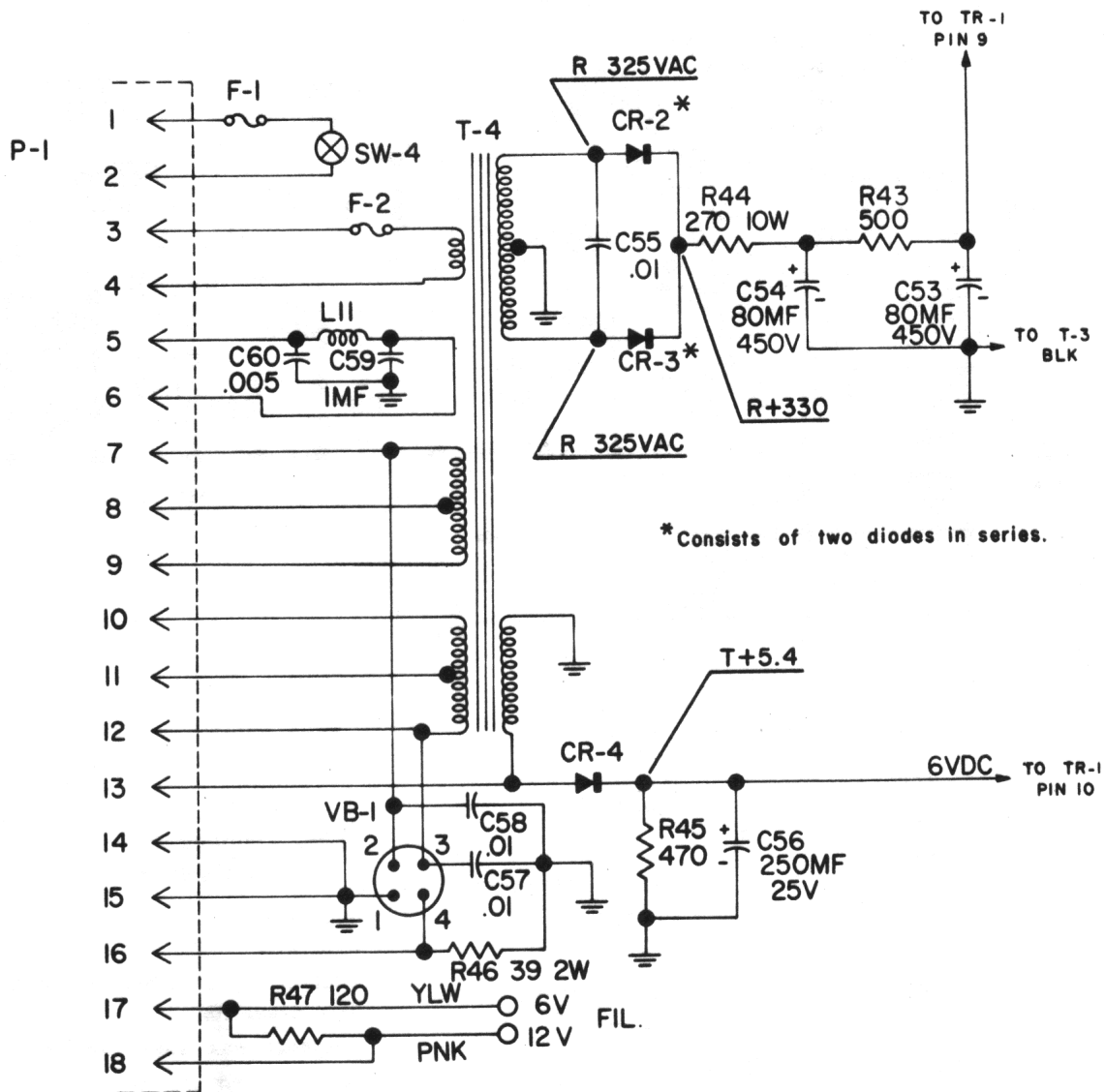


R57, 22K From Pin 10-10-61  
 1 of V9 to Gnd added  
 REVISION DATE

**TRANSMITTER  
 MODEL 50**

DRAWN BY - <i>SP II</i>	CHECKED BY - <i>W.M.R.</i>	APPROVED BY - <i>REJ</i>
DATE - 5-3-61	DATE - <i>W.M.R.</i>	

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



\* Consists of two diodes in series.

- 115VAC 115VAC TO PINS 1 & 4  
JUMPER PINS 2-3, 13-17, 15-18
- 6VDC 6VDC HOT TO PIN 1  
6VDC GND TO PIN 14  
JUMPER PINS 2-5, 6-8, 8-11, 7-10  
9-12, 17-5, 15-18, 15-16
- 12VDC 12VDC HOT TO PIN 1  
12VDC GND TO PIN 14  
JUMPER PINS 2-5, 6-9, 9-10, 5-18

NOTE:  
 Voltage  
 Resistance

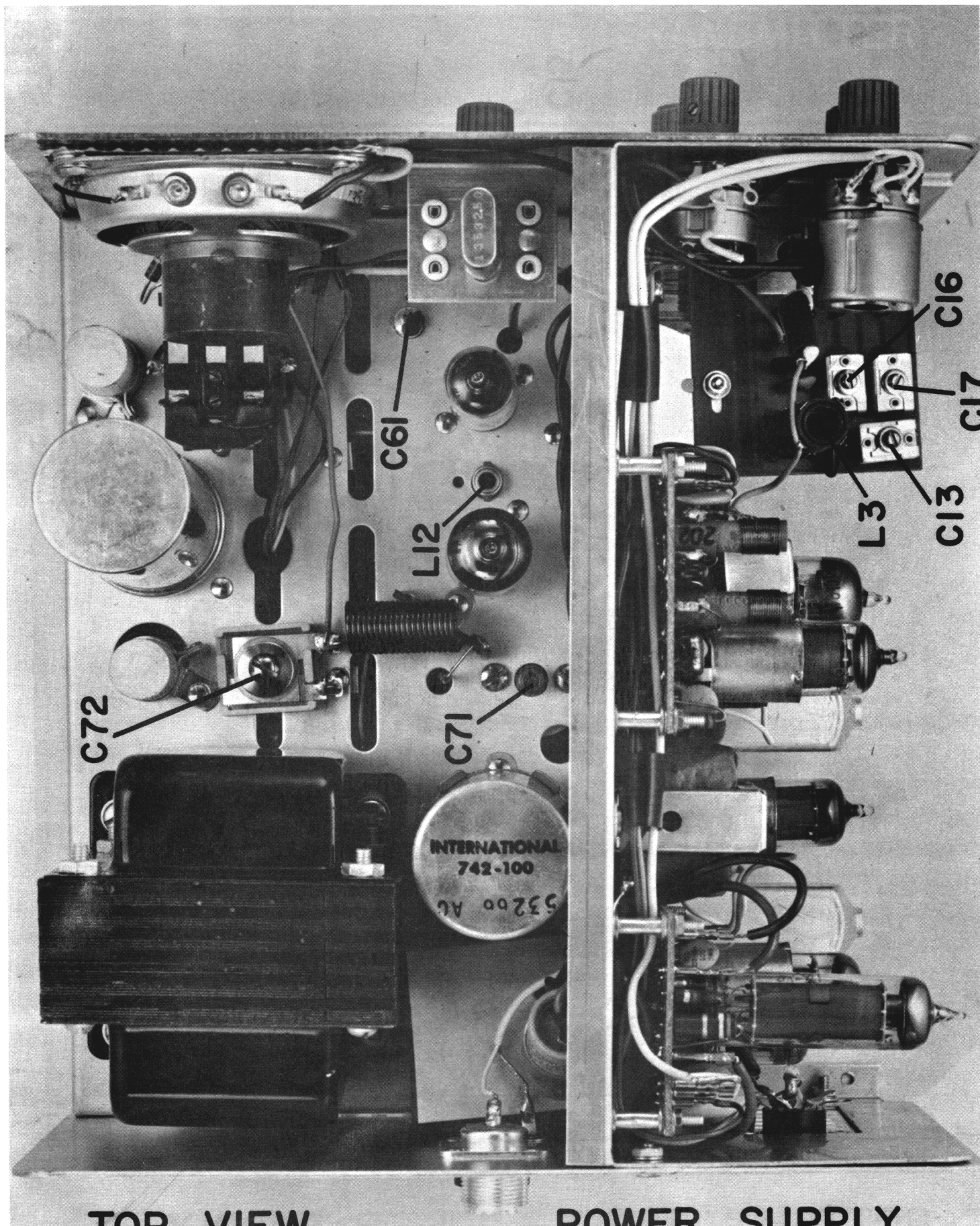
T - TRANSMIT  
 R - RECEIVE

VOLTAGE MEASUREMENTS, NO SIGNAL  
 115V OPERATION.

VOLTAGES WILL VARY FROM 6 TO  
 12 TO 115 VOLT OPERATION.

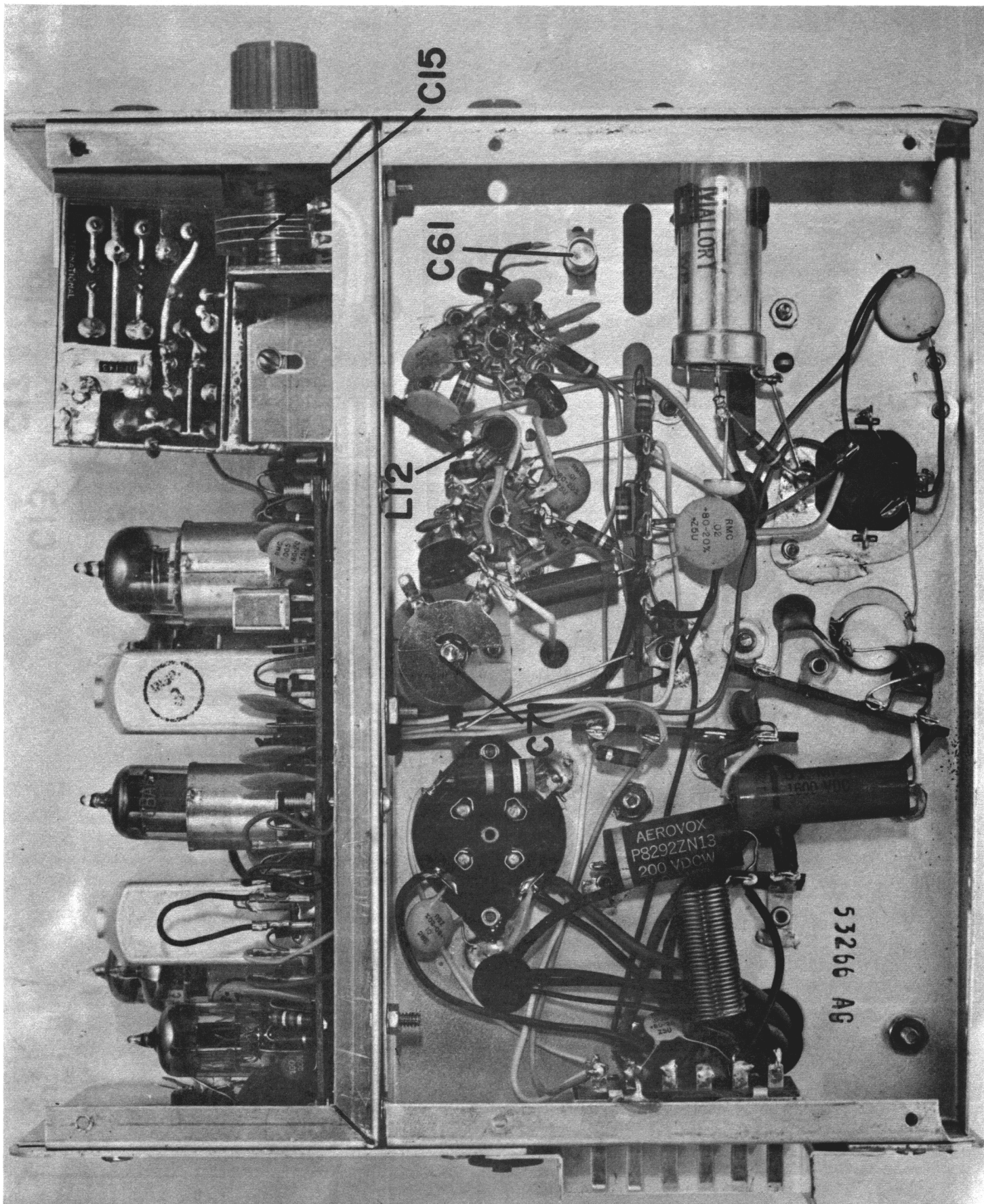
VOLTAGE MEASUREMENTS MADE  
 WITH VTVM.

POWER SUPPLY MODEL 50		
DRAWN BY - <i>JS</i>	CHECKED BY - <i>WJR</i>	APPROVED BY - <i>RJF</i>
DATE - 5-8-61	DATE - <i>WJR</i>	
INTERNATIONAL CRYSTAL MFG. CO., INC.		
18 N. LEE, OKLAHOMA CITY, OKLAHOMA		



TOP VIEW

POWER SUPPLY  
& TRANSMITTER



**BOTTOM VIEW**

**POWER SUPPLY  
& TRANSMITTER**

RETTIMB/AMT

## 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 International 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.

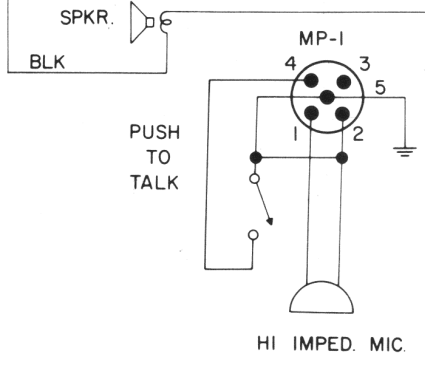
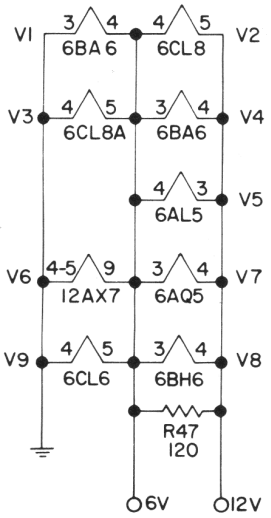
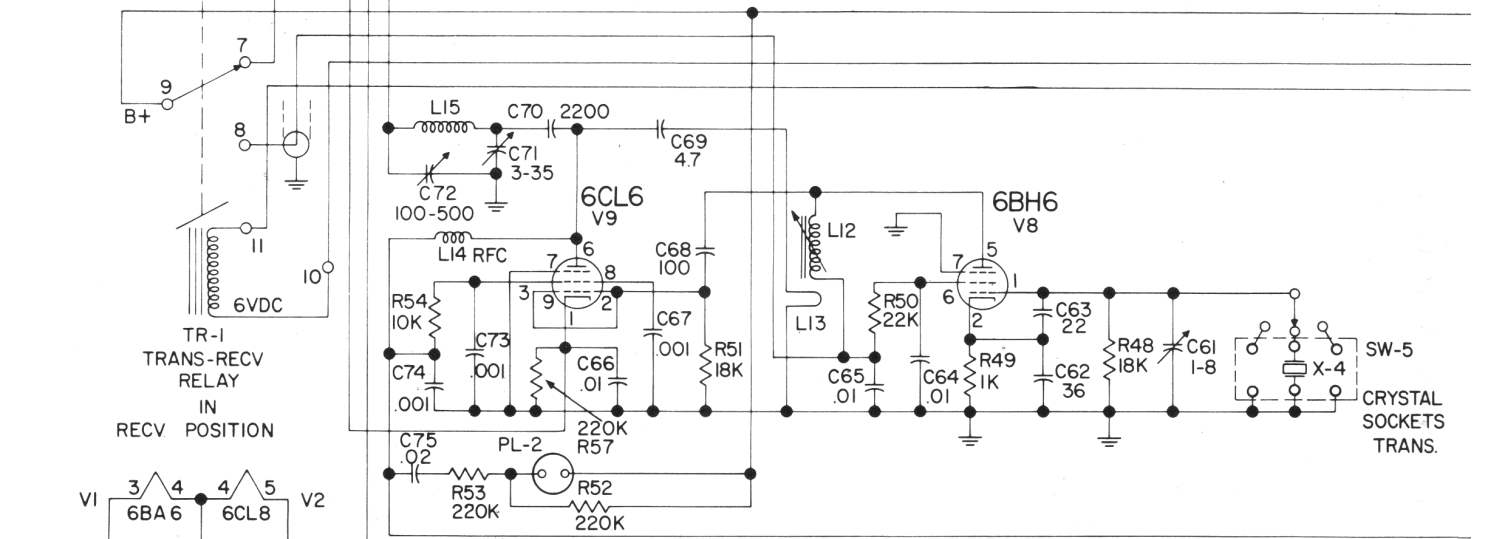
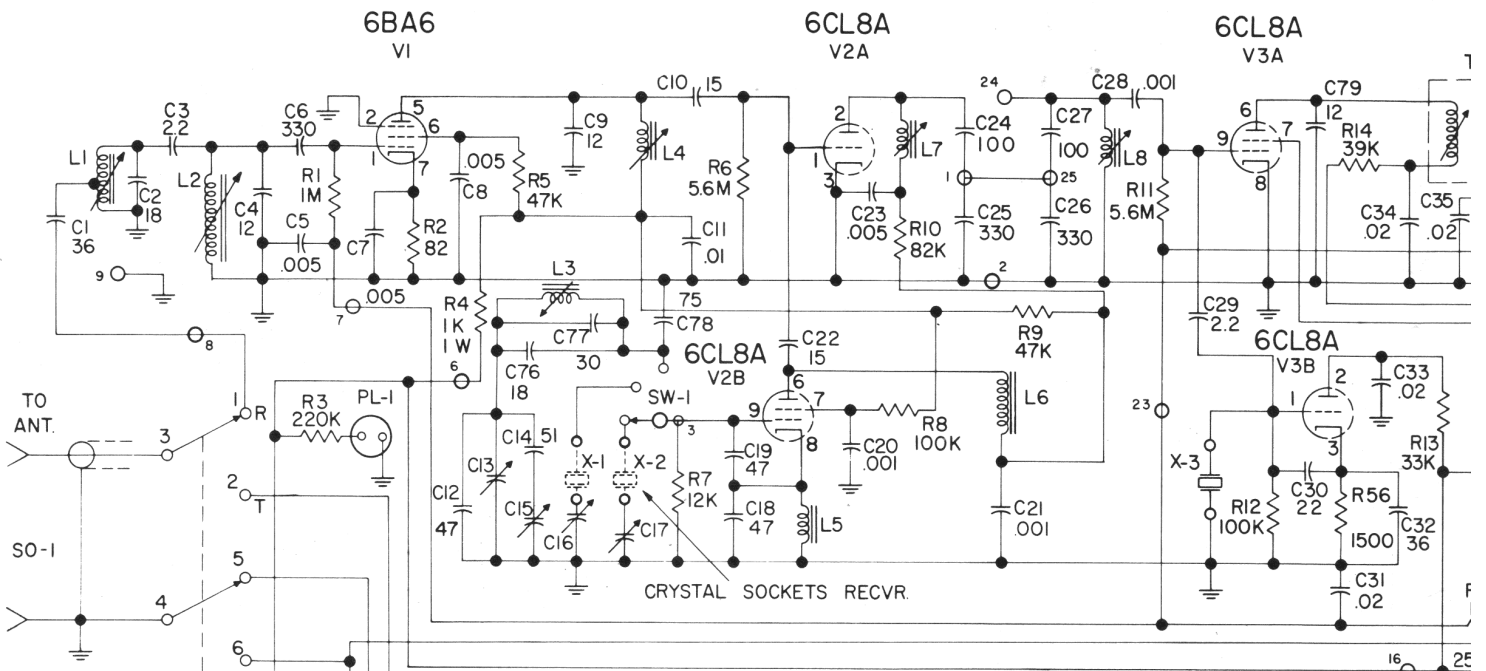
This matter is being brought to the attention of manufacturers, distributors and retail vendors of Business and Citizens Radio Service communication equipment in the belief that they share the Commission's conviction that the orderly development of these dynamic special radio services is hampered by 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.

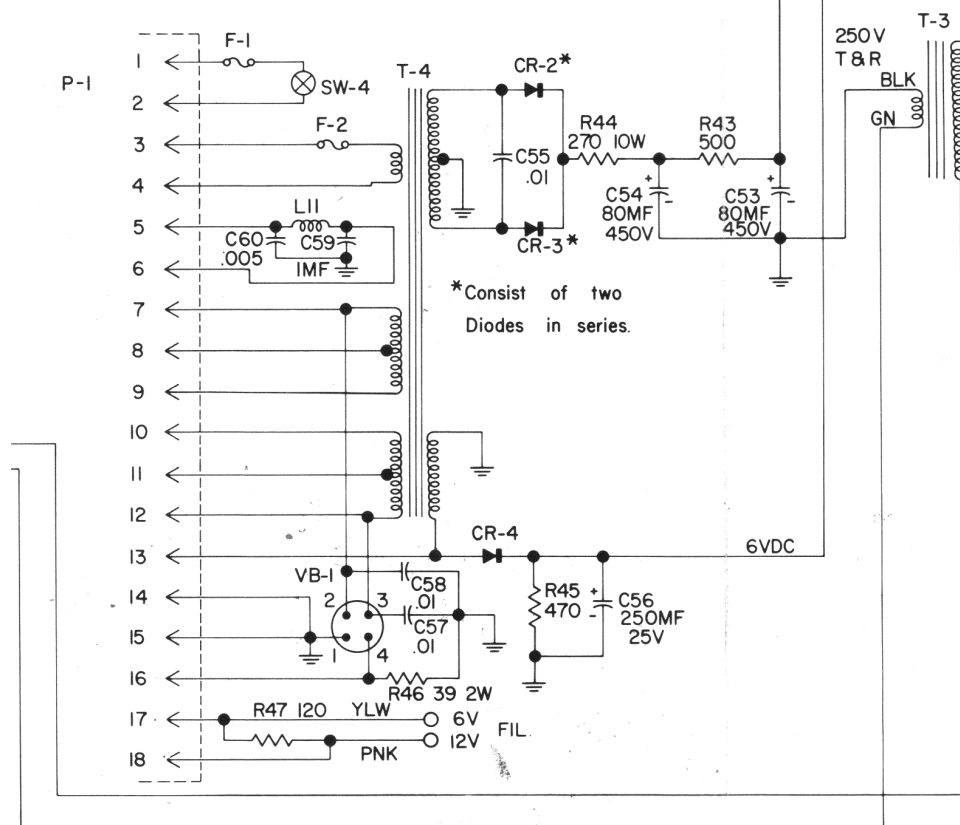
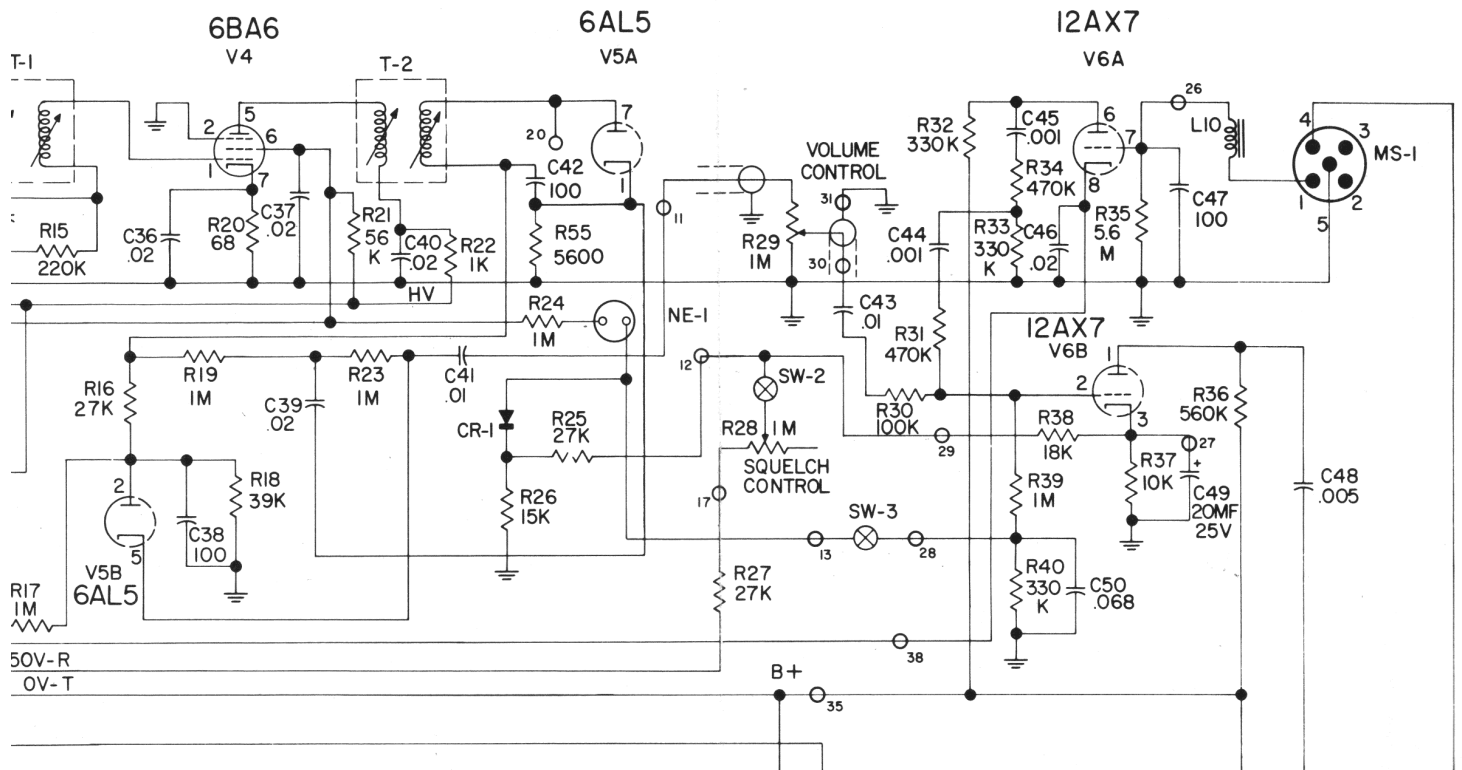
F.C.C. RULES & REGULATIONS

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.



BEGINNING WITH SERIAL NO.	REVISION
7701	C11 CHANGED FROM .02, 500V TO .01, 1000 V. 4/26/61
7801	C40 CHANGED FROM .02, 500V TO .02, 1000V. 5/1/61
8269	A 220K, 1/2 W RESISTOR CONNECTED FROM PIN 1 OF V9 TO GND. (R57) 5/27/61
8501	C5, C7, C8 & C23 CHANGED FROM .02, 500 V TO .005, 500V. L9 CHANGED TO 1500, 1/2 W RESISTOR. (R56) 6/6/61
50373	R16 CHANGED FROM 150K TO 27K. R18 FROM 330K TO 39K. C39 & C42 CONNECTED TO PIN 1 OF V5A. R55 ADDED FROM PIN 1 OF V5A TO GND. R21 CHANGED FROM 68K TO 56K. 10/21/61



**POWER SUPPLY CONNECTIONS**

- 115VAC 115VAC TO PINS 1 & 4  
JUMPER PINS 2-3, 13-17, 15-18
- 6VDC 6VDC HOT TO PIN 1  
6VDC GND TO PIN 14  
JUMPER PINS 2-5, 6-8, 8-11, 7-10  
9-12, 17-5, 15-18, 15-16
- 12VDC 12VDC HOT TO PIN 1  
12VDC GND TO PIN 14  
JUMPER PINS 2-5, 6-9, 9-10, 5-18

CTZ-50

DRAWN BY: <i>[Signature]</i>	CHECKED BY: <i>[Signature]</i>	ISSUE 2
DATE: <i>[Date]</i>	DATE: <i>[Date]</i>	APPROVED BY: <i>[Signature]</i>
INTERNATIONAL CRYSTAL MFG. CO., INC.		
18 N. LEE, OKLAHOMA CITY, OKLAHOMA		

NOTE: T - TRANSMIT  
R - RECEIVE  
VOLTAGE MEASUREMENTS, NO SIGNAL  
115V OPERATION.  
VOLTAGES WILL VARY FROM 6 TO 12  
TO 115 VOLT OPERATION.