TRANSMITTER ALIGNMENT

For proper alignment of the Executive model 440 transmitter, it will be necessary to have the following test equipment.

(a) RF Wattmeter-Bird Model 43 or equivalent

(b) Frequency Meter with an accuracy of at least .0025% International Crystal Model C-12B

(c) Vacuum Tube Voltmeter H.P. 410-B or RCA WV98-B or equivalent

(d) Volt-ohmmeter (20,000 ohms per volt) Triplett 630-A or equivalent

(e) Audio Oscillator H.P. 650-A or Heath AG-9 or equivalent

(f) Oscilloscope H.P. 152 or Heath 10-30 or equivalent

(g) Oscilloscope Converter International Mobilette

(h) Oscilloscope Converter Attenuator International

(i) 6 VDC battery for converter. Burgess F4P1 or equivalent

Since the Executive Model 440 transceiver employs the frequency synthesis method of generating the transmitter output frequency, it is best to first make several preliminary tests to determine whether or not it is necessary to adjust the trimmer capacitors C121, C122 or C123 thru C127. Normally these capaictors will not have to be adjusted and since such adjustments will require some rather precise frequency measuring, it is best that they be changed only as a last resort.

Using a C-12B Frequency Meter, check the frequency of each channel from 1 thru 23. If they check within ± 800 cps of the channel frequency, no adjustment of these capacitors will be necessary.

If the majority of the channels are out of tolerance, either too high or too low, it will necessary to adjust the large trimmer capacitor C123 mounted on the side of the crystal switch assembly as follows:

1. Let us assume that in the initial frequency check with the C-12B frequency meter we find all channels to be from 900 cps to 1500 cps high in frequency. This will result in out of tolerance operation on some channels.

   Since adjustment of the 16 megacycle (or 17 megacycle on earlier units) frequencies will affect operation of both the receiver and transmitter it is important that the 10 megacycle heterodyning crystal frequencies be checked before making any adjustment of the 16 megacycle frequencies. The 10 megacycle frequencies may be checked with a frequency counter such as the Hewlett-Packard Model 524-D. If such equipment is not available the printed circuit board and crystals may be returned to INTERNATIONAL CRYSTAL for checking and adjustment if necessary.

2. It is very important that all of the 10 megacycle heterodyning crystals be set to within a few cycles of zero frequency before making any adjustment of the 16 megacycle crystal frequencies.

   From the schematic diagram you will note that trimmer capacitor C123 on the channel selector switch assembly is used to adjust channels 1, 2, 4, 6, 8, 10 and 12 to frequency. With this in mind choose the channel in this group that was farthest off frequency and set the channel selector to that channel.

3. Using a C-12B Frequency Meter as before set the C-12B CHANNEL switch to the channel selected in step 2 above. Key the transmitter with the microphone and the C-12B with its PWR switch. Carefully adjust trimmer capacitor C123 in a clockwise direction until the C-12B indicates the transmitter frequency to be within 800 cps of zero frequency.

4. Check all channel frequencies again and you should find they are now lower in frequency than they were on the initial check. All channels should now be within ± 800 cps of zero frequency. If the initial frequency check indicated all channels were on the low side, adjust capacitor C123 in a counterclockwise direction to bring the channel furthest off frequency up to within - 800 cps of zero frequency.

   Now check channels 3, 5, 7, 9 and 11. If any of these are out of tolerance (± 800 cps) they may be adjusted to frequency with the trimmer connected to the switch contacts for that position.

5. If the initial frequency check indicated that all channels 1 thru 12 were out of tolerance on the high side and channels 13 thru 23 were on frequency this would indicate the LO channel 10.350mc heterodyning crystal Y-3 needs to be trimmed to frequency with capacitor C121.

6. The procedure here is the same as that outlined in steps 2, 3 and 4. The only difference being that trimmer C121 is adjusted to bring crystal Y-3 on frequency.

7. If channels 13 thru 23 were out of tolerance and channels 1 thru 12 were on frequency, this would indicate the HI channel 10.500mc heterodyning crystal Y-4 needs to be trimmed to frequency with capacitor C122. The procedure will be the same as outlined in paragraph 6 above.

After it has been determined that the transmitter is on frequency, set the CHANNEL selector dial on channel 1 and the HI-LO switch in the LO position. Using a VTVM measure the grid drive to the final amplifier at the green PA test jack on top of the power supply chassis. The voltage should not be less than a -25VDC. Rotate CHANNEL selector to channel 2 and check voltage at test jack. Repeat this procedure for each successive channel thru channel 12.

Proceed with Executive adjustment as follows:

1. Key transmitter with microphone.

2. Adjust transmitter PA tuning and loading capacitors C92 and C91 for maximum output as indicated by vertical deflection on oscilloscope.

3. Adjust oscilloscope vertical gain control until carrier occupies five scale divisions above and below base line.

4. Adjust audio oscillator output level to .1 VAC.

5. Adjust Horizontal Frequency Vernier until sync. is obtained.

6. Adjust scope Horizontal Gain for a display similar to that of FIG. 4C.

7. Adjust Executive microphone gain control for a display similar to FIG. 4D.

8. The above adjustment procedure pre-sets modulation percentage level for 100% modulation on negative peaks when talking close to the microphone.

9. When using the converter method for observing the modulation percentage it is always best to base the adjustments with reference to negative peaks since some compression may occur in the converter. In view of this the resulting waveform display may not be truly representative with respect to the positive peaks.

RECEIVER ALIGNMENT

Prior to alignment, the Executive transceiver should be allowed to reach normal operating temperature. This will require approximately 15 minutes when operating from 115 VAC.

Alignment of the Executive receiver is performed by adjustment of the various stages as follows:

1. The following test equipment will be required for proper alignment of the Executive Model 440 receiver.

   (a) RF Signal Generator such as the H.P. 606-A, Clough-Brengle 550 or equivalent. It is important if accurate sensitivity measurements are to be made that the signal generator have good attenuator and very little signal leakage. A generator such as the Heath LG-1 may be used providing an external attenuator having an attenuation of approximately 60 DB is used between the generator and the transceiver. The generator is then operated on its higher output ranges.

   (b) Crystal controlled frequency standard such as the International C-12B Frequency Meter.

   (c) Audio output meter such as the H.P. 400-D, Heath AV-3 or equivalent.

   (d) Vacuum tube voltmeter such as the H.P. 410-B, RCA WV-98B or equivalent.

   (e) Combination attenuator 6 DB +50 DB International #150-224.

2. Set transceiver controls as follows:

   (a) VOLUME control ON and fully clockwise.

   (b) SQUELCH control on fully counterclockwise until it clicks off.

   (c) CHANNEL selector dial to channel 9.

   (d) HI-LO switch to LO position.

3. Connect test equipment to transceiver as shown in FIG. 5.

4. Set attenuator switch to the IN position.

5. Set C-12B CHANNEL selector switch to channel 9 and FUNCTION switch to the RF position.

6. Connect VTVM probe to AVC power pin (#3) on 1st IF board. Connect VTVM ground lead to transceiver chassis.

CHANNEL SELECTOR FREQUENCY CHART

CHANNEL SELECTOR POSITION	PRESENT PRODUCTION XTAL FREQ.	PRESENT Q3 OSC. FREQ.	EARLY PRODUCTION XTAL FREQ.	EARLY Q3 OSC. FREQ.
1	16615 KC	16615 KC	16965 KC	16965 KC
2	16625 KC	16625 KC	16975 KC	16975 KC
3	_____	*16635 KC	_____	*16985 KC
4	16655 KC	16655 KC	17005 KC	17005 KC
5	_____	*16665 KC	_____	*17015 KC
6	16675 KC	16675 KC	17025 KC	17025 KC
7	_____	*16685 KC	_____	*17035 KC
8	16705 KC	16705 KC	17055 KC	17055 KC
9	_____	*16715 KC	_____	*17065 KC
10	16725 KC	16725 KC	17075 KC	17075 KC
11	_____	*16735 KC	_____	*17085 KC
12	16755 KC	16755 KC	17105 KC	17105 KC

*Oscillator frequencies shown with this reference mark are set with trimmer capacitor connected to corresponding channel selector switch contacts.

HI-LO FREQUENCY CHART

HI-LO SWITCH POSITION	PRESENT PRODUCTION XTAL FREQ.		EARLY PRODUCTION XTAL FREQ.	
	REC.	TRANS.	REC.	TRANS.
LO	10805 KC	10350 KC	10455 KC	10000 KC
HI	10955 KC	10500 KC	10605 KC	10150 KC

Frequencies shown under "Present Production" have been incorporated in all units bearing serial number NG 94125 and later.

VOLTAGE MEASUREMENT CHART

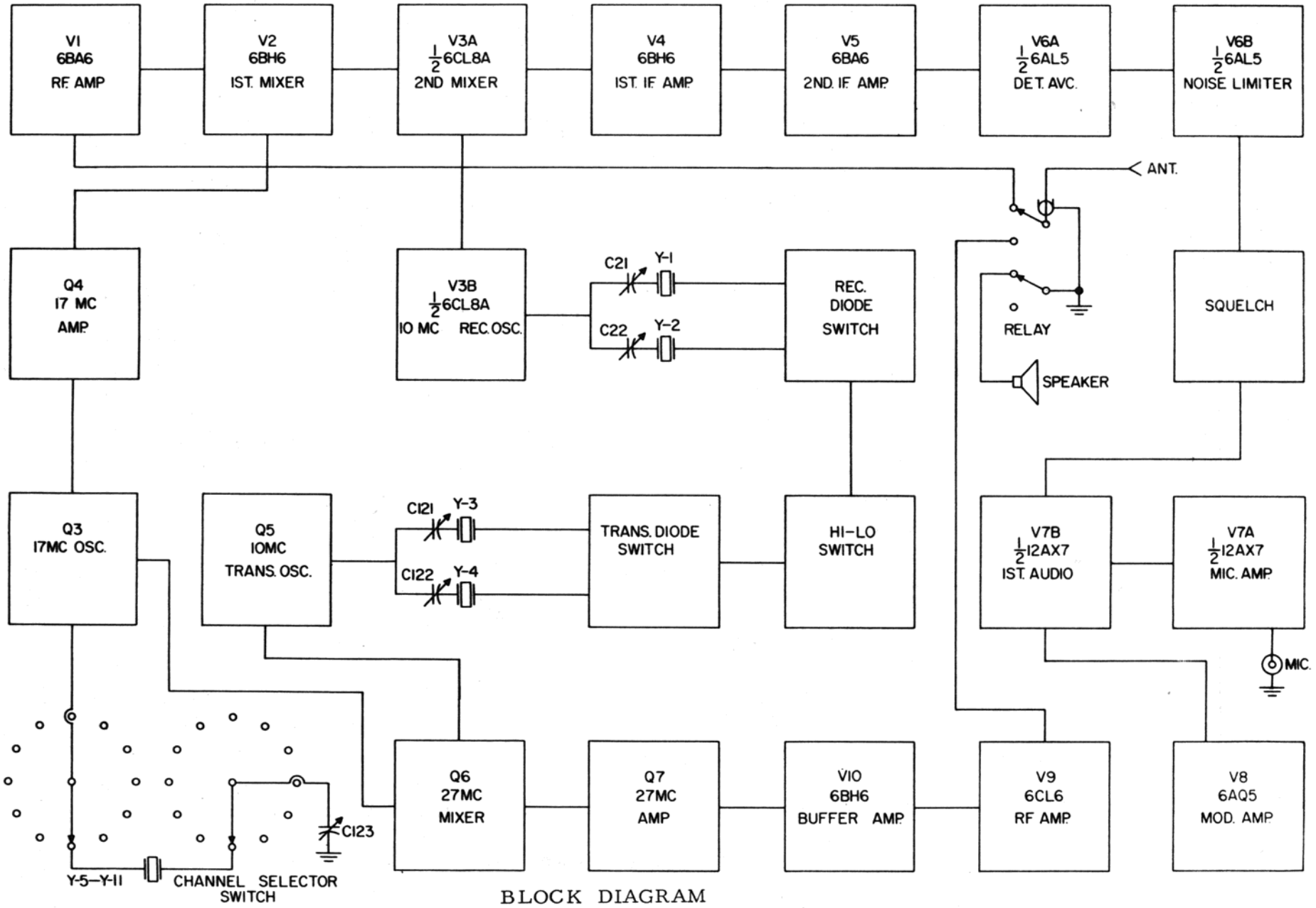
TUBE TYPE	V NO.	CATHODE			SCREEN			PLATE			CONTROL GRID		
		Pin N0.	N/S	W/S	Pin N0.	N/S	W/S	Pin N0.	N/S	W/S	Pin N0.	N/S	W/S
6BA6	V1	7	+1	+1	6	+17	+17						
6BH6	V2				6	+43	+43						
6CL8A	V3A				7	+14	+14				9	-2.	-2.
6CL8A	V3B							2	+110	+110	1	-5	-5
6BA6	V4	7	+3.7	+3.4	6	+102	+114						
6BA6	V5	7	+1.0	+.9	6	+86	+110						
6AL5	V6A	1	+.04	+.14									
6AL5	V6A	5	+.32	-.75									
12AX7	V7A							6	+81T				
12AX7	V7B	3	SQoff +2.8	SQon +38									
6AQ5	V8	2	R +17		6	+275R	+310T	5	+265R	+290T			
6BH6	V10				6	+225T		5	+300T		1	-2.8T	
6CL6	V9				3	+190T		6	+280T		2	-14T	

	Emitter R	Emitter T	Base R	Base T	Collector R	Collector T	
Q1	+13.2	+13.1	45VAC	45VAC	+.27	+.3	
Q2	+13.2	+13.1	45VAC	45VAC	+.27	+.3	
Q3	+2.7	+2.55	+1.7	+1.6	+10.2	+9.6	
Q4	+1.75	0.	+2.1	0.	+15	0.	
Q5	0.	+1.7	0.	+1.4	0.	+8.6	
Q6	0.	+.4	-.17	-.04	0.	+13.5	
Q7	0.	+1.5	0.	+2	0.	+13.5	

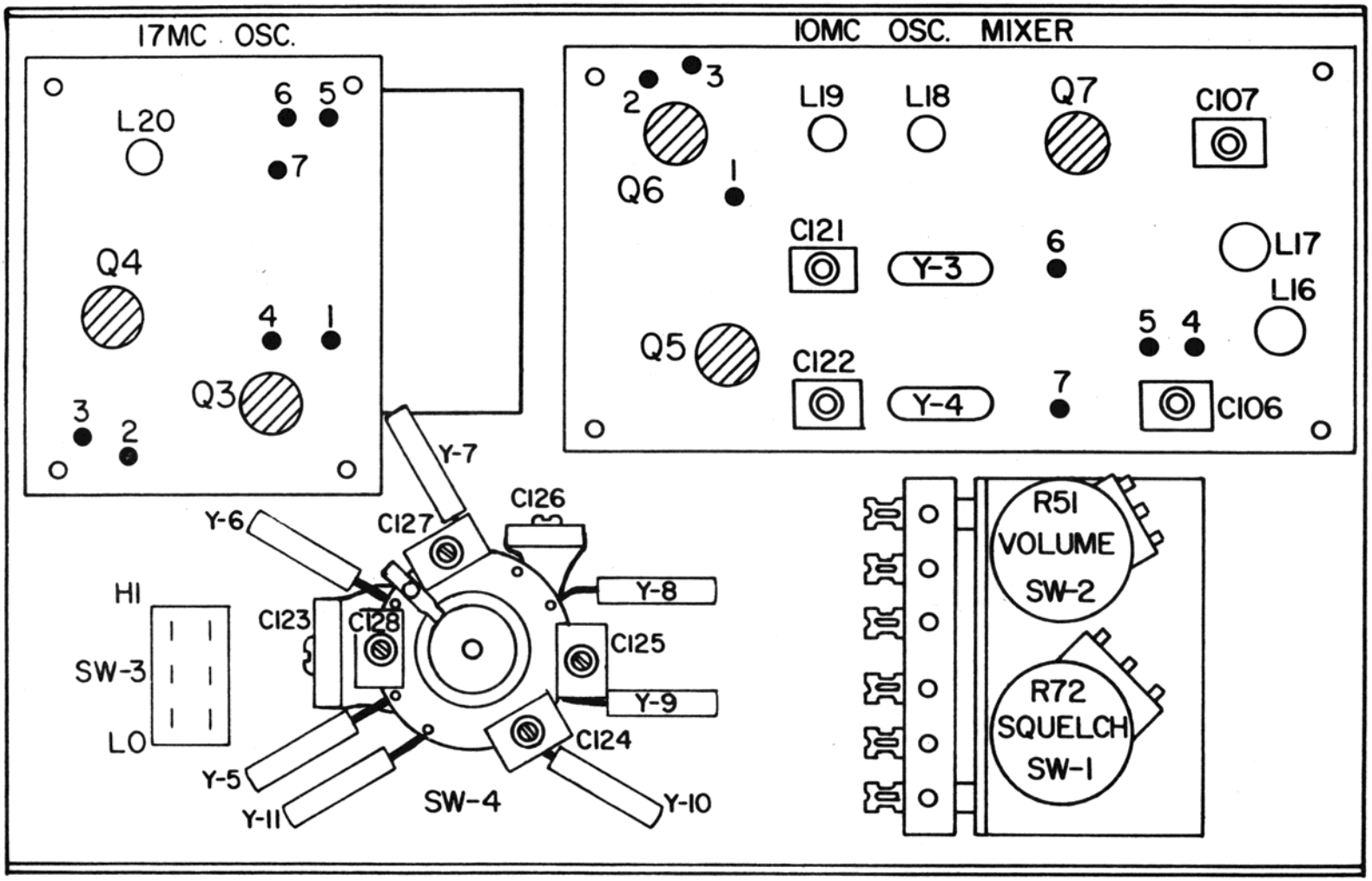
NOTE: All voltage measured with WV-98B VTVM. Transceiver operating from 115VAC, except Q1 & Q2 where unit is operating on 13.8VDC.
N/S Measurement made with no signal into receiver.
W/S Measurement made with a channel 9 1uv 30% modulated signal fed into receiver ANT terminal
R Measurement made in receive mode
T Measurement made in transmit mode no modulation

Control Settings:

Volume clockwise (full on)
Channel Selector-channel 9
Squelch clockwise, except measurement on V7B pin #3

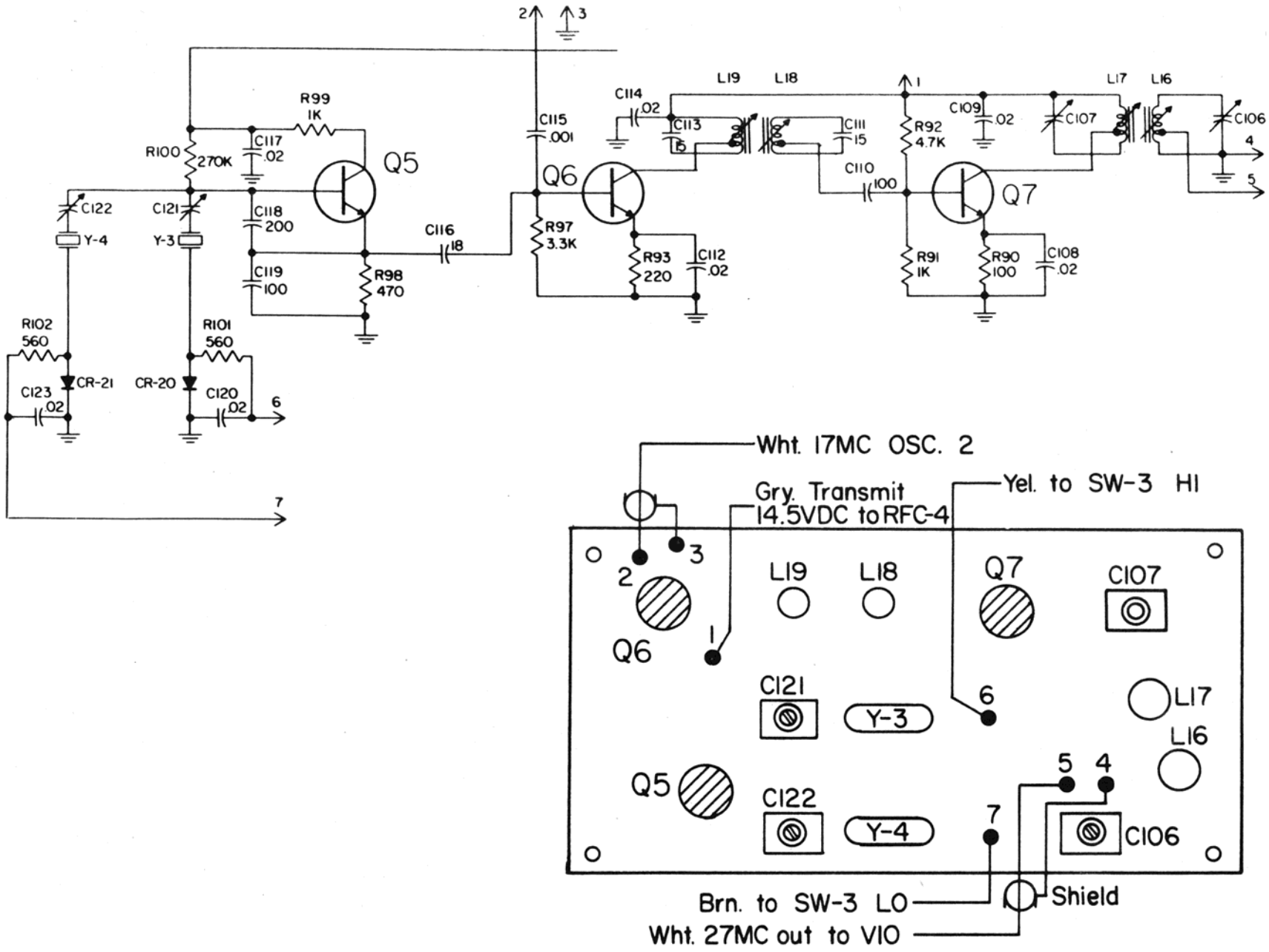


BLOCK DIAGRAM
MODEL 440

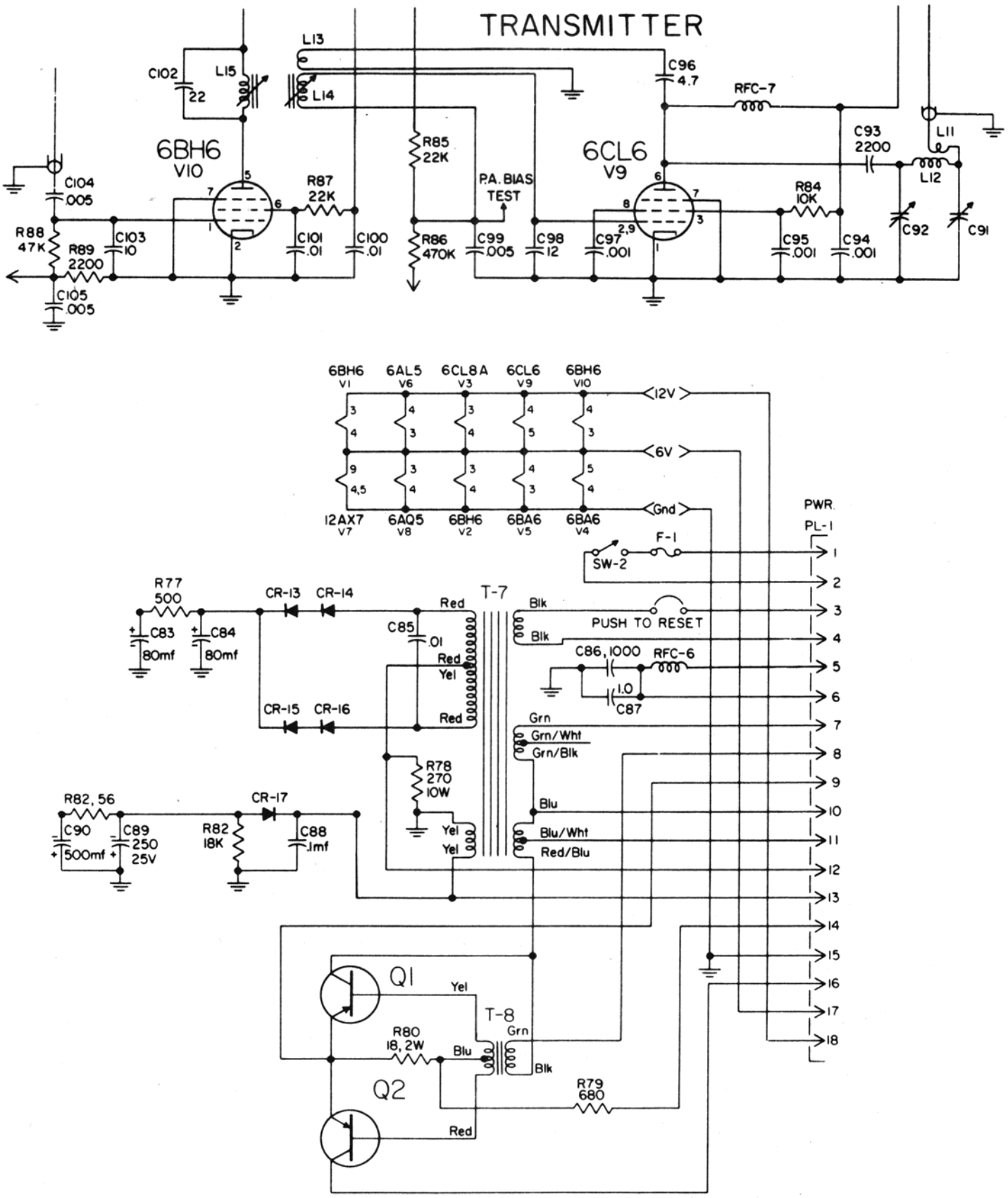


FRONT PANEL, REAR VIEW
MODEL 440

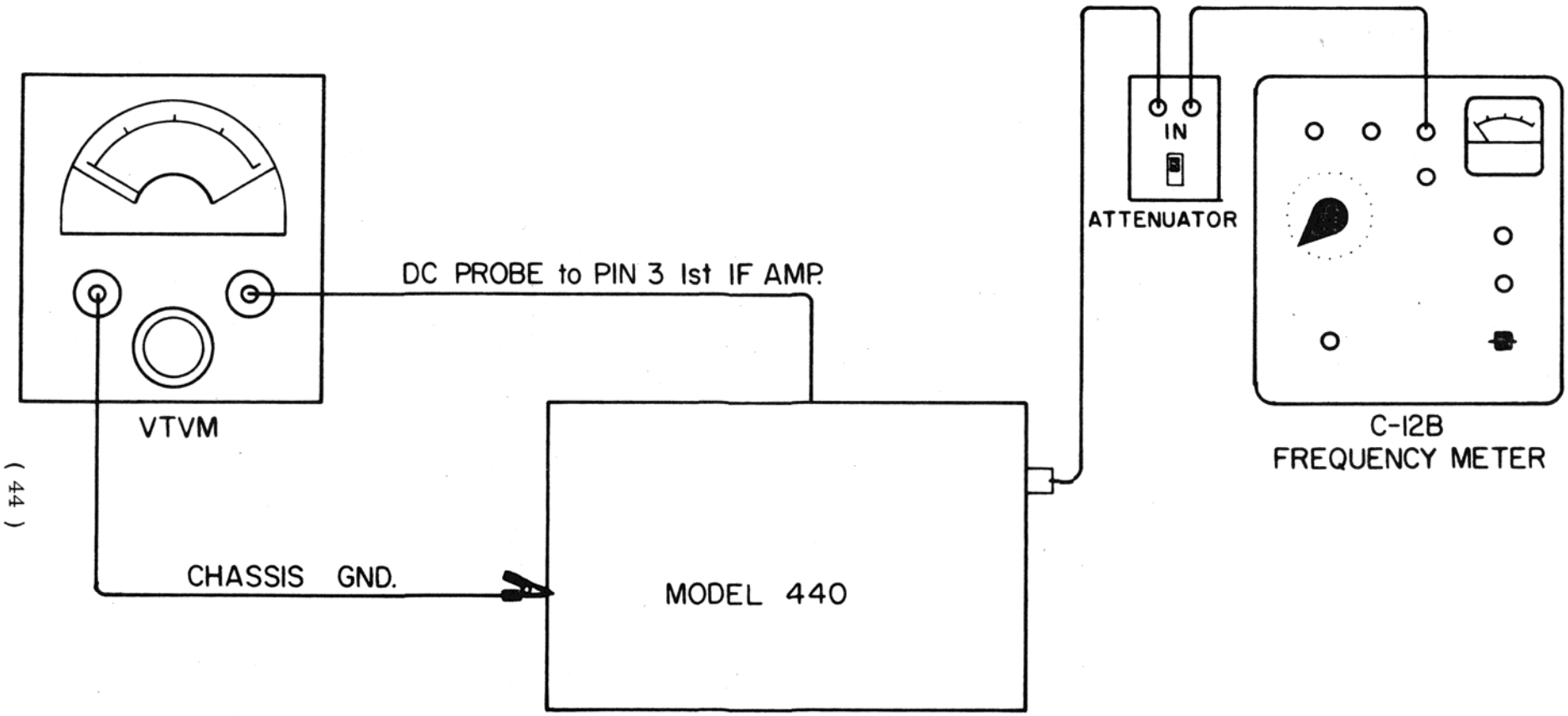
FIG. 1



10MC OSC.–27MC MIXER



POWER SUPPLY

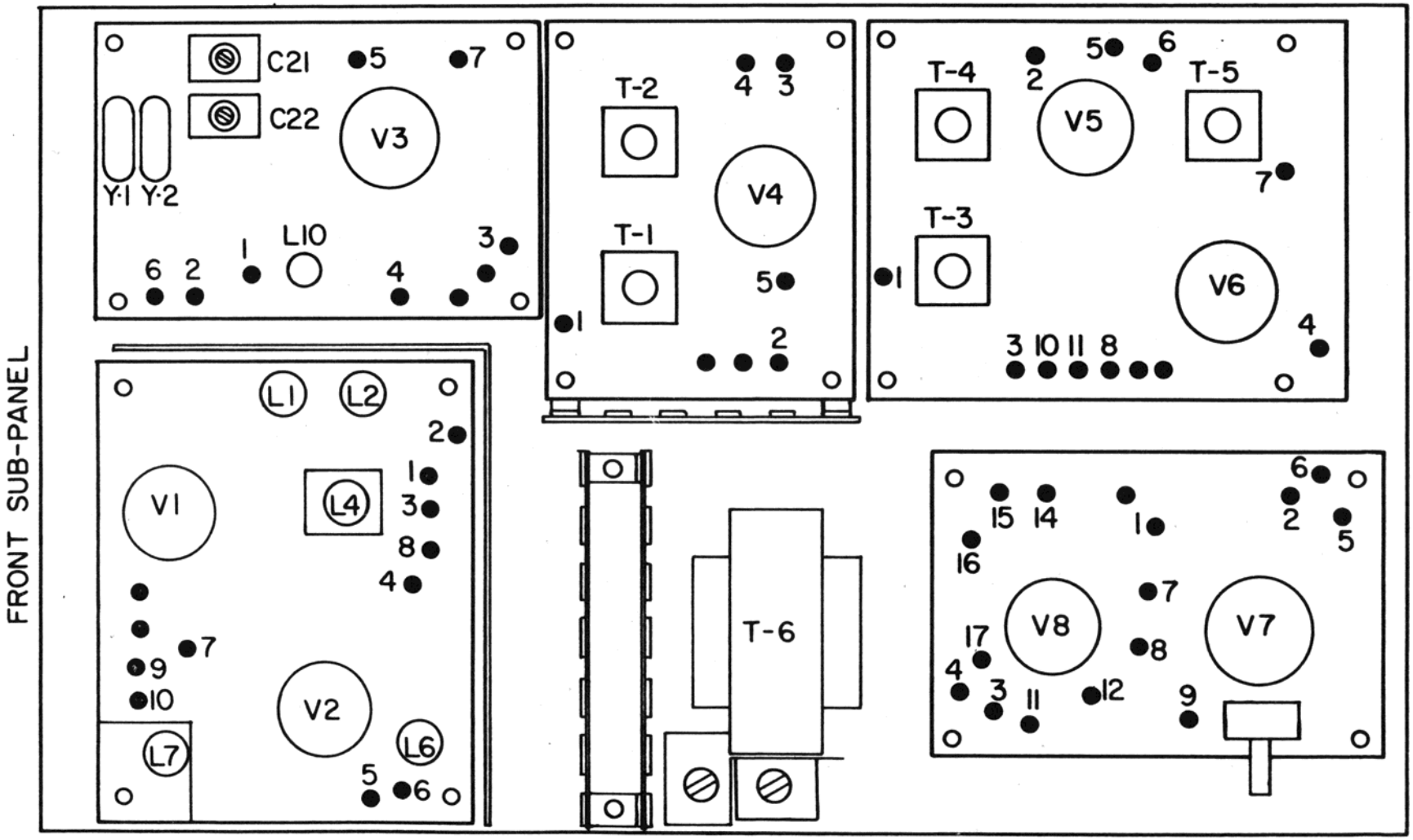


TEST QUIPMENT BLOCK DIAGRAM
C-12B

MODEL 440

FIG. 5

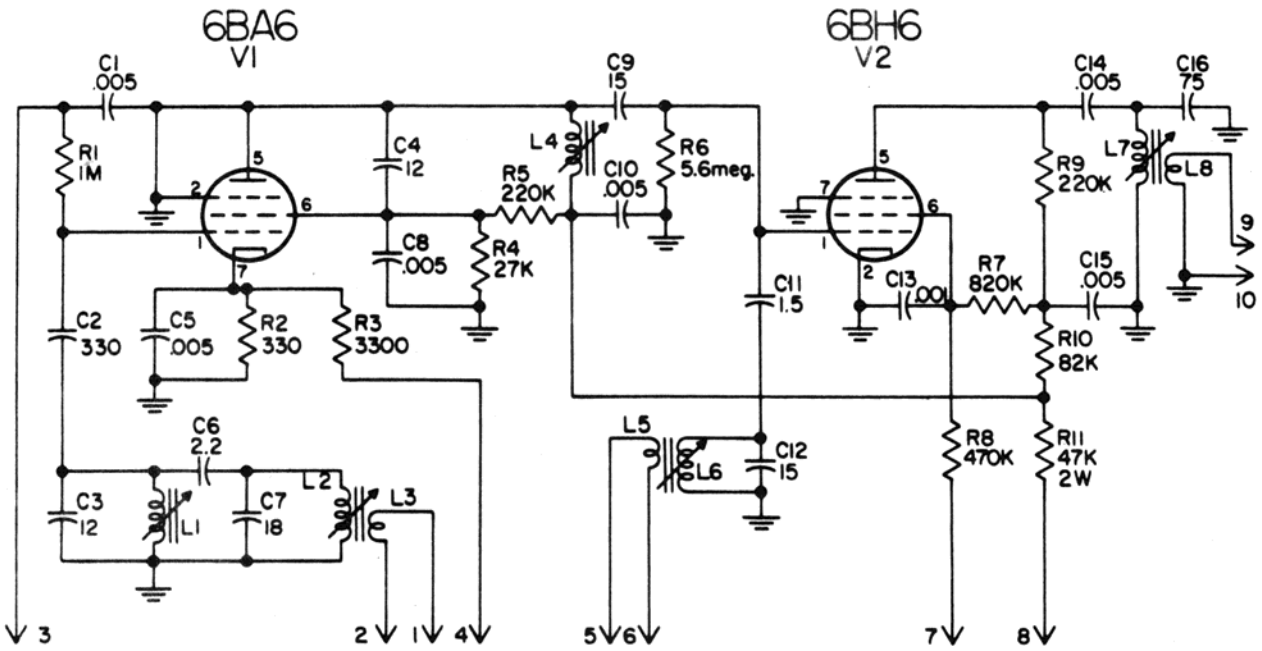
TOP VIEW

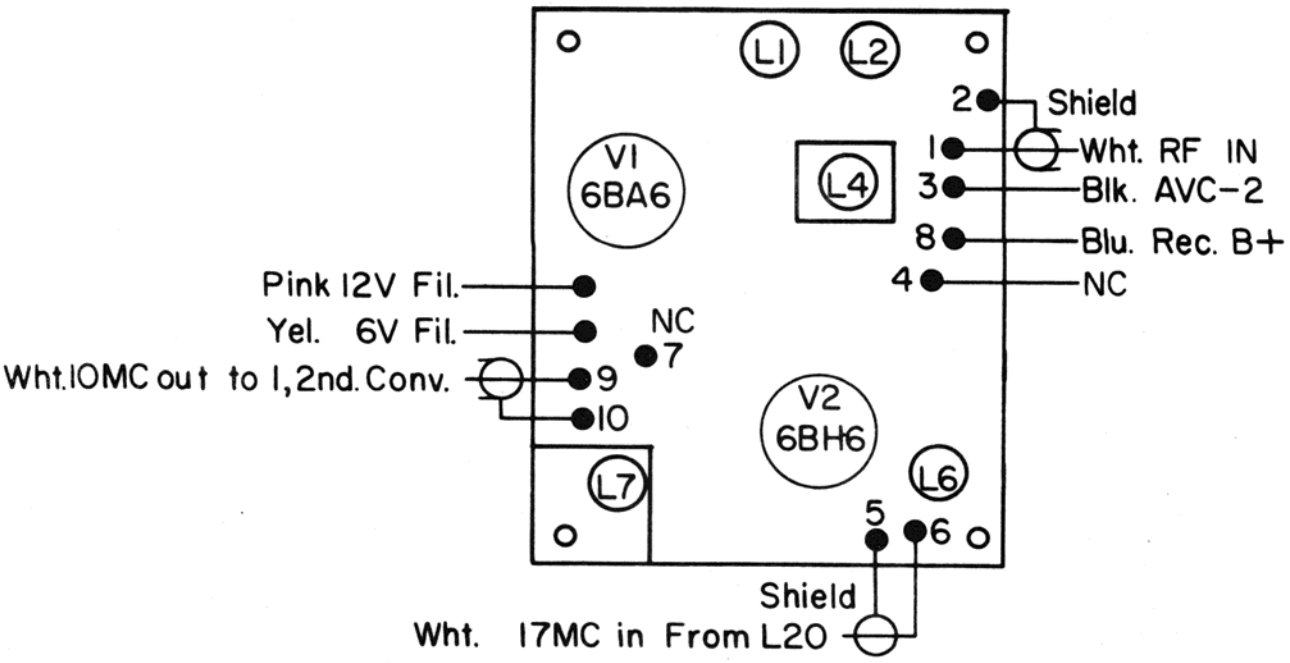


RECEIVER SECTION

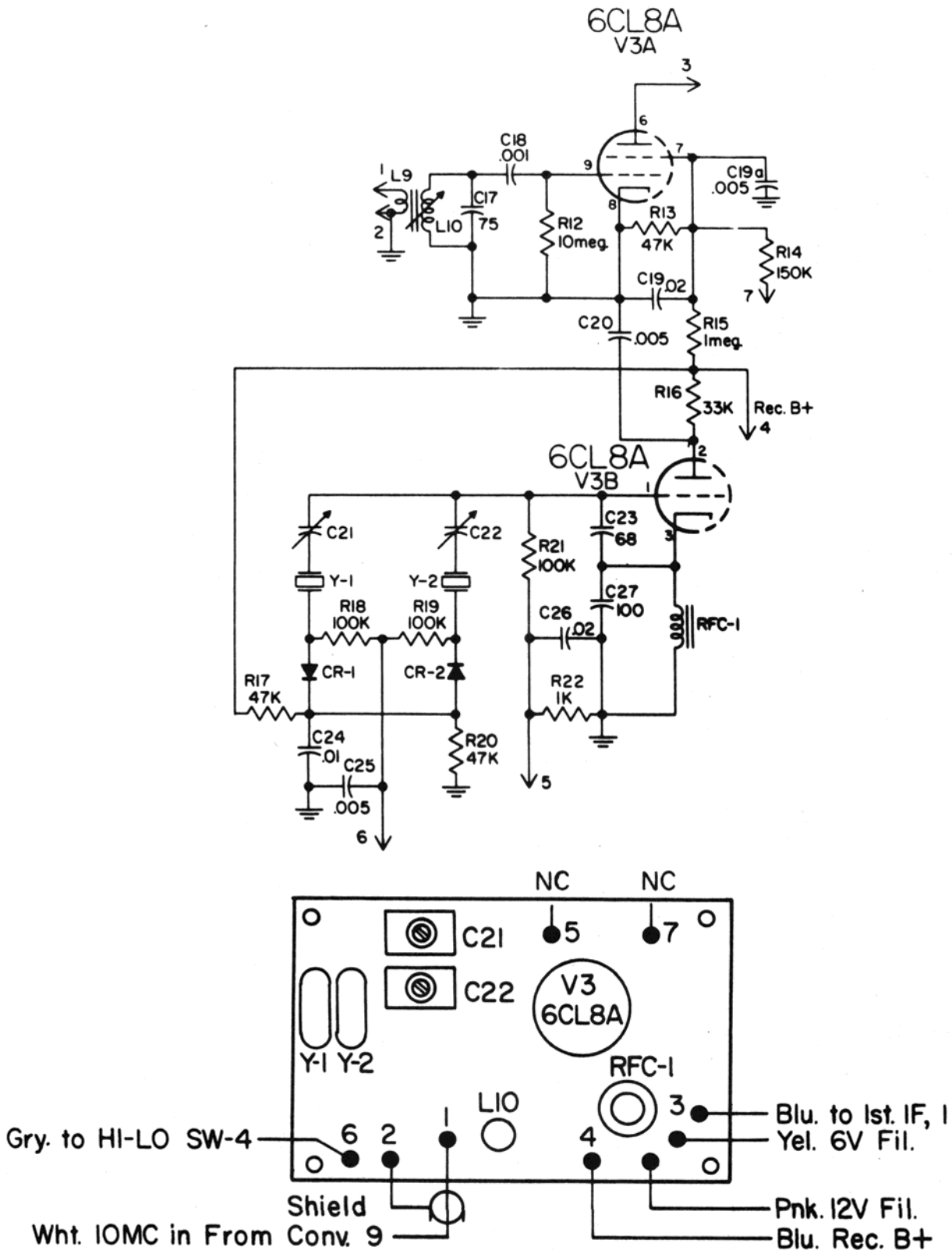
MODEL 440

FIG. 6

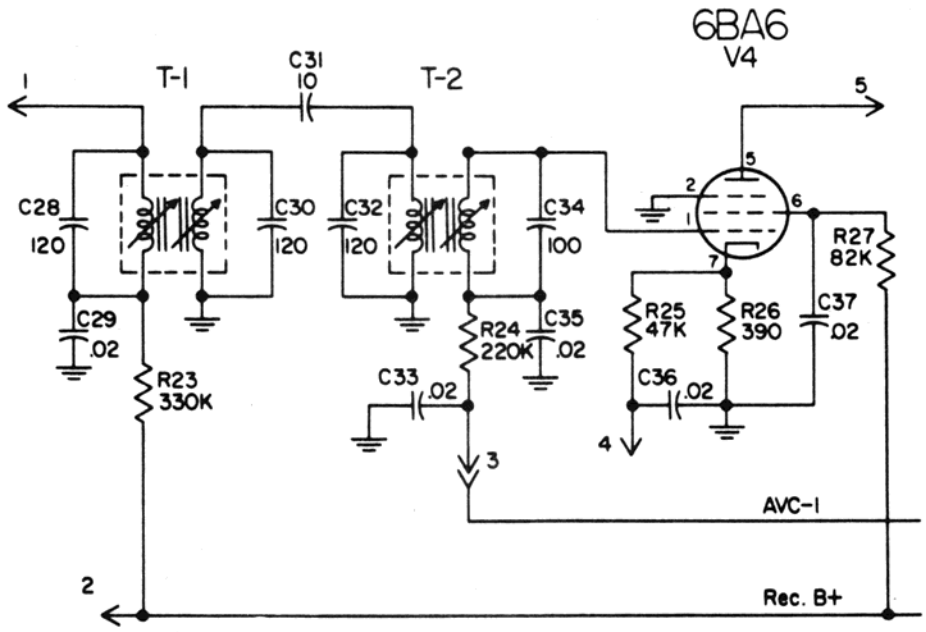

6BA6
V1
6BH6
V2
C1 .005
R1 1M
C2 330
C5 .005
R2 330
R3 3300
C4 12
C8 .005
R4 27K
R5 220K
C9 15
L4
C10 .005
R6 5.6meg.
C11 1.5
C6 2.2
C3 12
L1
C7 18
L2
L3
L5
L6
C12 15
C14 .005
C16 75
L7
L8
R9 220K
C13 .001
R7 820K
C15 .005
R10 82K
R8 470K
R11 47K 2W
3
2
1
4
5
6
7
8
9
10

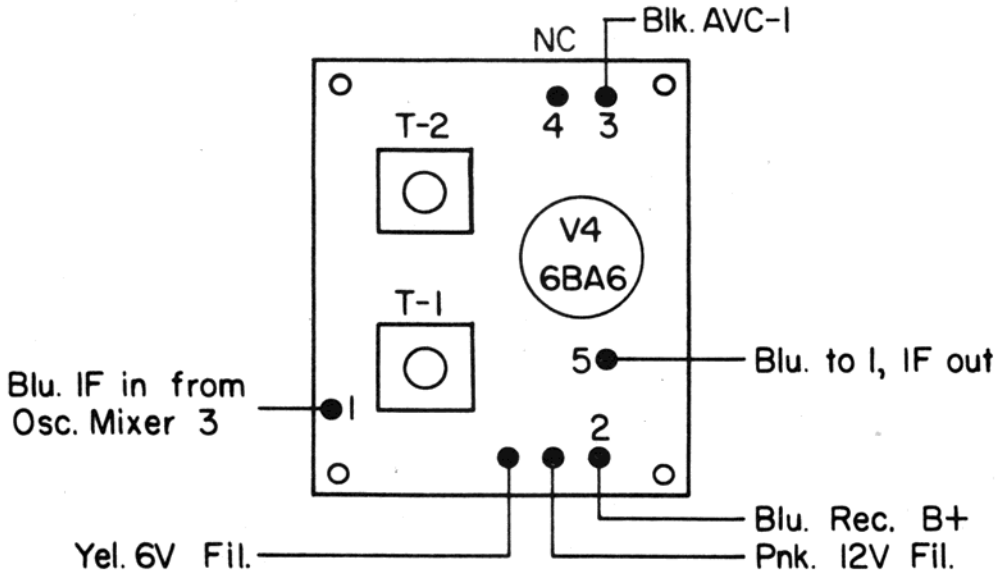

L1
L2
V1
6BA6
L4
2
Shield
1
Wht. RF IN
3
Blk. AVC-2
8
Blu. Rec. B+
4
NC
Pink 12V Fil.
Yel. 6V Fil.
NC
7
Wht. 10MC out to 1, 2nd. Conv.
9
10
V2
6BH6
L7
L6
5
6
Shield
Wht. 17MC in From L20

CONVERTER

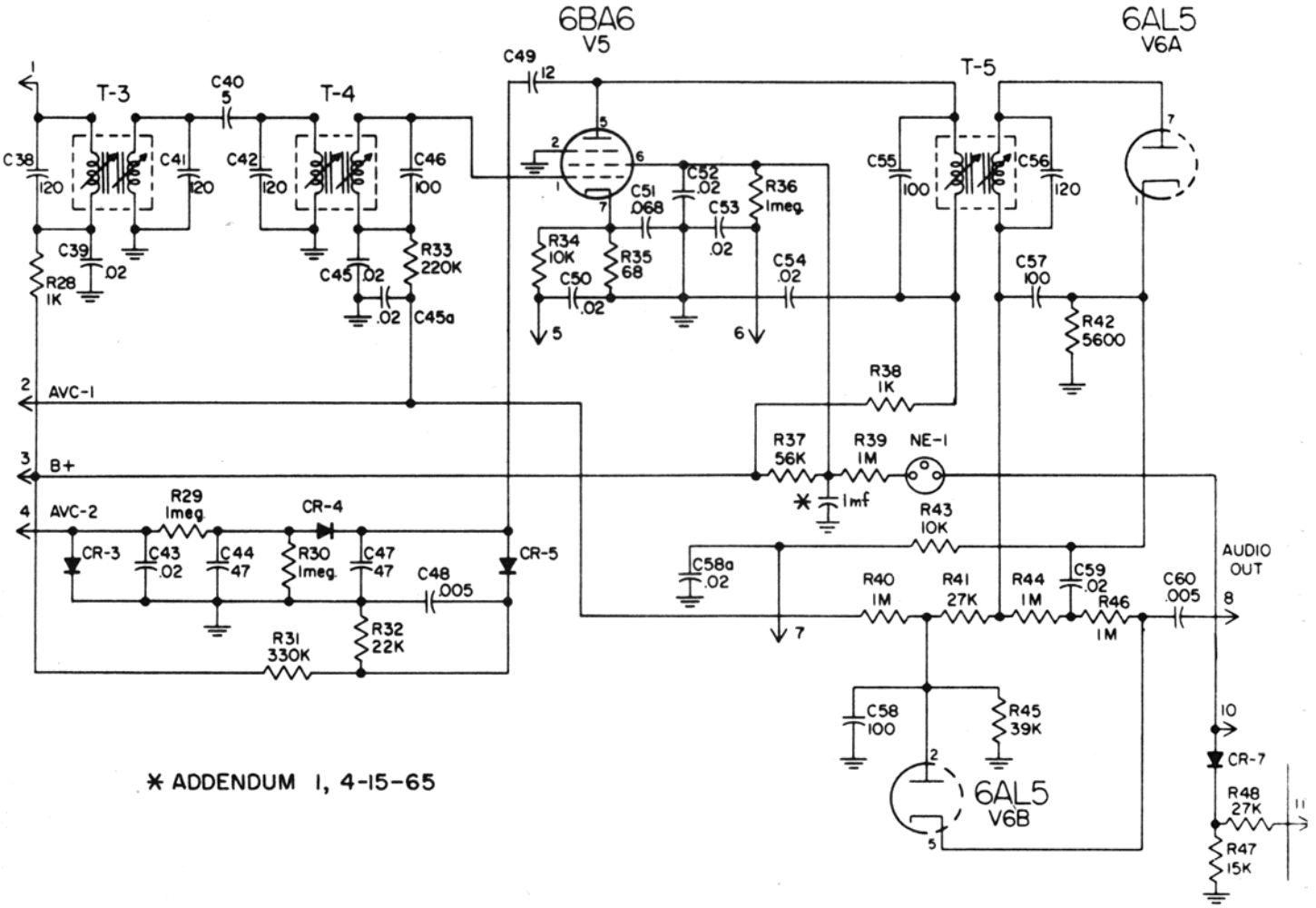


2ND REC.—OSC. MIXER

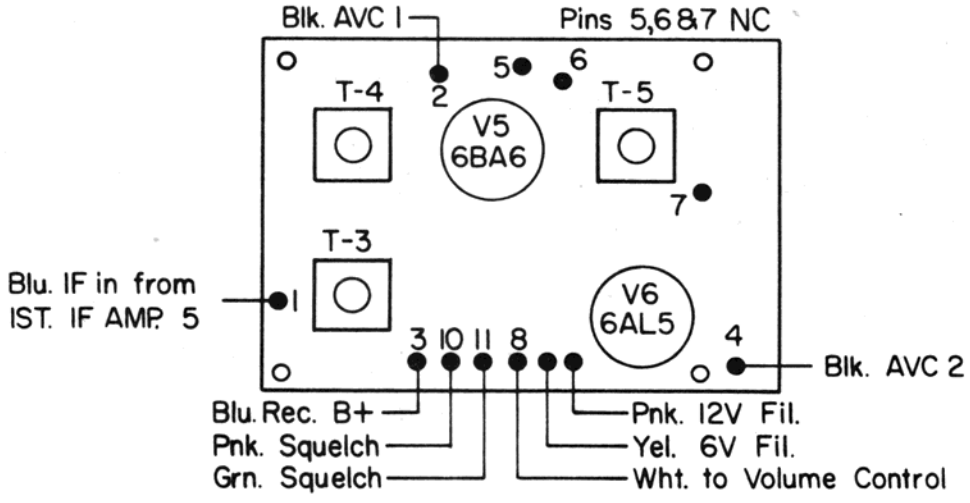

6BA6
V4
1
T-1
C31
10
T-2
5
C28
120
C30
120
C32
120
C34
100
C29
.02
R23
330K
R24
220K
C35
.02
C33
.02
R25
47K
R26
390
C37
.02
R27
82K
C36
.02
2
6
7
4
3
AVC-1
2
Rec. B+


NC
Blk. AVC-1
4
3
T-2
V4
6BA6
T-1
5
Blu. to 1, IF out
Blu. IF in from
Osc. Mixer 3
1
2
Blu. Rec. B+
Yel. 6V Fil.
Pnk. 12V Fil.

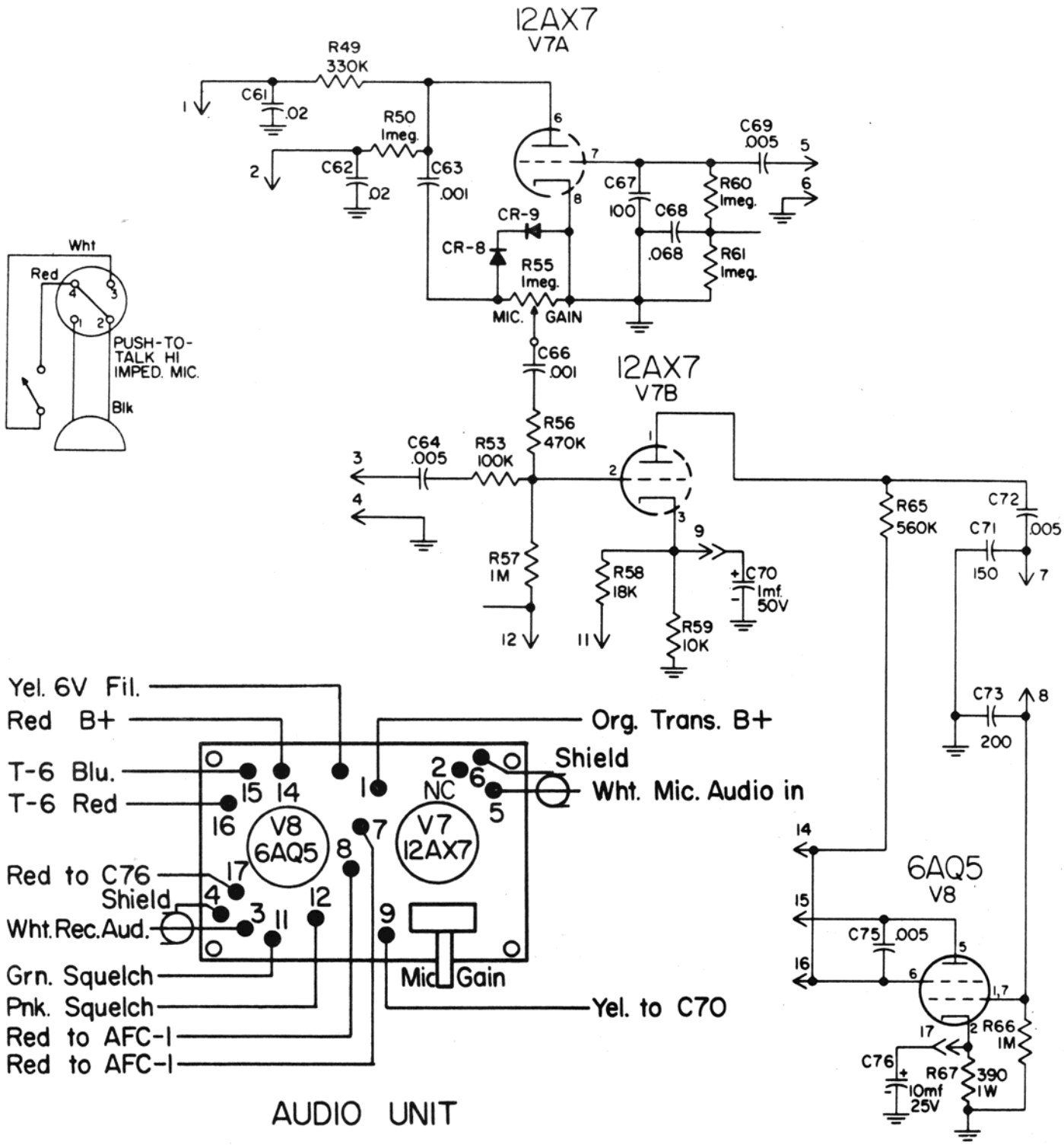
IST. IF AMP.



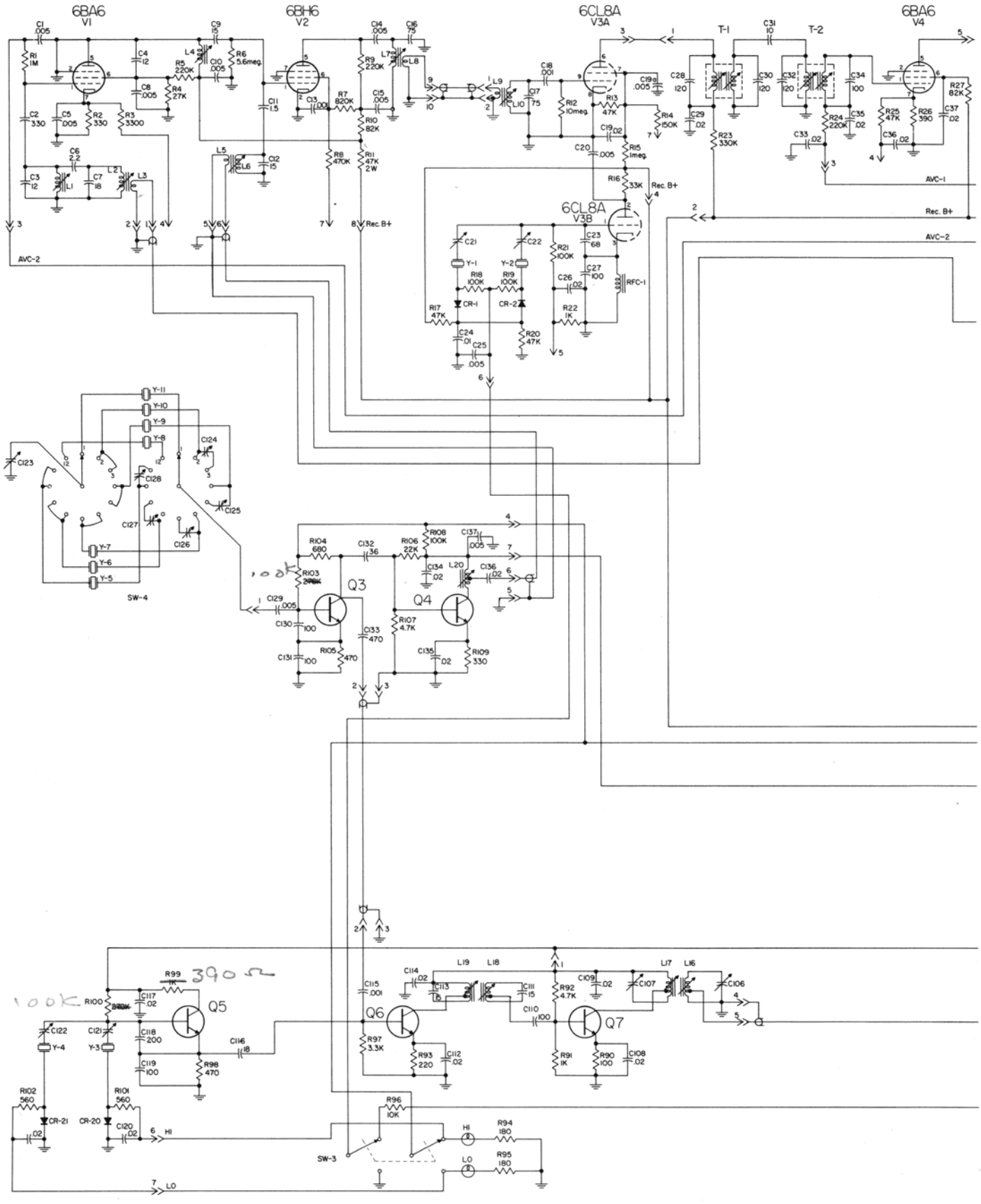
* ADDENDUM 1, 4-15-65

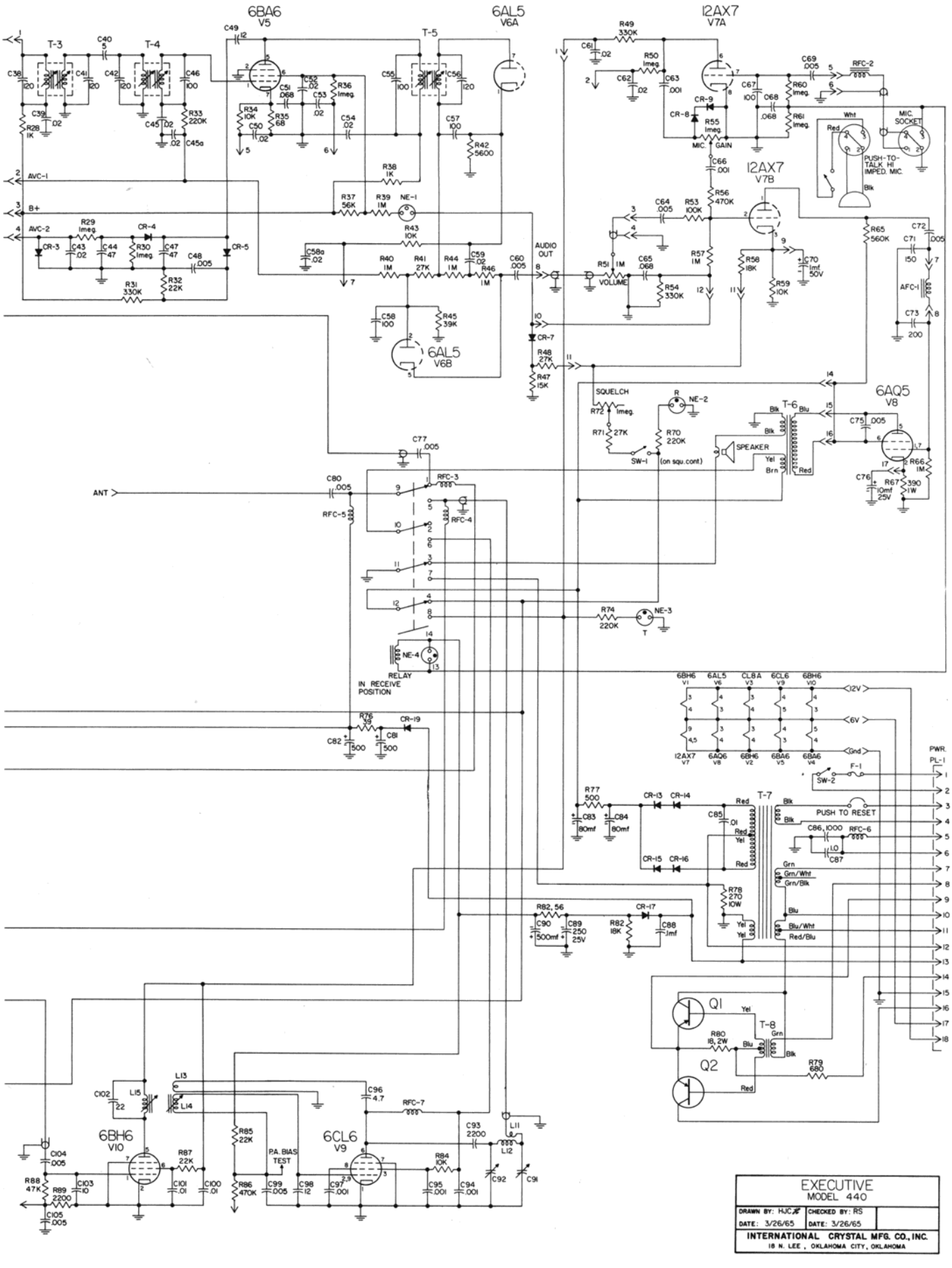


2ND IF DET. NOISE LIMITER


12AX7
V7A
R49
330K
C61
.02
R50
1meg.
C62
.02
C63
.001
C69
.005
C67
100
C68
.068
R60
1meg.
R61
1meg.
CR-9
CR-8
R55
1meg.
MIC.
GAIN
C66
.001
12AX7
V7B
R56
470K
C64
.005
R53
100K
R57
1M
R58
18K
C70
1mf.
50V
R59
10K
R65
560K
C72
.005
C71
150
C73
200
Wht
Red
PUSH-TO-
TALK HI
IMPED. MIC.
Blk
Yel. 6V Fil.
Red B+
Org. Trans. B+
T-6 Blu.
T-6 Red
Shield
Wht. Mic. Audio in
V8
6AQ5
V7
12AX7
NC
Red to C76
Shield
Wht. Rec. Aud.
Grn. Squelch
Pnk. Squelch
Red to AFC-1
Red to AFC-1
Mic Gain
Yel. to C70
6AQ5
V8
C75
.005
R66
1M
C76
R67
390
1W
10mf
25V

AUDIO UNIT


6BA6
V1
6BH6
V2
6CL8A
V3A
6CL8A
V3B
6BA6
V4
T-1
T-2
AVC-1
AVC-2
Rec. B+
SW-4
SW-3
Q3
Q4
Q5
Q6
Q7
100K
390Ω



EXECUTIVE MODEL 440		
DRAWN BY: HJC	CHECKED BY: RS	
DATE: 3/26/65	DATE: 3/26/65	
INTERNATIONAL CRYSTAL MFG. CO., INC.		
18 N. LEE, OKLAHOMA CITY, OKLAHOMA		

FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D.C.

87048
April 15, 1960

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.

-FCC-

F.C.C. RULES & REGULATIONS

PART 95.101 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 95.95);
(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.

SUBPART D—STATION OPERATING REQUIREMENTS

[*Subpart D as revised (§§ 95.81–95.121 superseded by §§ 95.83–95.121) in T.S. VI(64)–1, stayed indef. in T.S. VI(64)–2, made eff. 4–26–65 (and further amending § 95.83) in T.S. VI(64)–4*]

§ 95.83 Prohibited uses.

(a) A Citizens radio station shall not be used:

(1) For engaging in radio communications as a hobby or diversion, i.e., operating the radio station as an activity in and of itself.

NOTE: The following are typical, but not all inclusive, examples of the types of communications evidencing a use of Citizens radio as a hobby or diversion which are prohibited under this rule:

"You want to give me your handle and I'll ship you out a card the first thing in the morning;" or "Give me your 10–20 so I can ship you some wallpaper." (Communications to other licensees for the purpose of exchanging so-called "QSL" cards.)

"I'm just checking to see who is on the air."

"Just calling to see if you can hear me. I'm at Main and Broadway."

"Just heard your call sign and thought I'd like to get acquainted;" or "Just passing through and heard your call sign so I thought I'd give you a shout."

"Just sitting here copying the mail and thought I'd give you a call to see how you were doing." (Referring to an intent to communicate based solely on hearing another person engaged in the use of his radio.)

"My 10–20 is Main and Broad Streets. Thought I'd call so I can see how well this new rig is getting out."

"Got a new mike on this rig and thought I'd give you a call to find out how my modulation is."

"Just thought I would give you a shout and let you know I am still around. Thanks for coming back."

"Clear with Venezuela. Just thought I'd let you know I was copying you up here."

"Thought I'd give you a shout and see if you knew where the unmodulated carrier was coming from."

"Just thought I'd give you a call to find out how the skip is coming in over at your location."

"Go ahead breaker. What kind of a rig are you using? Come back with your 10–20."

(2) For any purpose, or in connection with any activity, which is contrary to Federal, State, or local law.

(3) For the transmission of communications containing obscene, indecent, or profane words, language, or meaning.

(4) To carry communications for hire, whether the remuneration or benefit received is direct or indirect.

(5) To communicate with stations authorized or operated under the provisions of other parts of this chapter, with unlicensed stations, or with United States government or foreign stations, except for communications pursuant to §§ 95.85(b) and 95.121.

(6) For any communication not directed to specific stations or persons, except for: (i) Emergency and civil defense communications as provided in §§ 95.85 (b) and 95.121, respectively, (ii) test transmissions pursuant to § 95.93, and (iii) communications from a mobile unit to other units or stations for the sole purpose of requesting routing directions, assistance to disabled vehicles or vessels, information concerning the availability of food or lodging, or any other assistance necessary to a licensee in transit.

(7) To convey program material for retransmission, live or delayed, on a broadcast facility.

NOTE: A Class A, Class B, or Class D station may be used in connection with the administrative, engineering, or maintenance activities of a broadcasting station; a Class A, Class B, or Class C station may be used for control functions by radio which do not involve the transmission of program material; and a Class A, Class B, or Class D station may be used in the gathering of news items or preparation of programs: *Provided,* That the actual or recorded transmissions of the Citizens radio station are not broadcast at any time in whole or in part.

(8) To interfere maliciously with the communications of another station.

(9) For the direct transmission of any material to the public through public address systems or similar means.

(10) To transmit superfluous communications, i.e., any transmissions which are not necessary to communications which are permissible.

(11) For the transmission of music, whistling, sound effects, or any material for amusement or entertainment purposes, or solely to attract attention.

(12) To transmit the word "MAYDAY" or other international distress signals, except when a ship, aircraft, or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

(13) For transmitting communications to stations of other licensees which relate to the technical performance, capabilities, or testing of any transmitter or other radio equipment, including transmissions concerning the signal strength or frequency stability of a transmitter, except as necessary to establish or maintain the specific communication.

(14) For relaying messages or transmitting communications for a person other than the licensee or members of his immediate family, except: (i) Communications transmitted pursuant to §§ 95.85(b), 95.87 (b)(7), and 95.121; and, (ii) upon specific prior Commission approval, communications between citizens radio stations at fixed locations where public telephone service is not provided.

(15) For advertising or soliciting the sale of any goods or services.

(16) For transmitting messages in other than plain language. Abbreviations, including nationally or internationally recognized operating signals, may be used only if a list of all such abbreviations and their mean-

(1) The following frequencies, commonly known as channels 1 through 23, may be used for communications between units of the same station:

Mc/s	*Mc/s*	*Mc/s*	*Mc/s*
26.965	27.035	27.115	27.185
26.975	27.055	27.125	27.205
26.985	27.065	27.135	27.215
27.005	27.075	27.155	27.225
27.015	27.085	27.165	27.255 [1]
27.025	27.105	27.175	

[1] The frequency 27.255 Mc/s is also shared with stations in other services.

(2) Only the following frequencies may be used for communication between units of different stations:

Mc/s	*Channel*	*Mc/s*	*Channel*
27.065	9	27.115	13
27.075	10	27.125	14
27.085	11	27.255	23
27.105	12		

(e) Upon specific request accompanying application for renewal of station authorization, a Class A station in this service, which prior to April 1, 1960 operated on a frequency in the 460–461 Mc/s band, may be assigned that frequency for continued use until not later than March 31, 1965, subject to all other provisions of this part.

[*§ 95.41 amended in T.S. VI(64)–1, stayed indefinitely in T.S. VI(64)–2, made eff. 4–26–65 in T.S. VI(64)–4*]

§ 95.43 Station power.

Neither the average power input to the plate or collector circuit or circuits which contribute radio frequency energy to the radiating system nor the average radio frequency power supplied to the radiating system of a station operating in this service shall exceed the following maximum values:

Class of station	Power input (average watts) [2]	Power output (average watts) [3]
A	60	48
B	5	4
C [1]	5	4
D	5	4

[1] An average power input of not more than 30 watts and an average output power of not more than 24 watts is permitted Class C stations on the frequency 27.255 Mc/s only.

[2] For the purpose of this section, power measurement shall be made during maximum peaks of modulation using meters having a full scale accuracy of 2 percent or better and having a maximum time constant of not more than 0.25 of a second. Where the average unmodulated carrier power is increased by modulation applied to the circuit or circuits which contribute radio frequency energy to the radiating system, the sum of the unmodulated carrier power input and the average power output of the modulator shall not exceed the values specified in this table by more than 25 percent.

[3] Power output shall be measured at the transmitter.

[*§ 95.43 amended in T.S. VI(64)–1, stayed indefinitely in T.S. VI(64)–2, made eff. 4–26–65 in T.S. VI(64)–4*]

§ 95.45 Frequency tolerance.

The carrier frequency of a station in this service shall be maintained within the following percentage of the authorized frequency:

Class of station	Maximum authorized power input	Frequency tolerance	
		Fixed and base	Mobile
		Percent	*Percent*
A	3 watts or less	.001	.005
A	over 3 watts	.001	.001
B	3 watts or less	----------	.5
B	over 3 watts	----------	.3
C	5 watts or less	----------	.005
C	over 5 watts (27.255 Mc/s only)	----------	.005
D	5 watts or less	----------	.005

[1] Class C stations of 3 watts or less power input which are used solely for the control of remote objects or devices by radio (other than devices used solely as a means of attracting attention) are permitted a frequency tolerance of 0.01%.