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.

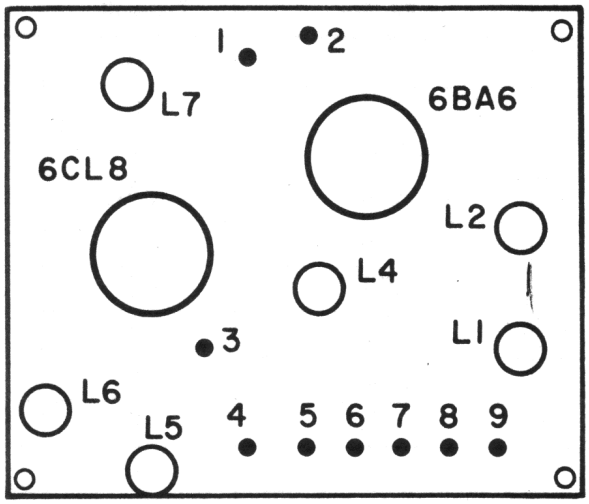
ALL the money from donations is used for CBTricks.com I didn't do all the work to make money (I have a day job).
This work was not done for someone else to make money also, for example the ebay CD sellers.

Thank you for any support you can give.

MODEL 100 POWER PIN CONNECTIONS

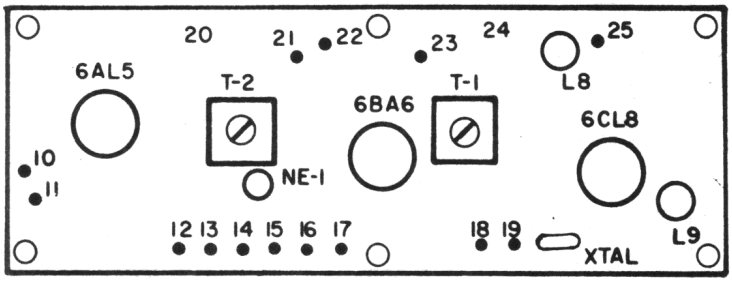
CONVERTER UNIT

Wire Color	Pin No.	
White	1	10 mc out
N.C.	2	Gnd.
Pink	3	Xtal switch
Pink	4	12v fil.
Yellow	5	6v fil.
Blue	6	B+
Black	7	AVC
Green	8	Ant.
N.C.	9	Not Used



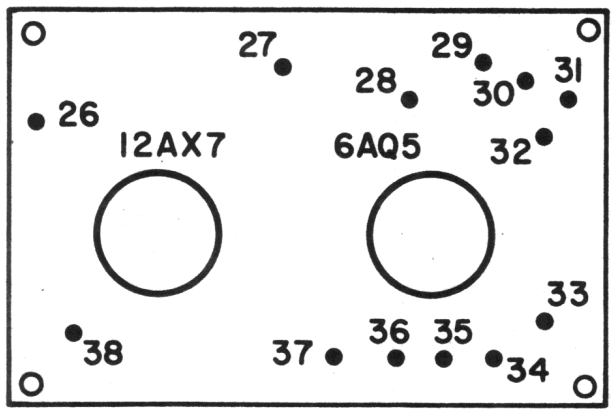
I.F. UNIT

	Pin No.	
Shield	10	Audio out gnd.
White	11	Audio out
Green	12	To squelch control
Pink	13	To SW-3
Yellow	14	Jumper to 18
D.S. Blue	15	To Cal Switch & B+
D.S. Blue	16	B+
Red	17	To squelch control
D.S. Yellow	18	To Cal Switch
White	19	To Cal Switch
Pink	21	12v fil.
Yellow	22	6v fil.
D.S. Black	23	AVC
White	25	10 mc in



AUDIO UNIT

	Pin No.	
Choke	26	Mic. in
Red	27	To C49
Pink	28	To SW-3
Green	29	To squelch control
White	30	Audio in
Shield	31	Gnd.
Red	32	To C51
Red	33	To trans. B+
Brown	34	To trans. plate
Red	35	B+
Pink	36	12v fil.
Yellow	37	6v fil.
White	38	Cathode



See reverse side for voltage and resistance chart

VACUUM TUBE VOLTAGE & RESISTANCE CHART
MODEL 100

Tube No.	Tube Type	See Note	Tube Pin Number								
			1	2	3	4	5	6	7	8	9
V1	6BA6	R	— 1.1	0	0	6.5 VAC	+ 245	+ 100	+ .9	—	—
		T	— 1.5	0	0	6.5 VAC	— 1.5	— 1.5	0	—	—
		Res.	2 Meg	0	0	.2 ohm	28 K	160 K	90 ohm	—	—
V2	6CL8A	R	— 1.2	+ 25	0	6.5 VAC	13 VAC	+ 44	+ 70	0	— 2.4
		T	— .66	— 1.6	0	6.5 VAC	13 VAC	— .5	— .5	0	— .4
		Res.	5.6 M	250 K	.1 ohm	.2 ohm	.2 ohm	180 K	250 K	7 ohm	12 K
V3	6CL8A	R	— 3	+ 120	+ 6.2	0	6.5 VAC	+ 180	+ 80	0	— 2.9
		T	— .3	— .58	0	0	6.5 VAC	— .5	— .5	0	— 1.4
		Res.	100 K	150 K	1500 ohm	0	.2 ohm	160 K	180 K	0	7 M
V4	6BA6	R	— 1	0	6.5 VAC	13 VAC	+ 250	+ 80	+ .60	—	—
		T	— 1.4	0	6.5 VAC	13 VAC	— .5	— .5	0	—	—
		Res.	1.2 M	0	.2 ohm	.2 ohm	28 K	180 K	75 ohm	—	—
V5	6AL5	R	0	— .44	13 VAC	6.5 VAC	+ .34	0	— .66	—	—
		T	0	— .28	13 VAC	6.5 VAC	+ .5	0	— .40	—	—
		Res.	6 K	40 K	.2 ohm	.2 ohm	2.2 m	0	65 K	—	—
V6	12AX7	R	+ 150	0	+ 1.7	0	0	+ 255	0	+ 18	6.5 VAC
		T	+ 150	0	+ 1.6	0	0	+ 40	0	0	6.5 VAC
		Res.	700 K	1.4 M	9.5 K	0	0	450 K	5.6 m	0	.2 ohm
V7	6AQ5	R	0	+ 15	6.5 VAC	13 VAC	+ 250	+ 255	0	—	—
		T	0	+ 15	6.5 VAC	13 VAC	+ 235	+ 250	0	—	—
		Res.	1 m	390 ohm	.2 ohm	.2 ohm	120 K	120 K	1 m	—	—
V8	6BH6	R	— .8	0	6.5 VAC	13 VAC	— 1.4	— 1.4	0	—	—
		T	— 2.0	+ 6.4	6.5 VAC	13 VAC	+ 250	+ 200	0	—	—
		Res.	200 K	1 K	.2 ohm	.2 ohm	00	00	0	—	—
V9	6CL6	R	+ 18	0	+ 250	0	6.5 VAC	+ 250	0	+ 250	0
		T	0	— 7.8	+ 155	0	6.5 VAC	+ 230	0	+ 155	— 7.8
		Res.	00	18 K	130 K	0	.2 ohm	115 K	0	130 K	18 K

NOTE: R— Voltages measured under no signal condition with VTVOM between tube pin and chassis; Unit operating in RECEIVE position from 115 VAC, VOLUME set at minimum and SQUELCH control off.

ALL READINGS T— Voltage measured with VTVOM between tube pin and chassis; Unit operating in TRANSMIT position into 50 ohm load.

± 10% Res.— Resistance measured with VTVOM between tube pin and chassis; Unit OFF, 115 VAC power plug in place and filter capacitors fully discharged.

POSSIBLE TROUBLE CHART

POSSIBLE POWER SUPPLY TROUBLES

COMPLAINT	POSSIBLE TROUBLE	REMEDY
No B (AC or DC)	Fuse, switch, rectifier	Replace defective parts.
No B (DC)	Vibrator, bad connection on power cable.	Replace vibrator Resolder cable.
B low (DC)	Battery low, power cable to long, vibrator.	Chg. battery, shorten cable, replace vibrator.
B low (AC or DC)	Short in B , bad rectifier, defective power transformer.	Remove short, replace rectifier or transformer.

POSSIBLE TRANSMITTER SECTION TROUBLES

No RF output	Defective V8 or V9	Replace tube (s)
	Open L13 or L14	Replace coil (s)
	Defective transmitter crystal	Replace crystal
	Poor relay contacts	Clean contacts
Low RF output	L11, C78 or C79 improperly adjusted-Defective V8 or V9	Re-adjust coil or capacitors-Replace tube(s)

POSSIBLE RECEIVER SECTION TROUBLES

Dead (no sound)	Defective V1, V2, V3, V4, V5	Replace tube (s)
	Relay contacts dirty	Clean contacts
Low volume	Defective tube as listed above.	Replace defective tube(s)-Align if required.
	Receiver requires alignment	

Issued 3/21/62

RECEIVER ALIGNMENT

Prior to alignment, the Executive should be turned on and allowed to reach normal operation temperature. This will require approximately 15 minutes. Set the Executive operating controls as follows:

VOLUME to ON position

RECEIVE SELECTOR to TUNE position

TUNING DIAL to CHANNEL 9

SQUELCH to OFF - Fully counterclockwise until switch clicks.

NOTE: Disconnect antenna and connect a dummy load to antenna jack. Dummy load may be fabricated from a #47 pilot lamp and a male coaxial connector.

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

1. The following equipment will be required for the alignment of an executive transceiver with a crystal filter.
   Signal Generator such as H. P. 606A, Clough-Brengle 550 or Equivalent. It is important that the signal generator have a good attenuator and very little leakage signal. A generator such as the Heath LG-1 may be used providing an external pad of approximately 60 db is used and the generator operated on its high ranges.
   Crystal Controlled Frequency Standard: INTERNATIONAL C12-B
   Audio Output Meter such as H. P. -400D, Heath AV-3 or equivalent.
   Vacuum Tube Voltmeter.
   Battery or Battery Eliminator for operation of the unit on 12 VDC.

2. Connect the signal generator through the PK box to the Executive Antenna terminal.

3. Connect the audio meter across the speaker terminals. Use the 3 volt range.

4. Install a Channel 9 receive crystal in position 2 of the Receive Selector Switch.

5. Turn the Executive unit on (use 115 VAC for these steps) and set the Receive Selector to Channel 9.

6. Turn the signal generator to Channel 9 as heard in the receiver. Use 30% modulation on the generator. Turn the C12-B RF Level Control full counterclockwise and selector switch to 9. Key the C12-B and zero beat the signal generator as heard in the Executive receiver.

7. Reduce the Signal Generator output to .3 microvolt and adjust the following coils for peak reading on the audio output meter.

T1---------- top and bottom slugs
T2---------- top and bottom slugs
L2---------- RF Grid
L1---------- Antenna
L4----------RF Plate
L7---------- 1st Mixer Plate
L8---------- 2nd Mixer Plate

8. Set the receiver to TUNE. Set the C12-B on Channel 8 and tune in the C12-B signal on the receiver. Measure the AVC voltage at terminal #23 on the IF board. Set the output RF LEVEL control on the C12-B for 5 volts AVC reading. Leave the RF LEVEL control at this point thru out the rest of the alignment.

9. Set the RECEIVE Selector on the Model 100 for crystal receive on Channel 9. Set the C12-B to channel 9 and carefully zero the signal generator. Apply .3 microvolt on channel 9 from the generator (about 1.5 volts AVC). Adjust the Channel 9 receiver crystal trimmer for maximum reading on the audio meter.

10. Set the C12-B to Channel 8.

11. Coils in the crystal filter are sealed with Dow Compound 881. This seal is rubbery and easily removed with a knife or solder aid point. Remove the seal from L15. Key the C12-B for Channel 8 signal and insert a tuning tool in the slug, turn clockwise (Increase inductance) until the audio meter reading drops to a null. The sharpness of this drop in reading varies and depends somewhat on the input signal from the generator. Now turn the slug counterclockwise until the audio reading just reaches its peak from the sharp rise. Rock the slug back and forth to find the point at the top of the sharp increase. Leave the slug at this point.

12. Turn the set off and remove the 115 VAC cord.

13. Using a 12 inch piece of hookup wire and a .01 mfd ceramic capacitor make up a test jumper. Tack solder the .01 capacitor to lug #12 of the power plug on the bottom of the set. Remove the generator plug and insert the other end of the hook-up wire into the center post of the antenna socket.

14. Connect the 12 VDC power cord to the set and apply 12 VDC power. Turn the set on and volume full on. Adjust coil L8 for minimum reading on the audio meter. You will note an increase in the meter on either side of the correct setting. The minimum reading will be between 1.5 and 2.0 volts audio. (Note: this test applies noise pulses far in excess of those encountered in actual use.)

NOTE: To check for proper alignment of coil L8 it is suggested that the following test be made.

(1) Apply excessive noise to the set as described in step 14 of receiver alignment and adjust the slug of coil L8 to the maximum inductance of the coil form.

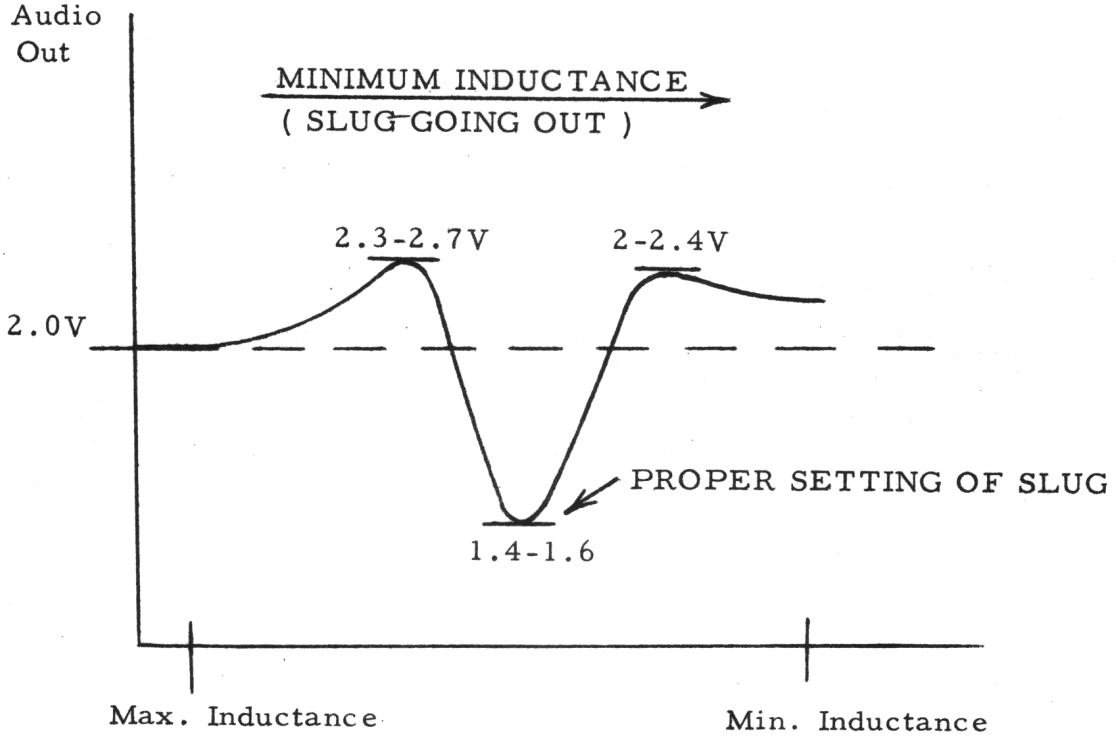
(2) Set the volume control for a meter reading of 2 volts (Use a reliable audio voltmeter such as the Hewlett-Packard 400D).

(3) Slowly rotate the slug of coil L8 out of the form (less inductance), and note the output meter reading as the slug is moved out.

(4) The meter should increase from 2 volts to 2.3-2.7 volts and then drop to a low of 1.4-1.6 volts; after this dip in the meter reading it will start to increase again to a value of 2-2.4 volts.

(5) Note that these readings are taken as the slug is moved from the maximum inductance to minimum inductance. Fig. 1 is a curve of output meter reading vs. slug position for coil L8.

(6) The proper setting of coil L8 is at the bottom of the "valley" or minimum audio output as indicated in Fig. 1.



Noise Clipper

To check for proper operation of the noise clipper circuit;

(1) Remove the noise injection jumper from the antenna receptacle.

(2) Adjust the volume control for a noise level of .03 volts on the output meter. Note that this is not injected noise but the normal noise amplified by the set or "hiss" level.

(3) Reinsert the jumper to the center post of the antenna receptacle to inject vibrator noise. The audio output will increase from .03 volts to .04-.06 volts.

(4) With a .005 mfd capacitor, short out the noise clipper by connecting the capacitor between pin #11 of the IF strip and the junction of resistor R21 and R23 on the IF board. This point can be easily located by noting that there are two 1 meg resistors directly in front of pin #11; the proper junction will be the top end of the second 1 meg resistor which is in series with the 27 K resistor.

(5) The audio output will increase instantly to over 1.5 volts. This is an indication that the noise clipper circuit is functioning properly. The step merely shows the noise present when the clipper circuit is bypassed.

15. Reconnect the generator lead. Set Receive Selector for crystal receive on Channel 9. Set C12-B to 9 and zero signal generator. Apply 1 microvolt on Channel 9 from generator (about 2.2 volts AVC). Reduce the volume control for a reading of 2.5 volts audio on the output meter.

16. While noting audio meter reading set C12-B on 8 and key; then to 10 and key. There should be no more than .5 volt drop in reading when C12-B is keyed (with volume set for 2.5 volts audio on Channel 9). If the channel 9 signal is greatly reduced when 8 or 10 are applied from the C12-B, as previously set up, the filter has not been adjusted properly. A slight readjustment of L15 is required Coil L8 should then be rechecked.

17. In actual operation you should notice considerable improvement of adjacent channel rejection if the crystal filter has been properly installed.

ADJUSTMENT OF TUNABLE FIRST OSCILLATOR

1. Calibration of the receiver tuning dial must be done with a signal generator of known accuracy. If generator accuracy is questionable, it may be calibrated as previously discussed.

2. Set generator on Channel 9 and rotate Executive tuning dial for maximum audio recovery as indicated on output meter. This dial setting should fall within 1/16th of an inch of the panel marking for Channel 9. If the pointer setting is not within this tolerance, adjustment of the 1st converter oscillator will be necessary. Before making any adjustment to the oscillator, it will be necessary to check the receiver tuning spread.

3. Set generator on Channel 1 frequency. Rotate tuning dial towards Channel 1 panel marking. Tune receiver for maximum audio recovery as indicated by the output meter. Note tuning dial pointer position with relation to Channel 1 panel marking.

4. Set generator to Channel 22 frequency. Repaeat 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 L3 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 C16 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 L3 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 9, 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 C16 in a clockwise direction until it is fully closed. Rotate rotor of C16 in a counter-clockwise direction for 1 1/2 turns. Adjust tuning slug in oscillator coil L3 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 C16 and tuning slug in L3 until calibration falls within the tolerance limits.

8. In instances where the unit has receive crystals installed in the RECEIVE SELECTOR switch assembly crystal sockets, the crystals can be trimmed exactly to the proper channel frequency by their associated capacitors C19 and C20 as follows:

    a. Where the receiver crystal controlled channels are to be used for communication with only one station, such as a base station, "netting" of the receiver using the base station as signal source on the proper channel will produce optimum results.

b. In instances such as covered by a. above, attach an antenna to the Executive antenna jack, set RECEIVE SELECTOR to the proper position. Using the base station signal, adjust the crystal trimmer for maximum AVC voltage as indicated by the VTVM. If there are two crystal control positions being used, repeat the above described adjustment for the second crystal controlled position.

c. Instances where the crystal controlled channels are to be used in communicating with more than one station, set the signal generator up on the proper channel. With the generator in the MCW position, and RF output set a 1 uv, adjust the trimmer capacitor associated with that channel for maximum audio recovery as indicated by the output meter. If both crystal control channels are to be used, repeat the above described adjustment for the second crystal controlled position.

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 - Bird 611 or equivalent.
b. Frequency meter with an accuracy of at least .0025% - INTERNATIONAL C-12B or equivalent.

1. Connect an RF wattmeter to the antenna jack on the fack of the Executive.
2. Turn the set on and allow 15 minutes for the unit to reach normal operating temperature.
3. When several different crystals will be used in the transmitter, select one whose frequency is approximately half-way in between the others.
4. Key the transmitter by depressing the microphone press-to-talk switch.
5. Adjust final amplifier tuning capacitor C78 and loading capacitor C79 alternately for maximum output as indicated by the wattmeter.
6. With the volume control set at the one-half open position, and talking within normal distance from the microphone, adjust oscillator plate coil for maximum upward deflection as indicated on the wattmeter.
7. Depress the press-to-talk switch several times and note whether or not the oscillator starts immediately each time the switch is depressed.

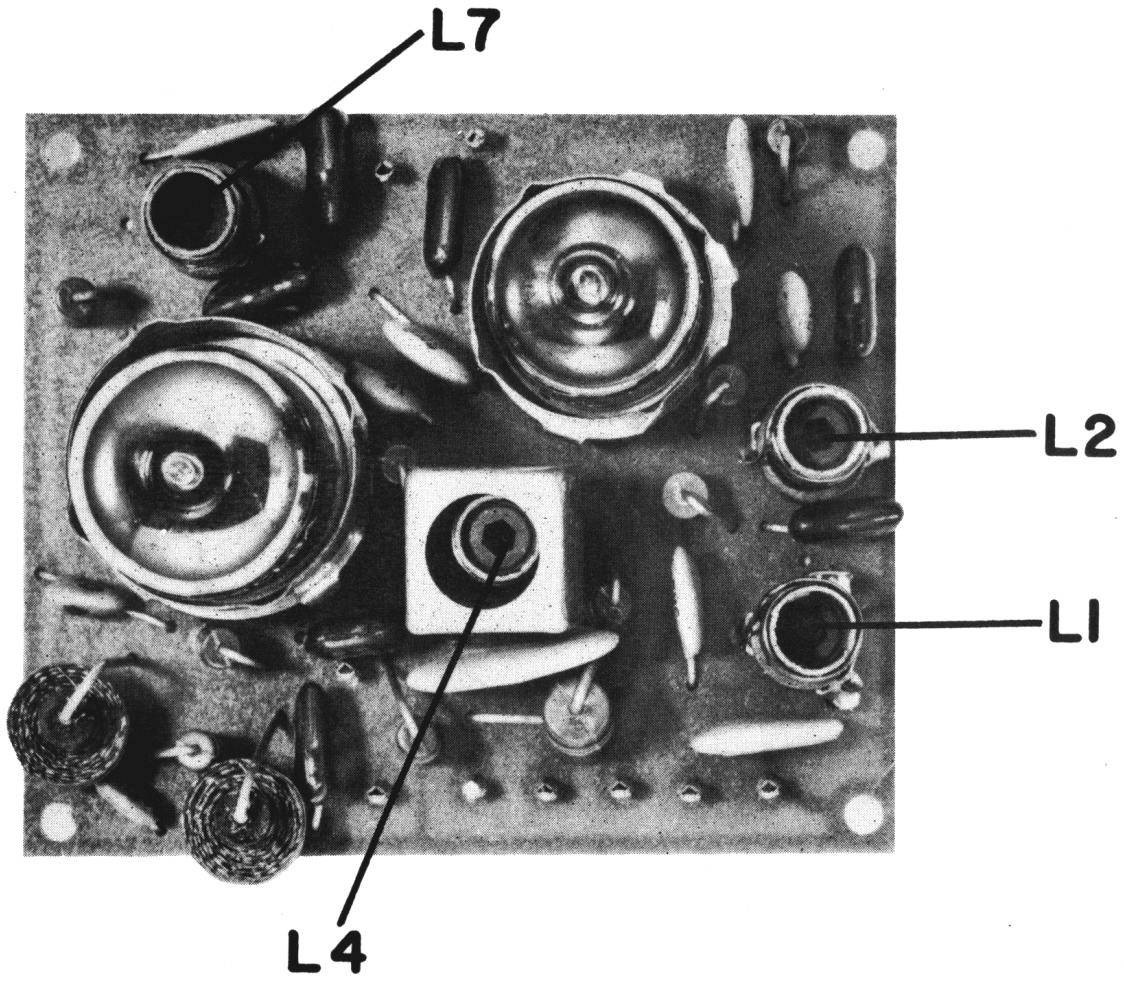
8. The Executive series transmitter has an overall frequency tolerance of .005% or better. UNLESS SUITABLE HIGH-ACCURACY FREQUENCY MEASUREING EQUIPMENT IS AVAILABLE, DO NOT ATTEMPT TO ADJUST THE TRANSMITTER FREQUENCY. A small trimmer capacitor C68, is provided to make minor adjustments in the transmitter frequency.

9. Set TRANSMIT SELECTOR to the Channel previously used for transmitter alignment. Connect C12-B Frequency Meter through the PK-1 pick-up box to the transmitter antenna jack.

10. Set up Frequency Meter for measurement on the channel to be measured. Depress microphone press-to-talk switch and measure the frequency. If the frequency is out of tolerance, adjust trimmer C68 until the transmitter frequency is within tolerance. If this cannot be accomplished within the tuning range of C68, check the other channels in the set. If they can be brought into tolerance with trimmer C68, the crystal can be considered defective and must be replaced. If they cannot be brought into tolerance, possibly either of capacitors C69 or C70 has changed value.

11. 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 C69 and C70 should be checked and the defective component replaced.

12. Set up C12-B Frequency Meter for modulation check. Key transmitter and talk into microphone at a normal level with a prolonged AHHHH. The Executive Transmit indicator lamp should begin to flicker and modulation percentage should be approximately 95%. This completes the transmitter alignment.



CONVERTER UNIT