

Philco Radio & Television Corp.

Model: 42-350

Chassis:

Year: Pre 1945

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

Riders Volume 14 - PHILCO 14-28

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MODEL 42-322
MODEL 42-350

PHILCO RADIO & TELEVISION CORP.

MODEL 42-322 ALIGNMENT

Signal Generator: When adjusting the I. F. padders, the high side of the signal generator is connected through a .1 mfd. condenser to the antenna section of the tuning condenser. Connect the ground or low side of the generator to the chassis.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the signal generator is then placed close to the loop of the radio.

The receiver can be adjusted in the cabinet or removed from the cabinet. When adjusting the R. F. Compensators in the cabinet, the aligning points on the dial scale are used. If the radio is adjusted outside of the cabinet, the small indentations (lines) on the dial metal background plate mounted on the chassis are used as aligning points. These points progressing from the left end of the scale plate represent frequencies as follows: pointer position with tuning condenser closed, 580 K.C., 9.5 M.C., 1500 K.C., 15 M.C., and the last line 1720 K.C. or 15.5 M.C. When adjusting the radio outside the cabinet the loop aerial should be placed in approximately the same position around or near the chassis as when assembled.

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Lug on the Ant. Section of Tuning	455 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max. Range Switch Brdcast.	27A, 27B 26A, 26B	
2	Loop See Above Instructions	1500 K.C.	1500 K.C.	Vol. Max. Band Switch Brdcast.	7B, 7A	Note A
3	Loop See Above Instructions	580 K.C.	580 K.C.	Vol. Max. Band Switch Brdcast.	(10)	Roll Tuning Condenser
4	Loop See Above Instructions	Repeat Operation 2				
5	Loop See Above Instructions	15 M.C.	15 M.C.	Band Switch S.W.	(18A, 5) Note B	Roll Tuning Condenser When Padding 5

NOTE A—DIAL POINTER CALIBRATION: In order to adjust the receiver correctly, the pointer must be adjusted to track properly with the tuning condenser. To do this, turn the tuning condenser to the maximum capacity (plates fully meshed). With the condenser in this position, set the tuning pointer on the first small line stamped in the scale plate on the left side.

NOTE B—To accurately adjust the high frequency oscillator compensator to the fundamental instead of the image signal, turn the oscillator compensator (18A) to the maximum capacity position (clockwise). From this position slowly turn the compensator counter-clockwise until a second peak is obtained on the output meter. Adjust the compensator for maximum output at this second peak.

If the above procedure is correctly performed, the image signal will be found (much weaker) by turning the signal generator dial 910 K.C. above the frequency being used on any high frequency range.

The aerial padder (5) must be adjusted to maximum by rolling the tuning condenser. If two signal peaks occur when turning the padder, adjust to maximum output on the first signal peak from the right position (screw all the way down) of the padder.

-Model L42-350, Code 121

EXTERNAL AERIAL CONNECTIONS

The built-in aerial system is designed to operate without an outside aerial or ground and to give exceptionally high receiving performance of stations in the standard, shortwave, or FM bands.

To operate the radio in steel reinforced buildings and other shielded locations where signal strength is weak an external aerial is recommended. Three different types of aerial combinations are available, to improve reception on the standard, short-wave, or FM bands.

1—For Additional Sensitivity on Frequency Modulation only:

*Philco Dipole Outdoor Aerial, Part No. 45-2926.

The plug at the end of the transmission line is inserted in the socket at the back of the chassis in place of the plug connected to the F. M. loop in the cabinet.

2—For Additional Sensitivity on ALL ranges:

*Philco Dipole Outdoor Aerial, Part No. 45-2926.

Philco Aerial Coupler, Part No. 45-1361.

The coupler plugs into the socket at the back of the chassis in place of the plug connected to the F. M. loop. The aerial transmission line then connects to the terminals on the coupler marked "red" and "black." The local-distance switch on the coupler connects or disconnects the outdoor aerial from the standard broadcast and shortwave tuning ranges. The dipole remains connected to the F. M. band regardless of the position of the switch.

3—For Additional Sensitivity on Standard Broadcast and Shortwave only In Areas where F. M. reception is not available.

Philco Safety Aerial, Part No. 40-6370.

Philco Aerial Coupler, Part No. 45-1361.

Connect the single wire lead-in of the aerial to the "black" terminal on the aerial coupler.

*Accessories for this aerial are the Philco Aerial Mast Kit, the Philco Reflector Kit and Philco High Efficiency Transmission Line. See Service Bulletin No. 206 on Dipole Aerials.

NOTE: When installing the F. M. Philco Outdoor Dipole Aerial, it is very important that the aerial compensating condensers of the standard and shortwave band be repadded.

ELECTRIC PUSH-BUTTON TUNING ADJUSTMENTS

The electric push-button tuning mechanism consists of six (6) push-buttons. Five of the push-buttons are used for selecting standard broadcast stations, and one for the power control (ON-OFF).

Viewing the front of the cabinet from left to right the first push-button is the power control (ON-OFF), the next five push-buttons for tuning standard broadcast stations.

When setting up stations on the push-buttons the lowest frequency station is set up in the second push-button from the left and add the remaining stations according to increasing frequency in the next four push-buttons. These push-buttons are adjusted by the padders located on the rear of the chassis.

The frequency ranges covered by the station tuning push-buttons and procedure for adjusting are as follows:

Padders (right to left from rear)	Circuit	Buttons (left to right from front)	Frequency Range
1	Ant.	1	ON-OFF
2	Osc.	2	540 to 980 KC
3	Ant.	3	540 to 980 KC
4	Osc.	4	710 to 1185 KC
5	Ant.	5	850 to 1600 KC
6	Osc.	6	1185 to 1720 KC
7	Ant.		
8	Osc.		
9	Ant.		
10	Osc.		

The second push-button from the left can also be adjusted for reception of the sound channel of a television program received by special Philco television radios. This push-button may also be used in conjunction with a Philco Wireless Record Player.

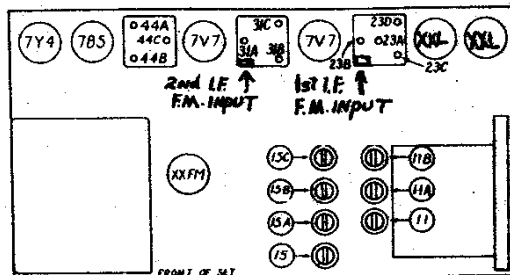


FIG. 1—LOCATIONS OF R. F. AND I. F. COMPENSATORS

MODEL 42-350

PHILCO RADIO & TELEVISION CORP.
REPLACEMENT PARTS—Model L42-350, Code 121

Schem. No.	Description	Part No.	Schem. No.	Description	Part No.	Schem. No.	Description	Part No.
1.	Loop Aerial	76-1303	42.	Resistor (2200 ohms)	33-222339		Mtg. Washer	27-7467
1a.	F.M. Loop Aerial	W-2071	43.	Condenser (.01 mfd., 200 volts)	30-4519		Mtg. Nut	W-121
2.	Socket	76-1303	44.	3rd I.F. Transformer	32-3796	74.	Dial and Indicator Lamps	34-2964
3.	Mica Condenser (150 mmfd.)	27-6181	44a.	Primary Compensator (4.3 M.C.)	W-1949	75.	Field Coil (Replace Speaker 36-1540)	
4.	Resistor (2.2 megohms)	68-125257		Part of 44		76.	Electrolytic Condenser	
5.	Resistor (100,000 ohms)	33-418339	44b.	Primary Compensator (455 K.C.)			(12mfd., 400 volts)	36-2480
6.	Resistor (2700 ohms)	33-227339		Part of 44			Mtg. Clip	56-1466
7.	Condenser (.05 mfd., 200 volts)	30-4519	44c.	Secondary Compensator (4.3 M.C.)		77.	Resistor (27 ohms)	33-427339
8.	F.M. Oscillator Transformer	32-3797		Part of 44		78.	Resistor (270 ohms)	33-127439
9.	Mtg. Clip	28-5002	44d.	Mica Condenser (125 mmfd.)		79.	Power Transformer	
10.	Resistor (10 ohms)	33-918336		Part of 44			(115 volts, 60 cycle)	33-9183
11.	Short Wave Aerial Transformer	32-3764	45.	Condenser (.1 mfd.)	30-4586		Mtg. Screw	W-453
12.	Broadcast Aerial Transformer	32-3763	45a.	Mica Condenser (500 mfd.)	60-156227		Shield	56-2285
13.	Mtg. Clip	32-3763	46.	Resistor (470,000 ohms)	33-447339		Shield Base	56-2286
11a.	Compensator (Brdcast. Band, 500 K.C.)	31-6428	47.	Resistor (2.2 megohms)	33-522339		Power Transformer	
11b.	Compensator (S.W. Aerial, 15 M.C.)		48.	Resistor (100,000 ohms)	33-418339		(115 volts, 25 cycles)	32-6210
	Part of 11		49.	Resistor (2.2 megohms)	33-522339		Shield	56-1547
11c.	Compensator (Brdcast. Band, 1500 K.C.)		50.	Resistor (2.2 megohms)	33-522339		Shield Base	56-1548
	Part of 11		51.	Condenser (.01 mfd., 400 volts)	30-4572		Power Transformer	
12.	Push-button Switch & A.C. Switch	42-1695	52.	Mica Condenser (100 mmfd.)	60-110257	80.	Condenser (.01-.01 mfd.)	30-4211
12a.	A.C. Switch	W-523	53.	Condenser (220,000 ohms)	33-422339	81.	Band Switch	30-4211
	Mtg. Sleeve	20-5665	54.	Condenser (.01 mfd., 400 volts)	30-4572		Mtg. Nut	W-2157
13.	Push-button Padder Strip	31-6372	55.	Mica Condenser (100 mmfd.)	60-110257		MISCELLANEOUS PARTS	
14.	Tuning Condenser	31-2595	56.	Condenser (.01 mfd., 400 volts)	30-4572		Arm and Link (Band Indicator)	76-1353
	Drive Cord (Tuning Cond.)	31-2594	57.	Tone Control	433-5471		Cable (Power)	L-3189
	Spring	28-4754	58.	Mtg. Nut	W-2157		Cabinet	105622A
	Drive Cord (Pointer)	31-2594	59.	Resistor (33,000 ohms)	33-5170		Dial Scale	27-5726
	Spring	28-4754	60.	Mtg. Nut	W-2157		Dial Pointer	56-1086
	Mtg. Rubber	28-4754	61.	Condenser (.01 mfd., 400 volts)	30-4572		Escutcheon (Push Buttons)	56-2233
	Mtg. Sleeve	27-4596	62.	Mica Condenser (150 mmfd.)	60-115327		Mtg. Screw	W-2071
	Mtg. Washer	W-151	63.	Resistor (1 megohm)	33-510339		Knob Assembly (Vol. Tone, Band)	54-8182
	Mtg. Screw	W-2002	64.	Resistor (470,000 ohms)	33-447339		Knob Assembly (Push Buttons)	54-8125
	Tuning Shaft	56-6156	65.	Mica Condenser (100 mmfd.)	60-110257		Mtg. Screw (Chassis)	W-425
	Tuning Drive Drum	38-5083	66.	Condenser (.001 mfd., 1000 volts)	30-4568		Socket Assembly (Indicator Lamps)	76-1074
15.	Compensator (F.M. Osc., 48.5 M.C.)	31-6444	67.	Condenser (.001 mfd., 1000 volts)	30-4568		Socket Assembly (Dial Lamps)	76-1207
15a.	Compensator (Brdcast. Osc., 1500 K.C.)		68.	Resistor (220,000 ohms)	33-422339		Socket (Single Prong)	27-6180
	Part of 15		69.	Resistor (470,000 ohms)	33-447339		Socket (Tubes)	27-6177
15b.	Compensator (S.W. Osc., 15 M.C.)		70.	Resistor (10 megohms)	33-610339		Socket (4 Prong F.M. Aerial)	27-6181
	Part of 15		71.	Condenser (.002 mfd., 500 volts)	30-4622		Mtg. Rivets	W-230
15c.	Compensator (F.M. Aerial, 48.5 M.C.)		72.	Output Transformer	32-4172		Tab Kit	40-5080
	Part of 15		73.	Speaker	36-1540		Terminal Panel (Loop)	27-5772
16.	Silver Mica Condenser (250 mmfd.)	28-025011		Cable Assembly (for Speaker 36-1540)	36-4206		Wiring Panel (8 lugs)	38-3087
17.	Mica Condenser (10 mmfd.)	68-016337		Cable	41-3613		Wiring Panel (5 lugs)	38-3087
18.	Mica Condenser (250 mmfd.)	68-025011					Mtg. Rivets	W-230
19.	Oscillator Transformer (Brdcast., S.W.)	32-3798						
	Mtg. Clip	28-5003						
20.	Resistor (47,000 ohms)	33-347339						
21.	Resistor (4700 ohms)	33-247339						
22.	Condenser (.05 mfd., 400 volts)	30-4519						
23.	Condenser (.05 mfd., 400 volts)	30-4519						
24.	1st I.F. Transformer	32-3784						
25.	Mtg. Nut	W-1949						
26.	Primary Compensator (455 K.C.)							
	Part of 23							
27.	Secondary Compensator (155 K.C.)							
	Part of 23							
28.	Secondary Compensator (4.3 M.C.)							
	Part of 23							
29.	Primary Compensator (4.3 M.C.)							
	Part of 23							
30.	Mica Condenser (1000 mmfd.)	60-240214						
	(Part of 23)							
31.	Condenser (.05 mfd., 200 volts)	30-4519						
32.	Condenser (.05 mfd., 200 volts)	30-4519						
33.	Resistor (120 ohms)	33-112336						
34.	Resistor (50 ohms)	33-068336						
35.	Condenser (.05 mfd., 400 volts)	30-4519						
36.	Resistor (10,000 ohms)	33-318339						
37.	Condenser (.01 mfd., 400 volts)	30-4572						
38.	Mica Condenser (250 mmfd.)	68-125257						
39.	Mica Condenser (100 mmfd.)	68-110257						
40.	Resistor (47,000 ohms)	33-347339						
41.	Electrolytic Condenser (4.4 mfd., 400 volts)	30-2477						
42.	Electrolytic Condenser (4 mfd., 400 volts)	30-2477						
	(Part of 40)							
43.	Mtg. Clip	56-1466						
44.	Resistor (33,000 ohms)	33-333339						

POWER SUPPLY: 115 volts, 60 cycles A.C. This model can also be operated on 25-cycle current. To do this it is necessary to replace the power transformer as indicated in the parts list for 25-cycle operation.

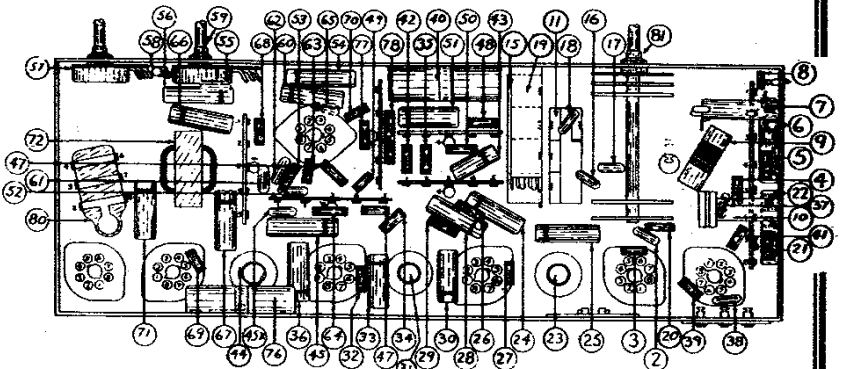


FIG. 4—LOCATIONS OF PARTS—UNDER CHASSIS

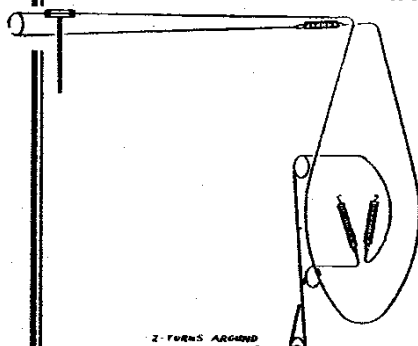


FIG. 3—TUNING DRIVE CORD ARRANGEMENT

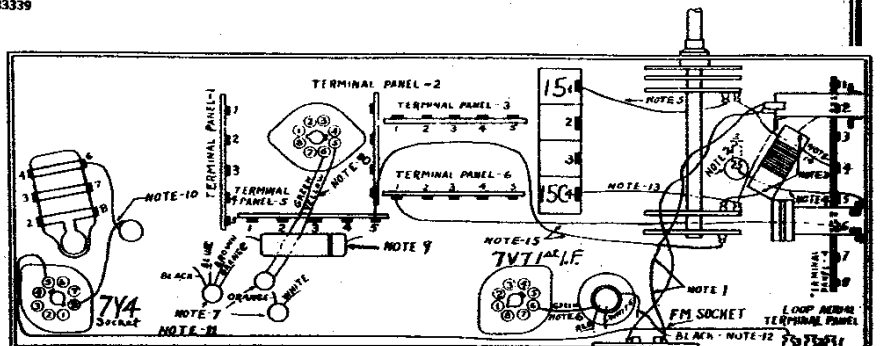


FIG. 5—CRITICAL WIRING AND PART LOCATIONS—UNDER CHASSIS

(See Notes 1 to 15.)

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MODEL 42-350

PHILCO RADIO & TELEVISION CORP.

CONNECTING ALIGNING INSTRUMENTS

AUDIO OUTPUT METER: Terminal No. 3 is provided on the loop aerial panel for connecting one lead of the audio output meter to the voice coil of the speaker. The other lead of the meter is connected to the chassis. When using these connections, the lowest A. C. scale of the meter must be used. (0 to 10 volts.)

The audio output meter can also be connected between the plate of the output tube and the chassis.

SIGNAL GENERATOR: When adjusting the "I. F." padders, the high side of the signal generator is connected through a .1 mfd. condenser to the points indicated in signal generator column "output connections" to receiver in the tabulations below.

When aligning the R. F. padders a loop is made from a few turns of wire and connected to the signal generator output terminals; the loop is then placed two or three feet from the loop in the cabinet and dipole aerial lead. Do not remove the receiving loops from the cabinet. It is necessary when adjusting the padders, that the receiver be left in the cabinet.

After connecting the aligning instruments adjust the compensators in the order shown in the tabulation below. Location of the compensators are shown in Fig. 1. If the output meter pointer goes off scale when adjusting the compensators, reduce the strength of the signal from the generator.

STANDARD AND S. W. BANDS ALIGNING PROCEDURE

Operations In Order	SIGNAL GENERATOR			RECEIVER		Adjust Compensators In Order	Special Instructions
	Output Connections	Dial Setting	Dial Setting	Control Settings			
1	High side to No. 1 terminal loop panel	455 KC	580 KC	Vol. max. Band Switch "Brdcst."		44B, 31C, 23A, 23B	
2	Use loop on generator	1500 KC	1500 KC	"		15A, 11B	Note A
3	Use loop on generator	580 KC	580 KC	"		11	Roll Tuning Condensers Note B
4	Use loop on generator	Readjust as given in Operation 2					
5	Use loop on generator	15 MC	15 MC	Band Switch "S.W."		15B, 11A	Note C

FREQUENCY MODULATION ALIGNING PROCEDURE

Note: The Frequency Modulation Circuits Must Be Adjusted With the Dipole Aerial Connected

CRITICAL WIRING LOCATIONS

The following items on this set are critical for location and position. See Figs. 4 and 5, for locations of wires and parts.

Note 1. Dipole aerial leads from socket to be twisted and dressed over wave switch directly to F. M. aerial-oscillator transformer No. 7.

2. Ground braid from gong to chassis to be wired and soldered on top side of subbase in such a manner so that there is a floating bond between ground and the condenser.

3. Short wave aerial transformer (No. 9) to be wired directly between terminal panel 4 and band switch contact C-11-C so that there is a minimum of slack in the wires.

4. Wire from broadcast aerial transformer (No. 10) to ground to be dressed under short wave aerial transformer (No. 9).

5. Wire from band switch contact B-11 to compensator 15 to be direct and away from switch and other wires.

6. Red and white wires from 1st I. F. transformer to be dressed on base and not twisted with other wires from same coil. Green wire to be free of other wires and direct to contact 6 of the 7V7, 1st I. F. tube.

7. Wires from 3rd I. F. transformer (44) to be brought out proper holes and not twisted together inside of can.

8. Green and yellow wires of 3rd I. F. transformer 44 to run from hole in subbase between terminal panel 5, contacts 2 and 3 and direct to contacts of the XXFM tube 5 and 6. Orange, blue, black and brown leads to be free of other wires and dressed off base.

9. Condenser (45) to be dressed off base.

10. A.C. switch leads to be twisted.

11. Wire from prong 5 of the 7Y4 tube to lug 3 of the loop aerial terminal panel to be dressed between Electrolytic Condenser 7A and mounting strip and to rear of chassis across bottom contacts of F. M. socket.

12. White, red and black wires of 1st I. F. transformer to be dressed with excess out of coil shield, and towards rear of chassis, and close to base. Black lead to be dressed around and under oil leads going to XXL converter tube socket. Orange, yellow, green and blue leads to be dressed with excess out of coil shield and away from the white, red and black leads.

13. Wire from band switch contact C-12-C to compensator 15-C to be dressed free of other wires.

14. Dress wire from band switch contact B-12 to wiring panel 4, lug 4 with excess toward front of set, under shortwave aerial transformer (9), keeping wire between the terminal panel 4 and wires coming through subbase which connect to F. M. aerial-oscillator transformer (7) and band switch.

15. Keep wires from terminal panel No. 5 contact No. 5 to band switch contact No. 6 and terminal panel No. 6 to terminal panel No. 4 between padder strip and mounting stud of 1st I. F. transformer so that they are kept clear of leads from the 1st I. F. transformer.

F. M. BAND ALIGNING PROCEDURE

Operations In Order	SIGNAL GENERATOR			RECEIVER		Adjust Compensators In Order	Special Instructions
	Output Connections	Dial Setting	Dial Setting	Control Settings			
1	2nd I. F., F. M. input connection	4.3 MC	580 KC	Vol. max. Band Switch "F.M."		44C (Note D) 44A (Note E)	
2	1st I. F., F. M. input connection	4.3 MC	580 KC	Band Switch "F.M."		31A, 31B (Note F)	
3	High side to No. 1 contact, F. M. socket. Ground to No. 2 contact	4.3 MC	580 KC	Band Switch "F.M."		23D, 23C (Note F)	
4	Use test loop on generator; place near dipole aerial	48.5 MC	85 (Note G)	Band Switch "F.M."		15 (Note G) 15C (Note H)	Roll tuning condenser when adjusting 15C. See Note 8.
5	"	48.5 MC	85	Band Switch "F.M."		15 oscillator	

NOTE A.—DIAL CALIBRATION: In order to adjust the receiver correctly, the dial pointer must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity) set the dial pointer on the extreme left index line at the low frequency end of the broadcast scale.

NOTE B.—When adjusting the low frequency compensator of the broadcast or the aerial padders of the high frequency tuning range; the receiver tuning condenser must be adjusted (rotated) as follows: First, tune the compensator for maximum output, then vary the tuning condenser of the receiver for maximum output. Now turn the compensator slightly to the right or left and again vary the receiver tuning condenser for maximum output. This procedure of first setting the compensator and then varying the tuning condenser is continued until maximum output reading is obtained.

NOTE C.—Adjust compensator (15B) to the second signal peak from the closed position (maximum capacity).

The aerial compensator (11A) must also be adjusted to maximum on the first signal peak by rolling the tuning condenser. (See Note B.)

NOTE D.—With the signal generator set to 4.3 MC, padder (44C) is adjusted to the point where minimum signal indication is observed on the output meter.

NOTE E.—Turn the signal generator first to approximately 125 KC below 4.3 MC (4.17 MC) and then 125 KC above 4.3 MC (4.43 MC). A signal peak should be observed on the output meter at approximately each of these points (4.17 and 4.43). The two peak signals should be of equal reading on the output meter and equally spaced in frequency each side of 4.3 MC. If the peaks are unequal in amplitude, padder (44A) must be adjusted in the direction necessary to make both peaks equal. This is done by slightly turning padder and then turning signal generator above and below 4.3 to observe peaks. After equal peak readings are obtained, set the signal generator to 4.3 MC. The output meter should show zero reading at 4.3 MC. If a signal indication is observed

readjust padder (44C) until zero reading is obtained on the meter. After this adjustment is made padder No. 44A should be reset for equal peaks as given above.

NOTE F.—Adjust padders 31A, 31B, 23C, and 23D for equal signal peaks and equal frequency spacing each side of 4.3 MC.

NOTE G.—The dial scale numbers are listed in tenths of megacycles less the first digit; i.e., 48 MC is 30, 48.5 is 35. Set the tuning dial pointer to 30 on the F. M. scale. Adjust padder (15) to the point where minimum signal indication is observed on the output meter.

NOTE H.—In order to adjust padder (15C) the signal generator should be set to either the signal peak approximately 125 KC below 48 MC (48.875 MC), or 125 KC above 48 MC (49.125 MC). Adjust padder (15C) to maximum output reading on either of these peak signals. As padder 15C is being adjusted roll the tuning condenser as given in Note B.

SEE INDEX FOR CHANGES