

## Philco Radio & Television Corp.

**Model:** 42-390

**Chassis:**

**Year:** Pre 1945

**Power:**

**Circuit:**

**IF:**

**Tubes:**

**Bands:**

### Resources

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PHILCO RADIO & TELEVISION CORP. MODELS 42-355, 42-390

Frequency Tuning Ranges: 540 to 1720 KC; 9 to 15 MC. and 42 to 50 MC (F. M.).

I.F.=455 KC. F.M.=4.3 MC.

41

XXFM

7V7

7V7

7V7

XXL

FOR CHANGES SEE INDEX

Audio Output: 3 watts.

6X5C

Power Consumption: 70 watts.

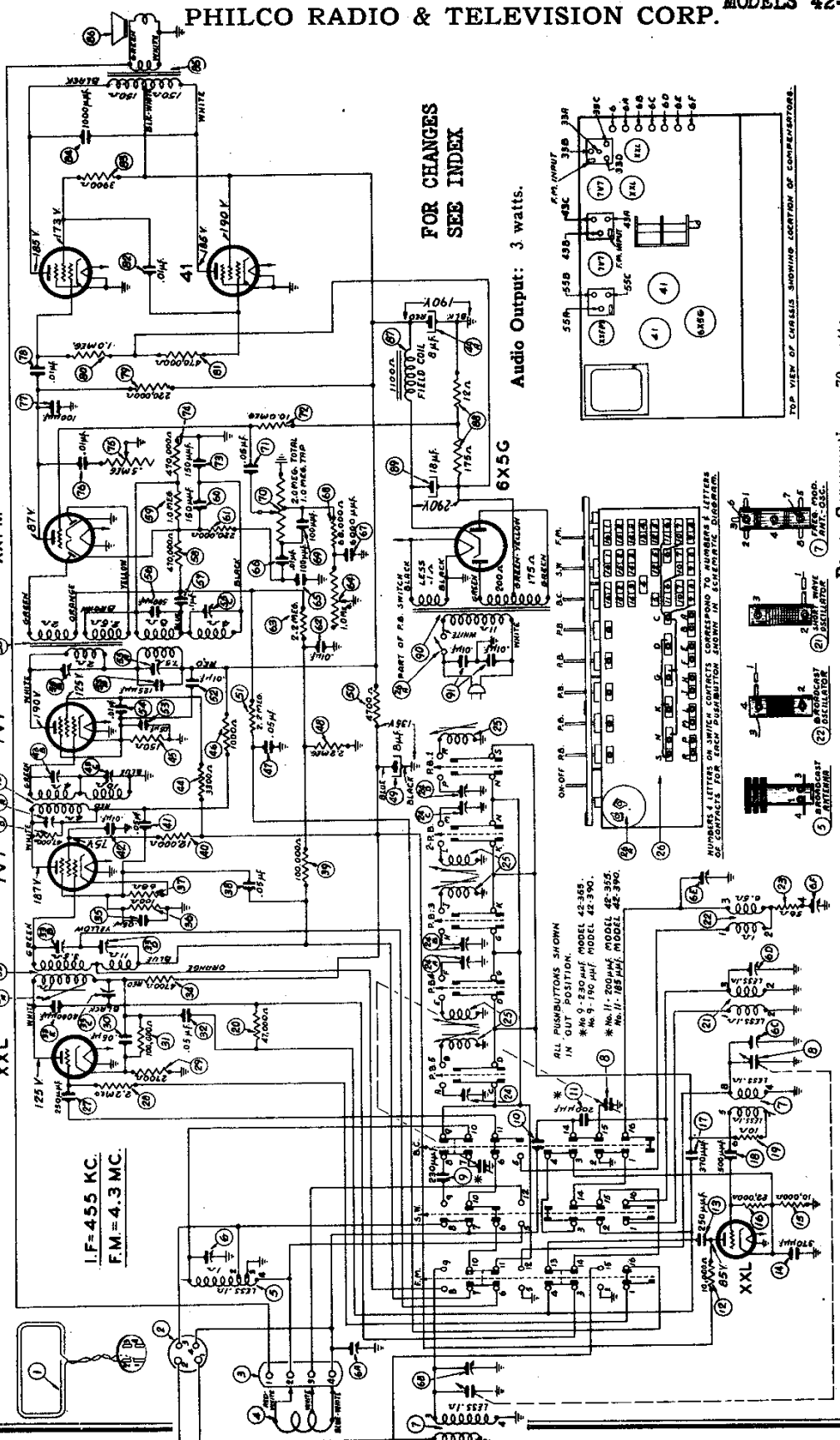
Intermediate Frequency: Standard Tuning, 455 KC; F. M. Channel, 4.3 MC.

FIG. 1—SCHEMATIC DIAGRAM—Models 42-355, 42-390

The D. C. voltages indicated at the tube elements in the above diagram were measured with a 1000 ohms per voltmeter. Philco Model 027. Line voltage 117 volts A. C. No signal being received—range switch broadcast.

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.



ALL PUSHBUTTONS SHOWN IN "OUT" POSITION. \*No. 9-230MAF MODEL 42-355. \*No. 9-190MAF MODEL 42-390. \*No. 11-200MAF MODEL 42-355. \*No. 11-185MAF MODEL 42-390.

SWITCHES 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.



TOP VIEW OF CHASSIS SHOWING LOCATION OF COMPONENTS.

REPLACEMENT PARTS—Models 42-355, 42-390

Sch. No.	Description	Part No.	Sch. No.	Description	Part No.	Sch. No.	Description	Part No.
1.	F. M. Loop Aerial (Model 42-355)	76-1234	24C.	Push-button Compensator (No. 4)	32-3780	63.	Resistor (2.2 megohms)	33-52233
2.	F. M. Loop Aerial (Model 42-390)	76-1346	24D.	Push-button Compensator (No. 5)	32-3780	64.	Tone Control (Bass)	33-5409
	Mtg. Rivet	27-6181	25.	Push-button Oscillator oil (No. 1)	32-3780	65.	Mica Condenser (100 mmfd)	60-110157
3.	Terminal Panel (on Chassis, Loop Aerial)	W-207	25A.	Push-button Oscillator Coil (No. 2)	32-3780	66.	Condenser (.01 mfd, 400 volts)	30-4572
	Mtg. Rivet	23-5870	25B.	Push-button Oscillator Coil (No. 3)	32-3780	67.	Condenser (.006 mmfd)	33-4839
4.	Loop Aerial (Brdcast.—S. W.) (Model 42-355)	W-287	25C.	Push-button Oscillator oil (No. 4)	32-3780	68.	Resistor (63,000 ohms)	33-33339
	Mtg. Screw	76-1306	25D.	Push-button Oscillator Coil (No. 5)	32-3779	69.	Mica Condenser (100 mmfd)	60-110157
	Loop Aerial (Brdcast.—S. W.) (Model 42-390)	76-1307	25E.	Push-button Oscillator Coil (No. 5)	32-3779	70.	Volume Control	33-5477
	Mtg. Sleeve	26-5806	26.	Push-button Switch	42-1692	71.	Condenser (.05 mfd, 200 volts)	W-2157
	Mtg. Sleeve	56-2257	26A.	Push-button Power Switch (Part of 26)	42-1717	72.	Resistor (10 megohms)	33-610339
	Spring Washer	22-4188	27.	Mica Condenser (250 mmfd)	60-125257	73.	Condenser (150 mmfd)	60-115137
	Screw	W-288	28.	Resistor (2.2 megohms)	33-522339	74.	Resistor (470,000 ohms)	33-447339
	Washer	W-425	29.	Resistor (2700 ohms)	33-227339	75.	Tone Control (Treble)	33-5481
	Washer	W-648	30.	Condenser (.05 mfd, 400 volts)	30-4518	76.	Condenser (.01 mfd, 400 volts)	30-4572
5.	Aerial Transformer (Broadcast Band) (Model 42-385)	32-3811	31.	Resistor (100,000 ohms)	30-4519	77.	Resistor (220,000 ohms)	33-422339
	Aerial Transformer (Broadcast Band) (Model 42-390)	32-3750	32.	Condenser (.65 mfd, 400 volts)	30-4518	78.	Resistor (1 megohm)	33-510339
	Mtg. Clip	31-6443	33.	1st I. F. Transformer	32-3787	79.	Resistor (470,000 ohms)	33-447339
6.	Compensator (Broadcast Aerial)		33A.	Primary Compensator (455 KC) (Part of 33)		80.	Condenser (.01 mfd, 400 volts)	30-4572
6A.	Compensator (S. W. Aerial) (Part of 6)		33B.	Secondary Compensator (455 KC) (Part of 33)		81.	Resistor (3900 ohms)	33-33339
6B.	Compensator (F. M. Aerial) (Part of 6)		33C.	Primary Compensator (F. M. 4.3 MC) (Part of 33)		82.	Condenser (.001 mfd)	30-4601
6C.	Compensator (F. M. Oscillator) (Part of 6)		33D.	Secondary Compensator (F. M. 4.3 MC) (Part of 33)		83.	Output Transformer	32-3130
6D.	Compensator (S. W. Oscillator) (Part of 6)		33E.	Condenser (4000 mmfd) (Part of 33)		84.	Speaker (Model 42-355)	36-1519
6E.	Compensator (Broadcast—Series) (Part of 6)		33F.	Resistor (47,000 ohms) (Part of 33)		85.	Speaker (Model 42-390)	36-1524
6F.	Compensator (Broadcast—Oscillator) (Part of 6)					86.	Cable (Model 42-355)	41-3541
7.	Aerial and Oscillator Transformer (F. M.)	32-3792					Mtg. Washer	27-7467
	Mtg. Clip	23-5002					Mtg. Nut	W-324
8.	Tuning Condenser (two sections—Standard & F. M.)	31-2532					Cond. Assembly (For Speaker 36-1519-2)	36-4262
	Drive Cord (Pointer)	31-2576					Cond. Assembly (For Speaker 36-1519-3)	36-4196
	Drive Cord (Pointer Drive)	28-8962					Cond. Assembly (For Speaker 36-1519-4)	36-4172
	Drive Cord (Tuning Cond.)	31-2577					Cond. Assembly (For Speaker 36-1552-4)	36-4212
	Spring (Drive Cord)	28-3761					Field Coil (Replace Speaker 36-1519)	
	Drive Drum (Tuning Cond.)	76-1233					Bias Resistor (12-175 ohms)	33-3416
	Mtg. Grommet	27-4596					Electrolytic Condenser (18 mfd) Clamp	30-3317
	Mtg. Sleeve	56-1505					Power Transformer (115 volts, 60 cycle) (Model 42-355)	32-3157
	Mtg. Screw	W-2002					Power Transformer (115 volts, 60 cycle) (Model 42-390)	32-3177
	Tuning Shaft	56-6152					Shield	56-1523
	"C" Washer (Mtg. Shaft)	28-2043					Mtg. Screw	W-1974
9.	Silver Mica Condenser (230 mmfd) (Model 42-355)	30-1214					Power Line Filter Condenser (.01 mfd)	2905-ODG
	Silver Mica Condenser (190 mmfd) (Model 42-390)	20-019017					Pilot Lamps	34-2064
10.	Condenser (Wire and Lug) (Model 42-355)	30-1213					Mtg. Clip	57-1864
11.	Silver Mica Condenser (185 mmfd) (Model 42-390)	20-018511					Socket Assembly (Dial Lights)	76-1295
12.	Resistor (10,000 ohms)	33-310339					Miscellaneous Parts	
13.	Mica Condenser (250 mmfd)	60-125257					Bezel (Cabinet)	54-4899
14.	Silver Mica Condenser (370 mmfd)	30-1110					Mtg. Screw	W-2971
15.	Resistor (10,000 ohms)	33-310339					Cabinet (Model 42-355)	10650A
16.	Resistor (22,000 ohms)	33-322339					Cabinet (42-390)	10678A
17.	Silver Mica Condenser (370 mmfd)	30-1110					Cord (Power)	L-3189
18.	Mica Condenser (500 mmfd)	60-150157					Dial	27-8763
19.	Resistor (10 ohms)	33-010339					Background Plate	27-8963
20.	Resistor (47,000 ohms)	33-247339					Rubber Corner (Dial Mtg.)	54-4615
	Mtg. Clip	23-5002					Spring (Background Plate)	28-8966
21.	S. W. Oscillator Transformer (Model 42-355)	32-3812					Mtg. Clamp (Dial)	56-1517
	S. W. Oscillator Transformer (Model 42-390)	32-3792					Mtg. Screw	54-2381
	Mtg. Clip	32-3791					Pointer	54-2381
22.	Broadcast Oscillator Transformer	32-3791					Knob (Push-Buttons)	54-4111
	Mtg. Clip	23-5002					Spring (F. B. Knobs)	76-1304
23.	Resistor (56 ohms)	33-056339					Knob (Tuning, Volume, Tone)	54-2165
24.	Push-button Compensator (No. 1 Button)	31-6439					Rubber Grommet (Chassis Mtg.)	27-4571
24A.	Push-button Compensator (No. 2 Button) (Part of 24)						Screw (Chassis Mtg.)	W-1945
24B.	Push-button Compensator (No. 3 Button) (Part of 24)						Socket (41 tube)	27-8168
							Socket (6 x 5 G)	27-8174
							Socket (Loktal Tubes)	27-8177
							Socket (Single Prong-F. M. Test)	27-8180
							Rivets (Mtg. Sockets)	W-229
							Cover Tabs	46-8343
							Tab (Broadcast)	33-47239
							Tab (S. W.)	27-8749
							Tab (M.)	27-8748
							Tab (ON-OFF)	27-8747
							Tab (Television)	27-8729

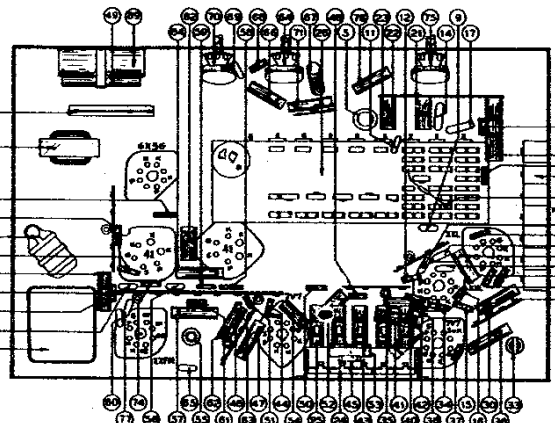


FIG. 2—PART LOCATIONS, UNDERSIDE OF CHASSIS

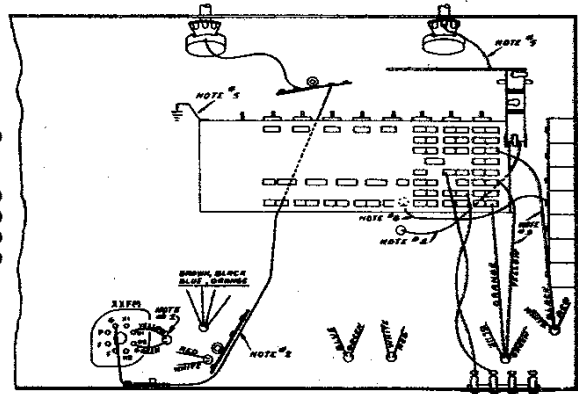


FIG. 3—CRITICAL WIRING LOCATIONS, F. M. ALIGNING

PHILCO RADIO & TELEVISION CORP.

MODELS 42-355, 42-390

ELECTRIC PUSH-BUTTON TUNING ADJUSTMENTS

The automatic tuning mechanism consists of nine (9) push-buttons. Five of the push-buttons are used for selecting standard broadcast stations, one for the power control (ON-OFF); and three for selecting standard tuning, shortwave and F. M. (Frequency Modulation).

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, and the seventh, eighth and ninth for selecting the tuning ranges—standard, shortwave and F. M., respectively.

When setting up stations on the push-buttons the lowest frequency station is set up in the second push-button from the left and 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 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.

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

Padders right to left from rear	Circuit	Buttons left to right from front	Frequency Range
		1	ON-OFF
1	{ Ant. Osc. }	2	540 to 1000 KC
2	{ Ant. Osc. }	3	600 to 1200 KC
3	{ Ant. Osc. }	4	650 to 1300 KC
4	{ Ant. Osc. }	5	850 to 1500 KC
5	{ Ant. Osc. }	6	900 to 1600 KC
		7	Standard Band
		8	Shortwave Band
		9	Frequency Modulation

STANDARD AND S. W. BANDS ALIGNING PROCEDURE

Operations in Order	SIGNAL GENERATOR			RECEIVER		Special Instructions
	Output Connections	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	High side to No. 4 terminal loop panel	455 KC	580 KC	Vol. max. push-button Bcast. "IN"	55A, 43C, 33B, 33A	
2	Use loop on generator	1500 KC	1500 KC	"	6E, 6	Note A
3	Use loop on generator	580 KC	580 KC	"	6F	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	Push-button S. W. "IN"	6D, 6A	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 these sets are critical for location and position. See Fig. 3 for locations of wires and parts.

- Green lead and yellow lead from third I. F. coil must be short, direct, and symmetrically spaced from sub-base. Adding capacity to the green lead will narrow the discriminator curve, while adding capacity to the yellow lead will widen the discriminator curve.
- The XXFM grid lead must be dressed away from the discriminator coil wiring in 42-355 and 42-390 with the lug provided for that purpose. Failure to do this will result in distortion at low volume control settings.
- The black lead of the 1st I. F. coil must be dressed along the sub-base and away from the yellow and orange leads of the same coil. Proximity of these leads may result in decreased sensitivity at certain points of the broadcast band

because of oscillator harmonics feeding through the 4.3 MC I. F. channel to build up A. V. C. voltage.

- The blue and white and the white leads from the loop terminal panel must have one complete twist. This is necessary to maintain the proper inductance for shortwave operation, and to prevent loose S. W. antenna padding.
- Grounding must be maintained at all original points. Any change in grounding of the R. F. wiring will cause serious mistracking of the F. M. band.
- The brass indicator tabs must not be allowed to touch the sub-base. Any accidental connection from the push-button shafts to ground will cause misalignment of the F. M. band.
- All I. F. coil wires must be brought out of the designated sub-base holes and kept free from wires coming out other holes. This is necessary to maintain the proper 4.3 MC I. F. curves.
- The leads from the small gang sections are part of the F. M. tuned circuits and must be maintained to specified lengths for proper F. M. tracking.

F. M. BAND ALIGNING PROCEDURE

Operations in Order	SIGNAL GENERATOR			RECEIVER		Special Instructions
	Output Connections	Dial Setting	Dial Setting	Control Settings	Adjust Compensators in Order	
1	2nd I. F. F. M. input connection	4.3 MC	580 KC	Vol. max. F. M. push-button "IN"	55C (Note D) 55B (Note E)	
2	1st I. F. F. M. input connection	4.3 MC	580 KC	F. M. push-button "IN"	43A, 43B (Note F)	
3	High side to No. 1 contact, F. M. socket. Ground to No. 2 contact	4.3 MC	580 KC	F. M. push-button "IN"	33C, 33D (Note F)	
4	Use test loop on generator; place near dipole aerial	49 MC	90 (Note G)	F. M. push-button "IN"	6C (Note G) 6B (Note H)	Roll tuning condenser when adjusting 6B. See Note B
5	"	49 MC	90	F. M. push-button "IN"	6C 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 (rolled) 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 (55D) to the second signal peak from the closed position (maximum ca-

packy). The aerial compensator (55A) 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 (55C) 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 (4.42 MC). A signal peak should be observed on the output meter at approximately each of these points (4.17 and 4.42). 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 (55B) 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 (55C) until zero reading is obtained on the meter. After this adjustment is made padder No. 55B should be reset for equal peaks as given above.

NOTE F.—Adjust padders (43A, 43B, 33C, and 33D) 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., 49 MC is 90, 49.5 is 85. Set the tuning dial pointer to 90 on the F. M. scale. Adjust padder (6C) to the point where minimum signal indication is observed on the output meter.

NOTE H.—In order to adjust padder (6B) the signal generator should be set to either the signal peak approximately 125 KC below 49 MC (48.75 MC), or 125 KC above 49 MC (49.25 MC). Adjust padder (6B) to maximum output reading on either of these peak signals. A padder (6B) is being adjusted roll the tuning condenser as given in Note B.