

RADIO-PHONOGRAPH MODEL 41-629, CODE 121

SPECIFICATIONS

Model 41-629 is a Radio-Phonograph combination consisting of a nine (9) tube super-heterodyne radio and an automatic phonograph record changer.

RADIO SECTION

The radio incorporates the Philco Built-In American and Overseas Aerial system; six electric push-buttons for automatically tuning stations in addition to manual tuning; two tuning ranges, covering 540 to 1720 K. C. and 9 to 12 M. C.; variable tone control; automatic volume control; automatic bass compensation; push-pull pentode output tubes with screen phase inversion; loktal tubes; the new noise reducing XXL converter tube and a twelve (12) inch concert grand dynamic speaker.

INTERMEDIATE FREQUENCY: 455 K. C.

POWER SUPPLY: 115 volts; 50 or 60 cycles A. C. current. Power consumption, 75 watts. These models are shipped for operation on 115 volt, 60 cycle current. To operate on 50 cycle current, the phonograph motor must be changed to Part No. 35-1280.

PHILCO TUBES USED: 7B5, Oscillator; XXL, Converter; two 7B7, I. F. Amplifiers; 7C6, Phonograph Amplifier; 7C6,

2nd Detector, 1st Audio, A. V. C.; two 41, Audio Output and a 6X5G, Rectifier.

ADJUSTING ELECTRIC PUSH BUTTON TUNING: Five push-buttons are used for automatically tuning stations including television sound and one push-button for the power control "OFF-ON".

The procedure for setting and operating electric push-button tuning for the reception of stations is the same as that given for Model 41-260 in Radio Service Bulletin No. 360.

PHONOGRAPH SECTION

The Phonograph includes an automatic record changer which plays twelve 10-inch records or ten 12-inch records at one loading, the new Philco Photo-Electric Reproducer with floating jewel which reproduces sound on a light beam and a special phonograph amplifier stage for operation through the push-pull output tubes of the radio. Connections (No. 84 on the Diagram) are also provided for installation of the Philco Home Recording Unit Kit, Model HR-1, Part No. 45-2820, for making phonograph records in the home. The units can be obtained from your Philco Distributor with complete instructions for installation and operation.

AUTOMATIC RECORD CHANGER

The Service Procedure for adjusting the Automatic Record Changer Mechanism will be found on page 145.

LIGHT-BEAM REPRODUCER ADJUSTMENTS

To reproduce the sound from a record, the light beam of the reproducer must be carefully positioned on the light sensitive cell. If the light beam is not carefully set, the sound reproduction will be distorted, weak or, if the light beam is completely on or off the cell, the phonograph will be silent.

If any of these conditions exist, the following adjustment procedure should be made:—

NOTE — These adjustments should be made with the power line voltage at 118 volts A. C.

A. ADJUSTING WIDTH OF LIGHT BEAM

To make this adjustment push the lamp socket assembly into its holder until a clear image of the lamp filament appears on the light cell. The socket should then be slightly pushed in beyond this point until the rectangular spot of light is $\frac{3}{8}$ " in width. The socket assembly is now rotated so that the spot light is vertical.

B. POSITIONING THE LIGHT BEAM

To position the light beam on the light cell, turn the adjusting screw at the lower left side of the reproducer until the spot is half on the cell and half on the metal frame surrounding the cell.

C. ADJUSTING INTENSITY OF LAMP

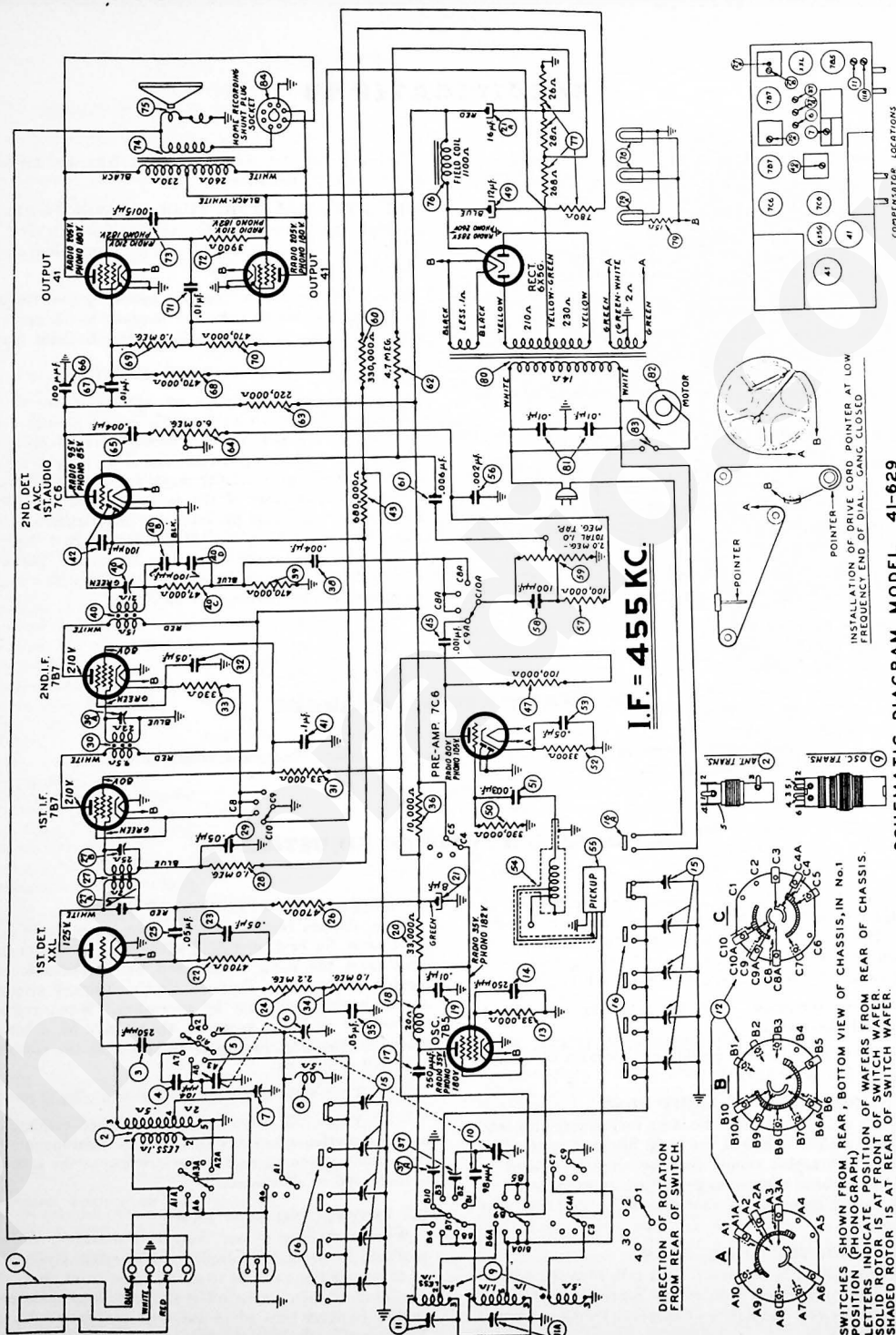
When shipped from the factory, the lamp of the reproducer is adjusted for best operating efficiency. The intensity of the light from the lamp is adjusted by Compensator No. 37A located on the radio chassis. Under ordinary circumstances, an adjustment will not be necessary. When replacing the reproducer or lamp, however, there may be a tendency towards microphonic feedback. In this case the compensator is adjusted as follows:

1. Turn volume control on full and play a record.
2. While the record is playing, turn compensator 37A in the direction necessary to eliminate microphonic feedback. By turning the compensator the strength of the pick-up output is increased or decreased.

D. INSTALLING NEW LAMP

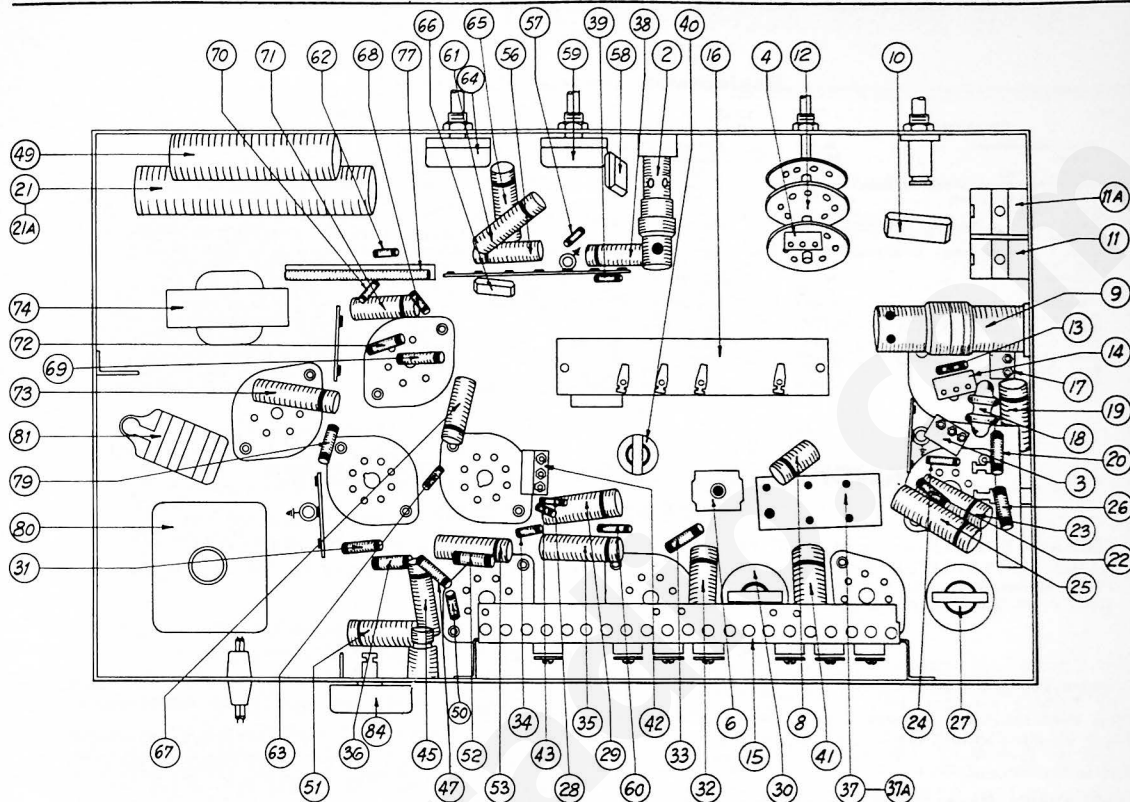
When installing a new lamp in the socket, there are two positions in which the lamp can be inserted. Ordinarily, either of these positions can be used. In some cases, however, due to the lamp filament being off center, the lamp must be inserted in the position that gives the best centering of the spot of light on the vibrating mirror.

RADIO-PHONOGRAPH MODEL 41-629, CODE 121 (CONTINUED)



SCHEMATIC DIAGRAM MODEL 41-629

RADIO-PHONOGRAPH MODEL 41-629, CODE 121 (CONTINUED)



PART LOCATIONS — UNDERSIDE OF CHASSIS

Replacement Parts — Model 41-629

SCHEMATIC NOS. 44, 46, 48 NOT USED

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
1	Loop Aerial	76-1189	33	Resistor (330 ohms)	33-133334	57	Resistor (100,000 ohms)	33-410339
	Sleeve (Loop Mounting)	28-3806	34	Resistor (1 megohm)	33-510339	58	Condenser (100 mmfd.)	60-110157
	Sleeve (Loop Mounting)	56-1545	35	Condenser (.05 mfd., 200 volts)	30-4519	59	Volume Control	33-5408
	Sleeve (Loop Mounting)	56-1907	36	Resistor (10,000 ohms)	33-310339	60	Resistor (330,000 ohms)	33-433339
	Washer (Steel)	28-4186	37	Comp. (Light-Beam Reproducer)	31-6406	61	Condenser (.006 mfd., 400 volts)	30-4591
	Washer	W-151	37A	Comp. (Light-Beam Reproducer)	30-4578	62	Resistor (4.7 megohm)	33-547339
	Washer	W-425	38	Condenser (.004 mfd., 400 volts)	33-447339	63	Resistor (220,000 ohms)	33-422339
	Screw	W-288	39	Resistor (470,000 ohms)	33-447339	64	Tone Control	33-5403
2	Aerial Transformer	32-3531	40	3rd I. F. Transformer	32-3625		Palnut	W-2157
3	Mica Condenser (250 mmfd.)	60-125157	40A	Compensator (Part of 40)		65	Condenser (.004 mfd., 400 volts)	30-4578
4	Mica Condenser (104 mmfd.)	30-1192	40B	Mica Condenser (Part of 40)		66	Condenser (100 mmfd.)	60-110157
5	Tuning Condenser	31-2482	40C	Resistor (47,000 ohms, Part of 40)	33-347339	67	Condenser (.01 mfd., 400 volts)	30-4572
6	Compensator (Aerial, 12 M. C.)	31-6308	40D	Mica Condenser (Part of 40)		68	Resistor (470,000 ohms)	33-447339
7	Compensator (Aerial, 1500 K. C.)		41	Condenser (.1 mfd., 400 volts)	30-4455	69	Resistor (1 megohm)	33-510339
	Part of Tuning Condenser		42	Mica Condenser (100 mmfd.)	60-110157	70	Resistor (470,000 ohms)	33-447339
8	R. F. Transformer (S. W.)	32-3558	43	Resistor (680,000 ohms)	33-468339	71	Resistor (.01 mfd., 400 volts)	30-4572
9	Oscillator Transformer	32-3530	45	Condenser (.001 mfd., 1000 volts)	30-4601	72	Resistor (3900 ohms)	33-239339
10	Mica Condenser (98 mmfd.)	30-1186	47	Resistor (100,000 ohms)	33-410339	73	Condenser (.0015 mfd.)	30-4616
11	Compensator (Oscillator, 12 M. C.)	31-6407	49	Electrolytic Cond. (12 mfd., 400 volts)	30-2496	74	Output Transformer	32-8133
11A	Compensator (1500 K. C.) Part of 11		50	Resistor (330,000 ohms)	33-433339	75	Cone Assembly (For Spkr. 34-1528-4)	34-4176
12	Bands Switch	42-1602	51	Condenser (.003 mfd.)	30-4582	76	Field Coil (For Speaker 34-1528-4)	33-3396
13	Resistor (33,000 ohms)	33-333339	52	Resistor (3300 ohms)	33-233339	77	Resistor (780-268-28-26 ohms)	33-3396
14	Mica Condenser (250 mmfd.)	60-125157	53	Condenser (.05 mfd., 400 volts)	30-4518	78	Pilot Lamps (Indicator Dial)	34-2064
15	Padder Strip (Push-buttons)	31-6405	54	Input Trans. (Light-Beam Reproducer)	32-8148	79	Resistor (33 ohms)	33-033339
16	Push-button & Power Switch Complete	42-1648	55	Philco Light-Beam Reproducer Complete with Tone Arm, Cover (Reproducer Head), Jewel, Armature and Frame Assembly	35-2175 76-1104 318-2168	79A	Pilot Lamp, Cabinet	34-2210
16A	Power Switch (Part of 16)			Lamp	34-2408	80	Power Trans. (115 volts, 60 cycle)	32-8166
17	Mica Condenser (250 mmfd.)	60-125157		Lamp Shield	27-7782	81	Condenser, Dual (.01-.01 mfd.)	3903-ODG
18	R. F. Choke	32-3615		Lamp Shield Assembly	27-7782	82	Phonograph Mtr. (115 volts, 60 cycle)	35-1275
19	Condenser (.01 mfd., 400 volts)	30-4572		Light Sensitive Cell	76-1107		Phonograph Mtr. (115 volts, 50 cycle)	35-1280
20	Resistor (33,000 ohms)	33-333339		Pivot Bracket Assembly	76-1111	83	Motor Switch	33-033339
21	Electrolytic Condenser (8-16 mfd.)	30-2497		(Mounting Reproducer)	76-1111	84	Socket (Home Recording Connection)	27-4150
21A	Electrolytic Cond. (16 mfd.) Part of 21			Reproducer Arm (Without Parts)	28-7316FC56		Shunt Plug (Home Recording Conn.)	76-1103
22	Resistor (4700 ohms)	33-247339		Tube and Lens Assembly	76-1164			
23	Condenser (.05 mfd., 200 volts)	30-4519		(For Lamp Socket)	28-8948		Automatic Record Changer with 115 volt, 60 cycle Motor	35-1268
24	Resistor (2.2 megohms)	33-522339		Spring (Light Adjustment)	W-2224		115 volt, 50 cycle Motor	35-1269
25	Condenser (.05 mfd., 400 volts)	30-4518		Screw (Light Adjustment)	W-2224		Rubber Washer (Mounting Changer)	54-4048
26	Resistor (4700 ohms)	33-247339		Screw (Cover Mounting)	W-2204		Spring	28-8970
27	1st I. F. Transformer	32-3623		Screw (Cell Mounting)	W-2222		Washer (Changer Mounting)	W-1715
28	Resistor (1 megohm)	33-510339		Lock Washer (Cell Mounting)	W-2208		Screw (Changer Mounting)	W-2225
29	Condenser (.05 mfd., 200 volts)	30-4519		Condenser (.002 mfd., 400 volts)	30-4579		Nut (Changer Mounting)	W-2239
30	2nd I. F. Transformer	32-3628						
31	Resistor (33,000 ohms)	33-333339						
32	Condenser (.05 mfd., 200 volts)	30-4519						

MISCELLANEOUS PARTS

Automatic Record Changer with 115 volt, 60 cycle Motor	35-1268
115 volt, 50 cycle Motor	35-1269
Rubber Washer (Mounting Changer)	54-4048
Spring	28-8970
Washer (Changer Mounting)	W-1715
Screw (Changer Mounting)	W-2225
Nut (Changer Mounting)	W-2239

Replacement Parts — (Continued)

SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.	SCHE. No.	DESCRIPTION	PART No.
	Base (Push-Button)	56-1893		Housing (Band Indicator Light)	76-1170		Shaft (Tuning)	76-1088
	Screw	W-2073		Speaker	36-1528		"C" Washer	28-2043
	Cable (Power)	L-3245		Grommet	27-4594		Spring Washer	56-1659
	Cable (Reproducer Trans. to Chassis)	41-3554		Sleeve	56-2044		Terminal Panel (Aerial)	38-9870
	Cable (Pick-up Light)	41-3559		Washer	27-7467		Tab (Off-On)	27-5623
	Cable (Speaker)	41-3593		Washer	28-4481		Tab (Television)	27-5443
	Cable and Plug Assembly (Changer)	41-3590		Spring (Tilt Front)		MOUNTING PARTS		
	Cabinet	10532A		Spring (Dial Background Plate)	28-8908		Palnut (I. F. Transformers)	W-1949
	Conn. (For Input Trans. on Chassis)	57-0591		Spring (Drive Cord)	28-8913		Nut (Speaker Mounting)	W-124
	Dial Scale	27-5490		Spring (Drive Cord)	28-8954		Rubber Corner (Chassis)	54-4015
	Clamp	56-1517		Socket Assembly (Pilot Lamp)	76-1143		Rubber Grommet (P. B. S. W.)	27-4596
	Pointer	56-1516		Socket Assembly (Pilot Light)	76-1212		Rubber Washer (Chassis Mounting)	27-4571
	Rubber Channel	54-4018		Socket Assembly (P. B. Indicator)	38-9607		Sleeve (Tuning Unit to Cabinet)	28-2258
	Drive Cord (Pointer)	31-2502		Socket (6X5G)	27-6173		Sleeve (Tuning Condenser)	56-1805
	Drive Cord (Band, Indicator)	31-2532		Socket (41)	27-6168		Screw (Chassis)	W-1345
	Drive Drum	38-9854		Socket (Rubber—785)	27-6129		Clamp (Electro Condenser)	56-1848
	Jewel (Pilot Lamp)	27-4777		Socket (Loktal)	27-6158		Clip (Antenna Coil Mounting)	28-5002
	Knob (Tuning—Volume)	27-4987		Socket (3-prong Aerial)	27-6145		Clip (Oscillator Coil Mounting)	28-5003
	Knob (Push-Buttons)	27-4824		Socket (Recorder)	27-6150			

ALIGNING R. F. AND I. F. COMPENSATORS

EQUIPMENT REQUIRED

1. **SIGNAL GENERATOR:** Covering the frequency range of the receiver, such as Philco Models 077 or 177.
2. **ALIGNING INDICATOR:** Either a vacuum tube voltmeter or an audio output meter may be used as an aligning indicator. Philco Models 027 or 028 circuit testers contain both these meters.
3. **TOOLS:** Philco Fiber Screw Driver, Part No. 45-2610.

CONNECTING ALIGNING INSTRUMENTS

Vacuum Tube Voltmeter: To use the vacuum tube voltmeter as an aligning indicator, make the following connections: Attach the negative (—) terminal of the voltmeter to any point in the circuit where the A. V. C. voltage can be obtained. Connect the positive (+) terminal of the vacuum tube voltmeter to the chassis.

Audio Output Meter: Terminal No. 1 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 ground of 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 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 aerial 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.

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.

After connecting the aligning instruments, adjust the compensators as shown in the tabulation below. Locations of the compensators are shown in the schematic diagram. If the indicating meter pointer goes off scale when adjusting the compensator, reduce the strength of the signal from the generator. Keep volume control of radio at maximum position.

Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Ant. Section of Tuning Cond. with .1 mfd. Cond.	455 K. C.	Tuning Cond. Closed	Vol. Max. Bands Switch S. W.	27A, 27B 30A, 40A	Note A
2	Loop Signal Generator	1720 K. C.	1720 K. C.	Bands Switch "Brdcat"	11A	Note B
3	Loop Signal Generator	1500 K. C.	1500 K. C.	Bands Switch "Brdcat"	7	
4	Loop Signal Generator	580 K. C.	580 K. C.	Bands Switch "Brdcat"	37	Roll comp. to "max." Recheck Operation No. 2
5	Loop Signal Generator	12 M. C.	12 M. C.	Bands Switch S. W.	11, 6	Note C

NOTE A — Compensator (27A) must be adjusted before compensator (27B) and should be done in the following manner: Turn (27A) all the way up, then turn down selecting the first I. F. peak, compensator (27B) is now padded to maximum.

NOTE B — DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser

to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the extreme left index line at the lowest frequency end of the broadcast scale.

NOTE C — Adjust padder (11) to the first signal peak from the tight position. Roll padder (6) slowly to maximum on the second peak from loose position.