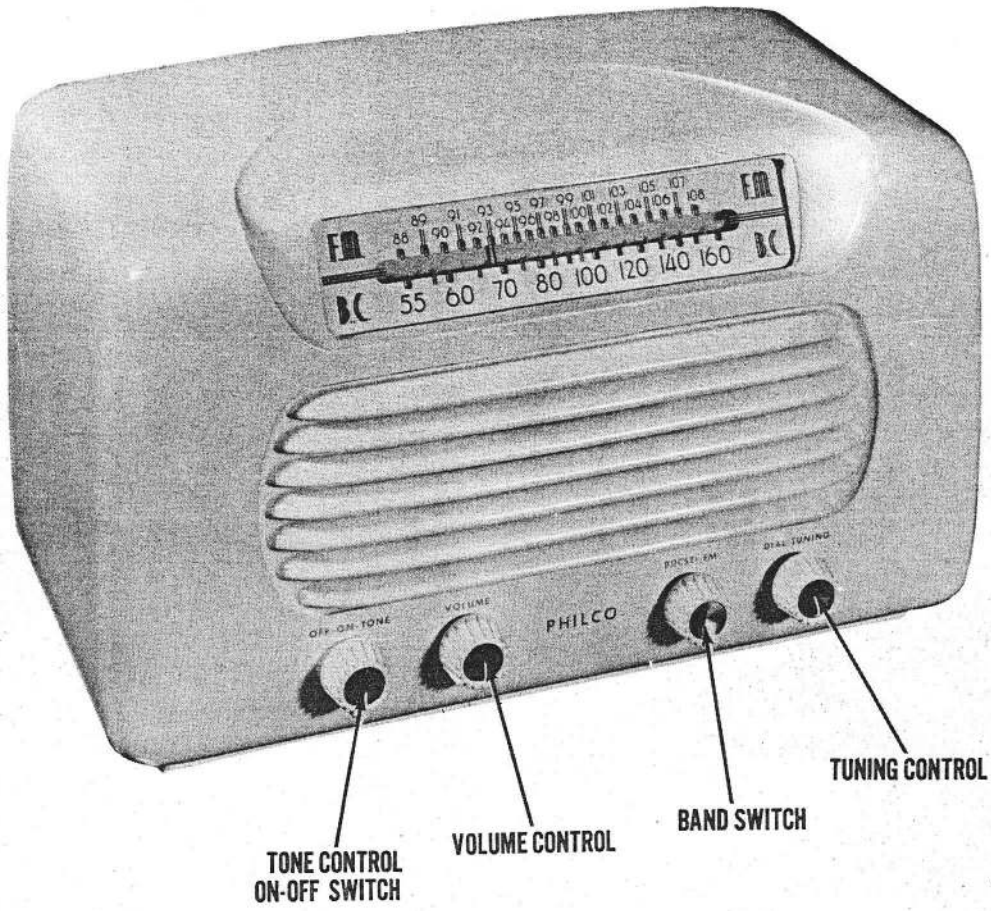
PHILCO MODELS
48-472, 48-472-I

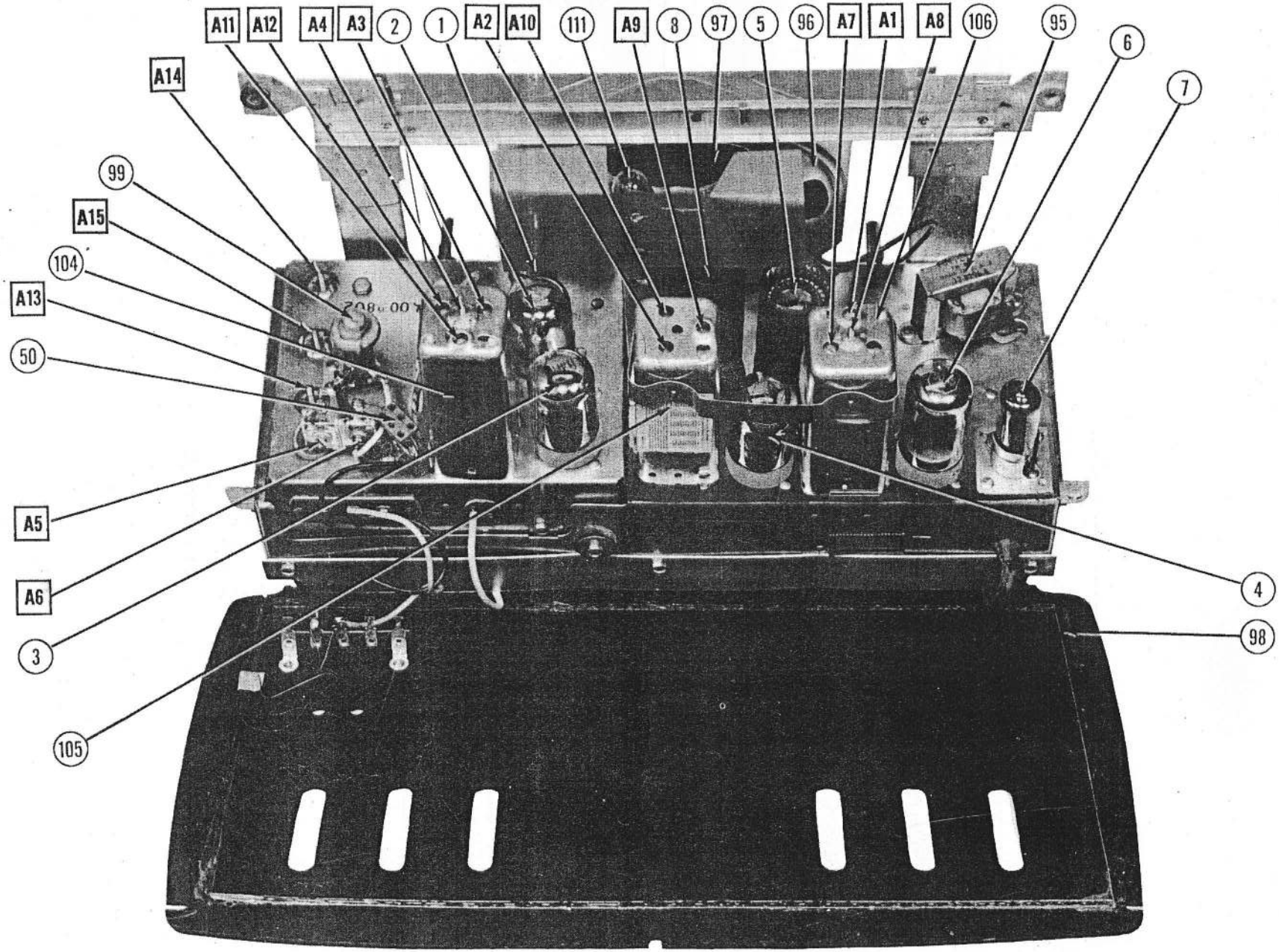


PHILCO MODEL 48-472-I

TRADE NAME	Philco, Models 48-472, 48-472-I
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 12AW6 FM RF Amp., 14F8 Converter, 14H7 1st IF Amp., 14X7 Det.-AVC-AF, 50A5 Power Output, 117Z3 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
RATING	.36 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1720KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 7, Indiana

Set 43 Folder 15


A11
A12
A4
A3
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A8
106
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A14
99
A15
104
A13
50
A5
A6
3
105
4
98

PHILCO MODELS
48-472, 48-472-1 PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	FM RF Amp.	12AW6	12AW6	7CM	
2	Converter	14F8	14F8	8BW	
3	1st IF Amp.	14H7	14H7	8V	
4	2nd IF Amp.	14H7	14H7	8V	
5	Det.-AVC-AF	14X7	14X7		
6	Power Output	50A5	50A5	6AA	
7	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	40	150	30-2568-10	AF88D	UP84215	DY-804020-150	EL-340	◓ Filter
B	70	150						■ "
C	40	150		PRSA150-30-40			UT-301*	▲ "
9	25	25	30-2575-9	PRS25-25	BR252A	M-25-25	TA-25	Cathode Bypass
10	5	50	30-2417	PRS150-4	BR550	M-8-150	TA-55	Stabilizing Cap.
11	.04	400		484-04	DT4S4	MPH-4-05	TC-14	Line Filter
12	.04	400		484-04	DT4S4	MPH-4-05	TC-14	Rectifier Bypass
13	.02	400	61-0108	484-02	DT4S2	ST-4-02	TC-12	Output Plate Bypass
14	.002	600	61-0062	684-002	DT6D2	ST-6-002	TC-22	Audio Coupling
15	.006	400	45-3500-7	484-006	DT6D6	ST-6-006	TC-26	Tone Comp.
16	.05	400	61-0122	484-05	DT4S5	ST-4-05	TC-15	Line Filter
17	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
18	.05	400	38-9851-6	484-05	DT4S5	ST-4-05	72P2	Line Isolation-See Note
19	.006	400	45-3500-7	484-006	DT6D6	ST-6-006	TC-26	RF Filter
20	.02	400	61-0108	484-02	DT4S2	ST-4-02	TC-12	" "
21	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Tone Comp.
22	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	2nd IF Screen Bypass
23	.05	400	61-0122	484-05	DT4S5	ST-4-05	TC-15	2nd IF Plate Decoup.
24	.05	200	61-0122	484-05	DT2S5	ST-4-05	TC-15	2nd IF Cathode Bypass
25	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	AVC Filter
26	.002	600	61-0062	684-002	DT6D2	ST-6-002	TC-22	1st IF Screen Bypass
27	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	AVC Filter
28	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	RF Bypass
29	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	" "
30	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Conv. Plate Decoup.
31	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Tuning Cap. Isolation
32	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Filament Bypass
33	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	RF Bypass
34	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	AF Plate Bypass-Cer.
35	8	500	30-1224-6					Ratio Det. Balancing-Cer
36	220	500	60-10255237	1468-00025	5W5T25	MO.5-325	1FM-325	RF Bypass-Cer.
37	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	RF Diode Filter-Cer.
38	220	500	62-122001001	1468-00025	5W5T25	MO.5-325	1FM-325	" " " "
39	220	500	62-122001001	1468-00025	5W5T25	MO.5-325	1FM-325	AVC Filter-Cer.
40	1500	300	30-1225-1	1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass Power Supp.-Cer.
41	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass-Cer.
42	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Feedback-Cer.
43	250	500	60-10255237	1468-00025	5W5T25	MO.5-325	1FM-325	Osc. Grid Cap.-Cer.
44	51	500	30-1224	1468-00005	5W5Q5	MO.5-45	1FM-45	Feedback-Cer.
45	750	300		1468-00075	1W5T7	MO.3-37	1FM-37	Conv. Cathode-Cer.
46	150	500	60-10155407	1468-00015	5W5T15	MO.5-315	1FM-315	RF Bypass-Cer.
47	51	500	30-1224	1468-00005	5W5Q5	MO.5-45	1FM-45	RF Coupling-Cer.
48	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
49	33	500	30-1212	1468-00004	5W5Q3	MO.5-43	MS-43	" " "
50	10	500		1468-00001	5W5Q1	MO.5-41	MS-41	Ant. Coupling
51	51	500	30-1224	1468-00005	5W5Q5	MO.5-45	1FM-45	FM Ant. Coupling-Cer.
52	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	FM RF Screen Bypass-Cer
53	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass-Cer.
54	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
55	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	Filament Bypass-Cer.
56	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
57	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	" " "

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
58	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass-Cer.
59	10	500		1468-00001	5W5Q1	MO.5-41	MS-41	FM Ant. Coupling-Cer.
114	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass
115	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	AVC Filter

*Parallel sections to obtain desired capacity.
Note-Wind same number turns on replacement as on original.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	
60	2 Meg.	½	33-5535-19		M-83-S	Volume Control
61	500KΩ	½	33-5538-11			Tone Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
62	10Ω	½	66-0103340		Br.-Blk.-Blk. Parasitic Suppressor
63	10Ω	½	66-0103340		Br.-Blk.-Blk. " "
64	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. FM-RF Grid
65	47Ω	½	66-0473340		Yl.-Vi.-Blk. FM-RF Cathode
66	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red FM-RF Screen Dropping
67	68Ω	½	66-0683340		Blue-Gray-Blk. Decoupling
68	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Converter Grid
69	1500Ω	½	66-2153340	BTS-1500	Br.-Grn.-Red Converter Cathode
70	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Oscillator Grid
71	8200Ω	½	66-2823340	BTS-8200	Gray-Red-Red Oscillator Plate Load
72	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
73	22Ω	½	66-0223340		Red-Red-Blk. Parasitic Suppressor
74	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Decoupling
75	68Ω	½	66-0683340		Blue-Gray-Blk. "
76	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. 1st IF Grid
77	68Ω	½	66-0683340		Blue-Gray-Blk. 1st IF Cathode
78	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red 1st IF Decoupling
79	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
80	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
81	120Ω	½	66-1123340		Br.-Red-Br. 2nd IF Cathode
82	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red 2nd IF Screen Dropping
83	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
84	3.3 Meg.	½	66-5333340	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
85	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Diode Load
86	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
87	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Ratio Det. Diode Load
88	68Ω	½	66-0683340		Blue-Gray-Blk Decoupling
89	8.2 Meg.	½	66-5823340	BTS-8.2 Meg	Gray-Red-Grn. AF Grid
90	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
91	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
92	120Ω	½	66-1123340	BW-½-120	Br.-Red-Br. Output Cathode
93	470Ω	1	66-1474340	BTA-470	Yl.-Vi.-Br. Filter
94	220Ω	1	66-1224340	BW-1-220	Red-Red-Br. "
116	1500Ω	½	66-2153340	BTS-1500	Br.-Grn.-Red Parasitic Suppressor

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
95	1850Ω	3.4Ω	230Ω	.7Ω	32-8296-4	A-3876	T22845	A-2928	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: PHILCO PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD RES.	VC IMP.				
96	PM	3.4Ω	36-1604-1		46A1†	†Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
97	4"x6"	1/2"				

R F COILS

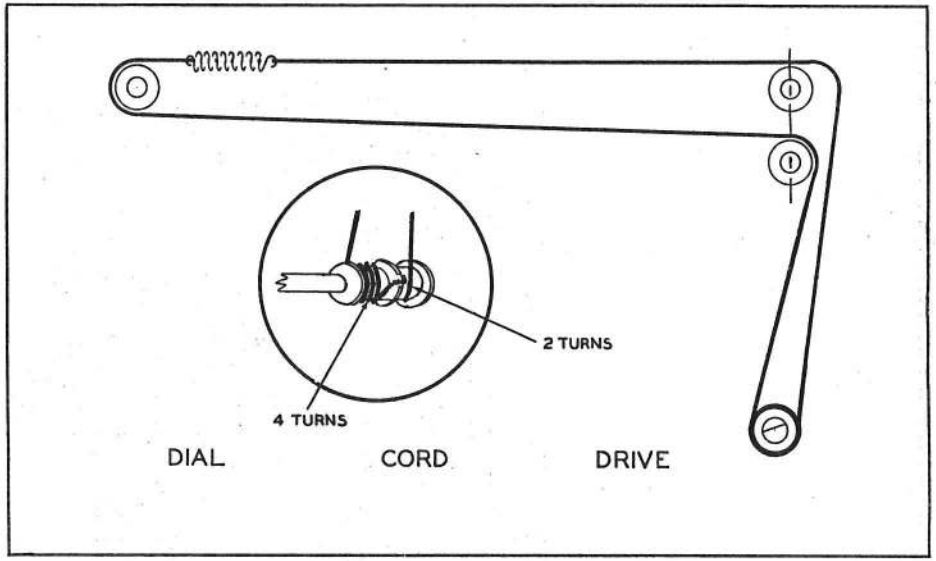
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	MEISSNER PART No.	
98	Loop Ant.		1.3Ω	32-4052-16		
99	Loop Load. Coil		1Ω	32-4217		
100	FM Ant.Coil		0Ω	32-4158		
101	FM RF Coil		0Ω	32-4159		
102	BC Osc.Coil		2.8Ω	32-4019-5		
103	FM Osc. "		0Ω	32-4184		
104A	AM 1st IF	1Ω	20Ω	32-4146-1		
B	FM " "	1Ω	1Ω			
105A	AM 2nd IF	6Ω†	11Ω#	32-4156		†Includes both pri.
B	FM " "					#" " sec.
106A	AM 3rd IF	10Ω†	20Ω§	32-4079		§Measured from Pin 5 of 14X7 to low side
B	FM Disc.		1Ω			of AM secondary.
107	RF Choke		0Ω	32-4111		
108	" "		.1Ω	32-4061		
109	Conv. Cath. Choke		.1Ω	32-4157-1		
110	RF Fil. Choke		1Ω	32-4143-4		

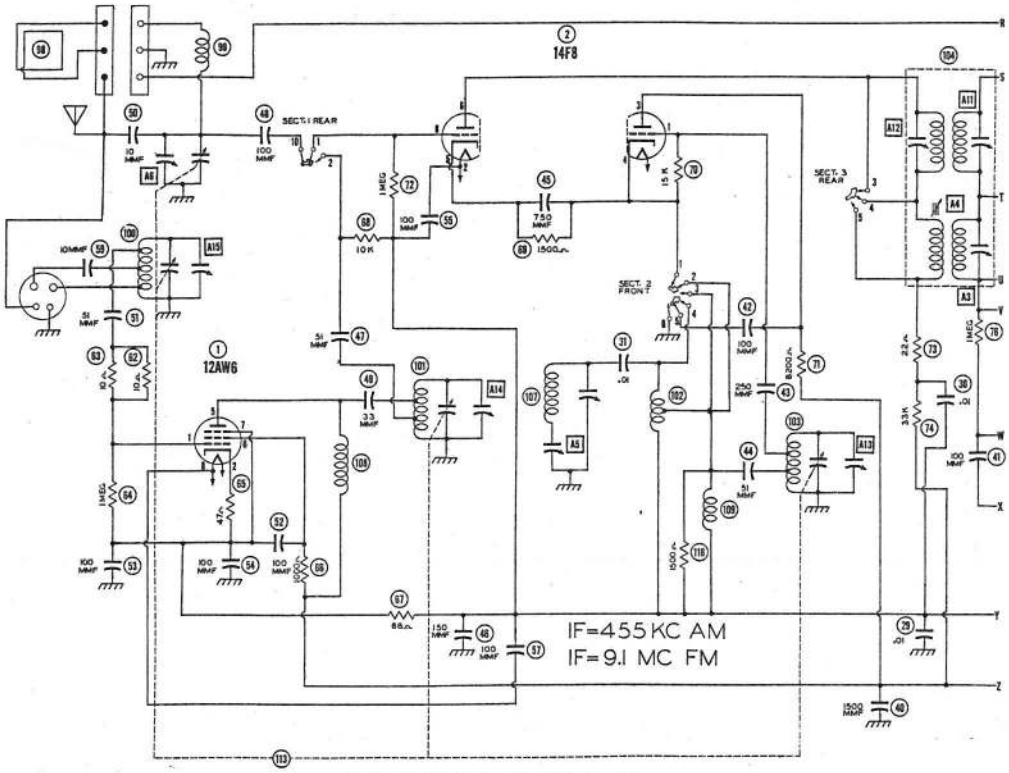
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: PHILCO PART No.		INSTALLATION NOTES
111	Screw	120			34-2477		Type C-7

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
112	Switch	42-1800	Band
113	Tuning Gang	31-2703	AM (21-533MMF, 15-250MMF)
A5, A6	Trimmer Strip	31-6308-1	BC Osc. Adj. / BC Ant. Adj.
	Dial Scale	27-5954	Model 48-472
	" "	27-5954-1	Model 48-472-I
	Dial Pointer	56-4535FCP	
	Knob	54-4376	Model 48-472
	"	54-4375	" 48-472-I





VOLTAGE READINGS

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12AW6	-.2VDC	2.6VDC	27VAC	40VAC	97VDC	95VDC	0V.	-
2	14F8	-1VDC‡	13VAC	70VDC	2VDC	3.4VDC	95VDC	27VAC	0V.
3	14H7	52VAC	100VDC	100VDC	1.3VDC	1.3VDC	0V.	1.8VDC	40VAC
4	14H7	65VAC	97VDC	95VDC	0V.	0V.	0V.	1.2VDC	52VAC
5A	14X7	0V.	56VDC	-.6VDC	0V.	-.5VDC	-2VDC	-.5VDC	13VAC
5B	14X7	0V.	56VDC	-.6VDC	0V.	-.4VDC	-.8VDC	-.4VDC	13VAC
6	50A5	117VAC	95VDC	97VDC	97VDC	0V.	0V.	6VDC	65VAC
7	117Z3	117VAC	0V.	0V.	117VAC	117VAC	122VDC	0V.	-

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12AW6	1 Meg.	47Ω	23Ω	32Ω	60KΩ	60KΩ	200Ω	-
2	14F8	15KΩ	14Ω	60KΩ	130Ω	1.5KΩ	95KΩ	23Ω	1 Meg.
3	14H7	40Ω	60KΩ	60KΩ	68Ω	68Ω	2.5 Meg.	130Ω	36Ω
4	14H7	46Ω	60KΩ	60KΩ	0Ω	0Ω	1 Meg.	120Ω	40Ω
5A	14X7	0Ω	530KΩ	10 Meg.	0Ω	90KΩ	INF.	90KΩ	13Ω
5B	14X7	0Ω	530KΩ	10 Meg.	0Ω	2.1 Meg.	47KΩ	2.1 Meg.	13Ω
6	50A5	65Ω	60KΩ	60KΩ	60KΩ	0Ω	470KΩ	120Ω	46Ω
7	117Z3	65Ω	0Ω	0Ω	65Ω	65Ω	60KΩ	INF.	-

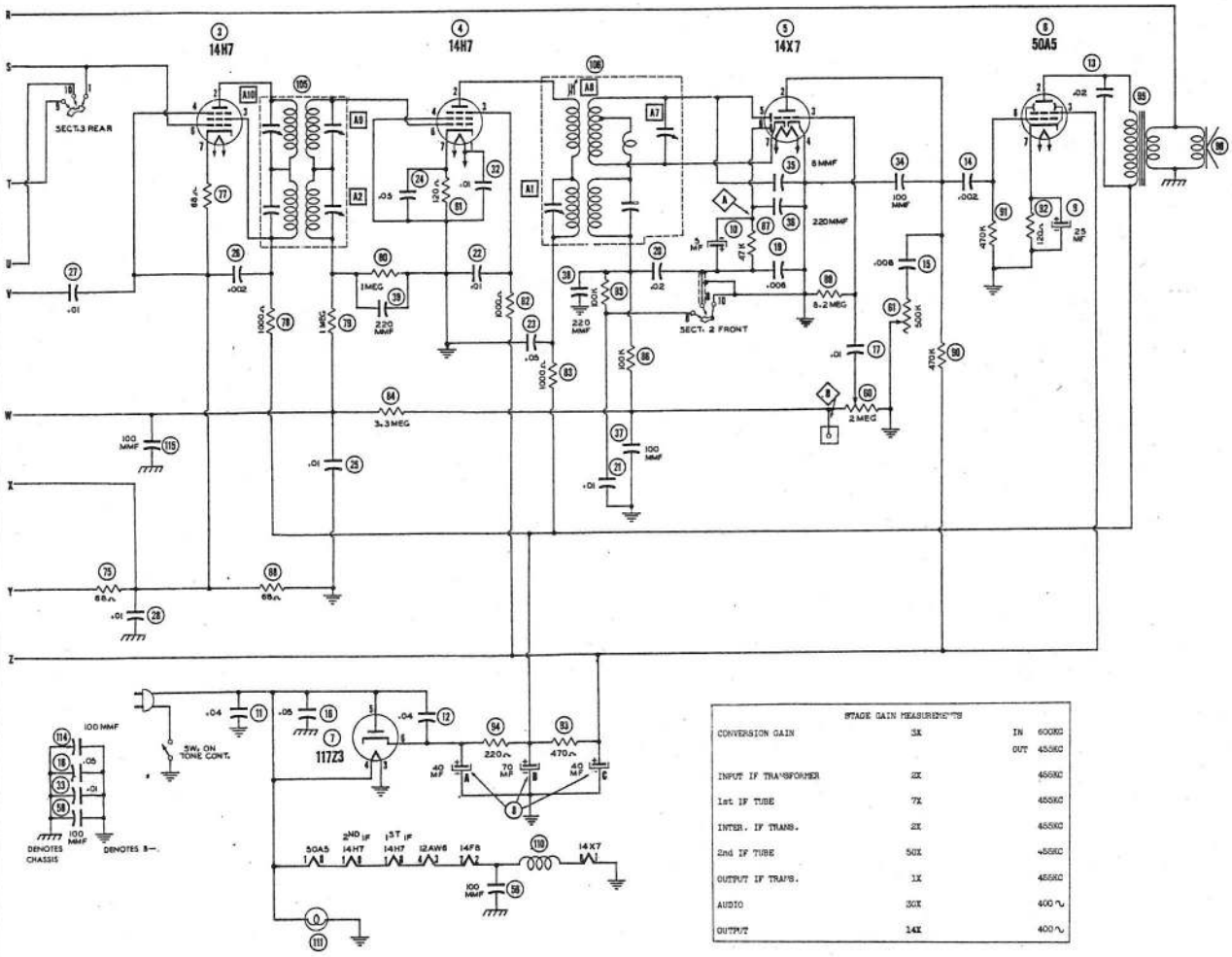
‡TAKEN WITH VACUUM TUBE VOLTMETER.

† VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

A PHOTOFACT STANDARD NOTATION SCHEMATIC



STAGE GAIN MEASUREMENTS			
CONVERSION GAIN	3X	IN	600Ω
		OUT	455Ω
INPUT IF TRANSFORMER	4X		455Ω
1st IF TUBE	7X		455Ω
INTER. IF TRANS.	2X		455Ω
2nd IF TUBE	50X		455Ω
OUTPUT IF TRANS.	1X		455Ω
AUDIO	30X		400Ω
OUTPUT	14X		400Ω

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

4813-15

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

AM Alignment should be done before FM alignment.
With receiver in cabinet turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial This is the calibration mark referred to below.

AM ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to terminal 1 of antenna terminal strip. Low side to B-.	455KC	BC (Counter-clock-wise)	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4	Adjust for maximum output in order given. Do not repeat.
2		Loop	1600KC	"	5-15/16" from calibration mark	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	"	Tune for maximum output.	"	A6	Adjust for maximum output

FM IF ALIGNMENT USING AM SIGNAL GENERATOR, VTVM & OUTPUT METER

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4	.1 MFD.	High side to Pin 1 (grid) of 12AW6. Low side to B-.	9.1MC (400 ∿ Amp. Mod.)	FM (Clock-wise)	Tuning cap. fully closed	DC probe to Point (A). Low side to B-.	A7,A8, A9,A10	Adjust for maximum deflection in order given. Repeat adjustments until no further improvement can be made. Attenuate output of sig. gen. to maintain maximum meter reading of 10 volts. Once this step is completed do not touch any of the trimmers with exception of A7.
5	.1 MFD.	High side to Pin 8 (grid) of 14F8. Low side to B-.	"	"	"	"	A11, A12	Adjust for maximum deflection. Attenuate output of signal generator to maintain maximum meter reading of 10 volts. After completion of this step do not touch either of the adjustments.
6	.1 MFD.	"	"	"	"	"	A7	Connect output meter across voice coil and very carefully adjust A7 for minimum output. This adjustment is critical as misalignment will result in distortion. Continue with FM RF Alignment, Step 7.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use freq. modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4	.1 MFD.	High side to Pin 1 (grid) of 12AW6. Low side to B-.	9.1MC (Freq. Mod)	FM	Tuning cap. fully closed	Vertical input to Point (A). Ground to B-.	A8,A9, A10, A11, A12.	Disconnect 5 MFD cap. (10) from Point (A). Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
5	.1 MFD.	"	"	"	"	Vertical input to Point (B). Ground to B-.	A7	Reconnect 5 MFD cap. (10) to Point (A). Adjust A7 for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with FM-RF Alignment in Step 7.

FM RF ALIGNMENT

Adjust of FM antenna, RF and oscillator coils (100, 101 & 103) should be done with a tuning wand. If deflection increases when iron end of wand is inserted in the coil, compress the turns slightly. If deflection increases when brass end of wand is inserted spread the turns slightly. Correct adjustment is indicated when deflection decreases upon insertion of either end of the wand.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7	300Ω carbon res.	High side to Pin 3 of FM antenna socket. Low side to chassis.	105MC (400 ∿ Amp. modulation)	FM	5-3/4" from calibration mark.	DC probe to Point (A). Common to B-.	A13	Adjust for maximum deflection.
8	"	"	"	"	Tune for maximum deflection.	"	A14, A15	Rock tuning cap. and adjust for maximum deflection.
9	"	"	92MC	"	1-11/16" from calibration	"	FM Osc. Coil (103)	Adjust per prealignment notes.
10	"	"	"	"	Tune for maximum deflection.	"	FM-RF Coil (101)	Rock tuning cap. and adjust per prealignment notes.
11	"	"	"	"	Tune for maximum deflection.	"	FM Ant. Coil (100)	Adjust per prealignment notes. Repeat Steps 7, 8, 9, 10 & 11 until no further improvement can be made.

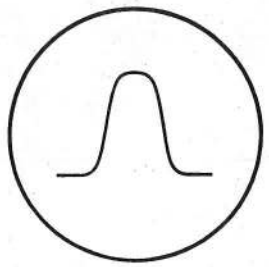


FIG. 1

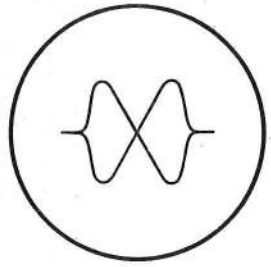


FIG. 2