

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools: A1 thru A4 GENERAL CEMENT #8607, 9291, 9294
 WALSCO #2520, 2522, 2523, 2524, 2534, 2537
 A6, A8 thru A15 GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
 WALSCO #2526, 2543, 2544, 2545
 A5, A7, A16, A17, A18 ... GENERAL CEMENT #5000, 5003, 8276, 8290
 WALSCO #2512, 2515, 2522, 2523, 2525, 2537

AM ALIGNMENT - SELECTOR IN AM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. High side thru .1mf to grid (Pin 7) of AM Conv. Low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open	DC Probe to Point Δ . Common to Chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2. Fashion loop of several turns of wire and radiate signal into loop of receiver.	1620KC	"	"	A5	"
3. " " " "	540KC	Tuning gang fully closed	"	A6	"
4. " " " "	1500KC	1500KC Signal	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5. High side to ungrounded tube shield placed over FM Converter Tube. Low side to chassis.	10.7MC (Unmod.)	(FM) To Point of non-interference	DC Probe to Point \oplus . Common to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6. " " " "	"	"	DC Probe to Point \ominus . Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

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

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5. High side to ungrounded tube shield placed over FM Converter Tube. Low side to chassis.	10.7MC (450KC Sweep)	(FM) To Point of non-interference	Vert. Amp. thru 47K to Point \oplus . Low side to chassis.	A8, A9, A10, A11, A12, A13, A14	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6. " " " "	"	"	Vert. Amp. thru 47K to Point \oplus . Low side to chassis.	A15	Adjust to place marker at the center of crossover line similar to Fig. 2. Retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7. Across FM antenna terminals with 150 Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC Probe to Point \oplus . Common to chassis.	A16	Adjust for maximum deflection.
8. " " " "	105MC	105MC	"	A17	"
9. None	203MC	Point of maximum interference	DC Probe to Point \oplus . Common to chassis.	A18	Adjust for MINIMUM deflection.

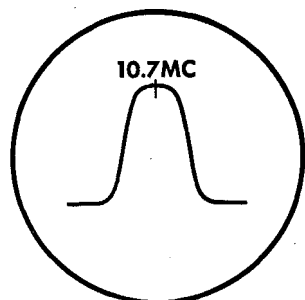


FIG. 1

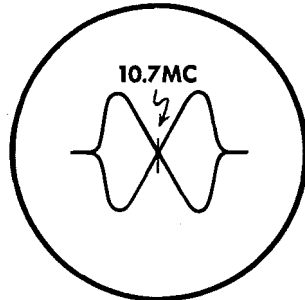


FIG. 2

SET 591 FOLDER 3-A

PHOTOFACT® Folder with CIRCUITRACE®

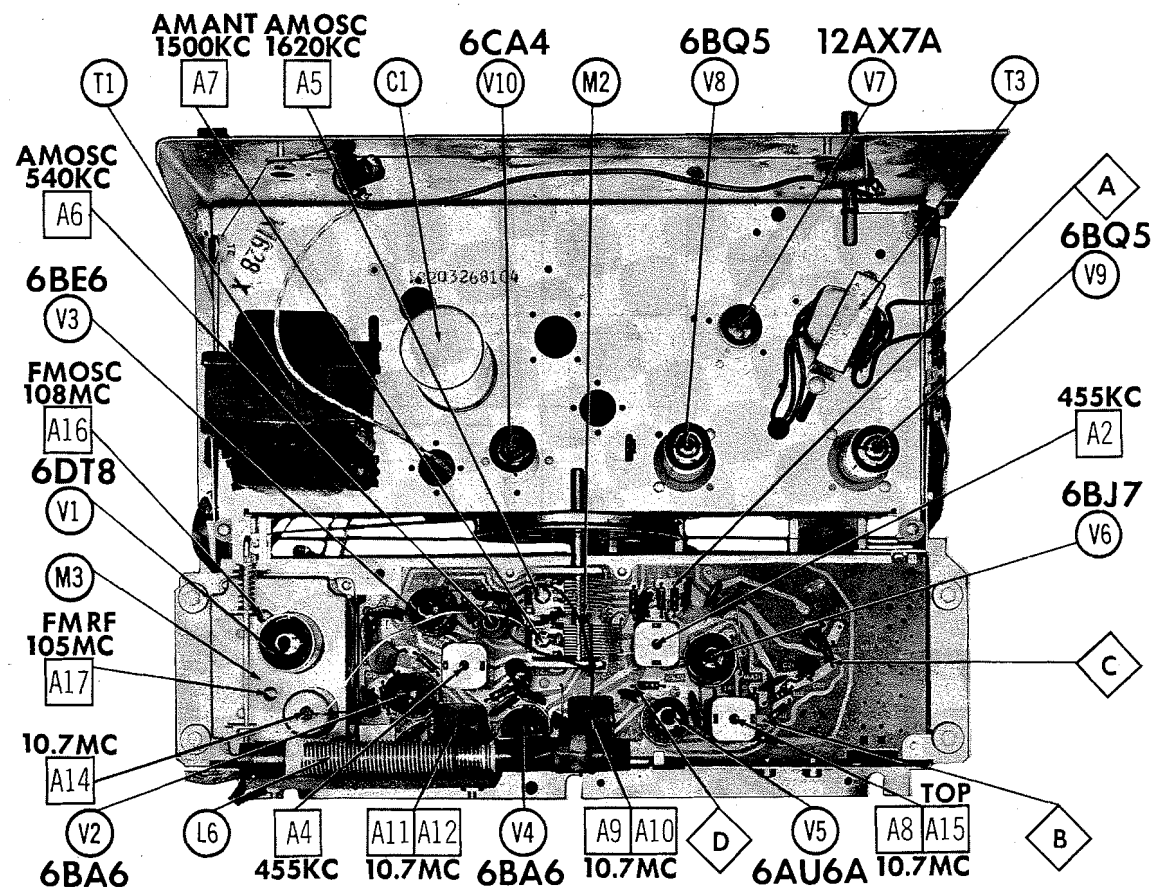


PHILCO FM-AM CHASSIS FOR MODELS K/UK4908 SERIES, K1628 SERIES, K1629 SERIES

IMPORTANT FILING NOTICE

This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 591 FOLDER 3. File this Folder with the TV Folder in the yellow filing jacket provided.

PHILCO FM-AM CHASSIS FOR MODELS K/UK4908 SERIES, K1628 SERIES, K1629 SERIES



PHILCO FM-AM CHASSIS FOR MODELS K/UK4908 SERIES, K1628 SERIES, K1629 SERIES

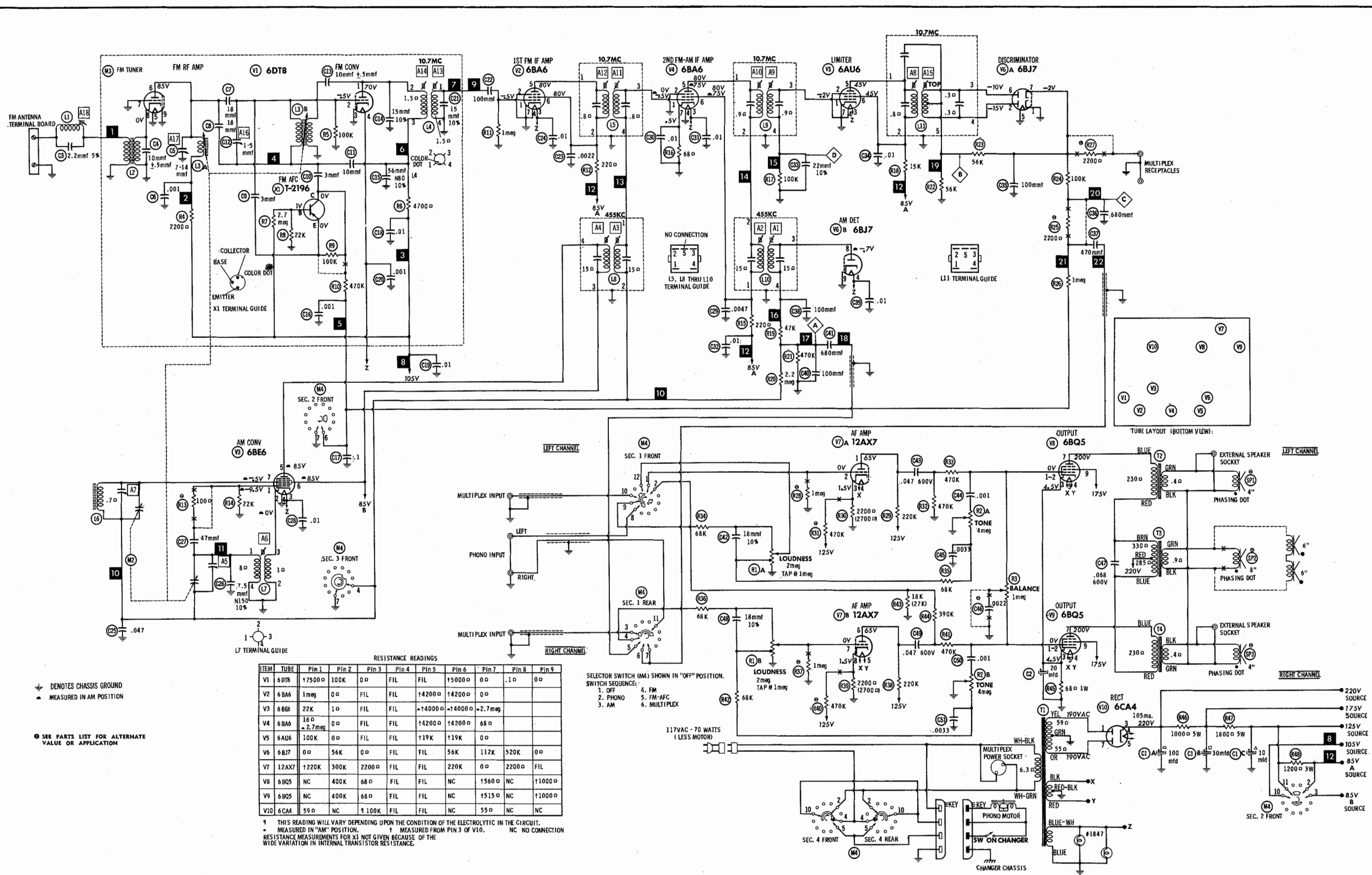
TYPE SET	FM-AM Chassis (with Stereo Amp.)
TUBES	Ten
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 70 Watts, .660 Amp. @ 117 Volts AC
TUNING RANGE	AM, 540 - 1620KC (455KC IF) FM, 88 - 108MC (10.7MC IF)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



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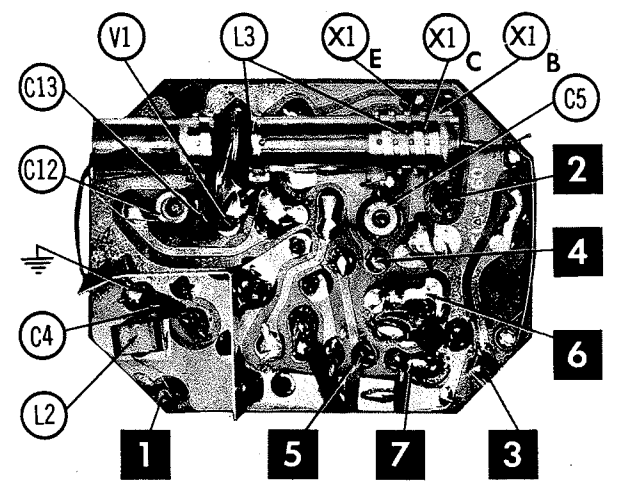


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DT8	17500 Ω	100K	0 Ω	FIL	FIL	15000 Ω	0 Ω	.1 Ω	0 Ω
V2	6BA6	1 meg	0 Ω	FIL	FIL	14200 Ω	14200 Ω	0 Ω		
V3	6BE6	22K	1 Ω	FIL	FIL	14000 Ω	14000 Ω	2.7 meg		
V4	6BA6	16 Ω	0 Ω	FIL	FIL	14200 Ω	14200 Ω	68 Ω		
V5	6AU6	100K	0 Ω	FIL	FIL	119K	119K	0 Ω		
V6	6BJ7	0 Ω	56K	0 Ω	FIL	FIL	56K	112K	520K	0 Ω
V7	12AX7	1220K	300K	2200 Ω	FIL	FIL	220K	0 Ω	2200 Ω	FIL
V8	6BQ5	NC	400K	68 Ω	FIL	FIL	NC	1560 Ω	NC	11000 Ω
V9	6BQ5	NC	400K	68 Ω	FIL	FIL	NC	1515 Ω	NC	11000 Ω
V10	6CA4	59 Ω	NC	1100K	FIL	FIL	NC	55 Ω	NC	NC

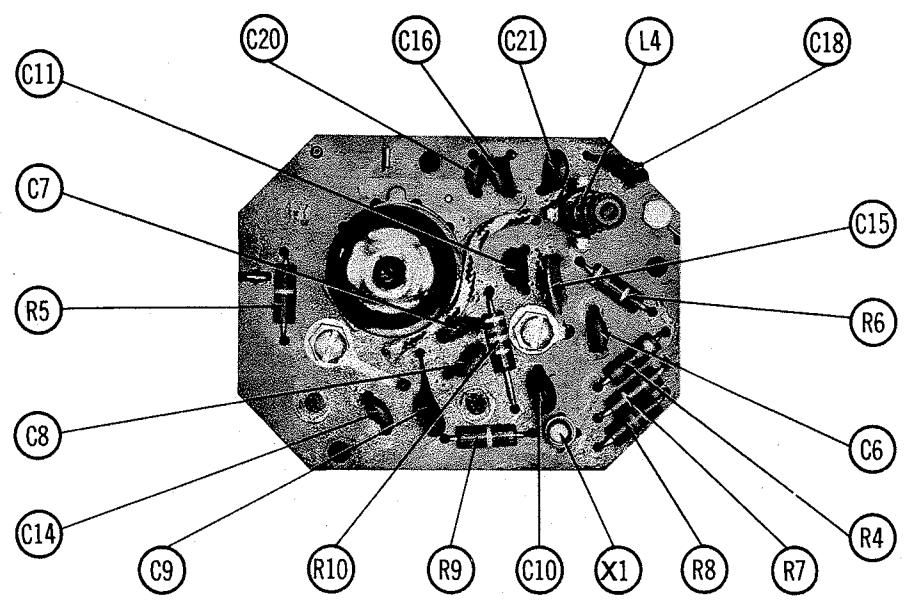
1 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 2 MEASURED IN "AM" POSITION. 3 MEASURED FROM PIN 3 OF V10. NC NO CONNECTION
 RESISTANCE MEASUREMENTS FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

B - BASE
 C - COLLECTOR
 E - EMITTER



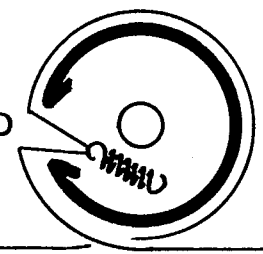
A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

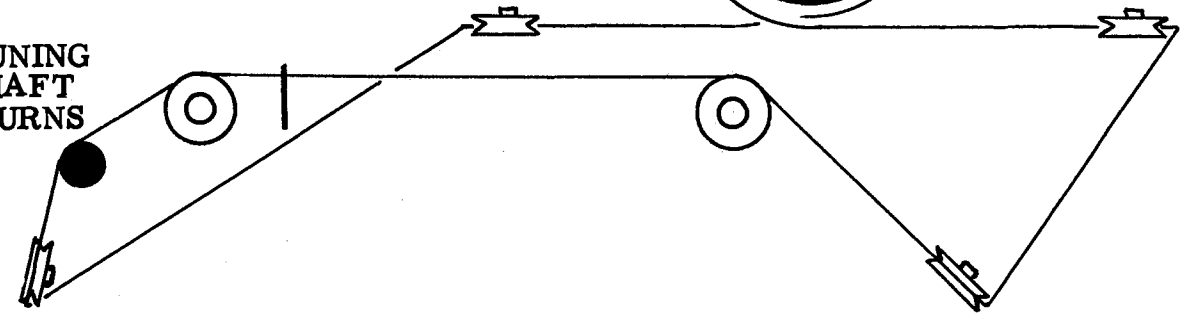


FM-RF PRINTED BOARD

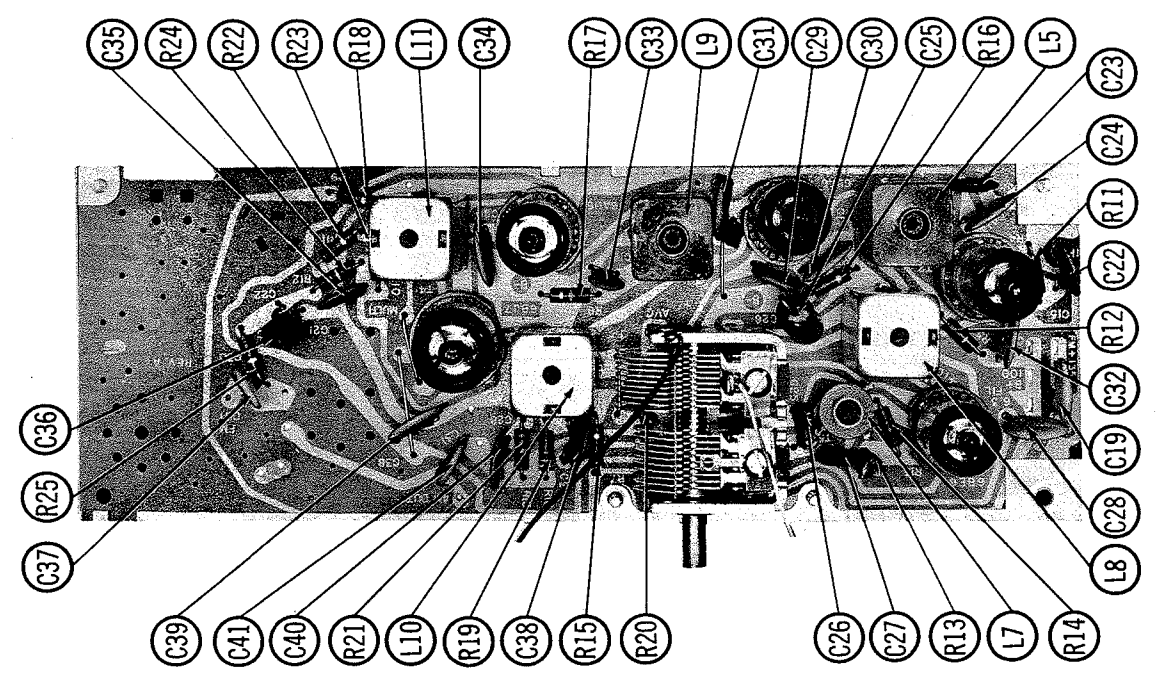
TUNING GANG CLOSED



TUNING SHAFT 3 TURNS



DIAL CORD STRINGING

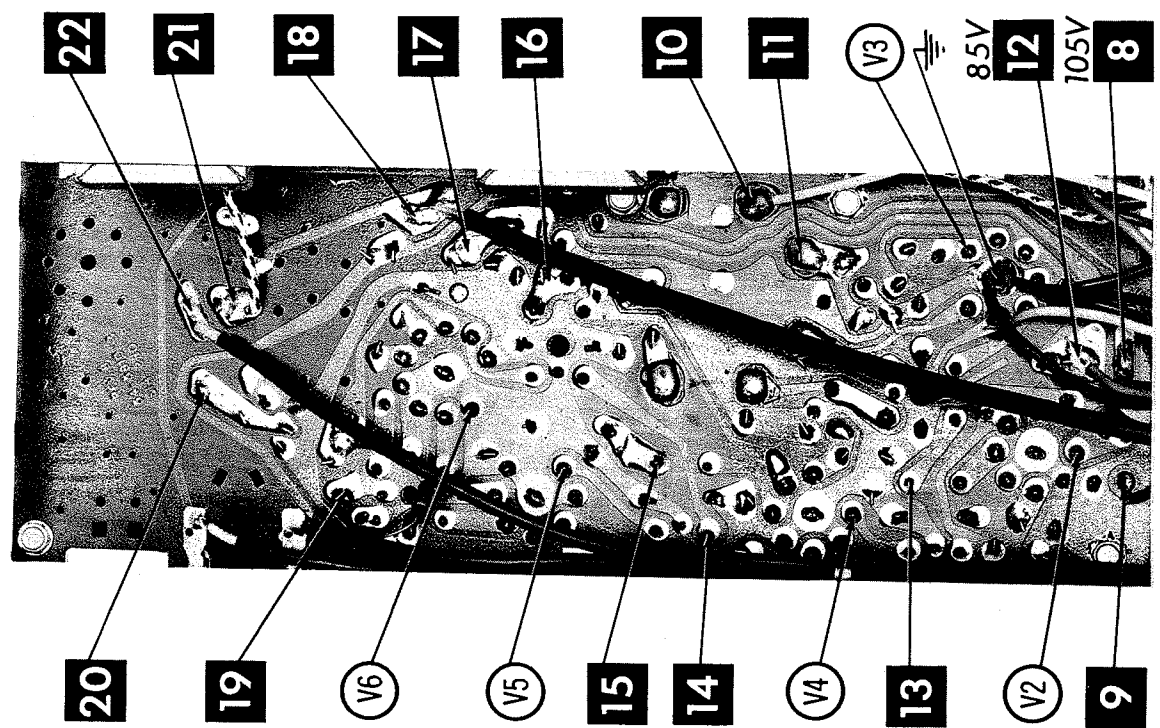


ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PHILCO FM-AM CHASSIS FOR MODELS
 K/UK4908 SERIES, K1628 SERIES, K1629 SERIES

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FOLDER 3-A



PARTS LIST AND DESCRIPTIONS

TUBES

AMPEREX		GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE
V1	FM RF Amp. - FM Conv.	6DT8	V7A	Left Channel AF Amp.	12AX7		
V2	1st FM IF	6BA6	V8	Right Channel AF Amp.	6BQ5		
V3	AM Converter	6BE6	V9	Left Channel Audio Output	6BQ5		
V4	2nd FM IF - AM IF	6BA6	V10	Right Channel Audio Output	6CA4		
V5	Limiter	6AU6		Rectifier			
V6	Discriminator - AM Det.	6BJ7					

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	PNP T-2186	FM AFC			Part #34-6014-1

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA							
		PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
CLA	100	350	30-2801-16	AFH3-29-77	D0044	XC3-16	FP333, 85	TMQ-4709	TVL-3697
CB	30	350							
C	10	350							
C2	20	25	30-2596-8	PR3130	BBR20-25	MT1-11	TT25X20	TD-25-25	TE-1208

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMOCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	2.2	5%	#31-8531-2	NPO-DI-2.2	DTZ-2R2	C10V22C	CCO-2R2	CNO-522	10TCC-V12
C4	10	±.5mmf		DI-10	DD-100	L10Q10	CCD-100	GP410	10TS-Q10
C5	7-14			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	.001			DI-18	DD-180	L10Q18	CCD-180	GP418	10TS-Q18
C7	18			DI-18	DD-180	L10Q18	CCD-180	GP418	10TS-Q18
C8	18			NPO-DI-3.0	D6-030	C10V3C	CCO-3R3	GP533	10TS-V33
C9	3			NPO-DI-3.0	D6-030	C10V36	CCO-3R3	GP533	10TS-V33
C10	3			DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C11	10			DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C12	1-5			829-8	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C13	10	±.5mmf	DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10	
C14	15	10%	DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15	
C15	56	N80	#30-1251-37	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	.001			P288N-1	DD-102	CUB2P1	CCD-102	GEM-201	2TM-P10
C17	.1	200V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.001			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	15	10%		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C22	100			DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C23	.0022			BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C24	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.047	200V	P288N-047	DD-503	CUB2847	CCD-503	GEM-4147	2TM-S47	
C26	7.5	N150	#30-1224-83	DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C27	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47
C29	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	22	10%		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C34	.01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	100			DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C36	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68	
C37	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C38	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10	
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C40	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10	
C41	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68	
C42	18	10%	DI-18	DD-180	22R5Q18	CM-20B-180K	MS-418	5TM-S47	
C43	.047	600V	P488N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-D10	
C44	.001	400V	P488N-001	DD-102	CUB6D1	6DP-1-102	GEM-421	6TM-D10	
C45	.0033	400V	P488N-0033	DD-332	CUB6D33	6DP-3-332	GEM-6233	6TM-D33	
C46	.0022	400V	P488N-0022	DD-222	CUB6D22	6DP-2-222	GEM-6222	6TM-D22	
C47	.068	600V	P488N-068	DD-503	CUB6S68	6DP-4-683	GEM-6168	6TM-S68	
C48	18	10%	DI-18	DD-180	22R5Q18	CM-20B-180K	MS-418	5TM-S47	
C49	.047	600V	P488N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47	
C50	.001	400V	P488N-001	DD-102	CUB6D1	6DP-1-102	GEM-421	6TM-D10	
C51	.0033	400V	P488N-0033	DD-332	CUB6D33	6DP-3-332	GEM-6233	6TM-D33	

Philco Part Number ① Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1A	Loudness	2meg	33-5803-15	BT-82, STR-82		
R2	Loudness	1meg Tap				
R2A	Tone	2meg				
B	Tone	4meg	33-5803-14	B-87, SR-87	AD47-5meg-S, FS-3	FB46L, RU46L, C85500
R3	Balance	1meg	33-5587-43			

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R4	2200Ω				R27	2200Ω			
R5	100K				R28	1meg			①
R6	4700Ω				R29	220K			
R7	2.7meg				R30	2200Ω			2700Ω *
R8	22K				R31	470K			①
R9	100K				R32	470K			
R10	470K				R33	470K			
R11	1meg				R34	68K			
R12	220Ω				R35	68K			
R13	100Ω				R36	68K			
R14	22K				R37	1meg			①
R15	220Ω				R38	220K			
R16	68Ω				R39	2200Ω			2700Ω *
R17	100K				R40	470K			①
R18	15K				R41	470K			
R19	47K				R42	68K			
R20	2.2meg				R43	18K			27K *
R21	470K				R44	390K			
R22	56K				R45	68Ω 1W			
R23	56K				R46	1000Ω 5W	PW5-1000	5W-SQ-1000	
R24	100K				R47	1800Ω 5W	PW5-1800	5W-SQ-1800	
R25	2200Ω				R48	1200Ω 3W		3G-1200	
R26	1meg								* Alternate Value

① Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.		
L1	TV Trap	32-4796-1						
L2	FM Ant.	322-8004						
L3A	FM RF	76-12068						
B	FM Osc.							
L4	1st FM IF	32-4798-1						
L5	2nd FM IF	32-4712-3	FM-256	1463-PC	RTC-9046	T654		
L6	Loopstick	32-4692-10	BC-419	6300 †	RTC-8915	T532		† Drill new mounting holes.
L7	AM Osc.	32-4693-9						
L8	1st AM IF	32-4583-23	BC-356	13-PC1	RTC-8641	T614		
L9	3rd FM IF	32-4712-4	FM-256	1463-PC	RTC-9046	T654		
L10	2nd AM IF	32-4583-23	BC-397	13-PC2	RTC-8842	T615		
L11	Discriminator	32-4714-3		1464-PC	RTC-9050	T658		

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA					NOTES
		PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triod PART No.	
TI	117VAC @ .680A	380VAC @ .105A	6.3VAC @ 2.8A	32-8924-2			
	SEC. 3	SEC. 4	SEC. 5				
	6.3VAC @ 1.8A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES	
		PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triod PART No.		
T2	3650Ω	3-4Ω	32-8990-2	A-3018 ①	A-3849 ①	26850 ①	8-5Z	① Drill new mounting hole(s).
T3	5200Ω	14-16Ω	32-8988-2	A-2901	A-3823	24508	8-53X	
T4	3650Ω	3-4Ω	32-8990-2	A-3018 ①	A-3849 ①	26850 ①	8-5Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	36-1873-23 ①	4A0728	① Alternate Part #36-1873-9
SP2	8"	PM	14-16Ω	36-1895-1 ②	8A21Z16	② Used in Model K4908
SP3	4"	PM	6-8Ω	36-1873-23 ①	4A0728	③ Alternate Center Speaker for Model K1628X
	10"	PM		36-1853-8 ③		④ Alternate Center Speaker for Model K1629 (2 required).
	8"	PM		36-1860-10 ④		

PHONO CARTRIDGE & NEEDLES