

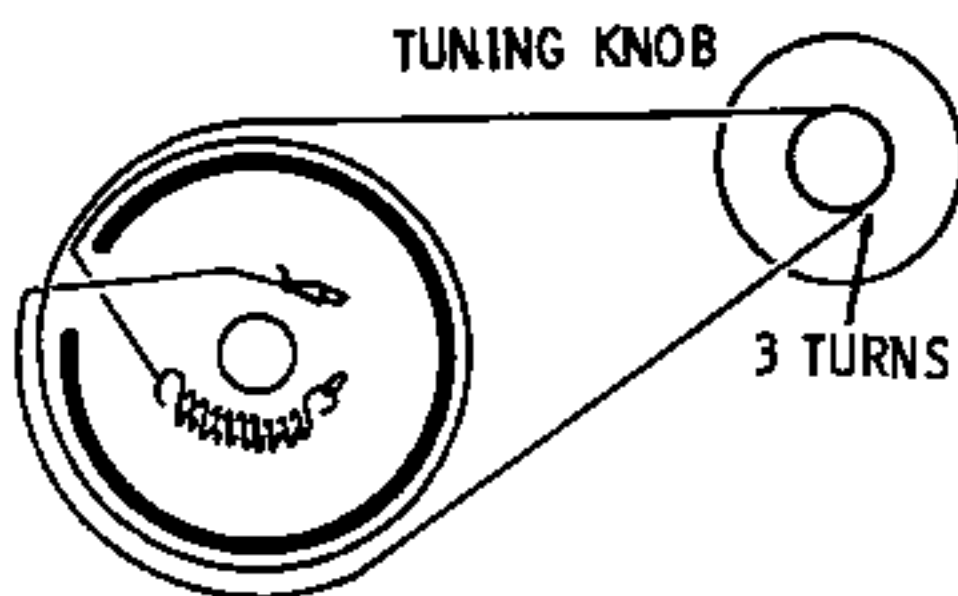
Met dank aan Jef Bos



MODEL X14E

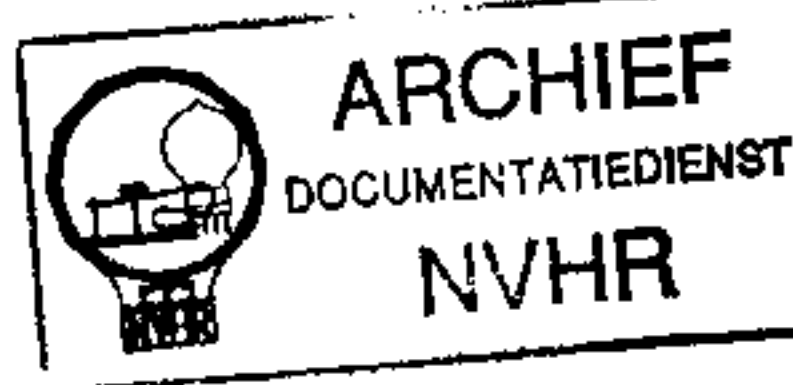
TUNING DRIVE CORD STRINGING

Ned. Ver. v. Historie v



TUNING GANG FULLY COUNTER CLOCKWISE

FRONT VIEW



TRADE NAME	Motorola Models X14B, X14E, X14R, X14W (Ch. HS-795)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	9 Volts DC	RATING	4MA @ 9 Volts DC (No Signal, Min. Volume) 15MA @ 9 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST 532 – 1620KC			

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1, A2, A3.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

A4.....GENERAL CEMENT #9296, 9297
 WALSCO #2546, 2547

A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
 WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400v Mod.)	Tuning gang fully open.	Across voice coll.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	532KC	Tuning gang fully closed.	"	A4	"
3.	"	1620KC	Tuning gang fully open.	"	A5	Adjust for maximum output. Repeat Steps 2 and 3.
4.	"	1400KC	1400KC Signal.	"	A6	Adjust for maximum output.
5.	"	600KC	600KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 4 and 5.

DISASSEMBLY

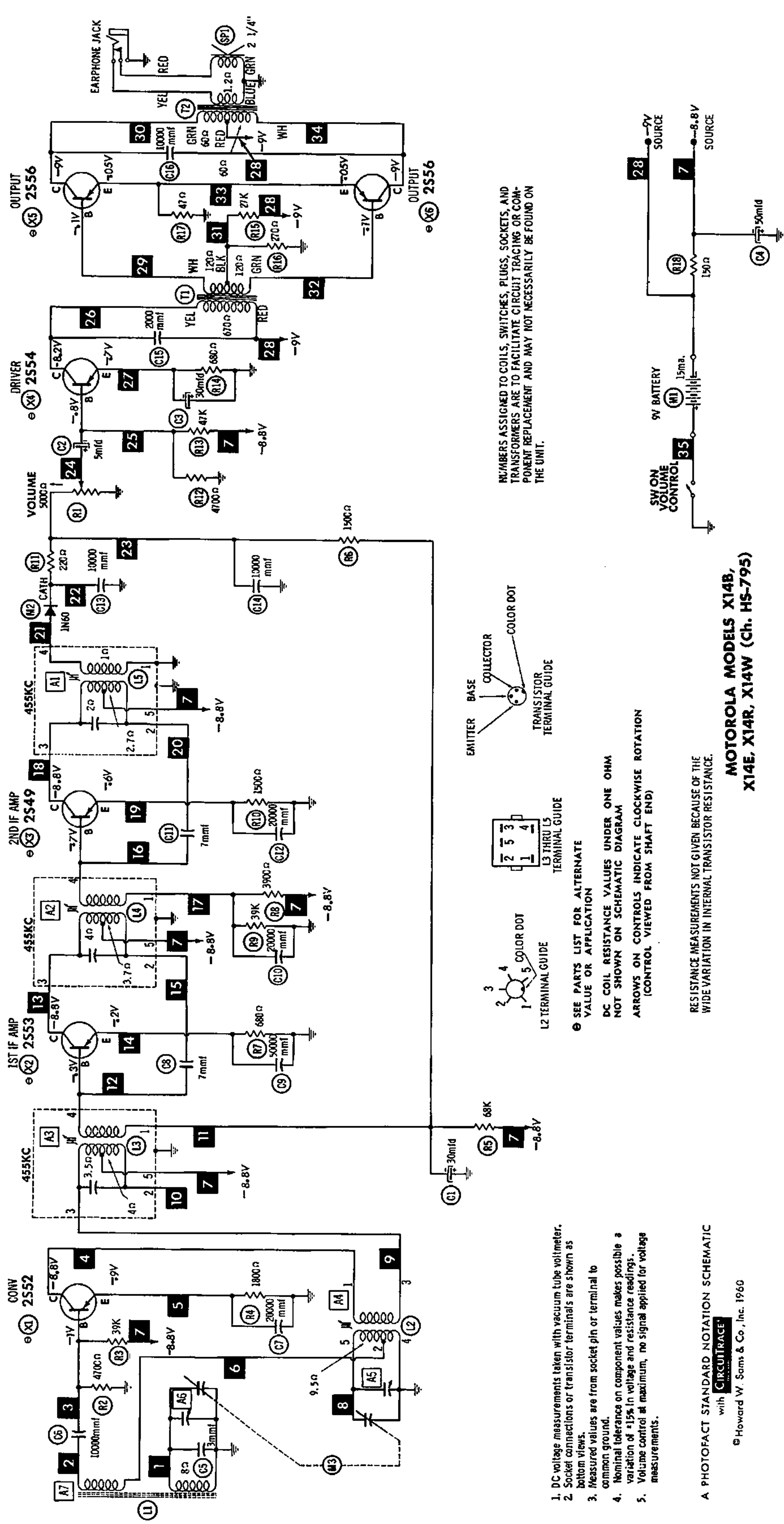
1. Loosen screw on cabinet back. (Screw is captive). Remove back.
2. Remove screw holding earphone jack. Remove spacer.
3. Remove 2 chassis mounting screws.
4. Remove battery and battery insulator.
5. Loosen screw holding speaker bracket and tilt bracket away from chassis.
6. Remove chassis.

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

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF297

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America





NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

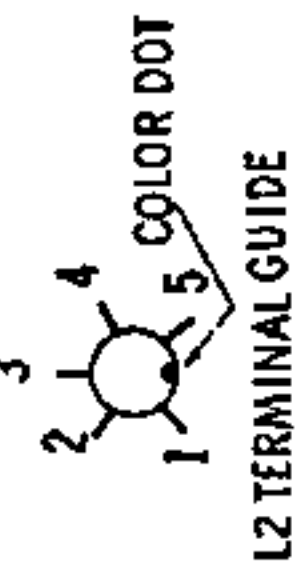
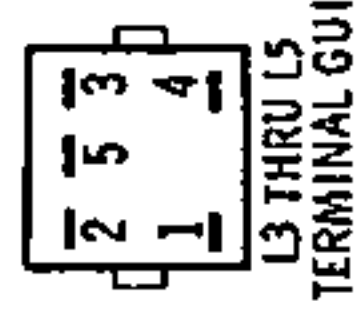
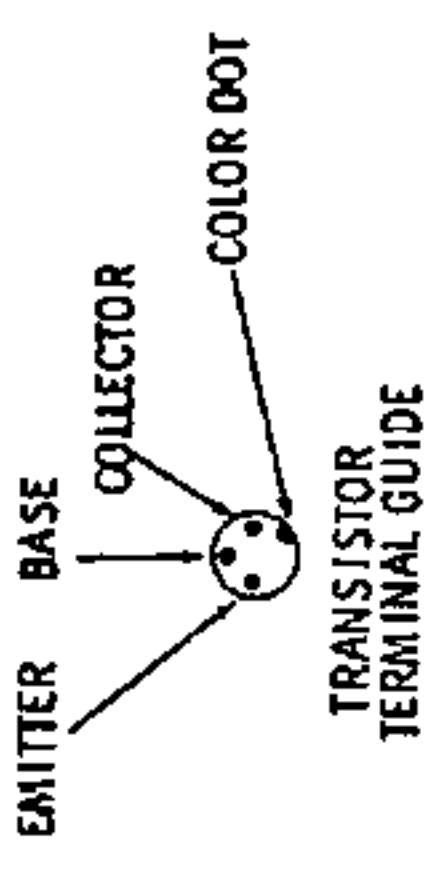
- 1. DC voltage measurements taken with vacuum tube voltmeter.
- 2. Socket connections or transistor terminals are shown as bottom views.
- 3. Measured values are from socket pin or terminal to common ground.
- 4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

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MOTOROLA MODELS X14B, X14E, X14R, X14W (Ch. HS-795)

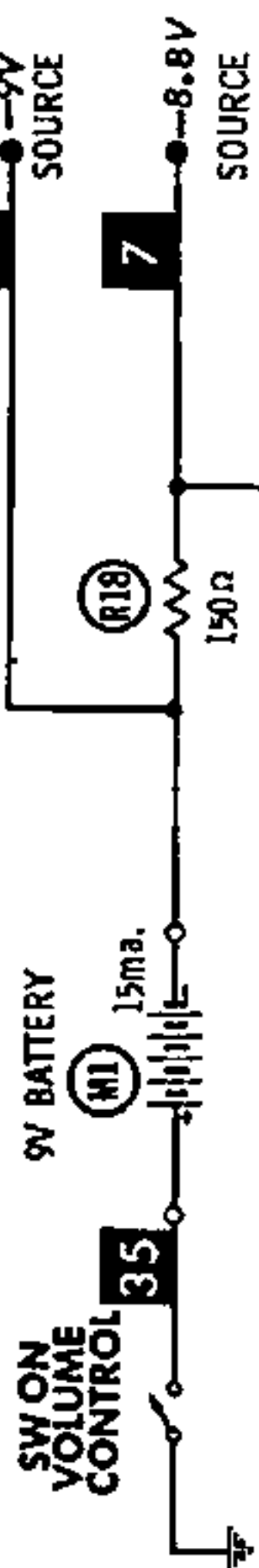
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.



SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION [CONTROL VIEWED FROM SHAFT END]



PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S52①	Converter	2N412	2N486	2N411	PNP
X2	2S53②	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2S49③	2nd IF Amplifier	2N410			PNP
X4	2S54④	Driver	2N406	2N362	2N408	PNP
X5	2S56⑤	Output	2N408	2N632	2N408	PNP
X6	2S56⑤	Output	2N408	2N632	2N408	PNP

① Alternate Type 2SA52.

② Alternate Type 2SA53.

③ Alternate Type 2SA49.

④ Alternate Type 2SB54.

⑤ Alternate Type 2SB56.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	30	3	23K644668	PTT-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C2	5	3	23K644669	PTT-3005	NLW5-6	TT6X5	ML5-3	TE-1052.2	
C3	30	3	23K644668	PTT-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C4	50	10	23K644671	XPP-10050	NLW50-10	TT10X50	ML50-12	TE-1119	

FIXED CAPACITORS

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

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	3		NPO-DI 3.3	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C6	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C8	7		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C9	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	7		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-6R8	10TCC-V68
C12	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C15	2000		DI-2000	DM-202	BYA10D2	CCD-202	B-220	10TS-D20
C16	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10	18B646634	B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

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

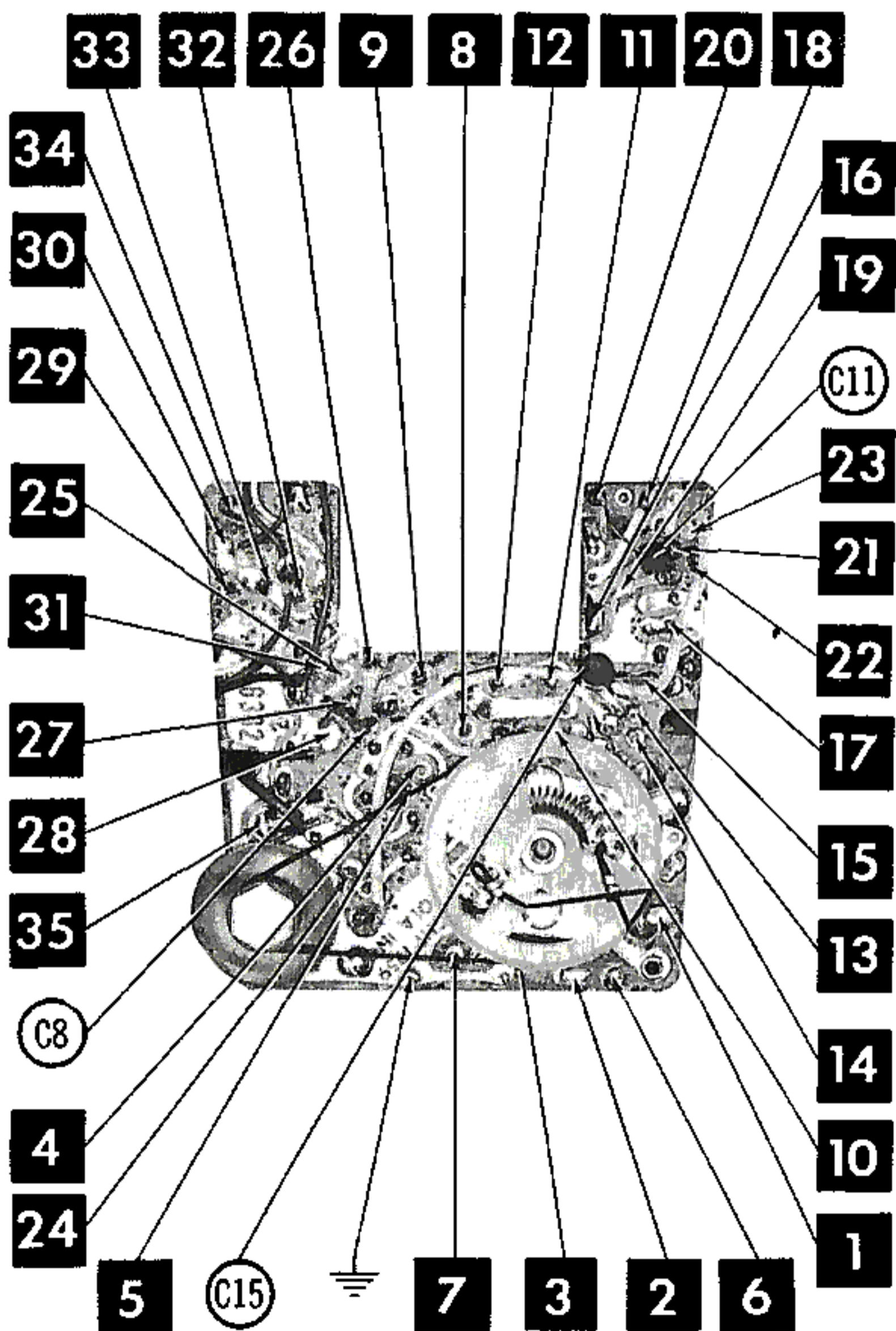
ITEM No.	RATING	REMARKS
R2	4700Ω	
R3	39K	
R4	1800Ω	
R5	68K	
R6	1500Ω	
R7	680Ω	

ITEM No.	RATING	REMARKS
R8	9900Ω	
R9	99K	
R10	1500Ω	
R11	220Ω	
R12	4700Ω	
R13	47K	

ITEM No.	RATING	REMARKS
R14	680Ω	
R15	27K	
R16	270Ω	
R17	47Ω	
R18	150Ω	

PRINTED BOARD

A Howard W. Sams **CIRCUITRACE** Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	24B646455				
L2	Osc. Coil	24B646451				
L3	1st IF Trans.	24C646136				
L4	2nd IF Trans.	24K646137				
L5	3rd IF Trans.	24K646138				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.						
T1	2.1	1	25B646403					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	200Ω CT	8-10Ω	25B646402					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SPI	2 1/4"	PM	8-10Ω	50B646333		

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			P6		226		M-1600	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	48K644681	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Tuning Cap. Printed Board	19B646309 84C646382	2 Gang Less All Components

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	34C646416	Scale
Knob	36B646379	Tuning
Knob	36B646404	Volume
Cabinet	16K646343	Back, Blue, Model X14B
Cabinet	16E646340	Back, Black, Model X14E
Cabinet	16K646342	Back, Red, Model X14R
Cabinet	16K646341	Back, White, Model X14W
Cabinet	1V646860	Front, Blue, Model X14B
Cabinet	1V646861	Front, Black, Model X14E
Cabinet	1V646862	Front, Red, Model X14R
Cabinet	1V646863	Front, White, Model X14W

CHASSIS—TOP VIEW

