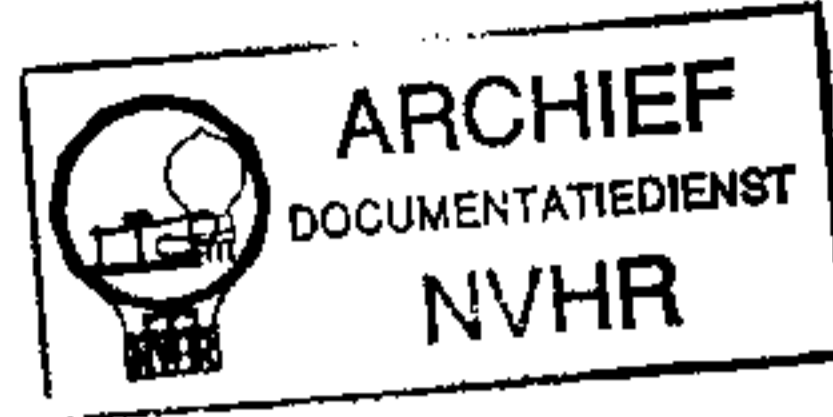
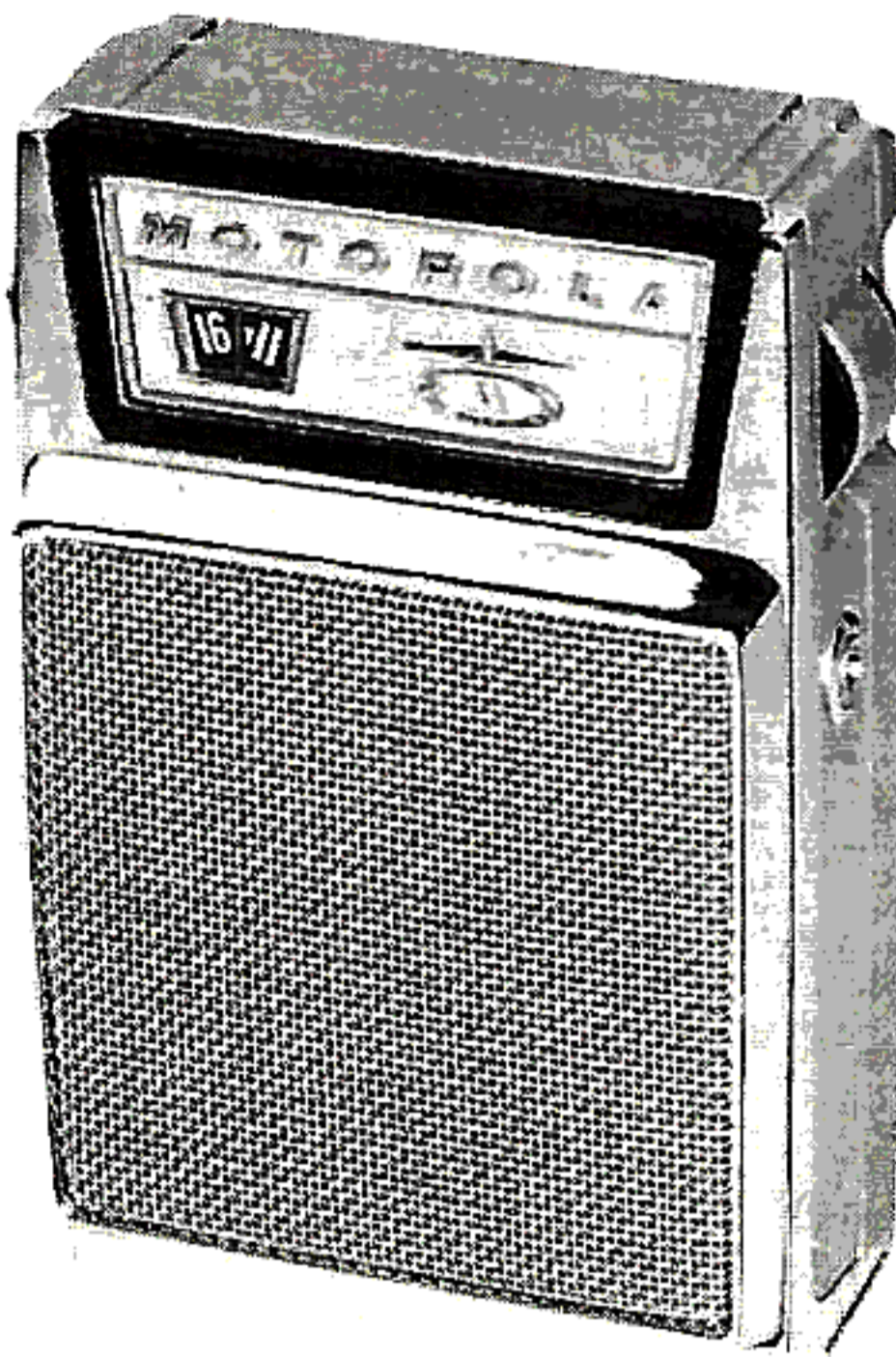


Met dank aan Jef Bos



TRADE NAME Motorola Models X15A, X15E, X15N (Ch. HS-796)
 MANUFACTURER Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
 TYPE SET Battery Operated Transistorized Portable AM Receiver
 POWER SUPPLY 9 Volts DC RATING 7MA@9 Volts DC (No Signal, Min. Volume)
 TUNING RANGE—BROADCAST 532 - 1620KC 10MA@9 Volts DC (Signal, Normal Volume)

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.

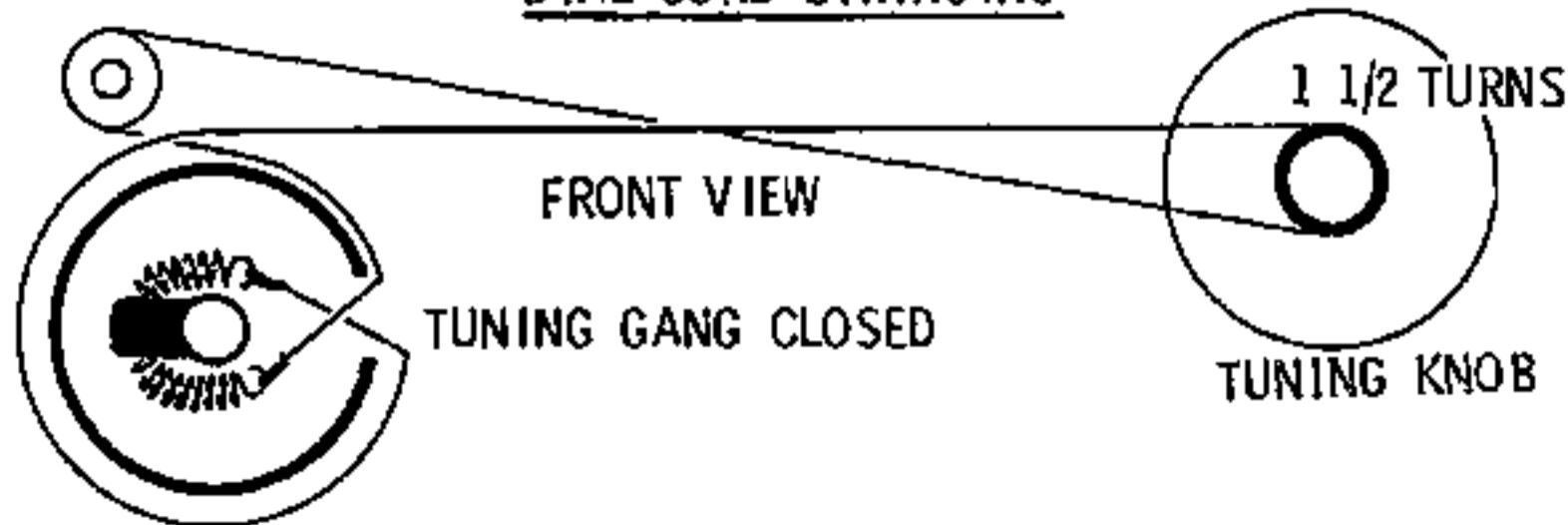
Suggested Alignment Tools: A1, A2, A3, A4. GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
 WALSCO #2515, 2531, 2532
 A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290,
 8609, 8722, 9150, 9298
 WALSCO #2515, 2516, 2518, 2519, 2525, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	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	"
4.	"	1400KC	1400KC Signal.	"	A6	"
5.	"	600KC	600KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 4 and 5.

DISASSEMBLY

1. Move support bracket away from bottom of receiver.
2. Insert coin in slot on cabinet bottom and twist.
3. Remove cabinet back.
4. Remove 3 chassis mounting screws, earphone jack nut and spacer.
5. Unsolder necessary leads and remove chassis.

DIAL CORD STRINGING

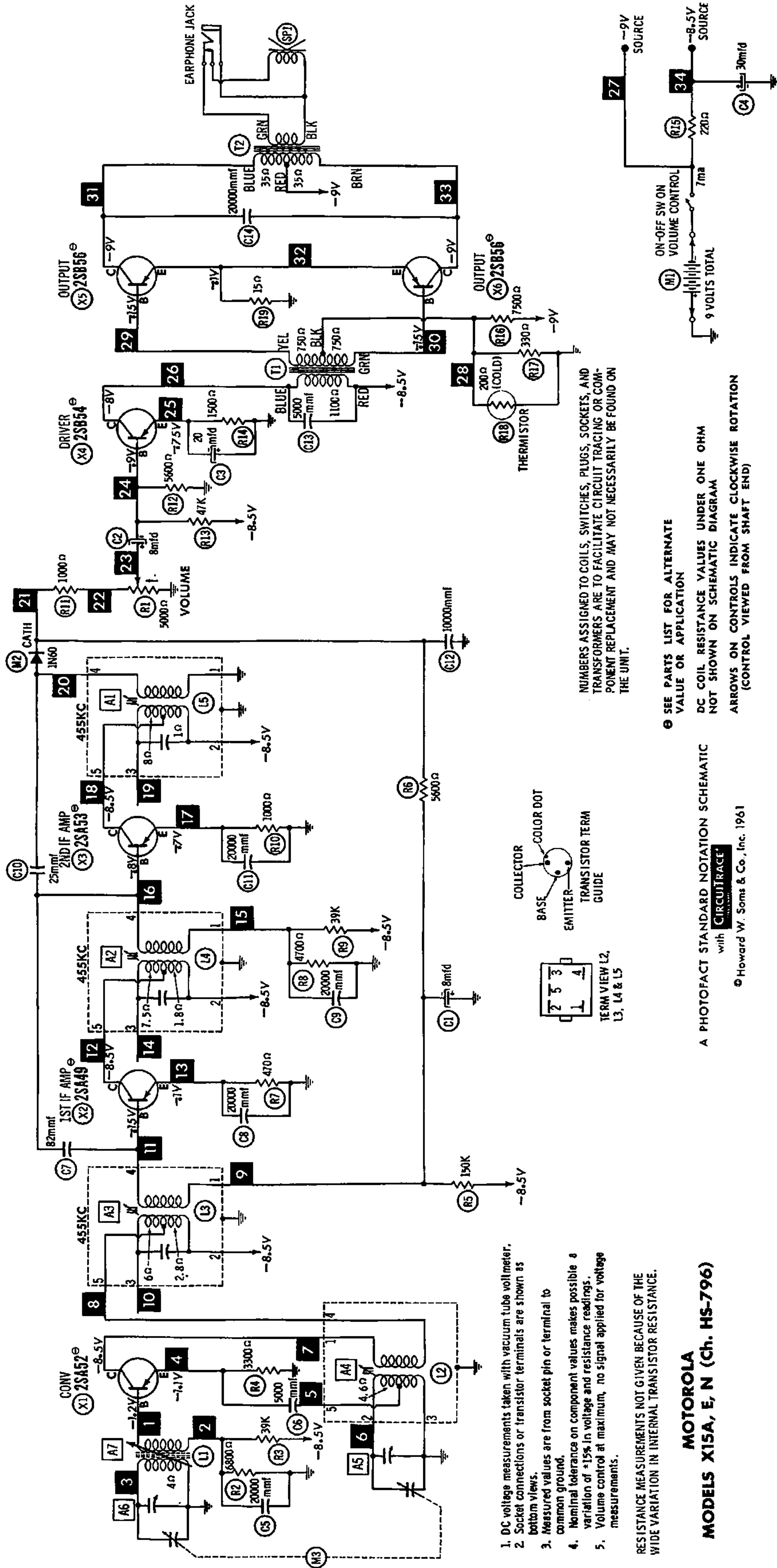


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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 KF298

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. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America





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.

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

MOTOROLA
MODELS X15A, E, N (Ch. HS-796)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
 with **CIRCUITRACE**

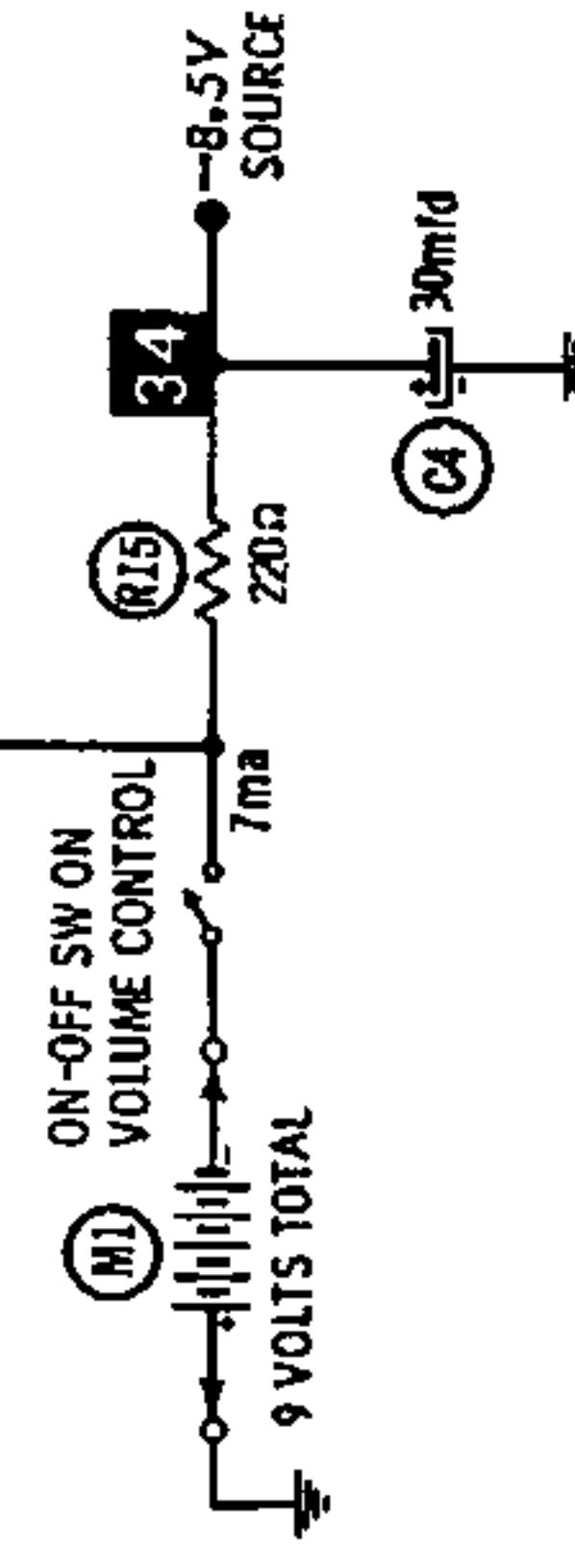
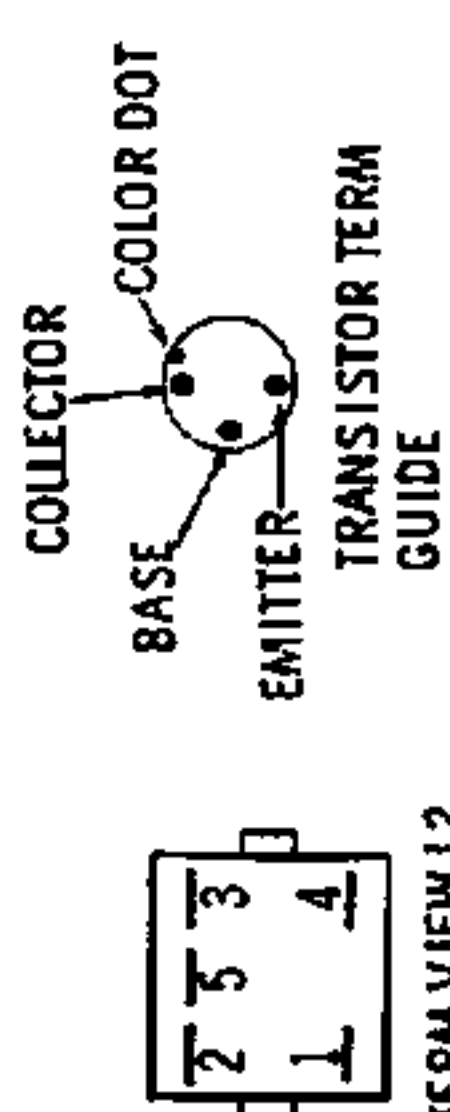
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NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

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	2SA52 ①	Converter	2N412	2N486	2N411	PNP
X2	2SA49 ②	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2SA53 ③	2nd IF Amplifier	2N410			PNP
X4	2SB54 ④	Driver	2N408	2N362	2N408	PNP
X5	2SB56 ⑤	Output	2N408	2N632	2N408	PNP
X6	2SB56 ⑤	Output	2N408	2N632	2N408	PNP

① Alternate Type 2S52. ② Alternate Type 2S49. ③ Alternate Type 2S53. ④ Alternate Type 2S54. ⑤ Alternate Type 2S56.

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	8	3	23K646733	BCD-3008	NLW8-10	TT6X8			
C2	8	3	23K646733	BCD-3008	NLW8-10	TT6X8			
C3	20	3	23K646734	BCD-3020	NLW20-8				
C4	30	10	23K646735	BCD12035	ECPB412	TT15X30			

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	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	82			DTZ-82	22R5Q82	CM-15E-820M		
C8	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	25			DTZ-25	22R5Q25	CM-15E-240		
C11	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	10000		C80V103AM	DM-103	H-05S1		TA-103	TG-S10
C13	5000		C80V502AM	DM-502	H-05D5		TA-250	TG-D50
C14	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

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	18K646736	B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

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

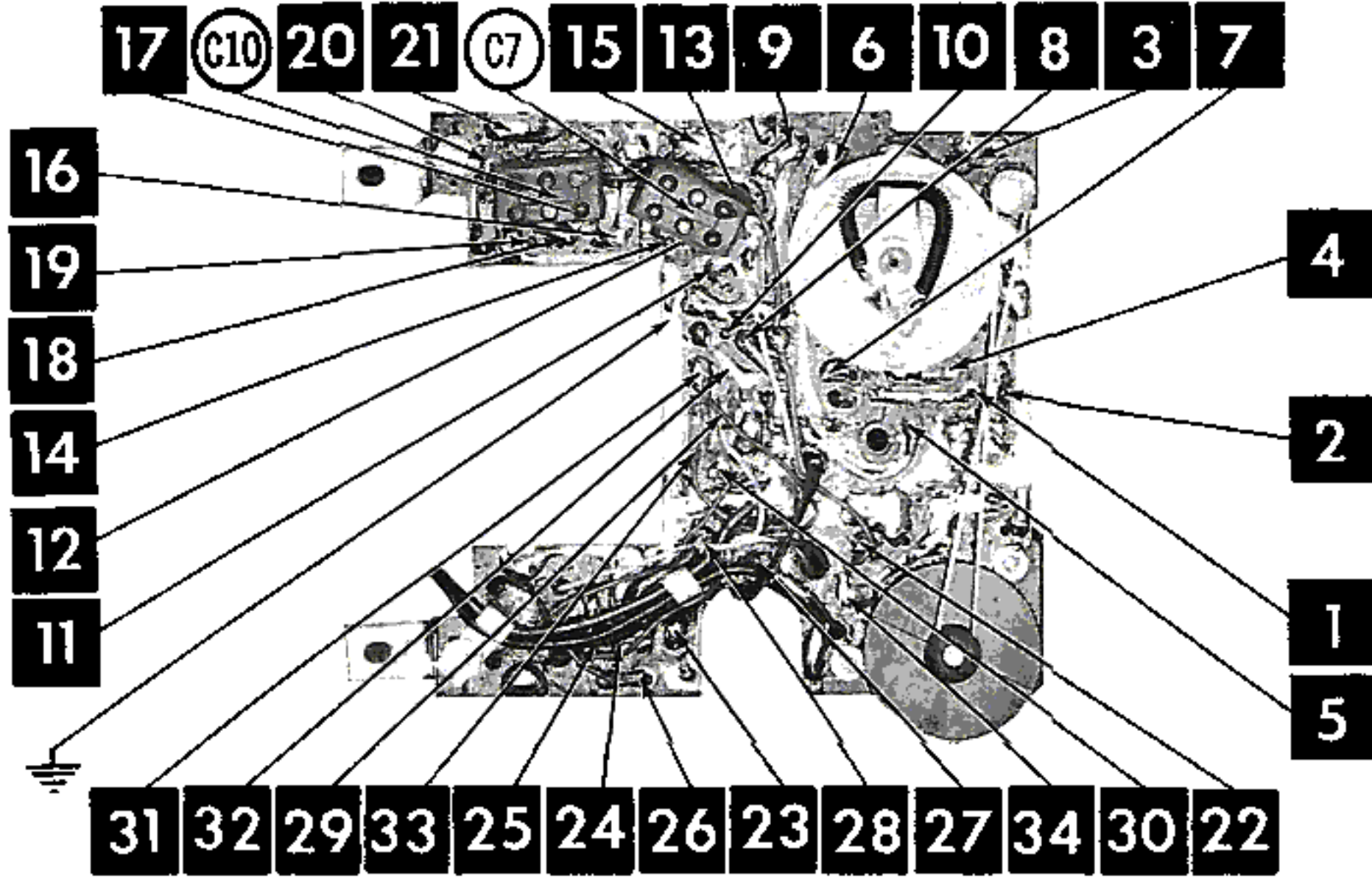
ITEM No.	RATING	REMARKS
R2	6800Ω	
R3	39K	
R4	3300Ω	
R5	150K	
R6	5600Ω	
R7	470Ω	

ITEM No.	RATING	REMARKS
R8	4700Ω	
R9	39K	
R10	1000Ω	
R11	1000Ω	
R12	5600Ω	
R13	47K	

ITEM No.	RATING	REMARKS
R14	1500Ω	
R15	220Ω	
R16	7500Ω	
R17	330Ω	
R18	200Ω (Cold)	Pt. #6K644680
R19	15Ω	

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	24K646720				
L2	Osc. Coil	24K646721				
L3	1st IF Trans.	24K646722				
L4	2nd IF Trans.	24K646723				
L5	3rd IF Trans.	24K646724				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	25K646725					

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	130Ω CT	6-8Ω	25K646726					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	50K646740	22A0628	

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

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Tuning Cap. Printed Board	19K646727 84K646739	2 Gang Less All Components

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Dial Scale	64K646748	Tuning Volume Black, Model X15E Brown, Model X15N Gray-Blue, Model X15A Black, Model X15E Brown, Model X15N Gray-Blue, Model X15A
Knob	36K646742	
Knob	36K646752	
Cabinet Back	1V646892	
Cabinet Back	1V646893	
Cabinet Back	1V646891	
Cabinet Front	16K646755	
Cabinet Front	16K646759	
Cabinet Front	16K646757	

CHASSIS—TOP VIEW

