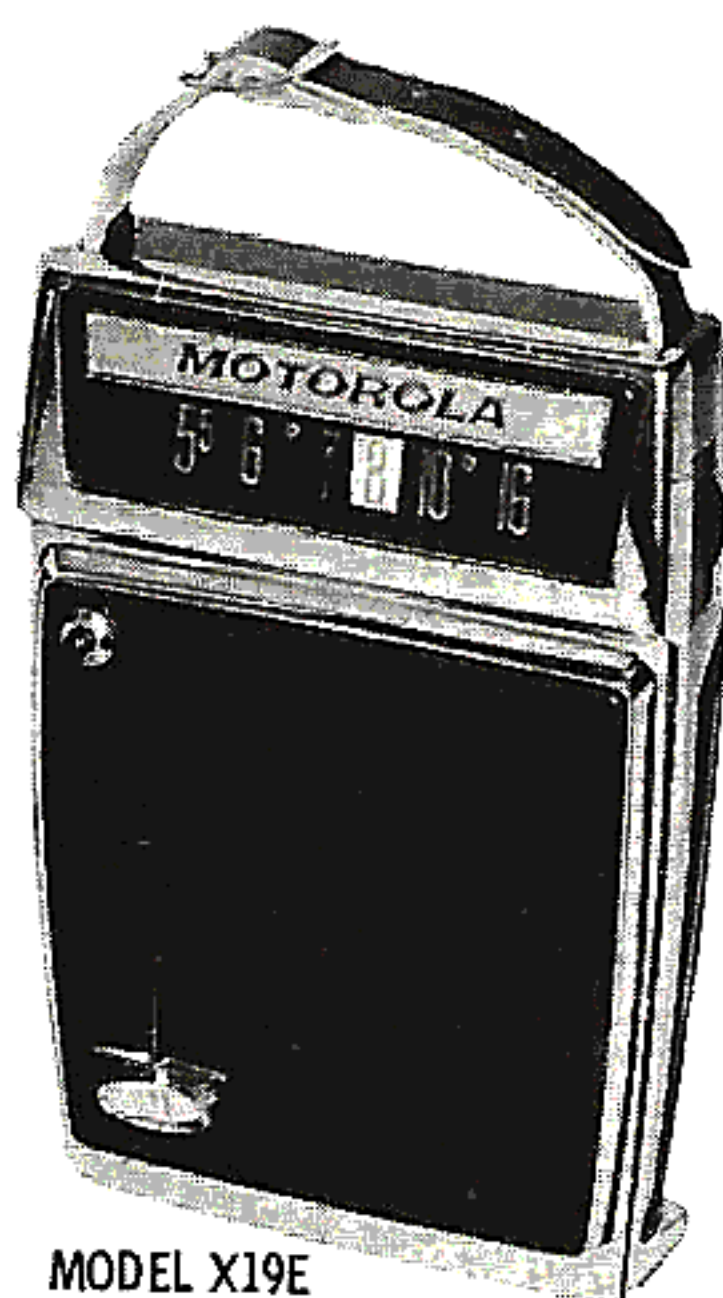
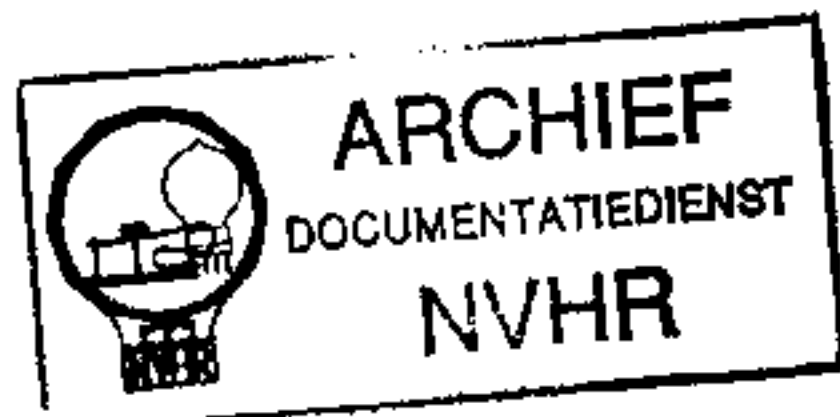




Met dank aan Jef Bos

Ned. Ver. v. Historie v/d Radio



MODEL X19E

TRADE NAME	Motorola Models X19A, X19E (Ch. HS-799)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	10MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 - 1620KC		20MA @ 6 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 thru A4... GENERAL CEMENT #8607, 9291, 9294
 WALSCO #2520, 2522, 2523, 2524, 2534, 2537
 A5..... GENERAL CEMENT #9296, 9297
 WALSCO #2546, 2547
 A6, A7..... 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 coil.	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	532KC	Tuning gang fully closed.	"	A5	"
3.	"	1620KC	Tuning gang fully open.	"	A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2 thru 4.

DISASSEMBLY INSTRUCTIONS

CHASSIS

1. Open battery compartment and remove batteries.
2. Remove 2 screws holding cabinet back (under batteries).
3. Remove back enough for access to earphone jack.
4. Remove earphone mounting nut.
5. Unsolder battery heads on cabinet back.
6. Unsolder 5600Ω resistor and lead connected to battery life Indicator switch.
7. Remove 2 chassis mounting screws.
8. Lift chassis enough to unsolder necessary leads. Remove chassis.

SPEAKER

1. Remove chassis.
2. Remove nut from front of battery life Indicator switch.
3. Bend up 8 speaker grille mounting tabs. Remove grille and speaker gasket.
4. Bend up 3 speaker mounting tabs. Remove speaker from front.

BATTERY LIFE INDICATOR SWITCH

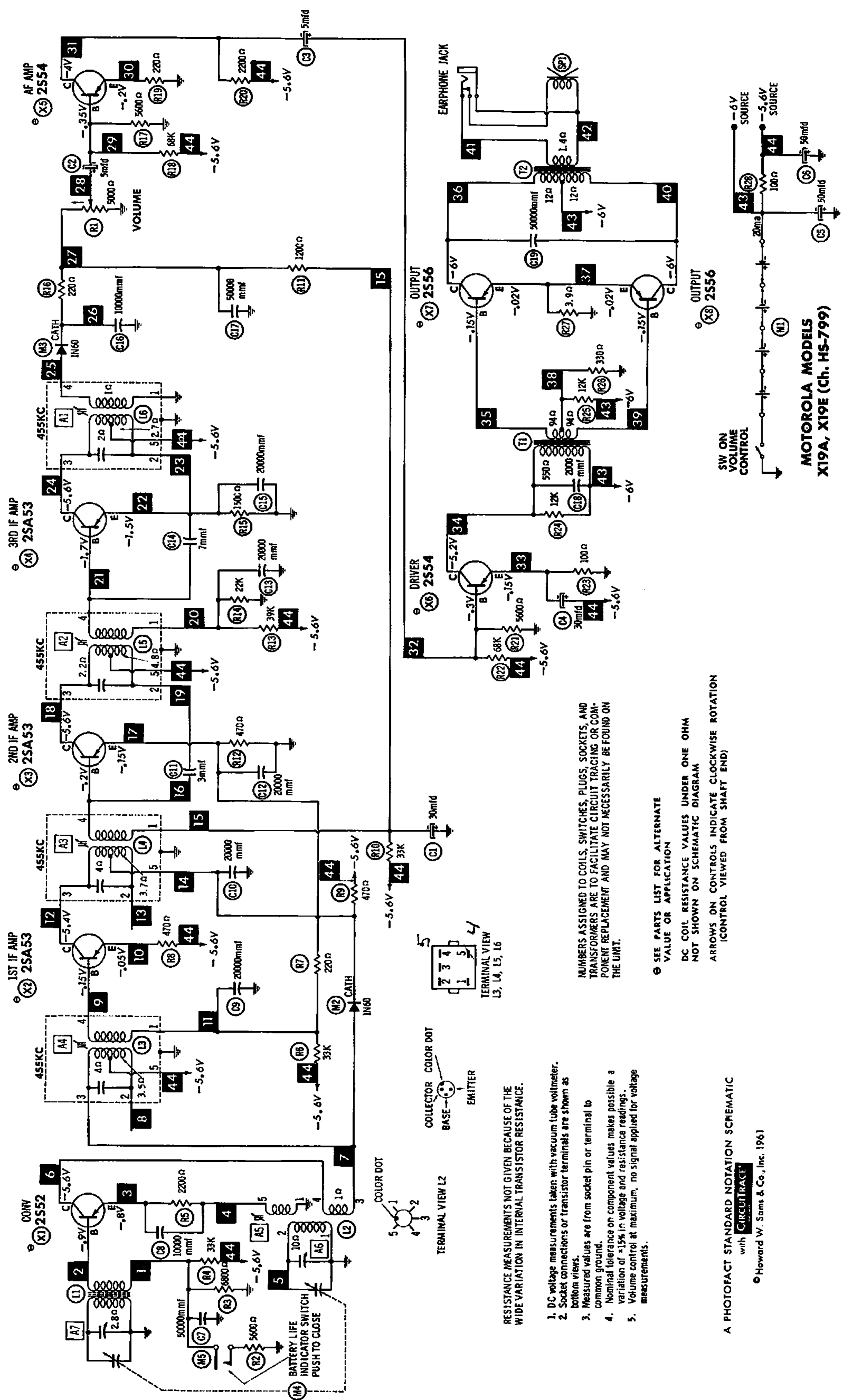
1. Remove chassis.
2. Perform steps 2 and 3 under "Speakers".
3. Remove switch mounting nut. Remove switch.

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

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





1ST IF AMP
X2 25A53

2ND IF AMP
X3 25A53

3RD IF AMP
X4 25A53

AF AMP
X5 2554

DRIVER
X6 2554

OUTPUT
X7 2556

OUTPUT
X8 2556

SW ON VOLUME CONTROL

MOTOROLA MODELS X19A, X19E (Ch. HS-799)

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

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.

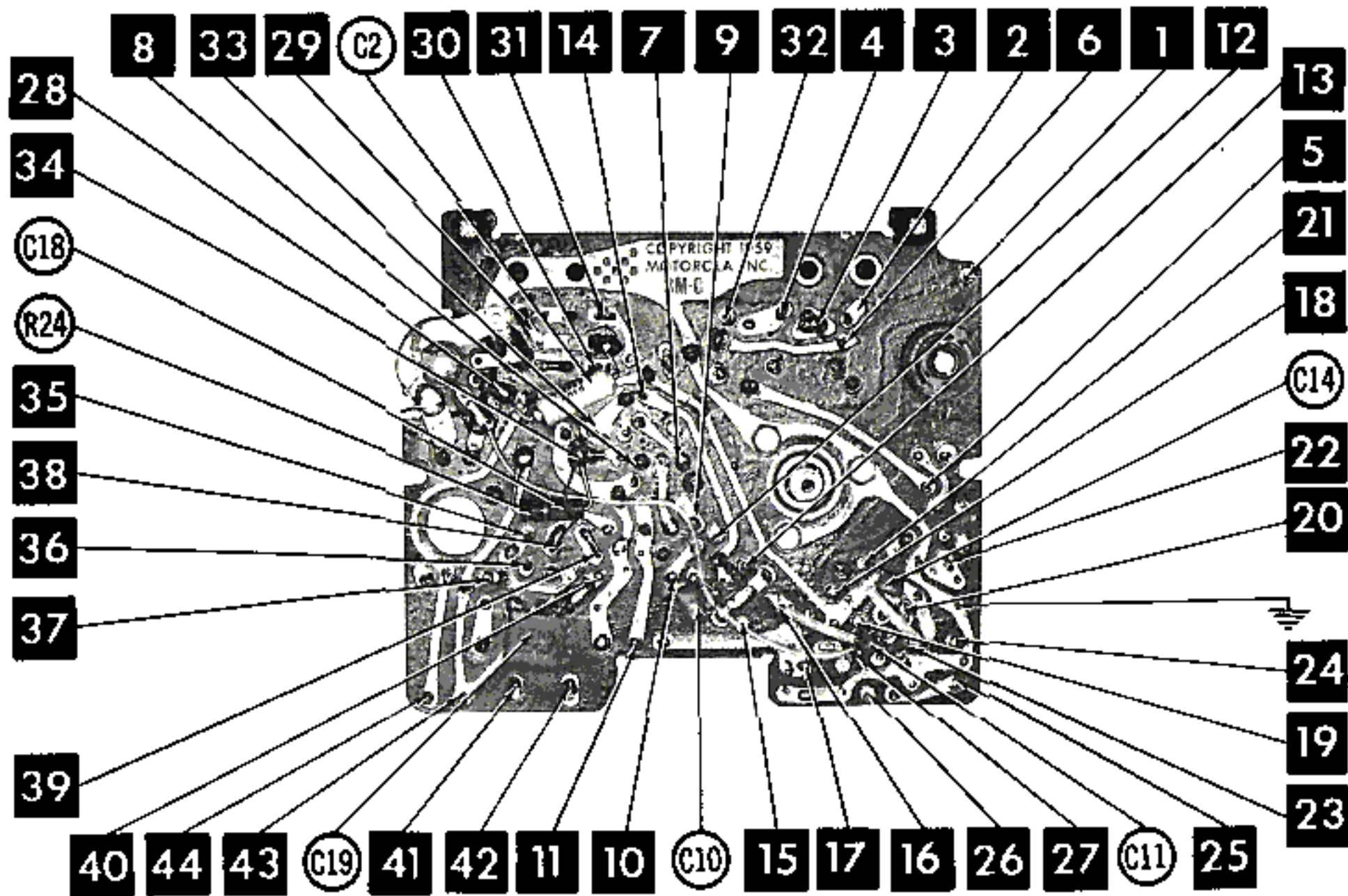
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

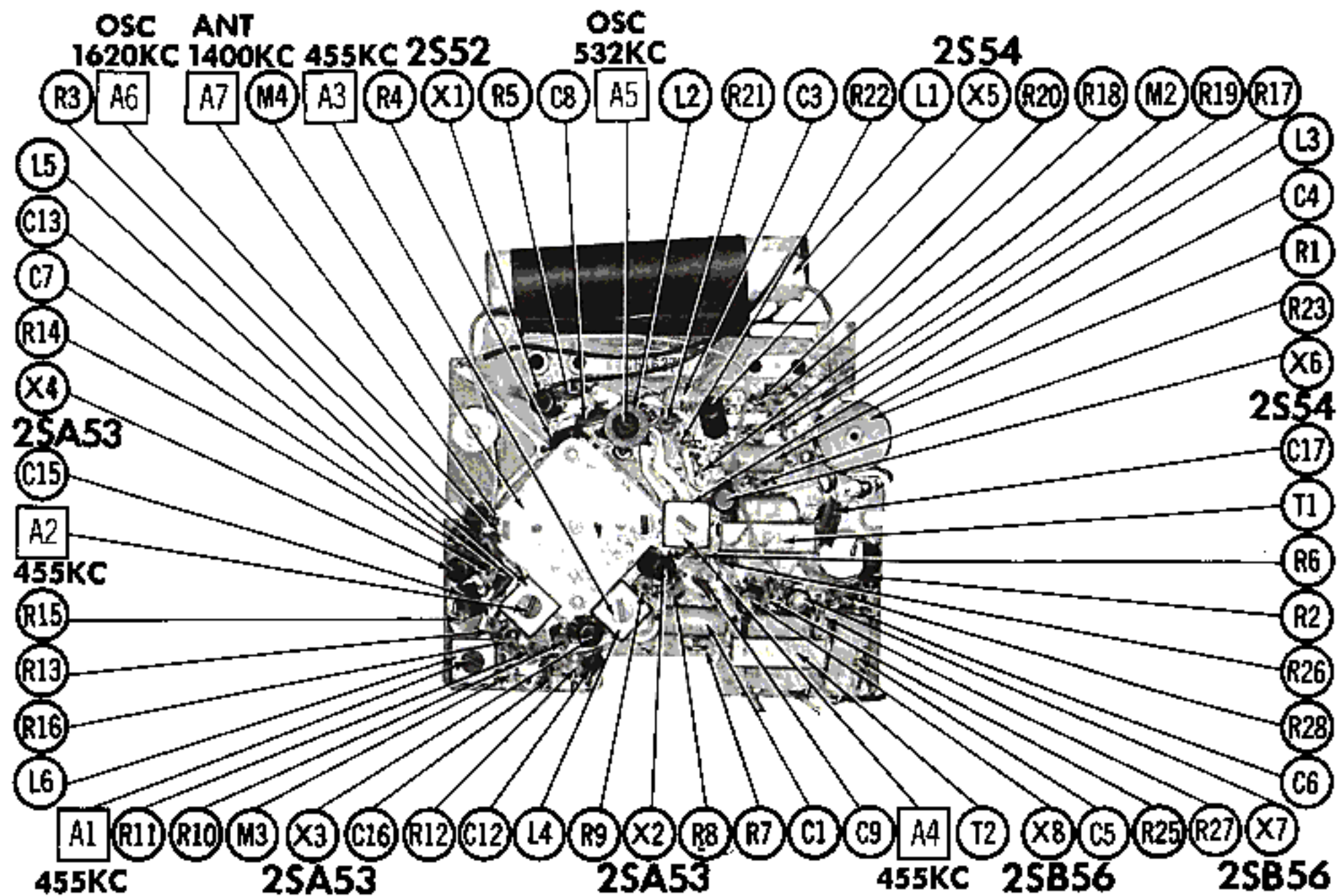
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACIT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

Howard W. Sams & Co., Inc. 1961





CHASSIS TOP VIEW

PARTS LIST

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2S52 ①	Converter	2N412	2N486	2N411	PNP
X2	2SA53 ②	1st IF Amplifier	2N410	2N489	2N410	PNP
X3	2SA53 ②	2nd IF Amplifier	2N410	2N483	2N410	PNP
X4	2SA53 ②	3rd IF Amplifier	2N410	2N483	2N410	PNP
X5	2S54 ③	AF Amplifier	2N406	2N362	2N408	PNP
X6	2S54 ③	Driver	2N406	2N362	2N408	PNP
X7	2SB56 ④	Output	2N408	2N632	2N408	PNP
X8	2SB56 ④	Output	2N408	2N632	2N408	PNP

① Alternate Type 2SA52.

② Alternate Type 2S53.

③ Alternate Type 2SB54.

④ 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	30	3	23K644668	XPP-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C2	5	3	23K644669	XPP-3005	NLW5-6	TT6X5	ML5-3	TE-1052, 2	
C3	5	3	23K644669	XPP-3005	NLW5-6	TT6X5	ML5-3	TE-1062, 2	
C4	30	3	23K644668	XPP-3030	NLW30-6	TT6X30	ML30-3	TE-1092	
C5	50	10	23K644671	XPP-10050	NLW50-10	TT10X50	ML50-12	TE-1119	
C6	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.
C7	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C8	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	3		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C12	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C14	7		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C15	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C16	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C17	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C18	2000		DI-2000	DD-202	BYA10D2	CCD-202	GP220	10TS-D2
C19	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50

AND DESCRIPTIONS

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	18B646324	B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

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

ITEM No.	RATING	REMARKS
R2	5600Ω	
R3	6800Ω	
R4	33K	
R5	2200Ω	
R6	33K	
R7	220Ω	
R8	470Ω	
R9	470Ω	
R10	33K	

ITEM No.	RATING	REMARKS
R11	1200Ω	
R12	470Ω	
R13	39K	
R14	22K	
R15	1500Ω	
R16	220Ω	
R17	5600Ω	
R18	68K	
R19	220Ω	

ITEM No.	RATING	REMARKS
R20	2200Ω	
R21	5600Ω	
R22	68K	
R23	100Ω	
R24	12K	
R25	12K	
R26	330Ω	
R27	3.9Ω	
R28	100Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	1V846647				
L2	Osc. Coil	24B646668				
L3	1st IF Trans.	24C646136				
L4	2nd IF Trans.	24K646137				
L5	3rd IF Trans.	24K646566				
L6	4th IF Trans.	24K646138				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thorderson PART No.	Triad PART No.	
T1	2.8	1	25B646139A①					① Alternate Part #25B646139

PARTS LIST AND DESC

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.						
T2	400Ω CT	6-8Ω	25B646134C ①					

① Alternate Part #25B646134.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				MOTOROLA PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.			
SP1	3 5/8"	PM	6-8Ω	50B646287		

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	*		930 *		1015 *		M-15R*	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	48K644681		1N60	1N60	AVC (Pigtail) Detector (Pigtail)
M3	1N60	48K644681		1N60	1N60	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Tuning Cap.	19B646629	2 Gang Battery Life Indicator (Pushbutton) Less All Components
M5	Switch	40B646613	
	Printed Board	84C646377	

DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Pointer	52B646247	Dial
Knob	36B646257	Tuning
Knob	36B646256	Volume
Cabinet Back	1V646656	Gray, Includes Battery Contacts, Model X19A
Cabinet Back	1V646657	Black, Includes Battery Contacts, Model X19E
Cabinet Front	1V60090A45	Gold, Complete

WIRING DATA

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

TUNING DRIVE CORD STRINGING

