

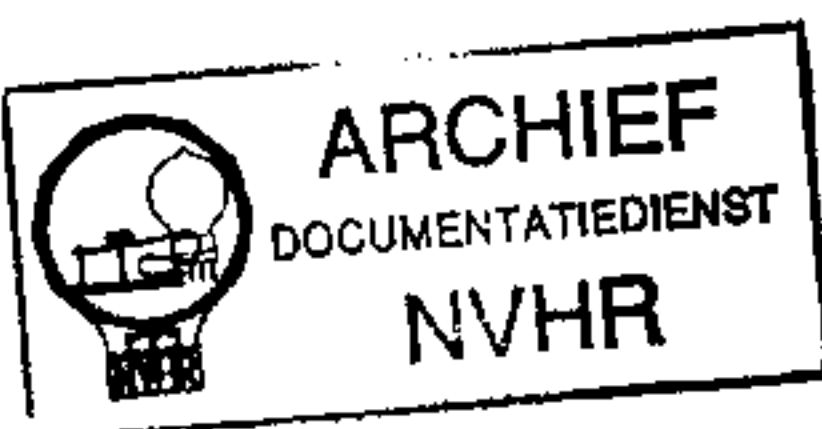
FACT[®] Folder

with CIRCUITRACE

MOTOROLA MODELS
X31A, X31N (Ch. HS-894)

Ned. Ver. v. Historie v/d Radio

Met dank aan Jef Bos



MODEL X31N

TRADE NAME	Motorola Models X31A, X31N (CH. HS-894)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	11MA @ 6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	532 — 1620KC		25MA @ 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:

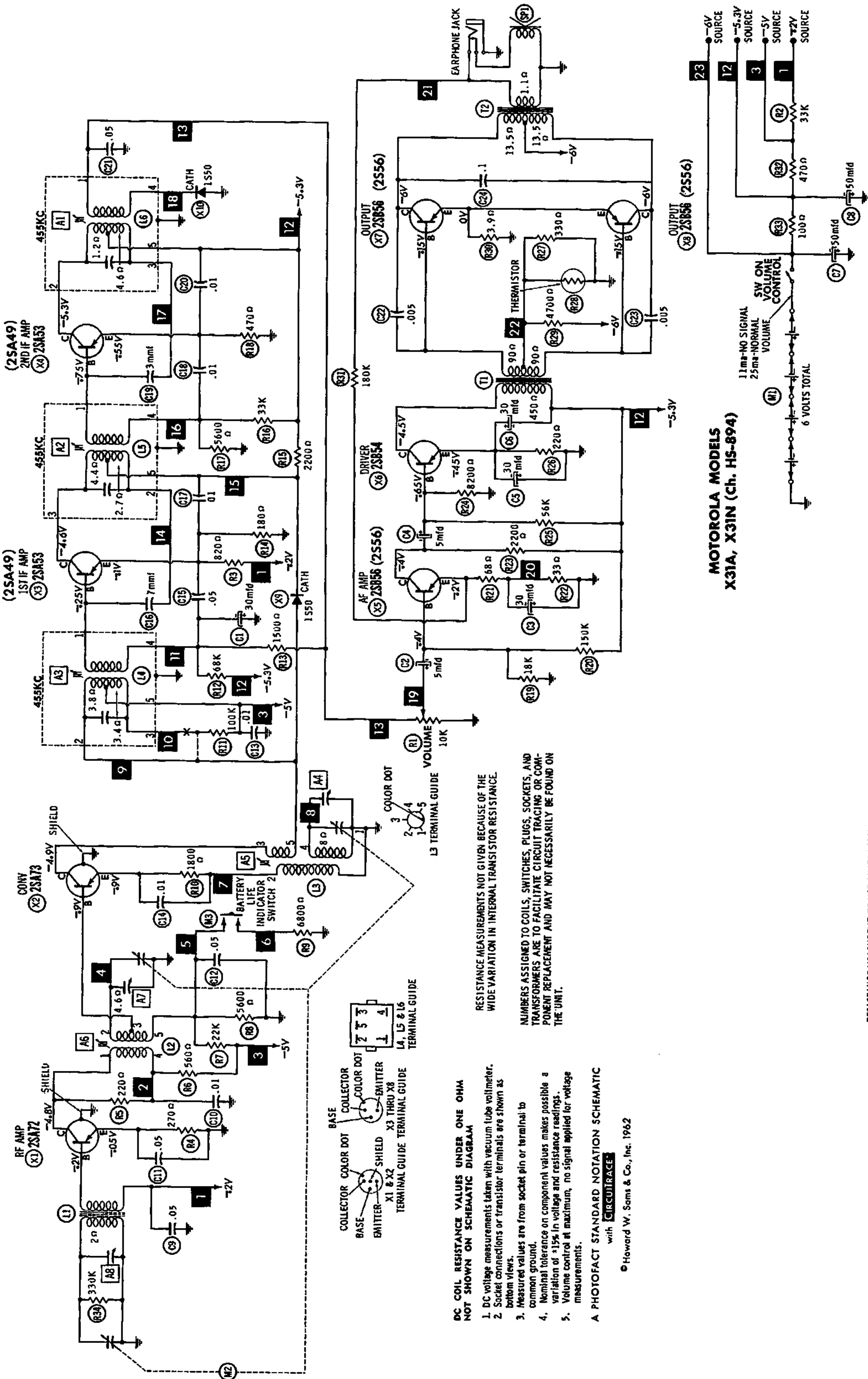
- A1, A2, A3.....GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
- A4, A7, A8.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
- A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
- A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
Fasten loop of several turns of wire and radiate signal into loop of receiver.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
"	1620KC	"	"	A4	"
"	600KC	600KC	"	A5, A6	Adjust for maximum output while rocking tuning gang.
"	1400KC	1400KC Signal.	"	A7, A8	Adjust for maximum output. Repeat steps 2, 3 and 4.

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

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

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 ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

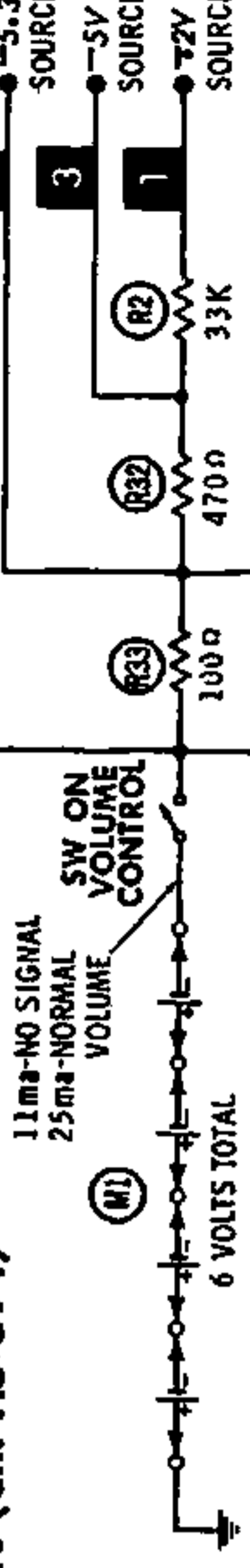
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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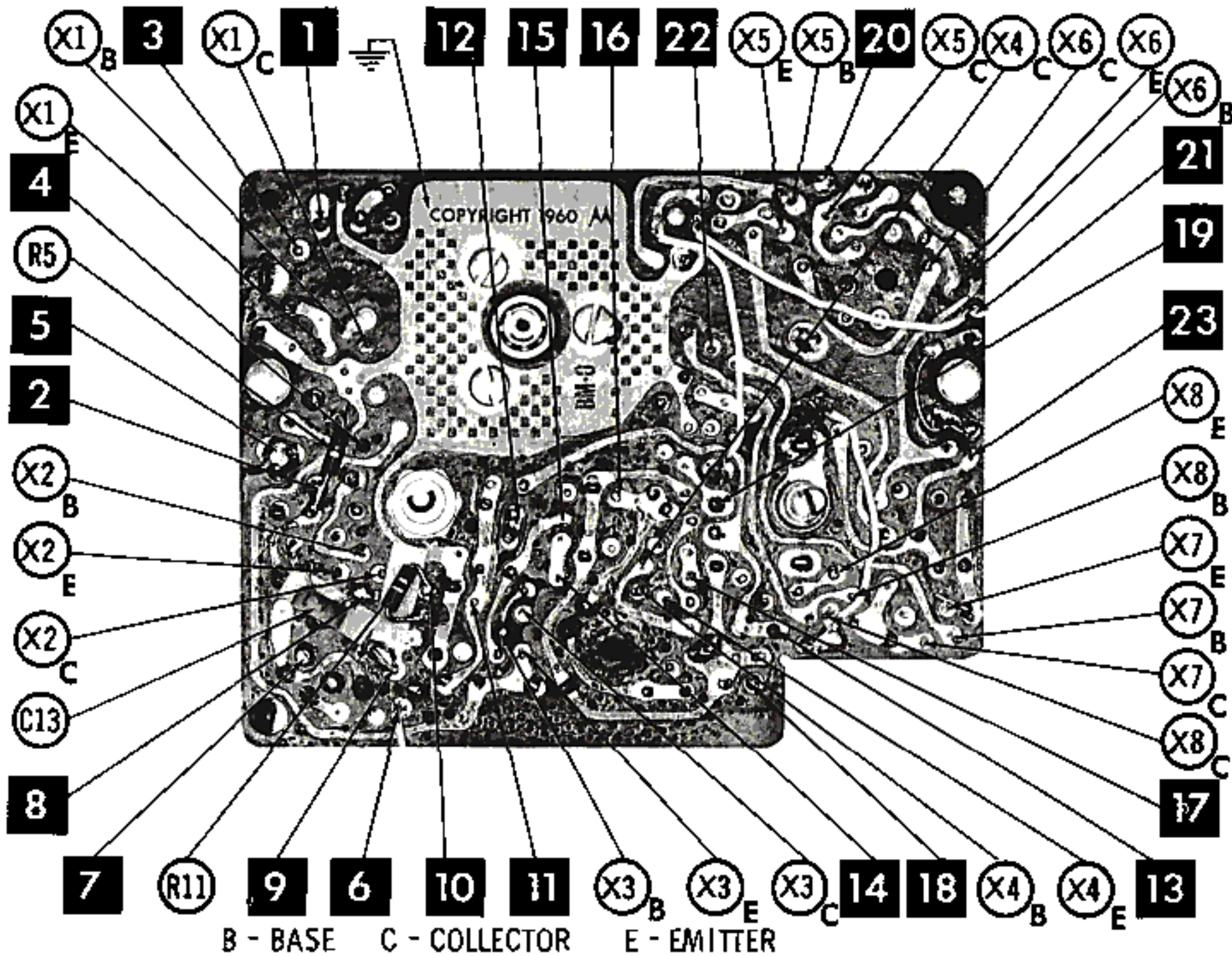
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

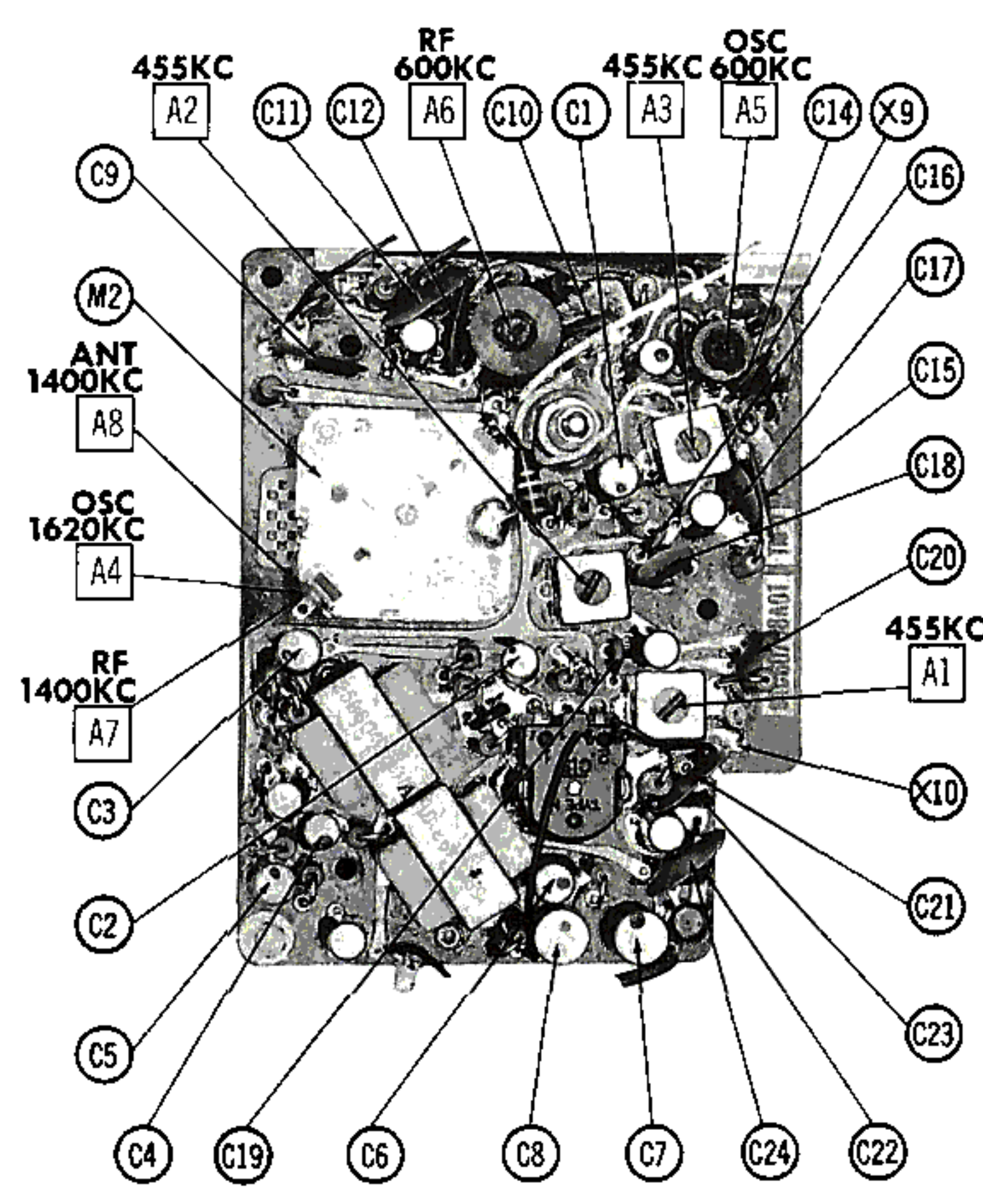
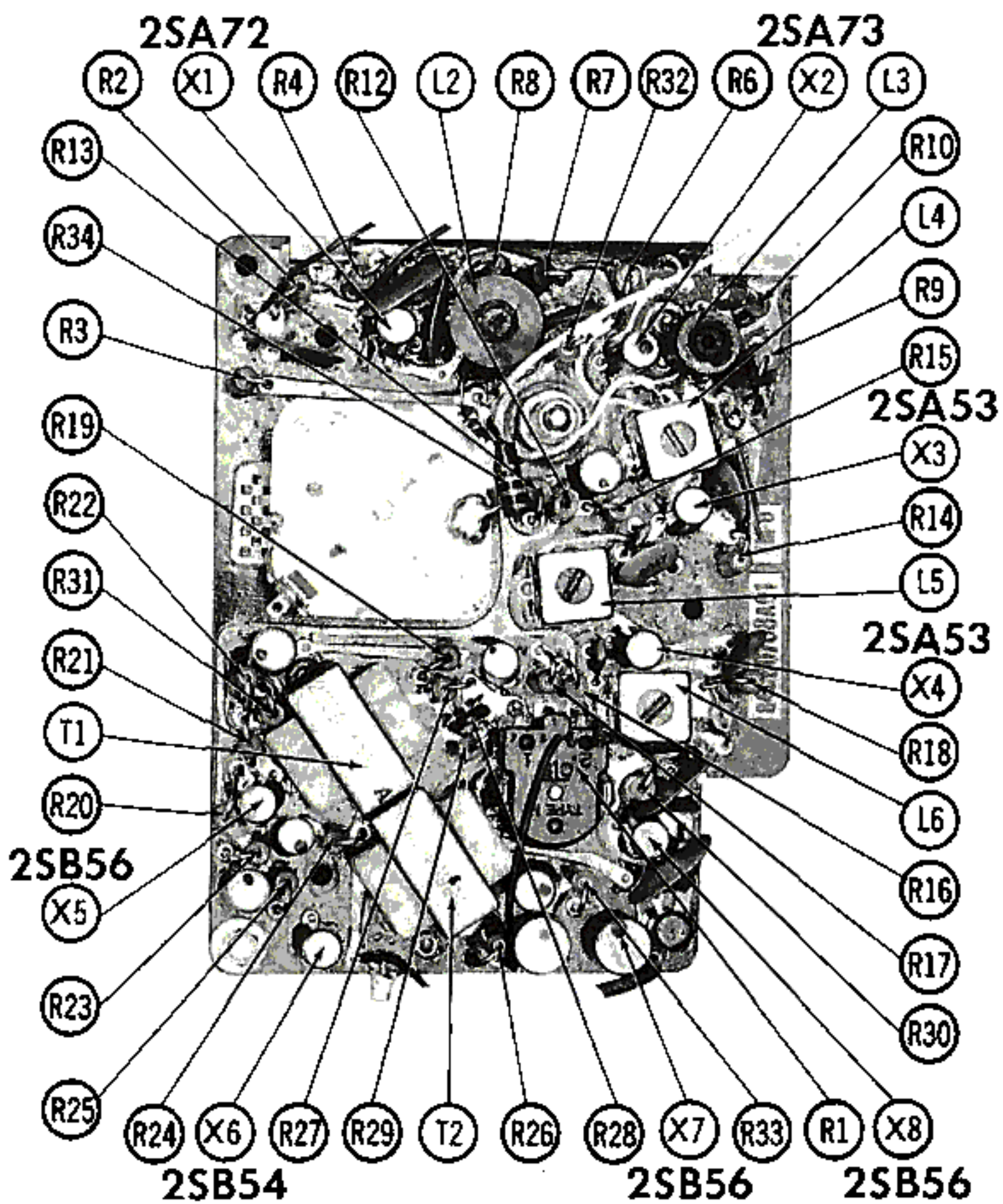
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

MOTOROLA MODELS X31A, X31N (Ch. HS-894)



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE





PRINTED BOARD - TOP VIEW

DESCRIPTIONS

FIXED CAPACITORS (cont)

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.
C17	.01		NPO-DI 3.0	DM-103	H-05S1	CCTO-3R3	TA-110	TG-S10
C18	.01			DM-103	H-05S1		TA-110	TG-S10
C19	3			DTZ-3R3	C10V3C		CNO-533	10TCC-V33
C20	.01			DM-103	H-05S1		TA-110	TG-S10
C21	.05		DA-503	H-05S5		TA-150	TG-S50	
C22	.005		BPD-005	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C23	.005		BPD-005	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C24	.1			DA-104	H-05P1		TA-010	TG-P10

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA			
			MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.
R1	Volume & Switch	10K	18B60597A01-0			

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 TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	33K				R19	18K			
R3	820Ω				R20	150K			
R4	270Ω				R21	68Ω			
R5	220Ω				R22	33Ω			
R6	560Ω				R23	2200Ω			
R7	22K				R24	8200Ω			
R8	5600Ω				R25	56K			
R9	6800Ω				R26	220Ω			
R10	1800Ω				R27	330Ω			
R11	100K				R28	200Ω@25°C			18B60519A01
R12	68K				R29	4700Ω			
R13	1500Ω				R30	3.9Ω			
R14	180Ω				R31	180K			
R15	2200Ω				R32	470Ω			
R16	33K				R33	100Ω			
R17	5600Ω				R34	330K			
R18	470Ω								

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	1.2	1	25B60492A01					

PARTS LIST & 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	72Ω CT	6-8Ω	25B60493A01			TR-12		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				MOTOROLA PART No.	QUAM PART No.	
	SIZE	FIELD	V. C. IMP.			
SP1	4"	PM	6-8Ω	50C60598A01	4A07Z8*	* Trim to fit

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	24C60805A01					
L2	RF	24C60731A01					
L3	Osc.	24K647414					
L4	1st IF	24K647319					
L5	2nd IF	24K647320					
L6	3rd IF	24K647321					

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V			130		635		M-14R	4 Required

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2 M3	Tuning Cap Switch Printed Board Ass'y.	19B60602A01 40B647229 1V60040A43	3 Gang Battery Life Indicator, Pushbutton Type, Momentary Contact Less Components (Includes Printed Board #84C60788A01)

DESCRIPTION (continued)

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Dial Scale	34B60899A01	
Dial Pointer	52A60702A01	
Dial Background	34B60617A01	
Knob, Tuning	36D65437A25	
Knob, Volume	36D65437A26	
Cabinet Cover	16E60670A03	Charcoal, Model X31A
Cabinet Cover	16E60670A06	Brown, Model X31N
Cabinet	16E60670A02	Less Cover, Charcoal, Model X31A
Cabinet	16E60670A05	Less Cover, Brown, Model X31N

WIRING DATA

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

