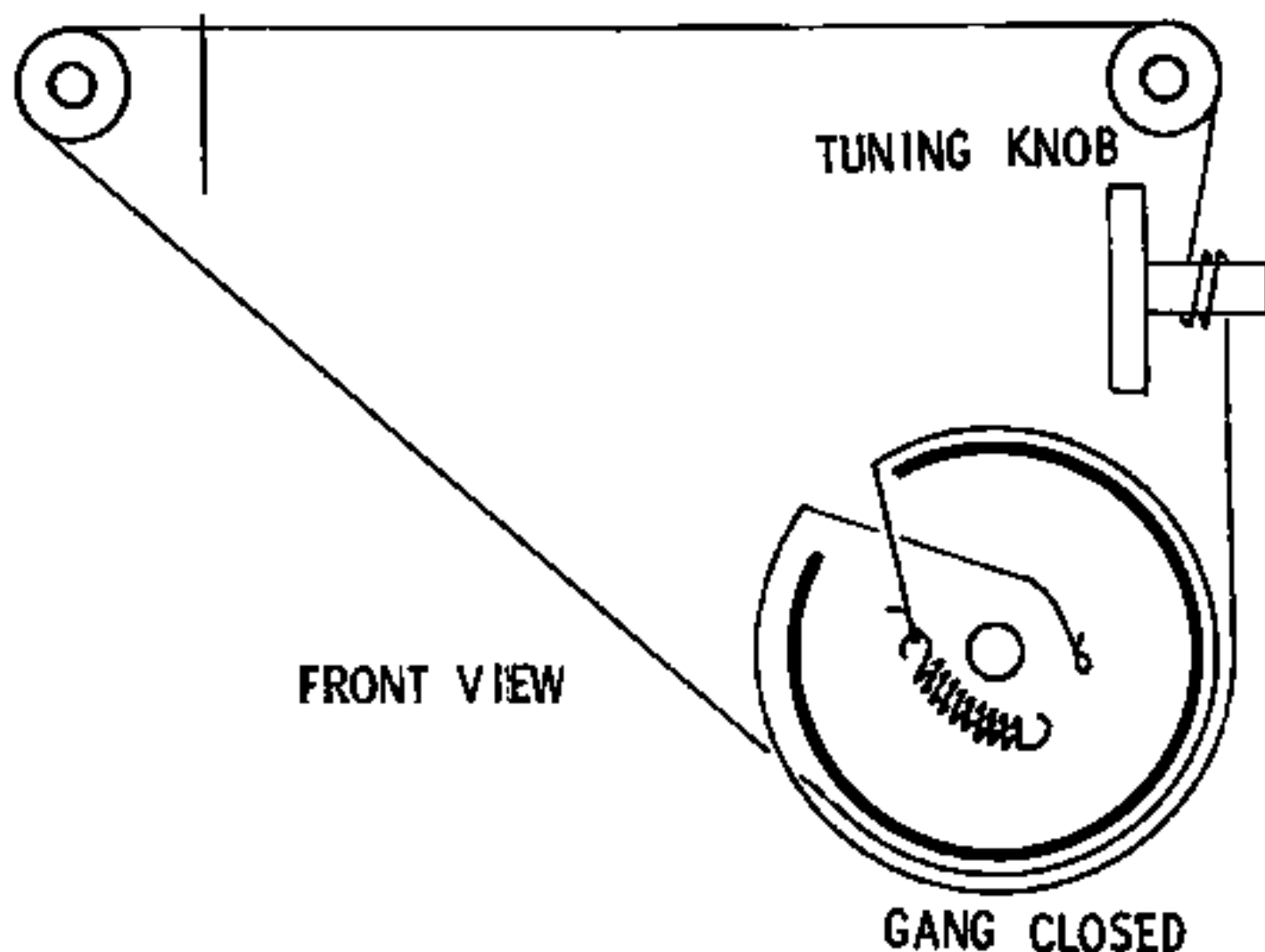


MODEL X29W



TRADE NAME	Motorola Models X29N, X29W (CH. HS-885)		
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	12MA@6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	532 — 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:

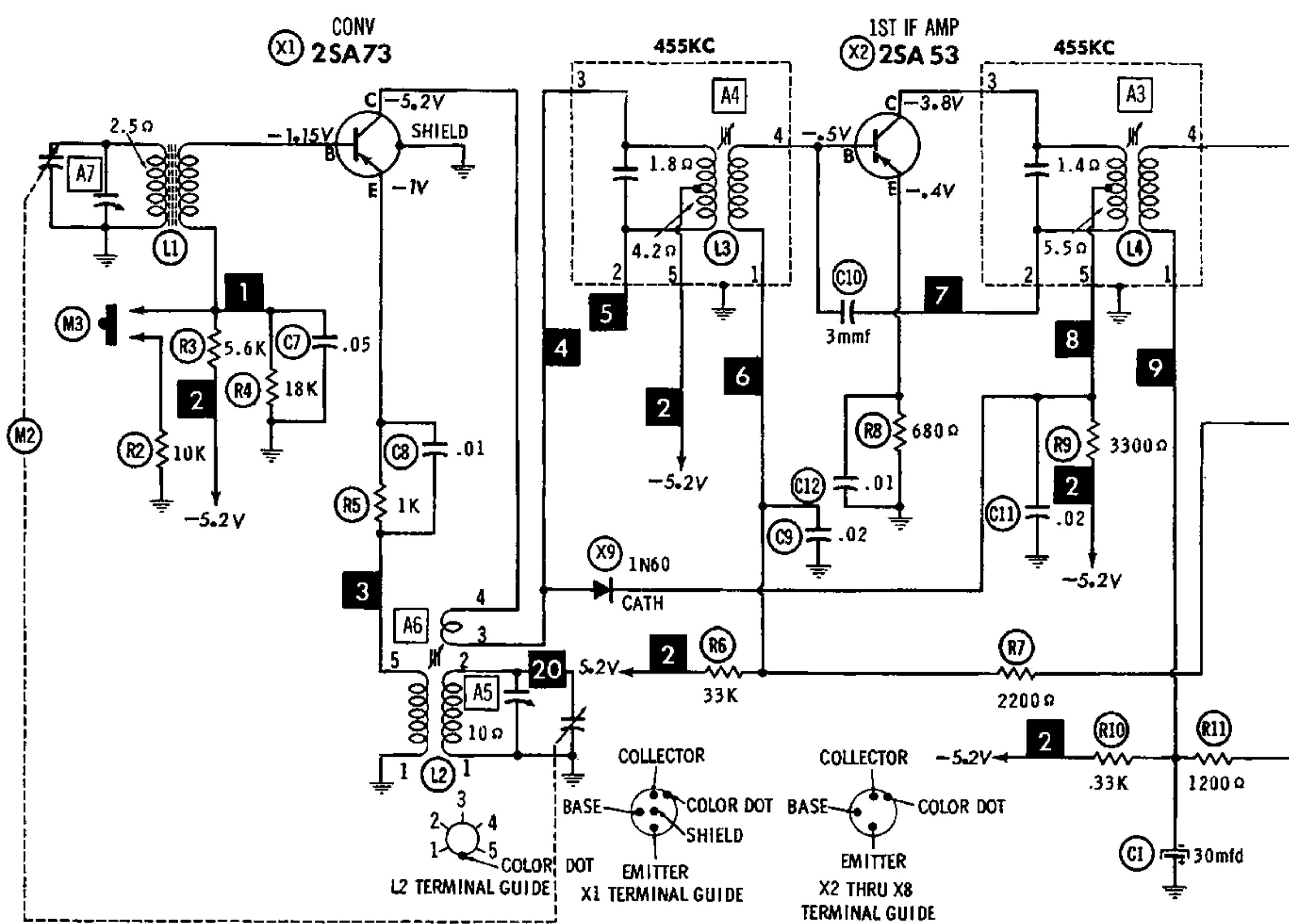
- A1 thru A4..... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
- A5, A7..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
- A8..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion 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, A4	Adjust for maximum output.
2.	"	1620KC	"	"	A5	"
3.	"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang.
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat steps 2, 3 and 4.

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 LF193

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. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



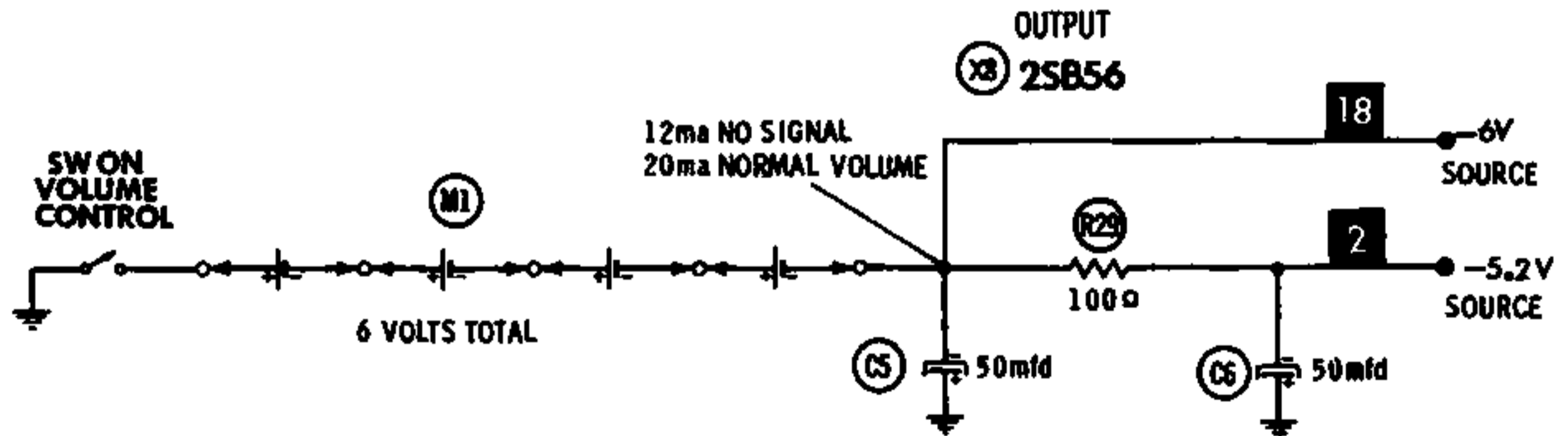
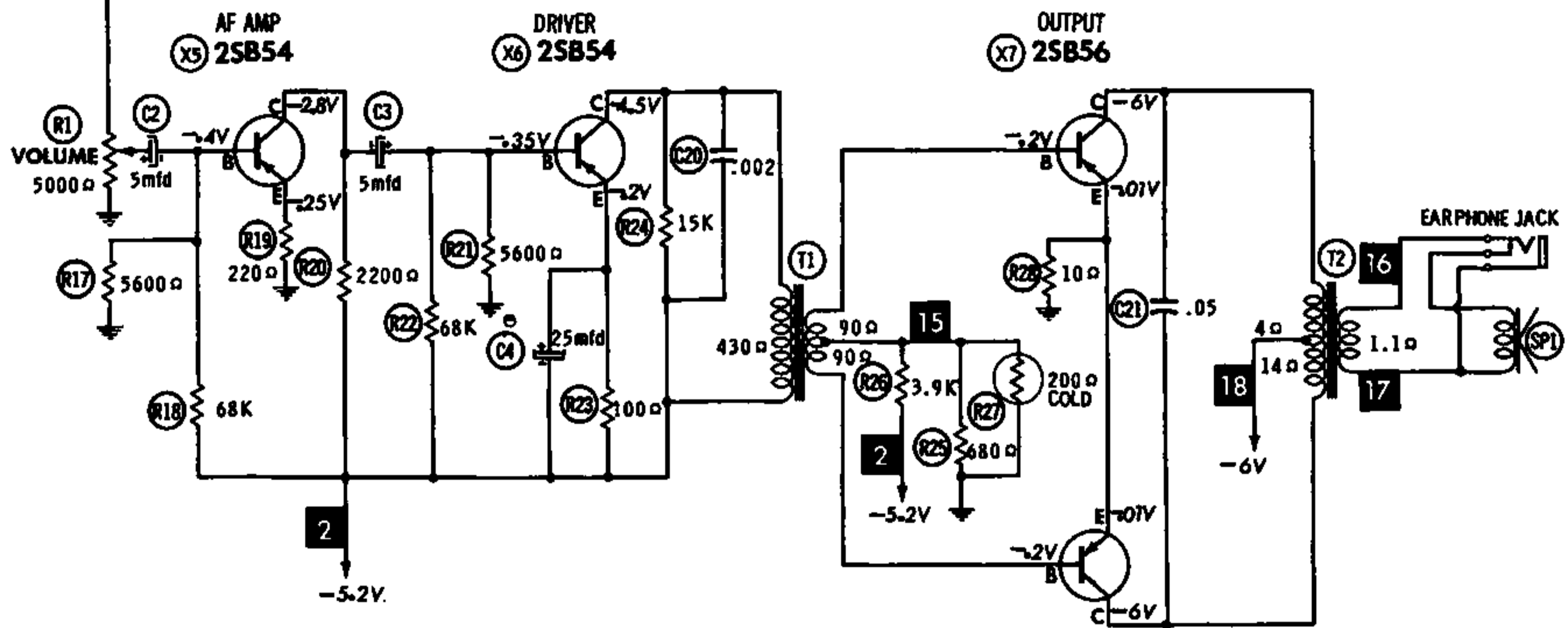
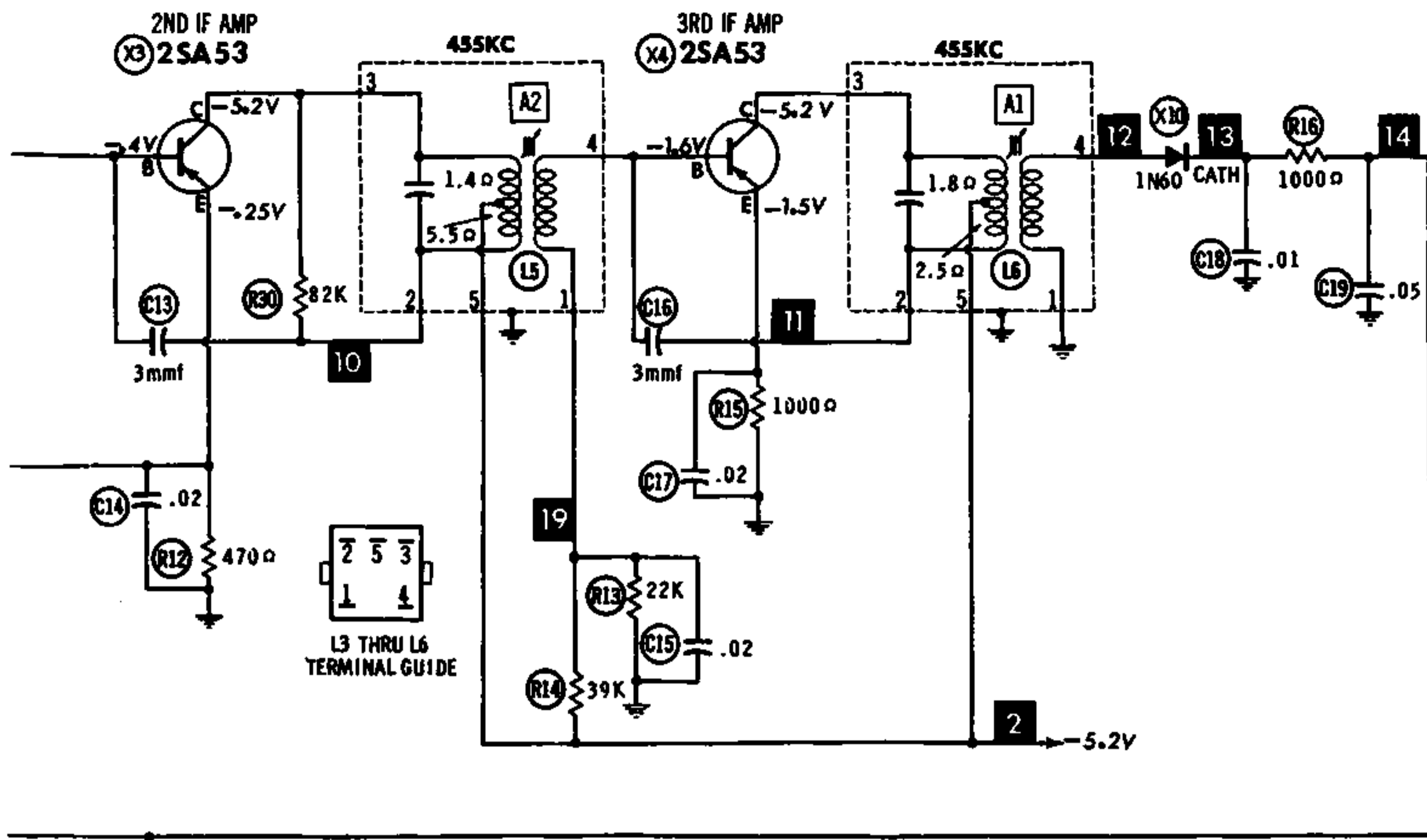
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

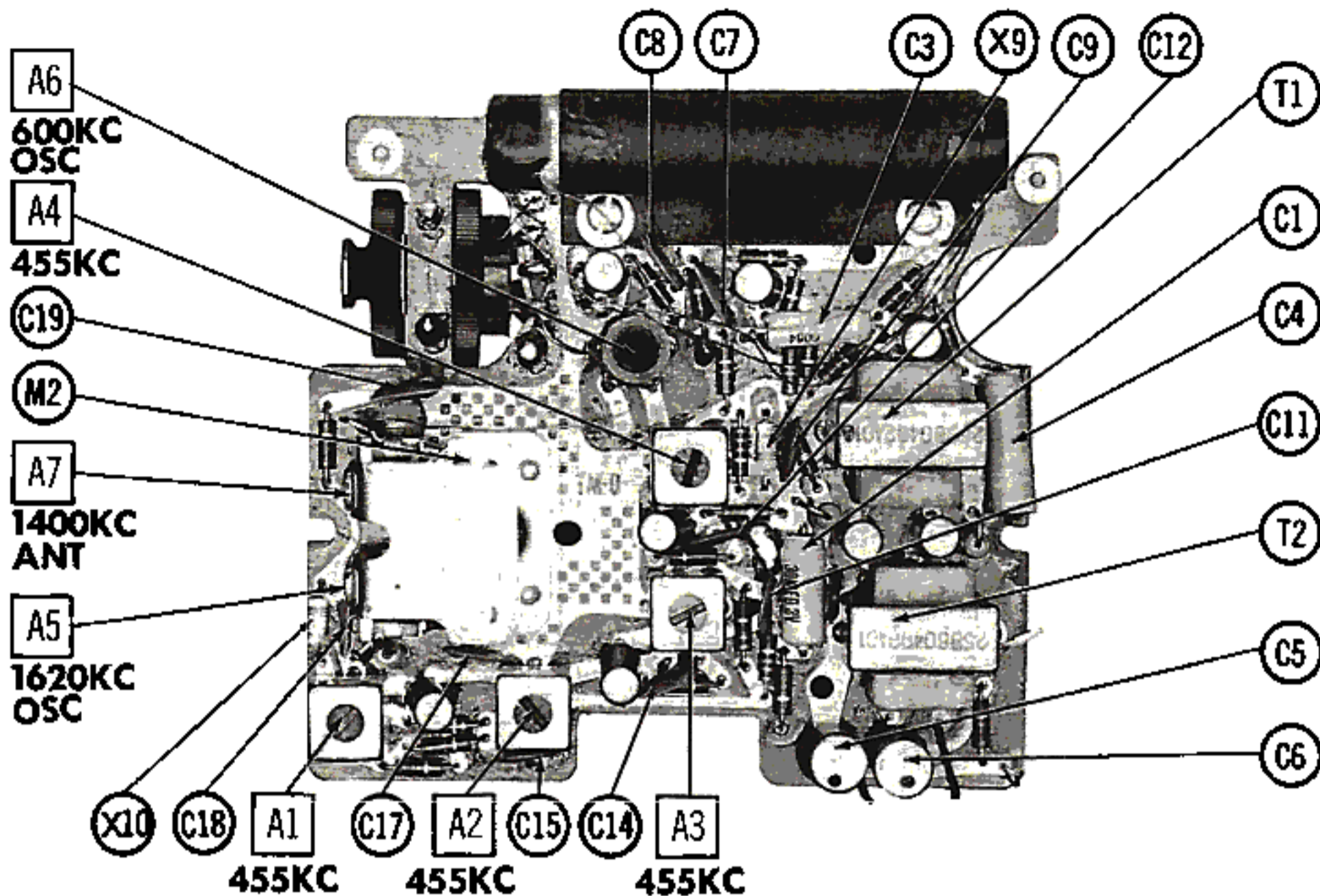
⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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

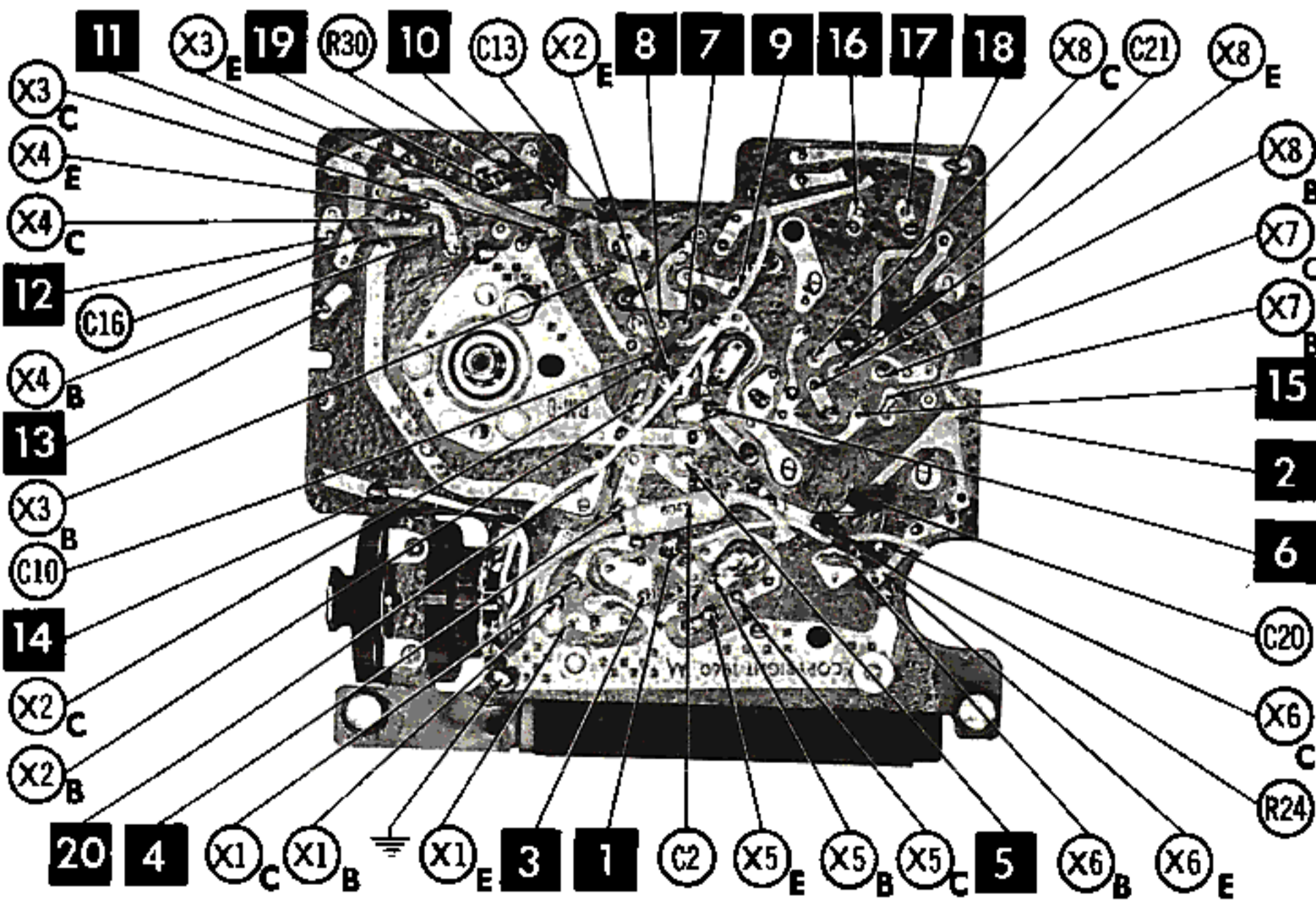
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance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

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE





CHASSIS TOP VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



B-BASE C-COLLECTOR
E-EMITTER

PARTS LIST

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.	
X1	2SA73	Converter	2N412	2N486	PNP
X2	2SA53	1st IF Amplifier	2N410	2N483	PNP
X3	2SA53	2nd IF Amplifier	2N410	2N483	PNP
X4	2SA53	3rd IF Amplifier	2N410	2N483	PNP
X5	2SB54	AF Amplifier	2N406	2N362	PNP
X6	2SB54	Driver	2N406	2N362	PNP
X7	2SB56	Output	2N408	2N632	PNP
X8	2SB56	Output	2N408	2N632	PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
X9 X10		24K644681 24K644681				1N60 1N60	Limiter (1N60) Detector (1N60)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	30	3	23K644668	PTT10	NLW30-8	MT1-13	TT6X30	MLV30-3	TE-1092
C2	5	3	23K644669	PTT4	NLW5-15	MT1-3	TT6X5	MLV5-3	TE-1052.2
C3	5	3	23K644669	PTT4	NLW5-15	MT1-3	TT6X5	MLV5-3	TE-1052.2
C4	25	10	①	PTT42	NLW25-10	MT1-10	TT10X25	MLV25-10	TE-1118
C5	50	10	23C60496A04	BCD10050	NLW50-10	MT1-16	TT10X50	MLV50-10	TE-1119
C6	50	10	23C60496A04	BCD10050	NLW50-10	MT1-16	TT10X50	MLV50-10	TE-1119

① Some versions use 20mfd@12V, Part #23C60496A05.

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.	Workman TV PART No.	
L1	Loopstick	1V60045A54					
L2	Osc.	24C60741A01					
L3	1st IF	24K646566					
L4	2nd IF	24K647237					
L5	3rd IF	24K647238					
L6	4th IF	24K646138					

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					

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	72Ω CT	8-8Ω	25B60493A01			TR-12		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	3 5/8"	PM	6-8Ω	50K647239		

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½ V			930		1015		M-15R	4 Required

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2 M3	Tuning Cap. Switch Printed Board	19B60553A01 40K647229 84C60590A01	2 Gang (Pushbutton) Battery Life Indicator Less All Components (Part of Chassis Assembly #1V60040A42)

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Dial Scale	34B60582A01	Tuning Volume Brown, Less Battery Cover, Model X29N White, Less Battery Cover, Model X29W Brown, Less Dial Scale Escutcheon, Name Plate, and Front Cover; Model X29N White, Less Dial Scale Escutcheon, Name Plate, and Front Cover; Model X29W Brown, Includes Medallion, Model X29N White, Includes Medallion, Model X29W
Dial Pointer	52B60608A01	
Dial Background	34B60591A01	
Knob	36B60578A01	
Knob	36B60583A01	
Cabinet Back	1V60046A03	
Cabinet Back	1V60046A02	
Cabinet Front	16E60575A05	
Cabinet Front	16E60575A01	
Front Cover	1V60030A72	
Front Cover	1V60030A71	

CHASSIS—TOP VIEW

