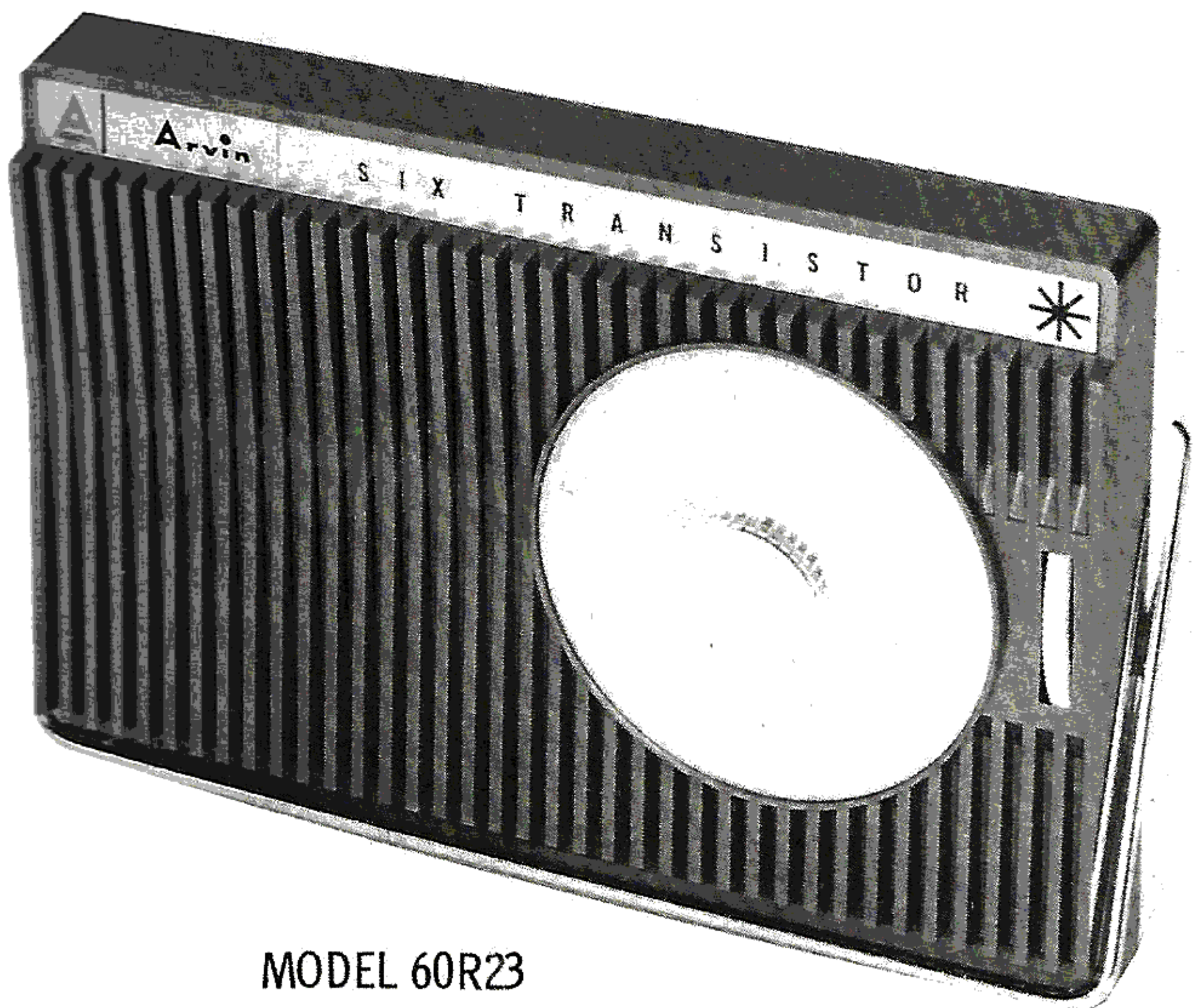


PHOTOFACT® Folder

with **CIRCUITRACE®**

**ARVIN MODELS 60R23,
60R28, 60R29 (Ch. 1.49201)**



MODEL 60R23

TRADE NAME	Arvin Models 60R23, 60R28, 60R29 (Ch. 1.49201)		
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana		
TYPE SET	Battery Operated Transistorized Portable AM Receiver		
POWER SUPPLY	6 Volts DC	RATING	6MA@6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1670KC		12MA@6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

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

Suggested Alignment Tools:

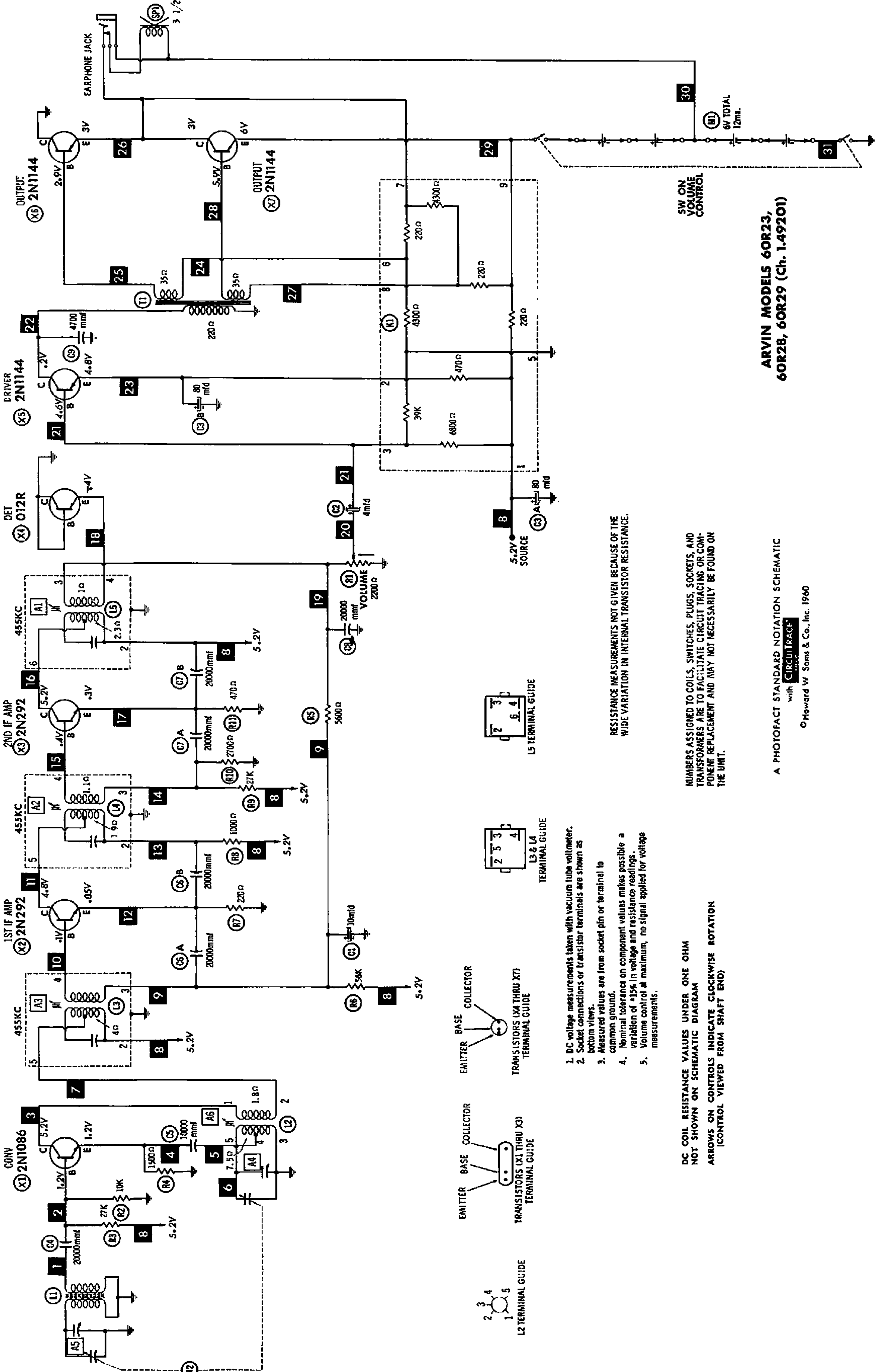
- A1, A2, A3.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
- A4, A5.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988,
8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
- A6.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
High side thru .05mfd to antenna socket lug of tuning gang. Low side to chassis.	455KC (400v Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
Loop	1670KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
"	1400KC	1400KC Signal	"	A5	"
"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang.

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 guarantee 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

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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.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

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.

ARVIN MODELS 60R23, 60R28, 60R29 (Ch. 1.49201)

A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

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PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N1086	Converter		2N1306		NPN
X2	2N292	1st IF Amplifier		2N1307	2N169	NPN
X3	2N292	2nd IF Amplifier		2N1307	2N169	NPN
X4	012R	Detector				PNP
X5	2N1144	Driver	2N408			PNP
X6	2N1144	Output	2N408			PNP
X7	2N1144	Output	2N408			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	44396-4	PTT10010	NLW10-15	TT12X10	ML10-15	TE-1114	
C2	4	10	44396-1	PTT10005	NLW4-15	TT50X4	ML4-15	TE-1123	
C3A	80	12	44397-3	BCD10X8080	ECPAN14	TT15X100		VL-2350	
B	80	12							

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.
C4	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6A	20000	}	BPD-2X02	DD-203	BYB6S2	CCD-203	B-120	5HK-2XS20
B	20000							
C7A	20000	}	BPD-2X02	DD-203	BYB6S2	CCD-203	B-120	5HK-2XS20
B	20000							
C8	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	4700		BPD-0047	DD-247	BYA10D47M	CCD-247	B-247	5HK-D47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	2200Ω	1/4	46800-5					Volume & Switch

RESISTORS (IRC or EQUIVALENT)

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

ITEM No.	RATING	REMARKS
R2	10K	
R3	27K	
R4	1500Ω	
R5	5600Ω	

ITEM No.	RATING	REMARKS
R6	56K	
R7	220Ω	
R8	1000Ω	
R9	27K	

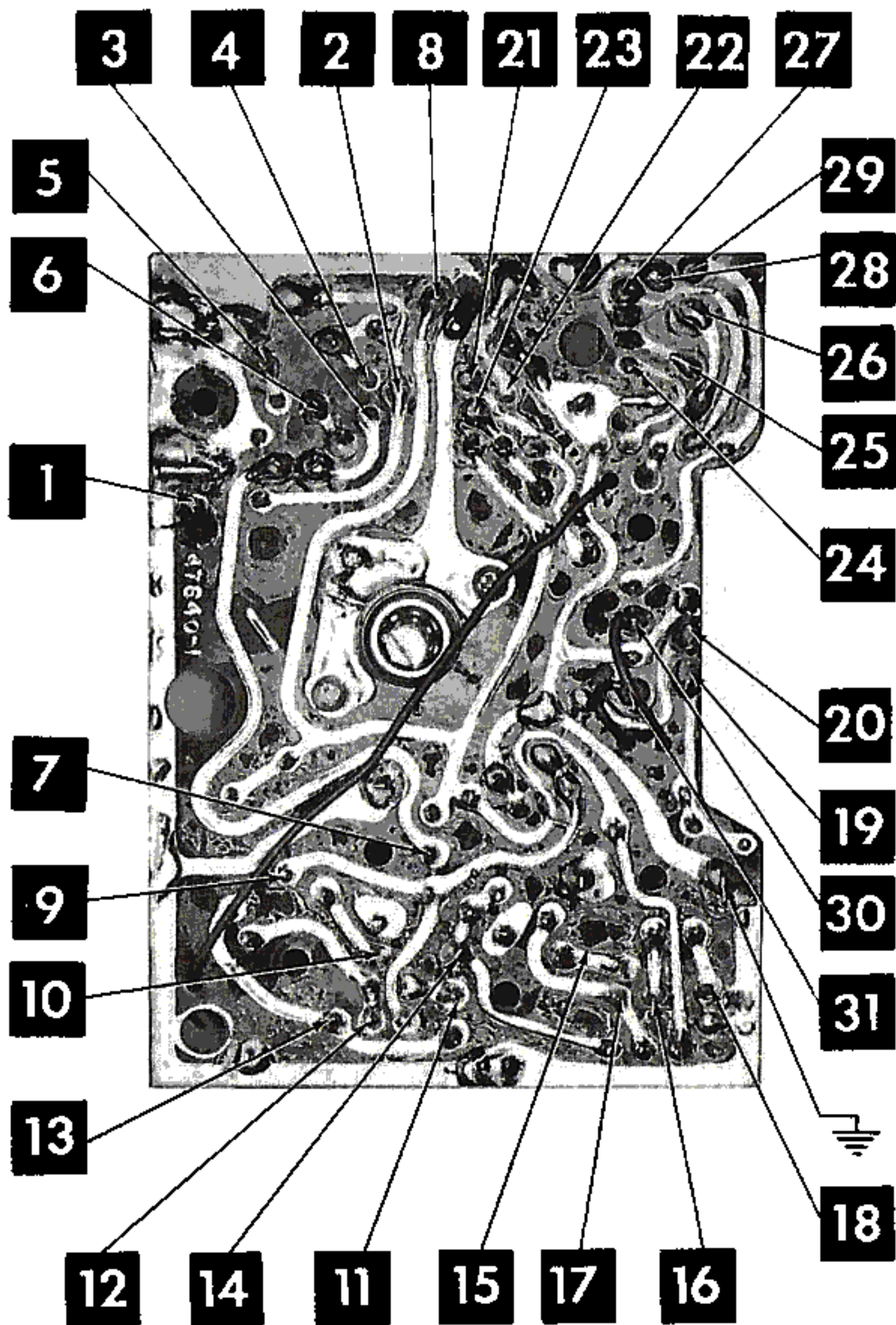
ITEM No.	RATING	REMARKS
R10	2700Ω	
R11	470Ω	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA
K1	Driver - Output Net.	(3) 220Ω, 470Ω, (2) 4300Ω, 6800Ω, 39K	46000-6	

PRINTED BOARD

A Howard W. Sams (100-100000-1) Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ARVIN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	46781-5				
L2	Osc. Coil	46783-16				
L3	1st IF Trans.	45900-17				
L4	2nd IF Trans.	45900-9				
L5	3rd IF Trans.	45900-16				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
			ARVIN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.1						
T1	3.8	1	45804-8					
		SEC.2						
		1						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ARVIN PART No.	QUAM PART No.	
SP1	3 1/2"	PM	46.3Ω	46523-2		

BATTERIES

ITEM No.	VOLTAGE	ARVIN PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			130 *		695 *		M-14R *	* 4 Required

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M2	Tuning Cap. Printed Board	48144 47840-1	2 Gang

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knob	47818	Tuning
Knob	17819-67	Volume, White
Cabinet	49048-33	Front Assembly, Flame
Cabinet	49048-149	Front Assembly, Gray
Cabinet	49048-208	Front Assembly, Sandstone
Cabinet	46611-67	Back Assembly, White
Cabinet	46611-188	Back Assembly, Taupe
Handle	47891-2	Cabinet

WIRING DATA

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

CHASSIS—TOP VIEW

