

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	REPLACEMENT DATA		REMARKS	ITEM No.	RATING	REPLACEMENT DATA		REMARKS
	IRC PART No.	WORKMAN TV PART No.				IRC PART No.	WORKMAN TV PART No.	
R57				R61	470Ω			
R58	270Ω			R62	470Ω			
R59	Thermistor		Pt. #63-3863	R63	100K			(120K) *
R60	6.8Ω							

* Alternate.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	Merit PART No.	Miller PART No.	Stencor PART No.	
L1	FM Ant.	S-48703				
L2	Loopstick	S-49070				
L3	FM RF	S-48705				
L4	AM RF	S-48710				
L5	FM Osc.	S-48707				
L6	AM Osc.	S-48712				
L7	RF Choke	S-23757				
L8	1st FM IF	95-1738	BC-327	463-T1-PC		
L9	1st AM IF	95-1735		463-T2-PC		
L10	2nd FM IF	95-1739		463-T3-PC		
L11	2nd AM IF	95-1736				
L12	3rd FM IF	95-1739				
L13	3rd AM IF	95-1737				
L14	Ratio Detector	95-1740				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO	REPLACEMENT DATA				NOTES
		ZENITH PART No.	Merit PART No.	Stencor PART No.	Thordorson PART No.	
T1	L 8 1	95-1741				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	Merit PART No.	Stencor PART No.	Thordorson PART No.	
T2	350Ω CT 3-4Ω	95-1742				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		ZENITH PART No.	QUAM PART No.	
SP1	5" x 7" PM	49-921	57A15	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
MI	1.5V	Z2NL	"A" 230	"B" A100	"M-13R"	8 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		ZENITH PART No.	GENERAL ELECTRIC PART No.	
M2	IN541			
M3	IN541		IN295	Ratio Detector

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES	
			GENERAL ELECTRIC PART No.	RAYTHEON PART No.
M4	Tuning Cap.	22-3247		
M5	Band Switch	85-641		
M6	Switch	85-642		
M7	Dipole Antenna	S-48764		

CABINETS & CABINET PARTS

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

ITEM No.	NAME	PART No.	DESCRIPTION	
			ZENITH PART No.	GENERAL ELECTRIC PART No.
	Dial Scale	26-668	AM	
	Dial Scale	26-667	FM	
	Disc-Indicator	S-49086	With Ring	
	Knob	S-49087	Tuning (With Ring)	
	Knob	S-49090	Volume (With Ring)	
	Knob	S-49088	Tone (With Ring)	
	Knob	S-49089	Function (With Ring)	
	Handles, Bottom	36-263		
	Handles, Top	36-264		
	Cabinet	S-49069	With Cover Material, Handle and Dial Scales	

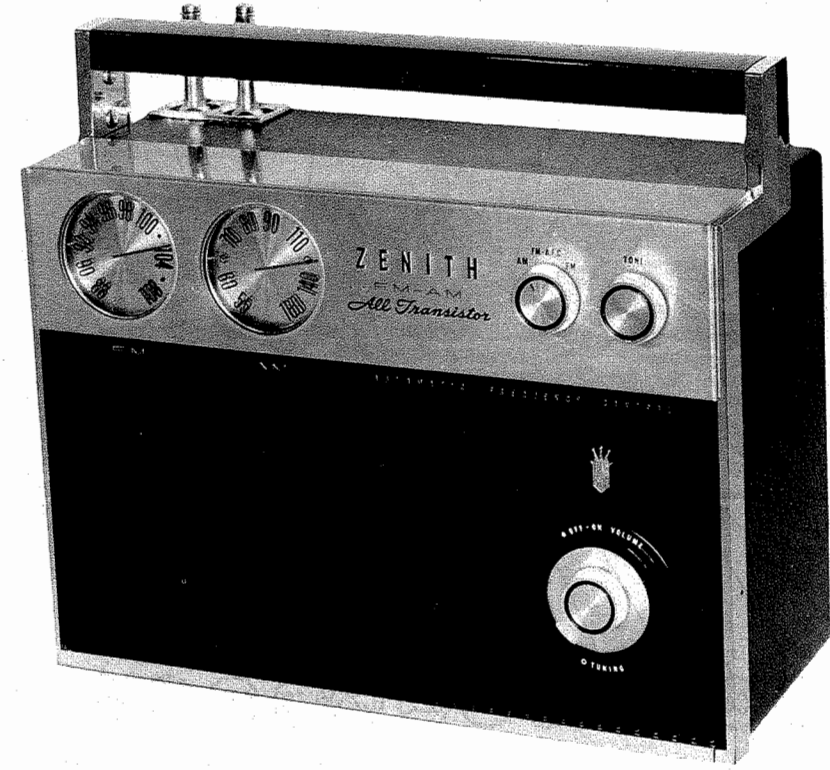
WIRING DATA

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

FOLDER 19
SET 560

PHOTOFACT® Folder

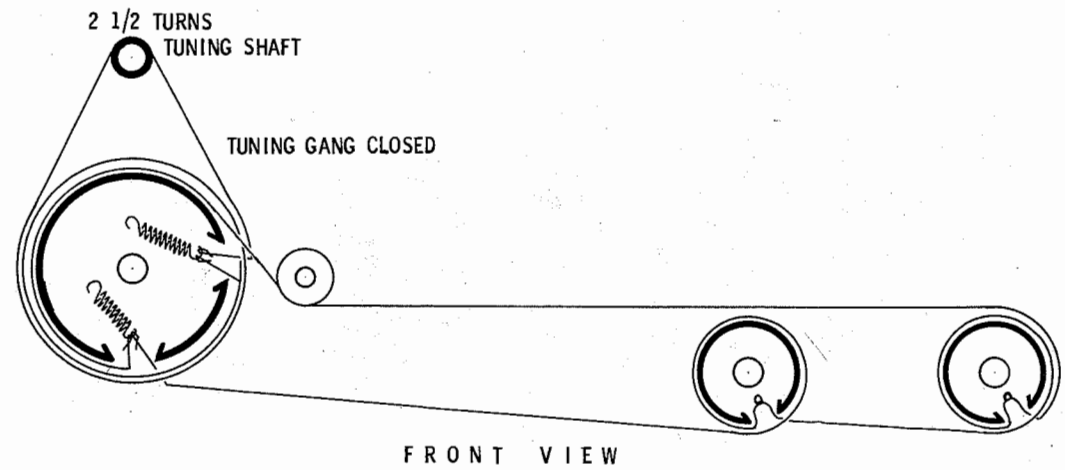
ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)



ZENITH MODEL
Royal 2000 (Ch. 11ET40Z2)

TRADE NAME	Zenith Model Royal 2000 (Ch. 11ET40Z2)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	Battery Operated Transistorized Portable FM-AM Receiver		
POWER SUPPLY	12 Volts DC	RATING	20MA@12 Volts DC (No Signal, Min. Volume)
			25MA@12 Volts DC (Signal, Normal Volume) AM
			40MA@12 Volts DC (Signal, Normal Volume) FM
TUNING RANGE—BROADCAST	540—1600KC		
FREQ. MOD.	88 — 108MC		

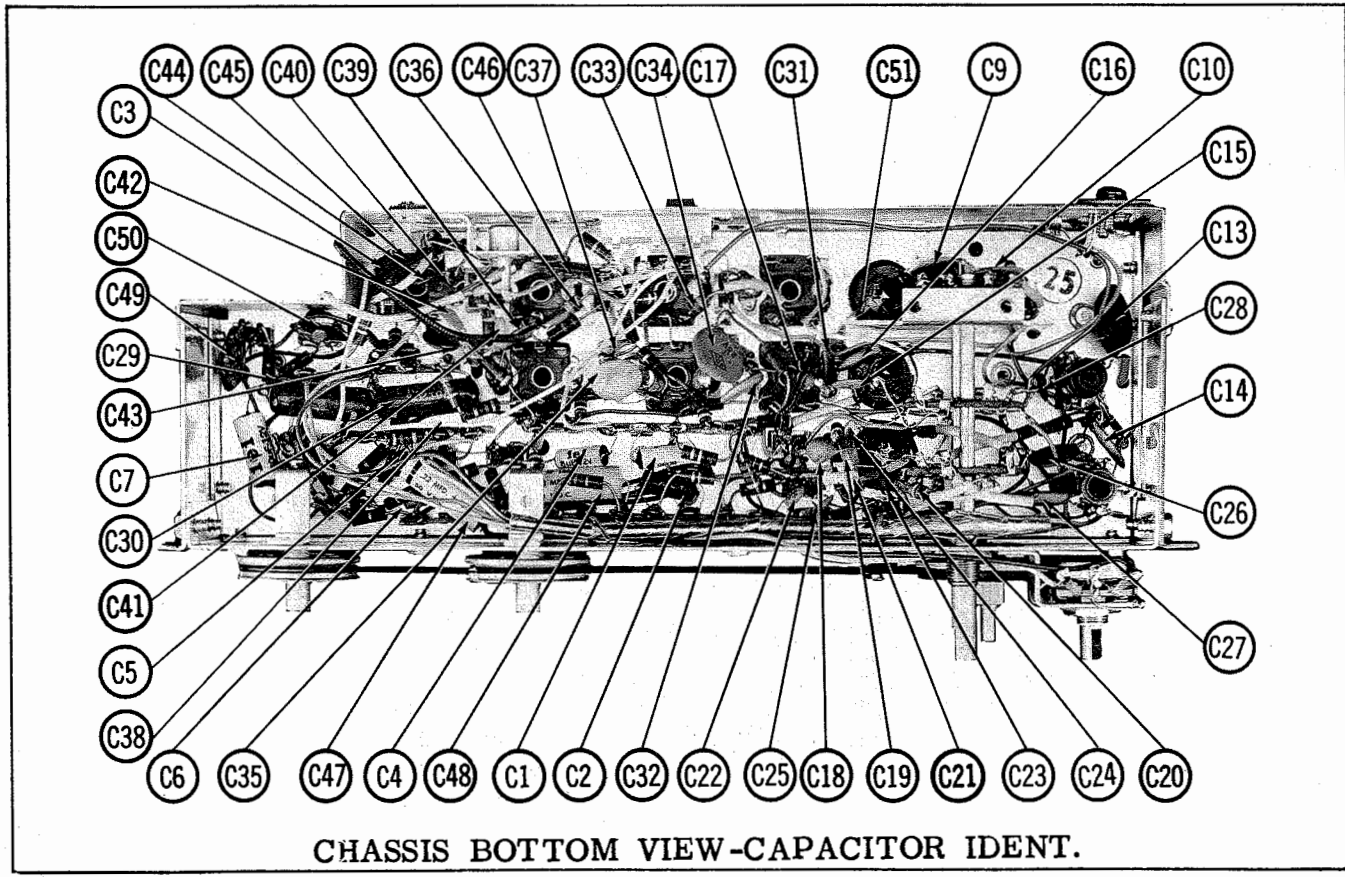
DIAL CORD STRINGING



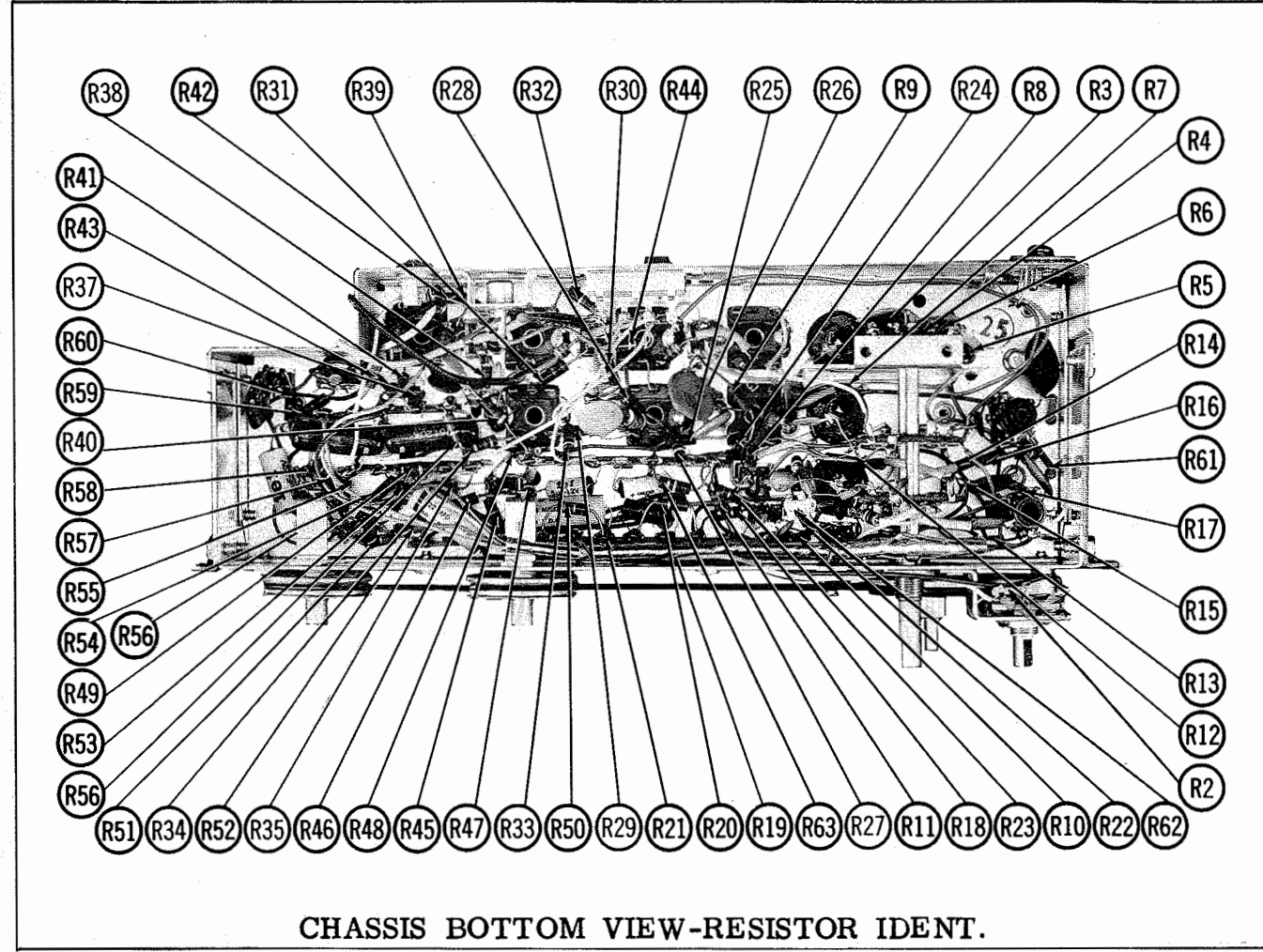
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFG. PART No.	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	121-194	FM RF Amplifier	2N1177		
X2	121-196	FM-AM Mixer	2N1179		PNP
X3	121-135	FM-AM Osc.	2N1178		PNP
X4	121-148	FM AFC	2N1406		PNP
X5	121-138	1st FM-AM IF Amp.	2N1180		PNP
X6	121-137	1st FM-AM IF Amp.	2N1180		PNP
X7	121-139	2nd FM-AM IF Amp.	2N1180		PNP
X8	121-139	3rd FM IF Amp.	2N1180		PNP
X9	121-46	AF Amplifier	2N362		PNP Matched
X10	121-47	Driver	2N362		PNP
X11	121-47	Output	2N360		PNP Pair

* Alternate.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLTS.	ZENITH PART No.	REPLACEMENT DATA			NOTES
				AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	
C1	5	12	22-2884	PTT51	NLW5-15	MTL-3	TT12X5
C2	15	10	①	PTT40	NLW5-12	MTL-11	TT12X5
C3	5	25	②	PTT77	NLW5-50	MTL-3	TT25X5
C4	5	12	22-2884	PTT51	NLW5-15	MTL-3	TT12X5
C5	5	12	22-2884	PTT51	NLW5-15	MTL-3	TT12X5
C6	5	12	22-2884	PTT51	NLW5-15	MTL-3	TT12X5
C7	50	12	22-2883	PTT59	NLW50-15	MTL-18	TT15X50
C8	500	12	22-2985	PR5170	BRS501	Q71-31	TC1505

① Some versions may use 15mfd@3V in this application (Part #22-2871).

② Some versions may use 5mfd@12V in this application (Part #22-2884).

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			INSTALLATION NOTES
			AEROVOX PART No.	CENTRALAB PART No.	ELMENCO PART No.	
C37	.05	033 50V	BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C38	.005	50V 10%	P288N-033	DD-303	IDP-1-333	MALLORY PART No. GEM-4133
C39	.005	8 NPO 10%	EPD-005	DD-502	CCD-502	MALLORY PART No. TA-250
C40	.005	50V 10%	NPO-DI 8.2	DD-502	CCD-502	MALLORY PART No. TA-250
C41	.005	50V 10%	EPD-005	DD-502	CCD-502	MALLORY PART No. TA-250
C42	.005	50V 10%	EPD-005	DD-502	CCD-502	MALLORY PART No. TA-250
C43	.02	50V 10%	EPD-02	DD-303	CCD-203	MALLORY PART No. TA-120
C44	.330 10%	50V 10%	DI-330	DD-331	CCD-331	MALLORY PART No. GP333
C45	.330 10%	50V 10%	DI-330	DD-331	CCD-331	MALLORY PART No. GP333
C46	.0022 10%	50V 10%	DI-2200	DD-222	CCD-222	MALLORY PART No. GP222
C47	.22 50V 10%	50V 10%	V84C2P22-10%	DD-222	CCD-222	MALLORY PART No. GP222
C48	.33 50V 10%	50V 10%	V84C2P33-10%	DD-331	CCD-331	MALLORY PART No. GP333
C49	.0033 10%	50V 10%	DI-3300	DD-333	CCD-333	MALLORY PART No. GP333
C50	.36 N220 5%		DI-3300	DD-333	CCD-333	MALLORY PART No. GP333
C51		#22-3259	DI-3300	DD-333	CCD-333	MALLORY PART No. GP333

Zenith Part Number

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	CENTRALAB PART No.	CTS-IRC PART No.	
R1A	10K	25000Ω Tap				Volume
B	Switch					Power Off-On
R2A	50K			A47-50K-S	U95	Tone
B	Shaft			FS-3	Not Req.	

① Some versions may use 50K Tone (Part #63-4683).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			INSTALLATION NOTES
			AEROVOX PART No.	CENTRALAB PART No.	ELMENCO PART No.	
C9	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C10	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C11	.0047 10%	#22-3264	DI-4700	DDA-503	CCD-472	MALLORY PART No. TA-150
C12	.0047 10%		DI-4700	DDA-503	CCD-472	MALLORY PART No. TA-150
C13	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C14	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C15	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C16A	.05		DI-3300	DDA-503	CCD-332	MALLORY PART No. TA-150
C17	.0033 10%	5mfd	BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C18	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C19	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C20	2.2 5%		NPO-SI 2.2	DDA-503	CCO-2R2	MALLORY PART No. TA-150
C21	5 N3500	#22-2980	DI-470	DDA-503	CCD-471	MALLORY PART No. TA-150
C22	470 NT90 5%		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C23	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C24	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C25	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C26	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C27	.1 25V		DI-100	DDA-503	CCD-101	MALLORY PART No. TA-150
C28	100 50V		P288N-15	DDA-503	CCD-101	MALLORY PART No. TA-150
C29	.15 50V		P288N-15	DDA-503	CCD-101	MALLORY PART No. TA-150
C30	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C31	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C32A	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C33	2.2 5%		NPO-SI 2.2	DDA-503	CCO-2R2	MALLORY PART No. TA-150
C34	.1 25V		DI-104	DDA-503	CCD-104	MALLORY PART No. TA-150
C35A	.05		BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
B			BPD-05	DDA-503	IDP-2-503	MALLORY PART No. TA-150
C36	.05		NPO-SI 2.2	DDA-503	CCO-2R2	MALLORY PART No. TA-150

FOLDER 19

ROYAL 2000 (Ch. 11E40Z22)

ZENITH MODEL

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 A5, A7, A8 and A11 thru A18.... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
- A6..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
- A9, A10..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT -- SELECTOR IN AM POSITION

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% 30% AM)	(AM) 1400KC	Across voice coil.	A1, A2, A3, A4, A5	Adjust for maximum output.
2. "	1600KC	Tuning gang fully open.	"	A6	"
3. "	540KC	540KC	"	A7	"
4. "	600KC	600KC	"	A8	Adjust for maximum output. Repeat Steps 2, 3 and 4.
5. "	1400KC	1400KC Signal.	"	A9, A10	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6. Across FM antenna terminals.	10.7MC (Unmod.)	(FM) 98MC	DC probe to point Δ . Common to chassis.	A11, A12, A13, A14, A15, A16, A17	Adjust for maximum deflection.
7. "	"	"	DC probe to point Δ . Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6. Across FM antenna terminals.	10.7MC (450KC Swp)	(FM) 98MC	Vert. amp. to point Δ . Low side to chassis.	A11, A12, A13, A14, A15, A16, A17	Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
7. "	"	"	Vert. amp. to point Δ . Low side to chassis.	A18	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT -- SELECTOR IN FM POSITION

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8. Across FM antenna terminals with 120 Ω in each lead.	98MC	(FM) 98MC	DC probe to point Δ . Common to chassis.	A19, A20, A21	Adjust for maximum deflection.

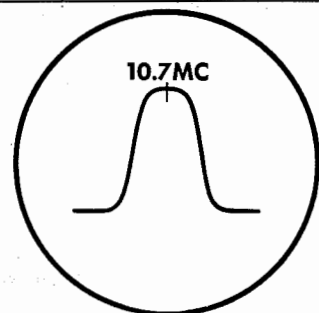


FIG. 1

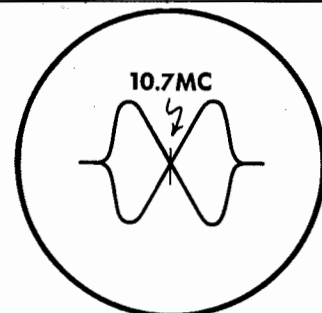


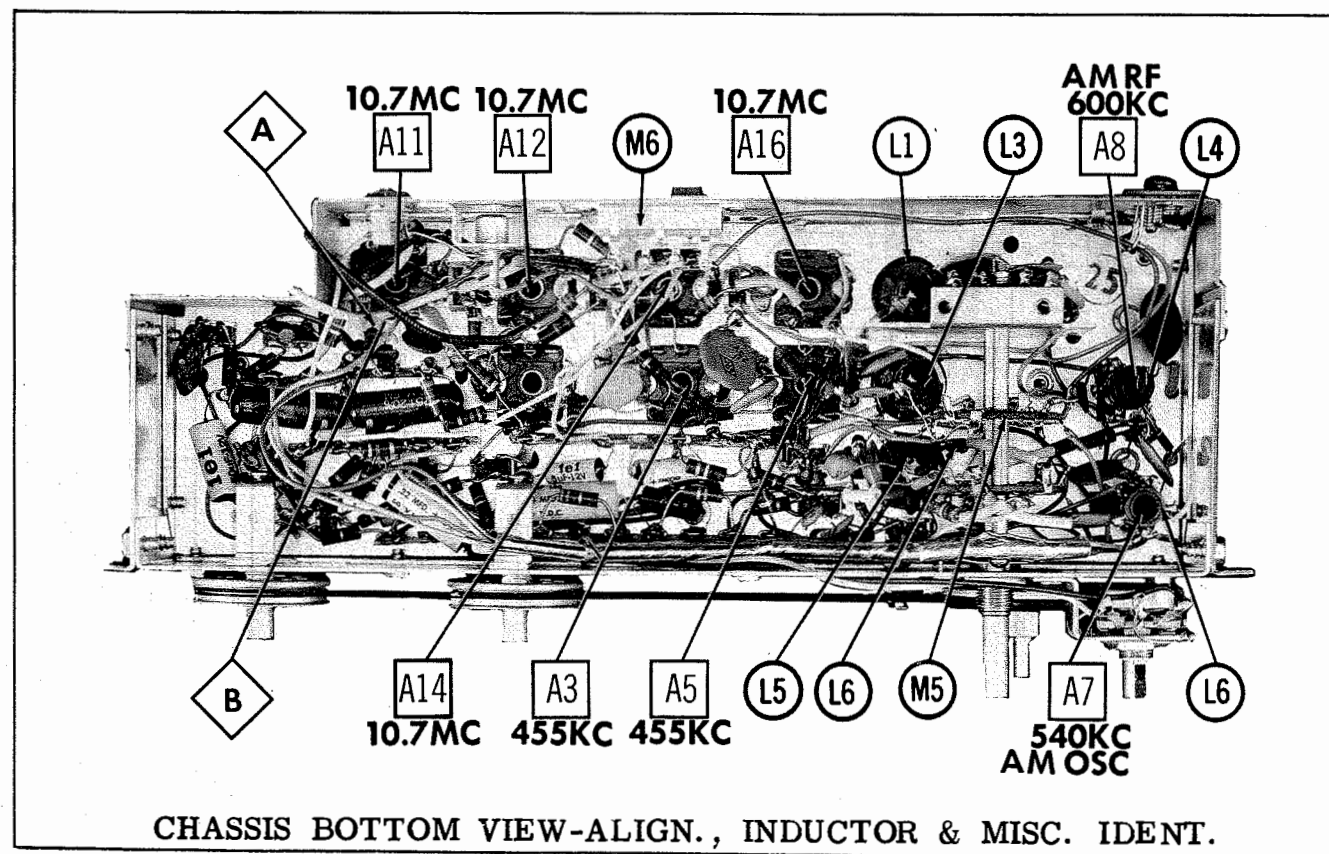
FIG. 2

SET 560

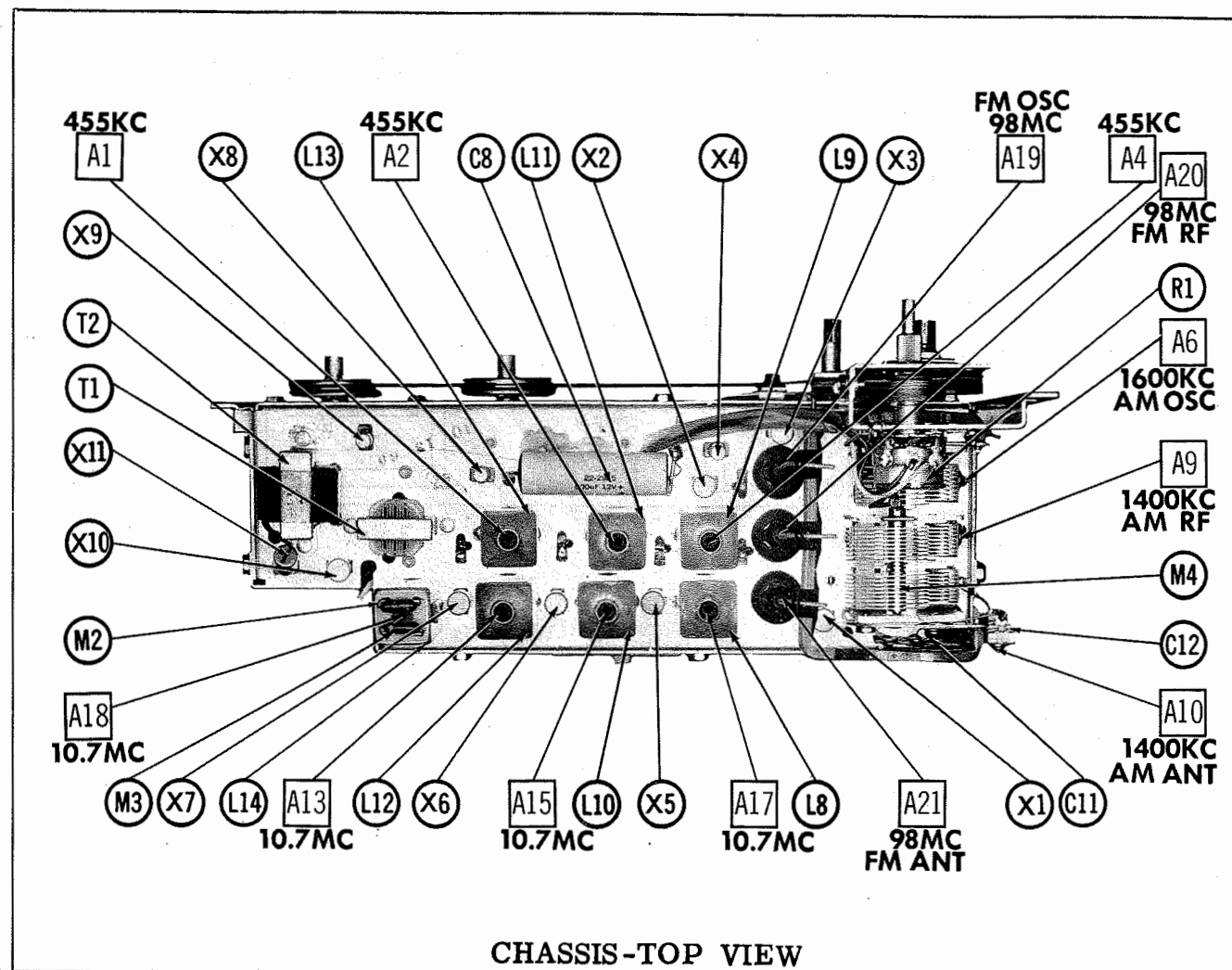
FOLDER 19

ZENITH MODEL
ROYAL 2000 (Ch. T1E740Z2)

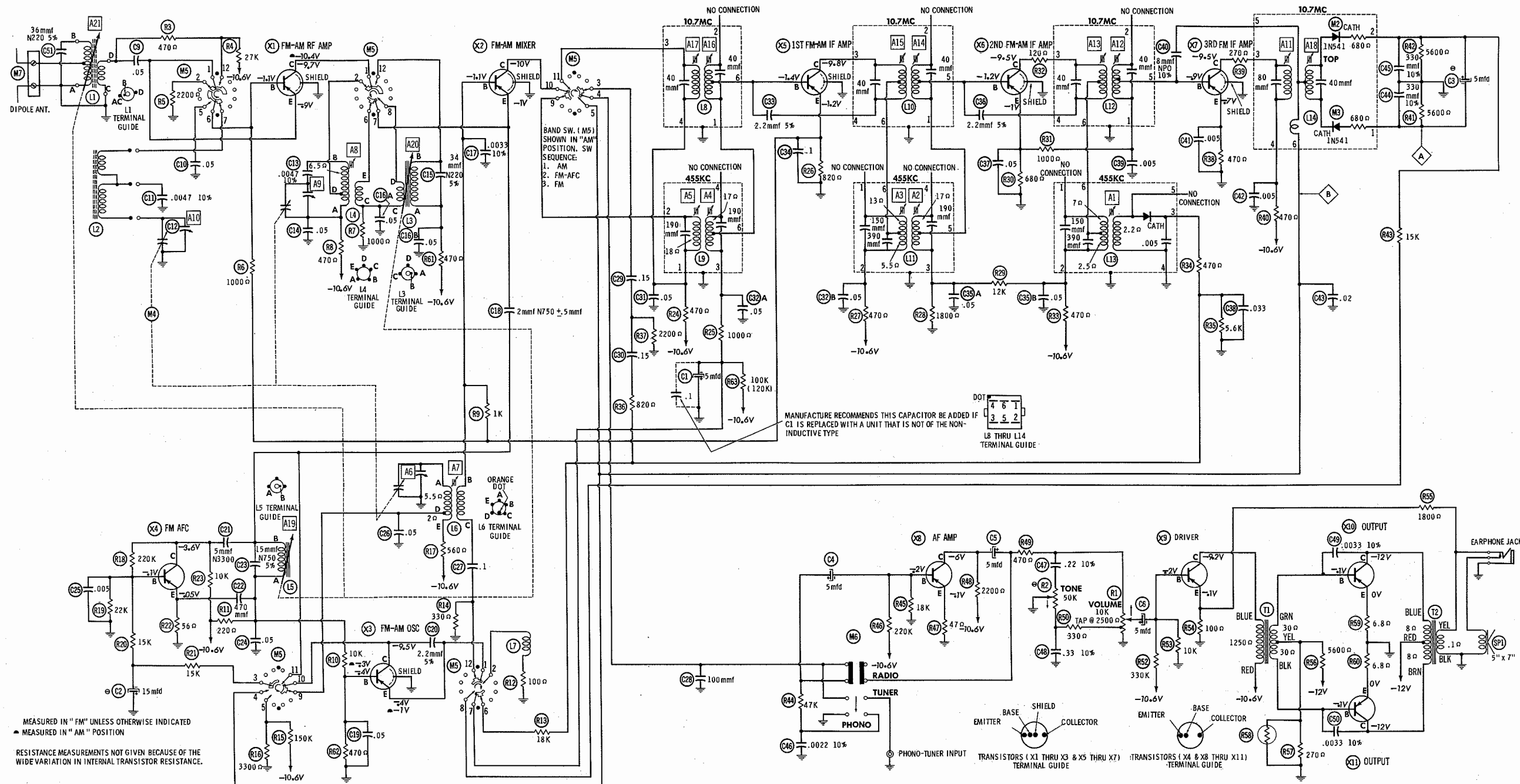
FOLDER 19



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS-TOP VIEW



MEASURED IN "FM" UNLESS OTHERWISE INDICATED
 MEASURED IN "AM" POSITION

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.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

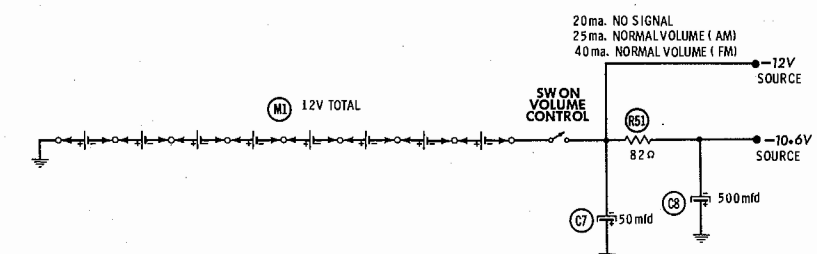
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

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

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 PHOTOFAC STANDARD NOTATION SCHEMATIC

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ZENITH MODEL
 Royal 2000 (Ch. 11E740Z2)