

## PARTS LIST AND DESCRIPTION (CONTINUED)

## RESISTORS

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

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	RATING	WORKMAN PART No.		IRC PART No.	WORKMAN PART No.		RATING	IRC PART No.
R5	2.2meg		R45			R46	100K	
R6	1000Ω		R47			R48	220Ω	
R7	150Ω		R49			R50	22K	
R8	47K		R51			R52	100K	
R9	6800Ω		R53			R54	1500Ω 5W	
R10	1000Ω		R55			R56	1500Ω 5W	
R11	100K		R57			R58	5W-SQ-1500	
R12	470K		R59			R60	5W-SQ-1500	
R13	2200Ω		R61			R62		
R14	10K		R63			R64		
R15	68Ω		R65			R66		
R16	100K		R67			R68		
R17	2200Ω		R69			R70		
R18	10K		R71			R72		
R19	1500Ω		R73			R74		
R20	6800Ω		R75			R76		
R21	1000Ω		R77			R78		
R22	6800Ω		R79			R80		
R23	68Ω		R81			R82		
R24	68K		R83			R84		
R25	2.2meg		R85			R86		
R26	270K 5%		R87			R88		
R27	33K 1W		R89			R90		
R28	150Ω		R91			R92		
R29	33K 1W		R93			R94		
R30	22K		R95			R96		
R31	68K		R97			R98		
R32	33K 1W		R99			R100		
R33	270Ω 5%		R101			R102		
R34	47K		R103			R104		
R35	100K		R105			R106		
R36	2.2meg		R107			R108		
R37	15K		R109			R110		
R38	2.2meg		R111			R112		
R39	100K		R113			R114		
R40	2200Ω		R115			R116		
R41	22K		R117			R118		
R42	100K		R119			R120		
R43	100K		R121			R122		
R44	15K		R123			R124		

† Alternate Value.

## COILS (RF-IF)

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	USE	ULTRATONE PART No.		Miller PART No.	Workman PART No.		Workman PART No.	Notes
L1	1st FM IF	1420	L2	4802	RTC-8515	L3	T865	
L2	1st Choke (uh)	1303	L4	4803	RTC-8599	L5	T833	
L3	2nd FM IF	1418	L6	1463	RTC-8600	L7	T835	
L4	Radio Detector	1418	L8	1465	RTC-8815	L9	T532	
L5	Loopback	1418	L10	6300 *	RTC-8732	L11	T501	
L6	AW RF	1412	L12	70-QSC*	RTC-8847	L13	T512	
L7	1st AM IF	1401-C	L14	14-C1	RTC-9287	L15	T607	
L8	2nd AM IF	1405	L16	14-C2	RTC-9288	L17	T608	
L9	2nd AM IF	1406-A	L18	BC-353		L19		

## TRANSFORMER (POWER)

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	RATING	ULTRATONE PART No.		Merit PART No.	Stancor PART No.		Stancor PART No.	Notes
T1	117VAC @ 1.1A	117VAC @ 1.1A	T2	117VAC @ 1.1A	117VAC @ 1.1A	T3	117VAC @ 1.1A	
	SEC. 1	SEC. 2		SEC. 3	SEC. 4		SEC. 5	
	6.3VAC	6.3VAC		6.3VAC	6.3VAC		6.3VAC	
	CT @ 3.8A	CT @ 3.8A		CT @ 3.8A	CT @ 3.8A		CT @ 3.8A	
	SEC. 3	SEC. 4		SEC. 5	SEC. 6		SEC. 7	
	6.3V @ 2.75A	6.3V @ 2.75A		6.3V @ 2.75A	6.3V @ 2.75A		6.3V @ 2.75A	

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	IMPEDANCE	SEC.		ULTRATONE PART No.	Merit PART No.		ULTRATONE PART No.	Merit PART No.
T2	800Ω CT	3-4Ω	T3	800Ω CT	3-4Ω	T4	800Ω CT	3-4Ω

## SPEAKER

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	TYPE	FIELD		ULTRATONE PART No.	QUAM PART No.		ULTRATONE PART No.	QUAM PART No.
SP1	8"	PM	SP2	8"	PM	SP3	8"	PM
SP4	4"	PM	SP5	4"	PM	SP6	4"	PM

## PHONO CARTRIDGE &amp; NEEDLES

\*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	ULTRATONE PART No.	NEEDLE*		ULTRATONE PART No.	NEEDLE*		ULTRATONE PART No.	NEEDLE*
M1	133D	133D	M2	133D	133D	M3	133D	133D

## MISCELLANEOUS

ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA		ITEM No.	REPLACEMENT DATA	
	ULTRATONE PART No.	NEEDLE*		ULTRATONE PART No.	NEEDLE*		ULTRATONE PART No.	NEEDLE*
M4	1044 (or) 1038	1044 (or) 1038	M5	1044 (or) 1038	1044 (or) 1038	M6	1044 (or) 1038	1044 (or) 1038

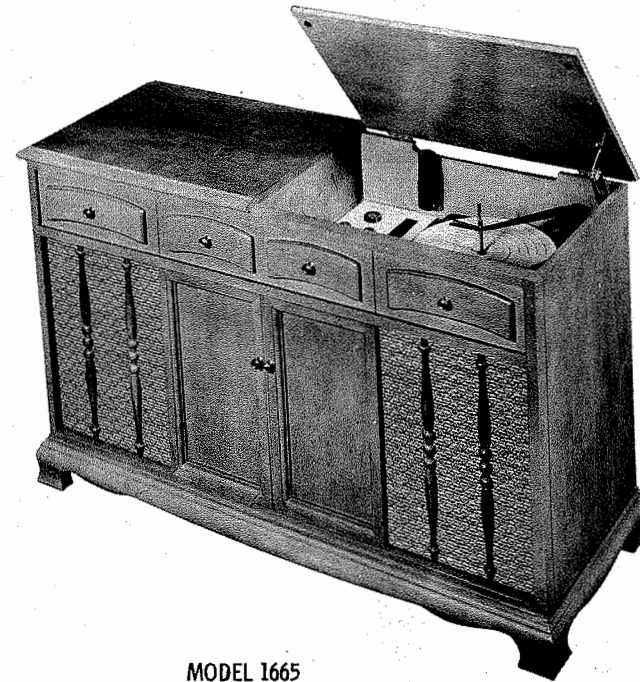
## WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Power Cord	Use BELDEN No. 8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type)	Use BELDEN No. 17006 (Plastic) or 17128 (Rubber) - 6 Ft.
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 17009 (Plastic) or 17129 (Rubber) - 8 Ft.
Phono Pick-up Arm Cable	Use BELDEN No. 8874 (Rubber) or 8896 (Plastic)
	Use BELDEN No. 8401 or 8421
	Use BELDEN No. 8430 (Two Conductor-Unshielded)
	8429 (Two Conductor-Shielded)
	8419 (Three Conductor-Shielded)

CASCADE or ULTRATONE CHASSIS  
9056, 9056M, 14, 15FOLDER 8  
SET 618

PHOTOFACT® Folder

with CIRCUITRACE®

CASCADE or ULTRATONE CHASSIS  
9056, 9056M, 14, 15

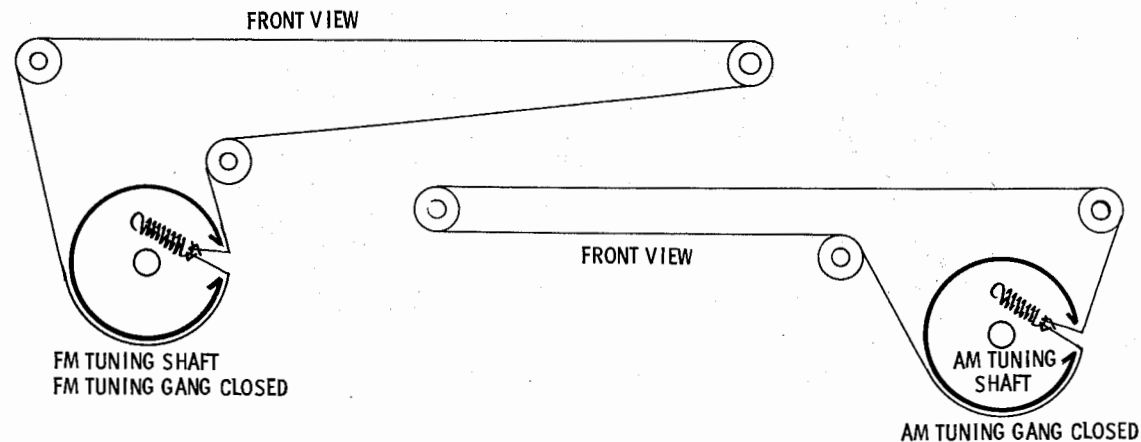
MODEL 1665

TRADE NAME	Cascade or Ultratone Models: 1270, 1272 (AM-FM Tuner Chassis 9056, Amp. Chassis 14) 1665, 1775, 1820, 1824, 1852, 1860, 1864, 1870, 1874, 1920, 1922, 1930, 1932, 1970, 1972 (AM-FM Tuner Chassis 9056 or 9056M, Amp. Chassis 15)		
MANUFACTURER	Audio Industries, 532 W. 4th Street, Michigan City, Indiana		
TYPE SET	AC Operated 8 Tube AM-FM Tuner with Stereo Preamplifier, 6 Tube Stereo Amplifier and 4 Speed Automatic Record Changer		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	115 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	540 - 1640KC	FREQ. MOD.	88 - 108MC

SOME VERSIONS USE GLASER-STEERS GS-77 (REVISED) RECORD CHANGER - FOR SERVICE INFORMATION SEE PHOTOFACT SET 482 FOLDER 11.

SOME VERSIONS USE V-M1232 RECORD CHANGER - FOR SERVICE INFORMATION SEE SIMILAR V-M1201 PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12.

## DIAL CORD STRINGING

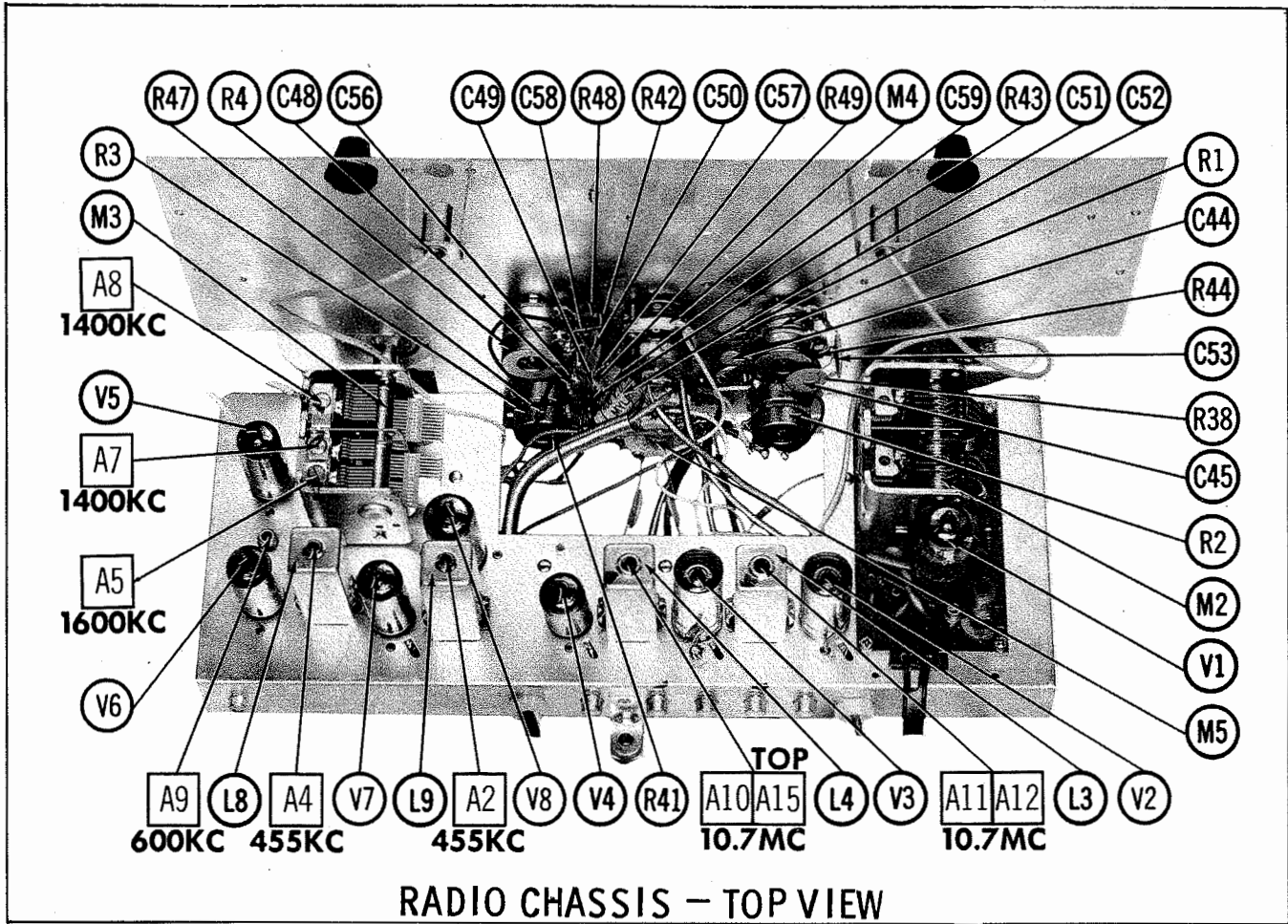
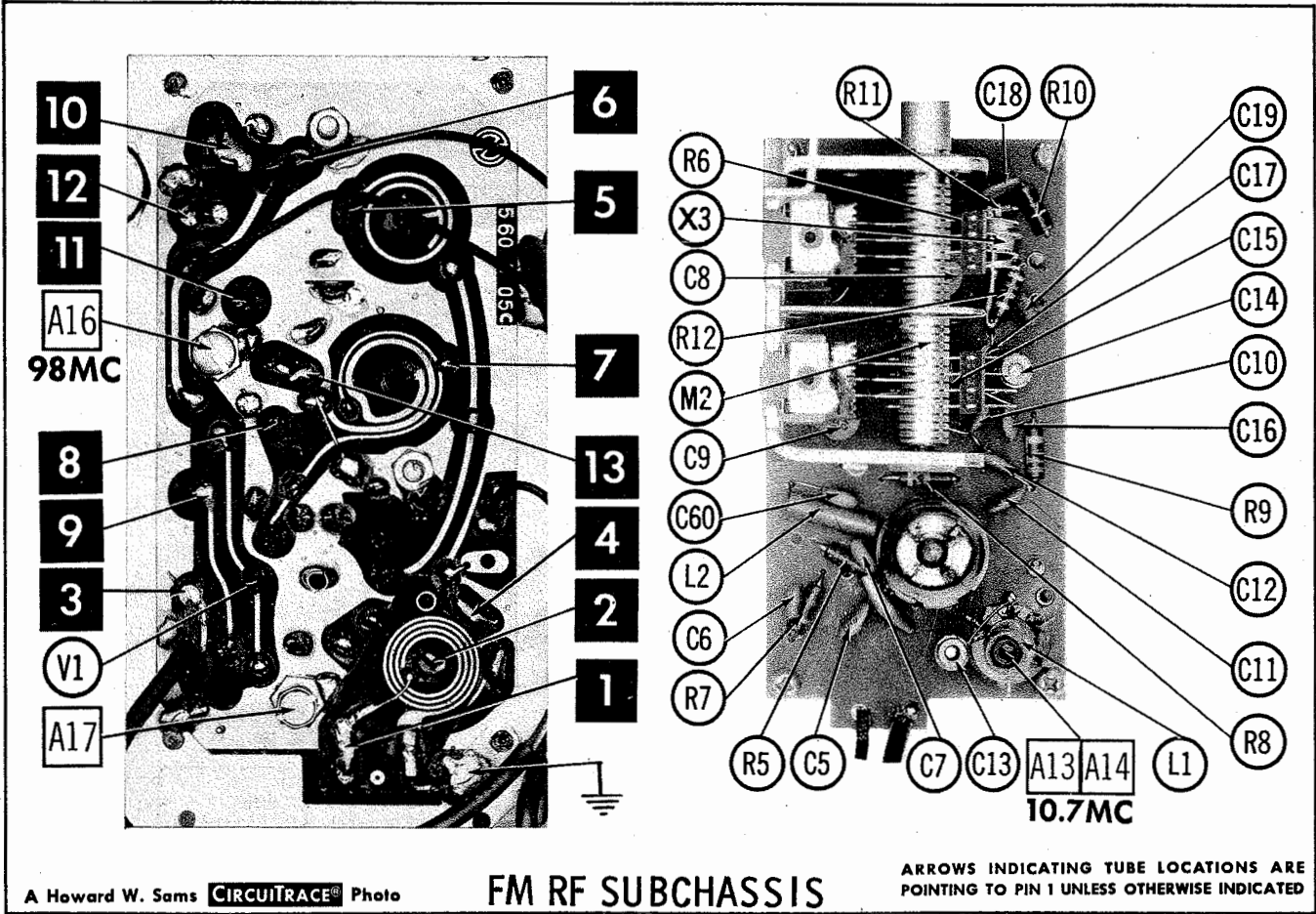


HOWARD W. SAMS &amp; CO., INC. Indianapolis 6, Indiana

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## PARTS LIST AND DESCRIPTION

### TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	6E1U7	V8	Preamplifier	6E1U7
V2	1st FM IF Amplifier	12AX7	V9	AF Amp. - Phase Inv.	12AX7
V3	2nd FM IF Amplifier	6BQ5	V10	Output	6BQ5
V4	Radio Detector	6AL5	V11	Output	6BQ5
V5	AM RF Amplifier	6BA6	V12	AF Amp. - Phase Inv.	12AX7
V6	AM Converter	6BE6	V13	Output	6BQ5
V7	AM IF Amplifier	6BA6	V14	Output	6BQ5

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	SARKE'S PART No.	RCA PART No.	NOTES
X1	.17 Amp.	2762	IN2862	40H	Silicon (SEA)
X2	.17 Amp.	2765	IN2862	40H	FM AFC (6.85C20)
X3					AM Del. (IN64 or IN641)
X4					

### POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING	ORIGINAL Part or Type No.	SARKE'S PART No.	RCA PART No.	NOTES
C1A	80mfd	1045	PR31500	BR80-150	
C2A	40 350	1032	PR31500	BR80-150	
C3A	40 350		AFH4-04-50	D0034	
C4A	40 350		AFH4-04-50	D0034	
C5A	40 350		AFH4-04-50	D0034	
C6A	40 350		AFH4-04-50	D0034	
C7A	40 350		AFH4-04-50	D0034	
C8A	40 350		AFH4-04-50	D0034	
C9A	40 350		AFH4-04-50	D0034	
C10A	40 350		AFH4-04-50	D0034	
C11A	40 350		AFH4-04-50	D0034	
C12A	40 350		AFH4-04-50	D0034	
C13A	40 350		AFH4-04-50	D0034	
C14A	40 350		AFH4-04-50	D0034	
C15A	40 350		AFH4-04-50	D0034	
C16A	40 350		AFH4-04-50	D0034	
C17A	40 350		AFH4-04-50	D0034	
C18A	40 350		AFH4-04-50	D0034	
C19A	40 350		AFH4-04-50	D0034	
C20A	40 350		AFH4-04-50	D0034	
C21A	40 350		AFH4-04-50	D0034	
C22A	40 350		AFH4-04-50	D0034	
C23A	40 350		AFH4-04-50	D0034	
C24A	40 350		AFH4-04-50	D0034	
C25A	40 350		AFH4-04-50	D0034	
C26A	40 350		AFH4-04-50	D0034	
C27A	40 350		AFH4-04-50	D0034	
C28A	40 350		AFH4-04-50	D0034	
C29A	40 350		AFH4-04-50	D0034	
C30A	40 350		AFH4-04-50	D0034	

### ELECTROLYTIC CAPACITORS

ITEM No.	RATING	ULTRATONE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	REPLACEMENT DATA
C1A	80mfd	1045	PR31500	BR80-150	
C2A	40 350	1032	PR31500	BR80-150	
C3A	40 350		AFH4-04-50	D0034	
C4A	40 350		AFH4-04-50	D0034	
C5A	40 350		AFH4-04-50	D0034	
C6A	40 350		AFH4-04-50	D0034	
C7A	40 350		AFH4-04-50	D0034	
C8A	40 350		AFH4-04-50	D0034	
C9A	40 350		AFH4-04-50	D0034	
C10A	40 350		AFH4-04-50	D0034	
C11A	40 350		AFH4-04-50	D0034	
C12A	40 350		AFH4-04-50	D0034	
C13A	40 350		AFH4-04-50	D0034	
C14A	40 350		AFH4-04-50	D0034	
C15A	40 350		AFH4-04-50	D0034	
C16A	40 350		AFH4-04-50	D0034	
C17A	40 350		AFH4-04-50	D0034	
C18A	40 350		AFH4-04-50	D0034	
C19A	40 350		AFH4-04-50	D0034	
C20A	40 350		AFH4-04-50	D0034	
C21A	40 350		AFH4-04-50	D0034	
C22A	40 350		AFH4-04-50	D0034	
C23A	40 350		AFH4-04-50	D0034	
C24A	40 350		AFH4-04-50	D0034	
C25A	40 350		AFH4-04-50	D0034	
C26A	40 350		AFH4-04-50	D0034	
C27A	40 350		AFH4-04-50	D0034	
C28A	40 350		AFH4-04-50	D0034	
C29A	40 350		AFH4-04-50	D0034	
C30A	40 350		AFH4-04-50	D0034	

### FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL DUBILIER PART No.	REPLACEMENT DATA
C5	130 N1500	(.001) †	BPD-001	DD-102	
C6	1.8 NPO 10%		NPO-DI 15	TCZ-1R5	
C7	.002		NPO-DI 15	TCZ-1R5	
C8	.002		NPO-DI 15	TCZ-1R5	
C9	17 3.5 + .25mmf	(7.5) †	NPO-DI 15	TCZ-1R5	
C10	130 N1500	#667	NPO-DI 15	TCZ-1R5	
C11	130 N1500	#667	NPO-DI 15	TCZ-1R5	
C12	130 N1500	#667	NPO-DI 15	TCZ-1R5	
C13	9-30	#652	NPO-DI 15	TCZ-1R5	
C14	1.6-9	#652	NPO-DI 15	TCZ-1R5	
C15	20 NPO 5%	#652	NPO-DI 15	TCZ-1R5	
C16	20 NPO 5%	#652	NPO-DI 15	TCZ-1R5	
C17	33 N750	(7.5) †	NPO-DI 15	TCZ-1R5	
C18	.001	Note 1	NPO-DI 15	TCZ-1R5	
C19	.001		NPO-DI 15	TCZ-1R5	
C20	.001		NPO-DI 15	TCZ-1R5	
C21	.001		NPO-DI 15	TCZ-1R5	
C22	.001		NPO-DI 15	TCZ-1R5	
C23	.001		NPO-DI 15	TCZ-1R5	
C24	.001		NPO-DI 15	TCZ-1R5	
C25	.001		NPO-DI 15	TCZ-1R5	
C26	.001		NPO-DI 15	TCZ-1R5	
C27	.001		NPO-DI 15	TCZ-1R5	
C28	.001		NPO-DI 15	TCZ-1R5	
C29	.001		NPO-DI 15	TCZ-1R5	
C30	.001		NPO-DI 15	TCZ-1R5	

### FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL DUBILIER PART No.	REPLACEMENT DATA
C31	.0033	(.02) †	BPD-001	DD-102	
C32	330 10%	Note 1	BPD-001	DD-102	
C33	.001		BPD-001	DD-102	
C34	.001		BPD-001	DD-102	
C35	.001		BPD-001	DD-102	
C36	68 N750	#913	BPD-001	DD-102	
C37	7.5 N750 10%		BPD-001	DD-102	
C38	.01		BPD-001	DD-102	
C39	.1 200V		BPD-001	DD-102	
C40	100 N1500	#826	BPD-001	DD-102	
C41	.0033		BPD-001	DD-102	
C42	.01		BPD-001	DD-102	
C43	68 N750		BPD-001	DD-102	
C44	33 N750		BPD-001	DD-102	
C45	.01		BPD-001	DD-102	
C46	.05 400V		BPD-001	DD-102	
C47	100 N1500	#826	BPD-001	DD-102	
C48	.001		BPD-001	DD-102	
C49	.01		BPD-001	DD-102	
C50	.05 400V		BPD-001	DD-102	
C51	.01		BPD-001	DD-102	
C52	33 N750		BPD-001	DD-102	
C53	.05 400V		BPD-001	DD-102	
C54	.05 400V		BPD-001	DD-102	
C55	100 N1500	#826	BPD-001	DD-102	
C56	.001		BPD-001	DD-102	
C57	.01		BPD-001	DD-102	
C58	.01		BPD-001	DD-102	
C59	.05 400V		BPD-001	DD-102	
C60	.01		BPD-001	DD-102	
C61	.01		BPD-001	DD-102	
C62	.01 1000V		BPD-001	DD-102	
C63	.01 1000V		BPD-001	DD-102	
C64	.1 600V		BPD-001	DD-102	
C65	100 N1500	#826	BPD-001	DD-102	
C66	.05 400V		BPD-001	DD-102	
C67	.05 400V		BPD-001	DD-102	
C68	250		BPD-001	DD-102	
C69	5mfd 100V		BPD-001	DD-102	
C70	100 N1500	#826	BPD-001	DD-102	
C71	.05 400V		BPD-001	DD-102	
C72	.05 400V		BPD-001	DD-102	
C73	.05 400V		BPD-001	DD-102	
C74	.05 400V		BPD-001	DD-102	
C75	.05 400V		BPD-001	DD-102	
C76	5mfd 100V		BPD-001	DD-102	

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

† Alternate Value.

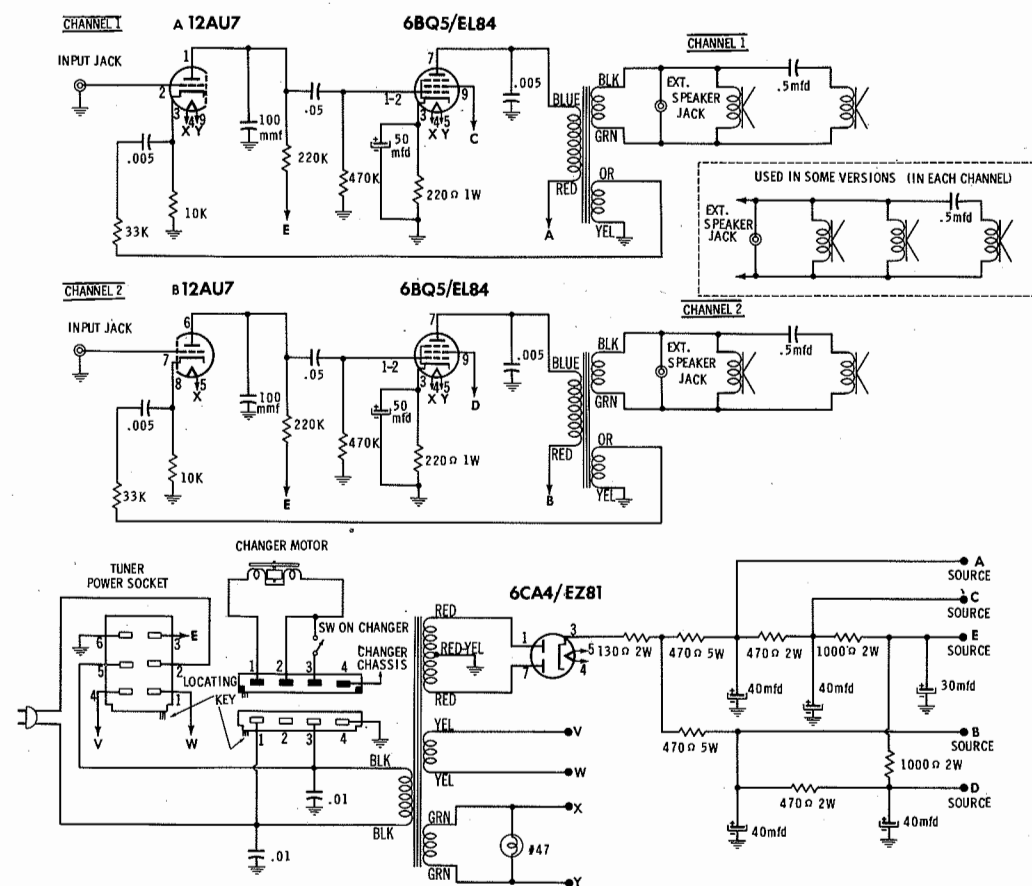
Note 1. Not used in some versions.

# Ultratone Part Number.

### CONTROLS

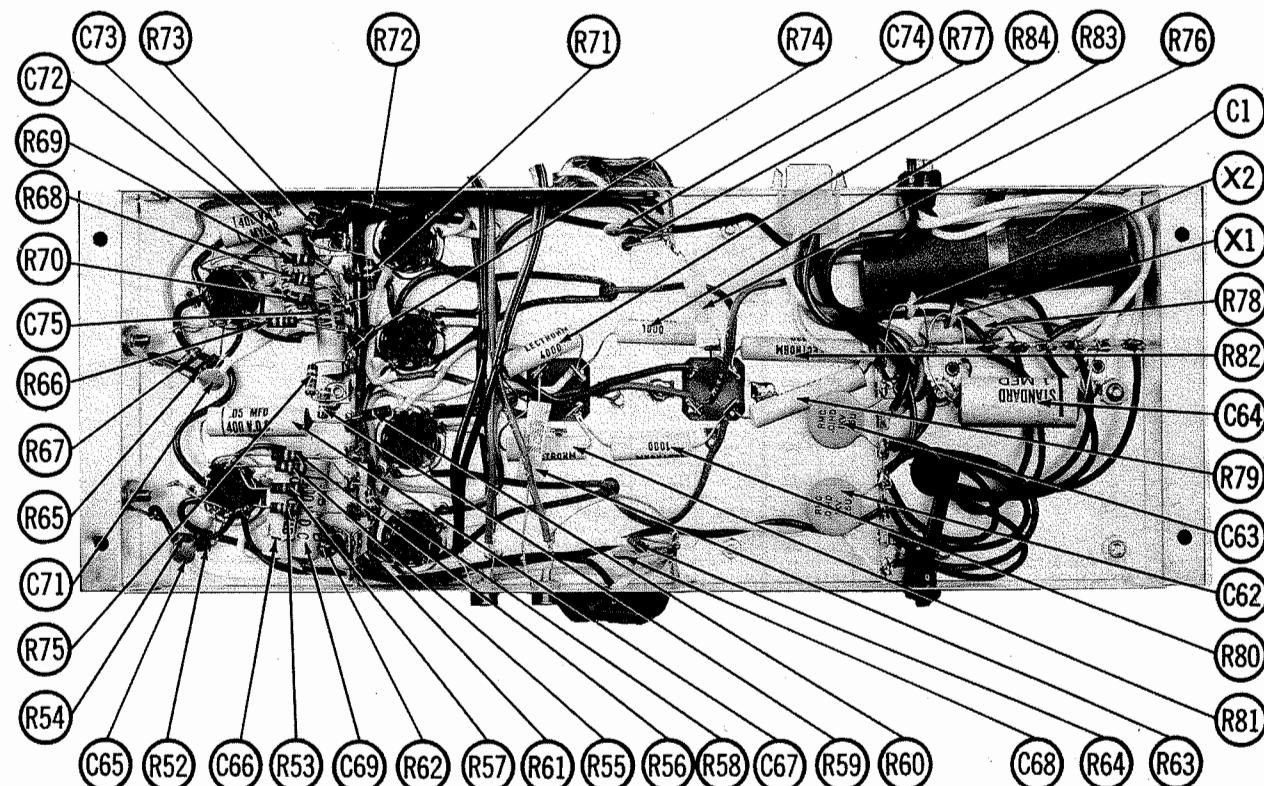
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST- ANCE	REPLACEMENT DATA				
			ULTRATONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
1A	Loudness, 2	3meg, 230K Tap	442	F59-3, 3meg †, R59-3, 3meg †, TU304, or (B7-180			FA36DT155 †, RU36DT155 †, CS3500
B	Loudness, 1	230K Tap		STR-180) †			
2A	Balance, 2	2meg	445	F2-2meg, R3-2meg, TU304			FA26A, RU26R, CS3500
B	Balance, 1	2meg					
3A	Treble, 2	1meg	453	F1-1meg, TU304, RI-1meg, TU304, or (B-63, SR-69)	AD47-1meg-S, KSS-3		FA6L, RU6L, CS3500
B	Treble, 1	1meg					
4A	Bass, 2	1meg	453	F1-1meg, TU304, RI-1meg, TU304, or (B-69, SR-69)	AD47-1meg-S, KSS-3		FA6L, RU6L, CS3500
B	Bass, 1	1meg					



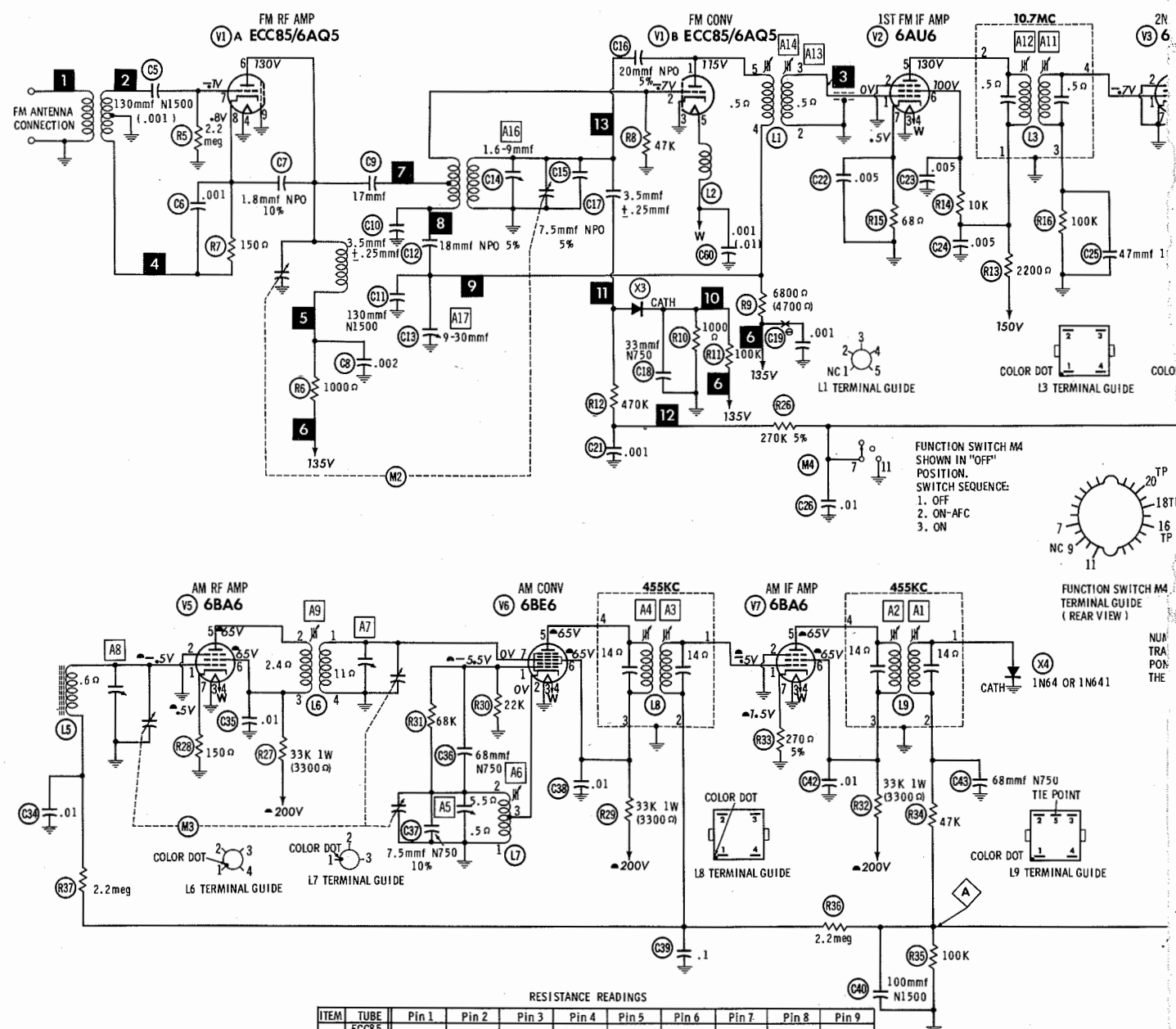
A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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## AMP. SCHEMATIC USED IN SOME VERSIONS



## AMP. CHASSIS - BOTTOM VIEW





RESISTANCE READINGS									
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	ECC85/6AQ5	†15K	47K	0Ω	FIL	FIL	†9000Ω	2.2meg	150Ω
V2	6AU6	.5Ω	0Ω	FIL	FIL	†8700Ω	†18K	68Ω	
V3	6AU6	100K	0Ω	FIL	FIL	†8700Ω	†18K	0Ω	
V4	6AL5	3meg	3meg	FIL	FIL	8300Ω	0Ω	7800Ω	
V5	6BA6	4.5meg	0Ω	FIL	FIL	†138K	†138K	150Ω	
V6	6BE6	22K	.5Ω	FIL	FIL	†136K	†136K	11Ω	
V7	6BA6	2.3meg	0Ω	FIL	FIL	†136K	†136K	270Ω	
V8	6EU7	FIL	FIL	TP	2200Ω	150K	†105K	†105K	150K
V9	12AX7	†225K	220K	2200Ω	FIL	FIL	†105K	570K	107K
V10	6BQ5	NC	470K	130Ω	FIL	FIL	NC	†360Ω	NC
V11	6BQ5	NC	470K	130Ω	FIL	FIL	NC	†360Ω	NC
V12	12AX7	†225K	220K	2200Ω	FIL	FIL	†105K	570K	107K
V13	6BQ5	NC	470K	130Ω	FIL	FIL	NC	†360Ω	NC
V14	6BQ5	NC	470K	130Ω	FIL	FIL	NC	†360Ω	NC

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
- All controls at minimum, proper output load connected.

A PHOTOFACIT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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MEASUREMENTS IN FM POSITION UNLESS OTHERWISE SPECIFIED.  
 † MEASURED IN AM POSITION.  
 TP TIE POINT  
 NC NO CONNECTION  
 † MEASURED FROM OUTPUT OF X2.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
Use only enough generator output to provide a usable indication. Suggested Alignment Tools:	
A1 thru A4.....	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532
A5, A7, A8, A16, A17.....	GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A6, A9 thru A15.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mf to Pin 7 (grid) of AM Converter, low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe of VTVM to point A, common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1600KC	1600KC	"	A5	"
3.	"	600KC	600KC	"	A6	"
4.	"	1400KC	1400KC	"	A7, A8	"
5.	"	600KC	600KC	"	A9	"

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

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
6.	High side to ungrounded tube shield over FM Converter, low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe of VTVM to point B, common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
7.	"	"	"	DC probe to point C, common to chassis.	A15	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	INDICATOR	ADJUST	REMARKS
6.	High side to ungrounded tube shield over FM Converter, low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	Vert. amp. of scope to point D, low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C4.
7.	"	"	"	Vert. amp. to point E, low side to chassis.	A15	Adjust to place marker at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
8.	Across FM antenna terminals with 120Ω in each lead.	98MC (Unmod.)	(FM) 98MC	DC probe of VTVM to point F, common to chassis.	A16	Adjust for maximum deflection.
9.	Adjust A17 for MINIMUM interference or noise.					

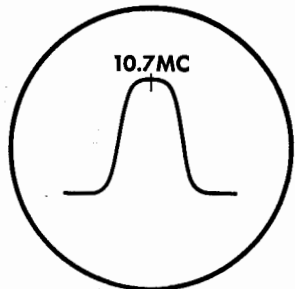


FIG. 1

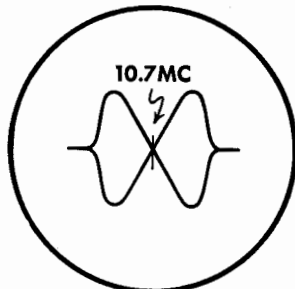
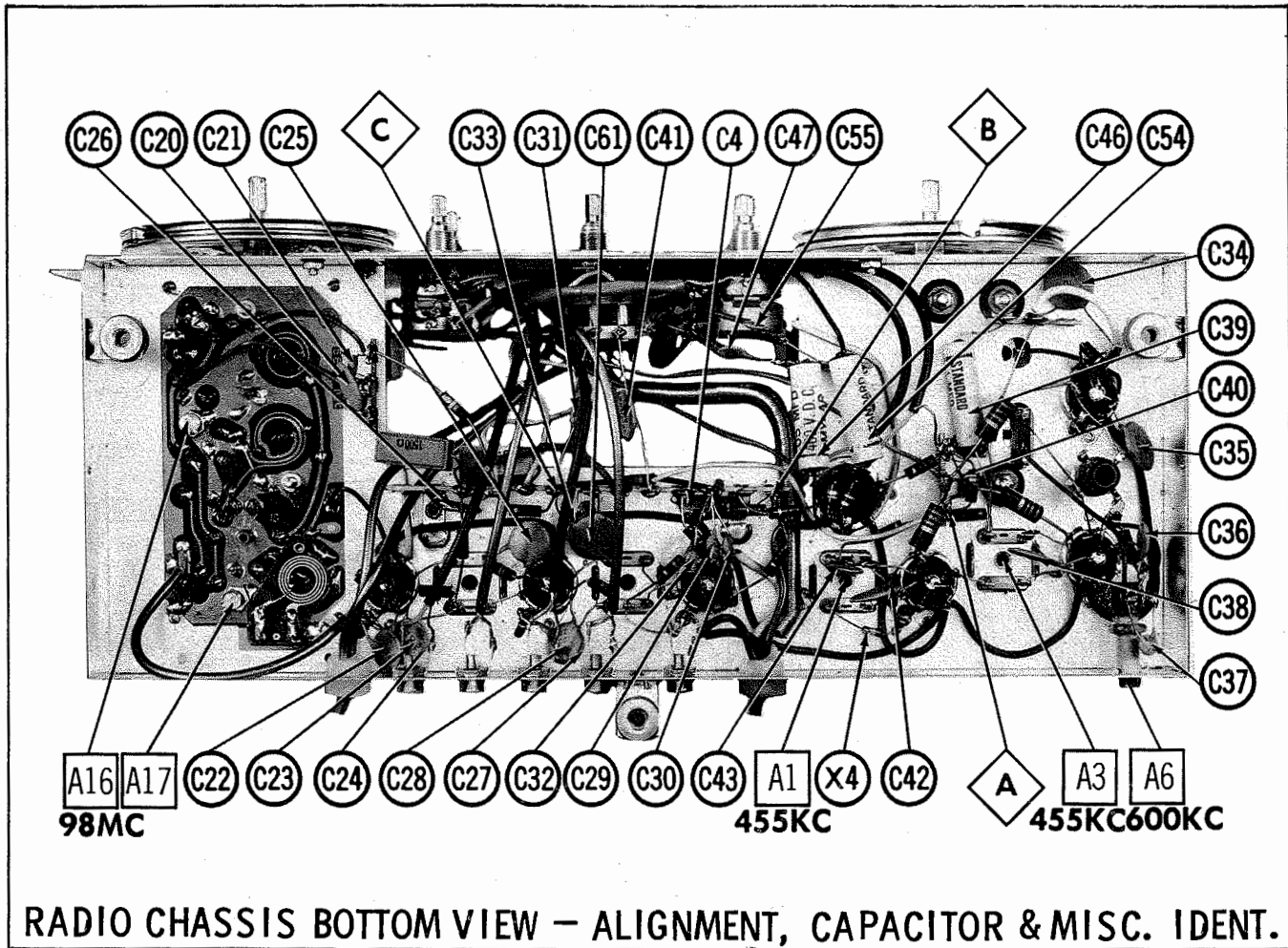
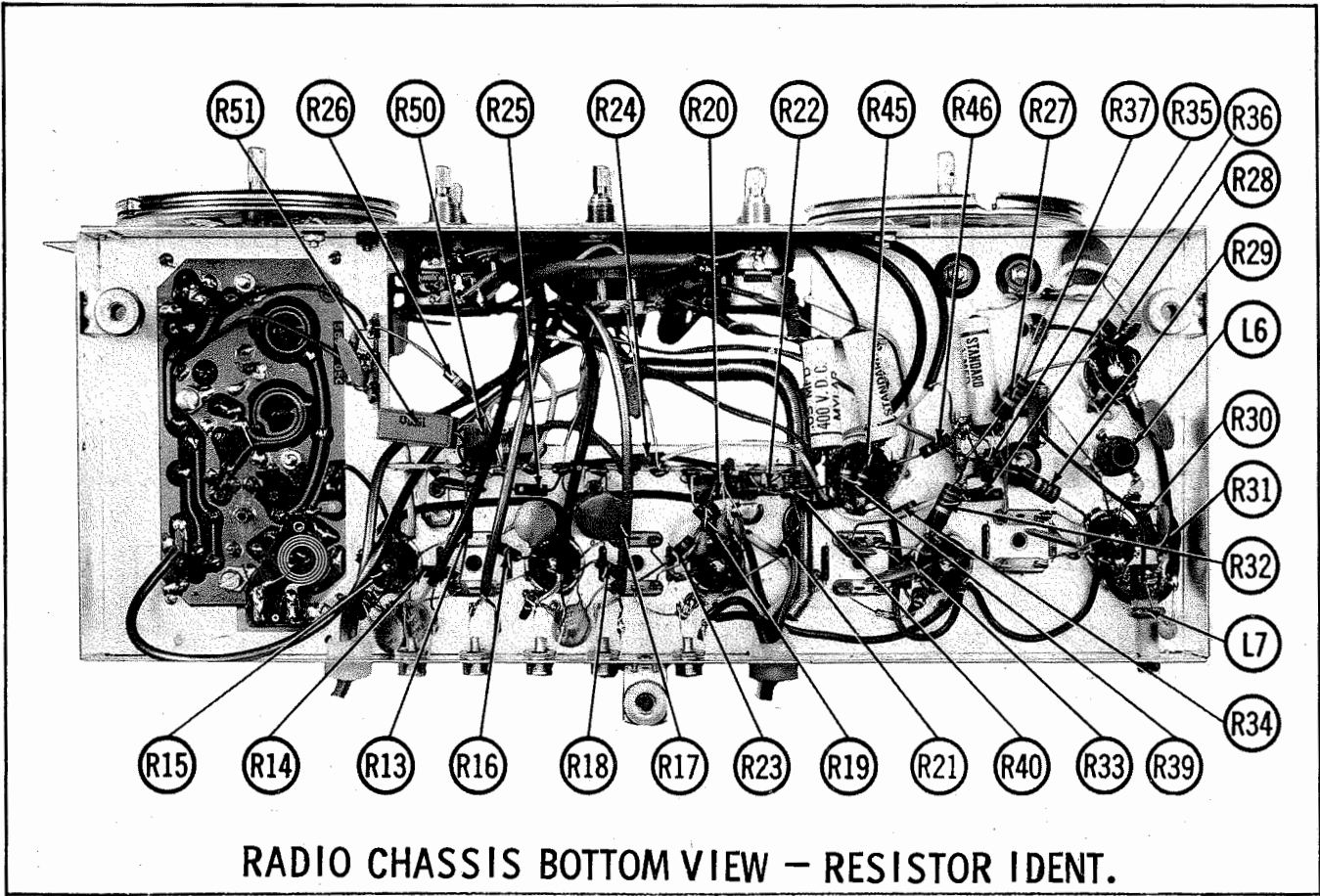
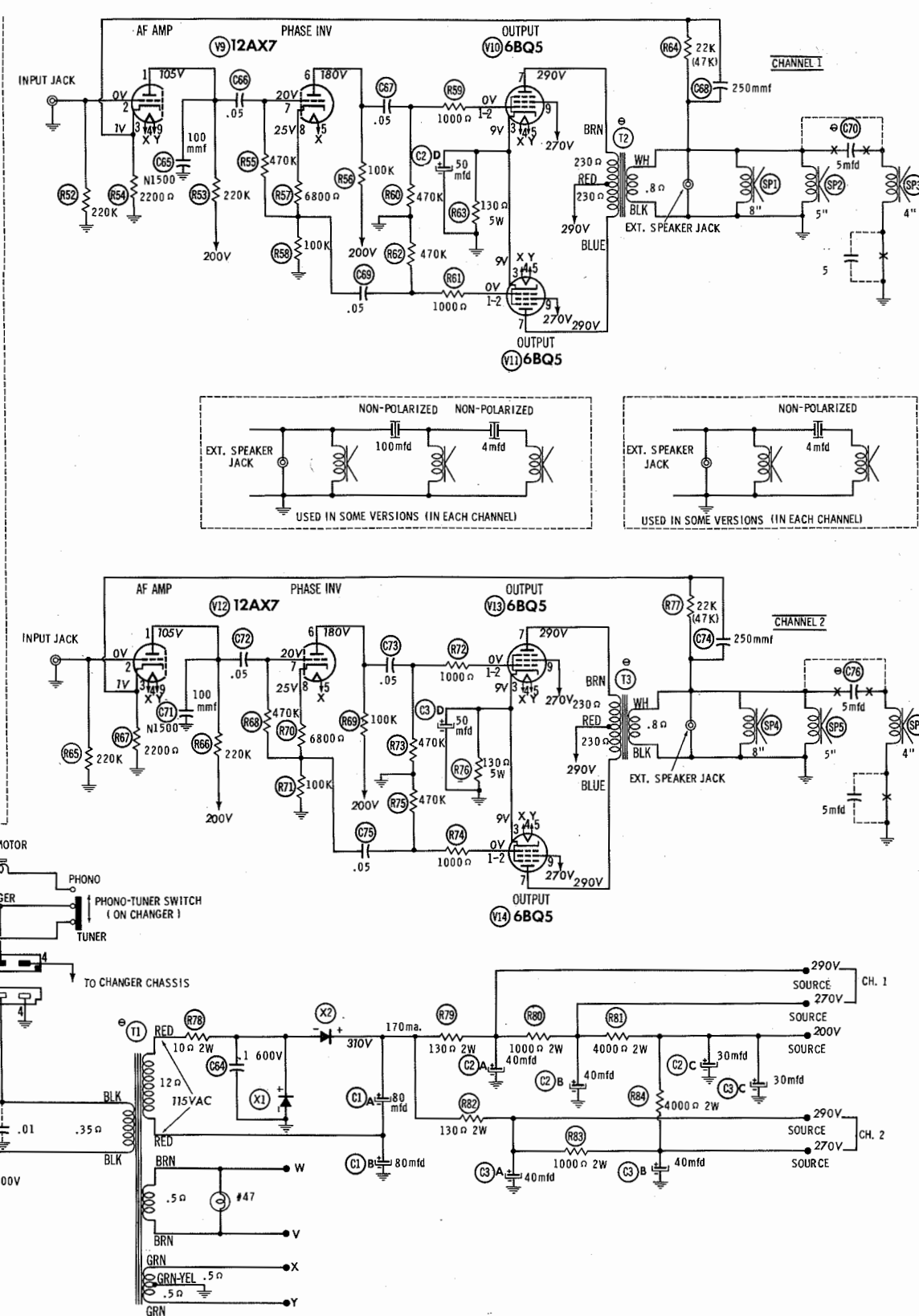
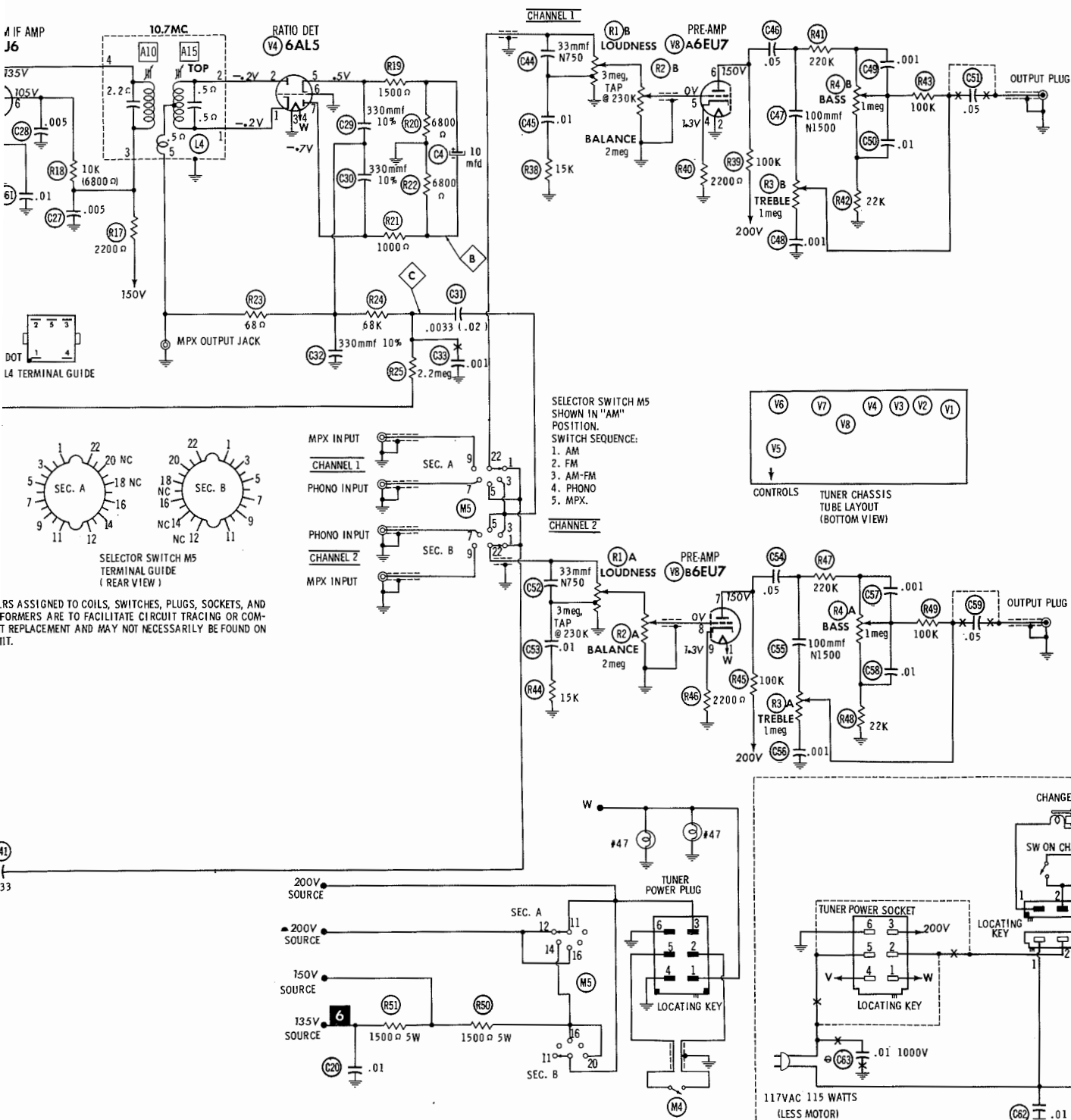


FIG. 2



RADIO CHASSIS BOTTOM VIEW — ALIGNMENT, CAPACITOR & MISC. IDENT.



CASCADE or ULTRATONE CHASSIS  
9056, 9056M, 14, 15