

TUNER PARTS LIST AND DESCRIPTION (CONTINUED)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Ultratone PART No.	MERIT PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	1st FM IF	1420				
L2	2nd FM IF	1419				
L3	Ratio Detector	1418				
L4	Loopstick	1414				
L5	AM RF	1412				
L6	AM Osc.	1401-C				
L7	1st AM IF	1405				
L8	2nd AM IF	1406-A				
L9	Full Choke (Luh)	1394				

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	Ultratone PART No.	MERIT PART No.	STANCOR PART No.	WORKMAN PART No.	NOTES
M1	4008-S	4008-S33 (L2P)	4008-S33	4008-S33	* Drill Mounting Hole

MISCELLANEOUS

ITEM No.	PART NAME	Ultratone PART No.	NOTES
M2	Tuning Cap.	1038	
M3	Switch	1035	
M4	Switch	451	
M5	Switch	448-A	
M6	Switch	452	

AMP PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V9	Left Channel Output	6BQ5/EL84	V11	Rectifier	6CA4/E28L
V10	Right Channel Output	6BQ5/EL84			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA
C47A	80	General Electric
C47B	80	General Electric
C47C	80	General Electric
C47D	80	General Electric
C48	50	General Electric

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

AMP PARTS LIST AND DESCRIPTION (CONTINUED)

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA
C49	.01		Centralab
C50	.5 100V		Centralab
C51	.5 100V		Centralab
C52	.01		Centralab

RESISTORS

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

ITEM No.	RATING	REMARKS	REPLACEMENT DATA
R40	470K		Elenco
R41	3.3meg		Elenco
R42	470K		Elenco
R43	3.3meg		Elenco

Ultratone Part Number.

TRANSFORMER (POWER)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA
T1	117VAC		Stancor

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REMARKS	REPLACEMENT DATA
T2	4700Ω		Stancor
T3	4700Ω		Stancor

SPEAKER

ITEM No.	TYPE	REMARKS	REPLACEMENT DATA
SP1	4"		Ultratone
SP2	6"		Ultratone
SP3	6"		Ultratone
SP4	6"		Ultratone

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
Power Cord	Use BELDEN No. 17009 (Plastic) or 17126 (Rubber) - 6 Ft.
Power Cord (Interlock Type)	Use BELDEN No. 8674 (Rubber) or 8895 (Plastic)

CASCADE or ULTRATONE CHASSIS 13, 9053M

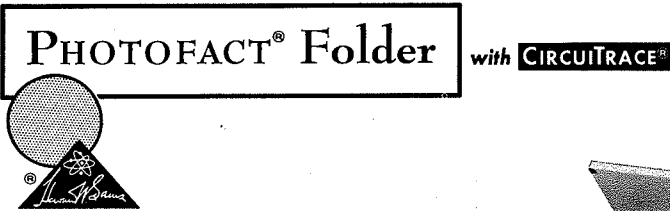
FOLDER 5 SET 623



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

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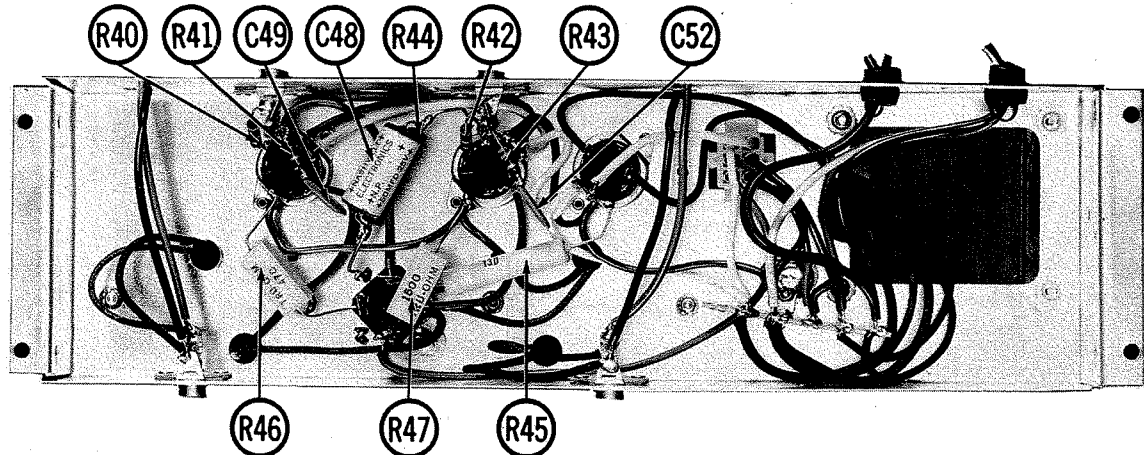
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MODEL 535

TRADE NAME	Cascade or Ultratone Models 510, 512, 514, 515, 530, 532, 535, 1280, 1282 (Ch. 13, 9053M)
MANUFACTURER	Audio Industries, 532 W. 4th Street, Michigan City, Indiana
TYPE SET	AC Operated 8 Tube AM-FM Tuner, 3 Tube Stereo Amplifier and 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC
TUNING RANGE - BROADCAST	535 - 1630KC
RATING	88 Watts, .8 Amp. @117 Volts AC
FREQ. MOD.	88 - 108MC

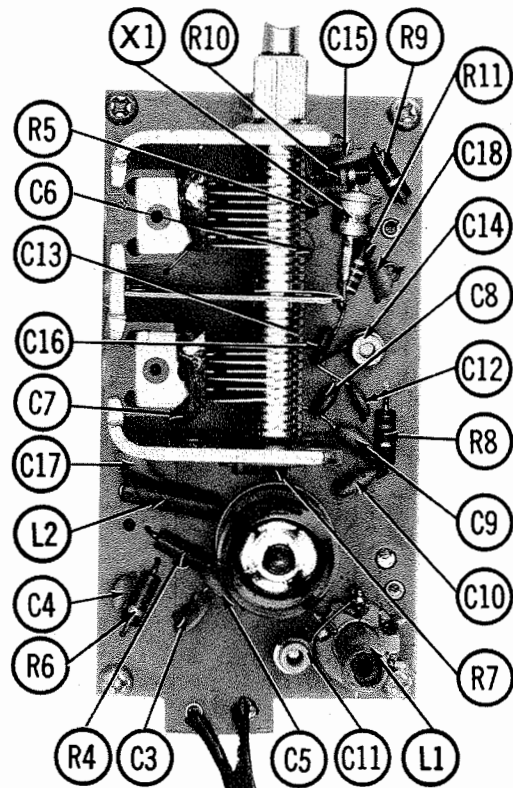
FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M 1223 - PHOTOFACT SET 557 FOLDER 14



CASCADE or ULTRATONE CHASSIS 13, 9053M

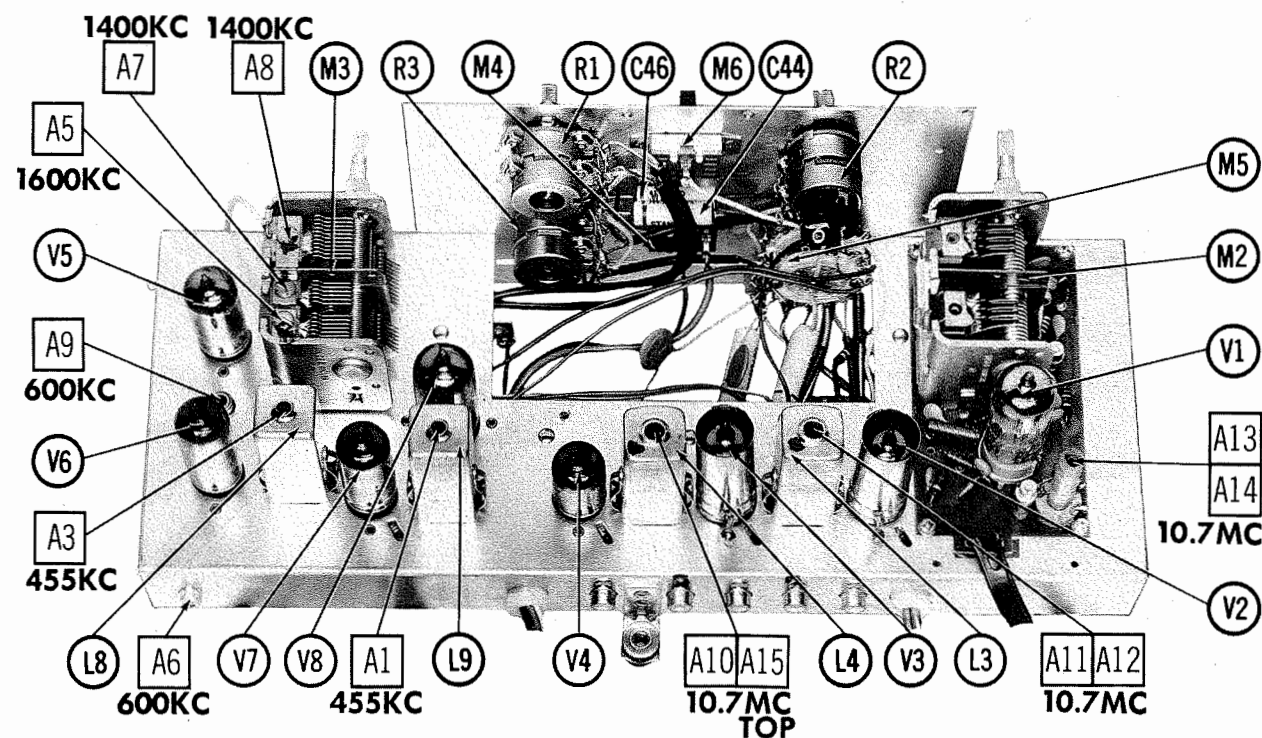
CASCADE or ULTRATONE CHASSIS 13, 9053M

SET 623 FOLDER 5



FM RF SUBCHASSIS

**ARROWS INDICATING TUBE LOCATIONS ARE
POINTING TO PIN 1 UNLESS OTHERWISE INDICATED**



TUNER CHASSIS - TOP VIEW

TUNER PARTS LIST AND DESCRIPTION

FIXED CAPACITORS(cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C25	330 10%		DE-330	DD-331	LDJ233	CCD-331	GP3333	10TS-T33
C29	330 10%		DE-330	DD-331	LDJ233	CCD-331	GP3333	10TS-T33
C30	300		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C31	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C32	.01		BPD-.01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.001		BPD-.001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C34	.01		BPD-.01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	.01		BPD-.01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	1 200V		P288N-1	DD-104	CUB3P1	2CP-4-104	GEM-201	2TM-P10
C37	47 NPO 10%		P288N-1	DTZ-47	C10Q47C	CCTC-470	CNO-447	10TCC-Q47
C38	7.5 NPO 10%	#913	NPD-D1 47	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.01		BPD-.01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-.01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	100 NI500	#826				*		
C42	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C43	.05 400V		P488N-.05	DD-503	CUB4S5	4CP-4-503	GEM-415	4TM-S50
C44	.05 400V		P488N-.05	DD-503	CUB2S5	2CP-3-503	GEM-415	2TM-S50
C45	.05 400V		P488N-.05	DD-503	CUB4S5	4CP-4-503	GEM-415	4TM-S50
C46	.05 400V		P488N-.05	DD-503	CUB2S5	2CP-3-503	GEM-415	2TM-S50

① Not used in some versions.
 * Not normally in distributor's stock. Available thru distributor on order to manufacturer.
 † Alternate Value.
 ‡ Ultratone Part Number.

CONTROLS

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.	MALLOY PART No.
RIA	Loudness, 2	3meg, 250K Tap†	442	B-85, SR-85, or (F2-3meg, R2-3meg, TU304)			FA36A, RU36A, CS3500
B	Loudness, 1	3meg					
R2A	Tone, 2	250K Tap†	432	B-40, SR-40, or A47-100K-S, (F1-100K, R1-100K, KSS-3 TU304)			FA15L, RU15L, CS3500
B	Switch (Not Used)	100K					
R3A	Balance, 2	100K					
B	Balance, 1	2meg	445	F2-2meg, R3-2meg, TU304			FA36A, RU28R, CS3500

RESISTORS

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

ITEM No.	REPLACEMENT DATA			RATING	ITEM No.	RATING	REPLACEMENT DATA		
	IRC PART No.	WORKMAN PART No.	REMARKS				IRC PART No.	WORKMAN PART No.	REMARKS
R4				2. 2meg	R22	68Ω			
R5				1000Ω	R23	68K			
R6				150Ω	R24	2. 2meg			
R7				47K	R25	270K			
R8				6800Ω	R26	2. 2meg			
R9				1000Ω	R27	33K 1W			
R10				100K	R28	150Ω			
R11				470K	R29	33K 1W			
R12				10K 5%	R30	32K 1W			
R13				2200Ω	R31	270Ω			
R14				68Ω	R32	270Ω			
R15				100K	R33	47K			
R16				100K 5%	R34	100K			
R17				2200Ω	R35	2. 2meg			
R18				1500Ω	R36	100K			
R19				1000Ω	R37	1500Ω			
R20				6800Ω 5%	R38	100K			
R21				6800Ω 5%	R39	3300Ω 2W			

Alternate Value.

CASCADE or ULTRATONE CHASSIS 13, 9053M

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors
		8524 (Stranded) Available in 12 Colors
Power Cord	Use BELDEN No.	1706 (Plastic) or 1728 (Rubber) - 6 Ft.
		1708 (Plastic) or 1728 (Rubber) - 9 Ft.
Power Cord (Interlock Type)	Use BELDEN No.	8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401 or 8421
Phone Pick-up Arm Cable	Use BELDEN No.	8438 (Two Conductor - Unshielded)
		8439 (Two Conductor - Shielded)
		8443 (Three Conductor - Shielded)

TUBES

ITEM No.		USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	EC85/6AQ8A	V5	AM RF Amplifier	6BA6	
V2	1st FM IF Amplifier	6AU6	V6	AM Converter	6BE6	
V3	2nd FM IF Amplifier	6AU6	V7	AM IF Amplifier	6BA6	
V4	Radio Detector	6AL5	V8	AF Amplifier	6E07	

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.		
X1		2765				FM AFC AM Del. (N64)
X2		2751				

ELECTROLYTIC CAPACITORS

ITEM		RATING		REPLACEMENT DATA						
		CAP.	VOLT.	Ultratone PART No.	AEROVOX PART No.	CORNELL- DUBIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	25	916	PTT79	EBR10-25	MTI-5	TT25X10	MLV10-25	TE-1204	TVANS-1206.1*
C2	50	25NP	918	NP-PP7330	BR5015	NPQT-5.1	TCN1551			

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

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELEMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	130 N1500 5%	(1000) †	BPD-001	DD-102	BYA10D1	* CDD-102	B-210	5HK-D10
C4	1.001	#669	BPD-002	DD-202	BYA10D2	* CDD-202	B-220	5HK-D20
C5	1.8 NFO	#855						
C6	17 N150 5%	(7.5) †						
C7	3.5 NFO 5%	#867						
C8	18 NPO 5%	#852		TCZ-18	CIQI08C	*	CNO-418	10TCC-Q18
C9	130 N1500 5%	#852						
C10	5-3 NFO 5%	#913	N750-D1 20	DTN-20	CIQ02U	*	CNT-420	10TCU-Q20
C11	20 N750	#858		829-10				
C12	7.5 NFO 5%		N750-D1 33	DTN-33	CIQ033U	CCTN-330	CNT-433	10TCU-Q33
C13	3.5 N750	#853						
C14	3.5 NFO 5%		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	17 .001	①						
C16	17 .001							
C17	.001							
C18	.001							
C19	.005		BPD-.005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	.01		BPD-.01	DD-103	BYA081	CCD-103	B-110	5HK-S10
C21	.005		BPD-.005	DD-502	BYA10D1	CCD-502	B-250	5HK-D50
C22	.01		BPD-.01	DD-103	BYA081	CCD-103	B-110	5HK-S10
C23	47 NPO 10%		NFO-D1 47	D7Z-47	CIQ47C	CCTO-470	CNO-447	10TCC-Q47
C24	.005		BPD-.005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C25	.005		BPD-.005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	.01		BPD-.01	DD-103	BYA081	CCD-103	B-110	5HK-S10
C27	330 10%		DD-330	DD-331	LJ0T33	CCD-331	GP333	10TS-T33

Alternate Value.

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

A6, A9 thru A15..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

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

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter, low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe of VTVM to point \diamond , common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	1600KC	1600KC	"	A5	"
3.	"	600KC	600KC	"	A6	Adjust for maximum deflection while rocking tuning gang. Repeat step 2.
4.	"	1400KC	1400KC	"	A7, A8	Adjust for maximum deflection.
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 \diamond , common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
7.	"	"	"	DC probe to point \diamond , 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 120% 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 \diamond , low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C1. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C1.
7.	"	"	"	Vert. amp. to point \diamond , 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 120 Ω in each lead.	98MC (Unmod.)	(FM) 98MC	DC probe of VTVM to point \diamond , common to chassis.	A16	Adjust for maximum deflection.
9.	Tune receiver to point of maximum interference and adjust A17 for minimum output.					

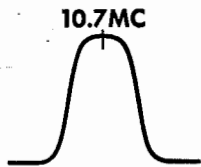


FIG. 1

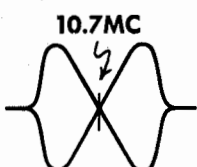
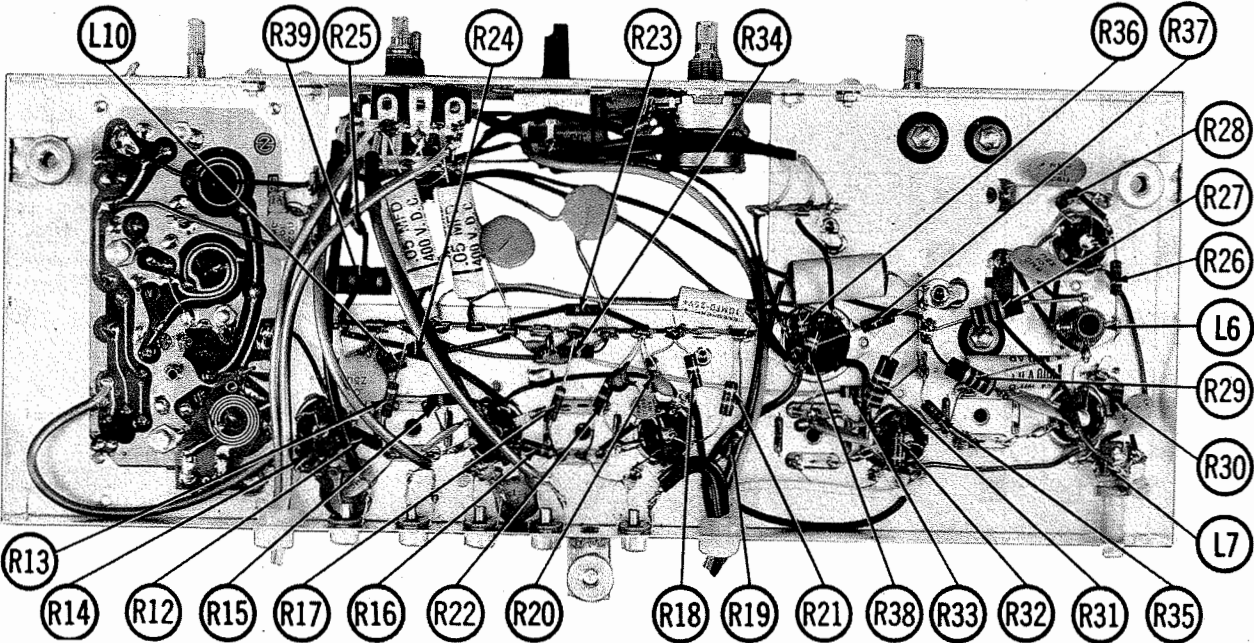


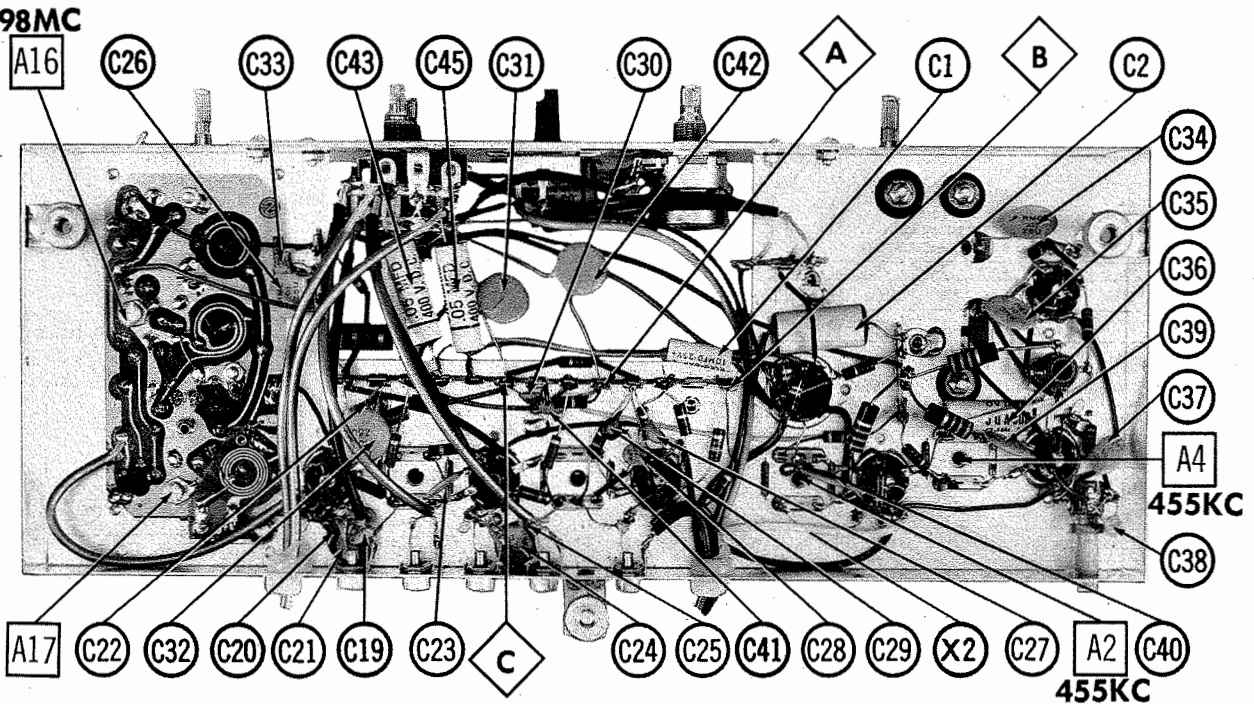
FIG. 2

CASCADE of ULTRATONE CHASSIS 13, 9053M

FOLDER 5



TUNER CHASSIS BOTTOM VIEW — RESISTOR & INDUCTOR IDENT.



TUNER CHASSIS BOTTOM VIEW — ALIGNMENT & CAPACITOR IDENT.

