

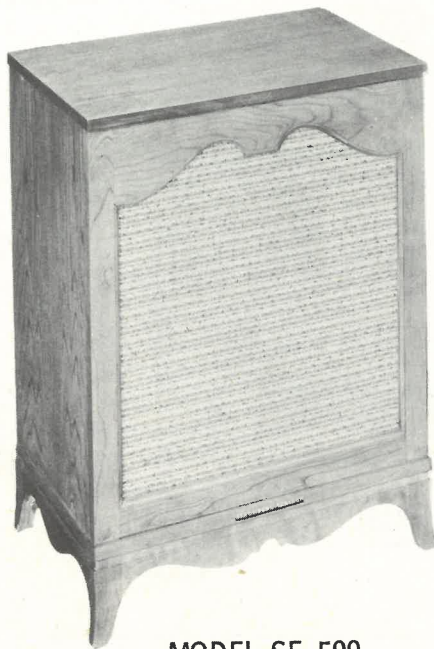
## PHOTOFACT® Folder



**STROMBERG-CARLSON MODELS ASR-433,  
ASR-444, SE-590, SF-682, SF-692,  
SFR-684, SFR-694, SR-440**

*Master file*

**STROMBERG-CARLSON MODELS ASR-433,  
ASR-444, SE-590, SF-682, SF-692,  
SFR-684, SFR-694, SR-440**



MODEL SE-590



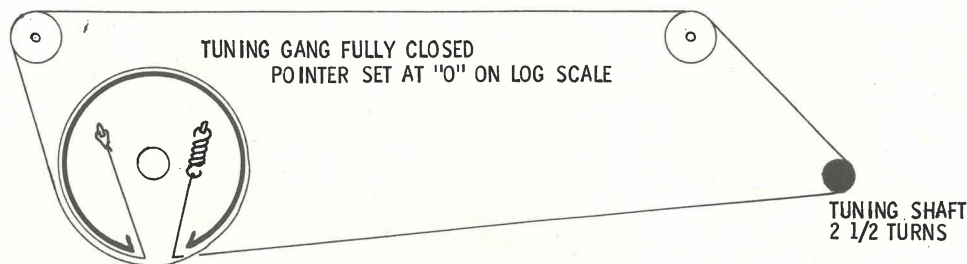
MODEL SFR-694

**STROMBERG-CARLSON MODELS ASR-433,  
ASR-444, SE-590, SF-682, SF-692,  
SFR-684, SFR-694, SR-440**

TRADE NAME	Stromberg-Carlson Models ASR-433, ASR-444, SR-440, SF-682 (ASR-433), SF-692 (ASR-433) SFR-684 (ASR-433, SR-440), SFR-694 (ASR-433, SE-590, SR-440)		
MANUFACTURER	Stromberg-Carlson Co., Special Products Div., 1400 N. Goodman St., Rochester 9, N. Y.		
TYPE SET	AC Operated 13 Tube FM-AM Tuner, 10 Tube Stereo Amplifier And 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	50 Watts, .48 Amp. @ 117 Volts AC (Tuner) 100 Watts, 1.1 Amp. @ 117 Volts AC (Amp)
TUNING RANGE—BROADCAST	550 — 1620KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR GLASER-STEERS GS-77 — PHOTOFACT SET 399 FOLDER 7

## DIAL CORD STRINGING

**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 JN555

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# 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.

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Set FM-AFC to OFF; LOCAL-DISTANT to DISTANT and AM BROAD-SHARP to SHARP.

Suggested alignment tools:

A1 thru A6, A14 thru A21.....	GENERAL CEMENT #8606, 8606L, 8282, 9295 WALSCO #2526, 2543, 2544, 2545
A7.....	GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290 WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A8.....	GENERAL CEMENT #8721, 8722 WALSCO #2519
A9, A10, A11, A22, A23, A24.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A12.....	GENERAL CEMENT #5097, 8727 WALSCO #2515

### AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (Unmod.)	(AM) Point of non-interference near low end of dial.	DC probe to point $\Delta$ . Common to chassis.	A1, A2, A3, A4, A5, A6	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
2.	High side thru .1mfd to pin 1 (grid) of 2nd IF amp. Low side to chassis.	455KC (10KC Mod.)	"	AC probe to point $\Delta$ . Common to chassis.	A7	Adjust for MINIMUM deflection.
3.	Across AM antenna terminals with 200mmf in high side.	600KC (Unmod.)	600KC	DC probe to point $\Delta$ . Common to chassis.	A8	Adjust for maximum deflection.
4.	"	1400KC	1400KC	"	A9, A10, A11	"
5.	"	600KC	600KC	"	A12, A13	Retouch A8 and adjust A12 and A13 for maximum deflection. Repeat steps 3 and 4 until proper tracking is obtained.

### 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.	High side thru .1mfd to pin 1 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) 100MC	DC probe thru 10K to point $\Delta$ . Common to chassis.	A14, A15, A16, A17, A18, A19, A20	Adjust for maximum deflection.
7.	"	"	"	DC probe to point $\Delta$ . Common to chassis.	A21	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

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.	High side thru .1mfd to pin 1 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) 100MC	Vert. amp. thru 10K to point $\Delta$ . Low side to chassis.	A14, A15, A16, A17, A18, A19, A20	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
7.	"	"	"	Vert. amp. to point $\Delta$ . Low side to chassis.	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A20 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.	High side thru 270 $\Omega$ to FM antenna terminal. Low side to chassis.	100MC (22.5KC Swp 400 $\Omega$ Mod.)	(FM) 100MC	DC probe to point $\Delta$ . Common to chassis.	A22, A23, A24	Adjust for maximum deflection.
9.	Check dial calibration at 108MC, 106MC, 90MC and 88MC as compared to step 8. If difference is excessive, SLIGHTLY compress or expand L7, L5 and L1. Repeat steps 8 and 9 until proper tracking is obtained.					

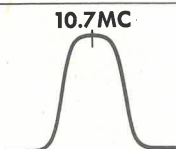


FIG. 1

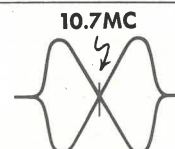


FIG. 2

## TUNER PARTS LIST AND DESCRIPTIONS

## TUBES

ITEM No.	CBS		GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BZ7	V8	3rd FM IF Amp. -AM	6AU6A			
V2	FM Mixer	6AU6A		Det. -AVC				
V3	FM AFC-Osc.	6EQ7A	V9	FM Limiter	6AL5			
V4	AM RF Amplifier	6BA6	V10	Tuning Indicator	EF6B/EM84			
V5	AM Converter	6BE6	V11	Ratio Detector	6AL5			
V6	1st FM-AM IF Amp.	6BA6	V12	AF Amp-Cath. Follower	12AU7A			
V7	2nd FM-AM IF Amp.	6BA6	V13	Rectifier	6X4			

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA		REMARKS	SPRAGUE PART No.	NOTES
		CORNELL-DUBIER PART No.	MALLORY PART No.			
C1A	20	111825-000	FF419, 5	TMQ-116	TVL-4580	
B	30					
C	40					
D	200					
C2	5	111093-000	BBR5-50	TC30	TD-5-50	TVA-1303

## 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	REPLACEMENT DATA		REMARKS	SPRAGUE PART No.	NOTES
		AEROVOX PART No.	CORNELL-DUBIER PART No.			
C3	47 10%	NPO-SI 47	DD-470	LI0747	CCD-470	10TCC-Q10
C4	100 NPO	NPO-SI 100	TCZ-100	LI0747	CCD-100	10TCC-Q10
C5	1000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C6	470	BPD-00047	DD-471	BYA10D1	CCD-471	5HK-S10
C7	10 NPO 10%	NPO-SI 10	TCZ-10	LI0747	CCD-10	10TCC-Q10
C8	330 10%	BPD-001	DD-331	LI0747	CCD-331	10TCC-Q10
C9	1000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C10	100	SI 100	DD-101	LI071	CCD-101	10TCC-Q10
C11	3-12	N750-SI 10	TCN-10	LI071	CCD-10	10TCC-Q10
C12	10 N750 10%	N750-SI 10	TCZ-10	LI0747	CCD-10	10TCC-Q10
C13	10 NPO 10%	SI 27	DD-270	BYA10D1	CCD-270	10TCC-Q10
C14	27	SI 27	DD-270	BYA10D1	CCD-270	10TCC-Q10
C15	1000	P288N-047	DD-102	BYA10D1	CCD-102	5HK-S10
C16	0.047 200V	BPD-001	DD-503	CUB2547	CCD-503	2TM-S47
C17	1000	EF-001	DD-102	BYA10D1	CCD-102	5HK-S10
C18	1000	EF-001	DD-102	BYA10D1	CCD-102	5HK-S10
C19	1000	EF-001	DD-102	BYA10D1	CCD-102	5HK-S10
C20	1000	EF-001	DD-102	BYA10D1	CCD-102	5HK-S10
C21	100 N150	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C22	1000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C23	0.047 200V	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C24	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C25	1.0	NPO-SI 1.0	TCZ-1.0	LI0747	CCD-1.0	10TCC-Q10
C26	1000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C27	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C28	10 NPO 10%	NPO-SI 10	TCN-10	LI0747	CCD-10	10TCC-Q10
C29	1000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C30	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C31	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C32	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C33	0.047 200V	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C34	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C35	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C36	4700	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C37	100 N150	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C38	10000	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C39	4700	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C40	0.22 200V	BPD-001	DD-102	BYA10D1	CCD-102	5HK-S10
C41	330 10%	DI-330	DD-331	LI0733	CCD-331	10TCC-Q10

## FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA		REMARKS	SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBIER PART No.		
C42	330 10%		DL-330	LI0733	CCD-331	10TCC-Q10
C43	330 10%		DL-330	LI0733	CCD-331	10TCC-Q10
C44	10000		BPD-01	BYA10D1	CCD-103	5HK-S10
C45	10000		BPD-01	BYA10D1	CCD-103	5HK-S10
C46	1000		BPD-001	BYA10D1	CCD-102	5HK-S10
C47	1000		EF-001	BYA10D1	CCD-102	5HK-S10
C48	30-270		P688N-01	DD-103	CCD-103	5HK-S10
C49	0.1 600V		P688N-01	DD-103	CCD-103	5HK-S10
C50	10000		P288N-02	DD-203	CCD-203	5HK-S10
C51	0.2 200V		BPD-01	BYA10D1	CCD-103	5HK-S10
C52	10000		BPD-01	BYA10D1	CCD-103	5HK-S10
C53	10000		BPD-01	BYA10D1	CCD-103	5HK-S10
C54	10000		BPD-01	BYA10D1	CCD-103	5HK-S10
C55	0.1 600V		P688N-01	DD-103	CCD-103	5HK-S10
C56	10000		BPD-01	BYA10D1	CCD-102	5HK-S10

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

## CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA		REMARKS	INSTALLATION NOTES
			CENTRALAB PART No.	CLAROSTAT PART No.		
R1A	1meg			C475-1meg-Z	PP16A	Gain Push-Pull-Off-On
B	Switch			Not Req.		

## RESISTORS

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

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R2	68K		R19	68K		R36	10K 5%	
R3	10K 1W		R20	1000K		R37	2200K	
R4	100K		R21	68K		R38	10K 5%	
R5	2200K		R22	220K		R39	100K	
R6	5600K		R23	470K		R40	470K	
R7	100K		R24	470K		R41	100K	
R8	1000K		R25	1000K		R42	560K	
R9	470K		R26	68K		R43	470K	
R10	1000K		R27	100K		R44	1000K	
R11	220K		R28	2.2meg		R45	10K	
R12	8200K		R29	1.5meg		R46	1000K	
R13	2.2meg		R30	1.5meg		R47	330K 2W	
R14	680K		R31	1meg		R48	1000K	
R15	22K		R32	470K		R49	1000K 50W	
R16	10K 1W		R33	470K		B	330K	
R17	1meg		R34	68K				
R18	1000K		R35	68K				

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA		REMARKS	NOTES
		Stromberg-Carlson PART No.	Meissner PART No.		
L1	FM Ant. Coil	114000-101	19-1001	VP-9	1. Ruh
L2	RF Choke	11493-000	19-1002	4804	2. 2uh
L3	RF Choke	114693-000	19-1002	BC-563	2. 2uh
L4	RF Choke	114693-000	19-1002	BC-563	2. 2uh



# TUNER PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Stromberg-Carlson PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	
L5	FM RF Coil	114000-101					
L6	Cathode Choke	114707-000					
L7	FM Osc. Coil	114000-102					
L8	RF Choke	114693-000	19-1002	19-1002	BC-563	4588	.47uh ①
L9	RF Choke	114707-000			BC-560	4608	2.2uh ①
L10	AM Ant. Coil	114655-000			BC-549	4588	.47uh ①
L11	Loopstick	139000-001			BC-419	6302	2.5uh
L12	AM RF Trans.	114164-000	14-1411	14-1411			
L13	AM Osc. Coil	114000-079					
L14	1st FM IF	114383-000	16-3487	16-3487	FM-254	1463	
L15	1st AM IF	114383-000					
L16	2nd FM IF	114383-000	16-3487	16-3487	FM-254	1463	
L17	2nd AM IF	114383-000					
L18	3rd FM IF	114383-000	16-3487	16-3487	FM-254	1463	
L19	3rd AM IF	114468-000	16-6758	16-6758	BC-353	12-C2	
L20	Ratio Detector	114467-000	17-3498	17-3498	FM-255	1465	
L21	10KC Filter	114000-151					IHy.

① IRC Part #CLA.

## TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				
		Stromberg-Carlson PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Thordarson PART No.
T1	PRI. SEC. 1 SEC. 2 117V② 480 VCT .48A ③ 4.6A	161000-035				

## COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Stromberg-Carlson PART No.	REPLACEMENT DATA
K1	AM Audio Filter	150mmf, 150mmf, 47K	110478-000	Aerovox Centralab Cornell-Dupont Sprague

## MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	Tuning Cap.	110000-029	5 Gang (AM Sections: Ant. 21-410mmf, RF 10-307mmf, Osc. 8-112mmf)
M2	Switch	158000-055	Local-Distant (SPDT, Slide Type)
M3	Switch	158000-055	AFC Off-On (SPDT, Slide Type)
M4	Switch	158000-059	FM-AM (DPDT, Slide Type)
M5	Switch	158000-058	Broad-Sharp (DPDT, Slide Type)

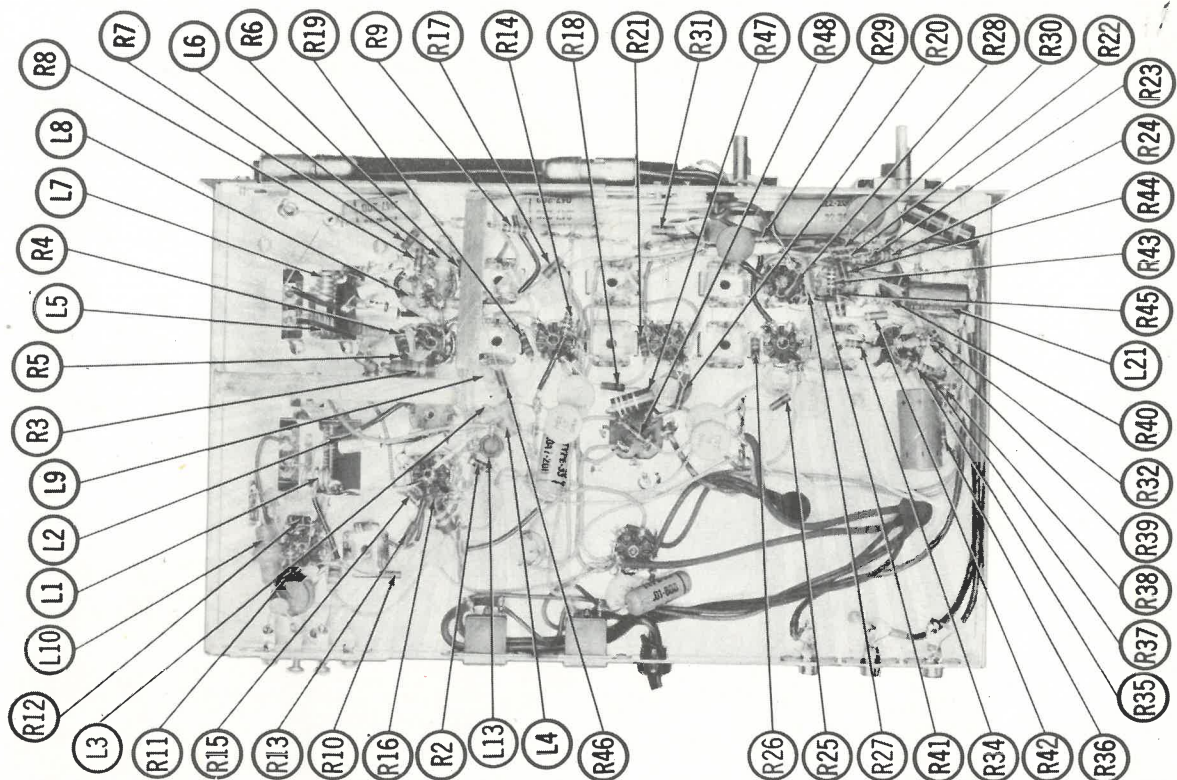
## CABINETS & CABINET PARTS

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

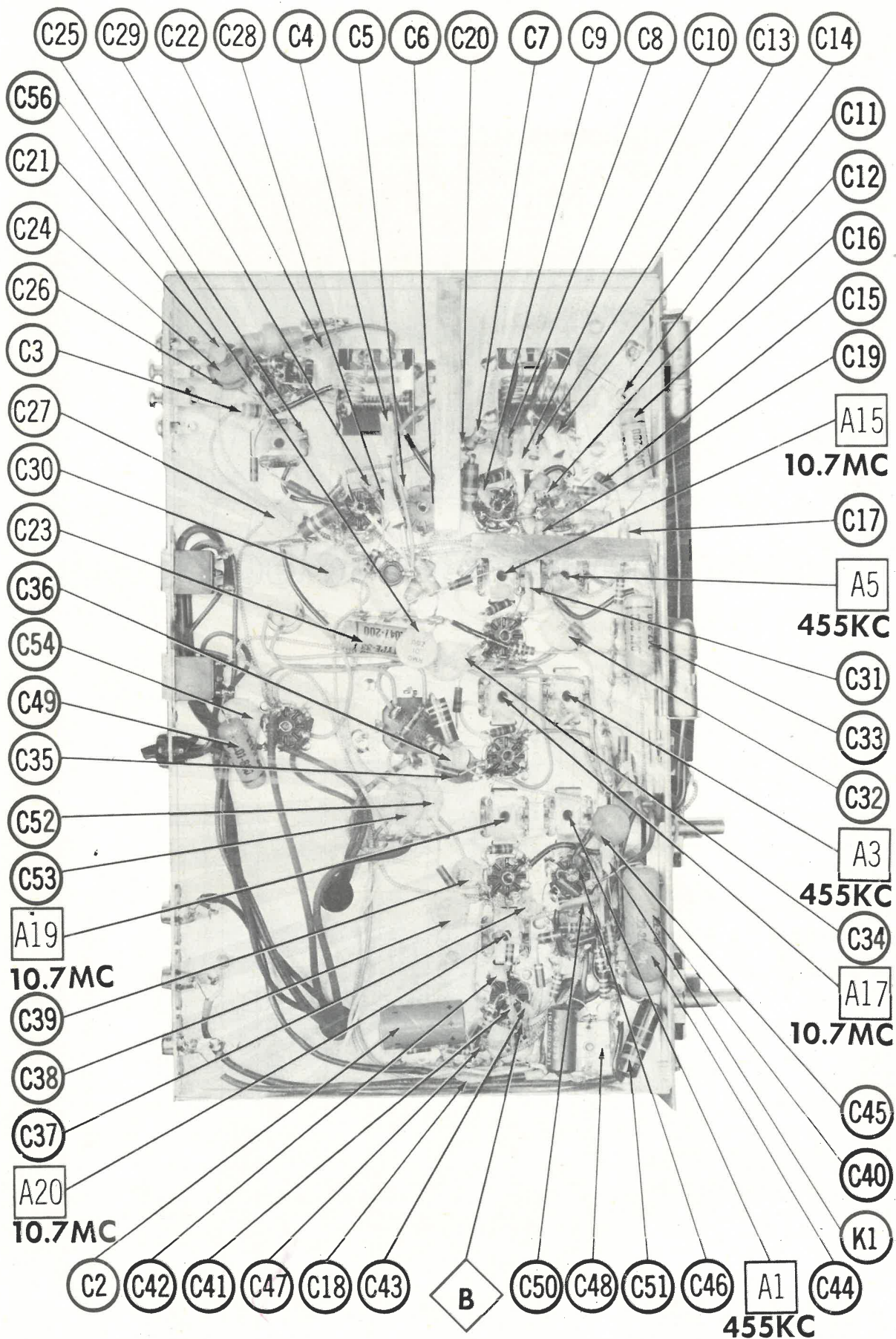
NAME	PART No.	DESCRIPTION
Knob	142000-033	Plain
Knob	142000-032	With Pointer
Dial Glass	142000-011	
Dial Pointer	142000-005	

FOLDER 14

## TUNER CHASSIS—BOTTOM VIEW

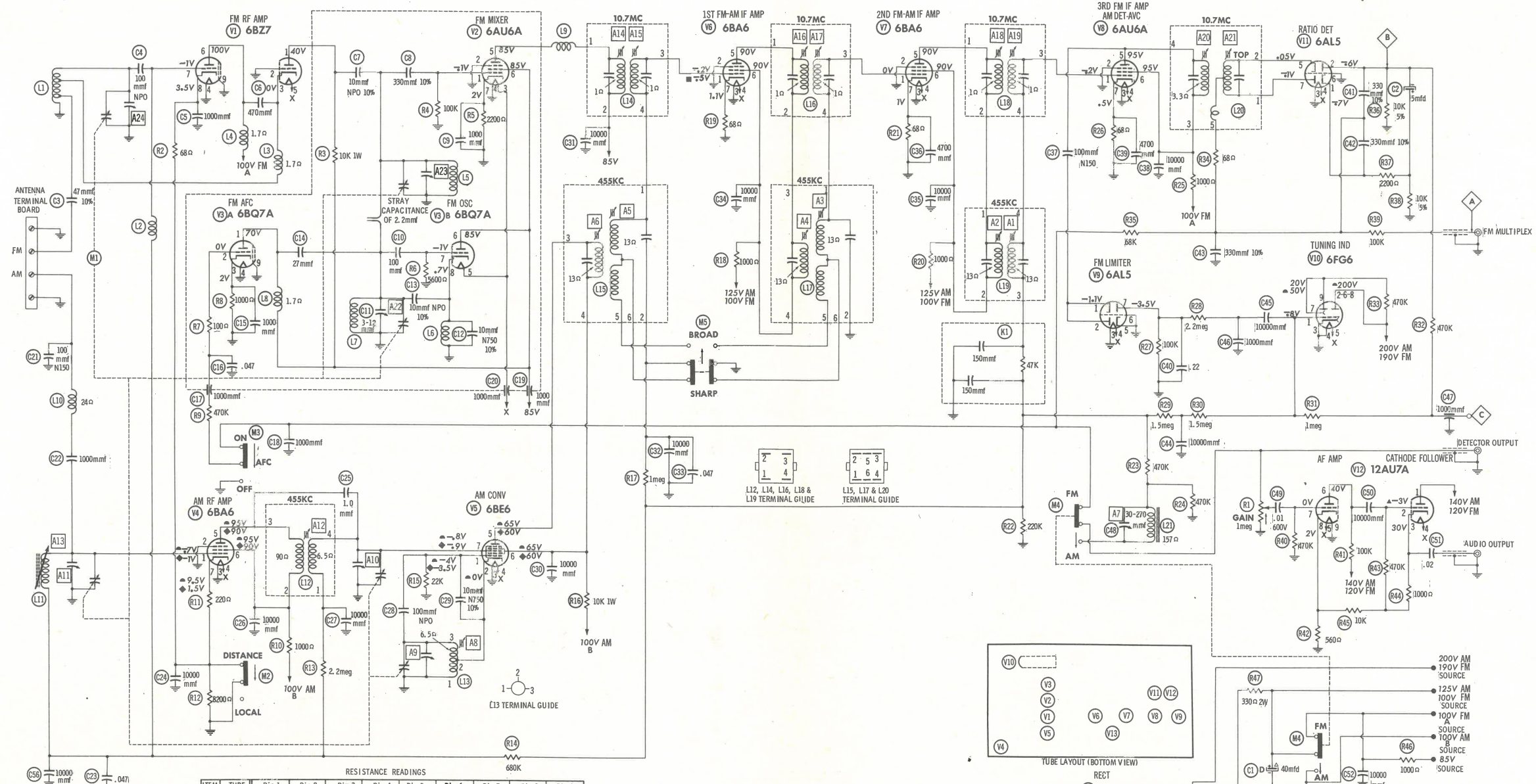


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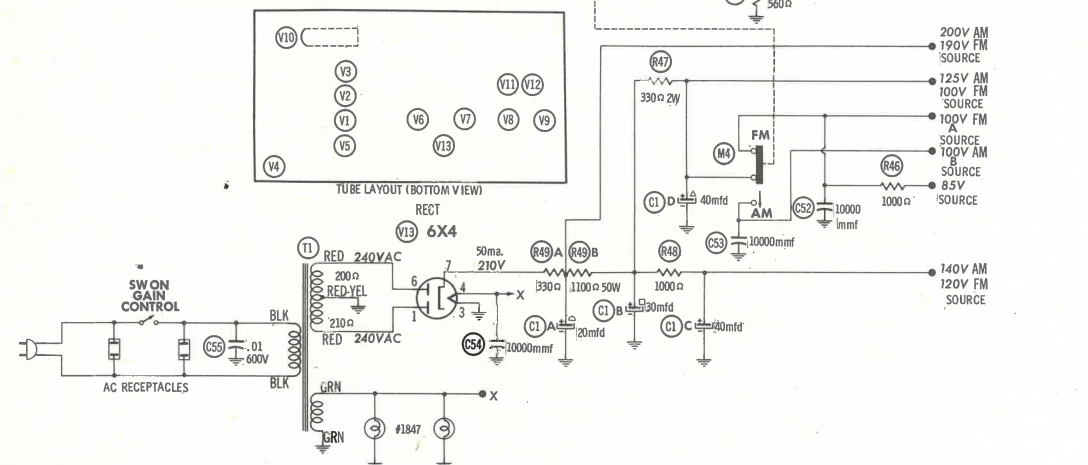
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION





ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ7	13K	0	1.7	0	.1	1700	900K	8300	0
V2	6AU6A	100K	0	.1	0	1700	1700	2200	0	0
V3	6BQ7A	1700	470K	1000	0	.1	1700	5600	.2	0
V4	6BA6	900K	0	0	.1	1700	2700	8400	220	0
V5	6BE6	22K	.7	0	.1	12K	12K	3.1meg	0	0
V6	6BA6	1.2meg	0	0	.1	1700	1700	68	0	0
V7	6BA6	13	0	0	.1	1700	1700	68	0	0
V8	6AU6A	270K	0	0	.1	1700	1700	68	0	0
V9	6AL5	INF	INF	0	.1	0	0	100K	0	0
V10	6FG6	1.4meg	1330	0	0	.1	1330	1470K	1330	1470K
V11	6AL5	12K	10K	0	.1	1meg	0	1meg	0	0
V12	12AU7A	12400	480K	11K	.1	.1	1100K	470K	560	0
V13	6X4	210	NC	0	.1	NC	200	1	0	0

THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.  
 ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.  
 † MEASURED FROM PIN 7 OF V13.  
 ‡ MEASURED IN "AM" POSITION.  
 § MEASURED IN DISTANT POSITION.  
 ▲ MEASURED WITH AFC SWITCH IN "ON" POSITION.  
 DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.  
 ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END).



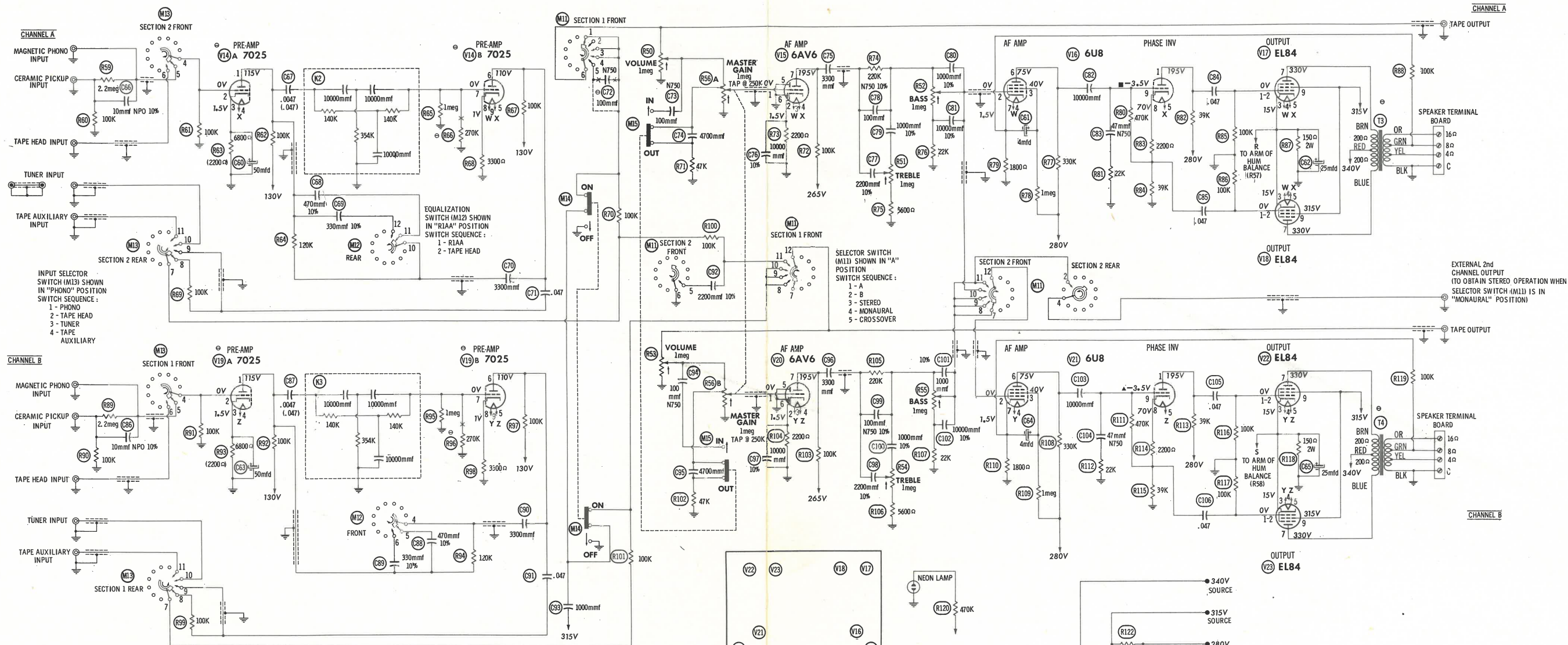
- NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
  - Socket connections are shown as bottom views.
  - Measured values are from socket pin to common negative.
  - Line voltage maintained at 117 volts for voltage readings.
  - Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
  - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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# TUNER

STROMBERG-CARLSON MODELS ASR-433,  
 ASR-444, SE-590, SF-682, SF-692,  
 SFR-684, SFR-694, SR-440



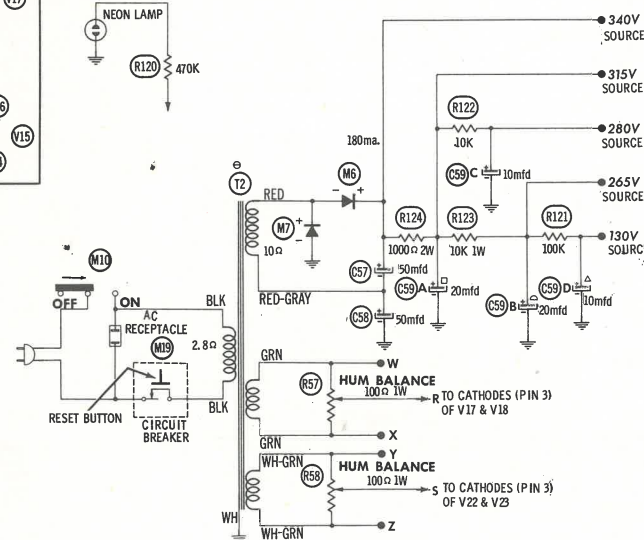


RESISTANCE READINGS									
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V14	7025	†† 210K	100K	6800Ω	190Ω	190Ω	†† 210K	200K	3300Ω
V15	6AV6	0Ω	2200Ω	190Ω	190Ω	0Ω	0Ω	†† 110K	
V16	6U8	†† 50K	22K	†† 1meg	190Ω	190Ω	†† 340K	1800Ω	41K
V17	EL84 6BQ5	100K	100K	150Ω	190Ω	190Ω	NC	†† 200Ω	NC
V18	EL84 6BQ5	100K	100K	150Ω	190Ω	190Ω	NC	†† 200Ω	NC
V19	7025	†† 210K	100K	6800Ω	190Ω	190Ω	†† 210K	200K	3300Ω
V20	6AV6	0Ω	2200Ω	190Ω	190Ω	0Ω	0Ω	†† 110K	
V21	6U8	†† 50K	22K	†† 1meg	190Ω	190Ω	†† 340K	1800Ω	41K
V22	EL84 6BQ5	100K	100K	150Ω	190Ω	190Ω	NC	†† 200Ω	NC
V23	EL84 6BQ5	100K	100K	150Ω	190Ω	190Ω	NC	†† 200Ω	NC

†† MEASURED FROM OUTPUT OF M6.  
 ■ MEASURED FROM PIN 8 OF V16  
 ▲ MEASURED FROM PIN 8 OF V21

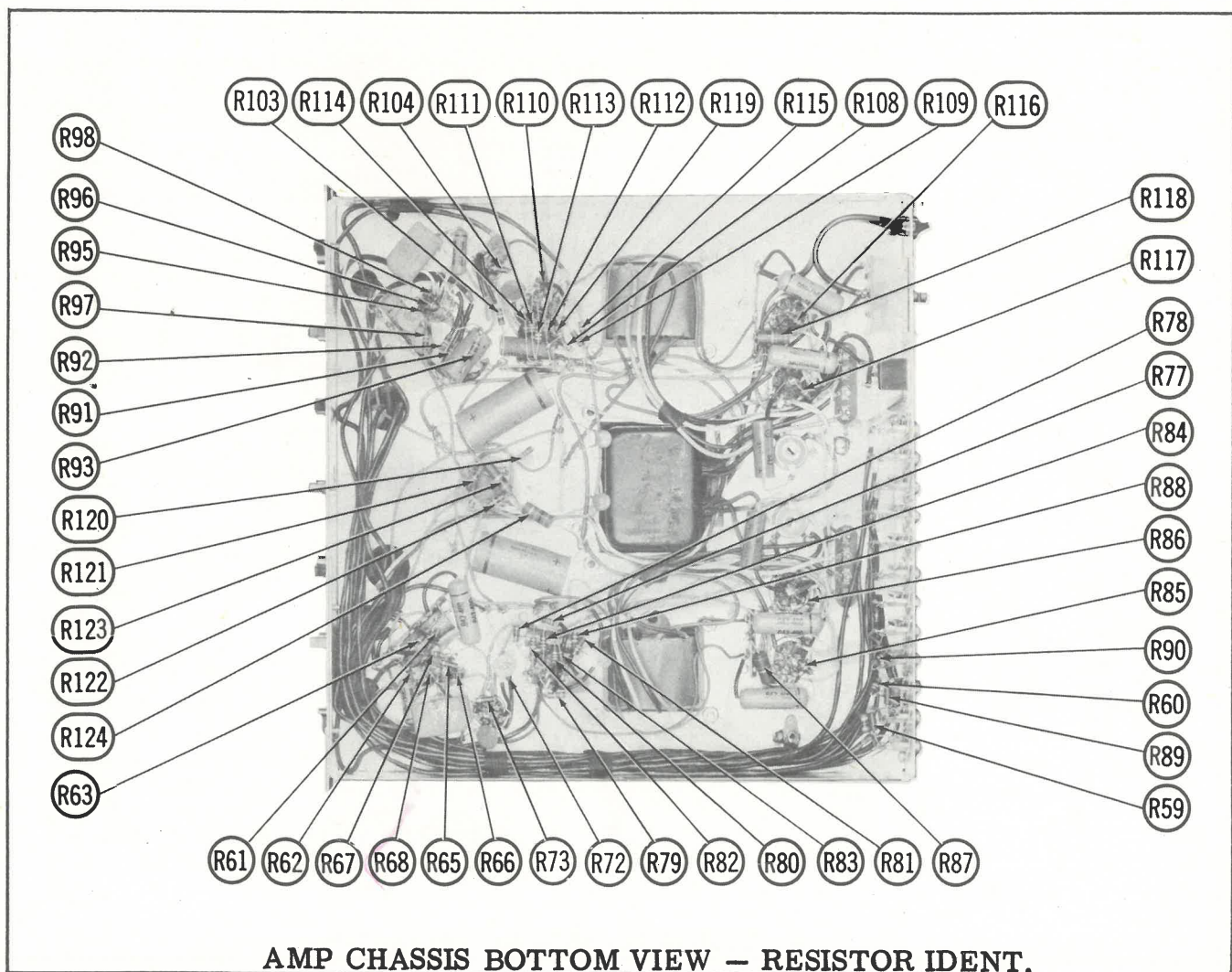
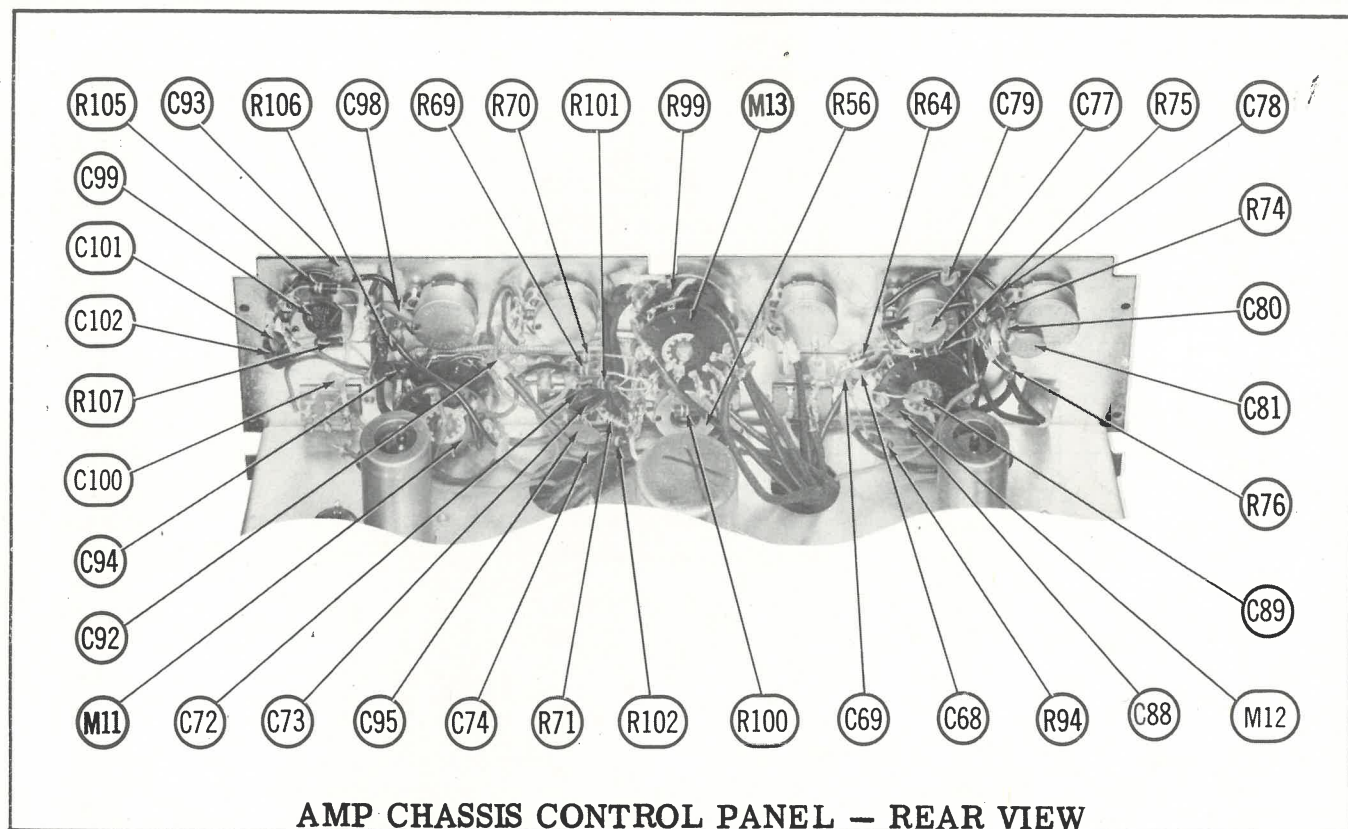
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component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

© 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)

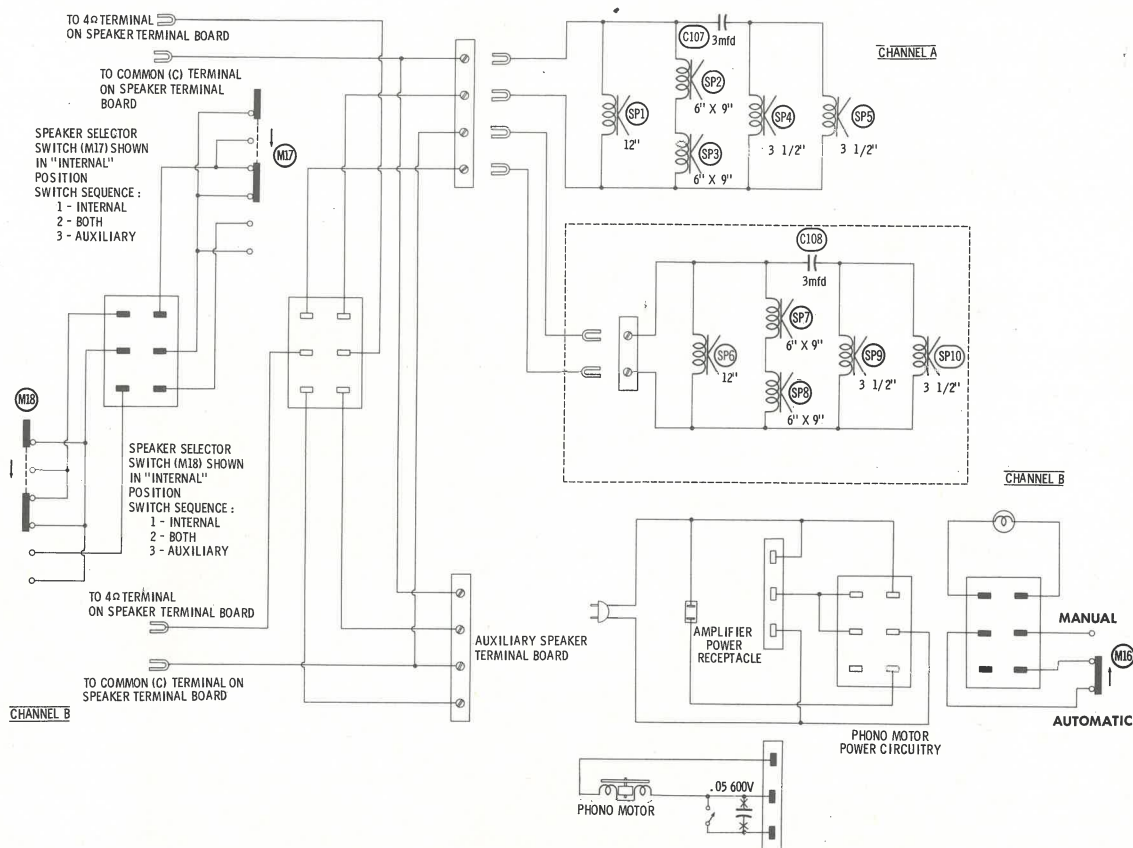






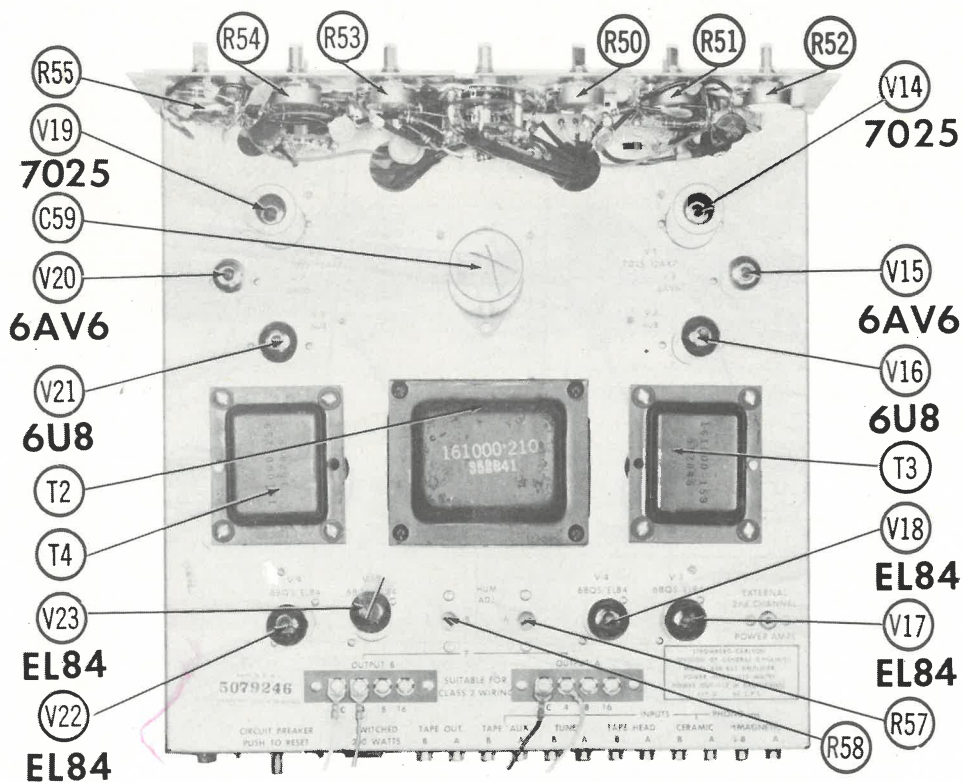




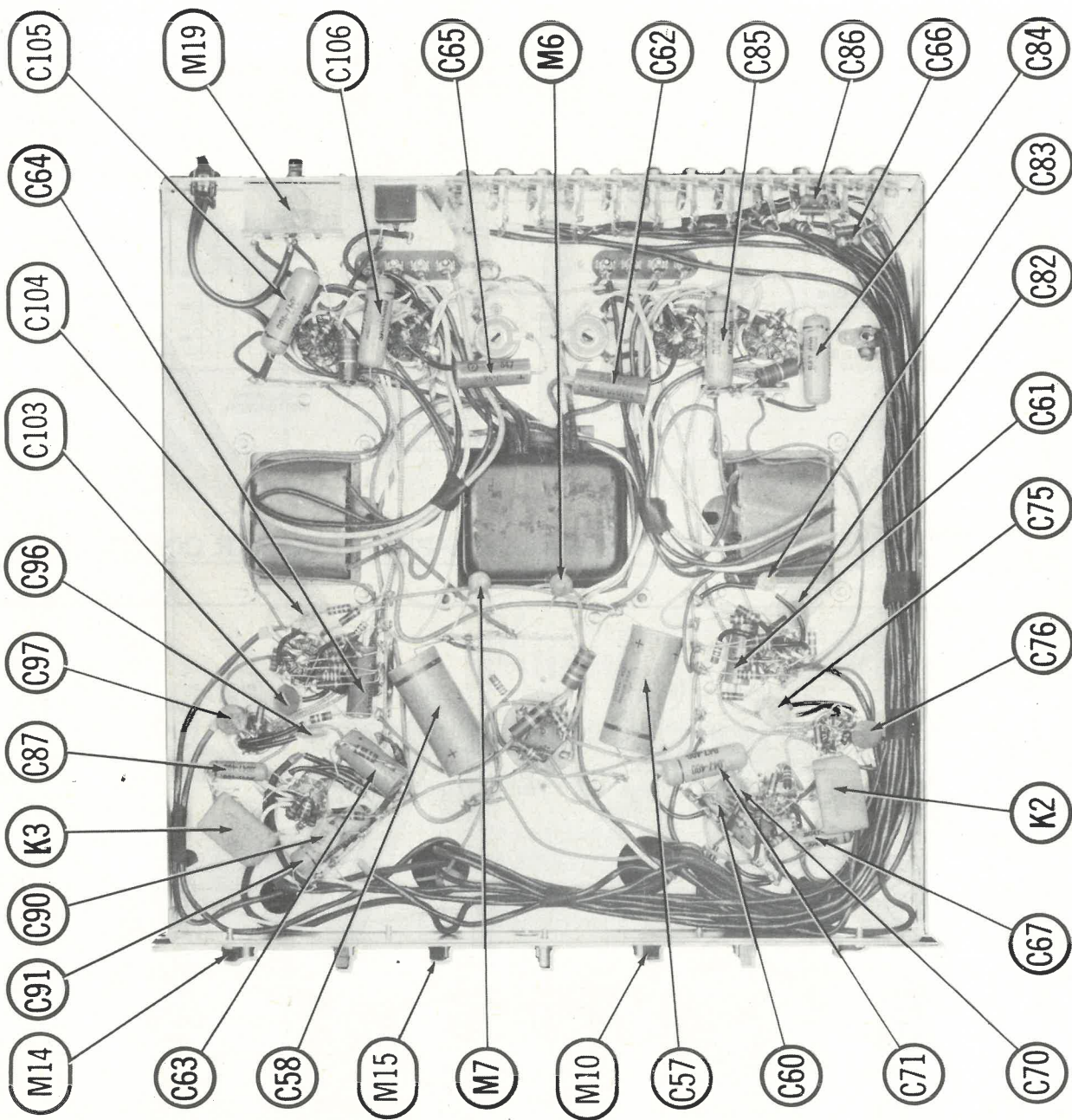


A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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## SPEAKER & PHONO POWER CONNECTIONS



AMP CHASSIS — TOP VIEW



AMP CHASSIS BOTTOM VIEW -- CAPACITOR & MISC. IDENT.



# AMP PARTS LIST AND DESCRIPTIONS

## TUBES

## FIXED CAPACITORS (cont)

ITEM No.	CBS	GENERAL ELECTRIC	ITEM No.	RAYTHEON	SYLVANIA	TYPE
V14		Channel A Preamp.		Channel B Preamp.		7025 (12AX7) *
V15		Channel A AF Amp.		Channel B AF Amp.		6AV6
V16		Phase Inv.		Phase Inv.		6U8
V17		Channel A Output		Channel B Output		EL84/6BQ5
V18		Channel B Output		Channel B Output		EL84/6BQ5

\* Alternate  
① Model ASR-444 uses 7027 in this application.

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA	ITEM No.	NOTES
CAP.	VOLT.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C57	50	11000-049	TC59	TVA-1713
C58	50	11000-049	TC59	TVA-1713
C59A	20	11000-040	FP474.5	TVA-1713
C59B	20	11000-040	FP474.5	TVA-1713
C60	50	11000-049	TC59	TVA-1713
C61	50	11000-049	TC59	TVA-1713
C62	25	11000-009	TC59	TVA-1713
C63	50	11000-049	TC59	TVA-1713
C64	50	11000-049	TC59	TVA-1713
C65	25	11000-009	TC59	TVA-1713

Note 1. Model ASR-444 uses 250V unit in this application (Part #11000-074).  
Note 2. In Model ASR-444, C59C, and C59D 20mfd@450V (C59 Part #11000-028).

## 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.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C66	10 NPO 10% 0.047 400V	(.047mtd) *	NPO-SI 10 P488N-0047	TCZ-10 D6-472	CUQC CUB6D47	CCTO-100 6DP-1-472	CNO-410 GEM-6247	10TCC-Q30 6TM-D47
C67	10 NPO 10% 0.047 400V		DI-470	DD-471	S5R747	CDD-471	GP347	6TM-D47 10TCC-Q30
C68	330 10% 0.047 400V		DI-330	DD-331	L10733	CDD-331	GP333	5HK-D33
C69	330 10% 0.047 400V		BD-0033	DD-332	BYA10D33	CDD-332	GP233	5HK-D33 10TCC-Q30
C71	10 NPO 10% 0.047 400V	Note 1	P488N-0047	DD-503	CUB4S47	4DP-3-473	GEM-4147	10TCC-Q30 10TCC-Q30
C72	10 N750 10% 0.047 400V		N750-DI 100	DTN-100	CU07U	CCTN-101	CN7-310	10TCC-Q30
C73	10 N750 10% 0.047 400V		N750-DI 100	DTN-100	CU07U	CCTN-101	CN7-310	10TCC-Q30
C74	4700 10% 0.047 400V		BDP-0047	DD-472	BYA10D47M	CDD-472	GP247	5HK-D47
C75	3300 10% 0.047 400V	BDP-0033	DD-332	BYA10D33	CDD-332	GP233	5HK-D33	
C76	10000 10% 0.047 400V	DI-10000	DD-10000	P6M6S1	CDD-10000	GP622	10TCC-Q30	
C77	2200 10% 0.047 400V	DI-2200	DD-2200	P6M6D22	CDD-222	GP222	10TCC-Q30	
C78	10 N750 10% 0.047 400V	DI-1000	DD-1000	CU07U	CCTN-101	CN7-310	10TCC-Q30	
C79	1000 10% 0.047 400V	DI-1000	DD-102	P6M6D1	CDD-102	GP210	10TCC-Q30	
C80	1000 10% 0.047 400V	DI-1000	DD-102	P6M6D1	CDD-102	GP210	10TCC-Q30	
C81	10000 10% 0.047 400V	DI-10000	DD-10000	P6M6S1	CDD-10000	GP622	10TCC-Q30	
C82	10000 10% 0.047 400V	Note 2	BDP-01	DD-103	BYA10S1	CDD-103	GEM-1611	10TCC-Q30
C83	47 N750 10% 0.047 400V		N750-DI 47	DTN-47	CUQ47S	CCTN-470	CN7-447	5HK-S10
C84	0.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	10TCC-Q30
C85	0.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	10TCC-Q30
C86	10 NPO 10% 0.047 400V	(.047mtd) *	NPO-SI 10	TCZ-10	CUQC	CCTO-100	CNO-410	10TCC-Q30
C87	0.047 400V		P488N-0047	DD-472	CUB6D47	6DP-1-472	GEM-6247	10TCC-Q30
C88	470 10% 0.047 400V		DI-470	DD-471	S5R747	CDD-471	GP347	10TCC-Q30
C89	330 10% 0.047 400V		DI-330	DD-331	L10733	CDD-331	GP333	10TCC-Q30
C90	3300 10% 0.047 400V	BDP-0033	DD-332	BYA10D33	CDD-332	GP233	5HK-D33	
C91	0.047 400V	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	10TCC-Q30	
C92	2200 10% 0.047 400V	DI-2200	P6M6D22	CDD-222	CDD-222	GP222	10TCC-Q30	
C93	1000 10% 0.047 400V	BDP-001	DD-102	BYA10D1	CCTN-101	CN7-310	5HK-D10	
C94	100 N750 10% 0.047 400V	N750-DI 100	DTN-100	CU07U	CCTN-101	CN7-310	10TCC-Q30	
C95	4700 10% 0.047 400V	BDP-0047	DD-472	BYA10D47M	CDD-472	GP247	5HK-D47	
C96	3300 10% 0.047 400V	BDP-0033	DD-332	BYA10D33	CDD-332	GP233	5HK-D33	
C97	10000 10% 0.047 400V	DI-10000	DD-10000	P6M6S1	CDD-10000	GEM-1611	10TCC-Q30	
C98	2200 10% 0.047 400V	DI-2200	DD-2200	P6M6D22	CDD-222	GP222	10TCC-Q30	

FOLDER 14

STROMBERG-CARLSON MODELS ASR-433, ASR-444, SE-590, SF-682, SF-692, SFR-684, SFR-694, SR-440

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNING DUBILIER PART No.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C99	100 N750 10%		N750-DI 100	DTN-100	C107TU	CCTN-101	CNT-310	107CTU-T10
C100	1000 10%		DI-1000	DD-102	PM6D1	CCD-102	GP210	107S-D10
C101	1000 10%		DI-1000	DD-102	PM6S1	CCD-103	GP210	107S-D10
C102	10000 10%		DI-10000	DD-102	PM6S1	CCD-103	GEM-1611	107S-D10
C103	10000	Note 2	BFD-01	DD-103	BYA10S1	CCD-103	GP10	5HK-S10
C104	47 N750		N750-DI 47	DTN-47	C10647U	CCTN-470	CNT-447	107CTU-Q47
C105	.047 400V	Note 4	P448N-.047	DD-503	CUB4847	4DP-3-473	GEM-1447	47TM-S47
C106	.047 400V	Note 4	P448N-.047	DD-503	CUB4847	4DP-3-473	GEM-1447	47TM-S47
C107	3mfdr 30V		P1589Z-3, 0	DD-503	CUB4847	4DP-3-473	GEM-1447	1183050252
C108	3mfdr 30V		P1589Z-3, 0	DD-503	CUB4847	4DP-3-473	GEM-1447	1183050252

Note 1. Not used in some versions.  
Note 2. Not used in Model ASR-444.  
Note 3. Model ASR-444 uses 2200mmf in this application.  
Note 4. Model ASR-444 uses .1mfd - 400V in this application.

## CONTROLS

ITEM No.	RATING		Stromberg-Part No.	REPLACEMENT DATA			CTS-IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
	RESIST-ANCE	WATTS		CENTRALAB Part No.	CLAROSTAT Part No.				
R50A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Volume, Channel A	
B	Shaft	½		Not Req.	FS-3	Not Req.			
R51A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Treble, Channel A	
B	Shaft	½		Not Req.	FS-3	Not Req.			
R52A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Bass, Channel A	
B	Shaft	½	①	Not Req.	FS-3	Not Req.			
R53A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Volume, Channel B	
B	Shaft	½		Not Req.	FS-3	Not Req.			
R54A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Treble, Channel B	
B	Shaft	½		Not Req.	FS-3	Not Req.			
R55A	1meg	½	1450000-072	B-70	A47-1meg-Z	Q13-137	U53	Bass, Channel B	
B	Shaft	½	①	Not Req.	FS-3	Not Req.			
R56A	250K Tap	½	1450000-053				FS16T254	Master Gain, Channel A	
B	1meg	½		Not Req.	FS-3	Not Req.			
C	250K Tap	½					RU16T254	Master Gain, Channel B	
R57A	Shaft	1(WW)	173853-000	WN-101	A43-100	W11-084	CS3500	Hum Balance, Channel A	
B	Shaft	1(WW)		Not Req.	FKS 1/4	SK5	FL100P		
R58A	Shaft	1(WW)	173853-000	WN-101	A43-100	W11-084	FL100P	Hum Balance, Channel B	
B	Shaft	1(WW)		Not Req.	FKS-1/4	SK5			

① Model ASR-444 uses Part #145000-087.

## RESISTORS

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

ITEM No.	RATING	REMARKS
R59	2. 2meg	(2200Ω) *
R60	100K	
R61	100K	
R62	100K	
R63	6800Ω	
R64	120K	
R65	1meg	
R66	1meg	
R67	100K	
R68	3300Ω	
R69	100K	(2200Ω) *
R70	100K	
R71	47K	
R72	100K	
R73	2200Ω	
R74	220K	
R75	3600Ω	
R76	22K	
R77	330K	
R78	1meg	
R79	1800Ω	(2200Ω) *
R80	470K	

ITEM No.	RATING	REMARKS
R81	22K	(2200Ω) *
R82	39K	
R83	2200Ω	
R84	39K	
R85	100K	
R86	100K	
R87	150Ω 2W	
R88	100K	
R89	2. 2meg	
R90	100K	
R91	100K	(2200Ω) *
R92	100K	
R93	6800Ω	
R94	120K	
R95	1meg	
R96	270K	
R97	100K	
R98	3300Ω	
R99	100K	
R100	100K	
R101	100K	(2200Ω) *
R102	47K	

ITEM No.	RATING	REMARKS
R103	100K	(2200Ω) *
R104	2200Ω	
R105	220K	
R106	5600Ω	
R107	22K	
R108	330K	
R109	1meg	
R110	1800Ω	
R111	470K	
R112	22K	
R113	39K	(2200Ω) *
R114	2200Ω	
R115	39K	
R116	100K	
R117	100K	
R118	150Ω 2W	
R119	100K	
R120	470K	
R121	100K	
R122	10K	
R123	10K 1W	(2200Ω) *
R124	1000Ω 2W	

\* Alternate Value.

① Model ASR-444 uses Part #145000-087.

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

① Model ASR-444 uses Part #145000-087.

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

# AMP PARTS LIST AND DESCRIPTIONS (Continued)

## COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Stromberg-Carlson PART No.	REPLACEMENT DATA
K2	Tone Comp.	(3) 10000mmf, (2) 140K, 354K		
K3	Tone Comp.	(3) 10000mmf, (2) 140K, 354K		

## TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA				
			Stromberg-Carlson PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.
T2	PRI	SEC. 1	SEC. 2				
	117V @ 1.1A	130V @ 2.6A	161000-210				
	SEC. 3	SEC. 4	SEC. 5				
	6.3V @ 2.6A						

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			Stromberg-Carlson PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	
T3	5700Ω	16Ω tap	161000-159	22S95 ②			22S95 ③	
T4	5700Ω	16Ω tap	161000-159	22S95 ②			22S95 ②	

① Model ASR-444 uses Part #161000-168.  
② Use original shields.

## SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			Stromberg-Carlson PART No.	QUAM PART No.	
SP1	12"	PM	155000-029	12A6AZ6	
SP2	6"x9"	PM	155000-030	69A3	
SP3	6"x9"	PM	155000-030	69A3	
SP4	3 1/2"	PM	155372	3A15TZ10.6	
SP5	3 1/2"	PM	155372	3A15TZ10.6	
SP6	12"	PM	155000-029	12A6AZ6	
SP7	6"x9"	PM	155000-030	69A3	
SP8	6"x9"	PM	155000-030	69A3	
SP9	3 1/2"	PM	155372	3A15TZ10.6	
SP10	3 1/2"	PM	155372	3A15TZ10.6	

## RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA				NOTES
			Stromberg-Carlson PART No.	INTERNATIONAL PART No.	ITT PART No.	SYLVANIA PART No.	
M6	.050A		162000-011 ①	SD500	HA504	SR500	Silicon Type
M7	.050A		162000-011 ①	SD500	HA504	SR500	Silicon Type

① Part #162000-014 used in Model ASR-444.

## PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA				SONOTONE PART No.
	Stromberg-Carlson PART No.	ASTATIC PART No.	ELECTRO-VOICE PART No.	JENSEN PART No.	
M8			31-M		8TA1-S

## PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	Stromberg-Carlson PART No.	CLEVITE WALCO PART No.	
M9			

## MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M10	Switch	158000-055	Power Off-On (SPDT Slide Type)
M11	Switch	158000-126	Function Selector (Rotary Wafer Type) Model ASR-433
M12	Switch	158000-121	Equalization (Rotary Wafer Type) Model ASR-444
M13	Switch	158000-128	Channel Reverse Model ASR-444
M14	Switch	158000-127	Input Selector (Rotary Wafer Type) Model ASR-433
M15	Switch	158000-142	Output Balance (DPDT Slide Type)
M16	Switch	158000-058	Loudness (DPDT Slide Type)
M17	Switch	158000-055	Auto-Manual Phono Power (SPDT, Slide Type)
M18	Switch		Speaker (A) (DPTT, Slide Type)
M19	Circuit Breaker	128000-032	Speaker (B) (DPTT, Slide Type)

## CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knobs	134000-032	

## WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors  
Power Cord ..... Use BELDEN No. 8524 (Stranded) Available in Ten Colors  
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 1725-K (7 1/2 Ft. Length)  
Phono Pick-up Arm Cable ..... Use BELDEN No. 8401  
..... Use BELDEN No. 8430 (Two Conductor - Twisted)



MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	11411-1	Index Finger
2	DL-5709-501	Balance Arm Ass'y.
3	13403-2	Turntable Rubber Mat
3A	1424-SBO-X43	Turntable Retaining Ring (2)
4	DL-5723-501	Tone Arm Ass'y.
5	DL-5708-502	Turntable Ass'y.
6	13401-1	Balance Arm Support
7	DL-5731-503	Base Plate Ass'y. Top View
8	DL-5704-501	Rest Post Ass'y.
9		Cartridge
10	DL-5702-510	Speed Control Arm
11	DL-5702-504	Brake Lever Ass'y.
12	12926-15	Spring
13	11421-1	Main Slide Spring
14	DL-5702-503	Main Slide Ass'y.
15	12477-1	Control Lever
16	12307-2	Speed Knob
17	10151-1	On-Off Lever
18	1021-11	Screws #6 x 3/16 (6)
19	DL-5704-501	Rest Post Ass'y. (Bottom View)
20	11400-1	78 RPM Change Wire
21	DL-5710-505	Tone Arm Hinge Ass'y.
22	DL-5702-507	Tone Arm Index Cam
23	DL-5710-506	Index-Tone Arm Bkt. Ass'y.
24	1424-SP-25	Retaining Ring (2)
25	12482-1	Velocity Trip Arm
26	1063-7	Washer (Plastic)
27	11011-2	Washer, Reset
28	11407-1	Spring, Trip Arm
29	11406-1	Spring, Safety
30	10219-1	Bushing, Trip Arm
31	DL-5702-505	Bal. Arm Trip Lock Ass'y.
32	DL-5736-502	Muting Switch Ass'y.
32A	1104-39	Screw 4-40 x 3/8" (2)
33	DL-5702-506	Index Pawl Ass'y.
34	1063-1	Washer (12)
35	1424-SP-15	Retaining Ring (3)
36	11007-1	Pawl, Stop Catch
37	DL-5702-508	Pawl Catch
38	DL-5712-505	Control Slide Ass'y.
39	12926-7	Spring, Extension
40	11029-1	Brace
41	12926-12	Index Finger Spring
42	12926-6	Spring, Trip Lock
43	DL-5702-501	Switch Lever Ass'y.
44	11801-3	Power Switch
44B	11801-2	Shield, Power Switch
45	11401-1	Rod, On-Off
46	12925-1	Shut-Off Wire
47	13005-2	Idle Wheel Ass'y.
48		
49	12475-1	Velocity Trip Washer
50	11804-2	Thrust Washer, Spindle
51	11804-1	Ball Bearings, Spindle
52	11804-2	Thrust Washer, Spindle
53	DL-5702-511	Idle Arm Ass'y.
54	1424-SP-11X	Retaining Ring

Ref. No.	Part No.	Description
55	DL-5703-502	Cycling Gear Ass'y.
56	10001-2	Pinion-Driver Wheel
57	1423-SP-18	Retaining Ring
58	13701-1	Lever, Cycle Control
59	DL-5703-510	Driver Pinion Arm Ass'y.
60	12926-2	Spring, Driver Arm
61	1424-SP-15	Retaining Ring
62	11408-1	Spring, Speed Stop
63	11013-1	Reset, Speed Stop
64	11003-1	Stop, Speed Control
65	11014-1	Lever, Change
66	1424-SP-12	Retaining Ring
67	11024-1	Stop, Speed Knob
68	DL-5712-503	Arm-Shaft Ass'y.
69	1424-SP-18X	Retaining Ring, Motor (3)
70	10152-1	Grommet, Motor Mount (3)
71	12926-1	Spring, Idle Wheel
72	DL-5703-503	Crank, Spindle Actuating
73	13004-2	Motor (4-Pole)
74	DL-5703-509	Motor Plate Sub-Ass'y.
75	10205-1	Pin, Detent
76	1296-5	Nut, Spindle
77	12927-2	Spring, Compression
78	12303-1	Cam, Shift
79	11403-1	Rod, Cam
80	12926-20	Spring, Spindle Slide
81	11000-1	Spindle Slide
82	12001-1	Spindle Ass'y.
83	1021-10	Screws, #6-38 (2)
84	10104-1	Tone Arm Pivot Pin
85	1423-SP-25	Retaining Ring
86	11402-1	Pivot, Shut-Off
87	11805-1	Transit Mtg. Screws (2)
88	11806-1	Clip, Transit Mtg. Scr.
89	11412-1	Lock, Tone Arm Hold Down
90	11836-2	End Bumper, T.A. Lock
91	12950-7	Trim Plate, Tone Arm
92	12951-5	Trim Plate, Bal. Arm
93	12957-1	Name Plate
94	12952-2	Dial Plate
95	12954-6	Audio Cord & Plug Ass'y.
96	12953-1	Power Cord & Plug Ass'y.
97	12955-1	Click Filter, Motor
98	1424-SP-21X	Retaining Ring, Bal. Arm
99	13406-1	Tone Arm (Casting only)
100	11841-1	Plug, Tone Arm Hole
101	11827-1	AC Receptacle
102	1241-SC-26	Cotter Pin, Spindle
103	11843-1	Switch Plate Stereo/ Monaural
104	11837-1	Switch, Stereo/Monaural
105	1426-1	Set Screw, Tone Arm Shaft
106	DL-5724-501	Quick Change Cartridge Bkt.
107	DL-5714-506	Quick Change Cartridge Mtg. Kit
108	11419-1	Wire Rod, Anti-Skate
109	11420-1	Spring Cam, Turntable Hub- Anti-Skate

PHOTOFACT\* Folder



GLASER-STEERS  
MODELS GS-77, GE, GED

SET 399  
FOLDER 7

GLASER-STEERS  
MODELS GS-77, GE, GED



GENERAL INFORMATION

Glaser-Steers Model 77 Record Changers are designed to play in automatic sequence a stack of records and shut off after playing the last record.

The Glaser-Steers Model 77 Turntable pauses during change cycle. It resumes motion only after next record has come in to play position, and stylus is in lead-in grooves of record.

The sound output is muted, not only during change cycle, but also while arm is on the rest post during automatic or manual play.

Record separation is accomplished by movement of a finger in the center spindle. This finger directly separates records having a 1/4" centerhole.

Connect this changer to an outlet supplying 117 volts, 60 cycle AC only, unless otherwise specified.

Manufactured by:

Glaser-Steers Corporation  
20 Main Street  
Belleville 9, New Jersey

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SET 399

FOLDER 7

SET 399 FOLDER 7

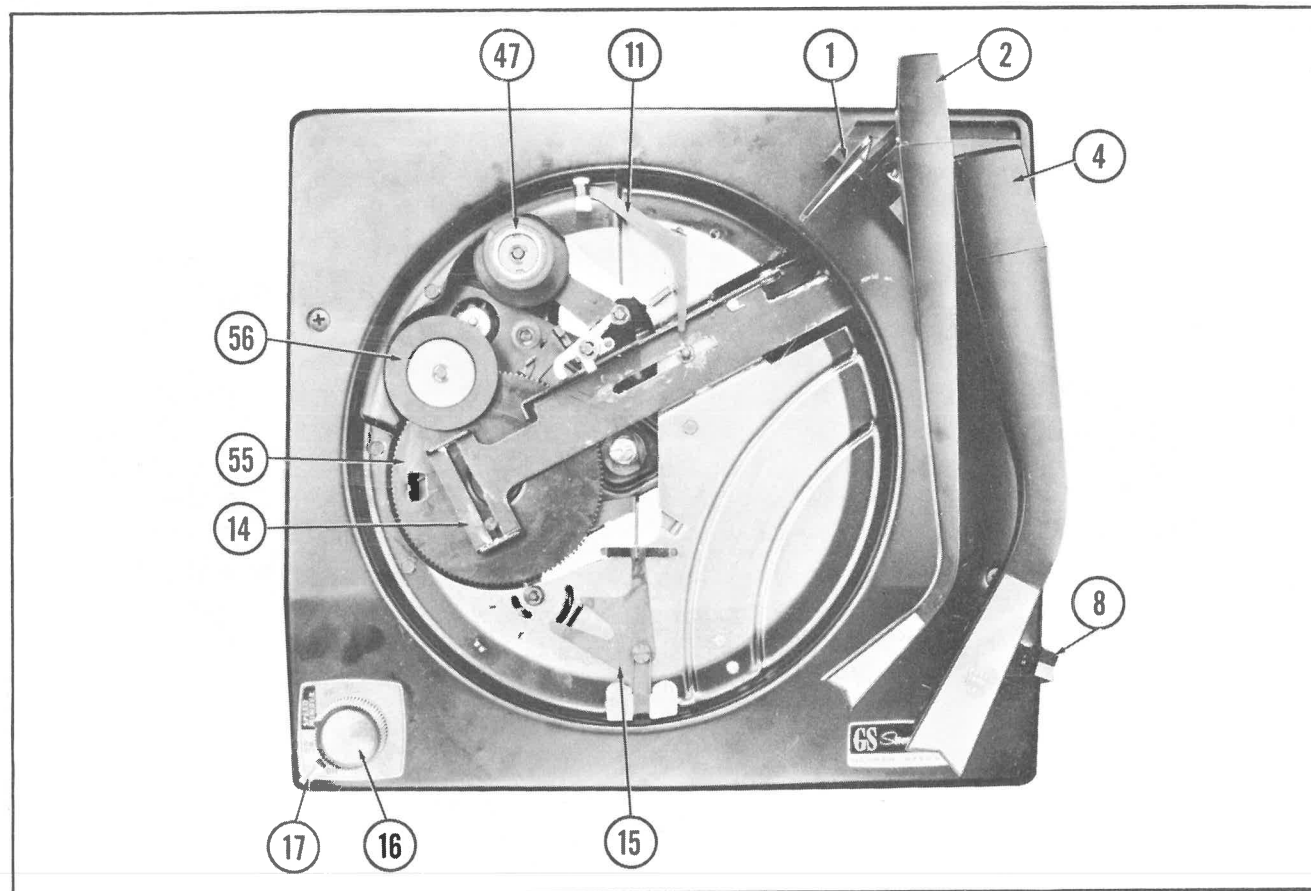


FIGURE 1

### CONTROLS

Two controls are provided on the baseplate. Both are on the left front corner.

The bottom control is the "On-Off-Reject" control. Turning this control counterclockwise causes the tone arm to lift off the record, then return to the rest post. The mechanism will then shut off automatically.

Turning this control clockwise to the "On-Reject" position energizes the motor, and starts the mechanism in to cycle. The mechanism will shut off automatically after the last record has been played.

The top control is the "Speed Selector" control. By leaving the "Speed Selector" control in "Speed-Minder" position, you may play automatically all records (except 16 r.p.m.) without resetting the "Speed Selector". You need only select the proper stylus:

7, 10 and 12" records of both 33 and 45 r.p.m. speed may be intermixed in any order. They play at proper speeds. Be sure you use "33-45" stylus (LP, MG).

78 r.p.m. records of all sizes may be intermixed and will play at proper speed. Be sure you use "78" (Std.) stylus.

The speeds can also be changed by rotating the "Speed Selector" control clockwise from the "Speed Minder" position.

### OPERATING INSTRUCTIONS

#### Operating With Selector Control At "Speed Minder"

1. Lift and move balance arm to the right. Then

place 45 r.p.m. records (with center inserts), or 33 r.p.m. records, or both speeds intermixed on spindle; return balance arm and lower on top record.

2. After checking to be certain that 33-45 stylus is in play position, simply push "On-Off-Reject" control to "On" and release. (The changer will now automatically play all records you have loaded and will shut off after the last record.)

3. To play 78 r.p.m. records by "Speed Minder", simply be sure that when you load 78 r.p.m. records on spindle, stylus is in 78 position. Then push "On-Off-Reject" control to "On"

4. To reject a record, push "On-Off-Reject" control to "Reject" and release. To discontinue play, push control to "Off" and release.

#### Automatic Operation At 16 rpm

1. Set "Speed Selector" control at 16 r.p.m.
2. Turn stylus to 33-45.
3. Load records, lower balance arm, push control to "On".

#### Manual Operation

1. Move balance arm over rest post. Leave in that position during manual play. Place record on turntable. Set at speed desired.
2. Push operating control to "On". Tone arm will come in to 7" position. Move tone arm back to

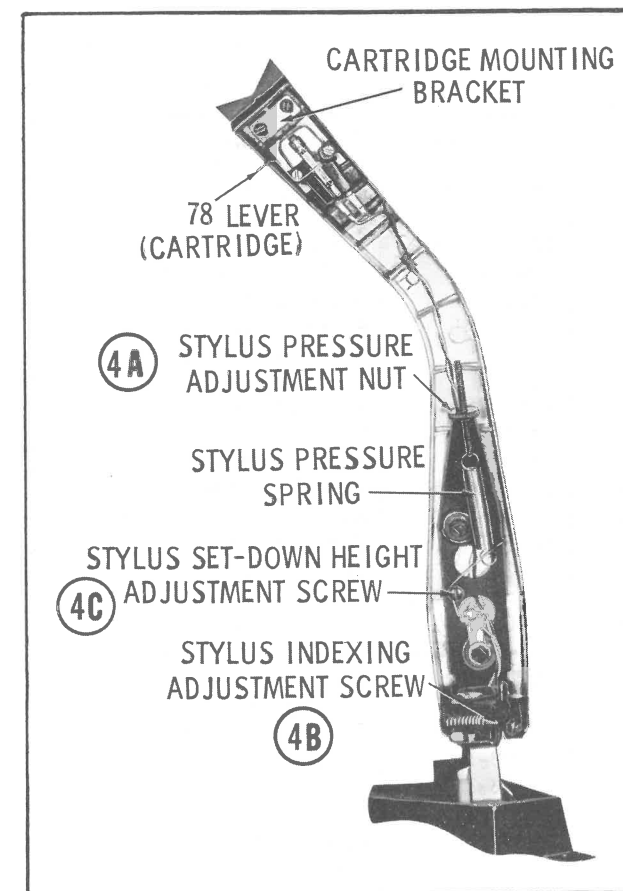


FIGURE 5

### LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows: (Refer to the exploded view).

Apply Andox "B" or Texaco "Sta-Put" to:

1. Edge of all slots in main slide assembly (14).
2. Outer edges of main slide assembly (14).
3. Cam surface on main slide (14A).
4. Top of speed shift cam (78).
5. Slot in spindle slide (81).

Apply a small quantity of light oil to:

1. Bearing holes of tone arm index cam (22).
2. Bearing of driver pinion arm assembly (59).



TROUBLE CHART (CON'T)		
SYMPTOM	CAUSE	REMEDY
	2. Tone arm (4) does not leave rest post.	See procedure under 11.
17. Excessive low pitch noise (rumble) or thumping sound during record play.	1. Motor restrained from floating freely on rubber mounts.	Check to see that motor is not touching any part of cabinet. Clear any power leads that may be restricting the floating action of the motor.
	2. Damaged turntable idler (47).	If surface of rubber tire is not smooth or shows signs of distortion, idler (47) should be replaced.
	3. If power to changer is cut in mid-cycle and changer is left in this manner for any length of time, the rubber tires can develop a flat spot that will cause a thumping sound.	Run changer for at least 10 minutes. If thumping does not disappear, replace idler (47).
18. Tone arm does not track in record grooves.	1. Worn stylus in cartridge.	Replace.
	2. Improper tracking pressure for cartridge used.	Check tracking pressure for cartridge used and adjust to recommended value.
	3. Changer not level.	Relevel changer.
	4. Cartridge leads interfering with motion of tone arm.	Check to see that ample slack is provided in the tone arm leads so that the entire lateral travel of tone arm is not affected.
19. No sound during record play.	1. Defective cartridge.	Replace.
	2. Defective wiring.	Check cartridge leads for shorted or open leads.
	3. Loose cartridge terminal clips.	Remove clips from terminals squeeze slightly together and re-fasten to cartridge.
	4. Muting switch (32) out of adjustment.	Check to see that switch contact points operated by main slide have approximately 1/32" clearance when cycle is completed. If necessary, bend blade (32) that cams against main slide until this clearance is obtained. Cycle the changer and check to see that contacts are touching after the main slide withdraws.

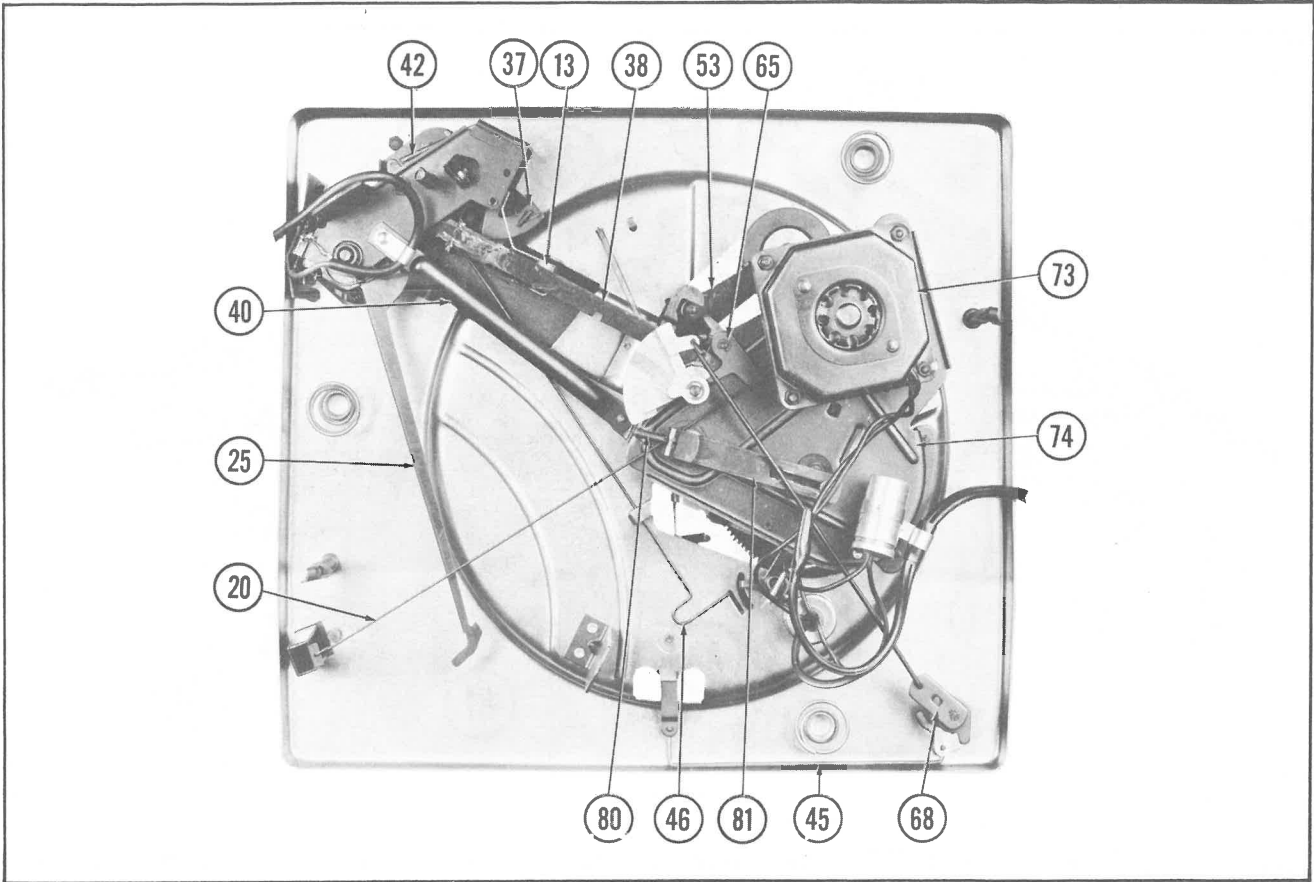


FIGURE 2

rest post. (You may stop tone arm, if you prefer, just before it lands on record, and then move it to rest post and leave it there).

3. Now, check to be sure you have "Speed Selector" control set correctly for your record, and the proper stylus chosen. Set tone arm on any position on the record and play.

NOTE: In manual play, tone arm will not cycle after playing the record. However, if you wish changer to stop automatically after completion of the record, move balance arm over spindle, before lifting tone arm from rest post.

ADJUSTMENTS

Stylus Pressure Adjustment

Knurled nut (4A) for adjusting stylus pressure is located slightly to the rear of the tone arm center. With tone arm in horizontal position turn nut from right to left to reduce pressure; and from left to right to increase pressure. Adjust to pressure recommended for your cartridge.

Set-Down Adjustment

By lifting tone arm upward about 1" from rest post, set-down adjusting screw (4B) becomes accessible under rear of tone arm. Using any size record, adjust so that stylus comes to rest on the lead-in grooves. Turning screw (4B) clockwise moves stylus away from center.

Tone Arm Height Adjustment

By pivoting tone arm to an almost vertical position, height adjustment screw (4C) is visible. Adjust so that stylus stops 1/4" to 1/8" above changer base, when tone arm is lowered from rest post and mechanism is out of cycle.

CHANGE CYCLE

Observe the change cycle operation by removing turntable and turning changer on, or by manually rotating the main gear (55) counterclockwise. The action described below can then be readily followed and each parts function more easily understood.

This changer has a "Velocity Trip" mechanism. Change cycle is started by the fast inward motion of the tone arm when the needle enters leadout grooves at the end of a record.

Tone arm hinge assembly and trip lever (25) are secured together so they move in unison. While a record is playing, the slight movement of trip lever (25) is not sufficient to trip the mechanism because the wiping action by trip lever washer (49) moves trip lever (25) back with each revolution of the turntable.

In the first revolution of the turntable, as the tone arm advances rapidly toward the spindle, trip lever (25) is moved fast enough and far enough to engage trip washer (49). Contact between trip lever (25) and trip lever washer (49) gives the necessary lift to force trip lock assembly (58) out of engagement with driver pinion arm (59). Driver pinion arm (59) by action of spring (60). Brings, driver pinion wheel (56) into

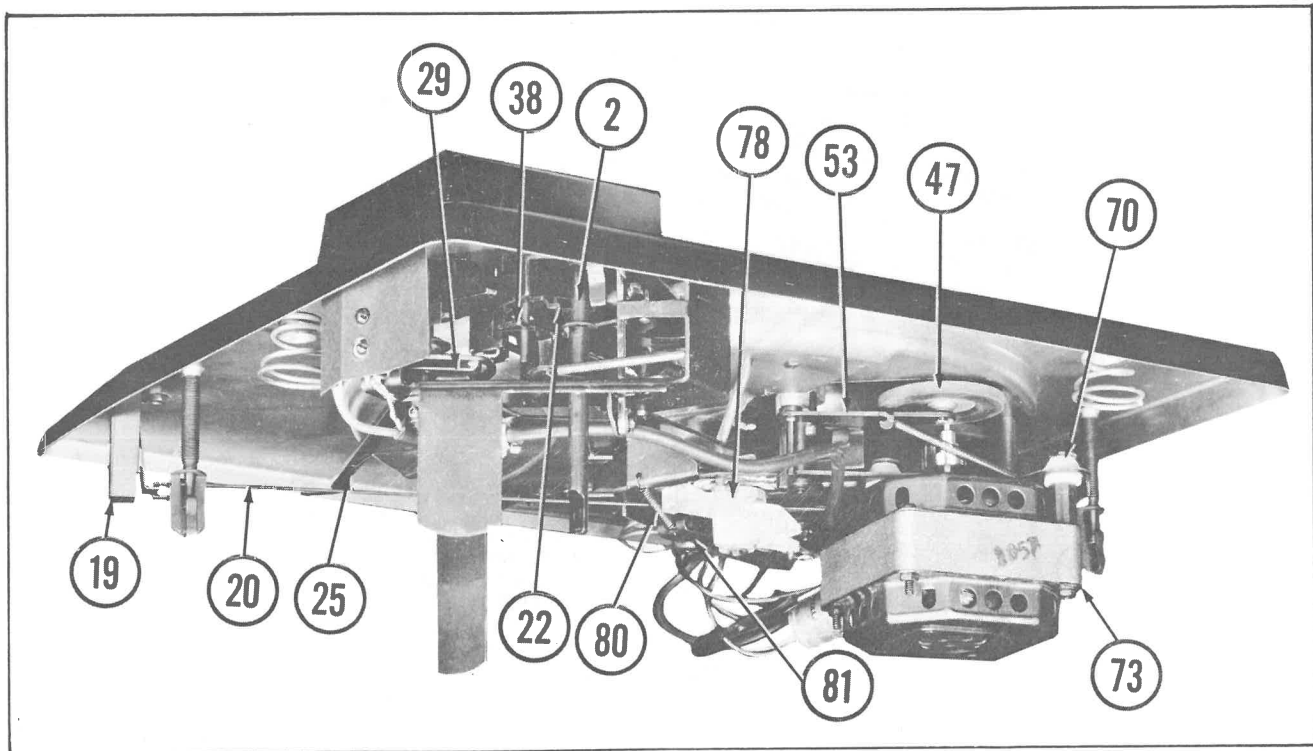


FIGURE 3

engagement with the motor pulley, supplying driving force to main gear (55). As the main gear rotates, main slide (14) moves to the left thru the action of the eccentric mounted pin on main gear (55) riding in the cross slot on the main slide assembly (14).

As main slide (14) begins to move, cam (14A) (part of main slide [14]) will cause tone arm index cam (22) to move down. This pulls the back part of the tone arm hinge assembly down, lifting the front part of the tone arm up and off the record. Projection (14B) on rear of main slide (14) now comes in contact with spring (29), forcing the spring forward. Spring (29), tone arm hinge, and pivot assembly (21) are secured together so they move in unison. The action of spring (29), tone arm hinge, and pivot assembly (21) pivot the arm toward rest post (8).

As the tone arm moves toward the rest post, spindle actuating cam (72), attached to bottom part of main gear (55) has rotated far enough to actuate spindle slide (81), moving it to the left. Slide (81) actuates the spindle knives, dropping one record on the turntable. During the record drop, turntable (5) does not revolve, due to the braking action of brake lever (11), actuated by the main slide.

Simultaneously, index finger (1) moves forward by action of the main slide moving away from the index finger. As the record drops to the turntable, the record either strikes or misses index finger (1), depending on the size of the record. In the case of a 7 inch record, the record completely misses the index finger (1). This causes index detent positioning lever (37) to be caught in the first notch, which in turn places index detent (33) in the first notch of tone arm index cam (22). The tone arm will now move out to the 7 inch set-down position. In the case of a 10 inch record, the record hits the index finger just enough to move the index finger to the next series of notches.

The tone arm will now move out to the 10 inch set-down position. The 12 inch record acts the same as those described above, except the third series of notches comes into contact. The tone arm will now move out to the 12 inch set-down position.

As the main slide (14) reverses direction of travel, the extension spring (ratchet spring) attached to tone arm index cam (22) will move the tone arm out over the record. About this time, tone arm index cam (22) moves up cam (14A). This action places the tone arm down on the lead-in grooves of the record. Main gear now rotates to its out of cycle position, allowing the tone arm to move freely across the record.

After the mechanism has been tripped, it again follows the preceding sequence of cycling and playing the records, until the last record of the stack has been played.

As the last record of the stack drops to the turntable, balance arm (2) drops below the shelf on spindle assembly (82). Lower end of balance arm (2) contacts balance arm wire (46), forcing it downward. The balance arm wire holds index detent stop lever (36) up. Index detent stop lever (36) drops, thus blocking index detent positioning lever (37) and causing index detent to move inward to catch the last notch on tone arm index cam (22). This action will allow the tone arm to come to the rest post and remain there. The tone arm is held from moving in by action of index cam (22). Being in the last notch, slide bar (38), attached to index cam (22), is stopped from moving towards the right. When slide bar (38) fails to move, switch actuating pivot wire (86) remains in the up position, holding switch actuating pivot (43) up and in contact with the projection on the bottom of main gear (55). As the projection on the main gear strikes switch actuating pivot (43), power is removed from the motor and the mechanism stops.

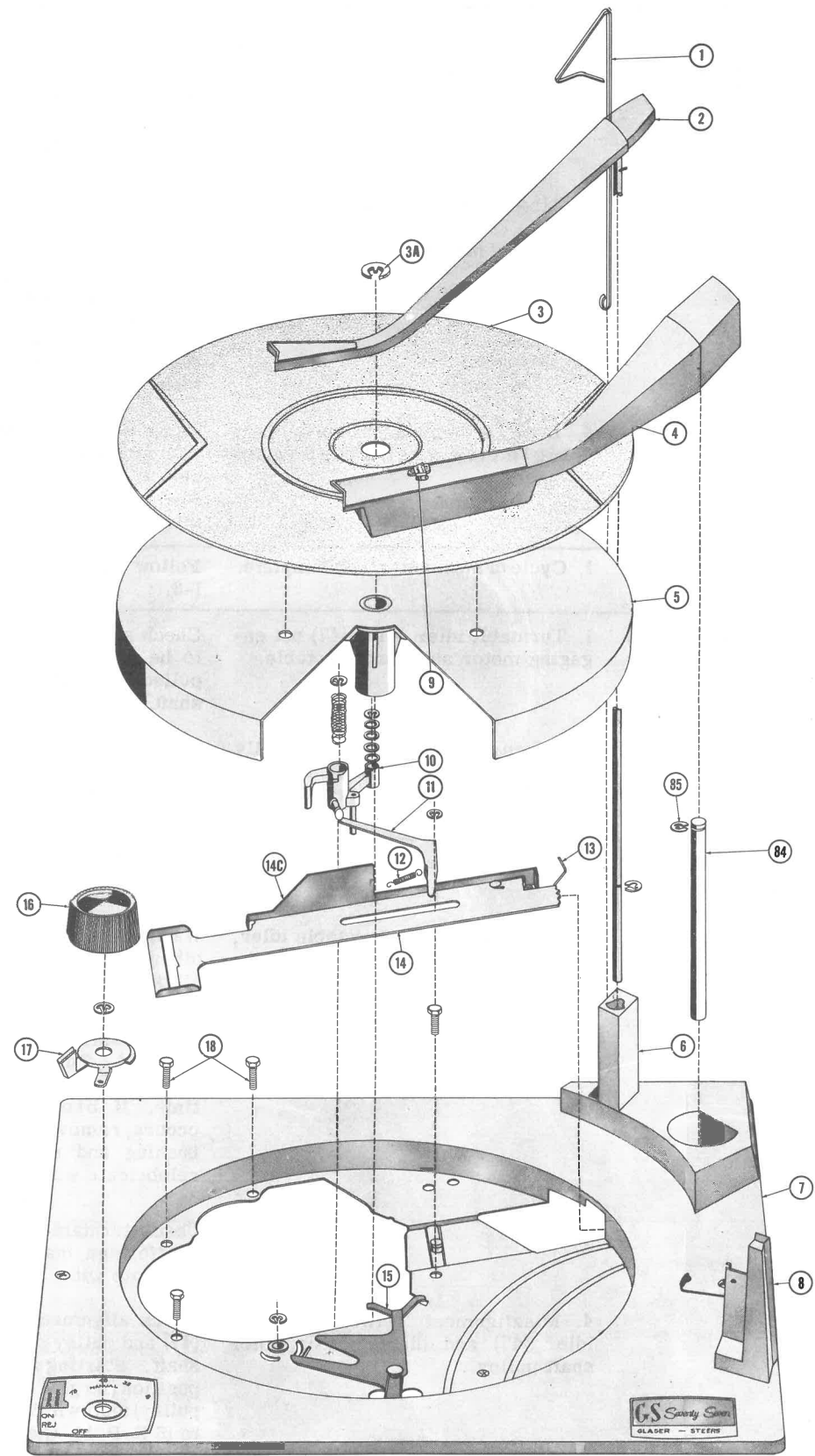
## TROUBLE CHART (CON'T)

SYMPTOM	CAUSE	REMEDY
		height should be set so that the bottom edge of tone arm clears the highest point of the rest post shelf by approximately 1/8 inch.
11. With balance arm (2) raised, turning control lever to "On - Reject" position, tone arm will not leave rest post during cycle and upon completion changer shuts off.	1. Improper height adjustment. 2. Improper set-down adjustment.	See procedure under 10. See procedure under 9.
12. Changer does not index for 10" records.	1. Improper interference between 10" record and index finger (1).	If tone arm comes in to 7" position instead of 10", this indicates insufficient interference between record and finger. Turn changer off and place a 10" record on the turntable. Bring the index finger by hand toward the spindle until completely forward. Raise the record along the spindle, keeping it parallel to the turntable. The record should interfere with nose of the index finger by approximately 3/32". The finger can be adjusted to this dimension by bending forward in the direction of the record. Do not overbend so as to exceed the 3/32" interference required.  If tone arm comes in to 12" position instead of 10", interference between record and index finger is too great. Use same procedure as given above, however bend the index finger in the opposite direction away from the record until proper interference is achieved.
13. Changer repeatedly indexes for a 12" record.	Index finger (1) is not coming forward during cycle. Spring (41) on finger below disengaged	Refasten spring if disengaged.
14. Changer drops 2 records at once.	1. Center hole in record too large. 2. Small blade in upper portion of spindle (82) not fully down.	Oversize holes will cause 2 records to fall at once.  Straighten blade if bent so that it falls freely of its own weight.  If not bent, clean slot and blade of any foreign matter and lubricant that may be present. Do not oil. Blade must fall freely by gravity.
15. Changer will not shut off automatically after playing last record.	Balance arm (2) does not move to its full downward position.	Clean balance arm shaft and bearing holes of any foreign matter and lubricate with light oil. Arm must be free enough to fall downward by gravity.  Clear any lead wires that may be interfering with the lower end of the balance arm shaft.
16. With balance arm up, changer will shut-off after every cycle.	1. Lever (43) that operates power switch fails to fall to its downward position.	Clean shaft and bearing of switch lever of any foreign material. Wipe dry of any lubricant. Do not oil.



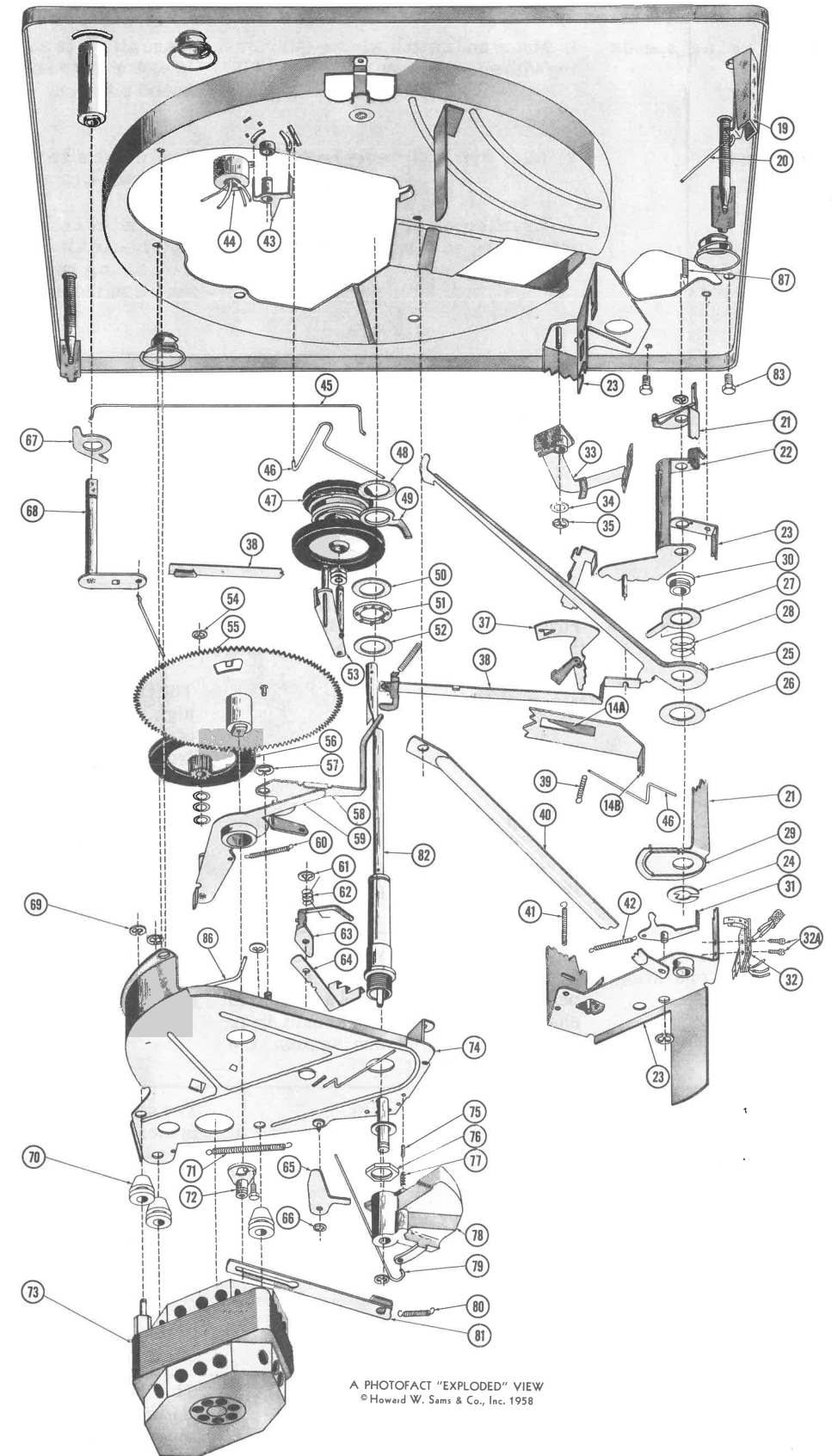
TROUBLE CHART (CON'T)		
SYMPTOM	CAUSE	REMEDY
5. Difficulty in changing speeds manually.	1. Motor and switch wiring interfering with speed change wire link (79).	Move all wires so that wire link (79) is not restricted by them in any speed position.
	2. Idler arm (53) badly bent.	See procedure outlined under symptom 4, cause 4.
	3. Crank on speed control shaft (68) interfering with motor board.	Check mounting of changer on motor board, making certain that the mounting springs are properly seated in the holes provided.
6. With speed control in "Speed Minder" position and stylus set at "78" or Std. play, turntable does not turn at 78 R. P. M.	1. Needle turnover lever is not moving pivot blade in rest post (8) far enough to set the mechanism for 78 speed.	Adjust the cartridge in the tone arm so that the needle turnover lever projects at least 3/16 inch beyond the tone arm. Make sure the lever can enter the hole in the rest post without any interference. Cartridge bracket has elongated holes, thereby allowing centering of the turnover lever, in the rest post (8).
7. With record balance arm over spindle, changer will not cycle when a record is finished playing.	1. Velocity trip lever (25), long narrow lever below changer that moves with the tone arm, is not reaching trip cam (49).	Check to see that none of the power or cartridge leads are restricting the motion of the trip lever.  The trip lever (25) is bent either too high or too low. The correct level of the free end should be in a range from 1/8 to 1/4 inch above the motor plate.
	2. Trip cam (washer with inclined wing below turntable hub) does not have sufficient friction from turntable to operate properly.	Remove turntable and thin soft washer. Before reinstalling, wipe any lubricant off top surface of trip cam (49) which is exposed when thin washer is removed.
8. Changer cycles by tripping through tone arm when operating in "Manual" position.	1. Velocity trip is not being blocked by lever (31) located near the lower bearing hole of the balance arm shaft. This lever (31) should bear under spring pressure against the balance arm shaft. (2).	Refasten spring (42) between lever (31) and vertical side of large bracket (23).
9. Tone arm does not land at the beginning (lead-in grooves) of 7, 10, 12 inch records. (Set-down adjustment).	1. Improper adjustment.	The set-down adjustment screw (4B) is located at the front end of the tone arm bracket. It can be readily identified by the coil spring that surrounds it. Turning the screw head 1/2 turn in a clockwise direction moves the tone arm approximately 1/8 inch to the right (measured at the stylus). Adjust so that stylus lands approximately midway in the margin found at the beginning of all records.
10. Tone arm does not drop sufficiently to play first record or tone arm interferes with records on spindle shelf during cycling.	1. Improper height adjustment.	The height adjustment screw (4C) is located in the bracket that mounts the tone arm. It is located midway between the 2 screws that secure the arm. One complete turn in a clockwise direction lowers the tone arm approximately 1/8 inch. Tone arm

TROUBLE CHART		
SYMPTOM	CAUSE	REMEDY
1. Changer does not function when control is turned to "On-Reject" position.	1. No power to motor.	Check to see that AC current is reaching motor.  Check wiring connection at switch and motor.
	2. Line voltage too low.	Line voltage must be at least 105V.
	3. Cycle of mechanism not complete.	Remove snap ring that secures turntable on record spindle. Remove turntable by lifting it straight up. Turn main gear (55) with crank pin in counterclockwise direction till crank pin is in line with notch in main slide.
	4. Foreign lubricant on rubber tire (single tire wheel) that cycles changer.	Remove turntable and clean tire (56) with lint free cloth moistened with alcohol. Also clean motor shaft, wheel with 2 rubber tires (47) and inside of turntable rim.
2. "On-Off" control cannot be turned to "On-Reject" position.	1. Cycle of mechanism not complete.	Follow same procedure as given in 1-3.
3. Changer will cycle and tone arm will come in to playing position but turntable will not rotate.	1. Turntable idler wheel (47) not engaging motor shaft and turntable.	Check spring (71) on idler arm (53) to be certain that idler is being pulled toward the direction of motor shaft.
	2. (When switching speeds manually only). Excessive friction between cam (78) and pin that raises and lowers idler arm (53).	Lubricate top surfaces of steps on cam (78) that raises and lowers idler arm (53).
4. Turntable speed too slow or large variations in turntable speed.	1. Improper line voltage.	Line voltage should be between 105 and 130 volts.
	2. Oil or grease on turntable idler, motor shaft, or turntable.	Wash all surfaces that contact each other with alcohol. Be sure to wash all diameters on motor shaft.
	3. Binding in turntable.	With changer shut off, check freedom of turntable rotation by spinning it by hand. Turntable must coast freely for a considerable length of time. If binding or roughness occurs, remove the turntable clean bushing and spindle surfaces and relubricate with light oil.
	4. Misalignment between turntable idler (47) and diameters on motor shaft pulley.	Check turntable thrust bearing for any foreign matter, clean and relubricate with "Vaseline".  Check alignment of turntable idler (47) and pulley diameters on motor shaft. Starting with the 78 R. P. M. position (largest diameter on motor pulley) and switching speeds from 78 to 16 R. P. M. the idler must raise and contact the respective diameters on the motor without touching any of the diameters below. If idler arm is bent (should be parallel to motor plate 74), straighten arm till alignment above is achieved.



A PHOTOFAC "EXPLODED" VIEW  
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FIG. 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE



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FIG. 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE