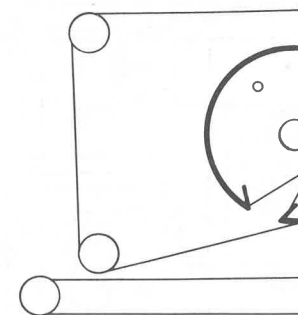


TRADE NAME: Packard Bell Models RPC-60, RPC-62 (Tu
SUPPLIER: For Current Address, See Annual Index
TYPE SET: 19 Transistor AM-FM-FM Stereo Tuner,
POWER SUPPLY: 110-120 Volts AC, 60 Cycles RATIN

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE S

DIAL CORE

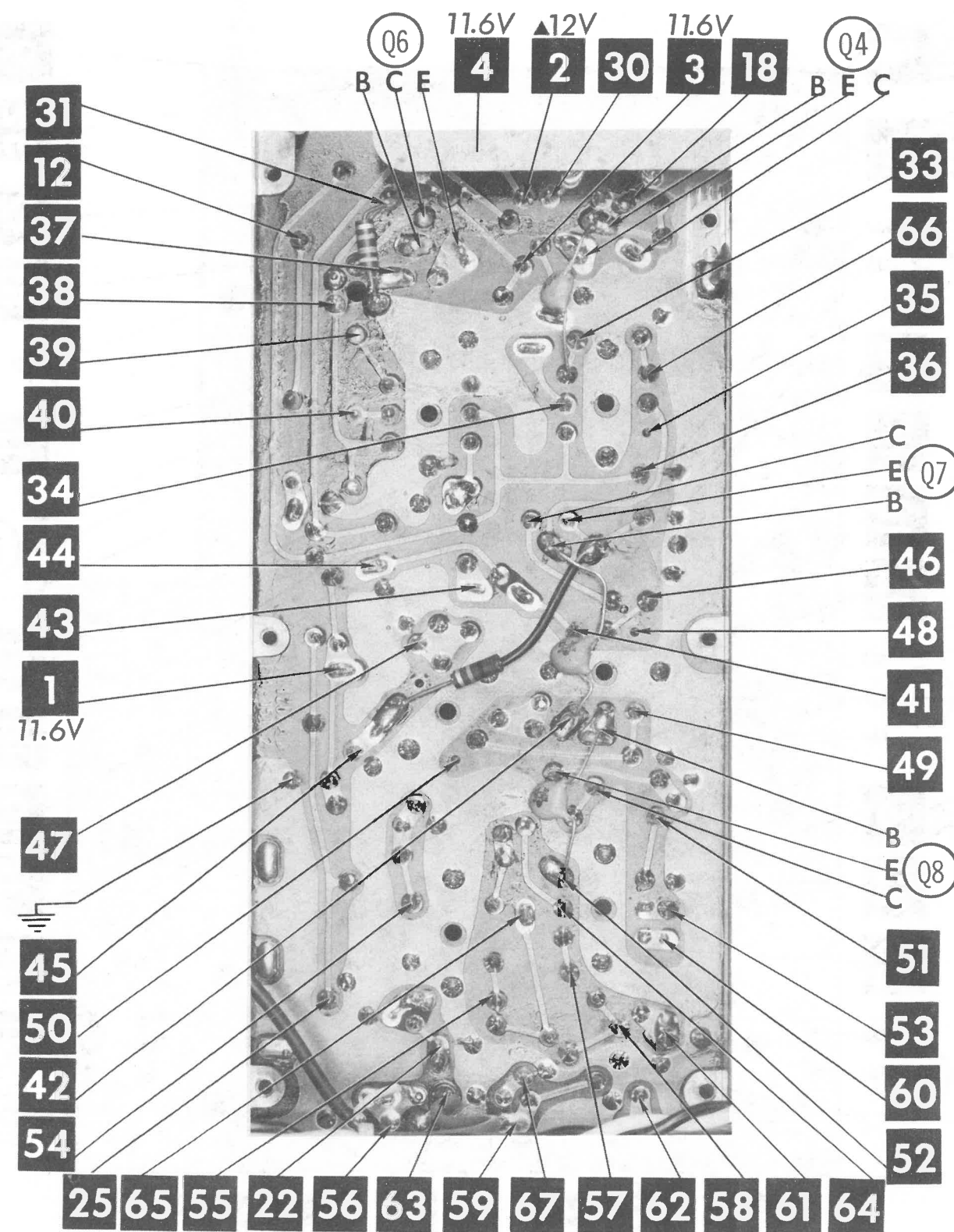
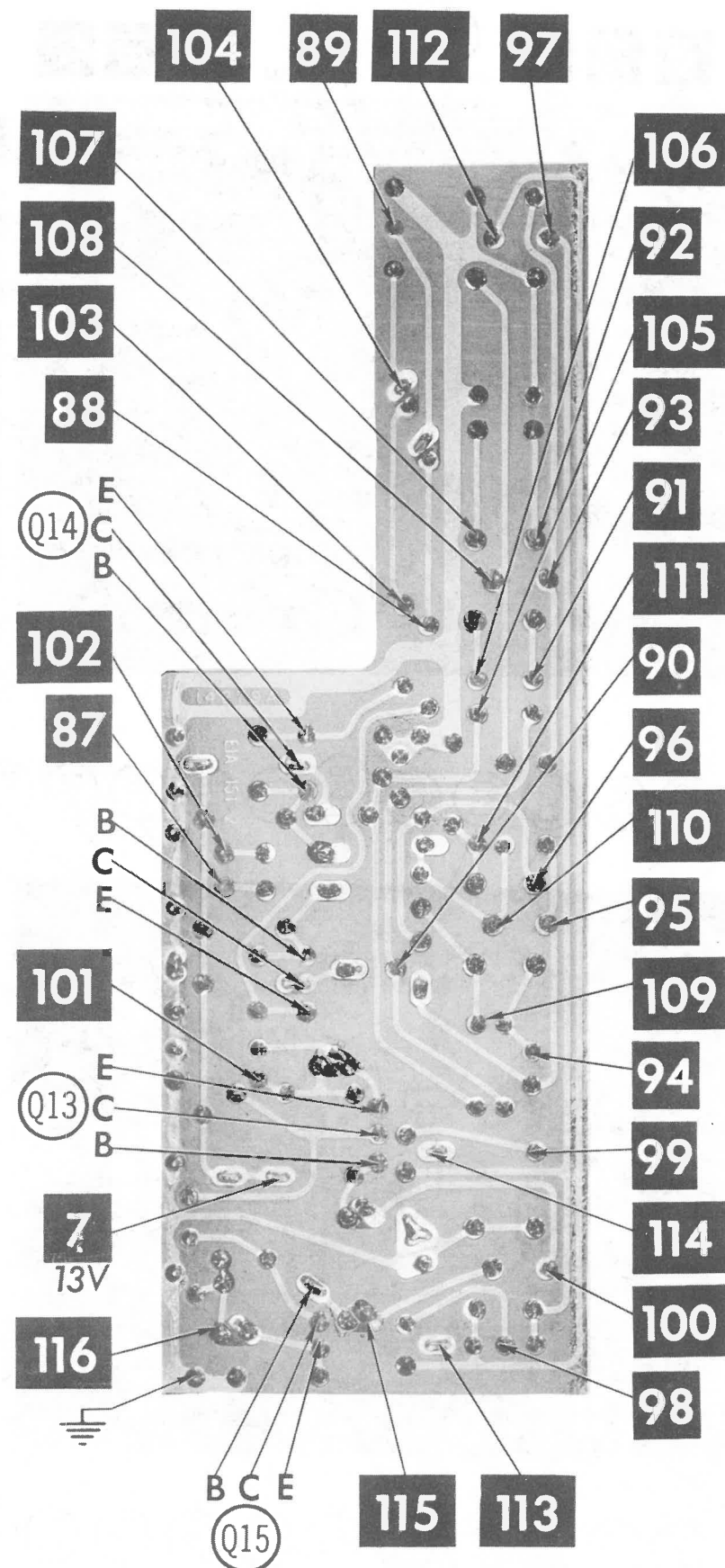


TUNING GANG F

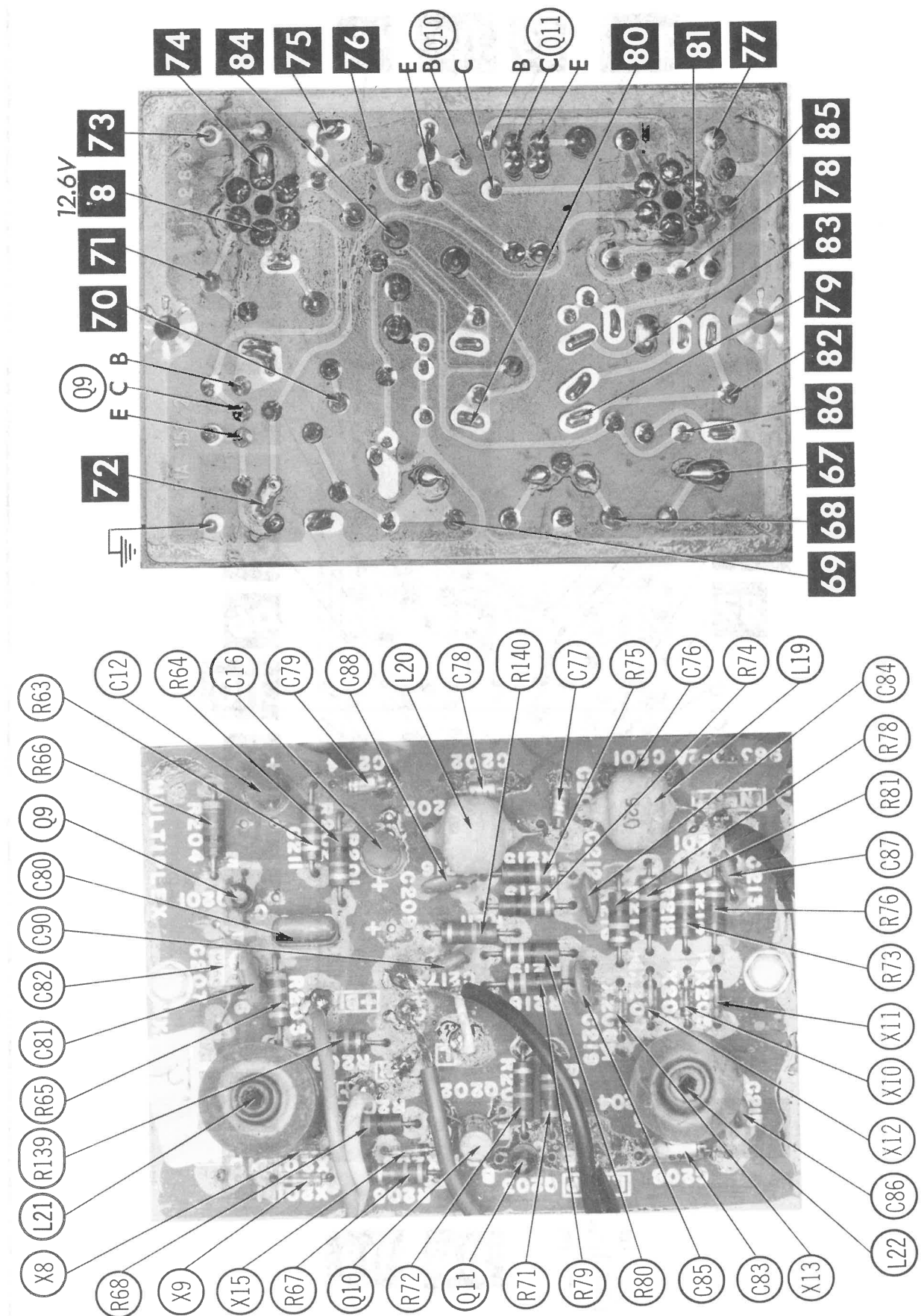
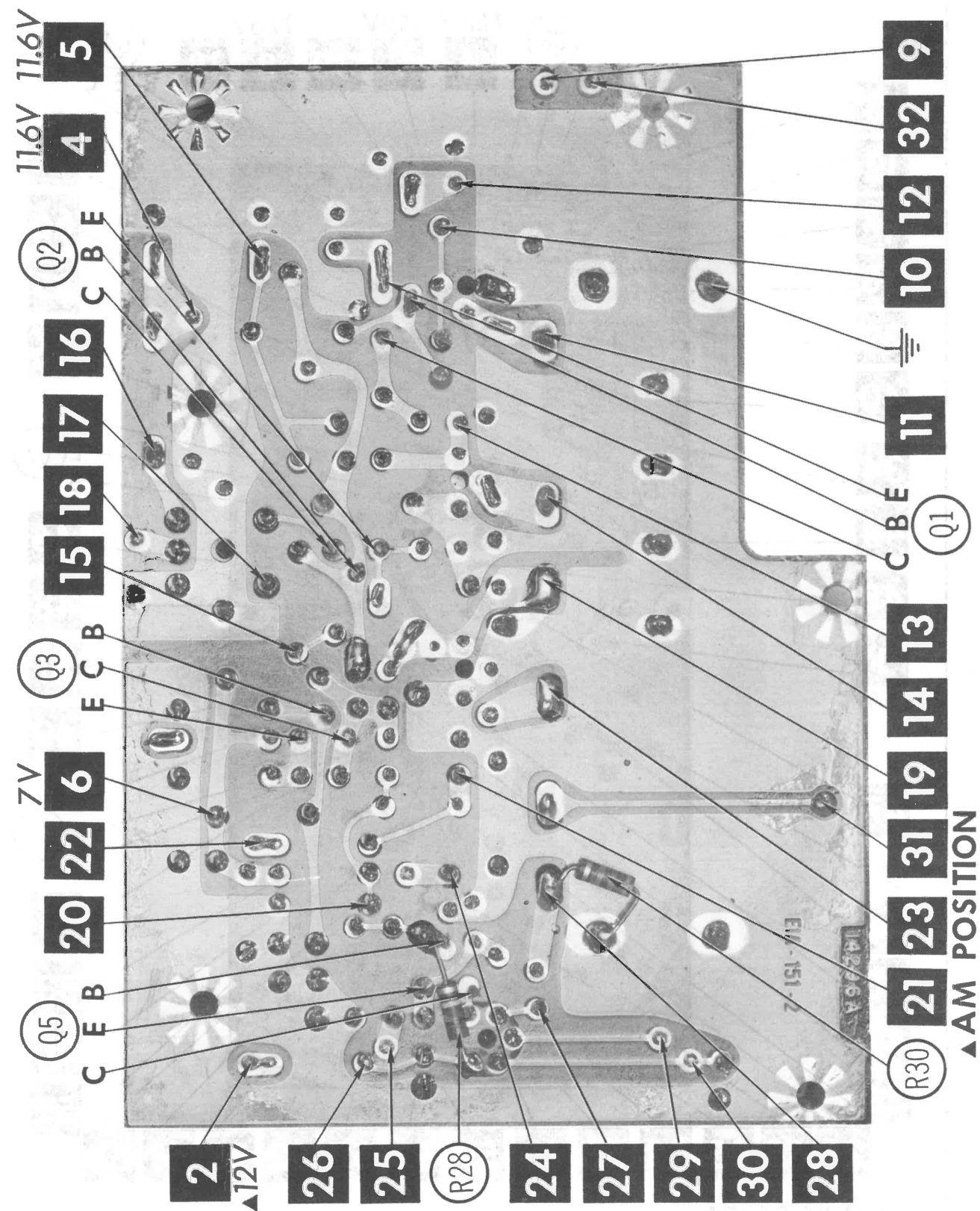
HOWARD W. SAMS & CO

The listing of any available replacement part herein does not const
in any case a recommendation, warranty or guaranty by Howard W. S
& Co., Inc., as to the quality and suitability of such replacement part.
numbers of these parts have been compiled from information furnish
Howard W. Sams & Co., Inc., by the manufacturers of the particular
of replacement part listed. SN261





▲ AM POSITION



ALIGNMENT INSTRUCTIONS

Maintain line voltage at 117 volts. Use only enough generator output to obtain a suitable indication. Allow a 15 minute warmup for receiver and equipment.

CAUTION: Use isolation transformer, if available. If not, observe polarity when connecting test equipment.

Suggested Alignment Tools:

A1 thru A5, A9, A10 thru A18 A23, A25, A26:	GENERAL CEMENT:	8606, 8606L, 8869	WALSCO:	2543, 2544, 2588
A22, A24:	GENERAL CEMENT:	9296, 9297, 9300	WALSCO:	2510, 2546, 2547
A6, A7, A8, A19, A20, A21:	GENERAL CEMENT:	8868, 8987, 9089	WALSCO:	2531-X, 2541, 2587

AM ALIGNMENT — SELECTOR IN AM POSITION

Fashion loop of several turns of wire and connect generator across loop. Set volume control at maximum.

	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
1.	455KC (400% Mod.)	Tuning gang fully open.	Output Meter across Voice coil.	A1, A2, A3, A4, A5	Adjust for maximum. Repeat until no further improvement can be made.
2.	1620 KC	"	"	A6	Adjust for maximum.
3.	1400KC	Tune to signal.	"	A7, A8	"
4.	600KC	"	"	A9, A10	Rock tuning gang and adjust for maximum. Repeat steps 2 thru 4 until no further improve- ment can be made.



FM ALIGNMENT USING AM SIGNAL GENERATOR - SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120Ω carbon resistors in series with each lead.

	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
5.	10. 7MC (Unmod.)	Point of non- interference.	DC probe of VTVM to point A; common to ground.	A11, A12, A13, A14, A15, A16, A17	Adjust for maximum.
6.	"	"	DC probe to point B; common to ground.	A18	Adjust for zero reading. A positive or negative reading will be obtained on either side of the correct setting.

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

Connect generator across antenna terminals with 120 Ω carbon resistors in series with each lead. Use only enough marker signal to obtain indication. Use 60% frequency modulated signal with 450KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
5.	10.7MC (450KC Swp.)	Point of non-interference	Vert. amp. of Scope to point  ; low side to ground.	A11, A12, A13, A14, A15, A16, A17	Disconnect stabilizing capacitor C11. Adjust for maximum gain and symmetry of response similar to Fig. 1 with marker as shown. Reconnect C11.
6.	"	"	Vert. amp. to point  ; low side to ground.	A18	Adjust A18 (Secondary) to place marker at center of crossover lines similar to Fig. 2. Adjust A11 (Primary) for maximum amplitude and straightness of crossover lines.





FM RF ALIGNMENT

Connect generator across antenna terminals with 120Ω carbon resistors in series with each lead.

	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR	ADJUST	REMARKS
7.	108.5MC	Set at high end.	DC probe of VTVM to point ⬆; common to ground.	A19, A20, A21	Adjust for maximum.
8.	90MC	Tune to signal.	"	A22, A23, A24	Rock tuning and adjust for maximum. Repeat steps 7 and 8 until no further improvement can be made.

FM STEREO MULTIPLEX ALIGNMENT USING FM STEREO SIGNAL GENERATOR ($\pm .0001\%$) ACCURACY)

Connect high side of generator to **B** low side to ground.

	GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
9.	19KC	Vert. amp. thru 47K to point  ; low side to ground.	A25	Adjust for maximum.
10.	"	Vert. amp. thru 47K to point  ; low side to ground.	A26	Adjust maximum for 38KC response.
11.	Modulated Left Channel	Vert. amp. to point  ; low side to ground.	A25, A26	Adjust for MINIMUM. This step should require only a slight adjustment.
12.	Modulated Right Channel	Vert. amp. to point  ; low side to ground.		Check for MINIMUM. Make compromise adjustment of A25, A26, if necessary.

To align multiplex section using an air signal, first make sure FM section is properly aligned. Tune in a strong FM stereo signal. Follow steps 9 thru 12 above.

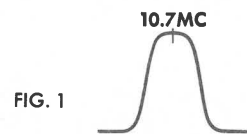


FIG. 1

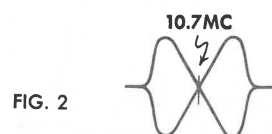
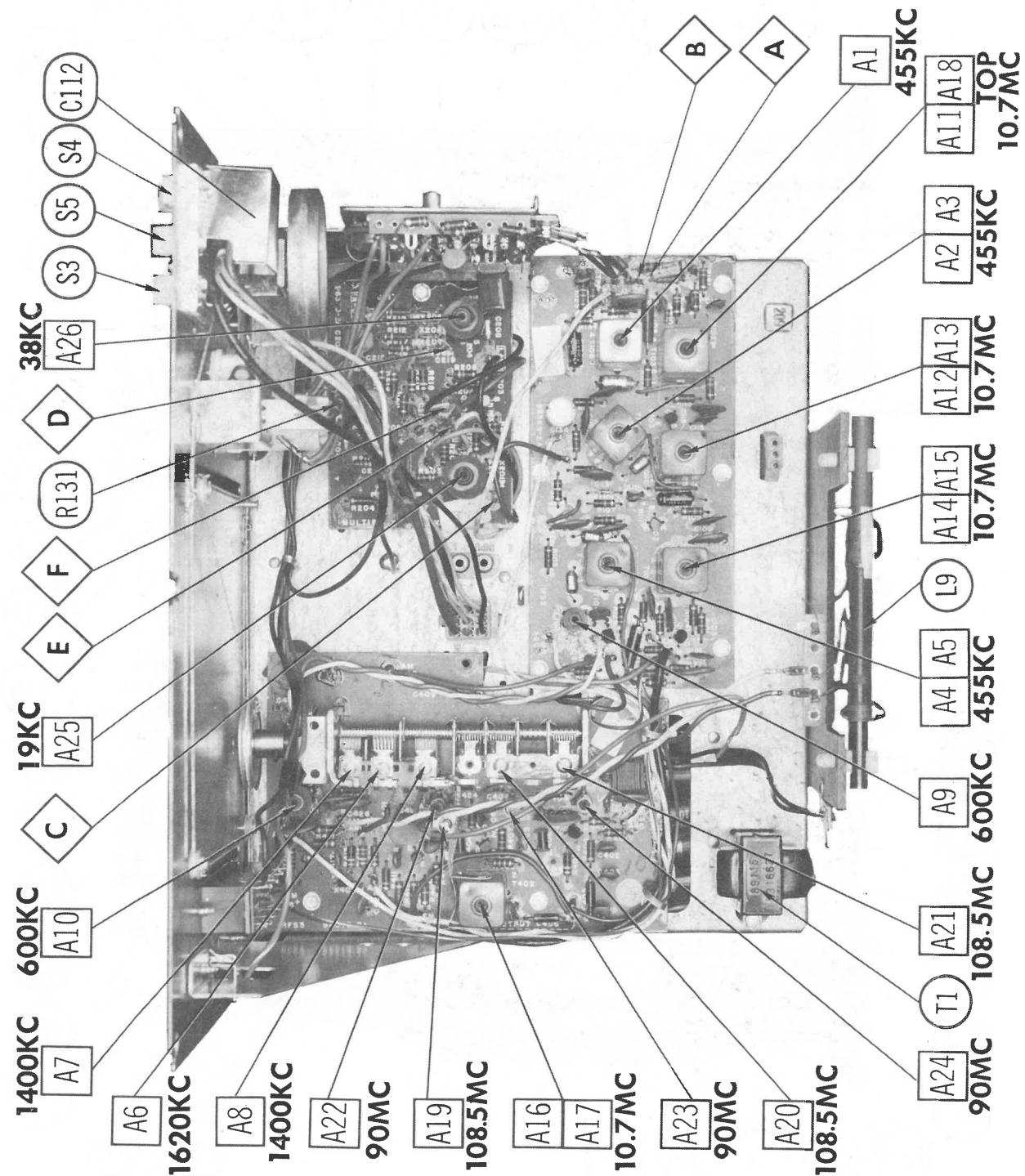
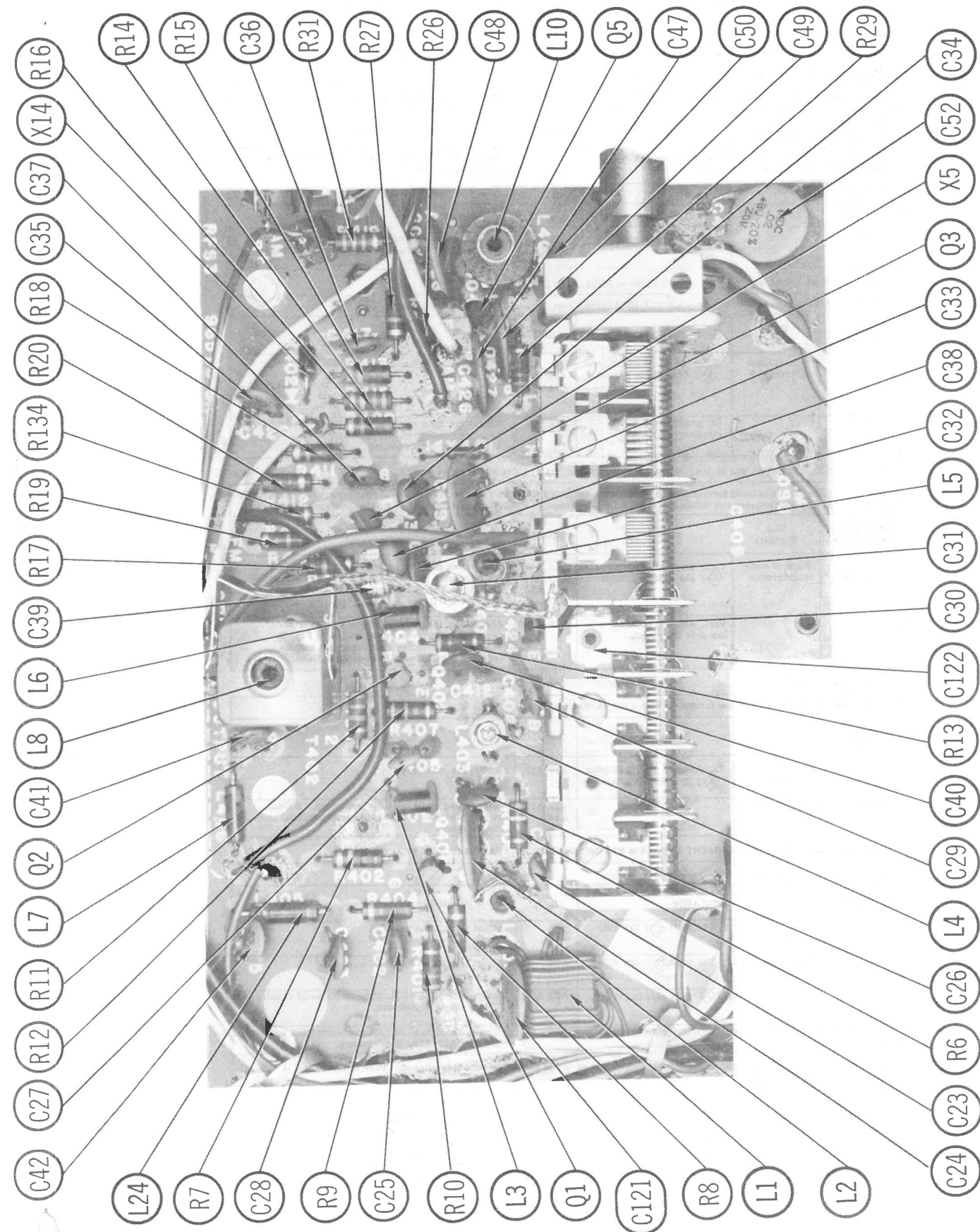
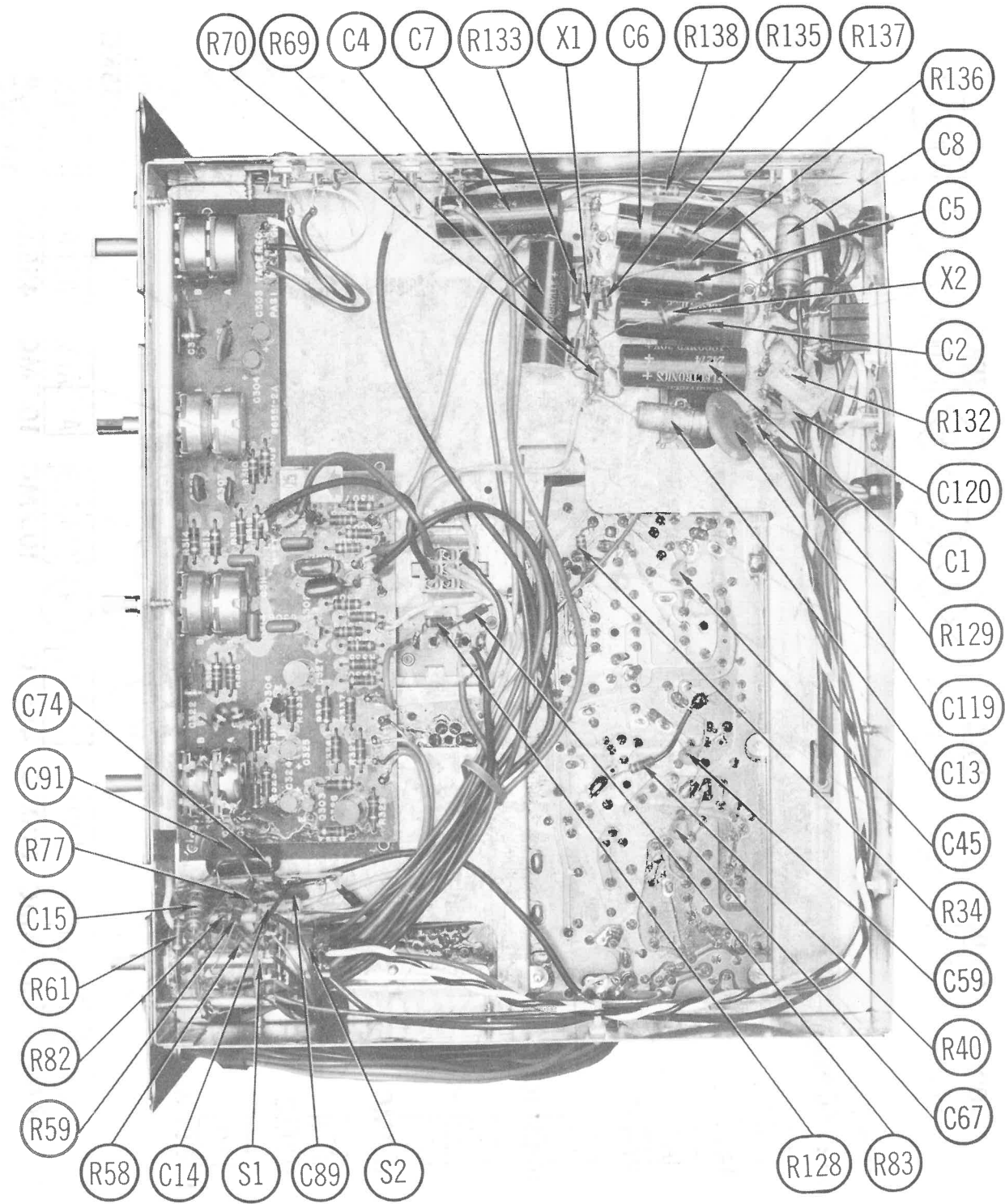


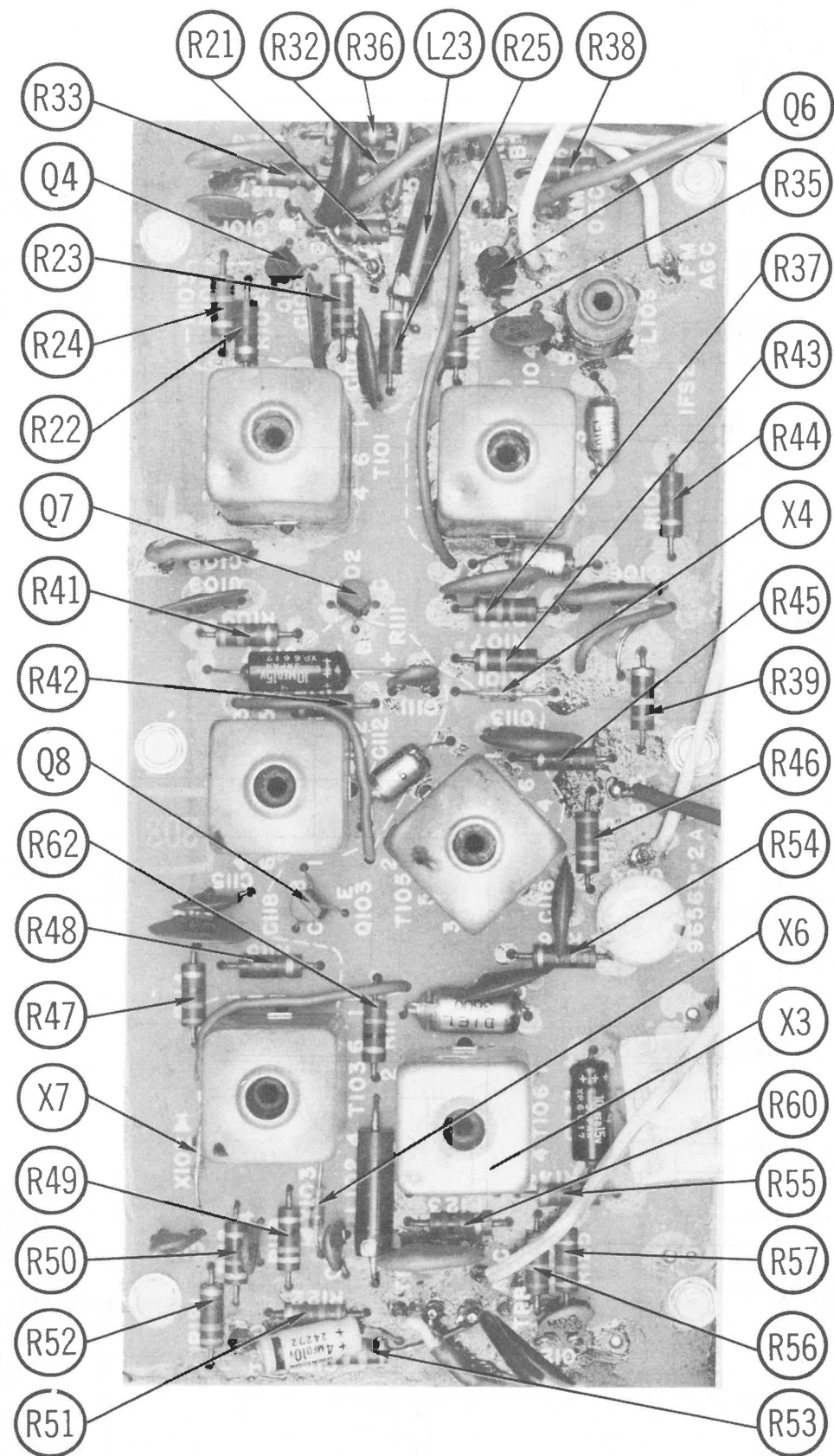
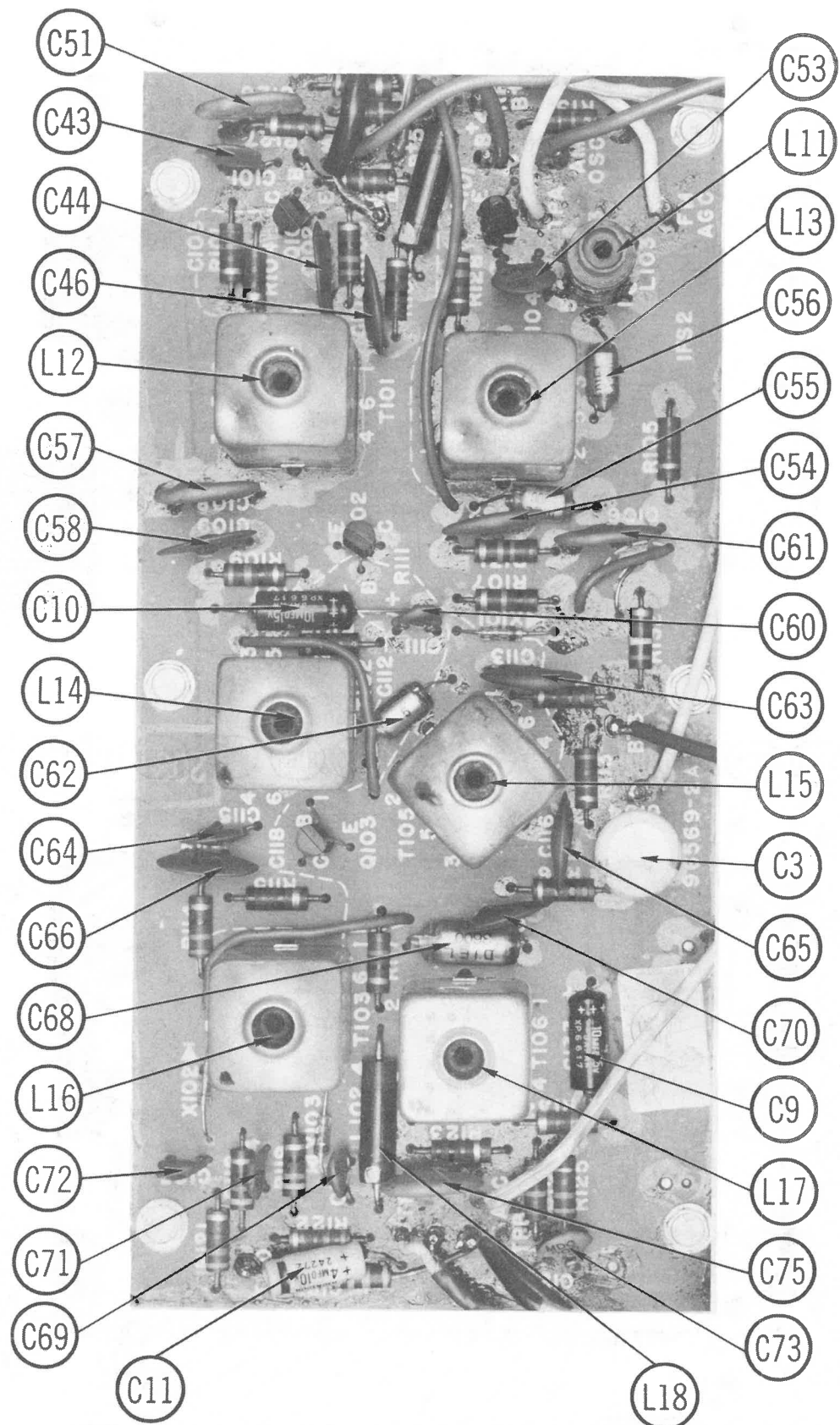
FIG. 2



PACKARD BELL MODELS
RPC-60/-62 (Ch. DPA-150-2, 15TU2)

FOLDER 7





AMP PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X16	.200A Max	72130-1	GE-504A	8D4 or 5A4-D	A100 or CTP100 ④	SK-3016 or SK-3017A	40C or S-5981 ④
X17	.200A Max	72130-1	GE-504A	8D4 or 5A4-D	A100 or CTP100 ④	SK-3016 or SK-3017A	40C or S-5981 ④
X18	.200A Max	72130-1	GE-504A	8D4 or 5A4-D	A100 or CTN100 ⑤	SK-3016 or SK-3017A	40C or S-5981-N ⑤
X19	.200A Max	72130-1	GE-504A	8D4 or 5A4-D	A100 or CTN100 ⑤	SK-3016 or SK-3017A	40C or S-5981-N ⑤

- ④ A single unit replacement for X15 and X16
⑤ A single unit replacement for X17 and X18

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C123A	1500	50	24252	AFH1-14-50 & PRS1390	BR1500-50 & BR500-50		WP068 & TC50050A	TVLP-2335.5
C124	50	25	24247 ①	CRE617A	NLW50-25	MT1-17	TT25X50	TE-1209
C125	50	3	24246	CRE217A	NLW50-3	MT1-15	TT3X50	TE-1058
C126	50	12	24281	CRE417A	NLW50-15	MT1-16	TT12X50	TE-1133
C127	5	50 NP		PRS7550	BRNP5-400	NPQT-2	TCN505	TVAN-1303.1
C128	50	3	24246	CRE217A	NLW50-3	MT1-15	TT3X50	TE-1058
C129	50	12	24281	CRE417A	NLW50-15	MT1-16	TT12X50	TE-1133
C130	5	50 NP		PRS7550	BRNP5-400	NPQT-2	TCN505	TVAN-1303.1
C131	1500	50	24250	AFH1-14-50 ②	AA0174 ②		WP068 ②	TVL-1341.2

- ① Some versions may use 50mfd @ 20V
② Drill new mounting holes

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C132	100		DI-100	DD-101	JBZ601YP101K	CCD-101	GP310	10TS-T10	
C133	100		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-310	
C135	.047 400V		DBE4847	DD-101	JBZ601YP101K	CCD-101	GP310	10TS-T10	
C136	.01		TTD-01	CK-103	DMF4847	4DP-3-473	PVC4147	4PS-S47	
					HOY101ZV103P	CCD-103	TA110	TG-S10	

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	Packard Bell PART No.			IRC PART No.	WORKMAN PART No.	Packard Bell PART No.
R147	1000Ω 3W	PW5-1000	36-1K	73317	R160	1000Ω 3W	PW5-1000	36-1K	73317
R148	2.7Ω 2W	BWH-2.7	WS-2.7	73897	R161	2.7Ω 2W	BWH-2.7	WS-2.7	73897
R149	1000Ω 3W	PW5-1000	36-1K	73317	R162	1000Ω 3W	PW5-1000	36-1K	73317
R150	2.7Ω 2W	BWH-2.7	WS-2.7	73897	R163	2.7Ω 2W	BWH-2.7	WS-2.7	73897
R151	.68Ω 2W	BWH-.68	WS-.68	73898	R164	.68Ω 2W	BWH-.68	WS-.68	73898
R152	.68Ω 2W	BWH-.68	WS-.68	73898	R165	.68Ω 2W	BWH-.68	WS-.68	73898
R153	220Ω 3W	PW5-200	5W-SQ-225	73894	R166	220Ω 3W	PW5-200	PW5-225	73894

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Packard Bell PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	117VAC @ .320A	52VAC @ .160A CT		89108B (C)					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Packard Bell PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T3	4	1	1	89575A (89575)					
T4	4	1	1	89575A (89575)					

SPEAKER

ITEM No.	TYPE				REPLACEMENT DATA			NOTES
					Packard Bell PART No.	JENSEN PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω		83813A ①	C12RS8	12A31PA 46A1Z7	① Used in RPC-60
SP2	4" X 6"	PM	6-8Ω		83148B ①			② Used in RPC-62
SP3	Horn		6-8Ω		83151 ①	T107		
SP4	12"	PM	6-8Ω		83813A ①	C12RS8	12A31PA 46A1Z7	
SP5	4" X 6"	PM	6-8Ω		83148B ①			
SP6	Horn		6-8Ω		83151 ①	T107		
	15"	PM	8Ω		83150A ②			
	6"	PM	8Ω		83308 ②			
	Horn		8Ω		83151 ②	T107		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA							
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	
F1	Circuit Breaker 3.25 Amp	88723A				8153.25		FA3.5	
F2	2 Amp Slo-Blo Pig Tail	45055-1A		MDV2		315002.			
F3	2 Amp Slo-Blo Pig Tail	45055-1A		MDV2		315002.			

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
S7	Switch	86115A	Speaker Selector

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. 8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor-Unshielded) 8429 (Two Conductor-Shielded) 8419 (Three Conductor-Shielded)

TUNER PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				PACKARD BELL PART No.	NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.		
Q1	40242	FM RF Amp	DS-81	GE-11	TR-22	SK-3018	99S019	NPN
Q2	SE3001	FM Mixer	DS-81	GE-11	TR-22	SK-3018	99S018	NPN
Q3	SE1001	FM Oscillator	DS-74	GE-11	TR-22	SK-3018	99S016	NPN
Q4	SE1001	1st FM IF Amp	DS-74	GE-11	TR-21	SK-3018	99S016	NPN
Q5	SE5002	AM RF Amp	DS-71	GE-10	TR-21	SK-3018	99S017	NPN
Q6	SE1001	AM Converter	DS-71	GE-10	TR-21	SK-3018	99S016	NPN
Q7	SE1001	1st AM-2nd FM IF	DS-74	GE-11	TR-21	SK-3018	99S016	NPN
Q8	SE1001	2nd AM-3rd FM IF	DS-74	GE-11	TR-21	SK-3018	99S016	NPN
Q9	2N2923	MPX Input Amp	DS-66	GE-10	TR-21	SK-3020	99S012A	NPN
Q10	2N2953	38KC Amp	DS-26	GE-2	TR-14	SK-3004	99S011A	PNP
Q11	2N2923	Stereo Switch	DS-66	GE-10	TR-21	SK-3020	99S012A	NPN
Q12	2923	AF Amp	DS-66	GE-10	TR-21	SK-3020	99S025	NPN
Q13	2923	AF Amp	DS-66	GE-10	TR-21	SK-3020	99S025	NPN
Q14	2923	AF Amp	DS-66	GE-10	TR-21	SK-3020	99S025	NPN
Q15	2923	AF Amp	DS-66	GE-10	TR-21	SK-3020	99S025	NPN
Q16	2N2953	Balance Indicator Amp	DS-26	GE-2	TR-14	SK-3004	99S011A	PNP
Q17	2N2431	Balance Indicator Control	DS-26		TR-14		99S004	PNP
Q18	2N2953	Balance Indicator Amp	DS-26	GE-2	TR-14	SK-3004	99S011A	PNP
Q19	2N2431	Balance Indicator Control	DS-26		TR-14		99S004	PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.086A	72130-1	GE-504A	8D4 or 5A4-D	A50 or VB50 ①	SK-3016 or SK-3017	40C or S-5960 ①
X2	.086A	72130-1	GE-504A	8D4 or 5A4-D	A50 or VB50 ①	SK-3016 or SK-3017	40C or S-5960 ①
X3			1N60	1N60			
X4		72129 (AA119)	1N60	1N60			
X5		72106 ② (1N3182)					
X6		72128 * (AA119MP)	1N60	1N60			
X7		72128 * (AA119MP)	1N60	1N60			
X8		72129 (AA119)	1N60	1N60			
X9		72129 (AA119)	1N60	1N60			
X10		72129 (AA119)	1N60	1N60			
X11		72129 (AA119)	1N60	1N60			
X12		72129 (AA119)	1N60	1N60			
X13		72129 (AA119)	1N60	1N60			
X14	.0125A	72121 ③ (7527.5A)		1ZM7.5T10 or Z-1108	ZA7.5A or 1N3017A		1TA7.5A or 1T7.5
X15		72129 (AA119)	1N60	1N60			

- ① A single unit replacement for X1 and X2
② Variable Capacitor Diode
③ 7.5 Volt Zener Diode
* Matched Pair

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Packard Bell PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C2	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C3	250	15	24282	PRS1210	BR250-15	QTI-28	MTV250DE15	TL-1164.5
C4	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C5	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C6	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C7	1000	20	24274	PRS1295	BR1000-25		TC2510	TL-1218
C8	150	15	24275	CRE478A	NLW150-15		TT15X10	TE-1163
C9	10	15	①	CRE457A	NLW10-15	MT1-23	TT15X10	TE-1155
C10	10	15	①	CRE457A	NLW10-15	MT1-5	TT15X10	TE-1155
C11	4	10	24272	CRE403A	NLW4-15	MT1-3	TT12X4	TE-1123
C12	5	15	24289	BCD15005	NLW5-15	MT1-3	MTV5CB50	TE-1152
C13	150	15	24275	CRE478A	NLW150-15	MT1-23	TT15X150	TE-1163
C14	4	10	24272	CRE403A	NLW4-15	MT1-3	TT12X4	TE-1123
C15	4	12	②	CRE403A	NLW4-15	MT1-3	TT12X4	TE-1123
C16	5	15	24289	BCD15005	NLW5-15	MT1-3	MTV5CB50	TE-1152
C17	1	10	24287	BCD12001	NLW1-50	MT1-1	MTV1CB50	TE-1120
C18	1	3	24286	BCD3001	NLW1-6	MT1-1	MTV1CB50	TE-1050
C19	200	3	24288	BCD3200	NLW200-3	MT1-22	MTV200CF3	TE-1064
C20	1	10	24287	BCD12001	NLW1-50	MT1-1	MTV1CB50	TE-1120
C21	1	3	24286	BCD3001	NLW1-6	MT1-1	MTV1CB50	TE-1050
C22	200	3	24288	BCD3200	NLW200-3	MT1-22	MTV200CF3	TE-1064

- ① Some versions may use 8mfd @ 15V Part Number 24283
② Some versions may use 4mfd @ 10V Part Number 24272

Packard Bell Models
RPC-60/-62 (Ch. DPA-150-2, 15TU2)

TUNER PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C23	10 NPO 5%		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10	
C24	100 NPO 10%		NPO-DI 100	DTZ-100	CV601CG100K	CCTO-101	CNO310	10TCC-T10	
C25	.002 50V		DI-2000	DM-202	JBX601YP202K	CCD-202	GP220	5GAB-D22	
C26	.001 50V		DI-1000	DM-102	JBS601YP102K	CCD-102	SM210	5GAB-D10	
C27	10 NPO 5%		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10	
C28	.002 50V		DI-2000	DM-202	JBX601YP202K	CCD-202	GP220	5GAB-D22	
C29	18 NPO 5%			TCZ-18	CY601CG180J	CCTO-180	CNO418	10TCC-Q18	
C30	5 N470 5%	#235R0500047				*	*		
C31	1.2-10pf	#23443							
C32	.001 50V		DI-1000	DM-102	JBS601YP102K	CCD-102	SM210	5GAB-D10	
C33	.02		TTD-02	CK-203	HOR101ZV203P	CCD-203	TA120	TC-320	
C34	5 NPO ±.25		NPO-DI 5.0	DTZ-4R7	CZ601CH5R0D	CCTO-050	CNO547	10TCC-V50	
C35	.005		TTD-005	CK-502	HOY101ZV502P	CCD-502	TA250	TG-D50	
C36	.005		TTD-005	CK-502	HOY101ZV502P	CCD-502	TA250	TG-D50	
C37	4 NPO ±.25	#234R0500046							
C38	1.1 NPO ±.25		NPO-DI 1.0	TCZ-1	CD15F331J500	DM-15-331J	CNO510	10TCC-V10	
C39	330 125V 5%		DI-2000	CPR-330J	CD15F331J500	DM-15-331J	GP220	5GAB-D22	
C40	.002 50V		TTD-005	CK-502	HOY101ZV502P	CCD-502	TA250	TG-D50	
C41	.005		DI-2000	DM-202	JBX601YP202K	CCD-202	GP220	5GAB-D22	
C42	.002 50V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C43	.01		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C44	.05 50V		NPO-DI 1.0	TCZ-1	HOV101ZV503Z	CCD-103	TA150	TG-S50	
C45	1.1 NPO ±.25		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C46	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C47	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C48	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C49	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C50	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C51	.02		TTD-02	CK-203	HOR101ZV502P	CCD-103	TA150	TG-S50	
C52	.02		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C53	.01		TTD-02	CK-203	HOR101ZV502P	CCD-103	TA150	TG-S50	
C54	.02		TTD-02	CK-203	HOR101ZV502P	CCD-103	TA150	TG-S50	
C55	.0013 125V 5%		CPR-1300J	CD19F132J500	DM-19-132J	DM-19-132J	MS-213	MS-213	
C56	.0013 125V 5%		CPR-1300J	CD19F132J500	DM-19-132J	DM-19-132J	MS-213	MS-213	
C57	.02		TTD-02	CK-203	HOR101ZV502P	CCD-203	TA150	TG-S50	
C58	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-203	TA150	TG-S50	
C59	1.1 NPO ±.25		NPO-DI 1.0	TCZ-1	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10	
C60	10 NPO 10%		NPO-DI 10	DTZ-10	CV601CG100K	CCD-203	TA120	TG-S20	
C61	.02		TTD-02	CK-203	CD19F202J500	DM-14-202J	MS-22	MS-22	
C62	.002 125V 5%		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C63	.05 50V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C64	.01		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C65	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C66	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C67	.05 50V		NPO-DI 1.0	TCZ-1	CD19F362J500	DM-19-362J	MS-236	MS-236	
C68	.0036 125V 5%		CPR-3600J	CD19F362J500	DM-19-362J	DM-19-362J	MS-236	MS-236	
C69	300 50V		DI-300	DD-301	HOV101ZV503Z	CCD-301	GP330	10TS-T30	
C70	.05 50V		TTD-05	CK-503	HOY101ZV503Z	CCD-301	GP330	10TS-T30	
C71	300 50V		DI-300	DD-301	HOV101ZV503Z	CCD-301	GP330	10TS-T30	
C72	300 50V		DI-300	DD-301	HOV101ZV503Z	CCD-301	GP330	10TS-T30	
C73	.005		TTD-005	CK-502	HOY101ZV502P	CCD-301	GP330	10TS-T30	
C74	.047 600V		DBE6847		DMF6847	CCD-301	GP330	10TS-T30	
C75	.02		TTD-02	CK-203	HOR101ZV502P	CCD-301	GP330	10TS-T30	
C76	180	5%		CPR-180J	CD15F181J500	DM-15-181J	MS-318	MS-318	
C77	270	5%		CPR-270J	CD15F271J500	DM-15-271J	MS-327	MS-327	
C78	220	5%		CPR-220J	CD15F221J500	DM-15-221J	MS-322	MS-322	
C79	220	5%		CPR-220J	CD15F221J500	DM-15-221J	MS-322	MS-322	
C80	1 200V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10	
C81	33 NPO 10%		NPO-DI 33	DTZ-33	CS601CG330K	CCTO-330	CNO433	10TCC-Q33	
C82	.0039 125V 5%		CPR-3900J	CD19F392J500	DM-19-392J	DM-19-392J	MS-239	MS-239	
C83	.001 125V 5%		CPR-1000J	CD19F102J500	DM-19-102J	DM-19-102J	MS-210	MS-210	
C84	.01 50V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C85	.01 50V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C86	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C87	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C88	.680	10%	DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68	
C89	.01 25V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C90	.680	10%	DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68	
C91	.01 25V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C92	.22 100V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C93	.1 200V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10	
C94	.0033 25V		DI-3300	DD-332	JBV601YP332K	CCD-332	GP233	10TS-D33	
C95	.01 25V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C96	.01		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C97	.1 200V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C98	470 1KV		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C99	.01 25V		DI-1000	DM-102	JBS601YP102K	CCD-102	SM210	5GAB-D10	
C100	.001 25V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C101	.1 200V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C102	.22 100V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C103	.1 200V		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10	
C104	.0033 25V		DI-3300	DD-332	JBV601YP332K	CCD-332	GP233	10TS-D33	
C105	.01 25V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C106	.01		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C107	.1 200V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C108	470 1KV		DI-470	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47	
C109	.01 25V		TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C110	.001 25V		DI-1000	DM-102	JBS601YP102K	CCD-102	SM210	5GAB-D10	
C111	.1 200V		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C112	.005		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10	
C113	.22 100V 10%		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C114	.005		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10	
C115	.05 25V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C116	.22 100V 10%		DBE4P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22	
C117	.005		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10	
C118	.05 25V		TTD-05	CK-503	HOY101ZV503Z	CCD-103	TA150	TG-S50	
C119	.02 1.4KVAC	#23674	TTD-01	CK-103	HOY101ZV103P	CCD-103	TA110	TG-S10	
C120	.01 25V		TTD-02	CK-203	HOR101ZV203P	CCD-203	TA120	TG-S20	
C121	.02								
C122		#23585-1							

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			Packard Bell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Loudness/Left	100K	25145A (25145B)	F59-100K, R59-100K, SF104, CPL-2			
B	Loudness/Right						
R2A	Bass/Left	100K	25567A	F1-100K, R1-100K, SF104, CPL-2	NP-100K-S, NR-100K-S, UP-B-400, DC-2, TT-2	B11-128, B11-128, TM5, QCM or (BU11, CF13, CR8, SS1, SS7A, DC1) *	FB15L, RU15L, CS3500
B	Bass/Right	100K					
R3A	Treble/Left	100K	25567A	F1-100K, R1-100K, SF104, CPL-2	NP-100K-S, NR-100K-S, UP-B-400, DC-2, TT-2	B11-128, B11-128, TM5, QCM or (BU11, CF13, CR8, SS1, SS7A, DC1) *	FB15L, RU15L, CS3500
	Treble/Right	100K					
R4A	Balance/Left	100K	25698A (25698)	F2-100K, R3-100K, SF104, CPL-2			
B	Balance/Right	100K					
R5	Balance Indicator	3000Ω	25701A (25701)	TT-8 or (F1-5000, SNK010)	B47-3000-S or (NP-3000-S, NML-A-300, TT-2)	B11-112, TM4 or (BU11, CF59, SS8) *	PTA352L or (RU252L, SL37, SN281) or (UA33L, SN281)

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	Packard Bell PART No.			IRC PART No.	WORKMAN PART No.	PART No.
R132	1.8Ω 3W	PW5-2	5W-SQ-2	73506					

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				
		PART No.	MEISSNER Part No.	MERIT PART No.	AMILLER PART No.	WORKMAN PART No.
L1	Balun	29890-1D				
L2	FM RF Input	29909-1A				
L3	RF Choke	29910-1A	19-3001	TV-189	4594	T804
L4	FM RF Output	29909-2A				
L5	FM Oscillator	29909-3A	19-3001	TV-189	4594	T804
L6	10.7MC Trap	29910-1A	19-2017	BC-566	4622	TA820
L7	RF Choke	29902-1A				
L8	1st FM IF	29860-2D	14-9009		7788	
L9	Loopstick	29906-1				

PHOTOFACT® Folder


**GARRARD MODELS
1000, 2000, 3000**
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1000, 2000, 3000**

**GARRARD MODELS
1000, 2000, 3000**

TRADE NAME:	Garrard Models 1000, 2000, 3000
SUPPLIER:	For Current Address, see Annual Index
TYPE SET:	AC Operated 4-Speed Automatic Record Changer
POWER SUPPLY:	110 - 120 Volts AC, 60 Cycles

PARTS CAN BE OBTAINED FROM THE MANUFACTURER OF THE UNIT CONTAINING THIS CHANGER BY USING THE GARRARD PART NUMBERS IN THE PARTS LIST ON PAGE 8

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

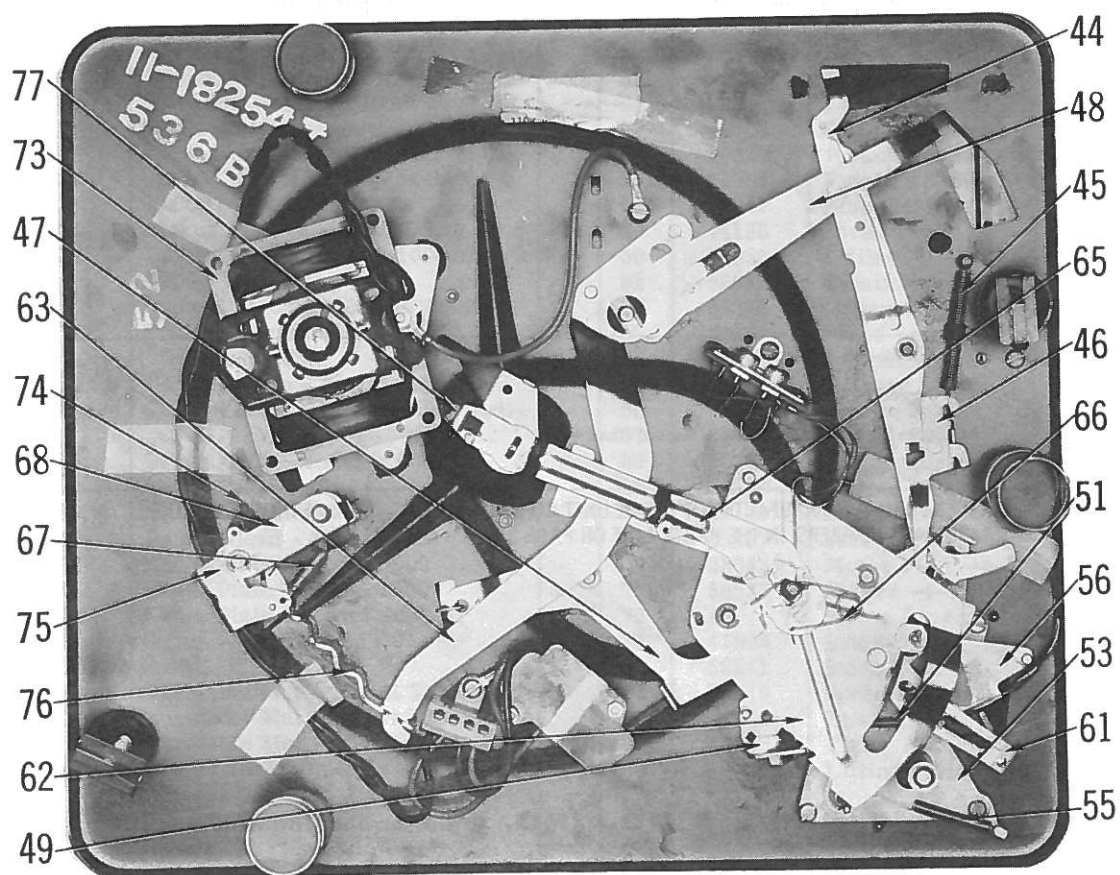
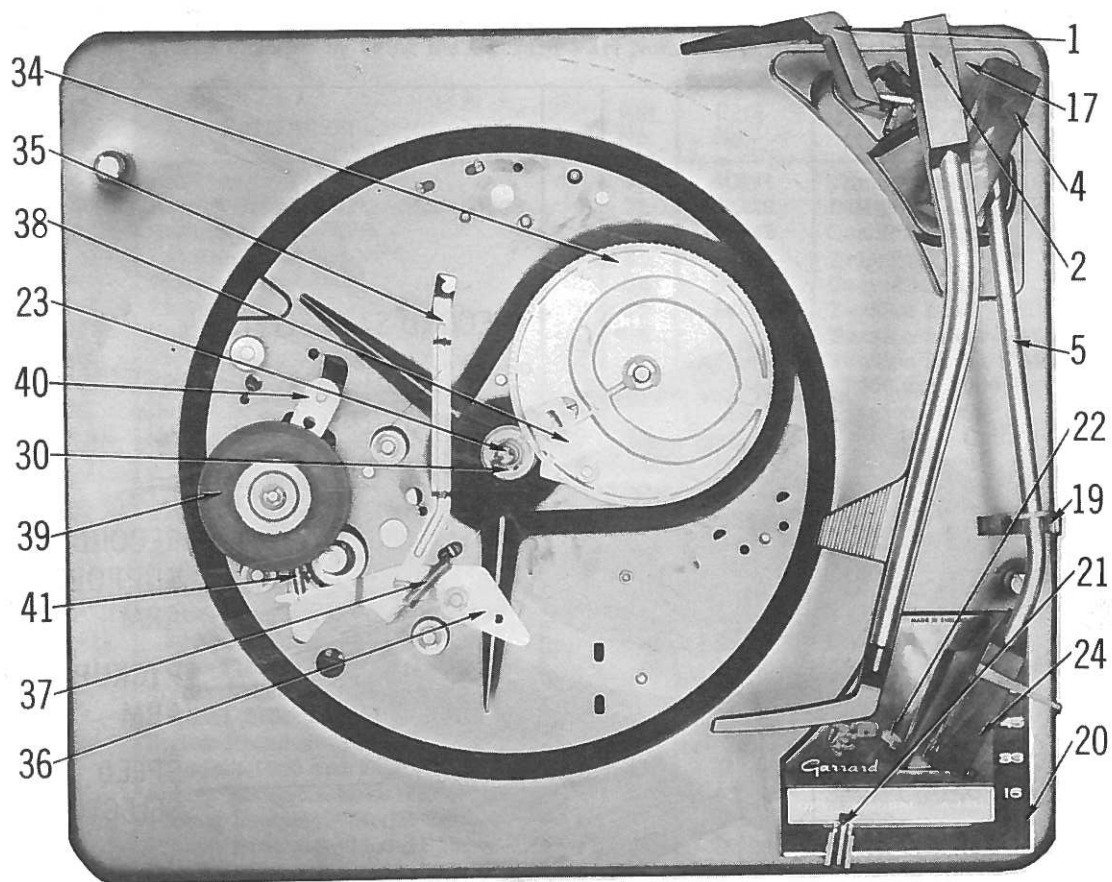
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. C878



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DATE 10 -66

SET 841 FOLDER 5



OPERATING INSTRUCTIONS

Loading

1. Lift Record Support Arm (2) up and swing fully to the right.
2. Place a stack of records on the spindle shelf and hold parallel to the turntable. Swing Record Support Arm (2) toward the spindle and lower onto the record stack.

Starting

1. Select the speed. Move the Off/Manual/Auto lever to Auto and release. The changer will automatically play and change each record, shutting off automatically after the last record has played.

Rejecting

To reject a record, move the Off/Manual/Auto lever to Auto and release.

Manual Operation

1. Lift Record Support Arm (2) and swing fully to the right.
2. Place a record on the turntable.
3. Swing Record Support Arm (2) toward the spindle and lower.
4. Move the Off/Manual/Auto lever to Manual.
5. The tone arm will return to its rest post and shut off after the record has played.
6. To use the changer as a player for an extended length of time, remove the automatic spindle and replace with short spindle supplied as an accessory.

CHANGE CYCLE

Moving Control Lever (44) to Auto not only applies power to the changer but also contacts and pushes Auto Trip Lever (58) inward. The collar on Auto Trip Lever (58) pushes Trip Pawl (33) on Cam Assembly (34) outward so it makes contact with the turntable hub.

Cam Assembly (34) is driven by the turntable as it rotates, causing Pickup Cam Assembly (62) to be pivoted by the collar following the groove in Cam Assembly (34). As Pickup Cam Assembly (62) pivots, Lifting Spindle (60) rides up the incline portion of Pickup Cam Assembly (62), lifting the tone arm. At the same time, Release Lever (65), which is connected to Pickup Cam Assembly (62), moves forward and actuates the center finger of Spindle (23), permitting the bottom record of the stack to fall onto the turntable.

Tone arm setdown for 7-, 10-, and 12-inch records is determined by the position of Selector Arm (1) and Selector Lever (64).

When a 7-inch record drops to the turntable, Record Size Selector (1) is not deflected. Consequently, the 7-inch notch on Selector Lever (64) engages with the selector lever stop pin. The shaft on Selector Arm (1) is thus positioned to engage the 7-inch step on Pickup Lever (56).

When a 10-inch record drops to the turntable, the edge of the record moves Selector Arm (1), pivoting Selector Lever (64) far enough for the 10-inch notch to engage the selector lever stop pin. The shaft on Selector Arm (1) is thus positioned to engage the 10-inch step on Pickup Lever (56).

When a 12-inch record drops to the turntable, the edge of the record moves Selector Arm (1) far enough to allow the 12-inch notch on Selector Lever (64) to engage the selector lever stop pin. The shaft on Se-

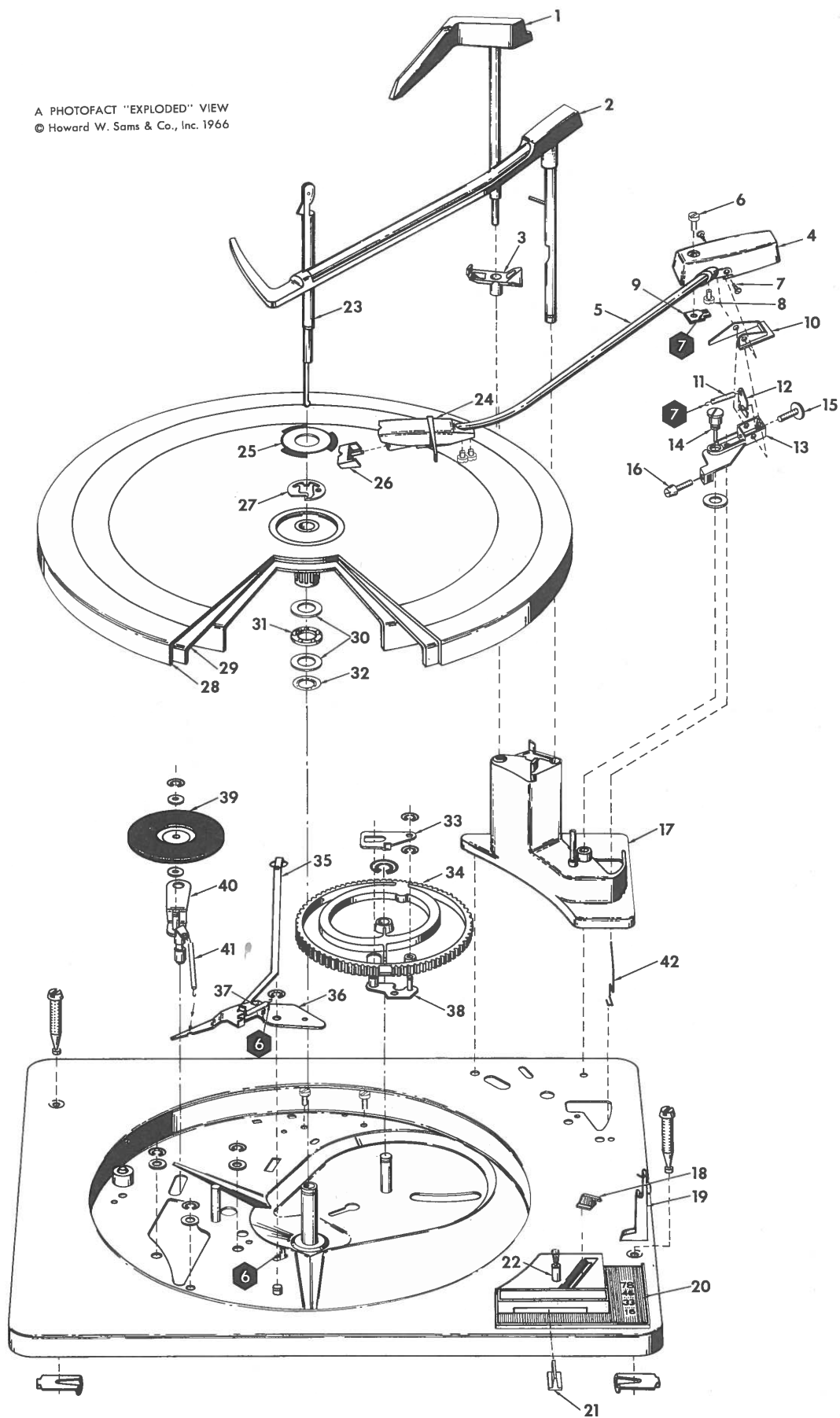
lector Arm (1) is positioned to engage the 12-inch step on Pickup Lever (56).

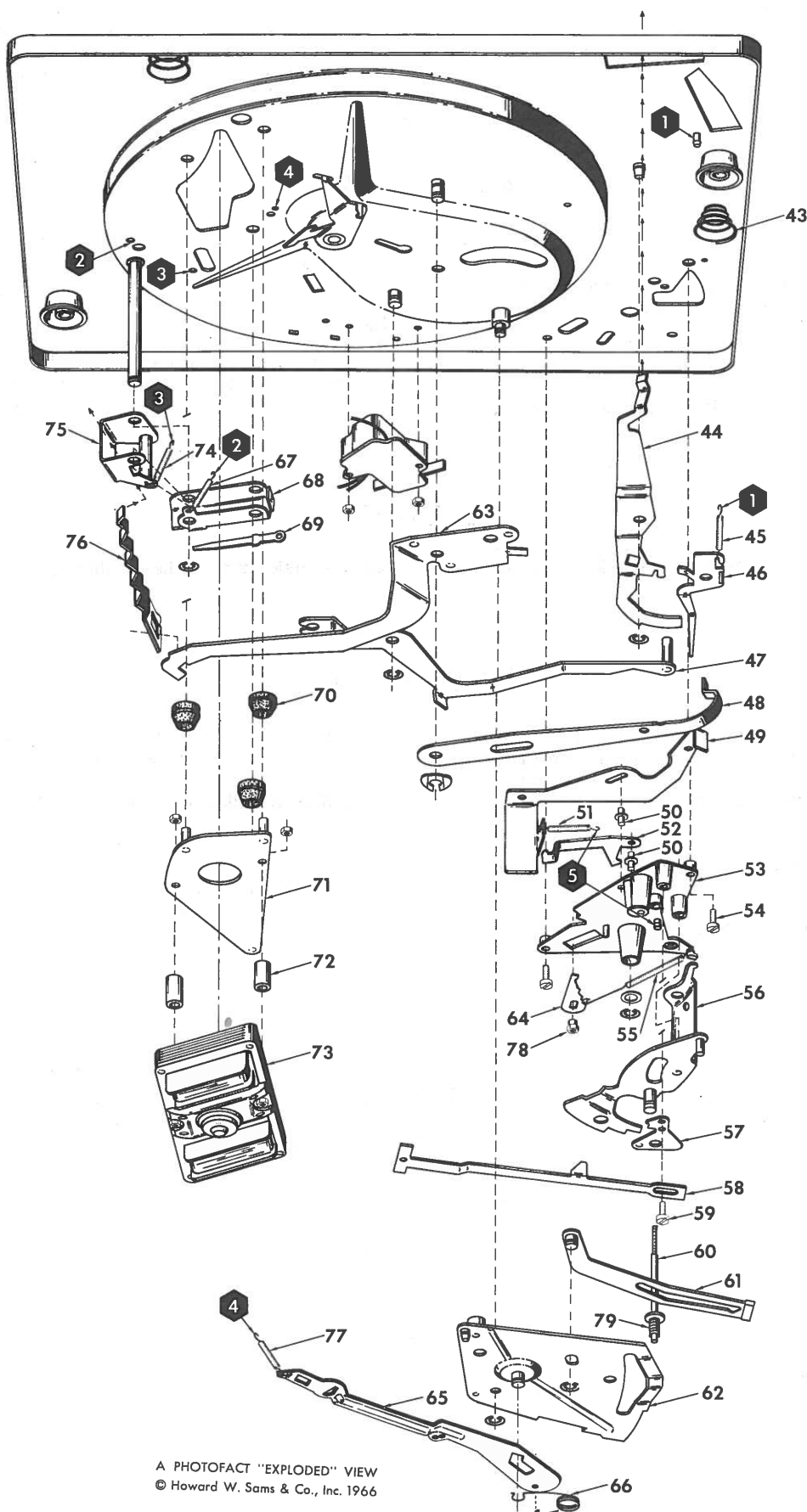
After the record drops, Pickup Cam Assembly (62) pivots, pulling Friction Link (61) along with it, and swings the tone arm in over the lead-in groove of the record. As Pickup Cam Assembly (62) continues to pivot, Lifting Spindle (60) rides down the incline portion of Pickup Cam Assembly (62), lowering the stylus to the record. At the same time, Pickup Cam Assembly (62) contacts Selector Lever (64) and pushes it clear of Pickup Lever Assembly (56) so Pickup Lever Assembly (56) is free to move as the stylus follows the groove of the record.

When the tone arm nears the end of the record, the pin on Pickup Lever Assembly (56) contacts and slowly moves Auto Trip Lever (58) toward Trip Pawl (33). When the tone arm enters the trip groove of the record, the faster movement of the tone arm causes Auto Trip Lever (58) to make firm contact with Trip Pawl (33), pushing it out so it contacts the turntable hub. As the turntable rotates, Cam Assembly (34) rotates. The collar on Pickup Cam Assembly (62) follows the groove of Cam Assembly (34) and pivots Pickup Cam Assembly (62) so Lifting Spindle (60) can raise the tone arm from the record. Because of friction applied to Pickup Cam Assembly (62), the tone arm swings out over the rest post and the next record is dropped onto the turntable. After the record drops, Pickup Cam Assembly (62) continues to pivot, pulling the tone arm in over the lead-in groove of the record.

When the last record drops, Record Support Arm (2) drops and Switch Off Lever (49) falls into the cutout in the shaft of Record Support Arm (2). After the last record is played, the changer cycles. As Pickup Cam Assembly (62) pivots, Switch Off Lever (49) is pulled in against the third step of Pickup Lever Assembly (56)

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by its tension spring, preventing the tone arm from moving in over the record. The pin on Switch Lever (47) is engaged in the slot of Switch Off Lever (49). As Pickup Cam Assembly (62) continues to pivot, it contacts the vertical tab of Switch Off Lever (49) and

moves it away from Pickup Cam Assembly (62).

At the same time, Pickup Cam Assembly (62) exerts pressure on Switch Lever Assembly (47), causing it to pivot and open the power switch.

ADJUSTMENTS

Set-Down

Turn Screw (16) clockwise to move the tone arm in and counterclockwise to move it out.

Stylus Pressure

Turn Screw (15) clockwise to decrease the pres-

sure and counterclockwise to increase the pressure. (Set to the cartridge manufacturer's recommendation.)

Height

Adjust Screw (6) so the point of the stylus will be 3/4 inch above a record on the turntable as the tone arm begins to move out over its rest post.

CLEANING

Remove the turntable. Clean Idler Wheel (39)

and the inside rim of the turntable.

LUBRICATING

The motor, turntable spindle, and Idler Wheel (39) have oilite bearings and should not need lubricating for a long period of time. If lubrication is needed, use a good, fine grade of machine oil.

Apply a good, nonhardening grease to the following:

1. Underside of Auto Trip Link Assembly (58) where

it slides on the bottom of the baseplate and the slot where it slides on the outer end.

2. Slot in Pickup Cam Assembly (62).
3. Slot in Friction Link (61).
4. Switch Off Lever (49) where it slides on the baseplate and where it contacts the steps in Pickup Cam Assembly (62).

TROUBLE CHART

SYMPTOM	REMARKS
Tone Arm falls to lower onto record.	<ol style="list-style-type: none"> 1. Lifting Spindle (60) sticking. 2. Tone Arm Pivot Screws (7) binding.
Stylus does not track.	<ol style="list-style-type: none"> 1. Worn stylus. 2. Stylus pressure too tight. 3. Tone Arm Pivot Screws (7) binding.
Selection of records is erratic.	<ol style="list-style-type: none"> 1. Nut (78) on Selector Lever (64) loose. 2. Selector Spring (55) weak, broken, or off its connecting pin. 3. Friction Link (61) needs lubricating.
Turntable does not rotate when motor is running.	<ol style="list-style-type: none"> 1. Driving surfaces oily. 2. Idler Wheel Tension Spring (41) off or broken.
Tone arm lands too far in or out.	<ol style="list-style-type: none"> 1. Tone arm setdown misadjusted. 2. Nut (78) on Selector Lever (64) loose. 3. Record Selector Arm (1) damaged.
Tone arm begins to lower and then swings in.	<ol style="list-style-type: none"> 1. Pickup leads binding. 2. Lifting Spring (79) or Friction Spring (57) defective.

TROUBLE CHART(Continued)

SYMPTOM	REMARKS
Does not shut off after the last record is played or before the record is played.	<ol style="list-style-type: none"> 1. Shaft of Record Support Arm (2) binding. 2. Friction too great on Record Support Arm Lever (52). 3. Switch Off Lever (49) binding.
Tone arm jumps the first few grooves after landing on record.	<ol style="list-style-type: none"> 1. Stylus pressure too light. 2. Worn stylus. 3. Changer not level. 4. Pickup leads binding. 5. Friction Link (61) friction too great. 6. Record has a groove guard.
Rumble noise when changer is running.	<ol style="list-style-type: none"> 1. Idler Wheel (39) dirty. 2. Turntable spindle and Ball Race (31) need lubricated. 3. Motor leads too tight. 4. Tire on Idler Wheel (39) defective. 5. Motor pulley defective.
Erratic speed.	<ol style="list-style-type: none"> 1. Oil on motor pulley, Idler Wheel (39), or inside rim of turntable. 2. Motor pulley loose. 3. Records warped.
Motor runs hot.	<ol style="list-style-type: none"> 1. Winding shorted.
Motor runs slow.	<ol style="list-style-type: none"> 1. Lack of lubrication in bearings. 2. Bearing out of alignment.
Pickup repeats in record groove when nearing center of record.	<ol style="list-style-type: none"> 1. Insufficient stylus pressure. 2. Stylus worn. 3. Cartridge touching record. 4. Pickup leads binding. 5. Auto Trip Lever (58) friction too great.
Two records drop at once.	<ol style="list-style-type: none"> 1. Center hole in record too large. 2. Record spindle latch sticking.
Reproduction interference.	<ol style="list-style-type: none"> 1. Cartridge leads loose. 2. Switch contacts bad.
Record will not drop.	<ol style="list-style-type: none"> 1. Spindle (23) damaged. 2. Record spindle pawl rough. 3. Record Support Arm (2) tight. 4. Return Spring (66) broken or off. 5. Pawl Spring (77) broken or stretched.
Motor does not run.	<ol style="list-style-type: none"> 1. Loose connection. 2. Switch contacts bad. 3. Defective motor.
Turntable speed too fast or too slow.	<ol style="list-style-type: none"> 1. Idler Wheel (39) binding. 2. Wrong motor pulley.
Wow or Flutter	<ol style="list-style-type: none"> 1. Turntable spindle or Ball Race (31) dirty. 2. Inside of turntable rim dirty. 3. Motor pulley loose. 4. Flat spots on Idler Wheel (39). 5. Unbalanced rotor or bent shaft.

GARRARD MODELS
1000, 2000, 3000

FOLDER 5

MECHANICAL PARTS LIST

Parts can be obtained from the manufacturer of the unit containing
this changer by using the Garrard Part Numbers in the following list.

Ref. No	Part No.	Description	Ref. No.	Part No.	Description
1	70936	Selector	30	40894	Thrust Washers
2	71056	Record Support Arm -Model 3000	31	58229	Ball Race Assembly
	70899	Record Support Arm - Models 1000 and 2000	32	58749	Cushion Ring
3	70938	Selector Extension	33	58335	Trip Pawl
4	70348	Pickup Body - Model 3000	34	58328	Cam Assembly
5	71455	Pickup Arm - Model 3000	35	58568	Tension Link
	70930	Pickup Arm - Models 1000 and 2000	36	71357	Tension Lever - Model 3000
				58298	Tension Lever - Models 1000 and 2000
6	40130	Height Screw - Model 3000	37	41503	Tension Spring
	44188/01	Height Screw - Models 1000 and 2000	38	58331	Pivot Plate Unit
			39*	58220*	* Idler Wheel
7	44178	Pivot Screw - Model 3000	40	58215	Support Lever Unit
	59993	Pivot Spindle - Models 1000 and 2000	41	44819	Idler Wheel Spring -Model 3000
				41992	Idler Wheel Spring - Models 1000 and 2000
8	44159	Pickup Arm Screw - Model 3000	42	44711	Overload Spring
9	70354	Lifting Plate - Model 3000	43	44752	Mounting Spring
	71247	Lifting Plate - Models 1000 and 2000	44	70408	Control Lever - Model 3000
10		Hinge Plate -Part of Ref. 4		70905	Control Lever - Models 1000 and 2000
11	44782	Stylus Pressure Spring Model 3000	45	71138	Return Spring
	44718	Stylus Pressure Spring Models 1000 and 2000	46	58327	Reject Lever
12	70296	Spring Anchor - Model 3000	47	58310	Switch Lever
13	70318	Pickup Bracket - Model 3000	48	70405	Speed Control Lever - Model 3000
	70929	Pickup Bracket - Models 1000 and 2000		70906	Speed Control Lever - Models 1000 and 2000
14	59003	Pivot Screw Assembly Model 3000	49	58290	Switch Off Lever
	44207	Pivot Screw - Models 1000 and 2000	50	58352	Pin
15	70361	Counterbalance Screw Model 3000	51	41999	Return Spring
16	44180	Set-down Screw - Model 3000	52	58289	Record Support Arm Lever
17	70223	Upper Casting Assembly	53	58563	Lower Casting
18	70407	Speed Control Knob-Model 3000	54		Lower Casting Screw
	70924	Speed Control Knob-Models 1000 and 2000	55	44706	Selector Spring
19	70356	Pickup Rest-Model 3000	56	70329	Pickup Lever
	70915	Pickup Rest - Models 1000 and 2000	57	41985	Friction Spring
20	70955	Control Moulding-Model 3000	58	71051	Auto Trip Lever
	70902	Control Moulding - Models 1000 and 2000	59	44133	Screw
21	70410	Control Knob - Model 3000	60	70959	Lifting Spindle
	70924	Control Knob - Models 1000 and 2000	61	58348	Friction Link
22	70396	Brush Unit - Model 3000	62	58317	Pickup Cam
23	70932	Automatic Spindle	63	58274	Speed Lever
	59830	Manual Spindle	64	58303	Selector Lever
24	71457	Pickup Head - Model 3000	65	58324	Release Lever
25	70222	Name Plate - Model 3000	66	71362	Return Spring
	70916	Name Plate - Model 1000	67	44708	Lifting Spring
	71053	Name Plate - Model 2000	68	58208	Support Bracket
26		Stylus - Model 3000	69	58210	Setting Blade
27	43834	Spindle Clip	70	43129	Motor Mounts
28	70953	Turntable Mat - Model 3000	71	59107	Screen Plate -2-Pole Motor
	70909	Turntable Mat - Model 1000		58642	Motor Plate -4-Pole Motor
	71061	Turntable Mat - Model 2000	72	58533	Spacer -4-Pole Motor
29	70873	Turntable Assembly - Model 3000 and 2000	73		Motor Assembly
	59832	Turntable Assembly - Model 1000	74	41848	Index Spring
			75	58211	Index Bracket
			76	70218	Speed Cam
			77	41759	Pawl Spring
			78	41095	Fixing Nut
			79		Lifting Spring

* Idler Wheel - WALSCO Part No. 1499-10

