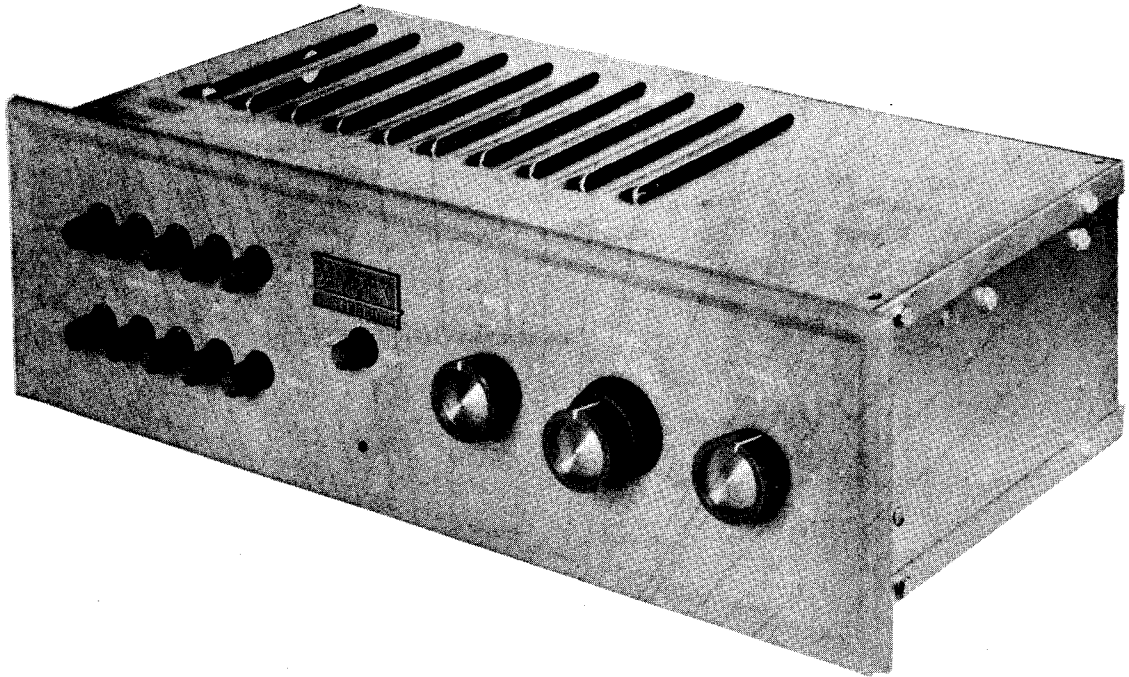




AMPEX
MODEL 402



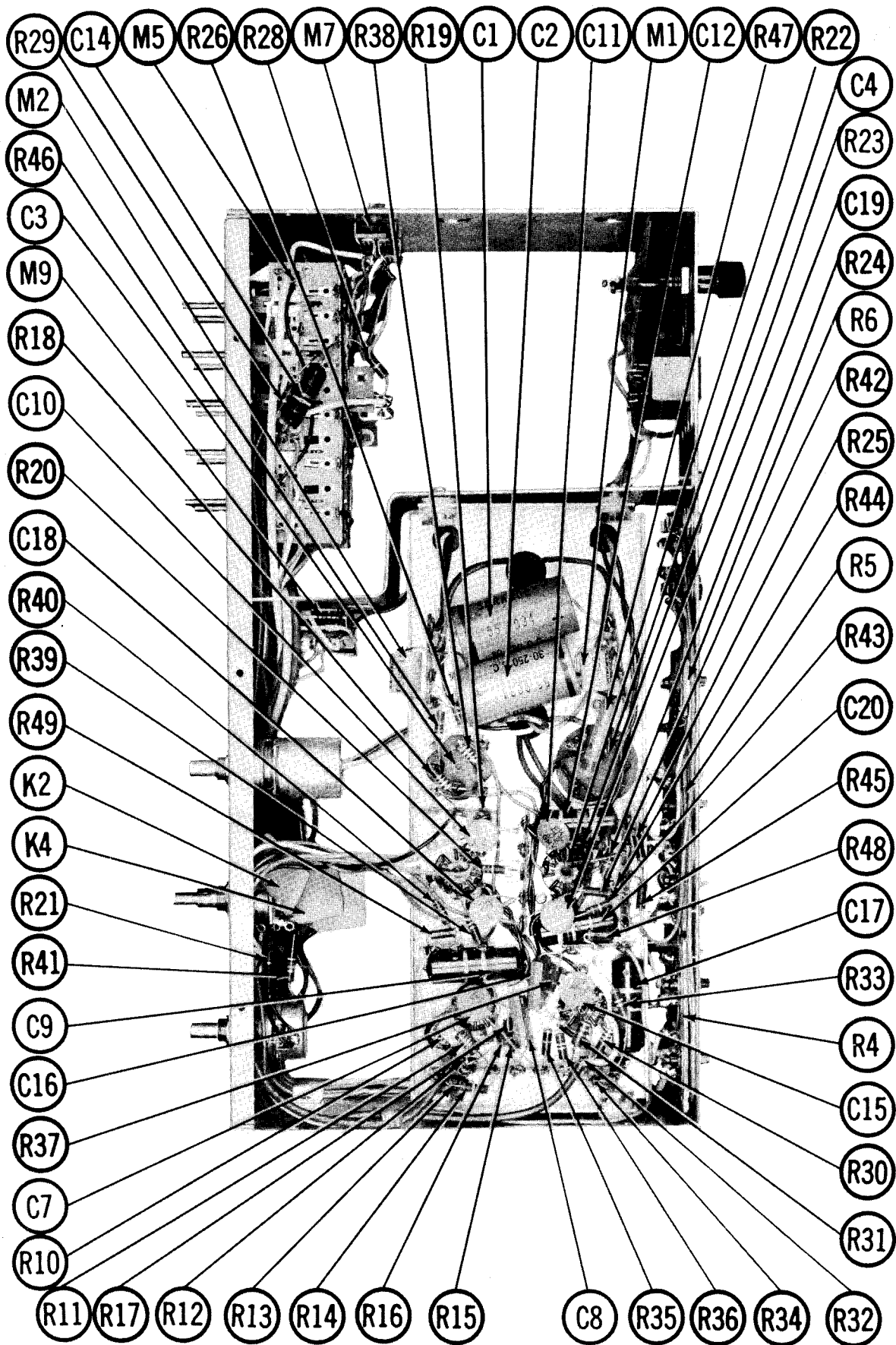
AMPEX
MODEL 402

TRADE NAME	Ampex Model 402		
MANUFACTURER	Ampex Audio, Inc., 1020 Kifer Road, Sunnyvale, California		
TYPE SET	AC Operated 4 Tube Stereo Preamplifier		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	20 Watts, .23 Amp. @117 Volts AC

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

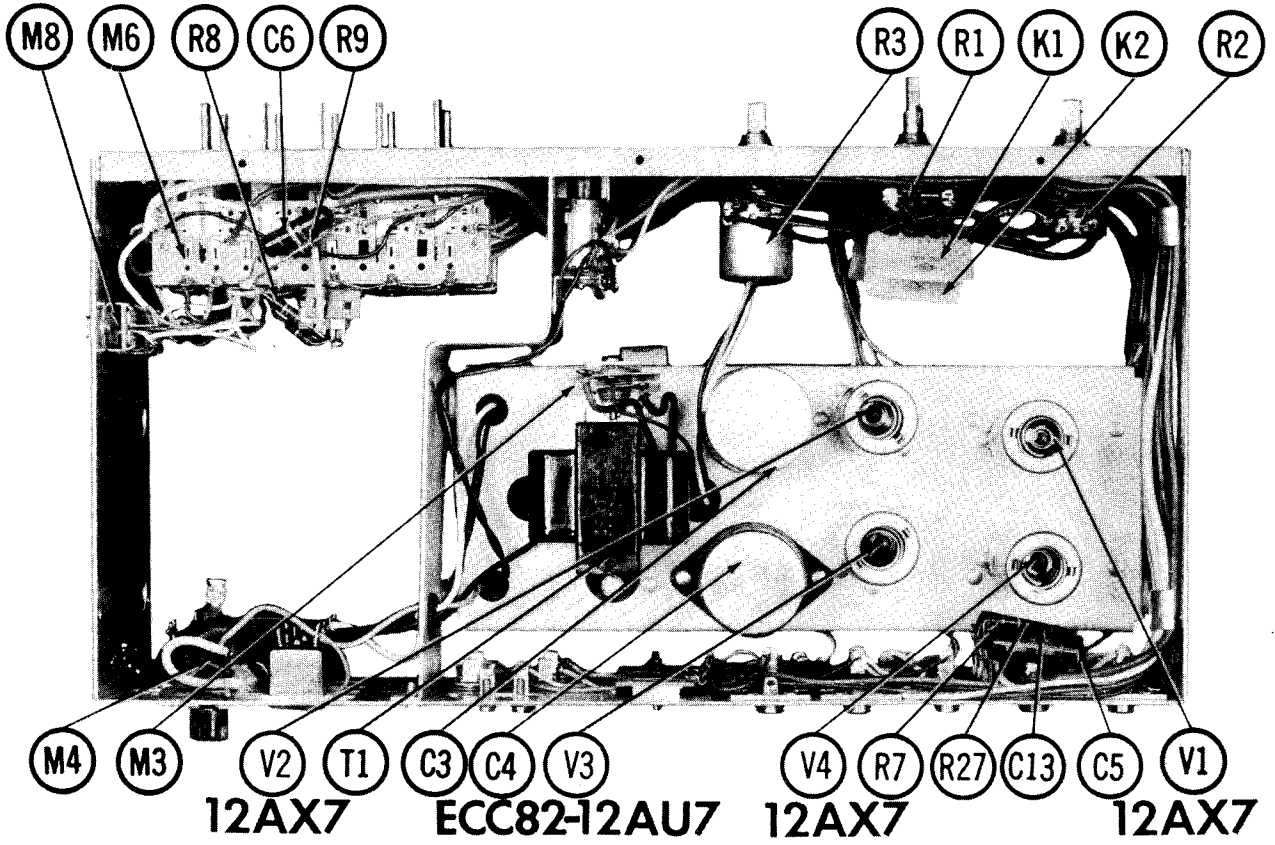
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of JU227

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CHASSIS BOTTOM VIEW - RESISTOR, CAPACITOR & MISC. IDENT.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS TUBES (GENERAL ELECTRIC, PENNSYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	Right Channel Preamp.	12AX7		V3	Right Channel Cath. Foll. -	ECC82/	
V2	Left Channel AF Amp. -	12AX7		V4	Left Channel Cath. Foll. -	12AU7	
	Left Channel AF Amp.				Left Channel Preamp.	12AX7	

ELECTROLYTIC CAPACITORS

ITEM No.	REPLACEMENT DATA				NOTES
	RATING	CORNELL-DUBILIER PART No.	AEROVOX PART No.	MALLORY PART No.	
C1	30	BR3025	PR8250V30	TD-30-250	TVA-1510
C2	30		55-0034	TC77	
C3	40		55-0034	FP396.2	TVLS-4613*
C4	10		55-0033	TC78	
	10			BRU45	
	300			WP041	TVM-1168
	2000			A0070	
	15			TMS-5	

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

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				NOTES
	CAP.	VOLT	TOL	AMPEX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	.1	200	10%	54-0033	V84C2P1	PM2P1	GTM-201	2TM-P1	
C6	.01	200	10%	54-0035	V84C2S1	PM2S1	GTM-211	2TM-S1	
C7	4700	400	5%	54-0006	BPD-0047	BYA10D47M	B-247	5HK-D47	
C8	1000	400			P488N-1	IR5D1	MCE251	MS-21	
C9	1	400			BPD-02	CUB4P1	GEM-401	4TM-P1	
C10	20000	400			BPD-02	BYB6S2	B-120	5HK-S2	
C11	20000	400			BPD-02	BYB6S2	B-120	5HK-S2	
C12	.047	400	10%	54-0033	P488N-047	CUB4S47	GEM-4147	4TM-S47	
C13	.1	200	10%	54-0033	V84C2P1	PM2P1	GTM-201	2TM-P1	
C14	.01	200	10%	54-0035	V84C2S1	PM2S1	GTM-211	2TM-S1	
C15	4700	400	5%	54-0006	BPD-0047	BYA10D47M	B-247	5HK-D47	
C16	1000	400			I469-001	IR5D1	MCE251	MS-21	
C17	20000	400			P488N-1	CUB4P1	GEM-401	4TM-P1	
C18	20000	400			BPD-02	BYB6S2	B-120	5HK-S2	
C19	20000	400			BPD-02	BYB6S2	B-120	5HK-S2	
C20	.047	400			P488N-047	CUB4S47	GEM-4147	4TM-S47	

① Some versions may use 750mmf 5% in this application (Part #540034).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES	
	RESIST.	WATTS	AMPEX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.		MALLORY PART No.
R1A	500K *		52-0013	BT-65	AD47-Imeg-S	Q11-137	UE1733	Loudness, Right Ch.
R2A	500K *		52-0014	STR-65	B-69	M11-137		Treble, Right Chan.
R3A	Imeg		52-0015-1B	SR-69	Not Req.	Not Req.		Treble, Left Chan.
R4A	Imeg			SR-69	Not Req.	Not Req.		Bass, Right Chan. Note 1
R5A	Switch			SR-3	Not Req.	Not Req.		Bass, Left Chan. Note 1
R6A	500K		52-0018	KR-2	SWE-20	76-2		Power Off-On
R7A	500K		52-0018					AM-Left Chan.
R8A	500K		52-0018					AM-Right Chan.
R9A	500K		52-0018					FM-Left Chan.
R10A	500K		52-0018					FM-Right Chan.
R11A	500K		52-0018					Ext-Left Chan.
R12A	500K		52-0018					Ext-Right Chan.

† STA-LOC™ equivalent: FA16L, RU16L, CS3500, US42

Note 1. Some versions may use 500K dual bass (Part #52-0015-1).

* Taps @ 180K, 330K

▲ Taps @ 250K

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			AMPEX PART No.	LITTELFUSE PART No.	HOLDER	BUSS PART No.
M4	AGC	1.5A 250V S/B	61-0003	31301.5 (3AG 1 1/2 250V S/B)	342012	AGC 1/4 H1KP

MISCELLANEOUS

ITEM No.	PART NAME	AMPEX PART No.	NOTES
M5	Switch	62-0017	Pushbutton (Left Chan.)
M6	Switch	62-0017	Pushbutton (Right Chan.)
M7	Switch	62-0032	Left Chan. In-Out (DPDT, Slide Type)
M8	Switch	62-0032	Right Chan. In-Out (DPDT, Slide Type)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AMPEX PART No.	REPLACEMENT DATA
K1	Tone Compensation	100mmf, 4700mmf, 4700mmf, 1000K, 100K, 4700K	50-0002	Centralab Sprague PC-18
K2	Loudness Compensation	100mmf, 200mmf, 4500mmf, 4500mmf, 50K, 50K	50-0003	Centralab Sprague TC-4
K3	Tone Compensation	100mmf, 4700mmf, 4700mmf, 1000K, 100K, 4700K	50-0002	Centralab Sprague PC-18
K4	Loudness Compensation	100mmf, 200mmf, 4500mmf, 4500mmf, 50K, 50K	50-0003	Centralab Sprague TC-4

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knob	10-0019	Loudness Control Top, With Pointer
Knob	10-0021	Loudness Control Bottom
Knob	10-0018-1	Base, Treble
Pushbutton	10-0017-2	Monitor
Pushbutton	10-0017-1	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7 1/2 Ft. Length)

RESISTORS

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

ITEM No.	RATING		AMPEX PART No.	NOTES	ITEM No.	RATING		AMPEX PART No.	NOTES
	OHMS	WATT				OHMS	WATT		
R7	4700Ω		51-0001		R29	2700Ω		51-0084	
R8	6200Ω		51-0085		R30	330K		51-0029	
R9	2700Ω		51-0084		R31	330K		51-0029	Note 1
R10	330K		51-0029		R32	220K		51-0082	
R11	330K		51-0029		R33	120K 5%		51-0026	
R12	220K		51-0026		R34	1000Ω 5%		51-0025	
R13	1000Ω 5%		51-0026		R35	10meg		51-0083	
R14	120K 5%		51-0025		R36	220K		51-0019	
R15	10meg		51-0025		R37	39K		51-0037	
R16	220K		51-0083		R38	100K		51-0074	
R17	10meg 5%		51-0019		R39	100K		51-0074	
R18	39K		51-0019		R40	680Ω		51-0012	
R19	100K		51-0037		R41	47K		51-0059	
R20	680Ω		51-0074		R42	1meg		51-0012	
R21	47K		51-0049		R43	5600Ω		51-0058	
R22	1meg		51-0012		R44	10K		51-0010	
R23	5600Ω		51-0058		R45	1meg		51-0010	
R24	10K		51-0058		R46	4700Ω		51-0012	
R25	1meg		51-0012		R47	1.2Ω		51-0012	Note 2
R26	4700Ω		51-0010		R48	1meg		51-0012	Note 2
R27	4700Ω		51-0011		R49	1meg		51-0012	
R28	920Ω		51-0085						

Note 1. Some versions may use 150K in this application (Part #51-0082).

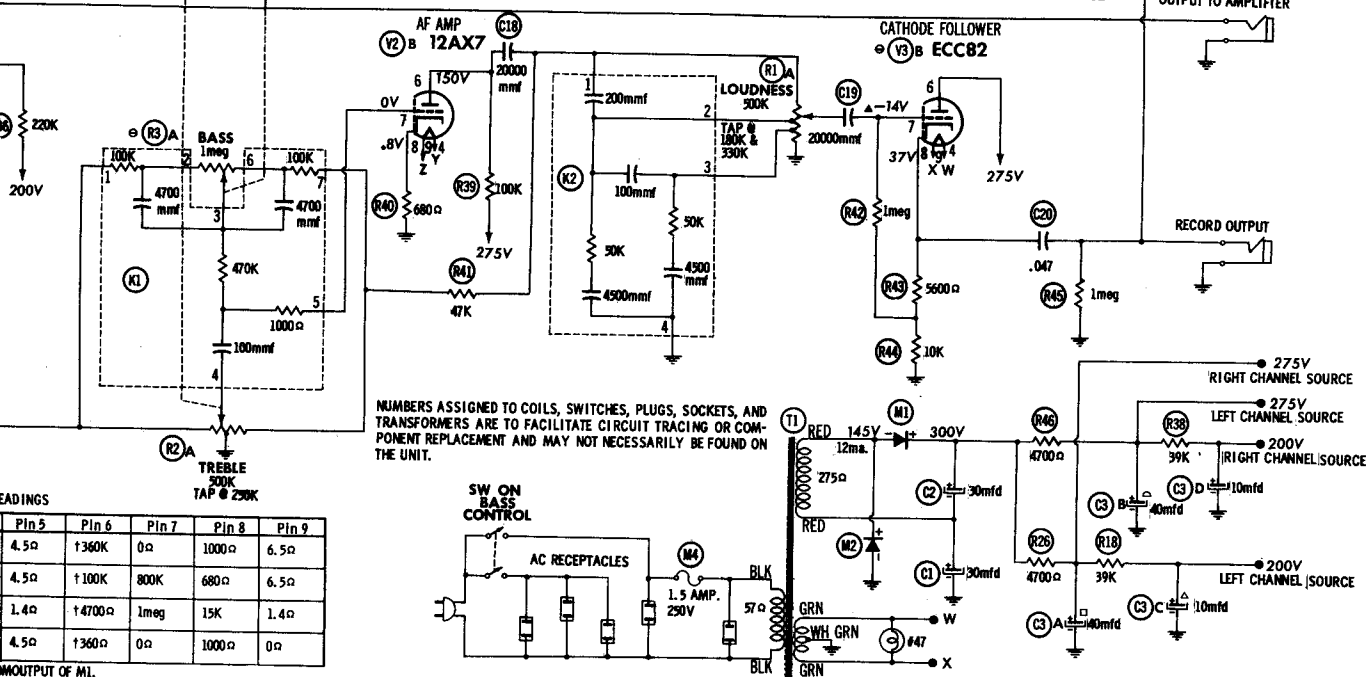
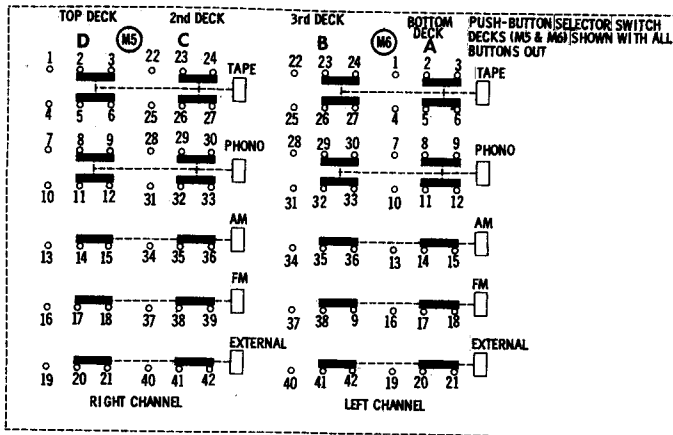
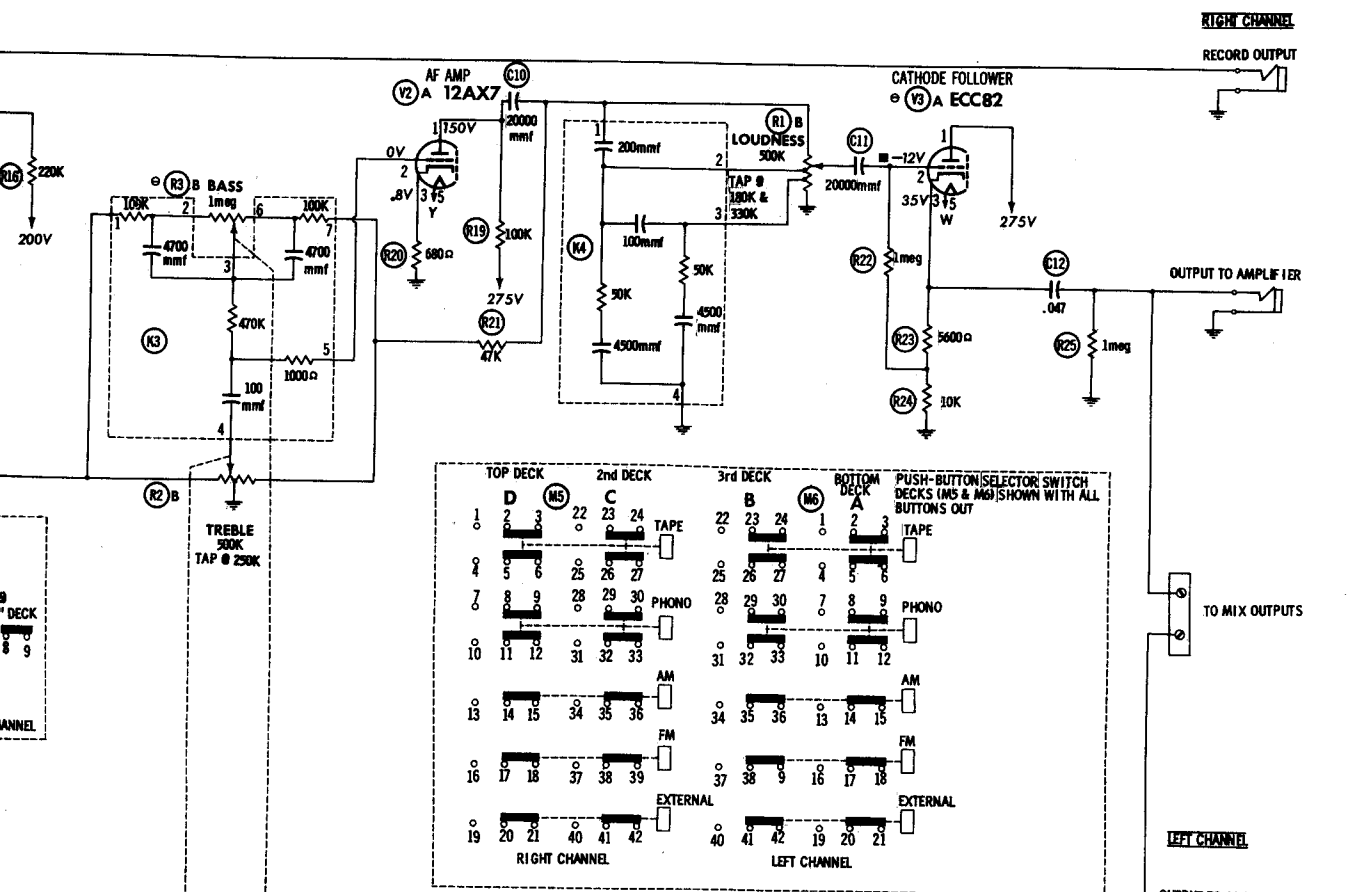
Note 2. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRL	SEC. 1	SEC. 2	SEC. 3	Merit PART No.	Stencor PART No.	Thornderson PART No.	Triad PART No.	Notes
T1	117V @ .23A	145V @ .040A (AC)	27 VCT (@ .450A)						
	SEC. 3	SEC. 4	SEC. 5						
	6.3 VCT (@ .45A)								

RECTIFIERS

ITEM No.	RATING				REPLACEMENT DATA				NOTES
	CURRENT (Measured)	AMPEX PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	Notes		
M1	.012A	57-0007 ①	K1734 ①	D-5414 ① ②				① Selenium Type.	
M2	.012A	57-0007 ①	K1734 ①	D-5414 ① ②				② Two Required	
M3	.605A	57-0006 ①		BIH ①	4N33-1CI- RV ①				



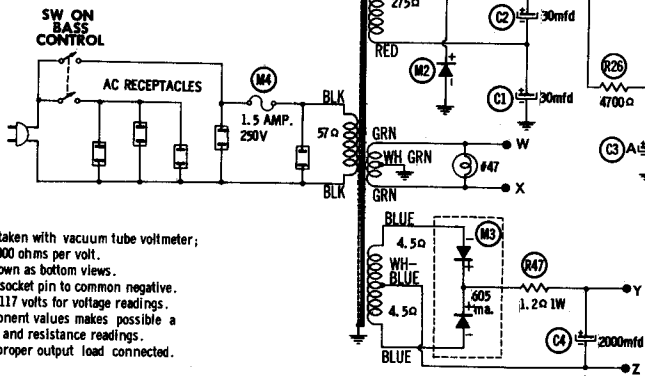
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

READINGS

Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
4.5Ω	†360K	0Ω	1000Ω	6.5Ω
4.5Ω	†100K	800K	680Ω	6.5Ω
1.4Ω	†4700Ω	1meg	15K	1.4Ω
4.5Ω	†360Ω	0Ω	1000Ω	0Ω

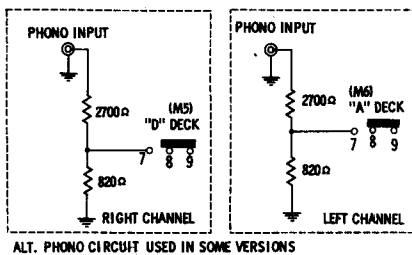
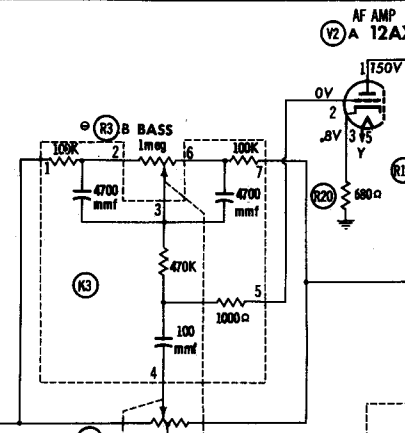
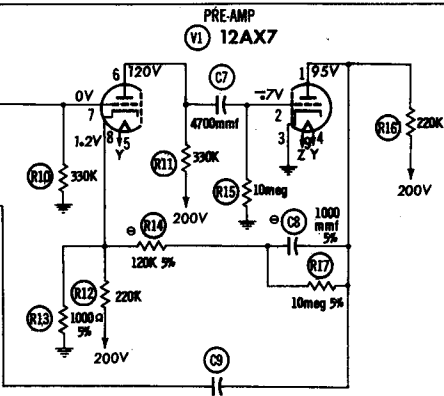
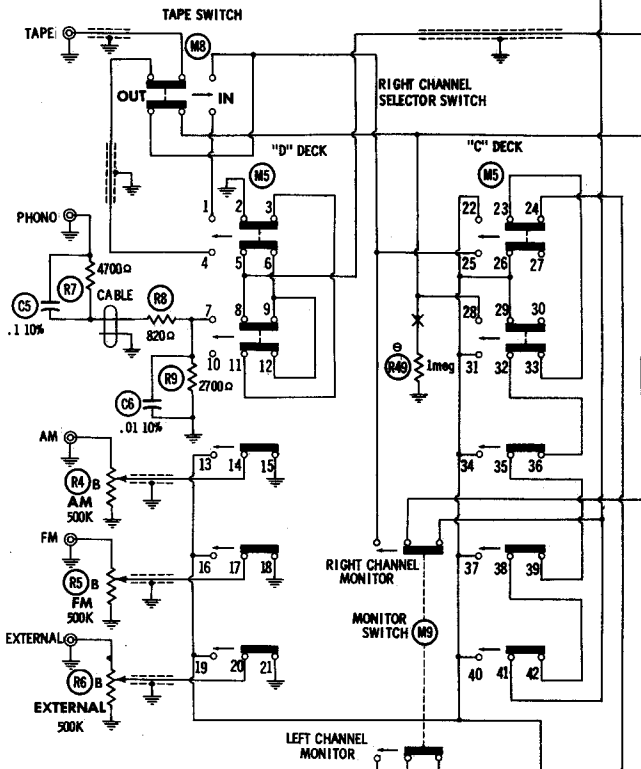
OUTPUT OF M1.
M PIN 3 OF V3.
M PIN 8 OF V3.

- 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 of component values makes possible a variation of ±15% in voltage and resistance readings.
- All controls at minimum, proper output load connected.

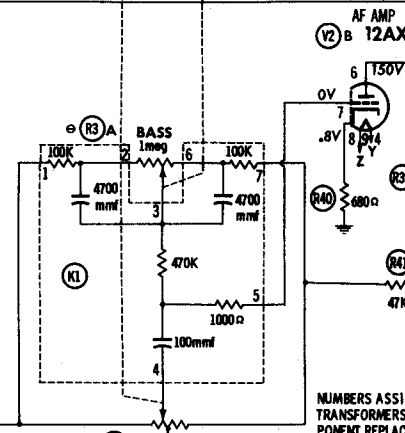
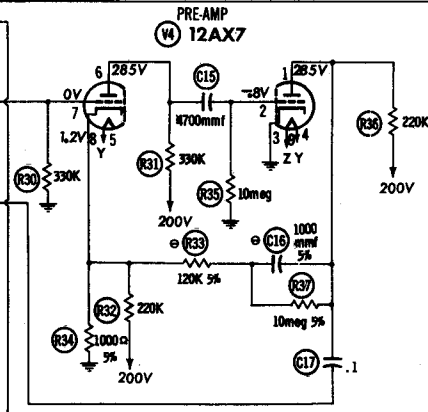
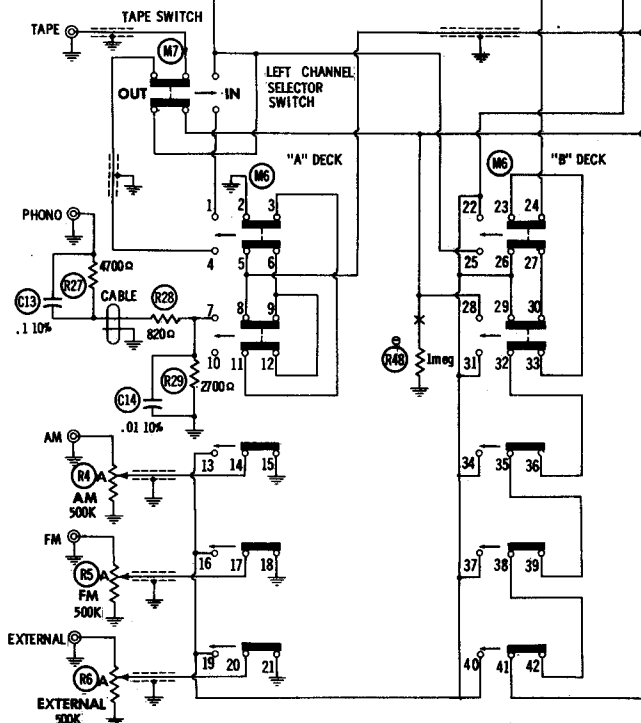


**AMPEX
MODEL 402**

RIGHT CHANNEL INPUTS



LEFT CHANNEL INPUTS



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†260K	10meg	0Ω	4.5Ω	4.5Ω	†360K	0Ω	1000Ω	6.5Ω
V2	12AX7	†100K	800K	680Ω	4.5Ω	4.5Ω	†100K	800K	680Ω	6.5Ω
V3	ECC82 12AU7	†4700Ω	1meg	15K	1.4Ω	1.4Ω	†4700Ω	1meg	15K	1.4Ω
V4	12AX7	†260K	10meg	0Ω	4.5Ω	4.5Ω	†360K	0Ω	1000Ω	0Ω

† MEASURED FROM OUTPUT OF M1.
 ‡ MEASURED FROM PIN 3 OF V3.
 ▲ MEASURED FROM PIN 8 OF V3.

- DC voltage measurements taken with AC voltages measured at 1000 ohms.
- Socket connections are shown as follows.
- Measured values are from socket pins.
- Line voltage maintained at 117 volts.
- Nominal tolerance of component values is ±15% in voltage and resistance.
- All controls at minimum, proper operation.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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