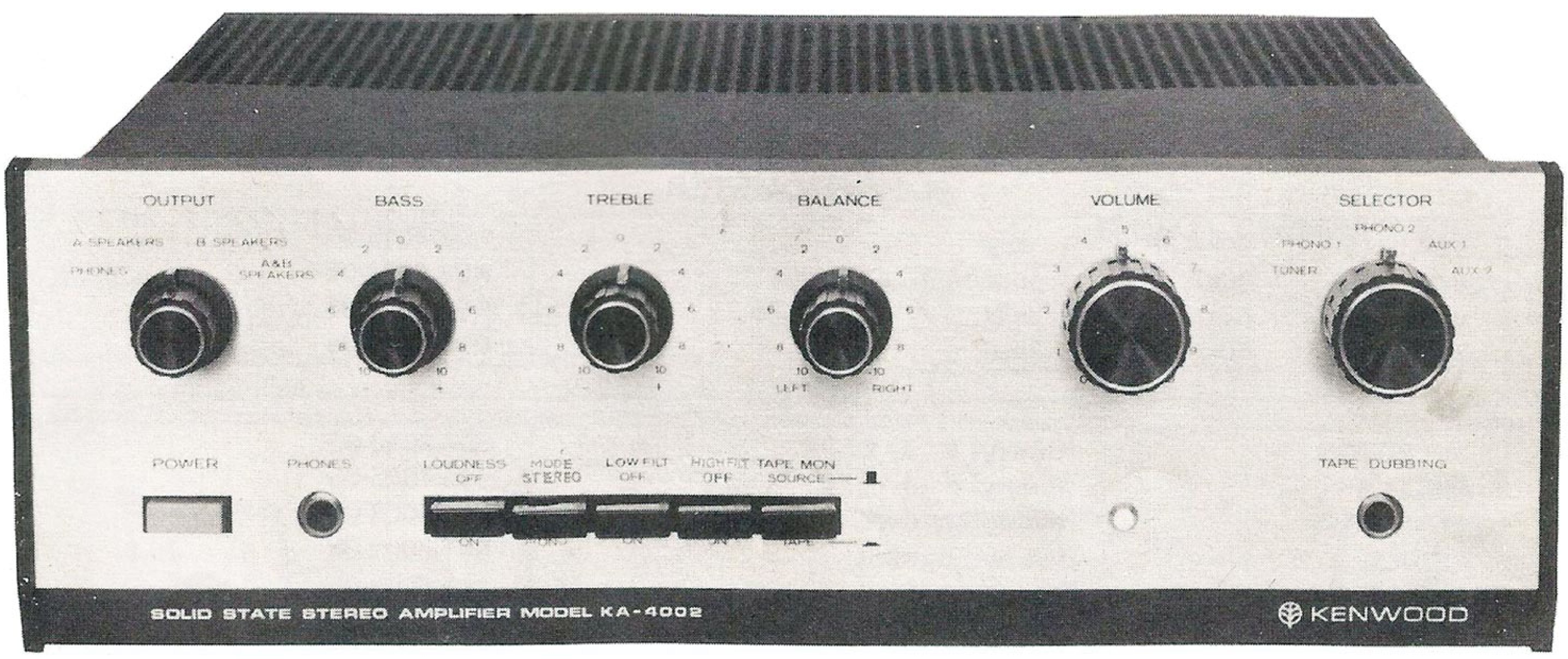
KENWOOD
HI/FI STEREO COMPONENTS

SERVICE MANUAL

KA-4002



SOLID STATE STEREO AMPLIFIER

PARTS DESCRIPTION LIST

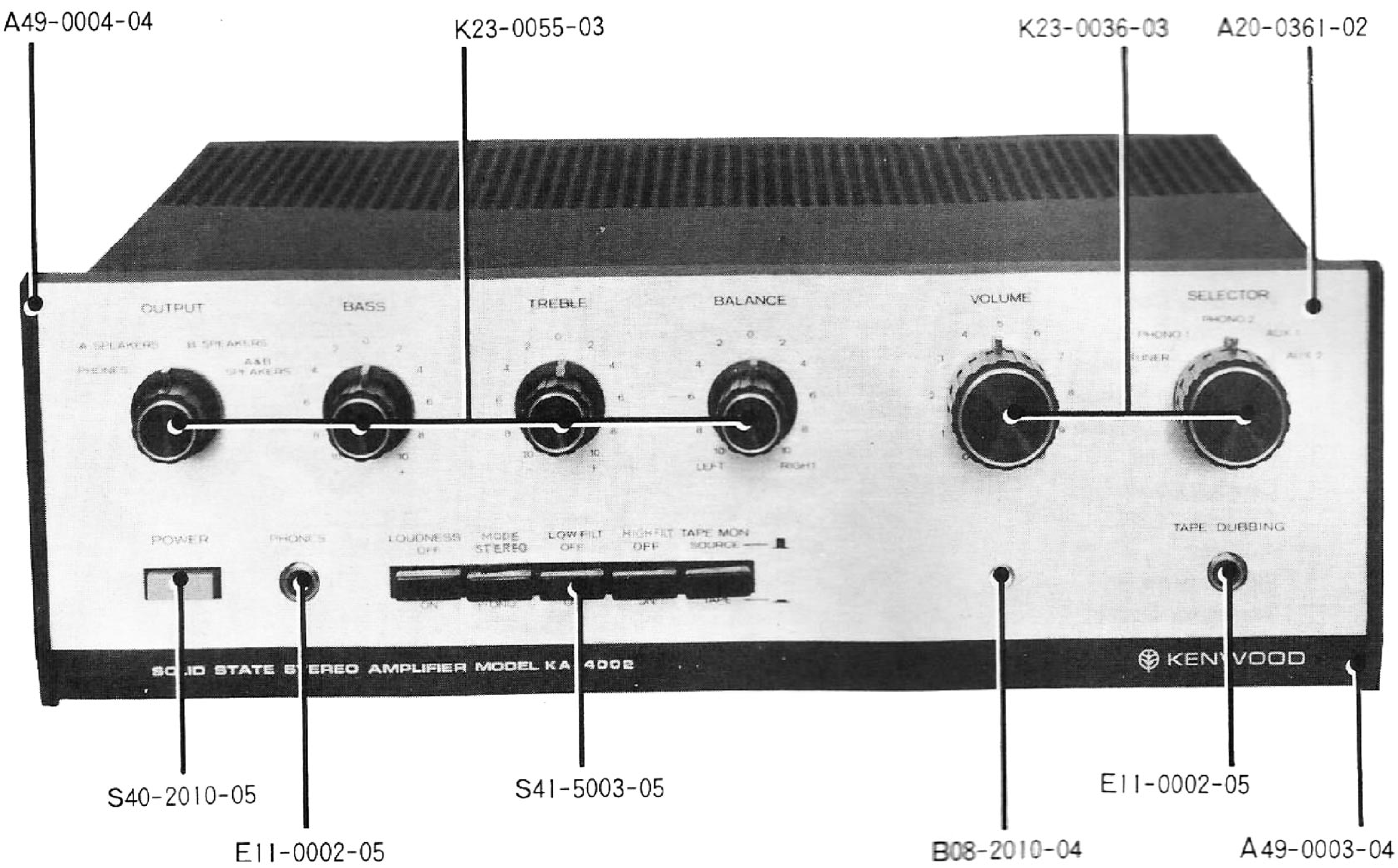
MAIN CHASSIS (Y08-0061-00) SECTION

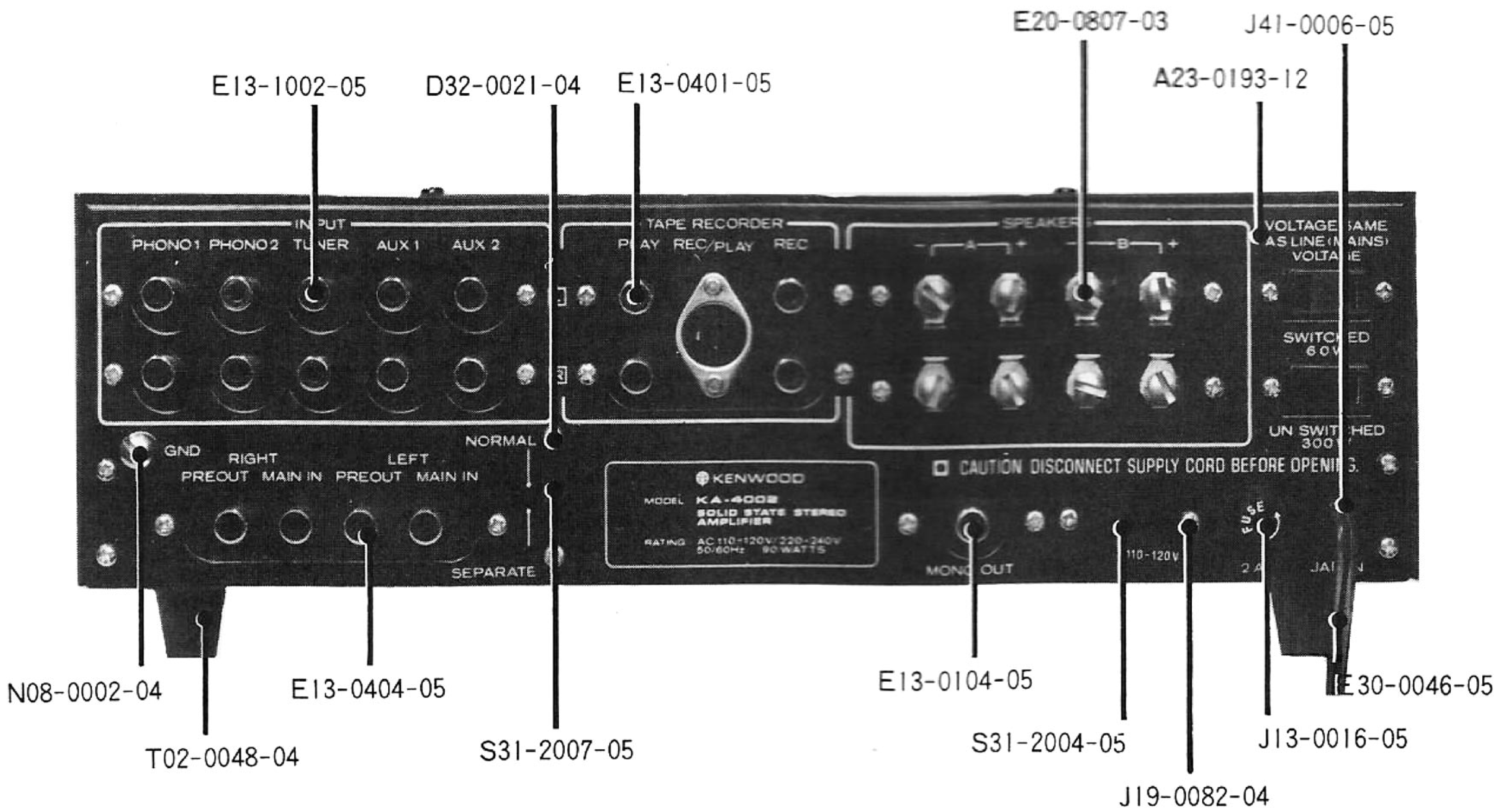
Symbol No.	Description				Part No.	Remarks
	PC BOARD					
–	PRE, TONE & MAIN (UA6001J6)				X09-0013-06	
–	PUSHBUTTON ASSEMBLY				J25-0477-04	
–	POWER SUPPLY				J25-0478-04	
	CAPACITOR					
C101	Mylar	0.0022μF	±20%		CQ93M1H222M	
C102	Mylar	0.068μF	±20%		CQ93M1H683M	
C111	Mylar	0.018μF	±20%		CQ93M1H183M	
C112	Mylar	0.0056μF	±20%		CQ93M1H562M	
C121	Electrolytic Tubular	1000μF	35WV		CE02W1V102	
C201	Mylar	0.0022μF	±20%		CQ93M1H222M	
C202	Mylar	0.068μF	±20%		CQ93M1H683M	
C211	Mylar	0.018μF	±20%		CQ93M1H183M	
C212	Mylar	0.0056μF	±20%		CQ93M1H562M	
C221	Electrolytic Tubular	1000μF	35WV		CE02W1V102	
C301	Electrolytic Block	2200μF	50WV		CE62A1H222	
C302, 303	Oil Impregnated	0.022μF	±20%		CP02B2J223M	
C311	Oil Impregnated	0.01μF	±20%		C90-0029-05	
	RESISTOR					
R101, 102	Insulated Carbon Film	10kΩ	±10%	1/4W	PD14BY2E103K	
R103	Insulated Carbon Film	4.7kΩ	±10%	1/4W	PD14BY2E472K	
R112	Insulated Carbon Film	330kΩ	±10%	1/2W	PD14BY2E334K	
R121	Fixed Carbon Composition	330Ω	±10%	1/2W	RC05GF2H331K	
R122	Fixed Carbon Composition	1kΩ	±10%	1/2W	RC05GF2H102K	
R131	Insulated Carbon Film	390kΩ	±10%	1/4W	PD14BY2E394K	
R132	Insulated Carbon Film	100kΩ	±10%	1/4W	PD14BY2E104K	
R201, 202	Insulated Carbon Film	10kΩ	±10%	1/4W	PD14BY2E103K	
R203	Insulated Carbon Film	4.7kΩ	±10%	1/4W	PD14BY2E472K	
R221	Fixed Carbon Composition	330Ω	±10%	1/2W	RC05GF2H331K	
R222	Fixed Carbon Composition	1kΩ	±10%	1/2W	RC05GF2H102K	
R231	Insulated Carbon Film	390kΩ	±10%	1/4W	PD14BY2E394K	
R232	Insulated Carbon Film	100kΩ	±10%	1/4W	PD14BY2E104K	
R311	Insulated Carbon Film	10kΩ	±10%	1/4W	PD14BY2E103K	
R321	Insulated Carbon Film	56Ω	±10%	1/4W	PD14BY2E560K	
	TRANSISTOR					
Q1 ~ 4	2SD155					
D1	S1B02-03B					
TH1, 2	5T-31L					
	POTENTIOMETER					
VR1	VOLUME	50kΩ (B)	dual		R08-4043-05	
VR2	BALANCE	50kΩ (W)	slide		R03-4028-05	
VR3	BASS	50kΩ (A)	dual		R08-4044-05	
VR4	TREBLE	50kΩ (A)	dual		R08-4044-05	
	SIWTCH					
S1	SELECTOR	(Rotary) F · 2 · 6 · 5			S04-2040-05	
S2	SPEAKER	(Rotary) F · 1 · 4 · 4			S04-1025-05	
S3	LOUDNESS	(five pushbutton)			S41-5003-05	
S4	MODE	(five pushbutton)			S41-5003-05	
S5	MONITOR	(five pushbutton)			S41-5003-05	
S6	HIGH FIL.	(five pushbutton)			S41-5003-05	
S7	LOW FIL.	(five pushbutton)			S41-5003-05	
S8	PRE-MAIN SEPARATE	(slide)			S31-2007-05	
S9	POWER VOLTAGE SELECT	(slide)			S31-2004-05	
S10	POWER SW.	(pushbutton)			S40-2010-05	
	MISCELLANEOUS					
–	Case				A01-0129-02	
–	Chassis				A10-0235-01	

PARTS DESCRIPTION LIST

Symbol No.	Description		Part No.	Remarks
—	Panel		A20-0364-02	
—	Rear Panel		A23-0193-02	
—	Sole Plate		A40-0062-04	
—	Jewel		B08-2010-04	
P. L.	Pilot Lamp		B30-0029-15	
—	Certification		B42-0008-04	
—	Caution Sticker		B42-0163-04	
—	Warranty Card		B46-0013-00	
—	Warranty Card	(U)	B46-0022-00	
—	Instruction Manual	(K)	B50-0544-00	
—	Instruction Manual	(U)	B50-0545-00	
—	Schematic Diagram		B52-0085-00	
—	Caution Card	(U)	B58-0003-00	
—	Caution Card	(K)	B58-0043-00	
—	Caution Card	(U)	B58-0101-00	
—	Address	(U)	B59-0018-00	
—	Switch Stopper		D32-0021-04	
—	Transistor Socket		E02-0208-05	
—	AC Outlet x 2		E08-0205-05	
J	Phone Jack x 2		E11-0002-05	
J	Pin Jack (1P)		E13-0104-05	
J	Pin Jack (with DIN Connector)		E13-0401-05	
J	Pin Jack (4P)		E13-0404-05	
J	Pin Jack (10P)		E13-1002-05	
—	Pin Plug x 4		E14-0101-05	
—	Pilot Lamp Socket		E15-0008-05	
—	Power Cord		E30-0046-05	
—	Radiator		F01-0075-04	
F	Fuse (2A)		F05-2023-05	
—	Lamp Cover		F07-0010-04	
—	Corrugated Cardboard Case		H01-0549-03	
—	Corrugated Cardboard Case (K)		H02-0132-03	
—	Legs		J02-0014-04	
—	Fuse Holder		J13-0016-05	
—	Switch Stopper		J19-0082-04	
—	Amp. Holder x 2		J21-0192-04	
—	L Type Metal Fittings x 2		J21-0435-04	
—	Jewel Holder		J21-0438-04	
—	Power Cord Bushing		J41-0006-00	
—	Knob (small, SPEAKER, BASS, TREBLE, BALANCE)		K23-0055-03	
—	Knob (large, VOLUME, SELECTOR)		K23-0056-03	
P. T.	Power Tranformer		L03-0038-05	
—	Decorated Screw x 4		N08-0003-04	
	In North America, leave out the parts of (U).			
	In other area, do out of the parts of (K).			

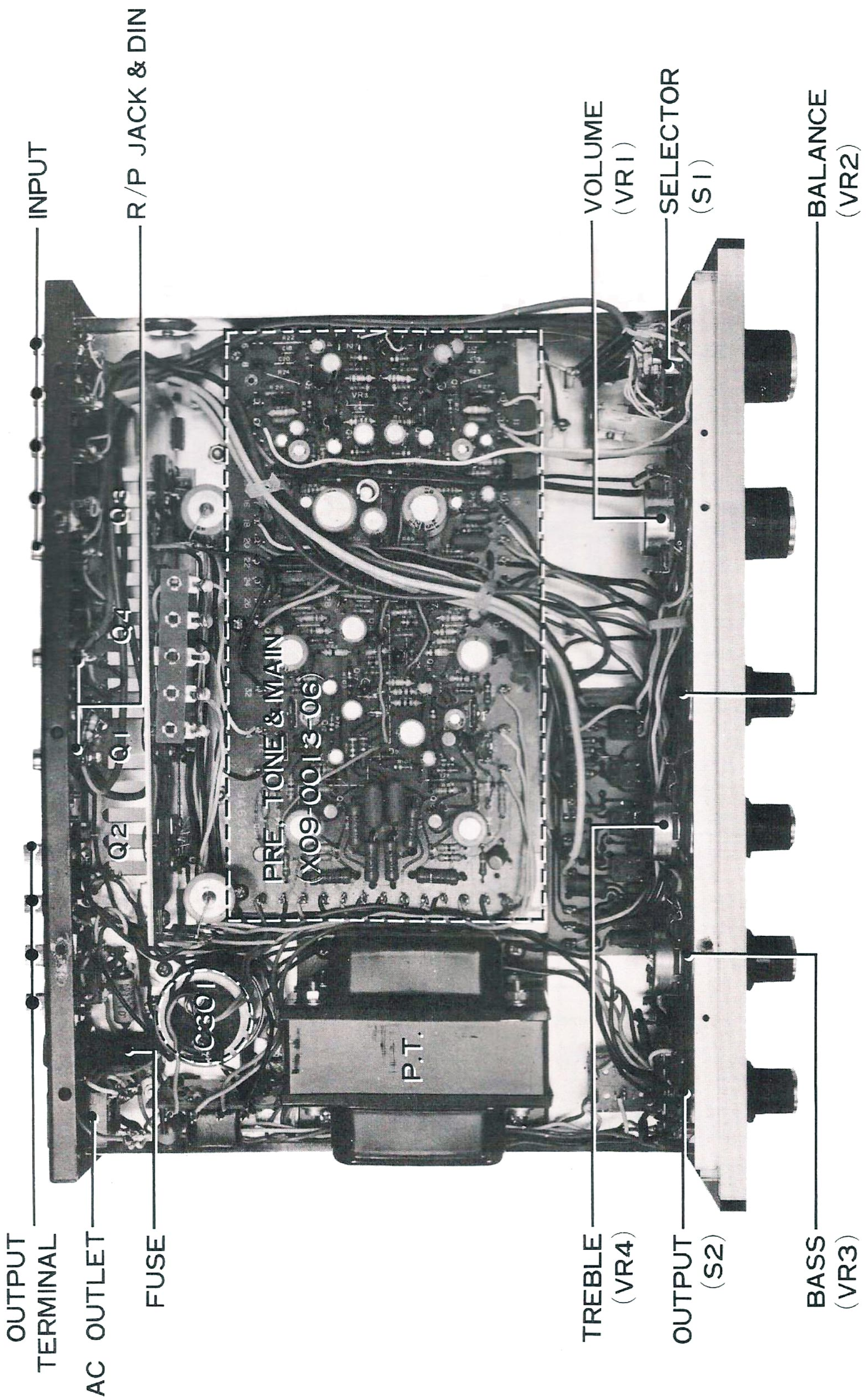
EXTERNAL VIEW



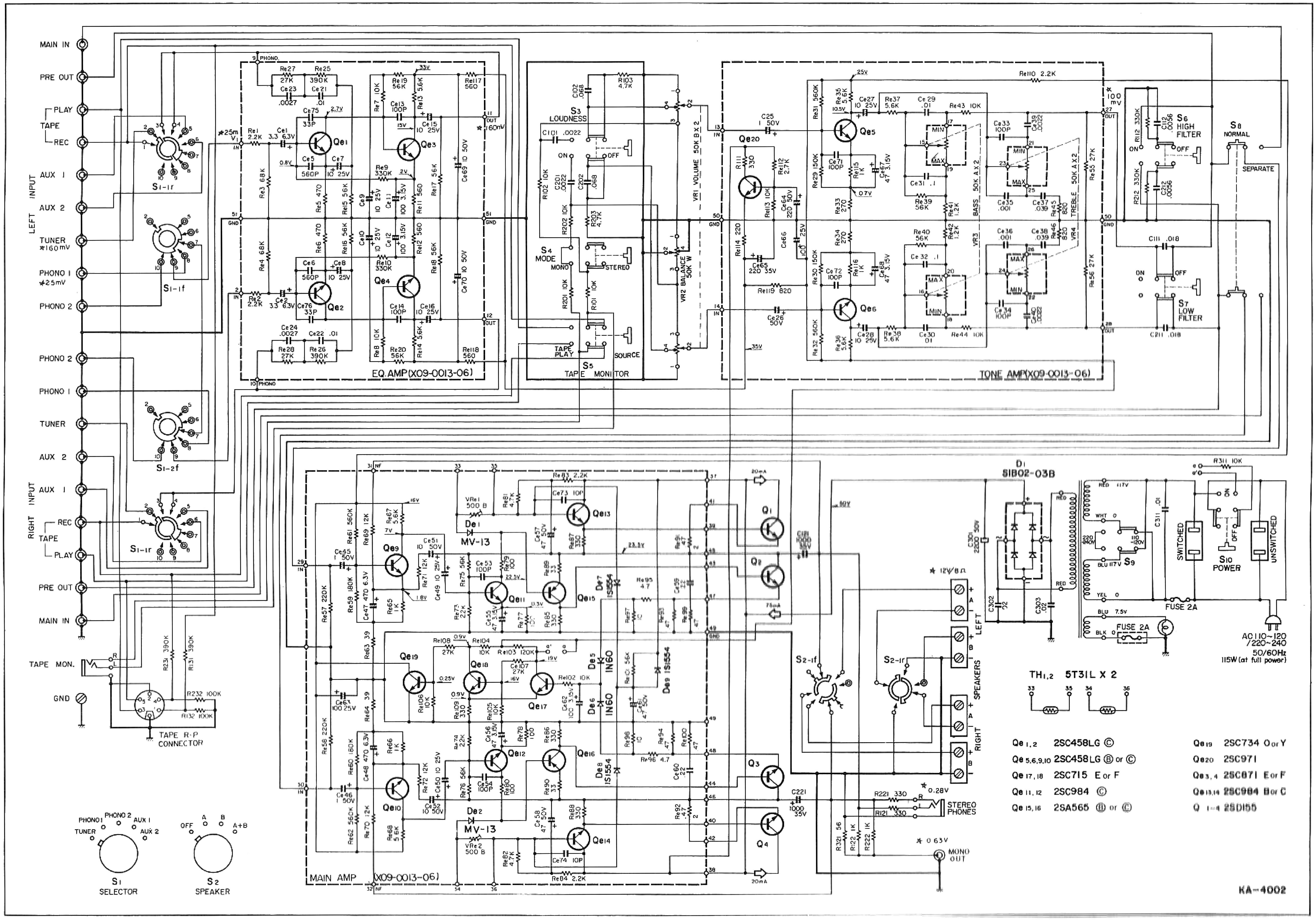


Number indicates parts number

CHASSIS TOP VIEW



SCHEMATIC DIAGRAM



PROCEDURE FOR REPLACING OUTPUT TRANSISTOR

Symptoms:

A. When there is load hum at the speakers.
B. When there is no output at all.
C. When you cannot get rated output.

Replacing Method:

Replace all the four transistors 2SD155.

Testing Procedures:

Until replacement is completed do not operate the set the unit without first testing.
Perform the test according to the following procedures.

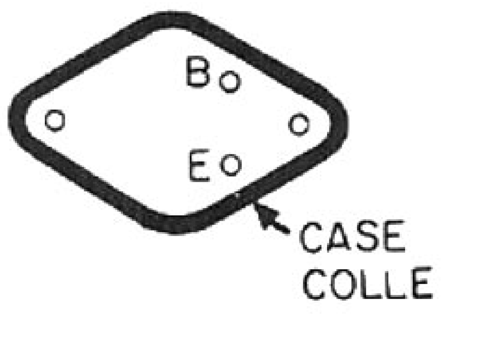
1. Using variable transformer, lower the power line voltage to approximately 30 volts.
2. Using a tester, measure the voltage between the chassis and "collector" of the power transistor Q1 or Q4.
   If a tester indicates approximately 42V, it is normal.
3. Also measure the voltage between the chassis and "collector" of the power transistor Q2 or Q3.
   If a tester indicates approximately 21V, it is normal.

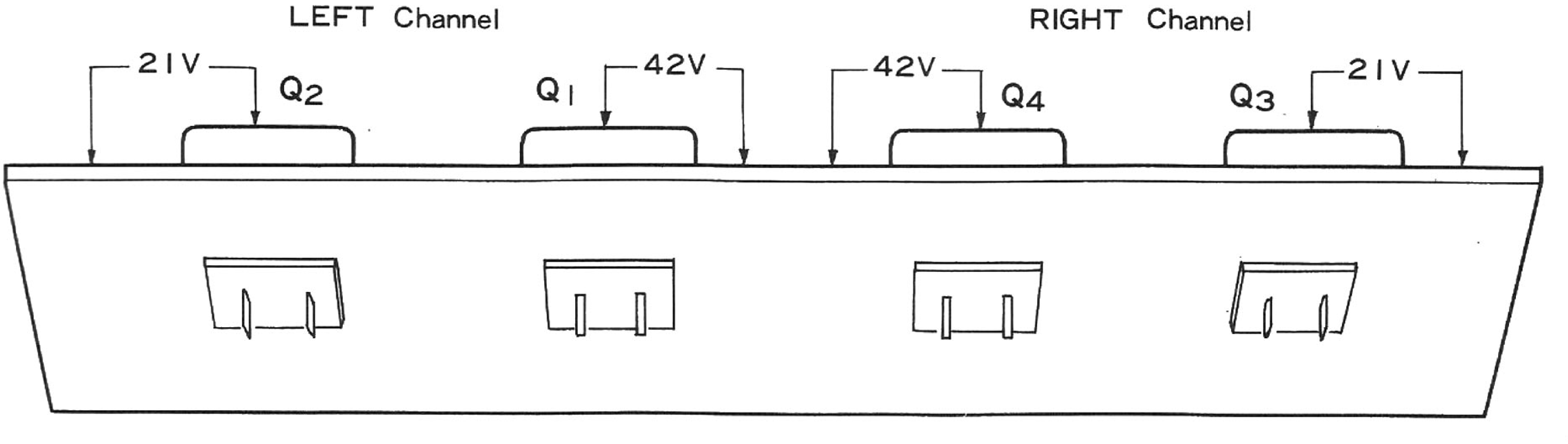
Protection Adjustment Procedures:

The protection circuit in "X09-0013-06" is a non-adjustment circuit. But, check the circuit for normal operation as follows for cautions sake;
With a 8 ohms dummy load and an oscilloscope connected in parallel to the output terminal, place the controls on "KA-4002" in their normal positions. Apply a signal of 1,000 Hz to the input and adjust the volume control until "X09-0013-06" provides an output of 10 W as measured across the dummy load. Try to short across the dummy and then restore it to the normal connection under the above conditions and check to see that the scope sweeps with no waveform once and then with the waveform represented, thereby showing that the protection circuit is operated normally. If the protection circuit fails to operate, turn off the power switch immediately, otherwise the final stage transistors may be damaged. And then check transistors, Qe17 ~ 19 and Diodes, De5, 6 whether they are good or not.

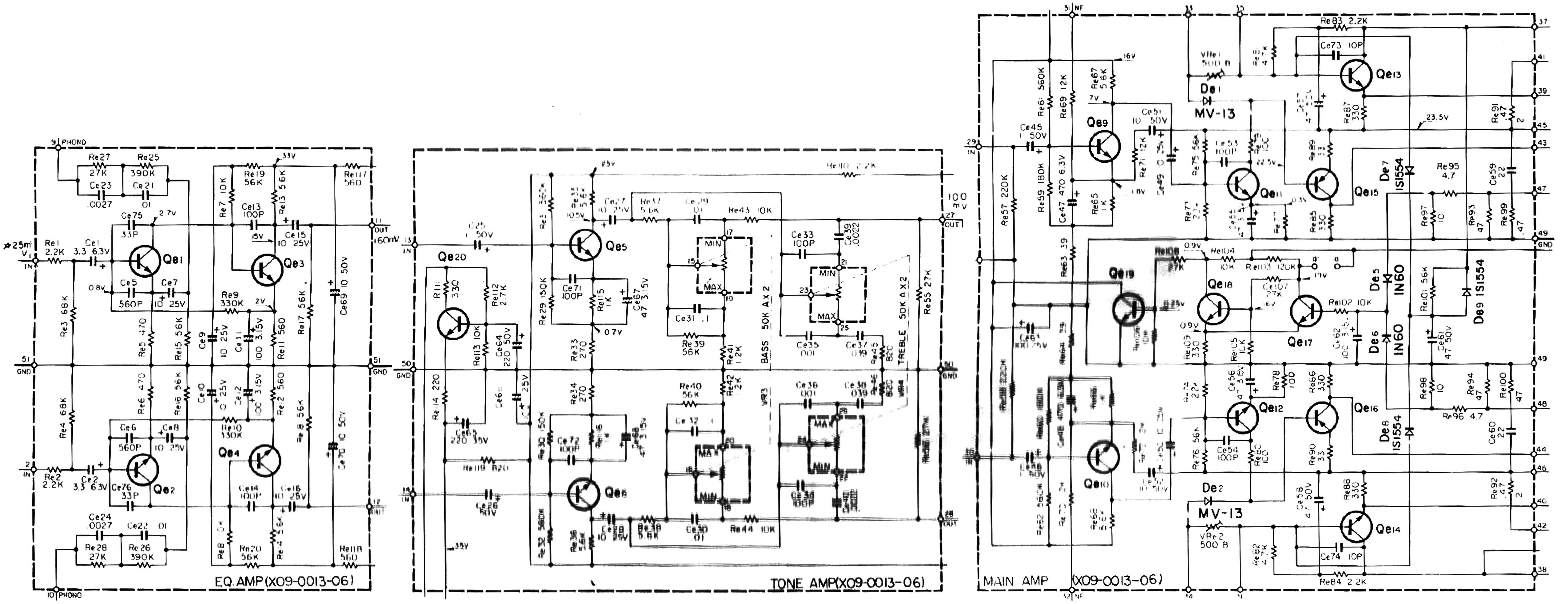
BOTTOM VIEW OF TRANSISTOR

2SD155

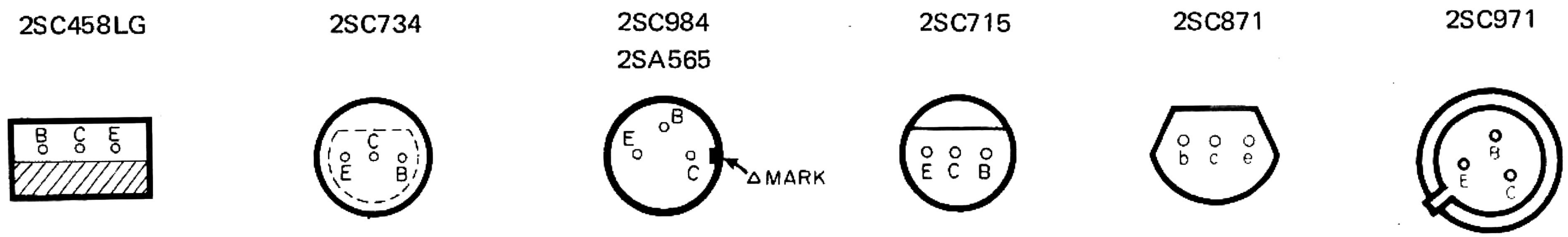




SCHEMATIC DIAGRAM



BOTTOM VIEW OF TRANSISTOR



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

Qe1,2 2SC458LG(C). Qe5,6,9,10 2SC458LG(B)or(C). Qe3,4 2SC871(E)or(F). Qe11,12 2SC984(C). Qe13,14 2SC984(B)or(C)
Qe15,16 2SA565. Qe17,18 2SC715(E)or(F). Qe19 2SC734(O)or(Y). Qe 20 2SC971

PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Re-marks
	CAPACITOR		
Ce1, 2	Solid Aluminum 3.3μF 6.3WV	CA04E0J3R3XT	
Ce5, 6	Ceramic 560pF ±20%	CK94YY1H561M	
Ce7 ~ 10	Electrolytic Tubular 10μF 25WV	CE04W1E100	
Ce11, 12	Electrolytic Tubular 100μF 3.15WV	CE04W0F101	
Ce13, 14	Ceramic 100pF ±10%	CC94SL1H101K	
Ce15, 16	Electrolytic Tubular 10μF 25WV	CE04W1E100	
Ce21, 22	Ceramic 0.01μF ±10%	CQ93M1H103K	
Ce23, 24	Mylar 0.0027μF ±10%	CQ93M1H272K	
Ce25, 26	Electrolytic Tubular 1μF 50WV	CE04W1H010	
Ce27, 28	Electrolytic Tubular 10μF 25WV	CE04W1E100	
Ce29, 30	Mylar 0.01μF ±10%	CQ93M1H103K	
Ce31, 32	Mylar 0.1μF ±10%	CQ93M1H104K	
Ce33, 34	Ceramic 100pF ±10%	CC94SL1H101K	
Ce35, 36	Mylar 0.001μF ±10%	CQ93M1H102K	
Ce37, 38	Mylar 0.039μF ±10%	CQ93M1H393K	
Ce39, 40	Mylar 0.0022μF ±10%	CQ93M1H222K	
Ce45, 46	Electrolytic Tubular 1μF 50WV	CE04W1H010	
Ce47, 48	Electrolytic Tubular 470μF 6.3WV	CE04W0J471	
Ce49, 50	Electrolytic Tubular 10μF 25WV	CE04W1E100	
Ce51, 52	Electrolytic Tubular 10μF 50WV	CE04W1H100	
Ce53, 54	Ceramic 100pF ±10%	CC94SL1H101K	
Ce55, 56	Electrolytic Tubular 47μF 3.15WV	CE04W0F470	
Ce57, 58	Electrolytic Tubular 47μF 50WV	CE04W1H470	
Ce59, 60	Mylar 0.22μF ±20%	CQ93M1H224M	
Ce61	Electrolytic Tubular 47μF 50WV	CE04W1H470	
Ce62	Electrolytic Tubular 100μF 3.15WV	CE04W0F101	
Ce63	Electrolytic Tubular 100μF 25WV	CE04W1E101	
Ce64	Electrolytic Tubular 220μF 50WV	CE04W1H221	
Ce65	Electrolytic Tubular 220μF 35WV	CE04W1V221	
Ce66	Electrolytic Tubular 100μF 25WV	CE04W1E101	
Ce67, 68	Electrolytic Tubular 47μF 3.15WV	CE04W0F470	
Ce69, 70	Electrolytic Tubular 10μF 50WV	CE04W1H100	
Ce71, 72	Ceramic 100pF ±10%	CC94SL1H101K	
Ce73, 74	Ceramic 10pF ±0.5pF	CC94SL1H100D	
Ce75, 76	Ceramic 33pF ±10%	CC94SL1H330K	
	RESISTOR		
Re1, 2	Insulated Carbon Film 2.2kΩ ±5% 1/4W	PD14BY2E222J	
Re3, 4	Insulated Carbon Film 68kΩ ±5% 1/4W	PD14BY2E683J	
Re5, 6	Insulated Carbon Film 470Ω ±5% 1/4W	PD14BY2E471J	
Re7, 8	Insulated Carbon Film 10kΩ ±5% 1/4W	PD14BY2E103J	
Re9, 10	Insulated Carbon Film 330kΩ ±5% 1/4W	PD14BY2E334J	
Re11, 12	Insulated Carbon Film 560Ω ±5% 1/4W	PD14BY2E561J	
Re13, 14	Insulated Carbon Film 5.6kΩ ±5% 1/4W	PD14BY2E562J	
Re15 ~ 20	Insulated Carbon Film 56kΩ ±5% 1/4W	PD14BY2E563J	
Re25, 26	Insulated Carbon Film 390kΩ ±5% 1/4W	PD14BY2E394J	
Re27, 28	Insulated Carbon Film 27kΩ ±5% 1/4W	PD14BY2E273J	
Re29, 30	Insulated Carbon Film 150kΩ ±5% 1/4W	PD14BY2E154J	
Re31, 32	Insulated Carbon Film 560kΩ ±5% 1/4W	PD14BY2E564J	
Re33, 34	Insulated Carbon Film 270Ω ±5% 1/4W	PD14BY2E271J	
Re35 ~ 38	Insulated Carbon Film 5.6kΩ ±5% 1/4W	PD14BY2E562J	
Re39, 40	Insulated Carbon Film 56kΩ ±5% 1/4W	PD14BY2E563J	
Re41, 42	Insulated Carbon Film 1.2kΩ ±5% 1/4W	PD14BY2E122J	
Re43, 44	Insulated Carbon Film 10kΩ ±5% 1/4W	PD14BY2E103J	
Re45, 46	Insulated Carbon Film 820Ω ±5% 1/4W	PD14BY2E821J	
Re55, 56	Insulated Carbon Film 27kΩ ±5% 1/4W	PD14BY2E273J	
Re57, 58	Insulated Carbon Film 220kΩ ±5% 1/4W	PD14BY2E224J	
Re59, 60	Insulated Carbon Film 180kΩ ±5% 1/4W	PD14BY2E184J	
Re61, 62	Insulated Carbon Film 560kΩ ±5% 1/4W	PD14BY2E564J	
Re63, 64	Insulated Carbon Film 39Ω ±5% 1/4W	PD14BY2E390J	
Re65, 66	Insulated Carbon Film 1kΩ ±5% 1/4W	PD14BY2E102J	
Re67, 68	Insulated Carbon Film 5.6kΩ ±5% 1/4W	PD14BY2E562J	
Re69 ~ 72	Insulated Carbon Film 12kΩ ±5% 1/4W	PD14BY2E123J	
Re73, 74	Insulated Carbon Film 2.2kΩ ±5% 1/4W	PD14BY2E222J	
Re75, 76	Insulated Carbon Film 56kΩ ±5% 1/4W	PD14BY2E563J	
Re77 ~ 80	Insulated Carbon Film 100Ω ±5% 1/4W	PD14BY2E101J	
Re81, 82	Insulated Carbon Film 4.7kΩ ±5% 1/4W	PD14BY2E472J	
Re83, 84	Insulated Carbon Film 3.9kΩ ±5% 1/4W	PD14BY2E392J	
Re85 ~ 88	Insulated Carbon Film 330Ω ±5% 1/4W	PD14BY2E331J	
Re89, 90	Insulated Carbon Film 33Ω ±5% 1/4W	PD14BY2E330J	
Re91 ~ 94	Metal Film 0.47Ω ±10% 2W	RN14AB3DR47K	
Re95, 96	Fixed Carbon Composition 4.7Ω ±10% 1/2W	RC05GF2H4R7K	
Re97, 98	Insulated Carbon Film 10Ω ±5% 1/4W	PD14BY2E100J	
Re99, 100	Metal Film 4.7Ω ±10% 2W	RN14AB3D4R7K	

Symbol No.	Description	Part No.	Re-marks
Re101	Insulated Carbon Film 56kΩ ±5% 1/4W	PD14BY2E563J	
Re102	Insulated Carbon Film 10kΩ ±5% 1/4W	PD14BY2E103J	
Re103	Insulated Carbon Film 120kΩ ±5% 1/4W	PD14BY2E134J	
Re104~106	Insulated Carbon Film 10kΩ ±5% 1/4W	PD14BY2E103J	
Re107, 108	Insulated Carbon Film 27kΩ ±5% 1/4W	PD14BY2E273J	
Re109	Insulated Carbon Film 330Ω ±5% 1/4W	PD14BY2E331J	
Re110	Insulated Carbon Film 2.2kΩ ±5% 1/4W	PD14BY2E222J	
Re111	Fixed Carbon Composition 330Ω ±10% 1/2W	RC05GF2H331K	
Re112	Insulated Carbon Film 2.7kΩ ±5% 1/4W	PD14BY2E272J	
Re113	Insulated Carbon Film 10kΩ ±5% 1/4W	PD14BY2E103J	
Re114	Fixed Carbon Composition 220Ω ±10% 1/2W	RC05GF2H221K	
Re115, 116	Insulated Carbon Film 1kΩ ±5% 1/4W	PD14BY2E102J	
Re117, 118	Insulated Carbon Film 560Ω ±5% 1/4W	PD14BY2E561J	
Re119	Insulated Carbon Film 820Ω ±5% 1/4W	PD14BY2E821J	
	TRANSISTOR/DIODE		
Qe1, 2	2SC458LG (C)		
Qe3, 4	2SC871 (E) or (F)		
Qe5, 6	2SC458LG (B) or (C)		
Qe9, 10	2SC458LG (B) or (C)		
Qe11, 12	2SC984 (C)		
Qe13, 14	2SC984 (B) or (C)		
Qe15, 16	2SA565 (B) or (C)		
Qe17, 18	2SC715 (E) or (F)		
Qe19	2SC734 (O) or (Y)		
Qe20	2SC971		
De1, 2	MV-13		
De5, 6	1N60		
De7 ~ 8	1S1554		
	POTENTIOMETER/PC BOARD		
VRe1, 2	500Ω (B) DC BALANCE	R10-69	
—	PC Board	J25-0078-03	

Manufactured by TRIO ELECTRONICS INC., TOKYO, JAPAN.

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