

JVC

SERVICE MANUAL

MODEL
JA-S31

STEREO INTEGRATED AMPLIFIER



No. 2368
MAR. 1976

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1. Specifications

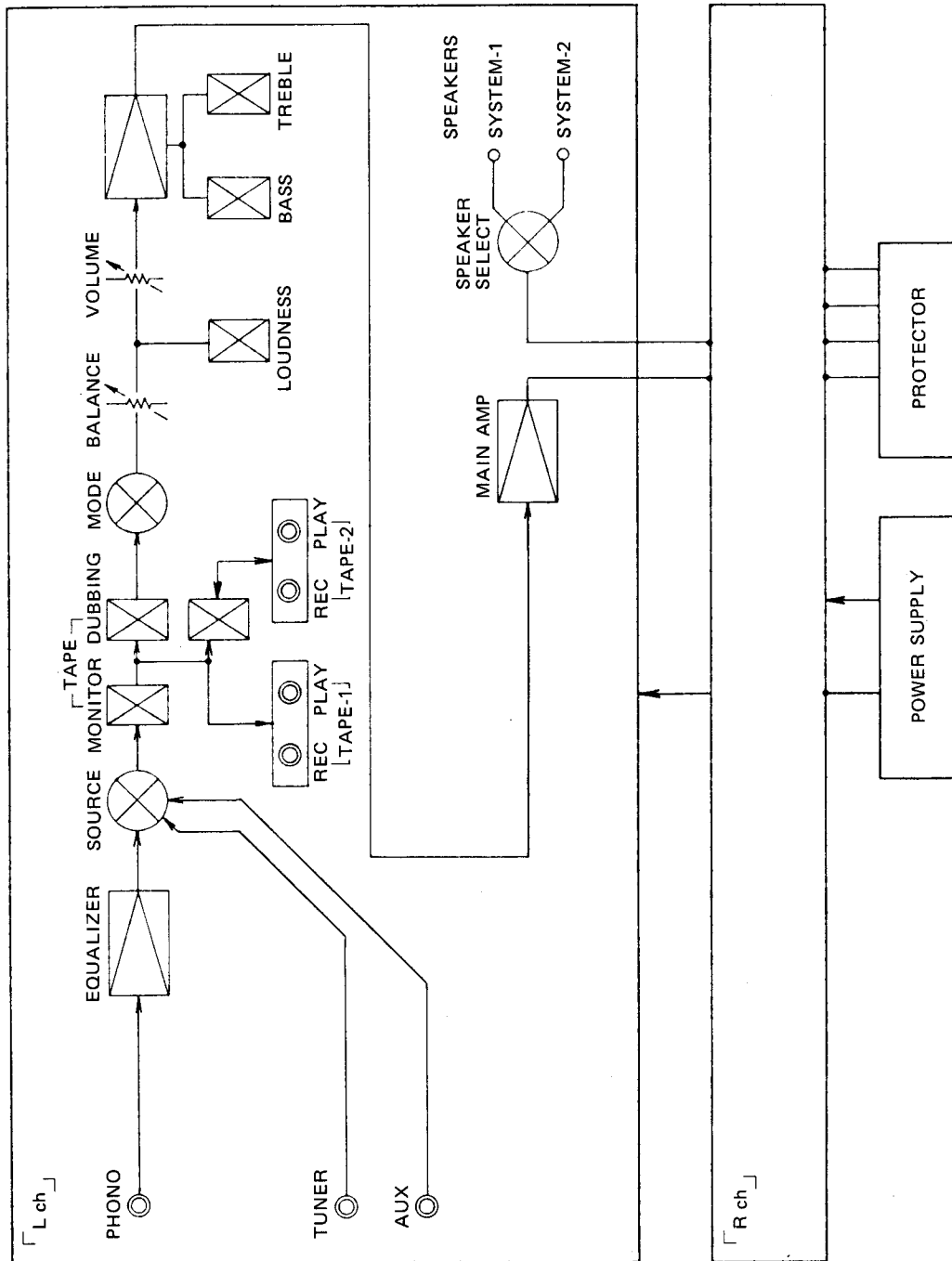
Power Amplifier Section

- Output Power (both channels driven) : 40 watts per channel, min. RMS into 8 ohms, from 20Hz – 20kHz with no more than 0.2% total harmonic distortion
45 watts per channel into 8 ohms at 1kHz. THD = 0.2%
- Total Harmonic Distortion (at 40W) (both channels driven) : 0.06% at 1kHz
- Intermodulation distortion : 0.2% at rated output
- Load Impedance : 4 Ω – 16 Ω (SYSTEM-1 or SYSTEM-2)
8 Ω – 16 Ω (SYSTEM-1+2)
- Damping Factor : More than 30 at 8 Ω (20Hz – 20kHz)

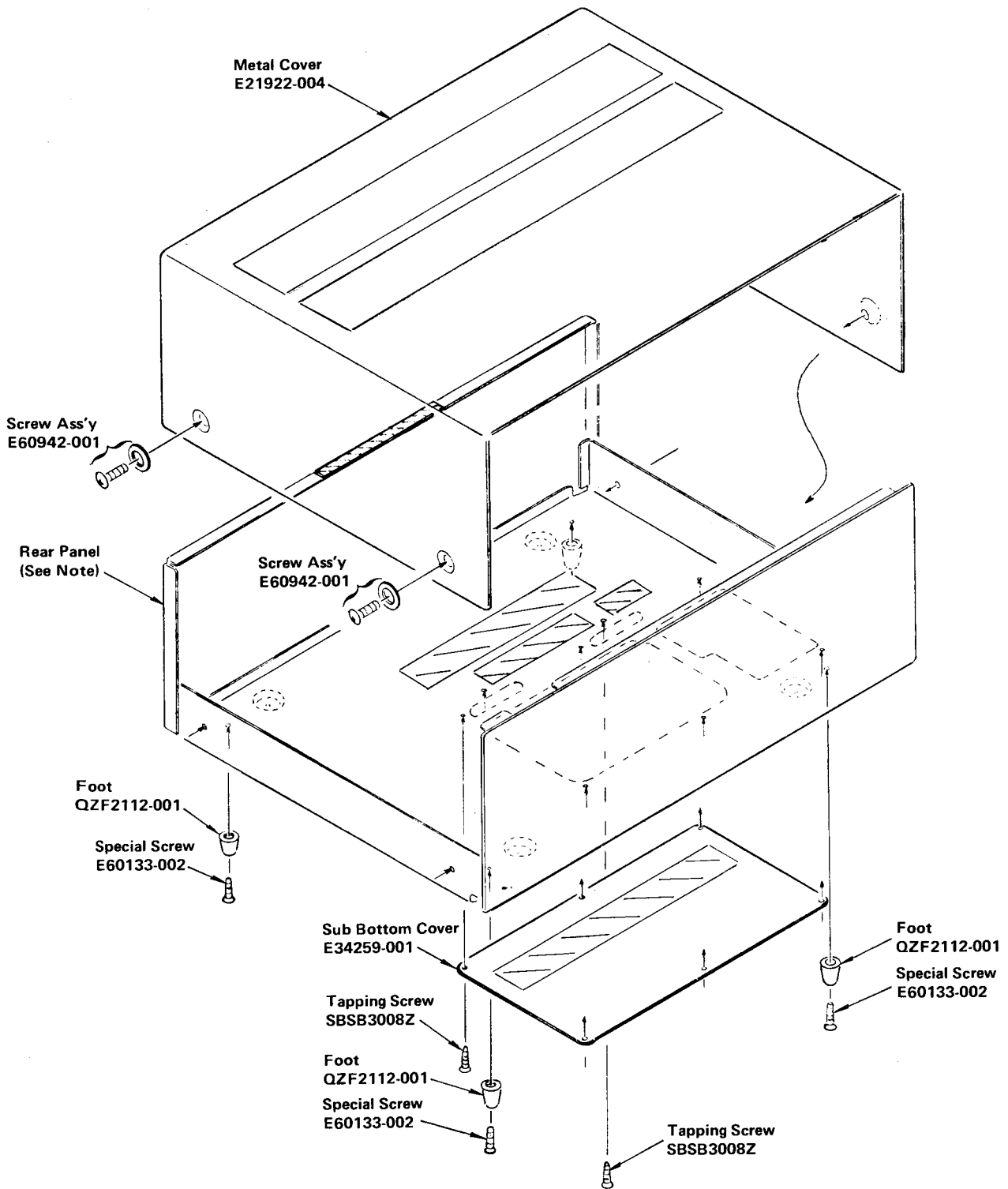
Pre-Amplifier Section

- Input Sensitivity/Impedance : PHONO 2.5mV/47k Ω
AUX, TUNER, TAPE PLAY 160mV/50k Ω
- Output Level : TAPE REC.-1, -2 160mV
DIN REC. 30mV (only on modes intended for areas other than U.S.A.)
- Phono Equalizer Deviation : \pm 0.5dB from RIAA curve (20Hz – 15kHz)
- Phono Overload : 180mV (RMS) at 1kHz
- Signal to Noise Ratio : PHONO 65dB (RMS)
AUX 85dB (RMS)
- Frequency Response : AUX, TUNER, TAPE PLAY 20Hz – 30kHz $^{+0}_{-2}$ dB
- Loudness Control : +10dB at 100Hz
(at -30dB Volume Control) +4dB at 10kHz
- Tone Controls : Bass \pm 8dB at 100Hz
Treble \pm 8dB at 10kHz
- Power Source : AC 120V, 50/60Hz (See page 18.)
- Power Consumption : 120W (See page 18.)
- Dimensions : 5-3/32"(H) x 15-11/32"(W) x 13"(D)
(15.2cm x 39.0cm x 33.0cm)
- Weight : 17.6 lbs. (8.0kg)

2. Block Diagram



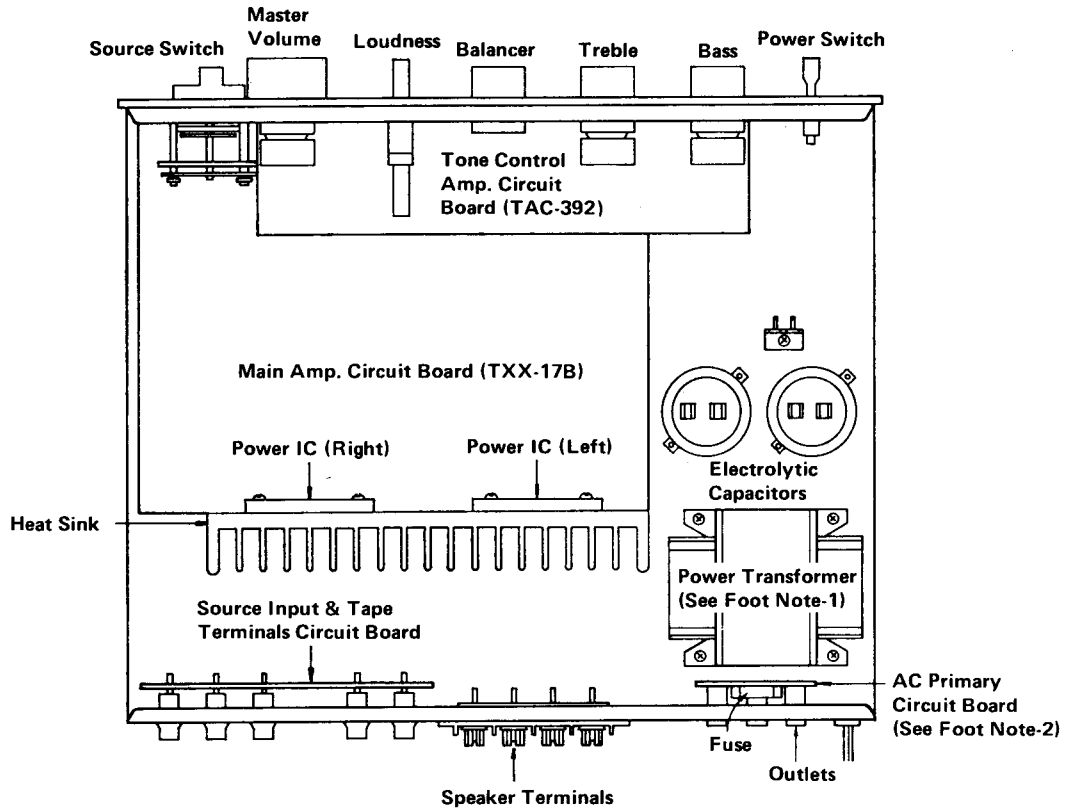
3. Removal of Top Cover and Bottom Plate



Note: Rear Panel
 E21921-006: used for J-type
 E21921-004: used for the types other than J-type

4. Main Parts Location and Part Numbers

Top View

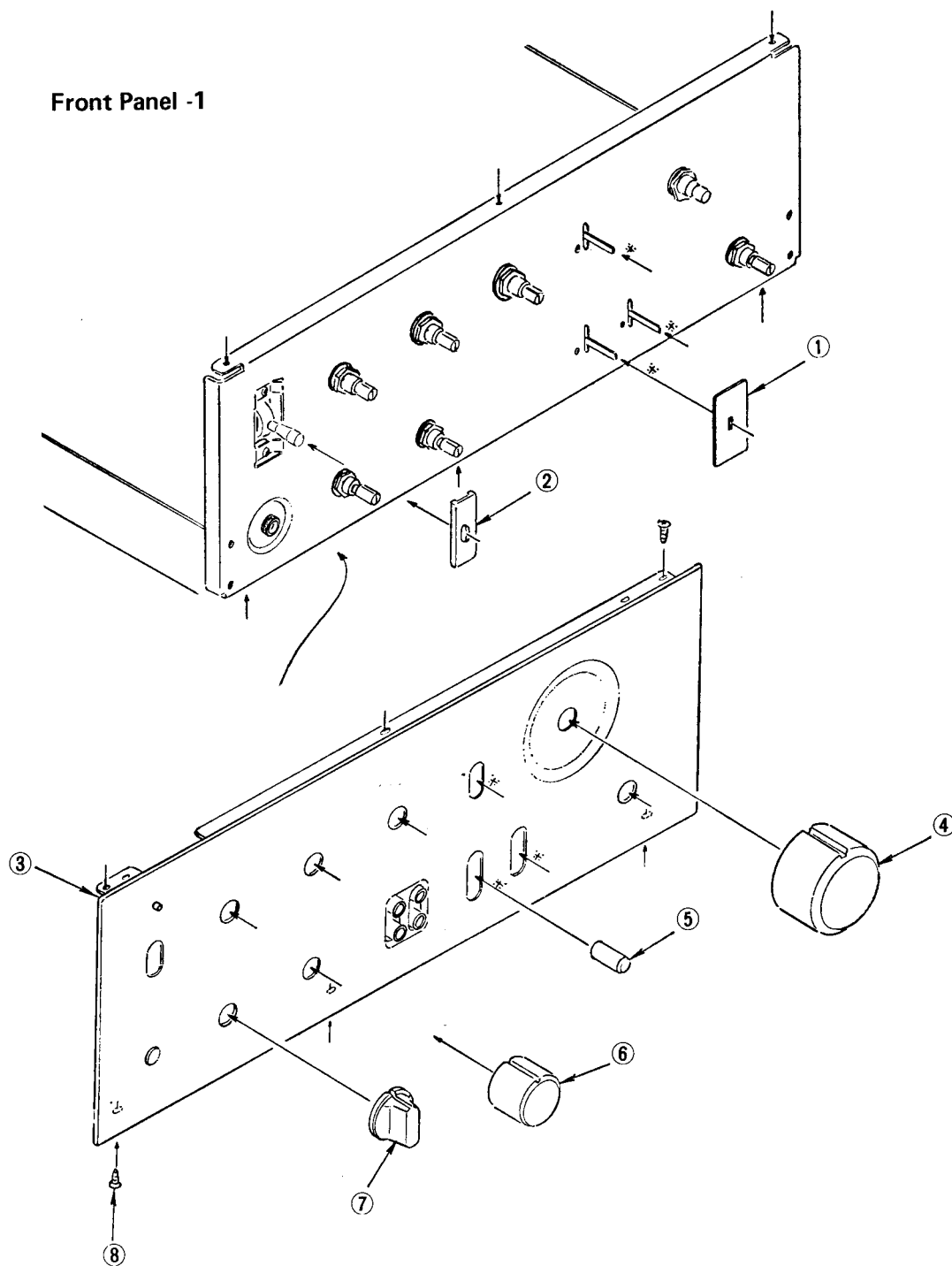


Note-1 Power Transformer
E03075-30C: used for U-, F- and P-types
E03075-30D: used for E- and A-types
E03075-30E: used for J-type

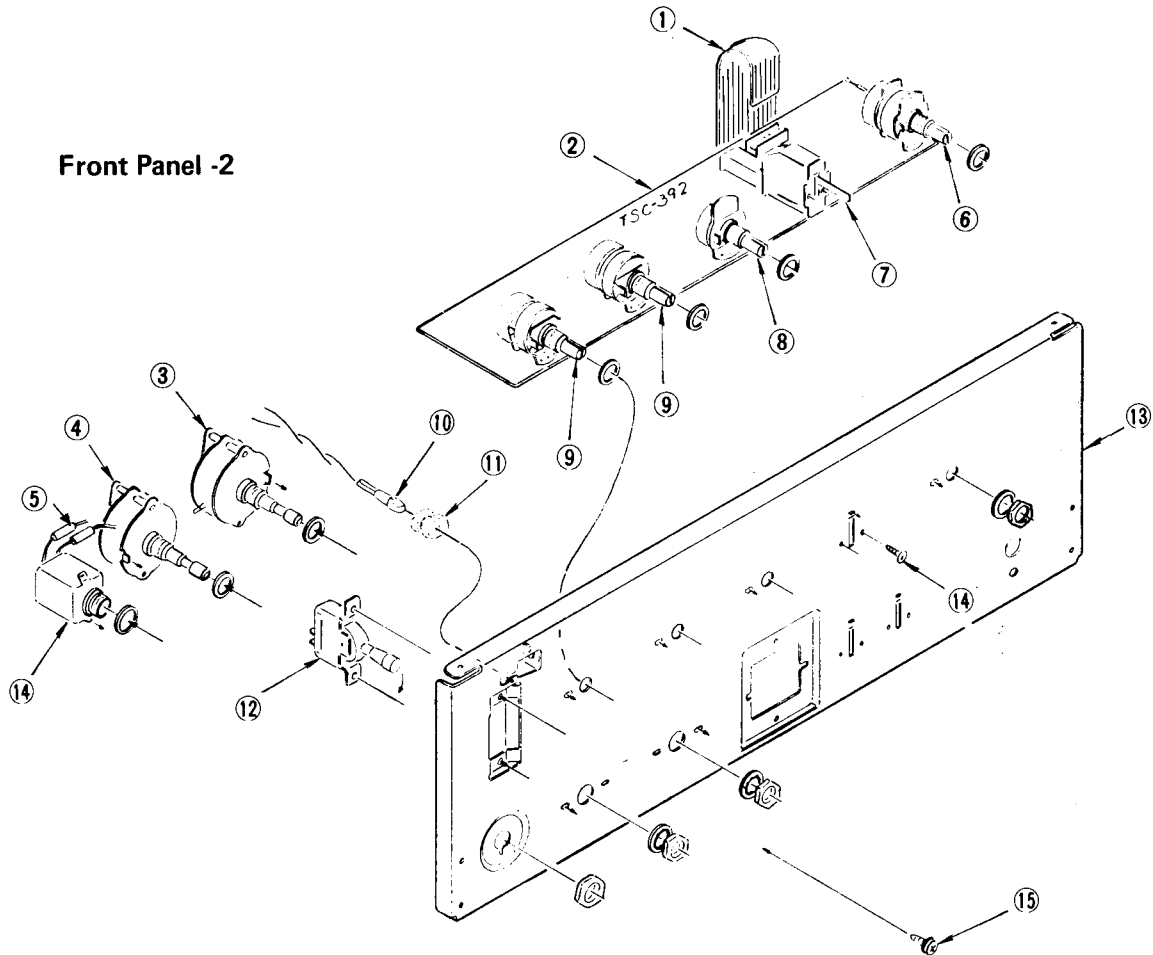
Note-2 AC Primary Circuit Board
TPS-43B: used for J-type
TPS-62: used for U-, F- and P-types

5. Exploded Views of Mechanical Parts

5-(1) Front Panel



Front Panel -2



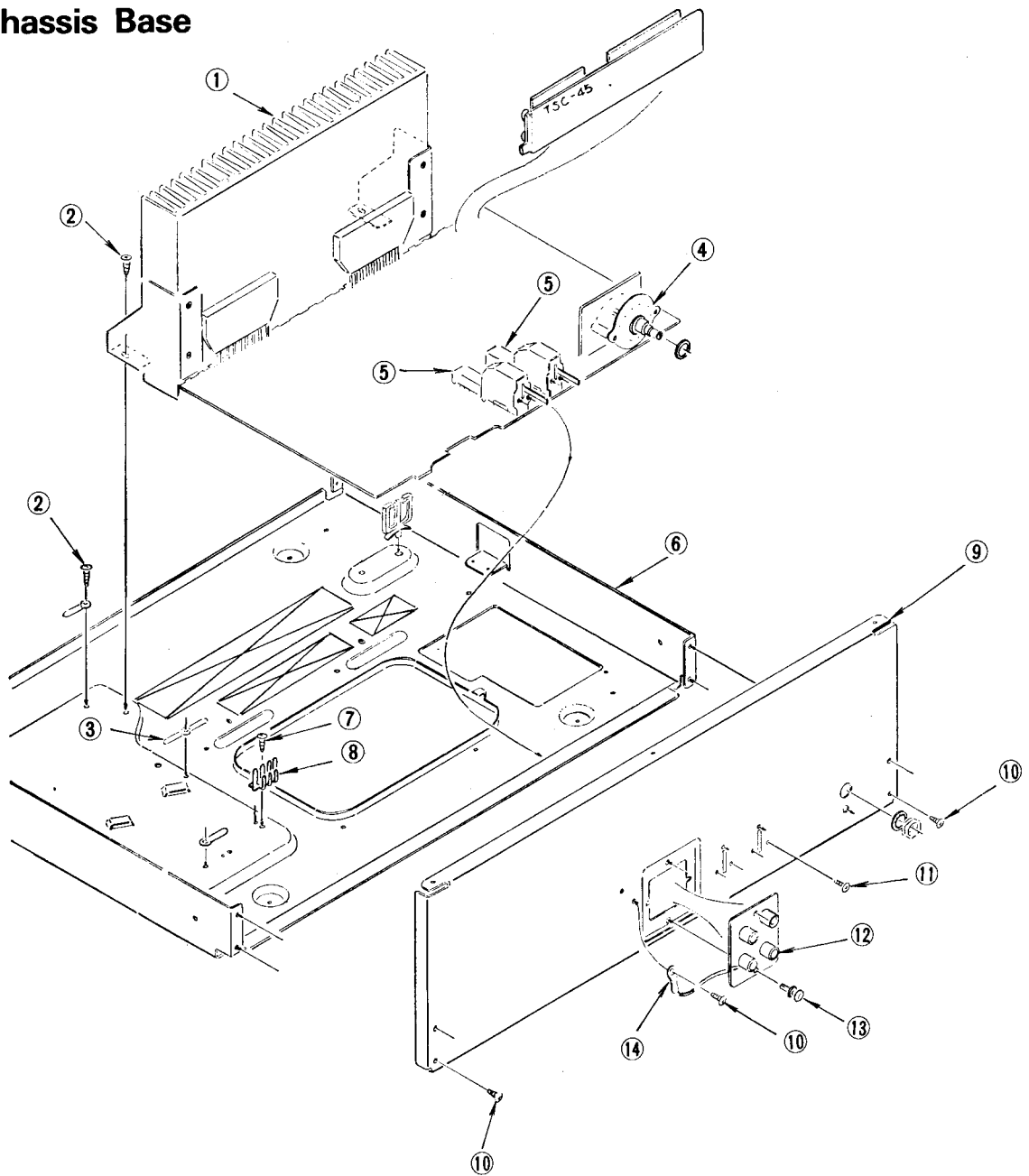
Parts List (Front Panel-1)

Item No.	Part Number	Description
1	E60482-001	Spacer (Loudness, Monitor, Dubbing)
2	E45979-008	Spacer (Power)
3	E21918-006	Front Panel Ass'y
4	E60441-001	Knob (Master Volume)
5	E60319-001	Lever Knob (Loudness, Monitor, Dubbing)
6	E60442-001	Knob (Balance, Bass, Treble)
7	E60318-001	Knob (Source, Mode, Speakers)
8	SBSB3008Z	Tapping Screw

Parts List (Front Panel-2)

Item No.	Part Number	Description
1	E03632-003	Flat Cable Ass'y (6 Pin)
2	TAC-392	Tone Control C.B. Ass'y
3	QSR0017-005	Rotary Switch (Mode: S3a~ b)
4	QSR0060-004	Rotary Switch (Speakers: S2a ~b)
5	QRD126J-221	Unflamable Carbon Resistor 220Ω, 1/2W
6	EVC4A2B-9F5	Variable Resistor (Volume: R406a~b)
7	QSL2212-003	Lever Switch (Loudness: S401a~b)
8	QVB8A2W-6F5E	Variable Resistor (Balance: R405)
9	QVC3A2C-215	Variable Resistor (Bass, Treble: R531a~b, R532a~b)
10	QLP3105-001	Pilot Lamp
11	E60176-001	Rubber Bushing
*12	QSL1135-012	Lever Switch (Power: S1) J-Type
12	QSL1135-011G	Lever Switch U-, P- and F-Type
12	QSL2235-103	Lever Switch E- and A-Type
13	E21920-001	Front Bracket
14	SSSP3006NS	Screw (Lever Switch)
15	SSSP3006NS	Screw (Power Switch)

5-(2) Chassis Base

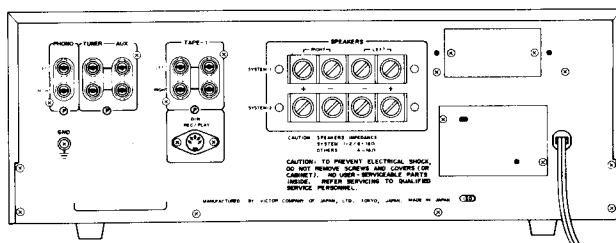


Parts List

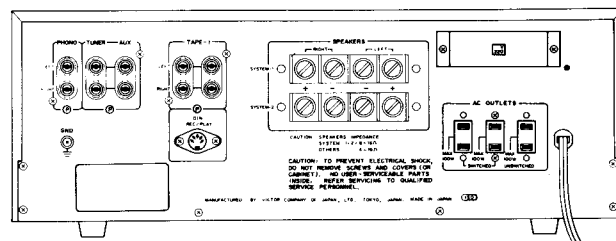
Item No.	Part Number	Description
1	E34260-001	Heat Sink
2	E60133-001	Special Screw
3	E47203-005	Wire Clamp
4	QSR0072-001	Rotary Switch (Source: S301a~b)
5	QSL4312-003	Lever Switch (Monitor: S302a~b) (Dubbing: S303a~b)
6	E10041-001	Chassis Base
7	E60133-001	Special Screw
8	E46651-001	Wrapping Terminal
9	E21920-001	Front Bracket
10	SBSB3008M	Tapping Screw
11	SSSP3006NS	Screw
13	E48729-001	Plastic Rivet
14	52868-3	Terminal

5-(3) Rear Panel

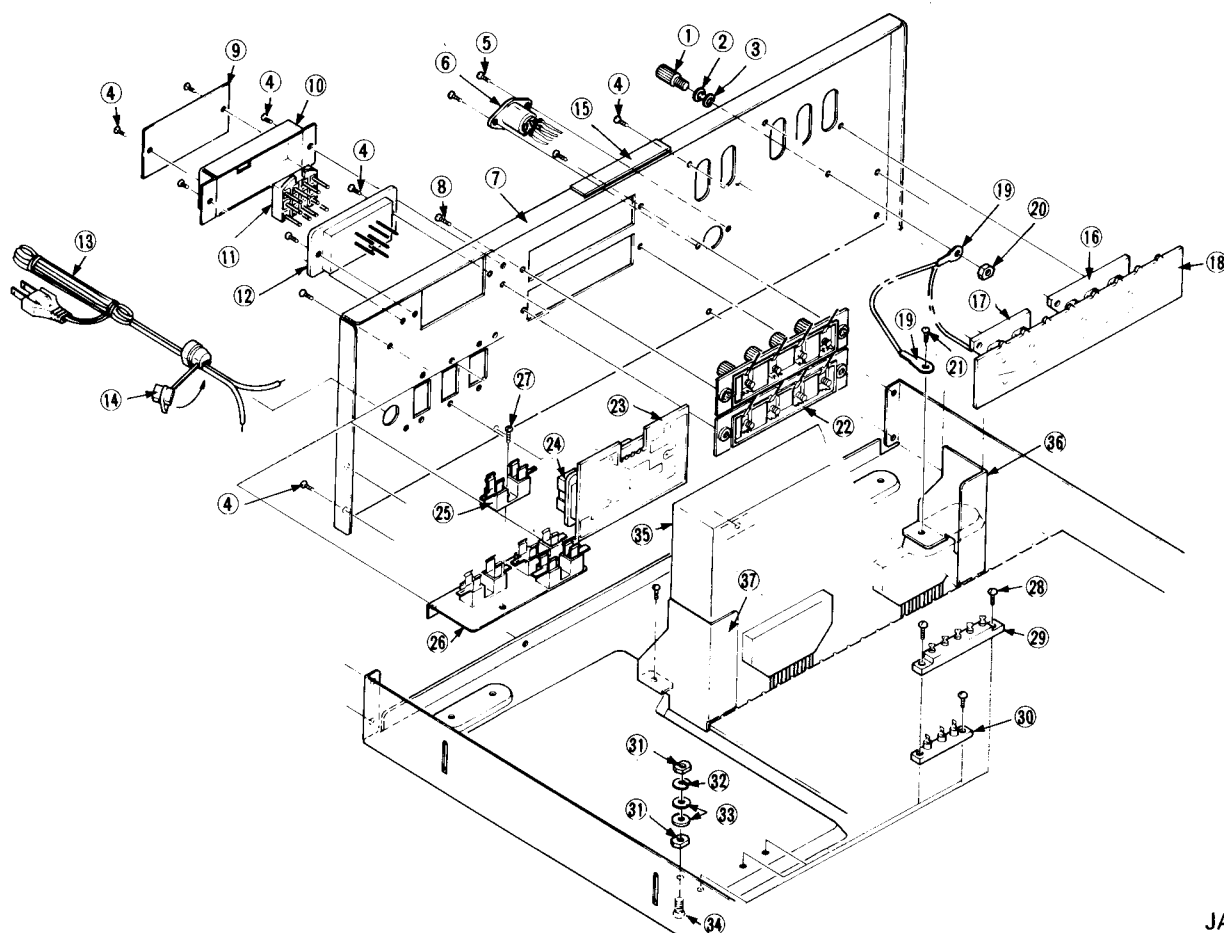
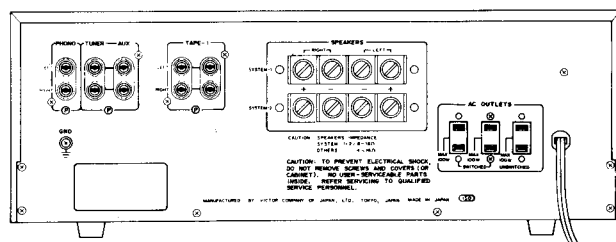
E- and A-types



U-, P- and F-types



J-type

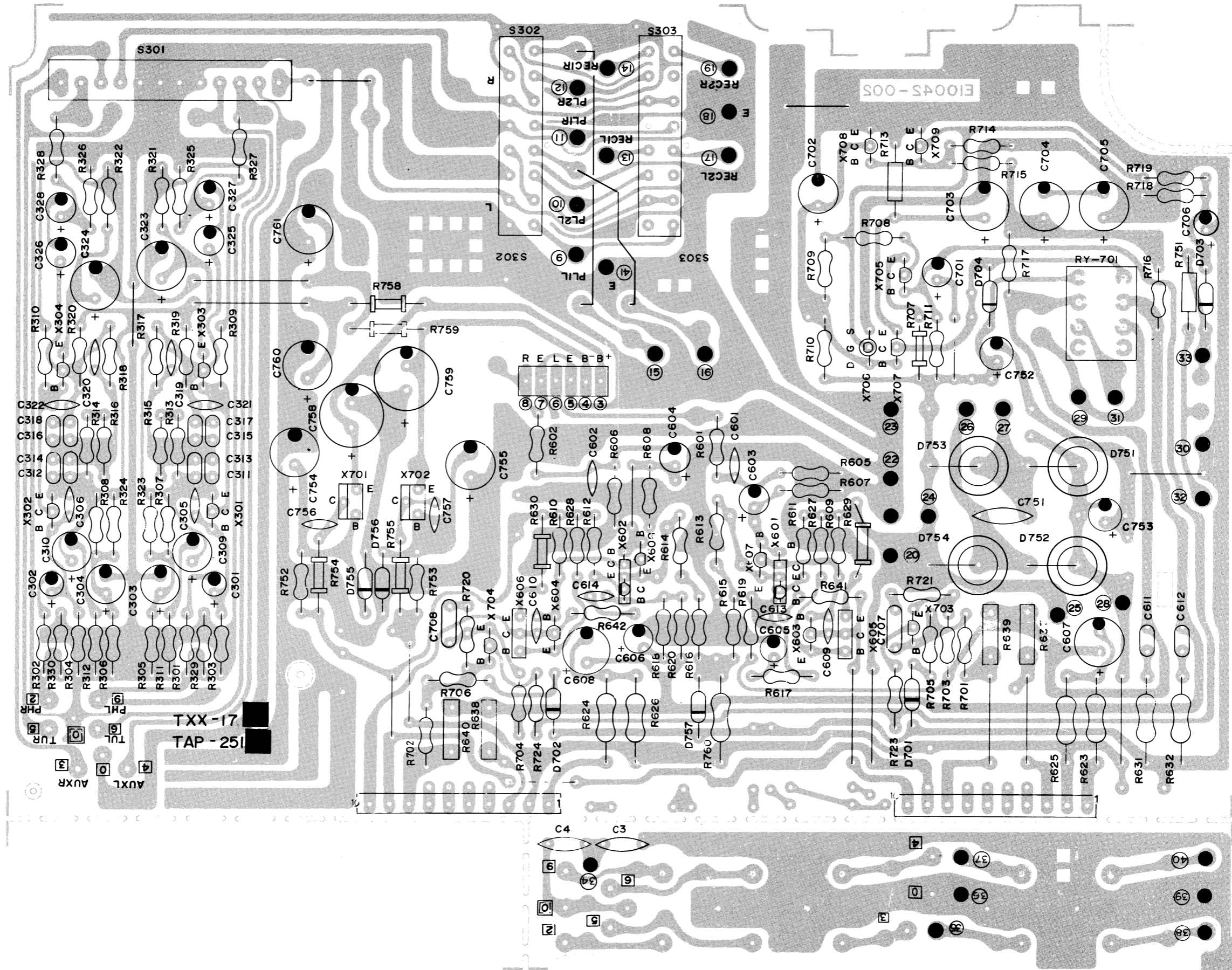


Parts List

Item No.	Part Number	Description
1	E49973-001	Ground Terminal
2	WSS4000N	Washer
3	E60215-001	Ground Washer
4	SBSB3008M	Tapping Screw
5	SBSB3008N	Tapping Screw
6	QMC0589-001UB	DIN Socket (U),(P),(F),(E),(A)
7	E21921-006	Rear Panel (J)
7	E21921-004	Rear Panel (U),(P),(F),(E),(A)
8	SPSP3008MS	Screw
9	E47150-054	Rating Plate (E)
9	E47150-055	Rating Plate (A)
10	E60841-001	Cover (U),(P),(F)
11	E03676-001	Voltage Select Plug (U),(P),(F)
12	E03676-002	Voltage Select Socket (U),(P),(F)
*13	QMP1200-244	Power Cord (UL)
13	QMP3800-240	Power Cord (SEV)
13	E03544-001	Power Cord (SEMKO)
13	E03551-002	Power Cord (SAA)
14	QHS3876-162	Cord Stopper (J),(U),(P),(F),(E)
14	QHS6374-252	Cord Stopper (A)
15	E3400-316	Felt Spacer
16	E03519-60D	Pin Jack Ass'y (J1)
17	E03519-40D	Pin Jack Ass'y (J2)
18	TSC-45B	Pin Jack C.B. Ass'y
19	52868-4	Terminal
20	NTB4000NS	Nut
21	E60133-001	Special Screw
22	E03572-004C	Speaker Terminal
*23	TPS-43B	AC Primary C.B. Ass'y (J)
23	TPS-62	AC Primary C.B. Ass'y (U),(P),(F)
24	QMC0637-001	AC Socket (J4)
25	QMG1321-002	Fuse Holder (E),(A)
26	E60843-001	Bracket (E),(A)
27	SBSB3008Z	Tapping Screw
28	E60133-002	Special Screw
29	T41479-00B	Terminal Board (A)
30	T42693-00B	Terminal Board (E)
31	NNZ3000ZS	Nut
32	WLS3000N	Washer
33	WNS3000N	Washer
34	LPSP3012NS	Ass'y Screw
35	E34260-001	Heat Sink
36	E60484-001	Heat Sink Bracket (Right)
37	E60484-002	Heat Sink Bracket (Left)

6. Circuit Board Ass'y and Parts List

6-(1) TAP-251B Main Amp. C.B. Ass'y



Transistors

Item No.	Part Number	Rating		Description
		Pc	fT	
X301, 302	2SA872AV (E)	300mW	200MHz	Silicon Transistor
X303, 304	2SC1775AV (F)	"	"	"
X601, 602	2SC1775AV (F1)	"	"	"
X603, 604	2SA872AV (E)	"	"	"
X605, 606	2SA794 (R)	1.2W	120MHz	"
X607, 608	2SC1775AV (F1)	300mW	200MHz	"
X701	2SD330V (D)	20W	8MHz	"
X702	2SB514V (D)	"	"	"
X703, 704	2SC1775AV (F)	300mW	200MHz	"
X705	2SA872AV (E)	"	"	"
X706	2SK30Y			FET
X707	2SD438 (E)	750mW	100MHz	Silicon Transistor
X708	2SC1775AV (F)	300mW	200MHz	"
X709	2SA872AV (E)	"	"	"

Integrated Circuit

Item No.	Part Number	Rating	Description
IC601, 602	STK0040		Darlington Transistor Power IC

Diodes

Item No.	Part Number	Rating	Description
D701~703	1S2473		Silicon Diode
D751~754	S-3		"
D755, 756	WZ-240		Zener Diode
D757	WZ-017A		"

Resistors

Item No.	Part Number	Rating		Description
R301, 302	QRD141J-222	2.2k Ω	1/4W	Carbon Resistor
R303, 304	QRD141J-224	220k Ω	"	"
R305, 306	QRD141J-473	47k Ω	"	"
R307, 308	QRZ0019-104	100k Ω	"	Carbon Resistor (Low Noise)
R309, 310	QRD141J-153	15k Ω	"	Carbon Resistor
R311, 312	QRD141J-331	330 Ω	"	"
R313, 314	QRD141J-273	27k Ω	"	"
R315, 316	QRD141J-224	220k Ω	"	"
R317, 318	QRD141J-183	18k Ω	"	"
R319, 320	QRD141J-562	5.6k Ω	"	"
R321, 322	QRD141J-221	220 Ω	"	"
R323, 324	QRD141J-333	33k Ω	"	"
R325, 326	QRD141J-683	68k Ω	"	"
R327, 328	QRD141J-471	470 Ω	"	"
R329, 330	QRD141J-683	68k Ω	"	"
R601, 602	QRD141J-222	2.2k Ω	"	"
R605, 606	QRZ0019-104	100k Ω	"	Carbon Resistor (Low Noise)
R607, 608	QRD141J-154	150k Ω	"	Carbon Resistor
R609~612	QRD141J-182	1.8k Ω	"	"
R613, 614	QRD141J-121	120 Ω	"	"
R615, 616	QRD141J-222	2.2k Ω	"	"
R617, 618	QRD141J-272	2.7k Ω	"	"
R619, 620	QRD141J-473	47k Ω	"	"
R623, 624	QRG017J-392	3.9k Ω	1W	Unflamable O.M.F. Resistor
R625, 626	QRG017J-222	2.2k Ω	"	"
R627, 628	QRD141J-182	1.8k Ω	1/4W	Carbon Resistor
R629, 630	QRD126J-100	10 Ω	1/2W	Unflamable Carbon
R631, 632	QRG017J-100	"	1W	Unflamable O.M.F. Resistor
R637~640	QRM054K-R47	0.47 Ω	5W	Metal Plate Resistor
R641, 642	QRD141J-103	10k Ω	1/4W	Carbon Resistor
R701, 702	QRD141J-222	2.2k Ω	"	"

Resistors

Item No.	Part Number	Rating	Description
R703, 704	QRD141J-471	470Ω 1/4W	Carbon Resistor
R705, 706	QRD141J-562	5.6kΩ "	"
R707	QRD126J-471	470Ω 1/2W	Unflamable Carbon Resistor
R708	QRD141J-473	47kΩ 1/4W	Carbon Resistor
R709	QRD141J-224	220kΩ "	"
R710	QRD141J-823	82kΩ "	"
R711	QRZ0019-104	100kΩ "	Carbon Resistor (Low Noise)
R713	QRG011J-181	180Ω 1W	Oxide Metal Film Resistor
R714	QRD141J-822	8.2kΩ 1/4W	Carbon Resistor
R715	QRD141J-562	5.6kΩ "	"
R716, 717	QRD141J-223	22kΩ "	"
R718	QRD141J-152	1.5kΩ "	"
R719	QRD141J-822	8.2kΩ "	"
R720, 721	QRD141J-101	100Ω "	"
R751	QRD126J-330	33Ω 1/2W	Unflamable Carbon Resistor
R752, 753	QRD141J-392	3.9kΩ 1/4W	Carbon Resistor
R754, 755	QRD126J-221	220Ω 1/2W	Unflamable Carbon Resistor
R758, 759	QRD126J-560	56Ω "	"

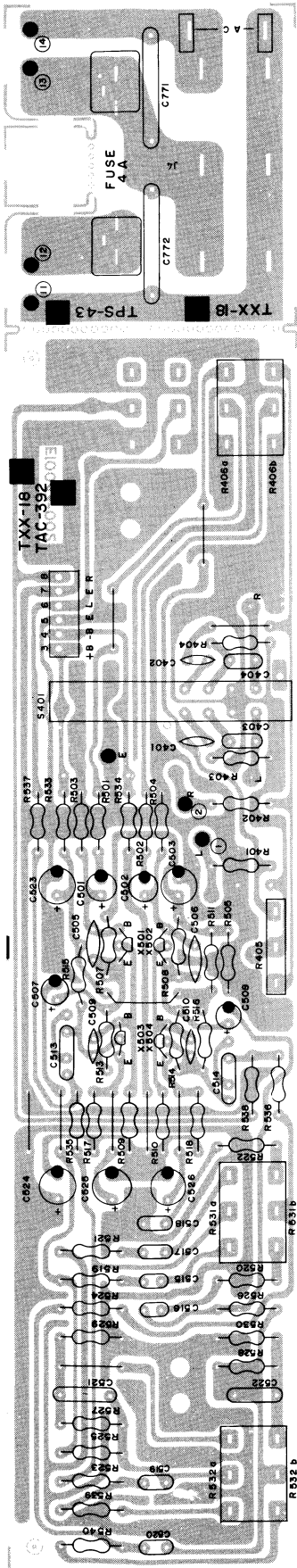
Capacitors

Item No.	Part Number	Rating	Description
C301, 302	QEB41EM-225	2.2μF 25V	L.L.C. Electrolytic Capacitor
C303, 304	QEW41CA-476	47μF 16V	Electrolytic Capacitor
C305, 306	QCS11HJ-471	470pF 50V	Ceramic Capacitor
C309, 310	QEW41AA-107	100μF 10V	Electrolytic Capacitor
C311, 312	QFM41HJ-123	0.012μF 50V	Mylar Capacitor
C313~316	QFM41HJ-272	0.0027μF "	"
C317, 318	QFM41HJ-152	0.0015μF "	"
C319, 320	QCS11HJ-181	180pF "	Ceramic Capacitor
C321, 322	QCS11HJ-100	10pF "	"
C323, 324	QEW41AA-227	220μF 10V	Electrolytic Capacitor
C325~328	QEB41EM-106	10μF 25V	L.L.C. Electrolytic Capacitor
C601, 602	QCS11HJ-271	270pF 50V	Ceramic Capacitor
C603, 604	QEB41EM-475	4.7μF 25V	L.L.C. Electrolytic Capacitor
C605, 606	QEW41AA-476	47μF 10V	Electrolytic Capacitor
C607, 608	QEW41HA-476	" 50V	"
C609, 610	QCS11HJ-390	39pF "	Ceramic Capacitor
C611, 612	QFM41HK-473	0.047μF "	Mylar Capacitor
C613, 614	QCS11HJ-220	22pF "	Ceramic Capacitor
C701	QEW41EA-106	10μF 25V	Electrolytic Capacitor
C702	QEW41AA-107	100μF 10V	"
C703~705	QEW41AA-227	220μF "	"
C706	QEW41CA-106	10μF 16V	"
C707, 708	QFM41HK-104	0.1μF 50V	Mylar Capacitor
C751	QCF12HP-103	0.01μF 500V	Ceramic Capacitor
C752, 753	QEW41HA-106	10μF 50V	Electrolytic Capacitor
C754, 755	QEW41HA-476	47μF "	"
C756, 757	QCF11HP-103	0.01μF "	Ceramic Capacitor
C758, 759	QEW41EA-227	220μF 25V	Electrolytic Capacitor
C760, 761	QEW41EA-476	47μF "	"

Others

Item No.	Part Number	Rating	Description
S301	QSR0072-001		Rotary Switch (Source Selector)
S302	QSL4312-003		Lever Switch (Tape Monitor)
S303	QSL4312-003		" (Tape Dubbing)
RY701	ESK1D24-216		Relay
	E49768-001		6 Pin Socket
	E49545-001		Pin

6-(2) TAC-392 Tone Control C.B. Ass'y



Transistors

Item No.	Part Number	Rating		Description
		Pc	fT	
X501, 502	2SA872AV (E)	300mW	200MHz	Silicon Transistor
X503, 504	2SC1775AV (E)	"	"	"

Resistors

Item No.	Part Number	Rating		Description
		Value	Power	
R401, 402	QRD141J-472	4.7k Ω	1/4W	Carbon Resistor
R403, 404	QRD141J-223	22k Ω	"	"
R405	QVB8A2W-6F5E	250k Ω	"	Variable Resistor (Balance)
R406	EVC4A2B-9F5	"	"	(Master Volume)
R501, 502	QRD141J-222	2.2k Ω	1/4W	Carbon Resistor
R503, 504	QRD141J-224	220k Ω	"	"
R505	QRD141J-273	27k Ω	"	"
R507, 508	QRD141J-104	100k Ω	"	"
R509, 510	QRD141J-223	22k Ω	"	"
R511	QRD141J-393	39k Ω	"	"
R513, 514	QRD141J-224	220k Ω	"	"
R515, 516	QRD141J-392	3.9k Ω	"	"
R517, 518	QRD141J-221	220 Ω	"	"
R519, 520	QRD141J-152	1.5k Ω	"	"
R521, 522	QRD141J-101	100 Ω	"	"
R523, 524	QRD141J-562	5.6k Ω	"	"
R525, 526	QRD141J-472	4.7k Ω	"	"
R527, 528	QRD141J-183	18k Ω	"	"
R529, 530	QRD141J-102	1k Ω	"	"
R531, 532	QVC3A2C-215	100k Ω	"	Variable Resistor (Bass, Treble)

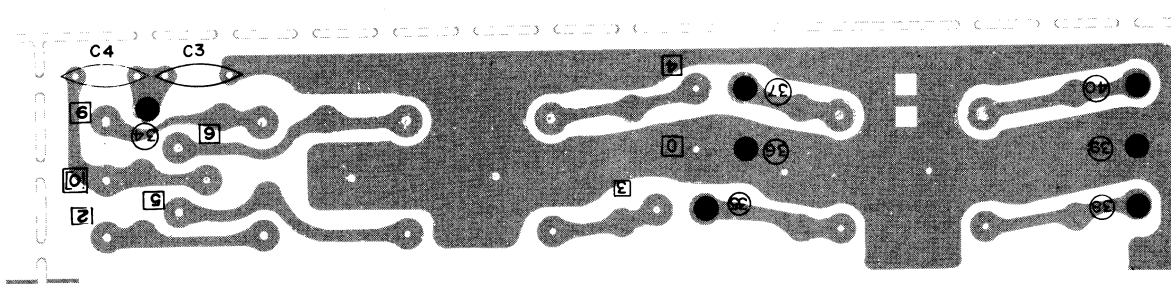
Capacitors

Item No.	Part Number	Rating		Description
		Value	Voltage	
C401, 402	QCS11HJ-181	180pF	50V	Ceramic Capacitor
C403, 404	QFM41HK-103	0.01 μ F	"	Mylar Capacitor
C501, 502	QEB41EM-335	3.3 μ F	25V	Electrolytic Capacitor
C503	QEW41CA-476	47 μ F	16V	"
C505, 506	QCS11HJ-471	470pF	50V	Ceramic Capacitor
C507, 508	QEW41CA-106	10 μ F	16V	Electrolytic Capacitor
C509, 510	QCS11HJ-100	10pF	50V	Ceramic Capacitor
C513, 514	QFM41HK-224	0.22 μ F	"	Mylar Capacitor
C515, 516	QFM41HK-272	0.0027 μ F	"	"
C517~520	QFM41HK-223	0.022 μ F	"	"
C521, 522	QFM41HK-224	0.22 μ F	"	"
C523, 524	QEW41EA-476	47 μ F	25V	Electrolytic Capacitor

Others

Item No.	Part Number	Rating	Description
	E49768-001		6 Pin Socket
	E49545-001		Pin

6-(3) TSC-45B Pin Jack C.B. Ass'y



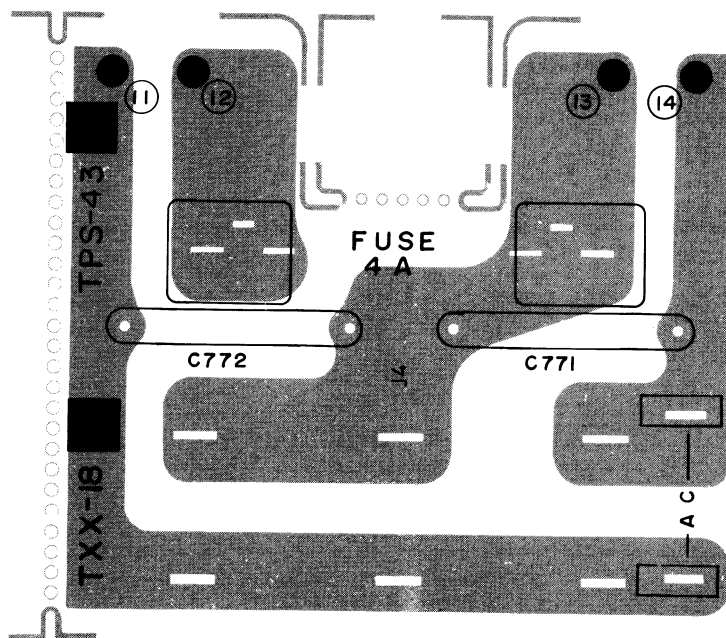
Capacitor

Item No.	Part Number	Rating	Description
C3, 4	QCF11HP-473	0.047 μ F 50V	Ceramic Capacitor

Others

Item No.	Part Number	Rating	Description
J1	E03591-60D		Pin Jack Ass'y (6 Pins)
J2	E03591-40D		" (4 Pins)

6-(4) TPS-43B AC Primary C.B. Ass'y (J-type only)



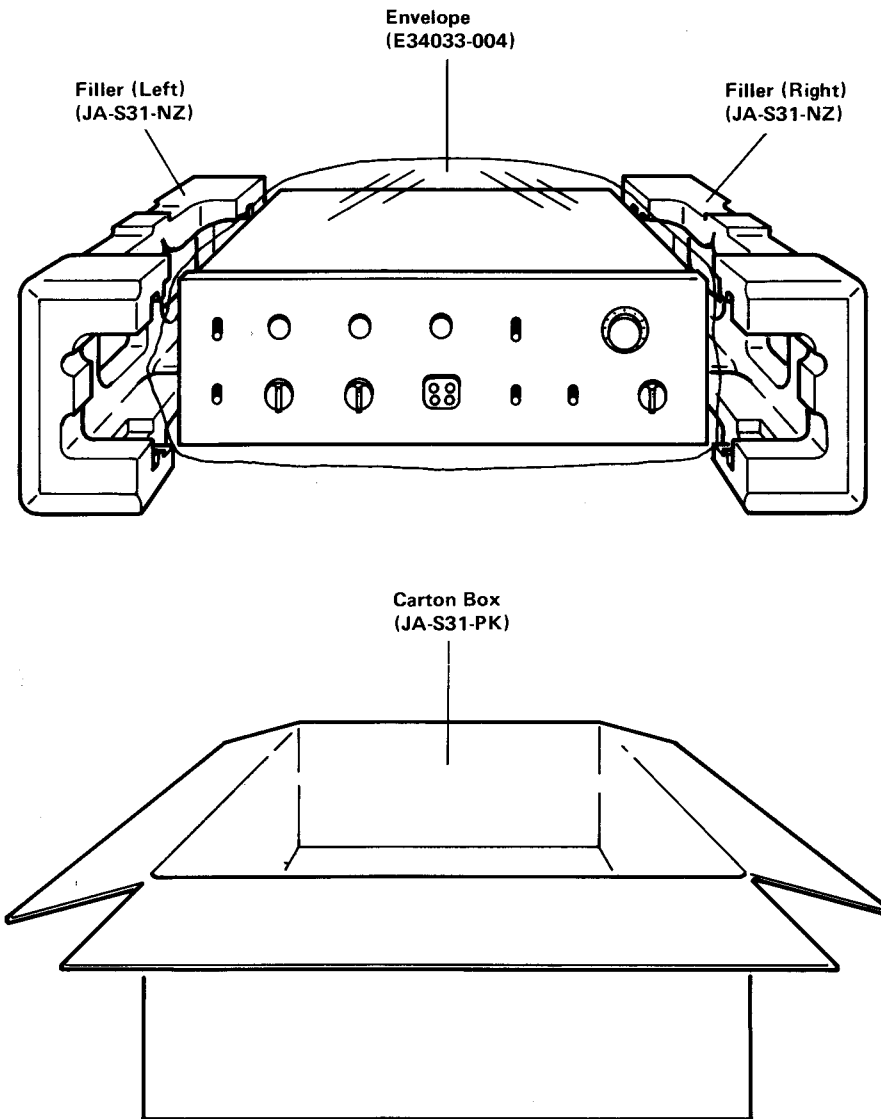
Capacitors

Item No.	Part Number	Rating	Description
C771	QFH52BM-103	0.01 μ F AC 125V	Metalized Mylar
C722	QFH72BM-103	" "	" (UL Approved)

Others

Item No.	Part Number	Rating	Description
J4	QMC0637-001 E03675-003		AC Socket Fuse Clip

7. Packing Materials List



8. Accessories List

Part Number	Part Name	Q'ty	Description
E30580-510A	Instruction Book	1	
E64207-002	Envelope	1	for Accessories
BT-20020C	Warranty Card	1	for J-type only
QMF60R1-2R3	Fuse	1	2.3A
QMF60R1-4R0	Fuse	1	4A
E7958-L	Fuse Label	1	} for U-, F- and P-types only
E64208-001	Envelope for Fuses	1	
BT20014B	Warranty Card	1	for P-type only

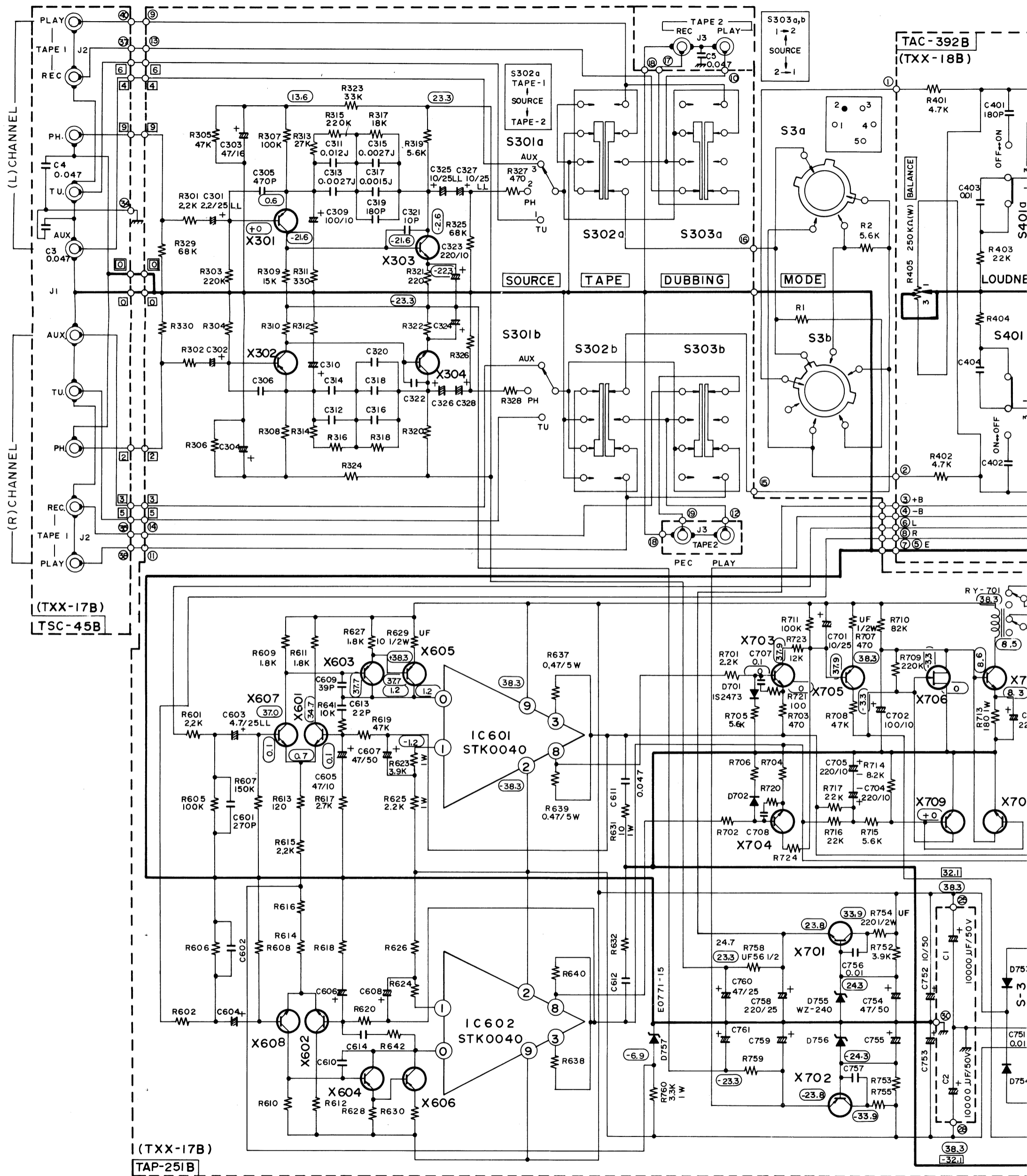
9. Parts List with Specified Numbers for Designated Areas

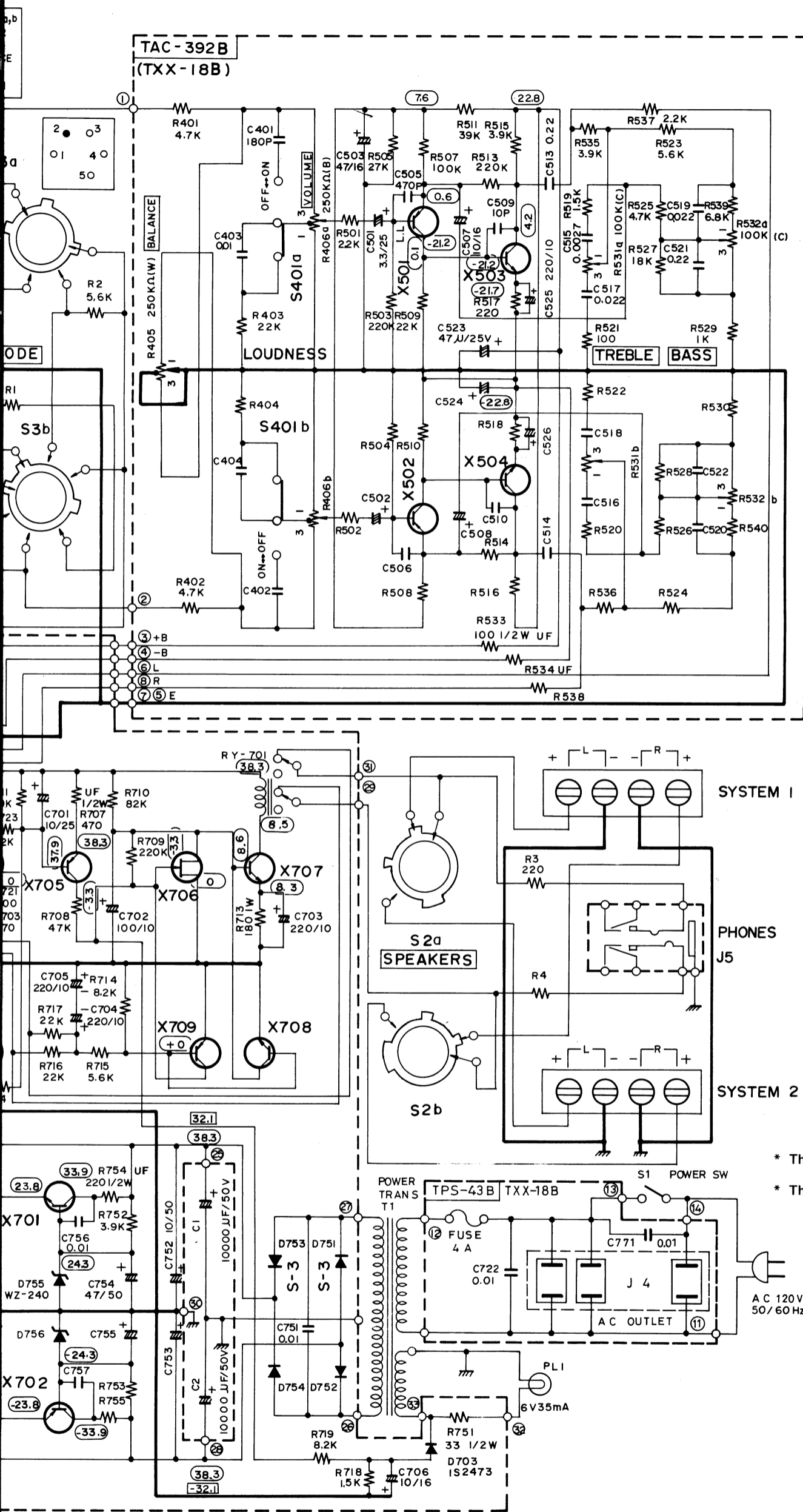
Page	Item No.	Description	For U.S.A.	For Europe Sweden Norway Finland Switzerland and Denmark	For Australia	For Other Countries
5	12	Power Transformer	E03075-30E	E03075-30D	E03075-30D	E03075-30C
7		Power Switch	QSL1135-012	QSL2235-103	QSL2235-103	QSL1135-011G
16		AC Primary C.B. Ass'y	TPS-43B			TPS-62
9	24	Rear Panel	E21921-003	E21921-004	E21921-004	E21921-004
10		AC Socket	QMC0637-001			
10		Power Cord	QMP1200-244	QMP3800-240 (Switzerland) E03544-001 (Sweden)	E03551-002	QMP1200-244 E03329-001 (Europe)
10	14	Cord Stopper	QHS3876-162	QHS3876-162	QHS6374-252	QHS3876-162
10	25	Fuse Holder	E03675-003	QMG1321-002	QMG1321-002	E03675-003
17		Fuse (Primary)	QMF61U1-4R0	QMF51A2-2R0	QMF51A2-2R0	100V/120V: QMF60R1-4R0 220V/240V: QMF60R1-2R3
17		Fuse (Secondary) 200mAT 4AT		QMF51A2-R20 QMF51A2-4R0	QMF51A2-R20 QMF51A2-4R0	
10	12	Voltage Select Socket				E03676-002
10	11	Voltage Select Plug				E03676-001
10	26	Bracket (for Primary Fuse)		E60843-001	E60843-001	
10	29, 30	Terminal Strip (for Primary Wiring)		T42693-00B	T41479-00B	
10	6	DIN Socket		QMC0589-001UB	QMC0589-001UB	QMC0589-001UB
17		Warranty Card	BT-20020C			BT20014B (P-Typ only)

Comparison Table for Line Voltage, Power Consumption, Primary Fuse Rating

JA-S31	Line Voltage	Power Consumption	Primary Fuse Rating
U.S.A.	AC 120V, 50/60Hz	120W	4A
AUSTRALIA	AC 240V, 50Hz	330W	2AT
SCANDINAVIA & SWITZERLAND	AC 220V, 50Hz	330W	2AT
OTHER AREAS	AC 100V/120V/220V/240V, 50/60Hz	330W	100V/120V: 4A 220V/240V: 2.3A

10. Schematic Diagram





※ FUNCTION (S301a-b)

- 1. TUNER
- 2. PHONO
- 3. AUX

※ MODE SW (S3a-b)

- 1 REVERSE } STEREO
- 2 NORMAL }
- 3 L+R } MONO
- 4 L }
- 5 R }

※ SPEAKERS (S2a-b)

- 1 OFF
- 2 SYSTEM-1
- 3 SYSTEM-2
- 4 SYSTEM-1+2

※ TRANSISTORS LIST

- [EQUALIZER]
 X301, X302 — 2SA872AV(E)
 X303, X304 — 2SC1775AV(F)

[TONE CONTROL]

- X501, X502 — 2SA872AV(E)
 X503, X504 — 2SC1775AV(F)

[POWER AMP]

- X601, X602 — 2SC1775AV(F1)
 X603, X604 — 2SA872AV(E)
 X605, X606 — 2SA794(R)

[POWER SUPPLY]

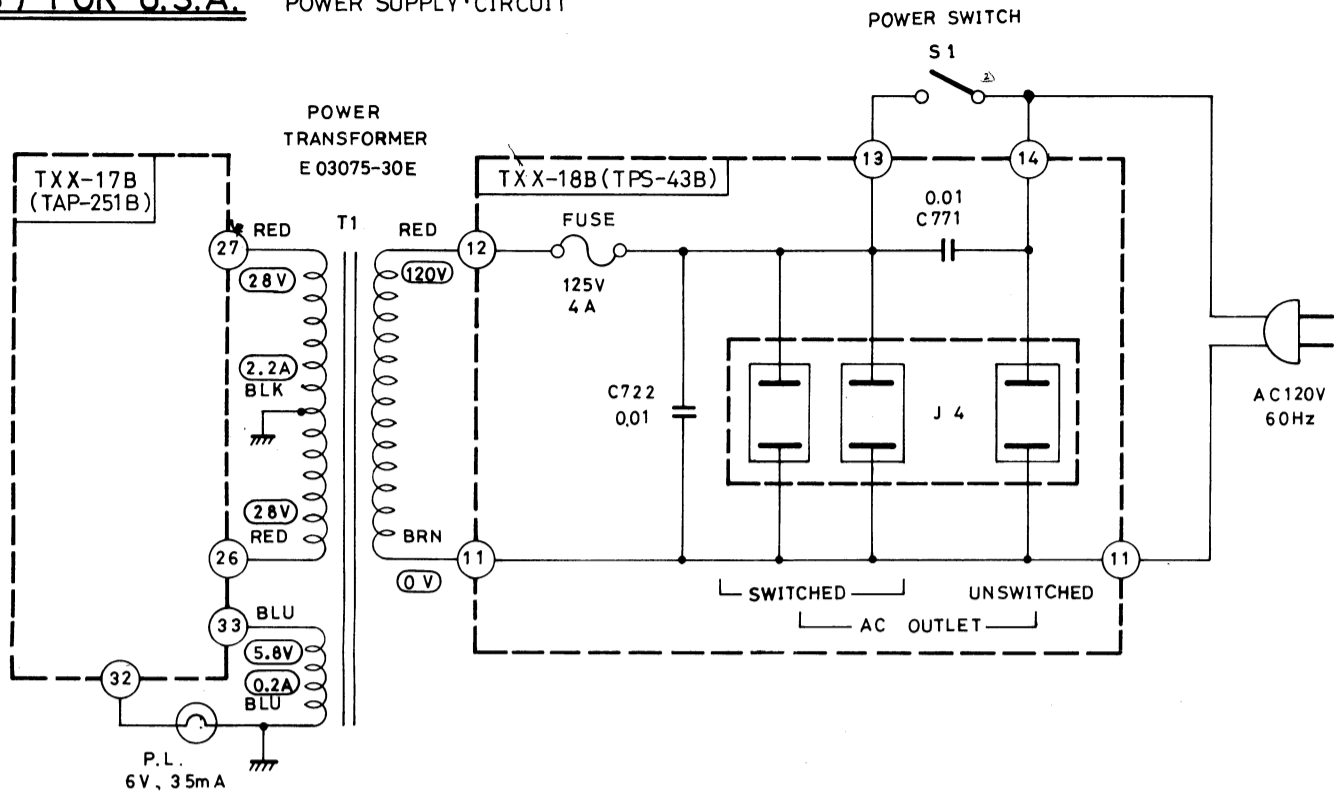
- X701 — 2SD330V(D)
 X702 — 2SB514V(D)

[PROTECTOR]

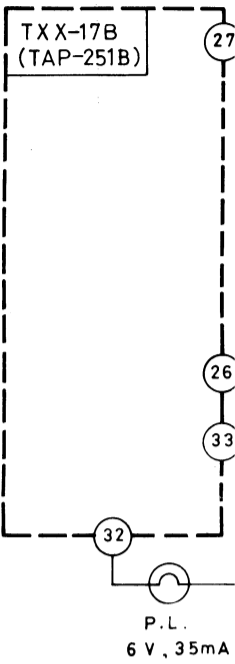
- X703, X704 — 2SC1775AV(F)
 X705, X709 — 2SA872AV(E)
 X706 — 2SK30Y
 X707 — 2SD438(E)

* The voltages in were measured at no load with DC VTVM.
 * The voltages in were measured at EIAJ output power with DC VTVM.

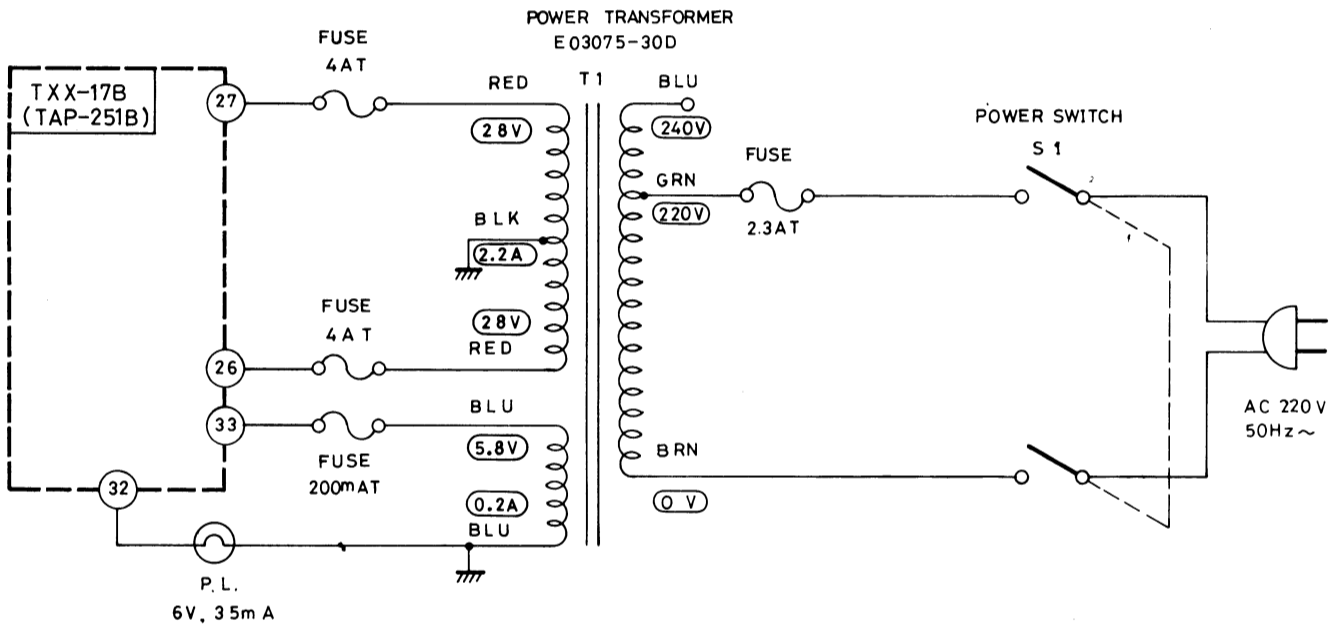
(J) FOR U.S.A. POWER SUPPLY CIRCUIT



(U)(P)(F) FOR



(E) FOR EUROPE POWER SUPPLY CIRCUIT

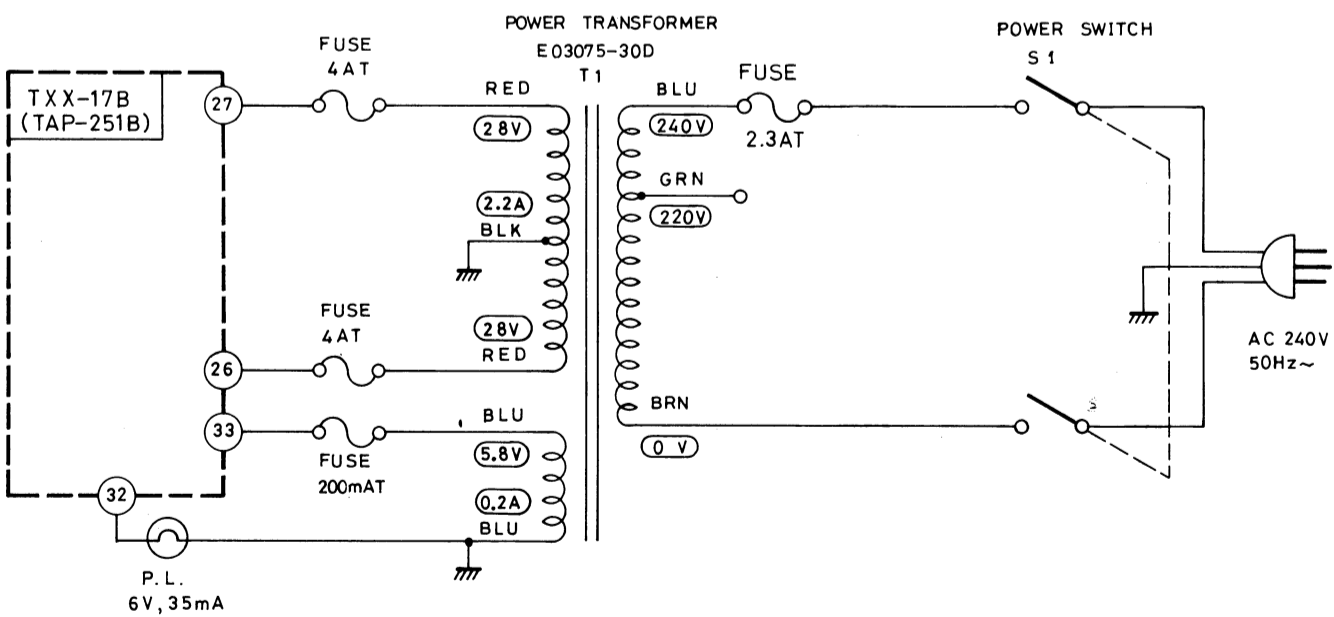


(E)(A)(U)(P)

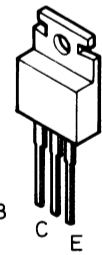
TO
RIGHT CHANNEL
TAPE-1 PLAYBACK
TERMINAL

TO
LEFT CHANNEL
TAPE-1 PLAYBACK
TERMINAL

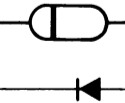
(A) FOR AUSTRALIA POWER SUPPLY CIRCUIT



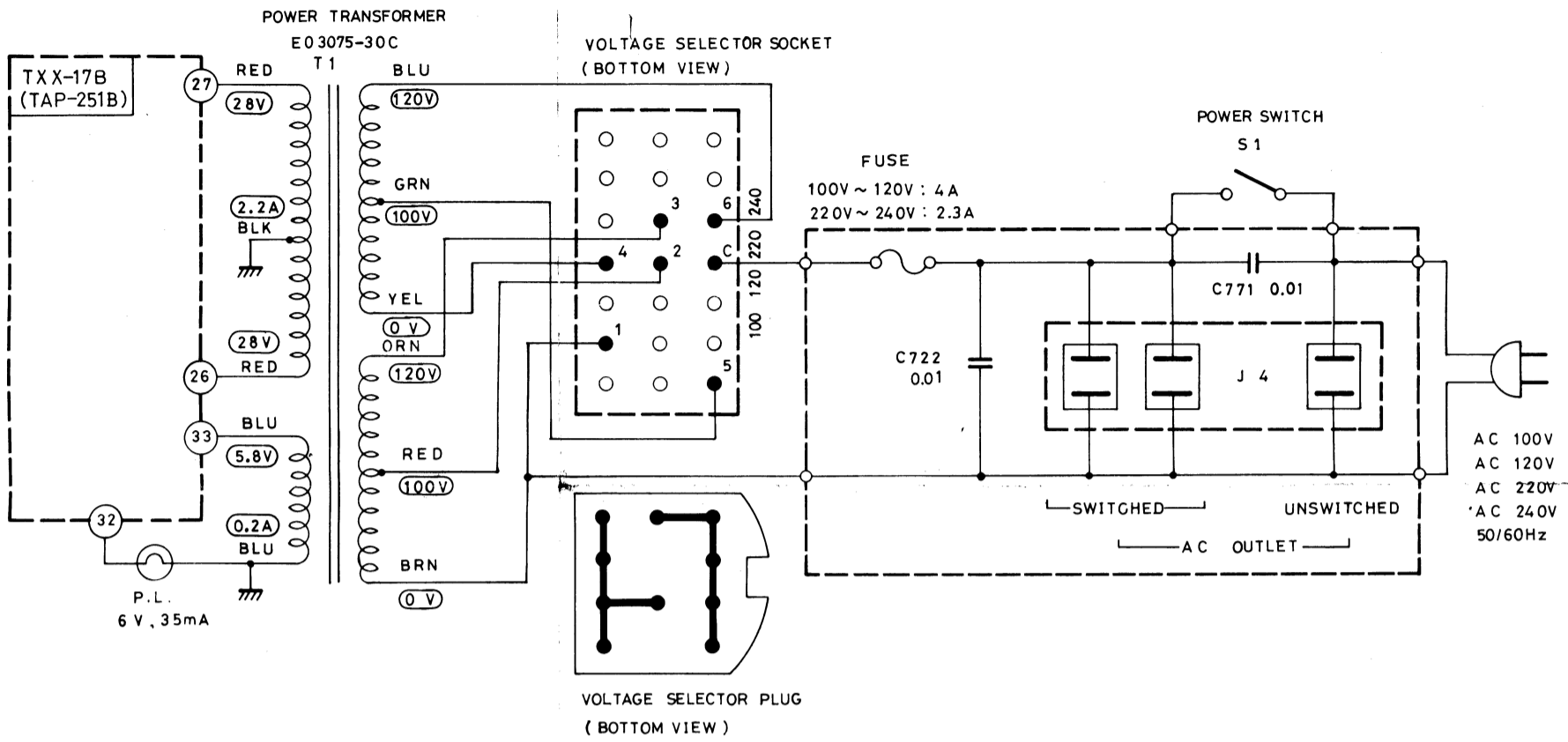
2SB514
2SD330V



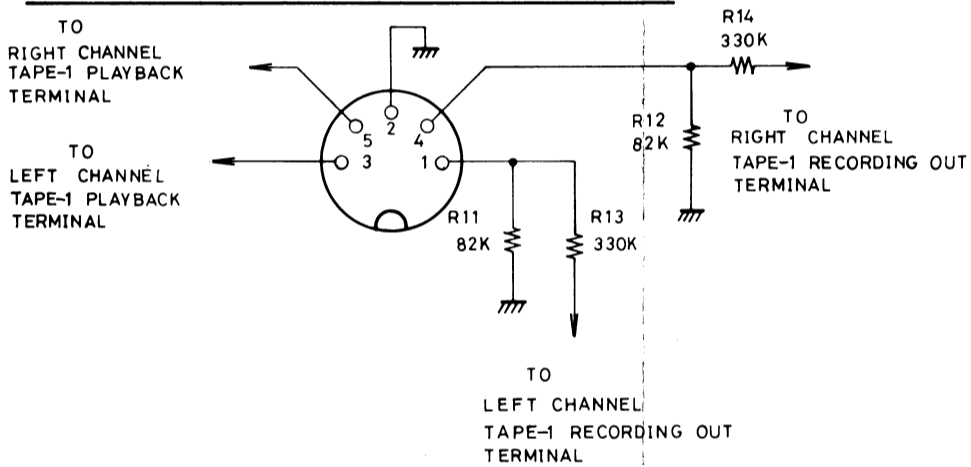
1S273



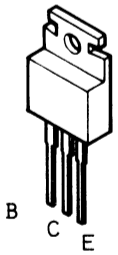
(U)(P)(F) FOR PACEX, NEX AND OTHER COUNTRIES POWER SUPPLY CIRCUIT



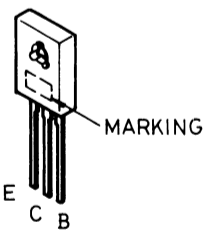
(E)(A)(U)(P)(F) DIN TAPE TERMINAL



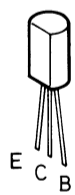
2SB514
2SD330V



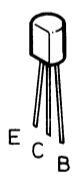
2SA794



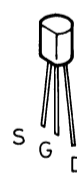
2SD438



2SA872AV
2SC1775AV



2SK30



1S273

1S273

WZ-240

WZ-240