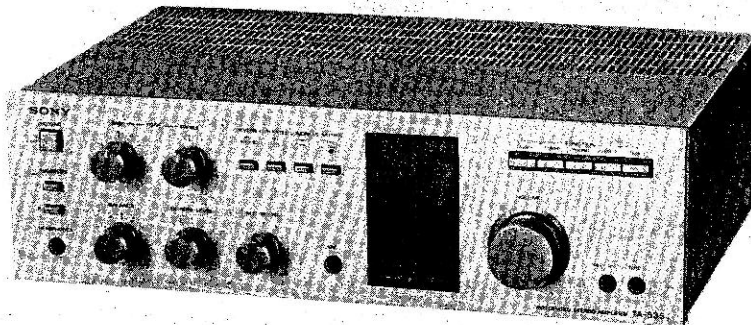


TA-535

*Canadian Model
AEP Model
E Model
UK Model
SCN Model*



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

GENERAL

Power Requirements:	120 V ac, 60 Hz (Canadian model) 220 V ac, 50 Hz (AEP, SCN model) 240 V ac, 50 Hz (UK model) 120, 220 or 240 V ac adjustable, 50/60 Hz (E model)
Power Consumption:	145 W (Canadian model) 275 W (AEP, E, SCN model) 360 W (UK model)
AC Outlets:	1 switched (100 W), } Canadian, AEP 2 unswitched (total 200 W) } E, UK, SCN model
Dimensions:	Approx. 430 (w) x 135 (h) x 300 (d) mm 17 (w) x 5 1/4 (h) x 11 7/8 (d) inches (Canadian model) 430 (w) x 130 (h) x 300 (d) mm 17 (w) x 5 1/8 (h) x 11 7/8 (d) inches (AEP, UK, E, SCN model) including projecting parts and controls
Weight:	Approx. 8.1 kg, 17 lb 14 oz (net) Approx. 9.3 kg, 20 lb 9 oz (in shipping carton)

— Continued on page 2 —

SONY®

SERVICE MANUAL

AMPLIFIER SECTION

Continuous RMS Power Output: At 1 kHz
 [less than 0.05% (8Ω) 43 + 43 W (8 Ω)
 or 0.06% (4Ω) THD, 43 + 43 W (4 Ω)
 both channels driven At 20 Hz – 20 kHz
 simultaneously] 40 + 40 W (8 Ω)
 (AEP, UK, E model) 40 + 40 W (4 Ω)
 According to DIN45500
 43 + 43 W (8 Ω)
 43 + 43 W (4 Ω)

Power Bandwidth: 10 Hz – 40 kHz (8 Ω)
 (IHF) (AEP, UK, E model)

Damping Factor: 30 (8 Ω, 1 kHz)

Frequency Response: PHONO RIAA equalization curve ± 0.3 dB
 TUNER
 AUX } 10 Hz – 50 kHz +0 dB
 TAPE 1 } -3 dB
 TAPE 2 }
 MIC 100 Hz – 10 kHz +0 dB
 -3 dB

Power Output and Total Harmonic Distortion: With 8 ohm loads, both channels driven,
 (Canadian model) from 20 – 20,000 Hz; rated 40 watts per
 channel minimum RMS power, with no
 more than 0.05 % total harmonic distortion
 from 250 milliwatts to rated output.

Inputs:

	Sensitivity	Impedance	Maximum input capability (at 1kHz)	S/N (weighting network, input level)
PHONO	2.5 mV (-50 dB)	50 kΩ	160 mV	80 dB (A, 2.5 mV)
TUNER AUX TAPE 1 TAPE 2	150 mV (-14.5 dB)	50 kΩ	—	95 dB (A, 150 mV)
MIC	2 mV (-51.5 dB)	10 kΩ	—	—

Output:

REC OUT 1, 2	Voltage 150 mV, Impedance 10 kΩ
HEADPHONES	Accepts low and high impedance headphones
SPEAKER	Accepts speakers of 4 – 16 Ω (AEP, E, UK model), 8 – 16 Ω (Canadian model)

Harmonic Distortion: Less than 0.05 % at rated output (8 Ω)
 Less than 0.06 % at rated output (4 Ω)

IM Distortion: Less than 0.05 % at rated output
 (60Hz : 7kHz = 4 : 1)

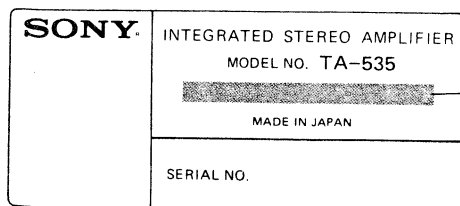
Tone Controls: BASS ± 10 dB at 100 Hz
 TREBLE ± 10 dB at 10 kHz

Loudness: +9 dB at 100 Hz
 (att. 30dB)

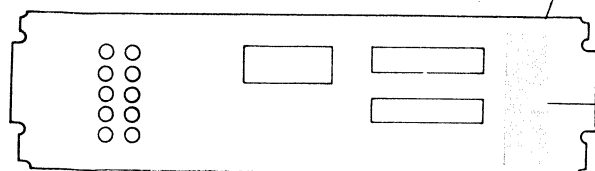
Filter: LOW 6 dB/oct below 30 Hz

0 dB = 0.775 V

MODEL IDENTIFICATIONS



— Specification Label —

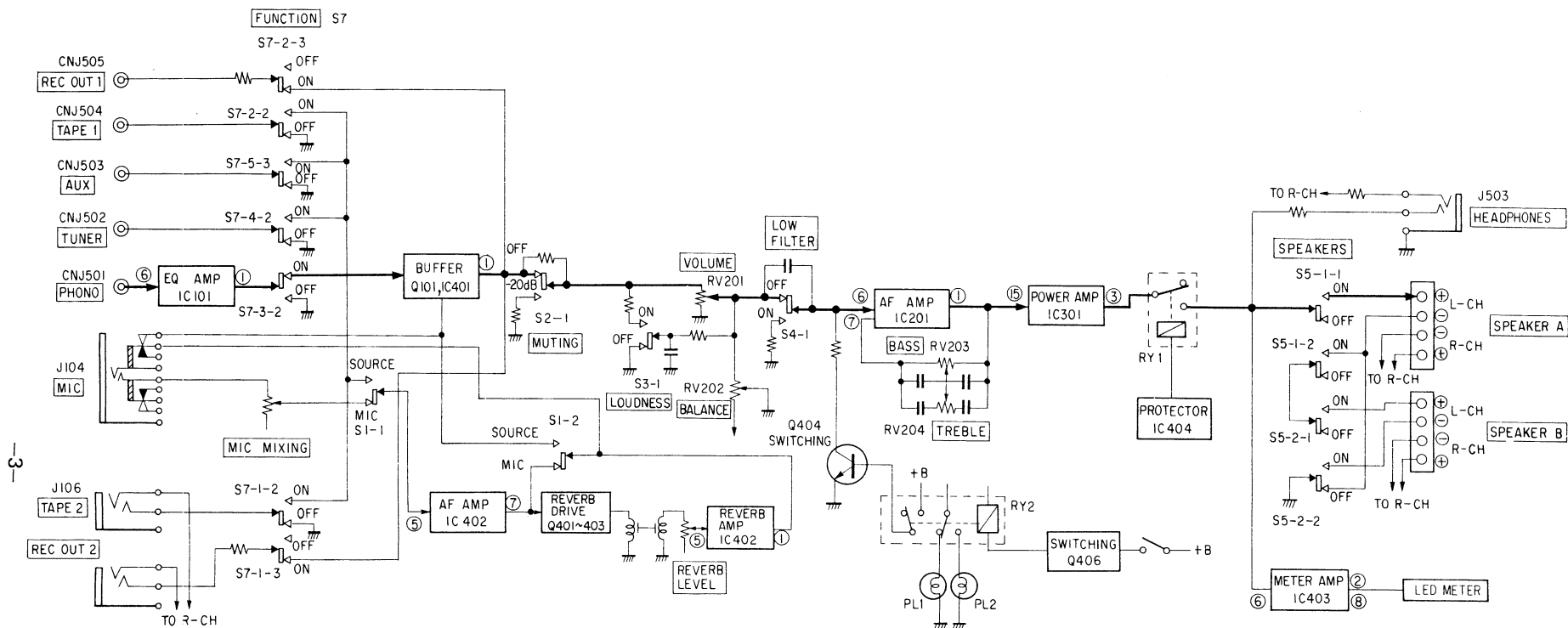


— Rear Panel —

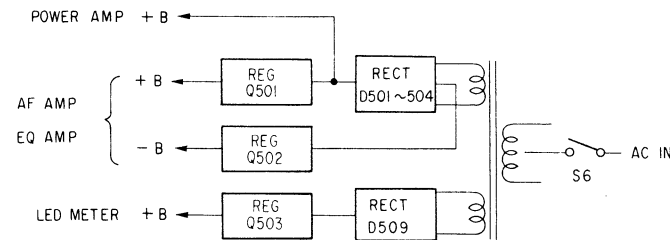
Canadian model: 120V 60Hz 145W
UK model: 240V ~ 50Hz 360W
AEP, SCN model: 220V ~ 50Hz 275W
E1, E2 model: 120, 220, 240V ~ 50/60Hz 275W

AC OUTLET
AEP, E1 model:

E2 model:
SCN model: NONE AC OUTLET



SECTION 1
BLOCK DIAGRAM



SECTION 2 DISASSEMBLY

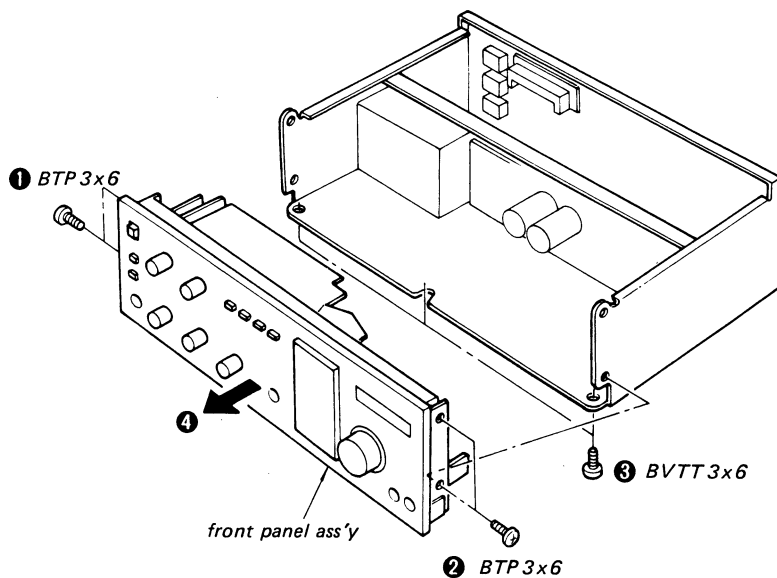
REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

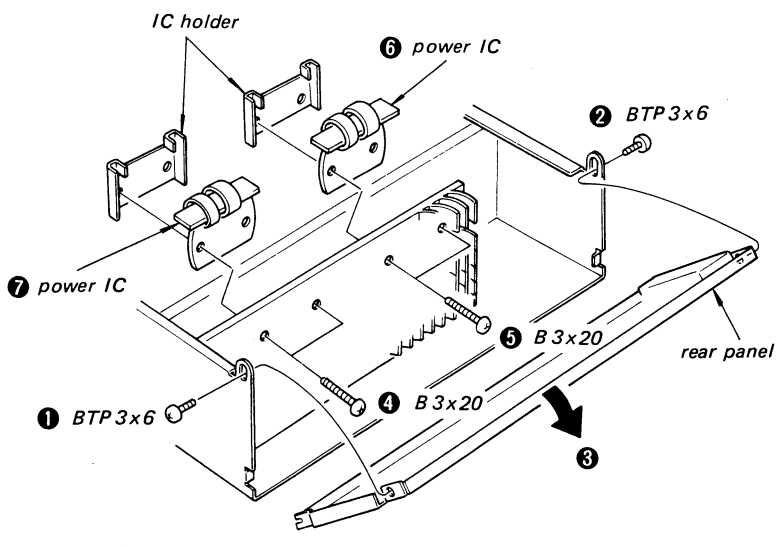
UPPER PANEL

Remove the case assembly by removing 6 case screws. Tone board can be checked in this condition.

FRONT PANEL

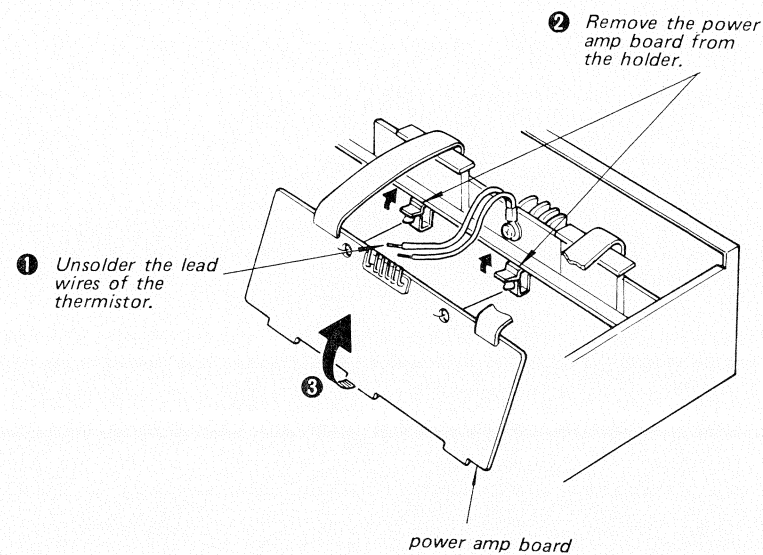


REAR PANEL, POWER IC



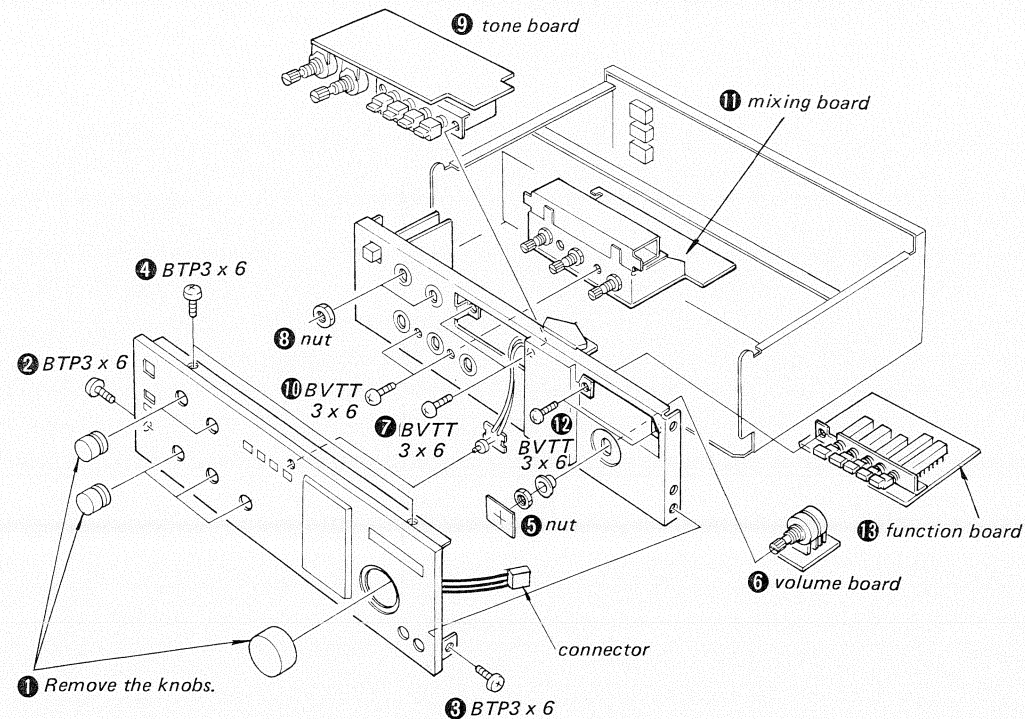
SECTION 3 ADJUSTMENT

POWER AMP BOARD



CIRCUIT BOARDS

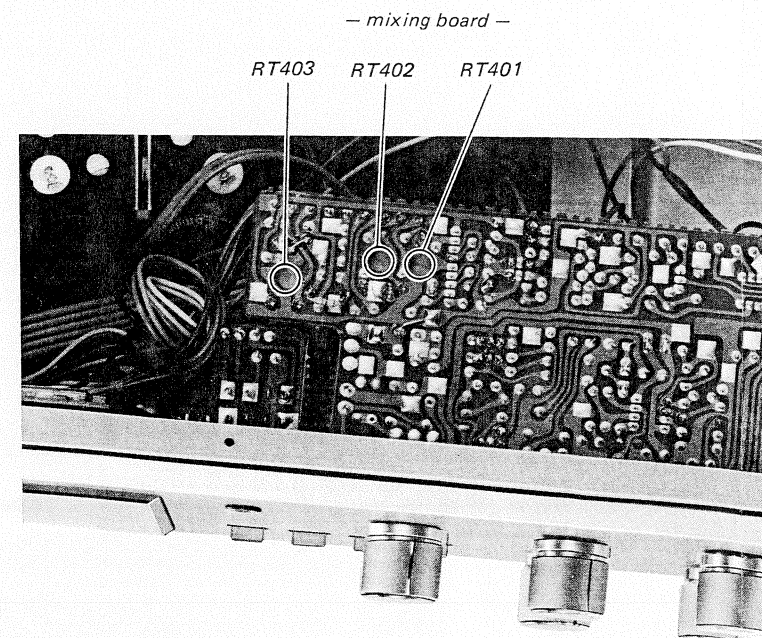
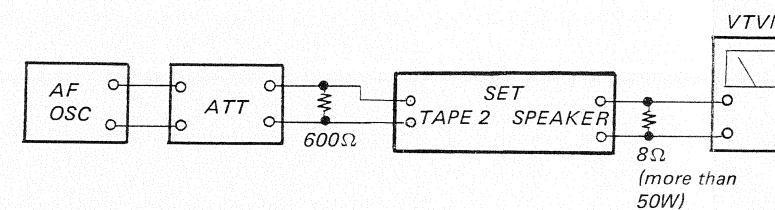
- 1 - 4 : Common to all boards 7 - 9 : Tone Board Removal
5 - 6 : Volume Board Removal 10 - 11 : Mixing Board Removal
12 - 13 : Function Board Removal



ELECTRICAL ADJUSTMENT

LED Meter Adjustment

- Set the volume within the lower range. Apply 1kHz signal at the jack—TAPE 2. Adjust the input signal with the attenuator so that the voltage at the both side of the speaker is 2.83V (1W).
- Turn RT403 so that the brightness of the LED of the both channels (L, R) are the same.
- Turn RT401 and RT402 so that the LED meters of the both channels indicate 1W.
- Turn the VOLUME to the maximum point and adjust the input signal so that the voltage at both side of the speaker becomes 17.9V (40W). Confirm that the LED meter indicates 40W. If necessary, repeat steps 3 and 4.

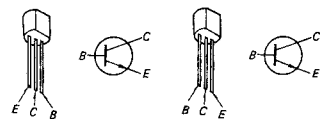


SECTION 4 DIAGRAMS

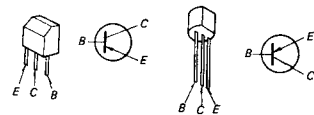
Replacement Semiconductors

For replacement, use semiconductors except in ().

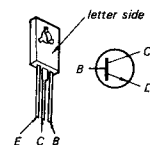
Q101, 151
Q401 : 2SC1364 (2SC1815)
Q404-406
Q402, 503 : 2SC1475 (2SD789)



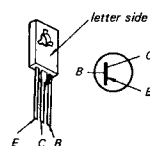
Q403: 2SB605 (2SB740)



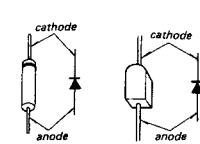
Q501: 2SD809



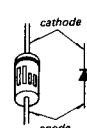
Q502: 2SB731



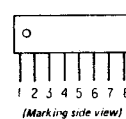
D401-403: 10E2 (RA1Z)



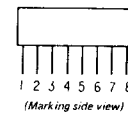
D505, 506 : EQB01-22 (EQA01-22)
D507, 508, 510 : EQB01-15 (EQA01-15)



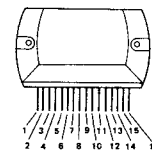
IC101, 151: CX550



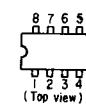
IC201, 251: HA1457



IC301, 351: SI1340H (SI11360H)



IC401, 402: μ PC4558



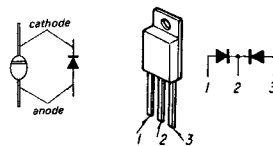
IC403: TA7318P



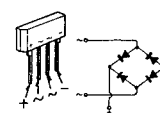
IC404: HA12002



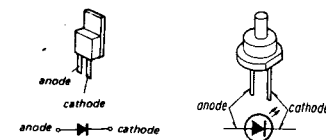
D501-504: U05G (S2V20)



D509: S1VB20 (S1VB10)

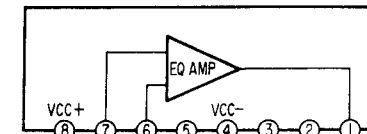


D601-605: GL9HY21
D606: GL9HY21 (GL2PR1)

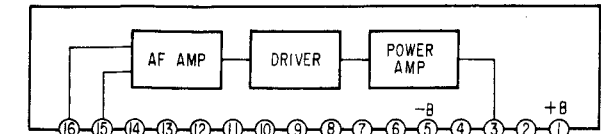


4-1. IC BLOCK DIAGRAMS

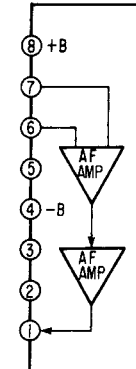
IC101, 151 CX550



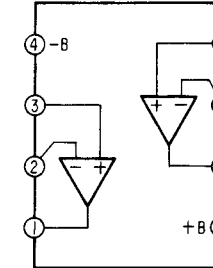
IC301, 351 SI1360H



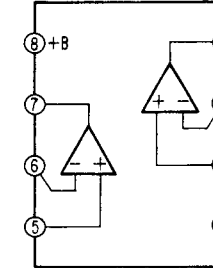
IC201, 251
HA1457



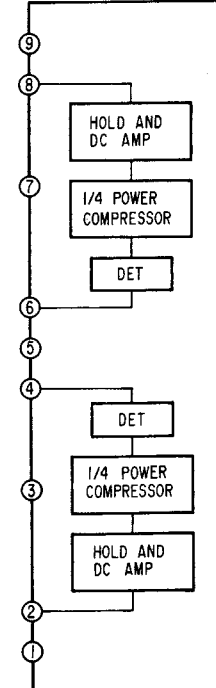
IC401 μ PC4558



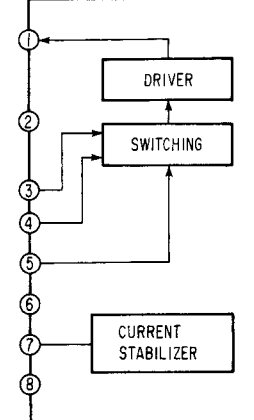
IC402 μ PC4558



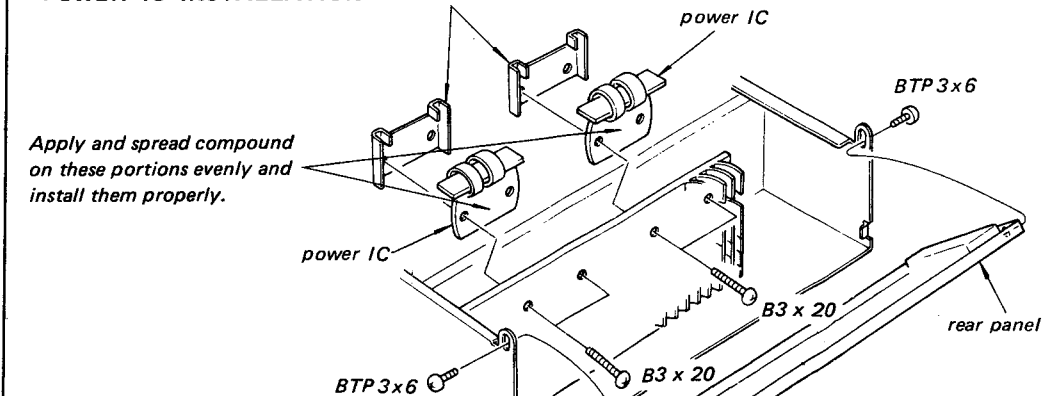
IC403 TA7318P



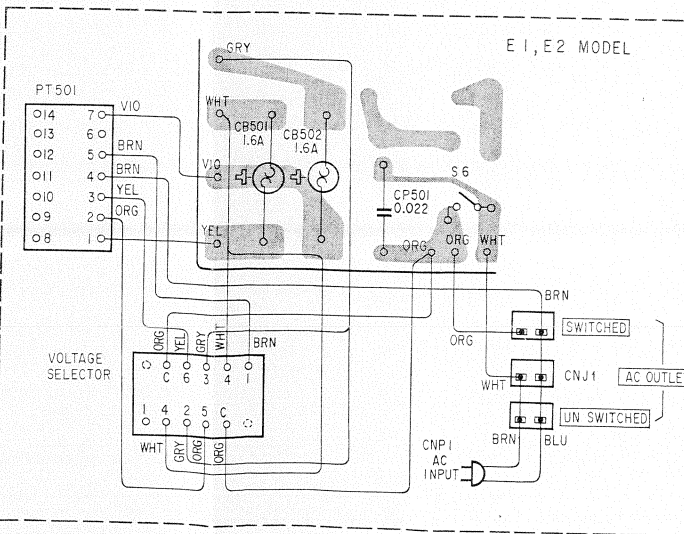
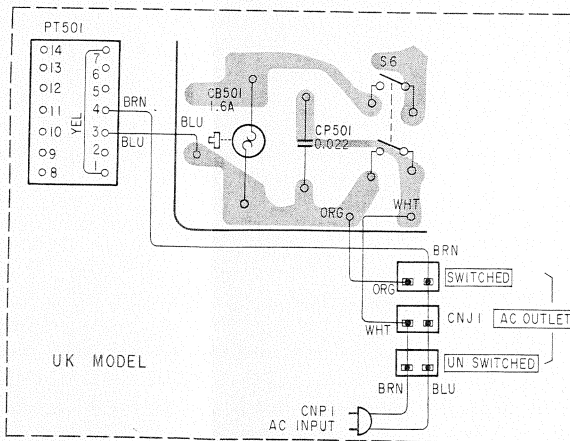
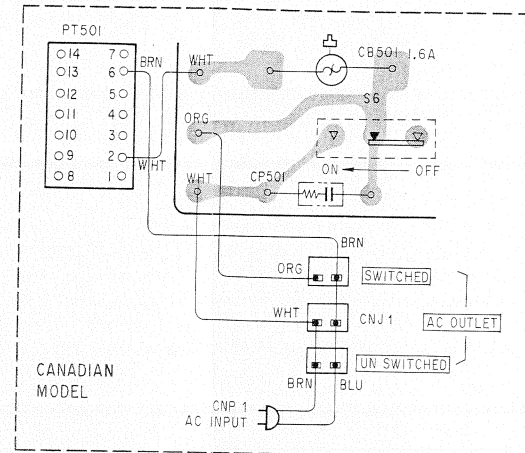
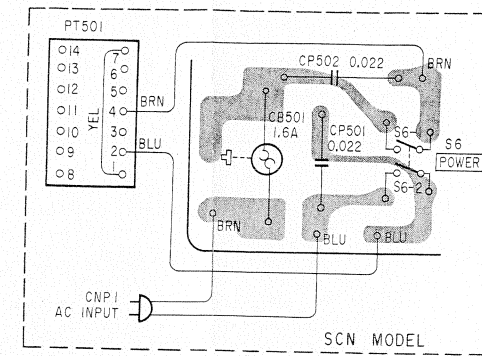
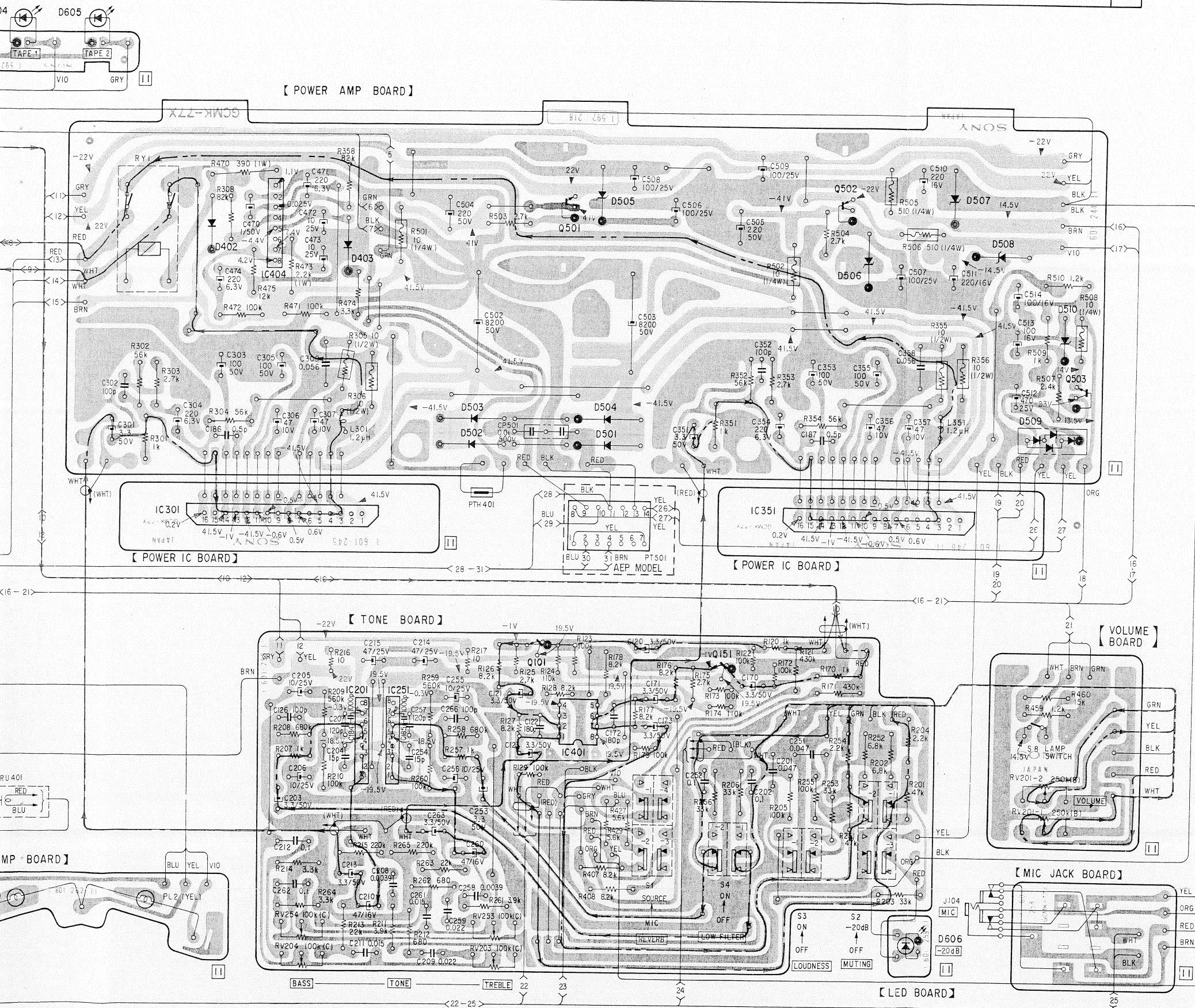
IC404 HA12002



POWER IC INSTALLATION

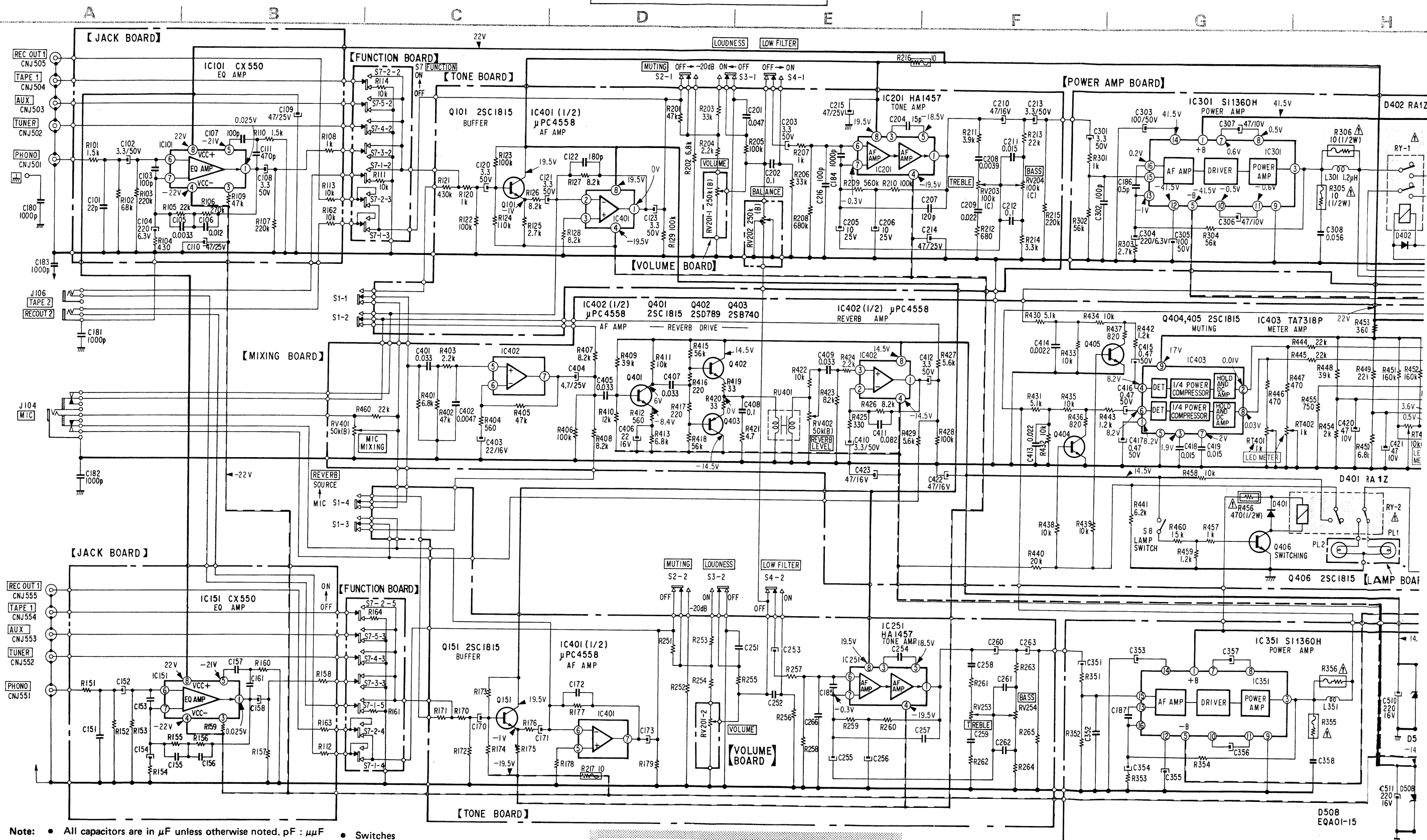


604	605	402	403	503	504	506	606	507	508	510	D
				502	501					509	
		IC404	IC201	IC251	IC401	IC351				503	Q, IC
		IC301									



4-3. SCHEMATIC DIAGRAM

TA-535 TA-535



- Note:**
- All capacitors are in μ F unless otherwise noted. pF : μ F 50WV or less are not indicated except for electrolytics and tantalum.
 - All resistors are in ohms, $\frac{1}{2}$ W unless otherwise noted. k Ω : 1000 Ω , M Ω : 1000k Ω .
 - F : fusible resistor.
 - $\square$: panel designation.
 - Readings are taken under no-signal conditions with a VOM (20k Ω /V).
 - : B+ bus.
 - - - : B- bus.

Switches

Ref. No.	Switch	Position
S1	REVERB	MIC
S2	MUTING	OFF
S3	LOUDNESS	OFF
S4	LOW FILTER	OFF
S5	SPEAKER	ON
S6	POWER	OFF
S7	FUNCTION	OFF

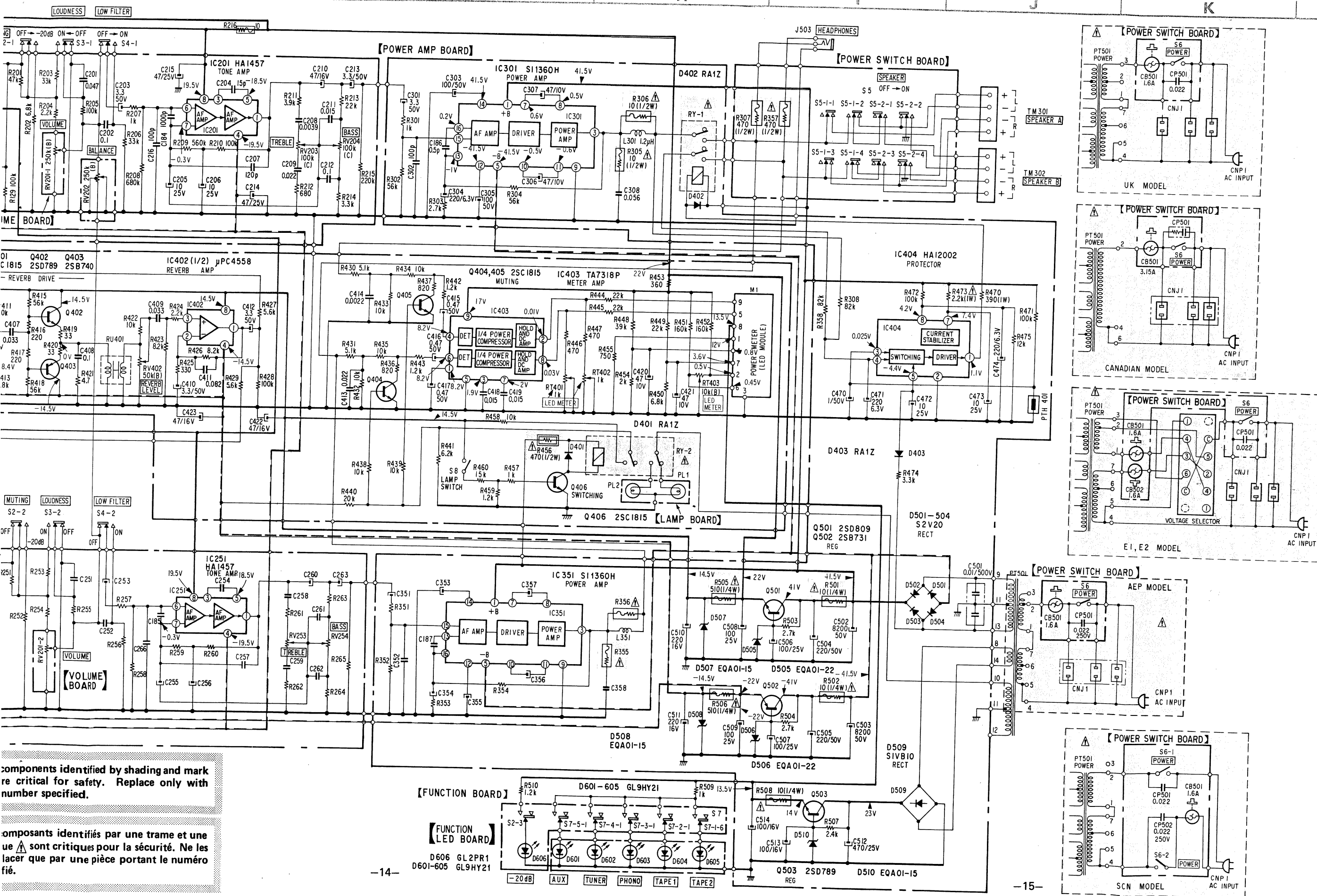
Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FUNCTION BOARD

FUNCTION LED BOARD

D606 GL2PR1
D601-605 GL9HY21



Components identified by shading and marked with an asterisk are critical for safety. Replace only with the number specified.

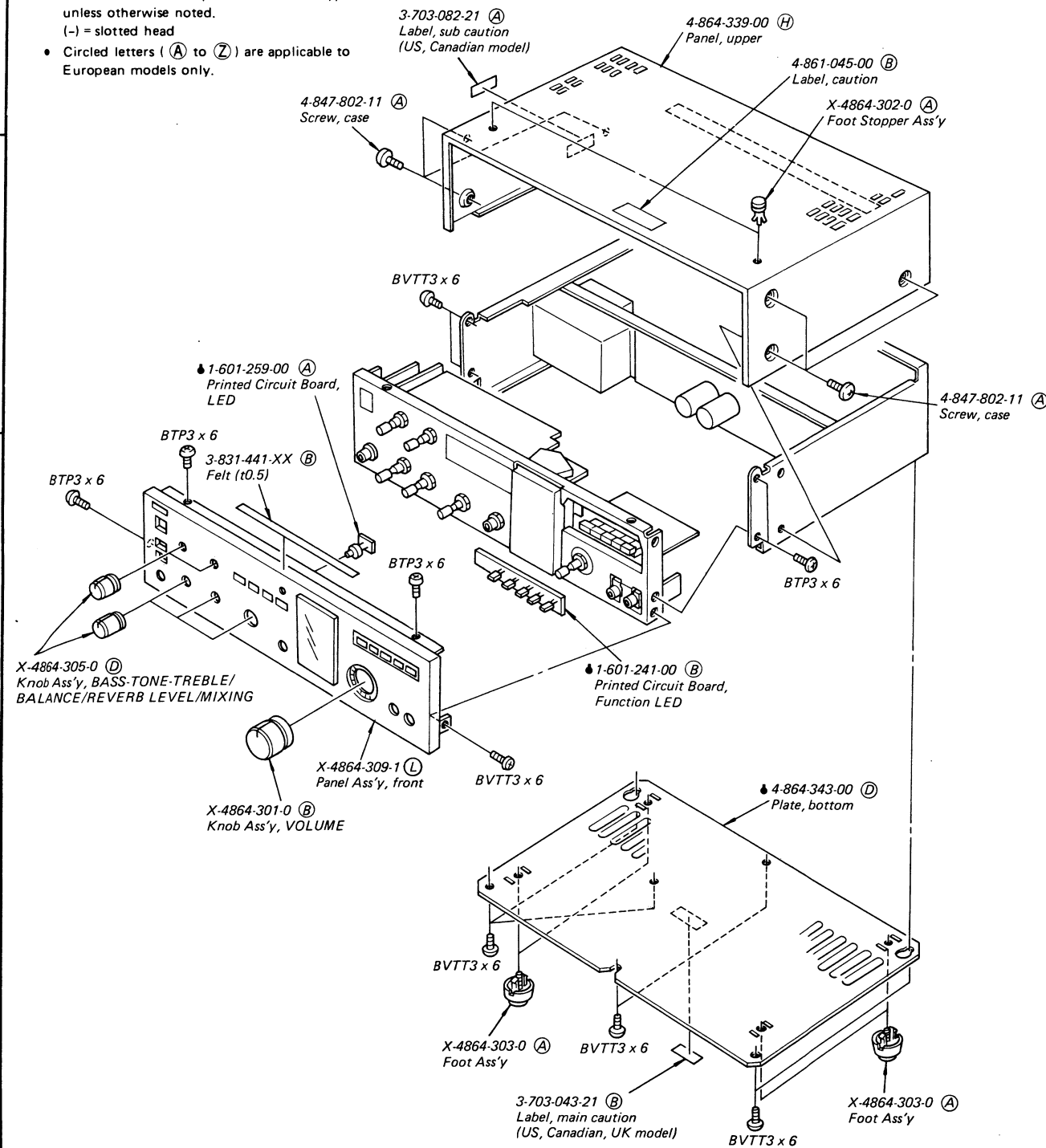
Composants identifiés par une trame et une
 uce  sont critiques pour la sécurité. Ne les
 lacer que par une pièce portant le numéro
 fié.

SECTION 5

EXPLODED VIEWS

Note:

- Items marked “**A**” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head
- Circled letters (**A**) to (**Z**) are applicable to European models only.



-16-

[illegible]

Note:

Note:

- Items marked “A” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head
- Circled letters (A to Z) are applicable to European models only.

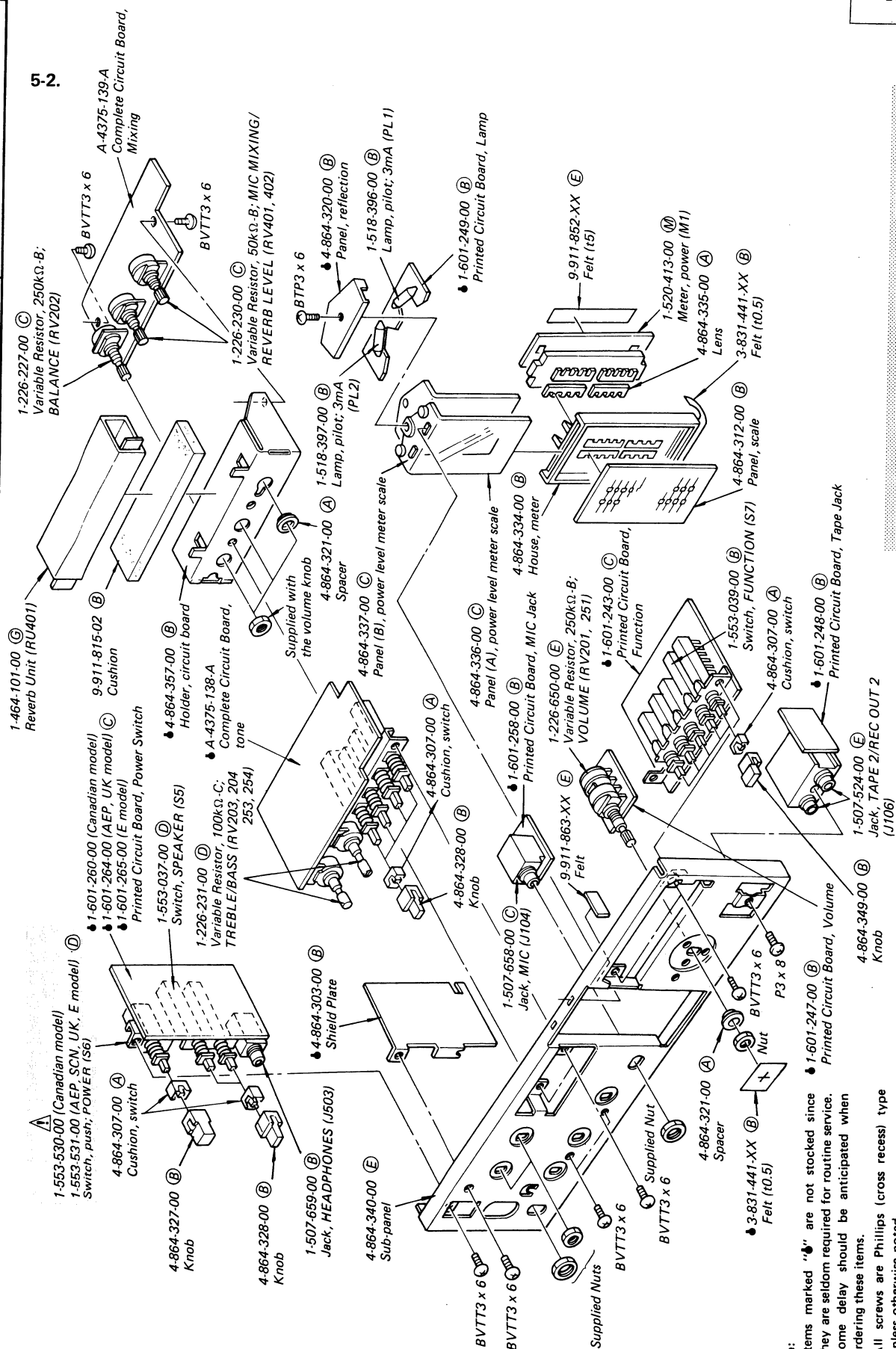
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-3

1-551-628-00 (Canadian, E2 model)	1-551-957-00 (UK model)	1-526-574-00 (Canadian, E2 model)
-----------------------------------	-------------------------	-----------------------------------

5-2.



Note: Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

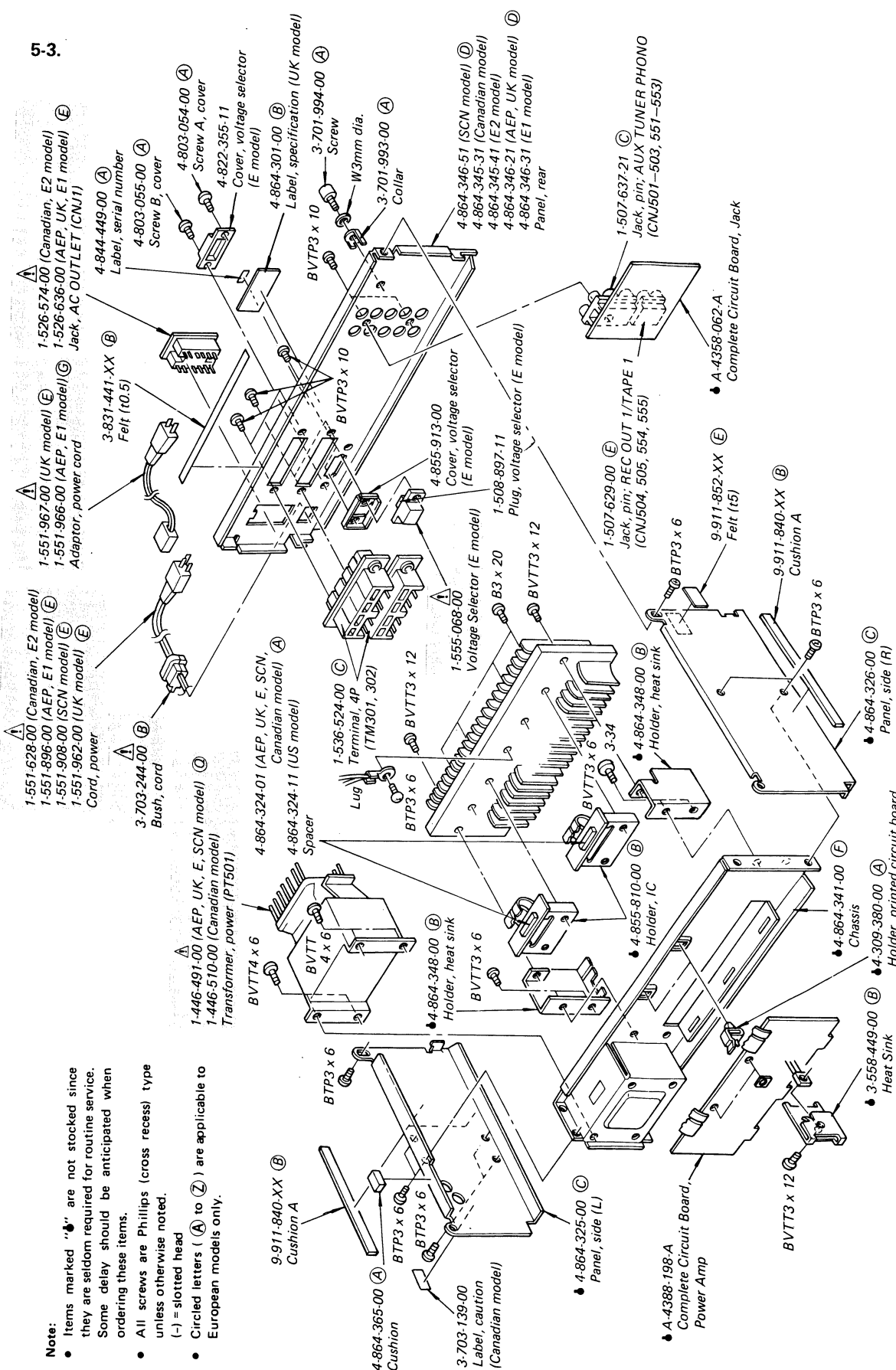
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

Note:

- Items marked “A” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
(-) = slotted head
- Circled letters (A to Z) are applicable to European models only.

4

5-3.



Note:

- Items marked “ to ) are applicable to European models only.

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4

SECTION 6

ELECTRICAL PARTS LIST

Note: Circled letters (**A**) to (**Z**) are applicable to European models only.

Ref. No. Part No. Description

COMPLETE CIRCUIT BOARDS

♣ A-4358-062-A Jack
♣ A-4375-138-A Tone
♣ A-4375-139-A Mixing
♣ A-4388-198-A Power Amp

PRINTED CIRCUIT BOARDS

♣ 1-601-241-00 **B** Function LED
♣ 1-601-243-00 **C** Function
♣ 1-601-247-00 **B** Volume
♣ 1-601-248-00 **B** Tape Jack
♣ 1-601-249-00 **B** Lamp

♣ 1-601-258-00 **B** MIC Jack
♣ 1-601-259-00 **A** LED
♣ 1-601-260-00 Power Switch (Canadian model)
♣ 1-601-264-00 **C** Power Switch (AEP, UK model)
♣ 1-601-265-00 Power Switch (E model)

SEMICONDUCTORS

Transistors

⇒ Q101, 151) 8-729-663-47 **B** 2SC1364
⇒ Q401)
⇒ Q402 8-760-413-10 **B** 2SC1475
⇒ Q403 8-729-160-51 **B** 2SB605
⇒ Q404-406 8-729-663-47 **B** 2SC1364

Q501 8-729-180-93 **B** 2SD809
Q502 8-729-173-13 **B** 2SB731
⇒ Q503 8-760-413-10 **B** 2SC1475

ICs

IC101, 151 8-759-305-50 **D** CX550
IC201, 251 8-759-314-57 **C** HA1457
⇒ IC301, 351 8-759-313-40 **M** SI1340H
IC401, 402 8-759-155-58 **C** μ PC4558
IC403 8-759-273-18 **D** TA7318P

IC404 8-759-320-02 **E** HA12002

Diodes

⇒ D401-403 8-719-200-02 **B** 10E2
⇒ D501-504 8-719-911-55 **C** U05G
D505, 506 8-719-931-22 **B** EQB01-22

⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No. Part No. Description

D507, 508) 8-719-931-15 **B** EQB01-15
D510)

⇒ D509 8-719-511-20 **C** S1VB20
D601-605 8-719-909-23 **B** GL9HY21
⇒ D606 8-719-909-23 **B** GL9HY21

TRANSFORMERS

PT501 **A** 1-446-491-00 **C** Power (AEP, UK, E, SCN model)
PT501 **A** 1-446-510-00 Power (Canadian model)

CAPACITORS

All capacitors are in μ F and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics.
Refer to the list on the page 21 and 22 for their part numbers.
p : μ F, elect : electrolytic

C501 1-102-355-00 **B** 0.01 500V
C502, 503 1-125-857-00 **G** 8200 50V elect

CP501 **A** 1-130-267-00 **C** 0.022 250V film
(UK, E, SCN, AEP model)

CP501 **A** 1-231-341-00 Encapsulated Component
(Canadian model)

CP502 **A** 1-130-267-00 **C** 0.022 250V film
(SCN model)

RESISTORS

All resistors are in ohms. Common $\frac{1}{4}$ W carbon resistors are omitted. Check schematic diagram for values. Refer to the list on the page 23 for their part numbers.

R216, 217 1-212-857-00 **B** 10 $\frac{1}{4}$ W fusible
(nonflammable)

R305, 306 **A** 1-212-958-00 **B** 10 $\frac{1}{2}$ W fusible
(nonflammable)

R307, 357 **A** 1-212-998-51 **B** 470 $\frac{1}{2}$ W fusible
(nonflammable)

R355, 356 **A** 1-212-958-00 **B** 10 $\frac{1}{2}$ W fusible
(nonflammable)

R456 **A** 1-247-232-00 **A** 470 $\frac{1}{2}$ W carbon
(nonflammable)

R470 1-213-138-00 **A** 390 1W metal oxide
(nonflammable)

R473 **A** 1-213-147-00 **A** 2.2k 1W metal oxide
(nonflammable)

• Items marked "♣" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No.	Part No.	Description
R501, 502	<u>A</u> 1-212-857-00	(A) 10 ¼W fusible (nonflammable)
R505, 506	<u>A</u> 1-212-898-51	(A) 510 ¼W fusible (nonflammable)
R508	<u>A</u> 1-212-857-00	(A) 10 ¼W fusible (nonflammable)
RT401,402	1-226-233-00	(B) 1k, adjustable;
RT403	1-226-236-00	(B) 10k-B, adjustable;
RV202	1-226-227-00	(C) 250k-B, variable; BALANCE
RV201, 251	1-226-650-00	(E) 250k-B, variable; VOLUME
RV203,204	1-226-231-00	(D) 100k-C, variable; TREBLE, BASS
RV253,254		
RV401, 402	1-226-230-00	(C) 50k-B, variable; MIC MIXING REVERB LEVEL

JACKS

J104	1-507-658-00	(C) MIC
J106	1-507-524-00	(E) TAPE 2, REC OUT 2
J503	1-507-659-00	(B) HEADPHONES
CNJ1	<u>A</u> 1-526-574-00	AC OUTLET (Canadian, E2 model)
CNJ1	<u>A</u> 1-526-636-00	(E) AC OUTLET (AEP, UK, E1 model)
CNJ501-503	1-507-637-21	(C) Pin, AUX TUNER PHONO
CNJ551-553		
CNJ504,505	1-507-629-00	(E) Pin, REC TAPE 1
CNJ554,555		

SWITCHES

S1-4	1-553-038-00	(E) REVERB/MUTING/LOUDNESS LOWFILTER
S5	1-553-037-00	(D) SPEAKER
S6	<u>A</u> 1-553-530-00	Push, POWER (Canadian model)
S6	<u>A</u> 1-553-531-00	(D) Push, POWER (AEP, SCN, UK, E model)
S7	1-553-039-00	(E) FUNCTION

MISCELLANEOUS

CB501	<u>A</u> 1-532-534-00	(C) Braker, circuit (AEP, UK, SCN, E model)
CB501	<u>A</u> 1-532-448-00	Braker, circuit (Canadian model)
CB502	<u>A</u> 1-532-534-00	Braker, circuit (E model)
M1	1-520-413-00	(M) Meter, power
PL1	1-518-396-00	(B) Lamp, pilot; 3mA
PL2	1-518-397-00	(B) Lamp, pilot; 3mA

Ref. No.	Part No.	Description
PTH401	1-800-427-00	(B) Thermistor, positive
RU401	1-464-101-00	(G) Reverb Unit
RY1	<u>A</u> 1-515-356-11	(F) Relay, power amp protecting
RY2	<u>A</u> 1-515-360-00	(F) Relay, meter range select
TM301,302	1-536-524-00	(C) Terminal, 4P
	1-508-897-11	Plug, voltage selector (E model)
	<u>A</u> 1-551-628-00	Cord, power (Canadian, E2 model)
	<u>A</u> 1-551-896-00	(E) Cord, power (AEP, E1 model)
	<u>A</u> 1-551-908-00	(E) Cord, power (SCN model)
	<u>A</u> 1-551-962-00	(E) Cord, power (UK model)
	<u>A</u> 1-551-966-00	(G) Adaptor, power cord (AEP, E1 model)
	<u>A</u> 1-551-967-00	(E) Adaptor, power cord (UK model)
	<u>A</u> 1-555-068-00	Voltage Selector (E model)

ACCESSORIES AND PACKING MATERIALS

Part No.	Description
3-701-630-00	(A) Bag, plastic
3-770-994-11	(J) Manual, instruction (AEP, UK, E, SCN model)
3-770-994-21	Manual, instruction (Canadian model)
3-794-578-31	Manual, instruction, french (Canadian model)
4-864-354-00	(B) Sheet, polyethylene
4-864-359-00	(E) Carton
4-864-361-00	(B) Cushion

Note: The components identified by shading and mark A are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTROLYTIC CAPACITORS

Note: Circled letter (A) to (Z) are applicable to European models only.

RATING → : Use the high voltage rated one.						
CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00 (A)
1.0					→	1-121-391-00 (A)
2.2					→	1-121-450-00 (A)
3.3	→	→	→	1-121-392-00 (A)	→	1-121-393-00 (A)
4.7	→	→	→	1-121-395-00 (A)	→	1-121-396-00 (A)
10	→	→	1-121-651-00 (A)	1-121-398-00 (A)	→	1-121-738-00 (A)
22	→	→	1-121-479-00 (A)	1-121-480-00 (A)	1-121-662-00 (A)	1-121-152-00 (A)
33	→	→	1-121-403-00 (A)	1-121-404-00 (A)	1-121-652-00 (B)	1-121-405-00 (A)
47	→	1-121-352-00 (A)	1-121-409-00 (A)	1-121-410-00 (A)	1-121-653-00 (B)	1-121-411-00 (A)
100	→	1-121-414-00 (A)	1-121-415-00 (A)	1-121-416-00 (A)	1-121-357-00 (B)	1-121-417-00 (B)
220	1-121-419-00 (B)	1-121-420-00 (B)	1-121-421-00 (A)	1-121-422-00 (B)	1-121-261-00 (C)	1-121-423-00 (B)
330	1-121-751-00 (B)	1-121-805-00 (B)	1-121-521-00 (C)	1-121-654-00 (B)	1-121-655-00 (D)	1-121-656-00 (C)
470	1-121-424-00 (B)	1-121-425-00 (C)	1-121-426-00 (C)	1-121-733-00 (B)	1-121-361-00 (E)	1-121-810-00 (D)
1000	→	1-121-736-00 (C)	1-121-245-00 (D)	1-121-657-00 (D)	1-121-388-00 (E)	1-123-061-00 (F)
2200	1-121-658-00 (B)	1-121-659-00 (C)	1-121-660-00 (D)	1-123-067-00 (F)	1-121-984-00 (F)	→
3300	1-121-661-00 (D)	1-123-075-00 (E)	1-123-071-00 (F)	→	→	→

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	→	→	→	→
1.0	1-123-249-00 (A)	1-123-252-00 (A)	1-123-003-00 (B)	1-121-168-00 (B)
2.2	1-123-250-00 (A)	1-123-026-00 (B)	→	1-123-028-00 (B)
3.3	1-121-995-00 (A)	→	1-123-004-00 (B)	1-123-006-00 (C)
4.7	1-123-255-00 (A)	1-121-246-00 (B)	1-121-759-00 (B)	1-123-007-00 (D)
10	1-121-126-00 (B)	1-121-999-00 (B)	1-123-254-00 (C)	1-123-008-00 (D)
22	1-121-996-00 (C)	1-123-253-00 (C)	1-123-005-00 (D)	1-123-022-00 (D)
33	1-121-997-00 (C)	1-121-757-00 (C)	→	→
47	1-123-251-00 (C)	1-121-919-00 (C)	→	→
100	1-123-084-00 (E)	→	→	→

CERAMIC CAPACITORS (A)

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

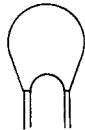
CERAMIC (SEMICONDUCTOR) CAPACITORS (A)

RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS (A)

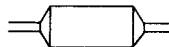
Note: Circled letters (A) to (Z) are applicable to European models only.

RATING												
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.	
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00	
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00	
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00	
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00	
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00	
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—	
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—	
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—	
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—	
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00					
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00					
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00					



TANTALUM CAPACITORS

RATING							
→ : Use the high voltage rated one.							
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00 (B)
0.015					→	→	1-131-397-00 (B)
0.022					→	→	1-131-398-00 (B)
0.033					→	→	1-131-399-00 (B)
0.047					→	→	1-131-400-00 (B)
0.068					→	→	1-131-401-00 (B)
0.1					→	→	1-131-402-00 (B)
0.15					→	→	1-131-403-00 (B)
0.22					→	→	1-131-404-00 (B)
0.33					→	1-131-409-00 (B)	1-131-405-00 (B)
0.47	—	—	—	—	1-131-412-00 (B)	→	1-131-406-00 (B)
0.68	—	—	—	1-131-415-00 (B)	→	1-131-410-00 (B)	1-131-407-00 (B)
1.0	—	—	1-131-418-00 (B)	—	1-131-413-00 (B)	→	1-131-408-00 (B)
1.5	—	1-131-421-00 (B)	—	1-131-416-00 (B)	→	1-131-411-00 (B)	1-131-348-00 (A)
2.2	1-131-424-00 (B)	—	1-131-419-00 (B)	—	1-131-414-00 (B)	1-131-355-00 (B)	1-131-349-00 (B)
3.3	—	1-131-422-00 (B)	—	1-131-417-00 (B)	1-131-362-00 (B)	1-131-356-00 (B)	1-131-350-00 (B)
4.7	1-131-425-00 (B)	—	1-131-420-00 (B)	1-131-369-00 (B)	1-131-363-00 (B)	1-131-357-00 (B)	1-131-351-00 (C)
6.8	—	1-131-423-00 (B)	1-131-376-00 (B)	1-131-370-00 (B)	1-131-364-00 (B)	1-131-358-00 (C)	1-131-352-00 (C)
10	1-131-426-00 (B)	1-131-383-00 (B)	1-131-377-00 (B)	1-131-371-00 (B)	1-131-365-00 (C)	1-131-359-00 (C)	1-131-353-00 (D)
15	1-131-390-00 (B)	1-131-384-00 (B)	1-131-378-00 (B)	1-131-372-00 (B)	1-131-366-00 (C)	1-131-360-00 (D)	—
22	1-131-391-00 (B)	1-131-385-00 (B)	1-131-379-00 (C)	1-131-373-00 (C)	1-131-367-00 (D)		
33	1-131-392-00 (B)	1-131-386-00 (C)	1-131-380-00 (C)	1-131-374-00 (D)			
47	1-131-393-00 (C)	1-131-387-00 (C)	1-131-381-00 (D)	—			
68	1-131-394-00 (B)	1-131-388-00 (C)	—	—			
100	1-131-395-00 (D)	—	—	—			



TANTALUM CAPACITORS

RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00 (E)
0.047						1-131-274-00 (F)
0.068						1-131-275-00 (E)
0.1						1-131-276-00 (D)
0.15						1-131-277-00 (D)
0.22			—	—	1-131-262-00 (D)	1-131-278-00 (D)
0.33			—	—	1-131-263-00 (D)	1-131-279-00 (D)
0.47			1-131-169-00 (D)	—	1-131-264-00 (D)	1-131-280-00 (D)
0.68			—	1-131-258-00 (D)	1-131-265-00 (D)	1-131-281-00 (D)
1.0			1-131-254-00 (D)	—	1-131-266-00 (D)	1-131-282-00 (D)
1.5		1-131-250-00 (D)	—	—	1-131-267-00 (D)	1-131-283-00 (E)
2.2		—	—	1-131-259-00 (D)	1-131-268-00 (D)	1-131-284-00 (E)
3.3		—	1-131-255-00 (D)	—	1-131-269-00 (D)	—
4.7		1-131-251-00 (E)	1-131-171-00 (D)	—	1-131-270-00 (D)	—
6.8		—	—	1-131-260-00 (D)	1-131-271-00 (E)	—
10	—	—	1-131-256-00 (D)	—	1-131-272-00 (E)	—
15	—	1-131-252-00 (D)	—	1-131-261-00 (E)		
22	—	—	1-131-257-00 (E)	—		
33	1-131-176-00 (D)	1-131-253-00 (B)	1-131-173-00 (C)	—		
47	1-131-288-00 (F)	1-131-174-00 (D)	—	—		
100	1-131-177-00 (D)	—	—	—		

1/4 WATT CARBON RESISTORS (A)

Note: Circled letter (A) is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:

P 3 x 10

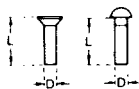
L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

