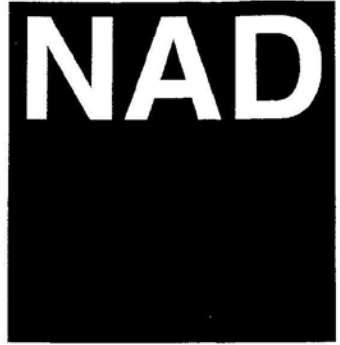


SERVICE MANUAL



SERVICE SAFETY PRECAUTIONS (UL)

1. Use exact replacement parts for critical locations marked "⚠"
2. Return lead dress to original position and re-install protective covers.
3. Before returning to customer, test for shock hazard; use either method A or B:
 - A. Leakage test "cold":
 1. Unplug the AC cord; turn power switch ON.
 2. Connect one lead of High Voltage Insulation Tester to both prongs of the AC plug.
 3. Touch other lead to all exposed metal parts.
 4. Impedance measurement must be 0.3-5.0 Megohms.
 - B. Leakage test, "live":
 1. Plug unit directly into the AC outlet; do not use isolation transformer.
 2. Connect one lead of the Leakage Current Tester to earth ground.
 3. Touch other lead to all exposed metal parts.
 4. Leakage measurement must be less than 0.5 milliamps.

314

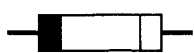
STEREO INTEGRATED
AMPLIFIER

314

STEREO
INTEGRATED
AMPLIFIER

SERVICE SAFETY PRECAUTIONS

1. Replacing the fuses



This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Reference No	Part Number	Description
F801-F802*AH	N51003130-1A	Fuse 3.15A 125V Time Leg LBC (UL/CSA)
F801-F802*C,B	N51003130-1B	Fuse 3.15A 250V Time Leg HBC (SEMKO)
F803-F804*AH	N51005030-1A	Fuse 5A 125V Time Leg LBC (UL/CSA)
F803-F804*C,B	N51005030-1B	Fuse 5A 250V Time Leg HBC (SEMKO)
F901-F902*AH	N51002510-1C	Fuse 250mA 250V Time Leg LBC (UL/CSA)
F901-F902*C,B	N51002510-1B	Fuse 250mA 250V Time Leg LBC (SEMKO)

NOTE :

- <*AH > : USA, CANADIAN MODEL ONLY.
- <*B > : UK MODEL ONLY.
- <*C > : EUROPEAN MODEL ONLY.

2. Safety-check out

(Only U.S.A. model)

After correcting the original service problem perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and the screw on the back panel.

Specifications : 3.3 Mohm \pm 10% at 500V.

CONTENTS

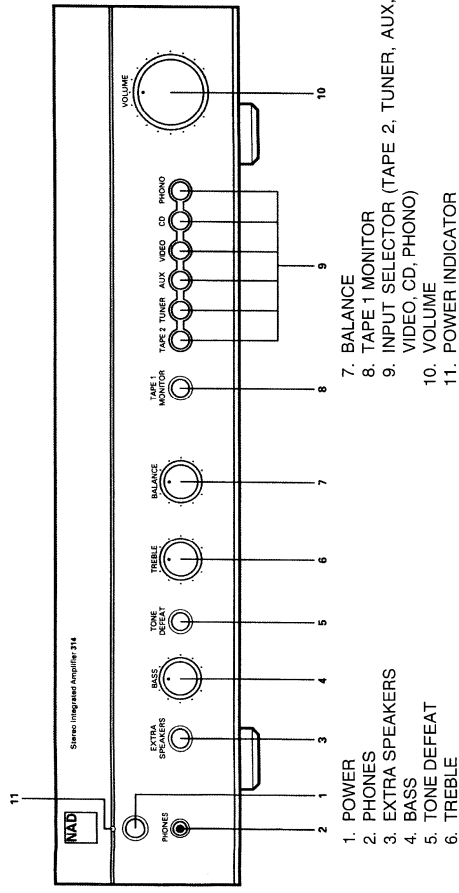
DESCRIPTION	PAGE
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SPECIFICATIONS

POWER AMPLIFIER SECTION	
CONTINUOUS AVERAGE POWER OUTPUT INTO 8 OHMS (Min. power per channel, 20 Hz - 20 kHz, both channels driven, with no more than rated distortion)	35 W (15.5 dBW)
Rated Distortion THD (20 Hz - 20 kHz)	0.03%
Clipping power (Maximum continuous power per channel). IHF dynamic headroom at 8 ohms	42 W +5.5 dB
IHF dynamic power (Maximum short term power per channel) 8 ohms: 4 ohms: 2 ohms:	120 W (21 dBW) 160 W (22 dBW) 200 W (23 dBW)
Slew rate	> 20 V / μ sec
Damping factor (ref. 8 ohms 50 Hz)	> 100
Input Impedance	R = 18 kohms C = 560 pF
Input sensitivity (for rated output into 8 ohms)	0.97 \pm 0.06 V
Voltage gain	x17 (24.6 dB)
Frequency response 20 Hz - 20 kHz	\pm 0.3 dB - 3 dB at 3 Hz / 70 kHz
Signal / Noise ratio, A-weighted	100 dB ref. 1 W 115 dB ref. 35 W
THD (Total Harmonic Distortion, 20 Hz - 20 kHz, from 250 mW to rated output) SMPTE I.M. (Intermodulation Distortion, 60 Hz + 7 kHz, 4:1, from 250 mW to rated output) IHF I.M. (CCIF IM.Distortion, 19 + 20 kHz at rated output)	< 0.03% < 0.03% < 0.03%
Net Weight Shipping Weight Dimensions	6.9 kg (15.2 lb) 8 kg (17.6 lb) 435mm x 110mm x 310mm (WxHxD)

REAR PANEL / FRONT PANEL VIEW

FRONT PANEL

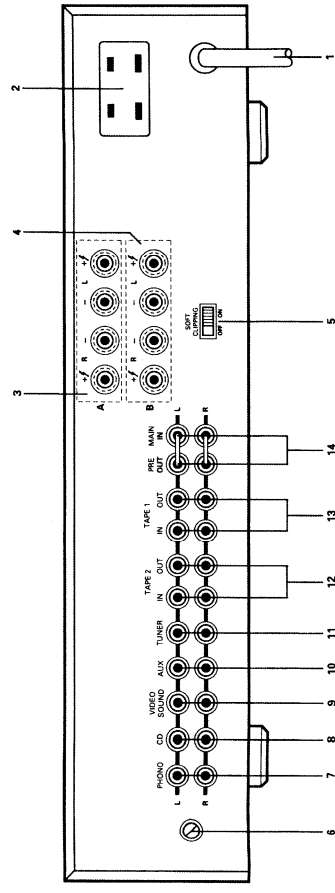


1. POWER
2. PHONES
3. EXTRA SPEAKERS
4. BASS
5. TONE DEFEAT
6. TREBLE
7. BALANCE
8. TAPE 1 MONITOR
9. INPUT SELECTOR (TAPE 2, TUNER, AUX, VIDEO, CD, PHONO)
10. VOLUME
11. POWER INDICATOR

The graphic symbol of a lightning flash with an arrow point within a triangle signifies that there is dangerous voltage within the unit and it poses a hazard to anyone removing the cover to gain access to the interior of the unit. **Only qualified service personnel should make any such attempt.**

The graphic symbol of an exclamation point within an equilateral triangle warns a user of the device that it is necessary to refer to the instruction manual and its warnings for proper operation of the unit.

REAR PANEL CONNECTIONS



1. AC LINE CORD
2. AC OUTLET (ONLY IN 120V MODEL)
3. SPEAKER TERMINALS "A"
4. SPEAKER TERMINAL "B"
5. SOFT CLIPPING
6. PHONO GROUND
7. PHONO INPUT
8. CD INPUT
9. VIDEO SOUND INPUT
10. AUXILIARY INPUT
11. TUNER INPUT
12. TAPE 2 INPUT/OUTPUT
13. TAPE 1 INPUT/OUTPUT
14. PREAMP OUT, MAIN IN

PREAMPLIFIER SECTION

PHONO INPUT

- input impedance (R and C)
- input sensitivity (ref. rated power, 1 kHz)
- input overload at 20 Hz / kHz / 20 kHz
- THD (20 Hz - 20 kHz) and IM dist.
- RIAA accuracy
- Signal / Noise ratio
- 'A'-weighted with cartridge connected

LINE LEVEL INPUTS

- 'CD, Video, Auxiliary, Tuner, Tape
- input impedance (R and C)
- input sensitivity (ref. rated power)
- Maximum input signal
- Signal/ Noise ratio, A-weighted
- Frequency response, 20 Hz - 20 kHz

THD, SMPTE IM, IHF IM and TIM < 0.01% at 5 V out

LINE LEVEL OUTPUTS

- Preamp output impedance
- Tape output impedance
- headphones output impedance
- Maximum output level
- preamp-out:
- tape-out:
- headphones-out:

CONTROLS

- Treble
- Bass
- infrasonic filter
- ± 7 dB at 10 kHz
- ± 10 dB at 50 Hz
- 3 dB at 10 Hz
- 12 db / octave

DISASSEMBLY INSTRUCTIONS

1. Remove machine screws M4.0 x 6.0 (1) to (4) from the side panels.
Remove tapping screw 3.0 x 8.0 (5) from the back panel.
Refer to **Figure No. 1**.

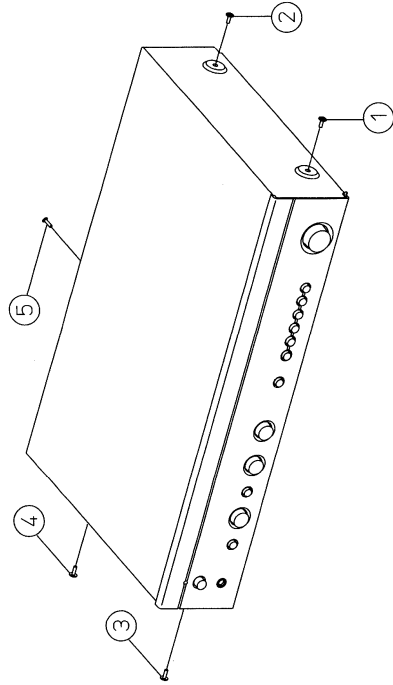


Figure No. 1.

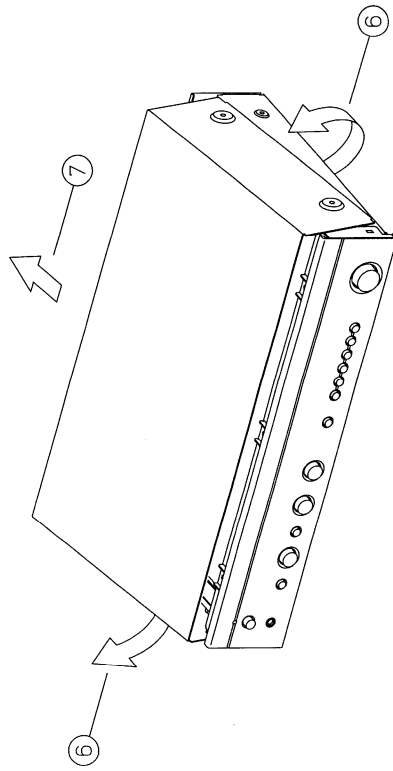


Figure No. 2.

2. Pull both sides of the TOP COVER slightly outwards and tilt approximately, 35° and then remove in the direction as shown in **Figure No. 2**.

ALIGNMENT PROCEDURES

INITIAL ADJUSTMENT (No load connected)

A. OUTPUT OFFSET VOLTAGE

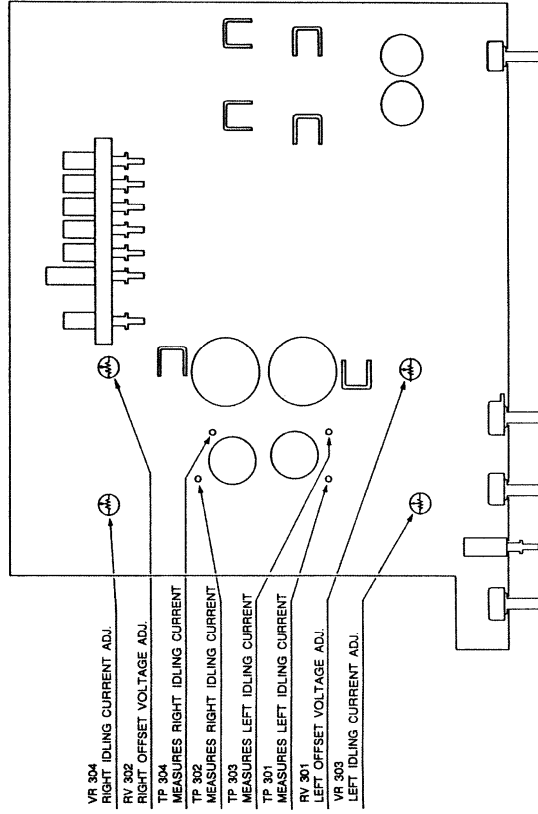
1. Connect a DC Millivoltmeter to L Channel speaker output terminals.
2. Turn unit "ON" and adjust RV301 (10 kohms) to get a reading of $0V \pm 10$ mV.
3. Connect the DC Millivoltmeter to R Channel speaker output terminals and adjust RV302 (10 kohms) to get a reading of $0V \pm 10$ mV.

B. IDLING CURRENT

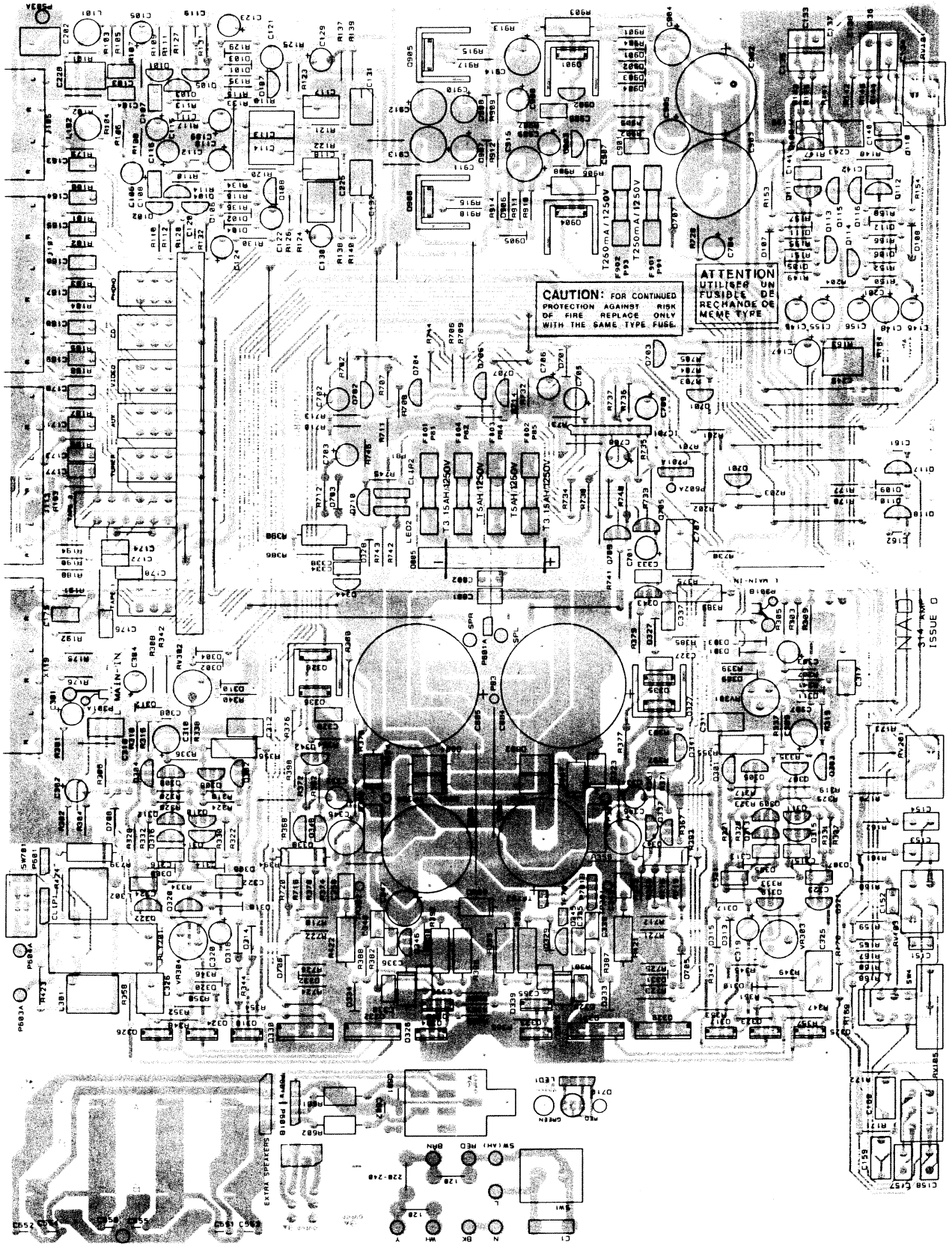
1. Connect a DC Millivoltmeter to TP301 and TP302 and adjust VR303 (1 kohms) for 5.7 – 6.4 mV reading on meter.
2. Connect a DC Millivoltmeter to TP302 and TP304 and adjust VR304 (1 kohms) for 5.7 – 6.4 mV reading on meter.
3. Leave power "ON" for minimum of 5 minutes, and check 1 and 2 for correct reading.

FINAL ADJUSTMENT

Repeat procedure A and B for offset voltage and idling current alignment respectively.



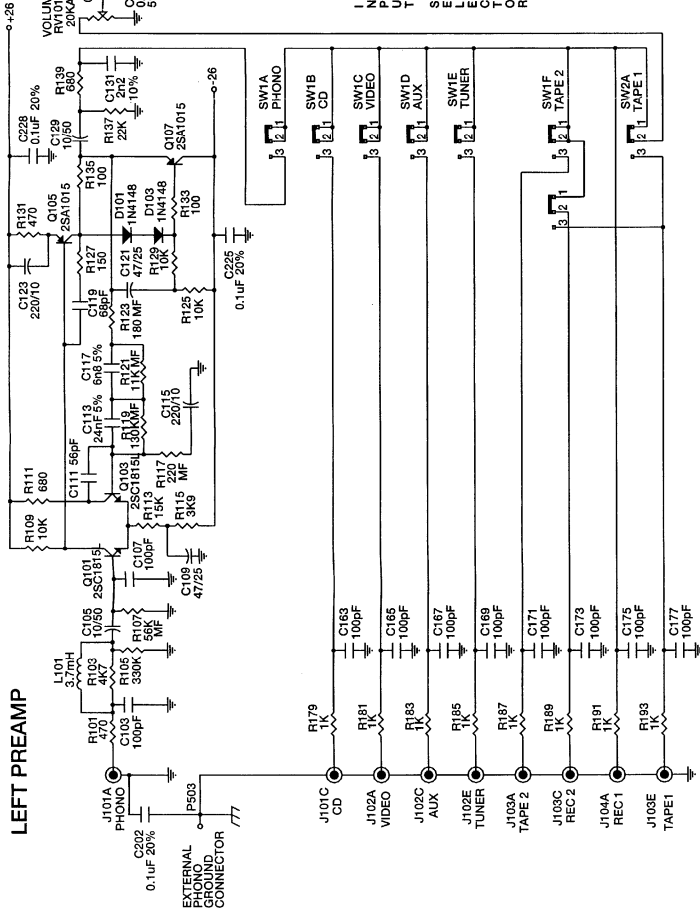
PCB LAYOUT



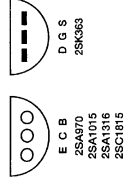
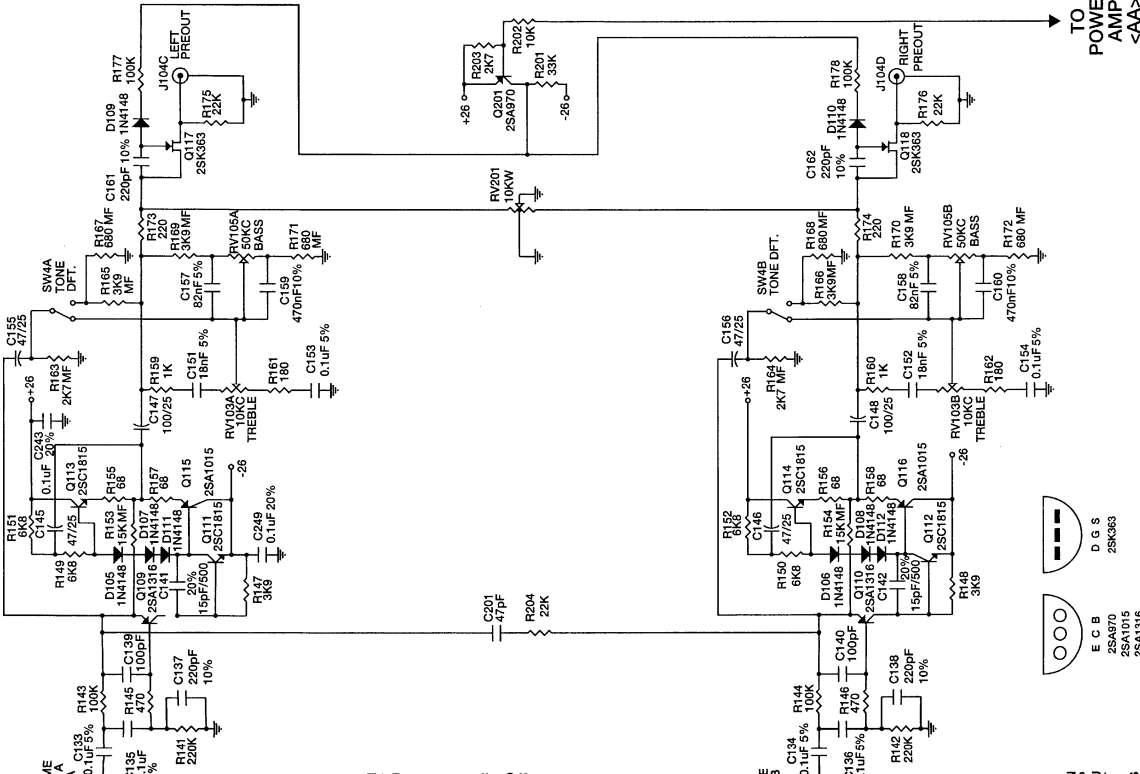
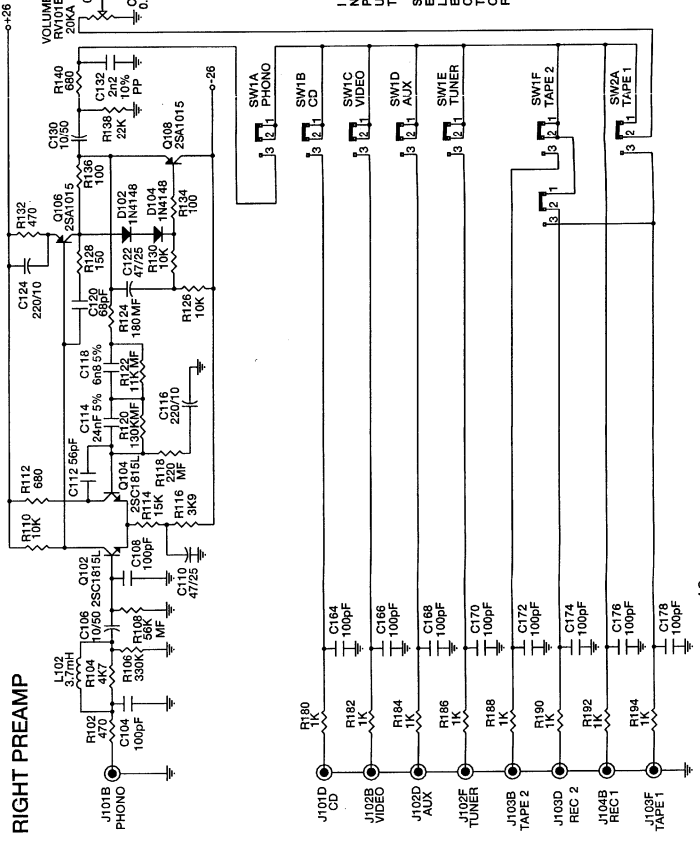
SCHEMATIC DIAGRAM

PREAMP

LEFT PREAMP

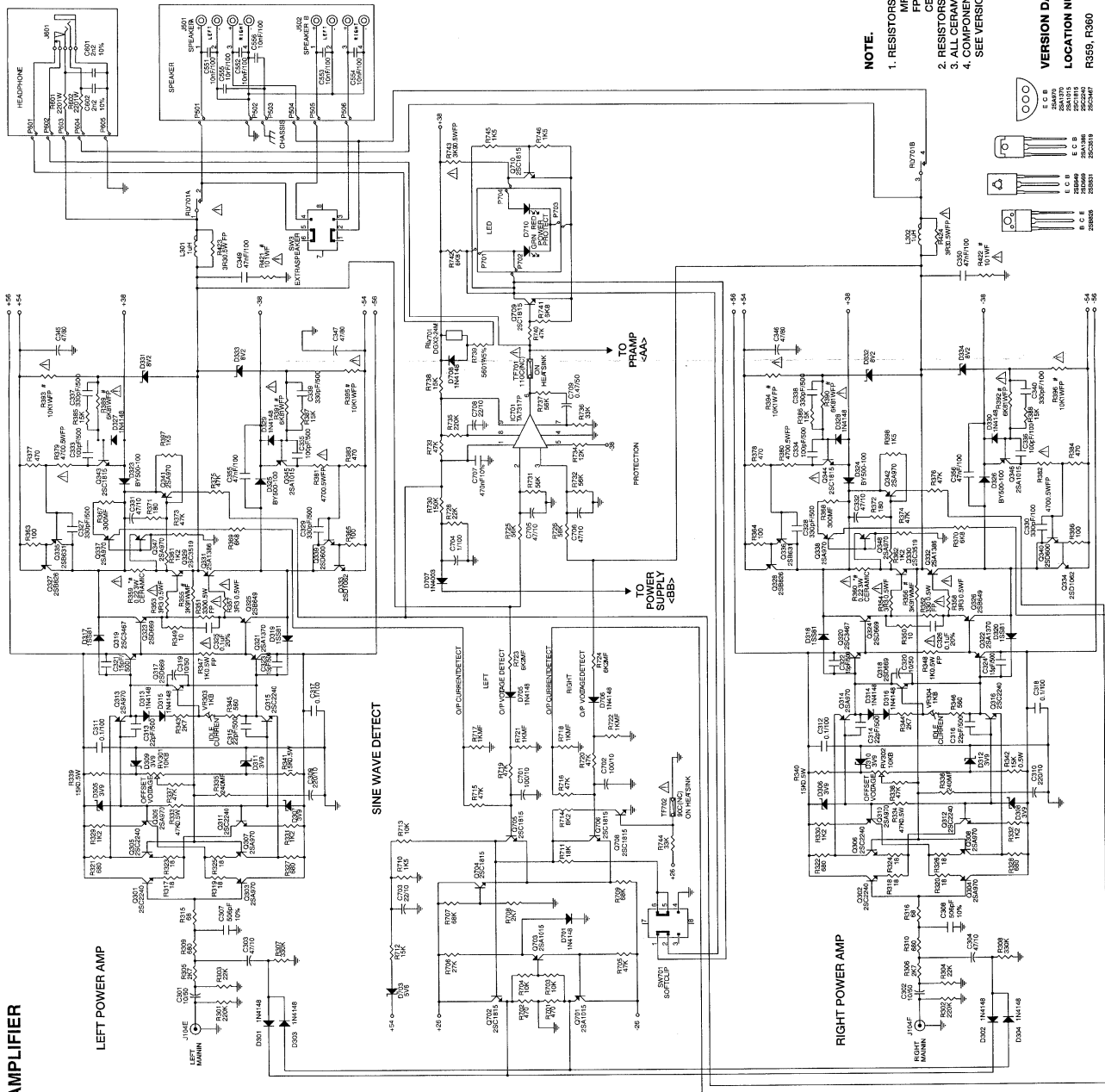


RIGHT PREAMP



NOTE. 1. RESISTORS ARE CARBON FILM 1/4W 5% UNLESS SPECIFIED.
MF - METAL FILM 2%.
FP - FLAMEPROOF 5%.
CERAMIC - WIREWOUND IN CERAMIC CASE 5%.
2. RESISTORS WITH " # " ARE ELEVATED FROM PCB.
3. ALL CERAMIC CAPACITOR, UNLESS OTHERWISE SPECIFIED, ARE 50V, 5%.

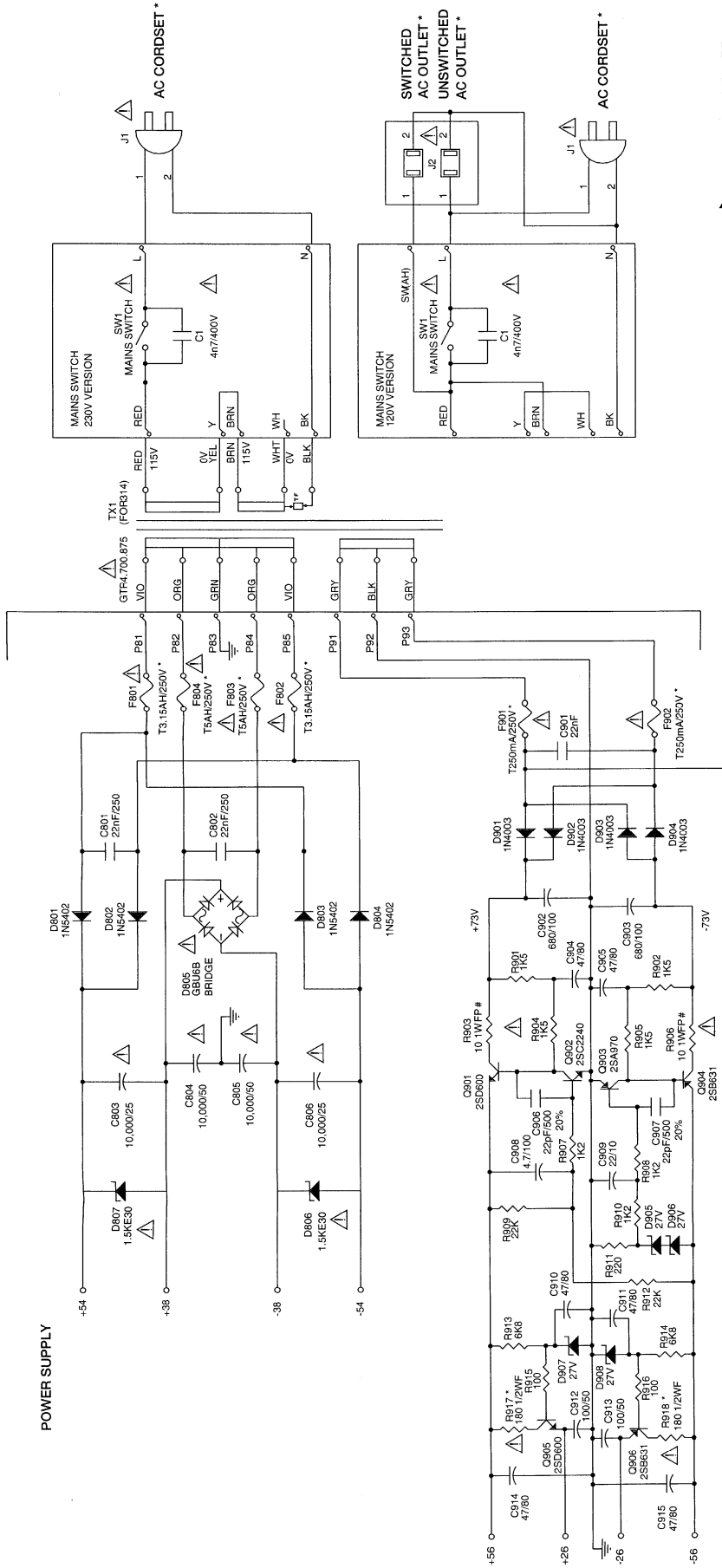
POWER AMPLIFIER



- NOTE.**
1. RESISTORS ARE CARBON FILM 1/4W 5% UNLESS SPECIFIED.
 MF - METAL FILM 2%.
 CF - FLAMEPROOF 5%.
 CP - CERAMIC IN CERAMIC CASE 5%.
 C - CERAMIC CAPACITOR UNLESS OTHERWISE SPECIFIED, ARE 50V, 20%.
 * ARE FOR C, B AND B1 VERSIONS.
 SEE VERSION DATA FOR AH VERSION.
 2. RESISTORS WITH * ARE ELIMATED FROM PCB.
 3. ALL CERAMIC CAPACITOR UNLESS OTHERWISE SPECIFIED, ARE 50V, 20%.
 4. COMPONENT VALUES WITH * ARE FOR C, B AND B1 VERSIONS.
 SEE VERSION DATA FOR AH VERSION.

VERSION DATA.
 LOCATION NUMBER
 R959, R960
 C7/B1/B1
 0.22 3W CERAMIC
 0.22 3W CERAMIC

POWER SUPPLY



VERSION DATA.

LOCATION NUMBER	DESCRIPTION
J1	AC CORDESET
J2	AC OUTLET
F801, F802	FUSE
F803, F804	FUSE
F901, F902	FUSE
F917, F918	FUSE

AH	DESCRIPTION
UL - 1	POLARIZED
DUAL	POLARIZED
T3	15A 125V UL/CSA
T5A	125V UL/CSA
T250mA	250V UL/CSA
180 1W	FP

C/B/B1	DESCRIPTION
CEE-7/BS1963-3/A/AS-3112	
NIL	
T3	15A HBC 250V SEMKO
T5A	HBC 250V SEMKO
T250mA	LBC 250V SEMKO
180 1W/2W F	

NOTE.

1. RESISTORS ARE CARBON FILM 1/4W 5% UNLESS SPECIFIED.
FP - METAL FILM 2%.
FP - FLAMEPROOF 5%.
CERAMIC - WIREWOUND IN CERAMIC CASE 5%.
2. RESISTORS WITH " # " ARE ELEVATED FROM PCB.
3. COMPONENT VALUES WITH " * " ARE FOR C, B AND B1 VERSIONS.
SEE VERSION DATA FOR AH VERSION.
4. COMPONENTS WITH " Δ " ARE SAFETY CRITICAL PARTS.

EXPLODED VIEW PARTS LIST

<u>Item</u>	<u>Part No</u>	<u>Description</u>	<u>Qty</u>
0001	N14630911-1	FASCIA	1
0002	N14023890-0	SUBFASCIA	1
0003	N14023880-0	CHASSIS	1
0004	N14023810-0	BASE COVER	1
0005*AH	N14023901-0	REAR PANEL AH VERSION	1
0005*B,C	1402-3922-0	REAR PANEL B VERSION	2
0006	N14023840-0	TOP COVER	1
0007	N2437510B-0	DIA 9.5 GLOSS POWER BUTTON	1
0008	N24375601-0	KNOB 35.0MM (VOLUME)	1
0009	N24375701-1	KNOB 18.5MM (BASS,TREBLE,BAL)	3
0010	N41520041-0	POINTER	4
0011	N24376101-0	BUTTON EXTENDER (INPUT SEL.)	7
0012	N24376001-0	LONG BUTTON 8.0MM (INPUT SEL.)	9
0013	N41321181-0	THUMB SCREW ASSY	1
0017	5400-1161-0	REGULATOR HEAT SINK	4
0018	N54000811-0	28V REGULATOR HEATSINK	2
0019	N14023850-0	PWR-SW PCB BRACKET	1
0021	4152-0911-0	PCB SUPPORT 12MM HIGH	2
0022	△ N41519461-0	STRAIN RELIEF BUSHING	1
0023	N41321021-0	U-SHORTING BAR 18MM	2
0102*AH	△ 2103-7701-1	AC OUTLET 125V 15A AH VERSION	1
0103*AH	△ N41519941-0	AC OUTLET COVER PLATE AH VERSION	1
0120*AH	△ N70093100-1	AC CORD AH VERSION	1
0120*B	△ N70095100-1	AC CORD W/FUSED PLUG (3A) B VERSION	1
0120*C	△ N70093110-0	AC CORD C VERSION	1
0130	△ N21036004-0	SPEAKER TERMINAL	2
0135	5400-1081-1	HEAT SINK EXTRUSION	2
0136	5400-1091-1	HEAT SINK BAR	1
0201	2954-3008-3000	TAPPING 3X8MM B-TITE (BLK.ZN)	35
0203	2950-3008-0000	TAPPING 3X8 B-TITE PH (YEL.ZN)	4
0206	2904-3006-0000	SCREW M3X6	1
0207	2900-4006-3010	M4X0.5PX6MM W/FLAT WASHER	4
0208	2842-3367-0	METAL WASHER ID=3.3 OD=6.7	4
0209	2842-3316-0	M. WASHER(104H-2)(ID=3.3D=16)	1
0210	N41519371-1	RUBBER FOOT 14.8MM HIGH	4
0211	2900-4010-0010	SCREW M4X10 W/WASHER (YEL.ZN)	4
0212	2950-3008-3000	SCREW 3X8 TAPPING	4
0265	2904-3008-0000	M3X8MM BINDING HEAD (YEL.ZN)	9
0288	2954-3008-0000	TAPPING 3X8MM B-TITE (YEL.ZN)	23
0290	2954-3010-0000	T3X10MM B-TITE (YEL.ZN)	1
0301	△ N16600640-0	POWER SWITCH SLEEVE ID=30 UL/CSA	23

<u>Item</u>	<u>Part No</u>	<u>Description</u>	<u>Qty</u>
J105	2113-1021-0	4P RCA JACK R/W AU HSP-204V-03	1
J107	N21038506-2	6P RCA JACK R/W NI HSP-206V-01	1
J113	N21038506-2	6P RCA JACK R/W NI HSP-206V-01	1
J601	2113-1011-0	PHONE JACK W/CLIP	1
X119	N21038506-2	6P RCA JACK R/W NI HSP-206V-01	1
RV101	N47503666-0	VR VOLUME 2x20k Ohm A W/WASHER & NUT	1
RV103	N47503646-0	VR TREBLE 2x10k Ohm C W/WASHER & NUT	1
RV105	N47503676-0	VR BASS 2x50k Ohm C W/WASHER & NUT	1
RV201	N47503656-0	VR BALANCE 1x10k Ohm W W/WASHER & NUT	1
SW1 △	5200-3431-0	POWER SWITCH W/M3 THREAD	1
SW3	5200-3482-0	SELECT SWITCH 2P2T W/M3 THREAD	1
SW4	N52003121-0-01	2P2T ALPS SPUN W/O FRAME	1
SW701	N52003131-0-01	2P2T SLIDE SWITCH 3.5T22KYGX	1
TX1 △	N18062101-2	TRANSFORMER 314 W/M4 THREAD	1

NOTE : - The components identified by △ mark are critical for risk of fire and electrical shock.
Replace only with part number specified.

- <*AH > : USA, Canadian model only.
- <*B > : UK model only.
- <*C > : European model only.

ELECTRICAL PARTS LIST

<u>Reference No</u>	<u>Part Number</u>	<u>Description</u>
<u>PC BOARD</u>		
	MI-10801-05-S	PCB ASSEMBLY
<u>ICs</u>		
IC701	N31303550-0	IC TA7317P
<u>TRANSISTORS</u>		
Q101-Q104	4860-1720-5	TR KTC31981 (GR)
Q105-Q108	N48600660-5	TR 2SA1015 (GR)
Q109-Q110	N48600670-5	TR 2SA1316 (BL)
Q111-Q114	4860-0700-5	TR 2SC1815 (GR)
Q115-Q116	N48600660-5	TR 2SA1015 (GR)
Q117-Q118	N485363BL-5	N-JFET 2SK363BL
Q201	N48600650-5	TR 2SA970 (GR)
Q301-Q302	N485240GR-5	TR 2SC2240(GR)
Q303-Q304	N48600650-5	TR 2SA970 (GR)
Q305-Q306	N485240GR-5	TR 2SC2240(GR)
Q307-Q310	N48600650-5	TR 2SA970 (GR)
Q311-Q312	N485240GR-5	TR 2SC2240(GR)
Q313-Q314	N48600650-5	TR 2SA970 (GR)
Q315-Q316	N485240GR-5	TR 2SC2240(GR)
Q317-Q318	N485669AC-5	TR 2SD669A-C
Q319-Q320	N48600720-5	TR 2SC3467 (E)
Q321-Q322	N48600680-5	TR 2SA1370 (E)
Q323-Q324	N485669AC-5	TR 2SD669A-C
Q325-Q326	N485649AC-5	TR 2SB649A-C
Q327-Q328	N485B826R-5	TR 2SB826 (R)
Q329-Q330	N48600730-5	TR 2SC3519 (0,P,Y)
Q331-Q332	N48600690-5	TR 2SA1386 (0,P,Y)
Q333-Q334	N48600750-5	TR 2SD1062 (R)
Q335-Q336	N48600870-5	TR2SB631K (EF)
Q337-Q338	N48600650-5	TR 2SA970 (GR)
Q339-Q340	N48600740-5	TR 2SD600K (E,F)
Q341-Q342	N48600650-5	TR 2SA970 (GR)
Q343-Q344	4860-0700-5	TR 2SC1815 (GR)
Q345-Q346	N48600660-5	TR 2SA1015 (GR)
Q347-Q348	N48600650-5	TR 2SA970 (GR)
Q701	N48600660-5	TR 2SA1015 (GR)
Q702	4860-0700-5	TR 2SC1815 (GR)
Q703	N48600660-5	TR 2SA1015 (GR)
Q704-Q707	4860-0700-5	TR 2SC1815 (GR)
Q709-Q710	4860-0700-5	TR 2SC1815 (GR)
Q901	N48600740-5	TR 2SD600K (E,F)
Q902	N485240GR-5	TR 2SC2240(GR)
Q903	N48600650-5	TR 2SA970 (GR)
Q904	N48600870-5	TR 2SB631K (E,F)
Q905	N48600740-5	TR 2SD600K (E,F)
Q906	N48600870-5	TR 2SB631K (E,F)
<u>DIODES</u>		
D101-D112	4804-1480-2	Diode 1N4148
D301-D304	4804-1480-2	Diode 1N4148
D305-D312	4837-3B20-2	Zener Diode 1/2W 3.8-4.0V
D313-D316	4804-1480-2	Diode 1N4148
D317-D320	N48400550-0	Diode 1SS81
D323-D326	N48400560-0	Diode BY500-100 (G.I)

<u>Reference No</u>	<u>Part Number</u>	<u>Description</u>
D327-D330	4804-1480-2	Diode 1N4148
D331-D334	4837-7A20-2	Zener Diode 1/2W 7.9-8.3V
D701	4804-1480-2	Diode 1N4148
D703	4837-5B10-2	Zener Diode 1/2W 5.5-5.8V
D705-D706	4804-1480-2	Diode 1N4148
D707	N48040030-2	Diode 1N4003
D708	4804-1480-2	Diode 1N4148
D710	N37003515-RG	LED L-469EGW Red/Green 3mm
D801-D804	N48054020-L	Diode 1N5402
D805	N48400570-0	Bridge Diode GBU 6B
D806-D807	N48400580-0	Diode 1.5KE30
D901-D904	N48040030-2	Diode 1N4003
D905-D908	4837-27V0-2	Zener Diode 1/2W 26.2-27.6V
<u>COILS</u>		
L101-L102	N18030013-0	Toroid Inductor 3.7mH 20%
L301-L302	N18040500-0	Spring Coil 1uH
<u>CAPACITORS</u>		
C1	N89100049-0	Cap 400V 4700pF
C105-C106	157F-106M-5-IU	CE 50V 10µF 20%
C109-C110	157E-476M-5-IU	CE 25V 47µF 20%
C113-C114	N89100052-0	CP 50V 0.024µF 5%
C115-C116	157C-227M-5-KW	CE 10V 220µF 20%
C117-C118	N89100051-0	CP 50V 6800pF 5%
C121-C122	157E-476M-5-IU	CE 25V 47µF 20%
C123-C124	157C-227M-5-KW	CE 10V 220µF 20%
C129-C130	157F-106M-5-IU	CE 50V 10µF 20%
C131-C132	N89100050-0	CP 50V 2200pF 10%
C133-C136	153F-104J-5-SY	CM 50V 0.1µF 5%
C145-C146	157E-476M-5-IU	CE 25V 47µF 20%
C147-C148	157E-107M-5-KW	CE 25V 100µF 20%
C151-C152	153F-183J-5-KP	CM 50V 0.018µF 5%
C153-C154	153F-104J-5-SY	CM 50V 0.1µF 5%
C155-C156	157E-476M-5-IU	CE 25V 47µF 20%
C157-C158	153F-823J-5-SY	CM 50V 0.082µF 5%
C159-C160	N153F474K-5-17	CM 50V 0.47µF 10%
C202	153F-104M-5-SY	CM 50V 0.1µF 20%
C225	153F-104M-5-SY	CM 50V 0.1µF 20%
C228	153F-104M-5-SY	CM 50V 0.1µF 20%
C243	153F-104M-5-SY	CM 50V 0.1µF 20%
C249	153F-104M-5-SY	CM 50V 0.1µF 20%
C301-C302	157F-106M-5-IU	CE 50V 10µF 20%
C303-C304	157C-476M-5-IU	CE 10V 47µF 20%
C309-C310	157C-227M-5-KW	CE 10V 220µF 20%
C311-C312	N153H104M-5-SY	CM 100V 0.1µF 20%
C317-C318	N153H104M-5-SY	CM 100V 0.1µF 20%
C319-C320	157F-106M-5-IU	CE 50V 10µF 20%
C325-C326	153F-104M-5-SY	CM 50V 0.1µF 20%
C331-C332	157C-476M-5-IU	CE 10V 47µF 20%
C345-C347	N157H476M-5-S5	CE 100V 47µF 20%
C349-C350	N153H473M-5-OS	CM 100V 0.047µF 20%
C355-C356	N153H473M-5-OS	CM 100V 0.047µF 20%
C701-C702	157C-107M-5-IU	CE 10V 100µF 20%
C703	157C-226M-5-IU	CE 10V 22µF 20%
C704	N157H105M-5-IU	CE 100V 1µF 20%
C705-C706	157C-476M-5-IU	CE 10V 47µF 20%

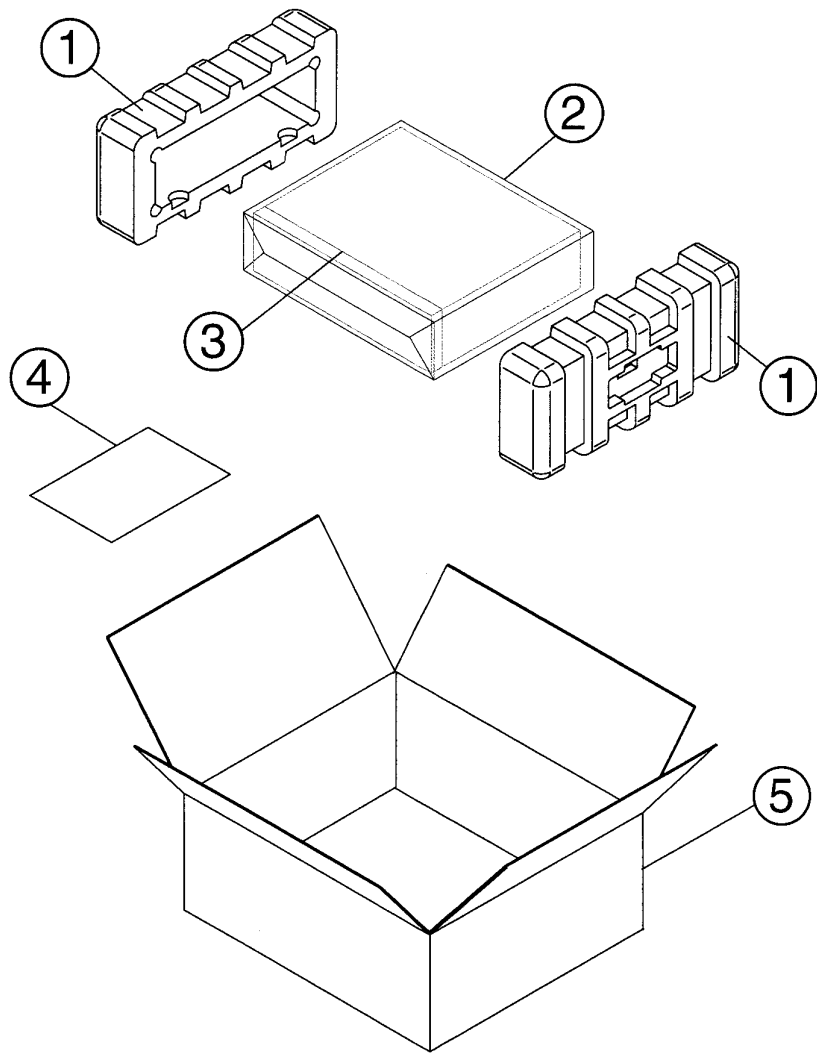
<u>Reference No</u>	<u>Part Number</u>	<u>Description</u>
C707	N153F474K-5-17	CM 50V 0.47μF 10%
C708	157C-226M-5-IU	CE 10V 22μF 20%
C709	157F-474M-5-IU	CE 50V 0.47μF 20%
C801-C802	N153R223M-5-KW	CM 250V 0.022μF 20%
C803	N89100047-0	CE 25V 10000μF 20%
C804-C805	N89100048-0	CE 50V 10000μF 20%
C806	N89100047-0	CE 25V 10000μF 20%
C901	N153R223M-5-KW	CM 250V 0.022μF 20%
C902-C903	N89100046-0	CE 100V 680μF 20%
C904-C905	N157H476M-5-S5	CE 100V 47μF 20%
C908	N157H475M-5-IU	CE 100V 4.7μF 20%
C909	157C-226M-5-IU	CE 10V 22μF 20%
C910-C911	N157H476M-5-S5	CE 100V 47μF 20%
C912-C913	157F-107M-5-OW	CE 50V 100μF 20%
C914-C915	N157H476M-5-S5	CE 100V 47μF 20%
<u>RESISTORS</u>		
R107-R108	4715-563C-2	RMF 56k Ohm 1/4W 2%
R117-R118	4715-221C-2	RMF 220 Ohm 1/4W 2%
R119-R120	4715-134C-2	RMF 130k Ohm 1/4W 2%
R121-R122	4715-113C-2	RMF 11k Ohm 1/4W 2%
R123-R124	4715-181C-2	RMF 180 Ohm 1/4W 2%
R153-R154	4715-153C-2	RMF 15k Ohm 1/4W 2%
R163-R164	4715-272C-2	RMF 2.7k Ohm 1/4W 2%
R165-R166	4715-392C-2	RMF 3.9k Ohm 1/4W 2%
R167-R168	4715-681C-2	RMF 680 Ohm 1/4W 2%
R169-R170	4715-392C-2	RMF 3.9k Ohm 1/4W 2%
R171-R172	4715-681C-2	RMF 680 Ohm 1/4W 2%
R335-R336	4715-241C-2	RMF 240 Ohm 1/4W 2%
R347-R348	△ N4717102J-2-P	RFP 1K Ohm 1/2W 5%
R351-R352	△ N4717331J-2-P	RFP 330 Ohm 1/2W 5%
R353-R354	△ N47183R3J-2-F	RFU 3.3 Ohm 1W 5%
R355-R356	4718-392C-L	RMF 3.9k Ohm 1W 2%
R357-R358	△ N47183R3J-2-F	RFU 3.3 Ohm 1W 5%
R359-R360*AH	N4749R22J-1	Res-Wire Wound 0.22 Ohm 2W 5%
R359-R360*C,B	471A-022K-5-N	RMF 0.22 Ohm 3W 10%
R367-R368	4715-301C-2	RMF 300 Ohm 1/4W 2%
R379-R382	△ N4717471J-2-P	RFP 470 Ohm 1/2W 5%
R389-R392	△ N4718682J-L-P	RFP 6.8k Ohm 1W 5%
R393-R396	△ N4718103J-L-P	RFP 10k Ohm 1W 5%
R421-R422	△ N4718100J-L-F	RFU 10 Ohm 1W 5%
R423-R424	△ N47173R3J-2-P	RFP 3.3 Ohm 1/2W 5%
R717-R718	4715-102C-2	RMF 1k Ohm 1/4W 2%
R721-R722	4715-102C-2	RMF 1k Ohm 1/4W 2%
R723-R724	4715-622C-2	RMF 6.2k Ohm 1/4W 2%
R743	△ N4717392J-2-P	RFP 3.9k Ohm 1/2W 5%
R903	△ N4718100J-L-P	RFP 10 Ohm 1W 5%
R906	△ N4718100J-L-P	RFP 10 Ohm 1W 5%
R917-R918*AH	△ N4718181J-L-P	RFP 180 Ohm 1W 5%
R917-R918*C,B	△ 4717-181J-2-F	RFU 180 Ohm 1/2W 5%
<u>VARIABLE RES.</u>		
RV101	N47503666-0	VR Volume 2x20k Ohm A w/Washer & Nut

<u>Reference No</u>	<u>Part Number</u>	<u>Description</u>
RV103	N47503646-0	VR Treble 2x10k Ohm C w/Washer & Nut
RV105	N47503676-0	VR Bass 2x50k Ohm C w/Washer & Nut
RV201	N47503656-0	VR Balance 1x10k Ohm W w/Washer & Nut
RV301-RV302	N47561030-3-11	Semi-Fix 10k Ohm
VR303-VR304	N47561020-3-11	Semi-Fix 1k Ohm
<u>RELAY</u>		
RLY701	N45000120-0	Relay 2P1T DGX2-24M
<u>SWITCHES</u>		
SW1 △	5200-3431-0	Power Switch w/M3 Thread
SW3	5200-3482-0	Extra Spk Switch 2P2T w/M3 Thread
SW4	N52003121-0-01	2P2T ALPS SPUN w/o Frame
SW701	N52003131-0-01	2P2T Slide Switch 3.5T22KYGX
SW702	N52003141-0-01	7-Key ALPS SPUN 71K004-RN
TF701 △	N89100063-0	Thermal Switch 110C UP72
TF702 △	N89100064-0	Thermal Switch 90C UP72
<u>FUSES</u>		
F801-F802*AH △	N51003130-1A	Fuse 3.15A 125V Time Leg LBC (UL/CSA)
F801-F802*C,B △	N51003130-1B	Fuse 3.15A 250V Time Leg HBC (SEMKO)
FH801-FH804	N41321011-0	Fuse Holder (5 x 20 mm)
F803-F804*AH △	N51005030-1A	Fuse 5A 125V LBC Time Leg (UL/CSA)
F803-F804*C,B △	N51005030-1B	Fuse 5A 250V HBC Time Leg (SEMKO)
F901-F902*AH △	N51002510-1C	Fuse 250mA 250V LBC Time Leg (UL/CSA)
F901-F902*C,B △	N51002510-1B	Fuse 250mA 250V LBC Time Leg (SEMKO)
FH901-FH902	N41321011-0	Fuse Holder (5 x 20 mm)
<u>RCA JACKS</u>		
J105	2113-1021-0	4P RCA JACK R/W AU HSP-204V-03
J107	N21038506-2	6P RCA JACK R/W NI HSP-206V-01
J113	N21038506-2	6P RCA JACK R/W NI HSP-206V-01
X119	N21038506-2	6P RCA JACK R/W NI HSP-206V-01
<u>TRANSFORMER</u>		
TX1 △	N18062101-2	Transformer 314 W/M4 Thread

NOTE : - The components identified by △ mark are critical for risk of fire and electrical shock.
Replace only with part number specified.

- <*AH > : USA, Canadian model only.
- <*B > : UK model only.
- <*C > : European model only.

PACKING DIAGRAM



PACKING LIST

<u>Item</u>	<u>Part No</u>	<u>Description</u>	<u>Qty</u>
1	1490-1843-0	POLYFOAM END CAP	2
2	N14971332-1	POLYBAG	1
3	N14971442-0	EPE BAG	1
4	N43013600-0	INSTRUCTION MANUAL	1
5	N14764001-0	CARTON BOX	1

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