PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
RRV1166

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STEREO POWER AMPLIFIER

M-770

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	M-770		
KU	○	AC120V	
KC	○	AC120V	

- **This product is a system(s) component.**
  This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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CHAPTER 1

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols -▮▭▮- (fast operating fuse) and/or -▮▭▮- (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible -▮▭▮- (fusible de type rapide) et/ou -▮▭▮- (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

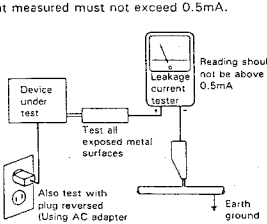
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

1.2 SPECIFICATIONS

[Front]

Continuous Average Power Output is 115 Watts* per channel, min., at 8 ohms from 70 Hertz to 20,000 Hertz, with no more than 0.9 % total harmonic distortion.**

Center (RMS) ..... 25 W (1 kHz, 10%, 8 Ω)
Rear (RMS) ..... 15 W (1 kHz, 10%, 8 Ω)
Input (Sensitivity/Impedance)
PHONO (MM) ..... 5 mV/47 kΩ
CD, VIDEO ..... 200 mV/22 kΩ
Signal-to-Noise Ratio (IHF, short-circuited, A network)
PHONO (MM) ..... 65 dB
CD, VIDEO ..... 80 dB
Graphic Equalizer Frequency Band
..... 60 Hz, 150 Hz, 400 Hz, 1 kHz, 2.4 kHz, 6 kHz, 15 kHz, ±10 dB

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.*
** *Measured By Audio Spectrum Analyzer.*

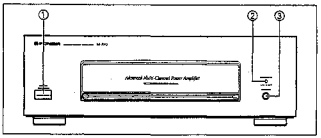
Miscellaneous

Power Requirements ..... AC 120 V, 60 Hz
Power Consumption
M-770 ..... 290W, 390 VA
AC Outlets
Switched x 1 ..... 100 W (85 W) MAX
Unswitched x 2 ..... 200 W (85 W) MAX
Dimensions
M-770 ..... 420 (W) x 140 (H) x 365 (D) mm
16-9/16 (W) x 5-1/2 (H) x 14-1/4 (D) in
Weight (without package)
M-770 ..... 7.8 kg (17 lb 3 oz)

NOTE:
• *Specifications and design are subject to possible modifications without notice due to improvements.*

1.3 PANEL FACILITIES

■ POWER AMPLIFIER SECTION



① POWER (OFF/ON) switch

When this switch is OFF, the tuner control amplifier's POWER switch does not function. When this switch is ON, the STANDBY indicator of the tuner control amplifier lights.

② SPEAKERS button (■ A, ▬ A+B)

This is used to select the speaker through which you wish to listen.
■ A : When the speakers connected to A terminals are in use.
▬ A+B : When the speakers connected to A and B terminals are in use.
(There is no sound at this position when speakers are connected only to the A terminals.)
Be sure to use A terminals when you are using one pair of speakers only. No sound will be heard through the speakers when only one pair of speakers are connected to B terminals.

③ PHONES jack

This is a "standard plug-type jack" for headphones.

NOTE:
Sound is not heard from the speakers when headphones are in use.

1.4 ADJUSTMENTS

POWER AMP MODULE SECTION (Refer to Fig. 1.)

1. Handling Precautions

- Since the heat sink and transistor metallic parts are connected to the Front Amp output, make sure they do not contact the GND (chassis) or other circuits.
- Since there is residual high voltage in the Power Amp Module Assy ±B1 (FRONT 100W ASSY) and ±B2 (REG W/REAR ASSY) even when the power is OFF, caution should be exercised. (If necessary, the voltage should be discharged).
- When handling the Power Amp Module Assy, make sure you do not touch the fan motor blade.

2. Adjustment and Confirmation of Idle Current

- Basically, the idle current needs to be confirmed whe replacing a power transistor, driver transistor, or bia transistor, or when the entire split board Assy of the Powe Amp Module Assy has been replaced.
- Make sure the heat sink has cooled sufficiently befor measuring the idle current. (Temperature should be the sam as room temperature; 25℃ is ideal, if possible.)
- Idle current stipulated value: 3−50mA.

■ Front Amp Side (FRONT 100W ASSY)

Step	Measurement	Item	Remarks
1	Lch side	Short both sides of C7144 and C7145 on the Rear Amp side.	Do not operate the Rear Amp side.
2		Insert a resistor (0.22Ω, 3W or more) in series in the connector CN7502 +B1 (or −B1) line (terminal No. 5 or 6). (Refer to Fig. 2.)	For measuring voltage at both sides of resistor
3		Short both sides of C7524.	Do not operate Rch side.
4		Turn the power ON, wait 6 seconds, and then measure the resistance voltage in Step 2.	Lch Idle current I=V/0.22 (Ω)
5	Rch side	• Same as Steps 1 and 2 above. • Short both sides of C7523.	Do not operate Lch side.
6		Turn the power ON under the above conditions, and after 6 seconds measure the resistance voltage in Step 2.	
7	——	If the measured idle current is greater than 50mA, perform the following procedure.	
8	Lch side	Short between the Point Ⓐ pattern in Fig. 3 using solder.	Connect R7517 to R7515 in a parallel circuit.
9	Rch side	Short between the Point Ⓑ pattern in Fig. 3 using solder.	Connect R7518 to R7516 in a parallel circuit.
10	——	After performing Steps 8 and 9, remeasure the idle current and confirm that it is below 50mA.	

Step	Measurement	Item	Remarks
11	——	If the idle current is below 3mA, perform the following procedure.	
12	Lch side	Short between the point Ⓒ pattern in Fig.3 using solder.	Connect R7551 to R7519 in a parallel circuit.
13	Rch side	Short between the point Ⓓ pattern in Fig.3 using solder.	Connect R7552 to R7520 in a parallel circuit.
14	——	After performing step Ⓒ and Ⓓ, remeasure the idle current and confirm that it is greater than 3mA (within 3 – 50mA).	

■ Rear Amp Side (REG W/REAR ASSY)

Step	Measurement	Item	Remarks
1	Center amp side	Short both sides of C7523 and C7524 on the Front Amp side.	Do not operate the Front Amp side.
2		Insert a resistor (0.22Ω, 2W or more) in series in the connector CN7102 +B2 (or −B2) line (terminal No. 5 or 6). (Refer to Fig. 4.)	For measuring voltage at both sides of resistor
3		Short both sides of C7145 on the Surround Amp side.	Do not operate the Surround Amp.
4		Turn the power ON, wait 6 seconds, and then measure the resistance voltage in Step 2.	Idle current: I = V/0.22 (Ω)
5	Surround amp side	● Same as Steps 1 and 2 above. ● Short both sides of C7144 on Surround Amp side.	Do not operate Surround Amp.
6		Turn the power ON under the conditions in Steps 1 and 2, and after 6 seconds measure the resistance voltage in Step 2.	
7	——	If the measured idle current is greater than 50mA, perform the following procedure.	
8	Center amp side	Short between the Point Ⓔ pattern in Fig. 5 using solder.	Connect R7117 to R7115 in a parallel circuit.
9	Surround amp side	Short between the Point Ⓕ pattern in Fig. 5 using solder.	Connect R7118 to R7116 in a parallel circuit.
10	——	After performing Steps 8 and 9, remeasure the idle current and confirm that it is below 50mA.	
11	——	If the idle current is below 3mA, perform the following procedure.	
12	Center amp side	Short between the point Ⓖ pattern in Fig.5 using solder.	Connect R7151 to R7119 in a parallel circuit.
13	Surround amp side	Short between the point Ⓗ pattern in Fig.5 using solder.	Connect R7152 to R7120 in a parallel circuit.
14	——	After performing step Ⓒ and Ⓗ, remeasure the idle current and confirm that it is greater than 3mA (within 3 – 50mA).	

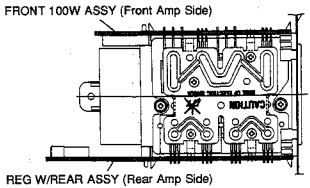


Fig. 1 Power Amp Module

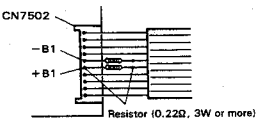


Fig. 2 FRONT 100W ASSY

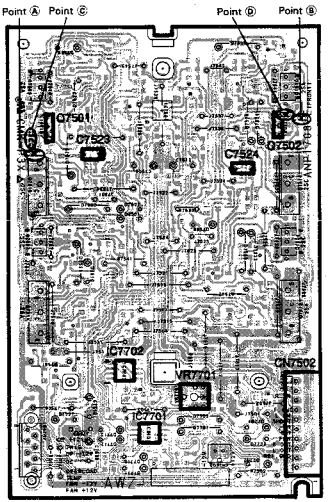


Fig. 3 FRONT 100W ASSY

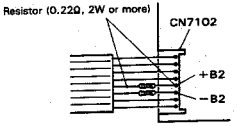


Fig. 4 REG W/REAR ASSY

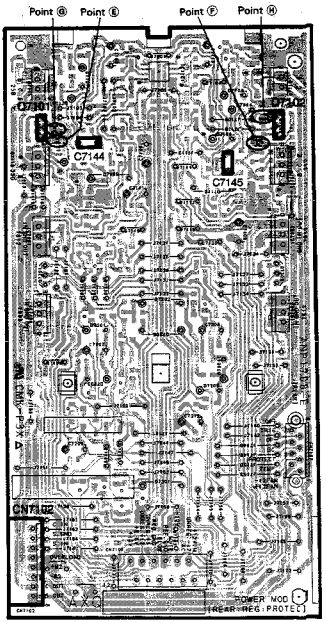


Fig. 5 REG W/REAR ASSY

3. Adjusting the Operating Temperature Setting of the Fan Motor (VR7701)

This adjustment is necessary when IC7403 (+12V regulator), Q7301 and Q7302 (temperature sensors), or VR7701 has been replaced, or when the entire split board Assy of the Power Amp Module Assy has been replaced.

■ Adjustment-Related Cautions

- Make sure the heat sink has sufficiently cooled (is the same as room temperature Ta.)
- Once the power has been turned ON, make measurements and adjustments as quickly as possible. (If too much time is taken, the heat sink temperature will rise, and the measurements will deviate from the Ta measurement point.)

■ Adjustment

1. Connect a voltmeter between TEMP and TP (or between IC7702 terminals No.3 and 2). (Refer to Figs. 3 and 6.)
2. Determine the fan motor operating temperature setting by means of the following formula. (Tolerance is within ±30mV.)
   Formula: (85°C − Ta) × 19 (mV)
   Ta: ambient temperature (°C)
3. Adjust VR7701 so that the voltage between TEMP and TP is the value obtained from the above formula.
   For example:
   when the room temperature is 25°C,
   set value = (85 − 25) × 19 (mV)
   = 1140mV (tolerance within ±30mV).

Note:
Adjustment during service should be ±30mV, but if this value cannot be obtained with the measuring instruments used for adjustment, ±50mV is acceptable.

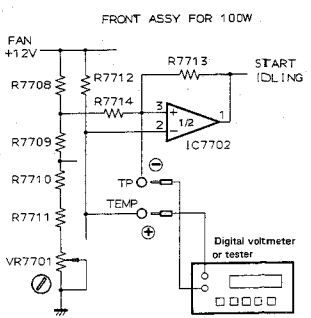


Fig. 6 Adjustment of Operating Temperature Setting of Fan Motor

1.5 HOW TO CHECK M-770

As M−770 is controlled from CX−770 or CX−770S, please carry out check in combination with CX−770 or CX−770S.

● How to Check M−770 only.

When checking of the operation of only M−770 is required, the operation can be easily checked according the following procedures.

1. Connect pin 6 (D.GND) and pin 9 (POWER RY) of the CN 104 (external connection connector) on AF ASSY (AWZ 7293).
2. When pressing the power switch of M−770, the set will enter normal operation status. After this, you can carry out check of the operation.

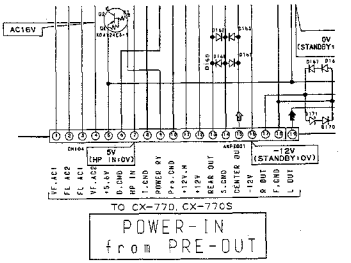


Fig. 1

1.6 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1.6.1 PACKING

Mark	No.	Description	Parts No.
	1	SIDE PAD NO.1	AHA7025
	2	SIDE PAD NO.2	AHA7026
	3	PACKING CASE	AHD7058
	4	OPERATING INSTRUCTIONS (ENGLISH)	ARB7013
	5	OPERATING INSTRUCTIONS (FRENCH)(KC TYPE ONLY)	ARC7023
	6	PACKIN SHEET	AHG7008
NSP	7	LITERATURE BAG	AHG−117

1.6.2 POWER AMP MODULE SECTION

Mark	No.	Description	Parts No.
	1	FRONT 100W ASSY	AWZ5757
	2	REG W/REAR ASSY	AWZ5758
	3	HEAT SINK	ANH7007
	4	BRACKET	ANG1868
	5	SHEET	AEB1256
	6	MOLD A	AMR2594
	7	MOLD B	AMR2595
	8	SCREW (3×10)	ABA1021
	9	SCREW	BBZ30P140FZK
	10	SCREW	BPZ30P350FZK
	11	FAN MOTOR	AXM1019
	12	REGULATOR IC (IC7401)	NJM7812AS
	13	REGULATOR IC (IC7402)	NJM7912A
	14	REGULATOR IC (IC7403)	NJM7812AS
	15	REGULATOR IC (IC7404)	NJM7805AS
⚠	16	TRANSISTOR (Q7111)	2SB1274
⚠	17	TRANSISTOR (Q7112)	2SB1274
⚠	18	TRANSISTOR (Q7113)	2SD1913
⚠	19	TRANSISTOR (Q7114)	2SD1913
	20	TRANSISTOR (Q7503)	2SC4793
	21	TRANSISTOR (Q7504)	2SC4793
	22	TRANSISTOR (Q7509)	2SA1837
	23	TRANSISTOR (Q7510)	2SA1837
⚠	24	TRANSISTOR (Q7511)	2SA1264N
⚠	25	TRANSISTOR (Q7512)	2SA1264N
⚠	26	TRANSISTOR (Q7513)	2SC3181N
⚠	27	TRANSISTOR (Q7514)	2SC3181N

1.6.3 EXTERIOR

Mark	No.	Description	Parts No.
NSP	1	CHASSIS	ANA1491
	2	INSULATOR ASSY	PNW1912
	3	INSULATOR ASSY	DXA1490
NSP	4	PCB HOLDER	AEC1583
	5	REAR PANEL	ANC7106
NSP	6	PCB MOLD	AMR1525
	7	AF ASSY	AWZ7293
	8	PCB SUPPORT	AEC1581
⚠	9	FUSE (FU151, 6.3A)	AEK−309
⚠	10	FUSE (FU153, 4A)	AEK1018
⚠	11	FUSE (FU155, 4A)	AEK1018
	12	POWER MODULE	AXQ7012
	13	PUSH RIVET	AEC7010
⚠	14	AC POWER CORD	ADG1146
	15	STRAIN RELIEF	AEP−113
NSP	16	SP ASSY	AWZ7296
⚠	17	POEWR TRANSFORMER (T1)	ATS7028
NSP	18	TRANS ASSY	AWZ7298
	19	FRONT PANEL	AMB7092
	20	PUSH SWITCH (S151)	ASG−553
	21	POWER BUTTON	AAD7064
	22	INDI. LENS	AAK7075
NSP	23	LED ASSY	AWZ7295
NSP	24	HP ASSY	AWZ7294
	25	SPEAKER BUTTON	AAD4071
	26	ILLUMI. PANEL	AAK7076
	27	NAME PLATE	PAM1608
	28	BONNET CASE	ANE1528
	29	CAPACITOR (C153)	ACG1003
	30	BINDER	AEC−093
	31	65 LABEL (KU TYPE ONLY)	ORW1069
	32	SCREW	ABA1018
	33	SCREW	ABA1095
	34	SCREW	BBZ30P080FZK
	35	SCREW	BBZ40P080FZK
	36	SCREW	BPZ26P080FMC
	37	SCREW	VPZ30P080FZK
	38	BINDER	AEC−826
	39	BINDER	AEP−215
	40	SCREW	BBT30P080FZK

1.7 PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	*56×10¹*	→ *561* ·····	*RD1/8PM 5 6 1 J*
47kΩ	→	*47×10³*	→ *473* ·····	*RD1/4PS 4 7 3 J*
0.5Ω	→	*0R5*	·····	*RN2H 0 R 5 K*
1Ω	→	*010*	·····	*RS1P 0 1 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562×10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
NSP	MAIN ASSY		AWK7083
	├ AF ASSY		AWZ7293
NSP	├ HP ASSY		AWZ7294
NSP	├ LED ASSY		AWZ7295
NSP	├ SP ASSY		AWZ7296
NSP	└ TRANS ASSY		AWZ7298
	POWER MODULE ASSY		AXQ7012
	├ FRONT 100W ASSY		AWZ5757
	└ REG W/REAR ASSY		AWZ5758
MAIN ASSY			
OTHERS			
	Y8112,Y8113	BOARDIN READ WIRE	ADX7039
AF ASSY			
SEMICONDUCTORS			
	Q101,Q104,Q108		2SA1048
	Q106,Q111		2SA1515
	Q102,Q107,Q112		2SC2458
	Q109		2SC3377
	Q105		DTA124ES
	Q110,Q115		XDA124ES
	Q103		XDC124ES
	Q114		XDC143ES
	D102		D3SBA20(A)
	D101		D5SB20F
	D103－D106,D108－D110,D151		HSS104－02
	D160－D171		HSS104－02
	D107		RD7.5ESB2
COILS AND FILTERS			
⚠	L151	(0.3,AC250V)	ATF1136
SWITCHES AND RELAYS			
⚠	RY151,RY152		ASR1027
CAPACITORS			
⚠	C151,C152,C154	(0.01,AC400V)	ACG1002
	C103,C104	(4700,DC63V)	ACH1249
	C109		CEAS010M50
	C106,C107		CEAS332M35
	C108		CEAS3R3M50
	C125		CEAS470M16
	C171－C174		CFTXA104J50
⚠	C105		CQMA103K250
⚠	C101,C102		CQMXA104J100
RESISTORS			
⚠	R153	(2.2M,1/2W)	ACN－208
	R101,R102	(0.22,5W)	ACN1096
	R105		RD1/2PM182J
	R106		RD1/2PM472J
	R173,R174		RD1/2PM7R5J
	R120,R121		RS1LMFR22J
		Other Resistors	RD1/8PM□□□J
OTHERS			
		SPEAKER TERMINAL 8－P	AKE－111
⚠		AC OUTLET 3P	AKP1053
		SOCKET(19P)	AKP7001
	CN106	8P SOCKET	KP250NA8
	CN102	CONNECTOR(8P)	KPE8
HP ASSY			
SWITCHES AND RELAYS			
	S201		SULLXS
CAPACITORS			
	C251		CKCYF473Z50
RESISTORS			
	R251,R252		RS1LMF331J
OTHERS			
	CN251	JACK	AKN1025
LED ASSY			
SEMICONDUCTORS			
	D201－D206		AEL1065

Mark	No.	Description	Parts No.
SP ASSY			
CAPACITORS			
	C201－C204		CQMA104J50
RESISTORS			
		All Resistors	RD1/8PM□□□J
OTHERS			
	8415	SPEAKER TERMINAL 4－P	AKE1012
	CN203	SPEAKER TERMINAL 2－P	AKE1032
TRANS ASSY			
		This assembly has no service part	
POWER MODULE ASSY			
SEMICONDUCTORS			
	IC7404		NJM7805AS
	IC7401,IC7403		NJM7812AS
	IC7402		NJM7912A
⚠	Q7511,Q7512		2SA1264N
	Q7509,Q7510		2SA1837
⚠	Q7111,Q7112		2SB1274
⚠	Q7513,Q7514		2SC3181N
	Q7503,Q7504		2SC4793
⚠	Q7113,Q7114		2SD1913
OTHERS			
		SCREW	ABA1021
		SHEET	AEB1256
		MOLD A	AMR2594
		MOLD B	AMR2595
		BRACKET	ANG1868
		HEAT SINK	ANH7007
		POWER MOD. PCB	ANP1708
		FAN MOTOR	AXM1019
		SCREW	BBZ30P140FZK
		SCREW	BPZ30P350FZK
FRONT 100W ASSY			
SEMICONDUCTORS			
	IC7501		UPC4570G2
	IC7701,IC7702		XRA4558F－P
	Q7507,Q7508		2SA1182
	Q7501,Q7502		2SC2240
	Q7605,Q7606,Q7703		2SC2712
	Q7505,Q7506		2SC2859
	Q7704		XDC143EK
	D7505,D7506,D7517,D7518		1SS181
	D7503,D7504,D7516		1SS184
	D7521－D7524		1SS244
	D7519,D7520,D7525,D7526,D7531		HSS104－02
	D7701－D7704,D7707,D7710－D7714		HSS104－02
	D7507－D7510		RD3.3ESB2
CAPACITORS			
	C7703 (1/16)		ACG1051
	C7523,C7524 (10/35)		ACH1150
	C7509,C7510 (47/16)		ACH1151
	C7539,C7540 (22/16)		ACH1248
	C7519－C7522,C7545－C7552		CCSQCH101J50
	C7525－C7528		CCSQCH221J50
	C7503,C7504		CCSQCH331J50
	C7541,C7542		CCSQCH470J50
	C7529－C7532		CKSQYB33□K50
	C7543,C7544		CKSQYB472□K50
	C7602		CKSQYF16□Z50
	C7702		CKSQYF104Z50
	C7537		CKSQYF45□Z50
RESISTORS			
	R7519,R7520 (634Ω)		ACN1106
	R7515,R7516 (1.8K)		ACN1107
⚠	R7541,R7542		RD1/4PMF□□J
	R7711		RS1/10S101□F
⚠	R7547－R7550		RS1/10S220□F
⚠	R7529－R7536		RS1/10S10□J
	R7709		RS1/10S398□F
	R7710		RS1/10S56□F
	R7708		RS1/10S750□F
	R7753		RS1/8S000J
⚠	R7537－R7540		RS1/8S100J
	R7553		RS1/8S101J
⚠	R7543,R7544		RS1/8S75□J
	VR7701 (1K)		ACP1053
		Other Resistors	RS1/10S□□□J
REG W/REAR ASSY			
SEMICONDUCTORS			
	IC7101		UPC4570G2
	Q7107,Q7108,Q7208,Q7215,Q7219		2SA1162
	Q7213		2SA1182
	Q7109,Q7110		2SB1115
	Q7101,Q7102,Q7301,Q7302		2SC1815
	Q7105,Q7106,Q7205－Q7207,Q7209		2SC2712
	Q7212,Q7214,Q7218,Q7220,Q7221		2SC2712
	Q7216		2SC2859
	Q7211,Q7217		2SC3138
	Q7103,Q7104		2SD1615
	Q7210,Q7222		XDA124EK
	D7113,D7114		1SS181
	D7111,D7112		1SS184
	D7201,D7205		HSS104－02
	D7204,D7206		HZS6C3L
	D7203		HZS9A2L
	D7107－D7110		RD2.2ESB2
CAPACITORS			
	C7402,C7406,C7408 (0.082)		ACG1050
	C7401,C7405,C7407 (0.33)		ACG1053
	C7409 (10/35)		ACH1150
	C7109,C7110,C7205,C7207,C7208 (47/16)		ACH1151
	C7140,C7141 (22/16)		ACH1248
	C7119－C7122		CCSQCH101J50
	C7133－C7136		CCSQCH221J50
	C7125－C7128		CCSQCH271J50
	C7103,C7104		CCSQCH331J50
	C7142,C7143		CCSQCH470J50
	C7212 (1/50)		ACH1056

Mark	No.	Description	Parts No.
	C7144,C7145		CKSQYB103K50
	C7301		CKSQYB332K50
	C7129－C7132		CKSQYB333K50
	C7213,C7214		CKSQYF103Z50
	C7206,C7404		CKSQYF104Z50
	C7137,C7138		CKSQYF472Z50
	C7139		CKSQYF473Z50
RESISTORS			
	R7403,R7404		ACN1104
	R7119,R7120		ACN1105
	R7115,R7116		ACN1109
⚠	R7137－R7140		RSI/10S0100F
	R7303		RSI/10S1002F
⚠	R7129－R7136		RSI/10S101J
⚠	R7147－R7150		RSI/10S2200F
	R7304		RSI/10S8200F
⚠	R7141－R7144		RSI/8S100J
	R7153		RSI/8S101J
		Other Resistors	RSI/10S□□□J
OTHERS			
	CN7102	8P PLUG	KM250NA8L
	CN7101	CONNECTOR(12P)	KPE12

PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
RRZ11 66

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

STEREO POEWR AMPLIFIER

M-770

CHAPTER 2

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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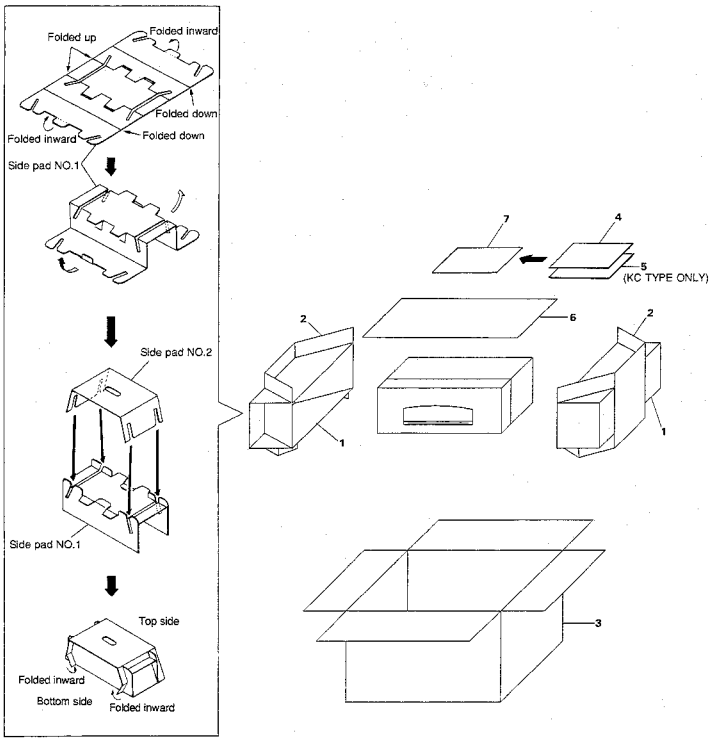
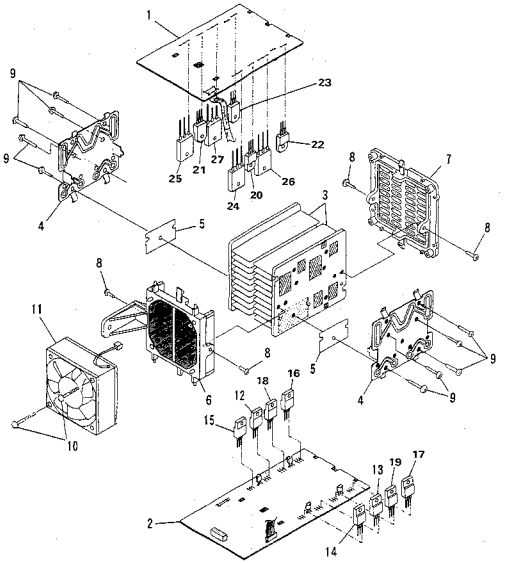
T-FFG JUNE 1994 Printed in Japan

2.1 PACKING AND EXPLODED VIEWS

2.1.1 PACKING



2.1.2 POWER AMP MODULE SECTION

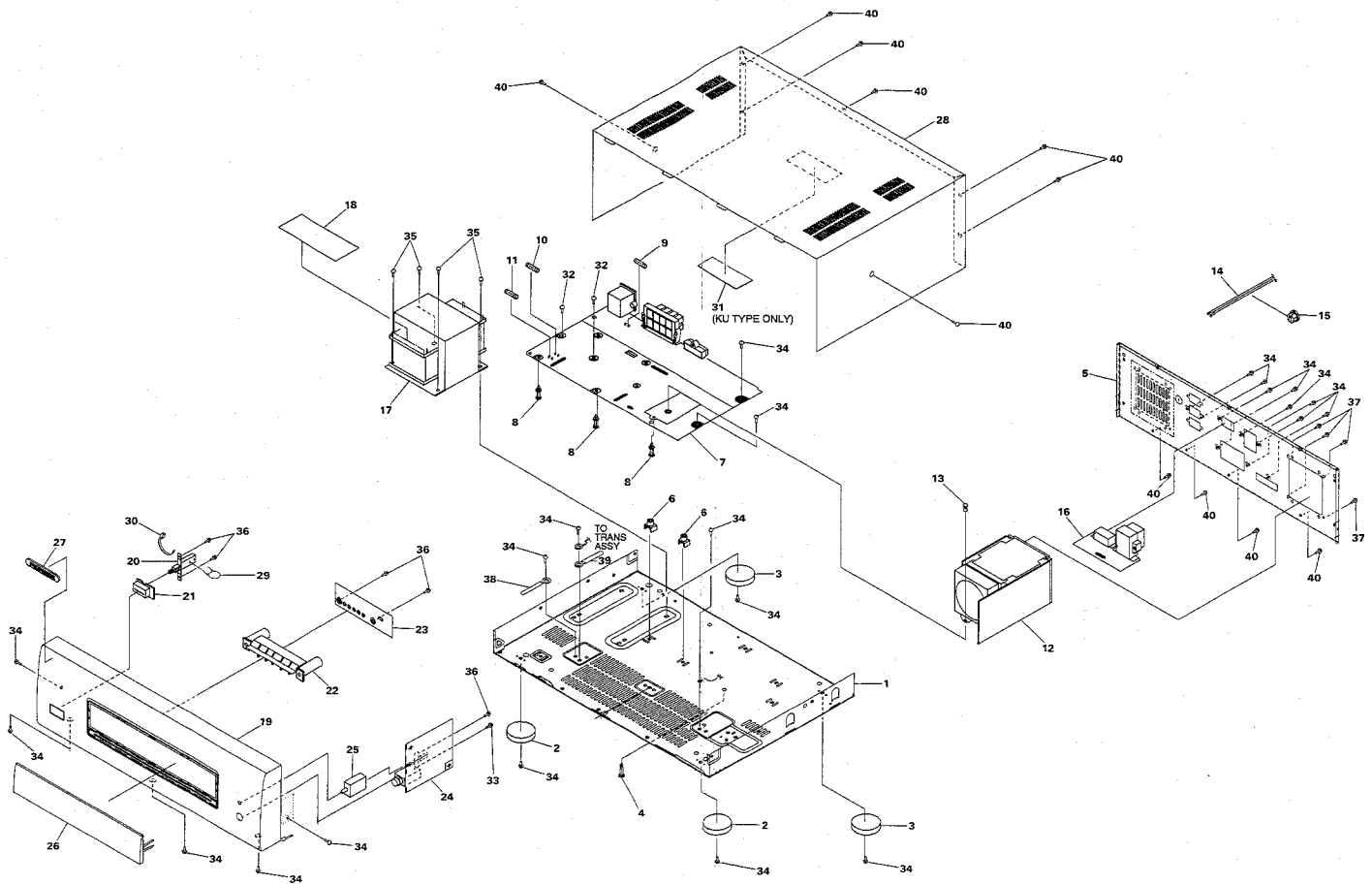


Notes

- *Ensure that silicon grease does not adhere to the MOLD A (No. 6) and MOLD B (No. 7).*

NOTE : Screws adjacent to ▼ mark on product are used for disassembly.

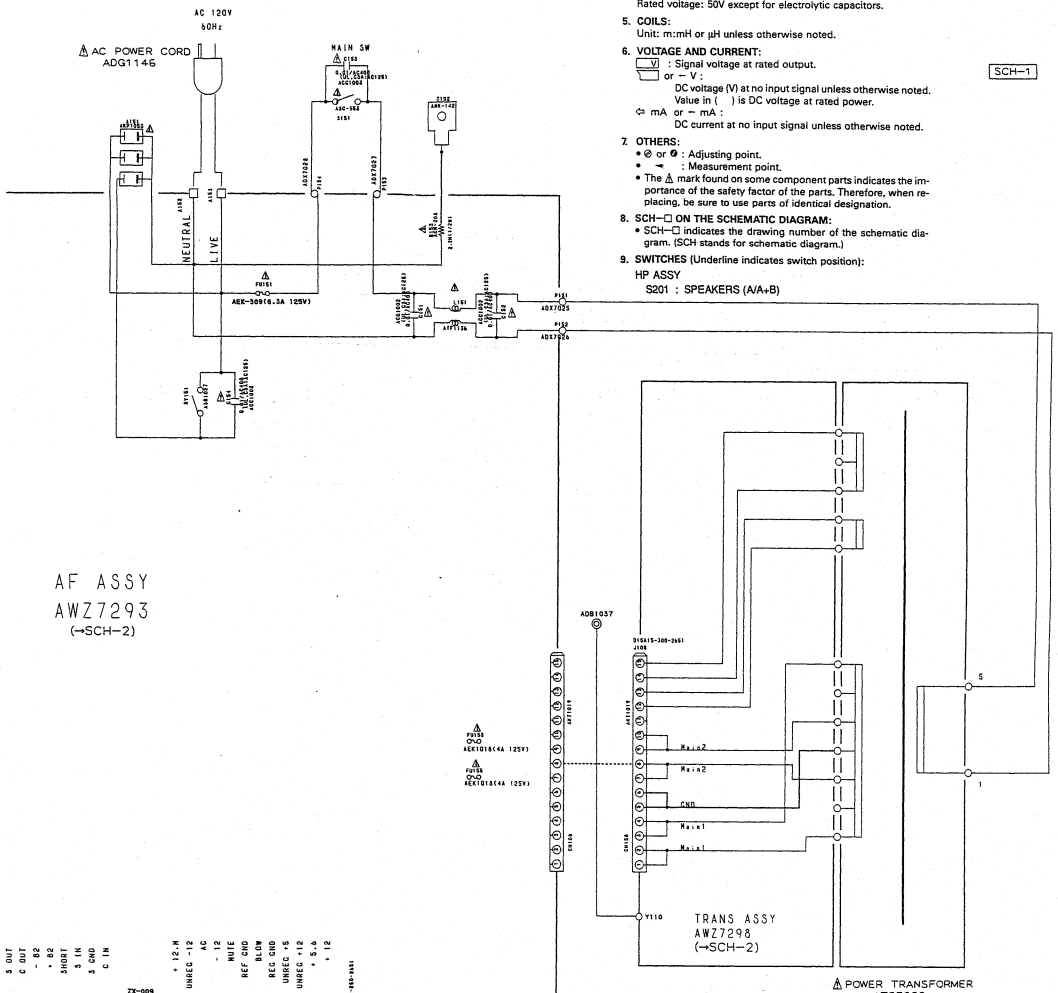
2.1.3 EXTERIOR



NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

1. **When ordering service parts, be sure to refer to "PARTS LIST OF EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or µF unless otherwise noted.
   Ratings: capacitor (µF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or µH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   V : Signal voltage at rated output.
   or — V :
   DC voltage (V) at no input signal unless otherwise noted.
   Value in ( ) is DC voltage at rated power.
   ⇨ mA or — mA :
   DC current at no input signal unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ⊸ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):
   HP ASSY
   S201 : SPEAKERS (A/A+B)

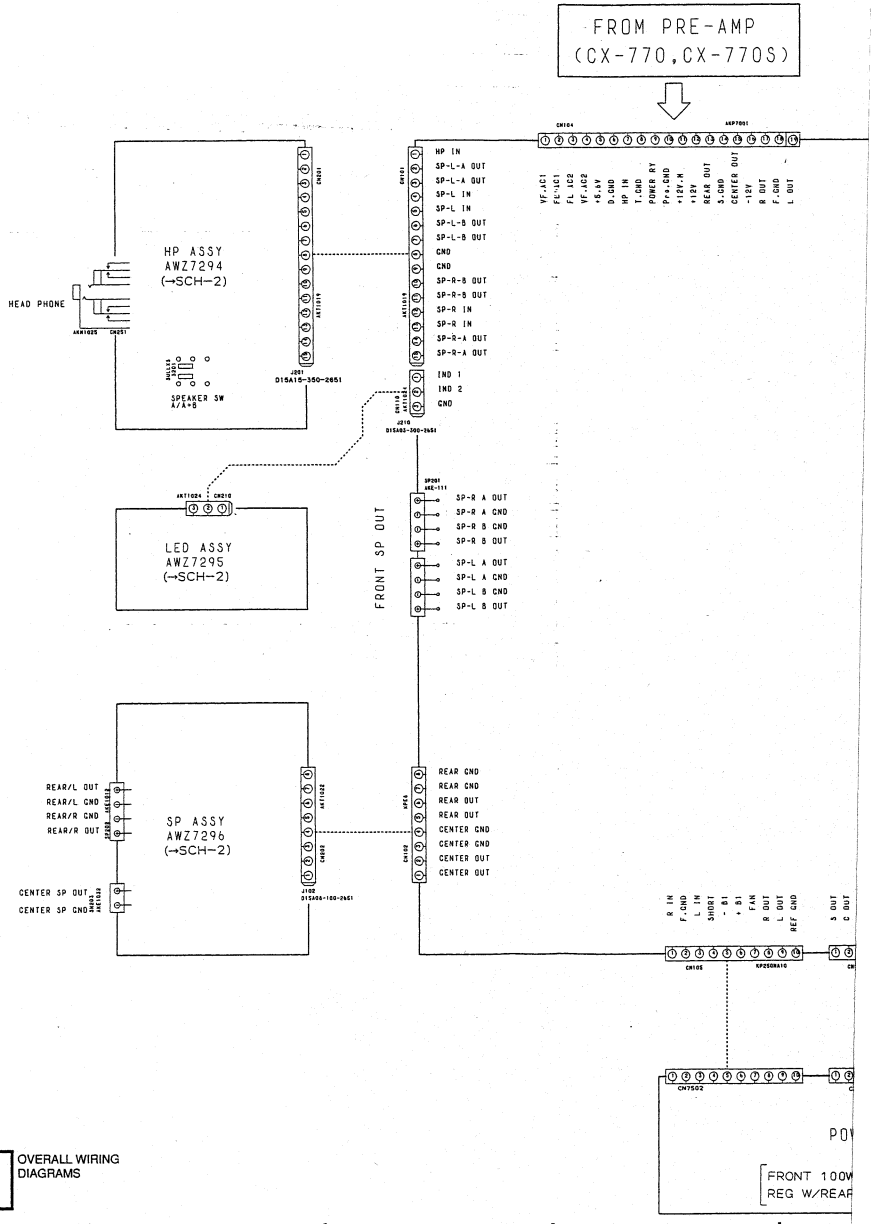
SCH—1



OVERALL WIRING DIAGRAMS **SCH-1**

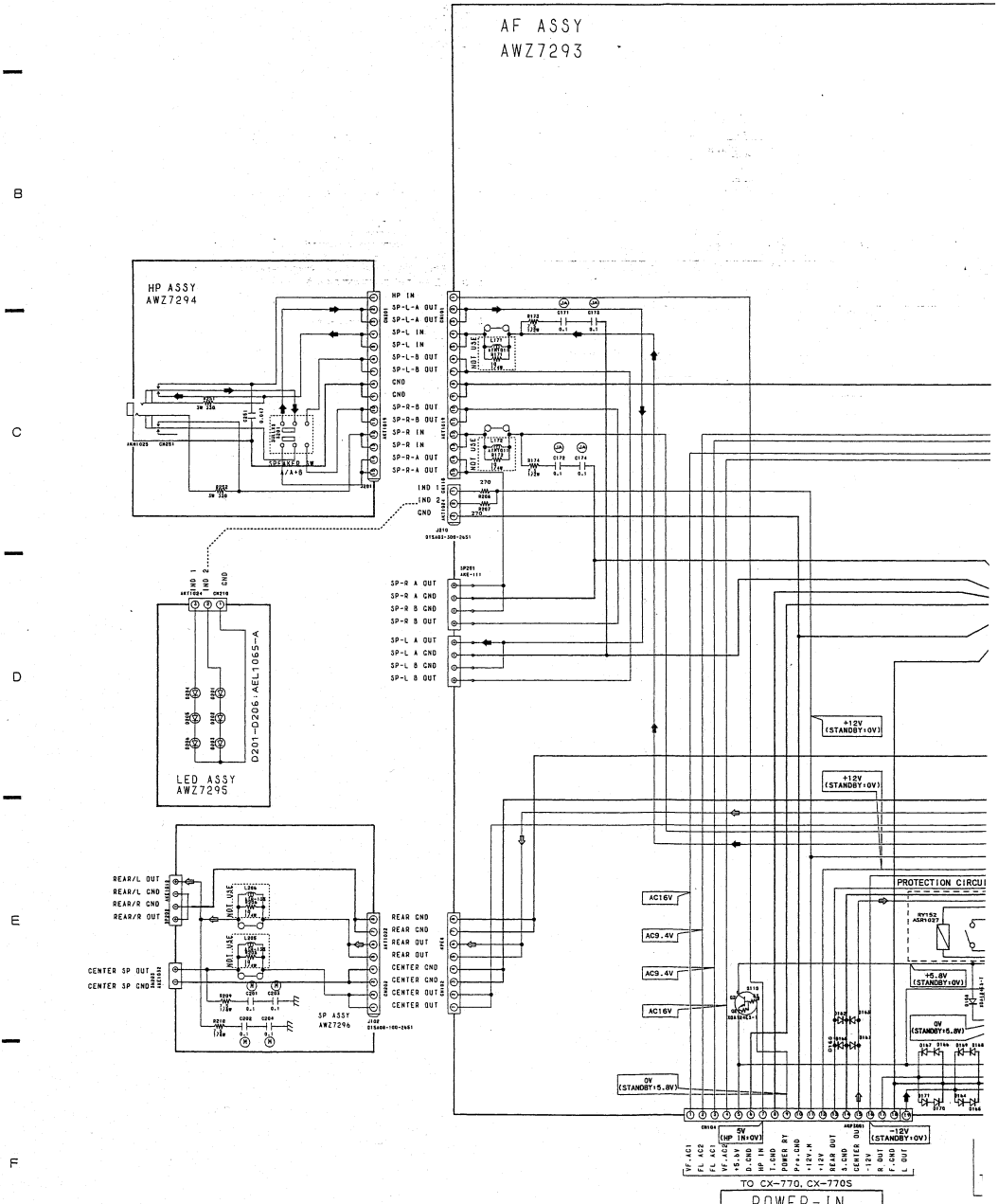
2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

2.2.1 OVERALL WIRING DIAGRAMS

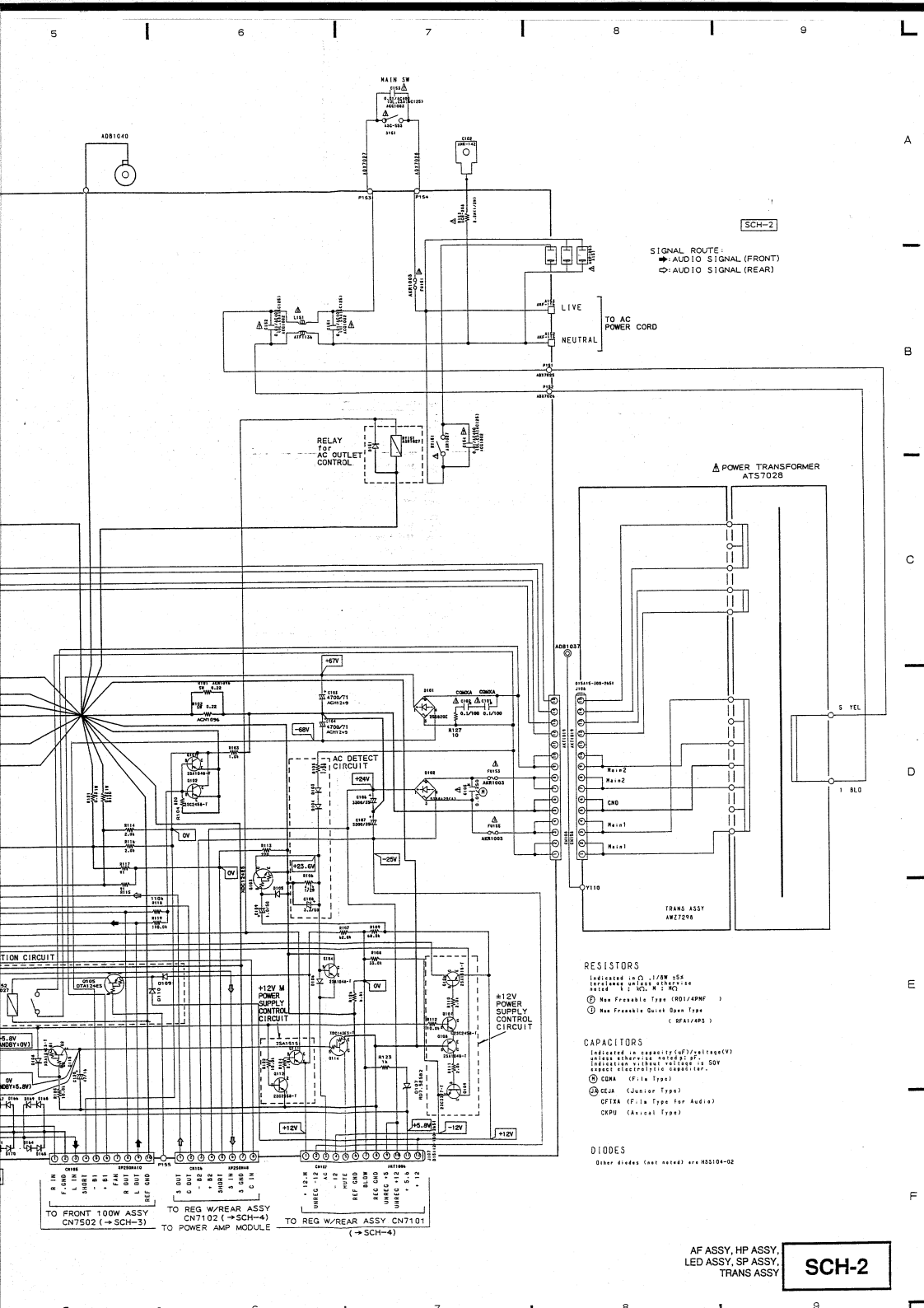


SCH-1 OVERALL WIRING DIAGRAMS

2.2.2 AF, HP, LED, SP AND TRANS ASSEMBLIES

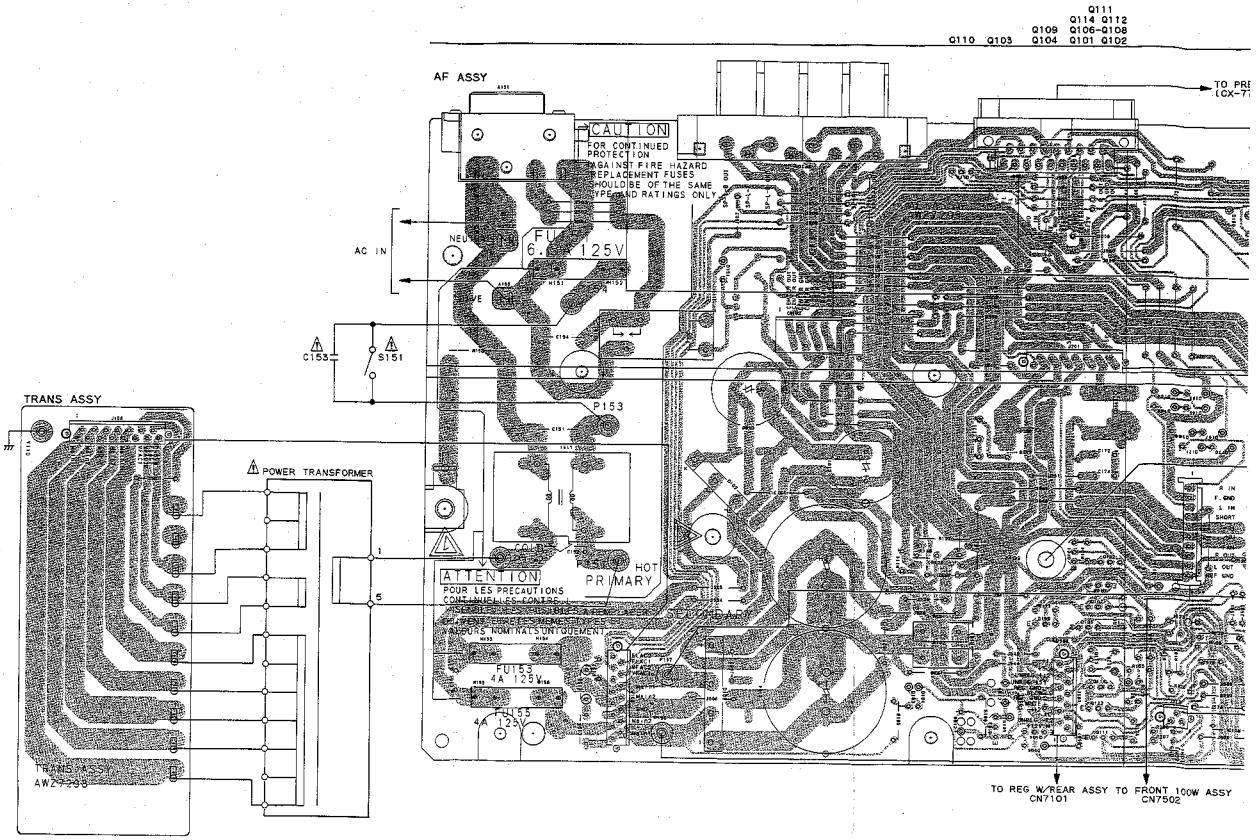


SCH-2 AF ASSY, HP ASSY, LED ASSY, SP ASSY, TRANS ASSY

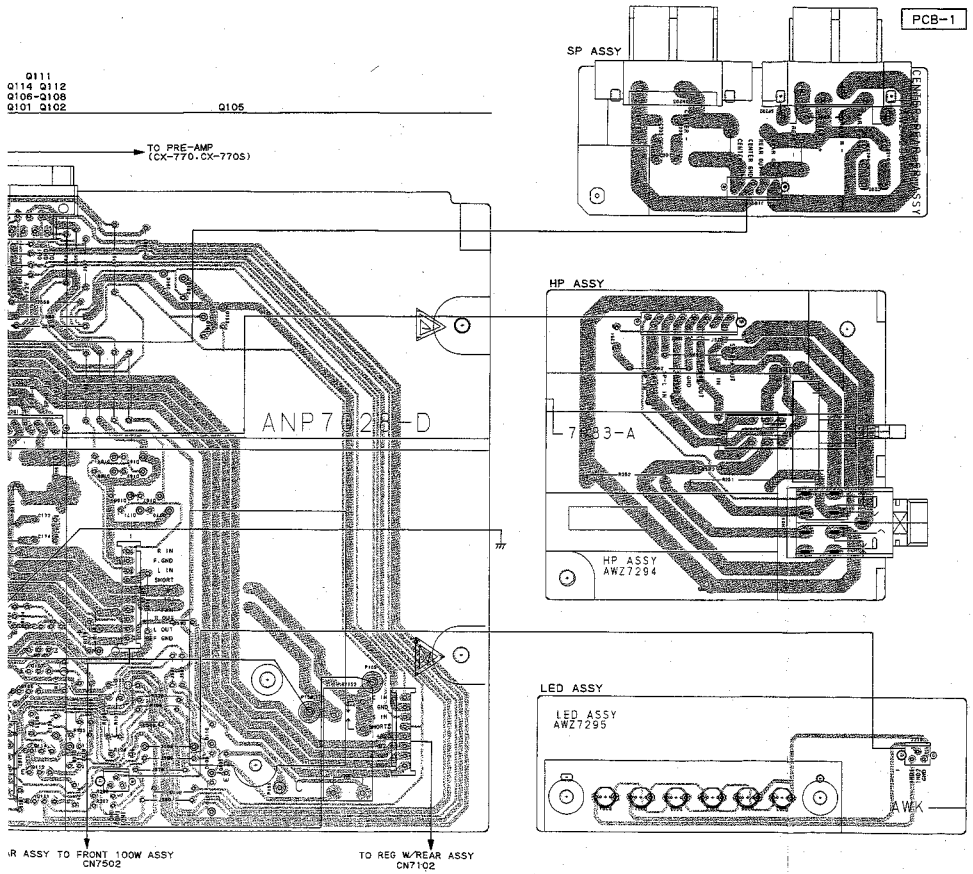


AF ASSY, HP ASSY,
LED ASSY, SP ASSY,
TRANS ASSY

SCH-2


AF ASSY
TRANS ASSY
POWER TRANSFORMER
AC IN
CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD REPLACEMENT FUSES SHOULDBE OF THE SAME TYPE AND RATINGS ONLY
ATTENTION
POUR LES PRECAUTIONS
HOT
PRIMARY
SECONDARY
C153
S151
P153
FU153
4A 125V
Q111
Q114 Q112
Q109 Q106-Q108
Q110 Q103 Q104 Q101 Q102
TO REG W/REAR ASSY CN7101
TO FRONT 100W ASSY CN7502

● This diagram is viewed from the mounted parts side.



NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 (E, C, B) Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⊙ or ⊏ shows cathode side.
5. The capacitor terminal marked with ⊙ or ⊏ shows negative terminal.

● This diagram is viewed from the foil side.

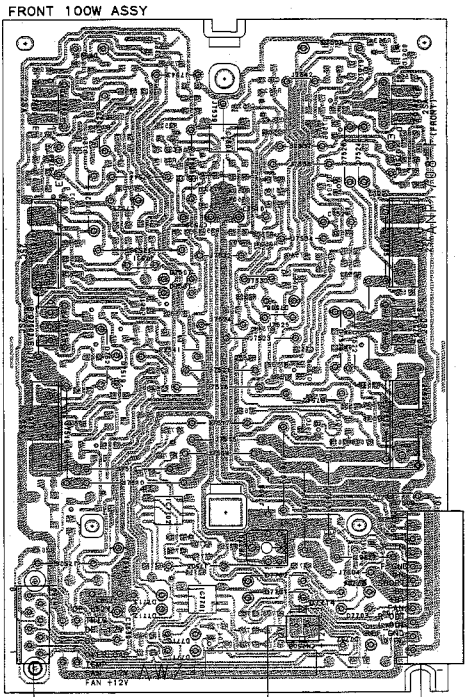
AF ASSY
TRANS ASSY
POWER TRANSFORMER
AC IN
PRIMARY
HOT
CAUTION
FOR CONTINUED
PROTECTION
AGAINST FIRE HAZARD
REPLACEMENT FUSES
SHOULDE OF THE SAME
PREFERRED RATINGS ONLY
ATTENTION
POUR LES PRECAUTIONS
CONTINUE LES CONTRE
TO REG W/REAR ASSY TO FRONT 100W ASSY
CN7101
CN7502

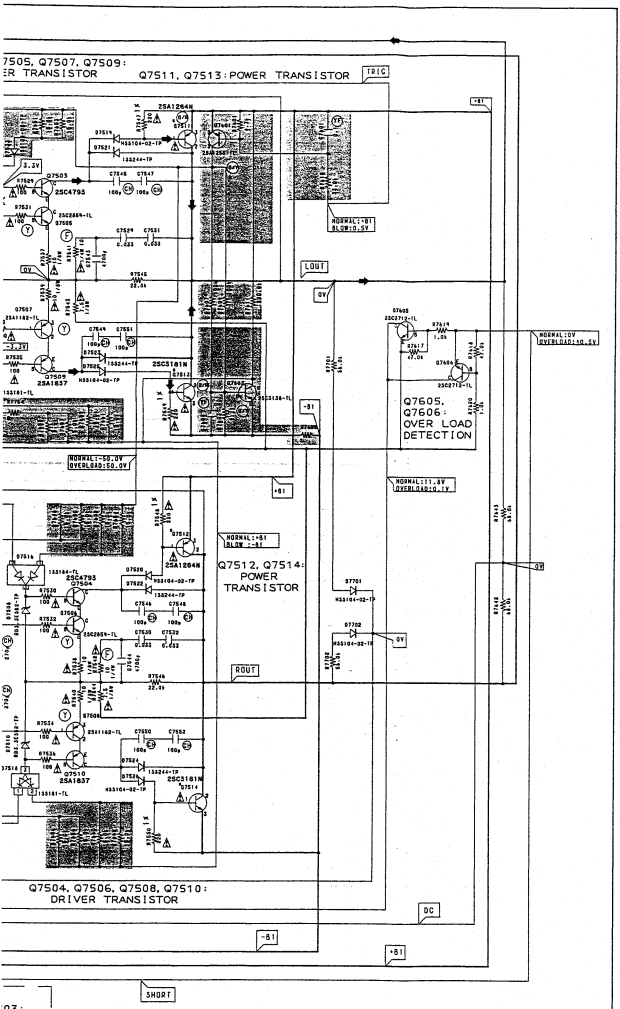
● This diagram is viewed from the foil side.

PCB-2

● This diagram is viewed from the mounted parts side.

PCB-2





SCH-3

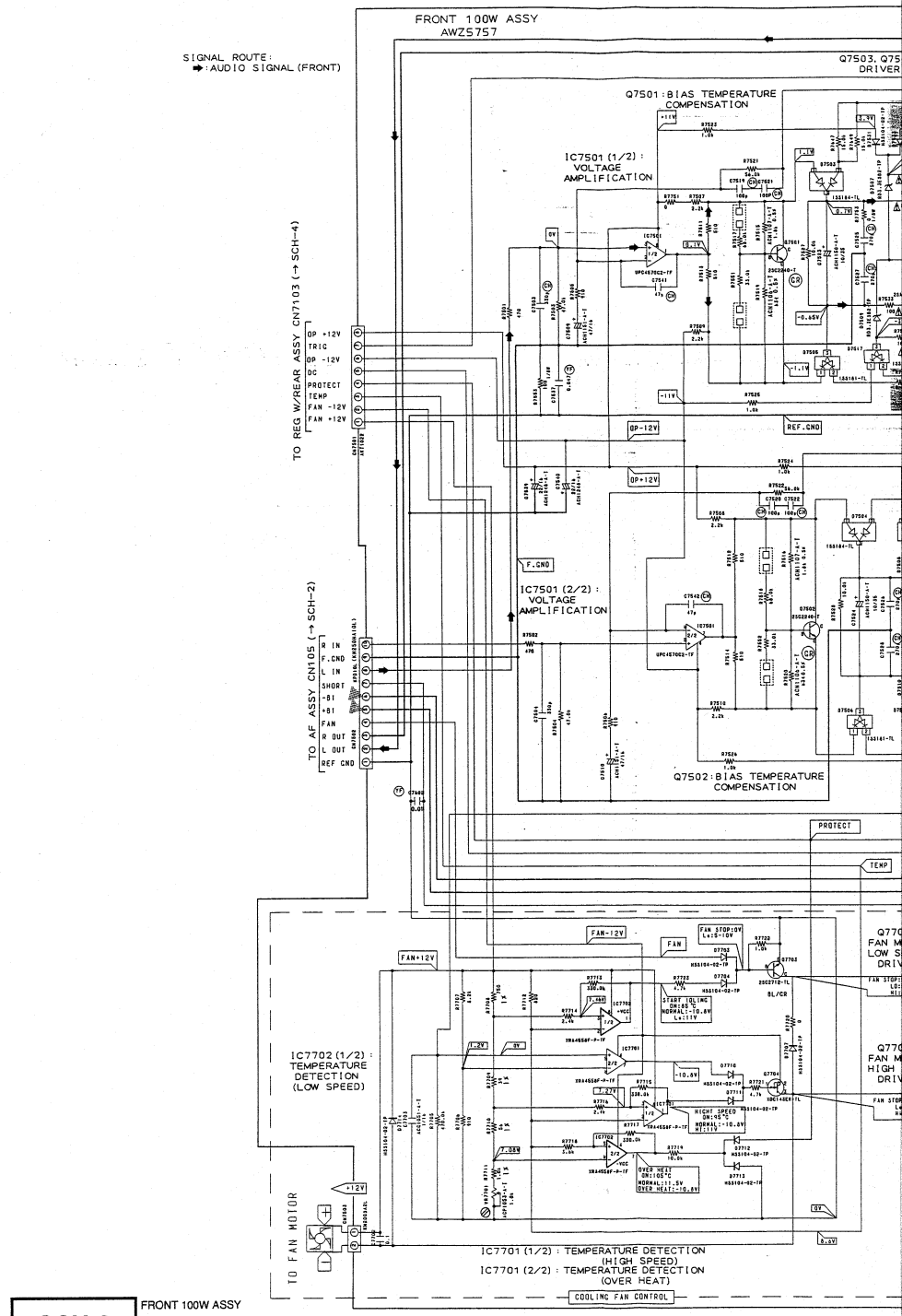
NOTE: Sections marked with
are not used for M-770.

NOTE1: This voltage value will be greater or smaller if the temperature varies when the heat synch temperature is 25° C.
(Reference value : V = 8.6 −0.019 x Δt)
Δt : ± deviation from 25° C

FRONT 100W ASSY

SCH-3

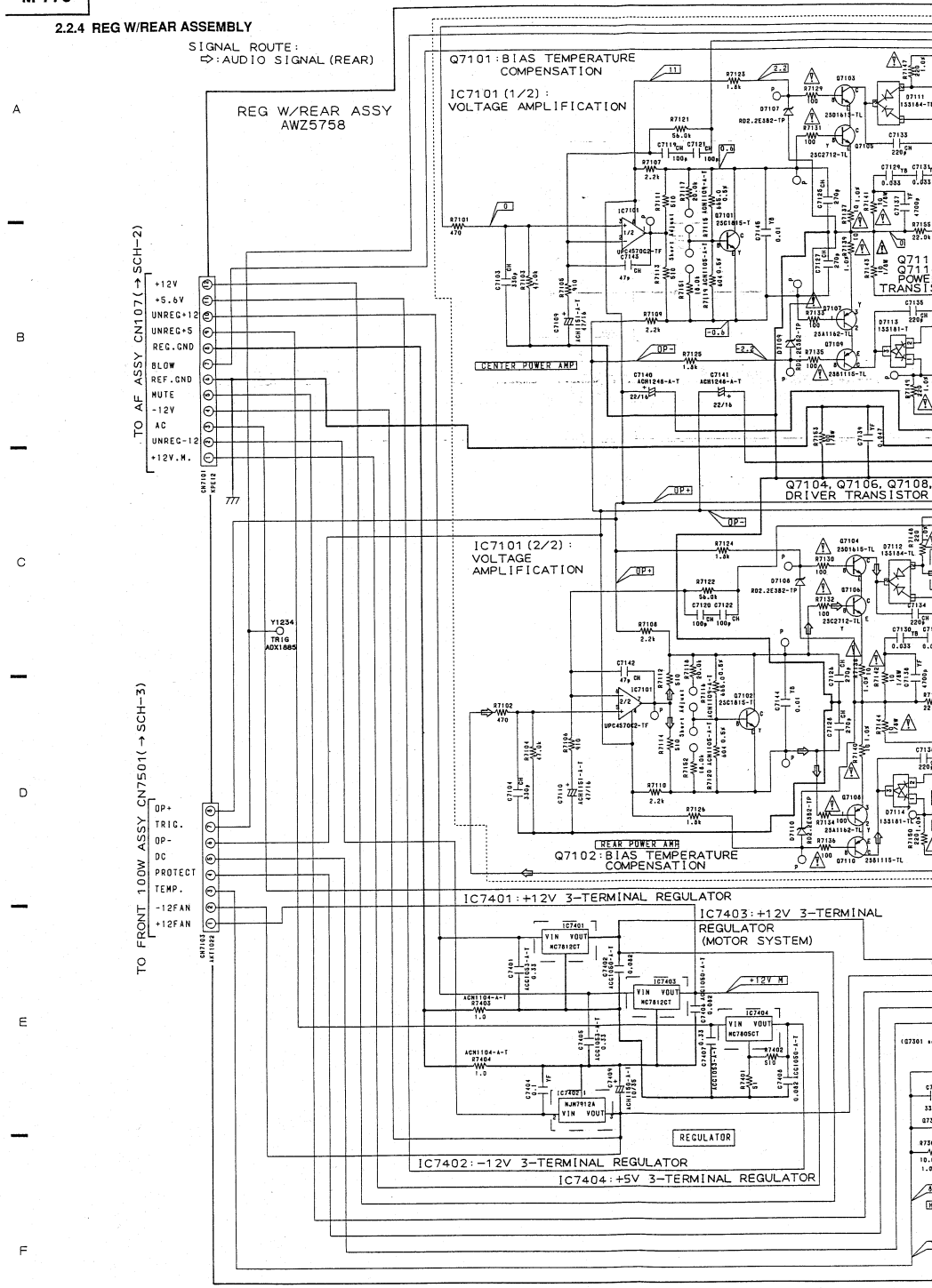
2.2.3 FRONT 100W ASSEMBLY

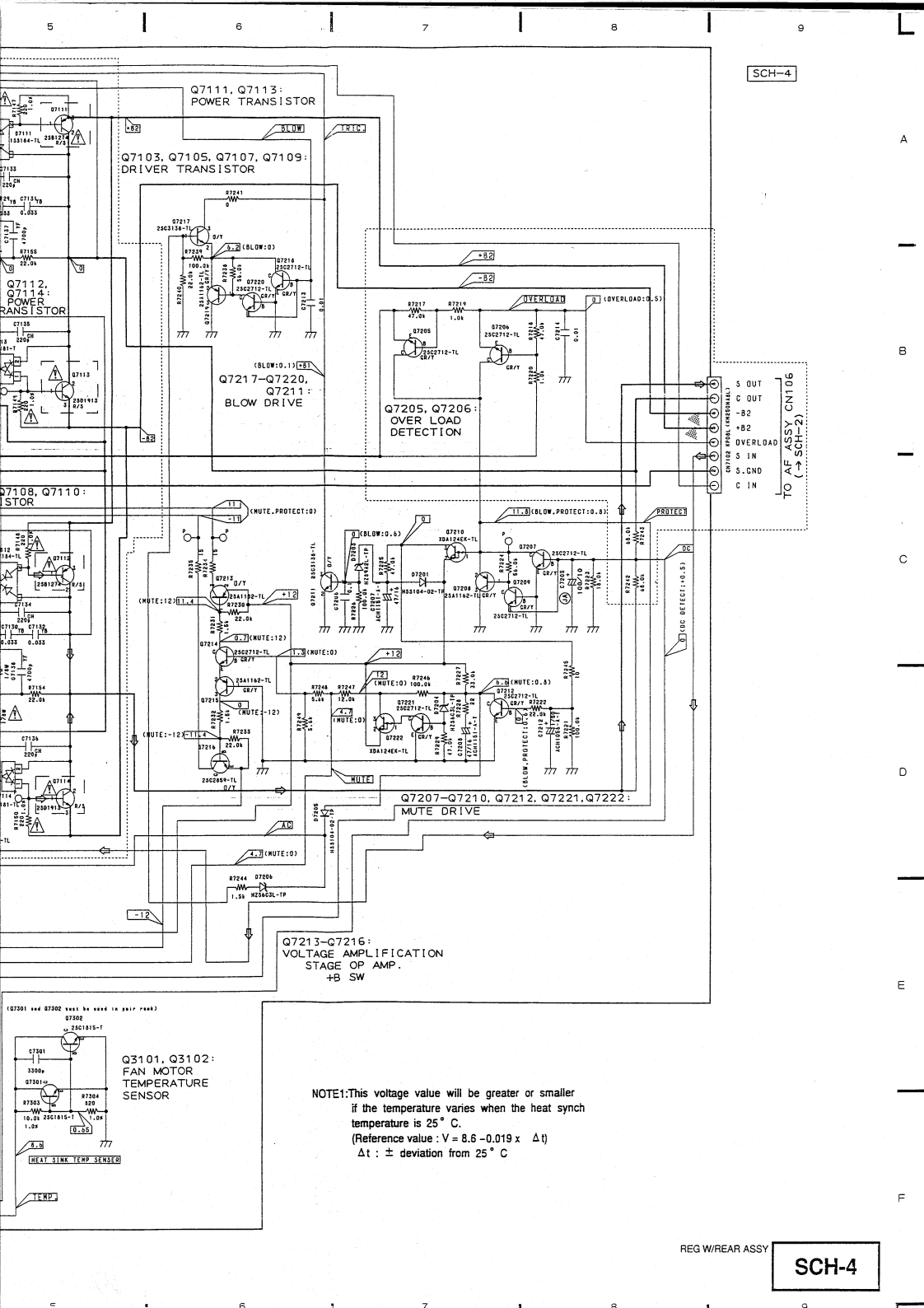


FRONT 100W ASSY

SCH-3

2.2.4 REG W/REAR ASSEMBLY

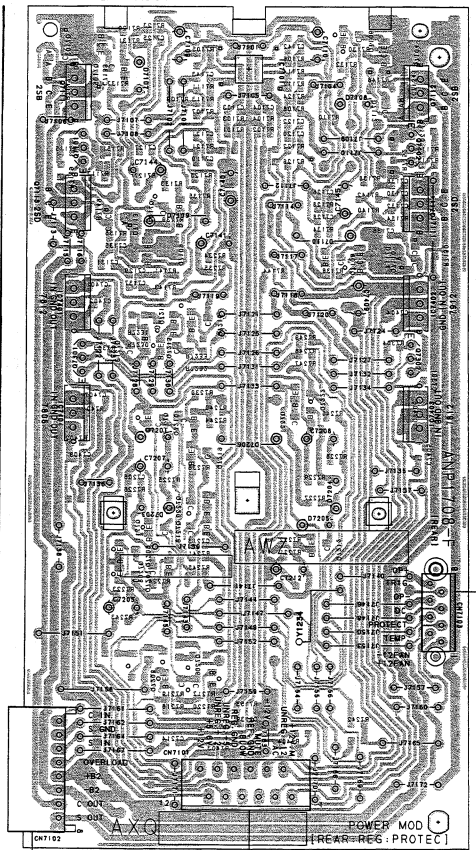



SCH-4
Q7111, Q7113:
POWER TRANSISTOR
Q7103, Q7105, Q7107, Q7109:
DRIVER TRANSISTOR
Q7112,
Q7114:
POWER
TRANSISTOR
Q7108, Q7110:
ISTOR
Q7217–Q7220,
Q7211:
BLOW DRIVE
Q7205, Q7206:
OVER LOAD
DETECTION
Q7207–Q7210, Q7212, Q7221, Q7222:
MUTE DRIVE
Q7213–Q7216:
VOLTAGE AMPLIFICATION
STAGE OP AMP.
+B SW
Q3101, Q3102:
FAN MOTOR
TEMPERATURE
SENSOR
HEAT SINK TEMP SENSER
TEMP
TO AF ASSY CN1106
(→ SCH-2)
S OUT
C OUT
-B2
+B2
OVERLOAD
S IN
S.GND
C IN
BLOW
TRIC
OVERLOAD
PROTECT
MUTE
AM
DC
(MUTE.PROTECT:0)
(BLOW:0.6)
(BLOW.PROTECT:0.8)
(OC DETECT:0.5)
(MUTE:12)
(MUTE:0)
(MUTE:-12)
(BLOW:0)
(BLOW:0.1)
(OVERLOAD:0.5)
(BLOW.PROTECT:0.8)
NOTE1:This voltage value will be greater or smaller
if the temperature varies when the heat synch
temperature is 25° C.
(Reference value : V = 8.6 -0.019 x Δt)
Δt : ± deviation from 25° C
REG W/REAR ASSY
SCH-4

● This diagram is viewed from the mounted parts side.

PCB-3

REG W/REAR ASSY



● This diagram is viewed from the foil side.

PCB-3

REG W/REAR ASSY

Q7103
Q7106
IC7101
Q7111
Q7112
Q7101
Q7102
Q7113
Q7114
Q7107
Q7110
IC7401
IC7402
Q7214
Q7216
Q7301 Q7215
Q7302 Q7213
IC7403
Q7222 Q7210
Q7221 Q7217
IC7404
Q7219
Q7220
Q7211
Q7218
Q7212
Q7207
Q7209
Q7206
Q7205

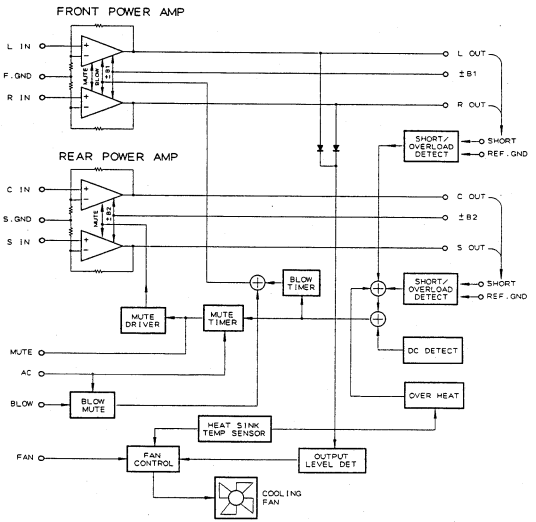
TO FRONT I/OW ASSY CN701

TO AF ASSY CN107

TO AF ASSY CN106

2.3 BLOCK DIAGRAM

● POWER AMP MODULE SECTION



PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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