

Service
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Service Manual

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SPECIFICATION

General	Nominal value	Typical value
Mains voltage	: 220V ~ (/00R) : 110/120/220/240V ~ (/01R) : 240V ~ (/05R)	: 220V ~ (/00R) : 110/120/220/240V ~ (/01R) : 240V ~ (/05R)
Mains frequency	: 50 - 60 Hz	: 50 - 60 Hz
Power consumption	: 330W	: 330W
Dimensions (WxHxD)	: 420 x 118 x 334 mm	: 420 x 118 x 334 mm
Weight	: 10.5 kg	: 10.5 kg
Amplifier		
Output power	: 80W in 8Ω (IEC)	: 85W in 8Ω (IEC)
Distortion		
T.H.D.	: ≤ 0.03% at 1 kHz : ≤ 0.03% at 63 Hz - 12.5 kHz } (IEC) : ≤ 0.03% at 60/7000 Hz 4:1	: ≤ 0.008% at 1 kHz : ≤ 0.02% at 63 Hz - 12.5 kHz } (IEC) : ≤ 0.01% at 60/7000 Hz 4:1
Intermodulation		
Frequency characteristic		
Phono input } tone control	: from 20 Hz - 20 kHz ±1 dB (IEC/RIAA)	: from 20 Hz - 20 kHz ±0.5 dB (IEC/RIAA)
Other inputs } neutral	: from 10 Hz - 50 kHz ±1 dB	: from 10 Hz - 60 kHz ±1 dB
Bass control	: at 100 Hz +8 dB to -8 dB ±1 dB	: at 100 Hz +8 dB to -8 dB
Treble control	: at 10 kHz +8 dB to -8 dB ±1 dB	: at 10 kHz +8 dB to -8 dB
Loudness	: at 100 Hz +6 dB ±1 dB : at 10 kHz +4 dB ±1 dB Tap position	: at 100 Hz +6 dB : at 10 kHz +4 dB Tap position
Signal/noise ratio		
weighted (A-curve)		
Phono input (MM)	: for 80W output ≥ 80 dB (IEC)	: for 80W output ≥ 83 dB (IEC)
Phono input (MC)	: for 80W output ≥ 70 dB (IEC)	: for 80W output ≥ 72 dB (IEC)
Other inputs	: for 80W output ≥ 85 dB (IEC)	: for 80W output ≥ 89 dB (IEC)
Channel separation	: at 1000 Hz ≥ 65 dB : at 250 Hz - 10 kHz ≥ 45 dB	: at 100 Hz ≥ 70 dB : at 250 Hz - 10 kHz ≥ 55 dB
Input sensitivity/Input impedance		
Audio		
Phono (MM)	: 2.5 mV/47 kΩ	: 2.5 mV/47 kΩ
Phono (MC)	: 250 μV/150Ω	: 250 μV/150Ω
Tuner/CD/Aux/Tape	: 150 mV/17 kΩ	: 150 mV/20 kΩ
TV/Video	: 150 mV/17 kΩ	: 150 mV/20 kΩ
Output level/Output impedance		
Tape	: 450 mV/590Ω (Phono 7.75 mV 1 kHz input)	: 450 mV/590Ω (Phono 7.75 mV 1 kHz input)
Digital Section		
Frequency characteristic	: from 10 Hz - 20 kHz ±2.0 dB	: from 10 Hz - 20 kHz ±1.0 dB
Distortion (T.H.D.)	: 0.008% at 1 kHz	: 0.0035% at 1 kHz
Signal/noise ratio		
weighted (A-curve)	: 100 dB at tape out	: 106 dB at tape out

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

D

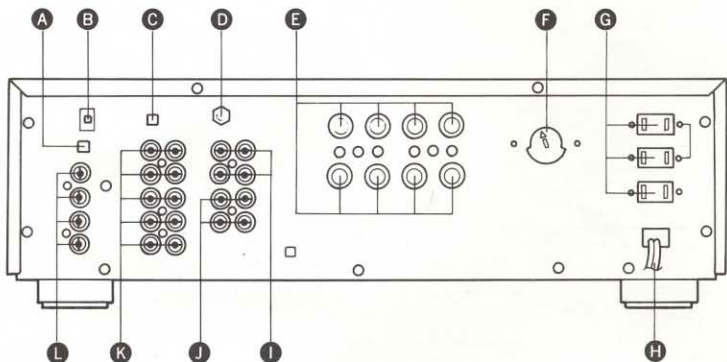
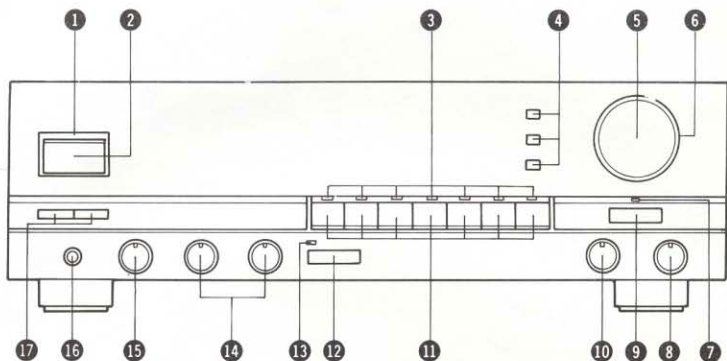
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.

F

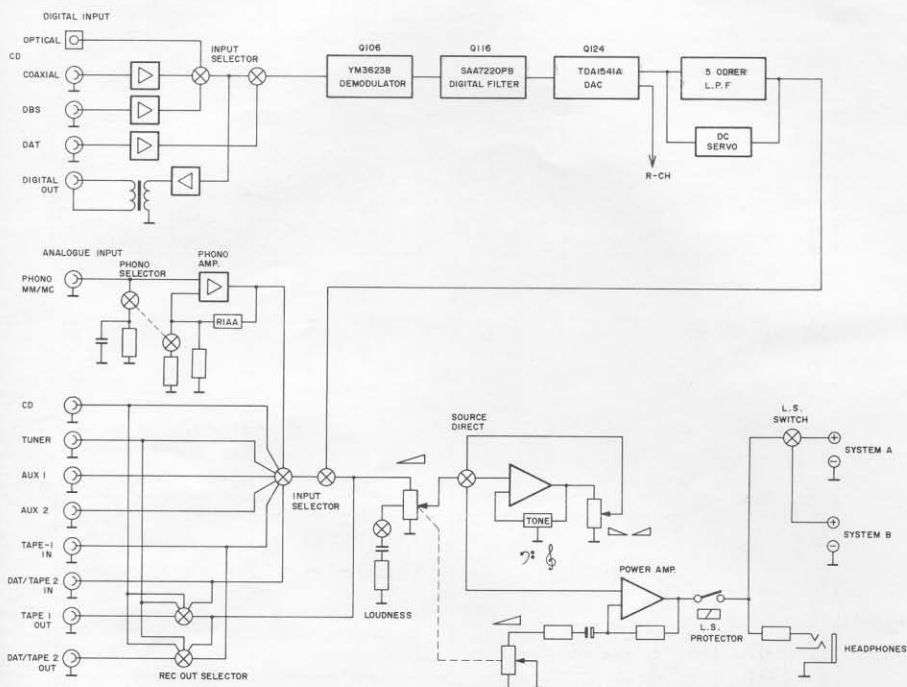
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.



CONNECTIONS AND CONTROLS

1	Mains indicator	VZ01	A	CD input selector switch	S101
2	Mains switch	S901	B	CD (Opt.) input	J101
3	Function indicator	DU01~DU05, DU09, DU10	C	Phono selector switch	S401
4	Sampling frequency indicator	DU61~DU63	D	Ground terminal	J053
5	Volume control	RG19	E	LS output	JW01
6	Volume illumination	VZ51, VZ52	F	Voltage selector (/01R only)	J091
7	Digital indicator	DU06	G	AC outlet (/01R only)	J051
8	Balance control	RE51	H	Mains cord	W001
9	Digital switch	SU08	I	Tape 1 play/rec.	JJ01
10	Loudness switch	SE51	J	DAT/tape 2 play/rec.	JJ02
11	Function switch	SU01~SU07	K	Analogue input	JV01, JV02
12	Source direct switch	SU09	L	Digital input	J102
13	Source direct indicator	DU07			
14	Tone control	RE21, RE22			
15	Rec selector	SE01			
16	Headphone socket	JW81			
17	LS switch	SW51			

Block Diagram



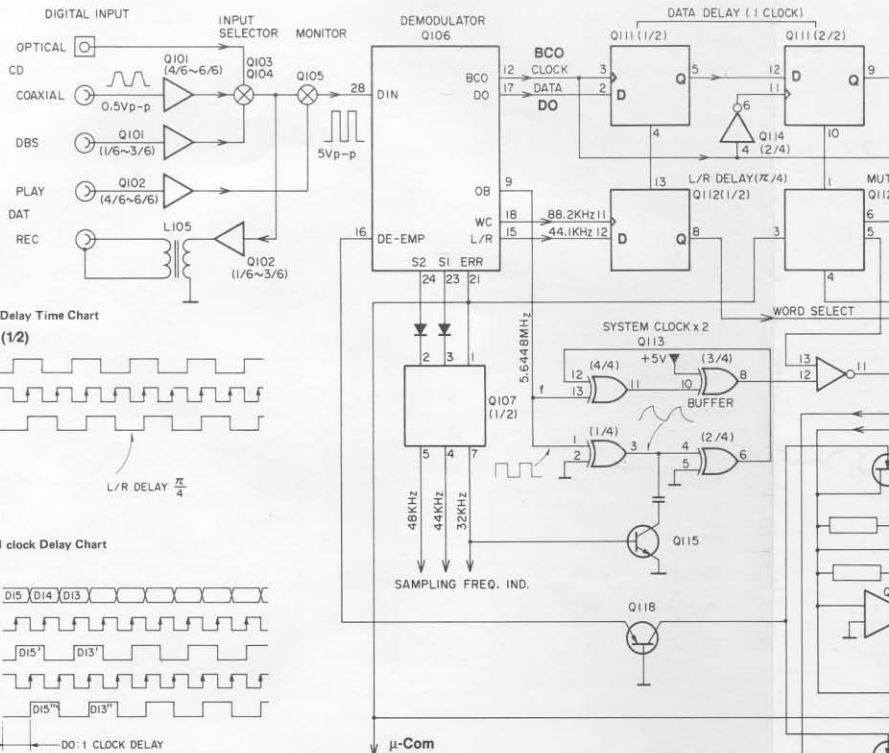
ADJUSTMENT

Idling Current

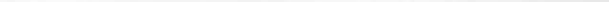
SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
			Min.	Lch R751		Lch TP2(+), TP1(-) DC 7 mV (19.4 mA)
				Rch R752		Rch TP4(+), TP3(-) DC 7 mV (19.4 mA)

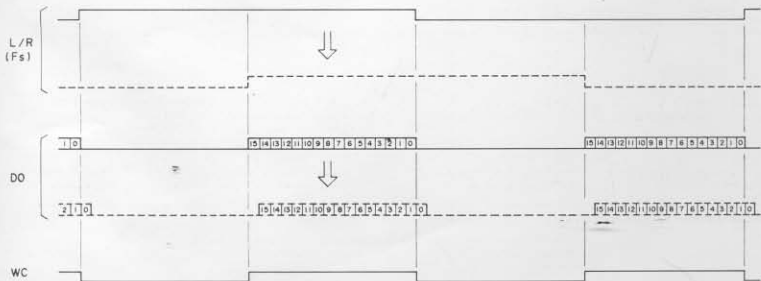
*Adjustment must be made approx. one (1) minute after power switch has been turned on.

Block Diagram of Digital Circuit

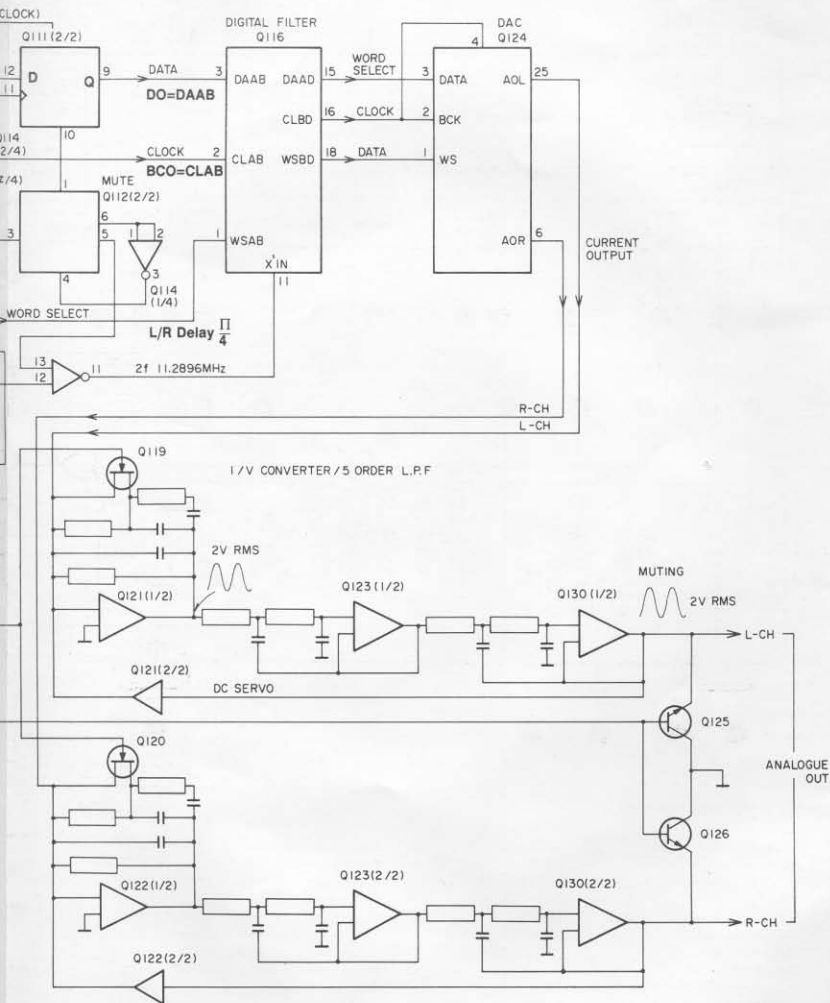


- Digital audio format

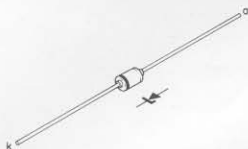
BC0
(64xFs) 



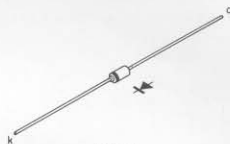
(Fig. 2)



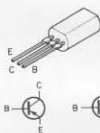
Semiconductor Layout



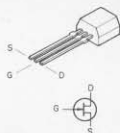
MTZJ3.9A
RD4.7JB2/MTZJ4.7B
RD5.6JB2/MTZJ5.6B
RD15JB3/MTZJ16A



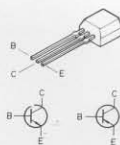
1SS133
1SS176
MA165



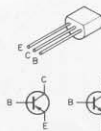
2SA1145 2SC2705



2SK372



2SC2458 2SA1048



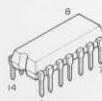
2SA970 2SC2240
2SC2878



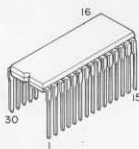
NJM4558D-D



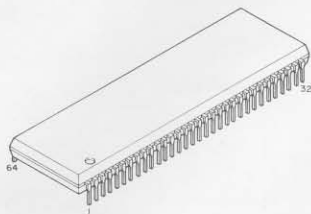
NJB2068DD



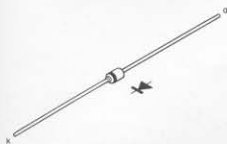
TC74HC86P
TC74HC00P
TC74HC74P



LC7821



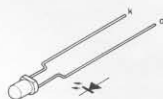
LC6554H



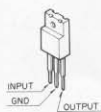
HSS81TD



RL103E



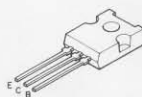
LT3D8B



NJM78M12FA



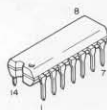
2SB1274



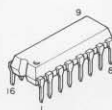
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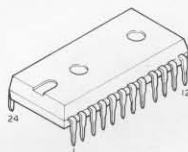
2SA1306



LC4996



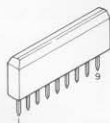
μPD4555



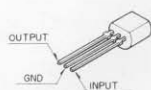
2SAA7220P/B



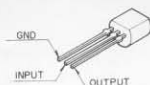
28



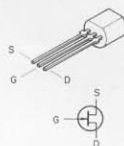
TA7317P



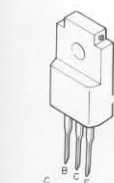
NJM78L05A



NJM79L05A



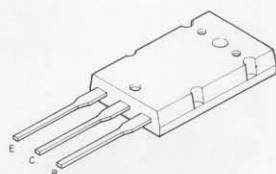
2SK369



2SA1306



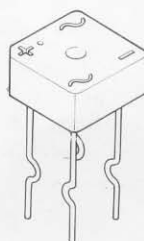
2SC3298



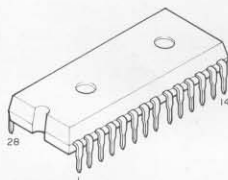
2SC3280



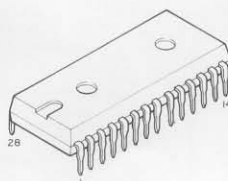
2SA1301



BR82



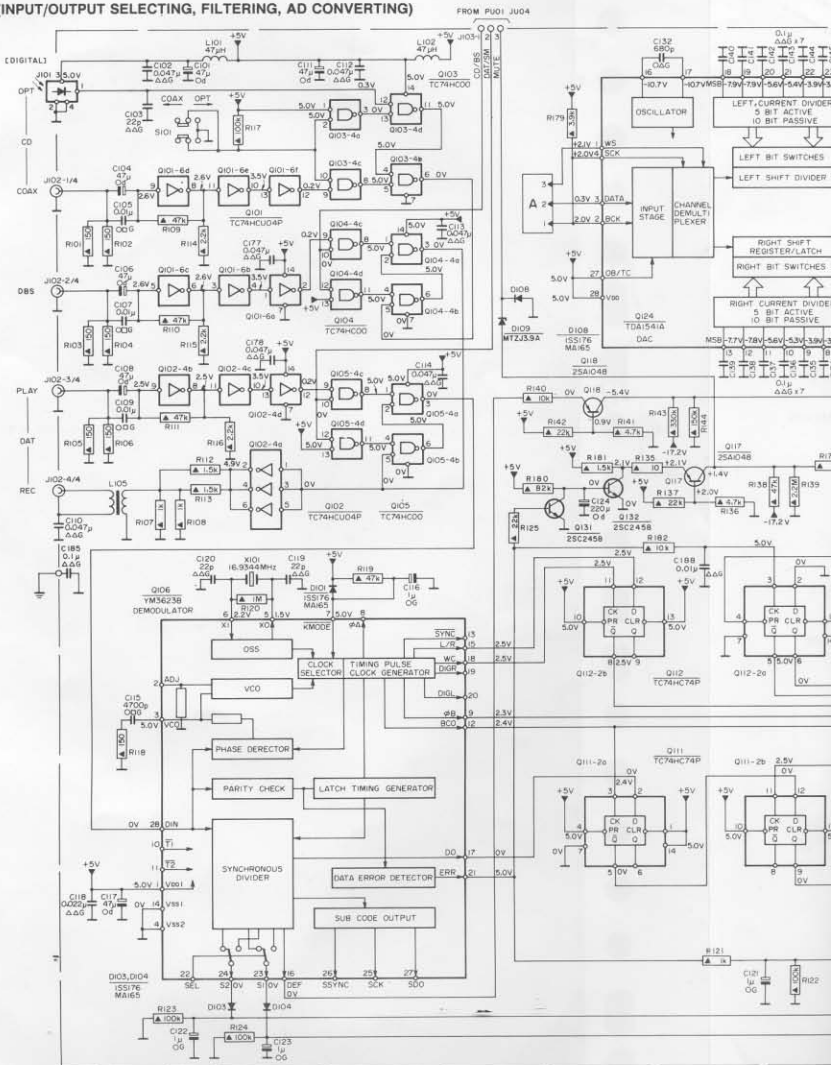
YM3623B



TDA1541A/N2

#	R123 R124 R101 ~ R120													R125 R180 R181 R136 ~ R144 R182				R121 R122 R123			
C	C185	C118	C117	C115	C101 ~ C110	C120	C122	C119	C123	C177	C178	C111 ~ C114	C116	C124	C132	C188	C121	C133 ~ C140			
Q	D				Q101 ~ Q106	D103	D104	D101						D108	D109	Q131	Q118	Q132	Q111	Q117	Q124
L-S-X					L105	S101	L101	X101						L102							

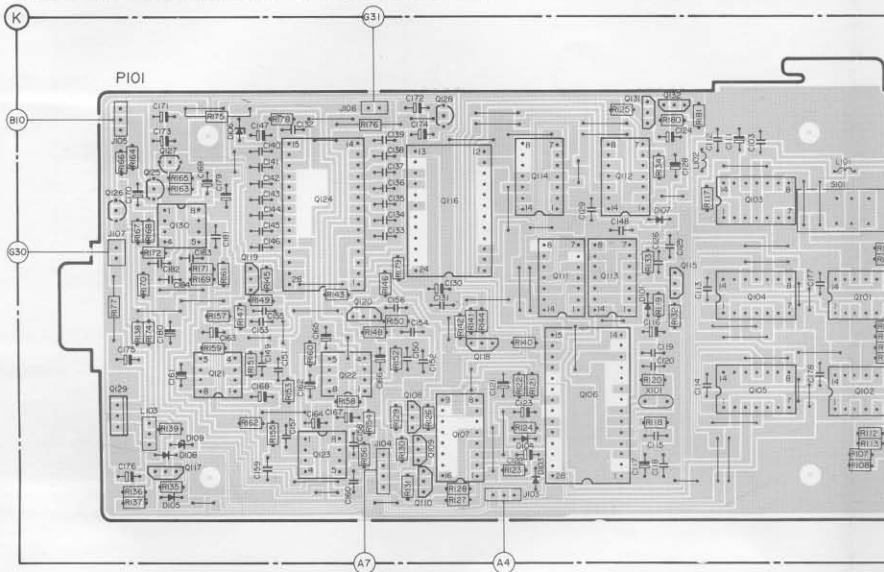
DIGITAL (INPUT/OUTPUT SELECTING, FILTERING, AD CONVERTING)



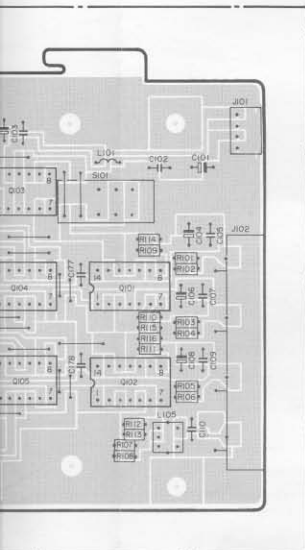
WIRING DIAGRAMS

R	R63~R72	R175	R178	R176 R46 R179	R125	R134 R180	R181 R17
	R77 R38 R174	R157 R61 R47 R151 R49 R45 R160 R43	R48 R150 R152	R42 R41 R144	R40	R133 R132	
	R135~R137 R139	R159	R162 R155 R153	R158 R156 R154 R126~R131	R121~R124	R118~R120	
C	C170	C171 C173 C169 C179	C140~C147	C133~C139 C172 C174	C129	C146	C124 C128 C12 C11 C103
	C175	C180~C184	C163	C53 C105 C49 C103 C164~C167	C156 C154	C131 C130	C121~C123
	C176	C181	C168	C162 C157~C161	C150 C152		C126 C125
Q	Q125~Q127	Q130	Q119	Q124	Q120	Q128 Q116	Q111~Q115
	Q129	Q117	Q121~Q123	Q107~Q110	Q118	Q106	Q131
D		D105 D108 D109 D106				D104 D103	D101 D107
L-S-X		L103				X101	L102
							S10 L10

DIGITAL (INPUT/OUTPUT SELECTING, FILTERING, AD CONVERTING)



R107~R116			R
R101~R106			
C111~C103	C177	C102 C101	C
	C178	C104~C110	
Q101~Q105			Q
			D
L101 L101			L-S-X



	Carbon film 0.2 W 70°C 5%
	Carbon film 0.33 W 70°C 5%
	Metal film 0.33 W 70°C 5%
	Carbon film 0.5 W 70°C 5%
	Carbon film 0.67 W 70°C 5%
	Carbon film 1.15 W 70°C 5%

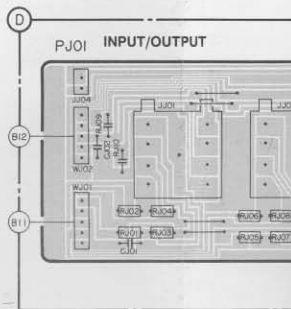
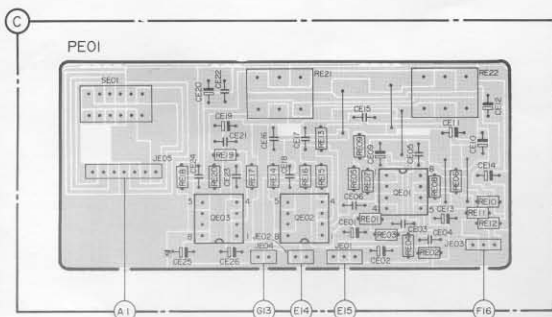
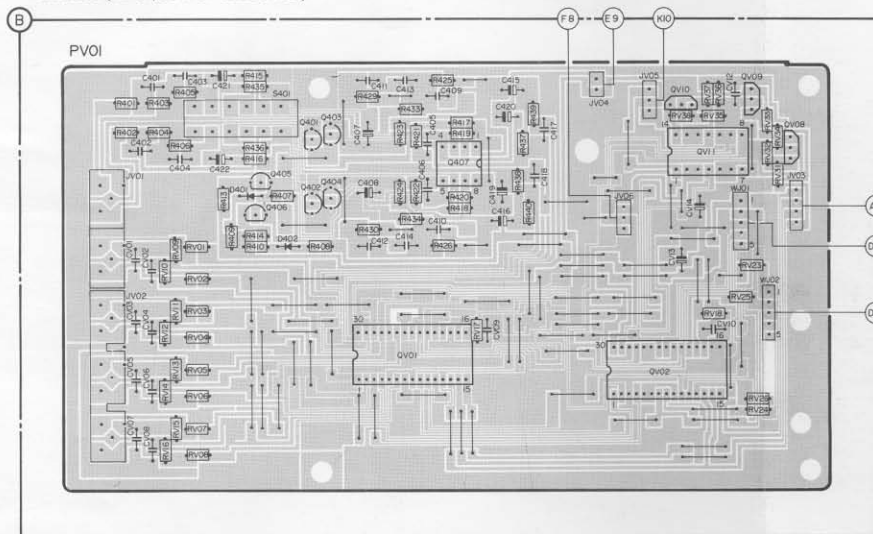
Ⓢ Chip component

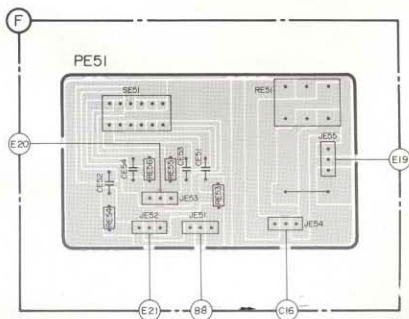
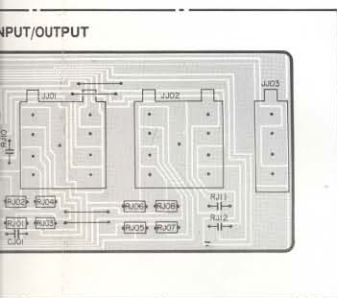
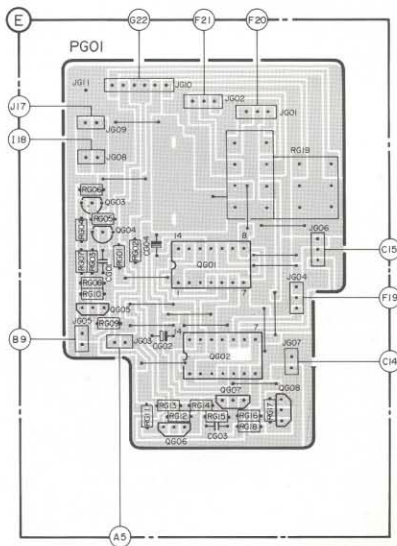
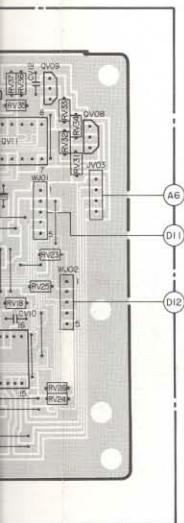
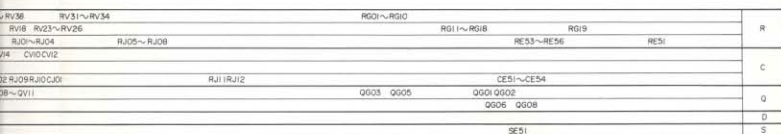
	Ceramic plate Tuning ≤ 120 pF NP.0 2% Others -20/+80%
	Polyester flat foil 10%
	Metalized polyester flat film 10%
	Polyester flat foil small size (Mylar) 10%
	Polyester film/foil 1%
	Tubular ceramic
	Miniature single
	Subminiature tantalum $\pm 20\%$

*a = 2.5 V
b = 3.15 V
or 4 V
c = 6.3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1.6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

R	R402~R406	R403~R405	R407~R410	R429	R433	R417~R426	R437~R440	RV35~RV38	RV31~RV34
C	RV01~RV16	R435	R436	R430	R434	RV17		RV18	RV23~RV26
Q	RE13~RE20	RE21	RE01~RE12		RE22			RV01~RV04	RV05~RV08
D	C401~C404	C421		C405~C414		C415~C420		CV13	CV14
S	CV01	CV08	C422			CV09		CV10	CV12
	CE19~CE26	CE15~CE18	CE01~CE05	CE09~CE14				CJ02	RJ09~RJ0CJ01
			D401~D406	DV01	D407			QV02	QV08~QV11
	QE03	QE02	D402						
		D401	QE01						
			S401						

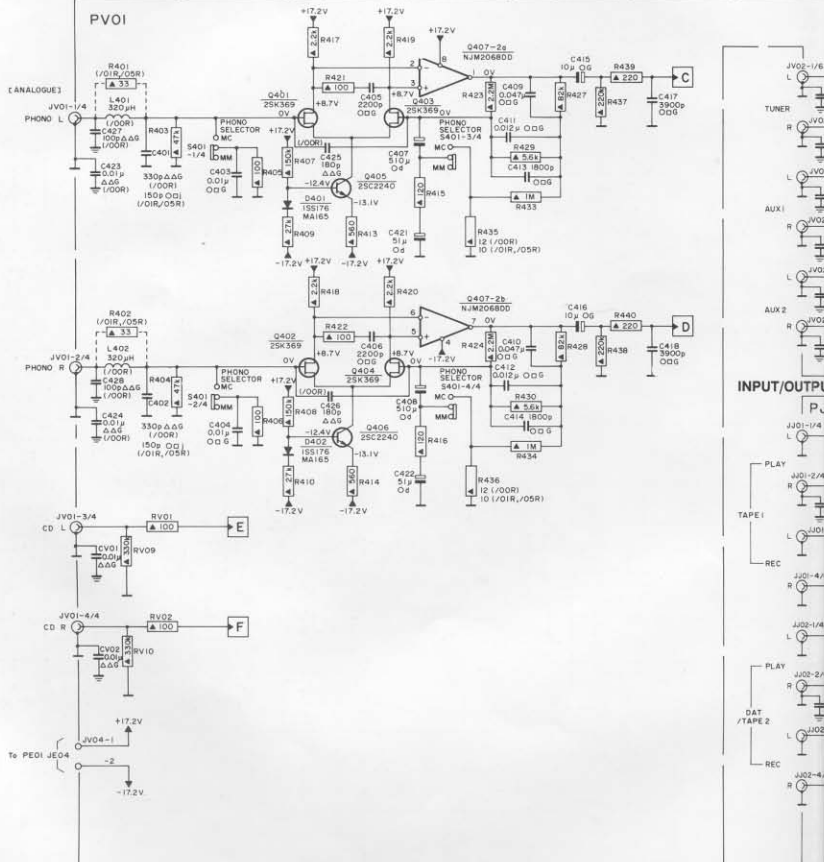
ANALOG (INPUT/OUTPUT SELECTING)



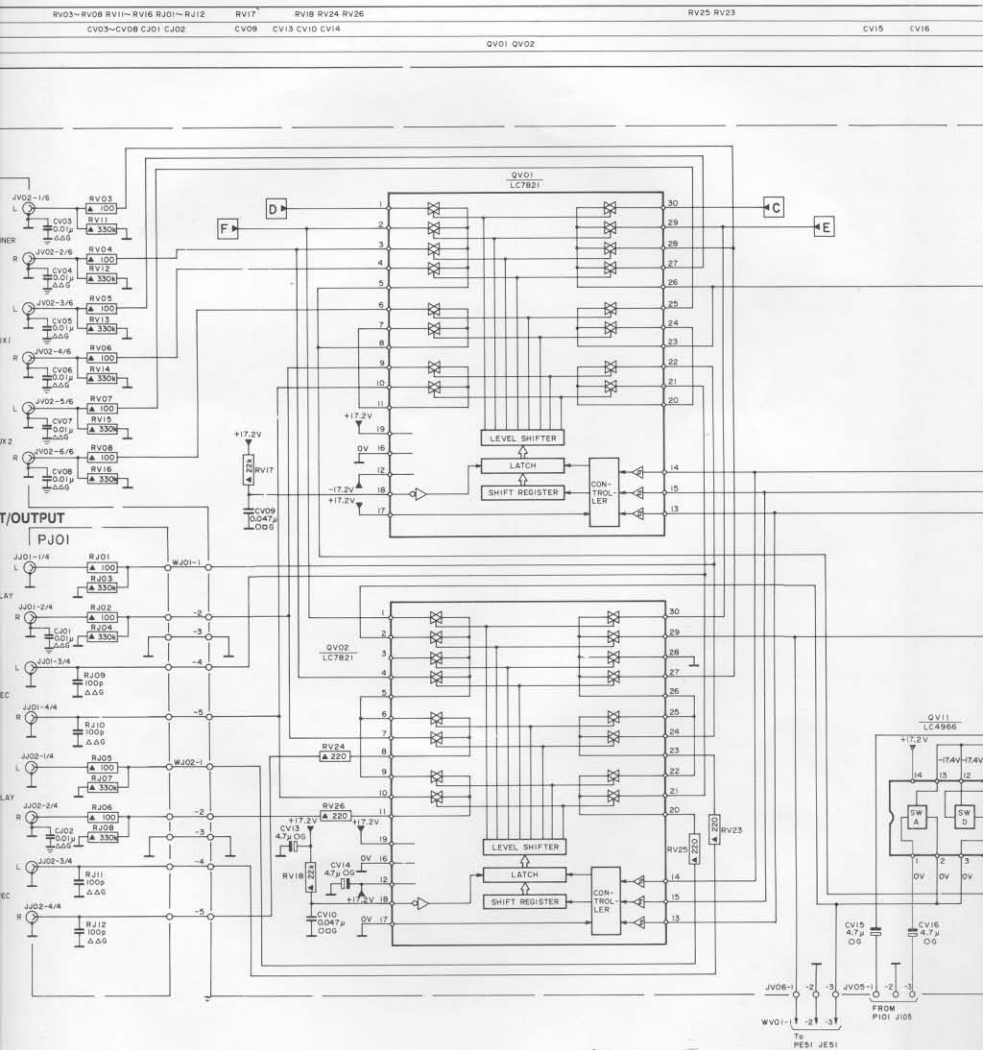


R	RV09 RV10 R401~R410 RV01 RV02	R417~R422 R413~R416 R423 R424 R433~R436 R427~R430 R437~R440
C	C423 C424 CV01 CV02 C401~C404 C425 C426 C405~C408 C421 C422	C409~C416 C417 C418
Q	Q427 Q428	Q401~Q407
D-L-S	L401 L402	D401 D402 S401

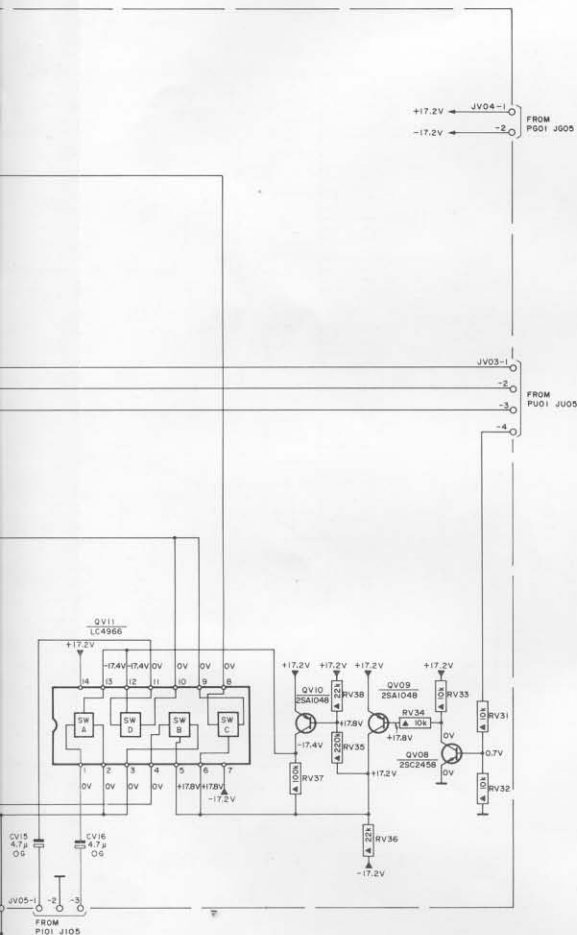
ANALOG (INPUT/OUTPUT SELECTING)



SCHEMATIC DIAGRAMS

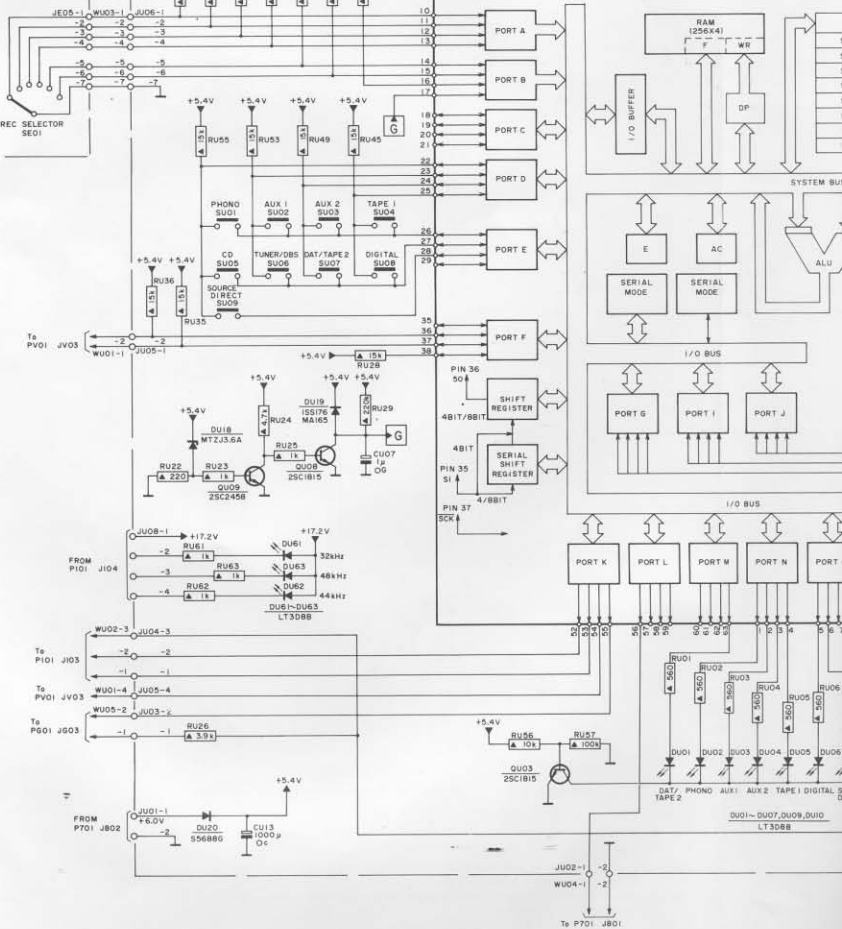


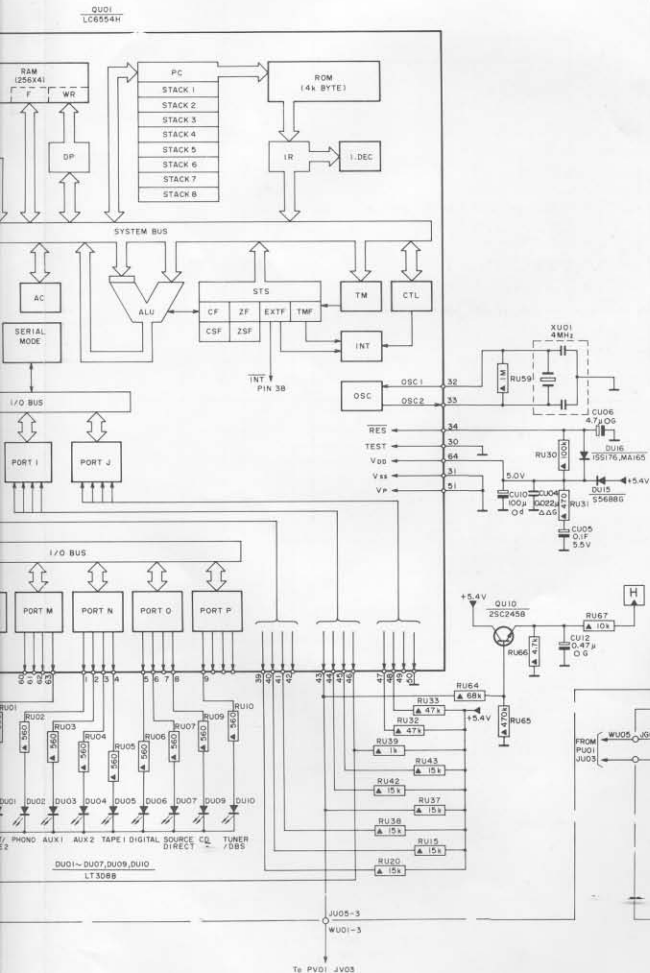
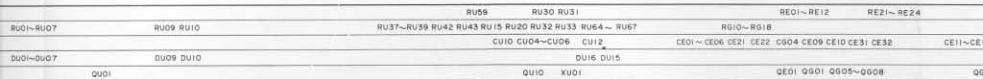
		RV31~RV38	R
CV15	CV16		C
	QV11	QV08~QV10	Q
			D~L~S



NOTE ON SAFETY:

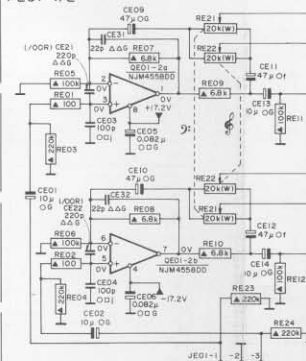
Symbol Δ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol Δ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.





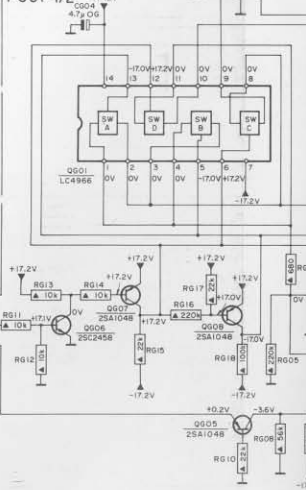
BASS/TREBLE

PE01-1/2

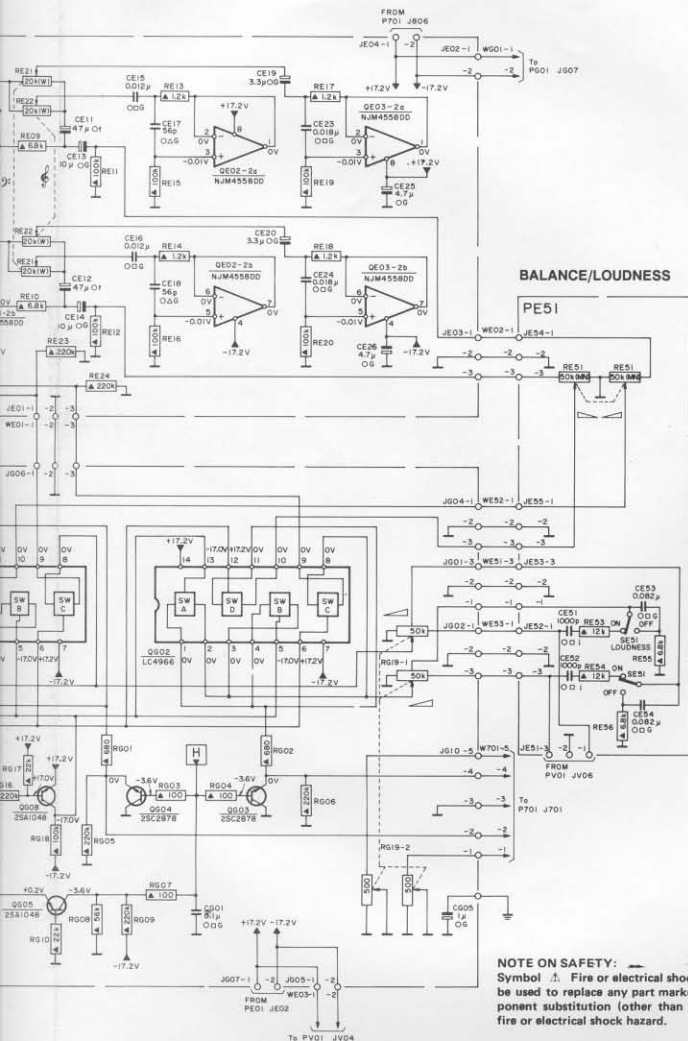


VOLUME CONTROL

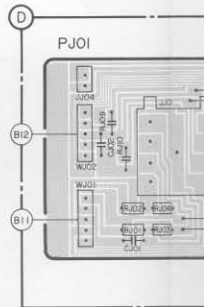
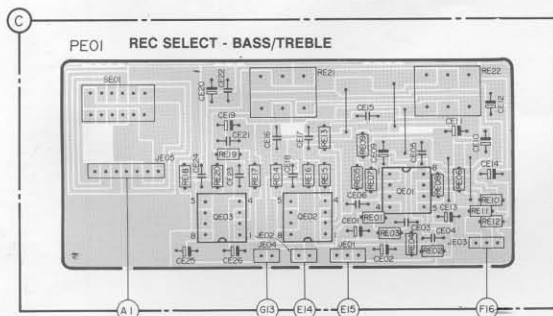
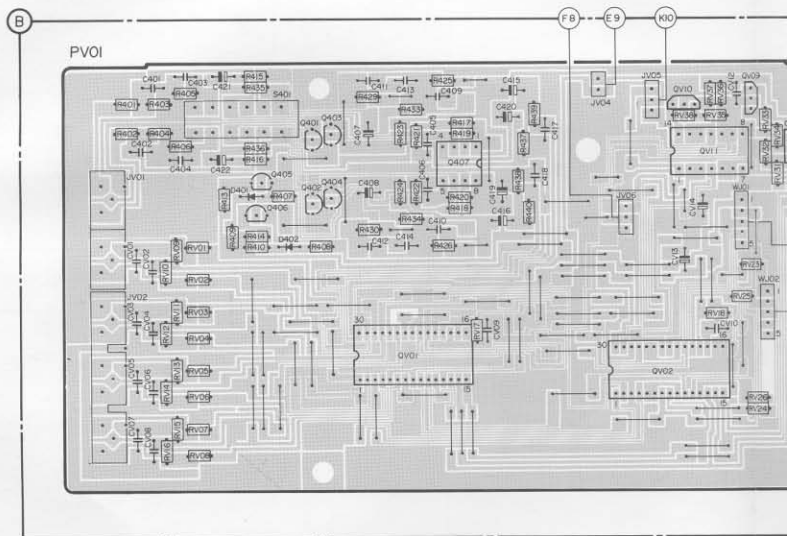
PG01-1/2

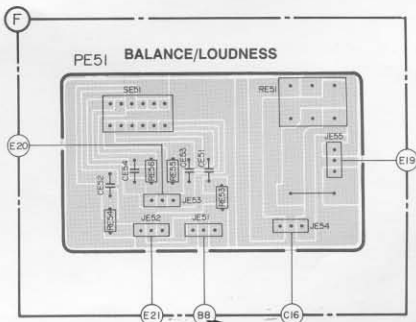


RE21~RE24	RE13~RE20	RE51	R
RG01~RG09	RG19	RE53~RE56	
CE31~CE32	CE11~CE18	CG01	CE19 CE20 CE23~CE26
		CG05	CE51~CE54
			SE51
Q008	Q002~Q004	QE02	Q~S
		QE03	Q~L~X



R	R401~R406	R403~R406 R407~R410	R429 R433 R417~R426	R437~R440	RV35~RV38	RV31~RV34
	RV01~RV16	R435/R436	R430 R434	RV17	RV18 RV23~RV26	RV19 RV27~RV30
C	RE13~RE20	RE21	RED1~RE12	RE22		
	C401~C404	C421	C405~C414	C415~C420	CV13 CV14	CV10 CV12
Q	QV01 CV08	C422		CV09		
	CE19~CE26	CE15~CE18	CE01~CE06	CE09~CE14		CJ02 RJ08 RJ10 CJ01
D		QEO3	QEO2	QEO1		QV02 QV08~QV11
			D401	D402		
S				S401		

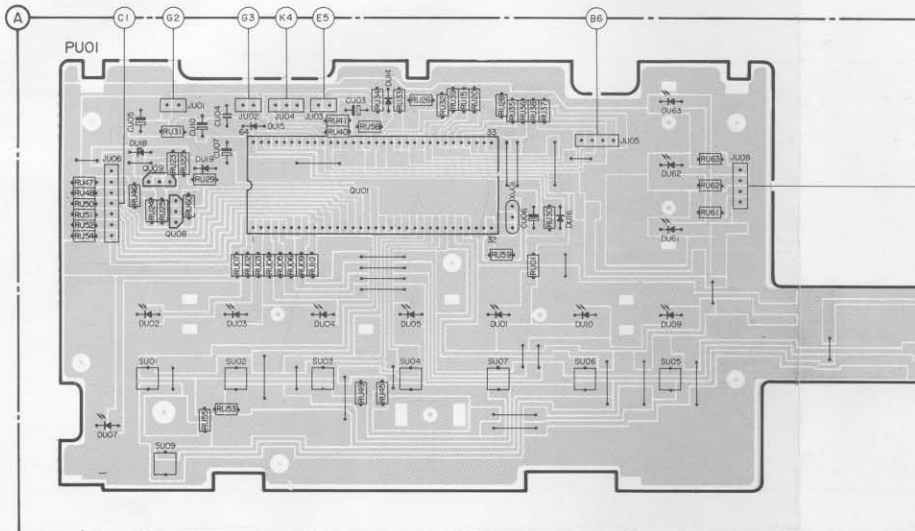




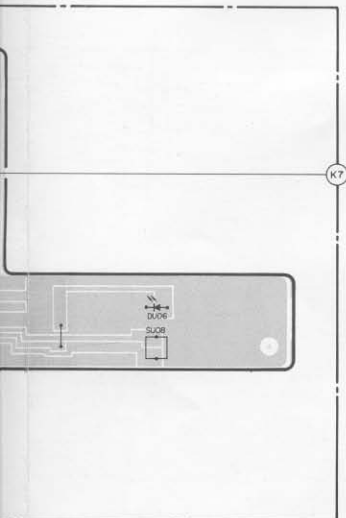
WIRING DIAGRAMS

R	RU46~RU48	RU31	RU29	RU22~RU27	RU09	RU10	RU44	RU40	RU58	RU32~RU34	RU5	RU20	RU28	RU35~RU39	RU61~RU63
	RU54	RU50~RU52	RU22~RU25	RU60	RU55	RU53	RU49	RU45	RU26	RU39	RU1	RU30			
C	CU05	CU0	CU04	CU07			CU03			CU06					
Q	QU09	QU08					QU01								
D	DU07	DU18	DU02	DU19	DU03	DU5	DU04	DU4	DU05	DU01	DU16	DU0		DU09	DU61~DU63
S = X	SU01	SU09	SU02			SU03	SU04	SU05	SU07	XU01	SU06			SU09	

MICROPROCESSOR/CONTROL/LED INDICATION



	R
	C
	Q
DU06	D
SU08	S-X

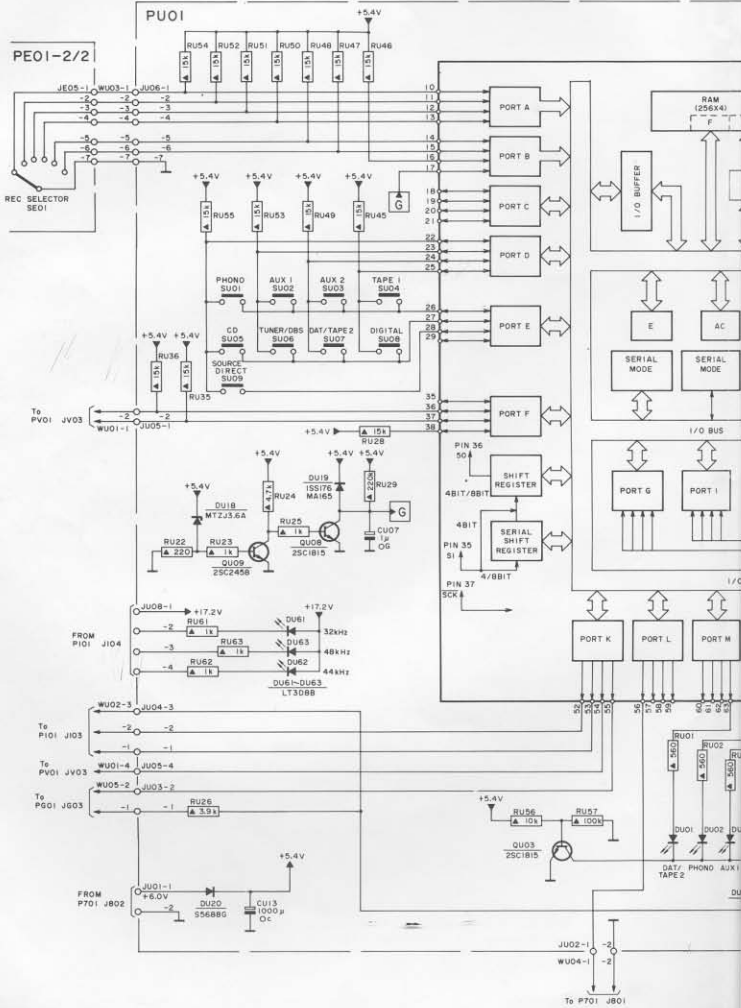


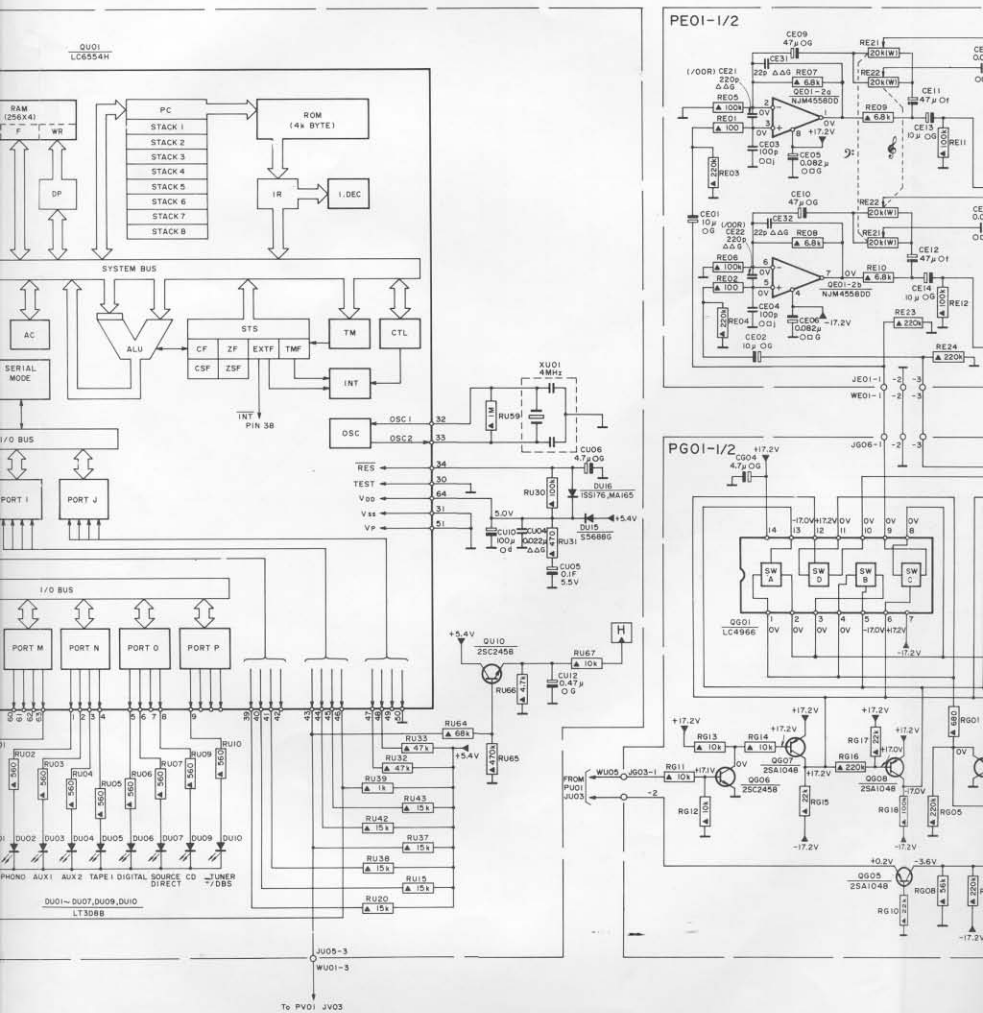
	Carbon film 0.2 W 70°C 5%
	Carbon film 0.33 W 70°C 5%
	Metal film 0.33 W 70°C 5%
	Carbon film 0.5 W 70°C 5%
	Carbon film 0.67 W 70°C 5%
	Carbon film 1.15 W 70°C 5%
Ⓒ Chip component	

	Ceramic plate Tuning ≤ 120 pF NP.0 2%
	Others -20/+80%
	Polyester flat foil 10%
	Metalized polyester flat film 10%
	Polyester flat foil small size (Mylar) 10%
	Polystyrene film/foil 1%
	Tubular ceramic
	Miniature single
	Subminiature tantalum ± 20%
*a = 2,5 V b = 4 V c = 6,3 V d = 10 V e = 16 V f = 25 V g = 40 V h = 63 V j = 100 V i = 125 V m = 150 V n = 160 V q = 200 V r = 250 V s = 300 V t = 350 V u = 400 V v = 500 V w = 630 V x = 1000 V A = 1,6 V B = 6 V C = 12 V D = 15 V E = 20 V F = 35 V G = 50 V H = 75 V I = 80 V	

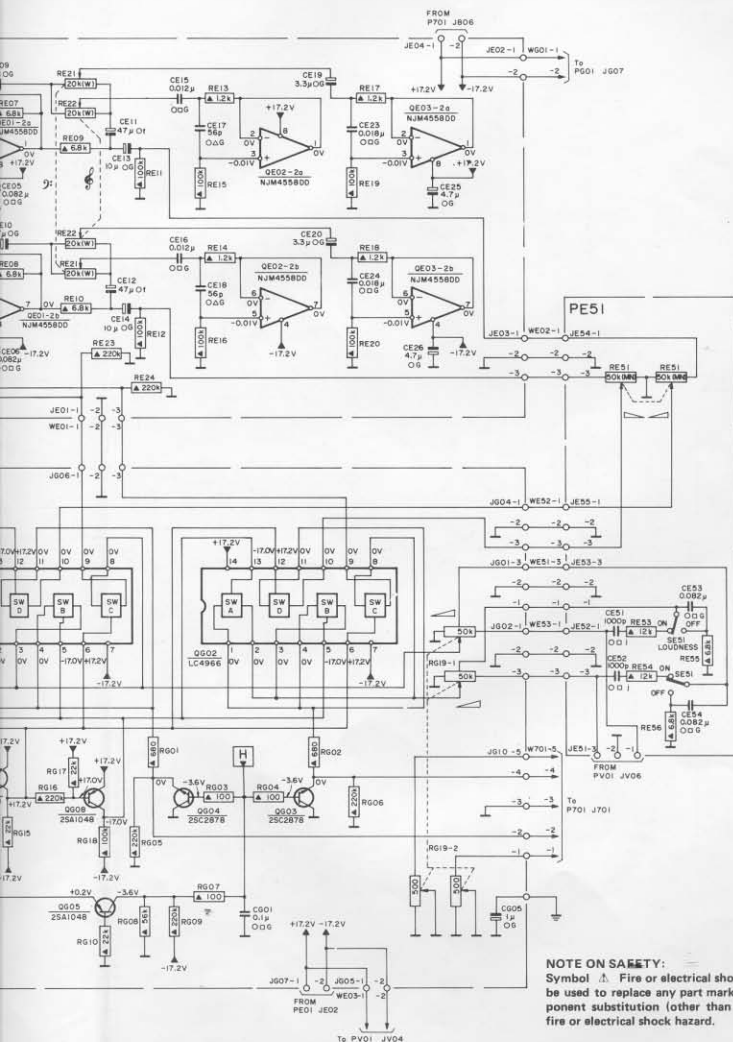
R	RU36~RUJ			RU45~RU55		
	RU22~RU26 RU61~RU63			RU29	RU56	RU57
C	CU13			CU07		
D-S	SD01	DUI8 DUZ0 SUO7~SU09 DUE1~DUE3 DUI9				DU01~DU07
Q-L-X		QU09 QU08			QU03	

MICROPROCESSOR/CONTROL/LED INDICATION



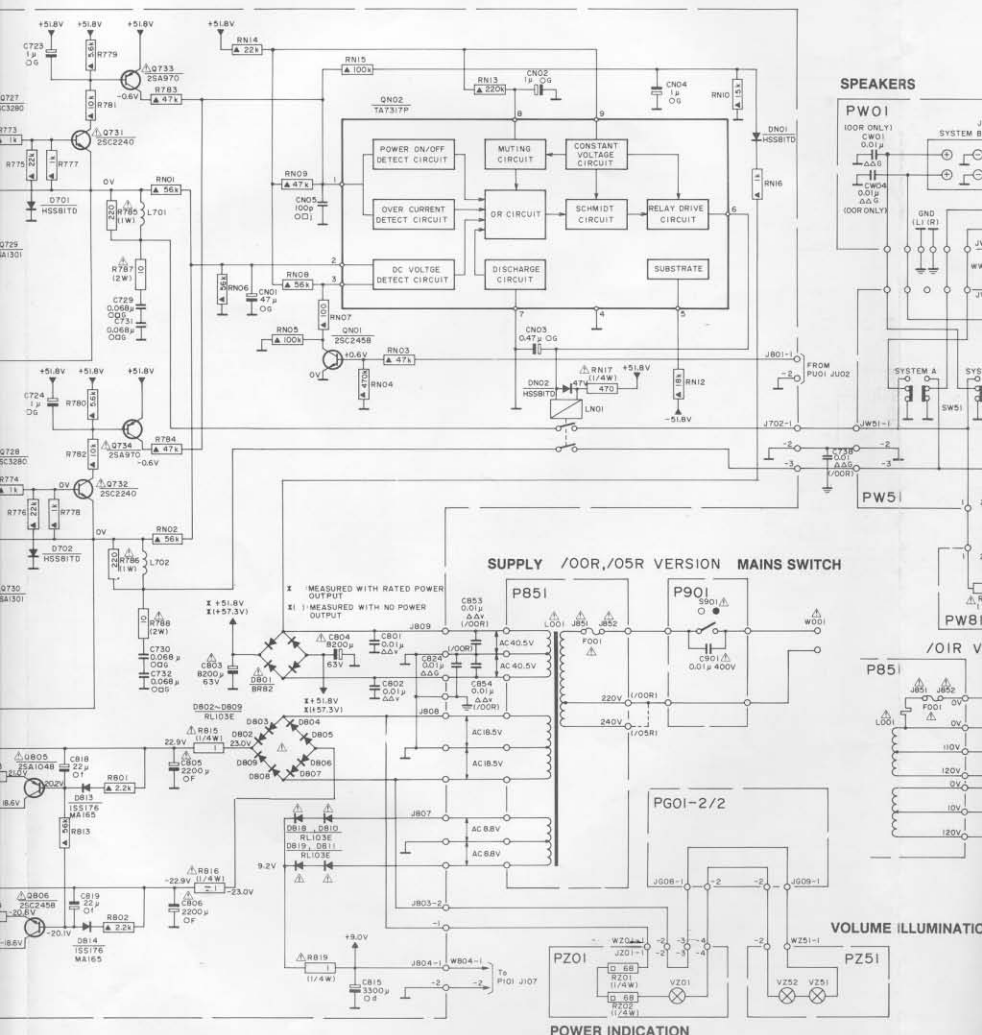


RE12		RE21~RE24		RE13~RE20			RE51		R				
				RG01~RG09			RG19			RE53~RE56			
CE01 CE10 CE31 CE32		CE11~CE18		CG01			CE19 CE20 CE23~CE26		CG05		CE51~CE54		C
Q01 Q005~Q008		Q002~Q004		Q02			Q03			SE51		D-S	
												Q-L-X	



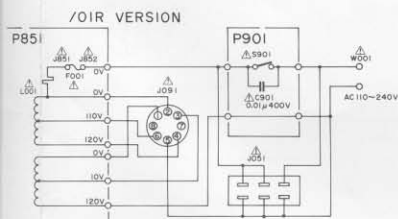
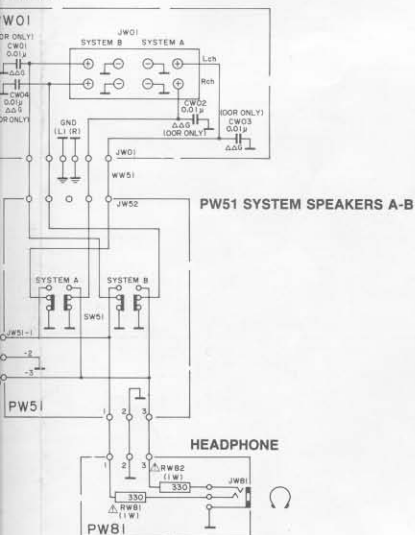
SCHEMATIC DIAGRAMS

R773~R788	RN01 RN02	RN14 RN03~RN09	RN15	RN13	RN17	RN12	RN10 RN16	
RB13 RB01 RB02	RB15 RB16 RB19					RZ01 RZ02		CW01~
C723 C724 C729~C732	CN01	CN05			CN02~CN04			
CB18 CB19	CB01~CB06	CB15	CB24 CB53 CB54			C901	C738	
DT01 DT02 DB13 DB14 LT01 LT02	DB01~DB11 DB18 DB19			LN01 DN02 L001		DN01		
GB05 GB06 Q731~Q734	GN01		GN02		VZ01 S901	VZ52 VZ51		SW51



RWB1 RWB2	R
CW01~CW04	C
	D-L
SW51	Q-S-V

PEAKERS



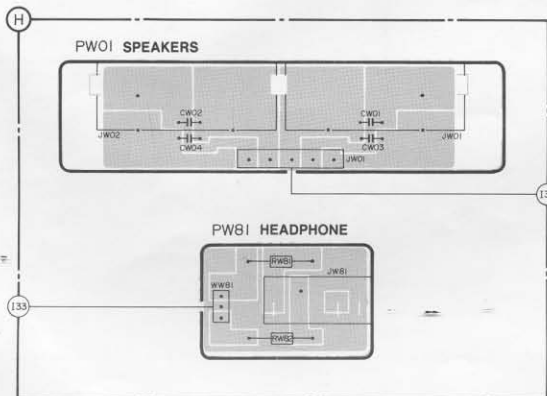
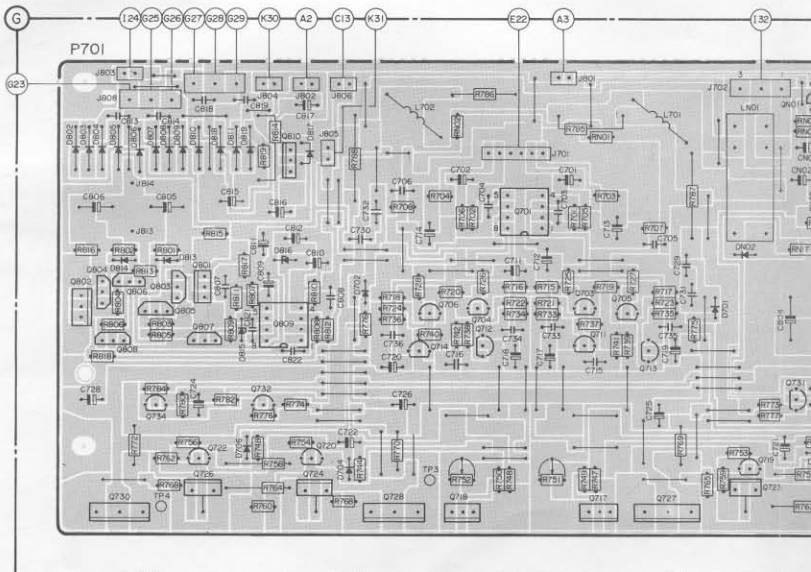
LUME ILLUMINATION

NOTE ON SAFETY:

Symbol Δ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol Δ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

R	R816 R818 R801~R806	R815 R817 R819 R814 R807	R812 R788	R708	RN02	R786 R701~R707	R785 RN01	R787		
	R813 R784 R780	R782	R776 R774 R764 R760	R776 R787 R724 R736 R728 R740 R720 R742 R738 R726 R716 R722 R734 R710 R721 R733 R727 R717 R723 R735 R720 R722 R727	R767~R782	R752	R725 R737 R719 R741 R739	R768 R775 R750 R759 R753		
C	C806	C813	C805 C814 C818	C815	C819	C816 C807~C812	C817 C730 C732 C706	C701~C704 C71~C714	C705 C729 C731	C804
	C728	C724	C812 C802 C804 C822	C722	C736 C720 C726	C716 C801 C803 C734 C737 C733 C715	C725 C735 C719	C721	C721	C801
Q	Q801~Q808		Q809 Q808			Q708~Q706 Q701 Q711~Q714		Q717	Q717	Q717
D	D802~D810 D814	Q734	Q726 Q723	Q731	Q724 Q720	Q728				
F-L-S-V-M						L702		L701	L701	L701

SUPPLY/POWER AMPLIFIER



SYSTEM SPEAKERS

PW51

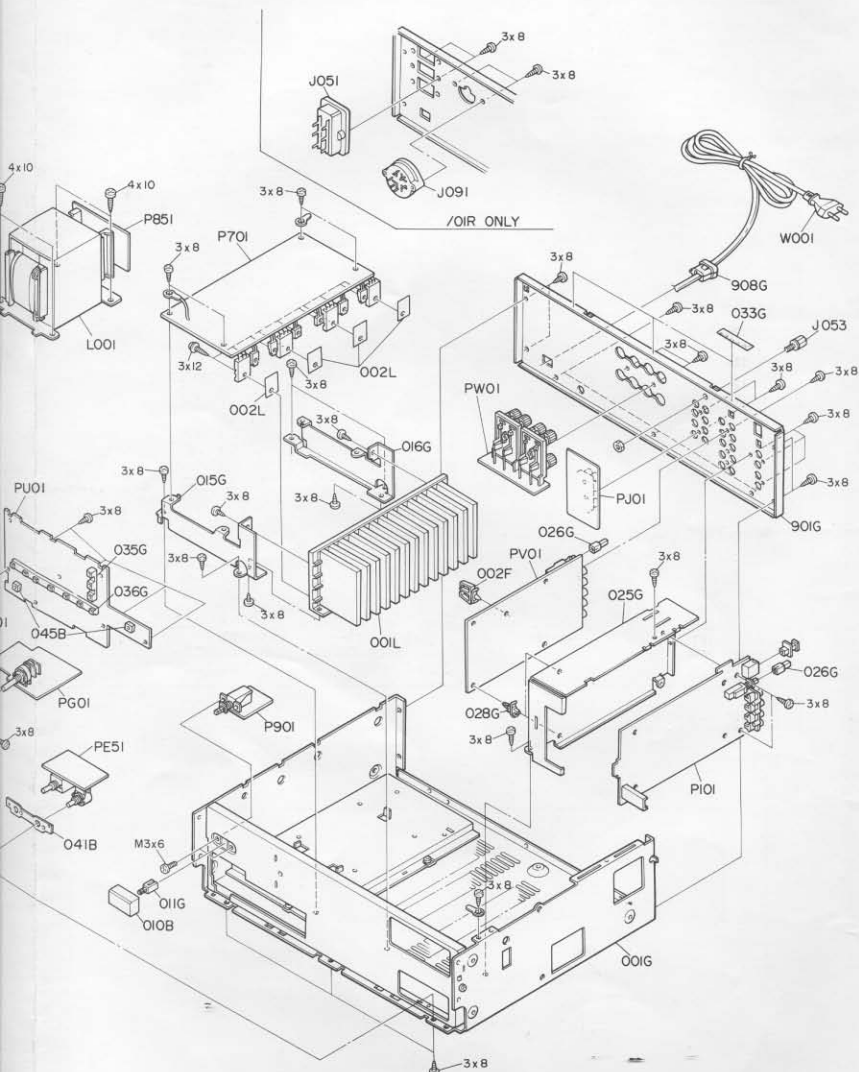
PZ01

POWER INDIC



J05J	4822 266 30288
L001	4822 146 21383
001B	4822 426 51324
010B	4822 410 25479
011B	4822 410 24665
012B	4822 413 31549
013B	4822 413 31551
020B	4822 464 70536
011G	4822 404 21012
026G	4822 412 20506
035G	4822 255 40891
036G	4822 255 40888
908G	4822 532 60948
001F	4822 462 41037
	4822 454 40107 (Philips badge)

EXPLODED VIEW



Note: Only the parts provided with a Service codenumber are available as service spare parts

