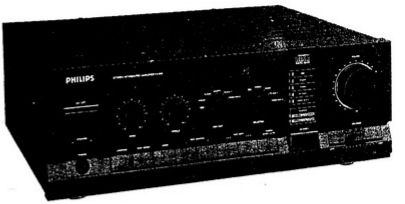
Amplifier 70FA960

00R/01R/05R

Service
Service
Service



Service Manual

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Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

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Datum: 21.04.88 De/Li

Service Information

Betrifft: High Tech-Verstärker 70 FA 960
Änderungen

Verteiler: intern und extern

1.
In Geräten mit Seriennummer ab 030001 sind die Ferritkerne über den Anschlußdrähten der Widerstände R 403, R 404, R 407 und R 408 entfallen; stattdessen sind in die Phonoeingänge 2 Drosselspulen eingefügt worden (s. Fig. 1) :

L 401 320 µH 4822 156 11019
eingefügt zwischen J 403 (L) und Verbindungspunkt R 401/R403
L 402 320 µH 4822 156 11019
eingefügt zwischen J 403 (R) und Verbindungspunkt R402/R404

2.
Zur Verkürzung der Einschalt-Verzögerung ist in Geräten mit Seriennummer ab 40001 der Widerstand RN 15 (220 k) geändert worden in 120 k.

3.
Zur Erhöhung der Betriebssicherheit wurden in Geräten mit Seriennummer ab 12001 die Widerstände R 802 und R 805 durch gleiche Werte einer anderen Bauart ersetzt.

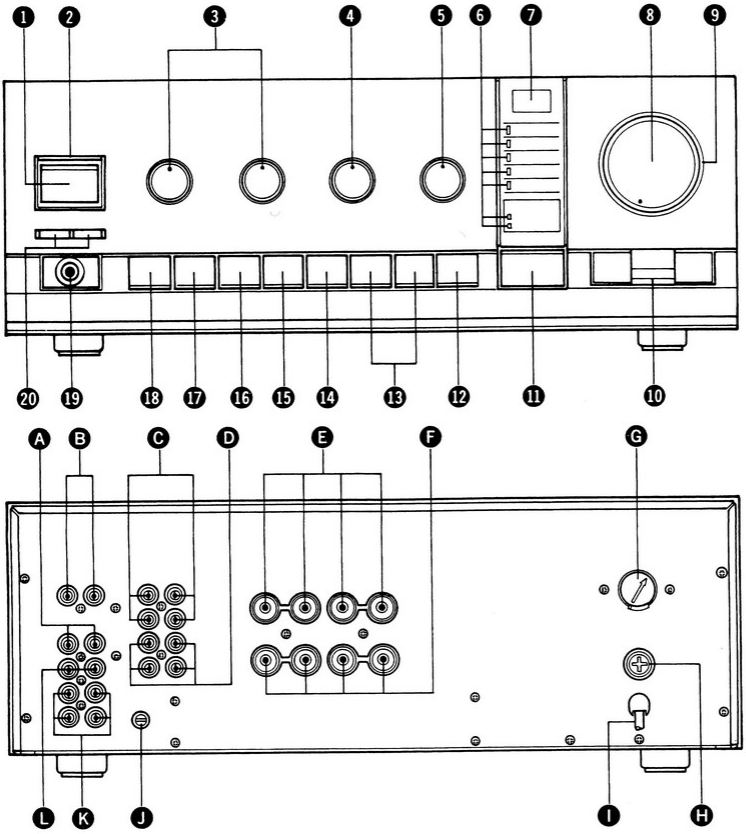
R 802, R 805 10 Ω, 0.25 W 4822 116 60314

4.
Zur Erhöhung der Lämpchen-Lebensdauer sind in Geräten mit Seriennummer ab 140001 folgende Änderungen eingeführt worden:

- R 807 (180 Ω) entfallen
- Connector J 805 entfallen
- Connector J 809 auf Print P 801 hinzugefügt; die Lampenzuleitung WZ 01 ist bei J 809 angeschlossen (s. Fig. 2,3).

Form 80048

Philips GmbH · Geschäftsbereich Service · Hamburg 1



CONNECTIONS AND CONTROLS

1	Mains switch	S901
2	Mains switch illumination	VZ01
3	Tone control	RE65, RE66
4	Rec. output selector switch	S002, SV02
5	Function switch	S001, SV01
6	Function indicator	DY51~DY57
7	CD direct indicator	VY51
8	Volume control	RG05
9	Volume control illumination	VZ51, VZ52
10	Balance control	RG51
11	CD direct switch	SS03
12	Phono MM/MC switch	SS02
13	Tape copy switch	SS02
14	Tape monitor 2 switch	SS02
15	Tape monitor 1 switch	SS01
16	Mono switch	SS01
17	Tone defeat switch	SS01
18	Loudness switch	SS01
19	Headphone socket	JW51
20	LS switch	ST01

A	CD input	JV01
B	Phono input	J403
C	Tape 1 monitor input/output	JJ01
D	Tape 2 monitor input/output	JJ02
E	LS output A	J701, J702
F	LS output B	J701, J702
G	Voltage selector (/01R version only)	J091
H	Fuse holder	J001
I	Mains cord	W001
J	Ground terminal	J053
K	Aux 1/TV, Aux 2/LV input	JV02
L	Tuner input	JV02

SPECIFICATION	Nominal value	Typical value
General		
Mains voltage	: 220V ~ Service solution for 220V – 240V	: 220V ~ Service solution for 110V – 120V – 220V – 240V
Mains frequency	: 50 – 60 Hz	: 50 – 60 Hz
Power consumption	: 360W at rated power	: 450W at rated power
Dimensions (WxHxD)	: 420 x 146 x 334 mm	: 416 x 146 x 334 mm
Weight	: 14 kg	: 14 kg
Amplifier		
Output power	: 100W in 8Ω (FTC) D < 0.03% 110W in 8Ω (IEC)	: 100W in 8Ω (FTC) D < 0.03% 110W in 8Ω (IEC)
Power bandwidth (8Ω)–3 dB of rated power	: 15 Hz – 25 Hz D < 0.03%	: 10 Hz – 30 kHz D < 0.03%
Distortion		
T.H.D.	: ⩽ 0.008% at 1 kHz ⩽ 0.3% at 40 Hz – 10 kHz } (IEC)	: ⩽ 0.008% at 1 kHz ⩽ 0.03% at 40 Hz – 10 kHz } (IEC)
Intermodulation	: ⩽ 0.03% at 60/7000 Hz 4:1	: ⩽ 0.03% at 60/7000 Hz 4:1
Frequency characteristic		
Phono input } tone defeat	: from 40 Hz – 20 kHz ±1 dB (IEC)	: from 20 Hz – 20 kHz ±0.5 dB (IEC)
Other inputs	: from 20 Hz – 20 kHz ±0.5 dB	: from 20 Hz – 40 kHz ±0.5 dB
Bass control	: at 100 Hz +10 dB to –10 dB ±2 dB	: at 100 Hz +10 dB to –10 dB
Treble control	: at 10 kHz +10 dB to –10 dB ±2 dB	: at 10 kHz +10 dB to –10 dB
Loudness	: at 100 Hz +6 dB ±1.5 dB } Tap position at 10 kHz +4 dB ±1.5 dB	: at 100 Hz +6 dB } Tap position at 10 kHz +4 dB
Phono overload		
MM	: 100 mV at 1 kHz	: 150 mV at 1 kHz
MC	: 10 mV at 1 kHz	: 15 mV at 1 kHz
Signal/noise ratio weighted (A-curve)		
Phono input	: for 1W output ⩾ 80 dB (IEC)	: for 1W output ⩾ 80 dB (IEC)
Other inputs	: for 1W output ⩾ 89 dB (IEC)	: for 1W output ⩾ 89 dB (IEC)
Channel separation	: at 1000 Hz ⩾ 70 dB at 250 Hz – 10 kHz ⩾ 56 dB	: at 1000 Hz ⩾ 70 dB at 250 Hz – 10 kHz ⩾ 56 dB
Input sensitivity		
Phono MC	: 0.25 mV at 100Ω	: 0.25 mV at 100Ω
Phono MM	: 2.5 mV at 47 kΩ	: 2.5 mV at 47 kΩ
Linear inputs	: 150 mV at 20 kΩ	: 150 mV at 20 kΩ
Outputs (Phono MM 7.75 mV 1 kHz input)		
Tape	: 465 mV ± 90 mV at 220Ω	: 465 mV at 220Ω
Damping factor (8Ω)	: 120 at 20 Hz : 100 at 10 kHz	: 120 at 20 Hz : 100 at 10 kHz

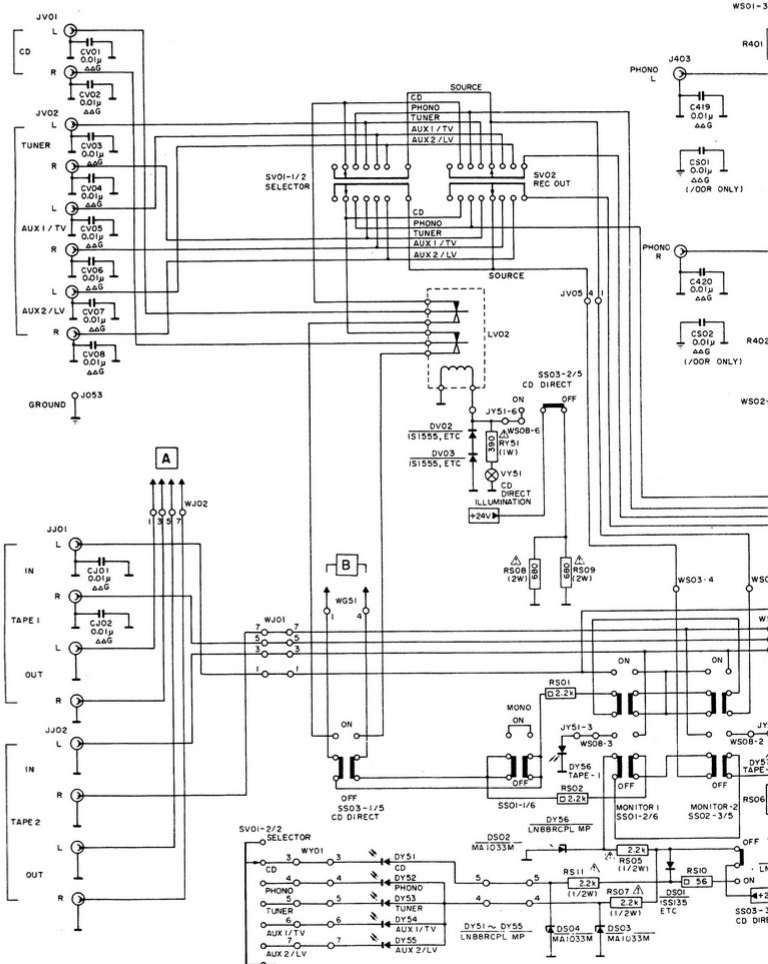
Caution ⚡ 220 V/240 V

Removal of upper cabinet exposes the protruding current-carrying parts of mains switch and mains transformer, therefore extreme care should be taken when the apparatus is connected to the mains.

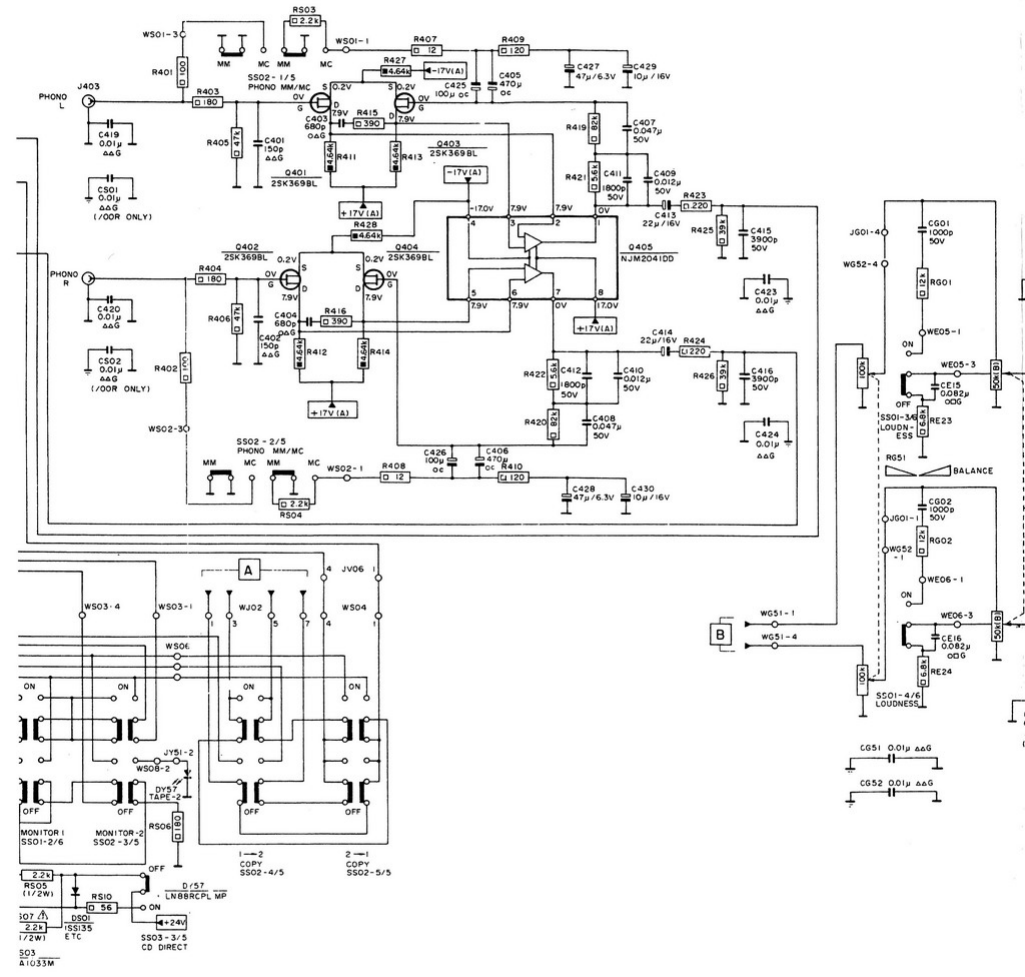
Uncasing instructions

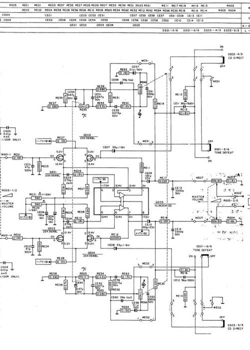
See for the uncasing instructions exploded view on page 19 - 24.

R	RY51 RS08 RS09 R401 RS01 RS02 RS11 RS07 RS05 RS10 R402
C	CV01 ~ CV08 C419 CS01 CJ01 CJ02 C420 CS02
Q-D-V	DY51 ~ DY55 DV02 DV03 VY51 DY56 DS02 ~ DS04 DS01 DY57
L-S	SV01-2/2 SV01-1/2 SS03-1/5 LV02 SS01-1/6 SV02 SS03-2/5 SS01-2/6 SS03-

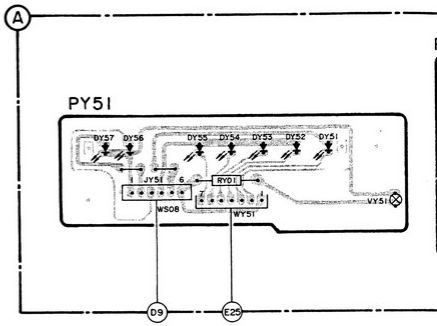


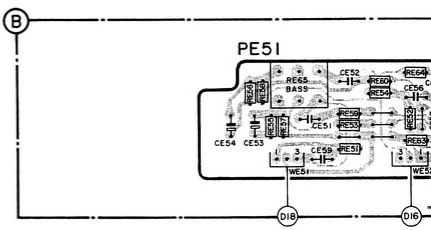
SCHEMATIC DIAGRAM

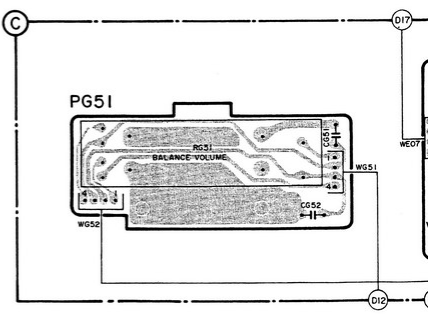



SS03-4/5
CD DIRECT
SS01-5/6
TONE DEFEAT
QE03
2SK369BL
QE01
2SK369BL
QE02
2SK369BL
QE04
2SK369BL
QE05
NJM2041DD
MASTER
VOLUME
RG05-1/2
RG05-2/2
SS01-6/6
TONE DEFEAT
SS03-5/5
CD DIRECT
WE01
WE02
WE51
WE52
WE07
CG03
CG04

R	RY01 RE56 RE58 RE55 RE57 RE59 RE53 RE51 RE
	RG51 RE65
C	CE54 CE53 CE51 CE59 CE52 CE56 C
	CG52 CG51
Q - D - V	DY57 DY56 DY55 DY54 DY53 DY52 DY51 VY51
L - S	







WIRING DIAGRAM

RE60 RE54 RE64 RE62 RE66 RE03 RE27 RE11 RE09 RE07 RE01 RE05 RE21 RE22 RE06 RE02 RE08 RE10 RE12 RE04 RE28 RE26 RE25

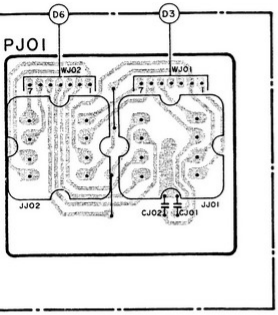
RE52 RE63 RE61 RG04 RG03 RG05 RG01 RG02 RE24 RE13 RE15 RE23 RE17 RE19 RE20 RE18 RE16 RE14 RS01 RS02 R429 R430 R423 ~ R426 R421 R422 R432 R431 R4

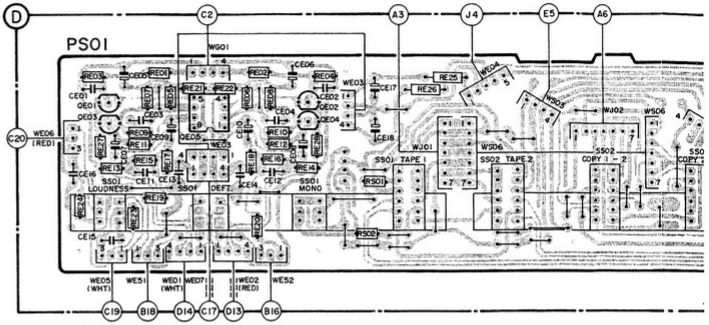
CE58 CE62 CE57 CE55 CE60 CE61 CJ02 CJ01 CE16 CE01 CE05 CE07 CE03 CE09 CE10 CE04 CE06 CE02 CE17

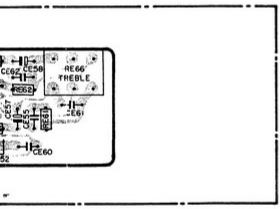
CG01 CG02 CE15 CE11 CE13 C424 C423 CE14 CE12 CE08 CE18 C417 C418 C415 C416 C409

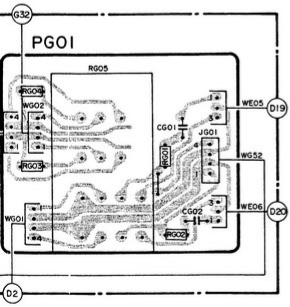
QE01 QE03 DV02 DV03 QE05 QE02 QE04

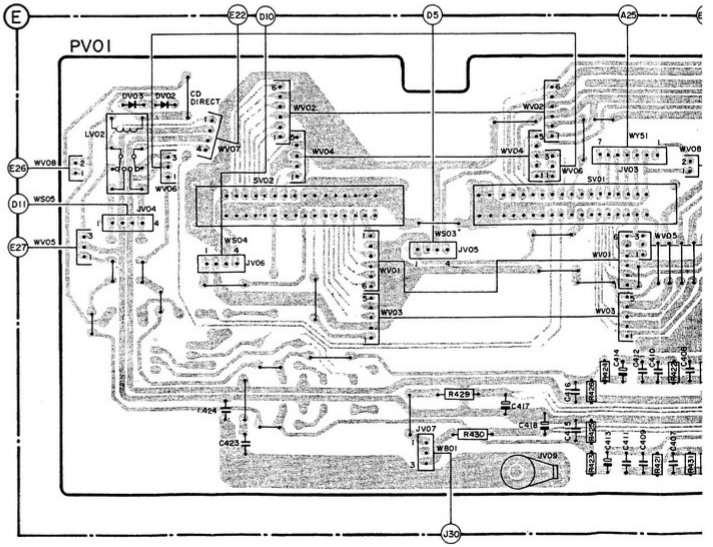
LV02 SV02 SS01 SS02 SV01











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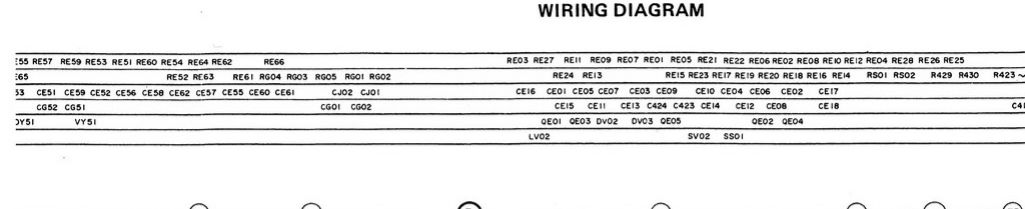
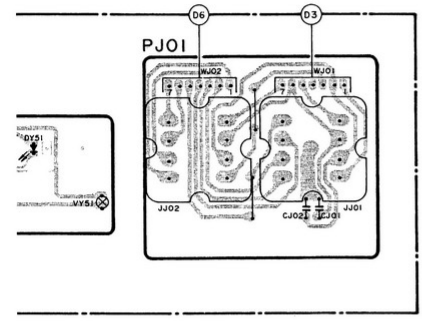
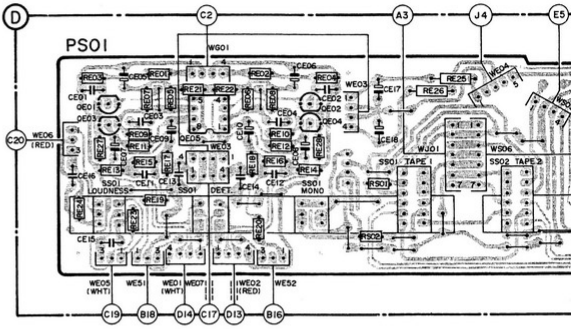
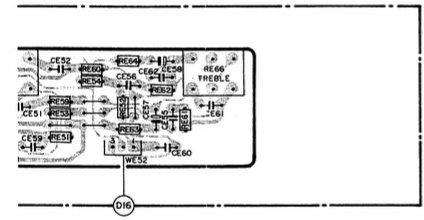
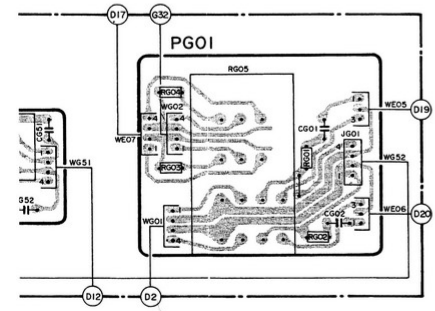
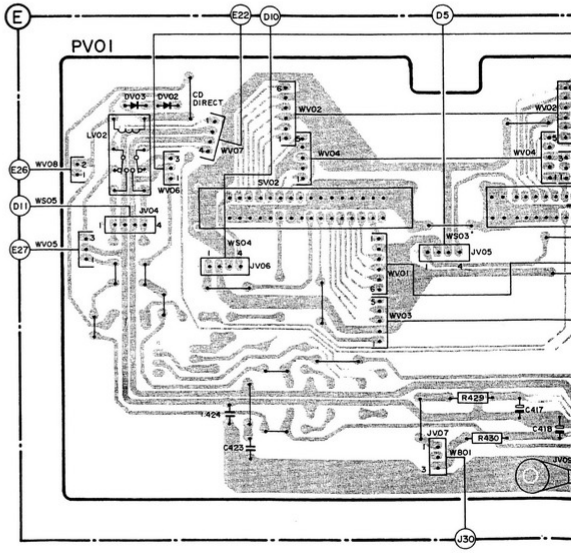




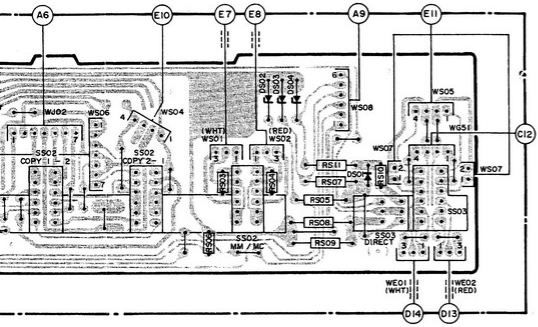


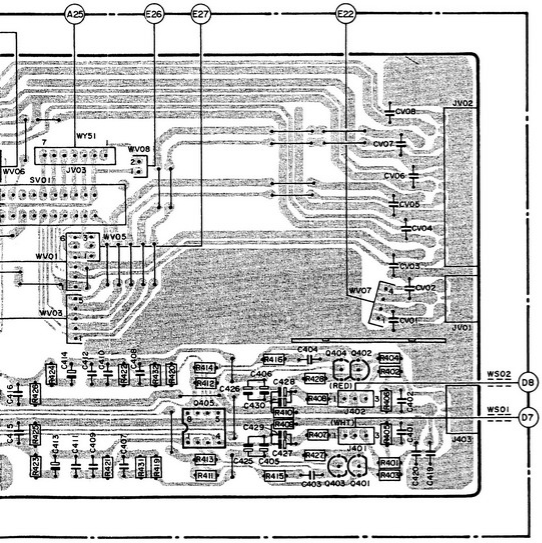




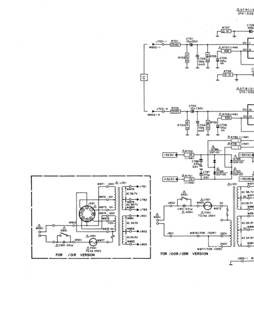


RS06 RS03 RS04 RS11 RS07 RS05 RS08 RS09 RS10	R
R426 R421 R422 R432 R431 R419 R420 R411～R414 R415 R416 R407～R410 R427 R428 R401～R406	
CV01 ～ CV08 C419	C
7 C418 C415 C416 C409 C414 C407 C408 C425～C430 C405 C406 C404 C403 C401 C402 C420	
Q405 DS02 DS04 Q401～Q404 DS01	Q - D - V
SS02 SV01 SS03	L - S

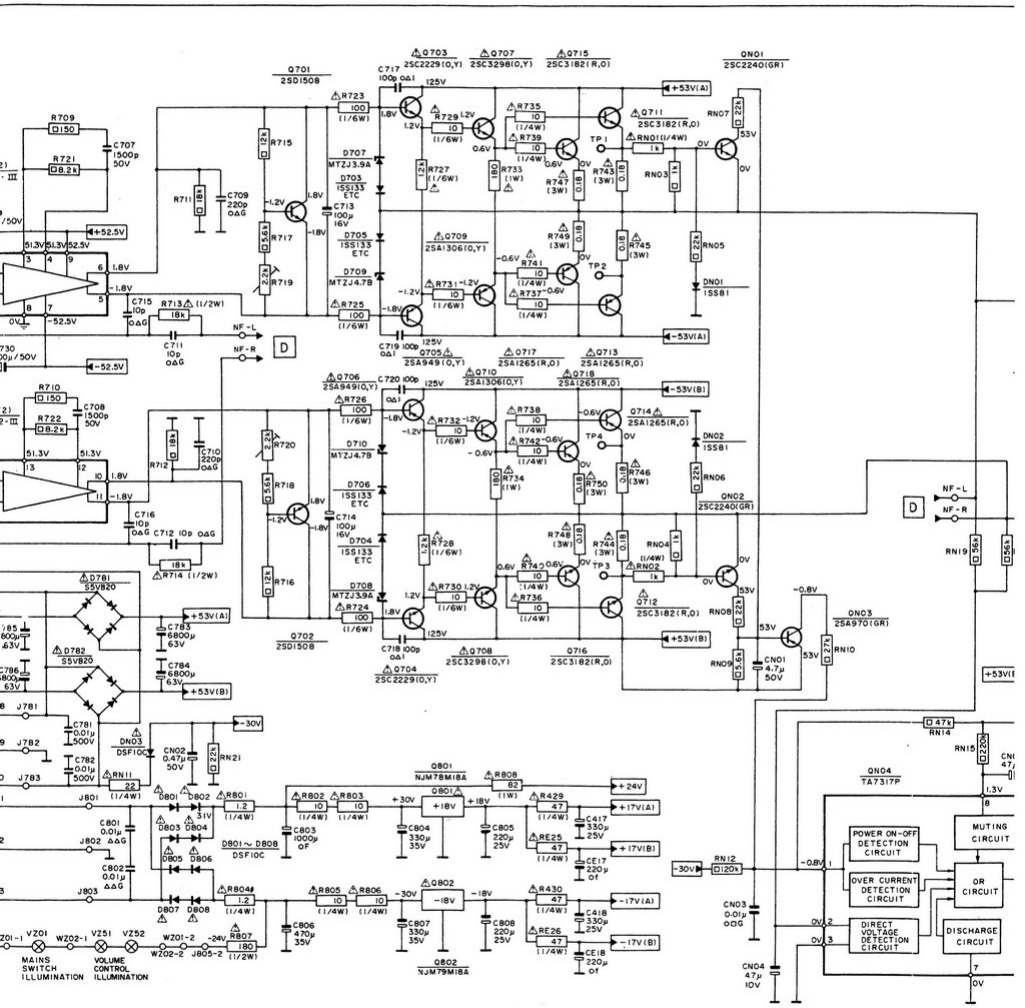




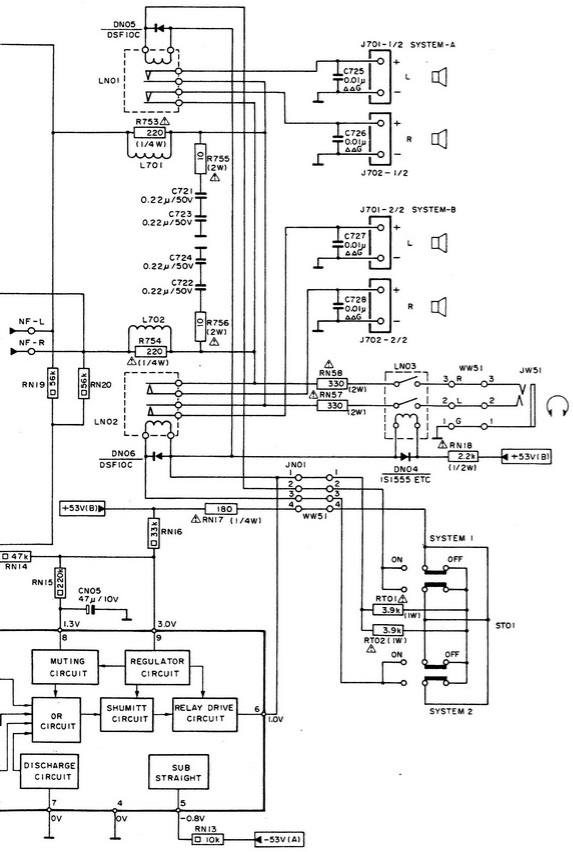
R	R701 R703 R705 R757 R707 R758
	R702 R704 R752 R751 R706 R708 R782 R781
C	C701 ~ C704 C705 C706 C729 C
	C901 C901 C788 C787 C785 C
Q - D - V	D783 ~ D786 V201 Q719 - (
L - S	S901 L001 S901 L001



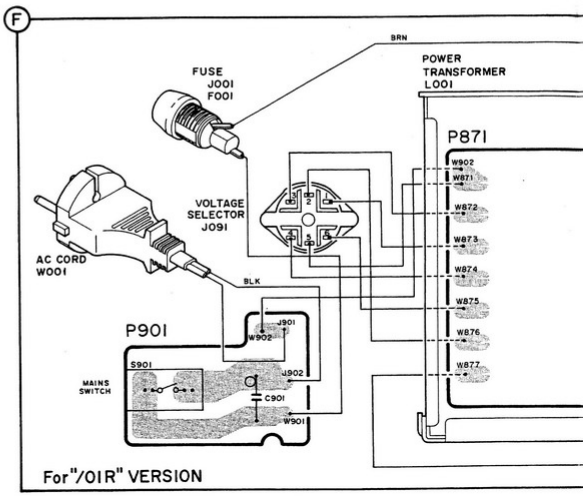
SCHEMATIC DIAGRAM

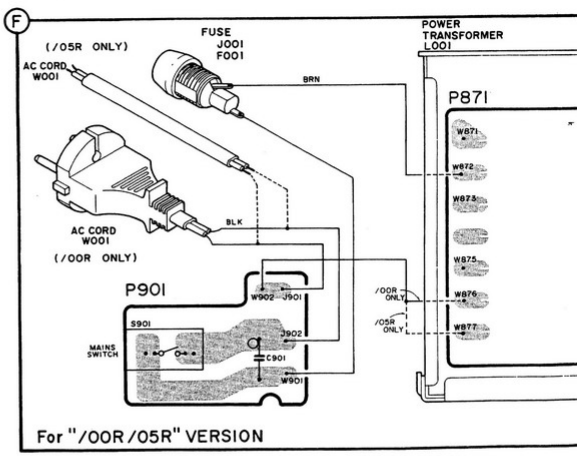


		RN19	RN20	R753	R754	R755	R756			RN58	RN57	R
RN14		RN15			RN16		RN17	RN13		RN18	RTO1 RTO2	
						C721 ~ C724				C725	C726	C
			CNO5							C727	C728	
QNO4						DNO5	DNO6			DNO4		Q - D - V
				LNO1	LNO2	L701	L702			LNO3	STO1	L - S

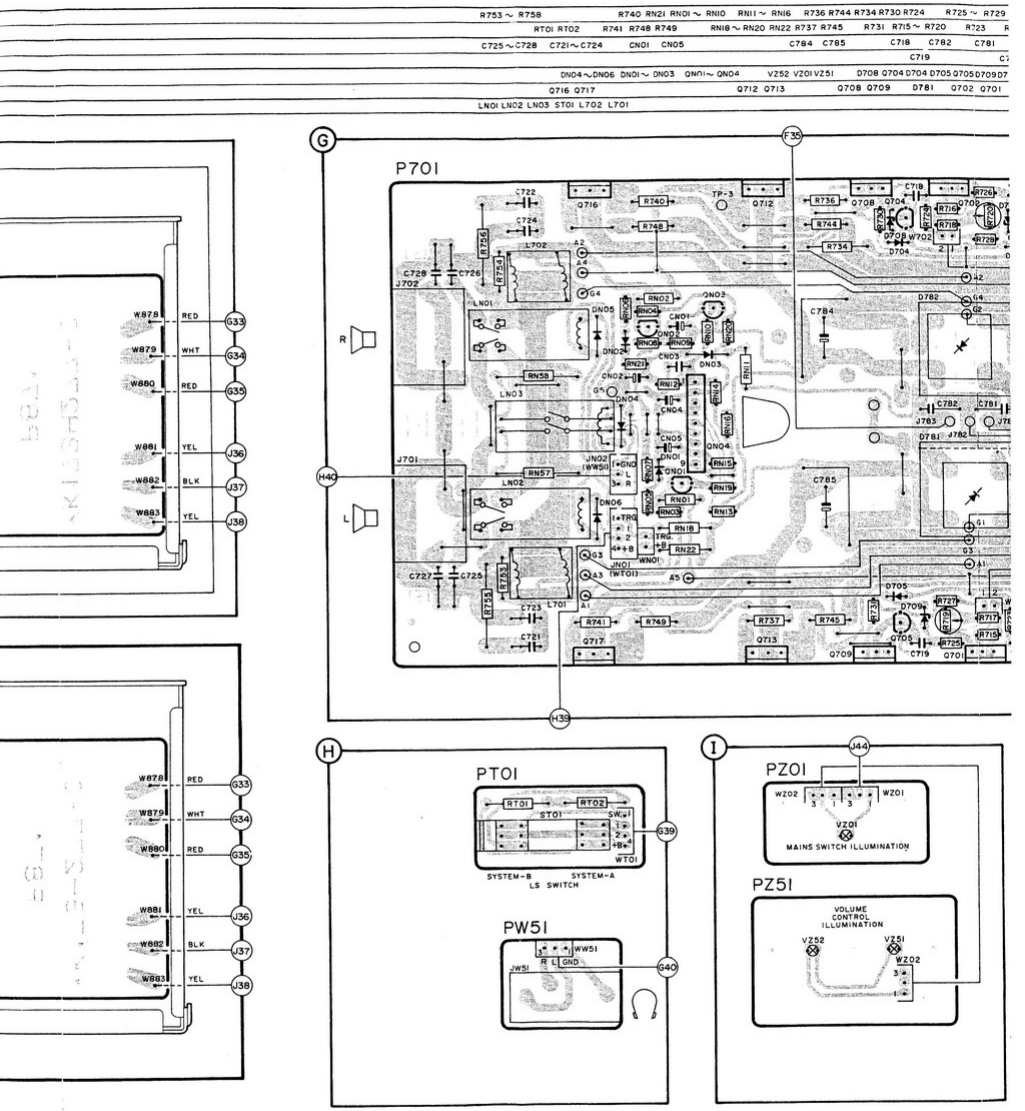


R	
C	C901
Q-D-V	
L-S	S901

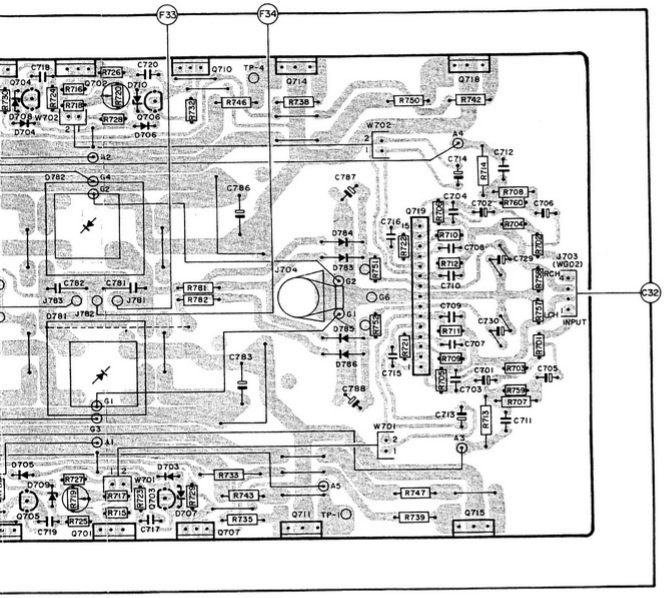


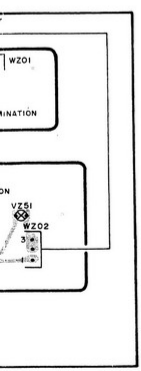


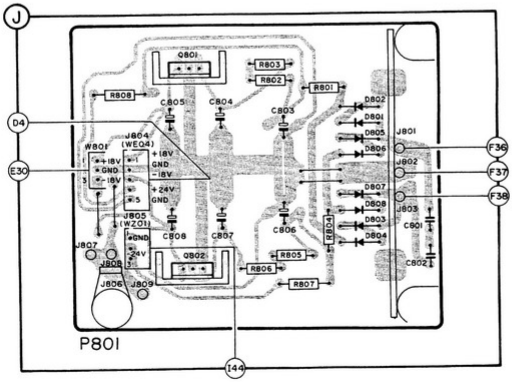
WIRING DIAGRAM



R730 R724 R725 ~ R729 R732 R781 R782 R746 R738 R750 ~ R752 R722 R721 R701 ~ R714	R
31 R715 ~ R720 R723 R733 R743 R735 R808 R801 ~ R807 R747 R739 R742 R757 ~ R760	
C718 C782 C781 C720 C786 C783 C787 C716 C715 C701 ~ C714	C
C719 C717 C788 C803 ~ C808 C729 C730 C801 C802	
9 Q704 D704 D705 Q705 D709 D782 Q710 D706 Q706 D703 Q703 D707 D783 ~ D786 Q801 Q802 Q719 D801 ~ D808	Q - D - V
709 D781 Q702 Q701 Q710 Q707 Q714 Q711 Q718 Q715	L - S







Idling Current

SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
			Min.	Lch R719		Lch TP1(+), TP2(−) DC14mV (39mA) [1]
				Rch R720		Rch TP3(+), TP4(−) DC14mV (39mA) [1]

[1] Adjust R719 (channel L) or R720 (channel R) so that the voltmeter reads 14 mV about 1 minute after the power has been turned on. (Note that the idling current is about 42 mA after the unit has warmed up.)

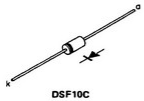
Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
(C) Chip component			

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%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

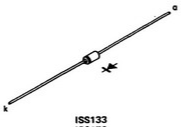
*a	2.5 V
b	3.15 V or 4 V
c	6.3 V
d	10 V
e	16 V
f	25 V
g	40 V
h	63 V
j	100 V
l	125 V
m	150 V
n	160 V
q	200 V
r	250 V
s	300 V
t	350 V
u	400 V
v	500 V
w	630 V
x	1000 V
A	1.6 V
B	6 V
C	12 V
D	15 V
E	20 V
F	35 V
G	50 V
H	75 V
I	80 V

NOTE:
Some withstand voltages of the condensers are shown in both numerical value and symbol on the circuit diagram. If withstand voltage shown in numerical value is different from that in symbol for a condenser, both are applicable.

Semicoductor Layout

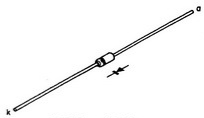


DSF10C



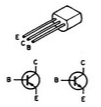
ISS133
ISS176
MA165

MTZJ3.9A
MTZJ4.7B
RD4.7JB2

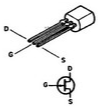


IS1555 IS2473
ISS81 DS448
IS2076 MA150

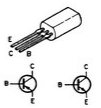
LN88RCPL(MP)



2SA970 2SC2240



2SK369



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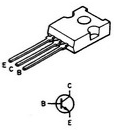
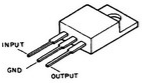
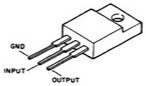


2SD1508



NJM78M18A



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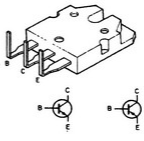

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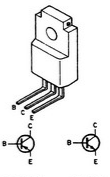

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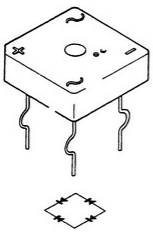
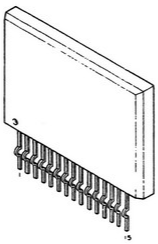
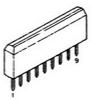


S5VB20



STK3102III



TA7317P

NJM2041D-D

001B	4822 426 51142
002B	4822 410 25479
003B	4822 410 24665
004B	4822 412 20987
005B	4822 410 25478
006B	4822 412 20987
007B	4822 412 20986
008B	4822 410 25479
009B	4822 412 20988
010B	4822 404 60345
011B	4822 404 60346
012B	4822 450 60913
013B	4822 410 50157
014B	4822 410 50156
015B	4822 454 40108
016B	4822 404 60341
019B	4822 404 60344
020B	4822 532 51848
021B	4822 459 80373
022B	4822 255 40759
001B,010B 011B,012B 013B,015B 020B	4822 426 51143
025B	4822 380 20251
026B	4822 380 20252
029B	4822 454 40107
031B	4822 459 40586
016G	4822 505 10895
046G	4822 462 71455
907G	4822 532 51314
002L	4822 502 12161

Only the mentioned parts are normal service parts

(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.

(F)

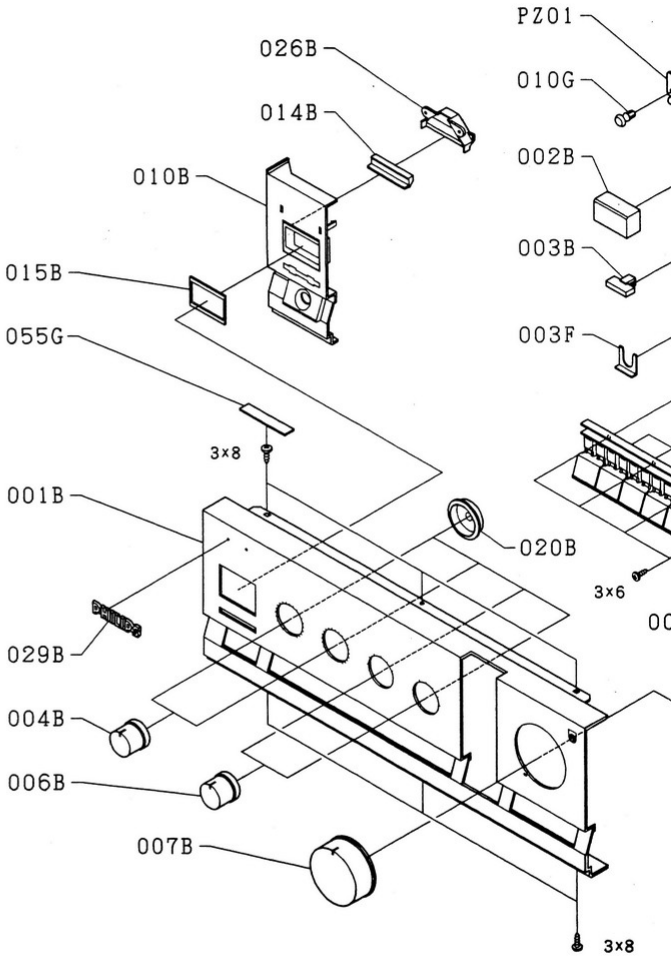
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(D)

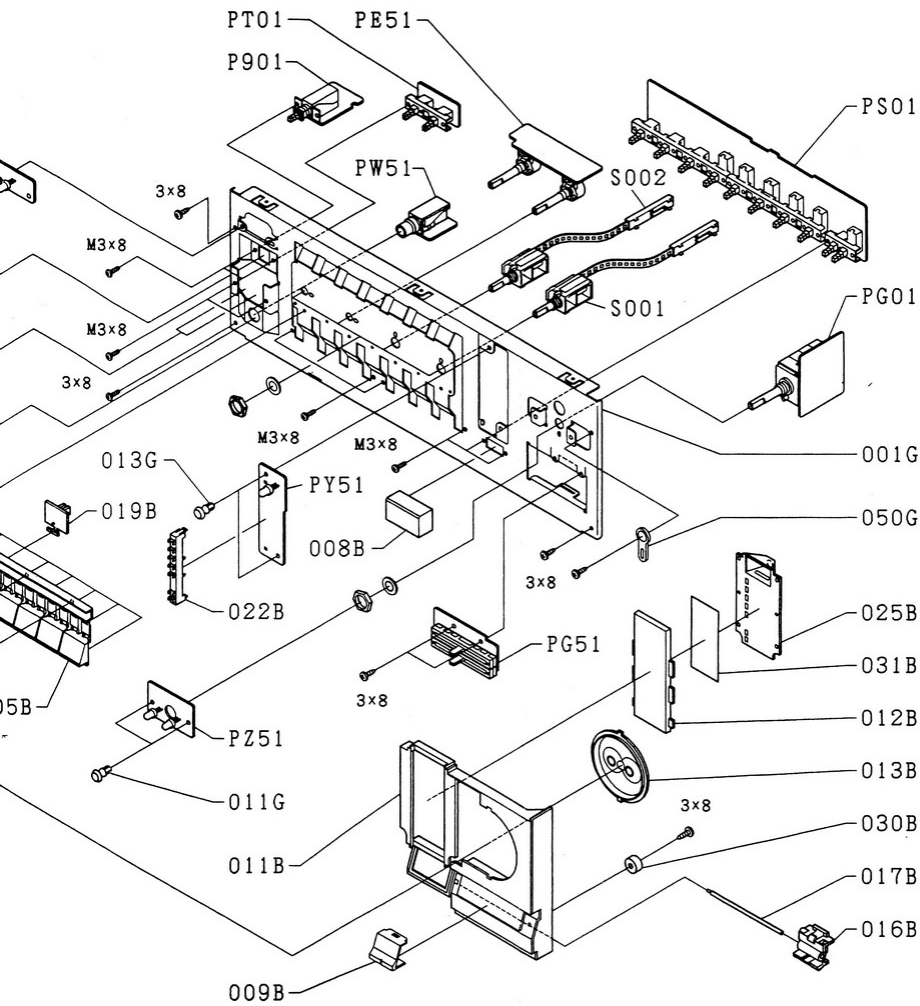
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)

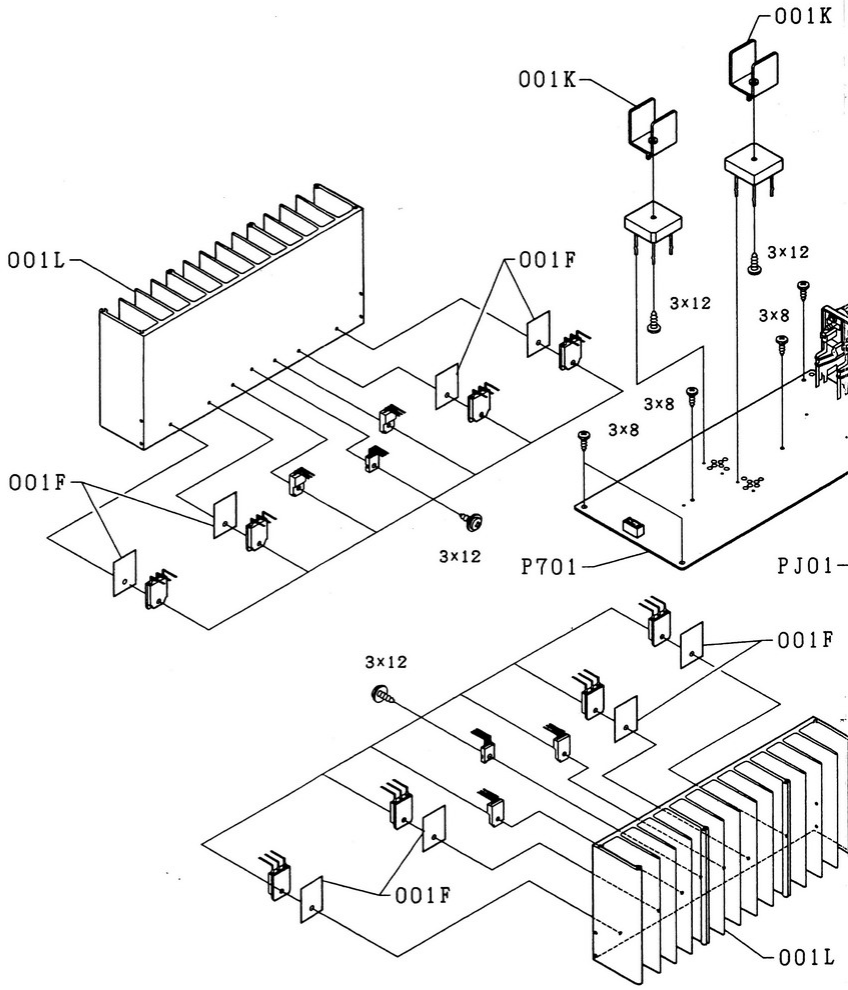
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.


PZ01
026B
010G
014B
002B
010B
003B
015B
003F
055G
3x8
001B
020B
3x6
029B
004B
006B
007B
3x8

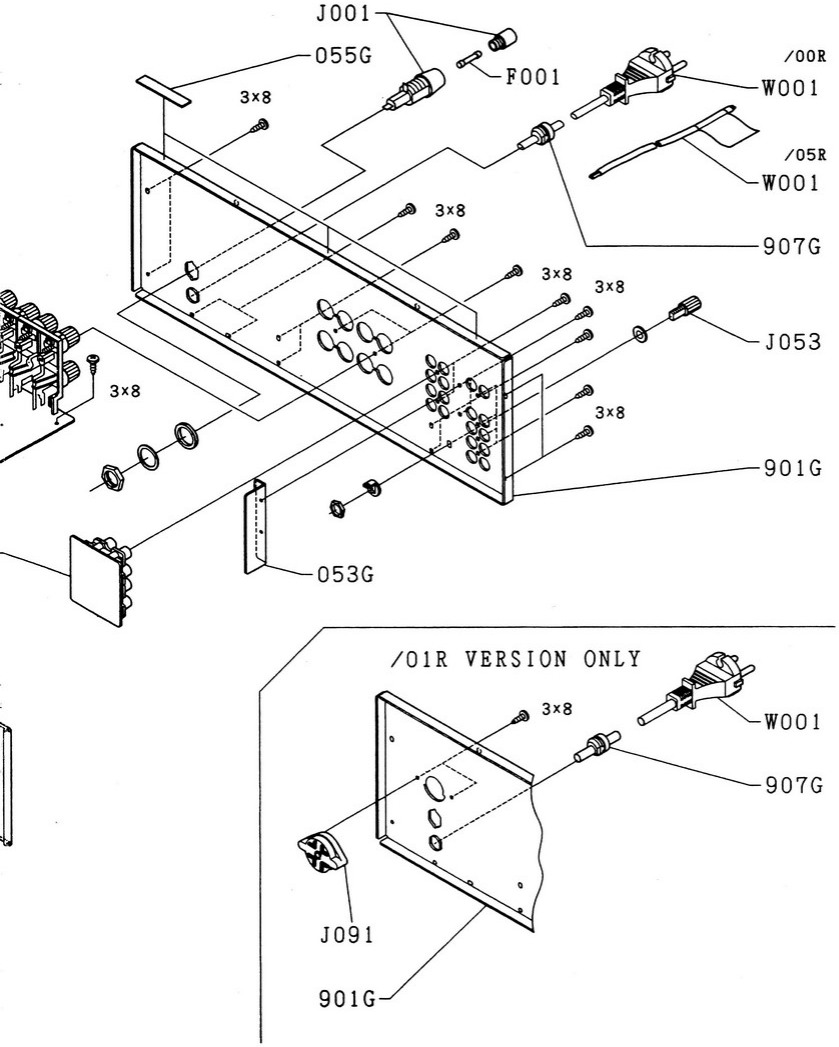
EXPLODED VIEW

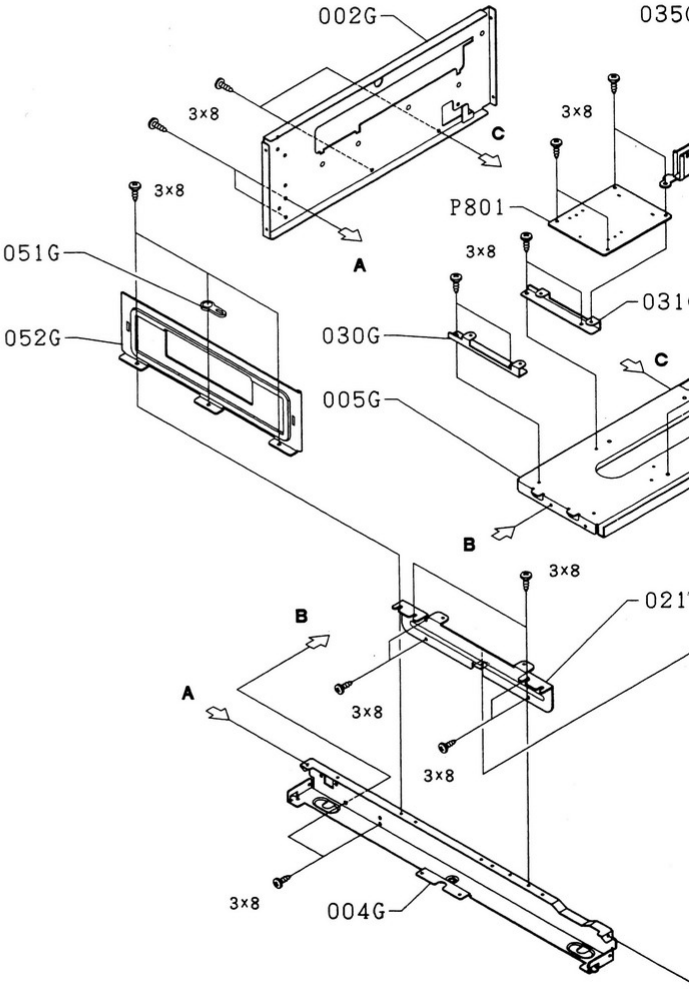


EXPLOD

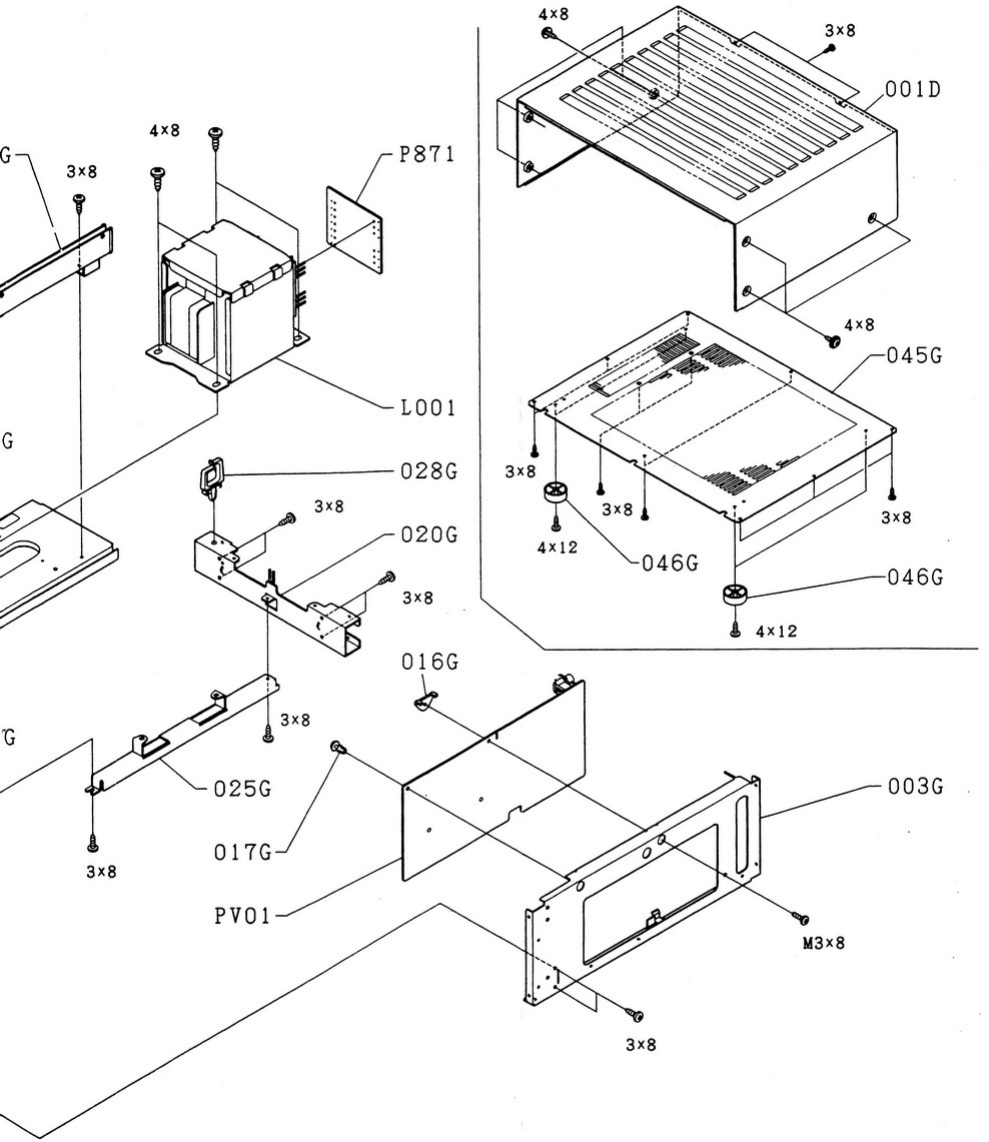

001K
001K
001L
001F
3x12
3x12
3x8
3x8
3x8
001F
3x12
P701
PJ01
3x12
001F
001F
001L

ED VIEW


J001
055G
F001
/00R
W001
/05R
W001
907G
3x8
3x8
3x8
3x8
3x8
3x8
J053
901G
053G
/01R VERSION ONLY
3x8
W001
907G
J091
901G


002G
3x8
3x8
C
A
3x8
P801
051G
3x8
052G
030G
C
005G
B
3x8
B
A
3x8
3x8
3x8
004G

EXPLODED VIEW



DN01,DN02	1SS81	4822 130 33065
DN03,DN05 DN06	DFS10C	4822 130 32508
DN04	1S2473	4822 130 31018
DS01	1SS133	4822 130 33305
DS02-DS04	MA1033M	4822 130 33374
DV02,DV03	1S1555	4822 130 31018
DY51-DY57	LN88RCPL	4822 130 33761
D703-D706	ISS133	4822 130 33305
D707,D708	Zener 3.9 V ½ W	4822 130 80132
D709,D710	Zener 4.7 V ½ W	4822 130 33759
D781,D782	S5VB20	4822 130 30984
D783-D786 D801-D808	DFS10C	4822 130 32508

QE01-QE04	2SK369	4822 130 42839
QE05	NJM2041DD	4822 209 81565
QN01,QN02	2SC2240	4822 130 43231
QN03	2SA970	4822 130 42949
QN04	TA7317P	4822 209 83312
Q401-Q404	2SK369BL	4822 130 42839
Q405	NJM2041DD	4822 209 81565
Q701,Q702	2SD1508	4822 130 60526
Q703,Q704	2SC2229	4822 130 43225
Q705,Q706	2SA949	4822 130 42941
Q707,Q708	2SC3298	4822 130 60525
Q709,Q710	2SA1306	4822 130 60524
Q711,Q712	2SC3182	4822 130 43306
Q713,Q714	2SA1265	4822 130 43019
Q715,Q716	2SC3182	4822 130 43306
Q717,Q718	2SA1265	4822 130 43019
Q719	STK3062 MK3	4822 209 70689
Q801	NJM78M18A	4822 209 80675
Q802	NJM79M18A	4822 209 83829

CE01,CE02	Mica cap.	47 pF	500 V	4822 123 30086
CE05,CE06	Elect. cap.	100 µF	16 V	4822 124 90038
CE07,CE08	Elect. cap.	33 µF	16 V	4822 124 22099
CE09,CE10	Elect. cap.	100 µF	25 V	4822 124 90063
CE11,CE12	Mica cap.	56 pF	500 V	4822 123 30079
CE13,CE14	Foil cap.	3300 pF	50 V	4822 121 42762
CE51,CE52	Foil cap.	0.047 µF	50 V	4822 121 42764
CE53,CE54	Elect. cap.	0.47 µF	50 V	4822 124 90071
CE55,CE56	Foil cap.	0.015 µF	50 V	4822 121 42757
CE57,CE58	Elect. cap.	0.1 µF	50 V	4822 124 22034
CE61,CE62 CG01,CG02	Film cap.	1000 pF	50 V	4822 121 42861
CN01	Elect. cap	4.7 µ	50 V	4822 124 90056
CN02	Elect. cap.	0.47 µF	50 V	4822 124 90071
CN04,CN05	Elect. cap.	47 µF	10 V	4822 124 90057
C407,C408	Film cap.	0.047 µF	50 V	4822 121 42764
C409,C410	Film cap.	0.012 µF	50 V	4822 121 42755
C411,C412	Foil cap.	1800 pF	50 V	4822 121 42758
C413,C414	Elect. cap.	22 µF	16 V	4822 124 90048
C415,C416	Foil cap.	3900 pF	50 V	4822 121 42763
C417,C418	Elect. cap.	330 µF	25 V	4822 124 22103
C427,C428	Elect. cap.	47 µF	6.3 V	4822 124 21901
C429,C430	Elect. cap.	10 µF	16 V	4822 124 21894
C701,C702	Elect. cap.	10 µF	50 V	4822 124 90037
C707,C708	Film cap.	1500 pF	50 V	4822 121 42756
C713,C714	Elect. cap.	100 µF	16 V	4822 124 90038
C721-C724	Film. cap.	0.22 µF	50 V	4822 121 42759
C729,C730	Elect. cap.	100 µF	63 V	4822 124 22171
C781,C782	Cer. cap.	0.01 µF	500 V	4822 122 30043
C783-C786	Elect. cap.	6800 µF	63 V	4822 124 22175
C787,C788	Elect. cap.	100 µF	63 V	4822 124 22171
C804,C807	Elect. cap.	330 µF	35 V	4822 124 90055
C805,C808	Elect. cap.	220 µF	25 V	4822 124 90049
C806	Elect. cap.	470 µF	35 V	4822 124 22042
C901	Cer. cap.	0.01 µF	400 V	4822 122 40305

RE21,RE22	Saf. res.	560 Ω 1/6 W	4822 111 91289
RE25,RE26 R429,R430	Fuse res.	47 Ω 1/4 W	4822 111 90731
RE65,RE66	Potm. bass/ treble	10 kΩ	4822 100 20574
RG05	Potm. vol.	50 kΩ	4822 100 20575
RG51	Potm. bal.	100 kΩ	4822 105 10898
RN01,RN02	Res.	1 kΩ 1/4 W	4822 111 41272
RN11	Fuse res.	22 Ω 1/4 W	4822 116 60318
RN17	Res.	180 Ω 1/4 W	4822 111 90723
RN57,RN58	Res.	330 Ω 2 W	4822 116 60262
RN18,RS05, RS07	Res.	2.2 Ω 1/2 W	4822 116 53751
RS08,RS09	Res.	680 Ω 2 W	5322 116 54398
RS11	Res.	2.2 kΩ 1/2 W	4822 116 53751
RT01,RT02	Res.	3.9 kΩ 1 W	4822 116 51137
RY51	Res.	390 Ω 1 W	4822 116 60265
R411-R414 R427,R428	Res.	4.64 kΩ 1/6 W	4822 116 53691
R429,R430	Fuse res.	47 kΩ 1/4 W	4822 111 90731
R707,R708	Fuse res.	820 Ω 1/4 W	4822 116 60449
R713,R714	Res.	18 kΩ 1/2 W	4822 111 91268
R719,R720	Trimmer	2.2 kΩ	4822 100 20538
R723-R726	Res	100 Ω 1/6 W	4822 111 91285
R727,R728	Saf. res.	1.2 kΩ 1/6 W	4822 111 91287
R729-R732	Saf. res.	10 Ω 1/6 W	4822 111 91291
R733,R734	Res.	180 Ω 1 W	4822 116 60342
R735,R736	Res.	2.2 Ω 1/4 W	4822 116 52348
R737,R742	Res.	10 Ω 1/4 W	4822 111 41271
R743-R750	Res.	0.18 Ω 5 W	4822 116 80153
R751,R752	Saf. res.	22 Ω 1/6 W	4822 111 91288
R753,R754	Saf. res.	220 Ω 1/4 W	4822 111 30803
R755,R756	Saf. res.	10 Ω 2 W	4822 111 90726
R781,R782	Fuse res.	1 Ω 1/2 W	4822 116 60306
R801,R804	Res.	1.2 Ω 1/4 W	5322 116 53283
R802,R805	Fuse res.	10 Ω 1/4 W	4822 115 90166
R803,R806	Res.	10 Ω 1/4 W	4822 111 41271
R807	Fuse res.	180 Ω 1/2 W	4822 116 60317
R808	Res.	82 Ω 1 W	4822 116 60364

Miscellaneous

F001	Fuse T3,15A	4822 253 30027
F401-F408	Ferrite core	4822 526 10356
JJ01	Socket	4822 265 30512
JJ02	Socket	4822 265 40581
JV01	Connector	4822 266 30283
JV02	Connector	4822 266 30285
JW51	Jack headphone	4822 267 30617
J001	Fuse holder	4822 256 30233
J053	Socket	4822 266 10058
J403	Connector	4822 266 30282
J701	Connector loudsp.	4822 266 30281
J702	Connector loudsp.	4822 266 30279
LN01,LN02	Protection relay	4822 280 20275
LN03	Relay 24 V	4822 280 20196
LV02	CD-direct relay	4822 280 20195
L001	Power transformer	4822 146 21219
L701,L702	Choke coil	4822 157 51739
SS01	Switch loudn./mono	4822 276 40402
SS02	Switch monitor/copy	4822 276 40401
SS03	Switch CD-direct	4822 276 20453
ST01	Switch speaker	4822 276 20452
SV01,SV02	Switch slide	4822 277 20832
S001	Switch input sel.	4822 273 20258
S002	Switch rec. mode sel.	4822 273 80322
S901	Switch power	4822 276 11651
VY51,VZ51 VZ51,VZ52	Lamp 8 V 50 mA	4822 134 40751

5.
Korrektur der Liste mechanischer Teile (Serv.Manual S. 18):

Pos. Ø31B (4822 459 4Ø586) muß richtig heißen 4822 46Ø 1Ø882.

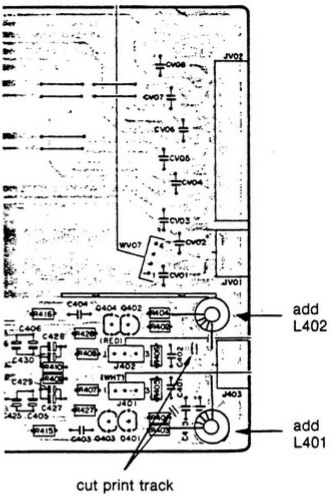


Fig. 1

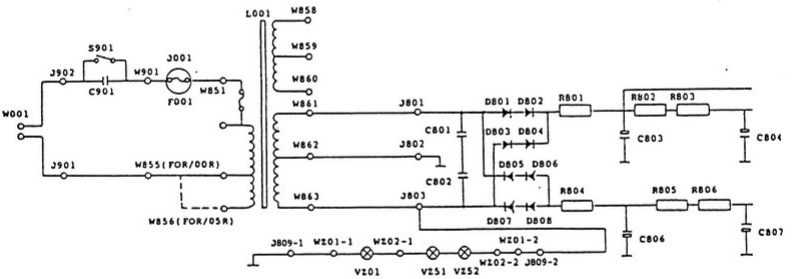


Fig. 2

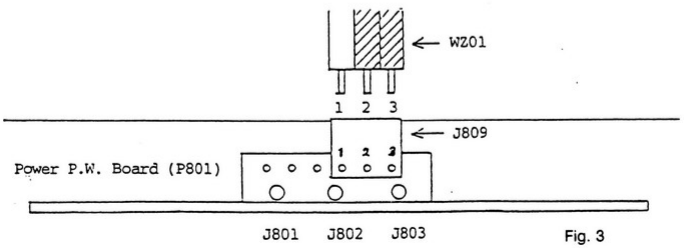


Fig. 3