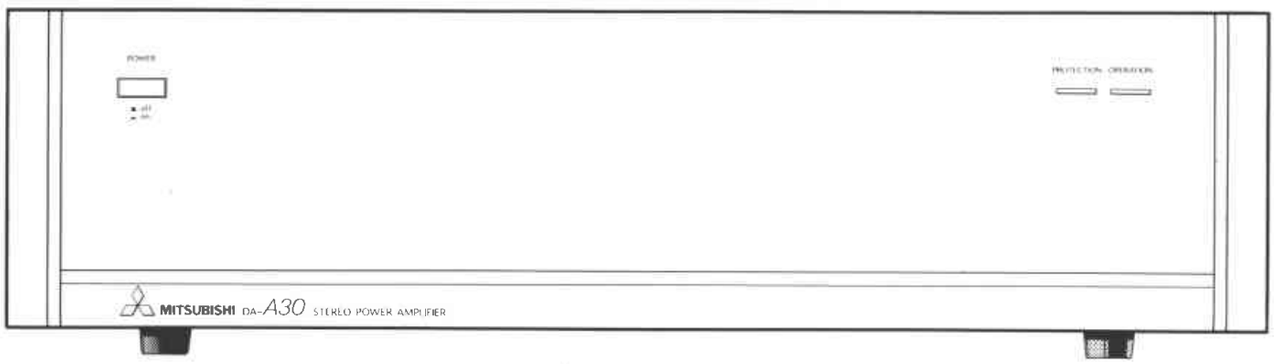
MITSUBISHI AUDIO SYSTEMS

SERVICE MANUAL

STEREO POWER AMPLIFIER

MODEL DA-A30



SPECIFICATIONS

	105 watts per channel, min. RMS, at 8 ohms from 20Hz to 20kHz with no more than 0.008% total harmonic distortion
	115 watts per channel, min. RMS, into 4 ohms at 1kHz with 0.1% total harmonic distortion.
	140 watts per channel, min. RMS, into 4ohms at 1kHz with 0.1% total harmonic distortion.
Total harmonic distortion	0.003% at 50W per channel, both channels driven into 8 ohms from 20Hz to 20kHz
Intermodulation distortion (70Hz and 7kHz 4:1)	0.006% at rated power, 8ohms
	0.008% at 1W per channel, 8ohms
Power bandwidth (IHF)	10Hz to 100kHz at 0.1% THD, 8ohms
Frequency response	± 0.1dB from 20Hz to 20kHz at rated power, 8ohms
	$^{+0}_{-1}$ dB from DC to 150kHz at 0.5W per channel, 8ohms
Dynamic headroom	2.0dB
Input sensitivity/ impedance	1V (variable)/50kohms
Damping factor	100 from 20Hz to 20kHz, 8ohms
Channel separation	100dB at 1kHz
	80dB at 20kHz
Hum and noise	0.15mV (unweughted, closed circuit)
Signal to noise ratio (at rated power)	107dB (unweighted, closed circuit)
	122dB (IHF, A network, closed circuit)
	119dB (DIN, closed circuit)
	109dB (DIN, 47kohms//250pF terminated)
Slew rate	200V/micro sec. at 100V p-p
Power comsumption	400W at rated power, 8ohms
	280W (UL nominal)
Dimensions (W x H x D)	470 x 135 x 357 mm (18-1/2 x 5-5/16 x 14-1/16")
Weight	14.5kg (32lbs)
Supplied with	Pin plug cord
	Speaker control cable

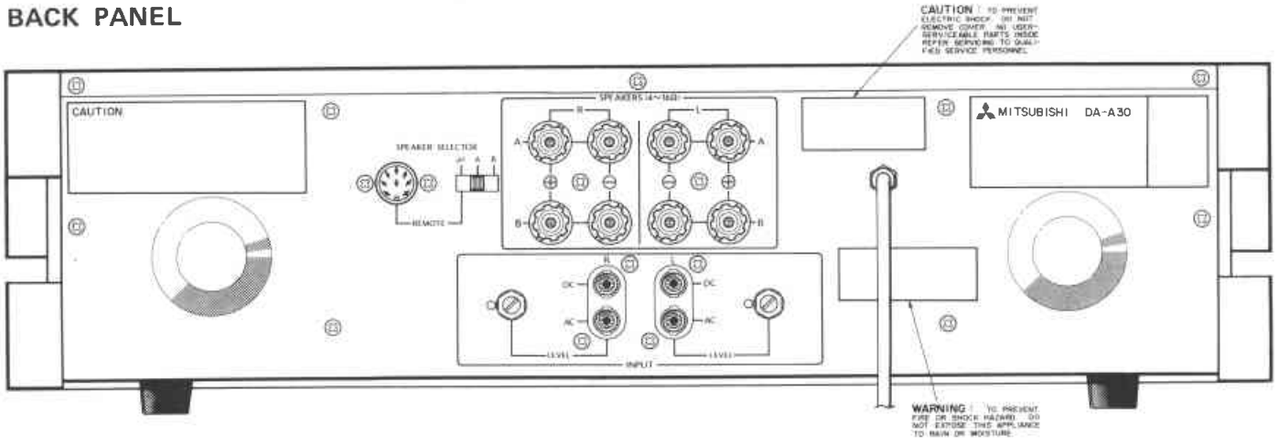
Design and specifications are subject to change without notice for improvement.

MITSUBISHI ELECTRIC CORPORATION

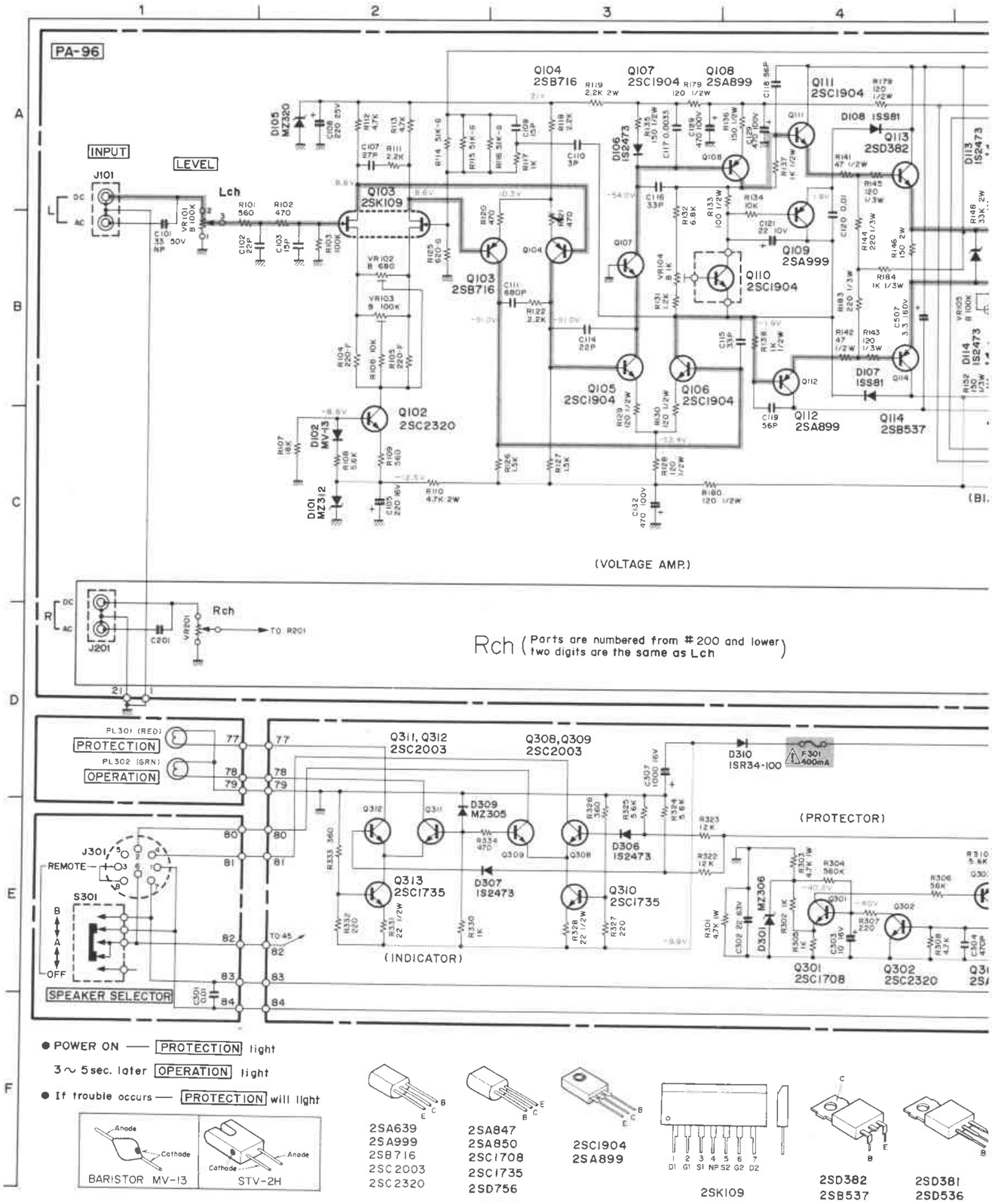
NOTE:

- Before repair work is done with POWER switch are set to OFF, insert resistors (100 – 200Ω 2W)between B+ and B– leads of each condenser C505, C506 and C605, C606 allow the condensers for about 5 seconds to discharge.
- When power for this amplifier is turned on during repair, always ensure that the radiator pipe section is horizontal, and check that the radiator is adequately ventilated.

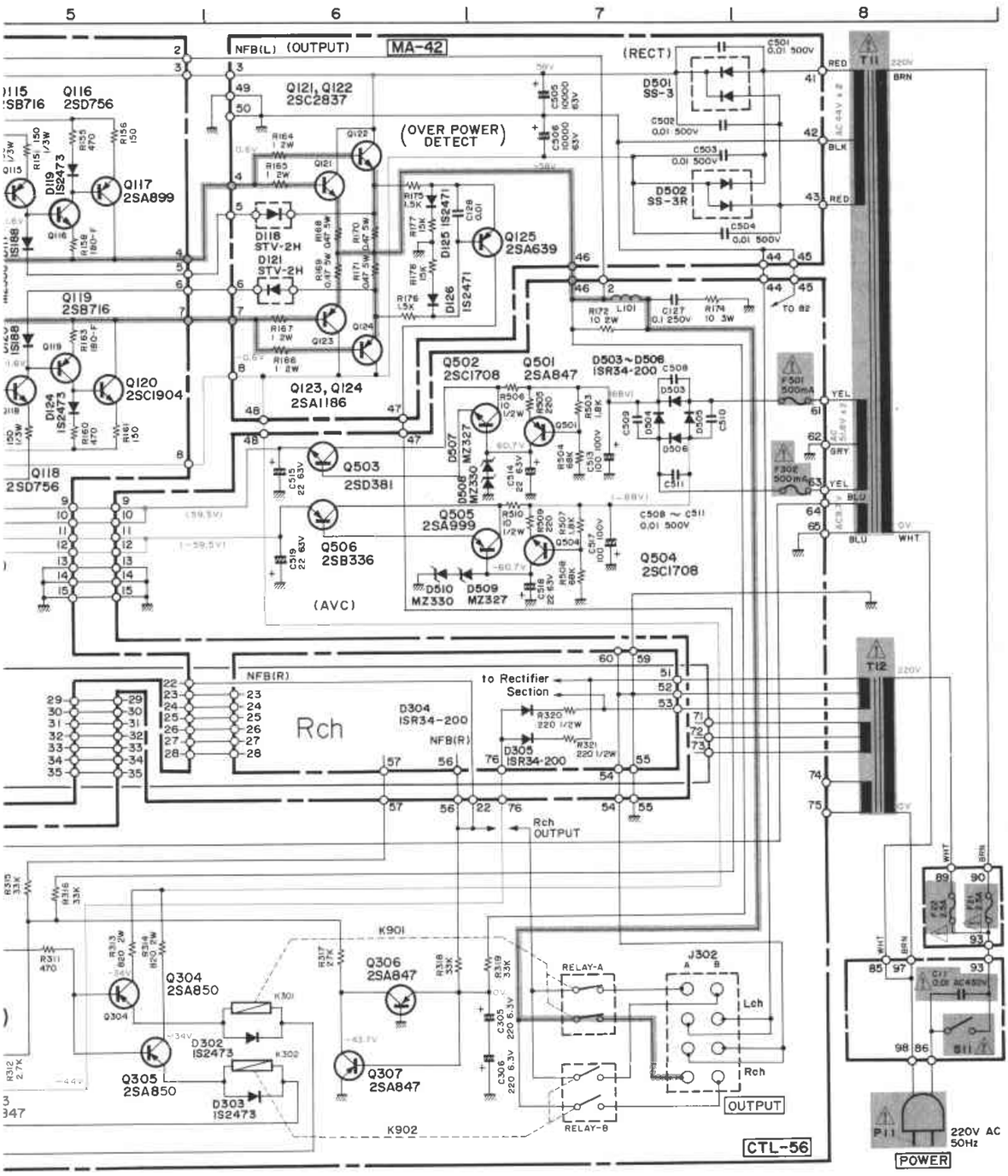
BACK PANEL



SCHEMATIC DIAGRAM



46-75-04.18



M2306V

2SC2837
2SA1186

NOTE:

1. Units of C and R are as follows,
   Capacitors: non-symbol μF, p-symbol pF
   Resistors: non-symbol Ω, k-symbol kΩ, M-symbol MΩ
2. All resistors are carbon 1/4W unless otherwise specified.
3. Schematic of the R channel (amp., bias, power supply and AVC circuit) is abbreviated on this diagram.

⚠ and [redacted] marked components have special characteristics to maintain the safety performance of this unit. When replacing any of these parts, be sure to use only those specified on the parts list.

Since this schematic is a basic diagram of the set, values of component parts etc., are subject to change without notice for improvement.

DISASSEMBLY PROCEDURES:

1. Removal of Top Cover
Remove the 7 screws securing the top cover.

2. Removal of Base
Remove the 13 screws securing the base.

3. Removal of Front Panel
Remove the 2 set screws of the upper-side panel.

4. The upper-side board to upright position.
Remove the 4 screws shown in Fig. 1, shift the board forward in the direction of the arrow (➡), and then after removing the speaker terminals, lift the circuit board out from the speaker terminal side.

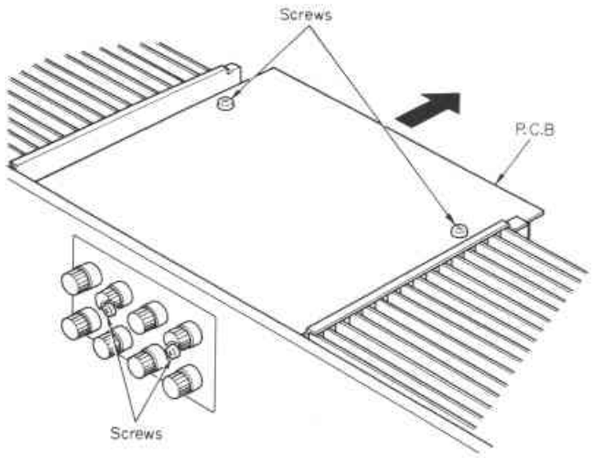


Fig. 1

5. Removal of Output Transistor Screws
Insert a screwdriver into holes (A) and (B) in the side as shown in Fig. 2, and remove the screws.

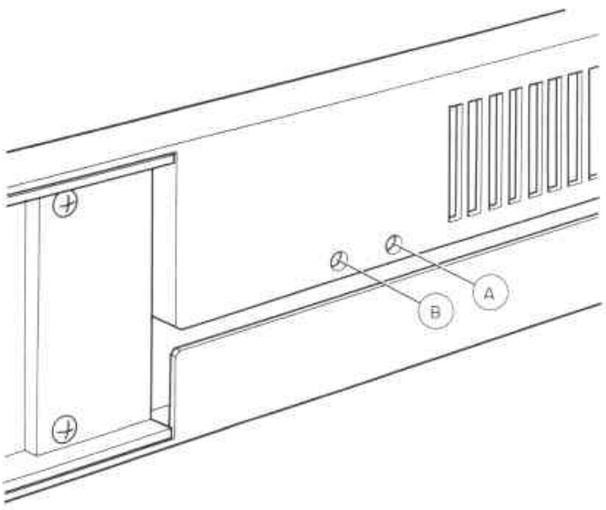


Fig. 2

ADJUSTMENTS

NOTE:
- *** When making adjustments, do not connect the speakers.**
- *** Remove the top cover and the base, and turn the set onto its side with the left side facing up.**

1. Center Potential Adjustment
1. Connect a DC voltmeter between the output terminals and ground.
   Tie points
   Left channel: (46) and (44)
   Right channel: (56) and (54)
2. Adjust VR102 and VR202 to more or less neutral potential, (0).
3. To obtain a voltmeter reading of 0 ± 5mV, adjust VR102 and VR103 for the left channel, and VR202 and VR203 for the right channel. VR103 and VR203 are for fine adjustment purposes.

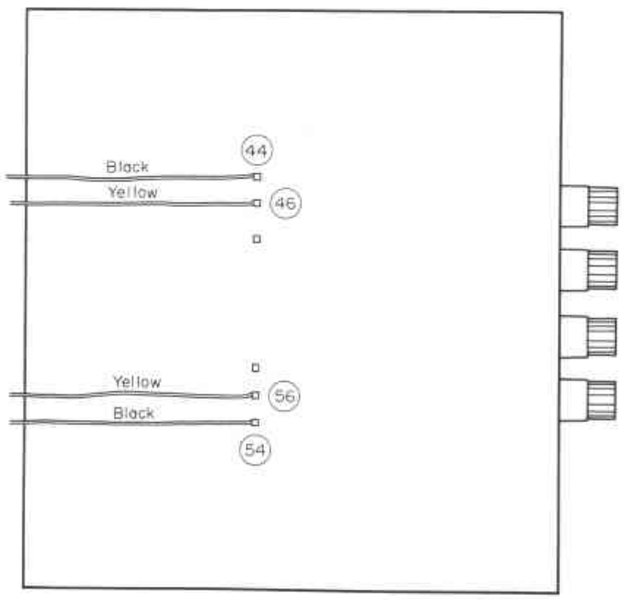


Fig. 3

2. Idling Current Adjustment (see Fig. 4, 5)
1. Connect DC voltmeter beteen the emitters of the following transistors:
   Left channel: Q121 to Q123 or (Q122 to Q124)
   Right channel: Q221 to Q223 or (Q222 to Q224)
2. Turn VR104 and VR105 (left channel) and VR204 and VR205 (right channel) full around in the directions opposite to that shown by the arrows in Fig. 5.
3. Next turn VR105 and VR205 in the direction of the arrows until the voltmeter reads 20mV ± 5mV. Then after waiting for about 5 minutes, readjust these controls so that the voltmeter reads between 40mV and 50mV.

4. Turn VR104 and VR204 in the direction of the arrows, adjusting so as to obtain voltmeter readings of 10mV ± 3mV higher than the reading in the 40 ~ 50 mV range obtained in the previous step.

5. Upon completion of this adjustment, the voltmeter readings should be in the 80 to 100mV range.

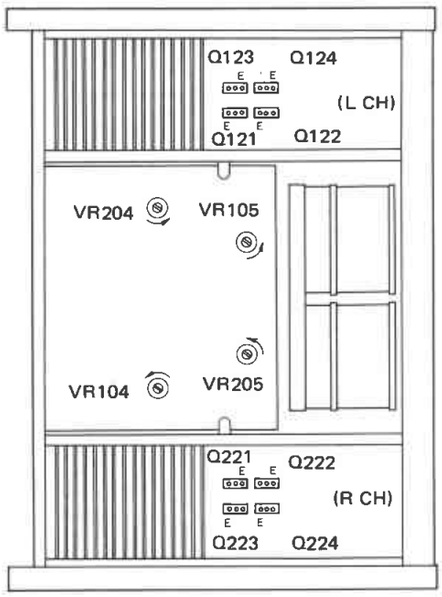


Fig. 5

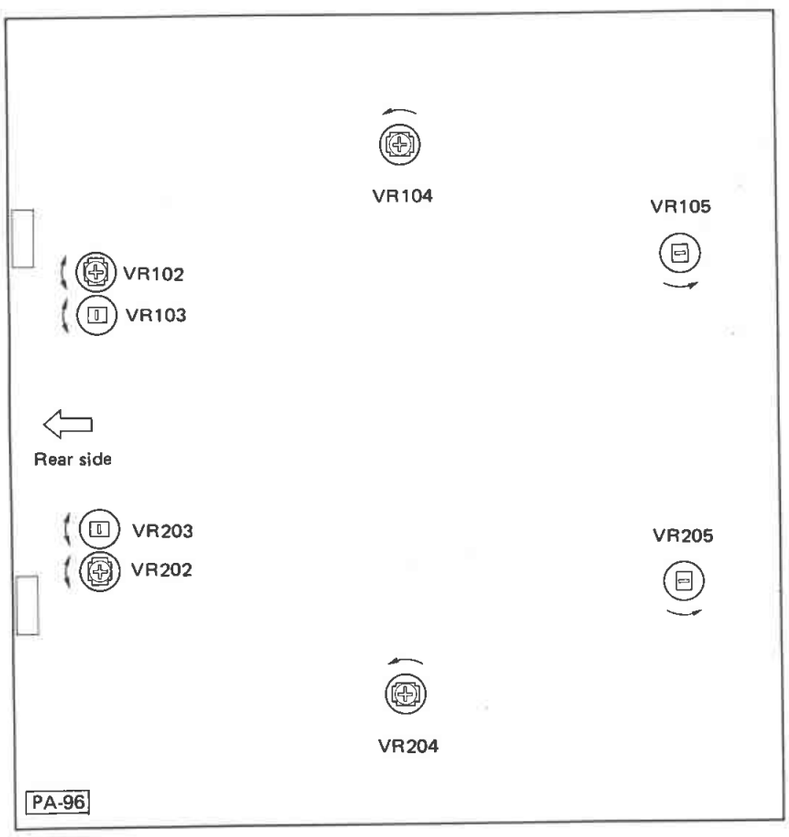
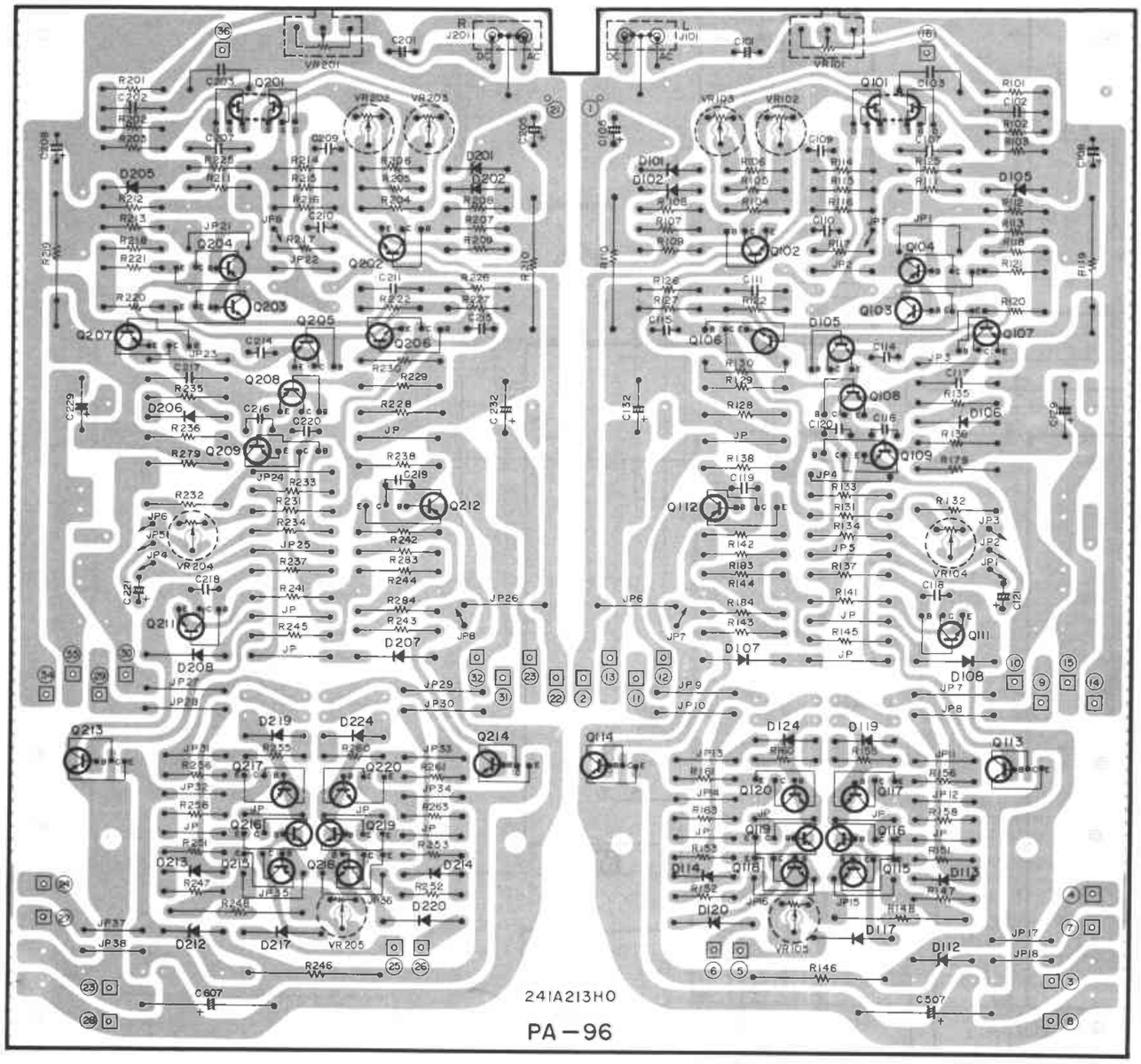
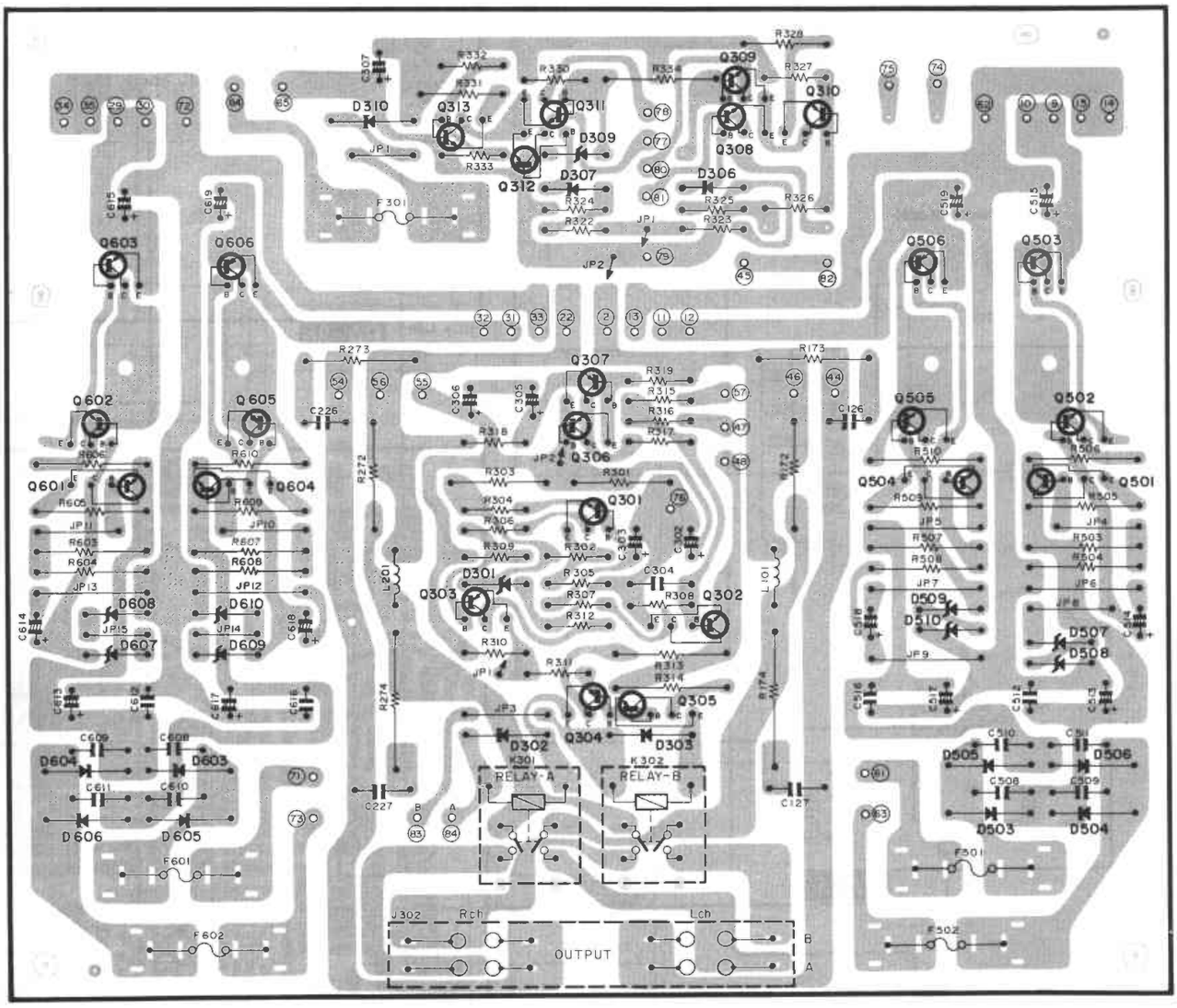


Fig. 6

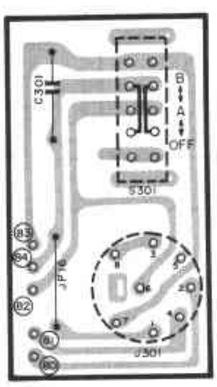
PRINTED CIRCUIT BOARDS



PA–96

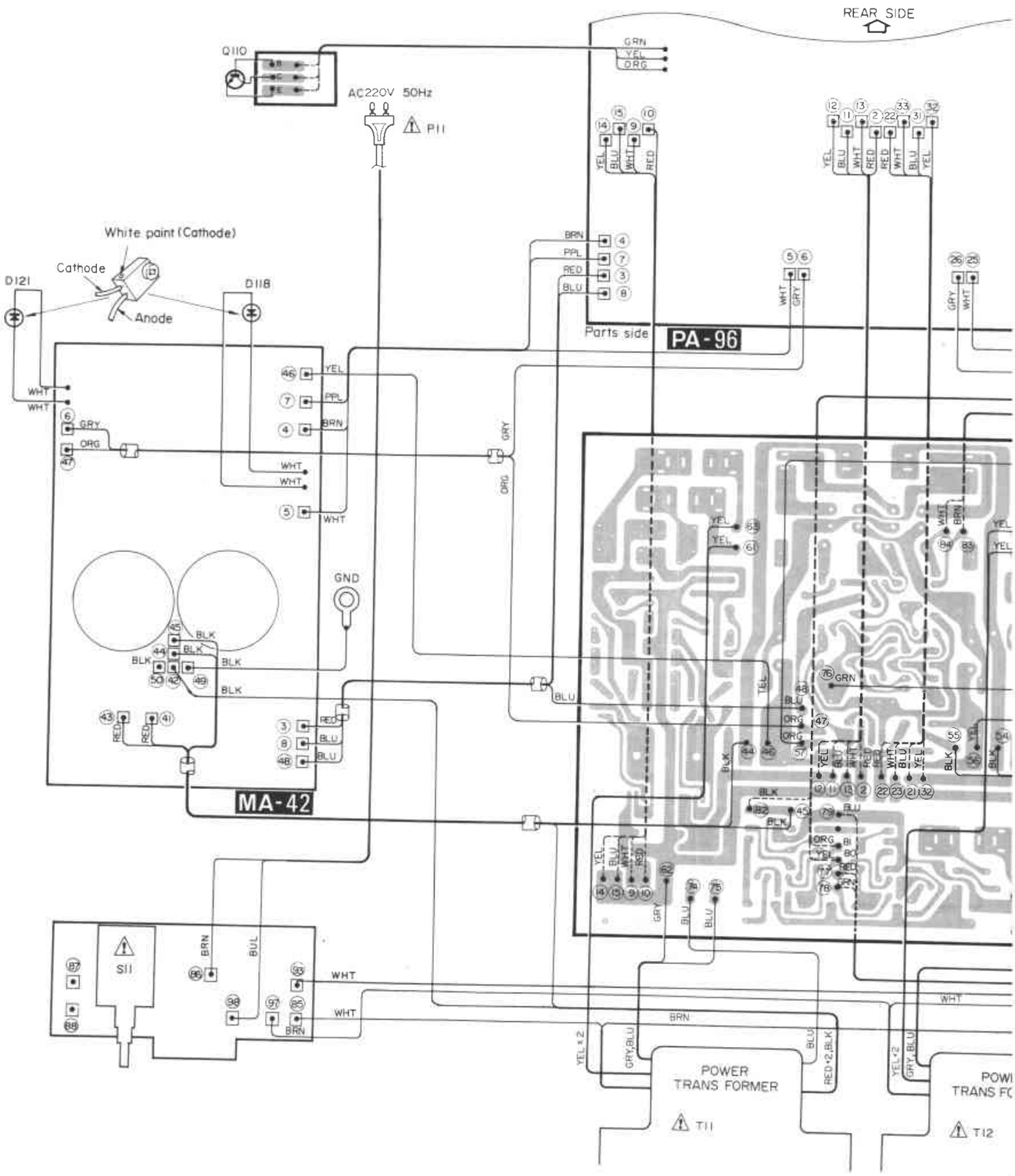

Q309
Q310
Q313
Q311
Q308
Q312
D310
D309
D307
D306
Q603
Q606
Q506
Q503
Q307
Q602
Q605
Q505
Q502
Q306
Q601
Q604
Q504
Q501
Q301
D301
Q303
Q302
D608
D610
D508
D507
D607
D609
D510
D508
D604
D603
D505
D506
D606
D605
D503
D504
RELAY-A
RELAY-B
J302
Rch
Lch
OUTPUT
B
A
F601
F602
F501
F502

CTL–56


S301
B
A
OFF

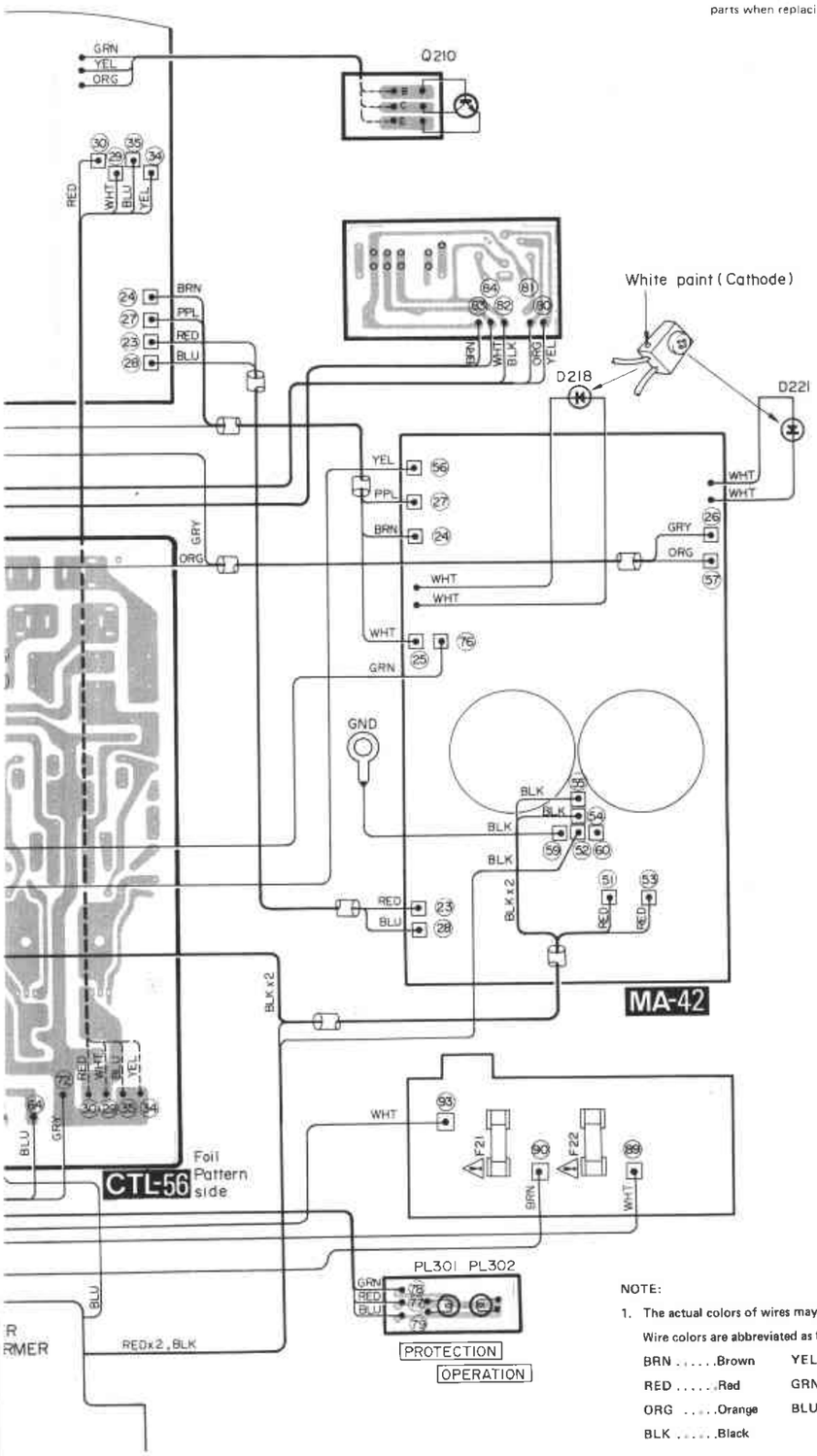

PL302
(GRN)
PL301
(RED)

WIRING DIAGRAM



Note:

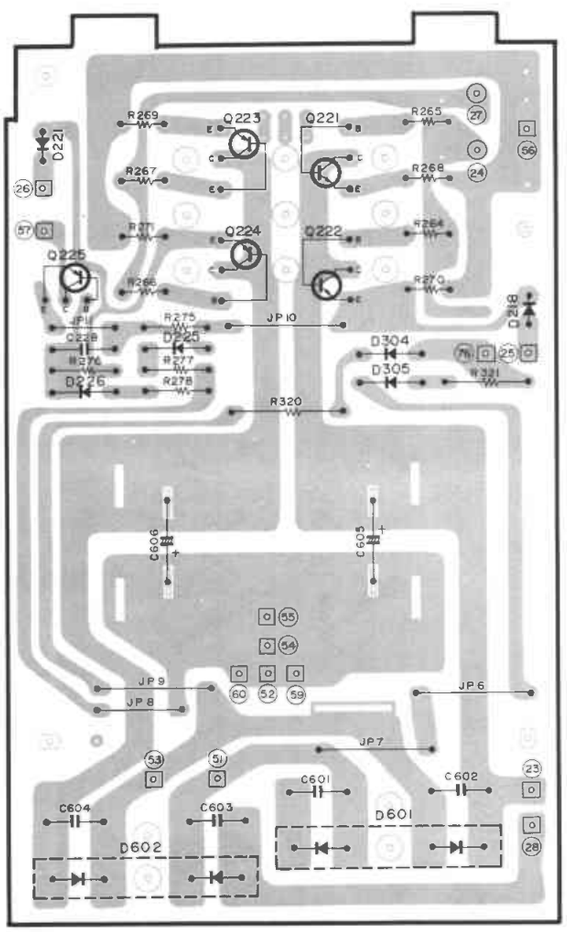
Parts symbolized ⚠ are very important for safety and performance. Therefore use by all means designated parts when replacing.

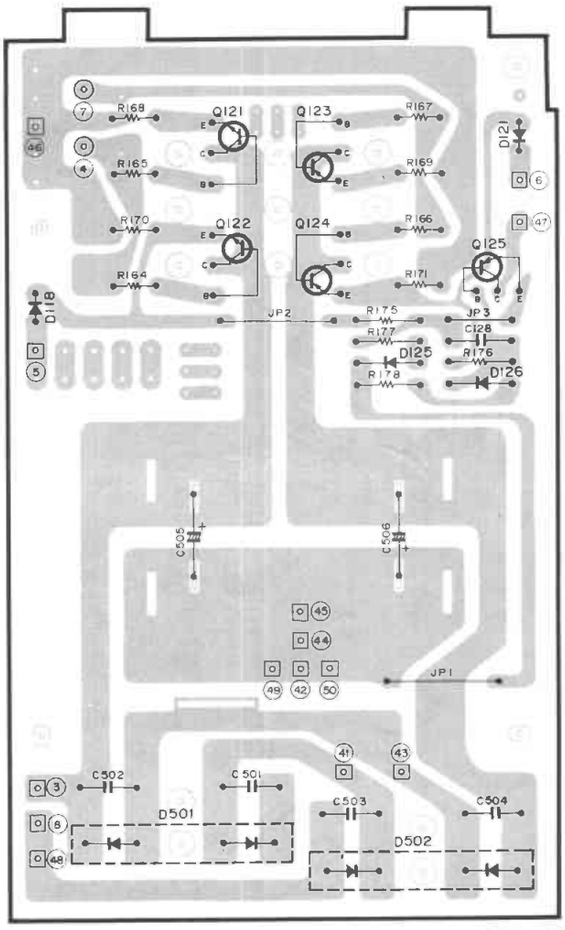


NOTE:

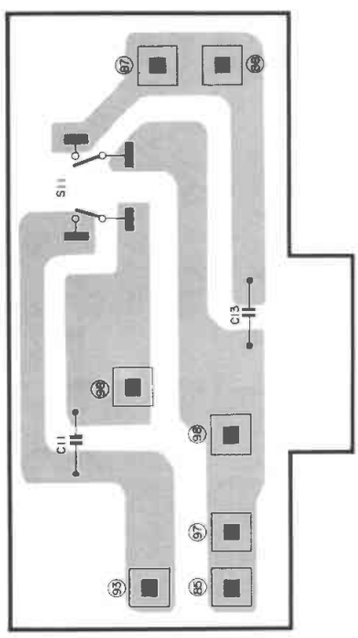
1. The actual colors of wires may differ from those of this diagram.
   Wire colors are abbreviated as follows.

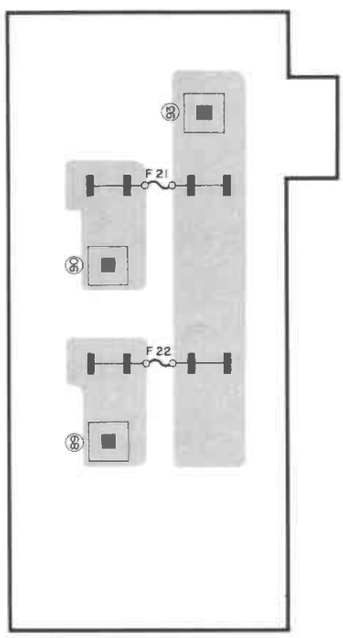
BRN . . . . . Brown	YEL . . . . . Yellow	PPL . . . . . Purple
RED . . . . . Red	GRN . . . . . Green	GRY . . . . . Gray
ORG . . . . . Orange	BLU . . . . . Blue	WHT . . . . . White
BLK . . . . . Black		


R269
Q223
Q221
R265
D221
R267
R268
Q224
Q222
R264
Q225
R266
R270
D218
JP11
R275
JP10
C228
D225
D304
R276
R277
D305
D226
R278
R320
C606
C605
JP9
JP8
JP6
JP7
C601
C602
C604
C603
D601
D602

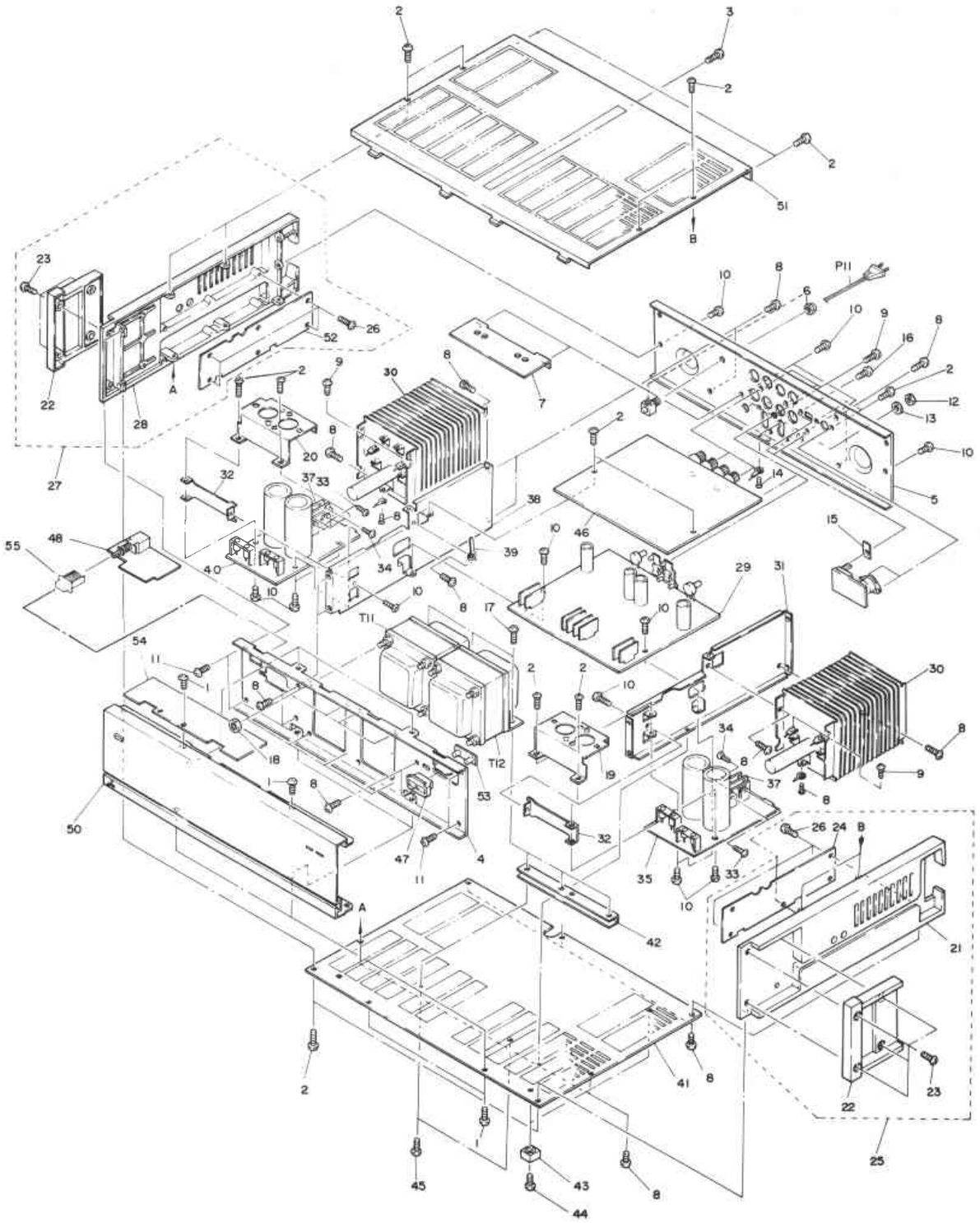

R168
Q121
Q123
R167
D121
R165
R169
R170
Q122
Q124
R166
Q125
R164
R171
D118
JP2
R175
JP3
C128
R177
D125
R176
R178
D126
C505
C506
JP1
C502
C501
C503
C504
D501
D502

MA–42


S11
C13
C11


F21
F22

EXPLODED VIEW



MECHANICAL PARTS LIST

No.	Part No.	Descripion
1		SCREW-B M4 x 8
2		SCREW-B M3 x 8
3		SCREW-METAL
4		PANEL-FRONT
5	M07519102	PANEL-BACK
6		CLANPER
7		HOLDER-L
8		SCREW
9		SCREW
10		SCREW-B M3 x 6
11		SCREW-B M4 x 8
12		NUT M7
13		WASHER
14		SCREW
15		SPACER
16		SCREW-B M2.6 x 6
17		SCREW-METAL
18		NUT M4
19		HOLDER-Z-ASSY
20		HOLDER-Z-ASSY
21		PANEL-SIDE (R)
22	M07519110	HANDLE
23	M07519770	SCREW-B M5 x 20
24		HOLDER-F (R)
25	M07519108	PANEL-SIDE-ASSY (R)
26		SCREW-B M3 x 6
27	M07519109	PANEL-SIDE-ASSY (L)
28		PANEL-SIDE (L)
29		PCB-ASSY (PA-96)
30	M07519113	RADIATOR
31		HOLDER-U (R)
32		HOLDER-U
33		SCREW-B M3 x 10
34		SCREW-B M3 x 16
35		PCB-ASSY (MA-42)
37		HOLDER
38		HOLDER
39		CLAMPER
40		PCB-ASSY (MA-42)
41	M07519106	BASE-ASSY (42, 43, 45)
42		HOLDER-U
43		LEG
44		SCREW-METAL
45		SCREW-B M4 x 6
46		PCB-ASSY (CTL-56)
47		COVER-LAMP
48		PCB-ASSY (PS-46)
49		HOLDER-Z-ASSY
50	M07519100	PANEL-ASSY
51	M07519104	CASE-ASSY
52		HOLDER-F (L)
53		PCB-ASSY (PL301, PL302)
54		SHIELD
55	M07530204	KNOB-ASSY (POWER)

PARTS LIST

NOTE: ⚠ and [redacted] marked components on the parts list have special characteristics to maintain the safety performance of this unit. When replacing any of these parts, be sure to use only the specified parts.

Symbol No.	Part No.	Description
		Diodes
D101	M07496321	MZ312
D102	M04091331	MV-13 (VARISTOR)
D105	M07493320	MZ320
D106	M05200320	1S2473
D107	M07519320	1SS81
D108	M07519320	1SS81
D112	M07492320	MZ306
D113	M05200320	1S2473
D114	M05200320	1S2473
D117	M07496320	1S188AM
D118	M07519330	STV-2H (VARISTOR)
D119	M05200320	1S2473
D120	M07496320	1S188AM
D121	M07519330	STV-2H (VARISTOR)
D124	M05200320	1S2473
D125	M07492321	1S2471
D126	M07492321	1S2471
D201	M07496321	MZ312
D202	M04091331	MV-13 (VARISTOR)
D205	M07493320	MZ320
D206	M05200320	1S2473
D207	M07519320	1SS81
D208	M07519320	1SS81
D212	M07492320	MZ306
D213	M05200320	1S2473
D214	M05200320	1S2473
D217	M07496320	1S188 AM
D218	M07519330	STV-2H (VARISTOR)
D219	M05200320	1S2473
D220	M07496320	1S188AM
D221	M07519330	STV-2H (VARISTOR)
D224	M05200320	1S2473
D225	M07492321	1S2471
D226	M07492321	1S2471
D301	M07492320	MZ306
D302	M05200320	1S2473
D303	M05200320	1S2473
D304	M05147320	1SR34-200
D305	M05147320	1SR34-200
D306	M05200320	1S2473
D307	M05200320	1S2473

NOTE: ⚠ and ▨ marked components on the parts list have special characteristics to maintain the safety performance of this unit. When replacing any of these parts, be sure to use only the specified parts.

Symbol No.	Part No.	Description
D309	M07446324	MZ305
D310	M07391320	1SR34-100
D501	M07143320	SS-3
D502	M07143321	SS-3R
D503	M05147320	1SR34-200
D504	M05147320	1SR34-200
D505	M05147320	1SR34-200
D506	M05147320	1SR34-200
D507	M07519321	MZ327
D508	M04167320	MZ330
D509	M07519321	MZ327
D510	M04167320	MZ330
D601	M07143320	SS-3
D602	M07143321	SS-3R
D603	M05147320	1SR34-200
D604	M05147320	1SR34-200
D605	M05147320	1SR34-200
D606	M05147320	1SR34-200
D607	M07519321	MZ327
D608	M04167320	MZ330
D609	M07519321	MZ327
D610	M04167320	MZ330
Transistors		
Q101	M07213303	2SK109 (FET)
Q102	M07390303	2SC2320
Q103	M07370306	2SB716
Q104	M07370306	2SB716
Q105	M07143303	2SC1904
Q106	M07143303	2SC1904
Q107	M07143303	2SC1904
Q108	M07143304	2SA899
Q109	M07390304	2SA999
Q110	M07143303	2SC1904
Q111	M07143303	2SC1904
Q112	M07143304	2SA899
Q113	M07143305	2SD382
Q114	M07143306	2SB537
Q115	M07370306	2SB716
Q116	M07370305	2SD756
Q117	M07143304	2SA899
Q118	M07370305	2SD756
Q119	M07370306	2SB716
Q120	M07143303	2SC1904
Q121	M07519300	2SC2837
Q122	M07519300	2SC2837
Q123	M07537301	2SA1186

Symbol No.	Part No.	Description
Q124	M07537301	2SA1186
Q125	M07142310	2SA639
Q201	M07213303	2SK109 (FET)
Q202	M07390303	2SC2320
Q203	M07370306	2SB716
Q204	M07370306	2SB716
Q205	M07143303	2SC1904
Q206	M07143303	2SC1904
Q207	M07143303	2SC1904
Q208	M07143304	2SA899
Q209	M07390304	2SA999
Q210	M07143303	2SC1904
Q211	M07143303	2SC1904
Q212	M07143304	2SA899
Q213	M07143305	2SD382
Q214	M07143306	2SB537
Q215	M07370306	2SB716
Q216	M07370305	2SD756
Q217	M07143304	2SA899
Q218	M07370305	2SD756
Q219	M07370306	2SB716
Q220	M07143303	2SC1904
Q221	M07519300	2SC2837
Q222	M07519300	2SC2837
Q223	M07537301	2SA1186
Q224	M07537301	2SA1186
Q225	M07142310	2SA639
Q301	M07113310	2SC1708
Q302	M07390303	2SC2320
Q303	M07140303	2SA847
Q304	M07133304	2SA850
Q305	M07133304	2SA850
Q306	M07140303	2SA847
Q307	M07140303	2SA847
Q308	M07229306	2SC2003
Q309	M07229306	2SC2003
Q310	M07128303	2SC1735
Q311	M07229306	2SC2003
Q312	M07229306	2SC2003
Q313	M07128303	2SC1735
Q501	M07140303	2SA847
Q502	M07113310	2SC1708
Q503	M07462303	2SD381
Q504	M07113310	2SC1708
Q505	M07140303	2SA847
Q506	M07462304	2SB536
Q601	M07140303	2SA847

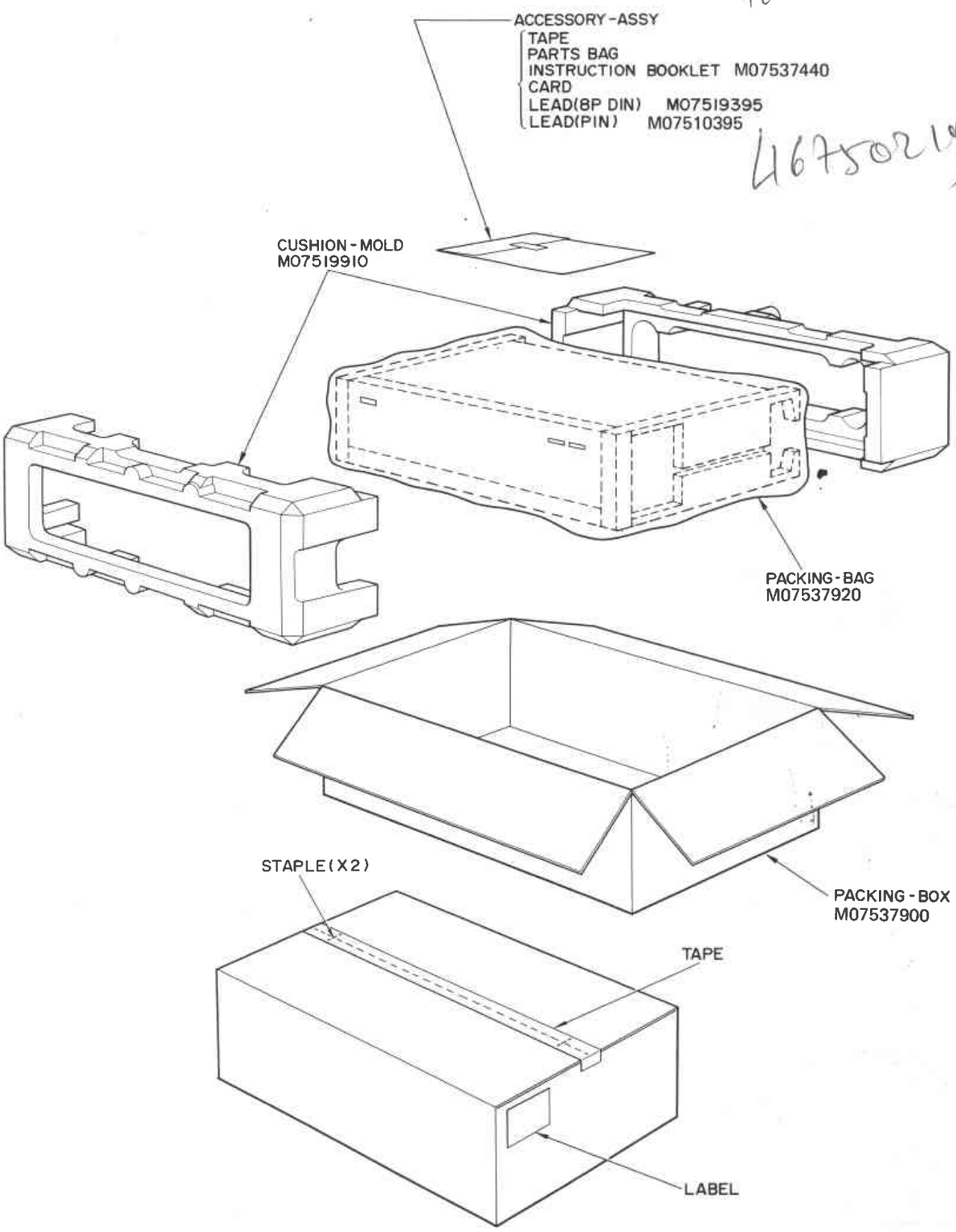
NOTE: ⚠ and [redacted] marked components on the parts list have special characteristics to maintain the safety performance of this unit. When replacing any of these parts, be sure to use only the specified parts.

Symbol No.	Part No.	Description
Q602	M07113310	2SC1708
Q603	M07462303	2SD381
Q604	M07113310	2SC1708
Q605	M07140303	2SA847
Q606	M07462304	2SB536
		Electronic Parts
C114	M07519430	C-CERAMIC-500V 22K
C116	M07519431	C-CERAMIC-500V 33K
C118	M07519432	C-CERAMIC-500V 56K
C214	M07519430	C-CERAMIC-500V 22K
C216	M07519431	C-CERAMIC-500V 33K
C218	M07519432	C-CERAMIC-500V 56K
C505	M07519433	C-ELECT-63V 10000
C506	M07519433	C-ELECT-63V 10000
C508	M07492360	C-CERAMIC-500V 103M
C517	M07519434	C-ELECT-100V 100
C605	M07519433	C-ELECT-63V 10000V
C606	M07519433	C-ELECT-63V 10000V
C608	M07492360	C-CERAMIC-500V 103M
C617	M07519434	C-ELECT-100V 100
F21	M07329490	FUSE-2.5A-UL ⚠
F22	M07329490	FUSE-2.5A-UL ⚠
F301	M07519451	FUSE-400MA-UL ⚠
F501	M05152490	FUSE-500MA-UL ⚠
F502	M05152490	FUSE-500MA-UL ⚠
F601	M05152490	FUSE-500MA-UL ⚠
F602	M05152490	FUSE-500MA-UL ⚠
J101	M07510395	PIN-JACK (INPUT)
J201	M07510395	PIN-JACK (INPUT)
J301	M07519470	CONNECTOR-DIN
J302	M07519480	TERMINAL-BOARD (OUTPUT)
K301	M07113465	RELAY
K302	M07113465	RELAY
L101	M07072530	COIL
L201	M07072530	COIL
P11	M07537490	POWER-CORD ⚠
PL301	M07519565	LAMP (PROTEC.)
PL302	M07519566	LAMP (OPER.)
S11	M05113430	SW-PUSH (POWER)
S301	M07142450	SW-SLIDE (SP SELECTOR) ⚠
T11,12	M07537500	TRANS-POWER ⚠
VR101	M07519400	VR-STD-B100K (LEVEL)
VR102	M07213436	VR-SEMI B680
VR103	M07213437	VR-SEMI-B100K
VR104	M05067353	VR-SEMI-B1K

Symbol No.	Part No.	Description
VR105	M07213437	VR-SEMI-B100K
VR201	M07519400	VR-STD-B100K (LEVEL)
VR202	M07213436	VR-SEMI-B680
VR203	M07213437	VR-SEMI-B100K
VR204	M05067353	VR-SEMI-B1K
VR205	M07213437	VR-SEMI-B100K

PACKAGING INSTRUCTIONS:

46.75.02.67



4675021

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE MITSUBISHI DENKI BLDG., MARUNOUCHI, TOKYO 100 TELEX J24532 CABLE MELCO TOKYO

DA-A30-WG(E)
SM-0090
Printed in Japan
281