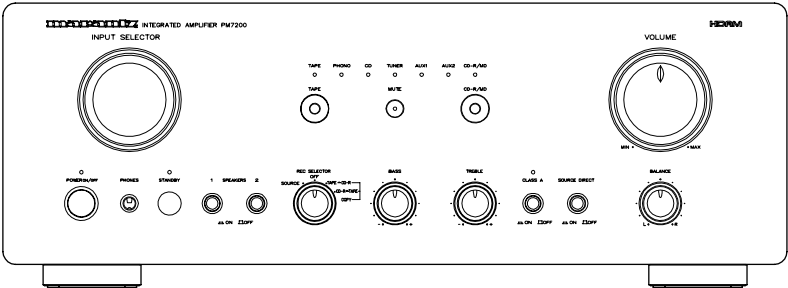


Service Manual

PM7200 / N1B/N1G

Integrated Amplifier



PM7200

www.electronicrepair.net

The changed parts are listed below. Not listed parts are the same to the model PM8000.

POS. NO.	VERS. COLOR	PART NO. (FOR EUR)	DESCRIPTION	PART. NO. (MJI)
200	/N1B	20AW248010	FRONT PANEL BLACK 3120 201 60420	20AW248010
200	/N1G	20AW248020	FRONT PANEL GOLD 3120 201 60430	20AW248020
387		20AW851310	USER GUIDE 3120 205 20390	20AW851310

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

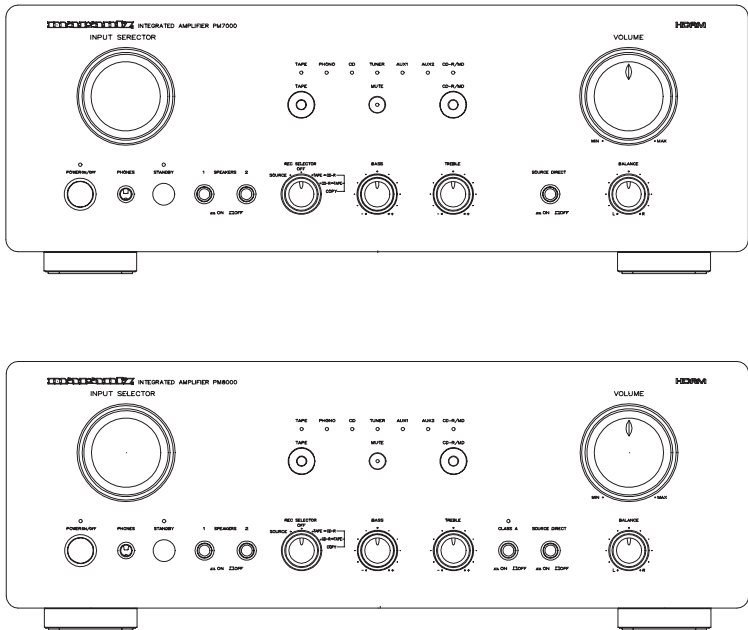
marantz®

PM7200

20AW855010 MIT
First Issue 2002.07

Service Manual

PM7000 /N1B, /N1G, /U1B PM8000 /N1B, /N1G, /F1B, /F1N Integrated amplifier



PM7000/8000

TABLE OF CONTENTS

SECTION	PAGE
1. SPECIFICATIONS	1
2. TEST EQUIPMENT REQUIRED SERVICING	2
3. IC INFORMATIONS	3
4. BLOCK DIAGRAM	5
5. WIRING DIAGRAM	7
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE)	9
7. EXPLODED VIEW AND PARTS LIST	33
8. IDLING CURRENT AND DC OFFSET VOLTAGE ALIGNMENT	34
9. ELECTRICAL PARTS LIST	35

Please use this service manual with referring to the user guide (D.F.U) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行って下さい。

marantz®

- PM7000 / PM8000 -

276W855010 ACT
3120 785 22011
First Issue:1999.09

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC.
440 MEDINAH ROAD
ROSELLE, ILLINOIS 60172
USA
PHONE : 630 - 307 - 3100
FAX : 630 - 307 - 2687

EUROPE / TRADING

MARANTZ EUROPE B.V.
P.O.BOX 80002, BUILDING SFF2
5600 JB EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2732241
FAX : +31 - 40 - 2735578

BRAZIL

MARANTZ BRAZIL
CAIXA POSTAL 21462
CEP 04698-970
SAO PAULO, SP, BRAZIL
PHONE : 0800 - 123123(Discagem Direta Gratuita)
FAX : +55 11 534. 8988

PROFESSIONAL AMERICAS **SUPERSCOPE TECHNOLOGIES, INC.**

MARANTZ PROFESSIONAL PRODUCTS
2640 WHITE OAK CIRCLE, SUITE A
AURORA, ILLINOIS 60504 USA
PHONE : 630 - 820 - 4800
FAX : 630 - 820 - 8103

CANADA

LENBROOK INDUSTRIES LIMITED
633 GRANITE COURT,
PICKERING, ONTARIO L1W 3K1
CANADA
PHONE : 905 - 831 - 6333
FAX : 905 - 831 - 6936

AUSTRALIA

JAMO AUSTRALIA PTY LTD
1 EXPO COURT, P.O. BOX 350
MT. WAVERLEY VIC 3149
AUSTRALIA
PHONE : +61 - 3 - 9543 - 1522
FAX : +61 - 3 - 9543 - 3677

THAILAND

MRZ STANDARD CO.,LTD
746 - 754 MAHACHAI ROAD.,
WANGBURAPAPIROM, PHRANAKORN,
BANGKOK, 10200 THAILAND
PHONE : +66 - 2 - 222 9181
FAX : +66 - 2 - 224 6795

SINGAPORE

WO KEE HONG (S) PTE LTD
WO KEE HONG CENTRE
NO.23, LORONG 8, TOA PAYOH
SINGAPORE 319257
PHONE : +65 2544555
FAX : +65 2502213

TAIWAN

PAI- YUING CO., LTD.
6 TH FL NO, 148 SUNG KIANG ROAD,
TAIPEI, 10429, TAIWAN R.O.C.
PHONE : +886 - 2 - 25221304
FAX : +886 - 2 - 25630415

MALAYSIA

WO KEE HONG ELECTRONICS SDN. BHD.
SUITE 8.1, LEVEL 8, MENARA GENESIS,
NO. 33, JALAN SULTAN ISMAIL,
50250 KUALA LUMPUR, MALAYSIA
PHONE : +60 3 - 2457677
FAX : +60 3 - 2458180

JAPAN *Technical*

MARANTZ JAPAN, INC.
35- 1, 7- CHOME, SAGAMIONO
SAGAMIHARA - SHI, KANAGAWA
JAPAN 228-8505
PHONE : +81 42 748 1013
FAX : +81 42 741 9190

日本マランツ株式会社

本 社 〒228-8505
神奈川県相模原市相模大野7-35-1
営業本部 〒150-0022
東京都渋谷区恵比寿南1-11-9

KOREA

MK ENTERPRISES LTD.
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,
3GA, HANGANG-RO, YONGSAN-KU, SEOUL
KOREA
PHONE : +822 - 3232 - 155
FAX : +822 - 3232 - 154

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical
Department at above mentioned address.

1. SPECIFICATIONS

Power output (class AB operation)

RMS 8ohms (20 Hz - 20 kHz)	95W
DIN 8 ohms	105W
THD at 8 ohms RMS rated output	0.03%
Damping factor	150

Power out put (PM8000 classA operation)

RMS 8 ohms (20 Hz - 20 kHz)	25 W
DIN 8 ohms	28 W
THD at 8 ohms RMS. rated output	0.03%
Damping factor	130

IHF dynamic power (class AB operation)

8 ohms	120 W
--------------	-------

IHF dynamic power (PM8000 class A operation)

8 ohms	35 W
--------------	------

Magnetic cartridge input (MM)

input sensitivity impedance	2.5 mV/47 kOhms
Accuracy of frequency response to IEC RIAA	0.5 dB
Signal to noise ratio	85 dB

Tuner/CD/Aux/Tape inputs

input sensitivity impedance	150 mV/40 kOhms
Signal to noise ratio	109dB
Frequency response	
(-1 dB limits, Source Direct)	10 Hz - 50 kHz
Tone characteristic (100 Hz and 10 kHz)	±8 dB
Channel separation	
(1 kHz/10 kHz, Source direct)	>80 / >70 dB

General

Power Requirements

/N versions	230 V AC,50 Hz
/U versions	120 V AC,60 Hz

Dimensions

Width	440 mm
Height	159 mm
Depth	370.5 mm

Weight

Unit alone	12.3 kg
------------------	---------

Specifications subject to change without prior notice

定格出力(20 Hz - 20 kHz 両チャンネル同時駆動)

クラスAB.....95 W × 2 (8 Ω 負荷)

クラスA.....25 W × 2 (8 Ω 負荷)

全高周波歪率(20 Hz - 20 kHz, 10 W出力時8 Ω負荷)

クラスAB.....0.015%

クラスA.....0.010%

混変調歪率 (SMPTE).....0.015%

出力帯域幅 (8 Ω 負荷,0.08%歪率).....10 Hz - 80 kHz

周波数特性

(CD,ソースダイレクト).....10 Hz - 50 kHz +0 dB -1 dB

ダンピングファクター (8 Ω 負荷,100 Hz - 10 kHz)130

入力感度／入力インピーダンス

PHONO (MM).....2.5 mV/47 kΩ

HIGH LEVEL150 mV/40 kΩ

PHONO最大許容入力 (1 kHz)

(MM)150 mV

RIAA偏差 (20 Hz).....-2 dB

(40 Hz - 20 kHz).....±0.5 dB

S/N比 (IHF,Aネットワーク,入力ショート)

PHONO (MM).....85 dB

HIGH LEVEL109 dB

トーンコントロール

BASS (100 Hz).....±8 dB

TREBLE (10 kHz).....±8 dB

電源電圧AC 100 V, 50 Hz/60 Hz

消費電力 (電気用品取締法).....160 W

最大外形寸法

幅440 mm

高さ159 mm

奥行き370.5 mm

質量12.3 kg

付属品

リモートコントロール送信機(RC8000PM).....1台

本機の規格および外観は改良のため予告なく変更することがあります。

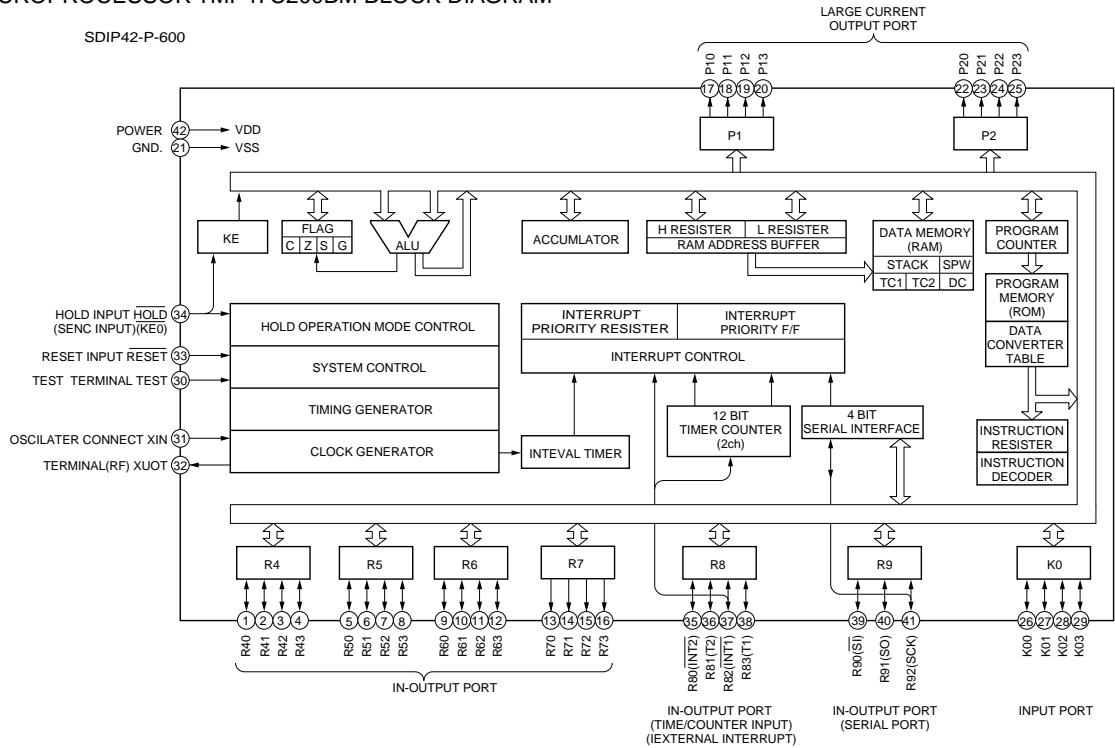
2.TEST EQUIPMENT REQUIRED FOR SERVICING

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
AC VTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
DC VTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors of primary voltage to amplifier
Variable Autotransformer	Adjust level of primary voltage to amplifier
Circuit Tester	Trouble shooting
Shorting Plug	Shorts amplifier input to eliminate noise pickup

項 目	使 用 方 法
歪 率 計	歪の測定
低 周 波 発 振 器	正弦波および矩型波の信号源
A C V T V M	交流電圧の測定
オ シ ロ ス コ ー プ	波計分析、トラブルシューティングおよびASOの調整
D C V T V M	直流電圧の測定
交流ワットメーター	アンプの一次側消費電力のモニター
電 源 電 圧 計	アンプの一次側電圧のモニター
ス ラ イ ダ ッ ク	アンプの一次側電圧の調整
テ ス タ ー	トラブルシューティング
ショート用プラグ	雑音を拾わないようにアンプ入力を短絡する

3. IC INFORMATIONS

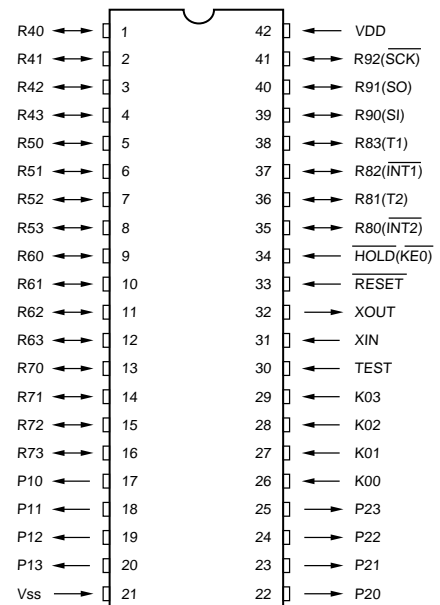
MICROPROCESSOR TMP47C200BM BLOCK DIAGRAM



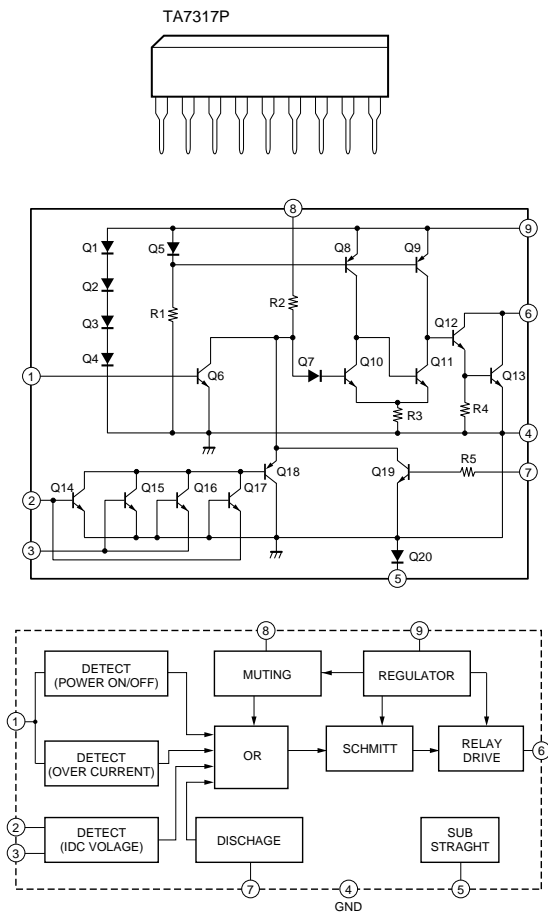
PIN no.	PORT NAME	ACT	FUNCTION
1	R40	MMUT	H MANUAL MUTE SIGNAL MUTE
2	R41	FMUT	L SIGNAL(SOURCE/MONITOR SWITCH)
3	R42	VOUP	L MOTOR DRIVE VOLUME UP
4	R43	VODW	L MOTOR DRIVE VOLUME DOWN
5	R50	T3K	L MONITOR INPUT SWITCH (TAPE3)
6	R51	T2K	L MONITOR INPUT SWITCH (TAPE2)
7	R52	T1K	L MONITOR INPUT SWITCH (TAPE1)
8	R53	AX2K	L SOURCE INPUT SWITCH (AUX2)
9	R60	AX1K	L SOURCE INPUT SWITCH (AUX1)
10	R61	TUNK	L SOURCE INPUT SWITCH (TUNER)
11	R62	CDK	L SOURCE INPUT SWITCH (CD)
12	R63	PHOK	L SOURCE INPUT SWITCH (PHONO)
13	R70	LSTB	L LED INDICATOR STAND BY DISPLAY
14	R71	LMUT	L LED INDICATOR MUTE DISPLAY
15	R72	LPRO	L LED INDICATOR PROCESSOR DISPLAY
16	R73	LTP3	L LED INDICATOR TAPE3 DISPLAY
17	P10	LTP2	L LED INDICATOR TAPE2 DISPLAY
18	P11	LTP1	L LED INDICATOR TAPE1 DISPLAY
19	P12	LSOU	L LED INDICATOR SOURCE DISPLAY
20	P13	LAX2	L LED INDICATOR AUX2 DISPLAY
21	VSS		GND.
22	P20	LAX1	L LED INDICATOR AUX1 DISPLAY
23	P21	LTUN	L LED INDICATOR TUNER DISPLAY
24	P22	LECD	L LED INDICATOR CD DISPLAY
25	P23	LPHO	L LED INDICATOR PHONO DISPLAY
26	K00	1RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit1
27	K01	2RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit2
28	K02	PRK	L PROCESSOR IN-OUT SWITCH
29	K03	MUK	L MANUAL MUTE
30	TEST		NOT USED (GND)
31	XIN		CLOCK 4.00 MHz (IN)
32	XOUT		CLOCK 4.00 MHz (OUT)
33	RESET	RES	L SYSTEM RESET
34	HOLD	PDW	L POWER DOWN CHECK
35	R80	RXRC	L REMOTE CONTROL INPUT (RC-5)
36	R81	EN1	MODEL SELECT 1
37	R82	EN2	MODEL SELECT 2
38	R83	EN3	MODEL SELECT 3
39	R90	TXRC	L SERIAL DATA(RC-5 REMOTE CONTROL)
40	R91	ENTX	L ENABLE (REMOTE CONTROL)
41	R92	RELY	L STAND-BY RELAY CONTROL
42	VDD		POWER SUPPLY

MICROPROCESSOR TMP47C200BM Position NO.7401

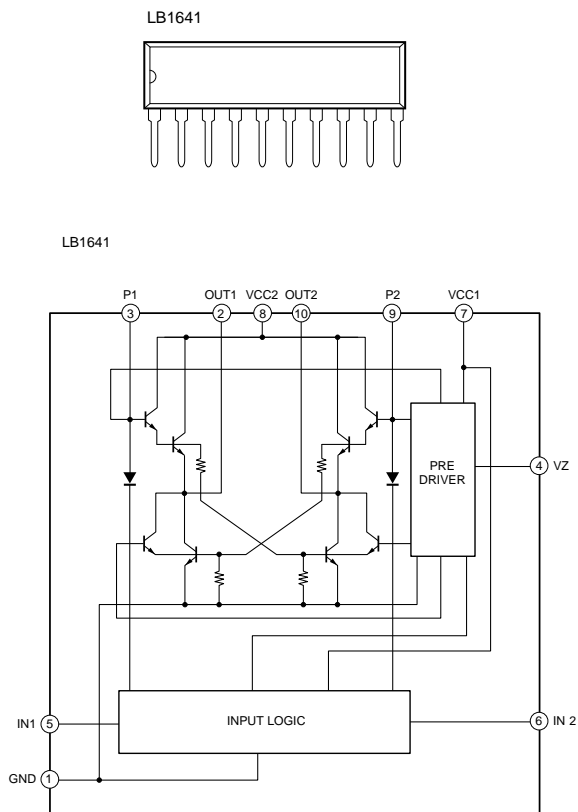
SDIP42-P-600



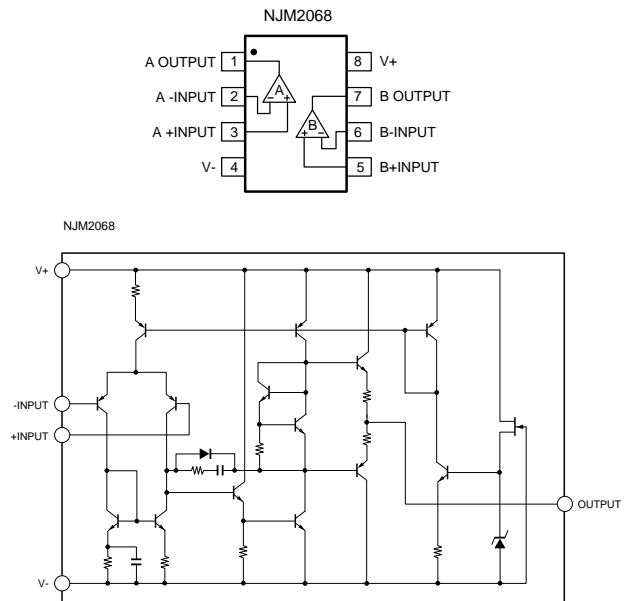
TA7317P (Position NO.7290)



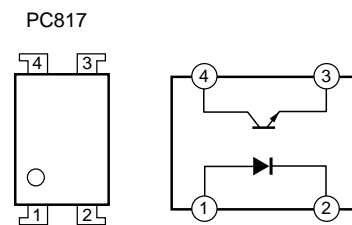
LB1641(Position NO.7402)



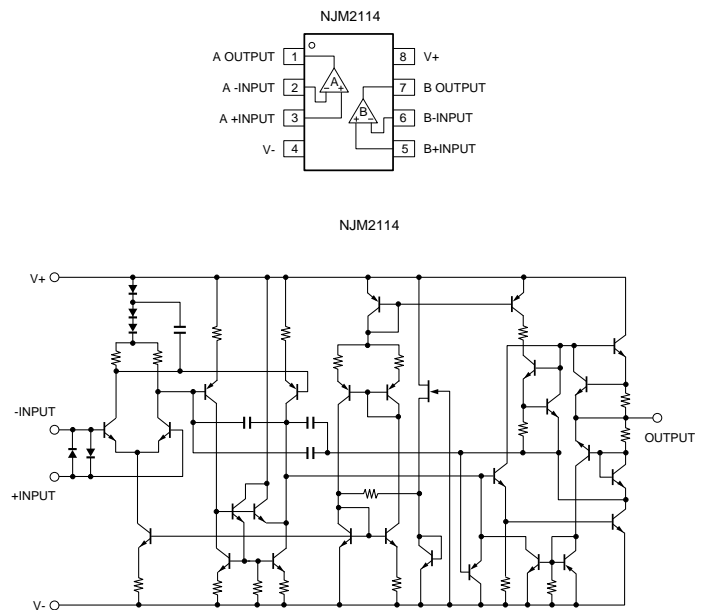
NJM2068 (Position NO.7501,7502,7503)



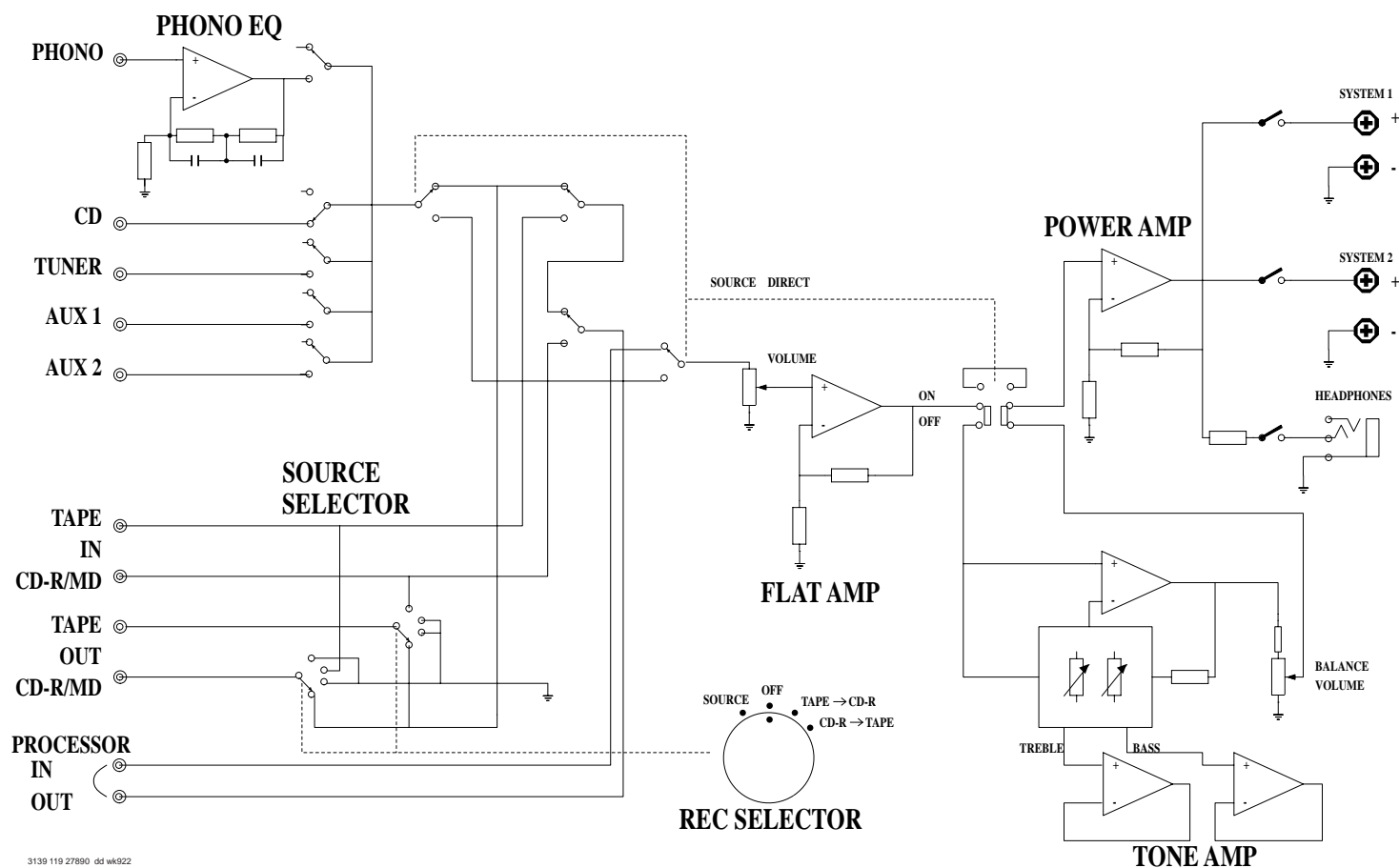
PC817 (Position NO.7269,7270)



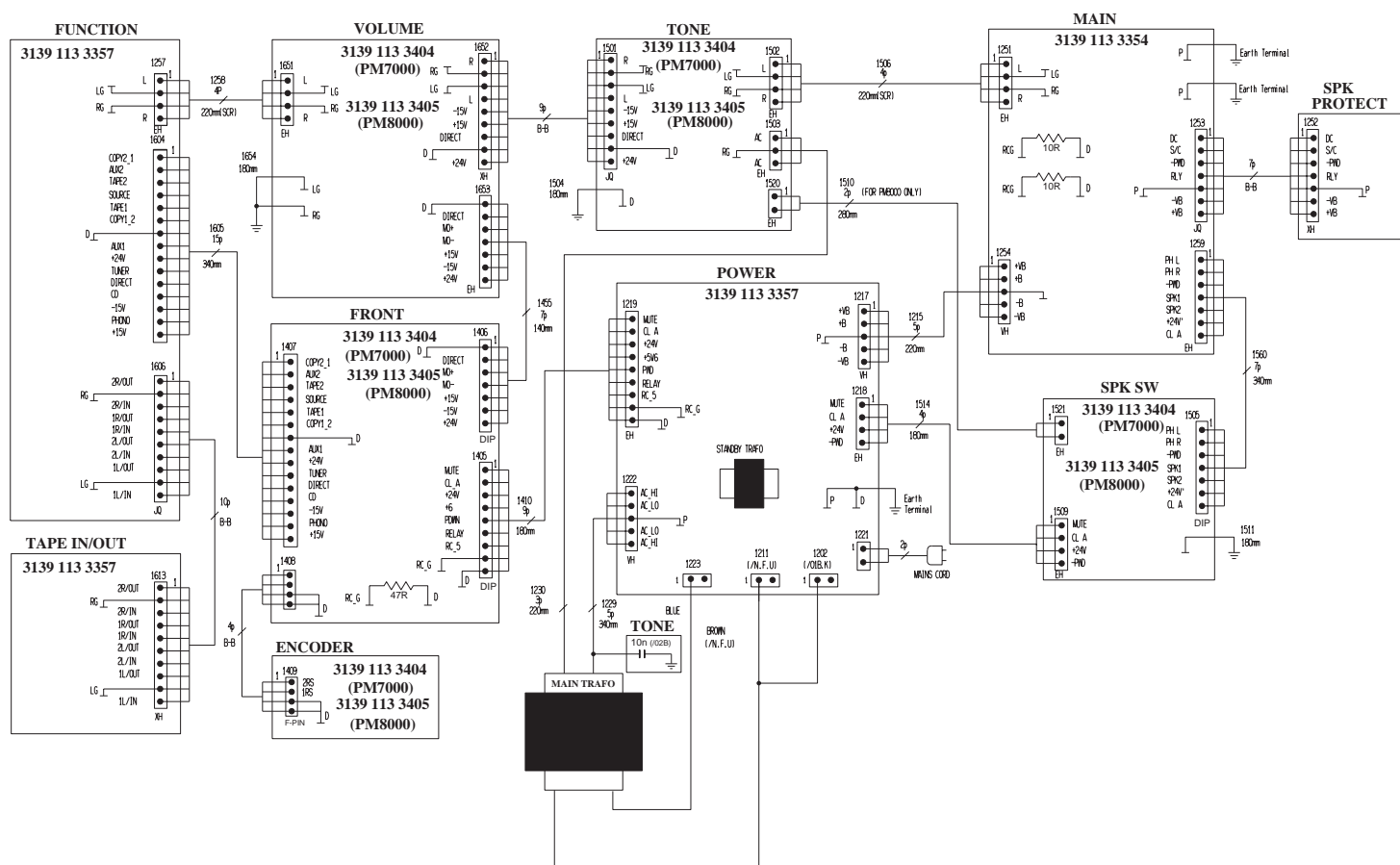
NJM2114(Position NO.7555,7655)



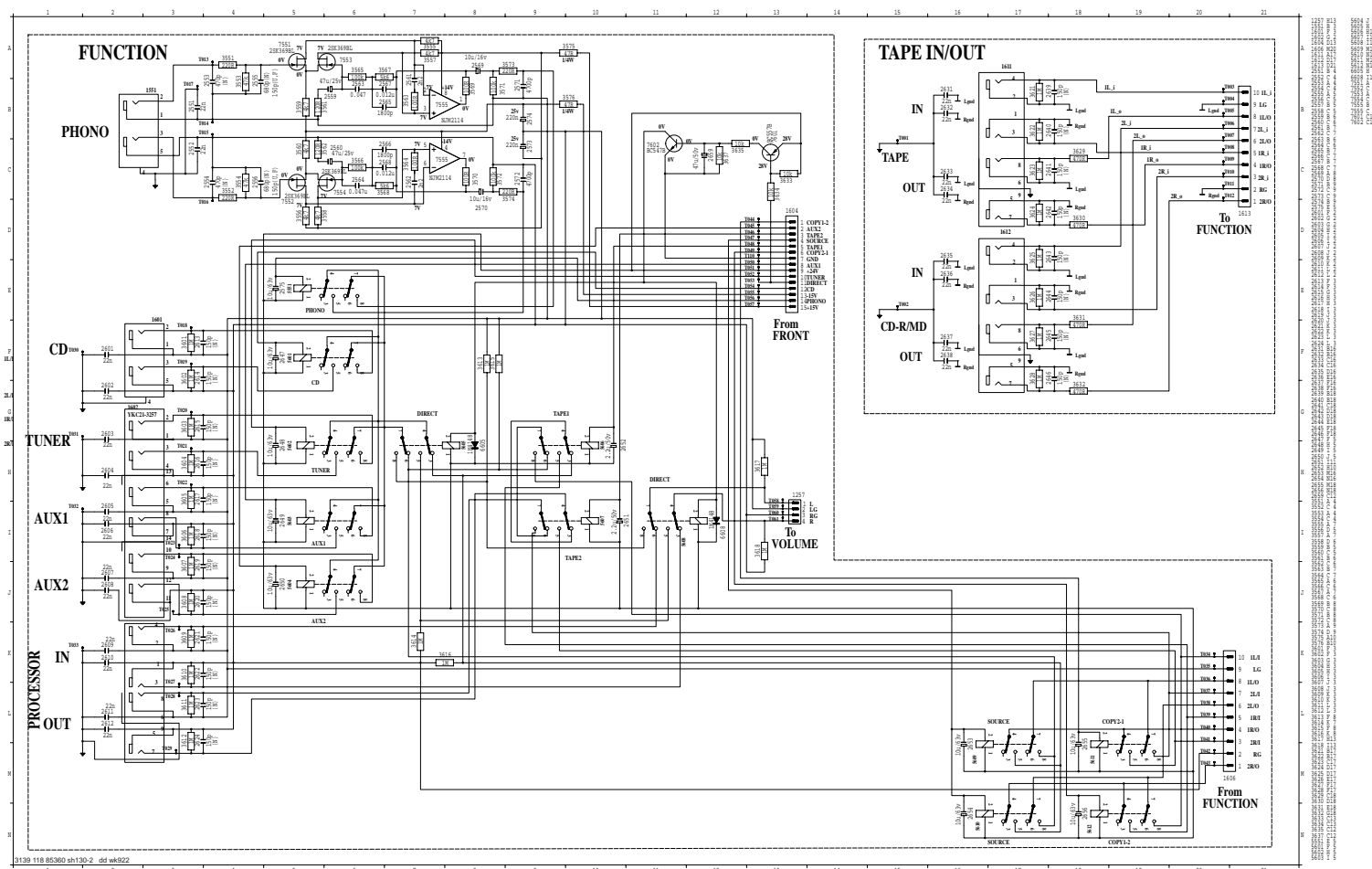
4. BLOCK DIAGRAM



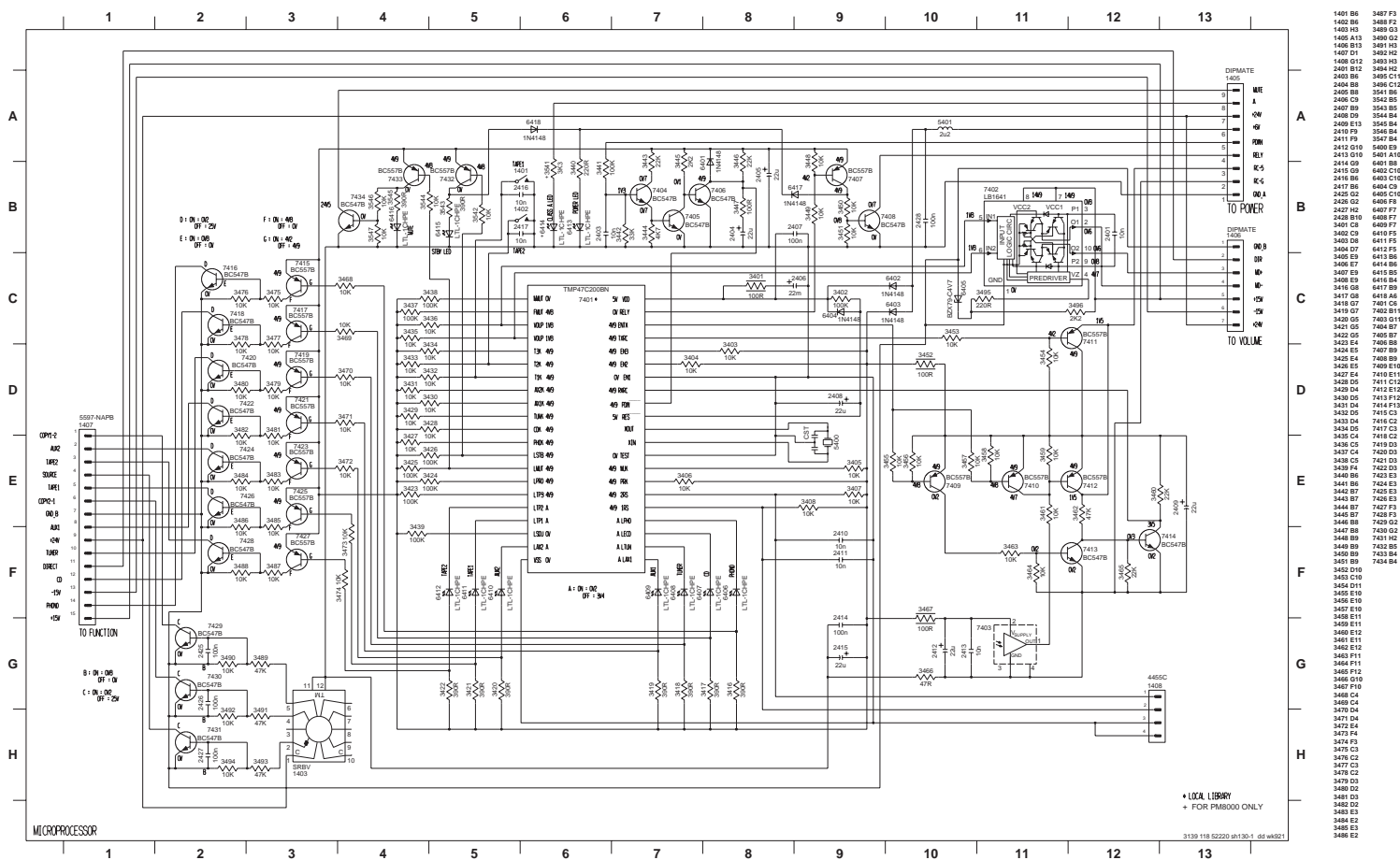
5. WIRING DIAGRAM



6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE) FUNCTION & TAPE IN/OUT CIRCUIT



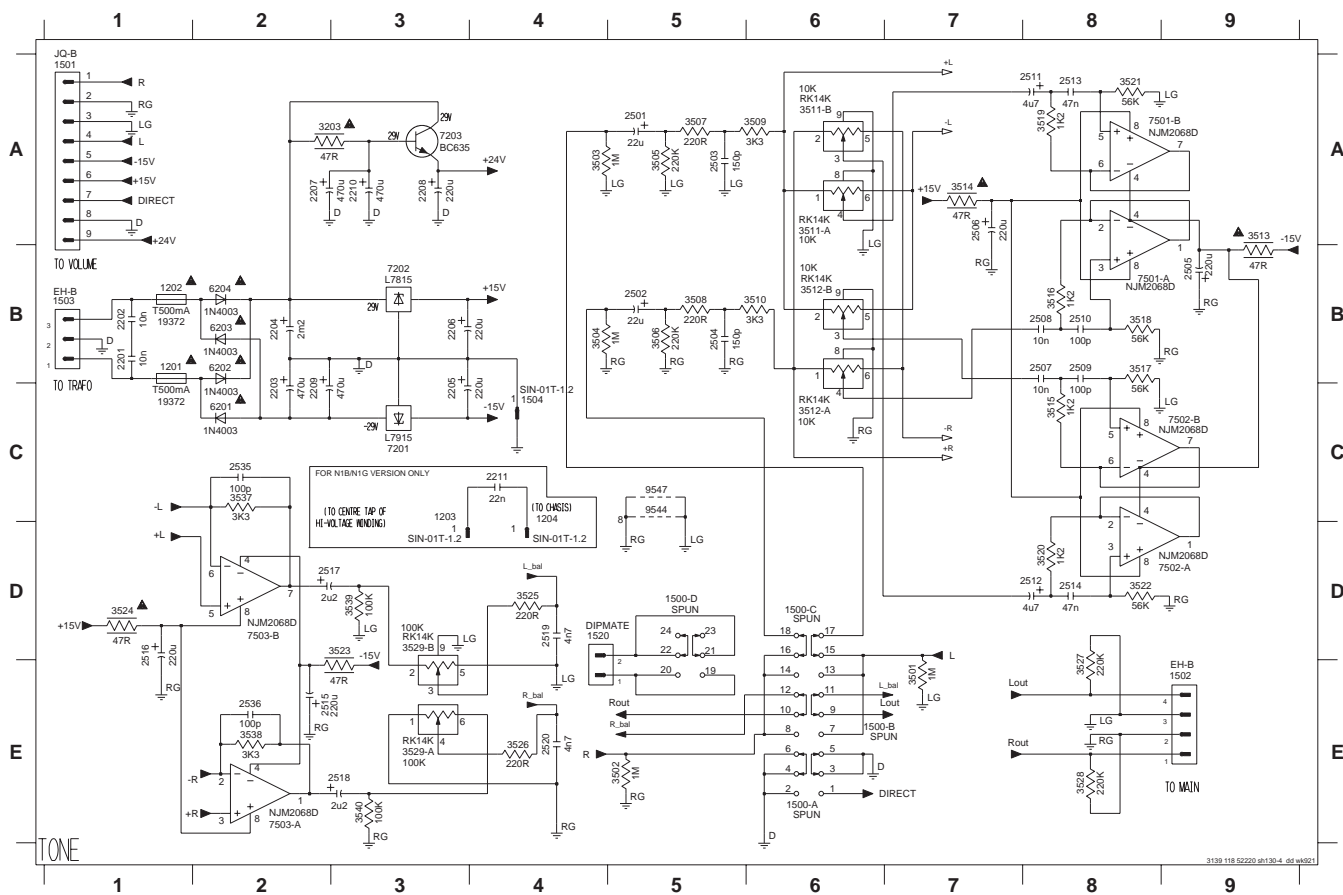
FRONT CIRCUIT



1997-1998
1998-1999
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
2023-2024
2024-2025
2025-2026
2026-2027
2027-2028
2028-2029
2029-2030
2030-2031
2031-2032
2032-2033
2033-2034
2034-2035
2035-2036
2036-2037
2037-2038
2038-2039
2039-2040
2040-2041
2041-2042
2042-2043
2043-2044
2044-2045
2045-2046
2046-2047
2047-2048
2048-2049
2049-2050
2050-2051
2051-2052
2052-2053
2053-2054
2054-2055
2055-2056
2056-2057
2057-2058
2058-2059
2059-2060
2060-2061
2061-2062
2062-2063
2063-2064
2064-2065
2065-2066
2066-2067
2067-2068
2068-2069
2069-2070
2070-2071
2071-2072
2072-2073
2073-2074
2074-2075
2075-2076
2076-2077
2077-2078
2078-2079
2079-2080
2080-2081
2081-2082
2082-2083
2083-2084
2084-2085
2085-2086
2086-2087
2087-2088
2088-2089
2089-2090
2090-2091
2091-2092
2092-2093
2093-2094
2094-2095
2095-2096
2096-2097
2097-2098
2098-2099
2099-2100
2100-2101
2101-2102
2102-2103
2103-2104
2104-2105
2105-2106
2106-2107
2107-2108
2108-2109
2109-2110
2110-2111
2111-2112
2112-2113
2113-2114
2114-2115
2115-2116
2116-2117
2117-2118
2118-2119
2119-2120
2120-2121
2121-2122
2122-2123
2123-2124
2124-2125
2125-2126
2126-2127
2127-2128
2128-2129
2129-2130
2130-2131
2131-2132
2132-2133
2133-2134
2134-2135
2135-2136
2136-2137
2137-2138
2138-2139
2139-2140
2140-2141
2141-2142
2142-2143
2143-2144
2144-2145
2145-2146
2146-2147
2147-2148
2148-2149
2149-2150
2150-2151
2151-2152
2152-2153
2153-2154
2154-2155
2155-2156
2156-2157
2157-2158
2158-2159
2159-2160
2160-2161
2161-2162
2162-2163
2163-2164
2164-2165
2165-2166
2166-2167
2167-2168
2168-2169
2169-2170
2170-2171
2171-2172
2172-2173
2173-2174
2174-2175
2175-2176
2176-2177
2177-2178
2178-2179
2179-2180
2180-2181
2181-2182
2182-2183
2183-2184
2184-2185
2185-2186
2186-2187
2187-2188
2188-2189
2189-2190
2190-2191
2191-2192
2192-2193
2193-2194
2194-2195
2195-2196
2196-2197
2197-2198
2198-2199
2199-2200
2200-2201
2201-2202
2202-2203
2203-2204
2204-2205
2205-2206
2206-2207
2207-2208
2208-2209
2209-2210
2210-2211
2211-2212
2212-2213
2213-2214
2214-2215
2215-2216
2216-2217
2217-2218
2218-2219
2219-2220
2220-2221
2221-2222
2222-2223
2223-2224
2224-2225
2225-2226
2226-2227
2227-2228
2228-2229
2229-2230
2230-2231
2231-2232
2232-2233
2233-2234
2234-2235
2235-2236
2236-2237
2237-2238
2238-2239
2239-2240
2240-2241
2241-2242
2242-2243
2243-2244
2244-2245
2245-2246
2246-2247
2247-2248
2248-2249
2249-2250
2250-2251
2251-2252
2252-2253
2253-2254
2254-2255
2255-2256
2256-2257
2257-2258
2258-2259
2259-2260
2260-2261
2261-2262
2262-2263
2263-2264
2264-2265
2265-2266
2266-2267
2267-2268
2268-2269
2269-2270
2270-2271
2271-2272
2272-2273
2273-2274
2274-2275
2275-2276
2276-2277
2277-2278
2278-2279
2279-2280
2280-2281
2281-2282
2282-2283
2283-2284
2284-2285
2285-2286
2286-2287
2287-2288
2288-2289
2289-2290
2290-2291
2291-2292
2292-2293
2293-2294
2294-2295
2295-2296
2296-2297
2297-2298
2298-2299
2299-2300
2300-2301
2301-2302
2302-2303
2303-2304
2304-2305
2305-2306
2306-2307
2307-2308
2308-2309
2309-2310
2310-2311
2311-2312
2312-2313
2313-2314
2314-2315
2315-2316
2316-2317
2317-2318
2318-2319
2319-2320
2320-2321
2321-2322
2322-2323
2323-2324
2324-2325
2325-2326
2326-2327
2327-2328
2328-2329
2329-2330
2330-2331
2331-2332
2332-2333
2333-2334
2334-2335
2335-2336
2336-2337
2337-2338
2338-2339
2339-2340
2340-2341
2341-2342
2342-2343
2343-2344
2344-2345
2345-2346
2346-2347
2347-2348
2348-2349
2349-2350
2350-2351
2351-2352
2352-2353
2353-2354
2354-2355
2355-2356
2356-2357
2357-2358
2358-2359
2359-2360
2360-2361
2361-2362
2362-2363
2363-2364
2364-2365
2365-2366
2366-2367
2367-2368
2368-2369
23



TONE CIRCUIT

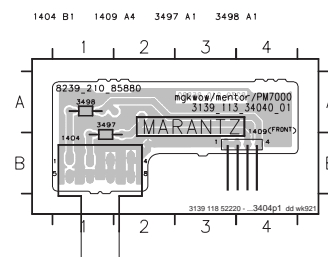


2021 B1	3524 D1
2021 B1	3525 D4
1204 C4	3526 E4
1204 C4	3527 E8
1500-B E6	3528 E9
1500-B E7	3529-A E3
1500-C D6	3529-B D3
1500-D D5	3537 C2
1501 B1	3538 E2
1502 E9	3539 D3
1503 B1	3540 E3
1904 C4	6201 C4
2021 B1	6202 B6
2021 B1	6203 B2
2021 B1	6204 B2
2203 C2	7201 C3
2203 C2	7202 B3
2205 C3	7203 A3
2206 B3	7501-A B8
2207 A2	7501-B A8
2207 A2	7502-A D8
2209 C2	7502-B C9
2210 A3	7503-A E2
2211 A3	7503-B D2
2501 A5	9547 C2
2502 B5	9547 C5
2503 A5	
2504 A5	
2505 B9	
2506 A7	
2507 B8	
2508 B8	
2509 B8	
2510 B8	
2511 A8	
2512 A8	
2513 A8	
2514 D8	
2515 E2	
2516 D1	
2517 D2	
2518 D4	
2519 D4	
2520 C6	
2523 C2	
2536 E2	
3203 A2	
3500 B6	
3502 E5	
3503 A4	
3504 B4	
3505 B6	
3506 B5	
3507 A5	
3508 B5	
3509 B5	
3510 B6	
3511-A A6	
3511-B A6	
3512 B6	
3512-B B6	
3513 A9	
3514 A7	
3515 B6	
3516 B8	
3517 B8	
3518 B8	
3519 A8	
3520 D8	
3521 A8	
3522 B8	
3523 D3	

1505 A1	1509 C4	1521 E4	3530 E2	3533 A2	6529 D1	9508 C2
1507-A B2	1510 A3	2533 A2	3531 E2	3534 A2	7529 D2	
1507-B B3	1511 E2	2534 A2	3532 D3	3535 D2	7530 D2	

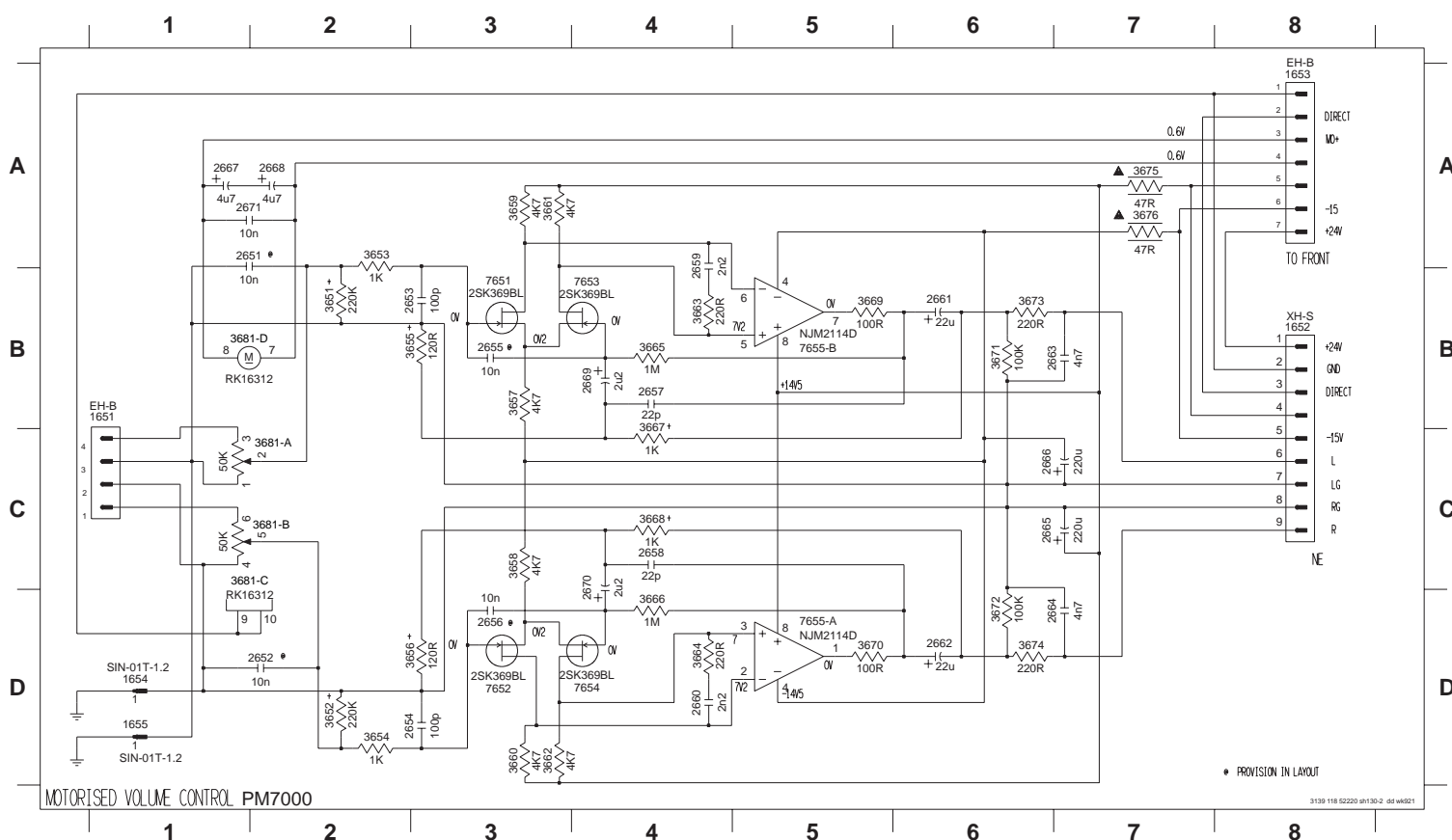


The diagram shows a horizontal line representing a DNA molecule. Above the line, there are three bold numbers: **1**, **2**, and **3**, each centered over a segment of the line. Below the line, there are four labels: **1404 A3**, **1409 A1**, **3497 A2**, and **3498 A2**. Vertical tick marks connect these labels to the line. The tick mark for 1404 A3 is at the start of the line. The tick mark for 1409 A1 is at the end of region 1. The tick mark for 3497 A2 is at the end of region 2. The tick mark for 3498 A2 is at the end of region 3.



VOLUME CONTROL CIRCUIT (PM7000)

1651 B1	1655 D1	2654 D3	2658 C4	2662 D6	2666 C6	2670 C4	3653 A2	3657 B3	3661 A3	3665 B4	3669 B5	3673 B6	3681-A C2	7651 B3	7655-A D5
1652 B8	2651 A1	2655 B3	2659 A4	2663 B7	2667 A1	2671 A1	3654 D2	3658 C3	3662 D3	3666 D4	3670 D5	3674 D6	3681-B C2	7652 D3	7655-B B5
1653 A8	2652 D2	2656 D3	2660 D4	2664 D7	2668 A2	3651 B2	3655 B3	3659 A3	3663 B4	3667 C4	3671 B6	3675 A7	3681-C C2	7653 B4	
1654 D1	2653 B3	2657 B4	2661 B6	2665 C6	2669 B4	3652 D2	3656 D3	3660 D3	3664 D4	3668 C4	3672 D6	3676 A7	3681-D B1	7654 D4	



TO FUNCTION

TO TONE

TO FRONT

TO TONE

ITEM	3510	3502	15A
ITEM 3510	3502	3505	270
ITEM 3567	3568	242	

FOR PM8000
 PROVISION IN LAOUT

3130 118 52250 aH30-1 05 wk021

1651 C1	7655-A D5
1652 B8	7655-B B5
1653 A8	1171 C1
1654 E1	1116 C1
1655 A4	1119 C1
2651 B1	1120 C1
2652 D2	1121 A8
2653 B2	1122 A8
2654 E2	1123 A8
2655 A4	1124 A8
2656 D3	1125 A8
2657 C4	1126 B8
2658 D4	1127 B8
2659 A4	1128 B8
2660 E4	1129 C8
2661 B6	1130 C8
2662 D6	1131 C8
2663 C6	1132 C8
2664 E6	1133 C8
2665 D6	1134 C8
2666 C6	1135 C8
2667 A1	1136 D8
2668 D2	
2669 C4	
2670 D4	
2671 B1	
3651 B2	
3652 E2	
3653 B2	
3654 E2	
3655 C3	
3656 D3	
3657 C3	
3658 D3	
3659 D3	
3660 E3	
3661 B3	
3662 E3	
3663 A4	
3664 E4	
3665 C4	
3666 D4	
3667 C4	
3668 A4	
3669 B5	
3670 D5	
3671 C6	
3672 E6	
3673 D6	
3674 D6	
3675 A7	
3676 B7	
3681 C1	
3681-B D1	
3681-C D2	
3681-D C2	
3681-E D2	
3681-F B1	
7651 B3	
7652 E3	
7653 A4	
7654 E4	

[illegible]

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

1 2 3 4 5 6 7

A

B

C

D

E

1 2 3 4 5 6 7

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

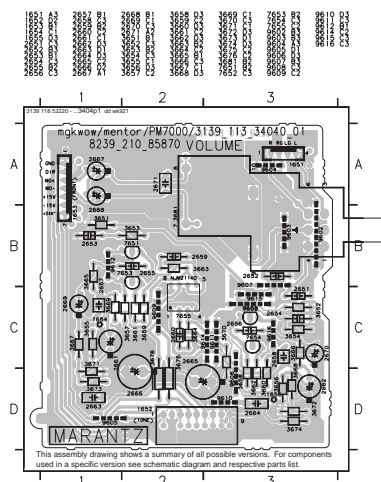
27

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

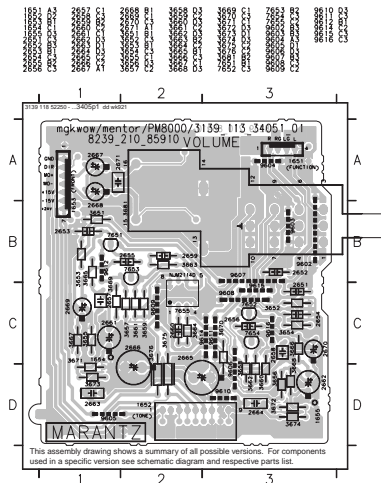
934101

28

VOLUME BOARD (PM7000)

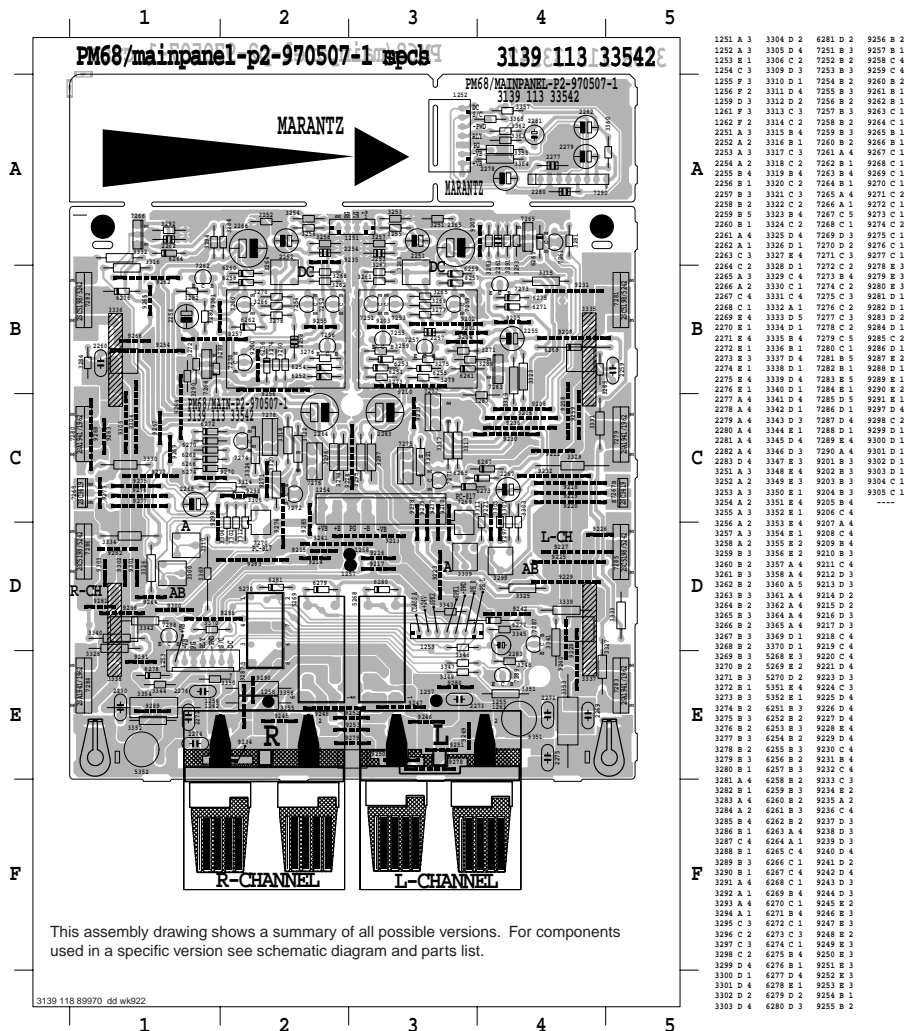


VOLUME BOARD (PM8000)



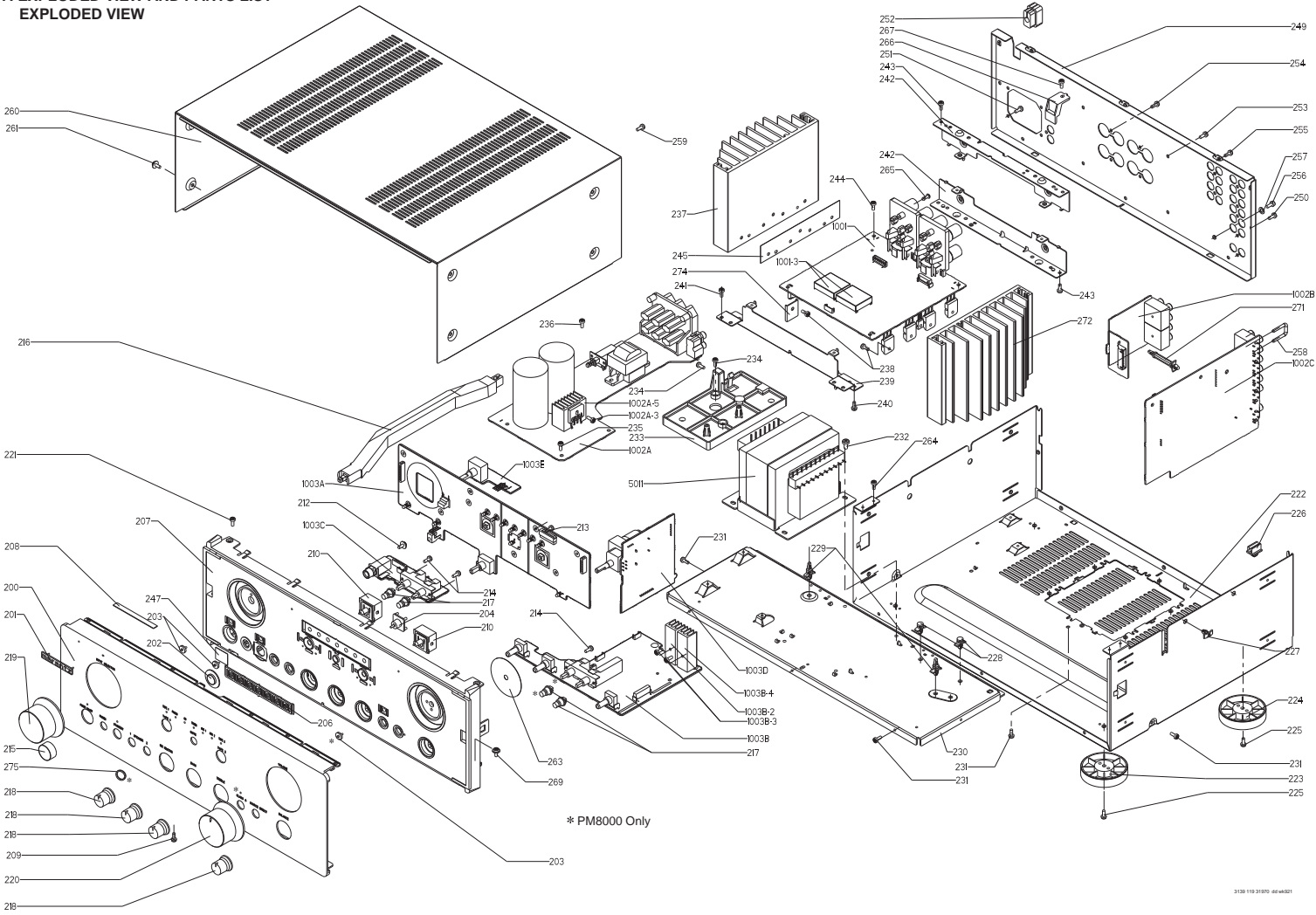
29

MAIN & SP PROTECT BOARD



30

7. EXPLODED VIEW AND PARTS LIST
EXPLODED VIEW



POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
200	PM7000 BLK	3139 117 88070	FRONT PANEL BLACK
200	PM8000 BLK	3139 117 88080	FRONT PANEL BLACK
200	PM7000 GLD	3139 117 88050	FRONT PANEL GOLD
200	PM8000 GLD	3139 117 88060	FRONT PANEL GOLD
201		4822 454 11825	PLATE, INDICATION
202	BLK	3139 114 66790	WINDOW IR BLACK
202	GLD	3139 114 66800	WINDOW IR GOLD
203		3139 114 66920	LIGHT GUIDE POWER/CLASS
204		3139 114 66900	LIGHT GUIDE MUTE
206		3139 114 66910	LIGHT GUIDE SOURCE
207	BLK	3139 114 66940	CABINET, FRONT BLACK
207	GLD	3139 117 88580	CABINET, FRONT GOLD
210	BLK	3139 114 66930	BUTTON TAPE BLACK
210	GLD	3139 117 88610	BUTTON TAPE GOLD
215	BLK	4822 410 12499	PUSH BUTTON, POWER
215	GLD	4822 410 12552	PUSH BUTTON, POWER
216		3139 114 66970	LINK, POWER
217	BLK	3139 114 66770	BUTTON, PUSH BLACK
217	GLD	3139 117 88600	BUTTON, PUSH GOLD
218	BLK	3139 114 66750	KNOB, ROTARY BLACK
218	GLD	3139 117 88590	KNOB, ROTARY GOLD
219	BLK	3139 117 88040	KNOB, SELECTOR BLACK
219	GLD	3139 117 88110	KNOB, SELECTOR GOLD
220	BLK	3139 117 88030	KNOB, VOL BLACK
220	GLD	3139 117 88090	KNOB, VOL GOLD
223		4822 462 42129	FOOT FRONT
224		4822 462 42129	FOOT REAR
252		4822 532 60948	BUSH, PLASTIC
256		4822 502 13921	SCREW, STEEL
271		4822 404 10933	PLASTIC SUPPORT(LCBS-22)
▲ 385	N	4822 321 11139	MAINS CORD
▲ 385	U	4822 321 11464	MAINS CORD
▲ 385	F	4822 321 11349	MAINS CORD
1605		4822 323 10406	FLEX CABLE 15P
▲ 5011	PM7000 N	4822 146 10823	MAINS TRANSFORMER
▲ 5011	PM8000 N	4822 146 10844	MAINS TRANSFORMER
▲ 5011	PM7000 U	4822 146 10854	MAINS TRANSFORMER
▲ 5011	PM8000 F	4822 146 10853	MAINS TRANSFORMER
PACKING			
384		3139 228 82240	REMOTE CONTROL RC0465/02
387	N	3139 116 18910	USER GUIDE
387	U	3139 116 18920	USER GUIDE
387	F	3139 116 18930	USER GUIDE

8. IDLING CURRENT AND DC OFFSET VOLTAGE ALIGNMENT

8.1 Quiescent Current Adjustment for Class AB

-Set to CD mode with no input, minimum volume position & mains supply at 230 V \pm 5 %.

-Power up the unit, adjust **SLOWLY** 3299 (L) & 3300 (R) until voltage across L-Channel -----3335 (T007 / T006) & 3337 (T009 / T010), R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltege
after 30 sec to 1 min*	0.3 mV to < 0.4 mV

- After 30 min, the voltage should settle down to 18 mV \pm 3 mV.

* Start from cold condition.

8.2 Quiescent Current Adjustment for Class A.

- Next, switch to Class A operation. Adjust **SLOWLY** 3309 (L) & 3310 (R) until voltage across L-Channel ----- 3335 (T007 / T006) & 3337 (T009 / T010) , R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltage
after 0 sec to 30 sec**	65 mV to <70 mV

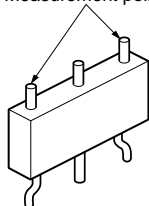
- After 30 min, the voltage should settle down to 90 mV \pm 5 mV.

** Continue immediately after 8.1

REMARKS:

- Please take note that for both Class AB & A alignment, at all time during adjustment, refer to the higher reading of each channel.

Quiescent Current
Measurement point



POS.No.
3335
3337
3336
3338

8.3 DC Offset.

- Adjust 3263 and 3264 until DC offset voltage is less than \pm 10 mV at Speaker output terminal.

8.アイドリング電流およびDCオフセット電圧調整

8.1 アイドリング電流調整 (Class AB)

1) 本体の電源スイッチを入れる前に、ボリュームを最小に、バランス及びトーンコントロールをセンターに合わせます。

2) CDモードにし、電源電圧を100Vにします。

3) セメント抵抗、3335 (T007 / T006) 、3337 (T009 / T010) のLチャンネルと3336 (T013 / T014) 、3338 (T015 / T016) のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗3299 (L) と3300 (R) をゆっくり調整します。

時間	電圧
30秒ー1分*	0.3mV以上0.4mV以下

30分後、電圧は18mV \pm 3mVに安定します。

* 冷却状態からスタートします。

8.2アイドリング電流調整 (Class A)

1) A クラス動作に切り換えます。

2) セメント抵抗3335 (T007 / T006)、3337 (T009 / T010) のLチャンネルと3336 (T013 / T014)、3338(T015 / T016)のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗3309 (L) と3310 (R) ゆっくり調整します。

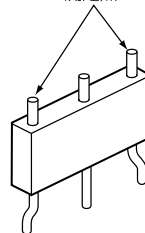
時間	電圧
0秒ー30秒 **	65mV以上70mV以下

30分後、電圧は90mV \pm 5mVに安定します。

** 切換え後、すぐに行ってください。

注意：Aクラス動作及びABクラス動作のアイドリング電流調整において、同チャンネル内の2ヶ所の測定点で指示値に差異があった場合は、高い方の電圧値が調整範囲内となるようにします。

アイドリング電流
測定点



POS.No.
3335
3337
3336
3338

8.3 DCオフセット電圧調整

DCオフセット電圧が、スピーカー出力端子で10mV以下になるまで半固定抵抗3263と3264を調整します。

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			FUNCTION CIRCUIT BOARD				SEMICONDUCTORS
			CAPACITORS				
2551		4822 126 12147	CER. 22NF 10% 25V	6605		4822 130 30621	DIODE 1N4148
2552		4822 126 12147	CER. 22NF 10% 25V	6608		4822 130 30621	DIODE 1N4148
2553	N	4822 122 33519	CER. 470pF 10% 50V	7555		4822 209 31153	IC NJM2114D
2554	N	4822 122 33519	CER. 470pF 10% 50V	7551			
2555	N	4822 126 14316	CER. 680pF 10% 50V	}		4822 130 42839	FET 2SK369BL
2555	U, F	4822 122 33849	CER. 150pF 10% 50V	7554			
2556	N	4822 126 14316	CER. 680pF 10% 50V	7601		4822 130 44568	TRS. BC557B
2556	U, F	4822 122 33849	CER. 150pF 10% 50V	7602		4822 130 40959	TRS. BC547B
2559		4822 124 12023	ELECT 47 μ F 20% 25V				MISCELLANEOUS
2560		4822 124 12023	ELECT 47 μ F 20% 25V	1551		4822 265 10311	CONNECTOR, 2P
2561		4822 121 70654	FILM 2N2 10% 50V	1601		4822 265 10311	CONNECTOR, 2P
2562		4822 121 70654	FILM 2N2 10% 50V	1602	PM7000	4822 267 20453	CONNECTOR, 6P
2563		4822 121 51399	FILM 47NF 10% 50V	1602	PM8000	4822 265 11061	CONNECTOR, 6P
2564		4822 121 51399	FILM 47NF 10% 50V	1603	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
2565		4822 121 10685	FILM 1.8NF 10% 50V	1603	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
2566		4822 121 10685	FILM 1.8NF 10% 50V	1604		4822 267 50915	CONNECTOR, 15P
2567		4822 121 41935	FILM 12NF 5% 250V	5551		4822 280 20501	RELAY MR62-24SR
2568		4822 121 41935	FILM 12NF 5% 250V	5601			
2569		4822 124 12024	ELECT 10 μ F 20% 16V	}		4822 280 20501	RELAY MR62-24SR
2570		4822 124 12024	ELECT 10 μ F 20% 16V	5612			
2571		4822 121 10696	FILM 4.7NF 2% 50V				TAPE IN/OUT CIRCUIT BOARD
2572		4822 121 10696	FILM 4.7NF 2% 50V	2631			CAPACITORS
2573		4822 124 12022	ELECT 220 μ F 20% 25V	}		4822 126 12147	CER. 22NF 10% 25V
2574		4822 124 12022	ELECT 220 μ F 20% 25V	2638			
2575		4822 124 40248	ELECT 10 μ F 20% 63V	2639			
2601				}		4822 122 33849	CER. 150pF 10% 50V
2612		4822 126 12147	CER. 22NF 10% 25V	2646			
2613							RESISTORS
2624	N	4822 122 33849	CER. 150pF 10% 50V	3621			
2647				}		4822 116 83866	1M 5% 1/6W
2656		4822 124 40248	ELECT 10 μ F 20% 63V	3628			
2659		4822 124 11566	ELECT 47 μ F 20% 50V	3629		4822 116 83883	470R 5% 0.5W
			RESISTORS	}			
3551		4822 116 83872	220R 5% 0.5W	3632			
3552		4822 116 83872	220R 5% 0.5W				MISCELLANEOUS
3553		4822 116 83884	47K 5% 0.5W	1611	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
3554		4822 116 83884	47K 5% 0.5W	1611	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
3555				1612	PM7000	4822 267 31452	CONNECTOR, CABLE/WIRE
}		4822 116 52283	4K7 5% 0.5W	1612	PM8000	4822 265 30996	CONNECTOR, CABLE/WIRE
3560							VOLUME CIRCUIT BOARD
3561		4822 116 52206	120E 5% 0.5W				CAPACITORS
3562		4822 116 52206	120E 5% 0.5W	2653		4822 122 33195	CER. 100pF 10% 50V
3563		4822 116 52175	100E 5% 0.5W	2654		4822 122 33195	CER. 100pF 10% 50V
3564		4822 116 52175	100E 5% 0.5W	2657		4822 122 33524	CER. 22pF 5% 50V
3565		4822 116 52234	100K 5% 0.5W	2658		4822 122 33524	CER. 22pF 5% 50V
3566		4822 116 52234	100K 5% 0.5W	2659		4822 126 12339	CER. 2.2NF 10%
3567		4822 116 52289	5K6 5% 0.5W	2660		4822 126 12339	CER. 2.2NF 10%
3568		4822 116 52289	5K6 5% 0.5W	2661		4822 124 12026	ELECT 22 μ F 20% 25V
3569		4822 116 52175	100E 5% 0.5W	2662		4822 124 12026	ELECT 22 μ F 20% 25V
3570		4822 116 52175	100E 5% 0.5W	2663		4822 121 10686	FILM 4.7NF 10% 50V
3571		4822 116 52234	100K 5% 0.5W	2664		4822 121 10686	FILM 4.7NF 10% 50V
3572		4822 116 52234	100K 5% 0.5W	2665		4822 121 10686	FILM 4.7NF 10% 50V
3573		4822 116 83872	220R 5% 0.5W	2666		4822 124 12434	ELECT 220 μ F 20% 16V
3574		4822 116 83872	220R 5% 0.5W	2667		4822 124 12434	ELECT 220 μ F 20% 16V
3575		4822 052 10479	47R 5% 0.33W	2668		4822 124 40769	ELECT 4.7 μ F 20% 100V
3576		4822 052 10479	47R 5% 0.33W	2669		4822 124 40769	ELECT 4.7 μ F 20% 100V
3601				2670		4822 124 12027	ELECT 2.2 μ F 20% 50V
}		4822 116 83866	1M 5% 0.5W	2671		4822 124 12027	ELECT 2.2 μ F 20% 50V
3618						4822 122 30043	CER. 10NF 80% 63V
3633		4822 050 21003	10K 1% 0.6W				
3634		4822 050 21003	10K 1% 0.6W				
3635		4822 050 21003	10K 1% 0.6W				
3637		4822 050 21003	10K 1% 0.6W				

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			RESISTORS				
3651	PM7000	4822 116 83874	220K 5% 0.5W	3416			
3651	PM8000	4822 116 52244	15K 5% 0.5W	}		4822 116 83881	390R 5% 0.5W
3652	PM7000	4822 116 83874	220K 5% 0.5W	3422			
3652	PM8000	4822 116 52244	15K 5% 0.5W	3423		4822 116 52234	100K 5% 0.5W
3653		4822 050 11002	1K 1% 0.4W	}			
3654		4822 050 11002	1K 1% 0.4W	3426			
3655	PM7000	4822 116 52206	120E 5% 0.5W	3427		4822 050 21003	10K 1% 0.6W
3655	PM8000	4822 116 83876	270R 5% 0.5W	}			
3656	PM7000	4822 116 52206	120E 5% 0.5W	3436		4822 116 52234	100K 5% 0.5W
3656	PM8000	4822 116 83876	270R 5% 0.5W	3437		4822 116 52234	100K 5% 0.5W
3657				3438		4822 116 52234	100K 5% 0.5W
}		4822 116 52283	4K7 5% 0.5W	3439		4822 116 83872	220R 5% 0.5W
3662				3440		4822 116 52234	100K 5% 0.5W
3663		4822 116 83872	220R 5% 0.5W	3441		4822 050 23303	33K 1% 0.6W
3664		4822 116 83872	220R 5% 0.5W	3442		4822 116 52257	22K 5% 0.5W
3665		4822 116 83866	1M 5% 0.5W	3443		4822 116 52283	4K7 5% 0.5W
3666		4822 116 83866	1M 5% 0.5W	3444		4822 116 52256	2K2 5% 0.5W
3667	PM7000	4822 050 11002	1K 1% 0.4W	3445		4822 116 52257	22K 5% 0.5W
3667	PM8000	4822 116 52256	2K2 5% 0.5W	3446		4822 116 52175	100E 5% 0.5W
3668	PM7000	4822 050 11002	1K 1% 0.4W	3447			
3668	PM8000	4822 116 52256	2K2 5% 0.5W	3448			
3669		4822 116 52175	100E 5% 0.5W	}		4822 050 21003	10K 1% 0.6W
3670		4822 116 52175	100E 5% 0.5W	3451			
3671		4822 116 52234	100K 5% 0.5W	3452		4822 052 10101	100R 5% 0.33W
3672		4822 116 52234	100K 5% 0.5W	3453			
3673		4822 116 83872	220R 5% 0.5W	}		4822 050 21003	10K 1% 0.6W
3674		4822 116 83872	220R 5% 0.5W	3459			
▲ 3675		4822 052 10479	47R 5% 0.33W	3460		4822 116 52257	22K 5% 0.5W
▲ 3676		4822 052 10479	47R 5% 0.33W	3461		4822 050 21003	10K 1% 0.6W
3681	PM7000	4822 101 11789	VARIAB. 50K X2 20% 0.05W	3462		4822 116 83884	47K 5% 0.5W
3681	PM8000	4822 101 11803	VARIAB. RK16314MC(50KX2)	3463		4822 050 21003	10K 1% 0.6W
				3464		4822 050 21003	10K 1% 0.6W
			SEMICONDUCTORS	3465		4822 116 52257	22K 5% 0.5W
7651				3466		4822 116 52195	47E 5% 0.5W
}		4822 130 42839	FET 2SK369BL	3467		4822 052 10101	100R 5% 0.33W
7654				3468			
7655		4822 209 31153	IC NJM2114D	}		4822 050 21003	10K 1% 0.6W
			FRONT CIRCUIT BOARD	3488			
			CAPACITORS	3489		4822 116 83884	47K 5% 0.5W
2401		4822 121 51387	FILM 10NF 20% 16V	3490		4822 050 21003	10K 1% 0.6W
2403		4822 121 51387	FILM 10NF 20% 16V	3491		4822 116 83884	47K 5% 0.5W
2404		4822 124 81151	ELECT 22 μ F 50V	3492		4822 050 21003	10K 1% 0.6W
2405		4822 124 81151	ELECT 22 μ F 50V	3493		4822 116 83884	47K 5% 0.5W
2406		4822 124 80818	ELECT 22M 5.5V	3494		4822 050 21003	10K 1% 0.6W
2407		4822 126 12882	CER. 100NF +80-20% 50V	3495		4822 116 83872	220R 5% 0.5W
2408		4822 124 81151	ELECT 22 μ F 50V	3496		4822 116 52256	2K2 5% 0.5W
2409		4822 124 81151	ELECT 22 μ F 50V	3541	PM8000	4822 053 10332	3K30 5% 1W
2410		4822 121 51387	FILM 10NF 20% 16V	3542		4822 050 21003	10K 1% 0.6W
2411		4822 121 51387	FILM 10NF 20% 16V	3543		4822 116 83881	390R 5% 0.5W
2412		4822 124 81151	ELECT 22 μ F 50V	3544		4822 050 21003	10K 1% 0.6W
2413		4822 121 51387	FILM 10NF 20% 16V	3545		4822 116 83881	390R 5% 0.5W
2414		4822 126 12882	CER. 100NF +80-20% 50V	3546		4822 050 21003	10K 1% 0.6W
2415		4822 124 81151	ELECT 22 μ F 50V	3547		4822 050 21003	10K 1% 0.6W
2416		4822 121 51387	FILM 10NF 20% 16V				SEMICONDUCTORS
2417		4822 121 51387	FILM 10NF 20% 16V	6401		4822 130 30621	DIODE 1N4148
2425				}			
}		4822 126 12882	CER. 100NF +80-20% 50V	6404		4822 130 34174	DIODE BZX79-B4V7
2428				6405			
			RESISTORS	6406		4822 130 82978	LED LTL-16KPE-P
				}			
3401		4822 052 10101	100R 5% 0.33W	6413			
3402		4822 116 52234	100K 5% 0.5W	6414	PM8000	4822 130 82978	LED LTL-16KPE-P
3403				6415		4822 130 82978	LED LTL-16KPE-P
}		4822 050 21003	10K 1% 0.6W	6416		4822 130 82978	LED LTL-16KPE-P
3408				6417		4822 130 30621	DIODE 1N4148
				6418		4822 130 30621	DIODE 1N4148
				7401		4822 209 15719	IC TMP47C200BN
				7402		4822 209 30193	IC LB1641

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
7404	N	4822 130 40959	TRS. BC547B	2509		4822 122 33293	CER. 100pF 5% 50V
7405		4822 130 40959	TRS. BC547B	2510		4822 122 33293	CER. 100pF 5% 50V
7406		4822 130 40959	TRS. BC547B	2511		4822 124 40769	ELECT 4.7 μ F 20% 100V
7407		4822 130 44568	TRS. BC557B	2512		4822 124 40769	ELECT 4.7 μ F 20% 100V
7408		4822 130 40959	TRS. BC547B	2513		4822 121 51399	FILM 47NF 10% 50V
7409				2514		4822 121 51399	FILM 47NF 10% 50V
7412		4822 130 44568	TRS. BC557B	2515		4822 124 12022	ELECT 220 μ F 20% 25V
7413		4822 130 40959	TRS. BC547B	2516		4822 124 12022	ELECT 220 μ F 20% 25V
7414		4822 130 40959	TRS. BC547B	2517		4822 124 40763	ELECT 2.2 μ F 100 V
7415		4822 130 44568	TRS. BC557B	2518		4822 124 40763	ELECT 2.2 μ F 100 V
7416		4822 130 40959	TRS. BC547B	2519		4822 121 10686	FILM 4.7NF 10% 50V
7417		4822 130 44568	TRS. BC557B	2520		4822 121 10686	FILM 4.7NF 10% 50V
7418		4822 130 40959	TRS. BC547B	2535		4822 122 33195	CER. 100pF 10% 50V
7419		4822 130 44568	TRS. BC557B	2536		4822 122 33195	CER. 100pF 10% 50V
7420		4822 130 40959	TRS. BC547B				RESISTORS
7421		4822 130 44568	TRS. BC557B	▲ 3203		4822 052 10479	47R 5% 0.33W
7422		4822 130 40959	TRS. BC547B	3501			
7423		4822 130 44568	TRS. BC557B	}		4822 116 83866	1M 5% 0.5W
7424		4822 130 40959	TRS. BC547B	3504			
7425		4822 130 44568	TRS. BC557B	3505		4822 116 83874	220K 5% 0.5W
7426		4822 130 40959	TRS. BC547B	3506		4822 116 83874	220K 5% 0.5W
7427		4822 130 44568	TRS. BC557B	3507		4822 116 83872	220R 5% 0.5W
7428				3508		4822 116 83872	220R 5% 0.5W
7431		4822 130 40959	TRS. BC547B	3509		4822 116 52269	3K3 5% 0.5W
7432		4822 130 44568	TRS. BC557B	3510		4822 116 52269	3K3 5% 0.5W
7433		4822 130 44568	TRS. BC557B	3511		4822 101 11788	VARIAB. 10K X2 20% 0.05W
7434		4822 130 40959	TRS. BC547B	3512		4822 101 11788	VARIAB. 10K X2 20% 0.05W
			MISCELLANEOUS	▲ 3513		4822 052 10479	47R 5% 0.33W
1401		4822 276 13114	SWITCH, PUSH BUTTON	▲ 3514		4822 052 10479	47R 5% 0.33W
1402		4822 276 13114	SWITCH, PUSH BUTTON	3515		4822 116 52207	1K2 5% 0.5W
1403		4822 273 10336	SWITCH, ROTARY	3516		4822 116 52207	1K2 5% 0.5W
			SRBV14-F1620-11	3517		4822 116 52291	56K 5% 0.5W
1407		4822 267 51322	CONNECTOR, 15P	3518		4822 116 52291	56K 5% 0.5W
5400		4822 242 72527	FILTER, CERAMIC	3519		4822 116 52207	1K2 5% 0.5W
			CST4.00MGW-TF01	3520		4822 116 52207	1K2 5% 0.5W
5401		4822 157 50963	COIL 2.2 μ H	3521		4822 116 52291	56K 5% 0.5W
7403		4822 130 10165	REMOTE RECEIVER GP1U28XP	3522		4822 116 52291	56K 5% 0.5W
			ENCODER CIRCUIT BOARD	3523		4822 052 10479	47R 5% 0.33W
3497		4822 116 52175	RES. 100E 5% 0.5W	▲ 3524		4822 052 10479	47R 5% 0.33W
3498		4822 116 52175	RES. 100E 5% 0.5W	3525		4822 116 83872	220R 5% 0.5W
				3526		4822 116 83872	220R 5% 0.5W
1404		4822 273 10237	SWITCH, ROTARY	3527		4822 116 83874	220K 5% 0.5W
			SRRS1C(G79424930)	3528		4822 116 83874	220K 5% 0.5W
			TONE CIRCUIT BOARD	3529		4822 101 30828	VARIAB. 100K
			CAPACITORS	3537		4822 116 52269	3K3 5% 0.5W
2201		4822 122 30043	CER. 10NF 80% 63V	3538		4822 116 52269	3K3 5% 0.5W
2202		4822 122 30043	CER. 10NF 80% 63V	3539		4822 116 52234	100K 5% 0.5W
2203		4822 124 12025	ELECT 470 μ F 20% 35V	3540			100K 5% 0.5W
2204		4822 124 41329	ELECT 2200 μ F 20% 35V	▲ 6201		4822 130 31878	SEMICONDUCTORS
2205		4822 124 12022	ELECT 220 μ F 20% 25V	▲ 6202		4822 130 31878	DIODE 1N4003G
2206		4822 124 12022	ELECT 220 μ F 20% 25V	▲ 6203		4822 130 31878	DIODE 1N4003G
2207		4822 124 12025	ELECT 470 μ F 20% 35V	▲ 6204		4822 130 31878	DIODE 1N4003G
2208		4822 124 40257	ELECT 220 μ F 20% 35V	7201		5322 209 86361	IC MCT7815CT
2209		4822 124 12025	ELECT 470 μ F 20% 35V	7202		5322 209 71759	IC MCT7815CT
2210		4822 124 12025	ELECT 470 μ F 20% 35V	7203		5322 130 44349	TRS. BC635
2211		4822 122 30103	CER. 22NF 80% 63V	7501		4822 209 73064	IC NJM2068DD
2501		4822 124 81151	ELECT 22 μ F 50V	7502		4822 209 73064	IC NJM2068DD
2502		4822 124 81151	ELECT 22 μ F 50V	7503		4822 209 73064	IC NJM2068DD
2503		4822 122 33849	CER. 150pF 10% 50V				MISCELLANEOUS
2504		4822 122 33849	CER. 150pF 10% 50V	▲ 1201		4822 071 55001	FUSE 19372(500MA)
2505		4822 124 12022	ELECT 220 μ F 20% 25V	▲ 1202		4822 071 55001	FUSE 19372(500MA)
2506		4822 124 12022	ELECT 220 μ F 20% 25V	1500		2422 128 02902	SWITCH, PUSH
2507		4822 121 41857	FILM 10NF 5% 250V				
2508		4822 121 41857	FILM 10NF 5% 250V				

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
3285	PM7000	4822 116 52264	27K 5% 0.5W	6251	PM8000	4822 130 30621	SEMICONDUCTORS
3286		4822 116 52264	27K 5% 0.5W	}			DIODE 1N4148
3287		4822 116 83868	150R 5% 0.5W	6266			
3288		4822 116 83868	150R 5% 0.5W	6267			
3289		4822 116 83874	220K 5% 0.5W	}			5322 130 34834 DIODE BZX79-C3V6
3289		4822 116 83884	47K 5% 0.5W	6270			
3290		4822 116 83874	220K 5% 0.5W	6271			4822 130 30621 DIODE 1N4148
3290		4822 116 83884	47K 5% 0.5W	6272			4822 130 30621 DIODE 1N4148
3291		4822 116 83874	220K 5% 0.5W	6273			
3291		4822 116 83884	47K 5% 0.5W	}			4822 130 30842 DIODE BAV21
3292		4822 116 83874	220K 5% 0.5W	6278			
3292		4822 116 83884	47K 5% 0.5W	6279			4822 130 30621 DIODE 1N4148
3293		4822 116 83868	150R 5% 0.5W	6280			4822 130 30621 DIODE 1N4148
3294		4822 116 83868	150R 5% 0.5W	6281			4822 130 30621 DIODE 1N4148
3295				7251			
}		4822 052 10109	10E 5% 0.33W	}			4822 130 43233 TRS. 2SC2240GR
3298				7256			
3299		4822 101 11787	VARIAB. 100R 30% 0.1W	7257			
3300		4822 101 11787	VARIAB. 100R 30% 0.1W	}			4822 130 42949 TRS. 2SA970GR
3301		4822 116 83876	270R 5% 0.5W	7260			
3302		4822 116 83876	270R 5% 0.5W	7261			4822 130 43233 TRS. 2SC2240GR
3303		4822 116 52207	1K2 5% 0.5W	7262			4822 130 43233 TRS. 2SC2240GR
3304		4822 116 52207	1K2 5% 0.5W	7263			4822 130 61009 TRS. 2SC3423(O)
3305		4822 116 80176	1E 5% 0.5W	7264			4822 130 61009 TRS. 2SC3423(O)
3306		4822 116 80176	1E 5% 0.5W	7265			5322 130 61728 TRS. 2SA1360-Y
3309		4822 100 20166	VARIAB. 10K 30% LIN 0.1W	7266			5322 130 61728 TRS. 2SA1360-Y
3310		4822 100 20166	VARIAB. 10K 30% LIN 0.1W	▲ 7267			4822 130 60117 TRS. 2SC3419
3311		4822 050 11002	1K 1% 0.4W	▲ 7268			4822 130 60117 TRS. 2SC3419
3312		4822 050 11002	1K 1% 0.4W	7269			4822 130 90347 COUPLER /PHOTO PC817
3313				7270			4822 130 90347 COUPLER /PHOTO PC817
}		4822 052 10101	100R 5% 0.33W	7271			4822 130 41646 TRS. BF423
3316				7272			4822 130 41646 TRS. BF423
3317				7273			4822 130 41782 TRS. BF422
}		4822 052 10681	680R 5% 0.33W	7274			4822 130 41782 TRS. BF422
3320				▲ 7275			4822 130 63634 TRS. 2SA1837Y
3321				▲ 7276			4822 130 63634 TRS. 2SA1837Y
}		4822 052 10479	47R 5% 0.33W	▲ 7277			4822 130 10941 TRS. 2SC4793
3324				▲ 7278			4822 130 10941 TRS. 2SC4793
▲ 3325		4822 052 10151	150R 5% 0.33W	▲ 7279			4822 130 10942 TRS. 2SA1941
▲ 3326		4822 052 10151	150R 5% 0.33W	▲ 7279			4822 130 37279 TRS. 2SA1962
▲ 3327				▲ 7280			4822 130 10942 TRS. 2SA1941
}		4822 052 10109	10R 5% 0.33W	▲ 7280			4822 130 10983 TRS. 2SA1962
▲ 3334				▲ 7281			4822 130 10943 TRS. 2SC5198
▲ 3335				▲ 7281			4822 130 10984 TRS. 2SC5242
}		4822 116 82049	2 X R18 3W	▲ 7282			4822 130 10943 TRS. 2SC5198
▲ 3338				▲ 7282			4822 130 10984 TRS. 2SC5242
3339				▲ 7283			4822 130 10942 TRS. 2SA1941
}		4822 050 21002	1K 1% 0.6W	▲ 7283			4822 130 10983 TRS. 2SA1962
3342				▲ 7284			4822 130 10942 TRS. 2SA1941
3343		4822 116 52257	22K 5% 0.5W	▲ 7284			4822 130 10983 TRS. 2SA1962
3344		4822 116 52257	22K 5% 0.5W	▲ 7285			4822 130 10943 TRS. 2SC5198
3345		4822 116 52289	5K6 5% 0.5W	▲ 7285			4822 130 10943 TRS. 2SC5198
3346		4822 116 52257	22K 5% 0.5W	▲ 7286			4822 130 10984 TRS. 2SC5242
3347		4822 116 52297	68K 5% 0.5W	▲ 7286			4822 130 10943 TRS. 2SC5198
3347		4822 116 83882	39K 5% 0.5W	7287			4822 130 10984 TRS. 2SC5242
3348		4822 116 52257	22K 5% 0.5W	7288			4822 130 43233 TRS. 2SC2240GR
3349		4822 116 52297	68K 5% 0.5W	7289			4822 130 43233 TRS. 2SC2240GR
3350		4822 116 52297	68K 5% 0.5W				4822 130 42949 TRS. 2SA970GR
3351	PM8000	4822 052 10221	220R 5% 0.33W		PM8000		
3352		4822 052 10221	220R 5% 0.33W				
3353		4822 053 12109	10R 5% 3W	1255		4822 265 11068	MISCELLANEOUS
3354		4822 053 12109	10R 5% 3W				CONNECTOR,LOUDSPEAKER
3355		4822 053 11331	330R 5% 2W	1256		4822 265 11069	SOCKET LEFT
3356		4822 053 11331	330R 5% 2W				CONNECTOR,LOUDSPEAKER
3369		4822 050 11002	1K 1% 0.4W	5268		4822 280 70354	SOCKET RIGHT
3370		4822 050 11002	1K 1% 0.4W	5269		4822 280 70354	RELAY VB-24MBU-510
				5270		4822 280 20501	RELAY VB-24MBU-510
				5351		4822 157 70599	RELAY MR62-24SR
				5352		4822 157 70599	COIL
							COIL

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION
			SPK PROTECT CIRCUIT BOARD				
			CAPACITORS				
2277		4822 121 51387	FILM 10NF 20% 16V				
2278		4822 124 40433	ELECT 47 μ F 20% 25V				
2279		4822 124 40433	ELECT 47 μ F 20% 25V				
2281		4822 124 21913	ELECT 1 μ F 20% 63V				
2282		4822 124 40433	ELECT 47 μ F 20% 25V				
			RESISTORS				
3357		4822 116 83884	47K 5% 0.5W				
3358		4822 053 10103	10K 5% 1W				
3360		4822 116 83874	220K 5% 0.5W				
3361		4822 050 23303	33K 1% 0.6W				
3362		4822 116 52291	56K 5% 0.5W				
3364		4822 053 10223	22K 5% 1W				
3365		4822 116 52234	100K 5% 0.5W				
			SEMICONDUCTOR				
7290		4822 209 83312	IC TA7317P				
			SPK SW CIRCUIT BOARD				
			CAPACITORS				
2533		4822 122 30043	CER. 10NF 80% 63V				
2534		4822 122 30043	CER. 10NF 80% 63V				
			RESISTORS				
3530		4822 116 52256	2K2 5% 0.5W				
3531		4822 116 52256	2K2 5% 0.5W				
3532		4822 116 52257	22K 5% 0.5W				
3533		4822 116 52176	10E 5% 0.5W				
3534		4822 116 52176	10E 5% 0.5W				
3535		4822 116 52234	100K 5% 0.5W				
			SEMICONDUCTORS				
6529		4822 130 30621	DIODE 1N4148				
7529		4822 130 44283	TRS. BC636				
7530		4822 130 44568	TRS. BC557B				
			MISCELLANEOUS				
1507		2422 128 02897	SWITCH UNIT				
1510		4822 267 31453	CONNECTOR, HLJ1540				