



# Technical Manual

# EIGHT CHANNEL POWER AMPLIFIER RMB-1048

### Table of Contents

- Specification.....1
- Parts List .....2~5
- Adjustment.....6
- PCB Assembly .....7~8
- Schematic Diagram .....9~10

### Specification

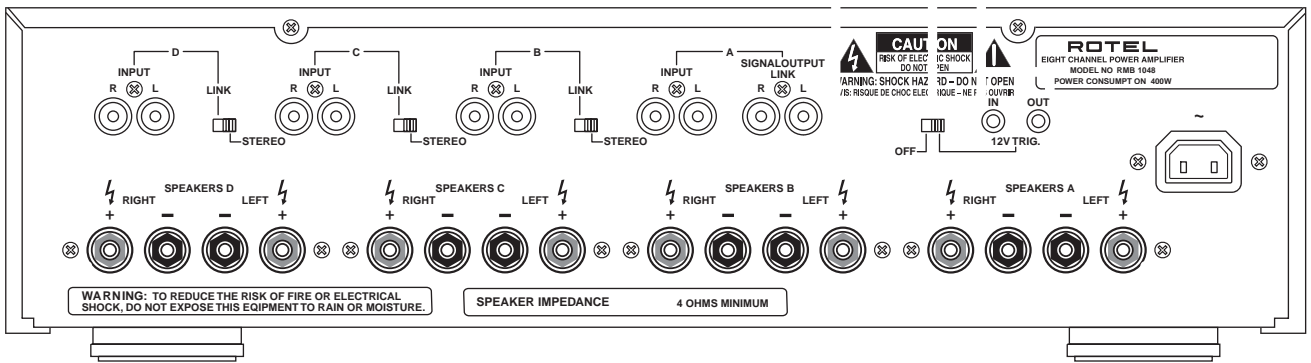
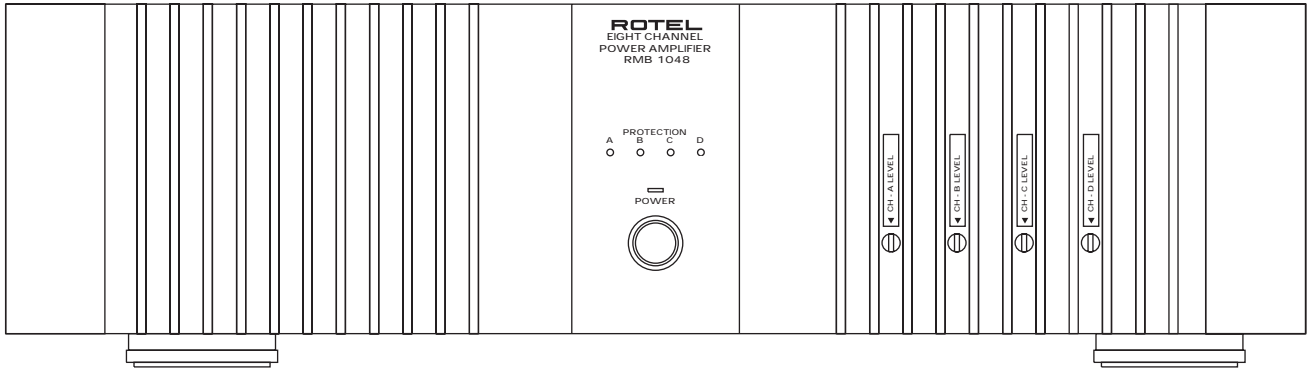
<b>Continuous Power Output - all channel driven (20-20 kHz, &lt; 0.05% THD)</b>	40 watts/ch into 8 ohms
<b>Total Harmonic Distortion (20Hz-20kHz, 8 ohms)</b>	< 0.05%
<b>Intermodulation Distortion (60 Hz : 7 kHz, 4:1)</b>	< 0.03%
<b>Frequency Response (±1 dB)</b>	15Hz-100kHz
<b>Damping Factor (20-20,000 Hz, 8 ohms)</b>	150
<b>Speaker Impedance</b>	4 ohms minimum
<b>Signal to Noise Ratio (IHF A network)</b>	110 dB
<b>Input Impedance</b>	22 k ohms
<b>Input Sensitivity</b>	1.0 volt
<b>Power Requirements</b>	
<b>USA:</b>	115 Volts, 60 Hz
<b>Europe:</b>	230 Volts, 50 Hz
<b>Power Consumption</b>	400 Watts
<b>Dimensions (W x H x D)</b>	432 x 121 x 432 mm 17 x 4 3/4 x 17 in
<b>Panel Height</b>	109 mm, 4 9/32 in
<b>Weight (net)</b>	15.1 kg, 33.3 lb.

**THE ROTEL CO., LTD**  
 SHINSEN-BLD. 4F 10-10 SHINSEN-CHO, SHIBUYA-KU,  
 TOKYO 150-0045, JAPAN

Serial. NO. Beginning
--------------------------

# Appearance

RMB-1048



# Parts List 1/2

SYMBOL	PARTS NO.	DESCRIPTION
<b>016 X-1334A01-02 PCB ASSY</b>		
	501 X-1334	PCB ASSY
D101-104,201-204,301-304,401-404	034 T1N4148-86	DIODE 1N4148TAP-50
D151,152,251,252,351,352,451,452	034 T1N4148-86	DIODE 1N4148TAP-50
C107,108,207,208,307,308,407,408	041 TUTES1E101-TF	ELECTROLYTIC CAPACITOR 25V100uF
C101,102,201,202,301,302,401,402	041 TUTES1H100-TF	ELECTROLYTIC CAPACITOR 50V10uF
C111,112,211,212,311,312,411,412	041 TUTES1H010-TF	ELECTROLYTIC CAPACITOR 50V1uF
C151,251,351,451	041 TUTES1H010-TF	ELECTROLYTIC CAPACITOR 50V1uF
R155,156,255,256,355,356,455,456	054 TMF1201	METAL FILM RESISTOR 1/4W 1.2K
R107,108,207,208,307,308,407,408	054 TMF1501	METAL FILM RESISTOR 1/4W 1.5K
R153,154,253,254,353,354,453,454	054 TMF1501	METAL FILM RESISTOR 1/4W 1.5K
R123,124,223,224,323,324,423,424	054 TMF1000	METAL FILM RESISTOR 1/4W 100
R160,260,360,460	054 TMF1003	METAL FILM RESISTOR 1/4W 100K
R121,122,221,222,321,322,421,422	054 TMF1002	METAL FILM RESISTOR 1/4W 10K
R157,158,257,258,357,358,457,458	054 TMF1502	METAL FILM RESISTOR 1/4W 15K
R101,102,201,202,301,302,401,402	054 TMF1001	METAL FILM RESISTOR 1/4W 1K
R125,126,225,226,325,326,425,426	054 TMF2201	METAL FILM RESISTOR 1/4W 2.2K
R129-132,229-232,329-332,429-432	054 TMF2200	METAL FILM RESISTOR 1/4W 220
R151,152,251,252,351,352,451,452	054 TMF2202	METAL FILM RESISTOR 1/4W 22K
R103,104,203,204,303,304,403,404	054 TMF2702	METAL FILM RESISTOR 1/4W 27K
R164,264,364,464	054 TMF2702	METAL FILM RESISTOR 1/4W 27K
R105,106,205,206,305,306,405,406	054 TMF3300	METAL FILM RESISTOR 1/4W 330
R119,120,219,220,319,320,419,420	054 TMF3302	METAL FILM RESISTOR 1/4W 33K
R161,165,261,265,361,365,461,465	054 TMF4701	METAL FILM RESISTOR 1/4W 4.7K
R115,116,215,216,315,316,415,416	054 TMF4300	METAL FILM RESISTOR 1/4W 430
R117,118,217,218,317,318,417,418	054 TMF47R0	METAL FILM RESISTOR 1/4W 47
R109,110,209,210,309,310,409,410	054 TMF4700	METAL FILM RESISTOR 1/4W 470
R159,259,359,459	054 TMF4702	METAL FILM RESISTOR 1/4W 47K
R111,112,211,212,311,312,411,412	054 TMF6801	METAL FILM RESISTOR 1/4W 6.8K
R127,128,227,228,327,328,427,428	054 TMF6801	METAL FILM RESISTOR 1/4W 6.8K
R113,114,213,214,313,314,413,414	054 TMF8201	METAL FILM RESISTOR 1/4W 8.2K
R163,263,363,463	054 TMF8200	METAL FILM RESISTOR 1/4W 820
R133-136,233-236,333-336,433-436	054 NIR2-0.22JF	NIR RESISTOR 2W 0.22
VR103,104,203,204,303,304,403,404	051 SF001-222	SEMI FIXD RESISTOR VM6CKPH1S-2.2K
C115-118,215-218,315-318,415-418	044 S50V150PJ	STYROL CAPACITOR 150pF
C105,106,205,206,305,306,405,406	044 S50V220PJ	STYROL CAPACITOR 220pF
C103,104,203,204,303,304,403,404	044 S50V330PJ	STYROL CAPACITOR 330pF
R162,262,362,462	034 TTC-503	THERMISTOR 50K
Q109,110,209,210,309,310,409,410	032 TA1016-FG	TRANSISTOR 2SA1016-FG
Q101-106,201-206,301-306,401-406	032 TA1016-FG	TRANSISTOR 2SA1016KAA-FG
Q153,154,253,254,353,354,453,454	032 TA608-FG	TRANSISTOR 2SA6081KAA-FG
Q111-114,211-214,311-314,411-414	033 B631-EF	TRANSISTOR 2SB631K-EF
Q107,108,207,208,307,308,407,408	032 TC1941-KL	TRANSISTOR 2SC1941-T-KL
Q151,152,251,252,351,352,451,452	032 TC536-FG	TRANSISTOR 2SC536KAA-FG
Q115,116,215,216,315,316,415,416	033 D600-EF	TRANSISTOR 2SD600K-EF
Q121,122,221,222,321,322,421,422	032 D600-EF	TRANSISTOR 2SD600K-EF
Q117,118,217,218,317,318,417,418	033 B817P-DE	TRANSISTOR 2SB817P-DE
Q119,120,219,220,319,320,419,420	033 D1047P-DE	TRANSISTOR 2SD1047P-DE
<b>016 X-1335B01-07 PCB ASSY</b>		
	501 X-1335	PCB ASSY
PJ101,102,201,301,401	066 4TR-2709#3	2P PIN JACK (WHT/RED)
HJ701,HJ702	065 YKB21-5103A	3.5Φ MINI JACK
(R903)	053 CR14-152J-A	CARBON RESISTOR 1/4W 1.5K
R171,172,271,272,371,372,471,472	053 CR14-124J-A	CARBON RESISTOR 1/4W 120K
R701	053 CR14-102J-A	CARBON RESISTOR 1/4W 1K
R702	053 CR14-221J-A	CARBON RESISTOR 1/4W 220
R904	053 CR14-333J-A	CARBON RESISTOR 1/4W 33K
(R903)	053 CR14-472J-A	CARBON RESISTOR 1/4W 4.7K
R178,278,378,478	053 CR14-682J-A	CARBON RESISTOR 1/4W 6.8K

## Parts List 2/2

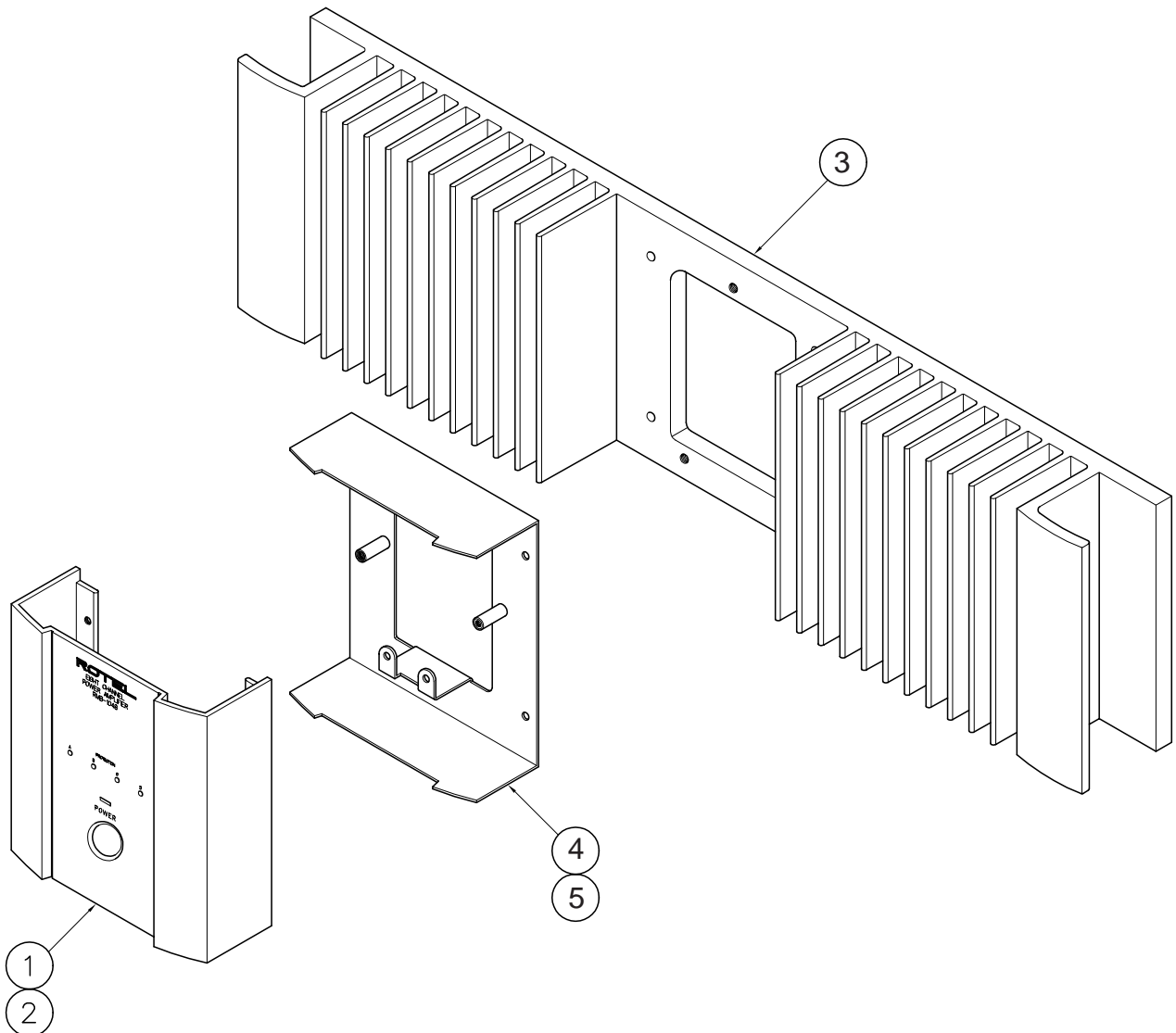
SYMBOL	PARTS NO.	DESCRIPTION
R173,174,273,274,373,374,473,474	053 CR16-104J-A	CARBON RESISTOR 1/6W 100K
R175,275,375,475	053 CR16-153J-A	CARBON RESISTOR 1/6W 15K
R176,276,376,476	053 CR16-563J-A	CARBON RESISTOR 1/6W 56K
C911-922	043 TC500V103	CERAMIC CAPACITOR 500V0.01uF
D904,905	034 T1N4003-TB	DIODE 1N4003
D171,172,271,272,371,372,471,472	034 T1N4148-86	DIODE 1N4148TAP-50
D701,702,906	034 T1N4148-86	DIODE 1N4148TAP-50
C171,271,371,471	041 TUTES1E101-TF	ELECTROLYTIC CAPACITOR 25V100uF
C910	041 TUTES1E471-TS	ELECTROLYTIC CAPACITOR 25V470uF
C172,272,372,472	041 TUTES1E470-TF	ELECTROLYTIC CAPACITOR 25V47uF
C909	041 TUTES1H471-TS	ELECTROLYTIC CAPACITOR 50V470uF
C901-908	041 50USP682	ELECTROLYTIC CAPACITOR 50V6800uF
F101,102,201,202,301,302,401,402	036 5ST3.15	FUSE 250VT3.15A
F903	036 R251-250	FUSE AXIAL LEAD TYPE F250mA
R901	054 ERQ12AJ2R2P	FUSE RESISTOR 1/2W 2.2
IC701	031 PC817B	I C (PHOTO COUPLER)
IC171,271,371,471	031 MPC1237HA	I C (PROTECTION)
D001-D004	034 LTL4262N	LED (RED) 3Φ LTL4262N
C109,110,209,210,309,310,409,410	044 KT18-2A104K	M.P CAPACITOR MKT1818-410/015
R137,138,237,238,337,338,437,438	054 TMF1001	METAL FILM RESISTOR 1/4W 1K
R139,140,239,240,339,340,439,440	054 1WS10JF	MOF RESISTOR 1W 10
R902	054 1WS120JF	MOF RESISTOR 1W 120
R177,277,377,477	054 1WS1KJF	MOF RESISTOR 1W 1K
D903	034 W02M	POWER DIODE (1.5A)
D901,902	034 BR84	POWER DIODE (8A)
S901	061 C-4176A08	POWER SWITCH PS3-22SPA-P7AZ (TV-8)
RY901	063 OZT-SS-112LM1	RELAY (AC-LINE) DC12V TV-8
RY101,RY201,RY301,RY401	063 DG2SU-24	RELAY (SPEAKER) DG24D2-OS(M)
S201,301,401,701	064 4TR-2341	SLIDE SWITCH SSSU122NB1
C923,924	044 DE1307E472M	SPARK KILLER 4700pF
L101,102,201,202,301,302,401,402	021 TRL-332	SPEAKER COIL 1F 23T
SP1-SP4	067 C-4493A00	SPERKER TERMINAL (RBBR)
T002	022 T-1075N02	SUB TRANSFORMER
Q901	032 TC3708-ST	TRANSISTOR 2SC3708AA-ST
VR101,201,301,401	051 C-4170A36	VARIABLE RESISTOR 50KBx2 (VOLUME)
D703	034 TRD12JST1	ZENER DIODE 12V
<b>OTHERS</b>		
	011 FP-552-B	BLACK PANEL ASSY
	011 FP-552-S	SILVER PANEL ASSY
	069 C-4629A01	AC 2P INLET 6102.3100 (WIRING)
	072 C-4622A01	AC CORD SET for AUSTRALIA
	072 C-4624A01	AC CORD SET for EUROPE
	072 C-4623A01	AC CORD SET for U.K
	072 C-4621A01	AC CORD SET SJT AWG16/2C for USA
	069 C-4798A02	BANANA PLUG (BLACK)
	069 C-4798A01	BANANA PLUG (RED)
	011 UG3-01B00	H/S PANEL
	081 UG3-12A00	INSIDE CARTON
	034 SEL1E24W	LED (BLU) 1X5 SEL1E24W
	034 SEL1124R	LED (RED) 1X5 SEL1124R
	019 4TR-2823#2	PLASTIC FOOT 24Φ
	019 4TSH-19#2	PLASTIC FOOT 50Φ
	022 T-1087N01	POWER TRANSFORMER
	012 RV4-09A00	PUSH BUTTON 14Φ (BLACK)
	012 RV4-09A01	PUSH BUTTON 14Φ (SILVER)
	081 UG3-13A00	SHIPPING CARTON
	081 Z-205A	STYROL MOULDING
	013 TS3-03A01B	SUB PANEL CHASSIS (BLACK)
	013 TS3-03A01S	SUB PANEL CHASSIS (SILVER)
	082 OMRMB-1048	OWNER'S MANUAL (EFGISD)

# Addendum List for Black and Silver

RMB1048

SYMBOL	PARTS	DESCRIPTION
--------	-------	-------------

①	011 FP-552-B	BLACK PANEL ASSY
②	011 FP-552-S	SILVER PANEL ASSY
③	011 UG3-01B00	H/S PANEL H109
	012 RV4-09A00	PUSH BUTTON 14F (BLK)
	012 RV4-09A01	PUSH BUTTON 14F (SLV)
④	013TS3-03A01B	SUB PANEL CHASSIS (BLK)
⑤	013TS3-03A01S	SUB PANEL CHASSIS (SLV)
	034 SEL1124R	LED (RED) 1X5
	034 SEL1E24W	LED (BLU) 1X5



# Adjustment

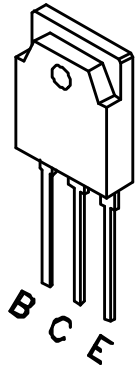
RMB-1048

Instruments : DC milli-meter

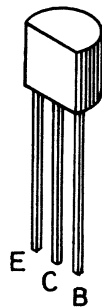
Notes : Prior to Bias Adjustment, run about 5minutes with rated output (8 ohms)  
And warm up Power Transistor and Heat Sink.Set input off.

Step	Coupling	Location	Adjust	Adjust for
1	R133 or R135	X-1334-01 PCB	VR103	DC milli-voltmeter Reads 4mV
2	R134 or R136	X-1334-01 PCB	VR104	
3	R233 or R235	X-1334-01 PCB	VR203	
4	R234 or R236	X-1334-01 PCB	VR204	
5	R333 or R335	X-1334-02 PCB	VR303	
6	R334 or R336	X-1334-02 PCB	VR304	
7	R433 or R435	X-1334-02 PCB	VR403	
8	R434 or R436	X-1334-02 PCB	VR404	

## Case Outline



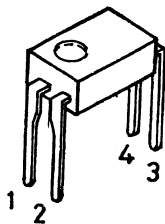
2SB817P  
2SD1047P



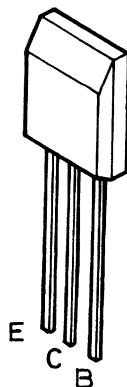
2SC536K  
2SA608K  
2SA1016K



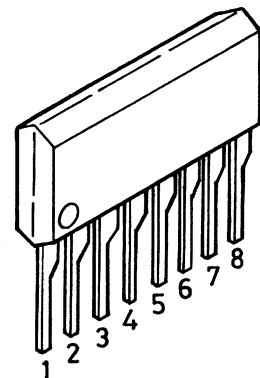
2SB631K  
2SD600K



PC817B

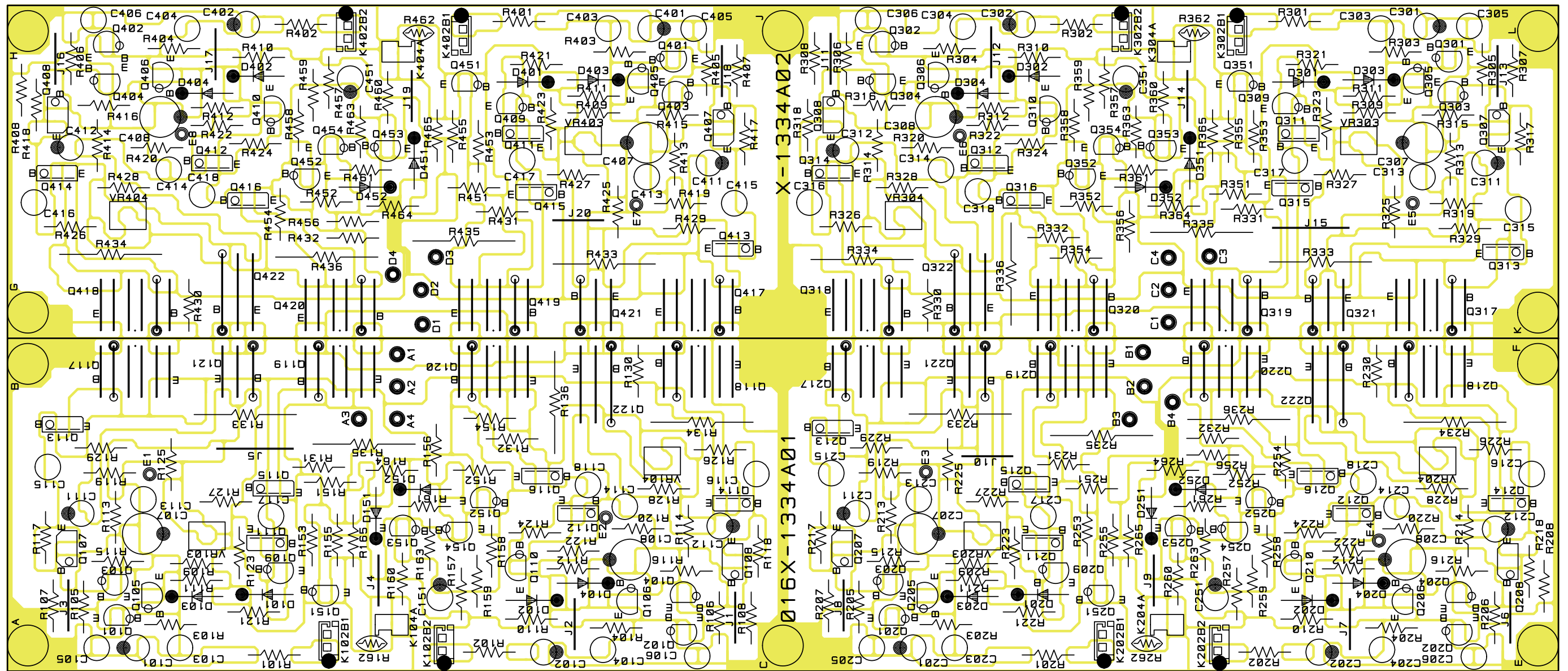


2SC1941



UPC1237HA

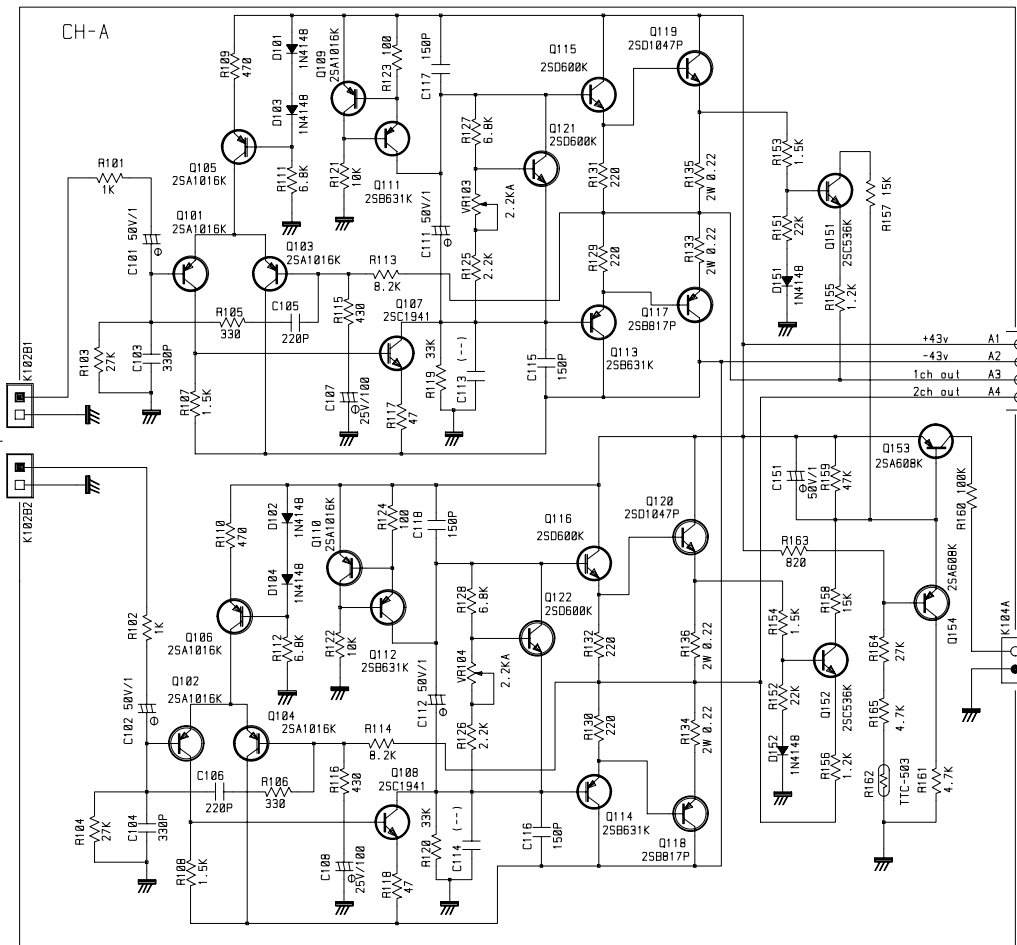
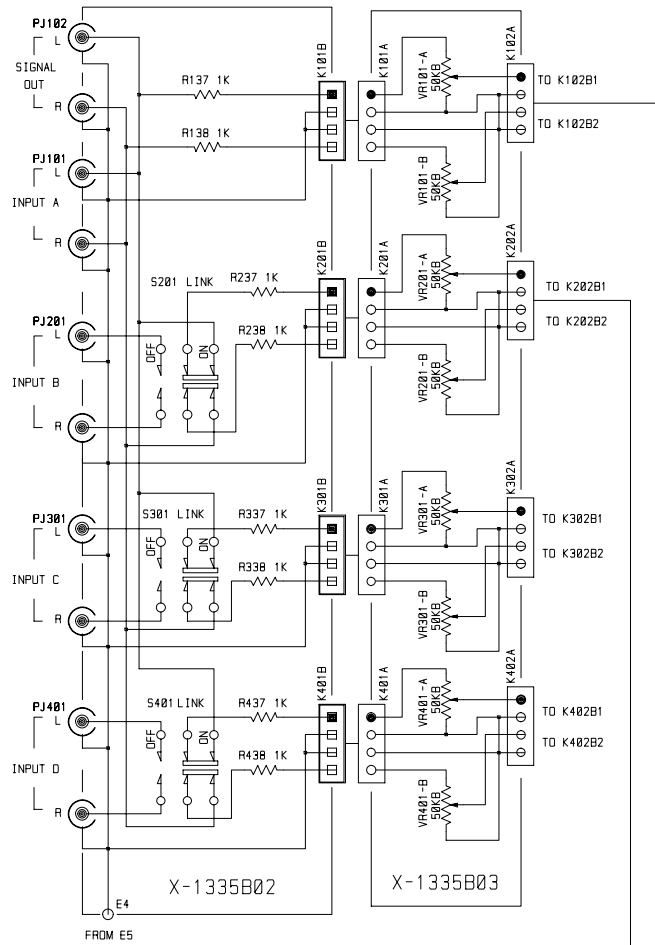
016 X-1334A01-02

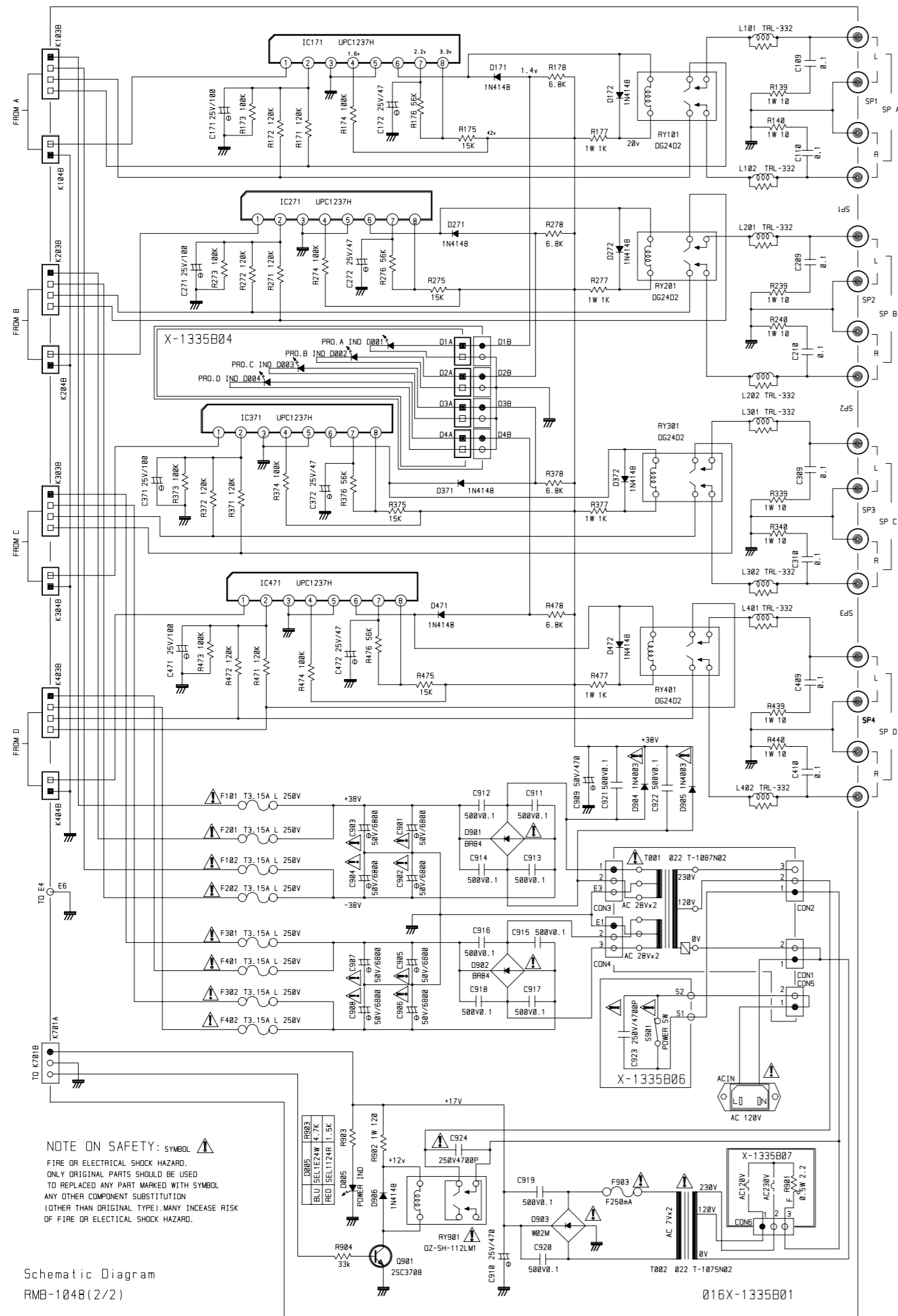






X-R137





**NOTE ON SAFETY:** SYMBOL ⚡  
 FIRE OR ELECTRICAL SHOCK HAZARD.  
 ONLY ORIGINAL PARTS SHOULD BE USED  
 TO REPLACE ANY PART MARKED WITH SYMBOL  
 ANY OTHER COMPONENT SUBSTITUTION  
 (OTHER THAN ORIGINAL TYPE), MANY INCREASE RISK  
 OF FIRE OR ELECTRICAL SHOCK HAZARD.

Schematic Diagram  
 RMB-1048(2/2)