

# MINI COMPONENT SYSTEM CRX-E400

# RX-E400/NX-E400

## SERVICE MANUAL

The CRX-E400 is composed of the RX-E400 and the CDX-E400.

This service manual is for the RX-E400 (including NX-E400).

For the CDX-E400 service manual, please refer to the following publication numbers :

CDX-E400

100808

### IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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This Service Manual uses recycled paper.

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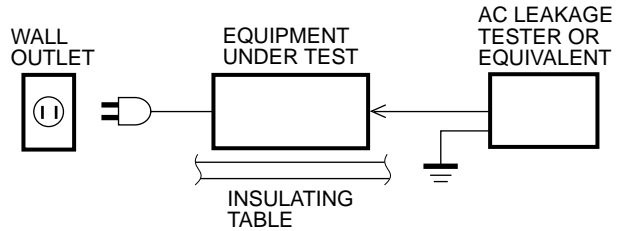


**YAMAHA**  
YAMAHA CORPORATION  
P.O.Box 1, Hamamatsu, Japan

RX-E400

## ■ TO SERVICE PERSONNEL

1. Critical Components Information  
Components having special characteristics are marked  $\triangle$  and must be replaced with parts having specifications equal to those originally installed.
  2. Leakage Current Measurement (For 120V Models Only)  
When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.
- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 $\mu$ F.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

### “CAUTION”

“F232 : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 3.15A, 125V FUSE.”



### CAUTION

F232 : REPLACE WITH SAME TYPE 3.15A, 125V FUSE.

### ATTENTION

F232 : UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 3.15A, 125V.

## WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

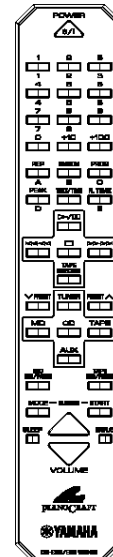
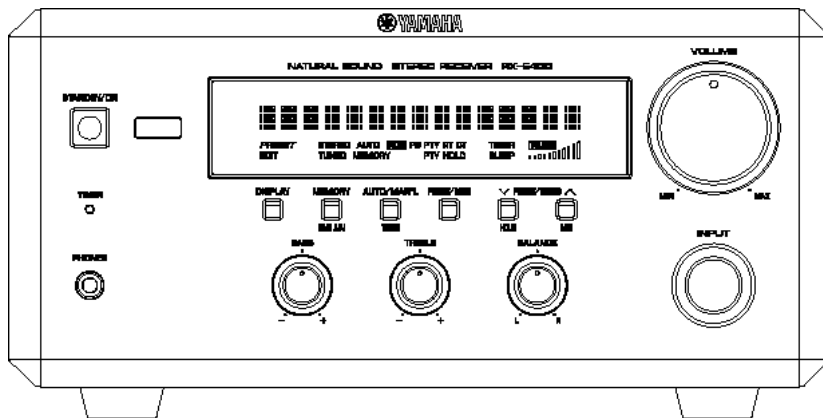
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

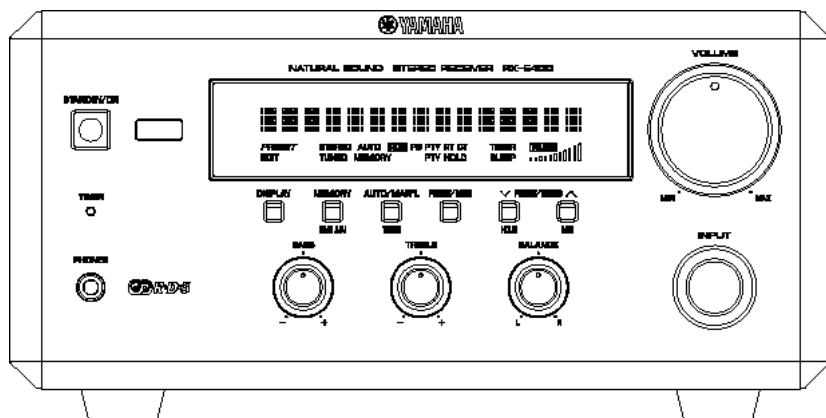
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## ■ FRONT PANELS

### ▼ U, C, R, A models

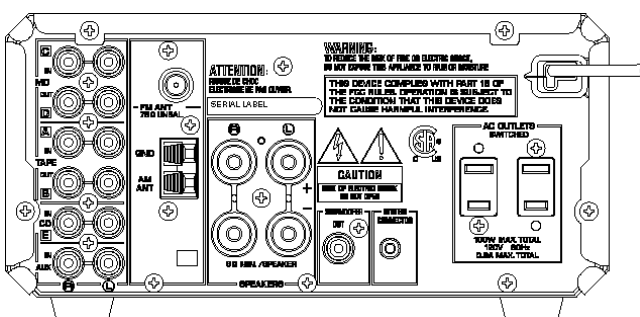


▼ B, G models

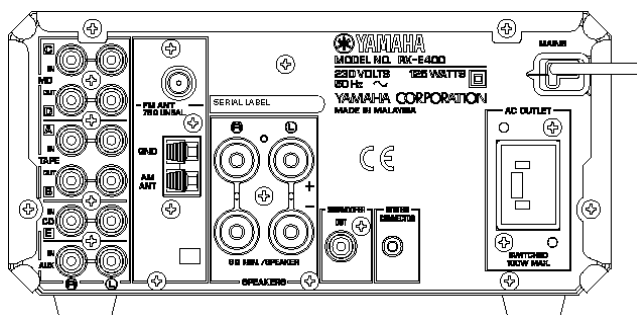


■ REAR PANELS

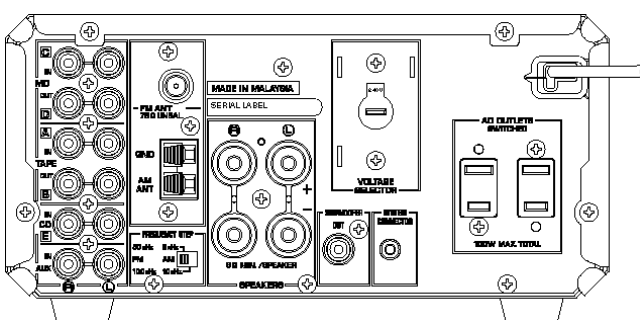
▼ U, C models



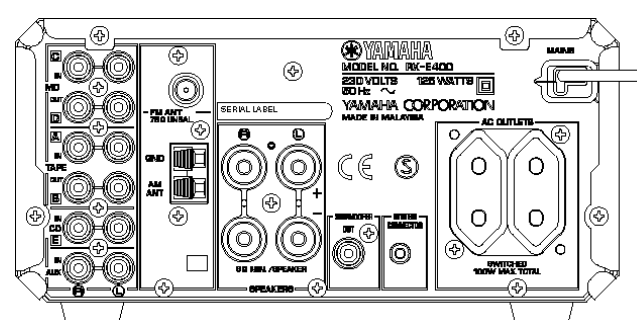
▼ B model



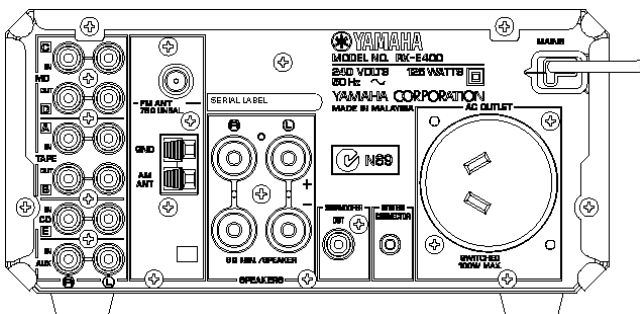
▼ R model



▼ G model



▼ A model



RX-E400

## ■ SPECIFICATIONS

### RX-E400

#### ■ AUDIO SECTION

<b>Minimum RMS Output Power Per Channel</b>	
20Hz to 20kHz, 0.1% THD, 6Ω	40W + 40W
1kHz, 0.1% THD, 6Ω	55W + 55W
<b>Maximum Power Per Channel (EIAJ)</b>	
1kHz, 10% THD, 6Ω (R model only)	65W + 65W
<b>Dynamic Power Per Channel (IHF)</b>	
6Ω	60W + 60W
4Ω	75W + 75W
2Ω	100W + 100W
<b>DIN Standard Output Power Per Channel</b>	
1kHz, 0.7% THD, 4Ω (G model only)	60W + 60W
<b>Dynamic Headroom (6Ω)</b>	
U, C, models	1.76dB
<b>IEC Power Per Channel</b>	
1kHz, 0.1% THD, 6Ω (G model only)	55W + 55W
<b>Power Band Width</b>	
0.1% THD, 30W/6Ω	10Hz to 50kHz
<b>Damping Factor</b>	
20Hz to 20kHz, 6Ω	60 or more
<b>Input Sensitivity/Impedance</b>	
CD, etc	150mV/47kΩ
<b>Maximum Input Signal Level (1kHz, 0.5% THD)</b>	
CD, etc	3.0V
<b>Output Level/Impedance</b>	
REC OUT (MD, TAPE)	150mV/1.2kΩ
SUB WOOFER (50Hz)	2.0V/680Ω
<b>Headphone Jack Rated Output/Impedance</b>	
CD, etc 1kHz, 150mV, 8Ω	0.43V/330Ω
<b>Frequency Response (20Hz to 20kHz)</b>	
CD, etc	0±0.5dB
<b>Total Harmonic Distortion (20Hz to 20kHz)</b>	
CD, etc to SP OUT (20W/6Ω)	0.04%
<b>Signal-to-Noise Ratio (IHF-A-Network)</b>	
CD, etc, Input Shorted (150mV)	93dB
<b>Residual Noise (IHF-A-Network)</b>	
SP OUT	100μV
<b>Channel Separation (Vol. -30dB)</b>	
CD, etc, Input 5.1kΩ Shorted, 1kHz/10kHz	60dB/45dB
<b>Tone Control Characteristics</b>	
BASS : Boost/cut	±10dB (50Hz)
Turnover Frequency	350Hz
TREBLE : Boost/cut	±10dB (20kHz)
Turnover Frequency	3.5kHz
<b>Filter Characteristics</b>	
SUB WOOFER (L.P.F.)	fc = 100Hz, 6dB/oct.

#### ■ AM SECTION

<b>Tuning Range</b>	
U, C models	530 to 1710kHz
A, B, G models	531 to 1611kHz
R model	530 to 1710/531 to 1611kHz
<b>Usable Sensitivity</b>	300μV/m
<b>Antenna</b>	Loop antenna

#### ■ FM SECTION

<b>Tuning Range</b>	
U, C models	87.5 to 107.9MHz
A, B, G models	87.50 to 108.00MHz
R model	87.5 to 108.0/87.50 to 108.00MHz
<b>Usable Sensitivity (75 Ω)</b>	
Mono (S/N 30dB) U, C, R models	1.0μV
<b>Alternate Channel Selectivity</b>	
U, C, R models	70dB
<b>Signal-to-Noise Ratio</b>	
Mono/Stereo (IHF)	
U, C, R models	76/70dB
<b>Harmonic Distortion</b>	
Mono/Stereo (1kHz)	0.2/0.3%
<b>Stereo Separation</b>	
1kHz	45dB
<b>Frequency Response</b>	
20Hz to 15kHz	+0.5/-2.0dB
<b>Antenna Input</b>	75Ω unbalanced

#### ■ GENERAL

<b>Power Supply</b>	
U, C models	AC 120V, 60Hz
A model	AC 240V, 50Hz
B, G models	AC 230V, 50Hz
R model	AC 110/120/220/240V, 50/60Hz
<b>Power Consumption</b>	
U, C models	110W
R, A, B, G models	125W
<b>Standby Power Consumption</b>	
U, C models	0.7W
A, B, G models	0.8W
<b>Maximum Power Consumption</b>	
1kHz, 10% THD, 2ch, 6Ω (R model only)	255W
<b>AC Outlets</b>	
U, C, R, G models, Switched x 2	100W max (Total)
A, B models Switched x 1	100W max
<b>Dimensions (W x H x D)</b>	217 x 108 x 372mm (8-9/16" x 4-1/4" x 14-5/8")
<b>Weight</b>	5.4 kg (11 lbs. 14 oz)
<b>Finish</b>	
U, C, R, A, G models	Gold color
U, B, G models	Silver color
<b>Accessories of CRX-E400</b>	
	AM loop antenna x 1
	Indoor FM antenna x 1
	Remote Control x 1
	Battery (size "UM-3", "R06") x 2
	Audio Pin Cable x 1
	System Control Cable x 1

\* Specifications subject to change without notice.

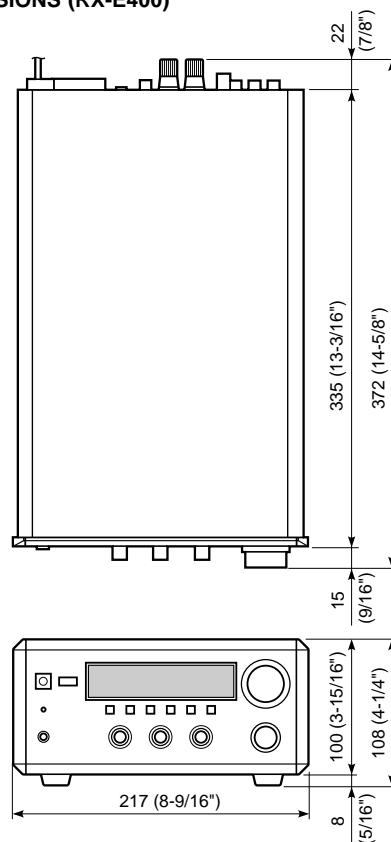
<b>U</b>	.....	<b>USA model</b>
<b>C</b>	.....	<b>Canadian model</b>
<b>A</b>	.....	<b>Australian model</b>
<b>B</b>	.....	<b>British model</b>
<b>G</b>	.....	<b>European model</b>
<b>R</b>	.....	<b>General model</b>

**■ SPEAKER SECTION (NX-E400)**

Type	2way Bass-reflex Magnetic Shielding Type
Driver	
Woofer	13cm (5-1/8") Cone Type
Tweeter	2.5cm (1") Dome Type
Frequency Response	55Hz to 28kHz
Impedance	6Ω
Nominal Input	60W
Maximum Input	110W
Sensitivity	87dB/2.83V,1m
Crossover Frequency	3kHz
Input Terminal	Screw/Banana Type
Dimensions (W x H x D)	186 x 300 x 223mm (7-5/16" x 11-13/16" x 8-3/4")
Weight	4.3 kg (9 lbs. 7 oz)
Finish	High Gloss Piano Finish
Accessories	Speaker Cable (4m) x 2

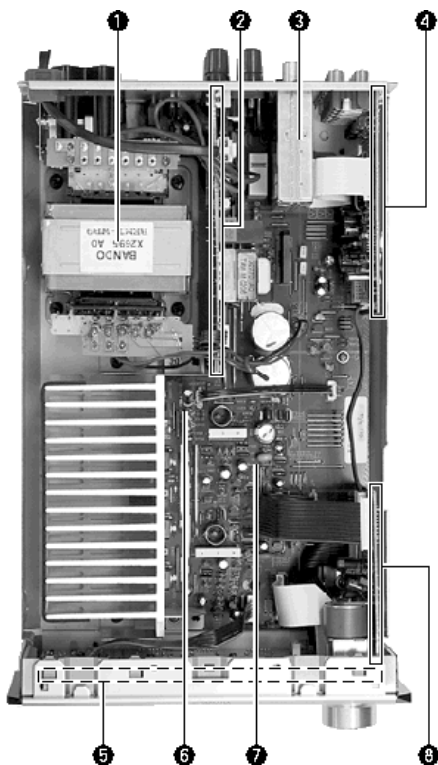
\* Specifications subject to change without notice.

**● DIMENSIONS (RX-E400)**



Unit : mm (inch)

**■ INTERNAL VIEW**



- ① POWER TRANSFORMER
- ② MAIN (6) P.C.B.
- ③ AM/FM TUNER
- ④ MAIN (2) P.C.B.
- ⑤ OPERATION P.C.B.
- ⑥ MAIN (4) P.C.B.
- ⑦ MAIN (1) P.C.B.
- ⑧ MAIN (3) P.C.B.

**DISASSEMBLY PROCEDURES** (Remove parts in disassembly order as numbered.)

**1. Removal of Top Cover**

- a. Remove 4 screws ( ① ) and 4 screws ( ② ) in Fig. 1.
- b. Lift the Top Cover at the rear and move it rear-ward slantingly.

**2. Removal of Front Panel**

- a. Disconnect 4 connectors (CB251, CB253, CB210, CB406) in Fig. 2.
- b. Remove 2 screws ( ③ ), 3 screws ( ④ ) and 1 plastic rivet ( ⑤ ) in Fig. 1.
- c. Release 2 hooks and remove the Front Panel Unit by pulling it forward.

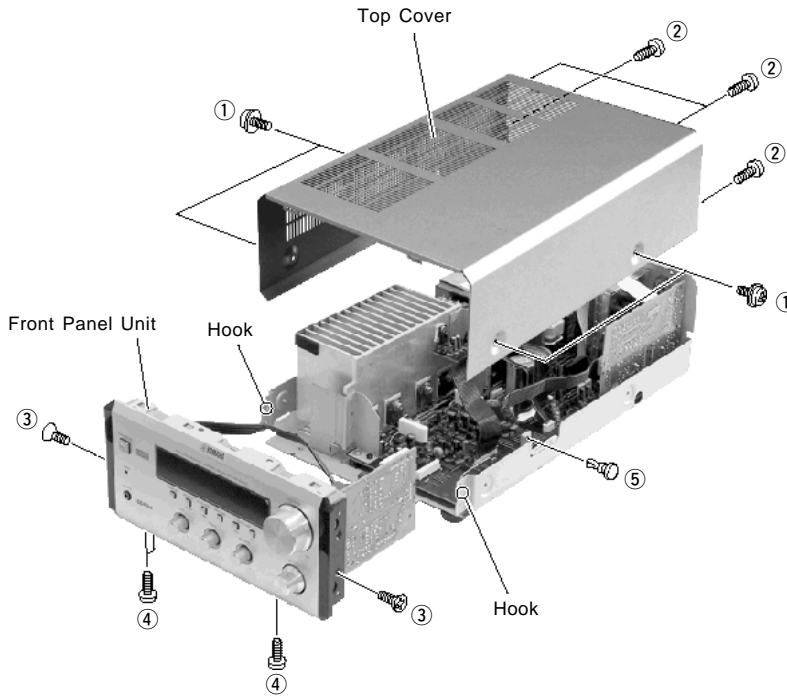


Fig. 1

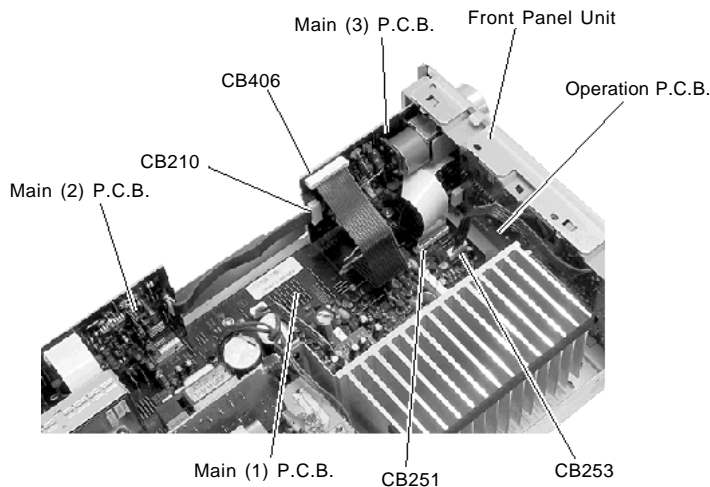


Fig. 2

● **Servicing Position**

- a. Remove the Top Cover and the Front Panel Unit.
- b. Remove 6 screws (⑥) in Fig. 3.
- c. Remove 5 screws (⑦) in Fig. 3.
- d. Remove 3 screws (⑧) in Fig. 3.
- e. Remove the Power Transformer and Main P.C.B. (with the rear panel attached) from the main chassis.
- f. With the rear panel attached, set the Main P.C.B on its side. At this time, set the Power Transformer on its side as well in Fig. 4.
- g. Using a lead wire or the like, connect G250 of the Main (1) P.C.B. with the rear panel in Fig. 4.
- h. With the Front Panel Unit set on its side, connect 4 connectors (CB251, CB253, CB210, CB406) in Fig. 5.
- i. Connect the power cable, turn on the power and check for operation.

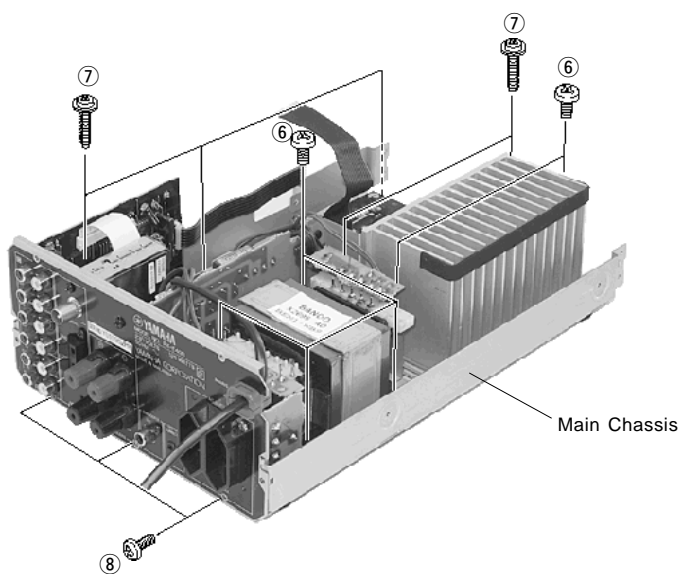


Fig. 3

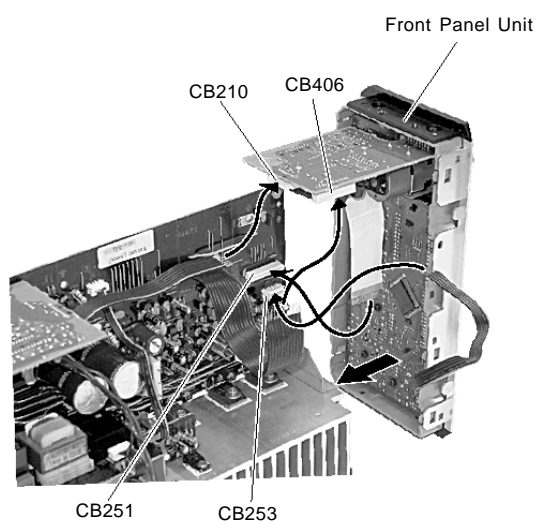


Fig. 5

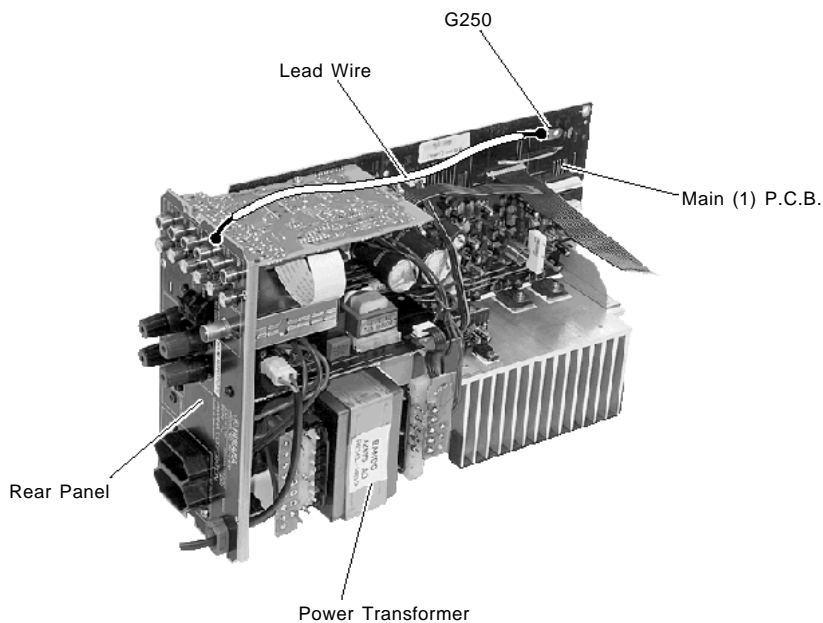
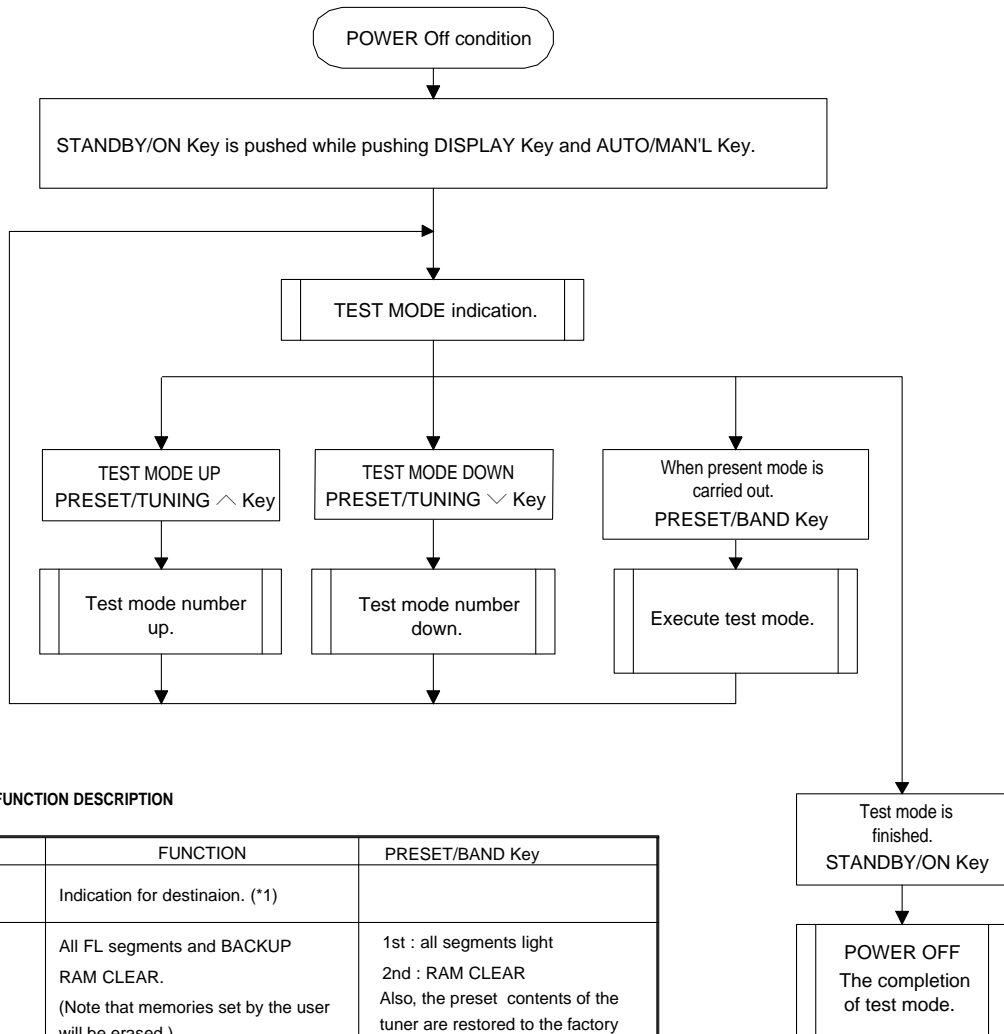


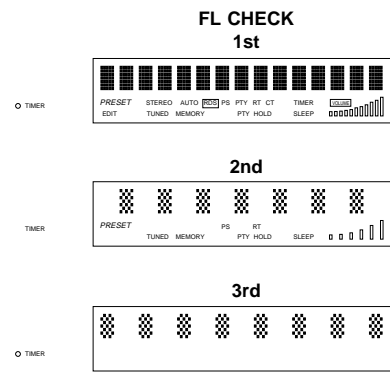
Fig. 4

# TEST MODE



TEST PROGRAM MODE FUNCTION DESCRIPTION

DISPLAY	FUNCTION	PRESET/BAND Key
01 DEST-B, G	Indication for destinaion. (*1)	
02 FL+CLEAR	All FL segments and BACKUP RAM CLEAR. (Note that memories set by the user will be erased.)	1st : all segments light 2nd : RAM CLEAR Also, the preset contents of the tuner are restored to the factory preset ones.
03 FL CHECK	All FL segments and circuit board short circuit inspection.	1st : all segments light 2nd : Even-numbered segments and even numbered digits are turned on. 3rd : Odd -numbered segments and odd-numbered digits are turned on.
04 Ver-A1.10	Version information of the microcomputer software. (*2)	It is changed to the date indication.
04' 99.05.28	The date of the microcomputer software. (*2)	It is changed to version indication.
05 SUM[Caa2]	The calculation of SUM is done and indicated after that. (*2)	Re-calculation



(\*1)

DESTINATION	R (AM9k/FM:50k)	R (AM10k/FM100k)	A	B, G	U, C
Display	R9k	R10k	A	B, G	U, C

(\*2) Contents of indication change by the microcomputer software.



● **FACTORY PRESET**

BAND	MARKETS	PRESET No.							
		1	2	3	4	5	6	7	8
FM (MHz)	U, C, R (100k/10k)	98.1	95.1	87.5	101.5	107.9	88.1	106.1	107.9
	A, B, G, R, (50k/9k)	98.10	95.10	87.50	101.50	108.00	88.10	106.10	107.90
AM (kHz)	U, C, R (100k/10k)	630	1080	1400	530	1710	900	1350	1440
	A, B, G, R (50k/9k)	630	1080	1404	531	1611	900	1350	1440

NOTE 1) PRESET PAGE ..... A : FM B : AM C : FM D : AM E : FM

**CAUTION :** When executing Test mode No. 2 RAM CLEAR, be sure to write down the preset memory contents of the tuner, using a table like the one shown below. Execution of RAM CLEAR will set the memory contents of the tuner back to the factory preset state which means that all the memories preset by the user will be erased.

Preset group	P1	P2	P3	P4	P5	P6	P7	P8
A								
B								
C								
D								
E								

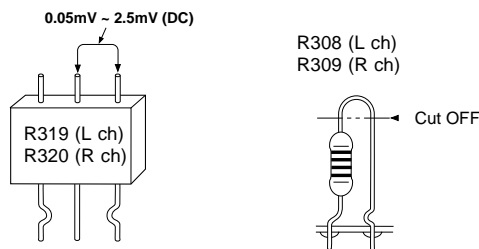
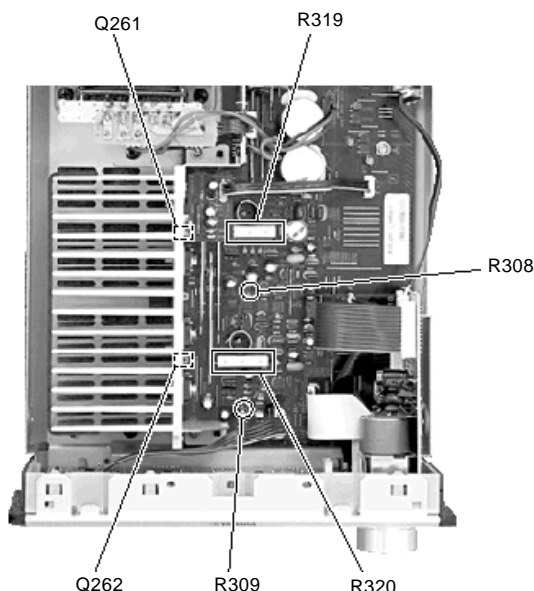
■ **AMP ADJUSTMENTS**

● **Confirmation of Idling Current**

- 1) No signal applied.
- 2) Non-loaded condition.
- 3) Aging is not necessary.

Item	Test Point	Rating (DC)	Note
MAIN L	R319 (Between terminal)	0.05mV—2.5mV	If the measured voltage exceeds 2.5mV, cut the lead wire of R308(L ch) or R309(R ch) and then check again if each measured value satisfies the rating.
MAIN R	R320 (Between terminal)		

\* Confirm that the idling current is 0.125mV — 7.5mV after 60 minutes.

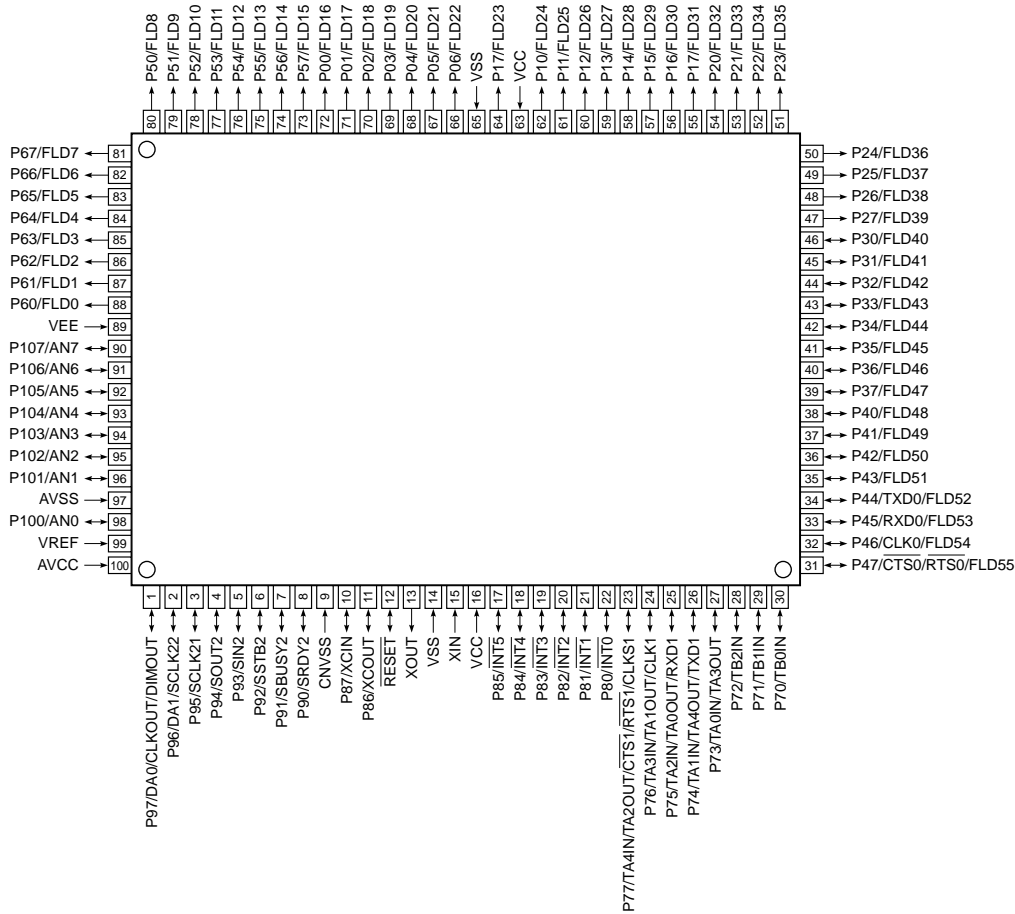


Note)

- If R308(L ch) or R309(R ch) have already been cut off and idling current does not flow, reconnect R308(1kΩ) or R309(1kΩ).
- Q261 and Q262 are transistors for temperature correction. Apply silicone grease to the contact surface with the heat sink.

# IC DATA

## IC700 : M30217M8-A103FP (16 bit μ-COM)



No.	PORT	Name	IN/OUT	Function
1	P97	Fan dr	OUT	Not used
2	P96	RLY PW	OUT	Power supply relay (Power ON) OUT [0:OFF 1:ON]
3	P95	VOL DN	OUT	Motor VR DOWN OUT [1:DOWN]
4	P94	VOL UP	OUT	Motor VR UP OUT [1:UP]
5	P93	ENC B	IN	Rotary encoder-B IN [Pull-up resistor]
6	P92	ENC A	IN	Rotary encoder-A IN [Pull-up resistor]
7	P91	LED T	OUT	Timer LED OUT [0:OFF 1:ON]
8	P90	LED S	OUT	Not used
9	CNVSS	CNVss	-	Connected to VSS(GND) via resistor(5.1kΩ)
10	P87	Xin	-	32.768KHz IN (Feedback resistor included)
11	P86	Xout	-	32.768KHz OUT (Feedback resistor included)
12	RESET	Reset	-	RESET [0:RESET]
13	XOUT	10Xout	-	10MHz OUT (Feedback resistor included)
14	VSS	Vss	-	GND
15	XIN	10Xin	-	10MHz IN (Feedback resistor included)
16	VCC	Vcc	-	Power supply +5V [Backup capacitor required]
17	P85	Sys O	OUT	System control OUT
18	P84	Sys I	IN	System control IN
19	P83	RLY SP	OUT	Speaker relay OUT [0:OFF 1:ON]
20	P82	Pro I	IN	Amplifier current detect IN (protection) [1:Abnormality exists]
21	P81	Rem	INT-IN	Remote control IN
22	P80	PD	INT-IN	Power-down DC detect IN [0:POWER DOWN]

IC700 : M30217M8-A103FP (16 bit  $\mu$ -COM)

No.	PORT	Name	IN/OUT	Function
23	P77	CE	OUT	C2B(LC72722/LC78211)CE OUT [1:DATA transmission]
24	P76	CLK	S-CLK	LC72722/LC78211 CLK OUT (Serial I/O-1)
25	P75	DAT I	S-IN	LC72722 DATA IN (Serial I/O-1)
26	P74	DAT O	S-OUT	LC72722/LC78211 DATA OUT (Serial I/O-1)
27	P73	Mut A	OUT	AMP MUTE OUT [0:MUTE ON]
28	P72	Mut T	OUT	Tuner MUTE OUT (TUNER) [1:MUTE ON]
29	P71	Sta	IN	STATION IN (TUNER) [0:Station exists]
30	P70	ST/MO	IN	STEREO/MONO IN (TUNER) [0:STEREO]
31	P47	F CE	OUT	CE OUT(from built-in flash ROM to Busy OUT/EEPROM) [1:DATA transmission(EEPROM)]
32	P46	F CK	S-CLK	CLK OUT(from built-in flash ROM to CLK IN/EEPROM) (Serial I/O-0)
33	P45	F RX	S-IN	DATA IN(from DATA IN/EEPROM to built-in flash ROM) (Serial I/O-0)
34	P44	F TX	S-OUT	DATA OUT(from built-in flash ROM to DATA OUT/EEPROM) (Serial I/O-0)
35	P43	HP	IN	Head phone detect IN [0:SP 1:HP]
36	P42	DIG 16	OUT	DIGIT 16 (16G) [VEE external pull-down]
37	P41	DIG 15	OUT	DIGIT 15 (15G) [VEE external pull-down]
38	P40	DIG 14	OUT	DIGIT 14 (14G) [VEE external pull-down]
39	P37	DIG 13	OUT	DIGIT 13 (13G) [VEE external pull-down]
40	P36	DIG 12	OUT	DIGIT 12 (12G) [VEE external pull-down]
41	P35	DIG 11	OUT	DIGIT 11 (11G) [VEE external pull-down]
42	P34	DIG 10	OUT	DIGIT 10 (10G) [VEE external pull-down]
43	P33	DIG 9	OUT	DIGIT 9 (9G) [VEE external pull-down]
44	P32	DIG 8	OUT	DIGIT 8 (8G) [VEE external pull-down]
45	P31	DIG 7	OUT	DIGIT 7 (7G) [VEE external pull-down]
46	P30	DIG 6	OUT	DIGIT 6 (6G) [VEE external pull-down]
47	P27	DIG 5	OUT	DIGIT 5 (5G) [VEE external pull-down]
48	P26	DIG 4	OUT	DIGIT 4 (4G) [VEE external pull-down]
49	P25	DIG 3	OUT	DIGIT 3 (3G) [VEE external pull-down]
50	P24	DIG 2	OUT	DIGIT 2 (2G) [VEE external pull-down]
51	P23	DIG 1	OUT	DIGIT 1 (1G) [VEE external pull-down]
52	P22	SEG 1	OUT	SEGMENT 1 (P1) [VEE external pull-down]
53	P21	SEG 2	OUT	SEGMENT 2 (P2) [VEE external pull-down]
54	P20	SEG 3	OUT	SEGMENT 3 (P3) [VEE external pull-down]
55	P17	SEG 4	OUT	SEGMENT 4 (P4) (VEE internal pull-down)
56	P16	SEG 5	OUT	SEGMENT 5 (P5) (VEE internal pull-down)
57	P15	SEG 6	OUT	SEGMENT 6 (P6) (VEE internal pull-down)
58	P14	SEG 7	OUT	SEGMENT 7 (P7) (VEE internal pull-down)
59	P13	SEG 8	OUT	SEGMENT 8 (P8) (VEE internal pull-down)
60	P12	SEG 9	OUT	SEGMENT 9 (P9) (VEE internal pull-down)
61	P11	SEG 10	OUT	SEGMENT 10 (P10) (VEE internal pull-down)
62	P10	SEG 11	OUT	SEGMENT 11 (P11) (VEE internal pull-down)
63	VCC	Vcc	-	Power supply +5V [Back-up capacitor]
64	P07	SEG 12	OUT	SEGMENT 12 (P12) (VEE internal pull-down)
65	VSS	Vss	-	GND
66	P06	SEG 13	OUT	SEGMENT 13 (P13) (VEE internal pull-down)
67	P05	SEG 14	OUT	SEGMENT 14 (P14) (VEE internal pull-down)
68	P04	SEG 15	OUT	SEGMENT 15 (P15) (VEE internal pull-down)
69	P03	SEG 16	OUT	SEGMENT 16 (P16) (VEE internal pull-down)
70	P02	SEG 17	OUT	SEGMENT 17 (P17) (VEE internal pull-down)
71	P01	SEG 18	OUT	SEGMENT 18 (P18) (VEE internal pull-down)
72	P00	SEG 19	OUT	SEGMENT 19 (P19) (VEE internal pull-down)
73	P57	SEG 20	OUT	SEGMENT 20 (P20) (VEE internal pull-down)
74	P56	SEG 21	OUT	SEGMENT 21 (P21) (VEE internal pull-down)
75	P55	SEG 22	OUT	SEGMENT 22 (P22) (VEE internal pull-down)
76	P54	SEG 23	OUT	SEGMENT 23 (P23) (VEE internal pull-down)
77	P53	SEG 24	OUT	SEGMENT 24 (P24) (VEE internal pull-down)

IC700 : M30217M8-A103FP (16 bit  $\mu$ -COM)

No.	PORT	Name	IN/OUT	Function	
78	P52	SEG 25	OUT	SEGMENT 25 (P25)	(VEE internal pull-down)
79	P51	SEG 26	OUT	SEGMENT 26 (P26)	(VEE internal pull-down)
80	P50	SEG 27	OUT	SEGMENT 27 (P27)	(VEE internal pull-down)
81	P67	SEG 28	OUT	SEGMENT 28 (P28)	(VEE internal pull-down)
82	P66	SEG 29	OUT	SEGMENT 29 (P29)	(VEE internal pull-down)
83	P65	SEG 30	OUT	SEGMENT 30 (P30)	(VEE internal pull-down)
84	P64	SEG 31	OUT	SEGMENT 31 (P31)	(VEE internal pull-down)
85	P63	SEG 32	OUT	SEGMENT 32 (P32)	(VEE internal pull-down)
86	P62	SEG 33	OUT	SEGMENT 32 (P33)	(VEE internal pull-down)
87	P61	SEG 34	OUT	SEGMENT 34 (P34)	(VEE internal pull-down)
88	P60	SEG 35	OUT	SEGMENT 35 (P35)	(VEE internal pull-down)
89	VEE	- VP	-	P0,P1,P5,P6 pull-down resistor voltage input	[-29V]
90	P107	Audio	A-D IN	Not used	
91	P106	TH	A-D IN	Heat sinking plate temperature detect IN	[0 — VREF]
92	P105	Pro PS	A-D IN	Power voltage detect IN (protection)	[0 — VREF]
93	P104	Fan fe	A-D IN	Not used	
94	P103	Des	A-D IN	Destination select input (TUNER)	[Pull-up at 10k $\Omega$ → VREF]
95	P102	KEY 2	A-D IN	KEY 2 input	[Pull-up at 10k $\Omega$ → VREF]
96	P101	KEY 1	A-D IN	KEY 1 input	[Pull-up at 10k $\Omega$ → VREF]
97	AVSS	AVss	-	Connected to VSS(GND)	
98	P100	KEY 0	A-D IN	KEY 0 input	[Pull-up at 10k $\Omega$ → VREF]
99	VREF	Vref	-	A-D,D-A reference voltage input	[— VCC]
100	AVCC	AVcc	-	Connected to VCC terminal (+5V)	

● KEY INPUT (A-D) PULL UP RESISTOR 33k $\Omega$ 

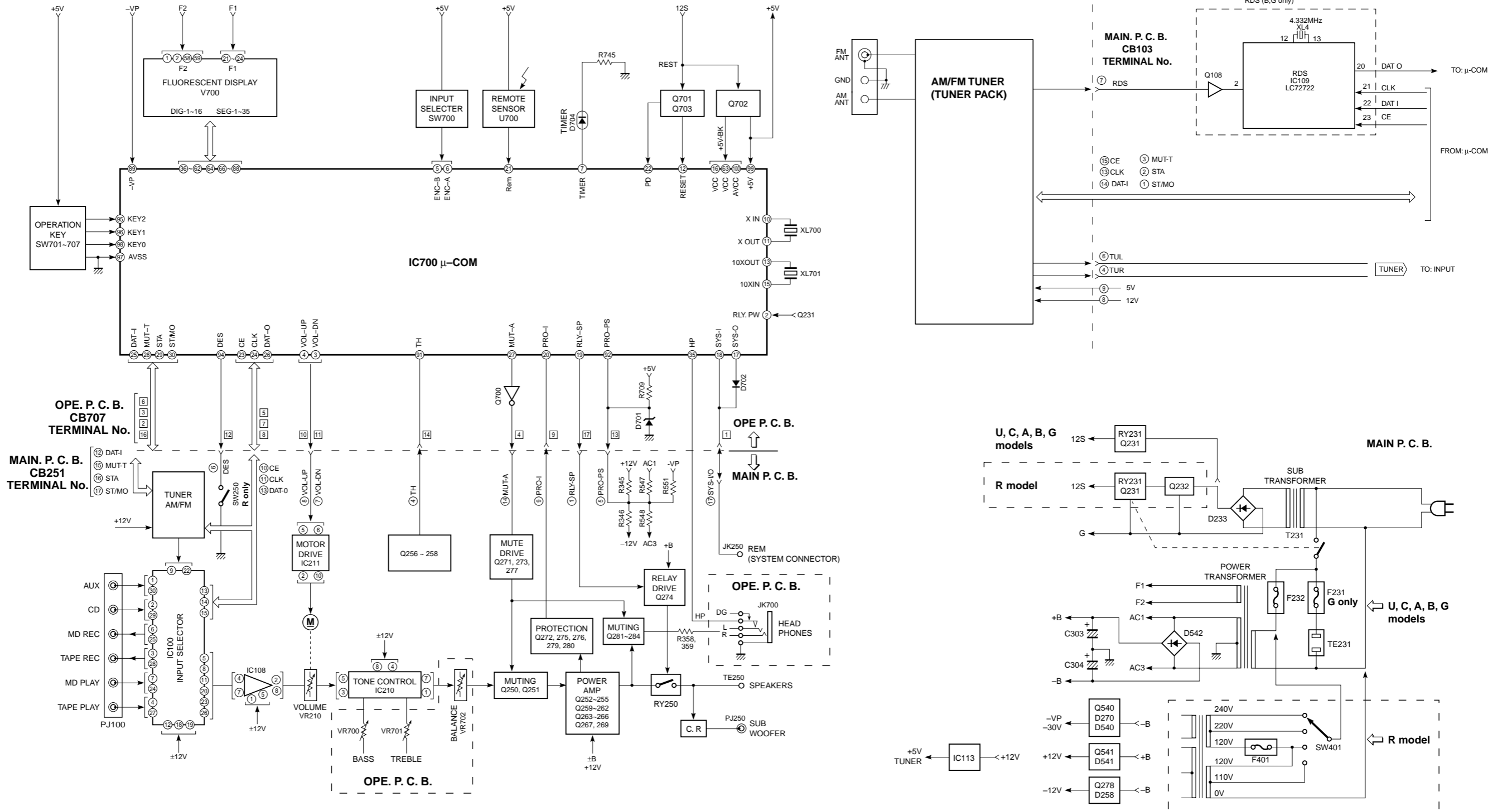
$\Omega$	0	+6.8k	+5.6k
V	0 — 0.556	— 1.111	— 1.667
KEY 0 (98pin)	POWER	PRESET/TUNING $\wedge$ MIN	PRESET/TUNING $\vee$ HOUR
KEY 1 (96pin)	PRESET/BAND	AUTO/MAN'L TIMER	NO KEY
KEY 2 (95pin)	DISPLAY	MEMORY TIME ADJ	NO KEY

● TUNER MARKET SELECT IN (94 pin, A-D) PULL UP RESISTOR 10k $\Omega$ 

$\Omega$	0	2k	3.9k	6.2k	10k
V	0 — 0.556	— 1.111	— 1.667	— 2.222	— 2.778
Market	R model (50k / 9k)	R model (100k / 10k)	A model	B, G models	U, C models

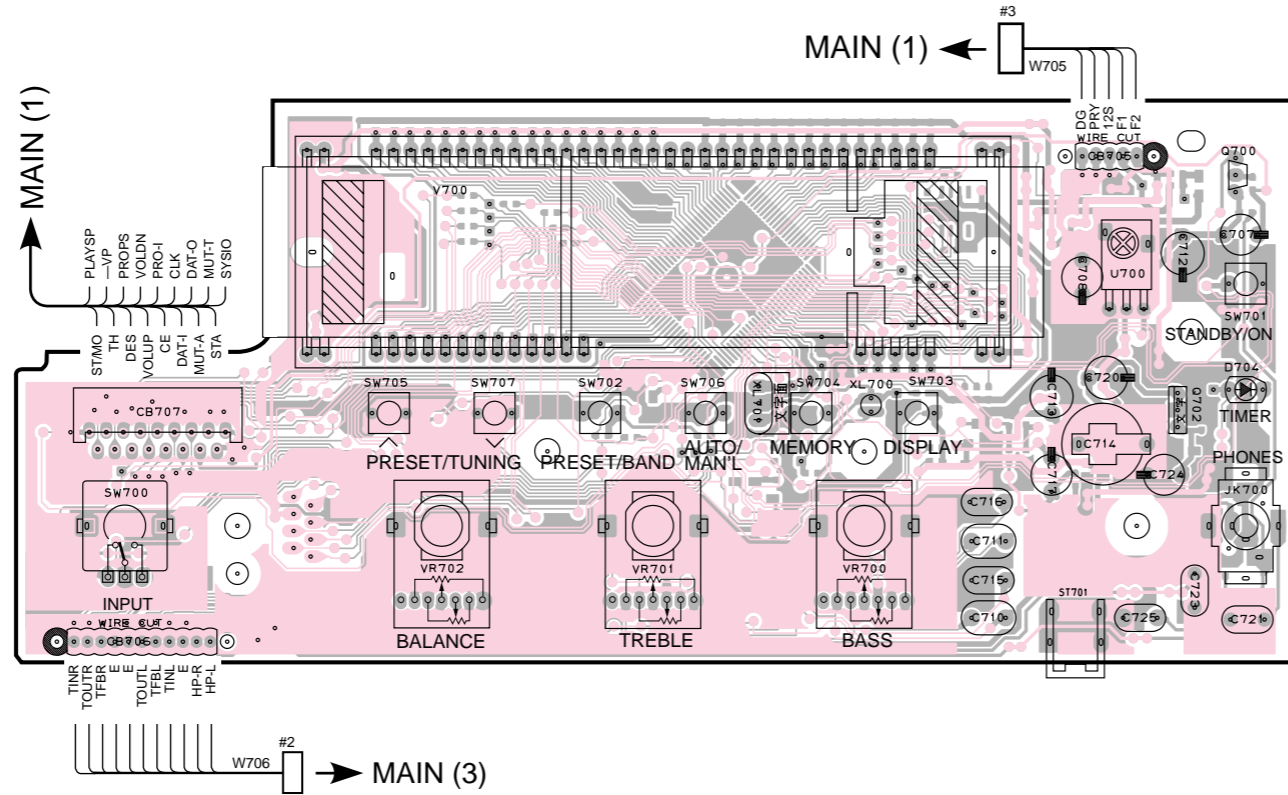
# BLOCK DIAGRAM

- MAIN: See page19 → SCHEMATIC DIAGRM
- OPERATION: See page 20 → SCHEMATIC DIAGRM



PRINTED CIRCUIT BOARD (Foil side)

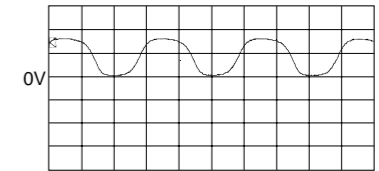
OPERATION P. C. B. (Lead Type Device View)



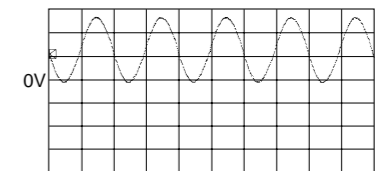
Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D701	D5	IC700	D5	Q700	E2
D702	D5			Q701	E5
D703	D5			Q702	E2
D705	E4			Q703	E5
D706	E5				
D707	E5				
D708	E5				
D709	E5				
D710	E5				
D711	E5				

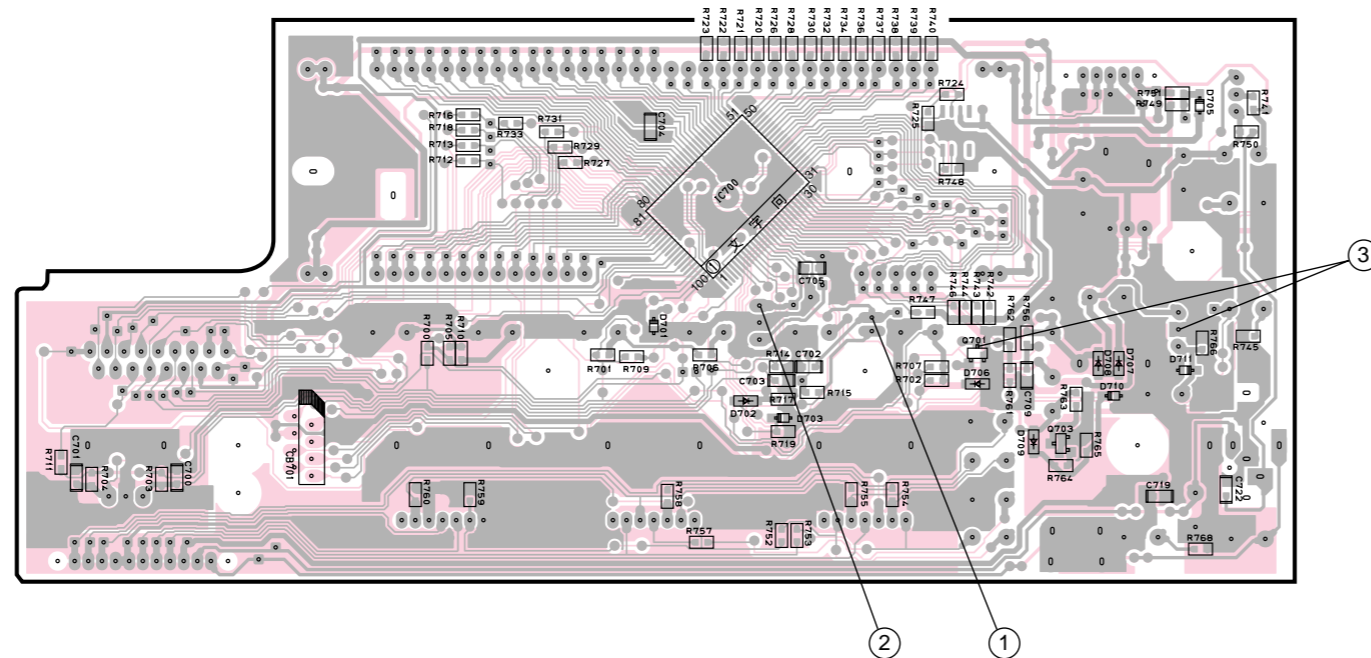
Point ① (Pin 11 of IC700)  
 V : 2V/div, H : 10μsec/div  
 DC, 1 : 1 probe



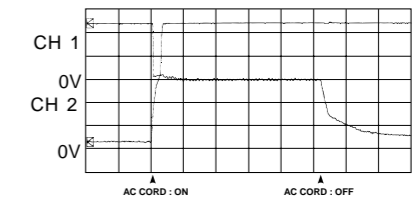
Point ② (Pin 13 of IC700)  
 V : 2V/div, H : 50nsec/div  
 DC, 1 : 1 probe



OPERATION P. C. B. (Surface Mount Device View)



Point ③  
 CH 1 : Collector of Q701  
 CH 2 : Collector of Q702  
 V : 2V/div (CH 1)  
 V : 5V/div (CH 2)  
 DC, 1 : 1 probe, H : 0.5sec/div



PRINTED CIRCUIT BOARD (Foil side)

CIRCUIT CHANGES BY MARKET.

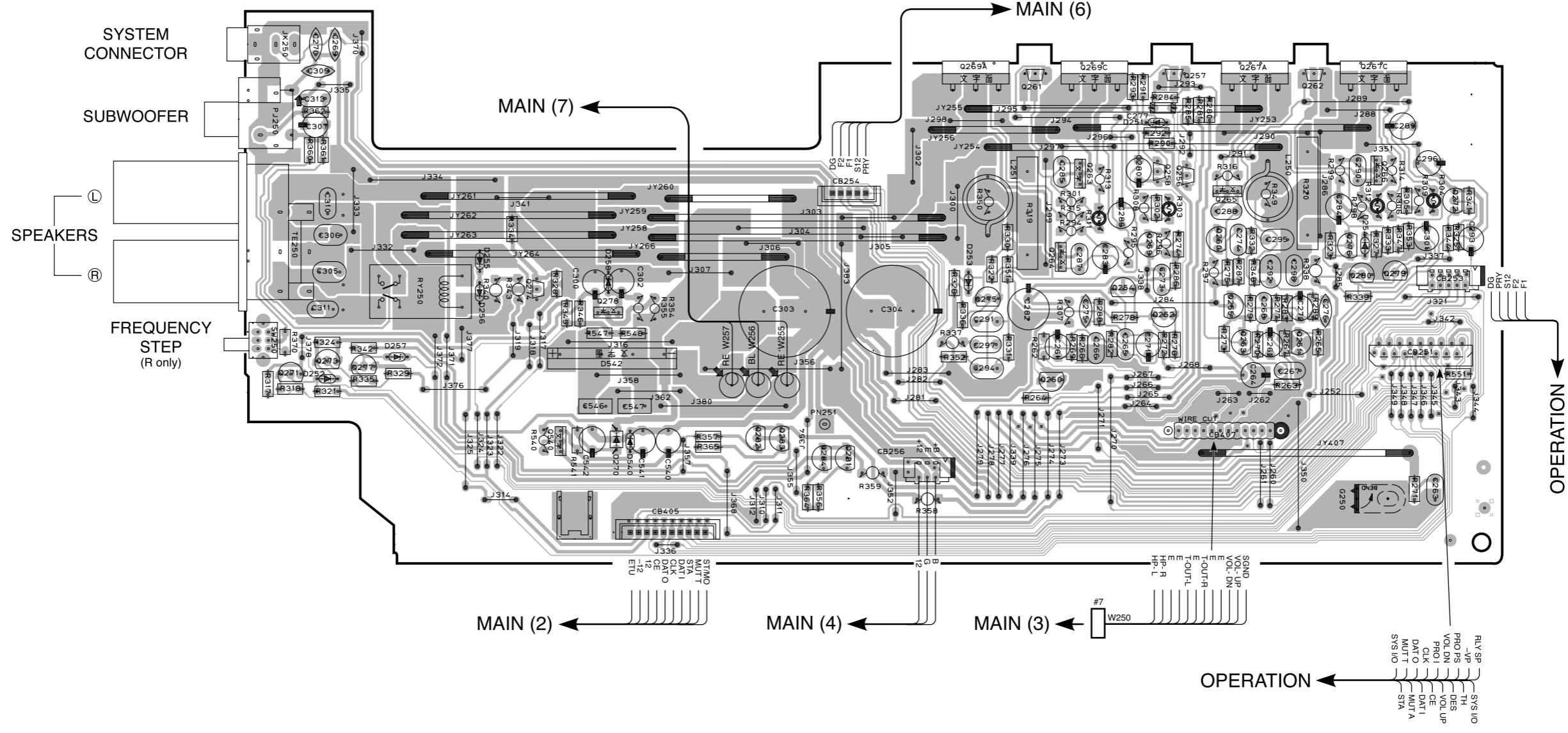
	U, C	R	A	B, G
C310, 311	X	X	O	O
C305, 306	X	X	O	O
SW250	X	O	X	X

O : USED  
X : NOT USED

Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D251	F3	Q250	E4	Q269A	E2
D252	B4	Q251	F4	Q269C	E2
D253	E3	Q252	F3	Q271	B4
D254	G3	Q253	F4	Q272	G3
D255	C3	Q254	F3	Q273	B4
D256	C3	Q255	F3	Q274	C3
D257	C4	Q256	F3	Q275	E3
D258	C3	Q257	F2	Q276	F3
D270	C4	Q258	F3	Q277	B4
D540	C4	Q259	F3	Q278	C3
D542	C4	Q260	F3	Q279	G3
		Q261	E2	Q280	G3
		Q262	F2	Q281	D4
		Q263	E3	Q282	D4
		Q264	E3	Q283	D4
		Q265	F3	Q284	D4
		Q266	G3	Q540	C4
		Q267A	F2		
		Q267C	G2		

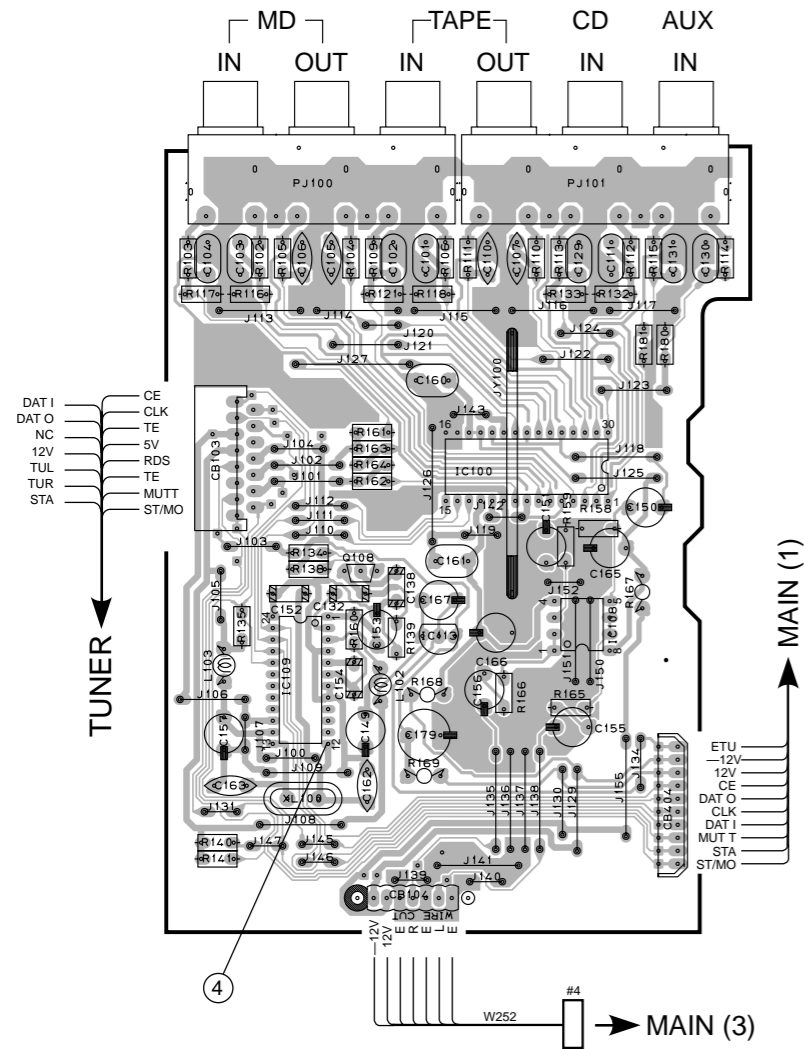
MAIN (1) P. C. B.



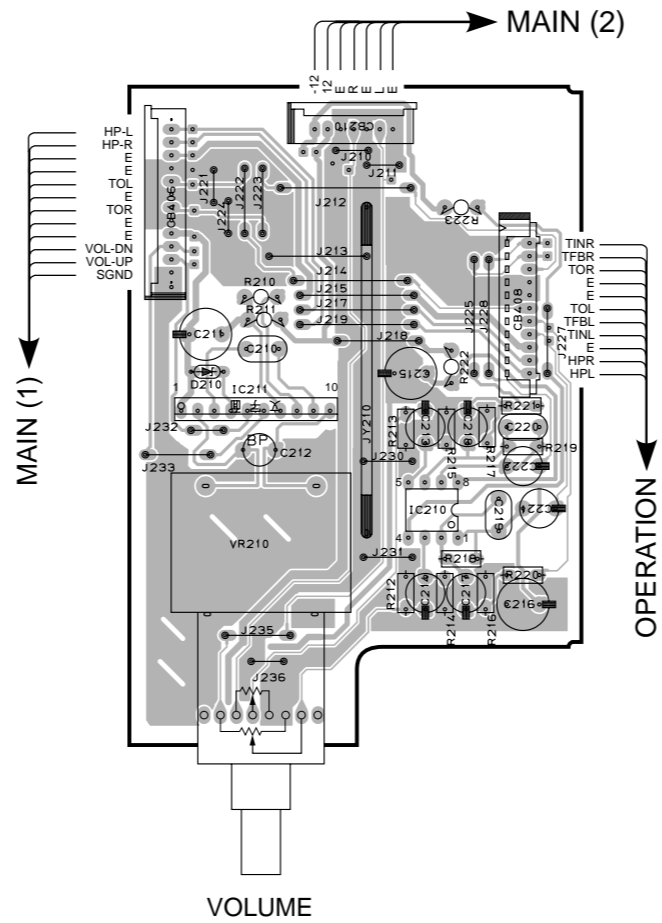
1  
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PRINTED CIRCUIT BOARD (Foil side)

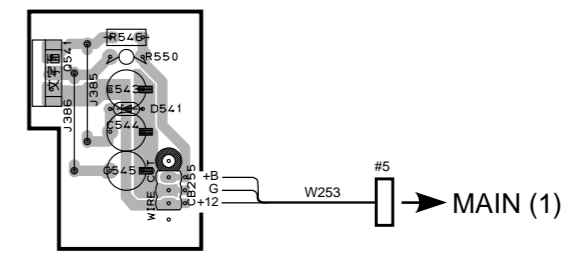
MAIN (2) P. C. B.



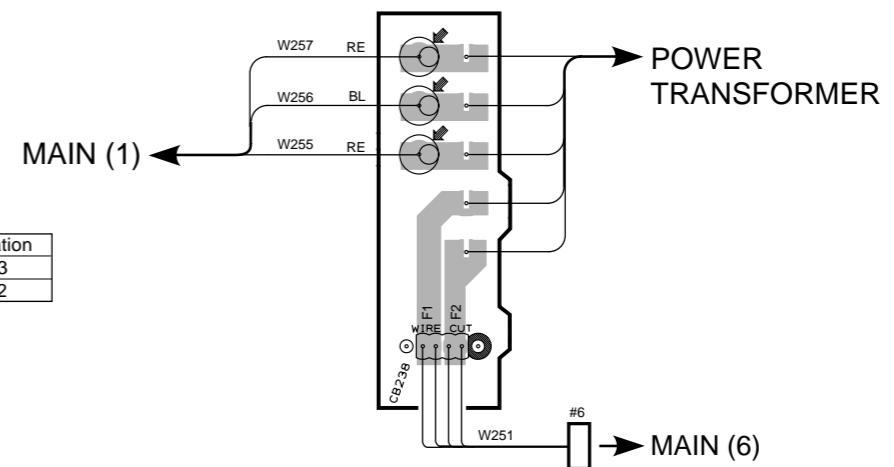
MAIN (3) P. C. B.



MAIN (4) P. C. B.



MAIN (7) P. C. B.

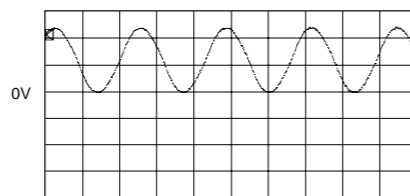


CIRCUIT CHANGES BY MARKET.

	U, C	R	A	B, G
C162, 163	X	X	X	O
XL100	X	X	X	O
C149, 153, 157	X	X	X	O
C154	X	X	X	O
R160	X	X	X	O
C138, 152	X	X	X	O
R139	X	X	X	O
C132	X	X	X	O
L102, 103	X	X	X	O
R138	X	X	X	O
Q108	X	X	X	O
R134	X	X	X	O
IC109	X	X	X	O

O : USED  
X : NOT USED

Point ④ (Pin12 of IC109)  
V : 2V/div H : 0.1 μsec/div  
DC range 1 : 1 probe



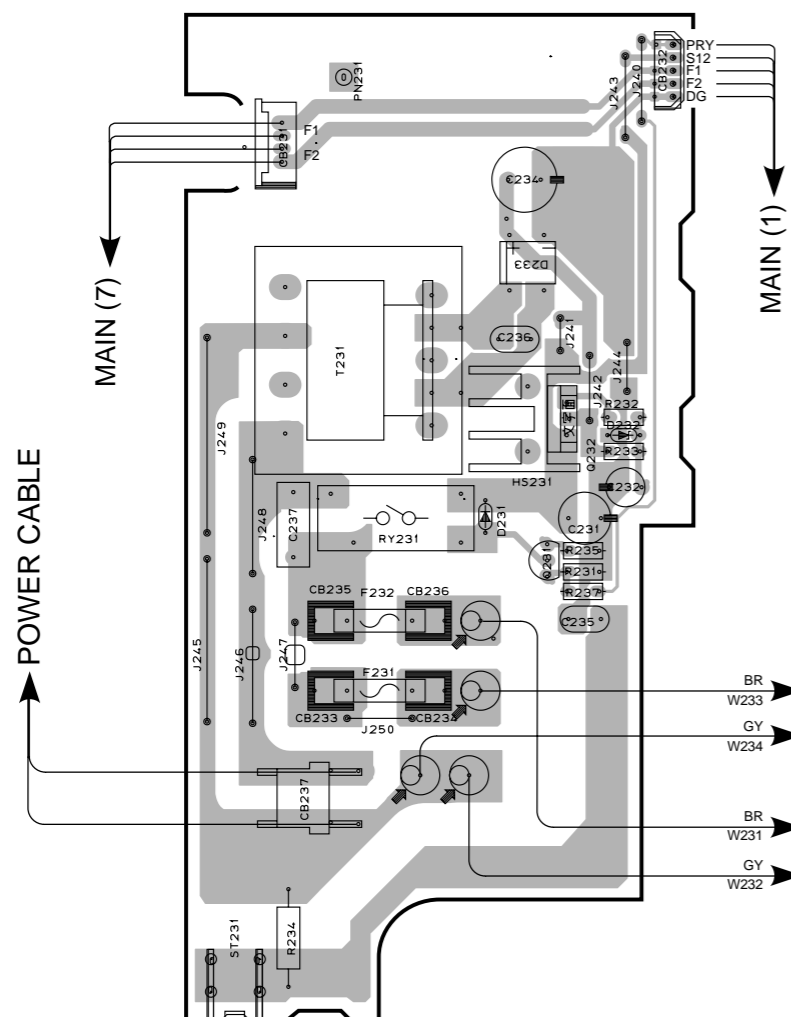
Semiconductor Location

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D210	D2	IC100	B3	Q108	B3
D541	G2	IC108	B3	Q541	F2
		IC109	B3		
		IC113	B3		
		IC210	D2		
		IC211	E3		



PRINTED CIRCUIT BOARD (Foil side)

MAIN ( 6 ) P. C. B.



CIRCUIT CHANGES BY MARKET.

	U, C	R	A	B	G
F231	X	X	X	X	O
F401	X	O	X	X	X
CB233, 234	X	X	X	X	O
J250	O	O	O	O	X
R234	O	X	X	X	X
J241	O	X	O	O	O
R232, 233	X	O	X	X	X
C232	X	O	X	X	X
Q232	X	O	X	X	X
D232	X	O	X	X	X
SW401	X	O	X	X	X
CB401, 402	X	O	X	X	X

O : USED  
X : NOT USED

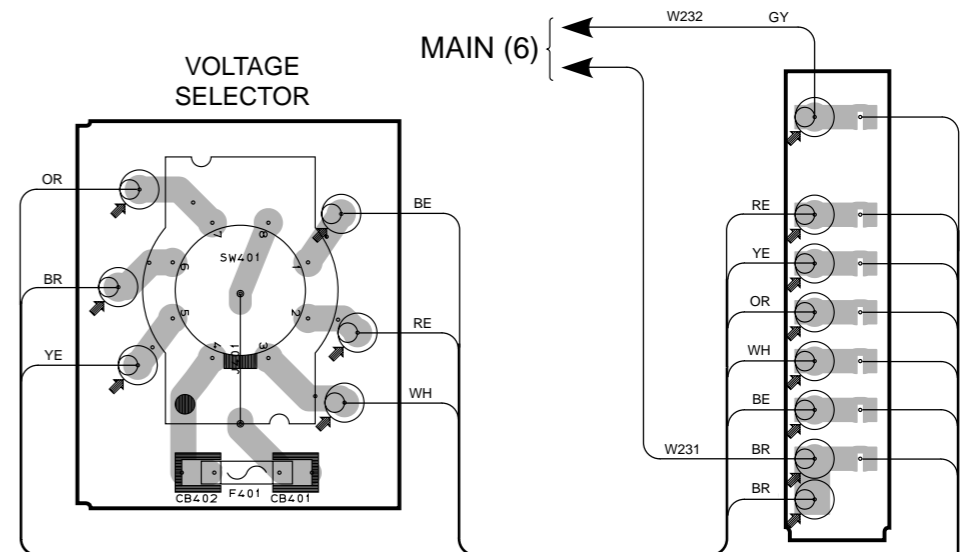
Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D231	B3	Q231	B3
D232	B3	Q232	B2
D233	B2		

R model

MAIN ( 5 ) P. C. B.

MAIN ( 8 ) P. C. B.

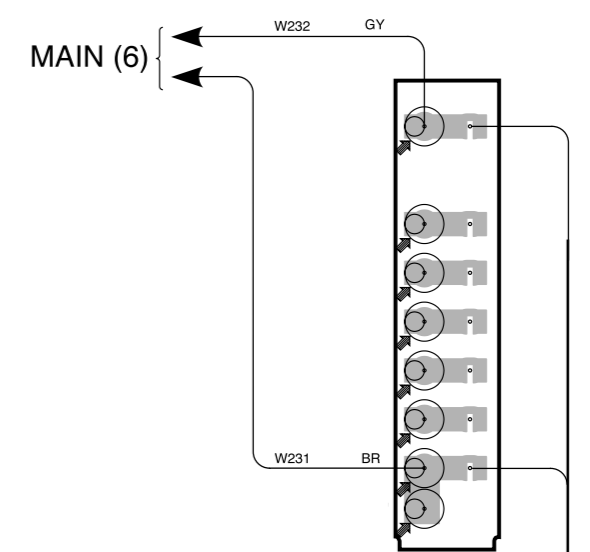


VOLTAGE SELECTOR

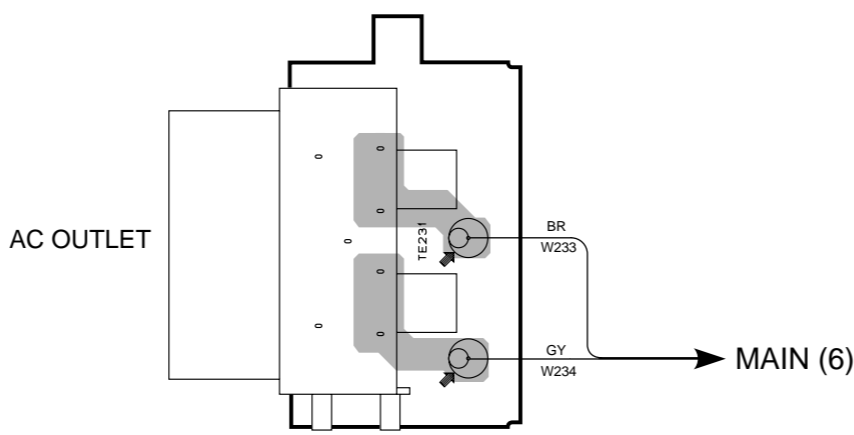
VOLTAGE	1-2/5-6	3-4/7-8	4-5/8-1
110V	1 - 2/5 - 6		
120V	2 - 3/6 - 7		
240V	3 - 4/7 - 8		
220V	4 - 5/8 - 1		

U, C, A, B, G models

MAIN ( 8 ) P. C. B.



MAIN ( 9 ) P. C. B.

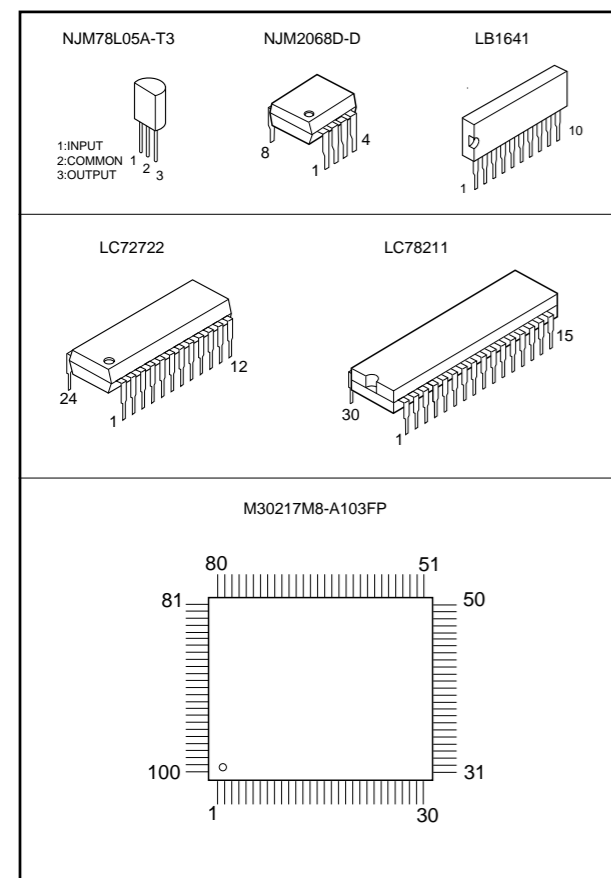


1  
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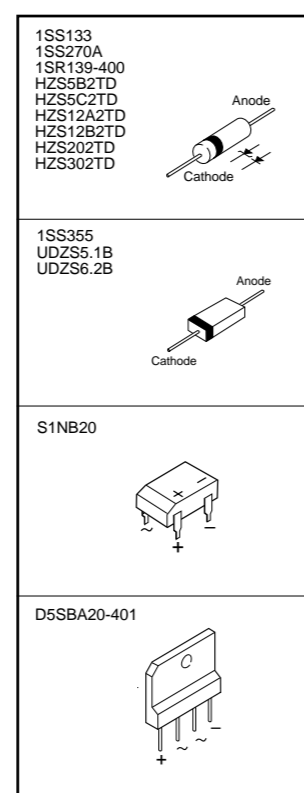
## RX-E400

## PIN CONNECTION DIAGRAM

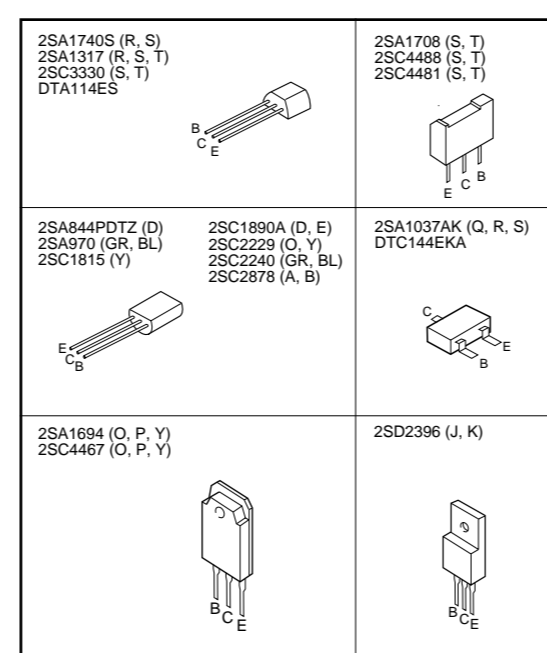
### ICs



### Diodes



### Transistors



SCHEMATIC DIAGRAM (MAIN)

Each voltage represents the voltage when receiving FM (stereo) signal and the voltage in the parentheses ( ) is the voltage when receiving AM signal.

RESISTOR	PARTS NAME	CAPACITOR	PARTS NAME
NO MARK	CARBON FILM RESISTOR (F-R)	NO MARK	ELECTROLYTIC CAPACITOR
○	CARBON FILM RESISTOR (F-P10)	○	TANTALUM CAPACITOR
○	METAL OXIDE FILM RESISTOR	○	CERAMIC TUBULAR CAPACITOR
○	METAL OXIDE RESISTOR	○	POLYESTER FILM CAPACITOR
○	FINE PITCH CARBON FILM RESISTOR	○	POLYPROPYLENE FILM CAPACITOR
○	CEMENT MOUNTED RESISTOR	○	MICA CAPACITOR
○	SEMI-CONDUCTIVE RESISTOR	○	POLYIMIDE FILM CAPACITOR
○	CHIP RESISTOR	○	SEMICONDUCTIVE CERAMIC CAPACITOR
		○	POLYPROPYLENE SOLID FILM CAPACITOR

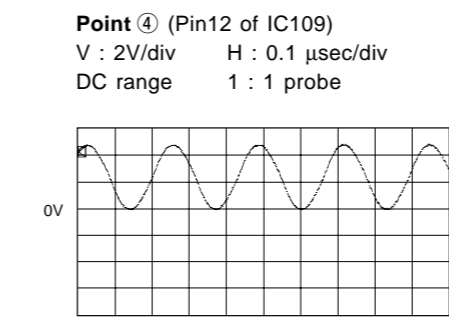
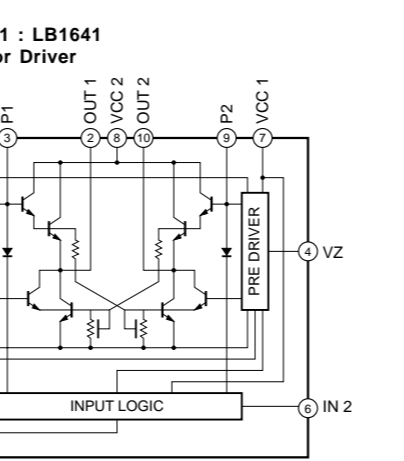
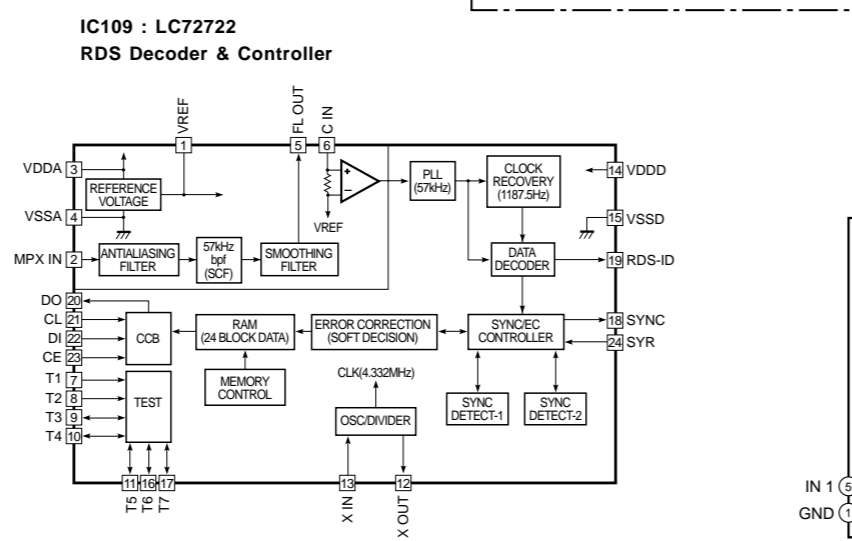
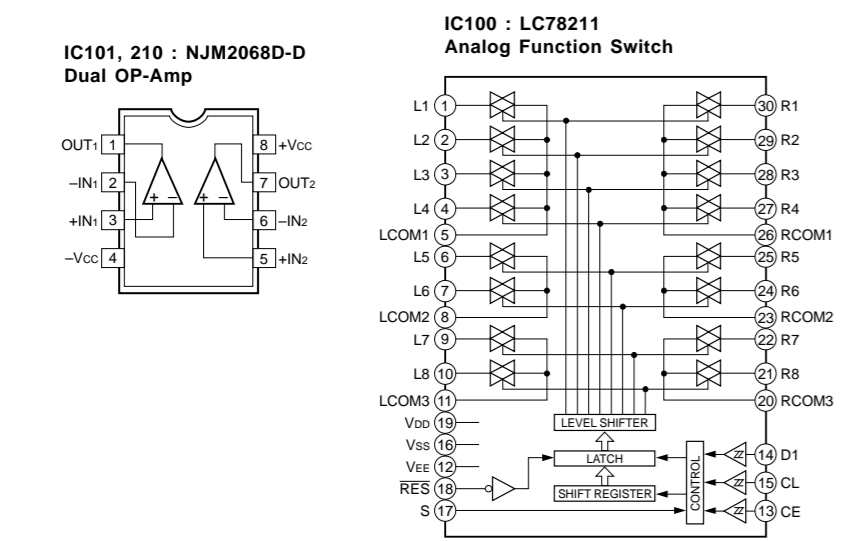
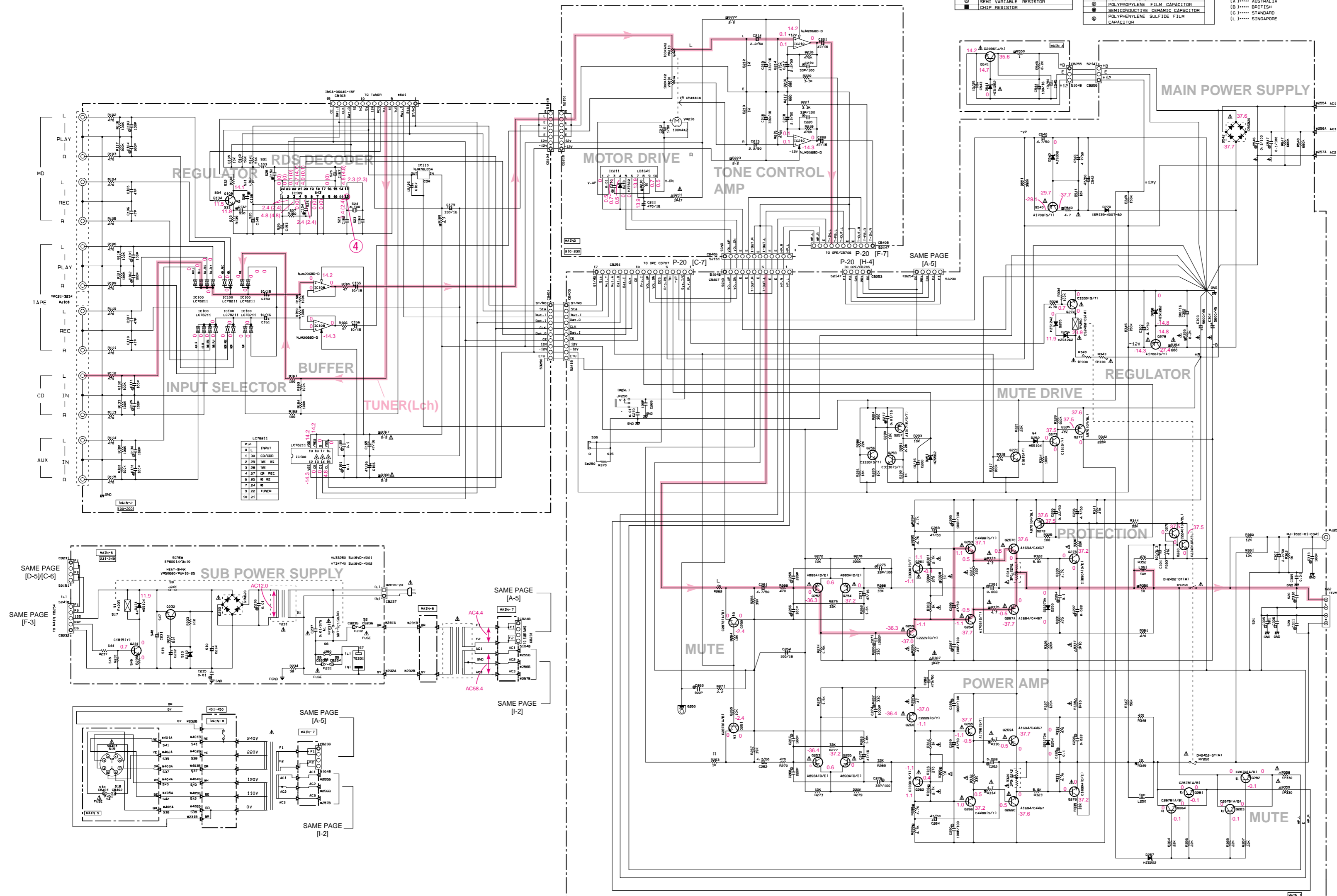
NOTICE (Import)  
 (J) JAPAN  
 (U) U.S.A  
 (C) CANADA  
 (B) GENERAL  
 (I) CHINA  
 (K) KOREA  
 (A) AUSTRALIA  
 (B) BRITISH  
 (S) STANDARD  
 (L) SINGAPORE

CIRCUIT CHANGES BY MARKET. O : USED X : NOT USED

Location	U.C	R	A	B	G
S1	T231	X276A0	XV44A0	X277D0	X277D0
S2	F232	V82280 3.15A/25V	X	X	X
S3	F401	X	X	X	X
S4	CB233 & CB234	X	X	X	X
S5	J250	0	0	0	0
S6	TE231	VU54310 2P	V56740 2P	V191500 1P	VU54330 1P
S7	R234	HG30922 1/2P 2-2M	X	X	X
S8	J241	0	0	0	0
S9	C234	UR83910 1000/16V	UR86822 220/50V	UR83910 1000/16V	UR83910 1000/16V
S10	R233	X	HF45715 15K	X	X
S11	D232	X	VM37550 M2512A2	X	X
S12	R232	X	HF45510 100	X	X
S13	C232	X	UR83710 10/16V	X	X
S14	RY231	V884850 5V DC	V271230 12V DC	V884850 5V DC	V884850 5V DC
S15	CB401 & CB402	X	VP20650	X	X
S16	SW401	X	V718230	X	X
S17	C310 & C311	X	X	UA65410 0.1	UA65410 0.1
S18	C305 & C306	X	X	VE32600 0.1	VE32600 0.1
S19	TE250	VY69630	VY69630	VY69640	VY69640
S20	C162 & C163	X	X	X	VA76110 27PCH
S21	XL100	X	X	X	V393090 4.33mHz
S22	C148, C153 & C157	X	X	X	UR81747 47/6.3V
S23	C154	X	X	X	V627880 560P
S24	R160	X	X	X	HF45810 100K
S25	C138 & C152	X	X	X	VJ59910 0.1
S26	R139	X	X	X	HF45647 4.7K
S27	C132	X	X	X	V627860 330P
S28	L102 & L103	X	X	X	VUB8950 220UH
S29	R138	X	X	X	HF45610 1K
S30	Q108	X	X	X	IC17402 C1740 (R/S)
S31	R134	X	X	X	HF45622 220
S32	R370	HF45710 10K	HF45620 2K	HF45639 3.9K	HF45662 6.2K
S33	SW250	X	V362430	X	X
S34	W403	X	MH03010	X	X
S35	W406	X	MH01010	X	X
S36	W402	X	MH04010	X	X
S37	W404	X	MH09012	X	X
S38	W401	X	MH02012	X	X
S39	W405	X	MH06010	X	X
S40	IC109	X	X	X	XY543A0
S41	R237	HF45610 1K	HF45710 10K	HF45610 1K	HF45610 1K
S42	R231	HF45610 1K	HF45810 100K	HF45610 1K	HF45610 1K
S43	R235	HF45456 56	HF45322 2.2	HF45456 56	HF45456 56
S44	Q232	V51080 2SD2396 (1J/K)	X	X	X
S45	C231	UR83822 220/16	UR83833 330/16	UR83822 220/16	UR83822 220/16

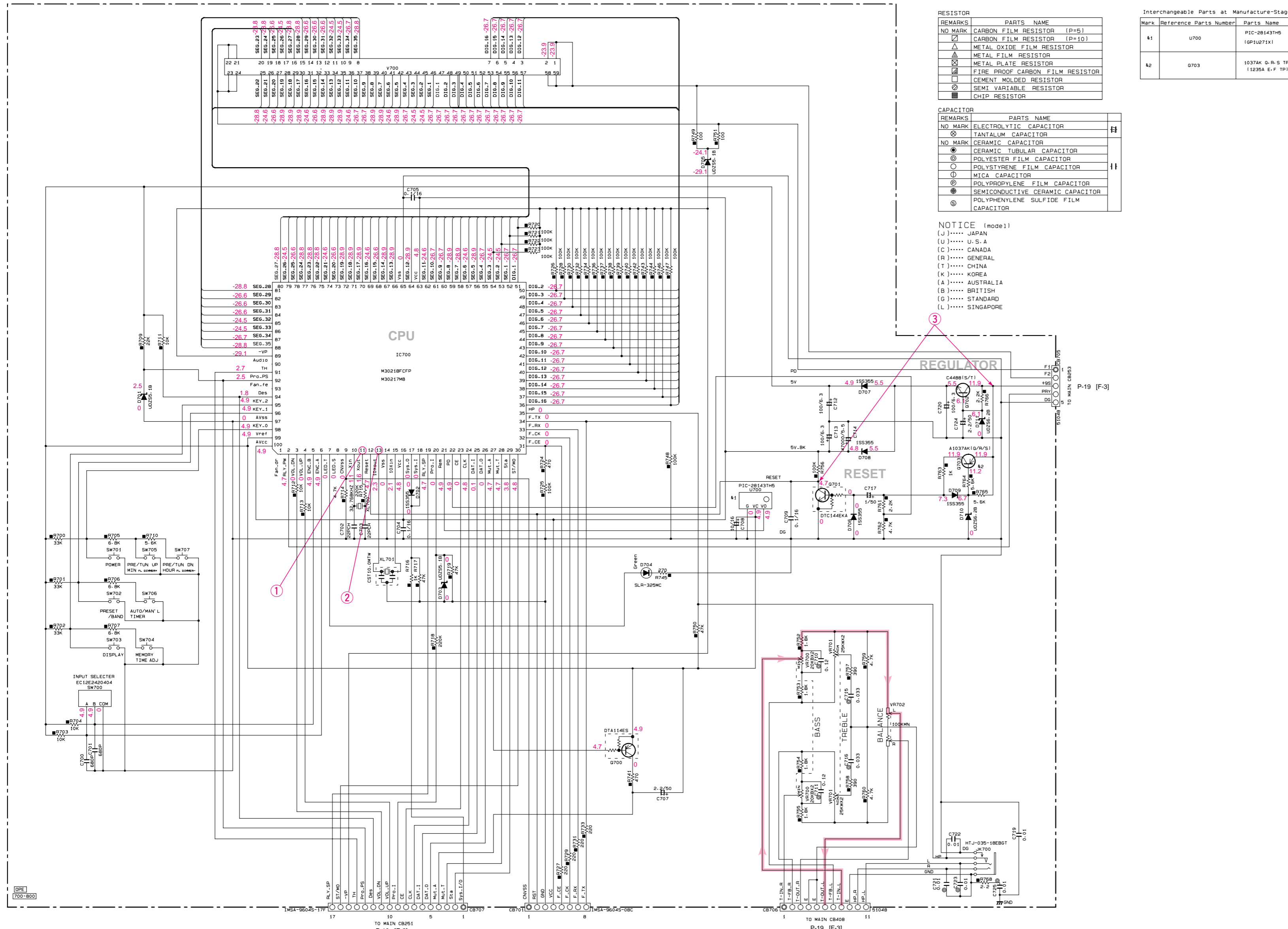
Interchangeable Parts at Manufacturer's Stage

Part Number	Manufacturer's Part Number	Notes
Q1	Q101	2SD1604
Q2	Q102	2SD1604
Q3	Q103	2SD1604
Q4	Q104	2SD1604
Q5	Q105	2SD1604



\* All voltage are measured with a 10MΩ/V DC electric volt meter.  
 \* Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.  
 \* Schematic diagram is subject to change without notice.

SCHEMATIC DIAGRAM (OPERATION)



RESISTOR table with columns for Remarks, Parts Name, and Part Number.

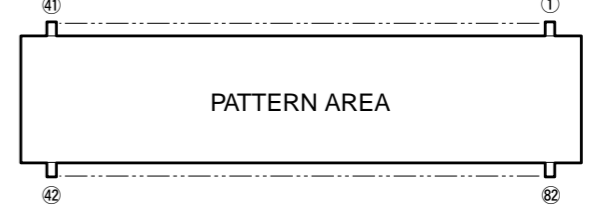
Interchangeable Parts at Manufacture-Stage table with columns for Mark, Reference Parts Number, and Parts Name.

CAPACITOR table with columns for Remarks, Parts Name, and Part Number.

NOTICE (model) with a list of country codes: (J) JAPAN, (U) U.S.A., (C) CANADA, (R) GENERAL, (T) CHINA, (K) KOREA, (A) AUSTRALIA, (B) BRITISH, (G) STANDARD, (L) SINGAPORE.

DISPLAY DATA

V700 : 16-BT-67GN (V3579300)

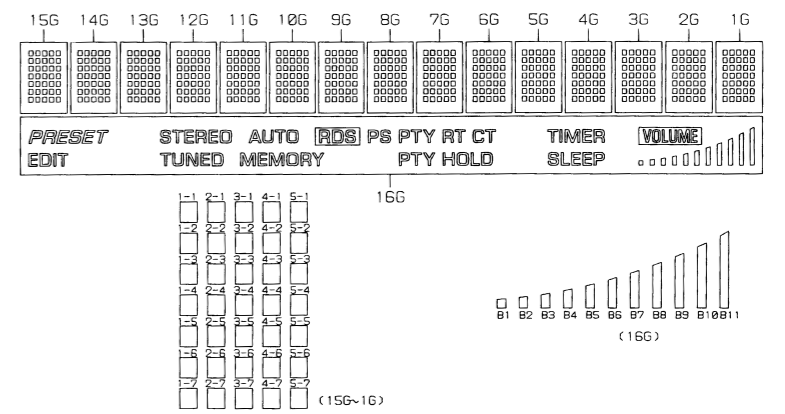


PIN CONNECTION

Pin connection table with columns for Pin No. and Connection.

NOTE 1) F1, F2..... Filament 2) NP..... No pin 3) NX..... No extend pin 4) P1-P35..... Datum Line 5) 1G-16G..... Grid 6) IC..... Internal connection 7) Pin No.37 and 51 are connected internally.

GRID ASSIGNMENT



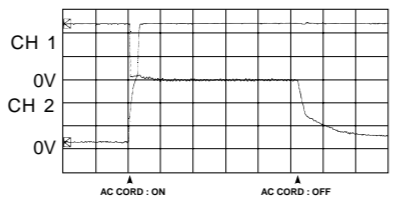
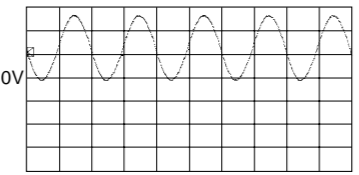
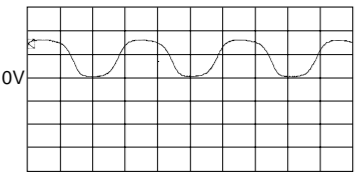
ANODE CONNECTION

Anode connection table with columns for Pin No., Grid No., and Anode Connection.

Point 3 CH 1 : Collector of Q701 CH 2 : Collector of Q702 V : 2V/div (CH 1) V : 5V/div (CH 2) DC, 1 : 1 probe, H : 0.5sec/div

Point 1 (Pin 11 of IC700) V : 2V/div, H : 10µsec/div DC, 1 : 1 probe

Point 2 (Pin 13 of IC700) V : 2V/div, H : 50nsec/div DC, 1 : 1 probe



All voltage are measured with a 10MΩ/ V DC electric volt meter. Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed. Schematic diagram is subject to change without notice.

# PARTS LIST

## ■ ELECTRICAL PARTS

### ■ WARNING

Components having special characteristics are marked  $\triangle$  and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the part Nos. of the carbon resistors, refer to the last page.

### ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	: CHIP ALUMI. ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED, INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR, RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN, TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR, BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR, CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR, DIN	SCR.TR	: SCREW, TRANSISTOR
CN.FLAT	: CONNECTOR, FLAT CABLE	SUPRT.PCB	: SUPPORT, P.C.B.
CN.POST	: CONNECTOR, BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL, AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL, FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL, FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL, FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'y
FLTR.LC.RF	: LC FILTER ,EMI	TUNER.AM	: TUNER PACK, AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK, FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-END TUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER, TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

**Note)** Those parts marked with “#” are not included in the P.C.B. ass'y.

**P.C.B. OPERATION**

Schm Ref.	PART NO.	Description	Market
*	V9333900	P.C.B.	SI:OPERATION
CB701	VP682200	CN.BS.PIN	8P
CB705	Vi878300	CN.BS.PIN	5P
CB706	Vi878900	CN.BS.PIN	11P
CB707	VU281700	CN	17P
C700	US062680	C.CE.M.CHP	680pF 50V
C701	US062680	C.CE.M.CHP	680pF 50V
C702	US061220	C.CE.M.CHP	22pF 50V
C703	US061220	C.CE.M.CHP	22pF 50V
C704	US135100	C.CE.CHP	0.1uF 16V
C705	US135100	C.CE.CHP	0.1uF 16V
C707	UM416220	C.EL	2.2uF 50V
C708	UM397100	C.EL	10uF 16V
C709	US135100	C.CE.CHP	0.1uF 16V
C710	VE326100	C.MYLAR.ML	0.12uF 50V
C711	VE326100	C.MYLAR.ML	0.12uF 50V
C712	UM388100	C.EL	100uF 10V
C713	UM388100	C.EL	100uF 10V
C714	VU545000	C.EL	47000uF 5.5V
C715	UA654330	C.MYLAR	0.033uF 50V
C716	UA654330	C.MYLAR	0.033uF 50V
C717	UM416100	C.EL	1uF 50V
C719	US064100	C.CE.M.CHP	0.01uF 50V
C720	UM388100	C.EL	100uF 10V
C721	UA654100	C.MYLAR	0.01uF 50V
C722	US064100	C.CE.M.CHP	0.01uF 50V
C723	UA654100	C.MYLAR	0.01uF 50V
C724	UM416220	C.EL	2.2uF 50V
C725	UA654100	C.MYLAR	0.01uF 50V
D701	VU171900	DIODE.ZENR	UDZ5.1B 5.1V
D702	VT332900	DIODE	1SS355
D703	VU171900	DIODE.ZENR	UDZ5.1B 5.1V
D704	VR711400	LED(gr)	SLR-325MC
D705	VU171900	DIODE.ZENR	UDZ5.1B 5.1V
D706	VT332900	DIODE	1SS355
D707	VT332900	DIODE	1SS355
D708	VT332900	DIODE	1SS355
D709	VT332900	DIODE	1SS355
D710	VU172100	DIODE.ZENR	UDZS6.2B 6.2V
D711	VU172100	DIODE.ZENR	UDZS6.2B 6.2V
* IC700	X2898A00	IC.CPU	M30217M8-A103FP
JK700	V3589000	JACK.MNI	HTJ-035-18EBGT
Q700	VD678500	TR.DGT	DTA114ES
Q701	VV655700	TR.DGT	DTC144EKA
Q702	VP872700	TR	2SC4488 S,T
Q703	VV556500	TR	2SA1037K Q,R,S
ST701	V4040500	SCR.TERM	M3
* SW700	V9291700	SW.RT.ENC	XREB12105PVB25F
SW701	V2014900	SW.TACT	EVQ21304M
SW702	V2014900	SW.TACT	EVQ21304M
SW703	V2014900	SW.TACT	EVQ21304M
SW704	V2014900	SW.TACT	EVQ21304M
SW705	V2014900	SW.TACT	EVQ21304M

\* New Parts

Schm Ref.	PART NO.	Description	Market
SW706	V2014900	SW.TACT	EVQ21304M
SW707	V2014900	SW.TACT	EVQ21304M
U700	V3872300	L.DTCT	PIC-28143TH5
V700	V3579300	FL.DSPLY	16-BT-67GN
VR700	V3555600	VR	B20K
VR701	V3555700	VR	W25K
VR702	V3555800	VR	MN100K
XL700	VQ328900	RSNR.CRY	32.768KHz
XL701	V7718300	RSNR.CE	CSTLS10MOG53-B0
%	V3688300	SHEET.FL	SI
	VR519500	SHEET.FL	GD
	V3747400	SPACER.FL	T4x6x18
	V3747500	SUPRT	
	RD353220	R.CAR.CHP	2.2 1/10W
	RD355100	R.CAR.CHP	100 1/10W
	RD355220	R.CAR.CHP	220 1/10W
	RD355270	R.CAR.CHP	270 1/10W
	RD355390	R.CAR.CHP	390 1/10W
	RD355470	R.CAR.CHP	470 1/10W
	RD356100	R.CAR.CHP	1K 1/10W
	RD356180	R.CAR.CHP	1.8K 1/10W
	RD356220	R.CAR.CHP	2.2K 1/10W
	RD356470	R.CAR.CHP	4.7K 1/10W
	RD356560	R.CAR.CHP	5.6K 1/10W
	RD356680	R.CAR.CHP	6.8K 1/10W
	RD357100	R.CAR.CHP	10K 1/10W
	RD357220	R.CAR.CHP	22K 1/10W
	RD357330	R.CAR.CHP	33K 1/10W
	RD357470	R.CAR.CHP	47K 1/10W
	RD358100	R.CAR.CHP	100K 1/10W
	RD358220	R.CAR.CHP	220K 1/10W

\* New Parts

**% : Note on the Operation PCB**

Of the Operation PCB part Nos., only the silver (SI) type part Nos. are included in the table.

The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a GD type Operation PCB becomes necessary, order a SI type Operation PCB and a GD type sheet/FL (VR519500) and replace the sheet/FL of the SI type Operation PCB with the GD type sheet/FL.

**P.C.B. MAIN**

Schm Ref.	PART NO.	Description	Market
*	V9319100	P. C. B. MAIN	UC
*	V9332500	P. C. B. MAIN	R
*	V9332000	P. C. B. MAIN	A
*	V9332100	P. C. B. MAIN	B
*	V9332200	P. C. B. MAIN	G
CB103	VU281500	CN 15P SE 9604S	
CB104	Vi878500	CN.BS.PIN 7P	
CB210	VK026600	CN.BS.PIN 7P	
CB231	VK026300	CN.BS.PIN 4P	
CB232	VQ960800	CN.BS.PIN 5P	
CB233	VP206500	HOLDER.FUS EYF-52BCT	G
CB234	VP206500	HOLDER.FUS EYF-52BCT	G
CB235	VP206500	HOLDER.FUS EYF-52BCT	
CB236	VP206500	HOLDER.FUS EYF-52BCT	
CB237	VP245600	CN 2P	
CB238	Vi878200	CN.BS.PIN 4P	
CB251	VU271700	CN 17P	
CB253	VK024900	CN.BS.PIN 5P	
CB254	VQ962600	CN.BS.PIN 5P	
CB255	Vi878100	CN.BS.PIN 3P	
CB256	VK024700	CN.BS.PIN 3P	
CB401	VP206500	HOLDER.FUS EYF-52BCT	R
CB402	VP206500	HOLDER.FUS EYF-52BCT	R
CB404	VQ961300	CN.BS.PIN 10P	
CB405	VQ963100	CN.BS.PIN 10P	
CB406	Vi879000	CN.BS.PIN 12P	
CB407	VK027100	CN.BS.PIN 12P	
CB408	VK025500	CN.BS.PIN 11P	
C101	UA652100	C.MYLAR 100pF 50V	
C102	UA652100	C.MYLAR 100pF 50V	
C103	UA652100	C.MYLAR 100pF 50V	
C104	UA652100	C.MYLAR 100pF 50V	
C105	FG651470	C.CE 47pF 50V	
C106	FG651470	C.CE 47pF 50V	
C107	FG651470	C.CE 47pF 50V	
C110	FG651470	C.CE 47pF 50V	
C111	UA652100	C.MYLAR 100pF 50V	
C129	UA652100	C.MYLAR 100pF 50V	
C130	UA652100	C.MYLAR 100pF 50V	
C131	UA652100	C.MYLAR 100pF 50V	
C132	VG278600	C.CE.TUBLR 330pF 50V	BG
C138	VJ599100	C.CE.TUBLR 0.1uF 50V	BG
C149	UR817470	C.EL 47uF 6.3V	BG
C150	VG287200	C.EL 10uF 50V	
C151	VG287200	C.EL 10uF 50V	
C152	VJ599100	C.CE.TUBLR 0.1uF 50V	BG
C153	UR817470	C.EL 47uF 6.3V	BG
C154	VG278800	C.CE.TUBLR 560pF 50V	BG
C155	VG287200	C.EL 10uF 50V	
C156	VG287200	C.EL 10uF 50V	
C157	UR817470	C.EL 47uF 6.3V	BG
C160	VE326000	C.MYLAR.ML 0.1uF 50V	
C161	VE326000	C.MYLAR.ML 0.1uF 50V	

\* New Parts

Schm Ref.	PART NO.	Description	Market
C162	VA761100	C.CE 27pF 50V	BG
C163	VA761100	C.CE 27pF 50V	BG
C165	VG287500	C.EL 47uF 50V	
C166	VG287500	C.EL 47uF 50V	
C167	UR837100	C.EL 10uF 16V	
C179	UR838330	C.EL 330uF 16V	
C210	UA654100	C.MYLAR 0.01uF 50V	
C211	UR838470	C.EL 470uF 16V	
C212	UN866100	C.EL 1uF 50V	
C213	VG290600	C.EL 2.2uF 50V	
C214	VG290600	C.EL 2.2uF 50V	
C215	VG287800	C.EL 330uF 16V	
C216	VG287800	C.EL 330uF 16V	
C217	VG290600	C.EL 2.2uF 50V	
C218	VG290600	C.EL 2.2uF 50V	
C219	V5690200	C.PP 33pF 100V	
C220	V5690200	C.PP 33pF 100V	
C221	VG287500	C.EL 47uF 50V	
C222	VG287500	C.EL 47uF 50V	
C231	UR838220	C.EL 220uF 16V	
C231	UR838220	C.EL 220uF 16V	UCABG
C231	UR838330	C.EL 330uF 16V	R
C232	UR837100	C.EL 10uF 16V	R
C234	UR839100	C.EL 1000uF 16V	UCABG
C234	UR868220	C.EL 220uF 50V	R
C235	UA654100	C.MYLAR 0.01uF 50V	
C236	UA654100	C.MYLAR 0.01uF 50V	
C237	V6185300	C.CE.SAFETY 0.01uF 275V	
C261	VQ523600	C.EL 4.7uF 50V	
C262	VQ523600	C.EL 4.7uF 50V	
C263	VQ645600	C.MYLAR 100pF 50V	
C264	VG287600	C.EL 100uF 25V	
C265	UA652220	C.MYLAR 220pF 50V	
C266	VQ645600	C.MYLAR 100pF 50V	
C267	VQ645600	C.MYLAR 100pF 50V	
C268	UA652220	C.MYLAR 220pF 50V	
C269	FG652100	C.CE 100pF 50V	
C270	FG644100	C.CE 0.01uF 50V	
C271	VG287500	C.EL 47uF 50V	
C272	VG287500	C.EL 47uF 50V	
C273	UA653100	C.MYLAR 1000pF 50V	
C274	UA653100	C.MYLAR 1000pF 50V	
C275	V5690200	C.PP 33pF 100V	
C276	V5690200	C.PP 33pF 100V	
C277	VF467300	C.CE.TUBLR 0.01uF 16V	
C280	UR837100	C.EL 10uF 16V	
* C282	VG291600	C.EL 470uF 50V	
C283	VG291200	C.EL 47uF 50V	
C284	VG291200	C.EL 47uF 50V	
C285	VR325000	C.MYLAR 100pF 100V	
C286	VG291200	C.EL 47uF 50V	
C287	VR325000	C.MYLAR 100pF 100V	
C288	VR325000	C.MYLAR 100pF 100V	

\* New Parts

**RX-E400**

P.C.B. MAIN

Schm Ref.	PART NO.	Description	Market
C289	VG291200	C. EL 47uF 50V	
C290	VR325000	C. MYLAR 100pF 100V	
C291	UA654680	C. MYLAR 0.068uF 50V	
C292	UA654680	C. MYLAR 0.068uF 50V	
C293	UR865220	C. EL 0.22uF 50V	
C294	VE326000	C. MYLAR.ML 0.1uF 50V	
C295	VE326000	C. MYLAR.ML 0.1uF 50V	
C296	UR866470	C. EL 4.7uF 50V	
C297	UA654220	C. MYLAR 0.022uF 50V	
C298	UA654220	C. MYLAR 0.022uF 50V	
C300	UR866470	C. EL 4.7uF 50V	
C301	UR818100	C. EL 100uF 6.3V	
C302	UR838100	C. EL 100uF 16V	
△ * C303	V9361900	C. EL 5600uF 45V	
△ * C304	V9361900	C. EL 5600uF 45V	
C305	VE326000	C. MYLAR.ML 0.1uF 50V	ABG
C306	VE326000	C. MYLAR.ML 0.1uF 50V	ABG
C307	UR866220	C. EL 2.2uF 50V	
C309	FG644100	C. CE 0.01uF 50V	
C310	UA654100	C. MYLAR 0.01uF 50V	ABG
C311	UA654100	C. MYLAR 0.01uF 50V	ABG
C313	UA652100	C. MYLAR 100pF 50V	
C540	UR866470	C. EL 4.7uF 50V	
C541	UR866470	C. EL 4.7uF 50V	
C542	UR867470	C. EL 47uF 50V	
C543	UR847100	C. EL 10uF 25V	
C544	UR838100	C. EL 100uF 16V	
C545	UR867100	C. EL 10uF 50V	
△ C546	VS745400	C. POL.MTL 0.1uF 100V	
△ C547	VS745400	C. POL.MTL 0.1uF 100V	
D210	VM974200	DIODE.ZENR HZS5C2TD 5.0V	
D231	VD631600	DIODE 1SS133, 176	
D232	VM975500	DIODE.ZENR HZS12A2TD 12V	R
△ D233	VR253700	DIODE.BRG S1NB20 1A 200V	
D251	VM974100	DIODE.ZENR HZS5B2TD 5.0V	
D252	VD631600	DIODE 1SS133, 176	
D253	VN008700	DIODE 1SS270A	
D254	VN008700	DIODE 1SS270A	
D255	VM975500	DIODE.ZENR HZS12A2TD 12V	
D256	VM975500	DIODE.ZENR HZS12A2TD 12V	
D257	VM976100	DIODE.ZENR HZS202TD 20V	
D258	VM975600	DIODE.ZENR HZS12B2TD 12V	
D270	VU264200	DIODE 1SR139-400	
D540	VM976500	DIODE.ZENR HZS302TD 30V	
△ D541	VM975600	DIODE.ZENR HZS12B2TD 12V	
△ D542	VQ111400	DIODE.BRG D5SBA20-4001 6A	
△ F231	VT942900	FUSE TH2.5A 250V	G
△ F232	VS822800	FUSE T3.15A 125V	UCR
△ F232	KB001660	FUSE T1.6A 250V	ABG
△ F401	KB001660	FUSE T1.6A 250V	R
G250	V8880000	TERM.GND M3.5 RJP9899	
IC100	XP894A00	IC LC78211	
IC108	XA987A00	IC NJM2068D-D	

\* New Parts

Schm Ref.	PART NO.	Description	Market
IC109	XY534A00	IC LC72722	BG
IC113	XJ757A00	IC NJM78L05A-T3	
IC210	XA987A00	IC NJM2068D-D	
IC211	XF494A00	IC LB1641	
JK250	VJ726800	JACK.MNI	
L102	VU889500	COIL 220uH	BG
L103	VU889500	COIL 220uH	BG
L250	V2604200	COIL 1uH	
L251	V2604200	COIL 1uH	
PJ100	VU857800	JACK.PIN 6P	
PJ101	VU857800	JACK.PIN 6P	
PJ250	VV306800	JACK.PIN 1P	
PN231	V3750200	PIN L=70	
PN251	V3750200	PIN L=70	
Q108	iC174020	TR 2SC1740S R,S	BG
Q231	iC181510	TR 2SC1815 Y	
Q232	VR510800	TR 2SD2396 J,K	R
Q250	iC287820	TR 2SC2878 A,B	
Q251	iC287820	TR 2SC2878 A,B	
△ Q252	V8848200	TR 2SA844DTZ D	
△ Q253	V8848200	TR 2SA844DTZ D	
△ Q254	V8848200	TR 2SA844DTZ D	
△ Q255	V8848200	TR 2SA844DTZ D	
Q256	VC218900	TR 2SC3330 R,S,T	
Q257	VC218700	TR 2SA1317 R,S,T	
Q258	VC218900	TR 2SC3330 R,S,T	
△ Q259	VR325600	TR 2SC2229 O,Y	
△ Q260	VR325600	TR 2SC2229 O,Y	
△ Q261	VC218900	TR 2SC3330 R,S,T	
△ Q262	VC218900	TR 2SC3330 R,S,T	
△ Q263	VP872700	TR 2SC4488 S,T	
△ Q264	VP872600	TR 2SA1708 S,T	
△ Q265	VP872600	TR 2SA1708 S,T	
△ Q266	VP872700	TR 2SC4488 S,T	
△ Q267A	iX615750	TR 2SA1694 O,P,Y	
△ Q267C	iX615760	TR 2SC4467 O,P,Y	
△ Q269A	iX615750	TR 2SA1694 O,P,Y	
△ Q269C	iX615760	TR 2SC4467 O,P,Y	
Q271	iC181510	TR 2SC1815 Y	
Q272	iA097030	TR 2SA970 GR,BL	
Q273	iC181510	TR 2SC1815 Y	
△ Q274	VC218900	TR 2SC3330 R,S,T	
△ Q275	VP883100	TR 2SC1890A D,E	
△ Q276	VP883100	TR 2SC1890A D,E	
Q277	iA097030	TR 2SA970 GR,BL	
△ Q278	VP872600	TR 2SA1708 S,T	
Q279	iC224030	TR 2SC2240 GR,BL	
Q280	iC224030	TR 2SC2240 GR,BL	
Q281	iC287820	TR 2SC2878 A,B	
Q282	iC287820	TR 2SC2878 A,B	
Q283	iC287820	TR 2SC2878 A,B	
Q284	iC287820	TR 2SC2878 A,B	
△ Q540	VP872600	TR 2SA1708 S,T	

\* New Parts



**P.C.B. MAIN**

Schm Ref.	PART NO.	Description	Market
△ Q541	VR510800	TR	2SD2396 J,K
R167	HV753220	R. CAR. FP	2.2 1/4W
R168	HV753220	R. CAR. FP	2.2 1/4W
R169	HV753470	R. CAR. FP	4.7 1/4W
R210	HV754100	R. CAR. FP	10 1/4W
△ R211	VP940200	R. MTL. OXD	47 1W
R222	HV753220	R. CAR. FP	2.2 1/4W
R223	HV753220	R. CAR. FP	2.2 1/4W
R294	HV756470	R. CAR. FP	4.7K 1/4W
R295	HV756470	R. CAR. FP	4.7K 1/4W
△ R296	HV754470	R. CAR. FP	47 1/4W
△ R297	HV754470	R. CAR. FP	47 1/4W
R298	HV756470	R. CAR. FP	4.7K 1/4W
R299	HV756470	R. CAR. FP	4.7K 1/4W
△ R301	HV756270	R. CAR. FP	2.7K 1/4W
△ R303	VK189000	R. FUS	1K 1/4W
△ R304	VK189000	R. FUS	1K 1/4W
△ R306	HV756270	R. CAR. FP	2.7K 1/4W
△ R307	VP940200	R. MTL. OXD	47 1W
△ R308	HV756100	R. CAR. FP	1K 1/4W
△ R309	HV756100	R. CAR. FP	1K 1/4W
△ R311	VK188400	R. FUS	330 1/4W
△ R312	VK188400	R. FUS	330 1/4W
△ R313	HV753470	R. CAR. FP	4.7 1/4W
△ R314	HV753470	R. CAR. FP	4.7 1/4W
△ R315	HV753470	R. CAR. FP	4.7 1/4W
△ R316	HV753470	R. CAR. FP	4.7 1/4W
△ R319	VU981700	R. MTL. PLAT	0.22 +0.22 3W
△ R320	VU981700	R. MTL. PLAT	0.22 +0.22 3W
△ R337	VP939800	R. MTL. OXD	10 1W
△ R338	VP939800	R. MTL. OXD	10 1W
△ R340	VP940700	R. MTL. OXD	330 1W
△ R343	VP940700	R. MTL. OXD	330 1W
R349	HV754100	R. CAR. FP	10 1/4W
R350	HV754100	R. CAR. FP	10 1/4W
△ R354	HV755680	R. CAR. FP	680 1/4W
△ R355	HV756820	R. CAR. FP	8.2K 1/4W
△ R358	VP940700	R. MTL. OXD	330 1W
△ R359	VP940700	R. MTL. OXD	330 1W
△ R540	HV753470	R. CAR. FP	4.7 1/4W
R550	HV753100	R. CAR. FP	1 1/4W
△ RY231	V8848500	RELAY	DC DLS5D1-0(M)0.15 UCABG
△ RY231	V2712300	RELAY	DC SDT-S-112LMR R
△ RY250	V5966300	RELAY	DS24D2-OS(M)
ST231	V4040500	SCR. TERM	M3
SW250	V3624300	SW. SLIDE	SS029-P022MJB-PA6 R
△ SW401	V7182300	VOLT. SELECT	R8140213 R
△ T231	X2768A00	TRANS. PWR	UC
△ T231	XV444A00	TRANS. PWR	R
△ T231	X2770A00	TRANS. PWR	ABG
△ TE231	VU543100	OUTLET. AC	2P UC
△ TE231	V5867400	OUTLET. AC	2P AC-182-GB-11V R
△ TE231	VT915000	OUTLET. AC	2P A

\* New Parts

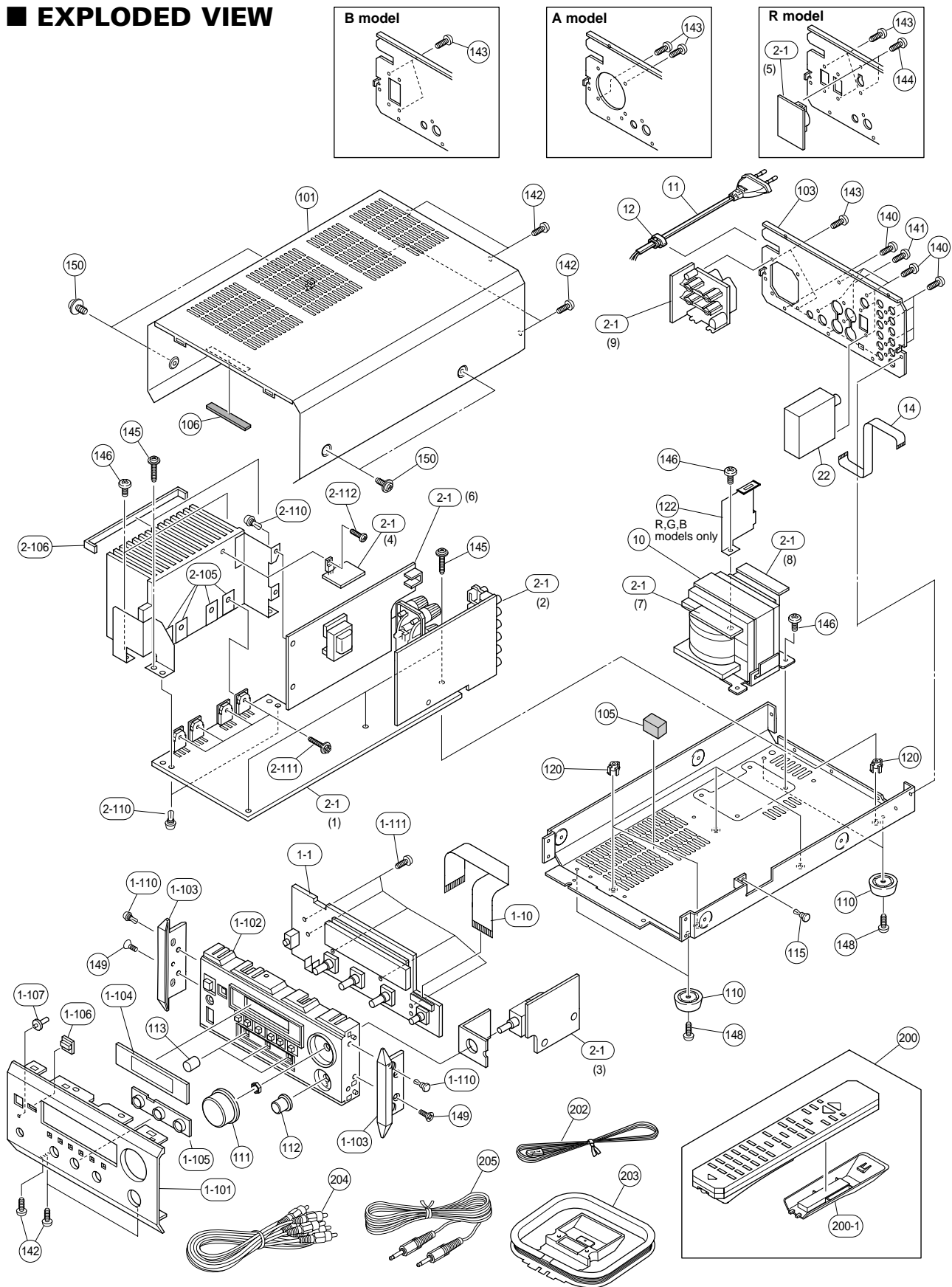
Schm Ref.	PART NO.	Description	Market
△ TE231	VU543300	OUTLET. AC	1P B
△ TE231	VU543400	OUTLET. AC	2P G
TE250	VY696300	TERM. SP	4P UCR
TE250	VY696400	TERM. SP	4P ABG
VR210	V7375500	VR. MTR	A100K RK16812MG
XL100	V3930900	RSNR. CRYST	4.332MHz BG
	EP600830	SCR. BND. HD	3x8 MFC2BL R

\* New Parts

**RX-E400**

## RX-E400

## ■ EXPLODED VIEW



## % : Note on the Operation PCB

Of the Operation PCB(1-1) part Nos., only the silver (SI) type part Nos. are included in the table.

The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a GD type Operation PCB becomes necessary, order a SI type Operation PCB and a GD type sheet/FL (VR519500) and replace the sheet/FL of the SI type Operation PCB with the GD type sheet/FL.

## MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1-1	V9333900	P.C.B. ASS'Y	SI :OPERATION	SI
1-10	MF117120	FLEXIBLE FLAT CABLE	17P 120mm	
* 1-101	V8783300	FRONT PANEL		RXE400SI
* 1-101	V8783500	FRONT PANEL-RDS		RXE400RDSSI
* 1-101	V8783400	FRONT PANEL		RXE400GD
1-101	V8783600	FRONT PANEL-RDS		RXE400RDSDG
* 1-102	V8785000	SUB PANEL-RX		SI
* 1-102	V8785100	SUB PANEL-RX		GD
* 1-103	V8785200	PANEL/SIDE	H100	
1-104	V8786500	SHEET		
1-105	V8785500	ESCUTCHEON/3P		SI
1-105	V8785600	ESCUTCHEON/3P		GD
1-106	V8785300	LENS/REMOCON		
1-107	V8785400	LENS/1P		
1-110	VQ368600	PUSH RIVET	P3555-B	
1-111	VF617600	PAN HEAD P-TITE SCREW	2.6x8 MFC2BL	
* 2-1	V9319100	P.C.B. ASS'Y	MAIN	UC
* 2-1	V9332500	P.C.B. ASS'Y	MAIN	R
* 2-1	V9332000	P.C.B. ASS'Y	MAIN	A
* 2-1	V9332100	P.C.B. ASS'Y	MAIN	B
* 2-1	V9332200	P.C.B. ASS'Y	MAIN	G
2-105	VV849300	SHEET	19x24	
2-106	VP922500	DAMPER	2x10x170	
2-110	VQ368600	PUSH RIVET	P3555-B	
2-111	VK173200	SCREW, TRANSISTOR	3x15 SP MFC2	
2-112	EP600250	BIND HEAD B-TITE SCREW	3x8 MFZN2Y	
△ * 10	X2696A00	POWER TRANSFORMER		UC
△ * 10	X2698A00	POWER TRANSFORMER		R
△ * 10	X2697A00	POWER TRANSFORMER		A
△ * 10	X2699A00	POWER TRANSFORMER		BG
△ * 11	V9293500	POWER CABLE	2m	UC
△ 11	VZ542500	POWER CABLE	2m	R
△ 11	V2296800	POWER CABLE	2m	A
△ 11	VV437300	POWER CABLE	2m	B
△ * 11	V9293600	POWER CABLE	2m	G
12	V2438700	CORD STOPPER	10P1	
14	MF115120	FLEXIBLE FLAT CABLE	15P 120mm P=1.25	
22	V6782300	AM/FM TUNER	TFCE1U115A	UCR
22	V6782400	AM/FM TUNER	TFCE1E317A	ABG
* 101	V8784200	TOP COVER		SI
* 101	V8784300	TOP COVER		GD
* 103	V8784500	REAR PANEL		UC
* 103	V8784600	REAR PANEL		R
* 103	V8784700	REAR PANEL		A
* 103	V8784800	REAR PANEL		B
* 103	V8784900	REAR PANEL		G
105	VQ390100	DAMPER	8x8x15	
106	VP857700	DAMPER	4x6x5	
110	V3688500	LEG	M0080-M0	
111	V6746200	KNOB	D30	SI
111	V6746300	KNOB	D30	GD
* 112	V8916700	KNOB D15		SI
* 112	V8916800	KNOB D15		GD

\* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
* 113	V8786100	KNOB/D10-P		
* 113	V8786200	KNOB/D10-P		
115	VQ368600	PUSH RIVET	P3555-B	
120	VR264400	SPACER	H8	
* 122	V9817200	SHEET/BARRIER-RX		RBG
140	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2BL	
141	VY731200	BONDING HEAD TAPPING SCREW	3x10 MFN133	
142	EP600830	BIND HEAD B-TITE SCREW	3x8 MFC2BL	
143	EP600250	BIND HEAD B-TITE SCREW	3x8 MFZN2Y	
144	EG330030	BIND HEAD SCREW	3x6 MFC2BL	R
145	VT669400	PW HEAD B-TITE SCREW	3x15-8 MFC2	
146	V2728500	BIND HEAD S-TITE SCREW	4x7 MFZN2BL	
148	EL300650	PW HEAD B-TITE SCREW	3x8-8 MFC2BL	
149	EP600790	FLAT HEAD B-TITE SCREW	3x8 MFZN2BL	
150	VY712800	PW HEAD B-TITE SCREW	3x8-8 MFN133	
%	VR519500	SHEET, FL	GD	
		ACCESSORIES		
200	V8913300	REMOTE CONTROL	RC-7060-01-0027	UCRA
200	V8913400	REMOTE CONTROL	RC-7060-01-0028	BG
200-1	AAX13340	BATTERY COVER	BLJYE 60050001	60050001
202	V6267000	INDOOR FM ANTENNA	1.4m 1pc	UCR
202	VQ147100	INDOOR FM ANTENNA	1.4m 1pc	ABG
203	VR248500	AM LOOP ANTENNA	1.0m 1pc	
204	VY952200	AUDIO PIN CABLE	2P 1m 1pc	
205	V4135300	SYSTEM CONTROL CABLE	1P 1m 1pc	
		BATTERY	UM-3,AA,R06	

\* New Parts

1

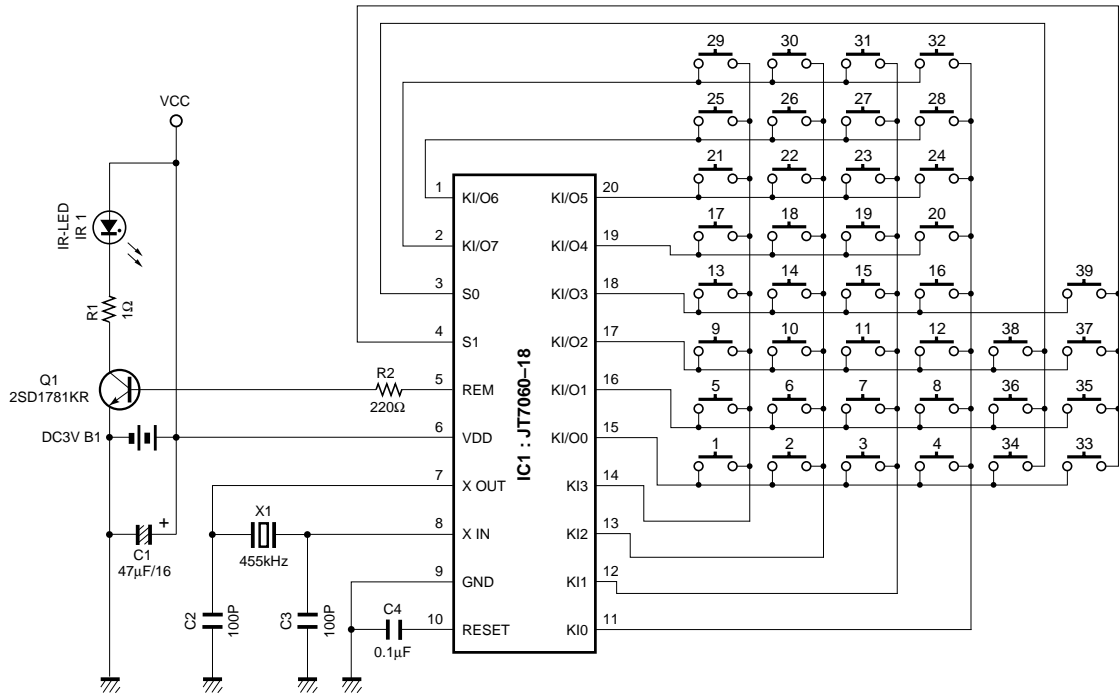
# REMOTE CONTROL TRANSMITTER

## ■ SCHEMATIC DIAGRAM

2

3

4



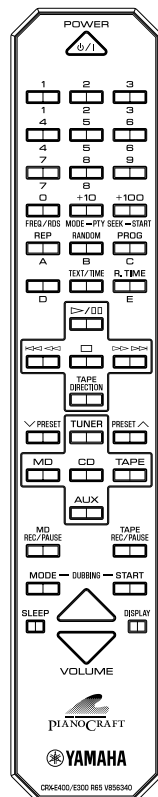
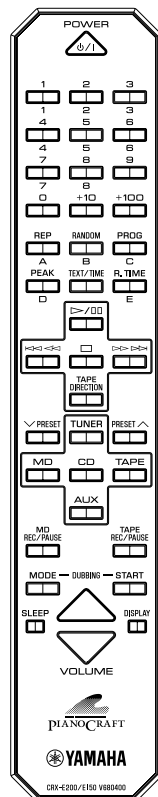
### ▼ U, C, R, A models

### ▼ B, G models

5

6

7



TRANSMISSION FORMAT: NEC-FORMAT  
CUSTOM CODE (HEX): 78

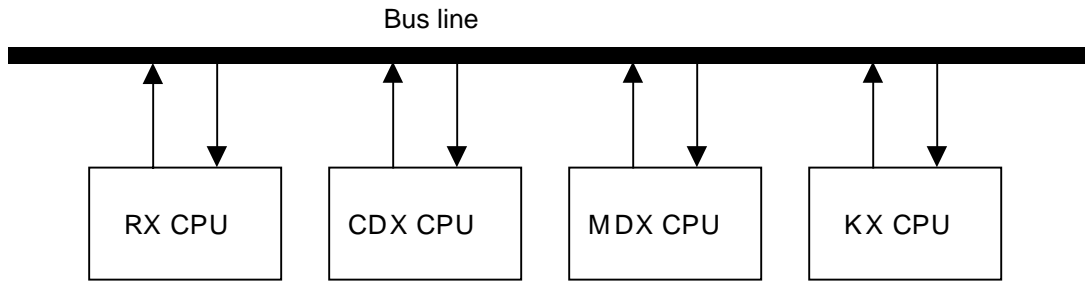
Key No.	Key Name	Data Code (HEX)	Key No.	Key Name	Data Code (HEX)
1	POWER	0F	21	◀◀	04
2	1	11	22	■	01
3	2	12	23	▶▶	03
4	3	13	24	TAPE DIRECTION	43
5	4	14	25	∨ PRESET	1C
6	5	15	26	TUNER	4B
7	6	16	27	PRESET ^	1B
8	7	17	28	MD	57
9	8	18	29	CD	4A
10	9	19	30	TAPE	41
11	0 (FREQ/RDS)	10	31	AUX	49
12	+10 (MODE)	1A	32	MD REC/PAUSE	58
13	+100 (START)	1D	33	TAPE REC/PAUSE	46
14	REP (A)	0C	34	MODE	05
15	RANDOM (B)	07	35	START	06
16	PROG (C)	0B	36	SLEEP	4F
17	D	09	37	VOLUME ^	1E
18	TEXT/TIME	0A	38	DISPLAY	4E
19	R. TIME (E)	08	39	VOLUME ∨	1F
20	▶ / ■	02			

# SYSTEM CONTROL

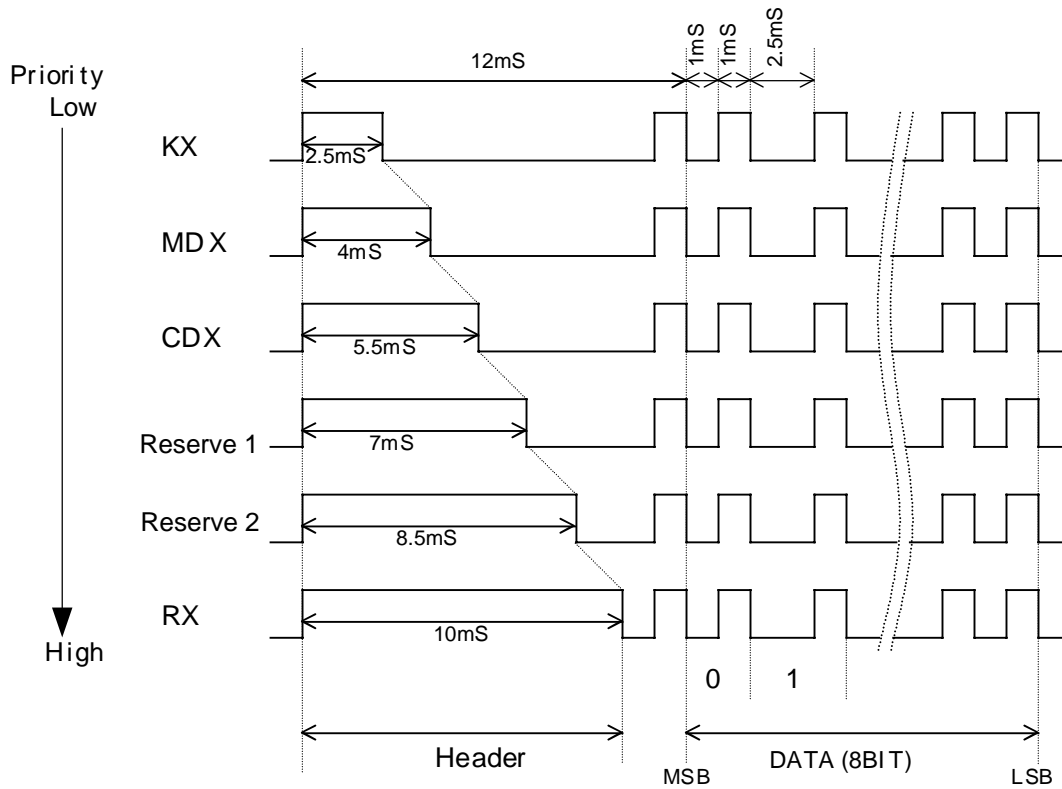
## Features

- One bus line controls all the units.
- Units are connected in series, using monaural mini jacks.
- Units can be connected in any order

## Description of Operation



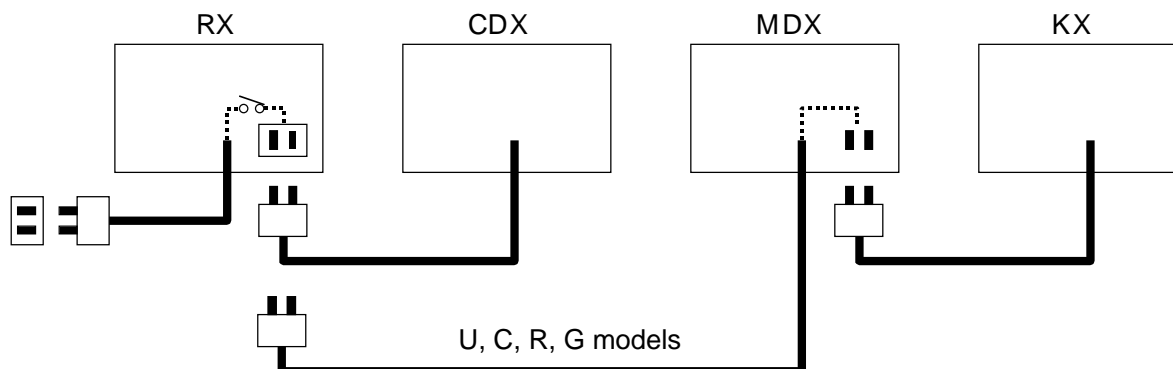
## Serial Data Format



Note) When transmitting a data following the previous data, leave at least 2mS space between them. (at least 4mS only when transmitting the CD text data)

## Description of main system operation

### 1) POWER ON/OFF processing [(1) to (4)]



- The power cord of each unit is connected to the AC outlet in series and switched on and off through the RX relay.
- Turning off the RX power switch will turn off the power to other units (primary connection) but turning off the power switch of any other unit will turn off the secondary connection of each unit only (i.e., the microprocessor remains on).
- Each unit has a backup function to save the secondary connection status when unplugged (taking use of a unit alone into consideration)
- The indicators of units are turned on after a dimmer level signal is fed from RX so that they light up simultaneously when the RX power switch is turned on. However, as the indicator of a unit does not light up when the unit is used alone in this setting, the indicator is forced to turn on when 2 seconds have elapsed without a dimmer level signal being fed (and the power for the backup function is turned on). When the CD unit is used alone, the timer play mode is set regardless of the backup function status.
- Make sure that the power off processing of each unit has been completed before turning off the power by using the RX relay.

### 2) FUNCTION [(5) to (6)]

- No source other than that selected by the input selector will be reproduced.
- The functions are selected automatically to be suitable for the source to be reproduced.
- Selecting the functions is prohibited during recording.

### 3) TIMER operation [(7) to (8)]

- TIMER PLAY to start reproduction at a specified time
- TIMER REC to start recording at a specified time

### 4) AUTO POWER OFF [(9)]

The RX power is turned OFF when the FUNCTION setting is other than TUNER and AUX and no key operation has been made for half an hour while all the connected units are at stop.

### 5) AUTO POWER ON [(10)]

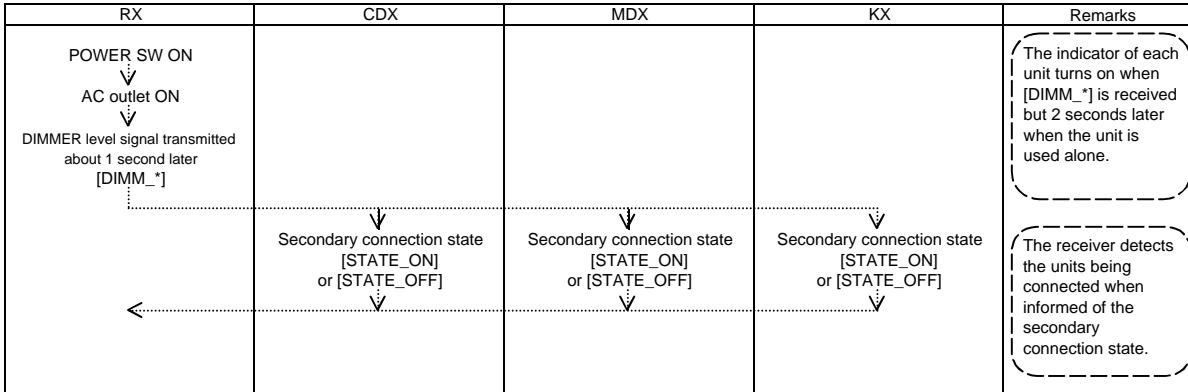
If the power of the connected units has been turned off while the RX power is on and when a key involving reproduction is pressed, the power is turned on automatically.

### 6) Dimmer

There are 7 dimmer level settings. The dimmer level data is transmitted from the receiver when the power is turned on. The dimmer level is "0" when a unit is used alone.

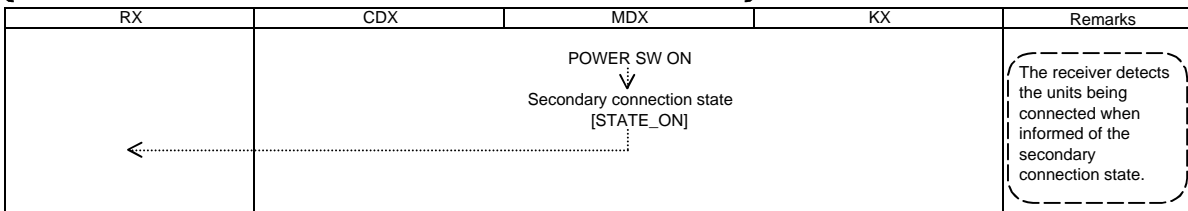
( 1 ) POWER ON PROCESSING ( Receiver )

When the power is turned on at the receiver, the relay of the AC outlet is turned on to supply power to each unit.  
Each unit informs the receiver of its status when started (secondary connection status).



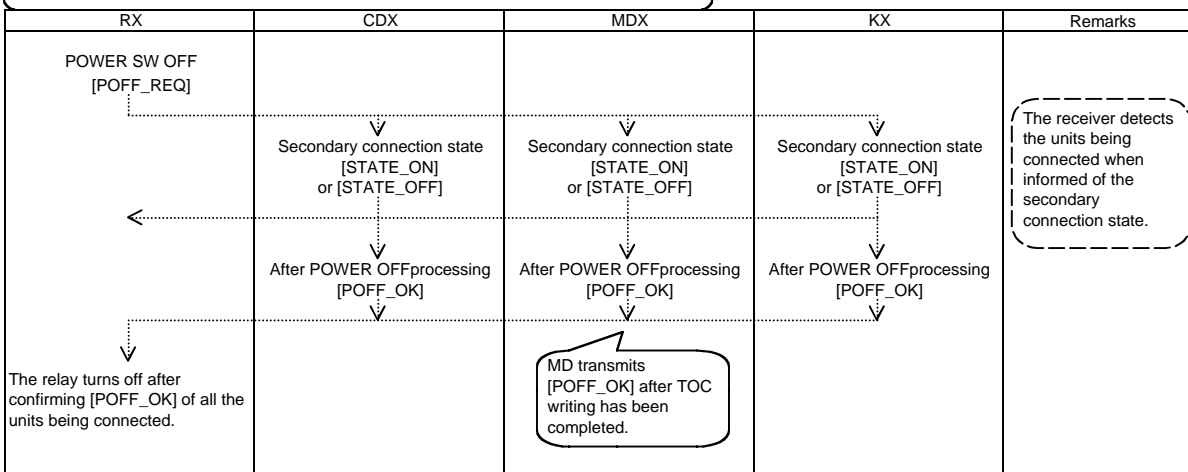
(2) POWER ON PROCESSING (except receiver)

When the power is turned on at a unit other than the receiver, the unit informs the receiver of the status then.



(3) POWER OFF PROCESSING (Receiver)

The receiver turns off the AC outlet when the power off processing of each unit has been completed.





(4)POWER OFF processing (except receiver)

When the power is turned off at a unit other than the receiver, the unit informs the receiver of the status when the power off processing has been completed.

RX	CDX	MDX	KX	Remarks
		POWER OFF ↓ After POWER OFF processing Secondary connection state [STATE_OFF]		The receiver detects the units being connected when informed of the secondary connection state.

(5)FUNCTION selection

When the RX function is selected, the unit in the PLAY mode will be stopped.

RX	CDX	MDX	KX	Remarks
FUNCTION selection [FUNC_CD] or [FUNC_MD] or [FUNC_TAPE] or [FUNC_TU] or [FUNC_AUX]	Stop when FUNC≠ CD and in PLAY mode [STOP]	Stop when FUNC≠ MD and in PLAY mode [STOP]	Stop when FUNC≠ TAPE and in PLAY mode [STOP]	When MD or TAPE is in RECORD mode, or in EDIT mode, it is prohibited to select functions.

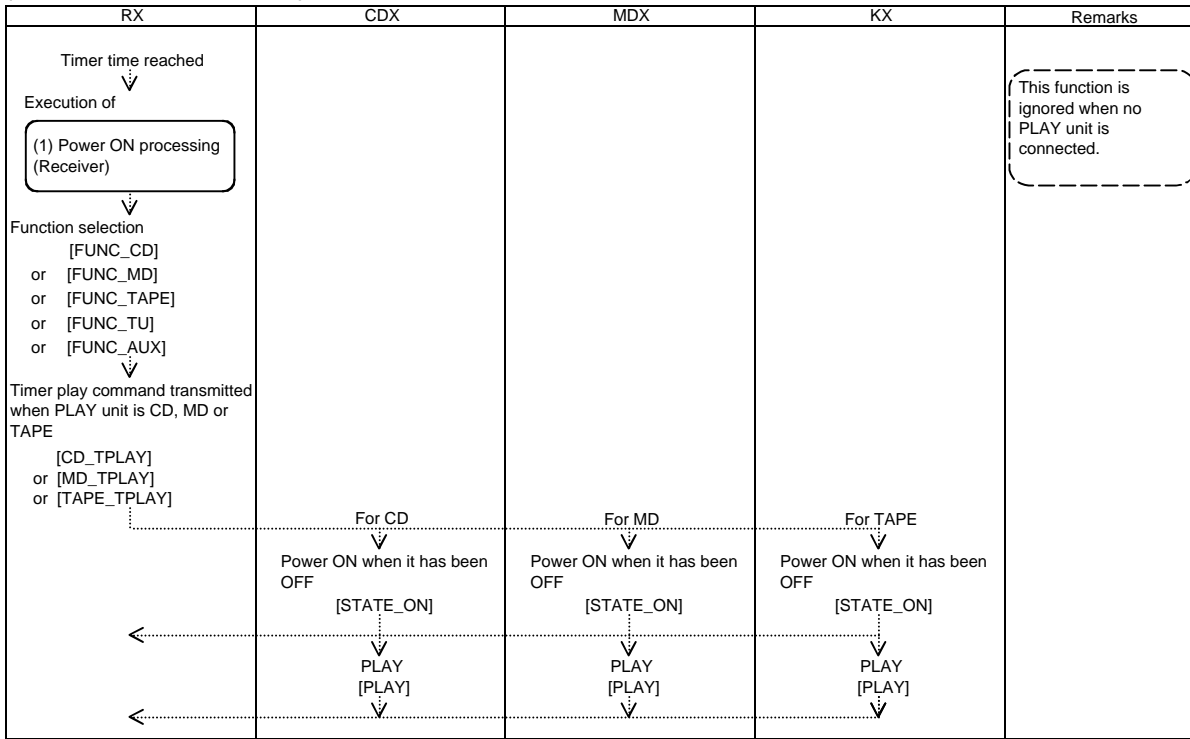
(6)AUTO FUNCTION

When each unit is set to the PLAY mode, the receiver selects the function to be suitable for that.

RX	CDX	MDX	KX	Remarks
When FUNC≠ PLAY FUNCTION selection [FUNC_CD] or [FUNC_MD] or [FUNC_TAPE] or [FUNC_TU] or [FUNC_AUX]	PLAY START [PLAY] ↓ Stop when FUNC≠ CD and in PLAY mode [STOP]	PLAY START [PLAY] ↓ Stop when FUNC≠ MD and in PLAY mode [STOP]	PLAY START [PLAY] ↓ Stop when FUNC≠ TAPE and in PLAY mode [STOP]	Same function as (5) FUNCTION selection.

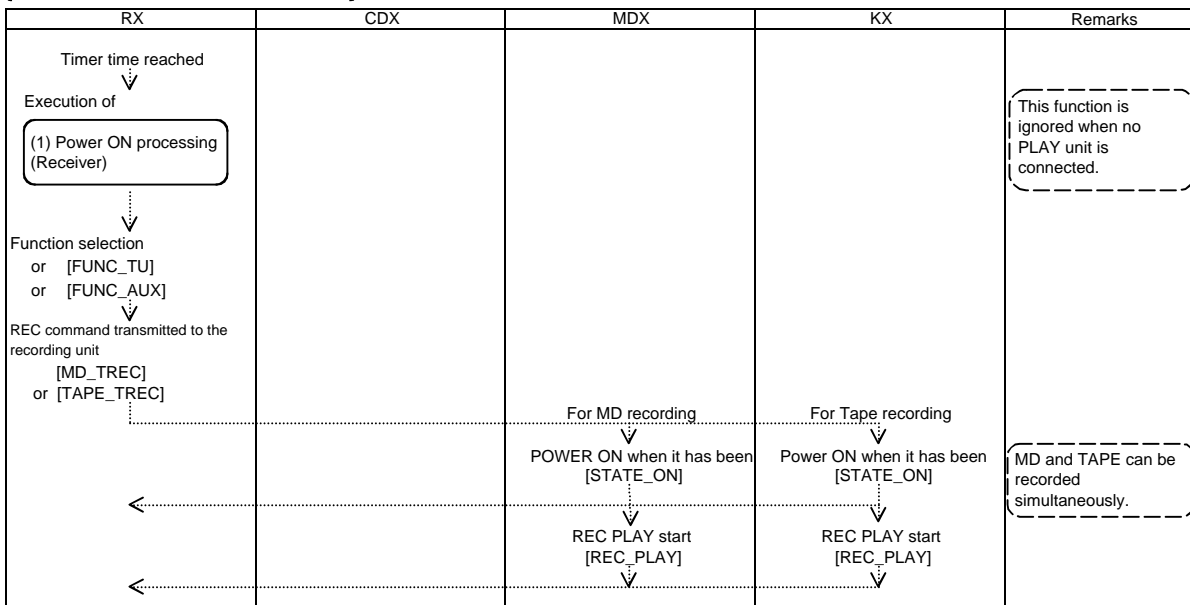
(7)TIMER PLAY

Timer play by built-in timer



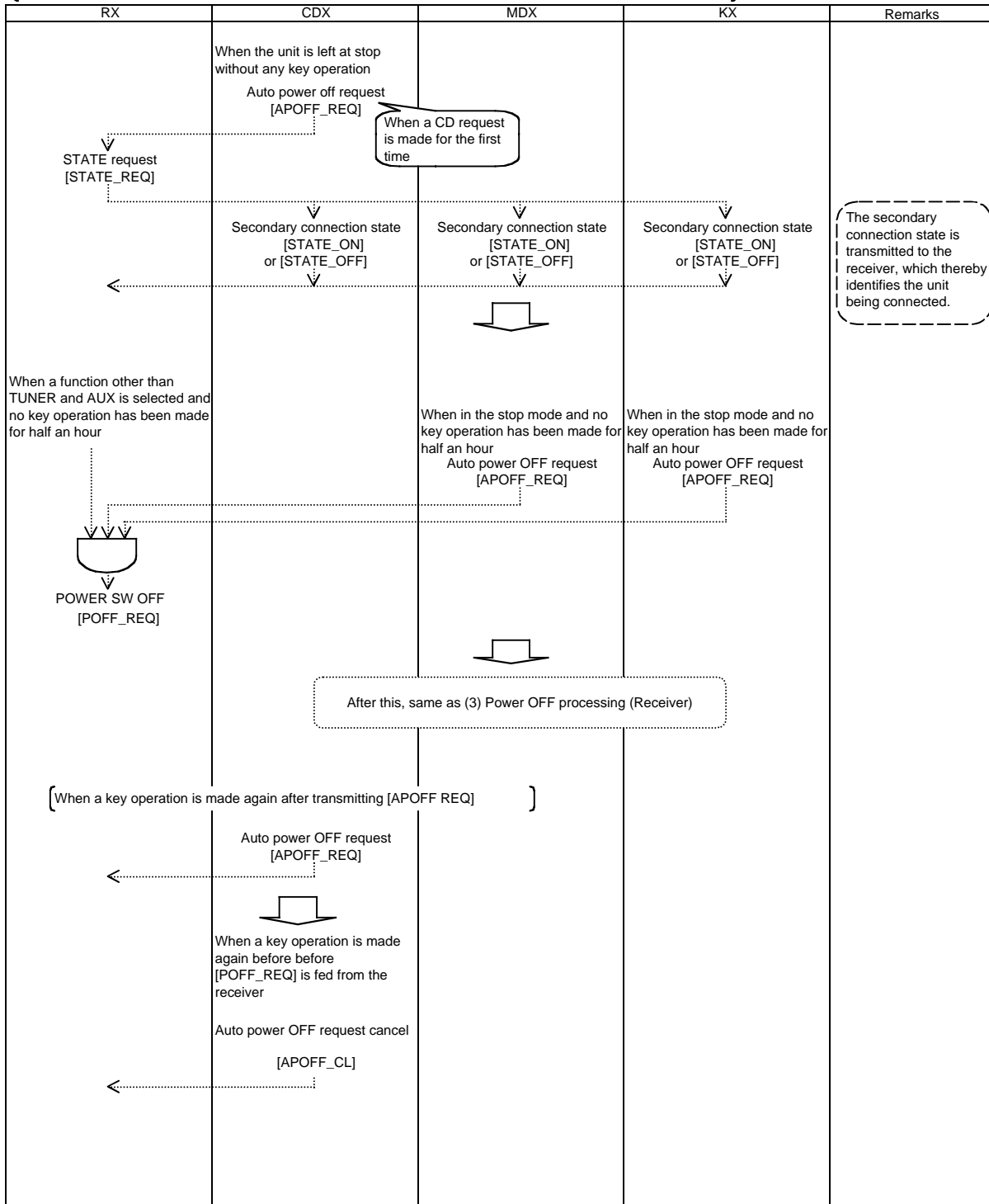
(8)TIMER REC

Timer recording by built-in timer



(9)AUTO POWER OFF

The receiver turns off the power when the unit is left at stop for half an hour without any operation.



(10)AUTO POWER ON

Function to turn ON the power without using the power switch on the unit other than the receiver

RX	CDX	MDX	KX	Remarks
	Auto power ON applicable key input ↓ When in the power OFF state Secondary connection state [STATE_ON] ↓ Operation according to the input key	Auto power ON applicable key input ↓ When in the power OFF state Secondary connection state [STATE_ON] ↓ Operation according to the input key	Auto power ON applicable key input ↓ When in the power OFF state Secondary connection state [STATE_ON] ↓ Operation according to the input key	

System Control Bus Data Table

FUNCTION		RX	CODE	CDX	CODE	MDX	CODE	KX	CODE	
Secondary connection ON				STATE_ON	01	STATE_ON	01	STATE_ON	01	
Secondary connection OFF				STATE_OFF	02	STATE_OFF	02	STATE_OFF	02	
Power OFF request		POFF_REQ	D0							
End of power OFF processing				POFF_OK	03	POFF_OK	03	POFF_OK	03	
STATE request		STATE_REQ	D1							
Auto power OFF request				APOFF_REQ	04	APOFF_REQ	04	APOFF_REQ	04	
Auto power OFF cancel				APOFF_CL	05	APOFF_CL	05	APOFF_CL	05	
Timer operation	Timer PLAY request(CD)	CD_TPLAY	D2							
	Timer PLAY request(MD)	MD_TPLAY	D3							
	Timer PLAY request(TAPE)	TAPE_TPLAY	D4							
	Timer REC request(MD)	MD_TREC	D5							
	Timer REC request(TAPE)	TAPE_TREC	D6							
FUNCTION selection			D7							
			D8							
			D9							
			DA							
			DB							
PLAY operation				PLAY	06	PLAY	06	PLAY	06	
STOP operation				STOP	07	STOP	07	STOP	07	
PAUSE				PAUSE	08	PAUSE	08			
REC PAUSE operation						REC_PAUSE	09	REC_PAUSE	09	
REC PLAY operation						REC_PLAY	0A	REC_PLAY	0A	
Dimmer level	0	DIMM_0	E0							
	-1	DIMM_1	E1							
	-2	DIMM_2	E2							
	-3	DIMM_3	E3							
	-4	DIMM_4	E4							
	-5	DIMM_5	E5							
	-6	DIMM_6	E6							
EDIT related operation	EDIT mode	EDIT C→T	EA							
		EDIT C→M	EC							
		EDIT M→T	EE							
		EDIT T→M	EF							
	Track no change			TNO_CHG	0B	TNO_CHG	0B			
"A" side tape end							TAPE_END	0B		
CD open wait			OPEN_WAIT	0C						
CD text related operation	Disc name end			DNAME_STAT	10					
	Disc name end			DNAME_END	11					
	Artist name start			ANAME_STAT	12					
	Artist name end			ANAME_END	13					
	Track name start			TNAME_STAT	14					
	Track name end			TNAME_END	15					
	Text data protect			PROTECT	16					
	Reception OK					GET_OK	0C			
	Reception NG					GET_NG	0D			
	Text data				ASCII_CODE	20   7F				
						80   FF				
		Number of characters(0 to127)			COUNT					

Function	RX	CODE	CDX	CODE	MDX	CODE	KX	CODE	
Remote control	CD	CD_STOP	80						
		CD_PLAY/PAUSE	81						
		<del>CD_EJECT</del>	<del>82</del>						
		CD_SKIP+	83						
		CD_SKIP-	84						
		SEARCH+	85						
		SEARCH-	86						
		SEACH_END	87						
		CD_RANDOM	88						
		CD_TIME	89						
		CD_PRG	8A						
		CD_RPT	8B						
		TAPE	8C						
		PEAK SEARCH	8D						
		CD_0	90						
		CD_1	91						
		CD_2	92						
		CD_3	93						
		CD_4	94						
		CD_5	95						
		CD_6	96						
		CD_7	97						
		CD_8	98						
		CD_9	99						
		CD_10	9A						
		MD	MD_STOP	A0					
			MD_PLAY/PAUSE	A1					
			<del>MD_EJECT</del>	<del>A2</del>					
			MD_SKIP+	A3					
			MD_SKIP-	A4					
			SEARCH+	A5					
			SEARCH-	A6					
			SEACH_END	A7					
MD_RANDOM	A8								
MD_TIME	A9								
MD_PRG	AA								
MD_RPT	AB								
MD_REC PAUSE	AC								
MD_0	B0								
MD_1	B1								
MD_2	B2								
MD_3	B3								
MD_4	B4								
MD_5	B5								
MD_6	B6								
MD_7	B7								
MD_8	B8								
MD_9	B9								
MD_10	BA								
MD_+100	BB								
TAPE	TAPE_STOP	C0							
	TAPE_PLAY	C1							
	<del>TAPE_EJECT</del>	<del>C2</del>							
	TAPE_FF	C3							
	TAPE_REW	C4							
	TAPE_PAUSE	C5							
TAPE_DIR	C6								

**Reception status of operation switches during recording**

(\* = AUX or TUNER)

Unit	SW	EDIT RECORDING				SYNCHRONOUS or MANUAL RECORDING							
		C→T	C→M	M→T	T→M	C→T	C→M	M→T	T→M	C→T,M	*→M	*→T	*→T,M
RX	POWER	○	○	○	○	○	○	○	○	○	○	○	○
	FUNCTION	×	×	×	×	×	×	×	×	×	×	×	×
CD	POWER	○	○	○	○	○	○	○	○	○	○	○	○
	EJECT	×	×	○	○	○	○	○	○	○	○	○	○
	PLAY	×	×	×	×	○	○	×	×	○	×	×	×
	STOP	○	○	×	×	○	○	×	×	○	×	×	×
	SKIP	×	×	×	×	○	○	×	×	○	×	×	×
	SEARCH	×	×	×	×	○	○	×	×	○	×	×	×
MD	POWER	○	○	○	○	○	○	○	○	○	○	○	○
	EJECT	○	×	×	×	○	○	○	○	○	○	○	○
	PLAY	×	×	×	×	×	×	○	×	×	×	×	×
	STOP	×	○	○	○	×	○	○	○	○	○	×	○
	SKIP	×	×	×	×	×	×	○	×	×	×	×	×
	SEARCH	×	×	×	×	×	×	○	×	×	×	×	×
	REC	×	×	×	×	×	○	×	○	○	○	×	○
TAPE	POWER	○	○	○	○	○	○	○	○	○	○	○	○
	EJECT	×	○	×	×	○	○	○	○	○	○	○	○
	PLAY	×	×	×	×	×	×	×	○	×	×	×	×
	STOP	○	○	○	○	○	○	○	○	○	○	○	○
	FF/REW	×	○	×	×	○	○	○	○	○	○	○	○
	REC	×	×	×	×	○	×	○	×	○	×	○	○

Principle of switch rec operation reception

- The POWER SW has priority regardless of any other conditions.
- During EDIT recording, no switch operation other than discontinuing the EDIT function (STOP SW of recording and reproduction units) is received. However, if it is clear that the switch operation would not affect the EDIT function, it will be accepted.
- During SYNCHRONOUS or MANUAL recording, the switch operation of the recording and reproduction units is accepted but switch operation of other units that would affect recording are not accepted.

**AUTO POWER ON RECEPTION SW**

(This switch can turn on the power instead of the POWER SW when the secondary switch has been turned off.)

Unit	SW
CD	EJECT
	PLAY
MD	EJECT
	PLAY
TAPE	EJECT
	PLAY

1

# NX-E400

2

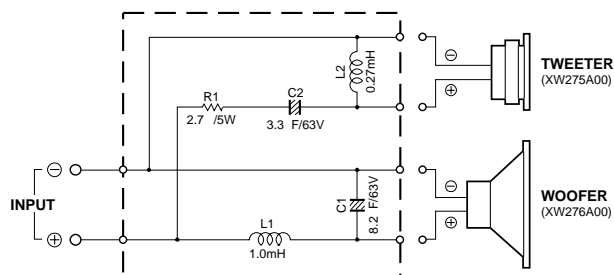
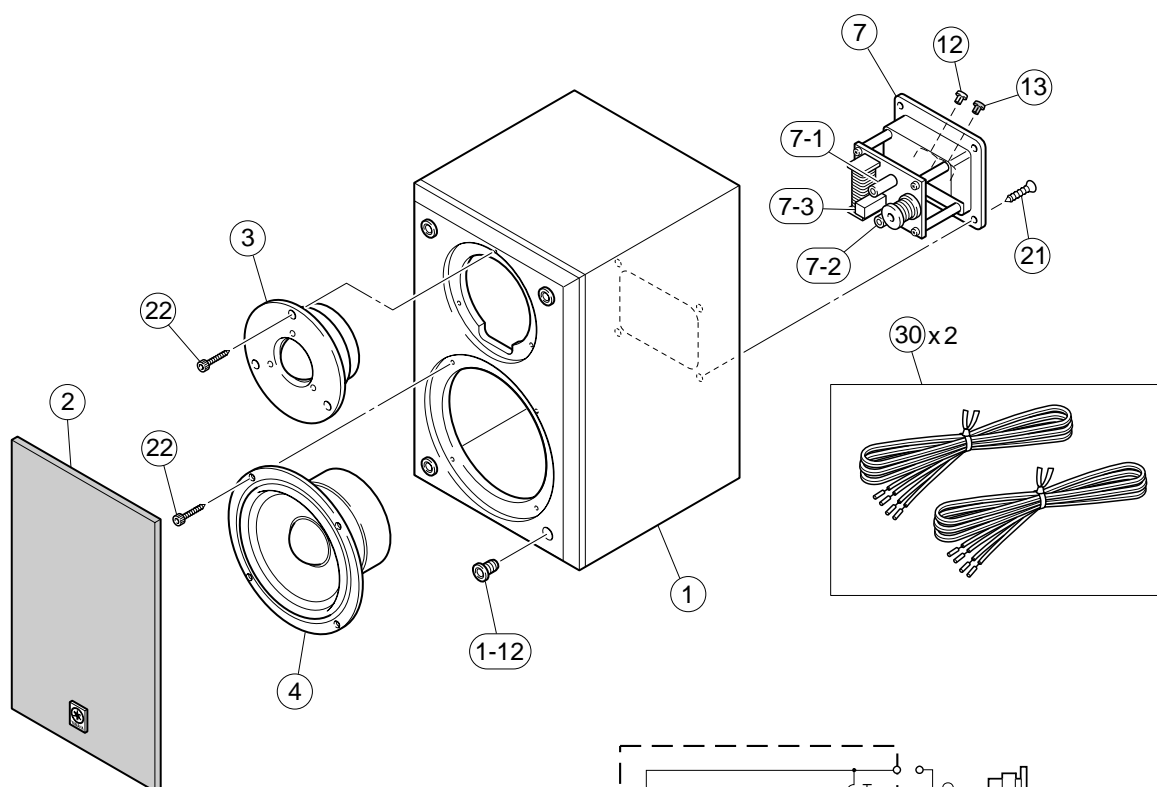
3

4

5

6

7



Ref. No.	PART NO.	Description	Remarks	Markets
* 1	V9509300	CABINET ASS'Y	BL	
1-12	CB605250	HOLDER		
* 2	V9509700	FRONT GRILLE ASS'Y	BL	
3	XW275A00	DRIVER TWEETER	2.5cm 5 40W	
4	XW276A00	DRIVER WOOFER	13cm 6 40W	
* 7	V9509800	NETWORK ASS'Y		
7-1	V6055400	ELECTROLYTIC CAP	8.2uF 63V	
7-2	V6367500	ELECTROLYTIC CAP	3.3uF 63V	
* 7-3	V9507500	CEMENT RESISTOR	2.7 5W	
12	V5361400	TERMINAL CAP	S06E RED	
13	V5361500	TERMINAL CAP	S06E BLACK	
* 21	V9506000	FLAT HEAD WOOD SCREW	3.5x20 MFZN2BL	
* 22	V9506100	HEXAGON HEAD WOOD SCREW	4x25 MFZN2BL	
* 30	V9826900	ACCESSORIES SPEAKER CABLE	4m 1pc	

\* New Parts

# Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			

**1/4W Type**

HJ35 ○○○○

← 10mm →

**1/6W Type**

HF45 ○○○○

HF85 ○○○○

← 5mm →