

# AV RECEIVER

# RX-V2065/HTR-6295

## SERVICE MANUAL

### Note:

When IC513 of GUI P.C.B. or GUI P.C.B. is replaced, the network function of this unit will not operate properly without additional setting.

In such case, report the serial number of this unit to the following e-mail address.

Yamaha Corporation will reply providing the setting procedure to make the network function of this unit operate properly.

**E-mail:** ycav-ysiss@gmx.yamaha.com

### 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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101147

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**YAMAHA**

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'09.08

RX-V2065/HTR-6295

## ■ TO SERVICE PERSONNEL

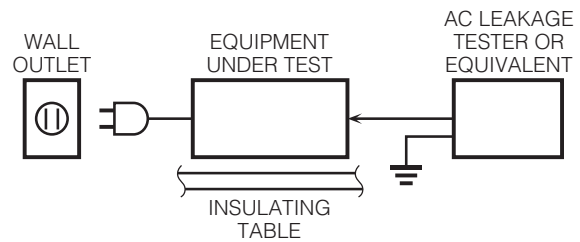
### 1. Critical Components Information

Components having special characteristics are marked  $\Delta$  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 ohms 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.



#### For U model

##### “CAUTION”

“F6002: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 10A, 125V FUSE.”

#### For C model

##### CAUTION

F6002: REPLACE WITH SAME TYPE 10A, 125V FUSE.

##### ATTENTION

F6002: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 10A, 125V.

## WARNING: CHEMICAL CONTENT NOTICE!

This product contains chemicals known to the State of California to cause cancer, 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.

## About lead free solder

All of the P.C.B.s installed in this unit and solder joints are soldered using the lead free solder.

Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

### Caution:

As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.

## WARNING: Lithium batteries

### CAUTION

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type.

**WARNING:** Lithium batteries are dangerous because they can be exploded by improper handling. Observe the following precautions when handling or replacing lithium batteries.

- Leave lithium battery replacement to qualified service personnel.
- Always replace with batteries of the same type.
- When installing on the PC board by soldering, solder using the connection terminals provided on the battery cells. Never solder directly to the cells. Perform the soldering as quickly as possible.
- Never reverse the battery polarities when installing.
- Do not short the batteries.
- Do not attempt to recharge these batteries.
- Do not disassemble the batteries.
- Never heat batteries or throw them into fire.

### ADVARSEL!

Lithiumbatteri –Eksplodingsfare ved fejlagtig håndtering.  
Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

### VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

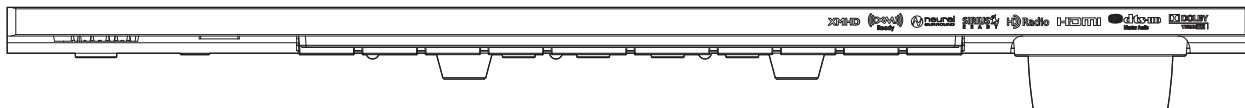
### VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.  
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

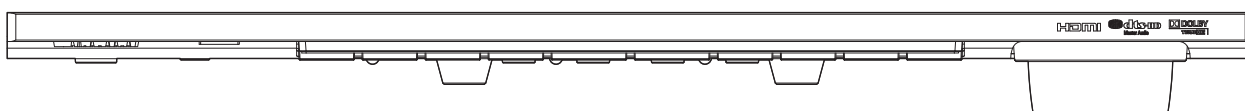
## FRONT PANELS

### Top view

#### U model

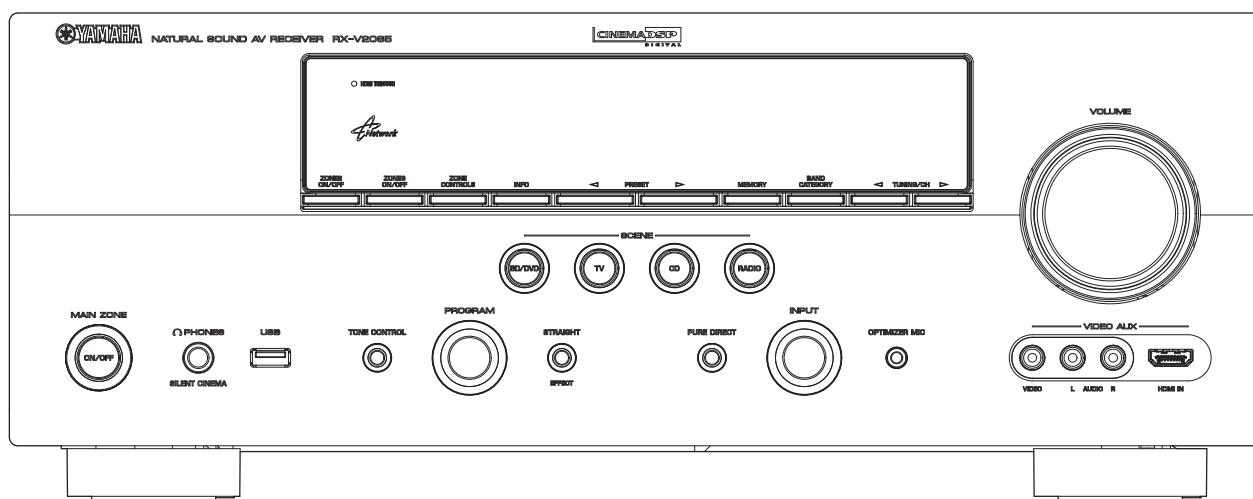


#### C, R, T, K, A, B, G, E, F, L models

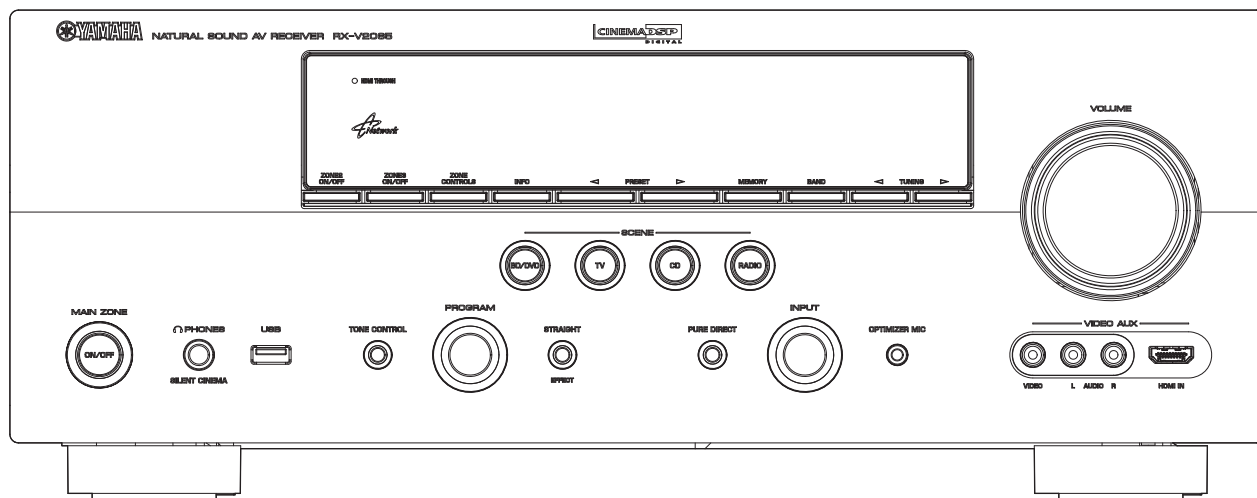


### Front view

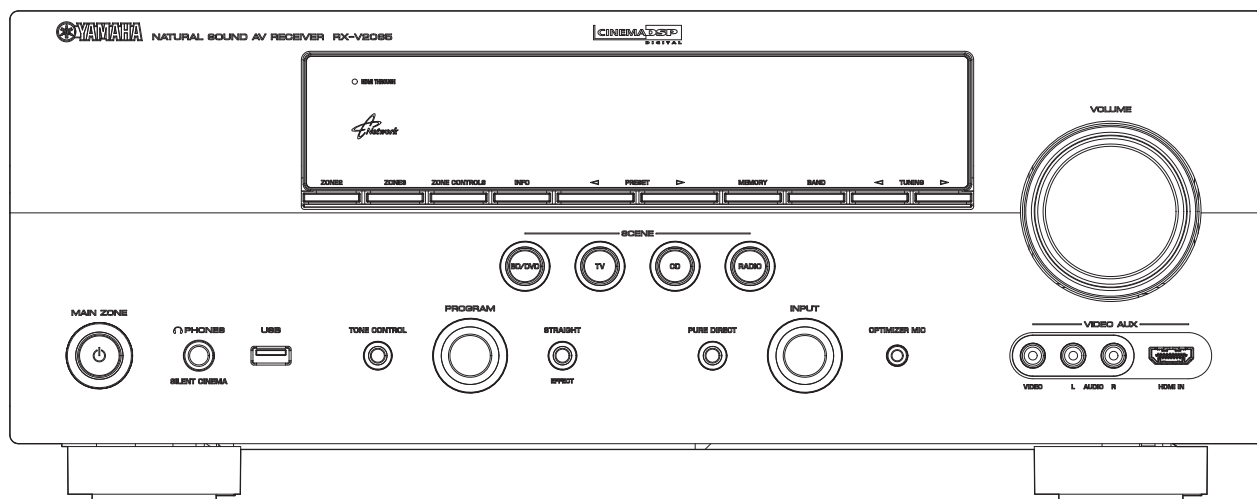
#### RX-V2065 (U model)



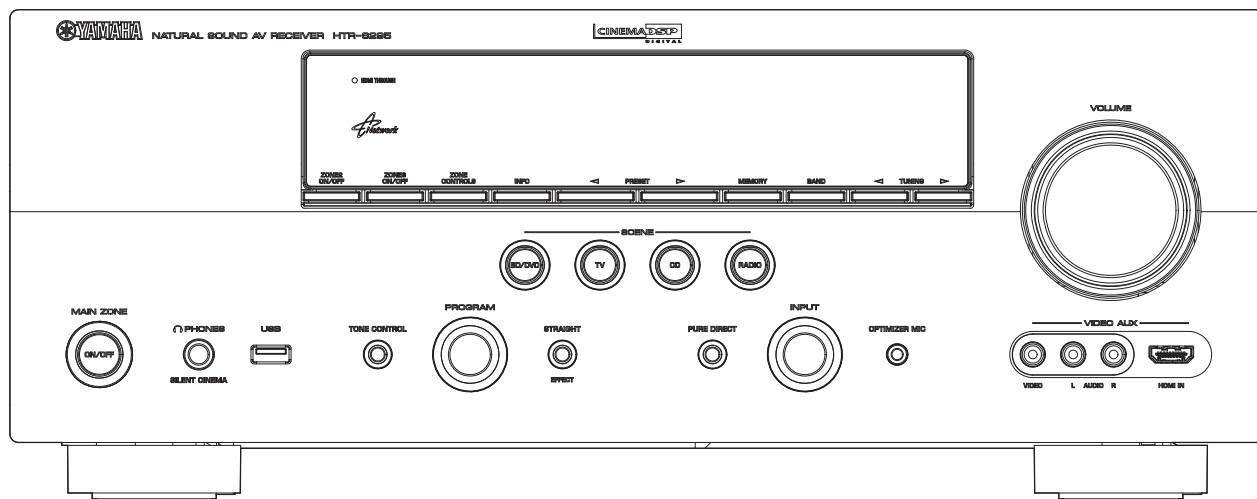
RX-V2065 (C, R, K, A, B, G, E, F, L models)



RX-V2065 (T model)



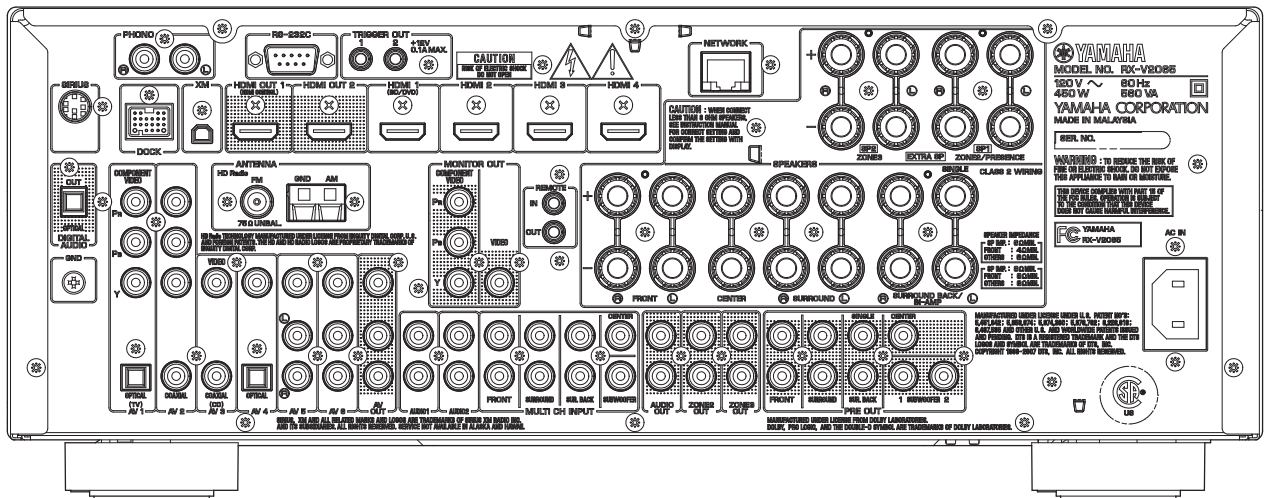
HTR-6295 (C model)



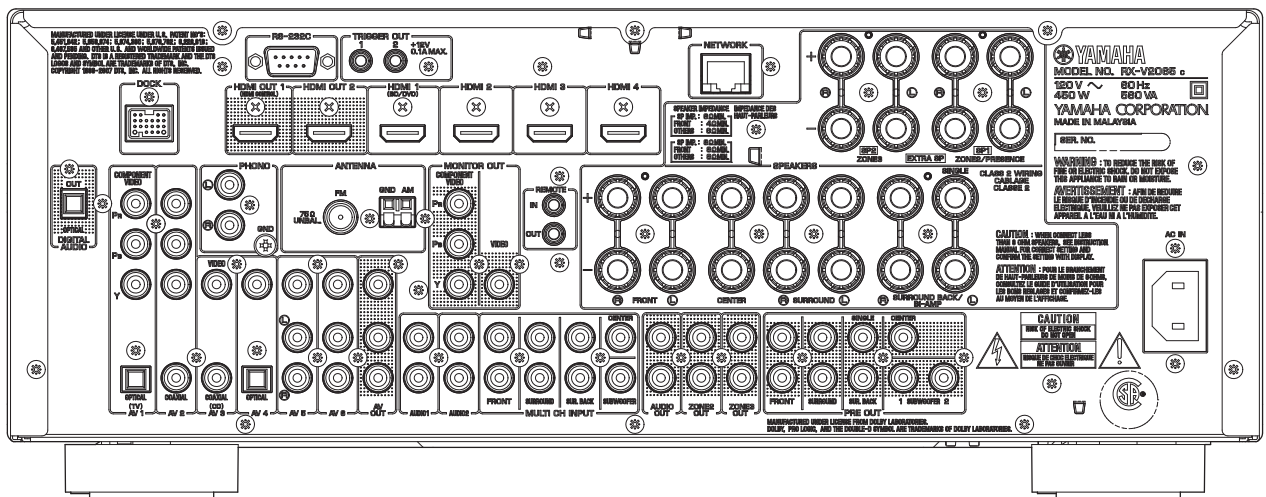


## REAR PANELS

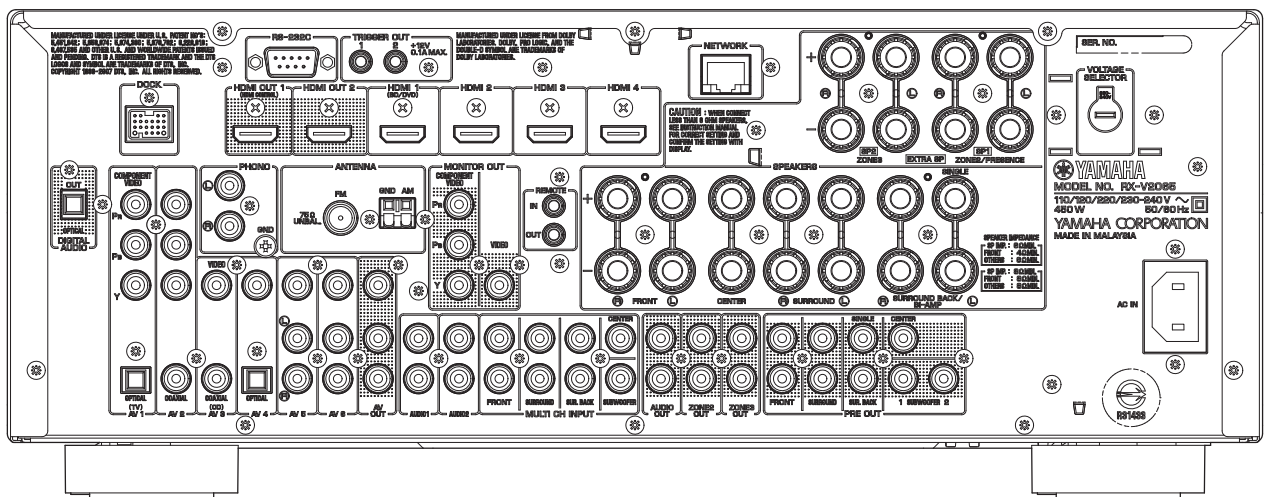
RX-V2065 (U model)



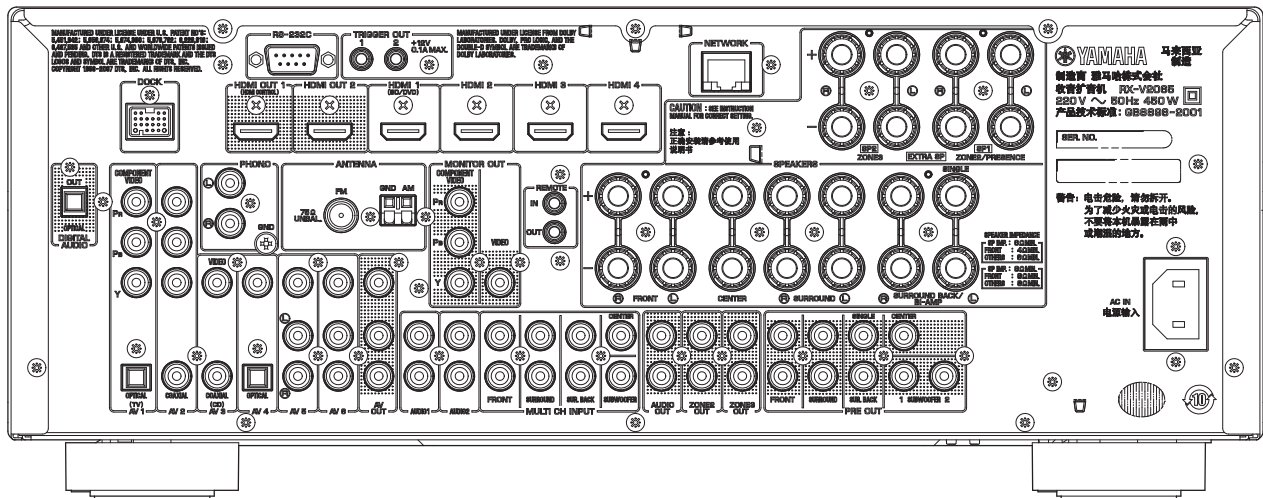
RX-V2065 (C model)



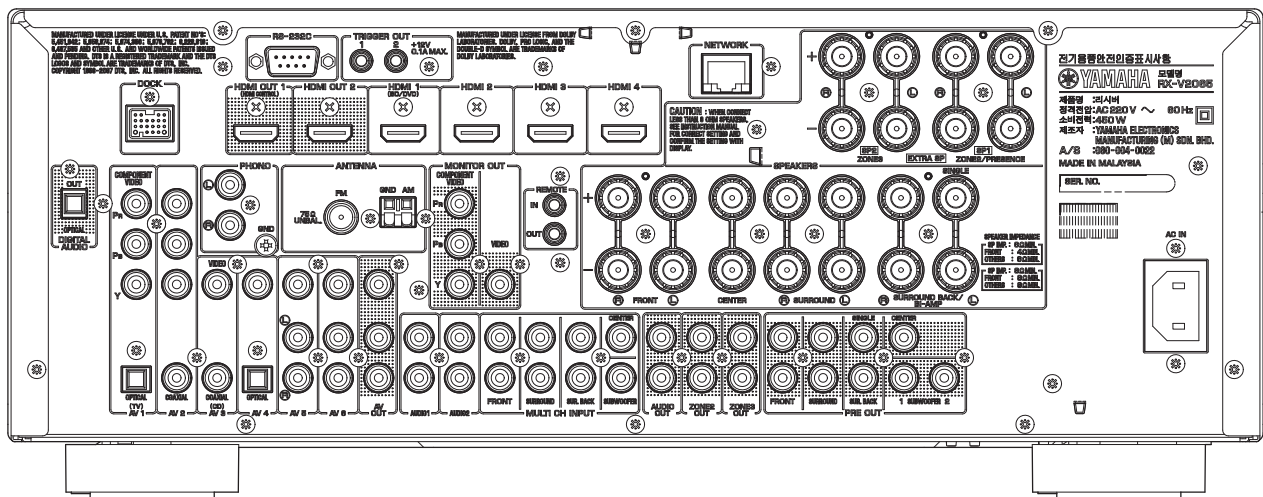
RX-V2065 (R model)



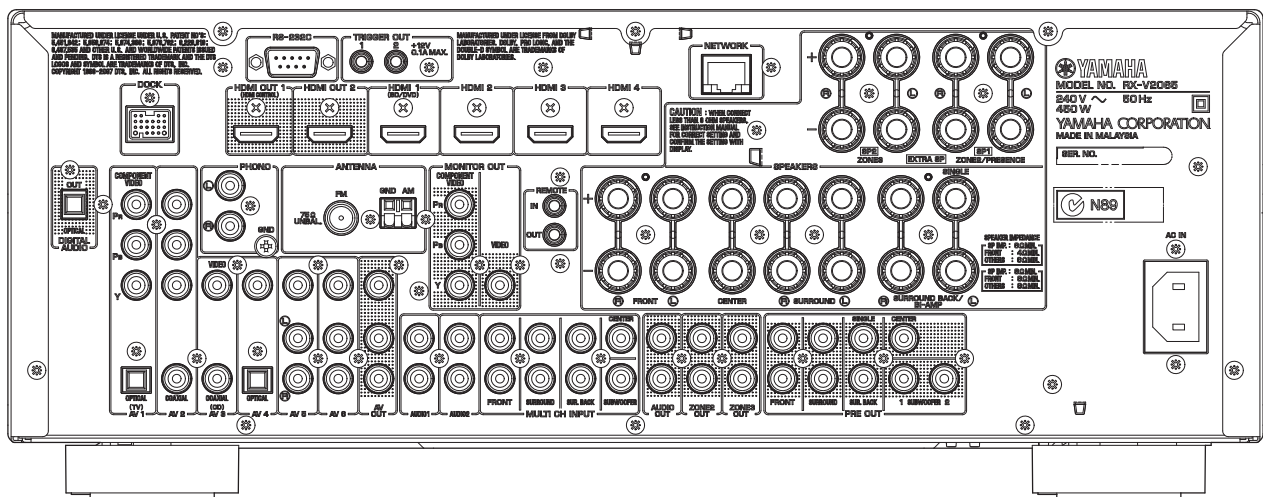
## RX-V2065 (T model)



## RX-V2065 (K model)

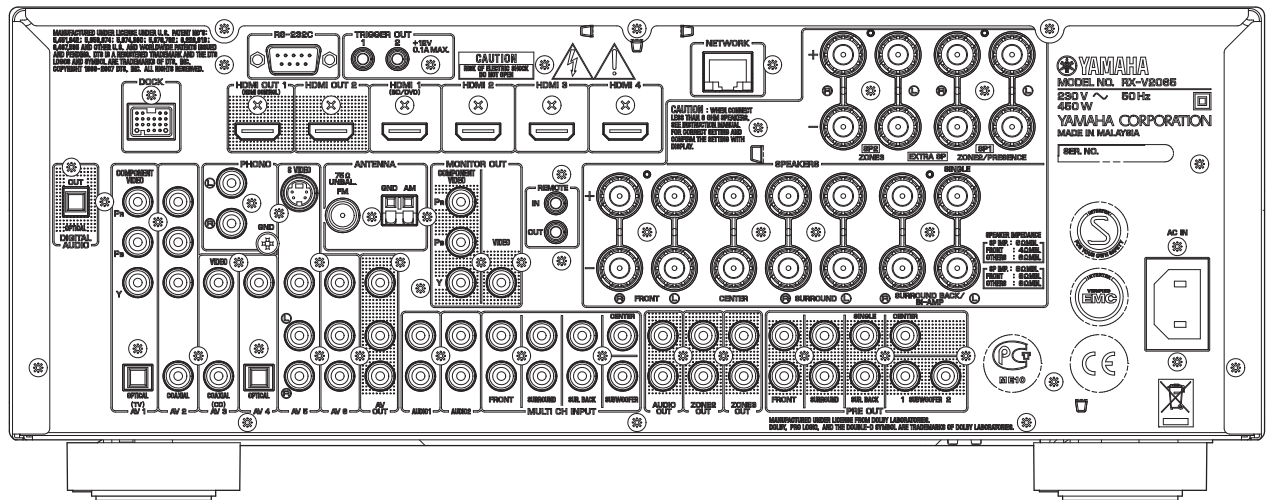


## RX-V2065 (A model)

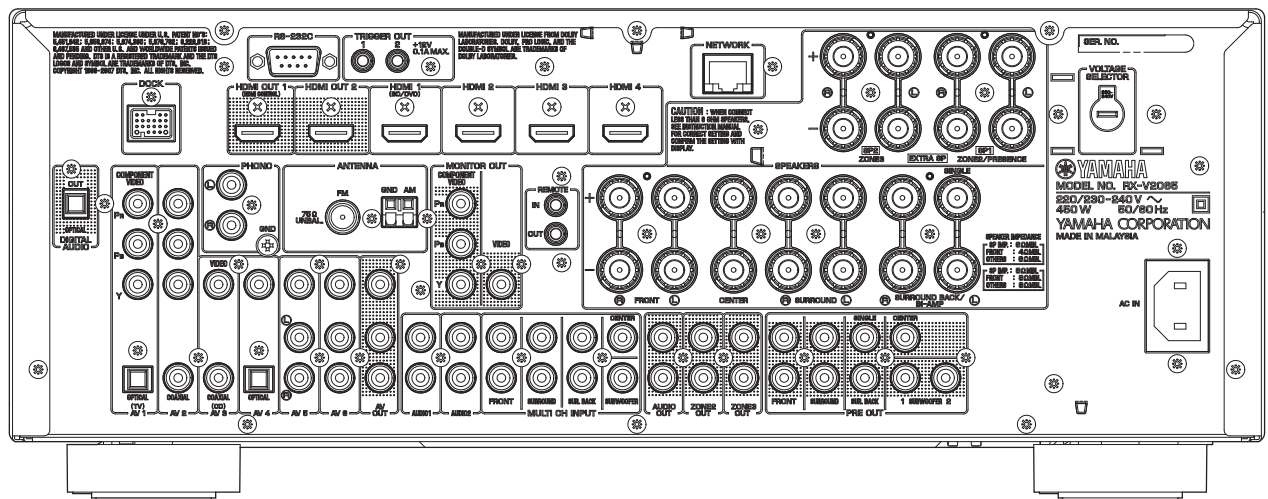




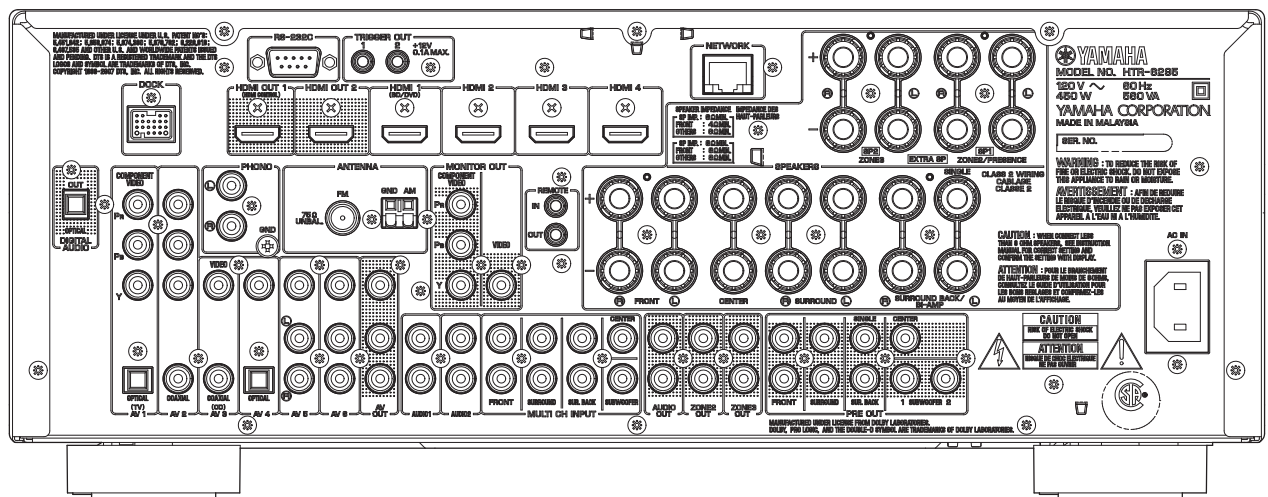
## RX-V2065 (B, G, E, F models)



## RX-V2065 (L model)



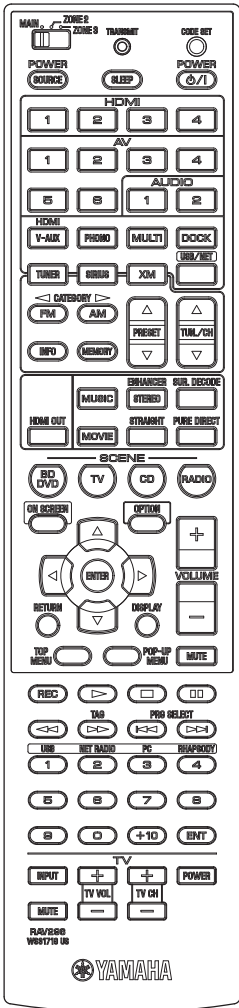
## HTR-6295 (C model)



■ REMOTE CONTROL PANELS

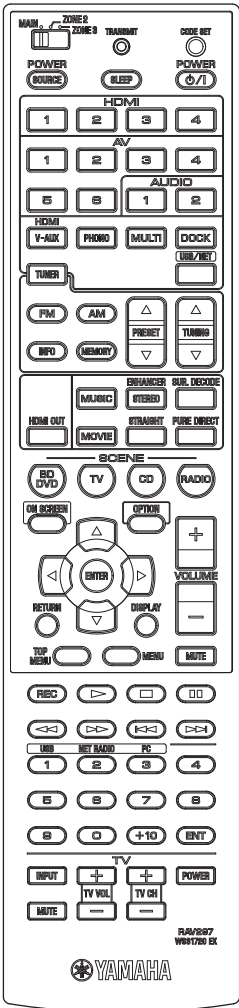
RAV296

(U model)



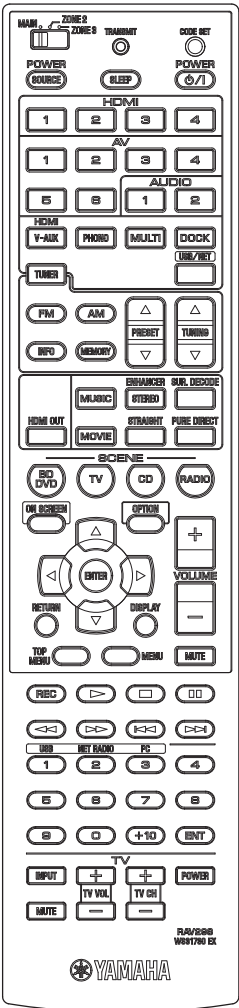
RAV297

(C, R, A, L models)



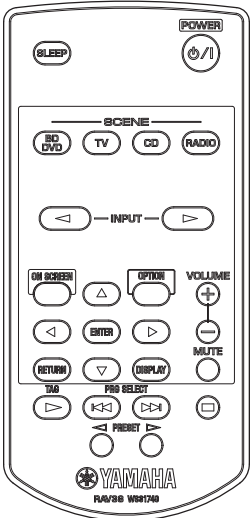
RAV298

(T, K, B, G, E, F models)



RAV38

(U, C, R, T, K, A, B, G, E, F, L models)



## SPECIFICATIONS

### Audio Section

#### Minimum RMS Output Power (Power Amp. Section)

(20 Hz to 20 kHz, 0.08 % THD, 8 ohms)

|                   |               |
|-------------------|---------------|
| FRONT L/R         | 130 W + 130 W |
| CENTER            | 130 W         |
| SURROUND L/R      | 130 W + 130 W |
| SURROUND BACK L/R | 130 W + 130 W |

#### Maximum Power (JEITA) (1 kHz, 10 % THD, 8 ohms)

[R, T, K, A, L models]

|                   |               |
|-------------------|---------------|
| FRONT L/R         | 175 W + 175 W |
| CENTER            | 175 W         |
| SURROUND L/R      | 175 W + 175 W |
| SURROUND BACK L/R | 175 W + 175 W |

#### MAX. Power Per Channel (1 kHz, 0.7 % THD, 4 ohms)

[B, G, E, F models]

|                   |               |
|-------------------|---------------|
| FRONT L/R         | 180 W + 180 W |
| CENTER            | 180 W         |
| SURROUND L/R      | 180 W + 180 W |
| SURROUND BACK L/R | 180 W + 180 W |

#### IEC Power (1 kHz, 0.08 % THD, 8 ohms)

[B, G, E, F models]

|           |               |
|-----------|---------------|
| FRONT L/R | 130 W + 130 W |
|-----------|---------------|

#### Dynamic Power Per Channel (IHF)

FRONT L/R drive

|                      |                         |
|----------------------|-------------------------|
| (8 / 6 / 4 / 2 ohms) | 160 / 200 / 260 / 330 W |
|----------------------|-------------------------|

#### Dynamic Headroom [U, C models]

|        |        |
|--------|--------|
| 8 ohms | 0.9 dB |
|--------|--------|

#### Damping Factor

(20 Hz to 20 kHz, 8 ohms, SPEAKER-A)

|           |             |
|-----------|-------------|
| FRONT L/R | 100 or more |
|-----------|-------------|

#### Input Sensitivity/Input Impedance

(1 kHz, 100 W/8 ohms)

|                                                               |                    |
|---------------------------------------------------------------|--------------------|
| PHONO (MM)                                                    | 3.5 mV / 47 k-ohms |
| AV5 etc.                                                      | 200 mV / 47 k-ohms |
| MULTI CH INPUT                                                |                    |
| FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, SUBWOOFER |                    |
|                                                               | 200 mV / 47 k-ohms |

#### Maximum Input Signal (1 kHz)

|                                  |               |
|----------------------------------|---------------|
| PHONO (MM) (0.1 % THD)           | 60 mV or more |
| AV5 etc. (Effect ON) (0.5 % THD) | 2.3 V or more |

#### Output Level/Output Impedance

|                                             |                   |
|---------------------------------------------|-------------------|
| REC OUT                                     | 200 mV/1.2 k-ohms |
| PRE OUT                                     | 1 V/1.2 k-ohms    |
| SUBWOOFER (2 ch stereo and FRONT SP: small) |                   |
|                                             | 1 V/1.2 k-ohms    |
| ZONE2, 3 OUT                                | 200 mV/1.4 k-ohms |

#### Headphone Jack Rated Output/Output Impedance

|                                       |                 |
|---------------------------------------|-----------------|
| AV5 etc. input (1 kHz, 50 mV, 8 ohms) | 100 mV/470 ohms |
|---------------------------------------|-----------------|

#### Frequency Response

|                                    |          |
|------------------------------------|----------|
| AV5 etc., FRONT (10 Hz to 100 kHz) | +0/-3 dB |
|------------------------------------|----------|

#### RIAA Equalization Deviation

|            |           |
|------------|-----------|
| PHONO (MM) | 0 ±0.5 dB |
|------------|-----------|

#### Total Harmonic Distortion

|                                                                |                |
|----------------------------------------------------------------|----------------|
| PHONO (MM) to REC OUT (20 Hz to 20 kHz, 1 V)                   |                |
|                                                                | 0.02 % or less |
| AV5 etc. (PURE DIRECT) to FRONT SP OUT (20 Hz to 20 kHz, 50 W) |                |
| 8 ohms                                                         | 0.06 % or less |

#### Signal to Noise Ratio (IHF-A network)

PHONO (MM) to REC OUT (Input shorted 5 mV)

|                            |               |
|----------------------------|---------------|
| U, C, R, T models          | 86 dB or more |
| K, A, B, G, E, F, L models | 81 dB or more |

AV5, etc. (PURE DIRECT) to SP OUT (Input shorted 250 mV)

|  |                |
|--|----------------|
|  | 100 dB or more |
|--|----------------|

#### Residual Noise (IHF-A network)

|                     |                |
|---------------------|----------------|
| FRONT L/R to SP OUT | 150 µV or less |
|---------------------|----------------|

#### Channel Separation (1 kHz / 10 kHz)

PHONO (Input shorted)

|  |                               |
|--|-------------------------------|
|  | 60 dB or more / 55 dB or more |
|--|-------------------------------|

AV5, etc. (Input 5.1 k-ohms shorted)

|  |                               |
|--|-------------------------------|
|  | 60 dB or more / 45 dB or more |
|--|-------------------------------|

#### Volume Control

|  |                                         |
|--|-----------------------------------------|
|  | MUTE / -80 dB to +16.5 dB / 0.5 dB step |
|--|-----------------------------------------|

#### Tone Control Characteristics

FRONT L/R

|                    |                          |
|--------------------|--------------------------|
| Bass               |                          |
| Boost/Cut          | ±10 dB/2 dB, step 50 Hz  |
| Turnover frequency | 350 Hz                   |
| Treble             |                          |
| Boost/Cut          | ±10 dB/2 dB, step 20 kHz |
| Turnover frequency | 3.5 kHz                  |

#### Filter Characteristics

FRONT, CENTER, SURROUND, SURROUND BACK small (H.P.F.)

|  |                                                   |
|--|---------------------------------------------------|
|  | fc=40/60/80/90/100/110/120/160/200 Hz, 12 dB/oct. |
|--|---------------------------------------------------|

SUBWOOFER small (L.P.F.)

|  |                                                   |
|--|---------------------------------------------------|
|  | fc=40/60/80/90/100/110/120/160/200 Hz, 24 dB/oct. |
|--|---------------------------------------------------|

### Video Section

#### Video Signal Type (Gray back)

Gray back

|                            |      |
|----------------------------|------|
| U, C, R, K models          | NTSC |
| T, A, B, G, E, F, L models | PAL  |

Video conversion

|  |          |
|--|----------|
|  | NTSC/PAL |
|--|----------|

#### Composite Video Signal Level

|  |                  |
|--|------------------|
|  | 1 Vp-p / 75 ohms |
|--|------------------|

#### S-Video Signal Level [B, G, E, F models]

|   |                      |
|---|----------------------|
| Y | 1 Vp-p / 75 ohms     |
| C | 0.286 Vp-p / 75 ohms |

#### Component Video Signal Level

|       |                    |
|-------|--------------------|
| Y     | 1 Vp-p / 75 ohms   |
| Cb/Cr | 0.7 Vp-p / 75 ohms |

#### Video Maximum Input Level

|                      |                  |
|----------------------|------------------|
| VIDEO CONVERSION OFF | 1.5 Vp-p or more |
|----------------------|------------------|

#### Video Signal to Noise Ratio

|  |               |
|--|---------------|
|  | 50 dB or more |
|--|---------------|

#### Monitor Out Frequency Response

(VIDEO CONVERSION OFF)

|                              |                       |
|------------------------------|-----------------------|
| Component video signal level | 5 Hz to 60 MHz, -3 dB |
|------------------------------|-----------------------|

### FM Section

#### Tuning Range

|                            |                                         |
|----------------------------|-----------------------------------------|
| U, C models                | 87.5 to 107.9 MHz                       |
| R, L models                | 87.5 to 108.0 MHz / 87.50 to 108.00 MHz |
| T, K, A, B, G, E, F models | 87.50 to 108.00 MHz                     |

#### 50 dB Quietening Sensitivity (IHF) (1 kHz, 100 % MOD.)

|      |                 |
|------|-----------------|
| Mono | 3 µV (20.8 dBf) |
|------|-----------------|

**Signal to Noise Ratio (IHF)**

|                    |       |
|--------------------|-------|
| Mono .....         | 74 dB |
| Stereo .....       | 70 dB |
| HD (U model) ..... | 80 dB |

**Harmonic Distortion (1 kHz)**

|                    |        |
|--------------------|--------|
| Mono .....         | 0.3 %  |
| Stereo .....       | 0.3 %  |
| HD (U model) ..... | 0.03 % |

**Antenna Input**

..... 75 ohms unbalanced

**■ AM Section****Tuning Range**

|                                  |                                     |
|----------------------------------|-------------------------------------|
| U, C models .....                | 530 to 1,710 kHz                    |
| R, L models .....                | 530 to 1,710 kHz / 531 to 1,611 kHz |
| T, K, A, B, G, E, F models ..... | 531 to 1,611 kHz                    |

**Antenna** ..... Loop antenna

**■ General****Power Supply**

|                         |                                    |
|-------------------------|------------------------------------|
| U, C models .....       | AC 120 V, 60 Hz                    |
| R model .....           | AC 110/120/220/230–240 V, 50/60 Hz |
| T model .....           | AC 220 V, 50 Hz                    |
| K model .....           | AC 220 V, 60 Hz                    |
| A model .....           | AC 240 V, 50 Hz                    |
| B, G, E, F models ..... | AC 230 V, 50 Hz                    |
| L model .....           | AC 220/230–240 V, 50/60 Hz         |

**Power Consumption**

|                                        |                |
|----------------------------------------|----------------|
| U, C models .....                      | 450 W / 560 VA |
| R, T, K, A, B, G, E, F, L models ..... | 450 W          |

**Standby Power Consumption (reference data)**

|                                                                             |                |
|-----------------------------------------------------------------------------|----------------|
| HDMI control: OFF / Standby through: OFF / RS-232C: OFF .....               | 0.2 W or less  |
| HDMI control: ON / Standby through: ON / Network Standby: ON .....          | 5.6 W or less  |
| HDMI control: ON / Standby through: ON / Network Standby: ON / Repeat ..... | 10.6 W or less |

**Maximum Power Consumption [R, L models]**

..... 680 W

**Dimensions (W x H x D)**

..... 435 x 171 x 365 mm (17-1/8" x 6-3/4" x 14-3/8")

**Weight**

..... 12.4 kg (27.4 lbs.)

**Finish**

|                      |                                        |
|----------------------|----------------------------------------|
| [RX-V2065]           |                                        |
| Black color .....    | U, C, R, T, K, A, B, G, E, F, L models |
| Titanium color ..... | R, G, E, F, L models                   |

[HTR-6295]

|                   |         |
|-------------------|---------|
| Black color ..... | C model |
|-------------------|---------|

**Accessories**

|                                                     |     |
|-----------------------------------------------------|-----|
| Remote control .....                                | x 1 |
| Simplified remote control .....                     | x 1 |
| Battery (R03, AAA, UM-4) .....                      | x 2 |
| Lithium battery (CR2025) .....                      | x 1 |
| Indoor FM antenna (1.4 m) .....                     | x 1 |
| AM loop antenna (1.2 m) (U model) .....             | x 1 |
| (1.0 m) (C, R, T, K, A, B, G, E, F, L models) ..... | x 1 |
| Optimizer microphone (6.0 m) .....                  | x 1 |
| VIDEO AUX input cover .....                         | x 1 |
| Power cable (2.0 m) .....                           | x 1 |

\* Specifications are subject to change without notice due to product improvements.

U ..... *U.S.A. model*  
 C ..... *Canadian model*  
 R ..... *General model*  
 T ..... *Chinese model*  
 K ..... *Korean model*  
 A ..... *Australian model*

B ..... *British model*  
 G ..... *European model*  
 E ..... *South European model*  
 F ..... *Russian model*  
 L ..... *Singapore model*



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**iPod™**

"iPod" is a trademark of Apple Inc., registered in the U.S. and other countries.



**Fraunhofer** Institut  
Integrierte Schaltungen

MPEG Layer-3 audio coding technology licensed from Fraunhofer IIS and Thomson.



This receiver supports network connections.

**Bluetooth™**

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**x.v.Color**

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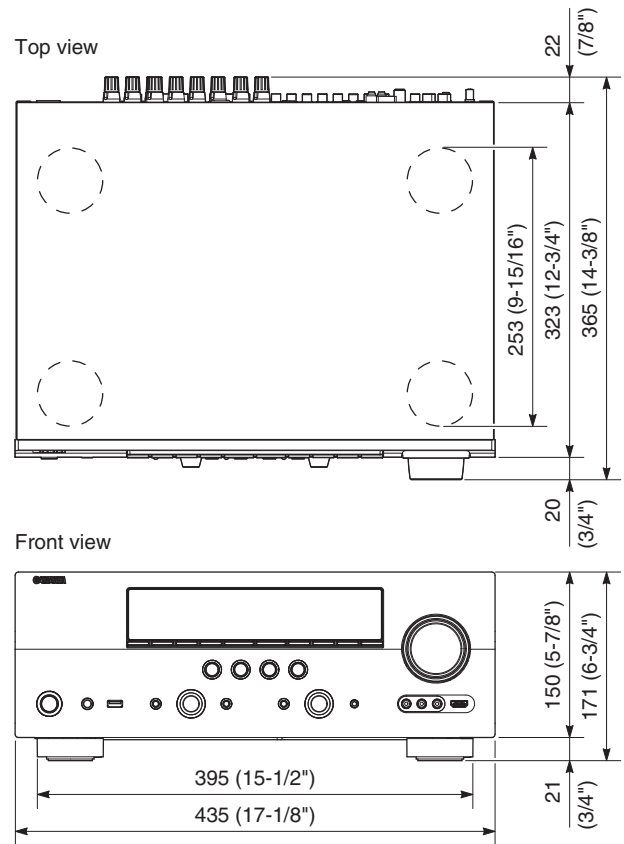
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## DIMENSIONS



Unit: mm (inch)

## SCENE TEMPLATE

| Name             | BD/DVD   | TV                            | CD                        | RADIO                          |
|------------------|----------|-------------------------------|---------------------------|--------------------------------|
| INPUT            | HDMI1    | AV-1<br>(Component / Optical) | AV-3<br>(Video / Coaxial) | TUNER                          |
| Sound field mode | STRAIGHT | STRAIGHT                      | STRAIGHT                  | MUSIC ENHANCER<br>7ch Enhancer |
| IR code output   | DVD Play | None                          | CD Power On / Play        | None                           |

# • SOUND FIELD PARAMETERS

|                  |                   | Parameter   |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 |            |   |
|------------------|-------------------|-------------|----------------|-------------------------|------------------------|-----------------------|-------------------|-----------------------------|----------------------------|------------------------|----------------------------|---------------------------|-----------------------|------------------------|------------------------|-----------------------|-----------------------|-------------------------|-----------------------------|-----------------------------|---------------------------|-----------------------------|-----------------------------|------------------|------------------------|------------------|----------------------|---------------------|--------------------------|---------------|-----------------|------------|---|
| Category         | Program           | Decode Type | 3D DSP: ON/OFF | DSP Level: -6dB to +3dB | Init. Delay: 1 to 99ms | Room Size: 0.1 to 2.0 | Liveness: 0 to 10 | Sur. Init. Delay: 1 to 49ms | Sur. Room Size: 0.1 to 2.0 | Sur. Liveness: 0 to 10 | SB. Init. Delay: 1 to 49ms | SB. Room Size: 0.1 to 2.0 | SB. Liveness: 0 to 10 | Rev. Time: 1.0 to 5.0s | Rev. Delay: 0 to 250ms | Rev. Level: 0 to 100% | Dialogue Lift: 0 to 5 | Center Level: 0 to 100% | Surround L Level: 0 to 100% | Surround R Level: 0 to 100% | Sur.Back Level: 0 to 100% | Presence L Level: 0 to 100% | Presence R Level: 0 to 100% | Direct: Auto/Off | Effect Level: High/Low | Panorama: On/Off | Center Width: 0 to 7 | Dimension: -3 to +3 | Center Image: 0.0 to 1.0 | FOCUS: 0 to 8 | TruBass: 0 to 8 | Initialize |   |
| MOVIE            | Standard          | ●<br>*1     | ●              | ●                       |                        |                       |                   | ●                           | ●                          | ●                      | ●                          | ●                         | ●                     |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Spectacle         | ●<br>*1     | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Sci-Fi            | ●<br>*1     | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Adventure         | ●<br>*1     | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Drama             | ●<br>*1     | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Mono Movie        |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            | ●                      |                            |                           |                       | ●                      | ●                      | ●                     | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 |            | ● |
|                  | Sports            |             | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Action Game       |             | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
| Roleplaying Game |                   | ●           | ●              | ●                       | ●                      |                       | ●                 | ●                           |                            | ●                      | ●                          |                           |                       |                        |                        | ●                     |                       |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               | ●               |            |   |
| MUSIC            | Hall in Munich    |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            |                        |                            |                           |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Hall in Vienna    |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            |                        |                            |                           |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Chamber           |             | ●              | ●                       | ●                      |                       | ●                 |                             |                            |                        |                            |                           |                       | ●                      | ●                      | ●                     | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Cellar Club       |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            |                        |                            |                           |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | The Roxy Theatre  |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            |                        |                            |                           |                       | ●                      | ●                      | ●                     | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | The Bottom Line   |             | ●              | ●                       | ●                      | ●                     | ●                 |                             |                            |                        |                            |                           |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
|                  | Music Video       |             | ●              | ●                       | ●                      | ●                     |                   | ●                           | ●                          |                        | ●                          | ●                         |                       |                        |                        |                       | ●                     |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 | ●          |   |
| STEREO           | 2ch Stereo        |             |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       | ●                       | ●                           | ●                           | ○                         | ●                           | ●                           |                  | ●                      |                  |                      |                     |                          |               |                 | ●          |   |
|                  | 7ch Stereo        |             |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         | ●                           | ●                           | ●                         | ○                           | ●                           | ●                |                        |                  |                      |                     |                          |               |                 | ●          |   |
| MUSIC ENHANCER   | Straight Enhancer |             |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         |                             |                             |                           |                             |                             |                  |                        | ●                |                      |                     |                          |               |                 |            | ● |
|                  | 7ch Enhancer      |             |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         |                             |                             |                           |                             |                             |                  |                        | ●                |                      |                     |                          |               |                 |            | ● |
| SUR. DECODE      | Surround Decoder  | ●<br>*2     |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         |                             |                             |                           |                             |                             |                  |                        |                  | △                    | △                   | △                        | ▲             | ■               | ■          | ● |
| STRAIGHT         |                   |             |                |                         |                        |                       |                   |                             |                            |                        |                            |                           |                       |                        |                        |                       |                       |                         |                             |                             |                           |                             |                             |                  |                        |                  |                      |                     |                          |               |                 |            |   |

○ : The parameter to be used varies between when there is one surround pack and when there are two. On the display, the parameter value varies accordingly while the same parameter name appears.

△ : Setting is possible only when Pro Logic II x Music (Pro Logic II Music) is selected using decode type.

▲ : Setting is possible only when Neo:6 Music is selected using decode type.

■ : Setting is possible only when CS II Cinema/Music is selected using decode type.

## \*1 Decode Type

|             |               |                                   |
|-------------|---------------|-----------------------------------|
| Decode Type | PL II x Movie | PL II when Surround Back is None. |
|             | Neo:6 Cinema  |                                   |

## \*2 Decode Type

|             |                |                                   |
|-------------|----------------|-----------------------------------|
| Decode Type | Pro Logic      | PL II when Surround Back is None. |
|             | PL II x Movie  |                                   |
|             | PL II x Music  |                                   |
|             | PL II x Game   |                                   |
|             | Pro Logic II z | PL II when Surround Back is None. |
|             | Neo:6 Cinema   |                                   |
|             | Neo:6 Music    |                                   |
|             | Neural Sur.    | (U model)                         |



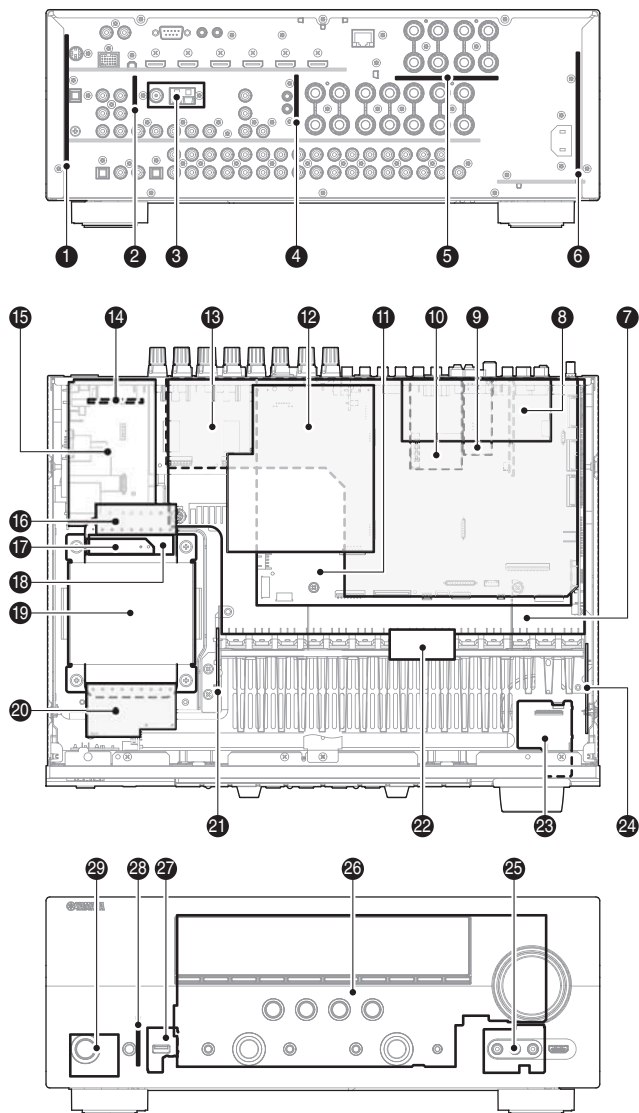
## • SET MENU TABLE

| MAIN MENU           |                          | SUB-MENU                  | PARAMETER | VALUE [INITIAL VALUE]                                            |                                      |
|---------------------|--------------------------|---------------------------|-----------|------------------------------------------------------------------|--------------------------------------|
| 1 • Speaker Setup   |                          |                           |           |                                                                  |                                      |
| 1 Auto Setup (YPAO) | Extra Speaker Assignment |                           |           | [Zone2] / Zone2 + Zone3 / Presence / None                        |                                      |
|                     | EQ Type                  |                           |           | [Natural] / Flat / Front                                         |                                      |
|                     | Start                    |                           |           | [ENTER]: Start                                                   |                                      |
| 2 Manual Setup      | A) Speaker Configuration | Extra Speaker Assignment  |           | [Zone2] / Zone2 + Zone3 / Presence / None                        |                                      |
|                     |                          | LFE/Bass Out              |           | Subwoofer / Front / [Both]                                       |                                      |
|                     |                          | Front Speaker             |           | Small / [Large]                                                  |                                      |
|                     |                          | Center Speaker            |           | None / [Small] / Large                                           |                                      |
|                     |                          | Surround L/R Speaker      |           | None / [Small] / Large                                           |                                      |
|                     |                          | Surround Back L/R Speaker |           | None / Large x 1 / Small x 1 / Large x 2 / [Small x 2]           |                                      |
|                     |                          | Bass Crossover Frequency  |           | 40 / 60 / [80] / 90 / 100 / 110 / 120 / 160 / 200 Hz             |                                      |
|                     |                          | Subwoofer Phase           |           | [Normal] / Reverse                                               |                                      |
|                     | B) Speaker Level         | Front L                   |           | -10.0 to +10.0 dB, [0 dB], 0.5 dB step                           |                                      |
|                     |                          | Front R                   |           |                                                                  |                                      |
|                     |                          | Center                    |           | -10.0 to +10.0 dB, [-1.0 dB], 0.5 dB step                        |                                      |
|                     |                          | Surround L                |           |                                                                  |                                      |
|                     |                          | Surround R                |           |                                                                  |                                      |
|                     |                          | Surround Back L           |           |                                                                  |                                      |
|                     |                          | Surround Back R           |           |                                                                  |                                      |
|                     |                          | Subwoofer                 |           | -10.0 to +10.0 dB, [0 dB], 0.5 dB step                           |                                      |
|                     |                          | Presence L                |           |                                                                  |                                      |
|                     |                          | Presence R                |           |                                                                  |                                      |
|                     | C) Speaker Distance      | Unit                      |           | meters (m) / [feet (ft)]                                         |                                      |
|                     |                          | Front L                   |           | 0.30 to 24.00 m, [3.00 m]                                        |                                      |
|                     |                          | Front R                   |           |                                                                  |                                      |
|                     |                          | Center                    |           |                                                                  |                                      |
|                     |                          | Surround L                |           | 0.30 to 24.00 m, [2.40 m]                                        |                                      |
|                     |                          | Surround R                |           |                                                                  |                                      |
|                     |                          | Surround Back L           |           |                                                                  |                                      |
|                     |                          | Surround Back R           |           |                                                                  |                                      |
|                     |                          | Subwoofer                 |           | 0.30 to 24.00 m, [3.00 m]                                        |                                      |
|                     |                          | Presence L                |           |                                                                  |                                      |
|                     |                          | Presence R                |           |                                                                  |                                      |
|                     |                          | Front L                   |           | 1.0 to 80.0 ft, [10.0 ft]                                        |                                      |
|                     |                          | Front R                   |           |                                                                  |                                      |
|                     |                          | Center                    |           |                                                                  |                                      |
|                     |                          | Surround L                |           | 1.0 to 80.0 ft, [8.0 ft]                                         |                                      |
|                     |                          | Surround R                |           |                                                                  |                                      |
|                     |                          | Surround Back L           |           |                                                                  |                                      |
|                     |                          | Surround Back R           |           |                                                                  |                                      |
|                     |                          | Subwoofer                 |           | 1.0 to 80.0 ft, [10.0 ft]                                        |                                      |
|                     |                          | Presence L                |           |                                                                  |                                      |
|                     |                          | Presence R                |           |                                                                  |                                      |
|                     | D) Equalizer             | EQ Type Select            |           | Auto PEQ / [GEQ] / Off                                           |                                      |
|                     |                          | GEQ                       |           | * "GEQ" is available only when "EQ Type Select" is set to "GEQ". |                                      |
|                     |                          | Front L                   | 63 Hz     | .....  ..... 0 dB                                                | -6.0 to +6.0 dB, [0 dB], 0.5 dB step |
|                     |                          | Front R                   | 160 Hz    | .....  ..... 0 dB                                                |                                      |
|                     |                          | Center                    | 400 Hz    | .....  ..... 0 dB                                                |                                      |
|                     |                          | Sur. L                    | 1 kHz     | .....  ..... 0 dB                                                |                                      |
|                     |                          | Sur. R                    | 2.5 kHz   | .....  ..... 0 dB                                                |                                      |
|                     |                          | SBL                       | 6.3 kHz   | .....  ..... 0 dB                                                |                                      |
|                     |                          | SBR                       | 16 kHz    | .....  ..... 0 dB                                                |                                      |
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| MAIN MENU              |                            | SUB-MENU               | PARAMETER                                                                                                                                                                  | VALUE [INITIAL VALUE] |
|------------------------|----------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 3 • Function Setup     |                            |                        |                                                                                                                                                                            |                       |
| 1 HDMI                 | HDMI Control               |                        | On / [Off]                                                                                                                                                                 |                       |
|                        | Standby Through            |                        | On / [Off]<br>* This menu is available only when “HDMI Control” is set to “Off”.                                                                                           |                       |
|                        | Audio Output               |                        | [Amplifier] / TV / Amplifier + TV<br>* This menu is available only when “HDMI Control” is set to “Off”.                                                                    |                       |
|                        | Resolution                 |                        | [Through] / 480p (576p) / 720p / 1080i / 1080p                                                                                                                             |                       |
|                        | Aspect                     |                        | [Through] / 16:9 / Smart Zoom                                                                                                                                              |                       |
| 2 Display              | Dimmer                     |                        | -4 to 0, [0]                                                                                                                                                               |                       |
|                        | Front Panel Display Scroll |                        | [Continuous] / Once                                                                                                                                                        |                       |
| 3 Volume               | GUI Position               |                        | -5 to +5, [0]                                                                                                                                                              |                       |
|                        | Adaptive DRC               |                        | Auto / [Off]                                                                                                                                                               |                       |
|                        | Max Volume                 |                        | -30.0 dB to +15.0 dB / [+16.5 dB], 5.0 dB step                                                                                                                             |                       |
|                        | Initial Volume             |                        | [Off] / Mute / -80.0 to +16.5 dB, 0.5 dB step                                                                                                                              |                       |
| 4 Input Rename         |                            |                        | Input is possible to 9 characters<br>Input possible Character type<br>Capital : A to Z<br>Small : a to z<br>Figure : 0 to 9<br>Space<br>Marks : # * + , - . / : < > ? etc. |                       |
| 5 Zone                 | Zone2/Zone3 Max. Volume    |                        | -30.0 dB to +15.0 dB / [+16.5 dB], 5.0 dB step                                                                                                                             |                       |
|                        | Zone2/Zone3 Initial Volume |                        | [Off] / Mute / -80.0 to +16.5 dB, 0.5 dB step                                                                                                                              |                       |
| 6 Network              | IP Address                 | DHCP                   | [On] / Off                                                                                                                                                                 |                       |
|                        |                            | IP Address             | xxx.xxx.xxx.xxx<br>* This menu is available only when “IP Address” is set to “DHCP On”.                                                                                    |                       |
|                        |                            | Subnet Mask            |                                                                                                                                                                            |                       |
|                        |                            | Default Gateway        |                                                                                                                                                                            |                       |
|                        |                            | DNS Server (Primary)   |                                                                                                                                                                            |                       |
|                        |                            | DNS Server (Secondary) |                                                                                                                                                                            |                       |
|                        | MAC Address Filter         |                        | [Off] / On                                                                                                                                                                 |                       |
|                        |                            | MAC Address 1–10       | xx : xx : xx : xx : xx : xx<br>* This menu is available only when “MAC Address Filter” is set to “On”.                                                                     |                       |
|                        | Network Standby            |                        | [Off] / On                                                                                                                                                                 |                       |
|                        | Information                | MAC Address            | xx : xx : xx : xx : xx : xx                                                                                                                                                |                       |
|                        |                            | IP Address             | xxx.xxx.xxx.xxx                                                                                                                                                            |                       |
|                        |                            | Subnet Mask            | xxx.xxx.xxx.xxx                                                                                                                                                            |                       |
|                        |                            | Default Gateway        | xxx.xxx.xxx.xxx                                                                                                                                                            |                       |
|                        |                            | DNS Server (Primary)   | xxx.xxx.xxx.xxx                                                                                                                                                            |                       |
|                        |                            | DNS Server (Secondary) | xxx.xxx.xxx.xxx                                                                                                                                                            |                       |
|                        |                            | Link Status            | No Link                                                                                                                                                                    |                       |
|                        |                            | vTuner ID              | xxxxxxxxxxxx                                                                                                                                                               |                       |
| 7 Rhapsody Information | Account Status             |                        |                                                                                                                                                                            |                       |
|                        | Sign In                    |                        |                                                                                                                                                                            |                       |
|                        | Rhapsody Free Trial        |                        |                                                                                                                                                                            |                       |
|                        | Remove Account             |                        |                                                                                                                                                                            |                       |
| 4 • DSP Parameter      |                            |                        |                                                                                                                                                                            |                       |
| STEREO                 | 7ch Stereo                 | Center Level           | 0 to 100 %                                                                                                                                                                 |                       |
|                        |                            | Surround L Level       |                                                                                                                                                                            |                       |
|                        |                            | Surround R Level       |                                                                                                                                                                            |                       |
|                        |                            | Surround Back Level    |                                                                                                                                                                            |                       |
|                        |                            |                        | Initialize                                                                                                                                                                 |                       |
| MUSIC ENHANCER         | Straight Enhancer          | Effect Level · High    | [High] / Low                                                                                                                                                               |                       |
|                        |                            | Initialize             |                                                                                                                                                                            |                       |
|                        | 7ch Enhancer               | Effect Level · High    | [High] / Low                                                                                                                                                               |                       |
|                        |                            | Initialize             |                                                                                                                                                                            |                       |

| MAIN MENU        | SUB-MENU         | PARAMETER                                   | VALUE [INITIAL VALUE]                                                                                            |
|------------------|------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| SURROUND DECODE  | Surround Decoder | Decode Type Pro Logic                       | Pro Logic / PL Ilx Movie / PL Ilx Music /<br>PL Ilx Game / Neo:6 Cinema / Neo:6 Music /<br>Neural Sur. (U model) |
|                  |                  | Pro Logic Initialize                        |                                                                                                                  |
|                  |                  | PL Ilx Movie Initialize                     |                                                                                                                  |
|                  |                  | PL Ilx Music Panorama                       | [Off] / On                                                                                                       |
|                  |                  | Center Width                                | 0 to 7, [3]                                                                                                      |
|                  |                  | Dimension                                   | -3 to [STD] to +3                                                                                                |
|                  |                  | Initialize                                  |                                                                                                                  |
|                  |                  | PL Ilx Game Initialize                      |                                                                                                                  |
|                  |                  | Neo:6 Cinema Initialize                     |                                                                                                                  |
|                  |                  | Neo:6 Music Center Image                    | 0.0 to 1.0, [0.3]                                                                                                |
|                  |                  | Initialize                                  |                                                                                                                  |
|                  |                  | Neural Sur. Initialize                      |                                                                                                                  |
|                  |                  |                                             |                                                                                                                  |
|                  |                  |                                             |                                                                                                                  |
| MOVIE            | Standard         | Decode Type PL Ilx Movie                    | PL Ilx Movie / Neo:6 Cinema                                                                                      |
|                  |                  | PL Ilx Movie [1], [4], [8], [11], [16]      |                                                                                                                  |
|                  |                  | Neo:6 Cinema [1], [4], [8], [11], [16]      |                                                                                                                  |
|                  | Spectacle        | Decode Type PL Ilx Movie                    | PL Ilx Movie / Neo:6 Cinema                                                                                      |
|                  |                  | PL Ilx Movie [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  |                  | Neo:6 Cinema [1], [4], [8], [11], [16]      |                                                                                                                  |
|                  | Sci-Fi           | Decode Type PL Ilx Movie                    | PL Ilx Movie / Neo:6 Cinema                                                                                      |
|                  |                  | PL Ilx Movie [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  |                  | Neo:6 Cinema [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  | Adventure        | Decode Type PL Ilx Movie                    | PL Ilx Movie / Neo:6 Cinema                                                                                      |
|                  |                  | PL Ilx Movie [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  |                  | Neo:6 Cinema [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  | Drama            | Decode Type PL Ilx Movie                    | PL Ilx Movie / Neo:6 Cinema                                                                                      |
|                  |                  | PL Ilx Movie [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  |                  | Neo:6 Cinema [1], [3], [4], [7], [8], [16]  |                                                                                                                  |
|                  | Mono Movie       | [1], [2], [6], [10], [13], [14], [15], [16] |                                                                                                                  |
|                  | Sports           | [1], [3], [4], [7], [8], [16]               |                                                                                                                  |
|                  | Action Game      | [1], [3], [4], [7], [8], [16]               |                                                                                                                  |
|                  | Roleplaying Game | [1], [3], [4], [7], [8], [16]               |                                                                                                                  |
| MUSIC            | Hall in Munich   | [1], [2], [6], [10], [16]                   |                                                                                                                  |
|                  | Hall in Vienna   | [1], [2], [6], [10], [16]                   |                                                                                                                  |
|                  | Chamber          | [1], [2], [10], [13], [14], [15], [16]      |                                                                                                                  |
|                  | Cellar Club      | [1], [2], [6], [10], [16]                   |                                                                                                                  |
|                  | The Roxy Theatre | [1], [2], [6], [10], [13], [14], [15], [16] |                                                                                                                  |
|                  | The Bottom Line  | [1], [2], [6], [10], [16]                   |                                                                                                                  |
|                  | Music Video      | [1], [3], [4], [7], [8], [16]               |                                                                                                                  |
|                  |                  |                                             |                                                                                                                  |
| STEREO           | 2ch Stereo       | Direct                                      | [Auto] / Off                                                                                                     |
|                  |                  | Initialize                                  |                                                                                                                  |
|                  | [1]              | DSP Level                                   | -6 to +3 dB, [0 dB]                                                                                              |
|                  | [2]              | Initial Delay                               | 1 to 99 ms                                                                                                       |
|                  | [3]              | P. Initial Delay                            |                                                                                                                  |
|                  | [4]              | Sur. Initial Delay                          | 1 to 49 ms                                                                                                       |
|                  | [6]              | Room Size                                   |                                                                                                                  |
|                  | [7]              | P. Room Size                                | 0.1 to 2.0                                                                                                       |
|                  | [8]              | Sur. Room Size                              |                                                                                                                  |
|                  | [10]             | Liveness                                    | 0 to 10                                                                                                          |
|                  | [11]             | S. Liveness                                 |                                                                                                                  |
|                  | [13]             | Reverb Time                                 | 1.0 to 5.0 s                                                                                                     |
|                  | [14]             | Reverb Delay                                | 0 to 250 ms                                                                                                      |
|                  | [15]             | Reverb Level                                | 0 to 100 %                                                                                                       |
|                  | [16]             | Initialize                                  |                                                                                                                  |
| 5 • Memory Guard |                  |                                             | [Off] / On                                                                                                       |

## INTERNAL VIEW



- ❶ OPERATION (2) P.C.B.
- ❷ OPERATION (9) P.C.B.  
(R, T, K, A, B, G, E, F, L models)
- ❸ HD RADIO TUNER (U model)
- ❹ VIDEO (4) P.C.B.
- ❺ OPERATION (8) P.C.B.
- ❻ ACDC (1) P.C.B.
- ❼ MAIN (1) P.C.B.
- ❽ DIGITAL (3) P.C.B.
- ❾ VIDEO (9) P.C.B. (B, G, E, F models)
- ❿ AM/FM TUNER  
(C, R, T, K, A, B, G, E, F, L models)
- ⓫ DIGITAL (1) P.C.B.
- ⓬ GUI P.C.B.
- ⓭ VIDEO (1) P.C.B.
- ⓮ MAIN (3) P.C.B. (R, L models)
- ⓯ VIDEO (3) P.C.B.
- ⓰ MAIN (2) P.C.B.
- ⓱ ACDC (2) P.C.B.  
(U, C, T, K, A, B, G, E, F models)
- ⓲ MAIN (4) P.C.B.
- ⓳ POWER TRANSFORMER
- ⓴ VIDEO (6) P.C.B.
- ⓵ MAIN (6) P.C.B.
- ⓶ ACDC (3) P.C.B.
- ⓷ DIGITAL (2) P.C.B.
- ⓸ OPERATION (10) P.C.B.
- ⓹ OPERATION (4) P.C.B.
- ⓺ OPERATION (1) P.C.B.
- ⓻ OPERATION (5) P.C.B.
- ⓼ OPERATION (3) P.C.B.
- ⓽ OPERATION (6) P.C.B.

## SERVICE PRECAUTIONS

### Safety measures

- Some internal parts in this product contain high voltages and are dangerous.  
Be sure to take safety measures during servicing, such as wearing insulating gloves.
- Note that positions indicated below are dangerous even after the power is turned off because an electric charge remains and a high voltage continues to exist there.  
Before starting any repair work, perform discharge by connecting a discharge resistor (5k-ohms/10W) between terminals at following positions.  
The time required for discharging is about 30 seconds.  
C6006 on ACDC (1) P.C.B.  
Refer to "PRINTED CIRCUIT BOARDS: ACDC (1) P.C.B."

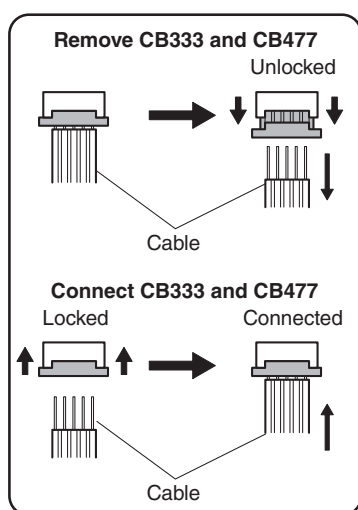
## ■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

Disconnect the power cable from the AC outlet.

### 1. Removal of Top Cover

- Remove 4 screws (①), 5 screws (②) and screw (③). (Fig. 1)
- Slide the top cover rearward to remove it. (Fig. 1)



### 2. Removal of Front Panel and Sub-Chassis Unit

- Remove screw (④) and then remove the center frame. (Fig. 1)
- Remove 2 knobs. (Fig. 1)
- Remove 6 screws (⑤) and then remove the front panel. (Fig. 1)
- Remove 2 push rivets and then remove the plate side (L) and (R). (Fig. 1)
- Remove CB1, CB20, CB461 and CB550. (Fig. 1)
- Remove 2 screws (⑥) and then pull out the sub-chassis unit. (Fig. 1)
- Unlock and remove CB333 and CB477. (Fig. 1)
- Remove the sub-chassis unit. (Fig. 1)

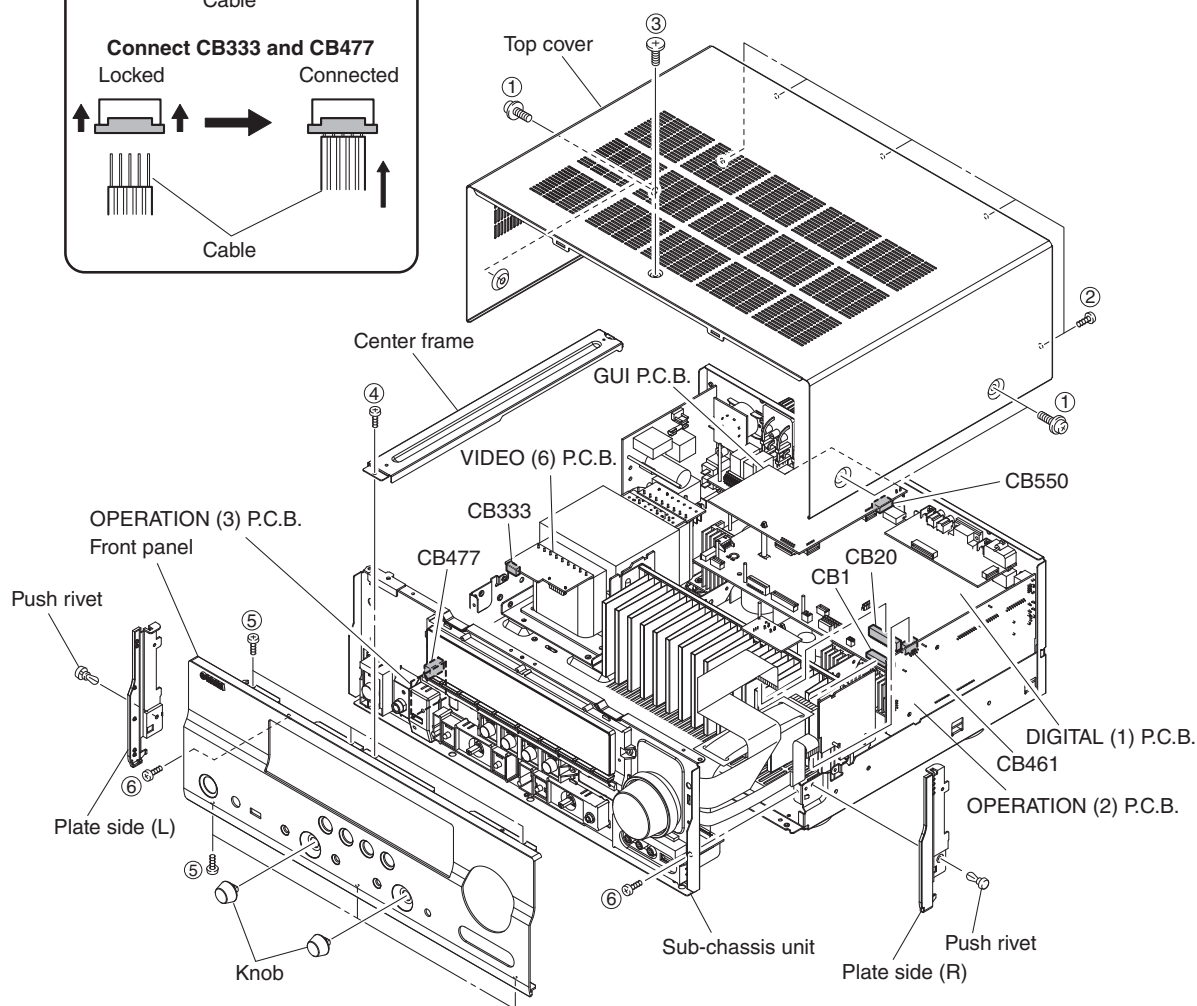


Fig. 1



### 3. Removal of GUI, DIGITAL (1) and (3) P.C.B.s

- Remove 2 screws (7). (Fig. 2)
- Remove CB501. (Fig. 2)
- Unlock and remove CB500 and CB503. (Fig. 2)
- Release hook, and remove the GUI P.C.B.. (Fig. 2)
- Remove 2 screws (8) and 2 jack screws. (Fig. 2)
- Remove CB80 (U model). (Fig. 2)
- Unlock and remove CB81. (Fig. 2)
- Remove the DIGITAL (3) P.C.B.. (Fig. 2)
- Remove 3 screws (U model) / 2 screws (C, R, T, K, A, B, G, E, F, L models) (9) and 6 screws (10). (Fig. 2)
- Remove screw (11) and 2 screws (12). (Fig. 2)
- Remove CB7, CB21, CB25, CB29, CB31, CB71 and CB73 (B, G, E, F models). (Fig. 2)
- Unlock and remove CB22–24. (Fig. 2)
- Remove the DIGITAL (1) P.C.B. which is connected directly to the OPERATION (2) P.C.B. with board-to-board connectors. (Fig. 2)

### 4. Removal of AMP Unit

- Remove 3 screws (13) and 4 screws (14). (Fig. 2)
- Remove 3 screws (15). (Fig. 2)
- Remove the amp unit. (Fig. 2)

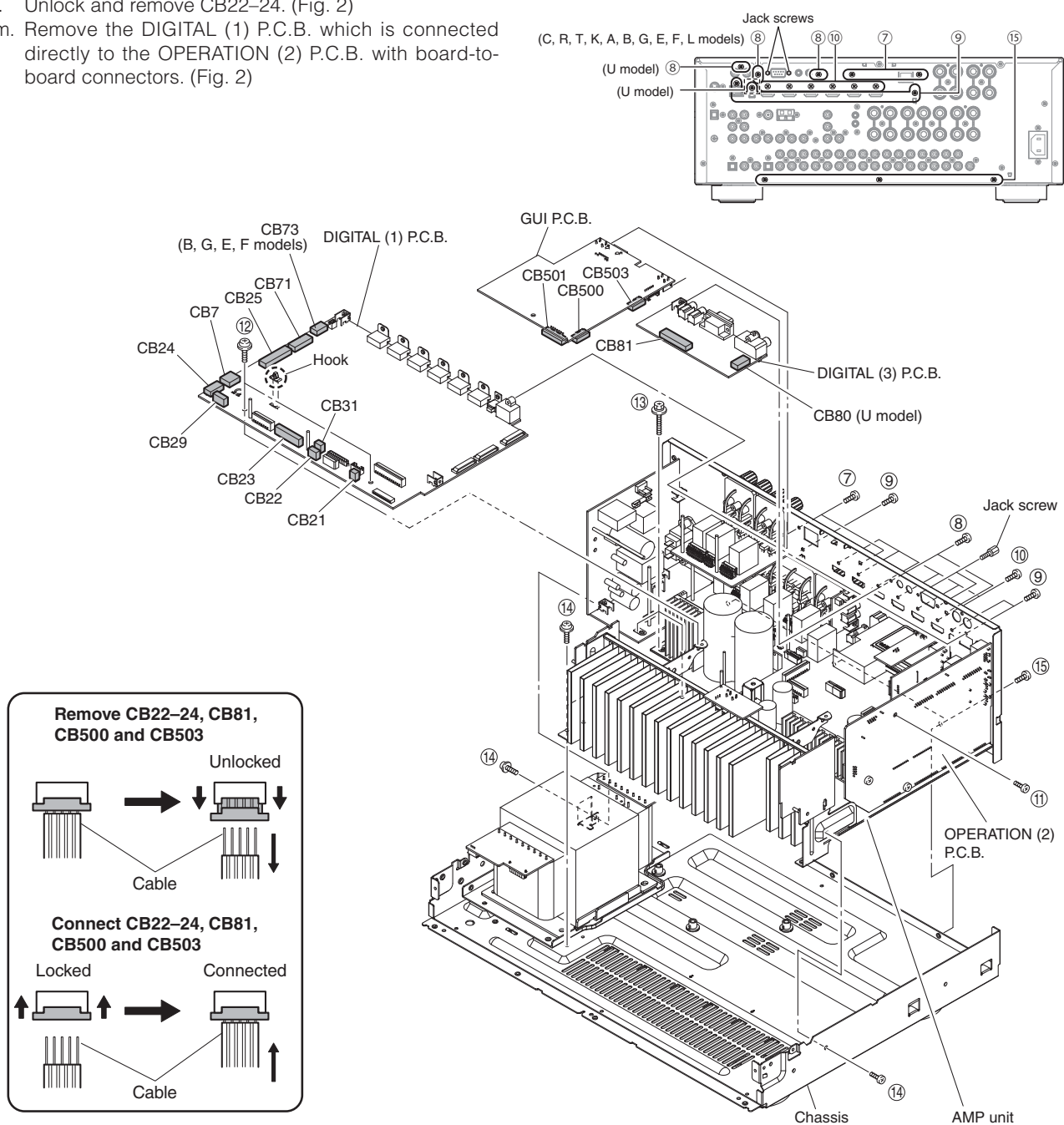


Fig. 2

**When checking the P.C.B.s:**

- Place the P.C.B.s (with rear panel) upright. (Fig. 3)
- Connect the ground points of the heatsink, rear panel and MAIN (1) P.C.B. (G1000) to the chassis with a ground lead or the like. (Fig. 3)
- When connecting the flexible flat cable, be careful with polarity.
- Reconnect all cables (connectors) that have been disconnected.

Be sure to use the extension cable for servicing for the following section.

DIGITAL (1) P.C.B. CB20 to OPERATION (1) P.C.B. CB401:

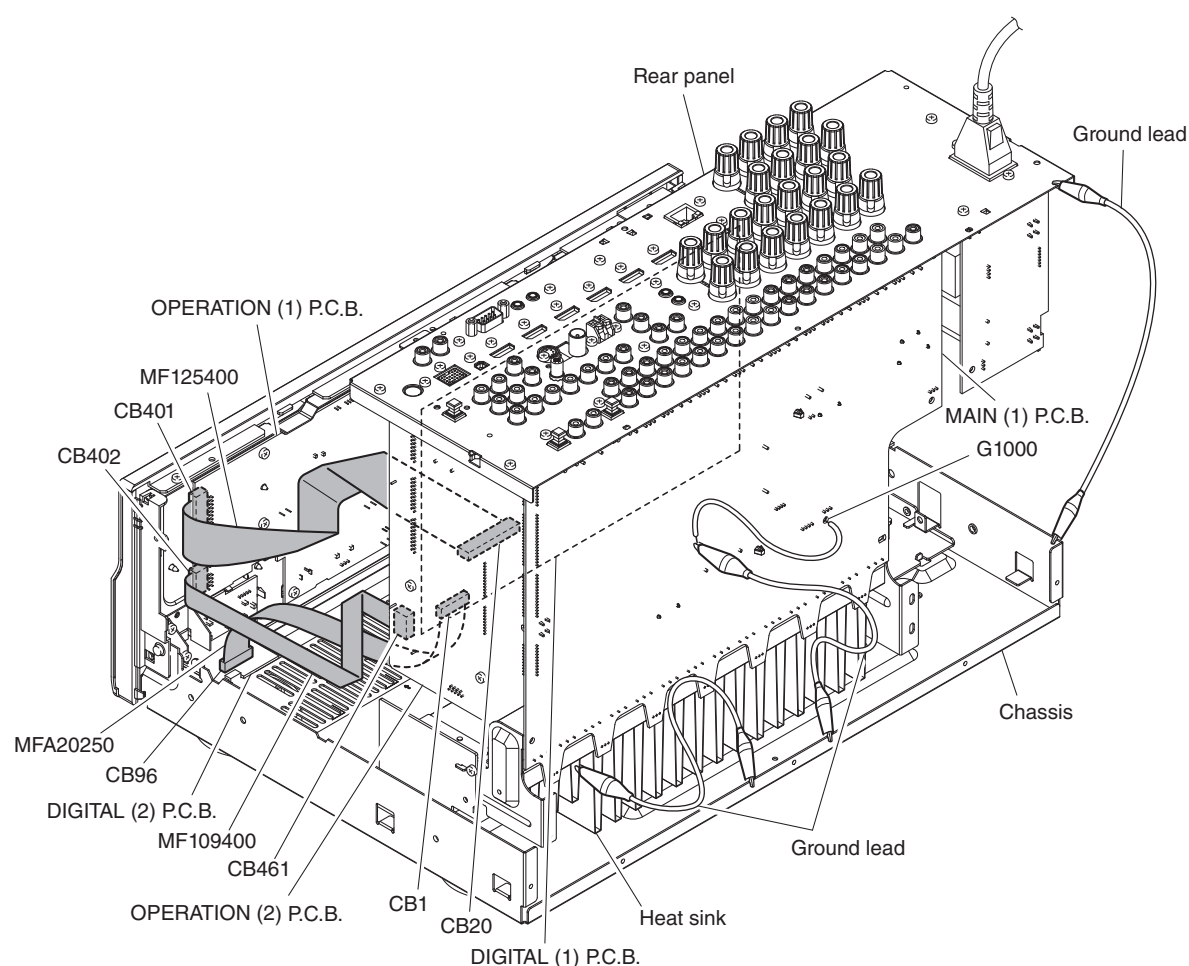
MF125400 (25P, 400mm, P=1.25)

OPERATION (1) P.C.B. CB402 to OPERATION (2) P.C.B. CB461:

MF109400 (9P, 400mm, P=1.25)

DIGITAL (1) P.C.B. CB1 to DIGITAL (2) P.C.B. CB96:

MFA20250 (20P, 250mm, P=1.0)



**Fig. 3**

## ■ UPDATING FIRMWARE

**Note)** The user memories (sound field parameters, system memory, tuner presetting, etc.) are preserved even after the firmware is written.

When replacing the following parts, be sure to write the latest firmware.

| Replaced parts                                          | Writing method using the USB | Writing method using PC (RS232C) |
|---------------------------------------------------------|------------------------------|----------------------------------|
| DIGITAL P.C.B.                                          | yes                          | yes                              |
| IC20 (Main microprocessor) of DIGITAL P.C.B.            | no                           | yes                              |
| IC49 (TI (DSP) flash ROM) of DIGITAL P.C.B.             | yes                          | yes                              |
| IC513 (BF (Sub-microprocessor) flash ROM) of GUI P.C.B. | yes                          | no                               |

### ● Confirmation of firmware version and checksum

Before and after writing firmware, check the firmware version and checksum by using the self-diagnostic function menu.

Start up the self-diagnostic function and select "25. ROM VER/SUM/PORT" menu. (See "SELF-DIAGNOSTIC FUNCTION")

Using the sub-menu, have the firmware version and checksum displayed, and note down them.

#### 25. ROM VER/SUM/PORT

##### Firmware version

Ver: C024

The firmware version of main microprocessor (IC20 DIGITAL P.C.B.) is displayed.

##### All checksum

Sum: 5253

The checksum value of main microprocessor (IC20 DIGITAL P.C.B.) is displayed.

##### TI (DSP) FLASH ROM version

TiVer:01.03r1

The firmware version of TI (DSP) FLASH ROM (IC49 DIGITAL P.C.B.) is displayed.

##### TI (DSP) FLASH ROM checksum

TiSum:F1AD0135A

The checksum value of TI (DSP) FLASH ROM (IC49 DIGITAL P.C.B.) is displayed.

##### BF version

BF Ver: C019

The firmware version of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

##### BF checksum 1 (All/Master boot)

Al:3ED2Ma:0122

The checksum value (All/Master boot) of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

##### BF checksum 2 (Application/USB)

Ap:67DAUs:ADBC

The checksum value (Application/USB) of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

Supplementary information:

In this unit, it is possible to check the firmware version by using the ADVANCED SETUP menu as well as the self-diagnostic function menu.

Follow the procedures below.

1. While pressing the "STRAIGHT" key of this unit, press the "MAIN ZONE ON/OFF" key of this unit to turn on the power.  
The ADVANCED SETUP mode is activated, and "ADVANCED SETUP" is displayed. (Fig. 1)
2. Rotate the "PROGRAM" knob and select the "VER---.---.---". (Fig. 1)  
After a few seconds, each firmware version is displayed.

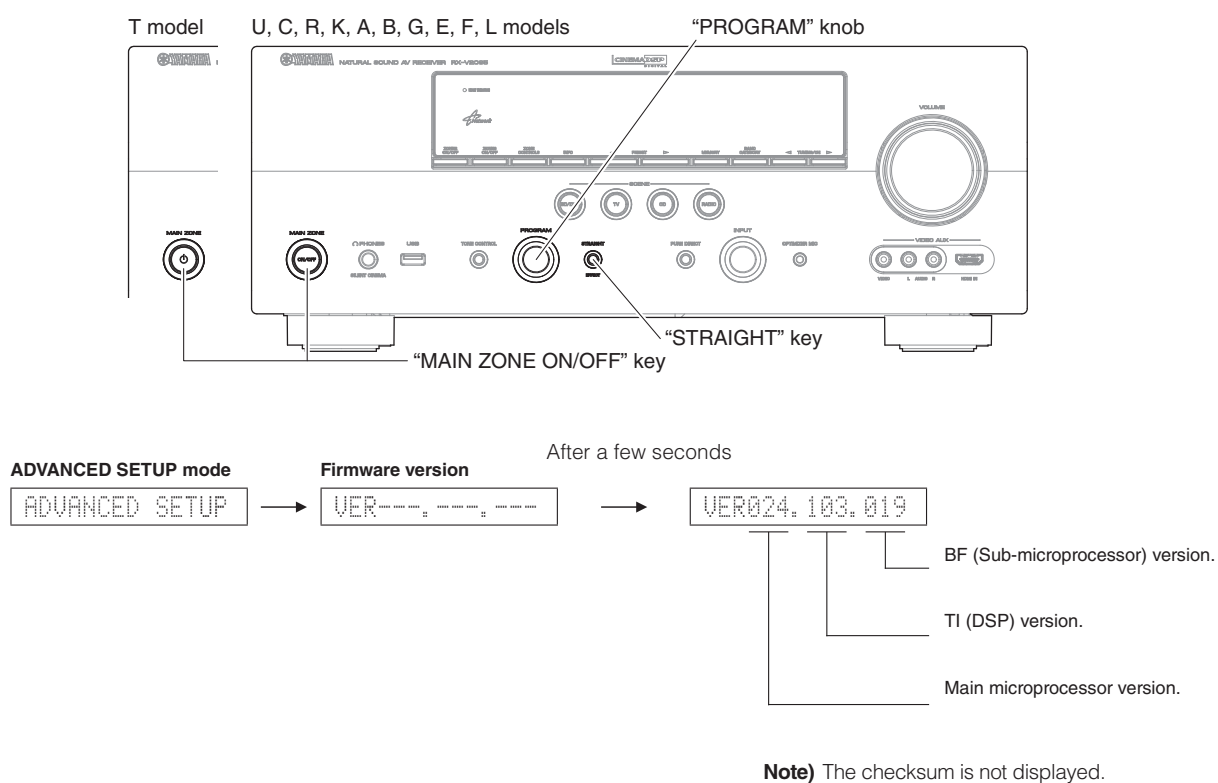


Fig. 1

3. Press the "MAIN ZONE ON/OFF" key of this unit to turn off the power.

Writing method using the USB

Required Tools

- USB storage device
- Firmware   RX-V2065 : RX-V2065\_xxxx.bin  
              HTR-6295 : HTR-6295\_xxxx.bin

Preparation

1. Download the latest firmware from the specified download source to the folder of the PC.
2. Copy the latest firmware from the PC to the root folder of the USB storage device.  
**Note)** When the firmware is copied to a sub-folder of the USB storage device, the update will not proceed.

Operation procedures

1. Insert the USB storage device to the USB terminal located on the front panel of this unit. (Fig. 2)
2. While pressing the “TONE CONTROL” key of this unit, connect the power cable to the AC outlet. (Fig. 2)  
Writing of the firmware is started and the screen is displayed as shown below. (Fig. 3).

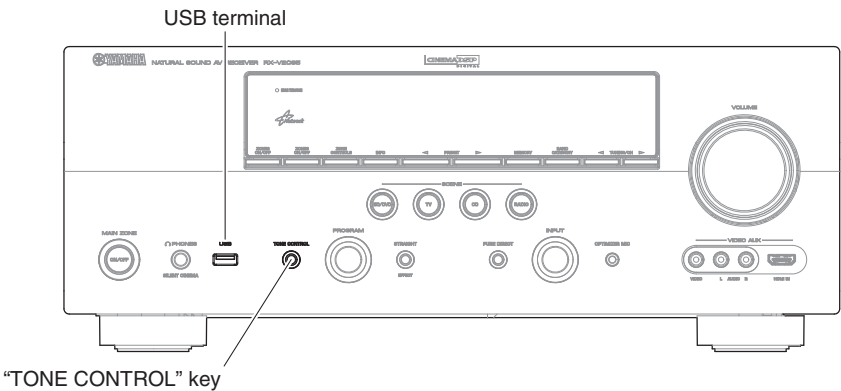


Fig. 2

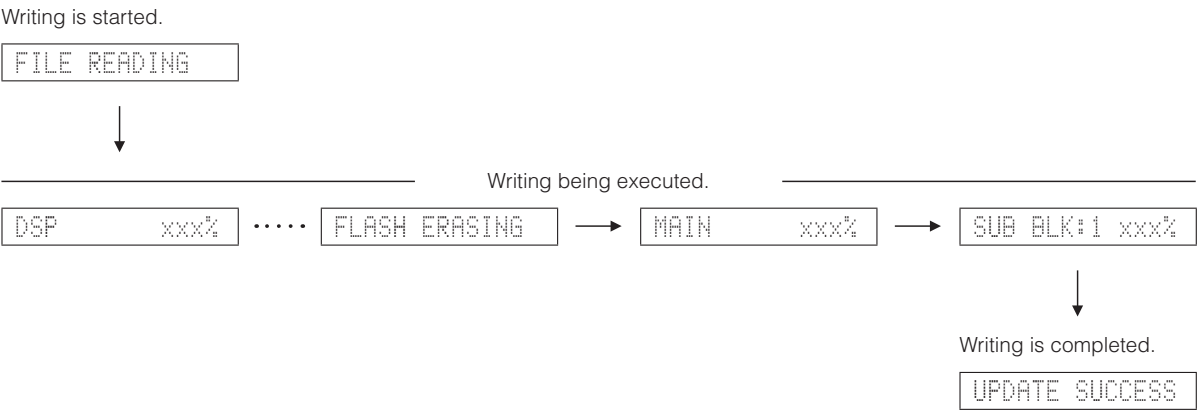


Fig. 3

3. When writing of the firmware is completed, "UPDATE SUCCESS" is displayed.
  - \* When "UPDATE FAIL" is displayed before writing is completed, perform the operation procedures from step 1 to 2 again.
4. Press the "MAIN ZONE ON/OFF" key of this unit to turn off the power.
5. Remove the USB storage device from the USB terminal of this unit.
6. Start up the self-diagnostic function and select "25. ROM VER/SUM/PORT" menu.

Using the sub-menu, have the firmware version and checksum displayed, and then check that they are the same as written ones.

  - \* When the displayed firmware version and checksum are different from written ones, perform the "Writing the Firmware" procedure all over again.
7. Press the "MAIN ZONE ON/OFF" key to turn off the power.



## Writing method using PC (RS232C)

### ● Required Tools

- Firmware downloader program  
For main microprocessor:  
DSP\_FLASHER\_v3.0.exe  
For DSP (TI flash ROM):  
DSP\_FLASHER Ver2.7.exe
- Firmware  
For main microprocessor: V265xxxx.mot  
For DSP (TI flash ROM):  
Vx65\_data1\_verxxxxr.hex
- RS232C cross cable "D-sub 9 pin female"  
(Specifications)  

|              |              |
|--------------|--------------|
| Pin No.2 RxD | Pin No.2 RxD |
| Pin No.3 TxD | Pin No.3 TxD |
| Pin No.5 GND | Pin No.5 GND |
| Pin No.7 RTS | Pin No.7 RTS |
| Pin No.8 CTS | Pin No.8 CTS |
- RS232C conversion adaptor (Part No.: WR492800)

### ● Preparation and precautions

- Download the firmware downloader program and the firmware from the specified source to the same folder of the PC.
- Prepare the above specified RS232C cross cable.
- While writing the firmware, keep the other application software on the PC closed.  
It is also recommended to keep the software on the task tray closed as well.

### ● Connection

1. Remove the top cover. (See "DISASSEMBLY PROCEDURES")
2. Connect the writing port (CB27 of DIGITAL P.C.B.) of this unit to the serial port (RS232C) of the PC with RS232C cross cable, RS232C conversion adaptor and flexible flat cable as shown below. (Fig. 1)
3. Set the switch (SW7) of RS232C conversion adaptor as shown below. (Fig. 1)

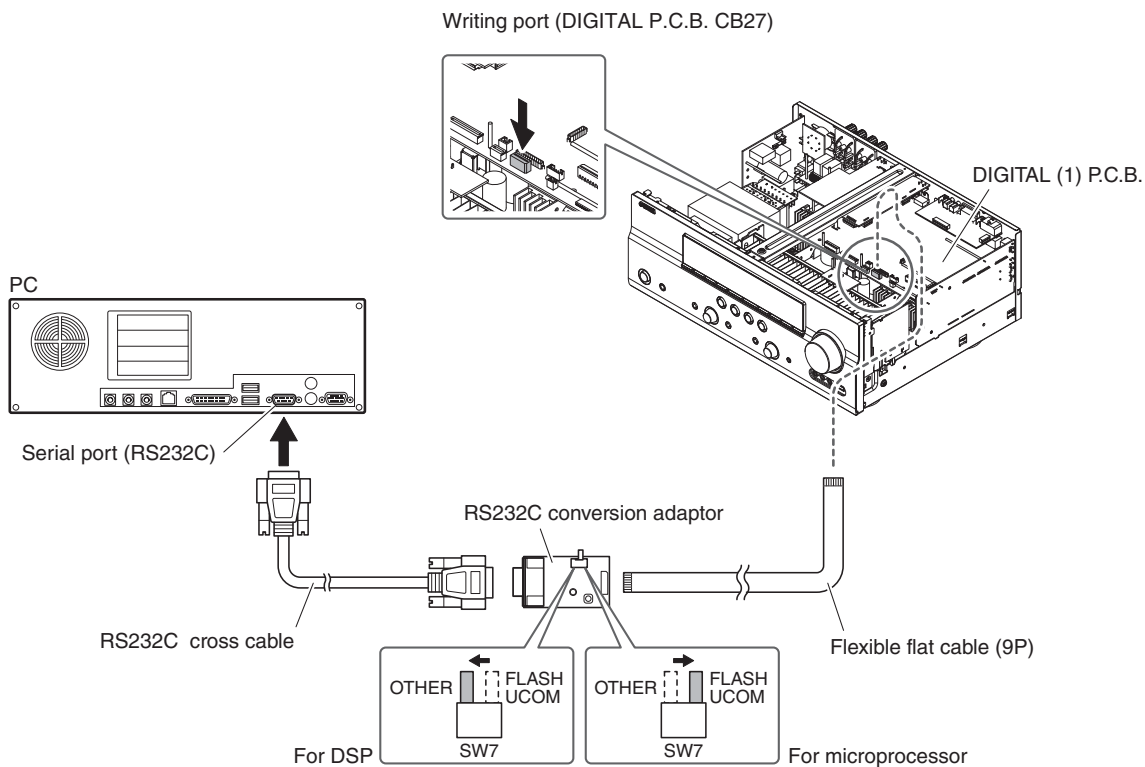


Fig. 1

## ● Operation Procedures

### Writing to the main microprocessor

1. With the power cable of this unit disconnected from the AC outlet, start up DSP\_FLASHER\_v3.0.exe.  
The screen appears as shown below. (Fig. 2)
2. Click [...] and select the firmware name. (Fig. 2)

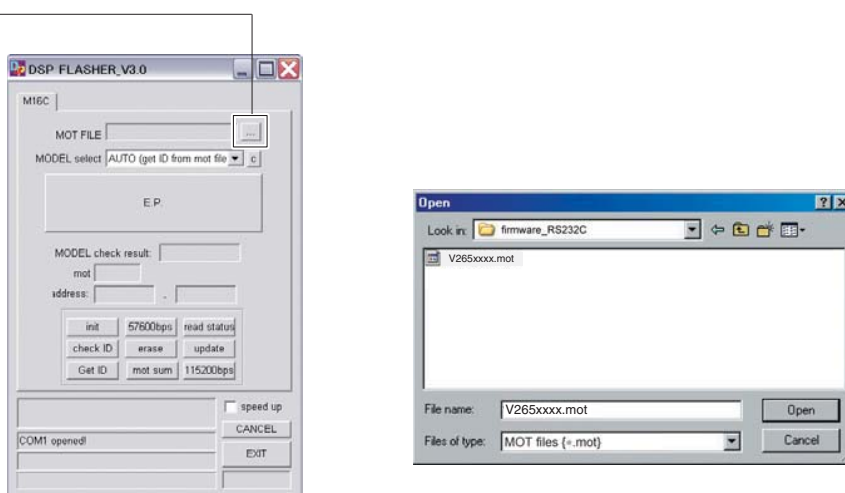


Fig. 2

3. Connect the power cable of this unit to the AC outlet.
4. Click [E.P.] to start writing. (Fig. 3)
5. When writing of the firmware is completed, "Program Finished!" is displayed. (Fig. 3)  
Click [OK]. (Fig. 3)
6. Click [EXIT] to end DSP\_FLASHER\_v3.0.exe. (Fig. 3)

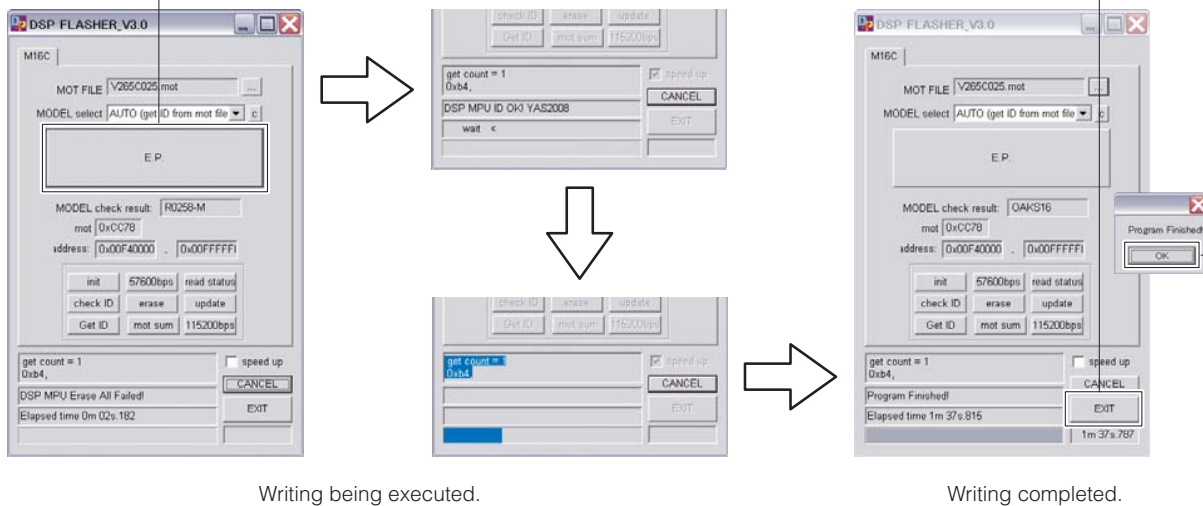


Fig. 3

7. Disconnect the power cable of this unit from the AC outlet.
8. Remove the RS232C conversion adaptor and flexible flat cable from the writing port (CB27, DIGITAL P.C.B.) of this unit.
9. Start up the self-diagnostic function and select "25.ROM VER/SUM/PORT" menu.  
Using the sub-menu, have the firmware version and checksum displayed, and then check that they are the same as written ones.  
\* When the firmware version and checksum are different from written ones, perform the "Writing to the microprocessor" all over again.
10. Press the "MAIN ZONE ON/OFF" key of this unit to turn off the power.
11. Disconnect the power cable of this unit from the AC outlet.

### Writing to DSP

1. With the power cable of this unit disconnected from the AC outlet, start up DSP\_FLASHER Ver2.7.exe.  
The screen appears as shown below. (Fig. 4)
2. Click [Vx61 DSP]. (Fig. 4)

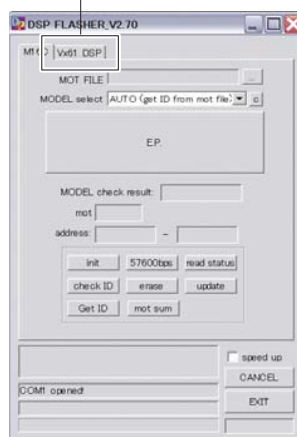


Fig. 4

3. Click [...] and select the firmware name. (Fig. 5)

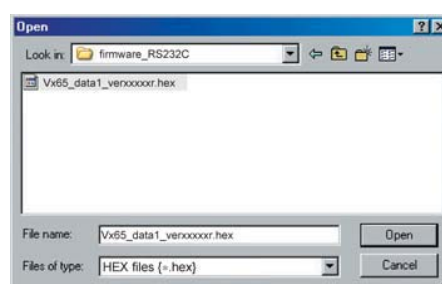
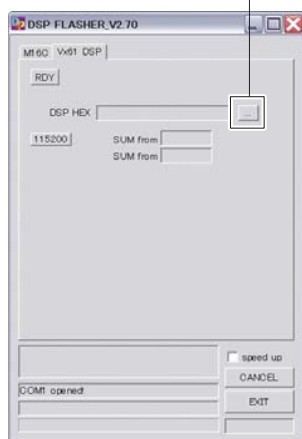


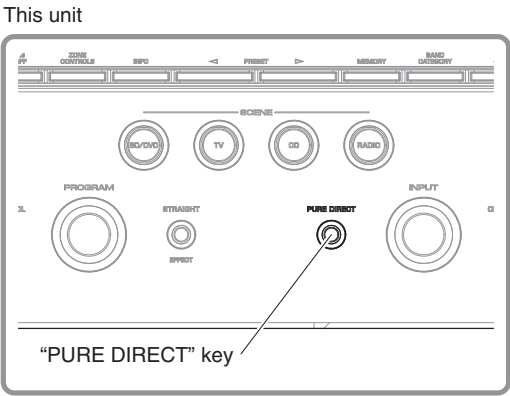
Fig. 5

4. Click [RDY]. (Fig. 6)



Fig. 6

5. While pressing the “PURE DIRECT” key of this unit, connect the power cable of this unit to the AC outlet. (Fig. 7)  
Writing is started automatically. (Fig. 7)



Writing being executed.

Fig. 7

6. When writing of the firmware is completed, "Vx61 DSP Flash finished!" is displayed. (Fig. 3)
7. Click [EXIT] to end DSP\_FLASHER\_v2.7.exe. (Fig. 8)



Fig. 8

8. Start up the self-diagnostic function and select "25.ROM VER/SUM/PORT" menu.  
Using the sub-menu, have the firmware version and checksum displayed, and then check that they are the same as written ones.  
\* When the firmware version and checksum are different from written ones, perform the "Writing to DSP" all over again.
9. Press the "MAIN ZONE ON/OFF" key of this unit to turn off the power.
10. Disconnect the power cable of this unit from the AC outlet.
11. Remove the RS232C conversion adaptor and flexible flat cable from the writing port (CB27, DIGITAL P.C.B.) of this unit.



## ■ SELF-DIAGNOSTIC FUNCTION

### CAUTION!

Do not disconnect the power cable of this unit from the AC outlet while this unit is in the self-diagnostic function mode, otherwise the user memories (input rename, sound field parameters, system memory, tuner presetting, etc.) will be initialized.

Therefore, to cancel the self-diagnostic function, be sure to press the "MAIN ZONE ON/OFF" key of this unit to turn off the power.

This unit has self-diagnostic functions that are intended for inspection, measurement and location of faulty point.

There are 27 main menu items, each of which has sub-menu items.

Listed in the table below are main menu items and sub-menu items.

Note that not all menu items listed will apply to the models covered in this service manual.

| No. | Main menu      | Sub-menu |                                     |
|-----|----------------|----------|-------------------------------------|
| 1   | BYPASS         | 1        | ANALOG BYPASS                       |
|     |                | 2        | DSP BYPASS                          |
| 2   | RAM THROUGH    | 1        | RAM MARGIN                          |
|     |                | 2        | RAM FULL ALL                        |
|     |                | 3        | RAM FULL CENTER                     |
|     |                | 4        | RAM FULL SURROUND                   |
|     |                | 5        | RAM FULL SURROUND BACK              |
| 3   | HDMI AUDIO     | 1        | SPDIF                               |
|     |                | 2        | Multi                               |
|     |                | 3        | DSD                                 |
| 4   | SPEAKERS SET   | 1        | FRNT: SML 0dB                       |
|     |                | 2        | CENTER: NONE                        |
|     |                | 3        | LFE/B: FRNT                         |
|     |                | 4        | Zone2/3 Amp ON                      |
|     |                | 5        | Bi-AMP                              |
|     |                | 6        | TONE: MAX                           |
|     |                | 7        | TONE: MIN                           |
|     |                | 8        | SPEAKER 6 ohms                      |
| 5   | MULTI CH-INPUT | 1        | 8ch INPUT 6 ohms                    |
|     |                | 2        | 8ch INPUT 8 ohms                    |
|     |                | 3        | LIM/PLDET/THM                       |
| 6   | MIC CHECK      | 1        | MIC CHECK                           |
| 7   | FL/GUI CHECK   | 1        | VFD CHECK                           |
|     |                | 2        | VFD DISP OFF / MONITOR OUTPUT OFF   |
|     |                | 3        | VFD DISP ALL / COMPONENT OUTPUT OFF |
|     |                | 4        | VFD DIMMER / GUI SCREEN ON          |
|     |                | 5        | CHECK PATTERN / GUI SCREEN ON       |
| 8   | MANUAL TEST    | 1        | TEST ALL                            |
| 9   | A/D DATA CHECK | 1        | PS1/PS2                             |
|     |                | 2        | DC/TH                               |
|     |                | 3        | IMP/PL                              |
|     |                | 4        | DST/DK                              |
|     |                | 5        | K0/K1                               |

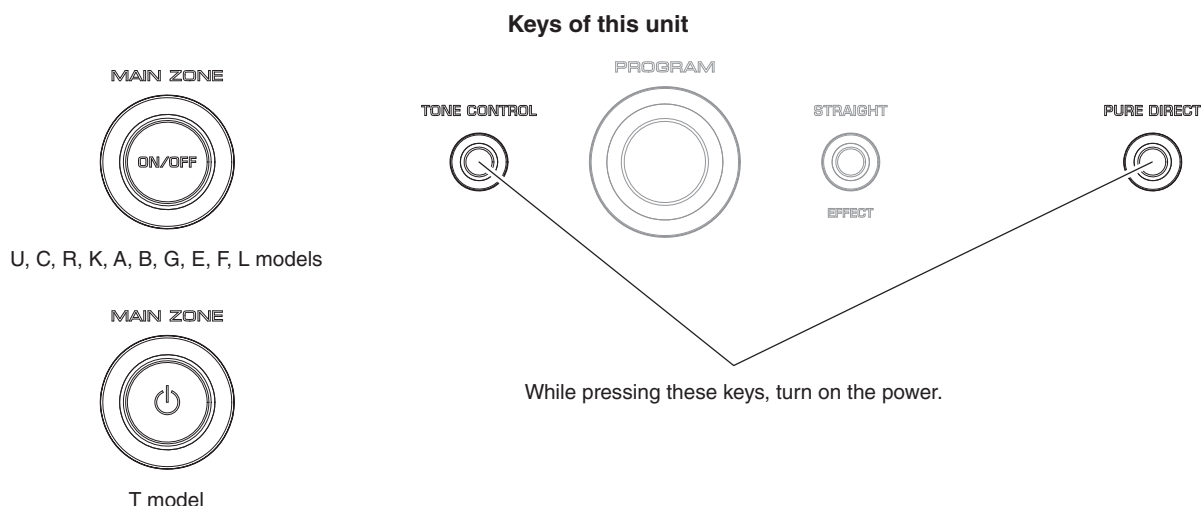
| No. | Main menu           | Sub-menu |                                 |
|-----|---------------------|----------|---------------------------------|
| 10  | VIDEO CHECK         | 1        | I2C                             |
|     |                     | 2        | DIGITAL COMPONENT               |
|     |                     | 3        | DIGITAL CVBS                    |
|     |                     | 4        | DIGITAL Y/C (B, G, E, F models) |
|     |                     | 5        | ANALOG BYPASS                   |
|     |                     | 6        | TEST PATTERN                    |
|     |                     | 7        | VIDEO INFORMATION               |
| 11  | XM STATUS (U model) | 1        | 1k -1dB /44kHz                  |
|     |                     | 2        | 1k -61dB /44kHz                 |
|     |                     | 3        | Mute /44kHz                     |
|     |                     | 4        | XM Tone /44kHz                  |
|     |                     | 5        | ISO Tone /44kHz                 |
|     |                     | 6        | 1k -1dB /32kHz                  |
|     |                     | 7        | 1k -61dB /32kHz                 |
|     |                     | 8        | Mute /32kHz                     |
|     |                     | 9        | XM Tone /32 kHz                 |
|     |                     | 10       | ISO Tone /32 kHz                |
|     |                     | 11       | Bus Power: OFF                  |
| 12  | SIRIUS (U model)    | 1        | SIRIUS: OK (NG)                 |
|     |                     | 2        | SR                              |
|     |                     | 3        | SSP (SIRIUS #0 VERSION)         |
|     |                     | 4        | MAC (SIRIUS #1 VERSION)         |
|     |                     | 5        | ADP (SIRIUS #2 VERSION)         |
|     |                     | 6        | PRDID                           |
|     |                     | 7        | SEQID                           |
| 13  | HD RADIO (U model)  | 1        | HD CPU VERSION                  |
|     |                     | 2        | HD DSP VERSION                  |
| 14  | DOCK                | 1        | DOCK                            |
|     |                     | 2        | BT VERSION                      |
| 15  | HDMI INFO           | 1        | HMN                             |
|     |                     | 2        | HPI                             |
|     |                     | 3        | HVN                             |
| 16  | HDMI SELECT         | 1        | HDMI NONE                       |
|     |                     | 2        | HDMI IN 1                       |
|     |                     | 3        | HDMI IN 2                       |
|     |                     | 4        | HDMI IN 3                       |
|     |                     | 5        | HDMI IN 4                       |
|     |                     | 6        | HDMI IN F                       |
|     |                     | 7        | HDMI UP CONVERSION              |
|     |                     | 8        | HDMI UP THROUGH                 |
| 17  | USB                 | 1        | USB File 1                      |
|     |                     | 2        | USB File 2                      |

| No. | Main menu                                | Sub-menu   |                                              |
|-----|------------------------------------------|------------|----------------------------------------------|
| 18  | IF STATUS (Not applied to these models.) | 1          | DSP STATUS                                   |
| 19  | BUS CHECK                                | 1          | TI BUS                                       |
|     |                                          | 2          | BF LOOP                                      |
| 20  | NO MENU                                  | Invalidity |                                              |
| 21  | PROTECTION HISTORY                       | 1          | HISTORY 1                                    |
|     |                                          | 2          | HISTORY 2                                    |
|     |                                          | 3          | HISTORY 3                                    |
|     |                                          | 4          | HISTORY 4                                    |
| 22  | NO MENU                                  | 1          | Invalidity                                   |
| 23  | UPDATE                                   | 1          | TI FLASH BOOT (Not applied to these models.) |
| 24  | FACTORY PRESET                           | 1          | PRESET INHI                                  |
|     |                                          | 2          | PRESET RSRV                                  |
| 25  | ROM VER/SUM/PORT                         | 1          | VERSION                                      |
|     |                                          | 2          | ALL SUM                                      |
|     |                                          | 3          | TI (DSP) FLASH VERSION                       |
|     |                                          | 4          | TI (DSP) FLASH SUM                           |
|     |                                          | 5          | BF VERSION                                   |
|     |                                          | 6          | BF SUM 1 (All/Main)                          |
|     |                                          | 7          | BF SUM 2 (Application/USB)                   |
|     |                                          | 8          | XM VERSION (U model)                         |
|     |                                          | 9          | SIRIUS VERSION (U model)                     |
|     |                                          | 10         | MODEL/DESTINATION                            |
|     |                                          | 11         | Verify (Not applied to these models.)        |
|     |                                          | 12         | MAC address                                  |
| 26  | SERIAL                                   | 1          | RS-232C loop back check                      |
|     |                                          | 2          | EEPROM check                                 |
| 27  | NETWORK                                  | 1          | IP Address check                             |
|     |                                          | 2          | MAC Address check                            |
|     |                                          | 3          | MAC LABEL No. SET                            |
|     |                                          | 4          | LINK check                                   |
|     |                                          | 5          | NETWORK loop back check                      |
|     |                                          | 6          | Line noise measurement 10Mbps                |
|     |                                          | 7          | Line noise measurement 100Mbps               |

## ● Starting Self-Diagnostic Function

While pressing those 2 keys of this unit as shown in the figure below, press the “MAIN ZONE ON/OFF” key to turn on the power.

The self-diagnostic function mode is activated.



## ● Starting Self-Diagnostic Function in the protection cancel mode

If the protection function works and causes hindrance to trouble shoot, cancel the protection function as described below, and it will be possible to enter the self-diagnostic function mode.

(The protection functions other than the excess current detect function will be disabled.)

While pressing those 2 keys as shown in the figure above, press the “MAIN ZONE ON/OFF” key to turn on the power and keep pressing those 2 keys and “MAIN ZONE ON/OFF” key for 3 seconds or longer.

The self-diagnostic function mode is activated with the protection functions disabled.

In this mode, the SLEEP segment of the FL display of this unit flashes to indicate that the mode is self-diagnostic function mode with the protection functions disabled.

### CAUTION!

Using this product with the protection function disabled may cause damage to itself. Use special care when using this mode.

## ● Canceling Self-Diagnostic Function

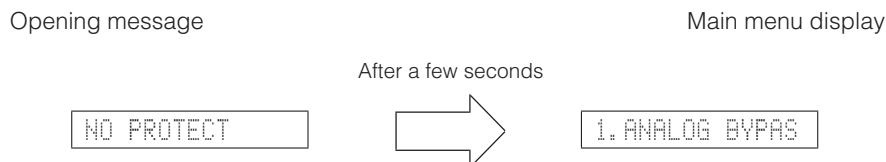
- Before canceling self-diagnostic function, execute setting for FACTORY PRESET of main menu No. 24 (Memory initialization inhibited or Memory initialized).
  - \* In order to keep the user memory stored, be sure to select PRESET INHIBITED (Memory initialization inhibited).
- Press the “MAIN ZONE ON/OFF” key of this unit to turn off the power.

## ● Display provided when Self-Diagnostic Function started

The display is as described below depending on the situation when the last time the power to this unit is turned off.

### 1. When the power is turned off by usual operation:

The FL display of this unit displays "NO PROTECT" then the main menu (sub-menu "1. ANALOG BYPAS" of main menu 1 BYPASS) a few seconds later.



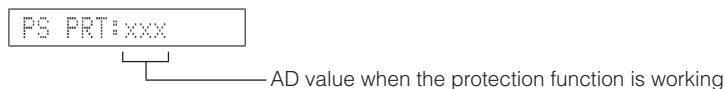
### 2. When the protection function worked to turn off the power:

The FL display of this unit displays the data of protection function which worked at that time then the main menu (sub-menu "1. ANALOG BYPAS" of main menu 1 BYPASS) a few seconds later.

Note: At that time if you reactivate the self-diagnostic function after turning off the power once by pressing the "MAIN ZONE ON/OFF" key, "NO PROTECT" will be displayed because that situation is equal to "1. When the power is turned off by usual operation:" described above.

However the protection function history is stored in a backup memory. For details, refer to main menu 21 PROTECTION HISTORY.

#### 2-1. When the protection function worked due to excess current.



**Cause:** An excessive current flowed through the power amplifier.

**Supplementary information:** As current of the power amplifier is detected, the abnormal channel can be identified by checking the current detect transistor.

Turning on the power without correcting the abnormality will cause the protection function to work immediately and the power supply will instantly be shut off.

#### Note)

- Applying the power to this unit without correcting the abnormality can be dangerous and cause additional circuit damage. To avoid this, if protection function has been activated 3 times continuously, the power will not turn on even when the "MAIN ZONE ON/OFF" key is pressed. In order to turn on the power again, disconnect the power cable of this unit from the AC outlet once and then reconnect it again.
- The output transistors in each amplifier channel should be checked for damage before applying power of this unit.
- Amplifier current should be monitored by measuring DC voltage across the emitter resistors for each channel.

## 2-2. When the protection function worked due to a short between speaker terminals.

I PROTECT:xxx

AD value when the protection function is working

**Cause:** The line between speaker terminals is shorted.

**Supplementary information:** As the excess current is detected after operation of the speaker relay, the shorted speaker terminal and the connected speaker can be identified.

Turning on the power without correcting the abnormality will cause the protection function to work immediately and the power supply will instantly be shut off.

## 2-3. When the protection function worked due to abnormal DC output.

DC PRT:xxx

AD value when the protection function is working

**Cause:** DC output from the power amplifier is abnormal.

**Supplementary information:** The protection function worked due to a DC voltage appearing at the speaker terminal. A cause could be a defect in the amplifier.

Turning on the power without correcting the abnormality will cause the protection function to work in 3 seconds and the power supply will be shut off.

## 2-4. When the protection function worked due to abnormal voltage in the power supply section.

PRV PRT:xxx

AD value when the protection function is working

**Cause:** The voltage in the power supply section is abnormal.

**Supplementary information:** The protection function worked due to a defect or overload in the power supply.

Turning on the power without correcting the abnormality will cause the protection function to work in 1 second and the power supply will be shut off.

## 2-5. When the protection function worked due to excessive heatsink temperature.

THM PRT:xxx

AD value when the protection function is working

**Cause:** The temperature on the heatsink is excessive.

**Supplementary information:** The protection function worked due to the temperature limit being exceeded.

Causes could be poor ventilation or a defect related to the thermal sensor.

Turning on the power without correcting the abnormality will cause the protection function to work in 1 second and the power supply will be shut off.

\* For detection of each protection function, refer to main menu described later.

### ● History of protection function

When the protection function has worked, its history is stored in memory with a backup.

Even if no abnormality is noted while servicing the unit, an abnormality which has occurred previously can be defined as long as the backup data has been stored.

For details of the history of protection function, refer to main menu 21 PROTECTION HISTORY.

The history of the protection function is cleared when self-diagnostic function is cancelled by selecting PRESET RESERVED (Memory initialized) of main menu 24 or when the backup data is erased.



## ● Operation procedure of Main menu and Sub-menu

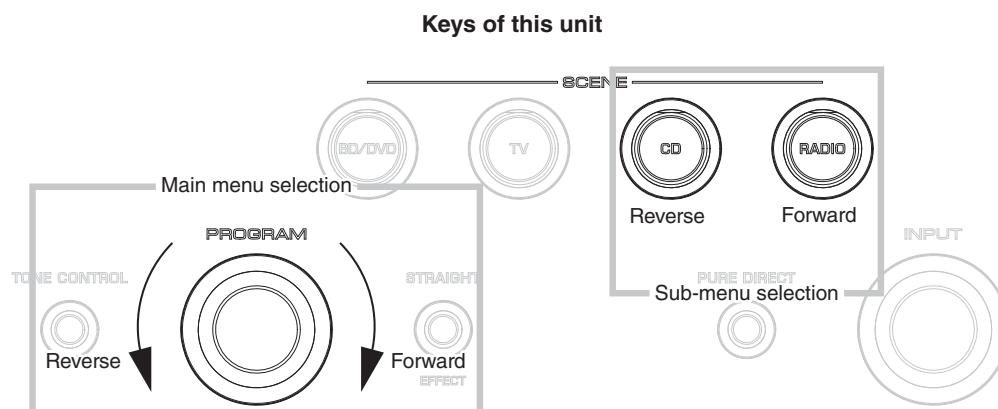
There are 27 main menu items, each of them having sub-menu items.

### Main menu selection

Select the main menu using "PROGRAM" knob.

### Sub-menu selection

Select the sub-menu using "SCENE RADIO" (forward) and "SCENE CD" (reverse) keys.



## ● Functions in Self-Diagnostic Function mode

In addition to the self-diagnostic function menu items, functions as listed below are available.

- Power ON/OFF
- Master volume
- Muting
- Input select
- Audio select
- PROGRAM select
- Tone control
- PURE DIRECT ON/OFF
- ZONE2 ON/OFF
- ZONE3 ON/OFF

\* Functions related to the tuner and the set menu are not available.

## ● Initial settings used to start Self-Diagnostic Function

The following initial settings are used when starting self-diagnostic function.

When self-diagnostic function is canceled, these settings are restored to those before starting self-diagnostic function.

- Master volume: -20 dB
- Zone2 Volume: +2.5 dB
- Input: AV5 (MAIN ZONE) / AUDIO1 (ZONE2)
- Main menu: 1. ANALOG BYPASS
- Speaker setting: LARGE, Bass out to SWFR (All channels)
- Speaker impedance: 8 ohms position
- OSD: ON
- XM Power: ON (U model)

● Details of Self-Diagnostic Function menu

1. BYPASS

Using the sub-menu, it is possible to select ANALOG BYPASS output or DSP BYPASS output.

ANALOG BYPASS

The analog input audio signal is output to FRONT L/R in PURE DIRECT.



INPUT: AV5 ANALOG  
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

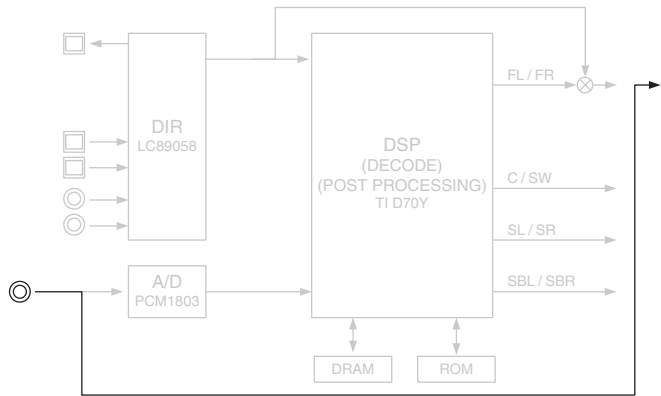
| Input level      | Volume  | SPEAKER OUT |        |          |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|--------|----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER | SURROUND | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | -∞     | -∞       | -∞            | -∞       | -∞    | -∞    | -∞                |

DSP BYPASS

The digital input audio signal is output to FRONT L/R in PURE DIRECT.

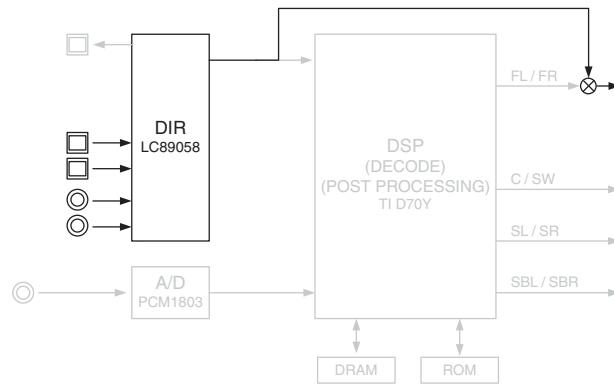


ANALOG BYPASS



(Shaded items not used in this example)

## DSP BYPASS



(Shaded items not used in this example)

## 2. RAM THROUGH

Using the sub-menu, it is possible to select MARGIN output or FULL BIT output.

### RAM MARGIN

The audio signal is output including the head margin.

#### 2. RAM MARGIN

INPUT: AV5 ANALOG

SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |           |           |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|-----------|-----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER    | SURROUND  | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm | +13.0 dBm     | -∞       | -∞    | -∞    | -6.5 dBm          |

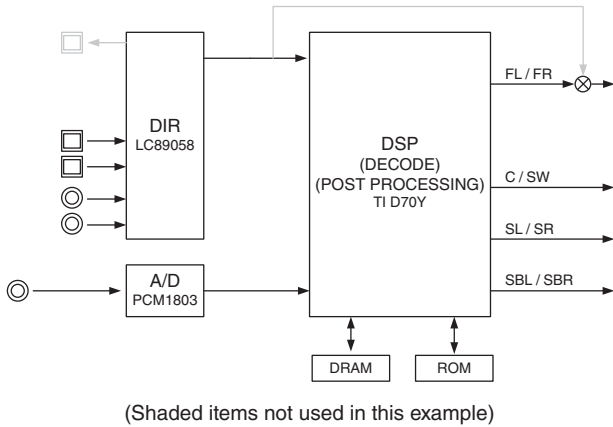
RAM FULL BIT

The audio signal is output in digital full bit without including the head margin.  
The SUBWOOFER signal is output but not in digital full bit.

2. RAM FULL ALL

INPUT: AV5 ANALOG  
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |           |           |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|-----------|-----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER    | SURROUND  | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm | +13.0 dBm     | -∞       | -∞    | -∞    | -6.5 dBm          |



When input source is stereo, signal is assigned as below.

- Front L → Front L / Center / Surround L / Surround Back L, R
- Front R → Front R / Surround R
- Front L +10 dB → SWFR

**RAM FULL CENTER**

The audio signal is output to only CENTER in digital full bit without including the head margin.

INPUT: AV5 ANALOG

SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |           |          |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|-----------|----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER    | SURROUND | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | -∞          | +13.0 dBm | -∞       | -∞            | -∞       | -∞    | -∞    | -∞                |

**RAM FULL SURROUND**

The audio signal is output to only SURROUND L/R in digital full bit without including the head margin.

INPUT: AV5 ANALOG

SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |        |           |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|--------|-----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER | SURROUND  | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | -∞          | -∞     | +13.0 dBm | -∞            | -∞       | -∞    | -∞    | -∞                |

**RAM FULL SURROUND BACK**

The audio signal is output to only SURROUND BACK L/R in digital full bit without including the head margin.

INPUT: AV5 ANALOG

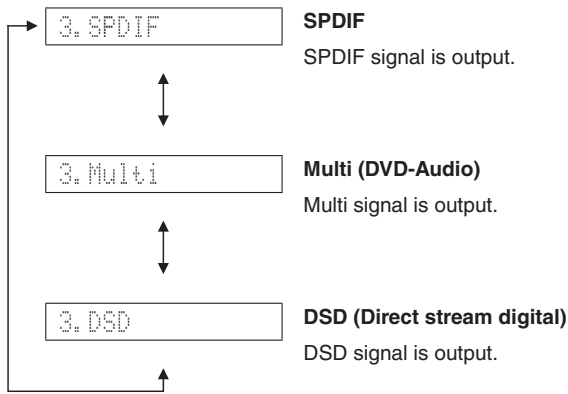
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |        |          |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|--------|----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER | SURROUND | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | -∞          | -∞     | -∞       | +13.0 dBm     | -∞       | -∞    | -∞    | -∞                |

3. HDMI AUDIO

Using the sub-menu, the audio signals input to HDMI IN are selected and output.

\* When selecting “DSD”, be sure to connect an HDMI unit equipped with DSD output function to this unit.



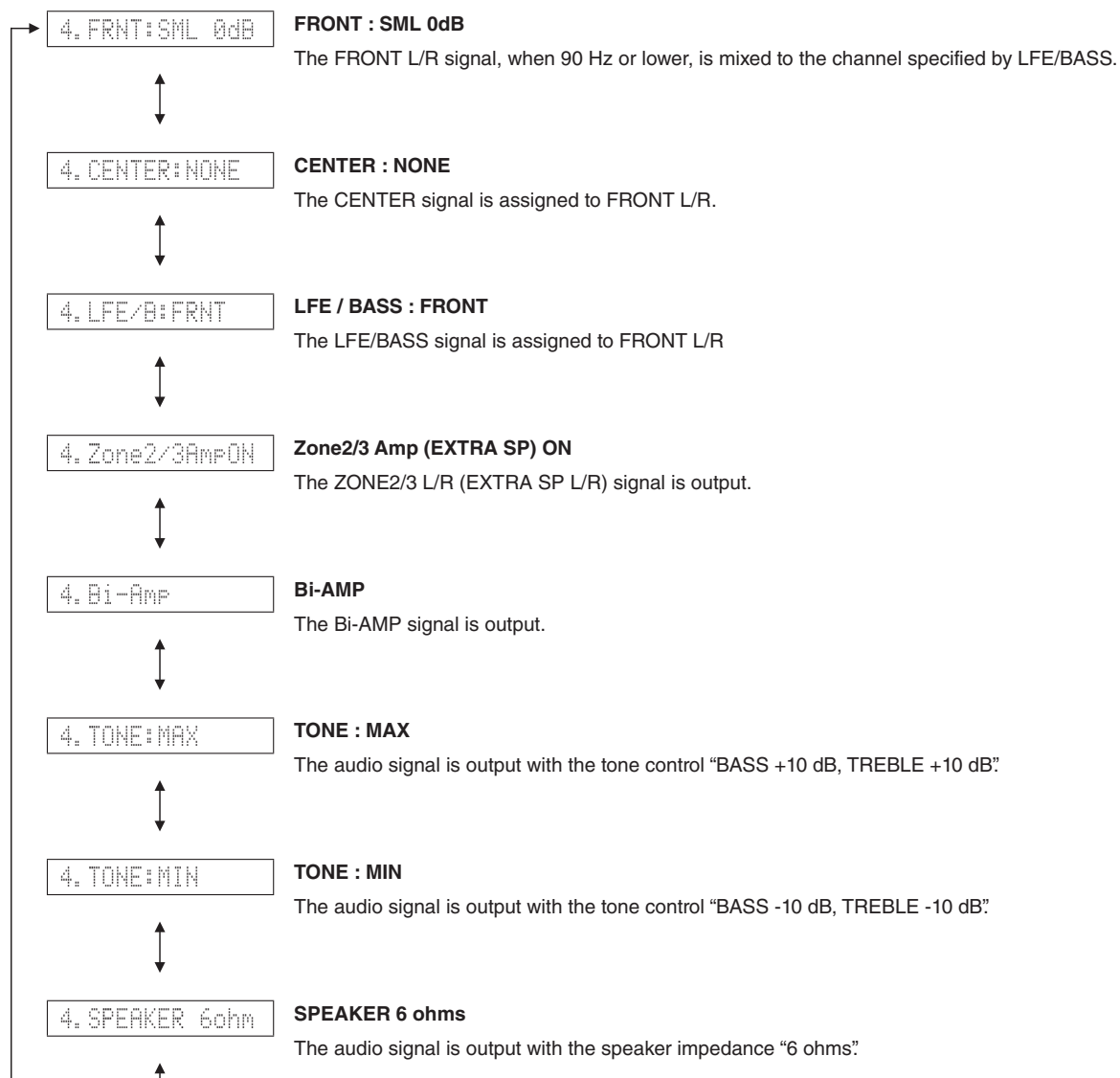
4. SPEAKER SET

The analog switch settings for each sub-menu are as shown in the table below.

|                |  | FRONT | CENTER | SURROUND | SURROUND BACK | SUBWOOFER |
|----------------|--|-------|--------|----------|---------------|-----------|
| FRNT : SML 0dB |  | SMALL | LARGE  | LARGE    | LARGE         | SWFR      |
| CENTER : NONE  |  | LARGE | NONE   | LARGE    | LARGE         | SWFR      |
| LFE/B : FRNT   |  | LARGE | SMALL  | SMALL    | SMALL         | FRONT     |
| Zone2/3 Amp ON |  | LARGE | LARGE  | – (*1)   | – (*1)        | SWFR      |
| Bi-AMP         |  | LARGE | LARGE  | LARGE    | LARGE (*2)    | SWFR      |
| TONE : MAX     |  | LARGE | LARGE  | LARGE    | LARGE         | SWFR      |
| TONE : MIN     |  | LARGE | LARGE  | LARGE    | LARGE         | SWFR      |
| SPEAKER 6 ohms |  | LARGE | LARGE  | LARGE    | LARGE         | SWFR      |

(\*1) ZONE2/3 L/R (EXTRA SP1/2 L/R): LARGE  
(\*2) Bi-AMP: LARGE

- LARGE:** This mode is used for a speaker with high bass reproduction performance (a large unit). Full bandwidth signals are output.
- SMALL:** This mode is used for a speaker with low bass reproduction performance (a small unit). The signals of 90 Hz or less are mixed into the channel specified by LFE/BASS.
- NONE:** This mode is used for no center speaker. The center content is reduced by 3 dB and distributed to FRONT L/R.
- SWFR:** LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is output through SUBWOOFER OUT.
- FRONT:** LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is distributed to FRONT L/R.



INPUT: AV5 ANALOG

SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Sub-menu             | Input level      | Volume  | SPEAKER OUT |           |              |                   | SUBWOOFER OUTPUT |
|----------------------|------------------|---------|-------------|-----------|--------------|-------------------|------------------|
|                      |                  |         | FRONT L/R   | CENTER    | SURROUND L/R | SURROUND BACK L/R |                  |
| FRNT : SML 0dB       | Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -3.0 dBm         |
| CENTER : NONE        | Both ch, -20 dBm | +6.5 dB | +18.0 dBm   | -∞        | +13.0 dBm    | +13.0 dBm         | -7.5 dBm         |
| LFE/B : FRNT (50 Hz) | Both ch, -20 dBm | +6.5 dB | -∞          | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -∞               |
| Zone2/3 Amp ON       | Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | -∞ (*)       | -∞ (*)            | -7.5 dBm         |
| Bi-AMP               | Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -7.5 dBm         |
| TONE : MAX           | Both ch, -20 dBm | +6.5 dB | +14.0 dBm   | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -7.5 dBm         |
| TONE : MIN           | Both ch, -20 dBm | +6.5 dB | +12.0 dBm   | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -7.5 dBm         |
| SPEAKER 6 ohms       | Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm    | +13.0 dBm         | -7.5 dBm         |

(\*) ZONE2/3 L/R (EXTRA SP1/2 L/R) SPEAKER OUT: +13.0 dBm

5. MULTI CH-INPUT

The input source "MULTI CHANNEL INPUT" is selected.

Using the sub-menu, it is possible to select the 6 ohms/8 ohms.

When LIM / PLDET / THM menu is selected, keys become non-operable.

However, it is possible to advance to the next main menu by turning the "PROGRAM" knob of this unit.

8 ch INPUT 6 ohms

5. 8ch INPUT\_60

INPUT: MULTI CH INPUT  
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |           |           |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|-----------|-----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER    | SURROUND  | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm | +13.0 dBm     | -∞       | -∞    | -∞    | -16.5 dBm         |

8 ch INPUT 8 ohms

5. 8ch INPUT\_80

INPUT: MULTI CH INPUT  
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

| Input level      | Volume  | SPEAKER OUT |           |           |               |          |       |       | SUB-WOOFER OUTPUT |
|------------------|---------|-------------|-----------|-----------|---------------|----------|-------|-------|-------------------|
|                  |         | FRONT       | CENTER    | SURROUND  | SURROUND BACK | PRESENCE | ZONE2 | ZONE3 |                   |
| Both ch, -20 dBm | +6.5 dB | +13.0 dBm   | +13.0 dBm | +13.0 dBm | +13.0 dBm     | -∞       | -∞    | -∞    | -16.5 dBm         |



**LIM / PLDET / THM**

**LIM:** Setting value of LIM (Limiter control)

\* Do not change the value settings because this menu is only for the use of development staff.

**PLDET:** Power limiter detection

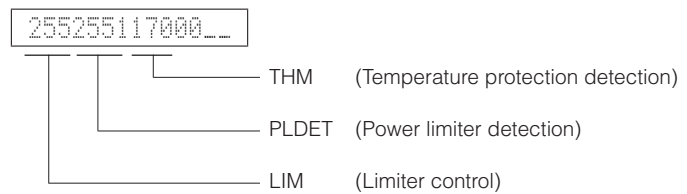
The A/D conversion value during operation is displayed.

(Reference voltage: 3.3 V=255)

**THM:** Temperature protection detection

The A/D conversion value during operation is displayed.

(Reference voltage: 3.3 V=255)

**6. MIC CHECK**

The signals input through the microphone are output to only FRONT L via A/D and D/A.

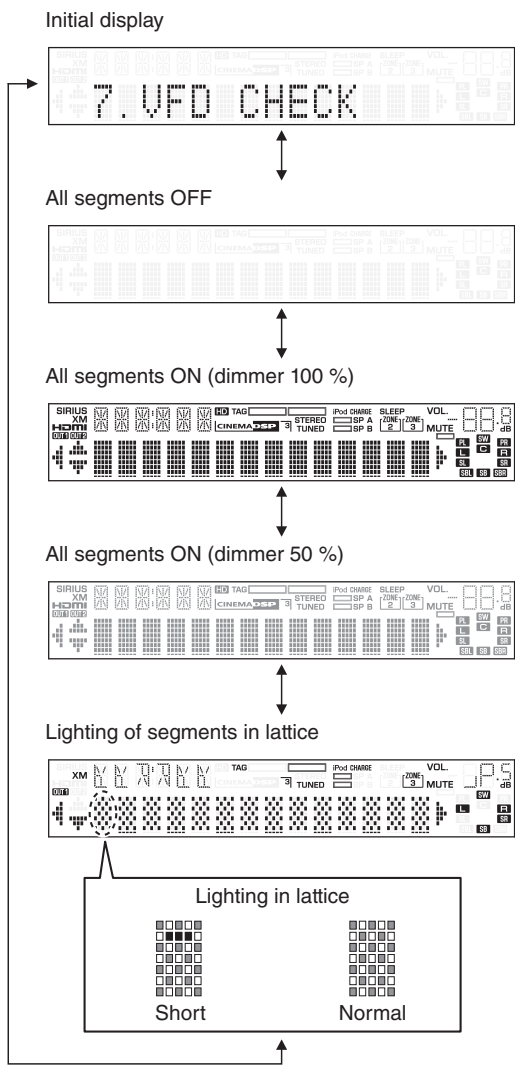
6. MIC CHK

7. FL/GUI CHECK

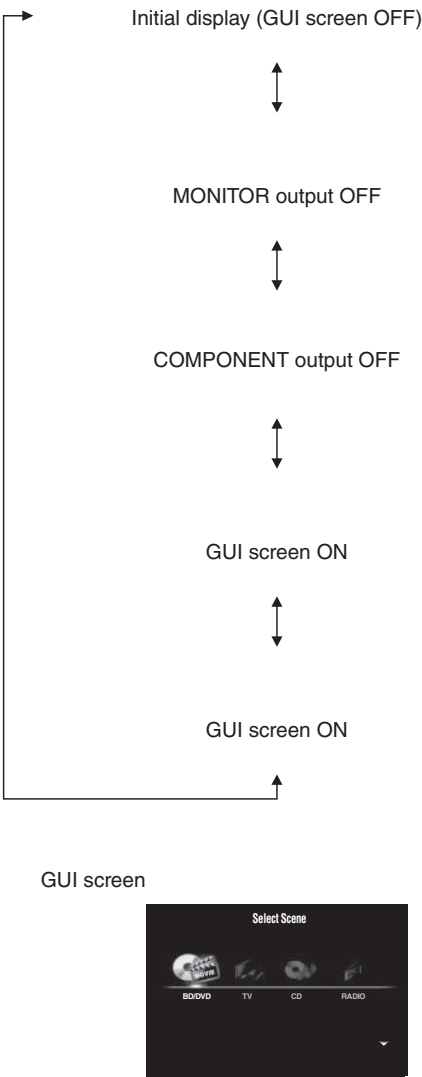
This menu is used to check the FL display and video control sections. When checking the video control section, connect a TV monitor to this unit with a component video cable and video pin cable.

Using the sub-menu, the FL display section or video control section switches as shown below.

Checking FL display section



Check of the Video control section. (Monitor out)



Segment conditions of the FL driver and the FL tube are checked by turning ON and OFF all segments. Next, the operation of the FL driver is checked by using the dimmer control. Then a short between segments next to each other is checked by turning ON and OFF all segments alternately (in lattice).

(In the above example, the segments in the second row from the top are shorted.)

## 8. MANUAL TEST

The built-in noise generator of DSP outputs the test noise through the channels specified by using the sub-menu.

The noise frequency for LFE is 30 to 80 Hz. Other than that, the noise frequency is 500 Hz to 2 kHz.

### TEST ALL

The test noise is output from all channels.

8. TEST ALL

## 9. A/D DATA CHECK

This menu is used to display the A/D conversion value of the microprocessor which detects panel keys of this unit and protection functions by using the sub-menu.

When K0/K1 menu is selected, keys become non-operable due to detection of the values of all keys.

However, it is possible to advance to the next main menu by turning the "PROGRAM" knob of this unit.

\* The figures in the diagram are given as reference only.

### PS1/PS2

**PSx:** Power supply voltage protection detection

#### PS1

Voltage detects: AC\_BL, AC\_12, AC\_5,  $\pm 12$  and +5V

Normal value: 38 to 128

(Reference voltage: 3.3 V=255)

#### PS2

Voltage detects: -5 and +5V

Normal value: 31 to 125

(Reference voltage: 3.3 V=255)

\* If PS1 or PS2 becomes out of the normal value range, the protection function works to turn off the power.

PS1:087 2:077

**DC/TH****DC:** Power amplifier DC (DC voltage) output is detected.Normal value: 32 to 74  
(Reference voltage: 3.3 V=255)**TH:** Temperature on the heatsink is detected.Normal value: 0 to 124  
(Reference voltage: 3.3 V=255)

\* If DC or TH becomes out of the normal value range, the protection function works to turn off the power.

DC:049 TH:117

**IMP/PL****IMP:** 8 or 6 ohms impedance setup detection

IMP 8: 8 ohms setting

IMP 6: 6 ohms setting

**PL:** PLDET (Power amplifier output voltage detection)

The power amplifier output voltage is detected and the power amplifier input voltage is controlled according to the detected output voltage.

(Reference voltage: 3.3 V=255)

IMP:8 PL:255

U, C, T, K, A, B, G, E, F models (Reference voltage: 3.3 V=255)

|                       | During normal operation | Value for starting limiter operation | Value for canceling limiter operation |
|-----------------------|-------------------------|--------------------------------------|---------------------------------------|
| PLDET (8 ohms/6 ohms) | 255 / 255               | 87 / 146                             | 125 / 171                             |
| LIM (Limiter control) | H                       | L                                    | H                                     |

R, L models (Reference voltage: 3.3 V=255)

|                       | During normal operation | Value for starting limiter operation | Value for canceling limiter operation |
|-----------------------|-------------------------|--------------------------------------|---------------------------------------|
| PLDET (8 ohms/6 ohms) | 255 / 255               | 100 / 100                            | 131 / 131                             |
| LIM (Limiter control) | H                       | L                                    | H                                     |

**DST/DK**

**DST:** Destination detection  
(Reference voltage: 3.3 V=255)

**DK:** DOCK type detection  
(Reference voltage: 3.3 V=255)

|                |
|----------------|
| DST:211 DK:255 |
|----------------|

Destination detection for AD port  
Pull-up resistance 10 k-ohms

| Ohm (R3809 VIDEO P.C.B.) | 1.2 k   | 2.7 k   | 4.7 k   | 6.8 k    | 10.0 k    | 15.0 k    | 47.0 k     | 100.0 k   |
|--------------------------|---------|---------|---------|----------|-----------|-----------|------------|-----------|
| A/D value (3.3 V=255)    | 15 – 46 | 46 – 69 | 69 – 92 | 92 – 115 | 115 – 139 | 139 – 177 | 185 – 224  | 224 – 247 |
| DEST (139 pin)           | U       | C       | R       | T        | K         | A         | B, G, E, F | L         |

DOCK detection for AD port (IC20 Microprocessor pin no. 128)  
Pull-up resistance 10 k-ohms

| DOCK type (DKID 141 pin) | Bluetooth | iPod      | No connect |
|--------------------------|-----------|-----------|------------|
| A/D value (3.3 V=255)    | 5 – 25    | 120 – 140 | 255        |

**K0/K1**

**K0/K1:** KEY0/KEY1 (Panel key of this unit)

When the A/D conversion value of the panel key becomes out of the specified range, normal operation will not be available.

In that case, check the constant of voltage dividing resistor, solder condition, etc. Refer to the table below.

(Reference voltage: 3.3 V=255)

|               |
|---------------|
| K0:255 K1:255 |
|---------------|

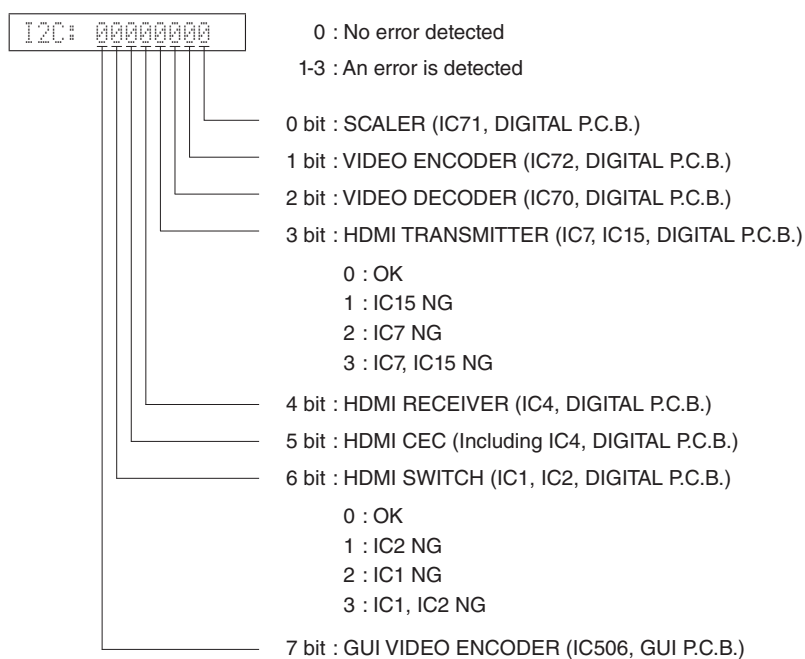
| Display   | K0               |
|-----------|------------------|
| 0 – 11    | SCENE RADIO      |
| 12 – 32   | SCENE CD         |
| 33 – 54   | SCENE TV         |
| 55 – 75   | SCENE BD/DVD     |
| 76 – 95   | ZONE2 ON/OFF     |
| 96 – 118  | ZONE3 ON/OFF     |
| 119 – 142 | —                |
| 143 – 162 | —                |
| 181 – 197 | MAIN ZONE ON/OFF |
| 198 – 229 | TONE CONTROL     |
| 255       | KEY OFF          |

| Display   | K1                |
|-----------|-------------------|
| 0 – 11    | PURE DIRECT       |
| 12 – 32   | STRAIGHT / EFFECT |
| 33 – 54   | ZONE CONTROLS     |
| 55 – 77   | INFO              |
| 78 – 98   | PRESET ◀          |
| 99 – 120  | PRESET ▶          |
| 121 – 143 | MEMORY            |
| 144 – 165 | BAND/CATEGORY     |
| 166 – 185 | TUNING CH ◀       |
| 186 – 205 | TUNING CH ▶       |
| 255       | KEY OFF           |

## 10. VIDEO CHECK

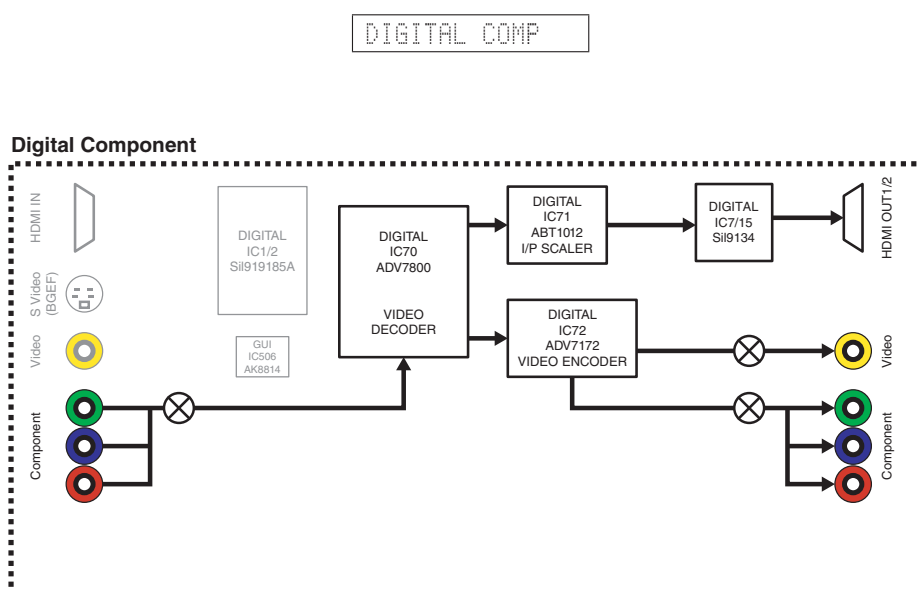
## I2C check

The I2C (Inter integrated circuit) bus line connection is checked.



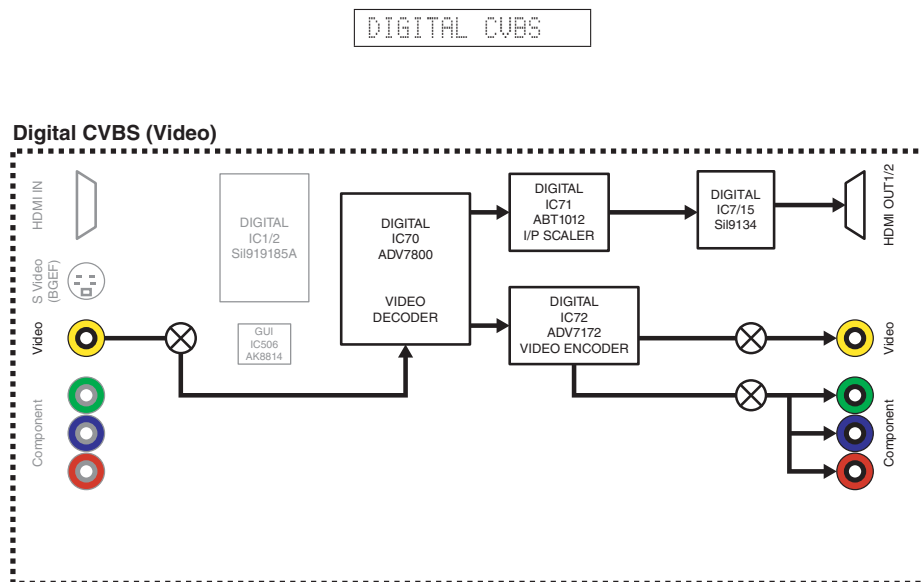
### Digital component

The video signal is converted and output as shown below.



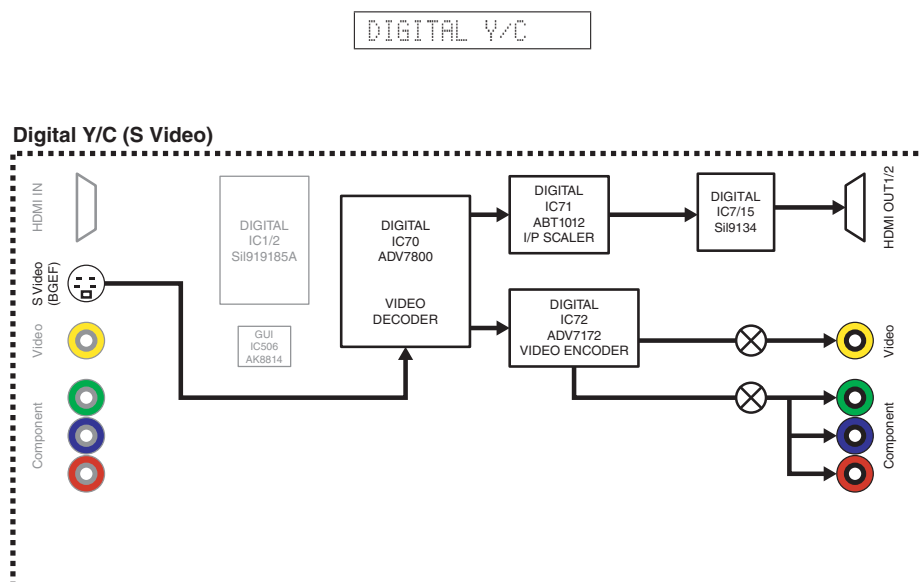
### Digital CVBS (Video)

The video signal is converted and output as shown below.



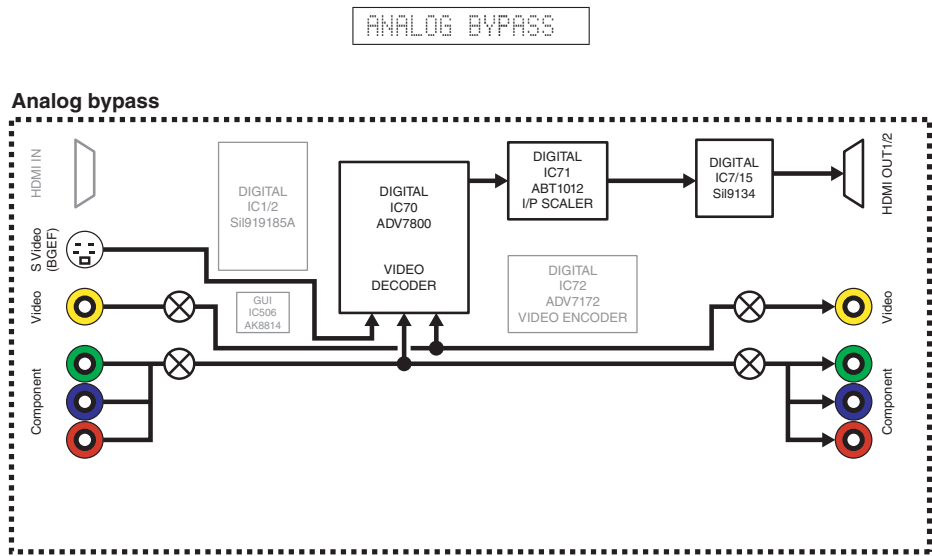
### Digital Y/C (S-Video) (B, G, E, F models)

The video signal is converted and output as shown below.



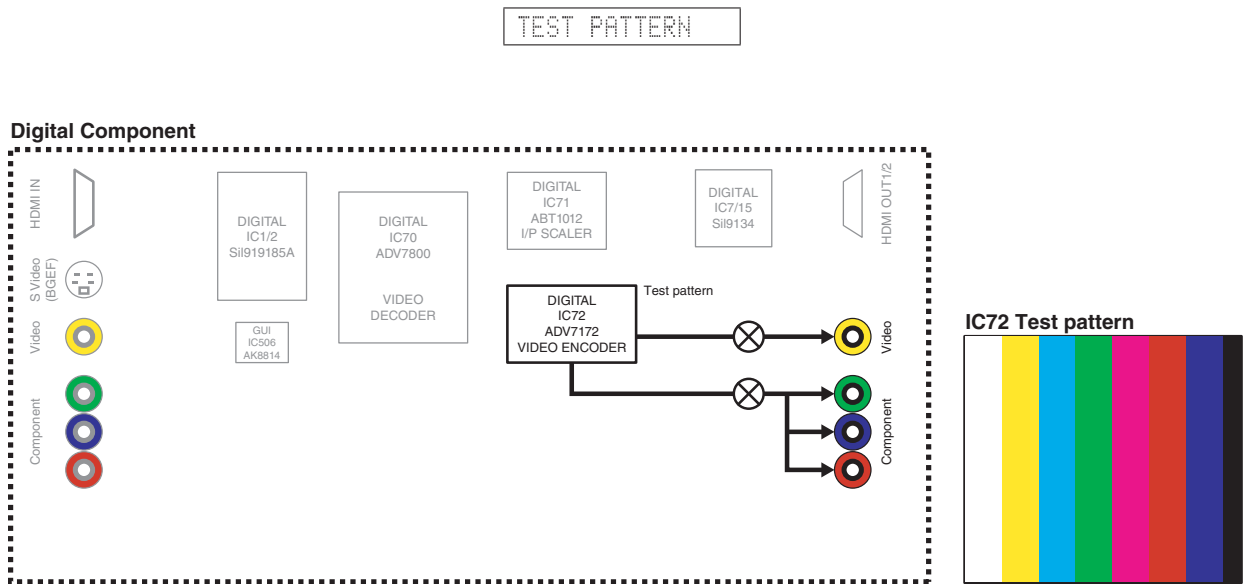
Analog bypass

The video signal is converted and output as shown below.



Test pattern

The test pattern is output from IC72 (DIGITAL P.C.B.).



Video information

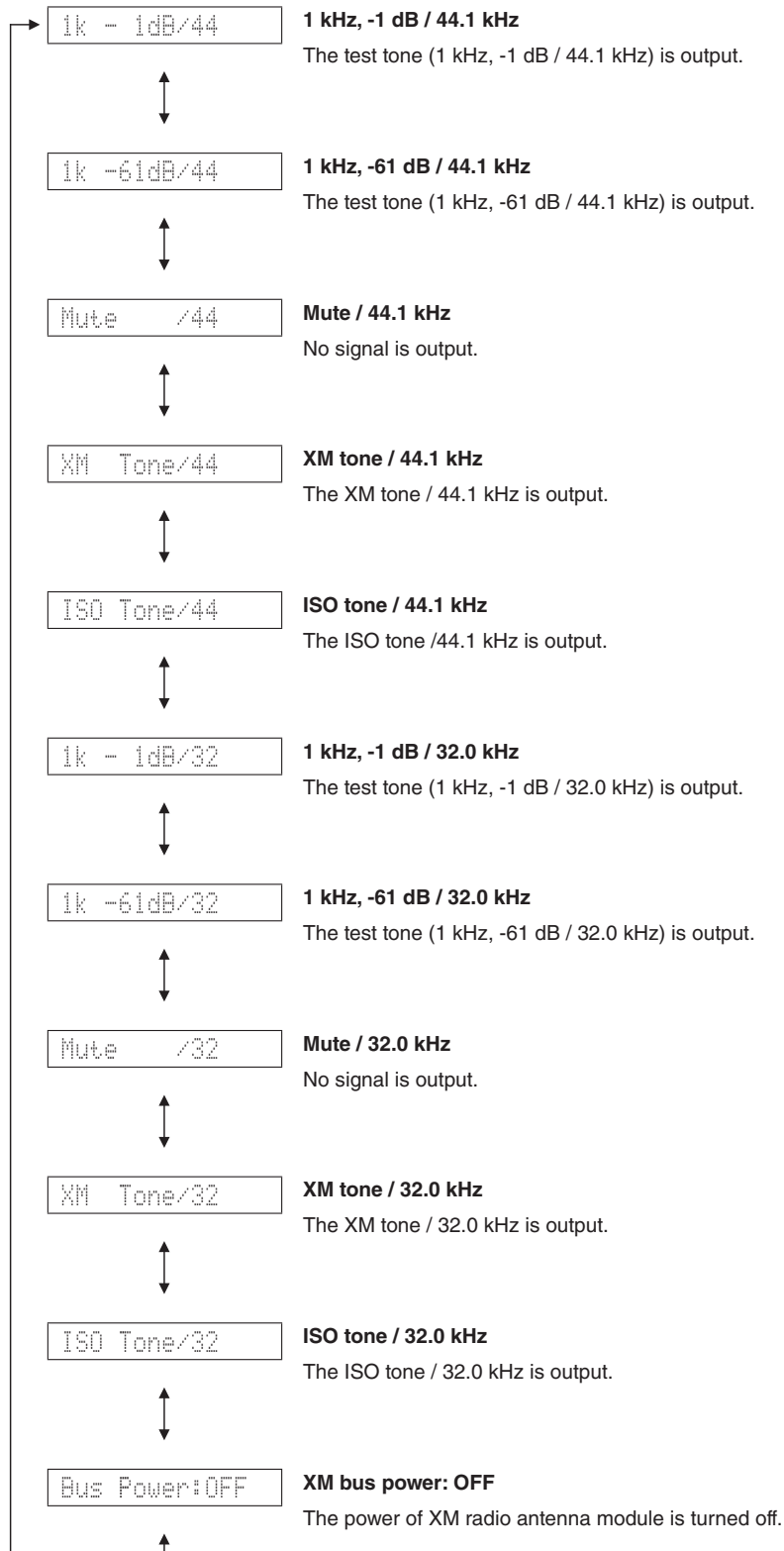
The information of input video signal is displayed.





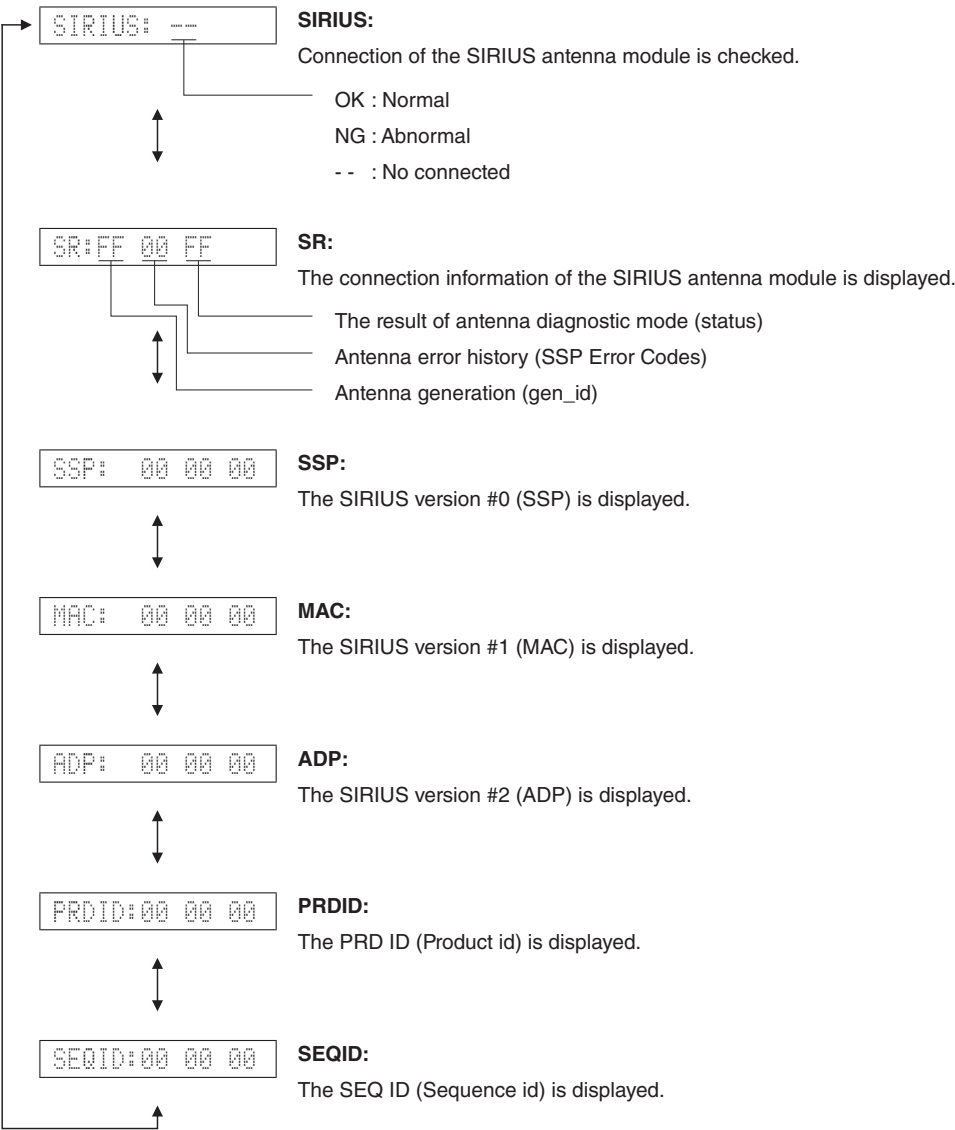
## 11. XM STATUS (U model)

This menu is used to check the output of XM Radio Antenna.



12. SIRIUS (U model)

The SIRIUS information are displayed.



13. HD RADIO (U model)

The firmware version is displayed.

CPU version

The firmware version is displayed.

HD CPU V:03.00

DSP version

The DSP version is displayed.

D: C0003.000

## 14. DOCK

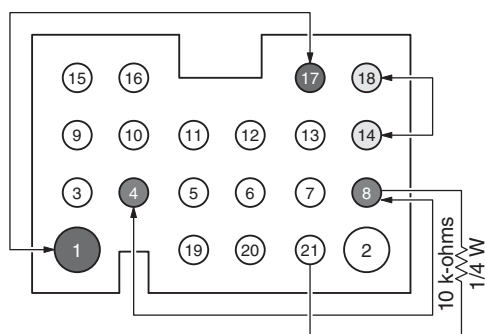
This menu is used to check the DOCK connector without the iPod itself.

With the power to this unit turned off, short between pins No. 14 (TX) and No. 18 (RX), between pins No. 1 (PWR) and No. 17 (ACCPOW), between pins No. 4 (iPDET) and No. 8 (DGND). Also, connect a 10 k-ohms, 1/4 W resistor between pins NO. 21 (DKID) and No. 8 (DGND). (Make sure that the power is turned off when shorting pins.)

Start up the self-diagnostic function and select this menu.

The check result is displayed according to the following display specifications.

**Note)** Be sure to return the shorted pins to their original condition after executing this test.



DOCK CONNECTOR

DOCK: NG NNNN

All Y = "OK"  
Others = "NG"

| Check item                                  | Short pins                                                            | Result              |                               | Display |
|---------------------------------------------|-----------------------------------------------------------------------|---------------------|-------------------------------|---------|
| UART loop back test                         | Pins No.14 (TX)<br>– No.18 (RX)                                       | OK                  |                               | Y       |
|                                             |                                                                       | NG                  |                               | N       |
| iPAP (iPod accessory power) detection       | Pins No.1 (PWR)<br>– No.17 (ACCPOW)                                   | IC20<br>pin No. 114 | High = YES                    | Y       |
|                                             |                                                                       |                     | Low = No                      | N       |
| iPDET (iPod installation to DOCK) detection | Pins No.4 (iPDET)<br>– No.8 (DGND)                                    | IC20<br>pin No. 8   | Low = installed               | Y       |
|                                             |                                                                       |                     | High = not installed          | N       |
| DKID (DOCK ID) detection                    | Pins No.21 (DKID)<br>– No.8 (DGND)<br>* 10 k-ohms, 1/4 W<br>pull down | IC20<br>pin No. 141 | 10 k-ohms,<br>1/4 W pull down | Y       |
|                                             |                                                                       |                     | Other                         | N       |

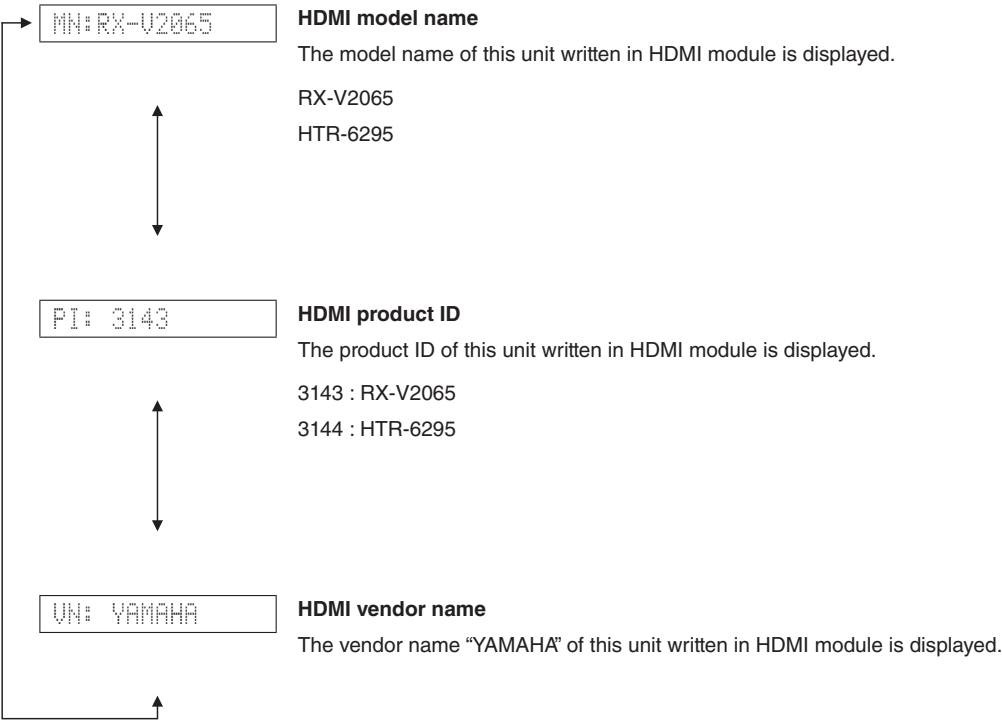
## BT VERSION

The DOCK (Bluetooth module) version is displayed.

BT V:xxxxx

15. HDMI INFORMATION

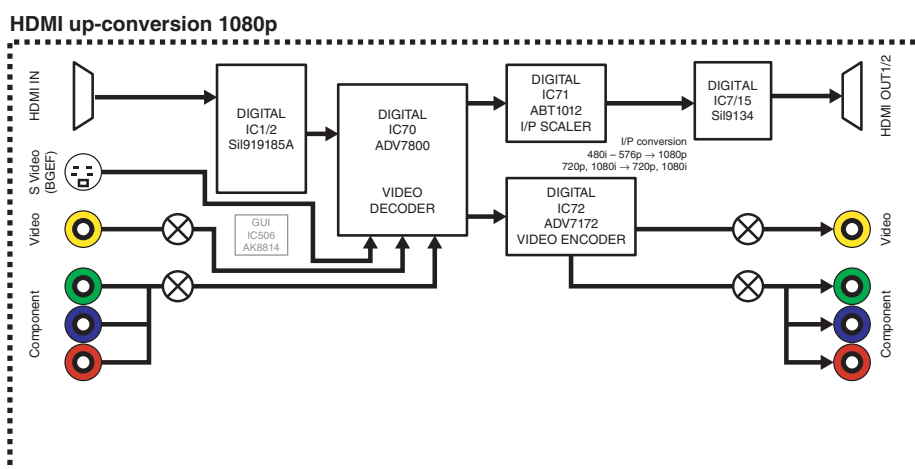
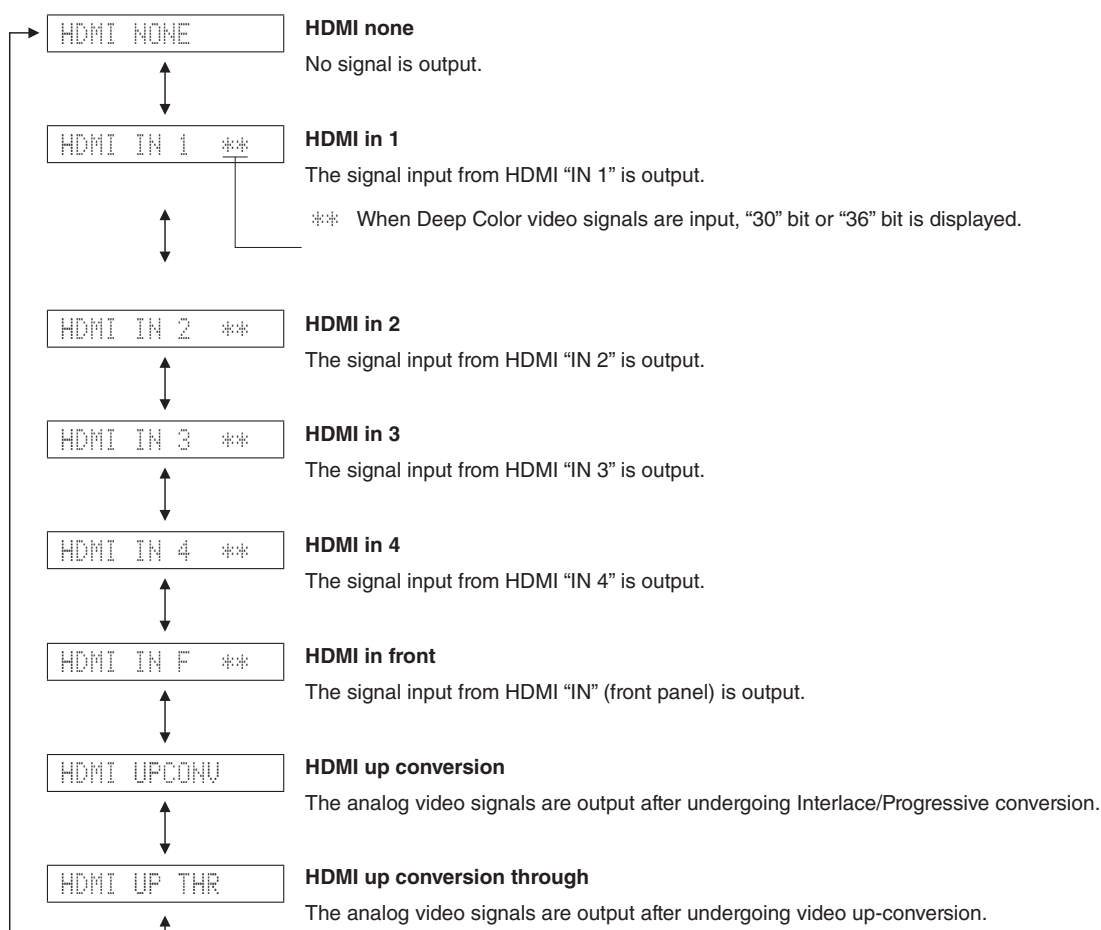
The HDMI informations are displayed.

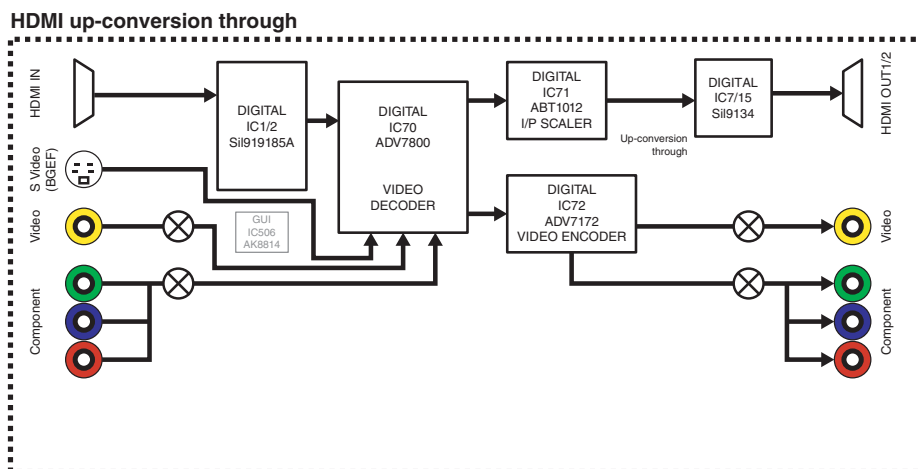


## 16. HDMI SELECT

Using the sub-menu, the selected input signal is output to HDMI OUT.

\* Support audio is set to "OTHER".





## 17. USB

The music file stored in the USB storage device is reproduced.

- Copy 2 or more music files from PC to the root folder of the USB storage device.
- Insert the USB storage device to the USB terminal of this unit.

### USB file 1

The 1st music file stored in the USB storage device connected to the USB terminal is reproduced.

17:USB file 1

### USB file 2

The 2nd music file stored in the USB storage device connected to the USB terminal is reproduced.

17:USB file 2

**18. IF STATUS (Input function status)**

Not applied to these models.

**DSP status**

DST: 710E0F2390

**19. BUS CHECK**

Communication and bus line connection between devices on the DIGITAL P.C.B. are checked.

**TI (DSP) BUS check**

Communication and bus line connection between microprocessor (IC20) and TI (DSP, IC44) are checked.

TI BUS: NoEr

**NoEr** : No error detected.

**Boot** : When "Boot" is displayed for a few seconds or "Boot" and "NoEr" are displayed alternately, there is a possibility that an error had occurred.

**BF LOOP :**

Communication and bus line connection between main microprocessor (IC20) and BF (sub-microprocessor, IC505) are checked.

BF LOOP: OK

**OK** : No error detected.

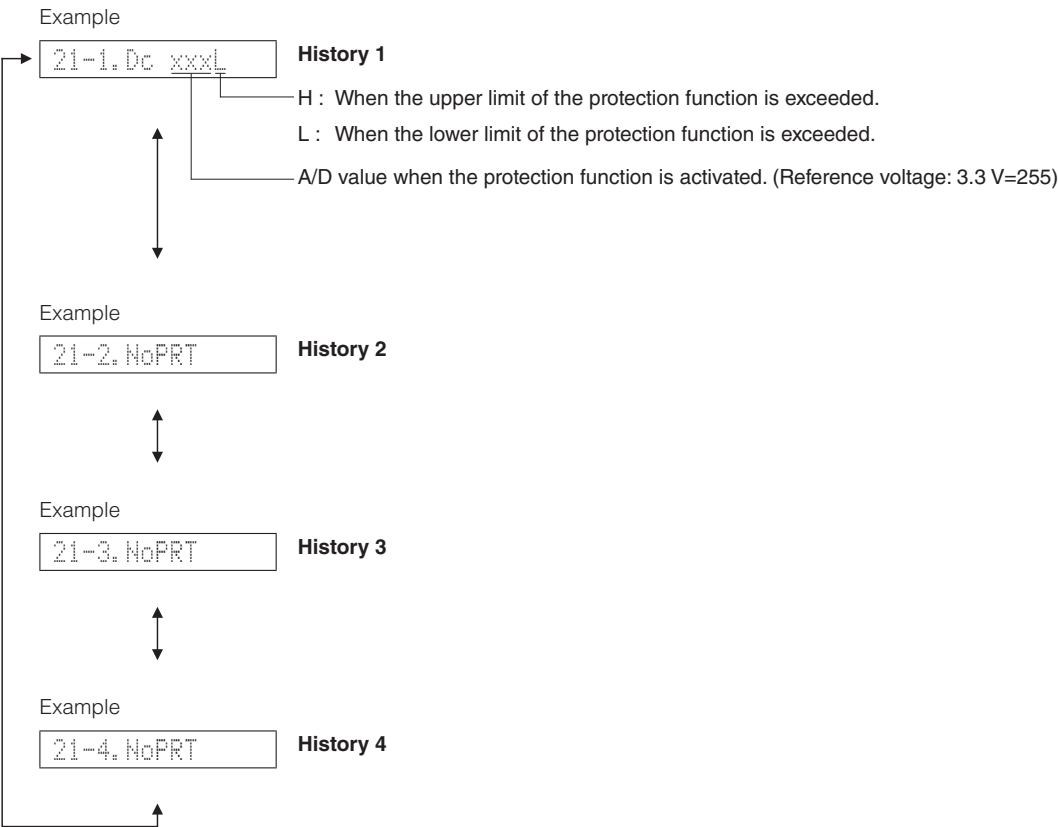
**NG** : An error is detected.

**20. NO MENU (Invalidity)**

Invalidity

21. PROTECTION HISTORY

The history of protection function is displayed.  
Select this menu and press the “STRAIGHT” key, all history will be erased.



22. NO MENU (Invalidity)



## 23. UPDATE

Not applied to these models.

### UPDATE TI

23.UPDATE TI

## 24. FACTORY PRESET

This menu is used to reserve/inhibit initialization of the back-up IC.

24.PRESET INHI



24.PRESET RSRV

### **PRESET INHIBIT** (Initialization inhibited) / PRESET INHIBIT

Back-up IC initialization is not executed. Select this sub-menu to protect the values set by the user.

### **PRESET RESERVED** (Initialization reserved)

Initialization of the back-up IC is reserved. (Actually, initialization is executed the next time that the power is turned on.) Select this sub-menu to reset to the original factory settings or to reset the back-up IC. Any protection history will be cleared.

**CAUTION:** Before setting to the PRESET RESERVED, write down the existing preset memory content of the tuner.  
(This is because setting to the PRESET RESERVED will cause the user memory content to be erased.)

## 25. ROM VER/SUM/PORT

The firmware version, checksum values, model name and destination are displayed.

The checksum is obtained by adding the data at every 8-bit for each program area and expressing the result as a 4-figure hexadecimal data.

\* The figures in the diagram are given as reference only.

### Firmware version

The firmware version of microprocessor (IC20 DIGITAL P.C.B.) is displayed.

```
Ver:  C024
```

### All checksum

The checksum value of microprocessor (IC20 DIGITAL P.C.B.) is displayed.

```
Sum:  5253
```

### TI (DSP) FLASH ROM version

The firmware version of TI (DSP) FLASH ROM (IC49 DIGITAL P.C.B.) is displayed.

```
TiVer:01.03r1
```

### TI (DSP) FLASH ROM checksum

The checksum value of TI (DSP) FLASH ROM (IC49 DIGITAL P.C.B.) is displayed.

```
TiSum:F1D0135A
```

### BF version

The firmware version of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

```
BF Ver:  C019
```

### BF checksum 1 (All/Master boot)

The checksum value (All/Master boot) of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

```
A1:3ED2Ma:0122
```

**BF checksum 2 (Application/USB)**

The checksum value (Application/USB) of BF (sub-microprocessor, IC505 GUI P.C.B.) is displayed.

AP:67DAUS:ADEC

**XM version (U model)**

The firmware version of XM is displayed.

XM A010-A001

BF (sub-microprocessor)  
Main microprocessor

**SIRIUS version (U model)**

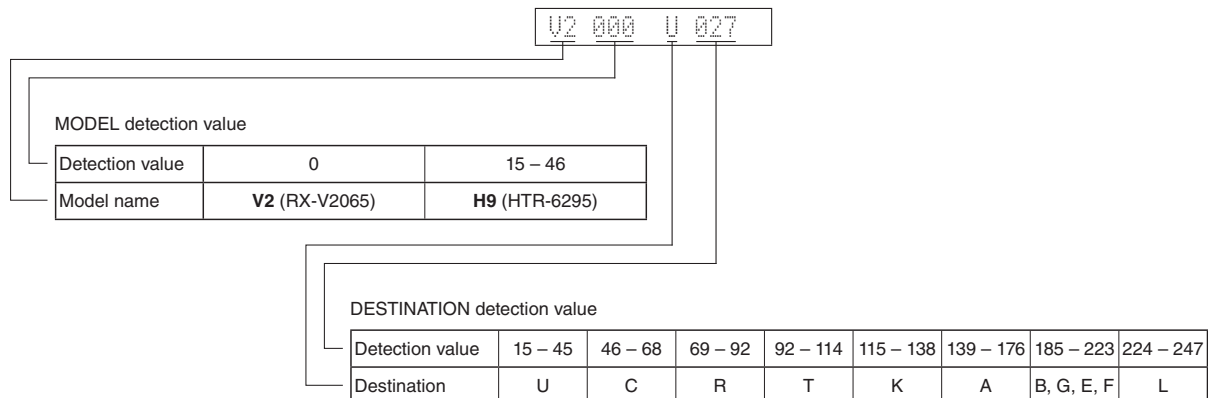
The firmware version of SIRIUS is displayed.

SR A001-A001

BF (sub-microprocessor)  
Main microprocessor

**MODEL/DESTINATION**

The model name and destination are displayed.

**VERIFY error**

Not applied to these models.

Verify 255

**MAC address**

The MAC address is displayed.

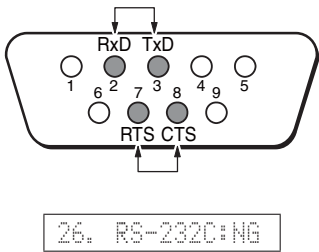
XXXXXXXXXXXX

26. SERIAL

RS-232C loop back check

This menu is used to check transmission and reception of the data, and the flow port of hardware.  
With the power to this unit turned off, short between pins No. 2 (RxD) and No. 3 (TxD), and between pins No. 7 (RTS) and No. 8 (CTS) of the RS232C terminal. (Be sure to turn off the power when shorting the pins.)  
Start up the self-diagnostic function and select this menu.  
“OK” appears when the data is transmitted and received properly, and “NG” appears when it is not.  
In this mode, NULL command transmission is continued after the test command is transmitted.

**Note)** Be sure to return the shorted pins to their original condition after executing this test.



EEPROM check

Communication and bus line connection between main microprocessor (IC20) and EEPROM (IC22) on the DIGITAL P.C.B. are checked.



- OK: No error detected
- NG: An error is detected

## 27. Network

- \* When the network condition varies while sub-menu is displayed (e.g., the network is deactivated once), the correct result will not be displayed.

In that case, once turn off the power to this unit, then start up the self-diagnostic function again and select this menu.

### IP Address Check

Whether IP address is obtained or not is checked.

27.NET IP: NG

OK: Connected (IP address obtained)

NG: No traffic / Unconnected

### MAC Address Check

MAC address information is checked.

27.NET MAC: OK

OK: Normal

NG: Unwritten

### MAC LABEL No SET

This menu is used to change MAC address number.

When IC513 of GUI P.C.B. or GUI P.C.B. is replaced, use this menu to restore the previous MAC address number.

Yamaha Corporation will provide the setting procedure for proper operation.

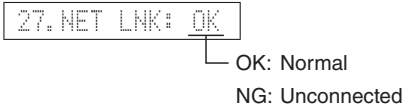
Please report the serial number of this unit to the following e-mail address for further instruction.

**E-mail: [ycav-ysiss@gmx.yamaha.com](mailto:ycav-ysiss@gmx.yamaha.com)**

27.NET MAC SET

LINK CHECK

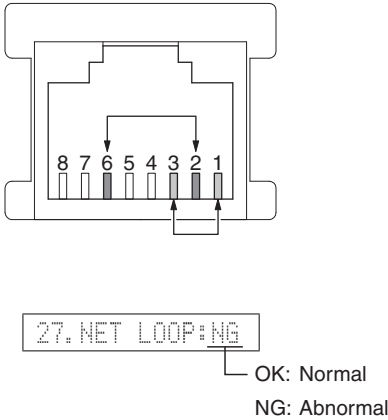
A network cable connection is checked.



NETWORK loop back check

This menu is used to check the NETWORK connector.  
With the power to this unit turned off, short between pins No. 1 (Tx+) and No. 3 (Rx+) and between pins No. 2 (Tx-) and No. 6 (Rx-) of the NETWORK connector. (Be sure to turn off the power to this unit when shorting these pins.)  
Start up the self-diagnostic function and select this menu.

**Note)** Be sure to return the shorted pins to their original condition after executing this test.



Line noise measurement 10Mbps

The line noise 10Mbps is output.



Line noise measurement 100Mbps

The line noise 100Mbps is output.



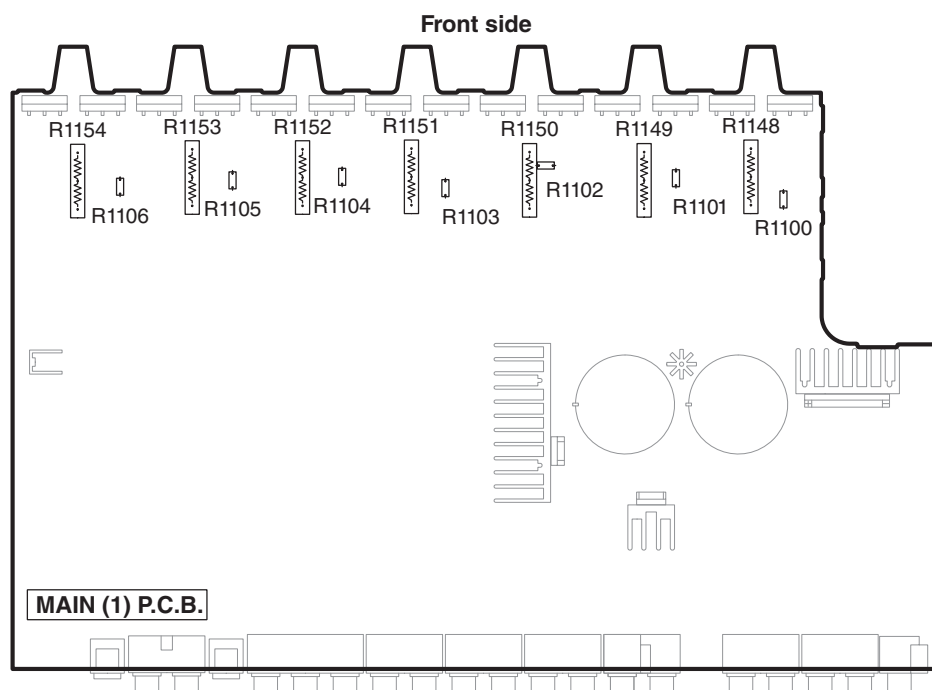
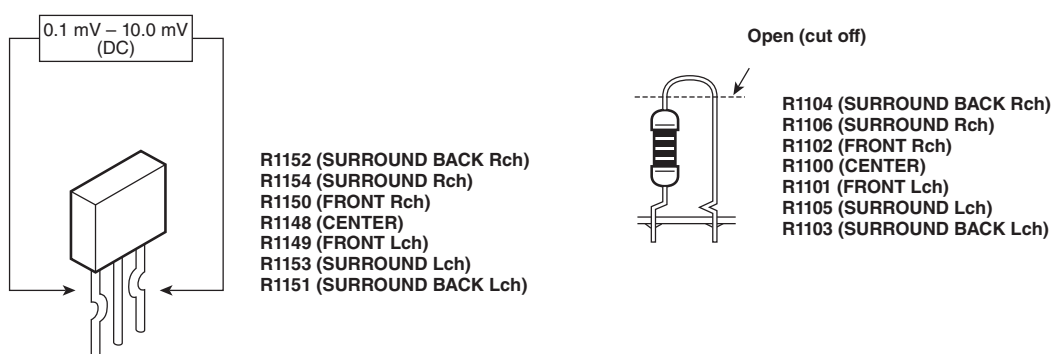
## ■ CONFIRMATION OF IDLING CURRENT OF AMP UNIT

- Right after power is turned on, confirm that the voltage across the terminals of R1152 (SURROUND BACK Rch), R1154 (SURROUND Rch), R1150 (FRONT Rch), R1148 (CENTER), R1149 (FRONT Lch), R1153 (SURROUND Lch), R1151 (SURROUND BACK Lch) are between 0.1mV and 10.0mV.
- If it exceeds 10.0 mV, open (cut off) R1104 (SURROUND BACK Rch), R1106 (SURROUND Rch), R1102 (FRONT Rch), R1100 (CENTER), R1101 (FRONT Lch), R1105 (SURROUND Lch), R1103 (SURROUND BACK Lch) and reconfirm the voltage.

### Attention

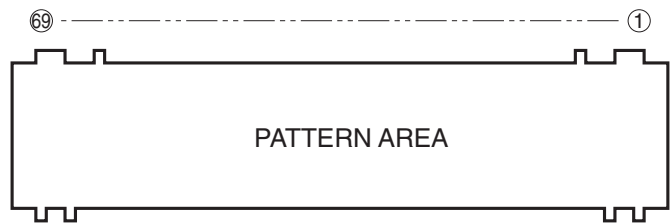
If the measured voltage exceeds 10.0mV after an amplifier repair, first check for a defective component before cutting the bias resistor.

- Confirm that the voltage is 0.2 mV to 15.0 mV after 60 minutes.



■ DISPLAY DATA

● V4001 : 18-MT-09GNK (OPERATION P.C.B.)



● PIN CONNECTION

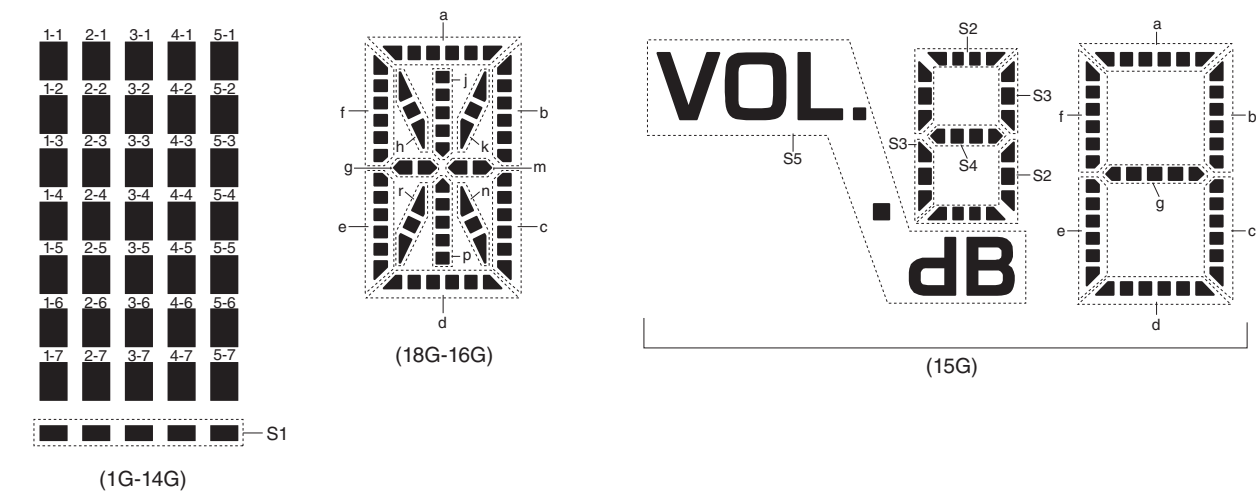
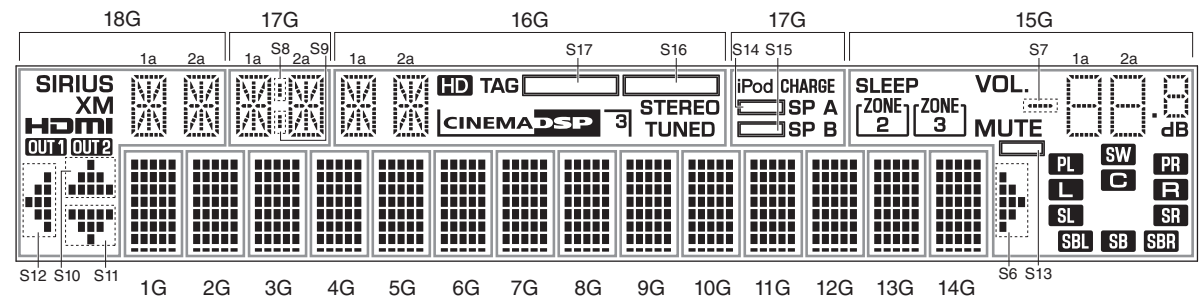
| Pin No.    | 69 | 68 | 67 | 66 | 65 | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56  | 55  | 54  | 53  | 52  | 51  | 50  | 49  | 48  | 47  | 46  | 45  | 44  | 43  | 42  | 41  | 40  | 39  | 38  | 37  | 36  | 35  |
|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Connection | F2 | NX | NP | NP | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 | P15 | P16 | P17 | P18 | P19 | P20 | P21 | P22 | P23 | P24 | P25 | P26 | P27 | P28 | P29 | P30 | P31 |

| Pin No.    | 34  | 33  | 32  | 31  | 30  | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22  | 21  | 20  | 19  | 18  | 17  | 16  | 15  | 14  | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
|------------|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Connection | P32 | P33 | P34 | P35 | P36 | NX | NX | NX | NX | NX | NX | NX | 18G | 17G | 16G | 15G | 14G | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G | NP | NP | NX | F1 |

Note : 1) F1, F2 ..... Filament pin    2) NP ..... No pin    3) NX ..... No extend pin    4) 1G-18G ..... Grid pin

● GRID ASSIGNMENT





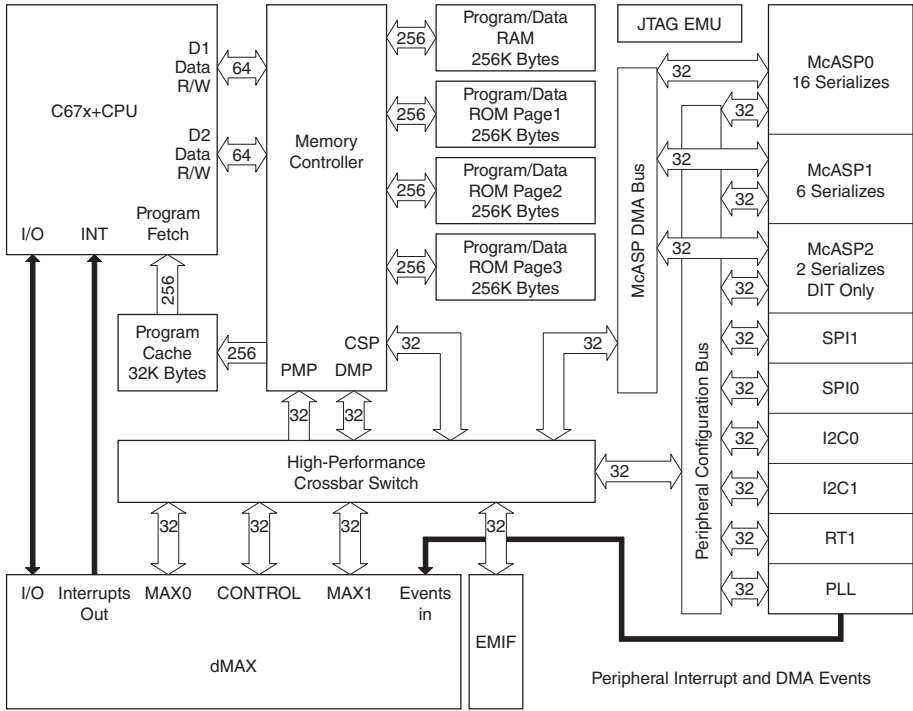
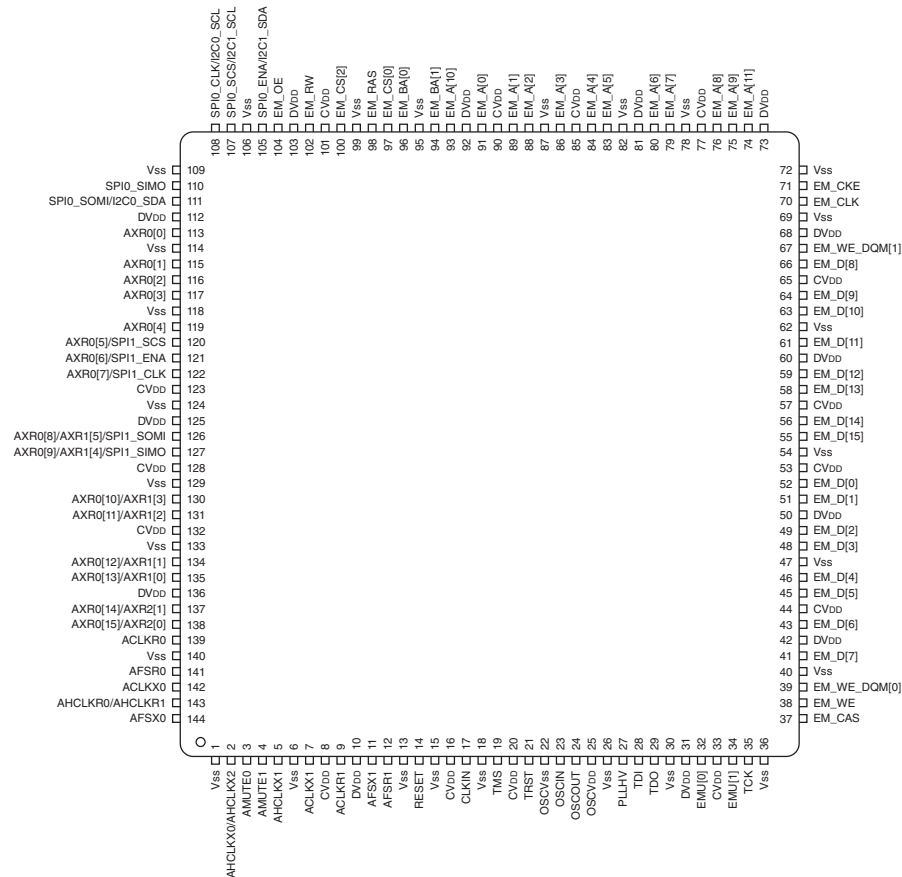
## ● ANODE CONNECTION

|     | 18G           | 17G         | 16G               | 15G           | 1G-14G |
|-----|---------------|-------------|-------------------|---------------|--------|
| P1  | 1a            | 1a          | 1a                | S5            | 1-1    |
| P2  | 1h            | 1h          | 1h                | S7            | 2-1    |
| P3  | 1j            | 1j          | 1j                | 1d            | 3-1    |
| P4  | 1k            | 1k          | 1k                | 2d            | 4-1    |
| P5  | 1b            | 1b          | 1b                | S2            | 5-1    |
| P6  | 1f            | 1f          | 1f                | 1e            | 1-2    |
| P7  | 1m            | 1m          | 1m                | 2e            | 2-2    |
| P8  | 1g            | 1g          | 1g                | S3            | 3-2    |
| P9  | 1c            | 1c          | 1c                | 1c            | 4-2    |
| P10 | 1e            | 1e          | 1e                | 2c            | 5-2    |
| P11 | 1r            | 1r          | 1r                | S4            | 1-3    |
| P12 | 1p            | 1p          | 1p                | 1g            | 2-3    |
| P13 | 1n            | 1n          | 1n                | 2g            | 3-3    |
| P14 | 1d            | 1d          | 1d                | 1f            | 4-3    |
| P15 | 2a            | 2a          | 2a                | 2f            | 5-3    |
| P16 | 2h            | 2h          | 2h                | 1b            | 1-4    |
| P17 | 2j            | 2j          | 2j                | 2b            | 2-4    |
| P18 | 2k            | 2k          | 2k                | 1a            | 3-4    |
| P19 | 2b            | 2b          | 2b                | 2a            | 4-4    |
| P20 | 2f            | 2f          | 2f                | <b>PL</b>     | 5-4    |
| P21 | 2m            | 2m          | 2m                | <b>SW</b>     | 1-5    |
| P22 | 2g            | 2g          | 2g                | <b>PR</b>     | 2-5    |
| P23 | 2c            | 2c          | 2c                | <b>L</b>      | 3-5    |
| P24 | 2e            | 2e          | 2e                | <b>C</b>      | 4-5    |
| P25 | 2r            | 2r          | 2r                | <b>R</b>      | 5-5    |
| P26 | 2p            | 2p          | 2p                | <b>SL</b>     | 1-6    |
| P27 | 2n            | 2n          | 2n                | <b>SR</b>     | 2-6    |
| P28 | 2d            | 2d          | 2d                | <b>SBL</b>    | 3-6    |
| P29 | <b>SIRIUS</b> | S8          | <b>HD</b>         | <b>SB</b>     | 4-6    |
| P30 | <b>XM</b>     | S9          | <b>TAG</b>        | <b>SBR</b>    | 5-6    |
| P31 | <b>HDMI</b>   | iPod CHARGE | <b>CINEMA DSP</b> | S6            | 1-7    |
| P32 | <b>OUT1</b>   | <b>SP B</b> | <b>3</b>          | S13           | 2-7    |
| P33 | <b>OUT2</b>   | S15         | <b>STEREO</b>     | <b>MUTE</b>   | 3-7    |
| P34 | S12           | <b>SP A</b> | <b>TUNED</b>      | <b>ZONE 2</b> | 4-7    |
| P35 | S10           | S14         | S17               | <b>ZONE 3</b> | 5-7    |
| P36 | S11           | —           | S16               | <b>SLEEP</b>  | S1     |

IC DATA

IC44: D70YE101BRFP266 (DIGITAL P.C.B.)  
Decoder/Post processor

\* No replacement part available.

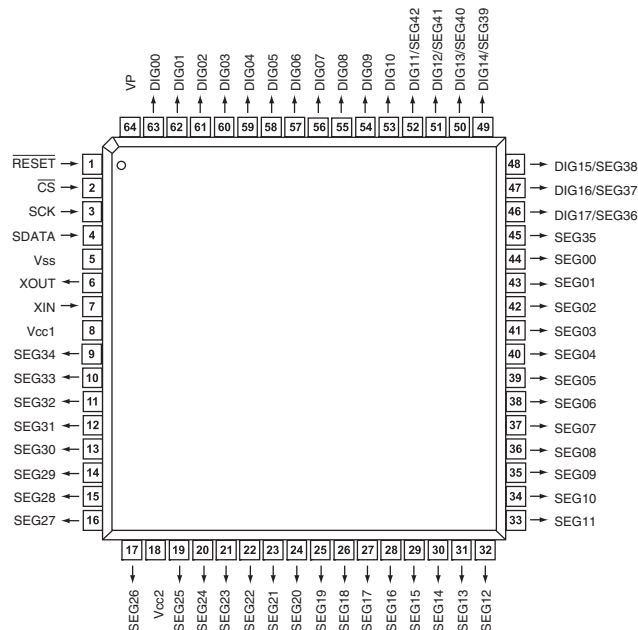
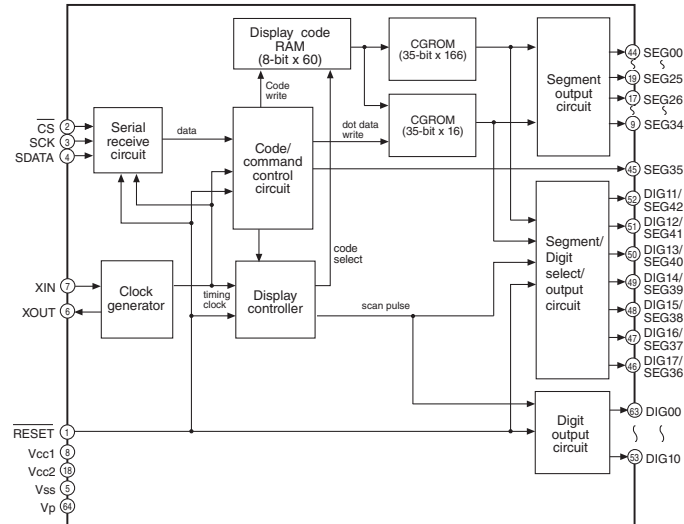


| No. | Function Name<br>(P.C.B.) | TYPE <sup>(1)</sup> | PULL <sup>(2)</sup> | GPIO <sup>(3)</sup> | Detail of Function                                |
|-----|---------------------------|---------------------|---------------------|---------------------|---------------------------------------------------|
| 1   | VSS                       |                     |                     |                     |                                                   |
| 2   | AHCLKX0/AHCLKX2           | IO                  | –                   | Y                   | McASP0 and McASP2 transmit master clock           |
| 3   | AMUTE0                    | IO                  | –                   | Y                   | McASP0 mute output                                |
| 4   | AMUTE1                    | IO                  | –                   | Y                   | McASP1 mute output                                |
| 5   | AHCLKX1                   | IO                  | –                   | Y                   | McASP1 transmit master clock                      |
| 6   | VSS                       |                     |                     |                     |                                                   |
| 7   | ACLKX1                    | IO                  | –                   | Y                   | McASP1 transmit bit clock                         |
| 8   | CVDD                      |                     |                     |                     |                                                   |
| 9   | ACLKR1                    | IO                  | –                   | Y                   | McASP1 receive bit clock                          |
| 10  | DVDD                      |                     |                     |                     |                                                   |
| 11  | AFSX1                     | IO                  | –                   | Y                   | McASP1 transmit frame Sync (L/R clock)            |
| 12  | AFSR1                     | IO                  | –                   | Y                   | McASP1 receive frame Sync (L/R clock)             |
| 13  | VSS                       |                     |                     |                     |                                                   |
| 14  | RESET                     | IO                  | –                   | N                   | Device reset pin                                  |
| 15  | VSS                       |                     |                     |                     |                                                   |
| 16  | CVDD                      |                     |                     |                     |                                                   |
| 17  | CLKIN                     | IO                  | –                   | N                   | Alternate clock input (3.3-V LVCMOS input)        |
| 18  | VSS                       |                     |                     |                     |                                                   |
| 19  | TMS                       | IO                  | IPU                 | N                   | Test mode select                                  |
| 20  | CVDD                      |                     |                     |                     |                                                   |
| 21  | TRST                      | IO                  | IPU                 | N                   | Test reset                                        |
| 22  | OSCVSS                    | PWR                 | –                   | N                   | Oscillator Vss tap point (for filter only)        |
| 23  | OSCIN                     | IO                  | –                   | N                   | 1.2-V oscillator input                            |
| 24  | NC                        | O                   | –                   | N                   |                                                   |
| 25  | OSCVDD                    | PWR                 | –                   | N                   | Oscillator 1.2-V Vpp tap point (for filter only)  |
| 26  | VSS                       |                     |                     |                     |                                                   |
| 27  | PLLHV                     | PWR                 | –                   | N                   | PLL 3.3-V supply input (requires external filter) |
| 28  | TDI                       | IO                  | IPU                 | N                   | Test data in                                      |
| 29  | TDO                       | OZ                  | IPU                 | N                   | Test data out                                     |
| 30  | VSS                       |                     |                     |                     |                                                   |
| 31  | DVDD                      |                     |                     |                     |                                                   |
| 32  | EMU[0]                    | IO                  | IPU                 | N                   | Emulation pin 0                                   |
| 33  | CVDD                      |                     |                     |                     |                                                   |
| 34  | EMU[1]                    | IO                  | IPU                 | N                   | Emulation pin 1                                   |
| 35  | TCK                       | IO                  | IPU                 | N                   | Test clock                                        |
| 36  | Ground(Vss)               |                     |                     |                     |                                                   |
| 37  | EM_CAS                    | O                   | –                   | N                   | SDRAM column address strobe                       |
| 38  | EM_WE                     | O                   | –                   | N                   | SDRAM write enable                                |
| 39  | EM_WE_DQM[0]              | O                   | –                   | N                   | Write enable or byte enable for EM_D [7:0]        |
| 40  | VSS                       |                     |                     |                     |                                                   |
| 41  | EM_D[7]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 42  | DVDD                      |                     |                     |                     |                                                   |
| 43  | EM_D[6]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 44  | CVDD                      |                     |                     |                     |                                                   |
| 45  | EM_D[5]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 46  | EM_D[4]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 47  | VSS                       |                     |                     |                     |                                                   |
| 48  | EM_D[3]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 49  | EM_D[2]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 50  | DVDD                      |                     |                     |                     |                                                   |
| 51  | EM_D[1]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 52  | EM_D[0]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 53  | CVDD                      |                     |                     |                     |                                                   |
| 54  | VSS                       |                     |                     |                     |                                                   |
| 55  | EM_D[15]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                     |
| 56  | EM_D[14]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                     |
| 57  | CVDD                      |                     |                     |                     |                                                   |
| 58  | EM_D[13]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                     |
| 59  | EM_D[12]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                     |
| 60  | DVDD                      |                     |                     |                     |                                                   |
| 61  | EM_D[11]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                     |

| No. | Function Name<br>(P.C.B.) | TYPE <sup>(1)</sup> | PULL <sup>(2)</sup> | GPIO <sup>(3)</sup> | Detail of Function                                           |
|-----|---------------------------|---------------------|---------------------|---------------------|--------------------------------------------------------------|
| 62  | VSS                       |                     |                     |                     |                                                              |
| 63  | EM_D[10]                  | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                                |
| 64  | EM_D[9]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-Bits]                                |
| 65  | CVDD                      |                     |                     |                     |                                                              |
| 66  | EM_D[8]                   | IO                  | –                   | N                   | EMIF data bus [lower 16-bits]                                |
| 67  | EM_WE_DQM[1]              | O                   | –                   | N                   | Write enable or byte enable for EM_D [15:8]                  |
| 68  | DVDD                      |                     |                     |                     |                                                              |
| 69  | VSS                       |                     |                     |                     |                                                              |
| 70  | EM_CLK                    | O                   | –                   | N                   | SDRAM clock                                                  |
| 71  | EM_CKE                    | O                   | –                   | N                   | SDRAM clock enable                                           |
| 72  | VSS                       |                     |                     |                     |                                                              |
| 73  | DVDD                      |                     |                     |                     |                                                              |
| 74  | EM_A[11]                  | O                   | –                   | N                   | EMIF address bus                                             |
| 75  | EM_A[9]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 76  | EM_A[8]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 77  | CVDD                      |                     |                     |                     |                                                              |
| 78  | VSS                       |                     |                     |                     |                                                              |
| 79  | EM_A[7]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 80  | EM_A[6]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 81  | DVDD                      |                     |                     |                     |                                                              |
| 82  | VSS                       |                     |                     |                     |                                                              |
| 83  | EM_A[5]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 84  | EM_A[4]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 85  | CVDD                      |                     |                     |                     |                                                              |
| 86  | EM_A[3]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 87  | VSS                       |                     |                     |                     |                                                              |
| 88  | EM_A[2]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 89  | EM_A[1]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 90  | CVDD                      |                     |                     |                     |                                                              |
| 91  | EM_A[0]                   | O                   | –                   | N                   | EMIF address bus                                             |
| 92  | DVDD                      |                     |                     |                     |                                                              |
| 93  | EM_A[10]                  | O                   | –                   | N                   | EMIF address bus                                             |
| 94  | EM_BA[1]                  | O                   | –                   | N                   | SDRAM bank address and asynchronous memory Low-Order address |
| 95  | VSS                       |                     |                     |                     |                                                              |
| 96  | EM_BA[0]                  | O                   | –                   | N                   | SDRAM bank address and asynchronous memory Low-Order address |
| 97  | EM_CS[0]                  | O                   | –                   | N                   | SDRAM chip select                                            |
| 98  | EM_RAS                    | O                   | –                   | N                   | SDRAM row address strobe                                     |
| 99  | VSS                       |                     |                     |                     |                                                              |
| 100 | EM_CS[2]                  | O                   | –                   | N                   | Asynchronous memory chip Select                              |
| 101 | CVDD                      |                     |                     |                     |                                                              |
| 102 | NC                        | O                   | –                   | N                   | Asynchronous memory read/not write                           |
| 103 | DVDD                      |                     |                     |                     |                                                              |
| 104 | EM_OE                     | O                   | –                   | N                   | SDRAM output enable                                          |
| 105 | SPI0_ENA/I2C1_SDA         | IO                  | –                   | Y                   | SPI0 enable (ready) or I2c1 serial data                      |
| 106 | VSS                       |                     |                     |                     |                                                              |
| 107 | SPI0_ENA/I2C1_SCL         | IO                  | –                   | Y                   | SPI0 enable (ready) or I2c1 serial clock                     |
| 108 | SPI0_CLK/I2C0_SCL         | IO                  | –                   | Y                   | SPI0 serial clock or I2c0 serial clock                       |
| 109 | VSS                       |                     |                     |                     |                                                              |
| 110 | SPI0_SIMO                 | IO                  | –                   | Y                   | SPI0 data pin slave in master out                            |
| 111 | SPI0_SOMI/I2C0_SDA        | IO                  | –                   | Y                   | SPI0 data pin slave out master in or I2C0 serial data        |
| 112 | DVDD                      |                     |                     |                     |                                                              |
| 113 | AXR0[0]                   | IO                  | –                   | Y                   | McASP0 serial data 0                                         |
| 114 | VSS                       |                     |                     |                     |                                                              |
| 115 | AXR0[1]                   | IO                  | –                   | Y                   | McASP0 serial data 1                                         |
| 116 | AXR0[2]                   | IO                  | –                   | Y                   | McASP0 serial data 2                                         |
| 117 | AXR0[3]                   | IO                  | –                   | Y                   | McASP0 serial data 3                                         |
| 118 | VSS                       |                     |                     |                     |                                                              |
| 119 | AXR0[4]                   | IO                  | –                   | Y                   | McASP0 serial data 4                                         |
| 120 | SPI1_SCS                  | IO                  | –                   | Y                   | McASP0 serial data 5 or SPI1 slave chip select               |
| 121 | SPI1_ENA                  | IO                  | –                   | Y                   | McASP0 serial data 6 or SPI1 enable (ready)                  |
| 122 | SPI1_CLK                  | IO                  | –                   | Y                   | McASP0 serial data 7 or SPI1 serial clock                    |

| No. | Function Name<br>(P.C.B.) | TYPE <sup>(1)</sup> | PULL <sup>(2)</sup> | GPIO <sup>(3)</sup> | Detail of Function                                                                |
|-----|---------------------------|---------------------|---------------------|---------------------|-----------------------------------------------------------------------------------|
| 123 | CVDD                      |                     |                     |                     |                                                                                   |
| 124 | VSS                       |                     |                     |                     |                                                                                   |
| 125 | DVDD                      |                     |                     |                     |                                                                                   |
| 126 | /SPI1_SOMI                | IO                  | –                   | Y                   | McASP0 serial data 8 or McASP1 serial data 5 or SPI1 data pin slave out master in |
| 127 | /SPI1_SIMO                | IO                  | –                   | Y                   | McASP0 serial data 9 or McASP1 serial data 4 or SPI1 data pin slave in master out |
| 128 | CVDD                      |                     |                     |                     |                                                                                   |
| 129 | VSS                       |                     |                     |                     |                                                                                   |
| 130 | AXR0[10]                  | IO                  | –                   | Y                   | McASP0 serial data 10 or McASP1 serial data 3                                     |
| 131 | AXR0[11]                  | IO                  | –                   | Y                   | McASP0 serial data 11 or McASP1 serial data 2                                     |
| 132 | CVDD                      |                     |                     |                     |                                                                                   |
| 133 | VSS                       |                     |                     |                     |                                                                                   |
| 134 | AXR0[12]                  | IO                  | –                   | Y                   | McASP0 serial data 12 or McASP1 serial data 1                                     |
| 135 | AXR0[13]                  | IO                  | –                   | Y                   | McASP0 serial data 13 or McASP1 serial data 0                                     |
| 136 | DVDD                      |                     |                     |                     |                                                                                   |
| 137 | AXR0[14]                  | IO                  | –                   | Y                   | McASP0 serial data 14 or McASP2 serial data 1                                     |
| 138 | AXR0[15]                  | IO                  | –                   | Y                   | McASP0 serial data 15 or McASP2 serial data 0                                     |
| 139 | ACLKR0                    | IO                  | –                   | Y                   | McASP0 receive bit clock                                                          |
| 140 | VSS                       |                     |                     |                     |                                                                                   |
| 141 | AFSR0                     | IO                  | –                   | Y                   | McASP0 receive frame Sync (L/R clock)                                             |
| 142 | ACLKX0                    | IO                  | –                   | Y                   | McASP0 transmit bit clock                                                         |
| 143 | AHCLKR0/AHCLKR1           | IO                  | –                   | Y                   | McASP0 and McASP1 receive master clock                                            |
| 144 | AFSX0                     | IO                  | –                   | Y                   | McASP0 transmit frame Sync (L/R clock)                                            |

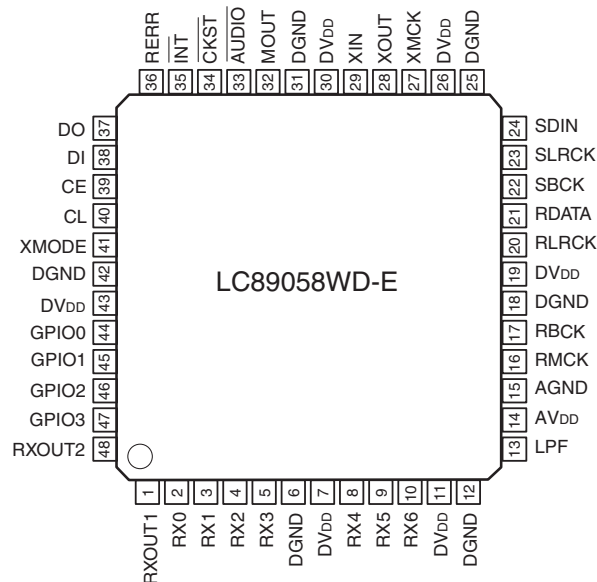
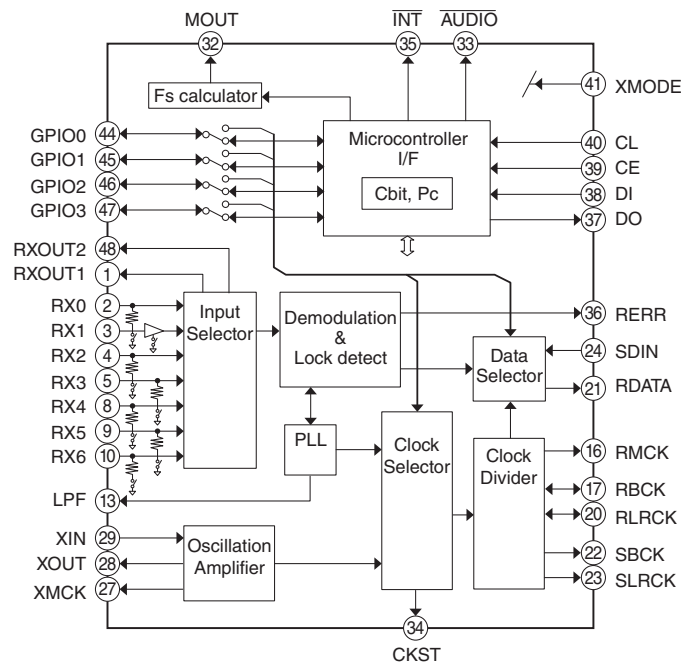
**IC402:** M66003-0131FP (OPERATION P.C.B.)  
FL display driver



| Pin No. | Port Name | Function Name | I/O               | Detail of Function                                                               |
|---------|-----------|---------------|-------------------|----------------------------------------------------------------------------------|
| 1       | RESET     | /RESET        | Reset input       | When "L" M66003 is initialized.                                                  |
| 2       | CS        | /CEFL         | Chip select input | When "L" communication with the MCU is possible.                                 |
| 3       | SCK       | CKFL          | Shift clock input | When "H", any instruction from the MCU is neglected.                             |
| 4       | SDATA     | DTFL          | Serial data input | Serial input data is taken and shifted by the positive edge of SCK.              |
| 5       | Vss       | VSS           |                   | GND (0V)                                                                         |
| 6       | XOUT      | XOUT          | Clock out         | When use as a CR oscillator, connect external resistor and capacitor.            |
| 7       | XIN       | XIN           | Clock in          | When use an external clock input external clock to XIN, and XOUT must be opened. |

| Pin No. | Port Name   | Function Name | I/O            | Detail of Function                             |
|---------|-------------|---------------|----------------|------------------------------------------------|
| 8       | Vcc1        | VDD           |                | Positive power supply for internal logic.      |
| 9       | SEG34       | P11           | Segment output | Connect to segment (anode) pins of VFD.        |
| 10      | SEG33       | P2            |                |                                                |
| 11      | SEG32       | P3            |                |                                                |
| 12      | SEG31       | P4            |                |                                                |
| 13      | SEG30       | P5            |                |                                                |
| 14      | SEG29       | P6            |                |                                                |
| 15      | SEG28       | P7            |                |                                                |
| 16      | SEG27       | P8            |                |                                                |
| 17      | SEG26       | P9            |                |                                                |
| 18      | Vcc2        | VDD           |                | Positive power supply for DIG and SEG outputs. |
| 19      | SEG25       | P10           | Segment output | Connect to segment (anode) pins of VFD.        |
| 20      | SEG24       | P11           |                |                                                |
| 21      | SEG23       | P12           |                |                                                |
| 22      | SEG22       | P13           |                |                                                |
| 23      | SEG21       | P14           |                |                                                |
| 24      | SEG20       | P15           |                |                                                |
| 25      | SEG19       | P16           |                |                                                |
| 26      | SEG18       | P17           |                |                                                |
| 27      | SEG17       | P18           |                |                                                |
| 28      | SEG16       | P19           |                |                                                |
| 29      | SEG15       | P20           |                |                                                |
| 30      | SEG14       | P21           |                |                                                |
| 31      | SEG13       | P22           |                |                                                |
| 32      | SEG12       | P23           |                |                                                |
| 33      | SEG11       | P24           |                |                                                |
| 34      | SEG10       | P25           |                |                                                |
| 35      | SEG09       | P26           |                |                                                |
| 36      | SEG08       | P27           |                |                                                |
| 37      | SEG07       | P28           |                |                                                |
| 38      | SEG06       | P29           |                |                                                |
| 39      | SEG05       | P30           |                |                                                |
| 40      | SEG04       | P31           |                |                                                |
| 41      | SEG03       | P32           |                |                                                |
| 42      | SEG02       | P33           |                |                                                |
| 43      | SEG01       | P34           |                |                                                |
| 44      | SEG00       | P35           |                |                                                |
| 45      | SEG35       | P36           |                |                                                |
| 46      | SEG36       | P37           |                |                                                |
| 47      | DIG16/SEG37 | G17           | Digital output | Connect to digit (grid) pins of VFD.           |
| 48      | DIG15/SEG38 | G16           |                |                                                |
| 49      | DIG14/SEG39 | G15           |                |                                                |
| 50      | DIG13/SEG40 | G14           |                |                                                |
| 51      | DIG12/SEG41 | G13           |                |                                                |
| 52      | DIG11/SEG42 | G12           |                |                                                |
| 53      | DIG10       | G11           |                |                                                |
| 54      | DIG09       | G10           |                |                                                |
| 55      | DIG08       | G9            |                |                                                |
| 56      | DIG07       | G8            |                |                                                |
| 57      | DIG06       | G7            |                |                                                |
| 58      | DIG05       | G6            |                |                                                |
| 59      | DIG04       | G5            |                |                                                |
| 60      | DIG03       | G4            |                |                                                |
| 61      | DIG02       | G3            |                |                                                |
| 62      | DIG01       | G2            |                |                                                |
| 63      | DIG00       | G1            |                |                                                |
| 64      | VP          | VP            |                | Negative power supply to pull down.            |

**IC41:** LC89058WD-E (DIGITAL P.C.B.)  
Digital audio interface receiver





| Pin No. | Function Name | I/O                 | Detail of Function                                                                                  |
|---------|---------------|---------------------|-----------------------------------------------------------------------------------------------------|
| 1       | RXOUT1        | O                   | RX0-6 input S/PDIF through output pin 1                                                             |
| 2       | RX0           | I <sub>s</sub> (pd) | 5V withstand voltage TIL input level compatible S/PDIF input pin (connected to GND when RX1 is set) |
| 3       | RX1           | I(pd)               | Co-axial compatible S/PDIF input pin (supported demodulation sampling frequency of up to 96 kHz)    |
| 4       | RX2           | I <sub>s</sub> (pd) | 5V withstand voltage TIL input level compatible S/PDIF input pin (connected to GND when RX1 is set) |
| 5       | RX3           | I <sub>s</sub> (pd) | 5V withstand voltage TIL input level compatible S/PDIF input pin                                    |
| 6       | DGND          |                     | Digital GND                                                                                         |
| 7       | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 8       | RX4           | I <sub>s</sub> (pd) | 5V tolerable TIL input level compatible S/PDIF input pin                                            |
| 9       | RX5           | I <sub>s</sub> (pd) | 5V tolerable TIL input level compatible S/PDIF input pin                                            |
| 10      | RX6           | I <sub>s</sub> (pd) | 5V tolerable TIL input level compatible S/PDIF input pin                                            |
| 11      | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 12      | DGND          |                     | Digital GND                                                                                         |
| 13      | LPF           | O                   | PLL loop filter connection pin                                                                      |
| 14      | AVDD          |                     | Analog power supply (3.3V)                                                                          |
| 15      | AGND          |                     | Analog GND                                                                                          |
| 16      | RMCK          | O                   | R system clock output pin (VCO, 512fs, XIN)                                                         |
| 17      | RBCK          | O/I                 | R system bit clock 1/0 pin (64fs)                                                                   |
| 18      | DGND          |                     | Digital GND                                                                                         |
| 19      | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 20      | RLRCK         | O/I                 | R system LR clock 1/0 pin (fs)                                                                      |
| 21      | RDATA         | O                   | Serial audio data output pin                                                                        |
| 22      | SBCK          | O                   | S system bit clock output pin (16fs, 32fs, 64fs, 128fs)                                             |
| 23      | SLRCK         | O                   | S system LR clock output pin (fs/4, fs/2, fs, 2fs)                                                  |
| 24      | SDIN          | I <sub>s</sub>      | External serial audio data input pin                                                                |
| 25      | DGND          |                     | Digital GND                                                                                         |
| 26      | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 27      | XMCK          | O                   | Oscillation amplifier clock output pin                                                              |
| 28      | XOUT          | O                   | Output pin connected to the resonator                                                               |
| 29      | XIN           | I                   | External clock input pin. connected to the resonator (12.288 MHz or 24.576 MHz)                     |
| 30      | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 31      | DGND          |                     | Digital GND                                                                                         |
| 32      | MOUT          | I/O                 | Emphasis information II input fs monitor output II chip address setting input pin                   |
| 33      | AUDIO         | I/O                 | Channel status bit 1 output II chip address setting input pin                                       |
| 34      | CKST          | I/O                 | Clock switching transition period signal output II master/slave setting input pin                   |
| 35      | INT           | I/O                 | Microcontroller interrupt signal output II pins 44-48 I/O setting input pin                         |
| 36      | RERR          | O                   | PLL lock error and data error flag output pin                                                       |
| 37      | DO            | O                   | CCB microcontroller I/F, read data output pin (3-state)                                             |
| 38      | DI            | I <sub>s</sub>      | CCB microcontroller I/F, write data input pin                                                       |
| 39      | CE            | I <sub>s</sub>      | CCB microcontroller I/F, chip enable input pin                                                      |
| 40      | CL            | I <sub>s</sub>      | CCB microcontroller I/F, clock input pin                                                            |
| 41      | XMODE         | I <sub>s</sub>      | System reset input pin                                                                              |
| 42      | DGND          |                     | Digital GND                                                                                         |
| 43      | DVDD          |                     | Digital power supply (3.3V)                                                                         |
| 44      | GPIO0         | O/I                 | General-purpose I/O pin II selector input pin (output referred to RMCK pin)                         |
| 45      | GPIO1         | O/I                 | General-purpose I/O pin II selector input pin (output referred to RBCK pin)                         |
| 46      | GPIO2         | O/I                 | General-purpose I/O pin II selector input pin (output referred to RLRCK pin)                        |
| 47      | GPIO3         | O/I                 | General-purpose I/O pin II selector input pin (output referred to RDATA pin)                        |
| 48      | RXOUT2        | O                   | RX0-6 input S/PDIF through output pin 2                                                             |

\* Input voltage: 1= -0.3 to 3.6V, I<sub>s</sub> = -0.3 to 5.5V

\* Output voltage: 0= -0.3 to 3.6V

\* Pins 2, 4, 5, 8, 9, 10, 24, 38, 39, 40, and 41 have an internal pull-down resistor (Pd). Their level is fixed when they are unselected.

\* Pins 32 and 33 are input pins for chip address setting when pin 41 is held at the low level.

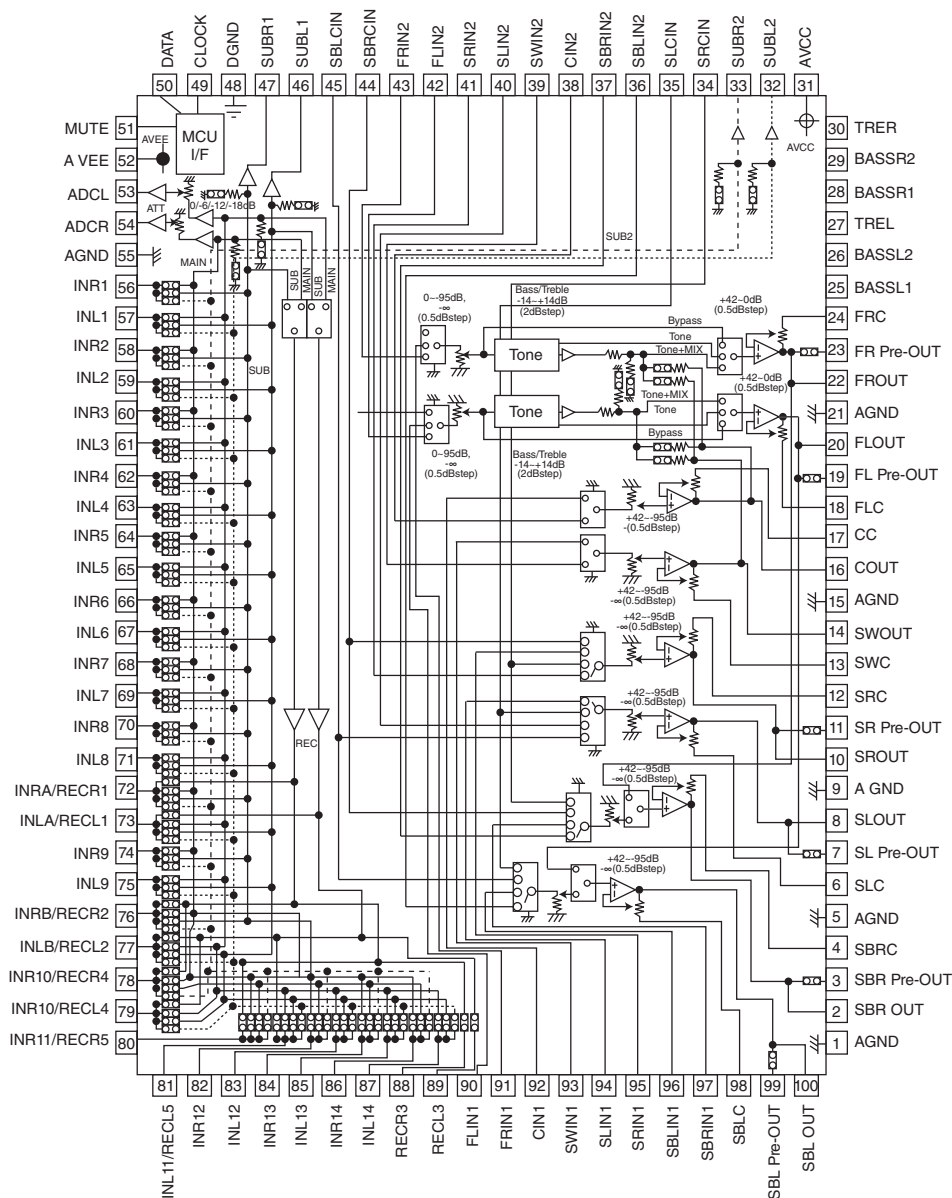
\* Pin 34 serves as the input pin for designating as the master or slave when pin 41 is held at the low level.

\* Pin 35 serves as the input pin for configuring the I/O of pins 44 to 47 when pin 41 is held at the low level.

\* The DVDD and AVDD pins must be held at the same level and turned on and off at the same timing to preclude latch-up conditions.

**IC153:** R2A15220FP (MAIN P.C.B.)

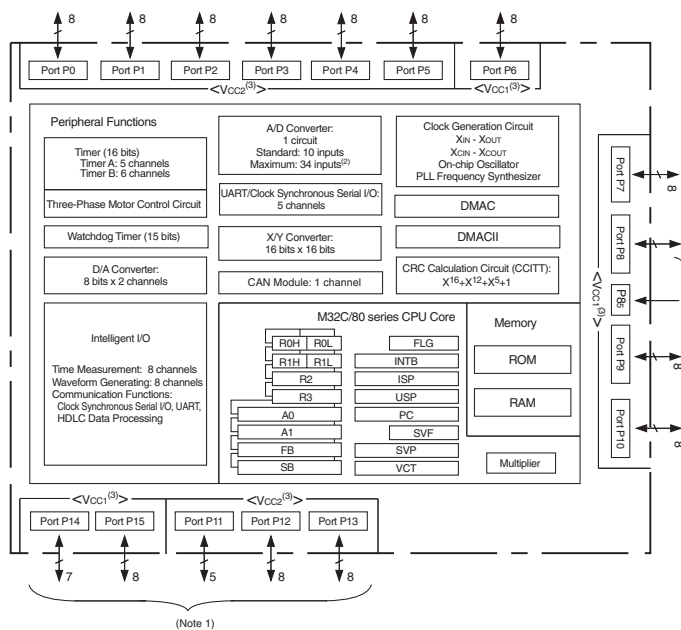
8-channel electronic volume with 11 input selector and tone control



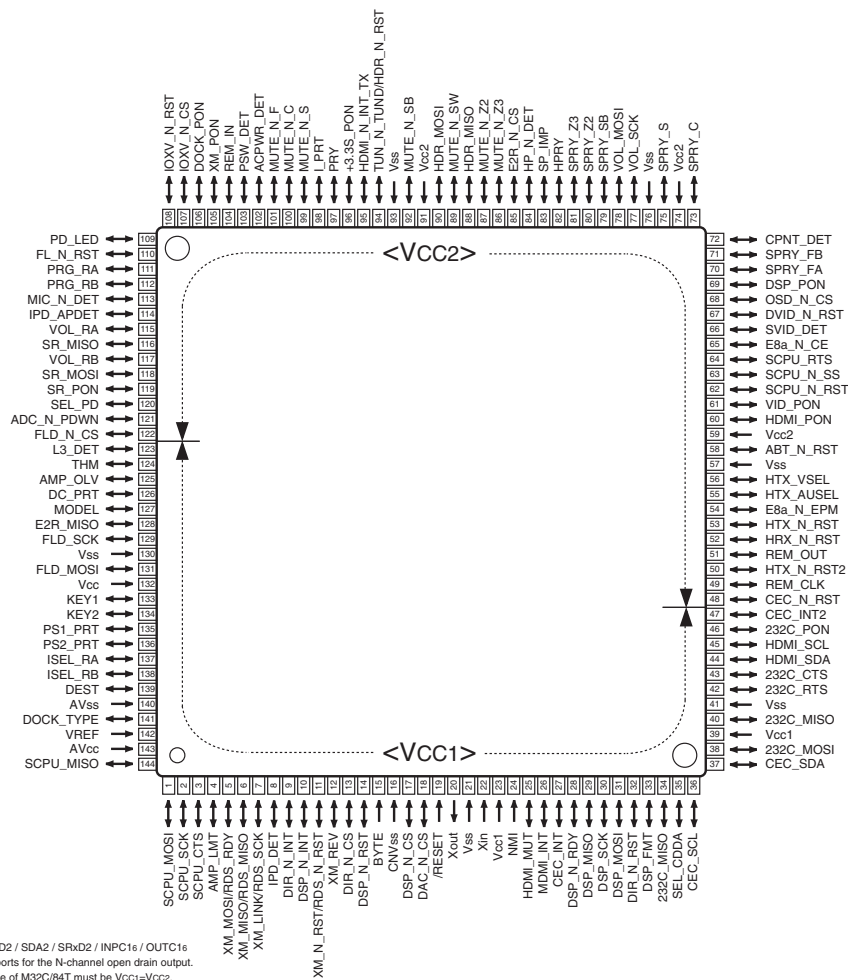
| Pin No. | Port name   | Function Name | Detail of Function                                                                           |
|---------|-------------|---------------|----------------------------------------------------------------------------------------------|
| 1       | AGND        | AE            | Analog ground of internal circuit                                                            |
| 2       | SBROUT      | VOSBL         | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 3       | SBR Pre-OUT | VOPSB         | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                                |
| 4       | SBRC        | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 5       | AGND        | AE            | Analog ground of internal circuit                                                            |
| 6       | SLC         | VOPSR         | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 7       | SL Pre-OUT  | VOSR          | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                                |
| 8       | SLOUT       | AE            | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 9       | AGND        | AE            | Analog ground of internal circuit                                                            |
| 10      | SROUT       | VOSL          | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 11      | SR Pre-OUT  | VOPSL         | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                                |
| 12      | SRC         | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 13      | SWC         | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 14      | SWOUT       | VOSW          | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 15      | AGND        | AE            | Analog ground of internal circuit                                                            |
| 16      | COUT        | VOC           | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 17      | CC          | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 18      | FLC         | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 19      | FL Pre-OUT  | VOPFR         | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                                |
| 20      | FLOUT       | VOFR          | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 21      | AGND        | POE           | Analog ground of internal circuit                                                            |
| 22      | FROUT       | VOFL          | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                               |
| 23      | FR Pre-OUT  | VOPFL         | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                                |
| 24      | FRC         | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume         |
| 25      | BASSL1      | AE            | Frequency characteristic setting pin of L/R channel tone control (Bass)                      |
| 26      | BASSL2      | AE            | Frequency characteristic setting pin of L/R channel tone control (Bass)                      |
| 27      | TREL        | AE            | Frequency characteristic setting pin of L/R channel tone control (Treble)                    |
| 28      | BASSR1      | AE            | Frequency characteristic setting pin of L/R channel tone control (Bass)                      |
| 29      | BASSR2      | AE            | Frequency characteristic setting pin of L/R channel tone control (Bass)                      |
| 30      | TRER        | AE            | Frequency characteristic setting pin of L/R channel tone control (Treble)                    |
| 31      | AVCC        | VCC           | Positive power supply to internal circuit                                                    |
| 32      | SUBL1       | N.C.          | Output pin for L/R channel SUB1/SUB2 output                                                  |
| 33      | SUBL2       | N.C.          | Output pin for L/R channel SUB1/SUB2 output                                                  |
| 34      | SRCIN       | N.C.          | 3rd multi input pin for SBL/SBR/SL/SR channel volume that is able to swap SBR/SBL with SR/SL |
| 35      | SLCIN       | N.C.          | 3rd multi input pin for SBL/SBR/SL/SR channel volume that is able to swap SBR/SBL with SR/SL |
| 36      | SBLIN2      | 8SBR          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 37      | SBRIN2      | 8SBL          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 38      | CIN2        | 8C            | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 39      | SWIN2       | 8SW           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 40      | SLIN2       | 8SR           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 41      | SRIN2       | 8SL           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 42      | FLIN2       | 8FR           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 43      | FRIN2       | 8FL           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                             |
| 44      | SBRCIN      | Z2L           | 3rd multi input pin for SBL/SBR/SL/SR channel volume that is able to swap SBR/SBL with SR/SL |
| 45      | SBLCIN      | Z2R           | 3rd multi input pin for SBL/SBR/SL/SR channel volume that is able to swap SBR/SBL with SR/SL |
| 46      | SUBL1       | Z2R           | Output pin for L/R channel SUB1/SUB2 output                                                  |
| 47      | SUBR1       | Z2L           | Output pin for L/R channel SUB1/SUB2 output                                                  |
| 48      | DGND        | MG            | Digital ground of internal circuit                                                           |
| 49      | DATA        | VOL_SCK       | Input pin of control data                                                                    |
| 50      | CLOCK       | VOL_MOSI      | Input pin of control clock                                                                   |
| 51      | MUTE        | AE            | Outside mute control pin                                                                     |
| 52      | AVEE        | –             | Negative power supply to internal circuit                                                    |
| 53      | ADCL        | ADR           | Output pin for L/R channel ADC                                                               |
| 54      | ADCR        | ADL           | Output pin for L/R channel ADC                                                               |
| 55      | AGND        | AE            | Analog ground of internal circuit                                                            |
| 56      | INR1        | AU2L          | Input pin of L/R channel (Input selector)                                                    |
| 57      | INL1        | AU2R          | Input pin of L/R channel (Input selector)                                                    |

| Pin No. | Port name   | Function Name | Detail of Function                                                                   |
|---------|-------------|---------------|--------------------------------------------------------------------------------------|
| 58      | INR2        | AU1L          | Input pin of L/R channel (Input selector)                                            |
| 59      | INL2        | AU1R          | Input pin of L/R channel (Input selector)                                            |
| 60      | INR3        | AV-6L         | Input pin of L/R channel (Input selector)                                            |
| 61      | INL3        | AV-6R         | Input pin of L/R channel (Input selector)                                            |
| 62      | INR4        | AV-5L         | Input pin of L/R channel (Input selector)                                            |
| 63      | INL4        | AV-5R         | Input pin of L/R channel (Input selector)                                            |
| 64      | INR5        | PHL           | Input pin of L/R channel (Input selector)                                            |
| 65      | INL5        | PHR           | Input pin of L/R channel (Input selector)                                            |
| 66      | INR6        | SRL           | Input pin of L/R channel (Input selector)                                            |
| 67      | INL6        | SRR           | Input pin of L/R channel (Input selector)                                            |
| 68      | INR7        | IPL           | Input pin of L/R channel (Input selector)                                            |
| 69      | INL7        | IPR           | Input pin of L/R channel (Input selector)                                            |
| 70      | INR8        | XML           | Input pin of L/R channel (Input selector)                                            |
| 71      | INL8        | XMR           | Input pin of L/R channel (Input selector)                                            |
| 72      | INRA/RECR1  | AV-OUT_L      | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 73      | INLA/RECL1  | AV-OUT_R      | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 74      | INR9        | USBL          | Input pin of L/R channel (Input selector)                                            |
| 75      | INL9        | USBR          | Input pin of L/R channel (Input selector)                                            |
| 76      | INRB/RECR2  | AOL           | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 77      | INLB/RECL2  | AOR           | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 78      | INR10/RECR4 | TUL           | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 79      | INL10/RECL4 | TUR           | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 80      | INR11/RECR5 | MIC           | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 81      | INL11/RECL5 | AE            | Output pin for L/R channel (input selector)/Output pin for L/R channel REC output    |
| 82      | INR12       | AUXL          | Input pin of L/R channel (Input selector)                                            |
| 83      | INL12       | AUXR          | Input pin of L/R channel (Input selector)                                            |
| 84      | INR13       | AE            | Input pin of L/R channel (Input selector)                                            |
| 85      | INL13       | AE            | Input pin of L/R channel (Input selector)                                            |
| 86      | INR14       | AE            | Input pin of L/R channel (Input selector)                                            |
| 87      | INL14       | AE            | Input pin of L/R channel (Input selector)                                            |
| 88      | RECR3       | N.C.          | Output pin for L/R channel REC output                                                |
| 89      | RECL3       | N.C.          | Output pin for L/R channel REC output                                                |
| 90      | FLIN1       | DAFR          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 91      | FRIN1       | DAFL          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 92      | CIN1        | DAC           | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 93      | SWIN1       | DASW          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 94      | SLIN1       | DASR          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 95      | SEIN1       | DASL          | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 96      | SBLIN1      | DASBR         | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 97      | SBRIN1      | DASBL         | Multi input pin of L/R/C/SW/SL/SR/SBL/SBR channel (Multi IN 1/2)                     |
| 98      | SBLC        | AE            | Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR channel volume |
| 99      | SBL Pre-OUT | VOPSB         | Pre-output pin of FL/FR/SL/SR/SBL/SBR channel                                        |
| 100     | SBL OUT     | VOSBR         | Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel                                       |

**IC20:** M3087BFKBGP (DIGITAL P.C.B.)  
Main microprocessor



- NOTES:
1. Ports P11 to P15 are provided in the 144-pin package only.
  2. Included in the 144-pin package only.
  3. The supply voltage of M32C/84T (High-reliability version) must be  $V_{CC1}=V_{CC2}$ .



- NOTES:
1. P70 / TA0OUT / Tx0D2 / SDx2 / SRx0D1 / INPC1e / OUTC1e
  2. P70 and P71 are ports for the N-channel open drain output.
  3. The supply voltage of M32C/84T must be  $V_{CC1}=V_{CC2}$ .

| Pin No. | Port Name                                                 | Function Name (P.C.B.) | I/O     |           |         |            |             |          | Detail of Function                                                                                                                                                                                |
|---------|-----------------------------------------------------------|------------------------|---------|-----------|---------|------------|-------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                                           |                        | PowerOn | Stby Thrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                                                                   |
| 1       | TXD4                                                      | SCPU_MOSI              | SO      | O         | O       | O          | [O]         |          | Synchronous data output for SubCPU                                                                                                                                                                |
| 2       | CLK4<br>P95/ANEX0/CLK4                                    | SCPU_SCK               | SO      | O         | O       | O          | [O]         |          | Synchronous clock output for SubCPU                                                                                                                                                               |
| 3       | P94<br>P94/DA1/TB4in/<br>CTS4/RTS4/SS4                    | SCPU_CTS               | SI      | I         | I       | O          | [O]         |          | Input for transmission control for SubCPU (clear to send)                                                                                                                                         |
| 4       | DA0<br>P93/DA0/TB3in/<br>CTS3/RTS3/SS3                    | AMP_LMT                | DA      | I         | I       | I          | [I]         |          | Limiter control output                                                                                                                                                                            |
| 5       | TXD3                                                      | XM_MOSI                | SO      | O         | O       | O          | O           |          | Asynchronous data output for XM (U model)                                                                                                                                                         |
|         | P92/TB2in/TXD3/<br>SDA3/SRXD3/<br>OUTC20/IEout/<br>ISTXD2 |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | P92                                                       |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | TB2in                                                     | RDS_RDY                | TMR     | O         | O       | O          | O           |          | RDS READY input                                                                                                                                                                                   |
| 6       | RXD3                                                      | XM_MISO                | SI      | O         | O       | O          | O           |          | Asynchronous data input for XM (U model)                                                                                                                                                          |
|         | P91/TB1in/RXD3/<br>SCL3/STXD3/IEin/<br>ISRXD2             |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | P91                                                       |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | RXD3                                                      | RDS_MISO               | SI      | O         | O       | O          | [O]         |          | Synchronous data input for RDS (B, G, E, F model)                                                                                                                                                 |
| 7       | P90                                                       | XM_LINK                | I       | I         | O       | O          | [O]         |          | XM LINK detection (U model)                                                                                                                                                                       |
|         | P90/TB0in/CLK3                                            |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | P90                                                       |                        | O       | O         | O       | O          | [O]         |          | (C, R, T, K, A, L models)                                                                                                                                                                         |
|         | CLK3                                                      | RDS_SCK                | SO      | O         | O       | O          | [O]         |          | Synchronous clock output for RDS IC<br>Low level should stand by (B, G, E, F model)                                                                                                               |
| 8       | INT8<br>P146/INT8                                         | IPD_DET                | IRQ     | IRQ       | IRQ     | IRQ        | [O]         |          | iPod detection<br>Restriction of port: INT is high edge or low edge only<br>When inserting an iPod into the DOCK H → L                                                                            |
| 9       | P145<br>P145/INT7                                         | DIR_N_INT              | IRQ     | I         | O       | O          | [O]         |          | DIR interrupt<br>Restriction of port: INT is high edge or low edge only                                                                                                                           |
| 10      | P144<br>P144/INT6                                         | DSP_N_INT              | IRQ     | I         | O       | O          | [O]         |          | DA70Y interrupt<br>Restriction of port: INT is high edge or low edge only                                                                                                                         |
| 11      | P143                                                      | XM_N_RST               | O       | O         | O       | O          | O           |          | XM reset (U model)                                                                                                                                                                                |
|         | P143/INPC17/<br>OUTC17                                    |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | P143                                                      |                        | O       | O         | O       | O          | O           |          | (C, R, T, K, A, L models)                                                                                                                                                                         |
|         | P143                                                      | RDS_N_RST              | O       | O         | O       | O          | O           |          | RDS reset (B, G, E, F model)                                                                                                                                                                      |
| 12      | P142                                                      | XM_REV                 | I       | I         | O       | O          | [O]         |          | XM antenna revision detection<br>H: An compatibility antenna (U model)                                                                                                                            |
|         | P142/INPC16/<br>OUTC16                                    |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
|         | P142                                                      |                        | O       | O         | O       | O          | [O]         |          | (C, R, T, K, A, B, G, E, F, L models)                                                                                                                                                             |
| 13      | P141<br>P141/INPC15/<br>OUTC15                            | DIR_N_CS               | CS      | O         | O       | O          | [O]         |          | DIR chip select                                                                                                                                                                                   |
| 14      | P140<br>P140/INPC14/<br>OUTC14                            | DSP_N_RST              | O       | O         | O       | O          | [O]         |          | DA70Y reset                                                                                                                                                                                       |
| 15      | BYTE<br>BYTE                                              | BYTE                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Switch of width of data bus input<br>When set to single chip mode: L (16 bit)                                                                                                                     |
| 16      | CNVss                                                     | CNVss                  | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Processor mode select<br>Low: Single chip mode<br>High: To Flash included boot mode<br>To boot mode with hardware resetting of P50=H, P55=L, CNVss=H, and a standard serial.<br>Input/output mode |
|         | CNVss                                                     |                        |         |           |         |            |             |          |                                                                                                                                                                                                   |
| 17      | P87<br>P87/Xcin                                           | DSP_N_CS               | CS      | O         | O       | O          | [O]         |          | DA70Y chip select                                                                                                                                                                                 |
| 18      | P86<br>P86/Xcout                                          | DAC_N_CS               | CS      | O         | O       | O          | [O]         |          | DAC chip select                                                                                                                                                                                   |

| Pin No. | Port Name                                                                                      | Function Name (P.C.B.) | I/O     |          |         |            |             |          | Detail of Function                                                                                                            |
|---------|------------------------------------------------------------------------------------------------|------------------------|---------|----------|---------|------------|-------------|----------|-------------------------------------------------------------------------------------------------------------------------------|
|         |                                                                                                |                        | PowerOn | StbyThrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                               |
| 19      | /RESET<br>/RESET                                                                               | /RESET                 | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Reset                                                                                                                         |
| 20      | Xout<br>Xout                                                                                   | Xout                   | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | 20 MHz ceramic resonator                                                                                                      |
| 21      | Vss<br>Vss                                                                                     | Vss                    | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | GND                                                                                                                           |
| 22      | Xin<br>Xin                                                                                     | Xin                    | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | 20 MHz ceramic resonator                                                                                                      |
| 23      | Vcc1<br>Vcc1                                                                                   | Vcc1                   | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                   |
| 24      | /NMI<br>P85/NMI                                                                                | /NMI                   | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Unused, pull up to Vcc                                                                                                        |
| 25      | INT2<br>P84/INT2                                                                               | HDMI_MUT               | IRQ     | IRQ      | O       | O          | [O]         |          | HDMI mute input<br>H: Mute                                                                                                    |
| 26      | INT1<br>P83/INT1                                                                               | HDMI_INT               | IRQ     | IRQ      | O       | O          | [O]         |          | Interrupt from HDMI RX                                                                                                        |
| 27      | INT0<br>P82/INT0                                                                               | HEQ_N_INT              | IRQ     | IRQ      | O       | O          | O           |          | Interrupt from HDMI INPUT EQ<br>While CEC microprocessor is in use, interruptive CEC microprocessor may be used               |
| 28      | P81<br>P81/TA4in/U/<br>INPC15/OUTC15/<br>CTS5/RTS5/RTP23                                       | DSP_N_RDY              | I       | I        | O       | O          | [O]         |          | DA70Y RDY                                                                                                                     |
| 29      | RXD5<br>P80/TA4out/U/<br>ISRXD0/RXD5                                                           | DSP_MISO               | SI      | I        | O       | O          | [O]         |          | Synchronous data input for DIR, DA70Y, DAC                                                                                    |
| 30      | CLK5<br>P77/TA3in/INPC14/<br>OUTC14/ISCLK0/<br>CLK5/RTP22                                      | DSP_SCK                | SO      | O        | O       | O          | [O]         |          | Synchronous clock output for DIR, DA70Y, DAC                                                                                  |
| 31      | TXD5<br>P76/TA3out/INPC13/<br>OUTC13/ISTXD0/<br>TXD5                                           | DSP_MOSI               | SO      | O        | O       | O          | [O]         |          | Synchronous data output for DIR, DA70Y, DAC                                                                                   |
| 32      | P75<br>P75/TA2in/W/<br>INPC12/OUTC12/<br>ISRXD1/RTP21                                          | DIR_N_RST              | O       | O        | O       | O          | [O]         |          | DIR reset                                                                                                                     |
| 33      | P74<br>P74/TA2out/W/<br>INPC11/OUTC11/<br>ISCLK1/RTP20                                         | DSP_FMT                | O       | O        | O       | O          | [O]         |          | DA70Y full mute output<br>H: Mute                                                                                             |
| 34      | TA1in<br>P73/TA1in/V/CTS2/<br>RTS2/SS2/INPC10/<br>OUTC10/ISTXD1                                | 232C_MISO              | TMR     | TMR      | TMR     | TMR        | [O]         |          | RS232C reception detection<br>Uses for the return trigger from stop mode (MCUSleep)                                           |
| 35      | P72<br>P72/TA1out/V/CLK2                                                                       | SEL_CDDA               | O       | O        | O       | O          | [O]         |          | CDDA writing route select<br>H: CDDA writing mode<br>L: Operational mode usually                                              |
| 36      | SCL2<br>P71/TA0in/TB5in/<br>RXD2/SCL2/STXD2/<br>INPC17/OUTC17/<br>OUTC22/ISRXD2/<br>IEin/RTP03 | CEC_SCL                | SO      | SO       | O       | O          | [O]         |          | CEC microprocessor, Tuner, HDMI_EQ (SiI9185A) I2C SCL output<br>U-com block then +3.3S, 3.3k then pull up<br>(100 kHz device) |
| 37      | SDA2<br>P70/TA0out/TXD2/<br>SDA2/SRXD2/<br>INPC16/OUTC16/<br>OUTC20/ISTXD2/<br>IEout/RTP02     | CEC_SDA                | SIO     | SIO      | O       | O          | [O]         |          | CEC microprocessor, Tuner, HDMI_EQ (SiI9185A) I2C SDA input<br>U-com block then +3.3S, 3.3k then pull up<br>(100 kHz device)  |

| Pin No. | Port Name                       | Function Name (P.C.B.) | I/O     |           |         |            |             |          | Detail of Function                                                                                                                                          |
|---------|---------------------------------|------------------------|---------|-----------|---------|------------|-------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                 |                        | PowerOn | Stby Thrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                             |
| 38      | TxD1                            | 232C_MOSI              | SO      | SO        | SO      | O          | [O]         |          | RS232C data output<br>Pull up at 100 k-ohms                                                                                                                 |
|         | P67/TXD1/SDA1/SRXD1             |                        |         |           |         |            |             |          |                                                                                                                                                             |
|         | TxD1                            | TXD                    |         |           |         |            |             | SO       | E8a, ICP (In-Circuit Programmer) data output                                                                                                                |
| 39      | Vcc1                            | Vcc1                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                 |
|         | Vcc1                            |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 40      | RxD1                            | 232C_MISO              | SI      | SI        | SI      | I          | [I]         |          | RS232C data input<br>Pull up at 100 k-ohms                                                                                                                  |
|         | P66/RXD1/SCL1/STXD1             |                        |         |           |         |            |             |          |                                                                                                                                                             |
|         | RxD1                            | RXD                    |         |           |         |            |             | SI       | E8a, ICP (In-Circuit Programmer) data input                                                                                                                 |
| 41      | Vss                             | Vss                    | All     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                          |
|         | Vss                             |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 42      | P65                             | 232C_RTS               | SO      | SO        | SO      | O          | [O]         |          | RS232C CTS input                                                                                                                                            |
|         | P65/CLK1                        |                        |         |           |         |            |             |          |                                                                                                                                                             |
|         | CLK1                            | E8a_SCLK               |         |           |         |            |             | SI       | E8a, ICP (In-Circuit Programmer) clock input<br>Pull up at 100 k-ohms                                                                                       |
| 43      | CTS1                            | 232C_CTS               | SI      | SI        | SI      | I          | [I]         |          | RS232C CTS input<br>Pull down at 100 k-ohms                                                                                                                 |
|         | P64/CTS1/RTS1/SS1/OUTC21/ISCLK2 |                        |         |           |         |            |             |          |                                                                                                                                                             |
|         | RTS1                            | E8a_BUSY               |         |           |         |            |             | SO       | E8a, ICP (In-Circuit Programmer) BUSY output                                                                                                                |
| 44      | SDA0                            | HDMI_SDA               | SIO     | SIO       | O       | O          | [O]         |          | HDMI RX/TX, Video Enc/Dec I2C SCL output<br>Pull up at HDMI block<br>HDMI RX/TX: 5V tolerant<br>(400 kHz device)                                            |
|         | P63/TXD0/SDA0/SRXD0/IrDAout     |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 45      | SCL0                            | HDMI_SCL               | SIO     | SIO       | O       | O          | [O]         |          | HDMI RX/TX, Video Enc/Dec I2C SDA input/output<br>Pull up at HDMI block<br>HDMI RX/TX: 5V tolerant<br>(400 kHz device)                                      |
|         | P62/RXD0/SCL0/STXD0/IrDAin      |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 46      | P61                             | 232C_PON               | O       | O         | O       | O          | [O]         |          | RS232C driver power supply ON/OFF control<br>H: ON, L: OFF<br>Default at standby<br>U, C models: H (232C ON)<br>R, T, K, A, B, G, E, F, L models: L         |
|         | P61/CLK0/RTP01                  |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 47      | P60                             | CXB1442_CE             | O       | O         | O       | O          | [O]         |          | FRONT HDMI EQ chip enable output<br>Pull down at FRONT HDMI block<br>H: enable<br>When CEC microprocessor is used, it substitutes it with HDMI_PON (Pin 60) |
|         | P60/CTS0/RTS0/SS0/RTP00         |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 48      | P137                            | HEQ_N_RST              | O       | O         | O       | O          | [O]         | O        | HDMI INPUT EQ reset output<br>Pull up at HDMI EQ block<br>L: Reset<br>When CEC microprocessor is used, it substitutes it with HDMI_PON (Pin 60)             |
|         | P137/OUTC27                     |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 49      | ISCLK2                          | REM_CLK                | SO      | O         | O       | O          | [O]         |          | Clock output for remote control code generation<br>No connection destination                                                                                |
|         | P136/OUTC21/ISCLK2              |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 50      | P135                            | HTX_N_RST2             | O       | O         | O       | O          | [O]         |          | HDMI TX (OUT2) reset output<br>Pull down at HDMI block<br>L: Reset                                                                                          |
|         | P135/OUTC22/ISRXD2/IEin         |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 51      | ISTXD2                          | REM_OUT                | SO      | O         | O       | O          | [O]         |          | SCENE select<br>DVD control remote control code output                                                                                                      |
|         | P134/OUTC20/ISTXD2/leout        |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 52      | P57                             | HRX_N_RST              | O       | O         | O       | O          | [O]         |          | HDMI TX reset output<br>Pull down at HDMI block<br>L: Reset                                                                                                 |
|         | P57/RDY                         |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 53      | P56                             | HTX_N_RST              | O       | O         | O       | O          | [O]         |          | HDMI TX (OUT1) reset output<br>Pull down at HDMI block<br>L: Reset                                                                                          |
|         | P56/ALE                         |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 54      | P55                             | E8a_N_EPM              | I       | I         | I       | I          | [I]         |          | E8a writing mode enable input<br>10 k-ohms pull down                                                                                                        |
|         | P55/HOLD                        |                        |         |           |         |            |             |          |                                                                                                                                                             |
| 55      | P54                             | HTX_AUSEL              | O       | O         | O       | O          | [O]         |          |                                                                                                                                                             |
|         | P54/HLDA/ALE                    |                        |         |           |         |            |             |          |                                                                                                                                                             |



| Pin No. | Port Name                      | Function Name (P.C.B.) | I/O     |          |         |            |             |          | Detail of Function                                                                                                                                                                     |
|---------|--------------------------------|------------------------|---------|----------|---------|------------|-------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                |                        | PowerOn | StbyThrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                                                        |
| 56      | P133<br>P133/OUTC23            | HTX_VSEL               | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                        |
| 57      | Vss<br>Vss                     | Vss                    | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                                                     |
| 58      | P132<br>P132/OUTC26            | ABT_N_RST              | O       | O        | O       | O          | [O]         |          | Video I/P & Scaler IC reset<br>VID_PON=L: Low fix<br>L: reset                                                                                                                          |
| 59      | Vcc2<br>Vcc2                   | Vcc2                   | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                            |
| 60      | P131<br>P131/OUTC25            | HDMI_PON               | O       | O        | O       | O          | [O]         |          | HDMI power supply ON/OFF control<br>When uses CEC microprocessor, HDMI EQ (CXB1442, Sil9185A) reset may be used<br>H: ON, L: OFF                                                       |
| 61      | P130<br>P130/OUTC24            | VID_PON                | O       | O        | O       | O          | [O]         |          | Video power supply ON/OFF control<br>Configured based on the Pure Direct specification<br>H: ON, L: OFF                                                                                |
| 62      | P53<br>P53/CLKout/BCLK/<br>ALE | SCPU_N_RST             | O       | O        | O       | O          | [O]         |          | SubCPU reset<br>Because the delay circuit of 2 ms is passed so that it may discriminate against reset of Flash and BlackFin, it is necessary to secure the change time of 5 ms or more |
| 63      | P52<br>P52/RD                  | SCPU_N_SS              | O       | O        | O       | O          | [O]         |          | SubCPU slave select                                                                                                                                                                    |
| 64      | P51<br>P51/WRH/BHE             | SCPU_RTS               | SO      | O        | O       | O          | [O]         |          | Output for SubCPU reception control (request to send)                                                                                                                                  |
| 65      | P50<br>P50/WRL/WR              | E8a_N_CE               | I       | I        | I       | I          | [I]         |          | E8a enable input<br>10 k-ohms pull up                                                                                                                                                  |
| 66      | P127<br>P127                   | SVID_DET               | I       | O        | O       | O          | [O]         |          | S video detection<br>VID_PON = L: Low fix                                                                                                                                              |
| 67      | P126<br>P126                   | DVID_N_RST             | O       | O        | O       | O          | [O]         |          | Video Enc/Dec reset<br>VID_PON = L: Low fix                                                                                                                                            |
| 68      | P125<br>P125                   | OSD_N_CS               | CS      | O        | O       | O          | [O]         |          | OSD chip select<br>VID_PON = L: Low fix                                                                                                                                                |
| 69      | P47<br>P47/SC0/A23             | DSP_PON                | O       | O        | O       | O          | [O]         |          | DSP power supply ON/OFF control<br>H: ON, L: OFF                                                                                                                                       |
| 70      | P46<br>P46/SC1/A22             | SPRY_FA                | O       | O        | O       | O          | [O]         |          | Front A speaker relay control<br>H: ON, L: OFF                                                                                                                                         |
| 71      | P45<br>P45/SC2/A21             | SPRY_FB                | O       | O        | O       | O          | [O]         |          | Front B speaker relay control<br>H: ON, L: OFF                                                                                                                                         |
| 72      | P44<br>P44/SC3/A20             | CPNT_DET               | O       | O        | O       | O          | [O]         |          | No use                                                                                                                                                                                 |
| 73      | P43<br>P43/A19                 | SPRY_C                 | O       | O        | O       | O          | [O]         |          | Center speaker relay control                                                                                                                                                           |
| 74      | Vcc2<br>Vcc2                   | Vcc2                   | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                            |
| 75      | P42<br>P42/A18                 | SPRY_S                 | O       | O        | O       | O          | [O]         |          | Surround speaker relay control                                                                                                                                                         |
| 76      | Vss<br>Vss                     | Vss                    | MCU     | MCU      | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                                                     |
| 77      | P41<br>P41/A17                 | VOL_SCK                | O       | O        | O       | O          | [O]         |          | Electronic volume Flip-flop synchronous clock output                                                                                                                                   |
| 78      | P40<br>P40/A16                 | VOL_MOSI               | O       | O        | O       | O          | [O]         |          | Electronic volume Flip-flop synchronous data output                                                                                                                                    |
| 79      | P37<br>P37/A15/(D15)           | SPRY_SB                | O       | O        | O       | O          | [O]         |          | Surround back/Bi-AMP relay control                                                                                                                                                     |
| 80      | P36<br>P36/A14/(D14)           | SPRY_Z2                | O       | O        | O       | O          | [O]         |          | Zone2/Presence Speaker relay control<br>SPRY_Z2 and SPRY_FB do not become High at the same time                                                                                        |
| 81      | P35<br>P35/A13/(D13)           | SPRY_Z3                | O       | O        | O       | O          | [O]         |          | Zone3 speaker relay control                                                                                                                                                            |
| 82      | P34<br>P34/A12/(D12)           | HPRY                   | O       | O        | O       | O          | [O]         |          | Head phone relay control                                                                                                                                                               |

| Pin No. | Port Name        | Function Name (P.C.B.) | I/O     |           |         |            |             |          | Detail of Function                                                                                                                                                                                                                               |
|---------|------------------|------------------------|---------|-----------|---------|------------|-------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                  |                        | PowerOn | Stby Thrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                                                                                                                  |
| 83      | P33              | SP_IMP                 | O       | HiZ       | HiZ     | HiZ        | [HiZ]       |          | Speaker impedance relay control<br>GND pull down<br>Set to 8 ohms: Hi-Z (Relay OFF, B voltage High)<br>Set to 6 ohms plus during rising temperature: High (Relay ON, B voltage Low)                                                              |
|         | P33/A11/(D11)    |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 84      | P32              | HP_N_DET               | I       | O         | O       | O          | [O]         |          | Headphone detection<br>+3.3S pull up<br>L: Headphone                                                                                                                                                                                             |
|         | P32/A10/(D10)    |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 85      | P31              | E2R_N_CS               | CS      | CS        | CS      | I          | [I]         |          | EEPROM chip select<br>Pull up to EEPROM power at 10 k-ohms                                                                                                                                                                                       |
|         | P31/A9/(D9)      |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 86      | P124             | MUTE_N_Z3              | O       | O         | O       | O          | [O]         |          | Zone3 line out mute control<br>L: Mute                                                                                                                                                                                                           |
|         | P124             |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 87      | P123             | MUTE_N_Z2              | O       | O         | O       | O          | [O]         |          | Zone2 line out mute control<br>L: Mute                                                                                                                                                                                                           |
|         | P123/CTS6/RTS6   |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 88      | RXD6             | HDR_MISO               | SI      | I         | I       | I          | [I]         |          | Asynchronous data input for HD Radio<br>To prevent pulling of HD Radio's High output and microprocessor's Low Fix output, switch to constant input<br>(U model)                                                                                  |
|         | P122/RXD6        |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
|         | P122             | TUN_N_ST               | I       | O         | O       | O          | [O]         |          | FM/AM tuner STEREO detection input<br>+3.3S to 47k then pull up                                                                                                                                                                                  |
| 89      | P121             | MUTE_N_SW              | O       | O         | O       | O          | [O]         |          | Subwoofer mute control<br>L: Mute                                                                                                                                                                                                                |
|         | P121/CLK6        |                        |         |           |         |            |             |          | All                                                                                                                                                                                                                                              |
| 90      | TXD6             | HDR_MOSI               | SO      | O         | O       | O          | [O]         |          | HD Radio asynchronous data output<br>(U model)                                                                                                                                                                                                   |
|         | P120/TXD6        | HDR_MOSI               |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
|         | P120             | (TUNCEC_N_EN)          | O       | O         | O       | O          | [O]         |          | FM/AM tuner CEC enable output<br>Pull up at +3.3SDSP<br>L: Enable, H: Disable<br>(C, R, T, K, A, B, G, E, F, L, J models)                                                                                                                        |
| 91      | Vcc2             | Vcc2                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                                                                                      |
|         | Vcc2             |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 92      | P30              | MUTE_N_SB              | O       | O         | O       | O          | [O]         |          | Surround back/Bi-AMP/Zone2 mute control<br>L: Mute                                                                                                                                                                                               |
|         | P30/A8/(D8)      |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 93      | Vss              | Vss                    | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                                                                                                               |
|         | Vss              |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 94      | P27              | HDR_N_RST              | O       | O         | O       | O          | [O]         |          | HD Radio reset<br>(U model)                                                                                                                                                                                                                      |
|         | P27              | TUN_N_TUND             | I       | O         | O       | O          | [O]         |          | FM/AM tuner TUNED input<br>+3.3S to 47k then pull up<br>(C, R, T, K, A, B, G, E, F, L, J models)                                                                                                                                                 |
|         | P27/A7/(D7)/AN27 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 95      | P26              | HDMI_N_INT_TX          | I       | I         | O       | O          | O           |          | HDMI TX1,2 interrupts (receive with polling)<br>TUN_N_ST is received by pin 88                                                                                                                                                                   |
|         | P26/A6/(D6)/AN26 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 96      | P25              | +3.3S_PON              | O       | O         | O       | O          | [I]         |          | +3.3S power supply ON/OFF control<br>H: ON, L: OFF<br>At standby sleep, becomes L [to avoid unnecessary power consumption (Mute, pull Up)] Input (HiZ) then mechanically +3.3S power switches on (to function Mute, when power down is detected) |
|         | P25/A5/(D5)/AN25 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 97      | P24              | PRY                    | O       | O         | O       | O          | [O]         |          | Power relay ON/OFF control<br>H: ON, L: OFF                                                                                                                                                                                                      |
|         | P24/A4/(D4)/AN24 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 98      | P23              | I_PRT                  | I       | I         | O       | O          | [O]         |          | Overcurrent protection detection                                                                                                                                                                                                                 |
|         | P23/A3/(D3)/AN23 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 99      | P22              | MUTE_N_S               | O       | O         | O       | O          | [O]         |          | Surround mute control<br>L: Mute                                                                                                                                                                                                                 |
|         | P22/A2/(D2)/AN22 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 100     | P21              | MUTE_N_C               | O       | O         | O       | O          | [O]         |          | Center mute control<br>L: Mute                                                                                                                                                                                                                   |
|         | P21/A1/(D1)/AN21 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 101     | P20              | MUTE_N_F               | O       | O         | O       | O          | [O]         |          | Front (Headphone is contained) mute control<br>L: Mute                                                                                                                                                                                           |
|         | P20/A0/(D0)/AN20 |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 102     | INT5             | ACPWR_DET              | IRQ     | IRQ       | IRQ     | IRQ        | [O]         |          | AC power detection<br>L: Power down                                                                                                                                                                                                              |
|         | P17/D15/INT5     |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 103     | INT4             | PSW_DET                | IRQ     | IRQ       | IRQ     | IRQ        | [O]         |          | Main/Zone/Input key interrupt<br>KEY1 port distinguishes the pressed keys                                                                                                                                                                        |
|         | P16/D14/INT4     |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |
| 104     | INT3             | REM_IN                 | IRQ     | IRQ       | IRQ     | IRQ        | [O]         |          | Remote control pulse input                                                                                                                                                                                                                       |
|         | P15/D13/INT3     |                        |         |           |         |            |             |          |                                                                                                                                                                                                                                                  |

| Pin No. | Port Name                 | Function Name (P.C.B.) | I/O     |          |         |            |             |          | Detail of Function                                                                                                                                                                                                                                                                        |
|---------|---------------------------|------------------------|---------|----------|---------|------------|-------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                           |                        | PowerOn | StbyThrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                                                                                                                                                           |
| 105     | P14                       | XM_PON                 | O       | O        | O       | O          | [O]         |          | XM Radio power supply ON/OFF control<br>H: ON, L: OFF<br>(U model)<br>(C, R, T, K, A, B, G, E, F, L, J models)                                                                                                                                                                            |
|         | P14/D12                   |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 106     | P13                       | DOCK_PON               | O       | O        | O       | O          | [O]         |          | DOCK power supply ON/OFF control<br>H: ON, L: OFF                                                                                                                                                                                                                                         |
|         | P13/D11                   |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 107     | P12                       | IOXV_N_CS              | CS      | O        | O       | O          | [O]         |          | IO extended IC (for video) chip select                                                                                                                                                                                                                                                    |
|         | P12/D10                   |                        | CS      | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 108     | P11                       | IOXV_N_RST             | O       | O        | O       | O          | [O]         |          | IO extended IC (for video) reset                                                                                                                                                                                                                                                          |
|         | P11/D9                    |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 109     | P10                       | PD_LED                 | O       | O        | O       | O          | [O]         |          | Pure Direct LED ON/OFF control<br>H: ON, L: OFF                                                                                                                                                                                                                                           |
|         | P10/D8                    |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 110     | P07                       | FLD_N_RST              | O       | O        | O       | O          | [O]         |          | FL driver reset                                                                                                                                                                                                                                                                           |
|         | P07/D7/AN07               |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 111     | P06                       | PRG_RA                 | I       | O        | O       | O          | [O]         |          | Program rotary A                                                                                                                                                                                                                                                                          |
|         | P06/D6/AN06               |                        | I       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 112     | P05                       | PRG_RB                 | I       | O        | O       | O          | [O]         |          | Program rotary B                                                                                                                                                                                                                                                                          |
|         | P05/D5/AN05               |                        | I       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 113     | P04                       | MIC_N_DET              | I       | O        | O       | O          | [O]         |          | MIC detection<br>L: MIC                                                                                                                                                                                                                                                                   |
|         | P04/D4/AN04               |                        | I       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 114     | P114                      | IPD_APDET              | I       | I        | I       | I          | [I]         |          | iPod accessory power detection<br>While iPod boots up (about two seconds) it is set at Low after the boot, it identifies<br>To prevent pulling of iPod High output and microprocessor Low Fix output, switch to constant input                                                            |
|         | P114                      |                        | I       | I        | I       | I          | [I]         |          |                                                                                                                                                                                                                                                                                           |
| 115     | P113                      | VOL_RA                 | I       | O        | O       | O          | [O]         |          | Volume rotary A                                                                                                                                                                                                                                                                           |
|         | P113/INPC13/OUTC13        |                        | I       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 116     | ISRXD1                    | SR_MISO                | SI      | I        | I       | I          | [I]         |          | Asynchronous data input for SIRIUS<br>Pull up at 100 k-ohms<br>Serial communication is 5V TTL/CMOS logic level<br>To prevent pulling of SIRIUS tuner's High output and microprocessor's Low Fix output, switch to constant input<br>(U model)<br>(C, R, T, K, A, B, G, E, F, L, J models) |
|         | P112/INPC12/OUTC12/ISRXD1 |                        | SI      | I        | I       | I          | [I]         |          |                                                                                                                                                                                                                                                                                           |
|         | P112                      |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 117     | P111                      | VOL_RB                 | I       | O        | O       | O          | [O]         |          | Volume rotary B                                                                                                                                                                                                                                                                           |
|         | P111/INPC11/OUTC11/ISCLK1 |                        | I       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 118     | ISTXD1                    | SR_MOSI                | SO      | O        | O       | O          | [O]         |          | Asynchronous data output for SIRIUS<br>Serial communication is 5V TTL/CMOS logic level<br>(U model)<br>(C, R, T, K, A, B, G, E, F, L, J models)                                                                                                                                           |
|         | P110/INPC10/OUTC10/ISTXD1 |                        | SO      | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
|         | P110                      |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 119     | P03                       | SR_PON                 | O       | O        | O       | O          | [O]         |          | SIRIUS radio power supply ON/OFF control<br>H: Power ON, L: Power OFF<br>(U model)<br>(C, R, T, K, A, B, G, E, F, L, J models)                                                                                                                                                            |
|         | P03/D3/AN03               |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 120     | P02                       | SEL_PD                 | O       | O        | O       | O          | [O]         |          | DSP Pure Direct route select<br>H: Pure Direct ON                                                                                                                                                                                                                                         |
|         | P02/D2/AN02               |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 121     | P01                       | ADC_N_PDWN             | O       | O        | O       | O          | [O]         |          | ADC power down<br>L: Power down                                                                                                                                                                                                                                                           |
|         | P01/D1/AN01               |                        | O       | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 122     | P00                       | FLD_N_CS               | CS      | O        | O       | O          | [O]         |          | FL driver chip select                                                                                                                                                                                                                                                                     |
|         | P00/D0/AN00               |                        | CS      | O        | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 123     | AN157                     | L3_DET                 | I       | I        | I       | O          | [O]         |          | No use<br>Pull down at GND                                                                                                                                                                                                                                                                |
|         | P157/AN157/CTS6/RTS6      |                        | I       | I        | I       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 124     | AN156                     | THM                    | AD      | AD       | O       | O          | [O]         |          | Temperature detection                                                                                                                                                                                                                                                                     |
|         | P156/AN156/CLK6           |                        | AD      | AD       | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 125     | AN155                     | AMP_OLV                | AD      | AD       | O       | O          | [O]         |          | Power AMP output level detection                                                                                                                                                                                                                                                          |
|         | P155/AN155/RXD6           |                        | AD      | AD       | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 126     | AN154                     | DC_PRT                 | AD      | AD       | O       | O          | [O]         |          | Power AMP DC detection                                                                                                                                                                                                                                                                    |
|         | P154/AN154/TXD6           |                        | AD      | AD       | O       | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |
| 127     | AN153                     | MODEL                  | AD      | AD       | AD      | O          | [O]         |          | AD destination discrimination<br>Data is taken in when resetting is cancelled                                                                                                                                                                                                             |
|         | P153/AN153/CTS5/RTS5      |                        | AD      | AD       | AD      | O          | [O]         |          |                                                                                                                                                                                                                                                                                           |

| Pin No. | Port Name                             | Function Name (P.C.B.) | I/O     |           |         |            |             |          | Detail of Function                                                                                                                                                                                                                                         |
|---------|---------------------------------------|------------------------|---------|-----------|---------|------------|-------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                       |                        | PowerOn | Stby Thrh | Standby | Stby Sleep | Sleep [MCU] | E8a, ICP |                                                                                                                                                                                                                                                            |
| 128     | ISRXD0<br>P152/AN152/<br>ISRXD0/RXD5  | E2R_MISO               | SI      | SI        | SI      | O          | [O]         |          | Synchronous data input for EEPROM                                                                                                                                                                                                                          |
| 129     | ISCLK0<br>P151/AN151/<br>ISCLK0/CLK5  | FLD_SCK                | SO      | SO        | SO      | O          | [O]         |          | FL driver, OSD, IO extended IC (Video), EEPROM synchronous clock output<br>Inhalation attention of power supply off device                                                                                                                                 |
| 130     | Vss<br>Vss                            | Vss                    | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                                                                                                                         |
| 131     | ISTXD0<br>P150/AN150/<br>ISTXD0/TXD5  | FLD_MOSI               | SO      | SO        | SO      | O          | [O]         |          | FL driver, OSD, IO extended IC (Video), EEPROM synchronous data output<br>Inhalation attention of power supply off device                                                                                                                                  |
| 132     | Vcc1<br>Vcc1                          | Vcc1                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                                                                                                |
| 133     | AN7<br>P107/AN7/KI3/<br>RTP33         | KEY1                   | AD      | AD        | AD      | I          | [O]         |          | KEY1 AD value taken in<br>During PSW_DET interruption, distinguishes the used keys which are switched to AD                                                                                                                                                |
| 134     | AN6<br>P106/AN6/KI2/<br>RTP32         | KEY2                   | AD      | AD        | AD      | I          | [O]         |          | KEY2 AD value taken in<br>During PSW_DET interruption, distinguishes the used keys which are switched to AD                                                                                                                                                |
| 135     | AN5<br>P105/AN5/KI1/<br>RTP31         | PS1_PRT                | AD      | AD        | O       | O          | [O]         |          | PS protection detection 1                                                                                                                                                                                                                                  |
| 136     | AN4<br>P104/AN4/KI0/<br>RTP30         | PS2_PRT                | AD      | AD        | O       | O          | [O]         |          | PS protection detection 2                                                                                                                                                                                                                                  |
| 137     | P103<br>P103/AN3/RTP13                | ISEL_RA                | I       | O         | O       | O          | [O]         |          | Input selector rotary A                                                                                                                                                                                                                                    |
| 138     | P102<br>P102/AN2/RTP12                | ISEL_RB                | I       | O         | O       | O          | [O]         |          | Input selector rotary B                                                                                                                                                                                                                                    |
| 139     | AN1<br>P101/AN1/RTP11                 | DEST                   | AD      | AD        | AD      | O          | [O]         |          | AD destination discrimination<br>Data is taken in when resetting is cancelled                                                                                                                                                                              |
| 140     | AVss<br>AVss                          | AVss                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor GND                                                                                                                                                                                                                                         |
| 141     | AN0<br>P100/AN0/RTP10                 | DOCK_TYPE              | AD      | AD        | AD      | I          | [O]         |          | DOCK discriminate<br>Make a distinction from IPD_DET Low edge through post-10ms A/D value<br>Identifies the connected DOCK type, then switches the action<br>During IPD_DET interruption, switches to AD, make a distinction based on post-10 ms A/D value |
| 142     | Vref<br>Vref                          | VREF                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                                                                                                |
| 143     | AVcc<br>AVcc                          | AVcc                   | MCU     | MCU       | MCU     | MCU        | [MCU]       |          | Microprocessor power supply                                                                                                                                                                                                                                |
| 144     | RXD4<br>P97/ADTRG/RXD4/<br>SCL4/STXD4 | SCPU_MISO              | SO      | I         | I       | I          | [O]         |          | Synchronous data input for SubCPU                                                                                                                                                                                                                          |

## Key detection for A/D port

Key input (A/D) pull-up resistance 10 k-ohms

|                          |                |             |             |                 |                 |                 |             |            |                     |                 |
|--------------------------|----------------|-------------|-------------|-----------------|-----------------|-----------------|-------------|------------|---------------------|-----------------|
| Ohm                      | 0              | +1.0k       | +1.0k       | +1.5k           | +1.5k           | +2.2k           | +3.3k       | +4.7k      | +22.0k              | +33.0k          |
| V                        | 0 – 0.15       | 0.15 – 0.42 | 0.43 – 0.70 | 0.71 – 0.97     | 0.98 – 1.24     | 1.25 – 1.53     | 1.54 – 1.84 | 1.84 – 2.1 | 2.34 – 2.55         | 2.55 – 2.97     |
| A/D value<br>(3.3 V=255) | 0 – 11         | 12 – 32     | 33 – 54     | 55 – 75         | 76 – 95         | 96 – 118        | 119 – 142   | 143 – 162  | 181 – 197           | 198 – 229       |
| KEY1<br>(133 pin)        | SCENE<br>RADIO | SCENE<br>CD | SCENE<br>TV | SCENE<br>BD/DVD | ZONE2<br>ON/OFF | ZONE3<br>ON/OFF | —           | —          | MAIN ZONE<br>ON/OFF | TONE<br>CONTROL |

|                          |                |                      |                  |             |             |             |             |                   |                |                |
|--------------------------|----------------|----------------------|------------------|-------------|-------------|-------------|-------------|-------------------|----------------|----------------|
| Ohm                      | 0              | +1.0k                | +1.0k            | +1.5k       | +1.8k       | +2.2k       | +3.3k       | +4.7k             | +6.8k          | +10.0k         |
| V                        | 0 – 0.15       | 0.15 – 0.42          | 0.43 – 0.70      | 0.71 – 0.99 | 1.0 – 1.27  | 1.28 – 1.56 | 1.57 – 1.86 | 1.86 – 2.14       | 2.14 – 2.4     | 2.4 – 2.65     |
| A/D value<br>(3.3 V=255) | 0 – 11         | 12 – 32              | 33 – 54          | 55 – 77     | 78 – 98     | 99 – 120    | 121 – 143   | 144 – 165         | 166 – 185      | 186 – 205      |
| KEY2<br>(134 pin)        | PURE<br>DIRECT | STRAIGHT /<br>EFFECT | ZONE<br>CONTROLS | INFO        | PRESET<br>< | PRESET<br>> | MEMORY      | BAND/<br>CATEGORY | TUNING CH<br>< | TUNING CH<br>> |

## Destination detection for A/D port

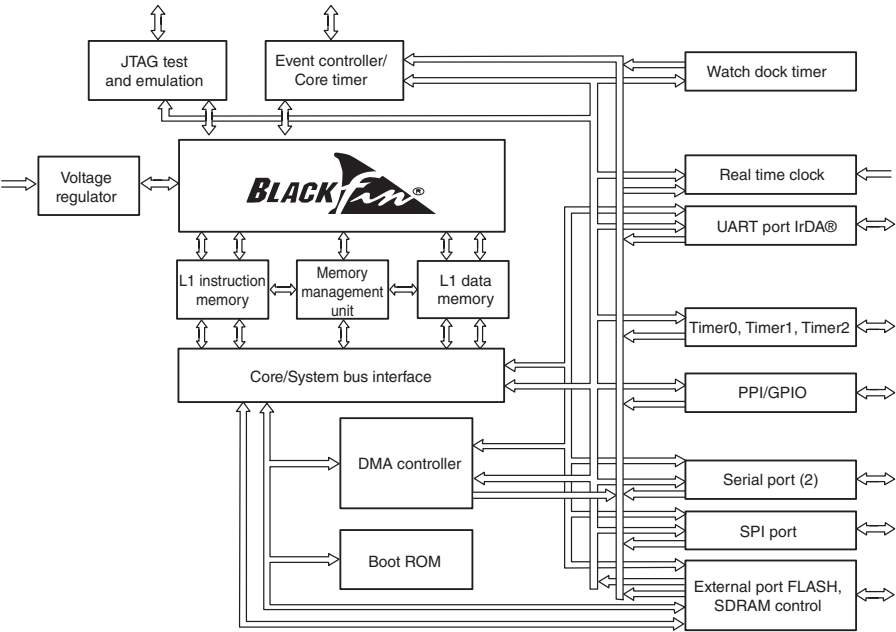
Destination input (A/D) pull-up resistance 10 k-ohms

|                          |           |           |           |           |           |           |            |           |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| Ohm (R3809 VIDEO P.C.B.) | 1.2 k     | 2.7 k     | 4.7 k     | 6.8 k     | 10.0 k    | 15.0 k    | 47.0 k     | 100.0 k   |
| V                        | 0.2 – 0.6 | 0.6 – 0.9 | 0.9 – 1.2 | 1.2 – 1.5 | 1.5 – 1.8 | 1.8 – 2.3 | 2.4 – 2.9  | 2.9 – 3.2 |
| A/D value (3.3V=255)     | 15 – 46   | 46 – 69   | 69 – 92   | 92 – 115  | 115 – 139 | 139 – 177 | 185 – 224  | 224 – 247 |
| DEST (139 pin)           | U         | C         | R         | T         | K         | A         | B, G, E, F | L         |

## Model detection for A/D port

|                           |          |           |
|---------------------------|----------|-----------|
| Ohm (R200 DIGITAL P.C.B.) | —        | 10 k      |
| Ohm (R201 DIGITAL P.C.B.) | 1 k      | 1 k       |
| V                         | 0        | 0.2 – 0.6 |
| A/D value (3.3 V=255)     | 0        | 15 – 46   |
| MODEL (127 pin)           | RX-V2065 | HTR-6295  |

IC505: AD91089ZSKBC (GUI P.C.B.)  
Sub-microprocessor  
\* No replacement part available.



## Memory Interface

| Pin No. | Function Name | I/O | Detail of Function                                        |
|---------|---------------|-----|-----------------------------------------------------------|
| 121     | ADDR19        | O   | Address bus for async/Sync access                         |
| 122     | ADDR18        |     |                                                           |
| 123     | ADDR17        |     |                                                           |
| 124     | ADDR16        |     |                                                           |
| 125     | ADDR15        |     |                                                           |
| 126     | ADDR14        |     |                                                           |
| 127     | ADDR13        |     |                                                           |
| 135     | ADDR12        | O   | Address bus for async/Sync access                         |
| 136     | ADDR11        |     |                                                           |
| 137     | ADDR10        |     |                                                           |
| 138     | ADDR9         |     |                                                           |
| 139     | ADDR8         |     |                                                           |
| 140     | ADDR7         |     |                                                           |
| 141     | ADDR6         |     |                                                           |
| 142     | ADDR5         | O   | Address bus for async/Sync access                         |
| 146     | ADDR4         |     |                                                           |
| 147     | ADDR3         |     |                                                           |
| 148     | ADDR2         |     |                                                           |
| 149     | ADDR1         |     |                                                           |
| 98      | DATA15        | I/O | Data bus for async access                                 |
| 99      | DATA14        |     |                                                           |
| 100     | DATA13        |     |                                                           |
| 101     | DATA12        |     |                                                           |
| 102     | DATA11        |     |                                                           |
| 103     | DATA10        |     |                                                           |
| 104     | DATA9         |     |                                                           |
| 105     | DATA8         | I/O | Data bus for async access                                 |
| 108     | DATA7         |     |                                                           |
| 109     | DATA6         |     |                                                           |
| 110     | DATA5         |     |                                                           |
| 112     | DATA4         |     |                                                           |
| 113     | DATA3         |     |                                                           |
| 114     | DATA2         | I/O | Data bus for async access                                 |
| 115     | DATA1         |     |                                                           |
| 116     | DATA0         |     |                                                           |
| 150     | ABE1          | O   | Byte enables/Data masks for async/Sync access             |
| 151     | ABE0          |     |                                                           |
| 163     | BR            | I   | Bus request (This pin should be pulled HIGH if not used.) |
| 119     | BG            | O   | Bus grant                                                 |
| 120     | BGH           | O   | Bus grant hang                                            |

## Asynchronous memory control

| Pin No. | Function Name | I/O | Detail of Function                                                   |
|---------|---------------|-----|----------------------------------------------------------------------|
| 158     | AMS3          | O   | Banks select                                                         |
| 159     | AMS2          |     |                                                                      |
| 160     | AMS1          |     |                                                                      |
| 161     | AMS0          |     |                                                                      |
| 162     | ARDY          | I   | Hardware ready control (This pin should be pulled HIGH if not used.) |
| 154     | AOE           | O   | Output enable                                                        |
| 153     | ARE           | O   | Read enable                                                          |
| 152     | AWE           | O   | Write enable                                                         |

## Synchronous memory control

| Pin No. | Function Name | I/O | Detail of Function    |
|---------|---------------|-----|-----------------------|
| 167     | SRAS          | O   | Row address strobe    |
| 166     | SCAS          | O   | Column address strobe |
| 165     | SWE           | O   | Write enable          |
| 173     | SCKE          | O   | Clock enable          |
| 169     | CLKOUT        | O   | Clock output          |
| 164     | SA10          | O   | A10 pin               |
| 172     | SMS           | O   | Bank select           |

## Timers

| Pin No. | Function Name | I/O | Detail of Function     |
|---------|---------------|-----|------------------------|
| 79      | TMR0          | I/O | Timer0                 |
| 78      | PPI_FS1       | I/O | Timer1/PPI frame sync1 |
| 77      | PPI_FS2       | I/O | Timer2/PPI frame sync2 |

## PPI port

| Pin No. | Function Name | I/O | Detail of Function                 |
|---------|---------------|-----|------------------------------------|
| 22      | PP10          | I/O | PPI3-0                             |
| 23      | PP11          |     |                                    |
| 24      | PP12          |     |                                    |
| 26      | PP13          |     |                                    |
| 21      | PPI_CLK       | I   | PPI clock/External timer reference |

## Port F: GPIO/Parallel peripheral interface port/SPI/Timers

| Pin No. | Function Name | I/O | Detail of Function                                          |
|---------|---------------|-----|-------------------------------------------------------------|
| 51      | N_SPISS       | I/O | GPIO/SPI slave select input                                 |
| 50      | PF1           | I/O | GPIO/SPI slave select enable 1/ Timer alternate clock input |
| 49      | PF2           | I/O | GPIO/SPI slave select enable 2                              |
| 48      | PPI_PS3       | I/O | GPIO/SPI slave select enable 3/ PPI frame sync 3            |
| 47      | PF4           | I/O | GPIO/SPI slave select enable 4/ PPI 15                      |
| 46      | PF5           | I/O | GPIO/SPI slave select enable 5/ PPI 14                      |
| 38      | PF6           | I/O | GPIO/SPI slave select enable 6/ PPI 13                      |
| 37      | PF7           | I/O | GPIO/SPI slave select enable 7/ PPI 12                      |
| 36      | PF8           | I/O | GPIO/PPI 11                                                 |
| 35      | PF9           | I/O | GPIO/PPI 10                                                 |
| 34      | PF10          | I/O | GPIO/PPI 9                                                  |
| 33      | PF11          | I/O | GPIO/PPI 8                                                  |
| 32      | PPI7          | I/O | GPIO/PPI 7                                                  |
| 29      | PPI6          | I/O | GPIO/PPI 6                                                  |
| 28      | PPI5          | I/O | GPIO/PPI 5                                                  |
| 27      | PPI4          | I/O | GPIO/PPI 4                                                  |

**JTAG port**

| Pin No. | Function Name | I/O | Detail of Function                                                 |
|---------|---------------|-----|--------------------------------------------------------------------|
| 94      | TCK           | I   | JTAG clock                                                         |
| 87      | TDO           | O   | JTAG serial data out                                               |
| 86      | TDI           | I   | JTAG serial data in                                                |
| 85      | TMS           | I   | JTAG mode select                                                   |
| 84      | TRST          | I   | JTAG reset (This pin is should be pulled LOW if JTAG is not used.) |
| 83      | EMU           | O   | Emulation output                                                   |

**SPI port**

| Pin No. | Function Name | I/O | Detail of Function                                                                                                 |
|---------|---------------|-----|--------------------------------------------------------------------------------------------------------------------|
| 55      | MOSI          | I/O | Master out slave in                                                                                                |
| 54      | MISO          | I/O | Master in slave out (This pin is should be pulled HIGH through a 4.7 k-ohms resistor if booting via the SPI port.) |
| 53      | SCK           | I/O | SPI clock                                                                                                          |

**Serial ports**

| Pin No. | Function Name | I/O | Detail of Function             |
|---------|---------------|-----|--------------------------------|
| 76      | RSCLK0        | I/O | SPORT0 receive serial clock    |
| 75      | RFS0          | I/O | SPORT0 receive frame sync      |
| 74      | DR0PRI        | I   | SPORT0 receive data primary    |
| 73      | DR0SEC        | I   | SPORT0 receive data secondary  |
| 72      | TSCLK0        | I/O | SPORT0 transmit serial clock   |
| 69      | TFS0          | I/O | SPORT0 transmit frame sync     |
| 68      | DT0PRI        | O   | SPORT0 transmit data primary   |
| 67      | DT0SEC        | O   | SPORT0 transmit data secondary |
| 65      | RSCLK1        | I/O | SPORT1 receive serial clock    |
| 64      | RFS1          | I/O | SPORT1 receive frame sync      |
| 63      | DR1PRI        | I   | SPORT1 receive data primary    |
| 62      | DR1SEC        | I   | SPORT1 receive data secondary  |
| 61      | TSCLK1        | I/O | SPORT1 transmit serial clock   |
| 60      | TFS1          | I/O | SPORT1 transmit frame sync     |
| 59      | DT1PRI        | O   | SPORT1 transmit data primary   |
| 58      | DT1SEC        | O   | SPORT1 transmit data secondary |

**UART port**

| Pin No. | Function Name | I/O | Detail of Function |
|---------|---------------|-----|--------------------|
| 82      | RX            | I   | UART receive       |
| 81      | TX            | O   | UART transmit      |

**Real-time clock**

| Pin No. | Function Name | I/O | Detail of Function                                               |
|---------|---------------|-----|------------------------------------------------------------------|
| 17      | RTXI          | I   | RTC crystal input (This pin should be pulled LOW when not used.) |
| 16      | RTXO          | O   | RTC crystal output                                               |

**Clock**

| Pin No. | Function Name | I/O | Detail of Function                                                 |
|---------|---------------|-----|--------------------------------------------------------------------|
| 10      | CLKIN         | I   | Clock/Crystal input (This pin needs to be at a level or clocking.) |
| 11      | XTAL          | O   | Crystal output                                                     |

**Mode controls**

| Pin No. | Function Name | I/O | Detail of Function                                                                           |
|---------|---------------|-----|----------------------------------------------------------------------------------------------|
| 13      | RESET         | I   | Reset (This pin is always active during core power-on.)                                      |
| 14      | NMI           | I   | Nonmaskable interrupt (This pin should be pulled LOW when not used.)                         |
| 95      | BMODE1        | I   | Boot mode strap (These pins must be pulled to the state required for the desired boot mode.) |
| 96      | BMODE0        |     |                                                                                              |

**Voltage regulator**

| Pin No. | Function Name | I/O | Detail of Function |
|---------|---------------|-----|--------------------|
| 4       | VROUT1        | O   | External FET drive |
| 5       | VROUT0        |     |                    |

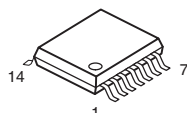
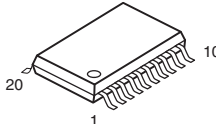
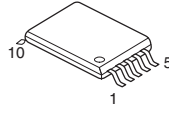
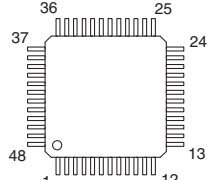
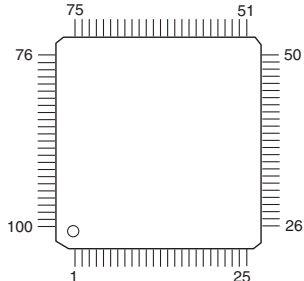
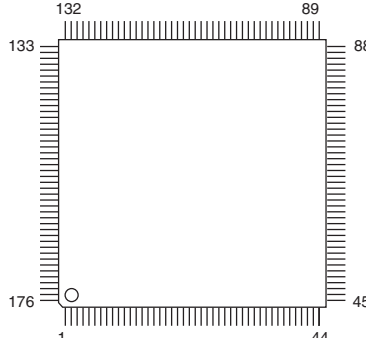
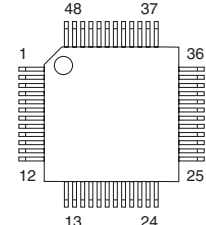
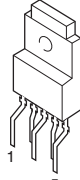
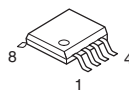
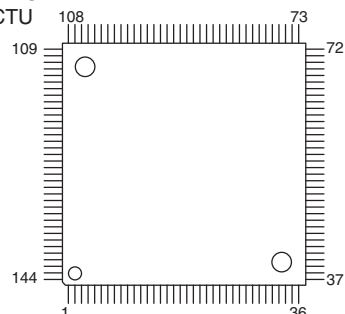
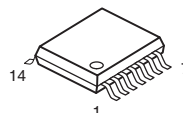
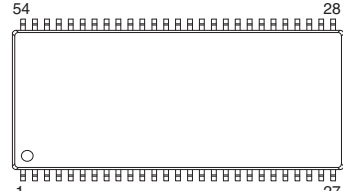
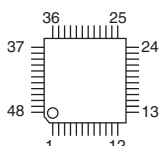
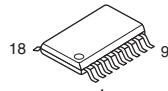
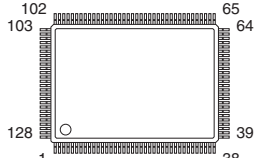
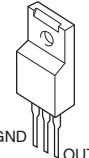
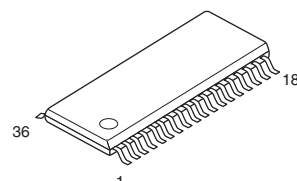
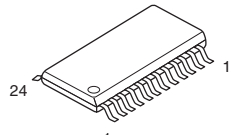
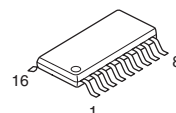


## Supplies

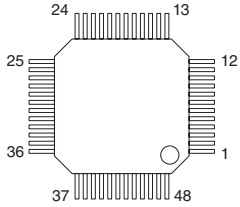
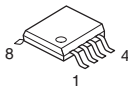
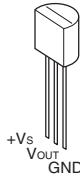
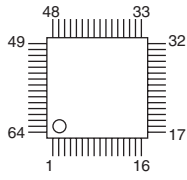
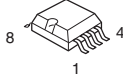
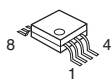
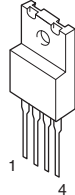
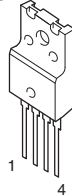
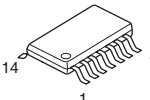
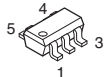
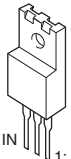
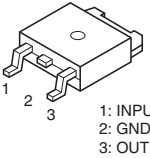
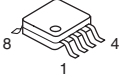
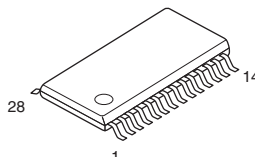
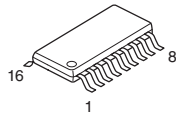
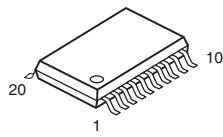
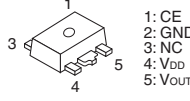
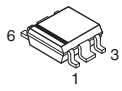
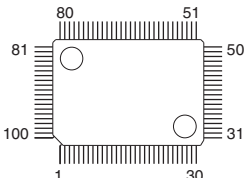
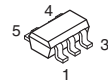
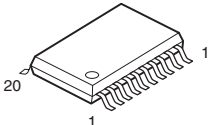
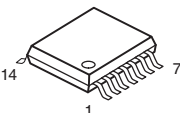
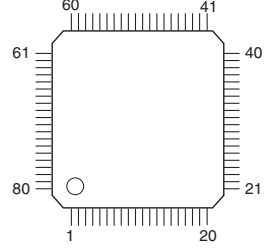
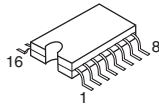
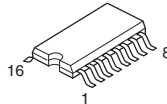
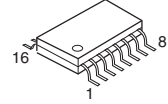
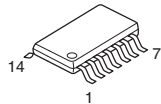
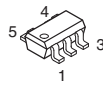
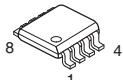
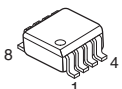
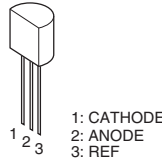
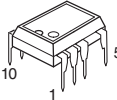
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|---------|---------------|-----|------------------------------|---------|---------------|-----|--------------------|
| 6       | VDDEXT        | P   | I/O power supply             | 1       | GND           | G   | External ground    |
| 12      |               |     |                              | 2       |               |     |                    |
| 20      |               |     |                              | 3       |               |     |                    |
| 31      |               |     |                              | 7       |               |     |                    |
| 45      |               |     |                              | 8       |               |     |                    |
| 57      |               |     |                              | 9       |               |     |                    |
| 71      |               |     |                              | 15      |               |     |                    |
| 93      |               |     |                              | 19      |               |     |                    |
| 107     |               |     |                              | 30      |               |     |                    |
| 118     |               |     |                              | 39      |               |     |                    |
| 134     |               |     |                              | 40      |               |     |                    |
| 145     |               |     |                              | 41      |               |     |                    |
| 156     |               |     |                              | 42      |               |     |                    |
| 171     |               |     |                              | 43      |               |     |                    |
| 25      | VDDINT        | P   | Core power supply            | 44      |               |     |                    |
| 52      |               |     |                              | 56      |               |     |                    |
| 66      |               |     |                              | 70      |               |     |                    |
| 80      |               |     |                              | 88      |               |     |                    |
| 111     |               |     |                              | 89      |               |     |                    |
| 143     |               |     |                              | 90      |               |     |                    |
| 157     |               |     |                              | 91      |               |     |                    |
| 168     |               |     |                              | 92      |               |     |                    |
| 18      | VDDRTC        | P   | Real-time clock power supply | 97      |               |     |                    |
|         |               |     |                              | 106     |               |     |                    |
|         |               |     |                              | 117     |               |     |                    |
|         |               |     |                              | 128     |               |     |                    |
|         |               |     |                              | 129     |               |     |                    |
|         |               |     |                              | 130     |               |     |                    |
|         |               |     |                              | 131     |               |     |                    |
|         |               |     |                              | 132     |               |     |                    |
|         |               |     |                              | 133     |               |     |                    |
|         |               |     |                              | 144     |               |     |                    |
|         |               |     |                              | 155     |               |     |                    |
|         |               |     |                              | 170     |               |     |                    |
|         |               |     |                              | 174     |               |     |                    |
|         |               |     |                              | 175     |               |     |                    |
|         |               |     |                              | 176     |               |     |                    |

PIN CONNECTION DIAGRAMS

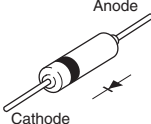
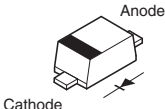
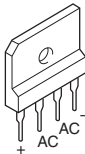
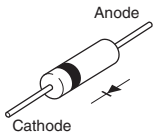
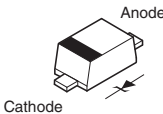
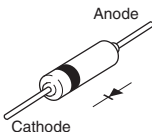
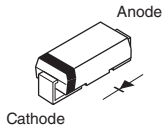
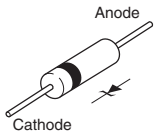
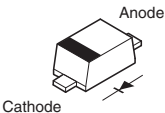
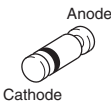
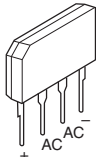
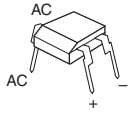
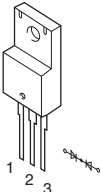
ICs

|                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 74LVC08APW<br>74LVC32APW                                                            | 74LVC1G08GW                                                                         | 74LVC245APW,118                                                                      | CS230003-CZZR                                                                         | CXB1442AR-T4                                                                          |
|    |    |     |     |    |
| ABT1012Q100<br>LAN9217-MT<br>SiI9134CTU                                             | ADV7800BSTZ-80<br>AD91089ZSKBC                                                      | ADV7172KST<br>AK8814VQ                                                               | BA00JC5WT-V5                                                                          |                                                                                       |
|   |   |   |   |                                                                                       |
| BD9323EFJ-E2                                                                        | D70YE101BRFP266<br>M3087BFKBGP<br>SiI9233ACTU                                       | FHP3350IM14X                                                                         | K4S641632N-LC60000                                                                    |                                                                                       |
|  |  |   |  |                                                                                       |
| F2621E-01-TR                                                                        | ISL83385EIBZ-T                                                                      | ISP1760BE                                                                            | KIA7912PI                                                                             | K4S560832J-UC75000                                                                    |
|  |  |   |   |  |
| K8P6415UQB-PI4B000                                                                  | LA73050-TLM-E                                                                       | LC709004A-TLM-E                                                                      | LC72725KM-UY-TLM-E                                                                    |                                                                                       |
|  |  |  |  |                                                                                       |

RX-V2065/HTR-6295

|                                                                                                                                                                   |                                                                                                                                                                   |                                                                                                                                         |                                                                                                                                               |                                                                                                                                                                     |                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <div>LC89058WD-E</div> <div></div>                                               | <div>LE25LB2562M-TLM-E<br/>LE25LB643M-TLM-E<br/>NJM4565M (TE1)</div> <div></div> | <div>LM19CIZ/LF</div> <div></div>                      | <div>M66003-0131FP-R</div> <div></div>                      | <div>NE5532DR</div> <div></div>                                                  | <div>NJM2068MD-TE2</div> <div></div>      |
| <div>NJM2388F05</div> <div></div>                                                | <div>NJM2396F05</div> <div></div>                                                | <div>NJM2581M</div> <div></div>                        | <div>NJM2867F3-05</div> <div></div>                         | <div>NJM7812FA</div> <div></div>                                                 | <div>NJM78M05DL1A (TE1)</div> <div></div> |
| <div>PCA9517DP</div> <div></div>                                               | <div>PCM1680DBQR</div> <div></div>                                             | <div>PCM1781DBQR<br/>SN74LV163APWR</div> <div></div> | <div>PCM1803DBR</div> <div></div>                         | <div>R1172H181B-T1-F<br/>R1172H331D-T1-F<br/>R1172H501D-T1-F</div> <div></div> |                                                                                                                              |
| <div>R1173S001D-E2-F<br/>R1172S121D-E2-F<br/>R1172S331B-E2-F</div> <div></div> | <div>R2A15220FP</div> <div></div>                                              | <div>R5523N001A-TR-F</div> <div></div>               | <div>SN74LVC245APWR<br/>SN74LVTH245APW</div> <div></div> | <div>SN74LV74APWR</div> <div></div>                                            |                                                                                                                              |
| <div>SiI9185ACTU</div> <div></div>                                             | <div>TC74HC4051AFEL</div> <div></div>                                          | <div>TC74HC4053AF</div> <div></div>                  | <div>TC74VHC157FT</div> <div></div>                      | <div>TC74VHCT08AFT<br/>TC74VHCU04FT</div> <div></div>                          |                                                                                                                              |
| <div>TC7SH04FU-TE85L<br/>TC7SH08FU</div> <div></div>                           | <div>TC7WH14FK<br/>TC7WZ32FK (TE85L, F)</div> <div></div>                      | <div>TC7WHU04FU</div> <div></div>                    | <div>TL431ACLPR</div> <div></div>                        | <div>TOP255MN</div> <div></div>                                                |                                                                                                                              |

• Diodes

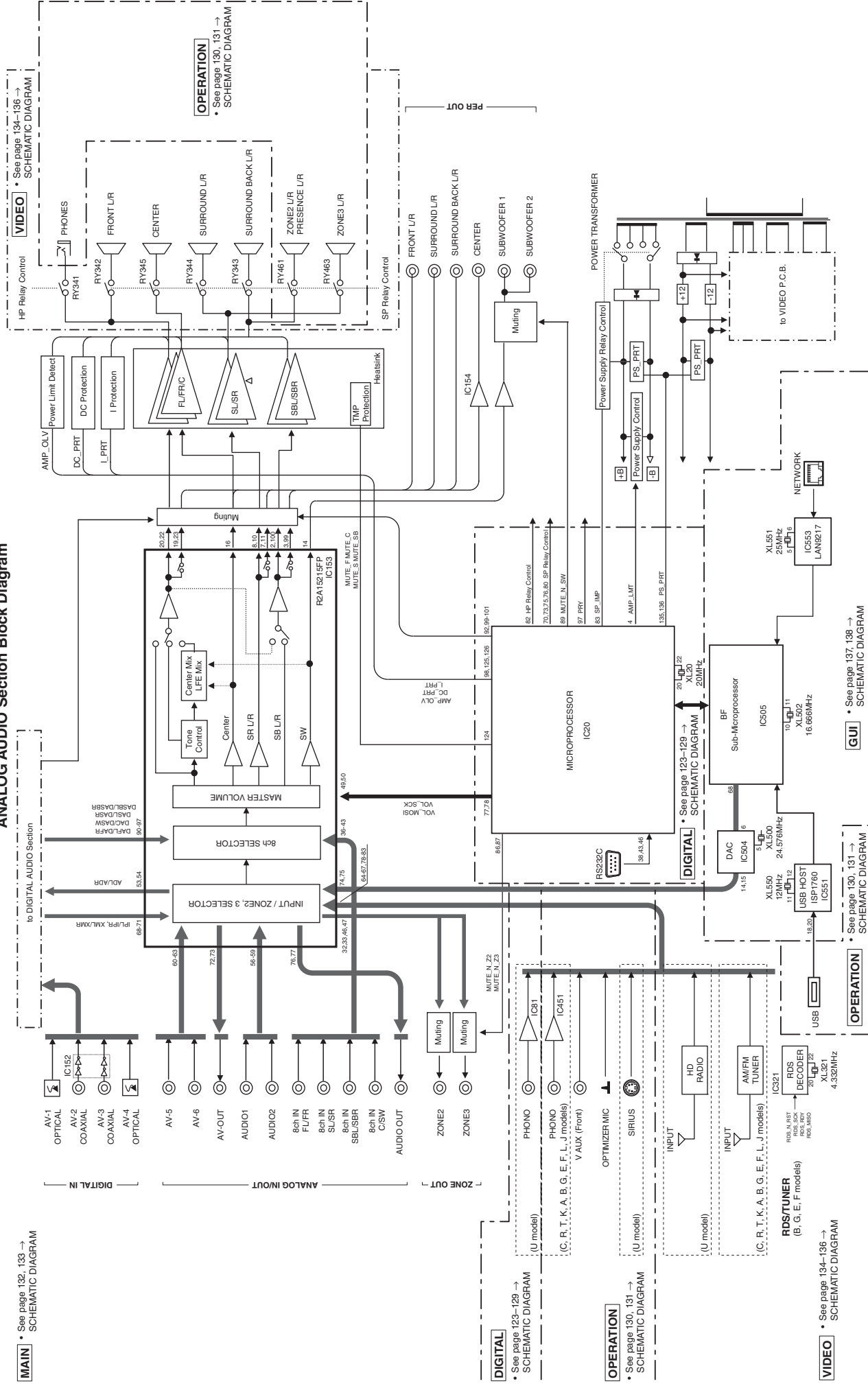
|                                                                                                                         |                                                                                                                                                                  |                                                                                                            |                                                                                                        |                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1N4002S<br>1SS133<br>1SS176<br>        | 1SS355<br>                                                                      | D15XBN20-7001 15A<br>    | HT18G<br>           |                                                                                                  |
| MAZ8033GHL 3.4V<br>MAZ8036GLL 3.5V<br> | MTZJ10B<br>MTZJ12B<br>MTZJ13B<br>MTZJ2.4B<br>MTZJ22C<br>MTZJ3.3B<br>MTZJ39D<br> | RB051L-40<br>UDZ5.1B<br> | P6KE100A<br>        |                                                                                                  |
| MA111<br>RB501V-40<br>                | RLZ7.5B 7.5V<br>                                                               | RS203M-B-C-J80<br>       | S1NBC60 1A 600V<br> | SG10SC4M<br> |

• Transistors

|                            |  |                                  |  |                                  |  |                      |                                                                          |                    |                                                                                                                    |                                                               |                               |
|----------------------------|--|----------------------------------|--|----------------------------------|--|----------------------|--------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------|
| 2N6401C-AT/P<br>2SA1015-Y  |  | 2SA1145<br>2SC2705<br>2N5551C-AT |  | 2SA1576A                         |  | 2SA1708              |                                                                          | 2SA2168<br>2SC5291 |                                                                                                                    | 2SC6011/2SA2151                                               | <br>                          |
| 2SC1815 Y                  |  | 2SC1740S                         |  | 2SC4081 T106                     |  | 2SD1938F<br>2SC3906K |                                                                          | 2SD1915F           |                                                                                                                    | DTA114EKA<br>DTA143EKA<br>DTA144EKA<br>DTC114EKA<br>DTC144EKA | <br>1: GND<br>2: IN<br>3: OUT |
| KRA102M-AT/P<br>KRC105M-AT |  | KTA1046-Y-U/P<br>KTA1837-U/P     |  | KTA1517S<br>KTC3875S<br>KTC3911S |  | MCH6336-TL-E         | <br>1: Drain<br>2: Drain<br>3: Gate<br>4: Source<br>5: Drain<br>6: Drain | μPA672T-T1-A       | <br>1: Source 1 (S1)<br>2: Gate 1 (G1)<br>3: Drain 1 (D2)<br>4: Source 2 (S2)<br>5: Gate 2 (G2)<br>6: Drain 1 (D1) |                                                               |                               |

## ■ BLOCK DIAGRAMS

**MAIN**



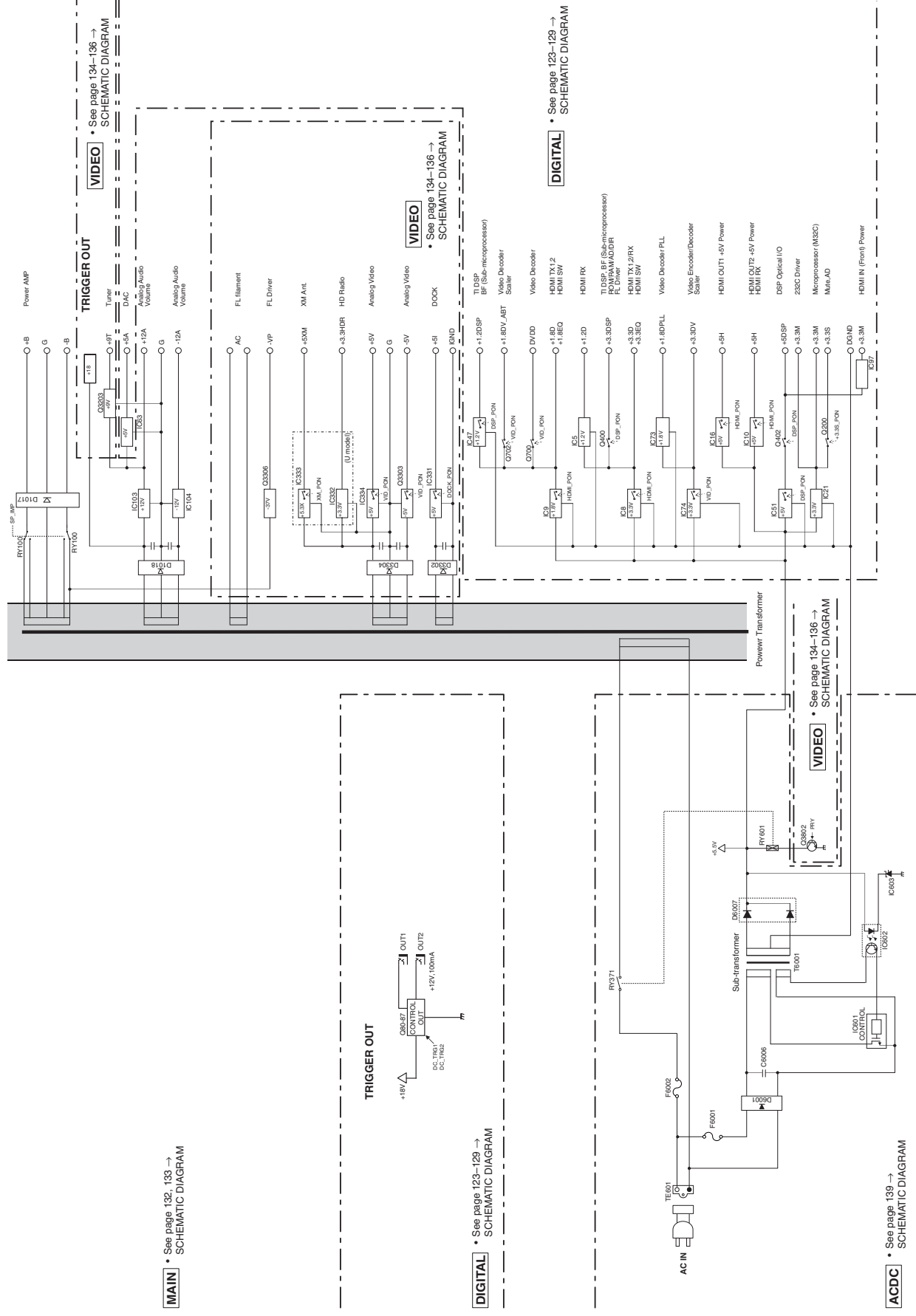


[illegible]

- See page 134–136 → SCHEMATIC DIAGRAM



## Power Supply Section Block Diagram



## PRINTED CIRCUIT BOARDS

## DIGITAL (1) P.C.B. (Side A)

GUI (CB503)  
No replacement part available.

OPERATION (2)

(CB452)

OPERATION (2)

(CB455)

OPERATION (2)

(CB458)

GUI

(CB500)

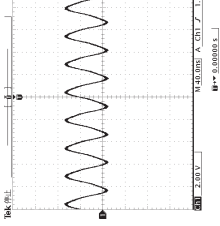
OPERATION (1)

(CB401)

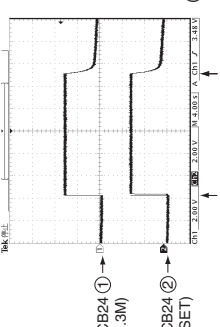
DIGITAL (2)

(CB36)

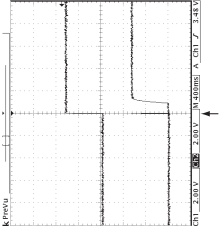
POINT ④ XL20 (Pin 20 of IC20)



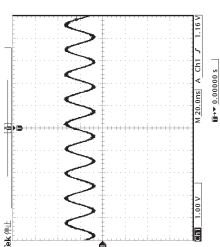
POINT ⑥ ① CB24 (+3.3M), ② CB24 (RESET)



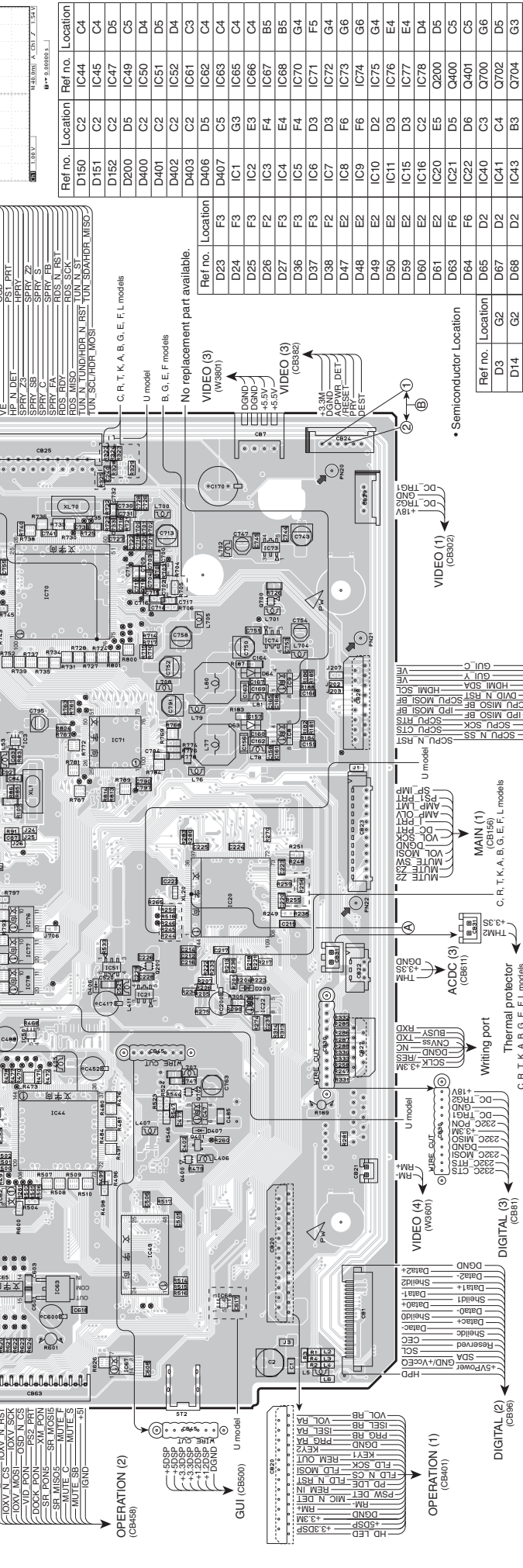
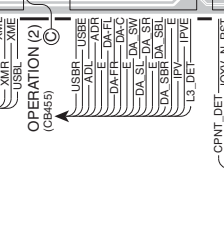
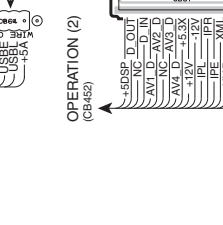
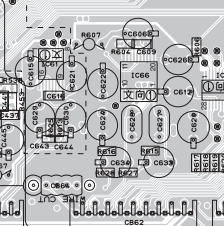
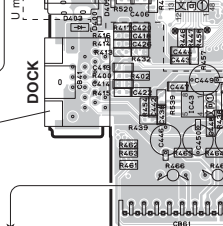
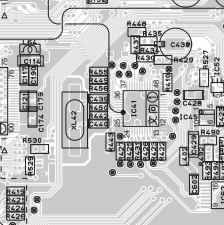
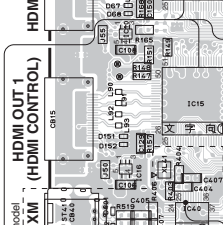
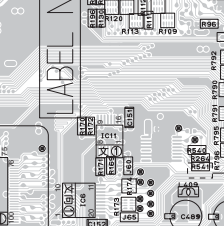
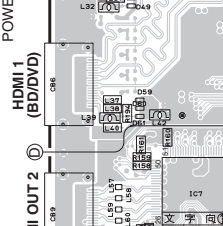
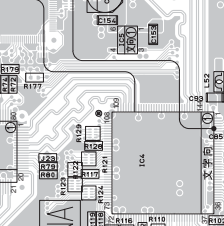
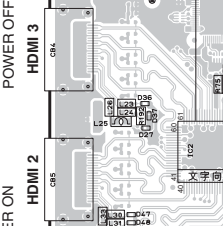
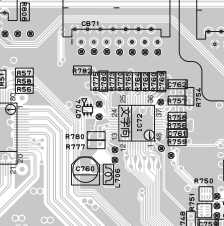
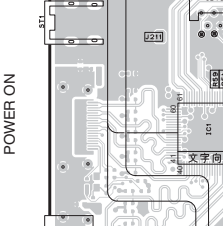
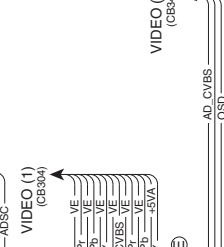
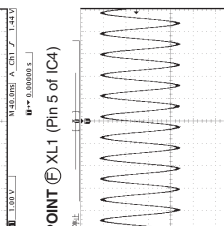
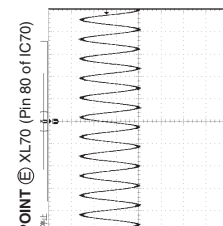
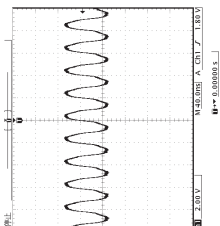
POINT ③ XL41 (Pin 28 of IC40)



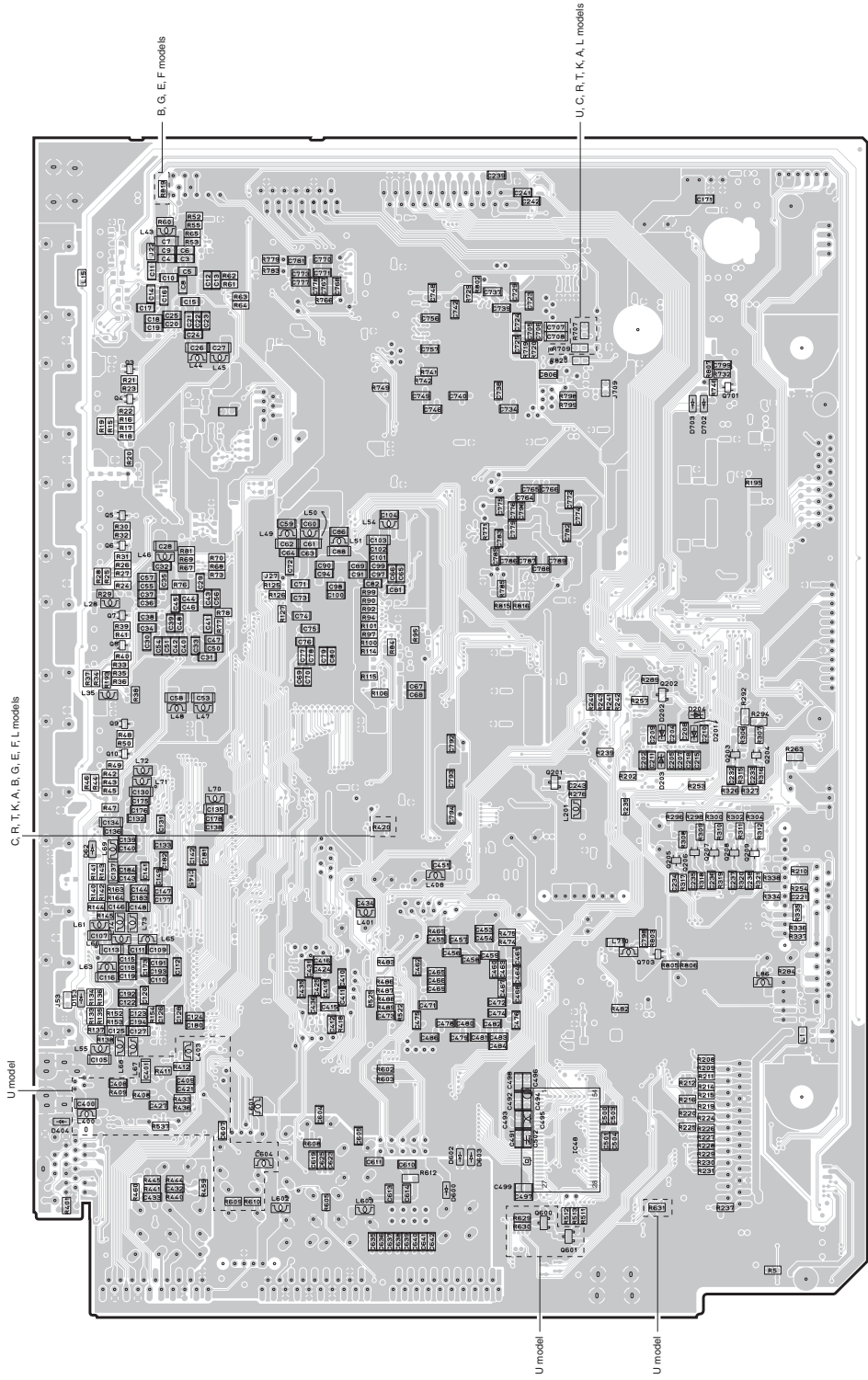
POINT ⑤ XL70 (Pin 80 of IC70)



POINT ⑦ XL42 (Pin 29 of IC41)



DIGITAL (1) P.C.B. (Side B)

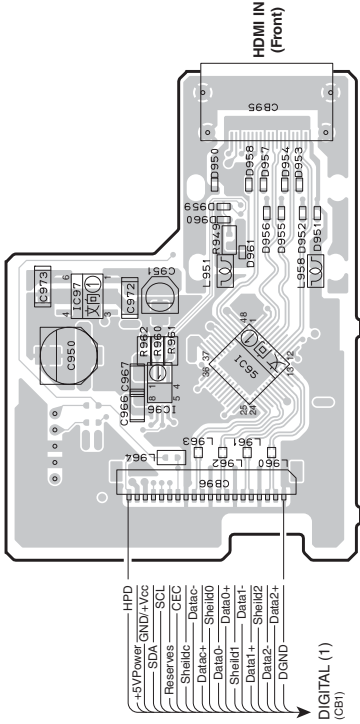


• Semiconductor Location

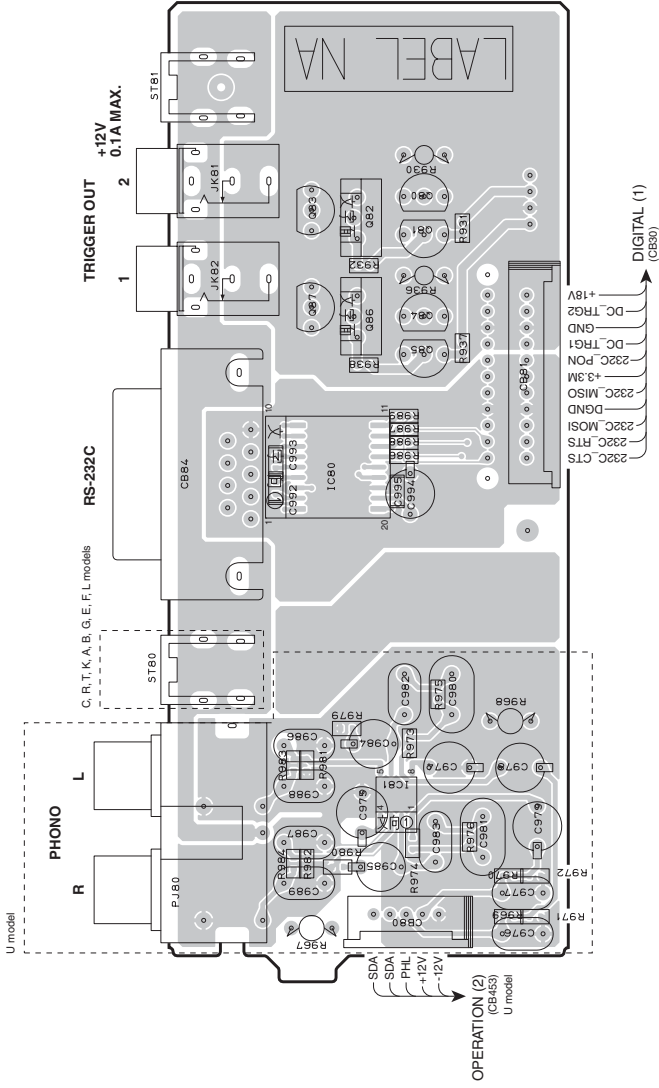
| Ref no. | Location |
|---------|----------|
| D62     | D2       |
| D153    | D2       |
| D201    | E5       |
| D202    | E5       |
| D203    | E5       |
| D204    | E6       |
| D404    | C2       |
| D600    | C4       |
| D602    | C4       |
| D603    | C4       |
| D702    | G6       |
| D703    | G5       |
| IC48    | C5       |
| Q3      | G3       |
| Q4      | G3       |
| Q5      | F3       |
| Q6      | F3       |
| Q7      | F3       |
| Q8      | E3       |
| Q9      | E3       |
| Q10     | E3       |
| Q201    | E5       |
| Q202    | E5       |
| Q203    | E6       |
| Q204    | E6       |
| Q205    | D5       |
| Q206    | D5       |
| Q207    | D6       |
| Q208    | D6       |
| Q209    | D6       |
| Q600    | B5       |
| Q601    | B5       |
| Q701    | G6       |
| Q703    | B5       |

1

DIGITAL (2) P.C.B. (Side A)



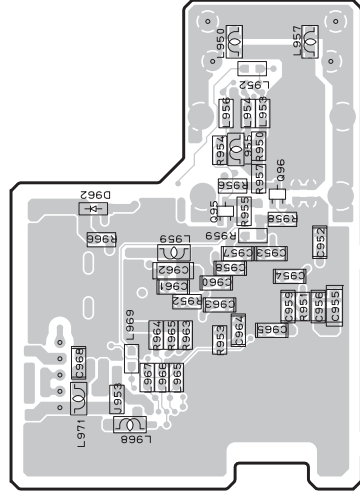
DIGITAL (3) P.C.B. (Side A)



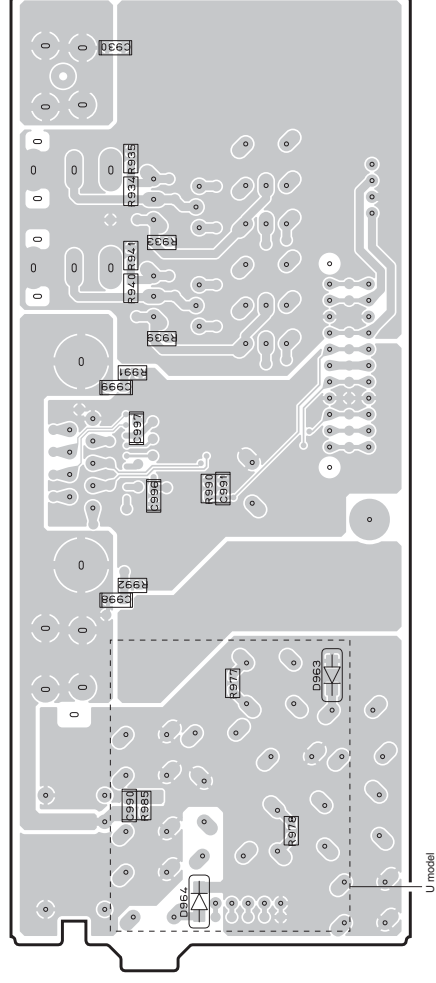
• Semiconductor Location

| Ref no. | Location | Ref no. | Location |
|---------|----------|---------|----------|
| D950    | D4       | IC81    | F4       |
| D951    | D4       | IC95    | C4       |
| D952    | D4       | IC96    | C4       |
| D953    | D4       | IC97    | D3       |
| D954    | D4       | Q80     | I4       |
| D955    | D4       | Q81     | I4       |
| D956    | D4       | Q82     | I4       |
| D957    | D4       | Q83     | I4       |
| D958    | D4       | Q84     | I4       |
| D959    | D4       | Q85     | I4       |
| D960    | D4       | Q86     | I4       |
| D961    | D4       | Q87     | I4       |
| IC80    | H4       |         |          |

**DIGITAL (2) P.C.B.**



**DIGITAL (3) P.C.B.**

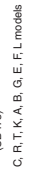


U model

- Semiconductor Location

| Ref no. | Location |
|---------|----------|
| D962    | C3       |
| D963    | G4       |
| D964    | F4       |
| Q95     | C4       |
| Q96     | C4       |

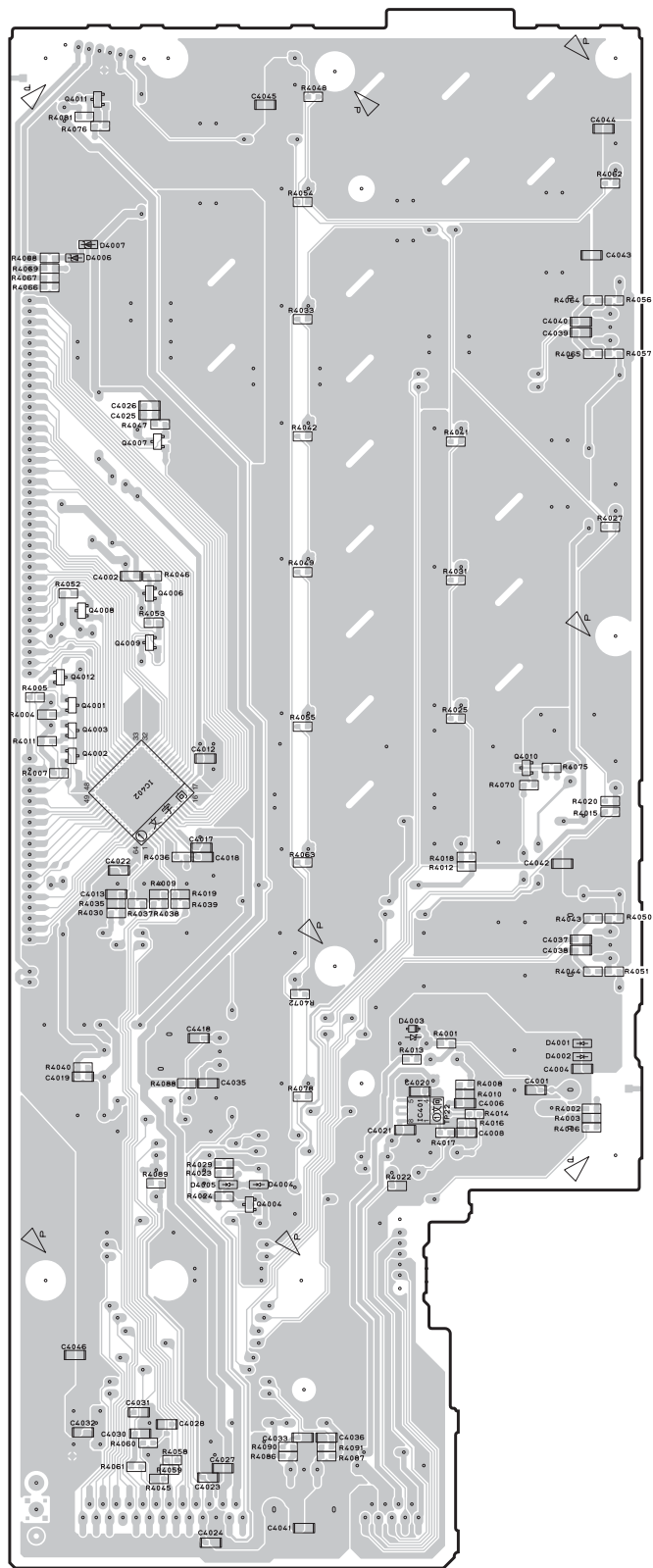
### OPERATION (1) P.C.B.



| Ref no. | Location |
|---------|----------|
| D4008   | F5       |
| D4009   | I3       |
| D4011   | D3       |
| Q4005   | D3       |



### OPERATION (1) P.C.B.



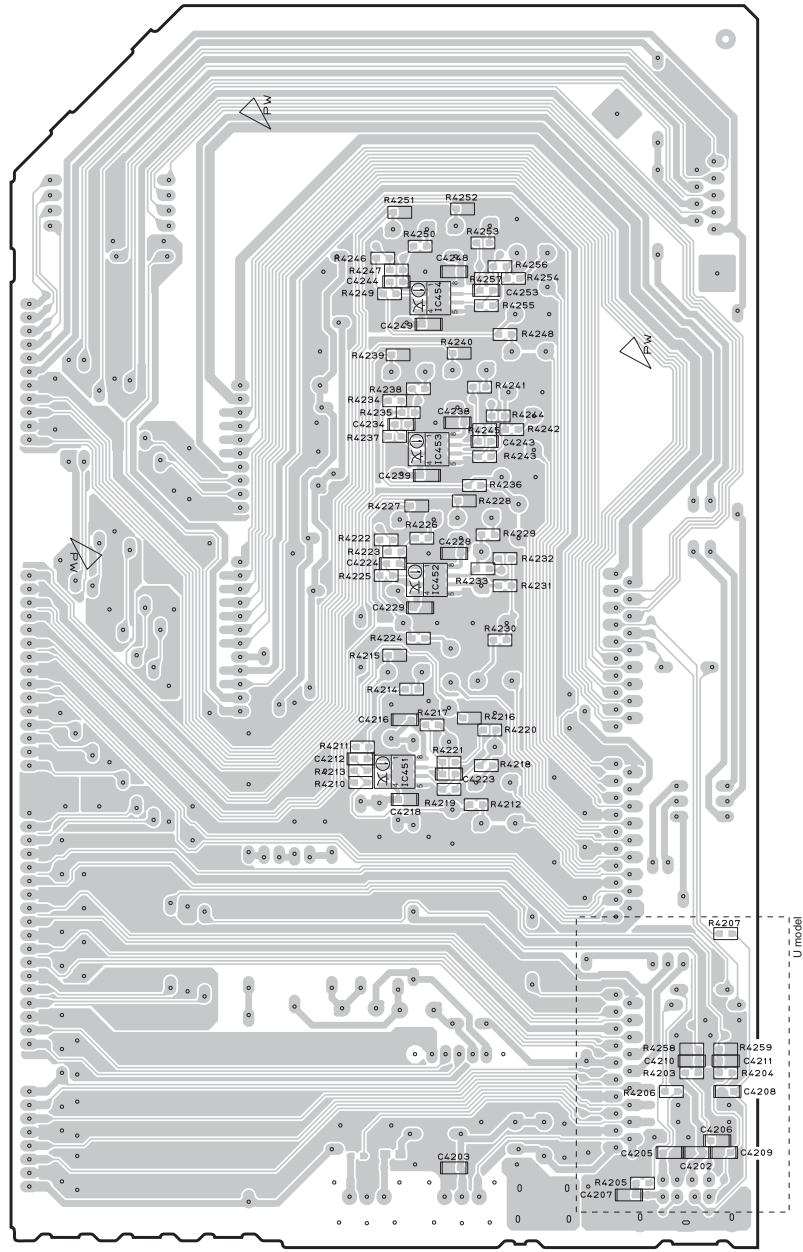
- Semiconductor Location

| Ref no. | Location |
|---------|----------|
| D4001   | D5       |
| D4002   | D5       |
| D4003   | D4       |
| D4004   | C4       |
| D4005   | C4       |
| D4006   | H3       |
| D4007   | H3       |
| IC401   | D5       |
| IC402   | E3       |
| Q4001   | F3       |
| Q4002   | F3       |
| Q4003   | F3       |
| Q4004   | C4       |
| Q4006   | F3       |
| Q4007   | G3       |
| Q4008   | F3       |
| Q4009   | F3       |
| Q4010   | E5       |
| Q4011   | I3       |
| Q4012   | F3       |





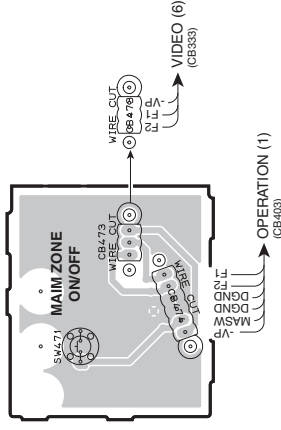
**OPERATION (2) P.C.B.**



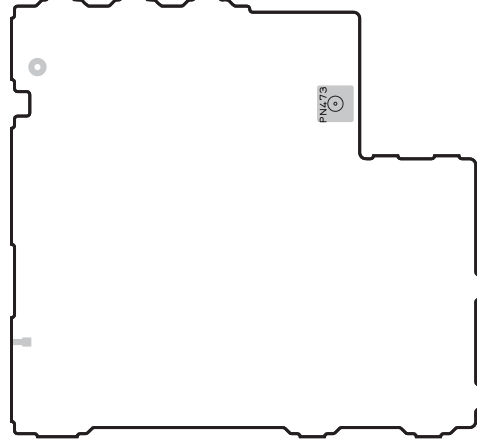
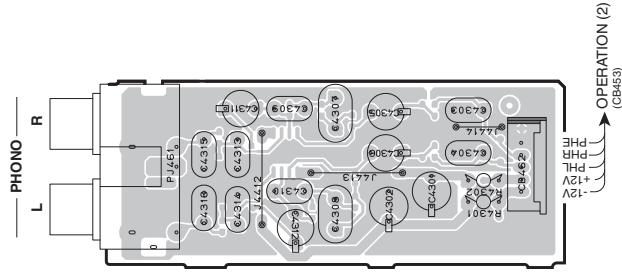
- Semiconductor Location

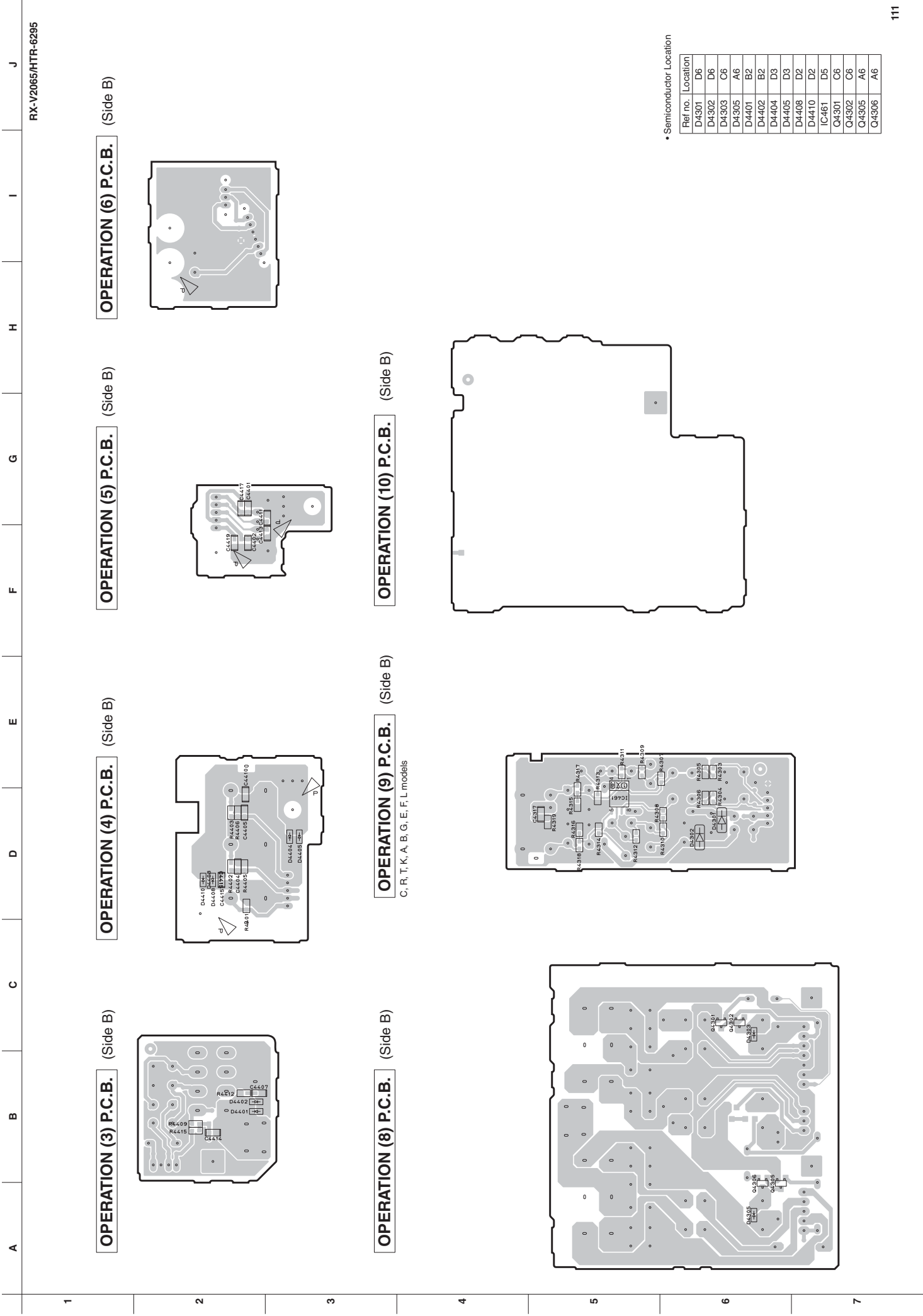
| Ref no. | Location |
|---------|----------|
| IC451   | E4       |
| IC452   | F4       |
| IC453   | F4       |
| IC454   | G4       |

(Side A)



(Side A)





• Semiconductor Location

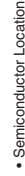
| Ref no. | Location |
|---------|----------|
| D4301   | D6       |
| D4302   | D6       |
| D4303   | C6       |
| D4305   | A6       |
| D4401   | B2       |
| D4402   | B2       |
| D4404   | D3       |
| D4405   | D3       |
| D4408   | D2       |
| D4410   | D2       |
| IC461   | D5       |
| Q4301   | C6       |
| Q4302   | C6       |
| Q4305   | A6       |
| Q4506   | A6       |

— AV1 — AV2 — AV3 — AV4 — AV5 — AV6 — AV — AUDIO1 - AUDIO2 — MULTI CH INPUT — AUDIO — ZONE2 — ZONE3 — PRE OUT  
OUT OUT OUT OUT OUT

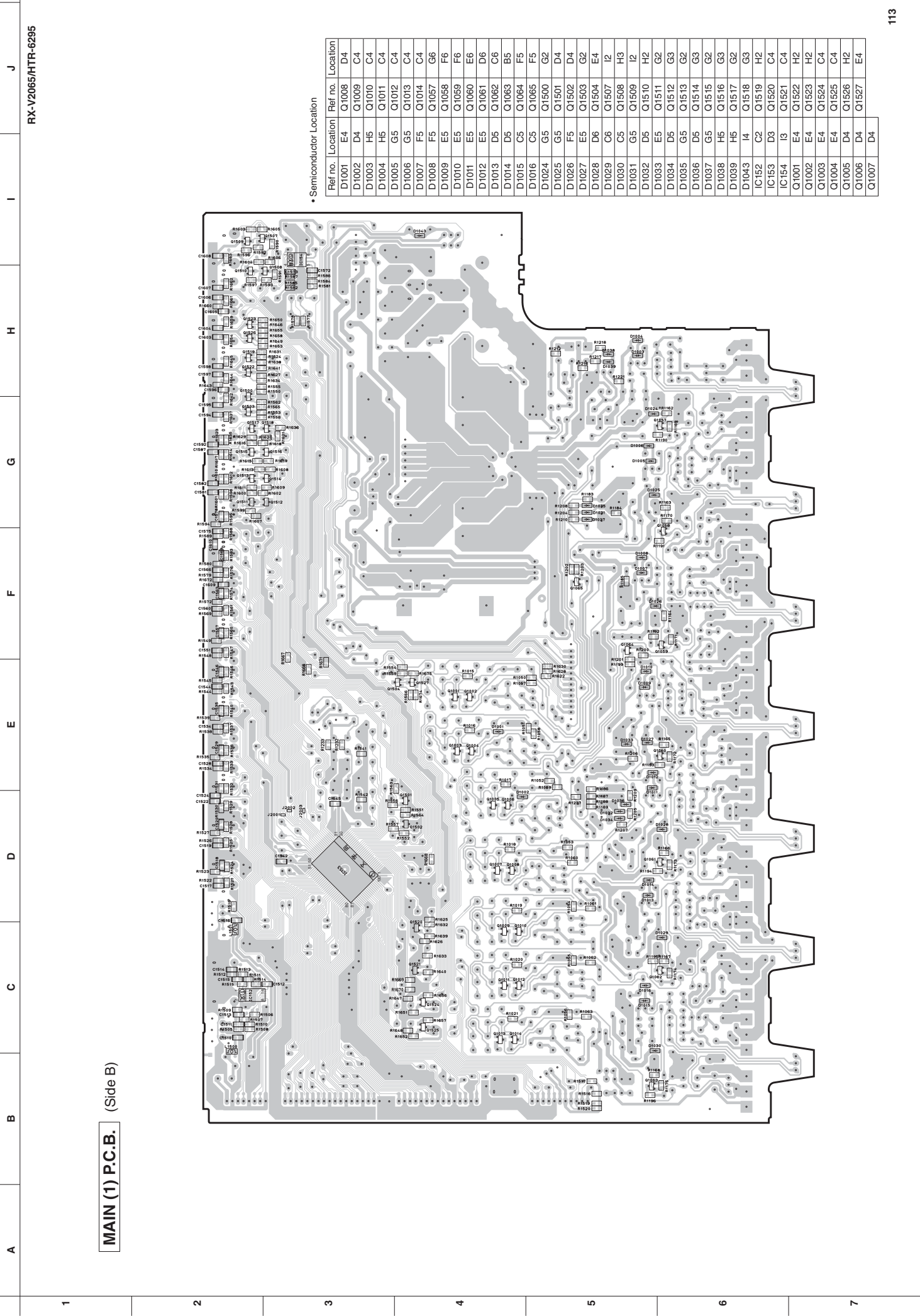
OPTICAL COAXIAL COAXIAL OPTICAL

FRONT SURROUND SUR. SUBWOOFER

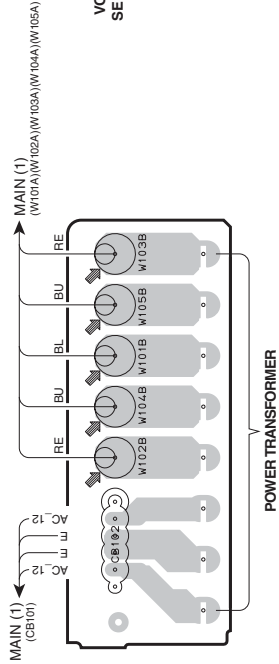
FRONT SURROUND SUR. SUBWOOFER



|         |          |         |          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|---------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Ref no. | Location | Ref no. | Location | Q1053A | Q1053C | Q1053E | Q1053G | Q1053I | Q1053K | Q1053M | Q1053O | Q1053Q | Q1053S | Q1053U | Q1053W | Q1053Y | Q1053A | Q1053C | Q1053E | Q1053G | Q1053I | Q1053K | Q1053M | Q1053O | Q1053Q | Q1053S | Q1053U | Q1053W | Q1053Y |
| D1017   | H6       | IC102   | G3       | Q1053C | Q1053E | Q1053G | Q1053I | Q1053K | Q1053M | Q1053O | Q1053Q | Q1053S | Q1053U | Q1053W | Q1053Y | Q1053A | Q1053C | Q1053E | Q1053G | Q1053I | Q1053K | Q1053M | Q1053O | Q1053Q | Q1053S | Q1053U | Q1053W | Q1053Y |        |
| D1018   | G6       | Q1015   | E5       | Q1054A | Q1054C | Q1054E | Q1054G | Q1054I | Q1054K | Q1054M | Q1054O | Q1054Q | Q1054S | Q1054U | Q1054W | Q1054Y | Q1054A | Q1054C | Q1054E | Q1054G | Q1054I | Q1054K | Q1054M | Q1054O | Q1054Q | Q1054S | Q1054U | Q1054W | Q1054Y |
| D1019   | F6       | Q1016   | E5       | Q1054C | Q1054E | Q1054G | Q1054I | Q1054K | Q1054M | Q1054O | Q1054Q | Q1054S | Q1054U | Q1054W | Q1054Y | Q1054A | Q1054C | Q1054E | Q1054G | Q1054I | Q1054K | Q1054M | Q1054O | Q1054Q | Q1054S | Q1054U | Q1054W | Q1054Y |        |
| D1020   | E6       | Q1017   | D5       | Q1055A | Q1055C | Q1055E | Q1055G | Q1055I | Q1055K | Q1055M | Q1055O | Q1055Q | Q1055S | Q1055U | Q1055W | Q1055Y | Q1055A | Q1055C | Q1055E | Q1055G | Q1055I | Q1055K | Q1055M | Q1055O | Q1055Q | Q1055S | Q1055U | Q1055W | Q1055Y |
| D1021   | E6       | Q1018   | D5       | Q1055C | Q1055E | Q1055G | Q1055I | Q1055K | Q1055M | Q1055O | Q1055Q | Q1055S | Q1055U | Q1055W | Q1055Y | Q1055A | Q1055C | Q1055E | Q1055G | Q1055I | Q1055K | Q1055M | Q1055O | Q1055Q | Q1055S | Q1055U | Q1055W | Q1055Y |        |
| D1022   | D6       | Q1019   | C5       | Q1056A | Q1056C | Q1056E | Q1056G | Q1056I | Q1056K | Q1056M | Q1056O | Q1056Q | Q1056S | Q1056U | Q1056W | Q1056Y | Q1056A | Q1056C | Q1056E | Q1056G | Q1056I | Q1056K | Q1056M | Q1056O | Q1056Q | Q1056S | Q1056U | Q1056W | Q1056Y |
| D1023   | C6       | Q1020   | C5       | Q1056C | Q1056E | Q1056G | Q1056I | Q1056K | Q1056M | Q1056O | Q1056Q | Q1056S | Q1056U | Q1056W | Q1056Y | Q1056A | Q1056C | Q1056E | Q1056G | Q1056I | Q1056K | Q1056M | Q1056O | Q1056Q | Q1056S | Q1056U | Q1056W | Q1056Y |        |
| D1040   | H4       | Q1021   | C5       | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  | Q1067  |        |
| D1041   | H3       | Q1022   | H7       | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  | Q1068  |        |
| D1042   | B5       | Q1023   | G7       | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  | Q1069  |        |
| D1044   | F6       | Q1024   | F7       | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  | Q1070  |        |
| D1045   | F6       | Q1025   | E7       | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  | Q1071  |        |
| D1501   | E3       | Q1026   | D7       | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  | Q1072  |        |
| F1502   | E2       | Q1027   | C7       | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  | Q1073  |        |
| IC101   | F4       | Q1028   | B7       | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  | Q1074  |        |

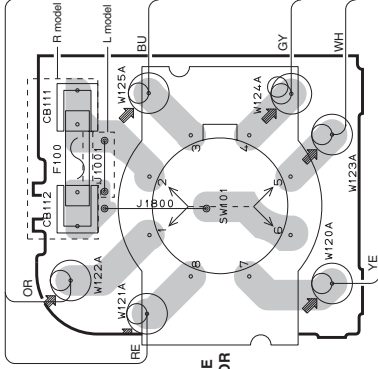


MAIN (2) P.C.B. (Side A)



MAIN (3) P.C.B. (Side A)

R, L models

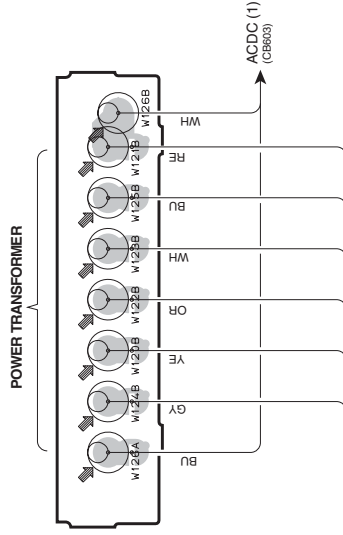


VOLTAGE SELECTOR

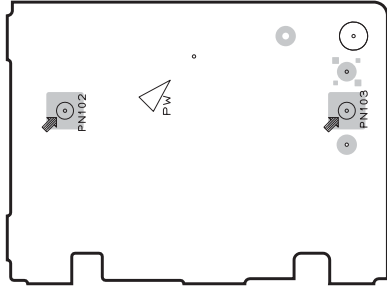
| 230-240V | 1-2/5-6           |
|----------|-------------------|
| 220V     | 2-3/6-7           |
| 110V     | 3-4/7-8 (R model) |
| 120V     | 4-5/8-1 (R model) |

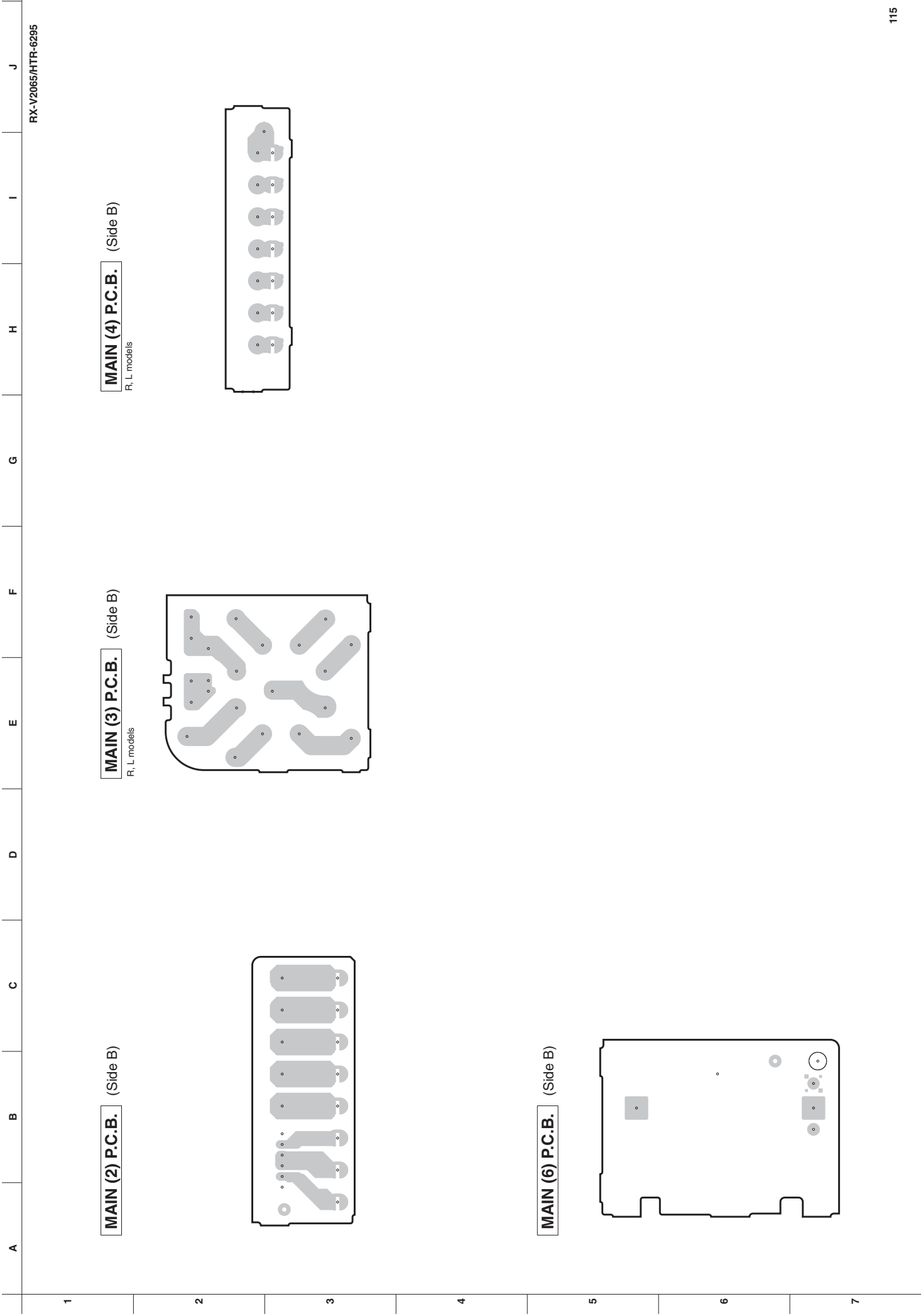
MAIN (4) P.C.B. (Side A)

R, L models



MAIN (6) P.C.B. (Side A)





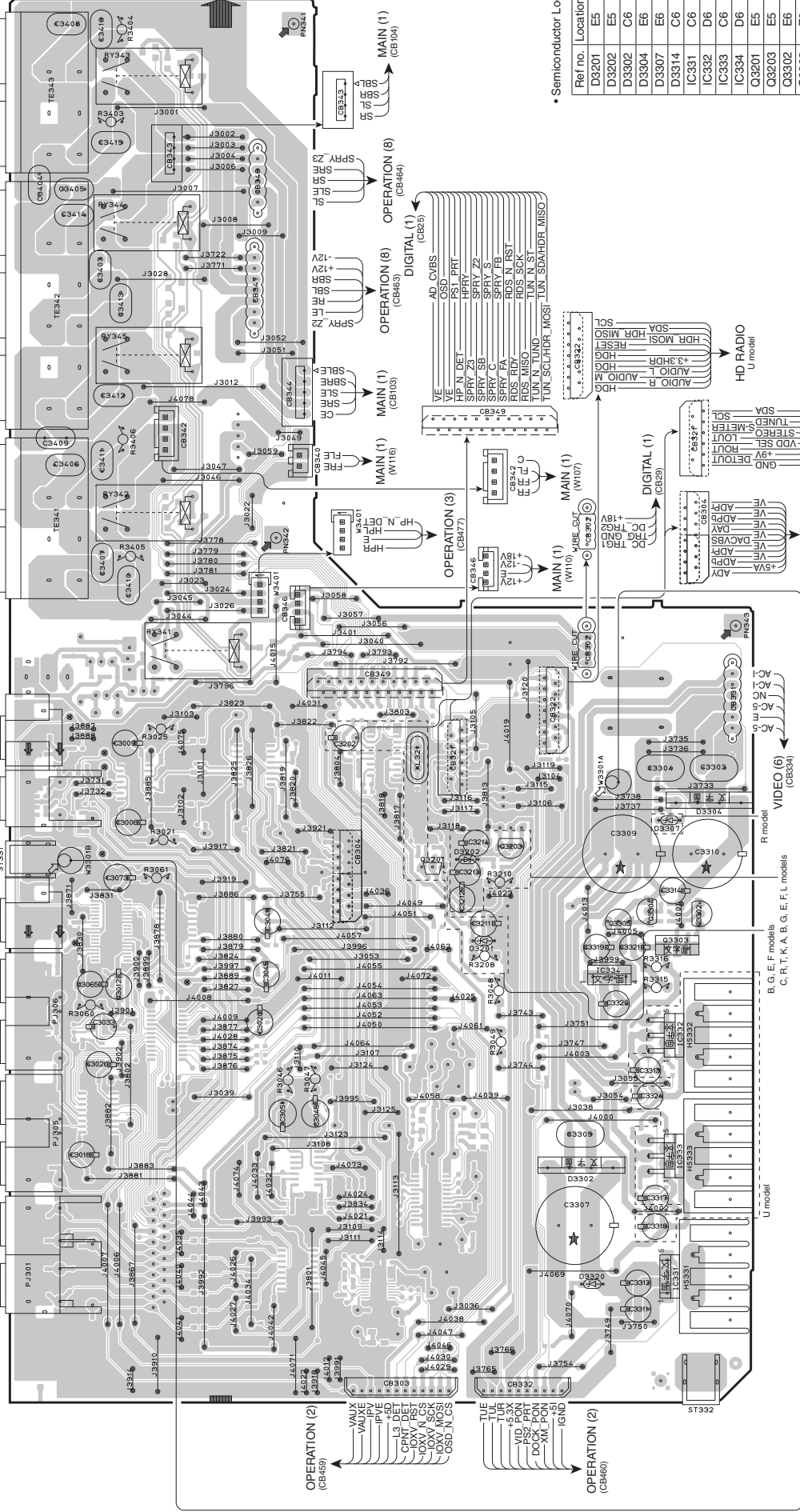


## VIDEO (1) P.C.B. (Side A)

— COMPONENT VIDEO — VIDEO — MONITOR OUT —  
 AV1 AV2 AV3 AV4 AV5 AV6 AV OUT  
 P/Pb/Y P/Pb/Y P/Pb/Y P/Pb/Y P/Pb/Y P/Pb/Y

## SPEAKERS

R FRONT L CENTER R SURROUND L R SURROUND BACK/ L  
 +/- +/- +/- +/- +/- +/- BI-AMP +/-



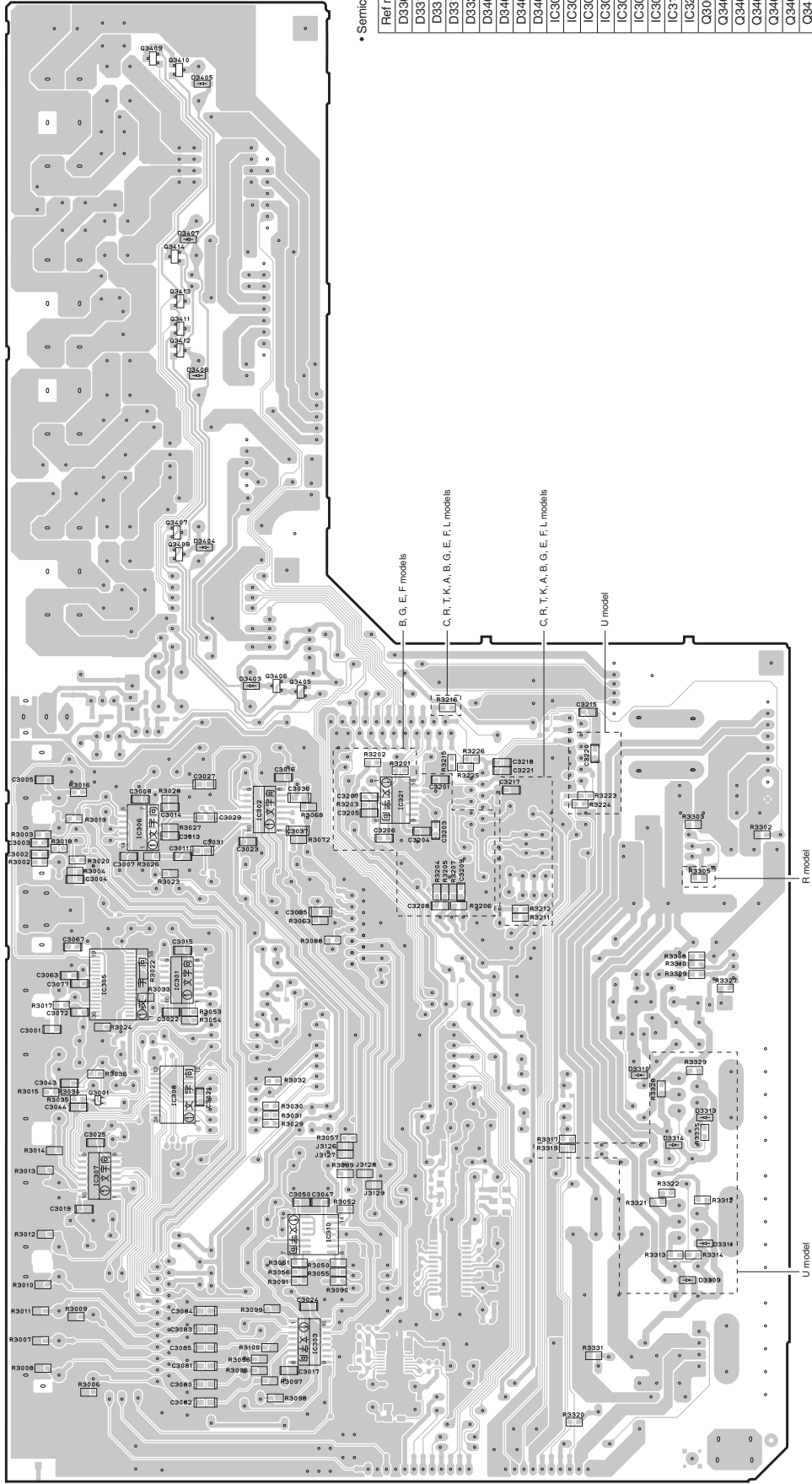
## Semiconductor Location

| Ref no. | Location |
|---------|----------|
| D3201   | E5       |
| D3202   | E5       |
| D3302   | C6       |
| D3304   | E6       |
| D3307   | E6       |
| D3314   | C6       |
| IC331   | C6       |
| IC332   | D6       |
| IC333   | C6       |
| IC334   | D6       |
| Q3201   | E5       |
| Q3202   | E5       |
| Q3302   | E6       |
| Q3303   | E6       |
| Q3304   | E6       |
| Q3305   | E6       |

C, R, T, K, A, B, G, E, F, L models



VIDEO (1) P.C.B. (Side B)

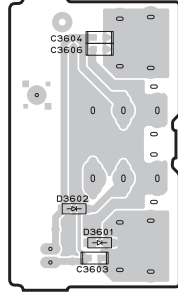


• Semiconductor Location

| Ref no. | Location |
|---------|----------|
| D3309   | B6       |
| D3310   | D6       |
| D3311   | C6       |
| D3313   | C6       |
| D3320   | F4       |
| D3403   | G3       |
| D3404   | I3       |
| D3405   | H3       |
| IC301   | D3       |
| IC302   | E4       |
| IC303   | B4       |
| IC305   | D3       |
| IC306   | E3       |
| IC307   | C3       |
| IC308   | C3       |
| IC310   | C4       |
| IC321   | E4       |
| Q3001   | C3       |
| Q3405   | F4       |
| Q3406   | F4       |
| Q3407   | G3       |
| Q3408   | G3       |
| Q3409   | I3       |
| Q3410   | I3       |
| Q3411   | H3       |
| Q3412   | H3       |
| Q3413   | H3       |
| Q3414   | H3       |

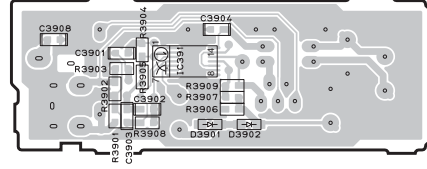


**VIDEO (4) P.C.B.**



**VIDEO (9) P.C.B.**

B, G, E, F models



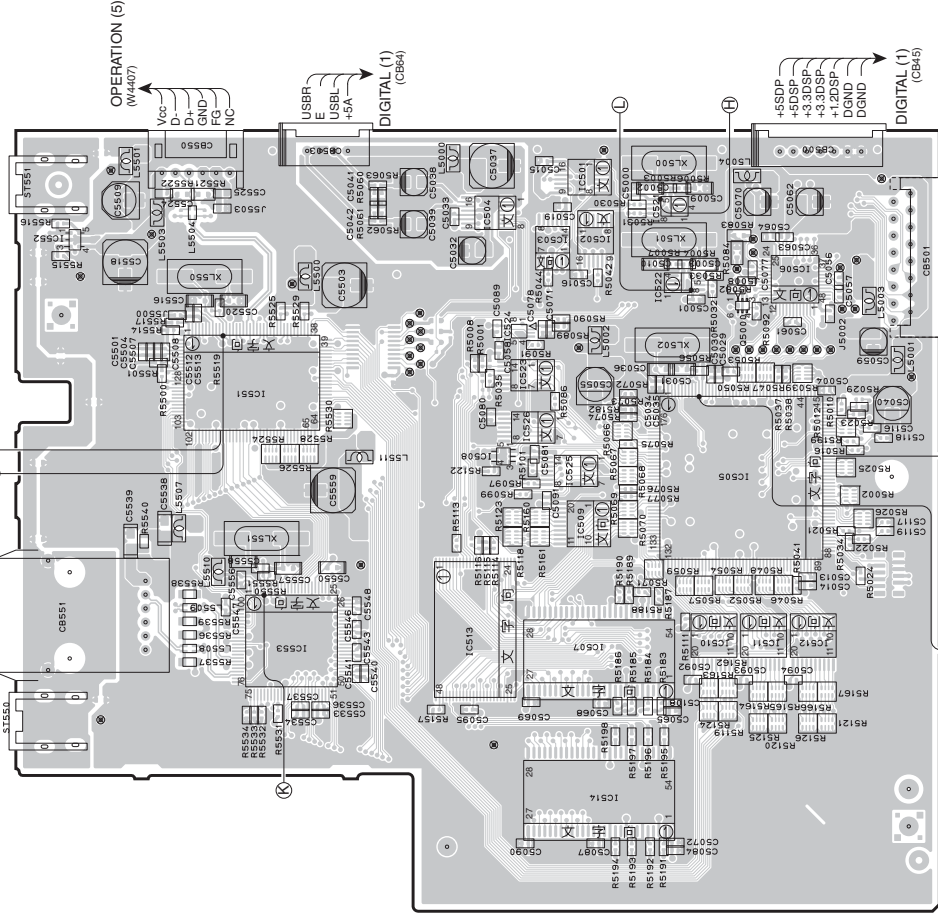
- Semiconductor Location

| Ref no. | Location |
|---------|----------|
| D3601   | H2       |
| D3602   | H2       |
| D3801   | D3       |
| D3802   | D3       |
| D3803   | D3       |
| D3804   | D3       |
| D3805   | D3       |
| D3901   | H6       |
| D3902   | H6       |
| IC391   | H6       |
| Q3803   | D3       |

GUI P.C.B. (Side A)

NETWORK

No replacement part available.

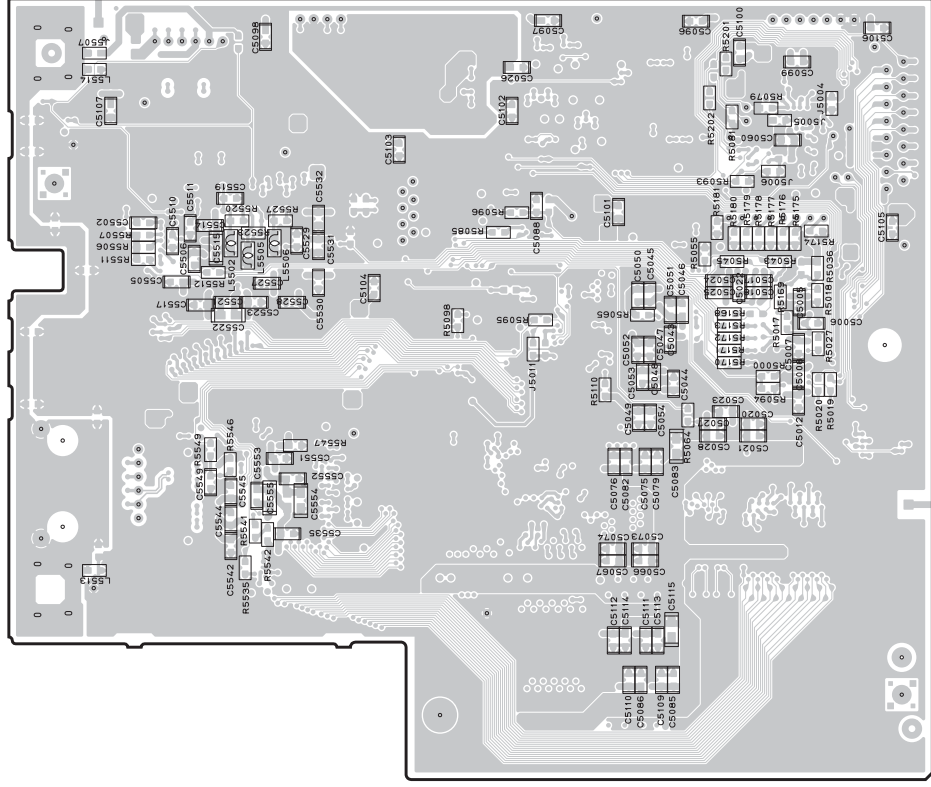


No replacement part available.

- SCPU\_N\_RST
- SCPU\_CTS
- SCPU\_SCK
- SCPU\_RST
- IPD\_MISO\_BF
- SCPU\_MISO\_BF
- SCPU\_MISO\_BF
- HDMI\_SCL
- HDMI\_SDA
- VE
- GUI\_CBS\_SY
- VE
- GUI\_SC

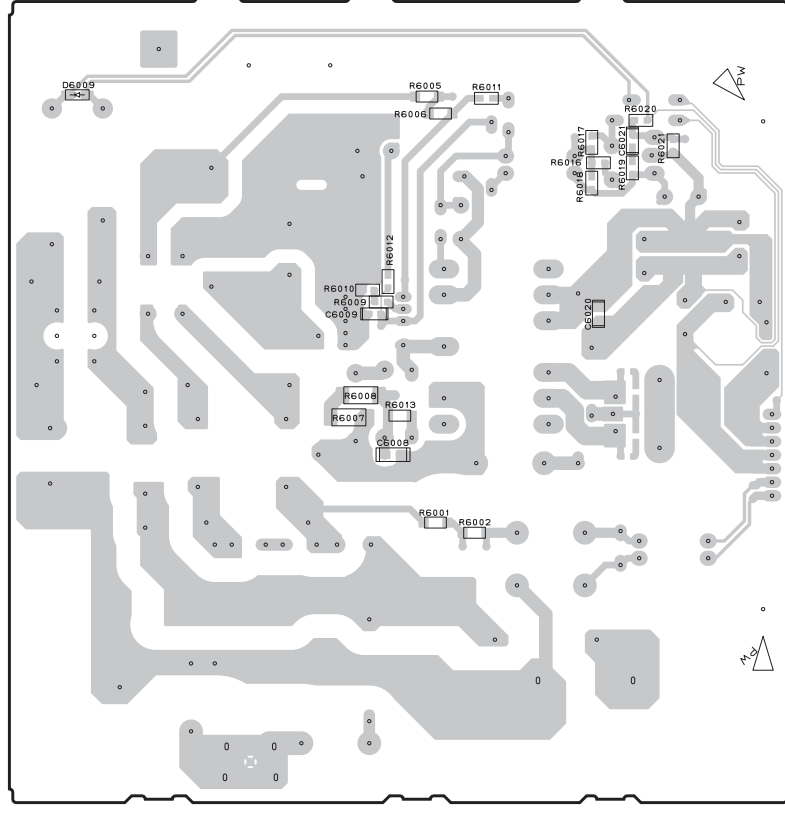
DIGITAL (1)  
(CB28)

GUI P.C.B. (Side B)



• Semiconductor Location

| Ref no. | Location | Ref no. | Location | Ref no. | Location |
|---------|----------|---------|----------|---------|----------|
| IC501   | D4       | IC509   | C4       | IC523   | C4       |
| IC502   | D4       | IC510   | B5       | IC524   | D4       |
| IC503   | D4       | IC511   | B5       | IC525   | C4       |
| IC504   | D4       | IC512   | B5       | IC526   | C4       |
| IC505   | C5       | IC513   | B4       | IC551   | C3       |
| IC506   | D5       | IC514   | A4       | IC552   | D2       |
| IC507   | B4       | IC521   | D5       | IC553   | B3       |
| IC508   | C4       | IC522   | D5       | Q5000   | D5       |



| Ref no. | Location |
|---------|----------|
| D6001   | D3       |
| D6002   | E4       |
| D6003   | C4       |
| D6004   | D4       |
| D6005   | C4       |
| D6006   | D4       |
| D6007   | C5       |
| D6008   | C5       |
| D6009   | J2       |
| IC601   | D4       |
| IC602   | E4       |
| IC603   | E5       |
| IC604   | C5       |

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| RX-V2065/HTR-6295 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |
|-------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| A                 | B | C                                                                                                                                                                                | D | E | F | G | H | I | J |
| 1                 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |
| 2                 |   | <div>ACDC (2) P.C.B. (Side A)</div> <div>U, C, T, K, A, B, G, E, F models</div> <div><p>POWER TRANSFORMER</p><p>W6001B</p><p>W6002B</p><p>ACDC (1)<br/>(W6001A/W6002A)</p></div> |   |   |   |   |   |   |   |
| 3                 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |
| 4                 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |
| 5                 |   | <div>ACDC (3) P.C.B. (Side A)</div> <div></div>                                                                                                                                  |   |   |   |   |   |   |   |
| 6                 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |
| 7                 |   |                                                                                                                                                                                  |   |   |   |   |   |   |   |

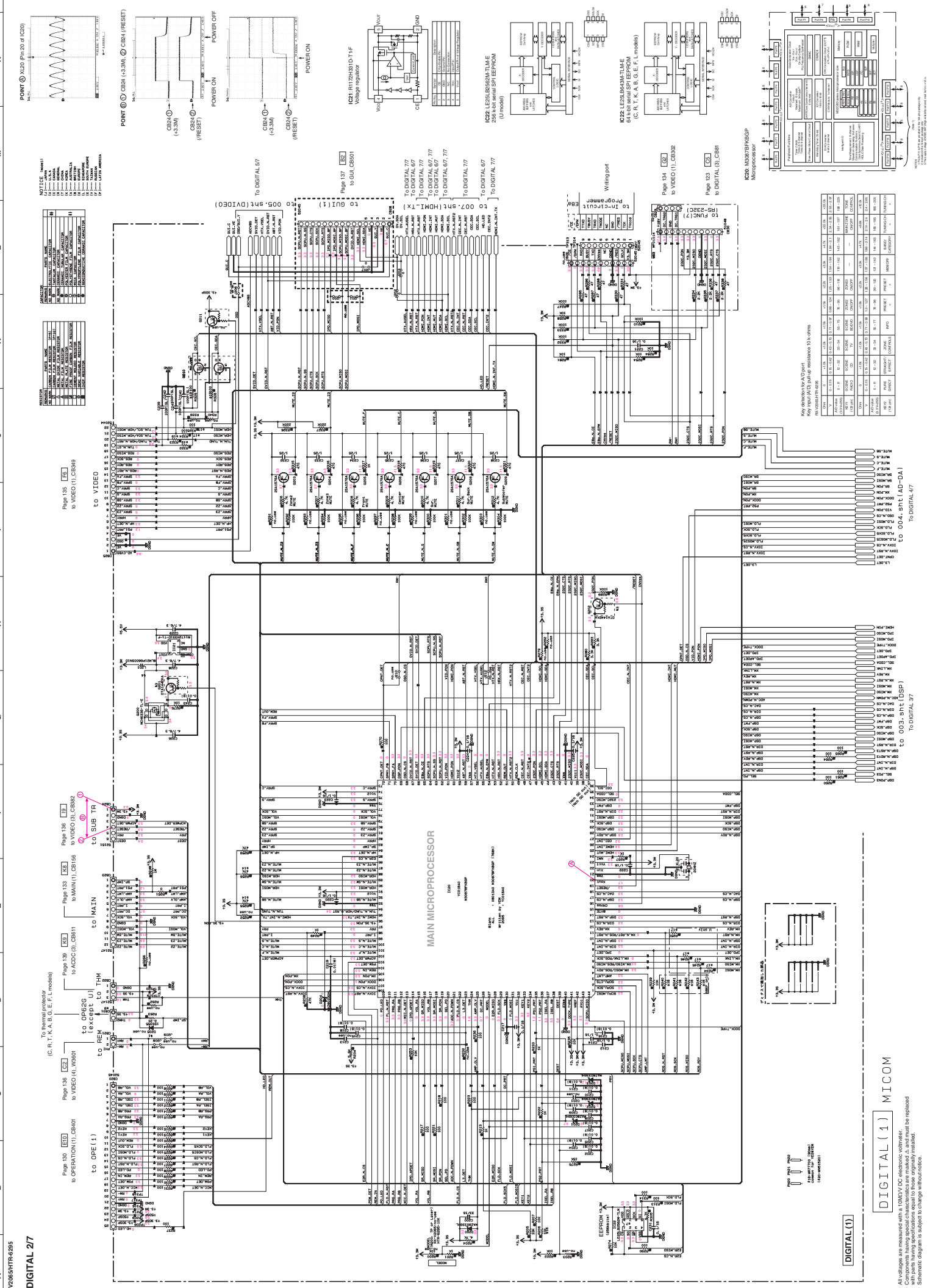
• Semiconductor Location

| Ref no. | Location |
|---------|----------|
| IC611   | C6       |

122







DIGITAL (1) M1COM

DIGITAL (1) M1COM

DIGITAL (1) M1COM

DIGITAL (1) M1COM

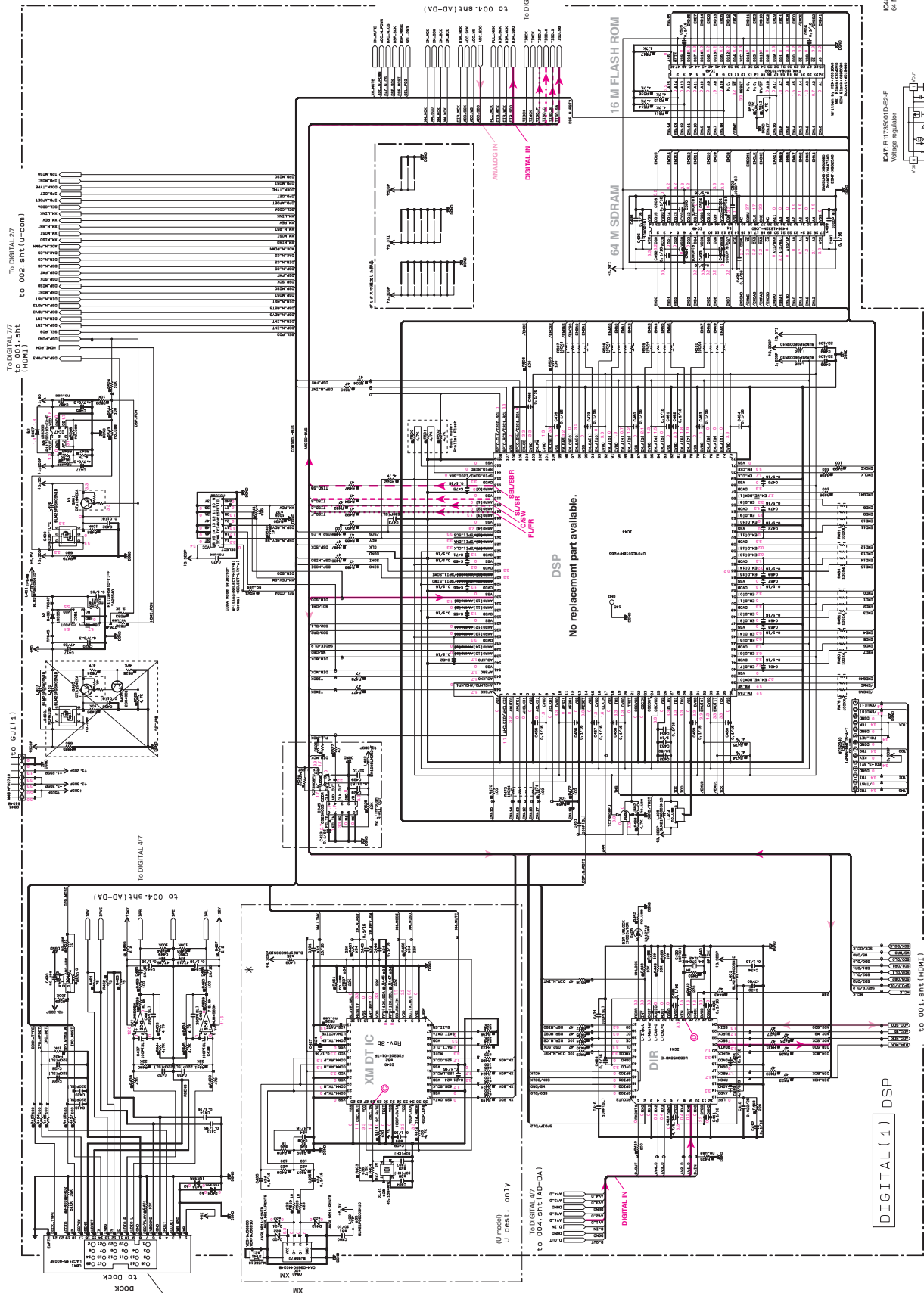
DIGITAL (1) M1COM

All voltages are measured with a 100V DC electronic voltmeter.

Components having special characteristics are marked A, and must be replaced with components having the same characteristics.

Schematic diagram is subject to change without notice.





to 001. snt (HOM1)

to 004. snt (AD-0A)

to 004. snt (AD-0A)

to 004. snt (AD-0A)

to 004. snt (AD-0A)

to 004. snt (AD-0A)

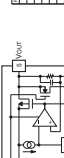
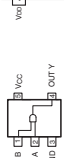
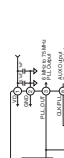
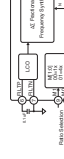
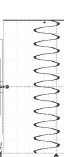
to 004. snt (AD-0A)

to 004. snt (AD-0A)

to 004. snt (AD-0A)

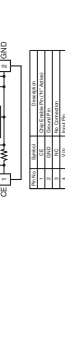
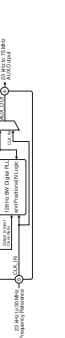
to 004. snt (AD-0A)

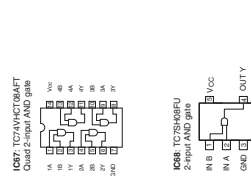
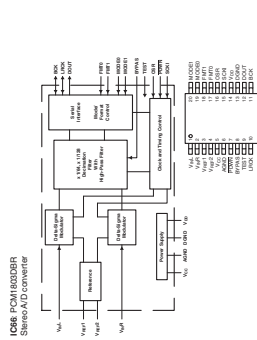
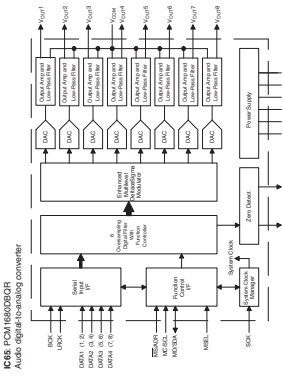
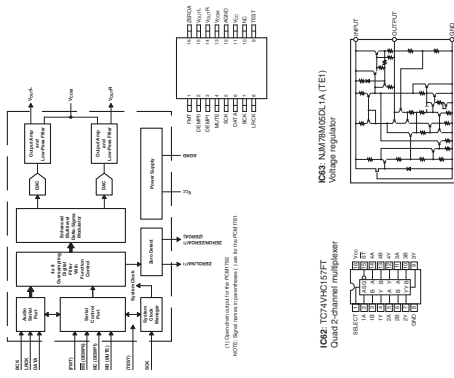
to 004. snt (AD-0A)



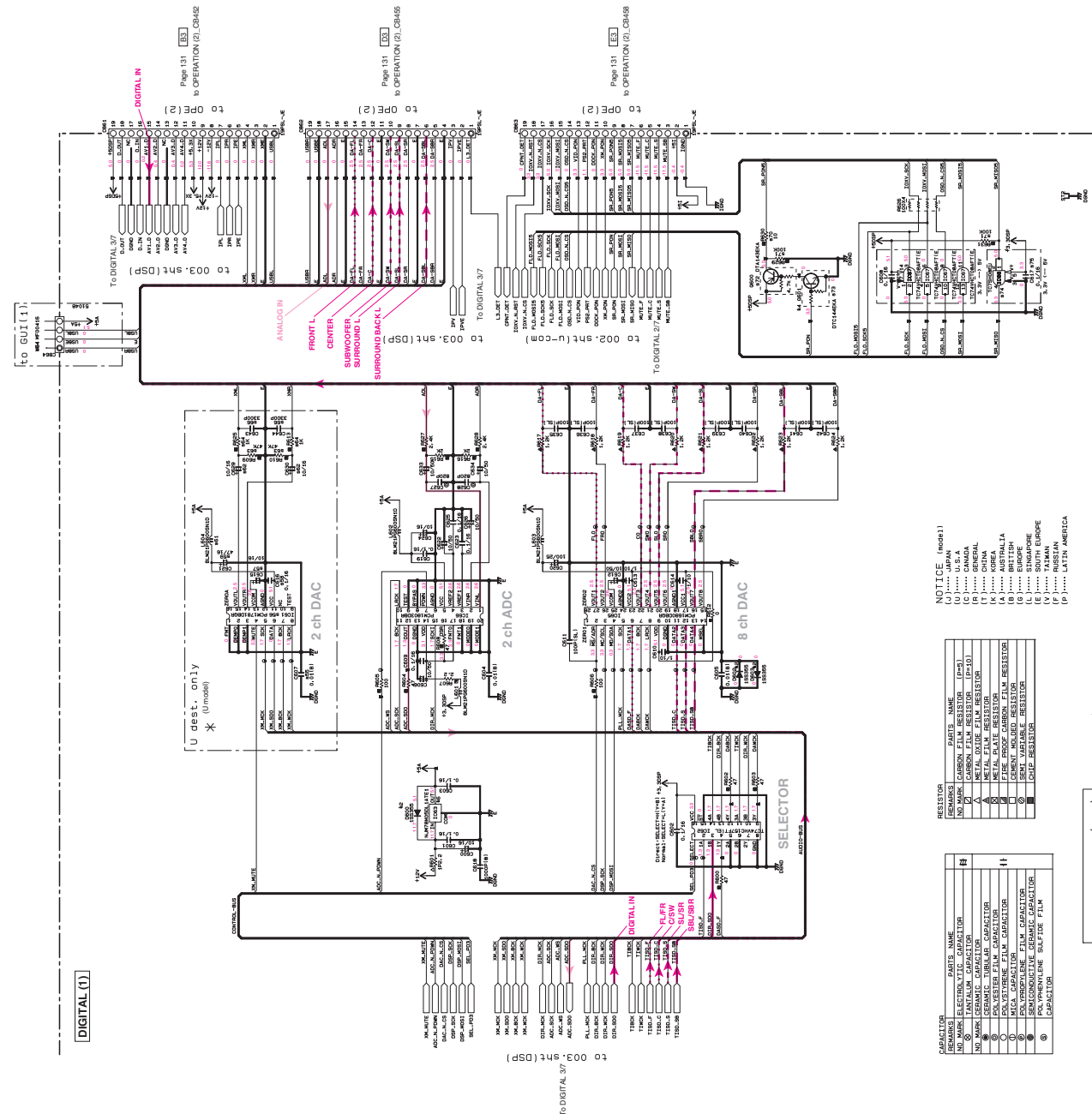
NOTICE

| ITEM | REVISION | DATE       | DESCRIPTION     |
|------|----------|------------|-----------------|
| 1    | 1.0      | 2000.01.10 | INITIAL RELEASE |
| 2    | 1.1      | 2000.02.10 | REVISION 1.1    |
| 3    | 1.2      | 2000.03.10 | REVISION 1.2    |
| 4    | 1.3      | 2000.04.10 | REVISION 1.3    |
| 5    | 1.4      | 2000.05.10 | REVISION 1.4    |
| 6    | 1.5      | 2000.06.10 | REVISION 1.5    |
| 7    | 1.6      | 2000.07.10 | REVISION 1.6    |
| 8    | 1.7      | 2000.08.10 | REVISION 1.7    |
| 9    | 1.8      | 2000.09.10 | REVISION 1.8    |
| 10   | 1.9      | 2000.10.10 | REVISION 1.9    |
| 11   | 1.10     | 2000.11.10 | REVISION 1.10   |
| 12   | 1.11     | 2000.12.10 | REVISION 1.11   |
| 13   | 1.12     | 2001.01.10 | REVISION 1.12   |
| 14   | 1.13     | 2001.02.10 | REVISION 1.13   |
| 15   | 1.14     | 2001.03.10 | REVISION 1.14   |
| 16   | 1.15     | 2001.04.10 | REVISION 1.15   |
| 17   | 1.16     | 2001.05.10 | REVISION 1.16   |
| 18   | 1.17     | 2001.06.10 | REVISION 1.17   |
| 19   | 1.18     | 2001.07.10 | REVISION 1.18   |
| 20   | 1.19     | 2001.08.10 | REVISION 1.19   |
| 21   | 1.20     | 2001.09.10 | REVISION 1.20   |
| 22   | 1.21     | 2001.10.10 | REVISION 1.21   |
| 23   | 1.22     | 2001.11.10 | REVISION 1.22   |
| 24   | 1.23     | 2001.12.10 | REVISION 1.23   |
| 25   | 1.24     | 2002.01.10 | REVISION 1.24   |
| 26   | 1.25     | 2002.02.10 | REVISION 1.25   |
| 27   | 1.26     | 2002.03.10 | REVISION 1.26   |
| 28   | 1.27     | 2002.04.10 | REVISION 1.27   |
| 29   | 1.28     | 2002.05.10 | REVISION 1.28   |
| 30   | 1.29     | 2002.06.10 | REVISION 1.29   |
| 31   | 1.30     | 2002.07.10 | REVISION 1.30   |
| 32   | 1.31     | 2002.08.10 | REVISION 1.31   |
| 33   | 1.32     | 2002.09.10 | REVISION 1.32   |
| 34   | 1.33     | 2002.10.10 | REVISION 1.33   |
| 35   | 1.34     | 2002.11.10 | REVISION 1.34   |
| 36   | 1.35     | 2002.12.10 | REVISION 1.35   |
| 37   | 1.36     | 2003.01.10 | REVISION 1.36   |
| 38   | 1.37     | 2003.02.10 | REVISION 1.37   |
| 39   | 1.38     | 2003.03.10 | REVISION 1.38   |
| 40   | 1.39     | 2003.04.10 | REVISION 1.39   |
| 41   | 1.40     | 2003.05.10 | REVISION 1.40   |
| 42   | 1.41     | 2003.06.10 | REVISION 1.41   |
| 43   | 1.42     | 2003.07.10 | REVISION 1.42   |
| 44   | 1.43     | 2003.08.10 | REVISION 1.43   |
| 45   | 1.44     | 2003.09.10 | REVISION 1.44   |
| 46   | 1.45     | 2003.10.10 | REVISION 1.45   |
| 47   | 1.46     | 2003.11.10 | REVISION 1.46   |
| 48   | 1.47     | 2003.12.10 | REVISION 1.47   |
| 49   | 1.48     | 2004.01.10 | REVISION 1.48   |
| 50   | 1.49     | 2004.02.10 | REVISION 1.49   |
| 51   | 1.50     | 2004.03.10 | REVISION 1.50   |
| 52   | 1.51     | 2004.04.10 | REVISION 1.51   |
| 53   | 1.52     | 2004.05.10 | REVISION 1.52   |
| 54   | 1.53     | 2004.06.10 | REVISION 1.53   |
| 55   | 1.54     | 2004.07.10 | REVISION 1.54   |
| 56   | 1.55     | 2004.08.10 | REVISION 1.55   |
| 57   | 1.56     | 2004.09.10 | REVISION 1.56   |
| 58   | 1.57     | 2004.10.10 | REVISION 1.57   |
| 59   | 1.58     | 2004.11.10 | REVISION 1.58   |
| 60   | 1.59     | 2004.12.10 | REVISION 1.59   |
| 61   | 1.60     | 2005.01.10 | REVISION 1.60   |
| 62   | 1.61     | 2005.02.10 | REVISION 1.61   |
| 63   | 1.62     | 2005.03.10 | REVISION 1.62   |
| 64   | 1.63     | 2005.04.10 | REVISION 1.63   |
| 65   | 1.64     | 2005.05.10 | REVISION 1.64   |
| 66   | 1.65     | 2005.06.10 | REVISION 1.65   |
| 67   | 1.66     | 2005.07.10 | REVISION 1.66   |
| 68   | 1.67     | 2005.08.10 | REVISION 1.67   |
| 69   | 1.68     | 2005.09.10 | REVISION 1.68   |
| 70   | 1.69     | 2005.10.10 | REVISION 1.69   |
| 71   | 1.70     | 2005.11.10 | REVISION 1.70   |
| 72   | 1.71     | 2005.12.10 | REVISION 1.71   |
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| 74   | 1.73     | 2006.02.10 | REVISION 1.73   |
| 75   | 1.74     | 2006.03.10 | REVISION 1.74   |
| 76   | 1.75     | 2006.04.10 | REVISION 1.75   |
| 77   | 1.76     | 2006.05.10 | REVISION 1.76   |
| 78   | 1.77     | 2006.06.10 | REVISION 1.77   |
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| 81   | 1.80     | 2006.09.10 | REVISION 1.80   |
| 82   | 1.81     | 2006.10.10 | REVISION 1.81   |
| 83   | 1.82     | 2006.11.10 | REVISION 1.82   |
| 84   | 1.83     | 2006.12.10 | REVISION 1.83   |
| 85   | 1.84     | 2007.01.10 | REVISION 1.84   |
| 86   | 1.85     | 2007.02.10 | REVISION 1.85   |
| 87   | 1.86     | 2007.03.10 | REVISION 1.86   |
| 88   | 1.87     | 2007.04.10 | REVISION 1.87   |
| 89   | 1.88     | 2007.05.10 | REVISION 1.88   |
| 90   | 1.89     | 2007.06.10 | REVISION 1.89   |
| 91   | 1.90     | 2007.07.10 | REVISION 1.90   |
| 92   | 1.91     | 2007.08.10 | REVISION 1.91   |
| 93   | 1.92     | 2007.09.10 | REVISION 1.92   |
| 94   | 1.93     | 2007.10.10 | REVISION 1.93   |
| 95   | 1.94     | 2007.11.10 | REVISION 1.94   |
| 96   | 1.95     | 2007.12.10 | REVISION 1.95   |
| 97   | 1.96     | 2008.01.10 | REVISION 1.96   |
| 98   | 1.97     | 2008.02.10 | REVISION 1.97   |
| 99   | 1.98     | 2008.03.10 | REVISION 1.98   |
| 100  | 1.99     | 2008.04.10 | REVISION 1.99   |
| 101  | 2.00     | 2008.05.10 | REVISION 2.00   |



[illegible]

| Part Number | Interchangeable Part Number | Part Name            | Stage |
|-------------|-----------------------------|----------------------|-------|
| 11          | 12-08                       | K496412300-100000    | 1     |
|             |                             | 94630000000000000000 |       |
|             | 0420-004-000-007            | 103000               |       |
|             | 7020-000-000                | 1000                 |       |
| 13          | 0201-1000-001               | D14440000            |       |
| 14          | 0001                        | D14440000            |       |
|             | 0001-000-000                | 010000000000000000   |       |
| 15          | 0001-000-000                | 010000000000000000   |       |
| 16          | 1000-000-000                | 010000000000000000   |       |
| 17          | 0000-000                    | 010000000000000000   |       |
| 18          | 1000-000                    | K496412300-100000    |       |
| 19          | 0000-000                    | K496412300-100000    |       |
| 20          | 0000-000                    | K496412300-100000    |       |
| 21          | 1000-000                    | K496412300-100000    |       |

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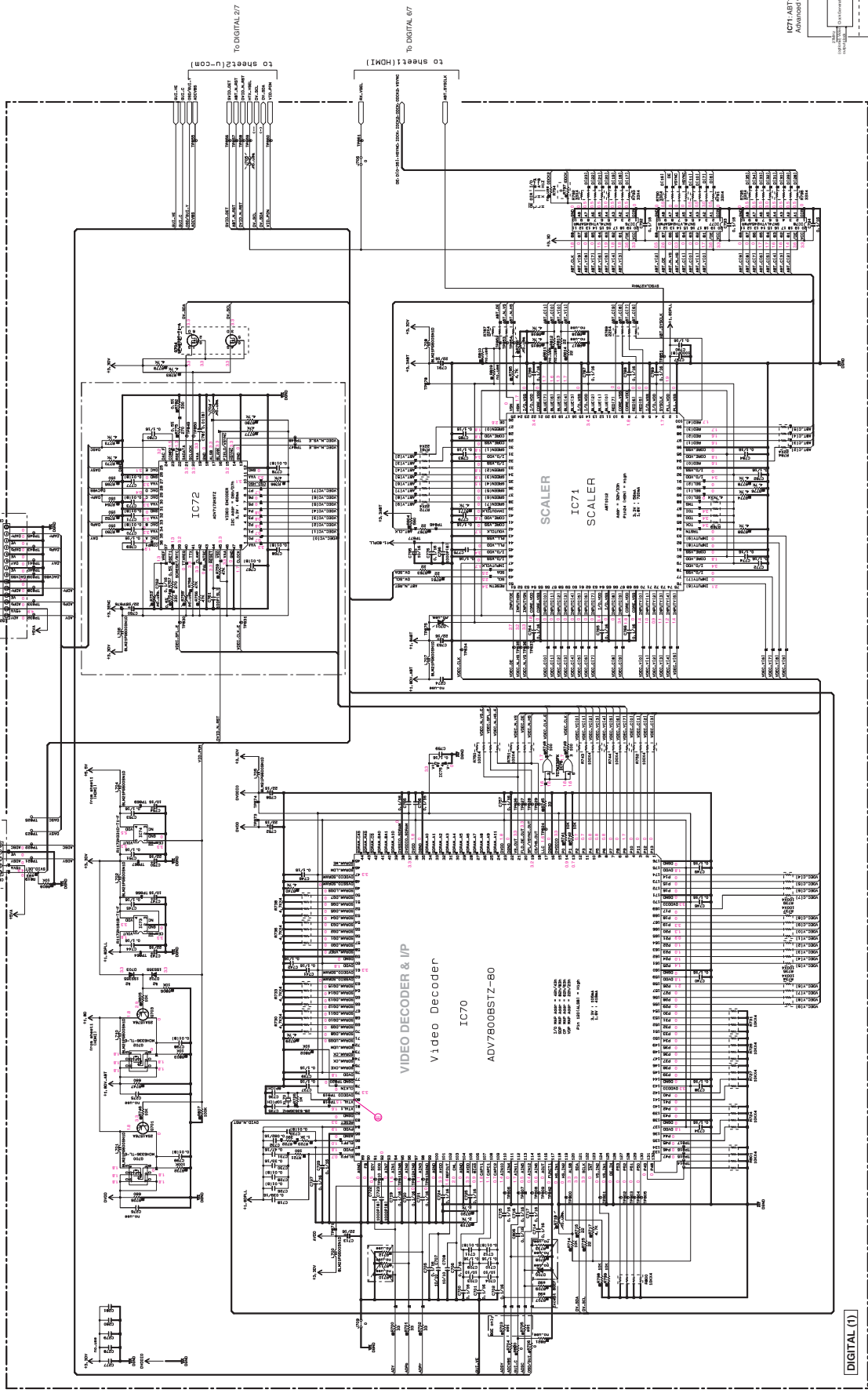
DIGITAL ( 1 ) ADC/DAC

- ★ All voltages are measured with a 10M $\Omega$  V DC electronic voltmeter.
- ★ Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

Page 134 30  
to VIDEO (1), CR301  
(B, G, E, F mode)

to VIDEO (10)

to VIDEO (1)

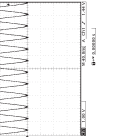


DIGITAL (1)

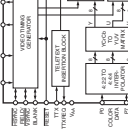
| COMPONENT | PARTS NAME     | FUNCTION            |
|-----------|----------------|---------------------|
| IC70      | ADV7800BSTZ-80 | VIDEO DECODER & I/P |
| IC71      | ADV7800BSTZ-80 | SCALER              |
| IC72      | ADV7800BSTZ-80 | SCALER              |
| IC73      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC74      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC75      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC76      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC77      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC78      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC79      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC80      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC81      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC82      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC83      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC84      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC85      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC86      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC87      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC88      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC89      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC90      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC91      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC92      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC93      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC94      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC95      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC96      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC97      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC98      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC99      | ADV7800BSTZ-80 | VIDEO PROCESSOR     |
| IC100     | ADV7800BSTZ-80 | VIDEO PROCESSOR     |

| NOTICE | REMARKS                                                                                                                                                                                   |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 2      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 3      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 4      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 5      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 6      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 7      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 8      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 9      | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |
| 10     | IC70, IC71, IC72, IC73, IC74, IC75, IC76, IC77, IC78, IC79, IC80, IC81, IC82, IC83, IC84, IC85, IC86, IC87, IC88, IC89, IC90, IC91, IC92, IC93, IC94, IC95, IC96, IC97, IC98, IC99, IC100 |

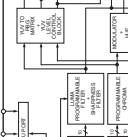
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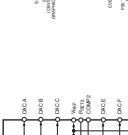
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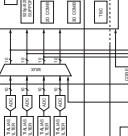
DIGITAL (1)



DIGITAL (1)



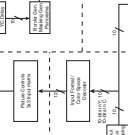
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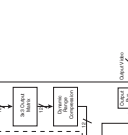
DIGITAL (1)



DIGITAL (1)



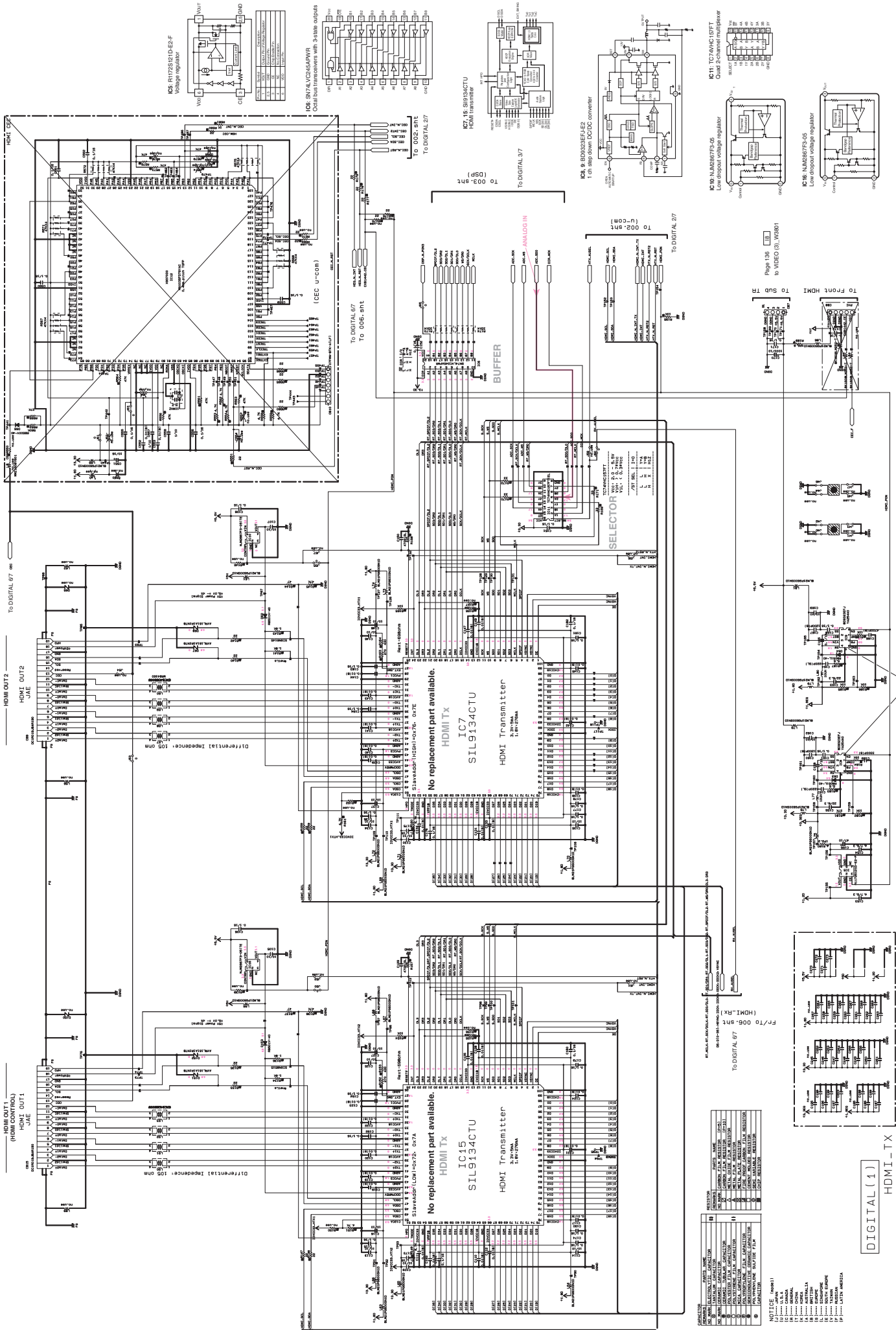
DIGITAL (1)



\* All voltages are measured with a 100kV DC electronic voltmeter.  
\* Components having special characteristics are marked A, and must be applied.  
\* Components having special characteristics are marked A, and must be applied.  
\* Schematic diagram is subject to change without notice.



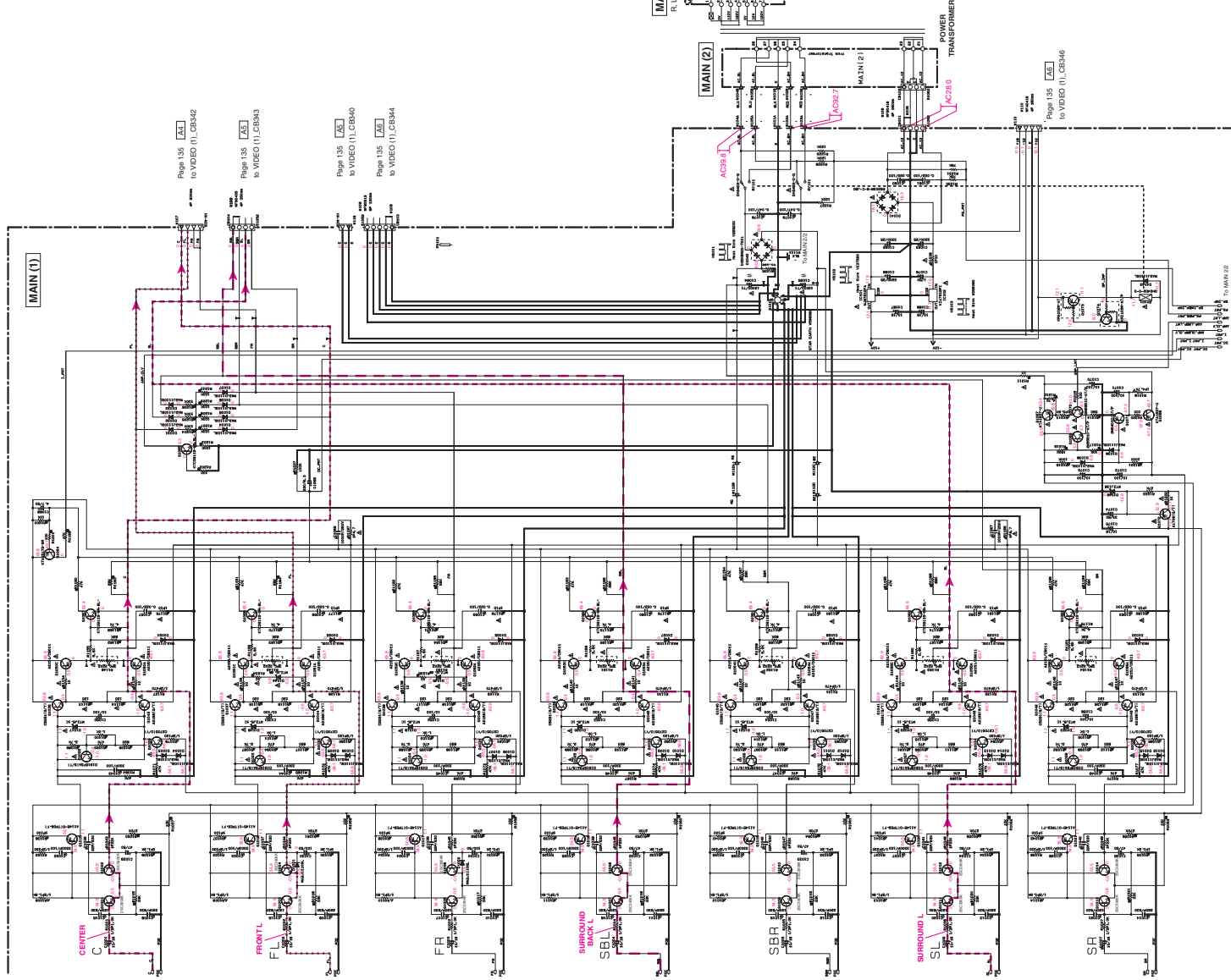




\* All voltages are measured with a 10MΩV DC electronic voltmeter.  
\* Components having special characteristics are marked Δ and must be replaced with parts having the same characteristics as the original part.  
\* Schematic diagram is subject to change without notice.

- ★ All voltages are measured with a 10M $\Omega$ /V DC electronic voltmeter.
- ★ Components having special characteristics are marked  $\Delta$  and must with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.





| RESISTOR | REMARKS | PARTS NAME                      |
|----------|---------|---------------------------------|
|          | NO MARK | CARBON FILM RESISTOR (P=5)      |
| 1        |         | CARBON FILM RESISTOR (P=10)     |
| 2        |         | METAL OXIDE FILM RESISTOR       |
| 3        |         | METAL FILM RESISTOR             |
| 4        |         | METAL PLATE RESISTOR            |
| 5        |         | FIRE PROOF CARBON FILM RESISTOR |
| 6        |         | CEMENT MOLDED RESISTOR          |
| 7        |         | SEMI VARIABLE RESISTOR          |
| 8        |         | OTHER RESISTORS                 |

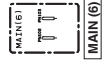
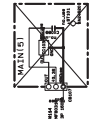
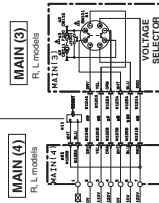
| CAPACITOR |                                 |
|-----------|---------------------------------|
| REMARKS   | PARTS NAME                      |
| NO MARK   | ELECTROLYTIC CAPACITOR          |
| ⊗         | TANTALUM CAPACITOR              |
| NO MARK   | CERAMIC CAPACITOR               |
| ⊗         | CERAMIC TUBULAR CAPACITOR       |
| ⊗         | POLYESTER FILM CAPACITOR        |
| ○         | POLYETHYLENE FILM CAPACITOR     |
| ①         | NICA CAPACITOR                  |
| ⊗         | POLYPROPYLENE FILM CAPACITOR    |
| ⊗         | PERMITSULFONE CERAMIC CAPACITOR |

NOTICE (ms041)

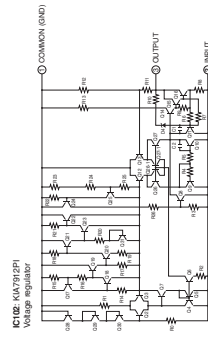
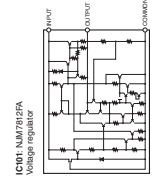
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(U)..... U. S. A  
(C)..... CANADA  
(R)..... GENERAL  
(T)..... CHINA  
(K)..... KOREA  
(A)..... AUSTRALIA  
(G)..... BRITISH  
(S)..... EUROPE  
(L)..... SINGAPORE  
(E)..... SOUTH EUROPE  
(V)..... TAIWAN  
(F)..... RUSSIAN  
(P)..... LATIN AMERICA

[illegible]

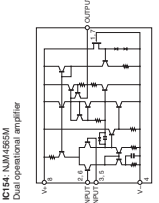
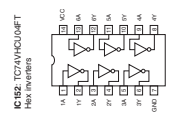
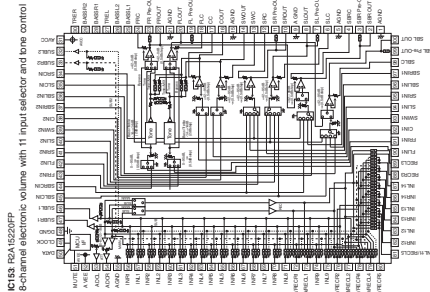
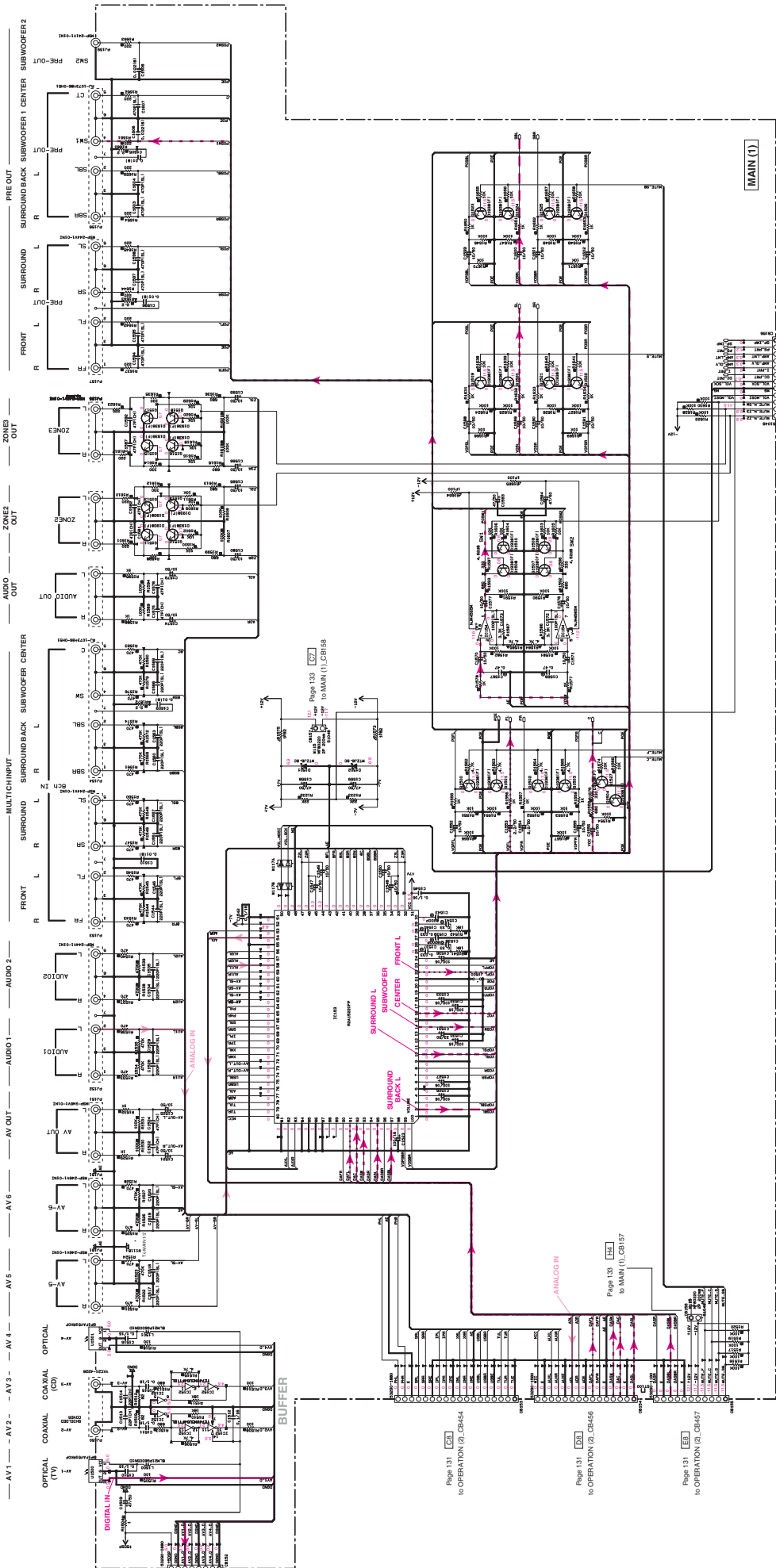
| VOLTAGE SELECTOR | 1-2/5-6 |
|------------------|---------|
| 230-240V         | 2-3/6-7 |
| 220V             | 3-4/7-8 |
| 110V             | 4-5/8-1 |



**NAME** C.B. ... 800-1899  
C.B. EC ... 800-1899

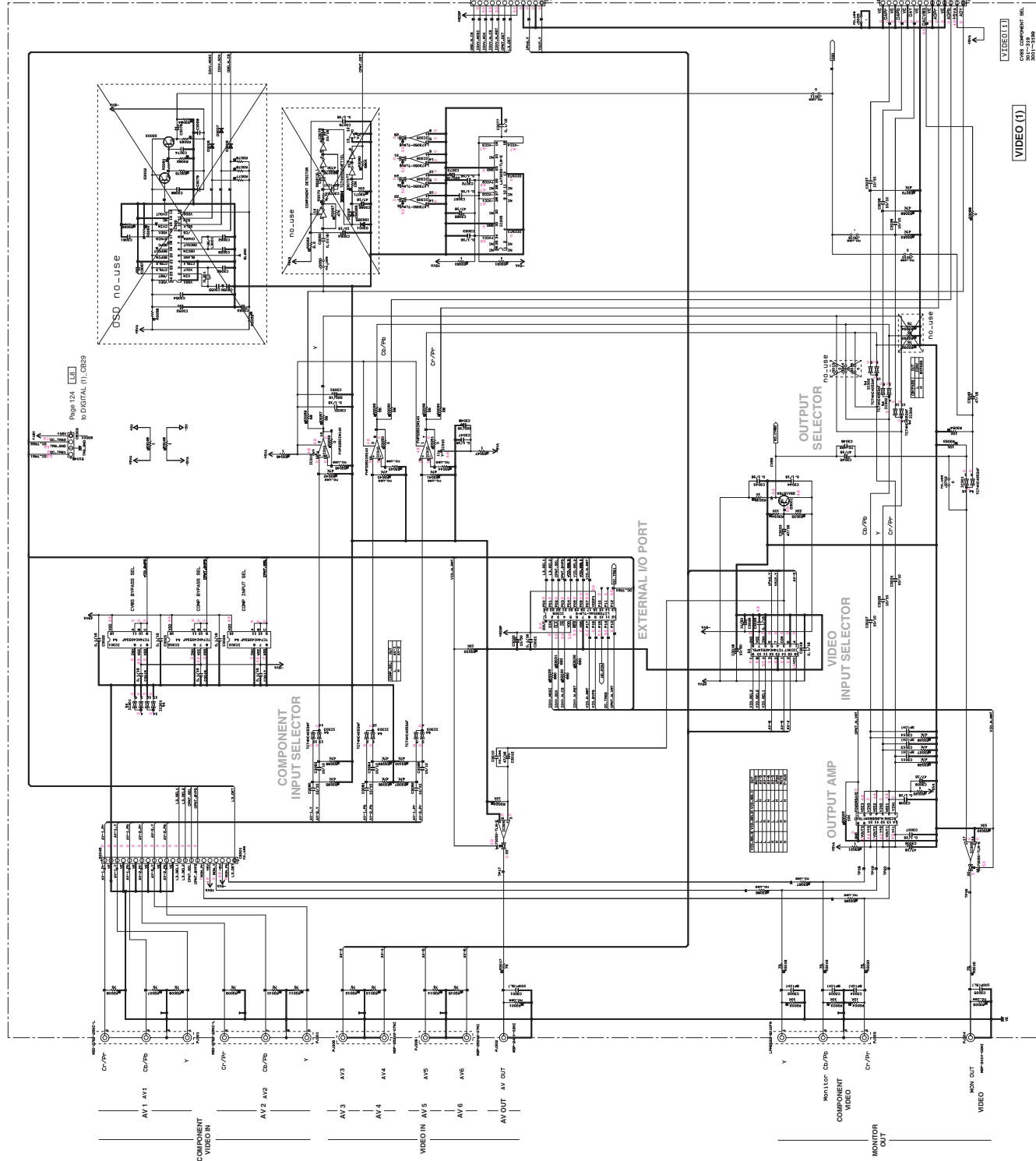






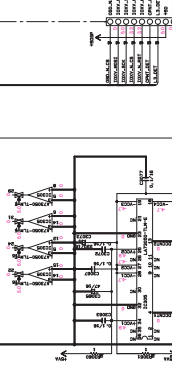
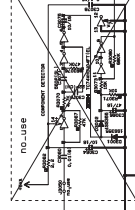
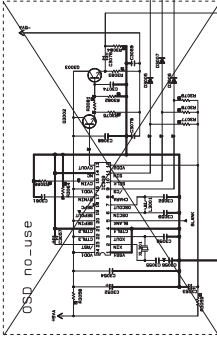
NOTICE

- (1) U.S.A.
- (2) JAPAN
- (3) EUROPE
- (4) KOREA
- (5) CHINA
- (6) INDIA
- (7) THAILAND
- (8) SINGAPORE
- (9) MALAYSIA
- (10) HONG KONG
- (11) TAIWAN
- (12) PHILIPPINES
- (13) AUSTRALIA
- (14) NEW ZEALAND
- (15) SOUTH AFRICA
- (16) MEXICO
- (17) BRAZIL
- (18) ARGENTINA
- (19) CHILE
- (20) PERU
- (21) VENEZUELA
- (22) COLOMBIA
- (23) ECUADOR
- (24) GUATEMALA
- (25) HONDURAS
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- (27) COSTA RICA
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- (30) DOMINICAN REPUBLIC
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| 2    | 100K  | Ω    | RESISTOR    |
| 3    | 100K  | Ω    | RESISTOR    |
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Page 134 [134]  
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Page 131 [131]  
to OPERATION (2) CB49

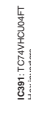
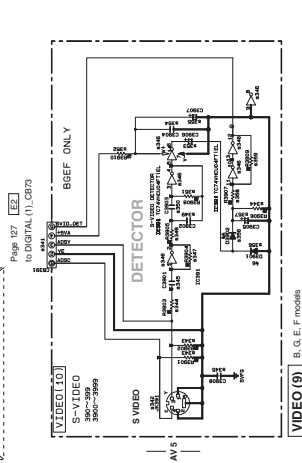
NOTICE (Notes)

- 1. JAPAN
- 2. KOREA
- 3. CHINA
- 4. HONG KONG
- 5. TAIWAN
- 6. SINGAPORE
- 7. MALAYSIA
- 8. THAILAND
- 9. INDONESIA
- 10. PHILIPPINES
- 11. VIETNAM
- 12. LAOS
- 13. CAMBODIA
- 14. MYANMAR
- 15. BURMA
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- 17. BANGLADESH
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- 96. SINGAPORE
- 97. MALAYSIA
- 98. THAILAND
- 99. INDONESIA
- 100. PHILIPPINES

| REF. | VALUE | UNIT | DESCRIPTION |
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| CAPACITOR | REMARKS | PARTS NAME                   |
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| 2         | NO MARK | TANTALUM CAPACITOR           |
| 3         | NO MARK | CERAMIC CAPACITOR            |
| 4         | NO MARK | CERAMIC TUBULAR CAPACITOR    |
| 5         | NO MARK | POLYESTER FILM CAPACITOR     |
| 6         | NO MARK | POLYSTYRENE FILM CAPACITOR   |
| 7         | NO MARK | MICA CAPACITOR               |
| 8         | NO MARK | POLYPROPYLENE FILM CAPACITOR |
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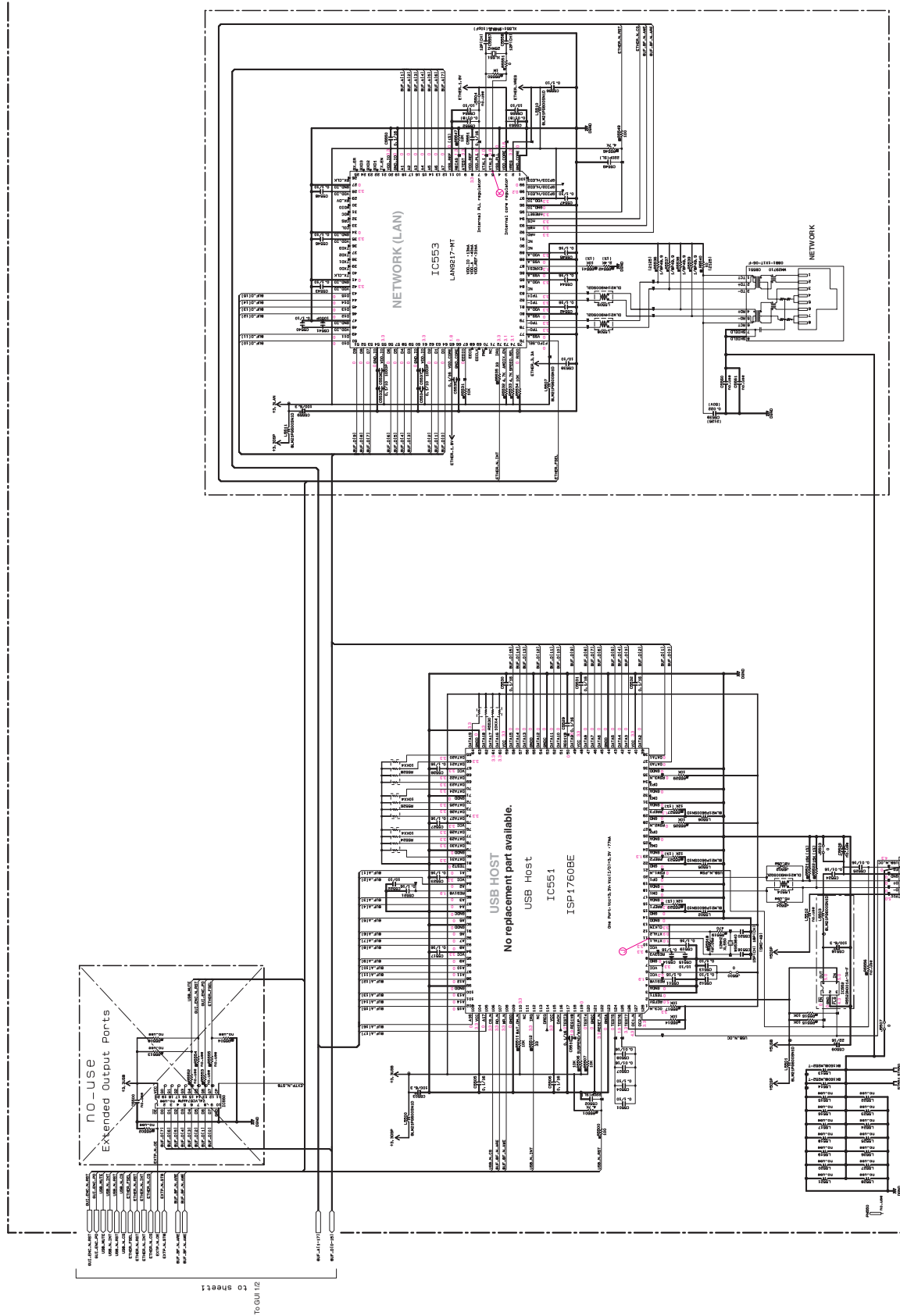
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| 3          | 12. ART. SUPPLY, TYP. CAPABILITY    | 12     |
| 4          | 13. ART. SUPPLY, SPECIAL CAPABILITY | 13     |
| 5          | 14. BARRICADE, TYP. CAPABILITY      | 14     |
| 6          | 15. BARRICADE, SPECIAL CAPABILITY   | 15     |
| 7          | 16. BOMBING, TYP. CAPABILITY        | 16     |
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| 1906                  | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 |
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| 1926                  | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 |
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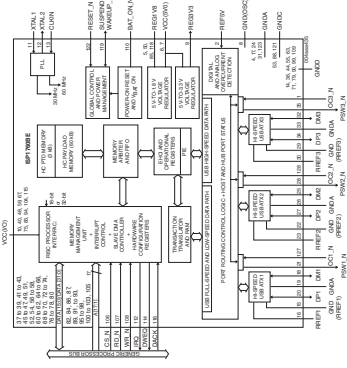
- ★ All voltages are measured with a 10M $\Omega$ /V DC electronic voltmeter.
- ★ Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.



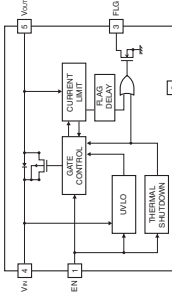




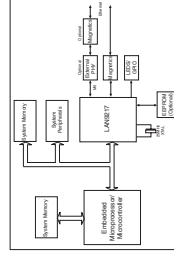
**IC551: ISP1760BE**  
Embedded hi-speed USB host controller



**IC552: R5523N001A-TR-F**  
High side switch IC



IC553: LAN9217-MT

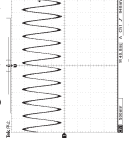


- ★ All voltages are measured with a 10M $\Omega$ /V DC electronic voltmeter.
- ★ Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.
- ★ Schematic diagram is subject to change without notice.

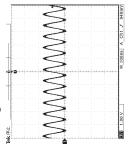
USB, ETHER  
CB/IC/XL/PN: 550 -599  
OTHER : 5500-5999

Page 130 K5  
to OPERATION (5)\_W4407

**POINT® XL551 (Pin 5 of IC553)**



POINT ① XL550 (Pin 11 of IC551)



| REVISION |   |   |   |   |   | REMARKS |   |   |    |    |    |
|----------|---|---|---|---|---|---------|---|---|----|----|----|
| 1        | 2 | 3 | 4 | 5 | 6 | 7       | 8 | 9 | 10 | 11 | 12 |
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| 1        | 2 | 3 | 4 | 5 | 6 | 7       | 8 | 9 | 10 | 11 | 12 |
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NOTICE (mode1)
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(C)----- CANADA
(R)----- GENERAL
(T)----- CHINA
(K)----- KOREA
(A)----- AUSTRALIA
(B)----- BRITISH
(G)----- EUROPE
(L)----- SINGAPORE
(E)----- SOUTH EUROPE
(V)----- TAIWAN
(F)----- RUSSIAN

```

ACDC

| REMARKS | PARTS NAME                  |
|---------|-----------------------------|
| NO MARK | CARBON FILM RESISTOR (P=6)  |
| □       | CARBON FILM RESISTOR (P=10) |
| △       | METAL OXIDE FILM RESISTOR   |
| △       | METAL FILM RESISTOR         |
| △       | PLATE FILM RESISTOR         |
| △       | COATED FILM RESISTOR        |
| □       | CEMENT-MOLDED RESISTOR      |
| ◇       | SEMI-VARIABLE RESISTOR      |
| ■       | CHIP RESISTOR               |

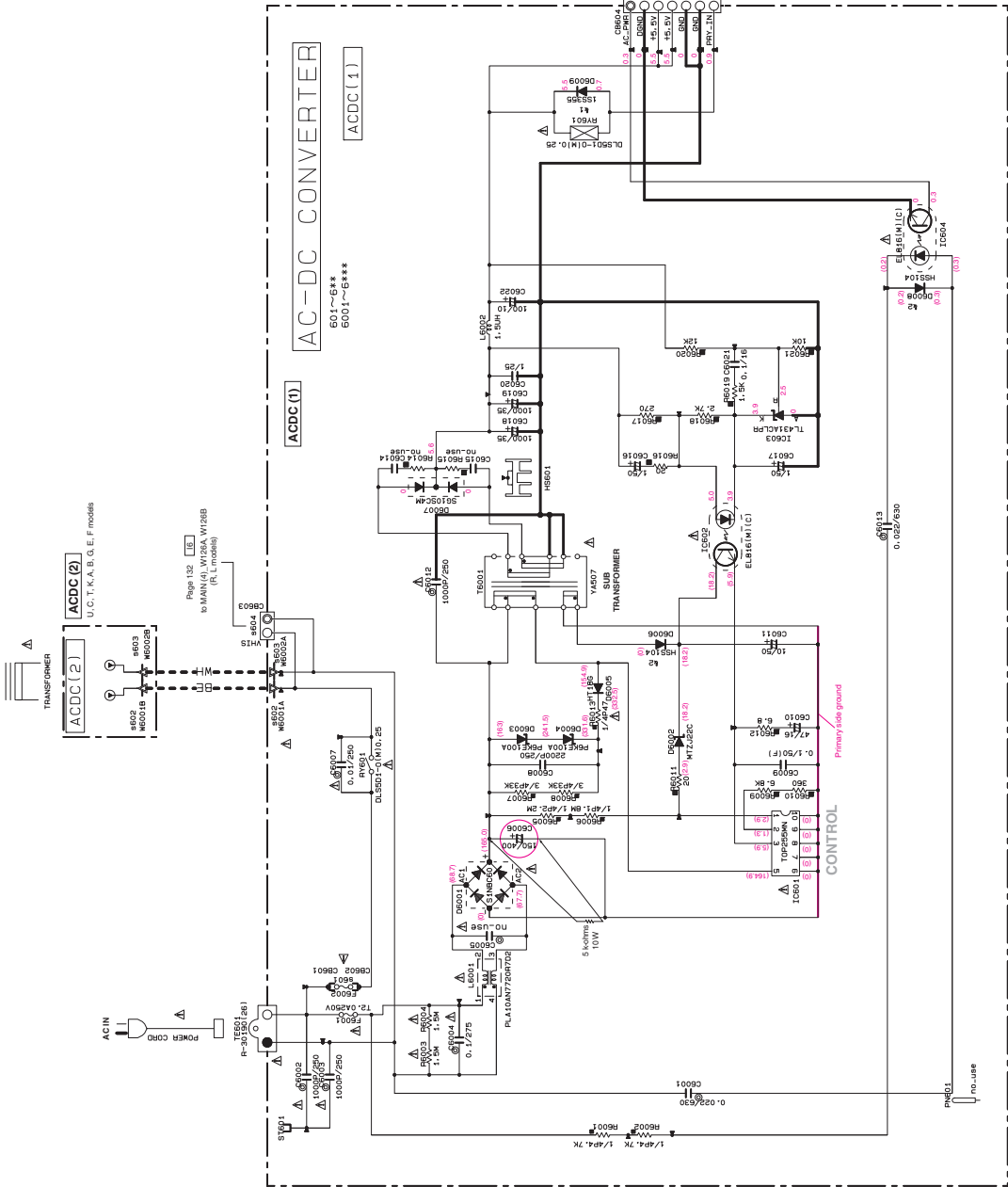
| REMARKS | PARTS NAME                       |
|---------|----------------------------------|
| NO MARK | ELECTROLYTIC CAPACITOR           |
| ⊗       | TANTALUM CAPACITOR               |
| NO MARK | CERAMIC TUBULAR CAPACITOR        |
| ⊗       | POLYESTER FILM CAPACITOR         |
| ○       | POLYPROPYLENE FILM CAPACITOR     |
| ①       | MIC CAPACITOR                    |
| ②       | POLYPROPYLENE FILM CAPACITOR     |
| ●       | SEMICONDUCTIVE CERAMIC CAPACITOR |

NOTICE (mode1)  
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(C)..... CANADA  
(R)..... GENERAL  
(T)..... CHINA  
(K)..... KOREA  
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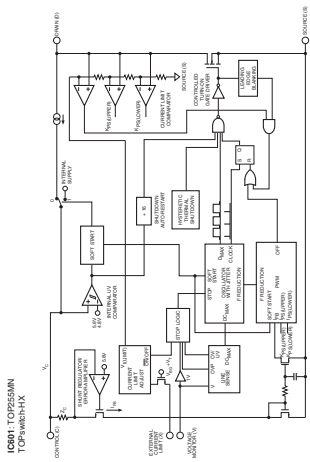
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| 8603 | W0002A | W000820   | X         |         | X         |
| 8604 | CB003  | X         | VER7990   | X       | VER7990   |
|      |        |           | W015      |         | W015      |

| Mark | Reference Parts Number         | Parts Name                     |
|------|--------------------------------|--------------------------------|
| 41   | 153305<br>KDS102-RTK/P         | 153305<br>KDS102-RTK/P         |
| 42   | D6005-6008<br>158133<br>HBS104 | D6005-6008<br>158133<br>HBS104 |

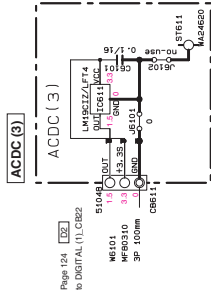
Interchangeable Parts at Manufacture-Stage



**Notes**  
• Some internal parts in this product contain high voltages and are dangerous. Be sure to take safety measures during servicing, such as wearing insulating gloves.  
• Before servicing, disconnect the power supply and turn the power switch to the OFF position. After the power is turned OFF, wait for 1 minute before servicing.  
• Before servicing, perform the discharge procedure. The time required for discharging is about 30 seconds.  
• Check the voltage of the capacitor after servicing.  
• Check the voltage of the capacitor after servicing.



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to VIDEO (3), CB081



★ All voltages are measured with a 10MΩV DC electronic voltmeter.  
★ Components having special characteristics are marked Δ and must be replaced with parts having special characteristics.  
★ Schematic diagram is subject to change without notice.

## ■ REPLACEMENT PARTS LIST

### • ELECTRICAL COMPONENT PARTS

#### WARNING

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

#### 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.CEMENT   | : CEMENT RESISTOR              |
| C.TRIM     | : TRIMMER CAP                 | SCR.BND.HD | : BIND HEAD B-TIGHT SCREW      |
| CN         | : CONNECTOR                   | SCR.BW.HD  | : BW HEAD TAPPING SCREW        |
| CN.BS.PIN  | : CONNECTOR,BASE PIN          | SCR.CUP    | : CUP TIGHT 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-ENDTUNER 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        |



## P.C.B. DIGITAL

| Ref No. | Part No. | Description   | Markets       |
|---------|----------|---------------|---------------|
| *       | WS305800 | P. C. B.      | DIGITAL       |
| *       | WS305900 | P. C. B.      | DIGITAL       |
| *       | WS306700 | P. C. B.      | DIGITAL       |
| *       | WS306000 | P. C. B.      | DIGITAL       |
| CB1     | WD295600 | CN. BS. PIN   | 20P SE        |
| CB3-6   | WH641400 | CN. HDMI      | 19P SE        |
| CB7     | LB919040 | CN. BS. PIN   | 4P            |
| CB9     | WH641400 | CN. HDMI      | 19P SE        |
| CB15    | WH641400 | CN. HDMI      | 19P SE        |
| CB20    | VP082900 | CN. BS. PIN   | 25P           |
| CB21    | VB389800 | CN. BS. PIN   | 2P            |
| CB22    | VK024700 | CN. BS. PIN   | 3P            |
| CB23    | VK025600 | CN. BS. PIN   | 12P           |
| CB24    | VK026500 | CN. BS. PIN   | 6P            |
| CB25    | VQ045200 | CN. BS. PIN   | 22P           |
| CB27    | VQ047200 | CN. BS. PIN   | 9P            |
| CB28    | VM859700 | CN. BS. PIN   | 16P           |
| CB29    | VK026300 | CN. BS. PIN   | 4P            |
| CB31    | LB918020 | CN. BS. PIN   | 2P            |
| CB31    | LB918020 | CN. BS. PIN   | 2P            |
| CB40    | WJ458700 | CN. XM        | 4P, CAM-D96   |
| CB61-63 | V9356900 | CN. JE        | 19P SE        |
| CB71    | VF982200 | CN. BS. PIN   | 14P           |
| CB73    | VQ044100 | CN. BS. PIN   | 5P            |
| CB80    | VK026400 | CN. BS. PIN   | 5P            |
| CB81    | VK027000 | CN. BS. PIN   | 11P           |
| CB84    | V3768800 | SOCKET        | 17LE-23090-28 |
| CB95    | WH641400 | CN. HDMI      | 19P SE        |
| CB96    | WC197000 | CN. FMN       | 20P TE        |
| C1      | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C2      | UF438100 | C. EL. CHP    | 100uF 16V     |
| C3      | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C4-6    | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C7      | WG888300 | C. CE. M. CHP | 10uF 6. 3V    |
| C8-9    | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C10-12  | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C13     | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C14-16  | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C17-18  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C19-22  | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C23-25  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C26-28  | WG888300 | C. CE. M. CHP | 10uF 6. 3V    |
| C29-32  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C33-45  | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C46-48  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C50-51  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C53     | WG888300 | C. CE. M. CHP | 10uF 6. 3V    |
| C54-57  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C58     | WG888300 | C. CE. M. CHP | 10uF 6. 3V    |
| C59-60  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C61-62  | WD758300 | C. CE. CHP    | 10uF 10V      |
| C63-72  | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C73-82  | US064100 | C. CE. CHP    | 0. 01uF 50V B |
| C83     | US135100 | C. CE. CHP    | 0. 1uF 16V    |
| C84     | US060700 | C. CE. CHP    | 7pF 50V B     |
| C85     | US060500 | C. CE. CHP    | 5pF 50V B     |
| C86     | US135100 | C. CE. CHP    | 0. 1uF 16V    |

\* New Parts

| Ref No.  | Part No. | Description | Markets       |
|----------|----------|-------------|---------------|
| C87      | US062470 | C. CE. CHP  | 470pF 50V B   |
| C88      | WD758300 | C. CE. CHP  | 10uF 10V      |
| C89-90   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C91      | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C92-93   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C94      | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C97-99   | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C100-102 | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C103     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C104     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C105     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C106     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C107     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C108     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C109     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C110-112 | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C113-114 | WD758300 | C. CE. CHP  | 10uF 10V      |
| C115     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C116     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C117-124 | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C125     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C126     | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C127     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C128     | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C129     | US062470 | C. CE. CHP  | 470pF 50V B   |
| C130     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C131-133 | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C134-135 | WD758300 | C. CE. CHP  | 10uF 10V      |
| C136     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C137     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C138-145 | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C146     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C147     | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C148     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C149     | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C150     | US062470 | C. CE. CHP  | 470pF 50V B   |
| C151-152 | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C153-154 | WG251600 | C. CE. CHP  | 4. 7uF 6. 3V  |
| * C155   | UF027470 | C. EL. CHP  | 47uF 10V      |
| C156     | WJ344400 | C. CE. CHP  | 22uF 6. 3V    |
| C157     | US062220 | C. CE. CHP  | 220pF 50V B   |
| C158     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C159     | US063330 | C. CE. CHP  | 3300pF 50V B  |
| C160     | US063120 | C. CE. CHP  | 1200pF 50V B  |
| C161     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C162     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C163     | WJ344400 | C. CE. CHP  | 22uF 6. 3V    |
| C164     | US062220 | C. CE. CHP  | 220pF 50V B   |
| C165     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C166     | US063470 | C. CE. CHP  | 4700pF 50V B  |
| C167     | US063120 | C. CE. CHP  | 1200pF 50V B  |
| C168     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C169     | WD758300 | C. CE. CHP  | 10uF 10V      |
| C170     | WH772100 | C. EL.      | 1000uF 10V    |
| C171     | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C173-184 | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C190-192 | US135100 | C. CE. CHP  | 0. 1uF 16V    |

\* New Parts

## P.C.B. DIGITAL

| Ref No.  | Part No. | Description              | Markets |
|----------|----------|--------------------------|---------|
| C193     | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C194     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C200     | UR837330 | C. EL 33uF 16V           |         |
| C202     | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C204-205 | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C207-211 | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C212     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C214     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C215-216 | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C217     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C218-219 | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C220-225 | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C226     | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C228-229 | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C231     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C232-238 | US046100 | C. CE. CHP 1uF 25V       |         |
| C239-242 | US062100 | C. CE. CHP 100pF 50V B   |         |
| C243     | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C400-401 | WD758300 | C. CE. CHP 10uF 10V      | U       |
| C402     | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C404     | US061100 | C. CE. CHP 10pF 50V B    | U       |
| C405-406 | US035100 | C. CE. CHP 0.1uF 16V B   | U       |
| C407     | US061100 | C. CE. CHP 10pF 50V B    | U       |
| C408-409 | US035100 | C. CE. CHP 0.1uF 16V B   | U       |
| C410     | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C411     | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C412     | US035100 | C. CE. CHP 0.1uF 16V B   |         |
| C413-414 | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C415     | US044220 | C. CE. CHP 0.022uF 25V B |         |
| C416     | US062100 | C. CE. CHP 100pF 50V B   |         |
| C417     | UR267470 | C. EL 47uF 50V           |         |
| C418     | US062220 | C. CE. CHP 220pF 50V B   |         |
| C419     | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C420     | US062220 | C. CE. CHP 220pF 50V B   |         |
| C421     | US035100 | C. CE. CHP 0.1uF 16V B   | U       |
| C422     | US062220 | C. CE. CHP 220pF 50V B   |         |
| C423     | US035100 | C. CE. CHP 0.1uF 16V B   |         |
| C424-425 | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C426     | US062220 | C. CE. CHP 220pF 50V B   |         |
| C427     | US035100 | C. CE. CHP 0.1uF 16V B   | U       |
| C428     | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C429     | WD758300 | C. CE. CHP 10uF 10V      |         |
| C430     | UR067470 | C. EL 47uF 50V           |         |
| C431     | US062100 | C. CE. CHP 100pF 50V B   |         |
| C432-433 | US062220 | C. CE. CHP 220pF 50V B   |         |
| C434-436 | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C437-438 | US062100 | C. CE. CHP 100pF 50V B   |         |
| C439     | US061100 | C. CE. CHP 10pF 50V B    |         |
| C440     | US060800 | C. CE. CHP 8pF 50V B     |         |
| C441-442 | US062390 | C. CE. CHP 390pF 50V B   |         |
| C443-444 | US035100 | C. CE. CHP 0.1uF 16V B   | U       |
| C445-446 | UR837100 | C. EL 10uF 16V           |         |
| C447-448 | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C449-450 | UR237470 | C. EL 47uF 16V           |         |
| C451     | US062100 | C. CE. CHP 100pF 50V B   |         |
| C452     | UR067100 | C. EL 10uF 50V           |         |
| C453     | US126100 | C. CE. CHP 1uF 10V       |         |

\* New Parts

| Ref No.    | Part No. | Description              | Markets |
|------------|----------|--------------------------|---------|
| C454-469   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C471-472   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C473       | US062680 | C. CE. CHP 680pF 50V B   |         |
| C474-476   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C477       | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C478-484   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C485       | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C486       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C488-489   | UU297220 | C. EL 22uF 100V          |         |
| C491-493   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C494-496   | US063100 | C. CE. CHP 1000pF 50V B  |         |
| C497-498   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C499-502   | US063100 | C. CE. CHP 1000pF 50V B  |         |
| C503-506   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C520       | WG251600 | C. CE. CHP 4.7uF 6.3V    |         |
| C521       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C600       | WK041800 | C. EL 10uF 16V           |         |
| C601-603   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C604-605   | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C606       | UR067100 | C. EL 10uF 50V           |         |
| C607       | US064100 | C. CE. CHP 0.01uF 50V B  | U       |
| C608-609   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C610       | US126100 | C. CE. CHP 1uF 10V       |         |
| C611       | US062100 | C. CE. CHP 100pF 50V B   |         |
| C612       | UR067100 | C. EL 10uF 50V           |         |
| C613-614   | US126100 | C. CE. CHP 1uF 10V       |         |
| C615       | UR237100 | C. EL 10uF 16V           | U       |
| C616-617   | US135100 | C. CE. CHP 0.1uF 16V     | U       |
| C618       | US063100 | C. CE. CHP 1000pF 50V B  |         |
| C619       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C620       | UR348100 | C. EL 100uF 25V          |         |
| C621       | UR237470 | C. EL 47uF 16V           | U       |
| C622       | UR067100 | C. EL 10uF 50V           |         |
| C623       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C624       | WK041800 | C. EL 10uF 16V           |         |
| C625       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C626       | UR067100 | C. EL 10uF 50V           |         |
| C627-628   | WJ603600 | C. MYLAR 820pF 50V J     |         |
| C629-630   | UR837100 | C. EL 10uF 16V           | U       |
| C633-634   | UR067100 | C. EL 10uF 50V           |         |
| C635-642   | US062100 | C. CE. CHP 100pF 50V B   |         |
| * C643-644 | US663330 | C. CE. CHP 3300pF 50V    | U       |
| C700-702   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C703-704   | WD758300 | C. CE. CHP 10uF 10V      |         |
| C705-706   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C707-708   | WD758300 | C. CE. CHP 10uF 10V      |         |
| C709-710   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C711-712   | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C713       | UF037220 | C. EL. CHP 22uF 16V      |         |
| C714-717   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C718       | US034390 | C. CE. CHP 0.039uF 16V B |         |
| C719-721   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C722-723   | US063100 | C. CE. CHP 1000pF 50V B  |         |
| C724-725   | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C726       | US064100 | C. CE. CHP 0.01uF 50V B  |         |
| C727       | US135100 | C. CE. CHP 0.1uF 16V     |         |
| C728       | US064100 | C. CE. CHP 0.01uF 50V B  |         |

\* New Parts

## P.C.B. DIGITAL

| Ref No.  | Part No. | Description               | Markets |
|----------|----------|---------------------------|---------|
| C729     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C730     | VZ243400 | C. CE. CHP 0. 33uF 16V    |         |
| C731     | VZ281900 | C. CE. CHP 0. 47uF 16V K  |         |
| C732     | US034820 | C. CE. CHP 0. 082uF 16V K |         |
| C733     | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C734     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C735     | US061100 | C. CE. CHP 10pF 50V B     |         |
| C736     | US060800 | C. CE. CHP 8pF 50V B      |         |
| C737-742 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C743     | UF037220 | C. EL. CHP 22uF 16V       |         |
| C744-746 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C747     | UF037100 | C. EL. CHP 10uF 16V       |         |
| C748-749 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| * C750   | WP092800 | C. EL. CHP 22uF 16V       |         |
| C751     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| * C752   | WP092800 | C. EL. CHP 22uF 16V       |         |
| C753     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C754     | UF037100 | C. EL. CHP 10uF 16V       |         |
| C755-757 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| * C758   | WP092800 | C. EL. CHP 22uF 16V       |         |
| C759     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C760     | UF037220 | C. EL. CHP 22uF 16V       |         |
| C761     | US062100 | C. CE. CHP 100pF 50V B    |         |
| C762     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C763     | UF037220 | C. EL. CHP 22uF 16V       |         |
| C764-766 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C767-768 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C769     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C770-771 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C772     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C773     | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C774-776 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C777-778 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C779-780 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C781     | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C782-790 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| * C791   | WP092800 | C. EL. CHP 22uF 16V       |         |
| C792-794 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C795     | UF037100 | C. EL. CHP 10uF 16V       |         |
| C796-797 | US063100 | C. CE. CHP 1000pF 50V B   |         |
| C798-799 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C806     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C930     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C950     | UF438100 | C. EL. CHP 100uF 16V      |         |
| C951     | UF417220 | C. EL. CHP 22uF 6. 3V     |         |
| C952     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C953-954 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C955     | WG888300 | C. CE. M. CHP 10uF 6. 3V  |         |
| C956     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C957-960 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C961     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C962     | WG888300 | C. CE. M. CHP 10uF 6. 3V  |         |
| C963-964 | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C965     | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C966     | US064100 | C. CE. CHP 0. 01uF 50V B  |         |
| C967-968 | US135100 | C. CE. CHP 0. 1uF 16V     |         |
| C972     | WG888300 | C. CE. M. CHP 10uF 6. 3V  |         |

\* New Parts

| Ref No.    | Part No. | Description                   | Markets     |
|------------|----------|-------------------------------|-------------|
| C973       | WD758300 | C. CE. CHP 10uF 10V           |             |
| C974-975   | UR267470 | C. EL 47uF 50V                | U           |
| * C976-977 | WJ603700 | C. MYLAR 1000pF 50V           | U           |
| C978-979   | UR267100 | C. EL 10uF 50V                | U           |
| * C980-981 | WJ605600 | C. MYLAR 0. 033uF 50V         | U           |
| * C982-983 | WJ604900 | C. MYLAR 9100pF 50V           | U           |
| C984-985   | UR218220 | C. EL 220uF 6. 3V             | U           |
| C986-989   | WJ603100 | C. MYLAR 220pF 50V            | U           |
| C990       | US064100 | C. CE. CHP 0. 01uF 50V B      | U           |
| C991-993   | US135100 | C. CE. CHP 0. 1uF 16V         |             |
| C994       | UR237470 | C. EL 47uF 16V                |             |
| C995-998   | US135100 | C. CE. CHP 0. 1uF 16V         |             |
| C999       | US064100 | C. CE. CHP 0. 01uF 50V B      |             |
| D23-25     | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D27        | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D36-37     | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D47-49     | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D59-61     | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D62        | VV220700 | DIODE. SHOT RB501V-40         |             |
| D63-64     | V6267600 | DIODE RB051L-40               |             |
| D67-68     | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D151-152   | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D153       | VV220700 | DIODE. SHOT RB501V-40         |             |
| D200-204   | VU990900 | DIODE. ZENR MAZ8033GHL 3. 4V  |             |
| D400-402   | WE674800 | DIODE AVRL161A1R1NTB          | U           |
| D403-404   | VT332900 | DIODE 1SS355                  |             |
| D406-407   | VT332900 | DIODE 1SS355                  |             |
| D600       | VT332900 | DIODE 1SS355                  |             |
| D602-603   | VT332900 | DIODE 1SS355                  |             |
| D702-703   | VT332900 | DIODE 1SS355                  |             |
| D950       | WE674800 | DIODE AVRL161A1R1NTB          |             |
| * D951-958 | WP385600 | PESD PESD0603-240             |             |
| D959-961   | WE674800 | DIODE AVRL161A1R1NTB          |             |
| D962       | VT332900 | DIODE 1SS355                  |             |
| D963-964   | VV659300 | DIODE. ZENR RLZ7. 5B 7. 5V    | U           |
| IC3        | XS775A00 | IC TC7SH04FU                  |             |
| IC5        | X7195A00 | IC R1172S121D-E2-F            |             |
| IC6        | XZ287A00 | IC SN74LVC245APWR             |             |
| IC10       | X7741A00 | IC NJM2867F3-05 (TE1)         |             |
| IC11       | X0199B00 | IC TC74VHC157FT (EL, K)       |             |
| IC16       | X7741A00 | IC NJM2867F3-05 (TE1)         |             |
| IC20       | X8013A00 | IC. CPU M3087BFKBGP CPU       | (unwritten) |
| IC21       | X8194A00 | IC R1172H331D-T1-F            |             |
| * IC22     | YA739A00 | IC. MEMORY LE25LB2562M-TLM-E  | U           |
| * IC22     | YC035A00 | IC LE25LB643M-TLM-E           | CRTKABGEFL  |
| IC40       | X8192A00 | IC F2621E-01-TR               | U           |
| * IC41     | YA399A00 | IC LC89058WD-E                |             |
| IC43       | X7378A00 | IC NJM4565M (TE1)             |             |
| * IC45     | X9798B00 | IC CS230003-CZZR              |             |
| * IC47     | YC008A00 | IC R1173S001D-E2-F            |             |
| * IC48     | X9626B00 | IC. MEMORY K4S641632N-LC60000 |             |
| * IC49     | YC016C00 | IC. MEMORY F49L160BA-70TG2N   | (written)   |
| IC50       | XR680A00 | IC TC7SH08FU (TE85L, JF)      |             |
| * IC51     | YA255A00 | IC R1172H501D-T1-F            |             |
| IC52       | XR680A00 | IC TC7SH08FU (TE85L, JF)      |             |
| IC61       | X7375A00 | IC PCM1781DBQR                | U           |
| IC62       | X0199B00 | IC TC74VHC157FT (EL, K)       |             |

\* New Parts

## P.C.B. DIGITAL and P.C.B. OPERATION

| Ref No.    | Part No. | Description | Markets               |
|------------|----------|-------------|-----------------------|
| IC63       | XS534A00 | IC          | NJM78M05DL1A          |
| IC65       | X7355A00 | IC          | PCM1680DBQR           |
| IC66       | X7357A00 | IC          | PCM1803DBR            |
| IC67       | X3586B00 | IC          | TC74VHCT08AFT EL, K   |
| IC68       | XR680A00 | IC          | TC7SH08FU (TE85L, JF) |
| IC70       | X9393A00 | IC          | ADV7800BSTZ-80        |
| * IC71     | YA215A00 | IC          | ABT1012               |
| IC72       | X6671A00 | IC          | ADV7172KSTZ           |
| IC73       | X9460A00 | IC          | R1172H181B-T1-F       |
| IC74       | X8194A00 | IC          | R1172H331D-T1-F       |
| IC75       | X8531A00 | IC          | TC7WZ32FK             |
| IC76-78    | XZ283A00 | IC          | SN74LVTH245APW BUS    |
| * IC80     | YA844A00 | IC          | ISL83385E1BZ-T        |
| IC81       | X3505A00 | IC          | NJM2068MD-TE2         |
| IC95       | X8900A00 | IC          | CXB1442AR-T4          |
| IC96       | X8368A00 | IC          | PCA9517DP             |
| IC97       | X8897A00 | IC          | R1172S331B-E2-F       |
| JK81-82    | V9435700 | JACK. MNI   | MSJ-035-12APC         |
| PJ80       | VM725600 | JACK. PIN   | 2P                    |
| Q3-10      | VQ986700 | TR          | 2SC4081 T106          |
| Q80        | iA101510 | TR          | 2SA1015 Y             |
| Q81        | iC181510 | TR          | 2SC1815 Y             |
| Q82        | WG538600 | TR          | KTA1046-Y-U/P         |
| Q83        | iC181510 | TR          | 2SC1815 Y             |
| Q84        | iA101510 | TR          | 2SA1015 Y             |
| Q85        | iC181510 | TR          | 2SC1815 Y             |
| Q86        | WG538600 | TR          | KTA1046-Y-U/P         |
| Q87        | iC181510 | TR          | 2SC1815 Y             |
| Q95-96     | VQ986700 | TR          | 2SC4081 T106          |
| * Q200     | WQ381000 | FET         | MCH6336-TL-E          |
| Q201-202   | VV655300 | TR. DGT     | DTA144EKA             |
| Q203-209   | VR936300 | TR          | 2SA1576A T106         |
| * Q400     | WQ381000 | FET         | MCH6336-TL-E          |
| Q401       | VV655300 | TR. DGT     | DTA144EKA             |
| Q600       | VV655200 | TR. DGT     | DTA143EKA             |
| Q601       | VV655700 | TR. DGT     | DTC144EKA             |
| * Q700     | WQ381000 | FET         | MCH6336-TL-E          |
| Q701       | VR936300 | TR          | 2SA1576A T106         |
| * Q702     | WQ381000 | FET         | MCH6336-TL-E          |
| Q703       | VR936300 | TR          | 2SA1576A T106         |
| Q704       | WE834500 | FET         | UPA672T-T1-A          |
| R180       | V8070100 | R. MTL. FLM | 2. 2Ω 1W              |
| R189       | WB784700 | R. MTL. FLM | 6. 8Ω 1W              |
| R200       | RD357100 | R. CHP      | 10KΩ 1/16W            |
| R466-467   | HV753220 | R. CAR. FP  | 2. 2Ω 1/4W            |
| * R601     | WQ072300 | R. MTL. OXD | 2. 2Ω 1W              |
| R607       | HV753220 | R. CAR. FP  | 2. 2Ω 1/4W            |
| R930       | HV753560 | R. CAR. FP  | 5. 6Ω 1/4W            |
| R936       | HV753560 | R. CAR. FP  | 5. 6Ω 1/4W            |
| * R967-968 | WQ964700 | R. MTL. OXD | 470Ω 1W               |
| ST1-2      | V4040500 | SCR. TERM   | M3                    |
| ST80       | V4040500 | SCR. TERM   | M3                    |
| ST80       | V4040500 | SCR. TERM   | M3                    |
| ST81       | V4040500 | SCR. TERM   | M3                    |
| * XL1      | WR725300 | RSNR. CRYST | 27MHz SMD-49          |
| XL20       | WF997400 | RSNR. CE    | 20MHz                 |
| * XL41     | WR846900 | RSNR. CRYST | 45.1984MHz DSX321G    |

\* New Parts

| Ref No.    | Part No. | Description | Markets          |
|------------|----------|-------------|------------------|
| XL42       | V3625700 | RSNR. CRYST | 24. 576MHz       |
| XL70       | VZ772700 | RSNR. CRYST | 28. 63636MHz     |
| * WS305500 | P. C. B. | OPERATION   | U                |
| * WS305600 | P. C. B. | OPERATION   | CRTA             |
| * WS305700 | P. C. B. | OPERATION   | KBGEFL           |
| CB401      | VQ045400 | CN. BS. PIN | 25P              |
| CB402      | VQ044400 | CN. BS. PIN | 9P               |
| CB451      | VQ961100 | CN. BS. PIN | 8P               |
| CB452      | V9357000 | CN          | 19P TE           |
| CB454      | VQ962100 | CN. BS. PIN | 18P              |
| CB455      | V9357000 | CN          | 19P TE           |
| CB456      | VQ961800 | CN. BS. PIN | 15P              |
| CB457      | VQ961400 | CN. BS. PIN | 11P              |
| CB458      | V9357000 | CN          | 19P TE           |
| CB459      | VQ963300 | CN. BS. PIN | 12P              |
| CB460      | VQ963100 | CN. BS. PIN | 10P              |
| CB461      | VQ044400 | CN. BS. PIN | 9P               |
| CB462      | VK026400 | CN. BS. PIN | 5P               |
| CB463      | VQ585700 | CN. JUMPER  | 7P               |
| CB464      | VQ585500 | CN. JUMPER  | 5P               |
| * CB471    | WQ680200 | CN. USB     | 4P TE AAPVA004C0 |
| CB475      | VK024900 | CN. BS. PIN | 5P TE            |
| CB477      | VB858300 | CN. BS. PIN | 4P               |
| C4001      | US063100 | C. CE. CHP  | 1000pF 50V B     |
| C4002      | US065100 | C. CE. CHP  | 0. 1uF 50V B     |
| C4003      | UR067100 | C. EL       | 10uF 50V         |
| C4004      | US064100 | C. CE. CHP  | 0. 01uF 50V B    |
| C4005      | UR837220 | C. EL       | 22uF 16V         |
| C4006      | US062100 | C. CE. CHP  | 100pF 50V B      |
| C4007      | UR257470 | C. EL       | 47uF 35V         |
| C4008      | US061330 | C. CE. CHP  | 33pF 50V B       |
| C4009-4010 | UR267220 | C. EL       | 22uF 50V         |
| C4011      | UR067100 | C. EL       | 10uF 50V         |
| C4012-4013 | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4015      | UR268220 | C. EL       | 220uF 50V        |
| C4016      | UM388330 | C. EL       | 330uF 6. 3V      |
| C4017      | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4018      | US061680 | C. CE. CHP  | 68pF 50V B       |
| C4019      | US065100 | C. CE. CHP  | 0. 1uF 50V B     |
| C4020-4021 | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4022      | US064100 | C. CE. CHP  | 0. 01uF 50V B    |
| C4023-4024 | US063100 | C. CE. CHP  | 1000pF 50V B     |
| C4025-4026 | US065100 | C. CE. CHP  | 0. 1uF 50V B     |
| C4027      | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4028      | US062100 | C. CE. CHP  | 100pF 50V B      |
| C4030      | US062100 | C. CE. CHP  | 100pF 50V B      |
| C4031      | US062470 | C. CE. CHP  | 470pF 50V B      |
| C4032      | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4033      | US063100 | C. CE. CHP  | 1000pF 50V B     |
| C4034      | UM417100 | C. EL       | 10uF 50V         |
| C4035      | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4036-4040 | US063100 | C. CE. CHP  | 1000pF 50V B     |
| C4041-4046 | US135100 | C. CE. CHP  | 0. 1uF 16V       |
| C4201      | UR067470 | C. EL       | 47uF 50V         |

\* New Parts

## P.C.B. OPERATION

| Ref No.      | Part No. | Description | Markets        |
|--------------|----------|-------------|----------------|
| C4202        | US063100 | C. CE. CHP  | 1000pF 50V B   |
| C4203        | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| C4205-4211   | US062220 | C. CE. CHP  | 220pF 50V B    |
| C4212        | US062100 | C. CE. CHP  | 100pF 50V B    |
| C4213        | UR267100 | C. EL       | 10uF 50V       |
| C4214        | WK041800 | C. EL       | 10uF 16V       |
| * C4215      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4216        | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| C4217        | UR267470 | C. EL       | 47uF 50V       |
| C4218        | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| C4219        | UR267470 | C. EL       | 47uF 50V       |
| * C4220      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4221        | WK041800 | C. EL       | 10uF 16V       |
| C4222        | UR267100 | C. EL       | 10uF 50V       |
| C4223-4224   | US062100 | C. CE. CHP  | 100pF 50V B    |
| C4225        | UR267100 | C. EL       | 10uF 50V       |
| C4226        | WK041800 | C. EL       | 10uF 16V       |
| * C4227      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4228-4229   | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| C4230        | WJ605800 | C. MYLAR    | 0. 047uF 50V J |
| C4231-4232   | UR267100 | C. EL       | 10uF 50V       |
| * C4233      | WJ604700 | C. MYLAR    | 6800pF 50V     |
| C4234        | US062100 | C. CE. CHP  | 100pF 50V B    |
| C4235        | UR267100 | C. EL       | 10uF 50V       |
| C4236        | WK041800 | C. EL       | 10uF 16V       |
| * C4237      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4238-4239   | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| * C4240      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4241        | WK041800 | C. EL       | 10uF 16V       |
| C4242        | UR267100 | C. EL       | 10uF 50V       |
| C4243-4244   | US062100 | C. CE. CHP  | 100pF 50V B    |
| C4245        | UR267100 | C. EL       | 10uF 50V       |
| C4246        | WK041800 | C. EL       | 10uF 16V       |
| * C4247      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4248-4249   | US135100 | C. CE. CHP  | 0. 1uF 16V     |
| * C4250      | WJ603500 | C. MYLAR    | 680pF 50V      |
| C4251        | WK041800 | C. EL       | 10uF 16V       |
| C4252        | UR267100 | C. EL       | 10uF 50V       |
| C4253        | US062100 | C. CE. CHP  | 100pF 50V B    |
| C4254-4255   | UR067100 | C. EL       | 10uF 50V       |
| C4301        | UR267470 | C. EL       | 47uF 50V       |
| C4302        | UR267470 | C. EL       | 47uF 50V       |
| * C4303-4304 | WJ603700 | C. MYLAR    | 1000pF 50V     |
| C4305        | UR267100 | C. EL       | 10uF 50V       |
| C4306        | UR267100 | C. EL       | 10uF 50V       |
| * C4307-4308 | WJ605600 | C. MYLAR    | 0. 033uF 50V   |
| * C4309      | WJ604900 | C. MYLAR    | 9100pF 50V     |
| * C4310      | WJ604900 | C. MYLAR    | 9100pF 50V     |
| C4311        | UR218220 | C. EL       | 220uF 6. 3V    |
| C4312        | UR218220 | C. EL       | 220uF 6. 3V    |
| C4313        | WJ603100 | C. MYLAR    | 220pF 50V      |
| C4314        | WJ603100 | C. MYLAR    | 220pF 50V      |
| C4315        | WJ603100 | C. MYLAR    | 220pF 50V      |
| C4316        | WJ603100 | C. MYLAR    | 220pF 50V      |
| C4317        | US064100 | C. CE. CHP  | 0. 01uF 50V B  |
| C4318-4325   | WJ605000 | C. MYLAR    | 0. 01uF 50V J  |
| C4401        | US062100 | C. CE. CHP  | 100pF 50V B    |

\* New Parts

| Ref No.      | Part No. | Description | Markets            |
|--------------|----------|-------------|--------------------|
| C4402        | US063100 | C. CE. CHP  | 1000pF 50V B       |
| * C4403      | WJ604300 | C. MYLAR    | 3300pF 50V         |
| C4404-4405   | US062220 | C. CE. CHP  | 220pF 50V B        |
| * C4406      | WJ604300 | C. MYLAR    | 3300pF 50V         |
| C4407        | US064100 | C. CE. CHP  | 0. 01uF 50V B      |
| C4410        | US135100 | C. CE. CHP  | 0. 1uF 16V         |
| C4411        | US060500 | C. CE. CHP  | 5pF 50V B          |
| C4413        | US060500 | C. CE. CHP  | 5pF 50V B          |
| C4414        | US063100 | C. CE. CHP  | 1000pF 50V B       |
| C4415        | US135100 | C. CE. CHP  | 0. 1uF 16V         |
| C4417        | US126100 | C. CE. CHP  | 1uF 10V            |
| C4418        | US062220 | C. CE. CHP  | 220pF 50V B        |
| C4419        | US063100 | C. CE. CHP  | 1000pF 50V B       |
| D4001-4002   | VT332900 | DIODE       | 1SS355             |
| D4003        | VU171900 | DIODE. ZENR | UDZ5. 1B 5. 1V     |
| D4004-4005   | VT332900 | DIODE       | 1SS355             |
| D4006-4007   | VU991000 | DIODE. ZENR | MAZ8036GLL 3. 5V   |
| D4008        | WG760400 | LED         | SELK6E10C BLUE     |
| * D4009      | WR095700 | LED         | 8224-10SDRD/S530A3 |
| D4011        | V2598200 | LED         | S1R-505ST          |
| D4301        | VV659300 | DIODE. ZENR | RLZ7. 5B 7. 5V     |
| D4302        | VV659300 | DIODE. ZENR | RLZ7. 5B 7. 5V     |
| D4303        | VT332900 | DIODE       | 1SS355             |
| D4305        | VT332900 | DIODE       | 1SS355             |
| D4401-4402   | VT332900 | DIODE       | 1SS355             |
| D4404-4405   | VT332900 | DIODE       | 1SS355             |
| D4408        | VT332900 | DIODE       | 1SS355             |
| D4410        | VT332900 | DIODE       | 1SS355             |
| IC401        | X7378A00 | IC          | NJM4565M (TE1)     |
| IC402        | X6386A00 | IC          | M66003-0131FP      |
| IC451-454    | X5482A00 | IC          | NE5532DR OP AMP    |
| IC461        | X3505A00 | IC          | NJM2068MD-TE2      |
| JK401        | WC814400 | JACK. MNI   | JY-3554-01-130     |
| JK451        | VV269500 | CN          | 8P DIN             |
| JK472        | V9408200 | JACK. PHONE | MSJ-064-05B GR     |
| PJ461        | WD599600 | JACK. PIN   | 2P MSP-252V2-06 NI |
| PJ471        | WJ117500 | JACK. PIN   | 3P                 |
| Q4001-4003   | WC529400 | TR          | KTC3875S Y GR RTK  |
| Q4004        | VV655400 | TR. DGT     | DTA114EKA          |
| Q4005        | WC397700 | TR          | 2N5401C-AT         |
| Q4006-4012   | WC529400 | TR          | KTC3875S Y GR RTK  |
| Q4301        | VV655400 | TR. DGT     | DTA114EKA          |
| Q4302        | VV655000 | TR. DGT     | DTA114EKA          |
| Q4305        | VV655400 | TR. DGT     | DTA114EKA          |
| Q4306        | VV655000 | TR. DGT     | DTA114EKA          |
| R4201        | HV753100 | R. CAR. FP  | 1Ω 1/4W            |
| * R4208-4209 | WQ072300 | R. MTL. OXD | 2. 2Ω 1W           |
| * R4301      | WQ964700 | R. MTL. OXD | 470Ω 1W            |
| * R4302      | WQ964700 | R. MTL. OXD | 470Ω 1W            |
| R4320-4323   | HV757100 | R. CAR. FP  | 10KΩ 1/4W          |
| R4413-4414   | R8071300 | R. MTL. FLM | 470Ω 1W            |
| RY461        | WJ122400 | RELAY       | 981-2A-24DS-SP7    |
| RY463        | WJ122400 | RELAY       | 981-2A-24DS-SP7    |
| ST451        | V4040500 | SCR. TERM   | M3                 |
| ST471        | V4040500 | SCR. TERM   | M3                 |
| SW401-404    | WD483100 | SW. TACT    | SKRGAAD010         |
| SW406-407    | WD483100 | SW. TACT    | SKRGAAD010         |

\* New Parts



## P.C.B. OPERATION and P.C.B. MAIN

\* New Parts

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## P.C.B. MAIN and P.C.B. VIDEO

| Ref No.        | Part No. | Description                  | Markets |
|----------------|----------|------------------------------|---------|
| C1608          | US044220 | C. CE. CHP 0.022uF 25V       |         |
| C1609-1610     | US064100 | C. CE. CHP 0.01uF 50V B      |         |
| D1001-1016     | VR496500 | D1ODE. CHP MA111 FLAT TP     |         |
| △ D1017-1023   | VG437500 | D1ODE. ZENR MTZJ5. 1C 5. 1V  |         |
| D1024-1039     | VR496500 | D1ODE. CHP MA111 FLAT TP     |         |
| △ D1040        | WK878000 | D1ODE. BRG D15XBN20-7001 15A |         |
| △ D1041        | WH487300 | D1ODE. BRG RS203M 2. 0A 200V |         |
| D1042          | VG440500 | D1ODE. ZENR MTZJ13B 13V      |         |
| D1043          | VR496500 | D1ODE. CHP MA111 FLAT TP     |         |
| △ D1044-1045   | VG435500 | D1ODE. ZENR MTZJ2. 4B 2. 4V  |         |
| D1501-1502     | VG438400 | D1ODE. ZENR MTZJ6. 8C 6. 8V  |         |
| △ F100         | KB000780 | FUSE T5A 250V                | R       |
| G101           | V5995800 | PLATE. GND                   |         |
| △ IC101        | XJ608A00 | IC NJM7812FA                 |         |
| △ IC102        | X4154A00 | IC KIA7912PI                 |         |
| IC152          | XZ509A00 | IC TC74VHC04FT INVER         |         |
| * IC153        | YA361A00 | IC R2A15220FP                |         |
| IC154          | X7378A00 | IC NJM4565M(Te1)             |         |
| PJ150          | V5715300 | JACK. PIN 2P OR/OR           |         |
| PJ151          | V7046800 | JACK. PIN 6P MSP-246V1-01NI  |         |
| PJ152-153      | V7046700 | JACK. PIN 4P MSP-244V1-01NI  |         |
| PJ154          | WG674900 | JACK. PIN 4P                 |         |
| PJ156          | V7046800 | JACK. PIN 6P MSP-246V1-01NI  |         |
| PJ157          | V7046700 | JACK. PIN 4P MSP-244V1-01NI  |         |
| PJ158          | WG674900 | JACK. PIN 4P                 |         |
| PJ159          | V7189700 | JACK. PIN 1P                 |         |
| Q1001-1014     | WF549900 | TR 2SC3906K T146 R, S        |         |
| Q1015-1021     | VE198700 | TR 2SA1145 O, Y              |         |
| △ Q1022-1028   | VK432900 | TR 2SD1915F S, T             |         |
| △ Q1029-1035   | VE198800 | TR 2SC2705 O, Y              |         |
| Q1036-1042     | WG408900 | TR 2SC5291 S, T              |         |
| △ Q1043-1049   | WG408800 | TR 2SA2168 S, T              |         |
| Q1050-1056     | WD281200 | TR. PAIR A2151/C6011 O, P, Y |         |
| Q1057-1063     | WC139600 | TR KTC3911S GR BL            |         |
| Q1064          | WH372100 | TR KTA1517S GR TP            |         |
| Q1065          | WC139600 | TR KTC3911S GR BL            |         |
| △ * Q1067-1068 | WC292600 | TR KTA1837-U                 |         |
| △ Q1069-1070   | WC398400 | TR 2N5551C-AT                |         |
| △ Q1071        | WC397700 | TR 2N5401C-AT                |         |
| △ Q1072        | VP872600 | TR 2SA1708 S, T              |         |
| Q1073          | WC398500 | TR. DGT KRA102M-AT           |         |
| * Q1074        | WS512800 | TR. DGT KRC105M-AT/P         |         |
| Q1500-1504     | VZ725900 | TR 2SD1938F S, T             |         |
| Q1507-1527     | VZ725900 | TR 2SD1938F S, T             |         |
| R1001-1007     | HF356100 | R. CAR 1KΩ 1/2W              |         |
| R1008-1010     | HF356180 | R. CAR 1. 8KΩ 1/2W           |         |
| R1011-1014     | HL006180 | R. MTL. OXD 1. 8KΩ 1/2W      |         |
| R1022-1028     | HF355330 | R. CAR 330Ω 1/2W             |         |
| * R1029-1035   | WA622000 | R. MTL. OXD 1. 2KΩ 1W        |         |
| R1036-1042     | V8070900 | R. MTL. FLM 100Ω 1W          |         |
| R1043-1049     | V8072600 | R. MTL. OXD 33KΩ 1W          |         |
| R1079-1085     | HL005120 | R. MTL. OXD 120Ω 1/2W        |         |
| R1086-1092     | WG727400 | R. MTL. FLM 2. 7KΩ 1/4W      |         |
| R1093-1099     | WG725600 | R. MTL. FLM 470Ω 1/4W        |         |
| R1100-1106     | WG726400 | R. MTL. FLM 1KΩ 1/4W         |         |
| R1107-1112     | WG726200 | R. MTL. FLM 820Ω 1/4W        |         |
| △ R1113-1126   | HV755120 | R. CAR. FP 120Ω 1/4W         |         |

\* New Parts

| Ref No.        | Part No. | Description                  | Markets |
|----------------|----------|------------------------------|---------|
| R1127-1133     | HF355470 | R. CAR 470Ω 1/2W             |         |
| △ R1134-1147   | HV754100 | R. CAR. FP 10Ω 1/4W          |         |
| △ * R1148-1154 | WP839400 | R. WW 0. 22+0. 22 3W         |         |
| △ R1176-1182   | V8070300 | R. MTL. FLM 10Ω 1W           |         |
| △ R1197-1198   | V8070200 | R. MTL. FLM 4. 7Ω 1W         |         |
| △ R1211        | HV754100 | R. CAR. FP 10Ω 1/4W          |         |
| R1213          | V8072100 | R. MTL. OXD 5. 6KΩ 1W        |         |
| R1214          | HV755560 | R. CAR. FP 560Ω 1/4W         |         |
| R1219          | V8072000 | R. MTL. OXD 4. 7KΩ 1W        |         |
| △ R1222        | HV756100 | R. CAR. FP 1KΩ 1/4W          |         |
| △ R1234-1235   | HV754100 | R. CAR. FP 10Ω 1/4W          |         |
| R1236          | WG726200 | R. MTL. FLM 820Ω 1/4W        |         |
| △ R1238        | V8070300 | R. MTL. FLM 10Ω 1W           |         |
| R1504          | HV753100 | R. CAR. FP 1Ω 1/4W           |         |
| * R1573        | WQ835700 | R. MTL. OXD 82Ω 1W           |         |
| * R1575        | WQ835700 | R. MTL. OXD 82Ω 1W           |         |
| * R1664-1665   | WQ835800 | R. MTL. OXD 100Ω 1W          |         |
| △ RY101        | WE648700 | RELAY DC DH24D2-0-Q          |         |
| ST100          | V4040500 | SCR. TERM M3                 |         |
| △ SW101        | WB493700 | VOLT. SELCT R8140246         | R       |
| △ SW101        | WD073700 | VOLT. SELCT R8140254         | L       |
| U1500-1501     | WH169900 | CN. PHOTO. R 1P GP1FAV51RKOF |         |
|                | WE774200 | SCR. BND. HD 3x10 MFZN2W3    |         |
| * WS304700     | P. C. B. | VIDEO                        | U       |
| * WS304800     | P. C. B. | VIDEO                        | C       |
| * WS304900     | P. C. B. | VIDEO                        | R       |
| * WS305000     | P. C. B. | VIDEO                        | T       |
| * WS305100     | P. C. B. | VIDEO                        | K       |
| * WS305200     | P. C. B. | VIDEO                        | A       |
| * WS305300     | P. C. B. | VIDEO                        | BGEF    |
| * WS305400     | P. C. B. | VIDEO                        | L       |
| CB303          | VQ961500 | CN. BS. PIN 12P              |         |
| CB304          | VN394900 | CN. BS. PIN 14P              |         |
| CB321          | VM859500 | CN. BS. PIN 11P              |         |
| CB322          | VM923600 | CN. BS. PIN 13P              |         |
| CB332          | VQ961300 | CN. BS. PIN 10P              |         |
| CB333          | VK024700 | CN. BS. PIN 3P               |         |
| CB340          | LB918020 | CN. BS. PIN 2P               |         |
| CB342          | LB918040 | CN. BS. PIN 4P               |         |
| CB343          | VZ130900 | CN. JUMPER 4P                |         |
| CB344          | VQ585500 | CN. JUMPER 5P                |         |
| CB346          | VB390000 | CN. BS. PIN 4P               |         |
| * CB349        | VQ047700 | CN. BS. PIN 22P              |         |
| CB381          | VQ962800 | CN. BS. PIN 7P               |         |
| CB391          | VQ044100 | CN. BS. PIN 5P               |         |
| C3001          | US062100 | C. CE. CHP 100pF 50V B       |         |
| C3002-3004     | US060800 | C. CE. CHP 8pF 50V B         |         |
| C3005          | US062100 | C. CE. CHP 100pF 50V B       |         |
| C3006          | UR237470 | C. EL 47uF 16V               |         |
| C3007-3008     | US135100 | C. CE. CHP 0. 1uF 16V        |         |
| C3009          | UR237470 | C. EL 47uF 16V               |         |
| C3011          | US060300 | C. CE. CHP 3pF 50V B         |         |
| C3012          | UR837470 | C. EL 47uF 16V               |         |
| C3013-3014     | US060300 | C. CE. CHP 3pF 50V B         |         |

\* New Parts

## P.C.B. VIDEO

| Ref No.    | Part No. | Description             | Markets    |
|------------|----------|-------------------------|------------|
| C3015-3017 | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3018      | UR267100 | C. EL 10uF 50V          |            |
| C3019      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3020      | UR267100 | C. EL 10uF 50V          |            |
| C3021-3025 | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3026      | UR267100 | C. EL 10uF 50V          |            |
| C3027      | WD758300 | C. CE. CHP 10uF 10V     |            |
| C3029      | WD758300 | C. CE. CHP 10uF 10V     |            |
| C3031      | WD758300 | C. CE. CHP 10uF 10V     |            |
| C3033      | UR837470 | C. EL 47uF 16V          |            |
| C3035-3037 | WD758300 | C. CE. CHP 10uF 10V     |            |
| C3043-3044 | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3045      | UR837470 | C. EL 47uF 16V          |            |
| C3047      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3048      | UR238220 | C. EL 220uF 16V         |            |
| C3049      | UR837470 | C. EL 47uF 16V          |            |
| C3050      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3051      | UR238220 | C. EL 220uF 16V         |            |
| C3063      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3065      | UR237470 | C. EL 47uF 16V          |            |
| C3067      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3072      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3073      | UR238220 | C. EL 220uF 16V         |            |
| C3077      | US135100 | C. CE. CHP 0.1uF 16V    |            |
| C3080-3085 | WD758300 | C. CE. CHP 10uF 10V     |            |
| C3201      | US061270 | C. CE. CHP 27pF 50V B   | BGEF       |
| C3202      | UR237100 | C. EL 10uF 16V          | BGEF       |
| C3203      | US061270 | C. CE. CHP 27pF 50V B   | BGEF       |
| C3204-3205 | US135100 | C. CE. CHP 0.1uF 16V    | BGEF       |
| C3206      | US062560 | C. CE. CHP 560pF 50V B  | BGEF       |
| C3207-3208 | US062330 | C. CE. CHP 330pF 50V B  | BGEF       |
| C3209      | US135100 | C. CE. CHP 0.1uF 16V    | BGEF       |
| C3211      | UR237470 | C. EL 47uF 16V          | BGEF       |
| C3212      | UR237470 | C. EL 47uF 16V          | CRTKABGEFL |
| C3213      | UR237470 | C. EL 47uF 16V          | CRTKABGEFL |
| C3214      | UR237470 | C. EL 47uF 16V          | CRTKABGEFL |
| C3215      | US062100 | C. CE. CHP 100pF 50V B  |            |
| C3217      | US062100 | C. CE. CHP 100pF 50V B  | CRTKABGEFL |
| C3218      | US062100 | C. CE. CHP 100pF 50V B  |            |
| C3220      | US064100 | C. CE. CHP 0.01uF 50V B | U          |
| C3221      | US062100 | C. CE. CHP 100pF 50V B  |            |
| C3303-3305 | VR324900 | C. MYLAR 0.1uF 100V     |            |
| C3307      | WG601900 | C. EL 10000uF 16V       |            |
| C3308      | UR278100 | C. EL 100uF 63V         |            |
| C3309      | UR03A100 | C. EL 10000uF 16V       |            |
| C3310      | UR039470 | C. EL 4700uF 16V        |            |
| C3311      | UR266100 | C. EL 1uF 50V           |            |
| C3312      | UR267220 | C. EL 22uF 50V          |            |
| C3313      | UR266100 | C. EL 1uF 50V           | U          |
| C3314      | UR266100 | C. EL 1uF 50V           |            |
| C3315      | UR267100 | C. EL 10uF 50V          |            |
| C3316      | UR268100 | C. EL 100uF 50V         |            |
| C3317      | UR266100 | C. EL 1uF 50V           | U          |
| C3318      | UR237470 | C. EL 47uF 16V          | U          |
| C3319      | UR266100 | C. EL 1uF 50V           |            |
| C3320-3321 | UR267330 | C. EL 33uF 50V          |            |
| C3324      | UR237470 | C. EL 47uF 16V          | U          |

\* New Parts

| Ref No.      | Part No. | Description                    | Markets    |
|--------------|----------|--------------------------------|------------|
| C3403-3409   | WJ605000 | C. MYLAR 0.01uF 50V J          |            |
| * C3410-3416 | WJ605200 | C. MYLAR 0.015uF 50V           |            |
| C3603-3604   | US063100 | C. CE. CHP 1000pF 50V B        |            |
| C3606        | US064100 | C. CE. CHP 0.01uF 50V B        |            |
| C3801        | US064100 | C. CE. CHP 0.01uF 50V B        |            |
| C3802        | V7887800 | C. EL 1uF 50V                  |            |
| C3803        | WJ335500 | C. EL 2.2uF 50V                |            |
| * C3804      | WJ603700 | C. MYLAR 1000pF 50V            |            |
| C3805        | US064100 | C. CE. CHP 0.01uF 50V B        |            |
| C3806-3807   | WD758300 | C. CE. CHP 10uF 10V            |            |
| C3901        | US064100 | C. CE. CHP 0.01uF 50V B        | BGEF       |
| C3902        | US062120 | C. CE. CHP 120pF 50V B         | BGEF       |
| C3903        | US062220 | C. CE. CHP 220pF 50V B         | BGEF       |
| C3904        | US135100 | C. CE. CHP 0.1uF 16V           | BGEF       |
| C3905        | UR837470 | C. EL 47uF 16V                 | BGEF       |
| C3906        | UR837100 | C. EL 10uF 16V                 | BGEF       |
| C3907        | UR818470 | C. EL 470uF 6.3V               | BGEF       |
| C3908        | US064100 | C. CE. CHP 0.01uF 50V B        | BGEF       |
| D3201        | VG436100 | DIODE. ZENR MTZJ3.3B 3.3V      | BGEF       |
| △ D3202      | VG439500 | DIODE. ZENR MTZJ10B 10V        | CRTKABGEFL |
| D3302        | WH487300 | DIODE. BRG RS203M 2.0A 200V    |            |
| △ D3304      | WH487300 | DIODE. BRG RS203M 2.0A 200V    |            |
| D3306        | VV307700 | DIODE 1N4002S                  |            |
| D3307        | VG440200 | DIODE. ZENR MTZJ12B 12V        | R          |
| * D3308      | VG444700 | DIODE. ZENR MTZ J 39D 39.0V TP |            |
| D3309        | VT332900 | DIODE 1SS355                   | U          |
| D3310        | VT332900 | DIODE 1SS355                   |            |
| D3311        | VT332900 | DIODE 1SS355                   | U          |
| D3313-3314   | VT332900 | DIODE 1SS355                   | U          |
| D3320        | VG437400 | DIODE. ZENR MTZJ5.1B 5.1V      |            |
| D3403-3407   | VT332900 | DIODE 1SS355                   |            |
| D3601-3602   | VT332900 | DIODE 1SS355                   |            |
| D3801-3805   | VT332900 | DIODE 1SS355                   |            |
| D3901-3902   | VT332900 | DIODE 1SS355                   | BGEF       |
| IC301-303    | XY879A00 | IC TC74HC4053AF (EL)           |            |
| IC305        | X6742A00 | IC LA73050-TLM-E               |            |
| IC306        | X2904A00 | IC NJM2581M VIDEO AMP          |            |
| IC307        | XY549A00 | IC TC74HC4051AFEL              |            |
| IC308        | X7779A00 | IC LC709004A-TLM-E             |            |
| IC310        | X8875A00 | IC FHP33501M14X                |            |
| IC321        | X8235A00 | IC LC72725KM                   | BGEF       |
| IC331        | X8276A00 | IC NJM2396F05                  |            |
| IC332-333    | X8035A00 | IC BA00JC5WT-V5                | U          |
| IC334        | X6143A00 | IC NJM2388F05 5.0V             |            |
| IC391        | XZ509A00 | IC TC74VHC04FT INVER           | BGEF       |
| JK361-362    | V9435700 | JACK. MN1 MSJ-035-12APC        |            |
| JK391        | V6931000 | CN. DIN 1P YKF51-5506          | BGEF       |
| PJ301        | WG505100 | JACK. PIN 6P                   |            |
| PJ302        | V7189800 | JACK. PIN 1P                   |            |
| * PJ303      | WH381400 | JACK. PIN 3P JACK G, B, R      |            |
| PJ304        | V7189800 | JACK. PIN 1P                   |            |
| PJ305-306    | V7190000 | JACK. PIN 2P                   |            |
| Q3001        | VR936300 | TR 2SA1576A T106               |            |
| Q3201        | iC174020 | TR 2SC1740S QRS                | BGEF       |
| Q3203        | iC181510 | TR 2SC1815 Y                   | CRTKABGEFL |
| Q3301        | VP872600 | TR 2SA1708 S, T                |            |
| Q3302        | iA101510 | TR 2SA1015 Y                   |            |

\* New Parts



## P.C.B. VIDEO and P.C.B. GUI

| Ref No.      | Part No. | Description  | Markets             |
|--------------|----------|--------------|---------------------|
| Q3303        | WG538600 | TR           | KTA1046-Y-U/P       |
| Q3304        | iA101510 | TR           | 2SA1015 Y           |
| Q3305        | iC181510 | TR           | 2SC1815 Y           |
| Q3405        | VV655400 | TR. DGT      | DTC114EKA           |
| Q3406        | VV655000 | TR. DGT      | DTA114EKA           |
| Q3407        | VV655400 | TR. DGT      | DTC114EKA           |
| Q3408        | VV655000 | TR. DGT      | DTA114EKA           |
| Q3409        | VV655400 | TR. DGT      | DTC114EKA           |
| Q3410        | VV655000 | TR. DGT      | DTA114EKA           |
| Q3411        | VV655400 | TR. DGT      | DTC114EKA           |
| Q3412        | VV655000 | TR. DGT      | DTA114EKA           |
| Q3413        | VV655400 | TR. DGT      | DTC114EKA           |
| Q3414        | VV655000 | TR. DGT      | DTA114EKA           |
| Q3801-3802   | iC181510 | TR           | 2SC1815 Y           |
| Q3803        | VV655700 | TR. DGT      | DTC144EKA           |
| R3021        | HV753100 | R. CAR. FP   | 1 $\Omega$ 1/4W     |
| R3025        | HV753100 | R. CAR. FP   | 1 $\Omega$ 1/4W     |
| R3046-3049   | HV753100 | R. CAR. FP   | 1 $\Omega$ 1/4W     |
| R3060-3061   | HV753100 | R. CAR. FP   | 1 $\Omega$ 1/4W     |
| R3208        | HV755680 | R. CAR. FP   | 680 $\Omega$ 1/4W   |
| R3210        | HV754180 | R. CAR. FP   | 18 $\Omega$ 1/4W    |
| R3301        | HV753220 | R. CAR. FP   | 2. 2 $\Omega$ 1/4W  |
| R3306        | HV756100 | R. CAR. FP   | 1K $\Omega$ 1/4W    |
| R3315-3316   | HV756470 | R. CAR. FP   | 4. 7K $\Omega$ 1/4W |
| R3403-3406   | HV757100 | R. CAR. FP   | 10K $\Omega$ 1/4W   |
| R3910        | HV753220 | R. CAR. FP   | 2. 2 $\Omega$ 1/4W  |
| RY341-345    | WJ122400 | RELAY        | 981-2A-24DS-SP7     |
| ST331-332    | V4040500 | SCR. TERM    | M3                  |
| ST361-362    | V4040500 | SCR. TERM    | M3                  |
| ST381-383    | V4040500 | SCR. TERM    | M3                  |
| TE341        | WK560800 | TERM. SP     | 4P MST-204V1-01 NC  |
| TE341        | WK560900 | TERM. SP     | 4P MST-204V1-01 WC  |
| TE342        | WK561000 | TERM. SP     | 6P MST-207V1-01 NC  |
| TE342        | WK561100 | TERM. SP     | 6P MST-207V1-01 WC  |
| TE343        | WK560800 | TERM. SP     | 4P MST-204V1-01 NC  |
| TE343        | WK560900 | TERM. SP     | 4P MST-204V1-01 WC  |
| XL321        | V2731100 | RSNR. CRYST  | 4. 332M HC-49/U     |
|              | WE774200 | SCR. BND. HD | 3x10 MFZN2W3        |
| * WS306800   | P. C. B. | GUI          |                     |
| CB500        | VK026600 | CN. BS. PIN  | 7P                  |
| CB501        | VQ044700 | CN. BS. PIN  | 16P                 |
| CB503        | VK026300 | CN. BS. PIN  | 4P                  |
| CB550        | VB858500 | CN. BS. PIN  | 6P                  |
| * CB551      | WM297100 | CN. LAN      | 6P 08B1-1X1T-06-F   |
| * C5000-5001 | US625100 | C. CE. CHP   | 0. 100uF 10V        |
| C5002-5003   | US061120 | C. CE. CHP   | 12pF 50V B          |
| * C5004      | US625100 | C. CE. CHP   | 0. 100uF 10V        |
| C5005-5008   | US135100 | C. CE. CHP   | 0. 1uF 16V          |
| C5009-5010   | US061180 | C. CE. CHP   | 18pF 50V B          |
| C5012        | US135100 | C. CE. CHP   | 0. 1uF 16V          |
| C5013        | US663100 | C. CE. CHP   | 1000pF 50V          |
| * C5014-5016 | US625100 | C. CE. CHP   | 0. 100uF 10V        |
| C5017        | US135100 | C. CE. CHP   | 0. 1uF 16V          |
| C5018        | US063100 | C. CE. CHP   | 1000pF 50V B        |

\* New Parts

| Ref No.      | Part No. | Description | Markets       |
|--------------|----------|-------------|---------------|
| * C5019      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5020        | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C5021-5024   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C5025        | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C5026        | US064100 | C. CE. CHP  | 0. 01uF 50V B |
| C5027        | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C5028        | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5029      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5030        | US663100 | C. CE. CHP  | 1000pF 50V    |
| C5031        | US061220 | C. CE. CHP  | 22pF 50V B    |
| C5032        | UF037100 | C. EL. CHP  | 10uF 16V      |
| * C5033-5034 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5035        | US663100 | C. CE. CHP  | 1000pF 50V    |
| C5036        | US061220 | C. CE. CHP  | 22pF 50V B    |
| C5037        | UF018100 | C. EL. CHP  | 100uF 6. 3V   |
| C5038-5039   | UF037100 | C. EL. CHP  | 10uF 16V      |
| C5040        | UF037220 | C. EL. CHP  | 22uF 16V      |
| * C5041-5042 | US663330 | C. CE. CHP  | 3300pF 50V    |
| C5043        | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C5044-5049   | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C5050-5054   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C5055        | UF037220 | C. EL. CHP  | 22uF 16V      |
| * C5056-5058 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5059        | UF037100 | C. EL. CHP  | 10uF 16V      |
| C5060        | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5061      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5062        | UF037100 | C. EL. CHP  | 10uF 16V      |
| * C5063-5065 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5066-5067   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5068-5069 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5070        | UF037100 | C. EL. CHP  | 10uF 16V      |
| * C5071      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5072        | US663100 | C. CE. CHP  | 1000pF 50V    |
| C5073-5076   | US063100 | C. CE. CHP  | 1000pF 50V B  |
| * C5077-5078 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5079        | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5080-5081 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5082        | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5083      | WP882000 | C. CE. CHP  | 10uF 6. 3V    |
| * C5084      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5085-5086   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5087      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5088        | US062220 | C. CE. CHP  | 220pF 50V B   |
| * C5089-5095 | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5096-5107   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C5108        | US663100 | C. CE. CHP  | 1000pF 50V    |
| C5109-5112   | US063100 | C. CE. CHP  | 1000pF 50V B  |
| C5113-5114   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| * C5115      | WP882000 | C. CE. CHP  | 10uF 6. 3V    |
| C5116-5119   | US662100 | C. CE. CHP  | 100pF 50V     |
| * C5501      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5502        | US062220 | C. CE. CHP  | 220pF 50V B   |
| C5503        | UF018100 | C. EL. CHP  | 100uF 6. 3V   |
| * C5504      | US625100 | C. CE. CHP  | 0. 100uF 10V  |
| C5505-5506   | US135100 | C. CE. CHP  | 0. 1uF 16V    |
| C5507-5508   | US634100 | C. CE. CHP  | 0. 01uF 16V   |
| C5509        | UF037220 | C. EL. CHP  | 22uF 16V      |

\* New Parts

P.C.B. GUI

| Ref No.      | Part No. | Description | Markets             |
|--------------|----------|-------------|---------------------|
| C5510~5511   | US135100 | C.OE CHIP   | 16V                 |
| * C5512~5513 | US625100 | C.OE CHIP   | 0.1uF 10V           |
| C5514        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5515        | W0758300 | C.OE CHIP   | 10uF 10V            |
| C5516        | US061150 | C.OE CHIP   | 15pF 50V B          |
| C5517        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5518        | UF018100 | C.OE CHIP   | 100uF 16V           |
| C5519        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5520        | US061180 | C.OE CHIP   | 18pF 50V B          |
| C5521        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5522        | W0758300 | C.OE CHIP   | 10uF 10V            |
| C5523        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5524~5525   | US634100 | C.OE CHIP   | 0.01uF 16V          |
| C5527~5532   | US135100 | C.OE CHIP   | 0.1uF 16V           |
| * C5533~5534 | US625100 | C.OE CHIP   | 0.100uF 10V         |
| C5535        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| C5536~5537   | US631300 | C.OE CHIP   | 1000pF 50V          |
| C5538        | W0758300 | C.OE CHIP   | 10uF 10V            |
| C5539        | W044220  | C.OE CHIP   | 0.02uF 50V          |
| * C5540      | US625100 | C.OE CHIP   | 0.100uF 10V         |
| C5541        | US631300 | C.OE CHIP   | 1000pF 50V          |
| C5542        | US135100 | C.OE CHIP   | 0.1uF 16V           |
| * C5543      | US625100 | C.OE CHIP   | 0.100uF 10V         |
| C5544~5545   | US135100 | C.OE CHIP   | 0.1uF 16V           |
| * C5546~5548 | US625100 | C.OE CHIP   | 0.100uF 10V         |
| C5549        | US662200 | C.OE CHIP   | 220pF 50V B         |
| C5550~5551   | US135100 | C.OE CHIP   | 0.01uF 16V          |
| C5552~5553   | US064100 | C.OE CHIP   | 0.10uF 50V B        |
| C5554~5555   | W0758300 | C.OE CHIP   | 10uF 10V            |
| * C5556      | US625100 | C.OE CHIP   | 0.100uF 10V         |
| C5557~5558   | US061120 | C.OE CHIP   | 12pF 50V B          |
| C5559        | UF018100 | C.OE CHIP   | 100uF 6.3V          |
| I0501~502    | X7678400 | IC          | SN74LV163APWR ONT   |
| I0503        | X6534400 | IC          | SN74LV14APWR D+FF   |
| I0504        | X7375400 | IC          | PON17810BQR         |
| * I0506      | X4322400 | IC          | A68814VQ            |
| * I0507      | X4478400 | IC          | K45S60832-JC75000   |
| * I0508      | X4350400 | IC          | 74LVCL086W AND      |
| * I0509~512  | XZ286400 | IC          | 74LV245APW18        |
| * I0513      | Y0017000 | IC MEMORY   | K6P641500B-P1       |
| * I0514      | X4478400 | IC          | (wr tten)           |
| I0521~522    | X4063400 | IC          | TC7WH04FU           |
| I0523        | X4354400 | IC          | 74LV08APW AND       |
| I0524        | X6386400 | IC          | TC7WH14FK (TE8SL F) |
| I0525~526    | X4356400 | IC          | 74LV622APW OR       |
| I0552        | X6096400 | IC          | R6523N001A-TR-F     |
| I0553        | X4477400 | IC          | LA9217-MT           |
| * Q0500      | WE834500 | FEET        | UP46721-T1-A        |
| S1550~551    | V4040500 | SCR. TERM   | M3                  |
| XL500        | V6825700 | RSNR CRY5   | 24.57MHz            |
| XL501        | W6625000 | RSNR CRY5   | 27MHz               |
| XL502        | W6551700 | RSNR CRY5   | 16.66MHz SMD-49     |
| XL550        | W6538400 | RSNR CRY5   | 12MHz               |
| * XL551      | W6864600 | RSNR CRY5   | 25MHz SMD-49        |

\*: New Parts

P.C.B. ACDC

| Ref No.      | Part No.     | Description | Markets              |
|--------------|--------------|-------------|----------------------|
| * W3306200   | P.C.B.       | ACDC        | UC                   |
| * W3306300   | P.C.B.       | ACDC        | R                    |
| * W3306400   | P.C.B.       | ACDC        | TK48REF              |
| * W3306500   | P.C.B.       | ACDC        | L                    |
| C6601~602    | WNI03000     | CLIP FUSE   | TP00351~31           |
| C6603        | V6879900     | CM BS P1N   | 2P                   |
| C6604        | V0961000     | CM BS P1N   | 7P                   |
| * C6601      | W6852400     | C.POL.MTL   | 0.022uF 630V         |
| * C6602~6003 | W6902300     | C.OE SAFETY | 1000pF 250V          |
| * C6604      | W6256400     | C.OE SAFETY | 0.1uF 275V           |
| * C6606      | W6968600     | C.EL        | 150uF 400V           |
| * C6607      | W0939400     | C.OE SAFETY | 0.01uF 250V          |
| * C6608      | WRI82800     | C.OE CHIP   | 2200pF 250V          |
| C6609        | US065100     | C.OE CHIP   | 50V B                |
| C6610        | UR837470     | C.EL        | 47uF 16V             |
| C6611        | UR867100     | C.EL        | 10uF 50V             |
| * C6612      | W0902300     | C.OE SAFETY | 1000pF 250V          |
| * C6613      | W0852400     | C.POL.MTL   | 0.022uF 630V         |
| C6616~6017   | UR866100     | C.EL        | 1uF 50V              |
| * C6618~6019 | W0777900     | C.EL        | 35V                  |
| C6620        | US046100     | C.OE CHIP   | 1uF 25V              |
| C6621        | US135100     | C.OE CHIP   | 0.1uF 16V            |
| C6622        | W0771300     | C.EL        | 100uF 10V            |
| C6101        | US135100     | C.OE CHIP   | 0.1uF 16V            |
| * C6601      | W071800      | DIODE BRG.  | SI18650 1A 600V      |
| * C6602      | V6442200     | DIODE.ZENR  | MT122C 22V           |
| * C6603~6004 | W071700      | DIODE.ZENR  | PEKE100A 100V        |
| * C6605      | W0647500     | DIODE       | HT186                |
| * C6606      | V0631600     | DIODE       | ISS133, 176          |
| * C6607      | W067000      | DIODE.SCHO  | 10A 40V S810SCAM     |
| * C6608      | V0631600     | DIODE       | ISS133, 176          |
| * C6609      | V7332900     | DIODE       | ISS355               |
| * F6001      | W044000      | FUSE        | 2A 250V              |
| * F6002      | W0211200     | FUSE        | 10A 125V             |
| * F6002      | W0633100     | FUSE        | 75A 250V             |
| * I0601      | Y4851A00     | IC          | TOP255W              |
| * I0602      | W0867100     | PHOT.CPL    | EL816 (M) (C)        |
| * I0603      | Y4276A00     | IC          | TL431AC 2.5-36V      |
| * I0604      | W0867100     | PHOT.CPL    | EL816 (M) (C)        |
| * I0611      | Y4381A00     | IC          | LM1961Z/LF THERMAL   |
| * RY601      | W0604100     | RELAY       | DC DLS501-0 (M) 0.25 |
| * ST611      | V4040500     | SCR. TERM   | M3                   |
| * W601       | W4246200     | SCR. TERM   | 3.5                  |
| * TE601      | W6782800     | AC INLET    | R-30190 (26)         |
| * WE774200   | SCR. BND. HD | 3x10        | WF2N0K3              |

\*: New Parts

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          | 11 kΩ  | HF45 7110          | HF45 7110          |
| 1.8 Ω  | HJ35 3180          | *                  | 12 kΩ  | HJ35 7120          | HF85 7120          |
| 2.2 Ω  | HJ35 3220          | HF85 3220          | 13 kΩ  | HF45 7130          | HF45 7130          |
| 3.3 Ω  | HJ35 3300          | HF85 3300          | 15 kΩ  | HF45 7150          | HF45 7150          |
| 3.7 Ω  | HJ35 3370          | HF85 3370          | 18 kΩ  | HF45 7180          | HF45 7180          |
| 5.6 Ω  | HJ35 3560          | HF85 3560          | 22 kΩ  | HF45 7220          | HF45 7220          |
| 10 Ω   | HF45 4100          | HF45 4100          | 24 kΩ  | HF45 7240          | HF45 7240          |
| 15 Ω   | HJ35 4150          | HF85 4150          | 27 kΩ  | HJ35 7270          | HF85 7270          |
| 22 Ω   | HF45 4220          | HF45 4220          | 30 kΩ  | HF45 7300          | HF45 7300          |
| 27 Ω   | HJ35 4270          | HF85 4270          | 33 kΩ  | HF45 7330          | HF45 7330          |
| 33 Ω   | HF45 4330          | HF45 4330          | 36 kΩ  | HF45 7360          | HF45 7360          |
| 39 Ω   | HJ35 4470          | HF85 4390          | 39 kΩ  | HF45 7390          | HF45 7390          |
| 47 Ω   | HF45 4470          | HF45 4470          | 47 kΩ  | HF45 7470          | HF45 7470          |
| 56 Ω   | HF45 4560          | HF45 4560          | 51 kΩ  | HF45 7510          | HF45 7510          |
| 68 Ω   | HF45 4680          | HF45 4680          | 56 kΩ  | HF45 7560          | HF45 7560          |
| 75 Ω   | HF45 4750          | HF45 4750          | 62 kΩ  | HF45 7620          | HF45 7620          |
| 82 Ω   | HF45 4820          | HF45 4820          | 68 kΩ  | HF45 7680          | HF45 7680          |
| 91 Ω   | HF45 4910          | HF45 4910          | 82 kΩ  | HF45 7820          | HF45 7820          |
| 100 Ω  | HF45 5100          | HF45 5100          | 91 kΩ  | HF45 7910          | HF45 7910          |
| 110 Ω  | HJ35 5110          | HF85 5110          | 100 kΩ | HF45 8100          | HF45 8100          |
| 120 Ω  | HF45 5120          | HF45 5120          | 110 kΩ | HF45 8110          | HF45 8110          |
| 150 Ω  | HF45 5150          | HF45 5150          | 120 kΩ | HF45 8120          | HF45 8120          |
| 160 Ω  | HJ35 5160          | *                  | 130 kΩ | HF45 8130          | *                  |
| 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          |        |                    |                    |
| 10 kΩ  | HF45 7100          | HF45 7100          |        |                    |                    |

\*: Not available

U model

Diagram illustrating the exploded view of the U model chassis assembly. Components are labeled with callouts:

- 160: Screws for the front panel.
- 176: Screws for the front panel.
- 103: Screws for the front panel.
- 12: Front panel.
- 27: Chassis.
- 3-1 (3): Screws for the chassis.
- 3-1 (1): Screws for the chassis.
- AMP unit: Amplifier unit.

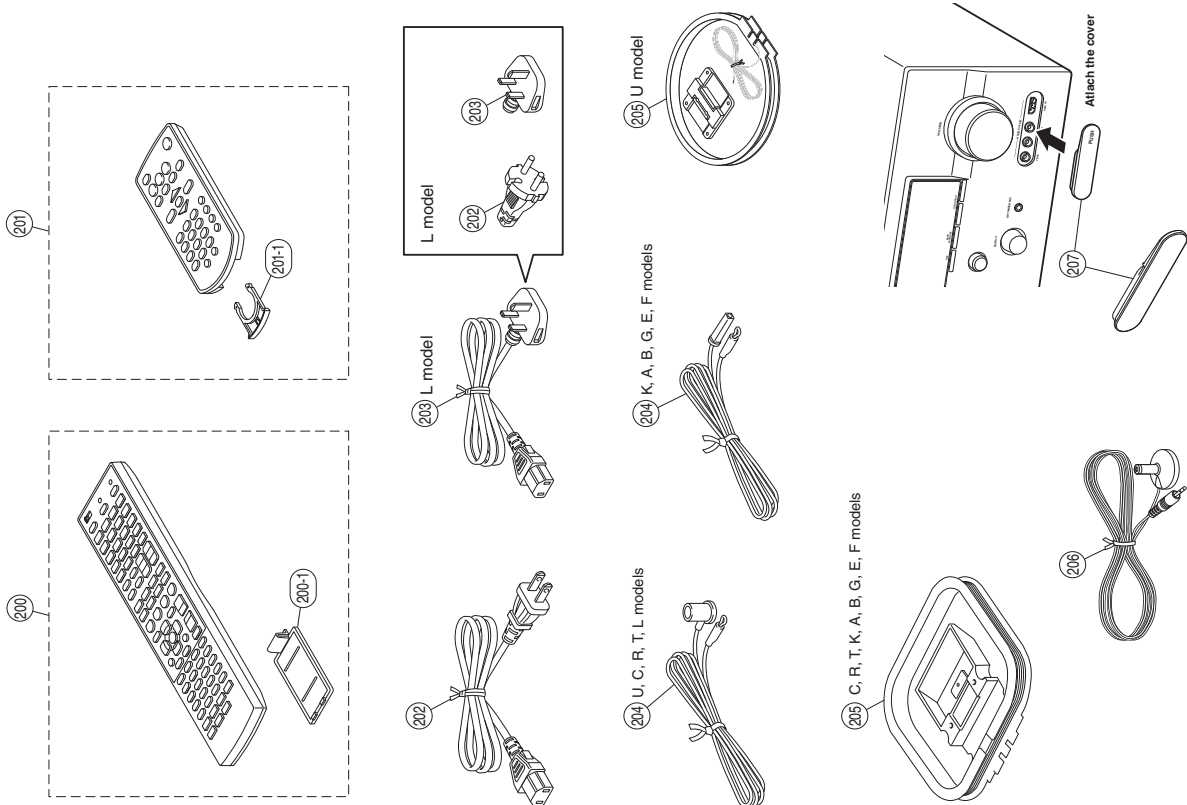
| Ref No. | Part No. | Description         | Remarks          | Markets    |
|---------|----------|---------------------|------------------|------------|
| * 2-1   | WR913000 | P.C.B. ASS'Y        |                  | R          |
| * 2-1   | WR913200 | P.C.B. ASS'Y        |                  | L          |
| * 2-2   | NS304700 | P.C.B. ASS'Y        |                  | U          |
| * 2-2   | NS304800 | P.C.B. ASS'Y        |                  | C          |
| * 2-2   | NS304900 | P.C.B. ASS'Y        |                  | R          |
| * 2-2   | NS305000 | P.C.B. ASS'Y        |                  | T          |
| * 2-2   | NS305100 | P.C.B. ASS'Y        |                  | K          |
| * 2-2   | NS305200 | P.C.B. ASS'Y        |                  | A          |
| * 2-2   | NS305300 | P.C.B. ASS'Y        |                  | BGEF       |
| * 2-2   | NS305400 | P.C.B. ASS'Y        |                  | L          |
| * 2-4   | NS306200 | P.C.B. ASS'Y        |                  | UC         |
| * 2-4   | NS306300 | P.C.B. ASS'Y        |                  | R          |
| * 2-4   | NS306400 | P.C.B. ASS'Y        |                  | TKABGEF    |
| * 2-4   | NS306500 | P.C.B. ASS'Y        |                  | L          |
| * 3-1   | NS305800 | P.C.B. ASS'Y        | V2065            | U          |
| * 3-1   | NS305900 | P.C.B. ASS'Y        | V2065            | CRTAKL     |
| * 3-1   | NS306700 | P.C.B. ASS'Y        | 6295             | C          |
| * 3-1   | NS306800 | P.C.B. ASS'Y        | V2065            | BGEF       |
| * 3-2   | NS305500 | P.C.B. ASS'Y        |                  | U          |
| * 3-2   | NS305600 | P.C.B. ASS'Y        |                  | CRTA       |
| * 3-2   | NS305700 | P.C.B. ASS'Y        |                  | KBGEFL     |
| * 3-18  | WD083500 | FLEXIBLE FLAT CABLE | 20P 180mm P=1.0  |            |
| * 9     | WS306800 | P.C.B. ASS'Y        | GU1              |            |
| * 12    | WT510100 | HD RADIO TUNER      | 2023-CRA         | U          |
| * 12    | WD756600 | AM/FM TUNER         | FAEH06-A         | CRTL       |
| * 12    | WD756700 | AM/FM TUNER         | FAEH06-E         | KBABEF     |
| Δ 15    | YD001A00 | POWER TRANSFORMER   |                  | UC         |
| Δ 15    | YA955A00 | POWER TRANSFORMER   |                  | RL         |
| Δ 15    | YA956A00 | POWER TRANSFORMER   |                  | TK         |
| Δ 15    | YA957A00 | POWER TRANSFORMER   |                  | A          |
| Δ 15    | YA958A00 | POWER TRANSFORMER   |                  | BGEF       |
| 27      | MF113180 | FLEXIBLE FLAT CABLE | 13P 180mm P=1.25 | U          |
| * 27    | WR284900 | FLEXIBLE FLAT CABLE | 11P 100mm P=1.25 | CRTKABGEFL |
| * 29    | WS162400 | FLEXIBLE FLAT CABLE | 5P 250mm P=1.25  | BGEF       |
| * 30    | WS162500 | FLEXIBLE FLAT CABLE | 16P 60mm P=1.25  |            |
| * 101   | WD665500 | TOP COVER           | BL               |            |
| * 101   | WD665700 | TOP COVER           | T1               |            |
| * 103   | NS042200 | REAR PANEL          |                  | U          |
| * 103   | NS042300 | REAR PANEL          | V2065            | C          |
| * 103   | NS043000 | REAR PANEL          | 6295             | C          |
| * 103   | NS042400 | REAR PANEL          |                  | R          |
| * 103   | NS042500 | REAR PANEL          |                  | T          |
| * 103   | NS042600 | REAR PANEL          |                  | K          |
| * 103   | NS042700 | REAR PANEL          |                  | A          |
| * 103   | NS042800 | REAR PANEL          |                  | BGEF       |
| * 103   | NS042900 | REAR PANEL          |                  | L          |
| 104     | WB370100 | DAMPER              |                  | BGEF       |
| * 105   | WR004900 | PLATE SIDE          | BL               |            |
| * 105   | WR005000 | PLATE SIDE          | T1               |            |
| * 107   | WR946700 | BARRIER FFC         |                  |            |
| * 108   | WS000800 | SPACER SUPPORT      |                  |            |
| * 109   | WD664500 | SUPPORT H8          |                  |            |
| 120     | VS025000 | LEG                 | LC44-29M PIN     |            |
|         |          | D60xH21 HS          |                  |            |

※ New Parts

| Ref No. | Part No. | Description                  | Remarks             | Markets |
|---------|----------|------------------------------|---------------------|---------|
| 121     | WJ181300 | KNOB                         |                     | BL      |
| 121     | WJ181500 | KNOB                         | D50                 | D50     |
| * 122   | NS039800 | KNOB                         | D21                 | BL      |
| * 122   | NS039900 | KNOB                         | D21                 | T1      |
| 152     | WG379000 | DAMPER                       | SCREW MASK          |         |
| * 153   | WR377400 | DAMPER                       | 14x10x10            |         |
| 155     | VG368600 | PUSH RIVET                   | P3555-B             | L       |
| 156     | WK667900 | SHEET TOP                    |                     | L       |
| 157     | WJ053800 | RIVET TOP                    |                     |         |
| 160     | WE774100 | BIND HEAD BONDING B-T. SCREW | 3x8 MFZM2B3         |         |
| 163     | WE774300 | BIND HEAD B-TIGHT SCREW      | 3x8 MFZM2W3         |         |
| 164     | WE877900 | BIND HEAD S-TIGHT SCREW      | 3x6 MFZM2W3         |         |
| 167     | WF002600 | PM HEAD B-TIGHT SCREW        | 3x8 MFZM2W3         |         |
| 168     | WE774600 | SCREW 1C                     | 3x18 MFZM2W3        |         |
| 170     | WE774700 | BIND HEAD S-TIGHT SCREW      | 4x10 MFZM2W3        |         |
| 171     | VH313200 | PM HEAD S-TIGHT SCREW        | 4x8-10 MFN13BL      | BL      |
| 171     | VD069600 | PM HEAD S-TIGHT SCREW        | 4x8-10 MFN133       | T1      |
| 172     | WE200500 | DISH HEAD B-TIGHT SCREW      | 3x6 MFN13BL         | BL      |
| 172     | WE200400 | DISH HEAD B-TIGHT SCREW      | 3x6 MFN133          | T1      |
| 175     | V6509600 | JACK SCREW                   | SS6-A47511848       |         |
| 176     | AA627310 | GROUND TERMINAL              |                     |         |
|         |          | SERVICE TOOLS                |                     |         |
|         | WR492800 | RS232C CONVERSION ADAPTOR    | 3.3Vtype with FFC9P |         |
|         | MF125400 | FLEXIBLE FLAT CABLE          | 25P 400mm P=1.25    |         |
|         | MF109400 | FLEXIBLE FLAT CABLE          | 9P 400mm P=1.25     |         |
|         | MF420250 | FLEXIBLE FLAT CABLE          | 20P 250mm P=1.0     |         |

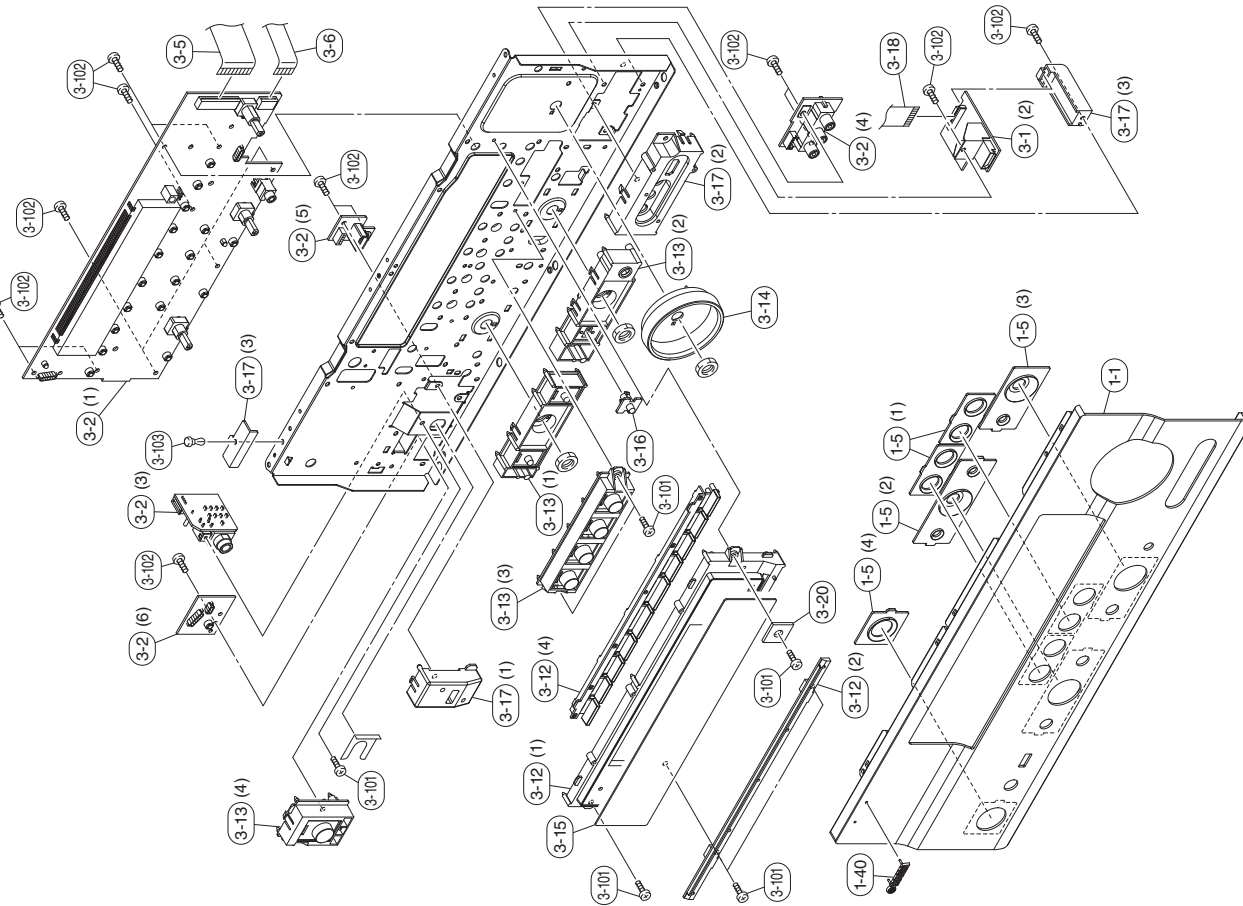
※ New Parts

• ACCESSORIES



| Ref No. | Part No. | Description               | Remarks            | Markets    |
|---------|----------|---------------------------|--------------------|------------|
| * 200   | WS317100 | REMOTE CONTROL            | RAV296             | U          |
| * 200   | WS317200 | REMOTE CONTROL            | RAV297             | CRAL       |
| * 200   | WS317300 | REMOTE CONTROL            | RAV298             | TKGGEF     |
| 200-1   | AA82380  | BATTERY COVER             | CG-2209            |            |
| * 201   | WS317400 | SIMPLIFIED REMOTE CONTROL | RAV38              |            |
| 201-1   | AA71770  | BATTERY HOLDER            | CG-4335 Black      | UC         |
| 202     | V7704800 | POWER CABLE               | 2m 1pc             | R          |
| 202     | WK391000 | POWER CABLE               | 2m 1pc             | T          |
| 202     | V9359400 | POWER CABLE               | 2m 1pc             | K          |
| 202     | WH641300 | POWER CABLE               | 2m 1pc             | A          |
| 202     | WB750900 | POWER CABLE               | 2m 1pc             | B          |
| 202     | WB751000 | POWER CABLE               | 2m 1pc             | GEFL       |
| 202     | V7704900 | POWER CABLE               | 2m 1pc             | L          |
| 203     | WB751000 | POWER CABLE               | 2m 1pc             | UCRTL      |
| 204     | V6267000 | INDOOR FM ANTENNA         | 1.4m 1pc           | KABGEF     |
| 204     | V0147100 | INDOOR FM ANTENNA         | 1.4m 1pc           | U          |
| 205     | WE746800 | AM LOOP ANTENNA           | 1.2m 1pc           | CRTKABGEFL |
| 205     | VR246500 | AM LOOP ANTENNA           | 1.0m 1pc           |            |
| 206     | WN649600 | OPTIMIZER MICROPHONE      | 6.0m 1pc           |            |
| * 207   | WS039400 | VIDEO AUX INPUT COVER     | 1pc                | BL         |
| * 207   | WS039500 | BATTERY LITHIUM BATTERY   | 1pc                | TI         |
|         |          |                           | RC03 AAA UM-4 2pcs |            |
|         |          |                           | CR2025 1pc         |            |

\*: New Parts

| RX-V2065/HTR-6295                                                                    |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| J I H G F E D C B A                                                                  |  |  |  |  |  |  |  |  |  |
| 1                                                                                    |  |  |  |  |  |  |  |  |  |
| 2                                                                                    |  |  |  |  |  |  |  |  |  |
| 3                                                                                    |  |  |  |  |  |  |  |  |  |
| 4                                                                                    |  |  |  |  |  |  |  |  |  |
| 5                                                                                    |  |  |  |  |  |  |  |  |  |
| 6                                                                                    |  |  |  |  |  |  |  |  |  |
| 7                                                                                    |  |  |  |  |  |  |  |  |  |
| * FRONT PANEL UNIT and SUB-CHASSIS UNIT                                              |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

| Ref No. | Part No. | Description             | Description      | Remarks | Markets    |
|---------|----------|-------------------------|------------------|---------|------------|
| * 1-1   | WR945400 | FRONT PANEL             | V2065BL          | U       | CRKABGEFL  |
| * 1-1   | WR945500 | FRONT PANEL             | V2065BL          | C       | RGEFL      |
| * 1-1   | WR945800 | FRONT PANEL             | 6295BL           |         |            |
| * 1-1   | WR945900 | FRONT PANEL             | V2065T1          | BL      |            |
| * 1-5   | WR005200 | ESCUTCHEON              | BL               |         |            |
| * 1-5   | WR005300 | ESCUTCHEON              | T1               |         |            |
| * 1-40  | V6034100 | EMBLEM                  |                  |         |            |
| * 3-1   | NS305800 | P.C.B. ASS'Y            | b1ack            | V2065   | U          |
| * 3-1   | NS305900 | P.C.B. ASS'Y            | DIGITAL          | V2065   | CRKAKL     |
| * 3-1   | NS306700 | P.C.B. ASS'Y            | DIGITAL          | 6295    | C          |
| * 3-1   | NS306000 | P.C.B. ASS'Y            | DIGITAL          | V2065   | BGEF       |
| * 3-2   | NS305500 | P.C.B. ASS'Y            | OPERATION        |         | U          |
| * 3-2   | NS305600 | P.C.B. ASS'Y            | OPERATION        |         | CRTA       |
| * 3-2   | NS305700 | P.C.B. ASS'Y            | OPERATION        |         | KBGEFL     |
| * 3-5   | WR482100 | FLEXIBLE FLAT CABLE     | 25P 250mm P=1.25 |         |            |
| * 3-6   | WR284800 | FLEXIBLE FLAT CABLE     | 9P 250mm P=1.25  |         |            |
| * 3-12  | WR006800 | SUB PANEL               |                  | BL      | UCKRABGEFL |
| * 3-13  | WR944600 | BUTTON CASE             | BL               |         |            |
| * 3-13  | NS075800 | BUTTON CASE             | T1               |         |            |
| * 3-13  | WR944700 | BUTTON CASE             | BL               |         |            |
| * 3-14  | WR006100 | ESCUTCHEON VOL          | T1               |         |            |
| * 3-14  | WR006200 | ESCUTCHEON VOL          |                  |         |            |
| * 3-15  | NS160200 | SHEET WINDOW            |                  |         |            |
| * 3-15  | NS160400 | SHEET WINDOW            |                  |         |            |
| * 3-15  | NS160300 | SHEET WINDOW            |                  |         |            |
| * 3-16  | WR006400 | LENS BUTTON             |                  |         |            |
| * 3-17  | WR946200 | ESCUTCHEON CASE         | BL               |         |            |
| * 3-17  | WR946300 | ESCUTCHEON CASE         | T1               |         |            |
| * 3-18  | WD083500 | FLEXIBLE FLAT CABLE     | 20P 180mm P=1.0  |         | U          |
| * 3-20  | WG471400 | SPACER                  | 8x8x1            |         | CRKABGEFL  |
| * 3-101 | WE774300 | BIND HEAD B-TIGHT SCREW | 3x8              |         | T          |
| * 3-102 | WE774800 | BIND HEAD P-TIGHT SCREW | 3x8              |         |            |
| * 3-103 | V0368600 | PUSH RIVET              | P3555-B          |         |            |

\*: New Parts

\*: New Parts



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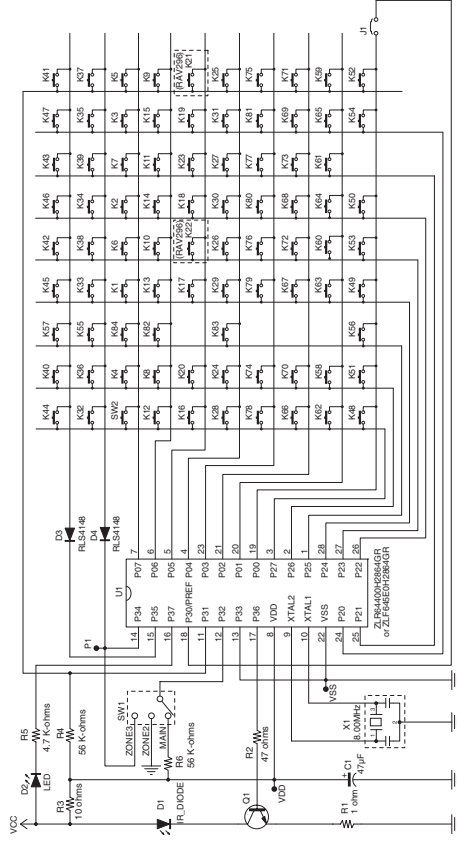
| Ref No. | Part No. | Description                  | Remarks            | Markets      |
|---------|----------|------------------------------|--------------------|--------------|
| 2-1     | WR912900 | P. C. B. ASS'Y               | MAIN               | UC           |
| 2-1     | WR913000 | P. C. B. ASS'Y               | MAIN               | R            |
| 2-1     | WR913100 | P. C. B. ASS'Y               | MAIN               | TKABGEF      |
| 2-1     | WR913200 | P. C. B. ASS'Y               | MAIN               | L            |
| 2-2     | WS304700 | P. C. B. ASS'Y               | VDEO               | U            |
| 2-2     | WS304800 | P. C. B. ASS'Y               | VDEO               | C            |
| 2-2     | WS304900 | P. C. B. ASS'Y               | VDEO               | R            |
| 2-2     | WS305000 | P. C. B. ASS'Y               | VDEO               | T            |
| 2-2     | WS305100 | P. C. B. ASS'Y               | VDEO               | K            |
| 2-2     | WS305200 | P. C. B. ASS'Y               | VDEO               | A            |
| 2-2     | WS305300 | P. C. B. ASS'Y               | VDEO               | BGEF         |
| 2-2     | WS305400 | P. C. B. ASS'Y               | VDEO               | L            |
| 2-4     | WS306200 | P. C. B. ASS'Y               | ACDC               | UC           |
| 2-4     | WS306300 | P. C. B. ASS'Y               | ACDC               | R            |
| 2-4     | WS306400 | P. C. B. ASS'Y               | ACDC               | TKABGEF      |
| 2-4     | WS306500 | P. C. B. ASS'Y               | ACDC               | L            |
| 2-11    | W0753200 | MICA SHEET                   | TB-1021 40x23x0.06 |              |
| 2-20    | WS000800 | SPACER SUPPORT               | LC44-29M P1N       |              |
| 2-25    | WS162200 | FLEXIBLE FLAT CABLE          | 22P 160mm P=1.25   |              |
| 2-26    | WR285300 | FLEXIBLE FLAT CABLE          | 14P 200mm P=1.25   |              |
| 2-28    | WJ788600 | ELECTROLYTIC CAPACITOR       | 12000uF 71V        | C1084, C1085 |
| 2-35    | WS341600 | THERMAL PROTECTOR            | OP26-90            |              |
| 2-36    | WS545600 | SUPPORT THIN                 |                    | CRTKABGEFL   |
| 2-103   | WM220800 | HEXAGONAL HEAD B-TIGHT SCREW | 3x15 SP MFZN2W3    | CRTKABGEFL   |
| 2-104   | WF002600 | PH HEAD B-TIGHT SCREW        | 3x8 MFZN2W3        |              |
| 2-105   | WE774300 | BIND HEAD B-TIGHT SCREW      | 3x8 MFZN2W3        |              |
| 2-106   | V0386600 | PUSH RIVET                   | P3555-B            |              |
| 3-2     | WS305500 | P. C. B. ASS'Y               | OPERATION          | U            |
| 3-2     | WS305600 | P. C. B. ASS'Y               | OPERATION          | CRTA         |
| 3-2     | WS305700 | P. C. B. ASS'Y               | OPERATION          | KBGEFL       |

# REMOTE CONTROL

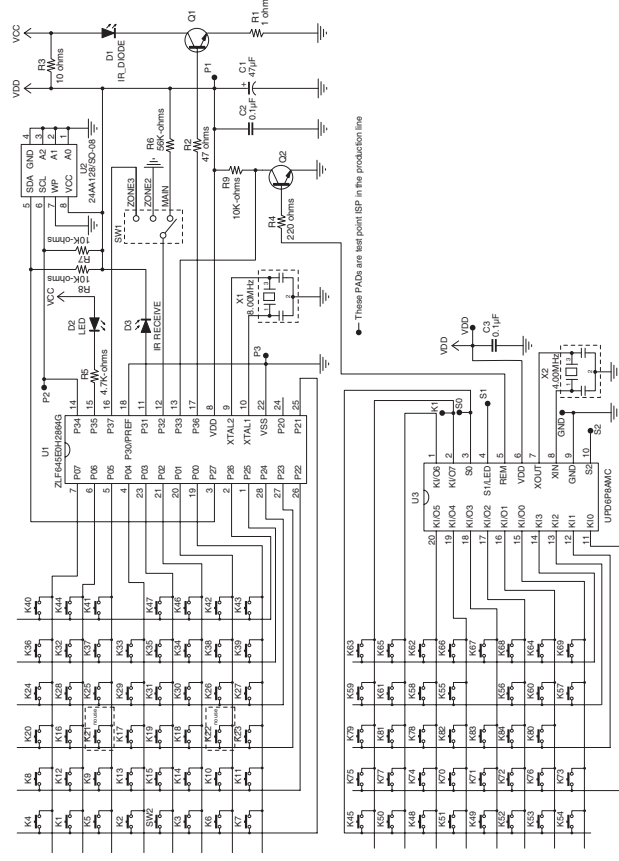
- RAV296: U model / RAV297: C, R, A, L models / RAV298: T, K, B, G, E, F models

## SCHEMATIC DIAGRAMS

RAV296/RAV297

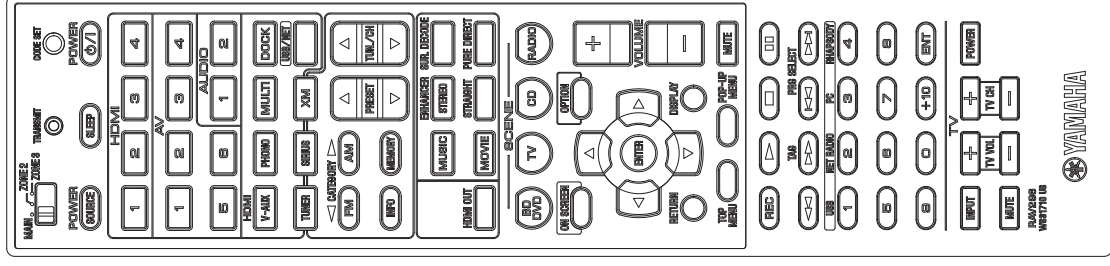


RAV298

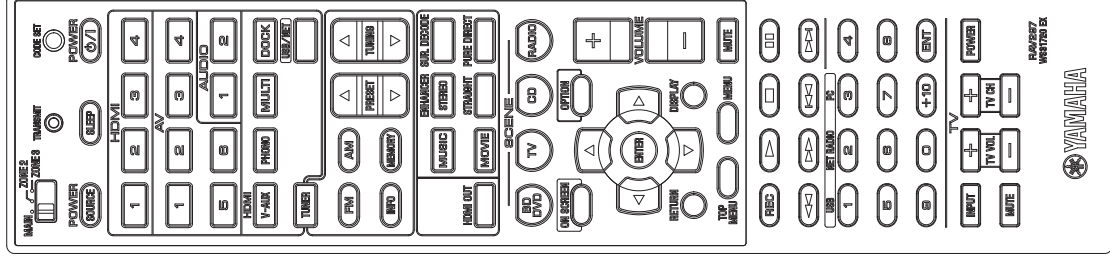


## PANELS

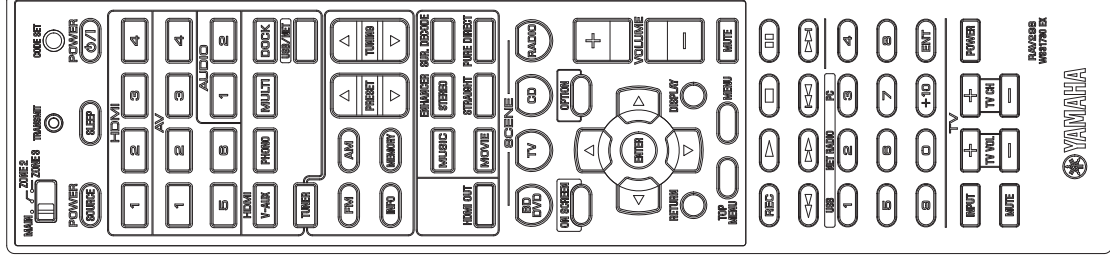
RAV296  
(U model)



RAV297  
(C, R, A, L models)

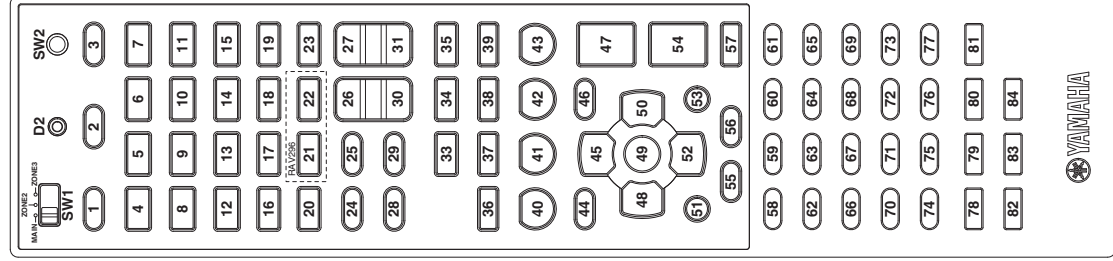


RAV298  
(T, K, B, G, E, F models)





**KEY NO. LAYOUT**



**KEY CODE**

| GROUP   | PRE SET | COM | Key No. | FUNCTION                 | ID1         |               |               | ID2                           |               |               |
|---------|---------|-----|---------|--------------------------|-------------|---------------|---------------|-------------------------------|---------------|---------------|
|         |         |     |         |                          | MAIN [MAIN] | ZONE2 [ZONE2] | ZONE3 [ZONE3] | MAIN [MAIN]                   | ZONE2 [ZONE2] | ZONE3 [ZONE3] |
| POWER   | -       | -   | SW1     | MAIN / ZONE2 / ZONE3     | -           | -             | -             | -                             | -             | ZONE3 [ZONE3] |
|         | -       | -   | D2      | TRANSMIT                 | -           | -             | -             | -                             | -             | -             |
|         | -       | -   | SW2     | CODE SET                 | -           | -             | -             | -                             | -             | -             |
|         | -       | O   | K2      | SLEEP                    | 7A-30       | 7A-31         | 7A-32         | 7A-30CE                       | 7A-31CF       | 7A-32CC       |
| INPUT 1 | -       | O   | K3      | POWER / <b>o/i</b>       | 7E-2A       | 7A-453A       | 7A-4639       | 7E-2A04                       | 7A-463B       | 7A-4638       |
|         | -       | O   | K4      | HDMI-1 (Default setting) | 7A-4738     | 7A-4837       | 7A-4936       | 7A-4739                       | 7A-4836       | 7A-4937       |
|         | -       | O   | K5      | HDMI-2                   | 7A-4A35     | 7A-4B34       | 7A-4C33       | * enter into HDMI-1 MODE      |               |               |
|         | -       | O   | K6      | HDMI-3                   | 7A-4D32     | 7A-4E31       | 7A-4F30       | * enter into HDMI-2 MODE      |               |               |
| INPUT 2 | -       | O   | K7      | HDMI-4                   | 7A-502F     | 7A-512E       | 7A-522D       | * enter into HDMI-3 MODE      |               | 7A-4F31       |
|         | -       | O   | K8      | AV-1                     | 7A-532C     | 7A-542B       | 7A-552A       | * enter into HDMI-4 MODE      |               | 7A-522C       |
|         | -       | O   | K9      | AV-2                     | 7A-5629     | 7A-5728       | 7A-5827       | * enter into AV-1 MODE        |               | 7A-552B       |
|         | -       | O   | K10     | AV-3                     | 7A-5926     | 7A-5A25       | 7A-5B24       | * enter into AV-2 MODE        |               | 7A-5826       |
|         | -       | O   | K11     | AV-4                     | 7A-5C23     | 7A-5D22       | 7A-5E21       | * enter into AV-3 MODE        |               | 7A-5B25       |
|         | -       | O   | K12     | AV-5                     | 7A-5F20     | 7A-601F       | 7A-611E       | * enter into AV-4 MODE        |               | 7A-5E20       |
|         | -       | O   | K13     | AV-6                     | 7A-621D     | 7A-631C       | 7A-641B       | * enter into AV-5 MODE        |               | 7A-611F       |
|         | -       | O   | K14     | AUDIO-1                  | 7A-651A     | 7A-6619       | 7A-6718       | * enter into AV-6 MODE        |               | 7A-641A       |
|         | -       | O   | K15     | AUDIO-2                  | 7A-6817     | 7A-6916       | 7A-6A15       | * enter into AUDIO-1 MODE     |               | 7A-6719       |
|         | -       | O   | K16     | HDMI / V-AUX             | 7A-65       | 7A-68         | 7A-69         | * enter into AUDIO-2 MODE     |               | 7A-6A14       |
|         | -       | O   | K17     | PHONO                    | 7A-14       | 7A-10         | 7A-11         | * enter into V-AUX MODE       |               | 7A-690E       |
|         | -       | O   | K18     | MULTI                    | 7A-87       | -             | -             | * enter into PHONO MODE       |               | 7A-6910F      |
| INPUT 2 | -       | O   | K19     | DOCK                     | 7F01-4A     | 7F01-4B       | 7F01-4C       | * enter into MULTI CH MODE    |               | -             |
|         | -       | O   | K20     | TUNER                    | 7A-16       | 7A-12         | 7A-13         | * enter into DOCK MODE        |               | 7F01-4C82     |
|         | -       | O   | K21     | SIRIUS (U model, RAV296) | 7A-39       | 7A-3A         | 7A-3B         | * enter into SIRIUS MODE      |               | 7A-6910F      |
|         | -       | O   | K22     | XM (U model, RAV296)     | 7A-BA       | 7A-B8         | 7A-B9         | * enter into XM MODE          |               | 7A-3B0D       |
| RADIO   | -       | O   | K23     | USB/NET                  | 7F01-3F     | 7F01-40       | 7F01-41       | * enter into USB/NET MODE     |               | 7A-3B0C       |
|         | -       | O   | K24     | CATEGORY < / FM (RAV296) | 7F01-5827   | 7F01-5926     | 7F01-5A25     | * enter into USB/NET MODE     |               | 7A-3B0E       |
|         | -       | O   | K25     | CATEGORY > / AM (RAV296) | 7F01-582A   | 7F01-5829     | 7F01-5728     | * enter into FM MODE          |               | 7A-3B0F       |
|         | -       | O   | K26     | PRESET $\Delta$          | 7F01-5824   | 7F01-5C23     | 7F01-5D22     | * enter into PRESET MODE      |               | 7F01-5827     |
| DSP     | -       | O   | K27     | TUNING $\nabla$          | 7F01-611E   | 7F01-621D     | 7F01-631C     | * enter into TUNING MODE      |               | 7F01-5828     |
|         | -       | O   | K28     | INFO                     | 7A-2758     | 7A-2857       | 7A-2956       | * enter into INFO MODE        |               | 7F01-5829     |
|         | -       | O   | K29     | MEMORY                   | 7F01-6718   | 7F01-6817     | 7F01-6916     | * enter into MEMORY MODE      |               | 7F01-5830     |
|         | -       | O   | K30     | PRESET $\nabla$          | 7F01-5E21   | 7F01-5F20     | 7F01-601F     | * enter into PRESET MODE      |               | 7F01-5831     |
|         | -       | O   | K31     | TUNING $\nabla$          | 7F01-641B   | 7F01-651A     | 7F01-6619     | * enter into TUNING MODE      |               | 7F01-5832     |
|         | -       | O   | K32     | MUSIC                    | 7A-94       | 7A-93         | 7A-92         | * enter into MUSIC MODE       |               | 7F01-5833     |
|         | -       | O   | K33     | ENHANCER / STEREO        | 7A-34       | 7A-33         | 7A-32         | * enter into ENHANCER MODE    |               | 7F01-5834     |
|         | -       | O   | K34     | SUR. DECODE              | 7A-8D       | 7A-8C         | 7A-8B         | * enter into SUR. DECODE MODE |               | 7F01-5835     |
|         | -       | O   | K35     | HDMI OUT                 | 7A-35       | 7A-34         | 7A-33         | * enter into HDMI OUT MODE    |               | 7F01-5836     |
|         | -       | O   | K36     | MOVIE                    | 7A-88       | 7A-87         | 7A-86         | * enter into MOVIE MODE       |               | 7F01-5837     |
|         | -       | O   | K37     | STRAIGHT                 | 7A-56       | 7A-55         | 7A-54         | * enter into STRAIGHT MODE    |               | 7F01-5838     |
|         | -       | O   | K38     | PURE DIRECT              | 7A-DD       | 7A-DC         | 7A-DB         | * enter into PURE DIRECT MODE |               | 7F01-5839     |

**KEY CODE**

| GROUP  | PRE SET | COM | Key No. | FUNCTION                | MAIN    | ZONE2   | ZONE3   | ID1                   | MAIN      | ID2       | ZONE2     | ZONE3     |
|--------|---------|-----|---------|-------------------------|---------|---------|---------|-----------------------|-----------|-----------|-----------|-----------|
| SCENE  | —       | ○   | K40     | BD/DVD                  | 7A-007F | 7A-071E | 7A-027D | 7A-007E               | 7A-007E   | 7A-017F   | 7A-017F   | 7A-027C   |
|        | —       | ○   | K41     | TV                      | 7A-037C | 7A-047B | 7A-057A | 7A-037D               | 7A-047A   | 7A-047A   | 7A-047A   | 7A-057B   |
|        | —       | ○   | K42     | CD                      | 7A-0679 | 7A-077B | 7A-0877 | 7A-0678               | 7A-0779   | 7A-0779   | 7A-0779   | 7A-0876   |
|        | —       | ○   | K43     | RADIO                   | 7A-0876 | 7A-0475 | 7A-0B74 | 7A-0877               | 7A-0A74   | 7A-0A74   | 7A-0A74   | 7A-0B75   |
| MENU   | —       | ○   | K44     | ON SCREEN               | 7A-84   | —       | —       | * enter into AMP MODE | 7A-947A   | —         | —         | —         |
|        | —       | ○   | K46     | OPTION                  | 7A-6B14 | —       | —       | * enter into AMP MODE | 7A-6B15   | —         | —         | —         |
| CURSOR | —       | —   | K45     | ▲ (UP)                  | 7A-9D   | —       | —       | 7A-9D63               | —         | —         | —         | —         |
|        | —       | —   | K48     | ◀ (LEFT)                | 7A-9F   | —       | —       | 7A-9F61               | —         | —         | —         | —         |
|        | —       | —   | K49     | ENTER                   | 7A-DE   | —       | —       | 7A-DE20               | —         | —         | —         | —         |
|        | —       | —   | K50     | ▶ (RIGHT)               | 7A-9E   | —       | —       | 7A-9E60               | —         | —         | —         | —         |
|        | —       | —   | K51     | RETURN                  | 7A-AA   | —       | —       | 7A-AA54               | —         | —         | —         | —         |
|        | —       | —   | K52     | ▼ (DOWN)                | 7A-9C   | —       | —       | 7A-9C82               | —         | —         | —         | —         |
|        | —       | —   | K53     | DISPLAY                 | 7F01-60 | 7F01-80 | 7F01-A0 | 7F01-609E             | 7F01-807E | 7F01-807E | 7F01-A05E | 7F01-603E |
|        | —       | ○   | K47     | VOLUME +                | 7A-1A   | 7A-DA   | 7A-FA   | 7A-1A6A               | 7A-DA24   | 7A-FA03   | 7A-FA03   | 7A-FA03   |
| VOLUME | —       | ○   | K54     | VOLUME -                | 7A-1B   | 7A-DB   | 7A-FA   | 7A-1B5E               | 7A-DB25   | 7A-FAE0   | 7A-FAE0   | 7A-FAE0   |
|        | —       | ○   | K57     | MUTE                    | 7A-1C   | 7A-DC   | 7A-FF   | 7A-1CE2               | 7A-DC22   | 7A-FF01   | 7A-FF01   | 7A-FF01   |
| SOURCE | —       | —   | K1      | POWER / SOURCE          | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K55     | TOP MENU                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K56     | POP-UP MENU (RAV296)    | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K56     | MENU (RAV297, RAV298)   | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K58     | REC                     | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K59     | ▷ (PLAY)                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K60     | □ (STOP)                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K61     | ■ (PAUSE)               | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K62     | ◀ (REW)                 | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K63     | TAG / ▲ (FF) (RAV296)   | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K64     | ▶ (FF) (RAV297, RAV298) | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K64     | PRG SELECT / ▶ (RAV296) | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K65     | PRG SELECT / ▶ (RAV296) | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K65     | ▶ (RAV297, RAV298)      | —       | —       | —       | —                     | —         | —         | —         | —         |
| 10 key | —       | —   | K66     | USB / 1                 | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K67     | NET RADIO / 2           | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K68     | PC / 3                  | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K69     | RHAPSODY / 4 (RAV296)   | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K70     | 5                       | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K71     | 6                       | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K72     | 7                       | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K73     | 8                       | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K74     | 9                       | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K75     | 0                       | —       | —       | —       | —                     | —         | —         | —         | —         |
| TV     | —       | —   | K76     | +10                     | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K77     | ENT                     | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K78     | INPUT                   | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K79     | TV VOL +                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K80     | TV CH +                 | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K81     | POWER                   | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K82     | MUTE                    | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K84     | TV VOL -                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K83     | TV VOL -                | —       | —       | —       | —                     | —         | —         | —         | —         |
|        | —       | —   | K84     | TV CH -                 | —       | —       | —       | —                     | —         | —         | —         | —         |

\* Function code

\* Function code

\* TV mode

## FUNCTION CODE

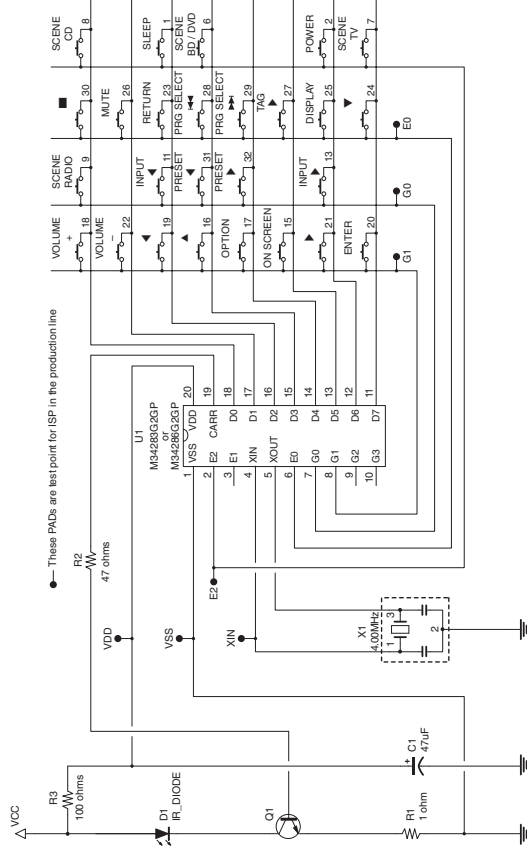
| Key No. | BD                                 |                          |                          | DVD                      |                   |                                    | DVR                    |                                    |                        | LD                       |                          |                                    | CD                     |                                    |                        | CD-R                     |                          |  | MD |  |  | Yamaha-3 |
|---------|------------------------------------|--------------------------|--------------------------|--------------------------|-------------------|------------------------------------|------------------------|------------------------------------|------------------------|--------------------------|--------------------------|------------------------------------|------------------------|------------------------------------|------------------------|--------------------------|--------------------------|--|----|--|--|----------|
|         | Brand<br>Preset Number<br>Function | Yamaha-1<br>2000<br>Code | Yamaha-2<br>2003<br>Code | Yamaha-3<br>2001<br>Code | T<br>2136<br>Code | Brand<br>Preset Number<br>Function | Yamaha<br>2011<br>Code | Brand<br>Preset Number<br>Function | Yamaha<br>2002<br>Code | Yamaha-1<br>5013<br>Code | Yamaha-2<br>5000<br>Code | Brand<br>Preset Number<br>Function | Yamaha<br>5001<br>Code | Brand<br>Preset Number<br>Function | Yamaha<br>5002<br>Code | Yamaha-1<br>5003<br>Code | Yamaha-2<br>5004<br>Code |  |    |  |  |          |
| K45     | UP                                 | 7C-84                    | 2002 BD 00 85 35         | 004 088                  | 4855 01           | MENU UP                            | 048 088                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K48     | LEFT                               | 7C-85                    | 2002 BD 00 87 37         | 004 080                  | 4855 51           | MENU LEFT                          | 048 080                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K49     | RIGHT                              | 7C-86                    | 2002 BD 00 89 39         | 004 092                  | 4855 61           | MENU RIGHT                         | 048 092                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K50     | RIGHT                              | 7C-86                    | 2002 BD 00 88 38         | 004 091                  | 4855 40           | MENU RIGHT                         | 048 091                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K51     | RETURN                             | 7C-87                    | 2002 BD 00 81 31         | 004 133                  | 4855 22           | RETURN                             | 048 091                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K52     | DOWN                               | 7C-83                    | 2002 BD 00 86 36         | 004 089                  | 4855 61           | MENU DOWN                          | 048 089                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K53     | DISPLAY                            | 7C-85                    | 2002 BD 00 92 22         | 004 015                  | 4855 26           | DISPLAY                            | 048 015                | DISPLAY                            | 7C-13                  | 79-0A                    | 79-0A                    | DISPLAY                            | 7F-8E                  | 79-A5                              | 79-A5                  | 180F                     |                          |  |    |  |  |          |
| K54     | SOURCE POWER                       | 7C-80                    | 2002 BD 00 90 20         | 004 072                  | 4855 12           | AV POWER                           | 048 012                | AV POWER                           | --                     | 79-60                    | 79-60                    | AV POWER                           | 7F-80                  | --                                 | --                     | 79-B5                    | 150F                     |  |    |  |  |          |
| K55     | TOP MENU                           | 7C-81                    | 2002 BD 00 98 28         | 004 113                  | 4855 DE           | TITLE                              | 048 012                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K56     | MENU                               | 7C-82                    | 2002 BD 00 83 30         | 004 084                  | 4855 64           | MENU                               | 048 084                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K57     | DISP                               | 7C-82                    | 2002 BD 00 83 30         | 004 084                  | 4855 64           | MENU                               | 048 084                |                                    | --                     |                          |                          |                                    | --                     |                                    | --                     |                          |                          |  |    |  |  |          |
| K59     | PLAY                               | 7C-82                    | 2002 BD 00 01 8A         | 004 044                  | 4855 15           | PLAY                               | 048 044                | PLAY                               | 7C-05                  | 79-6E                    | 79-6E                    | DISP SKIP                          | 7F-82                  | 79-AF                              | 79-AF                  | 90F                      |                          |  |    |  |  |          |
| K60     | STOP                               | 7C-85                    | 2002 BD 00 01 8A         | 004 049                  | 4855 14           | STOP                               | 048 049                | STOP                               | 7C-0B                  | 79-6F                    | 79-6F                    | STOP                               | 7F-84                  | 79-AA                              | 79-AA                  | 200F                     |                          |  |    |  |  |          |
| K61     | PAUSE                              | 7C-83                    | 2002 BD 00 00 86         | 004 048                  | 4855 05           | PAUSE                              | 048 048                | PAUSE                              | 7C-0A                  | 79-69                    | 79-69                    | PAUSE                              | 7F-83                  | 79-AA                              | 79-AA                  | 200F                     |                          |  |    |  |  |          |
| K62     | REW                                | 7C-86                    | 2002 BD 00 04 B4         | 004 041                  | 4855 19           | REW                                | 048 041                | REW                                | 7C-06                  | 79-6C                    | 79-6C                    | REW                                | 7F-85                  | 79-AC                              | 79-AC                  | 200F                     |                          |  |    |  |  |          |
| K63     | FF                                 | 7C-87                    | 2002 BD 00 05 B5         | 004 040                  | 4855 13           | FF                                 | 048 040                | FF                                 | 7C-07                  | 79-6D                    | 79-6D                    | FF                                 | 7F-86                  | 79-AD                              | 79-AD                  | 200F                     |                          |  |    |  |  |          |
| K64     | SKIP (+)                           | 7C-89                    | 2002 BD 00 04 F9         | 004 033                  | 4855 23           | SKIP (+)                           | 048 040                | CHAP/SKIP (+)                      | 7C-02                  | 79-67                    | 79-67                    | SKIP (+)                           | 7F-86                  | 79-AB                              | 79-AB                  | 200F                     |                          |  |    |  |  |          |
| K65     | SKIP (+)                           | 7C-8A                    | 2002 BD 00 04 FA         | 004 032                  | 4855 24           | SKIP (+)                           | 048 032                | CHAP/SKIP (+)                      | 7C-03                  | 79-68                    | 79-68                    | SKIP (+)                           | 7F-87                  | 79-AC                              | 79-AC                  | 200F                     |                          |  |    |  |  |          |
| K66     | 2                                  | 7C-85                    | 2002 BD 00 01 81         | 004 002                  | 4855 02           | 2                                  | 048 002                | 2                                  | 7C-18                  | 79-12                    | 79-12                    | 2                                  | 7F-82                  | 79-86                              | 79-86                  | 200F                     |                          |  |    |  |  |          |
| K67     | 2                                  | 7C-85                    | 2002 BD 00 01 81         | 004 002                  | 4855 02           | 2                                  | 048 002                | 2                                  | 7C-18                  | 79-12                    | 79-12                    | 2                                  | 7F-82                  | 79-86                              | 79-86                  | 200F                     |                          |  |    |  |  |          |
| K68     | 3                                  | 7C-86                    | 2002 BD 00 02 12         | 004 003                  | 4855 03           | 3                                  | 048 003                | 3                                  | 7C-19                  | 79-13                    | 79-13                    | 3                                  | 7F-83                  | 79-87                              | 79-87                  | 200F                     |                          |  |    |  |  |          |
| K69     | 4                                  | 7C-97                    | 2002 BD 00 03 13         | 004 004                  | 4855 04           | 4                                  | 048 004                | 4                                  | 7C-1A                  | 79-14                    | 79-14                    | 4                                  | 7F-84                  | 79-88                              | 79-88                  | 200F                     |                          |  |    |  |  |          |
| K70     | 5                                  | 7C-98                    | 2002 BD 00 04 14         | 004 005                  | 4855 05           | 5                                  | 048 005                | 5                                  | 7C-1B                  | 79-15                    | 79-15                    | 5                                  | 7F-85                  | 79-89                              | 79-89                  | 200F                     |                          |  |    |  |  |          |
| K71     | 6                                  | 7C-99                    | 2002 BD 00 05 15         | 004 006                  | 4855 06           | 6                                  | 048 006                | 6                                  | 7C-1C                  | 79-16                    | 79-16                    | 6                                  | 7F-86                  | 79-8B                              | 79-8B                  | 200F                     |                          |  |    |  |  |          |
| K72     | 7                                  | 7C-9A                    | 2002 BD 00 06 16         | 004 007                  | 4855 07           | 7                                  | 048 007                | 7                                  | 7C-1D                  | 79-17                    | 79-17                    | 7                                  | 7F-87                  | 79-8C                              | 79-8C                  | 200F                     |                          |  |    |  |  |          |
| K73     | 8                                  | 7C-9B                    | 2002 BD 00 07 17         | 004 008                  | 4855 08           | 8                                  | 048 008                | 8                                  | 7C-1E                  | 79-18                    | 79-18                    | 8                                  | 7F-88                  | 79-8D                              | 79-8D                  | 200F                     |                          |  |    |  |  |          |
| K74     | 9                                  | 7C-9C                    | 2002 BD 00 08 18         | 004 009                  | 4855 09           | 9                                  | 048 009                | 9                                  | 7C-1F                  | 79-19                    | 79-19                    | 9                                  | 7F-89                  | 79-8E                              | 79-8E                  | 200F                     |                          |  |    |  |  |          |
| K75     | 0                                  | 7C-9D                    | 2002 BD 00 09 19         | 004 000                  | 4855 0A           | 0                                  | 048 000                | 0                                  | 7C-16                  | 79-10                    | 79-10                    | 0                                  | 7F-80                  | 79-8E                              | 79-8E                  | 200F                     |                          |  |    |  |  |          |
| K76     | +10                                | 7C-9D                    | 2002 BD 00 89 39         | 004 120                  | 4855 25           | +10                                | 048 000                | +10                                | 7C-6D                  | 79-1A                    | 79-1A                    | +10                                | 7F-8A                  | 79-8F                              | 79-8F                  | 200F                     |                          |  |    |  |  |          |
| K77     | TITLE/INDEX                        | 7C-9E                    | --                       | --                       | 4855 25           | TITLE/INDEX                        | --                     | --                                 | 7C-6D                  | 79-15                    | 79-15                    | INDEX                              | 7F-8A                  | --                                 | --                     | --                       | --                       |  |    |  |  |          |
| K78     | TV INPUT                           | TV INPUT                 | (TV INPUT)               | (TV INPUT)               | 4855 25           | TV INPUT                           | (TV INPUT)             | TV INPUT                           | TV INPUT               | TV INPUT                 | TV INPUT                 | TV INPUT                           | TV INPUT               | TV INPUT                           | TV INPUT               | TV INPUT                 | TV INPUT                 |  |    |  |  |          |
| K79     | TV VOL (-)                         | TV VOL (-)               | (TV VOL -)               | (TV VOL -)               | 4855 25           | TV VOL (-)                         | (TV VOL -)             | TV VOL (-)                         | TV VOL (-)             | TV VOL (-)               | TV VOL (-)               | TV VOL (-)                         | TV VOL (-)             | TV VOL (-)                         | TV VOL (-)             | TV VOL (-)               | TV VOL (-)               |  |    |  |  |          |
| K80     | TV CH (+)                          | TV CH (+)                | (TV CH +)                | (TV CH +)                | 4855 25           | TV CH (+)                          | (TV CH +)              | TV CH (+)                          | TV CH (+)              | TV CH (+)                | TV CH (+)                | TV CH (+)                          | TV CH (+)              | TV CH (+)                          | TV CH (+)              | TV CH (+)                | TV CH (+)                |  |    |  |  |          |
| K81     | TV POWER                           | TV POWER                 | (TV POWER)               | (TV POWER)               | 4855 25           | TV POWER                           | (TV POWER)             | TV POWER                           | TV POWER               | TV POWER                 | TV POWER                 | TV POWER                           | TV POWER               | TV POWER                           | TV POWER               | TV POWER                 | TV POWER                 |  |    |  |  |          |
| K82     | TV VOL (+)                         | TV VOL (+)               | (TV VOL +)               | (TV VOL +)               | 4855 25           | TV VOL (+)                         | (TV VOL +)             | TV VOL (+)                         | TV VOL (+)             | TV VOL (+)               | TV VOL (+)               | TV VOL (+)                         | TV VOL (+)             | TV VOL (+)                         | TV VOL (+)             | TV VOL (+)               | TV VOL (+)               |  |    |  |  |          |
| K83     | TV CH (-)                          | TV CH (-)                | (TV CH -)                | (TV CH -)                | 4855 25           | TV CH (-)                          | (TV CH -)              | TV CH (-)                          | TV CH (-)              | TV CH (-)                | TV CH (-)                | TV CH (-)                          | TV CH (-)              | TV CH (-)                          | TV CH (-)              | TV CH (-)                | TV CH (-)                |  |    |  |  |          |
| K84     | TV CH (-)                          | TV CH (-)                | (TV CH -)                | (TV CH -)                | 4855 25           | TV CH (-)                          | (TV CH -)              | TV CH (-)                          | TV CH (-)              | TV CH (-)                | TV CH (-)                | TV CH (-)                          | TV CH (-)              | TV CH (-)                          | TV CH (-)              | TV CH (-)                | TV CH (-)                |  |    |  |  |          |

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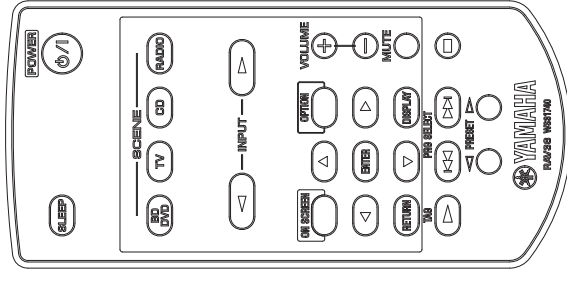
## ■ REMOTE CONTROL

- RAV38

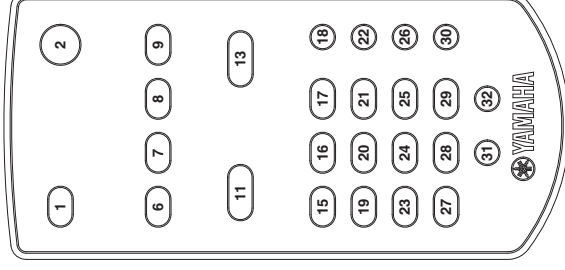
## SCHEMATIC DIAGRAM



## PANEL



**KEY NO. LAYOUT**



**KEY CODE**

| Key No. | Key name                                                                                       | Code      |           |           |           |           |           |           |           |         |  |
|---------|------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|--|
|         |                                                                                                | ID1       |           |           |           |           | ID2       |           |           |         |  |
|         |                                                                                                | ZONE2     | ZONE3     | ZONE4     | MAIN      | ZONE2     | ZONE3     | ZONE4     |           |         |  |
| 1       | SLEEP                                                                                          | 7A-30     | 7A-31     | 7A-32     | 7A-33     | 7A-300E   | 7A-310F   | 7A-320C   | 7A-330D   |         |  |
| 2       | POWER /       | 7E-2A     | 7A-453A   | 7A-4639   | 7A-6F10   | 7E-2A04   | 7A-453B   | 7A-4638   | 7A-6F11   |         |  |
| 6       | SCENE / BD/DVD                                                                                 | 7A-007F   | 7A-017E   | 7A-027D   | 7A-1B87   | 7A-007E   | 7A-017F   | 7A-027C   | 7A-1B86   |         |  |
| 7       | SCENE / TV                                                                                     | 7A-037C   | 7A-047B   | 7A-057A   | 7A-1966   | 7A-037D   | 7A-047A   | 7A-057B   | 7A-1967   |         |  |
| 8       | SCENE / CD                                                                                     | 7A-067B   | 7A-077F   | 7A-0877   | 7A-1A65   | 7A-067B   | 7A-0779   | 7A-0876   | 7A-1A1A   | 7A-1B85 |  |
| 9       | SCENE / RADIO                                                                                  | 7A-0976   | 7A-0A75   | 7A-0B7A   | 7A-1B84   | 7A-0977   | 7A-0A74   | 7A-0B75   | 7A-1B85   |         |  |
| 11      | INPUT <                                                                                        | 7A-2B5C   | 7A-2A5B   | 7A-2B59   | 7A-2B59   | 7A-2B5D   | 7A-2A5A   | 7A-2B5B   | 7A-2B58   |         |  |
| 13      | INPUT >                                                                                        | 7A-1F60   | 7A-265F   | 7A-215E   | 7A-255D   | 7A-1F61   | 7A-265E   | 7A-215F   | 7A-255C   |         |  |
| 15      | ON SCREEN                                                                                      | 7A-84     | 7A-3B44   | 7A-4A4B   | 7A-413E   | 7A-847A   | 7A-3B45   | 7A-4A4A   | 7A-413F   |         |  |
| 16      |  (UP)         | 7A-3D     | 7A-2B54   | 7A-304F   | 7A-354A   | 7A-3D93   | 7A-2B55   | 7A-304E   | 7A-354B   |         |  |
| 17      | OPTION                                                                                         | 7A-6B14   | 7A-6C13   | 7A-6D12   | 7A-6E11   | 7A-6B15   | 7A-6C12   | 7A-6D13   | 7A-6E10   |         |  |
| 18      | VOLUME +                                                                                       | 7A-1A     | 7A-DA     | 7A-7D     | 7A-2B     | 7A-1A-E4  | 7A-DA24   | 7A-7D24   | 7A-2B-D5  |         |  |
| 19      | < (LEFT)                                                                                       | 7A-9F     | 7A-2D52   | 7A-3D4D   | 7A-374B   | 7A-9F61   | 7A-2D53   | 7A-3D4C   | 7A-3749   |         |  |
| 20      | ENTER                                                                                          | 7A-DE     | 7A-2F50   | 7A-3A4B   | 7A-3946   | 7A-DE20   | 7A-2F51   | 7A-3A4A   | 7A-3947   |         |  |
| 21      |  (RIGHT)      | 7A-9E     | 7A-2E51   | 7A-334C   | 7A-3847   | 7A-9E60   | 7A-2E50   | 7A-334D   | 7A-3846   |         |  |
| 22      | VOLUME -                                                                                       | 7A-1B     | 7A-DB     | 7A-7E     | 7A-3C     | 7A-1B-E5  | 7A-DB25   | 7A-7E-D0  | 7A-3C-D2  |         |  |
| 23      | RETURN                                                                                         | 7A-AA     | 7A-3C43   | 7A-3F4D   | 7A-423D   | 7A-AA54   | 7A-3C42   | 7A-3F41   | 7A-423C   |         |  |
| 24      |  (DOWN)       | 7A-9C     | 7A-2C53   | 7A-314E   | 7A-3649   | 7A-9C62   | 7A-2C52   | 7A-314F   | 7A-3648   |         |  |
| 25      | DISPLAY                                                                                        | 7F01-60   | 7F01-40   | 7F01-40   | 7F01-C0   | 7F01-608E | 7F01-407E | 7F01-A0E7 | 7F01-C08E |         |  |
| 26      | MUTE                                                                                           | 7A-1C     | 7A-DC     | 7A-FF     | 7A-2D     | 7A-1C-E2  | 7A-DC22   | 7A-FF01   | 7A-2D03   |         |  |
| 27      | TAG / >                                                                                        | 7F01-68   | 7F01-48   | 7F01-A8   | 7F01-C8   | 7F01-6896 | 7F01-487E | 7F01-A85E | 7F01-C896 |         |  |
| 28      | PRG SELECT /  | 7F01-6C   | 7F01-8C   | 7F01-AC   | 7F01-CC   | 7F01-6C92 | 7F01-8C72 | 7F01-AC52 | 7F01-CC33 |         |  |
| 29      | PRG SELECT /  | 7F01-6D   | 7F01-8D   | 7F01-AD   | 7F01-CD   | 7F01-6D93 | 7F01-8D73 | 7F01-AD53 | 7F01-CD33 |         |  |
| 30      |               | 7F01-6B   | 7F01-4B   | 7F01-A9   | 7F01-C9   | 7F01-6B97 | 7F01-4B77 | 7F01-A957 | 7F01-C937 |         |  |
| 31      | PRESET <                                                                                       | 7F01-E5E1 | 7F01-5F20 | 7F01-4D1F | 7F01-6B14 | 7F01-5E20 | 7F01-5F21 | 7F01-4D1E | 7F01-6B15 |         |  |
| 32      | PRESET >                                                                                       | 7F01-4B24 | 7F01-5C23 | 7F01-5D22 | 7F01-6A15 | 7F01-5B25 | 7F01-5C22 | 7F01-5D23 | 7F01-6A14 |         |  |

Default: ID1/MAIN

|            |                        |                         |                         |                         |                        |                         |                         |                         |
|------------|------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| ID setting | [K19] + [K6]           |                         |                         |                         | [K19] + [K7]           |                         |                         |                         |
|            | = ID1                  |                         |                         |                         | = ID2                  |                         |                         |                         |
| ID setting | [K21] + [K6]<br>= MAIN | [K21] + [K7]<br>= ZONE2 | [K21] + [K9]<br>= ZONE3 | [K21] + [K9]<br>= ZONE4 | [K21] + [K6]<br>= MAIN | [K21] + [K7]<br>= ZONE2 | [K21] + [K9]<br>= ZONE3 | [K21] + [K9]<br>= ZONE4 |

## ■ ADVANCED SETUP

In the advanced setup menu, you can set basic operations of this unit, such as on and off of a bi-amp connection, or initialize user settings.

### 1 Set this unit to standby.

### 2 While holding down **Ⓢ**STRAIGHT on the front panel, press **Ⓛ**MAIN ZONE ON/OFF.

Keep holding down **Ⓢ**STRAIGHT until "ADVANCED SETUP" appears on the front panel display.

ADVANCED SETUP

### 3 Rotate the **Ⓟ**PROGRAM selector to select the parameter you want to change.

The default setting are marked with "\*".



- Set values are placed in XXX of the following parameters on an actual display screen.

SP IMP. -XXX

**Choices:** 6ΩMIN, 8ΩMIN\*

Selects output impedance of this unit according to connected speakers. When you connect 4-ohm speakers to the FRONT speaker terminals, set "SP IMP:" to "6ΩMIN".

RS232C STBY -X

**Choices:** Y (Yes)\*, N (No)

Selects whether or not to transmit data via the RS-232C terminal when this unit is in the standby mode.

REMOTE ID -XXX

**Choices:** ID1\*, ID2

Sets a remote control ID. When using multiple Yamaha AV receivers, you can operate them with a single remote control by setting the receiver IDs to the same setting.

SR PIN -XXX

**Choices:** RESET, CANCEL\*

Resets Parental lock cord when using SIRIUS Satellite tuner.

BI AMP - XXX

**Choices:** ON, OFF\*

Switches on and off of bi-amp connection of main speakers.

SCENE IR -XXX

**Choices:** ON\*, OFF

Selects whether or not to transmit the control signals to an external component connected to the REMOTE OUT jack on this unit when BD/DVD or CD SCENE function is selected.

MON.CHK - XXXX

**Choices:** YES\*, SKIP

Adds upscaling limitation on output signals to a video monitor connected to this unit via the HDMI OUT jack.

INIT-XXXXXXXXXX

**Choices:** DSP PARAM, VIDEO, NETWORK, ALL, CANCEL\*

Initializes various settings stored in this unit. You can select an initialization method from the following.

DSP PARAM: All parameters of sound field programs

VIDEO Video conversion settings (resolution/aspect) in the Setup menu and the GUI display position

NETWORK Network settings in the Setup menu

ALL All

CANCEL Cancellation of initialization

USB FirmUpdate

NET FirmUpdate

Updates the firmware of this unit. For details on how to update the firmware, refer to information supplied with updates.

#### Notes

- Do not use this feature unless you need to update the firmware.
- Be sure to read information supplied with updates before updating the firmware.

VERXXX.XXX.XXX

Displays the firmware of this unit.

### 4 Press **Ⓢ**STRAIGHT repeatedly to change the selected parameter setting.

To change other settings, repeat steps 3 and 4.

### 5 Press **Ⓛ**MAIN ZONE ON/OFF to set this unit to standby.

The settings you made are reflected next time you turn on this unit.

## Setting a remote control ID

Two IDs are provided for the remote control of this unit. If another Yamaha amplifier is in the same room, setting a different remote control ID to this unit prevents unwanted operation of the other amplifier.

“ID1” is set for both the main unit and remote control by default. If you have changed the remote control ID, make sure that you select the same ID for the main unit in the advanced setup menu.



- For details on how to set the remote control ID of the simplified remote control.

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**1 Press  **CODE SET** on the remote control using a pointed object such as the tip of a ballpoint pen.**

 **TRANSMIT** blinks twice.

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**2 Press  **ON SCREEN**.**

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**3 Enter the desired remote control ID code.**

To switch to ID1, press  **Numeric keys** to enter “5019”.

To switch to ID2, press  **Numeric keys** to enter “5020”.

Once the remote control code is registered,

 **TRANSMIT** blinks twice.

If it fails,  **TRANSMIT** blinks six times. Repeat from step 1.



- If you initialize the settings of this unit, “REMOTE ID” (remote control code of this unit) is set to “ID1”.

MEMO

# RX-V2065/HTR-6295

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**YAMAHA**

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