

MICRO COMPONENT SYSTEM MCR-730

DRX-730/NX-E700

SERVICE MANUAL

The MCR-730 consists of the DRX-730 and the NX-E700.

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.

It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

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

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

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

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

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

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This Service Manual uses recycled paper.



■ TO SERVICE PERSONNEL

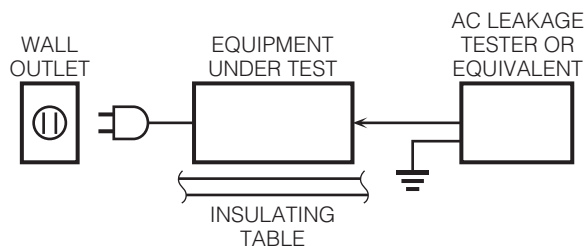
1. Critical Components Information

Components having special characteristics are marked Δ 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 μ F.



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



“CAUTION”

“F501: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A, 125V FUSE.”

CAUTION

F501: REPLACE WITH SAME TYPE 4A, 125V FUSE.

ATTENTION

F501: UTILISER UN FUSIBLE DE RECHANGE DE MÊME TYPE DE 4A, 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: Laser Safety

This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precautions must be used during servicing of the unit.

- 1) When testing and/or repairing any component within the product, keep your eyes and skin more than 30 cm/1 feet away from the laser pick-up unit at all times. Do not stare at the laser beam at any time.
- 2) Do not attempt to readjust, disassemble or repair the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Emitting conditions:

- 1) When the Top Cover is removed, and the STANDBY/ON SW is turned to the "ON" position, the laser component will emit a beam for several seconds to detect if a disc is present. During this time (5-10 sec.) the laser may radiate through the lens of the laser pick-up unit. Do not attempt any servicing during this period!
If no disc is detected, the laser will stop emitting the beam. When a disc is loaded, you will not be exposed to any laser emissions.
- 2) The laser power level can be adjusted with the VR on the pick-up PWB, however, this level has been set by the factory prior to shipping from the factory. Do not adjust this laser level control unless instruction is provided elsewhere in this manual. Adjustment of this control can increase the laser emission level from the device.

Laser Diode Properties

Type: Semiconductor laser AlGaInP
Wave length: 655 nm (DVD)
790 nm (VCD/CD)

Output Power: 5 mW (DVD)
7 mW (VCD/CD)
Beam divergence: 20 degree

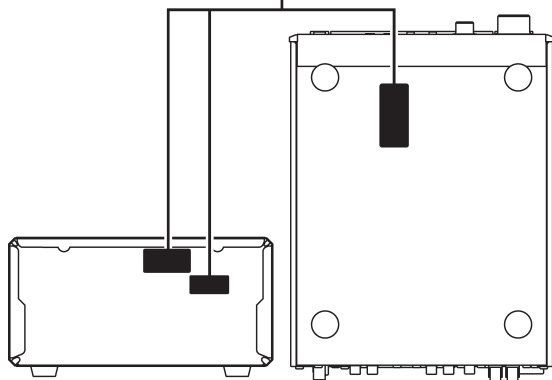
CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

AVERTISSEMENT

L'utilisation de commandes et l'emploi de réglages ou de méthodes autres que ceux décrits ci-dessous, peuvent entraîner une exposition à un rayonnement dangereux.

CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
PRODUIT LASER DE CLASSE 1



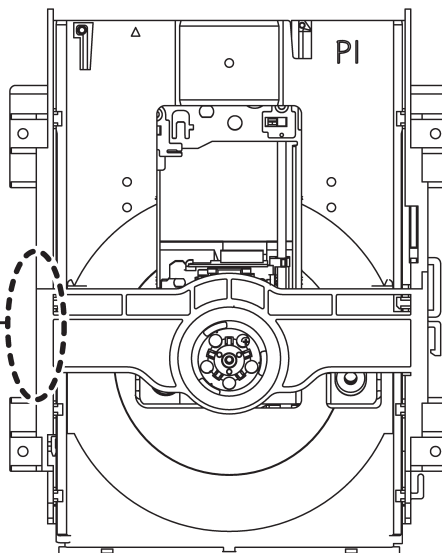
U, C models

CAUTION

LASER RADIATION -
DO NOT STARE INTO BEAM
WAVELENGTH 655nm
MAXIMUM OUTPUT 0.42mW
CLASS II LASER PRODUCT

T, K, A, G, F, L, V models

CAUTION - VISIBLE AND / OR INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.
VARNING - SYNLIIG OCH / ELLER OSYNLIIG LASERSTRÅLNING NÄR DENNA
DEL ÄR ÖPPNAD. STRÅLEN ÄR FÄRLIG.
VARO ! AVIRTAESSA OLET ALTIIDNA NÄKYVÄLLE JÄ / TÄ
NÄKYVÄTÄMÄLLE LASERSTRÄLLE. ÄLÄ KATSO SÄTEESSEEN.
VARNING - SYNLIIG OCH / ELLER OSYNLIIG LASERSTRÅLNING NÄR DENNA DEL
ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
VORSICHT ! SICHTBARE UND / ODER UNSICHTBARE LASERSTRAHLUNG
WENN ABECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENTION - RADIATION VISIBLE ET / OU INVISIBLE LORSQUE L'APPAREIL
EST OUVERT. ÉVITEZ TOUTE EXPOSITION AU FAISCEAU.



CAUTION CLASS 1M LASER RADIATION WHEN OPEN
DO NOT VIEW DIRECTLY WITH OPTICAL
INSTRUMENTS.

Warning for power supply

The primary side of the power supply carries live mains voltage when the player is connected to the mains even when the player is switched off !

This primary area is not shielded so it is possible to accidentally touch copper tracks and/or components when servicing the player.

Service personnel have to take precautions to prevent touching this area or components in this area.

Note:

The screws on the DVD mechanism may never be touched, removed or re-adjusted.

Handle the DVD mechanism with care when the unit has to be exchanged!

The DVD mechanism is very sensitive for dropping or giving shocks.

■ PREVENTION OF ELECTROSTATIC DISCHARGE

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as “anti-static (ESD protected)” can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

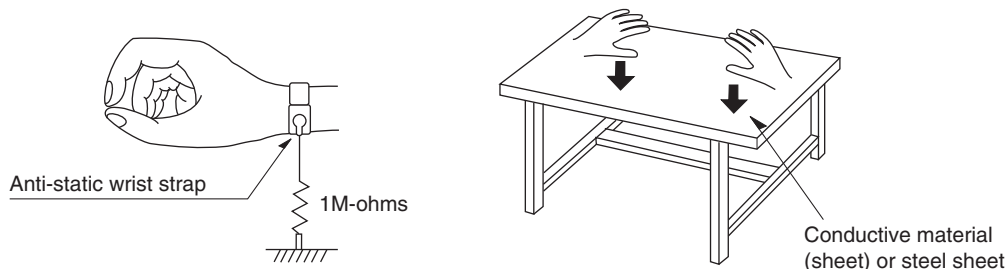
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as brushing together of your fabric clothes or lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

Grounding for electrostatic breakdown prevention

1. Human body grounding.
Use the antistatic wrist strap to discharge the static electricity from your body.
2. Work table grounding.
Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed and ground the sheet.

Caution:

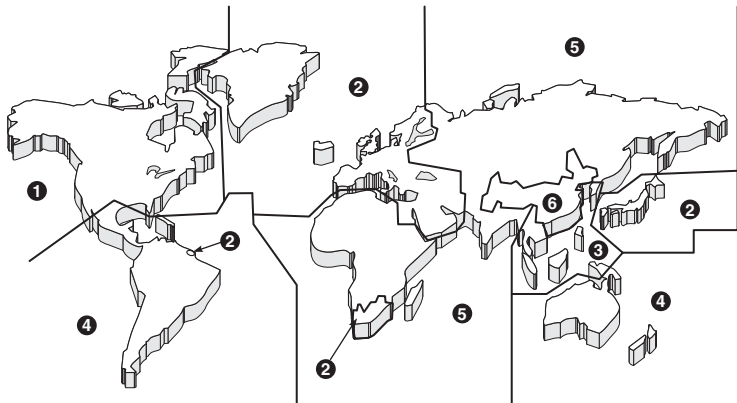
The static electricity of your clothes will not be grounded through the wrist strap. So take care not to let your clothes touch the optical pickup.



■ REGION MANAGEMENT INFORMATION

Region Management Information: This DVD player is designed and manufactured to respond to the Region Management Information that is recorded on a DVD disc. If the Region number described on the DVD disc does not correspond to the Region number of this DVD player, this DVD player cannot play this disc.

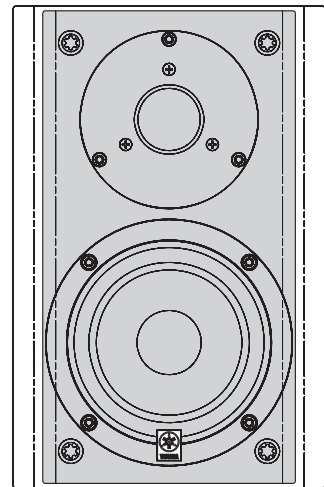
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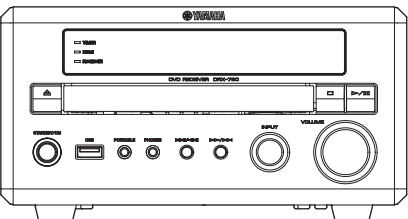
■ SYSTEM COMPOSITION

The MCR-730 consists of the DRX-730 and the NX-E700.

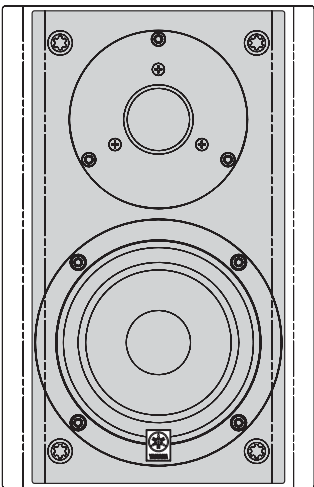
▼ NX-E700



▼ DRX-730



▼ NX-E700



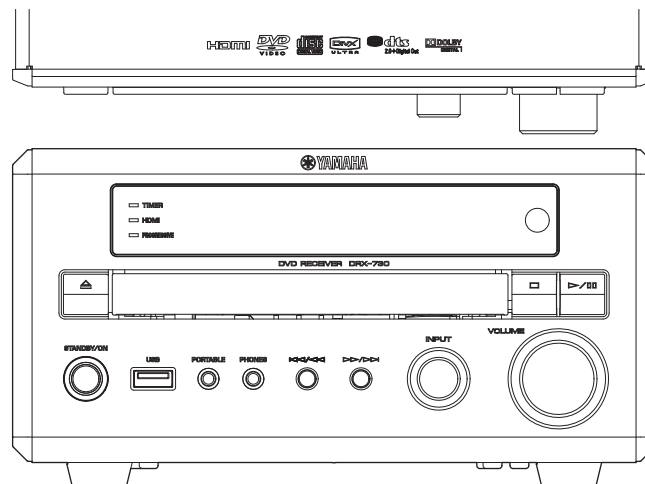
Color variations:

DRX-730	NX-E700
Gold color	Black color
Black color	
Silver color	White color
White color	

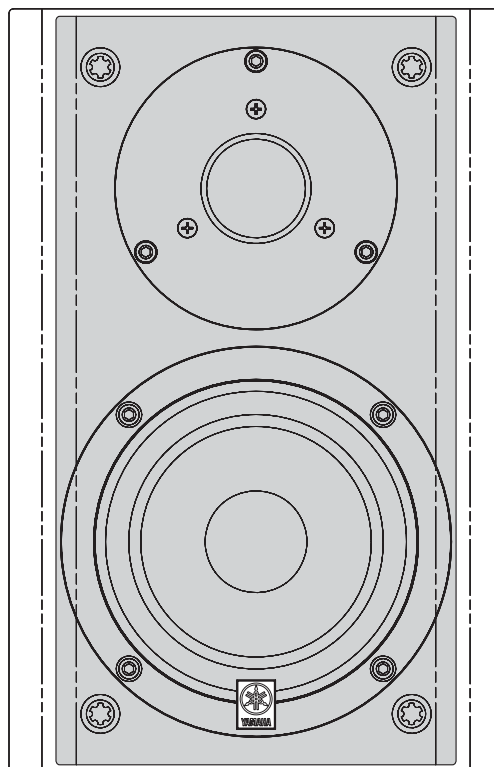
■ FRONT PANELS

DRX-730 (U, C, T, K, A, G, F, L, V models)

Top view

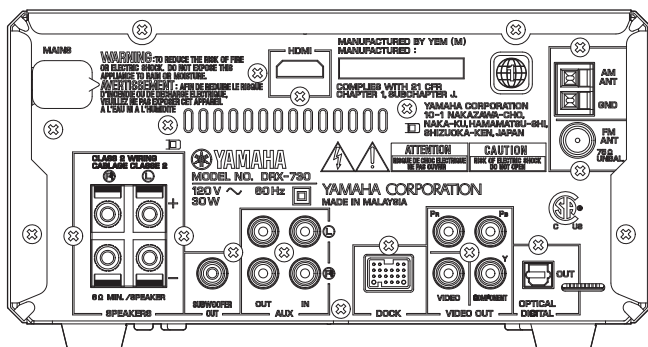


NX-E700 (U, C, T, K, A, G, F, L, V models)

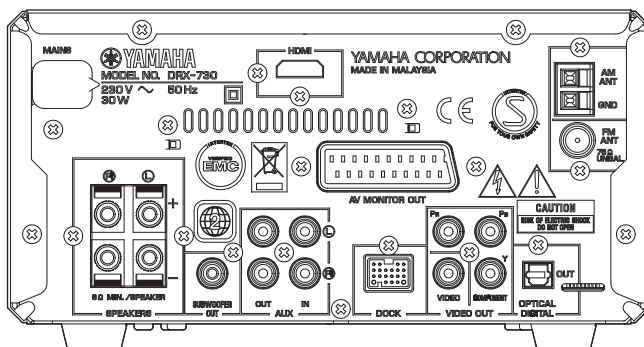


REAR PANELS

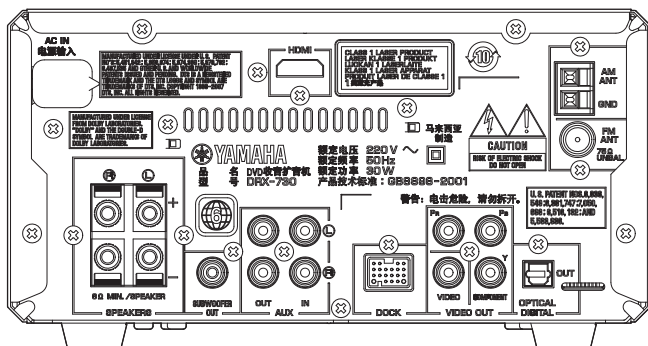
DRX-730 (U, C models)



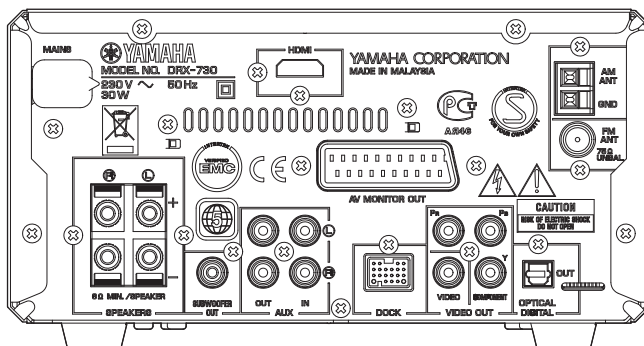
DRX-730 (G model)



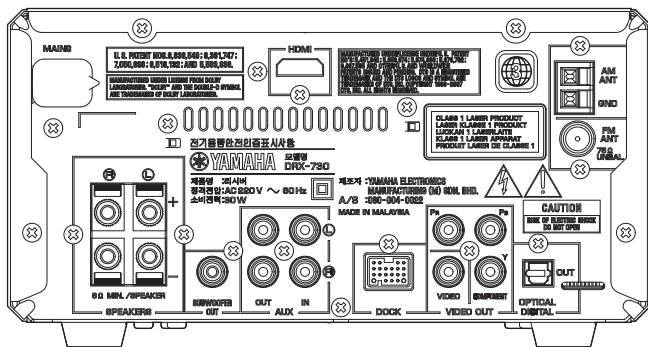
DRX-730 (T model)



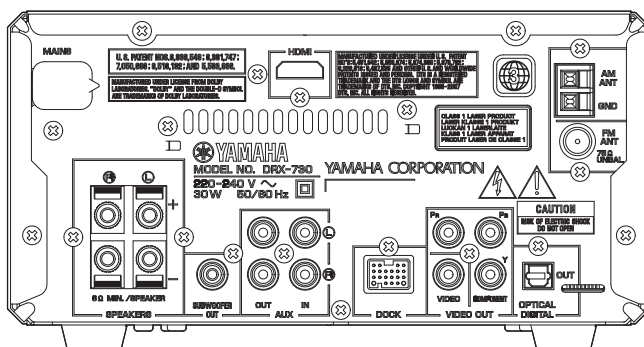
DRX-730 (F model)



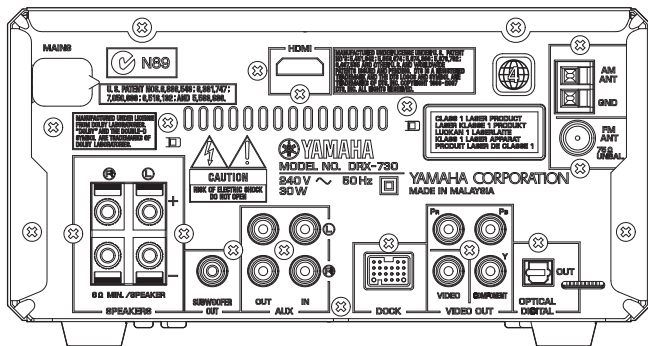
DRX-730 (K model)



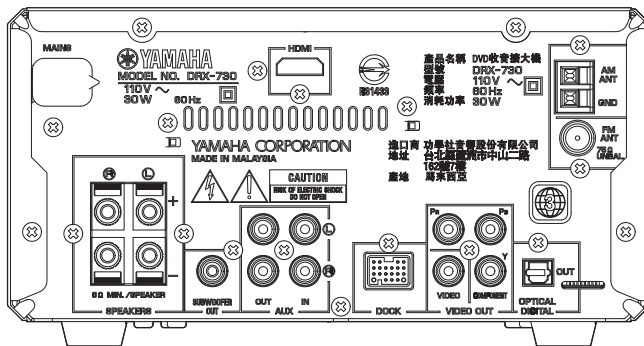
DRX-730 (L model)



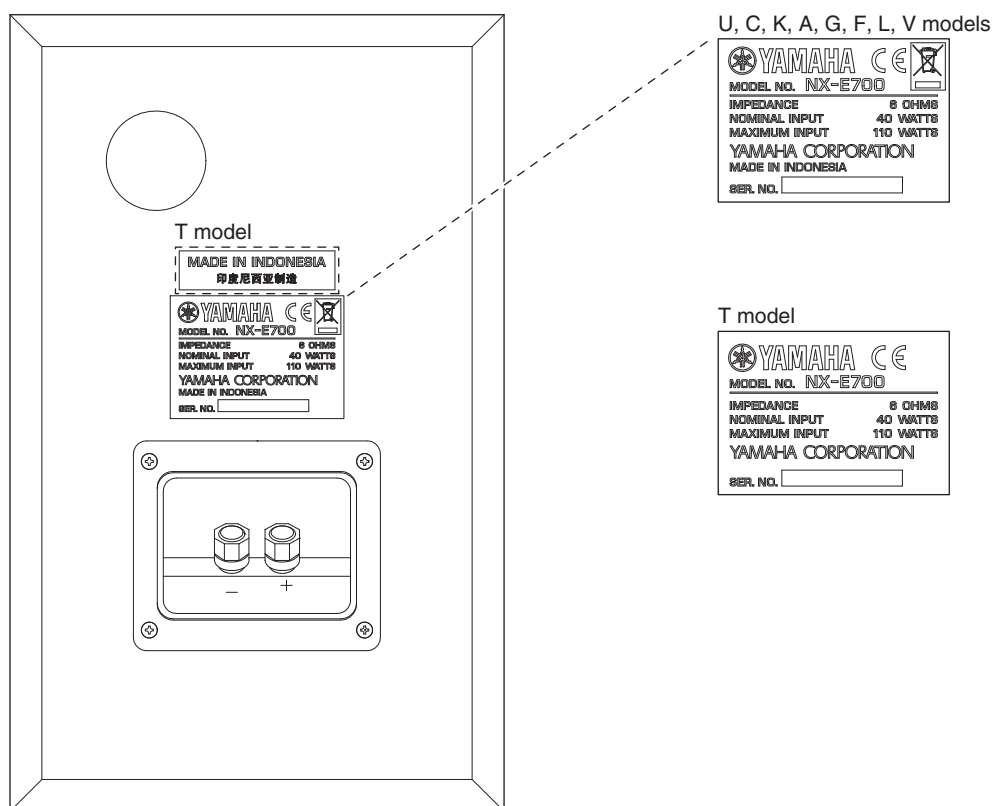
DRX-730 (A model)



DRX-730 (V model)

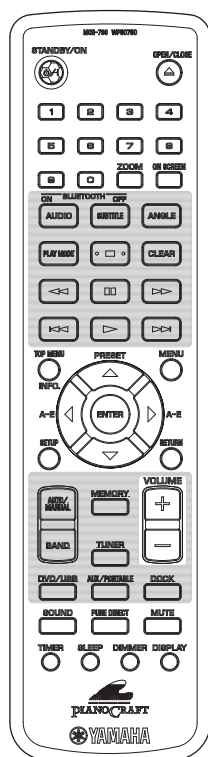


NX-E700

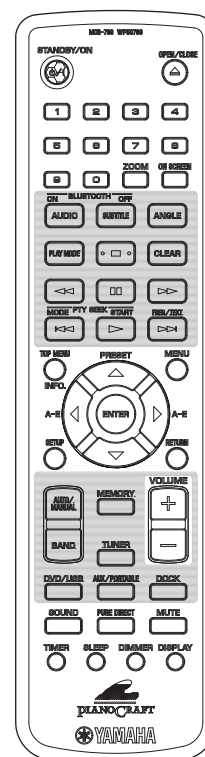


■ REMOTE CONTROL PANELS

U, C, K, A, L, V models



G, F models



SPECIFICATIONS

DRX-730

■ Amplifier Section

Maximum Power (JEITA, 6 ohms, 1 kHz, 10 % THD)
SP OUT 30 W + 30 W

Minimum RMS Output Power (6 ohms, 1 kHz, 0.9 % THD)
SP OUT 20 W + 20 W

Input Sensitivity/Input Impedance (1 kHz, 20 W)
AUX, PORTABLE 400 mV/47 k-ohms

Maximum Input Signal Level (1 kHz, 0.5 % THD)
AUX, PORTABLE 2.2 V or more

Output Level/Output Impedance (400 mV)
REC OUT (1 kHz) 400 mV/1.2 k-ohms
WOOFER PRE OUT (50 Hz) 2.0 V/1 k-ohms
HEADPHONE (1 kHz, 32 ohms) 660 mV/100 ohms

Frequency Response (AUX, PORTABLE, 10 to 22 kHz)
SP OUT 0/-3 dB

Signal to Noise Ratio (AUX, PORTABLE, IHF-A)
SP OUT (Input shorted 400 mV) 95 dB or more

Total Harmonic Distortion
(AUX, PORTABLE, 20 kHz-LPF, 1 kHz, 1 W)
SP OUT 0.05 % or less

Tone Control Characteristics
BASS
SP OUT (100 Hz) ±10 dB
TREBLE
SP OUT (10 kHz) ±10 dB

■ Tuner Section

Tuning Range

FM
U, C models 87.5 to 107.9 MHz
T, K, A, G, F models 87.50 to 108.00 MHz
L, V models 87.5 to 108.0 / 87.50 to 108.00 MHz
AM
U, C models 530 to 1,710 kHz
T, K, A, G, F models 531 to 1,611 kHz
L, V models 530 to 1,710 / 531 to 1,611 kHz

■ DVD Section

Output Level (DVD/VIDEO, CD/CD-DA)
REC OUT (1 kHz, 0 dB) 2 ±0.3 V

Signal to Noise Ratio (DVD/VIDEO, CD/CD-DA)
REC OUT (Weighted) 100 dB or more

Dynamic Range
REC OUT
DVD, 48 kHz, 24 bit 95 dB or more
CD-DA/VIDEO, CD 95 dB or more

Harmonic Distortion + Noise (DVD/VIDEO, CD/CD-DA)
REC OUT 0.005 % or less

Frequency Response
PRE OUT
CD-DA/VIDEO, CD 10 Hz to 20 kHz
DVD, 48 kHz, sampling 10 Hz to 22 kHz
DVD, 96 kHz, sampling 10 Hz to 44 kHz

Video Output
Composite 1 Vp-p (75 ohms)

Y Output/Component Video Output
..... 1 Vp-p (75 ohms)

Pb Output/Component Video Output
..... 0.7 Vp-p (75 ohms)

Pr Output/Component Video Output
..... 0.7 Vp-p (75 ohms)

RGB AV MONITOR OUT (SCART) Output [G, F models]
..... 0.7 Vp-p (75 ohms)

■ Input/Output Section

Input Terminal

Analog audio AUX L/R (pin jack – rear)
PORTABLE (mini jack – front)
Other USB (USB 1.1, full speed)
DOCK

Output Terminal

Analog audio SPEAKERS L/R
PHONES
AUX L/R (REC)
SUBWOOFER
Digital audio OPTICAL
Video VIDEO (composite)
COMPONENT (Y, P_B, P_R)
HDMI
AV MONITOR OUT (SCART) (G, F models)

■ General

Power Supply

U, C models AC 120 V, 60 Hz
T model AC 220 V, 50 Hz
K model AC 220 V, 60 Hz
A model AC 240 V, 50 Hz
G, F models AC 230 V, 50 Hz
L model AC 220-240 V, 50/60 Hz
V model AC 110 V, 60 Hz

Power Consumption

..... 30 W

Standby Power Consumption (reference data)

..... Less than 1 W

Dimensions (W x H x D)

..... 215 x 113 x 300 mm (8-7/16" x 4-7/16" x 11-13/16")

Weight

..... 2.9 kg (6 lbs. 6 oz.)

Finish

Gold color T, A models
Black color U, A, G, F, L, V models
Silver color C, K, A, G, F, L, V models
White color C, K, A, G, F models

Accessories

Remote control x 1
Battery (R6, AA, UM-3) x 2
Indoor FM antenna (1.4 m) x 1
AM loop antenna (1.2 m) x 1
Video pin cable (1.5 m) x 1

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

NX-E700**■ Speaker Section**

Type 2-way bass reflex speaker system
Magnetic shielding type

Driver

Woofer 11 cm (4-1/2") cone type
Tweeter 2.5 cm (1") dome type

Frequency Response

..... 60 Hz to 28 kHz (-10dB)

Impedance 6 ohms

Nominal Input 40 W

Maximum Input 110 W

Sensitivity 85 dB/2.83 V/m

Crossover Frequency 3 kHz

Input Terminal Screw/Banana type

Dimensions (W x H x D) 165 mm x 255 mm x 183 mm
(6-1/2" x 10-1/16" x 7-3/16")

Weight 3.4 kg (7 lbs. 8 oz.)

Finish

Black color U, C, T, K, A, G, F, L, V models
White color C, K, A, G, F models

Accessory Speaker cable (4 m) x 1

* Specifications subject to change without prior notice.

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

G European model
F Russian model
L Singapore model
V Taiwan model



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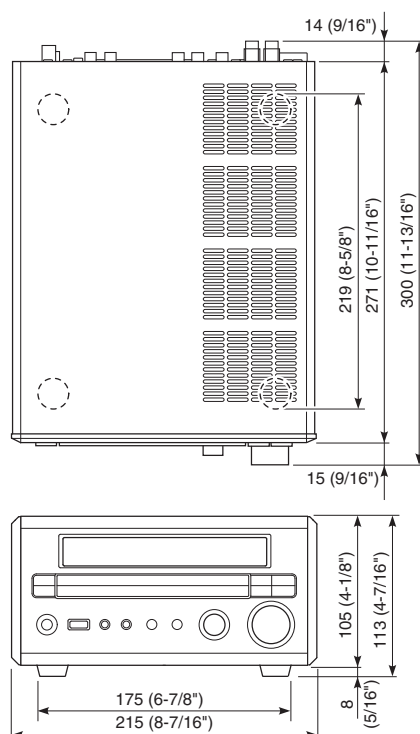
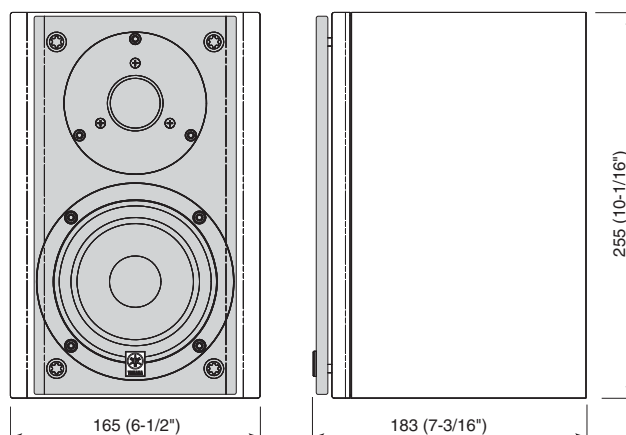
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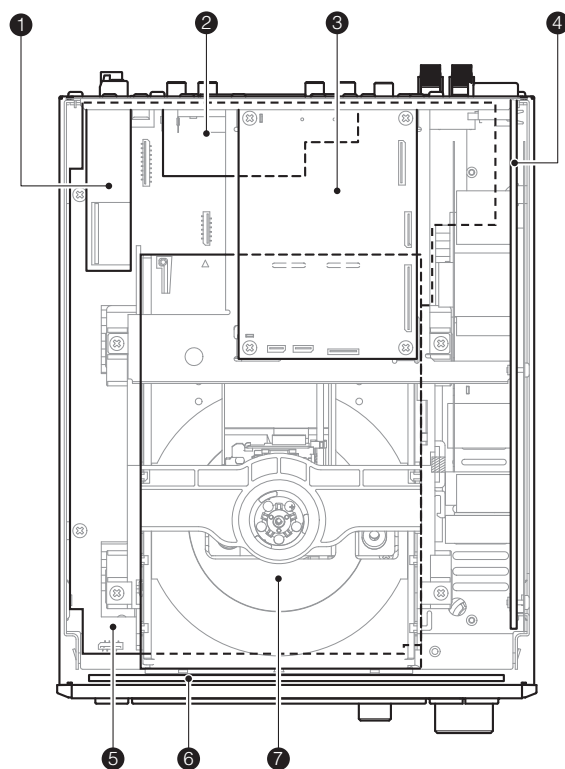
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• DIMENSIONS**DRX-730****NX-E700**

Unit: mm (inch)

■ INTERNAL VIEW

Top view



- ① AM/FM TUNER
- ② MAIN (2) P.C.B. (G, F models)
- ③ DVD MODULE P.C.B.
- ④ SUB (1) P.C.B.
- ⑤ MAIN (1) P.C.B.
- ⑥ SUB (2) P.C.B.
- ⑦ DVD MECHANISM ASS'Y

■ SERVICE PRECAUTIONS

When DVD MODULE P.C.B. of this unit is replaced, the serial number and new ID number (device key) must be reported to YCJ (Yamaha Corporation Japan) by email. (Fig. 1)

Email: ycav-keycontrol@gmx.yamaha.com

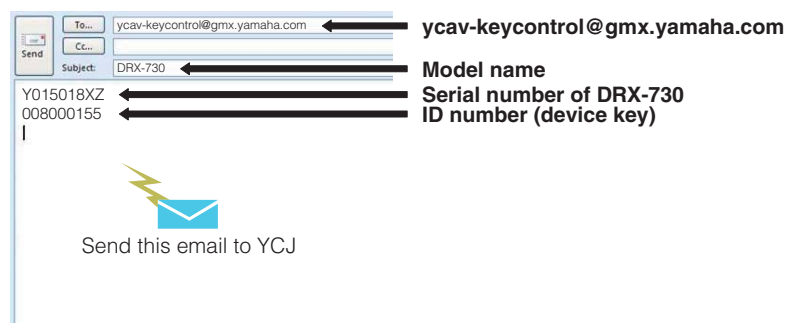


Fig. 1

● Check the Serial Number

The serial number "SER.NO.xxxxxxxx" can be found at the bottom of this unit. (Fig.2)

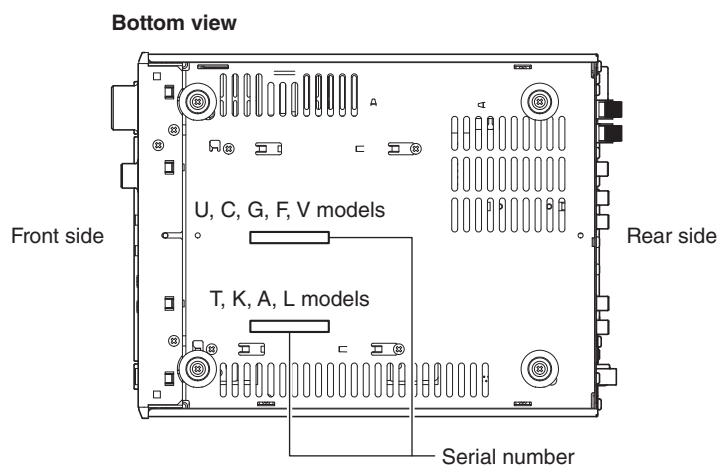


Fig. 2

● Check the New ID Number (Device key)

Connection

Connect the VIDEO OUT terminal of this unit to the VIDEO IN terminal of the TV monitor with a video pin cable.

Operation Procedure

Perform following steps while watching the TV monitor screen and using the keys of this unit.

1. While pressing those 2 keys of this unit as indicated in the figure below, press the "STANDBY/ON" key to turn on the power.
The self-diagnostic function is activated. (Fig. 3)

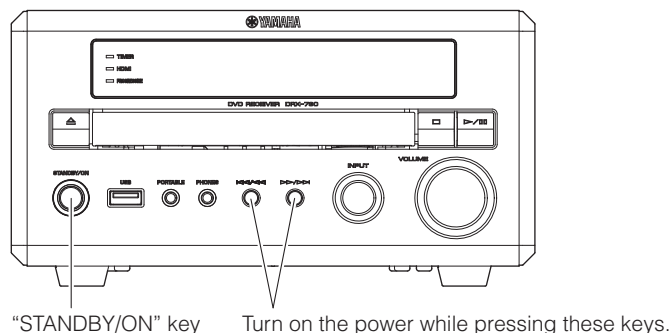


Fig. 3

2. Press "⏮️/⏪️" (Previous/Rewind) key once to select main menu 11 DVD WRITE ID.
3. Press "⏸️/⏩️" (Play/Pause) key once to select sub-menu 11-2 DVD CLEAR ID.
Wait about 15 seconds.



Fig. 4

4. New ID number (device key) will appear on the TV monitor screen as shown below.

Note: While the ID number (device key) is displayed, never operate any keys of the remote control.

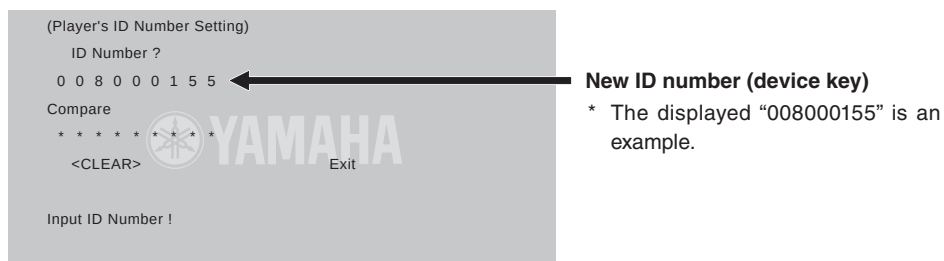


Fig. 5

5. To exit the self-diagnostic function, press "STANDBY/ON" key to turn off the power.

■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

Disconnect the power cable from the AC outlet.

1. Removal of Top Cover

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

2. Removal of Front Panel Unit

- Open the disc tray, remove the lid and close the disc tray. (Fig. 3)
- Remove 2 screws (③), 2 push rivets and then remove 2 side panels. (Fig. 1)
- Remove 3 screws (④). (Fig. 1)
- Release 2 hooks, pull out the front panel unit forward. (Fig. 1)
- Remove CB12 and CB26. (Fig. 1)

3. Removal of DVD Mechanism Ass'y and DVD Module P.C.B.

- Remove 4 screws (⑤) and screw (⑥). (Fig. 1)
- Remove 3 screws (⑦) and screw (⑧). (Fig. 1)
- Remove CN962, CN967 and CN968. (Fig. 1)
- Remove the DVD mechanism ass'y and DVD module P.C.B. together with support P.C.B.. (Fig. 1)
- Remove CN964 and CN965. (Fig. 1)
- Remove CN966, and ground the terminal face of the flexible flat cable with a clip or the like. (Fig. 1)
- Remove the DVD mechanism ass'y. (Fig. 1)

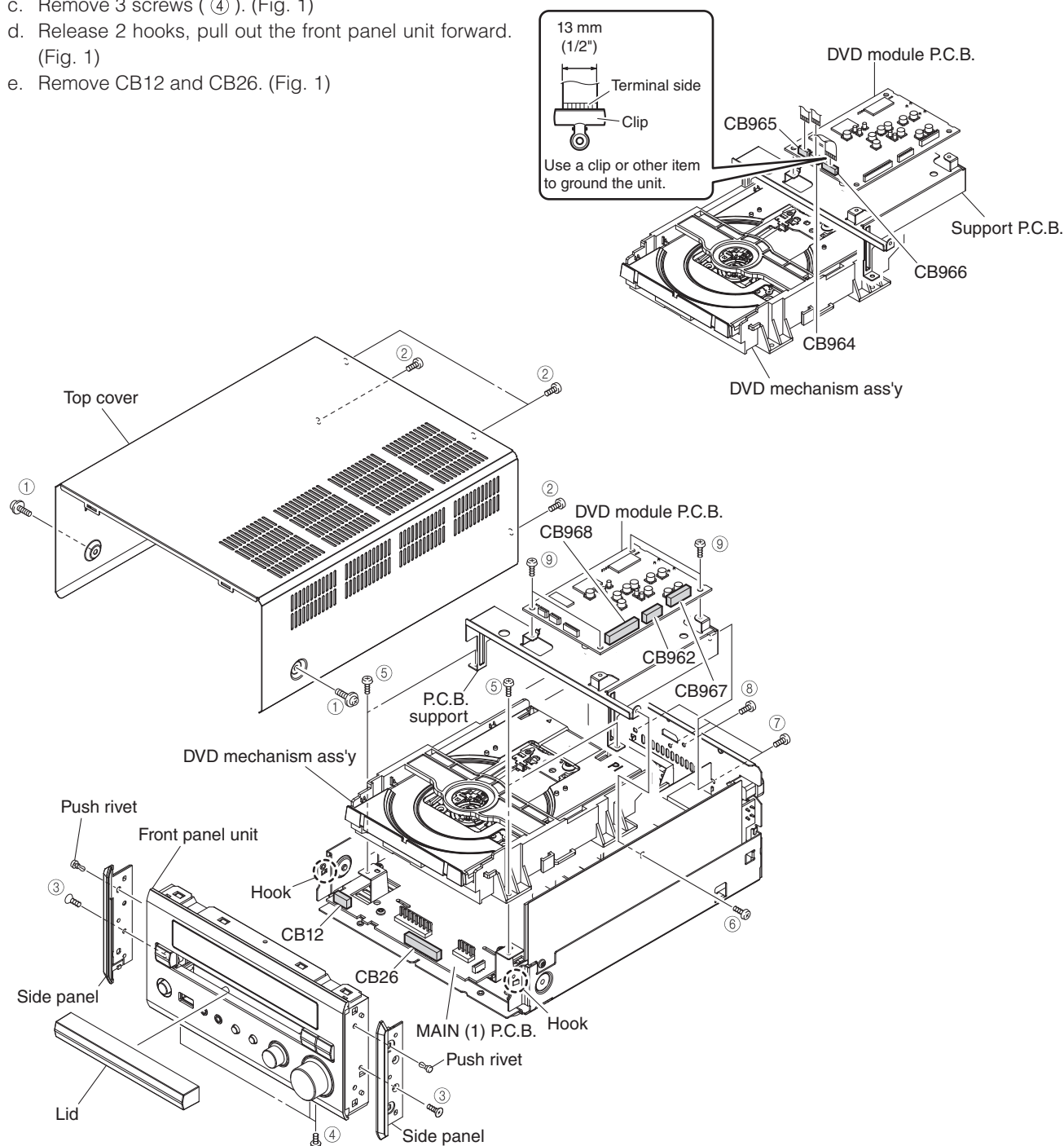


Fig. 1

● How to manually eject the disc tray

- Move the slider in the direction indicated in the figure below with a screwdriver until the disc tray is ejected. (Fig. 2)

Note: An Allen hex socket screwdriver 2.5 mm is recommended for this operation.

- Gently pull the disc tray out.

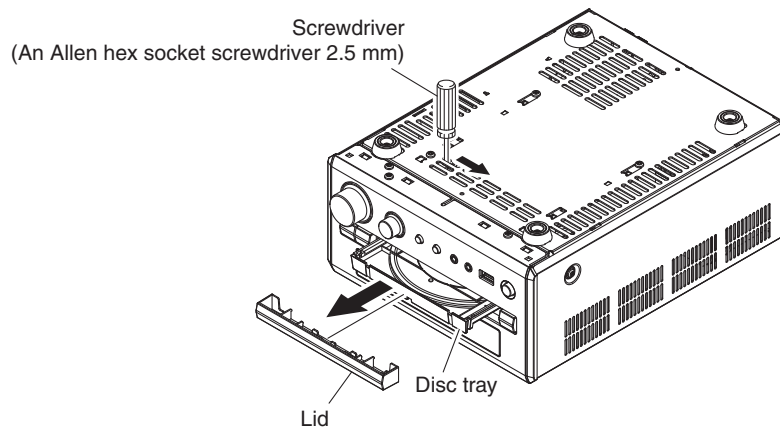


Fig. 2

When checking the P.C.B.s:

- Spread the rubber sheet and the cloth. Then place this unit on the cloth and check it. (Fig. 3)
- Reconnect all cables (connectors) that have been disconnected.
- When connecting the flexible flat cable, be careful with polarity.
- Connect the ground point of the DVD module P.C.B., AM/FM tuner and P.C.B. support to the chassis with a ground lead or the like. (Fig. 3)

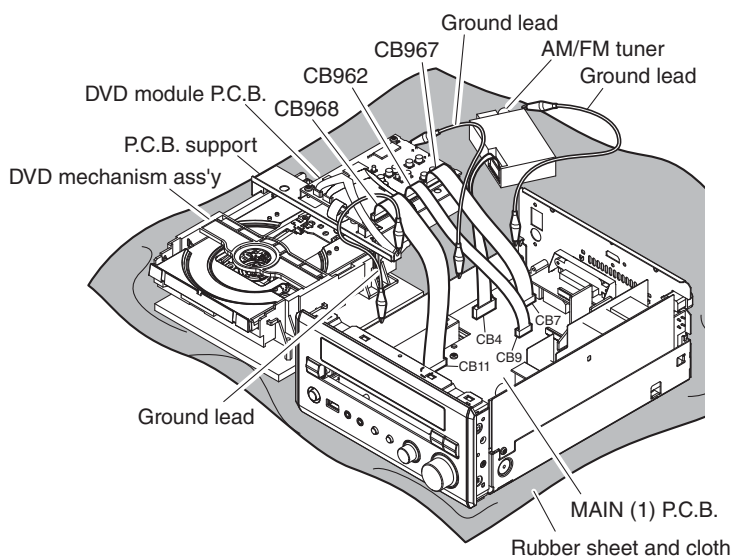


Fig. 3

■ UPDATING FIRMWARE

Writing to the microprocessor

After replacing the following parts update the latest firmware according to the following procedure.

MAIN P.C.B.
Microprocessor (IC11) of MAIN P.C.B.

● Required tools

- Program downloader program
..... FlashSta.exe
- Firmware
..... DRX730_vx.mot
..... DRX730_vx.id
- 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 jig (Part No.: AAX77610)

● Preparation and precautions before starting the operation

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

● Confirmation of Firmware Version and Checksum

Before and after writing to the microprocessor, check the firmware version and checksum with the self-diagnostic function menu.

Using the self-diagnostic function menu, check that the firmware is updated successfully.

Start up the self-diagnostic function of this unit and the “1. VERSION/SUM” is displayed.

For more information, see “SELF-DIAGNOSTIC FUNCTION”.

1. VERSION/SUM



Firmware version and checksum value of microprocessor

The firmware version and checksum value of microprocessor (IC11 MAIN P.C.B.) is displayed.

● Connection

1. Set the switch (SW301) of RS232C conversion adapter to the "FLASH UCOM" side.
2. Connect the writing port of this unit to the serial port (RS232C) of the PC with RS232C cross cable, RS232C conversion jig and flexible flat cable as shown below. (Fig. 1)

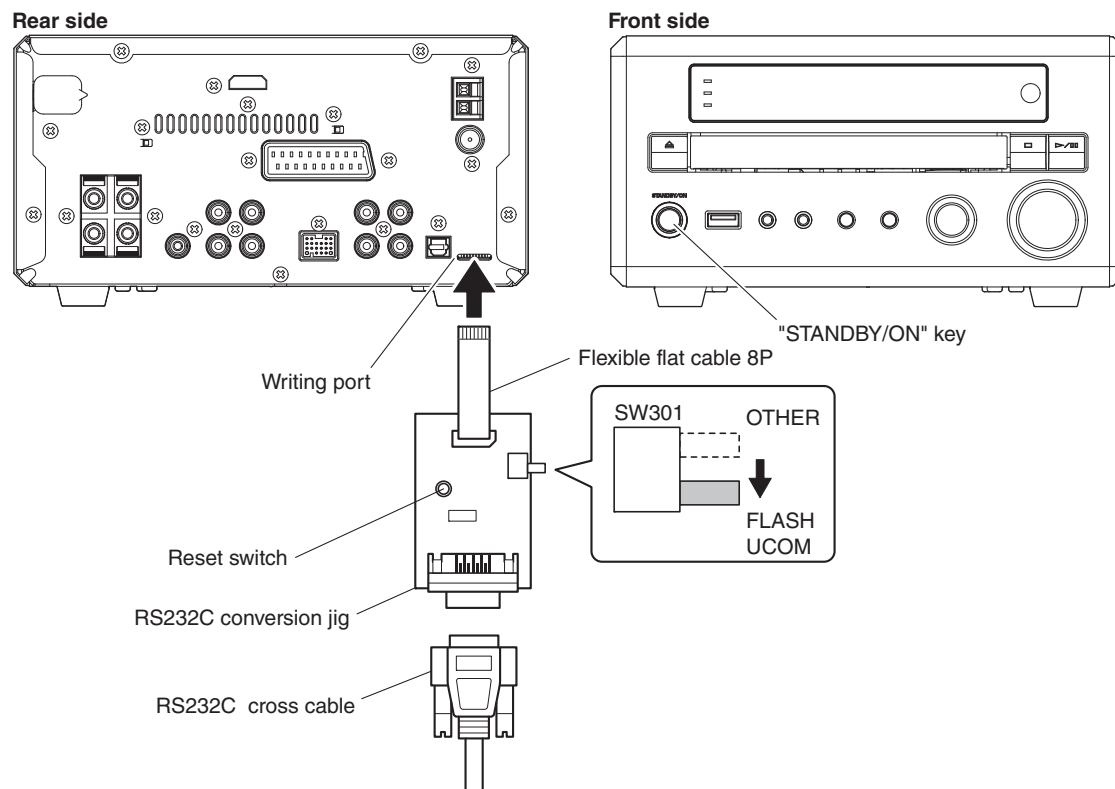


Fig. 1

● Operation Procedures

1. Connect the power cable of this unit to the AC outlet.
2. While pressing the reset switch of RS232C conversion jig, press the "STANDBY/ON" key of this unit to turn on the power. (Fig. 1)
3. Start up FlashSta.exe, the screen will appear as shown below. (Fig. 2)
4. Select the port and data to be transmitted. (Fig. 2)

• Select Program

Select Internal flash memory

• RS232C

Select the port of RS-232C

* For selection of the port, COM1 to 4 can be used.

As COM5 or higher port cannot be used, select out of COM 1 to 4 of the setting on the PC side.

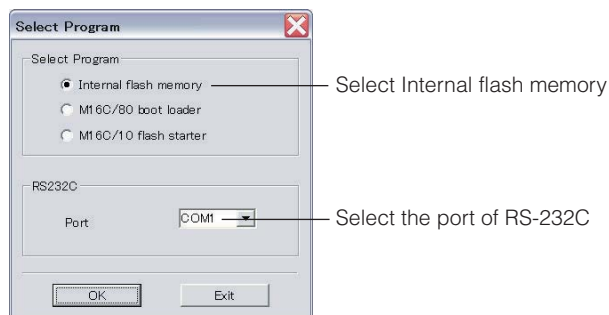


Fig. 2

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

* The ID code and MCU type are loaded automatically when the file is selected. (Fig. 3)

Click [OK]. (Fig. 3)

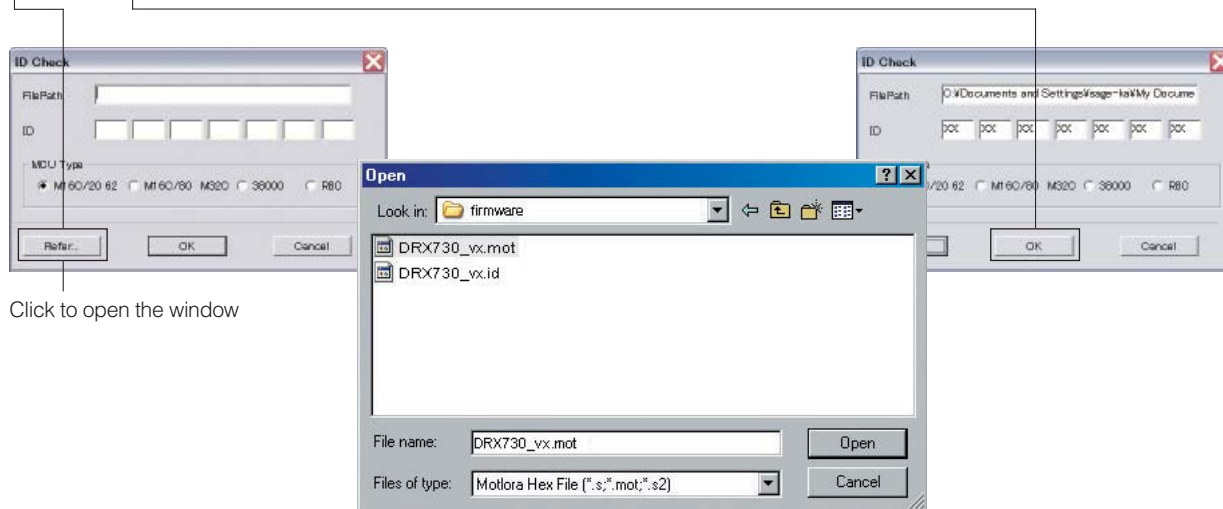


Fig. 3

6. Click [E.P.R.], the screen appears as shown below. (Fig. 4)

Click [OK] to start writing. (Fig. 4)

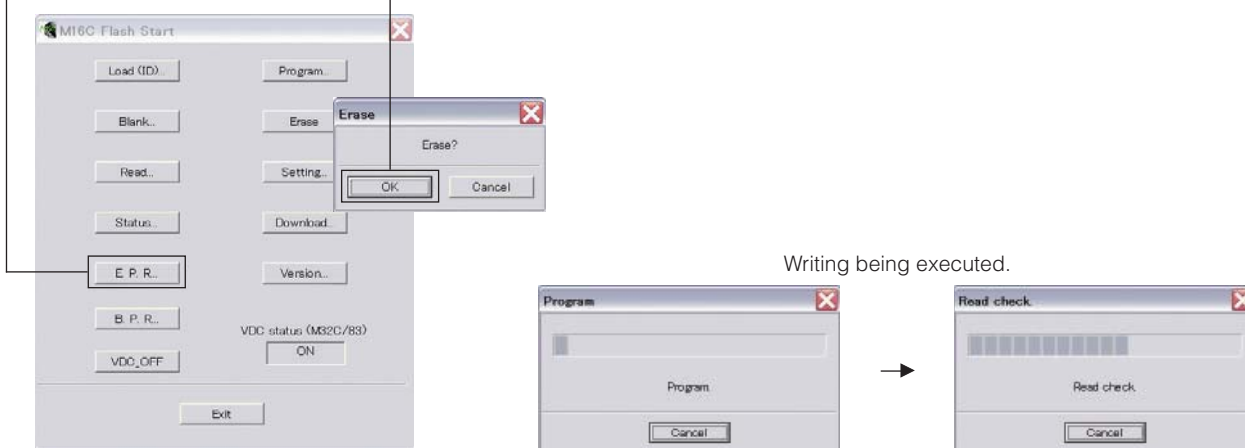


Fig. 4

7. When the program transmission is completed, the screen appears as shown below. (Fig. 5)
Click [OK] to end the procedure. (Fig. 5)



Fig. 5

8. Using the self-diagnostic function menu, check that the firmware is updated successfully.
- * When the displayed firmware version and checksum are different from written ones, perform the "Writing to the microprocessor" procedure all over again.
9. End "FlashSta.exe".
10. Disconnect the power cable of this unit from the AC outlet.
11. Disconnect the RS232C cross cable, RS232C conversion jig and flexible flat cable.

Writing to the Module Board

After replacing the Module board with the replacement part, be sure to write the latest firmware.

● Required Tools

Firmware CD

- * To make the firmware CD, download the latest firmware from the specified download source to PC.
When making a firmware CD, set the CD volume label to "PIONEER".

Firmware: S8CAxxxx.BIN

● Confirmation of Firmware Version

Before and after the writing firmware to the module board, follow the procedures below to check the firmware version.

1. Connect the VIDEO OUT terminal of this unit to the VIDEO IN terminal of the TV monitor with a video pin cable.
2. Connect the power cable of this unit to the AC outlet.
3. Press the "STANDBY/ON" key of this unit to turn on the power. (Fig. 6)
4. Press the "DVD/USB" key on the remote control to select the input DVD. (Fig. 6)
5. Press the "SETUP" key on the remote control. (Fig. 6)
The SETUP menu is displayed on the TV monitor. (Fig. 6)
6. Move the cursor to [Initial Settings] by pressing the "DOWN" key on the remote control and press the "ENTER" key. (Fig. 6)

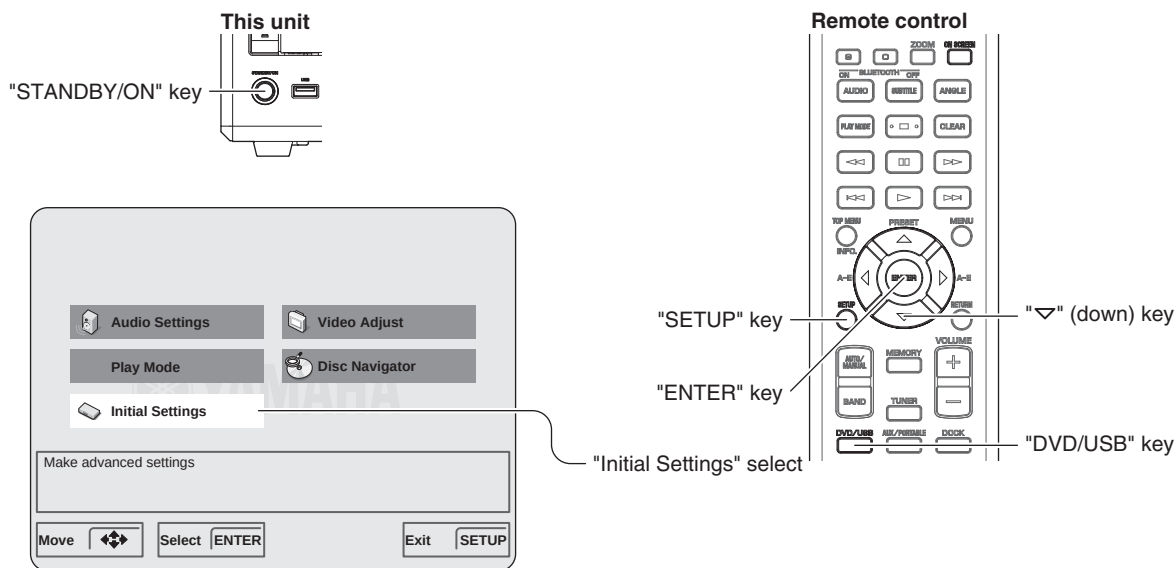


Fig. 6

7. Move the cursor to [Options] by pressing the "DOWN" key on the remote control repeatedly and press the "ON SCREEN" key. (Fig. 7)
The ROM version is displayed. (Fig. 7)

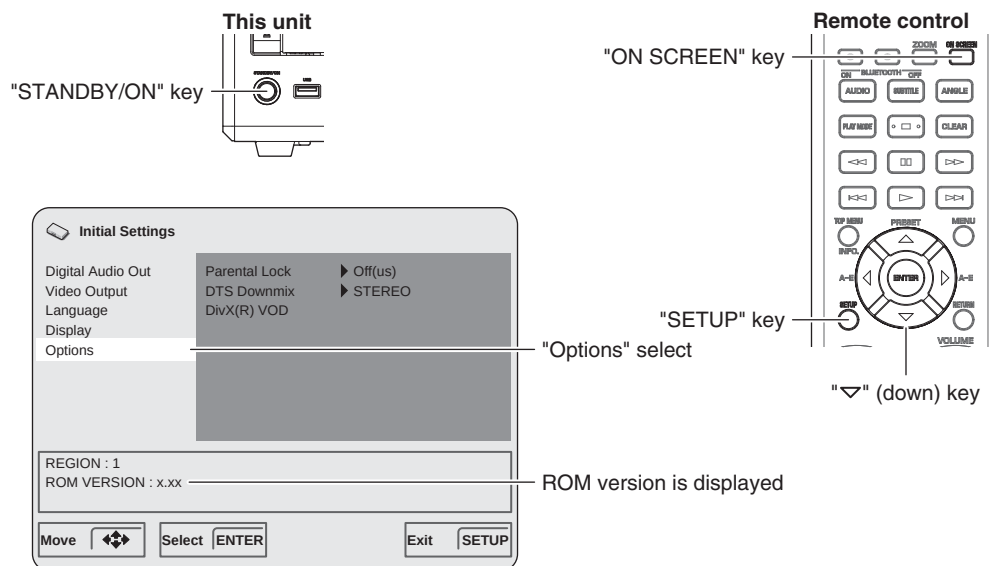


Fig. 7

8. Press the "SETUP" key on the remote control to end the SETUP procedure. (Fig. 7)
9. Press the "STANDBY/ON" key of this unit to turn off the power. (Fig. 7)

● Operation Procedures

CAUTION: Do not turn off the power while updating the firmware.

1. Connect the VIDEO OUT terminal of this unit to the VIDEO IN terminal of the TV monitor with a video pin cable.
2. Connect the power cable of this unit to the AC outlet.
3. Press the "STANDBY/ON" key of this unit to turn on the power. (Fig. 8)
4. Press the "OPEN/CLOSE" key of this unit to open the disc tray. (Fig. 8)
5. Put the firmware CD on the disc tray and close the disc tray.

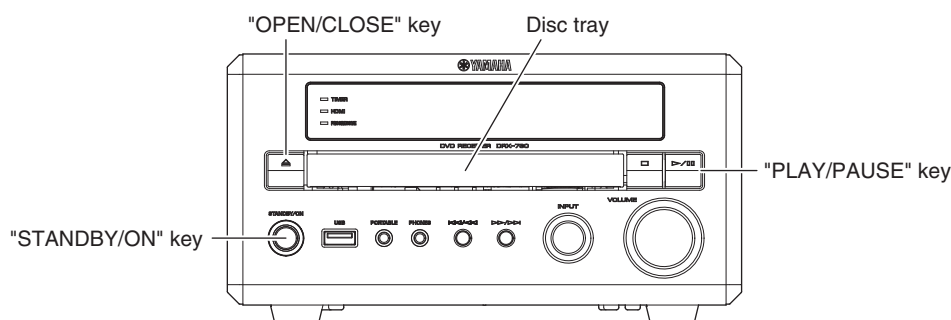


Fig. 8

6. "Upgrade?" is displayed on the TV screen. (Fig. 9)
7. Press the "PLAY/PAUSE" key of this unit, and then writing of the firmware is started. (Fig. 8)

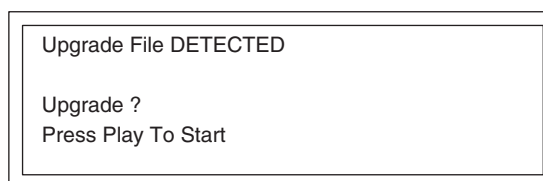


Fig. 9

8. After a few seconds, the disc tray opens automatically. Remove the firmware CD and close the disc tray.
 - * At this time, do not turn off the power as writing of the firmware is going on in this unit.
 - * Writing takes about 1 minute.

Writing is being executed.

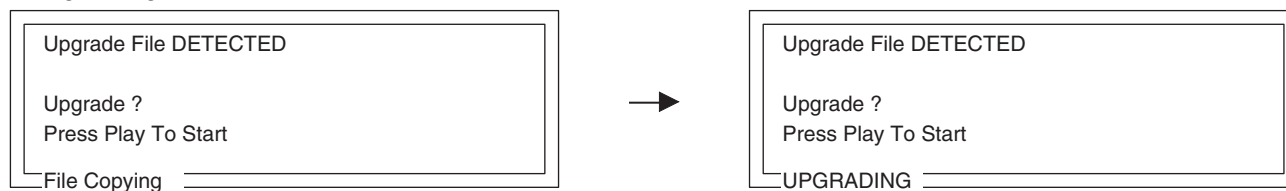


Fig. 10

9. When writing is completed, the display on the TV monitor disappears. Press the "STANDBY/ON" key of this unit to turn off the power.
10. Check that the firmware version. (See "Confirm of Firmware Version")
 - * When the displayed firmware version and checksum are different from written ones, perform the "Writing to the microprocessor" procedure all over again.

■ SELF-DIAGNOSTIC FUNCTION

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

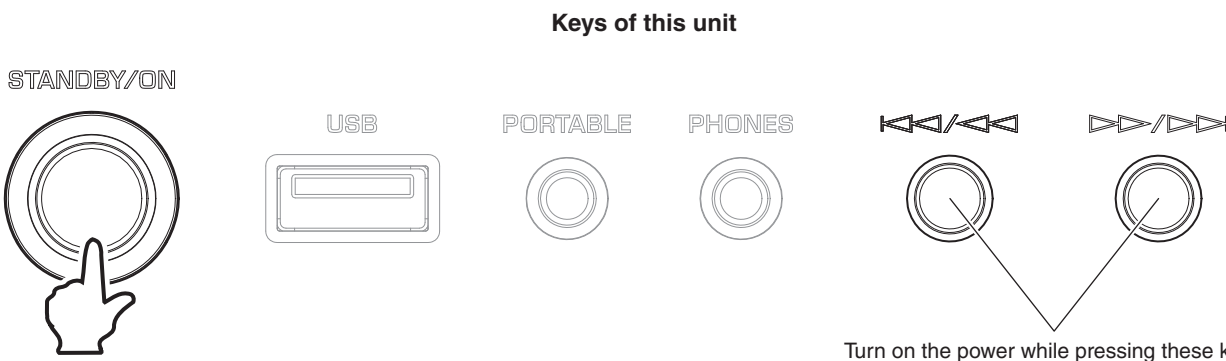
There are 11 main menu items, each of which has sub-menu items.

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

MAIN MENU	SUB MENU
1 VERSION/SUM	1 VERSION/CHECK SUM DISPLAY
	2 DESTINATION
	3 CPU TYPE
	4 REVISION NO
	5 EEPROM CHECK
2 FACTORY PRESET	1 PRESET INH
	2 PRESET RSRV
3 VOLUME CHECK	1 MIN
	2 -20dB
	3 MAX
	4 BASS/TREBLE +10dB
	5 BASS/TREBLE -10dB
4 DISPLAY CHECK	1 MENU display
	2 VFD DISP OFF
	3 VFD DISP ALL
	4 VFD DIMMER
	5 CHECK PATTERN
5 DOCK CHECK	1 Loop Back Check
	2 Bluetooth Adapter Version
6 MUTE CHECK	1 OFF
	2 HP MUTE
	3 SW MUTE
7 D-AMP OSC MODE	1 INTERNAL
	2 EXTERNAL 300kHz
	3 EXTERNAL 350kHz
8 AD DATA CHECK	1 PS1/PS2
	2 PS3/DC
	3 DVD/DOCK
	4 DEST
	5 PANEL KEY
9 PROTECTION HISTORY	1 History 1
	2 History 2
	3 History 3
	4 History 4
	5 History 5
	6 CLEAR HISTORY
10 POWER OFF FACTOR HISTORY	1 Power OFF factor history 1
	2 Power OFF factor history 2
	3 Power OFF factor history 3
	4 Power OFF factor history 4
	5 Power OFF factor history 5
	6 CLEAR HISTORY
11 DVD SETTING	1 WRITE ID (DVD ID writing)
	2 CLEAR ID (DVD ID Erasing)
	3 REWRITE F/W (DVD F/W Rewriting)

● Starting Self-Diagnostic Function

While pressing those 2 keys of this unit as indicated in the figure below, press the “STANDBY/ON” 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 of this unit as indicated in the figure above, press the “STANDBY/ON” key to turn on the power and keep pressing those 2 keys 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 further damage to itself. Use special care when using this mode.

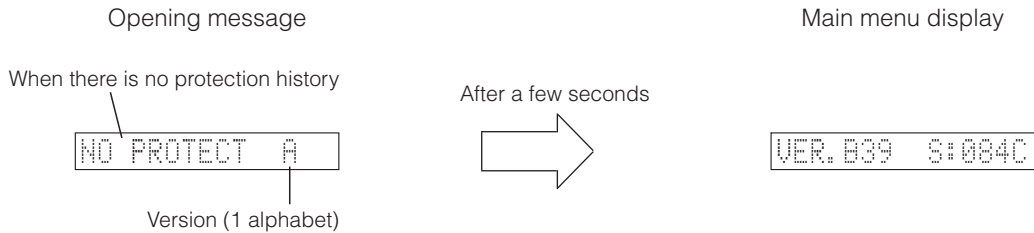
● Canceling Self-Diagnostic Function

- ① Before canceling self-diagnostic function, execute setting for FACTORY PRESET of main menu No. 2 (Memory initialization inhibited or Memory initialized).
 - * In order to keep the user memory stored, be sure to select PRESET INHIBIT (Memory initialization inhibited).
- ② Press the “STANDBY/ON” key to turn off the power.

● **Display provided when Self-Diagnostic Function started**

The FL display of this unit displays the protection function history data then the main menu (sub-menu VERSION/CHECK SUM of main menu No. 1 FIRMWARE VERSION) a few seconds later.

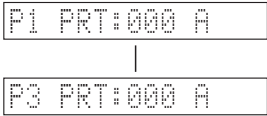
When there is no history of protection function:



When there is a history of protection function:

The FL display appears as shown below depending on the type of the protection function.

The protection function worked due to a defect or overload in the power supply. If the power is turned on with the abnormality unsolved, the protection function works in about 3 seconds to turn off the power.



For detection of each protection function, refer to main menu No.8 AD DATA.

● **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.

The history of the protection function is cleared when self-diagnostic function is cancelled by selecting PRESET RESERVED (Memory initialized) of main menu No. 2 or when the backup data is erased.

● Operation procedure of Main menu and Sub-menu

There are 11 menu items, each of having sub-menu items.

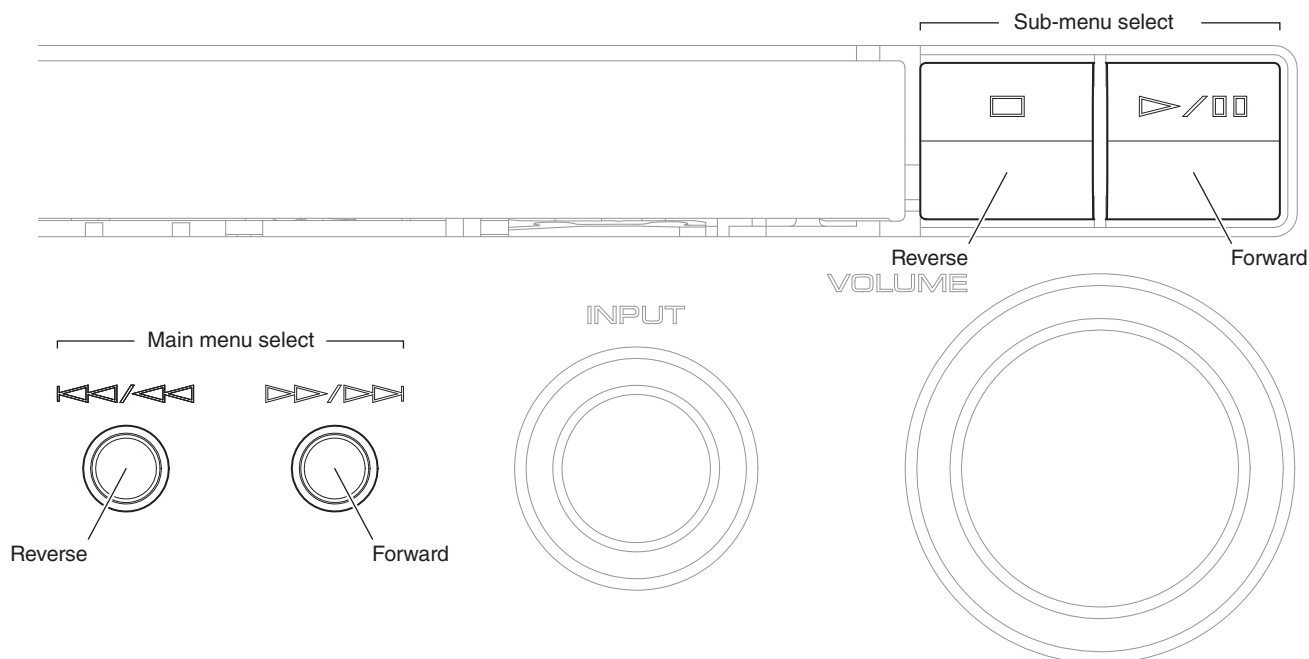
Main menu selection

Select the menu using “▶▶/▶▶” (Forward) and “◀◀/◀◀” (Reverse) keys of this unit.

Sub-menu selection

Select the sub-menu using “▶/□□” (Forward) and “◻” (Reverse) keys of this unit.

Keys of this unit



● Functions in Self-Diagnostic Function mode

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

- Input selection
- Muting
- Power on/off

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

● Initial setting used to start Self-Diagnostic Function

The following initial setting is used when starting self-diagnostic function.

When self-diagnostic function is canceled, this setting is restored to that before starting self-diagnostic function.

- Input: AUX

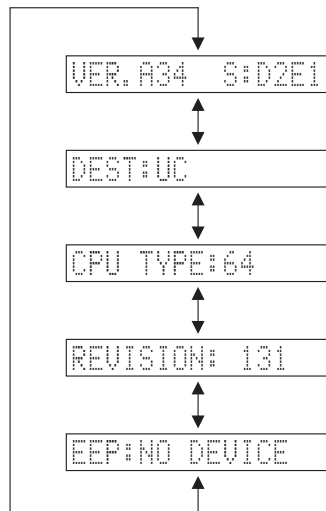
● Details of Self-Diagnostic Function menu

1. FIRMWARE VERSION

The firmware version, checksum, destination, CPU type etc. are displayed.

The checksum is obtained by adding the data at every 8 bits (1 byte) for each program area and expressing the result as a 4-figure hexadecimal data.

* Numeric values in the figure example are for reference.



Firmware version and checksum value of microprocessor

The firmware version and checksum value of microprocessor (IC11 MAIN P.C.B.) is displayed.

DESTINATION

The destination (UC / GF / LV / KA / T) is displayed.

CPU TYPE

The microprocessor type is displayed.

REVISION NO.

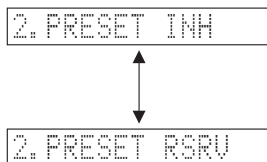
The revision no. of SVN is displayed.

EEPROM CHECK

Frequency of writing into EEPROM is displayed.

2. FACTORY PRESET

This menu is used to reserve/inhibit initialization of the backup IC.



PRESET INHIBIT (Initialization inhibited)

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

Note: The protection history will not be erased using PRESET INHIBIT.

PRESET RESERVED (Initialization reserved)

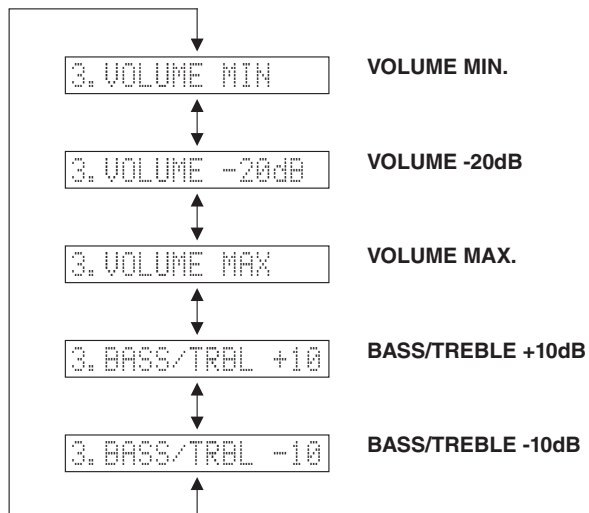
Initialization of the back-up IC is reserved. (Actually, initialization is executed the next time that the power is turned on.) Select this sub-menu to reset to the original factory settings or to reset the IC. Use PRESET RESERVED to erase the protection history.

CAUTION: Before setting to the PRESET RESERVED, write down the existing preset memory content of the Tuner in a table as shown below. (This is because setting to the PRESET RESERVED will cause the user memory content to be erased.)

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

3. VOLUME CHECK

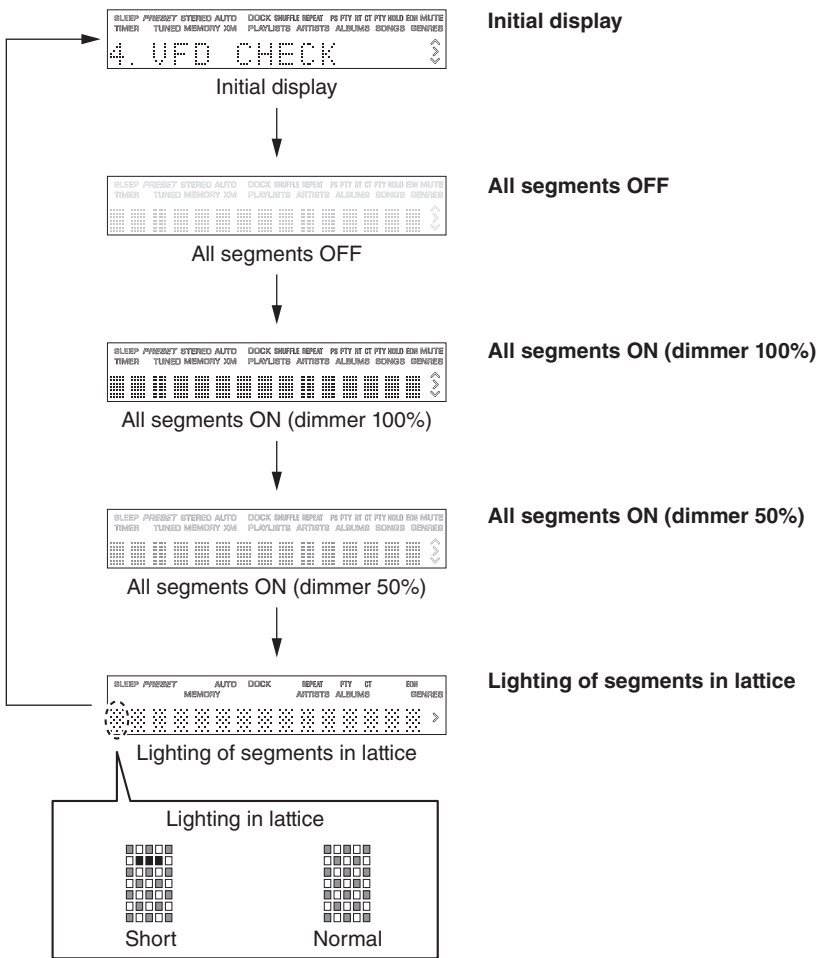
This menu is used to check the volume level setting.



4. DISPLAY CHECK

This menu is used to check the FL display section.
The display condition varies as shown below according to the sub-menu operation.

Checking FL display section



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.)

5. DOCK CHECK

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

DOCK loop back check

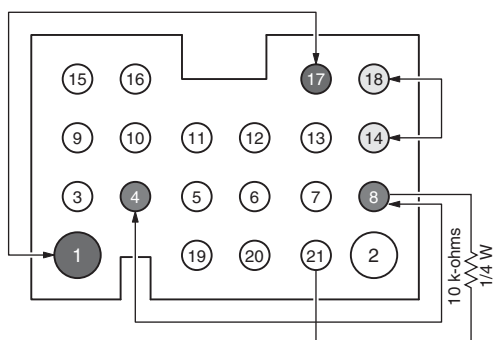
After turning off the power, short between pins No. 14 (TX) and No. 18 (RX), between pins No. 1 (PWR) and No. 17 (ACCPWR) and between pins No. 4 (iPDET) and No. 8 (DGND).

(Make sure that the power is turned off when shorting pins.)

Start the self-diagnostic function and select the 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

5. DOCK: NG NGNN

OK = all Y
NG = others

Check item	Short pins	Result		Display
UART loop back test	Pins No.14 (TX) – No.18 (RX)		OK	Y
			NG	N
iPAP (iPod accessory power) detection	Pins No.1 (PWR+) – No.17 (ACCPWR)	IC11 pin No. 38	High	Y
			Low	N
iPDET (iPod installation to DOCK) detection	Pins No.4 (iPDET) – No.8 (DGND)	IC11 pin No. 40	Low	Y
			High	N
DKID (DOCK ID) detection	Pins No.21 (DKID) – No.8 (DGND) * 10 k-ohms, 1/4 W pull down	IC11 pin No. 90	10 k-ohms, 1/4 W pull down	Y
			Other	N

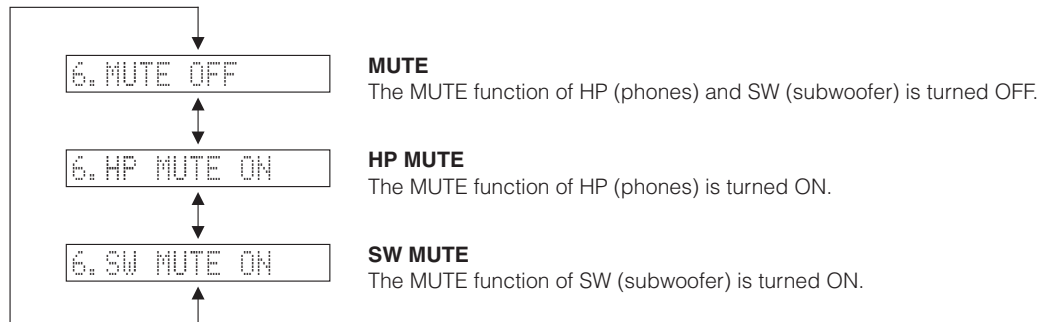
Bluetooth adapter version

The firmware version of the YBA-10 (YAMAHA) connected to the DOCK is displayed.

5. BT V:

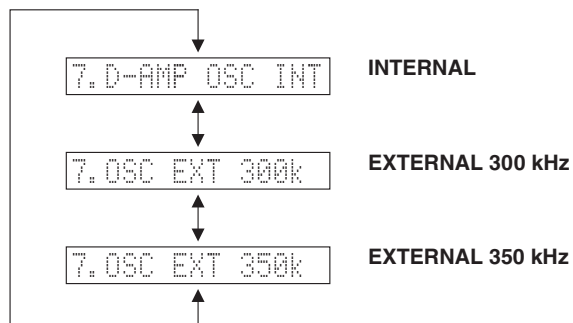
6. MUTE CHECK

This menu is used to select the MUTE status of HP (phones) / SW.



7. D-AMP OSC MODE

This menu is used to select the operation setting of digital amplifier.



8. AD 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 in using the sub-menu.

When KEY 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 sub-menu by turning the INPUT of this unit.

* Numeric values in the figure example are for reference.

P1/P2 (Power supply voltage protection detection)

Power supply voltage protection value
(Normal value: P1: 190 to 380, P2: 260 to 450)

8. P1:288 P2:349

P1: Detects +12FL, -20D and +3.3.

P2: Detects Vp, +20D, +5FL and +10T.

* If Px is out of the normal value range, the protection function works to turn off the power.

(Reference voltage: 5V=500)

P3/DC (Power supply voltage protection detection/ Power amplifier DC protection detection)

8. P3:198 DC:260

P3: Amp DC protection

Detects 6R3V, V+5V and 3R3.

(Normal value: 160 to 240 (select input DVD), 0 to 30 (select input other))

* If Px is out of the normal value range, the protection function works to turn off the power.

(Reference voltage: 5V=500)

DC: Power amplifier DC (DC voltage) output is detected.

(Normal value: 180 to 320)

(Reference voltage: 5V=500)

DV/DK (DVD/DOCK)

DV: DVD power supply detection.
(Normal value: 240 or more)

8. DV:331 DK:500

DK: DOCK type detection

(Reference voltage: 5V=255)

DESTINATION

The destination of this unit is displayed.

8. DEST:000

Destination for AD port (pin no. 97 of IC11) pull-up resistance 10k-ohms.

Destination for AD port

Pull-up resistance 10 k-ohms

ohm	0	+ 2.7 k	+ 6.8 k	+ 15.0 k	+ 47.0 k
V	0 - 0.5	0.5 - 1.6	1.6 - 2.5	2.5 - 3.6	3.6 - 5.0
Value	0 - 50	50 - 160	160 - 250	250 - 360	360 - 500
pin 97 (DEST)	U, C	G, F	L, V	K, A	T

KEY (K0)

When the A/D value of the panel key becomes out of the specified range, normal operation will not be available. Check each panel key for the constant of the voltage dividing resistance, soldered condition, etc, referring to the table below.
(Reference voltage: 5 V = 500)

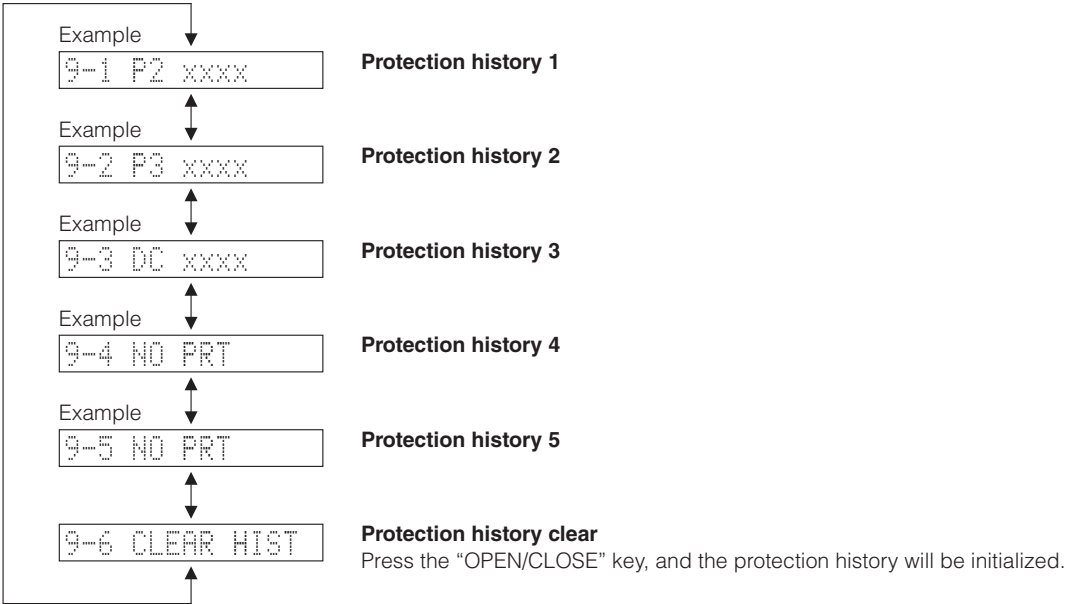
8. KEY:500

Key input for AD port
Pull-up resistance 10 k-ohms

ohm	0	+ 1.2 k	+ 1.2 k	+ 7.9 k	+ 12.7 k	+ 20.7 k	∞
V	0 - 0.2	0.3 - 0.7	0.8 - 1.7	1.8 - 2.7	2.8 - 3.2	3.3 - 4.2	4.7 - 5.0
Value	0 - 20	30 - 70	80 - 170	180 - 270	280 - 320	330 - 420	470 - 500
pin 89 (KEY0)	OPEN/CLOSE	PLAY/PAUSE	STOP	(SEARCH/SKIP - and SEARCH/SKIP +)	SEARCH/SKIP -	SEARCH/SKIP +	KEY OFF

9. PROTECTION HISTORY

The 5 protection histories are displayed.



10. POWER OFF FACTOR HISTORY

The 5 power OFF factor histories are displayed.

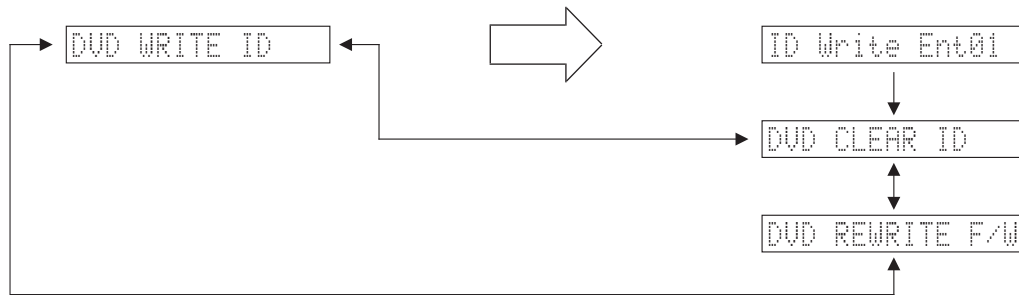


Power OFF factor display are as follows.

Display	Factor
10-x CPU RESET	Microprocessor reset
10-x POWER DOWN	Power down
10-x PROTECTION	Protection
10-x TIMER OFF	Timer off
10-x PANEL KEY	"STANDBY/ON" key of this unit
10-x REMOCON	"STANDBY/ON" key of remote control
10-x AUTO STBY	Auto standby
10-x NO HISTORY	Not history

11. DVD SETTING

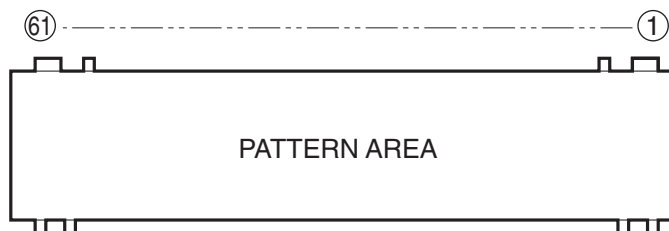
This mode is prepared mainly for manufacturing use.



Select "DVD CLEAR ID" to check the ID number (device key) of the module board.
See "Check the New ID number" for details.

■ DISPLAY DATA

● V801 : 16-BT-133GNK (SUB P.C.B.)



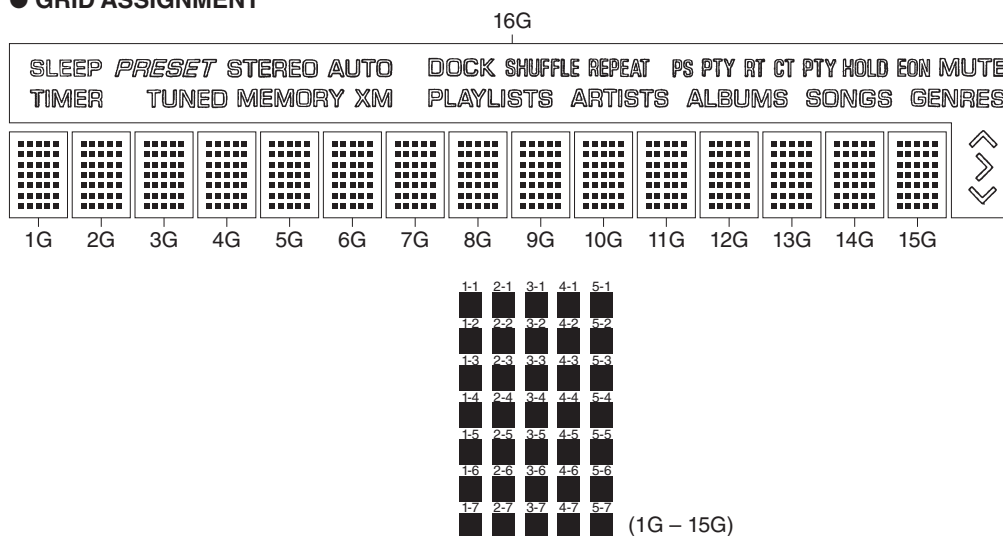
● PIN CONNECTION

Pin No.	40	39	38	37	36	35	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	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	P31	P32	P33	P34	P35	NC	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	NX	F1

Pin No.	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
Connection	F2	NX	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16

Note : 1) F1, F2 Filament 2) NP No pin 3) NX No extended Pin 4) 1G – 16G Grid 5) NC No connection

● GRID ASSIGNMENT



● ANODE CONNECTION

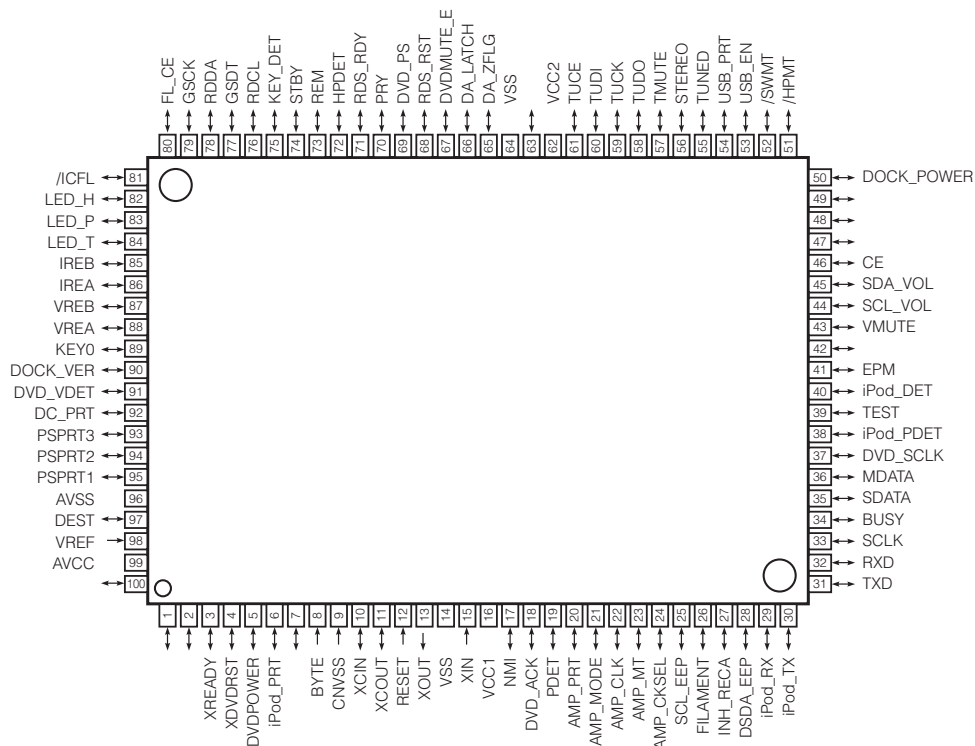
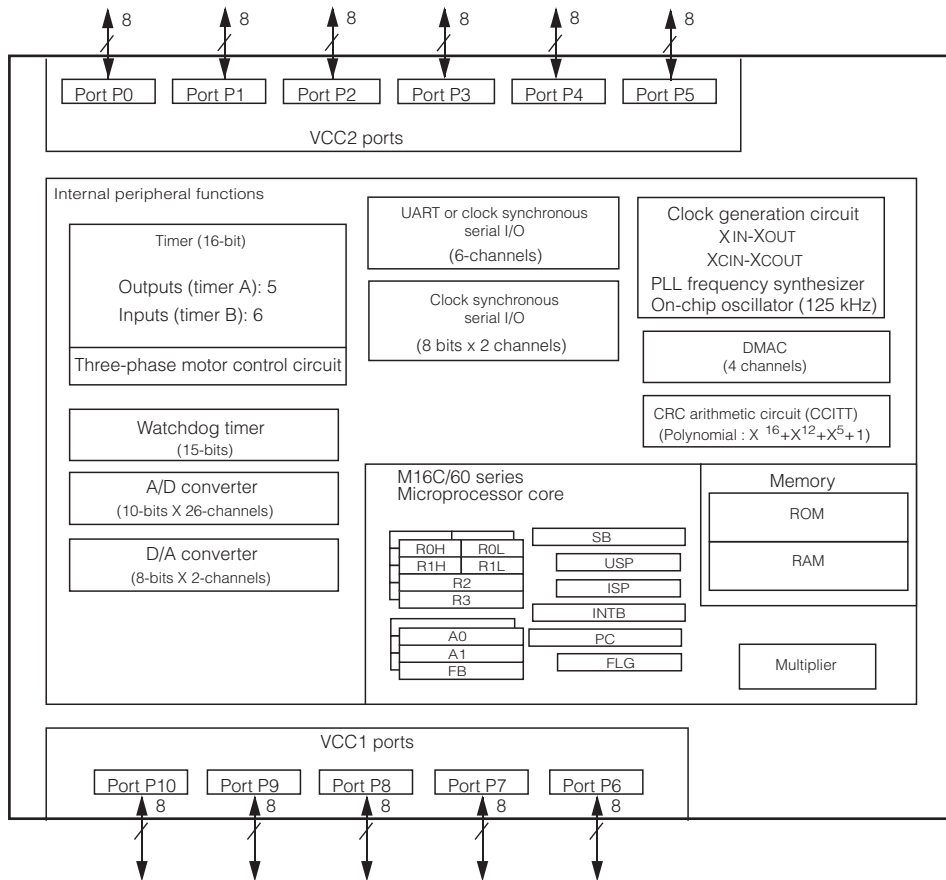
	1G – 15G	16G
P1	1-1	SLEEP
P2	2-1	TIMER
P3	3-1	PRESET
P4	4-1	STEREO
P5	5-1	AUTO
P6	1-2	TUNED
P7	2-2	MEMORY
P8	3-2	XM
P9	4-2	DOCK
P10	5-2	SHUFFLE
P11	1-3	REPEAT
P12	2-3	PLAYLISTS

	1G – 15G	16G
P13	3-3	ARTISTS
P14	4-3	PS
P15	5-3	PTY
P16	1-4	RT
P17	2-4	CT
P18	3-4	PTY HOLD
P19	4-4	EON
P20	5-4	MUTE
P21	1-5	ALBUMS
P22	2-5	SONGS
P23	3-5	GENRES
P24	4-5	

	1G – 15G	16G
P25	5-5	⏭
P26	1-6	⏮
P27	2-6	—
P28	3-6	—
P29	4-6	—
P30	5-6	—
P31	1-7	—
P32	2-7	—
P33	3-7	—
P34	4-7	—
P35	5-7	—

■ IC DATA

IC11: R5F3640DNFA (MAIN P.C.B.)
Single-chip 16-bit Microprocessor



No.	Function Name	Port Name	I/O	Detail of Function
1		P96	I/O	Pulldown
2		P95	I/O	Pulldown
3	XREADY	P94	O	DVD module I/F ready signal output
4	XDVRST	P93	O	DVD module I/F reset output
5	DVDPOWER	P92	O	DVD module HDMI power supply ON/OFF output (H: power on, L: power off)
6	iPod_PRT	P91	I	PS protection detection for iPod power source (H: when normal, L: when abnormal)
7		P90	I	Pulldown
8	BYTE		–	When in single chip mode: VSS (GND)
9	CNVSS		–	Processor mode selection Lo: single chip mode, Hi: to flash built-in boot mode When resetting hardware: to boot mode with P50=H, P55=L, CNVss=H settings * Pulldown required
10	XCIN	P87	–	Clock oscillation input for clock
11	XCOU	P86	–	Clock oscillation output for clock
12	RESET		–	RESET [L: RESET]
13	XOUT		–	16MHz OUT
14	VSS		–	GND
15	XIN		–	16MHz IN
16	VCC1		–	Power supply +5V
17	NMI	P85	I	Connect to Vcc via resistor
18	DVD_ACK	P84	INT-IN	DVD module I/F ACK interrupt (H: communication started)
19	PDET	P83	INT-IN	Power shutoff detection interrupt (L: shutoff)
20	AMP_PRT	P82	INT-IN	D-AMP protection detection (OCP) (H: when abnormal, L: when normal)
21	AMP_MODE	P81	O	D-AMP reset (H: when usual, L: when resetting)
22	AMP_CLK	P80	TMR-OUT	D-AMP clock for separate oscillation (300KHz and 350KHz)
23	AMP_MT	P77	I/O	D-AMP mute control (Hiz: mute off, L: mute on)
24	AMP_CKSEL	P76	O	D-AMP self oscillation ON/OFF (H: separate oscillation, L: self oscillation)
25	SCL_EEP	P75	O	EEPROM 12C SCL output for backup Pullup to EEPROM power supply
26	FILAMENT	P74	TMR-OUT	For FL filament (62.7KHz/PWM)
27	/INH_RECA	P73	OUT	AUX record inhibit output (L: inhibited, H: permitted)
28	SDA_EEP	P72	OUT	EEPROM 12C SDA input/output for backup Pullup to EEPROM power supply
29	iPod_RX	P71	S-IN	iPod Rx/D
30	iPod_TX	P70	S-OUT	iPod Tx/D Pullup required
31	TXD	P67	Tx	Data transmission terminal for Flash writing
32	RXD	P66	Rx	Data reception terminal for Flash writing
33	SCLK	P65	S-CLK	Clock terminal for Flash writing
34	BUSY	P64	O	BUSY output for Flash writing
35	SDATA	P63	S-OUT	DVD module I/F data output
36	MDATA	P62	S-IN	DVD module I/F data input
37	DVD_SCLK	P61	S-CLK	DVD module I/F clock input
38	iPod_PDET	P60	I	iPod accessory power detection
39	TEST	P57	O	For debugging (CLKOUT: sub-clock output check) Pulldown
40	iPod_DET	P56	I	iPod detection

No.	Function Name	Port Name	I/O	Detail of Function
41	EPM	P55	I	* Connect to GND via resistor (for Flash writing) * Pulldown required (47 k-ohms)
42		P54	O	VIDEO YUV/RGB selection output -> unused
43	VMUTE	P53	O	VIDEO mute output (H: mute off, L: mute on) DVD/USB input selection: mute off setting
44	SCL_VOL	P52	I/O	Selector/Volume I2C clock output PullUp required
45	SDA_VOL	P51	I/O	Selector/Volume I2C data output PullUp required
46	CE	P50	I	* Connect to Vcc2 via resistor (for Flash writing) * Pullup required
47		P47	I	Pulldown
48		P46	I	Pulldown
49		P45	I	Pulldown
50	DOCK_POWER	P44	O	DOCK adapter power supply control (H: power on, L: power off)
51	/HPMT	P43	O	AMP/HP mute output (H: mute off, L: mute on)
52	/SWMT	P42	O	SW mute output (H: mute off, L: mute on)
53	USB_EN	P41	O	USB power supply control ENABLE output (H: enable, L: disable)
54	USB_PRT	P40	I	USB power supply control protection input (H: when normal, L: when abnormal)
55	TUNED	P37	I	TUNED detection (L: with signal)
56	STEREO	P36	I	STEREO detection (L: STEREO)
57	TMUTE	P35	O	TUNER MUTE output (H: mute on)
58	TUDO	P34	O	PLL IC serial dataoutput
59	TUCK	P33	O	PLL IC serial clock output
60	TUDI	P32	I	PLL IC serial data input
61	TUCE	P31	O	PLL IC serial CE output
62	VCC2		–	Power supply +5V
63		P30	I	Pulldown
64	VSS		–	GND
65	DA_ZFLG	P27	I	DAC Zero Flag detection (H: zero detected)
66	DA_LATCH	P26	O	DAC serial CE output
67	DVDMUTE_EN	P25	O	DVD MUTE ENABLE output (H: enable, L: disable)
68	RDS_RST	P24	O	RDS IC reset output (H: reset, L: usual operation)
69	DVD_PS	P23	O	Power supply control output for DVD (H: output on, L: output off)
70	PRY	P22	O	Main unit power (relay) control output (H: relay on, L: relay off)
71	RDS_READY	P21	I	RDS IC READY input (H: with data, L: without data) PullUp required
72	HPDET	P20	I	HP detection (H: HP inserted)
73	REM	P17	INT-IN	Remote control reception interrupt
74	STBY	P16	INT-IN	STANDBY/ON SW input interrupt (H: SW on)
75	KEY_DET	P15	INT-IN	AD KEY detection interrupt (Arrange detection key voltage to 0.2Vcc or lower) * Connect to AD KEY input terminal
76	RDS_RDCL	P14	O	RDS serial clock output
77	GSDT	P13	O	General purpose serial data output (FLD/DAC)
78	RDS_RDDA	P12	I	RDS serial data input
79	GSCK	P11	O	General purpose serial clock output (FLD/DAC)
80	FL_CE	P10	O	FL driver IC CE output
81	/ICFL	P07	O	FL driver IC RESET output (L: RESET)
82	LED_H	P06	O	LED output HDMI (H: lit)

No.	Function Name	Port Name	I/O	Detail of Function
83	LED_P	P05	O	LED output PROGRESSIVE (H: lit)
84	LED_T	P04	O	LED output TIMER (H: lit)
85	IREB	P03	I	Encoder input INPUT
86	IREA	P02	I	Encoder input INPUT
87	VREB	P01	I	Encoder input VOLUME
88	VREA	P00	I	Encoder input VOLUME
89	KEY0	P107	A-D IN	AD KEY input [0 to VREF]
90	DOCK_SEL	P106	A-D IN	DOCK discrimination [0 to VREF]
91	DVD_VDET	P105	A-D IN	DVD module power voltage detection input (2.4V or higher: when normal, lower than 24V: when abnormal) Pulldown [0 to VREF]
92	DC_PRT	P104	A-D IN	D-AMP protection detection (DC detection) [0 to VREF]
93	PSPRT3	P103	A-D IN	Power voltage detection 3 (PS3 protect) IN [0 to VREF]
94	PSPRT2	P102	A-D IN	Power voltage detection 2 (PS2 protect) IN [0 to VREF]
95	PSPRT1	P101	A-D IN	Power voltage detection 1 (PS1 protect) IN [0 to VREF]
96	AVSS		–	Connect to VSS (GND)
97	DEST	P100	A-D IN	AD destination discrimination [0 to VREF]
98	VREF		–	A-D, D-A reference voltage input
99	AVCC		–	Connect to VCC terminal (+3.3V)
100		P97	I	Pulldown

Destination for AD port

Pull-up resistance 10 k-ohms

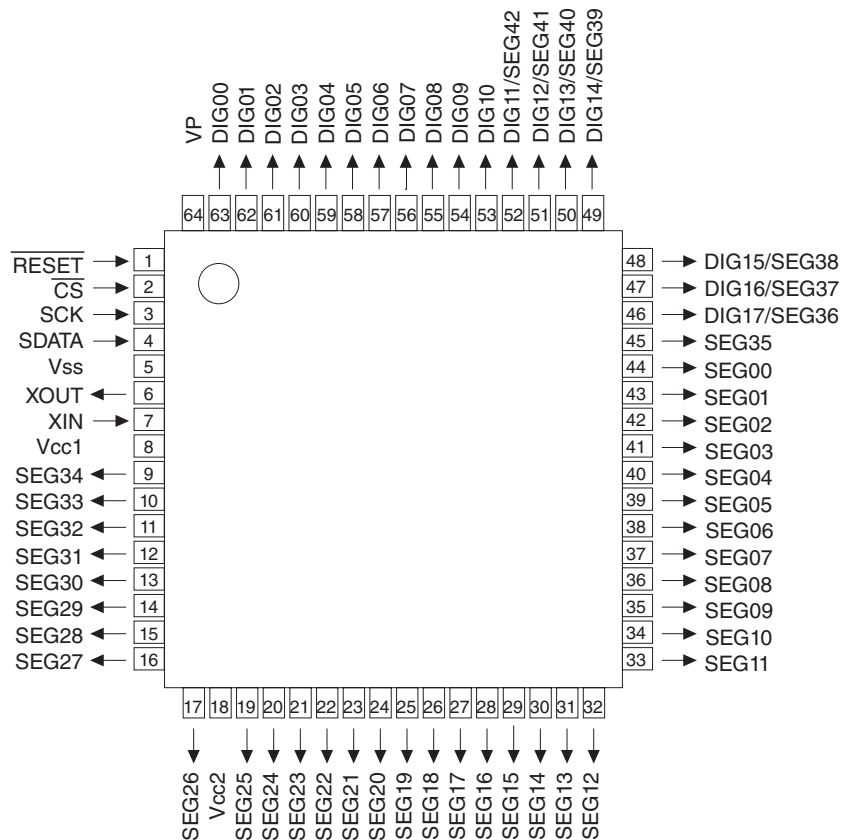
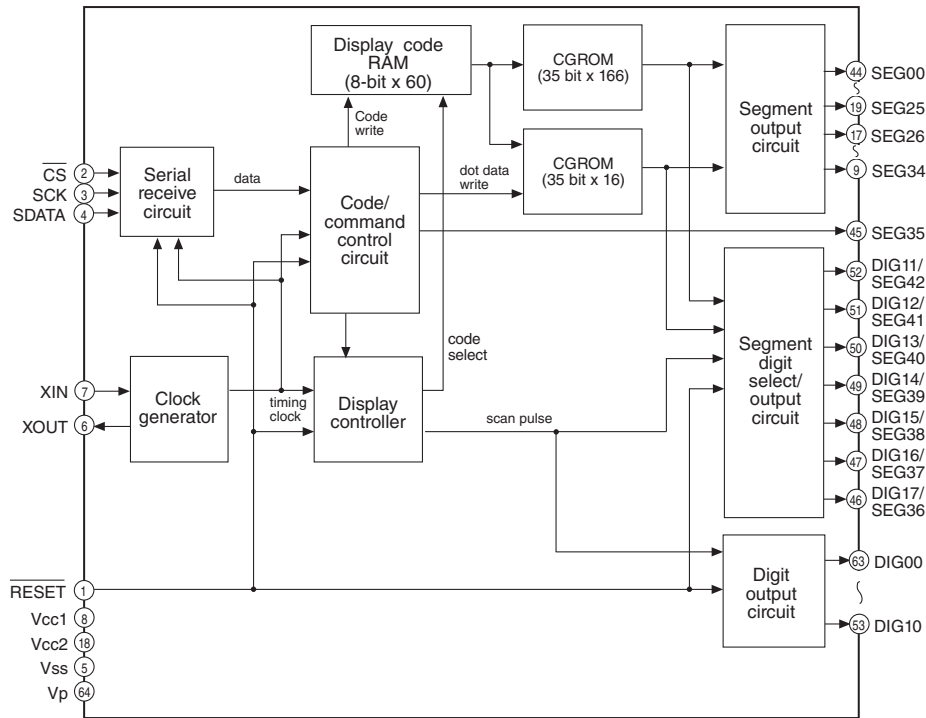
ohm	0	+ 2.7 k	+ 6.8 k	+ 15.0 k	+ 47.0 k
V	0 - 0.5	0.5 - 1.6	1.6 - 2.5	2.5 - 3.6	3.6 - 5.0
Value	0 - 50	50 - 160	160 - 250	250 - 360	360 - 500
pin 97 (DEST)	U, C	G, F	L, V	K, A	T

Key input for AD port

Pull-up resistance 10 k-ohms

ohm	0	+ 1.2 k	+ 1.2 k	+ 7.9 k	+ 12.7 k	+ 20.7 k	∞
V	0 - 0.2	0.3 - 0.7	0.8 - 1.7	1.8 - 2.7	2.8 - 3.2	3.3 - 4.2	4.7 - 5.0
Value	0 - 20	30 - 70	80 - 170	180 - 270	280 - 320	330 - 420	470 - 500
pin 89 (KEY0)	OPEN/CLOSE	PLAY/PAUSE	STOP	(SEARCH/SKIP - and SEARCH/SKIP +)	SEARCH/SKIP -	SEARCH/SKIP +	KEY OFF

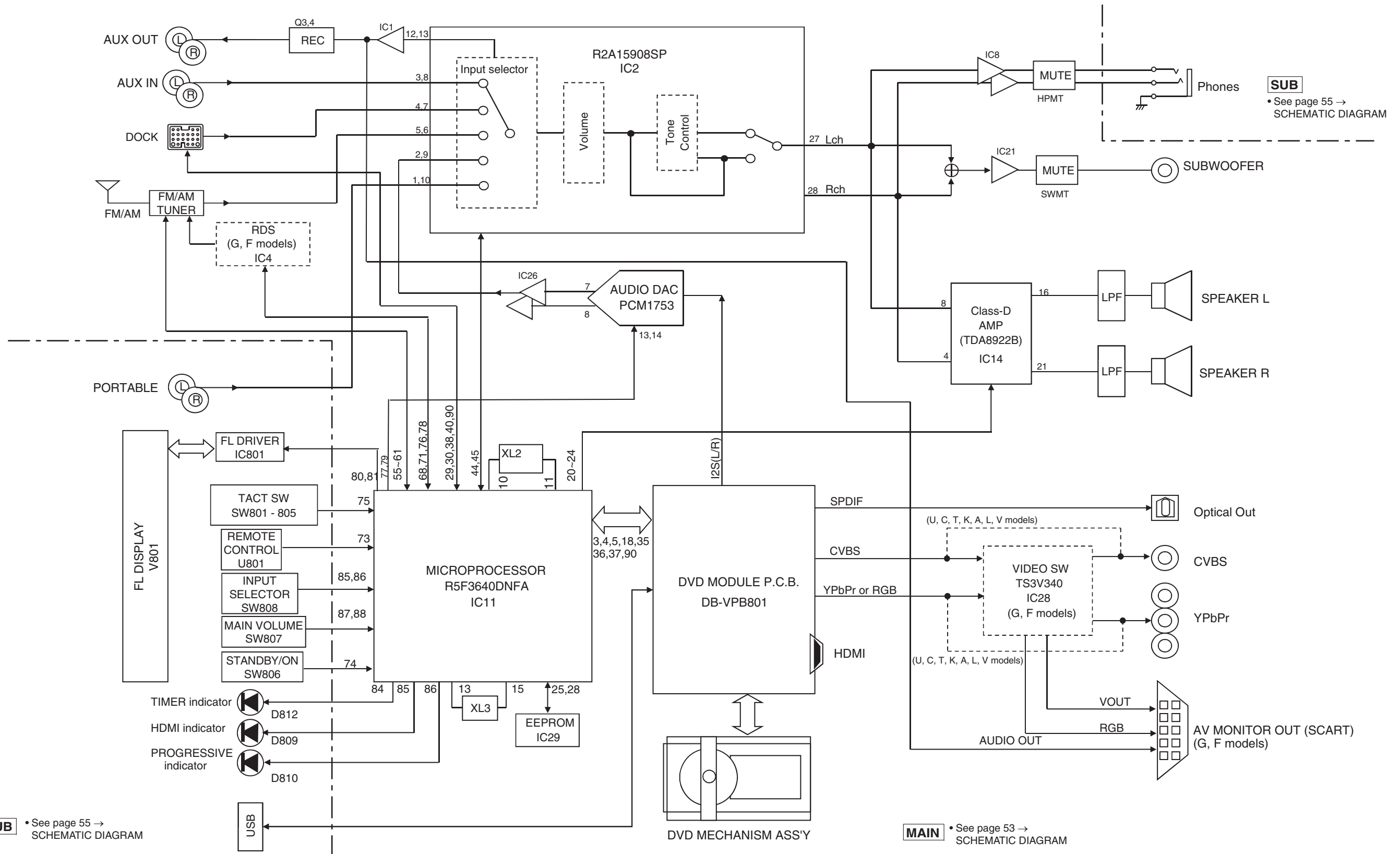
IC801: M66003-0131FP (SUB P.C.B.)
FL display driver



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.
8	Vcc1	VDD		Positive power supply for internal logic.
9	SEG34	P1I	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	P18I		
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	G17I	Digital output	Connect to digit (grid) pins of VFD.
48	DIG15/SEG38	G16I		
49	DIG14/SEG39	G15I		
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.

BLOCK DIAGRAM

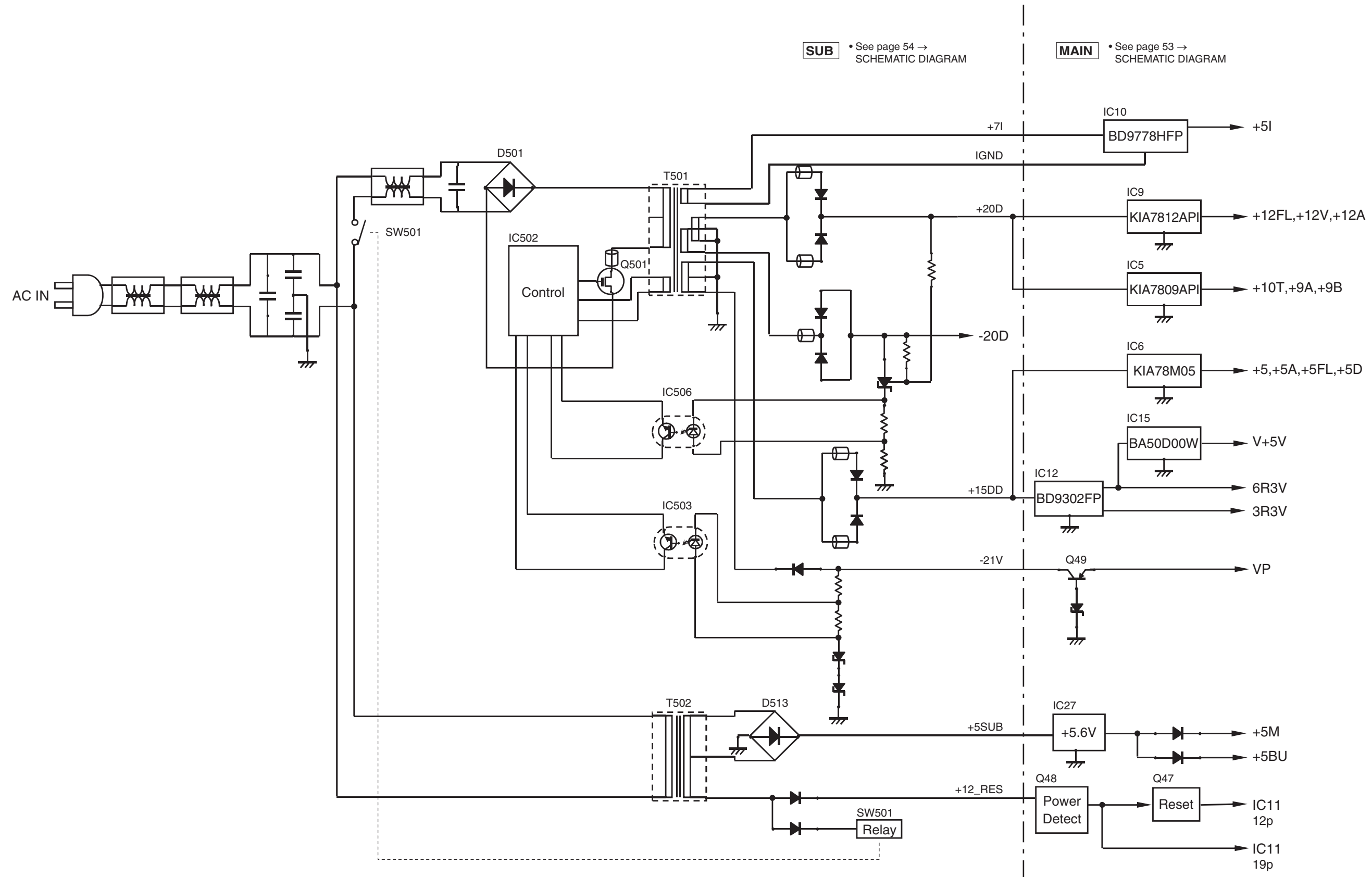
AUDIO/VIDEO SECTION BLOCK DIAGRAM



SUB • See page 55 → SCHEMATIC DIAGRAM

MAIN • See page 53 → SCHEMATIC DIAGRAM

POWER SUPPLY SECTION BLOCK DIAGRAM



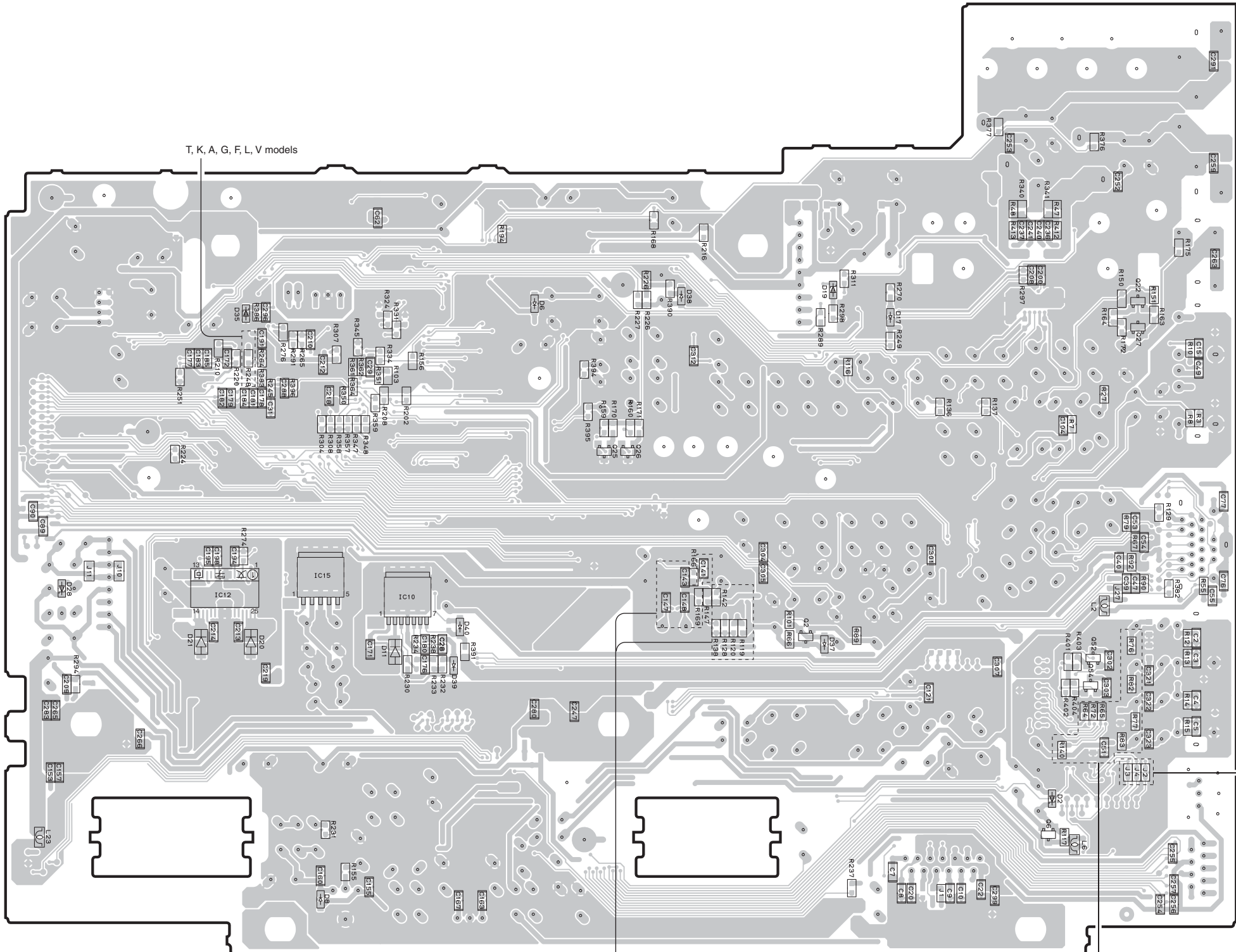
SUB • See page 54 → SCHEMATIC DIAGRAM

MAIN • See page 53 → SCHEMATIC DIAGRAM

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

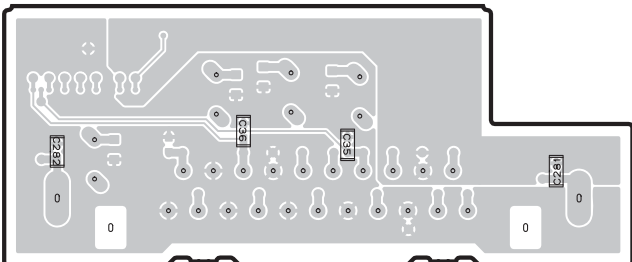
- Semiconductor Location

Ref no.	Location
D2	I5
D6	F3
D8	E6
D11	E4
D17	H3
D19	G2
D20	D4
D21	D4
D28	C4
D35	D3
D37	G4
D38	G2
D39	E4
D40	E4
IC10	E4
IC12	D4
IC15	E4
Q2	G4
Q6	I5
Q22	I3
Q25	F3
Q26	F3
Q27	I3
Q52	I4
Q54	I5



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

G, F models

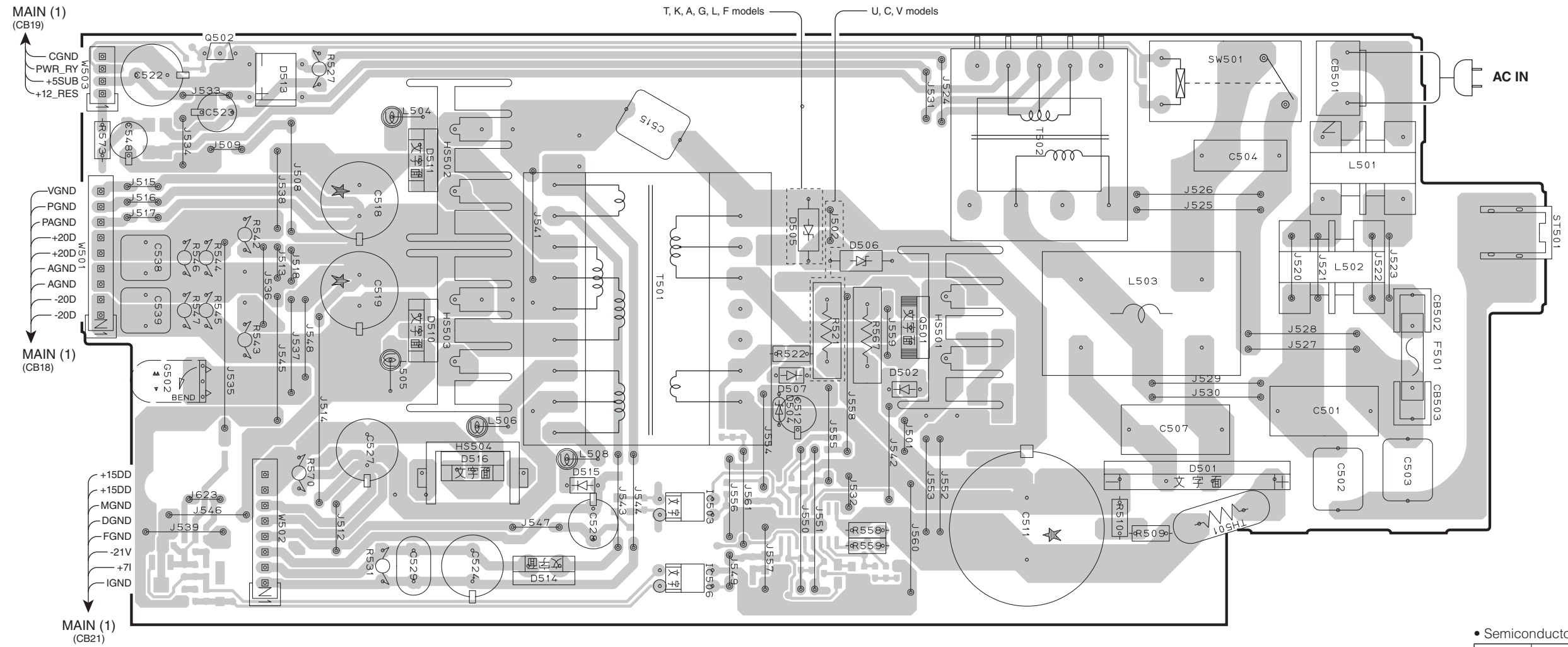


G, F models

G, F models

J, C, T, K, A, L, V models

SUB (1) P.C.B. (Side A)

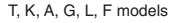


Circuit No.	U, C	T, K, A, G, L, F	V
L502	O	X	O
J520-523	X	O	X

X : NOT USED
O : USED/APPLICABLE

• Semiconductor Location

Ref no.	Location
D501	H5
D502	G4
D504	F4
D505	F3
D506	F4
D507	F4
D510	D4
D511	D3
D513	C3
D514	E5
D515	E5
D516	D5
IC503	E5
IC506	E5
Q501	G4
Q502	C3

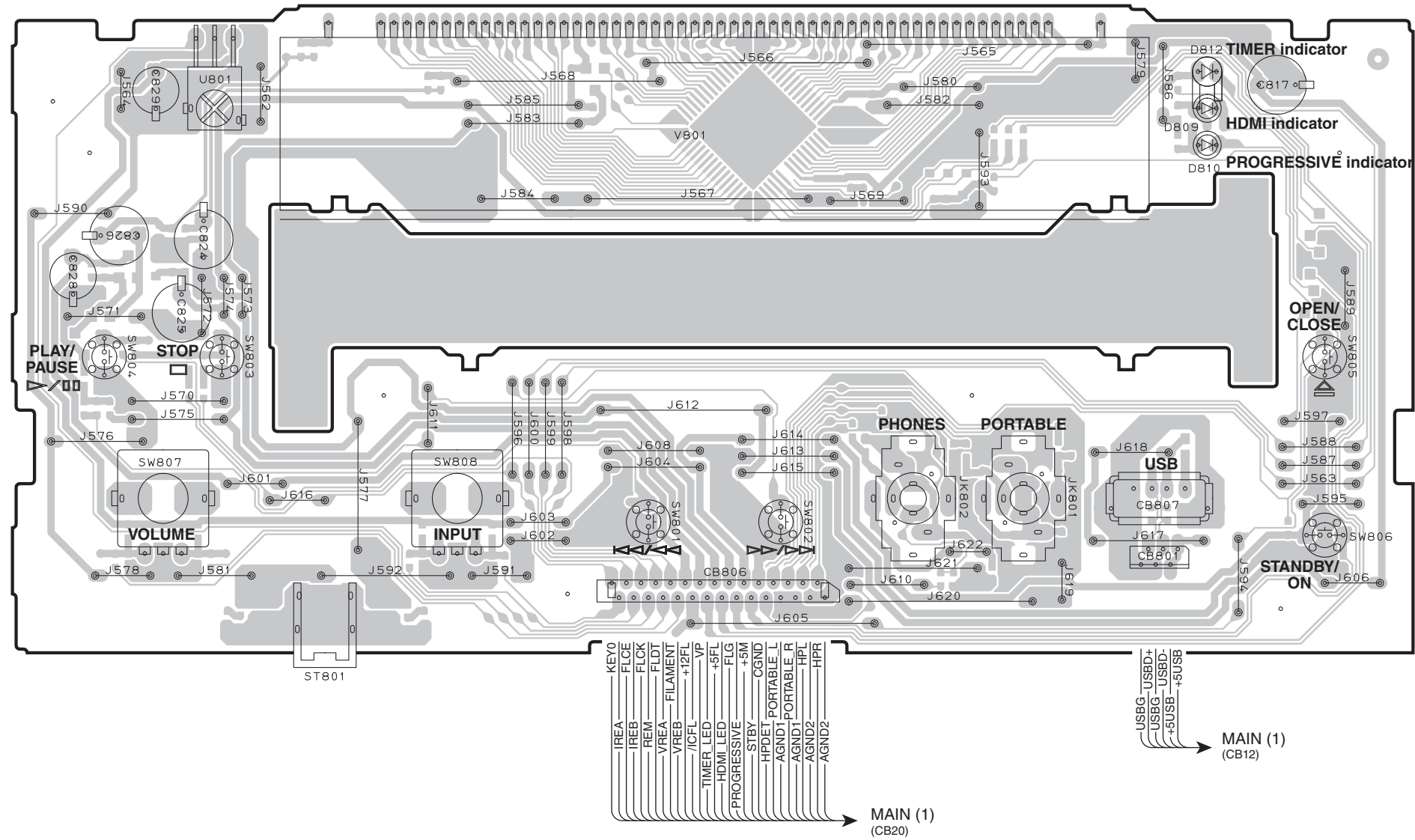


T, K, A, G, L, F models

- Semiconductor Location

Ref no.	Location
D503	F4
D508	E3
D509	E3
D512	C3
D517	H3
D518	E5
D519	E5
D521	B3
IC502	F5
IC505	C5

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



- Semiconductor Location

Ref no.	Location
D809	H3
D810	H3
D812	H3

1

SUB (2) P.C.B. (Side B)

2

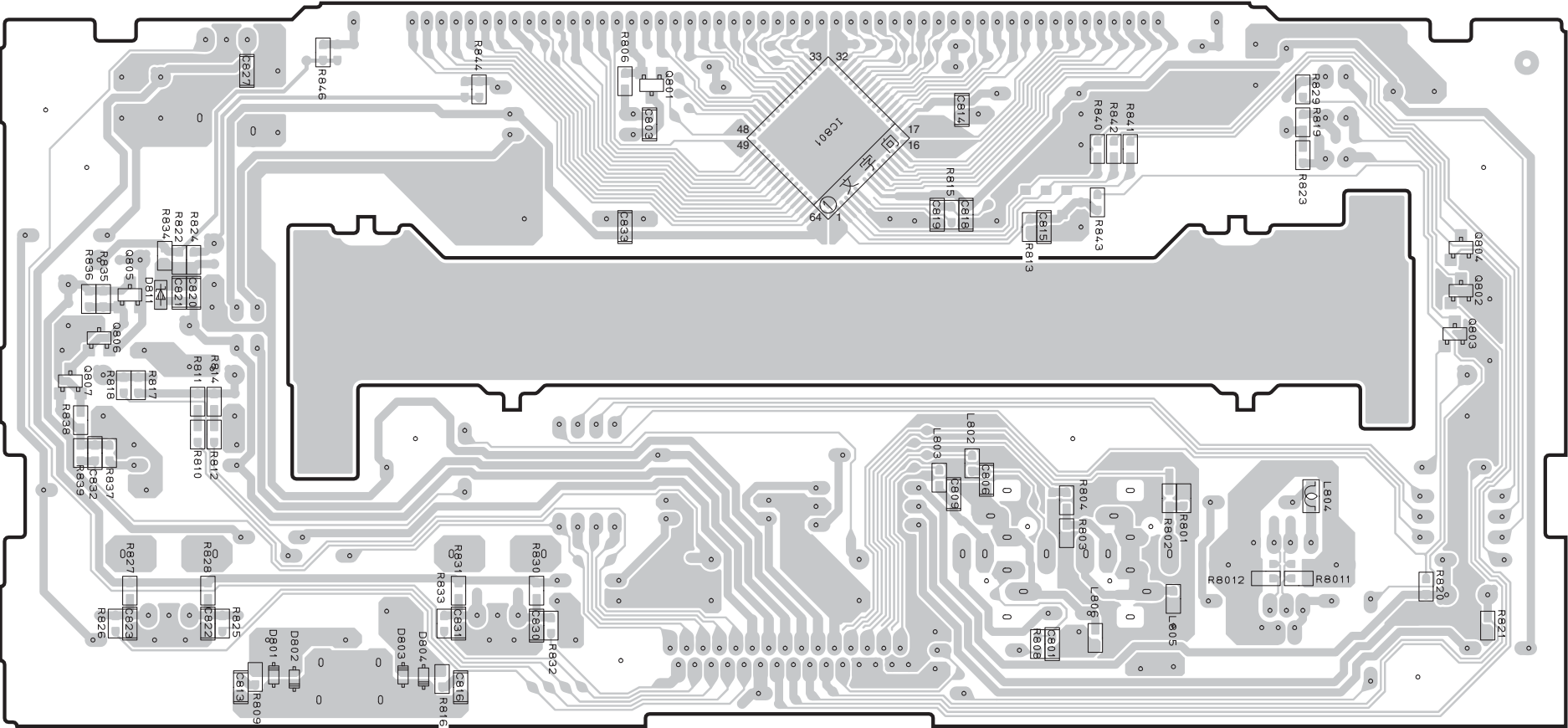
3

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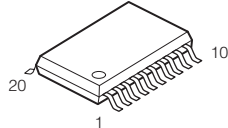
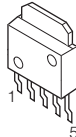
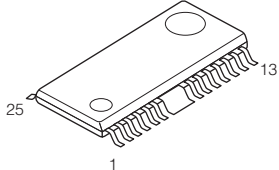
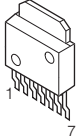
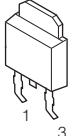
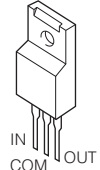
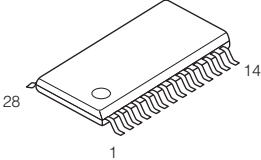
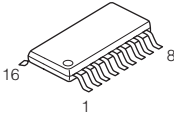
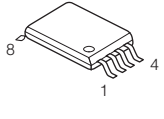
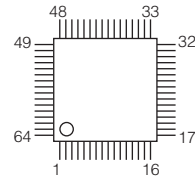
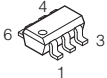
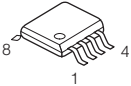
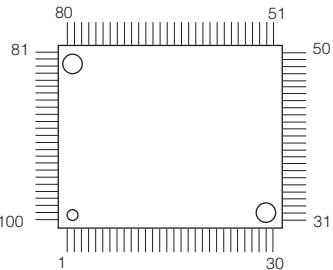
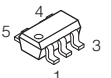
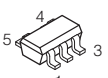
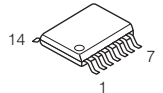
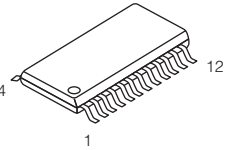


• Semiconductor Location

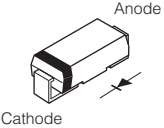
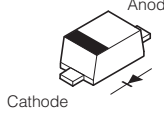
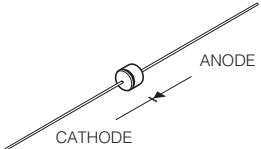
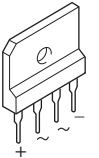
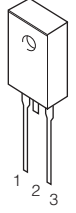
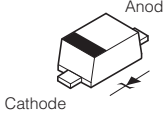
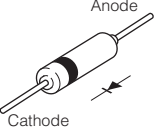
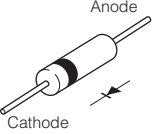
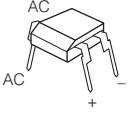
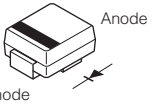
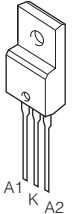
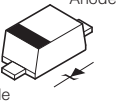
Ref no.	Location
D801	D5
D802	D5
D803	D5
D804	D5
D811	C4
IC801	F3
Q801	E3
Q802	H4
Q803	H4
Q804	H3
Q805	C4
Q806	C4
Q807	C4

PIN CONNECTION DIAGRAMS

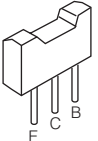
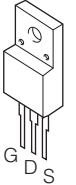
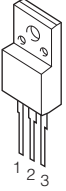
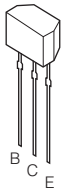
ICs

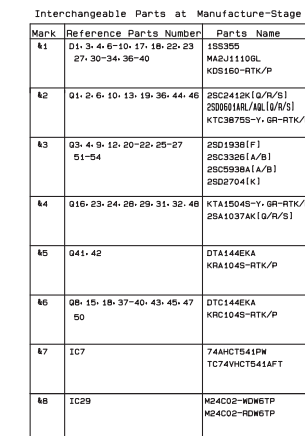
74AHCT541PW TSSOP 	BA50DD0WHFP 	BD9302FP-E2 	BD9778HFP 		
KIA78L05F-RTF/P  1: OUTPUT 2: COMMON (CASE) 3: INPUT	KIA78M05F  1: INPUT 2: COMMON 3: OUTPUT	KIA7809API-U/P KIA7812API  IN COM OUT	L6566BTR R2A15908SP 		
LC72725KM-UY-TLM-E PCM1753DBQR TS3V340PWR PW 	M24C02-WDW6TP 	M66003-0131FP-R 	MIC2005-0.5YM6 	NJM431U  1: REFERENCE 2: ANODE 3: CATHODE	NJM4565M NJM4580E 
R5F3640DNFA 	TC7SH04FU-TE85L 	TC7SH08FU 	TC74VHC74FT 	TDA8922BTH 	

Diodes

1SR154-400 D1FK60-5063 RB051L-40  Anode Cathode	1SS355 1SS380  Anode Cathode	D1NL20U-5083 D1NL40-7083  ANODE CATHODE	D5SBA60 
D5S9M 	MA8030 3.0V MA8039-H 4.0V MA8051-M 5.1V MA8062-M 6.2V MA8068-M 6.8V MA8100-H 10.3V MA8200-M 20.0V MAZ8220GHL  Anode Cathode	MTZJ22D  Anode Cathode	P6KE200ARL  Anode Cathode
S1NB20 1A 200V  AC AC +	STTH110A  Anode Cathode	STPS20150CFP  A1 K A2	UDZS12B  Anode Cathode

Transistors

2SA1037K  C B E	2SA1708  E C B	2SC2412K  C B E	2SD1938F KTA1504S  C B E	2SK3679-01 MR ST  G D S
2SK3683-01MR  1: GATE 2: DRAIN 3: SOURCE	DTA144EKA DTC144EKA  1: GND 2: IN 3: OUT	KTC3199YT  B C E		

[illegible]

Pin diagram and truth table for the 74VHC04 hex inverters.

Pin diagram labels: 1, 2, 3, 4, 5, 6, 7, 14, 13, 12, 11, 10, 9, 8. Pin 1 is GND, pin 14 is Vcc, and pin 7 is GND. The internal circuit shows six inverters.

Inputs			
C	D	E	F
L	H	X	X
H	L	X	X
L	L	X	X
H	H	L	X
H	H	H	X
H	H	H	X

X Don't care

Figure 1: Block diagram of the system architecture. The diagram shows a central 'Control Logic and delay timer' block connected to several peripheral blocks: 'Under Voltage Detection', 'Thermal Sensor', 'Slow Rate Control', 'Memory' (containing ROM and RAM), and 'Multiplexor'. The 'Memory' block is also connected to a 'Data generation circuit' which includes 'XIN/XOUT', 'Frequency synthesizer (chip oscillator 1.025 MHz)', and 'DMAC (8 channels)'. The 'Data generation circuit' is further connected to 'Serial arithmetic circuit (CCOT)' which is 'Spurred (1.025 MHz x 4 x 2)'. The 'Control Logic and delay timer' block is also connected to a 'Sensor' block, which is further connected to a 'Fan' and a 'Water' source.

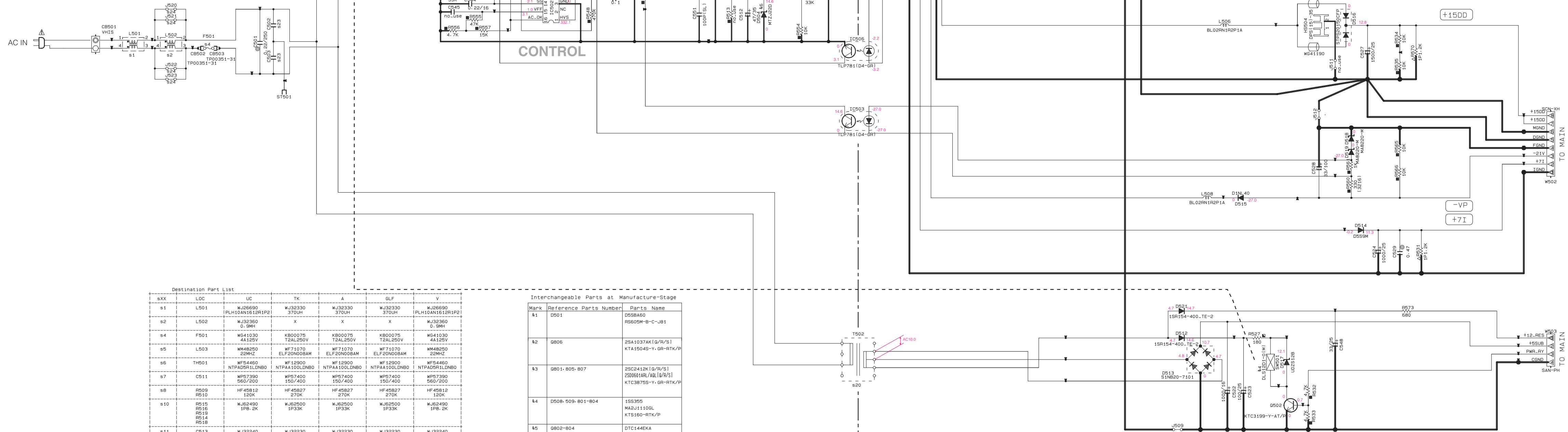
The diagram illustrates the internal peripheral functions of the VCC0 ports. At the top, four VCC0 ports (Port P0, Port P1, Port P2, Port P3) are shown, each with a clock input (A) and a data input (B). Below these ports is a block labeled 'Internal peripheral functions'. This block contains several components: a 'Time base' (Time base), 'Outputs (timer A): 5' and 'Inputs (timer B): 5', a 'Three-phase motor control circuit', a 'Watchdog timer' (1.5 s), an 'A/D converter' (10 bits x 8 channels), and a 'D/A converter' (8 bits x 2 channels). To the right of the internal functions is a 'USART or clock synchronous serial I/O (8 channels)', a 'Clock synchronous serial I/O (8 bits x 2 channels)', and a 'MicroSD memory access core' which includes a 'MicroSD memory access core' and a 'MicroSD memory access core'. Below the internal functions is a block labeled 'VCC01 ports' with four ports (Port P0 to Port P3) and a 'VCC01 ports' label.

[illegible][illegible]

The block diagram illustrates the internal architecture of the AD9288. It features an **Auto Serial Port** and a **Serial Control Port** for external communication. The core consists of an **ADC Core** with **Enhanced Multiplier** and **Digital Filter and System Control** blocks. The output is processed by a **DAC** and then a **Quoted Amp and Low-Pass Filter**. Control signals include **RDY**, **LOCK**, **DATA**, **EMTBL**, **EMUTE DAC**, **DCAMP/MSD**, **TEST**, and **SCN**. A **System Clock** and **Zero Detect** signal are also shown. The device is powered by a **Power Supply**. A detailed pinout for the 16-pin package is provided at the bottom right.

¹ Open Drain Output for the PDIOMTS (1-Pullup)

Pin	Signal
1	RDY
2	LOCK
3	DATA
4	EMTBL
5	EMUTE DAC
6	DCAMP/MSD
7	TEST
8	SCN
9	RDY
10	LOCK
11	DATA
12	EMTBL
13	EMUTE DAC
14	DCAMP/MSD
15	TEST
16	SCN



Destination Part List					
Mark	LOC	UC	TX	A	SLF
s1	L501	WJ32330 PLH10AN1612R1P2	WJ32330 370UH	WJ32330 370UH	WJ32330 370UH
s2	L502	WJ32360 0.39M	X	X	WJ32360 0.39M
s4	F501	W641030 44125V	H80075 TAL250V	X80075 TAL250V	W641030 44125V
s5	L503	WMA8250 22MHZ	W71070 ELF20ND08AM	W71070 ELF20ND08AM	WMA8250 22MHZ
s6	TH501	WFS4460 NTPA1100L1DND0	W71070 ELF20ND08AM	W71070 ELF20ND08AM	WFS4460 NTPA1100L1DND0
s7	CS11	WP57300 560/250	WP57400 150/400	WP57400 150/400	WP57300 560/250
s8	R509 R510	WF45812 120K	WF45827 270K	WF45827 270K	WF45812 120K
s10	R515 R516 R519 R514	WJ82480 1PB_2K	WJ82500 1P33K	WJ82500 1P33K	WJ82480 1PB_2K
s11	CS13	WJ32240 0.017/250	WJ32230 1000P/630	WJ32230 1000P/630	WJ32240 0.017/250
s12	CS14	X	WJ32230 1000P/630	WJ32230 1000P/630	X
s13	CS03	WJ45930 D1FK60-5063	WJ15190 STTH110A	WJ15190 STTH110A	WJ45930 D1FK60-5063
s14	D505	X	WNE7240 PHE4200A	WNE7240 PHE4200A	X
s15	J502	VNS0000	X	X	VNS0000
s16	G501	W41250 25K3683-01MR	W70330 25K3679-01MR	W70330 25K3679-01MR	W41250 25K3683-01MR
s17	R567	WQ09300 5P18	WPS8280 5P18	WPS8280 5P18	WQ09300 5P18
s19	T501	X980440 ET50216A	X980540 ET50217A	X980540 ET50217A	X980440 ET50216A
s20	T502	Y421040 Y4210	Y421160 Y4211	Y421360 Y4213	Y421480 Y4214
s21	R572	X	RD35815 150K	RD35815 150K	X
s22	RS21	WQ09300 5P18	X	X	WQ09300 5P18
s23	CS02 CS03	WJ32240 2200P/250	WJ32230 1000P/630	WJ32230 1000P/630	WJ32240 2200P/250
s24	J521 J522 J523	X	VNS0000	VNS0000	X

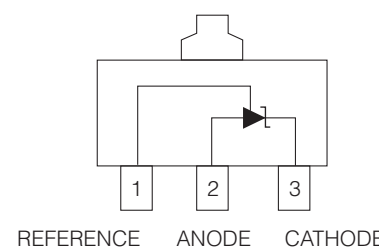
Mark	Reference Parts Number	Parts Name
k1	D501	D5SBA60 RS605M-B-C-JB1
k2	GB06	25A1037AK(G/R/S) KTA15045-V-GR-RTK/P
k3	GB01-805-807	25C2412K1(G/R/S) 250601MR/LAL(G/R/S) KTC38785-V-GR-RTK/P
k4	D508-509-801-804	1B5395 MA3J1100L KTS160-RTK/P
k5	GB02-804	DTC144KA KRC104S-RTK/P
k6	D504	MTZJ220 H2S222TD-E

NOTICE (mode1)
(J)..... JAPAN
(U)..... U.S.A
(C)..... CANADA
(R)..... GENERAL
(T)..... CHINA
(K)..... KOREA
(A)..... AUSTRALIA
(B)..... BRITISH
(G)..... EUROPE
(L)..... SINGAPORE
(E)..... SOUTH EUROPE
(V)..... TAIWAN
(F)..... RUSSIAN

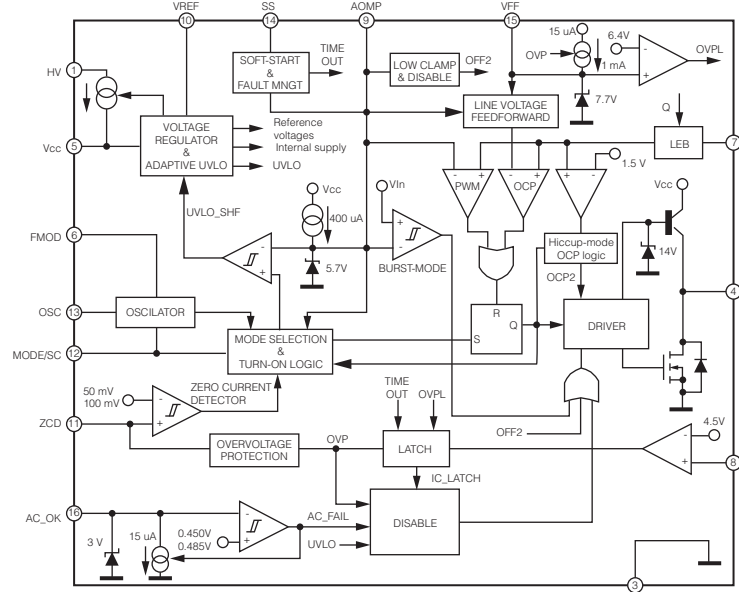
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☒	CARBON FILM RESISTOR (P=10)
☒	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
☒	FIRE-PROOF CARBON FILM RESISTOR
☐	CEMENT MOLDED RESISTOR
☒	SEMI-VARIABLE RESISTOR
☒	CHIP RESISTOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
☒	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
☒	CERAMIC TUBULAR CAPACITOR
☒	POLYESTER FILM CAPACITOR
☒	POLYSTYRENE FILM CAPACITOR
☒	MYCA CAPACITOR
☒	POLYPROPYLENE FILM CAPACITOR
☒	SEMICONDUCTIVE CERAMIC CAPACITOR
☒	POLYPHENYLENE SULFIDE FILM CAPACITOR

IC505: NJM431U
Adjustable precision shunt regulator

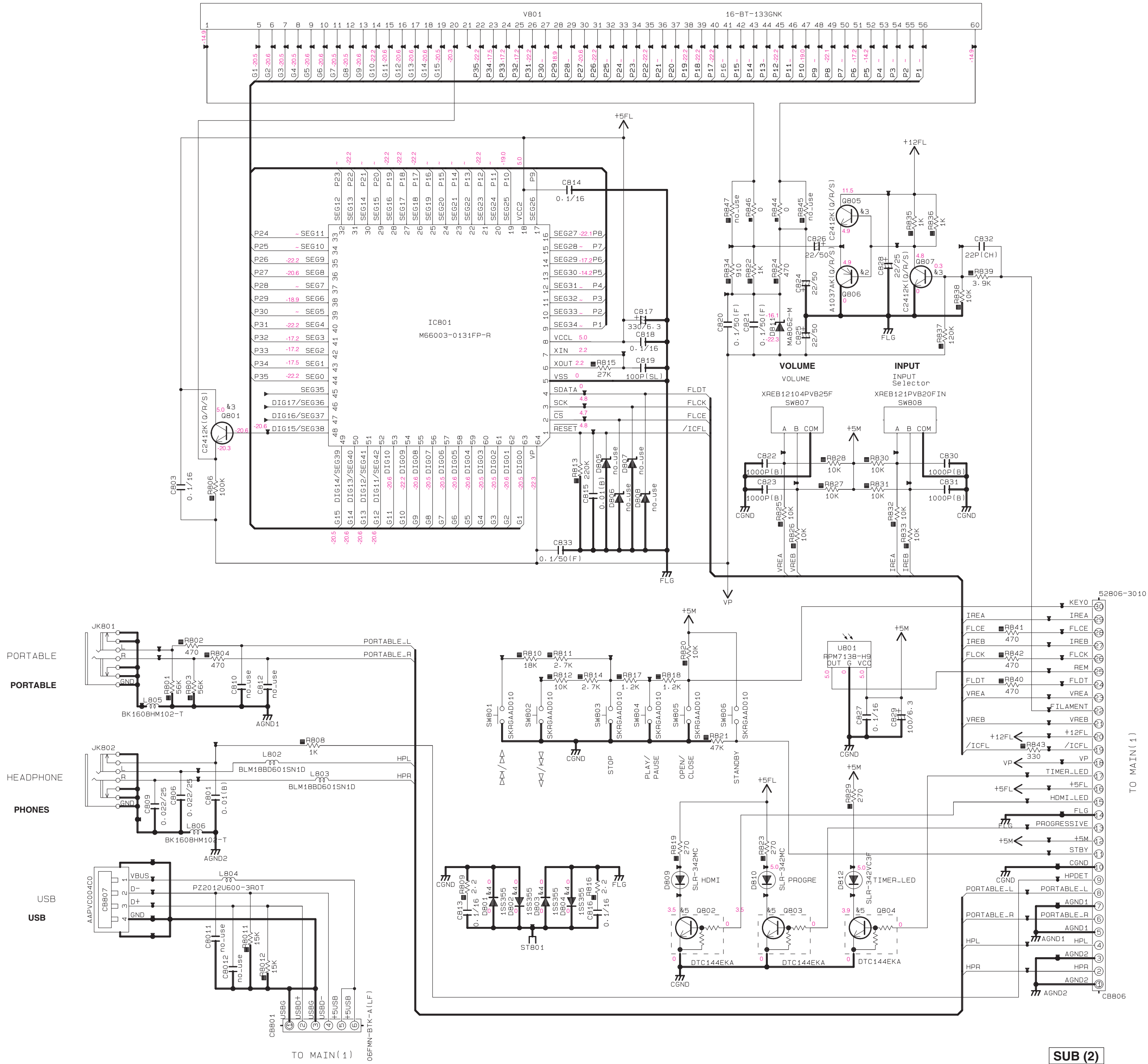


IC502: L6566BTR
Multi mode controller for SMPS



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

SUB 2/2



RESISTOR	
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
	CARBON FILM RESISTOR (P=10)
	METAL OXIDE FILM RESISTOR
	METAL FILM RESISTOR
	METAL PLATE RESISTOR
	FIRE PROOF CARBON FILM RESISTOR
	CEMENT MOLDED RESISTOR
	SEMI VARIABLE RESISTOR
	CHIP RESISTOR

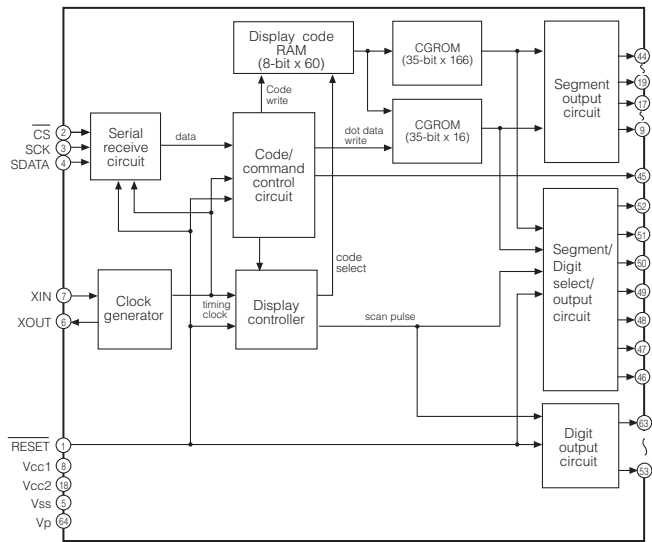
CAPACITOR	
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
	CERAMIC TUBULAR CAPACITOR
	POLYSTYRENE FILM CAPACITOR
	MICA CAPACITOR
	POLYPROPYLENE FILM CAPACITOR
	SEMICONDUCTIVE CERAMIC CAPACITOR
	POLYPHENYLENE SULFIDE FILM CAPACITOR

NOTICE (model)
(J)..... JAPAN
(U)..... U.S.A
(C)..... CANADA
(R)..... GENERAL
(T)..... CHINA
(K)..... KOREA
(A)..... AUSTRALIA
(B)..... BRITISH
(G)..... EUROPE
(L)..... SINGAPORE
(E)..... SOUTH EUROPE
(V)..... TAIWAN
(F)..... RUSSIAN

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to MAIN (1)_CB20

SUB (2)

IC801: M66003-0131FP-R
18 digit 5 x 7 segment VFD controller/driver



★ All voltages are measured with a 10MQ/V DC electronic voltmeter.
★ Components having special characteristics are marked .1. and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

■ REPLACEMENT PARTS LIST

• ELECTRICAL COMPONENT PARTS

WARNING

- Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
- The chip resistor is not supplied as a replacement part.
 - * When a chip resistor is necessary, use the following part.
AAX60720: CHIP RESISTOR SAMPLE BOOK

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.SAFY	: 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. MAIN

	Ref No.	Part No.	Description	Markets		Ref No.	Part No.	Description	Markets	
*		WQ228200	P. C. B.	MAIN	UC	C76-77	US135100	C. CE. CHP	0. 1uF 16V	
		WQ228300	P. C. B.	MAIN	T	C78-82	UR866100	C. EL	1uF 50V	
		WQ228400	P. C. B.	MAIN	K	C83	UR847100	C. EL	10uF 25V	
		WQ228500	P. C. B.	MAIN	A	C84-85	UA352220	C. MYLAR	220pF 50V	
		WQ228600	P. C. B.	MAIN	GF	C86-87	UR866220	C. EL	2. 2uF 50V	
		WQ228700	P. C. B.	MAIN	L	C89-90	US063100	C. CE. CHP	1000pF 50V B	
		WQ228800	P. C. B.	MAIN	V	C94-95	UA353220	C. MYLAR	2200pF 50V	
CB1	WB497100	CN. RGB	21P YKF41-5044	GF	C97	UR838100	C. EL	100uF 16V		
CB4	VM923600	CN. BS. PIN	13P		C98-99	UU247100	C. EL	10uF 25V		
CB7	WC196700	CN	17P TE		C104	US135100	C. CE. CHP	0. 1uF 16V		
CB9	WC196300	CN	13P TE		C105	UR838470	C. EL	470uF 16V		
CB11	WC199700	CN	52808 27P TE		C106	UA353820	C. MYLAR	8200pF 50V		
CB12	WC195600	CN	6P TE FMN		C107-108	UA354680	C. MYLAR	0. 068uF 50V		
CB17	VQ044400	CN. BS. PIN	9P		C109	UR847100	C. EL	10uF 25V		
CB18	LB918090	CN. BS. PIN	9P		C110-111	UR838100	C. EL	100uF 16V		
CB19	VB390000	CN. BS. PIN	4P		C112	Vi912500	C. EL	10uF 25V		
CB20	V4415100	CN	30P TP		C113	US135100	C. CE. CHP	0. 1uF 16V		
CB21	VL845200	CN. BS. PIN	8P		C114-115	UA354680	C. MYLAR	0. 068uF 50V		
CB22-23	WC196400	CN	14P TE	GF	C116	UA353820	C. MYLAR	8200pF 50V		
C1	US046100	C. CE. CHP	1uF 25V		C117	UU218470	C. EL	470uF 6. 3V		
C2	US062100	C. CE. CHP	100pF 50V B		C118	Vi912500	C. EL	10uF 25V		
C3-5	US060800	C. CE. CHP	8pF 50V B		C119	US135100	C. CE. CHP	0. 1uF 16V		
C7-10	US062100	C. CE. CHP	100pF 50V B		C120	UR837470	C. EL	47uF 16V		
C13-14	UA352220	C. MYLAR	220pF 50V		C121	US061330	C. CE. CHP	33pF 50V B		
C15-16	US062220	C. CE. CHP	220pF 50V B		C122	UA352100	C. MYLAR	100pF 50V		
C17	US062220	C. CE. CHP	220pF 50V B	GF	C123	US135100	C. CE. CHP	0. 1uF 16V	GF	
C18	UR838220	C. EL	220uF 16V		C124	UR866220	C. EL	2. 2uF 50V		
C20	US062100	C. CE. CHP	100pF 50V B		C125	US135100	C. CE. CHP	0. 1uF 16V	GF	
C22	US062100	C. CE. CHP	100pF 50V B		C126-127	Vi912500	C. EL	10uF 25V		
C23-25	US060800	C. CE. CHP	8pF 50V B	GF	C128	UA352220	C. MYLAR	220pF 50V		
C26	US062100	C. CE. CHP	100pF 50V B	GF	C129	UA353220	C. MYLAR	2200pF 50V		
C27	UR818470	C. EL	470uF 6. 3V		C130	US062330	C. CE. CHP	330pF 50V B	GF	
C28	US135100	C. CE. CHP	0. 1uF 16V		C131-132	UA352100	C. MYLAR	100pF 50V		
C29	US062100	C. CE. CHP	100pF 50V B		C133	US062330	C. CE. CHP	330pF 50V B	GF	
C30	US062220	C. CE. CHP	220pF 50V B	GF	C134-135	UR838100	C. EL	100uF 16V		
C31	US063100	C. CE. CHP	1000pF 50V B		C136	Vi912500	C. EL	10uF 25V		
C32-34	UR818470	C. EL	470uF 6. 3V		C137-138	UR847100	C. EL	10uF 25V	GF	
C35-36	US061330	C. CE. CHP	33pF 50V B	GF	C139	US135100	C. CE. CHP	0. 1uF 16V		
C37	UR866470	C. EL	4. 7uF 50V		C140	US135100	C. CE. CHP	0. 1uF 16V	GF	
C38	UR818220	C. EL	220uF 6. 3V		C141	US062560	C. CE. CHP	560pF 50V B	GF	
C39	US062100	C. CE. CHP	100pF 50V B		C142	US135100	C. CE. CHP	0. 1uF 16V		
C40	US062220	C. CE. CHP	220pF 50V B		C143	US135100	C. CE. CHP	0. 1uF 16V	GF	
C41-44	UR818470	C. EL	470uF 6. 3V	GF	C144-145	UA352100	C. MYLAR	100pF 50V		
C45	US062100	C. CE. CHP	100pF 50V B		C146	UA354470	C. MYLAR	0. 047uF 50V		
C46	US135100	C. CE. CHP	0. 1uF 16V		C147-148	US061270	C. CE. CHP	27pF 50V B	GF	
C47	US062100	C. CE. CHP	100pF 50V B		C149	UR819100	C. EL	1000uF 6. 3V		
C49	US064100	C. CE. CHP	0. 01uF 50V B		C150	UR867100	C. EL	10uF 50V		
C51	US135100	C. CE. CHP	0. 1uF 16V	GF	C151	UR866470	C. EL	4. 7uF 50V		
C53-54	US062470	C. CE. CHP	470pF 50V B		C153	US135100	C. CE. CHP	0. 1uF 16V		
C55	US135100	C. CE. CHP	0. 1uF 16V		C154	UR838100	C. EL	100uF 16V		
C56	UU238220	C. EL	220uF 16V		C155	US135100	C. CE. CHP	0. 1uF 16V		
C58-59	UR847100	C. EL	10uF 25V		C156	UR838220	C. EL	220uF 16V		
C62	US135100	C. CE. CHP	0. 1uF 16V		C157	US135100	C. CE. CHP	0. 1uF 16V		
C64	US135100	C. CE. CHP	0. 1uF 16V		C158	UR848100	C. EL	100uF 25V		
C66-69	UR847100	C. EL	10uF 25V		C159	UR838100	C. EL	100uF 16V		
C70-74	UR866100	C. EL	1uF 50V		C160	US065100	C. CE. CHP	0. 1uF 50V B		
C75	US062100	C. CE. CHP	100pF 50V B		C161	US135100	C. CE. CHP	0. 1uF 16V		

* New Parts

* New Parts

P.C.B. MAIN

Ref No.	Part No.	Description	Markets
C162	UR848100	C. EL 100uF 25V	
C163	US135100	C. CE. CHP 0. 1uF 16V	
C164	US065100	C. CE. CHP 0. 1uF 50V B	
C165	US135100	C. CE. CHP 0. 1uF 16V	
C166	UR848100	C. EL 100uF 25V	
C167	US065100	C. CE. CHP 0. 1uF 50V B	
C168	US135100	C. CE. CHP 0. 1uF 16V	
C169	UR848100	C. EL 100uF 25V	
C170	WE477600	C. EL 100uF 16V	
C171	US046100	C. CE. CHP 1uF 25V	
C172	US135100	C. CE. CHP 0. 1uF 16V	
C174	UR818220	C. EL 220uF 6. 3V	
C175	WE477600	C. EL 100uF 16V	
C176	US063680	C. CE. CHP 6800pF 50V B	
C177	US063100	C. CE. CHP 1000pF 50V B	
C178-179	US062100	C. CE. CHP 100pF 50V B	
C180	US135100	C. CE. CHP 0. 1uF 16V	
C181-182	US062100	C. CE. CHP 100pF 50V B	
C183	US063100	C. CE. CHP 1000pF 50V B	
C184	US062100	C. CE. CHP 100pF 50V B	
C185	US063100	C. CE. CHP 1000pF 50V B	
C187-190	VE326800	C. MYLAR 0. 47uF 50V	
C191	US135100	C. CE. CHP 0. 1uF 16V	
C192-193	UA352220	C. MYLAR 220pF 50V	
C194-195	US065100	C. CE. CHP 0. 1uF 50V B	
C196-197	US063330	C. CE. CHP 3300pF 50V B	
C198	US046100	C. CE. CHP 1uF 25V	
C199	UR838100	C. EL 100uF 16V	
C200	US061100	C. CE. CHP 10pF 50V B	
C203	US061270	C. CE. CHP 27pF 50V B	
C204-208	US065100	C. CE. CHP 0. 1uF 50V B	
C209	US062100	C. CE. CHP 100pF 50V B	
C210	US064100	C. CE. CHP 0. 01uF 50V B	
C211	US061330	C. CE. CHP 33pF 50V B	
C212	US135100	C. CE. CHP 0. 1uF 16V	
C213-214	US065100	C. CE. CHP 0. 1uF 50V B	
C215-216	US046100	C. CE. CHP 1uF 25V	
C217	UR847470	C. EL 47uF 25V	
C218	US135100	C. CE. CHP 0. 1uF 16V	
C219-220	US046100	C. CE. CHP 1uF 25V	
C221	US064150	C. CE. CHP 0. 015uF 50V B	
C222	US065100	C. CE. CHP 0. 1uF 50V B	
C223	US064150	C. CE. CHP 0. 015uF 50V B	
* C224-225	WE477400	C. EL 47uF 16V	
C226	US062220	C. CE. CHP 220pF 50V B	
C227-228	US065100	C. CE. CHP 0. 1uF 50V B	
C229	UR867470	C. EL 47uF 50V	
C230-233	US065100	C. CE. CHP 0. 1uF 50V B	
C234	UR838100	C. EL 100uF 16V	
C235	US135100	C. CE. CHP 0. 1uF 16V	
C236-237	US062220	C. CE. CHP 220pF 50V B	
C240-241	US062220	C. CE. CHP 220pF 50V B	
C242	UR865470	C. EL 0. 47uF 50V	
C243	US135100	C. CE. CHP 0. 1uF 16V	
C244	UR847100	C. EL 10uF 25V	
C245	WB165500	C. EL 0. 33F 5. 5V	
C247	US064100	C. CE. CHP 0. 01uF 50V B	

* New Parts

Ref No.	Part No.	Description	Markets
C249-250	VE326800	C. MYLAR 0. 47uF 50V	
C251	UR848100	C. EL 100uF 25V	
C252-253	US065100	C. CE. CHP 0. 1uF 50V B	
C254-257	US061330	C. CE. CHP 33pF 50V B	
C259	US064100	C. CE. CHP 0. 01uF 50V B	
C263	US064100	C. CE. CHP 0. 01uF 50V B	
C265	US064100	C. CE. CHP 0. 01uF 50V B	
C266	US135100	C. CE. CHP 0. 1uF 16V	
C267	UR867100	C. EL 10uF 50V	
C268	UR867330	C. EL 33uF 50V	
C269-270	UR847100	C. EL 10uF 25V	
C271-272	US062100	C. CE. CHP 100pF 50V B	
C273-274	UU248470	C. EL 470uF 25V	
C280	US064100	C. CE. CHP 0. 01uF 50V B	
C281-282	US135100	C. CE. CHP 0. 1uF 16V	GF
C283	US065100	C. CE. CHP 0. 1uF 50V B	
C284-285	UR838100	C. EL 100uF 16V	
C288	US064100	C. CE. CHP 0. 01uF 50V B	
C291	US064100	C. CE. CHP 0. 01uF 50V B	
C292	UR847100	C. EL 10uF 25V	
C293	UR838100	C. EL 100uF 16V	
C294	UR818100	C. EL 100uF 6. 3V	GF
C295	US046100	C. CE. CHP 1uF 25V	
C296	US063100	C. CE. CHP 1000pF 50V B	
C297	UR838220	C. EL 220uF 16V	
C298-299	US046100	C. CE. CHP 1uF 25V	
C300	UR847100	C. EL 10uF 25V	
C301	US135100	C. CE. CHP 0. 1uF 16V	
C302-305	US062220	C. CE. CHP 220pF 50V B	
C306	UR818470	C. EL 470uF 6. 3V	
C307	US064100	C. CE. CHP 0. 01uF 50V B	
C309	US135100	C. CE. CHP 0. 1uF 16V	
C310-311	US046100	C. CE. CHP 1uF 25V	
C312-313	US062100	C. CE. CHP 100pF 50V B	
C317-318	US135100	C. CE. CHP 0. 1uF 16V	
C321-323	US063100	C. CE. CHP 1000pF 50V B	
C325	UR818470	C. EL 470uF 6. 3V	
D1	VT332900	D1ODE 1SS355	
D2	VU991500	D1ODE. ZENR MA8039-H 4V	
D3-4	VT332900	D1ODE 1SS355	
D5	VU995500	D1ODE. ZENR MA8100-H 10. 3V	
D6-10	VT332900	D1ODE 1SS355	
D11	V6267600	D1ODE RB051L-40	
D12-16	VU992600	D1ODE. ZENR MA8051-M 5. 1V	
D17-18	VT332900	D1ODE 1SS355	
D19	VU990400	D1ODE. ZENR MA8030 3V	
D20-21	V6267600	D1ODE RB051L-40	
D22-23	VT332900	D1ODE 1SS355	
D24-25	VV833200	D1ODE 1SS380	
D26	VU993800	D1ODE. ZENR MA8068-M 6. 8V	
D27	VT332900	D1ODE 1SS355	
D28	VU998800	D1ODE. ZENR MAZ8220GHL 22. 7V	
D29	VV833200	D1ODE 1SS380	
D30-34	VT332900	D1ODE 1SS355	
D35	VU992600	D1ODE. ZENR MA8051-M 5. 1V	
D36-40	VT332900	D1ODE 1SS355	
IC1	X7378A00	IC NJM4565M (TE1)	

* New Parts

P.C.B. MAIN and P.C.B. SUB

Ref No.	Part No.	Description	Markets
* IC2	X9799A00	IC R2A15908SP	GF
IC3	X7889A00	IC PCM1753DBQR	
IC4	X8235A00	IC LC72725KM	
IC5	X7974A00	IC KIA7809API-U/P	
IC6	X8705A00	IC KIA78M05F	
* IC7	X9908A00	IC 74AHC7541PW TSSOP	
IC8	X2331A00	IC NJM4580E OP AMP	
IC9	X4153A00	IC KIA7812API	
* IC10	X9825A00	IC BD9778HFP	
* IC11	YA013A00	IC CPU R5F3640DNFA CPU	(unwritten)
IC12	X7651A00	IC BD9302FP-E2	
* IC13	X9563A00	IC MIC2005-0.5YM6 SOT23-6	
* IC14	X9823A00	IC TDA8922BTH	
* IC15	X9888A00	IC BA50DD0WHFP	
IC16	XR680A00	IC TC7SH08FU (TE85L, JF)	
IC17	XS775A00	IC TC7SH04FU	
IC20	XV892B00	IC TC74VHC74FT (EL, K)	
IC21	X2331A00	IC NJM4580E OP AMP	
IC26	X2331A00	IC NJM4580E OP AMP	
IC27	X7444A00	IC KIA78L05F-RTF/P	
* IC28	YA171A00	IC TS3V340PWR PW	GF
IC29	X8294A00	IC M24C02-WDW6TP	
PJ1	WG089100	JACK. PIN JACK 4P R/BE/G/Y	
PJ2	WF342300	JACK. PIN MSP-241V2	
PJ3	V7046700	JACK. PIN 4P MSP-244V1-01NI	
PN1-4	V9637500	PIN L=70 #18	
Q1-2	VV556400	TR 2SC2412K Q, R, S	
Q3-4	VZ725900	TR 2SD1938F S, T	
Q6	VV556400	TR 2SC2412K Q, R, S	
Q8	VV655700	TR. DGT DTC144EKA	GF
Q9	VZ725900	TR 2SD1938F S, T	
Q10	VV556400	TR 2SC2412K Q, R, S	
Q12	VZ725900	TR 2SD1938F S, T	
Q13	VV556400	TR 2SC2412K Q, R, S	GF
Q15	VV655700	TR. DGT DTC144EKA	GF
Q16	WC529500	TR KTA1504S Y GR RTK	GF
Q18	VV655700	TR. DGT DTC144EKA	GF
Q19	VV556400	TR 2SC2412K Q, R, S	GF
Q20-22	VZ725900	TR 2SD1938F S, T	
Q23-24	WC529500	TR KTA1504S Y GR RTK	
Q25-27	VZ725900	TR 2SD1938F S, T	
Q28-29	WC529500	TR KTA1504S Y GR RTK	
Q31-32	WC529500	TR KTA1504S Y GR RTK	
Q36	VV556400	TR 2SC2412K Q, R, S	
Q37-40	VV655700	TR. DGT DTC144EKA	
Q41-42	VV655300	TR. DGT DTA144EKA	
Q43	VV655700	TR. DGT DTC144EKA	
Q44	VV556400	TR 2SC2412K Q, R, S	
Q45	VV655700	TR. DGT DTC144EKA	
Q46	VV556400	TR 2SC2412K Q, R, S	
Q47	VV655700	TR. DGT DTC144EKA	
Q48	WC529500	TR KTA1504S Y GR RTK	
Q49	VP872600	TR 2SA1708 S, T	
Q50	VV655700	TR. DGT DTC144EKA	GF
Q51-54	VZ725900	TR 2SD1938F S, T	
R16	HV754100	R. CAR. FP 10 Ω 1/4W	
R73-75	VY893200	R. MTL. OXD 12 Ω 1W	

* New Parts

Ref No.	Part No.	Description	Markets
R115	WB785000	R. MTL. OXD 18 Ω 1W J	
R176	HV754100	R. CAR. FP 10 Ω 1/4W	
R180	HV754100	R. CAR. FP 10 Ω 1/4W	
R184	HV754100	R. CAR. FP 10 Ω 1/4W	
R185	V9199400	R. MTL. OXD 1.2K Ω 1W	
R187	HV753220	R. CAR. FP 2.2 Ω 1/4W	
R190	HV754100	R. CAR. FP 10 Ω 1/4W	
R193	HV753680	R. CAR. FP 6.8 Ω 1/4W	
R199	VP940200	R. MTL. OXD 47 Ω 1W	
R205	WB785000	R. MTL. OXD 18 Ω 1W J	
R206	VP940200	R. MTL. OXD 47 Ω 1W	
R211	WB785000	R. MTL. OXD 18 Ω 1W J	
R320	VU224000	R. MTL. FLM 0.22 Ω 1W	
R325	VU224000	R. MTL. FLM 0.22 Ω 1W	
R332	VU224000	R. MTL. FLM 0.22 Ω 1W	
R372-373	VP940000	R. MTL. OXD 22 Ω 1W	
TE1	WD039300	TERM. SP 4P LQR2411-0001FM	UCTAV
TE1	WD039400	TERM. SP 4P LQR2411-0003FM	KGFL
U1	WH536900	CN. PHOTO. T 1P GP1FAV51TK0F	GF
XL1	WJ588000	RSNR. CRYST 4.332MHz	
XL2	VQ328900	RSNR. CRYST 32.768KHz	
XL3	WB440500	RSNR. CE CSTCE16MOV53-R0	
	WE807300	SHEET. RD 19x24	
	WE774400	SCR. BND. HD 3x8 MFZN2B3	
* WQ229000	P. C. B.	SUB	UC
* WQ229100	P. C. B.	SUB	TK
* WQ229200	P. C. B.	SUB	A
* WQ229300	P. C. B.	SUB	GF
* WQ229400	P. C. B.	SUB	V
CB501	VG879900	CN. BS. PIN 2P	
CB502-503	WN103000	CLIP. FUSE TP00351-31	
CB801	WB832600	CN 6P TE	
CB806	V5766700	CN 30P TE	
* CB807	WQ092000	CN. USB 4P TE	
C501	V5877700	C. MYLAR 0.22uF 250V	
C502	WH036100	C. CE. SAFTY 2200pF 250V	
C502-503	WH035900	C. CE. SAFTY 1000pF 250V	
C503	WH035900	C. CE. SAFTY 1000pF 250V	
C504	WN826300	C. CE. SAFTY 0.01uF 250V	
C507	V5877700	C. MYLAR 0.22uF 250V	
C508	US063100	C. CE. CHP 1000pF 50V B	
C510	WD969200	C. CE. CHP 0.1uF 50V K	
* C511	WP573900	C. EL 560uF 200V	UCV
* C511	WP574000	C. EL 150uF 400V	TKAGFL
* C512	WP340600	C. EL 47uF 35V	
C513	WJ322400	C. CE. M. CHP 0.01uF 250V	
C513	WJ322300	C. CE. M. CHP 1000pF 630V	
C514	WJ322300	C. CE. M. CHP 1000pF 630V	
C515	WH035900	C. CE. SAFTY 1000pF 250V	
C516-517	WK413800	C. CE. M. CHP 1000pF 250V	
* C518-519	WQ081600	C. EL 2200uF 25V	
C522	UR839100	C. EL 1000uF 16V	
C523	UR848100	C. EL 100uF 25V	
C524	WH138300	C. EL 1000uF 25V	

* New Parts

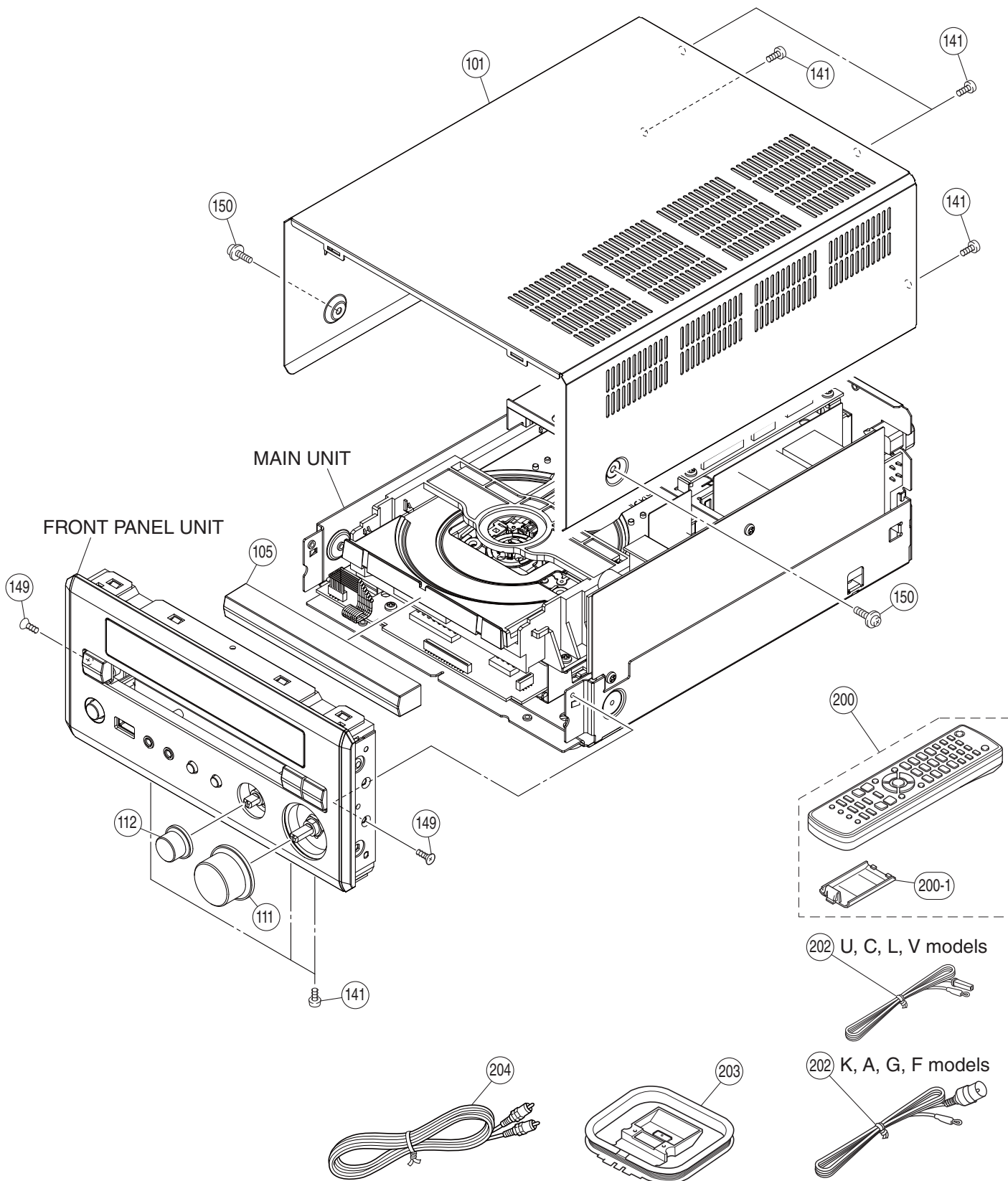
P.C.B. SUB

Ref No.	Part No.	Description	Markets	Ref No.	Part No.	Description	Markets
* C527	WN934600	C. EL	1500uF 25V	IC503	WP388200	PHOT. CPL	TLP781 (D4-GR, F)
C528	WG348200	C. EL	33uF 100V	IC505	X6770A00	IC	NJM431U (TE1)
C529	VR169200	C. MYLAR	0.47uF 50V	IC506	WP388200	PHOT. CPL	TLP781 (D4-GR, F)
C533	WD969200	C. CE. CHP	0.1uF 50V K	IC801	X6386A00	IC	M66003-0131FP
C538-539	VU838100	C. MYLAR. ML	ECQ-V1H105JL3	JK801-802	WH204400	JACK. MNI	MSJ-035-18A GR
C540	VZ243300	C. CE. CHP	0.22uF 16V	Q501	WF412500	FET	2SK3683-01MR ST
C541	WD969200	C. CE. CHP	0.1uF 50V K	Q501	WF703300	FET	2SK3679-01MR ST
C542	US063220	C. CE. CHP	2200pF 50V B	Q502	WC292100	TR	KTC3199-Y-AT/P
C543	WD969200	C. CE. CHP	0.1uF 50V K	Q801	VV556400	TR	2SC2412K Q, R, S
C544	VZ243300	C. CE. CHP	0.22uF 16V	Q802-804	VV655700	TR. DGT	DTC144EKA
C548	UR847330	C. EL	33uF 25V	Q805	VV556400	TR	2SC2412K Q, R, S
C550	US063100	C. CE. CHP	1000pF 50V B	Q806	VV556500	TR	2SA1037K Q, R, S
C551	US062100	C. CE. CHP	100pF 50V B	Q807	VV556400	TR	2SC2412K Q, R, S
C801	US064100	C. CE. CHP	0.01uF 50V B	* R521	WQ093000	R. WW	0.22 Ω 5W K
C803	US135100	C. CE. CHP	0.1uF 16V	R527	HV755180	R. CAR. FP	180 Ω 1/4W
C806	US044220	C. CE. CHP	0.022uF 25V B	R531	V9199400	R. MTL. OXD	1.2K Ω 1W
C809	US044220	C. CE. CHP	0.022uF 25V B	R542-547	VT267900	R. MTL. OXD	1.8K Ω 1W
C813-814	US135100	C. CE. CHP	0.1uF 16V	* R567	WQ093000	R. WW	0.22 Ω 5W K
C815	US064100	C. CE. CHP	0.01uF 50V B	* R567	WP582800	R. WW	0.18 Ω 5W K
C816	US135100	C. CE. CHP	0.1uF 16V	R570	V9199400	R. MTL. OXD	1.2K Ω 1W
C817	UM388330	C. EL	330uF 6.3V	SW501	V5859300	RELAY	DC DLS12D1-0 (M)
C818	US135100	C. CE. CHP	0.1uF 16V	SW801-806	WD483100	SW. TACT	SKRGAAD010
C819	US062100	C. CE. CHP	100pF 50V B	SW807	WD448700	SW. RT. ENC	XREB12104PVB25FINB
C820-821	US065100	C. CE. CHP	0.1uF 50V B	* SW808	WQ215400	SW. RT. ENC	XREB121PVB20FINA1
C822-823	US063100	C. CE. CHP	1000pF 50V B	* T501	X9804A00	TRANS. PWR	UCV
C824-826	UM417220	C. EL	22uF 50V	* T501	X9805A00	TRANS. PWR	TKAGFL
C827	US135100	C. CE. CHP	0.1uF 16V	* T502	YA210A00	TRANS. PWR	UC
C828	UM407220	C. EL	22uF 25V	* T502	YA211A00	TRANS. PWR	TK
C829	UM388100	C. EL	100uF 10V	* T502	YA212A00	TRANS. PWR	A
C830-831	US063100	C. CE. CHP	1000pF 50V B	* T502	YA213A00	TRANS. PWR	GFL
C832	US061220	C. CE. CHP	22pF 50V B	* T502	YA214A00	TRANS. PWR	V
C833	US065100	C. CE. CHP	0.1uF 50V B	TH501	WF544600	POSISTOR	UCV
D501	VN953300	DIODE. BRG	D5SBA60 5A 600V	TH501	WF129000	POSISTOR	TKAGFL
D502	VN478200	DIODE	D1NL20U	U801	WC746300	L. DTCT	RPM7138-H9
D503	WJ459300	DIODE	D1FK60-5063	V801	WH034300	FL. DSPLY	16-BT-133GNK
D503	WJ151900	DIODE	STTH110A		V3747400	SPACER. FL	T4x6x18
D504	VG442300	DIODE. ZENR	MTZ J 22D 22V		WE983600	SCR. BND. HD	3x8 MFZN2B3
D505	WN672400	DIODE. ZENR	P6KE200A 200V		WE774400	SCR. BND. HD	3x8 MFZN2B3
D506	WN672400	DIODE. ZENR	P6KE200A 200V				
D507	VN478200	DIODE	D1NL20U				
D508-509	VT332900	DIODE	1SS355				
* D510-511	WQ080900	DIODE. SCHO	STPS20150CFP 20A				
D512	VT532500	DIODE	1SR154-400				
D513	VR253700	DIODE. BRG	S1NB20 1A 200V				
* D514	WQ545500	DIODE. SCHO	D5S9M				
D515	VQ308300	DIODE	D1NL40 TP 4083				
* D516	WQ080900	DIODE. SCHO	STPS20150CFP 20A				
D517	VU172800	DIODE. ZENR	UDZS12B TE-17 12V				
D518-519	VU998700	DIODE. ZENR	MA8220-M 22V				
D521	VT532500	DIODE	1SR154-400				
D801-804	VT332900	DIODE	1SS355				
D809-810	VU758600	LED (gr)	SLR-342MC				
D811	VU993400	DIODE. ZENR	MA8062-M 6.2V				
D812	VT439400	LED (red)	SLR-342VC3F				
F501	WG410300	FUSE	4A 125V				
F501	KB000750	FUSE. MNI	T2A 250V				
* IC502	X9806A00	IC	L6566BTR SW DENGEN				

* New Parts

* New Parts

• OVERALL ASS'Y

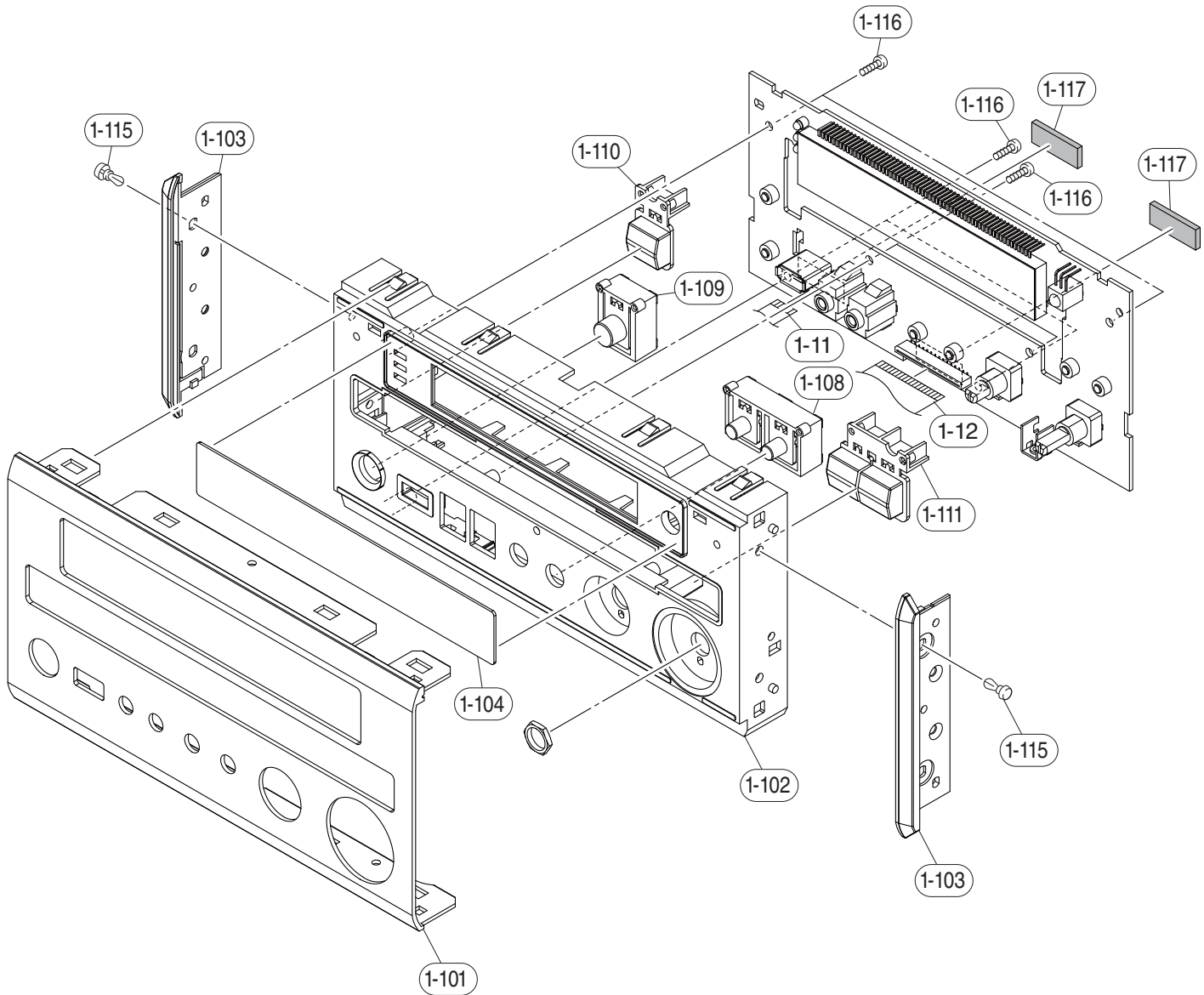


	Ref No.	Part No.	Description		Remarks	Markets
*	101	WP302500	TOP COVER		GD	
*	101	WP302700	TOP COVER		BL	
*	101	WP302600	TOP COVER		SI, WH	
*	105	WP305700	LID		GD	
*	105	WP305900	LID		BL	
*	105	WP305800	LID		SI, WH	
*	111	WP303100	KNOB D32		GD	
*	111	WP303300	KNOB D32		BL	
*	111	WP303200	KNOB D32		SI, WH	
*	112	WP302800	KNOB D19		GD	
*	112	WP303000	KNOB D19		BL	
*	112	WP302900	KNOB D19		SI, WH	
	141	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3		
	149	WF266800	FLAT HEAD B-TIGHT SCREW	3x8 MFZN2B3		
	150	VY712800	PW HEAD B-TIGHT SCREW	3x8-8 MFN133	GD, SI, WH	
	150	WE975300	PW HEAD B-TIGHT SCREW	3x8 MFZN2B3	BL	
			ACCESSORIES			
*	200	WP507500	REMOTE CONTROL		RRS4004-1006EM	UCKALV
*	200	WP507600	REMOTE CONTROL		RRS4004-1007EM	GF
	200-1	AAX57560	BATTERY COVER		103RRS-141-07L	
	202	V6267000	INDOOR FM ANTENNA	1.4m 1pc		UCLV
	202	VQ147100	INDOOR FM ANTENNA	1.4m 1pc		KAGF
	203	VQ307400	AM LOOP ANTENNA	1.2m 1pc		
	204	WG299500	VIDEO PIN CABLE	1P 1.5m YE 1pc		
			BATTERY	R6, AA, UM-3 2pcs		
			SERVICE TOOL			
		AAX77610	RS232C CONVERSION ADAPTER	with CABLE 9P		

* New Parts

DRX-730/NX-E700

- FRONT PANEL UNIT



	Ref No.	Part No.	Description		Remarks	Markets
*	1-11	WQ277200	FLEXIBLE FLAT CABLE	6P 90mm P=1.0		
*	1-12	WQ277800	FLEXIBLE FLAT CABLE	30P 90mm P=1.0		
*	1-101	WP300400	FRONT PANEL		GD	
*	1-101	WP300600	FRONT PANEL		BL	
*	1-101	WP300500	FRONT PANEL		SI, WH	
*	1-102	WP303500	SUB PANEL		GD	
*	1-102	WP303700	SUB PANEL		BL	
*	1-102	WP303600	SUB PANEL		SI, WH	
*	1-103	WP303800	SIDE PLATE		GD, BL, SI	
*	1-103	WP303900	SIDE PLATE		WH	
*	1-104	WP378300	WINDOW PANEL		GD	
*	1-104	WP306000	WINDOW PANEL		BL, SI, WH	
*	1-108	WP304500	BUTTON 2P	SKIP/SEARCH	GD	
*	1-108	WP304700	BUTTON 2P	SKIP/SEARCH	BL	
*	1-108	WP304600	BUTTON 2P	SKIP/SEARCH	SI, WH	
*	1-109	WP304800	BUTTON STB	STANDBY/ON	GD	
*	1-109	WP305000	BUTTON STB	STANDBY/ON	BL	
*	1-109	WP304900	BUTTON STB	STANDBY/ON	SI, WH	
*	1-110	WP305100	BUTTON EJ	OPEN/CLOSE	GD	
*	1-110	WP305300	BUTTON EJ	OPEN/CLOSE	BL	
*	1-110	WP305200	BUTTON EJ	OPEN/CLOSE	SI, WH	
*	1-111	WP305400	BUTTON PS	PLAY/STOP	GD	
*	1-111	WP305600	BUTTON PS	PLAY/STOP	BL	
*	1-111	WP305500	BUTTON PS	PLAY/STOP	SI, WH	
	1-115	VQ368600	PUSH RIVET	P3555-B		
	1-116	WE774800	BIND HEAD P-TIGHT SCREW	3x8 MFZN2W3		
*	1-117	WQ488500	CUSHION	10x20x3		

* New Parts

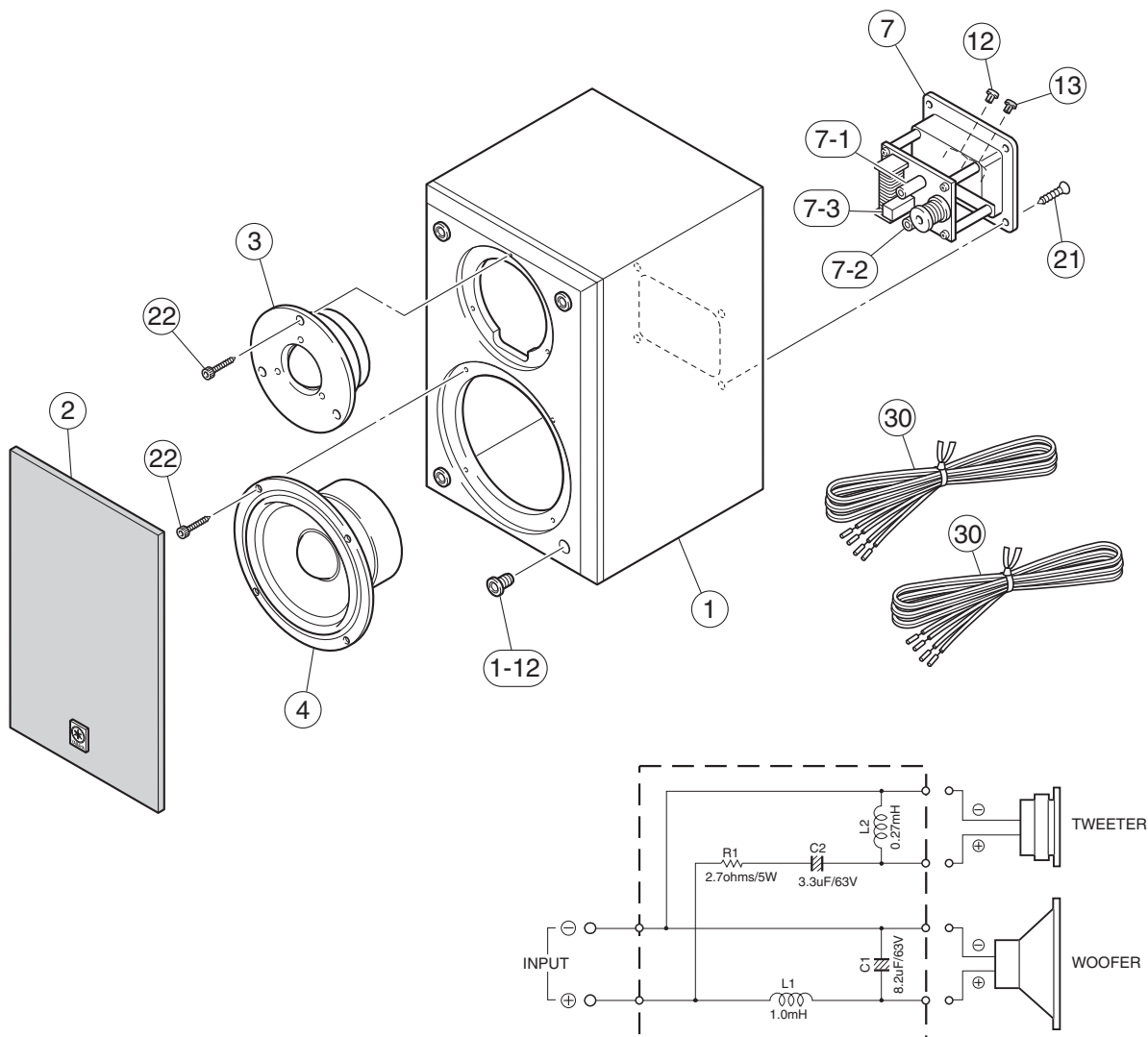
	Ref No.	Part No.	Description	Remarks	Markets
*	2-1	WQ228200	P. C. B. ASS' Y	MAIN	UC
*	2-1	WQ228300	P. C. B. ASS' Y	MAIN	T
*	2-1	WQ228400	P. C. B. ASS' Y	MAIN	K
*	2-1	WQ228500	P. C. B. ASS' Y	MAIN	A
*	2-1	WQ228600	P. C. B. ASS' Y	MAIN	GF
*	2-1	WQ228700	P. C. B. ASS' Y	MAIN	L
*	2-1	WQ228800	P. C. B. ASS' Y	MAIN	V
*	2-2	WQ229000	P. C. B. ASS' Y	SUB	UC
*	2-2	WQ229100	P. C. B. ASS' Y	SUB	TK
*	2-2	WQ229200	P. C. B. ASS' Y	SUB	A
*	2-2	WQ229300	P. C. B. ASS' Y	SUB	GFL
*	2-2	WQ229400	P. C. B. ASS' Y	SUB	V
*	2-5	WQ967500	DVD MODULE P. C. B.	DB-VPB801	REGION 1
*	2-5	WQ968000	DVD MODULE P. C. B.	DB-VPB801	REGION 6
*	2-5	WQ967700	DVD MODULE P. C. B.	DB-VPB801	REGION 3
*	2-5	WQ967800	DVD MODULE P. C. B.	DB-VPB801	REGION 4
*	2-5	WQ967600	DVD MODULE P. C. B.	DB-VPB801	REGION 2
*	2-5	WQ967900	DVD MODULE P. C. B.	DB-VPB801	REGION 5
*	2-6	WQ930300	DVD MECHANISM ASS' Y	with CABLE	
*	2-6-1	AAX90730	BELT LOADING	92P200015A	
△	2-11	WB120500	POWER CABLE	2m	UC
△	2-11	WB120600	POWER CABLE	2m	T
△	2-11	WC753000	POWER CABLE	2m	K
△	2-11	WC743700	POWER CABLE	2m	A
△	2-11	WB212300	POWER CABLE	2m	GFL
△	2-11	WC992700	POWER CABLE	2m	V
	2-12	V2438700	CORD STOPPER	10P1	
	2-22	WB424000	AM/FM TUNER	ENG06709Q	UCLV
	2-22	WB877300	AM/FM TUNER	FAE381-A07F	T
	2-22	WB877400	AM/FM TUNER	FAE481-E07F	K
	2-22	WB424100	AM/FM TUNER	ENG07711Q	AGF
*	2-31	WQ277400	FLEXIBLE FLAT CABLE	13P 210mm P=1.0	
*	2-32	WQ277500	FLEXIBLE FLAT CABLE	14P 90mm P=1.0	GF
*	2-33	WQ277600	FLEXIBLE FLAT CABLE	17P 230mm P=1.0	
*	2-34	WQ662700	FLEXIBLE FLAT CABLE	27P 320mm P=1.0	
*	2-35	WQ277900	FLEXIBLE FLAT CABLE	24P 330mm P=0.5	
	2-36	MF113120	FLEXIBLE FLAT CABLE	13P 120mm P=1.25	
*	2-38	WQ433700	SHEET RADIATOR	24x25	
*	2-102	WP301400	REAR PANEL		UC
*	2-102	WP378200	REAR PANEL		T
*	2-102	WP301900	REAR PANEL		K
*	2-102	WP301500	REAR PANEL		A
*	2-102	WP301600	REAR PANEL		G
*	2-102	WQ185500	REAR PANEL		F
*	2-102	WP301800	REAR PANEL		L
*	2-102	WP301700	REAR PANEL		V
	2-103	V3688500	LEG	D22/H8. 2	
*	2-115	WP306100	SHEET PSU		
	2-121	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3	
	2-122	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3	
	2-123	WE774400	BIND HEAD B-TIGHT SCREW	3x8 MFZN2B3	
	2-124	WF304200	BIND HEAD S-TIGHT SCREW	3x5 MFZN2B3	

* New Parts

DRX-730/NX-E700

NX-E700

• OVERALL ASS'Y



Ref No.	Part No.	Description	Remarks	Markets
1	WG237700	CABINET ASS'Y	Black color	GD, BL, SI
1	WM884000	CABINET ASS'Y	White color	WH
1-12	V9909600	HOLDER		
2	WG237800	FRONT GRILLE ASS'Y	Black color	GD, BL, SI
2	WM884100	FRONT GRILLE ASS'Y	White color	WH
3	XW275B00	DRIVER TWEETER	2.5cm 5 Ω	JA05U3
4	XZ668D00	DRIVER WOOFER	11cm 6 Ω	JA1151
7	V9504600	NETWORK ASS'Y		
7-1	V6055400	ELECTROLYTIC CAP	8.2uF 63V	C1
7-2	V6367500	ELECTROLYTIC CAP	3.3uF 63V	C2
7-3	V9507500	CEMENT RESISTOR	2.7 Ω 5W	R1
12	V5361400	TERMINAL CAP	S06E RED	
13	V5361500	TERMINAL CAP	S06E BLACK	
21	WE963200	FLAT HEAD WOOD SCREW	3.5x20 MFZN2B3	
22	WF824200	HEXAGON HEAD WOOD SCREW	4x25 MFZN2B3	
30	V9826900	ACCESSORY SPEAKER CABLE	4m 1pc	

* 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 k Ω	HF45 7110	HF45 7110
1.8 Ω	HJ35 3180	*	12 k Ω	HJ35 7120	HF85 7120
2.2 Ω	HJ35 3220	HF85 3220	13 k Ω	HF45 7130	HF45 7130
3.3 Ω	HJ35 3330	HF85 3330	15 k Ω	HF45 7150	HF45 7150
4.7 Ω	HJ35 3470	HF85 3470	18 k Ω	HF45 7180	HF45 7180
5.6 Ω	HJ35 3560	HF85 3560	22 k Ω	HF45 7220	HF45 7220
10 Ω	HF45 4100	HF45 4100	24 k Ω	HF45 7240	HF45 7240
15 Ω	HJ35 4150	HF85 4150	27 k Ω	HJ35 7270	HF85 7270
22 Ω	HF45 4220	HF45 4220	30 k Ω	HF45 7300	HF45 7300
27 Ω	HJ35 4270	HF85 4270	33 k Ω	HF45 7330	HF45 7330
33 Ω	HF45 4330	HF45 4330	36 k Ω	HF45 7360	HF45 7360
39 Ω	HJ35 4470	HF85 4390	39 k Ω	HF45 7390	HF45 7390
47 Ω	HF45 4470	HF45 4470	47 k Ω	HF45 7470	HF45 7470
56 Ω	HF45 4560	HF45 4560	51 k Ω	HF45 7510	HF45 7510
68 Ω	HF45 4680	HF45 4680	56 k Ω	HF45 7560	HF45 7560
75 Ω	HF45 4750	HF45 4750	62 k Ω	HF45 7620	HF45 7620
82 Ω	HF45 4820	HF45 4820	68 k Ω	HF45 7680	HF45 7680
91 Ω	HF45 4910	HF45 4910	82 k Ω	HF45 7820	HF45 7820
100 Ω	HF45 5100	HF45 5100	91 k Ω	HF45 7910	HF45 7910
110 Ω	HJ35 5110	HF85 5110	100 k Ω	HF45 8100	HF45 8100
120 Ω	HF45 5120	HF45 5120	110 k Ω	HF45 8110	HF45 8110
150 Ω	HF45 5150	HF45 5150	120 k Ω	HF45 8120	HF45 8120
160 Ω	HJ35 5160	*	150 k Ω	HF45 8150	HF45 8150
180 Ω	HF45 5180	HF45 5180	180 k Ω	HF45 8180	HF45 8180
200 Ω	HF45 5200	HF45 5200	220 k Ω	HJ35 8220	HF85 8220
220 Ω	HF45 5220	HF45 5220	270 k Ω	HF45 8270	HF45 8270
270 Ω	HF45 5270	HF45 5270	300 k Ω	HF45 8300	HF45 8300
330 Ω	HF45 5330	HF45 5330	330 k Ω	HF45 8330	HF45 8330
390 Ω	HF45 5390	HF45 5390	390 k Ω	HJ35 8390	HF85 8390
430 Ω	HF45 5430	HF45 5430	470 k Ω	HF45 8470	HF45 8470
470 Ω	HF45 5470	HF45 5470	560 k Ω	HJ35 8560	HF85 8560
510 Ω	HF45 5510	HF45 5510	680 k Ω	HJ35 8680	HF85 8680
560 Ω	HF45 5560	HF45 5560	820 k Ω	HJ35 8820	HF85 8820
680 Ω	HF45 5680	HF45 5680	1.0 M Ω	HF45 9100	HF45 9100
820 Ω	HF45 5820	HF45 5820	1.2 M Ω	HJ35 9120	*
910 Ω	HF45 5910	HF45 5910	1.5 M Ω	HJ35 9150	HF85 9150
1.0 k	HF45 6100	HF45 6100	1.8 M Ω	HJ35 9180	HF85 9180
1.2 k Ω	HF45 6120	HF45 6120	2.2 M Ω	HJ35 9220	HF85 9220
1.5 k Ω	HF45 6150	HF45 6150	3.3 M Ω	HJ35 9330	HF85 9330
1.8 k Ω	HF45 6180	HF45 6180	3.9 M Ω	HJ35 9390	*
2.0 k Ω	HJ35 6200	HF85 6200	4.7 M Ω	HJ35 9470	HF85 9470
2.2 k Ω	HF45 6220	HF45 6220			
2.4 k Ω	HJ35 6240	HF85 6240			
2.7 k Ω	HF45 6270	HF45 6270			
3.0 k Ω	HF45 6300	HF45 6300			
3.3 k Ω	HF45 6330	HF45 6330			
3.6 k Ω	HJ35 6360	HF85 6360			
3.9 k Ω	HF45 6390	HF45 6390			
4.7 k Ω	HF45 6470	HF45 6470			
5.1 k Ω	HF45 6510	HF45 6510			
5.6 k Ω	HF45 6560	HF45 6560			
6.8 k Ω	HF45 6680	HF45 6680			
8.2 k Ω	HF45 6820	HF45 6820			
9.1 k Ω	HF45 6910	HF45 6910			
10 k Ω	HF45 7100	HF45 7100			

1/4W Type

HJ35 10mm

1/4W Type

HF45

1/6W Type

HF85

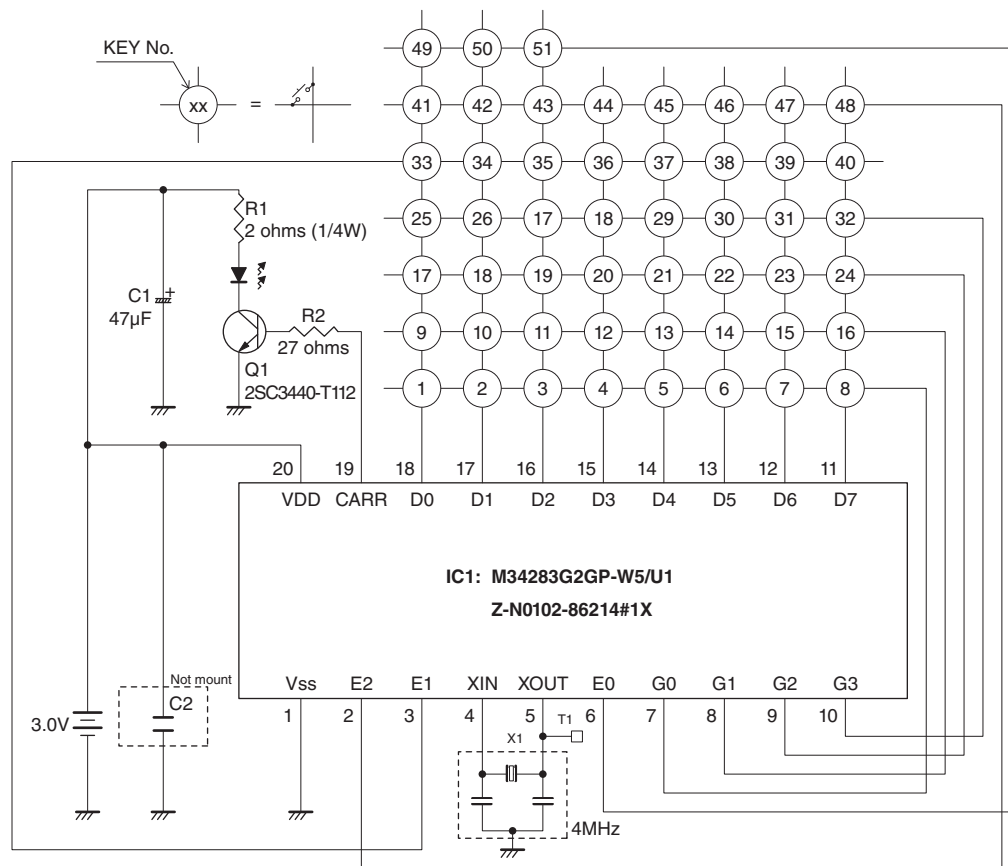
5mm

*: Not available

DRX-730/NX-E700

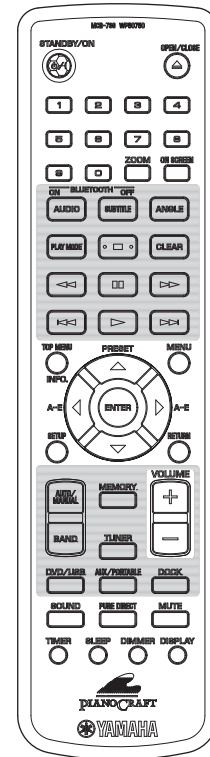
REMOTE CONTROL

SCHEMATIC DIAGRAM

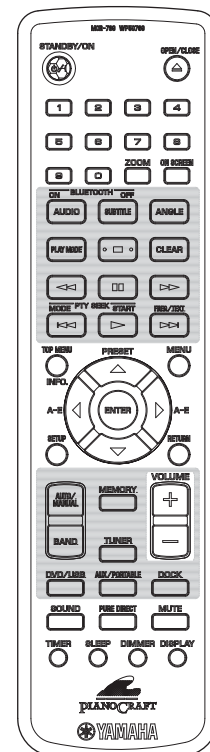


PANEL

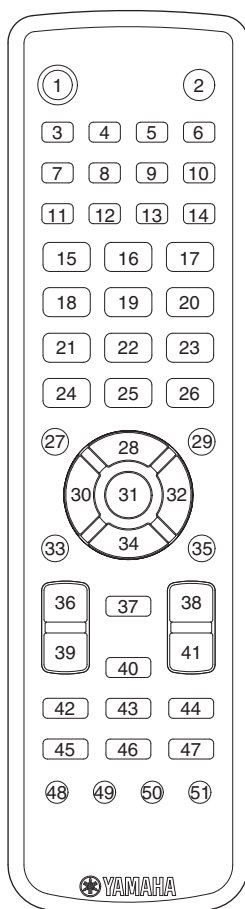
U, C, K, A, L, V models



G, F models



KEY NO. LAYOUT



KEY CODE

Key No.	Label (English)	Custom Code	Data Code	Key No.	Label (English)	Custom Code	Data Code
	Upper Case				Upper Case		
1	STANDBY/ON	78	0F	27	TOP MENU/INFO.	7C	B1
2	OPEN/CLOSE	78	00	28	▲	78	8E
3	1	78	11	29	MENU	7C	B2
4	2	78	12	30	◀	78	9F
5	3	78	13	31	ENTER	78	C1
6	4	78	14	32	▶	78	9E
7	5	78	15	33	SET UP	7C	AC
8	6	78	16	34	▼	78	8F
9	7	78	17	35	RETURN	7C	B7
10	8	78	18	36	AUTO/MANUAL	78	B7
11	9	78	19	37	MEMORY	78	B2
12	0	78	10	38	VOLUME+	78	1E
13	ZOOM	7C	D7	39	BAND	78	B6
14	ON SCREEN	7C	A6	40	TUNER	78	4B
15	AUDIO	7C	AD	41	VOLUME-	78	1F
16	SUBTITLE	7C	AA	42	DVD/USB	78	4A
17	ANGLE	7C	AE	43	AUX/PORTABLE	78	49
18	PLAY MODE	7C	BD	44	DOCK	78	D0
19	■	7C	85	45	SOUND	78	84
20	CLEAR	7C	9F	46	DIRECT	78	50
21	◀◀	7C	86	47	MUTE	78	9C
22	■	7C	83	48	TIMER	78	A0
23	▶▶	7C	87	49	SLEEP	78	4F
24	◀	7C	B9	50	DIMMER	78	BA
25	▶	7C	82	51	DISPLAY	78	4E
26	▶▶▶	7C	BA				

DRX-730/NX-E700

