AV RECEIVER

RX-V2065/HTR-6295

SERVICE MANUAL

Note:

When IC513 of GUI P.C.B. or GUI P.C.B. is replaced, the network function of this unit will not operate properly without additional setting.
In such case, report the serial number of this unit to the following e-mail address.
Yamaha Corporation will reply providing the setting procedure to make the network function of this unit operate properly.

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

IMPORTANT NOTICE

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

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

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

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

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

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

RX-V2065/HTR-6295

■ CONTENTS

TO SERVICE PERSONNEL 2–3
FRONT PANELS 3–4
REAR PANELS 5–7
REMOTE CONTROL PANELS 8
SPECIFICATIONS 9–15
INTERNAL VIEW 16
SERVICE PRECAUTIONS 16
DISASSEMBLY PROCEDURES 17–19
UPDATING FIRMWARE 20–29
SELF-DIAGNOSTIC FUNCTION 30–66
CONFIRMATION OF IDLING CURRENT OF AMP UNIT 67
DISPLAY DATA 68–69
IC DATA 70–93
PIN CONNECTION DIAGRAMS 94–97
BLOCK DIAGRAMS 98–101
PRINTED CIRCUIT BOARDS 102–122
SCHEMATIC DIAGRAMS 123–139
REPLACEMENT PARTS LIST 141–156
REMOTE CONTROL 157–160
ADVANCED SETUP 161–162

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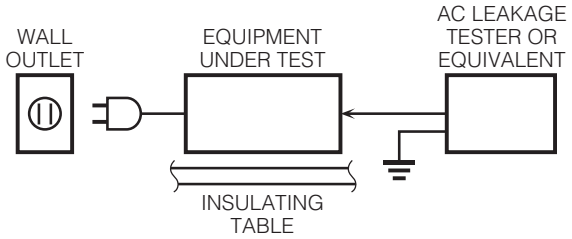
YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan
'09.08

■ TO SERVICE PERSONNEL

1. Critical Components Information
   Components having special characteristics are marked ⚠ 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 µF.



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

For U model

"CAUTION"

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

For C model

CAUTION

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

ATTENTION

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

WARNING: CHEMICAL CONTENT NOTICE!

This product contains chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.

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

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

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

About lead free solder

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

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

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

Caution:

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

WARNING: Lithium batteries

CAUTION

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

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

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

ADVARSEL!

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

VARNING

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

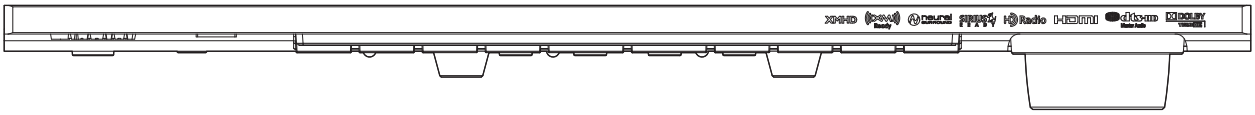
VAROITUS

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

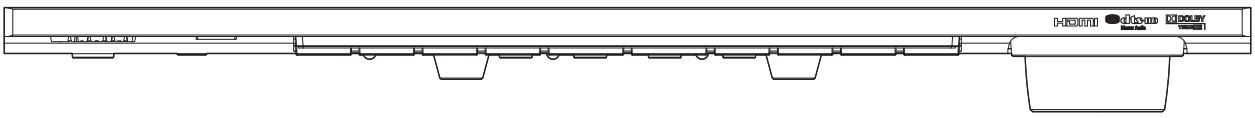
■ FRONT PANELS

Top view

U model

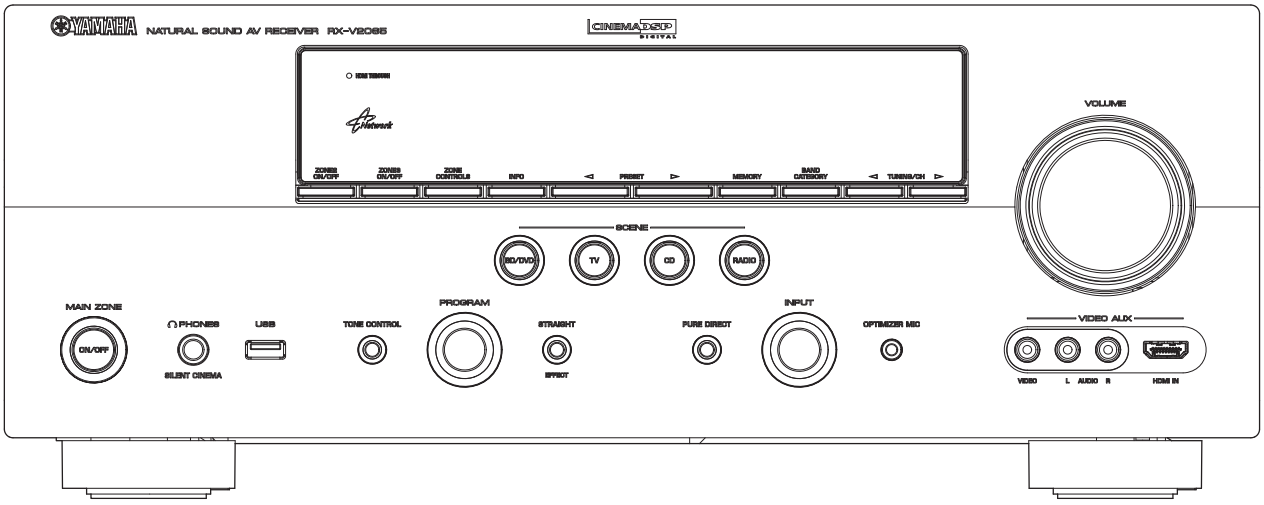


C, R, T, K, A, B, G, E, F, L models

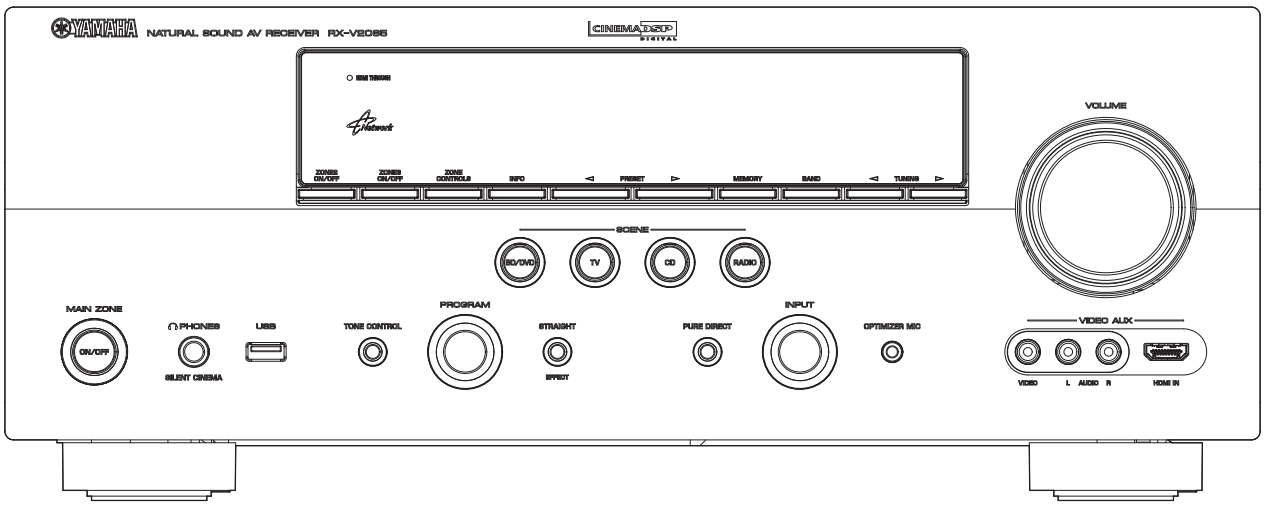


Front view

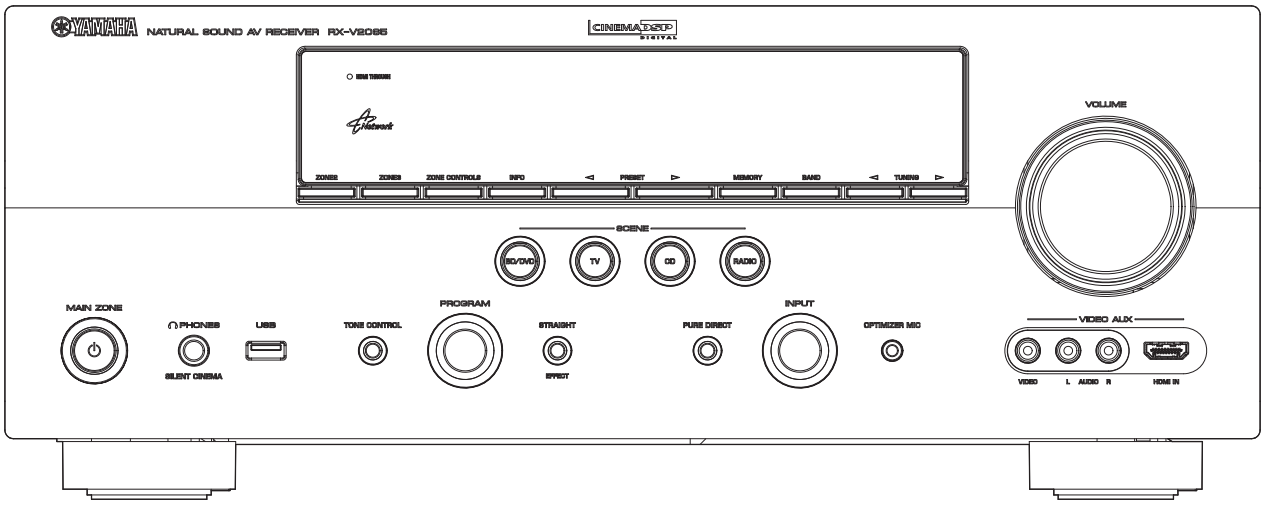
RX-V2065 (U model)



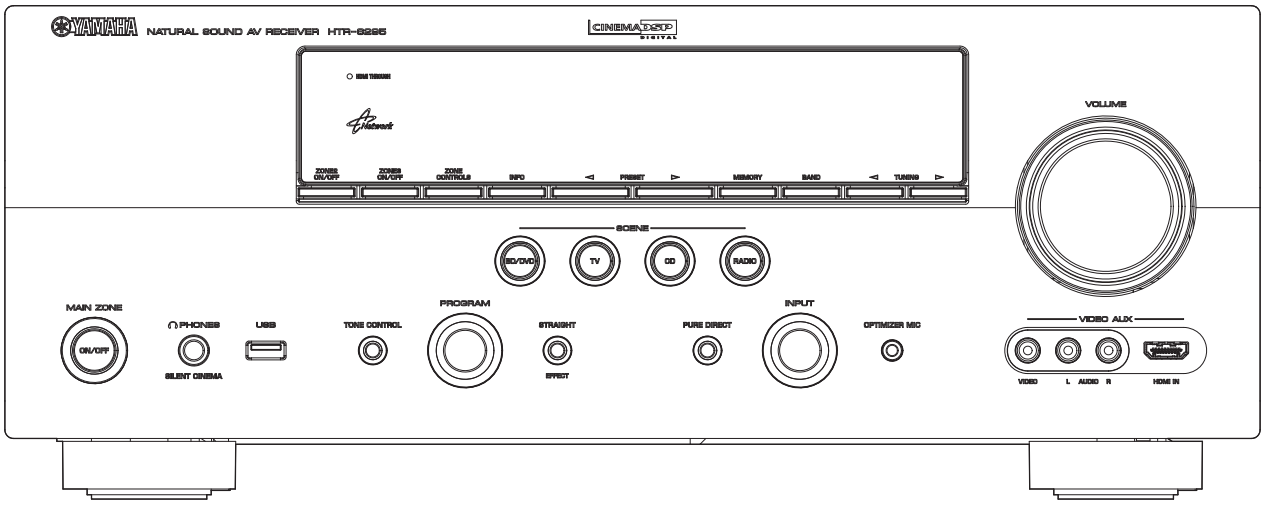
RX-V2065 (C, R, K, A, B, G, E, F, L models)



RX-V2065 (T model)

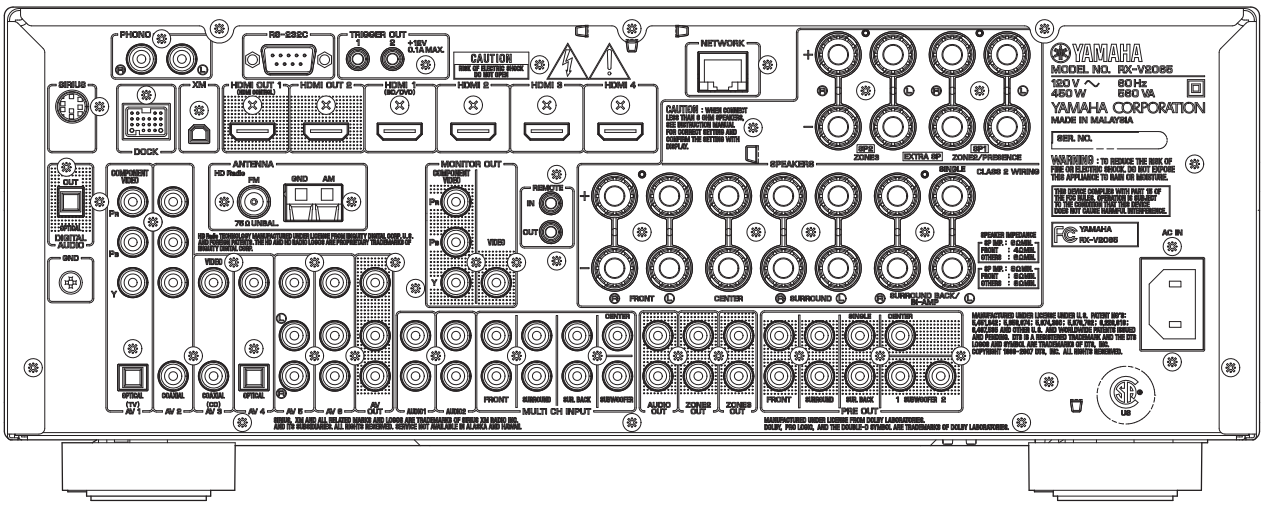


HTR-6295 (C model)

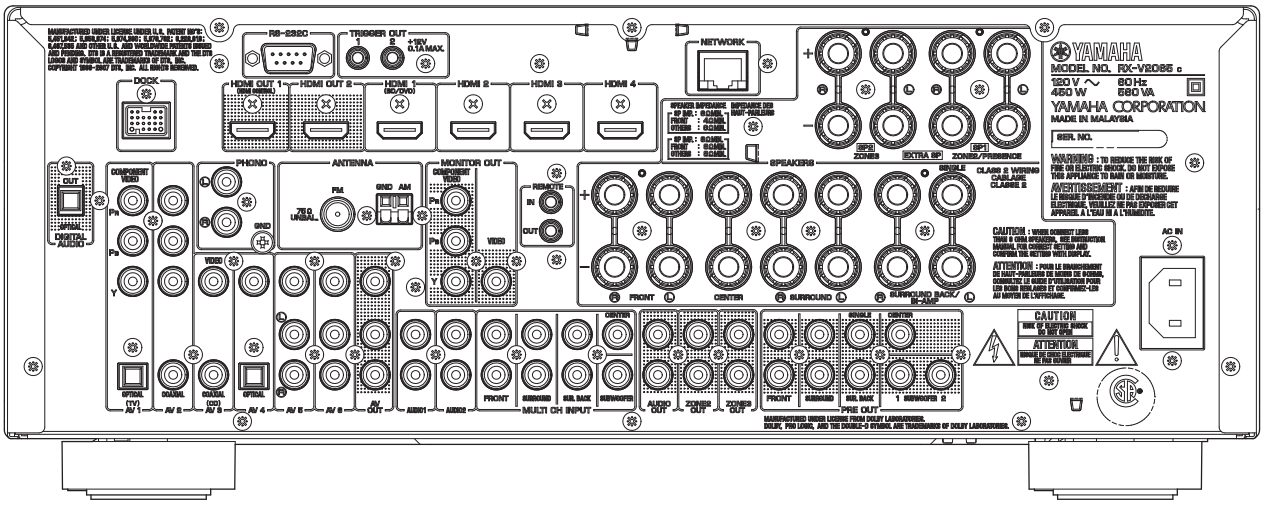


■ REAR PANELS

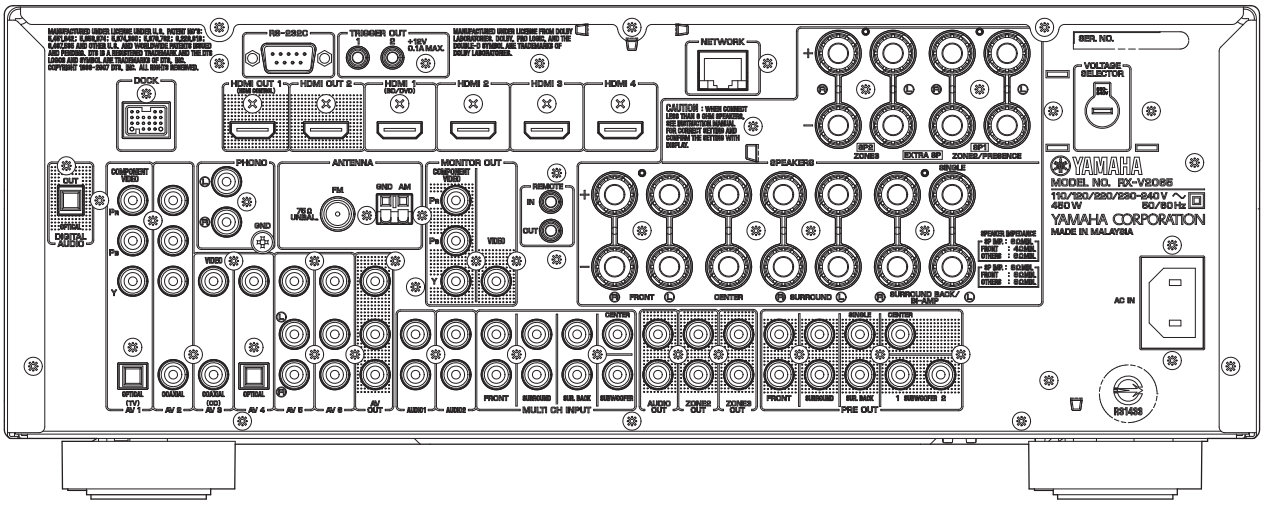
RX-V2065 (U model)



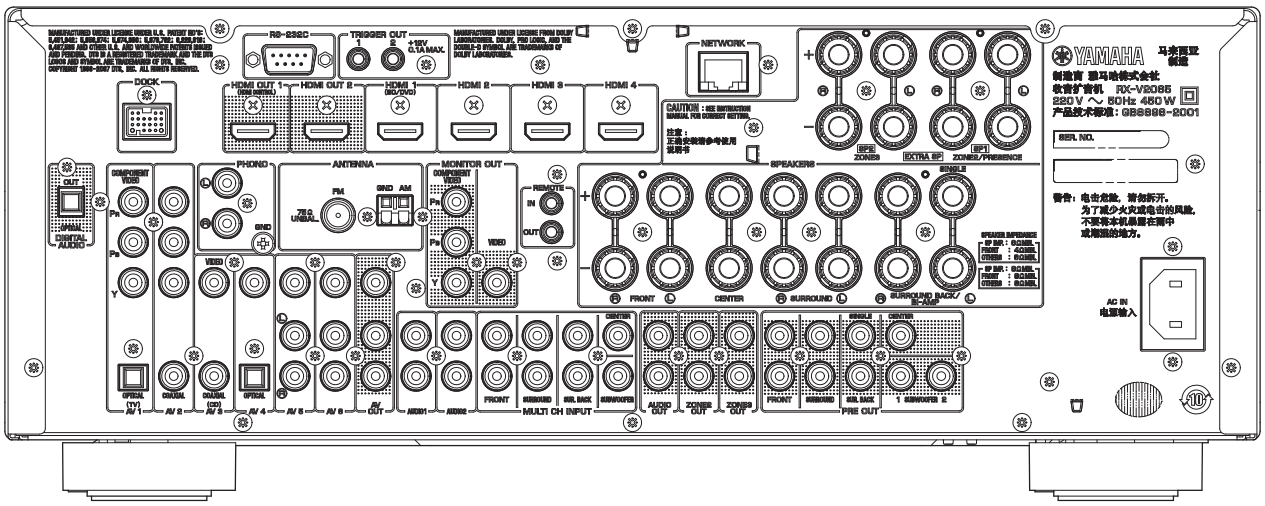
RX-V2065 (C model)



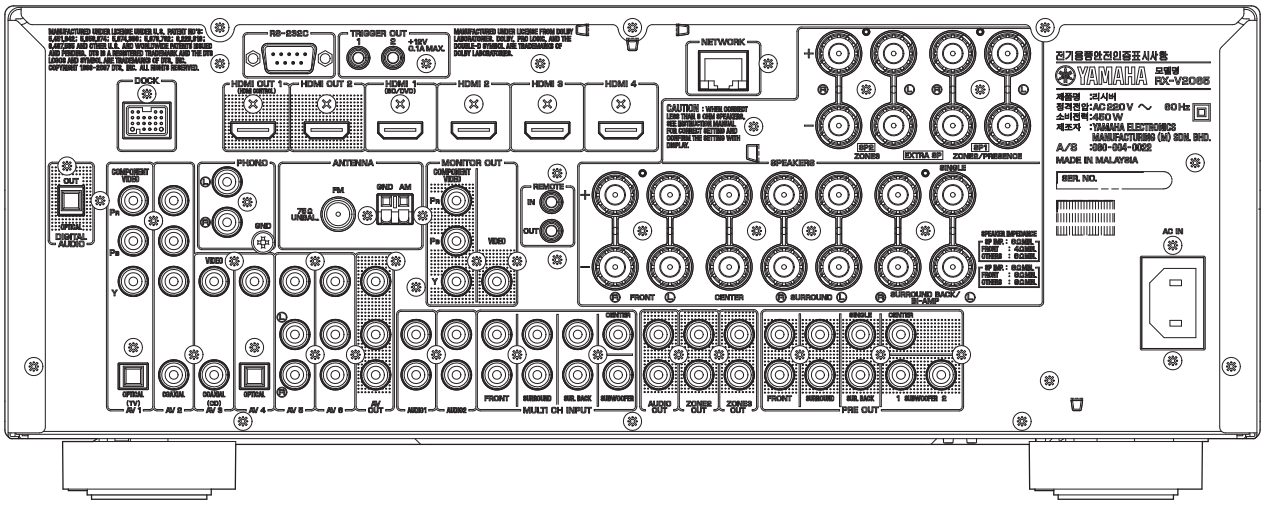
RX-V2065 (R model)



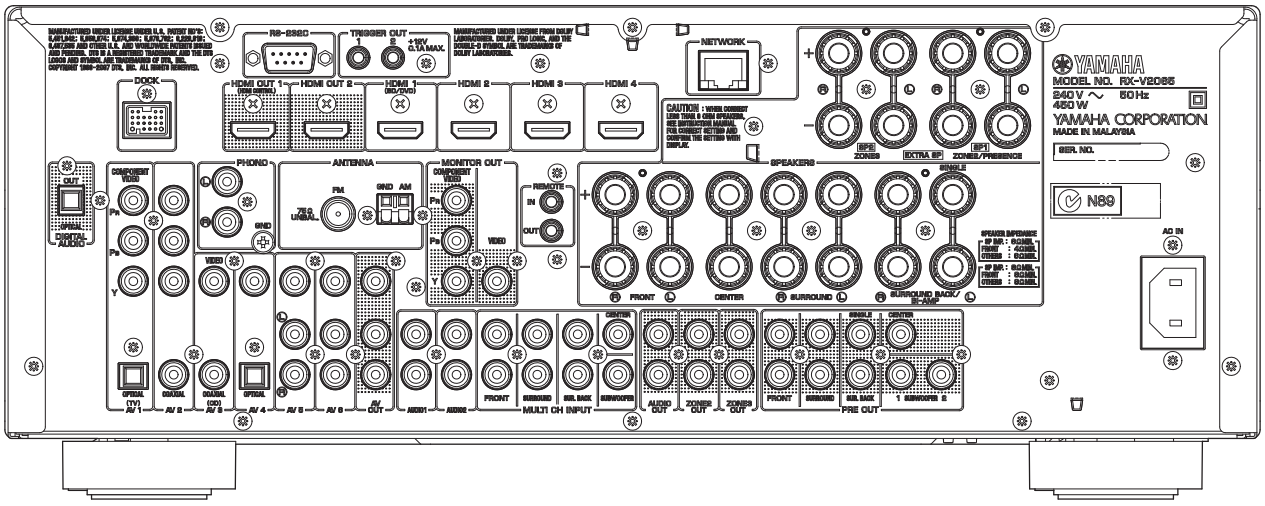
RX-V2065 (T model)



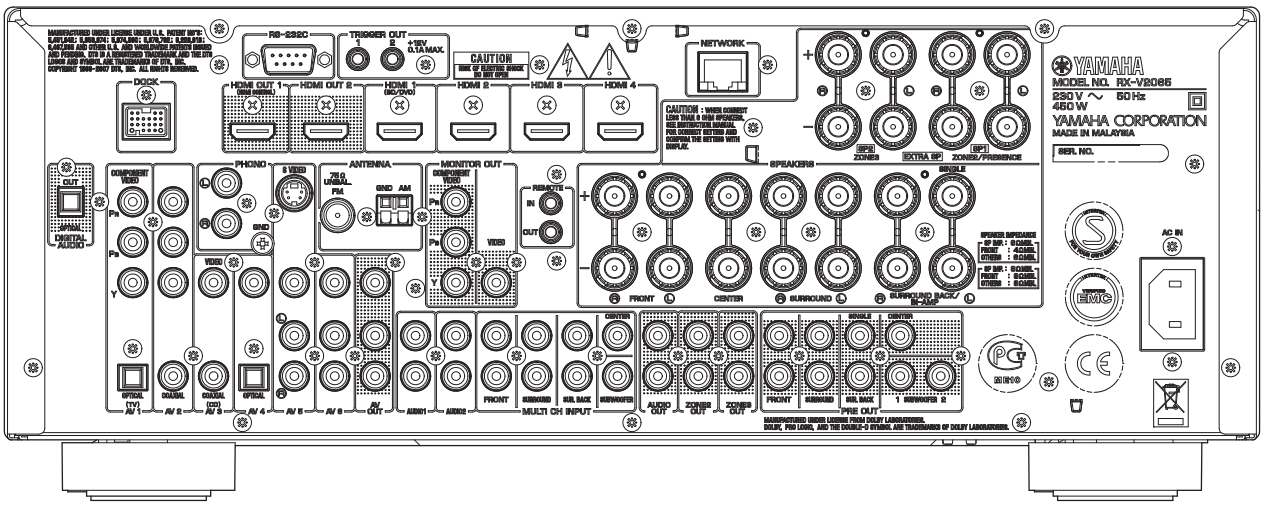
RX-V2065 (K model)



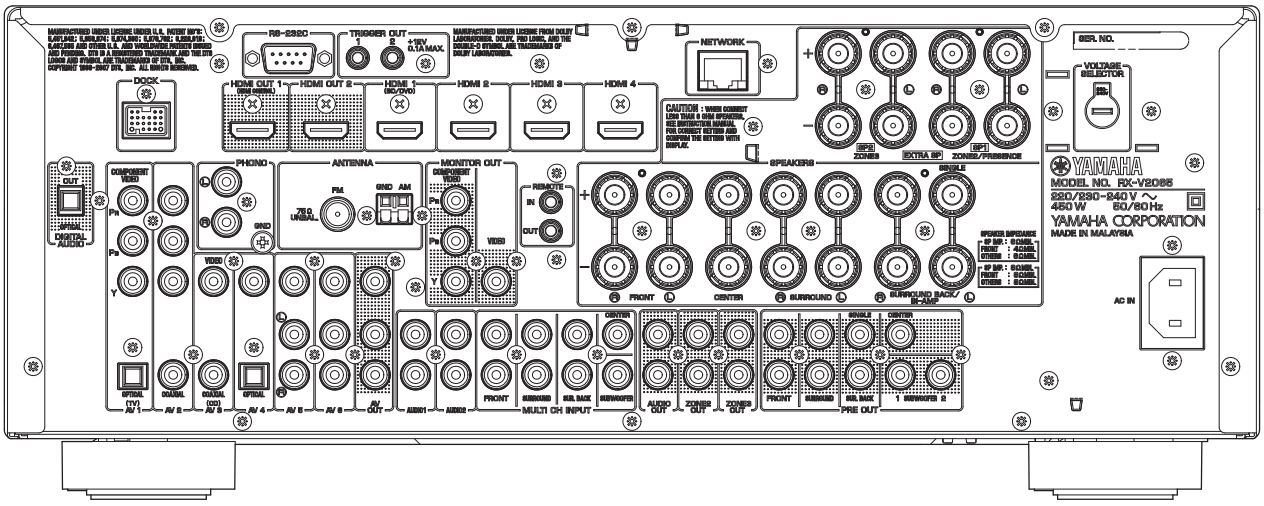
RX-V2065 (A model)



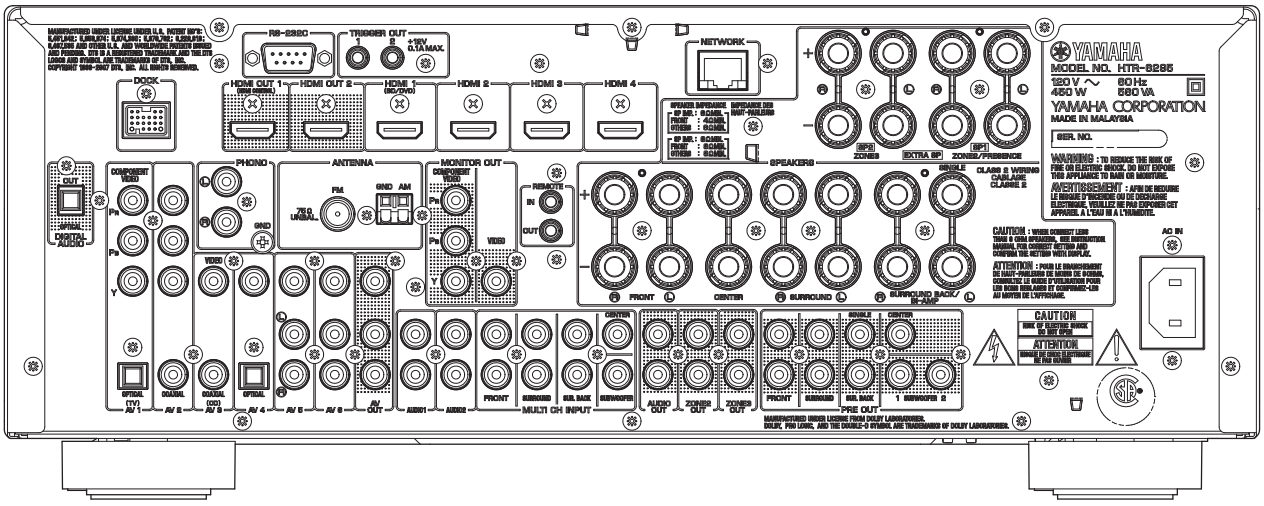
RX-V2065 (B, G, E, F models)



RX-V2065 (L model)

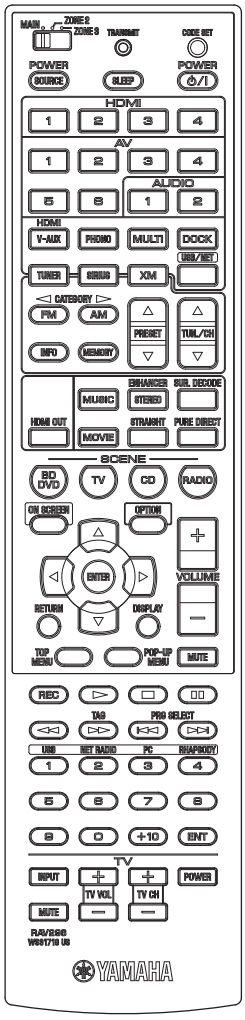


HTR-6295 (C model)

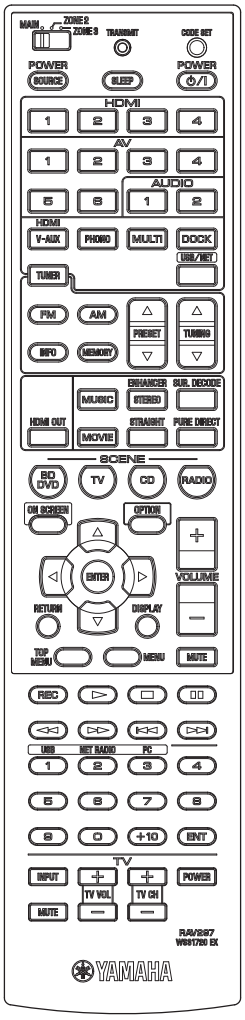


■ REMOTE CONTROL PANELS

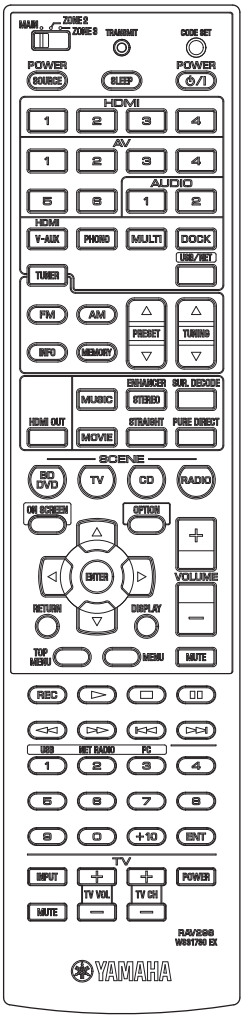
RAV296
(U model)



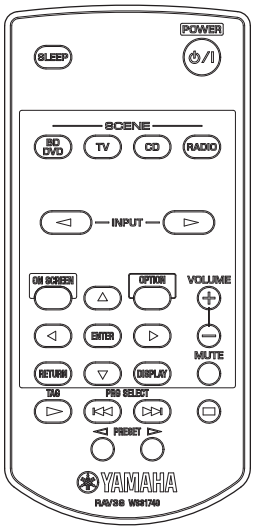
RAV297
(C, R, A, L models)



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



RAV38
(U, C, R, T, K, A, B, G, E, F, L models)



■ SPECIFICATIONS

■ Audio Section

Minimum RMS Output Power (Power Amp. Section)
(20 Hz to 20 kHz, 0.08 % THD, 8 ohms)
FRONT L/R .....130 W + 130 W
CENTER ..... 130 W
SURROUND L/R .....130 W + 130 W
SURROUND BACK L/R .....130 W + 130 W

Maximum Power (JEITA) (1 kHz, 10 % THD, 8 ohms)
[R, T, K, A, L models]
FRONT L/R .....175 W + 175 W
CENTER ..... 175 W
SURROUND L/R .....175 W + 175 W
SURROUND BACK L/R .....175 W + 175 W

MAX. Power Per Channel (1 kHz, 0.7 % THD, 4 ohms)
[B, G, E, F models]
FRONT L/R .....180 W + 180 W
CENTER ..... 180 W
SURROUND L/R .....180 W + 180 W
SURROUND BACK L/R .....180 W + 180 W

IEC Power (1 kHz, 0.08 % THD, 8 ohms)
[B, G, E, F models]
FRONT L/R .....130 W + 130 W

Dynamic Power Per Channel (IHF)
FRONT L/R drive
(8 / 6 / 4 / 2 ohms) ..... 160 / 200 / 260 / 330 W

Dynamic Headroom [U, C models]
8 ohms .....0.9 dB

Damping Factor
(20 Hz to 20 kHz, 8 ohms, SPEAKER-A)
FRONT L/R ..... 100 or more

Input Sensitivity/Input Impedance
(1 kHz, 100 W/8 ohms)
PHONO (MM) ..... 3.5 mV / 47 k-ohms
AV5 etc. ..... 200 mV / 47 k-ohms
MULTI CH INPUT
FRONT L/R, CENTER, SURROUND L/R, SURROUND BACK L/R, SUBWOOFER
..... 200 mV / 47 k-ohms

Maximum Input Signal (1 kHz)
PHONO (MM) (0.1 % THD) .....60 mV or more
AV5 etc. (Effect ON) (0.5 % THD) .....2.3 V or more

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

Headphone Jack Rated Output/Output Impedance
AV5 etc. input (1 kHz, 50 mV, 8 ohms) ..... 100 mV/470 ohms

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

RIAA Equalization Deviation
PHONO (MM) ..... 0 ±0.5 dB

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

Signal to Noise Ratio (IHF-A network)
PHONO (MM) to REC OUT (Input shorted 5 mV)
U, C, R, T models ..... 86 dB or more
K, A, B, G, E, F, L models ..... 81 dB or more
AV5, etc. (PURE DIRECT) to SP OUT (Input shorted 250 mV)
..... 100 dB or more

Residual Noise (IHF-A network)
FRONT L/R to SP OUT .....150 µV or less

Channel Separation (1 kHz / 10 kHz)
PHONO (Input shorted)
..... 60 dB or more / 55 dB or more
AV5, etc. (Input 5.1 k-ohms shorted)
..... 60 dB or more / 45 dB or more

Volume Control
..... MUTE / -80 dB to +16.5 dB / 0.5 dB step

Tone Control Characteristics
FRONT L/R
Bass
Boost/Cut ..... ±10 dB/2 dB, step 50 Hz
Turnover frequency .....350 Hz
Treble
Boost/Cut .....±10 dB/2 dB, step 20 kHz
Turnover frequency .....3.5 kHz

Filter Characteristics
FRONT, CENTER, SURROUND, SURROUND BACK small (H.P.F.)
.....fc=40/60/80/90/100/110/120/160/200 Hz, 12 dB/oct.
SUBWOOFER small (L.P.F.)
.....fc=40/60/80/90/100/110/120/160/200 Hz, 24 dB/oct.

■ Video Section

Video Signal Type (Gray back)
Gray back
U, C, R, K models .....NTSC
T, A, B, G, E, F, L models .....PAL
Video conversion
.....NTSC/PAL

Composite Video Signal Level
.....1 Vp-p / 75 ohms

S-Video Signal Level [B, G, E, F models]
Y .....1 Vp-p / 75 ohms
C .....0.286 Vp-p / 75 ohms

Component Video Signal Level
Y .....1 Vp-p / 75 ohms
Cb/Cr .....0.7 Vp-p / 75 ohms

Video Maximum Input Level
VIDEO CONVERSION OFF ..... 1.5 Vp-p or more

Video Signal to Noise Ratio
..... 50 dB or more

Monitor Out Frequency Response
(VIDEO CONVERSION OFF)
Component video signal level .....5 Hz to 60 MHz, -3 dB

■ FM Section

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

50 dB Quieting Sensitivity (IHF) (1 kHz, 100 % MOD.)
Mono .....3 µV (20.8 dBf)

Signal to Noise Ratio (IHF)
Mono .....74 dB
Stereo .....70 dB
HD (U model) .....80 dB

Harmonic Distortion (1 kHz)
Mono ..... 0.3 %
Stereo ..... 0.3 %
HD (U model) ..... 0.03 %

Antenna Input
..... 75 ohms unbalanced

■ AM Section

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

Antenna ..... Loop antenna

■ General

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

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

Standby Power Consumption (reference data)
HDMI control: OFF / Standby through: OFF / RS-232C: OFF
.....0.2 W or less
HDMI control: ON / Standby through: ON / Network Standby: ON
.....5.6 W or less
HDMI control: ON / Standby through: ON / Network Standby: ON / Repeat
.....10.6 W or less

Maximum Power Consumption [R, L models]
..... 680 W

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

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

Finish
[RX-V2065]
Black color .....U, C, R, T, K, A, B, G, E, F, L models
Titanium color .....R, G, E, F, L models
[HTR-6295]
Black color .....C model

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

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

U .....U.S.A. model
C .....Canadian model
R .....General model
T ..... Chinese model
K .....Korean model
A .....Australian model
B .....British model
G .....European model
E .....South European model
F ..... Russian model
L .....Singapore model

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Fraunhofer Institut Integrierte Schaltungen

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

This receiver supports network connections.

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SIRIUS READY

XM READY

XMHD SURROUND•SOUND

XM Mini-Tuner

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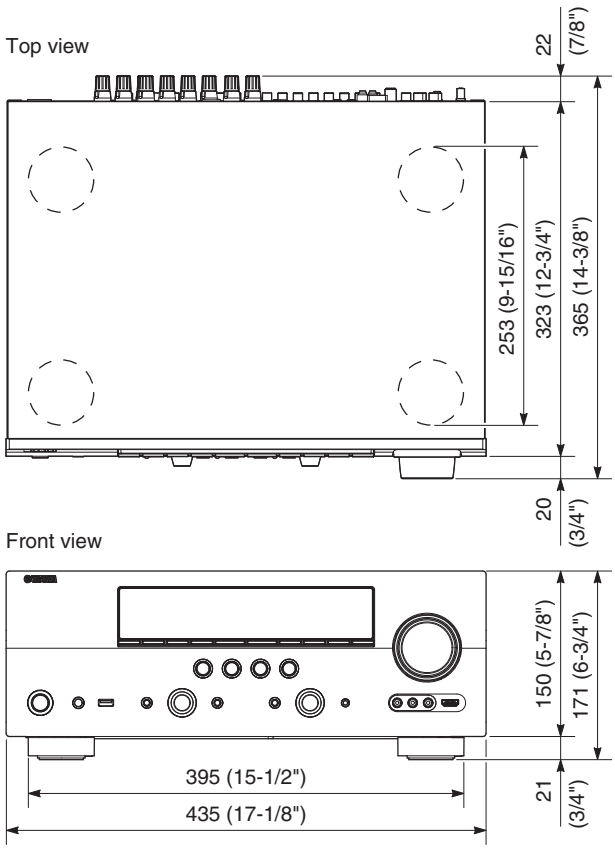
- **DIMENSIONS**



Unit: mm (inch)

- **SCENE TEMPLATE**

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

• SOUND FIELD PARAMETERS

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

○ : The parameter to be used varies between when there is one surround pack and when there are two. On the display, the parameter value varies accordingly while the same parameter name appears.
△ : Setting is possible only when Pro Logic II x Music (Pro Logic II Music) is selected using decode type.
▲ : Setting is possible only when Neo:6 Music is selected using decode type.
■ : Setting is possible only when CS II Cinema/Music is selected using decode type.

*1 Decode Type

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

*2 Decode Type

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

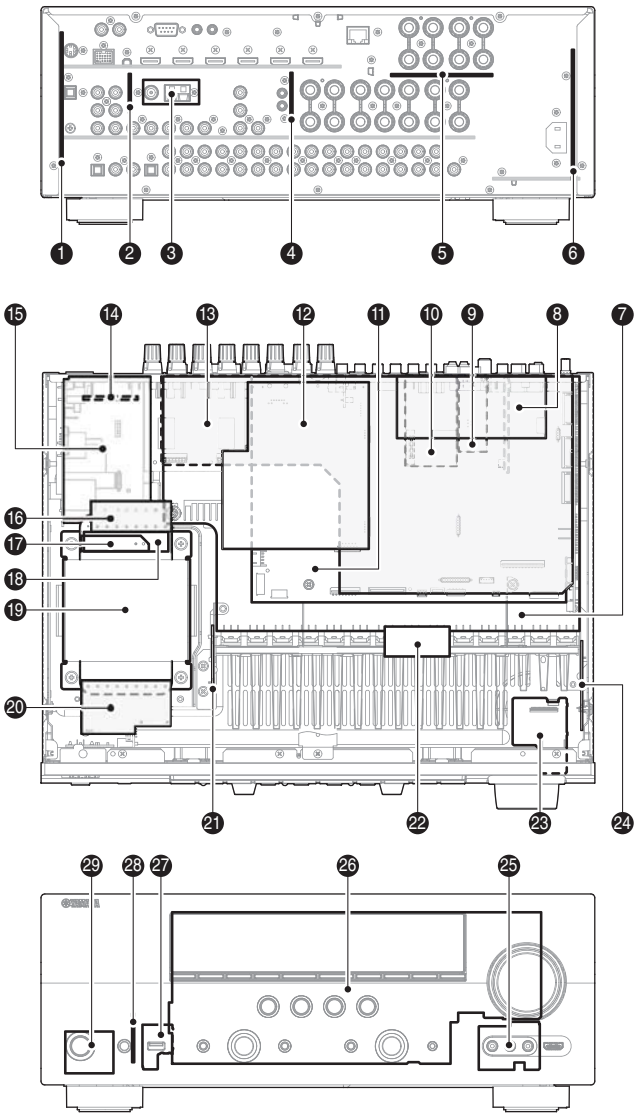
• SET MENU TABLE

MAIN MENU	SUB-MENU	PARAMETER	VALUE [INITIAL VALUE]
1 • Speaker Setup			
1 Auto Setup (YPAO)	Extra Speaker Assignment		[Zone2] / Zone2 + Zone3 / Presence / None
	EQ Type		[Natural] / Flat / Front
	Start		[ENTER]: Start
2 Manual Setup	A) Speaker Configuration	Extra Speaker Assignment	[Zone2] / Zone2 + Zone3 / Presence / None
		LFE/Bass Out	Subwoofer / Front / [Both]
		Front Speaker	Small / [Large]
		Center Speaker	None / [Small] / Large
		Surround L/R Speaker	
		Surround Back L/R Speaker	None / Large x 1 / Small x 1 / Large x 2 / [Small x 2]
		Bass Crossover Frequency	40 / 60 / [80] / 90 / 100 / 110 / 120 / 160 / 200 Hz
		Subwoofer Phase	[Normal] / Reverse
	B) Speaker Level	Front L	-10.0 to +10.0 dB, [0 dB], 0.5 dB step
		Front R	
		Center	-10.0 to +10.0 dB, [-1.0 dB], 0.5 dB step
		Surround L	
		Surround R	
		Surround Back L	
		Surround Back R	
		Subwoofer	-10.0 to +10.0 dB, [0 dB], 0.5 dB step
		Presence L	
		Presence R	
	C) Speaker Distance	Unit	meters (m) / [feet (ft)]
		Front L	0.30 to 24.00 m, [3.00 m]
		Front R	
		Center	0.30 to 24.00 m, [2.60 m]
		Surround L	0.30 to 24.00 m, [2.40 m]
		Surround R	
		Surround Back L	
		Surround Back R	
		Subwoofer	0.30 to 24.00 m, [3.00 m]
		Presence L	
		Presence R	
		Front L	1.0 to 80.0 ft, [10.0 ft]
		Front R	
		Center	1.0 to 80.0 ft, [8.5 ft]
		Surround L	1.0 to 80.0 ft, [8.0 ft]
		Surround R	
		Surround Back L	
		Surround Back R	
		Subwoofer	1.0 to 80.0 ft, [10.0 ft]
		Presence L	
		Presence R	
	D) Equalizer	EQ Type Select	Auto PEQ / [GEQ] / Off
		GEQ	* "GEQ" is available only when "EQ Type Select" is set to "GEQ".
		Front L 63 Hz ·····||····· 0 dB	-6.0 to +6.0 dB, [0 dB], 0.5 dB step
		Front R 160 Hz ·····||····· 0 dB	
		Center 400 Hz ·····||····· 0 dB	
		Sur. L 1 kHz ·····||····· 0 dB	
		Sur. R 2.5 kHz ·····||····· 0 dB	
		SBL 6.3 kHz ·····||····· 0 dB	
		SBR 16 kHz ·····||····· 0 dB	
	E) Test Tone		[Off] / On
2 • Sound Setup			
1 Dynamic Range			Min/Auto / STD / [Max]
2 Lipsync	HDMI OUT1		0 to 240 ms, [0 ms], 1 ms step
	HDMI OUT2		
	ANALOG MONITOR OUT		

MAIN MENU	SUB-MENU	PARAMETER	VALUE [INITIAL VALUE]
3 • Function Setup			
1 HDMI	HDMI Control		On / [Off]
	Standby Through		On / [Off] * This menu is available only when “HDMI Control” is set to “Off”.
	Audio Output		[Amplifier] / TV / Amplifier + TV * This menu is available only when “HDMI Control” is set to “Off”.
	Resolution		[Through] / 480p (576p) / 720p / 1080i / 1080p
	Aspect		[Through] / 16:9 / Smart Zoom
2 Display	Dimmer		-4 to 0, [0]
	Front Panel Display Scroll		[Continuous] / Once
	GUI Position		-5 to +5, [0]
3 Volume	Adaptive DRC		Auto / [Off]
	Max Volume		-30.0 dB to +15.0 dB / [+16.5 dB], 5.0 dB step
	Initial Volume		[Off] / Mute / -80.0 to +16.5 dB, 0.5 dB step
4 Input Rename			Input is possible to 9 characters Input possible Character type Capital : A to Z Small : a to z Figure : 0 to 9 Space Marks : # * + , - . / : < > ? etc.
5 Zone	Zone2/Zone3 Max. Volume		-30.0 dB to +15.0 dB / [+16.5 dB], 5.0 dB step
	Zone2/Zone3 Initial Volume		[Off] / Mute / -80.0 to +16.5 dB, 0.5 dB step
6 Network	IP Address	DHCP	[On] / Off
		IP Address	xxx.xxx.xxx.xxx * This menu is available only when “IP Address” is set to “DHCP On”.
		Subnet Mask	
		Default Gateway	
		DNS Server (Primary)	
		DNS Server (Secondary)	
	MAC Address Filter		[Off] / On
		MAC Address 1–10	xx : xx : xx : xx : xx : xx * This menu is available only when “MAC Address Filter” is set to “On”.
	Network Standby		[Off] / On
	Information	MAC Address	xx : xx : xx : xx : xx : xx
		IP Address	xxx.xxx.xxx.xxx
		Subnet Mask	xxx.xxx.xxx.xxx
		Default Gateway	xxx.xxx.xxx.xxx
		DNS Server (Primary)	xxx.xxx.xxx.xxx
		DNS Server (Secondary)	xxx.xxx.xxx.xxx
		Link Status	No Link
		vTuner ID	xxxxxxxxxxxx
7 Rhapsody Information	Account Status		
	Sign In		
	Rhapsody Free Trial		
	Remove Account		
4 • DSP Parameter			
STEREO	7ch Stereo	Center Level	0 to 100 %
		Surround L Level	
		Surround R Level	
		Surround Back Level	
		Initialize	
MUSIC ENHANCER	Straight Enhancer	Effect Level · High	[High] / Low
		Initialize	
	7ch Enhancer	Effect Level · High	[High] / Low
		Initialize	

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

■ INTERNAL VIEW



❶ OPERATION (2) P.C.B.
❷ OPERATION (9) P.C.B.
(R, T, K, A, B, G, E, F, L models)
❸ HD RADIO TUNER (U model)
❹ VIDEO (4) P.C.B.
❺ OPERATION (8) P.C.B.
❻ ACDC (1) P.C.B.
❼ MAIN (1) P.C.B.
❽ DIGITAL (3) P.C.B.
❾ VIDEO (9) P.C.B. (B, G, E, F models)
❿ AM/FM TUNER
(C, R, T, K, A, B, G, E, F, L models)
⓫ DIGITAL (1) P.C.B.
⓬ GUI P.C.B.
⓭ VIDEO (1) P.C.B.
⓮ MAIN (3) P.C.B. (R, L models)
⓯ VIDEO (3) P.C.B.
⓰ MAIN (2) P.C.B.
⓱ ACDC (2) P.C.B.
(U, C, T, K, A, B, G, E, F models)
⓲ MAIN (4) P.C.B.
⓳ POWER TRANSFORMER
⓴ VIDEO (6) P.C.B.
㉑ MAIN (6) P.C.B.
㉒ ACDC (3) P.C.B.
㉓ DIGITAL (2) P.C.B.
㉔ OPERATION (10) P.C.B.
㉕ OPERATION (4) P.C.B.
㉖ OPERATION (1) P.C.B.
㉗ OPERATION (5) P.C.B.
㉘ OPERATION (3) P.C.B.
㉙ OPERATION (6) P.C.B.

■ SERVICE PRECAUTIONS

Safety measures

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

  C6006 on ACDC (1) P.C.B.

  Refer to “PRINTED CIRCUIT BOARDS: ACDC (1) P.C.B.”.

■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)
Disconnect the power cable from the AC outlet.

1. Removal of Top Cover

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

2. Removal of Front Panel and Sub-Chassis Unit

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

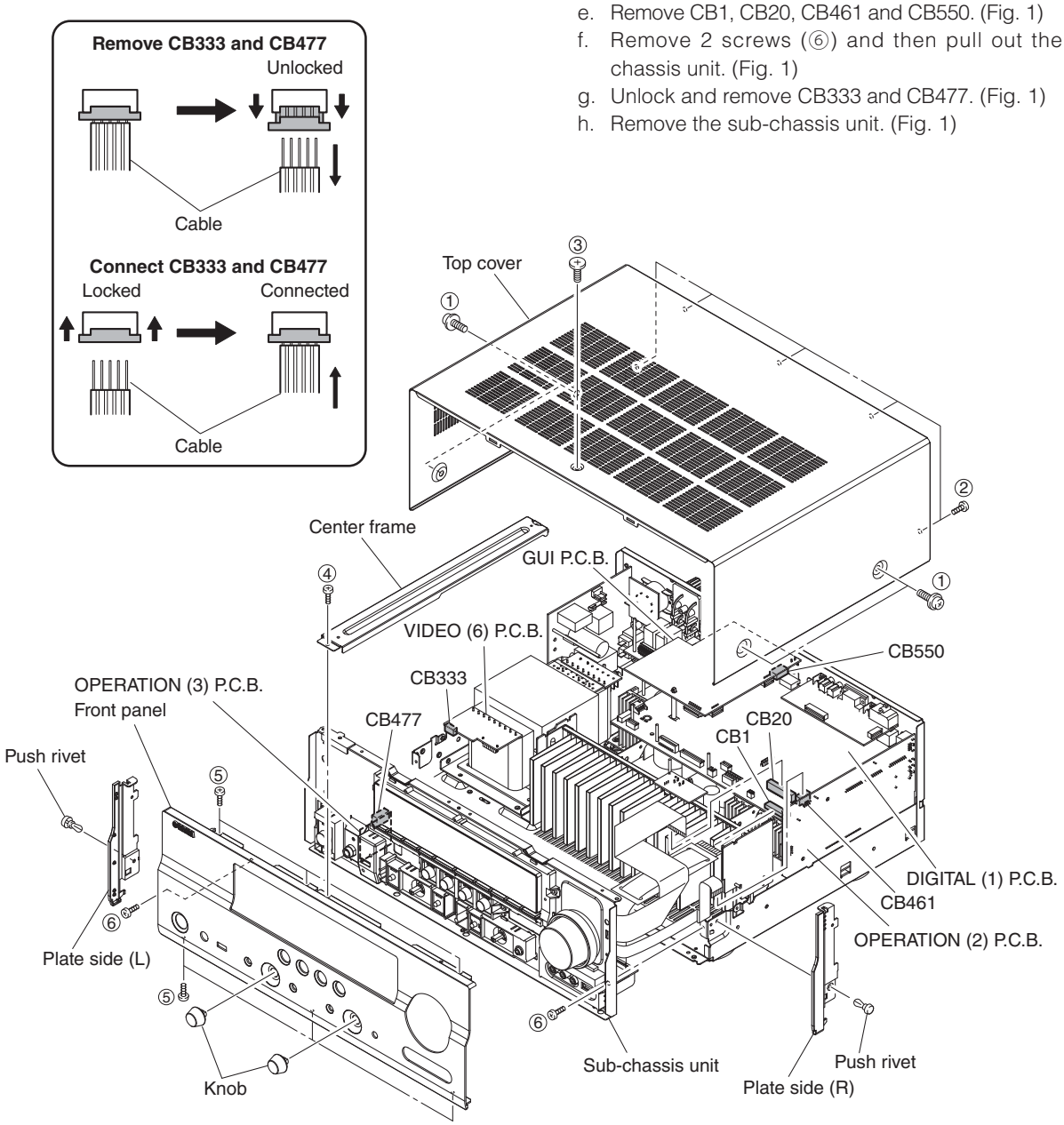


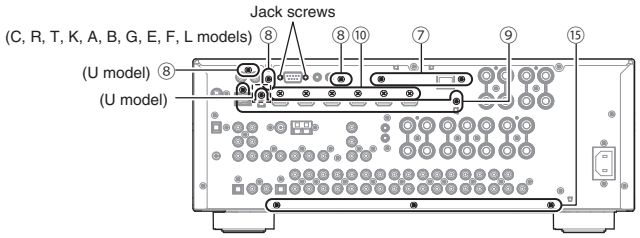
Fig. 1

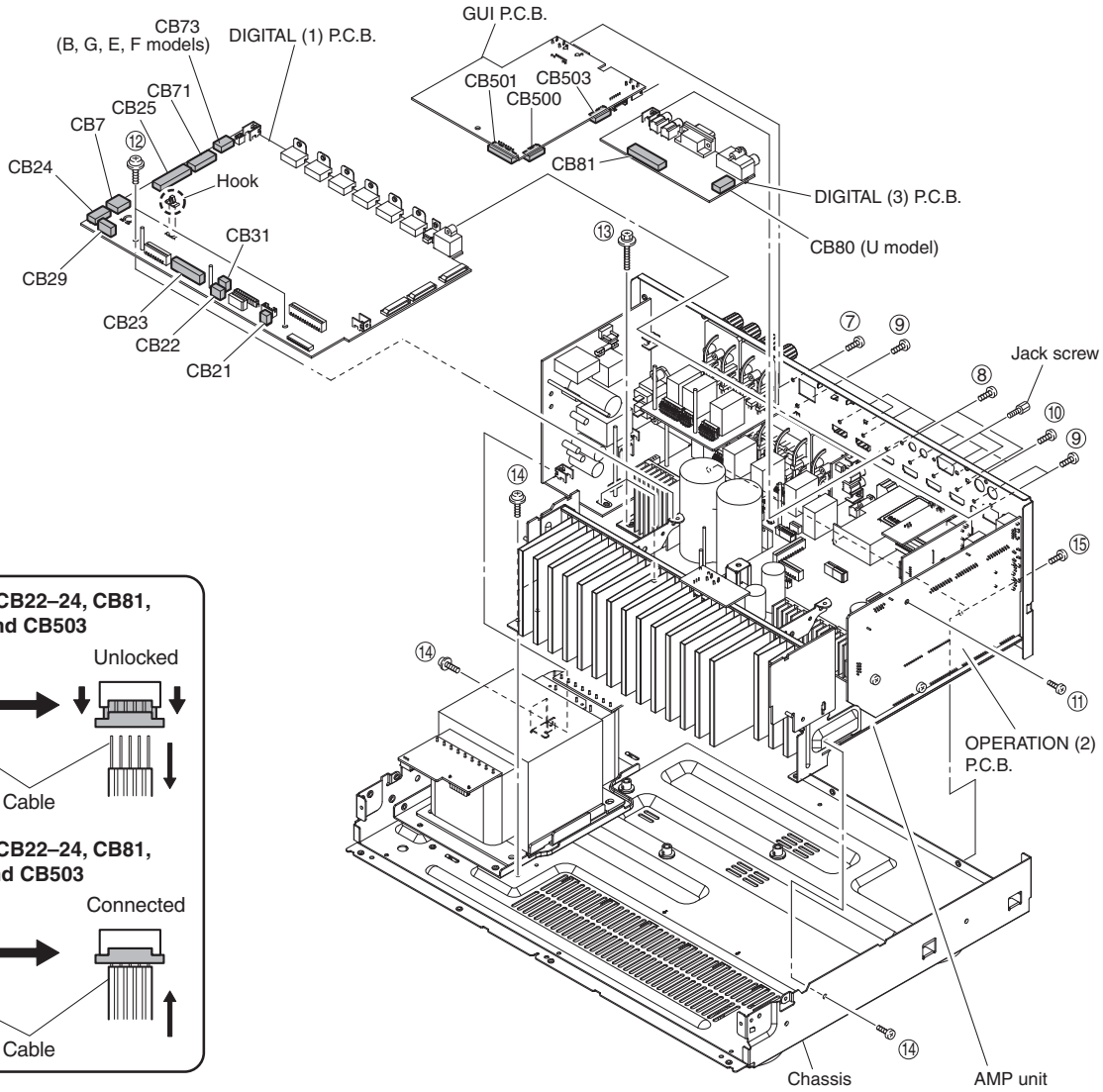
3. Removal of GUI, DIGITAL (1) and (3) P.C.B.s

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

4. Removal of AMP Unit

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





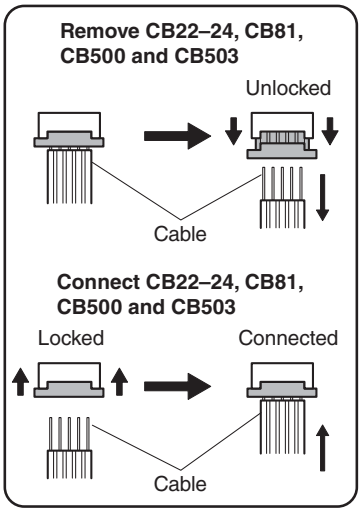


Fig. 2

When checking the P.C.B.s:

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

  DIGITAL (1) P.C.B. CB20 to OPERATION (1) P.C.B. CB401:
  MF125400 (25P, 400mm, P=1.25)

  OPERATION (1) P.C.B. CB402 to OPERATION (2) P.C.B. CB461:
  MF109400 (9P, 400mm, P=1.25)

  DIGITAL (1) P.C.B. CB1 to DIGITAL (2) P.C.B. CB96:
  MFA20250 (20P, 250mm, P=1.0)

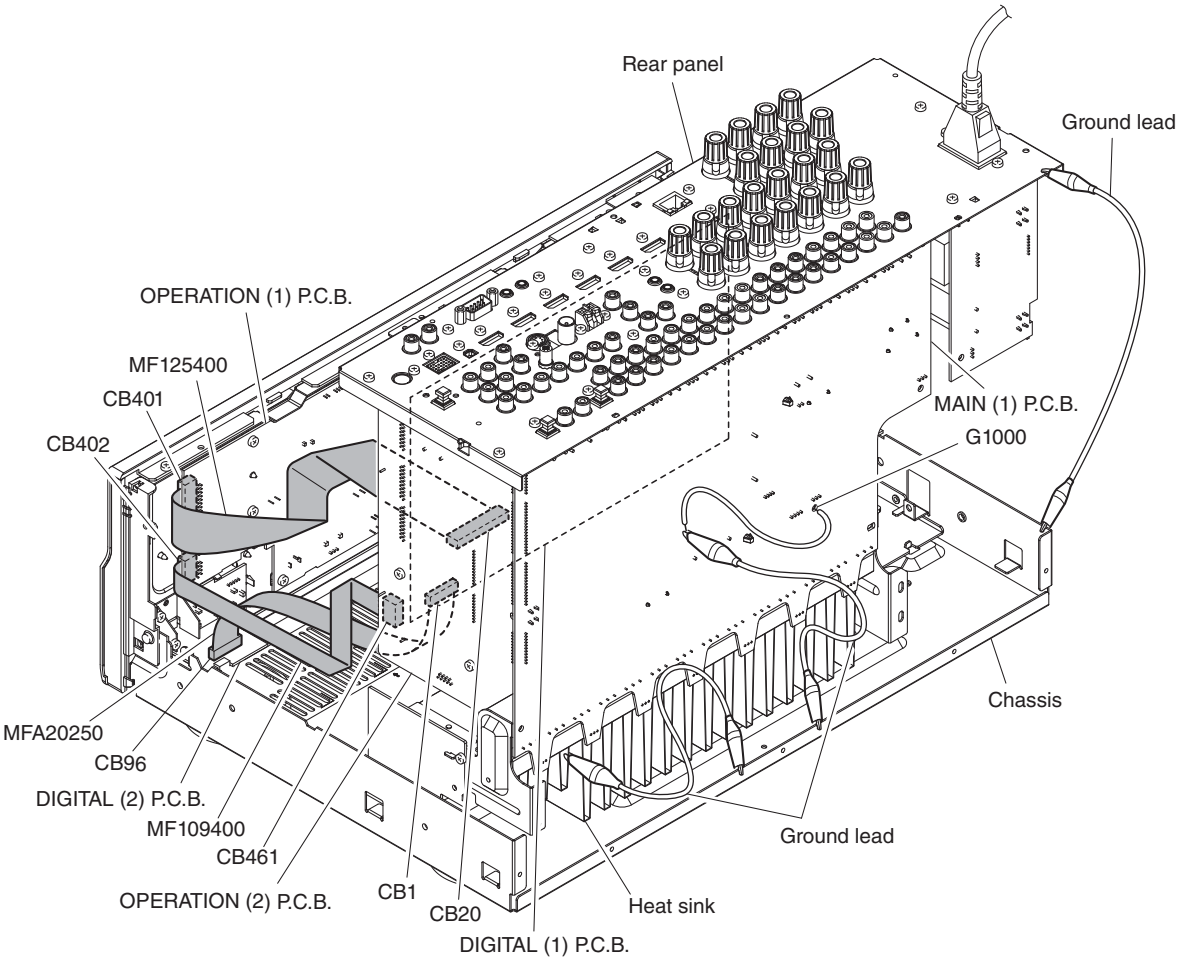


Fig. 3

■ UPDATING FIRMWARE

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

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

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

● Confirmation of firmware version and checksum

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

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

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

25. ROM VER/SUM/PORT

Firmware version

Ver: C024

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

All checksum

Sum: 5253

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

TI (DSP) FLASH ROM version

TiVer:01.03r1

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

TI (DSP) FLASH ROM checksum

TiSum:F1AD0135A

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

BF version

BF Ver: C019

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

BF checksum 1 (All/Master boot)

Al:3ED2Ma:0122

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

BF checksum 2 (Application/USB)

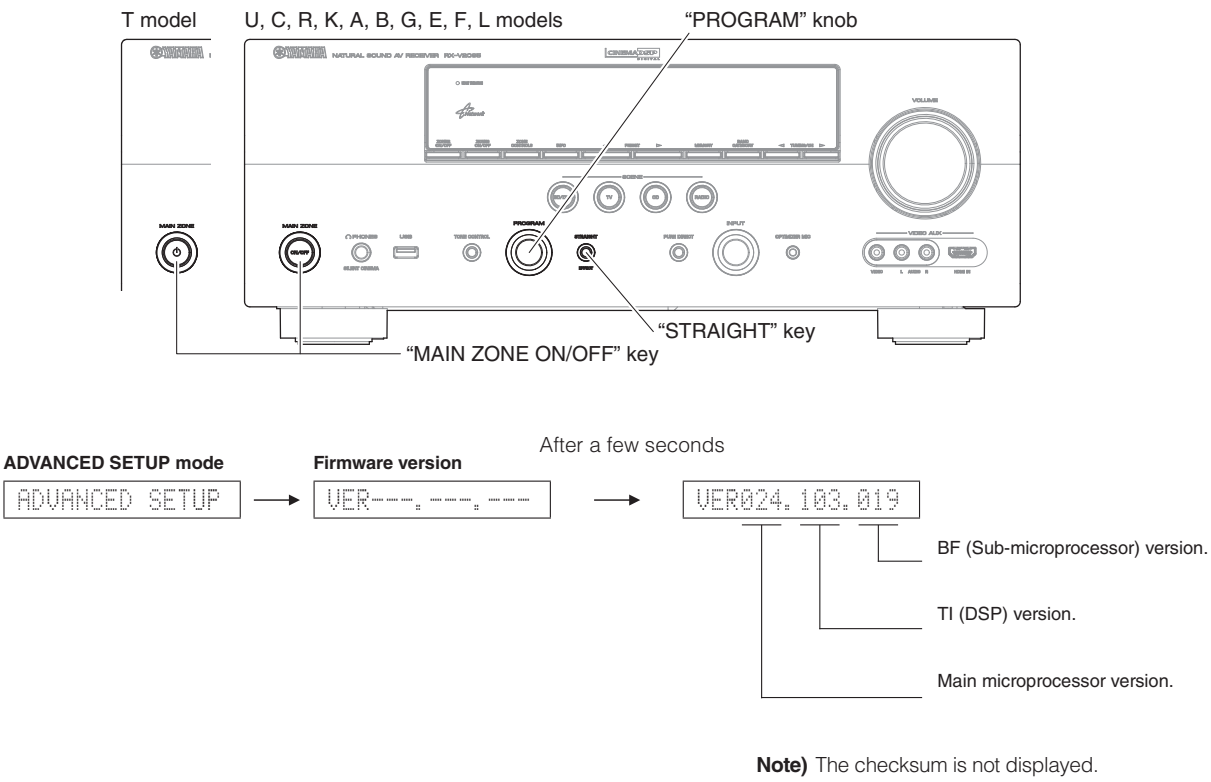
Ap:67DAUs:ADBC

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

Supplementary information:

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

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



Note) The checksum is not displayed.

Fig. 1

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

Writing method using the USB

● Required Tools

- USB storage device
- Firmware RX-V2065 : RX-V2065_xxxx.bin
  HTR-6295 : HTR-6295_xxxx.bin

● Preparation

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

● Operation procedures

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

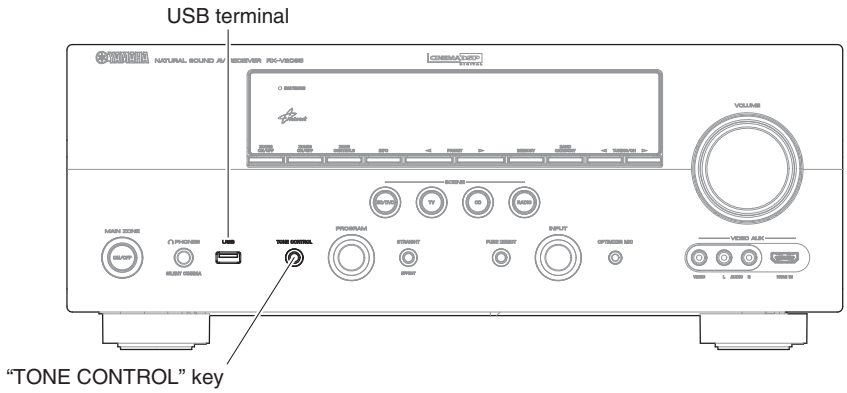


Fig. 2

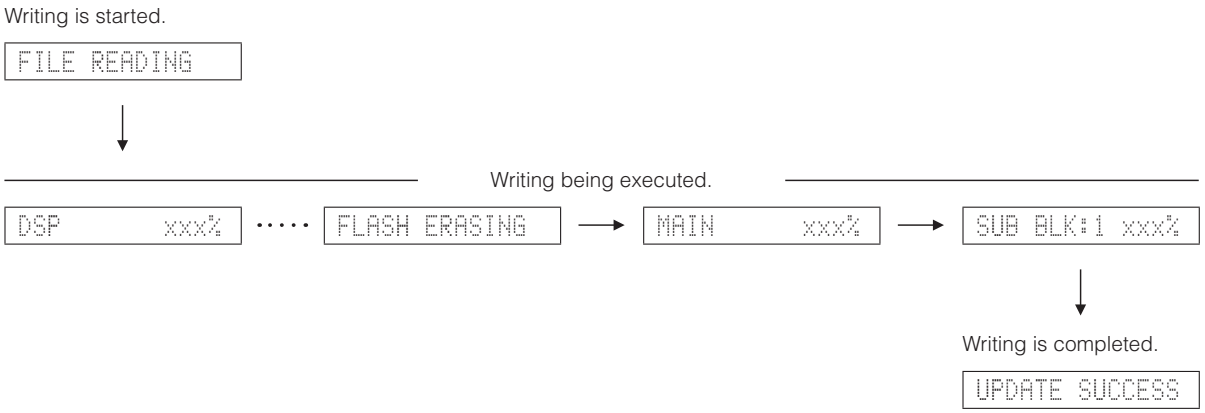


Fig. 3

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

   Using the sub-menu, have the firmware version and checksum displayed, and then check that they are the same as written ones.
   * When the displayed firmware version and checksum are different from written ones, perform the “Writing the Firmware” procedure all over again.
7. Press the “MAIN ZONE ON/OFF” key to turn off the power.

Writing method using PC (RS232C)

Required Tools

- Firmware downloader program

  For main microprocessor:
  DSP_FLASHER_v3.0.exe

  For DSP (TI flash ROM):
  DSP_FLASHER Ver2.7.exe

- Firmware

  For main microprocessor: V265xxxx.mot

  For DSP (TI flash ROM):
  Vx65_data1_verxxxxxr.hex

- RS232C cross cable “D-sub 9 pin female”

  (Specifications)

Pin No.2 RxD	Pin No.2 RxD
Pin No.3 TxD	Pin No.3 TxD
Pin No.5 GND	Pin No.5 GND
Pin No.7 RTS	Pin No.7 RTS
Pin No.8 CTS	Pin No.8 CTS

- RS232C conversion adaptor (Part No.: WR492800)

Preparation and precautions

- Download the firmware downloader program and the firmware from the specified source to the same folder of the PC.
- Prepare the above specified RS232C cross cable.
- While writing the firmware, keep the other application software on the PC closed.

  It is also recommended to keep the software on the task tray closed as well.

Connection

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

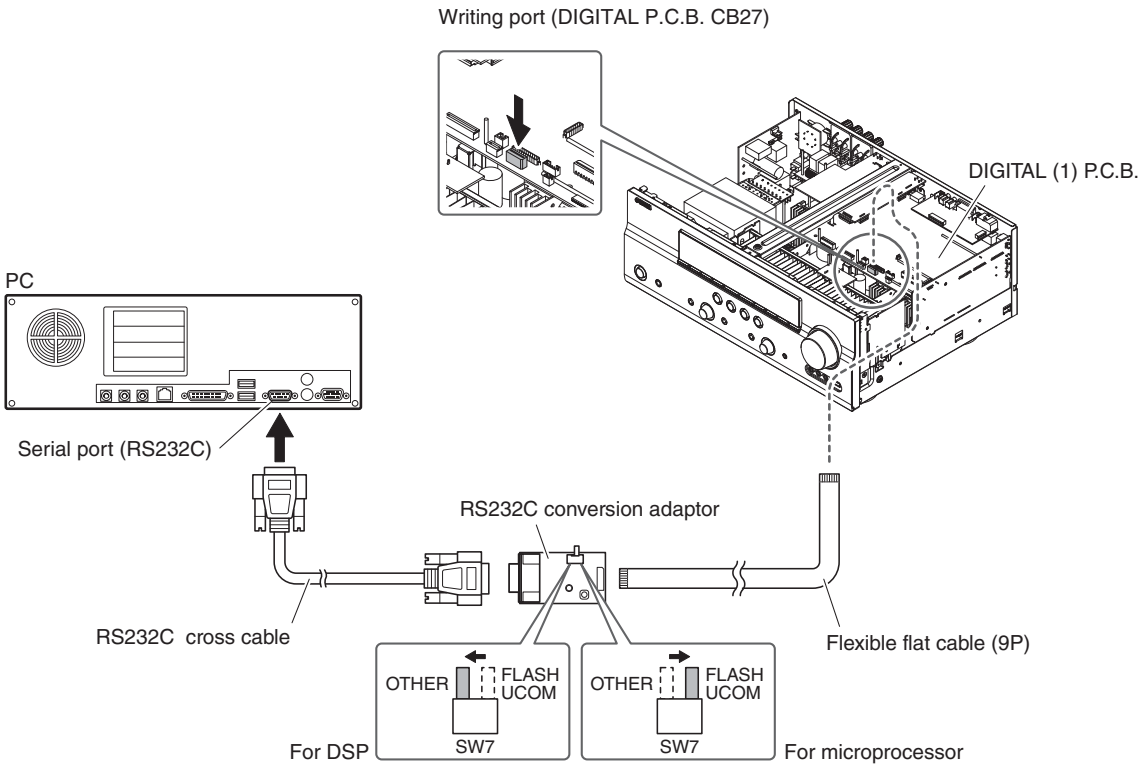


Fig. 1

● Operation Procedures

Writing to the main microprocessor

1. With the power cable of this unit disconnected from the AC outlet, start up DSP_FLASHER_v3.0.exe.
   The screen appears as shown below. (Fig. 2)
2. Click [...] and select the firmware name. (Fig. 2)

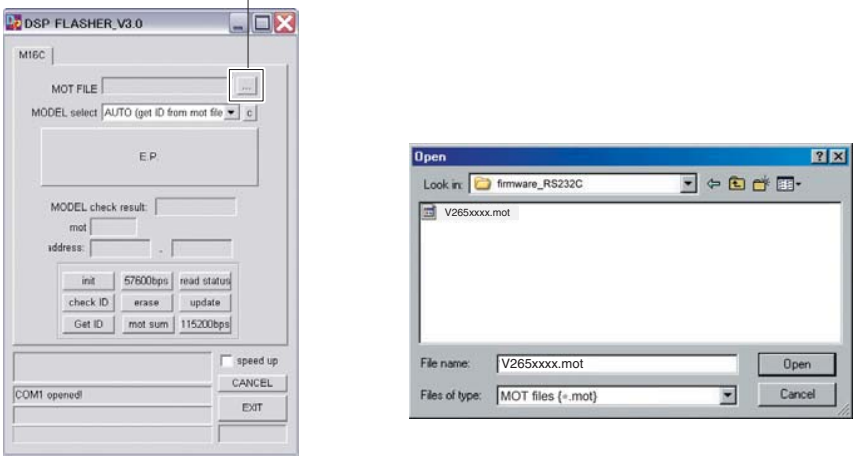
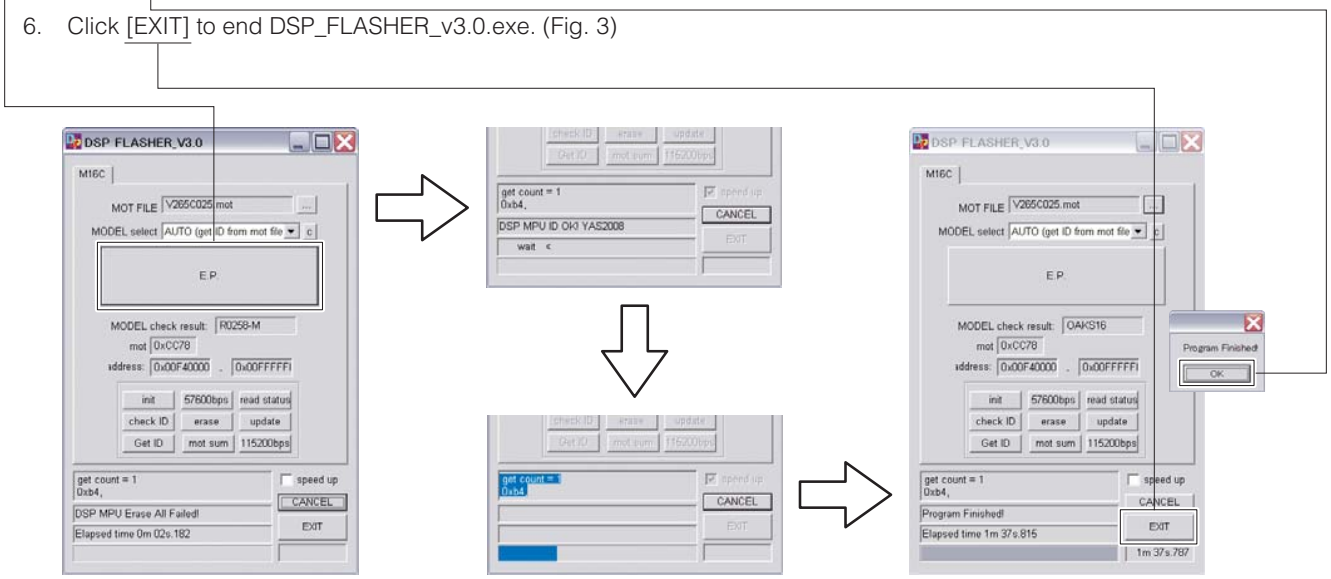


Fig. 2

3. Connect the power cable of this unit to the AC outlet.
4. Click [E.P.] to start writing. (Fig. 3)
5. When writing of the firmware is completed, “Program Finished!” is displayed. (Fig. 3)
   Click [OK]. (Fig. 3)
6. Click [EXIT] to end DSP_FLASHER_v3.0.exe. (Fig. 3)



Writing being executed.

Writing completed.

Fig. 3

7. Disconnect the power cable of this unit from the AC outlet.
8. Remove the RS232C conversion adaptor and flexible flat cable from the writing port (CB27, DIGITAL P.C.B.) of this unit.
9. Start up the self-diagnostic function and select “25.ROM VER/SUM/PORT” menu.

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

   * When the firmware version and checksum are different from written ones, perform the “Writing to the microprocessor” all over again.
10. Press the “MAIN ZONE ON/OFF” key of this unit to turn off the power.
11. Disconnect the power cable of this unit from the AC outlet.

Writing to DSP

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

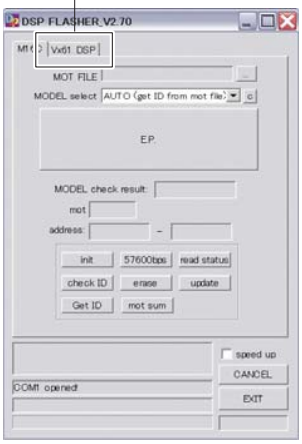
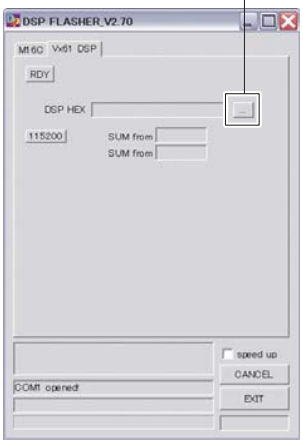


Fig. 4

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



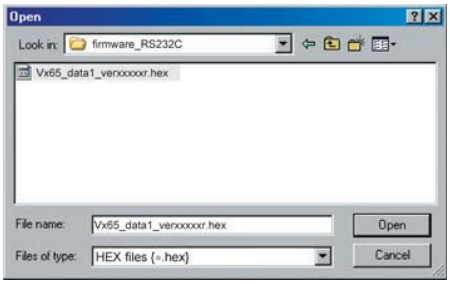


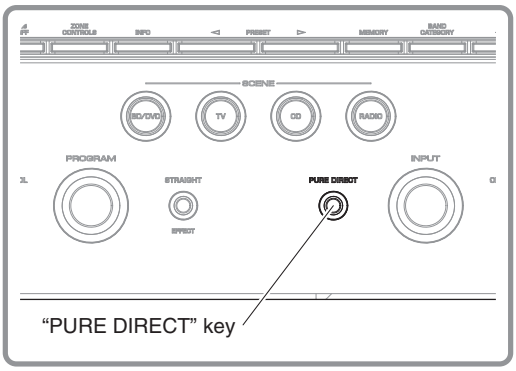
Fig. 5

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

Fig. 6

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

This unit



Writing being executed.

Fig. 7

6. When writing of the firmware is completed, “Vx61 DSP Flash finished!” is displayed. (Fig. 3)
7. Click [EXIT] to end DSP_FLASHER_v2.7.exe. (Fig. 8)

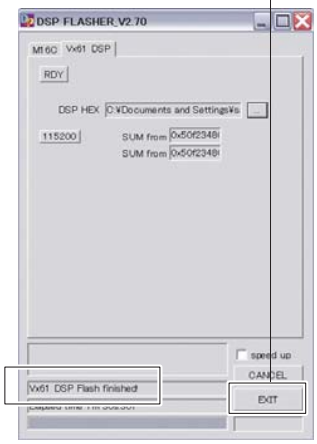


Fig. 8

8. Start up the self-diagnostic function and select “25.ROM VER/SUM/PORT” menu.

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

   * When the firmware version and checksum are different from written ones, perform the “Writing to DSP” all over again.
9. Press the “MAIN ZONE ON/OFF” key of this unit to turn off the power.
10. Disconnect the power cable of this unit from the AC outlet.
11. Remove the RS232C conversion adaptor and flexible flat cable from the writing port (CB27, DIGITAL P.C.B.) of this unit.

■ SELF-DIAGNOSTIC FUNCTION

CAUTION!
Do not disconnect the power cable of this unit from the AC outlet while this unit is in the self-diagnostic function mode, otherwise the user memories (input rename, sound field parameters, system memory, tuner presetting, etc.) will be initialized.
Therefore, to cancel the self-diagnostic function, be sure to press the “MAIN ZONE ON/OFF” key of this unit to turn off the power.

This unit has self-diagnostic functions that are intended for inspection, measurement and location of faulty point.
There are 27 main menu items, each of which has sub-menu items.
Listed in the table below are main menu items and sub-menu items.
Note that not all menu items listed will apply to the models covered in this service manual.

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

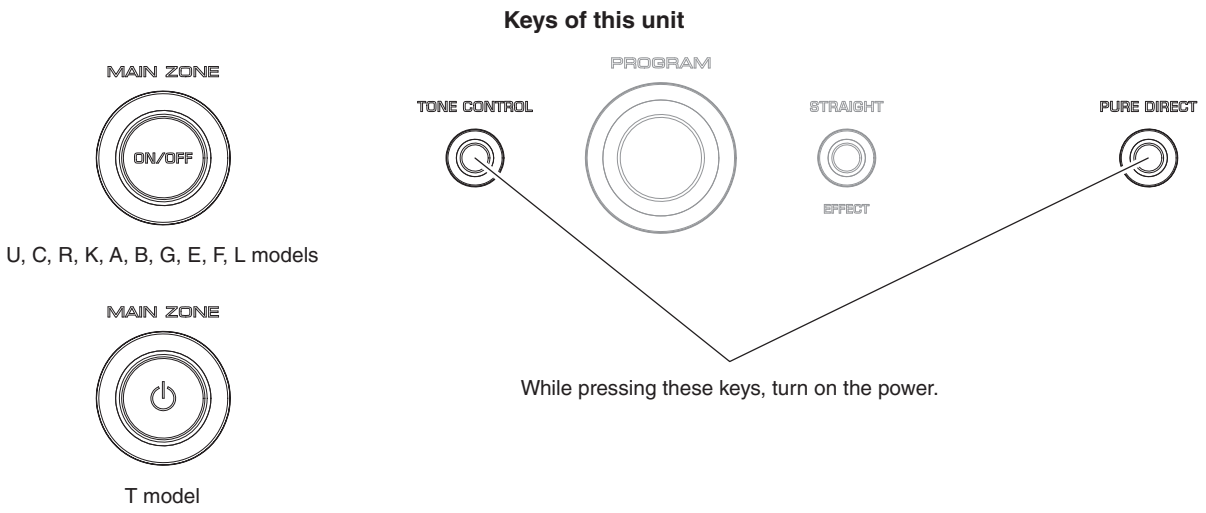
No.	Main menu	Sub-menu	
10	VIDEO CHECK	1	I2C
		2	DIGITAL COMPONENT
		3	DIGITAL CVBS
		4	DIGITAL Y/C (B, G, E, F models)
		5	ANALOG BYPASS
		6	TEST PATTERN
		7	VIDEO INFORMATION
11	XM STATUS (U model)	1	1k -1dB /44kHz
		2	1k -61dB /44kHz
		3	Mute /44kHz
		4	XM Tone /44kHz
		5	ISO Tone /44kHz
		6	1k -1dB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

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

● Starting Self-Diagnostic Function

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

The self-diagnostic function mode is activated.



● Starting Self-Diagnostic Function in the protection cancel mode

If the protection function works and causes hindrance to trouble shoot, cancel the protection function as described below, and it will be possible to enter the self-diagnostic function mode.
(The protection functions other than the excess current detect function will be disabled.)

While pressing those 2 keys as shown in the figure above, press the “MAIN ZONE ON/OFF” key to turn on the power and keep pressing those 2 keys and “MAIN ZONE ON/OFF” key for 3 seconds or longer.
The self-diagnostic function mode is activated with the protection functions disabled.

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

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

● Canceling Self-Diagnostic Function

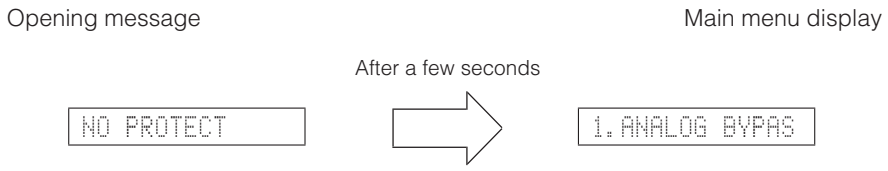
1. Before canceling self-diagnostic function, execute setting for FACTORY PRESET of main menu No. 24 (Memory initialization inhibited or Memory initialized).
   * In order to keep the user memory stored, be sure to select PRESET INHIBITED (Memory initialization inhibited).
2. Press the “MAIN ZONE ON/OFF”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

● Display provided when Self-Diagnostic Function started

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

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

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



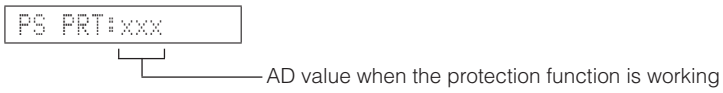
2. When the protection function worked to turn off the power:

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

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

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

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



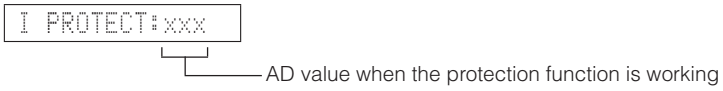
Cause: An excessive current flowed through the power amplifier.
Supplementary information: As current of the power amplifier is detected, the abnormal channel can be identified by checking the current detect transistor.

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

Note)

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

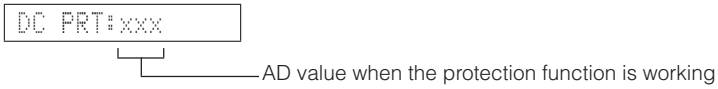
2-2. When the protection function worked due to a short between speaker terminals.



Cause: The line between speaker terminals is shorted.
Supplementary information: As the excess current is detected after operation of the speaker relay, the shorted speaker terminal and the connected speaker can be identified.

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

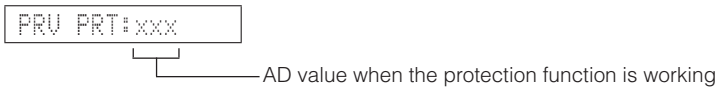
2-3. When the protection function worked due to abnormal DC output.



Cause: DC output from the power amplifier is abnormal.
Supplementary information: The protection function worked due to a DC voltage appearing at the speaker terminal. A cause could be a defect in the amplifier.

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

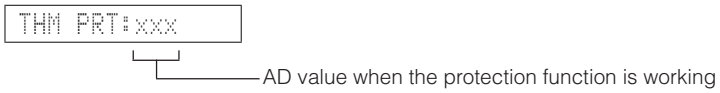
2-4. When the protection function worked due to abnormal voltage in the power supply section.



Cause: The voltage in the power supply section is abnormal.
Supplementary information: The protection function worked due to a defect or overload in the power supply.

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

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



Cause: The temperature on the heatsink is excessive.
Supplementary information: The protection function worked due to the temperature limit being exceeded.
Causes could be poor ventilation or a defect related to the thermal sensor.

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

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

● **History of protection function**

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

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

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

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

● Operation procedure of Main menu and Sub-menu

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

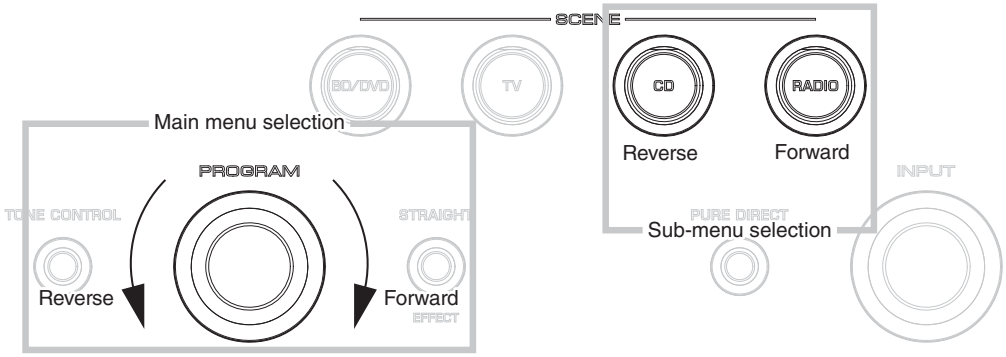
Main menu selection

Select the main menu using “PROGRAM” knob.

Sub-menu selection

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

Keys of this unit



● Functions in Self-Diagnostic Function mode

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

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

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

● Initial settings used to start Self-Diagnostic Function

The following initial settings are used when starting self-diagnostic function.
When self-diagnostic function is canceled, these settings are restored to those before starting self-diagnostic function.

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

● Details of Self-Diagnostic Function menu

1. BYPASS

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

ANALOG BYPASS

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

1.ANALOG BYPAS

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

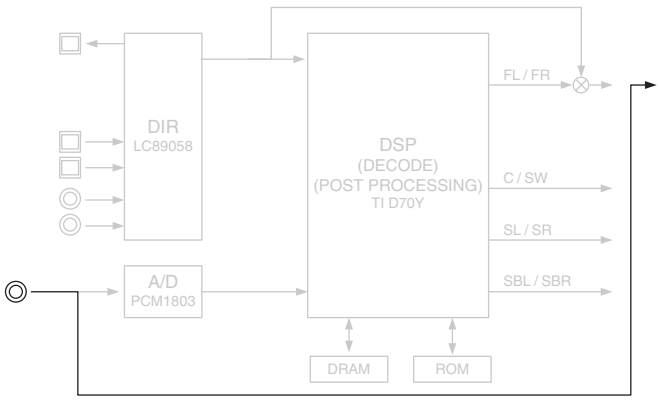
Input level	Volume	SPEAKER OUT							SUB-WOOFER OUTPUT
		FRONT	CENTER	SURROUND	SURROUND BACK	PRESENCE	ZONE2	ZONE3	
Both ch, -20 dBm	+6.5 dB	+13.0 dBm	-∞	-∞	-∞	-∞	-∞	-∞	-∞

DSP BYPASS

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

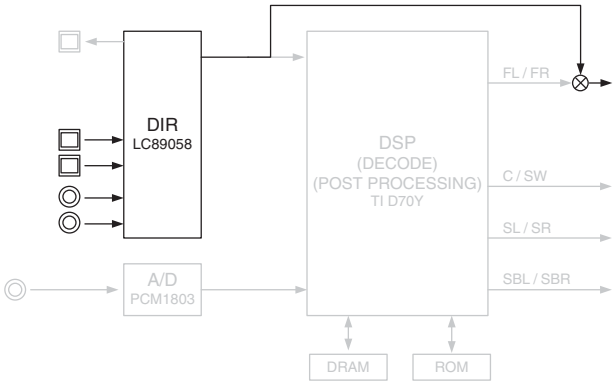
1.DSP BYPASS

ANALOG BYPASS



(Shaded items not used in this example)

DSP BYPASS



(Shaded items not used in this example)

2. RAM THROUGH

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

RAM MARGIN

The audio signal is output including the head margin.

2.RAM MARGIN

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

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

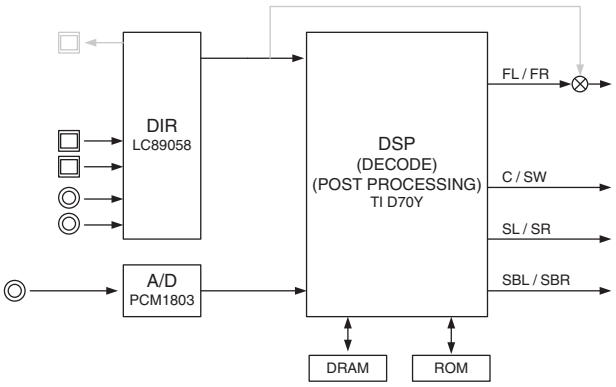
RAM FULL BIT

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

2.RAM FULL ALL

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

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



(Shaded items not used in this example)

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

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

RAM FULL CENTER

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

2.RAM FULL C

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

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

RAM FULL SURROUND

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

2.RAM FULL SUR

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

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

RAM FULL SURROUND BACK

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

2.RAM FULL SB

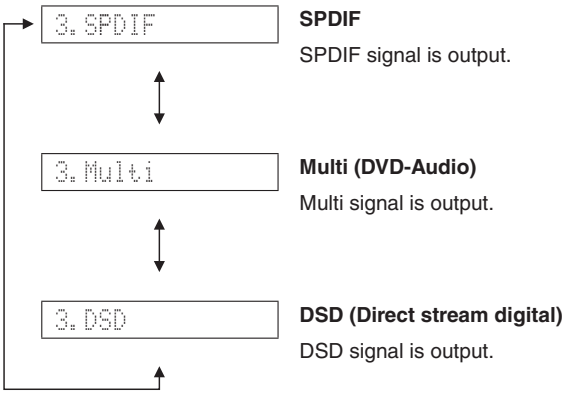
INPUT: AV5 ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

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

3. HDMI AUDIO

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

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



4. SPEAKER SET

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

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

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

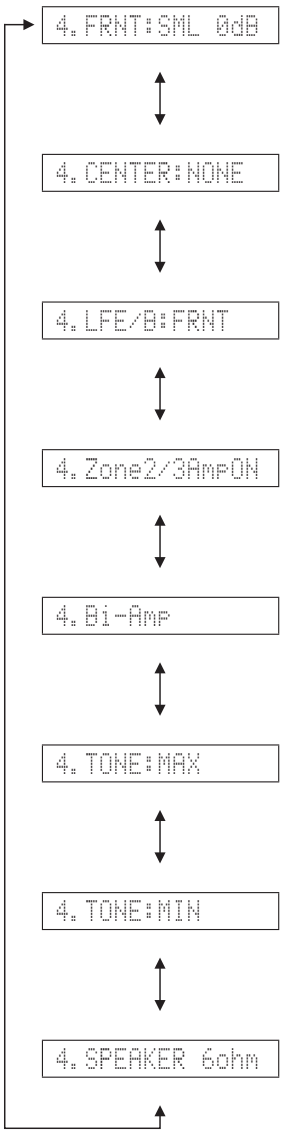
LARGE: This mode is used for a speaker with high bass reproduction performance (a large unit). Full bandwidth signals are output.

SMALL: This mode is used for a speaker with low bass reproduction performance (a small unit). The signals of 90 Hz or less are mixed into the channel specified by LFE/BASS.

NONE: This mode is used for no center speaker. The center content is reduced by 3 dB and distributed to FRONT L/R.

SWFR: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is output through SUBWOOFER OUT.

FRONT: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is distributed to FRONT L/R.



FRONT : SML 0dB

The FRONT L/R signal, when 90 Hz or lower, is mixed to the channel specified by LFE/BASS.

CENTER : NONE

The CENTER signal is assigned to FRONT L/R.

LFE / BASS : FRONT

The LFE/BASS signal is assigned to FRONT L/R

Zone2/3 Amp (EXTRA SP) ON

The ZONE2/3 L/R (EXTRA SP L/R) signal is output.

Bi-AMP

The Bi-AMP signal is output.

TONE : MAX

The audio signal is output with the tone control “BASS +10 dB, TREBLE +10 dB”.

TONE : MIN

The audio signal is output with the tone control “BASS -10 dB, TREBLE -10 dB”.

SPEAKER 6 ohms

The audio signal is output with the speaker impedance “6 ohms”.

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

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

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

5. MULTI CH-INPUT

The input source “MULTI CHANNEL INPUT” is selected.

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

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

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

8 ch INPUT 6 ohms

5.8ch INPUT_6Ω

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

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

8 ch INPUT 8 ohms

5.8ch INPUT_8Ω

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

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

LIM / PLDET / THM

LIM: Setting value of LIM (Limiter control)

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

PLDET: Power limiter detection

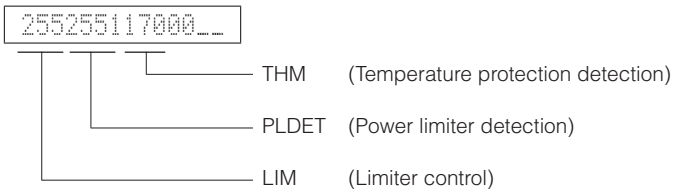
The A/D conversion value during operation is displayed.

(Reference voltage: 3.3 V=255)

THM: Temperature protection detection

The A/D conversion value during operation is displayed.

(Reference voltage: 3.3 V=255)



6. MIC CHECK

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

7. FL/GUI CHECK

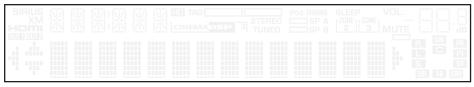
This menu is used to check the FL display and video control sections. When checking the video control section, connect a TV monitor to this unit with a component video cable and video pin cable.

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

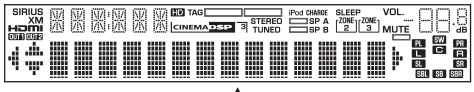
Checking FL display section

Initial display

All segments OFF

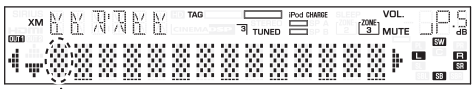


All segments ON (dimmer 100 %)

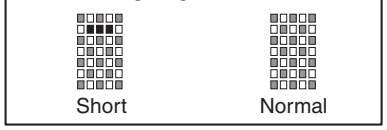


All segments ON (dimmer 50 %)

Lighting of segments in lattice



Lighting in lattice



Check of the Video control section. (Monitor out)

Initial display (GUI screen OFF)

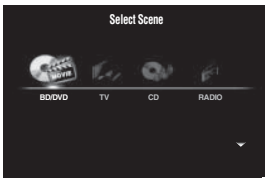
MONITOR output OFF

COMPONENT output OFF

GUI screen ON

GUI screen ON

GUI screen



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

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

8. MANUAL TEST

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

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

TEST ALL

The test noise is output from all channels.

```
8.TEST ALL
```

9. A/D DATA CHECK

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

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

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

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

PS1/PS2

PSx: Power supply voltage protection detection

PS1

Voltage detects: AC_BL, AC_12, AC_5, ±12 and +5V

Normal value: 38 to 128
(Reference voltage: 3.3 V=255)

PS2

Voltage detects: -5 and +5I

Normal value: 31 to 125
(Reference voltage: 3.3 V=255)

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

```
PS1:087  2:077
```

DC/TH

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

Normal value: 32 to 74
(Reference voltage: 3.3 V=255)

TH: Temperature on the heatsink is detected.

Normal value: 0 to 124
(Reference voltage: 3.3 V=255)

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

DC:049 TH:117

IMP/PL

IMP: 8 or 6 ohms impedance setup detection

IMP 8: 8 ohms setting

IMP 6: 6 ohms setting

PL: PLDET (Power amplifier output voltage detection)

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

(Reference voltage: 3.3 V=255)

IMP:8 PL:255

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

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

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

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

DST/DK

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

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

DST:211 DK:255

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

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

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

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

K0/K1

K0/K1: KEY0/KEY1 (Panel key of this unit)
When the A/D conversion value of the panel key becomes out of the specified range, normal operation will not be available.
In that case, check the constant of voltage dividing resistor, solder condition, etc. Refer to the table below.
(Reference voltage: 3.3 V=255)

K0:255 K1:255

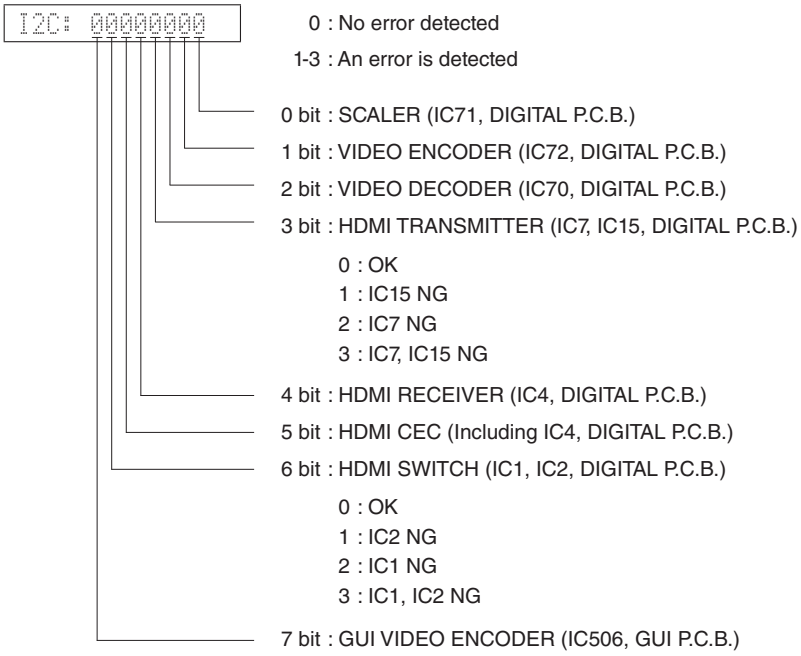
Display	K0
0 – 11	SCENE RADIO
12 – 32	SCENE CD
33 – 54	SCENE TV
55 – 75	SCENE BD/DVD
76 – 95	ZONE2 ON/OFF
96 – 118	ZONE3 ON/OFF
119 – 142	—
143 – 162	—
181 – 197	MAIN ZONE ON/OFF
198 – 229	TONE CONTROL
255	KEY OFF

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

10. VIDEO CHECK

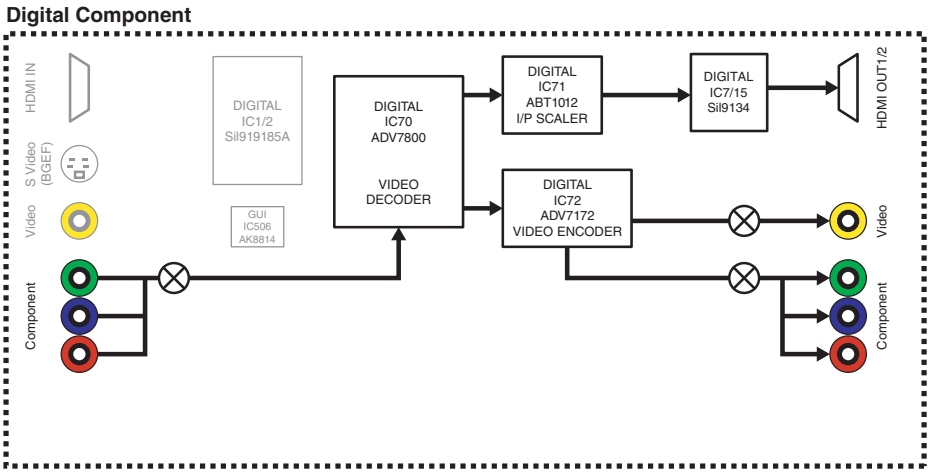
I2C check

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



Digital component

The video signal is converted and output as shown below.

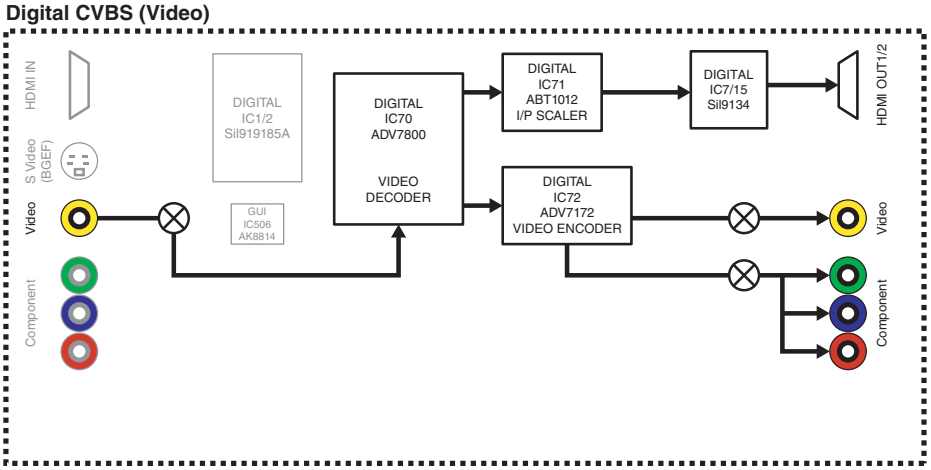


Digital CVBS (Video)

The video signal is converted and output as shown below.

DIGITAL CVBS

Digital CVBS (Video)

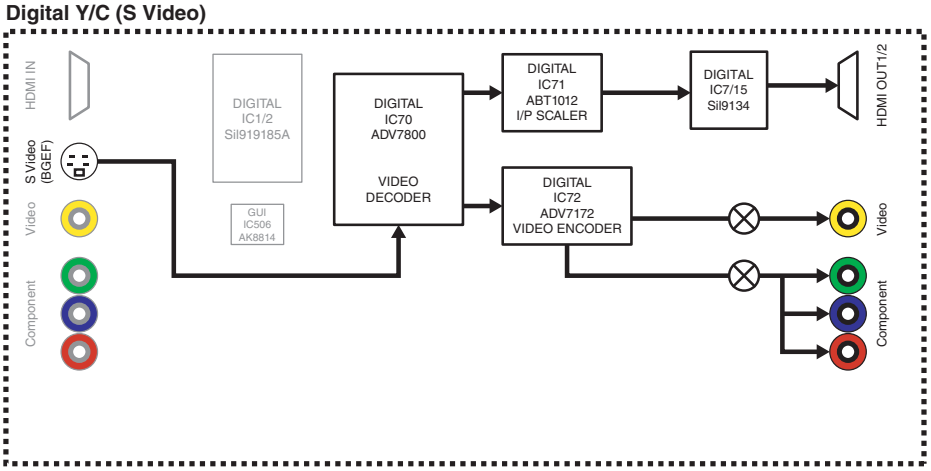


Digital Y/C (S-Video) (B, G, E, F models)

The video signal is converted and output as shown below.

DIGITAL Y/C

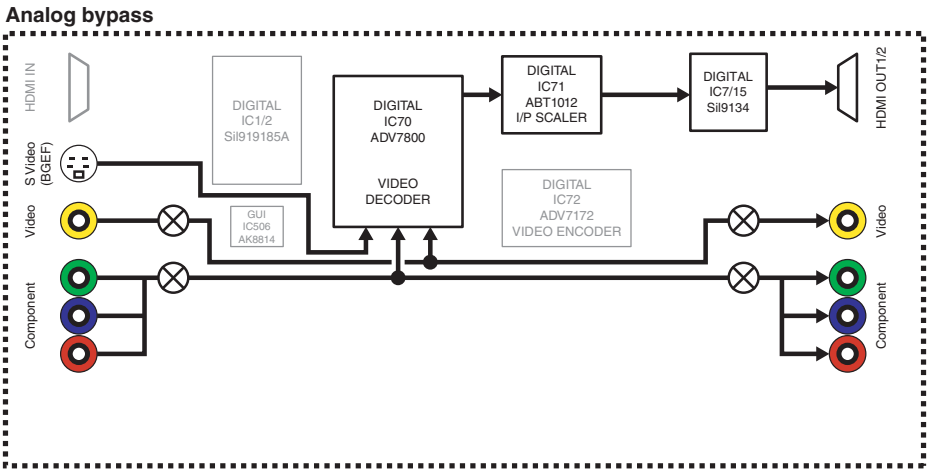
Digital Y/C (S Video)



Analog bypass

The video signal is converted and output as shown below.

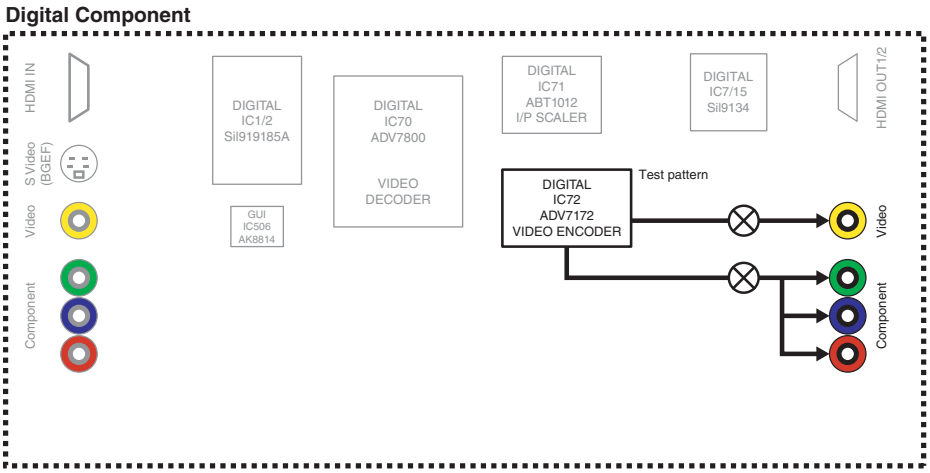
ANALOG BYPASS



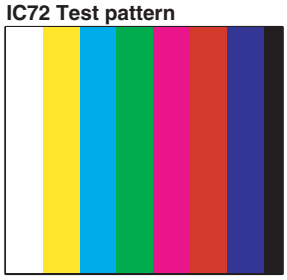
Test pattern

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

TEST PATTERN



IC72 Test pattern



Video information

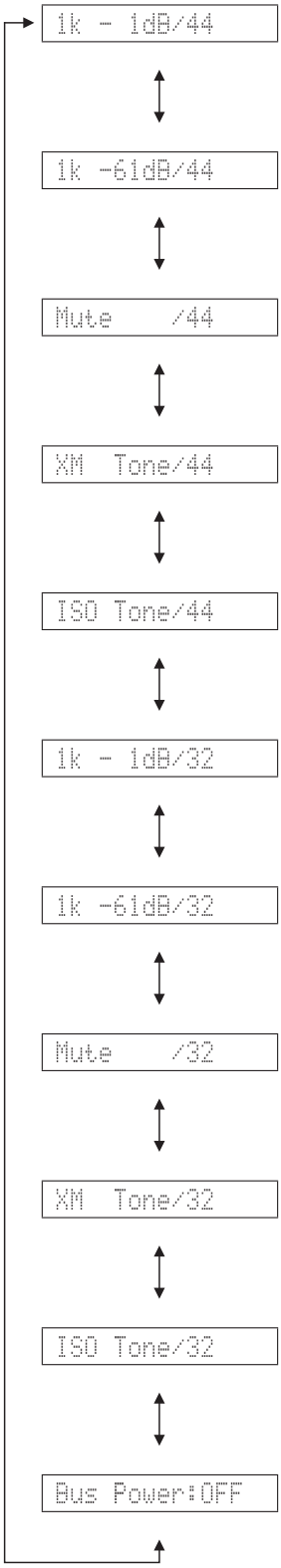
The information of input video signal is displayed.

Example

VIDEO IN ----

11. XM STATUS (U model)

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



1 kHz, -1 dB / 44.1 kHz

The test tone (1 kHz, -1 dB / 44.1 kHz) is output.

1 kHz, -61 dB / 44.1 kHz

The test tone (1 kHz, -61 dB / 44.1 kHz) is output.

Mute / 44.1 kHz

No signal is output.

XM tone / 44.1 kHz

The XM tone / 44.1 kHz is output.

ISO tone / 44.1 kHz

The ISO tone /44.1 kHz is output.

1 kHz, -1 dB / 32.0 kHz

The test tone (1 kHz, -1 dB / 32.0 kHz) is output.

1 kHz, -61 dB / 32.0 kHz

The test tone (1 kHz, -61 dB / 32.0 kHz) is output.

Mute / 32.0 kHz

No signal is output.

XM tone / 32.0 kHz

The XM tone / 32.0 kHz is output.

ISO tone / 32.0 kHz

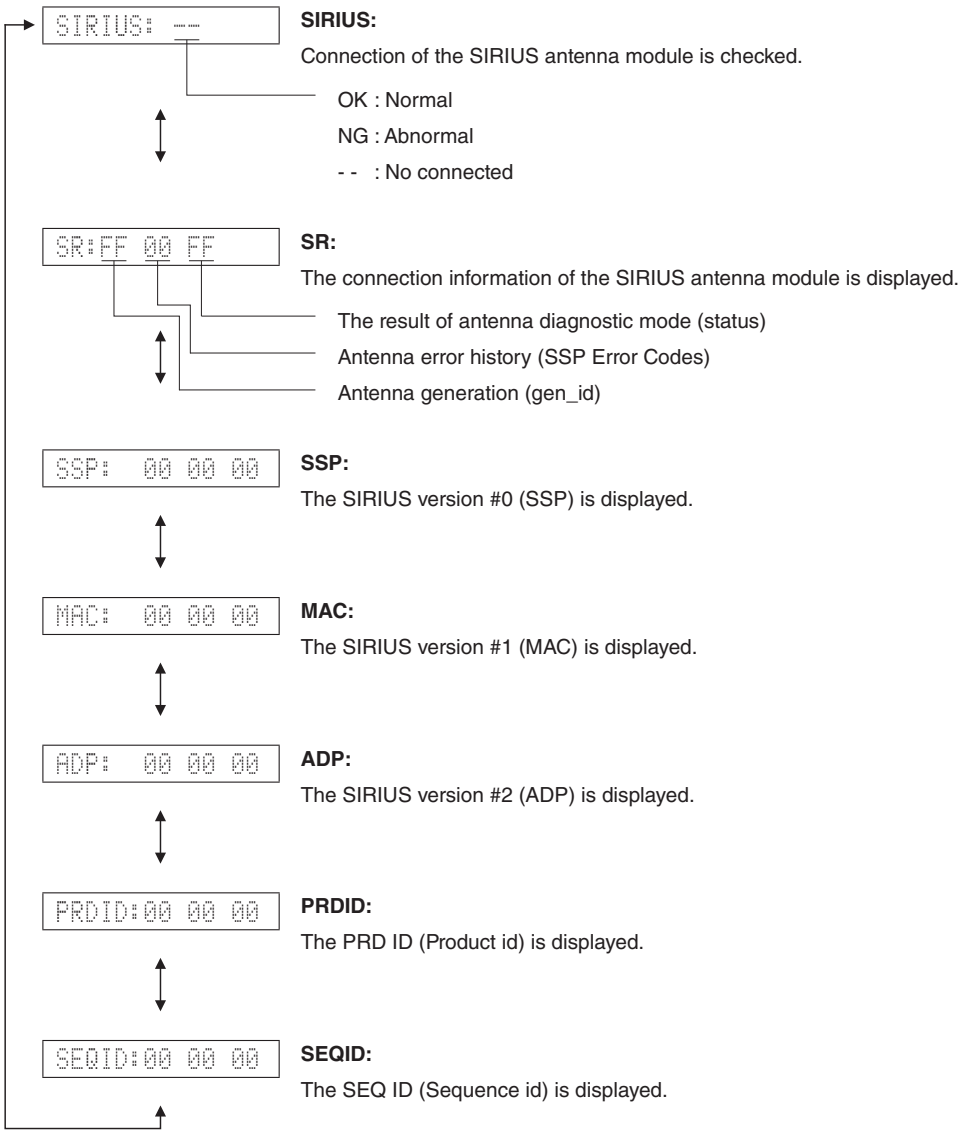
The ISO tone / 32.0 kHz is output.

XM bus power: OFF

The power of XM radio antenna module is turned off.

12. SIRIUS (U model)

The SIRIUS information are displayed.



13. HD RADIO (U model)

The firmware version is displayed.

CPU version

The firmware version is displayed.

HD CPU V:03.00

DSP version

The DSP version is displayed.

D:C0003.000

14. DOCK

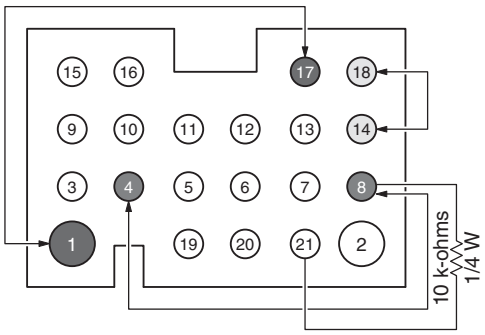
This menu is used to check the DOCK connector without the iPod itself.

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

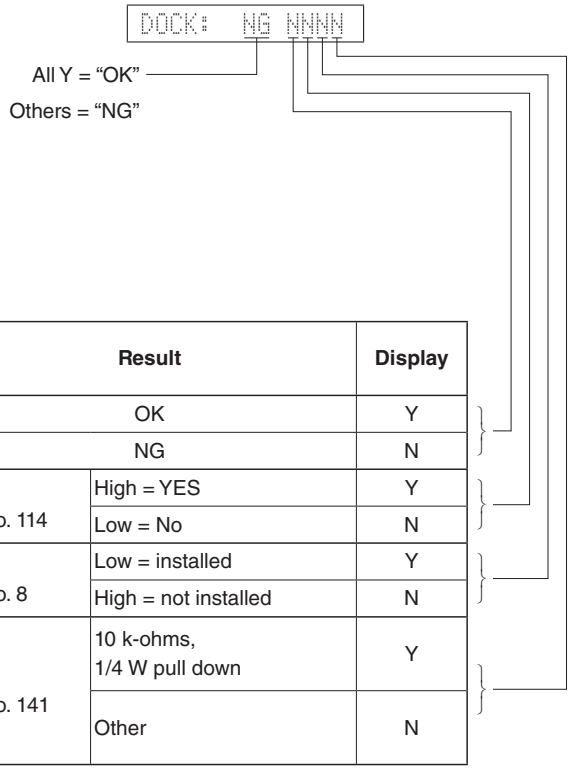
Start up the self-diagnostic function and select this menu.

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

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



DOCK CONNECTOR



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 (ACCPOW)	IC20 pin No. 114	High = YES	Y
			Low = No	N
iPDET (iPod installation to DOCK) detection	Pins No.4 (iPDET) – No.8 (DGND)	IC20 pin No. 8	Low = installed	Y
			High = not installed	N
DKID (DOCK ID) detection	Pins No.21 (DKID) – No.8 (DGND) * 10 k-ohms, 1/4 W pull down	IC20 pin No. 141	10 k-ohms, 1/4 W pull down	Y
			Other	N

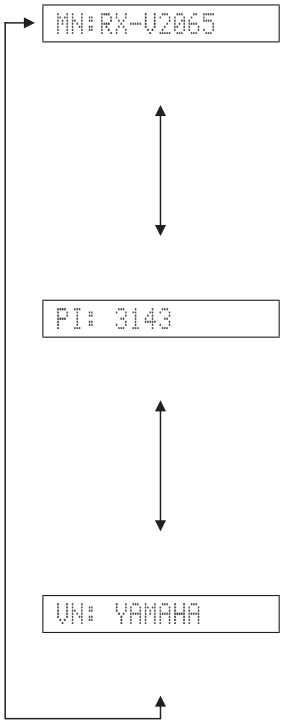
BT VERSION

The DOCK (Bluetooth module) version is displayed.

BT V:xxxxx

15. HDMI INFORMATION

The HDMI informations are displayed.



HDMI model name

The model name of this unit written in HDMI module is displayed.

RX-V2065

HTR-6295

HDMI product ID

The product ID of this unit written in HDMI module is displayed.

3143 : RX-V2065

3144 : HTR-6295

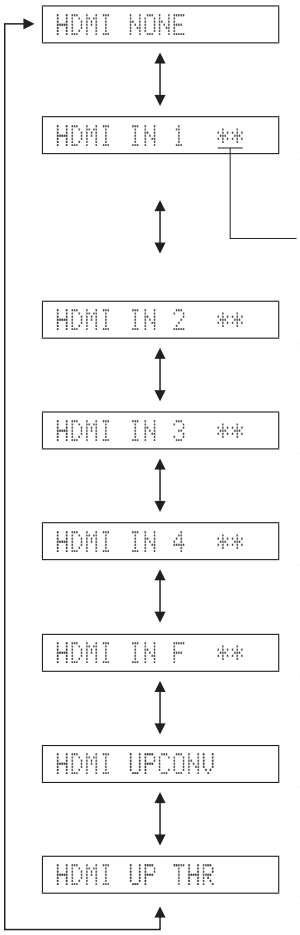
HDMI vendor name

The vendor name “YAMAHA” of this unit written in HDMI module is displayed.

16. HDMI SELECT

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

* Support audio is set to “OTHER”.



HDMI none

No signal is output.

HDMI in 1

The signal input from HDMI “IN 1” is output.

** When Deep Color video signals are input, “30” bit or “36” bit is displayed.

HDMI in 2

The signal input from HDMI “IN 2” is output.

HDMI in 3

The signal input from HDMI “IN 3” is output.

HDMI in 4

The signal input from HDMI “IN 4” is output.

HDMI in front

The signal input from HDMI “IN” (front panel) is output.

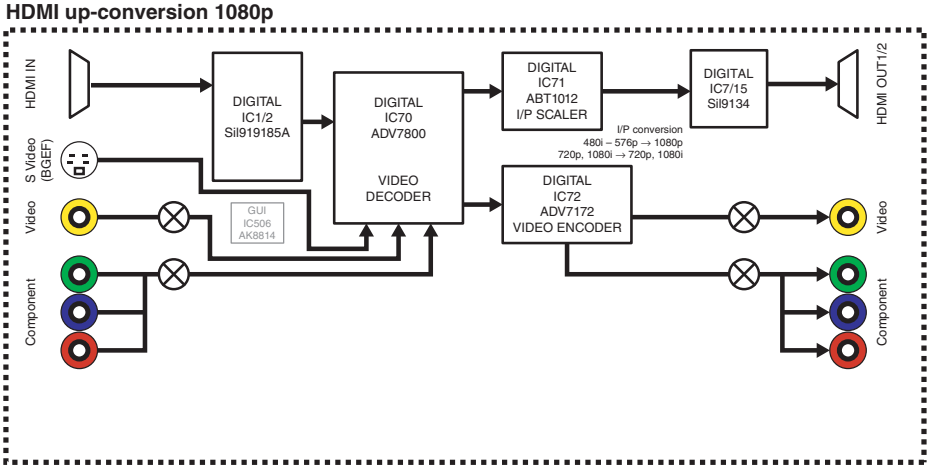
HDMI up conversion

The analog video signals are output after undergoing Interlace/Progressive conversion.

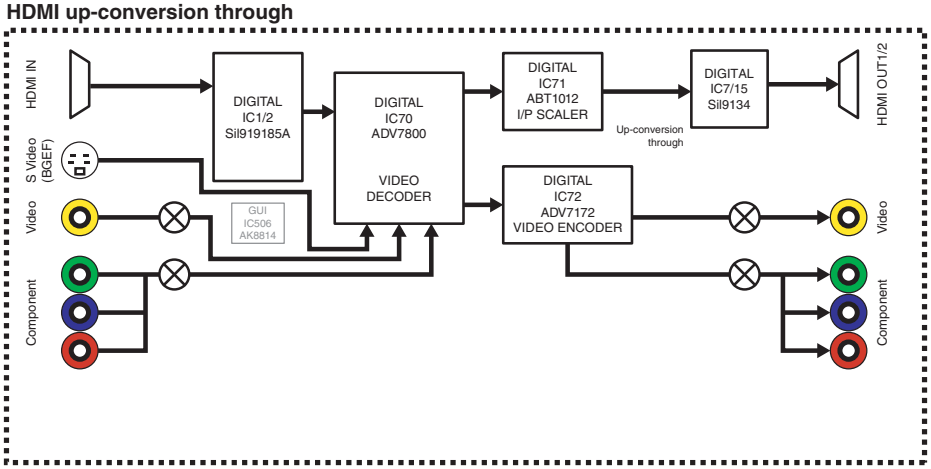
HDMI up conversion through

The analog video signals are output after undergoing video up-conversion.

HDMI up-conversion 1080p



HDMI up-conversion through



17. USB

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

a. Copy 2 or more music files from PC to the root folder of the USB storage device.

b. Insert the USB storage device to the USB terminal of this unit.

USB file 1

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

```
17:USB file 1
```

USB file 2

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

```
17:USB file 2
```

18. IF STATUS (Input function status)

Not applied to these models.

DSP status

```
DST:710E0F2390
```

19. BUS CHECK

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

TI (DSP) BUS check

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

```
TI BUS:NoEr
```

NoEr : No error detected.

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

BF LOOP :

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

```
BF LOOP: OK
```

OK : No error detected.

NG : An error is detected.

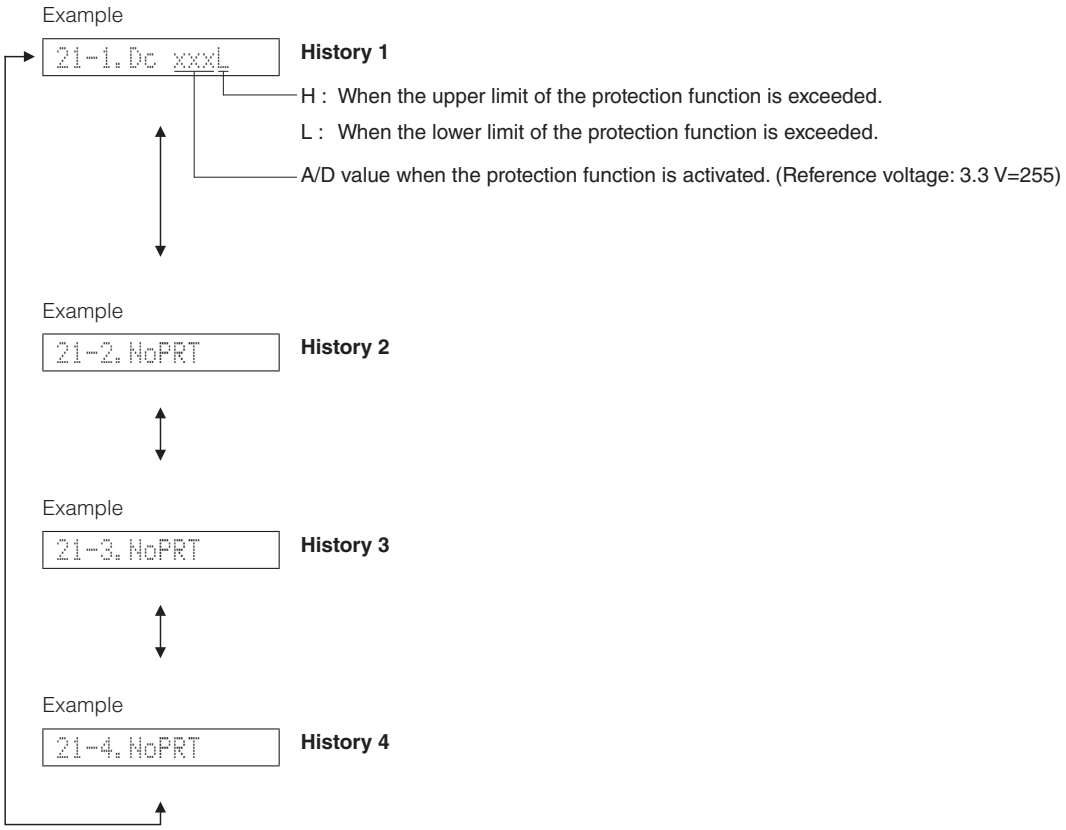
20. NO MENU (Invalidity)

```
Invalidity
```

21. PROTECTION HISTORY

The history of protection function is displayed.

Select this menu and press the “STRAIGHT” key, all history will be erased.



22. NO MENU (Invalidity)

23. UPDATE

Not applied to these models.

UPDATE TI

23.UPDATE TI

24. FACTORY PRESET

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

24.PRESET INHI

PRESET INHIBIT (Initialization inhibited) / PRESET INHIBIT

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

↕

24.PRESET RSRV

PRESET RESERVED (Initialization reserved)

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

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

25. ROM VER/SUM/PORT

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

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

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

Firmware version

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

```
Ver:  C024
```

All checksum

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

```
Sum:  5253
```

TI (DSP) FLASH ROM version

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

```
TiVer:01.03r1
```

TI (DSP) FLASH ROM checksum

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

```
TiSum:F1D0135A
```

BF version

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

```
BF Ver: C019
```

BF checksum 1 (All/Master boot)

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

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

BF checksum 2 (Application/USB)

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

```
Ap:67DAUs:ADBC
```

XM version (U model)

The firmware version of XM is displayed.

```
XM A010-A001
```

BF (sub-microprocessor)

Main microprocessor

SIRIUS version (U model)

The firmware version of SIRIUS is displayed.

```
SR A001-A001
```

BF (sub-microprocessor)

Main microprocessor

MODEL/DESTINATION

The model name and destination are displayed.

```
V2 000  U 027
```

MODEL detection value

Detection value	0	15 – 46
Model name	**V2** (RX-V2065)	**H9** (HTR-6295)

DESTINATION detection value

Detection value	15 – 45	46 – 68	69 – 92	92 – 114	115 – 138	139 – 176	185 – 223	224 – 247
Destination	U	C	R	T	K	A	B, G, E, F	L

VERIFY error

Not applied to these models.

```
Verify 255
```

MAC address

The MAC address is displayed.

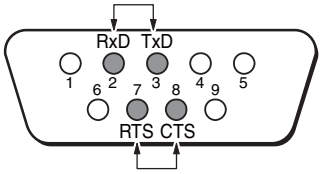
```
xxxxxxxxxxxx
```

26. SERIAL

RS-232C loop back check

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

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



26. RS-232C:NG

EEPROM check

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

26.EEPROM: OK

OK: No error detected
NG: An error is detected

27. Network

* When the network condition varies while sub-menu is displayed (e.g., the network is deactivated once), the correct result will not be displayed.
In that case, once turn off the power to this unit, then start up the self-diagnostic function again and select this menu.

IP Address Check

Whether IP address is obtained or not is checked.

```
27.NET IP:  NG
```

OK: Connected (IP address obtained)
NG: No traffic / Unconnected

MAC Address Check

MAC address information is checked.

```
27.NET MAC: OK
```

OK: Normal
NG: Unwritten

MAC LABEL No SET

This menu is used to change MAC address number.

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

Yamaha Corporation will provide the setting procedure for proper operation.

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

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

```
27.NET MAC SET
```

LINK CHECK

A network cable connection is checked.

27.NET LNK: OK

OK: Normal
NG: Unconnected

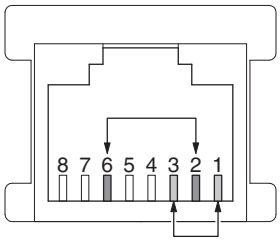
NETWORK loop back check

This menu is used to check the NETWORK connector.

With the power to this unit turned off, short between pins No. 1 (Tx+) and No. 3 (Rx+) and between pins No. 2 (Tx-) and No. 6 (Rx-) of the NETWORK connector. (Be sure to turn off the power to this unit when shorting these pins.)

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

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



27.NET LOOP:NG

OK: Normal
NG: Abnormal

Line noise measurement 10Mbps

The line noise 10Mbps is output.

27.NET LN 10M ⟷ LN OUTPUT:10M

Press “STRAIGHT” key

Line noise measurement 100Mbps

The line noise 100Mbps is output.

27.NET LN 100M ⟷ LN OUTPUT:100M

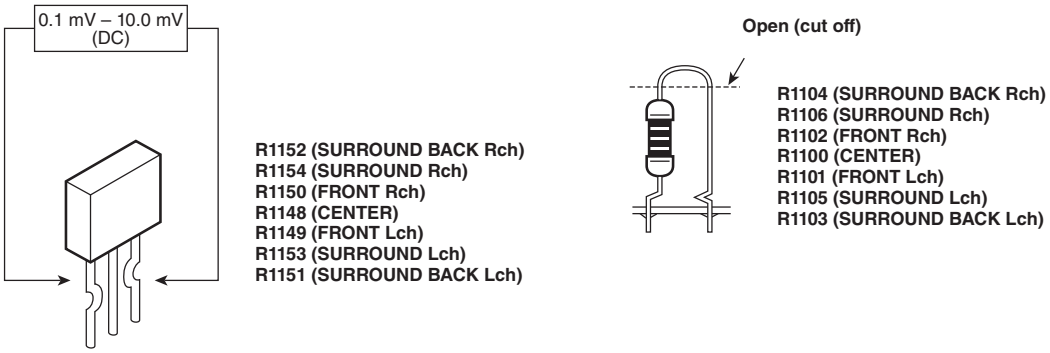
Press “STRAIGHT” key

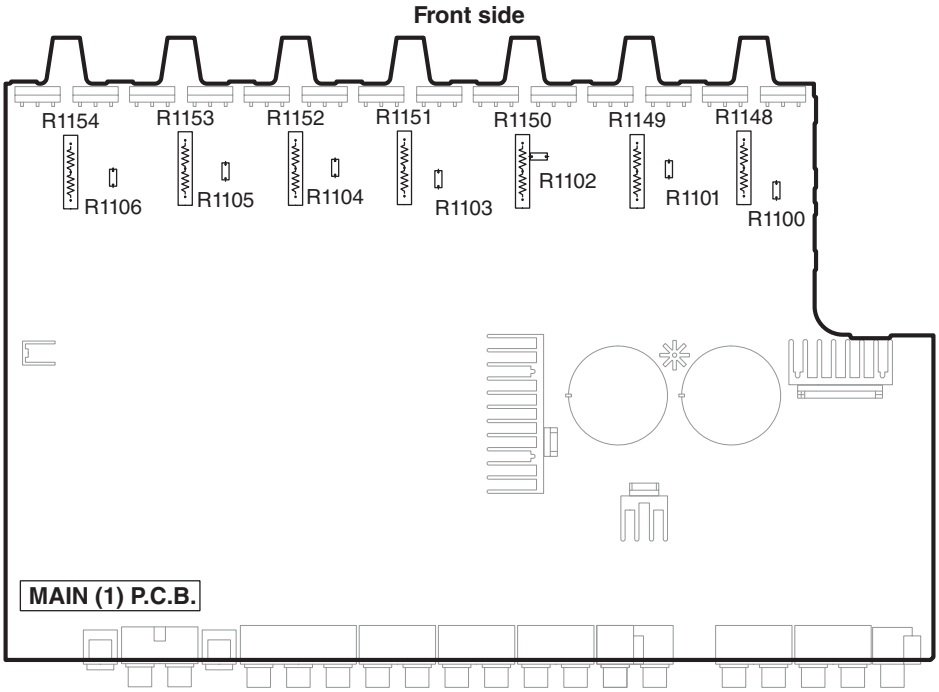
■ CONFIRMATION OF IDLING CURRENT OF AMP UNIT

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

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

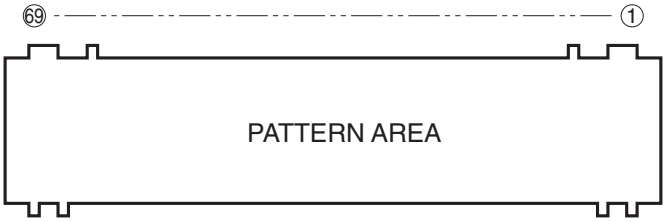
- Confirm that the voltage is 0.2 mV to 15.0 mV after 60 minutes.





■ DISPLAY DATA

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



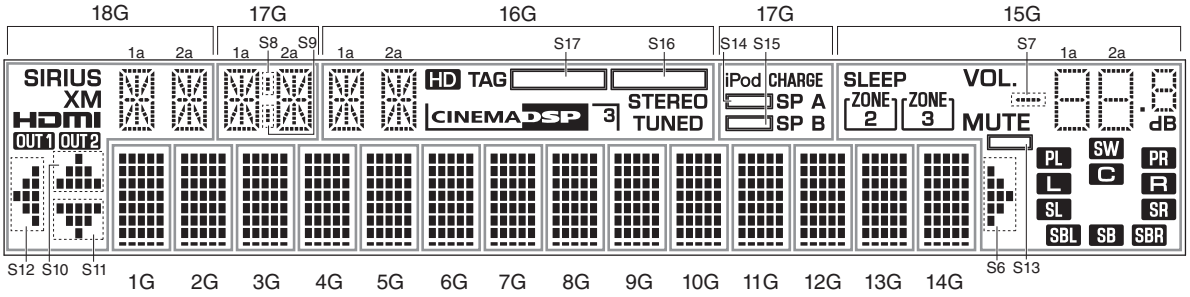
● **PIN CONNECTION**

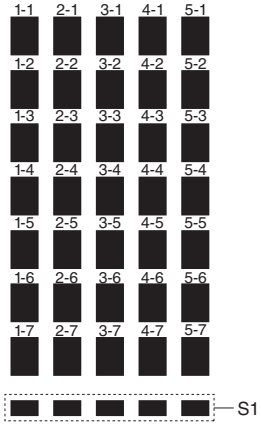
Pin No.	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
Connection	F2	NX	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	P31

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

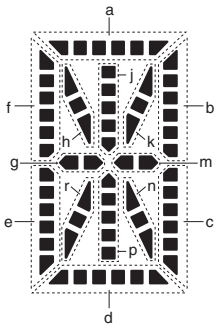
Note : 1) F1, F2 ..... Filament pin 2) NP ..... No pin 3) NX ..... No extend pin 4) 1G-18G ..... Grid pin

● **GRID ASSIGNMENT**

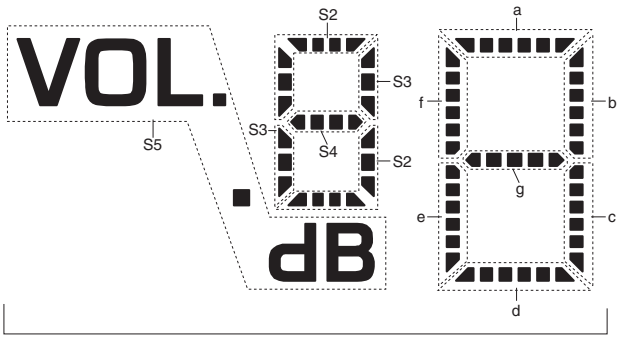




(1G-14G)



(18G-16G)



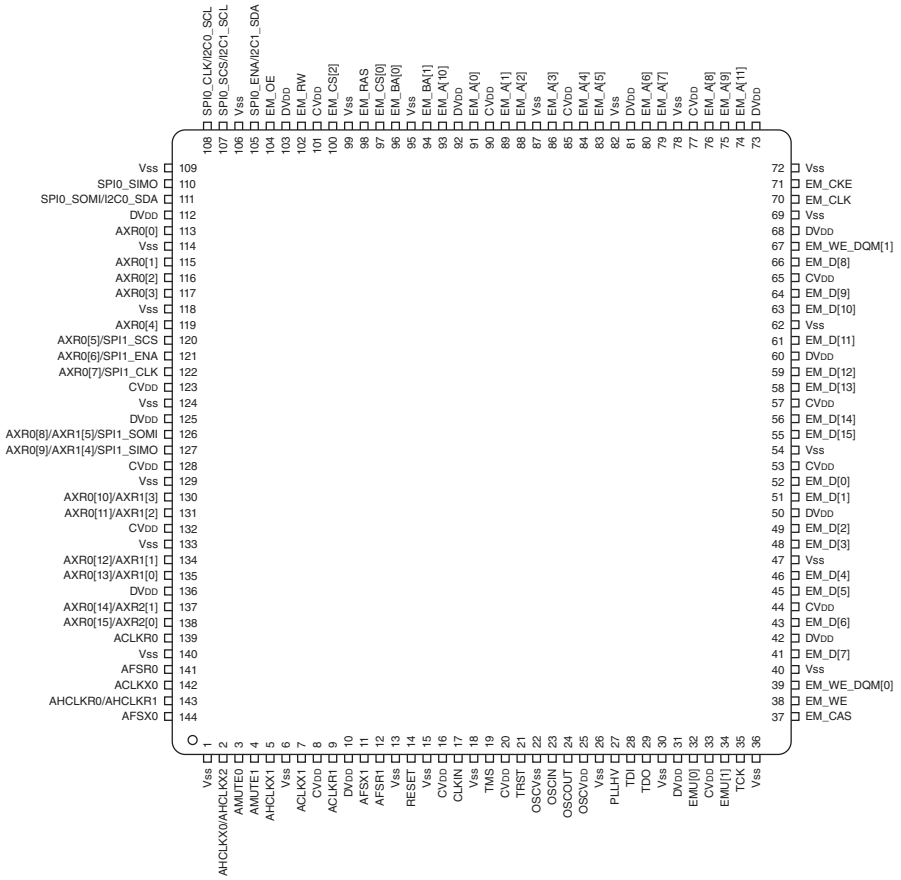
(15G)

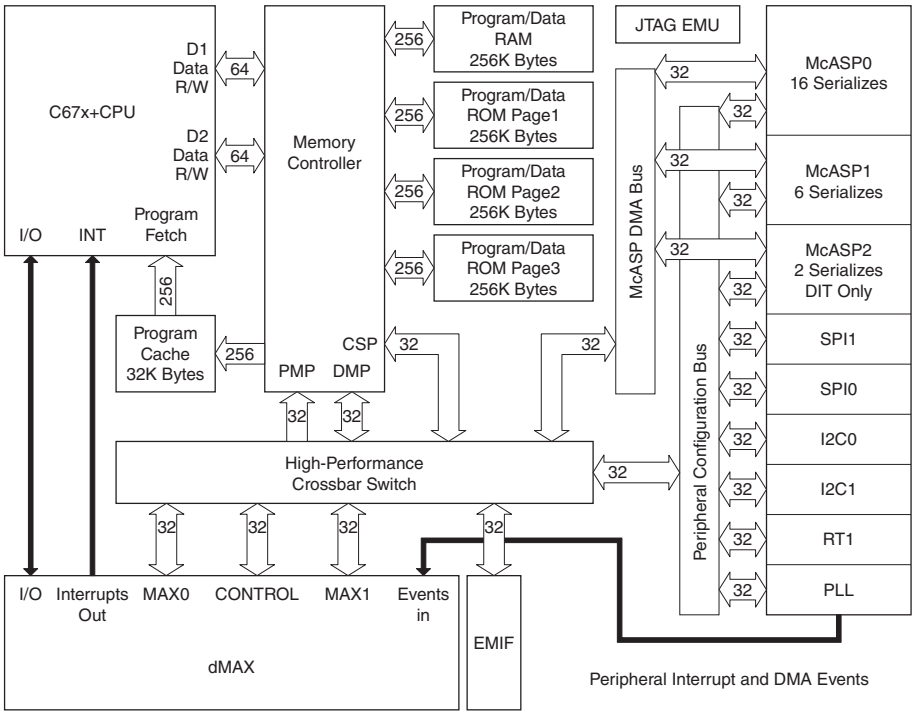
● **ANODE CONNECTION**

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

■ IC DATA

IC44: D70YE101BRFP266 (DIGITAL P.C.B.)
Decoder/Post processor
* **No replacement part available.**



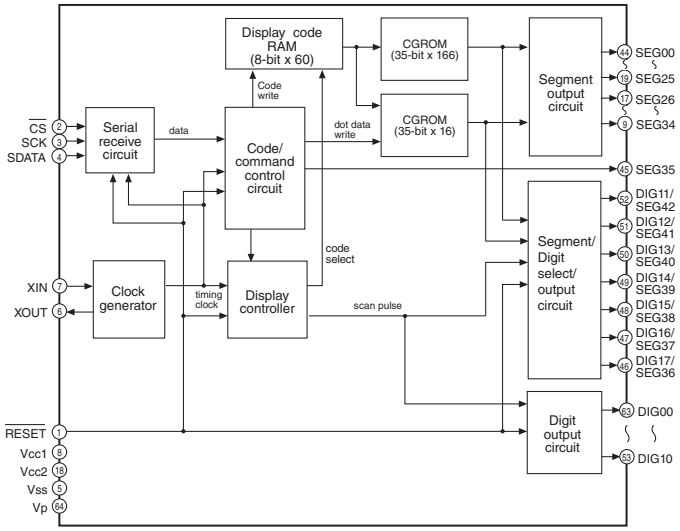


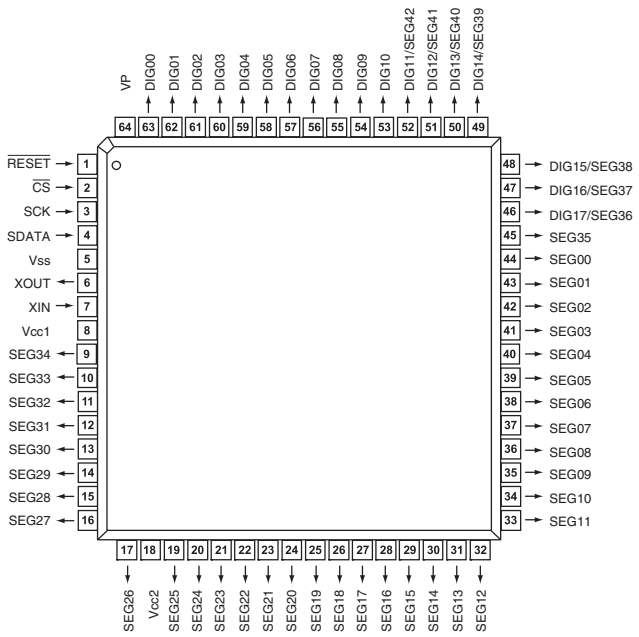
No.	Function Name (P.C.B.)	TYPE(1)	PULL(2)	GPIO(3)	Detail of Function
1	VSS				
2	AHCLKX0/AHCLKX2	IO	–	Y	McASP0 and McASP2 transmit master clock
3	AMUTE0	IO	–	Y	McASP0 mute output
4	AMUTE1	IO	–	Y	McASP1 mute output
5	AHCLKX1	IO	–	Y	McASP1 transmit master clock
6	VSS				
7	ACLKX1	IO	–	Y	McASP1 transmit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

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

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

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

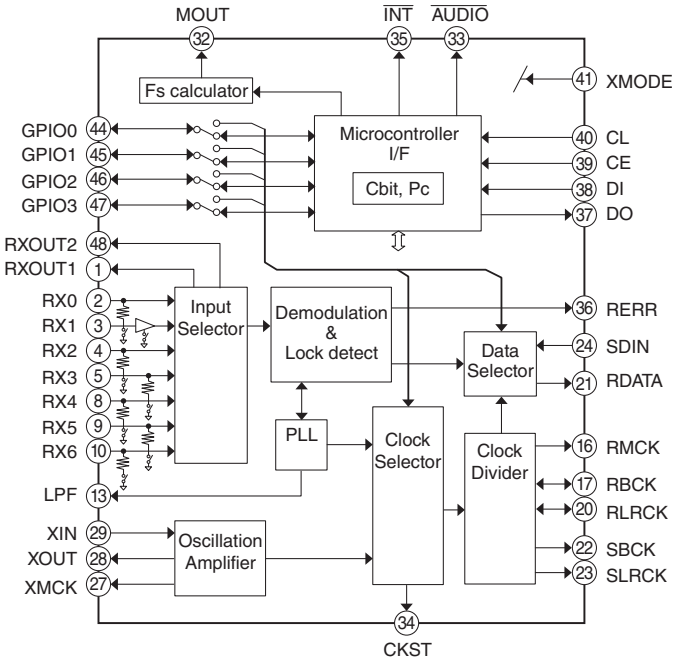


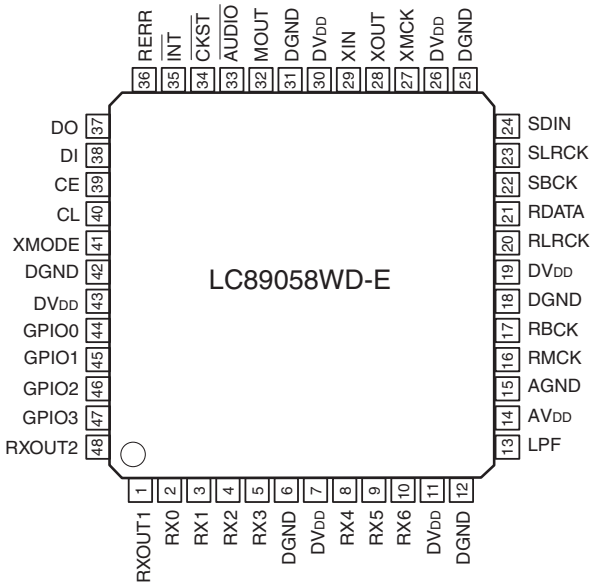


Pin No.	Port Name	Function Name	I/O	Detail of Function
1	RESET	/RESET	Reset input	When "L", M66003 is initialized.
2	CS	/CEFL	Chip select input	When "L", communication with the MCU is possible.
3	SCK	CKFL	Shift clock input	When "H", any instruction from the MCU is neglected.
4	SDATA	DTFL	Serial data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

Pin No.	Port Name	Function Name	I/O	Detail of Function
8	Vcc1	VDD		Positive power supply for internal logic.
9	SEG34	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.

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

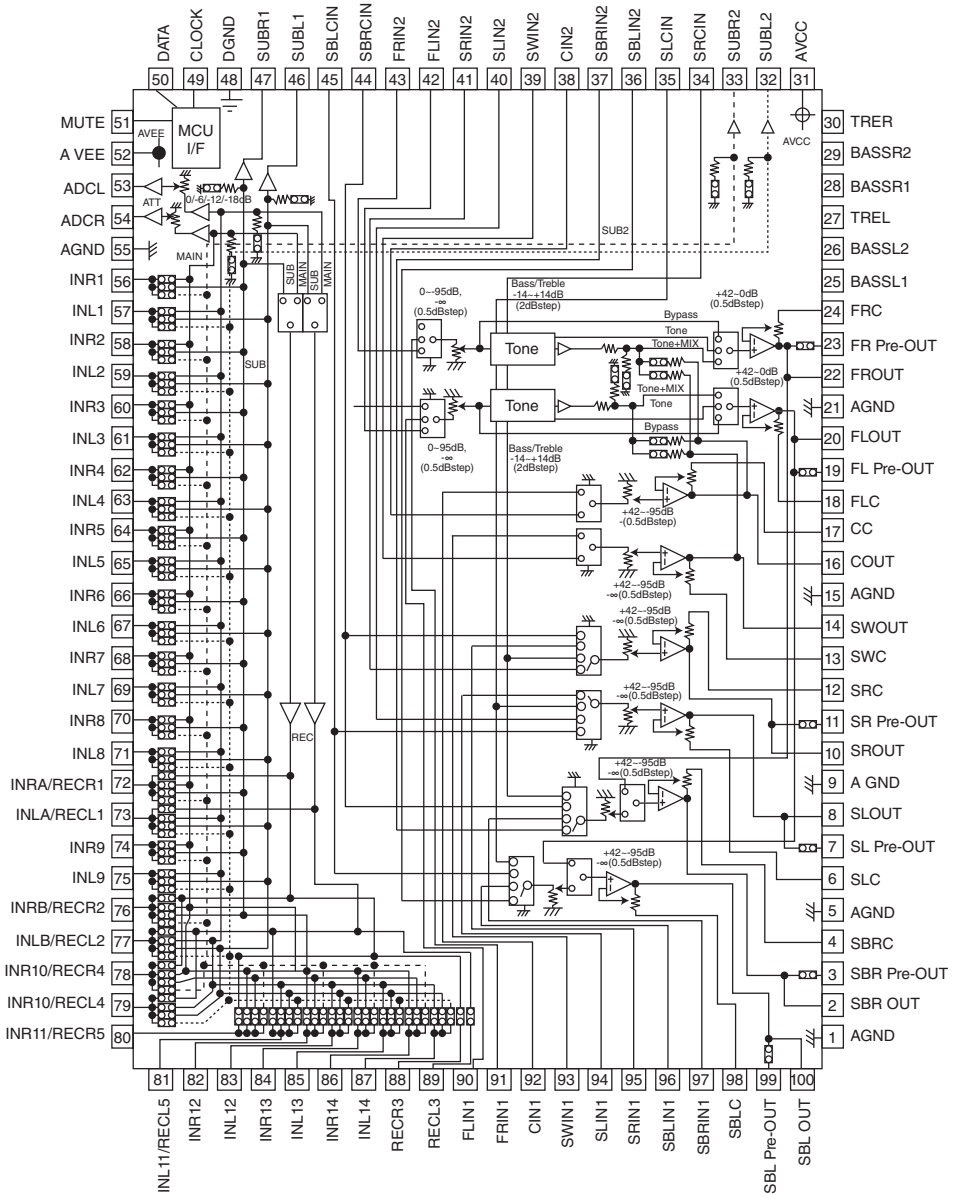




Pin No.	Function Name	I/O	Detail of Function
1	RXOUT1	O	RX0-6 input S/PDIF through output pin 1
2	RX0	I_5(pd)	5V withstand voltage TIL input level compatible S/PDIF input pin (connected to GND when RX1 is set)
3	RX1	I(pd)	Co-axial compatible S/PDIF input pin (supported demodulation sampling frequency of up to 96 kHz)
4	RX2	I_5(pd)	5V withstand voltage TIL input level compatible S/PDIF input pin (connected to GND when RX1 is set)
5	RX3	I_5(pd)	5V withstand voltage TIL input level compatible S/PDIF input pin
6	DGND		Digital GND
7	DVDD		Digital power supply (3.3V)
8	RX4	I_5(pd)	5V tolerable TIL input level compatible S/PDIF input pin
9	RX5	I_5(pd)	5V tolerable TIL input level compatible S/PDIF input pin
10	RX6	I_5(pd)	5V tolerable TIL input level compatible SIPDIF input pin
11	DVDD		Digital power supply (3.3V)
12	DGND		Digital GND
13	LPF	O	PLL loop filter connection pin
14	AVDD		Analog power supply (3.3V)
15	AGND		Analog GND
16	RMCK	O	R system clock output pin (VCO, 512fs, XIN)
17	RBCK	O/I	R system bit clock 1/0 pin (64fs)
18	DGND		Digital GND
19	DVDD		Digital power supply (3.3V)
20	RLRCK	O/I	R system LR clock 1/0 pin (fs)
21	RDATA	O	Serial audio data output pin
22	SBCK	O	S system bit clock output pin (16fs, 32fs, 64fs, 128fs)
23	SLRCK	O	S system LR clock output pin (fs/4, fs/2, fs, 2fs)
24	SDIN	I_5	External serial audio data input pin
25	DGND		Digital GND
26	DVDD		Digital power supply (3.3V)
27	XMCK	O	Oscillation amplifier clock output pin
28	XOUT	O	Output pin connected to the resonator
29	XIN	I	External clock input pin. connected to the resonator (12.288 MHz or 24.576 MHz)
30	DVDD		Digital power supply (3.3V)
31	DGND		Digital GND
32	MOUT	I/O	Emphasis information II input fs monitor output II chip address setting input pin
33	AUDIO	I/O	Channel status bit 1 output II chip address setting input pin
34	CKST	I/O	Clock switching transition period signal output II master/slave setting input pin
35	INT	I/O	Microcontroller interrupt signal output II pins 44-48 I/O setting input pin
36	RERR	O	PLL lock error and data error flag output pin
37	DO	O	CCB microcontroller I/F, read data output pin (3-state)
38	DI	I_5	CCB microcontroller I/F, write data input pin
39	CE	I_5	CCB microcontroller I/F, chip enable input pin
40	CL	I_5	CCB microcontroller I/F, clock input pin
41	XMODE	I_5	System reset input pin
42	DGND		Digital GND
43	DVDD		Digital power supply (3.3V)
44	GPIOO	O/I	General-purpose I/O pin II selector input pin (output referred to RMCK pin)
45	GPI01	O/I	General-purpose I/O pin II selector input pin (output referred to RBCK pin)
46	GPI02	O/I	General-purpose I/O pin II selector input pin (output referred to RLRCK pin)
47	GPI03	O/I	General-purpose I/O pin II selector input pin (output referred to RDATA pin)
48	RXOUT2	O	RX0-6 input S/PDIF through output pin 2

* Input voltage: 1= -0.3 to 3.6V, Is =-0.3 to 5.5V
* Output voltage: 0= -0.3 to 3.6V
* Pins 2, 4, 5, 8, 9, 10, 24, 38, 39, 40, and 41 have an internal pull-down resistor (Pd).
  Their level is fixed when they are unselected.
* Pins 32 and 33 are input pins for chip address setting when pin 41 is held at the low level.
* Pin 34 serves as the input pin for designating as the master or slave when pin 41 is held at the low level.
* Pin 35 serves as the input pin for configuring the I/O of pins 44 to 47 when pin 41 is held at the low level.
* The DVDD and AVDD pins must be held at the same level and turned on and off at the same timing to preclude latch-up conditions.

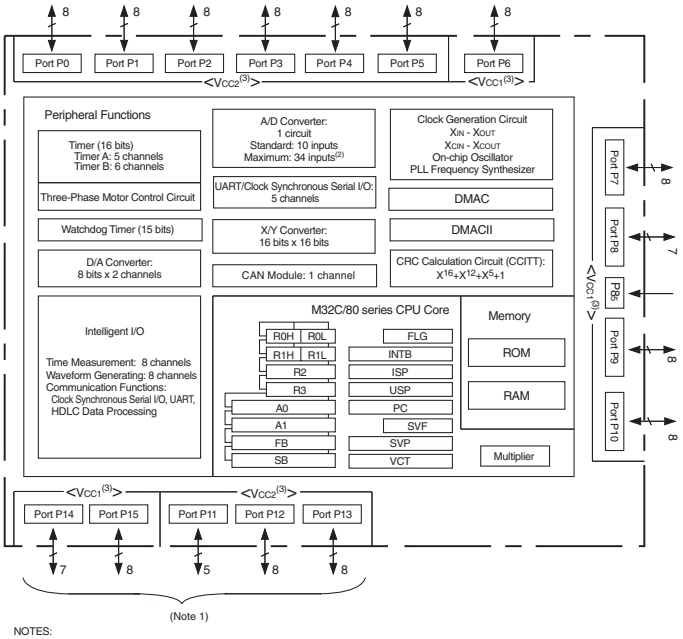
IC153: R2A15220FP (MAIN P.C.B.)
8-channel electronic volume with 11 input selector and tone control



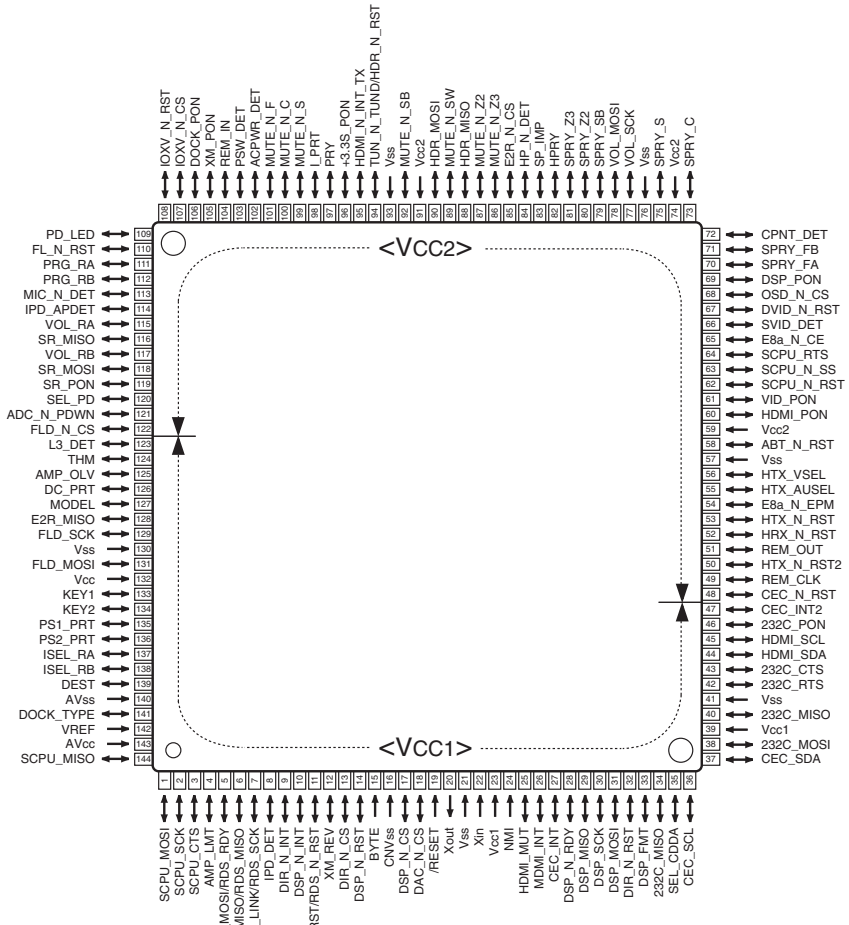
Pin No.	Port name	Function Name	Detail of Function
1	AGND	AE	Analog ground of internal circuit
2	SBROUT	VOSBL	Output pin of FL/FR/C/SW/SL/SR/SBL/SBR channel
3	SBR Pre-OUT	VOPSBL	Pre-output pin of FL/FR/SL/SR/SBL/SBR channel
4	SBRC	AE	Connects capacitor for reducing click noise of L/R/C/SW/SL/SR/SBL/SBR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

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

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



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



NOTES:
1. $P7_0$ / $TA0_{OUT}$ / TxD2 / SDA2 / SRxD2 / $INPC1_6$ / $OUTC1_6$
2. $P7_0$ and $P7_1$ are ports for the N-channel open drain output.
3. The supply voltage of M32C/84T must be $V_{CC1}=V_{CC2}$.

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

Pin No.	Port Name	Function Name (P.C.B.)	I/O						Detail of Function
			PowerOn	Stby Thrh	Standby	Stby Sleep	Sleep [MCU]	E8a, ICP	
19	/RESET /RESET	/RESET	MCU	MCU	MCU	MCU	[MCU]		Reset
20	Xout Xout	Xout	MCU	MCU	MCU	MCU	[MCU]		20 MHz ceramic resonator
21	Vss Vss	Vss	MCU	MCU	MCU	MCU	[MCU]		GND
22	Xin Xin	Xin	MCU	MCU	MCU	MCU	[MCU]		20 MHz ceramic resonator
23	Vcc1 Vcc1	Vcc1	MCU	MCU	MCU	MCU	[MCU]		Microprocessor power supply
24	/NMI P85/NMI	/NMI	MCU	MCU	MCU	MCU	[MCU]		Unused, pull up to Vcc
25	INT2 P84/INT2	HDMI_MUT	IRQ	IRQ	O	O	[O]		HDMI mute input H: Mute
26	INT1 P83/INT1	HDMI_INT	IRQ	IRQ	O	O	[O]		Interrupt from HDMI RX
27	INT0 P82/INT0	HEQ_N_INT	IRQ	IRQ	O	O	O		Interrupt from HDMI INPUT EQ While CEC microprocessor is in use, interruptive CEC microprocessor may be used
28	P81 P81/TA4in/U/ INPC15/OUTC15/ CTS5/RTS5/RTP23	DSP_N_RDY	I	I	O	O	[O]		DA70Y RDY
29	RXD5 P80/TA4out/U/ ISRXD0/RXD5	DSP_MISO	SI	I	O	O	[O]		Synchronous data input for DIR, DA70Y, DAC
30	CLK5 P77/TA3in/INPC14/ OUTC14/ISCLK0/ CLK5/RTP22	DSP_SCK	SO	O	O	O	[O]		Synchronous clock output for DIR, DA70Y, DAC
31	TXD5 P76/TA3out/INPC13/ OUTC13/ISTXD0/ TXD5	DSP_MOSI	SO	O	O	O	[O]		Synchronous data output for DIR, DA70Y, DAC
32	P75 P75/TA2in/W/ INPC12/OUTC12/ ISRXD1/RTP21	DIR_N_RST	O	O	O	O	[O]		DIR reset
33	P74 P74/TA2out/W/ INPC11/OUTC11/ ISCLK1/RTP20	DSP_FMT	O	O	O	O	[O]		DA70Y full mute output H: Mute
34	TA1in P73/TA1in/V/CTS2/ RTS2/SS2/INPC10/ OUTC10/ISTXD1	232C_MISO	TMR	TMR	TMR	TMR	[O]		RS232C reception detection Uses for the return trigger from stop mode (MCUSleep)
35	P72 P72/TA1out/V/CLK2	SEL_CDDA	O	O	O	O	[O]		CDDA writing route select H: CDDA writing mode L: Operational mode usually
36	SCL2 P71/TA0in/TB5in/ RXD2/SCL2/STXD2/ INPC17/OUTC17/ OUTC22/ISRXD2/ IEin/RTP03	CEC_SCL	SO	SO	O	O	[O]		CEC microprocessor, Tuner, HDMI_EQ (Sil9185A) I2C SCL output U-com block then +3.3S, 3.3k then pull up (100 kHz device)
37	SDA2 P70/TA0out/TXD2/ SDA2/SRXD2/ INPC16/OUTC16/ OUTC20/ISTXD2/ IEout/RTP02	CEC_SDA	SIO	SIO	O	O	[O]		CEC microprocessor, Tuner, HDMI_EQ (Sil9185A) I2C SDA input U-com block then +3.3S, 3.3k then pull up (100 kHz device)

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

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

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

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

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

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

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

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

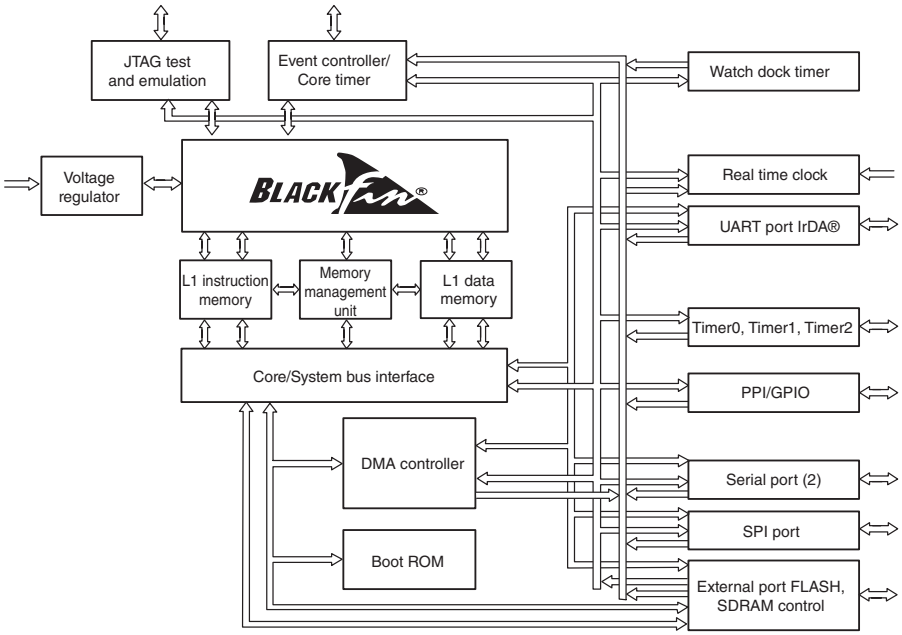
Destination detection for A/D port
Destination input (A/D) pull-up resistance 10 k-ohms

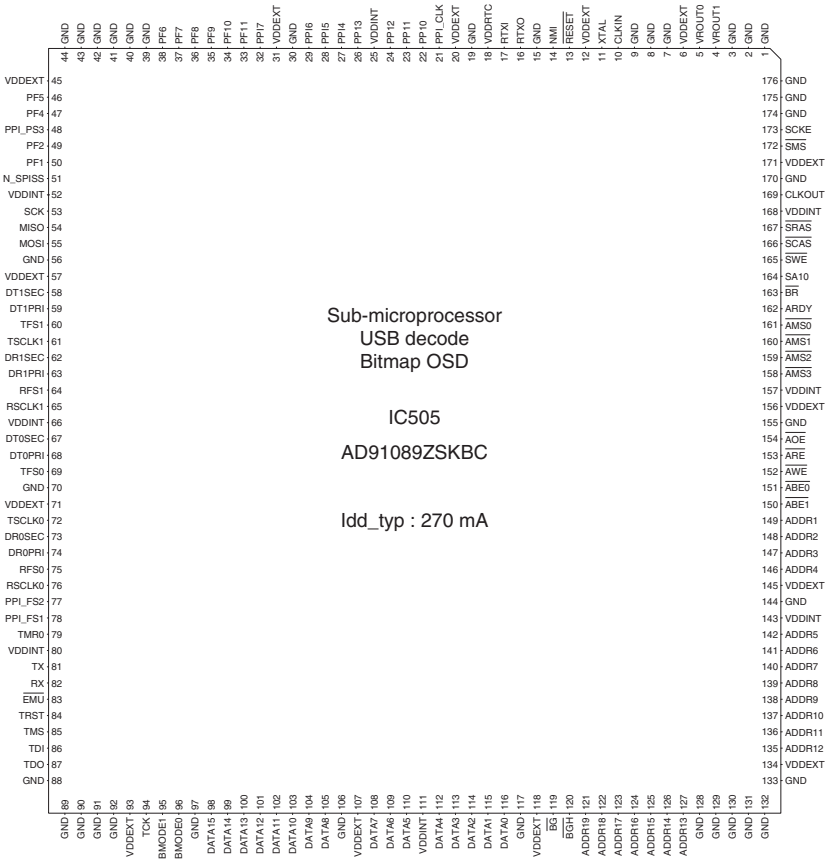
Ohm (R3809 VIDEO P.C.B.)	1.2 k	2.7 k	4.7 k	6.8 k	10.0 k	15.0 k	47.0 k	100.0 k
V	0.2 – 0.6	0.6 – 0.9	0.9 – 1.2	1.2 – 1.5	1.5 – 1.8	1.8 – 2.3	2.4 – 2.9	2.9 – 3.2
A/D value (3.3V=255)	15 – 46	46 – 69	69 – 92	92 – 115	115 – 139	139 – 177	185 – 224	224 – 247
DEST (139 pin)	U	C	R	T	K	A	B, G, E, F	L

Model detection for A/D port

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

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





Memory Interface

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

Asynchronous memory control

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

Synchronous memory control

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

Timers

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

PPI port

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

Port F: GPOI/Parallel peripheral interface port/SPI/Timers

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

JTAG port

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

SPI port

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

Serial ports

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

UART port

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

Real-time clock

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

Clock

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

Mode controls

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

Voltage regulator

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

Supplies

Pin No.	Function Name	I/O	Detail of Function
6	VDDEXT	P	I/O power supply
12			
20			
31			
45			
57			
71			
93			
107			
118			
134			
145			
156			
171			
25	VDDINT	P	Core power supply
52			
66			
80			
111			
143			
157			
168			
18	VDDRTC	P	Real-time clock power supply

Pin No.	Function Name	I/O	Detail of Function
1	GND	G	External ground
2			
3			
7			
8			
9			
15			
19			
30			
39			
40			
41			
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■ PIN CONNECTION DIAGRAMS

• ICs

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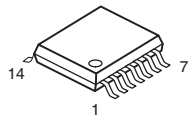

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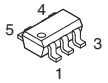

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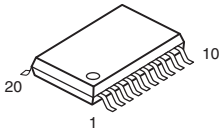

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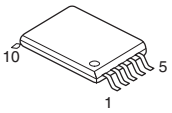

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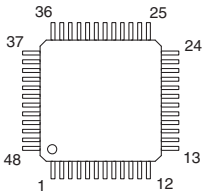

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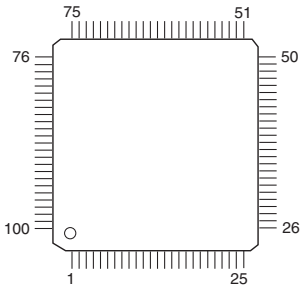

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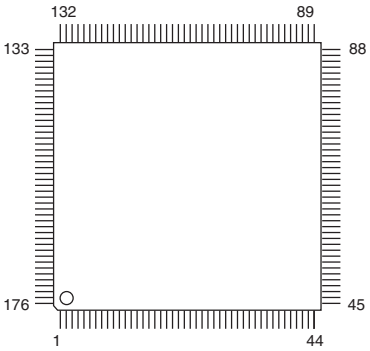

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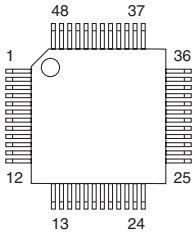

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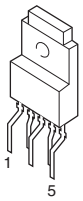

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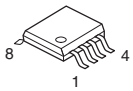

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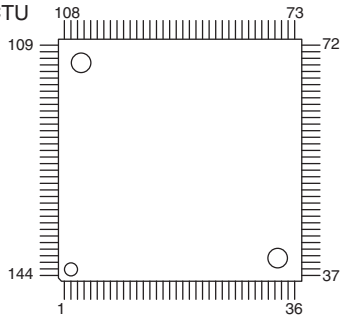

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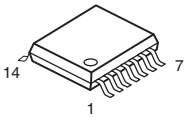

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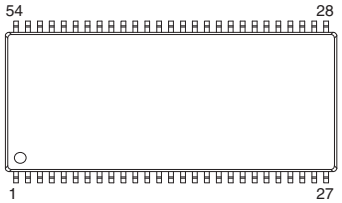

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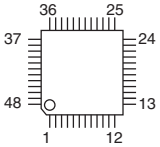

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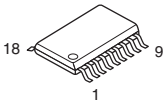

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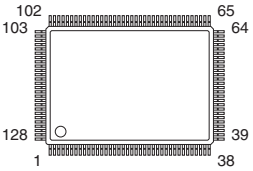

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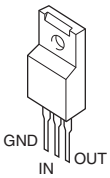

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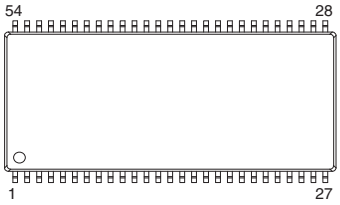

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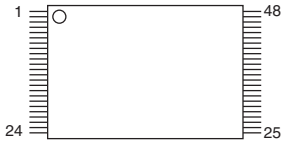

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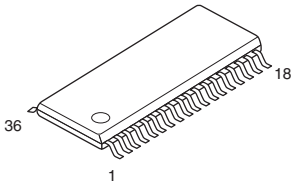

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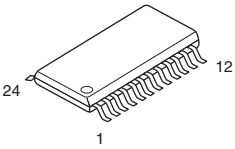

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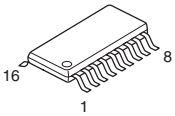

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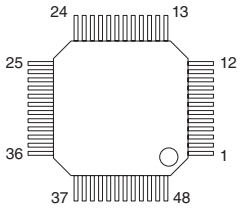

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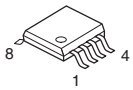

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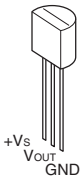

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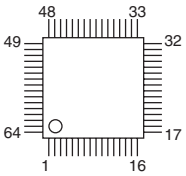

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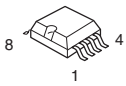

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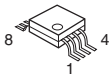

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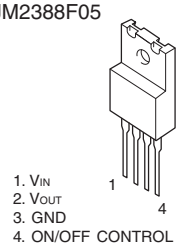

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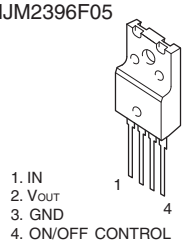

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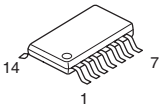

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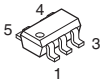

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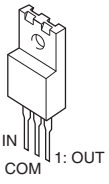

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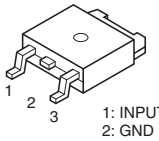

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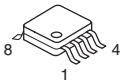

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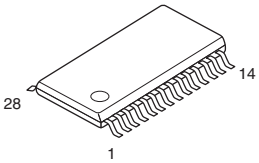

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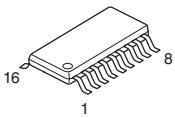

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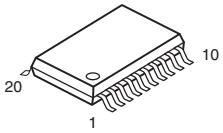

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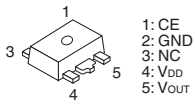
R1172H331D-T1-F
R1172H501D-T1-F



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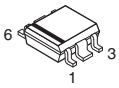
R1172S331B-E2-F



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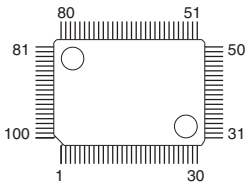

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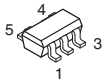

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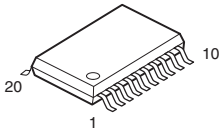

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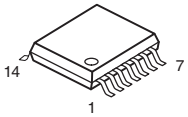

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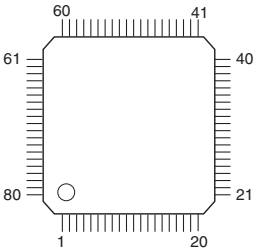

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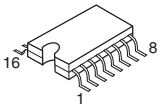

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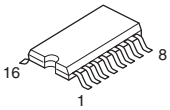

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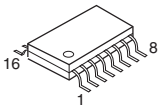
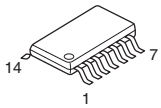


TC74VHCT08AFT
TC74VHCU04FT



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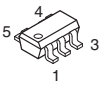
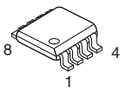
TC7SH08FU



TC7WH14FK
TC7WZ32FK (TE85L, F)



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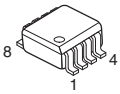

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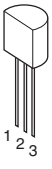

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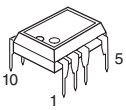

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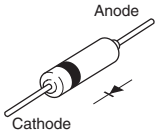
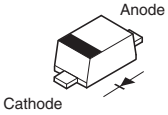
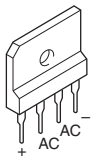
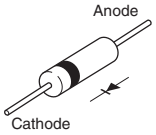
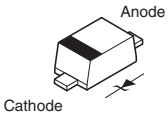
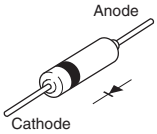
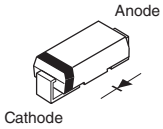
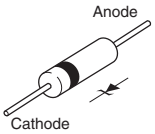
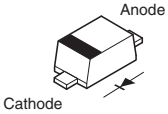
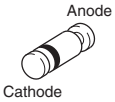
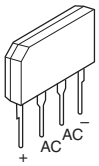
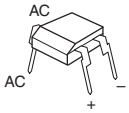
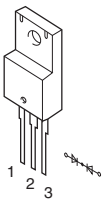
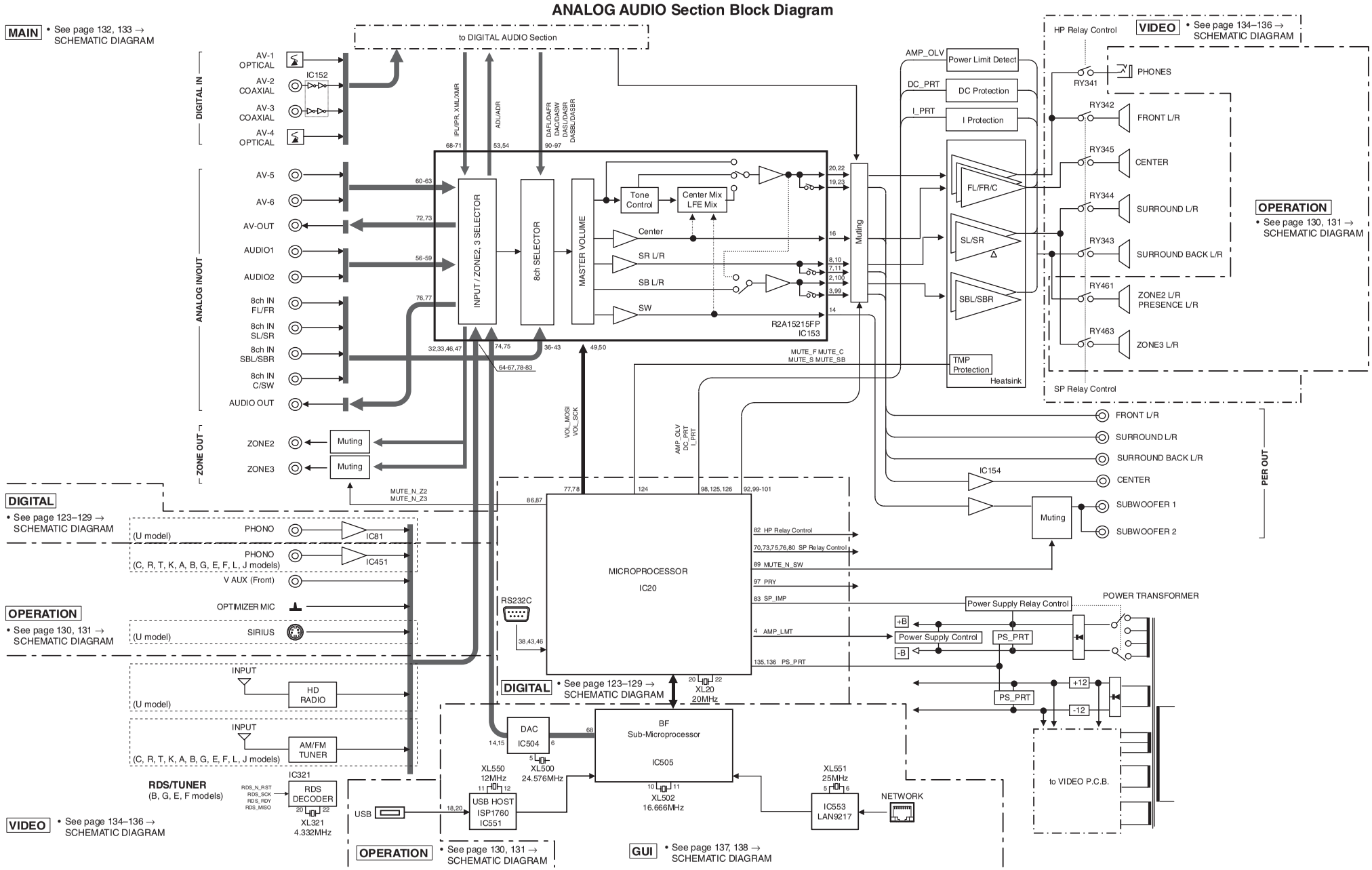
1N4002S 1SS133 1SS176 	1SS355 	D15XBN20-7001 15A 	HT18G 
MAZ8033GHL 3.4V MAZ8036GLL 3.5V 	MTZJ10B MTZJ12B MTZJ13B MTZJ2.4B MTZJ22C MTZJ3.3B MTZJ39D MTZJ5.1B MTZJ5.1C MTZJ6.8C 	RB051L-40 UDZ5.1B 	P6KE100A 
MA111 RB501V-40 	RLZ7.5B 7.5V 	RS203M-B-C-J80 	S1NBC60 1A 600V 	SG10SC4M 

• Transistors

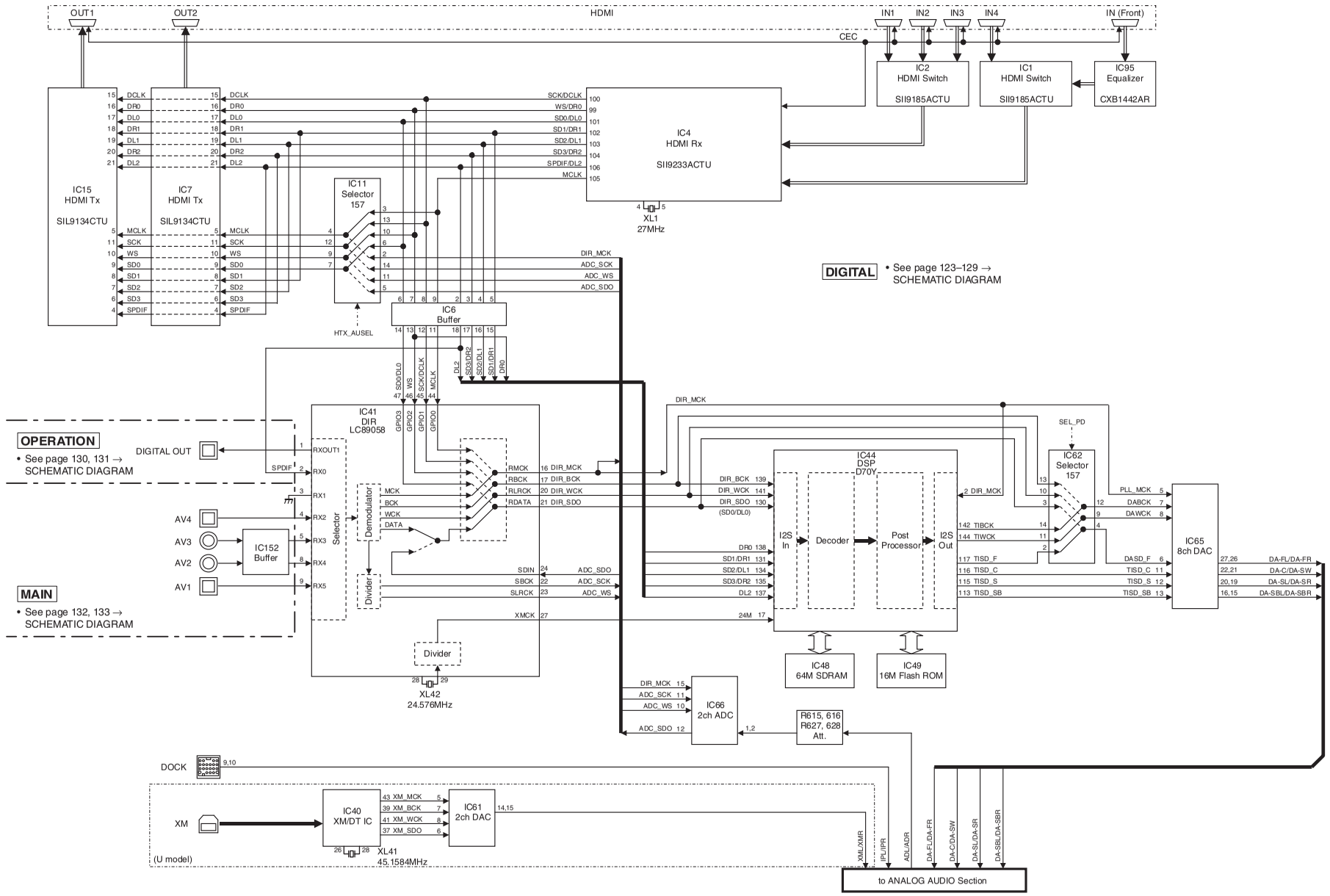
2N5401C-AT/P 2SA1015-Y E C B	2SA1145 2SC2705 2N5551C-AT B C E	2SA1576A C B E	2SA1708 E C B	2SA2168 2SC5291 E C B	2SC6011/2SA2151 B C E B C E
2SC1815 Y E C B	2SC1740S B C E	2SC4081 T106 C B E	2SD1938F 2SC3906K C B E	2SD1915F E C B	DTA114EKA DTA143EKA DTA144EKA DTC114EKA DTC144EKA 3 1 2 1: GND 2: IN 3: OUT
KRA102M-AT/P KRC105M-AT E C B	KTA1046-Y-U/P KTA1837-U/P B C E	KTA1517S KTC3875S KTC3911S C B E	MCH6336-TL-E 4 6 1 3 1. Drain 2. Drain 3. Gate 4. Source 5. Drain 6. Drain	µPA672T-T1-A 4 6 1 3 1. Source 1 (S1) 2. Gate 1 (G1) 3. Drain 2 (D2) 4. Source 2 (S2) 5. Gate 2 (G2) 6. Drain 1 (D1)	

■ BLOCK DIAGRAMS

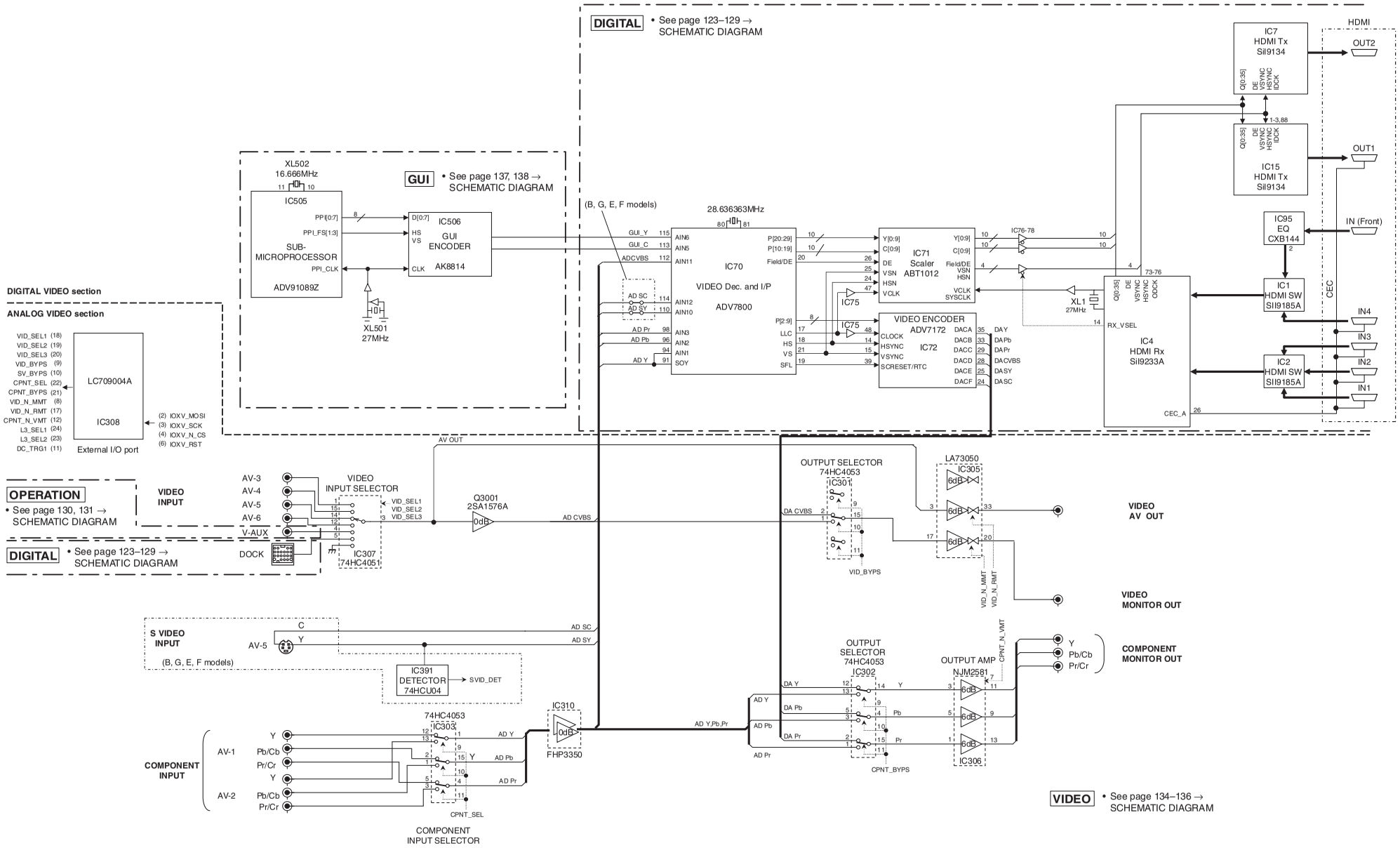
ANALOG AUDIO Section Block Diagram



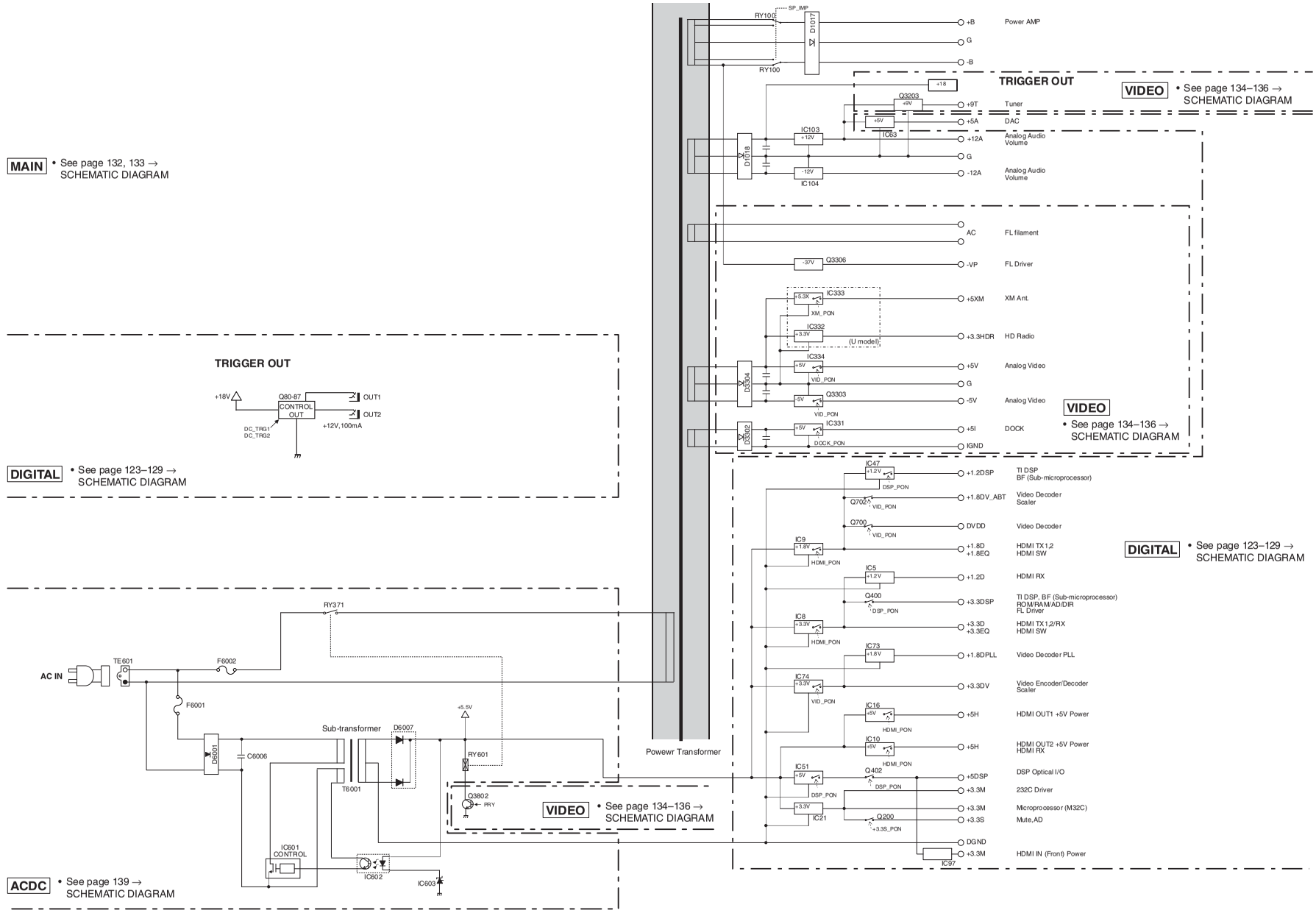
DIGITAL AUDIO Section Block Diagram



VIDEO Section Block Diagram

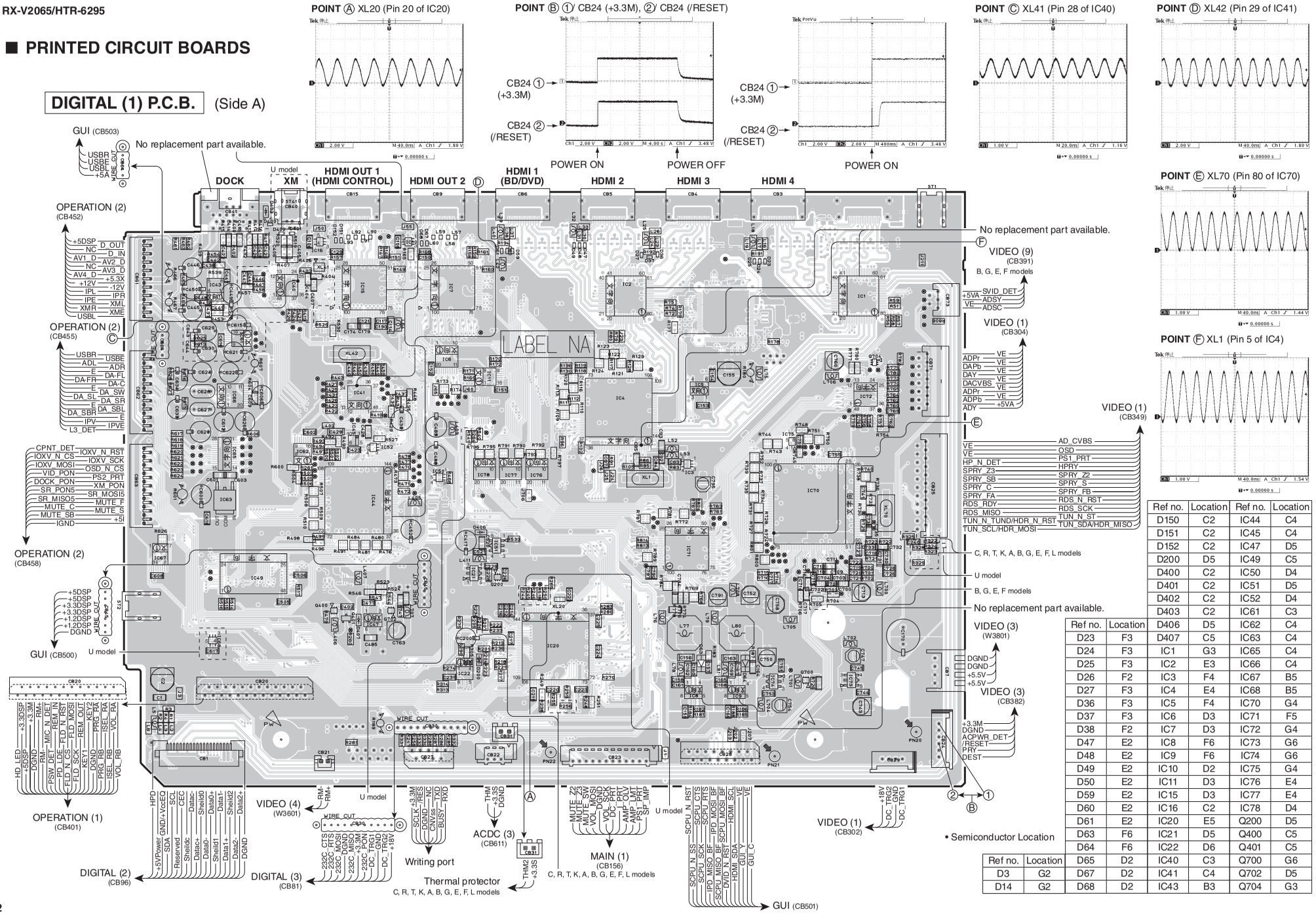


Power Supply Section Block Diagram



■ PRINTED CIRCUIT BOARDS

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



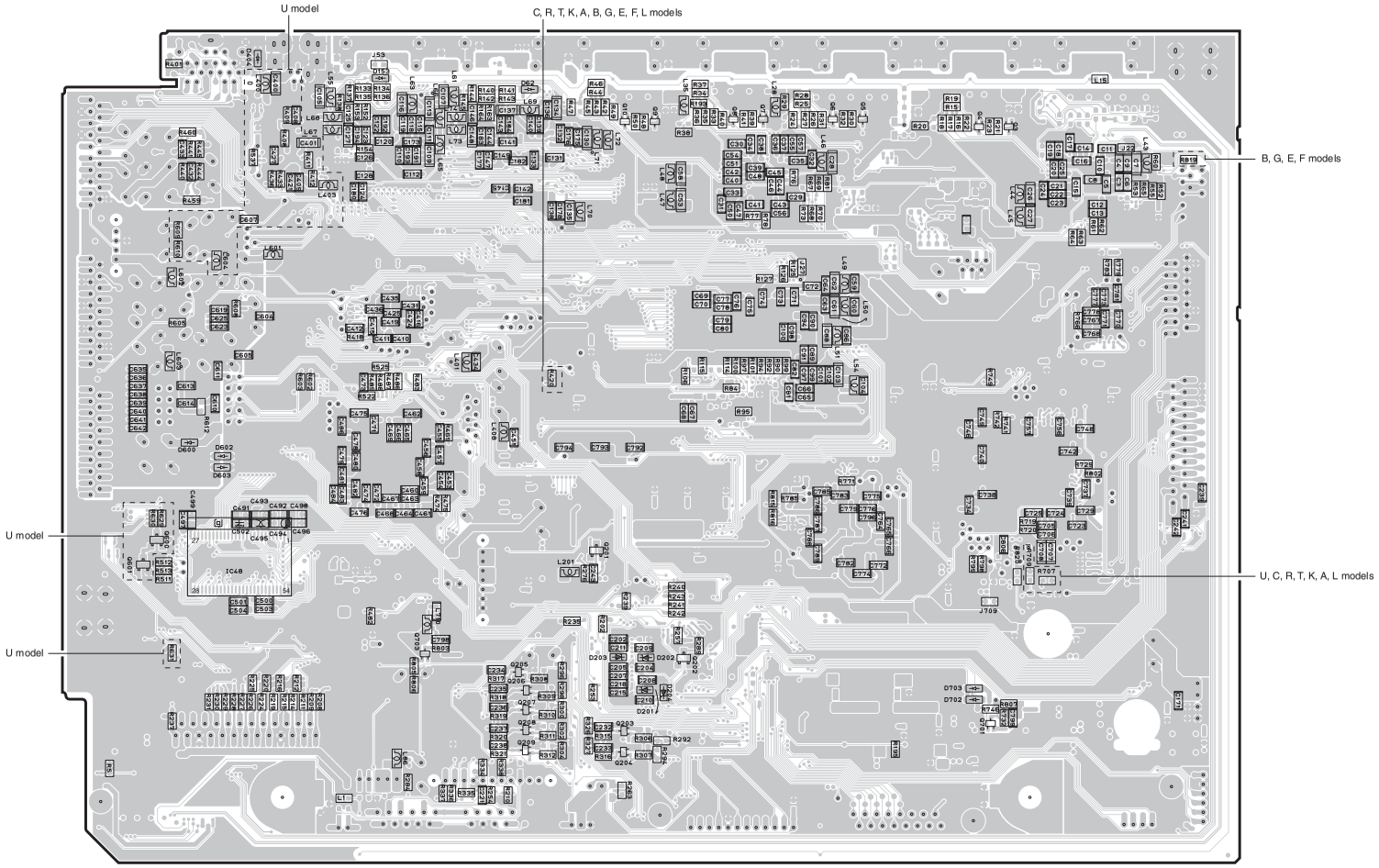
Ref no.	Location	Ref no.	Location
D150	C2	IC44	C4
D151	C2	IC45	C4
D152	C2	IC47	D5
D200	D5	IC49	C5
D400	C2	IC50	D4
D401	C2	IC51	D5
D402	C2	IC52	D4
D403	C2	IC61	C3
D406	D5	IC62	C4
D407	C5	IC63	C4
IC1	G3	IC65	C4
IC2	E3	IC66	C4
IC3	F4	IC67	B5
IC4	E4	IC68	B5
IC5	F4	IC70	G4
IC6	D3	IC71	F5
IC7	D3	IC72	G4
IC8	F6	IC73	G6
IC9	F6	IC74	G6
IC10	D2	IC75	G4
IC11	D3	IC76	E4
IC15	D3	IC77	E4
IC16	C2	IC78	D4
IC20	E5	Q200	D5
IC21	D5	Q400	C5
IC22	D6	Q401	C5
D65	D2	IC40	C3
D67	D2	IC41	C4
D68	D2	IC43	B3

Ref no.	Location	Ref no.	Location
D23	F3	Q700	G6
D24	F3	Q702	D5
D25	F3	Q704	G3
D26	F2		
D27	F3		
D36	F3		
D37	F3		
D38	F2		
D47	E2		
D48	E2		
D49	E2		
D50	E2		
D59	E2		
D60	E2		
D61	E2		
D63	F6		
D64	F6		

• Semiconductor Location

Ref no.	Location
D3	G2
D14	G2

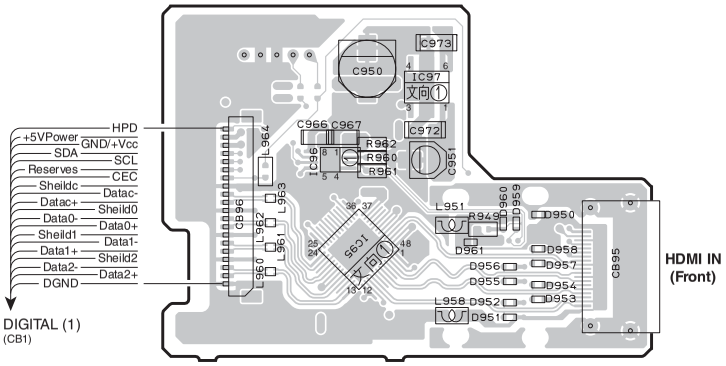
DIGITAL (1) P.C.B. (Side B)



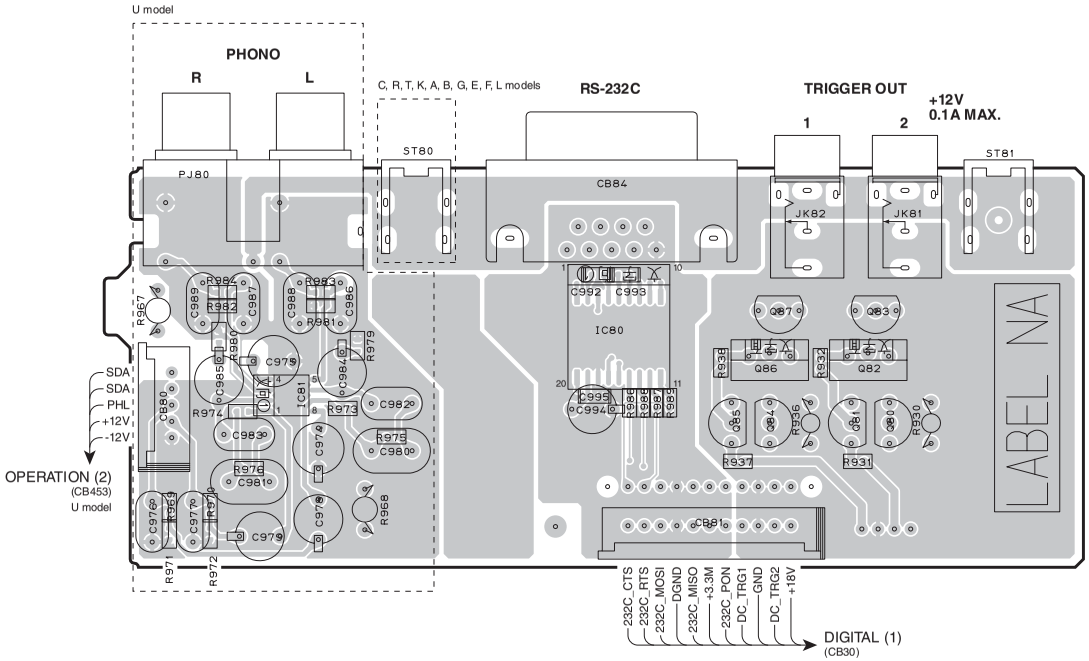
• Semiconductor Location

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

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



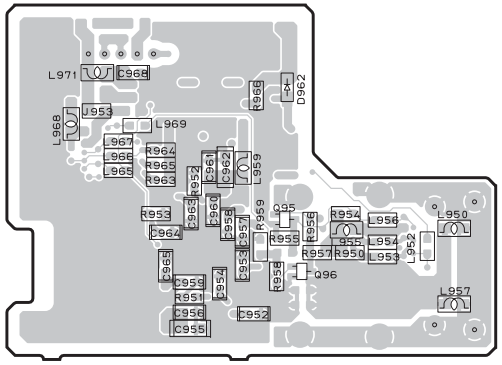
DIGITAL (3) P.C.B. (Side A)



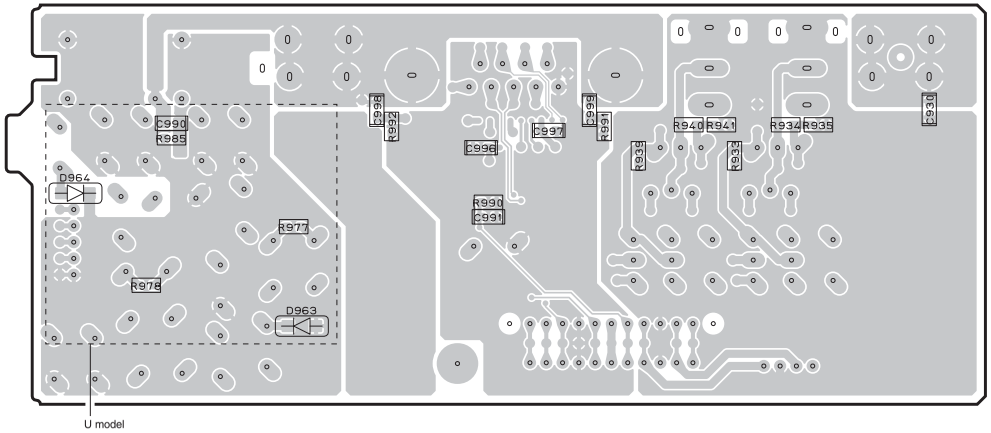
• Semiconductor Location

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

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



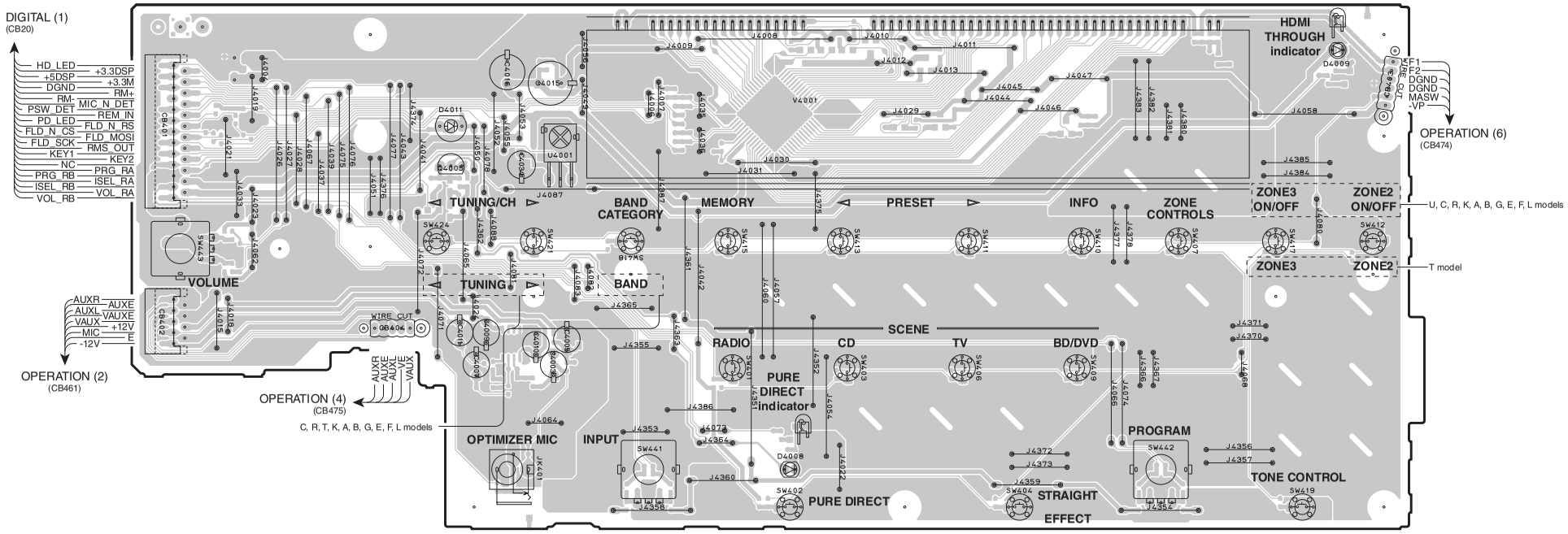
DIGITAL (3) P.C.B. (Side B)



• Semiconductor Location

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

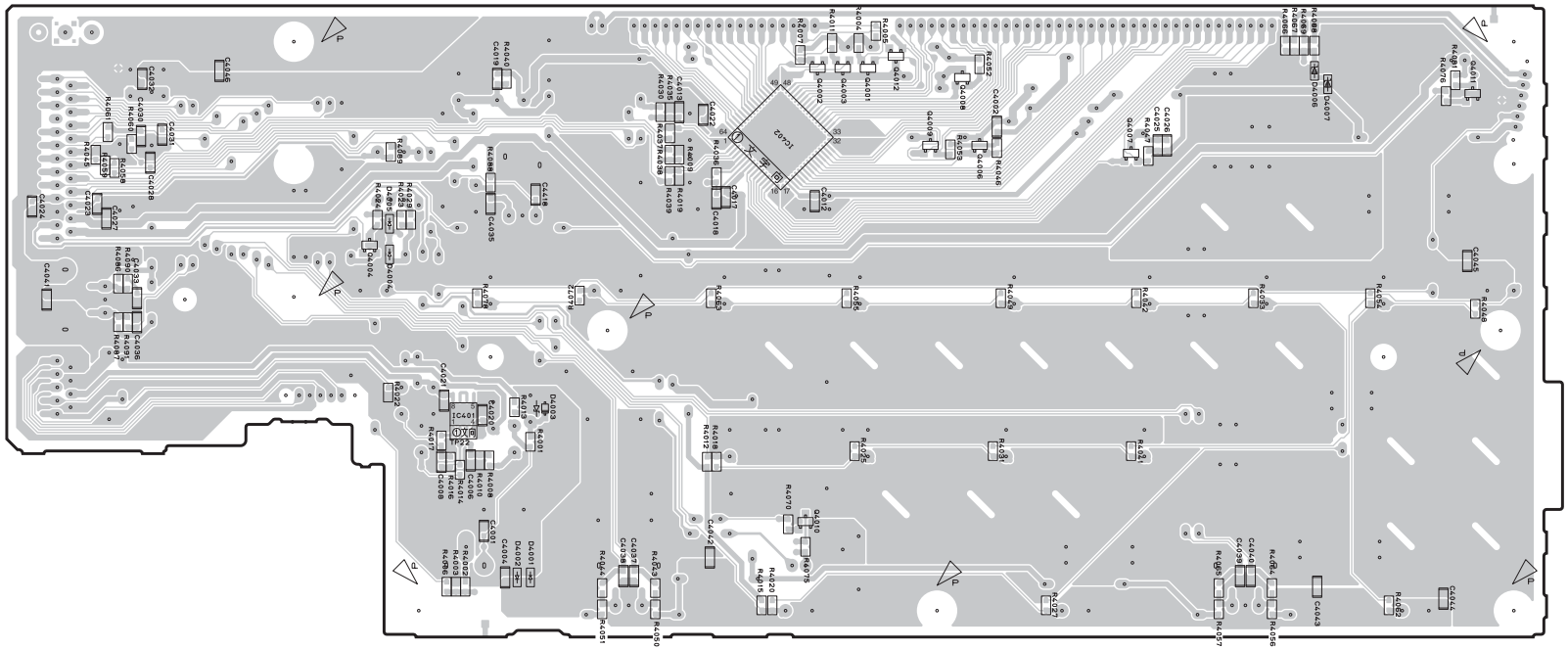
OPERATION (1) P.C.B. (Side A)



• Semiconductor Location

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

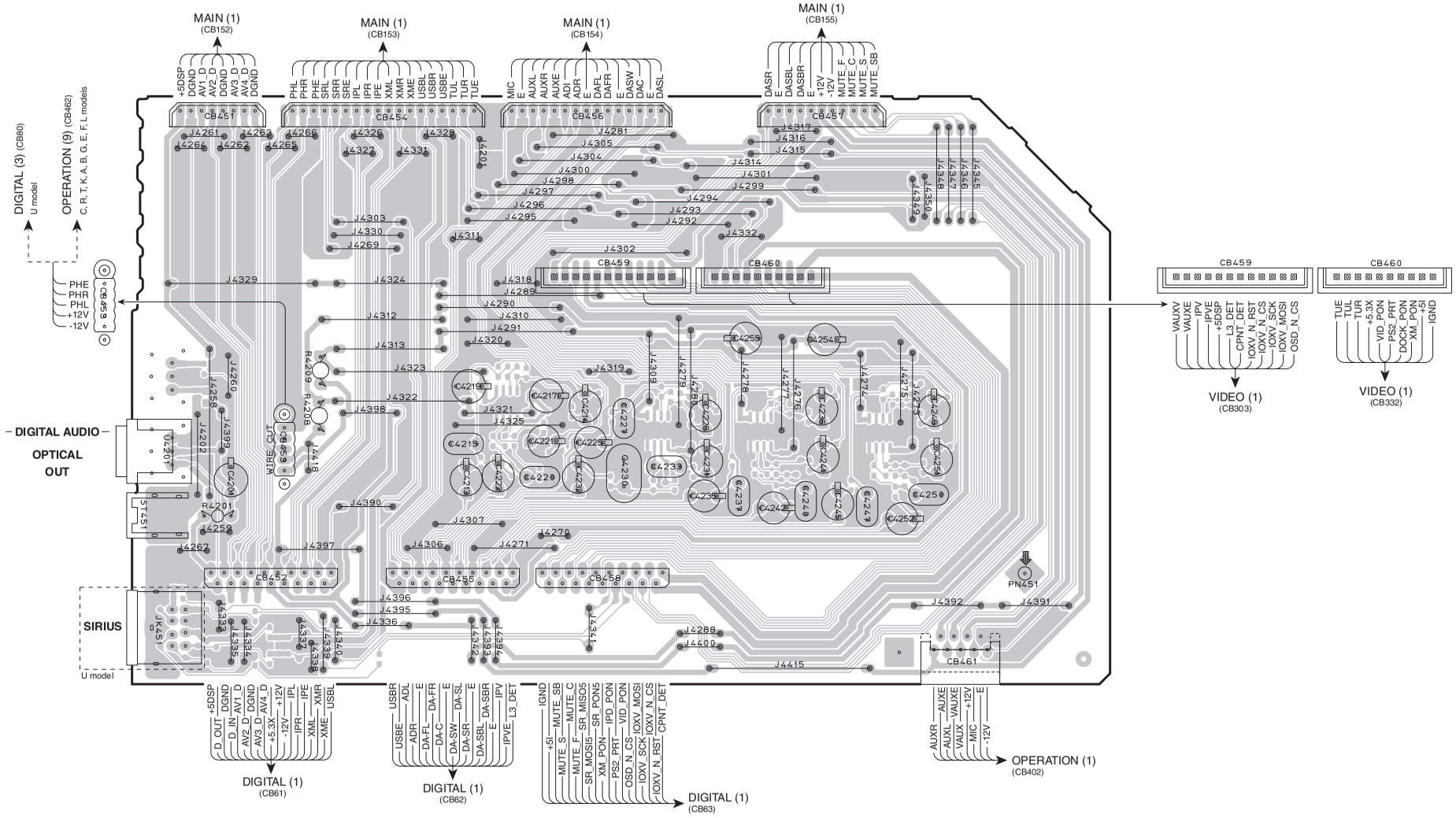
OPERATION (1) P.C.B. (Side B)



• Semiconductor Location

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

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


MAIN (1)
(CB152)
MAIN (1)
(CB153)
MAIN (1)
(CB154)
MAIN (1)
(CB155)
+5DSP
DGND
AV1_D
AV2_D
DGND
AV3_D
AV4_D
DGND
PHL
PHR
PHE
SRL
SRR
SRE
IPL
IPR
IPE
XML
XMR
XME
USBL
USBR
USBE
TUL
TUR
TUE
MIC
E
AUXL
AUXR
AUXE
ADI
ADR
E
DAFL
DAFR
E
DASW
DAC
E
DASL
DASR
E
DASBL
DASBR
E
+12V
-12V
MUTE_F
MUTE_C
MUTE_S
MUTE_SB
CB451
CB454
CB456
CB457
DIGITAL (3) (CB80)
U model
OPERATION (9) (CB462)
C, R, T, K, A, B, G, E, F, L models
CB459
PHE
PHR
PHL
+12V
-12V
CB460
CB459
VAUXV
VAUXE
IPV
IPVE
+5DSP
L3_DET
CPNT_DET
IOXV_N_RST
IOXV_N_CS
IOXV_SCK
IOXV_MOSI
OSD_N_CS
VIDEO (1)
(CB303)
CB460
TUE
TUL
TUR
+5.3X
VID_PON
PS2_PRT
DOCK_PON
XM_PON
+5
IGND
VIDEO (1)
(CB332)
DIGITAL AUDIO
OPTICAL
OUT
ST451
CB453
PHE
PHR
PHL
+12V
-12V
R4209
R4208
R4201
J4202
J4399
J4418
J4258
J4260
J4259
J4267
J4397
J4390
J4307
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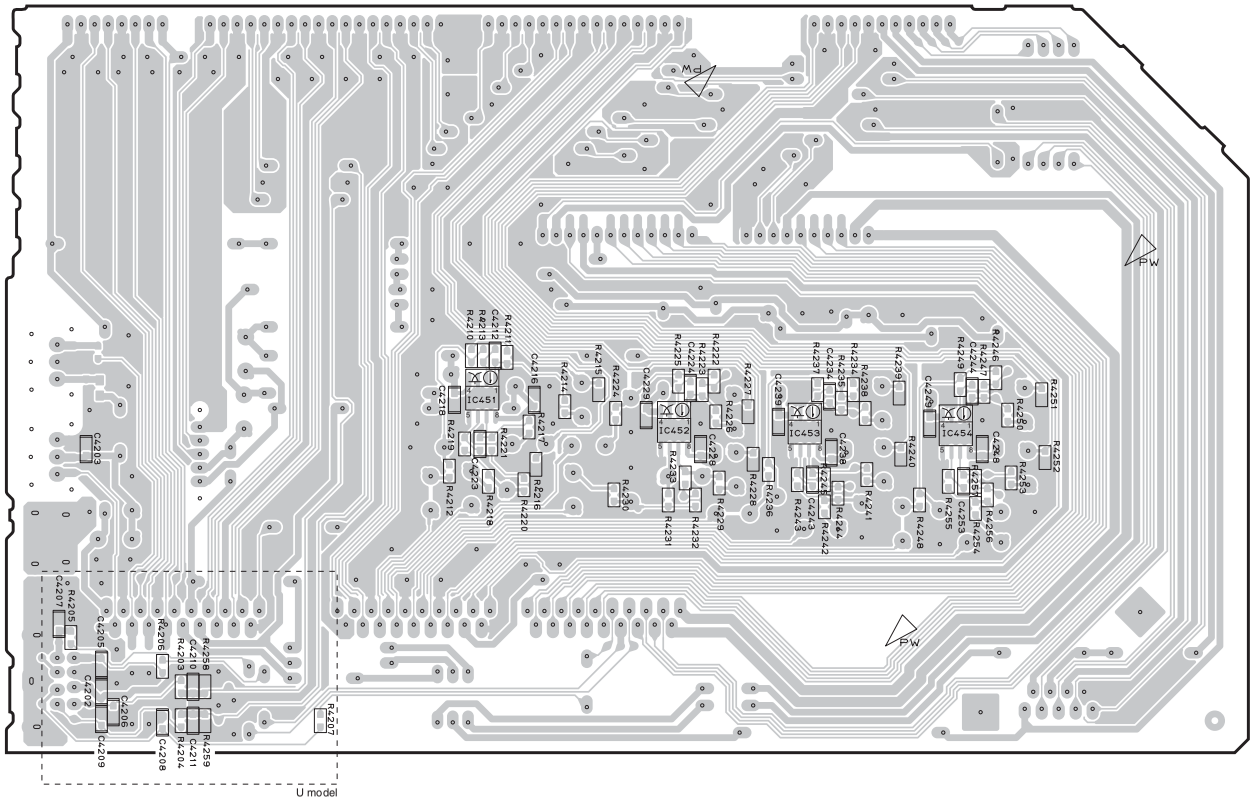
J4219
J4218
J4217
J4216

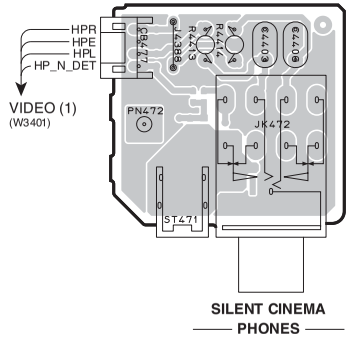
OPERATION (2) P.C.B. (Side B)



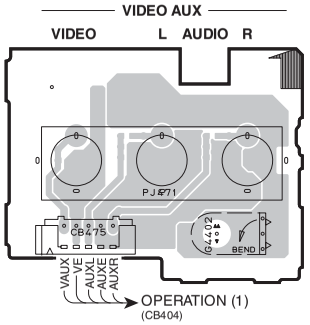
• Semiconductor Location

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

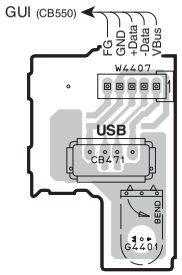
OPERATION (3) P.C.B. (Side A)



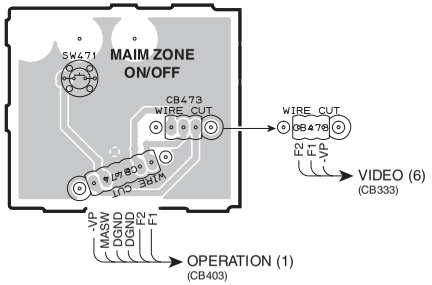
OPERATION (4) P.C.B. (Side A)



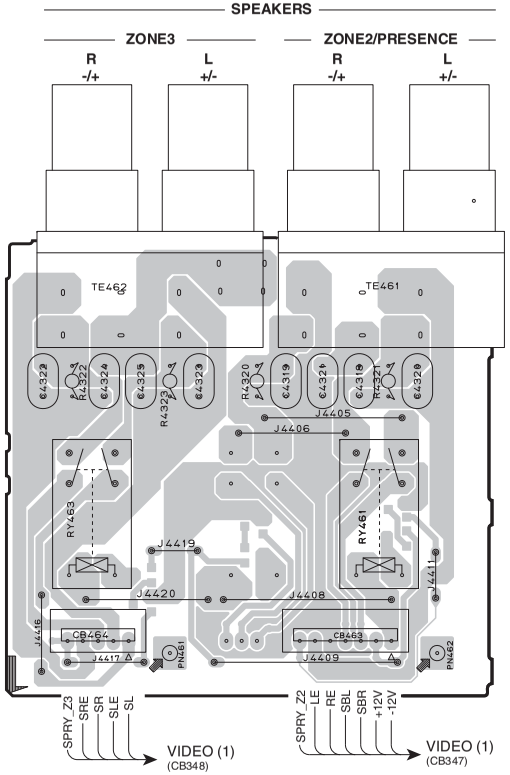
OPERATION (5) P.C.B. (Side A)



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

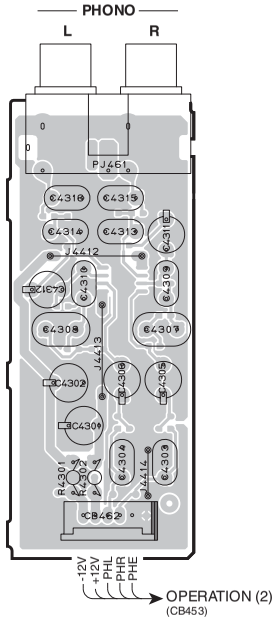


OPERATION (8) P.C.B. (Side A)

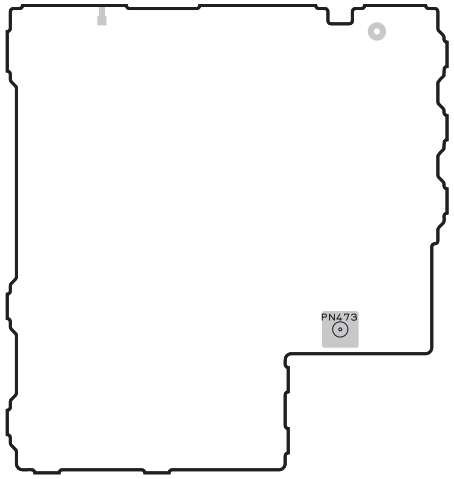


OPERATION (9) P.C.B. (Side A)

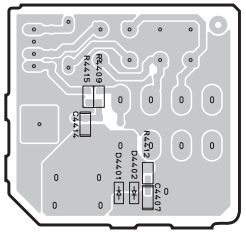
C, R, T, K, A, B, G, E, F, L models



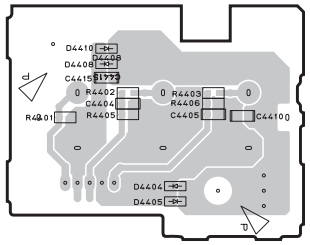
OPERATION (10) P.C.B. (Side A)



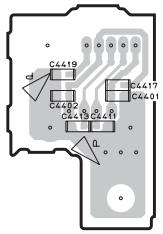
OPERATION (3) P.C.B. (Side B)



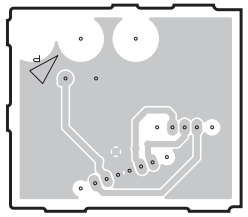
OPERATION (4) P.C.B. (Side B)



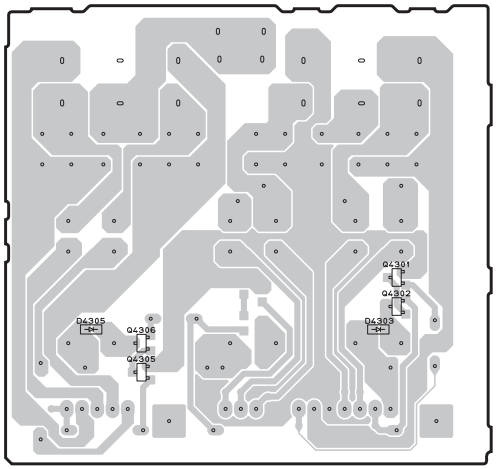
OPERATION (5) P.C.B. (Side B)



OPERATION (6) P.C.B. (Side B)

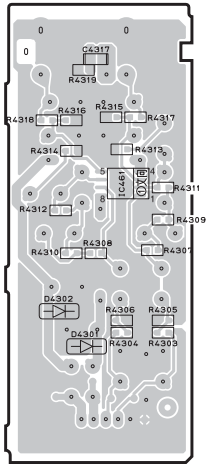


OPERATION (8) P.C.B. (Side B)

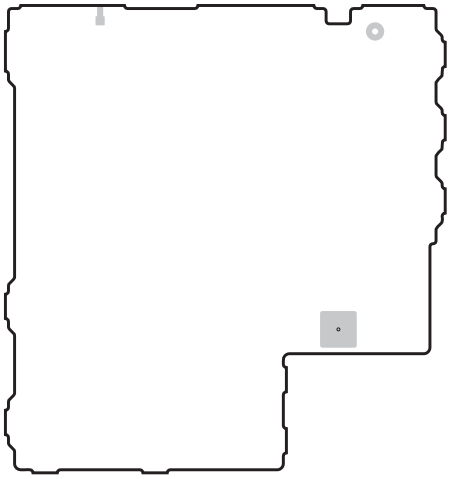


OPERATION (9) P.C.B. (Side B)

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



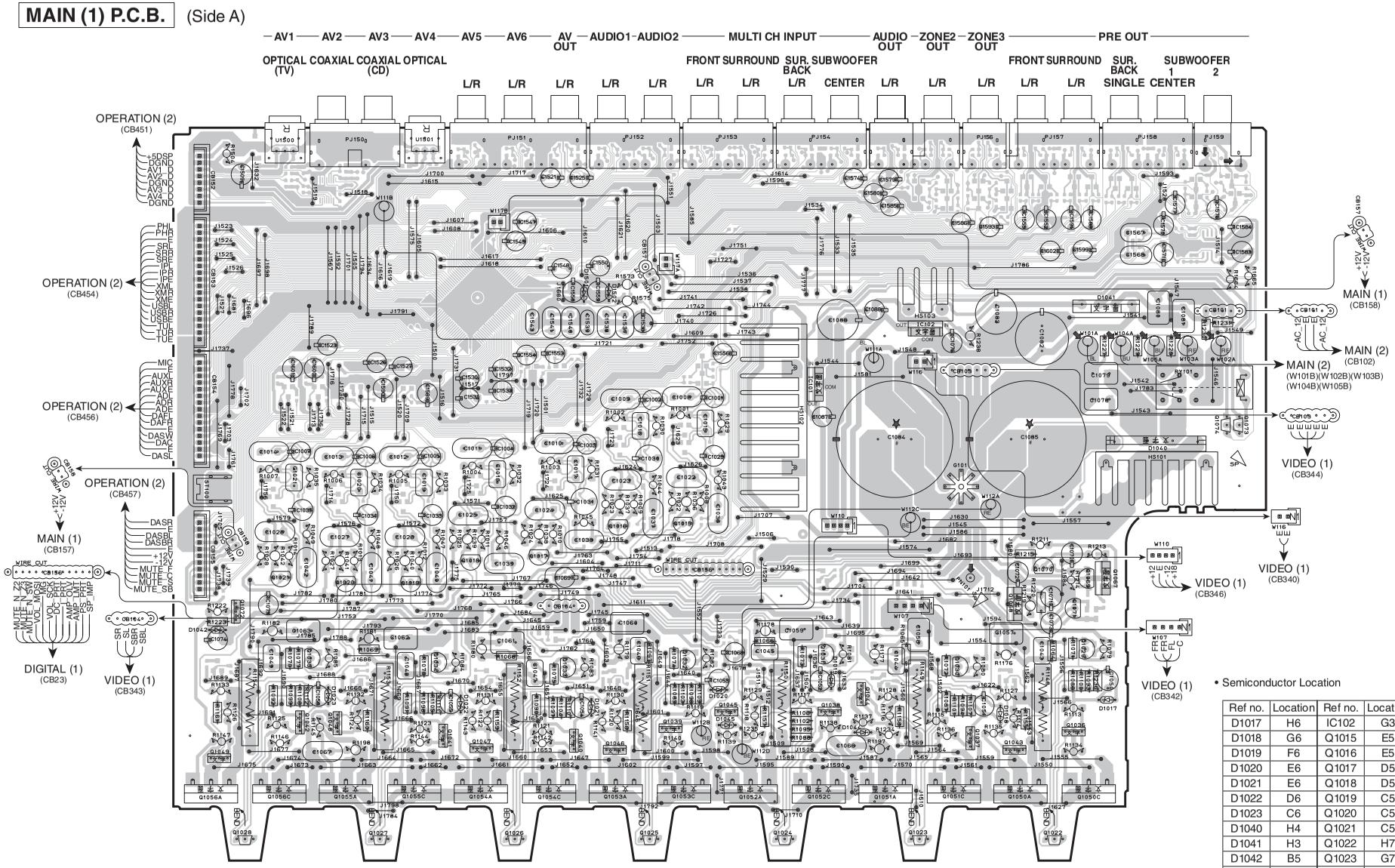
OPERATION (10) P.C.B. (Side B)



• Semiconductor Location

Ref no.	Location
D4301	D6
D4302	D6
D4303	C6
D4305	A6
D4401	B2
D4402	B2
D4404	D3
D4405	D3
D4408	D2
D4410	D2
IC461	D5
Q4301	C6
Q4302	C6
Q4305	A6
Q4306	A6

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

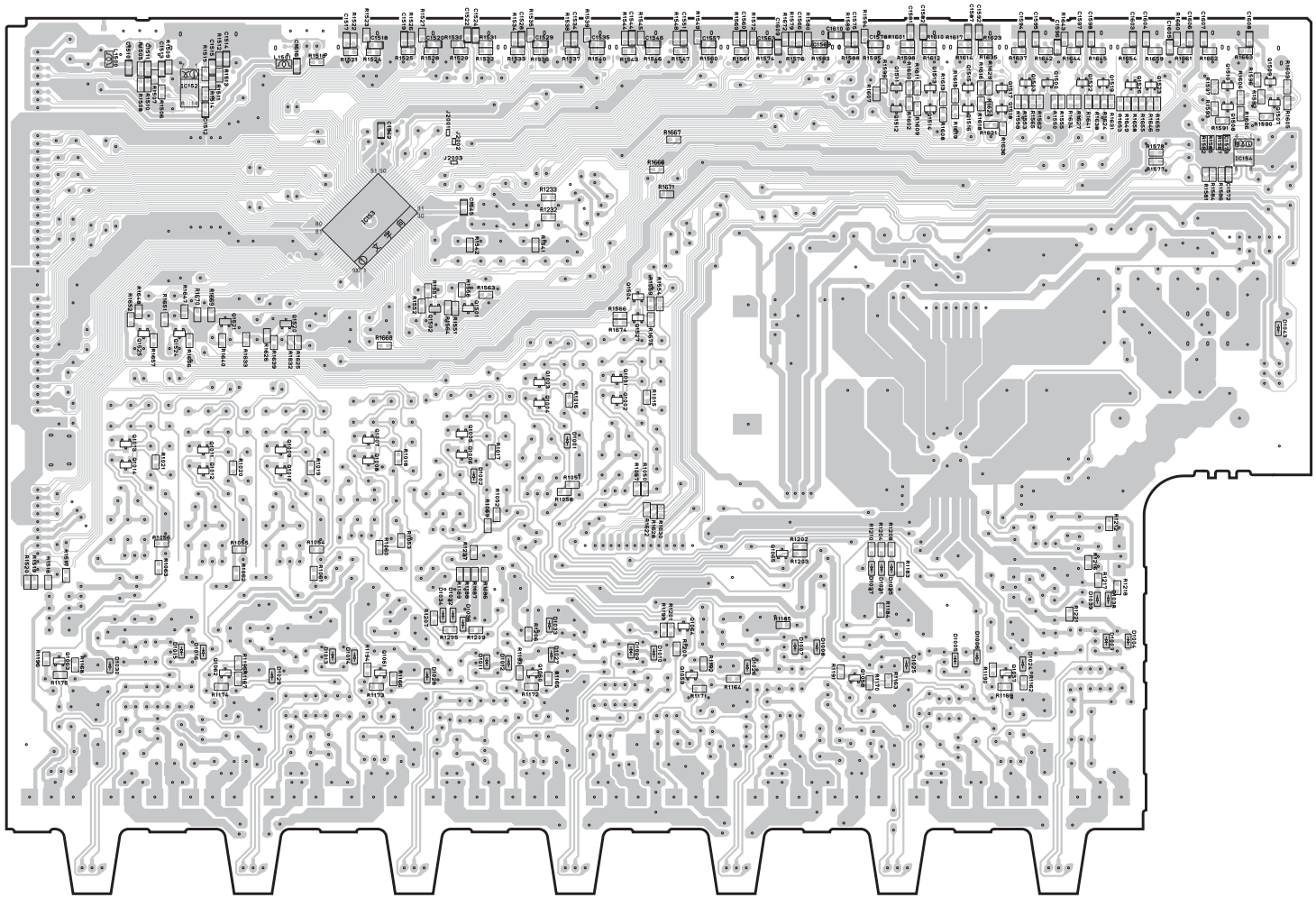


• Semiconductor Location

Ref no.	Location	Ref no.	Location	Ref no.	Location
D1017	H6	IC102	G3	Q1053A	E6
D1018	G6	Q1015	E5	Q1053C	E6
D1019	F6	Q1016	E5	Q1054A	D6
D1020	E6	Q1017	D5	Q1054C	D6
D1021	E6	Q1018	D5	Q1055A	C6
D1022	D6	Q1019	C5	Q1055C	D6
D1023	C6	Q1020	C5	Q1056A	B6
D1040	H4	Q1021	C5	Q1056C	C6
D1041	H3	Q1022	H7	Q1067	H5
D1042	B5	Q1023	G7	Q1068	G5
D1044	F6	Q1024	F7	Q1069	H5
D1045	F6	Q1025	E7	Q1070	H5
D1501	E3	Q1026	D7	Q1071	H5
D1502	E3	Q1027	C7	Q1072	B5
IC101	F4	Q1028	B7	Q1073	I4
				Q1074	I4

Ref no.	Location
Q1029	H5
Q1030	G5
Q1031	F5
Q1032	E5
Q1033	D5
Q1034	D5
Q1035	C5
Q1036	H6
Q1037	G6
Q1038	F6
Q1039	E6
Q1040	E6
Q1041	D6
Q1042	C6
Q1043	G6
Q1044	F6
Q1045	E6
Q1046	E6
Q1047	D6
Q1048	C6
Q1049	B6
Q1050A	G6
Q1050C	H6
Q1051A	G6
Q1051C	G6
Q1052A	F6
Q1052C	F6

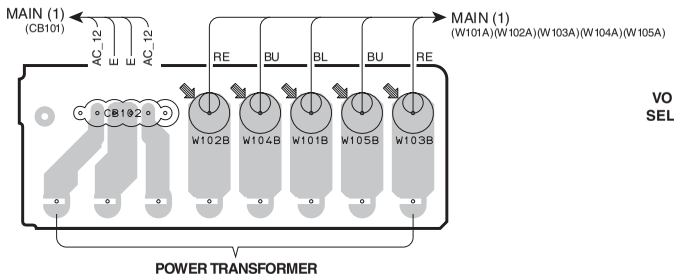
MAIN (1) P.C.B. (Side B)



• Semiconductor Location

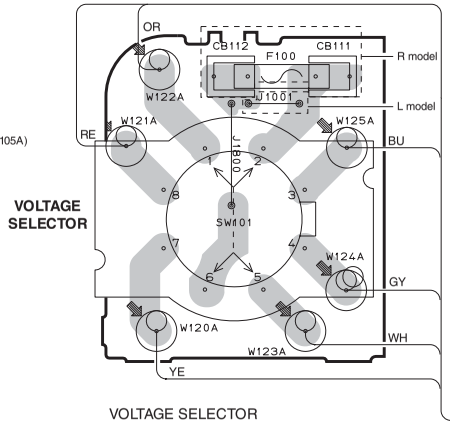
Ref no.	Location	Ref no.	Location
D1001	E4	Q1008	D4
D1002	D4	Q1009	C4
D1003	H5	Q1010	C4
D1004	H5	Q1011	C4
D1005	G5	Q1012	C4
D1006	G5	Q1013	C4
D1007	F5	Q1014	C4
D1008	F5	Q1057	G6
D1009	E5	Q1058	F6
D1010	E5	Q1059	F6
D1011	E5	Q1060	E6
D1012	E5	Q1061	D6
D1013	D5	Q1062	C6
D1014	D5	Q1063	B5
D1015	C5	Q1064	F5
D1016	C5	Q1065	F5
D1024	G5	Q1500	G2
D1025	G5	Q1501	D4
D1026	F5	Q1502	D4
D1027	E5	Q1503	G2
D1028	D6	Q1504	E4
D1029	C6	Q1507	I2
D1030	C5	Q1508	H3
D1031	G5	Q1509	I2
D1032	D5	Q1510	H2
D1033	E5	Q1511	G2
D1034	D5	Q1512	G3
D1035	G5	Q1513	G2
D1036	D5	Q1514	G3
D1037	G5	Q1515	G2
D1038	H5	Q1516	G3
D1039	H5	Q1517	G2
D1043	I4	Q1518	G3
IC152	C2	Q1519	H2
IC153	D3	Q1520	C4
IC154	I3	Q1521	C4
Q1001	E4	Q1522	H2
Q1002	E4	Q1523	H2
Q1003	E4	Q1524	C4
Q1004	E4	Q1525	C4
Q1005	D4	Q1526	H2
Q1006	D4	Q1527	E4
Q1007	D4		

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



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

R, L models

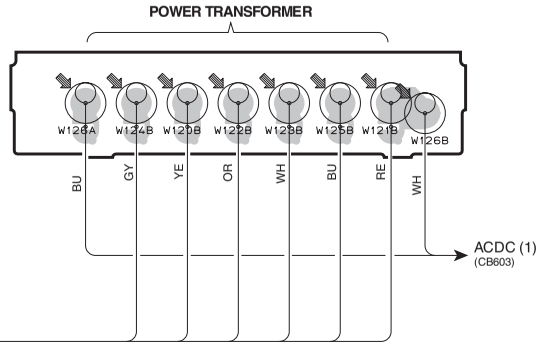


VOLTAGE SELECTOR

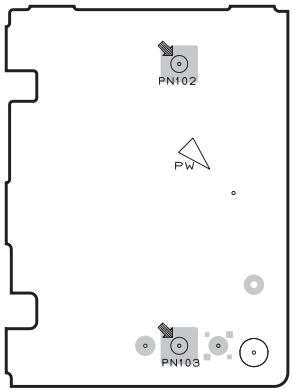
230-240V	1-2/5-6	
220V	2-3/6-7	
110V	3-4/7-8	(R model)
120V	4-5/8-1	(R model)

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

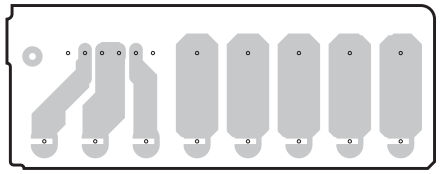
R, L models



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

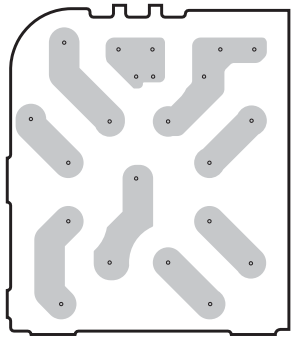


MAIN (2) P.C.B. (Side B)



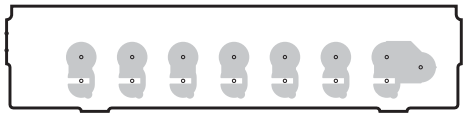
MAIN (3) P.C.B. (Side B)

R, L models

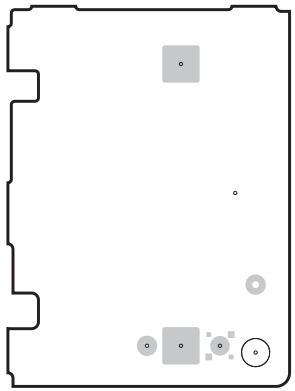


MAIN (4) P.C.B. (Side B)

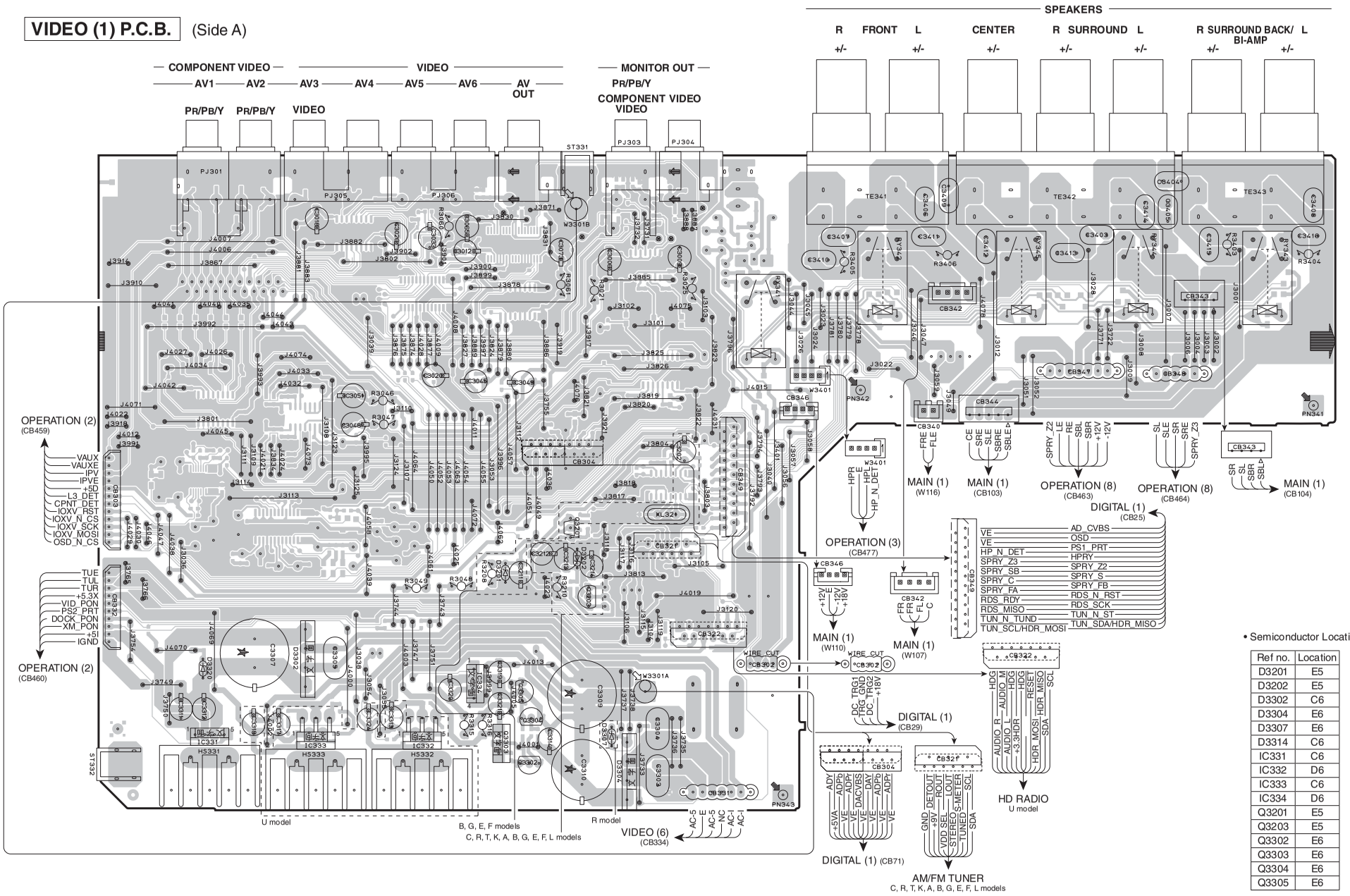
R, L models



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



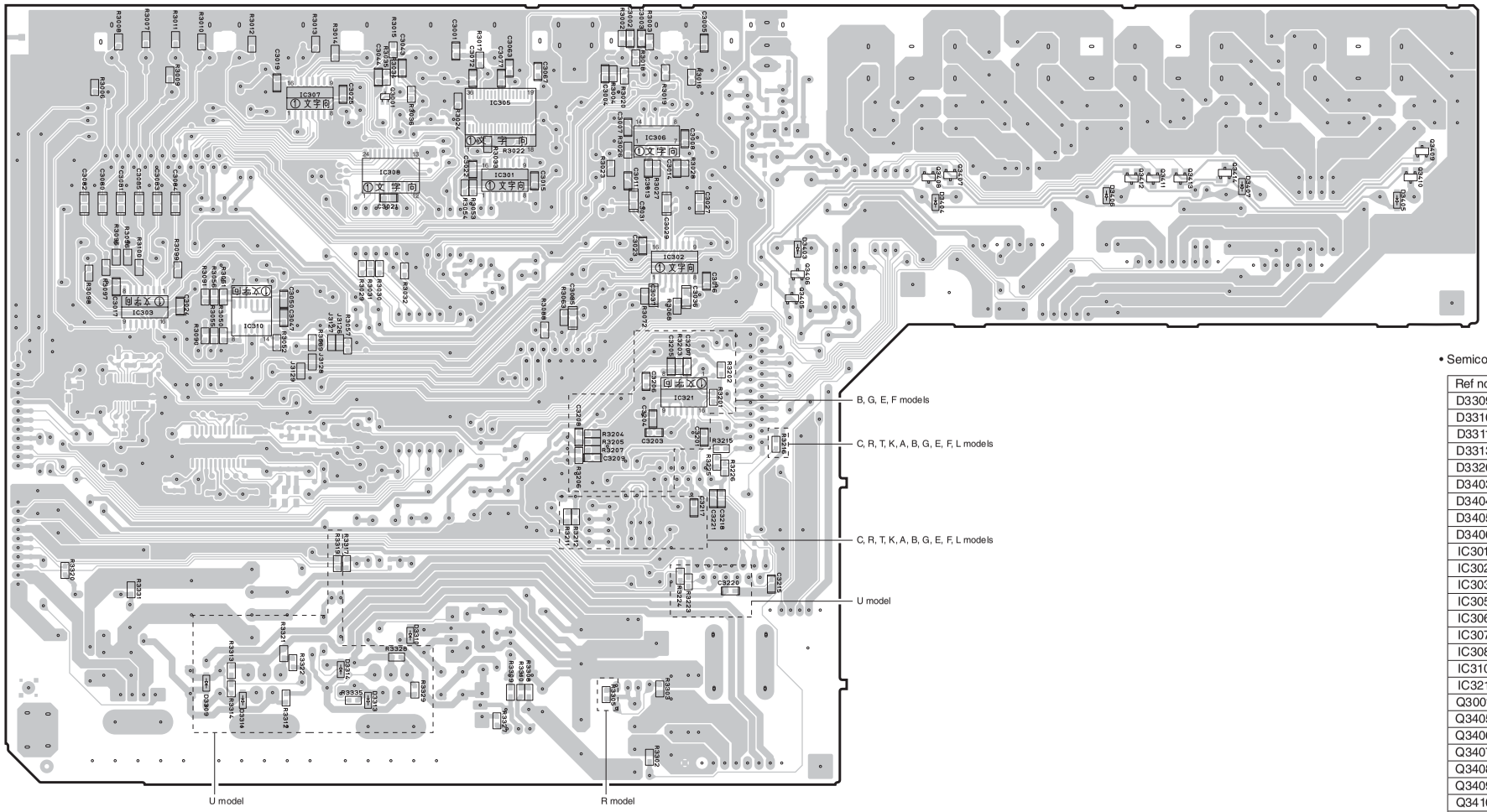
VIDEO (1) P.C.B. (Side A)



• Semiconductor Location

Ref no.	Location
D3201	E5
D3202	E5
D3302	C6
D3304	E6
D3307	E6
D3314	C6
IC331	C6
IC332	D6
IC333	C6
IC334	D6
Q3201	E5
Q3203	E5
Q3302	E6
Q3303	E6
Q3304	E6
Q3305	E6

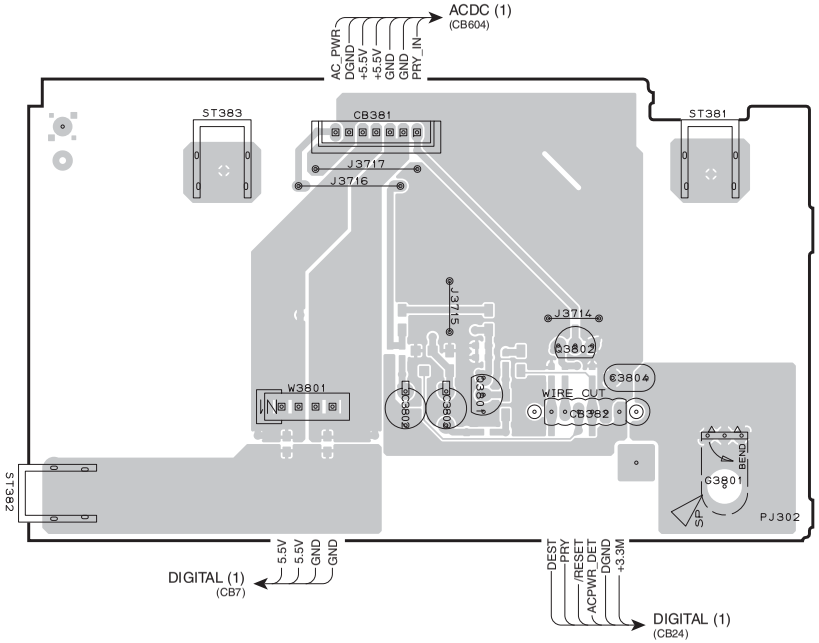
VIDEO (1) P.C.B. (Side B)



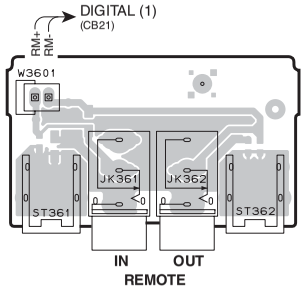
• Semiconductor Location

Ref no.	Location
D3309	B6
D3310	D6
D3311	C6
D3313	C6
D3320	F4
D3403	G3
D3404	I3
D3405	H3
D3406	H3
IC301	D3
IC302	E4
IC303	B4
IC305	D3
IC306	E3
IC307	C3
IC308	C3
IC310	C4
IC321	E4
Q3001	C3
Q3405	F4
Q3406	F4
Q3407	G3
Q3408	G3
Q3409	I3
Q3410	I3
Q3411	H3
Q3412	H3
Q3413	H3
Q3414	H3

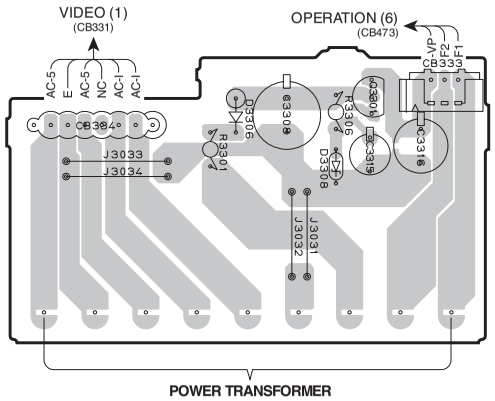
VIDEO (3) P.C.B. (Side A)



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

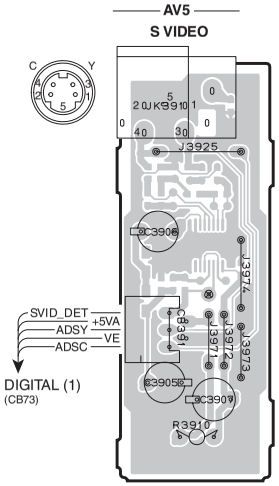


VIDEO (6) P.C.B. (Side A)



VIDEO (9) P.C.B. (Side A)

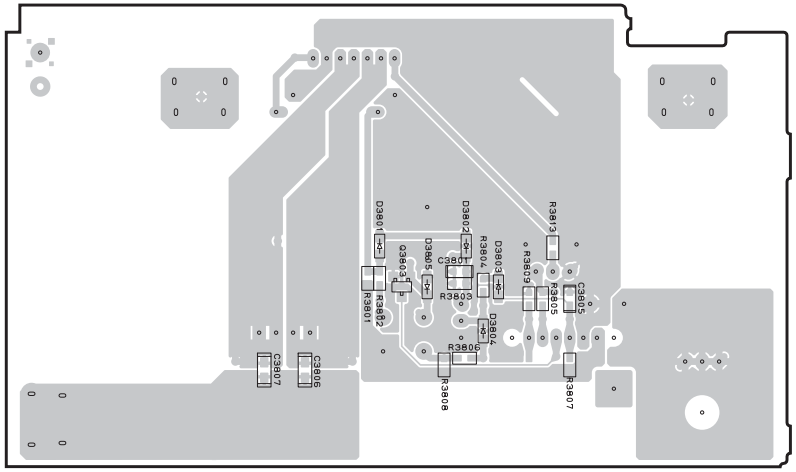
B, G, E, F models



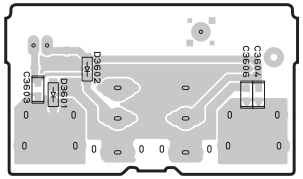
• Semiconductor Location

Ref no.	Location
D3306	C6
D3308	C6
Q3301	D6
Q3801	D3
Q3802	E3

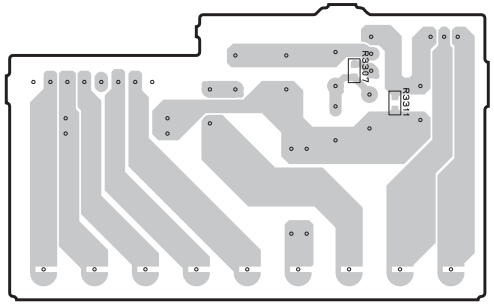
VIDEO (3) P.C.B. (Side B)



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

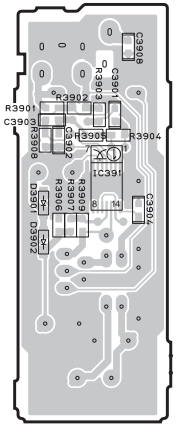


VIDEO (6) P.C.B. (Side B)



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

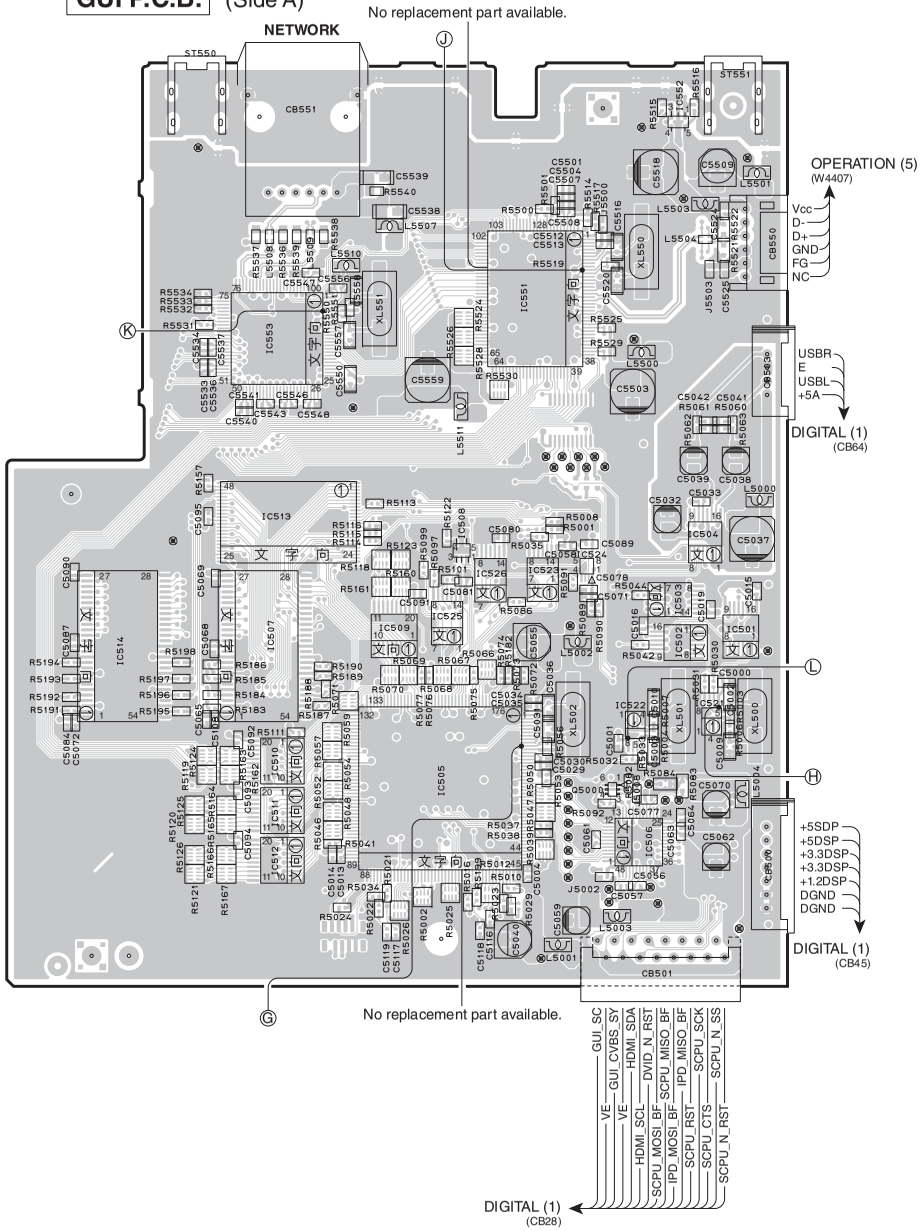
B, G, E, F models



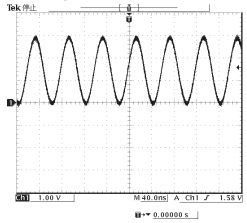
• Semiconductor Location

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

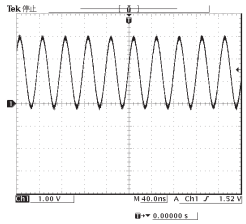
GUI P.C.B. (Side A)



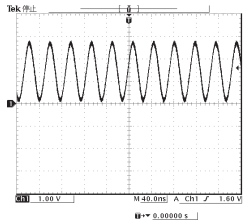
POINT Ⓖ XL502 (Pin 10 of IC505)



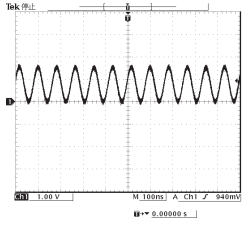
POINT Ⓗ XL500 (Pin 8 of IC521)



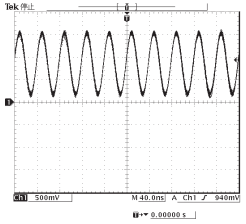
POINT Ⓛ XL501 (Pin 8 of IC522)



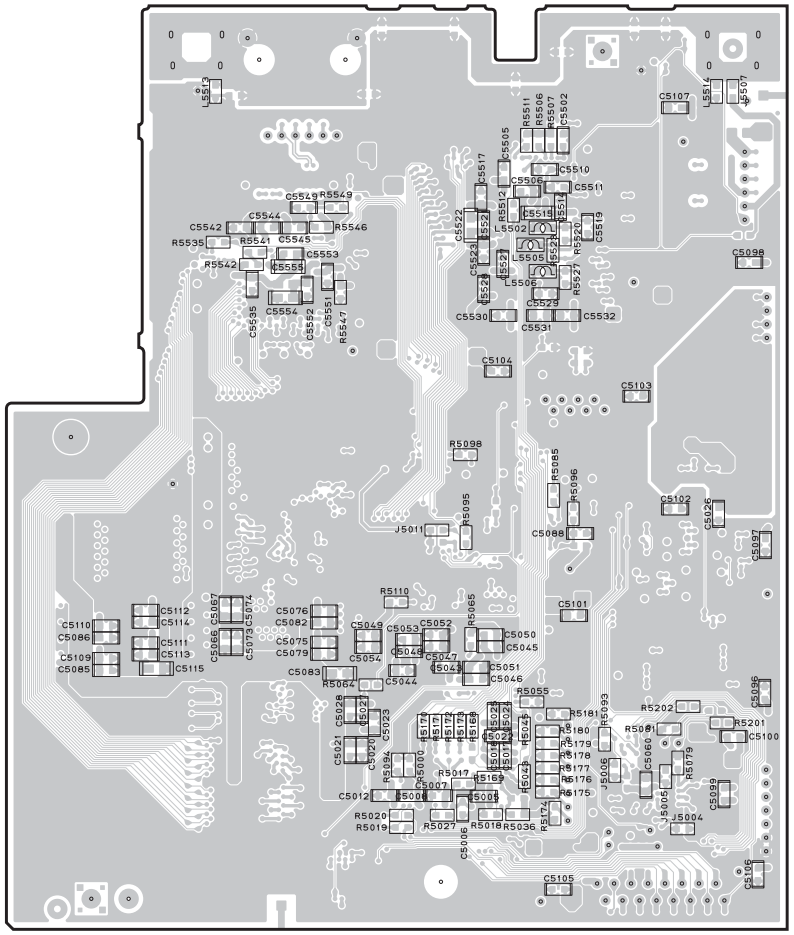
POINT Ⓙ XL550 (Pin 11 of IC551)



POINT Ⓚ XL551 (Pin 5 of IC553)



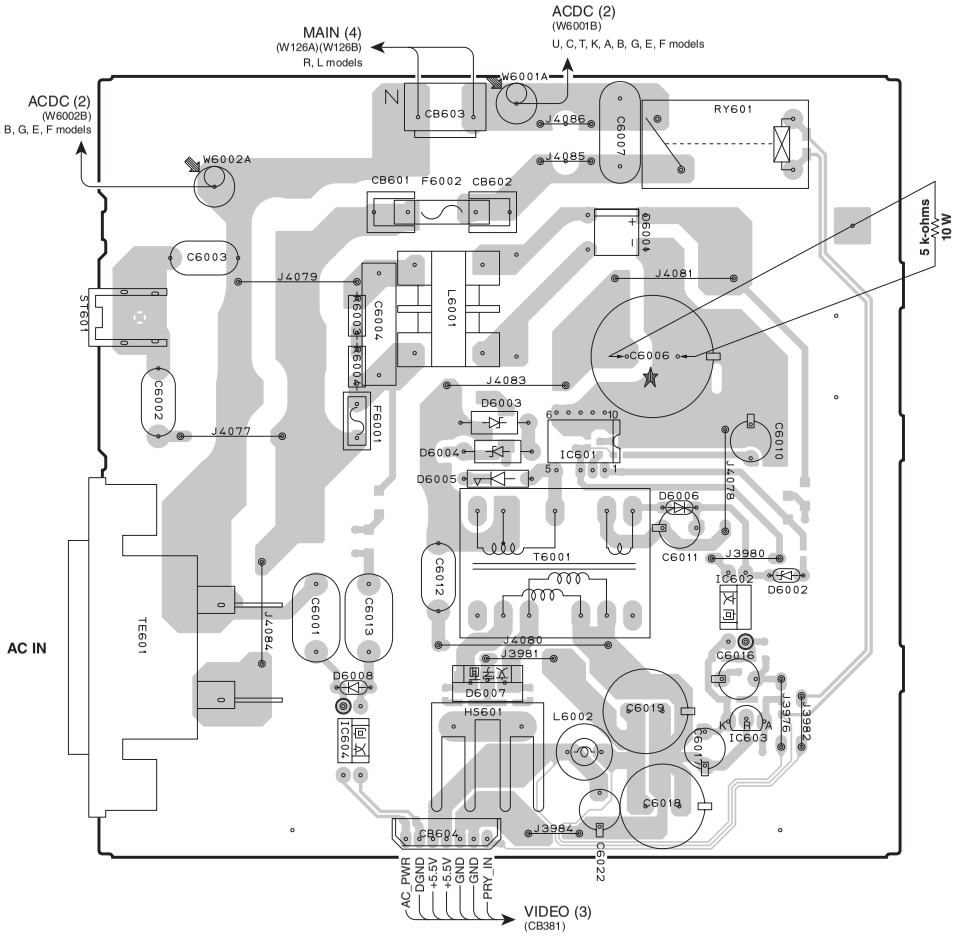
GUI P.C.B. (Side B)



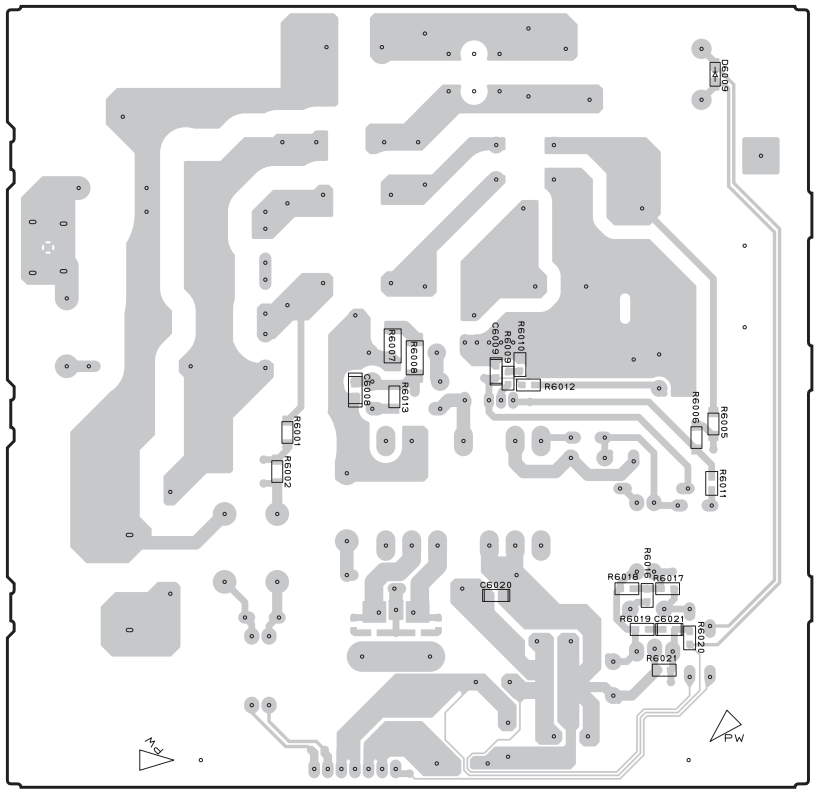
• Semiconductor Location

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

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



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



• Semiconductor Location

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

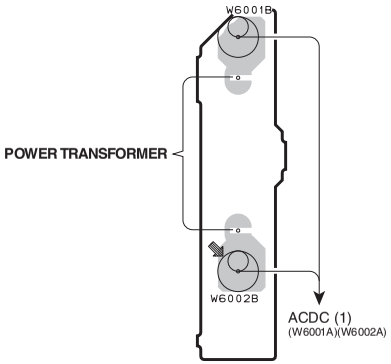
Notes)

Safety measures

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

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

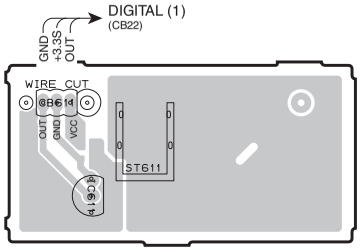
U, C, T, K, A, B, G, E, F models



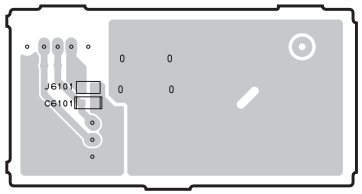
ACDC (2) P.C.B. (Side B)

U, C, T, K, A, B, G, E, F models

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



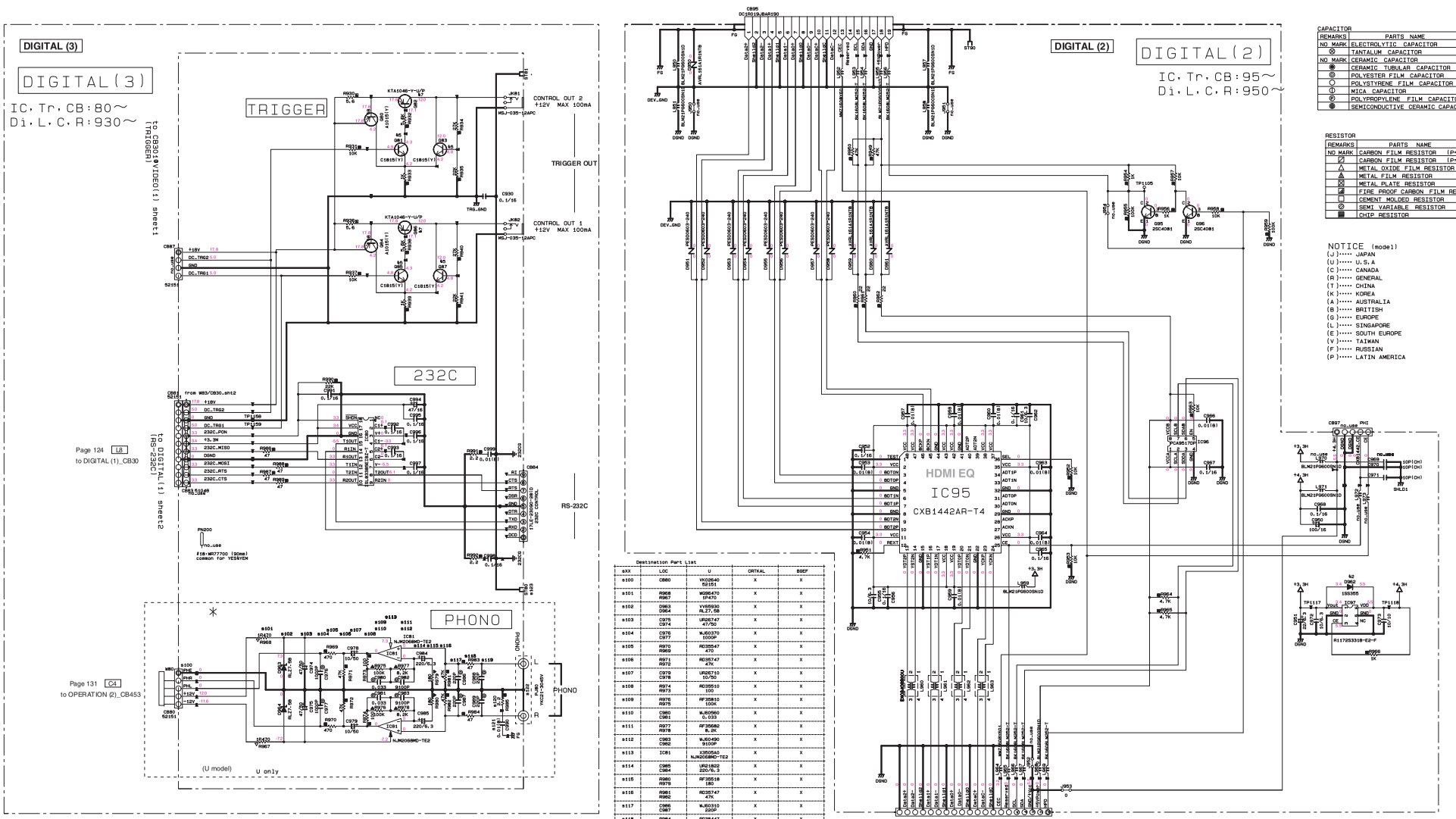
ACDC (3) P.C.B. (Side B)



• Semiconductor Location

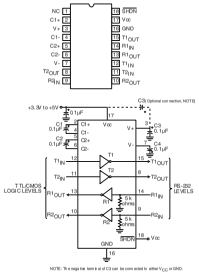
Ref no.	Location
IC611	C6

■ SCHEMATIC DIAGRAMS
DIGITAL 1/7



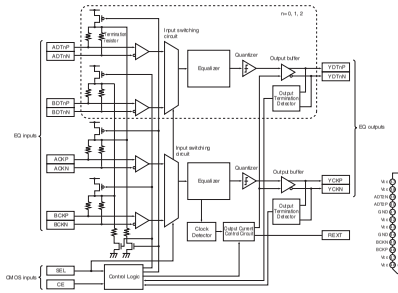
Destination Part List				
aXX	LOC	U	CRITKAL	BOEF
s100	CB80	VK02640 52151	X	X
s101	R968 R967	WS6470 1P470	X	X
s102	D963 D964	VV6930 RL27.5B	X	X
s103	C975 C974	VR25747 47/50	X	X
s104	C976 C977	WJ60370 1000P	X	X
s105	R970 R969	RD35647 470	X	X
s106	R971 R972	RD35747 47K	X	X
s107	C979 C978	UR25710 10/50	X	X
s108	R974 R973	RD35510 100	X	X
s109	R976 R975	RF35810 100k	X	X
s110	C980 C981	WJ60560 0.033	X	X
s111	R977 R978	RF35682 6.8k	X	X
s112	C983 C982	WJ60490 9100P	X	X
s113	IC81	VM35650 NJM2068MD-TE2	X	X
s114	C985 C984	UR21822 220/6.3	X	X
s115	R980 R979	RF35518 180	X	X
s116	R981 R982	RD35747 47K	X	X
s117	C986 C987	WJ60310 220P	X	X
s118	R984 R983	RD35447 47	X	X
s119	C988 C989	WJ60310 220P	X	X
s120	R985	RD35322 2.2	X	X
s121	C990	UD56410 0.01(B)	X	X
s122	PJ80	VM72560 VK221-3245V	X	X
s123	ST80	X	V404050	V404050

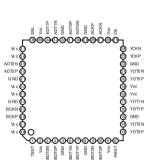
IC80: ISL83385EIBZ-T
RS-232 transmitter/Receivers



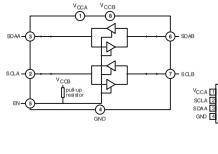
IC81: NJM2068MD-TE2
Dual operational amplifier

IC95: CXB1442AR-T4
Cable equalizer with 2-system switching function

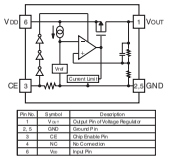




IC96: PCA9517DP
Level translating I²C-bus repeater



IC97: R1172S331B-E2-F
CMOS-based positive-voltage regulator IC



Pin No.	Symbol	Description
1	VOUT	Output Pin of Voltage Regulator
2, 5	GND	Ground Pin
3	CE	Chip Enable Pin
4	NC	No Connection
6	VIN	Input Pin

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	‖
◎	TANTALUM CAPACITOR	‖
NO MARK	CERAMIC CAPACITOR	‖
◉	CERAMIC TUBULAR CAPACITOR	‖
◎	POLYESTER FILM CAPACITOR	‖
○	POLYSTYRENE FILM CAPACITOR	‖
ⓘ	MICA CAPACITOR	‖
⊘	POLYPROPYLENE FILM CAPACITOR	‖
●	SEMICONDUCTIVE CERAMIC CAPACITOR	‖

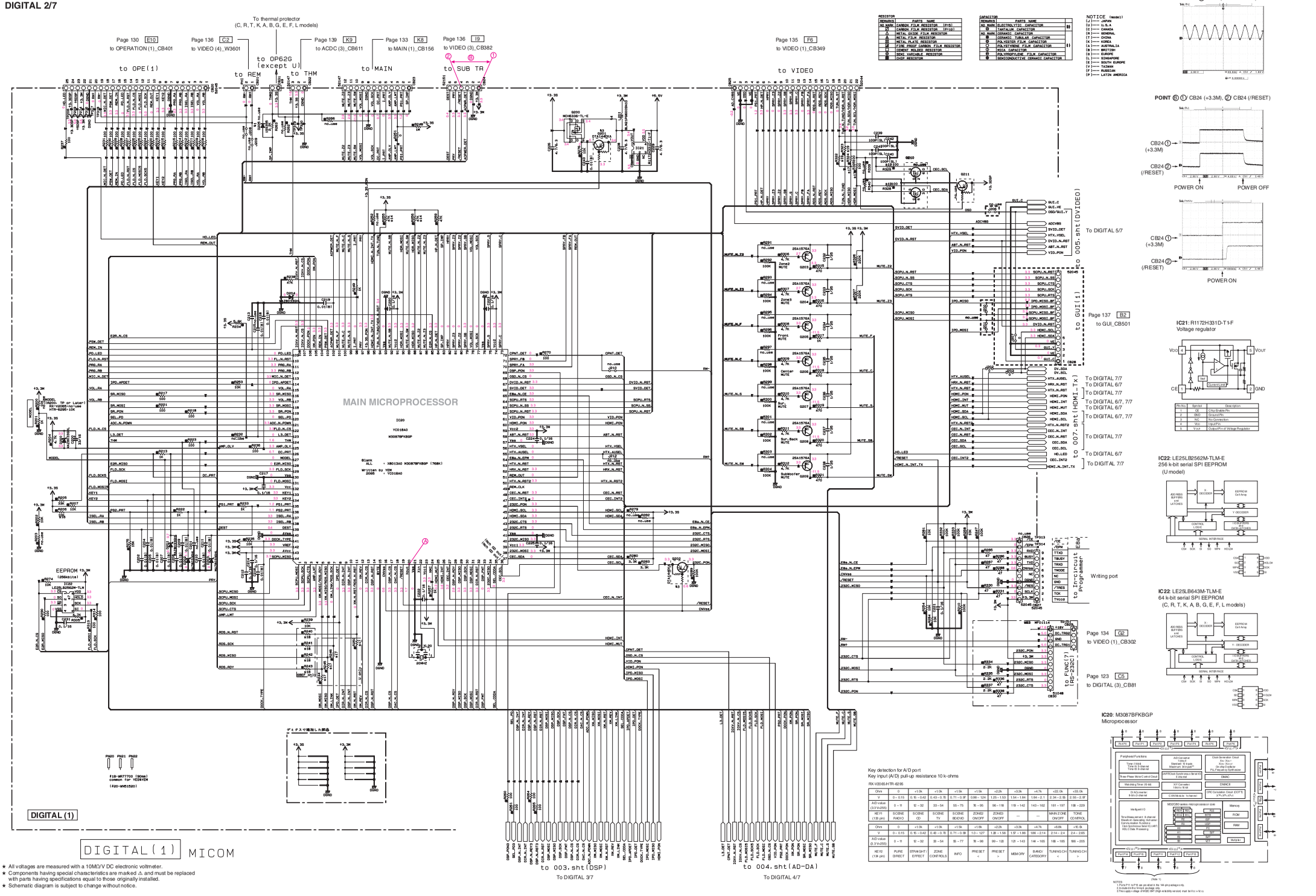
RESISTOR

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

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
(P)····· LATIN AMERICA

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

DIGITAL 2/7



RESISTOR

REMARKS	
NO MARK	CARBON FILM RESISTOR (1/6W)
⊘	CARBON FILM RESISTOR (1/10W)
△	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	
NO MARK	ELECTROLYTIC CAPACITOR
⊕	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊕	CERAMIC TUBULAR CAPACITOR
⊕	POLYESTER FILM CAPACITOR
⊕	POLYSTYRENE FILM CAPACITOR
⊕	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
⊕	SEMICONDUCTIVE CERAMIC CAPACITOR

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

POINT Ⓐ XL20 (Pin 20 of IC20)

POINT Ⓑ ① CB24 (+3.3M), ② CB24 (/RESET)

CB24 ① (+3.3M)
CB24 ② (/RESET)
POWER ON
POWER OFF

IC21: R1172H331D-T1-F
Voltage regulator

Pin No.	Symbol	Description
1	CE	Chip Enable Pin
2	GND	Ground Pin
3	NC	No Connection
4	VDD	Input Pin
5	VOUT	Output Pin of Voltage Regulator

IC22: LE25LB2562M-TLM-E
256 k-bit serial SPI EEPROM
(U model)

IC22: LE25LB643M-TLM-E
64 k-bit serial SPI EEPROM
(C, R, T, K, A, B, G, E, F, L models)

IC20: M30870FKBGP
Microprocessor

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

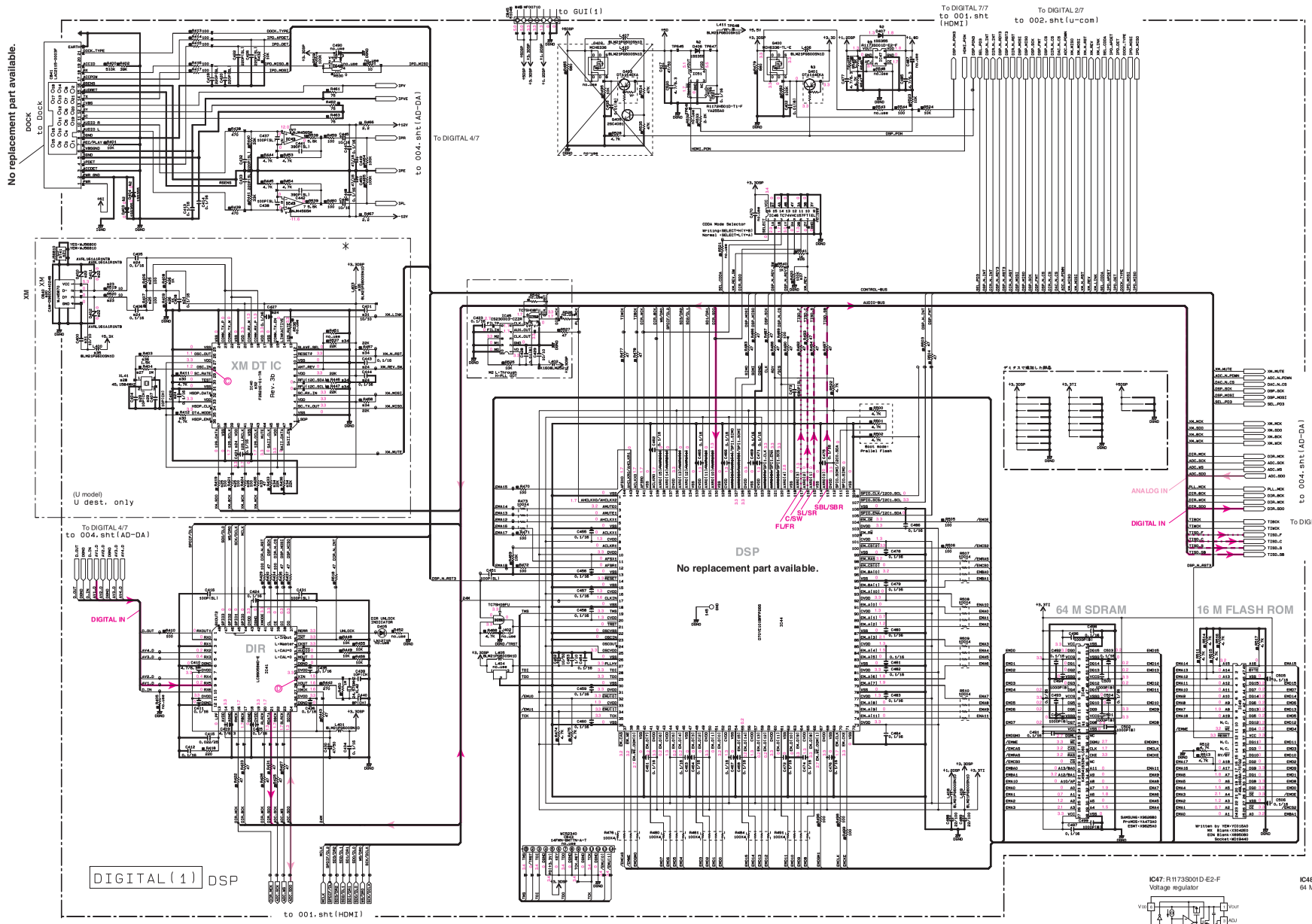
RX-V2065/HTR-6295

Ohm	0	+1.0k	+1.0k	+1.5k	+1.5k	+2.2k	+3.3k	+4.7k	+22.0k	+33.0k
V	0 - 0.15	0.15 - 0.42	0.42 - 0.71	0.71 - 0.97	0.98 - 1.24	1.25 - 1.53	1.54 - 1.84	1.84 - 2.1	2.34 - 2.59	2.65 - 2.97
A/D value (3.3V=255)	0 - 11	12 - 32	33 - 54	55 - 75	76 - 95	96 - 118	119 - 142	143 - 162	181 - 197	198 - 229
KEY1 (1St pin)	SCENE RADIO	SCENE CD	SCENE TV	SCENE BD/DVD	ZONE2 ON/OFF	ZONE3 ON/OFF	—	—	MAIN ZONE ON/OFF	TONE CONTROL

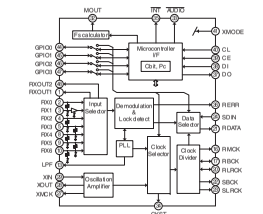
Ohm	0	+1.0k	+1.0k	+1.5k	+1.8k	+2.2k	+3.3k	+4.7k	+5.6k	+10.0k
V	0 - 0.15	0.15 - 0.42	0.42 - 0.71	0.71 - 0.98	1.0 - 1.27	1.28 - 1.56	1.57 - 1.88	1.88 - 2.14	2.14 - 2.4	2.4 - 2.65
A/D value (3.3V=255)	0 - 11	12 - 32	33 - 54	55 - 77	78 - 98	99 - 122	123 - 143	144 - 165	166 - 185	186 - 205
KEY2 (1St pin)	PURE DIRECT	STRAIGHT / EFFECT	ZONE CONF.KOLS	INFO	PRESET <	PRESET >	MEM ORY	BAND/ CATEGORY	TUNING CH <	TUNING CH >

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

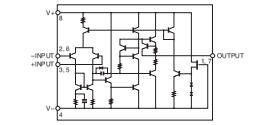
DIGITAL 3/7



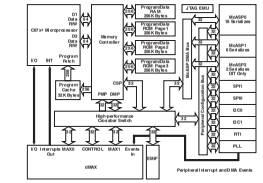
IC41: LC89058WD-E
Digital audio interface receiver



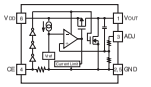
IC43: NJM4565M
Dual operational amplifier



IC44: D70YE101BRFP266
Floating-point digital signal processors

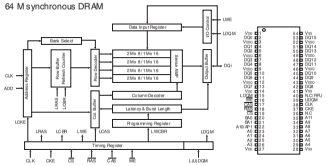


IC47: R1173S001D-E2-F
Voltage regulator

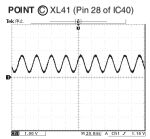


Pin No.	Symbol	Description
1	VOUT	Output Pin of Voltage Regulator
2	GND	Ground Pin
3	ADJ	ADJ Pin
4	CE	Chip Enable Pin
5	GND	Ground Pin
6	VIN	Input Pin

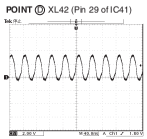
IC48: K4S641632N-LC60000
64 M synchronous DRAM



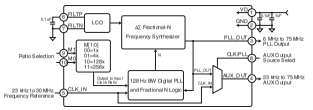
POINT Ⓒ XL41 (Pin 28 of IC40)



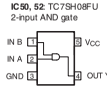
POINT Ⓓ XL42 (Pin 29 of IC41)



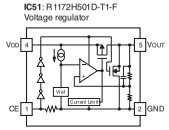
IC45: CS230003-CZZR
Clock multiplier



IC50, 52: TC7SH08FU
2-input AND gate



IC51: R1172H501D-T1-F
Voltage regulator



Pin No.	Symbol	Description
1	CE	Chip Enable Pin (H: Active)
2	GND	Ground Pin
3	NC	No Connection
4	VSS	Input Pin
5	VOUT	Output Pin

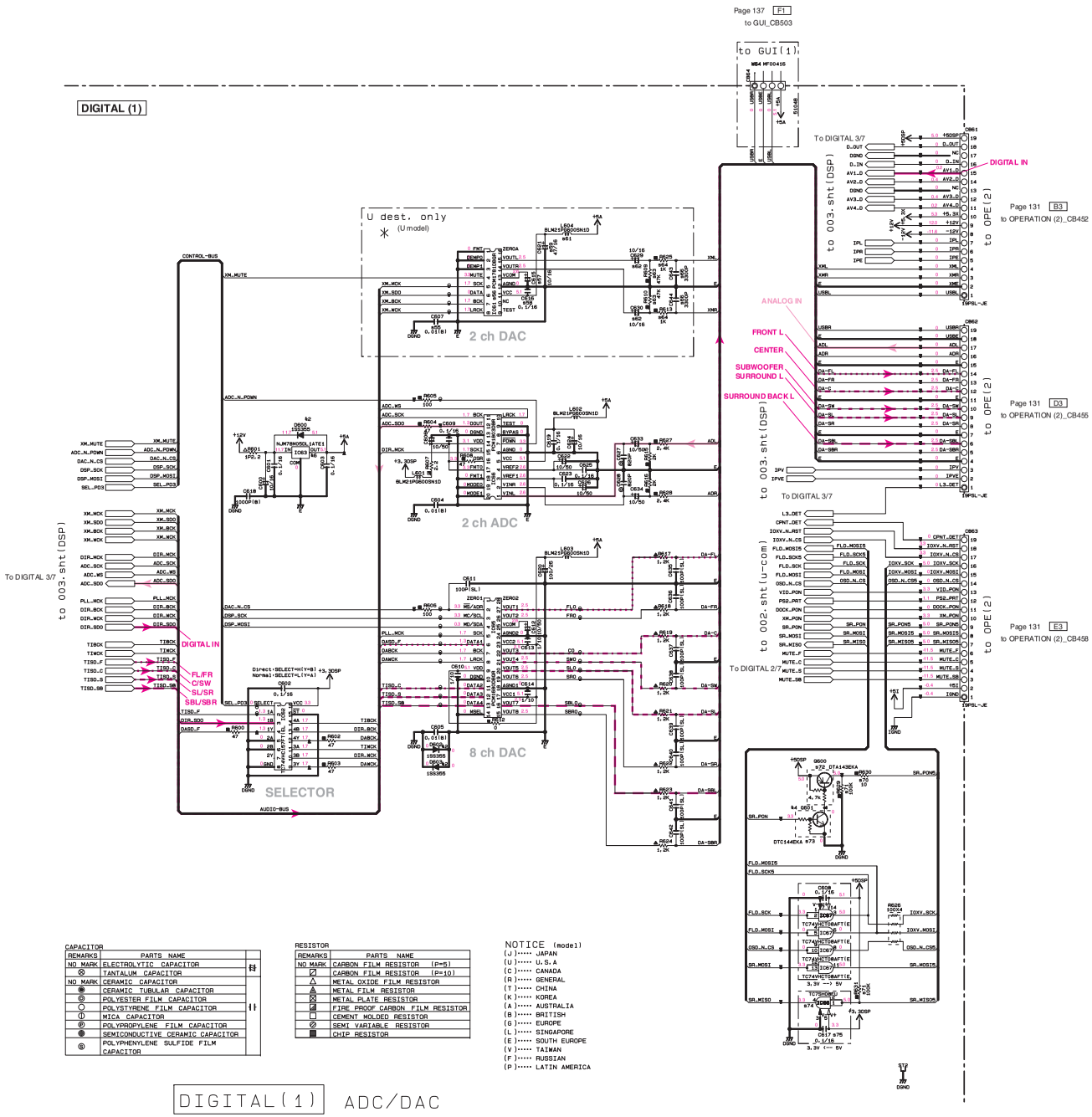
RESISTOR		
NO MARK	CARBON FILM RESISTOR (PPS)	
▲	CARBON FILM RESISTOR (PROD)	
△	METAL OXIDE FILM RESISTOR	
◇	METAL FILM RESISTOR	
◇	METAL PLATE RESISTOR	
◇	FINE PROOF CARBON FILM RESISTOR	
□	CEMENT MOLDED RESISTOR	
⊗	SEMI VARIABLE RESISTOR	
■	CHIP RESISTOR	

CAPACITOR		
NO MARK	ELECTROLYTIC CAPACITOR	
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
⊗	CERAMIC TUBULAR CAPACITOR	
⊗	POLYESTER FILM CAPACITOR	
⊗	FINE PROOF CARBON FILM CAPACITOR	
⊗	MICA CAPACITOR	
⊗	POLYPROPYLENE FILM CAPACITOR	
■	SEMICONDUCTIVE CERAMIC CAPACITOR	

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

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

DIGITAL 4/7

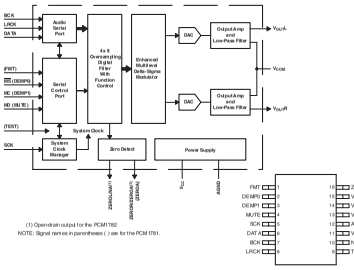


s1 ~19:002.sht(u-com)
s20~80:003.sht(DSP)
s90~99:005.sht(DVIDEO)

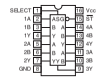
Destination Part List

	sXX	LOC	U	CRTKAL	80EP
EEPROM	s7	IC22	YA7294O LE25L512S62M-TLM	YC035AO LE25L5643M-TLM-	YC035AO LE25L5643M-TLM-
THR2	S9	CB31	X	LB91802 3H1	LB91802 3H1
TUNER Pullup	s14	R256 R255	X	RD35747 47K	RD35747 47K
PS2_PRT	s16	R206	X	RD35710 10K	RD35710 10K
XM/HD-Radio	s17	R250 R324 R246 R244 R245 R325	RD35510 100	X	X
RDS	s18	R243 R242 R241 R240	X	X	RD35510 100
AM/FM TUNER	s19	R322 R321 R326 R323	X	RD35510 100	RD35510 100
XM	s20	CB40	WJ45870 CAM-CB6024402AB	X	X
	s21	ST41	WJ5610	X	X
	s22	D402 D400 D401	WE67480 AVRL1614IRINTB	X	X
	s23	R520 R519	RD35410 10	X	X
	s24	C427 C409 C410 C421 C443 C405 C408 C406	UD35310 0.1/16	X	X
	s25	R421 R419 R406 R424 R407	RD35510 100	X	X
	s26	R541 R409 R408	RD35610 1K	X	X
	s27	R404	RD35910 1M	X	X
	s28	XL41	WR84620 45.15844MHZ	X	X
	s29	C404 C407	UD35110 10P(CH)	X	X
	s30	R411 R412	RD35647 4.7K	X	X
	s31	C400 C401	WD75830 10/10	X	X
	s32	IC40	WR18240 F2621E-01-TR	X	X
	s33	R426	RD35447 47	X	X
	s34	R537 R459 R436 R457 R446 R433 R447	RD35722 22K	X	X
	s35	L403 L400	VZ4990 BLM21PG600SN1D	X	X
	s36	R403	RD35615 1.5K	X	X
	s37	R420	X	RD35810 100K	RD35810 100K
XM-DAC	s55	CE07	UD35410 0.01(B)	X	X
	s56	IC61	YJ37940 PCM1781DBQR	X	X
	s57	CE15	UD35710 10/16	X	X
	s58	CE16	UD31510 0.1/16	X	X
	s59	CE21	UD35747 47/16	X	X
	s61	L604	VZ4990 BLM21PG600SN1D	X	X
	s62	CE30 CE29	UD35710 10/16	X	X
	s63	RE09 RE10	RD35747 47K	X	X
	s64	RE13 RE25	RD35610 1K	X	X
	s65	CE44 CE43	UD36333 330P	X	X
SIRIUS	s70	RE30	RD35410 10	X	X
	s71	RE31 RE29	RD35810 100K	X	X
	s72	QE00	VY65520 DTA143EKA	X	X
	s73	QE01	VY65570 DTC144EKA	X	X
	s74	IC68	XR68OA0 TC7SH08FU	X	X
	s75	CE17	UD31510 0.1/16	X	X
SVIDEO	s90	CB73	X	X	YQ04410 52044
	s91	R705 R703	X	X	RD35000 0
	s92	R707 R709	RD35000 0	RD35000 0	X
	s93	RE19	X	X	RD35656 5.6K

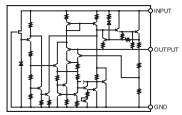
IC61: PCM1781DBQR
Audio digital-to-analog converter



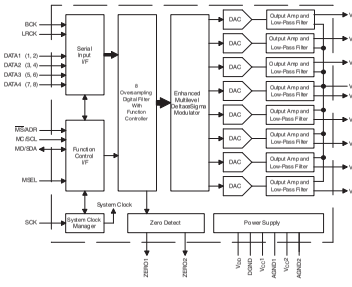
IC62: TC74VHC157FT
Quad 2-channel multiplexer



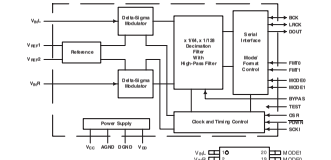
IC63: NJM78M05DL1A (TE1)
Voltage regulator



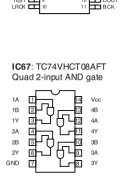
IC65: PCM1680DBQR
Audio digital-to-analog converter



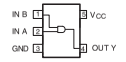
IC66: PCM1803DBR
Stereo A/D converter



IC67: TC74VHCT08AFT
Quad 2-input AND gate



IC68: TC7SH08FU
2-input AND gate



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
s1	IC48	K4S641632N-LC60000 VS4C365164VEI6
s2	D403-404-405-407 600-602-603 702-703-962	1SS355 WAZJ1110GL KDS160-RTK/P
s3	Q201-202-401	DTA144EKA KRA104S-RTK/P
s4	Q601	DTC144EKA KRC104S-RTK/P
s5	Q81-83-85-87	2SC1815(Y) KTC3198Y-AT
s6	IC63	NJM78M05DL1ATE1 KIA78M05F
s7	Q82-86	KTA1046-Y-U/P 2SB1565(E/F)
s8	Q80-84	2SA1015(Y) KTA1266Y-AT
s9	IC47	R1173S001D-E2-F R1173S001B-E2-F

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
⊛	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
ⓘ	MICA CAPACITOR	
ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	
ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

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

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(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN
(P)····· LATIN AMERICA

DIGITAL(1) ADC/DAC

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
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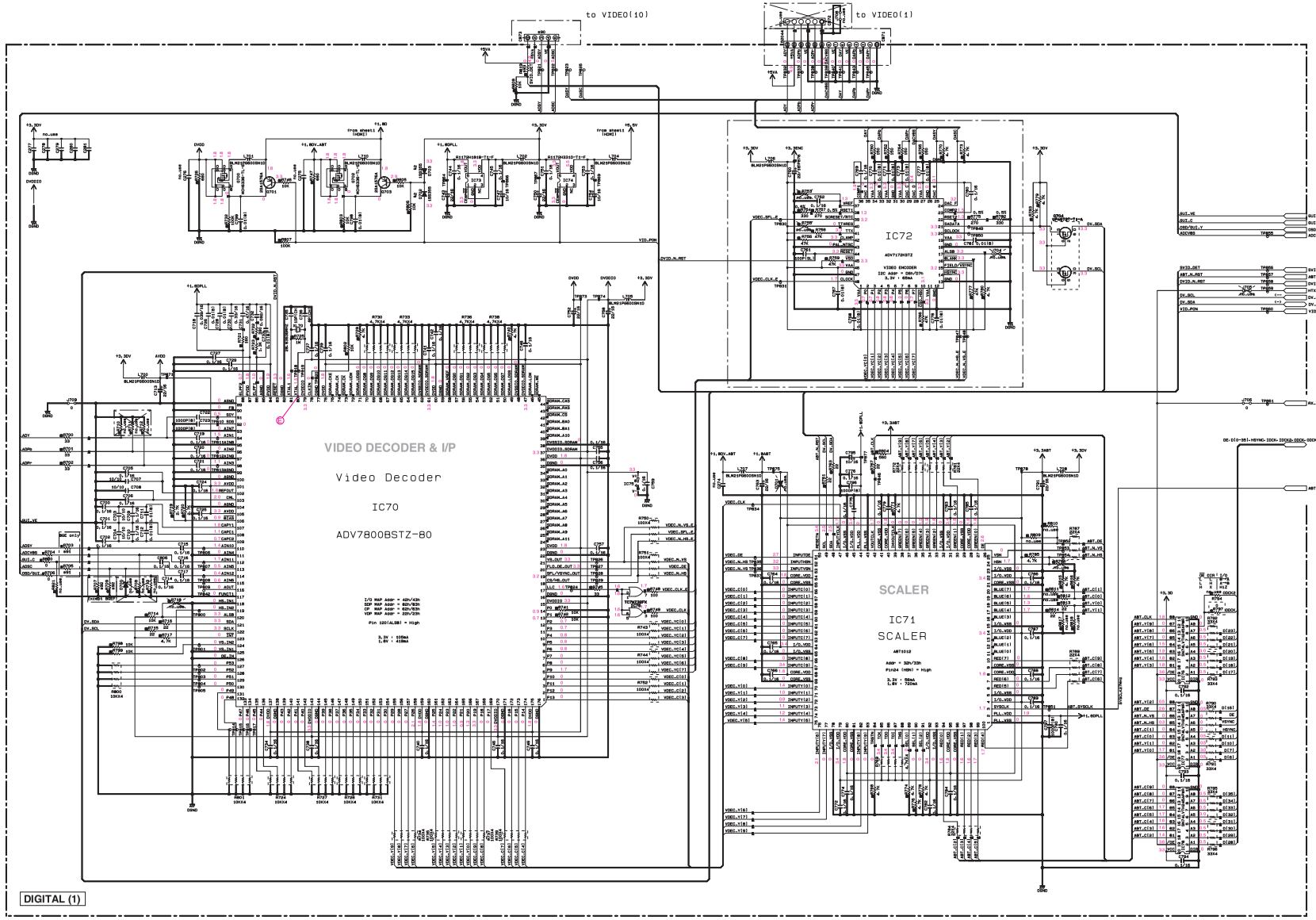
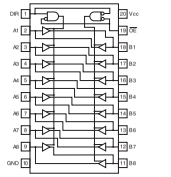
★ Schematic diagram is subject to change without notice.

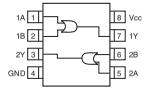
DIGITAL 5/7



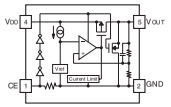
IC76-78: SN74LVTH245APW
3.3 V ABT octal bus transceivers with 3-state outputs



IC75: TC7WZ32FK (TE85L, F)
Dual 2-input OR gate

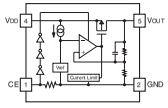


IC74: R1172H331D-T1-F
Voltage regulator



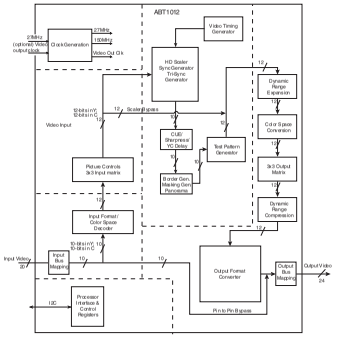
Pin No.	Symbol	Description
1	CE	Chip Enable Pin
2	GND	Ground Pin
3	NC	No Connection
4	VIN	Input Pin
5	VOUT	Output Pin of Voltage Regulator

IC73: R1172H181B-T1-F
Voltage regulator



Pin No.	Symbol	Description
1	CE	Chip Enable Pin
2	GND	Ground Pin
3	NC	No Connection
4	VIN	Input Pin
5	VOUT	Output Pin of Voltage Regulator

IC71: ABT1012Q100
Advanced video processor device



DIGITAL(1)

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
ⓘ	MICA CAPACITOR
◉	POLYPROPYLENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR
◉	POLYPHENYLENE SULFIDE FILM CAPACITOR

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

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(E)····· SOUTH EUROPE
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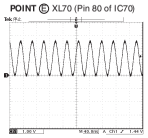
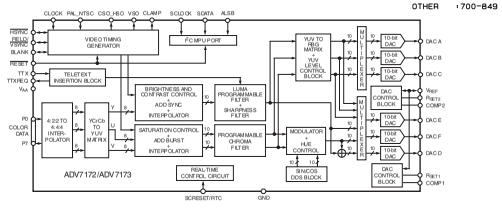
★ Schematic diagram is subject to change without notice.

POINT Ⓑ XL70 (Pin 80 of IC70)

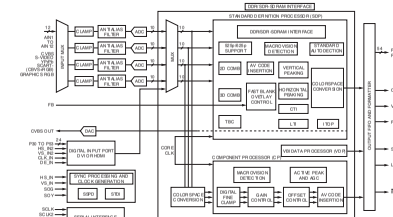


IC72: ADV7172KSTZ
Digital PAL/NTSC video encoder

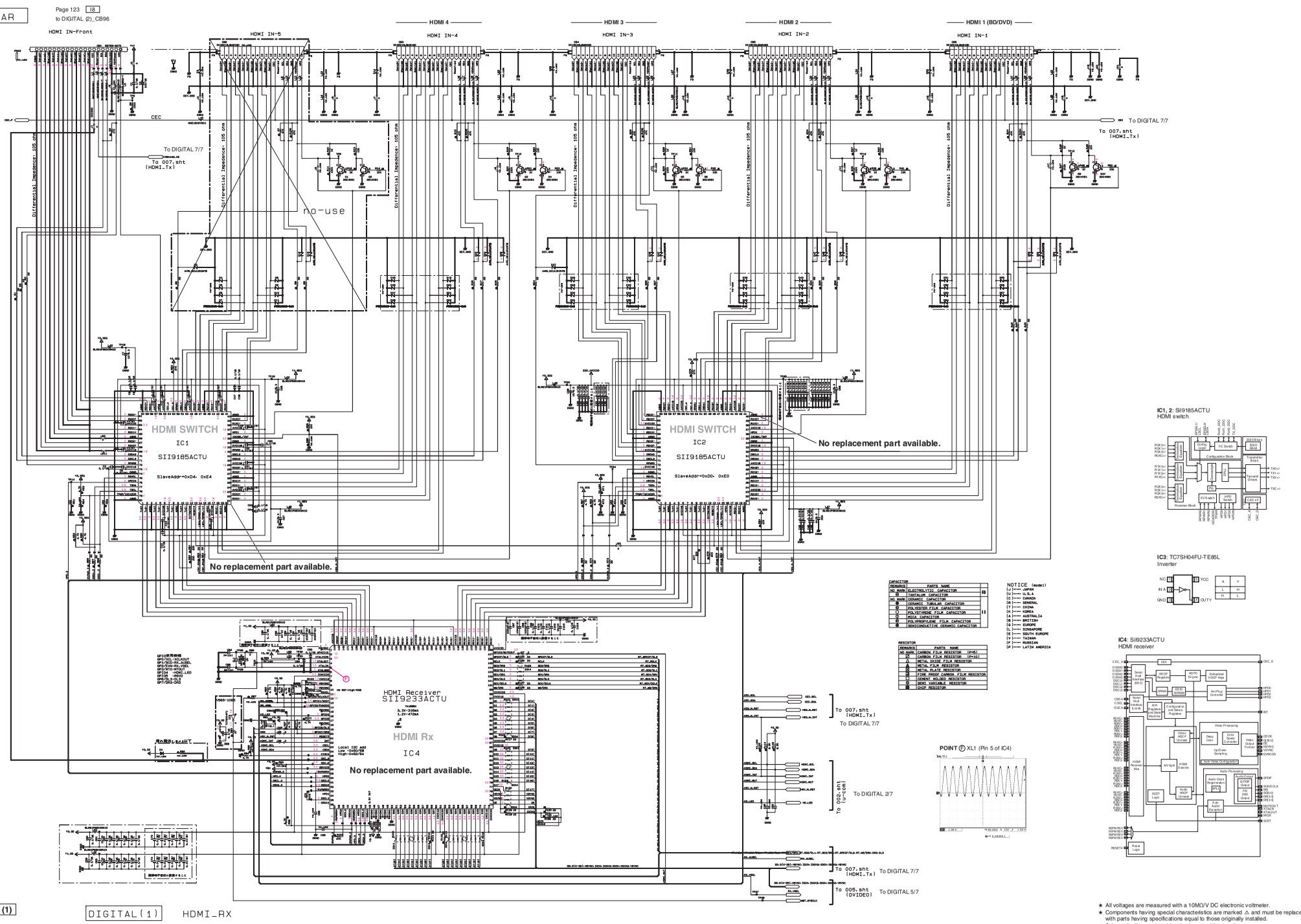


DVIDEO
CB/IC/XL:70 -84
OTHER :700-849

IC70: ADV7800BSTZ-80
10-bit, SDTV/HDTV 3D comb filter, video decoder and graphics digitizer



DIGITAL 6/7



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
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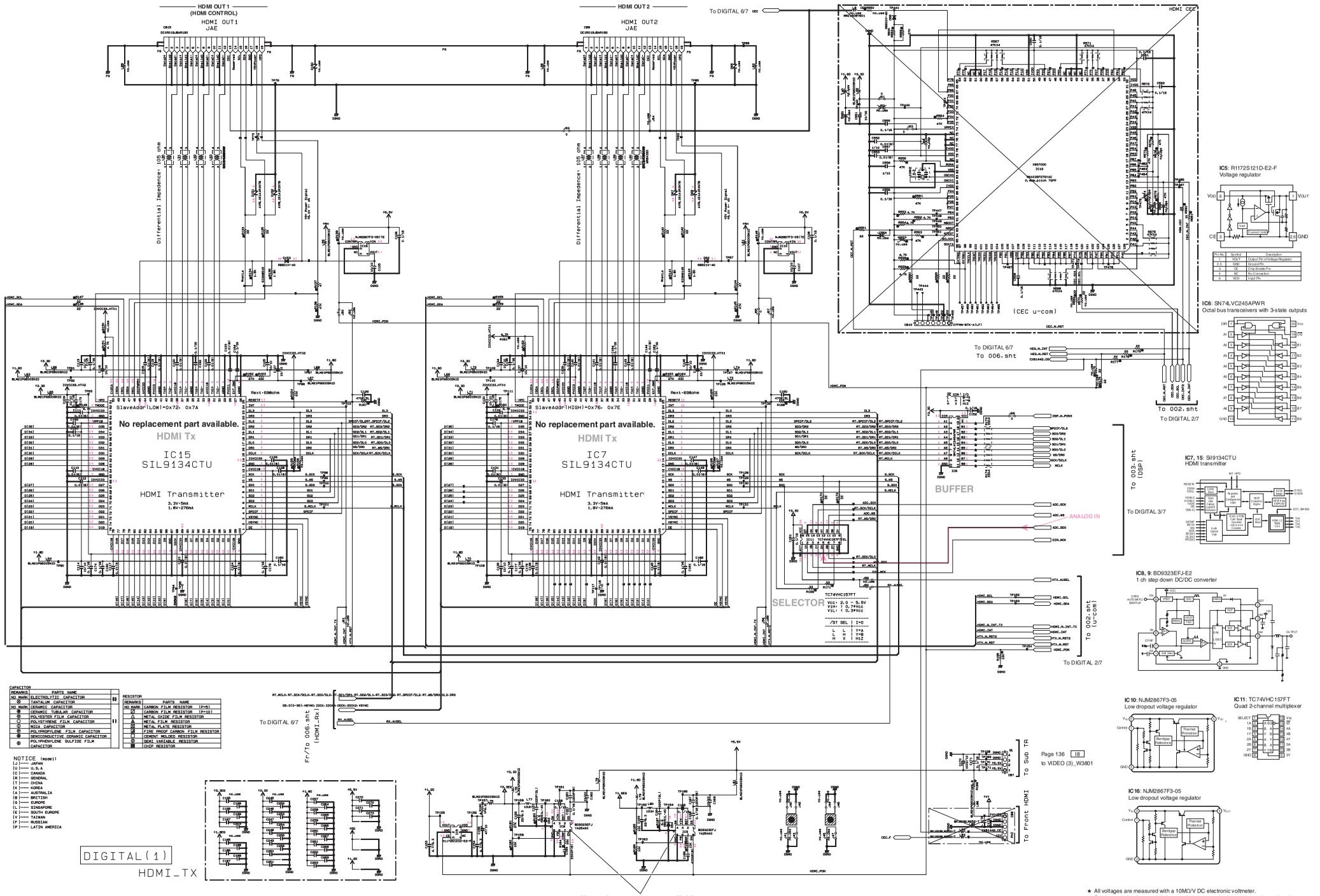
★ Schematic diagram is subject to change without notice.

DIGITAL (1)

DIGITAL(1) HDMI_RX

DIGITAL 7/7



IC5: R1172S121D-E2-F
Voltage regulator

Pin No.	Symbol	Description
1	VOUT	Output Pin of Voltage Regulator
5,6	GND	Ground Pin
3	CE	Chip Enable Pin
4	NC	No Connection
2	VDD	Input Pin

IC6: SN74LVC245APWR
Octal bus transceivers with 3-state outputs

IC7, 15: SII9134CTU
HDMI transmitter

IC8, 9: BD9323EFJ-E2
1 ch step down DC/DC converter

IC10: NJM2867F3-05
Low dropout voltage regulator

IC11: TC74VHC157FT
Quad 2-channel multiplexer

IC16: NJM2867F3-05
Low dropout voltage regulator

CAPACITOR REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊡	MICA CAPACITOR
⊛	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR
⊕	POLYPHENYLENE SULFIDE FILM CAPACITOR

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

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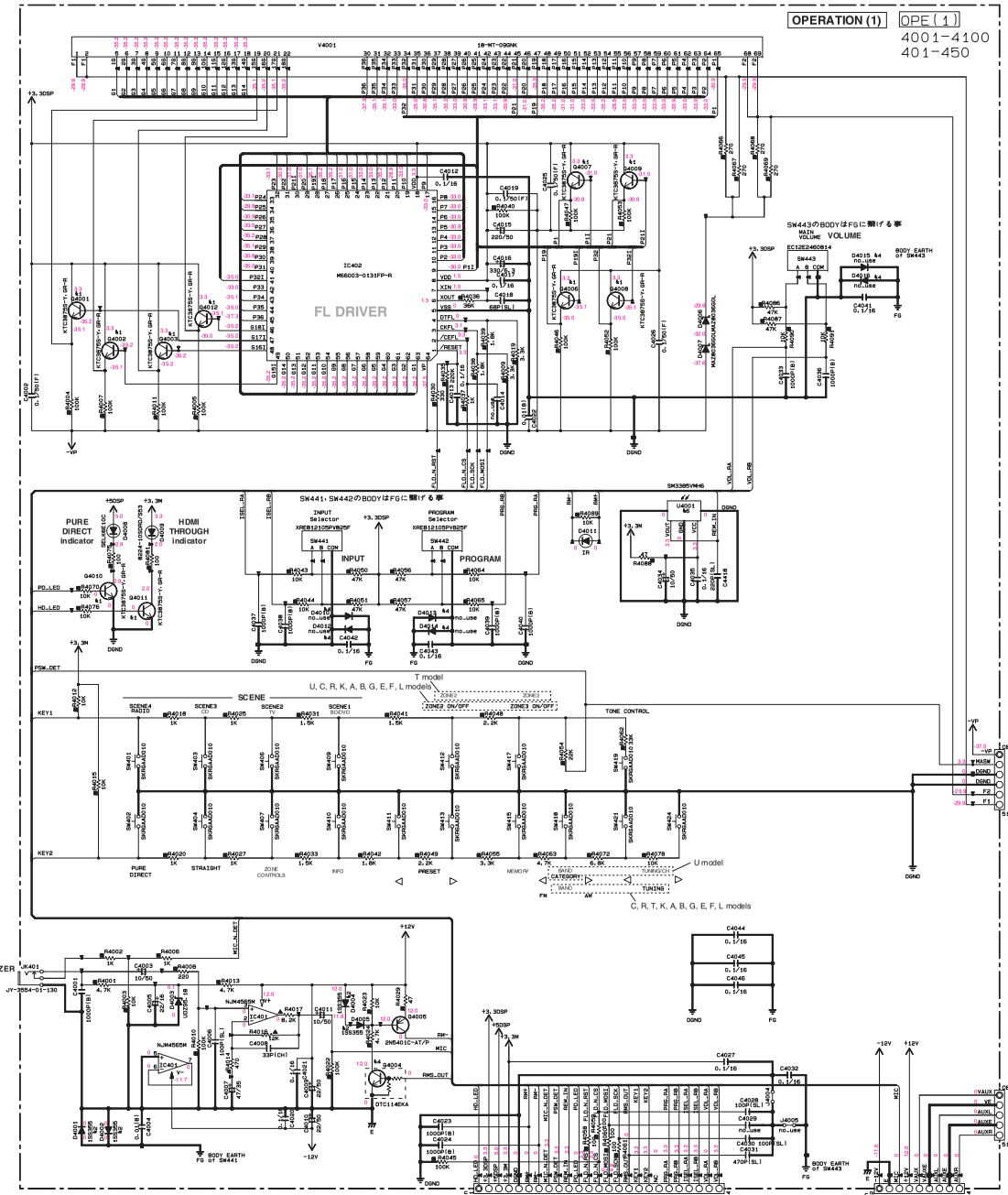
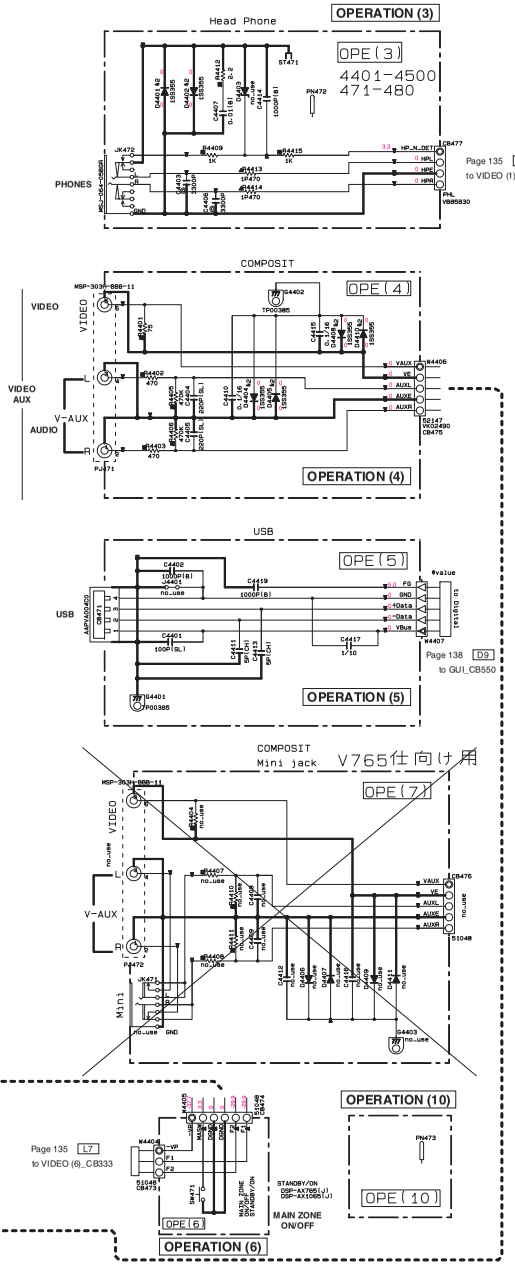
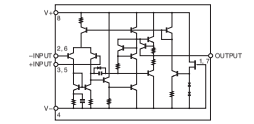
★ Schematic diagram is subject to change without notice.

OPERATION 1/2

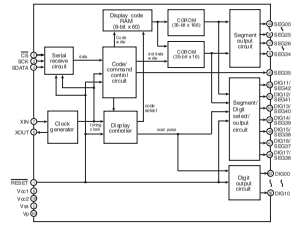




IC401: NJM4565M
Dual operational amplifier



IC402: M66003-0131FP-R
18 digit 5 x 7 segment VFD controller/driver



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
★1	Q4001・4003・4006・4012	KTC3875S-Y-GR-RTK/P 2SD601AL/AQL(G/R/S) 2SC2412K(G/R/S)
★2	Q4001・4002・4004・4005 4303・4305・4401・4402 4404・4405・4408・4410	1SS355 MA2J111GL KDS160-RTK/P
★3	Q4302・4306	DTA114EKA KRA102S-RTK/P
★4	Q4004・4301・4305	DTC114EKA KRC102S-RTK/P

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	
◎	POLYESTER FILM 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
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(L)····· SINGAPORE
(E)····· SOUTH EUROPE
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(F)····· RUSSIAN
(P)····· LATIN AMERICA

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

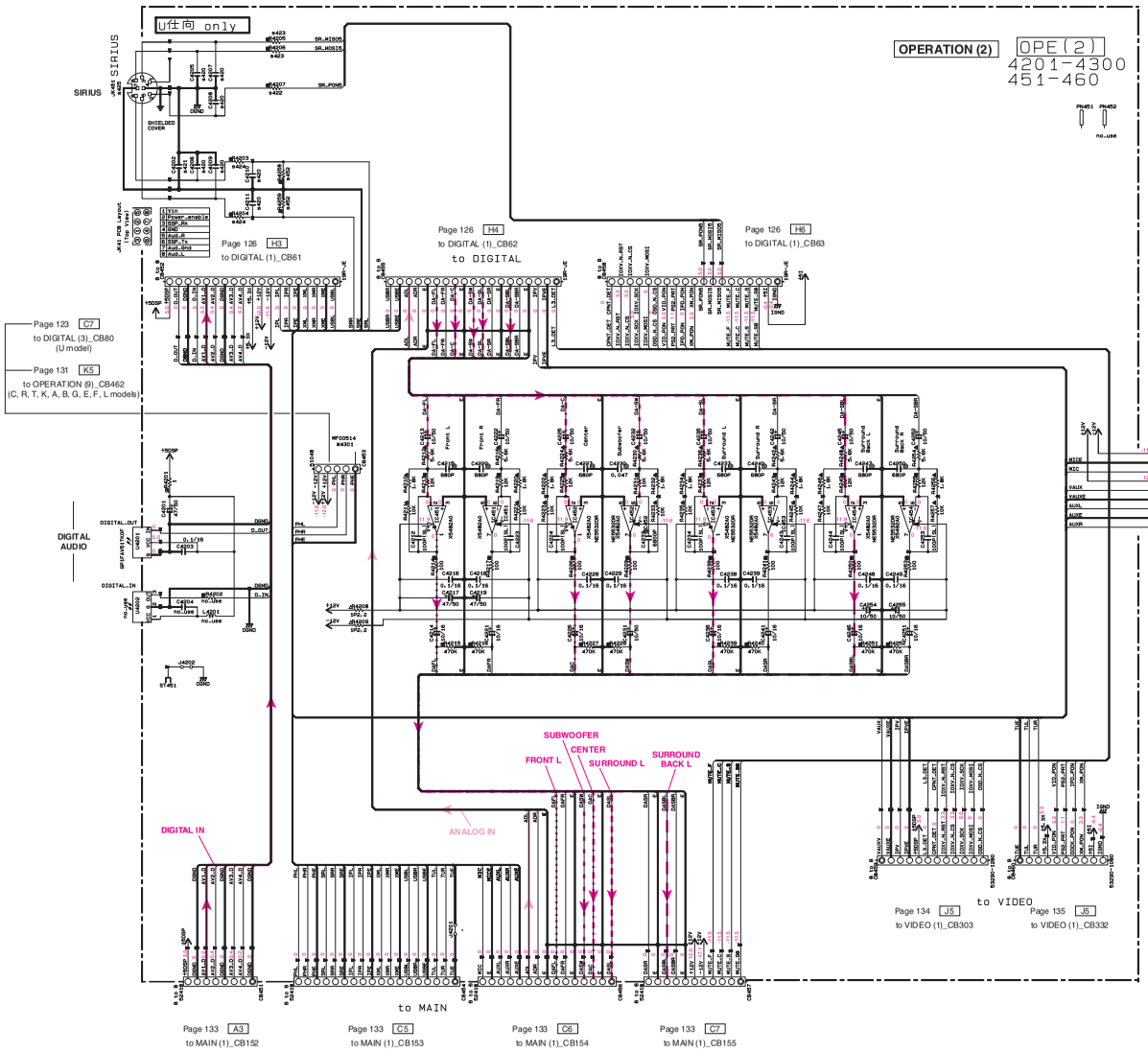
RX-V2065/HTR-6295

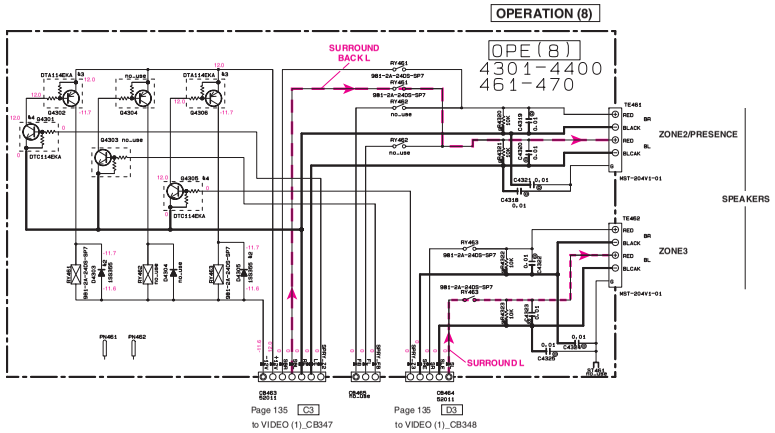
Ohm	0	+1.0k	+1.0k	+1.0k	+1.5k	+2.2k	+3.3k	+4.7k	+22.0k	+33.0k
V	0 – 0.15	0.15 – 0.42	0.43 – 0.70	0.71 – 0.97	0.98 – 1.24	1.25 – 1.53	1.54 – 1.64	1.98 – 2.1	2.34 – 2.55	2.55 – 2.97
A/D value (0.9V=255)	0 – 11	12 – 32	33 – 54	55 – 75	76 – 95	96 – 118	119 – 142	143 – 162	181 – 197	198 – 229
KEY1 (103 pts)	SCENE RADIO	SCENE CD	SCENE TV	SCENE BD/DVD	ZONE2 ON/OFF	ZONE3 ON/OFF	—	MAIN ZONE ON/OFF	TONE CONTROL	

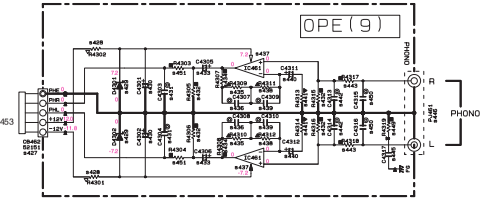
Ohm	0	+1.0k	+1.0k	+1.0k	+1.0k	+2.2k	+3.3k	+4.7k	+8.8k	+10.0k
V	0 – 0.15	0.15 – 0.42	0.43 – 0.70	0.71 – 0.99	1.0 – 1.27	1.28 – 1.58	1.57 – 1.88	1.88 – 2.14	2.14 – 2.4	2.4 – 2.65
A/D value (0.9V=255)	0 – 11	12 – 32	33 – 54	55 – 77	78 – 98	99 – 120	121 – 143	144 – 165	166 – 185	186 – 205
KEY2 (184 pts)	PURE DIRECT	STRAIGHT/ EFFECT	ZONE CONTROLS	INFO	PRESET <	PRESET >	MEMORY	BAND/ CAT BACKFY	TUNING CH <	TUNING CH >

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

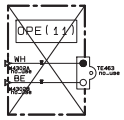
OPERATION 2/2



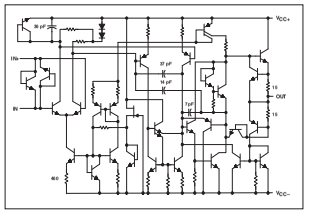




OPERATION (9) C, R, T, K, A, B, G, E, F, L models



IC451-454: NE5532DR
Dual low-noise operational amplifiers



IC461: NJM2068MD-TE2
Dual operational amplifier

Destination Part List

sXX	LOC	U	CRTA	KBSLEF
s420	C4206 C4205 C4217 C4207 C4209 C4211 C4208	US0202 220P(BL)	X	X
s421	C4202	US0310 100P(B)	X	X
s422	R4207	RD3410 10	X	X
s423	R4205 R4206	RD3433 33	X	X
s424	R4203 R4204	RD3647 470	X	X
s425	JK451	VV02950 KD-S8130-90	X	X
s427	CB462	X	VK02640 S2151	VK02640 S2151
s428	R4302 R4301	X	WD9470 1P470	WD9470 1P470
s429	R4301 R4302	X	VV05930 RL27,5B	VV05930 RL27,5B
s430	C4302 C4301	X	UR26747 47/50	UR26747 47/50
s431	C4304 C4303	X	WJ60370 1000P	WJ60370 1000P
s432	R4306 R4305 R4315 R4316	X	RD3647 47K	RD3647 47K
s433	C4305 C4306	X	UR26710 10/50	UR26710 10/50
s434	R4308 R4307	X	RD3510 100	RD3510 100

Destination Part List

sXX	LOC	U	CRTA	KBSLEF
s435	R4309 R4310	X	RF35810 100K	RF35810 100K
s436	C4307 C4308	X	WJ60560 0.033	WJ60560 0.033
s437	IC461	X	X3G5540 NJM2068MD-TE2	X3G5540 NJM2068MD-TE2
s438	R4311 R4312	X	RF35662 8.2K	RF35662 8.2K
s439	C4309 C4310	X	WJ60490 0150P	WJ60490 0150P
s440	C4312 C4311	X	UR21852 220/6.3	UR21852 220/6.3
s441	R4314 R4313	X	RF35618 180	RF35618 180
s442	C4314 C4313	X	WJ60310 220P	WJ60310 220P
s443	R4318 R4317	X	RD35622 2.2K	RD35622 2.2K
s446	C4317	X	UR26410 0.01(B)	UR26410 0.01(B)
s446	FJ461	X	VC05960 MSP-250VD-06N1	VC05960 MSP-250VD-06N1
s449	R4319	X	RD35322 2.2	RD35322 2.2
s450	C4315 C4316	X	WJ60310 220P	WJ60310 220P
s451	R4304 R4303	X	RD35647 470	RD35647 470
s452	R4298 R4299	RD3810 100K	X	X
s455	TE461 TE462	WK56080 MST-204V1-01	WK56080 MST-204V1-01	WK56080 MST-204V1-01

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
◎	MICA CAPACITOR
◎	POLYPROPYLENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR
◎	POLYPHENYLENE SULFIDE FILM CAPACITOR

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

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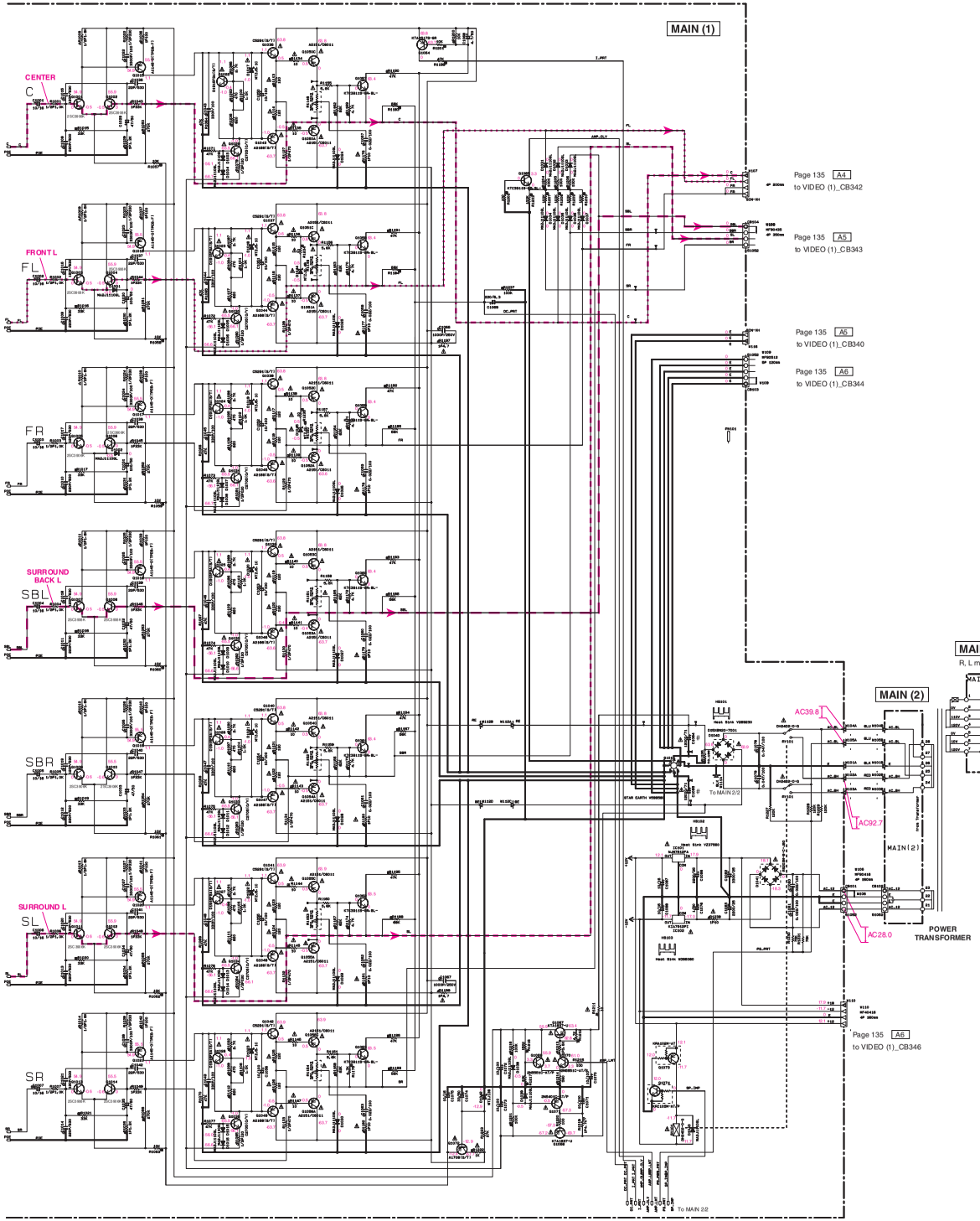
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN
(P)····· LATIN AMERICA

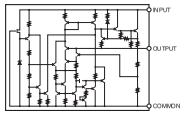
★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

MAIN 1/2

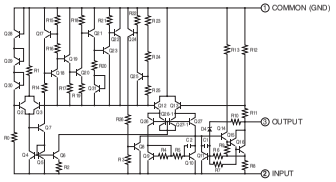


VOLTAGE SELECTOR	
230-240V	1-2/5-6
220V	2-3/6-7
110V	3-4/7-8
120V	4-5/8-1

IC101: NJM7812FA
Voltage regulator



IC102: KIA7912PI
Voltage regulator



RESISTOR	
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (1/4)
⊠	CARBON FILM RESISTOR (1/2)
△	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
○	POLYESTER FILM CAPACITOR
◐	POLYSTYRENE FILM CAPACITOR
◑	MICA CAPACITOR
⊖	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

Destination Part List					
mix	LUC	UC	R	THAMBF	L
m1	RH101	X	RS-MR07% RH102K40	X	WD07270 RH102K40
m2	CN115	X	WN07770 RH-CN115-TB-SP	X	X
m3	F102	X	TEC2-2R5T TEC2-2R5T	X	X
m4	J4004	X	X	X	WN00000
m5	H2004 H2008	X	RH0402K	X	RH0402K
m6	H2006 H2009	X	RH0302K	X	RH0302K
m7	H2004 H2008	X	RH0302K	X	RH0302K
m8	H2006 H2009	X	RH0302K	X	RH0302K
m9	H2004 H2008	X	RH0603K	X	RH0603K
m10	H2006 H2009	X	RH0603K	X	RH0603K
m11	H2004 H2008	X	RH7R4K RH7R4K	X	RH7R4K RH7R4K

Interchangeable Parts at Manufacture-Stage		
Mark	Reference Parts Number	Parts Name

NOTICE (model)
(J)····· JAPAN
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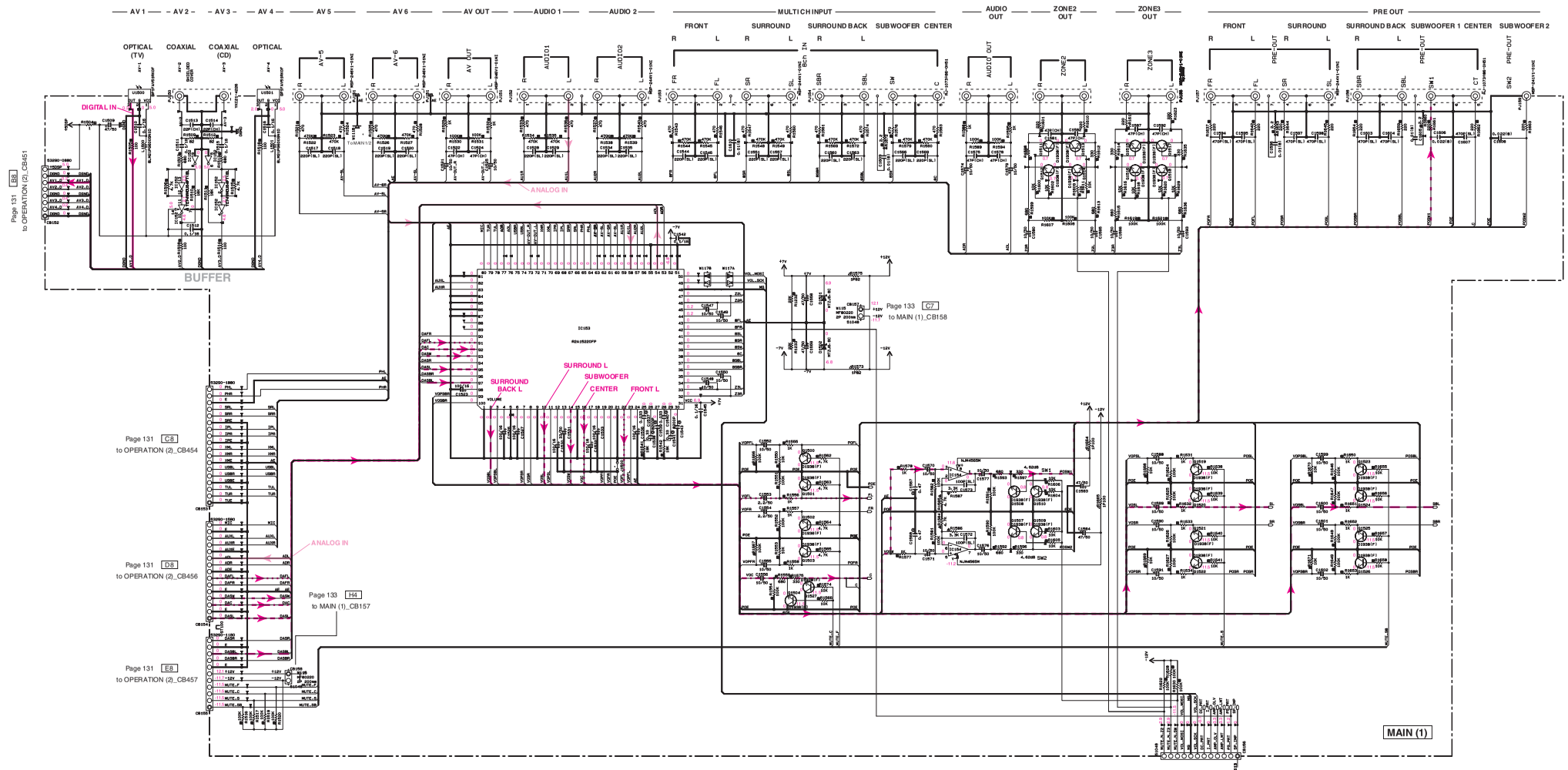
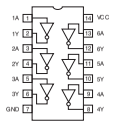
(P)····· LATIN AMERICA

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

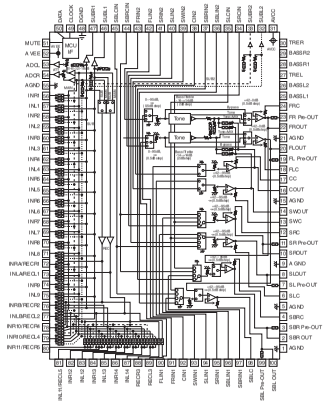
MAIN 2/2



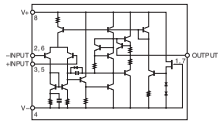
IC152: TC74VHCU04FT
Hex inverters



IC153: R2A15220FP
8-channel electronic volume with 11 input selector and tone control



IC154: NJM4565M
Dual operational amplifier



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RESISTOR

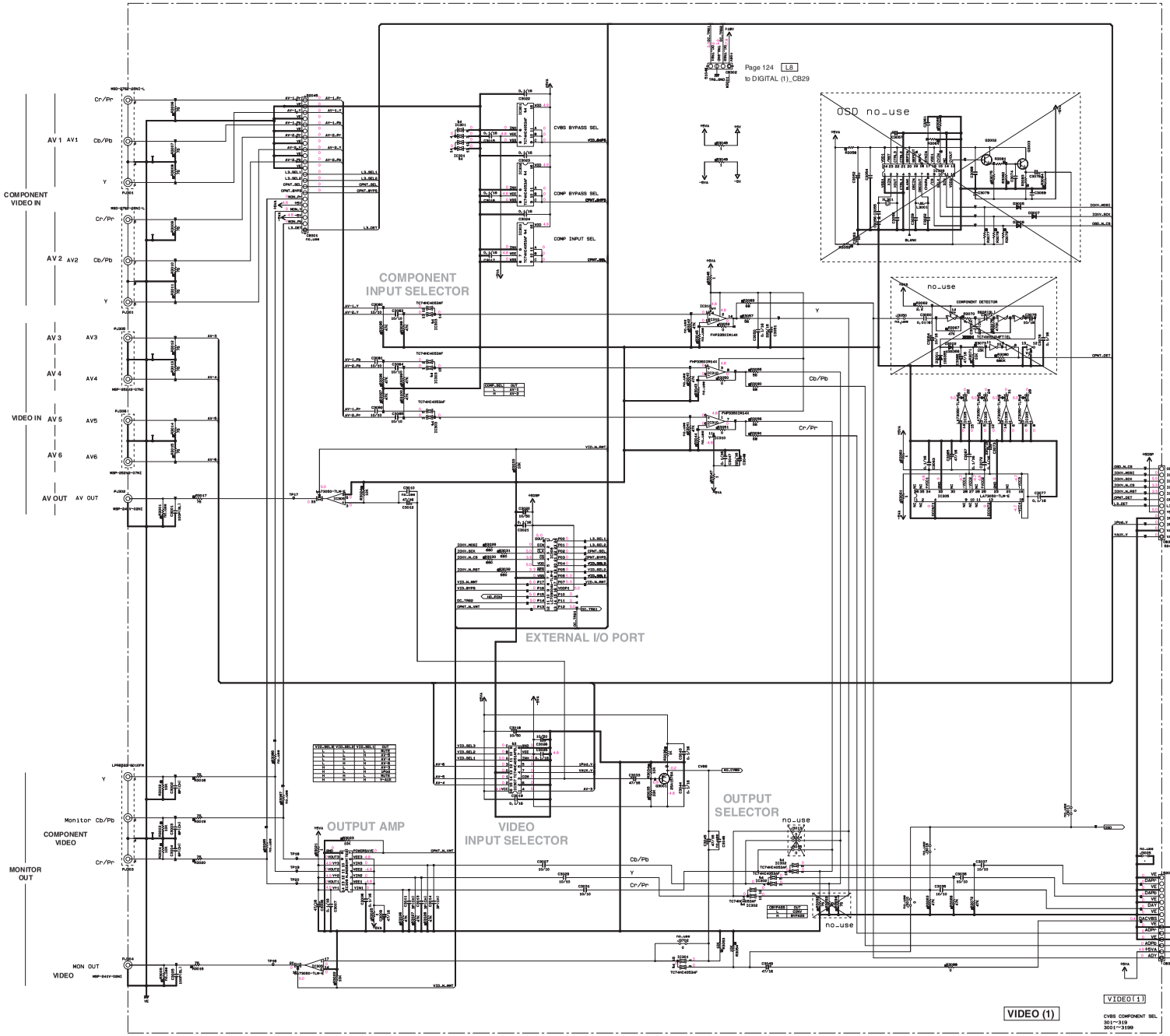
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	‖
⊗	TANTALUM CAPACITOR	‖
NO MARK	CERAMIC CAPACITOR	‖
◉	CERAMIC TUBULAR CAPACITOR	‖
⓪	POLYESTER FILM CAPACITOR	‖
○	POLYSTYRENE FILM CAPACITOR	‖
①	MICA CAPACITOR	‖
ⓟ	POLYPROPYLENE FILM CAPACITOR	‖
●	SEMICONDUCTIVE CERAMIC CAPACITOR	‖

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

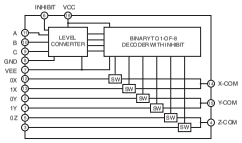
VIDEO 1/3



Interchangeable Parts at Manufacture-Stage

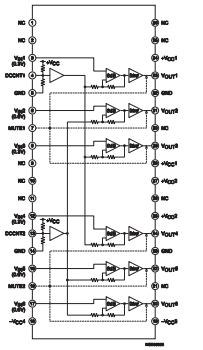
Mark	Reference Parts Number	Parts Name
Q1	Q2003	XTA3240-T-G/P 2SB1098(S/T)
Q2		
Q3	IC307	TC74HC4051AFEL M74HC4051B/F,ML
Q4	IC301~303	TC74HC4053AF M74HC4053B/F,ML
Q5		
Q6	D3009~3011; 3015; 3014 3403~3407; 3601; 3602 3801~3805; 3801; 3802	1SS355 MA8J111GEL
Q7	Q3405; 3408; 3410; 3412 3414	DTA114EKA UMA1GZ0-RTU/P
Q8	Q3405; 3407; 3409; 3411 3413	DTC114EKA UMC1GZ0-RTU/P
Q9	Q3803	DTC144EKA UMC1G40-RTU/P
Q10	Q3000~3004	2SA1015(Y) KTA1298 Y-AT
Q11	Q3201	2SC1740S(R/S) 2SC3114RA(O/R/S)
Q12	Q3003~3005 3801~3802	2SC1815(Y) KTC3198 Y-AT

IC301-303: TC74HC4053AF
Analog multiplexer/demultiplexer

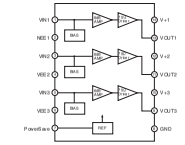


INPUT STATES				"ON" CHANNEL (S)
INH 6BIT	C	B	A	
0	0	0	0	0X, 0Y, 0Z
0	0	0	1	1X, 0Y, 0Z
0	0	1	0	0X, 1Y, 0Z
0	0	1	1	1X, 1Y, 0Z
0	1	0	0	0X, 0Y, 1Z
0	1	0	1	1X, 0Y, 1Z
0	1	1	0	0X, 1Y, 1Z
0	1	1	1	1X, 1Y, 1Z
1	X	X	X	NONE

IC305: LA73050-TLM-E
6-channel 75 ohms video driver



IC306: NJM2581M
Video amplifier



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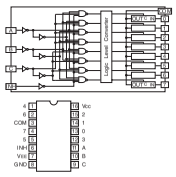
RESISTOR

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

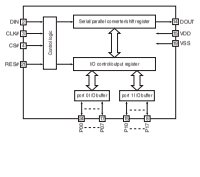
CAPACITOR

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

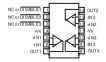
IC307: TC74HC4051AFEL
8-channel analog multiplexer/demultiplexer



IC308: LC709004A-TLM-E
I/O-expander for microcontroller

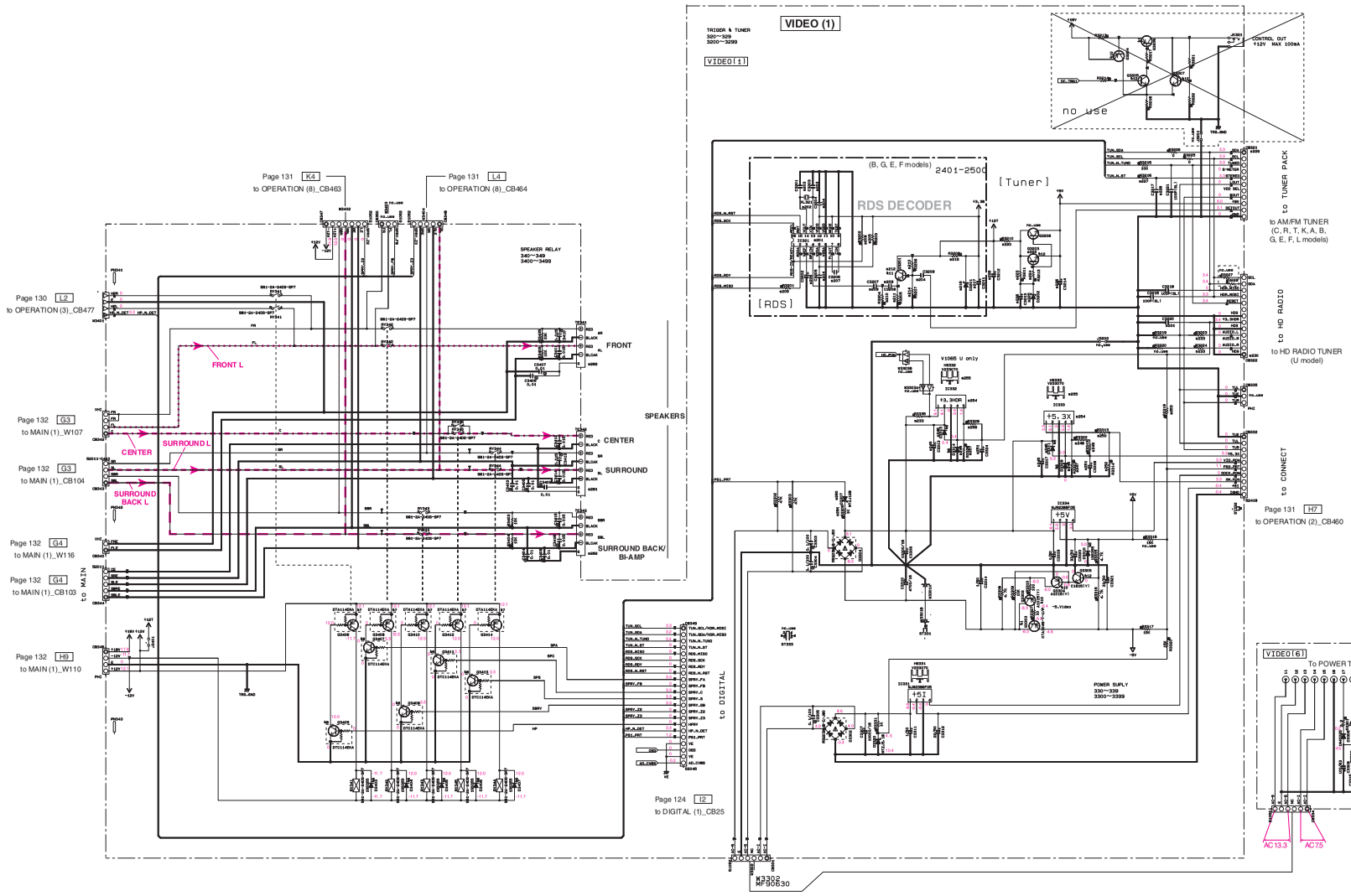


IC310: FHP3350IM14X
Triple voltage feedback amplifier



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

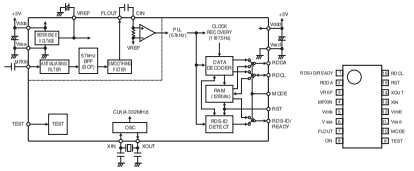
VIDEO 2/3



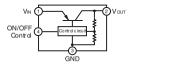
Destination Part List								
ADC	LEC	U	C	M	T	A	BMEF	L	K
W201	IC301	X	X	X	X	X	X3E3PAC LC75732W-V2-TL	X	X
W202	XL301	X	X	X	X	X	V272110 4.500MHz	X	X
W203	CD303	X	X	X	X	X	U5R127 22V(CA)	X	X
W204	CD205 CD206 CD209	X	X	X	X	X	U5J1R10 5.6V(CA)	X	X
W205	RD303 RD301	X	X	X	X	X	RD9D010 100	X	X
W206	CD302	X	X	X	X	X	U5D7J0 5V(CA)	X	X
W207	CD306	X	X	X	X	X	U5W0D0 50V(TL)	X	X
W208	RD302	X	X	X	X	X	RD9W001 0.1Ω	X	X
W209	CD307 CD308	X	X	X	X	X	U5W0D0 50V(TL)	X	X
W210	RD304	X	X	X	X	X	RD9D750 750	X	X
W211	RD305	X	X	X	X	X	RD9D020 0.3Ω	X	X
W212	CD301	X	X	X	X	X	U1T825 C1T825T(B)	X	X
W213	RD306	X	X	X	X	X	RD9D010 100Ω	X	X
W214	RD307	X	X	X	X	X	RD9D075 75Ω	X	X
W215	RD308	X	X	X	X	X	RD9D000 0Ω	X	X
W216	CD301	X	X	X	X	X	U2J101 470.0J.TB	X	X
W217	CD311	X	X	X	X	X	U5D7J7 7V(CA)	X	X
W220	RD303	X	HV7541B DB	HV7541B DB	HV7541B DB	HV7541B DB	HV7541B DB	HV7541B DB	HV7541B DB
W222	CD303	X	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)	ZC1BJ0C C1BJ0C(Y)
W223	RD301	X	RD9D033 330	RD9D033 330	RD9D033 330	RD9D033 330	RD9D033 330	RD9D033 330	RD9D033 330
W224	RD302	X	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100
W225	CD302	X	VK4R9M 4V(CA)	VK4R9M 4V(CA)RB	VK4R9M 4V(CA)RB	VK4R9M 4V(CA)RB	VK4R9M 4V(CA)RB	VK4R9M 4V(CA)RB	VK4R9M 4V(CA)RB
W226	CD313 CD314 CD324	X	U5J7J7 47J(B)	U5J7J7 47J(B)	U5J7J7 47J(B)	U5J7J7 47J(B)	U5J7J7 47J(B)	U5J7J7 47J(B)	U5J7J7 47J(B)
W227	RD306	X	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100	RD9D010 100
W228	CD317	X	U5D9J0 50P(TL)	U5D9J0 50P(TL)	U5D9J0 50P(TL)	U5D9J0 50P(TL)	U5D9J0 50P(TL)	U5D9J0 50P(TL)	U5D9J0 50P(TL)
W229	CD321	X	V9B9B0 50V(B)	V9B9B0 50V(B)	V9B9B0 50V(B)	V9B9B0 50V(B)	V9B9B0 50V(B)	V9B9B0 50V(B)	V9B9B0 50V(B)
W230	CD322	V9B9B0 50V(B)	X	X	X	X	X	X	X
W231	CD320	U5K4J7 4.7V(B)	X	X	X	X	X	X	X
W232	RD323 RD324 RD325	RD9D000 0Ω	X	X	X	X	X	X	X
W240	CD313 CD317	U5D9J0 1.7V	X	X	X	X	X	X	X
W249	CD304 CD305 CD310 CD320	V7D2B0 25V(B)	X	X	X	X	X	X	X
W247	RD301	RF-D7R8 8Ω	X	X	X	X	X	X	X
W248	RD302	RF-D0R3 300	X	X	X	X	X	X	X
W249	RD302	RF-D0R3 300	X	X	X	X	X	X	X
W250	RD313	RD9D000 0Ω	X	X	X	X	X	X	X
W251	CD304 CD309	U5D7J7 47V(B)	X	X	X	X	X	X	X
W252	RD304	RD9D047 4.7Ω	X	X	X	X	X	X	X
W253	RD309	RD9D710 710	X	X	X	X	X	X	X
W254	IC333	VM2B0A0 BA00JC5WT-V5	X	X	X	X	X	X	X
W255	HD333	V2D1V7 2V(B)FM-FBF	X	X	X	X	X	X	X
W256	RD309	RF-M270 27Ω	X	X	X	X	X	X	X
W257	RD308	RF-M270 27Ω	X	X	X	X	X	X	X
W261	TC340	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01	MC8J00 MET-D07V1-01
W262	TC341 TC343	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01	MC8G00 MET-D04V1-01
W300	CD307	X	X	X	X	X	X	X	X
W301	RD305	X	X	X	X	X	X	X	X

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
(P)••••• RUSSIAN
(M)••••• LATIN AMERICA

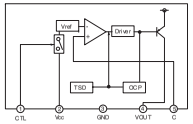
IC321: LC72725KM-UY-TLM-E
RDS signal demodulation IC



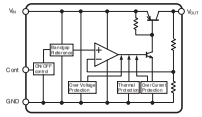
IC331: NJM2396F05
Low dropout voltage regulator with ON/OFF control



IC332, 333: BA00JC5WT-V5
Voltage regulator



IC334: NJM2388F05
Low dropout voltage regulator with ON/OFF control



RESISTOR

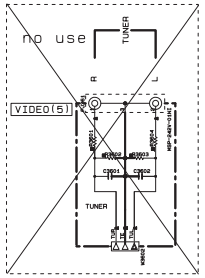
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
▽	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
△	METAL FILM RESISTOR
⊗	METAL PLATE RESISTOR
⊗	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

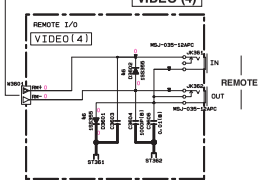
CAPACITOR

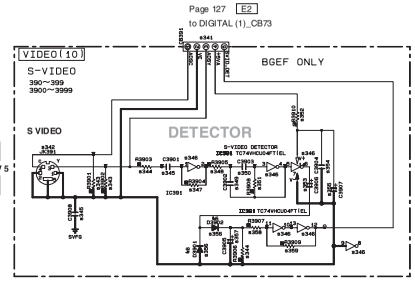
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
●	CERAMIC TUBULAR CAPACITOR
●	POLYESTER FILM CAPACITOR
●	POLYSTYRENE FILM CAPACITOR
●	MICA CAPACITOR
●	POLYPROPILENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

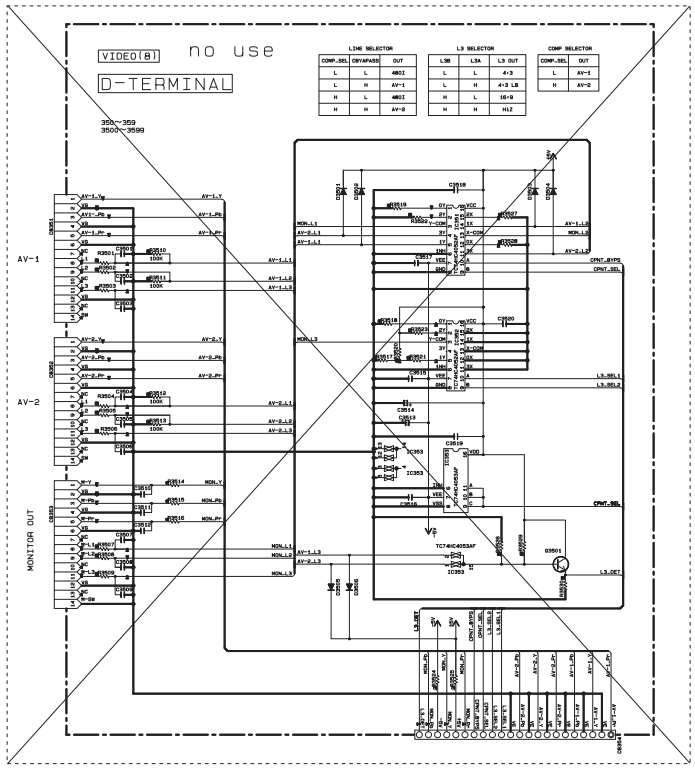
★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

VIDEO 3/3

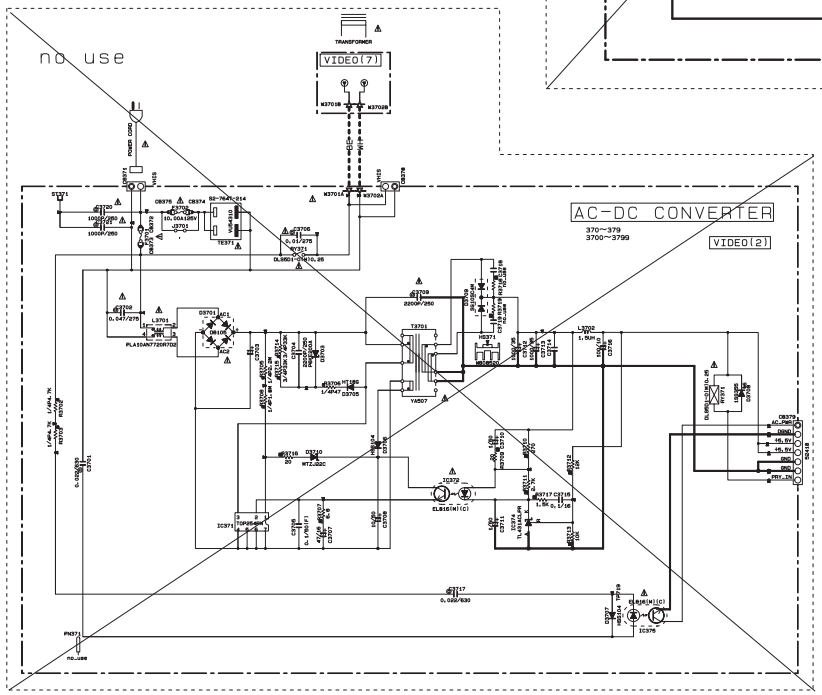


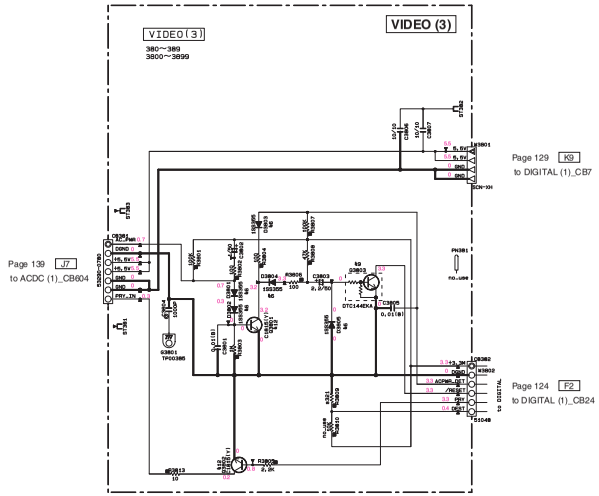






Destination Part List									
eXX	LOC	U	C	R	T	A	BGEF	L	K
x321	CB309	RD35612 1.8K	RD35627 8.7K	RD35647 4.7K	RD35668 6.8K	RD35715 15K	RD35747 47K	RD35710 10K	RD35710 10K
x341	CE391	X	X	X	X	X	VD24410 52044	X	X
x342	JK391	X	X	X	X	X	VG03100 YW751-0556V	X	X
x343	RD901 RD902	X	X	X	X	X	RD35475 75	X	X
x344	RD903 RD906	X	X	X	X	X	RD35710 10K	X	X
x345	CD908 CD901	X	X	X	X	X	UD35410 0.01(B)	X	X
x346	IC391	X	X	X	X	X	VH20400 TC74VHCU04FT(EL)	X	X
x347	RD904	X	X	X	X	X	RD35747 47K	X	X
x348	RD905	X	X	X	X	X	RD35647 4.7K	X	X
x349	CD902	X	X	X	X	X	UD50212 120F(BL)	X	X
x350	CD903	X	X	X	X	X	UD50222 220F(BL)	X	X
x351	RD908	X	X	X	X	X	RD35647 4.7K	X	X
x352	RD910	X	X	X	X	X	HV70322 3.2	X	X
x353	CD905	X	X	X	X	X	UD35710 10/16	X	X
x354	CD904	X	X	X	X	X	UD19510 0.1/50	X	X
x355	CD907	X	X	X	X	X	UD35647 470/6.3	X	X
x356	CD909 CD901	X	X	X	X	X	VT30200 180J85	X	X
x357	CD905	X	X	X	X	X	UD35747 47/16	X	X
x358	RD907	X	X	X	X	X	RD35715 15K	X	X
x359	CD909	X	X	X	X	X	RD35868 680K	X	X



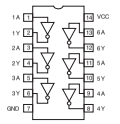


CAPACITOR REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⚠	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⚠	CARBON FILM CAPACITOR
⚠	POLYESTER FILM CAPACITOR
⚠	POLYSTYRENE FILM CAPACITOR
⚠	MICA CAPACITOR
⚠	POLYPROPLENE FILM CAPACITOR
⚠	SEMICONDUCTIVE CERAMIC CAPACITOR
⚠	POLYPHENYLENE SULFIDE FILM CAPACITOR
⚠	CAPACITOR

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

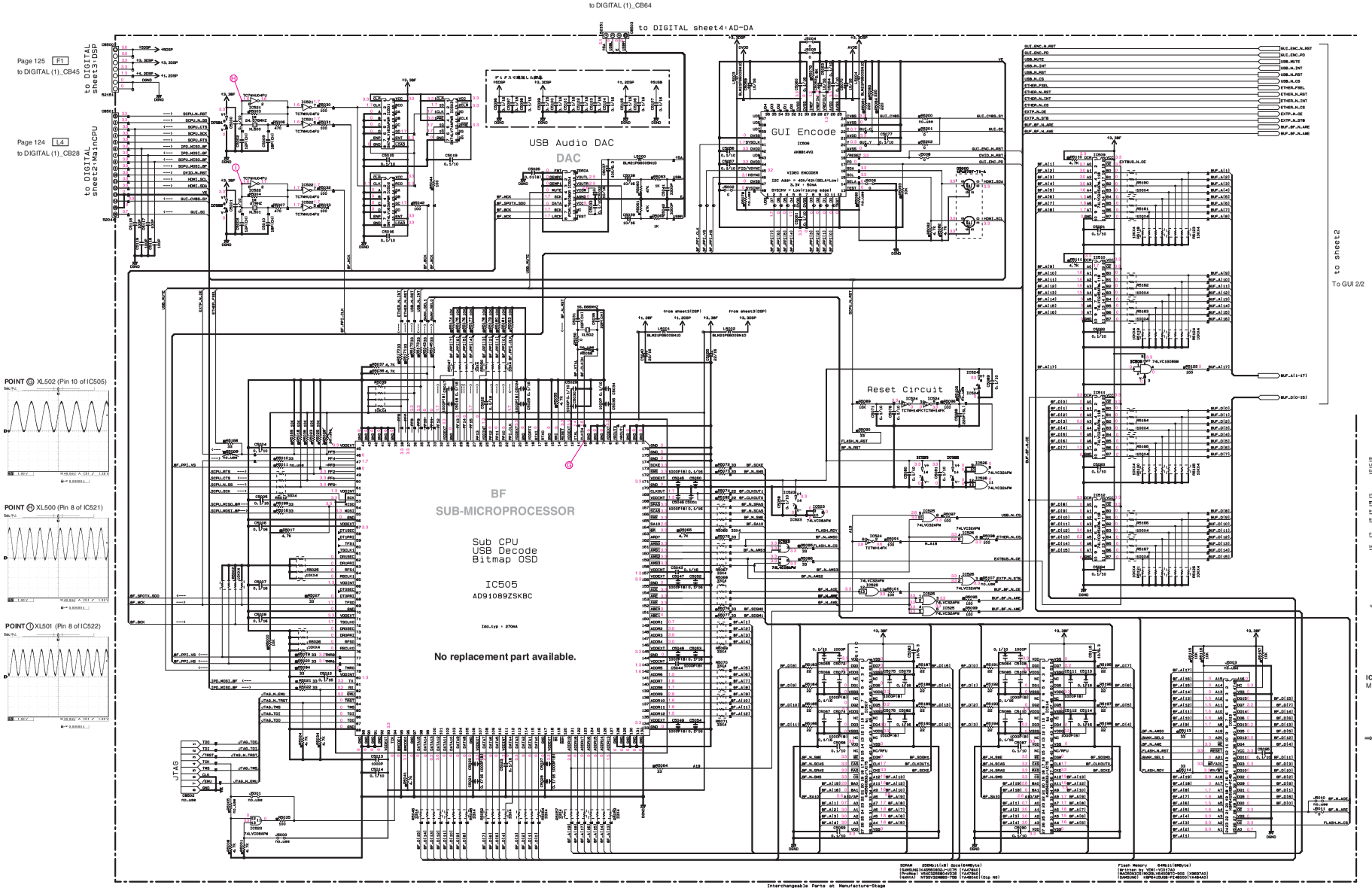
NOTICE (Model)
(J)----- JAPAN
(U)----- U, U.A
(C)----- CANADA
(M)----- GENERAL
(T)----- CHINA
(K)----- KOREA
(A)----- AUSTRALIA
(B)----- BRITISH
(G)----- EUROPE
(E)----- EUROPE
(S)----- SOUTH EUROPE
(W)----- TAIWAN
(P)----- RUSSIAN
(P)----- LATIN AMERICA

IC391: TC74VHCU04FT
Hex inverters

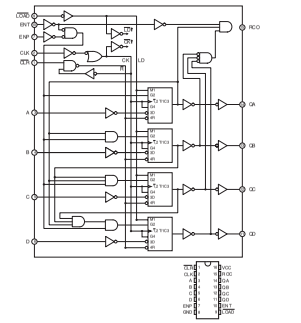


★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

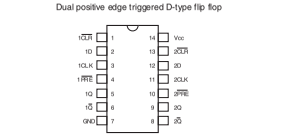
GUI 1/2



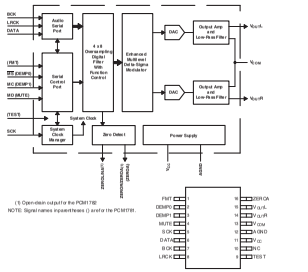
IC501, 502: SN74LV163APWR
4-bit synchronous binary counters



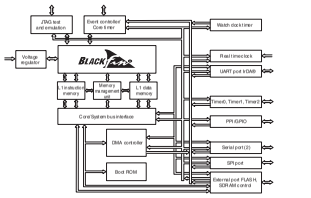
IC503: SN74LV74APWR
Dual positive edge triggered D-type flip flop



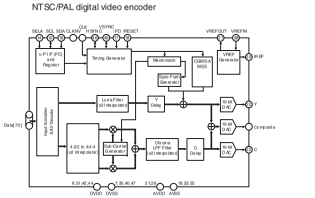
IC504: PCM1781DBQR
Audio digital-to-analog converter



IC505: AD91089ZSKBC
Microprocessor



IC506: AK8814VQ
NTSC/PAL digital video encoder

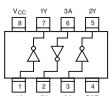


CAPACITOR		
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	
⊘	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
●	CERAMIC TUBULAR CAPACITOR	
○	POLYESTER FILM CAPACITOR	
○	POLYSTRENE FILM CAPACITOR	
○	MICA CAPACITOR	
●	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTOR CERAMIC CAPACITOR	
●	POLYPHENYLENE SULFIDE FILM CAPACITOR	

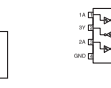
RESISTOR		
REMARKS	PARTS NAME	
NO MARK	CARBON FILM RESISTOR (F=5)	
○	CARBON FILM RESISTOR (F=10)	
△	METAL OXIDE FILM RESISTOR	
○	METAL FILM RESISTOR	
○	METAL PLATE RESISTOR	
○	FUSE PROOF CARBON FILM RESISTOR	
○	CEMENT MOLDED RESISTOR	
●	MONO VARIABLE RESISTOR	
○	CHIP RESISTOR	

NOTICE (model)
(J)----- JAPAN
(U)----- U.S.A
(C)----- CANADA
(N)----- GENERAL
(T)----- CHINA
(K)----- KOREA
(A)----- AUSTRALIA
(B)----- BRITISH
(G)----- EUROPE
(L)----- SINGAPORE
(E)----- SOUTH EUROPE
(V)----- TAIWAN
(P)----- RUSSIAN
(M)----- LATIN AMERICA

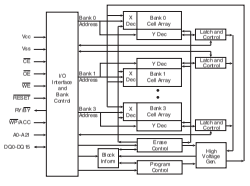
IC521-522: TC7WHU04FU
Triple inverter



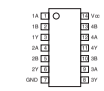
IC524: TC7WH14FK
Triple schmitt inverter



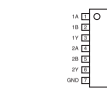
IC513: K8P6415UQB-PI4B000
64 Mb page mode NOR flash



IC523: 74LVC08APW
Quad 2 input AND gate

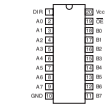


IC525, 526: 74LVC32APW
Quad 2 input OR gate

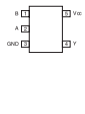


Interchangeable Parts at Manufacture-Stage		
Mark	Reference Parts Number	Parts Name
◆1	IC507,514	K4S560832J-UC75000 VS4C32D560-4VC06 HT55Y32M880-75B

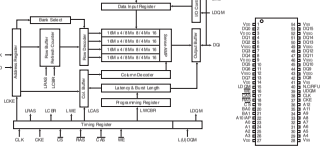
IC509-512: 74LVC245APW,118
Octal bus transceiver with direction pin with 5 V tolerant input/outputs (3-state)



IC508: 74LVC1G08GW
Single 2 input AND gate



IC507, 514: K4S560832J-UC75000
256 M synchronous DRAM

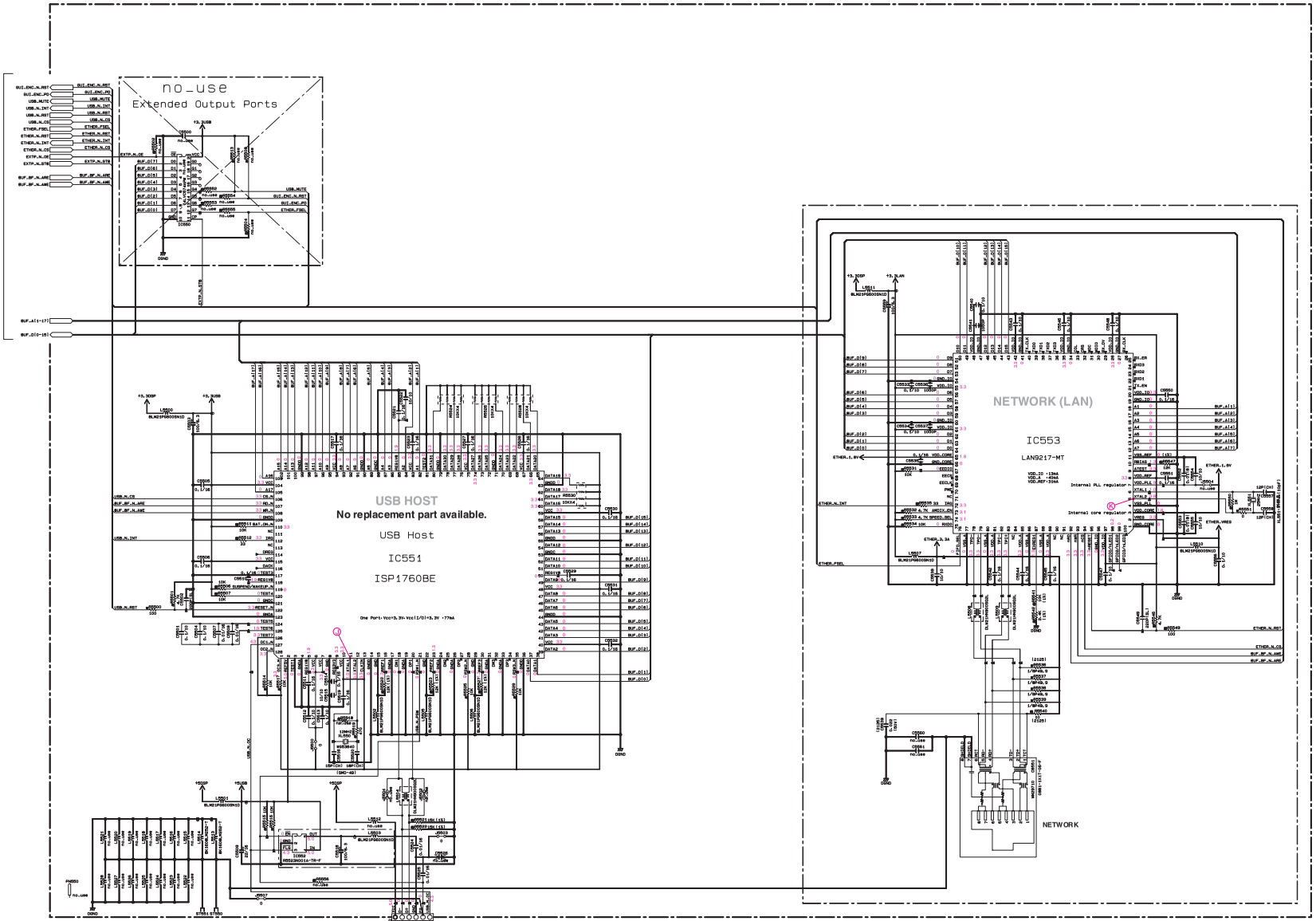


Blackfin
CB/IC/XL:500 -549
OTHER :5000-5499

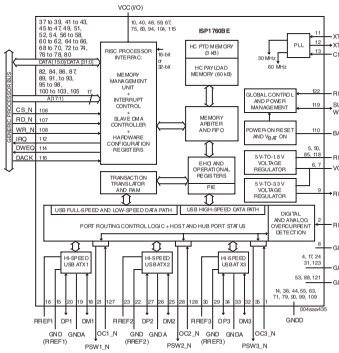
GUI(1)

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

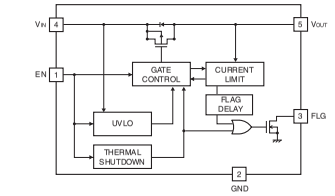
GUI 2/2



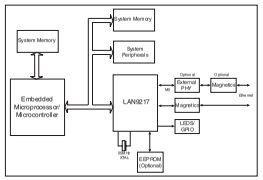
IC551: ISP1760BE
Embedded hi-speed USB host controller



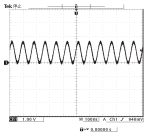
IC552: R5523N001A-TR-F
High side switch IC



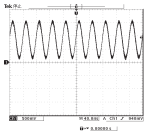
IC553: LAN9217-MT
Digital IC



POINT Ⓙ XL550 (Pin 11 of IC551)



POINT Ⓚ XL551 (Pin 5 of IC553)



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

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊟
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
⊕	CERAMIC TUBULAR CAPACITOR	
⊗	POLYESTER FILM 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
(G)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(E)····· EUROPE
(L)····· SINGAPORE
(S)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN
(P)····· LATIN AMERICA

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★ Schematic diagram is subject to change without notice.

ACDC

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	
	POLYESTER FILM CAPACITOR	
	POLYSTYRENE FILM CAPACITOR	
	MICA CAPACITOR	
	POLYPROPYLENE FILM CAPACITOR	
	SEMICONDUCTIVE CERAMIC CAPACITOR	

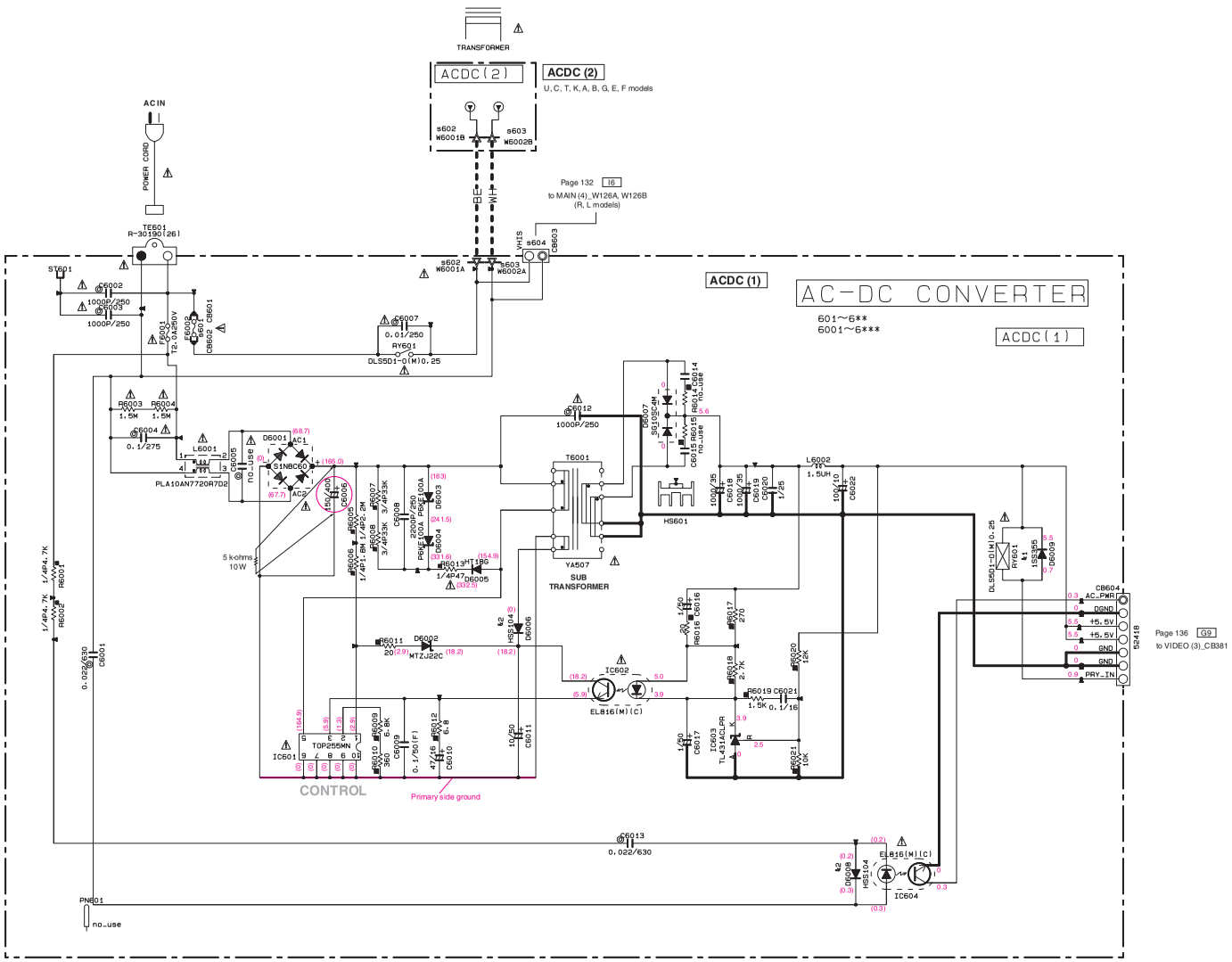
NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN
(P)····· LATIN AMERICA

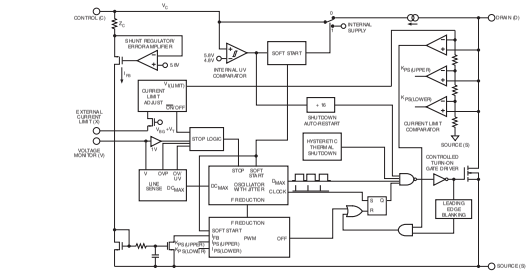
Destination Part List

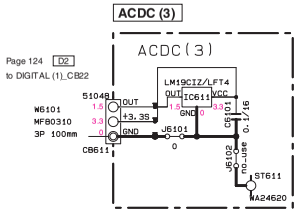
sXX	LOC	UC	R	TKABGEF	L
s601	F6002	WG21120 10.0DA125V	WG21120 10.0DA125V	WM93310 T5.0AL250V	WM93310 T5.0AL250V
s602	W6001A W6001B	MH06620 -	X	MH06620 -	X
s603	W6002A W6002B	MH09620 -	X	MH09620 -	X
s604	CB603	X	VG87990 VHIS	X	VG87990 VHIS

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D6009	1SS355 MA2J1110GL KDS160-RTK/P
&2	D6006-6008	1SS133 1SS176 HSS104







Notes)

Safety measures

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

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★ Schematic diagram is subject to change without notice.

■ REPLACEMENT PARTS LIST

• ELECTRICAL COMPONENT PARTS

WARNING

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

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

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

P.C.B. DIGITAL

	Ref No.	Part No.	Description			Markets
*		WS305800	P. C. B.	DIGITAL		U
*		WS305900	P. C. B.	DIGITAL		CRTKAL (V2065)
*		WS306700	P. C. B.	DIGITAL		C (6295)
*		WS306000	P. C. B.	DIGITAL		BGEF
*	CB1	WD295600	CN. BS. PIN	20P SE		
	CB3-6	WH641400	CN. HDMI	19P SE		
	CB7	LB919040	CN. BS. PIN	4P		
	CB9	WH641400	CN. HDMI	19P SE		
	CB15	WH641400	CN. HDMI	19P SE		
	CB20	VP082900	CN. BS. PIN	25P		
	CB21	VB389800	CN. BS. PIN	2P		
	CB22	VK024700	CN. BS. PIN	3P		
	CB23	VK025600	CN. BS. PIN	12P		
	CB24	VK026500	CN. BS. PIN	6P		
	CB25	VQ045200	CN. BS. PIN	22P		
	CB27	VQ047200	CN. BS. PIN	9P		
	CB28	VM859700	CN. BS. PIN	16P		
	CB29	VK026300	CN. BS. PIN	4P		
	CB31	LB918020	CN. BS. PIN	2P		C (V2065)
	CB31	LB918020	CN. BS. PIN	2P		RTKABGEFL
	CB40	WJ458700	CN. XM	4P, CAM-D96		U
	CB61-63	V9356900	CN. JE	19P SE		
	CB71	VF982200	CN. BS. PIN	14P		
	CB73	VQ044100	CN. BS. PIN	5P		BGEF
	CB80	VK026400	CN. BS. PIN	5P		U
	CB81	VK027000	CN. BS. PIN	11P		
	CB84	V3768800	SOCKET	17LE-23090-28		
	CB95	WH641400	CN. HDMI	19P SE		
	CB96	WC197000	CN. FMN	20P TE		
	C1	US135100	C. CE. CHP	0. 1uF	16V	
	C2	UF438100	C. EL. CHP	100uF	16V	
	C3	US135100	C. CE. CHP	0. 1uF	16V	
	C4-6	US064100	C. CE. CHP	0. 01uF	50V B	
	C7	WG888300	C. CE. M. CHP	10uF	6. 3V	
	C8-9	US135100	C. CE. CHP	0. 1uF	16V	
	C10-12	US064100	C. CE. CHP	0. 01uF	50V B	
	C13	US135100	C. CE. CHP	0. 1uF	16V	
	C14-16	US064100	C. CE. CHP	0. 01uF	50V B	
	C17-18	US135100	C. CE. CHP	0. 1uF	16V	
	C19-22	US064100	C. CE. CHP	0. 01uF	50V B	
	C23-25	US135100	C. CE. CHP	0. 1uF	16V	
	C26-28	WG888300	C. CE. M. CHP	10uF	6. 3V	
	C29-32	US135100	C. CE. CHP	0. 1uF	16V	
	C33-45	US064100	C. CE. CHP	0. 01uF	50V B	
	C46-48	US135100	C. CE. CHP	0. 1uF	16V	
	C50-51	US135100	C. CE. CHP	0. 1uF	16V	
	C53	WG888300	C. CE. M. CHP	10uF	6. 3V	
	C54-57	US135100	C. CE. CHP	0. 1uF	16V	
	C58	WG888300	C. CE. M. CHP	10uF	6. 3V	
	C59-60	US135100	C. CE. CHP	0. 1uF	16V	
	C61-62	WD758300	C. CE. CHP	10uF	10V	
	C63-72	US135100	C. CE. CHP	0. 1uF	16V	
	C73-82	US064100	C. CE. CHP	0. 01uF	50V B	
	C83	US135100	C. CE. CHP	0. 1uF	16V	
	C84	US060700	C. CE. CHP	7pF	50V B	
	C85	US060500	C. CE. CHP	5pF	50V B	
	C86	US135100	C. CE. CHP	0. 1uF	16V	

✻ New Parts

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

✻ New Parts

P.C.B. DIGITAL

Ref No.	Part No.	Description			Markets
C193	US064100	C. CE. CHP	0. 01uF	50V B	
C194	US135100	C. CE. CHP	0. 1uF	16V	
C200	UR837330	C. EL	33uF	16V	
C202	US064100	C. CE. CHP	0. 01uF	50V B	
C204-205	US064100	C. CE. CHP	0. 01uF	50V B	
C207-211	US064100	C. CE. CHP	0. 01uF	50V B	
C212	US135100	C. CE. CHP	0. 1uF	16V	
C214	US135100	C. CE. CHP	0. 1uF	16V	
C215-216	US064100	C. CE. CHP	0. 01uF	50V B	
C217	US135100	C. CE. CHP	0. 1uF	16V	
C218-219	US064100	C. CE. CHP	0. 01uF	50V B	
C220-225	US135100	C. CE. CHP	0. 1uF	16V	
C226	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C228-229	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C231	US135100	C. CE. CHP	0. 1uF	16V	
C232-238	US046100	C. CE. CHP	1uF	25V	
C239-242	US062100	C. CE. CHP	100pF	50V B	
C243	US064100	C. CE. CHP	0. 01uF	50V B	
C400-401	WD758300	C. CE. CHP	10uF	10V	U
C402	US064100	C. CE. CHP	0. 01uF	50V B	
C404	US061100	C. CE. CHP	10pF	50V B	U
C405-406	US035100	C. CE. CHP	0. 1uF	16V B	U
C407	US061100	C. CE. CHP	10pF	50V B	U
C408-409	US035100	C. CE. CHP	0. 1uF	16V B	U
C410	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C411	US135100	C. CE. CHP	0. 1uF	16V	
C412	US035100	C. CE. CHP	0. 1uF	16V B	
C413-414	US135100	C. CE. CHP	0. 1uF	16V	
C415	US044220	C. CE. CHP	0. 022uF	25V B	
C416	US062100	C. CE. CHP	100pF	50V B	
C417	UR267470	C. EL	47uF	50V	
C418	US062220	C. CE. CHP	220pF	50V B	
C419	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C420	US062220	C. CE. CHP	220pF	50V B	
C421	US035100	C. CE. CHP	0. 1uF	16V B	U
C422	US062220	C. CE. CHP	220pF	50V B	
C423	US035100	C. CE. CHP	0. 1uF	16V B	
C424-425	US135100	C. CE. CHP	0. 1uF	16V	
C426	US062220	C. CE. CHP	220pF	50V B	
C427	US035100	C. CE. CHP	0. 1uF	16V B	U
C428	US064100	C. CE. CHP	0. 01uF	50V B	
C429	WD758300	C. CE. CHP	10uF	10V	
C430	UR067470	C. EL	47uF	50V	
C431	US062100	C. CE. CHP	100pF	50V B	
C432-433	US062220	C. CE. CHP	220pF	50V B	
C434-436	US135100	C. CE. CHP	0. 1uF	16V	
C437-438	US062100	C. CE. CHP	100pF	50V B	
C439	US061100	C. CE. CHP	10pF	50V B	
C440	US060800	C. CE. CHP	8pF	50V B	
C441-442	US062390	C. CE. CHP	390pF	50V B	
C443-444	US035100	C. CE. CHP	0. 1uF	16V B	U
C445-446	UR837100	C. EL	10uF	16V	
C447-448	US135100	C. CE. CHP	0. 1uF	16V	
C449-450	UR237470	C. EL	47uF	16V	
C451	US062100	C. CE. CHP	100pF	50V B	
C452	UR067100	C. EL	10uF	50V	
C453	US126100	C. CE. CHP	1uF	10V	

✻ New Parts

Ref No.	Part No.	Description			Markets
C454-469	US135100	C. CE. CHP	0. 1uF	16V	
C471-472	US135100	C. CE. CHP	0. 1uF	16V	
C473	US062680	C. CE. CHP	680pF	50V B	
C474-476	US135100	C. CE. CHP	0. 1uF	16V	
C477	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C478-484	US135100	C. CE. CHP	0. 1uF	16V	
C485	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C486	US135100	C. CE. CHP	0. 1uF	16V	
C488-489	UU297220	C. EL	22uF	100V	
C491-493	US135100	C. CE. CHP	0. 1uF	16V	
C494-496	US063100	C. CE. CHP	1000pF	50V B	
C497-498	US135100	C. CE. CHP	0. 1uF	16V	
C499-502	US063100	C. CE. CHP	1000pF	50V B	
C503-506	US135100	C. CE. CHP	0. 1uF	16V	
C520	WG251600	C. CE. CHP	4. 7uF	6. 3V	
C521	US135100	C. CE. CHP	0. 1uF	16V	
C600	WK041800	C. EL	10uF	16V	
C601-603	US135100	C. CE. CHP	0. 1uF	16V	
C604-605	US064100	C. CE. CHP	0. 01uF	50V B	
C606	UR067100	C. EL	10uF	50V	
C607	US064100	C. CE. CHP	0. 01uF	50V B	U
C608-609	US135100	C. CE. CHP	0. 1uF	16V	
C610	US126100	C. CE. CHP	1uF	10V	
C611	US062100	C. CE. CHP	100pF	50V B	
C612	UR067100	C. EL	10uF	50V	
C613-614	US126100	C. CE. CHP	1uF	10V	
C615	UR237100	C. EL	10uF	16V	U
C616-617	US135100	C. CE. CHP	0. 1uF	16V	U
C618	US063100	C. CE. CHP	1000pF	50V B	
C619	US135100	C. CE. CHP	0. 1uF	16V	
C620	UR348100	C. EL	100uF	25V	
C621	UR237470	C. EL	47uF	16V	U
C622	UR067100	C. EL	10uF	50V	
C623	US135100	C. CE. CHP	0. 1uF	16V	
C624	WK041800	C. EL	10uF	16V	
C625	US135100	C. CE. CHP	0. 1uF	16V	
C626	UR067100	C. EL	10uF	50V	
C627-628	WJ603600	C. MYLAR	820pF	50V J	
C629-630	UR837100	C. EL	10uF	16V	U
C633-634	UR067100	C. EL	10uF	50V	
C635-642	US062100	C. CE. CHP	100pF	50V B	
* C643-644	US663330	C. CE. CHP	3300pF	50V	U
C700-702	US135100	C. CE. CHP	0. 1uF	16V	
C703-704	WD758300	C. CE. CHP	10uF	10V	
C705-706	US135100	C. CE. CHP	0. 1uF	16V	
C707-708	WD758300	C. CE. CHP	10uF	10V	
C709-710	US135100	C. CE. CHP	0. 1uF	16V	
C711-712	US064100	C. CE. CHP	0. 01uF	50V B	
C713	UF037220	C. EL. CHP	22uF	16V	
C714-717	US135100	C. CE. CHP	0. 1uF	16V	
C718	US034390	C. CE. CHP	0. 039uF	16V B	
C719-721	US135100	C. CE. CHP	0. 1uF	16V	
C722-723	US063100	C. CE. CHP	1000pF	50V B	
C724-725	US135100	C. CE. CHP	0. 1uF	16V	
C726	US064100	C. CE. CHP	0. 01uF	50V B	
C727	US135100	C. CE. CHP	0. 1uF	16V	
C728	US064100	C. CE. CHP	0. 01uF	50V B	

✻ New Parts

P.C.B. DIGITAL

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

✻ New Parts

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

✻ New Parts

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

	Ref No.	Part No.	Description			Markets
	IC63	XS534A00	IC	NJM78M05DL1A		
	IC65	X7355A00	IC	PCM1680DBQR		
	IC66	X7357A00	IC	PCM1803DBR		
	IC67	X3586B00	IC	TC74VHCT08AFT EL,K		
	IC68	XR680A00	IC	TC7SH08FU(TE85L,JF		U
	IC70	X9393A00	IC	ADV7800BSTZ-80		
*	IC71	YA215A00	IC	ABT1012		
	IC72	X6671A00	IC	ADV7172KSTZ		
	IC73	X9460A00	IC	R1172H181B-T1-F		
	IC74	X8194A00	IC	R1172H331D-T1-F		
	IC75	X8531A00	IC	TC7WZ32FK		
	IC76-78	XZ283A00	IC	SN74LVTH245APW BUS		
*	IC80	YA844A00	IC	ISL83385EIBZ-T		
	IC81	X3505A00	IC	NJM2068MD-TE2		U
	IC95	X8900A00	IC	CXB1442AR-T4		
	IC96	X8368A00	IC	PCA9517DP		
	IC97	X8897A00	IC	R1172S331B-E2-F		
	JK81-82	V9435700	JACK.MNI	MSJ-035-12APC		
	PJ80	VM725600	JACK.PIN	2P		U
	Q3-10	VQ986700	TR	2SC4081 T106		
	Q80	iA1015I0	TR	2SA1015 Y		
	Q81	iC1815I0	TR	2SC1815 Y		
	Q82	WG538600	TR	KTA1046-Y-U/P		
	Q83	iC1815I0	TR	2SC1815 Y		
	Q84	iA1015I0	TR	2SA1015 Y		
	Q85	iC1815I0	TR	2SC1815 Y		
	Q86	WG538600	TR	KTA1046-Y-U/P		
	Q87	iC1815I0	TR	2SC1815 Y		
	Q95-96	VQ986700	TR	2SC4081 T106		
*	Q200	WQ381000	FET	MCH6336-TL-E		
	Q201-202	VV655300	TR.DGT	DTA144EKA		
	Q203-209	VR936300	TR	2SA1576A T106		
*	Q400	WQ381000	FET	MCH6336-TL-E		
	Q401	VV655300	TR.DGT	DTA144EKA		
	Q600	VV655200	TR.DGT	DTA143EKA		U
	Q601	VV655700	TR.DGT	DTC144EKA		U
*	Q700	WQ381000	FET	MCH6336-TL-E		
	Q701	VR936300	TR	2SA1576A T106		
*	Q702	WQ381000	FET	MCH6336-TL-E		
	Q703	VR936300	TR	2SA1576A T106		
	Q704	WE834500	FET	UPA672T-T1-A		
	R180	V8070100	R.MTL.FLM	2.2Ω	1W	
	R189	WB784700	R.MTL.FLM	6.8Ω	1W	
	R200	RD357100	R.CHP	10KΩ	1/16W	(6295)
	R466-467	HV753220	R.CAR.FP	2.2Ω	1/4W	
*	R601	WQ072300	R.MTL.OXD	2.2Ω	1W	
	R607	HV753220	R.CAR.FP	2.2Ω	1/4W	
	R930	HV753560	R.CAR.FP	5.6Ω	1/4W	
	R936	HV753560	R.CAR.FP	5.6Ω	1/4W	
*	R967-968	WQ964700	R.MTL.OXD	470Ω	1W	U
	ST1-2	V4040500	SCR.TERM	M3		
	ST80	V4040500	SCR.TERM	M3		C(V2065)
	ST80	V4040500	SCR.TERM	M3		RTKABGEFL
	ST81	V4040500	SCR.TERM	M3		
*	XL1	WR725300	RSNR.CRYS	27MHz SMD-49		
	XL20	WF997400	RSNR.CE	20MHz		
*	XL41	WR846900	RSNR.CRYS	45.1984MHz DSX321G		U

✻ New Parts

	Ref No.	Part No.	Description			Markets
	XL42	V3625700	RSNR.CRYS	24.576MHz		
	XL70	VZ772700	RSNR.CRYS	28.63636MHz		
*		WS305500	P.C.B.	OPERATION		U
*		WS305600	P.C.B.	OPERATION		CRTA
*		WS305700	P.C.B.	OPERATION		KBGEFL
	CB401	VQ045400	CN.BS.PIN	25P		
	CB402	VQ044400	CN.BS.PIN	9P		
	CB451	VQ961100	CN.BS.PIN	8P		
	CB452	V9357000	CN	19P TE		
	CB454	VQ962100	CN.BS.PIN	18P		
	CB455	V9357000	CN	19P TE		
	CB456	VQ961800	CN.BS.PIN	15P		
	CB457	VQ961400	CN.BS.PIN	11P		
	CB458	V9357000	CN	19P TE		
	CB459	VQ963300	CN.BS.PIN	12P		
	CB460	VQ963100	CN.BS.PIN	10P		
	CB461	VQ044400	CN.BS.PIN	9P		
	CB462	VK026400	CN.BS.PIN	5P		CRTKABGEFL
	CB463	VQ585700	CN.JUMPER	7P		
	CB464	VQ585500	CN.JUMPER	5P		
*	CB471	WQ680200	CN.USB	4P TE AAPVA004C0		
	CB475	VK024900	CN.BS.PIN	5P TE		
	CB477	VB858300	CN.BS.PIN	4P		
	C4001	US063100	C.CE.CHP	1000pF	50V B	
	C4002	US065100	C.CE.CHP	0.1uF	50V B	
	C4003	UR067100	C.EL	10uF	50V	
	C4004	US064100	C.CE.CHP	0.01uF	50V B	
	C4005	UR837220	C.EL	22uF	16V	
	C4006	US062100	C.CE.CHP	100pF	50V B	
	C4007	UR257470	C.EL	47uF	35V	
	C4008	US061330	C.CE.CHP	33pF	50V B	
	C4009-4010	UR267220	C.EL	22uF	50V	
	C4011	UR067100	C.EL	10uF	50V	
	C4012-4013	US135100	C.CE.CHP	0.1uF	16V	
	C4015	UR268220	C.EL	220uF	50V	
	C4016	UM388330	C.EL	330uF	6.3V	
	C4017	US135100	C.CE.CHP	0.1uF	16V	
	C4018	US061680	C.CE.CHP	68pF	50V B	
	C4019	US065100	C.CE.CHP	0.1uF	50V B	
	C4020-4021	US135100	C.CE.CHP	0.1uF	16V	
	C4022	US064100	C.CE.CHP	0.01uF	50V B	
	C4023-4024	US063100	C.CE.CHP	1000pF	50V B	
	C4025-4026	US065100	C.CE.CHP	0.1uF	50V B	
	C4027	US135100	C.CE.CHP	0.1uF	16V	
	C4028	US062100	C.CE.CHP	100pF	50V B	
	C4030	US062100	C.CE.CHP	100pF	50V B	
	C4031	US062470	C.CE.CHP	470pF	50V B	
	C4032	US135100	C.CE.CHP	0.1uF	16V	
	C4033	US063100	C.CE.CHP	1000pF	50V B	
	C4034	UM417100	C.EL	10uF	50V	
	C4035	US135100	C.CE.CHP	0.1uF	16V	
	C4036-4040	US063100	C.CE.CHP	1000pF	50V B	
	C4041-4046	US135100	C.CE.CHP	0.1uF	16V	
	C4201	UR067470	C.EL	47uF	50V	

✻ New Parts

P.C.B. OPERATION

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

* New Parts

	Ref No.	Part No.	Description			Markets
	C4402	US063100	C. CE. CHP	1000pF	50V B	
*	C4403	WJ604300	C. MYLAR	3300pF	50V	
	C4404-4405	US062220	C. CE. CHP	220pF	50V B	
*	C4406	WJ604300	C. MYLAR	3300pF	50V	
	C4407	US064100	C. CE. CHP	0. 01uF	50V B	
	C4410	US135100	C. CE. CHP	0. 1uF	16V	
	C4411	US060500	C. CE. CHP	5pF	50V B	
	C4413	US060500	C. CE. CHP	5pF	50V B	
	C4414	US063100	C. CE. CHP	1000pF	50V B	
	C4415	US135100	C. CE. CHP	0. 1uF	16V	
	C4417	US126100	C. CE. CHP	1uF	10V	
	C4418	US062220	C. CE. CHP	220pF	50V B	
	C4419	US063100	C. CE. CHP	1000pF	50V B	
	D4001-4002	VT332900	DIODE	1SS355		
	D4003	VU171900	DIODE. ZENR	UDZ5. 1B	5. 1V	
	D4004-4005	VT332900	DIODE	1SS355		
	D4006-4007	VU991000	DIODE. ZENR	MAZ8036GLL 3. 5V		
	D4008	WG760400	LED	SELK6E10C BLUE		
*	D4009	WR095700	LED	8224-10SDRD/S530A3		
	D4011	V2598200	LED	SIR-505ST		
	D4301	VV659300	DIODE. ZENR	RLZ7. 5B	7. 5V	CRTKABGEFL
	D4302	VV659300	DIODE. ZENR	RLZ7. 5B	7. 5V	CRTKABGEFL
	D4303	VT332900	DIODE	1SS355		
	D4305	VT332900	DIODE	1SS355		
	D4401-4402	VT332900	DIODE	1SS355		
	D4404-4405	VT332900	DIODE	1SS355		
	D4408	VT332900	DIODE	1SS355		
	D4410	VT332900	DIODE	1SS355		
	IC401	X7378A00	IC	NJM4565M(TE1)		
	IC402	X6386A00	IC	M66003-0131FP		
	IC451-454	X5482A00	IC	NE5532DR OP AMP		
	IC461	X3505A00	IC	NJM2068MD-TE2		CRTKABGEFL
	JK401	WC814400	JACK. MNI	JY-3554-01-130		
	JK451	VV269500	CN	8P DIN		U
	JK472	V9408200	JACK. PHONE	MSJ-064-05B GR		
	PJ461	WD599600	JACK. PIN	2P MSP-252V2-06 NI		CRTKABGEFL
	PJ471	WJ117500	JACK. PIN	3P		
	Q4001-4003	WC529400	TR	KTC3875S Y GR RTK		
	Q4004	VV655400	TR. DGT	DTC114EKA		
	Q4005	WC397700	TR	2N5401C-AT		
	Q4006-4012	WC529400	TR	KTC3875S Y GR RTK		
	Q4301	VV655400	TR. DGT	DTC114EKA		
	Q4302	VV655000	TR. DGT	DTA114EKA		
	Q4305	VV655400	TR. DGT	DTC114EKA		
	Q4306	VV655000	TR. DGT	DTA114EKA		
	R4201	HV753100	R. CAR. FP	1Ω	1/4W	
*	R4208-4209	WQ072300	R. MTL. OXD	2. 2Ω	1W	
*	R4301	WQ964700	R. MTL. OXD	470Ω	1W	CRTKABGEFL
*	R4302	WQ964700	R. MTL. OXD	470Ω	1W	CRTKABGEFL
	R4320-4323	HV757100	R. CAR. FP	10KΩ	1/4W	
	R4413-4414	V8071300	R. MTL. FLM	470Ω	1W	
	RY461	WJ122400	RELAY	981-2A-24DS-SP7		
	RY463	WJ122400	RELAY	981-2A-24DS-SP7		
	ST451	V4040500	SCR. TERM	M3		
	ST471	V4040500	SCR. TERM	M3		
	SW401-404	WD483100	SW. TACT	SKRGAAD010		
	SW406-407	WD483100	SW. TACT	SKRGAAD010		

* New Parts

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

	Ref No.	Part No.	Description			Markets
	SW409-413	WD483100	SW. TACT	SKRGAAD010		
	SW415	WD483100	SW. TACT	SKRGAAD010		
	SW417-419	WD483100	SW. TACT	SKRGAAD010		
	SW421	WD483100	SW. TACT	SKRGAAD010		
	SW424	WD483100	SW. TACT	SKRGAAD010		
	SW441-442	V9266400	SW. RT. ENC	XREB12105PVB25F		
	SW443	V9597100	SW. RT. ENC	EC12E2460802		
	SW471	WD483100	SW. TACT	SKRGAAD010		
	TE461	WK560800	TERM. SP	4P MST-204V1-01 NC		UCRTA
	TE461	WK560900	TERM. SP	4P MST-204V1-01 WC		KBGEFL
	TE462	WK560800	TERM. SP	4P MST-204V1-01 NC		UCRTA
	TE462	WK560900	TERM. SP	4P MST-204V1-01 WC		KBGEFL
*	U4001	WQ600700	L. DTCT	SM3385VMH6		
	U4201	WH536900	CN. PHOTO. T	1P GP1FAV51TK0F		
*	V4001	WQ842100	FL. DSPLY	18-MT-09GNK		
		V6007100	SPACER. FL	4. 6/10/32		
*		WR912900	P. C. B.	MAIN		UC
*		WR913000	P. C. B.	MAIN		R
*		WR913100	P. C. B.	MAIN		TKABGEF
*		WR913200	P. C. B.	MAIN		L
	CB111-112	WN077700	CLIP. FUSE	CLIP PFC5000-0202F		R
	CB152	VQ962900	CN. BS. PIN	8P		
	CB153	VQ963900	CN. BS. PIN	18P		
	CB154	VQ963600	CN. BS. PIN	15P		
	CB155	VQ963200	CN. BS. PIN	11P		
	C1001-1007	WK041800	C. EL	10uF	16V	
	C1008-1014	WE100900	C. PP	220pF	630V	
*	C1015-1021	WE100600	C. PP	120pF	630V	
*	C1022-1028	WE102300	C. PP	3300pF	100V	
	C1029	UR067470	C. EL	47uF	50V	
	C1030-1031	UR068100	C. EL	100uF	50V	
	C1032-1035	UR067470	C. EL	47uF	50V	
⚠	C1036-1042	WE100200	C. PP	22pF	630V	
	C1043-1049	WN164300	C. PP	330pF	100V	
⚠	C1050-1056	UR397100	C. EL	10uF	100V	
	C1057-1063	WN165500	C. PP	0. 022uF	100V	
	C1066-1067	WN156000	C. PP	1000pF	250V	
	C1068	UR866470	C. EL	4. 7uF	50V	
	C1069	UR218220	C. EL	220uF	6. 3V	
	C1070-1073	UR297100	C. EL	10uF	100V	
	C1074	UR267330	C. EL	33uF	50V	
	C1075	WK041800	C. EL	10uF	16V	
	C1076	UR266100	C. EL	1uF	50V	
*	C1078-1079	WP421000	C. PP	0. 047uF	100V	
	C1080-1081	WN165500	C. PP	0. 022uF	100V	
	C1082	UR049330	C. EL	3300uF	25V	
	C1083	UR049220	C. EL	2200uF	25V	
⚠ #	C1084-1085	WJ788600	C. EL	12000uF	71V	
	C1086	UR049220	C. EL	2200uF	25V	
	C1087-1088	WK041800	C. EL	10uF	16V	
	C1509	UR067470	C. EL	47uF	50V	
	C1510-1512	US135100	C. CE. CHP	0. 1uF	16V	
	C1513-1514	US061220	C. CE. CHP	22pF	50V B	
	C1515-1516	US135100	C. CE. CHP	0. 1uF	16V	

* New Parts

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

	Ref No.	Part No.	Description			Markets
	C1517-1520	US062220	C. CE. CHP	220pF	50V B	
	C1521	UR267100	C. EL	10uF	50V	
	C1522	US061470	C. CE. CHP	47pF	50V B	
	C1523	UR238100	C. EL	100uF	16V	
	C1524	US061470	C. CE. CHP	47pF	50V B	
	C1525	UR267100	C. EL	10uF	50V	
	C1526-1527	UR238100	C. EL	100uF	16V	
	C1528-1529	US062220	C. CE. CHP	220pF	50V B	
	C1530	UR238100	C. EL	100uF	16V	
	C1531	UR267330	C. EL	33uF	50V	
	C1532-1533	UR238100	C. EL	100uF	16V	
	C1534-1535	US062220	C. CE. CHP	220pF	50V B	
	C1536	UR238100	C. EL	100uF	16V	
*	C1537	WJ605600	C. MYLAR	0. 033uF	50V	
	C1538	VR169000	C. MYLAR	0. 33uF	50V	
*	C1539	WJ604800	C. MYLAR	8200pF	50V	
*	C1540	WJ605600	C. MYLAR	0. 033uF	50V	
	C1541	VR169000	C. MYLAR	0. 33uF	50V	
	C1542	US135100	C. CE. CHP	0. 1uF	16V	
*	C1543	WJ604800	C. MYLAR	8200pF	50V	
	C1544	US062220	C. CE. CHP	220pF	50V B	
	C1545	US135100	C. CE. CHP	0. 1uF	16V	
	C1546	US062220	C. CE. CHP	220pF	50V B	
	C1547-1550	UR267100	C. EL	10uF	50V	
	C1551	US062220	C. CE. CHP	220pF	50V B	
	C1552	UR267100	C. EL	10uF	50V	
	C1553-1554	UR266220	C. EL	2. 2uF	50V	
	C1555-1556	UR267100	C. EL	10uF	50V	
	C1557	US062220	C. CE. CHP	220pF	50V B	
	C1558-1559	UR267470	C. EL	47uF	50V	
	C1560	US062220	C. CE. CHP	220pF	50V B	
	C1563	US062220	C. CE. CHP	220pF	50V B	
	C1566	US062220	C. CE. CHP	220pF	50V B	
	C1567-1568	VR169200	C. MYLAR	0. 47uF	50V	
	C1569	US062220	C. CE. CHP	220pF	50V B	
	C1570-1571	UR267100	C. EL	10uF	50V	
	C1572-1573	US062100	C. CE. CHP	100pF	50V B	
	C1574	UR267100	C. EL	10uF	50V	
	C1575	US061470	C. CE. CHP	47pF	50V B	
	C1576-1577	UR267100	C. EL	10uF	50V	
	C1578	US061470	C. CE. CHP	47pF	50V B	
	C1579-1580	UR267100	C. EL	10uF	50V	
	C1581-1582	US061470	C. CE. CHP	47pF	50V B	
	C1583-1584	UR267470	C. EL	47uF	50V	
	C1585-1586	UR267100	C. EL	10uF	50V	
	C1587	US061470	C. CE. CHP	47pF	50V B	
	C1588-1591	UR267100	C. EL	10uF	50V	
	C1592	US061470	C. CE. CHP	47pF	50V B	
	C1593	UR267100	C. EL	10uF	50V	
	C1594-1595	US062470	C. CE. CHP	470pF	50V B	
	C1596	US064100	C. CE. CHP	0. 01uF	50V B	
	C1597-1598	US062470	C. CE. CHP	470pF	50V B	
	C1599-1602	UR267100	C. EL	10uF	50V	
	C1603-1604	US062470	C. CE. CHP	470pF	50V B	
	C1605	US064100	C. CE. CHP	0. 01uF	50V B	
	C1606	US044220	C. CE. CHP	0. 022uF	25V	
	C1607	US062470	C. CE. CHP	470pF	50V B	

* New Parts

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

	Ref No.	Part No.	Description		Markets
	C1608	US044220	C. CE. CHP	0. 022uF 25V	
	C1609-1610	US064100	C. CE. CHP	0. 01uF 50V B	
	D1001-1016	VR496500	DIODE. CHP	MA111 FLAT TP	
⚠	D1017-1023	VG437500	DIODE. ZENR	MTZJ5. 1C 5. 1V	
	D1024-1039	VR496500	DIODE. CHP	MA111 FLAT TP	
⚠	D1040	WK878000	DIODE. BRG	D15XBN20-7001 15A	
⚠	D1041	WH487300	DIODE. BRG	RS203M 2. 0A 200V	
	D1042	VG440500	DIODE. ZENR	MTZJ13B 13V	
	D1043	VR496500	DIODE. CHP	MA111 FLAT TP	
⚠	D1044-1045	VG435500	DIODE. ZENR	MTZJ2. 4B 2. 4V	
	D1501-1502	VG438400	DIODE. ZENR	MTZJ6. 8C 6. 8V	
⚠	F100	KB000780	FUSE	T5A 250V	R
	G101	V5995800	PLATE. GND		
⚠	IC101	XJ608A00	IC	NJM7812FA	
⚠	IC102	X4154A00	IC	KIA7912PI	
	IC152	XZ509A00	IC	TC74VHCU04FT INVER	
*	IC153	YA361A00	IC	R2A15220FP	
	IC154	X7378A00	IC	NJM4565M(TE1)	
	PJ150	V5715300	JACK. PIN	2P OR/OR	
	PJ151	V7046800	JACK. PIN	6P MSP-246V1-01NI	
	PJ152-153	V7046700	JACK. PIN	4P MSP-244V1-01NI	
	PJ154	WG674900	JACK. PIN	4P	
	PJ156	V7046800	JACK. PIN	6P MSP-246V1-01NI	
	PJ157	V7046700	JACK. PIN	4P MSP-244V1-01NI	
	PJ158	WG674900	JACK. PIN	4P	
	PJ159	V7189700	JACK. PIN	1P	
	Q1001-1014	WF549900	TR	2SC3906K T146 R, S	
	Q1015-1021	VE198700	TR	2SA1145 O, Y	
⚠	Q1022-1028	VK432900	TR	2SD1915F S, T	
⚠	Q1029-1035	VE198800	TR	2SC2705 O, Y	
	Q1036-1042	WG408900	TR	2SC5291 S, T	
⚠	Q1043-1049	WG408800	TR	2SA2168 S, T	
	Q1050-1056	WD281200	TR. PAIR	A2151/C6011 O, P, Y	
	Q1057-1063	WC139600	TR	KTC3911S GR BL	
	Q1064	WH372100	TR	KTA1517S GR TP	
	Q1065	WC139600	TR	KTC3911S GR BL	
⚠ *	Q1067-1068	WC292600	TR	KTA1837-U	
⚠	Q1069-1070	WC398400	TR	2N5551C-AT	
⚠	Q1071	WC397700	TR	2N5401C-AT	
⚠	Q1072	VP872600	TR	2SA1708 S, T	
	Q1073	WC398500	TR. DGT	KRA102M-AT	
*	Q1074	WS512800	TR. DGT	KRC105M-AT/P	
	Q1500-1504	VZ725900	TR	2SD1938F S, T	
	Q1507-1527	VZ725900	TR	2SD1938F S, T	
	R1001-1007	HF356100	R. CAR	1KΩ 1/2W	
	R1008-1010	HF356180	R. CAR	1. 8KΩ 1/2W	
	R1011-1014	HL006180	R. MTL. OXD	1. 8KΩ 1/2W	
	R1022-1028	HF355330	R. CAR	330Ω 1/2W	
*	R1029-1035	WA622000	R. MTL. OXD	1. 2KΩ 1W	
	R1036-1042	V8070900	R. MTL. FLM	100Ω 1W	
	R1043-1049	V8072600	R. MTL. OXD	33KΩ 1W	
	R1079-1085	HL005120	R. MTL. OXD	120Ω 1/2W	
	R1086-1092	WG727400	R. MTL. FLM	2. 7KΩ 1/4W	
	R1093-1099	WG725600	R. MTL. FLM	470Ω 1/4W	
	R1100-1106	WG726400	R. MTL. FLM	1KΩ 1/4W	
	R1107-1112	WG726200	R. MTL. FLM	820Ω 1/4W	
⚠	R1113-1126	HV755120	R. CAR. FP	120Ω 1/4W	

✻ New Parts

	Ref No.	Part No.	Description		Markets
	R1127-1133	HF355470	R. CAR	470Ω 1/2W	
⚠	R1134-1147	HV754100	R. CAR. FP	10Ω 1/4W	
⚠ *	R1148-1154	WP839400	R. WW	0. 22+0. 22 3W	
⚠	R1176-1182	V8070300	R. MTL. FLM	10Ω 1W	
⚠	R1197-1198	V8070200	R. MTL. FLM	4. 7Ω 1W	
⚠	R1211	HV754100	R. CAR. FP	10Ω 1/4W	
	R1213	V8072100	R. MTL. OXD	5. 6KΩ 1W	
	R1214	HV755560	R. CAR. FP	560Ω 1/4W	
	R1219	V8072000	R. MTL. OXD	4. 7KΩ 1W	
⚠	R1222	HV756100	R. CAR. FP	1KΩ 1/4W	
⚠	R1234-1235	HV754100	R. CAR. FP	10Ω 1/4W	
	R1236	WG726200	R. MTL. FLM	820Ω 1/4W	
⚠	R1238	V8070300	R. MTL. FLM	10Ω 1W	
	R1504	HV753100	R. CAR. FP	1Ω 1/4W	
*	R1573	WQ835700	R. MTL. OXD	82Ω 1W	
*	R1575	WQ835700	R. MTL. OXD	82Ω 1W	
*	R1664-1665	WQ835800	R. MTL. OXD	100Ω 1W	
⚠	RY101	WE648700	RELAY	DC DH24D2-0-Q	
	ST100	V4040500	SCR. TERM	M3	
⚠	SW101	WB493700	VOLT. SELCT	R8140246	R
⚠	SW101	WD073700	VOLT. SELCT	R8140254	L
	U1500-1501	WH169900	CN. PHOTO. R	1P GP1FAV51RK0F	
		WE774200	SCR. BND. HD	3x10 MFZN2W3	
*		WS304700	P. C. B.	VIDEO	U
*		WS304800	P. C. B.	VIDEO	C
*		WS304900	P. C. B.	VIDEO	R
*		WS305000	P. C. B.	VIDEO	T
*		WS305100	P. C. B.	VIDEO	K
*		WS305200	P. C. B.	VIDEO	A
*		WS305300	P. C. B.	VIDEO	BGEF
*		WS305400	P. C. B.	VIDEO	L
	CB303	VQ961500	CN. BS. PIN	12P	
	CB304	VN394900	CN. BS. PIN	14P	
	CB321	VM859500	CN. BS. PIN	11P	CRTKABGEF
	CB322	VM923600	CN. BS. PIN	13P	U
	CB332	VQ961300	CN. BS. PIN	10P	
	CB333	VK024700	CN. BS. PIN	3P	
	CB340	LB918020	CN. BS. PIN	2P	
	CB342	LB918040	CN. BS. PIN	4P	
	CB343	VZ130900	CN. JUMPER	4P	
	CB344	VQ585500	CN. JUMPER	5P	
	CB346	VB390000	CN. BS. PIN	4P	
*	CB349	VQ047700	CN. BS. PIN	22P	
	CB381	VQ962800	CN. BS. PIN	7P	
	CB391	VQ044100	CN. BS. PIN	5P	BGEF
	C3001	US062100	C. CE. CHP	100pF 50V B	
	C3002-3004	US060800	C. CE. CHP	8pF 50V B	
	C3005	US062100	C. CE. CHP	100pF 50V B	
	C3006	UR237470	C. EL	47uF 16V	
	C3007-3008	US135100	C. CE. CHP	0. 1uF 16V	
	C3009	UR237470	C. EL	47uF 16V	
	C3011	US060300	C. CE. CHP	3pF 50V B	
	C3012	UR837470	C. EL	47uF 16V	
	C3013-3014	US060300	C. CE. CHP	3pF 50V B	

✻ New Parts

P.C.B. VIDEO

Ref No.	Part No.	Description			Markets
C3015-3017	US135100	C. CE. CHP	0. 1uF	16V	
C3018	UR267100	C. EL	10uF	50V	
C3019	US135100	C. CE. CHP	0. 1uF	16V	
C3020	UR267100	C. EL	10uF	50V	
C3021-3025	US135100	C. CE. CHP	0. 1uF	16V	
C3026	UR267100	C. EL	10uF	50V	
C3027	WD758300	C. CE. CHP	10uF	10V	
C3029	WD758300	C. CE. CHP	10uF	10V	
C3031	WD758300	C. CE. CHP	10uF	10V	
C3033	UR837470	C. EL	47uF	16V	
C3035-3037	WD758300	C. CE. CHP	10uF	10V	
C3043-3044	US135100	C. CE. CHP	0. 1uF	16V	
C3045	UR837470	C. EL	47uF	16V	
C3047	US135100	C. CE. CHP	0. 1uF	16V	
C3048	UR238220	C. EL	220uF	16V	
C3049	UR837470	C. EL	47uF	16V	
C3050	US135100	C. CE. CHP	0. 1uF	16V	
C3051	UR238220	C. EL	220uF	16V	
C3063	US135100	C. CE. CHP	0. 1uF	16V	
C3065	UR237470	C. EL	47uF	16V	
C3067	US135100	C. CE. CHP	0. 1uF	16V	
C3072	US135100	C. CE. CHP	0. 1uF	16V	
C3073	UR238220	C. EL	220uF	16V	
C3077	US135100	C. CE. CHP	0. 1uF	16V	
C3080-3085	WD758300	C. CE. CHP	10uF	10V	
C3201	US061270	C. CE. CHP	27pF	50V B	BGEF
C3202	UR237100	C. EL	10uF	16V	BGEF
C3203	US061270	C. CE. CHP	27pF	50V B	BGEF
C3204-3205	US135100	C. CE. CHP	0. 1uF	16V	BGEF
C3206	US062560	C. CE. CHP	560pF	50V B	BGEF
C3207-3208	US062330	C. CE. CHP	330pF	50V B	BGEF
C3209	US135100	C. CE. CHP	0. 1uF	16V	BGEF
C3211	UR237470	C. EL	47uF	16V	BGEF
C3212	UR237470	C. EL	47uF	16V	CRTKABGEFL
C3213	UR237470	C. EL	47uF	16V	CRTKABGEFL
C3214	UR237470	C. EL	47uF	16V	CRTKABGEFL
C3215	US062100	C. CE. CHP	100pF	50V B	
C3217	US062100	C. CE. CHP	100pF	50V B	CRTKABGEFL
C3218	US062100	C. CE. CHP	100pF	50V B	
C3220	US064100	C. CE. CHP	0. 01uF	50V B	U
C3221	US062100	C. CE. CHP	100pF	50V B	
C3303-3305	VR324900	C. MYLAR	0. 1uF	100V	
C3307	WG601900	C. EL	10000uF	16V	
C3308	UR278100	C. EL	100uF	63V	
C3309	UR03A100	C. EL	10000uF	16V	
C3310	UR039470	C. EL	4700uF	16V	
C3311	UR266100	C. EL	1uF	50V	
C3312	UR267220	C. EL	22uF	50V	
C3313	UR266100	C. EL	1uF	50V	U
C3314	UR266100	C. EL	1uF	50V	
C3315	UR267100	C. EL	10uF	50V	
C3316	UR268100	C. EL	100uF	50V	
C3317	UR266100	C. EL	1uF	50V	U
C3318	UR237470	C. EL	47uF	16V	U
C3319	UR266100	C. EL	1uF	50V	
C3320-3321	UR267330	C. EL	33uF	50V	
C3324	UR237470	C. EL	47uF	16V	U

✻ New Parts

	Ref No.	Part No.	Description			Markets
	C3403-3409	WJ605000	C. MYLAR	0. 01uF	50V J	
*	C3410-3416	WJ605200	C. MYLAR	0. 015uF	50V	
	C3603-3604	US063100	C. CE. CHP	1000pF	50V B	
	C3606	US064100	C. CE. CHP	0. 01uF	50V B	
	C3801	US064100	C. CE. CHP	0. 01uF	50V B	
	C3802	V7887800	C. EL	1uF	50V	
	C3803	WJ335500	C. EL	2. 2uF	50V	
*	C3804	WJ603700	C. MYLAR	1000pF	50V	
	C3805	US064100	C. CE. CHP	0. 01uF	50V B	
	C3806-3807	WD758300	C. CE. CHP	10uF	10V	
	C3901	US064100	C. CE. CHP	0. 01uF	50V B	BGEF
	C3902	US062120	C. CE. CHP	120pF	50V B	BGEF
	C3903	US062220	C. CE. CHP	220pF	50V B	BGEF
	C3904	US135100	C. CE. CHP	0. 1uF	16V	BGEF
	C3905	UR837470	C. EL	47uF	16V	BGEF
	C3906	UR837100	C. EL	10uF	16V	BGEF
	C3907	UR818470	C. EL	470uF	6. 3V	BGEF
	C3908	US064100	C. CE. CHP	0. 01uF	50V B	BGEF
	D3201	VG436100	DIODE. ZENR	MTZJ3. 3B	3. 3V	BGEF
⚠	D3202	VG439500	DIODE. ZENR	MTZJ10B	10V	CRTKABGEFL
	D3302	WH487300	DIODE. BRG	RS203M 2. 0A 200V		
⚠	D3304	WH487300	DIODE. BRG	RS203M 2. 0A 200V		
	D3306	VV307700	DIODE	1N4002S		
	D3307	VG440200	DIODE. ZENR	MTZJ12B	12V	R
*	D3308	VG444700	DIODE. ZENR	MTZ J 39D 39. 0V TP		
	D3309	VT332900	DIODE	1SS355		U
	D3310	VT332900	DIODE	1SS355		
	D3311	VT332900	DIODE	1SS355		U
	D3313-3314	VT332900	DIODE	1SS355		U
	D3320	VG437400	DIODE. ZENR	MTZJ5. 1B	5. 1V	
	D3403-3407	VT332900	DIODE	1SS355		
	D3601-3602	VT332900	DIODE	1SS355		
	D3801-3805	VT332900	DIODE	1SS355		
	D3901-3902	VT332900	DIODE	1SS355		BGEF
	IC301-303	XY879A00	IC	TC74HC4053AF(EL)		
	IC305	X6742A00	IC	LA73050-TLM-E		
	IC306	X2904A00	IC	NJM2581M VIDEO AMP		
	IC307	XY549A00	IC	TC74HC4051AFEL		
	IC308	X7779A00	IC	LC709004A-TLM-E		
	IC310	X8875A00	IC	FHP3350IM14X		
	IC321	X8235A00	IC	LC72725KM		BGEF
	IC331	X8276A00	IC	NJM2396F05		
	IC332-333	X8035A00	IC	BA00JC5WT-V5		U
	IC334	X6143A00	IC	NJM2388F05 5. 0V		
	IC391	XZ509A00	IC	TC74VHCU04FT INVER		BGEF
	JK361-362	V9435700	JACK. MNI	MSJ-035-12APC		
	JK391	V6931000	CN. DIN	1P YKF51-5506		BGEF
	PJ301	WG505100	JACK. PIN	6P		
	PJ302	V7189800	JACK. PIN	1P		
*	PJ303	WH381400	JACK. PIN	3P JACK G,B,R		
	PJ304	V7189800	JACK. PIN	1P		
	PJ305-306	V7190000	JACK. PIN	2P		
	Q3001	VR936300	TR	2SA1576A T106		
	Q3201	iC174020	TR	2SC1740S QRS		BGEF
	Q3203	iC181510	TR	2SC1815 Y		CRTKABGEFL
⚠	Q3301	VP872600	TR	2SA1708 S,T		
	Q3302	iA101510	TR	2SA1015 Y		

✻ New Parts

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

	Ref No.	Part No.	Description			Markets
	Q3303	WG538600	TR	KTA1046-Y-U/P		
	Q3304	iA1015I0	TR	2SA1015 Y		
	Q3305	iC1815I0	TR	2SC1815 Y		
	Q3405	VV655400	TR. DGT	DTC114EKA		
	Q3406	VV655000	TR. DGT	DTA114EKA		
	Q3407	VV655400	TR. DGT	DTC114EKA		
	Q3408	VV655000	TR. DGT	DTA114EKA		
	Q3409	VV655400	TR. DGT	DTC114EKA		
	Q3410	VV655000	TR. DGT	DTA114EKA		
	Q3411	VV655400	TR. DGT	DTC114EKA		
	Q3412	VV655000	TR. DGT	DTA114EKA		
	Q3413	VV655400	TR. DGT	DTC114EKA		
	Q3414	VV655000	TR. DGT	DTA114EKA		
	Q3801-3802	iC1815I0	TR	2SC1815 Y		
	Q3803	VV655700	TR. DGT	DTC144EKA		
	R3021	HV753100	R. CAR. FP	1Ω	1/4W	
	R3025	HV753100	R. CAR. FP	1Ω	1/4W	
	R3046-3049	HV753100	R. CAR. FP	1Ω	1/4W	
	R3060-3061	HV753100	R. CAR. FP	1Ω	1/4W	
	R3208	HV755680	R. CAR. FP	680Ω	1/4W	BGEF
	R3210	HV754180	R. CAR. FP	18Ω	1/4W	CRTKABGEFL
⚠	R3301	HV753220	R. CAR. FP	2.2Ω	1/4W	
	R3306	HV756100	R. CAR. FP	1KΩ	1/4W	
	R3315-3316	HV756470	R. CAR. FP	4.7KΩ	1/4W	
	R3403-3406	HV757100	R. CAR. FP	10KΩ	1/4W	
	R3910	HV753220	R. CAR. FP	2.2Ω	1/4W	BGEF
	RY341-345	WJ122400	RELAY	981-2A-24DS-SP7		
	ST331-332	V4040500	SCR. TERM	M3		
	ST361-362	V4040500	SCR. TERM	M3		
	ST381-383	V4040500	SCR. TERM	M3		
	TE341	WK560800	TERM. SP	4P MST-204V1-01 NC		UCRTA
	TE341	WK560900	TERM. SP	4P MST-204V1-01 WC		KBGEFL
	TE342	WK561000	TERM. SP	6P MST-207V1-01 NC		UCRTA
	TE342	WK561100	TERM. SP	6P MST-207V1-01 WC		KBGEFL
	TE343	WK560800	TERM. SP	4P MST-204V1-01 NC		UCRTA
	TE343	WK560900	TERM. SP	4P MST-204V1-01 WC		KBGEFL
	XL321	V2731100	RSNR. CRYS	4.332M HC-49/U		BGEF
		WE774200	SCR. BND. HD	3x10	MFZN2W3	
*		WS306800	P. C. B.	GUI		
	CB500	VK026600	CN. BS. PIN	7P		
	CB501	VQ044700	CN. BS. PIN	16P		
	CB503	VK026300	CN. BS. PIN	4P		
	CB550	VB858500	CN. BS. PIN	6P		
*	CB551	WM297100	CN. LAN	6P 08B1-1X1T-06-F		
*	C5000-5001	US625100	C. CE. CHP	0.100uF	10V	
	C5002-5003	US061120	C. CE. CHP	12pF	50V B	
*	C5004	US625100	C. CE. CHP	0.100uF	10V	
	C5005-5008	US135100	C. CE. CHP	0.1uF	16V	
	C5009-5010	US061180	C. CE. CHP	18pF	50V B	
	C5012	US135100	C. CE. CHP	0.1uF	16V	
	C5013	US663100	C. CE. CHP	1000pF	50V	
*	C5014-5016	US625100	C. CE. CHP	0.100uF	10V	
	C5017	US135100	C. CE. CHP	0.1uF	16V	
	C5018	US063100	C. CE. CHP	1000pF	50V B	

✻ New Parts

	Ref No.	Part No.	Description			Markets
*	C5019	US625100	C. CE. CHP	0.100uF	10V	
	C5020	US063100	C. CE. CHP	1000pF	50V B	
	C5021-5024	US135100	C. CE. CHP	0.1uF	16V	
	C5025	US063100	C. CE. CHP	1000pF	50V B	
	C5026	US064100	C. CE. CHP	0.01uF	50V B	
	C5027	US063100	C. CE. CHP	1000pF	50V B	
	C5028	US135100	C. CE. CHP	0.1uF	16V	
*	C5029	US625100	C. CE. CHP	0.100uF	10V	
	C5030	US663100	C. CE. CHP	1000pF	50V	
	C5031	US061220	C. CE. CHP	22pF	50V B	
	C5032	UF037100	C. EL. CHP	10uF	16V	
*	C5033-5034	US625100	C. CE. CHP	0.100uF	10V	
	C5035	US663100	C. CE. CHP	1000pF	50V	
	C5036	US061220	C. CE. CHP	22pF	50V B	
	C5037	UF018100	C. EL. CHP	100uF	6.3V	
	C5038-5039	UF037100	C. EL. CHP	10uF	16V	
	C5040	UF037220	C. EL. CHP	22uF	16V	
*	C5041-5042	US663330	C. CE. CHP	3300pF	50V	
	C5043	US135100	C. CE. CHP	0.1uF	16V	
	C5044-5049	US063100	C. CE. CHP	1000pF	50V B	
	C5050-5054	US135100	C. CE. CHP	0.1uF	16V	
	C5055	UF037220	C. EL. CHP	22uF	16V	
*	C5056-5058	US625100	C. CE. CHP	0.100uF	10V	
	C5059	UF037100	C. EL. CHP	10uF	16V	
	C5060	US135100	C. CE. CHP	0.1uF	16V	
*	C5061	US625100	C. CE. CHP	0.100uF	10V	
	C5062	UF037100	C. EL. CHP	10uF	16V	
*	C5063-5065	US625100	C. CE. CHP	0.100uF	10V	
	C5066-5067	US135100	C. CE. CHP	0.1uF	16V	
*	C5068-5069	US625100	C. CE. CHP	0.100uF	10V	
	C5070	UF037100	C. EL. CHP	10uF	16V	
*	C5071	US625100	C. CE. CHP	0.100uF	10V	
	C5072	US663100	C. CE. CHP	1000pF	50V	
	C5073-5076	US063100	C. CE. CHP	1000pF	50V B	
*	C5077-5078	US625100	C. CE. CHP	0.100uF	10V	
	C5079	US135100	C. CE. CHP	0.1uF	16V	
*	C5080-5081	US625100	C. CE. CHP	0.100uF	10V	
	C5082	US135100	C. CE. CHP	0.1uF	16V	
*	C5083	WP882000	C. CE. CHP	10uF	6.3V	
*	C5084	US625100	C. CE. CHP	0.100uF	10V	
	C5085-5086	US135100	C. CE. CHP	0.1uF	16V	
*	C5087	US625100	C. CE. CHP	0.100uF	10V	
	C5088	US062220	C. CE. CHP	220pF	50V B	
*	C5089-5095	US625100	C. CE. CHP	0.100uF	10V	
	C5096-5107	US135100	C. CE. CHP	0.1uF	16V	
	C5108	US663100	C. CE. CHP	1000pF	50V	
	C5109-5112	US063100	C. CE. CHP	1000pF	50V B	
	C5113-5114	US135100	C. CE. CHP	0.1uF	16V	
*	C5115	WP882000	C. CE. CHP	10uF	6.3V	
	C5116-5119	US662100	C. CE. CHP	100pF	50V	
*	C5501	US625100	C. CE. CHP	0.100uF	10V	
	C5502	US062220	C. CE. CHP	220pF	50V B	
	C5503	UF018100	C. EL. CHP	100uF	6.3V	
*	C5504	US625100	C. CE. CHP	0.100uF	10V	
	C5505-5506	US135100	C. CE. CHP	0.1uF	16V	
	C5507-5508	US634100	C. CE. CHP	0.01uF	16V	
	C5509	UF037220	C. EL. CHP	22uF	16V	

✻ New Parts

P.C.B. GUI

	Ref No.	Part No.	Description			Markets
	C5510-5511	US135100	C.CE.CHP	0.1uF	16V	
*	C5512-5513	US625100	C.CE.CHP	0.100uF	10V	
	C5514	US135100	C.CE.CHP	0.1uF	16V	
	C5515	WD758300	C.CE.CHP	10uF	10V	
	C5516	US061150	C.CE.CHP	15pF	50V B	
	C5517	US135100	C.CE.CHP	0.1uF	16V	
	C5518	UF018100	C.EL.CHP	100uF	6.3V	
	C5519	US135100	C.CE.CHP	0.1uF	16V	
	C5520	US061180	C.CE.CHP	18pF	50V B	
	C5521	US135100	C.CE.CHP	0.1uF	16V	
	C5522	WD758300	C.CE.CHP	10uF	10V	
	C5523	US135100	C.CE.CHP	0.1uF	16V	
	C5524-5525	US634100	C.CE.CHP	0.01uF	16V	
	C5527-5532	US135100	C.CE.CHP	0.1uF	16V	
*	C5533-5534	US625100	C.CE.CHP	0.100uF	10V	
	C5535	US135100	C.CE.CHP	0.1uF	16V	
	C5536-5537	US663100	C.CE.CHP	1000pF	50V	
	C5538	WD758300	C.CE.CHP	10uF	10V	
	C5539	UB044220	C.CE.CHP	0.022uF	50V	
*	C5540	US625100	C.CE.CHP	0.100uF	10V	
	C5541	US663100	C.CE.CHP	1000pF	50V	
	C5542	US135100	C.CE.CHP	0.1uF	16V	
*	C5543	US625100	C.CE.CHP	0.100uF	10V	
	C5544-5545	US135100	C.CE.CHP	0.1uF	16V	
*	C5546-5548	US625100	C.CE.CHP	0.100uF	10V	
	C5549	US062220	C.CE.CHP	220pF	50V B	
	C5550-5551	US135100	C.CE.CHP	0.1uF	16V	
	C5552-5553	US064100	C.CE.CHP	0.01uF	50V B	
	C5554-5555	WD758300	C.CE.CHP	10uF	10V	
*	C5556	US625100	C.CE.CHP	0.100uF	10V	
	C5557-5558	US061120	C.CE.CHP	12pF	50V B	
	C5559	UF018100	C.EL.CHP	100uF	6.3V	
	IC501-502	X7678A00	IC	SN74LV163APWR CNT		
	IC503	X5534A00	IC	SN74LV74APWR D-FF		
	IC504	X7375A00	IC	PCM1781DBQR		
*	IC506	YA322A00	IC	AK8814VQ		
*	IC507	YA478A00	IC	K4S560832J-UC75000		
*	IC508	YA350A00	IC	74LVC1G08GW AND		
*	IC509-512	XZ286A00	IC	74LVC245APW118		
*	IC513	YC017C00	IC.MEMORY	K8P6415UQB-PI		(written)
*	IC514	YA478A00	IC	K4S560832J-UC75000		
	IC521-522	X4063A00	IC	TC7WHU04FU		
*	IC523	YA354A00	IC	74LVC08APW AND		
	IC524	X8386A00	IC	TC7WH14FK(TE85L,F)		
*	IC525-526	YA356A00	IC	74LVC32APW OR		
	IC552	X8096A00	IC	R5523N001A-TR-F		
*	IC553	YA477A00	IC	LAN9217-MT		
	Q5000	WE834500	FET	UPA672T-T1-A		
	ST550-551	V4040500	SCR.TERM	M3		
	XL500	V3625700	RSNR.CRYS	24.576MHz		
	XL501	WH625000	RSNR.CRYS	27MHz		
	XL502	WB551700	RSNR.CRYS	16.666MHz SMD-49		
	XL550	WG538400	RSNR.CRYS	12MHz		
*	XL551	WR864600	RSNR.CRYS	25MHz SMD-49		

✻ New Parts

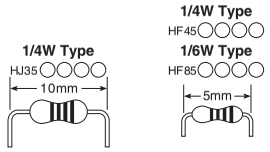
P.C.B. ACDC

		Ref No.	Part No.	Description			Markets
	*		WS306200	P.C.B.	ACDC		UC
	*		WS306300	P.C.B.	ACDC		R
	*		WS306400	P.C.B.	ACDC		TKABGEF
	*		WS306500	P.C.B.	ACDC		L
		CB601-602	WN103000	CLIP.FUSE	TP00351-31		
		CB603	VG879900	CN.BS.PIN	2P		RL
		CB604	VQ961000	CN.BS.PIN	7P		
	*	C6001	WQ852400	C.POL.MTL	0.022uF	630V	
⚠	*	C6002-6003	WQ902300	C.CE.SAFTY	1000pF	250V	
⚠		C6004	WE256400	C.CE.SAFTY	0.1uF	275V	
	*	C6006	WS068600	C.EL	150uF	400V	
⚠	*	C6007	WQ939400	C.CE.SAFTY	0.01uF	250V	
	*	C6008	WR182800	C.CE.CHP	2200pF	250V	
		C6009	US065100	C.CE.CHP	0.1uF	50V B	
		C6010	UR837470	C.EL	47uF	16V	
		C6011	UR867100	C.EL	10uF	50V	
⚠	*	C6012	WQ902300	C.CE.SAFTY	1000pF	250V	
	*	C6013	WQ852400	C.POL.MTL	0.022uF	630V	
		C6016-6017	UR866100	C.EL	1uF	50V	
	*	C6018-6019	WH777900	C.EL	1000uF	35V	
		C6020	US046100	C.CE.CHP	1uF	25V	
		C6021	US135100	C.CE.CHP	0.1uF	16V	
		C6022	WH771300	C.EL	100uF	10V	
		C6101	US135100	C.CE.CHP	0.1uF	16V	
⚠	*	D6001	WS071800	DIODE.BRG	S1NBC60 1A 600V		
		D6002	VG442200	DIODE.ZENR	MTZJ22C 22V		
	*	D6003-6004	WS071700	DIODE.ZENR	P6KE100A 100V		
	*	D6005	WQ647500	DIODE	HT18G		
		D6006	VD631600	DIODE	1SS133,176		
	*	D6007	WR007000	DIODE.SCHO	10A 40V SG10SC4M		
		D6008	VD631600	DIODE	1SS133,176		
		D6009	VT332900	DIODE	1SS355		
⚠	*	F6001	WR944000	FUSE	2A 250V		
⚠	*	F6002	WQ211200	FUSE	10A 125V		UCR
⚠		F6002	WM933100	FUSE	T5A 250V		TKABGEFL
⚠	*	IC601	YA851A00	IC	TOP255MN		
⚠	*	IC602	WQ867100	PHOT.CPL	EL816(M)(C)		
	*	IC603	YA276A00	IC	TL431AC 2.5-36V		
⚠	*	IC604	WQ867100	PHOT.CPL	EL816(M)(C)		
	*	IC611	YA381A00	IC	LM19CIZ/LF THERMAL		
⚠	*	RY601	WQ804100	RELAY	DC DLS5D1-0(M)0.25		
		ST601	V4040500	SCR.TERM	M3		
		ST611	WA246200	SCR.TERM	3.5		
⚠	*	T6001	YA507A00	TRANS.PWR			
⚠		TE601	WB782600	AC INLET	R-30190(26)		
			WE774200	SCR.BND.HD	3x10	MFZN2W3	

✻ New Parts

Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	11 kΩ	HF45 7110	HF45 7110
1.8 Ω	HJ35 3180	✻	12 kΩ	HJ35 7120	HF85 7120
2.2 Ω	HJ35 3220	HF85 3220	13 kΩ	HF45 7130	HF45 7130
3.3 Ω	HJ35 3330	HF85 3330	15 kΩ	HF45 7150	HF45 7150
4.7 Ω	HJ35 3470	HF85 3470	18 kΩ	HF45 7180	HF45 7180
5.6 Ω	HJ35 3560	HF85 3560	22 kΩ	HF45 7220	HF45 7220
10 Ω	HF45 4100	HF45 4100	24 kΩ	HF45 7240	HF45 7240
15 Ω	HJ35 4150	HF85 4150	27 kΩ	HJ35 7270	HF85 7270
22 Ω	HF45 4220	HF45 4220	30 kΩ	HF45 7300	HF45 7300
27 Ω	HJ35 4270	HF85 4270	33 kΩ	HF45 7330	HF45 7330
33 Ω	HF45 4330	HF45 4330	36 kΩ	HF45 7360	HF45 7360
39 Ω	HJ35 4470	HF85 4390	39 kΩ	HF45 7390	HF45 7390
47 Ω	HF45 4470	HF45 4470	47 kΩ	HF45 7470	HF45 7470
56 Ω	HF45 4560	HF45 4560	51 kΩ	HF45 7510	HF45 7510
68 Ω	HF45 4680	HF45 4680	56 kΩ	HF45 7560	HF45 7560
75 Ω	HF45 4750	HF45 4750	62 kΩ	HF45 7620	HF45 7620
82 Ω	HF45 4820	HF45 4820	68 kΩ	HF45 7680	HF45 7680
91 Ω	HF45 4910	HF45 4910	82 kΩ	HF45 7820	HF45 7820
100 Ω	HF45 5100	HF45 5100	91 kΩ	HF45 7910	HF45 7910
110 Ω	HJ35 5110	HF85 5110	100 kΩ	HF45 8100	HF45 8100
120 Ω	HF45 5120	HF45 5120	110 kΩ	HF45 8110	HF45 8110
150 Ω	HF45 5150	HF45 5150	120 kΩ	HF45 8120	HF45 8120
160 Ω	HJ35 5160	✻	130 kΩ	HF45 8130	✻
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	✻
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	✻
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			
10 kΩ	HF45 7100	HF45 7100			



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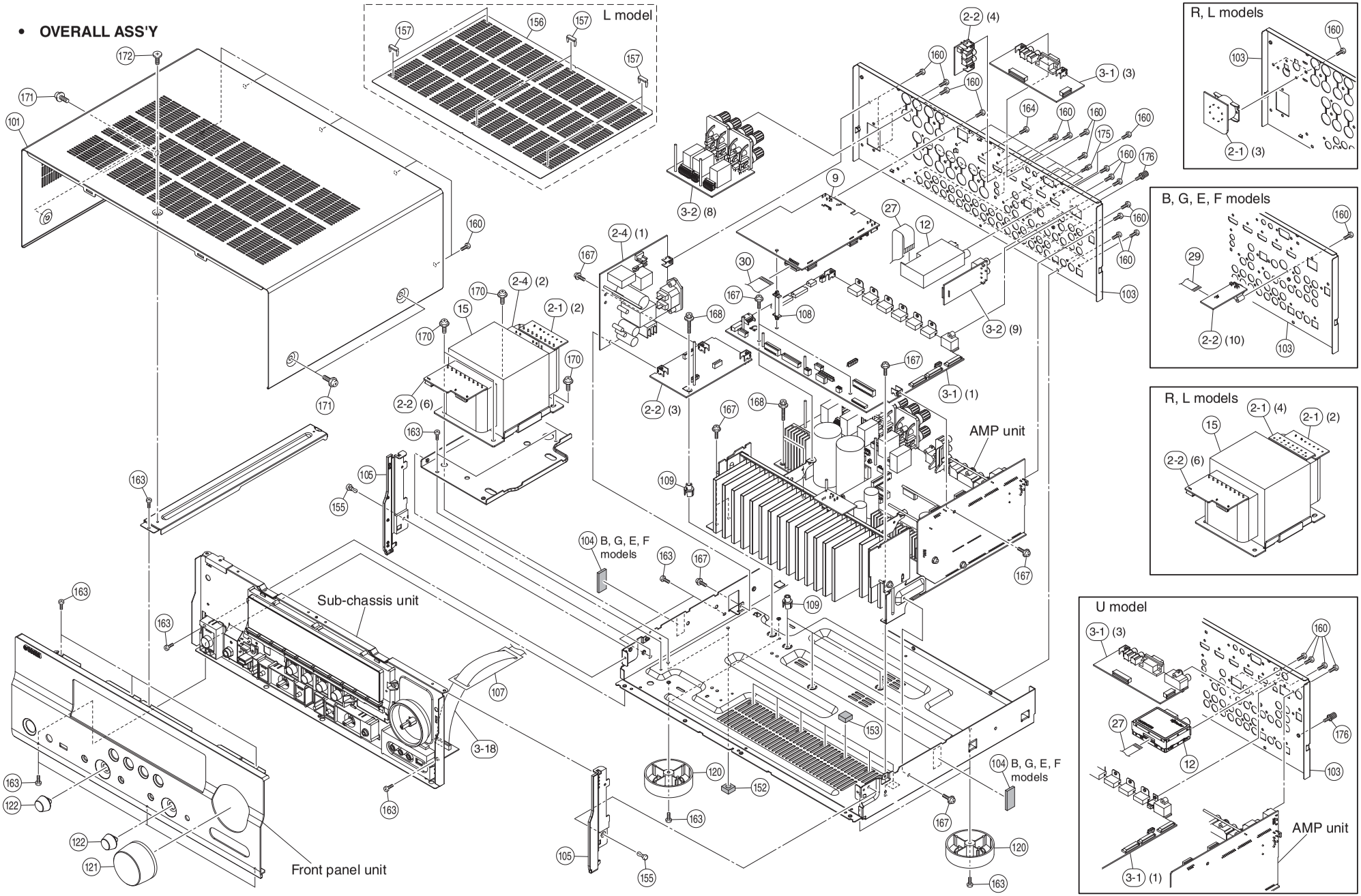
- **OVERALL ASS'Y**



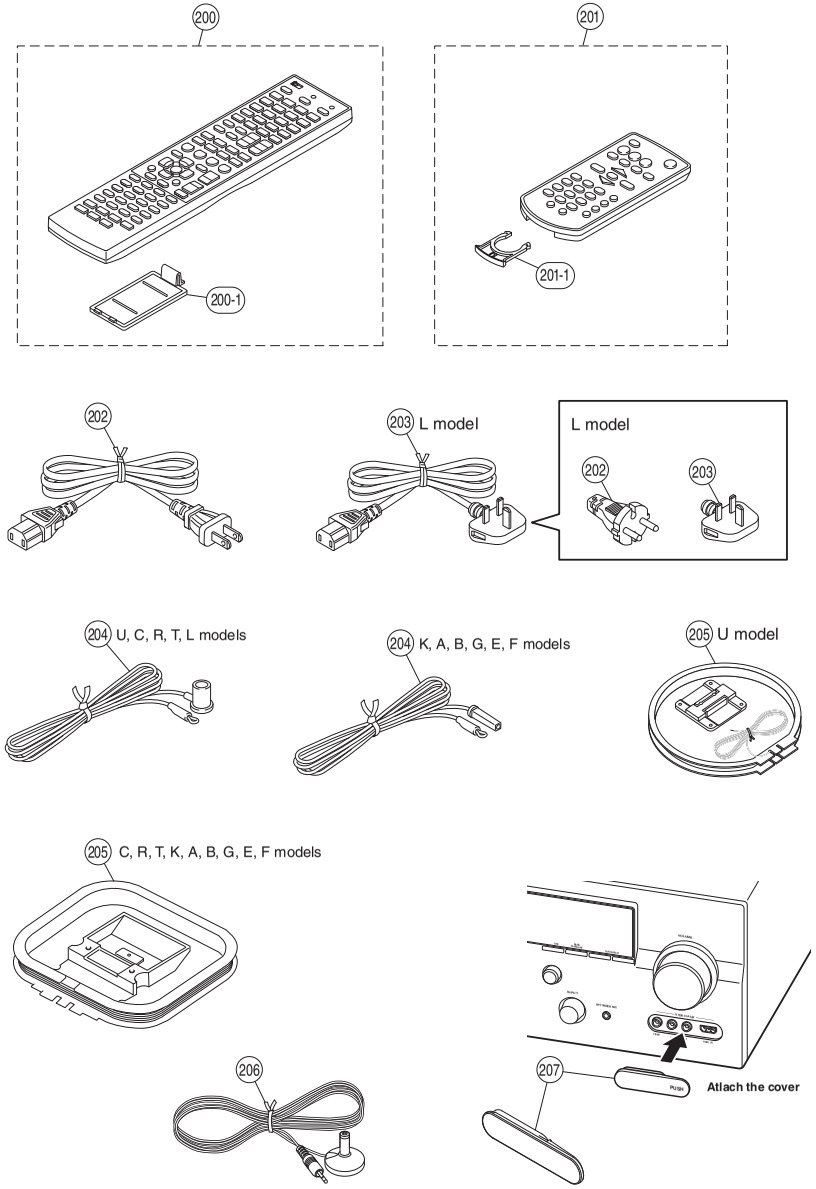
	Ref No.	Part No.	Description		Remarks	Markets
*	2-1	WR913000	P.C.B. ASS'Y	MAIN		R
*	2-1	WR913200	P.C.B. ASS'Y	MAIN		L
*	2-2	WS304700	P.C.B. ASS'Y	VIDEO		U
*	2-2	WS304800	P.C.B. ASS'Y	VIDEO		C
*	2-2	WS304900	P.C.B. ASS'Y	VIDEO		R
*	2-2	WS305000	P.C.B. ASS'Y	VIDEO		T
*	2-2	WS305100	P.C.B. ASS'Y	VIDEO		K
*	2-2	WS305200	P.C.B. ASS'Y	VIDEO		A
*	2-2	WS305300	P.C.B. ASS'Y	VIDEO		BGEF
*	2-2	WS305400	P.C.B. ASS'Y	VIDEO		L
*	2-4	WS306200	P.C.B. ASS'Y	ACDC		UC
*	2-4	WS306300	P.C.B. ASS'Y	ACDC		R
*	2-4	WS306400	P.C.B. ASS'Y	ACDC		TKABGEF
*	2-4	WS306500	P.C.B. ASS'Y	ACDC		L
*	3-1	WS305800	P.C.B. ASS'Y	DIGITAL	V2065	U
*	3-1	WS305900	P.C.B. ASS'Y	DIGITAL	V2065	CRTAKL
*	3-1	WS306700	P.C.B. ASS'Y	DIGITAL	6295	C
*	3-1	WS306000	P.C.B. ASS'Y	DIGITAL	V2065	BGEF
*	3-2	WS305500	P.C.B. ASS'Y	OPERATION		U
*	3-2	WS305600	P.C.B. ASS'Y	OPERATION		CRTA
*	3-2	WS305700	P.C.B. ASS'Y	OPERATION		KBGEFL
*	3-18	WQ083500	FLEXIBLE FLAT CABLE	20P 180mm P=1.0		
*	9	WS306800	P.C.B. ASS'Y	GUI		
*	12	WT510100	HD RADIO TUNER	2023-CRA		U
*	12	WQ756600	AM/FM TUNER	FAEH06-A		CRTL
*	12	WQ756700	AM/FM TUNER	FAEH06-E		KABGEF
⚠ *	15	YC001A00	POWER TRANSFORMER			UC
⚠ *	15	YA955A00	POWER TRANSFORMER			RL
⚠ *	15	YA956A00	POWER TRANSFORMER			TK
⚠ *	15	YA957A00	POWER TRANSFORMER			A
⚠ *	15	YA958A00	POWER TRANSFORMER			BGEF
	27	MF113180	FLEXIBLE FLAT CABLE	13P 180mm P=1.25		U
*	27	WR284900	FLEXIBLE FLAT CABLE	11P 100mm P=1.25		CRTKABGEFL
*	29	WS162400	FLEXIBLE FLAT CABLE	5P 250mm P=1.25		BGEF
*	30	WS162500	FLEXIBLE FLAT CABLE	16P 60mm P=1.25		
*	101	WQ665500	TOP COVER		BL	
*	101	WQ665700	TOP COVER		TI	
*	103	WS042200	REAR PANEL			U
*	103	WS042300	REAR PANEL		V2065	C
*	103	WS043000	REAR PANEL		6295	C
*	103	WS042400	REAR PANEL			R
*	103	WS042500	REAR PANEL			T
*	103	WS042600	REAR PANEL			K
*	103	WS042700	REAR PANEL			A
*	103	WS042800	REAR PANEL			BGEF
*	103	WS042900	REAR PANEL			L
	104	WB870100	DAMPER			BGEF
*	105	WR004900	PLATE SIDE		BL	
*	105	WR005000	PLATE SIDE		TI	
*	107	WR946700	BARRIER FFC			
*	108	WS000800	SPACER SUPPORT	LCA4-29M PIN		
*	109	WQ664500	SUPPORT H8			
	120	VS025000	LEG	D60xH21 HS		

* New Parts

	Ref No.	Part No.	Description		Remarks	Markets
	121	WJ181300	KNOB	D50	BL	
	121	WJ181500	KNOB	D50	TI	
*	122	WS039800	KNOB	D21	BL	
*	122	WS039900	KNOB	D21	TI	
	152	WC879000	DAMPER	SCREW MASK		
*	153	WR377400	DAMPER	14x10x10		
	155	VQ368600	PUSH RIVET	P3555-B		
	156	WK667900	SHEET TOP			L
	157	WJ053800	RIVET TOP			L
	160	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3		
	163	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	164	WE877900	BIND HEAD S-TIGHT SCREW	3x6 MFZN2W3		
	167	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	168	WE774600	SCREW IC	3x18 MFZN2W3		
	170	WE774700	BIND HEAD S-TIGHT SCREW	4x10 MFZN2W3		
	171	VH313200	PW HEAD S-TIGHT SCREW	4x8-10 MFNI3BL	BL	
	171	VD069600	PW HEAD S-TIGHT SCREW	4x8-10 MFNI33	TI	
	172	WE200500	DISH HEAD B-TIGHT SCREW	3x6 MFNI3BL	BL	
	172	WE200400	DISH HEAD B-TIGHT SCREW	3x6 MFNI33	TI	
	175	V6509600	JACK SCREW	SS6-A47511848		
	176	AA627310	GROUND TERMINAL			
			SERVICE TOOLS			
		WR492800	RS232C CONVERSION ADAPTOR	3.3Vtype with FFC9P		
		MF125400	FLEXIBLE FLAT CABLE	25P 400mm P=1.25		
		MF109400	FLEXIBLE FLAT CABLE	9P 400mm P=1.25		
		MFA20250	FLEXIBLE FLAT CABLE	20P 250mm P=1.0		

* New Parts

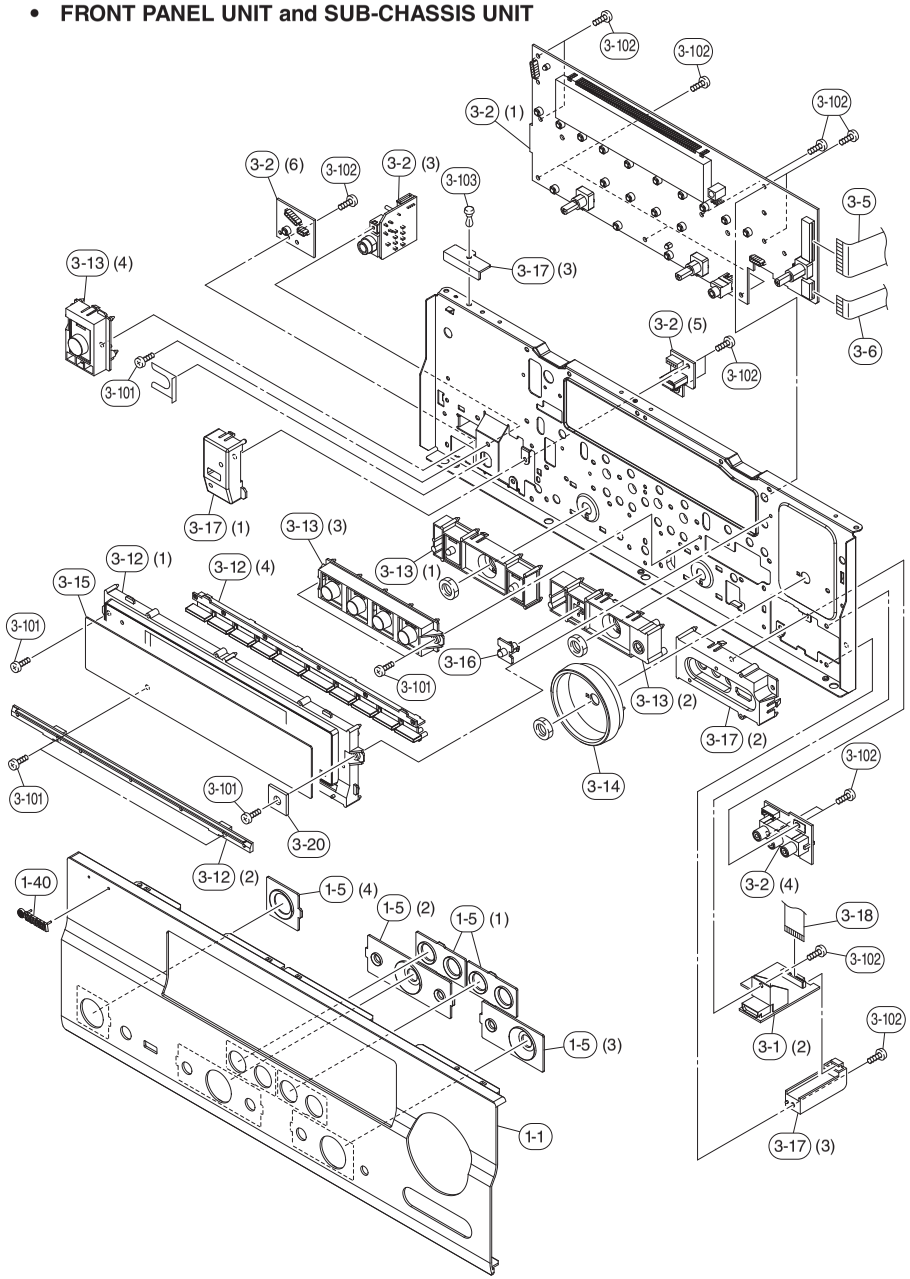
• ACCESSORIES



	Ref No.	Part No.	Description		Remarks	Markets
*	200	WS317100	REMOTE CONTROL	RAV296		U
*	200	WS317200	REMOTE CONTROL	RAV297		CRAL
*	200	WS317300	REMOTE CONTROL	RAV298		TKBGEF
	200-1	AAX82380	BATTERY COVER		CG-2209	
*	201	WS317400	SIMPLIFIELD REMOTE CONTROL	RAV38		
	201-1	AAX71770	BATTERY HOLDER	CG-4335 Black	2AA041110	
⚠	202	V7704800	POWER CABLE	2m 1pc		UC
⚠	202	WK391000	POWER CABLE	2m 1pc		R
⚠	202	V9358400	POWER CABLE	2m 1pc		T
⚠	202	WH641300	POWER CABLE	2m 1pc		K
⚠	202	WB750900	POWER CABLE	2m 1pc		A
⚠	202	WB751000	POWER CABLE	2m 1pc		B
⚠	202	V7704900	POWER CABLE	2m 1pc		GEFL
⚠	203	WB751000	POWER CABLE	2m 1pc		L
	204	V6267000	INDOOR FM ANTENNA	1.4m 1pc		UCRTL
	204	VQ147100	INDOOR FM ANTENNA	1.4m 1pc		KABGEF
	205	WE746800	AM LOOP ANTENNA	1.2m 1pc		U
	205	VR248500	AM LOOP ANTENNA	1.0m 1pc		CRTKABGEFL
	206	WN649600	OPTIMIZER MICROPHONE	6.0m 1pc		
*	207	WS039400	VIDEO AUX INPUT COVER	1pc	BL	
*	207	WS039500	VIDEO AUX INPUT COVER	1pc	TI	
			BATTERY	R03,AAA,UM-4 2pcs		
			LITHIUM BATTERY	CR2025 1pc		

* New Parts

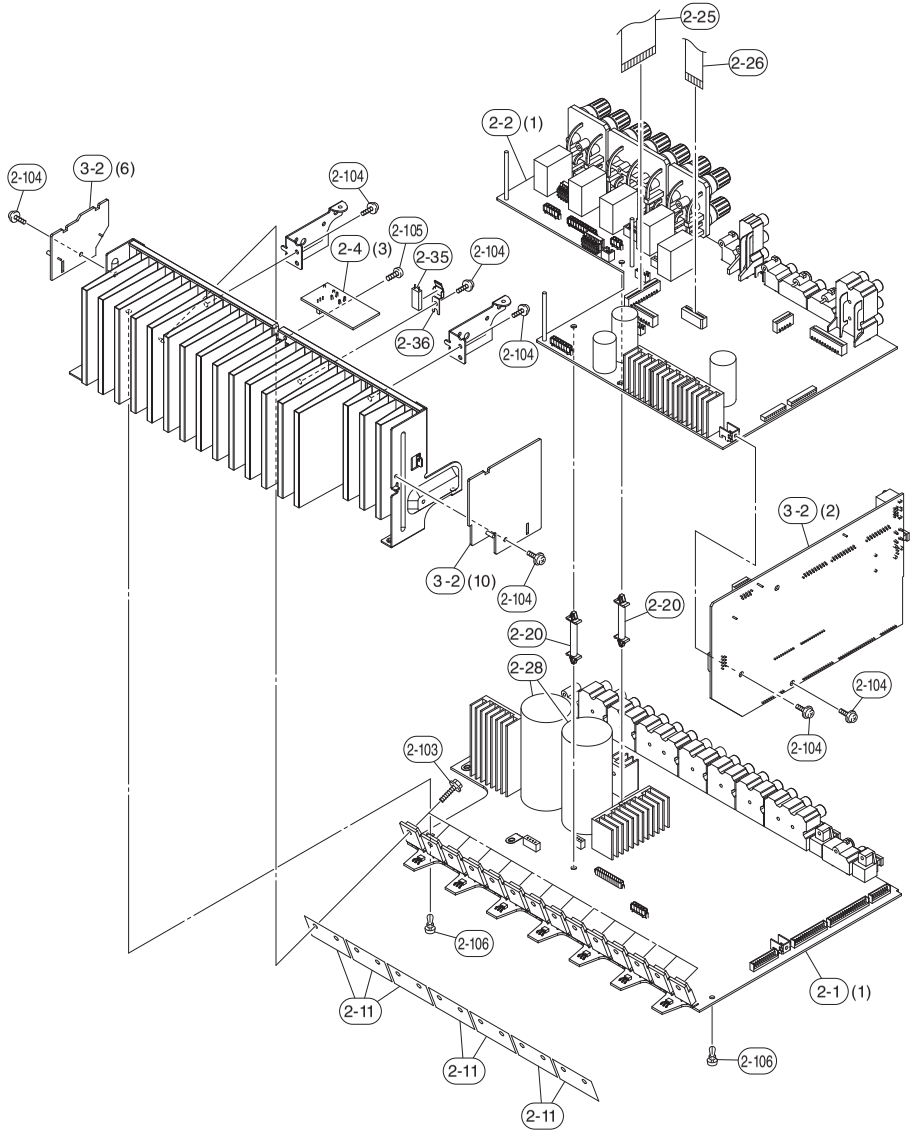
- **FRONT PANEL UNIT and SUB-CHASSIS UNIT**



	Ref No.	Part No.	Description		Remarks	Markets
*	1-1	WR945400	FRONT PANEL		V2065BL	U
*	1-1	WR945500	FRONT PANEL		V2065BL	CRTKABGEFL
*	1-1	WR945800	FRONT PANEL		6295BL	C
*	1-1	WR945900	FRONT PANEL		V2065TI	RGEFL
*	1-5	WR005200	ESCUTCHEON		BL	
*	1-5	WR005300	ESCUTCHEON		TI	
	1-40	V6034100	EMBLEM	black		
*	3-1	WS305800	P.C.B. ASS'Y	DIGITAL	V2065	U
*	3-1	WS305900	P.C.B. ASS'Y	DIGITAL	V2065	CRTAKL
*	3-1	WS306700	P.C.B. ASS'Y	DIGITAL	6295	C
*	3-1	WS306000	P.C.B. ASS'Y	DIGITAL	V2065	BGEF
*	3-2	WS305500	P.C.B. ASS'Y	OPERATION		U
*	3-2	WS305600	P.C.B. ASS'Y	OPERATION		CRTA
*	3-2	WS305700	P.C.B. ASS'Y	OPERATION		KBGEFL
*	3-5	WR482100	FLEXIBLE FLAT CABLE	25P 250mm P=1.25		
*	3-6	WR284800	FLEXIBLE FLAT CABLE	9P 250mm P=1.25		
*	3-12	WR006800	SUB PANEL			
*	3-13	WR944600	BUTTON CASE		BL	UCRKABGEFL
*	3-13	WS075800	BUTTON CASE		BL	T
*	3-13	WR944700	BUTTON CASE		TI	
*	3-14	WR006100	ESCUTCHEON VOL		BL	
*	3-14	WR006200	ESCUTCHEON VOL		TI	
*	3-15	WS160200	SHEET WINDOW			U
*	3-15	WS160400	SHEET WINDOW			CRKABGEFL
*	3-15	WS160300	SHEET WINDOW			T
*	3-16	WR006400	LENS BUTTON			
*	3-17	WR946200	ESCUTCHEON CASE		BL	
*	3-17	WR946300	ESCUTCHEON CASE		TI	
*	3-18	WQ083500	FLEXIBLE FLAT CABLE	20P 180mm P=1.0		
	3-20	WG471400	SPACER	8x8x1		
	3-101	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	3-102	WE774800	BIND HEAD P-TIGHT SCREW	3x8 MFZN2W3		
	3-103	VQ368600	PUSH RIVET	P3555-B		

* New Parts

• AMP UNIT



	Ref No.	Part No.	Description		Remarks	Markets
*	2-1	WR912900	P.C.B. ASS'Y	MAIN		UC
*	2-1	WR913000	P.C.B. ASS'Y	MAIN		R
*	2-1	WR913100	P.C.B. ASS'Y	MAIN		TKABGEF
*	2-1	WR913200	P.C.B. ASS'Y	MAIN		L
*	2-2	WS304700	P.C.B. ASS'Y	VIDEO		U
*	2-2	WS304800	P.C.B. ASS'Y	VIDEO		C
*	2-2	WS304900	P.C.B. ASS'Y	VIDEO		R
*	2-2	WS305000	P.C.B. ASS'Y	VIDEO		T
*	2-2	WS305100	P.C.B. ASS'Y	VIDEO		K
*	2-2	WS305200	P.C.B. ASS'Y	VIDEO		A
*	2-2	WS305300	P.C.B. ASS'Y	VIDEO		BGEF
*	2-2	WS305400	P.C.B. ASS'Y	VIDEO		L
*	2-4	WS306200	P.C.B. ASS'Y	ACDC		UC
*	2-4	WS306300	P.C.B. ASS'Y	ACDC		R
*	2-4	WS306400	P.C.B. ASS'Y	ACDC		TKABGEF
*	2-4	WS306500	P.C.B. ASS'Y	ACDC		L
*	2-11	WQ753200	MICA SHEET	TB-1021 40x23x0.06		
*	2-20	WS000800	SPACER SUPPORT	LCA4-29M PIN		
*	2-25	WS162200	FLEXIBLE FLAT CABLE	22P 160mm P=1.25		
*	2-26	WR285300	FLEXIBLE FLAT CABLE	14P 200mm P=1.25		
⚠ #	2-28	WJ788600	ELECTROLYTIC CAPACITOR	12000uF 71V	C1084,C1085	
*	2-35	WS341600	THERMAL PROTECTOR	OP62G-90		CRTKABGEFL
*	2-36	WS545600	SUPPORT THM			CRTKABGEFL
	2-103	WM220800	HEXAGONAL HEAD B-TIGHT SCREW	3x15 SP MFZN2W3		
	2-104	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	2-105	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	2-106	VQ368600	PUSH RIVET	P3555-B		
*	3-2	WS305500	P.C.B. ASS'Y	OPERATION		U
*	3-2	WS305600	P.C.B. ASS'Y	OPERATION		CRTA
*	3-2	WS305700	P.C.B. ASS'Y	OPERATION		KBGEFL

* New Parts

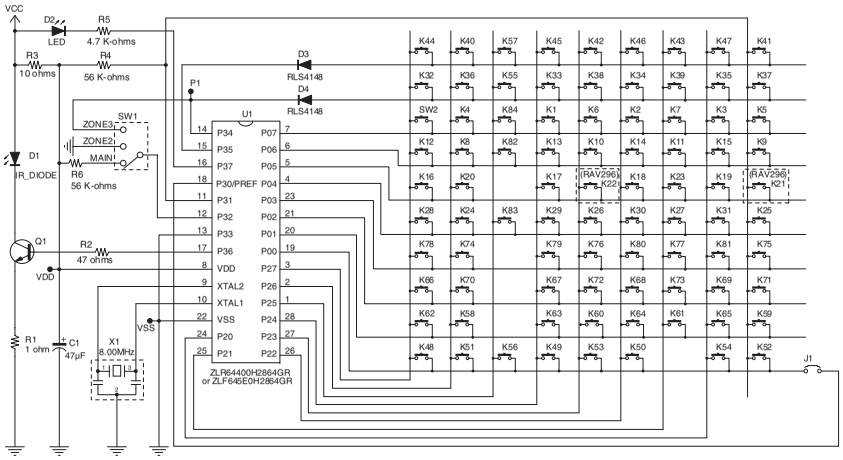
Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

■ REMOTE CONTROL

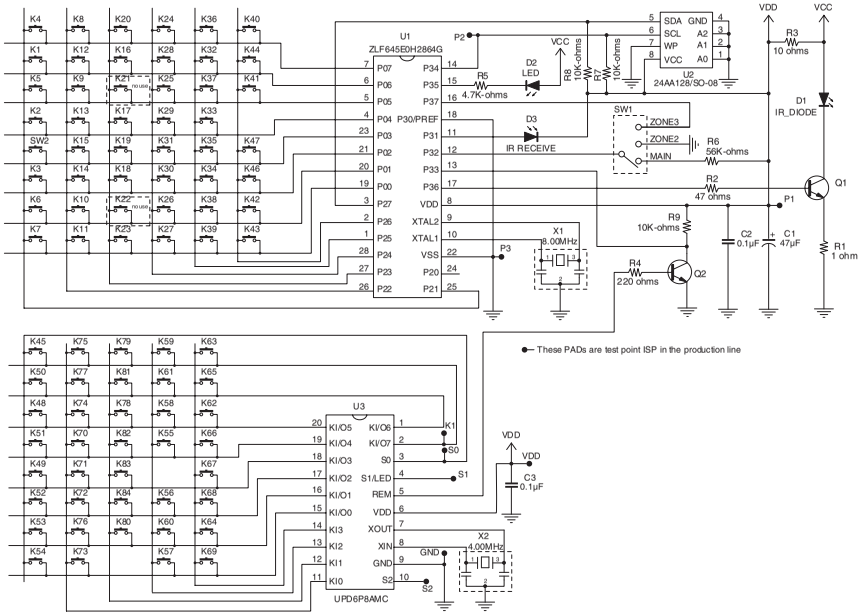
● RAV296: U model / RAV297: C, R, A, L models / RAV298: T, K, B, G, E, F models

SCHEMATIC DIAGRAMS

RAV296/RAV297

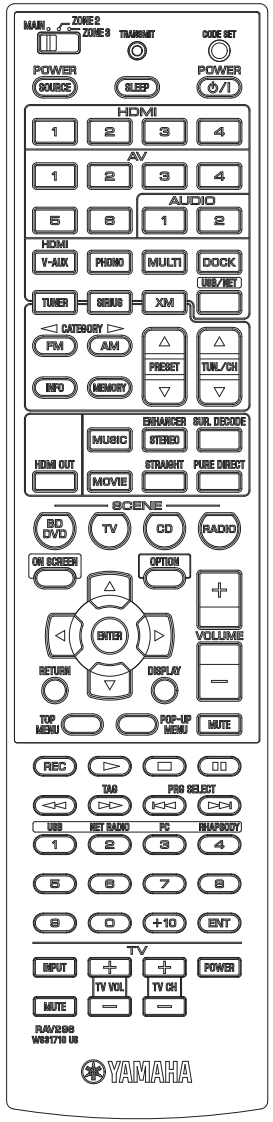


RAV298

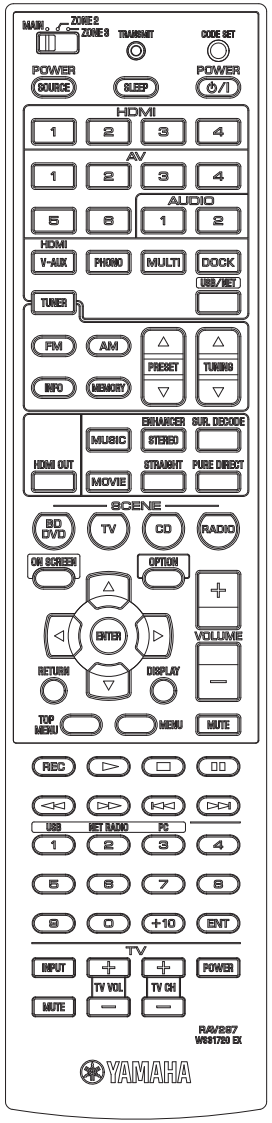


PANELS

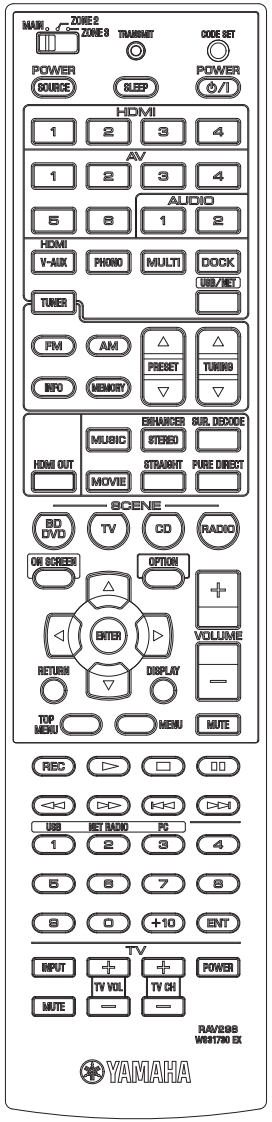
RAV296
(U model)



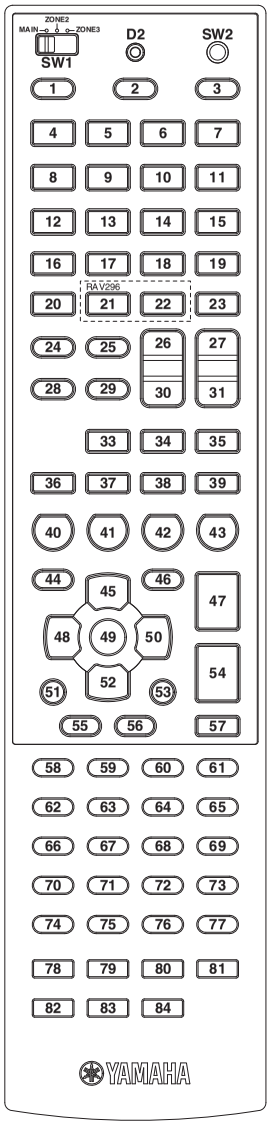
RAV297
(C, R, A, L models)



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



KEY NO. LAYOUT



KEY CODE

GROUP	PRE SET	COM	Key No.	FUNCTION	ID1 MAIN	ID1 ZONE2	ID1 ZONE3	ID2 MAIN	ID2 ZONE2	ID2 ZONE3
	–	–	SW1	MAIN / ZONE2 / ZONE3	[MAIN]	[ZONE2]	[ZONE3]	[MAIN]	[ZONE2]	[ZONE3]
	–	–	D2	TRANSMIT	–	–	–	–	–	–
	–	–	SW2	CODE SET	–	–	–	–	–	–
POWER	–	O	K2	SLEEP	7A-30	7A-31	7A-32	7A-30CE	7A-31CF	7A-32CC
	–	O	K3	POWER / ⏻/I	7E-2A	7A-453A	7A-4639	7E-2AD4	7A-453B	7A-4638
INPUT 1	O	O	K4	HDMI-1 (Default setting)	7A-4738	7A-4837	7A-4936	7A-4739	7A-4836	7A-4937
					* enter into HDMI-1 MODE					
	O	O	K5	HDMI-2	7A-4A35	7A-4B34	7A-4C33	7A-4A34	7A-4B35	7A-4C32
					* enter into HDMI-2 MODE					
	O	O	K6	HDMI-3	7A-4D32	7A-4E31	7A-4F30	7A-4D33	7A-4E30	7A-4F31
					* enter into HDMI-3 MODE					
	O	O	K7	HDMI-4	7A-502F	7A-512E	7A-522D	7A-502E	7A-512F	7A-522C
					* enter into HDMI-4 MODE					
	O	O	K8	AV-1	7A-532C	7A-542B	7A-552A	7A-532D	7A-542A	7A-552B
					* enter into AV-1 MODE					
	O	O	K9	AV-2	7A-5629	7A-5728	7A-5827	7A-5628	7A-5729	7A-5826
					* enter into AV-2 MODE					
	O	O	K10	AV-3	7A-5926	7A-5A25	7A-5B24	7A-5927	7A-5A24	7A-5B25
					* enter into AV-3 MODE					
	O	O	K11	AV-4	7A-5C23	7A-5D22	7A-5E21	7A-5C22	7A-5D23	7A-5E20
					* enter into AV-4 MODE					
	O	O	K12	AV-5	7A-5F20	7A-601F	7A-611E	7A-5F21	7A-601E	7A-611F
					* enter into AV-5 MODE					
	O	O	K13	AV-6	7A-621D	7A-631C	7A-641B	7A-621C	7A-631D	7A-641A
					* enter into AV-6 MODE					
	O	O	K14	AUDIO-1	7A-651A	7A-6619	7A-6718	7A-651B	7A-6618	7A-6719
					* enter into AUDIO-1 MODE					
	O	O	K15	AUDIO-2	7A-6817	7A-6916	7A-6A15	7A-6816	7A-6917	7A-6A14
					* enter into AUDIO-2 MODE					
	O	O	K16	HDMI / V-AUX	7A-55	7A-D8	7A-F0	7A-55AB	7A-D826	7A-F00E
					* enter into V-AUX MODE					
	O	O	K17	PHONO	7A-14	7A-D0	7A-F1	7A-14EA	7A-D02E	7A-F10F
					* enter into PHONO MODE					
	O	O	K18	MULTI	7A-87	–	–	7A-8779	–	–
					* enter into MULTI CH MODE					
INPUT 2	–	O	K19	DOCK	7F01-4A	7F01-4B	7F01-4C	7F01-4AB4	7F01-4BB5	7F01-4CB2
					* enter into DOCK MODE					
	–	O	K20	TUNER	7A-16	7A-D2	7A-F3	7A-16E8	7A-D22C	7A-F30D
					* enter into TUNER MODE					
	–	O	K21	SIRIUS (U model, RAV296)	7A-39	7A-3A	7A-3B	7A-39C7	7A-3AC4	7A-3BC5
					* enter into SIRIUS MODE					
	–	O	K22	XM (U model, RAV296)	7A-B4	7A-B8	7A-B9	7A-B44A	7A-B846	7A-B947
					* enter into XM MODE					
	–	O	K23	USB/NET	7F01-3F	7F01-40	7F01-41	7F01-3FC1	7F01-40BE	7F01-41BF
					* enter into USB/NET MODE					
RADIO	–	O	K24	CATEGORY ◁ / FM (RAV296) FM (RAV297, RAV298)	7F01-5827	7F01-5926	7F01-5A25	7F01-5826	7F01-5927	7F01-5A24
	–	O	K25	CATEGORY ▷ / AM (RAV296) AM (RAV297, RAV298)	7F01-552A	7F01-5629	7F01-5728	7F01-552B	7F01-5628	7F01-5729
	–	O	K26	PRESET △	7F01-5B24	7F01-5C23	7F01-5D22	7F01-5B25	7F01-5C22	7F01-5D23
	–	O	K27	TUN./CH △ (RAV296) TUNING △ (RAV297, RAV298)	7F01-611E	7F01-621D	7F01-631C	7F01-611F	7F01-621C	7F01-631D
	–	O	K28	INFO	7A-2758	7A-2857	7A-2956	7A-2759	7A-2856	7A-2957
	–	O	K29	MEMORY	7F01-6718	7F01-6817	7F01-6916	7F01-6719	7F01-6816	7F01-6917
	–	O	K30	PRESET ▽	7F01-5E21	7F01-5F20	7F01-601F	7F01-5E20	7F01-5F21	7F01-601E
	–	O	K31	TUNING/CH ▽	7F01-641B	7F01-651A	7F01-6619	7F01-641A	7F01-651B	7F01-6618
DSP	–	O	K33	MUSIC	7A-89	–	–	7A-8977	–	–
	–	O	K34	ENHANCER / STEREO	7A-94	–	–	7A-946A	–	–
	–	O	K35	SUR. DECODE	7A-8D	–	–	7A-8D73	–	–
	–	O	K36	HDMI OUT	7A-35	–	–	7A-35CB	–	–
	–	O	K37	MOVIE	7A-88	–	–	7A-8876	–	–
	–	O	K38	STRAIGHT	7A-56	–	–	7A-56A8	–	–
	–	O	K39	PURE DIRECT	7A-DD	–	–	7A-DD23	–	–

GROUP	PRE SET	COM	Key No.	FUNCTION	ID1 MAIN	ID1 ZONE2	ID1 ZONE3	ID2 MAIN	ID2 ZONE2	ID2 ZONE3
SCENE	–	O	K40	BD/DVD	7A-007F	7A-017E	7A-027D	7A-007E	7A-017F	7A-027C
	–	O	K41	TV	7A-037C	7A-047B	7A-057A	7A-037D	7A-047A	7A-057B
	–	O	K42	CD	7A-0679	7A-0778	7A-0877	7A-0678	7A-0779	7A-0876
	–	O	K43	RADIO	7A-0976	7A-0A75	7A-0B74	7A-0977	7A-0A74	7A-0B75
MENU	–	O	K44	ON SCREEN	7A-84	–	–	7A-847A	–	–
					* enter into AMP MODE					
	–	O	K46	OPTION	7A-6B14	–	–	7A-6B15	–	–
					* enter into AMP MODE					
CURSOR	–	–	K45	▲ (UP)	7A-9D	–	–	7A-9D63	–	–
	–	–	K48	◀ (LEFT)	7A-9F	–	–	7A-9F61	–	–
	–	–	K49	ENTER	7A-DE	–	–	7A-DE20	–	–
	–	–	K50	▶ (RIGHT)	7A-9E	–	–	7A-9E60	–	–
	–	–	K51	RETURN	7A-AA	–	–	7A-AA54	–	–
	–	–	K52	▼ (DOWN)	7A-9C	–	–	7A-9C62	–	–
	–	–	K53	DISPLAY	7F01-60	7F01-80	7F01-A0	7F01-609E	7F01-807E	7F01-A05E
VOLUME	–	O	K47	VOLUME +	7A-1A	7A-DA	7A-FD	7A-1AE4	7A-DA24	7A-FD03
	–	O	K54	VOLUME –	7A-1B	7A-DB	7A-FE	7A-1BE5	7A-DB25	7A-FE00
	–	O	K57	MUTE	7A-1C	7A-DC	7A-FF	7A-1CE2	7A-DC22	7A-FF01
SOURCE	–	–	K1	POWER / SOURCE	* Function code					
	–	–	K55	TOP MENU						
	–	–	K56	POP-UP MENU (RAV296) MENU (RAV297, RAV298)						
	–	–	K58	REC						
	–	–	K59	▷ (PLAY)						
	–	–	K60	□ (STOP)						
	–	–	K61	▮▮ (PAUSE)						
	–	–	K62	◀◀ (REW)						
	–	–	K63	TAG / ▶▶ (FF) (RAV296) ▶▶ (FF) (RAV297, RAV298)						
	–	–	K64	PRG SELECT / ▮◀◀ (RAV296) ▮◀◀ (RAV297, RAV298)						
	–	–	K65	PRG SELECT / ▶▶▮ (RAV296) ▶▶▮ (RAV297, RAV298)						
10 key	–	–	K66	USB / 1	* Function code					
	–	–	K67	NET RADIO / 2						
	–	–	K68	PC / 3						
	–	–	K69	RHAPSODY / 4 (RAV296) 4 (RAV297, RAV298)						
	–	–	K70	5						
	–	–	K71	6						
	–	–	K72	7						
	–	–	K73	8						
	–	–	K74	9						
	–	–	K75	0						
	–	–	K76	+10						
	–	–	K77	ENT						
TV	–	–	K78	INPUT	* TV mode					
	–	–	K79	TV VOL +						
	–	–	K80	TV CH +						
	–	–	K81	POWER						
	–	–	K82	MUTE						
	–	–	K83	TV VOL –						
	–	–	K84	TV CH –						

FUNCTION CODE

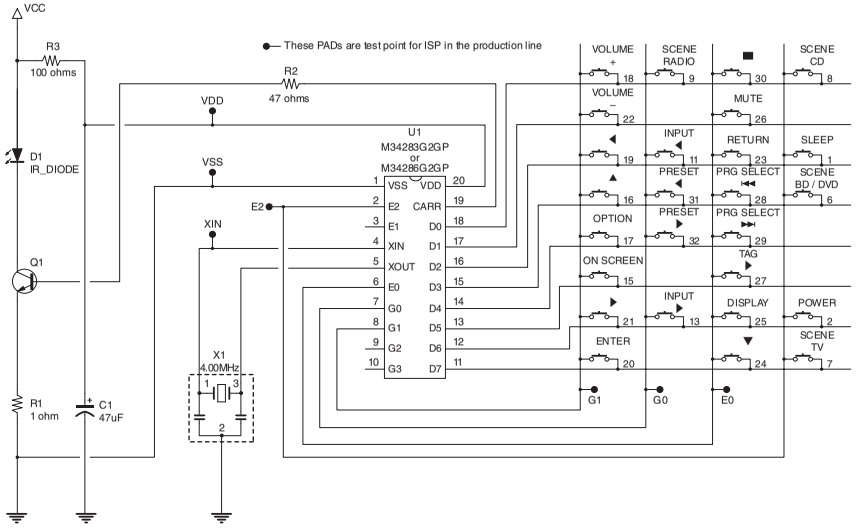
Key No.	BD		DVD					DVR		LD		CD			CD-R		MD			
	Brand	Yamaha-1	Brand	Yamaha-1	Yamaha-2	Yamaha-3	T	Brand	Yamaha	Brand	Yamaha	Brand	Yamaha-1	Yamaha-2	Brand	Yamaha	Brand	Yamaha-1	Yamaha-2	Yamaha-3
	Preset Number	2018	Preset Number	2000	2003	2001	2136	Preset Number	2011	Preset Number	2002	Preset Number	5013	5000	Preset Number	5001	Preset Number	5002	5003	5004
	Function	Code	Function	Code	Code	Code	Code	Function	Code	Function	Code	Function	Code	Code	Function	Code	Function	Code	Code	Code
K45	UP	7C-B4	UP	7C-B4	2002 B0 00 85 35	004.088	45B5 80	MENU UP	048.088	–	–	–	–	–	–	–	–	–	–	–
K48	LEFT	7C-B5	LEFT	7C-B5	2002 B0 00 87 37	004.090	45B5 51	MENU LEFT	048.090	–	–	–	–	–	–	–	–	–	–	–
K49	ENTER	7C-B8	ENTER	7C-B8	2002 B0 00 82 32	004.092	45B5 21	MENU ENTER	048.092	–	–	–	–	–	–	–	–	–	–	–
K50	RIGHT	7C-B6	RIGHT	7C-B6	2002 B0 00 88 38	004.091	45B5 4D	MENU RIGHT	048.091	–	–	–	–	–	–	–	–	–	–	–
K51	RETURN	7C-B7	RETURN	7C-B7	2002 B0 00 81 31	004.131	45B5 22	RETURN	048.131	–	–	–	–	–	–	–	–	–	–	–
K52	DOWN	7C-B3	DOWN	7C-B3	2002 B0 00 86 36	004.089	45B5 81	MENU DOWN	048.089	–	–	–	–	–	–	–	–	–	–	–
K53	DISPLAY	7C-A6	DISPLAY	7C-A6	2002 B0 00 92 22	004.015	45B5 26	DISPLAY	048.015	DISPLAY	7C-13	DISPLAY	79-0A	79-0A	DISPLAY	7F-9E	DISPLAY	79-A5	79-A5	180F
K1	SOURCE POWER	7C-80	SOURCE POWER	7C-80	2002 B0 00 3D 8D	004.012	45B5 12	AV POWER	048.012	AV POWER	–	AV POWER	79-60	79-60	AV POWER	7F-80	AV POWER	-	79-B5	150F
K55	TOP MENU	7C-B1	TOP MENU	7C-B1	2002 B0 00 9B 2B	004.113	45B5 DE	TITLE	048.200	–	–	–	–	–	–	–	–	–	–	–
K56	MENU	7C-D0	MENU	7C-B2	2002 B0 00 80 30	004.084	45B5 84	MENU	048.084	–	–	–	–	–	–	–	–	–	–	–
K58	DISC SKIP	7C-8B	DISC SKIP	7C-8B	–	004.127	??	REC	048.055	–	–	DISC SKIP	7A-4F	79-4F	REC	-	REC	79-AF	79-B1	2D0F
K59	PLAY	7C-82	PLAY	7C-82	2002 B0 00 0A BA	004.044	45B5 15	PLAY	048.044	PLAY	7C-05	PLAY	7A-08	79-02	PLAY	7F-82	PLAY	79-A8	79-A8	2A0F
K60	STOP	7C-85	STOP	7C-85	2002 B0 00 00 B0	004.049	45B5 14	STOP	048.049	STOP	7C-5B	STOP	7A-09	79-56	STOP	7F-84	STOP	79-AA	79-AA	280F
K61	PAUSE	7C-83	PAUSE	7C-83	2002 B0 00 06 B6	004.048	45B5 00	PAUSE	048.048	PAUSE	7C-5A	PAUSE	7A-09	79-55	PAUSE	7F-83	PAUSE	79-A9	79-A9	290F
K62	REW	7C-86	REW	7C-86	2002 B0 00 04 B4	004.041	45B5 19	REW	048.041	REW	7C-06	REW	7A-0D	79-05	REW	7F-88	REW	79-AC	79-AC	2B0F
K63	FF	7C-87	FF	7C-87	2002 B0 00 05 B5	004.040	45B5 13	FF	048.040	FF	7C-07	FF	7A-0C	79-06	FF	7F-89	FF	79-AD	79-AD	2C0F
K64	SKIP (-)	7C-B9	SKIP (-)	7C-B9	2002 B0 00 49 F9	004.033	45B5 23	SKIP (-)	048.033	CHAP/SKIP (-)	7C-02	SKIP (-)	7A-0B	79-04	SKIP (-)	7F-86	SKIP (-)	79-AB	79-AB	200F
K65	SKIP (+)	7C-BA	SKIP (+)	7C-BA	2002 B0 00 4A FA	004.032	45B5 24	SKIP (+)	048.032	CHAP/SKIP (+)	7C-03	SKIP (+)	7A-0A	79-07	SKIP (+)	7F-87	SKIP (+)	79-AE	79-AE	210F
K66	1	7C-94	1	7C-94	2002 B0 00 10 A0	004.001	45B5 01	1	048.001	1	7C-17	1	79-11	79-11	1	7F-91	1	79-85	79-B7	000F
K67	2	7C-95	2	7C-95	2002 B0 00 11 A1	004.002	45B5 02	2	048.002	2	7C-18	2	79-12	79-12	2	7F-92	2	79-86	79-B8	010F
K68	3	7C-96	3	7C-96	2002 B0 00 12 A2	004.003	45B5 03	3	048.003	3	7C-19	3	79-13	79-13	3	7F-93	3	79-87	79-B9	020F
K69	4	7C-97	4	7C-97	2002 B0 00 13 A3	004.004	45B5 04	4	048.004	4	7C-1A	4	79-14	79-14	4	7F-94	4	79-88	79-BA	030F
K70	5	7C-98	5	7C-98	2002 B0 00 14 A4	004.005	45B5 05	5	048.005	5	7C-1B	5	79-15	79-15	5	7F-95	5	79-89	79-BB	040F
K71	6	7C-99	6	7C-99	2002 B0 00 15 A5	004.006	45B5 06	6	048.006	6	7C-1C	6	79-16	79-16	6	7F-96	6	79-8A	79-BC	050F
K72	7	7C-9A	7	7C-9A	2002 B0 00 16 A6	004.007	45B5 07	7	048.007	7	7C-1D	7	79-17	79-17	7	7F-97	7	79-8B	79-BD	060F
K73	8	7C-9B	8	7C-9B	2002 B0 00 17 A7	004.008	45B5 08	8	048.008	8	7C-1E	8	79-18	79-18	8	7F-98	8	79-8C	79-BE	070F
K74	9	7C-9C	9	7C-9C	2002 B0 00 18 A8	004.009	45B5 09	9	048.009	9	7C-1F	9	79-19	79-19	9	7F-99	9	79-8D	79-BF	080F
K75	0	7C-93	0	7C-93	2002 B0 00 19 A9	004.000	45B5 0A	0	048.000	0	7C-16	0/10	79-10	79-10	0	7F-90	0	79-8E	79-C0	090F
K76	+10	7C-9D	+10	7C-9D	2002 B0 00 89 39	004.120	45B5 25	+10	–	+10	7C-5D	+10	79-1A	79-1A	+10	7F-9A	+10	79-8F	79-8F	0A0F
K77	TITLE/INDEX	7C-9E	TITLE/INDEX	7C-9E	–	–	45B5 20	TITLE/INDEX	–	CHAP/TIME	7C-15	INDEX	79-0B	79-0B	INDEX	7F-8A	INDEX	–	–	–
K78	TV INPUT	(TV INPUT)	TV INPUT	(TV INPUT)				TV INPUT	(TV INPUT)	TV INPUT	(TV INPUT)	TV INPUT	(TV INPUT)		TV INPUT	(TV INPUT)	TV INPUT	(TV INPUT)		
K79	TV VOL (+)	(TV VOL +)	TV VOL (+)	(TV VOL +)				TV VOL (+)	(TV VOL +)	TV VOL (+)	(TV VOL +)	TV VOL (+)	(TV VOL +)		TV VOL (+)	(TV VOL +)	TV VOL (+)	(TV VOL +)		
K80	TV CH (+)	(TV CH +)	TV CH (+)	(TV CH +)				TV CH (+)	(TV CH +)	TV CH (+)	(TV CH +)	TV CH (+)	(TV CH +)		TV CH (+)	(TV CH +)	TV CH (+)	(TV CH +)		
K81	TV POWER	(TV POWER)	TV POWER	(TV POWER)				TV POWER	(TV POWER)	TV POWER	(TV POWER)	TV POWER	(TV POWER)		TV POWER	(TV POWER)	TV POWER	(TV POWER)		
K82	TV MUTE	(TV MUTE)	TV MUTE	(TV MUTE)				TV MUTE	(TV MUTE)	TV MUTE	(TV MUTE)	TV MUTE	(TV MUTE)		TV MUTE	(TV MUTE)	TV MUTE	(TV MUTE)		
K83	TV VOL (-)	(TV VOL -)	TV VOL (-)	(TV VOL -)				TV VOL (-)	(TV VOL -)	TV VOL (-)	(TV VOL -)	TV VOL (-)	(TV VOL -)		TV VOL (-)	(TV VOL -)	TV VOL (-)	(TV VOL -)		
K84	TV CH (-)	(TV CH -)	TV CH (-)	(TV CH -)				TV CH (-)	(TV CH -)	TV CH (-)	(TV CH -)	TV CH (-)	(TV CH -)		TV CH (-)	(TV CH -)	TV CH (-)	(TV CH -)		

Key No.	TUNER																TAPE			TV					
	Brand	Yamaha-2	Yamaha-3	Yamaha-4	Yamaha-5	Yamaha-6	Yamaha-7	Yamaha-*	Yamaha-11	Yamaha-12	Brand	Yamaha-8	Yamaha-*	Brand	Yamaha-9	Yamaha-10	Brand	Yamaha-1	Yamaha-2	Brand	Yamaha-1	Yamaha-2	Yamaha-3	Yamaha-4	Yamaha-5
	Preset Number	5014	5007	5008	5009	5010	5011	***	5015	5016	Preset Number	5012	***	Preset Number	5017	5018	Preset Number	5005	5006	Preset Number	0000	0001	0002	0003	0004
	Function	Code	Code	Code	Code	Code	Code	Code	Code	Code	Function	Code	Code	Function	Code	Code	Function	Code	Code	Function	Code	Code	Code	Code	Code
K45	PRESET (+)	7A-10	7A-10	7D-F5	7A-6A	7D-31	7F01-0E	7F01-0EF0	7A-6A94	7A-10EE	UP	7F01-2E	7F01-2ED0	UP	7F01-E1	7F01-E11F	–	–	–	MENU UP	D1CC	D16C	5070	01 111 0 01 0EE 1	F082
K48	A-E/CAT. (-)	–	7A-AC	7D-BB	7A-6E	7D-35	7F01-10	7F01-10EE	7A-6E90	7A-AC52	LEFT	7F01-30	7F01-30CE	LEFT	7F01-E2	7F01-E21C	–	–	–	MENU LEFT	D1CE	D16E	5073	01 115 0 01 0EA 1	F080
K49	ENTER	–	7A-AD	7D-BC	7A-6F	7D-36	7F01-11	7F01-11EF	7A-6F91	7A-AD53	ENTER	7F01-31	7F01-31CF	ENTER	7F01-E3	7F01-E31D	–	–	–	MENU ENTER	D1D0	D170	5033	01 15F 0 01 0A0 1	F087
K50	A-E/CAT. (+)	D1-0D	7A-12	7D-F7	7A-6C	7D-33	7F01-12	7F01-12EC	7A-6C92	7A-12EC	RIGHT	7F01-32	7F01-32CC	RIGHT	7F01-E4	7F01-E41A	A/B	7A-06	7F-06	MENU RIGHT	D1CF	D16F	5072	01 114 0 01 0EB 1	F081
K51	MEMORY	–	7A-AF	7D-BE	7A-71	7D-38	7F01-13	7F01-13ED	7A-718F	7A-AF51	RETURN	7F01-33	7F01-33CD	MEMORY	7F01-DF	7F01-DF21	–	–	–	RETURN	D1D5	D175	500A	01 12F 0 01 0D0 1	–
K52	PRESET (-)	7A-11	7A-11	7D-F6	7A-6B	7D-32	7F01-14	7F01-14EA	7A-6B95	7A-11EF	DOWN	7F01-34	7F01-34CA	DOWN	7F01-E5	7F01-E51B	–	–	–	MENU DOWN	D1CD	D16D	5071	01 112 0 01 0ED 1	F083
K53	DISPLAY	–	7A-B0	7D-BF	7A-72	7D-39	7F01-15	7F01-15EB	7A-728C	7A-B04E	DISPLAY	7F01-35	7F01-35CB	DISPLAY	7F01-E0	7F01-E01E	–	–	–	DISPLAY	–	–	5010	01 11B 0 01 0E4 1	–
K1	AV POWER	D1-1B	D1-1B	–	–	–	7F01-00	7F01-00FE	–	–	AV POWER	7F01-20	7F01-20DE	AV POWER	7F01-D0	7F01-D02E	AV POWER	–	–	AV POWER	–	–	–	–	–
K55	BAND	–	7A-AE	7D-BD	7A-70	7D-37	7F01-0D	7F01-0DF3	7A-708E	7A-AE50	TITLE	7F01-2D	7F01-2DD3	TITLE	7F01-DD	7F01-DD23	–	–	–	TITLE	–	–	–	–	–
K56	SRCH MODE	–	7A-AB	7D-BA	7A-6D	7D-34	7F01-0F	7F01-0FF1	7A-6D93	7A-AB55	MENU	7F01-2F	7F01-2FD1	SRCH MODE	7F01-DE	7F01-DE20	–	–	–	MENU	D1D3	D173	5053	01 120 0 01 0DF 1	F086
K58	–	–	–	–	–	–	7F01-16	7F01-16E8	–	–	PC/MCX	7F01-36	7F01-36C8	REC	7F01-E6	7F01-E618	REC	7A-04	7F-04	REC	–	–	–	–	–
K59	–	–	–	–	–	–	7F01-1E	7F01-1EE0	–	–	PLAY	7F01-3E	7F01-3EC0	PLAY	7F01-E8	7F01-E816	PLAY	7A-00	7F-00	PLAY	–	–	–	–	–
K60	–	–	–	–	–	–	7F01-1D	7F01-1DE3	–	–	STOP	7F01-3D	7F01-3DC3	STOP	7F01-E9	7F01-E917	STOP	7A-03	7F-03	STOP	–	–	–	–	–
K61	–	–	–	–	–	–	7F01-1A	7F01-1AE4	–	–	PAUSE	7F01-3A	7F01-3AC4	PAUSE	7F01-E7	7F01-E719	PAUSE	–	–	PAUSE	–	–	–	–	–
K62	FREQ	7A-A4	7A-A4	7D-23	7A-3D	–	7F01-17	7F01-17E9	7A-3DC3	7A-A45A	NET RADIO	7F01-37	7F01-37C9	REW	7F01-EA	7F01-EA14	REW	7A-01	7F-01	REW	–	–	–	–	–
K63	EON	7A-A5	7A-A5	7D-24	7A-3E	–	7F01-18	7F01-18E6	7A-3EC0	7A-A55B	USB	7F01-38	7F01-38C6	FF	7F01-EB	7F01-EB15	FF	7A-02	7F-02	FF	–	–	–	–	–
K64	PTY MODE	7A-A6	7A-A6	7D-25	7A-3F	–	7F01-1B	7F01-1BE5	7A-3FC1	7A-A658	SKIP (-)	7F01-3B	7F01-3BC5	SKIP (-)	7F01-EC	7F01-EC12	DIR A	7A-07	7F-07	SKIP (-)	–	–	–	–	–
K65	PTY START	7A-A7	7A-A7	7D-26	7A-EF	–	7F01-1C	7F01-1CE2	7A-EF11	7A-A759	SKIP (+)	7F01-3C	7F01-3CC2	SKIP (+)	7F01-ED	7F01-ED13	DIR B	7A-40	7F-08	SKIP (+)	–	–	–	–	–
K66	P1	D1-0E	7A-E5	7D-F8	7A-61	7D-A1	7F01-01	7F01-01FF	7A-619F	7A-E51B	P1	7F01-21	7F01-21DF	1	7F01-D1	7F01-D12F	–	–	–	1	D1E1	D181	500D	01 101 0 01 0FE 1	F0E4
K67	P2	D1-0F	7A-E6	7D-F9	7A-62	7D-A2	7F01-02	7F01-02FC	7A-629C	7A-E618	P2	7F01-22	7F01-22DC	2	7F01-D2	7F01-D22C	–	–	–	2	D1E2	D182	500E	01 102 0 01 0FD 1	F0E5
K68	P3	D1-10	7A-E7	7D-FA	7A-63	7D-A3	7F01-03	7F01-03FD	7A-639D	7A-E719	P3	7F01-23	7F01-23DD	3	7F01-D3	7F01-D32D	–	–	–	3	D1E3	D183	500F	01 103 0 01 0FC 1	F0E6
K69	P4	D1-11	7A-E8	7D-FB	7A-64	7D-A4	7F01-04	7F01-04FA	7A-649A	7A-E816	P4	7F01-24	7F01-24DA	4	7F01-D4	7F01-D42A	–	–	–	4	D1E4	D184	501C	01 104 0 01 0FB 1	–
K70	P5	D1-12	7A-E9	7D-FC	7A-65	7D-A5	7F01-05	7F01-05FB	7A-659B	7A-E917	P5	7F01-25	7F01-25DB	5	7F01-D5	7F01-D52B	–	–	–	5	D1E5	D185	501D	01 105 0 01 0FA 1	–
K71	P6	D1-13	7A-EA	7D-FD	7A-66	7D-A6	7F01-06	7F01-06F8	7A-6698	7A-EA14	P6	7F01-26	7F01-26D8	6	7F01-D6	7F01-D628	–	–	–	6	D1E6	D186	501E	01 106 0 01 0F9 1	–
K72	P7	D1-14	7A-EB	7D-FE	7A-67	7D-A7	7F01-07	7F01-07F9	7A-6799	7A-EB15	P7	7F01-27	7F01-27D9	7	7F01-D7	7F01-D729	–	–	–	7	–	–	501F	01 107 0 01 0F8 1	–
K73	P8	D1-15	7A-EC	7D-FF	7A-68	7D-A8	7F01-08	7F01-08F6	7A-6896	7A-EC12	P8	7F01-28	7F01-28D6	8	7F01-D8	7F01-D826	–	–	–	8	–	–	5004	01 108 0 01 0F7 1	–
K74	P9	–	7A-B1	7D-60	7A-69	7D-A9	7F01-09	7F01-09F7	7A-6997	7A-B14F	P9	7F01-29	7F01-29D7	9	7F01-D9	7F01-D927	–	–	–	9	–	–	5005	01 109 0 01 0F6 1	–
K75	P0	–	7A-B2	7D-61	7A-60	7D-A0	7F01-0A	7F01-0AF4	7A-609E	7A-B24C	P10	7F01-2A	7F01-2AD4	10	7F01-DA	7F01-DA24	–	–	–	0/10	–	–	500C	01 10A 0 01 0F5 1	–
K76	–	–	–	–	–	–	7F01-0B	7F01-0BF5	–	–	–	7F01-2B	7F01-2BD5	11	7F01-DB	7F01-DB25	–	–	–	_ /_ _ ,11	–	–	5006	01 135 0 01 0CA 1	–
K77	P. ENTER	–	7A-B3	7D-62	7A-BF	7D-3F	7F01-0C	7F01-0CF2	7A-BF41	7A-B34D	P. ENTER	7F01-2C	7F01-2CD2	12	7F01-DC	7F01-DC22	–	–	–	enter/12	–	–	5006	01 10C 0 01 0F3 1	–
K78	TV INPUT				(TV INPUT)						TV INPUT	(TV INPUT)		TV INPUT	(TV INPUT)		TV INPUT	(TV INPUT)		TV INPUT	D1D6	D176	5009	01 113 0 01 0EC 1	–
K79	TV VOL (+)				(TV VOL +)						TV VOL (+)	(TV VOL +)		TV VOL (+)	(TV VOL +)		TV VOL (+)	(TV VOL +)		TV VOL (+)	–	–	5012	01 114 0 01 0EB 1	–
K80	TV CH (+)				(TV CH +)						TV CH (+)	(TV CH +)		TV CH (+)	(TV CH +)		TV CH (+)	(TV CH +)		TV CH (+)	–	–	5019	01 111 0 01 0EE 1	–
K81	TV POWER				(TV POWER)						TV POWER	(TV POWER)		TV POWER	(TV POWER)		TV POWER	(TV POWER)		TV POWER	D1C2	D162	5017	01 116 0 01 0E9 1	F041
K82	TV MUTE				(TV MUTE)						TV MUTE	(TV MUTE)		TV MUTE	(TV MUTE)		TV MUTE	(TV MUTE)		TV MUTE	–	–	500B	01 117 0 01 0E8 1	–
K83	TV VOL (-)				(TV VOL -)						TV VOL (-)	(TV VOL -)		TV VOL (-)	(TV VOL -)		TV VOL (-)	(TV VOL -)		TV VOL (-)	–	–	5015	01 115 0 01 0EA 1	–
K84	TV CH (-)				(TV CH -)						TV CH (-)	(TV CH -)		TV CH (-)	(TV CH -)		TV CH (-)	(TV CH -)		TV CH (-)	–	–	5018	01 112 0 01 0ED 1	–

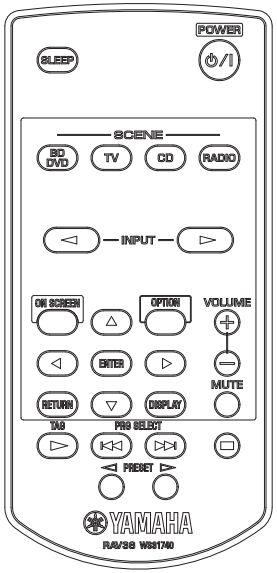
■ REMOTE CONTROL

● RAV38

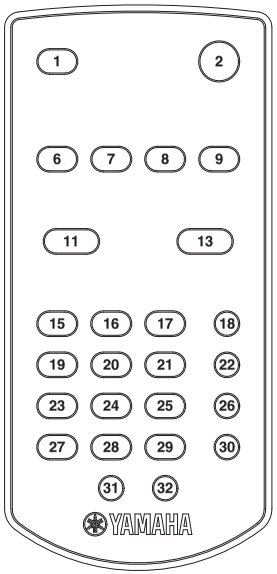
SCHEMATIC DIAGRAM



PANEL



KEY NO. LAYOUT



KEY CODE

Key No.	Key name	Code							
		ID1				ID2			
		MAIN	ZONE2	ZONE3	ZONE4	MAIN	ZONE2	ZONE3	ZONE4
1	SLEEP	7A-30	7A-31	7A-32	7A-33	7A-30CE	7A-31CF	7A-32CC	7A-33CD
2	POWER / ⏻/I	7E-2A	7A-453A	7A-4639	7A-6F10	7E-2AD4	7A-453B	7A-4638	7A-6F11
6	SCENE / BD/DVD	7A-007F	7A-017E	7A-027D	7A-1867	7A-007E	7A-017F	7A-027C	7A-1866
7	SCENE / TV	7A-037C	7A-047B	7A-057A	7A-1966	7A-037D	7A-047A	7A-057B	7A-1967
8	SCENE / CD	7A-0679	7A-0778	7A-0877	7A-1A65	7A-0678	7A-0779	7A-0876	7A-1A64
9	SCENE / RADIO	7A-0976	7A-0A75	7A-0B74	7A-1B64	7A-0977	7A-0A74	7A-0B75	7A-1B65
11	INPUT ◁	7A-235C	7A-245B	7A-255A	7A-2659	7A-235D	7A-245A	7A-255B	7A-2658
13	INPUT ▷	7A-1F60	7A-205F	7A-215E	7A-225D	7A-1F61	7A-205E	7A-215F	7A-225C
15	ON SCREEN	7A-84	7A-3B44	7A-443B	7A-413E	7A-847A	7A-3B45	7A-443A	7A-413F
16	▲ (UP)	7A-9D	7A-2B54	7A-304F	7A-354A	7A-9D63	7A-2B55	7A-304E	7A-354B
17	OPTION	7A-6B14	7A-6C13	7A-6D12	7A-6E11	7A-6B15	7A-6C12	7A-6D13	7A-6E10
18	VOLUME +	7A-1A	7A-DA	7A-FD	7A-2B	7A-1AE4	7A-DA24	7A-FD03	7A-2BD5
19	◀ (LEFT)	7A-9F	7A-2D52	7A-324D	7A-3748	7A-9F61	7A-2D53	7A-324C	7A-3749
20	ENTER	7A-DE	7A-2F50	7A-344B	7A-3946	7A-DE20	7A-2F51	7A-344A	7A-3947
21	▶ (RIGHT)	7A-9E	7A-2E51	7A-334C	7A-3847	7A-9E60	7A-2E50	7A-334D	7A-3846
22	VOLUME -	7A-1B	7A-DB	7A-FE	7A-2C	7A-1BE5	7A-DB25	7A-FE00	7A-2CD2
23	RETURN	7A-AA	7A-3C43	7A-3F40	7A-423D	7A-AA54	7A-3C42	7A-3F41	7A-423C
24	▼ (DOWN)	7A-9C	7A-2C53	7A-314E	7A-3649	7A-9C62	7A-2C52	7A-314F	7A-3648
25	DISPLAY	7F01-60	7F01-80	7F01-A0	7F01-C0	7F01-609E	7F01-807E	7F01-A05E	7F01-C03E
26	MUTE	7A-1C	7A-DC	7A-FF	7A-2D	7A-1CE2	7A-DC22	7A-FF01	7A-2DD3
27	TAG / ▷	7F01-68	7F01-88	7F01-A8	7F01-C8	7F01-6896	7F01-8876	7F01-A856	7F01-C836
28	PRG SELECT / ⏮	7F01-6C	7F01-8C	7F01-AC	7F01-CC	7F01-6C92	7F01-8C72	7F01-AC52	7F01-CC32
29	PRG SELECT / ⏭	7F01-6D	7F01-8D	7F01-AD	7F01-CD	7F01-6D93	7F01-8D73	7F01-AD53	7F01-CD33
30	■	7F01-69	7F01-89	7F01-A9	7F01-C9	7F01-6997	7F01-8977	7F01-A957	7F01-C937
31	PRESET ◁	7F01-5E21	7F01-5F20	7F01-601F	7F01-6B14	7F01-5E20	7F01-5F21	7F01-601E	7F01-6B15
32	PRESET ▷	7F01-5B24	7F01-5C23	7F01-5D22	7F01-6A15	7F01-5B25	7F01-5C22	7F01-5D23	7F01-6A14

Default: ID1/MAIN

ID setting	[K19] + [K6]				[K19] + [K7]			
	= ID1				= ID2			
ID setting	[K21] + [K6]	[K21] + [K7]	[K21] + [K8]	[K21] + [K9]	[K21] + [K6]	[K21] + [K7]	[K21] + [K8]	[K21] + [K9]
	= MAIN	= ZONE2	= ZONE3	= ZONE4	= MAIN	= ZONE2	= ZONE3	= ZONE4

■ ADVANCED SETUP

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

1 Set this unit to standby.

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

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

ADVANCED SETUP

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

The default setting are marked with "*".

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

SP IMP. -XXX

Choices: 6ΩMIN, 8ΩMIN*

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

RS232C STBY -X

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

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

REMOTE ID -XXX

Choices: ID1*, ID2

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

SR PIN -XXX

Choices: RESET, CANCEL*

Resets Parental lock cord when using SIRIUS Satellite tuner.

BI AMP - XXX

Choices: ON, OFF*

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

SCENE IR -XXX

Choices: ON*, OFF

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

MON.CHK - XXXX

Choices: YES*, SKIP

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

INIT-XXXXXXXXX

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

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

DSP PARAM:	All parameters of sound field programs
VIDEO	Video conversion settings (resolution/aspect) in the Setup menu and the GUI display position
NETWORK	Network settings in the Setup menu
ALL	All
CANCEL	Cancellation of initialization

USB FirmUpdate

NET FirmUpdate

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

Notes

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

VERXXX.XXX.XXX

Displays the firmware of this unit.

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

To change other settings, repeat steps 3 and 4.

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

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

Setting a remote control ID

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

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

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

1 Press 15 CODE SET on the remote control using a pointed object such as the tip of a ballpoint pen.

14 **TRANSMIT** blinks twice.

2 Press 9 ON SCREEN.

3 Enter the desired remote control ID code.

To switch to ID1, press 12 **Numeric keys** to enter "5019".
To switch to ID2, press 12 **Numeric keys** to enter "5020".

Once the remote control code is registered, 14 **TRANSMIT** blinks twice.
If it fails, 14 **TRANSMIT** blinks six times. Repeat from step 1.

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

MEMO

RX-V2065/HTR-6295

YAMAHA