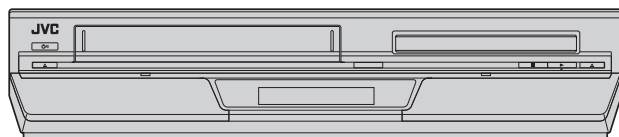


JVC

SERVICE MANUAL

DVD PLAYER & VIDEO CASSETTE RECORDER

**HR-XV48EF, HR-XV48EK,
HR-XV48EL, HR-XV48ER,
HR-XV48EX, HR-XV48EY,
HR-XV48EZ**



HR-XV48EF,HR-XV48EK,HR-XV48EL,HR-XV48ER,HR-XV48EX,HR-XV48EY,HR-XV48EZ [D4PV1]

For disassembling and assembling of MECHANISM ASSEMBLY, refer to the SERVICE MANUAL No.86700(MECHANISM ASSEMBLY).

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SPECIFICATION

	HR-XV48EF	HR-XV48EK	HR-XV48EL/ER/EX/EY/EZ
GENERAL			
Power requirement	AC 220V - 240V, 50 Hz/60 Hz		
Power consumption			
Power on	23 W		
Power off	4.0 W		
Temperature			
Operating	5°C to 40°C		
Storage	-20°C to 60°C		
Operating position	Horizontal only		
Dimensions (W × H × D)	435 mm × 93 mm × 272 mm		
Weight	4.2 Kg		
Format	VHS PAL/SECAM standard	VHS PAL standard	
Tape width	12.65 mm		
Tape speed			
(SP)	23,39 mm/s		
(LP)	11,70 mm/s		
Maximum recording time			
(SP)	240 min. with E-240 video cassette		
(LP)	480 min. with E-240 video cassette		
VIDEO/AUDIO (VHS deck)			
Signal system	PAL/SECAM-type colour signal and CCIR monochrome signal, 625 lines/50 fields	PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields	
Recording system	DA4 (Double Azimuth) head helical scan system		
Signal-to-noise ratio	45 dB		
Horizontal resolution	240 lines (VHS-SECAM, SP/LP) 250 lines (VHS-PAL, SP/LP)	250 lines	
Frequency range	70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)		
Input/Output	21-pin SCART connectors: IN/OUT × 1, IN/DECODER × 1 RCA connectors: VIDEO IN × 1, AUDIO IN × 1, AUDIO OUT × 1		
VIDEO/AUDIO (DVD deck)			
Signal system	PAL		
Applicable disc	DVD VIDEO, DVD-R (Video format), DVD-RW (Video format), Video CD, SVCD, Audio CD (CD-DA), CD-R/RW (CD-DA, Video CD, SVCD, MP3 format, JPEG, DivX)		
Frequency response	DVD:4 Hz - 22 KHz, CD:4 Hz - 20 KHz		
S/N Ratio	90 dB		
Wow and flutter	Below Measurable Level		
Dynamic range	90 dB		
Output			
Audio	(RCA) 2 Vrms, 1 KΩ		
Digital Audio	-21 dBm to -15 dBm(peak)		
TUNER/TIMER(VHS deck)			
TV channel storage capacity	99 positions (+AUX position)		
Tuning system	Frequency synthesized tuner		
Channel coverage(SECAM-L)	VHF(LOW) : 49MHz-65MHz(2-4) VHF(HIGH) : 104MHz-300 MHz(5-10,CATV) Hyper : 300MHz-470MHz(CATV) UHF : 470MHz-862MHz(21-69)	-	
Channel coverage(PAL)	VHF(LOW) : 47MHz-89MHz(E2-E4,X,Y,Z) VHF(HIGH) : 104MHz-300MHz(E5-E12,S1-S20,M1-M10,U1-U10) Hyper : 302MHz-470MHz(S21-S41) UHF : 470MHz-862MHz(E21-E69)	VHF 44.5 MHz - 143 MHz/143 UHF 470 MHz - 862 MHz	VHF 47 MHz - 89 MHz/104 MHz - 300 MHz/ 302 MHz - 470 MHz UHF 470 MHz - 862 MHz
Aerial output	-	UHF channels 22 - 69 (Adjustable)	
Memory backup time	Approx. 10 min.		
ACCESSORIES			
Provided accessories	RF cable, Infrared remote control unit, "R6" battery × 2, PERI cable	RF cable, Infrared remote control unit, "R6" battery × 2	

Specifications shown are for SP mode unless otherwise specified.
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SECTION 1 PRECAUTION

1.1 SAFTY PRECAUTIONS

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

1.1.1 Precautions during Servicing

- (1) Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.
- (2) Parts identified by the  symbol and shaded () parts are critical for safety. Replace only with specified part numbers.

NOTE :

Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

- (3) Fuse replacement caution notice.
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.
- (4) Use specified internal wiring. Note especially:
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads
- (5) Use specified insulating materials for hazardous live parts. Note especially:
 - Insulation Tape
 - PVC tubing
 - Spacers
 - Insulation sheets for transistors
 - Barrier
- (6) When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

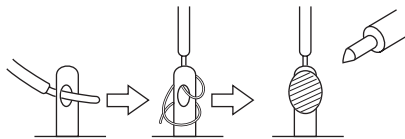


Fig.1-1-1

- (7) Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)
- (8) Check that replaced wires do not contact sharp edged or pointed parts.
- (9) When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

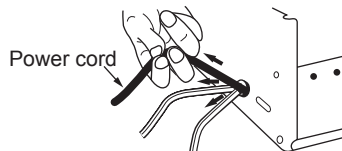


Fig.1-1-2

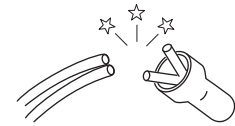
- (10) Also check areas surrounding repaired locations.
- (11) Products using cathode ray tubes (CRTs) In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission.

Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

- (12) Crimp type wire connector In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

- **Connector part number** :E03830-001
- **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
- **Replacement procedure**

- a) Remove the old connector by cutting the wires at a point close to the connector. Important : Do not reuse a connector (discard it).



cut close to connector

Fig.1-1-3

- b) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

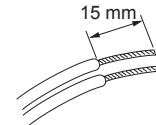


Fig.1-1-4

- c) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

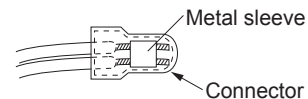


Fig.1-1-5

- d) As shown in Fig.1-1-6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

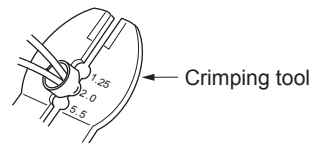


Fig.1-1-6

- e) Check the four points noted in Fig.1-1-7.

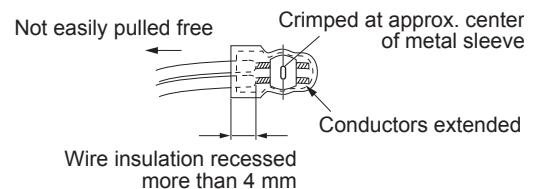


Fig.1-1-7

1.1.2 Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

(1) Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

(2) Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See Fig.1-1-11 below.

(3) Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See Fig.1-1-11 below.

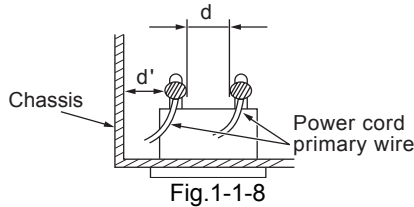


Fig.1-1-8

(4) Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON) Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig.1-1-9 and following Fig.1-1-12.

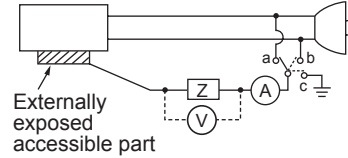
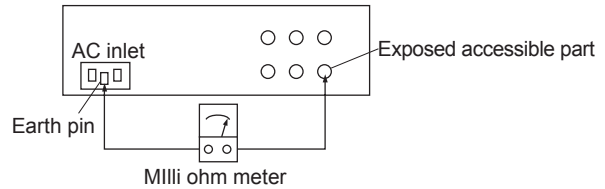


Fig.1-1-9

(5) Grounding (Class 1 model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.). Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See Fig.1-1-10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

Fig.1-1-10

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	$1 \text{ M}\Omega \leq R \leq 12 \text{ M}\Omega/500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V 200 to 240 V	Europe & Australia	$R \geq 10 \text{ M}\Omega/500 \text{ V DC}$	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	$d \geq 4 \text{ mm}$ $d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire)

Fig.1-1-11

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Fig.1-1-12

NOTE :

These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

1.2 Preventing static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.2.1 Grounding to prevent damage by static electricity

Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players.

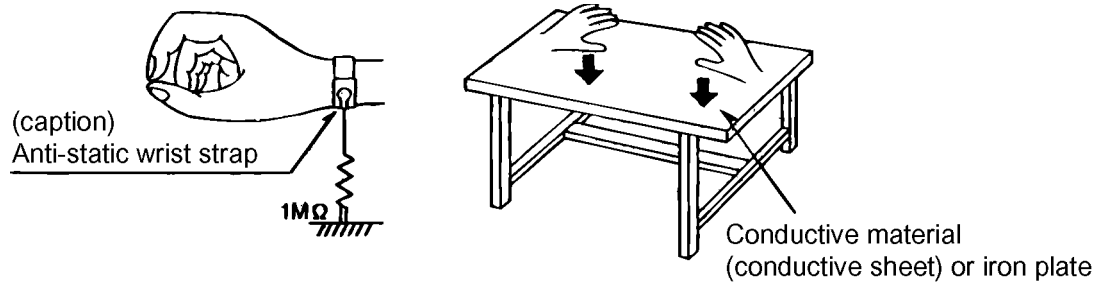
Be careful to use proper grounding in the area where repairs are being performed.

(1) Ground the workbench

Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

(2) Ground yourself

Use an anti-static wrist strap to release any static electricity built up in your body.



(3) Handling the optical pickup

- In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)
- Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

1.3 Important for laser products

- (1) CLASS 1 LASER PRODUCT
- (2) DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
- (3) CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
- (4) CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.

- (5) CAUTION : If safety switches malfunction, the laser is able to function.
- (6) CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

⚠CAUTION
Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.

VARNING

Osynlig laserstrålning är denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO

Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL

Usynlig laserstrålning ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

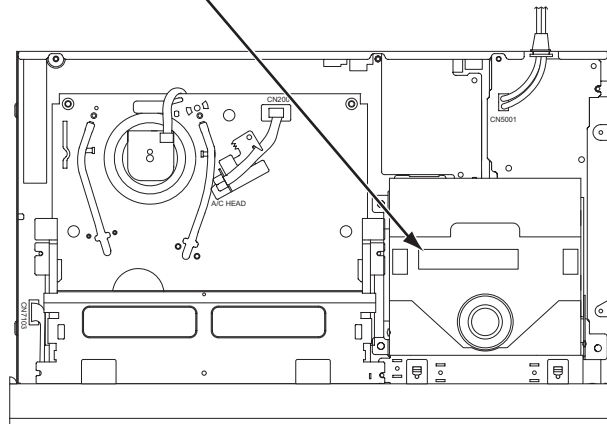
ADVARSEL

Usynlig laserstrålning ved åbning, når sikkerhedsbryteren er avsluttet. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABEL and PRINT

WARNING LABEL

<p>CAUTION : Visible and invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM.</p>	<p>ADVARSEL : Synlig og usynlig laserstrålning når maskinen er åben eller interlocken fejler. Undgå direkte eksponering til stråling.</p>	<p>VARNING : Synlig och osynlig laserstrålning när den öppnas och spärren är urkopplad. Betrakta ej strålen.</p>	<p>VARO : Avattaessa ja suojalukitus ohitettuna tai viallisenä olet alttiina näkyvälle ja näkymättömälle lasersäteilylle. Vältä säteen kohdistumista suoraan itseesi.</p>
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1.4 Precautions for Service

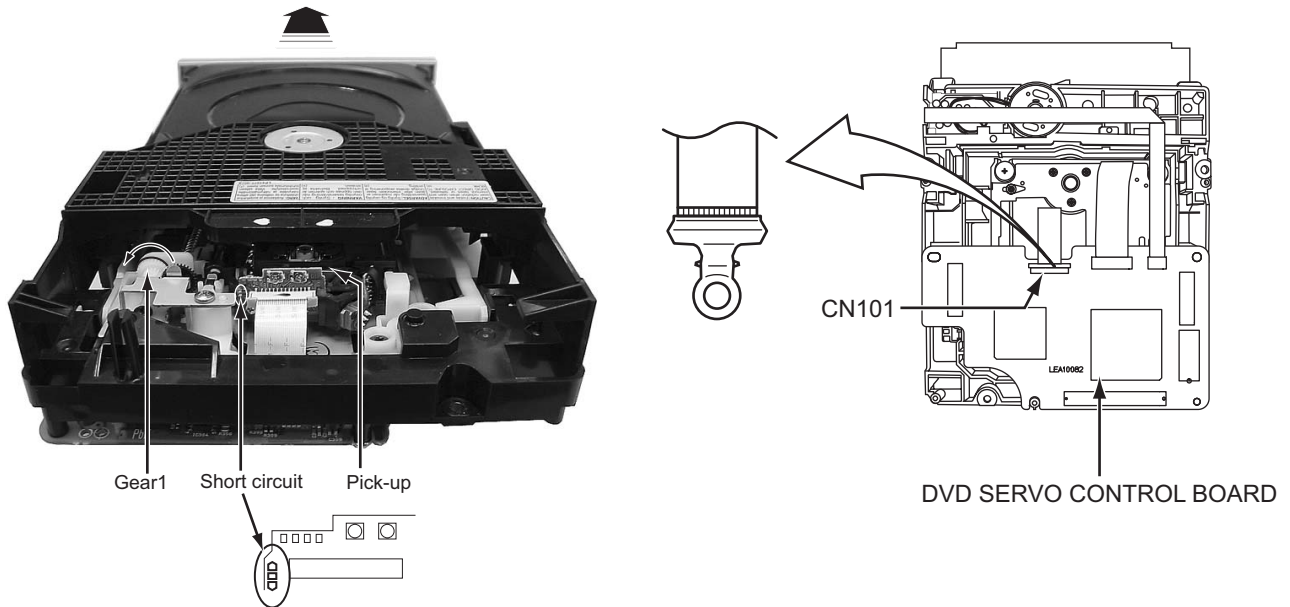
1.4.1 Handling of Traverse Unit and Laser Pickup

- (1) Do not touch any peripheral element of the pickup or the actuator.
- (2) The traverse unit and the pickup are precision devices and therefore must not be subjected to strong shock.
- (3) Do not use a tester to examine the laser diode. (The diode can easily be destroyed by the internal power supply of the tester.)
- (4) To replace the traverse unit, pull out the metal short pin for protection from charging.
- (5) When replacing the pickup, after mounting a new pickup, remove the solder on the short land which is provided at the center of the flexible wire to open the circuit.
- (6) Half-fixed resistors for laser power adjustment are adjusted in pairs at shipment to match the characteristics of the optical block. Do not change the setting of these half-fixed resistors for laser power adjustment.

1.4.2 Destruction of Traverse Unit and Laser Pickup by Static Electricity

Laser diodes are easily destroyed by static electricity charged on clothing or the human body. Before repairing peripheral elements of the traverse unit or pickup, be sure to take the following electrostatic protection:

- (1) Wear an antistatic wrist wrap.
- (2) With a conductive sheet or a steel plate on the workbench on which the traverse unit or the pick up is to be repaired, ground the sheet or the plate.
- (3) It solders to two short circuit sections on the substrate of a pick-up.
- (4) After removing the flexible wire from the connector (CN101), short-circuit the flexible wire by the metal clip.
- (5) Short-circuit the laser diode by soldering the land which is provided at the center of the flexible wire for the pickup. After completing the repair, remove the solder to open the circuit.



* Please refer to the SECTION3 DISASSEMBLY method for details.

SECTION 2

SPECIFIC SERVICE INSTRUCTIONS

2.1 Different table of feature

The following table indicates main different points between models HR-XV48EF, HR-XV48EK, HR-XV48ER and HR-XV48EL/EX/EY/EZ.

	HR-XV48EF	HR-XV48EK	HR-XV48ER	HR-XV48EL/EX/EY/EZ
POWER PLUG	CEE	3PIN	CEE	←
SCART CABLE	PROVIDED	OPTIONAL	←	←
VHS	PAL/MESECAM/SECAM/NTSC PB on PAL TV with HiFi	PAL/NTSC PB on PAL TV with HiFi	PAL/MESECAM/NTSC PB on PAL TV with HiFi	PAL/MESECAM(MANUAL)/ NTSC PB on PAL TV with HiFi
BROADCASTING STANDARD	L,L',B/G	I	B/G,D/K	←
STEREO DECODER	NICAM(L,B/G)/A2(B/G)	NICAM	NICAM/A2	←
RF OUT CH/RF OUT SYSTEM [INITIAL]	NOT USED	22-69CH,OFF[AUTO]/I	22-69CH,OFF[AUTO]/G,K	←
VCR PLUS+	SHOWVIEW	VIDEOPLUS+	SHOWVIEW	←
VPS/PDC	NOT USED	←	USED	←
OSD LANGUAGES	VCR:FRENCH DVD:ENGLISH/FRENCH/GER- MANY	VCR:ENGLISH DVD:ENGLISH/FRENCH/GER- MANY	VCR: 13 LANGUAGES DVD:ENGLISH/FRENCH/GER- MANY	←
REGIONAL CODE	REGIONAL CODE: 2	←	REGIONAL CODE: 5	REGIONAL CODE: 2

NOTE :

Mark ← is same as left.

2.2 Service position

This unit has been designed so that the Mechanism and Main board assemblies can be removed together from the bottom chassis. Before diagnosing or servicing the circuit boards, take out the major parts from the bottom chassis.

2.2.1 How to set the "Service position"

- (1) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the Mechanism assembly.
- (2) Remove the screws that fix the Mechanism, Regulator board assembly to the bottom chassis. If any other screws are used to fix the boards, remove them also.
- (3) Remove the combined Mechanism, Regulator board and Main board assemblies.
- (4) If any other major parts are used, remove them also.
- (5) Connect the wires and connectors of the major parts that have been removed in steps (1) to (4). (Refer to Fig. 2-2a.)
- (6) Place the combined Mechanism, Main board and other board assemblies upside down.
- (7) Insert the power cord plug into the power outlet and then proceed with the diagnostics and servicing of the board assembly.

Notes:

- Before inserting the power cord plug into the power outlet, make sure that none of the electrical parts are able to short-circuit between the workbench and the board assembly.
- For the disassembly procedure of the major parts and details of the precautions to be taken, see "Removing the major parts".
- If there are wire connections from the Main board and Mechanism assemblies to the other major parts, be sure to remove them (including wires connected to the major parts) first before performing step (2).
- When carrying out diagnosis and repair of the Main board assembly in the "Service position", be sure to ground both the Main board and Mechanism assemblies. If they are improperly grounded, there may be noise on the playback picture or FDP counter display may move even when the mechanism is kept in an inoperative status.
- In order to diagnose the playback or recording of the cassette tape, set the Mechanism assembly to the required mode before placing it upside down. If the mechanism mode is changed (including ejection) while it is in an upside down position the tape inside may be damaged.
- For some models, the mechanism and board assemblies are attached by connectors only. When carrying out a diagnosis or repair of the boards in the "Service position", make sure that the connectors are not disconnected.

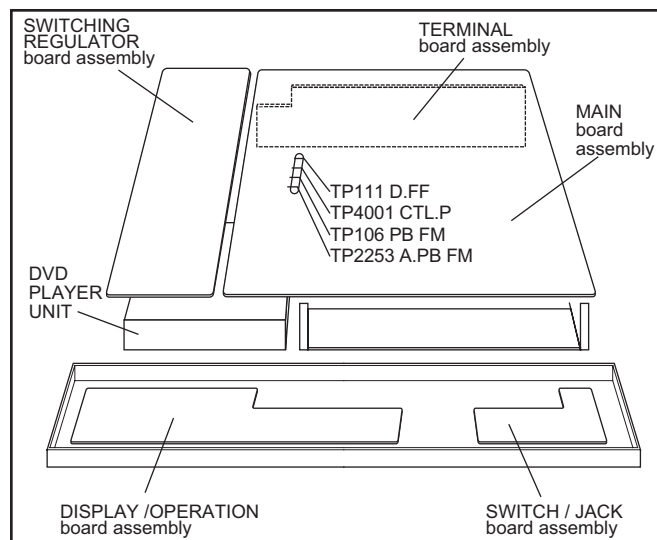


Fig.2-2a

2.3 Jig RCU mode

This unit uses the following two modes for receiving remote control codes.

(1) User RCU mode: Ordinary mode for use by the user.

(2) Jig RCU mode: Mode for use in production and servicing. When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). As both of the above two modes are stored in the EEPROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

Note:

- Confirm the RCU mode when exchanged parts. Since some SERVICE PARTS sets the VCR to the Jig RCU mode as initial setting. Therefore please set the VCR to the user RCU mode after replacing the EEPROM.

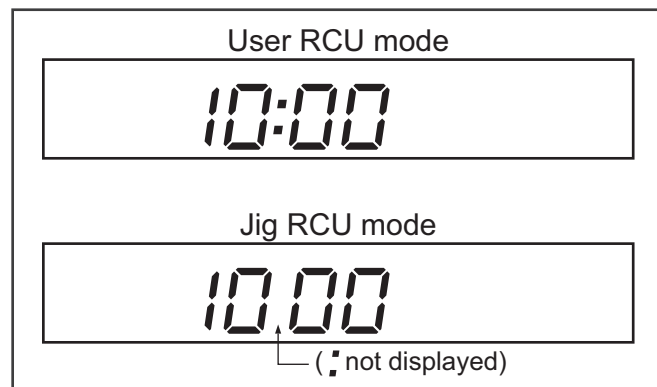


Fig.2-3a User/Jig RCU mode

2.3.1 Setting the Jig RCU mode

- (1) Turn on the power.
- (2) Press the following remote keys continuously within 2 seconds "SET UP" → "2" → "8" → "ENTER". When the VCR is set to the Jig RCU mode, the symbols (":") in the time display of the FDP are turned off. (Refer to Fig.2-3a)

2.3.2 Setting the User RCU mode

- (1) Turn off the power.
- (2) Press the "REC" and "PAUSE" buttons of the VCR simultaneously. Alternatively, transmit the code "43-80" from the Jig RCU.

2.4 Mechanism service mode

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "Mechanism service mode".

2.4.1 How to set the "Mechanism service mode"

- (1) Set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received)
 - (2) Transmit the code "43-E5" from the Jig RCU.
 - (3) Release the lug of the Cassette holder and then slide the Cassette holder toward the direction where the Cassette holder is loaded by manually.
 - (4) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.
- When the VCR is set to the Mechanism service mode, the symbols ("Timer") in the FDP (LED) are blinked.

2.4.2 How to exit from the "Mechanism service mode"

- (1) Unplug the power cord plug from the power outlet.

2.5 Maintenance and inspection

2.5.1 Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced. When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

Note:

- **Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.**
- (1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.
 - (2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
 - (3) After cleaning, make sure that the cleaned parts are completely dry before using the cassette tape.

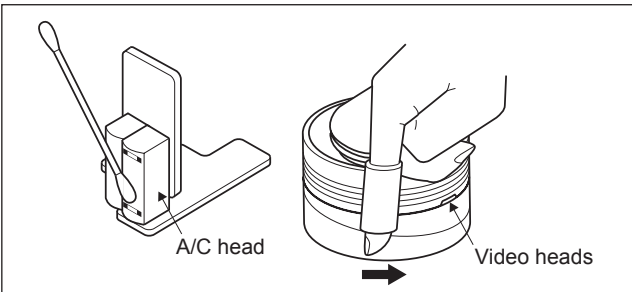


Fig.2-6a

2.5.2 Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- See the "mechanism assembly" diagram of the "parts list" for the lubricating or greasing spots, and for the types of oil or grease to be used.

2.5.3 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts name	Operation hours	
		1000H	2000H
Tape transport	Drum assembly	C,X	X
	A/C head	C,X	C,X
	Pinch roller arm assembly	C	C
	Full erase head	C	C
	Tension arm assembly	C	C
	Capstan motor (Shaft)	C	C
	Guide arm assembly	C	C
Drive	Capstan motor		X
	Capstan brake assembly		X
	Main brake assembly		X
	Belt (Capstan)	X	X
	Loading motor		X
	Clutch unit		X
	Worm gear		X
	Control plate		X
Other	Rotary encoder		X

C : Cleaning

X : Inspection or Replacement if necessary

SECTION 3 DISASSEMBLY

3.1 Removing the major parts

3.1.1 Destination of connectors

Two kinds of double-arrows in connection tables respectively show kinds of connector/wires.

↔ : Flat wire ↔ : Wire ↔ : Board to board (B-B)

■ : The connector of the side to remove

CONN. No.	CONNECTOR			PIN No.
WR2a	Main	CN101	↔	Digital CN761 40
WR2b	Main	CN103	↔	Digital CN762 10

Destination of connectors

CONN. No.	CONNECTOR			PIN No.
WR2a	Main	CN7104	↔	Switch/Jack CN7191 10
WR2b	Main	CN3102	↔	Display/operation CN7003 22
WR3a	Main	CN2001	↔	A/C head 6
WR3b	Drum assembly		↔	Main CN1 9
WR4a	Main	CN7301	↔	DVD servo control CN302 19
WR4b	Main	CN7302	↔	DVD servo control CN301 17
WR4c	Main	CN8301	↔	Switch CN1 5
WR6a	SW Regulator	CN5301	↔	Main CN5401 11

3.1.2 How to read the procedure table

This table shows the steps for disassembly of the externally furnished parts and board assemblies. Reverse these steps when re-assembling them.

Step/Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	3-1a	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a),(W1a), CN1(WR1a), 2(S1c)	<Note 1a>
	Bracket			

↑ (1)
↑ (2)
↑ (3)
↑ (4)
↑ (5)

(1) Order of steps in Procedure

When reassembling, perform the step(s) in the reverse order.

These numbers are also used as the identification (location) No. of parts Figures.

(2) Part name to be removed or installed.

(3) Fig. No. showing procedure or part location.

(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.

P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- The bracketed () WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.

(5) Adjustment information for installation

3.1.3 Disassembly procedure

Step/Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	3-1d	8(S1a)	
[2]	Front panel assembly (Display/operation board assembly) (Switch/Jack board assembly)	3-1a 3-1d	4(L2a),5(L2b),(S2a) CN7104(WR2a), CN3102(WR2b),	<Note 2a> <Note 2b>
[3]	Mechanism assembly (Drum assembly)	3-1b 3-1c 3-1d	CN2001(WR3a) 3(S3a),(S3b) CN(WR3b) (S3c),(S3d),(S3e)	<Note 2a> <Note 3a> <Note 3b> <Note 3c>
[4]	DVD unit (Bracket)	3-1d	3(S4a),3(S4c), WR4a(CN7301), WR4b(CN7302), WR4c(CN8301)	
[5]	Rear cover	3-1d	7(S5a),5(L5a)	
[6]	Switching regulator board assembly	3-1d	3(S6a) CN5301(WR6a)	<Note 2a>
[7]	Main board assembly	3-1d	2(S7a)	

< Note 2a >

- Be careful not to damage the connector and wire etc. during connection and disconnection.
- When connecting the flat wire to the connector, be careful with the flat wire direction.

< Note 2b >

- When reattaching the Front panel assembly, make sure that the door opener of the Side frame (R) is lowered in position prior to the reinstallation.
- When reattaching the Front panel assembly, pay careful attention to the switch lever of the Front panel assembly not to make it touch the switch knob of the Main board assembly from the side.
- When reattaching the Front panel assembly, lift the Cassette door slightly.

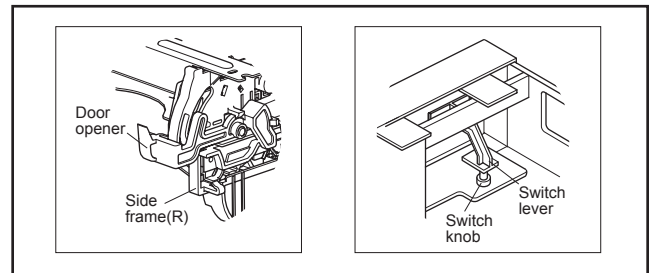


Fig.3-1a

< Note 3a >

- When reattaching the Mechanism assembly, secure the screws (S3a to S3b) in the order of 1,2,3.

< Note 3b >

- When reattaching the Mechanism assembly, be sure to align the phase of the Rotary encoder on the Main board assembly.
- When reattaching the Mechanism assembly, set the "Mechanism assembling mode". [See "MECHANISM ASSEMBLY SERVICE MANUAL (No. 86700)".]
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors and switch on the Main board assembly.

< Note 3c >

- When reattaching the Drum assembly, secure the screws (S3c to S3e) in the order of c, d, e.

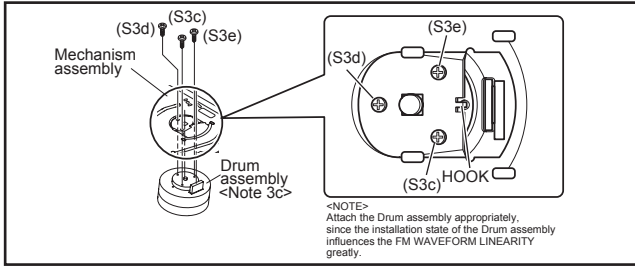


Fig.3-1b

- When handling the drum assembly alone, hold it by the motor or shaft. Be careful not to touch other parts, especially the video heads. Also take care not to damage the connectors.

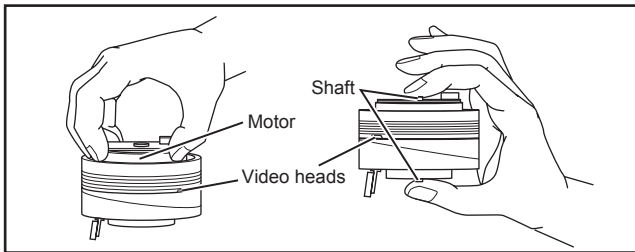


Fig.3-1c

3.2 Loading mechanism assembly

3.2.1 Removing the tray (See Figure 3-2a, Figure 3-2b, Figure 3-2c, Figure 3-2d, Figure 3-2e, Figure 3-2f)

- (1) Push **a** of the slide cam on the hole in the right side of the loading base by using a driver until it stops. (See Figure 3-2a.)
- (2) The tray comes out. Pull the tray in a front direction until it stops.
- (3) Remove the two screws **A** attaching the slide bracket. (See Figure 3-2b.)
- (4) Tilt the tray in a direction of the arrow around the point in the left rear part of the tray. (See Figure 3-2c.)
- (5) The rail of the tray is removed from **b** of the loading base. Then, remove the tray upward. (See Figure 3-2d.)

Attaching the tray:

Engage **c** of the loading base to the projection of the tray while tilting the tray to the left. Turn the tray in a direction of the arrow, and attach the slide bracket. (See Figure 3-2e.)

Note:

Prior to the procedure above, move the slide cam in a direction of the arrow so that **d** of the slide cam can be inserted in **e** of the tray. (See Figure 3-2f.)

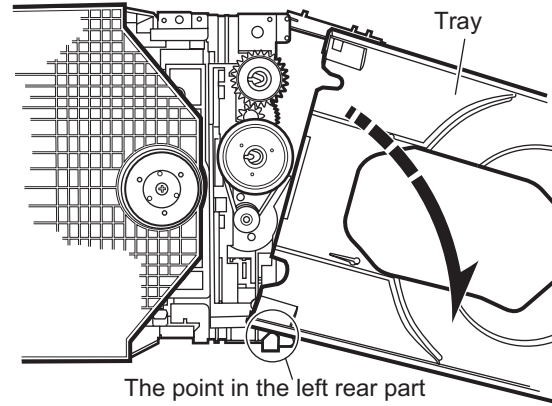


Fig.3-2c

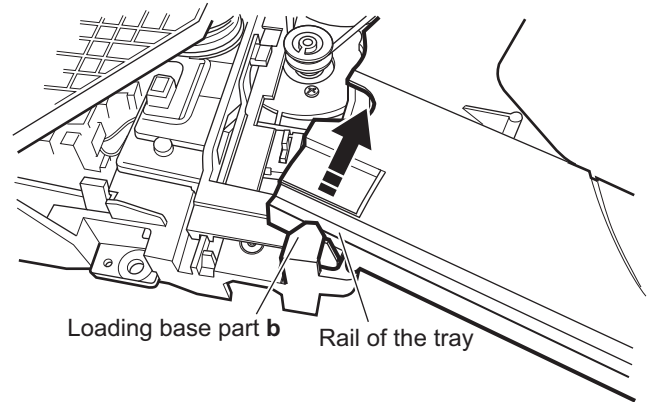


Fig.3-2d

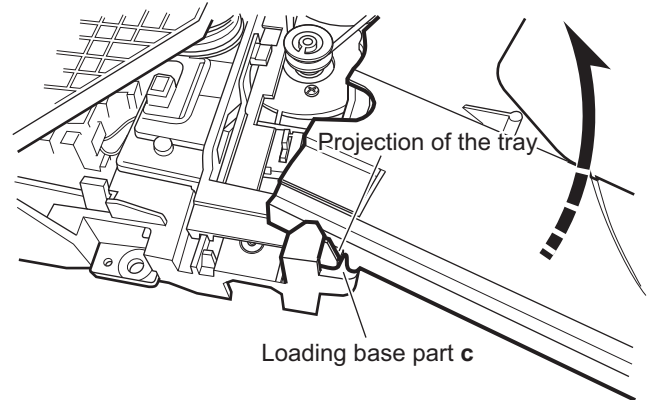


Fig.3-2e

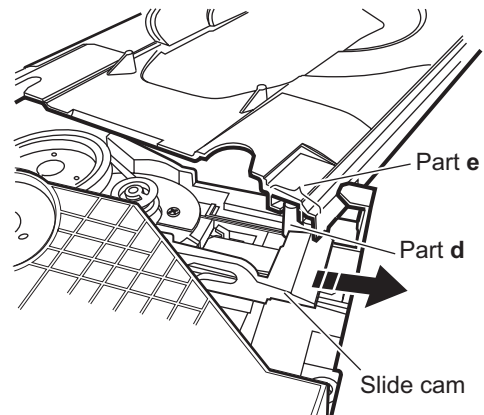


Fig.3-2f

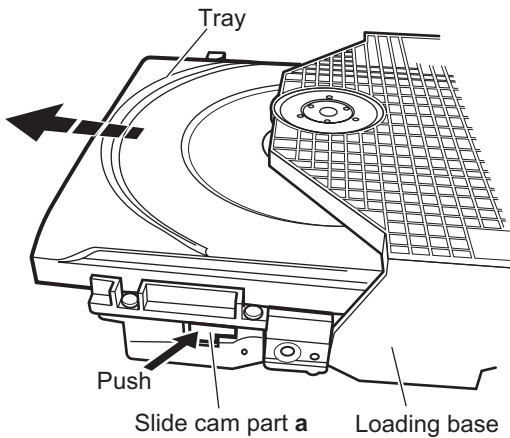


Fig.3-2a

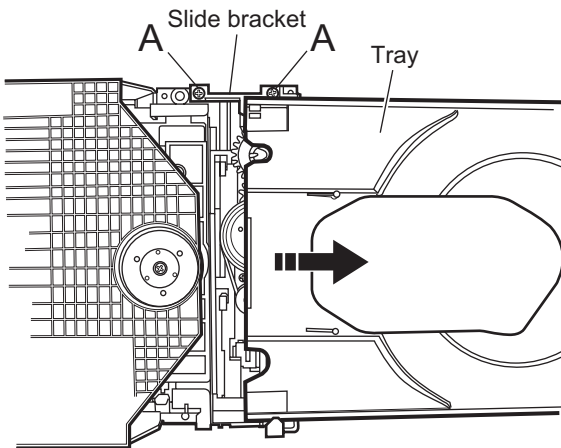


Fig.3-2b

3.2.2 Removing the traverse mechanism assembly (See Figure 3-2g)

Reverse the loading mechanism assembly. Remove the four screws **B** attaching the traverse mechanism assembly. Remove the traverse mechanism assembly upward.

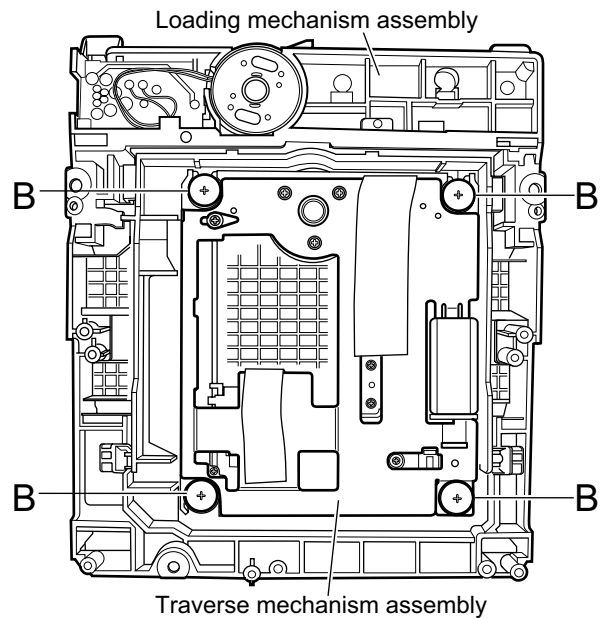


Fig.3-2g

3.2.3 Removing the elevator (See Figure 3-2h and Figure 3-2j)

• Prior to the following procedure, remove the traverse mechanism assembly.

- (1) Remove the two arms of the elevator from the two parts **f** by moving the arms in a direction of the arrow.
- (2) Pull out the elevator in a rear direction.

Attaching the elevator:

Engage the two holes **g** to the two shafts on the front part of the elevator. And then, attach the elevator.

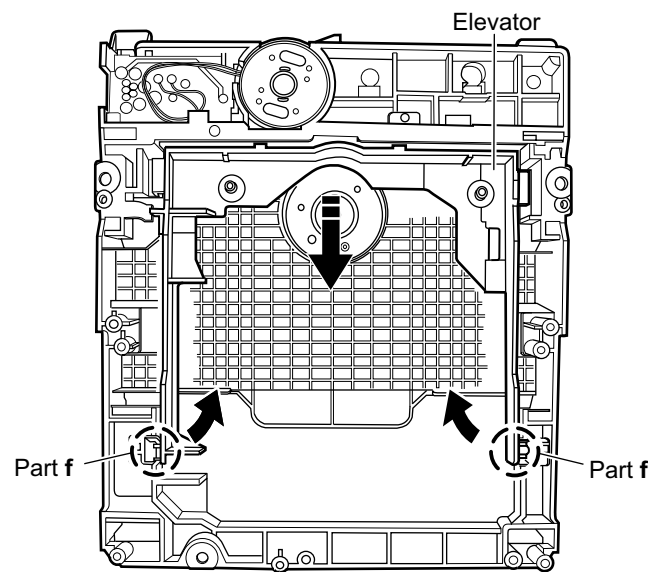


Fig.3-2h

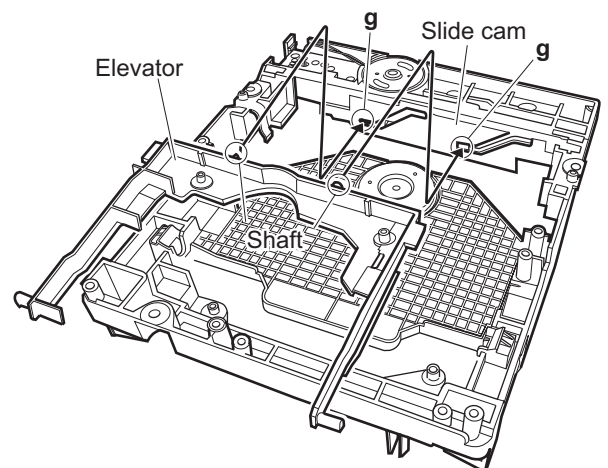


Fig.3-2j

3.2.4 Removing the loading motor (See Figure 3-2k and Figure 3-2l)

- Prior to the following procedure, remove the tray, the traverse mechanism assembly, and the elevator.

- (1) Remove the belt from the pulley.
- (2) Remove two screws **C** attaching the loading motor.
- (3) Remove two solders **h** on the switch board.

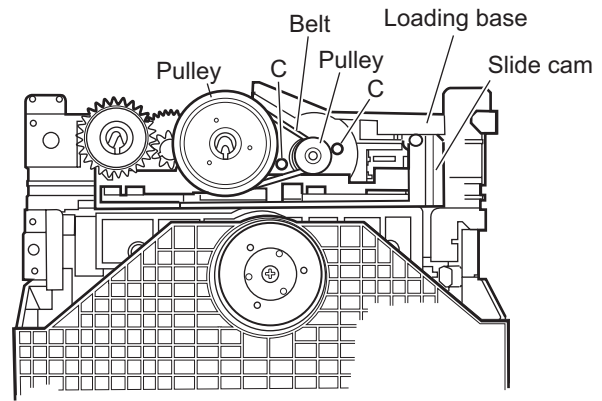


Fig.3-2k

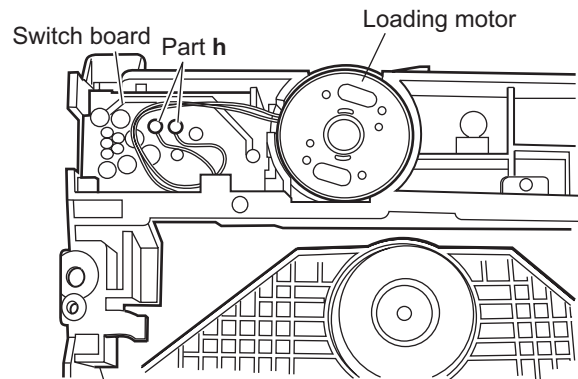


Fig.3-2l

3.3 Traverse mechanism assembly

3.3.1 Removing the pickup (See Figure 3-3a, Figure 3-3b)

- Prior to the following procedure, remove the traverse mechanism assembly.

- (1) Remove one screw **D** attaching the plate.
- (2) Remove the plate and the leaf spring.
- (3) Lift **i** of the shaft 1, and pull out the shaft 1 from **j**.
- (4) Remove **k** of the pickup from the shaft 2.

Attaching the pickup:

- (1) Engage **k** of the pickup to the shaft 2.
- (2) Insert the shaft 1 in **j**, and attach the shaft 1 to **i**.
- (3) Attach the leaf spring, and then attach the plate. Fix the leaf spring and the plate by using the screw **D**.

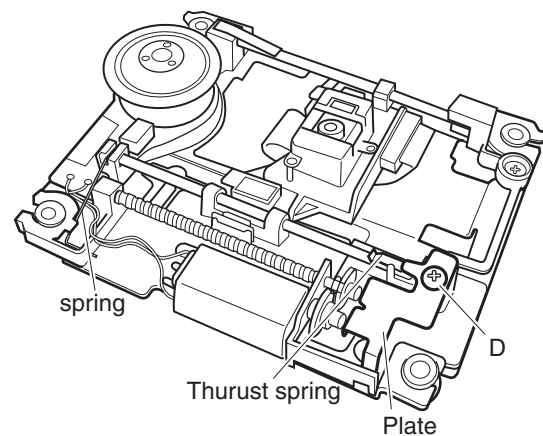


Fig.3-3a

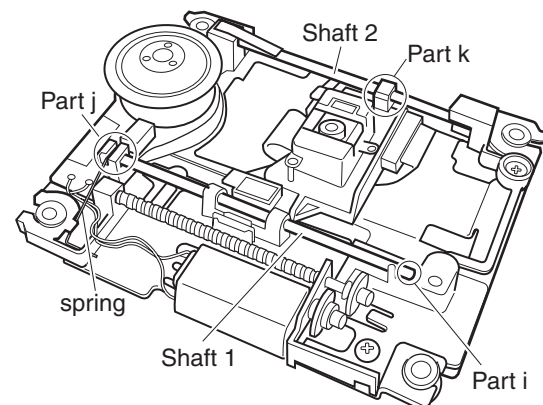


Fig.3-3b

SECTION 4 ADJUSTMENT

4.1 Before adjustment

4.1.1 Precaution

- The adjustments of this unit include the mechanism compatibility and electrical adjustments. During the performance of this work, be sure to observe the precautions for each type of adjustment.
- If there is a reference to a signal input method in the signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.
- Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.

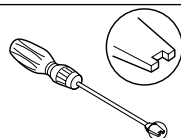
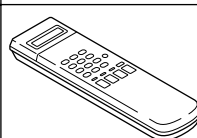
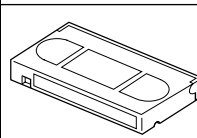
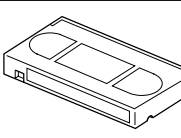
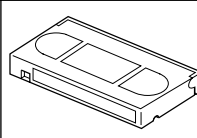
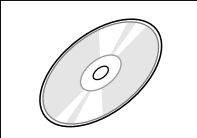
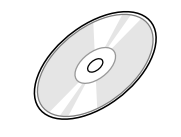
4.1.2 Required test equipments

- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [PAL]
- Recording tape
- Digit-key remote controller(provided)

4.1.3 Required adjustment tools

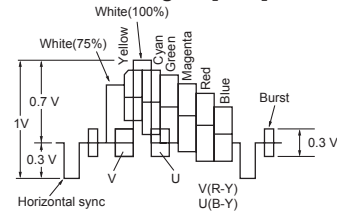
○ : Used --- : Not used

	Mechanism compatibility adjustment	Electrical adjustment
Roller driver	○	---
Jig RCU	---	○
Back tension cassette gauge	○	---
Alignment tape(MHPE)	○	---
Alignment tape(MHPE-L)	○	○
Alignment tape(MHP-L)	---	○

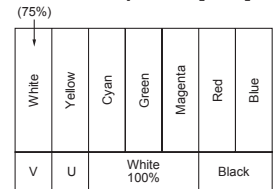
Roller driver PTU94002	Jig RCU PTU94023B	Back tension cassette gauge PUJ48076-2
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	DVD test disc VT-501
		
CD-DA test disc CTS-1000		
		

4.1.4 Color (colour) bar signal, Color (colour) bar pattern

• Colour bar signal [PAL]



• Colour bar pattern [PAL]



4.1.5 Switch settings

When adjusting this unit, set the VCR mode and switches as described below.

- When using the Jig RCU, it is required to set the VCR to the Jig RCU mode. (See "SECTION 2 SPECIFIC SERVICE INSTRUCTIONS")

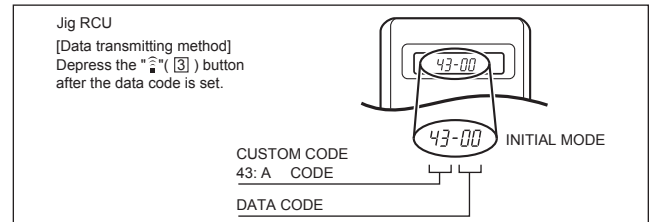


Fig.4-1a Jig RCU [PTU94023B]

- Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.

If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF
BLUE BACK	OFF

4.1.6 Manual tracking mode (Auto tracking ON/OFF) setting

- (1) In order to set to the manual tracking mode during tape playback, press the "TRACKING + and -" button at the same time on the remote control unit.
 - Each press of the button switches the auto tracking ON or OFF.
 - When the manual tracking mode is set, the tracking is placed at the center position.
- (2) Press "TRACKING +/-" to adjust the tracking manually.

4.1.7 EVR Adjustment

Some of the electrical adjustments require the adjustment performed by the EVR system. The main unit have EEPROMs for storing the EVR adjustment data and user setups.

Notes:

- In the EVR adjustment mode, the value is varied with the channel buttons (+, -). The adjusted data is stored when the setting mode changes (from PB to STOP, when the tape speed is changed, etc.). Take care to identify the current mode of each adjustment item when making an adjustment.

4.2 Mechanism compatibility adjustment [VHS SECTION]

Notes:

- Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the A/C head, drum assembly or any part of the tape transport system.
- To prevent damaging the alignment tape in the compatibility adjustment, prepare a cassette tape (for self-recording/playback), perform a test on it by transporting it and making sure that the tape is not bent by the tape transport mechanisms such as in the guide rollers.(See Fig.4-2b.)

4.2.1 Tension pole position

Notes:

- This adjustment must be performed every time the tension band is replaced.

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B1) (B2)	• PB • Eject end
Adjustment part	(F)	• Adjust pin [Mechanism assembly]
Specified value	(G)	• 25 - 51 gfcm ($2.45 - 5 \times 10^{-3}$ Nm)

- (1) Play back the back tension cassette gauge (A).
- (2) Check that the indicated value on the left side gauge is within the specified value (G).
- (3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.(See Fig.4-2a.)
 - a) Remove the top frame, cassette holder and side frames (L/R) all together. (refer to the SERVICE MANUAL No.86700 [MECHANISM ASSEMBLY].)
 - b) Rotate the loading motor gear to move the control plate so that the triangular stamping to the left of the "P" stamping is aligned with the stamping (a) on the main deck. This positioning is mode (B1).
 - c) Adjust by turning the adjustment pin so that the tip of the tension arm is aligned with the stamping (b) on the main deck.
 - d) Rotate the reel disk (S) by about one turn clockwise and make sure that the round hole of the adjustment pin is located in the "OK" range. If it is outside this range, restart the adjustment from the beginning.

After completion of the adjustment, rotate the loading gear motor to return it to the mode (B2) position.

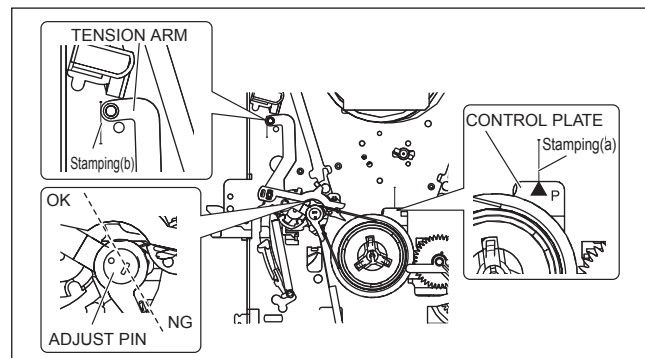


Fig.4-2a

4.2.2 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB, FM)
External trigger	(E)	• TP111 (D,FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

- (1) Play back the alignment tape (A1).
- (2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
- (3) Set the VCR to the manual tracking mode.
- (4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 4-2c.)
- (5) Reduce the V.PB FM waveform by the tracking operation. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear. If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 4-2c.)
- (6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
- (7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
- (8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 4-2b.) [Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

- (9) Repeat steps (1) to (8) by using the alignment tape (A2).

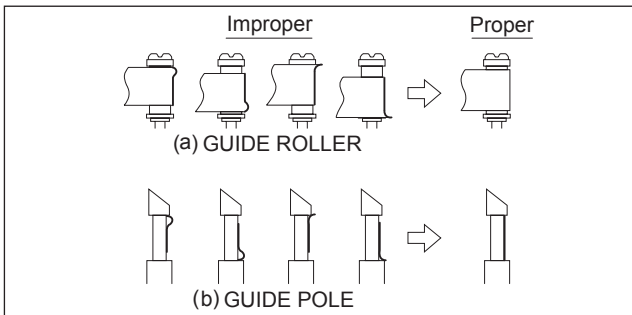


Fig.4-2b

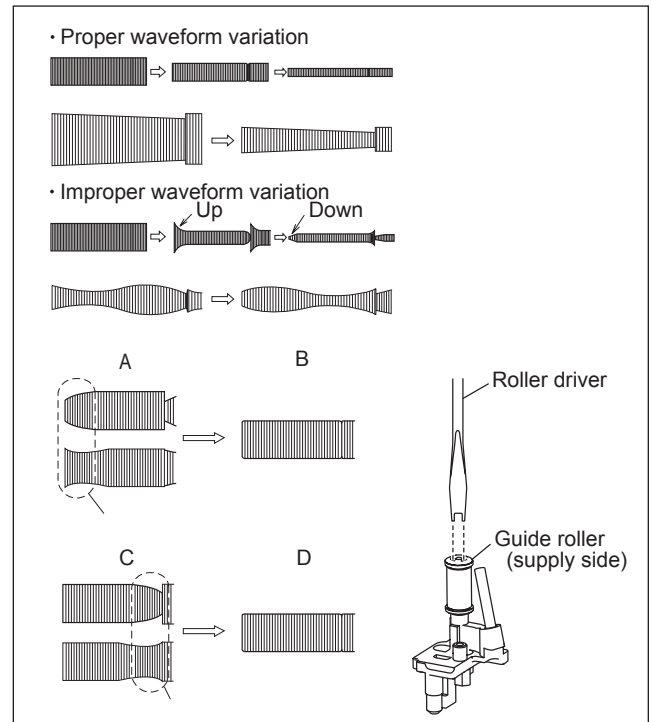


Fig.4-2c

4.2.3 Height and tilt of the A/C head

Note:

- **Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (Refer to the SERVICE MANUAL No.86700 [MECHANISM ASSEMBLY].)**

Signal	(A)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL, P)
External trigger	(E)	• TP111 (D,FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

- (1) Play back the alignment tape (A).
- (2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
- (3) Set the VCR to the manual tracking mode.
- (4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

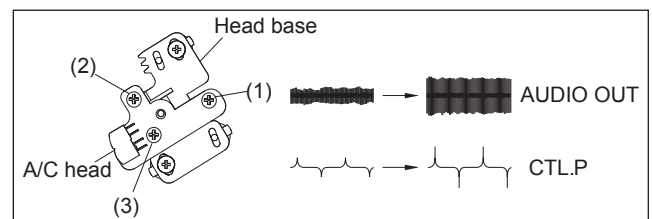


Fig.4-2d

4.2.4 A/C head phase (X-value)

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP,stairstep,PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB, FM)
External trigger	(E)	• TP111 (D,FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

- (1) Play back the alignment tape (A1).
- (2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
- (3) Set the VCR to the manual tracking mode.
- (4) Loosen the screws (4) and (5), then set the Roller driver to the innermost projected part of the A/C head. (See Fig. 4-2e.)
- (5) Rotate the roller driver so that the A/C head comes closest to the capstan. From there, move the A/C head back gradually toward the drum until the point where the FM waveform is maximized for the second time, and then tighten the screws (4) and (5) temporarily.
- (6) Play an alignment tape (A2) and set to the manual-tracking mode.
- (7) Fine-adjust A/C head base position to maximize the FM waveform, and then tighten the screws (4) and (5) firmly.
- (8) Play alignment tapes (A1) and (A2) and confirm that the FM waveforms are maximized when the tracking is at the center position.

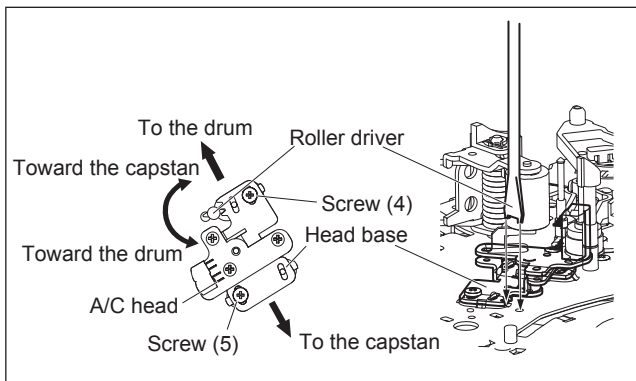


Fig.4-2e

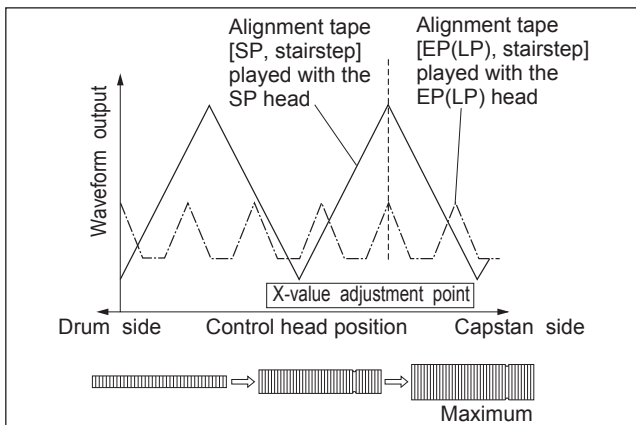


Fig.4-2f

4.3 Electrical adjustment [VHS SECTION]

Note:

The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.

In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

4.3.1 Servo circuit

4.3.1.1 Switching point

Signal	(A1) (A2)	• Stairstep signal • Alignment tape(LP,stairstep,PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• VIDEO OUT terminal (75 ohm terminated) • TP106 (PB, FM)
External trigger	(E)	• TP111 (D,FF)
Adjustment part	(F)	• Jig RCU: Code "43-5A"
Specified value	(G)	• 6.5±0.5H
Adjustment tool	(H)	• Jig RCU [PTU94023B]

- (1) Play back the signal (A1) of the alignment tape (A2).
- (2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
- (3) Set the VCR to the manual tracking mode.
- (4) Adjust tracking so that the V.PB FM waveform becomes maximum.
- (5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
- (6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
- (7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

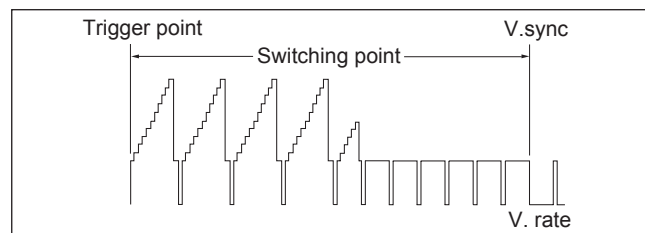


Fig.4-3a Switching point

4.3.1.2 Slow tracking preset

Signal	(A1) (A2)	• Ext. input • Color (colour) bar signal [PAL]
Mode	(B1) (B2)	• VHS SP • VHS LP
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code "43-71" or "43-72"
Specified value	(G)	• minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

- (1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
- (2) Set the VCR to the manual tracking mode.
- (3) Set the VCR to the FWD slow (+1/6x) mode.
- (4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
- (5) Set the VCR to the Stop mode.
- (6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
- (7) Repeat steps (1) to (6) in the mode (B2).

Note:

- For FWD slow (+1/6x) playback, transmit the code “43-08” from the Jig RCU to enter the slow playback mode.

4.3.2 Syscon circuit (EL, ER, EX, EY, EZ MODELS)

Notes:

- When perform this adjustment, remove the Mechanism assembly.

4.3.2.1 Timer clock

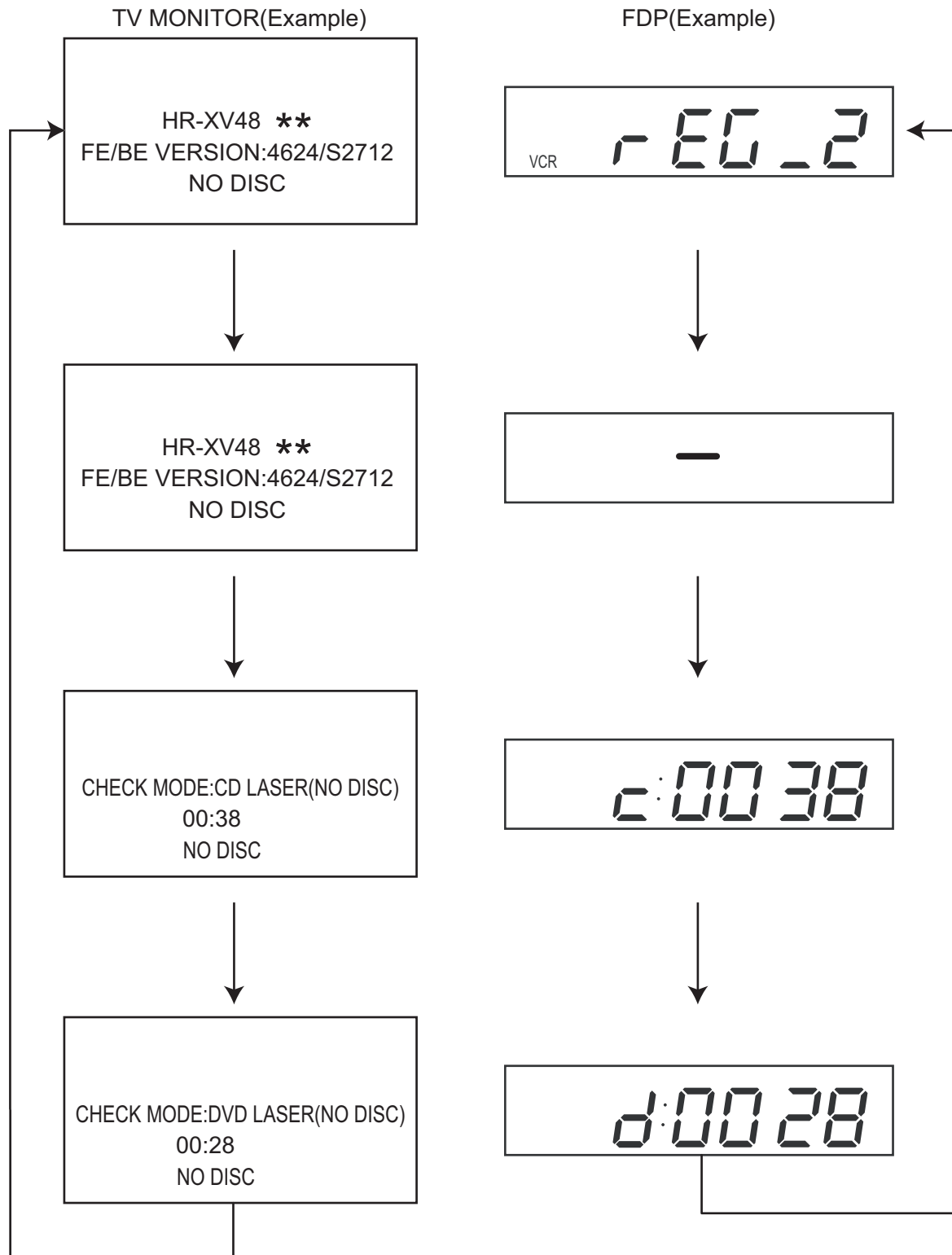
Signal (A1)	• No signal
Mode (B)	• EE
Equipment (C)	• Frequency counter
Measuring point (D1)	• IC3001 pin 61
(D2)	• IC3001 pin 24
(D3)	• C3026 + and -
Adjustment part (F)	• C3025 (TIMER CLOCK)
Specified value (G)	• 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 usec)

- (1) Connect the frequency counter to the measuring point (D1).
- (2) Connect the short wire between the short point (D2) and Vcc (5V).
- (3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the Syscon.
- (4) Disconnect the short wire between the short point (D2) and Vcc then connect it again.
- (5) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).

4.4 Electrical adjustment (DVD SECTION)

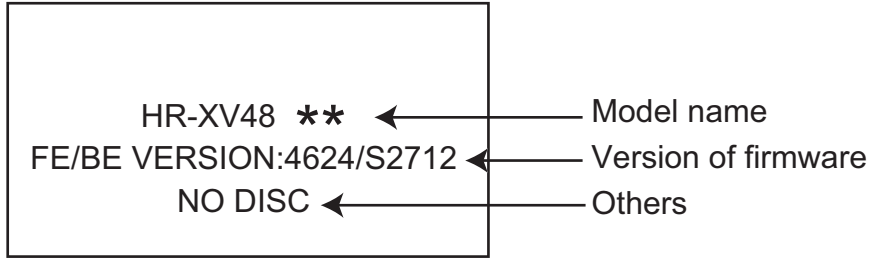
4.4.1 Test mode setting method

- (1) Press POWER button to turn off the unit.
- (2) Press the following remote keys continuously within 2seconds " SET UP " → " 2 " → " 8 " → " ENTER ".
- (3) The unit becomes JIG RCU mode.
- (4) Press POWER button then press VCR/DVD repeatedly so that the DVD indicator lights up.
- (5) Press the POWER button again to turn off the unit.
- (6) Transmit the code "43-FA" from the Jig RCU.
- (7) The power supply of the unit turns on automatically then the FDP shows the region number.
- (8) To release test mode, press POWER button of the front panel.
- (9) Each pressing of DISPLAY (--:--) button of the remote controller in test mode changes the mode as follows.



4.4.2 Method of displayed version of firmware

- (1) Set the unit to the test mode.
- (2) The version number is displayed in the monitor screen.



4.4.3 All-initialization method

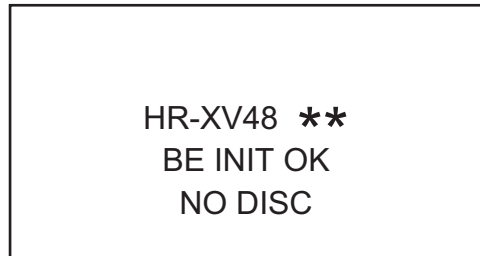
Please perform all-initialization according to the following procedures in the following case:

- Just after you exchange the pick-up.
- Just after you exchange the spindle motor.
- Just after you exchange the traverse mechanism base.

NOTE:

Please perform all-initialization when you exchange the parts above and also when you remove the parts above.

- (1) Set the unit to the test mode.
- (2) Press the REVERSE SKIP/INDEX (⏪) key of the remote controller for more than 2 seconds.
- (3) When initialization is completed, the PLAY (▶) mark is indicated in the FDP.



SECTION 5 TROUBLESHOOTING

5.1 Manually removing the cassette tape

If you cannot remove the cassette tape which is loaded because of any electrical or mechanical failures, manually remove it by taking the following steps.

- (1) Unplug the power cord plug from the power outlet.
- (2) Refer to the disassembly procedure of the VCR and perform the disassembly of the major parts before removing the mechanism assembly. (See Fig. 5-1a)

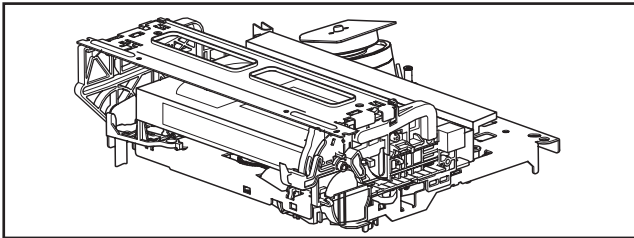


Fig.5-1a

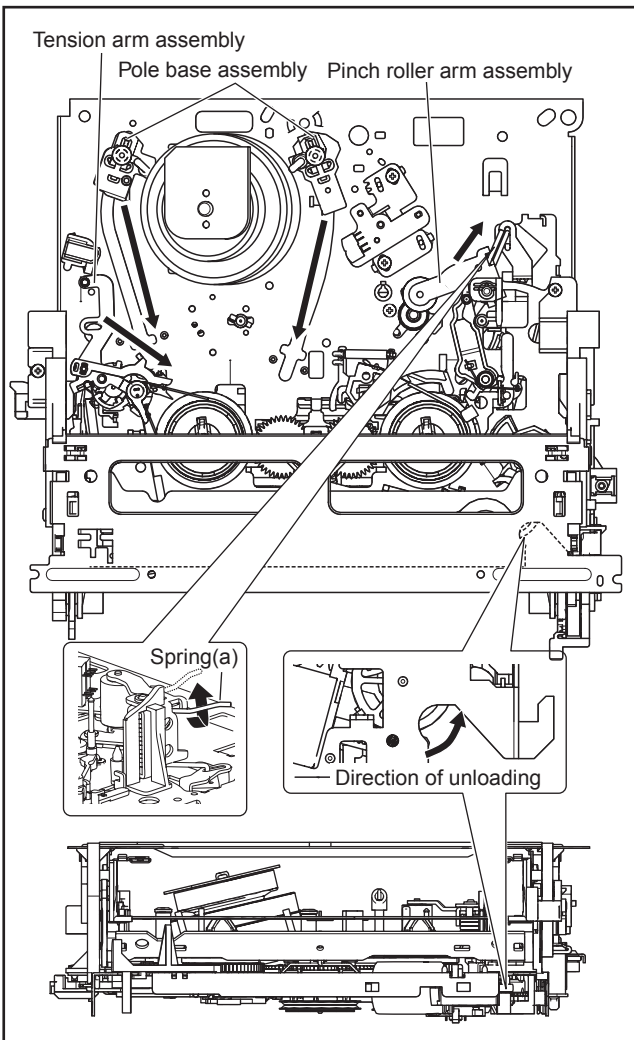


Fig.5-1b

- (3) Unload the pole base assembly by manually turning the gear of the loading motor until the pole base assembly is hidden behind the cassette lid. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.5-1b)

In case of mechanical failures, while keeping the tension arm assembly free from tension, pull out the tape on the pole base assembly. Take the spring(a) of the pinch roller arm assembly off the hook, and detach it from the tape.

- (4) Remove the screw (a) of the side frame (L/R).
- (5) Hold the slack tape and cassette cover together, lift the cassette tape, top frame, cassette holder and side frames (L, R) together from the rear and remove them by dis-engaging the hooks (a) and (b).

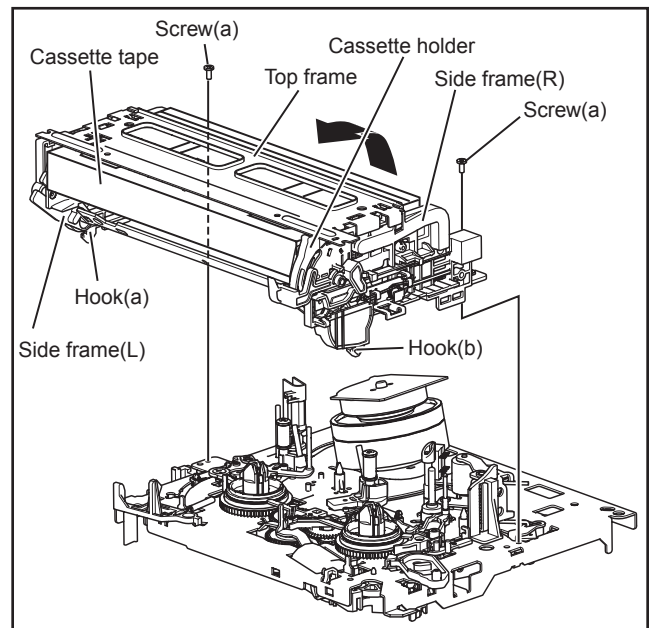


Fig.5-1c

- (6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

5.2 Manually removing the disk(DVD/CD)

If you cannot remove the disk which is loaded because of any electrical or mechanical failures, manually remove it by taking the following steps.

- (1) Unplug the power cord plug from the power outlet.
- (2) Remove the top cover and front panel assembly. (Refer to the disassembly procedure and perform the dis-assembly of the major parts before removing)
- (3) Turn the Middle gear (a) by hand to open the disk tray. (See Fig. 5-2a)

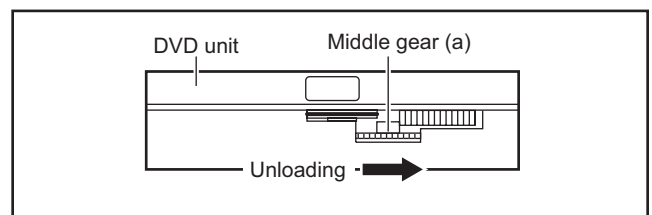


Fig.5-2a

5.3 Emergency display function (VHS SECTION)

This unit saves details of the last two emergencies as the EMG history and allows the status of the VCR and the mechanism of each emergency to be shown both on the display and as OSD information.

When using the emergency function, it is required to set the VCR to the Jig RCU mode.

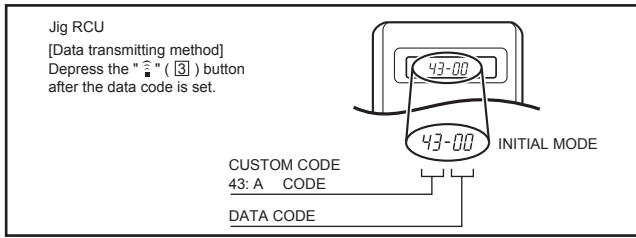


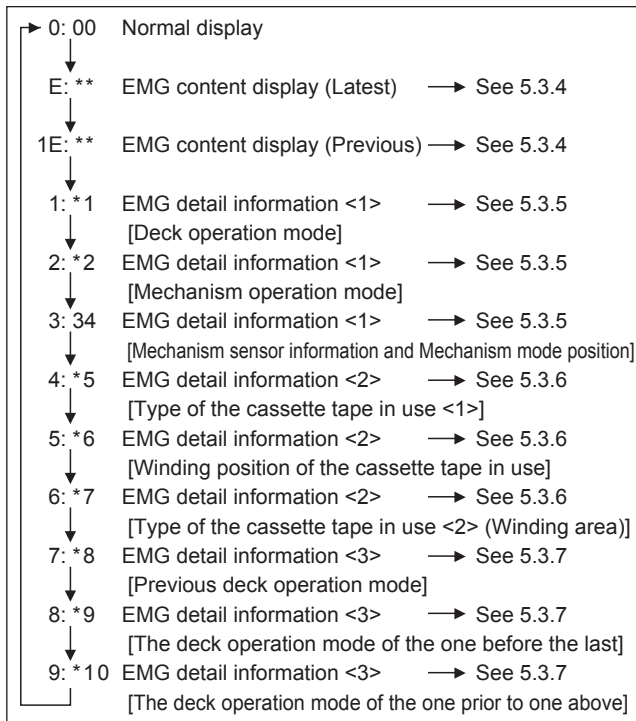
Fig.5-3a Jig RCU [PTU94023B]

5.3.1 Displaying the EMG information

The EMG detail of information can be displayed by transmitting the code "43-59" from the Jig RCU.

Note:

- Press VCR/DVD button on the unit repeatedly first so that the VCR indicator lights up.
- The EMG detail information < 1 > < 2 > show the information on the latest EMG. It becomes " - : - : - : - " when there is no latest EMG record.

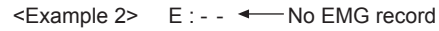
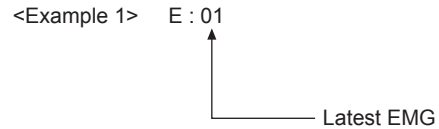


EMG display of 7 FDP display model

Fig.5-3b

EMG display of FDP display mode

- (1) Transmit the code "43-59" from the Jig RCU. The FDP shows the EMG content in the form of "E:**:***".



- (2) Transmit the code "43-59" from the Jig RCU again. The FDP shows the EMG detail information < 1 > in the form of " *1: *2 : 34 ".
 - *1 : Deck operation mode at the moment of EMG
 - *2 : Mechanism operation mode at the moment of EMG
 - 3- : Mechanism sensor information at the moment of EMG
 - 4 : Mechanism mode position at the moment of EMG
- (3) Transmit the code "43-59" from the Jig RCU once again. The FDP shows the EMG detail information < 2 > in the form of " *5 : *6 : *7 ".
 - *5 : Type of the cassette tape in use < 1 > .
 - *6 : Winding position of the cassette tape in use
 - *7 : Type of the cassette tape in use < 2 > (Winding area)
- (4) Transmit the code "43-59" from the Jig RCU once again. The FDP shows the EMG detail information < 3 > in the form of " *8 : *9 : *10 ".
 - *8 : Previous deck operation mode at the moment of EMG
 - *9 : The deck operation mode of the one before the last at the moment of EMG
 - *10: The deck operation mode of the one prior to one above at the moment of EMG
- (5) Transmit the code "43-59" from the Jig RCU once again to reset the display.

5.3.2 Clearing the EMG history

- (1) Display the EMG history.
- (2) Transmit the code "43-36" from the Jig RCU.
- (3) Reset the EMG display.

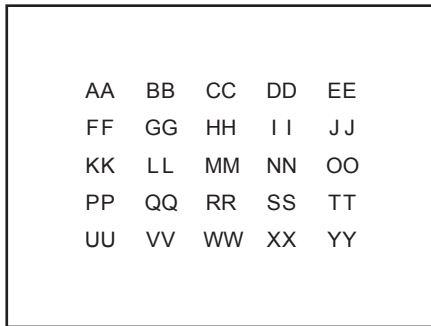
5.3.3 Details of the OSD display in the EMG display mode

During the EMG display, the OSD shows the data on the deck mode, etc. The details of the display contents are as follows.

Notes:

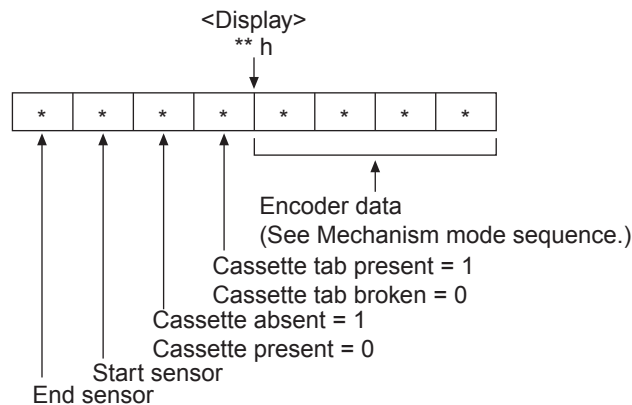
- The display is variable depending on the part No. of the System Control microcomputer (IC3001) built into the VCR. In the following, refer to the figure carrying the same two characters as the top two characters of the part number of your IC.
- The sensor information in the OSD display contents is partially different from the mechanism sensor information in EMG detail information < 1 >.

[For MN* only]

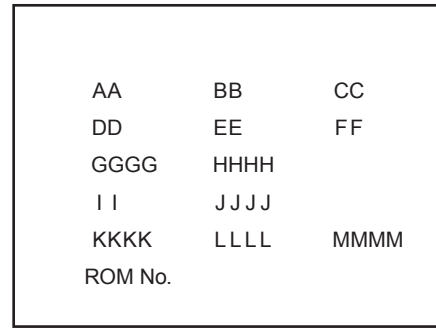


- AA : Deck operation mode (See EMG detail information < 1 >.)
 BB : Mechanism operation mode (See EMG detail of information < 1 >.)
 CC : Mechanism transition flag
 DD : Capstan motor control status
 EE : Loading motor control status
 FF : Sensor information (See sensor information details.)
 GG : Capstan motor speed
 HH : Key code (JVC code)
 II : Supply reel winding diameter data higher 8 bits.
 JJ : Supply reel winding diameter data lower 8 bits.
 KK : Mechanism sensor information & mechanism mode position (See EMG detail of information < 1 >.)
 LL : Tape speed data higher 8 bits.
 MM : Tape speed data lower 8 bits.
 NN : Cassette tape type < 2 > higher 8 bits. (See EMG detail of information < 2 >.)
 OO : Cassette tape type < 2 > lower 8 bits. (See EMG detail of information < 2 >.)
 PP : General data display area
 YY : General data display area

*FF:Sensor information details

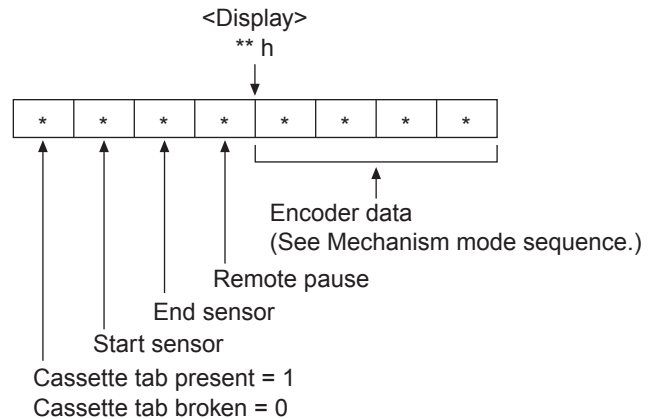


[For *HD only]



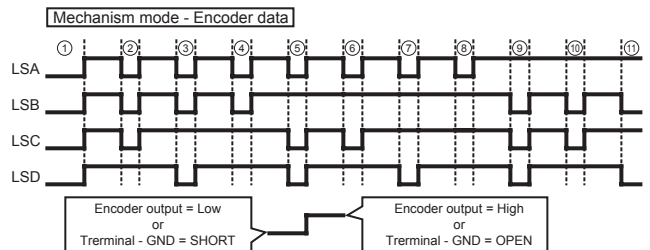
- AA : Key code (JVC code)
 BB : Deck operation mode (See EMG detail information < 1 >.)
 CC : Mechanism operation mode (See EMG detail information < 1 >.)
 DD : Sensor information (See sensor information details.)
 EE : Capstan motor speed (Search, double speed)
 FF : Tracking value
 GGGG : Cassette tape type < 2 >, 16 bits. (See EMG detail information < 2 >.)
 HHHH : Supply reel winding diameter data
 II : Capstan motor speed (FF/REW, double speed)
 JJJJ : Tape speed data, lower 8 bits.
 KKKK : General data display area
 LLLL : General data display area
 MMMM : General data display area

*DD:Sensor information details

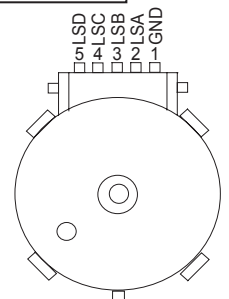


[For both MN*/HD*]

Mechanism mode sequence



No.	Position	Encoder data
①	EJECT	0 h = 0000
②	EJECT1	1 h = 0001
③	EJECT2	2 h = 0010
④	ULSTOP	3 h = 0011
⑤	UPPER	4 h = 0100
⑥	ONSTOP(PLAY)	5 h = 0101
⑦	FWD/SS	6 h = 0110
⑧	REV/SS	7 h = 0111
⑨	OFFSTOP	8 h = 1000
⑩	FFREW-BRAKE	9 h = 1001
⑪	FFREW	A h = 1010
⑫	MIDDLE	F h = 1111



5.3.4 EMG content description

Note:

EMG contents "E09" are for the model with Dynamic Drum (DD).

FDP	CONTENT	CAUSE
E01: Loading EMG	If the mechanism mode does not change to the next mode within 4 seconds after the loading motor starts rotating in the loading direction, while the mechanism is in the after-loading position (with the tape up against the pole base), [E:01] is identified and the power is switched OFF. However, if the tape loading is not completed within 4 seconds after the loading motor starts rotating in the loading direction, the tape is simply unloaded and ejected. No EMG data is recorded in this case.	<ol style="list-style-type: none"> The mechanism is locked in the middle of the mode transition during a tape loading operation. The mechanism overruns during the tape loading operation because the SYSCON cannot recognize the mechanism mode normally. This problem is due to a cause such as a rotary encoder failure. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	<ol style="list-style-type: none"> The mechanism is locked in the middle of mode transition. Without an eject signal being sent from the SYSCON, unloading is attempted (i.e. Ejection is attempted while the tape is still inside the mechanism.) because the SYSCON cannot recognize the mechanism mode normally. This is due to a cause such as a rotary encoder failure. (Mechanism position: UPPER) Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E03: Take Up Reel Pulse EMG	When the falling edge of the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. In this case, however, the mechanism should be in position after tape loading. Note that the reel EMG is not detected during Slow/Frame advance operations.	<ol style="list-style-type: none"> The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; <ol style="list-style-type: none"> The idler gear is not meshed with the take-up reel gear because the mechanism mal-functions for some reason. The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); The reel is rotating normally but an FG pulse is not generated due to the take-up reel sensor failure. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; <ol style="list-style-type: none"> The idler gear is not meshed with the supply reel gear because the mechanism mal-functions for some reason. The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); The reel rotates normally but the FG pulse is not generated due to a supply reel sensor failure. Power(SW5V) is not supplied to the reel sensor on the tape winding side.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	<ol style="list-style-type: none"> The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; <ol style="list-style-type: none"> The tape tension is abnormally high; The tape is damaged or a foreign object (grease, etc.) adheres to the tape. The drum FG pulse did not reach the System controller CPU because; <ol style="list-style-type: none"> The signal circuit is disconnected in the middle; The FG pulse generator (hall device) of the drum is faulty. The drum control voltage (DRUM CTL V) is not supplied to the MDA. Power (M12V) is not supplied to the drum MDA.
E05: Cassette Eject EMG	If the cassette does not reach the eject position within about 0.7 seconds after the cassette housing has started the cassette ejection operation, [E:05] is identified, the drive direction is reversed to load the tape, the mode is switched to STOP mode with the pinch roller OFF, and the power is switched OFF. During the cassette insertion process, the drive direction is reversed and the cassette is ejected if the tape is not up against the pole base within about 3 seconds after the start of the cassette pulling-in operation. If the cassette does not reach the eject position within about 0.7 seconds after the drive mode reversal operation, [E:05] is identified and the power is switched OFF immediately.	<ol style="list-style-type: none"> The cassette cannot be ejected due to a failure in the drive mechanism of the housing. When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. The sensor/switch for detecting the end of ejection are not functioning normally. The loading motor drive voltage is lower than specified or power (M12V) is not supplied to the motor (MDA). When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off. However, the capstan EMG is not detected in SLOW/STILL modes. Note that, if the part number of the System Control IC begins with "MN" or "M3", the capstan EMG is not detected even during the FF/REW operation.	<ol style="list-style-type: none"> The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; <ol style="list-style-type: none"> The tape tension is abnormally high (mechanical lock); The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). The capstan FG pulse did not reach the System controller CPU because; <ol style="list-style-type: none"> The signal circuit is disconnected in the middle; The FG pulse generator (MR device) of the capstans is faulty. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. Power (M12V, SW5V) are not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	<ol style="list-style-type: none"> The SW 5 V power supply circuit is shorted with GND. The SW 12 V power supply circuit is shorted with GND.
E08: DVD EMG	When communication with a system computer of VHS side is not carried out because of the defective DVD unit, or when the DVD unit must be reset	<ol style="list-style-type: none"> The DVD unit is defective. Contact failure of the wires in the DVD unit or VHS side.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	<ol style="list-style-type: none"> The FG sensor is defective. (The soldered parts have separated.) The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. The power (5V) to the sensor is not supplied. (Connection failure/soldering failure) The FG pulse is not sent to the System Controller CPU. The tilt motor is defective. (The soldered parts have separated.) The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) The tilt motor drive MDA - IC is defective. Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the falling edge of the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). In this case, however, the mechanism should be in the position after tape loading (with the tape up against the pole base). Also note that the reel EMG is not detected during Slow/Frame advance operations.	<ol style="list-style-type: none"> The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; <ol style="list-style-type: none"> PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; The reel is rotating normally but the FG pulse is not generated due to a supply reel sensor failure. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). <ol style="list-style-type: none"> REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the take up will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; The reel is rotating normally but the FG pulse is not generated due to a take-up reel sensor failure. The power (SW 5V) to a reel sensor is not supplied.
EU1: Head clog warning history	<p>Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:U1] is identified and recorded in the emergency history. During the period in which the head clog is detected, the FDP shows "U:01" and the OSD repeats the "3 seconds of warning display" and the "7 seconds of noise picture display" alternately.</p> <p>EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette."</p> <p>The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.</p>	

5.3.5 EMG detail information < 1 >

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest EMG can be confirmed based on the figure in EMG detail information < 1 > .

[FDP/OSD display] *1 : *2 : 34

- *1 : Deck operation mode at the moment of EMG
- *2 : Mechanism operation mode at the moment of EMG
- 3- : Mechanism sensor information at the moment of EMG
- 4 : Mechanism mode position at the moment of EMG

Note:

- For EMG detailed information < 1 >, the content of the code that is shown on the display (or OSD) differs depending on the parts number of the system control microprocessor (IC3001) of the VCR. The system control microprocessor parts number starts with two letters, refer these to the corresponding table.

*1 : Deck operation mode

[Common table of MN* and HD]

Display		Deck operation mode
MN*	HD*	
00	-	Mechanism being initialized
01	00	STOP with pinch roller pressure off (or tape present with P.OFF)
02	01	STOP with pinch roller pressure on
03	-	POWER OFF as a result of EMG
04	04	PLAY (Normal playback)
0C	0E	REC
10	11	Cassette ejected
20	22	FF
21	-	Tape fully loaded, START sensor ON, short FF
22	-	Cassette identification FWD SEARCH before transition to FF (SPx7-speed)
24	26	FWD SEARCH (variable speed) including x2-speed
2C	2E	INSERT REC
40	43	REW
42	-	Cassette identification REV SEARCH before transition to REW (SPx7-speed)
44	47	REV SEARCH (variable speed)
4C	4C	AUDIO DUB
6C	6E	INSERT REC (VIDEO + AUDIO)
84	84	FWD STILL / SLOW
85	85	REV STILL / SLOW
8C	8F	REC PAUSE
8D	-	Back spacing
8E	-	Forward spacing (FWD transport mode with BEST function)
AC	AF	INSERT REC PAUSE
AD	-	INSERT REC back spacing
CC	CD	AUDIO DUB PAUSE
CD	-	AUDIO DUB back spacing
EC	EF	INSERT REC (VIDEO + AUDIO) PAUSE
ED	-	INSERT REC (VIDEO + AUDIO) back spacing

*2 : Mechanism operation mode

[Table of MN*]

Display	Mechanism operation mode
00	Command standby (No command to be executed)
01	Immediate Power OFF after EMG occurrence
02	Loading from an intermediate position during mechanism initialization
03	Unloading due to EMG occurrence during mechanism initialization
04	Ejecting cassette (ULSTOP to EJECT)
05	Inserting cassette (EJECT to ULSTOP)
06	Loading tape (ULSTOP to PLAY)
07	Unloading tape (PLAY to ULSTOP)
08	Transition from pinch roller ON to STOP
09	Transition from pinch roller OFF to STOP (PLAY to OFFSTOP)
0A	Transition from pinch roller OFF to STOP at power OFF
0B	Transition from pinch roller ON to STOP at power ON
0C	Transition to PLAY
0D	Transition to Search FF
0E	Transition to REC
0F	Transition to FWD STILL/SLOW
10	Transition to REV STILL/SLOW
11	Transition to Search REV
12	Transition from FF/REW to STOP
13	Transition to FF
14	Transition to REW
15	Tape end detection processing during loading
16	Short FWD/REV at tape sensor ON during unloading
17	Transition to FF/REW brake mode

[Table of HD*]

Display	Mechanism operation mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY (Normal playback)
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC, etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)
FF	Tape being unloaded

3 : Mechanism sensor information

[Common table of MN* and HD*]

Display	Mechanism sensor information			
	REC safety SW	Start sensor	End sensor	Mechanism position sensor
0-	Tab broken	ON	ON	ON
1-	Tab broken	ON	ON	OFF
2-	Tab broken	ON	OFF	ON
3-	Tab broken	ON	OFF	OFF
4-	Tab present	OFF	ON	ON
5-	Tab present	OFF	ON	OFF
6-	Tab present	OFF	OFF	ON
7-	Tab present	OFF	OFF	OFF
8-	Tab broken	ON	ON	ON
9-	Tab broken	ON	ON	OFF
A-	Tab broken	ON	OFF	ON
B-	Tab broken	ON	OFF	OFF
C-	Tab present	OFF	ON	ON
D-	Tab present	OFF	ON	OFF
E-	Tab present	OFF	OFF	ON
F-	Tab present	OFF	OFF	OFF

Tab broken = 0 Sensor ON = 0 Sensor ON = 0
 Tab present = 1 sensor OFF = 1 Sensor OFF = 1

-4 : Mechanism mode position

[Common table of MN* and HD*]

Mechanism sensor information	Display	Deck operation mode	
Even number (0, 2, 4, 6, 8, A, C, E)	-0	Not established	
	-1	EJECT	EJECT position
	-2	EJECT-EJECT1	Intermodal position
	-3	EJECT1	EJECT1 position
	-4	EJECT1-EJECT2	Intermodal position
	-5	EJECT2	EJECT2 position
	-6	EJECT2-ULSTOP	Intermodal position
	-7	ULSTOP	ULSTOP position
	-8	ULSTOP-UPPER	Intermodal position
	-9	UPPER	Loading (unloading) tape
	-A	UPPER-ONSTOP	Intermodal position
	-B	ONSTOP	PLAY position
	-C	PLAY-FWD/SS	Intermodal position
	-D	FWD/SS	FWD (FWD Still/Slow) position
	-E	FWD/SS-REV	Intermodal position
	-F	REV	REV (REV Still/Slow) position
Odd number (1, 3, 5, 7, 9, B, D, F)	-0	REV-OFFSTOP	Intermodal position
	-1	OFFSTOP	Pinch roller OFF position
	-2	OFFSTOP-FFREWB	Intermodal position
	-3	FFREWB	FF/REW Brake position
	-4	FFREWB-FFREW	Intermodal position
-5	FFREW	FF/REW position	

5.3.6 EMG detail information < 2 >

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information < 2 > .

Note:

- **EMG detail information < 2 > is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.**

*5 : Cassette tape type < 1 >

Display	Cassette tape type <1>
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:

- **Cassette tape type < 1 > is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.**
- **If other value than those listed in the above table is displayed, the cassette tape type is not identified.**

*6 : Cassette tape winding position

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 21 sections using a hex number from "00" to "14".

00 : End of winding
 14 : Beginning of winding
 FF : Tape position not identified

*7 : Cassette tape type < 2 > (Winding area)

Display	Cassette tape type <2>	(Reference) Word data (Beginning) (End)
00	Cassette type not identified	
04 - 08	C cassette, thick tape TC-10	(0497 - 0506) (0732 - 0858)
05 - 06	Small reel, thick tape T-20	(05A9 - 0661)
05 - 0C	C cassette, thick tape TC-20P	(0599 - 05FF) (0AA1 - 0C07)
06 - 0C	C cassette, thin tape TC-40	(0623 - 063D) (0C41 - 0CC3)
06 - 0C	C cassette, thin tape TC-30	(0611 - 0638) (0C0C - 0CB2)
07 - 08	Small reel, thick tape T-40	(07CC - 08E5)
09 - 0B	Small reel, thick tape T-60	(09FD - 0B78)
0C - 0D	Small reel, thick tape T-80(DF-160)	(0C20 - 0DFC)
0D - 0F	Small reel, thick tape T-90(DF-180)	(0D31 - 0F3E)
0E - 10	Small reel, thick tape T-100	(0E43 - 107F)
10 - 12	Small reel, thin tape T-140	(10E1 - 120C)
10 - 13	Small reel, thick tape T-120(DF-240)	(1073 - 1313)
11 - 14	Small reel, thick tape T-130	(1185 - 1429)
12 - 14	Small reel, thin tape T-160	(12D3 - 141F)
13 - 14	Small reel, thin tape T-210(DF-420)	(1373 - 14C3)
13 - 14	Small reel, thin tape T-180(DF-360)	(1357 - 14C0)
13 - 14	Small reel, thin tape T-168	(1395 - 14EE)
13 - 14	Small reel, thick tape DF-300	(13A8 - 14CE)
15 - 16	Large reel T-20	(1536 - 1618)
16 - 17	Large reel T-30	(1647 - 175A)
17 - 18	Large reel T-40	(1759 - 189C)
19 - 1B	Large reel T-60	(1989 - 1B2F)

Note:

- **The values of cassette tape type < 2 > in the above table are typical values with representative cassette tapes.**

5.3.7 EMG detail information < 3 >

Three deck operation modes preceding the deck operation mode in which the EMG occurs may be confirmed based on the figures in the EMG information detail < 3 > . For the contents of the displayed information, see the table "Deck operation mode" in section "5.3.5 EMG detail information < 1 >".



JVC

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(No.YD051)



Printed in Japan
VPT

PARTS LIST

[HR-XV48EF,HR-XV48EK,HR-XV48EL,HR-XV48ER,
HR-XV48EX,HR-XV48EY,HR-XV48EZ]

* SAFETY PRECAUTION

Parts identified by the \triangle symbol are critical for safety. Replace only with specified part numbers.

* BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

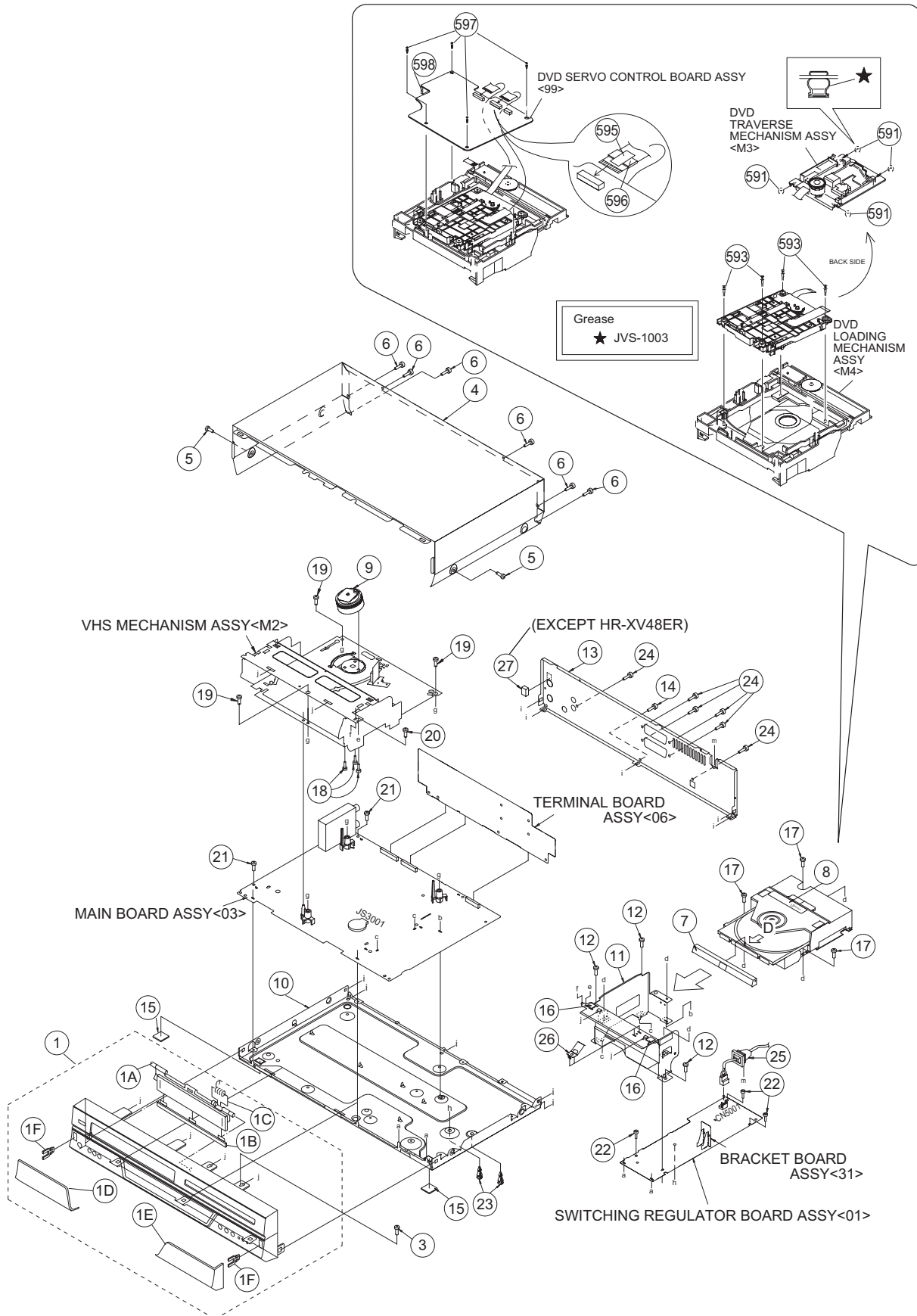
* (x_) in a description column shows the number of the used part.

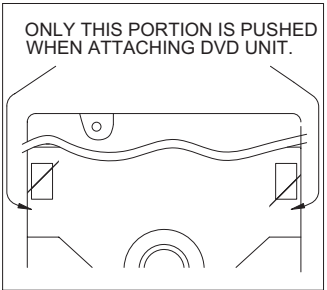
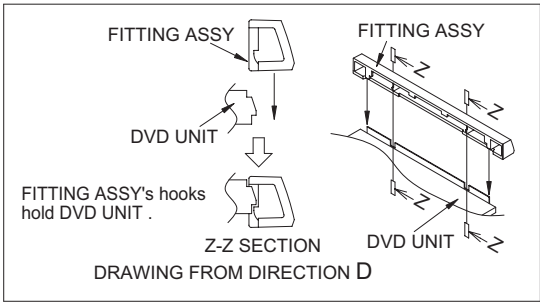
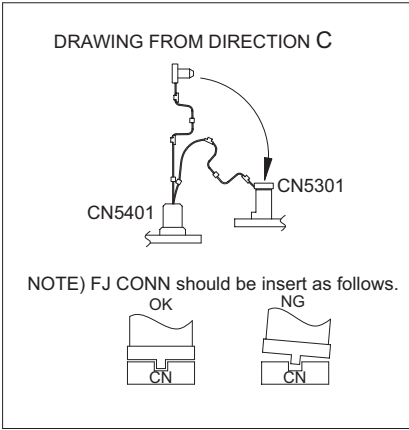
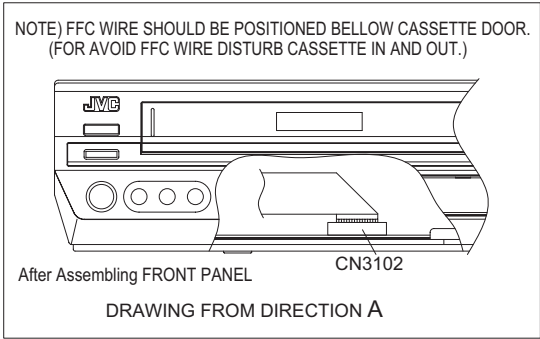
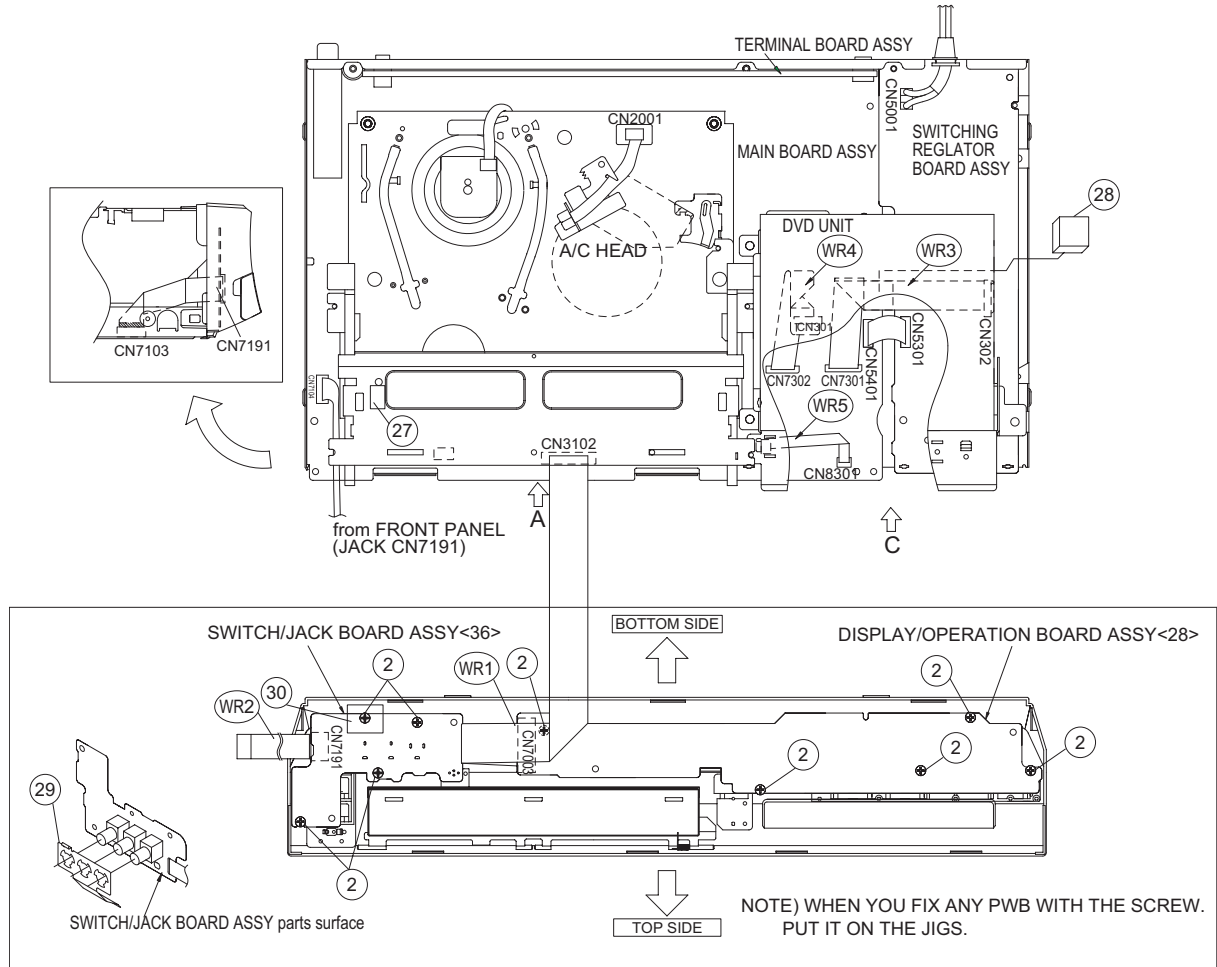
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Exploded view of general assembly and parts list

Block No. M1MM





MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

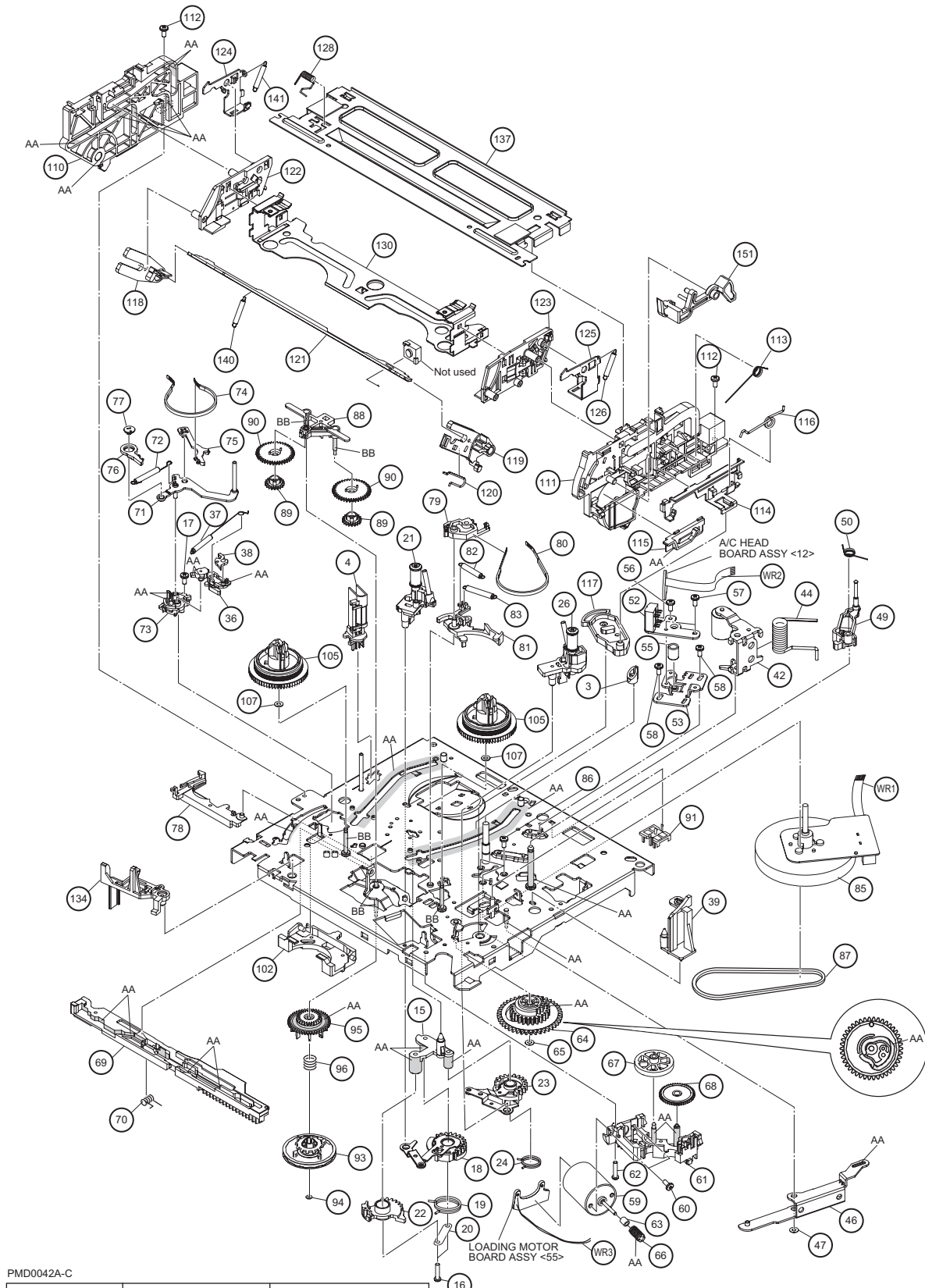
General assembly

Block No. [M][1][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
△ 1	LP10490-025C	FRONT PANEL ASSY		A
△ 1	LP10490-024C	FRONT PANEL ASSY		B
△ 1	LP10490-026C	FRONT PANEL ASSY		D
△ 1	LP10490-023C	FRONT PANEL ASSY		C,E,F,G
1A	LP21181-001A	CASSETTE DOOR		
1B	LP31271-006B	ORNAMENT(CASSETTE DOOR)		
1C	PQ46448	TORSION SPRING		
1D	LP21191-025A	DOOR(L)		A
1D	LP21191-024A	DOOR(L)		B
1D	LP21191-026A	DOOR(L)		D
1D	LP21191-023A	DOOR(L)		C,E,F,G
1E	LP21192-008A	DOOR(R)		
1F	PU60109	CATCHER	(x2)	
2	QYDSF2608ZA	TAP SCREW	M2.6 x 8mm DISPLAY/OPERATION SWITCHII/JACK(x9)	
3	LP31391-001A	SPECIAL SCREW	FRONT PANEL	
△ 4	LP10488-006A	TOP COVER		
5	QYSBSG3006NA	TAP SCREW	M3 x 6mm TOP SIDE(x2)	
6	QYSBSG3006NA	TAP SCREW	M3 x 6mm TOP REAR(x6)	
7	LP31261-001A	FITTING ASSY		
△ 8	LP41077-001A	LABEL(CAUTION)		
9	PDV2541A	DRUM FINAL ASSY		A
9	PDV2539B	DRUM FINAL ASSY		B,C,D,E,F,G
△ 10	LP10489-001B	BOTTOM CHASSIS		
11	LP21177-001B	BRACKET(DVD)		
12	LP31391-001A	SPECIAL SCREW	BRACKET(DVD)(x3)	
△ 13	LP21178-021A	REAR COVER		D
△ 13	LP21178-020A	REAR COVER		A,B,C,E,F,G
14	QYSBSG3006MA	TAP SCREW	M3 x 6mm REAR COVER	
15	LP31348-001A	FOOT	(x2)	
16	LP30002-0E5A	SPACER	(x2)	
17	QYSBSG3010ZA	TAP SCREW	M3 x 10mm DVD UNIT(x3)	
18	QYSPSPD3008ZA	SCREW	M3 x 8mm DRUM(x3)	
19	LP31391-002A	SPECIAL SCREW	MECHANISM(x3)	
20	LP31391-001A	SPECIAL SCREW	HOUSING	
21	LP31391-001A	SPECIAL SCREW	MAIN(x2)	
22	LP31391-001A	SPECIAL SCREW	SWITCHING REGULATOR(x3)	
23	LP40696-008A	HOLDER(PWB)	(x2)	
24	QYDSF3008MA	TAP SCREW	M3 x 8mm JACK COVER(x6)	
△ 25	QMP51K0-170-K	POWER CORD	1.7m BLACK	B
△ 25	QMP4A10-170-K	POWER CORD	1.7m BLACK	A,C,D,E,F,G
26	PQ44695-1-1	EARTH PLATE		
27	LP41107-002A	GASKET		D
27	LP41107-002A	GASKET	(x2)	A,B,C,E,F,G
28	LP30002-0K2A	SPACER		
29	LP31337-001B	EARTH PLATE		
30	LP30002-0F8A	SPACER		
591	LE40900-003A	INSULATOR	(x4)	
593	LE40901-001A	SPECIAL SCREW	(x4)	
595	LP30002-0F6A	SPACER		
596	QQR1634-001	FERRITE CORE		
597	QYDSF2608ZA	TAP SCREW	FOR MODULE(x4)	
598	LE30001-034A	SPACER		
WR1	QUQ112-2212CG	FFC WIRE	DISPLAY/OPERATION CN7003-MAIN CN3102	
WR2	QUQ112-1010CG	FFC WIRE	SWITCH/JACK CN7191-MAIN CN7104	
WR3	QUQ210-1918CC	FFC WIRE	DVD UNIT CN302-MAIN CN7301	
WR4	QUQ210-1714CC	FFC WIRE	DVD UNIT CN301-MAIN CN7302	
WR5	QUQ210-0510CC	FFC WIRE	DVD UNIT CN1-MAIN CN8301	

VHS mechanism assembly and parts list

Block No. M2MM



PMD0042A-C

Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-JB	AA
Oil	COSMO-HV56	BB

NOTE:The section marked in **AA** and **BB** indicate lubrication and greasing areas.

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

VHS mechanism

Block No. [M][2][M][M]

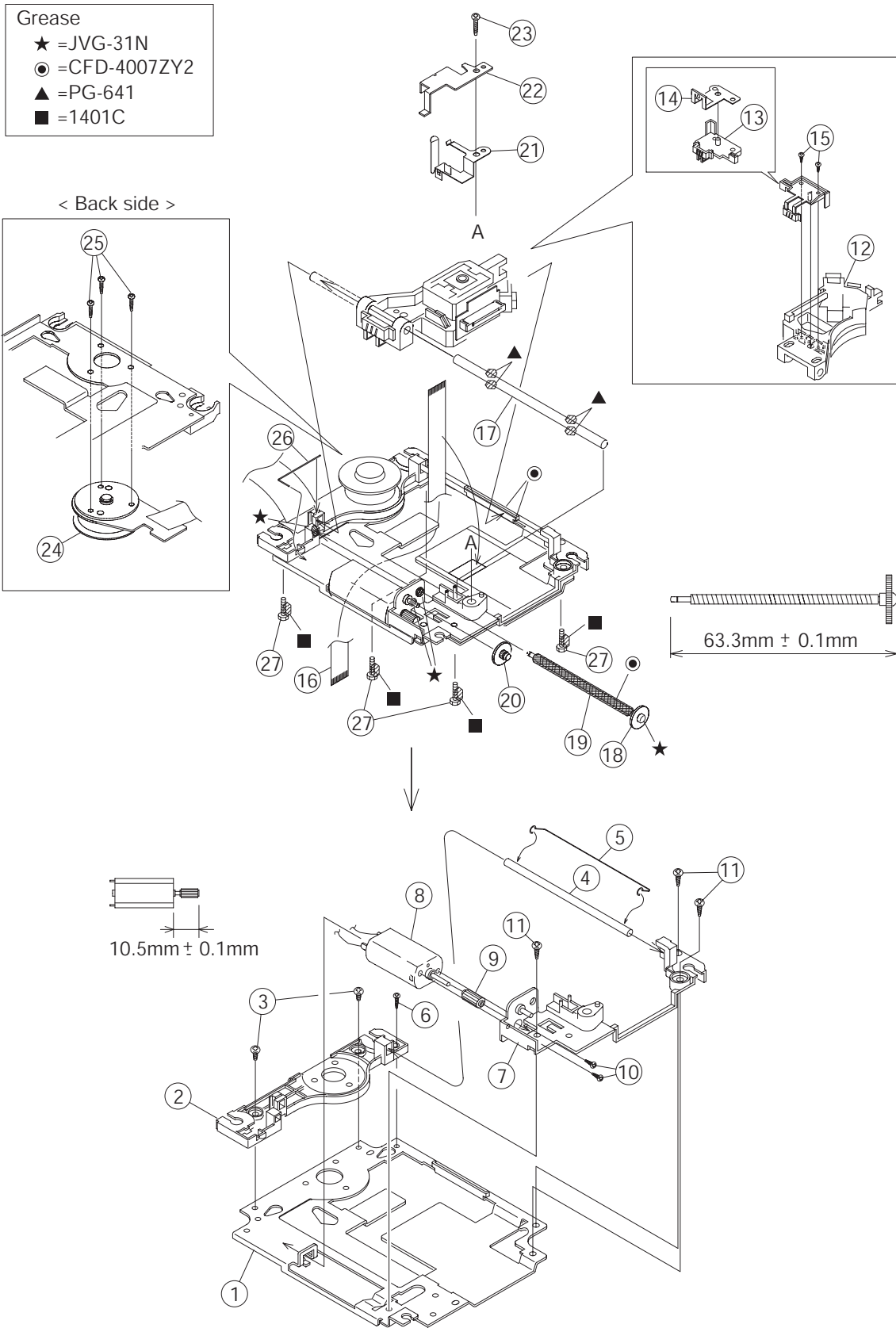
△ Symbol No.	Part No.	Part Name	Description	Local
3	LP40097-002E	GUIDE POLE CAP		
4	QAH0082-001	FULL ERASE HEAD		
15	LP30958-001B	LOADING GEAR BASE		
16	QYTPST2620ZA	TAP SCREW	M2.6 x 20mm(x2)	
17	QYTDST2606ZA	TAP SCREW	M2.6 x 6mm	
18	LP40798-002A	LOADING GEAR(SUPPLY) ASSY		
19	LP40837-001A	TORSION SPRING(SUPPLY)		
20	LP40903-004A	FIXING PLATE		
21	LP40806-001D	POLE BASE ASSY(SUPPLY)		
22	LP30959-001B	LOADING GEAR		
23	LP40802-002A	LOADING GEAR(TAKE UP) ASSY		
24	LP40838-001A	TORSION SPRING(TAKE UP)		
26	LP40808-001E	POLE BASE ASSY(TAKE UP)		
36	LP21055-001G	TAKE UP LEVER		
37	LP40943-001A	TENSION SPRING		
38	LP40859-001D	T-UP HEAD		
39	LP30961-001C	LID GUIDE		
42	LP40810-003A	PINCH ROLLER ARM ASSY		
44	LP40840-001E	TORSION SPRING		
46	LP30963-002A	PRESS LEVER		
47	PQM30017-24	SLIT WASHER		
49	LP40813-001D	GUIDE ARM ASSY		
50	LP40841-001A	TORSION SPRING		
52	NAH0005-001	AC HEAD		
53	LP30965-003A	HEAD BASE		
55	LP40842-001D	COMPRESSION SPRING		
56	QYTDST2006MA	TAP SCREW	M2 x 6mm	
57	LP41036-002A	A/C ADJ.SCREW	(x2)	
58	QYTDST2606ZA	TAP SCREW	M2.6 x 6mm(x2)	
59	QAR0289-001	LOADING MOTOR		
60	QYTPSP3003ZA	SCREW	M3 x 3mm(x2)	
61	LP21056-002J	MOTOR BRACKET		
62	QYTPST2620ZA	TAP SCREW	M2.6 x 20mm	
63	LP40814-001B	WORM BEARING		
64	LP21044-001E	CONTROL CAM		
65	PQM30017-24	SLIT WASHER		
66	LP40815-001A	WORM GEAR		
67	LP40816-001B	HELICAL GEAR		
68	LP40817-001A	CONNECT GEAR		
69	LP10400-001N	CONTROL PLATE		
70	LP40843-001A	TORSION SPRING		
71	LP40818-002A	TENSION ARM ASSY		
72	LP40844-001F	TENSION SPRING		
73	LP21045-001E	TENSION ARM BASE		
74	LP40821-001A	TENSION BAND ASSY		
75	LP30967-001B	BAND HOLDER-1		
76	LP30968-001C	BAND HOLDER-2		
77	LP40822-002B	ADJUST PIN		
78	LP31000-005E	TENSION ARM LEVER		
79	LP21046-001C	MAIN BRAKE(TAKE UP)		
80	LP40824-001A	BAND BRAKE ASSY		
81	LP30969-002B	BRAKE LEVER		
82	LP30003-033C	TENSION SPRING		
83	LP30003-035C	TENSION SPRING		
△ 85	QAR0267-003	CAPSTAN MOTOR		
86	QYTPSG2606ZA	TAP SCREW	M2.6 x 6mm(x3)	
87	LP30005-010A	BELT	CAPSTAN MOTOR	
88	LP30970-001B	IDLER ARM		
89	LP40828-004A	IDLER GEAR 1	(x2)	
90	LP40829-002A	IDLER GEAR 2	(x2)	
91	LP31014-002A	WIRE HOLDER		
93	LP40934-001B	CLUTCH UNIT		
94	PQM30017-47	SLIT WASHER		
95	LP30973-001A	DIRECT GEAR		
96	LP40939-001A	COMPRESSION SPRING		
102	LP30974-001C	CHANGE LEVER		
105	LP21049-001A	REEL DISK	(x2)	
107	LP30017-004A	SPACER	REEL DISK(x2)	
110	LP10401-001L	SIDE FRAME(L)		
111	LP10402-001M	SIDE FRAME(R)		
112	QYTDST2606ZA	TAP SCREW	M2.6 x 6mm(x2)	
113	LP40917-001D	TORSION SPRING		
114	LP30976-002B	SIDE PLATE		
115	LP30977-002E	LIMIT PLATE		
116	LP40846-001C	LIMIT SPRING		
117	LP31100-002A	DRIVE LEVER		
118	LP30978-001B	DRIVE ARM(L)		
119	LP30979-001S	DRIVE ARM(R)		
120	LP40847-001B	TORSION SPRING		

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local
121	LP30980-002A	CONNECT PLATE		
122	LP10403-001C	SIDE HOLDER(L)		
123	LP10404-001F	SIDE HOLDER(R)		
124	LP30983-002A	LOCK LEVER(L)		
125	LP30984-002A	LOCK LEVER(R)		
126	LP40924-001D	TENSION SPRING		
128	LP40857-001B	EARTH SPRING(2)		
130	LP30981-003B	CASSETTE HOLDER ASSY		
134	LP21051-002C	REC SAFETY LEVER		
137	LP21052-002A	TOP FRAME		
140	LP41153-001A	EARTH SPRING(3)		
141	LP40924-001D	TENSION SPRING		
151	LP30985-002M	DOOR OPENER		
WR1	WJT0117-001A	E-CARD WIRE		DRUM
WR2	WJT0067-001B	E-CARD WIRE		A/C HEAD CN2001
WR3	WJS0022-001A	E-FL/RB WIRE		LOADING MOTOR

DVD Traverse mechanism assembly and parts list

Block No. M3MM



MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

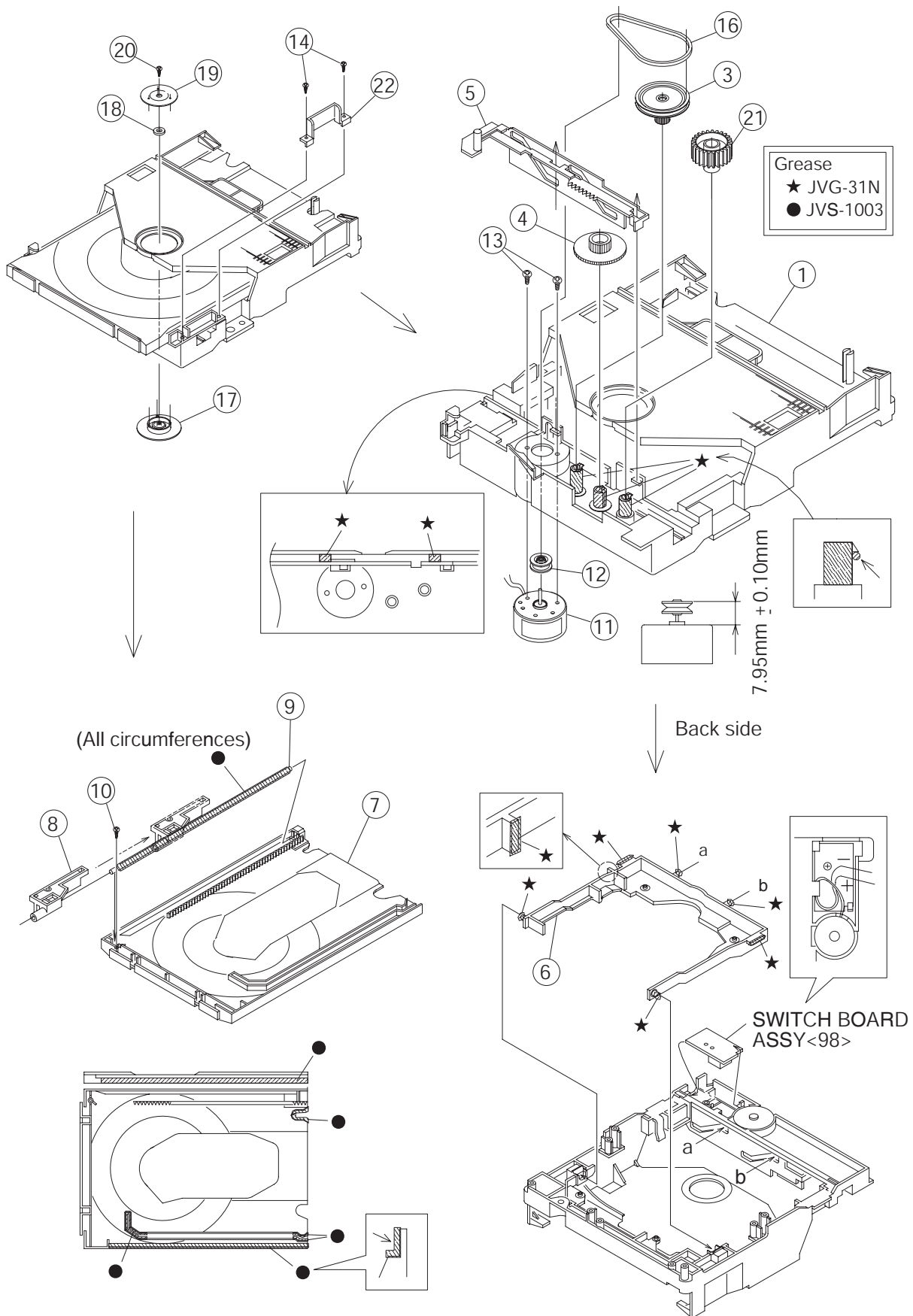
DVD Traverse mechanism

Block No. [M][3][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	LE20729-002A	MECHA BASE		
2	LE20731-002A	SPINDLE BASE		
3	QYSDST2604M	SCREW		M2.6 x 4mm(x2)
4	LE40931-001A	SHAFT		
5	LE40995-001A	BAR SPRING		
6	QYSPSTU2080M	TAP SCREW		M2 x 8mm
7	LE20730-002A	FEED HOLDER		
8	QAR0165-001	FEED MOTOR		
9	LV41510-001A	FEED GEAR T		
10	QYSPSPU2040M	SCREW		M2 x 4mm(x2)
11	QYSDST2604M	SCREW		M2.6 x 4mm(x3)
12	QAL0577-002	PICK UP		
13	LE20732-001A	SW ACTUATOR		
14	LE31093-001A	LEAD SPRING		
15	QYSPSFU1740Z	TAP SCREW		M1.7 x 4mm(x2)
16	QUQ105-2415AC	FFC		24pin 15cm
17	LE40931-001A	SHAFT		
18	LE40855-002A	FEED GEAR E		
19	LE40918-001A	LEAD SCREW		
20	LE40930-001A	FEED GEAR M		
21	LE40928-002A	THURUST SPRING		
22	LE40927-002A	PLATE		
23	QYSDST2614Z	TAPPING SCREW		M2.6 x 14mm
24	QAR0324-001	S.MOTOR		
25	QYSPSPU1760Z	SCREW		M1.7 x 6mm(x3)
26	LE40994-001A	T.SPRING		
27	LE40858-002A	SPECIAL SCREW		(x4)

DVD Loading mechanism assembly and parts list

Block No. M4MM



MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

DVD Loading mechanism

Block No. [M][4][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	LE10275-006A	LOADING BASE		
3	LE31043-001A	PULLEY GEAR		
4	LE31042-001A	MIDDLE GEAR		
5	LE20665-005A	SLIDE CAM		
6	LE20666-003A	ELEVATOR		
7	LE10276-002A	TRAY		
8	LE31045-001A	BUSHING		
9	LE40898-001A	SHAFT		
10	QYSSSF2008Z	TAP SCREW		M2 x 8mm
11	QAR0197-001	MOTOR		
12	LV42087-002A	MOTOR PULLEY		
13	QYSPSPU1730Z	SCREW		FOR MOTOR(x2)
14	QYSDSF2008Z	TAP SCREW		M2 x 8mm(x2)
16	LE40897-001A	BELT		
17	LE31046-003A	CLAMPER		
18	LV42930-003A	MAGNET		
19	LE40899-001A	YOKE		
20	LE40906-001A	SPECIAL SCREW		
21	LE31044-001A	IDLE GEAR		
22	LE40937-003A	LEAF SPRING		

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

Electrical parts list

Switching regulator board

Block No. [0][1]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10261-01A1	SWITCHING REGLATOR BOARD ASSY		
IC5201	UTCTL431-T	IC		
IC5201	or MM1431AT-T	IC		
IC5201	or TL431A/T	IC		
Q5101	2SK2632-CB14	POWER MOS FET		
Q5102	2SD2144S/UV-T	TRANSISTOR		
Q5103	2SA1530A/QR/-X	TRANSISTOR		
Q5103	or 2SB709A/QR/-X	TRANSISTOR		
Q5103	or 2SA1037AK/QR/-X	TRANSISTOR		
D5001	S1WB/A/60-4102	BRIDGE DIODE		
D5001	or S1WB/A/60-X	BRIDGE DIODE		
D5101	10ERB40-T2	FR DIODE		
D5101	or AU01-T2	SI DIODE		
D5102	10ERB40-T2	FR DIODE		
D5102	or AU01-T2	SI DIODE		
D5103	1SS133-T2	SI DIODE		
D5103	or 1SS270A-T2	SI DIODE		
D5105	1SS133-T2	SI DIODE		
D5105	or 1SS270A-T2	SI DIODE		
D5106	MTZJ33D-T2	Z DIODE		
D5106	or RD33ES/B4/-T2	Z DIODE		
D5202	SB240-F26	SB DIODE		
D5202	or RK14-LFB2	SB DIODE		
D5202	or 21DQ04-F	SBD		
D5205	1F4G-T2	FR DIODE		
D5205	or 10ERB20-T2	FR DIODE		
D5208	SB240-F26	SB DIODE		
D5208	or RK14-LFB2	SB DIODE		
D5208	or 21DQ04-F	SBD		
D5209	1F4G-T2	FR DIODE		
D5209	or 10ERB20-T2	FR DIODE		
D5209	or PG104RS-T2	FR DIODE		
D5209	or AU01Z-T2	FR DIODE		
D5209	or 1SR153-400-T2	FR DIODE		
D5212	SB240-F26	SB DIODE		
D5212	or RK14-LFB2	SB DIODE		
D5212	or 21DQ04-F	SBD		
D5213	1F4G-T2	FR DIODE		
D5213	or 10ERB20-T2	FR DIODE		
D5301	MTZJ15C-T2	Z DIODE		
D5301	or RD15ES/B3/-T2	Z DIODE		
△ PC5101	PC123Y22FZ	PHOTO COUPLER		
△ C5001	QFZ9073-683	MM CAPACITOR	0.068uF AC250V M	
△ C5002	QFZ9073-223	MM CAPACITOR	0.022uF AC250V M	
△ C5003	QCZ9071-101	C CAPACITOR	100pF AC400V K	
△ C5004	QCZ9071-222	C CAPACITOR	2200pF AC400V M	
C5006	QEZ0375-826	E CAPACITOR	82uF 400V M	
C5101	QCZ0353-101Z	C CAPACITOR	100pF 1kV K	
C5102	QCZ0333-47Z	C CAPACITOR	4700pF 1kV K	
C5104	QEHR1HM-105Z	E CAPACITOR	1uF 50V M	
C5106	NCB31HK-221X	C CAPACITOR	220pF 50V K	
C5108	NCB31HK-104X	C CAPACITOR	0.1uF 50V K	
C5109	NCB31HK-183X	C CAPACITOR	0.018uF 50V K	
C5202	QEZ0654-567Z	E CAPACITOR	560uF 10V M	
C5204	QEZ0654-567Z	E CAPACITOR	560uF 10V M	
C5205	QEZ0655-397Z	E CAPACITOR	390uF 16V M	
C5207	QETN2AM-475Z	E CAPACITOR	4.7uF 100V M	
C5209	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5210	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C5211	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5212	QEZ0654-567Z	E CAPACITOR	560uF 10V M	
C5213	QEZ0654-567Z	E CAPACITOR	560uF 10V M	
C5214	NCB31AK-154X	C CAPACITOR	0.15uF 10V K	
R5101	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	
R5102	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	

△ Symbol No.	Part No.	Part Name	Description	Local
R5103	QRE141J-683Y	C RESISTOR	68kΩ 1/4W J	
R5104	QRG02GJ-683	OMF RESISTOR	68kΩ 2W J	
R5106	QRT01DJ-R27X	MF RESISTOR	0.27Ω 1W J	
R5107	QRE121J-331Y	C RESISTOR	330Ω 1/2W J	
R5108	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R5109	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R5110	NRSA63J-224X	MG RESISTOR	220kΩ 1/16W J	
R5111	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R5112	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R5113	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	
R5201	QRE141J-221Y	C RESISTOR	220Ω 1/4W J	
R5202	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R5203	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R5204	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R5205	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R5206	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R5317	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
L5201	QQR1287-001	CHOKE COIL		
L5202	QQR1287-001	CHOKE COIL		
L5203	QQR1287-001	CHOKE COIL		
△ T5001	QQS0219-001	SW TRANSF		
△ CN5001	QGA7901C3-02	CONNECTOR	W-B (1-2)	
CN5301	QGB1231L1-11	CONNECTOR	B-B (1-11)	
△ F5001	QMF51W2-2R0-J8	FUSE	2A AC250V	
FC5001	QNG0006-001Z	FUSE CLIP		
FC5002	QNG0006-001Z	FUSE CLIP		
HS1	LP40621-001A	HEAT SINK	Q5101	
K5101	QQR0621-001Z	COIL		
△ LF5002	QQR1515-002	LINE FILTER		
OT1	QYTDST3008ZA	TAP SCREW	M3 x 8mm Q5101	

Main board

Block No. [0][3]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10260-03A	MAIN BOARD ASSY		A
PW1	LPA10260-02A	MAIN BOARD ASSY		B
PW1	LPA10260-04A	MAIN BOARD ASSY		D
PW1	LPA10260-01A	MAIN BOARD ASSY		C,E,F,G
IC1	JCP8060-MSA	IC		
IC201	LC74776-9791	IC		
IC301	LA7358	IC		A
△ IC2201	AN3651FBP	IC		
IC3001	HD6432194SAD98F	IC(MCU)	MASK	A
IC3001	HD6432194SAD97F	IC(MCU)	MASK	B,C,D,E,F,G
IC3002	S-80827CNNB-G-W IC			
IC3003	LPN0938-001B-03	IC(EEPROM)	*(REFER TO BELOW)	A
IC3003	LPN0937-002B-08	IC(EEPROM)	*(REFER TO BELOW)	B
IC3003	LPN0937-003A-19	IC(EEPROM)	*(REFER TO BELOW)	D
IC3003	LPN0937-001A-17	IC(EEPROM)	*(REFER TO BELOW)	C,E,F,G
IC5301	UTCTL431-T	IC		
IC5302	MM1565AF-X	IC		
IC6701	MSP3417GQGB8V3X	IC		
IC8001	HA17558AF-X	IC		
IC8001	or RC4558D-X	IC		
IC8201	MN101C30AJG	IC(MCU)		
IC8201	or MN101CP30AJG	IC(MCU)		
IC8202	SN74HCT08APW-X	IC		
IC8301	LB1641	IC		
Q7	2SC2412K/QRS/-X	TRANSISTOR		
Q7	or 2SD601A/QRS/-X	TRANSISTOR		
Q7	or 2SC3928A/QRS/-X	TRANSISTOR		
Q8	2SC2412K/QRS/-X	TRANSISTOR		
Q8	or 2SD601A/QRS/-X	TRANSISTOR		
Q8	or 2SC3928A/QRS/-X	TRANSISTOR		
Q9	2SC2412K/QRS/-X	TRANSISTOR		
Q9	or 2SD601A/QRS/-X	TRANSISTOR		

*The VCR goes to jig RCU mode after replacing the EEPROM and the VCR does not accept some RCU command.

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Therefore please set the VCR to the user RCU mode after replacing the EEPROM.

The method of setting the VCR to the user RCU mode is written on the service manual.

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
Q9	or 2SC3928A/QRS/-X	TRANSISTOR			Q6031	or RT1N141C-X	DIGI TRANSISTOR		
Q10	2SC2412K/QRS/-X	TRANSISTOR			Q8001	2SC2412K/QRS/-X	TRANSISTOR		
Q10	or 2SD601A/QRS/-X	TRANSISTOR			Q8001	or 2SD601A/QRS/-X	TRANSISTOR		
Q10	or 2SC3928A/QRS/-X	TRANSISTOR			Q8001	or 2SC3928A/QRS/-X	TRANSISTOR		
Q301	2SA1037AK/QR/-X	TRANSISTOR		A	Q8002	2SC2412K/QRS/-X	TRANSISTOR		
Q301	or 2SB709A/QR/-X	TRANSISTOR		A	Q8002	or 2SD601A/QRS/-X	TRANSISTOR		
Q301	or 2SA1530A/QR/-X	TRANSISTOR		A	Q8002	or 2SC3928A/QRS/-X	TRANSISTOR		
Q302	DTA144WKA-X	TRANSISTOR		A	Q8052	2SC2412K/QRS/-X	TRANSISTOR		
Q302	or UN211E-X	DIGI TRANSISTOR			Q8052	or 2SD601A/QRS/-X	TRANSISTOR		
Q302	or RT1P44HC-X	DIGI TRANSISTOR		A	Q8052	or 2SC3928A/QRS/-X	TRANSISTOR		
Q2001	2SC2412K/QRS/-X	TRANSISTOR			Q8053	DTA114EKA-X	DIGI TRANSISTOR		
Q2001	or 2SD601A/QRS/-X	TRANSISTOR			Q8053	or UN2111-X	TRANSISTOR		
Q2001	or 2SC3928A/QRS/-X	TRANSISTOR			Q8053	or RT1P141C-X	DIGI TRANSISTOR		
Q2002	2SC2412K/QRS/-X	TRANSISTOR			D201	QRE141J-152Y	C RESISTOR	1.5kΩ 1/4W J	
Q2002	or 2SD601A/QRS/-X	TRANSISTOR			D202	QRE141J-101Y	C RESISTOR	100Ω 1/4W J	
Q2002	or 2SC3928A/QRS/-X	TRANSISTOR			D203	QRE141J-101Y	C RESISTOR	100Ω 1/4W J	
Q2003	DTA144WKA-X	TRANSISTOR			D2001	1SS133-T2	SI DIODE		
Q2003	or UN211E-X	DIGI TRANSISTOR			D2001	or 1SS270A-T2	SI DIODE		
Q2003	or RT1P44HC-X	DIGI TRANSISTOR			D2251	1SS133-T2	SI DIODE		
Q2051	2SC2412K/QRS/-X	TRANSISTOR			D2251	or 1SS270A-T2	SI DIODE		
Q2051	or 2SD601A/QRS/-X	TRANSISTOR			D3001	LNB2301L01VI	LED		
Q2051	or 2SC3928A/QRS/-X	TRANSISTOR			D3002	1SS133-T2	SI DIODE		
Q2052	2SA1037AK/QR/-X	TRANSISTOR			D3002	or 1SS270A-T2	SI DIODE		
Q2052	or 2SB709A/QR/-X	TRANSISTOR			D3003	RD33ES/B3/-T2	Z DIODE		
Q2052	or 2SA1530A/QR/-X	TRANSISTOR			D3003	or MTZJ33C-T2	Z DIODE		
Q2053	DTC144WKA-X	DIGI TRANSISTOR			D3004	10EDB20-T2	SI DIODE		
Q2053	or UN221E-X	TRANSISTOR			D3004	or 1A3G-T2	SI DIODE		
Q2054	2SA1037AK/QR/-X	TRANSISTOR			D3005	10EDB20-T2	SI DIODE		
Q2054	or 2SB709A/QR/-X	TRANSISTOR			D3005	or 1A3G-T2	SI DIODE		
Q2054	or 2SA1530A/QR/-X	TRANSISTOR			D3007	1SS355-X	SI DIODE		
Q2055	DTC144WKA-X	DIGI TRANSISTOR			D3008	1SS355-X	SI DIODE		
Q2055	or UN221E-X	TRANSISTOR			D5305	MTZJ11C-T2	Z DIODE		
Q2201	DTA144WKA-X	TRANSISTOR			D5305	or RD11ES/B3/-T2	Z DIODE		
Q2201	or UN211E-X	DIGI TRANSISTOR			D5306	MTZJ5.6C-T2	Z DIODE		
Q2201	or RT1P44HC-X	DIGI TRANSISTOR			D5306	or RD5.6ES/B3/-T2	Z DIODE		
Q2202	DTC144WKA-X	DIGI TRANSISTOR			D5310	MTZJ10B-T2	Z DIODE		
Q2202	or UN221E-X	TRANSISTOR			D5310	or RD10ES/B2/-T2	Z DIODE		
Q2203	2SC2412K/QRS/-X	TRANSISTOR			D6002	HZ30-2L-T2	Z DIODE		
Q2203	or 2SD601A/QRS/-X	TRANSISTOR			D6701	1SS133-T2	SI DIODE		
Q2203	or 2SC3928A/QRS/-X	TRANSISTOR			D6701	or 1SS270A-T2	SI DIODE		
Q2204	2SC2412K/QRS/-X	TRANSISTOR			D7301	10EDB20-T2	SI DIODE		
Q2204	or 2SD601A/QRS/-X	TRANSISTOR			D7301	or 1A3G-T2	SI DIODE		
Q2204	or 2SC3928A/QRS/-X	TRANSISTOR			D8001	1SS133-T2	SI DIODE		
Q2255	DTC114EKA-X	DIGI TRANSISTOR			D8001	or 1SS270A-T2	SI DIODE		
Q2255	or UN2211-X	TRANSISTOR			D8301	RD5.1ES/B2/-T2	Z DIODE		
Q2255	or RT1N141C-X	DIGI TRANSISTOR			D8301	or MTZJ5.1B-T2	Z DIODE		
Q3002	PTZ-NV16A	IC(PHOTO SENSOR)			PC3001	RPI-304J	IC(PHOTO SENSOR)		
Q3003	PTZ-NV16A	IC(PHOTO SENSOR)			PC3002	RPI-304J	IC(PHOTO SENSOR)		
Q3004	2SC2412K/QRS/-X	TRANSISTOR			C1	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
Q3004	or 2SD601A/QRS/-X	TRANSISTOR			C2	NDC31HJ-390X	C CAPACITOR	39pF 50V J	
Q3004	or 2SC3928A/QRS/-X	TRANSISTOR			C2	NDC31HJ-470X	C CAPACITOR	47pF 50V J	A
Q3005	2SC2412K/QRS/-X	TRANSISTOR			C3	NDC31HJ-7R0X	C CAPACITOR	7pF 50V J	B,C,D,E,F,G
Q3005	or 2SD601A/QRS/-X	TRANSISTOR			C4	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	A
Q3005	or 2SC3928A/QRS/-X	TRANSISTOR			C5	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q3007	DTC144WKA-X	DIGI TRANSISTOR			C6	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q3007	or UN221E-X	TRANSISTOR			C7	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q3008	DTC144WKA-X	DIGI TRANSISTOR			C8	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q3008	or UN221E-X	TRANSISTOR			C9	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
Q4001	DTC114EKA-X	DIGI TRANSISTOR			C10	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
Q4001	or UN2211-X	TRANSISTOR			C11	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q4001	or RT1N141C-X	DIGI TRANSISTOR			C12	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q5306	2SD1302/ST/-T	TRANSISTOR			C14	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q5307	UN211E-X	DIGI TRANSISTOR			C15	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5307	or DTA144WKA-X	TRANSISTOR			C17	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5307	or RT1P44HC-X	DIGI TRANSISTOR			C19	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5309	UN2211-X	TRANSISTOR			C20	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5309	or DTC114EKA-X	DIGI TRANSISTOR			C22	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5309	or RT1N141C-X	DIGI TRANSISTOR			C24	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q5310	2SD1858/QR/-T	TRANSISTOR			C25	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
Q5311	2SC5739/QP/	TRANSISTOR			C26	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
Q5312	2SC3576-JVC-T	TRANSISTOR			C27	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
Q5312	or 2SD2144S/UV/-T	TRANSISTOR			C29	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A
Q5315	2SD1858/QR/-T	TRANSISTOR			C30	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
Q6030	2SB709A/QR/-X	TRANSISTOR			C31	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
Q6030	or 2SA1037AK/QR/-X	TRANSISTOR			C32	QCB11HK-103Y	C CAPACITOR	0.01uF 50V K	
Q6030	or 2SA1530A/QR/-X	TRANSISTOR							
Q6031	UN2211-X	TRANSISTOR							
Q6031	or DTC114EKA-X	DIGI TRANSISTOR							

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C33	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C2013	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C34	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2051	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C35	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2052	QFV91HJ-823Z	MF CAPACITOR	0.082uF 50V J	
C36	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C2053	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C37	NDC31HJ-4R0X	C CAPACITOR	4pF 50V J		C2054	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C38	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2055	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C39	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C2201	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C40	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2202	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C41	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C2203	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C43	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M		C2204	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M	
C44	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M		C2205	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C45	NCB31EK-472X	C CAPACITOR	4700pF 25V K		C2206	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C46	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C2207	NCB31EK-153X	C CAPACITOR	0.015uF 25V K	
C47	QEKJ1HM-474Z	E CAPACITOR	0.47uF 50V M		C2208	NCB31EK-153X	C CAPACITOR	0.015uF 25V K	
C48	NCB31EK-223X	C CAPACITOR	0.022uF 25V K		C2209	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C49	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C2210	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C50	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C2211	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M	
C55	NDC31HJ-151X	C CAPACITOR	150pF 50V J		C2212	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C56	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C2214	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C57	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2215	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C58	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2216	QEKJ1CM-476Z	E CAPACITOR	47uF 16V M	
C59	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2218	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	B,C,D,E,F,G
C60	NCB31HK-103X	C CAPACITOR	0.01uF 50V K		C2219	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	B,C,D,E,F,G
C61	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C2220	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C62	QCB1HK-103Y	C CAPACITOR	0.01uF 50V K		C2221	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C63	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2222	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C64	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2223	NCB31CK-473X	C CAPACITOR	0.047uF 16V K	
C66	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A	C2224	NCB31CK-473X	C CAPACITOR	0.047uF 16V K	
C71	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C2225	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C75	NDC31HJ-390X	C CAPACITOR	39pF 50V J	A	C2226	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C201	QEKJ0JM-227Z	E CAPACITOR	220uF 6.3V M		C2227	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C204	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C2230	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C206	NDC31HJ-330X	C CAPACITOR	33pF 50V J		C2231	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C207	NDC31HJ-330X	C CAPACITOR	33pF 50V J		C2251	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C209	NCB31AK-474X	C CAPACITOR	0.47uF 10V K		C2252	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C210	NDC31HJ-101X	C CAPACITOR	100pF 50V J		C2253	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C211	NDC31HJ-101X	C CAPACITOR	100pF 50V J		C2254	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C212	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C2255	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C213	QEKJ1EM-475Z	E CAPACITOR	4.7uF 25V M		C2256	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C214	NCB31AK-224X	C CAPACITOR	0.22uF 10V K		C2257	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C215	NCB31AK-224X	C CAPACITOR	0.22uF 10V K		C2258	NDC31HJ-181X	C CAPACITOR	180pF 50V J	
C217	NDC31HJ-560X	C CAPACITOR	56pF 50V J		C2259	QEKJ1HM-334Z	E CAPACITOR	0.33uF 50V M	
C218	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C2261	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C222	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C2262	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C225	QEKJ0JM-227Z	E CAPACITOR	220uF 6.3V M		C3008	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C301	NDC31HJ-151X	C CAPACITOR	150pF 50V J	A	C3011	QETL0JM-338	E CAPACITOR	3300uF 6.3V M	
C302	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	A	C3012	QETN1EM-476Z	E CAPACITOR	47uF 25V M	
C303	NCB31EK-682X	C CAPACITOR	6800pF 25V K	A	C3015	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C304	NCB31EK-682X	C CAPACITOR	6800pF 25V K	A	C3016	NCB31EK-473X	C CAPACITOR	0.047uF 25V K	
C305	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3020	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C307	NDC31HJ-151X	C CAPACITOR	150pF 50V J	A	C3021	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C308	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3022	NCB31EK-104X	C CAPACITOR	0.1uF 25V K	
C309	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	A	C3024	NDC31HJ-120X	C CAPACITOR	12pF 50V J	
C310	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3025	QAT3725-300Z	TRIM CAPACITOR	30pF TIMER CLOCK	C,D,E,F,G
C311	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3027	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C312	NCB31HK-102X	C CAPACITOR	1000pF 50V K	A	C3030	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C313	QETN1HM-474Z	E CAPACITOR	0.47uF 50V M	A	C3032	NCB31CK-473X	C CAPACITOR	0.047uF 16V K	
C314	NDC31HJ-471X	C CAPACITOR	470pF 50V J	A	C3033	NCB31EK-473X	C CAPACITOR	0.047uF 25V K	
C315	QETN1HM-106Z	E CAPACITOR	10uF 50V M	A	C3036	NDC31HJ-180X	C CAPACITOR	18pF 50V J	
C316	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3037	NDC31HJ-120X	C CAPACITOR	12pF 50V J	
C317	NCB31HK-681X	C CAPACITOR	680pF 50V K	A	C3040	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C318	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	A	C3041	NDC31HJ-150X	C CAPACITOR	15pF 50V J	A,B
C319	QETN1HM-105Z	E CAPACITOR	1uF 50V M	A	C3050	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C320	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	A	C3054	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C321	NDC31HG-301X	C CAPACITOR	300pF 50V G	A	C3071	QEKJ1CM-336Z	E CAPACITOR	33uF 16V M	
C322	NCB31AK-474X	C CAPACITOR	0.47uF 10V K	A	C4002	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C323	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	A	C4004	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C2001	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C4005	NCB21HK-222X	C CAPACITOR	2200pF 50V K	
C2002	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C4006	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C2003	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C4008	QEQF1HM-105Z	E CAPACITOR	1uF 50V M	
C2005	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C4009	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C2006	NCB31EK-682X	C CAPACITOR	6800pF 25V K		C4010	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		C4011	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C2008	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C4012	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C2009	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C4014	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C2010	NCB31HK-681X	C CAPACITOR	680pF 50V K		C4015	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C2011	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5301	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2012	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5303	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C5304	QETN1CM-107Z	E CAPACITOR	100uF 16V M		R303	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	A
C5305	QETN1AM-107Z	E CAPACITOR	100uF 10V M		R304	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	A
C5306	NCF31AZ-105X	C CAPACITOR	1uF 10V Z		R305	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C5307	NCB31HK-471X	C CAPACITOR	470pF 50V K		R306	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	A
C5308	NCB30JK-105X	C CAPACITOR	1uF 6.3V K		R307	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	A
C5309	QETN1AM-107Z	E CAPACITOR	100uF 10V M		R308	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	A
C5310	QETN1AM-107Z	E CAPACITOR	100uF 10V M		R309	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	A
C5314	QETN1CM-107Z	E CAPACITOR	100uF 16V M		R310	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	A
C5315	QETN1EM-476Z	E CAPACITOR	47uF 25V M		R311	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	A
C5316	QETN1AM-107Z	E CAPACITOR	100uF 10V M		R312	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	A
C6012	QETN0JM-108Z	E CAPACITOR	1000uF 6.3V M	B,C,D,E,F,G	R313	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	A
C6013	NDC31HJ-100X	C CAPACITOR	10pF 50V J		R314	NRSA63D-243X	MG RESISTOR	24kΩ 1/16W D	A
C6014	NCB31HK-103X	C CAPACITOR	0.01uF 50V K		R315	NRSA63J-564X	MG RESISTOR	560kΩ 1/16W J	A
C6037	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M		R316	NRSA63J-224X	MG RESISTOR	220kΩ 1/16W J	A
C6701	NCB31HK-102X	C CAPACITOR	1000pF 50V K		R329	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A
C6707	NDC31HJ-470X	C CAPACITOR	47pF 50V J		R2003	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	A
C6708	NDC31HJ-8R0X	C CAPACITOR	8pF 50V J		R2005	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	A
C6709	NDC31HJ-8R0X	C CAPACITOR	8pF 50V J		R2007	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	A
C6713	NCB30JK-105X	C CAPACITOR	1uF 6.3V K		R2008	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	A
C6714	NCB31HK-222X	C CAPACITOR	2200pF 50V K		R2010	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	A
C6715	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M		R2013	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	A
C6716	NCB31HK-222X	C CAPACITOR	2200pF 50V K		R2014	NRSA63J-394X	MG RESISTOR	390kΩ 1/16W J	A
C6717	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M		R2015	NRSA63J-271X	MG RESISTOR	270Ω 1/16W J	A
C6719	QEKJ1CM-106Z	E CAPACITOR	10uF 16V M		R2016	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	A
C6720	QEKJ1CM-106Z	E CAPACITOR	10uF 16V M		R2017	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	A
C6721	NCB31HK-103X	C CAPACITOR	0.01uF 50V K		R2018	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
C6723	NCB31HK-103X	C CAPACITOR	0.01uF 50V K		R2019	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
C6724	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	A	R2021	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	A
C6753	QEKJ0JM-227Z	E CAPACITOR	220uF 6.3V M		R2022	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	A
C7506	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		R2023	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	A
C7507	QEKJ0JM-107Z	E CAPACITOR	100uF 6.3V M		R2053	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	A
C7508	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		R2054	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	A
C8001	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		R2055	NRSA63J-3R3X	MG RESISTOR	3.3Ω 1/16W J	A
C8002	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		R2056	QRE141J-820Y	C RESISTOR	82Ω 1/4W J	A
C8003	NCB31HK-821X	C CAPACITOR	820pF 50V K		R2057	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8004	NCB31HK-821X	C CAPACITOR	820pF 50V K		R2058	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	A
C8005	NCB31HK-821X	C CAPACITOR	820pF 50V K		R2059	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8006	NCB31HK-821X	C CAPACITOR	820pF 50V K		R2060	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	A
C8007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		R2201	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8008	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		R2202	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	A
C8009	NCB31HK-222X	C CAPACITOR	2200pF 50V K		R2203	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8010	NCB31HK-222X	C CAPACITOR	2200pF 50V K		R2204	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	A
C8051	QEKJ1CM-107Z	E CAPACITOR	100uF 16V M		R2205	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8053	NCB31HK-222X	C CAPACITOR	2200pF 50V K		R2206	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	A
C8054	QEKJ1CM-107Z	E CAPACITOR	100uF 16V M		R2207	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A
C8055	QEKJ1CM-107Z	E CAPACITOR	100uF 16V M		R2208	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	A
C8201	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		R2209	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	A
C8202	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R2210	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
C8203	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R2211	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	A
C8301	QETN1CM-107Z	E CAPACITOR	100uF 16V M		R2212	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	A
C8302	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		R2213	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
C8303	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R2214	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	A
R1	NRSA63J-622X	MG RESISTOR	6.2kΩ 1/16W J		R2215	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A
R2	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J		R2216	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	B,C,D,E,F,G
R3	NRSA63J-822X	MG RESISTOR	8.2kΩ 1/16W J	A	R2217	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	B,C,D,E,F,G
R3	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	B,C,D,E,F,G	R2218	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	A
R5	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	A	R2219	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	A
R11	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		R2220	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	A
R12	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R2222	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
R21	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		R2223	NRSA63J-511X	MG RESISTOR	510Ω 1/16W J	A
R22	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		R2224	NRSA63J-511X	MG RESISTOR	510Ω 1/16W J	A
R28	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	A	R2225	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	A
R35	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	A	R2226	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	A
R36	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R2227	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	A
R37	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J		R2228	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	A
R38	NRSA63J-685X	MG RESISTOR	6.8MΩ 1/16W J		R2229	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	A
R201	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R2230	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	A
R202	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R2231	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	A
R208	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		R2232	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	A
R209	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R2233	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	A
R210	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		R2234	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	A
R211	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		R2235	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	A
R213	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R2236	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	A
R216	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R2237	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	A
R226	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R2238	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	A
R301	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	A	R2239	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	A
R302	NRSA63J-124X	MG RESISTOR	120kΩ 1/16W J	A	R2240	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	A
					R2241	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	A

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R2242	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R3224	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2243	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R3225	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2244	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R3229	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J	
R2251	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R3230	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2252	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J		R3231	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2253	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		R3233	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2255	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		R3234	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3011	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3235	QRE141J-332Y	C RESISTOR	3.3kΩ 1/4W J	
R3012	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	A	R3236	QRE141J-332Y	C RESISTOR	3.3kΩ 1/4W J	
R3013	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3237	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3014	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3242	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3015	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3253	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3016	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3307	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R3017	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3308	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R3018	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R4003	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R3019	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4004	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R3020	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4005	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R3021	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4007	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3022	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4008	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3025	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R4009	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3026	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R4010	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3027	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R4012	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R3029	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4013	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3031	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4015	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R3032	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4017	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3033	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R4018	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3036	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5311	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3037	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5312	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3038	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J		R5313	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R3039	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5316	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R3040	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5318	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R3041	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5319	NRSA63J-560X	MG RESISTOR	56Ω 1/16W J	
R3042	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5320	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	
R3044	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R5321	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R3046	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5325	QRE141J-101Y	C RESISTOR	100Ω 1/4W J	
R3047	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6020	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3048	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6021	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3049	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6030	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3050	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6031	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R3051	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6032	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	A
R3052	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R6032	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	B,C,D,E,F,G
R3053	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R6033	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	A
R3054	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6033	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	B,C,D,E,F,G
R3055	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6050	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	B,C,D,E,F,G
R3056	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6052	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	B,C,D,E,F,G
R3058	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J		R6053	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	B,C,D,E,F,G
R3062	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R6054	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	B,C,D,E,F,G
R3063	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6080	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3066	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R6707	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R3069	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		R6708	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3071	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R6709	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3072	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6710	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3075	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R6711	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	
R3076	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R6712	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3077	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A	R6713	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R3078	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6714	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3080	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R6715	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R3093	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R6716	NRSA63J-470X	MG RESISTOR	47Ω 1/16W J	
R3095	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R6719	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3103	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6720	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R3105	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R6721	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R3205	QRE141J-181Y	C RESISTOR	180Ω 1/4W J		R7103	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R3206	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J		R7105	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R3207	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R7106	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3208	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J		R7107	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R3209	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R7109	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R3210	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J		R7111	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R3211	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R7112	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R3212	QRE141J-474Y	C RESISTOR	470kΩ 1/4W J		R7211	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R3213	NRSA63J-334X	MG RESISTOR	330kΩ 1/16W J		R7507	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3214	QRE141J-103Y	C RESISTOR	10kΩ 1/4W J		R8001	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3215	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R8002	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3216	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R8003	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3217	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R8004	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3218	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R8005	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R3219	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R8006	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R3220	QRE141J-104Y	C RESISTOR	100kΩ 1/4W J		R8007	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3222	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R8008	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3223	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R8009	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R8010	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		B7102	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8013	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		B7105	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8014	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		CN1	QGF1201C2-09	CONNECTOR	FFC/FPC (1-9)	
R8015	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J		CN2001	QGF1207C1-06	CONNECTOR	FFC/FPC (1-6)	
R8016	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J		CN2002	QGB2532J1-02	CONNECTOR	B-B (1-2)	
R8017	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		CN3001	QGB2032M4-12	CONNECTOR	B-B (1-12)	
R8018	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		CN3102	QGF1207C1-22	CONNECTOR	FFC/FPC (1-22)	
R8051	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		CN5401	QGB1231M1-11	CONNECTOR	B-B (1-11)	
R8054	QRE141J-473Y	C RESISTOR	47kΩ 1/4W J		CN7101	QGB2024K1-16S	CONNECTOR	B-B (1-16)	
R8055	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		CN7102	QGB2024K1-14S	CONNECTOR	B-B (1-14)	
R8056	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		CN7103	QGB2024K1-09S	CONNECTOR	B-B (1-9)	
R8057	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		CN7104	QGF1207C1-10	CONNECTOR	FFC/FPC (1-10)	
R8058	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		CN7301	QGF1016C3-19	CONNECTOR	FFC/FPC (1-19)	
R8059	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		CN7302	QGF1016C3-17	CONNECTOR	FFC/FPC (1-17)	
R8201	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		CN8301	QGF1016C3-05	CONNECTOR	FFC/FPC (1-5)	
R8202	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		△ CP3002	NMFZ012-1R0X-M FUSE		1A 50V	
R8203	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		△ CP3102	QMFZ054-1R5X-J1 FUSE		1.5A	
R8204	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		△ CP4002	NMFZ012-1R0X-M FUSE		1A 50V	
R8205	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		△ CP5303	NMFZ012-1R0X-M FUSE		1A 50V	
R8206	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		△ CP5304	NMFZ012-1R0X-M FUSE		1A 50V	
R8207	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		J7010	TOTX147	OPT TRANSMITTER	OPTICAL	
R8214	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		J7202	QNS0100-001	3.5 JACK	PAUSE	
R8215	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		J53001	NSW0238-001	ROTARY ENCODER		
R8216	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K2001	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8217	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K2002	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8221	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K2003	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8222	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K2004	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8223	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K6701	NQR0129-003X	FERRITE BEADS		
R8227	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K6702	NQR0129-003X	FERRITE BEADS		
R8250	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		K6703	NQR0129-003X	FERRITE BEADS		
R8251	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		K6704	NQR0129-003X	FERRITE BEADS		
R8252	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		K6705	NQR0129-003X	FERRITE BEADS		
R8259	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K6706	NQR0129-003X	FERRITE BEADS		
R8260	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K6707	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A
R8262	QRE141J-222Y	C RESISTOR	2.2kΩ 1/4W J		K7501	NQR0147-004X	FERRITE BEADS		
R8263	QRE141J-222Y	C RESISTOR	2.2kΩ 1/4W J		K7502	NQR0147-004X	FERRITE BEADS		
R8301	QRE141J-4R7Y	C RESISTOR	4.7Ω 1/4W J		OT1	LP31158-001A	BOSS(MECHA) 1		
L2	QQL071J-221Y	COIL	220uH J	A	OT2	LP31185-001A	BOSS(MECHA) 2	(x2)	
L3	QQL29BJ-100Z	P COIL	10uH J		S3001	QSW0602-004	PUSH SWITCH	REC.SAFETY	
L5	QQL29BJ-100Z	P COIL	10uH J		SD1	LP31179-001A	SHILD PLATE(PRE/REC)		
L6	QQL29BJ-100Z	P COIL	10uH J		TU6001	QAU0402-002	TUNER		A
L7	QQR0967-001	CHOKO COIL			TU6001	QAU0400-001	TUNER		B,C,D,E,F,G
L10	QQL29BJ-100Z	P COIL	10uH J		W1	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L14	QQL071J-101Y	COIL	100uH J	A	W2	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L201	QQL29BK-1R0Z	P COIL	1uH K		W3	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L203	QQL29BJ-220Z	P COIL	22uH J		W4	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L204	QQL29BJ-100Z	P COIL	10uH J		W5	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L206	QQL071J-220Y	COIL	22uH J		W6	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L301	QQL29BJ-100Z	P COIL	10uH J	A	W7	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L302	QQL231J-6R8Y	COIL	6.8uH J	A	W9	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L303	QQL231J-270Y	COIL	27uH J	A	W10	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L2251	QQL29BJ-100Z	P COIL	10uH J		W11	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L2252	QQL29BJ-151Z	P COIL	150uH J		W12	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L4001	QQL231J-1R0Y	COIL	1uH J		W13	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L5303	QQL231J-220Y	COIL	22uH J		W15	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L6002	QQL29BK-1R0Z	P COIL	1uH K		W16	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L6003	QQL29BK-1R0Z	P COIL	1uH K		W17	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L6005	QQL071J-5R6Y	COIL	5.6uH J		W18	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L6701	QQL29BJ-3R3Z	P COIL	3.3uH J		W19	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L6702	QQL29BJ-3R3Z	P COIL	3.3uH J		W20	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L7502	QQL29BK-1R0Z	P COIL	1uH K		W21	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
T2051	QQR0002-001	BIAS COIL			W22	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B1	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W23	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B4	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W24	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B7	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W25	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B8	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A	W26	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B9	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A	W27	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B206	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W28	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B5301	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W29	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	A
B5392	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W30	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B5393	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W32	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6001	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W33	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6002	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W34	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6004	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W35	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6006	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W36	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6007	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W37	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
					W38	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
					W39	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local
W40	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W41	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W42	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W43	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W44	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W45	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W46	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W47	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W48	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W49	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W50	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W51	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W52	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W53	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W54	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W55	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W56	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
X1	QAX0740-001	CRYSTAL	4.433619MHz	
X3001	QAX0445-001	CRYSTAL	32.768kHz	
X3002	QAX0527-001	CRYSTAL	10.000000MHz	
X6701	QAX0773-001Z	CRYSTAL	18.432000MHz	
X8201	QAX0246-001Z	C RESONATOR	8.00MHz	

△ Symbol No.	Part No.	Part Name	Description	Local
C906	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C907	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C908	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C909	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C914	QEKJ0JM-337Z	E CAPACITOR	330uF 6.3V M	
C915	QEKJ0JM-337Z	E CAPACITOR	330uF 6.3V M	
C916	QEKJ0JM-337Z	E CAPACITOR	330uF 6.3V M	
C917	QEKJ0JM-337Z	E CAPACITOR	330uF 6.3V M	
C918	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C919	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C920	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C921	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C922	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C923	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C924	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C925	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C930	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C932	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C934	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C935	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C937	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C939	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C940	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C941	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C942	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C943	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C944	QEKJ1CM-476Z	E CAPACITOR	47uF 16V M	
C945	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C946	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C947	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C948	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C949	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C950	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C951	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C952	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C953	QEPF1HM-105Z	E CAPACITOR	1uF 50V M	
C954	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C955	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C956	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C957	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C960	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C961	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C962	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C963	QEKJ1CM-476Z	E CAPACITOR	47uF 16V M	
C964	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C965	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C966	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C7706	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C7708	NCB31HK-102X	C CAPACITOR	1000pF 50V K	

Terminal board

Block No. [0][6]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10216-04A	TERMINAL BOARD ASSY		
IC901	HA118226F	IC		
IC902	BA7623F-X	IC		
Q901	2SC2412K/QRS/-X	TRANSISTOR		
Q901	or 2SD601A/QRS/-X	TRANSISTOR		
Q901	or 2SC3928A/QRS/-X	TRANSISTOR		
Q902	2SC2412K/QRS/-X	TRANSISTOR		
Q902	or 2SD601A/QRS/-X	TRANSISTOR		
Q902	or 2SC3928A/QRS/-X	TRANSISTOR		
Q903	DTC144WKA-X	DIGI TRANSISTOR		
Q903	or UN221E-X	TRANSTSTOR		
Q904	DTC144WKA-X	DIGI TRANSISTOR		
Q904	or UN221E-X	TRANSTSTOR		
Q907	2SA1037AK/QR/-X	TRANSISTOR		
Q907	or 2SB709A/QR/-X	TRANSISTOR		
Q907	or 2SA1530A/QR/-X	TRANSISTOR		
Q908	2SA1037AK/QR/-X	TRANSISTOR		
Q908	or 2SB709A/QR/-X	TRANSISTOR		
Q908	or 2SA1530A/QR/-X	TRANSISTOR		
Q912	2SA1037AK/QR/-X	TRANSISTOR		
Q912	or 2SB709A/QR/-X	TRANSISTOR		
Q912	or 2SA1530A/QR/-X	TRANSISTOR		
Q913	2SA1037AK/QR/-X	TRANSISTOR		
Q913	or 2SB709A/QR/-X	TRANSISTOR		
Q913	or 2SA1530A/QR/-X	TRANSISTOR		
Q917	2SC2412K/QRS/-X	TRANSISTOR		
Q917	or 2SD601A/QRS/-X	TRANSISTOR		
Q917	or 2SC3928A/QRS/-X	TRANSISTOR		
Q918	2SC2412K/QRS/-X	TRANSISTOR		
Q918	or 2SD601A/QRS/-X	TRANSISTOR		
Q918	or 2SC3928A/QRS/-X	TRANSISTOR		
Q919	DTA144WKA-X	TRANSISTOR		
Q919	or UN211E-X	DIGI TRANSISTOR		
Q919	or RT1P44HC-X	DIGI TRANSISTOR		
D902	QRE141J-181Y	C RESISTOR	180Ω 1/4W J	
D904	MTZJ9.1B-T2	Z DIODE		
D904	or RD9.1ES/B2/-T2	Z DIODE		
C901	QEKJ0JM-337Z	E CAPACITOR	330uF 6.3V M	
C902	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C903	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C904	NDC31HJ-331X	C CAPACITOR	330pF 50V J	
C905	NDC31HJ-331X	C CAPACITOR	330pF 50V J	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local
R940	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R941	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R942	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R943	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R944	QRE121J-331Y	C RESISTOR	330Ω 1/2W J	
R945	QRE121J-331Y	C RESISTOR	330Ω 1/2W J	
R949	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R950	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R951	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R952	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R960	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R961	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R991	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R999	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7710	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7711	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
L901	QQL071J-4R7Y	COIL	4.7uH J	
L902	QQL071J-4R7Y	COIL	4.7uH J	
L903	QQL071J-1R0Y	COIL	1uH J	
L904	QQL071J-4R7Y	COIL	4.7uH J	
L905	QQL071J-4R7Y	COIL	4.7uH J	
L906	QQL071J-4R7Y	COIL	4.7uH J	
L907	QQL071J-4R7Y	COIL	4.7uH J	
L908	QQL231J-R22Y	COIL	0.22uH J	
L909	QQL071J-4R7Y	COIL	4.7uH J	
L910	QQL071J-4R7Y	COIL	4.7uH J	
L911	QQL29BJ-100Z	P COIL	10uH J	
L914	QQL071J-1R0Y	COIL	1uH J	
L917	QQL29BJ-100Z	P COIL	10uH J	
L918	QQL29BJ-100Z	P COIL	10uH J	
L919	QQL29BJ-100Z	P COIL	10uH J	
L7703	QQL071J-150Y	COIL	15uH J	
L7704	QQL071J-150Y	COIL	15uH J	
B901	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B903	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B908	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
CN913	QGB2024J1-14S	CONNECTOR	B-B (1-14)	
CN914	QGB2024J1-16S	CONNECTOR	B-B (1-16)	
CN915	QGB2024J1-09S	CONNECTOR	B-B (1-9)	
J901	QNZ0627-001	21P CONNECTOR	L-1 IN/OUT	
J902	QNZ0627-001	21P CONNECTOR	L-2 IN/DECODER	
J7007	QNN0295-002	PIN JACK	AUDIO OUT(L/R)	
TB1	QNZ0431-001Z	EARTH TERMINAL		
W1	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W2	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W3	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W4	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W5	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W6	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W7	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W8	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W9	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W10	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W11	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W12	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W13	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W14	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	

A/C head board

Block No. [1][2]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10158-01A1	A/C HEAD BOARD ASSY		

Display/operation board

Block No. [2][8]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10261-01A2	DISPLAY/OPERATION BOARD ASSY		
IC7002	GP1UM281XKVF	IR DETECT UNIT		
IC7002	or PNA4652M00XB	IR DETECT UNIT		
Q7001	2SA1037AK/QR/-X	TRANSISTOR		
Q7001	or 2SB709A/QR/-X	TRANSISTOR		
Q7001	or 2SA1530A/QR/-X	TRANSISTOR		
Q7002	2SA1037AK/QR/-X	TRANSISTOR		
Q7002	or 2SB709A/QR/-X	TRANSISTOR		
Q7002	or 2SA1530A/QR/-X	TRANSISTOR		
Q7003	2SA1037AK/QR/-X	TRANSISTOR		
Q7003	or 2SB709A/QR/-X	TRANSISTOR		
Q7003	or 2SA1530A/QR/-X	TRANSISTOR		
Q7004	2SA1037AK/QR/-X	TRANSISTOR		
Q7004	or 2SB709A/QR/-X	TRANSISTOR		
Q7004	or 2SA1530A/QR/-X	TRANSISTOR		
Q7005	2SA1037AK/QR/-X	TRANSISTOR		
Q7005	or 2SB709A/QR/-X	TRANSISTOR		
Q7005	or 2SA1530A/QR/-X	TRANSISTOR		
Q7006	2SA1037AK/QR/-X	TRANSISTOR		
Q7006	or 2SB709A/QR/-X	TRANSISTOR		
Q7006	or 2SA1530A/QR/-X	TRANSISTOR		
Q7007	2SA1037AK/QR/-X	TRANSISTOR		
Q7007	or 2SB709A/QR/-X	TRANSISTOR		
Q7007	or 2SA1530A/QR/-X	TRANSISTOR		
Q7008	2SC2412K/QRS/-X	TRANSISTOR		
Q7008	or 2SD601A/QRS/-X	TRANSISTOR		
Q7008	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7009	2SC2412K/QRS/-X	TRANSISTOR		
Q7009	or 2SD601A/QRS/-X	TRANSISTOR		
Q7009	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7010	2SC2412K/QRS/-X	TRANSISTOR		
Q7010	or 2SD601A/QRS/-X	TRANSISTOR		
Q7010	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7011	2SC2412K/QRS/-X	TRANSISTOR		
Q7011	or 2SD601A/QRS/-X	TRANSISTOR		
Q7011	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7012	2SC2412K/QRS/-X	TRANSISTOR		
Q7012	or 2SD601A/QRS/-X	TRANSISTOR		
Q7012	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7013	2SC2412K/QRS/-X	TRANSISTOR		
Q7013	or 2SD601A/QRS/-X	TRANSISTOR		
Q7013	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7014	2SC2412K/QRS/-X	TRANSISTOR		
Q7014	or 2SD601A/QRS/-X	TRANSISTOR		
Q7014	or 2SC3928A/QRS/-X	TRANSISTOR		
D7006	SLR-343MC-T	LED		DVD
C7011	QEKJ0JM-476Z	E CAPACITOR		47uF 6.3V M
R7001	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7002	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7003	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7004	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7005	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7006	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7007	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7010	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7011	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R7012	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R7013	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7014	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R7015	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7020	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7021	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R7022	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R7023	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7031	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7032	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7033	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7034	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7035	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local
R7036	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7037	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7040	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7041	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
CN7003	QGF1208F1-22	CONNECTOR	FFC/FPC (1-22)	
DI7001	ZDP-17902AEG-21	LED		
S7001	QSW1061-001Z	TACT SWITCH	DVD OPEN/CLOSE	
S7002	QSW1061-001Z	TACT SWITCH	SAT	
S7003	QSW1061-001Z	TACT SWITCH	PR+	
S7004	QSW1061-001Z	TACT SWITCH	FF	
S7005	QSW1061-001Z	TACT SWITCH	REW	
S7006	QSW1061-001Z	TACT SWITCH	REC	
S7010	QSW1061-001Z	TACT SWITCH	PR-	
S7013	QSW1061-001Z	TACT SWITCH	VCR/DVD	
S7016	QSW1061-001Z	TACT SWITCH	PLAY	
S7017	QSW1061-001Z	TACT SWITCH	STOP	

Bracket board

Block No. [3][1]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10261-01A4	BRACKET BOARD ASSY		
BK1	LP40425-001A	BRACKET(PWB)	(x2)	

Switch/jack board

Block No. [3][6]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10261-01A3	SWITCH/JACK BOARD ASSY		
D7005	SLR-343MC-T	LED	VCR	
C7192	NCB31HK-681X	C CAPACITOR	680pF 50V K	
C7193	NCB31HK-681X	C CAPACITOR	680pF 50V K	
C7194	NCB31HK-681X	C CAPACITOR	680pF 50V K	
C7195	NCB31HK-681X	C CAPACITOR	680pF 50V K	
R7025	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7026	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J	
R7027	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7042	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R7191	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J	
R7192	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7193	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R7194	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R7195	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
CN7191	QGF1201F2-10	CONNECTOR	FFC/FPC (1-10)	
J7191	QNN0591-001	PIN JACK	FRONT VIDEO/AUDIO	
S7014	QSW1061-001Z	TACT SWITCH	STANDBY/ON	
S7015	QSW1061-001Z	TACT SWITCH	CASSETTE EJECT	

Loading motor board

Block No. [5][5]

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10158-01A2	LOADING MOTOR BOARD ASSY		

Switch board

Block No. [9][8]

△ Symbol No.	Part No.	Part Name	Description	Local
CN1	QGF1016F3-05	CONNECTOR	FFC/FPC (1-5)	
S1	QSW1007-001	DETECT SWITCH	DET SW	

DVD servo control board

Block No. [9][9]

△ Symbol No.	Part No.	Part Name	Description	Local
IC101	ES6603S	IC		
IC201	BA5983FM-X	IC		
IC251	BA6679FM-X	LSI		
IC301	ES6698FDF	IC		
IC302	HY57641620HGTH	IC		
IC302	or IS42S16400-7T-X	IC		
IC302	or W986416DH-7	IC		
IC302	or K4S641632H-UC75	IC		
IC303	SA16M90TF-S1041	IC (FLASH)	(SERVICE)	A,B,C,E,F,G
IC303	SA16M90TF-S1060	IC (FLASH)	(SERVICE)	D
IC304	BR24L01AF-W-X	IC		
IC401	LM1117MP-ADJ-X	IC		
IC401	or LM1117S-AD-X	IC		
IC401	or LD1117S-X	IC		
IC403	AK4384VT-X	IC		
IC404	SN74LV273APW-X	IC		
Q101	2SB1424/R/-W	TRANSISTOR		
Q101	or 2SB1424/QR/-W	TRANSISTOR		
Q102	2SB1424/R/-W	TRANSISTOR		
Q102	or 2SB1424/QR/-W	TRANSISTOR		
Q103	RT1P141C-X	DIGI TRANSISTOR		
D101	1SS400-X	SI DIODE		
D102	MA111-X	SI DIODE		
D102	or 1SS355-X	SI DIODE		
D103	MA111-X	SI DIODE		
D103	or 1SS355-X	SI DIODE		
C101	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C102	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C106	NEAF1AM-476X	E CAPACITOR	47uF 10V M	
C107	NEAF1AM-476X	E CAPACITOR	47uF 10V M	
C109	NCB31HK-222X	C CAPACITOR	2200pF 50V K	
C110	NCB31HK-222X	C CAPACITOR	2200pF 50V K	
C111	NCB31HK-222X	C CAPACITOR	2200pF 50V K	
C112	NCB31HK-222X	C CAPACITOR	2200pF 50V K	
C113	NDC31HJ-121X	C CAPACITOR	120pF 50V J	
C114	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C115	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C116	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C117	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C118	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C119	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C120	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C121	NCB31CK-473X	C CAPACITOR	0.047uF 16V K	
C122	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C123	NEAF1AM-476X	E CAPACITOR	47uF 10V M	
C124	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C125	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C126	NEAF1AM-476X	E CAPACITOR	47uF 10V M	
C127	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	
C128	NDC31HJ-161X	C CAPACITOR	160pF 50V J	
C129	NCB31CK-333X	C CAPACITOR	0.033uF 16V K	
C130	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C131	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C137	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C138	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C204	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C205	NDC31HJ-121X	C CAPACITOR	120pF 50V J	
C207	NCB31HK-561X	C CAPACITOR	560pF 50V K	
C208	NCB31HK-561X	C CAPACITOR	560pF 50V K	

MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C210	NCB31HK-472X	C CAPACITOR	4700pF 50V K		C376	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C211	NCB31CK-223X	C CAPACITOR	0.022uF 16V K		C377	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C216	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C380	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C217	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C382	NCB31CK-153X	C CAPACITOR	0.015uF 16V K	
C219	NCB31HK-561X	C CAPACITOR	560pF 50V K		C383	NCB31CK-471X	C CAPACITOR	470pF 16V K	
C220	NCB31HK-561X	C CAPACITOR	560pF 50V K		C391	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C251	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C392	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C253	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C401	NEAF0JM-476X	E CAPACITOR	47uF 6.3V M	
C255	NCB31CK-153X	C CAPACITOR	0.015uF 16V K		C402	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C256	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C403	NEAF0JM-476X	E CAPACITOR	47uF 6.3V M	
C257	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C405	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C258	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C410	NEAF1AM-106X	E CAPACITOR	10uF 10V M	
C259	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C417	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C260	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C418	NEAF0JM-227X	E CAPACITOR	220uF 6.3V M	
C261	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C420	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C262	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C421	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C263	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C423	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C264	NCB31HK-103X	C CAPACITOR	0.01uF 50V K		C430	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C265	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C431	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C301	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C432	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C308	NDC31HJ-330X	C CAPACITOR	33pF 50V J		C433	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C309	NDC31HJ-330X	C CAPACITOR	33pF 50V J		C434	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C310	NDC31HJ-330X	C CAPACITOR	33pF 50V J		C435	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C311	NDC31HJ-121X	C CAPACITOR	120pF 50V J		C436	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C312	NCB31HK-561X	C CAPACITOR	560pF 50V K		C437	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C313	NCB31CK-473X	C CAPACITOR	0.047uF 16V K		C438	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C316	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C439	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C317	NDC31HJ-470X	C CAPACITOR	47pF 50V J		C440	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C318	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C441	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C319	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C442	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C320	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C443	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C321	NCB31HK-682X	C CAPACITOR	6800pF 50V K		C444	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C323	NCB31HK-472X	C CAPACITOR	4700pF 50V K		C445	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C326	NCB31HK-472X	C CAPACITOR	4700pF 50V K		C446	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C327	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C447	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C328	NEAF1HM-475X	E CAPACITOR	4.7uF 50V M		C448	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C329	NCF31AZ-105X	C CAPACITOR	1uF 10V Z		C449	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C330	NCF31AZ-105X	C CAPACITOR	1uF 10V Z		C450	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C331	NCB31HK-561X	C CAPACITOR	560pF 50V K		C451	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C332	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C452	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C333	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C453	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C334	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C454	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C335	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C455	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C336	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C456	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C337	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C457	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C339	NEAF0JM-107X	E CAPACITOR	100uF 6.3V M		C458	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C340	NCB31CK-104X	C CAPACITOR	0.1uF 16V K		C459	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C341	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C460	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C342	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C461	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C343	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C462	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C344	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C463	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C345	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C464	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C346	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C465	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C347	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C466	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C348	NCB31HK-471X	C CAPACITOR	470pF 50V K		C467	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C349	NCB31HK-471X	C CAPACITOR	470pF 50V K		C468	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C350	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		C469	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z	
C351	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R101	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
C352	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R102	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
C353	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R104	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
C354	NCB31HK-471X	C CAPACITOR	470pF 50V K		R105	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
C355	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R106	NRS125J-100X	MG RESISTOR	10Ω 1/2W J	
C356	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R107	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C357	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R108	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
C358	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R109	NRS125J-100X	MG RESISTOR	10Ω 1/2W J	
C359	NDC31HJ-120X	C CAPACITOR	12pF 50V J		R110	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C360	NDC31HJ-120X	C CAPACITOR	12pF 50V J		R111	NRSA63D-123X	MG RESISTOR	12kΩ 1/16W D	
C361	NCB31HK-471X	C CAPACITOR	470pF 50V K		R112	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C362	NCB31HK-471X	C CAPACITOR	470pF 50V K		R113	NRS125J-1R0X	MG RESISTOR	1Ω 1/2W J	
C363	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R114	NRS125J-1R0X	MG RESISTOR	1Ω 1/2W J	
C364	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R115	NRSA63J-512X	MG RESISTOR	5.1kΩ 1/16W J	
C365	NCB31HK-471X	C CAPACITOR	470pF 50V K		R116	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
C366	NCB31HK-471X	C CAPACITOR	470pF 50V K		R117	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
C367	NCB31HK-471X	C CAPACITOR	470pF 50V K		R118	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
C368	NCB31HK-471X	C CAPACITOR	470pF 50V K		R119	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C369	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R120	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C370	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z		R121	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C372	NCF31CZ-104X	C CAPACITOR	0.1uF 16V Z						

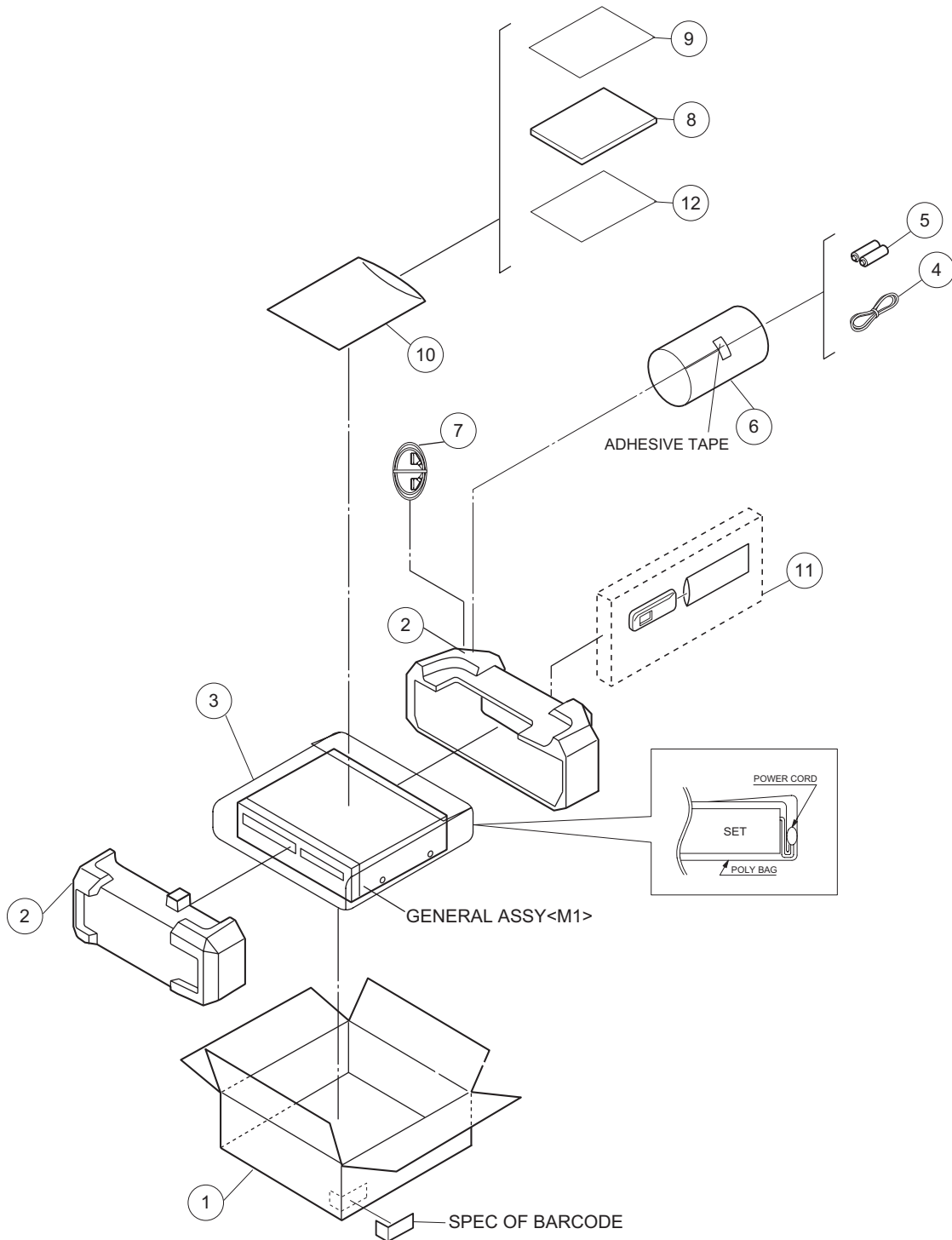
MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R122	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R350	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R123	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R351	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R201	NRSA63J-470X	MG RESISTOR	47Ω 1/16W J		R353	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	
R202	NRS125J-1R0X	MG RESISTOR	1Ω 1/2W J		R355	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R204	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R356	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R205	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R357	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R206	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J		R358	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R207	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J		R360	NRVA63D-391X	CMF RESISTOR	390Ω 1/16W D	
R208	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J		R364	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R209	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J		R366	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R210	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R368	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R211	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		R371	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R212	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R373	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R213	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R375	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R214	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R377	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R215	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R378	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R216	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R379	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R217	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R386	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
R219	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R387	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R220	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J		R389	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R221	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R390	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R222	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		R391	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R223	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R393	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R224	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R394	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R251	NRS125J-R47X	MG RESISTOR	0.47Ω 1/2W J		R395	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R252	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J		R396	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R254	NRSA63J-203X	MG RESISTOR	20kΩ 1/16W J		R399	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R255	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R402	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R256	NRSA63J-470X	MG RESISTOR	47Ω 1/16W J		R412	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R259	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R413	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R260	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		R414	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R261	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R415	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R262	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		R417	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R300	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R418	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R301	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		R419	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R302	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		R420	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R303	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		R421	NRSA63F-682X	MG RESISTOR	6.8kΩ 1/16W F	
R304	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J		R422	NRSA63F-392X	MG RESISTOR	3.9kΩ 1/16W F	
R305	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R423	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R306	NRSA63J-512X	MG RESISTOR	5.1kΩ 1/16W J		R470	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R309	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R476	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R310	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		L301	NQL044K-100X	COIL	0.26Ω 10uH K	
R311	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		CN101	QGF0523F1-24W	CONNECTOR	PICK UP	
R312	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J		CN201	QGF1016F2-15W	CONNECTOR	SPINDLE	
R314	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		CN301	QGF1016F2-17W	CONNECTOR	FFC/FPC (1-17)	
R315	NRSA63J-512X	MG RESISTOR	5.1kΩ 1/16W J		CN302	QGF1016F2-19W	CONNECTOR	FFC/FPC (1-19)	
R316	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K101	NRSA02J-470X	MG RESISTOR	47Ω 1/10W J	
R317	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K102	NQR0251-001X	FERRITE BEADS		
R318	NRSA63J-203X	MG RESISTOR	20kΩ 1/16W J		K103	NQR0251-001X	FERRITE BEADS		
R319	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J		K201	NQR0251-001X	FERRITE BEADS		
R320	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		K303	NQR0502-001X	FERRITE BEADS		
R321	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		K304	NQR0502-001X	FERRITE BEADS		
R323	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		K305	NQR0251-001X	FERRITE BEADS		
R324	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		K306	NQR0502-001X	FERRITE BEADS		
R326	NRSA63J-680X	MG RESISTOR	68Ω 1/16W J		K307	NQR0502-001X	FERRITE BEADS		
R327	NRSA63F-680X	MG RESISTOR	68Ω 1/16W F		K401	NQR0129-002X	FERRITE BEADS		
R328	NRSA63F-510X	MG RESISTOR	51Ω 1/16W F		K402	NQR0129-002X	FERRITE BEADS		
R329	NRSA63F-510X	MG RESISTOR	51Ω 1/16W F		K403	NQR0129-002X	FERRITE BEADS		
R330	NRSA63F-680X	MG RESISTOR	68Ω 1/16W F		K404	NQR0129-002X	FERRITE BEADS		
R331	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K405	NQR0129-002X	FERRITE BEADS		
R332	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K406	NQR0129-002X	FERRITE BEADS		
R333	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K407	NQR0129-002X	FERRITE BEADS		
R334	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K408	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R335	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K409	NQR0502-001X	FERRITE BEADS		
R336	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K410	NQR0502-001X	FERRITE BEADS		
R337	NRSA63J-432X	MG RESISTOR	4.3kΩ 1/16W J		K414	NQR0129-002X	FERRITE BEADS		
R338	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K415	NQR0129-002X	FERRITE BEADS		
R339	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		K416	NQR0129-002X	FERRITE BEADS		
R340	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J		K418	NQR0129-002X	FERRITE BEADS		
R341	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J		K419	NQR0129-002X	FERRITE BEADS		
R342	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J		X301	NAX0550-001X	CRYSTAL	27.000MHz	
R343	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R344	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R345	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R346	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R347	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R348	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						
R349	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J						

Packing materials and accessories parts list

The instruction manual to be provided with this product will differ according to the destination.

Block No. M5MM



MODEL	MARK	MODEL	MARK
HR-XV48EF	A	HR-XV48EX	E
HR-XV48EK	B	HR-XV48EY	F
HR-XV48EL	C	HR-XV48EZ	G
HR-XV48ER	D		

Packing and accessories

Block No. [M][5][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
1	LP31296-011A	PACKING CASE		D
1	LP31296-009A	PACKING CASE		A,B,C,E,F,G
2	LP31295-001B	CUSHION ASSY		
3	LP41038-001A	POLY BAG		
4	QAM0002-001	RF CABLE		
5	-----	BATTERY	R6 TYPE(x2)	
6	QPC02202230P	POLY BAG	22cm x 22cm	
7	QAM0502-002	PERI CABLE		A
△ 8	LPT0992-001A	INST.BOOK	(FRENCH)	A
△ 8	LPT0991-001A	INST.BOOK	(ENGLISH)	B
△ 8	LPT0990-005A	INST.BOOK	(SPANISH)	C
△ 8	LPT0990-011A	INST.BOOK	(PORTUGUESE)	C
△ 8	LPT0990-012A	INST.BOOK	(GERMANY)	C
△ 8	LPT0993-001A	INST.BOOK	(RUSSIAN)	D
△ 8	LPT0990-002A	INST.BOOK	(GERMANY)	E
△ 8	LPT0990-003A	INST.BOOK	(FRENCH)	E
△ 8	LPT0990-004A	INST.BOOK	(DUCH)	E
△ 8	LPT0990-006A	INST.BOOK	(ITALIAN)	E
△ 8	LPT0990-007A	INST.BOOK	(DANISH)	F
△ 8	LPT0990-008A	INST.BOOK	(FINNISH)	F
△ 8	LPT0990-009A	INST.BOOK	(SWEDISH)	F
△ 8	LPT0990-010A	INST.BOOK	(NORWEGIAN)	F
△ 8	LPT0990-013A	INST.BOOK	(CZECH)	G
△ 8	LPT0990-014A	INST.BOOK	(POLISH)	G
△ 8	LPT0990-015A	INST.BOOK	(HUNGARIAN)	G
9	-----	WARRANTY CARD	BT-54026-1	
10	QPC02503530P	POLY BAG	25cm x 35cm	
11	RM-SHR004E	REMOCON		
12	LYT0194-001B	Q.CARD		B

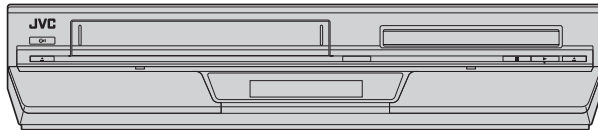
JVC

SCHEMATIC DIAGRAMS

DVD PLAYER & VIDEO CASSETTE RECORDER

**HR-XV48EF, HR-XV48EK,
HR-XV48EL, HR-XV48ER,
HR-XV48EX, HR-XV48EY,
HR-XV48EZ**

CD-ROM No.SML200502




HR-XV48EF,HR-XV48EK,HR-XV48EL,HR-XV48ER,HR-XV48EX,HR-XV48EY,HR-XV48EZ [D4PV1]

For disassembling and assembling of MECHANISM ASSEMBLY, refer to the SERVICE MANUAL No.86700(MECHANISM ASSEMBLY).

CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions

The Components identified by the symbol  are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

- All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- All capacitance values are in μ F, (P: PF).
- All inductance values are in μ H, (m: mH).
- All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

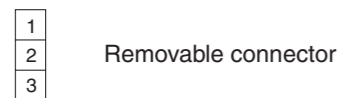
Note: The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

2. Indications of control voltage

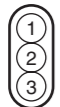
AUX : Active at high.

$\overline{\text{AUX}}$ or AUX(L) : Active at low.

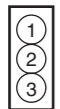
3. Interpreting Connector indications



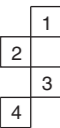
Removable connector



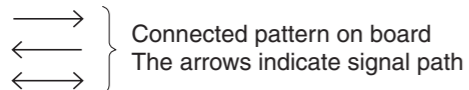
Wire soldered directly on board



Non-removable Board connector



Board to Board

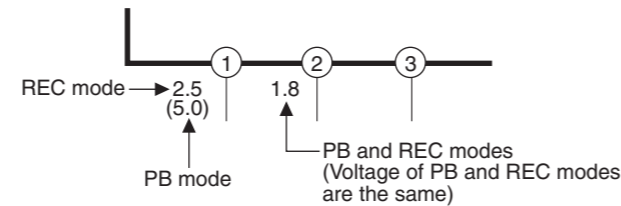


Connected pattern on board
The arrows indicate signal path

Note: For the destination of each signal and further line connections that are cut off from the diagram, refer to "BOARD INTERCONNECTIONS"

4. Voltage measurement

- Regulator (DC/DC CONV) circuits
REC : Colour bar signal.
PB : Alignment tape (Colour bar).
— : Unmeasurable or unnecessary to measure.
- Indication on schematic diagram
Voltage indications for REC and PB mode on the schematic diagram are as shown below.

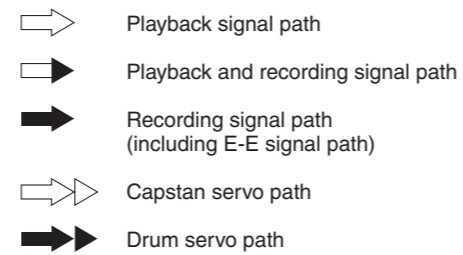


Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

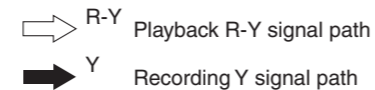
5. Signal path Symbols

The arrows indicate the signal path as follows.

NOTE : The arrow is DVC unique object.



(Example)



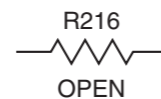
6. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



7. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



CIRCUIT BOARD NOTES

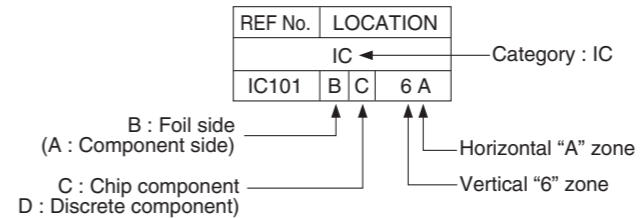
1. Foil and Component sides

- Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

Parts location are indicated by guide scale on the circuit board.

2. Parts location guides

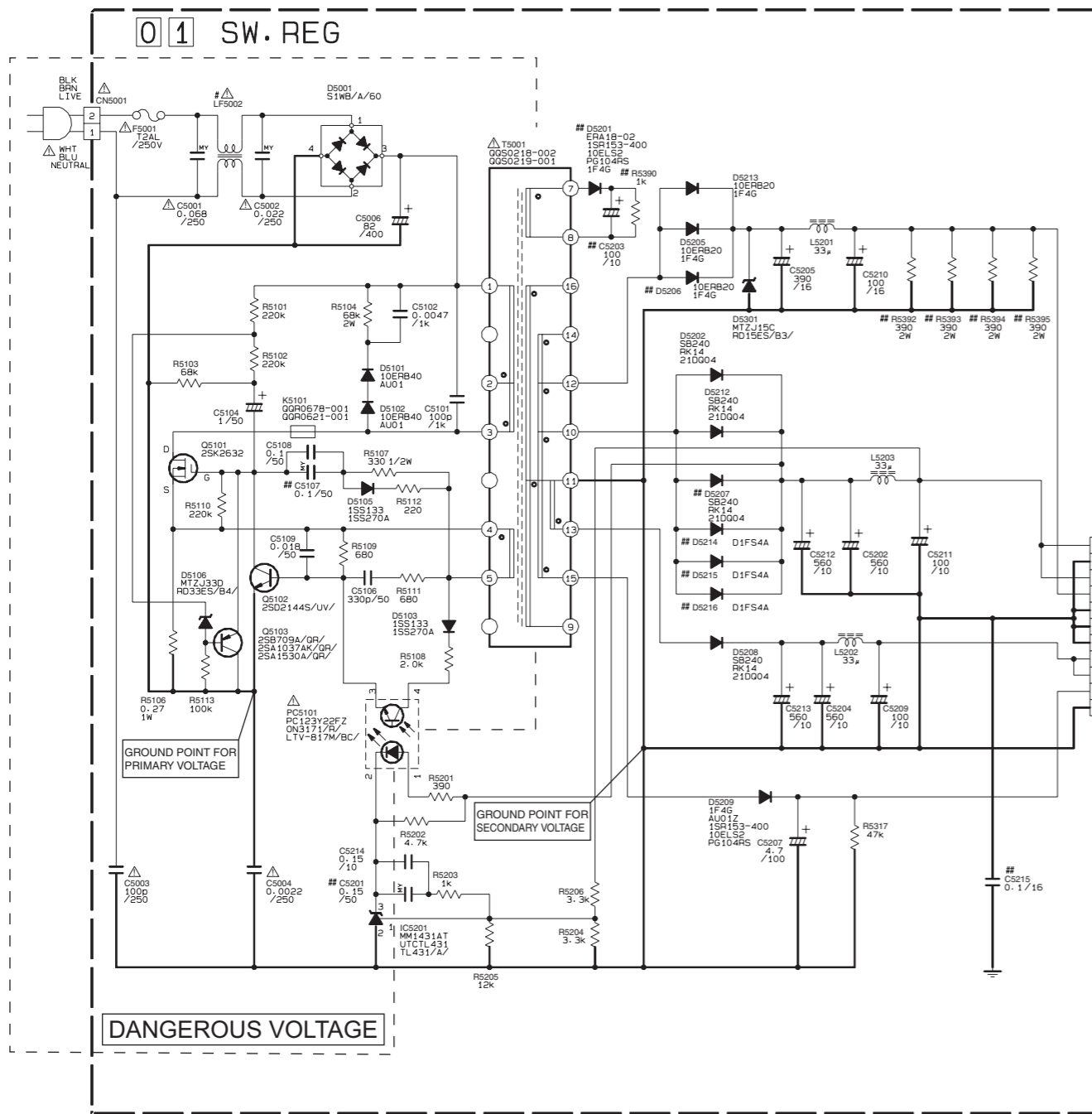
Parts location are indicated by guide scale on the circuit board.



Note: For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

SWITCHING REGULATOR AND MAIN(SWITCHING REGULATOR) SCHEMATIC DIAGRAM

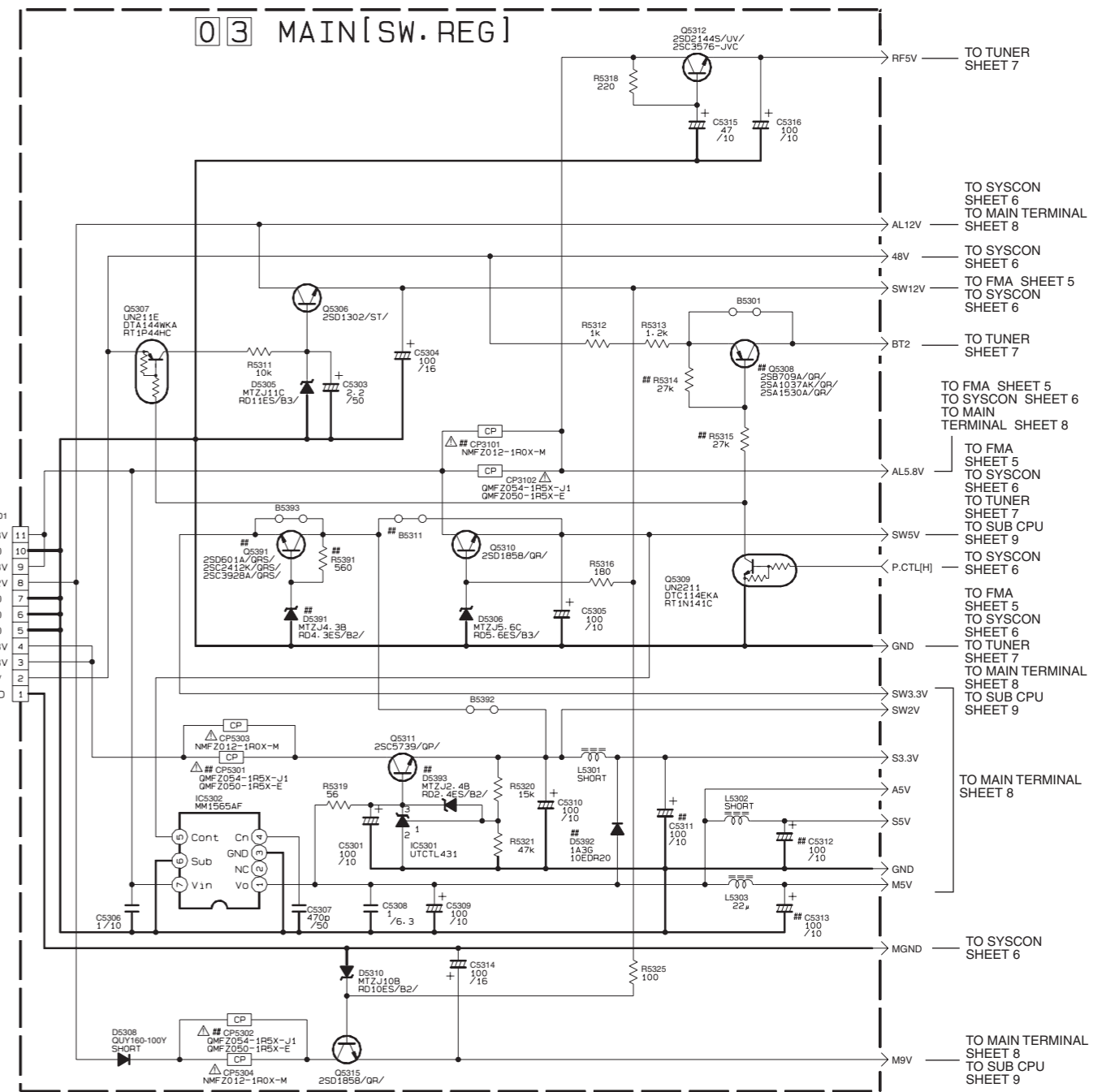
5
4
3
2



MARK ELEMENTS ARE NOT MOUNTED

DIFFERENCE TABLE 1

	HR-XV4BEZ/EX/EF/ER/EY/EZ	HR-XV3BAG/AA/AS
LF5002	QGR1515-002 QGR0978-001	QGR1515-001 QGR0816-001 QGR0932-001



NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

- ELECTROLYTIC
- CERAMIC
- MYLAR
- NON POLAR

1

A

B

C

D

2-5

E

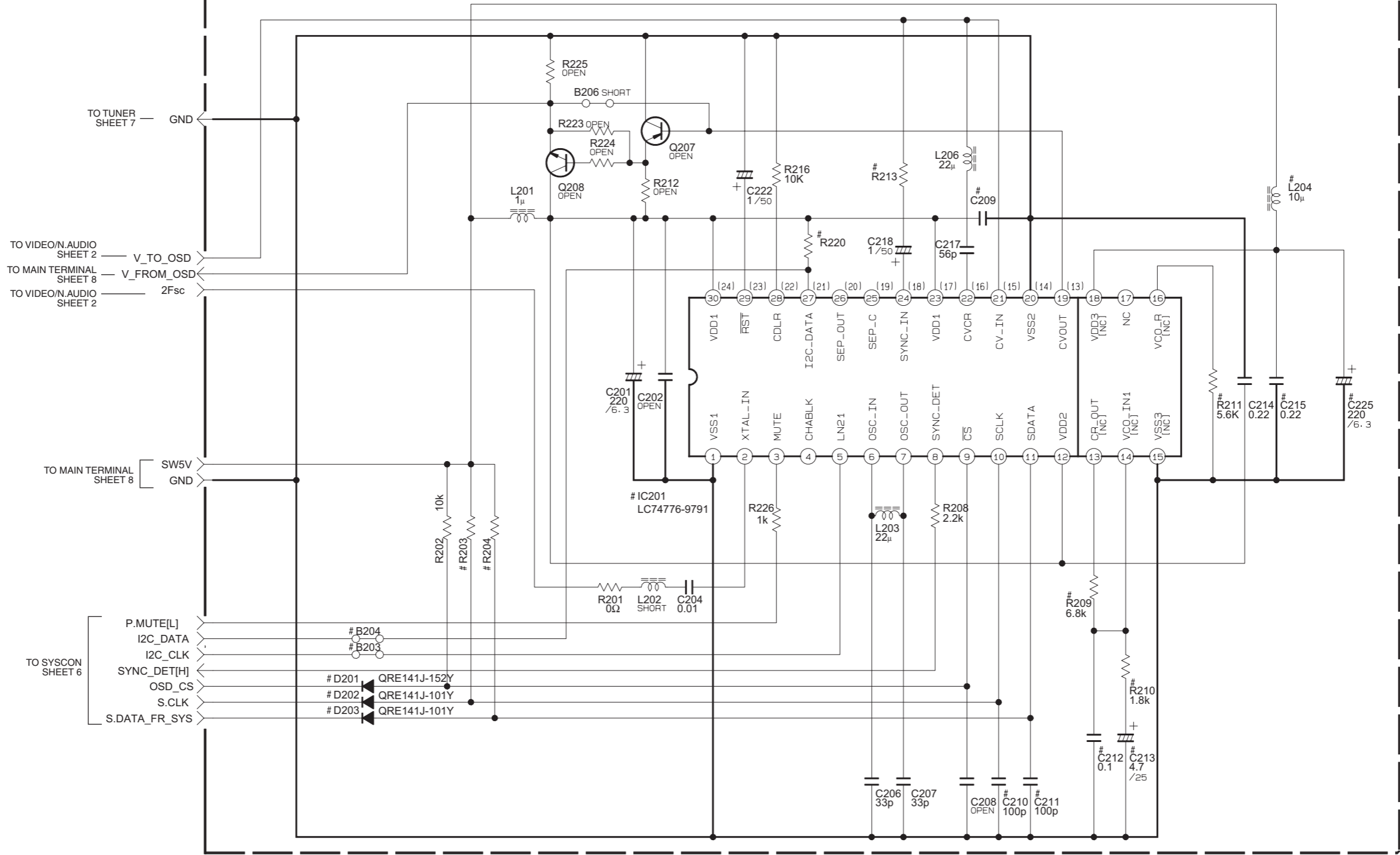
2-6

F

G

MAIN(ON SCREEN) SCHEMATIC DIAGRAM

03 MAIN (ON SCREEN)



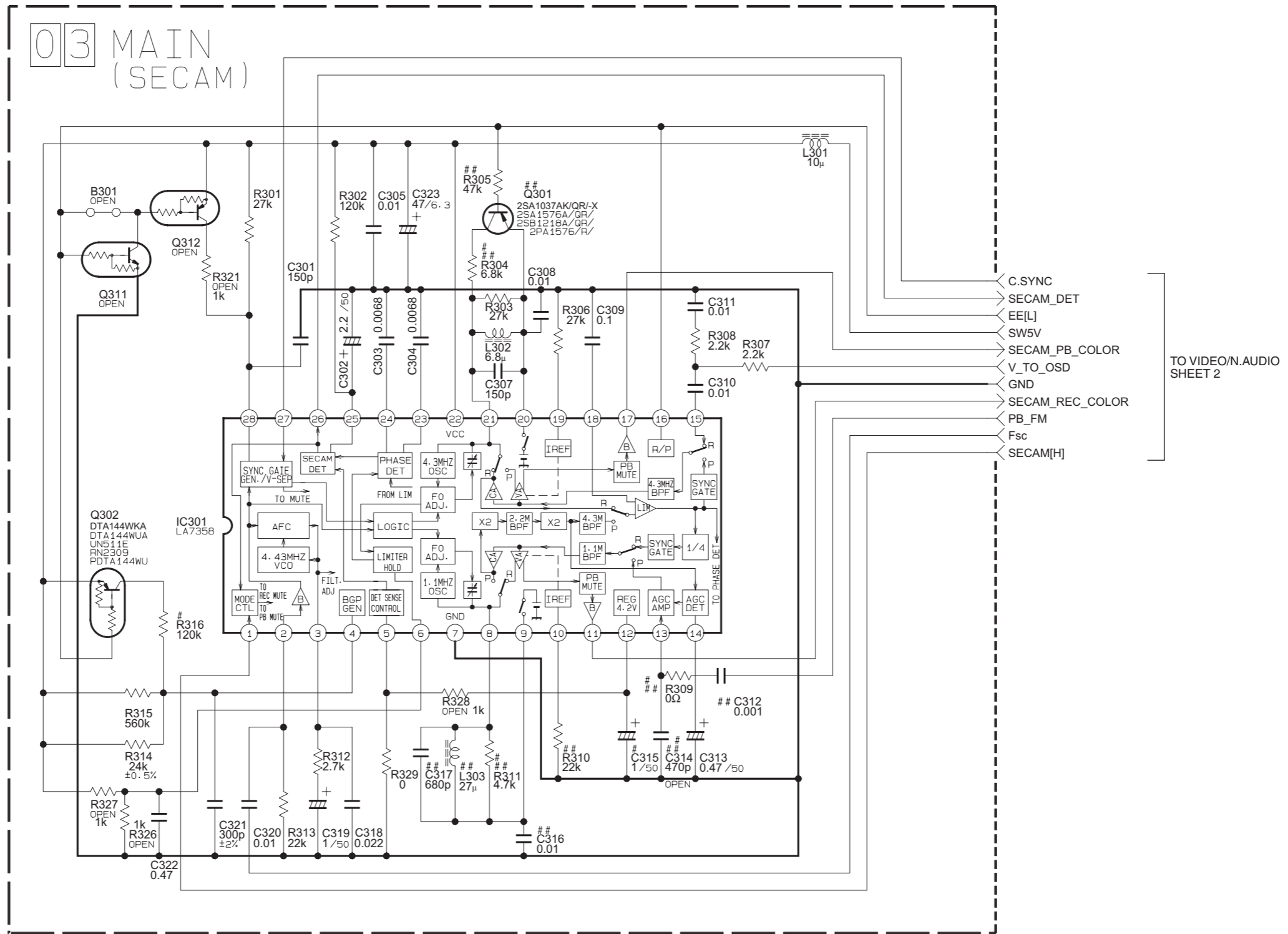
DIFFERENCE TABLE

SYMBOL	IC201	B203 B204	D201	D202 D203	R203 R204	R213	R220	C209	L204 R209-R211 C210-C213 C215, C225
EX. EF EURO MODEL	LC74776-9791 (1-30PIN)	SHORT	1.5k	100	OPEN	SHORT	OPEN	0.47	○
AA-AG ASIA MODEL	LC74789N-9719 (1-24PIN)	OPEN	1SS133	1SS133	10k	2.2k	SHORT	0.22	×

NOTES: UNLESS OTHERWISE SPECIFIED.
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μF.

- ELECTROLYTIC
- CERAMIC
- NON POLAR

MAIN(SECAM) SCHEMATIC DIAGRAM [HR-XV48EF ONLY]



DIFFERENCE TABLE

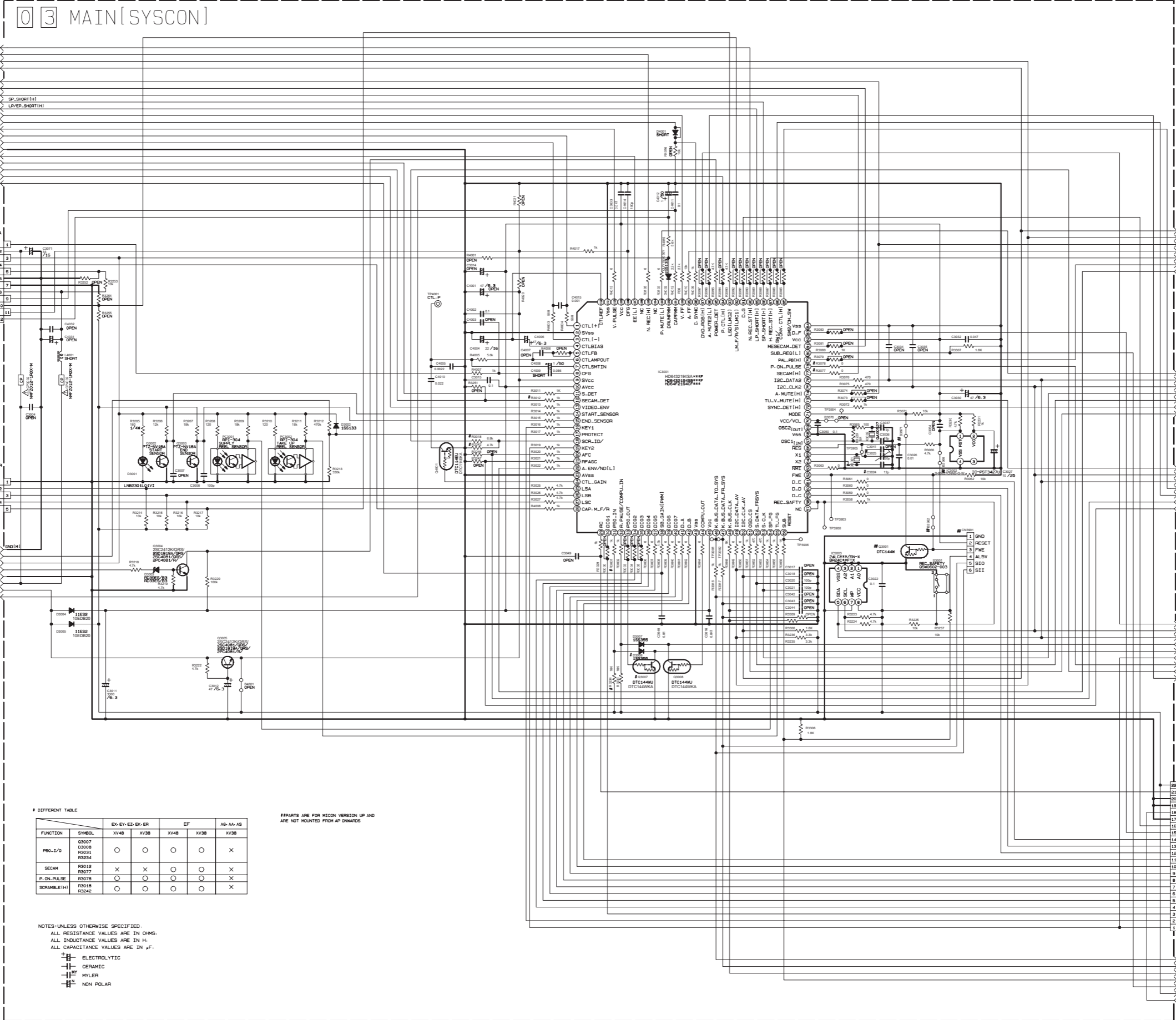
	R303	R309	R311	R316	C314	C315
HIFI MODELS	27k	820	3.9k	220k	470p	10/25
S-VHS MODELS	27k (ER=6.8k)	SHORT	4.7k	120k	×	1/50

MARKS ARE NOT MOUNTED ON ER MODELS(S-VHS).

NOTES: UNLESS OTHERWISE SPECIFIED.
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μ F.

- ELECTROLYTIC
- CERAMIC
- MYLER
- NON POLAR

MAIN(SYSCON) SCHEMATIC DIAGRAM



DIFFERENT TABLE

FUNCTION	SYMBOL	EX-EY-EZ-EK-ER	EF	AG-AA-AS
PSD-I/O	Q3007 D3008 R3031 R3034	○ ○	○ ○	○ ×
SECAM	R3012 R3077	× ×	○ ○	○ ×
P.ON.PULSE	R3078	○ ○	○ ○	○ ×
SCRAMBLE(H)	R3018 R3042	○ ○	○ ○	○ ×

NOTES UNLESS OTHERWISE SPECIFIED:
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μF.
 — ELECTROLYTIC
 — CERAMIC
 — MYL
 — NON POLAR

##PARTS ARE FOR MICON VERSION UP AND ARE NOT MOUNTED FROM AP OWNERS

TO FME SHEET 5

TO ON SCREEN SHEET 3

TO TUNER SHEET 7

TO MAIN TERMINAL SHEET 8

TO DISPLAY/SW CN7003 SHEET 11

TO SUB CPU SHEET 9

MAIN(TUNER) SCHEMATIC DIAGRAM

03 MAIN(TUNER)

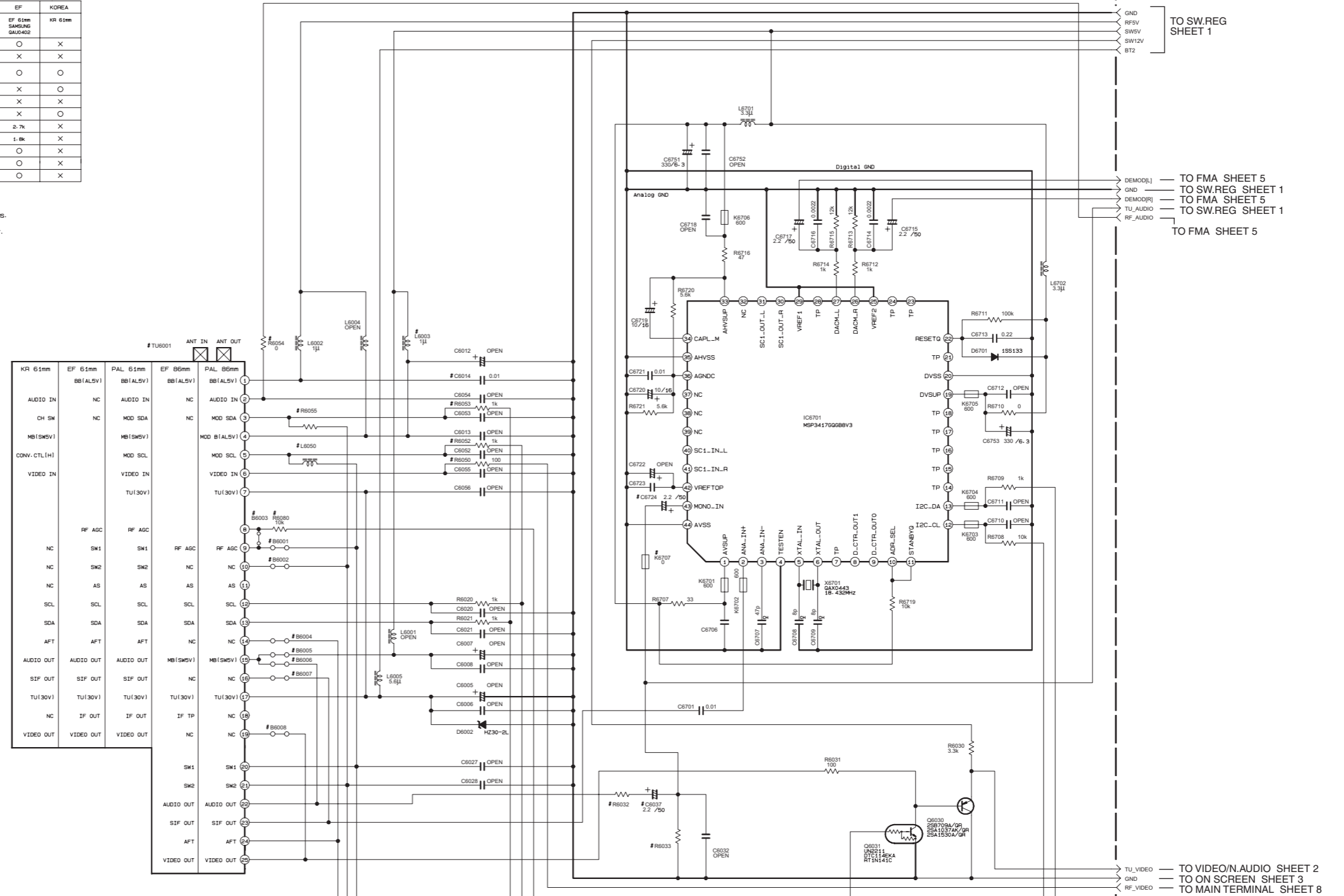
DIFFERENCE TABLE

		EK/EK/ASIA	EF	KOREA
TUNER	TU6001	PAL 61mm SAMSUNG GAU6400	EF 61mm SAMSUNG GAU6402	KR 61mm
TUNER OPTION	B6001-B6002	○	○	×
	B6003-B6005	×	×	×
	B6004-B6006- B6007-B6008	○	○	○
RF CONVERTER	R6054	○	×	○
	R6052-R6053	○	×	×
	R6055-L6050	×	×	○
TUNER AUDIO	R6032	1.8k	2.7k	×
	R6033	3.3k	1.8k	×
	C6037	○	○	×
VIDEO MUTE	G6031	○	○	×
MONO IN	R6707-C6724	×	○	×

NOTES UNLESS OTHERWISE SPECIFIED:
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μF.
 ELECTROLYTIC
 CERAMIC
 MYLAR
 NON POLAR

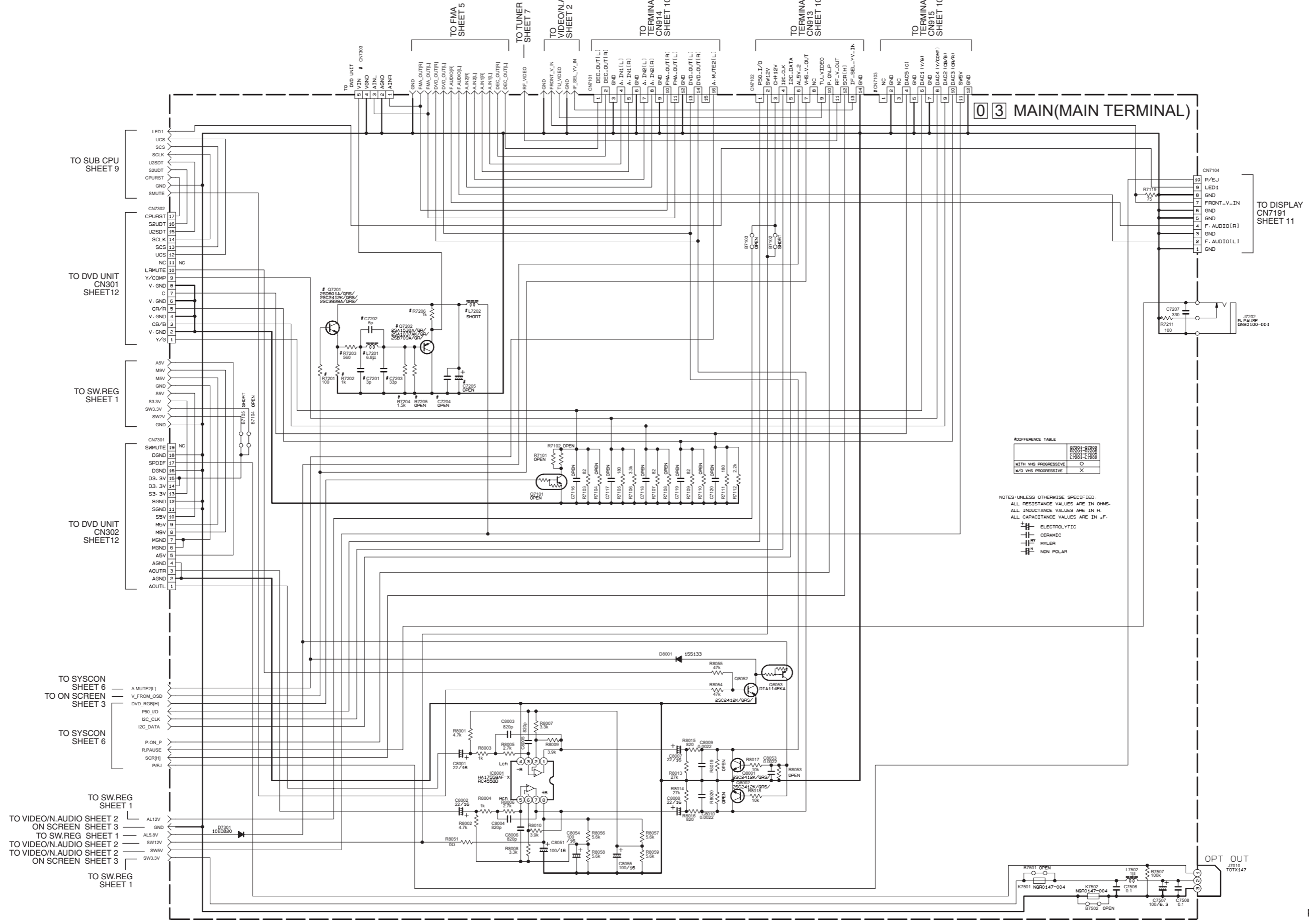
TO SYSCON SHEET 6

- IC2_CLK
- IC2_DATA
- IC2_AFC
- TU_V_MUTE[H]
- RF_AGC
- SW1CONV.CTL[H]
- SW2CH_SW



MAIN(MAIN TERMINAL) SCHEMATIC DIAGRAM

5
4
3
2
1

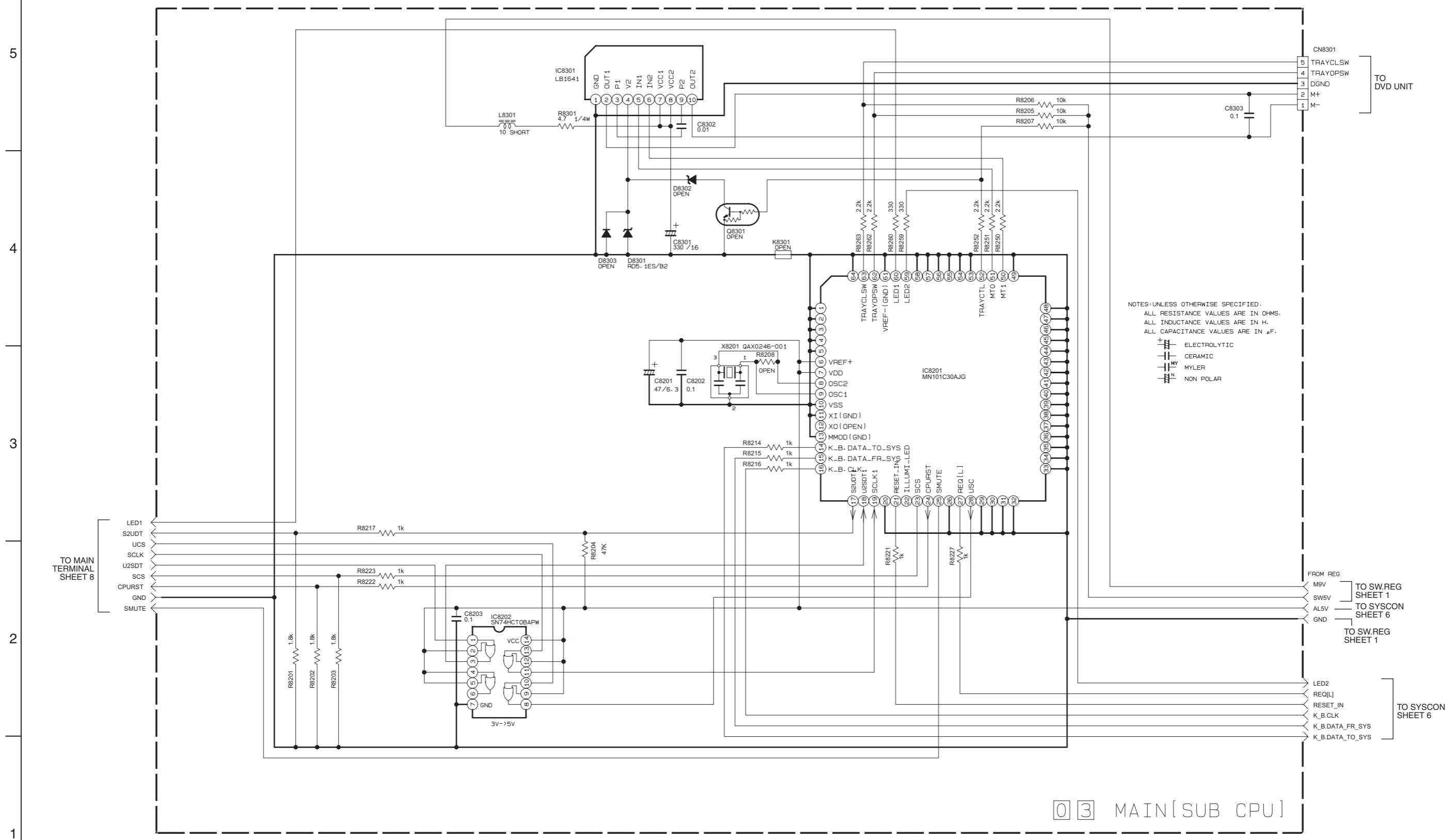


#DIFFERENCE TABLE

	Q7201-Q7205
	R7201-R7205
	C7201-C7205
WITH VHS PROGRESSIVE	O
W/O VHS PROGRESSIVE	X

NOTES-UNLESS OTHERWISE SPECIFIED.
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN µF.
 [Symbol] ELECTROLYTIC
 [Symbol] CERAMIC
 [Symbol] MYLAR
 [Symbol] NON POLAR

MAIN(SUB CPU) SCHEMATIC DIAGRAM



NOTES: UNLESS OTHERWISE SPECIFIED,
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μF.

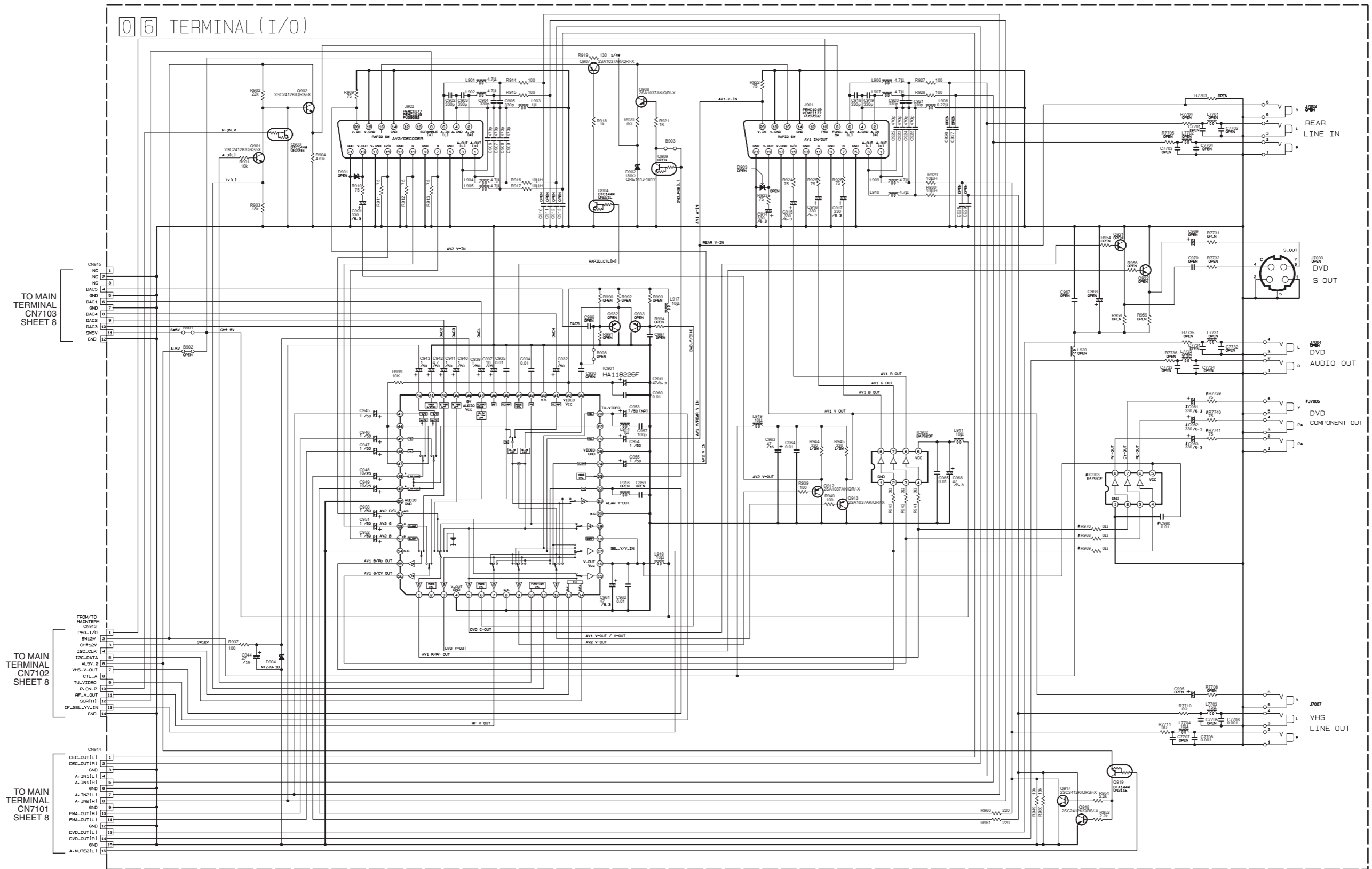
ELECTROLYTIC
 CERAMIC
 MYLER
 NON POLAR

03 MAIN(SUB CPU)

■ TERMINAL(I/O) SCHEMATIC DIAGRAM

5
4
3
2
1

06 TERMINAL(I/O)



TO MAIN
TERMINAL
CN7103
SHEET 8

TO MAIN
TERMINAL
CN7102
SHEET 8

TO MAIN
TERMINAL
CN7101
SHEET 8

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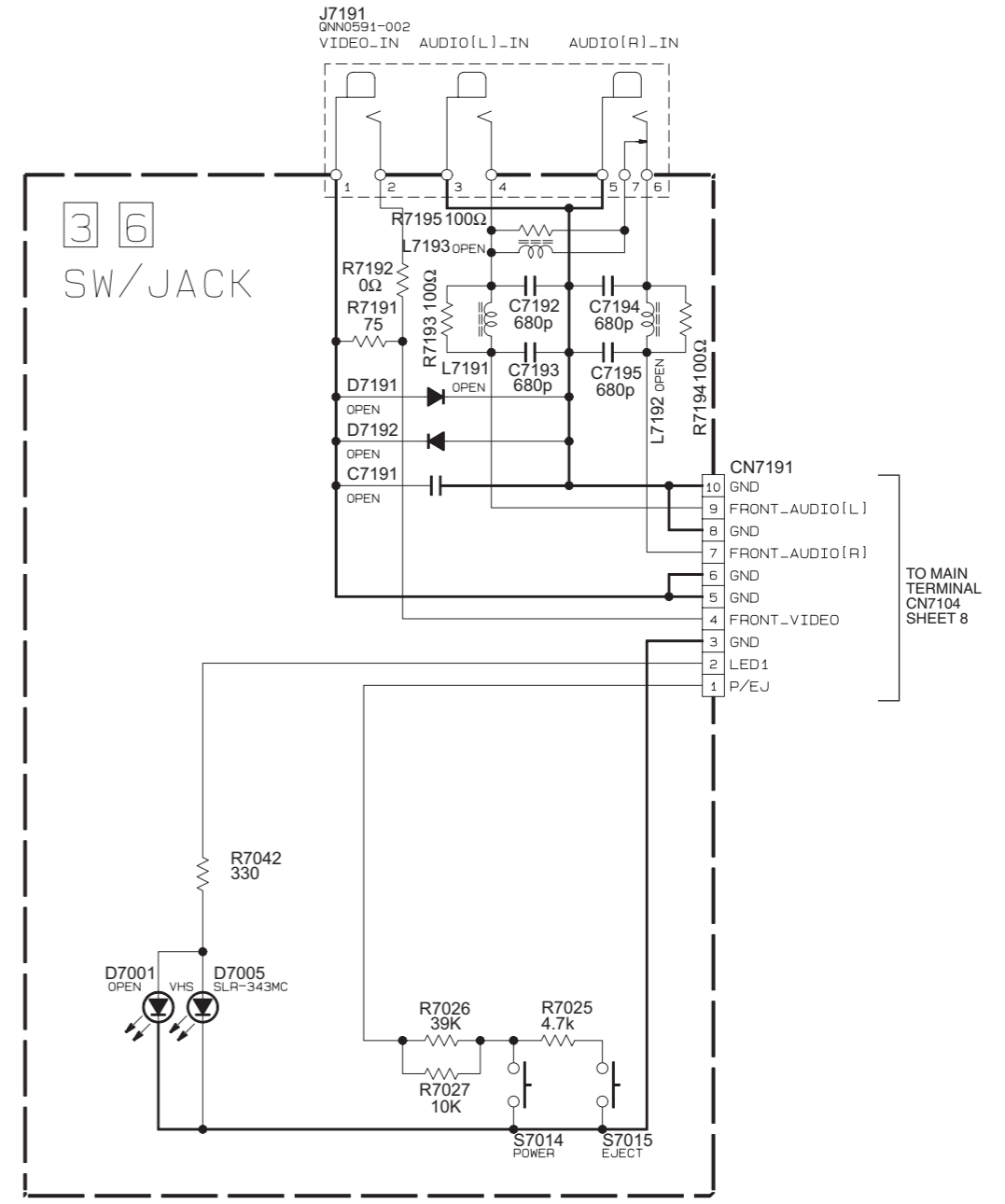
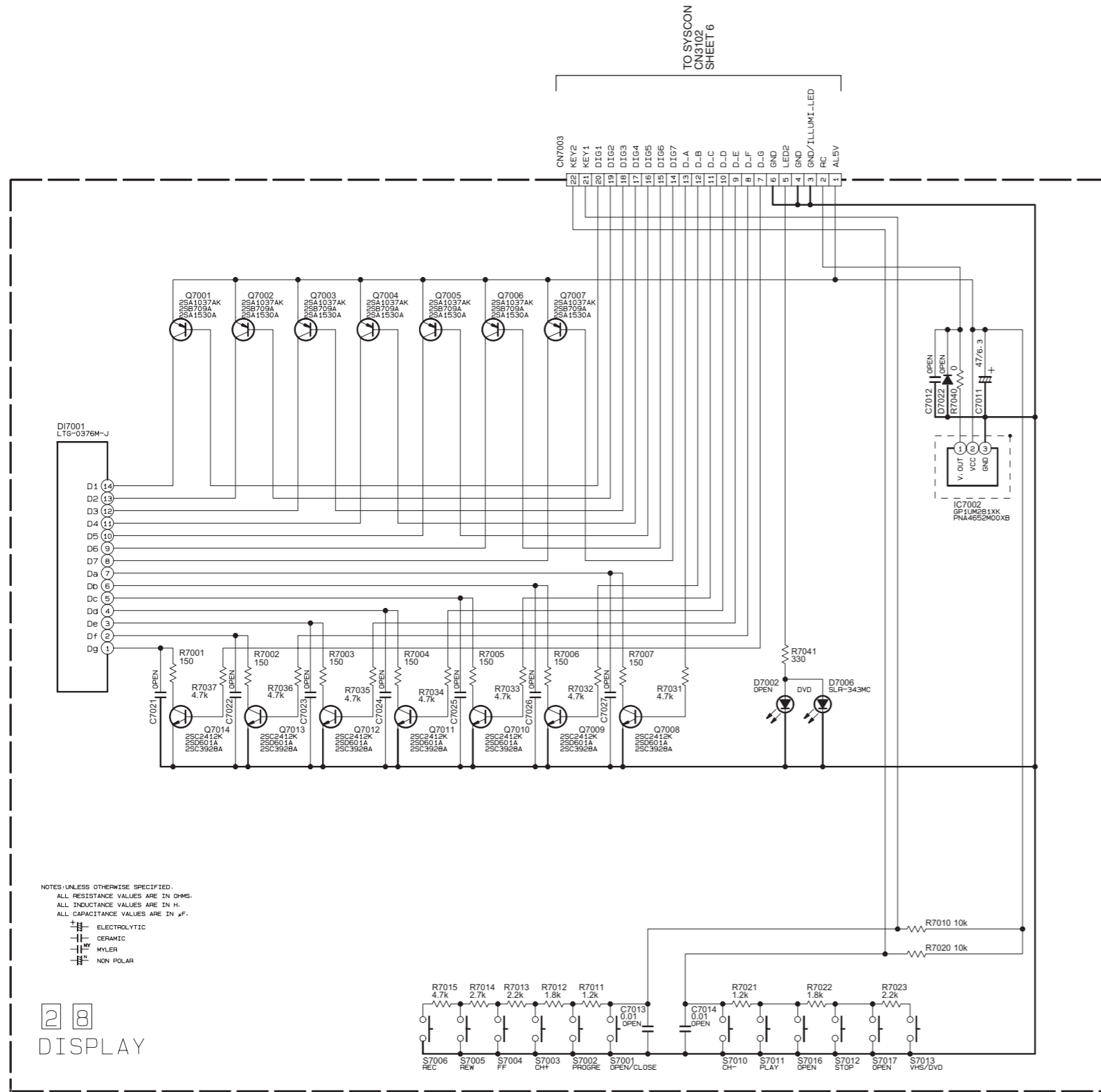
NOTES UNLESS OTHERWISE SPECIFIED:
 ALL RESISTANCE VALUES ARE IN OHMS.
 ALL INDUCTANCE VALUES ARE IN H.
 ALL NPN TYPE TRANSISTORS ARE 2SC301A/GR/ OR 2SC2412K/GRS/ OR 2SC3028A/GRS/.
 ALL PNP TYPE TRANSISTORS ARE 2SA1530A/GR/ OR 2SA1037AK/GR/ OR 2SB709A/GR/.
 ALL CAPACITANCE VALUES ARE IN μF.
 ELECTROLYTIC
 CERAMIC

DVD DAC OUT SIGNAL

DAC	DAC1	DAC2	DAC3	DAC4	DAC5
RGB	G	B	R	CVBS	C
COMPONENT	Y	Pb	Pc	Y	C
RGB	G	B	R	CVBS	CVBS
ESS	Y	Pb	Pc	CVBS	C

■ DISPLAY/OPERATION AND SWITCH/JACK SCHEMATIC DIAGRAMS

5
4
3
2
1



A

B

C

D

2-25

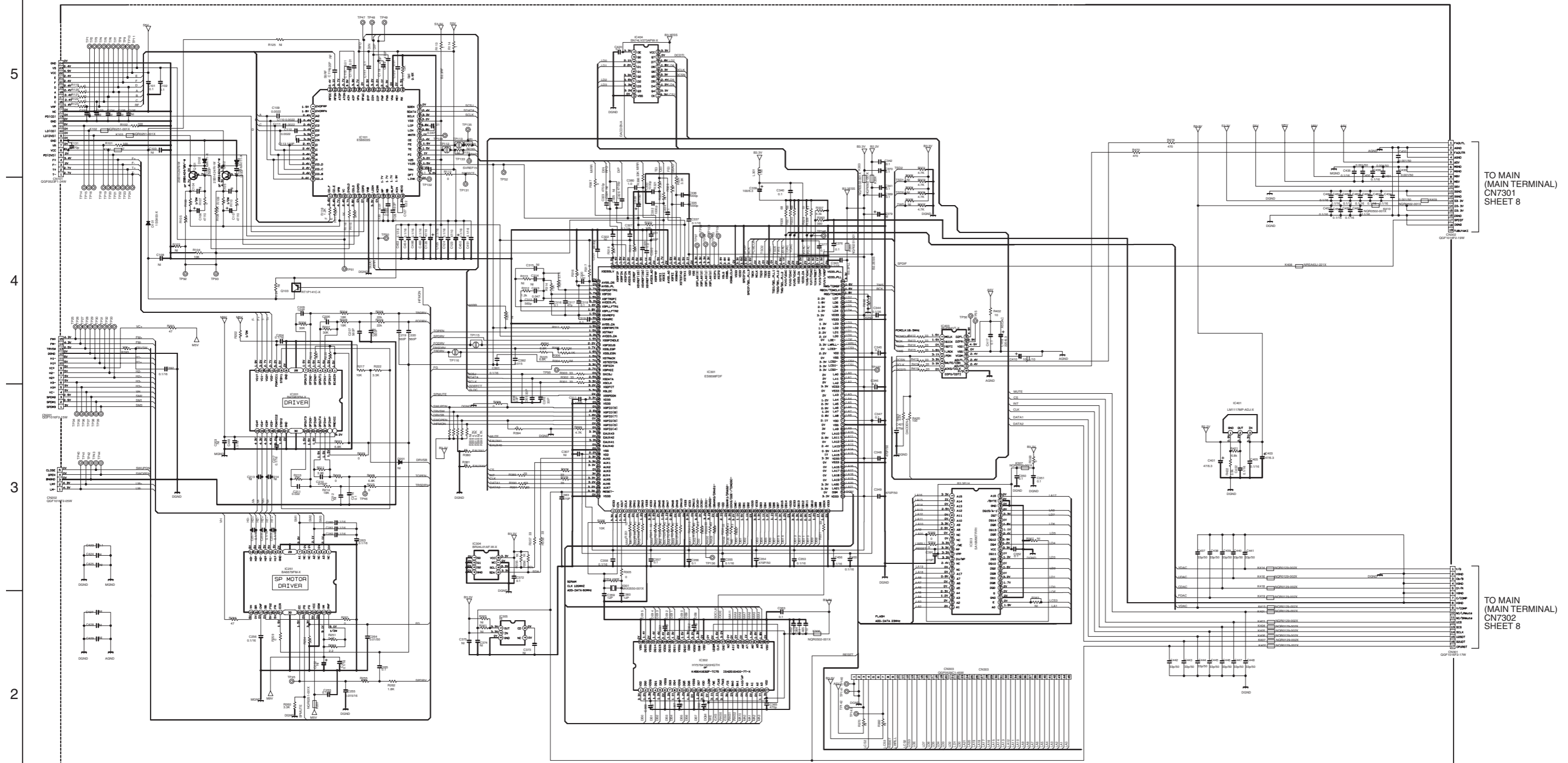
2-26

E

F

G

DVD SERVO CONTROL AND DECODER SCHEMATIC DIAGRAM



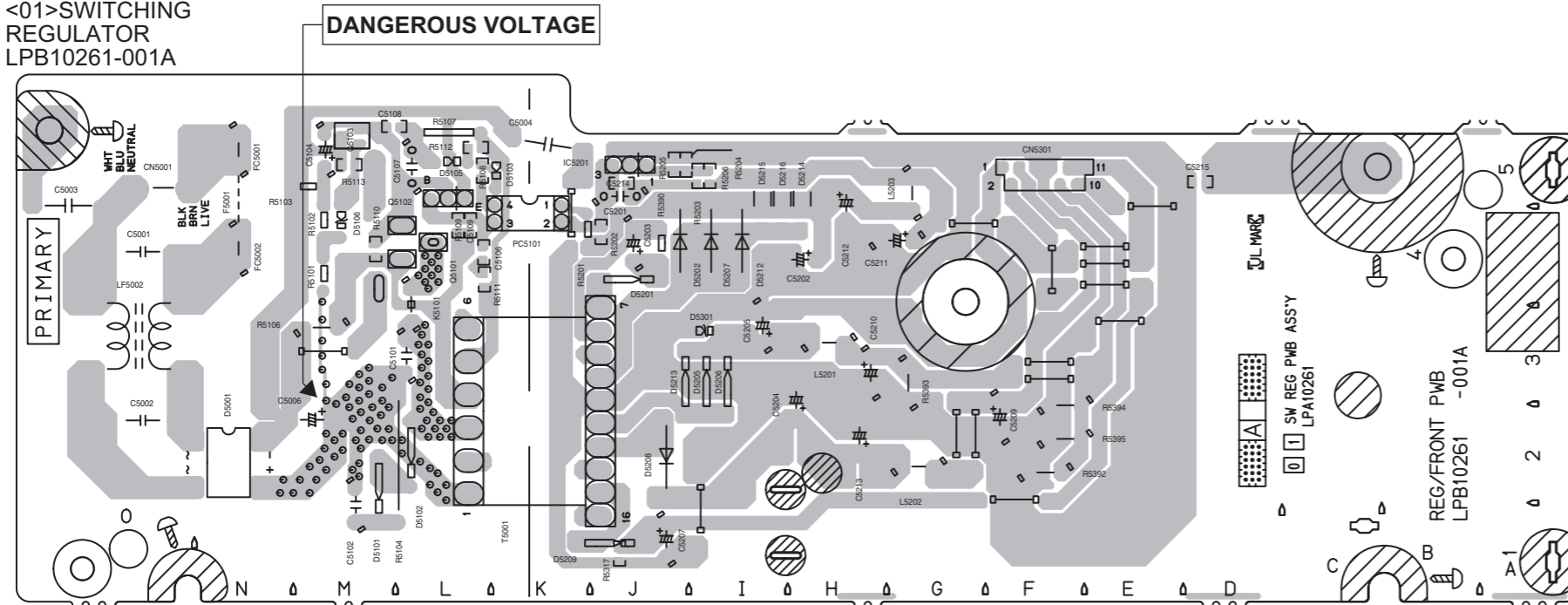
	CN202	R211	R212	R213	R214	R215	R216	R306	R308	R309	R310	R394	R395	R398	R399	C210	C211	C212	C216	C382
Tray Control By ESS	GGF1040C1-05	3.9K Ω	0 Ω	10K Ω	18K Ω	0 Ω	6.8K Ω	4.7K Ω	4.7K Ω	4.7K Ω	4.7K Ω	NI	NI	4.7K Ω	4.7K Ω	4700PF	0.022 μ	NI	0.1 μ F	0.015 μ F
Tray Control By SUBCPU	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0 Ω	0 Ω	NI	NI	NI	NI	NI	NI	NI

TO MAIN
(MAIN TERMINAL)
CN7301
SHEET 8

TO MAIN
(MAIN TERMINAL)
CN7302
SHEET 8

SWITCHING REGULATOR, SWITCH/JACK, DISPLAY/OPERATION AND BRACKET CIRCUIT BOARDS

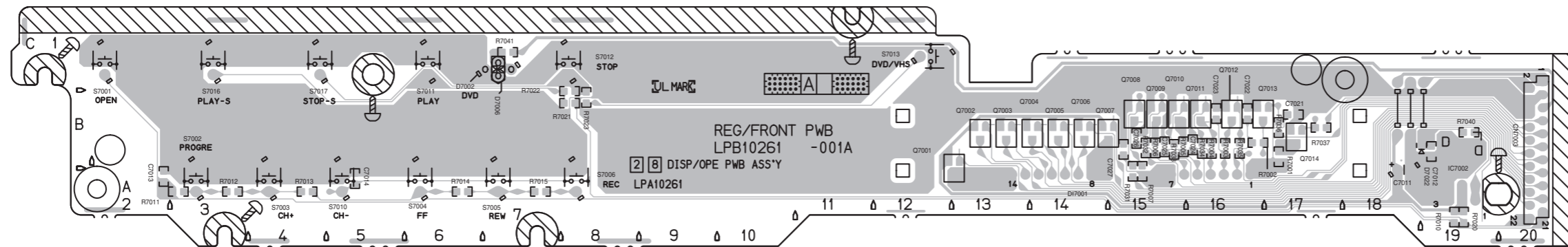
<01>SWITCHING REGULATOR LPB10261-001A



COMPONENT PARTS LOCATION GUIDE <SWITCHING REGULATOR> LPB10261-001A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR					TRANSISTOR				
C5001	A D 4Q	C5211	A D 4G	D5207	A D 4I	Q5101	A D 4L	R5204	B C 5J
C5002	A D 20	C5212	A D 5H	D5208	A D 2J	O5102	A D 4L	R5205	B C 5J
C5003	A D 50	C5213	A D 2H	D5209	A D 1K	O5103	B C 5M	R5206	B C 5I
C5004	A D 5K	C5214	B C 5J	D5210	A D 4I	O5103	B C 5M	R5317	B C 1J
C5006	A D 2M	C5215	B C 5D	D5213	A D 2J			R5390	A D 4J
C5101	A D 3L			D5214	B C 4H	RESISTOR			
C5102	A D 2M	CONNECTOR		D5215	B C 4I	R5101	A D 4M	R5393	A D 3G
C5104	A D 5M	CN5001	A D 50	D5216	B C 4I	R5102	A D 4M	R5394	A D 3F
C5106	B C 4L	CN5301	A D 5F	D5301	A D 3J	R5103	A D 5N	R5395	A D 2F
C5107	A D 5L	DIODE		FUSE		R5104	A D 3L	OTHER	
C5108	B C 5L	D5001	B C 2N	F5001	A D 5N	R5106	A D 3M	R5107	A D 5N
C5109	B C 4L	D5101	A D 2M			R5108	B C 5L	FC5002	A D 4N
C5201	A D 5J	D5102	A D 2L	IC		R5109	B C 4L	K5101	A D 4L
C5202	A D 4H	D5103	A D 5K	IC5201	A D 5J	R5110	B C 4M	LF5002	A D 4O
C5203	A D 4J	D5105	A D 5L			R5111	B C 4L	PC509	B C 137
C5204	A D 2H	D5106	A D 5M	COIL		R5112	B C 5M	PC5101	A D 5K
C5205	A D 3I	D5201	A D 4J	L5201	A D 3H	R5113	B C 5M	T5001	A D 2L
C5207	A D 1J	D5202	A D 4J	L5202	A D 2G	R5201	A D 4K		
C5209	A D 3F	D5205	A D 2I	L5203	A D 5G	R5202	B C 4J		
C5210	A D 3H	D5206	A D 2I			R5203	B C 5I		

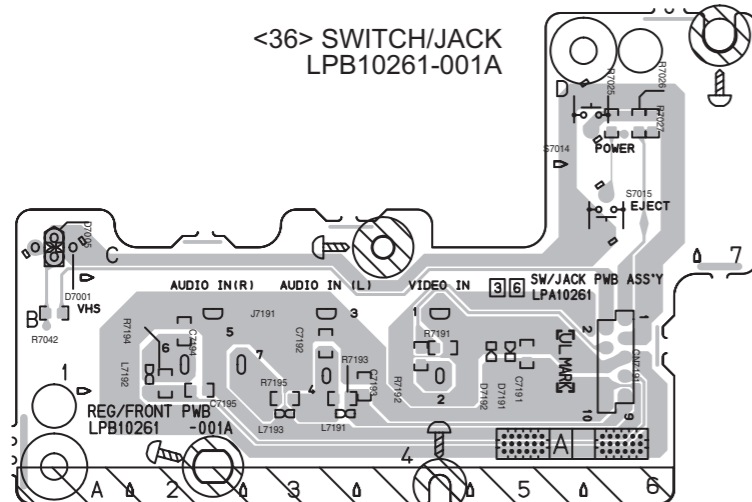
<28> DISPLAY/OPERATION LPB10261-001A



COMPONENT PARTS LOCATION GUIDE <DISPLAY/OPERATION> LPB10261-001A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION		
CAPACITOR				CONNECTOR				IC				TRANSISTOR			
C7011	A D 18B	CN7003	A D 20C	IC7002	A D 19B	Q7009	B C 15B	R7005	B C 15B	R7023	B C 8B	S7001	A D 2C		
C7012	B C 19B					Q7010	B C 15B	R7006	B C 15B	R7031	B C 15A	S7002	A D 3A		
C7013	B C 2A					Q7011	B C 16B	R7007	B C 15A	R7032	B C 15B	S7003	A D 4A		
C7014	B C 5A	DIODE		Q7001	B C 13B	Q7012	B C 16B	R7010	B C 19A	R7033	B C 15B	S7004	A D 6A		
C7021	B C 17B	D7001	A D 1B	Q7002	B C 13B	Q7013	B C 16B	R7011	B C 3A	R7034	B C 16B	S7005	A D 7A		
C7022	B C 16B	D7002	A D 7C	Q7003	B C 13B	Q7014	B C 17B	R7012	B C 3A	R7035	B C 16B	S7006	A D 8A		
C7023	B C 16B	D7005	A D 1B	Q7004	B C 14B	RESISTOR		R7013	B C 4A	R7036	B C 17B	S7010	A D 5A		
C7024	B C 16B	D7006	A D 7C	Q7005	B C 14B	R7001	B C 17B	R7014	B C 6A	R7037	B C 17B	S7011	A D 6C		
C7025	B C 15B	D7022	B C 18B	Q7006	B C 14B	R7002	B C 16B	R7015	B C 7A	R7040	B C 19B	S7012	A D 8C		
C7026	B C 15B	DI7001	A D 15B	Q7007	B C 14B	R7003	B C 16B	R7020	B C 19A	R7041	B C 7C	S7013	A D 12C		
C7027	B C 15B			Q7008	B C 15B	R7004	B C 16B	R7021	B C 8B			S7016	A D 3C		
								R7022	B C 8C	OTHER		S7017	A D 4C		

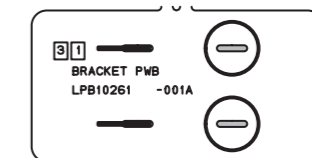
<36> SWITCH/JACK LPB10261-001A



COMPONENT PARTS LOCATION GUIDE <SWITCH/JACK> LPB10261-001A

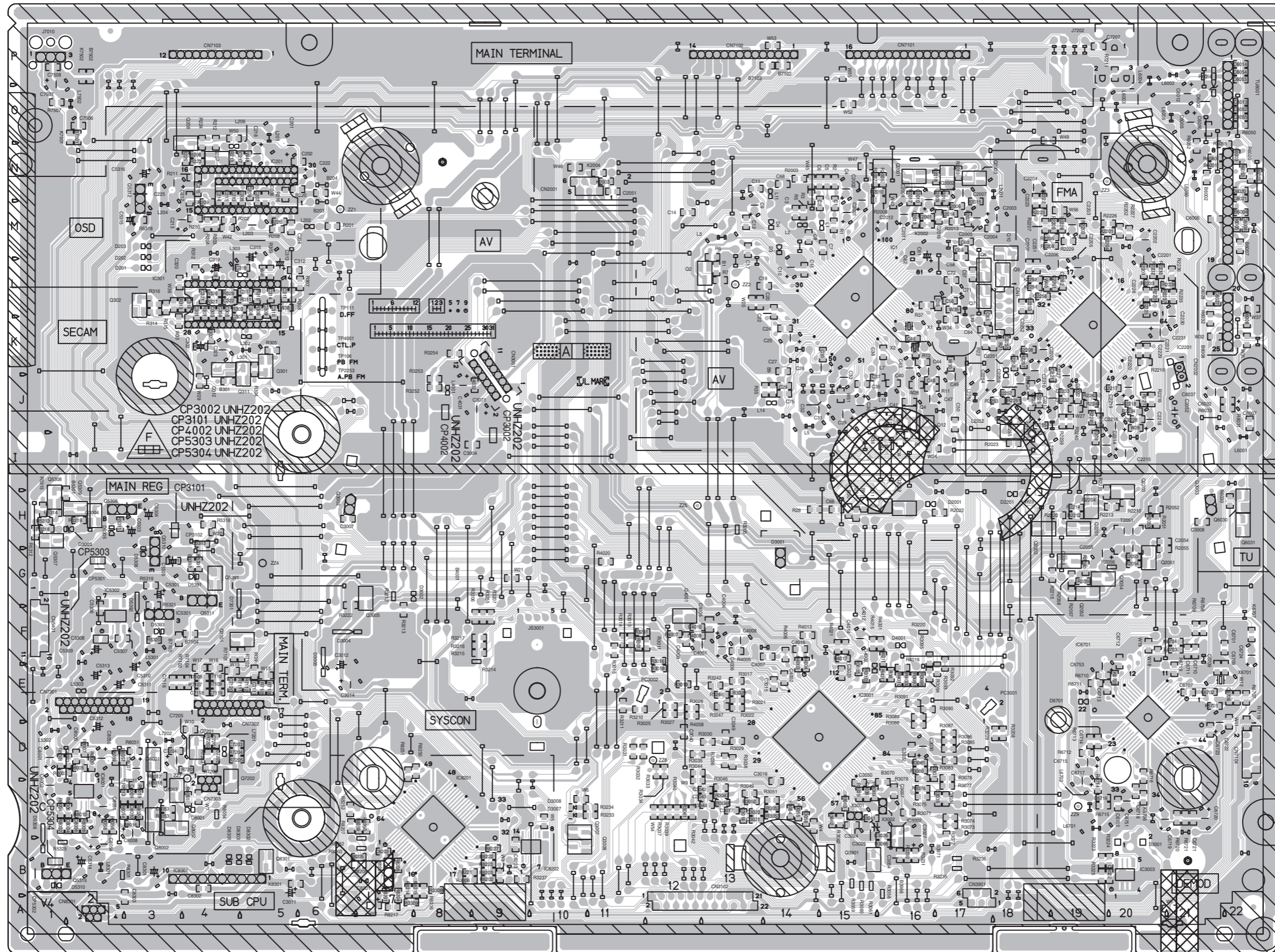
REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR		DIODE		COIL		RESISTOR		OTHER	
C7191	B C 3B	D7001	A D 1C	L7191	A D 4A	R7027	B C 6D	S7015	A D 6C
C7192	B C 5B	D7005	A D 1C	L7192	A D 2A	R7042	B C 1B		
C7193	B C 4B	D7191	A D 5B	L7193	A D 3A	R7191	B C 4B	J7191	A D 3B
C7194	B C 2B	D7192	A D 5B			R7192	B C 4B		
C7195	B C 2B					R7193	B C 3A		
						R7194	B C 2B		
						R7025	B C 6D		
						R7026	B C 6D		
						S7014	A D 6D		

<31>BRACKET LPB10261-001A



MAIN CIRCUIT BOARD

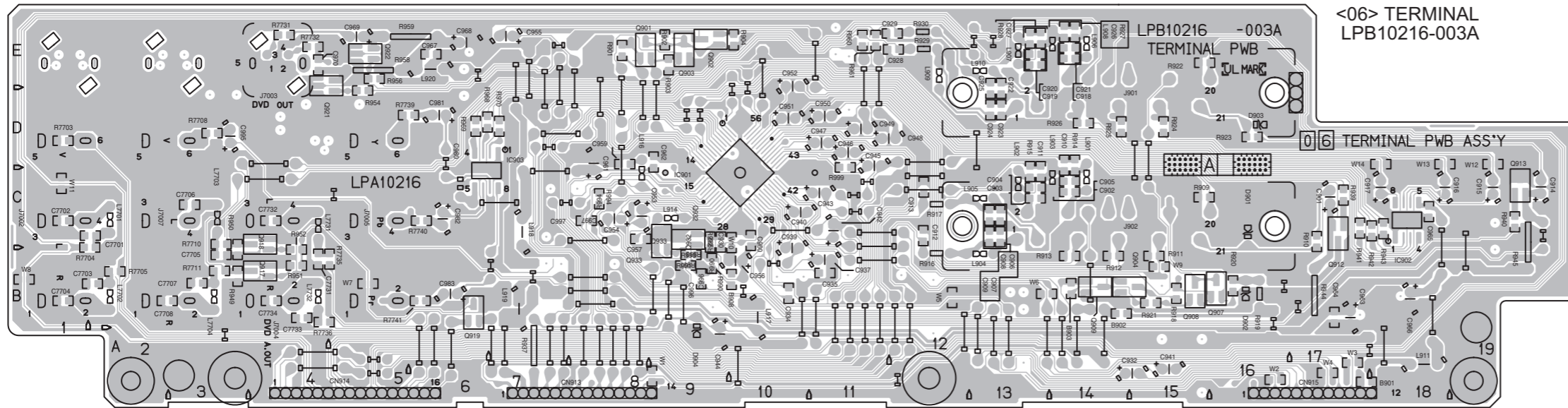
<03> MAIN
LPB10260-001A



COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10260-001A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR	C2055	A D 19G	C6020	B C 22N	D8302	A D 5B	R1	B C 15M	R2237	B C 20L	R3237	B C 9B	R8204	B C 7B			
C1	B C 15M	C2201	A D 20L	C6021	B C 22N	D8303	A D 4B	R2	B C 15N	R2238	B C 21L	R3242	B C 13E	R8205	B C 7B		
C2	B C 15M	C2202	A D 20M	C6027	B C 21L			R3	B C 14N	R2239	B C 19J	R3246	B C 13E	R8206	B C 7B		
C3	B C 14M	C2203	A D 19M	C6028	B C 21L	IC		R4	B C 13M	R2240	B C 19J	R3247	B C 13E	R8207	B C 6C		
C4	A D 15N	C2204	A D 18N	C6032	A D 22J	IC1	B C 15L	R5	B C 13M	R2241	B C 19J	R3251	B C 11F	R8208	B C 7B		
C5	B C 15N	C2205	A D 19L	C6037	A D 21J	IC201	A D 5M	R6	B C 13M	R2242	B C 19J	R3252	B C 8J	R8214	B C 7B		
C6	B C 15N	C2206	A D 19L	C6052	B C 22O	IC301	A D 4L	R11	B C 16J	R2243	B C 19J	R3253	B C 8J	R8215	B C 8B		
C7	B C 15M	C2207	B C 18L	C6053	B C 22P	IC2201	B C 19K	R12	B C 16K	R2244	B C 19J	R3254	B C 8K	R8216	B C 8B		
C8	B C 14M	C2208	B C 18K	C6054	B C 22P	IC3001	B C 15D	R17	B C 16J	R2251	B C 18J	R3255	B C 9F	R8217	B C 7A		
C9	A D 13M	C2209	A D 18K	C6055	B C 22O	IC3002	B C 16C	R21	B C 18K	R2252	B C 18K	R3306	B C 8B	R8221	B C 8B		
C10	A D 14L	C2210	A D 18K	C6056	B C 21O	IC3003	B C 20B	R22	B C 17K	R2253	B C 18J	R3307	B C 16D	R8222	B C 9B		
C11	B C 13N	C2211	A D 18J	C6701	B C 22F	IC5301	A D 3F	R28	B C 14H	R2255	B C 18J	R3308	B C 8B	R8223	B C 9B		
C12	B C 13M	C2212	A D 19J	C6706	B C 22E	IC5302	B C 2F	R29	B C 15H	R2257	B C 18K	R3309	B C 7A	R8227	B C 9B		
C14	B C 12M	C2213	B C 19J	C6707	B C 21E	IC6701	B C 20E	R30	B C 15H	R3011	B C 12F	R4001	B C 16F	R8250	B C 8D		
C15	B C 14L	C2214	A D 19I	C6708	B C 22E	IC8001	B C 2C	R31	B C 16J	R3012	B C 11F	R4003	B C 14E	R8251	B C 7D		
C17	B C 13M	C2215	A D 20I	C6709	B C 21E	IC8201	B C 8C	R35	B C 14J	R3013	B C 11F	R4004	B C 14E	R8252	B C 6C		
C19	B C 14L	C2216	A D 20J	C6710	B C 21F	IC8202	B C 10B	R36	B C 16E	R3014	B C 11F	R4005	B C 13F	R8259	B C 7C		
C20	B C 13L	C2217	B C 20J	C6711	B C 21F	IC8301	A D 5B	R37	B C 16L	R3015	B C 11F	R4006	B C 14F	R8260	B C 7C		
C22	B C 14L	C2218	A D 20J	C6712	B C 20F			R38	B C 15J	R3016	B C 12F	R4007	B C 12F	R8262	A D 6B		
C24	B C 14K	C2219	A D 20J	C6713	B C 19E	COIL		R201	B C 6M	R3017	B C 13E	R4008	B C 12E	R8263	A D 6B		
C25	A D 14K	C2220	A D 20K	C6714	B C 19D	L1	A D 15M	R202	B C 4M	R3018	B C 12E	R4009	B C 16E	R8301	A D 2B		
C26	A D 15K	C2221	B C 20K	C6715	A D 19D	L2	A D 14M	R203	B C 4M	R3019	B C 12E	R4010	B C 16E				
C27	B C 14K	C2222	B C 19J	C6716	B C 19C	L3	A D 13M	R204	B C 4M	R3020	B C 13E	R4012	B C 16E	OTHER			
C29	B C 14J	C2223	B C 18N	C6717	A D 19C	L5	A D 15J	R208	B C 5M	R3021	B C 13E	R4013	B C 14F	CP3002	B C 9I		
C30	B C 15K	C2224	B C 18J	C6718	B C 20C	L6	A D 15J	R209	B C 4M	R3022	B C 13E	R4015	B C 15F	CP3101	B C 3H		
C31	A D 15J	C2225	B C 20L	C6719	A D 20C	L7	A D 16J	R210	B C 4M	R3025	B C 12E	R4016	B C 16E	CP3102	A D 3H		
C32	A D 15J	C2226	B C 20L	C6720	A D 21C	L10	A D 17K	R211	B C 4N	R3026	B C 12E	R4017	B C 15F	CP4002	B C 8J		
C33	A D 15J	C2227	A D 19K	C6721	B C 21C	L11	A D 14N	R212	B C 4O	R3027	B C 12E	R4020	B C 11G	CP5301	A D 2G		
C34	B C 16I	C2228	B C 20K	C6722	A D 21D	L14	A D 14J	R213	B C 4N	R3029	B C 13D	R4021	B C 15F	CP5302	A D 1B		
C35	B C 15J	C2229	B C 20K	C6723	B C 21D	L15	A D 16J	R216	B C 5N	R3030	B C 13D	R5311	B C 2H	CP5303	B C 2G		
C36	A D 15J	C2230	A D 21K	C6724	A D 22F	L201	A D 5O	R220	B C 5N	R3031	B C 11D	R5312	B C 1H	CP5304	B C 1B		
C37	B C 16J	C2231	A D 20K	C6751	A D 20C	L202	A D 6M	R223	B C 4N	R3032	B C 11D	R5313	B C 1H	J7010	A D 1O		
C38	B C 16K	C2232	B C 19J	C6752	B C 20C	L203	A D 5M	R224	B C 4O	R3033	B C 12D	R5314	B C 1H	J7202	A D 20P		
C39	A D 15J	C2233	B C 19J	C6753	A D 19E	L204	A D 3M	R225	B C 4N	R3034	B C 12D	R5315	B C 1H	JS3001	A D 10F		
C40	B C 16J	C2251	B C 18L	C7116	B C 3E	L206	A D 4N	R226	B C 5M	R3035	B C 12D	R5316	B C 4H	K2001	B C 16M		
C41	B C 16J	C2252	B C 18L	C7117	B C 3E	L301	A D 4K	R301	B C 4L	R3036	B C 13D	R5318	B C 3M	K2002	B C 16M		
C43	A D 16K	C2253	B C 18L	C7118	B C 4E	L302	A D 5K	R302	B C 4K	R3037	B C 12C	R5319	B C 3G	K2003	B C 11N		
C44	A D 16K	C2254	A D 17J	C7119	B C 4E	L303	A D 5L	R303	B C 4L	R3038	B C 13D	R5320	B C 3F	K2004	B C 11N		
C45	B C 16K	C2255	B C 18K	C7120	B C 4E	L2001	A D 18N	R304	B C 5K	R3039	B C 12C	R5321	B C 3G	K2251	B C 18L		
C46	B C 16K	C2256	B C 18L	C7201	B C 4D	L2201	A D 19J	R305	B C 5K	R3040	B C 12C	R5325	A D 2B	K2252	B C 18L		
C47	A D 16J	C2257	B C 18J	C7202	B C 4D	L2251	A D 17J	R306	B C 5L	R3041	B C 12C	R5391	B C 4G	K6701	B C 21E		
C48	B C 16J	C2258	B C 18J	C7203	B C 4D	L2252	A D 18J	R307	B C 6L	R3042	B C 12C	R6020	B C 4D	K6702	B C 21E		
C49	A D 17J	C2259	A D 18J	C7204	B C 3D	L4001	A D 8J	R308	B C 5L	R3044	B C 12D	R6021	B C 22N	K6703	B C 21F		
C50	B C 17J	C2261	B C 19L	C7205	A D 3D	L5301	A D 3F	R309	B C 5L	R3046	B C 13C	R6030	B C 22H	K6704	B C 21F		
C55	B C 17L	C2262	B C 19L	C7207	B C 19P	L5302	A D 1D	R310	B C 5L	R3047	B C 13C	R6031	B C 22J	K6705	B C 20E		
C56	B C 17L	C3004	B C 9I	C7506	B C 2O	L5303	A D 2E	R311	B C 5L	R3048	B C 13C	R6032	B C 21K	K6706	B C 20C		
C57	B C 17L	C3007	B C 6H	C7507	A D 1P	L6001	A D 22I	R312	B C 4L	R3049	B C 13C	R6033	B C 22J	K6707	B C 22F		
C58	B C 17M	C3008	B C 21H	C7508	B C 1P	L6002	A D 21P	R313	B C 3L	R3050	B C 13C	R6050	B C 22O	K7501	B C 2O		
C59	B C 17M	C3011	A D 6B	C8001	A D 1D	L6003	A D 20O	R314	B C 3L	R3051	B C 14C	R6052	B C 21N	K7502	B C 2P		
C60	B C 17M	C3012	A D 6E	C8002	A D 1C	L6004	A D 20O	R315	B C 3L	R3052	B C 14C	R6053	B C 22N	K8301	B C 5B		
C61	A D 16L	C3014	A D 6E	C8003	B C 2D	L6005	A D 21O	R316	B C 3L	R3053	B C 14C	R6054	B C 21P	PC0826	B C 2P		
C62	A D 16L	C3015	B C 14E	C8004	B C 2C	L6050	A D 21N	R321	B C 4K	R3054	B C 14C	R6055	B C 22N	PC0830	B C 22A		
C63	B C 17K	C3016	B C 14C	C8005	B C 2D	L6701	A D 19C	R326	B C 4L	R3055	B C 14C	R6080	B C 21N	PC3001	A D 17E		
C64	B C 17K	C3017	B C 13C	C8006	B C 2C	L6702	A D 19C	R327	B C 4L	R3056	B C 14C	R6707	B C 22E	PC3002	A D 11E		
C66	B C 15H	C3018	B C 13C	C8007	A D 3D	L7201	A D 4D	R328	B C 4L	R3058	A D 16B	R6708	B C 21F	S3001	A D 20B		
C68	B C 14N	C3020	B C 13C	C8008	A D 3C	L7202	A D 3D	R329	B C 4L	R3059	A D 15B	R6709	B C 21F	T2051	A D 20G		
C71	A D 17L	C3021	B C 13C	C8009	A D 3C	L7502	A D 2O	R2003	B C 14N	R3060	A D 15B	R6710	B C 19E	TP106	A D 6K		
C72	B C 17L	C3022	B C 20B	C8010	B C 3C	L8301	A D 2B	R2005	B C 16N	R3061	A D 15B	R6711	B C 19E	TP111	A D 6L		
C75	B C 14J	C3024	B C 15C	C8051	A D 2C			R2007	B C 15N	R3062	B C 15C	R6712	B C 19D	TP2253	A D 6K		
C201	A D 5N	C3025	A D 16C	C8053	B C 3C	TRANSISTOR		R2008	B C 16N	R3063	B C 15C	R6713	B C 19D	TP3901	B C 13C		
C202	B C 6N	C3026	B C 16C	C8054	A D 2B	Q2	B C 13L	R2010	B C 16N	R3066	B C 16B	R6714	B C 19C	TP3902	B C 13C		
C204	B C 5M	C3027	A D 16B	C8055	A D 2D	Q4	B C 16J	R2013	B C 17M	R3069	B C 15C	R6715	B C 19C	TP3903	B C 15C		
C206	B C 5N	C3030	A D 16D	C8201	A D 7B	Q7	B C 17L	R2014	B C 17M	R3071	B C 16C	R6716	B C 20D	TP3904	B C 16C		
C207	B C 5N	C3032	B C 16D	C8202	B C 7B	Q8	B C 17L	R2015	B C 17M	R3072	B C 17B	R6719	B C 7B	TP3905	B C 15C		
C208	B C 5N	C3033	B C 15E	C8203	B C 9B	Q9	B C 18L	R2016	B C 17N	R3073	B C 17C	R6720	B C 21C	TP3906	B C 14C		
C209	B C 5N	C3034	B C 17C	C8301	A D 3B	Q10	B C 18M	R2017	B C 16N	R3074	B C 17C	R6721	B C 21C	TP3908	B C 15C		
C210	B C 4N	C3035	B C 17C	C8302	B C 4B	Q11	B C 16H	R2018	B C 17N	R3075	B C 16C	R7101	B C 4F	TP4001	A D 6K		
C211	B C 4N	C3036	B C 15C	C8303	B C 3A	Q12	B C 16J	R2019	B C 17N	R3076	B C 16C	R7102	B C 5F	TP6001	A D 22P		
C212	B C 4N																

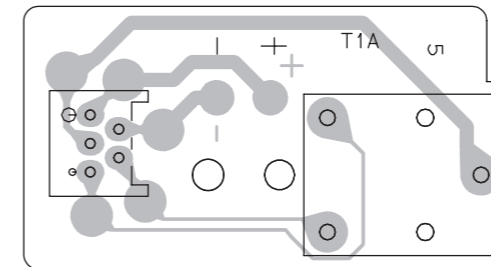
■ SWITCH, DVD SERVO CONTROL AND TERMINAL CIRCUIT BOARDS



COMPONENT PARTS LOCATION GUIDE <TERMINAL> LPB10216-003A

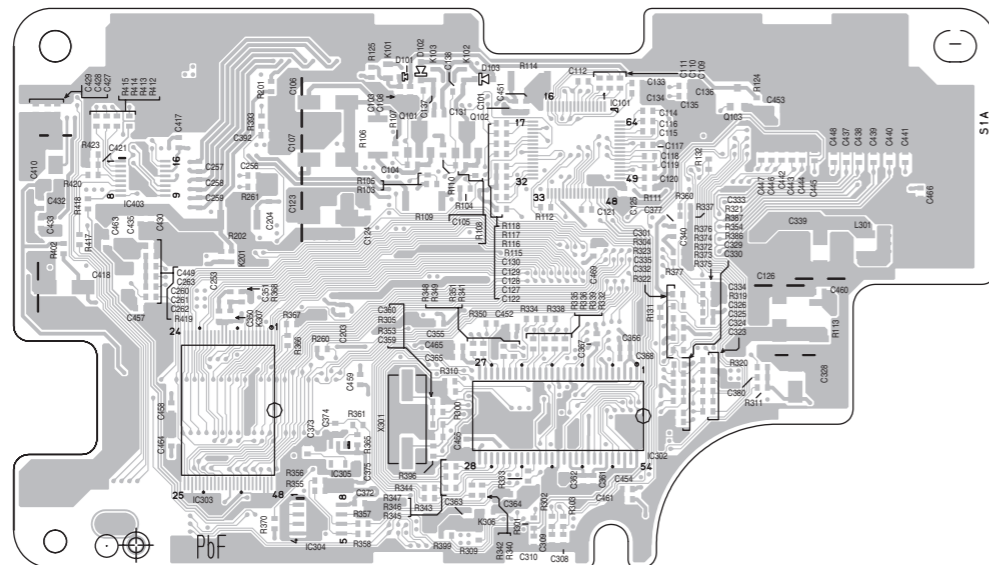
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CAPACITOR																							
C901	A D 17C	C923	B C 13D	C950	A D 11D	C983	A D 6B	D901	A D 16C	L916	A D 8C	Q918	B C 4C	R920	B C 16B	R954	B C 5D	R7735	B C 5B				
C902	B C 14C	C924	B C 13D	C951	A D 10D	C995	A D 3D	D902	A D 16B	L917	A D 10A	Q919	B C 6B	R921	B C 15B	R955	B C 5E	R7736	B C 4B				
C903	B C 13C	C926	B C 14E	C953	A D 8C	C997	B C 8C	D903	A D 16D	L918	A D 7C	Q921	B C 5E	R922	B C 15E	R958	A D 5E	R7739	B C 6D				
C904	B C 13C	C927	B C 13E	C954	A D 8C	C7701	B C 2C	D904	A D 9A	L919	A D 7B	Q922	B C 5E	R923	B C 16D	R959	A D 6E	R7740	B C 6C				
C905	B C 14C	C928	B C 12E	C955	A D 7E	C7702	B C 1C			L920	A D 2C	Q932	B C 9C	R924	B C 15D	R960	B C 11E	R7741	B C 6B				
C906	B C 13C	C929	B C 12E	C956	A D 10B	C7703	B C 2B	IC										OTHER					
C907	B C 13C	C930	B C 9C	C957	B C 8C	C7704	B C 1B	IC901	B C 10C	L7702	A D 2C	Q933	B C 9C	R925	B C 14D	R961	B C 11E	J901	A D 14D				
C908	B C 13C	C932	A D 14A	C959	B C 8D	C7705	B C 3B	IC902	B C 18C	L7703	A D 3C	RESISTOR										J902	A D 14C
C909	B C 13C	C934	B C 10B	C960	B C 10C	C7706	B C 3C	L7704	A D 3C	R901	B C 8E	R902	B C 9E	R929	A D 12E	R990	B C 9B	J7002	A D 1C				
C910	B C 14D	C935	B C 11B	C961	A D 8C	C7707	B C 3B	IC903	B C 7C	L7731	A D 4C	R903	B C 9E	R930	A D 12E	R991	B C 9B	J7003	A D 4E				
C911	B C 13C	C937	A D 11B	C962	B C 9D	C7708	B C 3B	L7732	A D 4C	R904	B C 10E	R937	A D 7A	R992	B C 9C	J7004	A D 4B						
C912	B C 12C	C939	A D 10B	C963	A D 17B	C7731	B C 4B	TRANSISTOR										J7005	A D 5C				
C913	B C 12C	C940	A D 10C	C964	B C 17B	C7732	B C 4C	Q901	B C 8E	R909	B C 15C	R939	B C 17C	R993	B C 9B	J7007	A D 3C						
C914	A D 20C	C941	A D 15A	C965	B C 18C	C7733	B C 4B	Q902	B C 9E	R910	B C 17C	R940	B C 19C	R994	B C 8C	J7007	A D 3C						
C915	A D 19C	C942	A D 11C	C966	A D 18B	C7734	B C 4B	Q903	B C 9E	R911	B C 15B	R941	B C 17C	R999	B C 11D	PC008	B C 21P						
C916	A D 18C	C943	A D 11C	C967	B C 6E			Q904	B C 15B	R912	B C 14B	R942	B C 18C	R7703	B C 1D	PC0105	B C 10C						
C917	A D 18C	C944	A D 9B	C968	A D 6E	CONNECTOR										PC0138	B C 16A						
C918	B C 14E	C945	A D 11D	C969	A D 5E	CN913	A D 7A	Q905	B C 15B	R913	B C 14B	R943	B C 18C	R7704	B C 2C	PC0140	B C 16A						
C919	B C 13E	C946	A D 11D	C970	B C 4E	CN914	A D 4A	Q906	B C 16B	R914	B C 14D	R944	A D 2B	R7705	B C 2B								
C920	B C 13E	C947	A D 11D	C980	A D 6C	CN915	A D 16A	Q908	B C 15B	R915	B C 13C	R945	A D 7A	R7708	B C 3D								
C921	B C 14E	C948	A D 11D	C981	A D 6D			Q909	B C 14B	R916	A D 12B	R949	B C 3B	R7710	B C 3C								
C922	B C 13D	C949	A D 11D	C982	A D 6C	DIODE										R7711	B C 3B						
						L910	A D 13E	Q912	B C 17C	R917	A D 12C	R950	B C 3B	R7711	B C 3B								
						L911	A D 18A	Q913	B C 19C	R918	A D 15B	R951	B C 4B	R7731	B C 4E								
						L914	A D 9C	Q917	B C 4B	R919	A D 16B	R952	B C 4B	R7732	B C 4E								

<98>SWITCH
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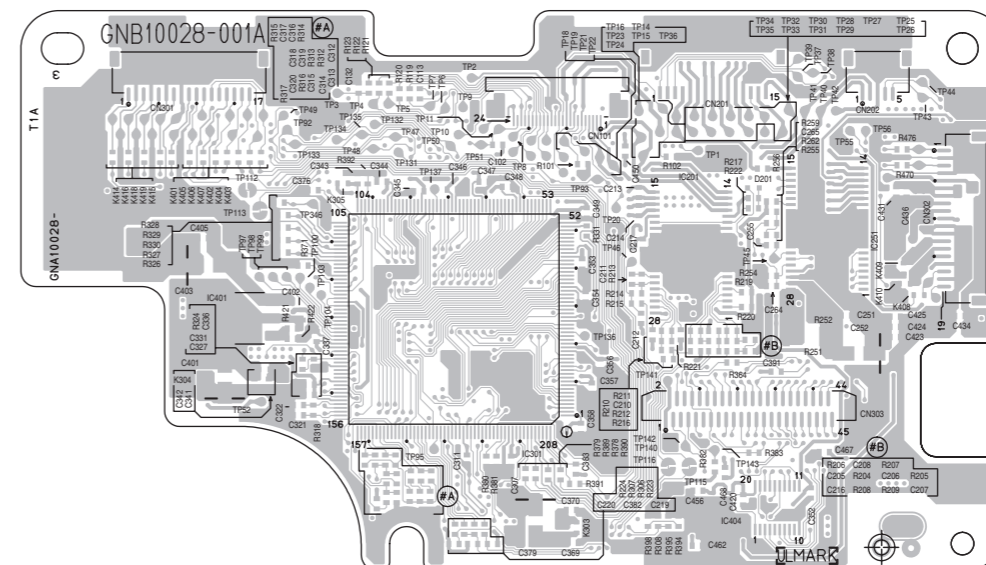
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-COMPONENT SIDE-

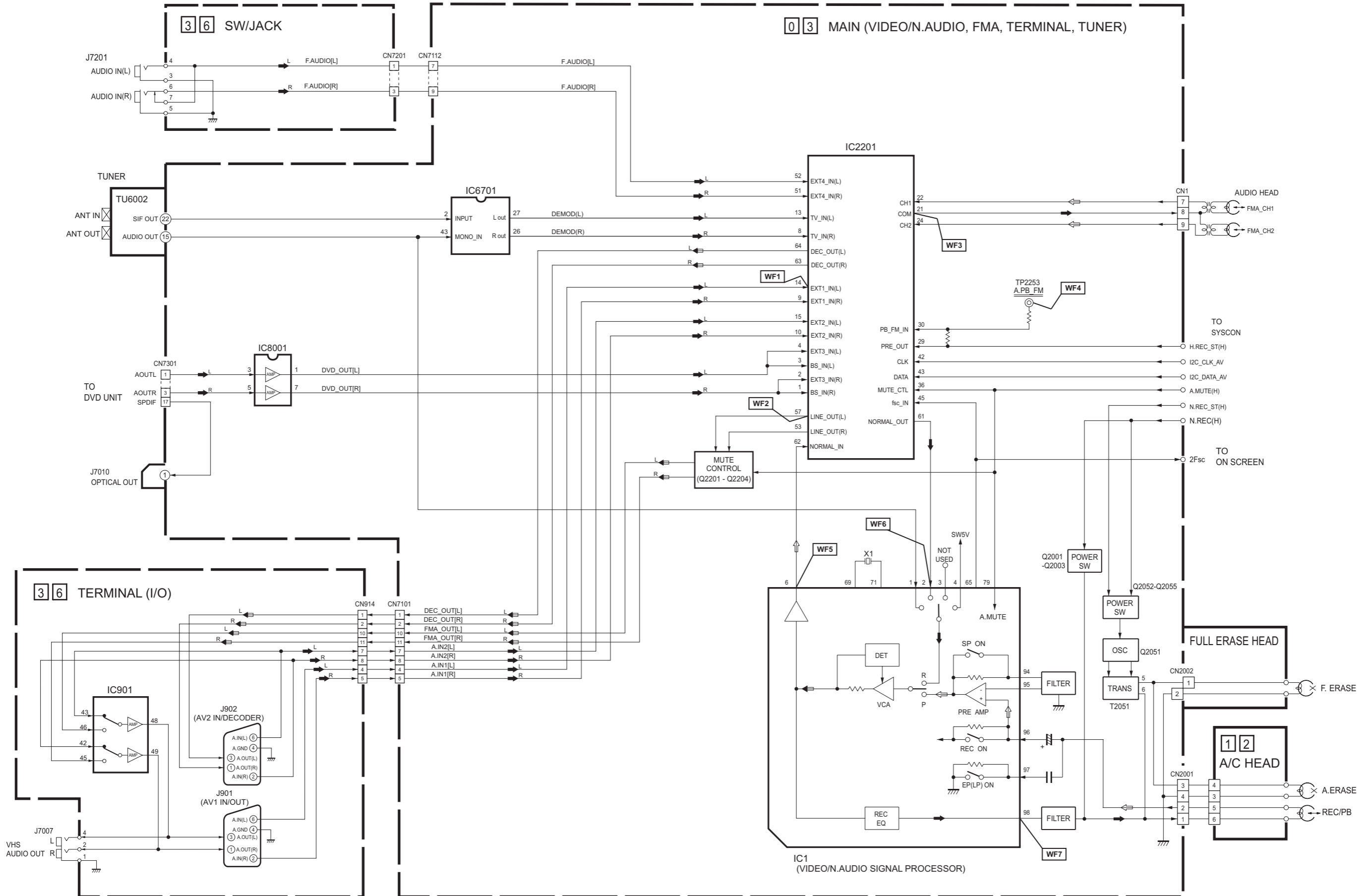


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GNB10028-001A

-FOIL SIDE-



AUDIO BLOCK DIAGRAM



CPU PIN FUNCTION

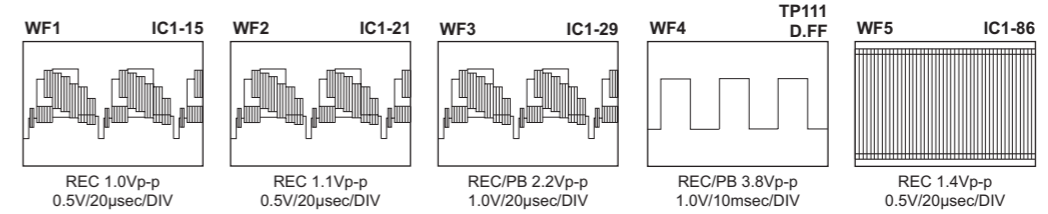
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PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL[+]	IN/OUT	CTL(+) SIGNAL
2	SVss	-	GND
3	CTL[-]	IN/OUT	CTL(-) SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFB	IN	CTL PULSE FEEDBACK
6	CTLAMP OUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE OUTPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVcc	-	SYSTEM POWER
10	Avcc	-	SYSTEM POWER
11	S_DET	IN	NORMAL AUDIO : L
12	SECAN_DET	IN	SECAN MODE DETECT
13	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAG OF PLAYBACK VIDEO SIGNAL
14	START_SENSOR	IN	START SENSOR
15	END_SENSOR	IN	END SENSOR
16	KEY1	IN	OPERATION CONTROL SIGNAL
17	PROTECT	IN	DETECTION SIGNAL FOR SWITCHING POWERSUPPLY
18	SCR_ID	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
19	KEY2	IN	OPERATION CONTROL SIGNAL
20	AFC	IN	TUNING CHECK
21	RF_AGC	IN	CHANGES IN AT&S+HC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
22	A.ENV/ND[L]	IN	AUDIO PB FM ENV.INPUT/NON HIFI MODE:L
23	Avss	-	GND
24	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHIN
25	LSA	IN	MECHANISM MODE DETECT (A)
26	LSB	IN	MECHANISM MODE DETECT (B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	CAP.M_F/R	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:L/REV:H)
29	RC	IN	REMOTE CONTROL DATA INPUT
30	DIG1	OUT	LED DRIVE
31	P50_IN	IN	CONTROL SIGNAL FOR TV LINK
32	R.PAUSE/COMPU_IN	IN	REMOTE PAUSE INPUT/AV COMPULINK INPUT
33	P50_OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	DIG2	OUT	LED DRIVE
35	DIG3	OUT	LED DRIVE
36	DIG4	OUT	LED DRIVE
37	DIG5	OUT	LED DRIVE
38	SB_GAIN[PWM]	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
39	DIG6	OUT	LED DRIVE
40	DIG7	OUT	LED DRIVE
41	D_A	OUT	LED DRIVE
42	D_B	OUT	LED DRIVE
43	Vss	-	GND
44	COMP_OUT	OUT	AV COMPULINK OUTPUT
45	Vcc	-	SYSTEM POWER
46	K.BUS_DATA_TO_SYS	IN	SERIAL DATA TRANSFERMER OUTPUT FOR DVD CPU
47	K.BUS_DATA_FR_SYS	OUT	SERIAL DATA TRANSFERMER OUTPUT FOR DVD CPU
48	K.BUS_CLK	OUT	SERIAL DATA TRANSFERMER CLOCK FOR DVD CPU
49	12C_DATA_AV	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR A/V IC
50	12C_CLK_AV	OUT	SERIAL DATA TRANSFER CLOCK FOR A/V IC
51	OSD_CS	OUT	ON-SCREEN IC CHIP SELECT
52	S.DATA_FRSYS	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN
53	S.CLK	OUT	SERIAL DATA TRANSFERMER CLOCKFOR ONSCREEN IC
54	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	TU_FG	IN	DETECTION SIGNAL TAKE-UP REEL ROTATION/TAPE REMAIN
56	SUB RESET	OUT	DVD CPU RESET

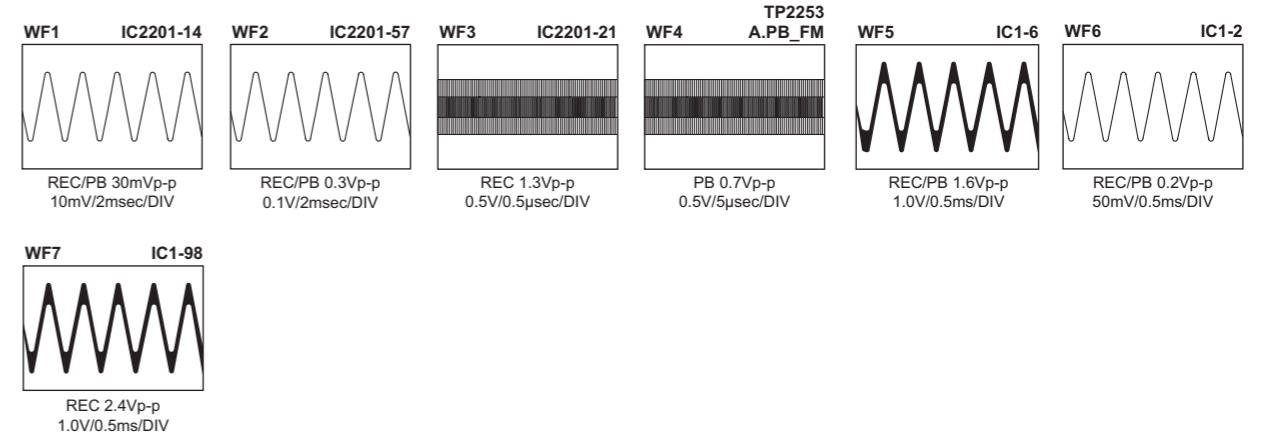
PIN NO.	LABEL	IN/OUT	FUNCTION
57	NC	-	NOT USED
58	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
59	D_C	OUT	LED DRIVE
60	D_D	OUT	LED DRIVE
61	D_E	OUT	LED DRIVE
62	FWE	-	FLASH WRITE ENABLE
63	NMI	-	NOT USED
64	X2	-	TIMER CLOCK(32kHz)
65	X1	-	TIMER CLOCK(32kHz)
66	RES	-	RESET TERMINAL(RESET ON:L)
67	OSC1[IN]	IN	MAIN SYSTEM CLOCK(10MHz)
68	Vss	-	GND
69	OSC2[OUT]	IN	MAIN SYSTEM CLOCK(10MHz)
70	VCC/VCL	-	SYSTEM POWER
71	MODE	-	NOT USED
72	SYNC_DET[H]	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED : H)
73	TU_V.MUTE[H]	OUT	TUNER VIDEO SIGNAL MUTE : H
74	A.MUTE_[H]	OUT	AUDIO MUTE CONTROL (MUTE:H)
75	12C_CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	12C_DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	SECAN[H]	IN	SECAN MODE :H
78	P.ON_PULSE	OUT	POWER ON/OFF PULSE OUTPUT
79	PAL_PB[H]	IN	PAL FM (PB ON:H)
80	SUB_REQ[L]	OUT	DVD CPU RESET
81	MESECAN_DET	OUT	MESECAM:H
82	Vcc	-	SYSTEM POWER
83	D_F	OUT	LED DRIVE
84	Vss	-	GND
85	SW2/CH_SW	IN	TUNER SYSTEM MODE:L/CHANNEL SWITCHING SIGNAL
86	SW1/CONV.CTL[H]	OUT	TUNER SYSTEM MODE/RF_CONVERTER CONTROL
87	H.REC_ST[H]	OUT	HIFI AUDIO SOUND RECORDING START
88	SP_SHORT[H]	OUT	MODE SELECT
89	LP_SHORT[H]	OUT	MODE SELECT
90	N.REC_ST[H]	OUT	NORMAL AUDIO SOUND RECORDINGSTART
91	D_G	OUT	LED DRIVE
92	LM_F/R[S][LMC1]	OUT	LOADING MOTOR DRIVE
93	LSD[LMC2]	IN	MECHANISM MODE DETECT (D)
94	P.CTL[H]	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
95	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
96	A.MUTE2[L]	OUT	AUDIO MUTE CONTROL (MUTE:L)
97	DVD_RGB[H]	-	NOT USED
98	C.SYNC	IN	COMPOSITE SYNC INPUT
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	P.MUTE[L]	OUT	PICTURE MUTE CONTROL (MUTE ON : L)
104	NC	-	NOT USED
105	N_REC[H]	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL (REC:H)
106	NC	-	NOT USED
107	EE[L]	OUT	EE MODE:L
108	DFG	IN	DRUM FG PULSE INPUT
109	Vcc	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	Vss	-	GND
112	CTLREF	-	CTL REFERENCE VOLTAGE

WAVEFORMS

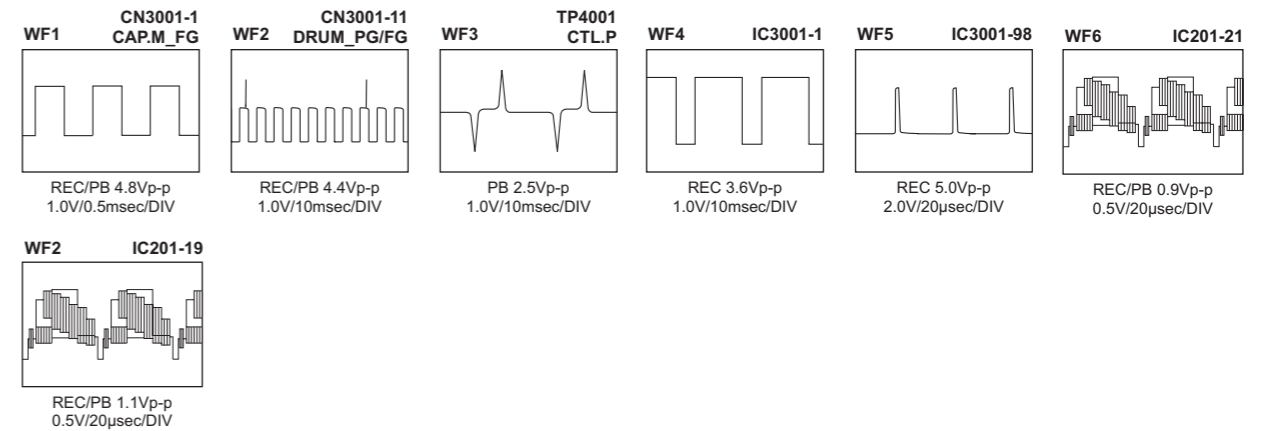
<VIDEO BLOCK DIAGRAM >



<AUDIO BLOCK DIAGRAM >



<SYSTEM CONTROL BLOCK DIAGRAM >





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