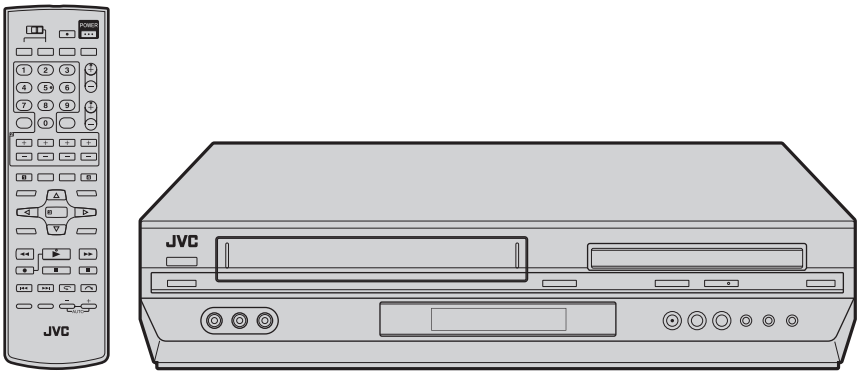
JVC

SERVICE MANUAL

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XVC28BUC, HR-XVC28BUS, HR-XVC29SUC, HR-XVC29SUS



HR-XVC28BUC, HR-XVC28BUS, HR-XVC29SUC, HR-XVC29SUS [D5PV1]

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

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No.YD052
2005/3

SPECIFICATION

GENERAL	
Power requirement	AC 120 V, 60 Hz
Power consumption	
Power on	25 W
Power off	2.0 W
Temperature	
Operating	5°C to 40°C (41°F to 104°F)
Storage	-20°C to 60°C (-4°F to140°F)
Operating position	Horizontal only
Dimensions (W × H × D)	435 mm x 93 mm x 272 mm
Weight	4.1 kg (9.1lbs)
Format	VHS NTSC standard
Maximum recording time	
(SP)	210 min. with T-210 video cassette
(EP)	630 min. with T-210 video cassette
VIDEO/AUDIO (VCR deck)	
Signal system	NTSC color signal and EIA monochrome signal, 525 lines/60 fields
Recording system	DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	45 dB
Horizontal resolution	230 lines
Frequency range	70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	RCA connectors: IN × 1, OUT × 1
VIDEO/AUDIO (DVD deck)	
Signal system	NTSC
Applicable disc	DVD (12 cm, 8 cm), CD (12 cm, 8 cm)
Audio characteristics	DVD:4 Hz - 22 KHz
Frequency response	CD:4 Hz - 20 KHz
S/N Ratio	90 dB
Harmonic distortion	0.1%
Wow and flutter	Below Measurable Level
Dynamic range	90 dB
Output	
Component-Y	(RCA) 1.0 Vp-p/75 Ω
Component-PB/PR	(RCA) 0.7 Vp-p/75 Ω
Audio	(RCA) 2 Vrms, 1 KΩ
Digital Audio	(COAXIAL) 0.5 Vp-p/75 Ω
TUNER	
Tuning system	Frequency synthesized tuner
Channel coverage	VHF: Channels 2 - 13, UHF: Channels 14 - 69, CATV: 113 Channels
RF output	Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 Ω, unbalanced
TIMER	
Clock reference	Quartz
Program capacity	1-year programmable timer/8 programs
ACCESSORIES	
Provided accessories	RF cable, Infrared remote control unit, "AA" battery × 2

- Specifications shown are for SP mode unless otherwise specified.
- E.& O.E. Design and specifications subject to change without notice.
- Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.
- "DTS" and "DTS 2.0 + Digital Out" are trademarks of Digital Theater Systems, Inc.

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.

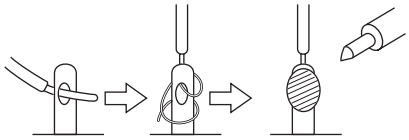


Fig.1-1-1

(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.

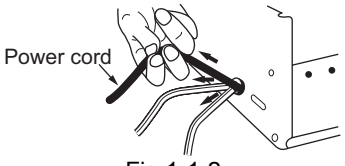


Fig.1-1-2

(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 connectorIn such cases as when replacing the power transformer in sets where the connections between the power cord and power trans former 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).

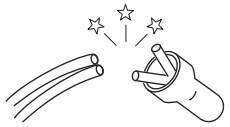


Fig.1-1-3

  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.

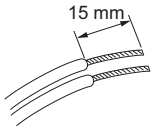


Fig.1-1-4

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

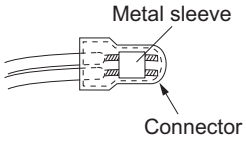


Fig.1-1-5

  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.

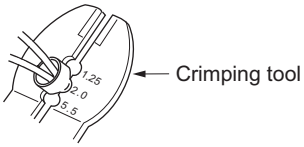


Fig.1-1-6

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

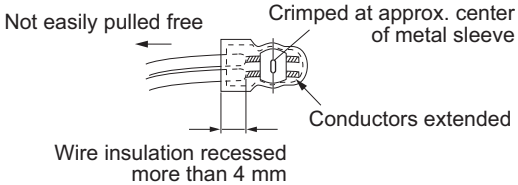


Fig.1-1-7

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.

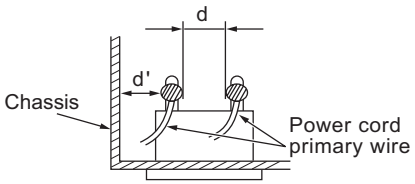


Fig.1-1-8

(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.

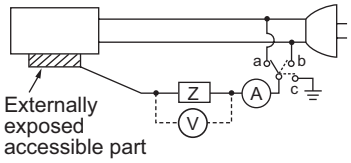
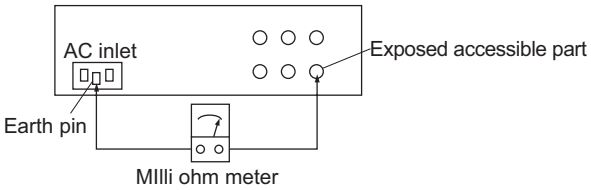


Fig.1-1-9

(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 ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

Fig.1-1-10

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

Fig.1-1-11

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 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

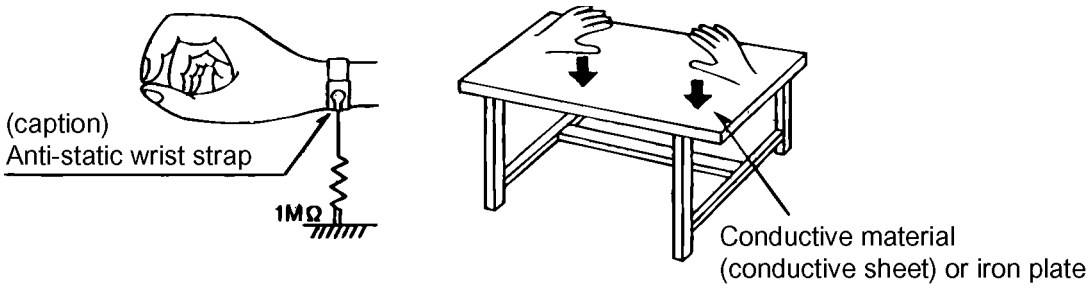
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

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 Precautions for Service

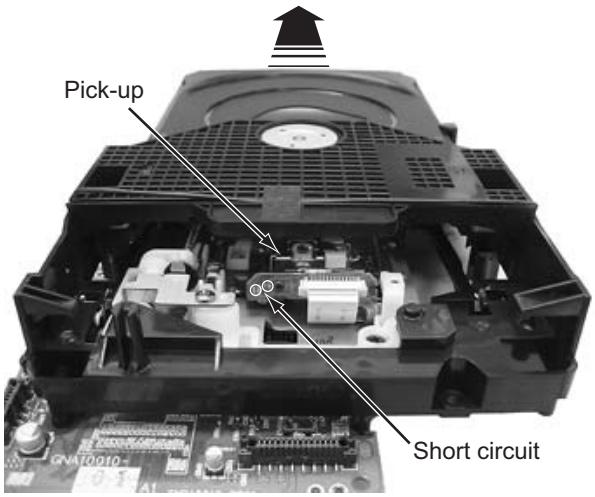
1.3.1 Handling of Traverse Unit and Laser Pickup

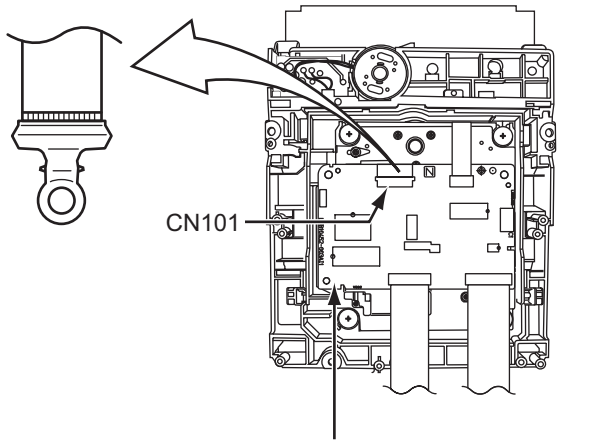
(1) Do not touch any peripheral element of the pickup or the actuator.
(2) The traverse unit and the pickup are precision devices and therefore must not be subjected to strong shock.
(3) Do not use a tester to examine the laser diode. (The diode can easily be destroyed by the internal power supply of 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.

1.3.2 Destruction of Traverse Unit and Laser Pickup by Static Electricity

Laser diodes are easily destroyed by static electricity charged on clothingor 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-XVC28BUC, HR-XVC28BUS, HR-XVC29SUC and HR-XVC29SUS.

	HR-XVC28BUC	HR-XVC28BUS	HR-XVC29SUC	HR-XVC29SUS
BODY COLOR	BLACK	←	PURE SILVER	←
MP3 PLAYBACK	USED	NOT USED	USED	NOT USED

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, Main board assembly to the bottom chassis. If any other screws are used to fix the boards, remove them also.
(3) Remove the combined Mechanism 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.**

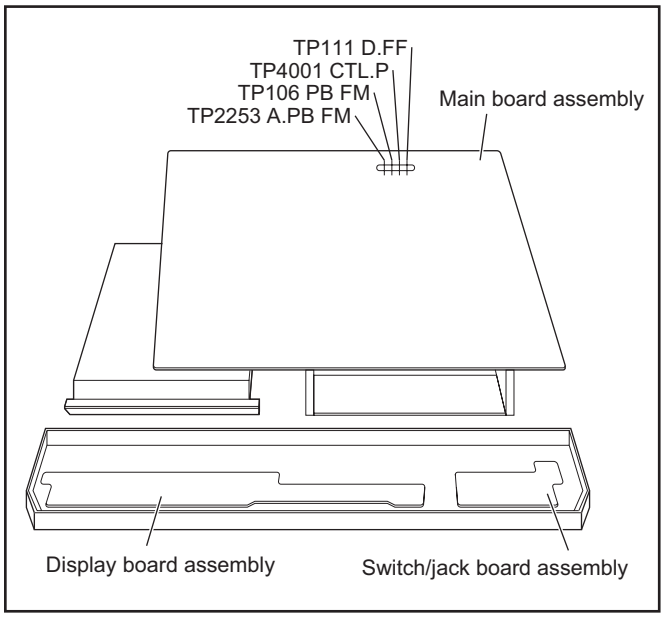


Fig.2-2a

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.**

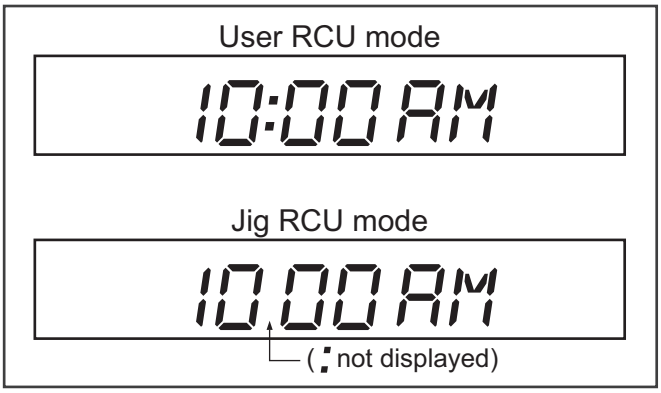


Fig.2-3a User/Jig RCU mode

2.3.1 Setting the Jig RCU mode

(1) Turn on the power.
(2) Press the following remocon 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.

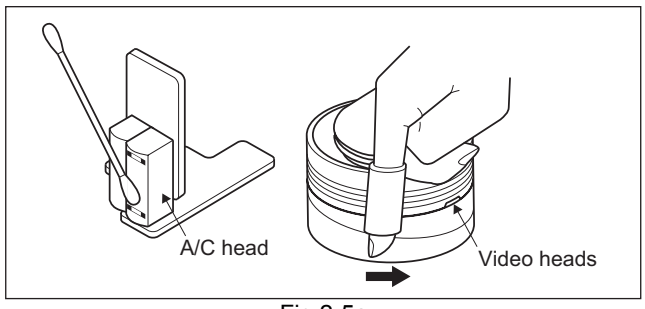


Fig.2-5a

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	CN7103	⇔	Switch/jack	CN7191	10
WR2b	Main	CN3102	⇔	Display	CN7003	22
WR3a	Main	CN2001	⇔	A/C head		6
WR3b	Drum assembly		⇔	Main	CN1	9
WR4a	Main	CN7302	⇔	DVD servo control	CN503	17
WR4b	Main	CN7301	⇔	DVD servo control	CN501	19
WR4c	Main	CN3301	⇔	DVD servo control	CN1	5

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),	<Note 1a>
	Bracket		2(S1c)	

(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 board assembly) (Switch/jack board assembly)	3-1a 3-1d	4(L2a),5(L2b),2(S2a) CN7103(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(S4b), CN7302(WR4a), CN7301(WR46), CN3301(WR4c)	
[5]	Rear cover	3-1d	5(S5a),5(L5a)	
[6]	Main board assembly	3-1d	3(S6a)	

<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.

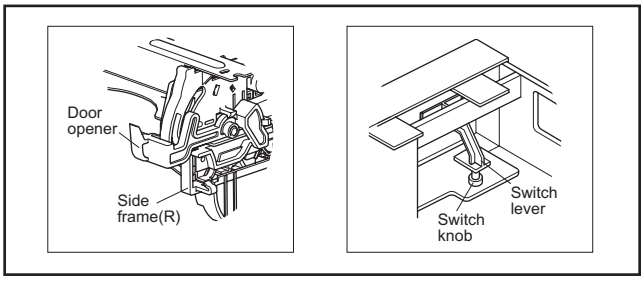


Fig.3-1a

<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.

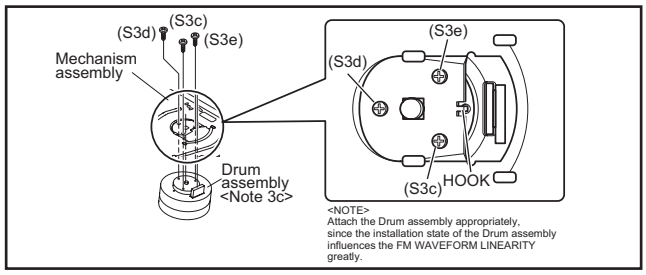


Fig.3-1b

- 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.

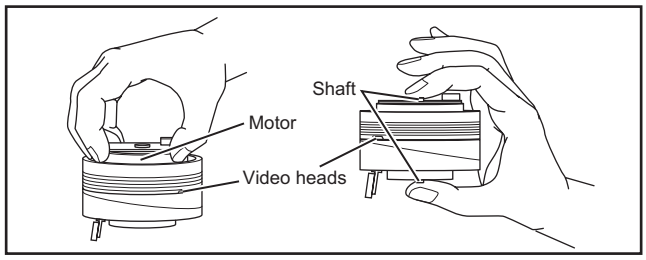
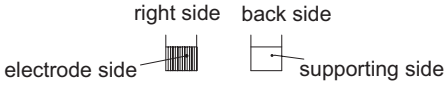


Fig.3-1c

NOTE

1. Insert direction of FFC WIRE as follows.



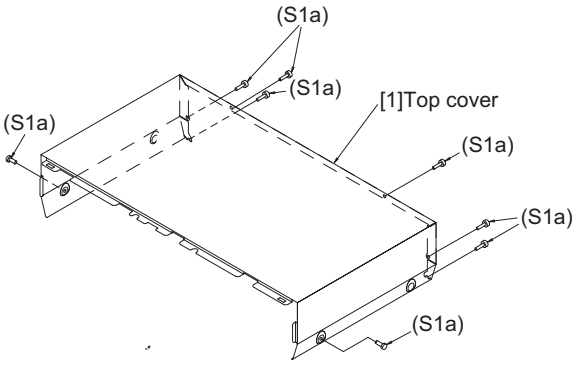
2. FFC WIRE and DRUM FPC WIRE should be insert as follows.

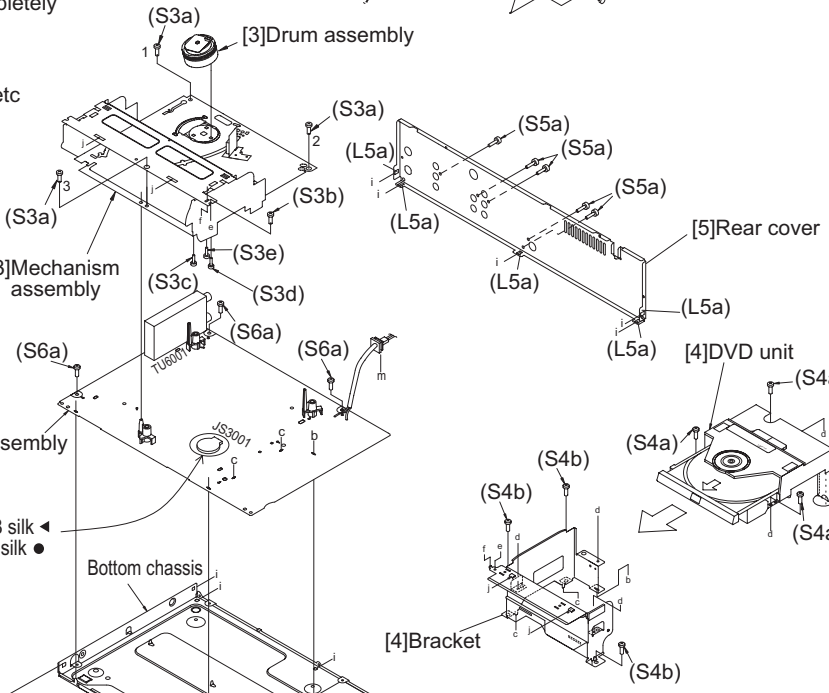
3.Insert the wire to even the root of connector completely at the same time as inserting each wire.

4.Check to see that outside parts.
TOP COVER,BOTTOM COVER,FRONT PANEL, etc are fixed certainly to the BOTTOM CHASSIS

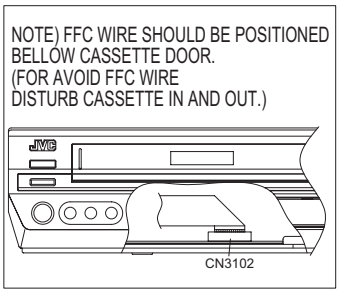
5.Pay attention NOT to make any scratches on FRONT PANEL.

6.Pay close attention not to cut any Sheath of WIRE by sharp edge of CHASSIS while Wireing Process.

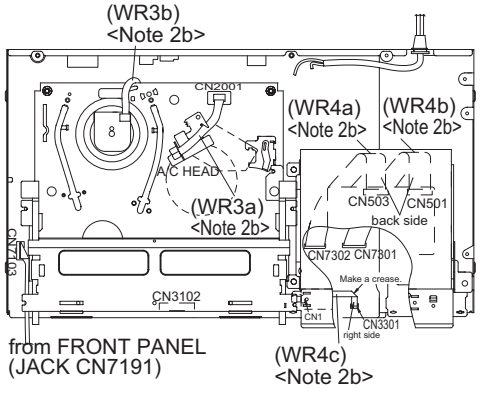




<Phase alignment>
· Accord the position of V gap on R.ENCORDER and PWB silk ◄
· Accord the position of Boss on R.ENCORDER and PWB silk ●



Insert the bushing of POWER CORD so as not to twist the cord.



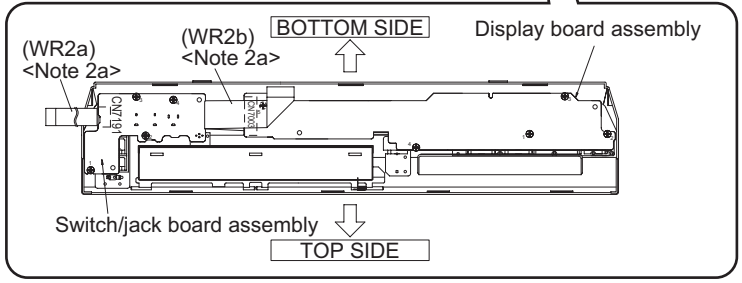


Fig.3-1d

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.)

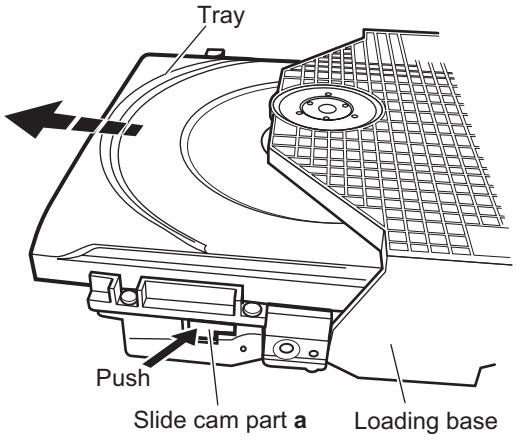


Fig.3-2a

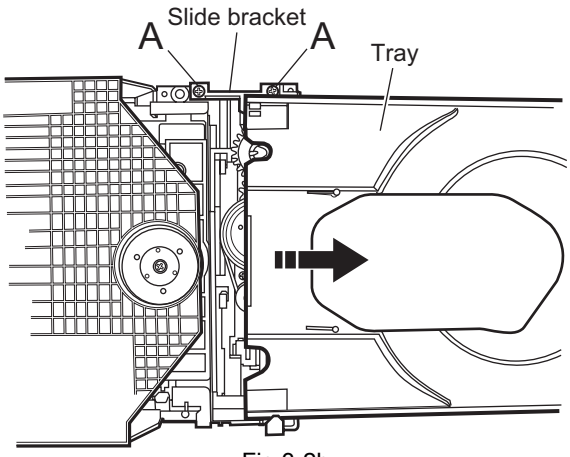


Fig.3-2b

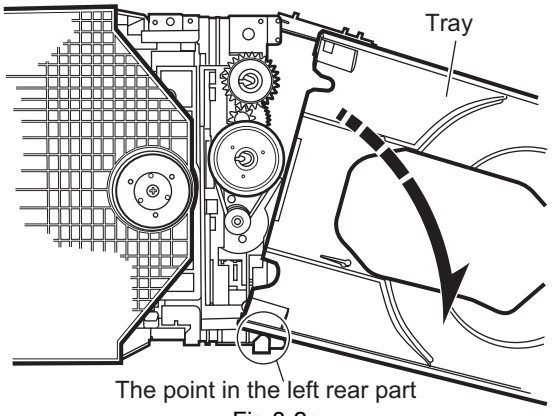


Fig.3-2c

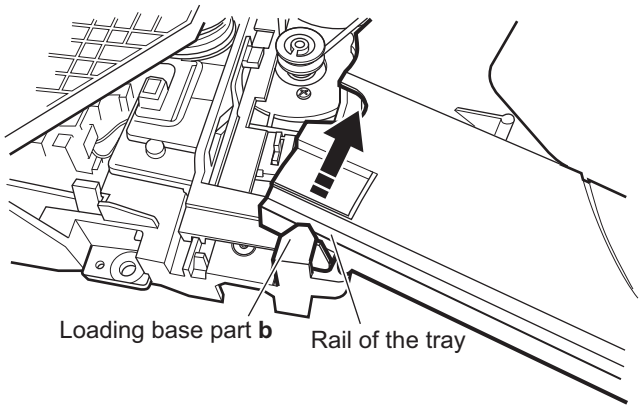


Fig.3-2d

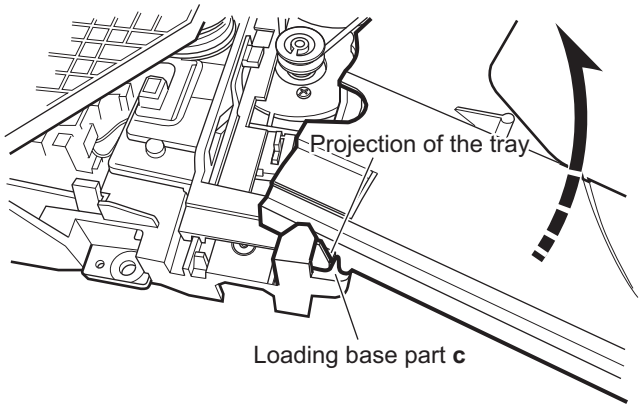


Fig.3-2e

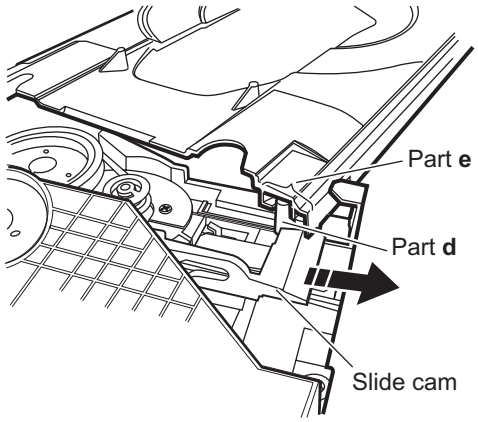


Fig.3-2f

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.

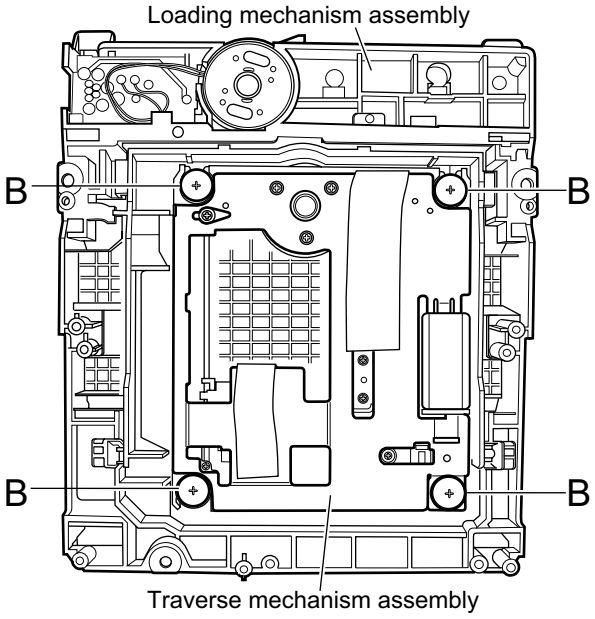


Fig.3-2g

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.

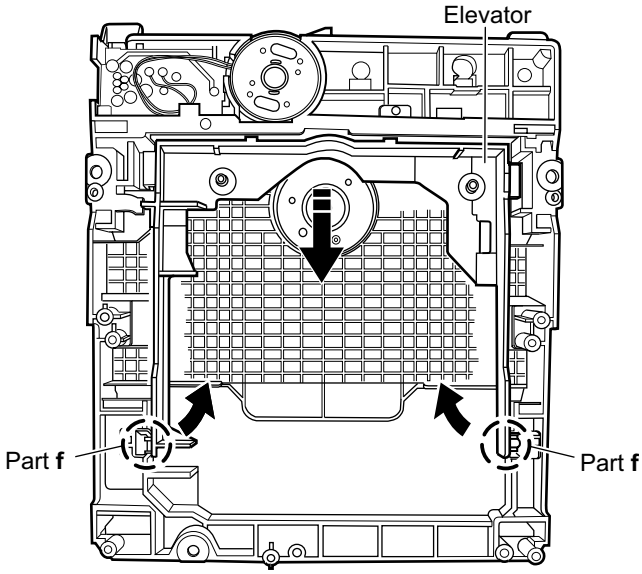


Fig.3-2h

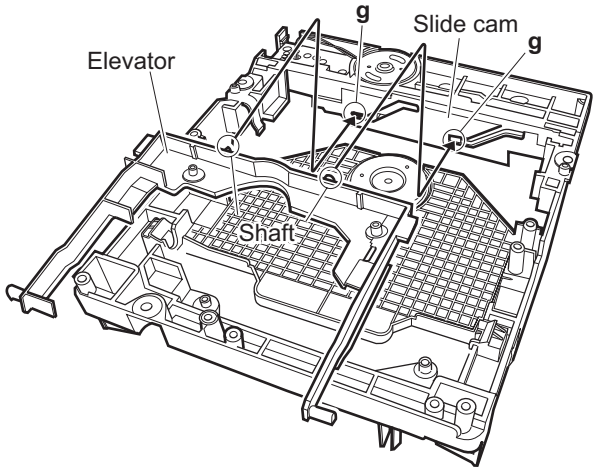


Fig.3-2j

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.

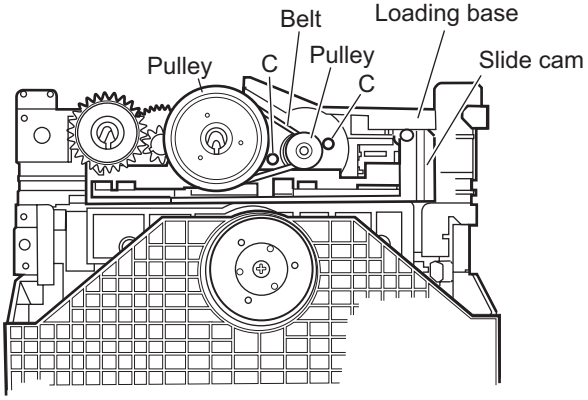


Fig.3-2k

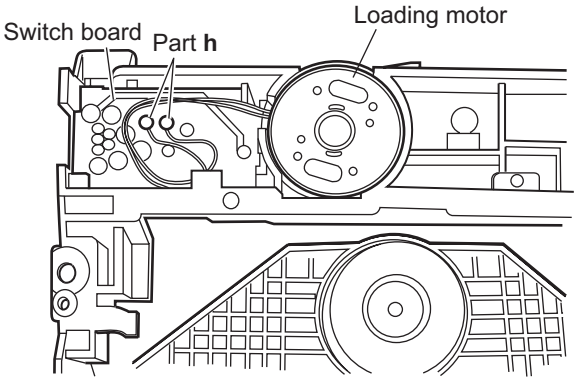


Fig.3-2l

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**.

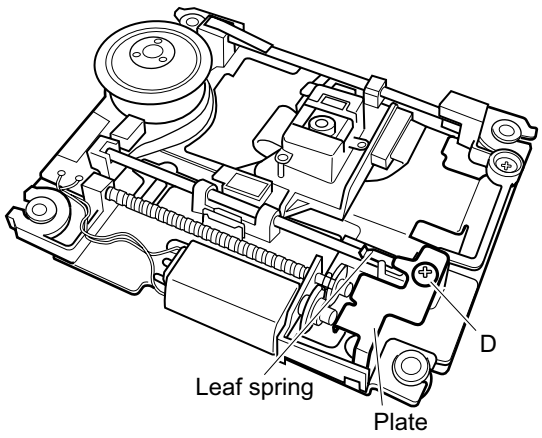


Fig.3-3a

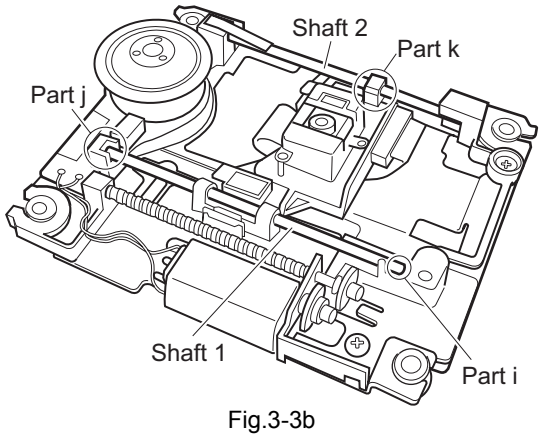


Fig.3-3b

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.**

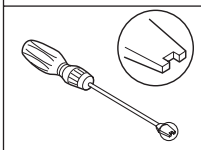
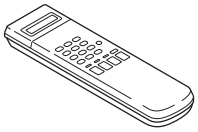
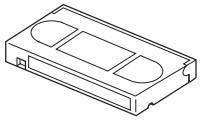
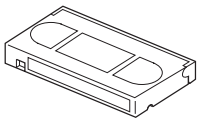
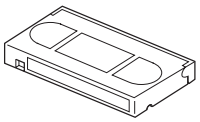
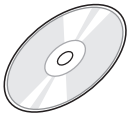
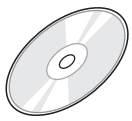
4.1.2 Required test equipments

- 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 [NTSC]
- Recording tape
- Digit-key remote controller(provided)

4.1.3 Required adjustment tools

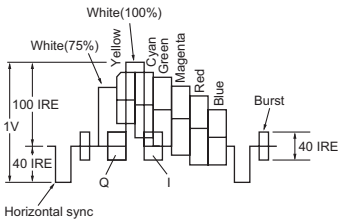
● : Used --- : Not used

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

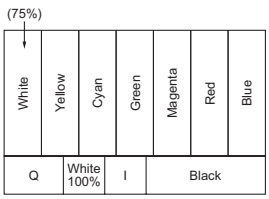
Roller driver PTU94002	Jig RCU PTU94023B	Back tension cassette gauge PUJ48076-2
		
Alignment tape (SP, stairstep, NTSC) MHP	Alignment tape (EP, stairstep, NTSC) MHP-L	DVD test disc VT-501
		
CD-DA test disc CTS-1000		
		

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

• Color(colour) bar signal [NTSC]



• Color(colour) bar pattern [NTSC]



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 (the mode in which codes from the Jig RCU can be received). (See "section 2 SPECIFIC SERVICE INSTRUCTIONS".)

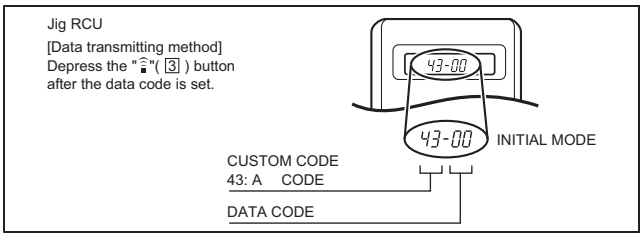


Fig.4-1 Jig RCU [PTU94023B]

- 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.

4.2 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 [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm (2.45 - 5 x 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.

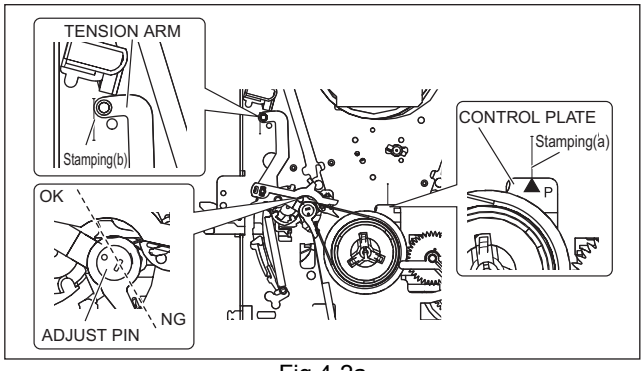


Fig.4-2a

4.2.2 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, NTSC) [MHP] • Alignment tape(EP,stairstep,NTSC) [MHP-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).

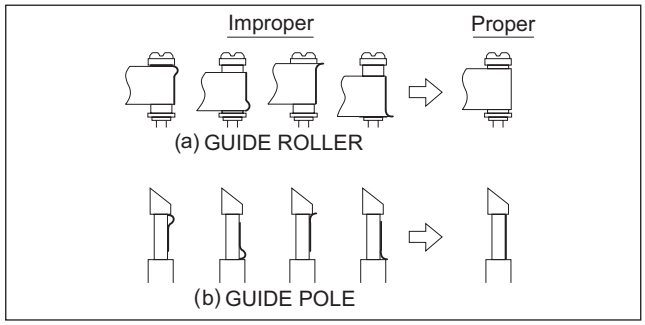


Fig.4-2b

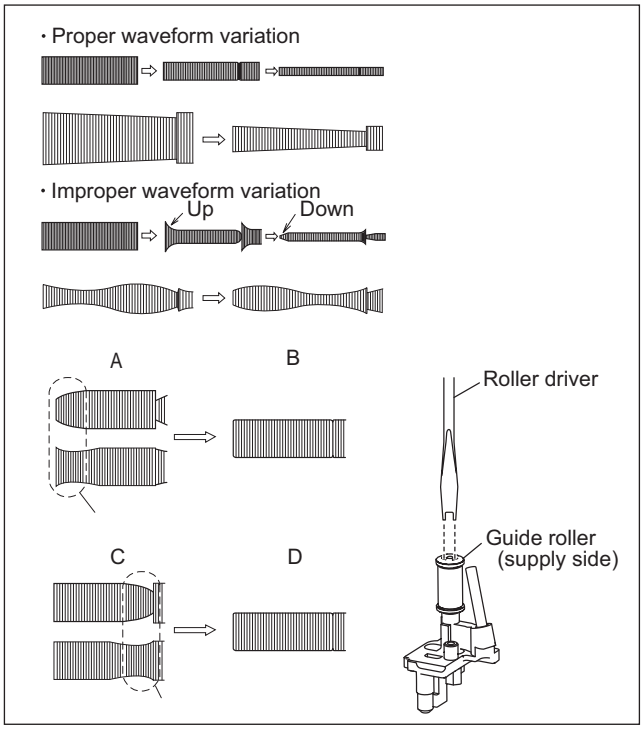


Fig.4-2c

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, NTSC) [MHP]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• TP106 (PB. FM) • 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.

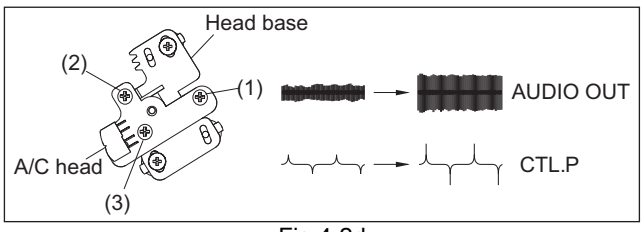


Fig.4-2d

4.2.4 A/C head phase (X-value)

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, NTSC) [MHP] • Alignment tape(EP,stairstep,NTSC) [MHP-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.

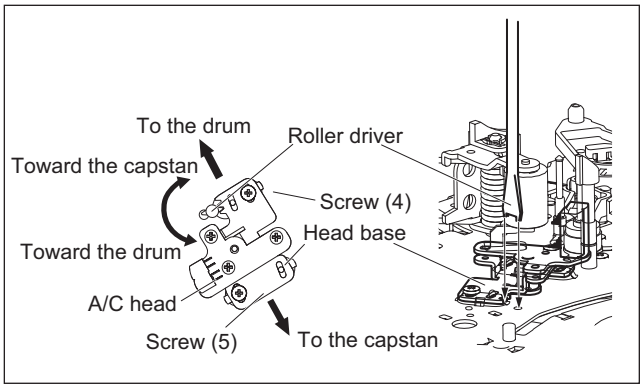


Fig.4-2e

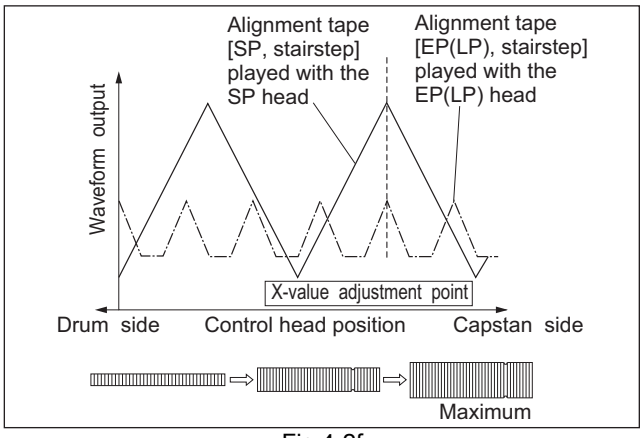


Fig.4-2f

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(EP,stairstep,NTSC) [MHP-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).

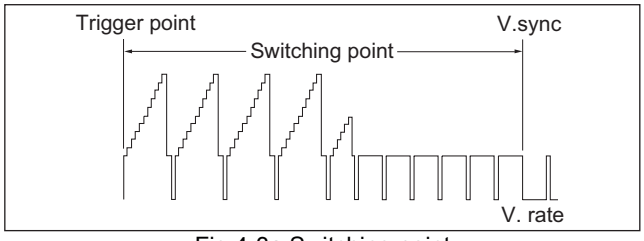


Fig.4-3a Switching point

4.3.1.2 Slow tracking preset

Signal	(A1) (A2)	• Ext. input • Color (colour) bar signal [NTSC]
Mode	(B1) (B2)	• VHS SP • VHS EP
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 (3) to (6) in the REV slow (+1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).

Note:

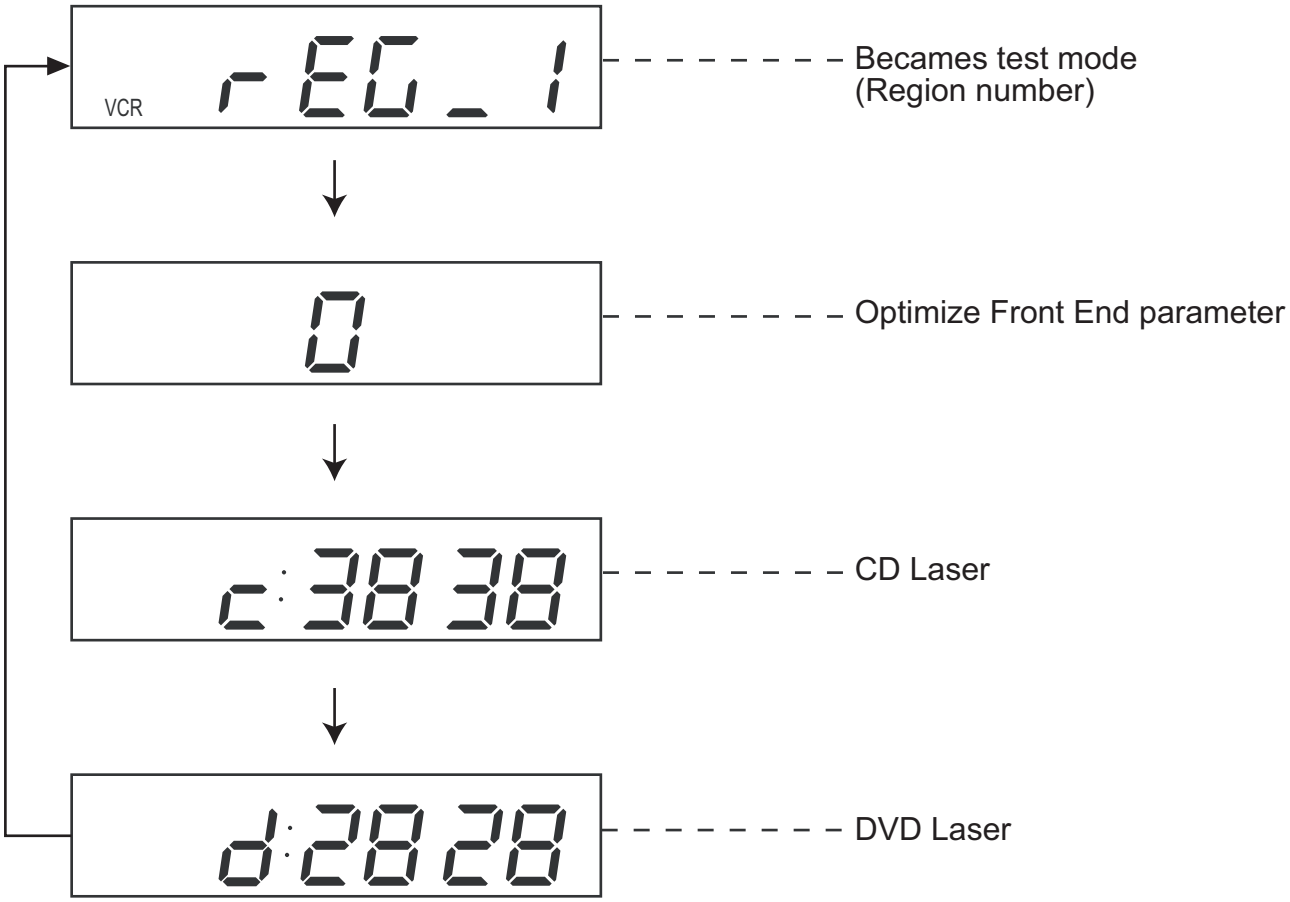
- **For FWD slow (+1/6x) playback, transmit the code "43-08" from the Jig RCU to enter the slow playback mode, and transmit the code "43-D0" for REV slow (-1/6x) mode.**

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 remocon 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 on the front display panel.
(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) Each pressing of DISPLAY button of the remote controller in test mode as follows.
(9) To release test mode, press POWER key of the front panel.

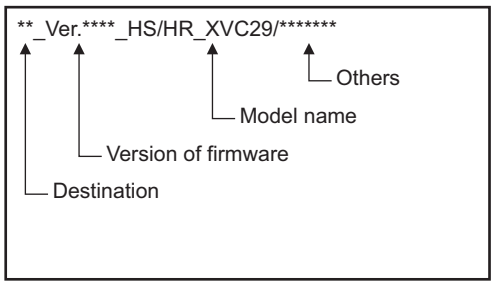
FDP(Example)



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.

OPENING DISPLAY



4.4.3 Initialization method

Please initialize according to the following procedures in the following case:

- Just after you upgrade the firmware.
- After you confirm the symptoms that a customer points out. First Initialize, and then confirm whether the symptoms are improved or not.
- After servicing, before returning the main body to a customer. (Initialized unit should be returned to a customer.)

(1) Set the unit to the test mode.
(2) Press PAUSE key of the remote controller or transmit the code "43-6F" from the Jig RCU.
(3) When initialization is completed, the PLAY (▸). mark is indicated in the FDP.

4.4.4 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.

NOTE:

After all-initialization, be sure to perform optimization adjustment of Front End parameter.

4.4.5 Optimization adjustment of Front End parameter

Adjustment to optimize Front End parameter must be performed in each mechanism assembly of this model for high-speed starting.Please perform optimization according to the following procedures just after all-initialization is completed and when FDP shows anything except "0" (For example when FDP shows "1", "2", and "3") at test mode.

(1) Set the unit to the test mode.
(2) The FDP shows the region number first.
(3) Press the DISPLAY key of the remote controller and check that FDP shows the number.
(4) Press the DISPLAY key again to return the region number.

NOTE:

Status of this adjustment can be judged by the number displayed at test mode as follows:

DVD adjustment	CD adjustment	FDP at test mode
Adjusted	Adjusted	0
Not adjusted	Adjusted	1
Adjusted	Not adjusted	2
Not adjusted	Not adjusted	3

NOTE:

As for a disc used for adjustment,

- Disc should be mounted. ("Mounting" means to display "READ" after the disc is inserted and then display the disc information.) Disc need not be played.
- If you do not have test disc either VT-501 (DVD) or CTS-1000 (CD-DA), use a commercial disc (for DVD, dual-layer software) after seeing and checking that the disc is neither curved nor foreseen that it may shake at the time of playback.If you use a disc with bad features, starting time may be slow or disc may not be read.

4.4.6 Upgrading of firmware

- Firmware update disc supports CD-R media.
- When firmware update is necessary, information is available from the homepage of DIGITAL VIDEO STORAGE CATEGORY, CS group.

4.4.6.1 Creating an update disc

Please check the details of the update disc creation method by JS-NET.

(1) Down load the update file from JS-NET.

(2) Write the update file into CD-R. Pay attention in the following points when writing the update disc.

- Make sure to write in "Disc at Once".
- Set the file compatibility to "ISO9660 format".

4.4.6.2 Update procedure

(1) Turn the power ON. Load the update disc on the tray and close the tray.

(2) Update of the firmware starts automatically then upgrading status is displayed in the monitor screen.

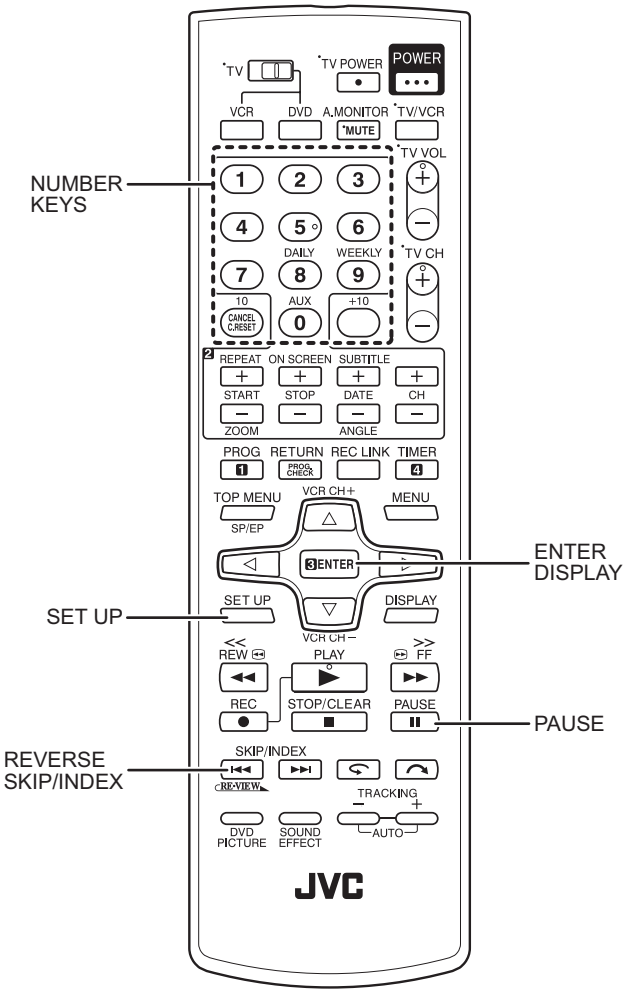
(3) The tray opens automatically. Remove the upgrade disc.

(4) Close the tray then press the POWER button to turn off the unit.

(5) Confirm the version of the firmware.in the test mode.

MONITOR(Example)

```
VERSION UP DISC
PROGRAM&DESTINATION MODE
CURRENT VERSION        0494(or0495)
NEW VERSION            0496
READING....
SECTOR                 **
```



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)

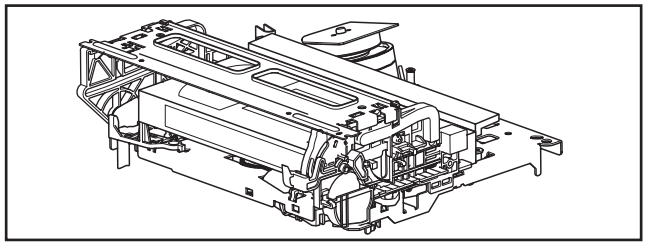


Fig.5-1a

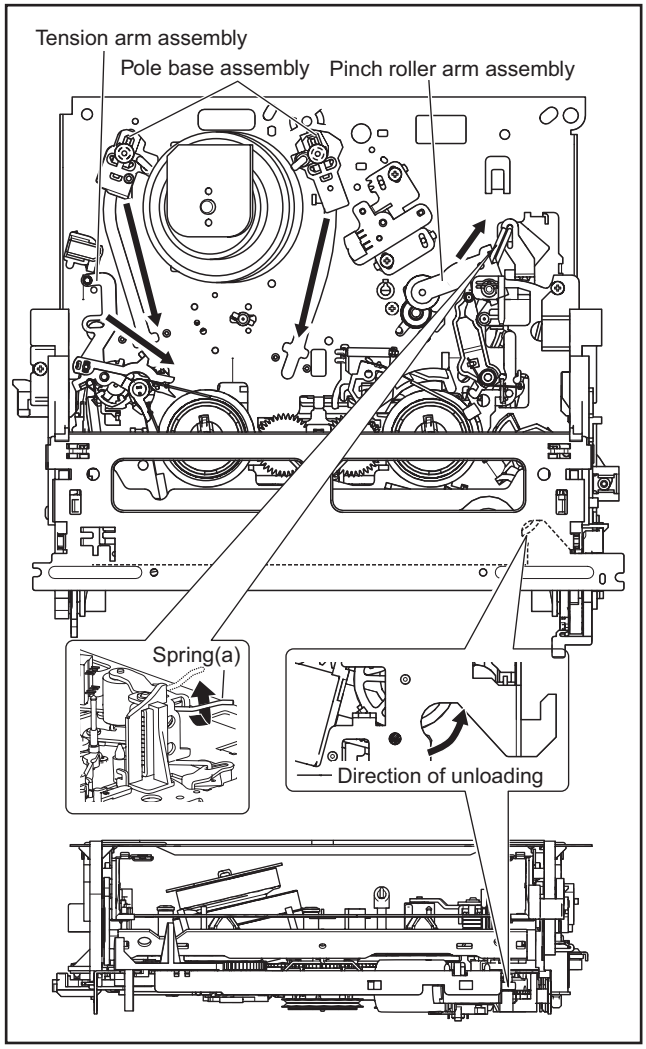


Fig.5-1b

(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).

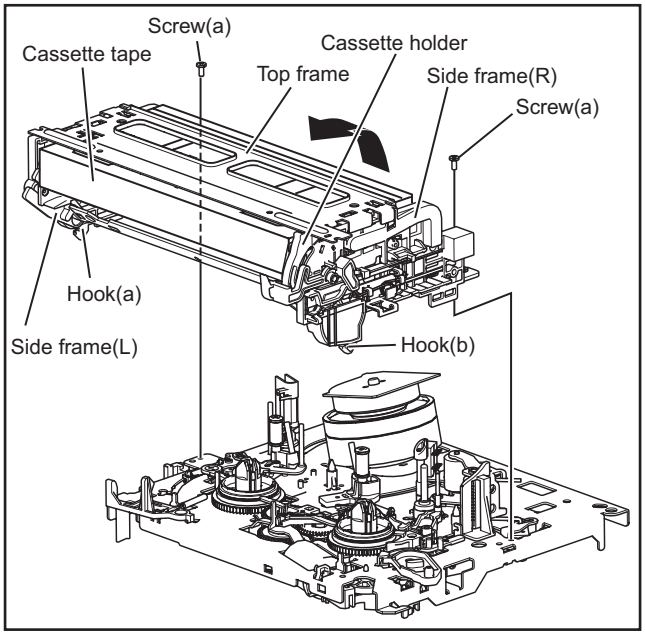


Fig.5-1c

(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 disassembly of the major parts before removing)

(3) Turn the Middle gear (a) by hand to open the disk tray.(See Fig. 5-2a)

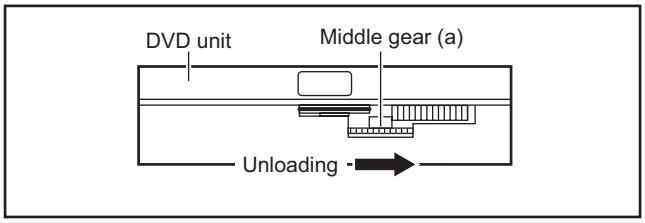


Fig.5-2a

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.

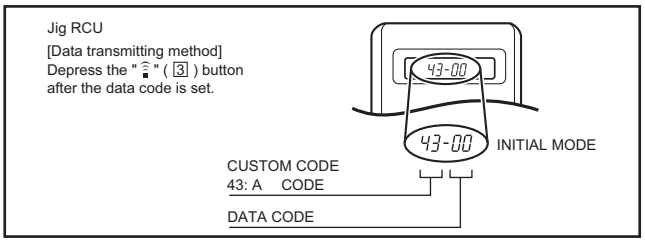


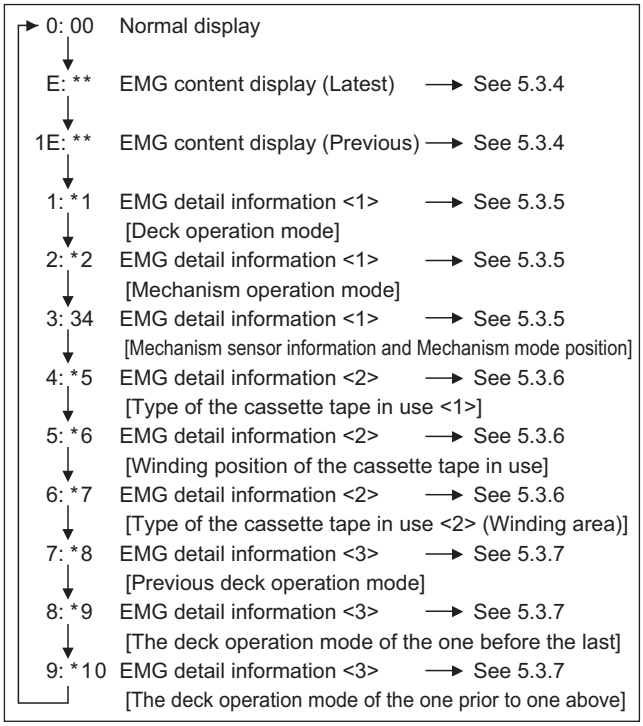
Fig.5-3a Jig RCU [PTU94023B]

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 repeatedly so that the VHS indicator lights up on the front display panel.**
- **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:**:**”.

<Example 1> E : 01 ← Latest EMG

<Example 2> E : - - ← No EMG record

(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>.**

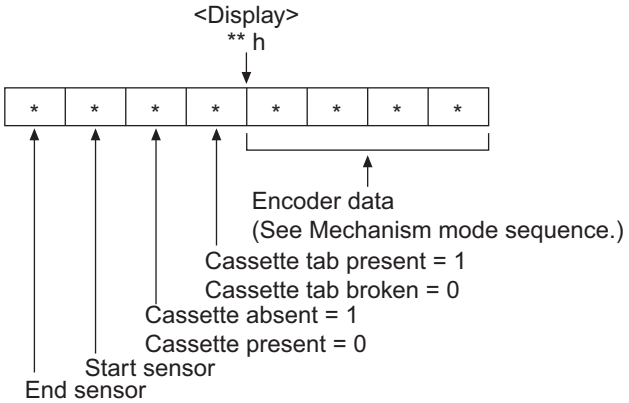
[For MN* only]

AA	BB	CC	DD	EE
FF	GG	HH	I I	J J
KK	L L	MM	NN	OO
PP	QQ	RR	SS	TT
UU	VV	WW	XX	YY

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)
I I : 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**

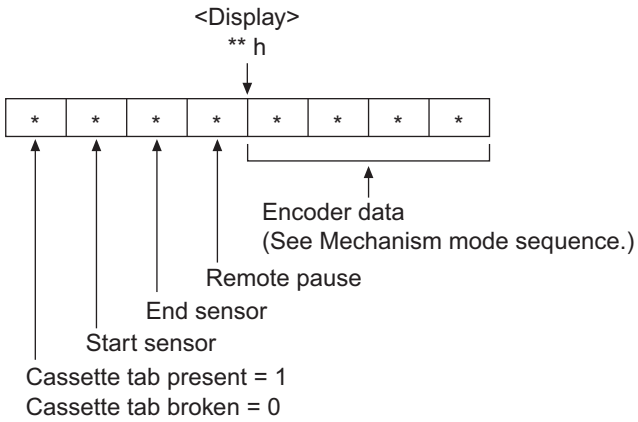


[For *HD only]

AA	BB	CC
DD	EE	FF
GGGG	HHHH	
I I	J J J J	
KKKK	L L L L	MMMM
ROM No.		

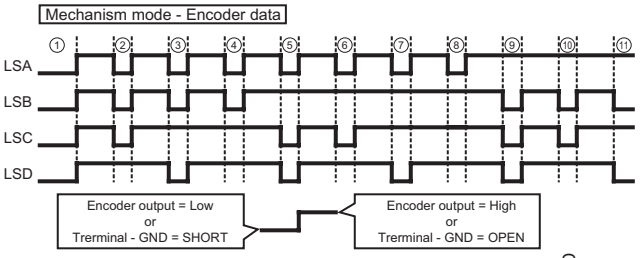
AA : Key code (JVC code)
BB : Deck operation mode(See EMG detail information <1>.)
CC : Mechanism operation mode (See EMG detail information <1>.)
DD : Sensor information (See sensor information details.)
EE : Capstan motor speed (Search, double speed)
FF : Tracking value
GGGG : Cassette tape type <2>, 16 bits. (See EMG detail information <2>.)
HHHH : Supply reel winding diameter data
I I : 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**

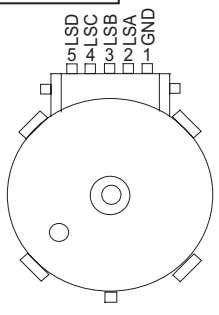


[For both MN*/HD*]

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.	1. The mechanism is locked in the middle of the mode transition during a tape loading operation. 2. 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. 3. 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.	1. The mechanism is locked in the middle of mode transition. 2. 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) 3. 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 edje 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.	1. The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1) The idler gear is not meshed with the take-up reel gear because the mechanism mal-functions for some reason. 2) The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3) The reel is rotating normally but an FG pulse is not generated due to the take-up reel sensor failure. 2. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear because the mechanism mal-functions for some reason. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The reel rotates normally but the FG pulse is not generated due to a supply reel sensor failure. 3. 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.	1. The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. 2. The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. 3. The drum control voltage (DRUM CTL V) is not supplied to the MDA. 4. 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.	1. The cassette cannot be ejected due to a failure in the drive mechanism of the housing. 2. 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. 3. The sensor/switch for detecting the end of ejection are not functioning normally. 4. The loading motor drive voltage is lower than specified or power (M12V) is not supplied to the motor (MDA). 5. 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.	1. The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). 2. The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. 3. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. 4. 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.	1. The SW 5 V power supply circuit is shorted with GND. 2. 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	1. The DVD unit is defective. 2. 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.	1. The FG sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. 4. The power (5V) to the sensor is not supplied. (Connection failure/soldering failure) 5. The FG pulse is not sent to the System Controller CPU. 6. The tilt motor is defective. (The soldered parts have separated.) 7. The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) 8. The tilt motor drive MDA - IC is defective. 9. 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.	1. The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) 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; 3) The reel is rotating normally but the FG pulse is not generated due to a supply reel sensor failure. 2. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) 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; 3) The reel is rotating normally but the FG pulse is not generated due to a take-up reel sensor failure. 3. The power (SW 5V) to a reel sensor is not supplied.
EU1: Head clog warning history	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. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." 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.	

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 informatio n			
	REC safety SW	Start sensor	End sensor	Mechansim 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 Tab present = 1	Sensor ON = 0 sensor OFF = 1	Sensor ON = 0 Sensor OFF = 1	

-4 : Mechanism mode position

[Common table of MN* and HD*]

Mechanism sensor information	Dis-play	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
Victor Company of Japan, Limited
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(No.YD052)

Printed in Japan
VPT

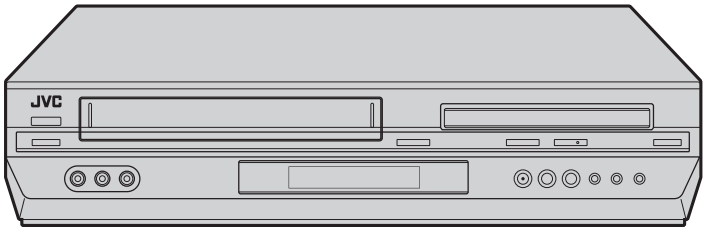
JVC

SCHEMATIC DIAGRAMS

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XVC28BUC, HR-XVC28BUS, HR-XVC29SUC, HR-XVC29SUS

CD-ROM No.SML200503



HR-XVC28BUC, HR-XVC28BUS, HR-XVC29SUC, HR-XVC29SUS [D5PV1]

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

No.YD052SCH
2005/3

CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components indentified 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.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ(1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) 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.

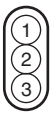
2. Indications of control voltage

AUX : Active at high.

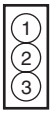
$\overline{\text{AUX}}$ or AUX(L) : Active at low.

3. Interpreting Connector indications

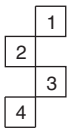
Removable connector



Wire soldered directly on board



Non-removable Board connector



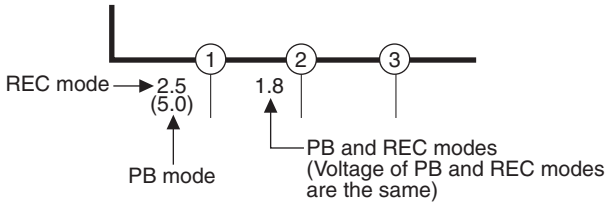
Board to Board


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

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

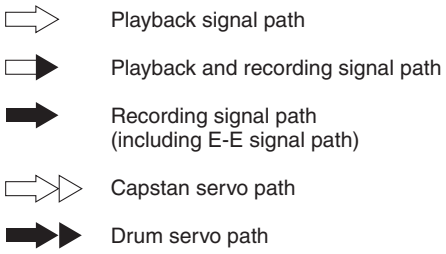


Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

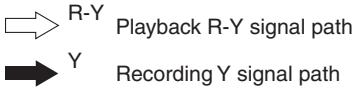
5. Signal path Symbols

The arrows indicate the signal path as follows.

NOTE : The arrow is DVC unique object.

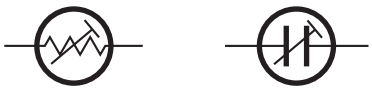


(Example)



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

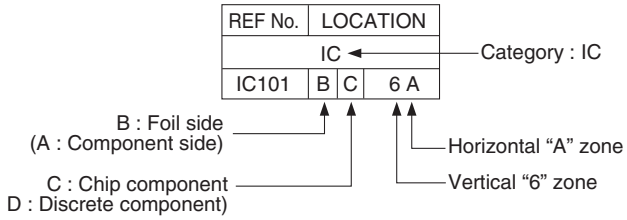
1. Foil and Component sides

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

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

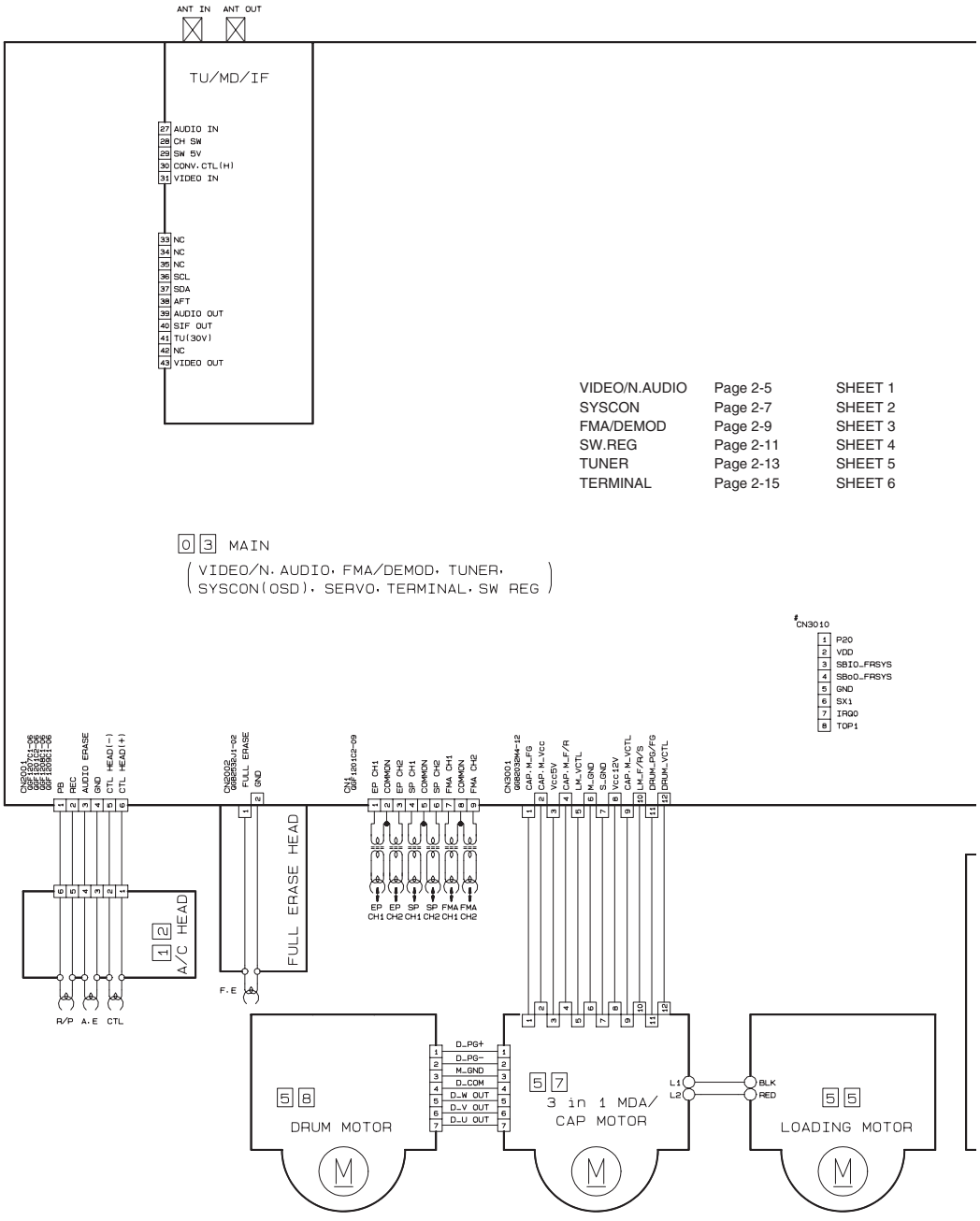
2. Parts location guides

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).

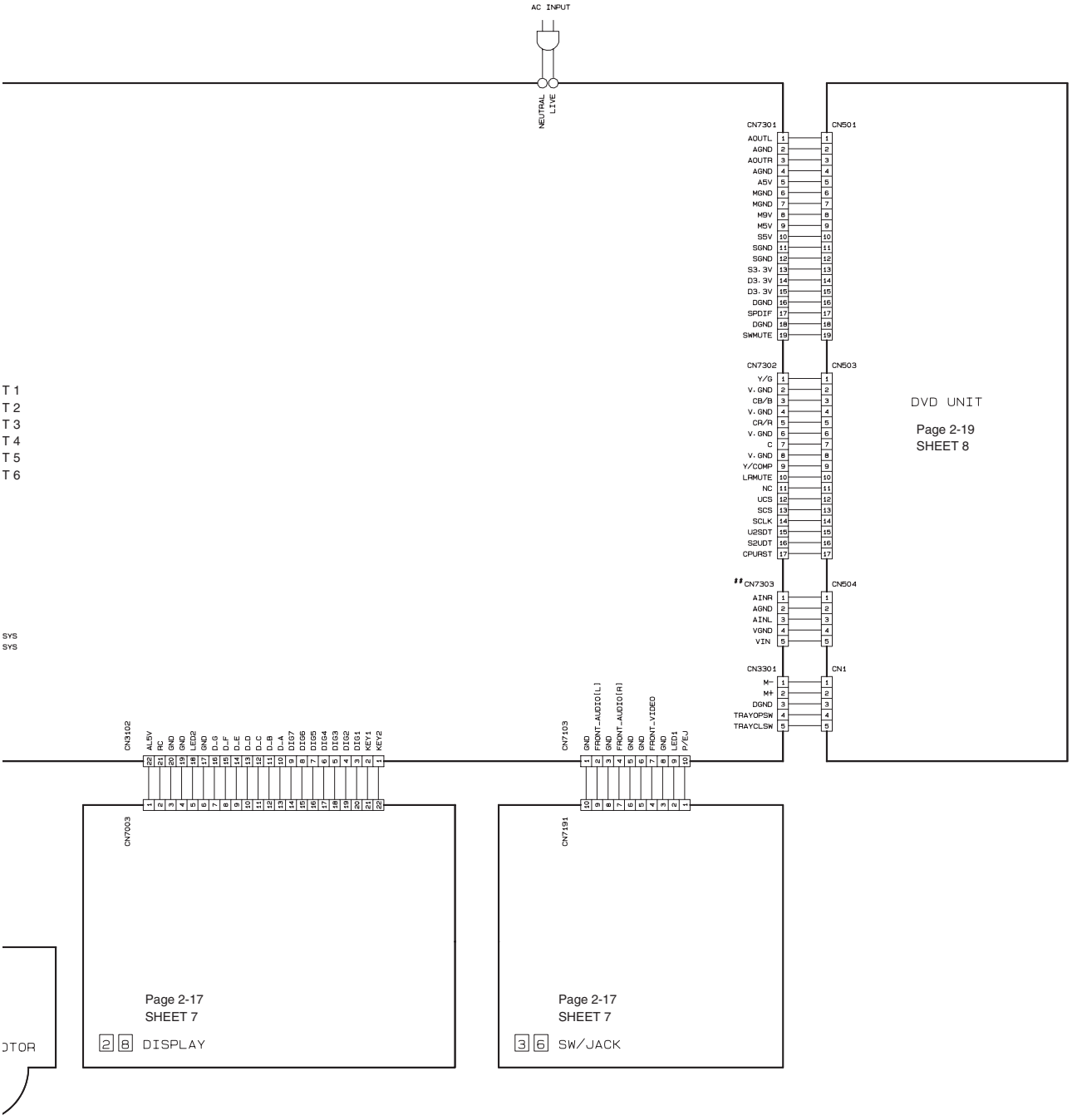
BOARD INTERCONNECTIONS



5 8	DRUM MOTOR
5 7	3in1 MDA/CAP MOTOR
5 5	LOADING MOTOR
3 6	SW/JACK
2 8	DISPLAY
1 2	A/C HEAD
0 3	MAIN
NO	NAME

CN3010 ARE USED ONLY FOR FLASH CPU.

CN7303 ARE USED ONLY FOR VHS PROGRESSIVE MODEL.



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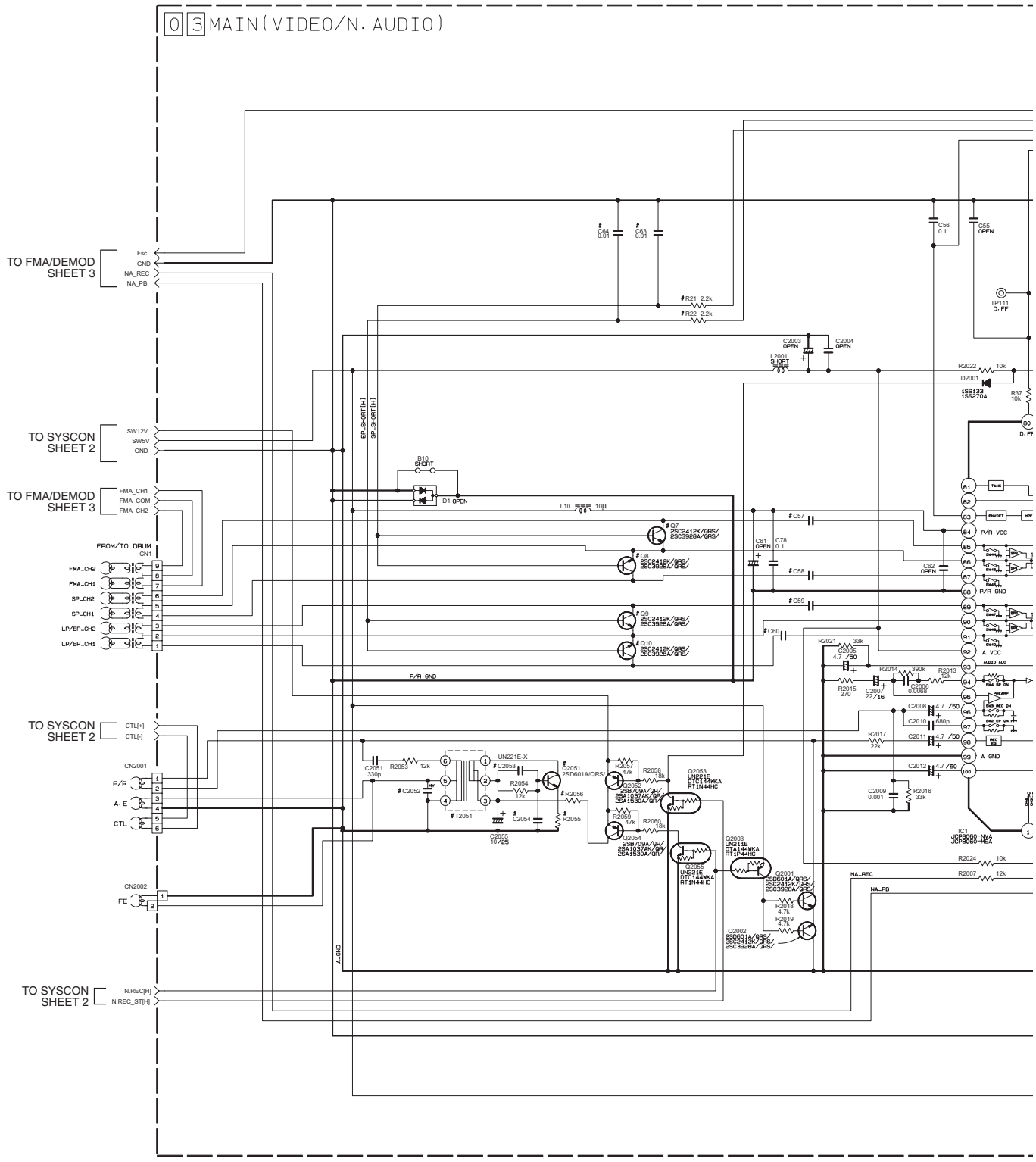
■ MAIN(VIDEO/N.AUDIO) SCHEMATIC DIAGRAM



DIFFERENCE TABLE

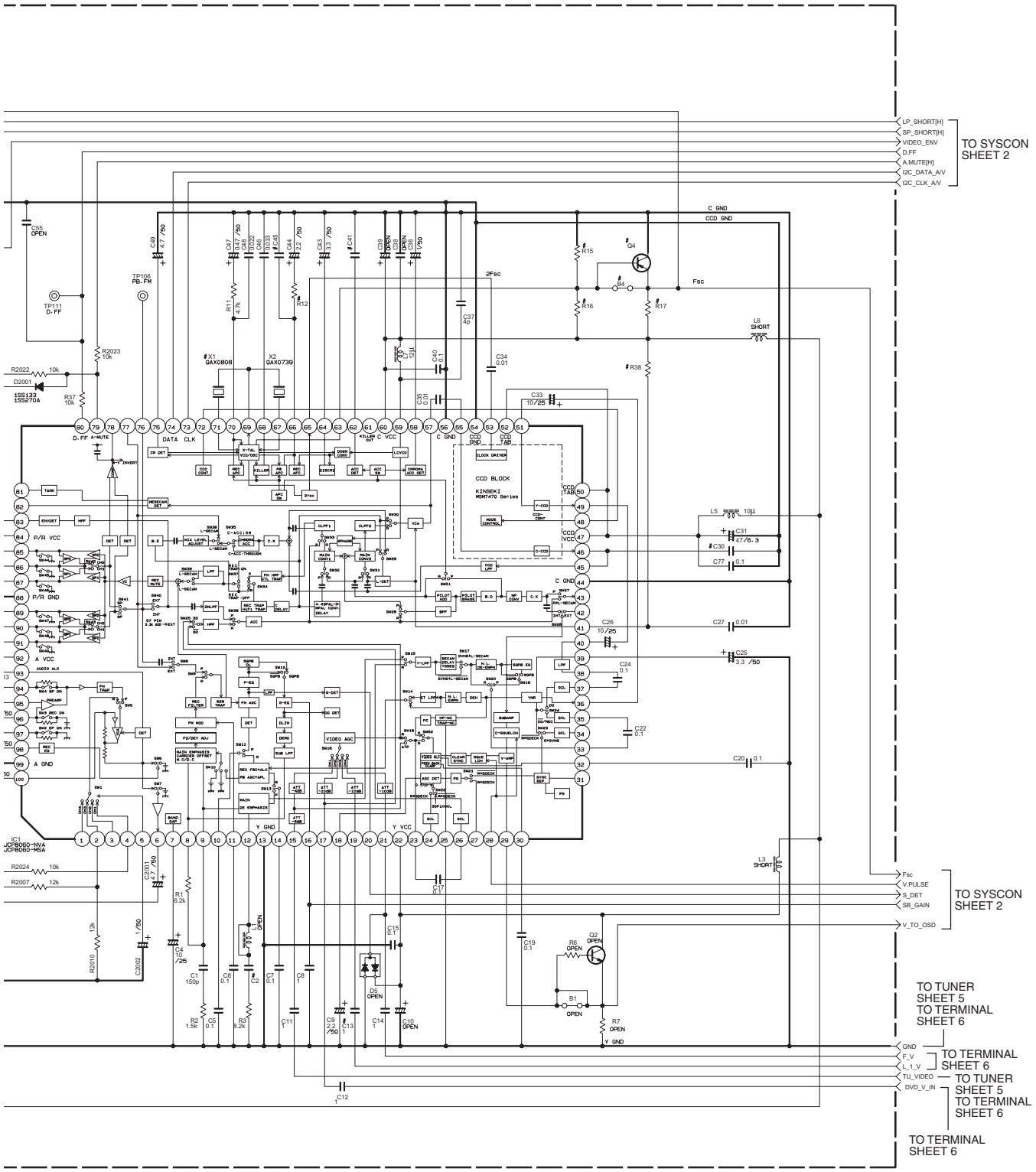
	IC1	X1	B4	Q4	R12	R15・R16・R17	R38	C2	C30	C41	C45
NTSC	NVA	×	○	×	1k	×	×	33p	330p	0.1	0.0047
PAL-N	LSA	QAX0808	×	○	680	○	6.8M	47p	560p	0.22	0.033

INPUT	C13
WITH L1 Vin	○
W/O L1 Vin	×

HEAD TYPE		Q7・Q8	Q9・Q10	R21	R22	C57・C58	C59・C60	C63・C64
NTSC MODELS	W/O SEP	×	×	×	×	0.1	0.1	×
	WITH SEP	○	×	○	×	0.01	0.1	○
PAL-N MODELS		○	○	○	○	0.01	0.01	○

	AUDIO						
	Q2051	T2051	R2055	R2056	C2052	C2053	C2054
DOM.	2SC2411K/QR/ 2SD602A/RS/	QQR1197-001 QQR1279-001	4.7	47	0.047	0.0033	0.0068
US UM	2SD601A/QRS/ 2SC2412K/QRS/ 2SC3928A/QRS/	PELN0832 PELN0954 QQR0002-001	3.3	82	0.082	0.0047	0.022
PAL-N	2SD601A/QRS/ 2SC2412K/QRS/ 2SC3928A/QRS/	PELN0832 PELN0954 QQR0002-001	3.3	82	0.082	0.0047	0.022

NOTES:UNLESS
ALL RESI
ALL INDU
ALL CAPA



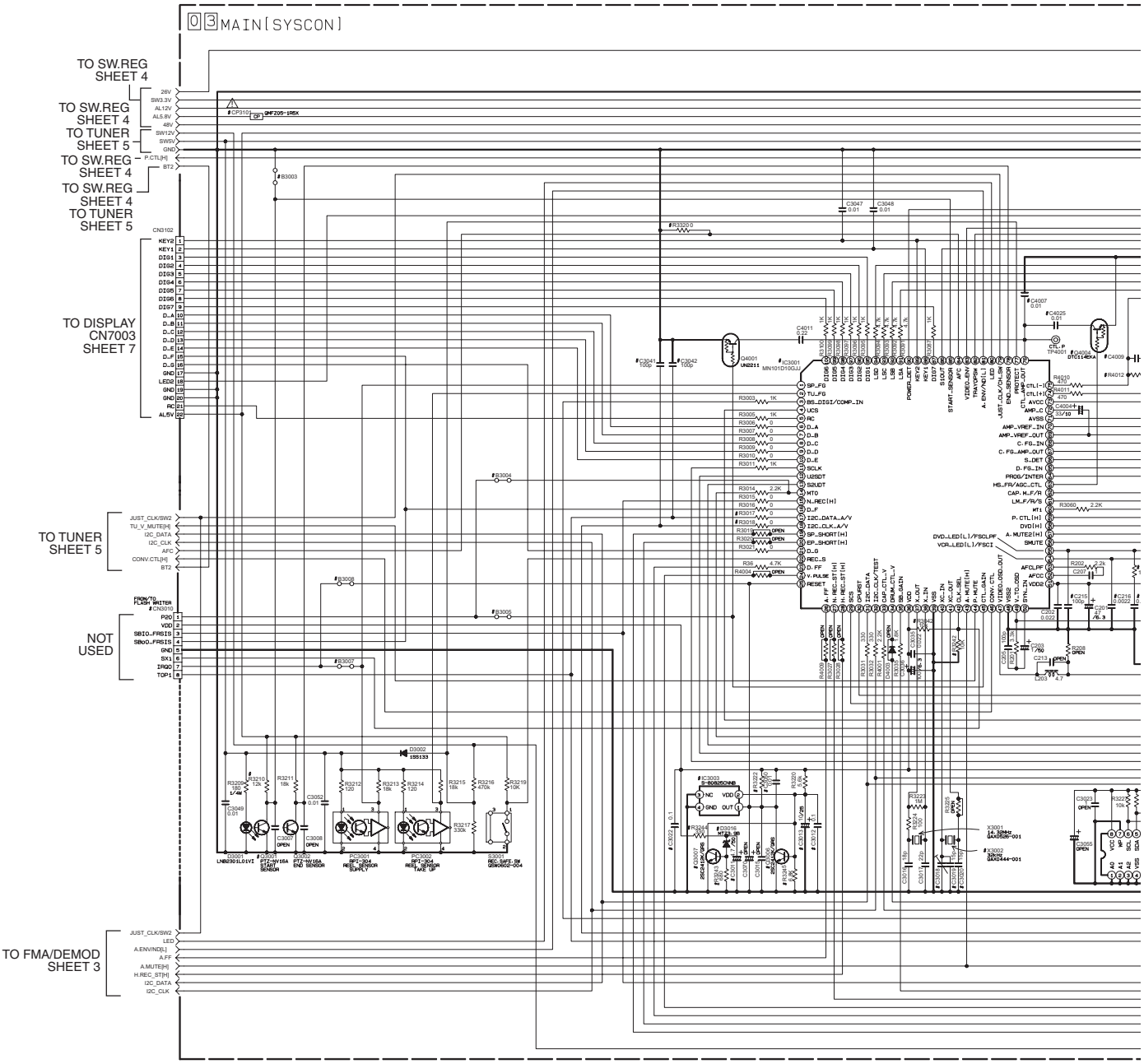
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

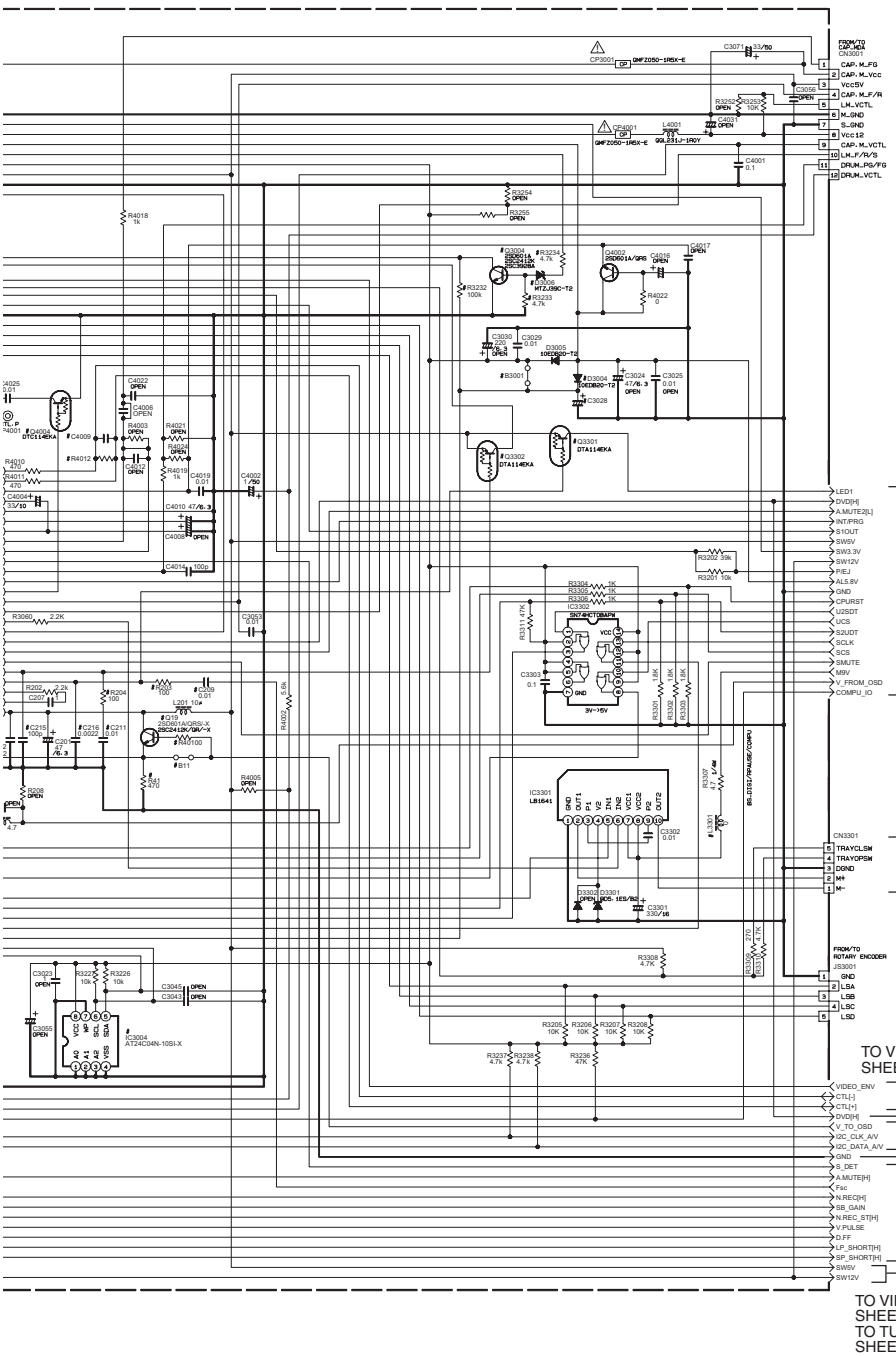
ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

p10718001a_rev0

SHEET 1

■ MAIN(SYSCON) SCHEMATIC DIAGRAM





#DIFFERENCE TABLE 1

		US/UC	JAPAN	UJ	UM
SYSCON IC	IC3001	A	B	C	C
EEPROM	IC3004	4K	16K	4K	4K
FLASH	B3005 B3007	×	○	×	×
	B3004 B3008	○	×	○	○
DVD/VHS LED	Q3301 Q3302	×	○	×	×
STARTSENSOR	Q3001 R3210	×	○	×	×
	B3003	○	×	○	○
OSD	R203 R204 C209 C211	×	×	×	×
	C215 C216	SHORT	×	SHORT	SHORT
BACK UP	B3001	○	×	○	×
	D3004	×	○	×	○
	C3028	×	3300μF	×	1000μF
RESET CIRCUIT	IC3003 C3012 C3013 C3022 C3050	×	○	×	○
	R3222	470Ω	4.7kΩ	470Ω	4.7kΩ
	Q3006 Q3007 D3016 R3243 R3244 R3245 C3011	○	×	○	×
POWER DETECT	Q3004 D3006 R3232 R3233 R3234	×	○	×	○
SUB CLOCK	X3002 C3020	×	○	×	○
	C3018	×	×	×	○
	C3019	×	○	×	×
CLK SELECT	R3042	×	○	×	×
	R3242	○	×	○	○
HI SPEED FF/REW	R4012	15kΩ	OPEN	15kΩ	15kΩ
	C4009	0.001μF	150pF	0.001μF	0.001μF
	Q4004 C4025	×	○	×	×
	C4007	○	×	○	○
LINE NOISE C/M	R3017 R3018	0Ω	0Ω	0Ω	0Ω
	C3041 C3042	×	×	×	×
MOIRE C/M	G19 R40 R41	○	○	○	○
	B11	×	×	×	×
AFC	R3320	×	0Ω	×	×
SHORT TEST	CP3101	○	○	○	○

#DIFFERENCE TABLE 2

IC3001	A	MN101D10GJJ MN101DF10GAFJJ
	B	MN101D06G** MN101DF06KAF**
	C	MN101D10G** MN101DF10GAF**

#DIFFERENCE TABLE 3

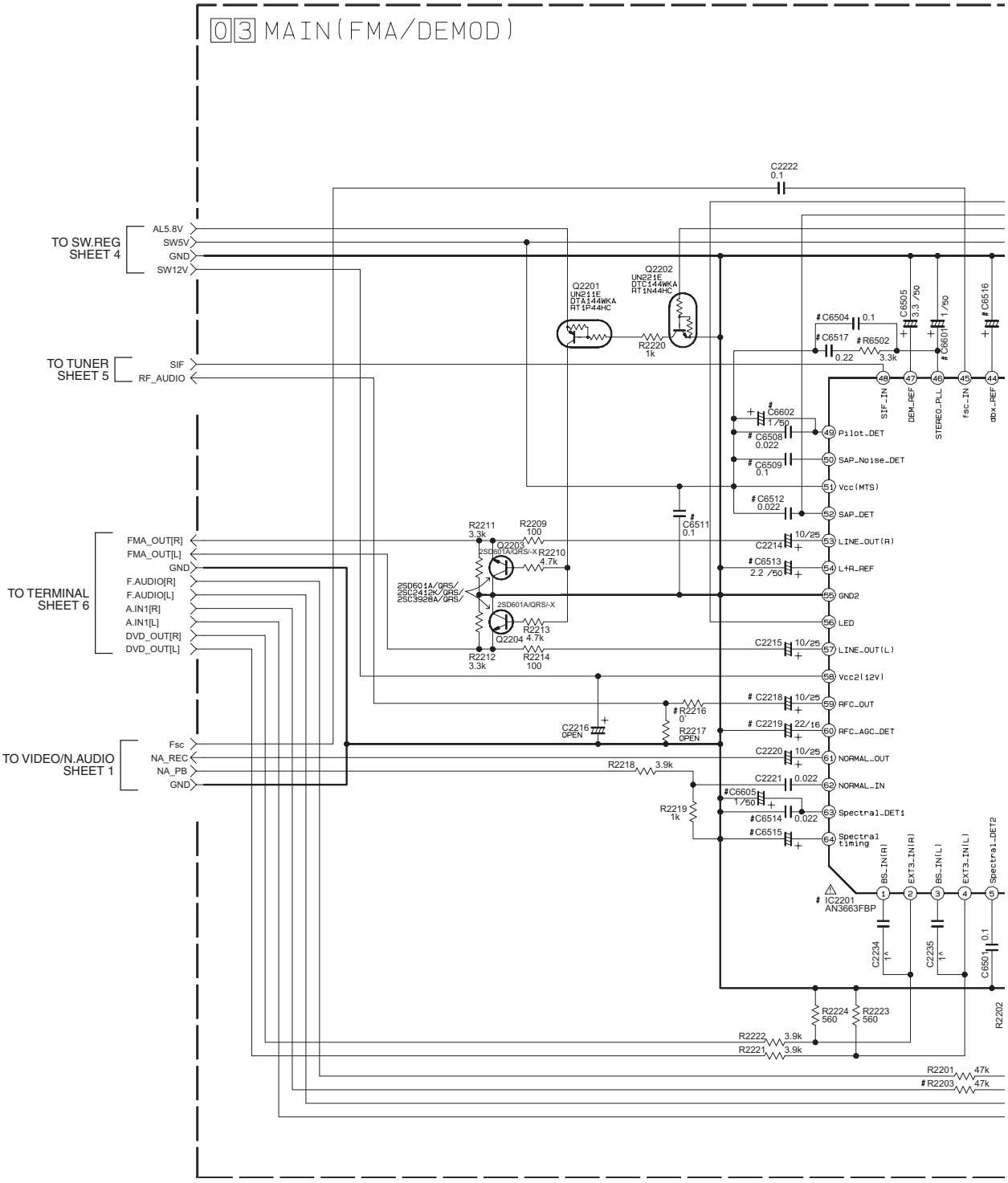
FLASH WRITTER
CN3010
B3004 B3005
B3008 B3007

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

p10720001a_rev0

SHEET2

■ MAIN(FMA/DEMOD) SCHEMATIC DIAGRAM



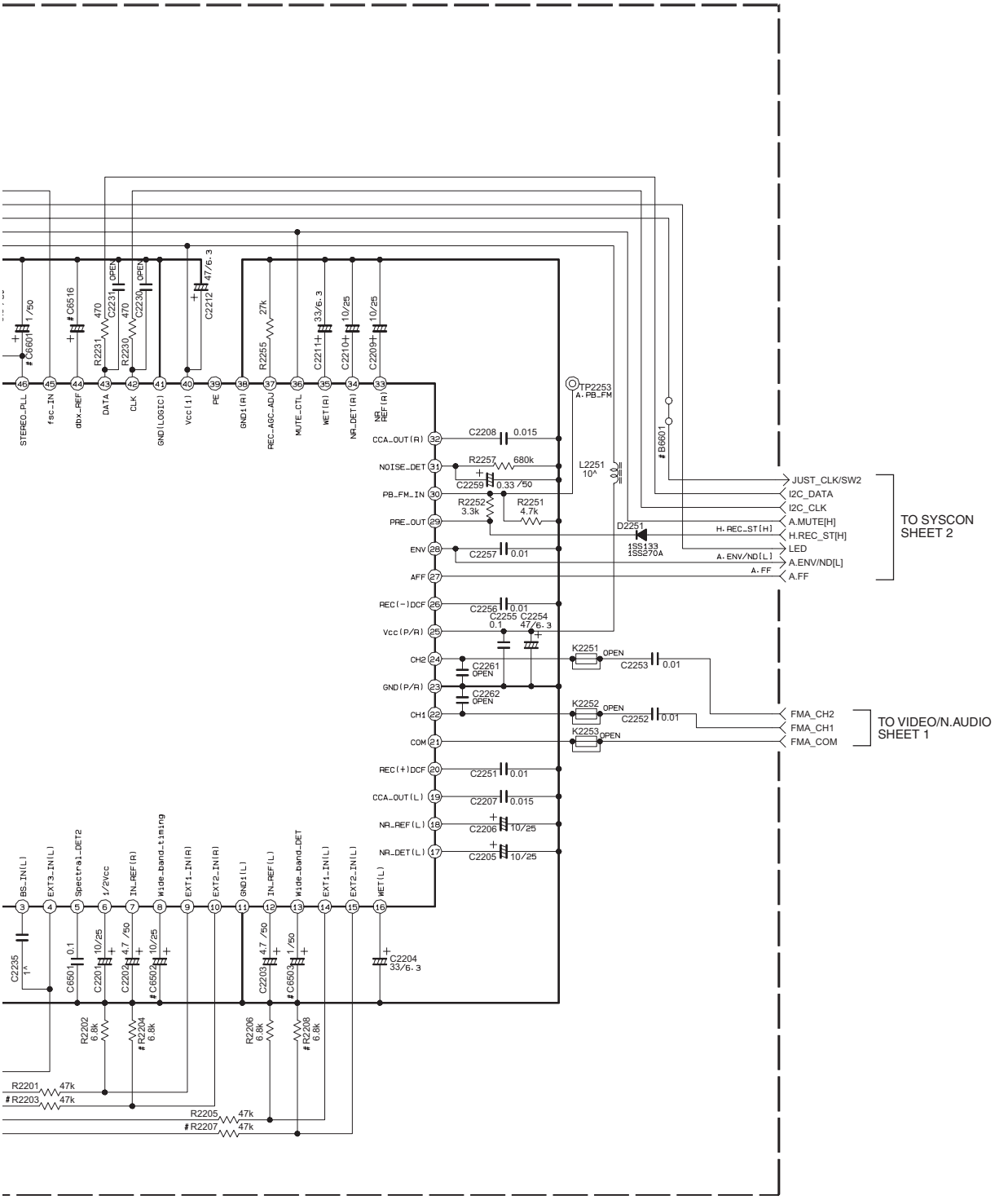
DIFFERENCE TABLE

NO

JP /OTHERS	IC2201	R6502 C6502-C6504 C6506・C6509 C6511-C6514 C6517	C6515	C6516	B6601 C6601 C6602 C6605
JP	AN3672NFBP	×	1/50	10/25	○
OTHERS	AN3663FBP	○	3.3/50	4.7/25	×

RF.OUT	R2216・C2218・C2219
○	○
×	×

L-1	R2203 R2207	R2204 R2208
○	47k	6.8k
×	×	×



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

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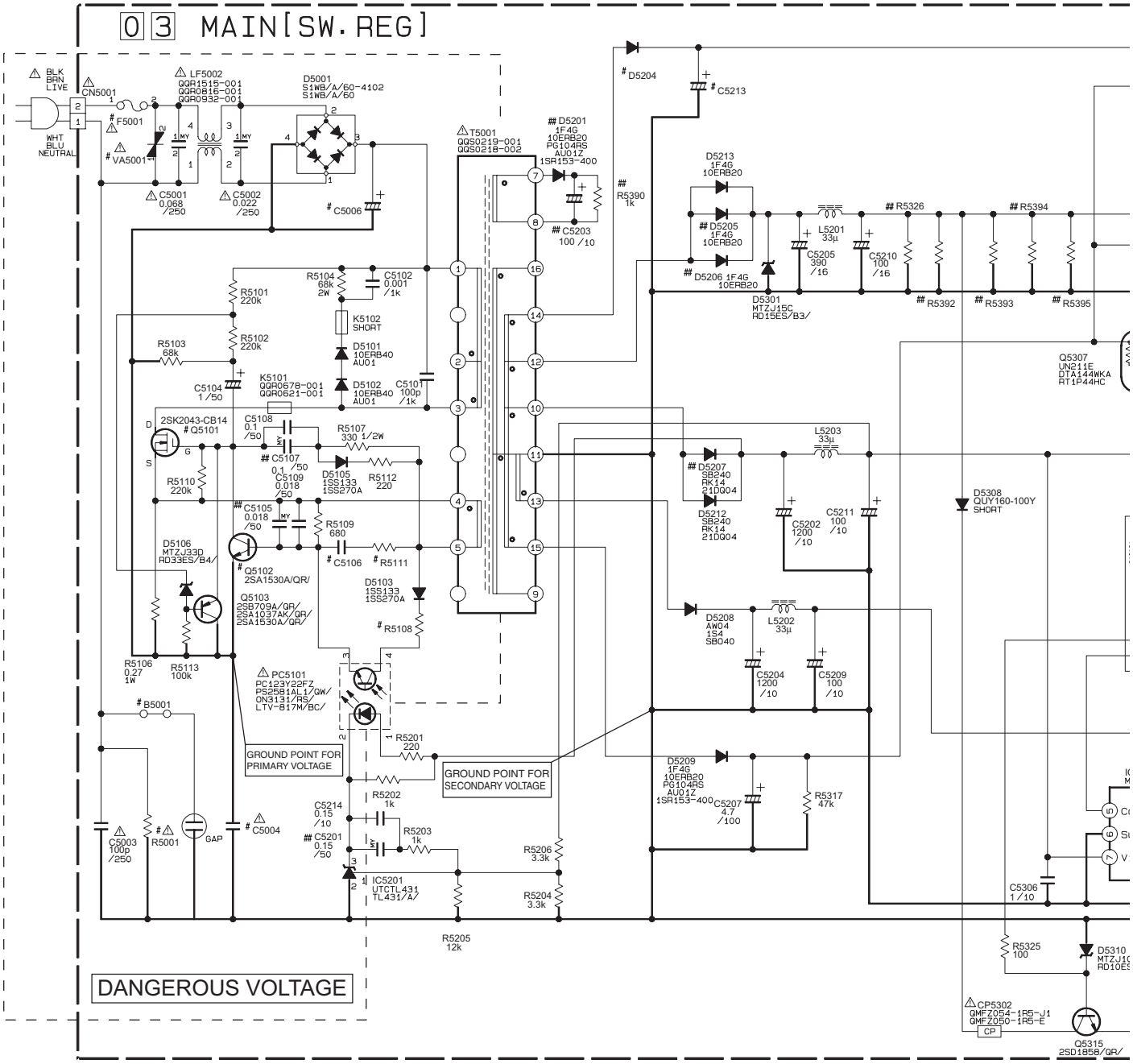
SHEET 3

■ MAIN(SW.REG) SCHEMATIC DIAGRAM

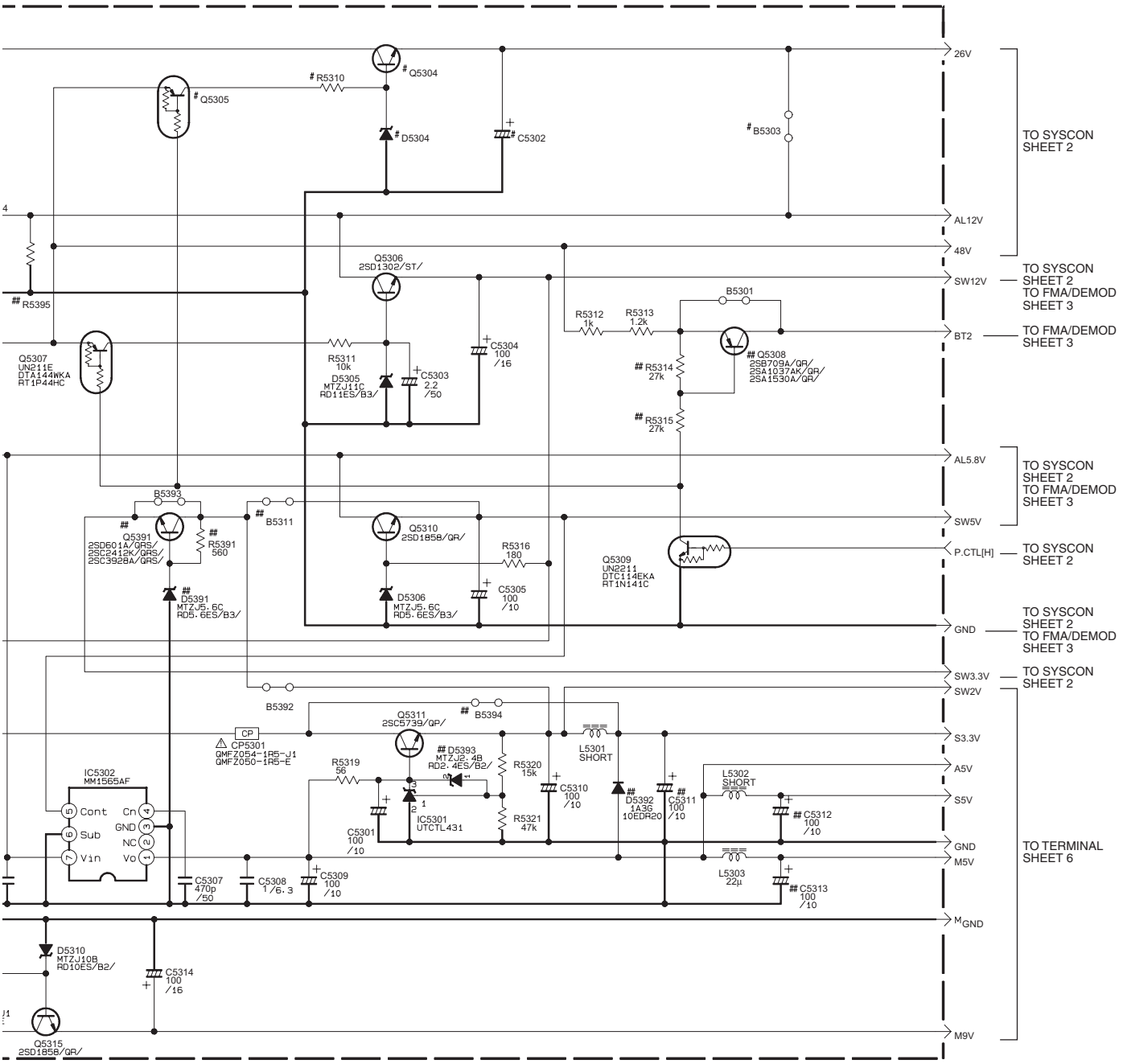


MARK ELEMENTS ARE NOT MOUNTED

DIFFERENCE TABLE 1

	F5001	VA5001	Q5101	Q5105	C5004	C5006	R5001	B5001	C5106	R5108	R5111	D5204	D5304	Q5304	Q5305	C5302	C5213	R5310	B5303
US	1.25A/250V	QAF0055-4317 QAF0023-4317 QAF0024-4317 QAF0039-4312	2SK2043	2SC3576-JVC	0.0047 /250	150/200	4.7M 1/2W	SHORT	820p/50	1.5k	100	NONE	NONE	NONE	NONE	NONE	NONE	NONE	SHORT
JP				2SD2144S/UV/								1F4G 10ERB20 PG104RS AU01Z 1SR153-400	MTZJ27D RD27ES/B4/	2SD2394/EF/ 2SC5739/GP/	UN211E DTA144WKA RT1P44HC	47/35	120/35	4.7k	NONE
UJ /UM	T2AL/250V	NONE	2SK2632		0.0022 /250	82/400	NONE	NONE	220p/50	2.0k	330	NONE	NONE	NONE	NONE	NONE	NONE	NONE	SHORT

NOT



B5303
SHORT
NONE
SHORT

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

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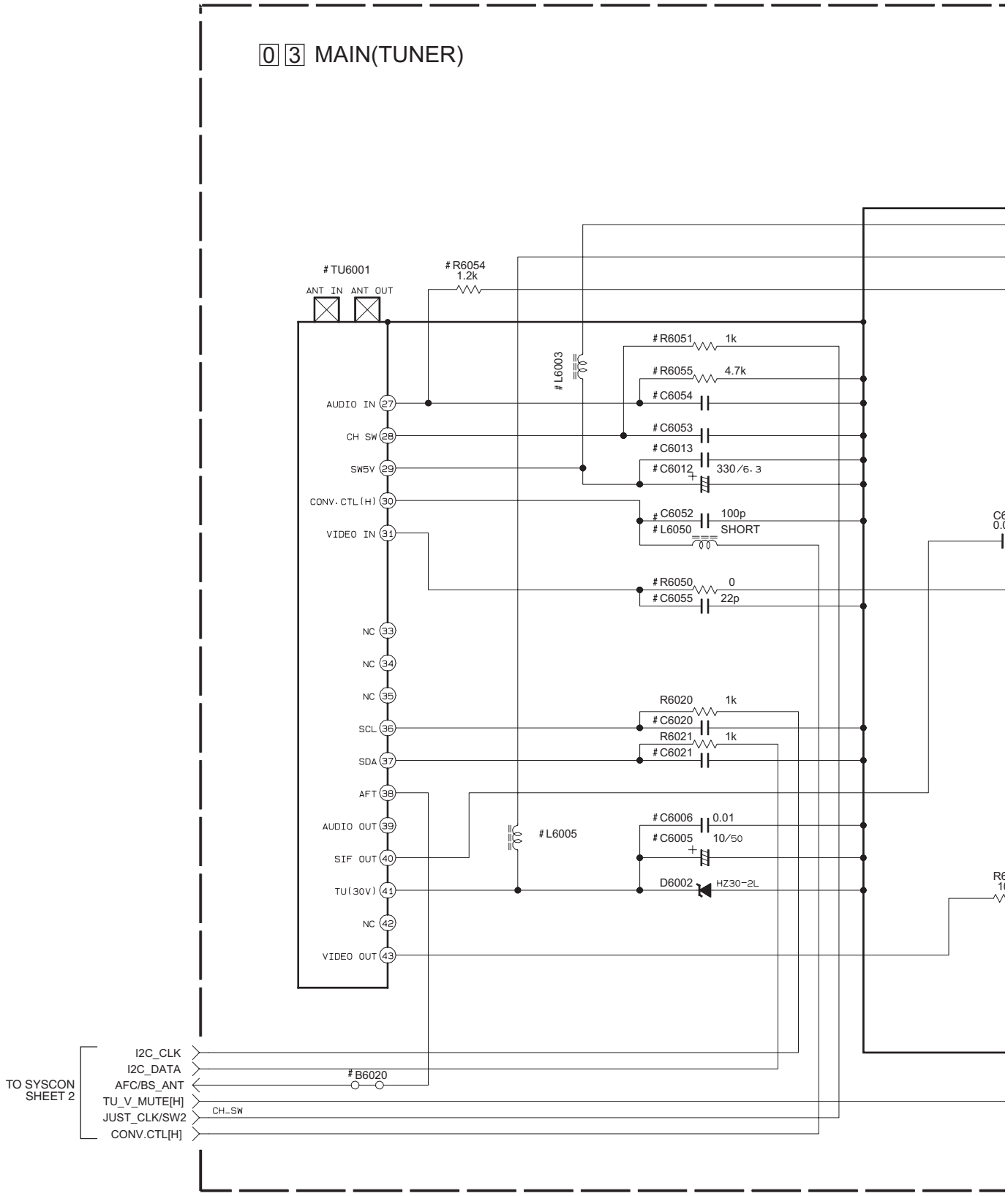
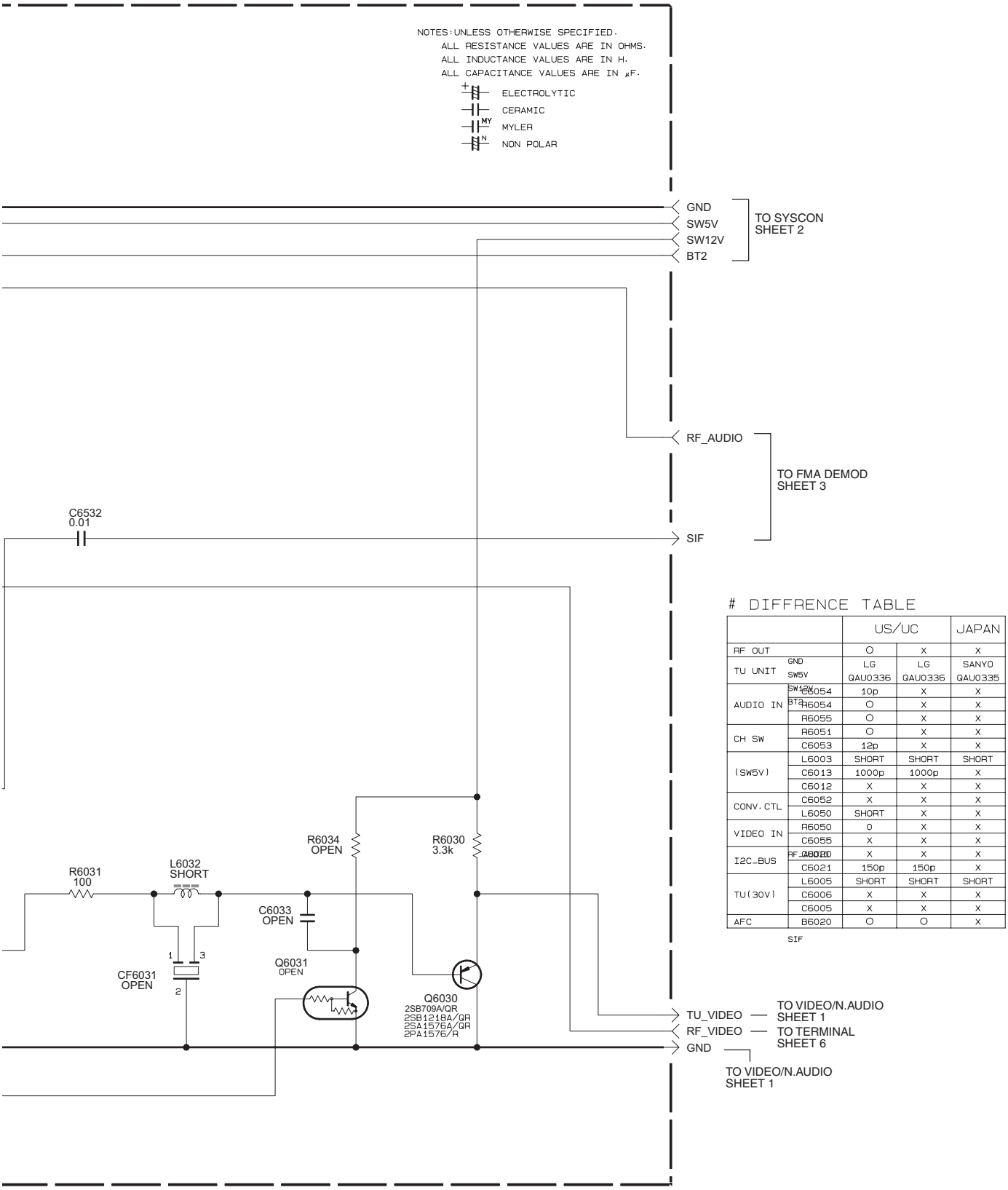
SHEET 4

■ MAIN(TUNER) SCHEMATIC DIAGRAM





DIFFRENCE TABLE

		US/UC		JAPAN
RF OUT		O	X	X
TU UNIT	GND	LG	LG	SANYO
	SW5V	QAU0336	QAU0336	QAU0335
AUDIO IN	SW12V C6054	10p	X	X
	BT2 R6054	O	X	X
	R6055	O	X	X
CH SW	R6051	O	X	X
	C6053	12p	X	X
(SW5V)	L6003	SHORT	SHORT	SHORT
	C6013	1000p	1000p	X
	C6012	X	X	X
CONV. CTL	C6052	X	X	X
	L6050	SHORT	X	X
VIDEO IN	R6050	0	X	X
	C6055	X	X	X
I2C_BUS	RF_AUDIO C6020	X	X	X
	C6021	150p	150p	X
TU(30V)	L6005	SHORT	SHORT	SHORT
	C6006	X	X	X
	C6005	X	X	X
AFC	B6020	O	O	X

SIF

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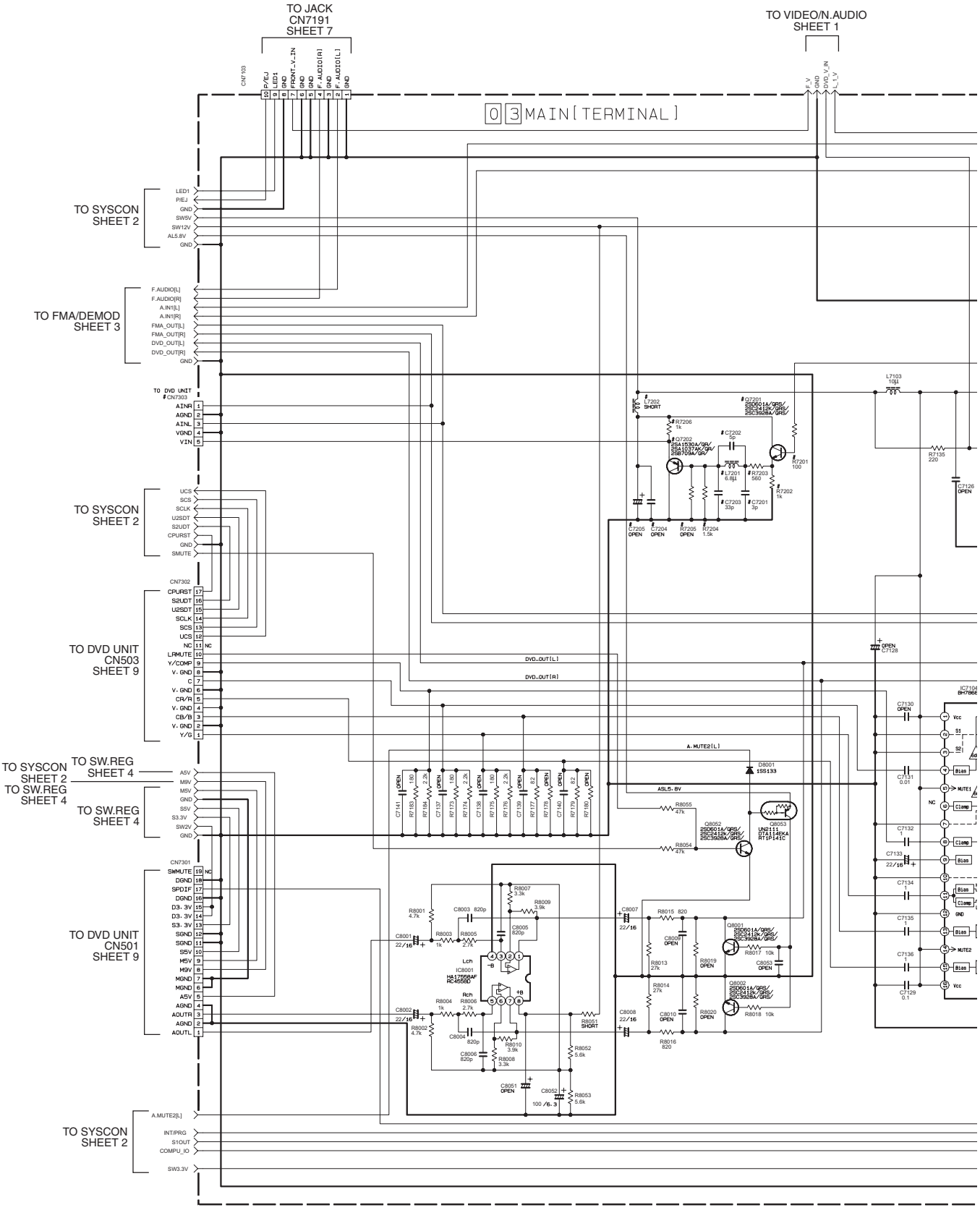
SHEET 5

■ MAIN(TERMINAL) SCHEMATIC DIAGRAM



# DIFFERENCE TABLE	J7008 R7153
WITH REMOTE PAUSE	○
W/O REMOTE PAUSE	×

OPT OUT	COAXIAL OUT	J7010 L7502 C7506－C7508 R7507	J7009 IC7501 R7501－R7504 R7506 C7502－C7504 L7501
○	×	○	×
×	○	×	○
○	○	○	○

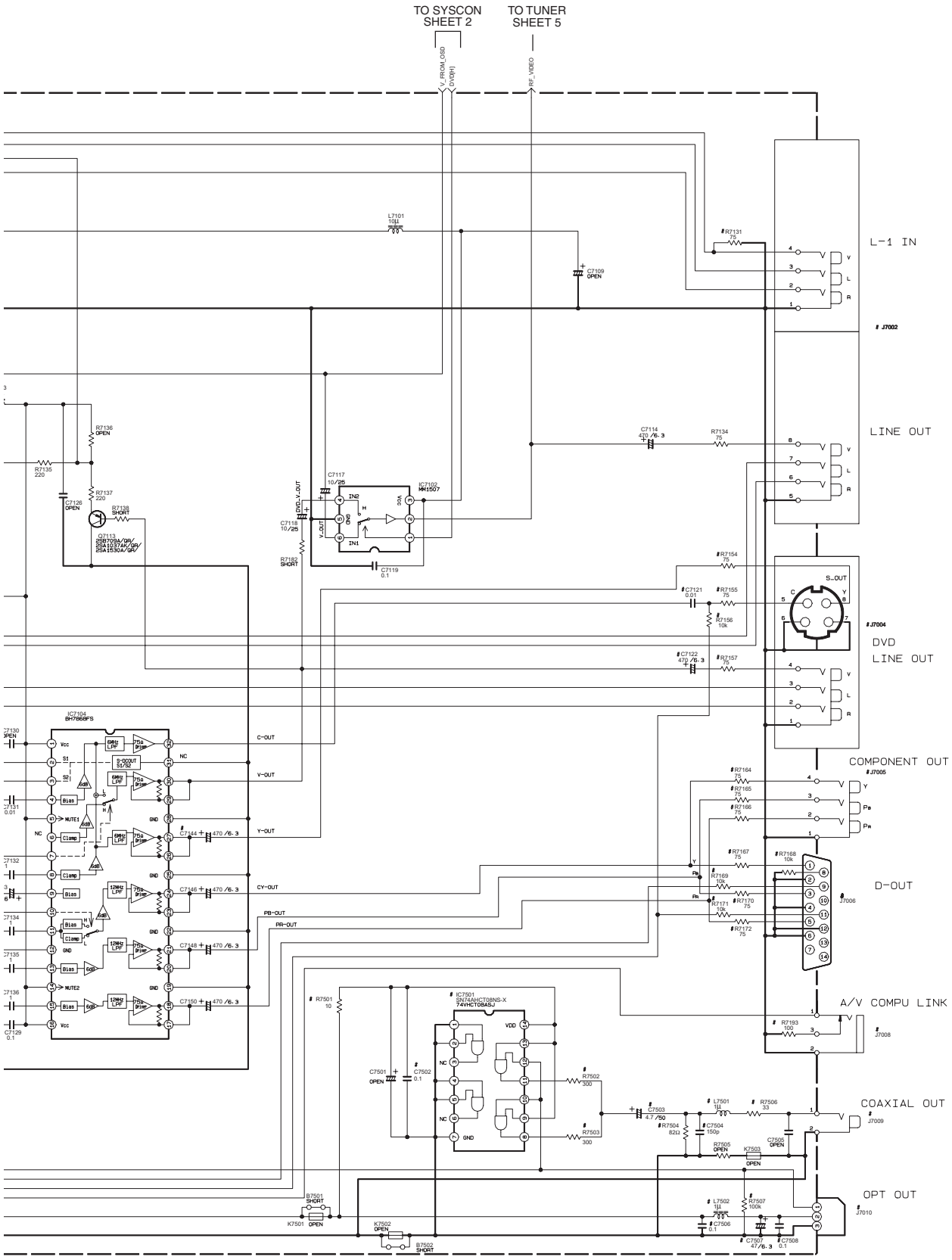
	R7131
WITH L1 V IN	○
WITHOUT L1 V IN	×

	DVD OUT D1/D2	DVD OUT Y/Cb/Cr
	J7006 R7167 R7168 R7169 R7170 R7171 R7172	J7005 R7164 R7165 R7166
DOM	○	×
US/UM	×	○

DVD V OUT	R7154 R7155 R7156 C7121 C7144	R7157 C7122
WITH S-OUT	○	
W/O S-OUT	×	
WITH V-OUT		○
W/O V-OUT		×

NOTES:UNLESS OTHERWISE SPEC
ALL RESISTANCE VALUES A
ALL INDUCTANCE VALUES A
ALL CAPACITANCE VALUES

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR



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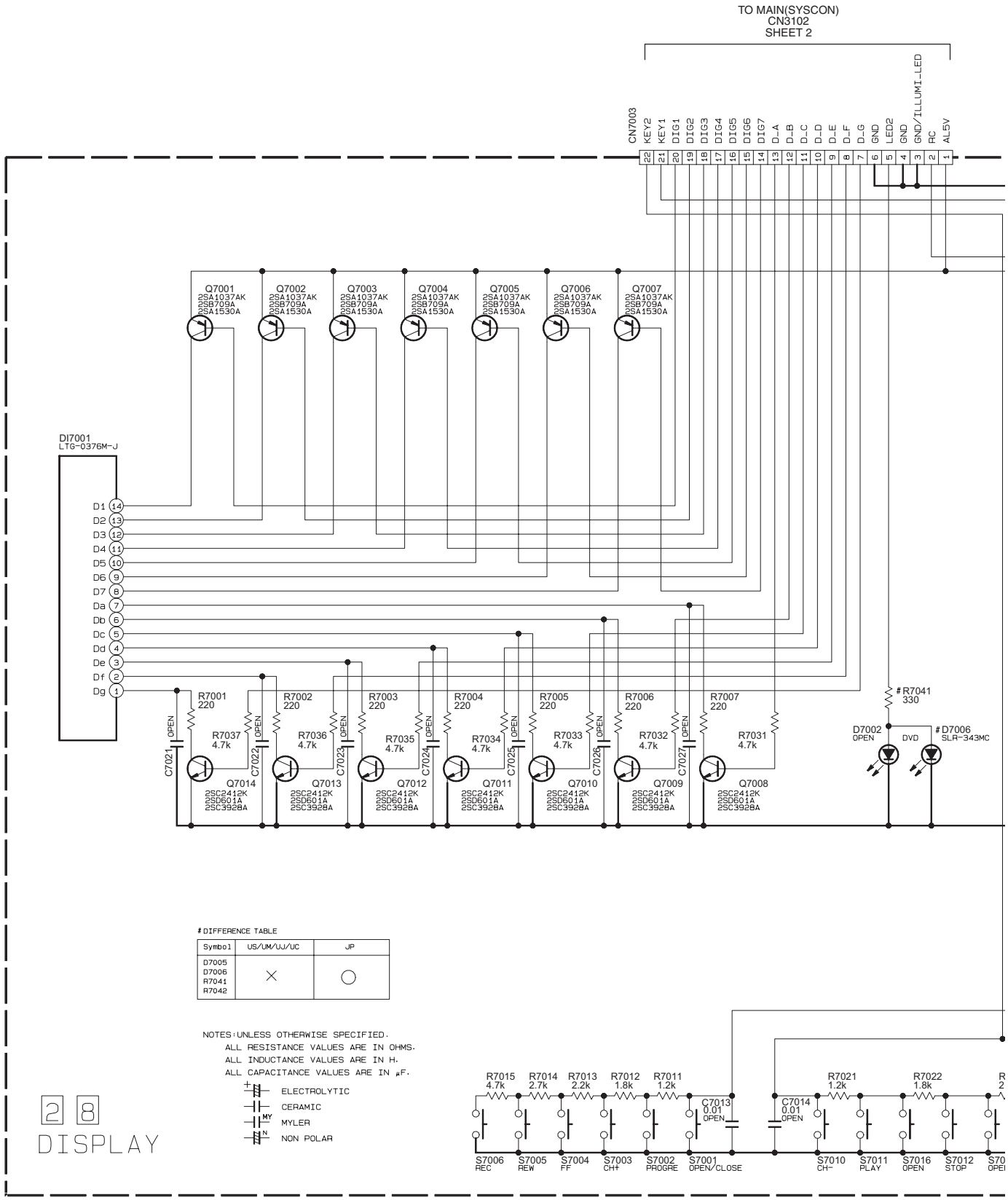
SHEET 6

■ DISPLAY AND SWITCH/JACK SCHEMATIC DIAGRAM



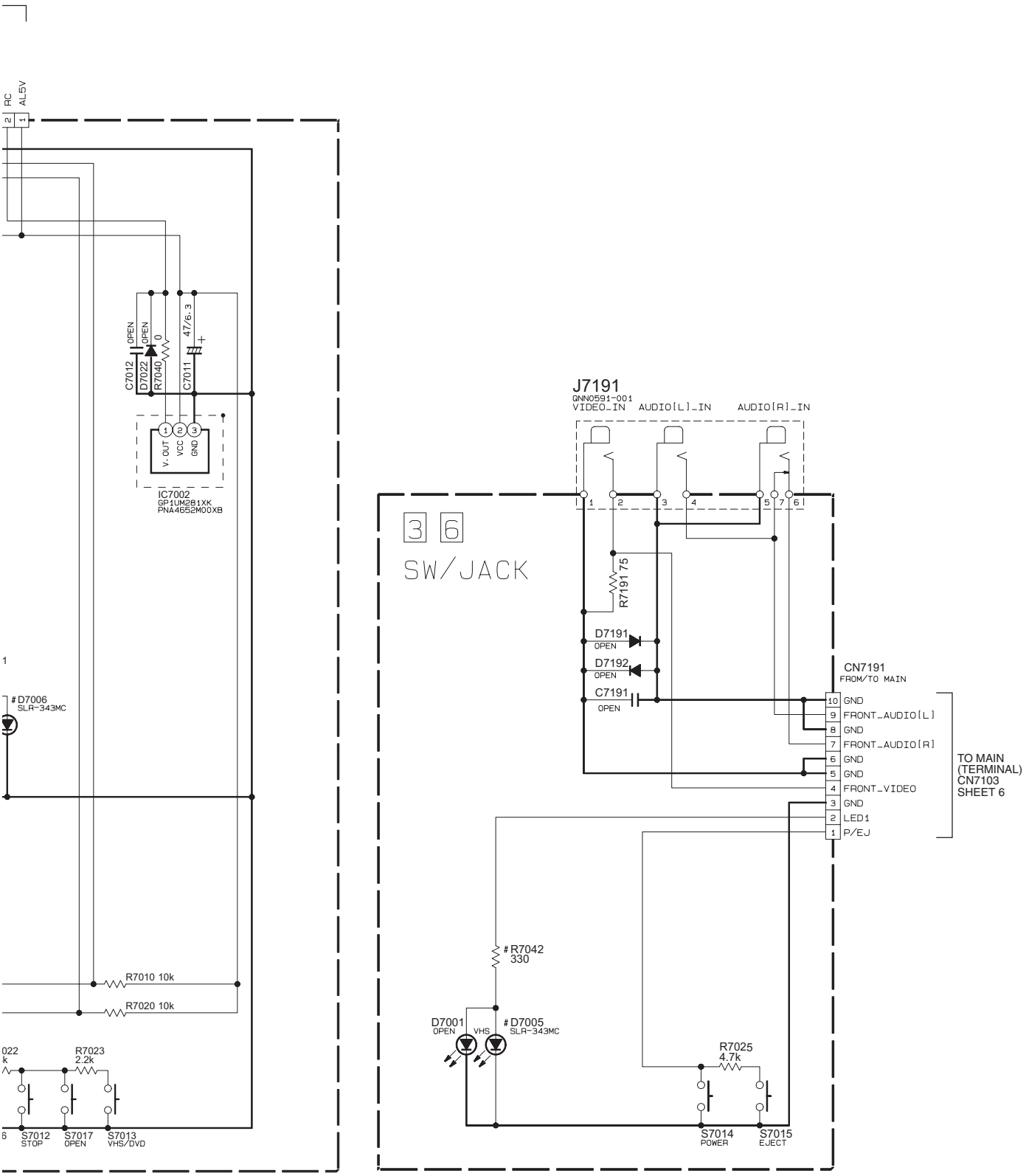
#DIFFERENCE TABLE

Symbol	US/UM/UJ/UC	JP
D7005 D7006 R7041 R7042	×	○

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

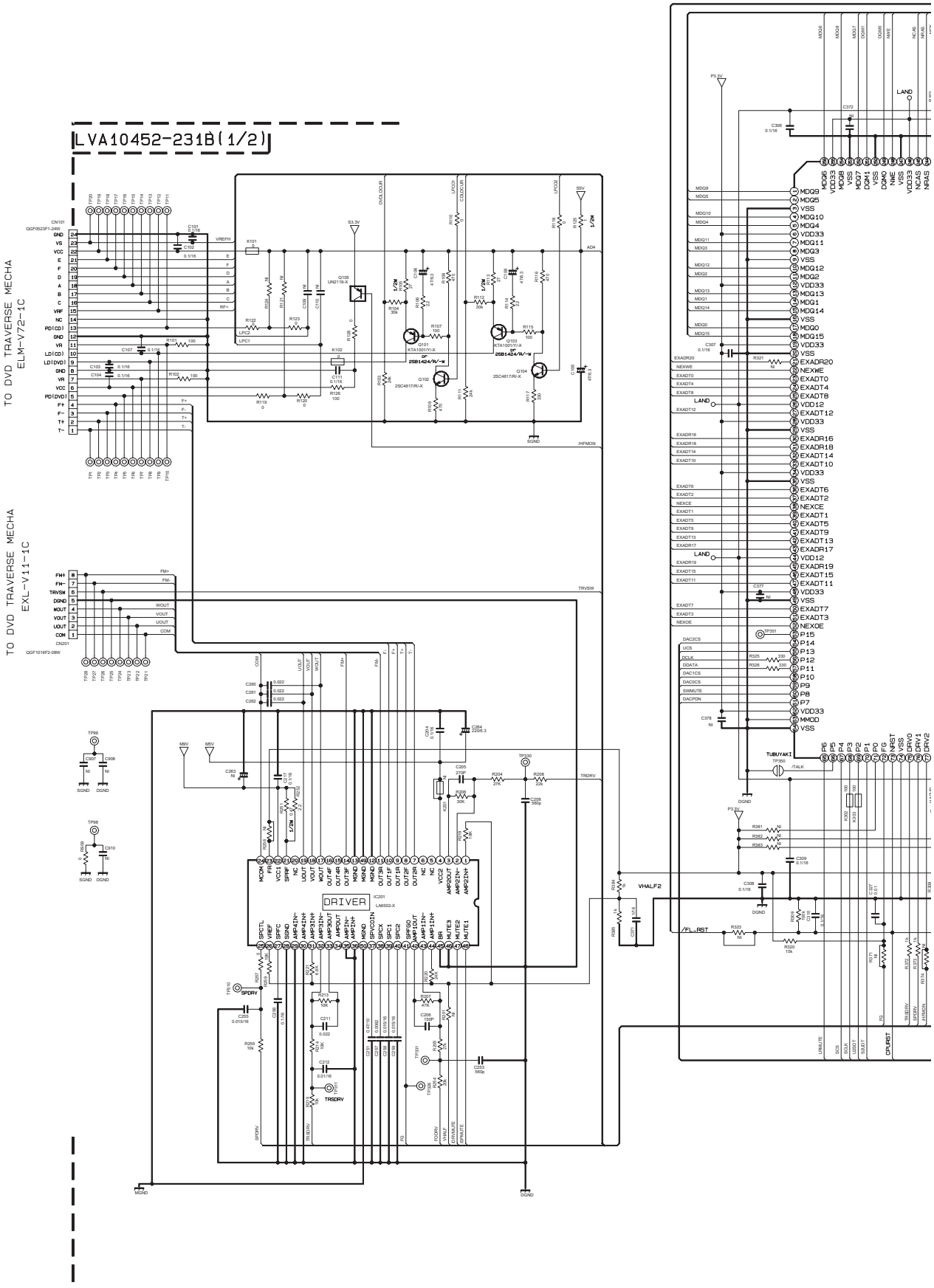
28
DISPLAY

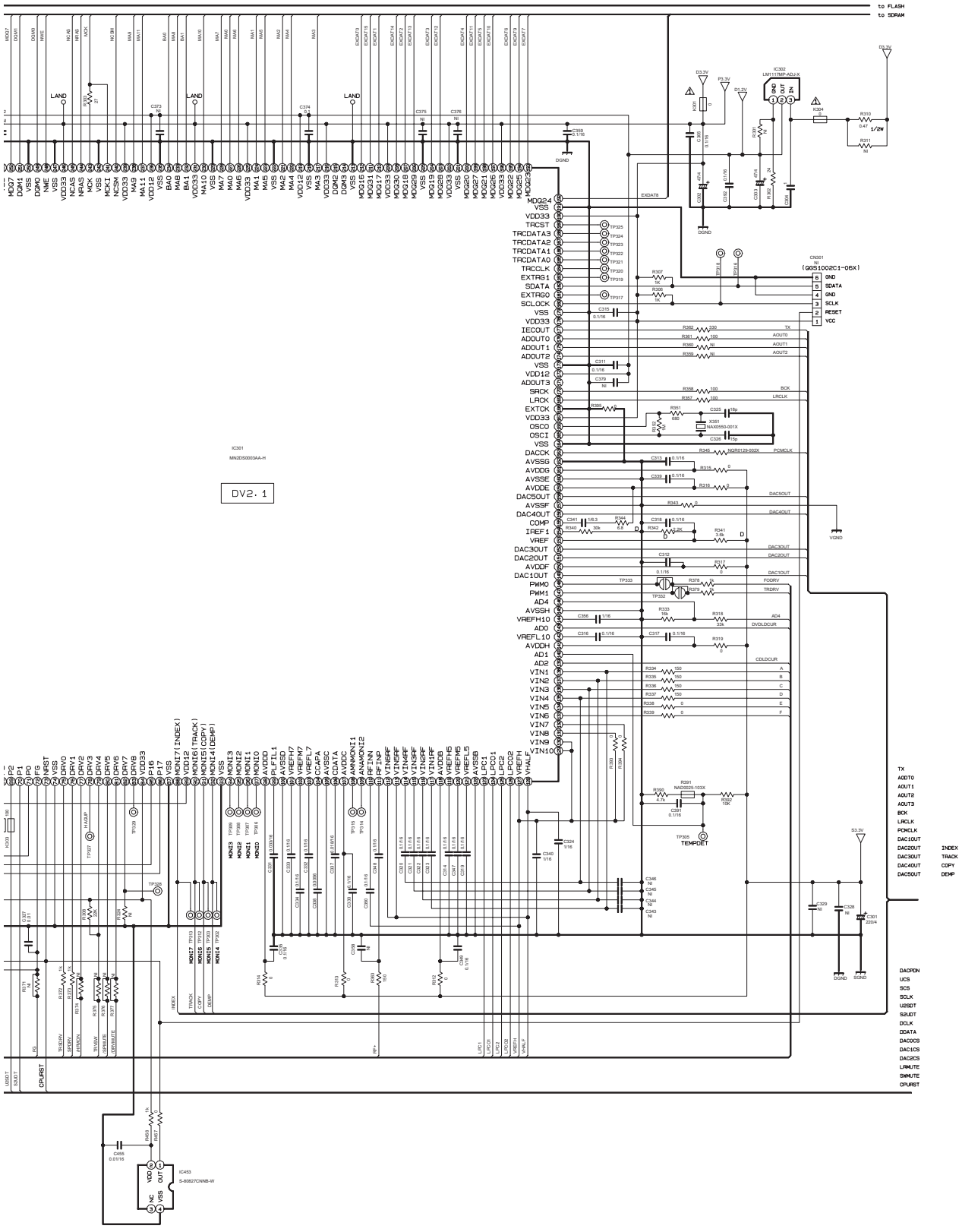


p20474001a_rev0

SHEET 7

DVD SERVO CONTROL AND DECODER SCHEMATIC DIAGRAM





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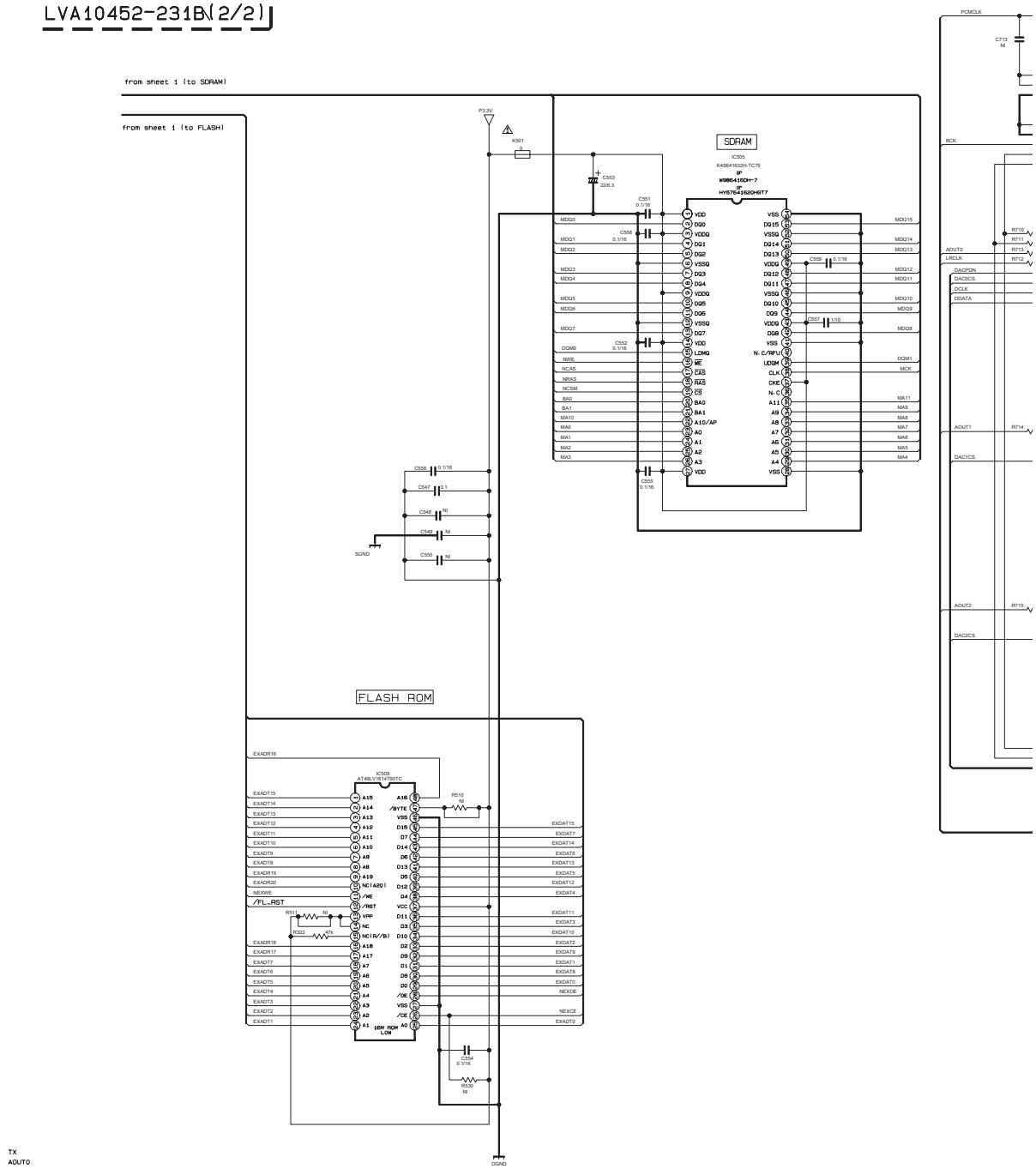
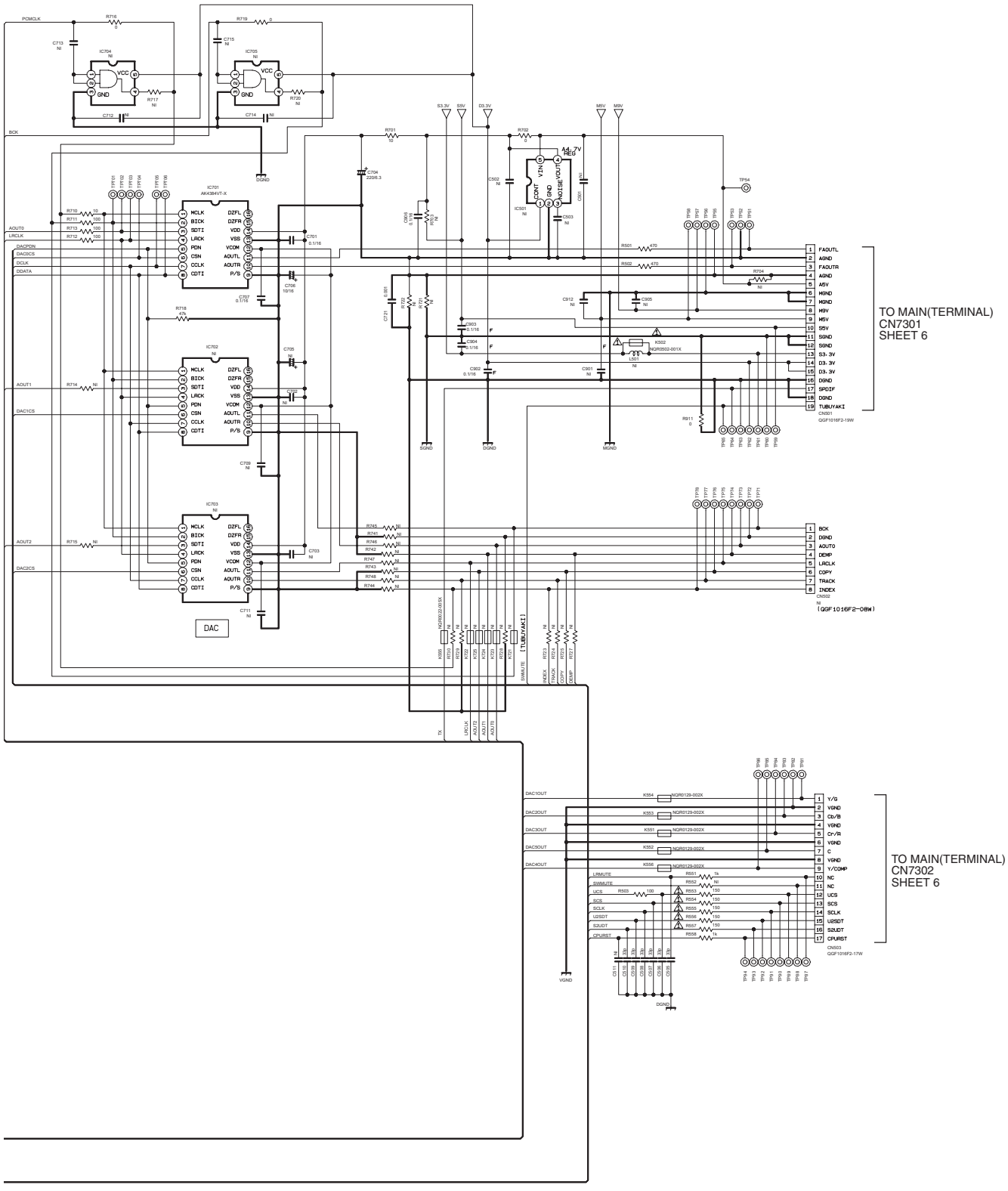
SHEET 8

DVD FLASH ROM SCHEMATIC DIAGRAM

LVA10452-231B(2/2)





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SHEET 9

■ VOLTAGE CHARTS

<MAIN>

MODE PIN NO.	REC	PLAY
IC1		
1	0	0
2	0	0
3	0	0
4	4.5	4.5
5	2.0	1.8
6	2.5	2.6
7	2.8	2.8
8	1.7	1.4
9	1.8	1.3
10	2.3	1.9
11	2.6	3.0
12	1.8	0.7
13	0	0
14	2.8	2.8
15	2.7	2.8
16	0	0
17	2.8	2.8
18	1.9	1.9
19	2.7	2.8
20	0	0
21	2.8	2.8
22	0	5.1
23	2.3	2.3
24	0.8	0.8
25	0	0
26	2.9	2.8
27	0.7	0.9
28	0	0
29	2.4	2.4
30	2.8	2.9
31	0.4	0.4
32	2.4	2.7
33	2.1	2.1
34	2.0	1.9
35	3.0	2.9
36	2.3	2.3
37	3.0	3.0
38	2.1	2.2
39	1.3	1.4
40	2.0	2.1
41	2.7	2.8
42	1.9	1.9
43	2.1	2.1
44	0	0
45	3.2	3.2
46	3.2	3.2
47	5.1	5.1
48	5.1	5.1
49	3.2	3.2
50	5.1	5.1
51	2.1	2.1
52	5.1	5.1
53	2.6	2.6
54	0	0
55	2.0	2.1
56	0	0
57	2.1	2.2
58	2.3	2.3
59	5.1	5.1
60	5.1	5.1
61	0	0
62	2.3	2.2
63	2.0	2.2
64	2.8	2.8
65	2.2	2.2
66	2.9	2.9
67	2.2	2.2
68	0	1.2
69	1.9	1.9
70	2.7	2.1
71	0.7	0.9
72	5.1	5.1
73	4.4	4.3
74	4.7	4.4
75	2.7	2.7
76	0	2.2
77	1.8	1.8
78	0	0
79	0.6	2.6
80	2.5	2.4
81	0	0
82	0	0
83	0	2.9
84	5.1	5.0
85	2.3	2.3
86	2.5	2.2
87	2.3	2.3
88	0	0
89	0	0
90	0	0
91	0	0
92	5.1	5.1
93	1.4	0.2
94	2.5	2.5
95	2.5	2.5
96	2.5	2.5

MODE PIN NO.	REC	PLAY
97	0	0
98	2.4	2.5
99	0	0
100	2.6	2.6
IC2201		
1	2.5	2.5
2	0	0
3	2.5	2.5
4	0	0
5	2.3	2.3
6	2.5	2.5
7	1.9	2.0
8	0.7	0.7
9	0	0
10	0	0
11	0	0
12	2.0	2.1
13	2.5	2.5
14	0	0
15	0	0
16	2.5	2.6
17	0.8	0.8
18	2.5	2.5
19	2.5	2.4
20	1.9	0
21	2.0	0
22	2.1	0.7
23	0	0
24	2.0	0.6
25	5.0	4.9
26	2.1	0
27	0	2.4
28	4.3	2.8
29	4.0	1.8
30	2.2	0.9
31	1.0	1.9
32	2.5	2.5
33	2.5	2.5
34	0.8	0.7
35	2.6	2.4
36	0	0
37	1.6	1.7
38	0	0
39	0	0
40	5.1	5.1
41	0	0
42	3.8	4.7
43	3.9	4.6
44	2.24	2.4
45	0	0
46	3.6	3.5
47	2.8	2.8
48	2.2	2.2
49	3.3	3.3
50	3.1	3.0
51	5.1	5.1
52	2.7	2.6
53	4.4	4.3
54	2.4	2.4
55	0	0
56	1.9	1.6
57	4.4	4.4
58	10.7	10.7
59	4.3	4.4
60	1.3	1.2
61	2.5	2.5
62	2.4	2.4
63	2.5	2.5
64	0.8	0.9
IC3001		
1	-	-
2	-	-
3	4.8	4.9
4	4.9	4.8
5	4.7	4.8
6	4.5	2.8
7	1.7	2.8
8	2.8	3.9
9	2.8	2.8
10	3.9	3.9
11	4.9	4.9
12	4.9	4.9
13	0	4.3
14	0	0
15	4.8	0
16	3.4	3.0
17	4.7	4.5
18	4.4	4.4
19	0	0
20	0	0
21	1.1	1.7
22	4.9	4.8
23	2.4	2.4
24	0	0
25	4.9	4.8
26	0	2.4
27	4.8	0

MODE PIN NO.	REC	PLAY
28	4.6	0
29	4.3	4.3
30	4.3	4.3
31	3.8	4.7
32	3.7	4.6
33	2.7	2.6
34	2.6	2.6
35	0	2.9
36	4.8	4.9
37	2.3	2.4
38	2.3	2.3
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	4.8	4.9
45	4.7	4.7
46	0	4.8
47	1.7	1.7
48	0	0
49	1.8	1.8
50	2.4	2.5
51	5.1	5.1
52	2.9	2.9
53	2.5	2.5
54	0	0
55	0	0
56	0	0
57	4.8	4.8
58	0	0
59	4.7	4.7
60	0	0
61	2.6	2.6
62	0	0
63	0	0
64	0	0
65	1.4	1.3
66	0	0
67	2.4	2.5
68	2.4	2.4
69	2.4	2.5
70	2.4	2.5
71	0	0
72	2.4	2.5
73	4.9	4.9
74	2.9	2.5
75	2.0	2.5
76	2.4	2.4
77	4.3	4.3
78	4.2	4.0
79	4.4	4.4
80	1.9	1.8
81	4.3	2.6
82	5.1	0.2
83	0	2.9
84	2.4	2.4
85	0	0
86	0	0
87	3.8	3.8
88	4.8	4.8
89	4.9	4.8
90	0	0
91	0	0
92	4.9	4.8
93	0	0
94	4.9	4.9
95	4.3	4.3
96	4.3	4.3
97	4.3	4.3
98	4.3	0.4
99	4.3	4.3
100	4.3	4.3
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	3.6	4.7
6	3.7	4.8
7	0	0
8	4.7	4.9
IC3301		
1	0	0
2	0.5	0.5
3	0.7	0.5
4	0.8	0.8
5	0	0
6	0	0
7	9.2	9.2
8	9.2	9.2
9	0.6	0.7
10	0.5	0.4
IC3302		
1	3.3	3.3
2	4.8	4.9
3	4.8	4.9

MODE PIN NO.	REC	PLAY
4	4.8	4.9
5	4.9	4.9
6	4.9	4.8
7	0	0
8	4.9	4.8
9	4.9	4.9
10	3.3	3.3
11	4.9	4.9
12	4.8	4.9
13	0	3.3
14	4.8	4.9
IC5201		
1	2.4	2.5
2	0	0
3	4.6	4.6
IC5301		
1	2.4	2.5
2	0	0
3	4.0	4.0
IC5302		
1	5.0	5.0
2	0	0
3	0	0
4	3.4	3.4
5	5.1	5.1
6	0	0
7	5.7	5.6
IC7102		
1	0	0
2	3.7	3.7
3	10.7	10.7
4	3.9	3.7
5	0	0
6	3.6	3.6
IC7104		
1	5.1	5.1
2	0	0
3	0	0
4	2.2	2.1
5	5.1	5.1
6	0.7	0.8
7	0	0
8	1.6	1.5
9	2.2	2.2
10	0	0
11	1.6	1.5
12	0	0
13	2.2	2.2
14	5.1	5.1
15	2.1	2.2
16	5.1	5.1
17	2.1	2.3
18	2.2	2.3
19	0	0
20	2.2	2.2
21	2.2	2.2
22	0	0
23	1.6	1.4
24	1.6	1.4
25	0	0
26	1.6	1.3
27	1.6	1.3
28	0	0
29	1.7	1.4
30	1.7	1.4
31	0	0
32	2.3	2.3
IC7501		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	1.6	1.6
9	3.3	3.3
10	1.6	1.6
11	1.6	1.6
12	1.6	1.6
13	3.3	3.3
14	3.3	3.3
IC8001		
1	5.3	5.4
2	5.3	5.3
3	5.3	5.3
4	0	0
5	5.3	5.4
6	5.3	5.3
7	5.3	5.3
8	10.6	10.7
Q19		
E	1.7	1.8
C	5.0	5.1
B	2.4	2.4
Q2001		
E	-5.8	0

MODE PIN NO.	REC	PLAY
C	0	0
B	-13.3	0.6
Q2002		
E	-5.8	0
C	0	0
B	-13.1	0.7
Q2003		
E	5.1	5.1
C	-13.2	5.0
B	4.8	0
Q2051		
E	0	0
C	7.3	0.2
B	0.2	0.3
Q2052		
E	10.6	10.7
C	10.3	0.5
B	9.8	10.6
Q2053		
E	0	0
C	0	10.6
B	4.8	0
Q2054		
E	10.3	0.5
C	10.1	0.2
B	9.5	0.3
Q2055		
E	0	0
C	0	0.5
B	4.8	0
Q2201		
E	5.6	5.6
C	-1.7	-1.4
B	5.6	5.6
Q2202		
E	0	0
C	5.6	5.6
B	0	0
Q2203		
E	0	0
C	0	0
B	-1.7	-1.4
Q2204		
E	0	0
C	0	0
B	-1.6	-1.4
Q3002		
E	0	0
C	4.2	4.0
B	-	-
Q3006		
E	0	0
C	4.8	4.8
B	0	0
Q3007		
E	0	0
C	0	0
B	0.7	0.7
Q4001		
E	0	0
C	0	0
B	4.7	4.7
Q4002		
E	4.9	4.9
C	5.6	5.6
B	5.6	5.6
Q5101		
S	0	0
D	132.0	132.4
G	2.2	2.1
Q5102		
E	0	0
C	2.2	2.1
B	0	0
Q5103		
E	2.2	2.1
C	0	0
B	9.1	9.1
Q5306		
E	10.7	10.7
C	11.4	11.4
B	11.3	11.3
Q5307		
E	52.7	52.4
C	52.7	52.3
B	0	0
Q5309		
E	0	0
C	0	0
B	4.7	4.7
Q5310		
E	5.2	5.1
C	5.6	5.6
B	5.9	5.9
Q5311		
E	3.3	3.3
C	3.5	3.6

MODE PIN NO.	REC	PLAY
B	4.0	4.0
Q5315		
E	9.3	9.3
C	11.4	11.4
B	9.9	9.8
Q6030		
E	2.2	2.2
C	0	0
B	1.6	1.6
Q7113		
E	2.1	2.0
C	0	0
B	1.3	1.4
Q8001		
E	0	0
C	0	0
B	0.6	0.5
Q8002		
E	0	0
C	0	0
B	0.6	0.7
Q8052		
E	0	0
C	0	0
B	0.6	0.6
Q8053		
E	5.6	5.6
C	5.6	5.6
B	0	0
CN1		
1	0	0
2	0	0
3	0	0
4	2.5	2.3
5	2.5	2.3
6	2.5	2.3
7	2.0	0
8	2.0	0
9	2.0	0
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.3	2.4
6	2.6	2.5
CN2002		
1	0	0
2	0	0
CN3001		
1	2.4	2.4
2	11.4	11.4
3	5.1	5.2
4	0	0
5	11.3	11.4
6	0	0
7	0	0
8	11.4	11.3
9	2.7	2.7
10	2.6	2.6
11	1.3	1.3
12	2.6	2.6
CN3102		
1	4.9	4.8
2	4.8	4.8
3	4.	4.7
4	4.8	4.7
5	4.7	4.7
6	4.7	4.7
7	4.7	4.7
8	4.7	4.7
9	4.6	4.6
10	2.8	3.4
11	2.8	3.3
12	2.3	4.0
13	1.7	2.8
14	2.3	2.2
15	2.8	3.4
16	1.2	1.7
17	0	0
18	0	0
19	0	0
20	0	0
21	4.5	4.8
22	4.8	4.9
CN3301		
1	0.5	0.5
2	0.5	0.5
3	0	0
4	0	0
5	0	0
CN7103		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0

MODE PIN NO.	REC	PLAY
6	0	0
7	0	0
8	0	0
9	0	0
10	4.8	4.8
CN7301		
1	2.4	2.4
2	0	0
3	2.4	2.4
4	0	0
5	5.0	5.0
6	0	0
7	0	0
8	9.3	9.3
9	5.0	4.9
10	5.0	5.0
11	0	0
12	0	0
13	3.3	3.3
14	3.3	3.2
15	3.3	3.3
16	0	0
17	1.6	1.6
18	0	0
19	3.3	3.3
CN7302		
1	0.5	0.4
2	0	0
3	0.5	0.5
4	0	0
5	0.2	0.2
6	0	0
7	0.8	0.8
8	0	0
9	0.6	0.4
10	3.2	3.2
11	0	0
12	3.3	3.3
13	2.7	2.8
14	3.2	3.3
15	3.3	3.3
16	0	2.8
17	2.7	2.8
JS3001		
1	0	0
2	0	0
3	4.8	4.9
4	0	0
5	4.9	4.8
TU6001		
27	0	0
28	4.4	4.4
29	5.1	5.0
30	0	4.8
31	3.7	3.7
33	1.9	2.0
34	0	0
35	0	0
36	3.9	4.7
37	3.7	4.7
38	2.4	2.4
39	2.9	2.9
40	2.4	2.4
41	32.4	32.3
42	0	0
43	1.6	1.6

<SWITCH/JACK>

MODE PIN NO.	REC	PLAY
CN7191		
1	4.8	4.8
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0

<DISPLAY>

MODE PIN NO.	REC	PLAY
IC7002		
1	4.8	4.8
2	4.8	4.8
3	0	0
Q7001		
E	4.9	4.8
C	0.7	0.8
B	4.8	4.7
Q7002		
E	4.9	4.8
C	0.8	0.8
B	4.7	4.7
Q7003		
E	4.8	4.8
C	0.8	0.8
B	4.7	4.7
Q7004		
E	4.8	4.7
C	0.8	0.8
B	4.7	4.7
Q7005		
E	4.9	4.8
C	0.8	0.8
B	4.7	4.7
Q7006		
E	4.9	4.8
C	1.0	0.8
B	4.8	4.7
Q7007		
E	4.9	4.8
C	1.7	1.6
B	4.6	4.6
Q7008		
E	0	0
C	0.9	0.4
B	0.5	0.6
Q7009		
E	0	0
C	1.7	0.9
B	0.3	0.3
Q7010		
E	0	0
C	1.3	0.7
B	0.3	0.3
Q7011		
E	0	0
C	2.1	1.3
B	0.2	0.3
Q7012		
E	0	0
C	1.4	1.9
B	0.2	0.2
Q7013		
E	0	0
C	0.9	1.7
B	0.3	0.3
Q7014		
E	0	0
C	2.1	1.7
B	0.2	0.3
CN7003		
1	4.8	4.9
2	4.5	4.8
3	0	0
4	0	0
5	0	0
6	0	0
7	1.2	1.7
8	2.8	3.4
9	2.3	2.2
10	1.7	2.8
11	2.3	4.0
12	2.8	3.3
13	2.8	3.4
14	4.6	4.6
15	4.7	4.7
16	4.7	4.7
17	4.7	4.7
18	4.7	4.7
19	4.8	4.7
20	4.7	4.7
21	4.8	4.8
22	4.9	4.8

<DVD SERVO CONTROL>

MODE PIN NO.	PB
IC201	
1	1.7
2	1.6
3	1.5
4	5.2
5	-
6	-
7	0.7
8	0.7
9	0.7
10	0.7
11	0.8
12	0
13	0
14	0.8
15	0.9
16	0.9
17	0
18	0
19	0
20	0.9
21	9.5
22	9.5
23	3.3
24	0
25	0
26	1.7
27	0
28	0
29	0
30	0
31	1.7
32	2.0
33	2.2
34	-
35	0
36	0
37	0.2
38	0.1
39	0.1
40	0.1
41	3.3
42	1.5
43	1.6
44	1.7
45	0
46	0
47	0
48	0
49	0
50	0
IC301	
1	3.3
2	3.3
3	0
4	3.3
5	3.3
6	3.3
7	3.3
8	3.3
9	0
10	1.2
11	3.1
12	3.3
13	3.3
14	3.1
15	3.3
16	0
17	3.1
18	3.3
19	3.3
20	0
21	0
22	3.3
23	2.0
24	2.8
25	0.5
26	1.2
27	0.4
28	3.3
29	0
30	0
31	0
32	0
33	0
34	3.3
35	0
36	0.5
37	2.8
38	0.3
39	2.0
40	0.5
41	2.9
42	0.3
43	0
44	1.2
45	0

D SERVO CONTROL>

ODE N NO.	PB
C201	
1	1.7
2	1.6
3	1.5
4	5.2
5	-
6	-
7	0.7
8	0.7
9	0.7
10	0.7
11	0.8
12	0
13	0
14	0.8
15	0.9
16	0.9
17	0
18	0
19	0
20	0.9
21	9.5
22	9.5
23	3.3
24	0
25	0
26	1.7
27	0
28	0
29	0
30	0
31	1.7
32	2.0
33	2.2
34	-
35	0
36	0
37	0.2
38	0.1
39	0.1
40	0.1
41	3.3
42	1.5
43	1.6
44	1.7
45	0
46	0
47	0
48	0
49	0
50	0
C301	
1	3.3
2	3.3
3	0
4	3.3
5	3.3
6	3.3
7	3.3
8	3.3
9	0
10	1.2
11	3.1
12	3.3
13	3.3
14	3.1
15	3.3
16	0
17	3.1
18	3.3
19	3.3
20	0
21	0
22	3.3
23	2.0
24	2.8
25	0.5
26	1.2
27	0.4
28	3.3
29	0
30	0
31	0
32	0
33	0
34	3.3
35	0
36	0.5
37	2.8
38	0.3
39	2.0
40	0.5
41	2.9
42	0.3
43	0
44	1.2
45	0

MODE PIN NO.	PB
46	0
47	0
48	3.3
49	0
50	0.5
51	2.8
52	0.8
53	0
54	3.3
55	3.3
56	3.3
57	3.3
58	3.3
59	3.3
60	3.3
61	3.3
62	3.3
63	0
64	0
65	3.3
66	3.2
67	3.3
68	3.3
69	3.3
70	3.2
71	0
72	3.3
73	3.3
74	0
75	1.7
76	1.7
77	3.3
78	0
79	3.3
80	0
81	0
82	3.3
83	3.3
84	3.3
85	3.3
86	3.3
87	0
88	0
89	1.2
90	0
91	3.3
92	0
93	0
94	0
95	0
96	0
97	0
98	3.3
99	0.7
100	0
101	2.3
102	2.0
103	1.8
104	0
105	0
106	1.8
107	3.3
108	2.2
109	2.2
110	1.8
111	1.8
112	1.6
113	1.6
114	1.6
115	1.6
116	0.7
117	0.7
118	3.3
119	1.9
120	1.7
121	1.4
122	0
123	0
124	0
125	0
126	0
127	2.2
128	1.6
129	2.2
130	2.2
131	2.2
132	2.2
133	2.2
134	2.2
135	2.2
136	2.2
137	2.2
138	2.2
139	2.2
140	1.7
141	3.3
142	1.2

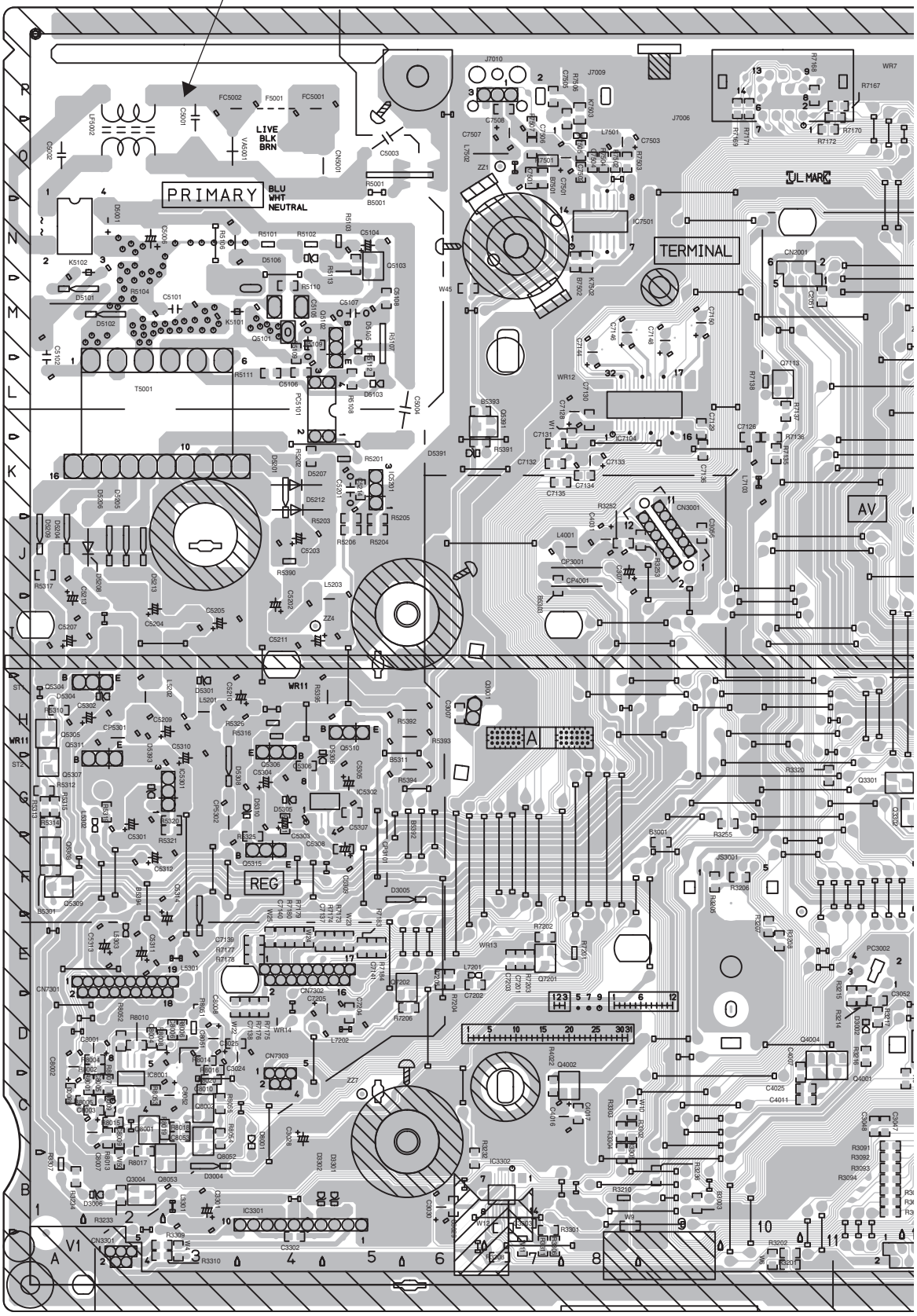
MODE PIN NO.	PB
143	2.2
144	2.1
145	0
146	1.6
147	1.6
148	1.6
149	0.5
150	3.3
151	0.6
152	1.4
153	1.3
154	1.3
155	2.2
156	0.5
157	0
158	0.8
159	3.3
160	0
161	3.3
162	0
163	1.6
164	0
165	1.5
166	1.5
167	3.3
168	0
169	1.7
170	1.6
171	0
172	1.2
173	0
174	0
175	0
176	0
177	1.7
178	3.3
179	0
180	3.3
181	0
182	3.3
183	0
184	0
185	0
186	0
187	0
188	0
189	0
190	3.3
191	0
192	1.0
193	2.0
194	1.1
195	2.0
196	3.3
197	0.5
198	0.5
199	1.2
200	0.5
201	0
202	3.3
203	0.5
204	2.0
205	0
206	1.2
207	1.5
208	0.5
209	3.3
210	1.0
211	0.6
212	1.1
213	0
214	2.9
215	2.9
216	3.3
217	0
218	0
219	1.2
220	0
221	0
222	0
223	0
224	0
225	3.3
226	0
227	0
228	0
229	0
230	0
231	3.3
232	0
233	0
234	3.2
235	0
236	1.2
237	0
238	0
239	3.3

MODE PIN NO.	PB
240	3.3
241	1.7
242	0
243	1.7
244	3.3
245	3.3
246	3.3
247	0
248	3.3
249	3.3
250	0
251	3.3
252	3.3
253	0
254	3.3
255	3.3
256	3.3
IC302	
1	0
2	1.2
3	3.2
IC453	
1	3.2
2	3.3
3	0
4	0
IC505	
1	3.3
2	3.1
3	3.3
4	3.1
5	3.1
6	0
7	3.3
8	3.3
9	3.3
10	3.3
11	3.3
12	0
13	3.3
14	3.3
15	3.3
16	3.3
17	3.3
18	3.3
19	3.3
20	3.2
21	0
22	0
23	0
24	0
25	0
26	0
27	3.3
28	0
29	0
30	0
31	0
32	0
33	0
34	0
35	0
36	0
37	3.3
38	1.7
39	3.3
40	0
41	0
42	3.3
43	3.3
44	3.3
45	3.3
46	0
47	3.3
48	3.3
49	3.3
50	3.3
51	3.3
52	0
53	3.3
54	0
IC509	
1	0
2	0
3	0.3
4	0.4
5	0
6	0.3
7	2.9
8	2.9
9	0
10	0
11	3.3
12	3.2
13	1.1
14	0
15	3.3

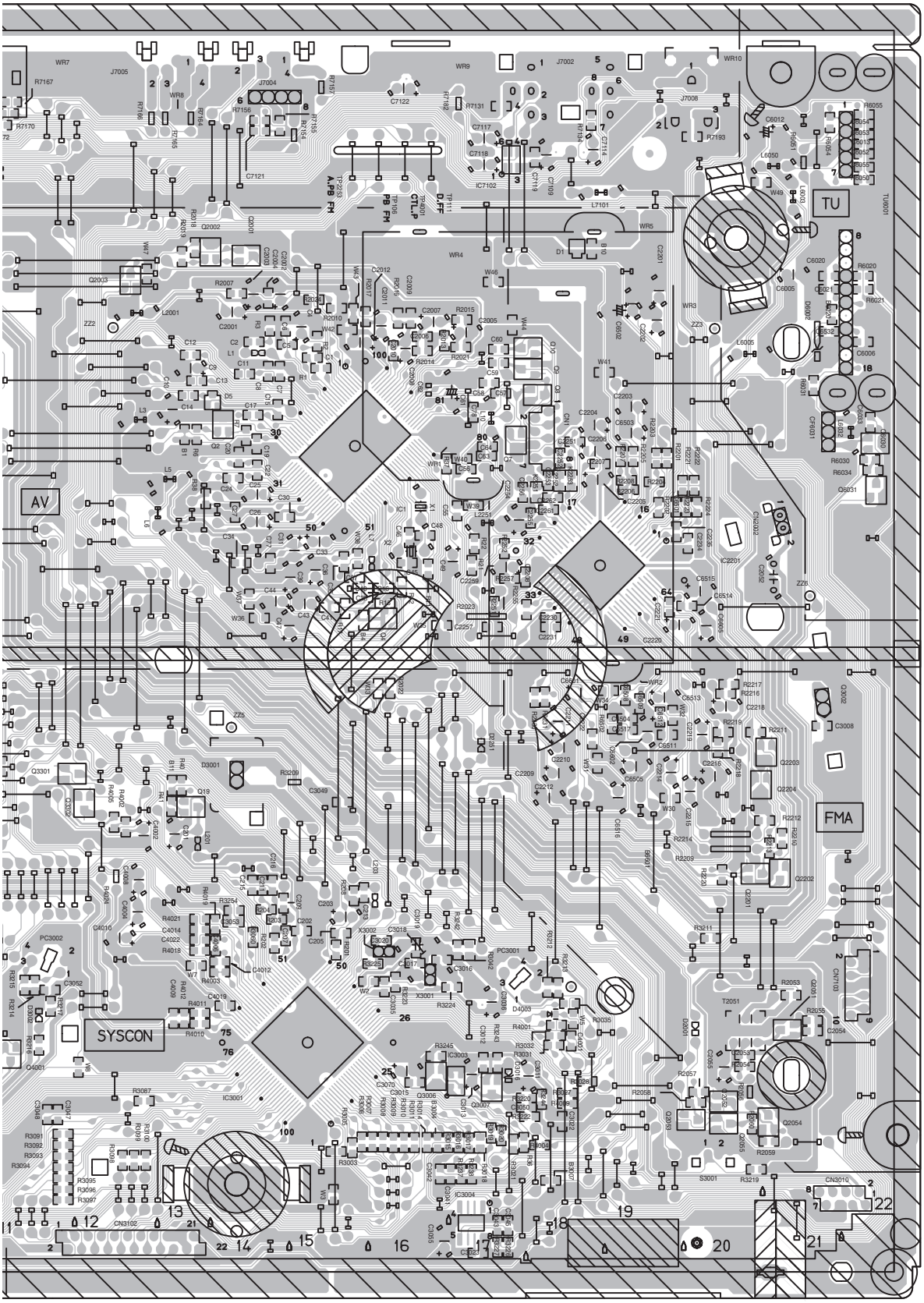
MODE PIN NO.	PB
16	0
17	0
18	0.5
19	0.5
20	0.5
21	2.8
22	2.8
23	2.8
24	2.0
25	2.0
26	0.3
27	0
28	0.8
29	1.1
30	1.0
31	1.0
32	1.1
33	1.2
34	0.5
35	2.0
36	1.2
37	3.3
38	0.5
39	0.5
40	0.5
41	1.2
42	2.0
43	0.5
44	2.0
45	0.6
46	0
47	3.3
48	0.3
IC701	
1	1.6
2	1.6
3	0
4	1.7
5	3.3
6	3.3
7	3.3
8	3.3
9	0
10	2.5
11	2.5
12	2.5
13	0
14	5.0
15	0
16	0

■ MAIN CIRCUIT BOARD

<03>MAIN
LPB10280-001B



CAUTION :
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE(S).
ATTENTION :
REPLACER PAR DES FUSIBLE DE MEME TYPE.



COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10280-001B

REF.NO.	LOCATION
CAPACITOR	
C1	B C 15L
C2	B C 14M
C4	A D 15M
C5	B C 14M
C6	B C 14M
C7	B C 14L
C8	B C 14L
C9	A D 13L
C10	A D 13L
C11	B C 14L
C12	B C 13L
C13	B C 13L
C14	B C 13L
C15	B C 14L
C17	B C 14L
C19	B C 14K
C20	B C 14K
C22	B C 14K
C24	B C 14K
C25	A D 14K
C26	A D 14J
C27	B C 14J
C30	B C 14J
C31	A D 15J
C33	A D 15J
C34	B C 14J
C35	B C 15J
C36	A D 15J
C37	B C 15J
C38	B C 15I
C39	A D 15J
C40	B C 15J
C41	B C 15I
C43	A D 15I
C44	A D 14I
C45	B C 16J
C46	B C 16J
C47	A D 15I
C48	B C 16J
C49	A D 17J
C55	B C 17J
C56	B C 17K
C57	B C 17L
C58	B C 17L
C59	B C 17L
C60	B C 17M
C61	A D 17L
C62	A D 16L
C63	B C 17K
C64	B C 17K
C77	B C 14J
C78	B C 17L
C201	A D 13F
C202	B C 15E
C203	A D 15E
C205	B C 15E
C207	B C 14E
C209	B C 14F
C211	B C 14F
C213	B C 15F
C215	B C 14F
C216	B C 14F
C2001	A D 14M
C2002	A D 14M
C2003	A D 14M
C2004	B C 14M
C2005	A D 17M
C2006	B C 16M
C2007	A D 16M
C2008	A D 16L
C2009	B C 16M
C2010	B C 16M
C2011	A D 16M
C2012	A D 15M
C2051	B C 11M
C2052	A D 21J
C2053	B C 20D
C2054	B C 21D
C2055	A D 20C
C2201	A D 19M
C2202	A D 19M
C2203	A D 19L
C2204	A D 18L
C2205	A D 18K
C2206	A D 18K
C2207	B C 18K
C2208	B C 17J
C2209	A D 18G
C2210	A D 18G
C2211	A D 18H
C2212	A D 18G
C2214	A D 19G
C2215	A D 20G
C2216	A D 20G
C2218	A D 20H
C2219	A D 20H
C2220	A D 19I
C2221	B C 19I
C2222	B C 18H
C2230	B C 18I
C2231	B C 18I
C2234	B C 20J
C2235	B C 19J
C2251	B C 18K
C2252	B C 18K
C2253	B C 18K
C2254	A D 17J
C2255	B C 18J
C2256	B C 17K
C2257	B C 17I
C2259	A D 17J
C2261	B C 18J
C2262	B C 18K
C3007	B C 6H
C3008	B C 21H
C3011	A D 18C
C3012	B C 17C
C3013	A D 17C
C3015	B C 16C
C3016	B C 16E
C3017	B C 16E
C3018	A D 16E
C3019	B C 16E
C3020	B C 16E
C3022	B C 18C
C3023	B C 17A
C3024	A D 3D
C3025	B C 3D
C3028	A D 4C
C3029	B C 6B
C3030	A D 6B
C3035	B C 16D
C3036	A D 17D
C3041	B C 17B
C3042	B C 16B
C3043	B C 17A
C3045	B C 17A
C3047	B C 12C
C3048	B C 11C
C3049	B C 15G
C3050	B C 18C
C3052	B C 11D
C3053	B C 14E
C3055	A D 16A
C3056	B C 9J
C3070	A D 16C
C3071	A D 8J
C3301	A D 3B
C3302	B C 4A
C3303	B C 7B
C4001	B C 18D
C4002	A D 13F
C4004	A D 13E
C4006	B C 14E
C4007	B C 11D
C4008	A D 13F
C4009	B C 13D
C4010	A D 12E
C4011	B C 11C
C4012	B C 14E
C4014	B C 13E
C4016	A D 8C
C4017	B C 8C
C4019	B C 14D
C4022	B C 13E
C4025	B C 11C
C4031	A D 8J
C5001	A D 3P
C5002	A D 1O
C5003	A D 5O
C5004	A D 6L
C5006	A D 2N
C5101	A D 2M
C5102	A D 1L
C5104	A D 5N
C5105	A D 4M
C5106	B C 4L
C5107	A D 5M
C5108	B C 5M
C5109	B C 4M
C5201	A D 5K
C5202	A D 4I
C5203	A D 4J
C5204	A D 2I
C5205	A D 3I
C5207	A D 1I
C5209	A D 2H
C5210	A D 3H
C5211	A D 5I
C5213	A D 1J
C5214	B C 5K
C5301	A D 2G
C5302	A D 1H
C5303	A D 4G
C5304	A D 4G
C5305	A D 5G
C5306	B C 4G
C5307	B C 5G
C5308	B C 5F
C5309	A D 5F
C5310	A D 3G
C5311	A D 2E
C5312	A D 2F
C5313	A D 2E
C5314	A D 3F
C6005	A D 21M
C6006	B C 22M
C6012	A D 21O
C6013	B C 22O
C6020	B C 21M
C6021	B C 21M
C6033	B C 22L
C6052	B C 22O
C6053	B C 22O
C6054	B C 22O
C6055	B C 22O
C6501	B C 19K
C6502	A D 19M
C6503	A D 19K
C6504	B C 19H
C6505	A D 19G
C6508	B C 19H
C6509	B C 19H
C6511	B C 19H
C6512	B C 19H
C6513	A D 19H
C6514	B C 20I
C6515	A D 20I
C6516	A D 19G
C6517	B C 19H
C6532	B C 21M
C6601	A D 18H
C6602	A D 19H
C6605	A D 20I
C7109	A D 18O
C7114	A D 18O
C7117	A D 17O
C7118	A D 17O
C7119	B C 18O
C7121	B C 14O
C7122	A D 16P
C7126	B C 10K
C7128	A D 8L
C7129	B C 9L
C7130	B C 8L
C7131	B C 7K
C7132	B C 7K
C7133	A D 8K
C7134	B C 8K
C7135	B C 7K
C7136	B C 9K
C7137	B C 4E
C7138	B C 4D
C7139	B C 4E
C7140	B C 4E
C7141	B C 5E
C7144	A D 8L
C7146	A D 8M
C7148	A D 9M
C7150	A D 9M
C7201	B C 7E
C7202	B C 6E
C7203	B C 7E
C7204	B C 5D
C7205	A D 4D
C7501	A D 8O
C7502	B C 8O
C7503	A D 8O
C7504	B C 8O
C7505	B C 7P
C7506	B C 7O
C7507	A D 7O
C7508	B C 7P
C8001	A D 2D
C8002	A D 1C
C8003	B C 2C
C8004	B C 2D
C8005	B C 2C
C8006	B C 3D
C8007	A D 2C
C8008	A D 3D
C8009	B C 2C
C8010	B C 3C
C8051	A D 3D
C8052	A D 3C
C8053	B C 3C
CONNECTOR	
CN1	A D 18K
CN2001	A D 11M
CN2002	A D 21J
CN3001	A D 9J
CN3010	A D 22B
CN3102	A D 12A
CN3301	A D 2A
CN5001	A D 5O
CN7103	A D 22E
CN7301	A D 1E
CN7302	A D 4E
CN7303	A D 4C
DIODE	
D1	B C 18N
D5	B C 14L
D2001	A D 20D
D2251	A D 17G
D3001	A D 14G
D3002	A D 11D
D3004	A D 3B
D3005	A D 5F
D3006	A D 2B
D3016	A D 17C
D3301	A D 5B
D3302	A D 4B
D4003	B C 18D
D5001	B C 1N
D5101	A D 2M
D5102	A D 2M
D5103	A D 5L
D5105	A D 5M
D5106	A D 5N
D5201	A D 4K
D5204	A D 1K
D5205	A D 2J
D5206	A D 2J
D5207	A D 4K
D5208	A D 2K
D5209	A D 1K
D5212	A D 4K
D5213	A D 2K
D5301	A D 3H
D5304	A D 2H
D5305	A D 4G
D5306	A D 5G
D5308	A D 3H
D5310	A D 4G
D5391	A D 6K
D5392	A D 3F
D5393	A D 2G
D6002	A D 21M
D8001	A D 4C
FUSE	
F5001	A D 5P
IC	
IC1	B C 15K
IC2201	B C 18J
IC3001	B C 15D
IC3003	B C 17C
IC3004	B C 17A
IC3301	A D 5B
IC3302	B C 7B
IC5201	A D 5K
IC5301	A D 3G
IC5302	B C 5G
IC7102	B C 17O
IC7104	B C 9L
IC7501	B C 8N
IC8001	B C 2C
COIL	
L1	A D 14L
L3	A D 13L
L5	A D 13K
L6	A D 13J
L7	A D 16J
L10	A D 17K
L201	A D 13F
L203	A D 16E
L2001	A D 12M
L2251	A D 17J
L3301	A D 3B
L4001	A D 7J
L5201	A D 3H
L5202	A D 2H
L5203	A D 4I
L5301	A D 3E
L5302	A D 2G
L5303	A D 2E
L6003	A D 21O
L6005	A D 21L
L6032	A D 22L
L6050	A D 21O
L7101	A D 19O
L7103	A D 10K
L7201	A D 6E
L7202	A D 5D
L7501	A D 8O
L7502	A D 7O
TRNSISTOR	
Q2	B C 14L
Q4	B C 16I
Q7	B C 17K
Q8	B C 18L
Q9	B C 18L
Q10	B C 18M
Q19	B C 13G
Q2001	B C 14N
Q2002	B C 14N
Q2003	B C 12M
Q2051	B C 21D
Q2052	B C 20C
Q2053	B C 20C
Q2054	B C 21C
Q2055	B C 20C
Q2201	B C 20F
Q2202	B C 21F
Q2203	B C 21G
Q2204	B C 20G
Q3001	A D 7H
Q3002	A D 21H
Q3004	B C 2B
Q3006	B C 16C
Q3007	B C 17C
Q3301	B C 12G
Q3302	B C 12G
Q4001	B C 11D
Q4002	B C 8C
Q4004	B C 11D
Q5101	A D 4M
Q5102	A D 5L
Q5103	B C 5N
Q5304	A D 2H
Q5305	B C 1H
Q5306	A D 4H
Q5307	B C 1G
Q5308	B C 1F
Q5309	B C 1F
Q5310	A D 5H
Q5311	A D 2G
Q5315	A D 4F
Q5391	B C 7L
Q6030	B C 22K
Q6031	B C 22K
Q7113	B C 10L
Q7201	B C 7E
Q7202	B C 6E
Q8001	B C 2C
Q8002	B C 3C
Q8052	B C 3C
Q8053	B C 3B
RESISTOR	
R1	B C 15L
R2	B C 15M
R3	B C 14M
R6	B C 13K
R7	B C 14K
R11	B C 16J
R12	B C 16J
R15	B C 16I
R16	B C 16J
R17	B C 15I
R21	B C 17J
R22	B C 17J
R36	B C 17B
R37	B C 16K
R38	B C 13K
R40	B C 13G
R41	B C 13G
R201	B C 15E
R202	B C 14E
R203	B C 14E
R204	B C 14E
R208	B C 15F
R2007	B C 14M
R2010	B C 15M
R2013	B C 16M
R2014	B C 16M
R2015	B C 17M
R2016	B C 16M
R2017	B C 15M
R2018	B C 13N
R2019	B C 13N
R2021	B C 17M
R2022	B C 16H
R2023	A D 17I
R2024	B C 15M
R2053	B C 21D
R2054	B C 20C
R2055	B C 21D
R2056	A D 20C
R2057	B C 20C
R2058	B C 20C
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R2060	B C 20C
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R2204	B C 19K
R2205	B C 19K
R2206	B C 19K
R2207	B C 19K
R2208	B C 19K
R2209	A D 20F
R2210	B C 21F
R2211	B C 20H
R2212	B C 21G
R2213	B C 21F
R2214	A D 20F
R2216	B C 20H
R2217	B C 20H
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R2219	B C 20H
R2220	B C 20F
R2221	B C 19K
R2222	B C 20K
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R2224	B C 20K
R2230	B C 18H
R2231	B C 18H
R2251	B C 17I
R2252	B C 17J
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R3003	B C 15B
R3005	B C 15B
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R3007	B C 16B
R3008	B C 16B
R3009	B C 16B
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R3011	B C 16B
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R3017	B C 17B
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R3020	B C 17C
R3021	B C 17B
R3027	B C 18C
R3028	B C 18C
R3031	B C 18D
R3032	B C 18D
R3035	B C 18D
R3042	B C 17E
R3060	B C 14E
R3087	B C 13C
R3091	B C 12C
R3092	B C 12B
R3093	B C 12B
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R3097	B C 12B
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R3099	B C 13B
R3100	B C 13B
R3201	B C 10A
R3202	B C 10A
R3205	B C 9F
R3206	B C 10F
R3207	B C 10E
R3208	B C 10E
R3209	A D 15G
R3210	A D 8B
R3211	B C 20E
R3212	B C 18D
R3213	B C 18D
R3214	B C 11D
R3215	B C 11D
R3216	B C 11D
R3217	B C 11D
R3219	B C 20B
R3220	B C 18C
R3222	B C 18C
R3223	B C 16E
R3224	B C 17D
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R3227	B C 17A
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R3233	B C 2B
R3234	B C 1B
R3236	B C 9B
R3237	B C 17B
R3238	B C 17B
R3242	B C 17E
R3243	B C 17C
R3244	B C 18C
R3245	B C 16D
R3252	B C 8J
R3253	B C 9J
R3254	B C 14E
R3255	B C 10G
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R3303	B C 8C
R3304	B C 8B
R3305	B C 8B
R3306	B C 7A
R3307	A D 1B
R3308	B C 7A
R3309	B C 2A
R3310	B C 2A
R3311	B C 7A
R3320	B C 11G
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R4002	B C 12F
R4003	B C 14E
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R4009	B C 18C
R4010	B C 13D
R4011	B C 13D
R4012	B C 13D
R4018	B C 13E
R4019	B C 14E
R4021	B C 13E
R4022	B C 7C
R4024	A D 12F
R5001	A D 5O
R5101	A D 4N
R5102	A D 4N
R5103	A D 5N
R5104	A D 2M
R5106	A D 3N
R5107	A D 5M
R5108	B C 5L
R5109	B C 4M
R5110	B C 4M
R5111	B C 4L
R5112	B C 5L
R5113	B C 5N
R5201	A D 5K
R5202	B C 4K
R5203	B C 5J
R5204	B C 5J
R5205	B C 5J
R5206	B C 5J
R5310	B C 1H
R5311	B C 4G
R5312	B C 1G
R5313	B C 1G
R5314	B C 1G
R5315	B C 1G
R5316	A D 4H
R5317	B C 1J
R5319	B C 2G
R5320	B C 3G
R5321	B C 3G
R5325	B C 4F
R5326	A D 4H
R5390	A D 4J
R5391	B C 6K
R5392	A D 5H
R5393	A D 5H
R5394	A D 5G
R5395	A D 5H
R6020	B C 22M
R6021	B C 22M
R6030	B C 22K
R6031	B C 21L
R6050	B C 22O
R6051	A D 21O
R6054	B C 21O
R6055	B C 22P
R6502	B C 19H
R7131	B C 17P
R7134	B C 18O
R7135	B C 10K
R7136	B C 10K
R7137	B C 10L
R7138	A D 10L
R7154	A D 15O
R7155	B C 14O
R7156	B C 14O
R7157	A D 15P
R7164	A D 13O
R7165	A D 13O
R7166	A D 13O
R7167	B C 11P
R7168	B C 11P
R7169	B C 10P
R7170	B C 11P
R7171	B C 10P
R7172	B C 11O
R7173	B C 5E
R7174	B C 5E
R7175	B C 4D
R7176	B C 4D
R7177	B C 4E
R7178	B C 4E
R7179	B C 4E
R7180	B C 4E
R7182	A D 17O
R7183	B C 5E
R7184	B C 5E
R7193	B C 20O
R7201	A D 8E
R7202	B C 7E
R7203	B C 7E
R7204	B C 6E
R7205	B C 6E
R7206	B C 6D
R7501	B C 7O
R7502	B C 8O
R7503	B C 8O
R7504	B C 8O
R7505	B C 8O
R7506	B C 8P
R7507	B C 7O
R8001	B C 2C
R8002	B C 2D
R8003	B C 1C
R8004	B C 2D
R8005	B C 2C
R8006	B C 3D
R8007	B C 2C
R8008	B C 2D
R8009	B C 2C
R8010	B C 2D
R8013	B C 2C
R8014	B C 3D
R8015	B C 2C
R8016	B C 3D
R8017	B C 2C
R8018	B C 3C
R8019	B C 3C
R8020	B C 3C
R8051	A D 3D
R8052	B C 2D
R8053	B C 2C
R8054	B C 3C
R8055	B C 3C
OTHER	
CF6031	A D 21L
CP3001	A D 7J
CP3101	A D 5G
CP4001	A D 7J
CP5301	A D 2H
CP5302	A D 3F
FC5001	A D 5P
FC5002	A D 3P
J7002	A D 18P
J7004	A D 14P
J7005	A D 13P
J7006	A D 10P
J7008	A D 20P
J7009	A D 8P
J7010	A D 7P
JS3001	A D 10F
K2251	B C 18K
K2252	B C 18K
K2253	B C 18K
K5101	A D 4M
K5102	A D 2N
K7501	B C 7O
K7502	B C 8N
K7503	B C 8P
LF5002	A D 2O
PC085	B C 19O
PC0864	A D 4O
PC0865	A D 4O
PC02242	B C 1A
PC02505	B C 22N
PC3001	A D 17E
PC3002	A D 11E
PC5101	A D 5L
S3001	A D 20B
T2051	A D 20D
T5001	A D 2L
TP106	A D 16O
TP111	A D 16O
TP2253	A D 15O
TP4001	A D 16O
TU6001	A D 22P
VA5001	A D 3O
WR11	A D 4H
X1	A D 16J
X2	A D 16J
X3001	A D 16E
X3002	A D 16E

■ CPU PIN FUNCTION

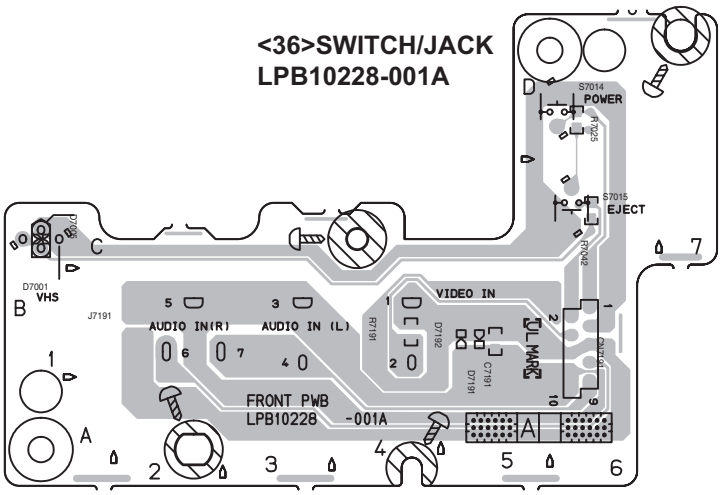
<SYSCON IC3001>

PIN NO.	LABEL	IN/OUT	FUNCTION
1	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
2	TU_FG	IN	DETECTION SIGNAL TAKE-UP REEL ROTATION/TAPE REMAIN
3	BS_DIGI/COMP_IN	IN	NOT USED/A/V COMPULINK INPUT
4	UCS	IN	COMMUNICATION DATA FROM DVD CPU
5	RC	IN	REMOTE CONTROL DATA INPUT
6	D_A	OUT	LED DRIVE
7	D_B	OUT	LED DRIVE
8	D_C	OUT	LED DRIVE
9	D_D	OUT	LED DRIVE
10	D_E	OUT	LED DRIVE
11	SCLK	IN	EXTERNAL BUS CLOCK USED FOR PROGRAMMABLE HOST PERIPHERALS
12	U2SDT	IN	COMMUNICATION INPUT DATA FROM DVD CPU
13	S2UDT	OUT	COMMUNICATION OUTPUT DATA TO DVD CPU
14	MTO	OUT	CONTROL FOR DVD LOADING MOTOR OF TRAY
15	N_REC[H]	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL (REC:H)
16	D_F	OUT	LED DRIVE
17	I2C_DATA_A/V	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR A/V IC
18	I2C_CLK_A/V	OUT	SERIAL DATA TRANSFER CLOCK FOR A/V IC
19	SP_SHORT[H]	OUT	MODE SELECT
20	EP_SHORT[H]	OUT	MODE SELECT
21	D_G	OUT	LED DRIVE
22	REC_S	IN	REC SAFETY SWITCH DETECT (SW ON:L)
23	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
24	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
25	RESET	IN/OUT	RESET TERMINAL(RESET ON:L)
26	A.FF	OUT	AUDIO FF OUTPUT
27	N.REC_ST[H]	OUT	NORMAL AUDIO SOUND RECORDING START
28	H.REC_ST[H]	OUT	HiFi AUDIO SOUND RECORDING START
29	SCS	OUT	DVD CPU CHIP SELECT
30	CPURST	OUT	RESET FOR DVD CPU
31	I2C_DATA	IN	SERIAL DATA TRANSFER OUTPUT FOR TUNER AND FMA CIRCUITS
32	I2C_CLK/TEST	IN/OUT	SERIAL DATA TRANSFER CLOCK FOR TUNER AND FMA CIRCUITS
33	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
34	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
35	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
36	VDD	-	SYSTEM POWER
37	X_OUT	-	MAIN SYSTEM CLOCK (14MHz)
38	X_IN	-	MAIN SYSTEM CLOCK (14MHz)
39	VSS	-	GND
40	XC_IN	-	TIMER CLOCK(32KHz)
41	XC_OUT	-	TIMER CLOCK(32KHz)
42	CLK_SEL	IN	CLOCK SELECT FOR FLASH WRITER
43	A.MUTE[H]	OUT	AUDIO MUTE CONTROL (MUTE:H)
44	P.MUTE	OUT	PICTURE MUTE CONTROL(MUTE ON:H)
45	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
46	CONV.CTL	OUT	RF CONVERTER ON/OFF CONTROL
47	VIDEO_OSD_OUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
48	VSS2	-	GND
49	V_TO_OSD	IN	COMPOSITE VIDEO SIGNAL INPUT
50	SYN_IN	IN	COMPOSITE SYNC/HORIZONTAL SYNC

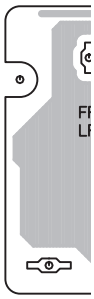
PIN NO.	LABEL	IN/OUT	FUNCTION
51	VDD2	-	SYSTEM POWER
52	AFCC	-	AFC CLOCK(SYNC SEPARATOR FOR OSD/EXTERNAL CIRCUIT FOR AFC)
53	AFCLPF	-	FILTER OUTPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
54	VCR_LED[L]/FSCI	OUT	VCR LED ON/OFF CONTROL (LED ON : L) / FSC INPUT FOR OSD
55	DVD_LED[L]/FSCLPF	OUT	DVD LED ON/OFF CONTROL (LED ON : L) / FSC OUTPUT FOR OSD
56	SMUTE	OUT	SPINDLE MUTING OUTPUT SIGNAL
57	A.MUTE2[H]	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
58	DVD[H]	OUT	DVD MODE:H
59	P.CTL[H]	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
60	MT1	OUT	CONTROL FOR DVD LOADING MOTOR OF TRAY
61	LM_F/R/S	OUT	LOADING MOTOR DRIVE
62	CAP.M_F/R	OUT	CAPSTAN MOTOR REVERSE CONTROL(FWD : H / REV : L)
63	HS_FR/AGC_CTL	OUT	HIGH SPEED FF/REW CONTROL
64	PROG/INTER	OUT	INTERLACE/PROGRESSIVE SELECT
65	D.FG.IN	IN	DRUM FG PULSE INPUT
66	S_DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
67	C.FG_AMP_OUT	OUT	CAPSTAN FG PULSE AMP OUT
68	C.FG_IN	IN	CAPSTAN FG PULSE INPUT
69	AMP_VREF_OUT	OUT	CTL PULSE AMP REFFERENCE VOLTAGE OUTPUT
70	AMP_VREF_IN	IN	CTL PULSE AMP REFFERENCE VOLTAGE INPUT
71	AVSS	-	GND
72	AMP_C	-	CAPCITOR CONNECT TERMINAL FOR CTL PULSE AMP CIRCUIT
73	AVCC	-	SYSTEM POWER
74	CTL[+]	IN/OUT	CTL(+) SIGNAL
75	CTL[-]	IN/OUT	CTL(-) SIGNAL
76	CTL_AMP_OUT	OUT	CTL PULSE OUTPUT
77	PROTECT	IN	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
78	END_SENSOR	IN	END SENSOR
79	JUST_CLK/CH_SW	OUT	RF CONVERTER CHANNEL SELECT
80	LED	IN	DETECT THE MTS MODE
81	A.ENV/ND[L]	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
82	TRAYOPSW	IN	DETECTION SWITCH OF TRAY OPEN/CLOSE
83	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
84	AFC	IN	TUNING CHECK
85	START_SENSOR	IN	START SENSOR
86	S1OUT	OUT	ADD THE DC BIAS TO S1 OUTPUT
87	DIG7	OUT	LED DRIVE
88	KEY1	IN	OPERATION CONTROL SIGNAL
89	KEY2	IN	OPERATION CONTROL SIGNAL
90	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
91	LSA	IN	MECHANISM MODE DETECT(A)
92	LSB	IN	MECHANISM MODE DETECT(B)
93	LSC	IN	MECHANISM MODE DETECT(C)
94	LSD	IN	MECHANISM MODE DETECT(D)
95	DIG1	OUT	LED DRIVE
96	DIG2	OUT	LED DRIVE
97	DIG3	OUT	LED DRIVE
98	DIG4	OUT	LED DRIVE
99	DIG5	OUT	LED DRIVE
100	DIG6	OUT	LED DRIVE

■ SWITCH/JACK, DISPLAY, DVD BRACKET AND SWITCH CIRCUIT BOARDS

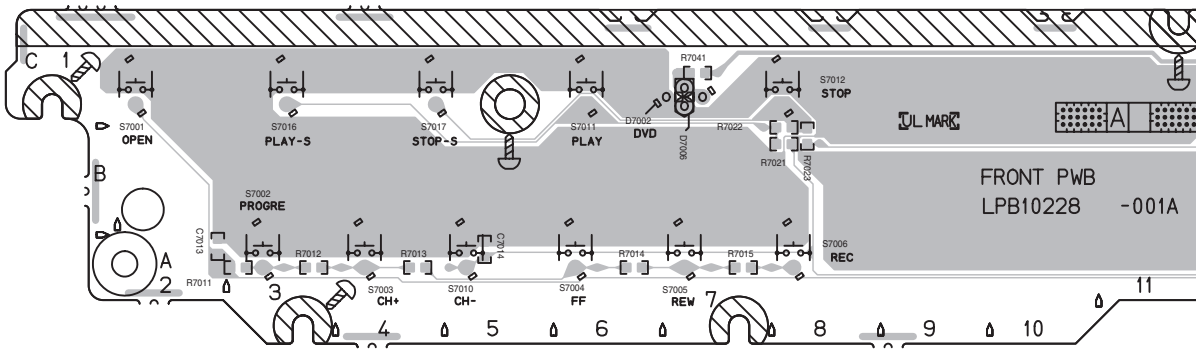
<36>SWITCH/JACK
LPB10228-001A



<13>DV
LPB10



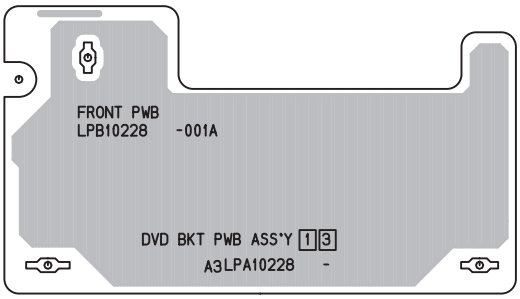
<28>DISPLAY
LPB10228-001A



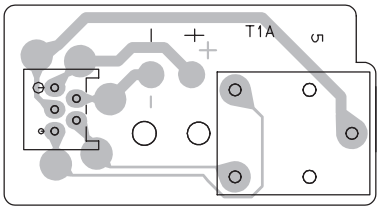
COMPONENT PARTS LOCATION GUIDE <DISPLAY> LPB10228-001A

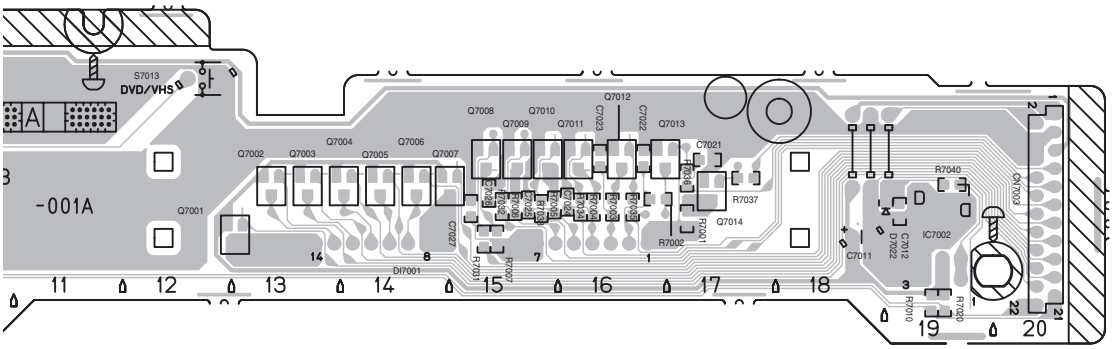
REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR				**TRANSISTOR**		Q7012	B C 16B	R7010	B C 19A	R7033	B C 15B	S7003	A D 4A
C7011	A D 18A	**CONNECTOR**		Q7001	B C 13B	Q7013	B C 17B	R7011	B C 3A	R7034	B C 16B	S7004	A D 6A
C7012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

<13>DVD BRACKET
LPB10228-001A



<98>SWITCH
LEB10070-001A

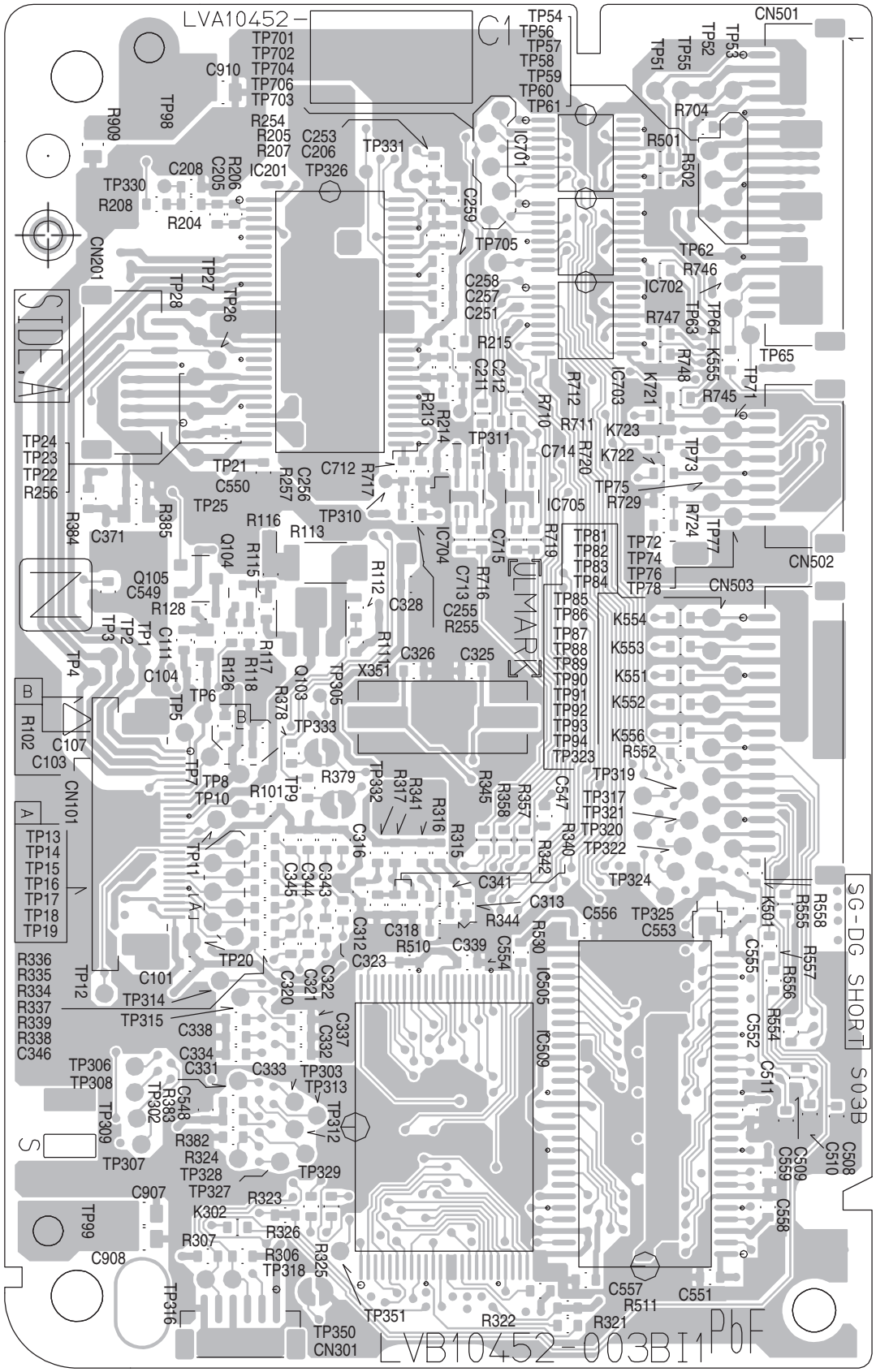




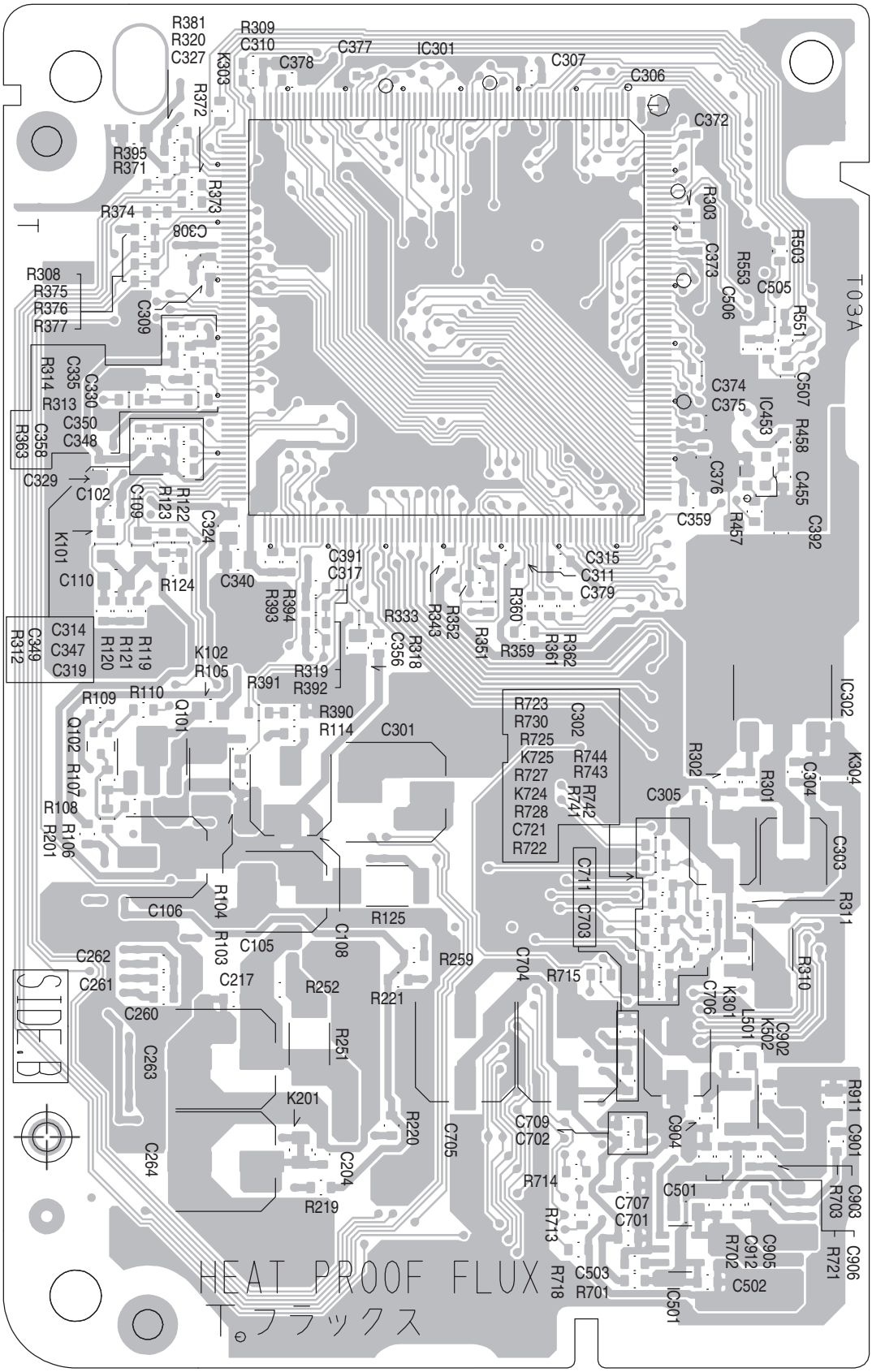
■ DVD SERVO CONTROL CIRCUIT BOARD

<99> DVD SERVO CONTROL
LVB10452-003B

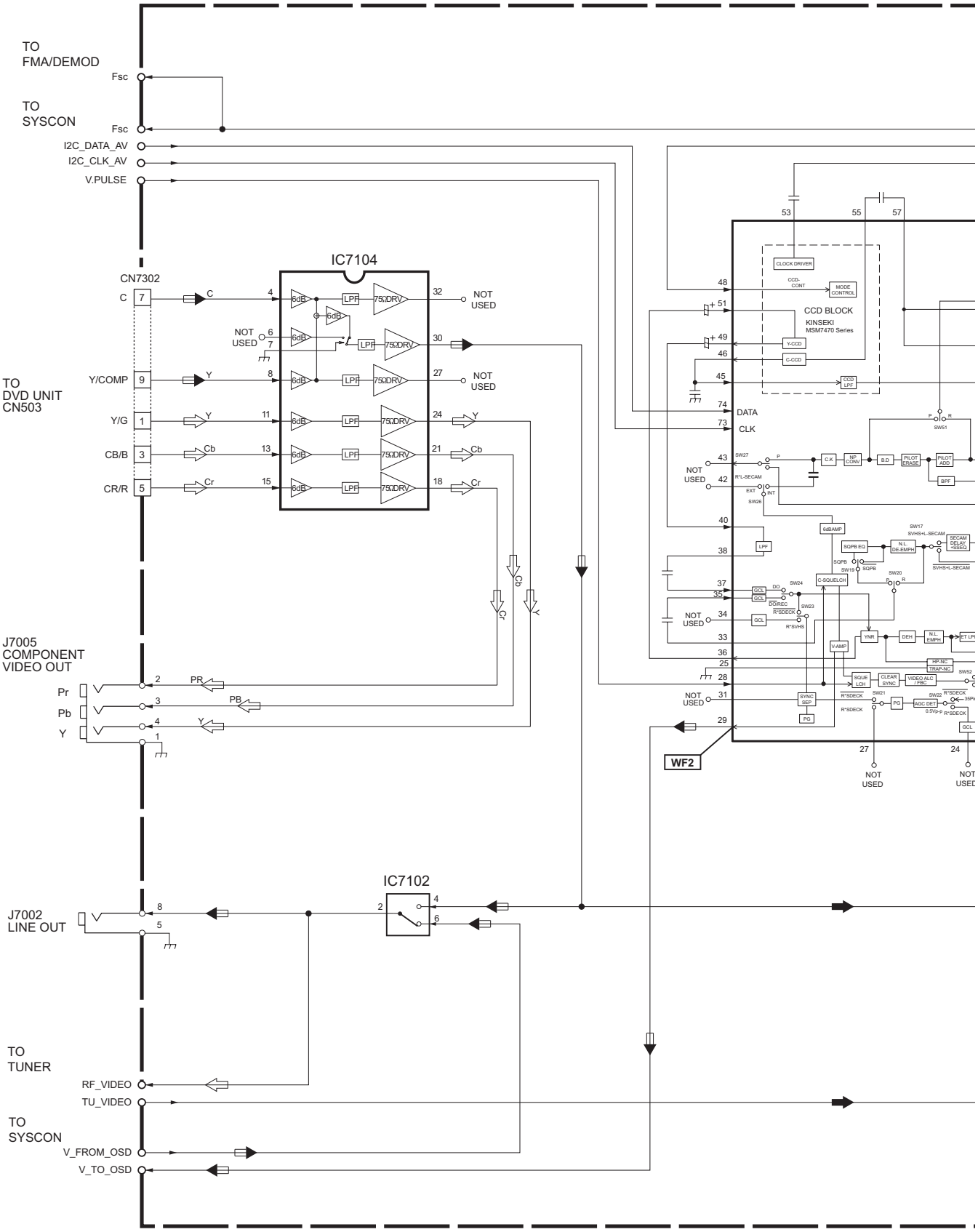
-COMPONENT SIDE-

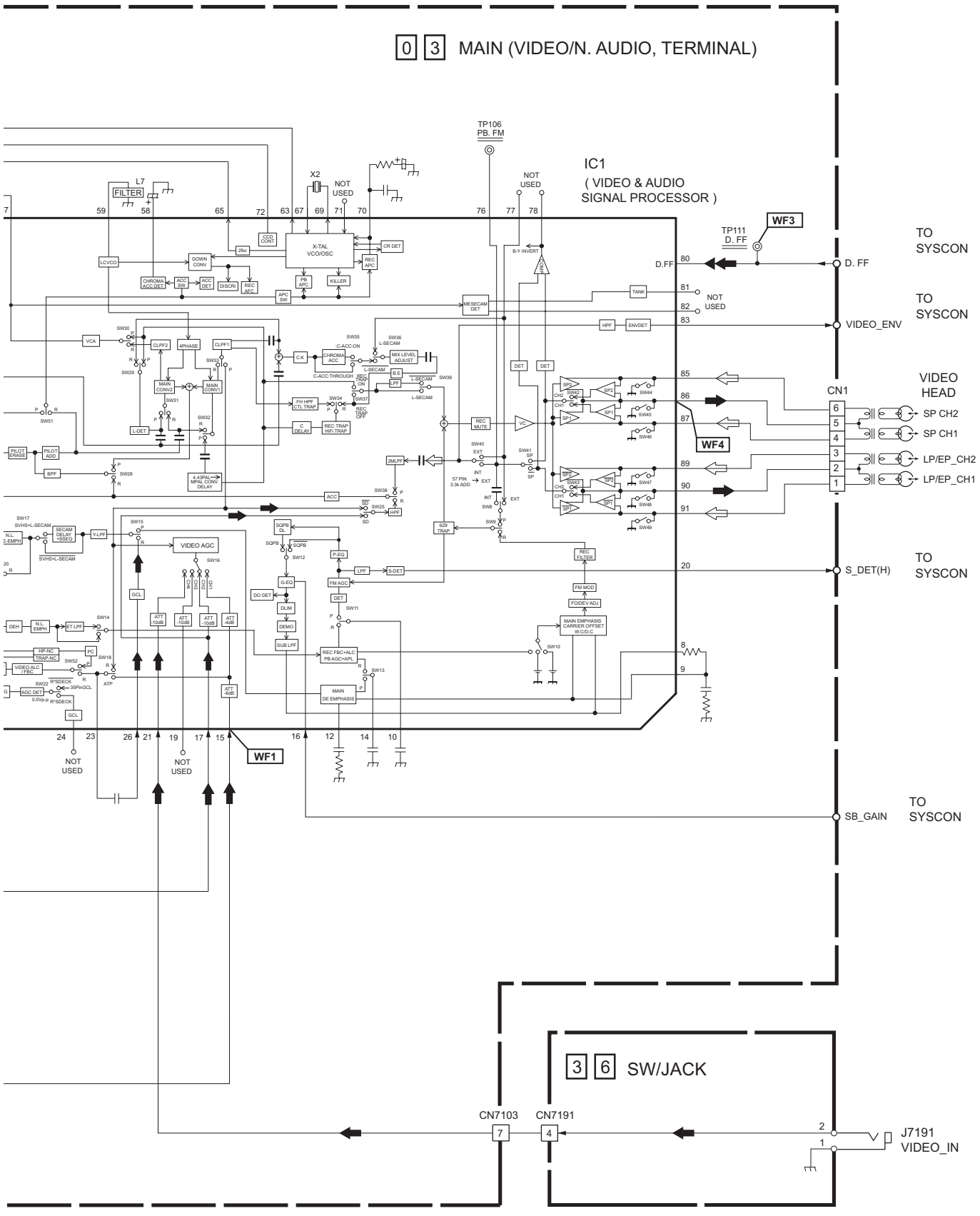


<99> DVD SERVO CONTROL
LVB10452-003B **-FOIL SIDE-**

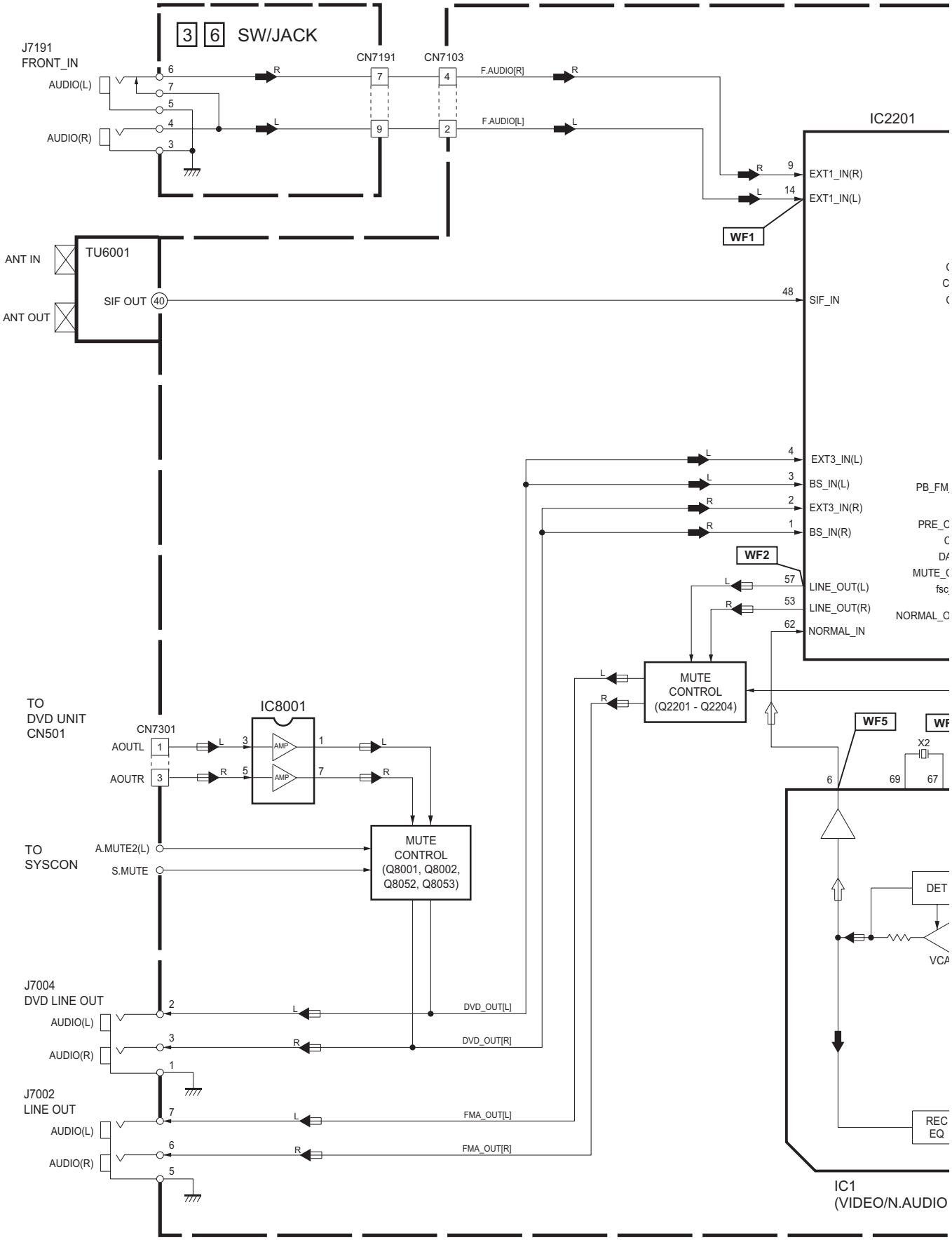


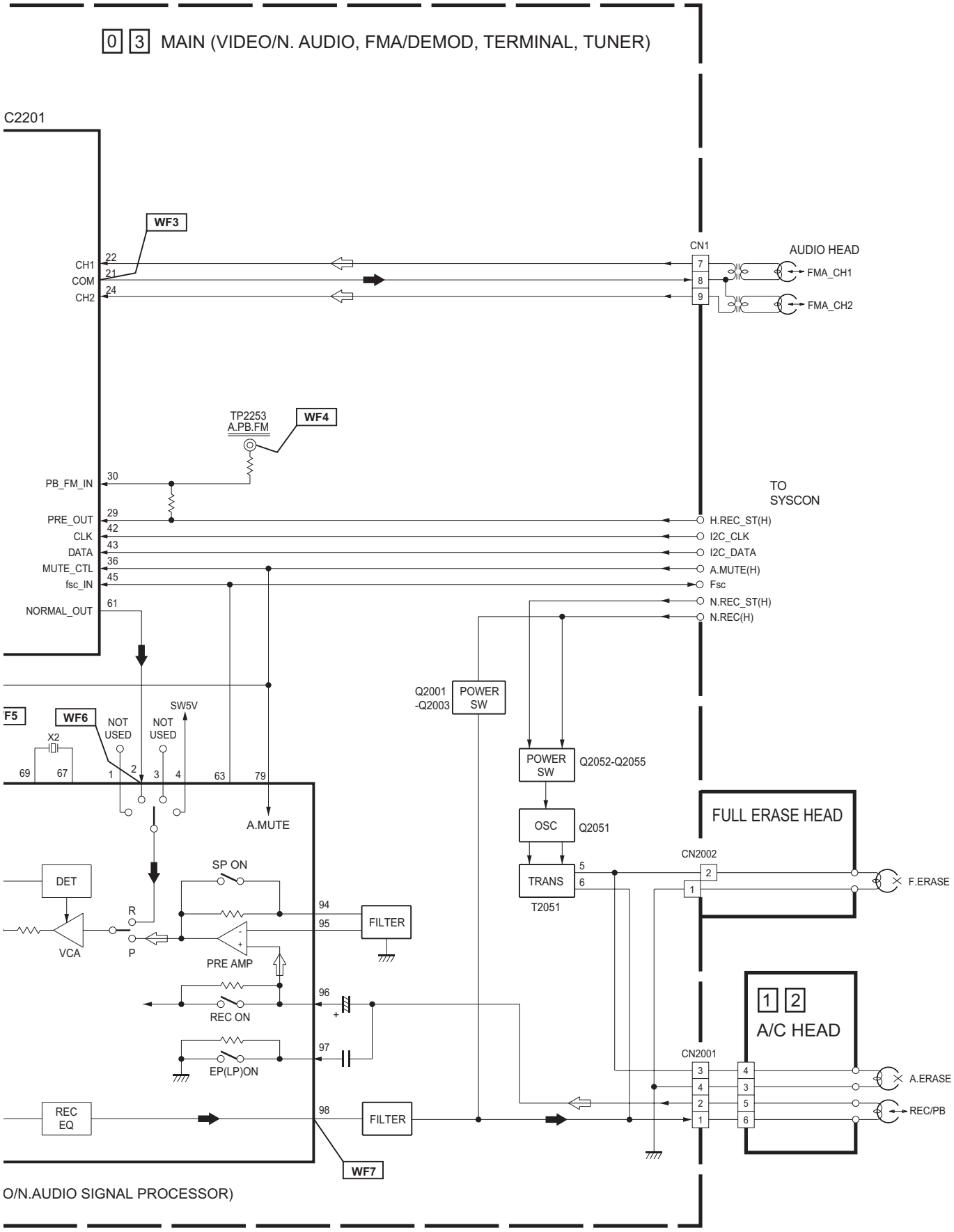
■ VIDEO BLOCK DIAGRAM



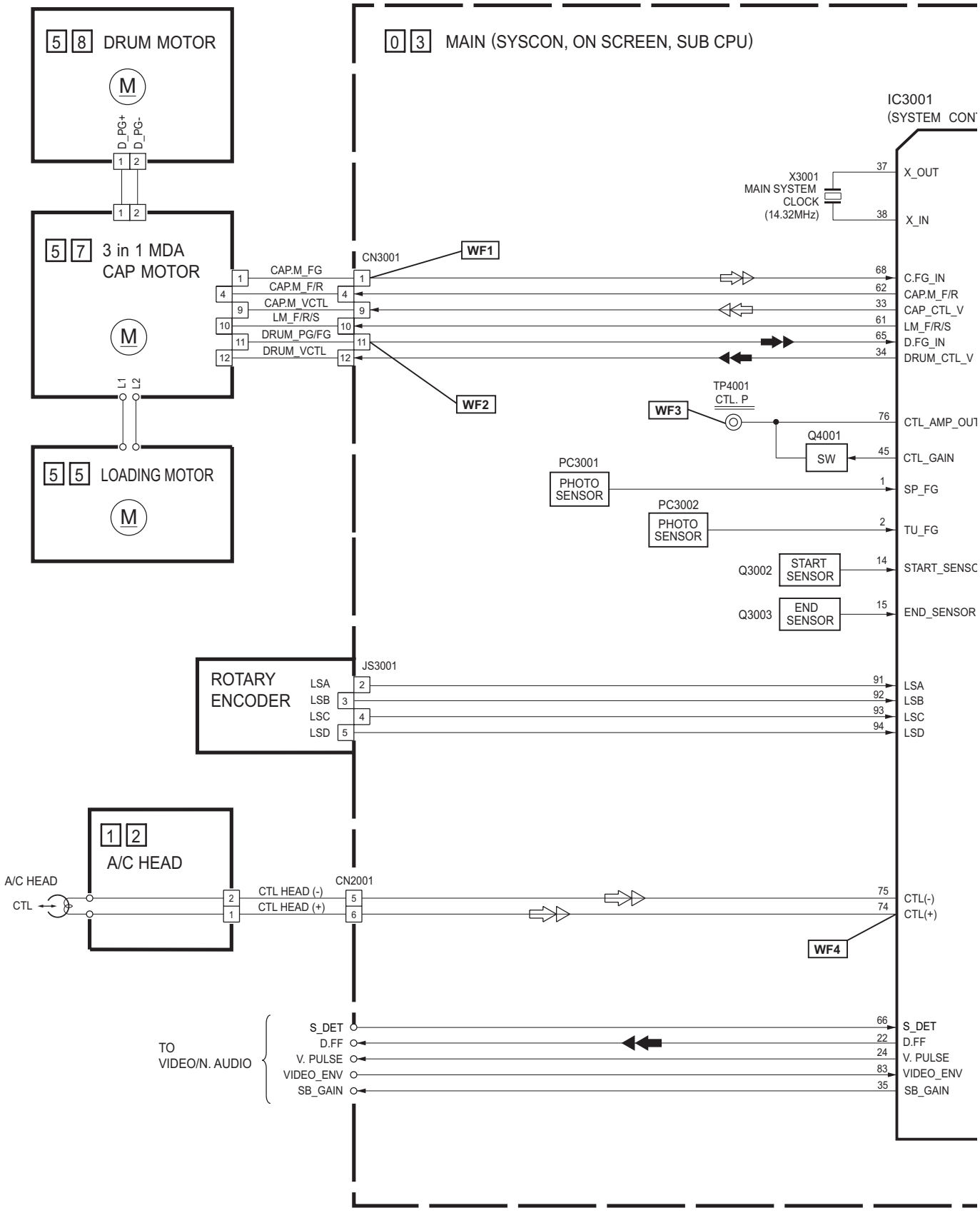

0 3 MAIN (VIDEO/N. AUDIO, TERMINAL)
IC1
(VIDEO & AUDIO
SIGNAL PROCESSOR)
TP106
PB. FM
TP111
D. FF
WF3
WF4
WF1
X2
NOT
USED
L7
FILTER
TO
SYSCON
D. FF
VIDEO_ENV
S_DET(H)
SB_GAIN
VIDEO
HEAD
CN1
SP CH2
SP CH1
LP/EP_CH2
LP/EP_CH1
3 6 SW/JACK
CN7103
CN7191
J7191
VIDEO_IN

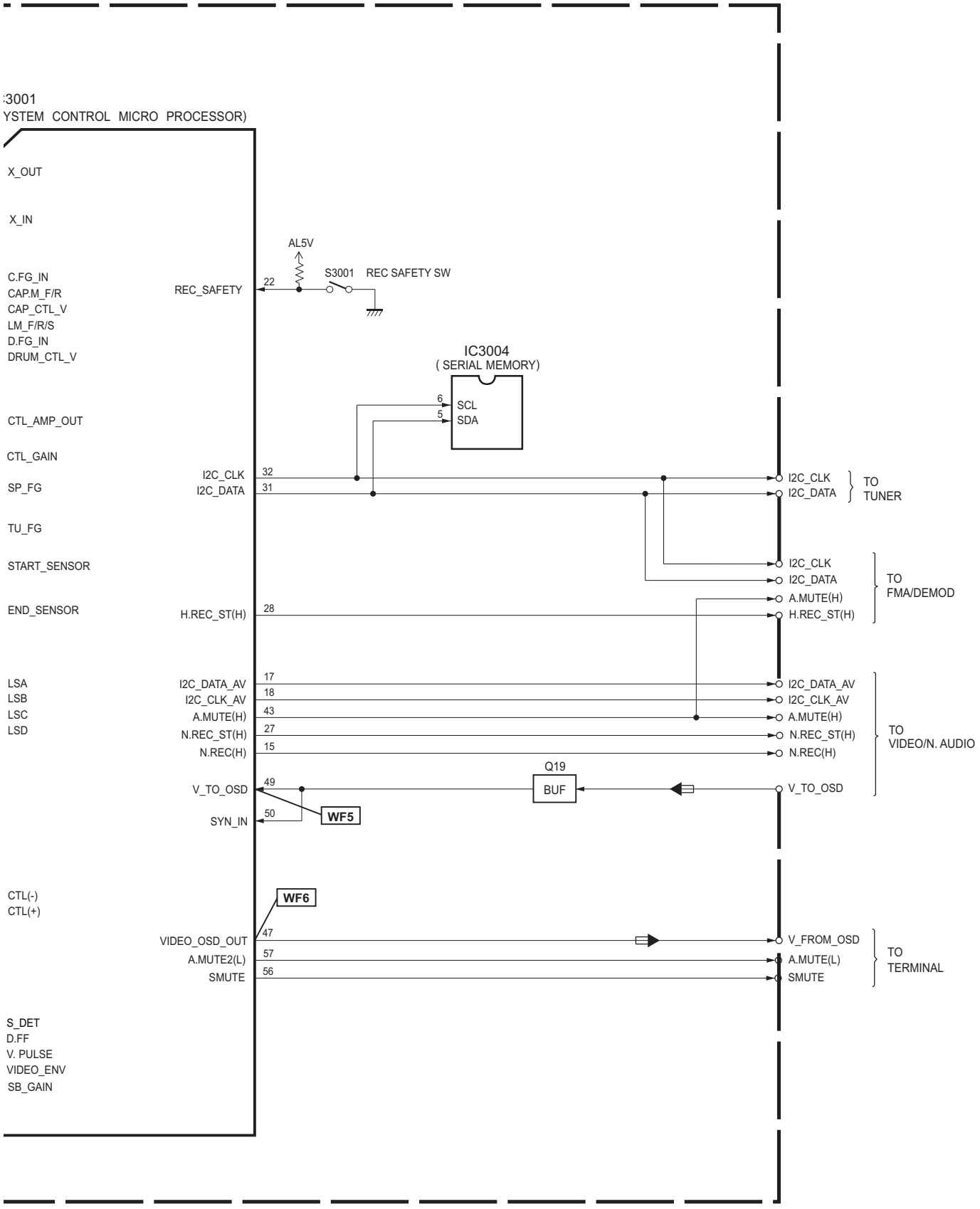
■ AUDIO BLOCK DIAGRAM



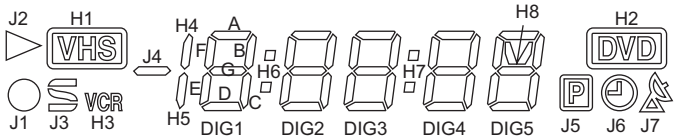

0 3 MAIN (VIDEO/N. AUDIO, FMA/DEMOD, TERMINAL, TUNER)
C2201
WF3
CH1
COM
CH2
22
21
24
CN1
7
8
9
AUDIO HEAD
FMA_CH1
FMA_CH2
TP2253
A.PB.FM
WF4
PB_FM_IN
30
TO
SYSCON
PRE_OUT
29
CLK
42
DATA
43
MUTE_CTL
36
fsc_IN
45
NORMAL_OUT
61
H.REC_ST(H)
I2C_CLK
I2C_DATA
A.MUTE(H)
Fsc
N.REC_ST(H)
N.REC(H)
Q2001
-Q2003
POWER
SW
POWER
SW
Q2052-Q2055
OSC
Q2051
TRANS
T2051
5
6
FULL ERASE HEAD
CN2002
2
1
F.ERASE
F5
WF6
NOT
USED
NOT
USED
SW5V
X2
69
67
1
2
3
4
63
79
A.MUTE
DET
SP ON
R
P
VCA
PRE AMP
94
95
FILTER
96
REC ON
97
EP(LP)ON
1 2
A/C HEAD
CN2001
3
4
2
1
4
3
5
6
A.ERASE
REC/PB
REC
EQ
98
FILTER
WF7
O/N.AUDIO SIGNAL PROCESSOR)

■ SYSTEM CONTROL BLOCK DIAGRAM




:3001
YSTEM CONTROL MICRO PROCESSOR)
X_OUT
X_IN
C.FG_IN
CAP.M_F/R
CAP_CTL_V
LM_F/R/S
D.FG_IN
DRUM_CTL_V
CTL_AMP_OUT
CTL_GAIN
SP_FG
TU_FG
START_SENSOR
END_SENSOR
LSA
LSB
LSC
LSD
CTL(-)
CTL(+)
S_DET
D.FF
V. PULSE
VIDEO_ENV
SB_GAIN
AL5V
S3001 REC SAFETY SW
REC_SAFETY
22
IC3004
(SERIAL MEMORY)
6
SCL
5
SDA
I2C_CLK
I2C_DATA
32
31
TO
TUNER
H.REC_ST(H)
28
A.MUTE(H)
TO
FMA/DEMOD
I2C_DATA_AV
I2C_CLK_AV
A.MUTE(H)
N.REC_ST(H)
N.REC(H)
17
18
43
27
15
TO
VIDEO/N. AUDIO
Q19
BUF
V_TO_OSD
49
SYN_IN
50
WF5
WF6
VIDEO_OSD_OUT
A.MUTE2(L)
SMUTE
47
57
56
V_FROM_OSD
A.MUTE(L)
TO
TERMINAL

■ FDP GRID ASSIGNMENT AND ANODE CONNECTION

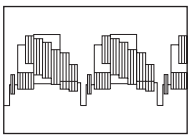


No.	CONNECTION
1	Cathode G, J7, H8
2	Cathode F, J6, H7
3	Cathode E, J5, H6
4	Cathode D, J4, H5,H4
5	Cathode C, J3, H3
6	Cathode B, J2, H2
7	Cathode A, J1, H1
8	Anode H1~H8
9	Anode J1~J7
10	Common Anode Digit5
11	Common Anode Digit4
12	Common Anode Digit3
13	Common Anode Digit2
14	Common Anode Digit1

■ WAVE FORMS

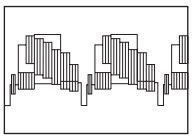
<VIDEO BLOCK DIAGRAM >

WF1 IC1-15



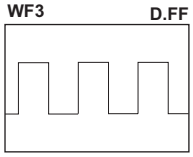
REC 1.3Vp-p
0.5V/20µsec/DIV

WF2 IC1-29



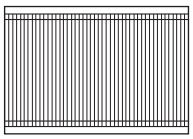
REC 2.9Vp-p / PB 2.2Vp-p
1.0V/20µsec/DIV

WF3 TP111 D.FF



REC/PB 3.4Vp-p
1.0V/10msec/DIV

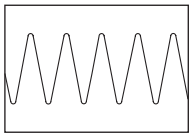
WF4 IC1-86



REC 1.6Vp-p
0.5V/20µsec/DIV

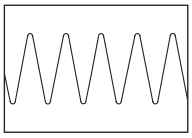
<AUDIO BLOCK DIAGRAM >

WF1 IC2201-14



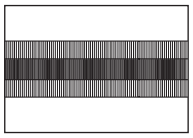
REC/PB 30mVp-p
10mV/2msec/DIV

WF2 IC2201-57



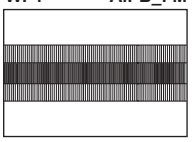
REC/PB 0.3Vp-p
0.1V/1.0msec/DIV

WF3 IC2201-21



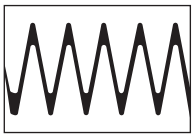
REC 1.0Vp-p
0.5V/0.5µsec/DIV

WF4 TP2253 A.PB_FM



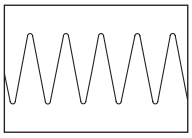
PB 0.6Vp-p
0.2V/5µsec/DIV

WF5 IC1-6



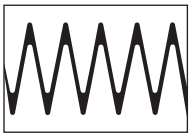
REC/PB 0.4Vp-p
0.2V/1.0ms/DIV

WF6 IC1-2



REC/PB 30mVp-p
10mV/1.0ms/DIV

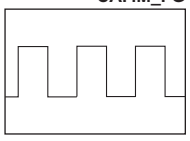
WF7 IC1-98



REC 0.6Vp-p
0.2V/1.0ms/DIV

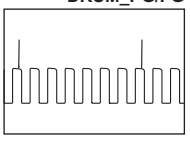
<SYSTEM CONTROL BLOCK DIAGRAM >

WF1 CN3001-1 CAP.M_FG



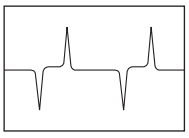
REC/PB 5.0Vp-p
2.0V/0.2msec/DIV

WF2 CN3001-11 DRUM_PG/FG



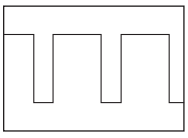
REC/PB 5.0Vp-p
2.0V/1msec/DIV

WF3 TP4001 CTL.P



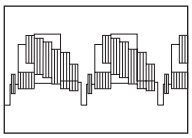
PB 4.0Vp-p
2.0V/10msec/DIV

WF4 IC3001-74



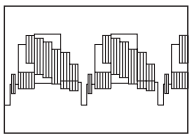
REC 4.0Vp-p
2.0V/10msec/DIV

WF5 IC3001-49



REC/PB 2.2Vp-p
1.0V/20µsec/DIV

WF6 IC3001-47



REC/PB 2.2Vp-p
1.0V/20µsec/DIV

JVC
Victor Company of Japan, Limited
AV & MULTIMEDIA COMPANY DIGITAL VIDEO STORAGE CATEGORY 12, 3-chome, Moriya-cho, kanagawa-ku, Yokohama, kanagawa-prefecture, 221-8528, Japan

(No.YD052)

Printed in Japan
VPT

PARTS LIST

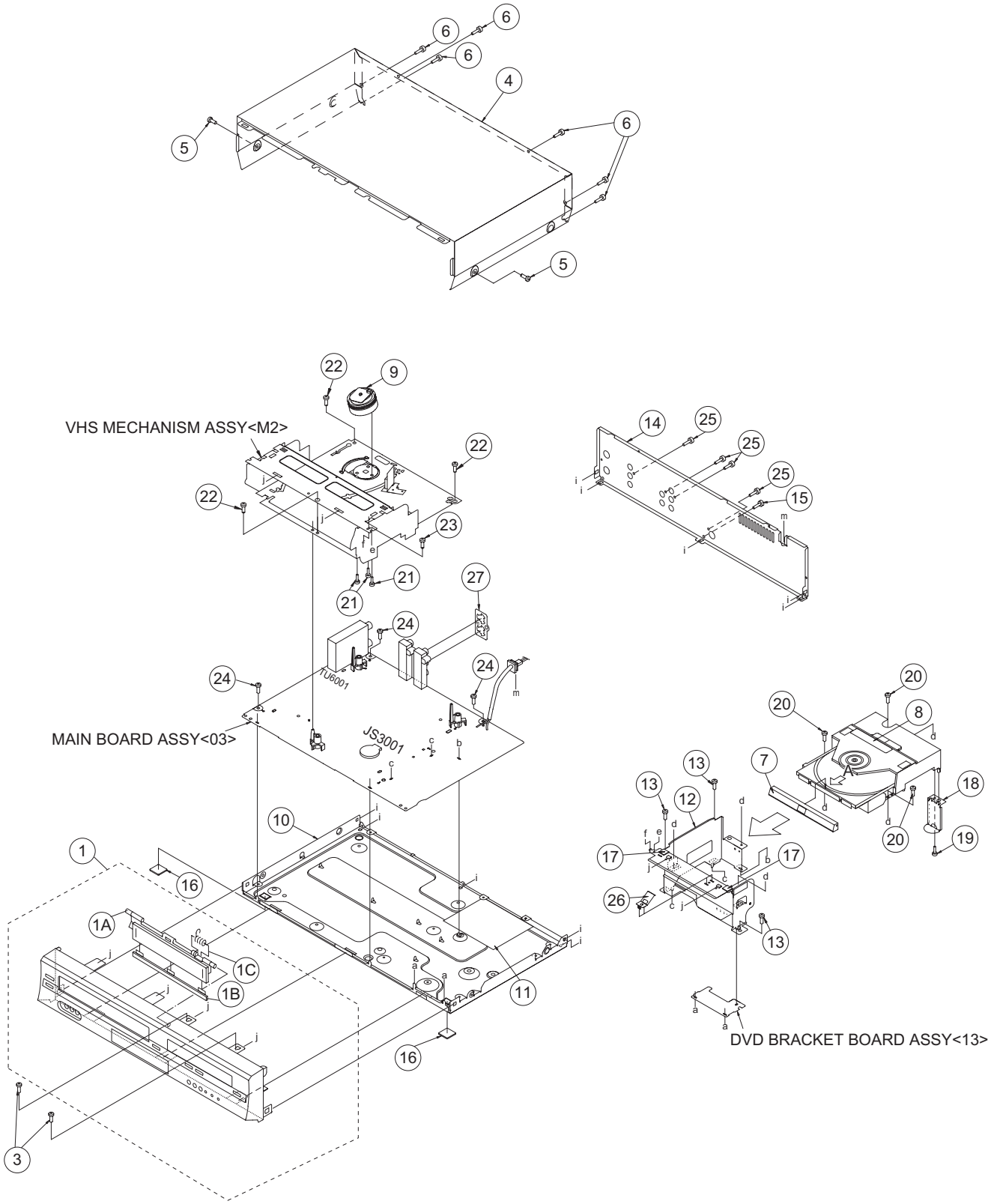
[HR-XVC28BUC,HR-XVC28BUS, HR-XVC29SUC,HR-XVC29SUS]

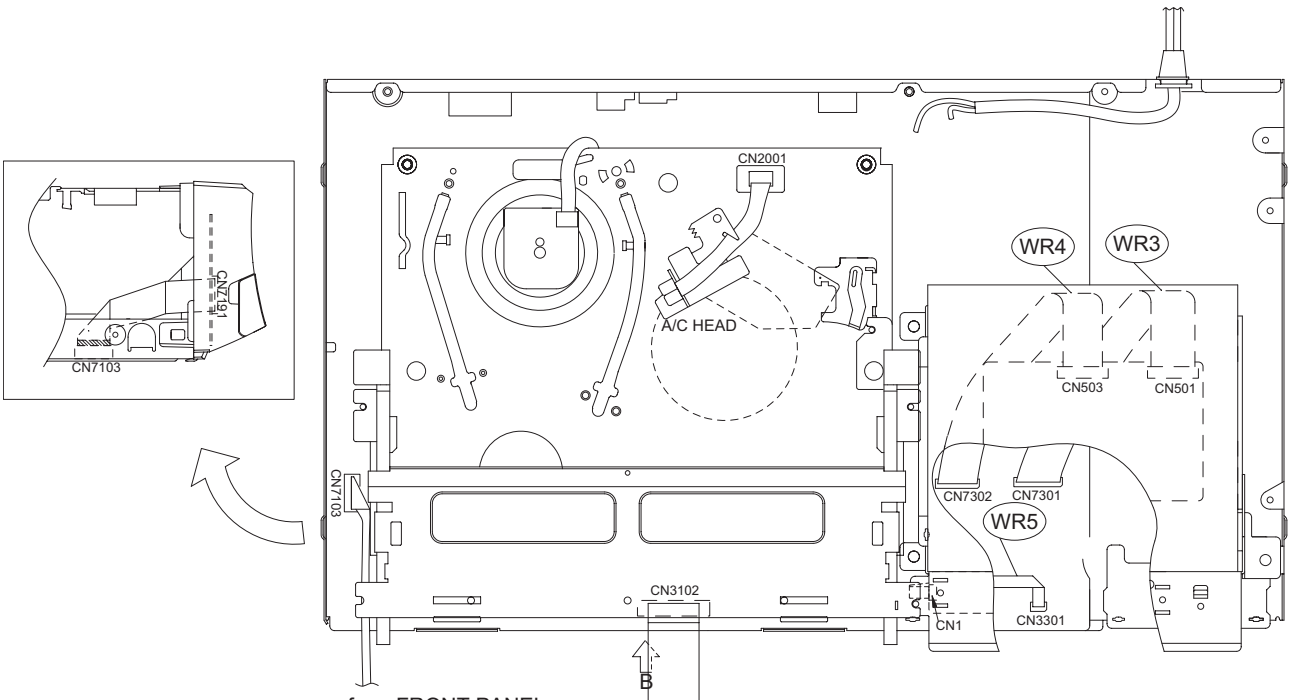
* SAFETY PRECAUTION
  Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.
* BEWARE OF BOGUS PARTS
  Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.
* (x_) in a description column shows the number of the used part.

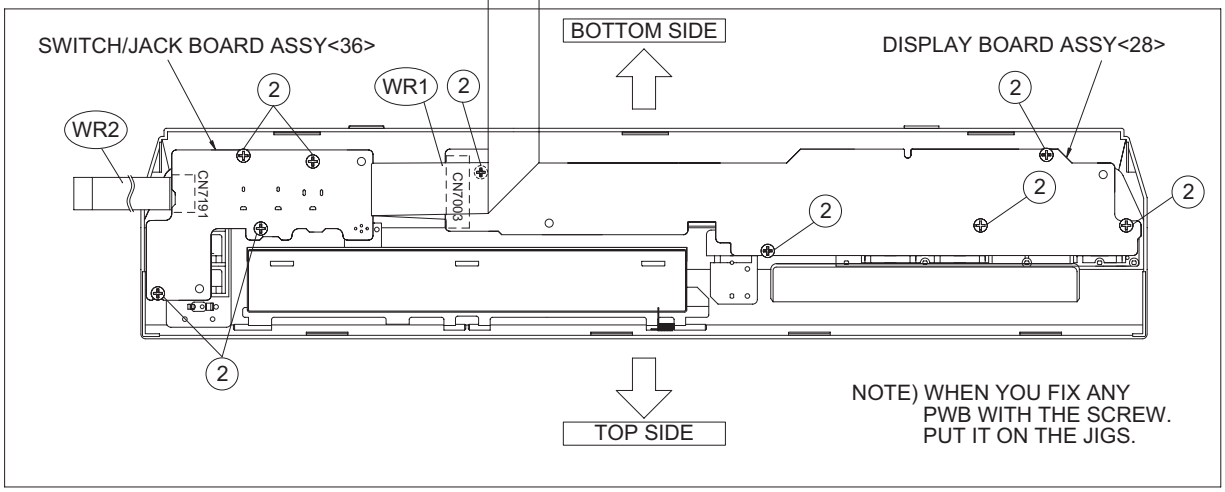
- Contents -

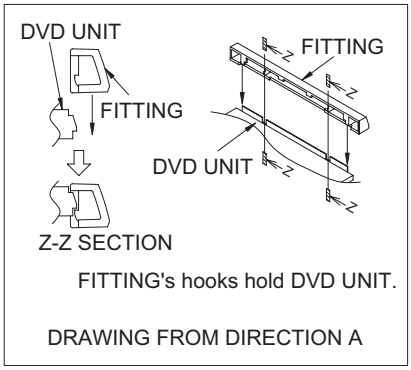
Exploded view of general assembly and parts list

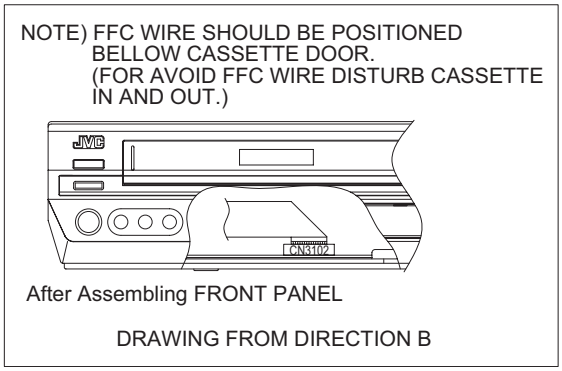
Block No. M1MM




CN7191
CN7103
CN2001
A/C HEAD
WR4
WR3
CN503
CN501
CN7302
CN7301
WR5
CN3102
CN1
CN3301
B
from FRONT PANEL
(JACK CN7191)


SWITCH/JACK BOARD ASSY<36>
BOTTOM SIDE
DISPLAY BOARD ASSY<28>
WR2
WR1
2
CN7191
CN7000
TOP SIDE
NOTE) WHEN YOU FIX ANY
PWB WITH THE SCREW.
PUT IT ON THE JIGS.


DVD UNIT
FITTING
FITTING
DVD UNIT
Z-Z SECTION
FITTING's hooks hold DVD UNIT.
DRAWING FROM DIRECTION A


NOTE) FFC WIRE SHOULD BE POSITIONED
BELLOW CASSETTE DOOR.
(FOR AVOID FFC WIRE DISTURB CASSETTE
IN AND OUT.)
JVC
CN3102
After Assembling FRONT PANEL
DRAWING FROM DIRECTION B

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

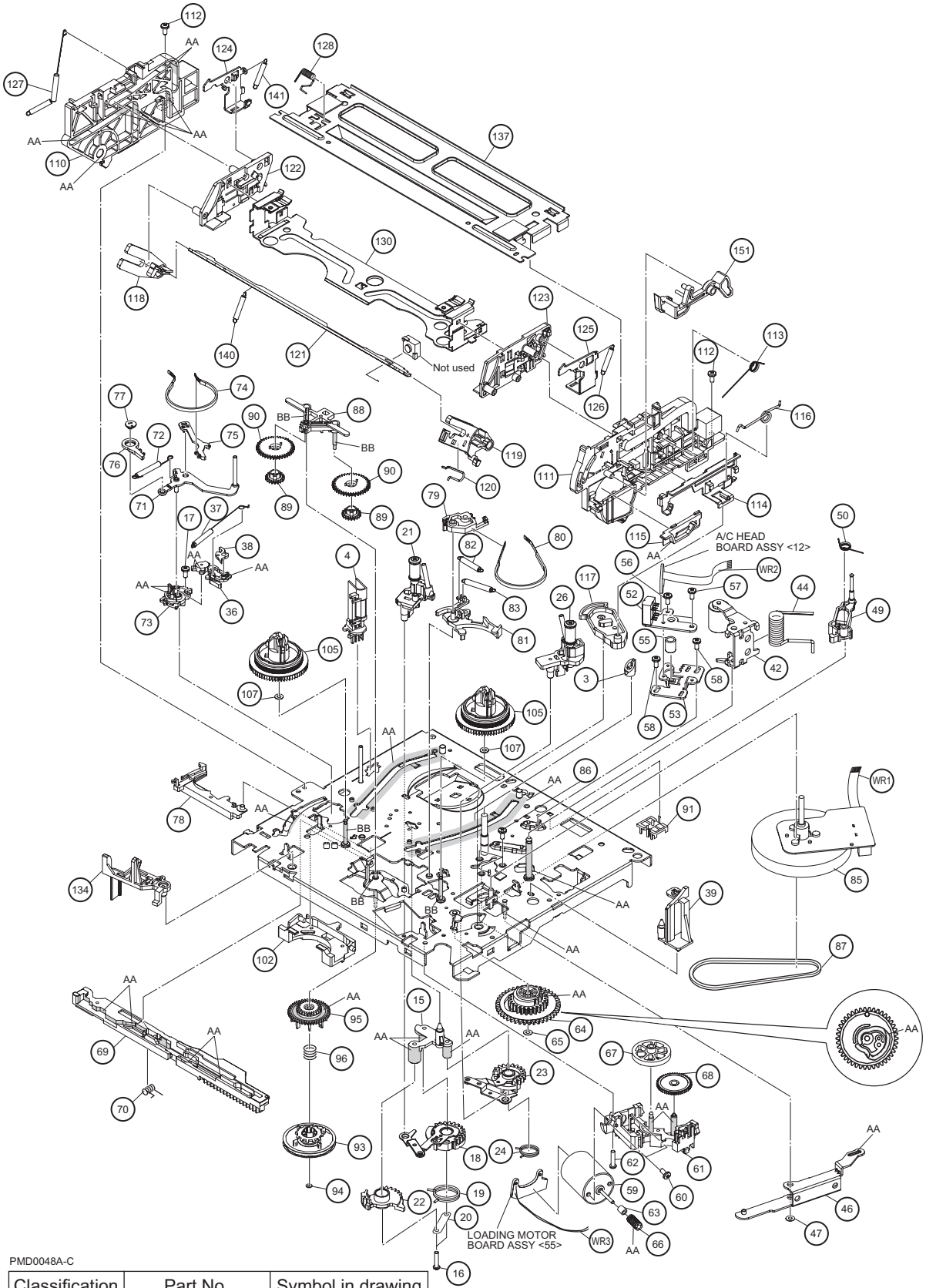
General assembly

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

⚠	Symbol No.	Part No.	Part Name	Description	Local
⚠	1	LP10492-021C	FRONT PANEL ASSY		A,B
⚠	1	LP10492-022C	FRONT PANEL ASSY		C,D
	1A	LP21188-005B	CASSETTE DOOR		A,B
	1A	LP21188-006B	CASSETTE DOOR		C,D
	1B	LP31269-007A	ORNAMENT(CASSETTE DOOR)		A,B
	1B	LP31269-008A	ORNAMENT(CASSETTE DOOR)		C,D
	1C	PQ46448	TORSION SPRING		
	2	QYTDSF2608ZA	TAP SCREW	M2.6 x 8mm DISPLAY SWITCH/JACK(x9)	
	3	LP31391-001A	SPECIAL SCREW	FRONT PANEL(x2)	
⚠	4	LP10488-004C	TOP COVER		A,B
⚠	4	LP10488-002C	TOP COVER		C,D
	5	QYSBSG3006MA	TAP SCREW	M3 x 6mm TOP SIDE(x2)	A,B
	5	QYSBSG3006NA	TAP SCREW	M3 x 6mm TOP SIDE(x2)	C,D
	6	QYSBSG3006MA	TAP SCREW	M3 x 6mm TOP REAR(x6)	A,B
	6	QYSBSG3006NA	TAP SCREW	M3 x 6mm TOP REAR(x6)	C,D
	7	LP21190-004A	FITTING		A,B
	7	LP21190-005A	FITTING		C,D
⚠	8	LP41077-002A	LABEL(CAUTION)		
	9	PDV2531D	DRUM FINAL ASSY		
⚠	10	LP10489-001B	BOTTOM CHASSIS		
⚠	11	LP30002-0F1A	SPACER		
	12	LP21177-001B	BRACKET(DVD)		
	13	LP31391-001A	SPECIAL SCREW	BRACKET(DVD)(x3)	
⚠	14	LP21178-023A	REAR COVER		
	15	QYSBSG3006MA	TAP SCREW	M3 x 6mm REAR COVER	
	16	LP31348-001A	FOOT	(x2)	
	17	LP30002-0E5A	SPACER	(x2)	
	18	LP31392-001A	BRACKET		
	19	QYSDSF2608ZA	TAP SCREW	M2.6 x 8mm BRACKET	
	20	QYSBSG3010ZA	TAP SCREW	M3 x 10mm DVD UNIT(x3)	
	21	QYSPSPD3008ZA	SCREW	M3 x 8mm DRUM(x3)	
	22	LP31391-002A	SPECIAL SCREW	MECHANISM(x3)	
	23	LP31391-001A	SPECIAL SCREW	HOUSING	
	24	LP31391-001A	SPECIAL SCREW	MAIN(x3)	
	25	QYTDSF3008MA	TAP SCREW	M3 x 8mm JACK(x4)	
	26	PQ44695-1-1	EARTH PLATE		
	27	LP31345-001A	EARTH PLATE		
	WR1	QUQ112-2212CG-E	FFC WIRE	DISPLAY CN7003-MAIN CN3102	
	WR2	QUQ112-1010CG-E	FFC WIRE	SWITCH/JACK CN7191-MAIN CN7103	
	WR3	QUQ210-1916CC-E	FFC WIRE	DVD UNIT CN501-MAIN CN7301	
	WR4	QUQ210-1716CC-E	FFC WIRE	DVD UNIT CN503-MAIN CN7302	
	WR5	QUQ210-0510CC-E	FFC WIRE	DVD UNIT CN1-MAIN CN3301	

VHS mechanism assembly and parts list

Block No. M2MM



PMD0048A-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-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

VHS mechanism

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

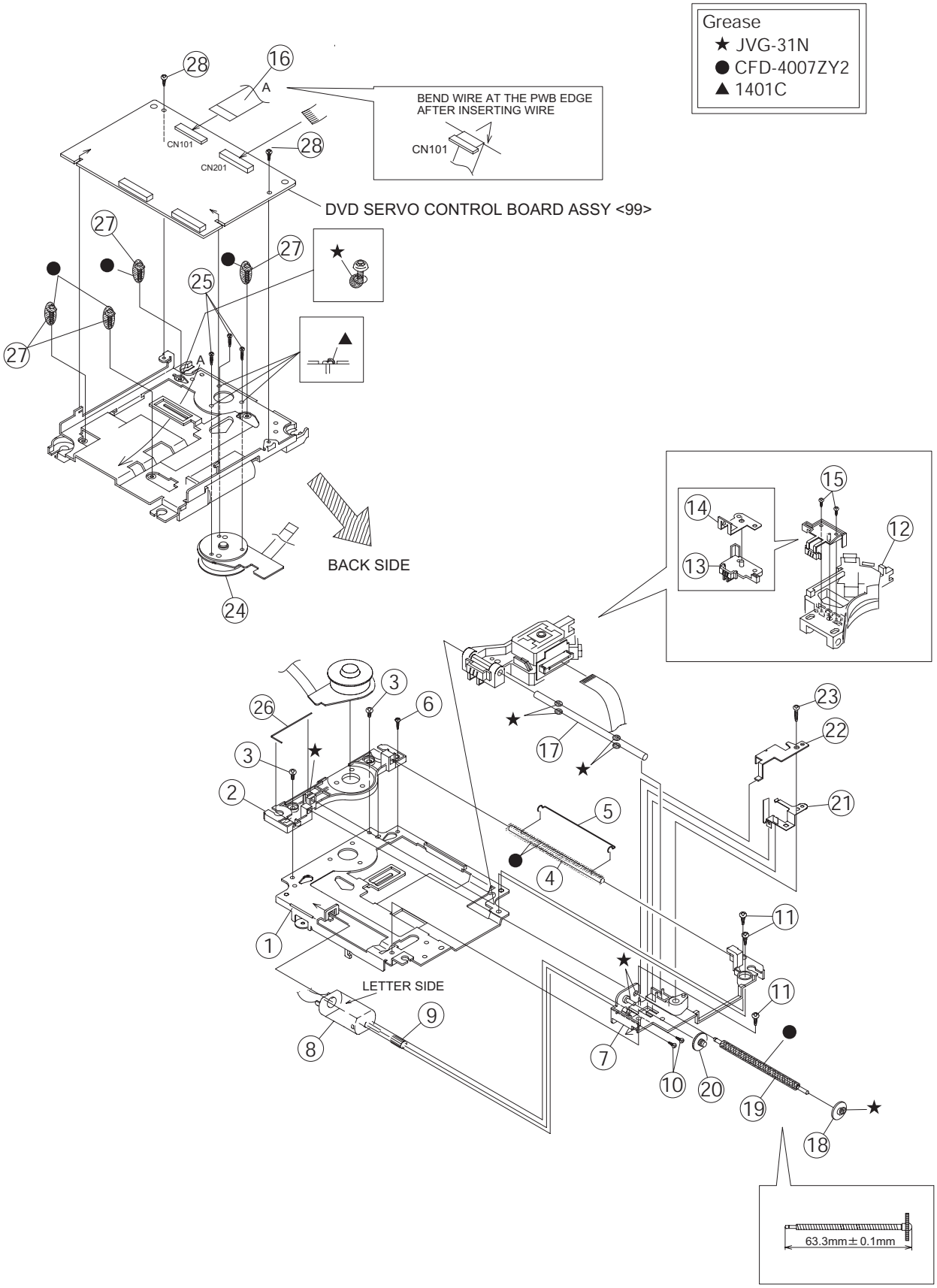
⚠ Symbol No.	Part No.	Part Name	Description	Local
3	LP40097-002E	GUIDE POLE CAP		
4	NAH0004-001	FULL ERASE HEAD		
15	LP30958-001B	LOADING GEAR BASE		
16	QYTPST2620ZA	TAP SCREW		M2.6 x 20mm(x2)
17	QYTDST2606ZA	TAP SCREW		M2.6 x 6mm
18	LP40798-002A	LOADING GEAR(SUPPLY) ASSY		
19	LP40837-001A	TORSION SPRING(SUPPLY)		
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	QAR0322-002	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	LP40829-003A	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-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	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		
127	LP40972-001A	EARTH SPRING(1)		
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-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

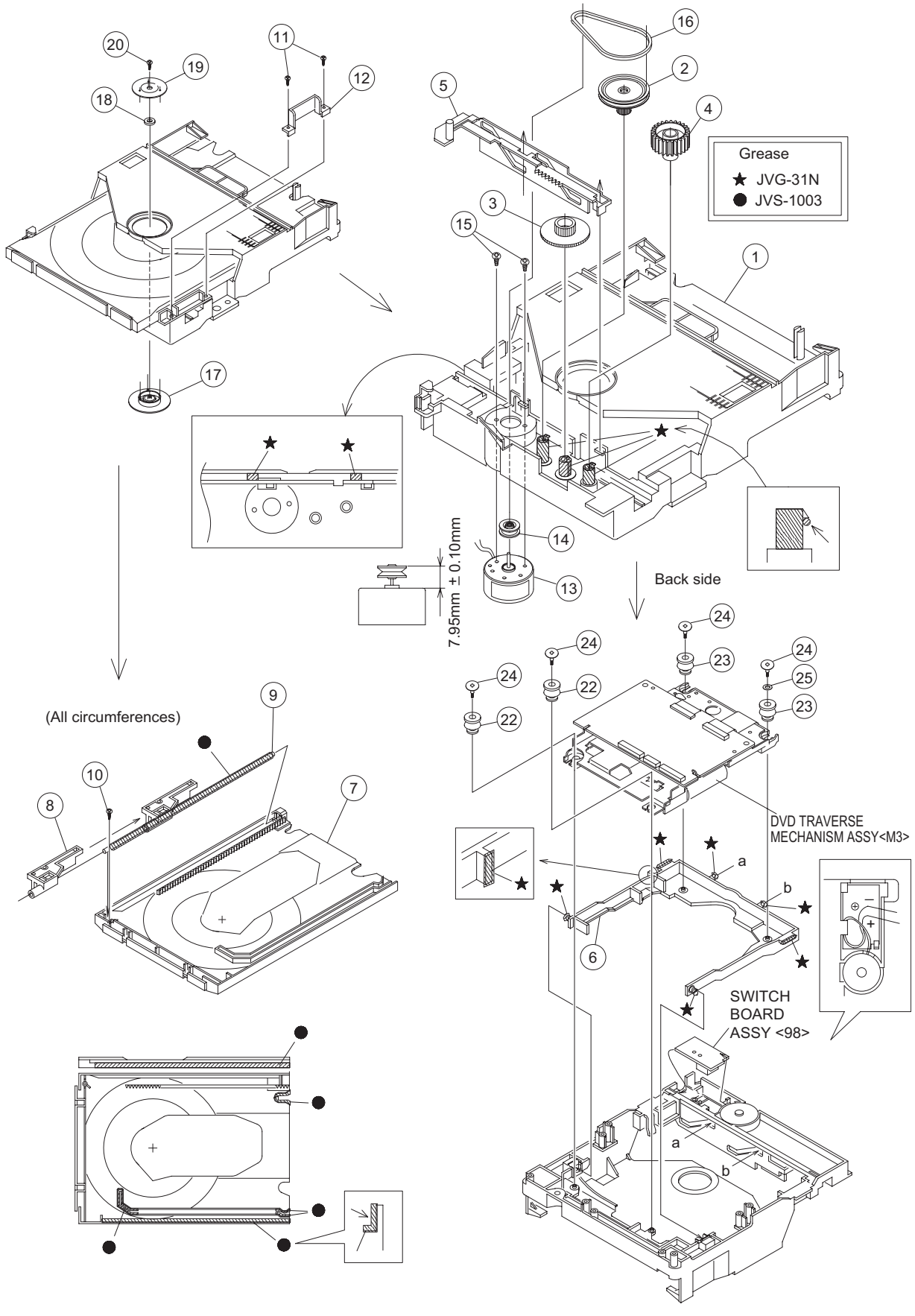
DVD Traverse mechanism

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

⚠ Symbol No.	Part No.	Part Name	Description	Local
1	LV21814-001A	MECHA BASE		
2	LE20731-002A	SPINDLE BASE		
3	QYSDST2605M	TAP SCREW		M2.6 x 5mm(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	QYSDST2605M	TAP SCREW		M2.6 x 5mm(x3)
12	QAL0577-001	P.UP		
13	LE20732-001A	SW ACTUATOR		
14	LE31093-001A	LEAD SPRING		
15	QYSPSFU1740Z	TAP SCREW		M1.7 x 4mm(x2)
16	QUQ105-2412AC	FFC WIRE		24pin 12cm
17	LE40931-001A	SHAFT		
18	LE40855-002A	FEED GEAR E		
19	LV41517-003A	LEAD SCREW		
20	LE40930-001A	FEED GEAR M		
21	LE40928-002A	THURUST SPRING		
22	LE40927-002A	PLATE		
23	QYSDST2614Z	TAP SCREW		M2.6 x 14mm
24	QAR0334-001	S.MOTOR		
25	QYSPSPU1760Z	SCREW		M1.7 x 6mm(x3)
26	LE40994-001A	T.SPRING		
27	LE40858-002A	SPECIAL SCREW		(x4)
28	QYSDST2004Z	TAP SCREW		M2 x 4mm(x2)

DVD Loading mechanism assembly and parts list

Block No. M4MM



MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

DVD Loading mechanism

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

⚠ Symbol No.	Part No.	Part Name	Description	Local
1	LE10275-006A	LOADING BASE		
2	LE31043-001A	PULLEY GEAR		
3	LE31042-001A	MIDDLE GEAR		
4	LE31044-001A	IDLE 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	QYSDSF2008Z	TAP SCREW		M2 x 8mm(x2)
12	LE40937-003A	LEAF SPRING		
13	QAR0197-001	MOTOR		
14	LV42087-002A	MOTOR PULLEY		
15	QYSPSPU1730Z	SCREW		FOR MOTOR(x2)
16	LE40897-001A	BELT		
17	LE31046-003A	CLAMPER		
18	LV42930-003A	P.C.MAGNET		
19	LE40899-001A	YOKE		
20	LE40906-001A	SPECIAL SCREW		
22	LE40900-003A	INSULATOR		REAR(x2)
23	LE40900-005A	INSULATOR		FRONT(x2)
24	LE40901-001A	SPECIAL SCREW		(x4)
25	QYWFM419025	WASHER		9mm/4.1mm x 0.25mm

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

Electrical parts list

Main board

Block No. [0][3]

⚠ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10280-01B	MAIN BOARD ASSY		
IC1	JCP8060-NVA	IC		
⚠ IC2201	AN3663FBP	IC		
IC3001	MN101D10GJJ	IC(MCU)		MASK
IC3004	LPN0956-001B-01	IC(EEPROM)	*(REFER TO BELOW)	
IC3301	LB1641	IC		
IC3302	SN74HCT08APW-X	IC		
IC5201	UTCTL431-T	IC		
IC5201 or	TL431/A/-T	IC		
IC5301	UTCTL431-T	IC		
IC5302	MM1565AF-X	IC		
IC7102	MM1507XN-X	IC		
IC7104	BH7868FS-X	IC		
IC7501	SN74AHCT08NS-X	IC		
IC7501 or	74VHCT08ASJ-X	IC		
IC8001	HA17558AF-X	IC		
IC8001 or	RC4558D-X	IC		
Q19	2SD601A/QRS/-X	TRANSISTOR		
Q19 or	2SC2412K/QRS/-X	TRANSISTOR		
Q19 or	2SC3928A/QRS/-X	TRANSISTOR		
Q2001	2SD601A/QRS/-X	TRANSISTOR		
Q2001 or	2SC2412K/QRS/-X	TRANSISTOR		
Q2001 or	2SC3928A/QRS/-X	TRANSISTOR		
Q2002	2SD601A/QRS/-X	TRANSISTOR		
Q2002 or	2SC2412K/QRS/-X	TRANSISTOR		
Q2002 or	2SC3928A/QRS/-X	TRANSISTOR		
Q2003	UN211E-X	DIGI TRANSISTOR		
Q2003 or	DTA144WKA-X	TRANSISTOR		
Q2003 or	RT1P44HC-X	DIGI TRANSISTOR		
Q2051	2SD601A/QRS/-X	TRANSISTOR		
Q2051 or	2SC2412K/QRS/-X	TRANSISTOR		
Q2051 or	2SC3928A/QRS/-X	TRANSISTOR		
Q2052	2SB709A/QR/-X	TRANSISTOR		
Q2052 or	2SA1037AK/QR/-X	TRANSISTOR		
Q2052 or	2SA1530A/QR/-X	TRANSISTOR		
Q2053	UN221E-X	TRANSTSTOR		
Q2053 or	DTC144WKA-X	DIGI TRANSISTOR		
Q2053 or	RT1N44HC-X	DIGI TRANSISTOR		
Q2054	2SB709A/QR/-X	TRANSISTOR		
Q2054 or	2SA1037AK/QR/-X	TRANSISTOR		
Q2054 or	2SA1530A/QR/-X	TRANSISTOR		
Q2055	UN221E-X	TRANSTSTOR		
Q2055 or	DTC144WKA-X	DIGI TRANSISTOR		
Q2055 or	RT1N44HC-X	DIGI TRANSISTOR		
Q2201	UN211E-X	DIGI TRANSISTOR		
Q2201 or	DTA144WKA-X	TRANSISTOR		
Q2201 or	RT1P44HC-X	DIGI TRANSISTOR		
Q2202	UN221E-X	TRANSTSTOR		
Q2202 or	DTC144WKA-X	DIGI TRANSISTOR		
Q2202 or	RT1N44HC-X	DIGI TRANSISTOR		
Q2203	2SD601A/QRS/-X	TRANSISTOR		
Q2203 or	2SC2412K/QRS/-X	TRANSISTOR		
Q2203 or	2SC3928A/QRS/-X	TRANSISTOR		
Q2204	2SD601A/QRS/-X	TRANSISTOR		
Q2204 or	2SC2412K/QRS/-X	TRANSISTOR		
Q2204 or	2SC3928A/QRS/-X	TRANSISTOR		
Q3002	PTZ-NV16A	IC(PHOTO SENSOR)		
Q3006	2SC2412K/QRS/-X	TRANSISTOR		
Q3006 or	2SD601A/QRS/-X	TRANSISTOR		
Q3006 or	2SC3928A/QRS/-X	TRANSISTOR		
Q3007	2SC2412K/QRS/-X	TRANSISTOR		
Q3007 or	2SD601A/QRS/-X	TRANSISTOR		
Q3007 or	2SC3928A/QRS/-X	TRANSISTOR		
Q4001	UN2211-X	TRANSISTOR		
Q4001 or	DTC114EKA-X	DIGI TRANSISTOR		
Q4001 or	RT1N141C-X	DIGI TRANSISTOR		
Q4002	2SD601A/QRS/-X	TRANSISTOR		
Q4002 or	2SC2412K/QRS/-X	TRANSISTOR		
Q4002 or	2SC3928A/QRS/-X	TRANSISTOR		
Q5101	2SK2043-CB14	FET		
Q5102	2SC3576-JVC-T	TRANSISTOR		
Q5103	2SA1530A/QR/-X	TRANSISTOR		
Q5103 or	2SB709A/QR/-X	TRANSISTOR		
Q5103 or	2SA1037AK/QR/-X	TRANSISTOR		
Q5306	2SD1302/ST/-T	TRANSISTOR		
Q5307	UN211E-X	DIGI TRANSISTOR		
Q5307 or	DTA144WKA-X	TRANSISTOR		
Q5307 or	RT1P44HC-X	DIGI TRANSISTOR		
Q5309	UN2211-X	TRANSISTOR		
Q5309 or	DTC114EKA-X	DIGI TRANSISTOR		
Q5309 or	RT1N141C-X	DIGI TRANSISTOR		
Q5310	2SD1858/QR/-T	TRANSISTOR		
Q5311	2SC5739/QP/	TRANSISTOR		
Q5315	2SD1858/QR/-T	TRANSISTOR		
Q6030	2SB709A/QR/-X	TRANSISTOR		
Q6030 or	2SA1037AK/QR/-X	TRANSISTOR		
Q6030 or	2SA1530A/QR/-X	TRANSISTOR		
Q7113	2SA1037AK/QR/-X	TRANSISTOR		
Q7113 or	2SB709A/QR/-X	TRANSISTOR		
Q7113 or	2SA1530A/QR/-X	TRANSISTOR		
Q8001	2SD601A/QRS/-X	TRANSISTOR		
Q8001 or	2SC2412K/QRS/-X	TRANSISTOR		
Q8001 or	2SC3928A/QRS/-X	TRANSISTOR		
Q8002	2SD601A/QRS/-X	TRANSISTOR		
Q8002 or	2SC2412K/QRS/-X	TRANSISTOR		
Q8002 or	2SC3928A/QRS/-X	TRANSISTOR		
Q8052	2SD601A/QRS/-X	TRANSISTOR		
Q8052 or	2SC2412K/QRS/-X	TRANSISTOR		
Q8052 or	2SC3928A/QRS/-X	TRANSISTOR		
Q8053	UN2111-X	TRANSISTOR		
Q8053 or	DTA114EKA-X	DIGI TRANSISTOR		
Q8053 or	RT1P141C-X	DIGI TRANSISTOR		
D2001	1SS133-T2	SI DIODE		
D2001 or	1SS270A-T2	SI DIODE		
D2251	1SS133-T2	SI DIODE		
D2251 or	1SS270A-T2	SI DIODE		
D3001	LNB2301L01VI	LED		
D3002	1SS133-T2	SI DIODE		
D3002 or	1SS270A-T2	SI DIODE		
D3004	10EDB20-T2	SI DIODE		
D3005	10EDB20-T2	SI DIODE		
D3016	MTZJ3.9B-T2	Z DIODE		
D3301	MTZJ5.1B-T2	Z DIODE		
D5001	S1WB/A/60-X	BRIDGE DIODE		
D5001 or	S1WB/A/60-7102	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		
D5208	AW04-T2	SB DIODE		
D5209	AU01Z-T2	FR DIODE		
D5209 or	10ERB20-T2	FR DIODE		
D5212	RK14-LFB2	SB DIODE		
D5213	AU01Z-T2	FR DIODE		
D5213 or	10ERB20-T2	FR DIODE		
D5301	MTZJ15C-T2	Z DIODE		
D5305	MTZJ11C-T2	Z DIODE		
D5306	MTZJ5.6C-T2	Z DIODE		
D5310	MTZJ10B-T2	Z DIODE		
D6002	HZ30-2L-T2	Z DIODE		
D8001	1SS133-T2	SI DIODE		
D8001 or	1SS270A-T2	SI DIODE		
PC3001	RPI-304J	IC(PHOTO SENSOR)		
PC3002	RPI-304J	IC(PHOTO SENSOR)		
⚠ PC5101	PC123Y22FZ	PHOTO COUPLER		
C1	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
C2	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C4	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	

*The VCR goes to jig RCU mode after replacing the EEPROM and the VCR does not accept some RCU command.
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-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
C5	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C6	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C7	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C8	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C9	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
C11	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C12	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C14	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C15	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C17	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C19	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C20	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C22	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C24	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C25	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
C26	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C27	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C30	NCB31HK-331X	C CAPACITOR	330pF 50V K	
C31	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C33	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C34	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C35	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C36	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C37	NDC31HJ-4R0X	C CAPACITOR	4pF 50V J	
C40	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C41	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C43	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
C44	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
C45	NCB31EK-472X	C CAPACITOR	4700pF 25V K	
C46	NCB31CK-333X	C CAPACITOR	0.033uF 16V K	
C47	QEKJ1HM-474Z	E CAPACITOR	0.47uF 50V M	
C48	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C49	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C56	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C57	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C58	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C59	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C60	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C77	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C78	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C201	QERF0JM-476Z	E CAPACITOR	47uF 6.3V M	
C202	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C203	QERF1HM-105Z	E CAPACITOR	1uF 50V M	
C205	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C207	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C215	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C216	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C2001	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2002	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C2005	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2006	NCB31EK-682X	C CAPACITOR	6800pF 25V K	
C2007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C2008	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2009	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C2010	NCB31HK-681X	C CAPACITOR	680pF 50V K	
C2011	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2012	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2051	NCB31HK-331X	C CAPACITOR	330pF 50V K	
C2052	QFV61HJ-823Z	MF CAPACITOR	0.082uF 50V J	
C2053	NCB31HK-472X	C CAPACITOR	4700pF 50V K	
C2054	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2055	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2201	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2202	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2203	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C2204	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M	
C2205	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2206	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2207	NCB31EK-153X	C CAPACITOR	0.015uF 25V K	
C2208	NCB31EK-153X	C CAPACITOR	0.015uF 25V K	
C2209	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2210	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2211	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M	
C2212	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C2214	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2215	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2218	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2219	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C2220	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2221	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2222	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2234	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C2235	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C2251	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C2252	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C2253	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C2254	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C2255	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2256	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C2257	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C2259	QEKJ1HM-334Z	E CAPACITOR	0.33uF 50V M	
C3011	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C3016	NDC31HJ-180X	C CAPACITOR	18pF 50V J	
C3017	NDC31HJ-270X	C CAPACITOR	27pF 50V J	
C3028	QETN0JM-108Z	E CAPACITOR	1000uF 6.3V M	
C3029	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C3030	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C3035	NCB31CK-223X	C CAPACITOR	0.022uF 16V K	
C3036	QERF0JM-107Z	E CAPACITOR	100uF 6.3V M	
C3047	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3048	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3049	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3052	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3053	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3071	QETN1HM-336Z	E CAPACITOR	33uF 50V M	
C3301	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C3302	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3303	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C4001	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C4002	QERF1HM-105Z	E CAPACITOR	1uF 50V M	
C4004	QERF1AM-336Z	E CAPACITOR	33uF 10V M	
C4006	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
C4007	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C4009	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C4010	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
C4011	NCF31CZ-224X	C CAPACITOR	0.22uF 16V Z	
C4014	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C4019	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
⚠ 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	QCZ9071-472	C CAPACITOR	4700pF AC400V M	
C5006	QETM2DM-157	E CAPACITOR	150uF 200V M	
C5101	QCZ0353-101Z	C CAPACITOR	100pF 1kV K	
C5102	QCZ0136-102Z	C CAPACITOR	1000pF 1kV K	
C5104	QETN1HM-105Z	E CAPACITOR	1uF 50V M	
C5106	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C5108	NCB31HK-104X	C CAPACITOR	0.1uF 50V K	
C5109	NCB31HK-183X	C CAPACITOR	0.018uF 50V K	
C5202	QEZ0564-128	E CAPACITOR	1200uF 10V M	
C5204	QEZ0564-128	E CAPACITOR	1200uF 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	
C5214	NCB31AK-154X	C CAPACITOR	0.15uF 10V K	
C5301	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5303	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	
C5304	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C5305	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5306	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C5307	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C5308	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C5309	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5310	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C5314	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C6013	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C6021	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
C6053	NDC31HJ-120X	C CAPACITOR	12pF 50V J	
C6054	NDC31HJ-100X	C CAPACITOR	10pF 50V J	
C6501	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C6502	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C6503	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C6504	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C6505	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
C6508	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C6509	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C6511	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C6512	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C6513	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
C6514	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C6515	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
C6516	QEKJ1EM-475Z	E CAPACITOR	4.7uF 25V M	
C6517	NCB31AK-224X	C CAPACITOR	0.22uF 10V K	
C6532	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C7114	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C7117	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C7118	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C7119	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C7129	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C7131	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C7132	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C7133	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C7134	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C7135	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C7136	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C7146	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C7148	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C7150	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C7502	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C7503	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C7504	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
C7506	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C7507	QEKJ0JM-107Z	E CAPACITOR	100uF 6.3V M	
C7508	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C8001	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C8002	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C8003	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C8004	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C8005	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C8006	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C8007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C8008	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C8052	QEKJ0JM-107Z	E CAPACITOR	100uF 6.3V M	
R1	NRSA63J-622X	MG RESISTOR	6.2kΩ 1/16W J	
R2	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J	
R3	NRSA63J-822X	MG RESISTOR	8.2kΩ 1/16W J	
R11	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R12	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R36	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R37	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R40	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R41	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R201	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R202	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R2007	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R2010	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R2013	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R2014	NRSA63J-394X	MG RESISTOR	390kΩ 1/16W J	
R2015	NRSA63J-271X	MG RESISTOR	270Ω 1/16W J	
R2016	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
R2017	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	
R2018	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2019	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2021	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
R2022	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2023	QRE141J-103Y	C RESISTOR	10kΩ 1/4W J	
R2024	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2053	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R2054	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R2055	NRSA63J-3R3X	MG RESISTOR	3.3Ω 1/16W J	
R2056	QRE141J-820Y	C RESISTOR	82Ω 1/4W J	
R2057	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R2058	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R2059	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R2060	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R2201	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R2202	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	
R2205	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R2206	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	
R2209	QRE141J-101Y	C RESISTOR	100Ω 1/4W J	
R2210	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	

⚠ Symbol No.	Part No.	Part Name	Description	Local
R2211	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R2212	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R2213	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2214	QRE141J-101Y	C RESISTOR	100Ω 1/4W J	
R2216	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R2218	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R2219	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2220	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2221	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R2222	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R2223	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R2224	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R2230	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R2231	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R2251	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2252	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R2255	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	
R2257	NRSA63J-684X	MG RESISTOR	680kΩ 1/16W J	
R3003	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3005	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3006	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3007	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3008	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3009	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3010	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3011	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3014	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R3015	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3016	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3017	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3018	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3021	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R3031	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R3032	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R3035	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R3060	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R3087	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3091	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3092	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3093	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3094	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3095	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3096	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3097	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3098	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3099	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3100	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3201	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3202	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J	
R3205	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3206	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3207	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3208	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3209	QRE141J-181Y	C RESISTOR	180Ω 1/4W J	
R3211	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R3212	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J	
R3213	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R3214	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J	
R3215	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R3216	NRSA63J-474X	MG RESISTOR	470kΩ 1/16W J	
R3217	NRSA63J-334X	MG RESISTOR	330kΩ 1/16W J	
R3219	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3220	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R3222	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R3223	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J	
R3224	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R3226	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3227	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3236	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R3237	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3238	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3242	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3243	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	
R3244	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R3245	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	
R3253	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3301	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R3302	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
R3303	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R3304	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3305	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3306	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3307	QRE141J-4R7Y	C RESISTOR	4.7Ω 1/4W J	
R3308	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3309	NRSA63J-271X	MG RESISTOR	270Ω 1/16W J	
R3310	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R3311	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R4001	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R4002	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R4010	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R4011	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R4012	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	
R4018	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R4019	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R4022	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
⚠ R5001	QRZ9046-475Z	C RESISTOR	4.7MΩ 1/2W K	
R5101	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	
R5102	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	
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-152X	MG RESISTOR	1.5kΩ 1/16W J	
R5109	NRSA63J-681X	MG RESISTOR	680Ω 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	
R5311	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R5312	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R5313	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R5316	QRE141J-181Y	C RESISTOR	180Ω 1/4W J	
R5317	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R5319	NRSA63J-560X	MG RESISTOR	56Ω 1/16W J	
R5320	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J	
R5321	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R5325	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R6020	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R6021	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R6030	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R6031	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R6050	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R6051	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J	
R6054	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R6055	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R6502	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R7134	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J	
R7135	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7137	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7164	QRE141J-750Y	C RESISTOR	75Ω 1/4W J	
R7165	QRE141J-750Y	C RESISTOR	75Ω 1/4W J	
R7166	QRE141J-750Y	C RESISTOR	75Ω 1/4W J	
R7173	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R7174	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7175	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R7176	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7177	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R7179	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R7183	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J	
R7184	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7501	NRSA02J-100X	MG RESISTOR	10Ω 1/10W J	
R7502	NRSA63J-301X	MG RESISTOR	300Ω 1/16W J	
R7503	NRSA63J-301X	MG RESISTOR	300Ω 1/16W J	
R7504	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J	
R7506	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J	
R8001	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R8002	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R8003	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R8004	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R8005	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R8006	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R8007	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R8008	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R8009	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R8010	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R8013	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	
R8014	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	
R8015	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R8016	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R8017	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R8018	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R8052	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R8053	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R8054	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R8055	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
L5	QQL29BJ-100Z	P COIL	10uH J	
L7	QQL071J-120Y	COIL	12uH J	
L10	QQL29BJ-100Z	P COIL	10uH J	
L203	QQL231J-4R7Y	COIL	4.7uH J	
L2251	QQL29BJ-100Z	P COIL	10uH J	
L4001	QQL29BJ-100Z	P COIL	10uH J	
L5201	QQR1287-001	CHOKE COIL		
L5202	QQR1287-001	CHOKE COIL		
L5203	QQR1287-001	CHOKE COIL		
L5303	QQL231J-220Y	COIL	22uH J	
L7101	QQL29BJ-100Z	P COIL	10uH J	
L7103	QQL29BJ-100Z	P COIL	10uH J	
L7501	QQL231K-1R0Y	COIL	1uH K	
L7502	QQL29BK-1R0Z	P COIL	1uH K	
T2051	QQR1309-001	BIAS COIL		
⚠ T5001	QQS0219-001	SW TRANSF		
B4	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B10	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B3003	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B5301	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B5303	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B5393	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B6020	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B7501	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
B7502	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
⚠ CD1	QMPD530-172-JD	POWER CORD(US/CA)	1.72m BLACK	
CN1	QGF1201C2-09	CONNECTOR	FFC/FPC (1-9)	
CN2001	QGF1207C1-06	CONNECTOR	FFC/FPC (1-6)	
CN2002	QGB2532J1-02	CONNECTOR	B-B (1-2)	
CN3001	QGB2032M4-12	CONNECTOR	B-B (1-12)	
CN3102	QGF1207C1-22	CONNECTOR	FFC/FPC (1-22)	
CN3301	QGF1016C3-05	CONNECTOR	FFC/FPC (1-5)	
CN7103	QGF1207C1-10	CONNECTOR	FFC/FPC (1-10)	
CN7301	QGF1016C3-19	CONNECTOR	FFC/FPC (1-19)	
CN7302	QGF1016C3-17	CONNECTOR	FFC/FPC (1-17)	
⚠ CP3001	QMFZ053-1R5Z-J1	FUSE	1.5A	
⚠ CP3101	QMFZ053-1R5Z-J1	FUSE	1.5A	
⚠ CP4001	QMFZ053-1R5Z-J1	FUSE	1.5A	
⚠ CP5301	QMFZ054-1R5X-J1	FUSE	1.5A	
⚠ CP5302	QMFZ054-1R5X-J1	FUSE	1.5A	
⚠ F5001	QMF51N2-1R25-J5	FUSE	1.25A AC250V	
FC5001	QNG0006-001Z	FUSE CLIP		
FC5002	QNG0006-001Z	FUSE CLIP		
HS1	LP40090-001A	HEAT SINK	Q5101	
J7002	QNN0586-001	PIN JACK	AUDIO/VIDEO OUTPUT	
J7004	QNN0588-001	PIN JACK	DVD OUTPUT	
J7005	QNN0587-002	PIN JACK	COMPONENT VIDEO OUT	
J7009	QNN0347-001	SURROUND JACK	COAX OUT	
JS3001	NSW0238-001	ROTARY ENCODER		
K5101	QQR0621-001Z	FERRITE BEADS		
⚠ LF5002	QQR1515-001	LINE FILTER		
OT1	LP31158-001A	BOSS(MECHA) 1		
OT2	LP31185-001A	BOSS(MECHA) 2	(x2)	
OT3	QYTDST3006ZA	TAP SCREW	M3 x 6mm Q5101	
S3001	QSW0602-004	PUSH SWITCH	REC.SAFETY	
SD1	LP31179-001A	SHILD PLATE(PRE/REC)		
TU6001	QAU0336-003	TUNER		
⚠ VA5001	QAF0023-431Z	VARISTOR	430V	
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	

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
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	
W23	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W25	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W30	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W31	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W32	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W33	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W34	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W36	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	
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	
W45	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W47	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	
X2	QAX0739-001	CRYSTAL	3.57MHz	
X3001	QAX0526-001	CRYSTAL	14.31818MHz	

A/C head board

Block No. [1][2]

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

DVD bracket board

Block No. [1][3]

⚠ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-03A3	DVD BRACKET BOARD ASSY		

Display board

Block No. [2][8]

⚠ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-03A1	DISPLAY 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		
C7011	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
R7001	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7002	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7003	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7004	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7005	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7006	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R7007	NRSA63J-221X	MG RESISTOR	220Ω 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	
R7036	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7037	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
R7040	NRSA63J-0R0X	MG RESISTOR	0Ω 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	PROGRESSIVE SCAN	
S7003	QSW1061-001Z	TACT SWITCH	CH+	
S7004	QSW1061-001Z	TACT SWITCH	FF	
S7005	QSW1061-001Z	TACT SWITCH	REW	
S7006	QSW1061-001Z	TACT SWITCH	REC	
S7010	QSW1061-001Z	TACT SWITCH	CH-	
S7011	QSW1061-001Z	TACT SWITCH	PLAY	
S7012	QSW1061-001Z	TACT SWITCH	STOP	
S7013	QSW1061-001Z	TACT SWITCH	VCR/DVD	

Switch/jack board

Block No. [3][6]

⚠ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-03A2	SWITCH/JACK BOARD ASSY		
R7025	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7191	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J	
CN7191	QGF1201F2-10	CONNECTOR	FFC/FPC (1-10)	
J7191	QNN0673-001	PIN JACK	FRONT VIDEO AUDIO IN	
S7014	QSW1061-001Z	TACT SWITCH	POWER	
S7015	QSW1061-001Z	TACT SWITCH	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		

DVD servo control board

Block No. [9][9]

⚠ Symbol No.	Part No.	Part Name	Description	Local
IC201	LA6502-X	IC		
IC301	MN2DS0003AA-H	IC		
IC302	LM1117MP-ADJ-X	IC		
IC453	S-80827CNNB-W	IC		
IC505	K4S641632H-UC75	IC		
IC505 or	K4S641632H-TC75	IC(DIGITAL)		
IC505 or	K4S641632F-TC60	IC		
IC505 or	K4S641632F-TC75	IC(DIGITAL)		
IC509	SA16M90TF-R0163	IC(FLASH)	(SERVICE)	A,C
IC509	SA16M90TF-R0093	IC(FLASH)	(SERVICE)	B,D
IC701	AK4384VT-X	IC		

⚠ Symbol No.	Part No.	Part Name	Description	Local
Q101	KTA1001/Y/-X	TRANSISTOR		
Q101 or	2SB1424/R/-W	TRANSISTOR		
Q102	2SC4617/R/-X	TRANSISTOR		
Q103	KTA1001/Y/-X	TRANSISTOR		
Q103 or	2SB1424/R/-W	TRANSISTOR		
Q104	2SC4617/R/-X	TRANSISTOR		
Q105	UN2119-X	TRANSISTOR		
C101	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C102	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C103	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C104	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C105	NEA70JM-476X	E CAPACITOR	47uF 6.3V M	
C106	NBE20JM-226X	TA E CAPACITOR	22uF 6.3V M	
C107	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C108	NEA70JM-476X	E CAPACITOR	47uF 6.3V M	
C111	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C204	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C205	NCB31HK-271X	C CAPACITOR	270pF 50V K	
C206	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
C208	NCB31HK-561X	C CAPACITOR	560pF 50V K	
C211	NCB31HK-223X	C CAPACITOR	0.022uF 50V K	
C212	NCB31CK-103X	C CAPACITOR	0.01uF 16V K	
C217	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C251	NCB31AK-474X	C CAPACITOR	0.47uF 10V K	
C253	NCB31HK-561X	C CAPACITOR	560pF 50V K	
C255	NCB31CK-153X	C CAPACITOR	0.015uF 16V K	
C256	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C257	NCB31HK-822X	C CAPACITOR	8200pF 50V K	
C258	NCB31CK-153X	C CAPACITOR	0.015uF 16V K	
C259	NCB31CK-153X	C CAPACITOR	0.015uF 16V K	
C260	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C261	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C262	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C264	NEA70JM-227X	E CAPACITOR	220uF 6.3V M	
C301	NEA70GM-227X	E CAPACITOR	220uF 4V M	
C302	NEA70GM-476X	E CAPACITOR	47uF 4V M	
C303	NEA70GM-476X	E CAPACITOR	47uF 4V M	
C304	NCB31CK-105X	C CAPACITOR	1uF 16V K	
C305	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C306	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C307	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C308	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C309	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C310	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C311	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C312	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C313	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C314	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C315	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C316	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C317	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C318	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C319	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C320	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C321	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C322	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C323	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C324	NCB21CK-105X	C CAPACITOR	1uF 16V K	
C325	NDC31HJ-180X	C CAPACITOR	18pF 50V J	
C326	NDC31HJ-150X	C CAPACITOR	15pF 50V J	
C327	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C330	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C331	NCB31CK-333X	C CAPACITOR	0.033uF 16V K	
C332	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C333	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C334	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C335	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C337	NCB31CK-183X	C CAPACITOR	0.018uF 16V K	
C338	NCB31HK-562X	C CAPACITOR	5600pF 50V K	
C339	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C340	NCB21CK-105X	C CAPACITOR	1uF 16V K	
C341	NCB30JK-105X	C CAPACITOR	1uF 6.3V K	
C347	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C348	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C349	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C350	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C356	NCB21CK-105X	C CAPACITOR	1uF 16V K	

MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
C359	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C371	NCB21CK-105X	C CAPACITOR	1uF 16V K	
C374	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C391	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C392	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C455	NCB31CK-103X	C CAPACITOR	0.01uF 16V K	
C505	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C506	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C507	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C508	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C509	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C510	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
C547	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C551	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C552	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C553	NBE20JM-226X	TA E CAPACITOR	22uF 6.3V M	
C554	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C555	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C556	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C557	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C558	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C559	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C701	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C704	NEA70JM-227X	E CAPACITOR	220uF 6.3V M	
C706	NEA71CM-106X	E CAPACITOR	10uF 16V M	
C707	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C721	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C902	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C903	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C904	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C906	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C907	NRSA02J-100X	MG RESISTOR	10Ω 1/10W J	
R101	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R102	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R103	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J	
R104	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J	
R105	NRS125J-180X	MG RESISTOR	18Ω 1/2W J	
R106	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J	
R107	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R108	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R109	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R110	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R111	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J	
R112	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J	
R113	NRS125J-270X	MG RESISTOR	27Ω 1/2W J	
R114	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J	
R115	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R116	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R117	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R118	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R119	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R120	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R122	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R123	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R125	NRS125J-1R0X	MG RESISTOR	1Ω 1/2W J	
R126	NRSA02J-101X	MG RESISTOR	100Ω 1/10W J	
R128	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R204	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	
R205	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	
R206	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J	
R207	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R208	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	
R213	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R214	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R215	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R219	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R220	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J	
R221	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	
R251	NRS125J-R47X	MG RESISTOR	0.47Ω 1/2W J	
R252	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J	
R254	NRSA63J-203X	MG RESISTOR	20kΩ 1/16W J	
R255	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R257	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R259	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R302	NRSA63J-240X	MG RESISTOR	24Ω 1/16W J	
R303	NRSA63J-270X	MG RESISTOR	27Ω 1/16W J	
R306	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R307	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R308	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	
R309	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	
R310	NRS125J-R47X	MG RESISTOR	0.47Ω 1/2W J	
R312	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R313	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R314	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R315	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R316	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R317	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R318	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
R319	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R320	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R322	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R325	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R326	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R333	NRSA63J-163X	MG RESISTOR	16kΩ 1/16W J	
R334	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R335	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R336	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R337	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R338	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R339	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R340	NRSA63D-303X	MG RESISTOR	30kΩ 1/16W D	
R341	NRSA63D-362X	MG RESISTOR	3.6kΩ 1/16W D	
R342	NRSA63D-222X	MG RESISTOR	2.2kΩ 1/16W D	
R343	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R344	NRSA63J-6R8X	MG RESISTOR	6.8Ω 1/16W J	
R345	NQR0129-002X	FERRITE BEADS		
R351	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	
R352	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J	
R357	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R358	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R361	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R362	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	
R363	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R372	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R373	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R378	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R379	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R384	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R385	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R390	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R391	NAD0025-103X	N THERMISTOR	10kΩ	
R392	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R393	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R394	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R395	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R457	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R458	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R501	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R502	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R503	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R551	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R553	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R554	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R555	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R556	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R557	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R558	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R701	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R702	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R710	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R711	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R712	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R713	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R716	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R718	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R719	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R909	NRSA02J-100X	MG RESISTOR	10Ω 1/10W J	
R911	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
CN101	QGF0523F1-24W	CONNECTOR	FFC/FPC (1-24)	
CN201	QGF1016F2-08W	CONNECTOR	FFC/FPC (1-8)	
CN501	QGF1016F2-19W	CONNECTOR	FFC/FPC (1-19)	
CN503	QGF1016F2-17W	CONNECTOR	FFC/FPC (1-17)	
K101	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
K102	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	

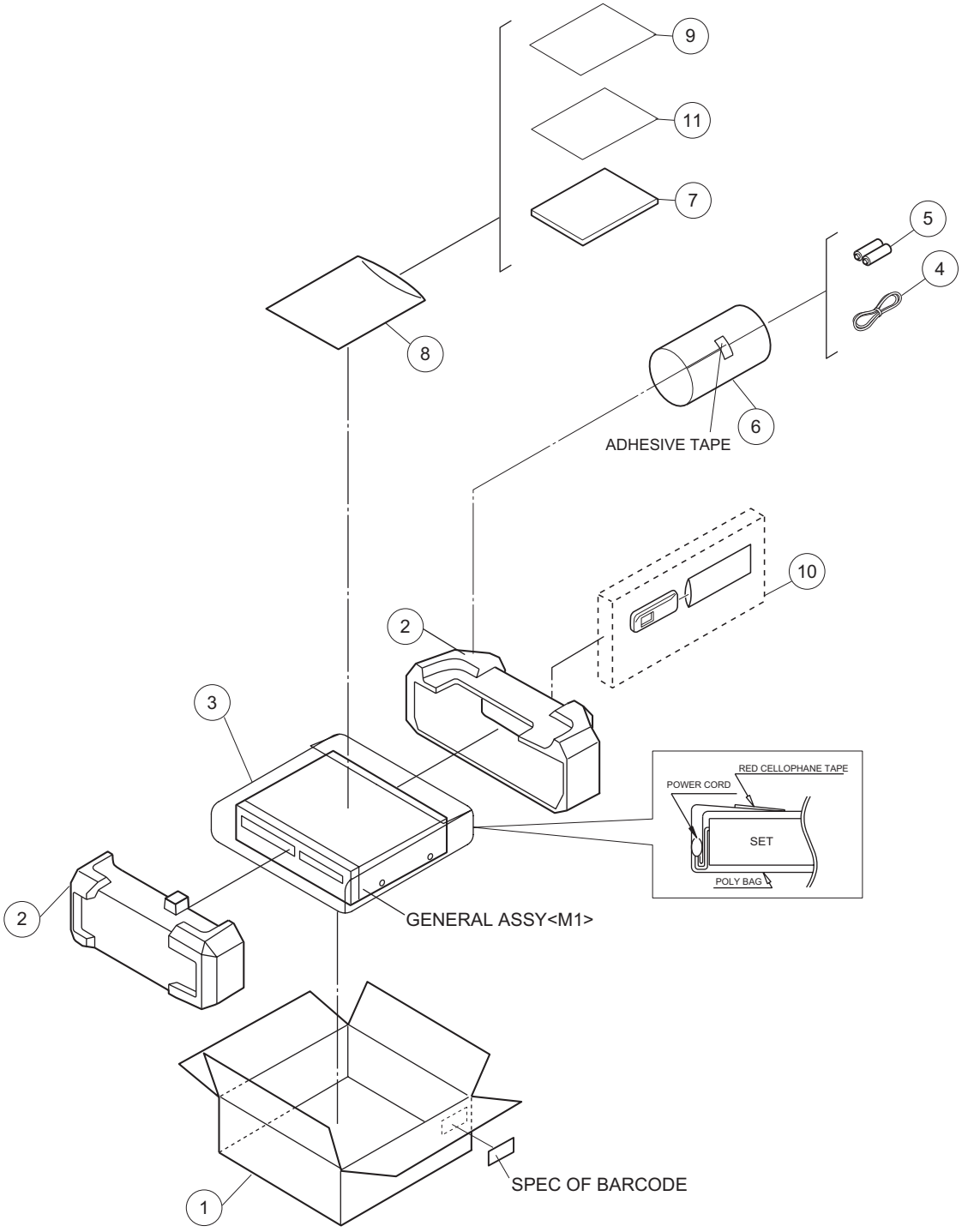
MODEL	MARK	MODEL	MARK
HR-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

⚠ Symbol No.	Part No.	Part Name	Description	Local
K301	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
K302	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
K303	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
K304	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
K501	NQR0129-002X	FERRITE BEADS		
K502	NQR0502-001X	FERRITE BEADS		
K551	NQR0129-002X	FERRITE BEADS		
K552	NQR0129-002X	FERRITE BEADS		
K553	NQR0129-002X	FERRITE BEADS		
K554	NQR0129-002X	FERRITE BEADS		
K555	NQR0022-005X	FERRITE BEADS		
K556	NQR0129-002X	FERRITE BEADS		
X351	NAX0550-001X	CRYSTAL	27.000MHz	

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-XVC28BUC	A	HR-XVC29SUC	C
HR-XVC28BUS	B	HR-XVC29SUS	D

Packing and accessories

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

⚠ Symbol No.	Part No.	Part Name	Description	Local
1	LP31263-044A	PACKING CASE		A,B
1	LP31263-046A	PACKING CASE		C,D
2	LP31265-001E	CUSHION ASSY		
3	LP41038-001A	POLY BAG		
4	QAM0501-003	RF CABLE		
5	----------	BATTERY	R6 TYPE(x2)	
6	QPC02202230P	POLY BAG	22cm x 22cm	
⚠ 7	LPT1014-001A	INST.BOOK	(ENGLISH)	A
⚠ 7	LPT1014-002A	INST.BOOK	(FRENCH)	A
⚠ 7	LPT1017-001A	INST.BOOK	(ENGLISH)	B
⚠ 7	LPT1019-001A	INST.BOOK	(ENGLISH)	C
⚠ 7	LPT1019-002A	INST.BOOK	(FRENCH)	C
⚠ 7	LPT1018-001A	INST.BOOK	(ENGLISH)	D
8	QPC02503530P	POLY BAG	25cm x 35cm	
9	BT-51034-2	REGISTRATION CARD		B,D
10	RM-SHR003U	REMOCON		
11	----------	WARRANTY CARD	BT-52006-2	A,C