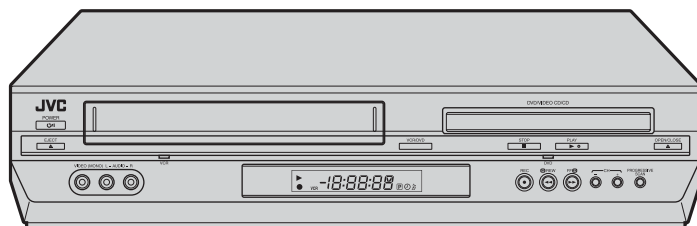


JVC

SERVICE MANUAL

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XVC22UC, HR-XVC23UC, HR-XVC26US, HR-XVC27UC, HR-XVC27US



HR-XVC22UC, HR-XVC23UC, HR-XVC26US, HR-XVC27UC, HR-XVC27US [D3PV0]

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

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SPECIFICATION

	HR-XVC22UC, HR-XVC23UC	HR-XVC26US ,HR-XVC27UC, HR-XVC27US
GENERAL		
Power requirement	AC 120 V, 60 Hz	
Power consumption		
Power on	22 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 to 140°F)	
Operating position	Horizontal only	
Dimensions (W × H × D)	435 mm x 93 mm x 272 mm	
Weight	4.1 kg	
Format	VHS NTSC standard	
Maximum recording time		
(SP)	210 min. with ST-210 video cassette	
(EP)	630 min. with ST-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 V _{p-p} /75 Ω	
Component-PB/PR	(RCA) 0.7 V _{p-p} /75 Ω	
Audio	(RCA) 2 V _{rms} , 1 KΩ	
Digital Audio	(COAXIAL) 0.5 V _{p-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	
Memory backup time	Approx. 5 seconds	
ACCESSORIES		
Provided accessories	RF cable, Audio/Video cable, Infrared remote control unit, "AA" battery × 2	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 Δ symbol and shaded (■) parts are critical for safety. Replace only with specified part numbers.

NOTE :

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

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

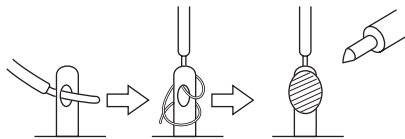


Fig.1-1-1

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

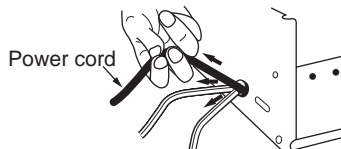


Fig.1-1-2

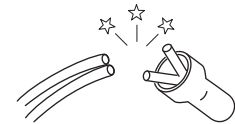
- (10) Also check areas surrounding repaired locations.
- (11) Products using cathode ray tubes (CRTs) In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission.

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

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

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

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



cut close to connector

Fig.1-1-3

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

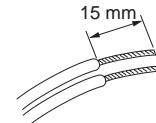


Fig.1-1-4

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

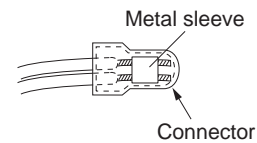


Fig.1-1-5

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

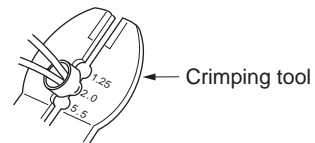


Fig.1-1-6

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

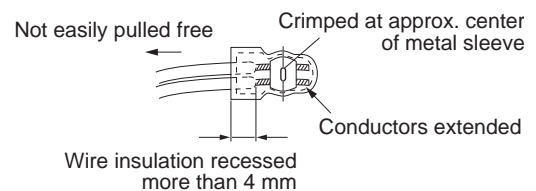


Fig.1-1-7

1.1.2 Safety Check after Servicing

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

(1) Insulation resistance test

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

(2) Dielectric strength test

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

(3) Clearance distance

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

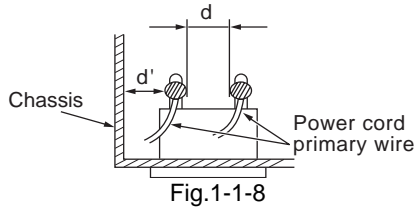


Fig.1-1-8

(4) Leakage current test

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

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

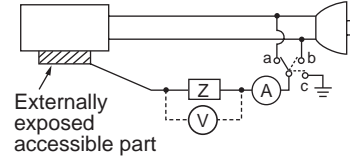
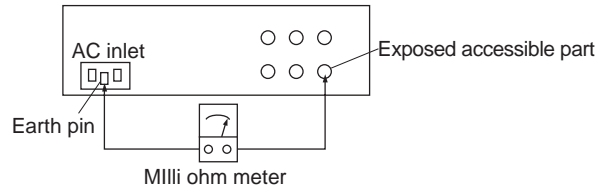


Fig.1-1-9

(5) Grounding (Class 1 model only)

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

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



Grounding Specifications

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

Fig.1-1-10

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

Fig.1-1-11

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

Fig.1-1-12

NOTE :

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

1.2 Preventing static electricity

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

1.2.1 Grounding to prevent damage by static electricity

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

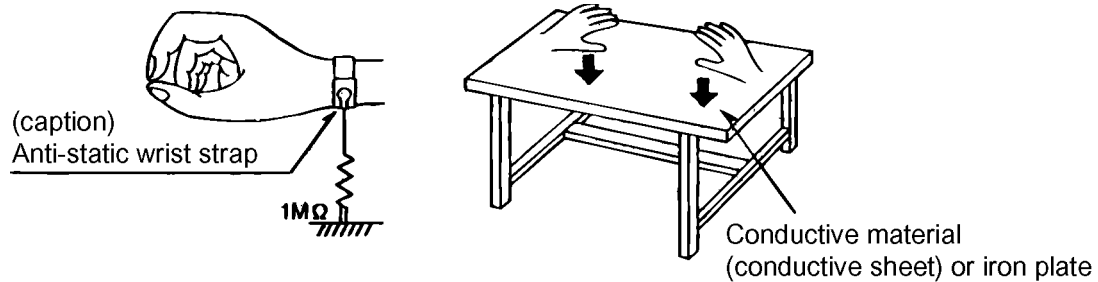
Be careful to use proper grounding in the area where repairs are being performed.

(1) Ground the workbench

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

(2) Ground yourself

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



(3) Handling the optical pickup

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

1.3 Precautions for Service

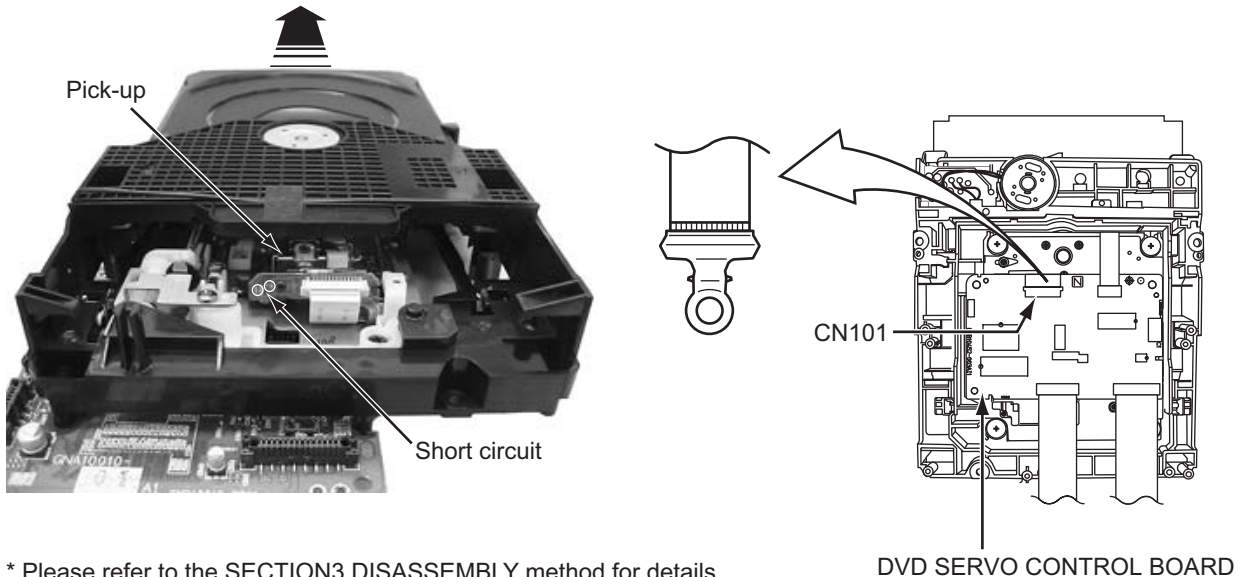
1.3.1 Handling of Traverse Unit and Laser Pickup

- (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 clothing or the human body. Before repairing peripheral elements of the traverse unit or pickup, be sure to take the following electrostatic protection:

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



* Please refer to the SECTION3 DISASSEMBLY method for details.

SECTION 2

SPECIFIC SERVICE INSTRUCTIONS

2.1 Different table of feature

The following table indicates main different points between models HR-XVC22UC, HR-XVC23UC, HR-XVC26US, HR-XVC27UC and HR-XVC27US.

	HR-XVC22UC	HR-XVC23UC	HR-XVC26US	HR-XVC27UC	HR-XVC27US
BODY COLOR	BLACK	PURE SILVER	BLACK	PURE SILVER	←
REMOCON COLOR	BLACK	GRAY	BLACK	GRAY	←
A/V CABLE	SUPPLIED	←	OPTIONAL	←	←
RF CONVERTER	NOT USED	←	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.

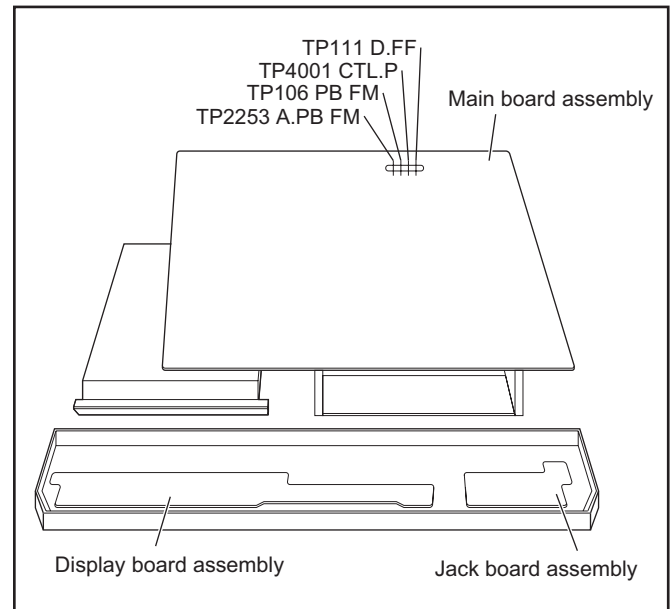


Fig.2-2a

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 EE-PROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

Note:

- Confirm the RCU mode when exchanged parts. Since some SERVICE PARTS sets the VCR to the Jig RCU

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

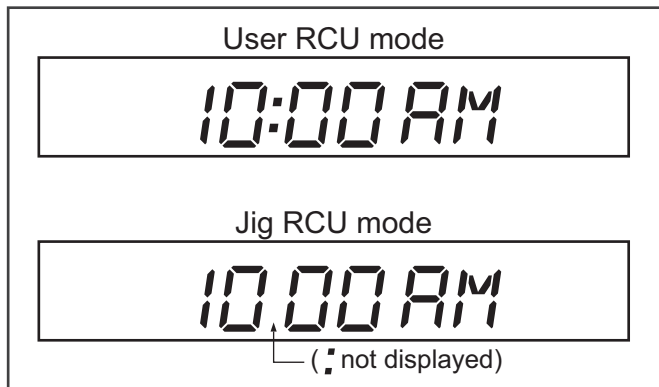


Fig.2-3a User/Jig RCU mode

2.3.1 Setting the Jig RCU mode

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

2.3.2 Setting the User RCU mode

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

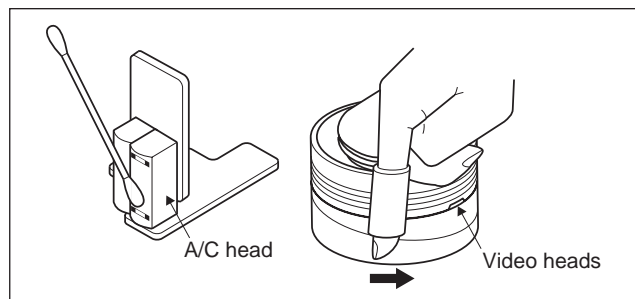


Fig.2-5a

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
Other	Control plate		X
	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	↔	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	CN8301	↔	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), ----- 2(S1c)	<Note 1a>
	Bracket			

↑ (1) ↑ (2) ↑ (3) ↑ (4) ↑ (5)

(1) Order of steps in Procedure

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

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

(2) Part name to be removed or installed.

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

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

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

Note:

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

(5) Adjustment information for installation

3.1.3 Disassembly procedure

Step/Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	3-1d	8(S1a)	
[2]	Front panel assembly (Display board assembly) (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(WR4b), CN8301(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.

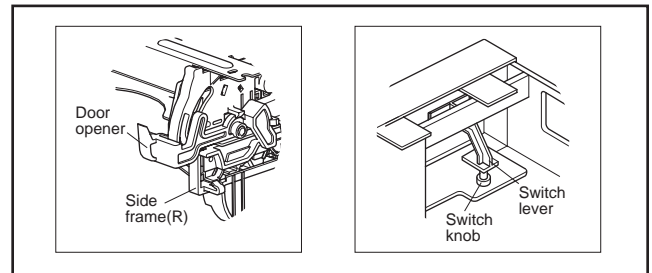


Fig.3-1a

<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.

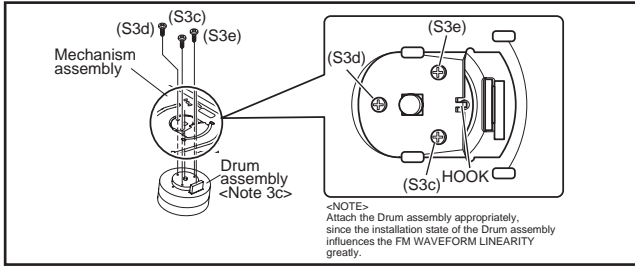


Fig.3-1b

- 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.

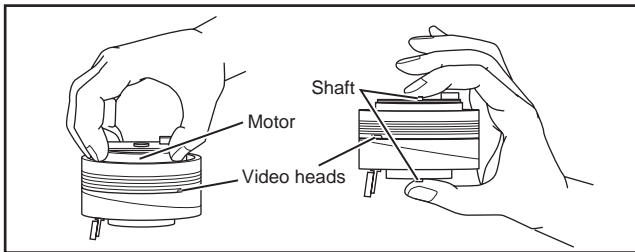
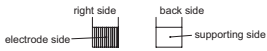
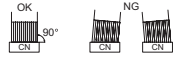


Fig.3-1c

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 with SCRWES.

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 Wiring Process.

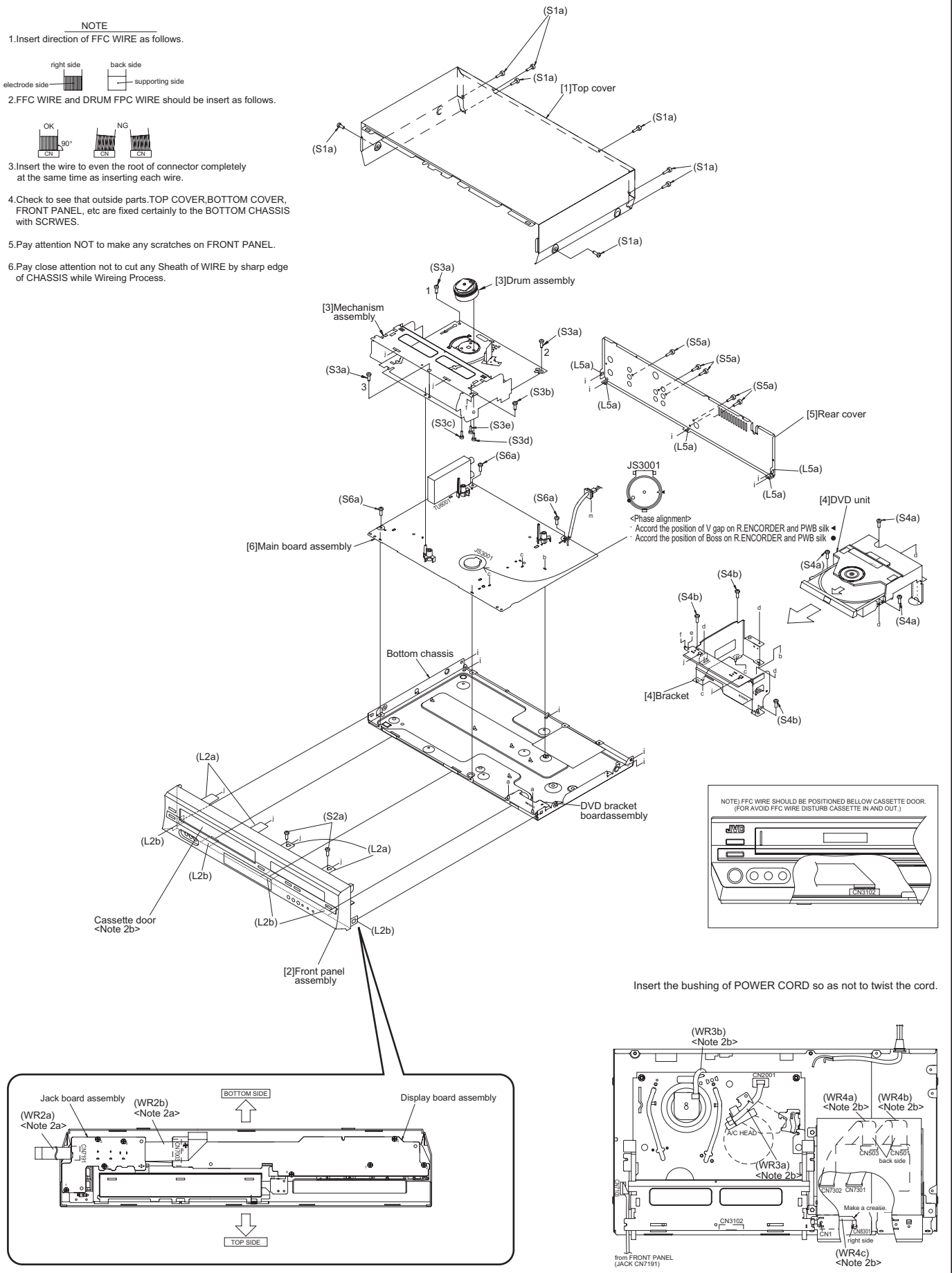


Fig.3-1d

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.)

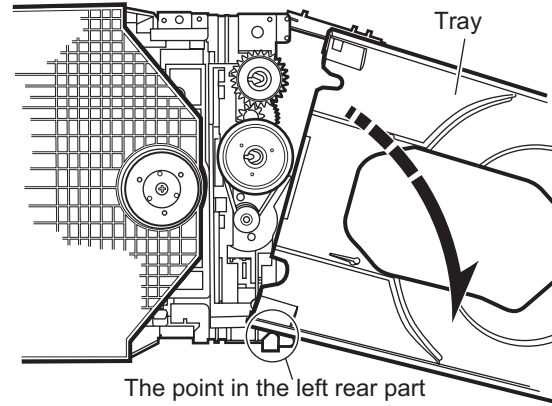


Fig.3-2c

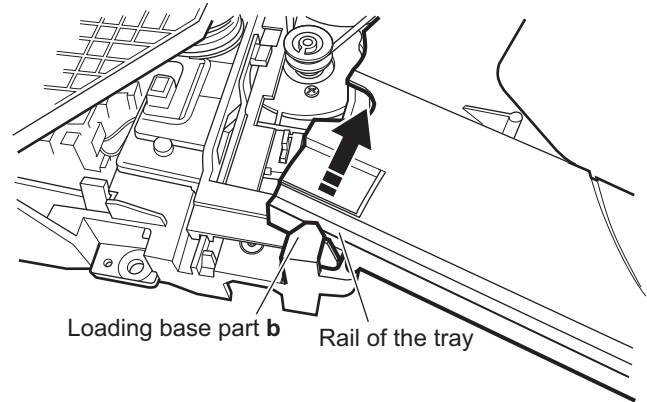


Fig.3-2d

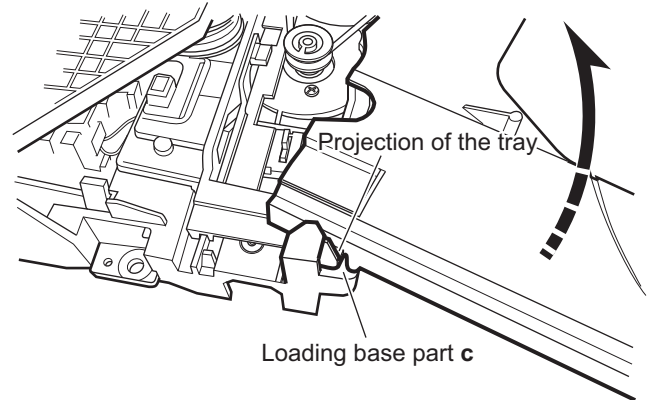


Fig.3-2e

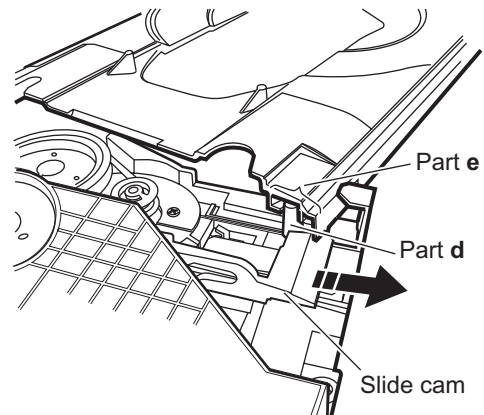


Fig.3-2f

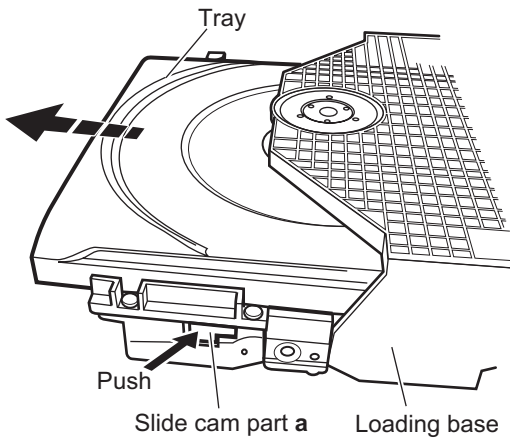


Fig.3-2a

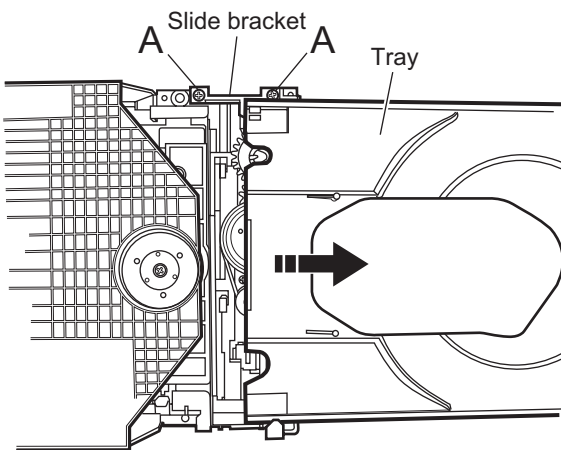


Fig.3-2b

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

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

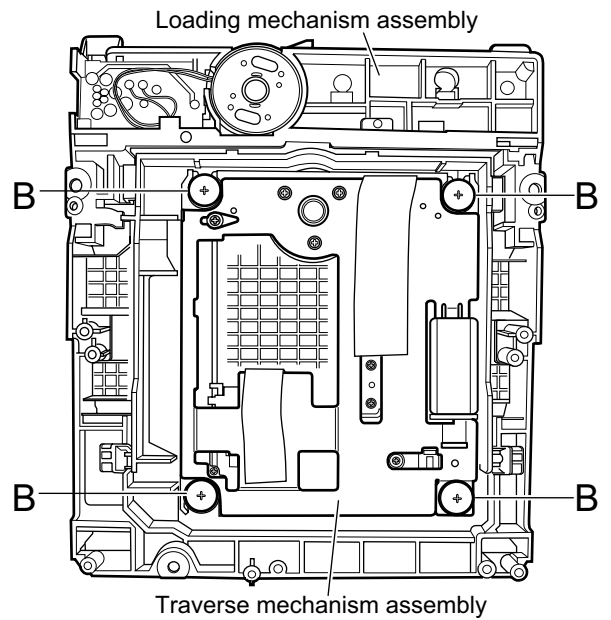


Fig.3-2g

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

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

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

Attaching the elevator:

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

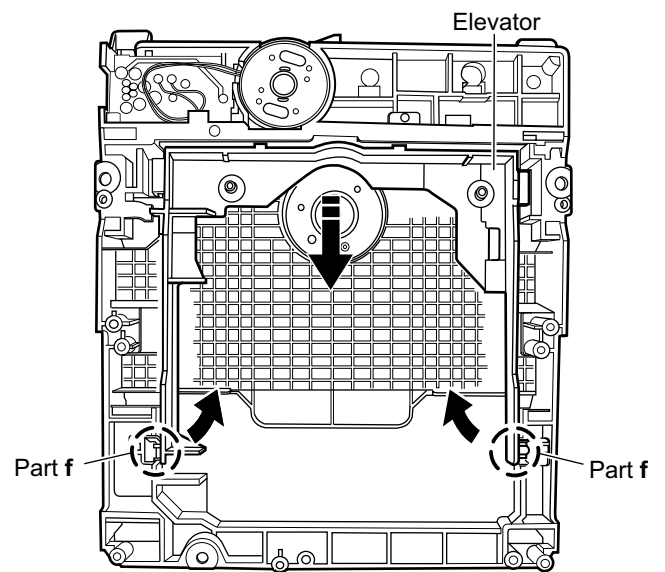


Fig.3-2h

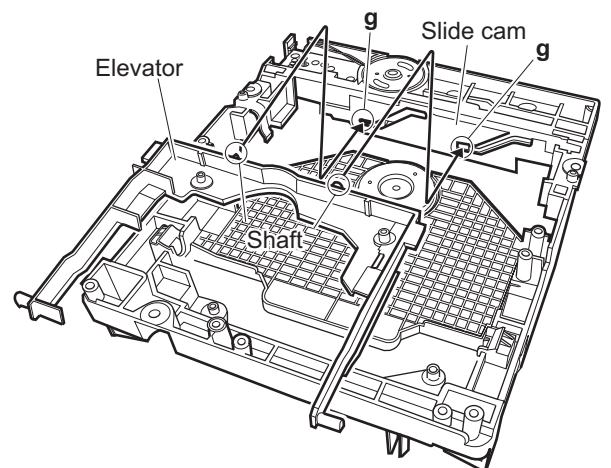


Fig.3-2j

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

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

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

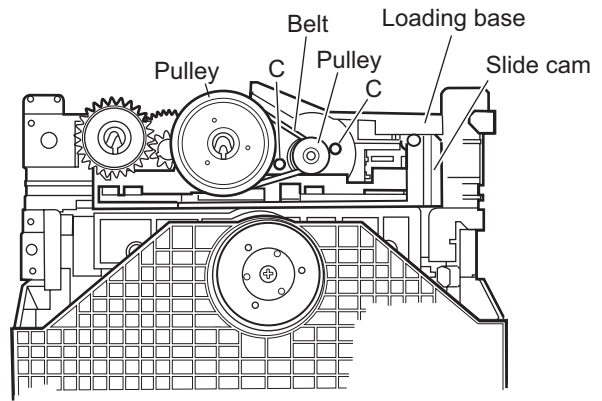


Fig.3-2k

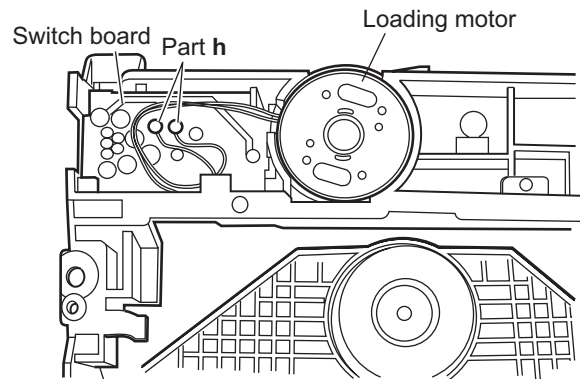


Fig.3-2l

3.3 Traverse mechanism assembly

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

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

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

Attaching the pickup:

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

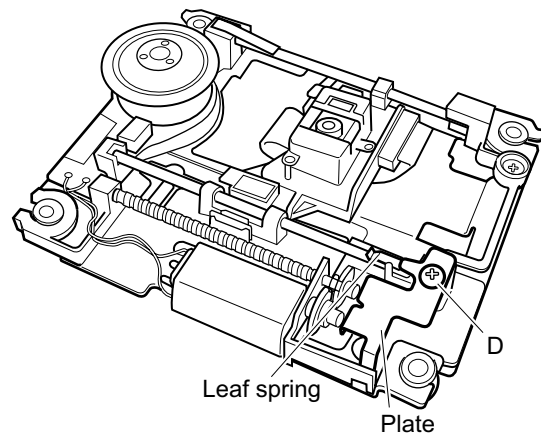


Fig.3-3a

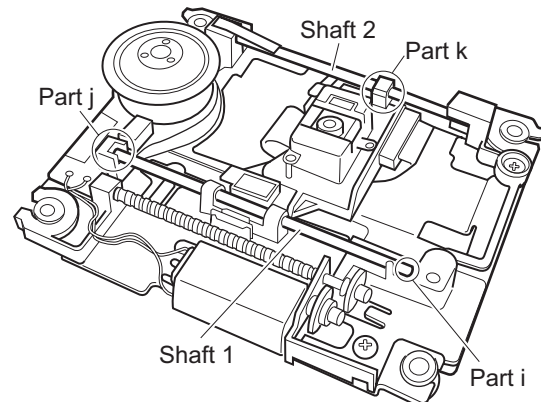


Fig.3-3b

SECTION 4 ADJUSTMENT

4.1 Before adjustment

4.1.1 Precaution

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

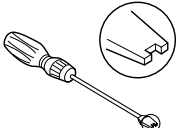
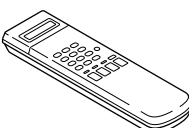
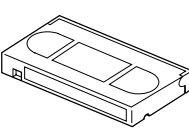
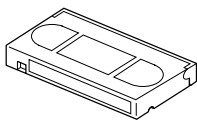
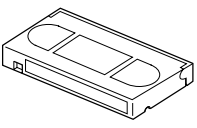
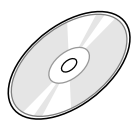
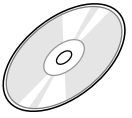
4.1.2 Required test equipments

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

4.1.3 Required adjustment tools

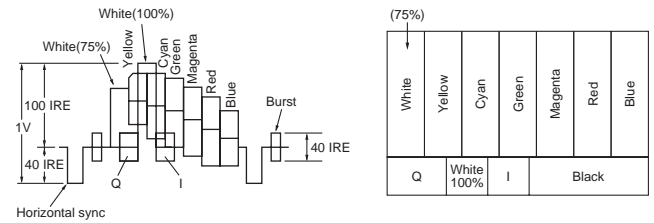
● : Used --- : Not used

	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, staircase, NTSC) MHP	Alignment tape (EP, staircase, 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".)

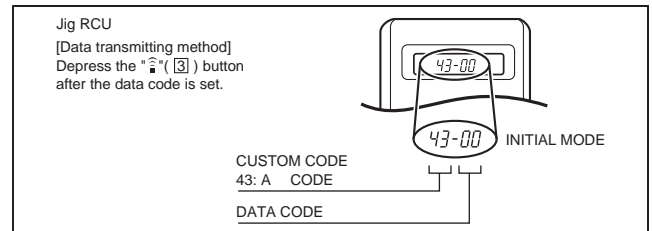


Fig.4-1 Jig RCU [PTU94023B]

- 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 "SP/EP(LP)"button 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 "channel +/-" 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 [Mechanism 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.

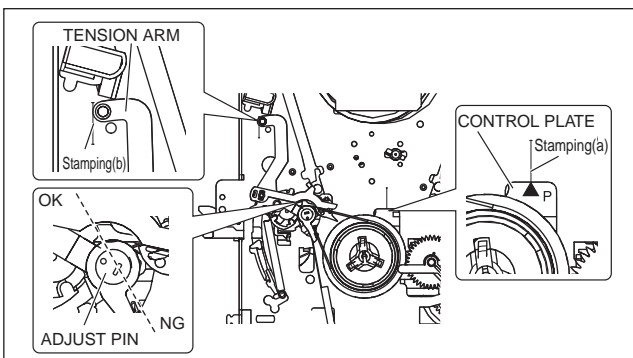


Fig.4-2a

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).

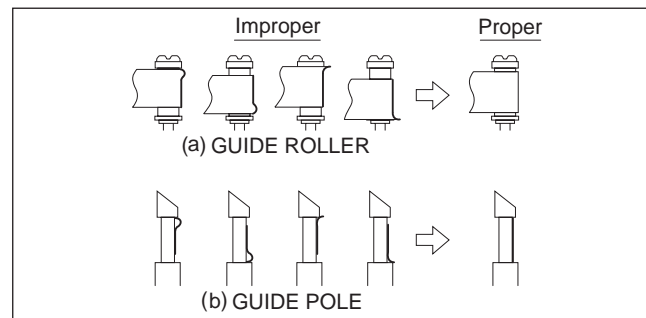


Fig.4-2b

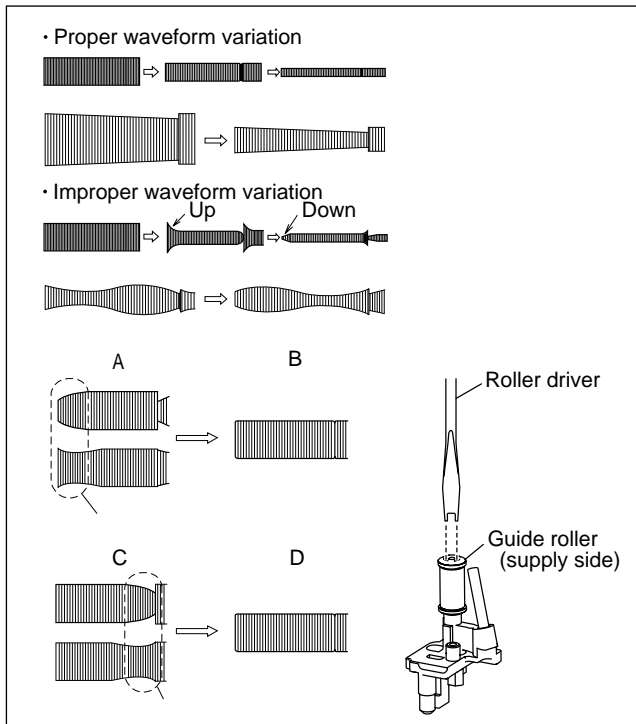


Fig.4-2c

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.

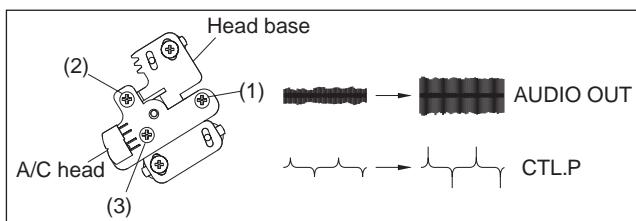


Fig.4-2d

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.

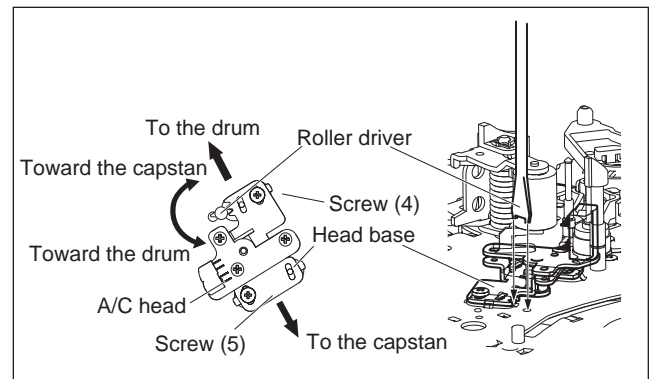


Fig.4-2e

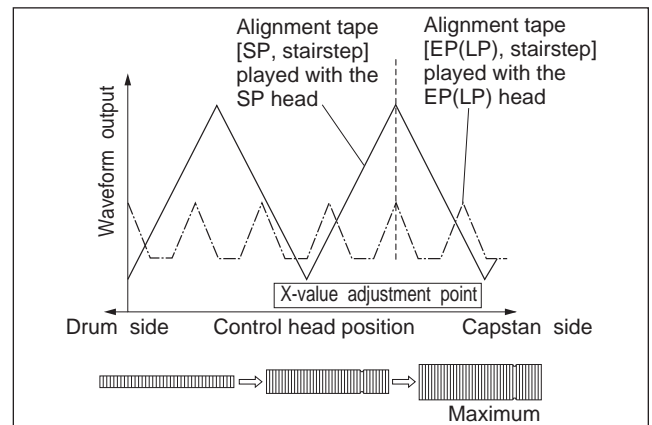


Fig.4-2f

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 "5A"
Specified value	(G)	• $6.5 \pm 0.5H$
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).

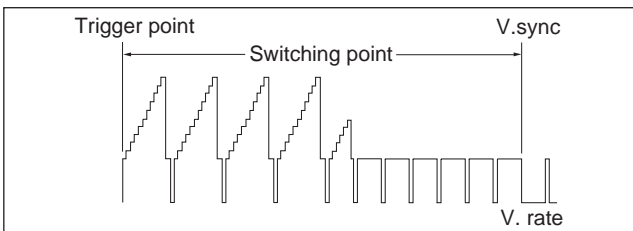


Fig.4-3a Switching point

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 "71" or "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 "08" from the Jig RCU to enter the slow playback mode, and transmit the code "D0" for REV slow (-1/6x) mode.

4.4 Electrical adjustment (DVD SECTION)

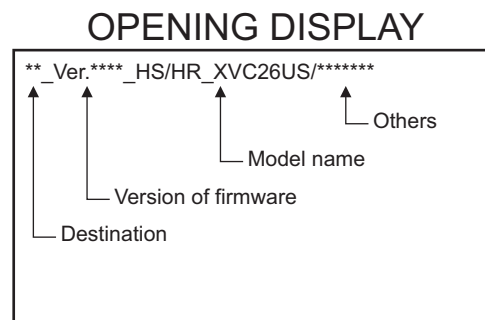
4.4.1 Test mode setting method

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



4.4.2 Method of displayed version of firmware

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



4.4.3 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 "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:

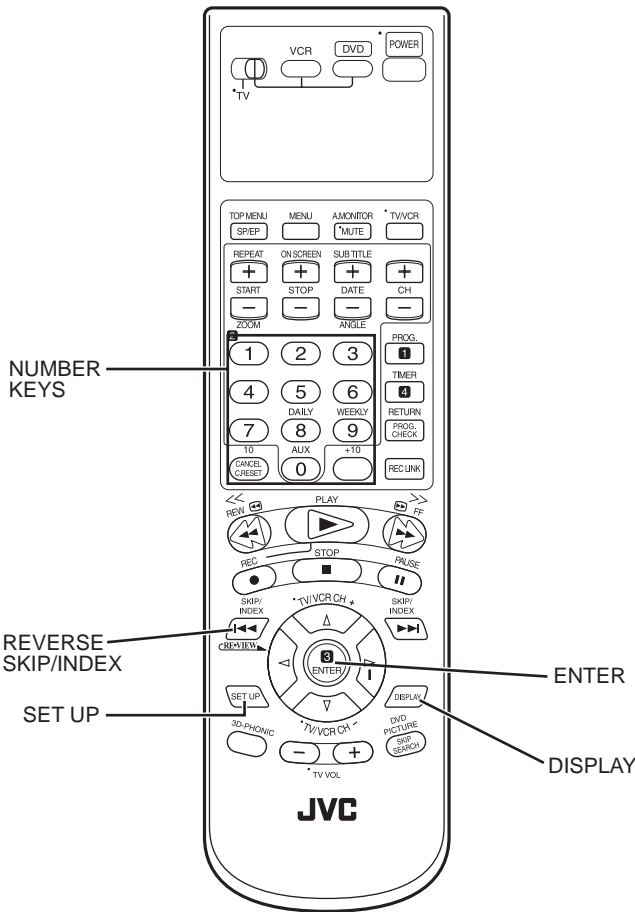
Status of this adjustment can be judged by the number displayed at test mode as follows:

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.



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)

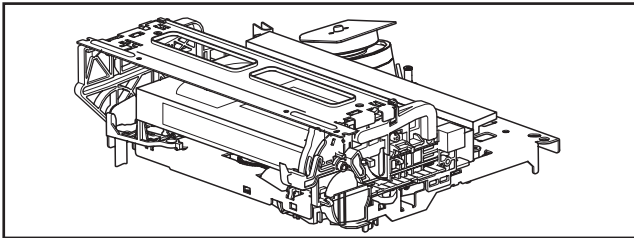


Fig.5-1a

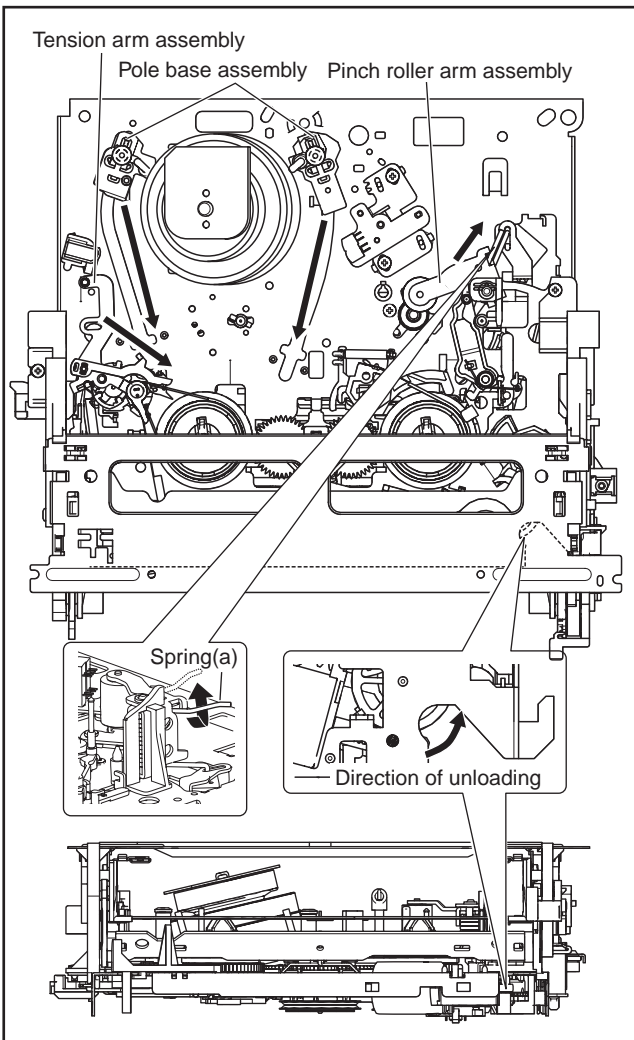


Fig.5-1b

- (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).

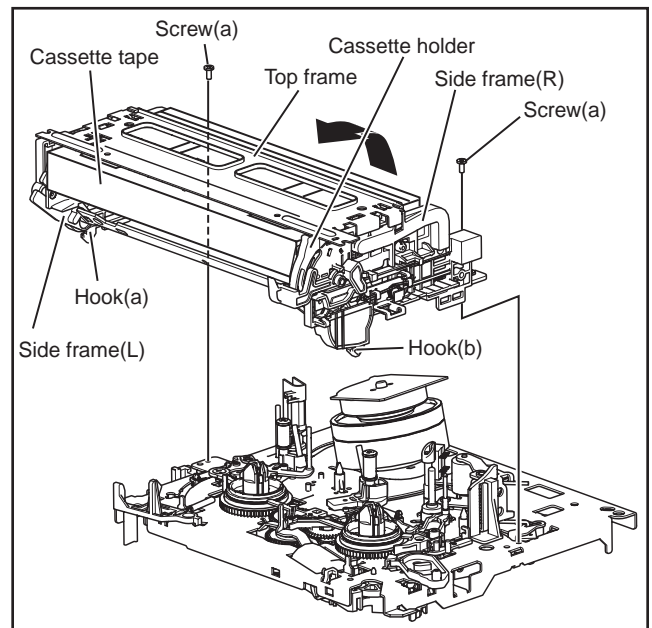


Fig.5-1c

- (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)

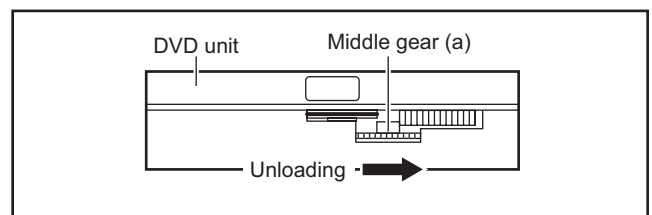


Fig.5-2a

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.

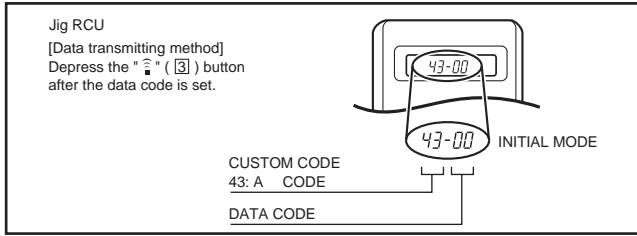


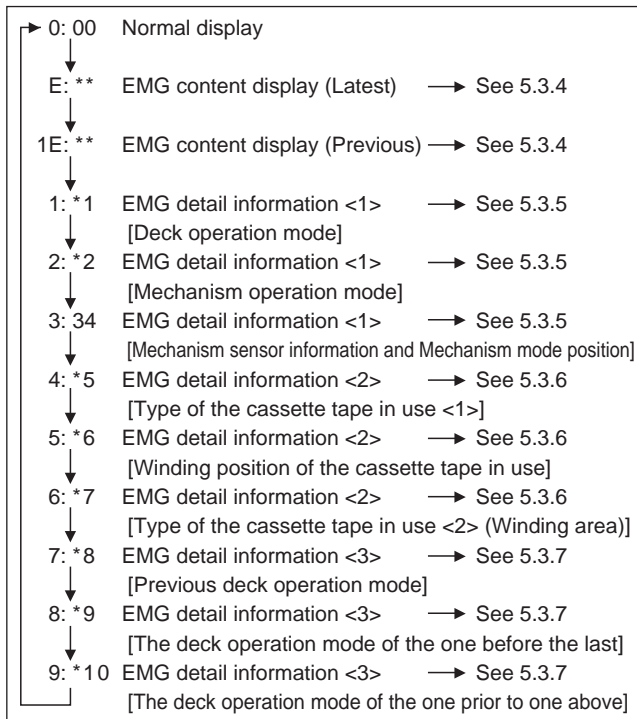
Fig.5-3a Jig RCU [PTU94023B]

5.3.1 Displaying the EMG information

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

Note:

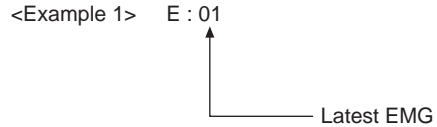
- The EMG detail information <1><2> show the information on the latest EMG. It becomes " - : - : - : - " when there is no latest EMG record.



EMG display of 7 FDP display model
Fig.5-3b

EMG display of FDP display mode

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



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

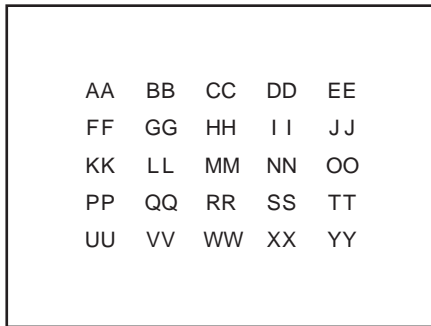
5.3.3 Details of the OSD display in the EMG display mode

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

Notes:

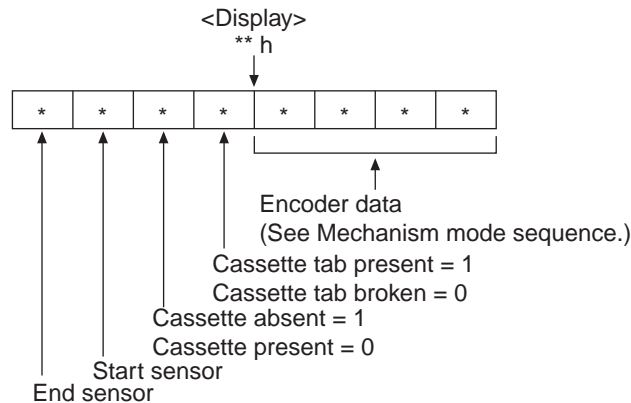
- The display is variable depending on the part No. of the System Control microcomputer (IC3001) built into the VCR. In the following, refer to the figure carrying the same two characters as the top two characters of the part number of your IC.
- The sensor information in the OSD display contents is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

[For MN* only]

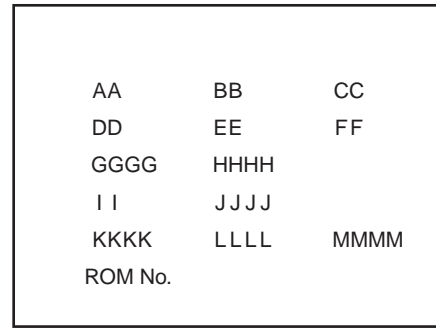


- AA : Deck operation mode (See EMG detail information <1>.)
 BB : Mechanism operation mode (See EMG detail of information <1>.)
 CC : Mechanism transition flag
 DD : Capstan motor control status
 EE : Loading motor control status
 FF : Sensor information (See sensor information details.)
 GG : Capstan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

*FF:Sensor information details

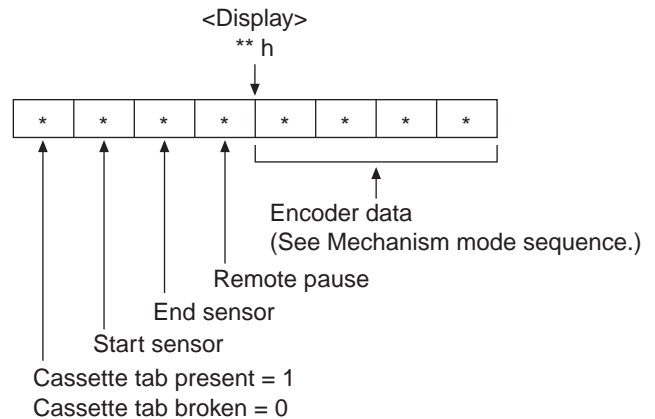


[For *HD only]



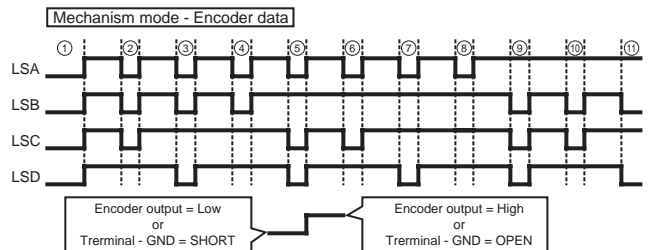
- AA : Key code (JVC code)
 BB : Deck operation mode (See EMG detail information <1>.)
 CC : Mechanism operation mode (See EMG detail information <1>.)
 DD : Sensor information (See sensor information details.)
 EE : Capstan motor speed (Search, double speed)
 FF : Tracking value
 GGGG : Cassette tape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

*DD:Sensor information details

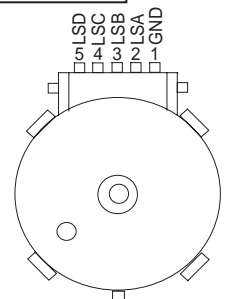


[For both MN*/HD*]

Mechanism mode sequence



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



5.3.4 EMG content description

Note:

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

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

5.3.5 EMG detail information <1>

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

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

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

Note:

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

*1 : Deck operation mode

[Common table of MN* and HD]

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

*2 : Mechanism operation mode

[Table of MN*]

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

[Table of HD*]

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

3 : Mechanism sensor information

[Common table of MN* and HD*]

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

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

-4 : Mechanism mode position

[Common table of MN* and HD*]

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

5.3.6 EMG detail information <2>

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

Note:

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

*5 : Cassette tape type <1>

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

Notes:

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

*6 : Cassette tape winding position

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

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

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

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

Note:

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

5.3.7 EMG detail information <3>

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

5.4 Check points for each error (DVD SECTION)

5.4.1 Spindle start error

- (1) Defective spindle motor driver ([IC201](#))
 - Has motor drive voltage of a sine wave or a rectangular wave gone out to each terminal(WOUT,VOUT,UOUT) of [CN201](#)"2,3,4" and [IC201](#)"17,18,19"?
 - Is FG pulse output from the terminal of [IC201](#)"41"(FG) according to the rotation of the motor?
- (2) Has the control signal come from servo IC or the microcomputer?
 - Is it "H" while the terminal of [IC201](#)"48"/(SPMUTE) is operating?
- (3) Is the FG signal input to the servo IC?
 - Is FG pulse input to the terminal of [IC301](#)"72"(FG) according to the rotation of the motor?

5.4.2 Disc Detection, Distinction error (no disc, no RFENV)

- Laser is defective.
- SODC is defective ([IC301](#)).
- APC circuit is defective. --- [Q102,Q104](#).
- Pattern is defective. --- Lines for [CN101](#) - All patterns which relate to pick-up and patterns between [IC301](#).

5.4.3 Traverse movement NG

- (1) Defective traverse driver
 - Has the voltage come between terminal of [CN101](#) "2" and "4" ?
- (2) Defective BTL driver ([IC201](#))
 - Has the motor drive voltage gone out to [IC201](#)"11" or "14"?
- (3) TRSDRV Is the signal input? ([IC301](#) "75")
- (4) TRVSW is the signal input from microcomputer? ([IC301](#) "79")

5.4.4 Focus ON NG

- Is FODRV signal sent ? ([R254](#)) --- Pattern, [IC301](#) "148"
- Is driving voltage sent ? [IC201](#) "9", "10" --- If NG, pattern, driver, mechanical unit .
- Mechanical unit is defective.

5.4.5 Tracking ON NG

- Mechanical unit is defective.
Because the self adjustment cannot be normally adjusted, the thing which cannot be normally drawn in is thought.
- Periphery of driver ([IC201](#))
Constant or IC it self is defective.
- Servo IC ([IC301](#))
When improperly adjusted due to defective IC.

5.4.6 Spindle CLV NG

- Does not the input or the output of driver's spindle signal do the grip?
- Has the tracking been turned on?
- Spindle motor and driver is defective.

5.4.7 Address read NG

- Besides, the undermentioned cause is thought though specific of the cause is difficult because various factors are thought.
Mechanism is defective. (jitter)
[IC301](#)
The disc is dirty or the wound has adhered.

5.4.8 Between layers jump NG (double-layer disc only)

- Mechanism defective
- Defect of driver's IC([IC201](#))
- Defect of servo control IC([IC301](#))

5.4.9 Neither picture nor sound is output

- (1) It is not possible search

- Has the tracking been turned on?
- To " Tracking ON NG" in "Check points for each error" when the tracking is not normal.
- Is the feed operation normal?
To " traverse movement NG" in "Check points for each error" when it is not normal.Are not there caught of the feeding mechanism etc?

5.4.10 Picture is distorted or abnormal sound occurs at intervals of several seconds.

Is the feed operation normal?
Are not there caught of the feeding mechanism etc?

5.4.11 Others

- The image is sometimes blocked, and the image stops.
- The image is blocked when going to outer though it is normal in surroundings in the disk and the stopping symptom increases.

There is a possibility with bad jitter value for such a symptom.

5.4.12 CD During normal playback operation

(1) Is TOC reading normal?

- Displays total time for CD-DA.
- Shifts to double-speed mode for V-CD

(2) Is playback afterwards possible?

(3) When can not do a normal playback

- --:-- is displayed during FL search.
According to [It is not possible to search] for DVD, check the feed and tracking systems.
- No sound is output although the time is displayed.(CA-DA)
DAC, etc, other than servo.
- The passage of time is not stable, or picture is abnormal.(V-CD)
- The wound of the disc and dirt are confirmed.

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(No.YD008)

PARTS LIST

SAFETY PRECAUTION

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

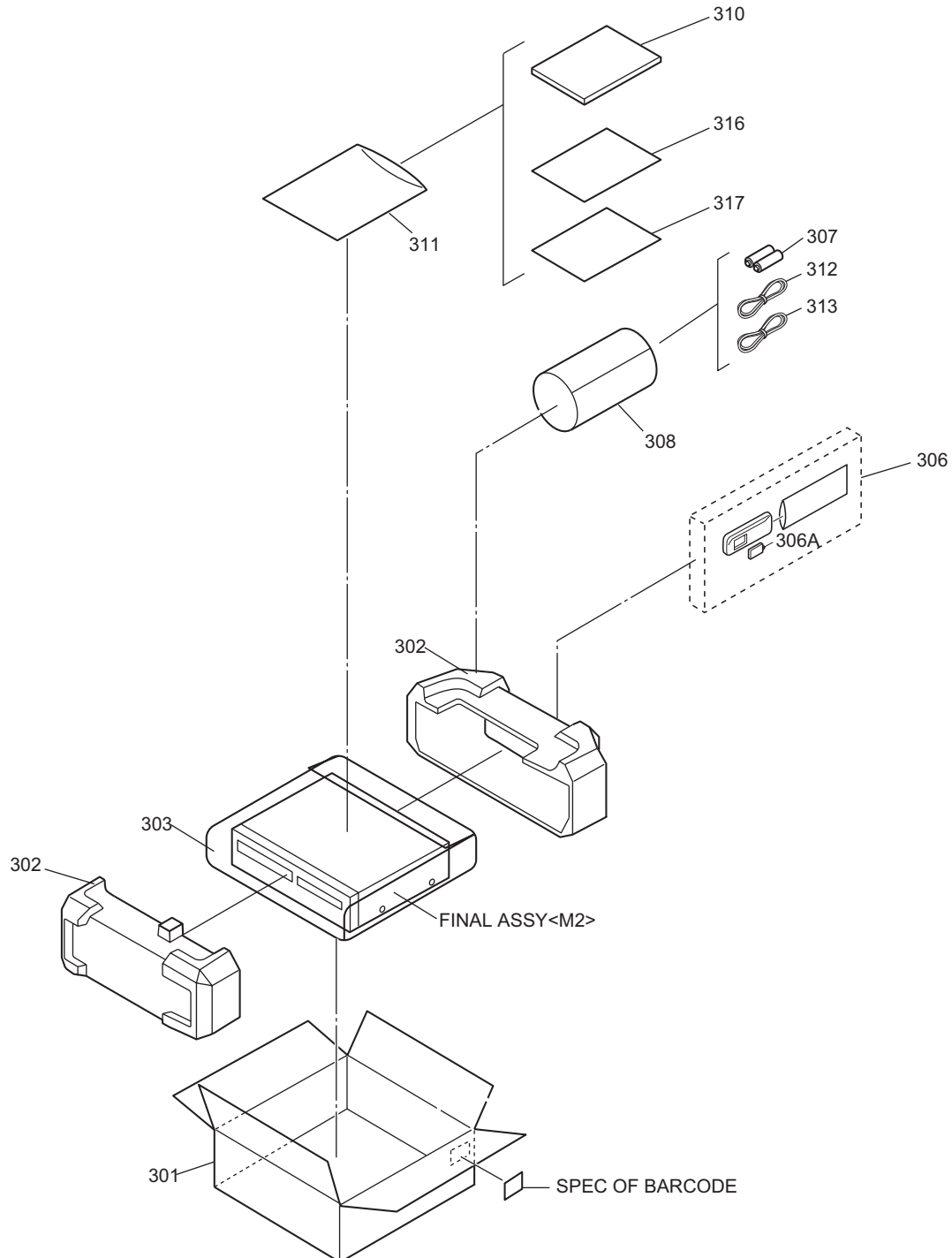
BEWARE OF BOGUS PARTS

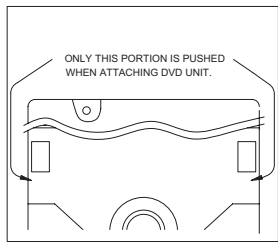
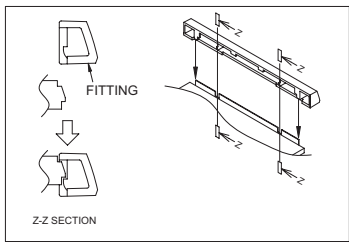
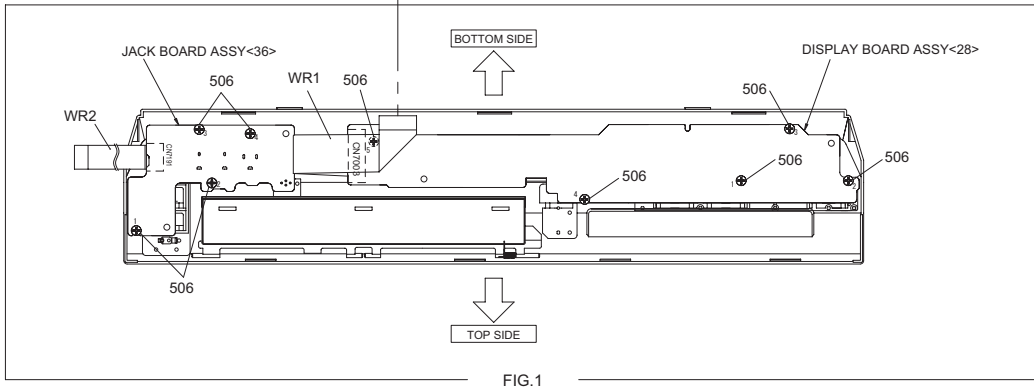
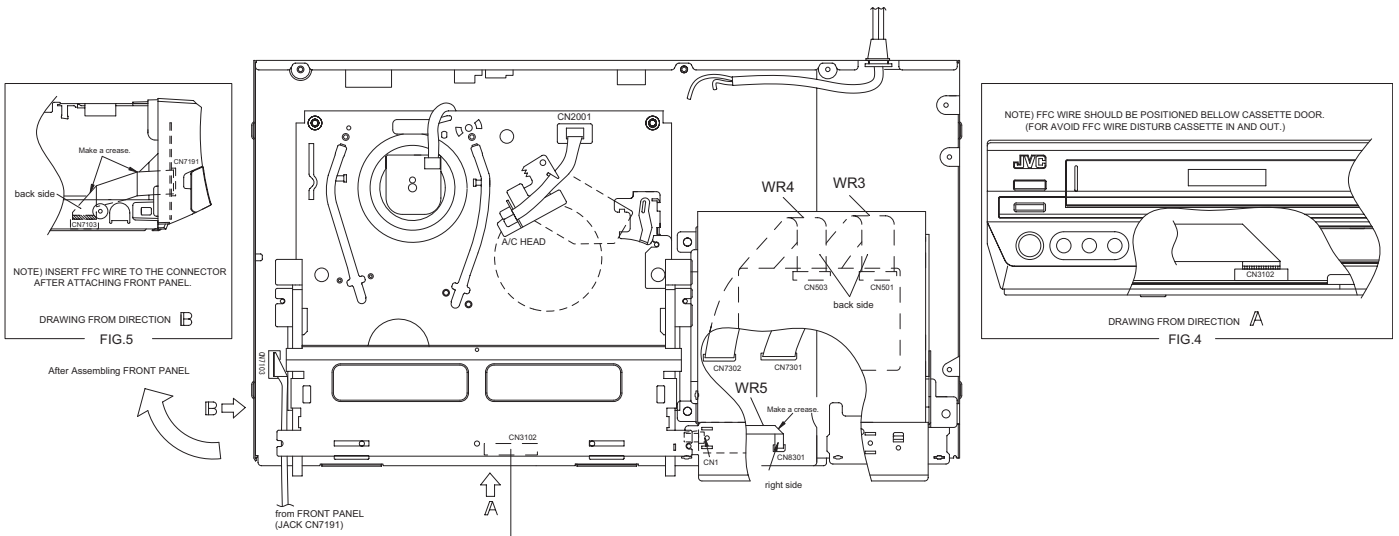
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

1. EXPLODED VIEW

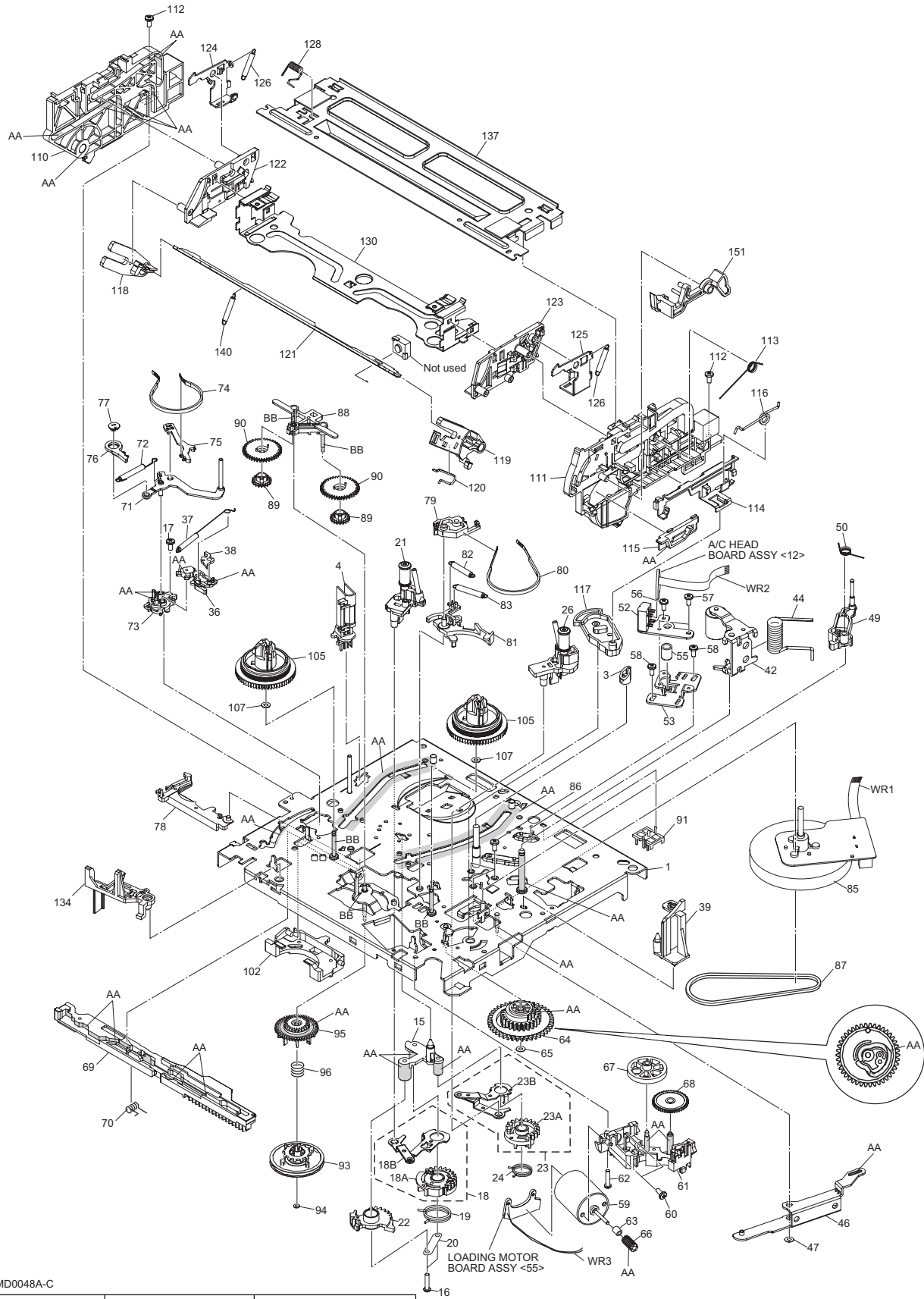
1.1 PACKING AND ACCESSORY ASSEMBLY <M1>

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





1.3 MECHANISM ASSEMBLY <M4>

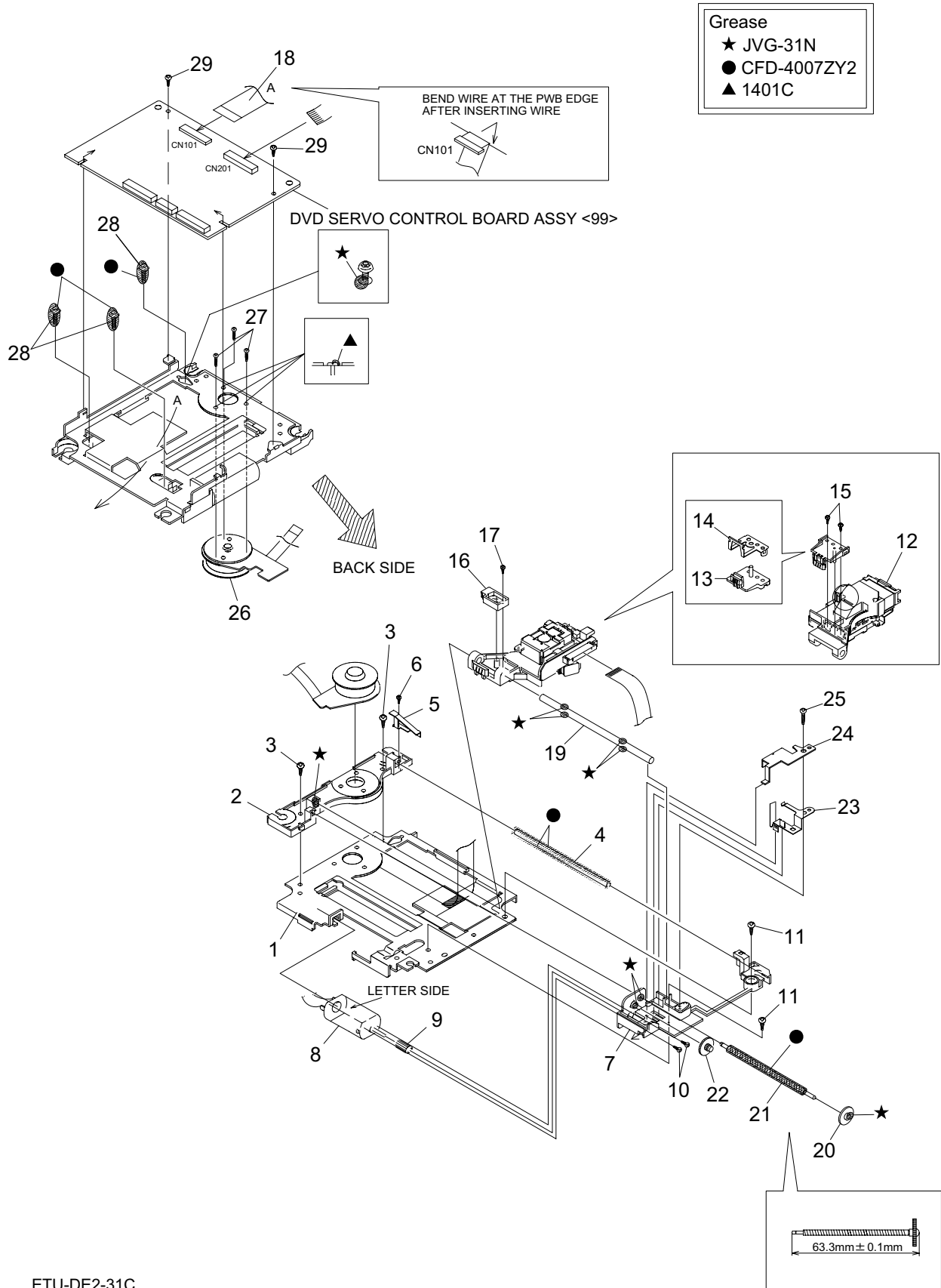


PMD0048A-C

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.

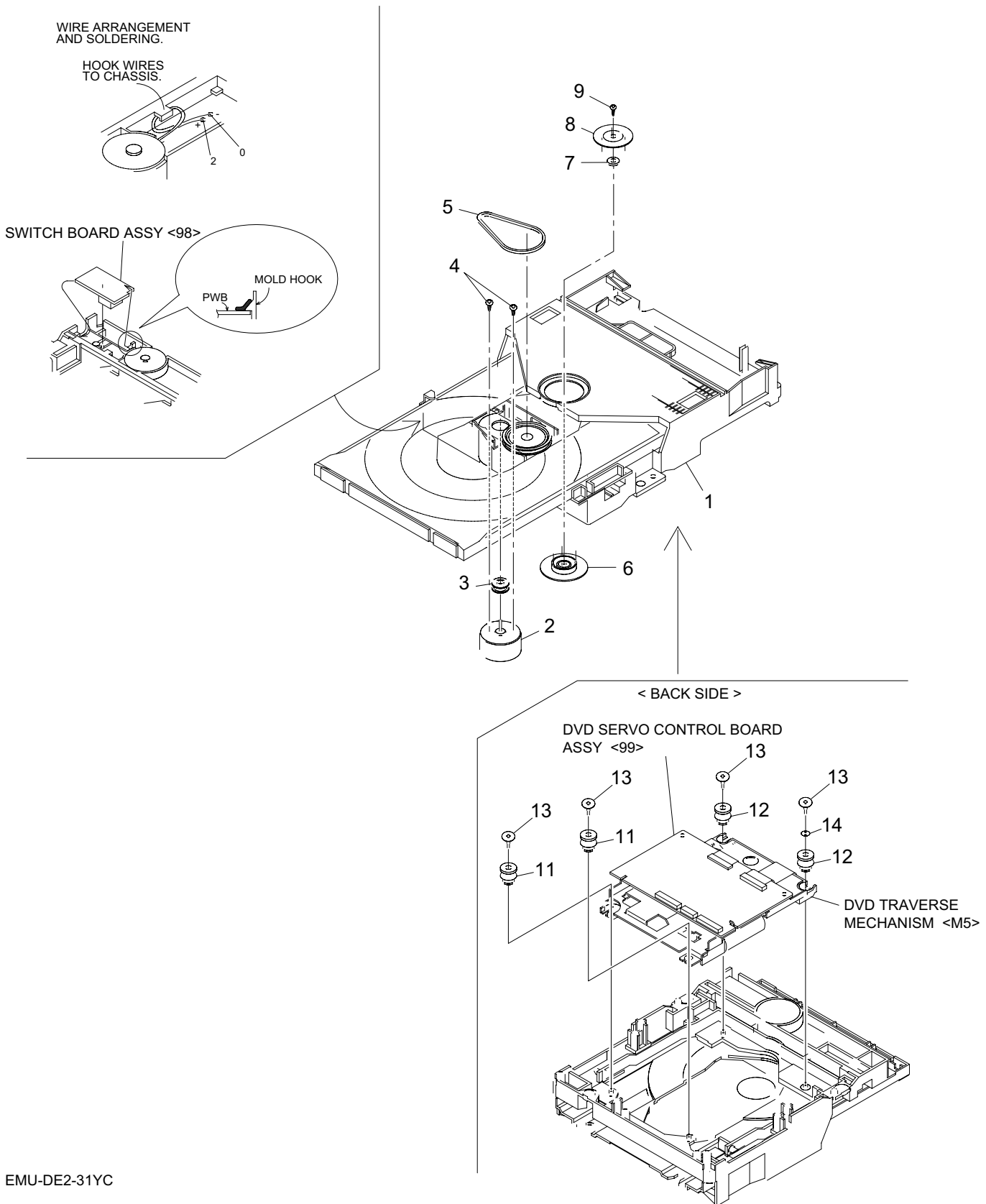
1.4 DVD TRAVERSE MECHANISM ASSEMBLY <M5>



ETU-DE2-31C

1.5 DVD LOADING MECHANISM ASSEMBLY <M6>

< BACK SIDE >



EMU-DE2-31YC

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

2. PARTS LIST

PACKING AND ACCESSORY ASSEMBLY <M1>

△ Symbol No.	Part No.	Part Name	Description	Local
	301	LP31263-030A	PACKING CASE	A
	301	LP31263-032A	PACKING CASE	B
	301	LP31263-026A	PACKING CASE	C
	301	LP31263-028A	PACKING CASE	D,E
	302	LP31265-001D	CUSHION ASSY	
	303	LP41038-001A	POLY BAG	
	306	LP21036-038B	REMOCON	A,C
	306	LP21036-039B	REMOCON	B,D,E
	306A	LP40254-001B	COVER(BATTERY)	A,C
	306A	LP40254-009A	COVER(BATTERY)	B,D,E
	307	-----	BATTERY	
	308	QPC02202230P	POLY BAG	
	△ 310	LPT0894-001A	INST.BOOK (ENGLISH)	A
	△ 310	LPT0894-002A	INST.BOOK (FRENCH)	A
	△ 310	LPT0895-001A	INST.BOOK (ENGLISH)	B
	△ 310	LPT0895-002A	INST.BOOK (FRENCH)	B
	△ 310	LPT0892-001B	INST.BOOK (ENGLISH)	C
	△ 310	LPT0893-002A	INST.BOOK (FRENCH)	D
	△ 310	LPT0893-001A	INST.BOOK (ENGLISH)	D,E
	311	QPC02503530P	POLY BAG	
	312	QAM0501-003	RF CABLE	
	313	QAM0498-005	A/V CABLE	A,B
	316	BT-52006-2	WARRANTY CARD	A,B,D
	317	BT-51034-1	REGIST CARD	C,E

FINAL ASSEMBLY <M2>

△ Symbol No.	Part No.	Part Name	Description	Local
	△ 501	LP10492-013A	FRONT PANEL ASSY	A
	△ 501	LP10492-014A	FRONT PANEL ASSY	B
	△ 501	LP10492-011A	FRONT PANEL ASSY	C
	△ 501	LP10492-012A	FRONT PANEL ASSY	D,E
	501A	LP21188-001A	CASSETTE DOOR	A,C
	501A	LP21188-002A	CASSETTE DOOR	B,D,E
	501B	PQ46448	TORSION SPRING	
	△ 502	LP10488-004B	TOP COVER	A,C
	△ 502	LP10488-002B	TOP COVER	B,D,E
	503	QYSBSG3006MA	TAP SCREW	
	503	QYSBSG3006NA	TAP SCREW	
	504	QYSBSG3006MA	TAP SCREW	
	504	QYSBSG3006NA	TAP SCREW	
	505	PDV2531D	DRUM FINAL ASSY	
	506	QYTDST2608ZA	TAP SCREW	
	507	LP40990-001A	SPECIAL SCREW	
	507	LP31391-001A	SPECIAL SCREW	
	508	LP21190-001A	FITTING	
	508	LP21190-002A	FITTING	
	△ 509	LP41077-002A	LABEL(CAUTION)	
	510	QYSPSPD3008ZA	SCREW	
	△ 511	LP10489-001B	BOTTOM CHASSIS	
	514	LP30002-0F1A	SPACER	
	515	LP31391-002A	SPECIAL SCREW	
	516	LP31391-001A	SPECIAL SCREW	
	517	LP31391-001A	SPECIAL SCREW	
	518	QYTDST2608MA	TAP SCREW	
	△ 519	LP21178-016B	REAR COVER	
	520	QYSBSG3006MA	TAP SCREW	
	521	LP31348-001A	FOOT	
	560	LP21177-001B	BRACKET(DVD)	
	561	LP31391-001A	SPECIAL SCREW	
	562	LP30002-0E5A	SPACER	
	563	LP31392-001A	BRACKET	
	564	QYSDSF2608ZA	TAP SCREW	
	565	QYSBSG3010ZA	TAP SCREW	
	566	LP31153-013A	STICKER(TOP)	
	566	LP31153-012A	STICKER(TOP)	
	566	LP31153-011A	STICKER(TOP)	
	570	LP30002-0B7A	SPACER	
	WR1	QUQ112-2212CG	FFC WIRE	
	WR2	QUQ112-1010CG	FFC WIRE	
	WR3	QUQ210-1916CC	FFC WIRE	

△ Symbol No.	Part No.	Part Name	Description	Local
	WR4	QUQ210-1716CC	FFC WIRE	
	WR5	QUQ210-0510CC	FFC WIRE	

MECHANISM ASSEMBLY <M4>

△ Symbol No.	Part No.	Part Name	Description	Local
	1	LP21039-001X	MAIN DECK ASSY	A,D
	1	LP21039-001Y	MAIN DECK ASSY	B,C,E
	3	LP40097-002E	GUIDE POLE CAP	
	4	NAH0004-001	FE HEAD	
	15	LP30958-001B	LOADING GEAR BASE	
	16	QYTPST2620ZA	TAP SCREW	
	17	QYTDST2606ZA	SCREW	
	18	LP40798-001A	LOADING GEAR(SUPPLY)ASSY	
	18A	LP21040-001A	LOADING GEAR(SUPPLY)	
	18B	LP40799-001A	LOADING ARM(SUPPLY)ASSY	
	19	LP40837-001A	TORSION SPRING(SUPPLY)	
	20	LP40903-002B	FIXING PLATE	
	21	LP40806-001D	POLE BASE ASSY(SUPPLY)	
	22	LP30959-001B	LOADING GEAR	
	23	LP40802-001C	LOADING GEAR(TAKE UP)ASSY	
	23A	LP21041-001D	LOADING GEAR(TAKE UP)	
	23B	LP40803-001A	LOADING ARM(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	TAKE UP HEAD	
	39	LP30961-001C	LID GUIDE	
	42	LP40810-001C	PINCHROLLER ARM ASSY	
	44	LP40840-001D	TORSION SPRING	
	46	LP30963-001C	PRESS LEVER	
	47	PQM30017-24	SLIT WASHER	
	49	LP40813-001D	GUIDE ARM ASSY	
	50	LP40841-001A	TORSION SPRING	
	52	NAH0005-001	AC HEAD	
	53	LP30965-001A	HEAD BASE	
	55	LP40842-001D	COMPRESSION SPRING	
	56	QYTDST2006MA	TAP SCREW	
	57	LP41036-002A	A/C ADJ.SCREW	
	58	QYTDST2606ZA	TAP SCREW	
	59	QAR0289-001	LOADING MOTOR	
	60	QYTPSP3003ZA	SCREW	
	61	LP21056-002J	MOTOR BRACKET	
	62	QYTPST2620ZA	TAP SCREW	
	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	LP40818-001B	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	LP30003-033B	TENSION SPRING	
	83	LP30003-035B	TENSION SPRING	
	△ 85	QAR0322-001	CAPSTAN MOTOR	
	86	QYTPSG2606ZA	TAP SCREW	
	87	LP30005-010A	BELT	
	88	LP30970-001A	IDLER ARM	
	89	LP40828-004A	IDLER GEAR 1	
	90	LP40829-002A	IDLER GEAR 2	
	91	LP31014-002A	WIRE HOLDER	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

Symbol No.	Part No.	Part Name	Description	Local
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	LP30976-001F	SIDE PLATE		
115	LP30977-002D	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		
121	LP30980-001F	CONNECT PLATE		
122	LP10403-001C	SIDE HOLDER(L)		
123	LP10404-001E	SIDE HOLDER(R)		
124	LP30983-001B	LOCK LEVER(L)		
125	LP30984-001B	LOCK LEVER(R)		
126	LP40924-001D	TENSION SPRING	(x2)	
128	LP40857-001B	EARTH SPRING(2)		
130	LP30981-001G	CASSETTE HOLDER ASSY		
134	LP21051-002C	REC SAFETY LEVER		
137	LP21052-001K	TOP FRAME		
140	LP41153-001A	EARTH SPRING(3)		
151	LP30985-002M	DOOR OPENER		
WR1	WJT0117-001A	E-CARD WIRE		
WR2	WJT0067-001B	E-CARD WIRE	A/C HEAD CN2001	
WR3	WJS0022-001A	E-FL/RB WIRE	LOADING MOTOR	

DVD TRAVERSE MECHANISM ASSEMBLY <M5>

Symbol No.	Part No.	Part Name	Description	Local
1	LE20727-001A	MECHA BASE		
2	LE20699-002A	SPINDLE BASE		
3	QYSDST2605M	TAP SCREW	M2.6 x 5mm(x2)	
4	LE40931-001A	SHAFT		
5	LV33991-001A	ADJUST SPRING		
6	QYSPSFU2040M	TAP SCREW	M2 x 4mm	
7	LE20698-004A	FEED HOLDER		
8	QAR0215-001	FEED MOTOR		
9	LV41510-001A	FEED GEAR T		
10	QYSPSPU2040M	SCREW	M2 x 4mm(x2)	
11	QYSDST2605M	TAP SCREW	M2.6 x 5mm(x2)	
12	QAL0507-001	PICK UP		
13	LE20700-001A	SW ACTUATOR		
14	LE31067-002A	LEAD SPRING		
15	QYSPSFU1740Z	TAP SCREW	M1.7 x 4mm(x2)	
16	LE40929-001A	SW.LEVER		
17	QYSPSFU1740Z	TAP SCREW	M1.7 x 4mm	
18	QUQ105-2411AC	FFC		
19	LE40931-001A	SHAFT		
20	LE40855-001A	FEED GEAR E		
21	LE40918-001A	LEAD SCREW		
22	LE40930-001A	FEED GEAR M		
23	LE40928-001A	THURUST SPRING		
24	LE40927-001A	PLATE		
25	QYSDST2614Z	TAPPING SCREW	M2.6 x 14mm	
26	QAR0316-001	SPINDLE MOTOR		
27	QYSPSPU1740Z	SCREW	M1.7 x 4mm(x3)	
28	LE40858-002A	SPECIAL SCREW	(x3)	
29	QYSDST2004Z	SCREW	2mm x 4mm(x2)	

DVD LOADING MECHANISM ASSEMBLY <M6>

Symbol No.	Part No.	Part Name	Description	Local
1	LE10283-012A	LOADER SUB ASSY		
2	QAR0197-001	MOTOR	MABUCHI	
3	LV42087-002A	MOTOR PULLEY		
4	QYSPSPU1730Z	SCREW	FOR MOTOR(x2)	
5	LE40897-001A	BELT		
6	LE31046-003A	CLAMPER		
7	LV42930-003A	P.C.MAGNET		
8	LE40899-001A	YOKE		
9	LE40906-001A	SPECIAL SCREW		
11	LE40900-003A	INSULATOR	(x2)	
12	LE40900-005A	INSULATOR	(x2)	
13	LE40901-001A	SPECIAL SCREW	(x4)	
14	QYWFM419025	WASHER	1.9mmx21.4mm x 0.02mm	

MAIN BOARD ASSEMBLY <O3>

Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10227-02C	MAIN BOARD ASSY		A,B
PW1	LPA10227-01C	MAIN BOARD ASSY		C,D,E
IC1	JCP8060-NVA	IC		
△ IC2201	AN3663FBP	IC		
IC3001	HD6432199RB04F	IC(MCU)	MASK	
IC3002	IC-PST3427U-X	IC		
IC3003	LPN0864-002B-01	IC(EEPROM)	*(REFER TO BELOW)	A,B
IC3003	LPN0864-001B-02	IC(EEPROM)	*(REFER TO BELOW)	C,D,E
IC5201	UTCTL431-T	IC		
IC5201 or	MM1431AT-T	IC		
IC5201 or	L5431-T	IC		
IC5201 or	TL431/A-T	IC		
IC5301	UTCTL431-T	IC		
IC5302	MM1565AF-X	IC		
IC7102	MM1507XN-X	IC		
IC7104	MM1623XF-X	IC		
IC7501	74VHCT08ASJ-X	IC		
IC8001	HA17558AF-X	IC		
IC8001 or	RC4558D-X	IC		
IC8201	MN101C30AJE	IC(MCU)		
IC8201 or	MN101CP30AJE	IC(MCU)		
IC8202	SN74HCT08APW-X	IC		
IC8301	LB1641	IC		
Q202	2SD601A/QRS/-X	TRANSISTOR		
Q202 or	2SC2412K/QRS/-X	TRANSISTOR		
Q202 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	SI 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	SI 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		

*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-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
Q2201	or RT1P44HC-X	DIGI TRANSISTOR			D5105	or 1SS270A-T2	SI DIODE		
Q2202	UN221E-X	TRANSISTOR			D5106	MTZJ33D-T2	Z DIODE		
Q2202	or DTC144WKA-X	DIGI TRANSISTOR			D5106	or RD33ES/B4/-T2	Z DIODE		
Q2202	or RT1N44HC-X	DIGI TRANSISTOR			D5208	1S4-T2	SB DIODE		
Q2203	2SD601A/QRS/-X	TRANSISTOR			D5208	or AW04-T2	SB DIODE		
Q2203	or 2SC2412K/QRS/-X	TRANSISTOR			D5208	or SBO40-T2	SB DIODE		
Q2203	or 2SC3928A/QRS/-X	TRANSISTOR			D5209	PG104RS-T2	FR DIODE		
Q2204	2SD601A/QRS/-X	TRANSISTOR			D5209	or 10ERB20-T2	FR DIODE		
Q2204	or 2SC2412K/QRS/-X	TRANSISTOR			D5209	or 1F4G-T2	FR DIODE		
Q2204	or 2SC3928A/QRS/-X	TRANSISTOR			D5209	or AU01Z-T2	FR DIODE		
Q3002	PTZ-NV16A	IC(PHOTO SENSOR)			D5209	or 1SR153-400-T2	FR DIODE		
Q3004	2SD601A/QRS/-X	TRANSISTOR			D5212	SB240-F26	SB DIODE		
Q3004	or 2SC2412K/QRS/-X	TRANSISTOR			D5212	or RK14LF-B2	SBD		
Q3004	or 2SC3928A/QRS/-X	TRANSISTOR			D5212	or 21DQ04-F	SBD		
Q3005	2SD601A/QRS/-X	TRANSISTOR			D5213	1F4G-T2	FR DIODE		
Q3005	or 2SC2412K/QRS/-X	TRANSISTOR			D5213	or 10ERB20-T2	FR DIODE		
Q3005	or 2SC3928A/QRS/-X	TRANSISTOR			D5301	MTZJ15C-T2	Z DIODE		
Q4001	UN2211-X	TRANSISTOR			D5301	or RD15ES/B3/-T2	Z DIODE		
Q4001	or DTC114EKA-X	TRANSISTOR			D5305	MTZJ11C-T2	Z DIODE		
Q4001	or RT1N141C-X	DIGI TRANSISTOR			D5305	or RD11ES/B3/-T2	Z DIODE		
Q5101	2SK2043-CB14	FET			D5306	MTZJ5.6C-T2	Z DIODE		
Q5102	2SC3576-JVC-T	TRANSISTOR			D5306	or RD5.6ES/B3/-T2	Z DIODE		
Q5103	2SB709A/QR/-X	TRANSISTOR			D5310	MTZJ10B-T2	Z DIODE		
Q5103	or 2SA1037AK/QR/-X	TRANSISTOR			D5310	or RD10ES/B2/-T2	Z DIODE		
Q5103	or 2SA1530A/QR/-X	SI TRANSISTOR			D6002	HZ30-2L-T2	Z DIODE		
Q5306	2SD2144S/UV/-T	TRANSISTOR			D6002	or HZ30-2LTD	Z DIODE		
Q5307	UN211E-X	DIGI TRANSISTOR			D8001	1SS133-T2	DIODE		
Q5307	or DTA144WKA-X	TRANSISTOR			D8001	or 1SS270A-T2	SI DIODE		
Q5307	or RT1P44HC-X	DIGI TRANSISTOR			D8301	RD5.1ES/B2/-T2	Z DIODE		
Q5309	UN2211-X	TRANSISTOR			D8301	or MTZJ5.1B-T2	Z DIODE		
Q5309	or DTC114EKA-X	TRANSISTOR							
Q5309	or RT1N141C-X	DIGI TRANSISTOR			PC3001	RPI-304J	IC(PHOTO SENSOR)		
Q5310	2SD1858/QR/-T	TRANSISTOR			PC3002	RPI-304J	IC(PHOTO SENSOR)		
Q5311	2SC5739/QP/-	TRANSISTOR			△ PC5101	PC123Y22FZ	PHOTO COUPLER		
Q5315	2SD1858/QR/-T	TRANSISTOR							
Q6030	2SB709A/QR/-X	TRANSISTOR			C1	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
Q6030	or 2SA1037AK/QR/-X	TRANSISTOR			C2	NDC31HJ-330X	C CAPACITOR	33pF 50V J	
Q6030	or 2SA1530A/QR/-X	SI TRANSISTOR			C4	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
Q7113	2SA1037AK/QR/-X	TRANSISTOR			C5	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q7113	or 2SB709A/QR/-X	TRANSISTOR			C6	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q7113	or 2SA1530A/QR/-X	SI TRANSISTOR			C7	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q8001	2SD601A/QRS/-X	TRANSISTOR			C8	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q8001	or 2SC2412K/QRS/-X	TRANSISTOR			C9	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
Q8001	or 2SC3928A/QRS/-X	TRANSISTOR			C11	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q8002	2SD601A/QRS/-X	TRANSISTOR			C12	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q8002	or 2SC2412K/QRS/-X	TRANSISTOR			C14	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
Q8002	or 2SC3928A/QRS/-X	TRANSISTOR			C15	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q8052	2SD601A/QRS/-X	TRANSISTOR			C17	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
Q8052	or 2SC2412K/QRS/-X	TRANSISTOR			C19	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q8052	or 2SC3928A/QRS/-X	TRANSISTOR			C20	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
Q8053	UN2111-X	TRANSISTOR			C22	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
Q8053	or DTA114EKA-X	DIGI TRANSISTOR			C24	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
Q8053	or RT1P141C-X	DIGI TRANSISTOR			C25	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
					C26	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
D201	1SS133-T2	DIODE			C27	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
D2001	1SS133-T2	DIODE			C30	NCB31HK-331X	C CAPACITOR	330pF 50V K	
D2001	or 1SS270A-T2	SI DIODE			C31	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
D2251	1SS133-T2	DIODE			C33	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
D2251	or 1SS270A-T2	SI DIODE			C34	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
D3001	LNB2301L01V1	LED			C35	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
D3002	1SS133-T2	DIODE			C36	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
D3002	or 1SS270A-T2	SI DIODE			C37	NDC31HJ-4R0X	C CAPACITOR	4pF 50V J	
D3003	RD33ES/B3/-T2	Z DIODE			C40	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D3003	or MTZJ33C-T2	Z DIODE			C41	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
D3004	10EDB20-T2	SI DIODE			C43	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
D3004	or 1A3G-T2	SI DIODE			C44	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
D3005	10EDB20-T2	SI DIODE			C45	NCB31EK-472X	C CAPACITOR	4700pF 25V K	
D3005	or 1A3G-T2	SI DIODE			C46	NCB31CK-333X	C CAPACITOR	0.033uF 16V K	
D4002	1SS133-T2	DIODE			C47	QEKJ1HM-474Z	E CAPACITOR	0.47uF 50V M	
D5001	S1WB/A/60-4102	BRIDGE DIODE			C48	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
D5001	or S1WB/A/60-X	BRIDGE DIODE			C49	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
D5101	10EDB20-T2	SI DIODE			C56	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
D5101	or 1A3G-T2	SI DIODE			C57	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D5102	10ERB40-T2	FR DIODE			C58	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D5102	or AU01-T2	SI DIODE			C59	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D5103	1SS133-T2	DIODE			C60	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D5103	or 1SS270A-T2	SI DIODE			C77	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
D5105	1SS133-T2	DIODE			C78	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C201	NDC31HJ-220X	C CAPACITOR	22pF 50V J		C4010	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C202	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C4011	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C203	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C4012	QEKJ1HM-224Z	E CAPACITOR	0.22uF 50V M	
C204	NCB31HK-681X	C CAPACITOR	680pF 50V K		C4014	NDC31HJ-101X	C CAPACITOR	100pF 50V J	
C205	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C4015	NCB31HK-221X	C CAPACITOR	220pF 50V K	
C206	NCB31HK-681X	C CAPACITOR	680pF 50V K		△ C5001	QFZ9077-473	MPP CAPACITOR	0.047uF 275V M	
C207	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		△ C5003	QCZ9079-101	C CAPACITOR	100pF AC250V K	
C209	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		△ C5004	QCZ9079-472	C CAPACITOR	4700pF AC250V M	
C210	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C5006	QETM2DM-157	E CAPACITOR	150uF 200V M	
C212	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C5101	QCZ0336-330Z	C CAPACITOR	33pF 1kV J	
C213	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C5102	QCZ0333-472	C CAPACITOR	4700pF 1kV K	
C2001	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5104	QETN1HM-105Z	E CAPACITOR	1uF 50V M	
C2002	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M		C5106	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C2005	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5108	NCB31HK-104X	C CAPACITOR	0.1uF 50V K	
C2006	NCB31EK-682X	C CAPACITOR	6800pF 25V K		C5109	NCB31HK-183X	C CAPACITOR	0.018uF 50V K	
C2007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		C5202	QEMT1AM-128	E CAPACITOR	1200uF 10V M	
C2008	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5204	QEMT1AM-128	E CAPACITOR	1200uF 10V M	
C2009	NCB31HK-102X	C CAPACITOR	1000pF 50V K		C5205	QEMU1CM-397Z	E CAPACITOR	390uF 16V M	
C2010	NCB31HK-681X	C CAPACITOR	680pF 50V K		C5207	QETN2AM-475Z	E CAPACITOR	4.7uF 100V M	
C2011	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5209	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2012	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5210	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C2051	NCB31HK-331X	C CAPACITOR	330pF 50V K		C5211	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2052	QFV61HJ-823Z	MF CAPACITOR	0.082uF 50V J		C5214	NCB31AK-154X	C CAPACITOR	0.15uF 10V K	
C2053	NCB31HK-472X	C CAPACITOR	4700pF 50V K		C5303	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	
C2054	NCB31EK-223X	C CAPACITOR	0.022uF 25V K		C5304	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C2055	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C5305	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2201	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C5306	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C2202	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5307	NCB31HK-471X	C CAPACITOR	470pF 50V K	
C2203	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M		C5309	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2204	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M		C5310	QETN1AM-107Z	E CAPACITOR	100uF 10V M	
C2205	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C5314	QETN1CM-107Z	E CAPACITOR	100uF 16V M	
C2206	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6013	NCB31HK-102X	C CAPACITOR	1000pF 50V K	
C2207	NCB31EK-153X	C CAPACITOR	0.015uF 25V K		C6021	NCB31HK-331X	C CAPACITOR	330pF 50V K	C,D,E
C2208	NCB31EK-153X	C CAPACITOR	0.015uF 25V K		C6053	NDC31HJ-120X	C CAPACITOR	12pF 50V J	C,D,E
C2209	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6054	NDC31HJ-100X	C CAPACITOR	10pF 50V J	C,D,E
C2210	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6501	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C2211	QEKJ0JM-336Z	E CAPACITOR	33uF 6.3V M		C6502	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2212	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C6503	QEKJ1HM-105Z	E CAPACITOR	1uF 50V M	
C2214	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6504	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2215	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6505	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
C2218	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	C,D,E	C6508	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2219	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	C,D,E	C6509	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	
C2220	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C6511	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2221	NCB31EK-223X	C CAPACITOR	0.022uF 25V K		C6512	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2222	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C6513	QEKJ1HM-225Z	E CAPACITOR	2.2uF 50V M	
C2234	NCB30JK-105X	C CAPACITOR	1uF 6.3V K		C6514	NCB31EK-223X	C CAPACITOR	0.022uF 25V K	
C2235	NCB30JK-105X	C CAPACITOR	1uF 6.3V K		C6515	QEKJ1HM-335Z	E CAPACITOR	3.3uF 50V M	
C2251	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C6516	QEKJ1EM-475Z	E CAPACITOR	4.7uF 25V M	
C2252	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C6517	NCB31AK-224X	C CAPACITOR	0.22uF 10V K	
C2253	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C6532	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2254	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C7114	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C2255	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7117	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2256	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C7118	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M	
C2257	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C7119	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C2259	QEKJ1HM-334Z	E CAPACITOR	0.33uF 50V M		C7120	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C3011	QETN1AM-477Z	E CAPACITOR	470uF 10V M		C7121	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3012	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C7123	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C3014	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C7124	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C3016	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7125	QETJ0JM-477Z	E CAPACITOR	470uF 6.3V M	
C3022	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7129	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C3024	NDC31HJ-120X	C CAPACITOR	12pF 50V J		C7131	NCB31EK-103X	C CAPACITOR	0.01uF 25V K	
C3030	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C7132	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C3031	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7133	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C3033	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7134	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C3036	NDC31HJ-180X	C CAPACITOR	18pF 50V J		C7135	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C3037	NDC31HJ-120X	C CAPACITOR	12pF 50V J		C7136	NCF31AZ-105X	C CAPACITOR	1uF 10V Z	
C3041	NDC31HJ-180X	C CAPACITOR	18pF 50V J		C7502	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z	
C3045	NCB31EK-103X	C CAPACITOR	0.01uF 25V K		C7503	QEKJ1HM-475Z	E CAPACITOR	4.7uF 50V M	
C3050	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C7504	NDC31HJ-151X	C CAPACITOR	150pF 50V J	
C3052	QEKJ1EM-106Z	E CAPACITOR	10uF 25V M		C8001	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C3054	NCB31HK-222X	C CAPACITOR	2200pF 50V K		C8002	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C3071	QETJ1HM-336Z	E CAPACITOR	33uF 50V M		C8003	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C4002	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		C8004	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C4004	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M		C8005	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C4005	NDC31HJ-181X	C CAPACITOR	180pF 50V J		C8006	NCB31HK-821X	C CAPACITOR	820pF 50V K	
C4006	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		C8007	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C4008	QEQF1HM-105Z	E CAPACITOR	1uF 50V M		C8008	QEKJ1CM-226Z	E CAPACITOR	22uF 16V M	
C4009	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		C8052	QEKJ0JM-107Z	E CAPACITOR	100uF 6.3V M	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
C8201	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M		R3054	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
C8202	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R3058	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
C8203	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R3061	QRE141J-331Y	C RESISTOR	330Ω 1/4W J	
C8301	QETN1CM-107Z	E CAPACITOR	100uF 16V M		R3062	QRE141J-331Y	C RESISTOR	330Ω 1/4W J	
C8302	NCS31EK-103X	C CAPACITOR	0.01uF 25V K		R3063	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
C8303	NCF31EZ-104X	C CAPACITOR	0.1uF 25V Z		R3064	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R1	NRSA63J-622X	MG RESISTOR	6.2kΩ 1/16W J		R3065	NRSA63J-271X	MG RESISTOR	270Ω 1/16W J	
R2	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J		R3069	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J	
R3	NRSA63J-822X	MG RESISTOR	8.2kΩ 1/16W J		R3074	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R11	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R3077	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R12	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R3080	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R36	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R3082	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R37	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3085	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R201	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R3098	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J	
R202	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3099	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R203	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3101	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R204	NRSA63J-474X	MG RESISTOR	470kΩ 1/16W J		R3201	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R205	NRSA63J-301X	MG RESISTOR	300Ω 1/16W J		R3202	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J	
R206	NRSA63J-474X	MG RESISTOR	470kΩ 1/16W J		R3205	QRE141J-181Y	C RESISTOR	180Ω 1/4W J	
R210	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R3207	QRE141J-183Y	C RESISTOR	18kΩ 1/4W J	
R212	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R3208	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J	
R2007	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J		R3209	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R2010	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J		R3210	NRSA63J-121X	MG RESISTOR	120Ω 1/16W J	
R2013	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J		R3211	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J	
R2014	NRSA63J-394X	MG RESISTOR	390kΩ 1/16W J		R3212	QRE141J-474Y	C RESISTOR	470kΩ 1/4W J	
R2015	NRSA63J-271X	MG RESISTOR	270Ω 1/16W J		R3213	NRSA63J-334X	MG RESISTOR	330kΩ 1/16W J	
R2016	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J		R3214	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2017	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J		R3215	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2018	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R3216	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2019	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R3217	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2021	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J		R3218	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2022	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3219	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2023	QRE141J-103Y	C RESISTOR	10kΩ 1/4W J		R3220	QRE141J-104Y	C RESISTOR	10kΩ 1/4W J	
R2024	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3222	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2053	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R3223	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R2054	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J		R3224	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R2055	NRSA63J-3R3X	MG RESISTOR	3.3Ω 1/16W J		R3225	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2056	QRE141J-820Y	C RESISTOR	82Ω 1/4W J		R3229	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J	
R2057	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R3234	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R2058	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R3235	QRE141J-332Y	C RESISTOR	3.3kΩ 1/4W J	
R2059	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R3236	QRE141J-332Y	C RESISTOR	3.3kΩ 1/4W J	
R2060	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R3244	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	
R2201	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R3246	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R2202	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R3248	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2205	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R3256	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R2206	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R4001	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R2209	QRE141J-101Y	C RESISTOR	100Ω 1/4W J		R4003	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R2210	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R4004	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J	
R2211	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		R4005	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	
R2212	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		R4007	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2213	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R4009	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2214	QRE141J-101Y	C RESISTOR	100Ω 1/4W J		R4012	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R2216	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R4015	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J	
R2218	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		R4017	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R2219	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		△ R5001	QRZ9046-475Z	C RESISTOR	4.7MΩ 1/2W K	
R2220	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5101	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	
R2221	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		R5102	QRE141J-224Y	C RESISTOR	220kΩ 1/4W J	
R2222	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		R5103	QRE141J-683Y	C RESISTOR	68kΩ 1/4W J	
R2223	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J		R5104	QRG02GJ-683	OMF RESISTOR	68kΩ 2W J	
R2224	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J		R5106	QRT01DJ-R27X	MF RESISTOR	0.27Ω 1W J	
R2230	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R5107	QRE121J-331Y	C RESISTOR	330Ω 1/2W J	
R2231	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R5108	NRSA63J-152X	MG RESISTOR	1.5kΩ 1/16W J	
R2251	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		R5109	NRSA63J-681X	MG RESISTOR	680Ω 1/16W J	
R2252	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		R5110	NRSA63J-224X	MG RESISTOR	220kΩ 1/16W J	
R2255	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		R5111	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R2257	NRSA63J-684X	MG RESISTOR	680kΩ 1/16W J		R5112	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R3033	QRE141J-472Y	C RESISTOR	4.7kΩ 1/4W J		R5113	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	
R3034	QRE141J-472Y	C RESISTOR	4.7kΩ 1/4W J		R5201	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	
R3043	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5202	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3045	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5203	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3046	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5204	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3047	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5205	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	
R3048	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J		R5206	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J	
R3049	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J		R5311	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R3051	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5312	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R3052	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5313	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R3053	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		R5316	QRE141J-181Y	C RESISTOR	180Ω 1/4W J	
					R5317	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R5319	NRSA63J-560X	MG RESISTOR	56Ω 1/16W J						
R5320	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J		L5	QQL29BJ-100Z	P COIL	0.40Ω 10uH J	
R5321	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		L7	QQL071J-120Y	COIL	1.50Ω 12uH J	
R5325	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		L10	QQL29BJ-100Z	P COIL	0.40Ω 10uH J	
R6020	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		L201	QQL231J-150Y	COIL	2.50Ω 15uH J	
R6021	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		L2251	QQL29BJ-100Z	P COIL	0.40Ω 10uH J	
R6030	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		L4001	QQL231K-1R0Y	COIL	0.80Ω 1uH K	
R6031	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		L5201	PELN1184	CHOKO COIL		
R6050	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	C,D,E	L5202	PELN1184	CHOKO COIL		
R6051	QRE141J-102Y	C RESISTOR	1kΩ 1/4W J	C,D,E	L5203	PELN1184	CHOKO COIL		
R6054	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	C,D,E	L5303	QQL231J-220Y	COIL	3.4Ω 22uH J	
R6055	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	C,D,E	L7101	QQL29BJ-100Z	P COIL	0.40Ω 10uH J	
R6502	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		L7103	QQL29BJ-100Z	P COIL	0.40Ω 10uH J	
R7134	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J		L7501	QQL231K-1R0Y	COIL	0.80Ω 1uH K	
R7135	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J		T2051	PELN0832	OSC TRANS		
R7137	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J		△ T5001	QQS0219-001	SW TRANSF		
R7154	QRE141J-750Y	C RESISTOR	75Ω 1/4W J						
R7155	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J		B10	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7156	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		B3003	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7164	QRE141J-750Y	C RESISTOR	75Ω 1/4W J		B5301	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7165	QRE141J-750Y	C RESISTOR	75Ω 1/4W J		B5303	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7166	QRE141J-750Y	C RESISTOR	75Ω 1/4W J		B5393	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7173	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J		B6024	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7174	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		B6025	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7175	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J		B7501	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7176	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		B7502	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7177	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J		△ CD1	QMPD530-172-JD	POWER CORD(US/CA)	1.72m BLACK	
R7179	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J		CN1	QGF1201C2-09	CONNECTOR	FFC/FPC (1-9)	
R7183	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J		CN2001	QGF1207C1-06	CONNECTOR	FFC/FPC (1-6)	
R7184	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		CN2002	QGB2532J1-02	CONNECTOR	B-B (1-2)	
R7501	NRSA02J-100X	MG RESISTOR	10Ω 1/10W J		CN3001	QGB2032M4-12	CONNECTOR	B-B (1-12)	
R7502	NRSA63J-301X	MG RESISTOR	300Ω 1/16W J		CN3102	QGF1207C1-22	CONNECTOR	FFC/FPC (1-22)	
R7503	NRSA63J-301X	MG RESISTOR	300Ω 1/16W J		CN7103	QGF1207C1-10	CONNECTOR	FFC/FPC (1-10)	
R7504	NRSA63J-820X	MG RESISTOR	82Ω 1/16W J		CN7301	QGF1016C3-19	CONNECTOR	FFC/FPC (1-19)	
R7506	NRSA63J-330X	MG RESISTOR	33Ω 1/16W J		CN7302	QGF1016C3-17	CONNECTOR	FFC/FPC (1-17)	
R8001	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		CN8301	QGF1016C3-05	CONNECTOR	FFC/FPC (1-5)	
R8002	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J		△ CP3002	NMFZ012-1R0X-M	FUSE	1A 50V	
R8003	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		△ CP3101	NMFZ012-1R0X-M	FUSE	1A 50V	
R8004	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		△ CP4002	NMFZ012-1R0X-M	FUSE	1A 50V	
R8005	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J		△ CP5303	NMFZ012-1R0X-M	FUSE	1A 50V	
R8006	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J		△ CP5304	NMFZ012-1R0X-M	FUSE	1A 50V	
R8007	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		△ F5001	QMF51N2-1R25-J1	FUSE	1.25A AC250V	
R8008	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J		FC5001	QNG0020-001Z	FUSE CLIP		
R8009	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		FC5002	QNG0020-001Z	FUSE CLIP		
R8010	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J		HS1	LP40090-001A	HEAT SINK	Q5101	
R8013	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		J7002	QNN0586-001	PIN JACK	AV IN OUT	
R8014	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		J7004	QNZ0652-001	AV JACK	DVD/VCR OUT	
R8015	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J		J7005	QNN0587-002	PIN JACK	COMPONENT VIDEO OUT	
R8016	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J		J7009	QNN0347-001	SURROUND JACK	COAX OUT	
R8017	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		JS3001	QSW0954-003	ROTARY ENCODER		
R8018	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		K5101	QQR0678-001Z	FERRITE BEADS		
R8052	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		△ LF5002	QQR0932-001	LINE FILTER		
R8053	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J		OT1	LP31158-001A	BOSS(MECHA) 1		
R8054	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		OT2	LP31185-001A	BOSS(MECHA) 2	(x2)	
R8055	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		OT3	QYTDST3006Z	TAP SCREW	3Mx 6mm Q5101	
R8201	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		S3001	QSW0602-004	PUSH SWITCH	REC.SAFETY	
R8202	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		SD1	LP31179-001A	SHLD PLATE(PRE/REC)		
R8203	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J		TU6001	QAU0336-001	TUNER		
R8204	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		△ VA5001	QAF0039-431Z	VARIATOR	430V	
R8205	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		W2	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8206	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		W3	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8207	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		W4	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8214	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W5	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8215	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W6	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8216	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W7	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8217	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W8	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8221	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W9	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8222	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W11	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8223	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W12	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8227	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		W13	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8250	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		W14	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8251	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		W15	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8252	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		W18	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8259	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W20	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8260	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		W22	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8262	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		W23	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8263	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J		W24	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R8301	QRE141J-4R7Y	C RESISTOR	4.7Ω 1/4W J		W25	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

△ Symbol No.	Part No.	Part Name	Description	Local
W26	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W27	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W28	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W29	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	
W35	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	
W39	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W40	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W42	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W44	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W45	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W48	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W49	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
W51	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
WR6	QUB351-08Z4Z4	SIN TWIST WIRE		
X2	QAX0739-001	CRYSTAL	3.57MHz	
X3001	QAX0444-001	CRYSTAL	32.768kHz	
X3002	QAX0527-001	CRYSTAL	10.000000MHz	
X8201	QAX0246-001Z	C RESONATOR	8.00MHz	

A/C HEAD BOARD ASSEMBLY <12>

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

DISPLAY BOARD ASSEMBLY <28>

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-01A1	DISPLAY BOARD ASSY		
IC7002	GP1UM281XK	IR DETECT UNIT	38kHz	
IC7002	or PNA4652M00XB	IR DETECT UNIT	38kHz	
Q7001	2SA1037AK/QR/-X	TRANSISTOR		
Q7001	or 2SB709A/QR/-X	TRANSISTOR		
Q7001	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7002	2SA1037AK/QR/-X	TRANSISTOR		
Q7002	or 2SB709A/QR/-X	TRANSISTOR		
Q7002	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7003	2SA1037AK/QR/-X	TRANSISTOR		
Q7003	or 2SB709A/QR/-X	TRANSISTOR		
Q7003	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7004	2SA1037AK/QR/-X	TRANSISTOR		
Q7004	or 2SB709A/QR/-X	TRANSISTOR		
Q7004	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7005	2SA1037AK/QR/-X	TRANSISTOR		
Q7005	or 2SB709A/QR/-X	TRANSISTOR		
Q7005	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7006	2SA1037AK/QR/-X	TRANSISTOR		
Q7006	or 2SB709A/QR/-X	TRANSISTOR		
Q7006	or 2SA1530A/QR/-X	SI TRANSISTOR		
Q7007	2SA1037AK/QR/-X	TRANSISTOR		
Q7007	or 2SB709A/QR/-X	TRANSISTOR		
Q7007	or 2SA1530A/QR/-X	SI 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		

△ Symbol No.	Part No.	Part Name	Description	Local
Q7011	or 2SD601A/QRS/-X	TRANSISTOR		
Q7011	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7012	2SC2412K/QRS/-X	TRANSISTOR		
Q7012	or 2SD601A/QRS/-X	TRANSISTOR		
Q7012	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7013	2SC2412K/QRS/-X	TRANSISTOR		
Q7013	or 2SD601A/QRS/-X	TRANSISTOR		
Q7013	or 2SC3928A/QRS/-X	TRANSISTOR		
Q7014	2SC2412K/QRS/-X	TRANSISTOR		
Q7014	or 2SD601A/QRS/-X	TRANSISTOR		
Q7014	or 2SC3928A/QRS/-X	TRANSISTOR		

D7006	SLR-343MC-T	LED		DVD
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C7011	QEKJ0JM-476Z	E CAPACITOR	47uF 6.3V M	
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R7001	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7002	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7003	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7004	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7005	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7006	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7007	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R7010	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7011	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R7012	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R7013	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7014	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
R7015	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7020	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R7021	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R7022	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R7023	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	
R7031	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7032	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7033	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7034	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7035	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7036	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7037	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7040	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R7041	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	

CN7003	QGF1208F1-22	CONNECTOR	FFC/FPC (1-22)	
D17001	LTG-0376M-J	LED		
S7001	QSW1061-001Z	TACT SWITCH	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	

DVD BRACKET BOARD ASSEMBLY <31>

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-01A3	DVD BRACKET BOARD ASSY		

JACK BOARD ASSEMBLY <36>

△ Symbol No.	Part No.	Part Name	Description	Local
PW1	LPA10228-01A2	JACK BOARD ASSY		
D7005	SLR-343MC-T	LED		VHS
R7025	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R7042	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

Symbol No.	Part No.	Part Name	Description	Local
R7191	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J	
CN7191	QGF1201F2-10	CONNECTOR	FFC/FPC (1-10)	
J7191	QNN0591-002	PIN JACK	AV IN	
S7014	QSW1061-001Z	TACT SWITCH	POWER	
S7015	QSW1061-001Z	TACT SWITCH	EJECT	

LOADING MOTOR BOARD ASSEMBLY <55>

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

SWITCH BOARD ASSEMBLY <98>

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

DVD SERVO CONTROL BOARD ASSEMBLY <99>

Symbol No.	Part No.	Part Name	Description	Local
IC201	LA6502-X	IC		
IC301	MN2DS0003AA-H	IC		
IC302	LM1117MP-ADJ-X	IC	1.5v REG	
IC453	S-80827CNB-W	IC		
IC505	K4S641632F-TC75	IC(DIGITAL)	CMOS SDRAM	
IC505	or K4S641632H-TC75	IC(DIGITAL)		
IC505	or HY57V641620HGT7	IC		
IC509	AT49LV1614R0012	IC (FLASH)	(SERVICE)	
IC701	AK4384VT-X	IC		
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	NEA70JM-476X	E CAPACITOR	47uF 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	

Symbol No.	Part No.	Part Name	Description	Local
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	
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	
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	

MODEL	MARK	MODEL	MARK
HR-XVC22UC	A	HR-XVC27UC	D
HR-XVC23UC	B	HR-XVC27US	E
HR-XVC26US	C		

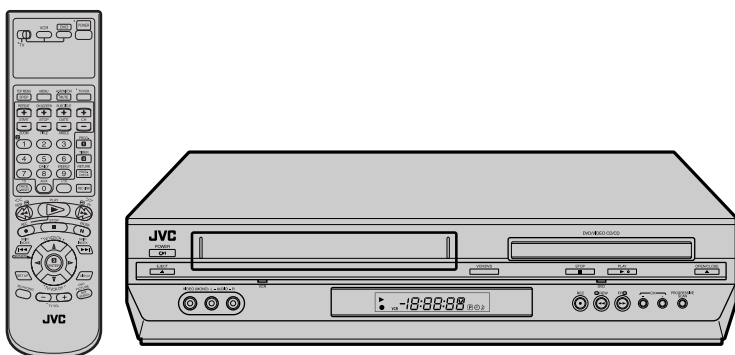
△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R104	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J		R363	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	
R105	NRS125J-270X	MG RESISTOR	27Ω 1/2W J		R372	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R106	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J		R373	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R107	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		R378	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R108	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R379	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R109	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R384	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R110	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R385	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R111	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J		R390	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J	
R112	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J		R391	NAD0025-103X	N THERMISTOR	10kΩ	
R113	NRS125J-270X	MG RESISTOR	27Ω 1/2W J		R392	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	
R114	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J		R393	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R115	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J		R394	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R116	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J		R395	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R117	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J		R457	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R118	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R458	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R119	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R501	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R120	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R502	NRSA63J-471X	MG RESISTOR	470Ω 1/16W J	
R122	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R503	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R123	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R510	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R125	NRS125J-1R0X	MG RESISTOR	1Ω 1/2W J		R551	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R126	NRSA02J-181X	MG RESISTOR	180Ω 1/10W J		R553	NQR0129-002X	FERRITE BEADS		
R128	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		R554	NQR0129-002X	FERRITE BEADS		
R204	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		R555	NQR0129-002X	FERRITE BEADS		
R205	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J		R556	NQR0129-002X	FERRITE BEADS		
R206	NRSA63J-303X	MG RESISTOR	30kΩ 1/16W J		R557	NQR0129-002X	FERRITE BEADS		
R207	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		R558	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	
R208	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J		R701	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R213	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R702	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R214	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R710	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J	
R215	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R711	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R219	NRSA63J-183X	MG RESISTOR	18kΩ 1/16W J		R712	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R220	NRSA63J-243X	MG RESISTOR	24kΩ 1/16W J		R713	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R221	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J		R716	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R251	NRS125J-R47X	MG RESISTOR	0.47Ω 1/2W J		R718	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J	
R252	NRSA63J-2R2X	MG RESISTOR	2.2Ω 1/16W J		R719	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	
R254	NRSA63J-203X	MG RESISTOR	20kΩ 1/16W J		R909	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R255	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		R911	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R257	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		L501	NQL044K-100X	COIL	0.26Ω 10uH K	
R259	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		CN101	QGF0523F1-24W	CONNECTOR	FFC/FPC (1-24)	
R302	NRSA63J-240X	MG RESISTOR	24Ω 1/16W J		CN201	QGF1016F2-08W	CONNECTOR	FFC/FPC (1-8)	
R303	NRSA63J-270X	MG RESISTOR	27Ω 1/16W J		CN501	QGF1016F2-19W	CONNECTOR	FFC/FPC (1-19)	
R306	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		CN503	QGF1016F2-17W	CONNECTOR	FFC/FPC (1-17)	
R307	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J		K101	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R308	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J		K102	NRSA02J-0R0X	MG RESISTOR	0Ω 1/10W J	
R309	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J		K301	NQR0354-001X	FERRITE BEADS		
R310	NRS125J-R47X	MG RESISTOR	0.47Ω 1/2W J		K302	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R312	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K303	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	
R313	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K304	NQR0354-001X	FERRITE BEADS		
R314	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K501	NQR0129-002X	FERRITE BEADS		
R315	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K551	NQR0129-002X	FERRITE BEADS		
R316	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K552	NQR0129-002X	FERRITE BEADS		
R317	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K553	NQR0129-002X	FERRITE BEADS		
R318	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J		K554	NQR0129-002X	FERRITE BEADS		
R319	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		K555	NQR0022-005X	FERRITE BEADS		
R320	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J		K556	NQR0129-002X	FERRITE BEADS		
R322	NRSA63J-473X	MG RESISTOR	47kΩ 1/16W J		X351	NAX0550-001X	CRYSTAL	27.000MHz	
R323	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J		OT1	VPZ4011-003	SERIAL LABEL		
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						

JVC



DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XVC26U



Hi-Fi

VHS

SQPB

DVD
VIDEO

dtc
2.0+DIGITAL OUT

DOLBY
DIGITAL

COMPACT
disc
DIGITAL VIDEO

COMPACT
disc
DIGITAL AUDIO

COMPACT
disc
SUPER VIDEO

3D
3D-PHONIC

INSTRUCTIONS

For Customer Use:

Enter below the Model No. and
Serial No. which are located on the
rear of cabinet. Retain this
information for future reference.

Model No. _____

Serial No. _____

Dear Customer,

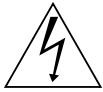
Thank you for purchasing the JVC DVD player & VHS video cassette recorder. Before use, please read the safety information and precautions to ensure safe use of your new unit.

CAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION:

This unit should be used with AC 120V~, 60Hz only. To prevent electric shocks and fire hazards, DO NOT use any other power source.

CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAMÉ LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

CAUTION:

Changes or modifications not approved by JVC could void user's authority to operate the equipment.

CAUTION:

THIS PRODUCT USES A LASER SYSTEM. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

CLASS 1 LASER PRODUCT
REPRODUCTION OF LABELS
WARNING LABEL INSIDE OF THE UNIT

CAUTION - VISIBLE OR INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM.
ATTENTION - RAYONNEMENT LASER VISIBLE OU INVISIBLE EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU. LP41077-002A

Declaration of Conformity

Model Number: HR-XVC26U
Trade Name: JVC
Responsible Party: JVC Americas Corp.
Address: 1700 Valley Road Wayne, N.J. 07470
Telephone Number: 973-317-5000

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT PRODUCT SAFETY INSTRUCTIONS

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This product has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION

Follow and obey all warnings and instructions marked on your product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this product and keep this booklet for future reference.

INSTALLATION

1. Grounding or Polarization

(A) Your product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

(B) Your product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.

If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources

Operate your product only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. If your product is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

4. Power Cord Protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

5. Ventilation

Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.

- Do not block the openings by placing the product on a bed, sofa, rug or other similar surface.
- Do not place the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding connectors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

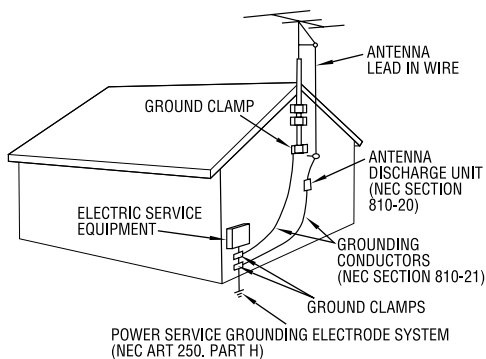
2. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

3. Power Lines

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70



NEC – NATIONAL ELECTRICAL CODE

USE

1. Accessories

To avoid personal injury:

- Do not place this product on an unstable cart, stand, tripod, bracket, or table. It may fall, causing serious injury to a child or adult, and serious damage to the product.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the product.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

2. Product and Cart Combination

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING
(Symbol provided by RETAC)



3. Water and Moisture

Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

4. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

5. Attachments

Do not use attachments not recommended by the manufacturer of this product as they may cause hazards.

6. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SERVICING

1. Servicing

If your product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance—this indicates a need for service.


3. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or which have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

HOW TO USE THIS INSTRUCTION MANUAL

- All major sections and subsections are listed in the Table Of Contents on page 6. Use this when searching for information on a specific procedure or feature.
- The Index on pages 10 – 13 lists frequently-used terms, and the number of the page on which they are used or explained in the manual. This section also illustrates the controls and connections on the front and rear panel, the front display panel and the remote control.
- The  mark signals a reference to another page for instructions or related information.
- Operation buttons necessary for the various procedures are clearly indicated through the use of illustrations at the beginning of each major section.

BEFORE YOU INSTALL YOUR NEW UNIT . . .

. . . please read the sections/literature listed below.

- "CAUTIONS" on page 2
- "IMPORTANT PRODUCT SAFETY INSTRUCTIONS" on pages 3 – 4

DSS™ is an official trademark of DIRECTV, Inc., a unit of GM Hughes Electronics. DISH Network™ is a trademark of EchoStar Communications Corporation.



- 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.
- Cassettes marked “VHS” (or “S-VHS”) can be used with this unit. However, S-VHS recording is not possible with this model.
- This model is equipped with SQPB (S-VHS QUASI PLAYBACK) that makes it possible to play back S-VHS recordings with regular VHS resolution.
- HQ VHS is compatible with existing VHS equipment.
- This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing users only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

When the equipment is installed in a cabinet or a shelf, make sure that it has sufficient space on all sides to allow for ventilation (10 cm or more on both sides, on top and at the rear.)

When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.

Failure to heed the following precautions may result in damage to the unit, Remote or video cassette.

1. **DO NOT place the unit** —
 - in an environment prone to extreme temperatures or humidity.
 - in direct sunlight.
 - in a dusty environment.
 - in an environment where strong magnetic fields are generated.
 - on a surface that is unstable or subject to vibration.
2. **DO NOT block the unit’s ventilation openings or holes.**
(If the ventilation openings or holes are blocked by a newspaper or cloth, etc., the heat may not be able to get out.)
3. **DO NOT place heavy objects on the unit or Remote.**
4. **DO NOT place anything which might spill on top of the unit or Remote.**
(If water or liquid is allowed to enter this equipment, fire or electric shock may be caused.)
5. **DO NOT expose the apparatus to dripping or splashing.**
6. **DO NOT use this equipment in a bathroom or places with water. Also DO NOT** place any containers filled with water or liquids (such as cosmetics or medicines, flower vases, potted plants, cups, etc.) on top of this unit.

7. **DO NOT place any naked flame sources, such as lighted candles, on the apparatus.**
8. **AVOID violent shocks to the unit during transport.**

MOISTURE CONDENSATION

Moisture in the air will condense on the unit when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the unit turned on for a few hours to let the moisture dry.

ATTENTION

To mobile phone users:

Using a mobile phone in the vicinity of the unit may cause picture vibration on the TV screen or change the screen to a blue back display.

On placing the unit:







Some TVs or other appliances generates strong magnetic fields. Do not place such appliance on top of the unit as it may cause picture disturbance.

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About Discs

Playable Discs

You can use the discs with the following logos for playback only.

<p>DVD VIDEO (8 cm /12 cm disc)</p> 	<p>Video CD/Super Video CD (8 cm /12 cm disc)</p>  
<p>Audio CD (8 cm /12 cm disc)</p>  <p>CD-DA files</p>	 

- The following discs also can be played back.
 - DVD-R/RW discs recorded in DVD VIDEO format and finalized
 - CD-R/RW discs recorded in Super Video CD, Video CD or Audio CD format and finalized.
 - CD-R/RW discs recorded in MP3 format in accordance with the "ISO 9660" format. (See page 62 for details.)
 - CD-R/RW discs recorded in JPEG format in accordance with the "ISO 9660" format. (See page 65 for details.)
- Discs other than the above cannot be played back.
- Operation and audio quality of this unit are not guaranteed for discs that do not conform to the Compact Disc specification (CD-DA).
Before you play back a CD, check for the CD logo and read the notes on the package to confirm that it conforms to the Compact Disc specification.
- Depending on the intentions of the author of the software, recording conditions of DVD discs and Video CD discs may be restricted. Since this unit plays back discs according to the intentions of the author of the software as indicated on the disc, some functions may not operate as commanded.
- When switching from the first layer to the second layer of double-layered DVD VIDEO discs, the image and sound may be momentarily distorted. This is not a malfunction.

Unplayable Discs

The following types of discs cannot be played using this unit. Do not attempt to play back any kind of disc that is damaged (cracked, warped, or repaired with adhesive tape) or discs in unusual shapes (heart-shaped, octagonal, or other forms). If such discs are accidentally played back, it may cause noise that can lead to speaker damage.

- CD-ROM discs (including PHOTO-CD)
- DVD AUDIO discs
- Super Audio CDs (SACD)
- DVD-RW discs recorded in VR format
- DVD-RAM
- Discs which have a region number other than "1"







Region Number

The world is divided into 6 regions for DVD VIDEO discs. DVD VIDEO discs are assigned a region number to indicate which region they may be played back in. A disc cannot be played back on this unit unless the region number of the disc matches that of the unit. The region number for this unit is "1". Only discs whose region number includes "1" can be played back such as shown below.

Examples of DVD VIDEO labels which can be played back using this unit.









Marks of discs in this instruction manual

	Allows operation with a DVD VIDEO disc.		Allows operation with a Audio CD disc.
	Allows operation with a Video CD disc.		Allows operation with a SVCD disc.
	Allows operation with a disc including MP3 files.		Allows operation with a disc including JPEG files.




DVD VIDEO Marks

Sometimes marks are printed on a DVD disc and/or on its packaging to indicate information regarding the contents and functions of a disc. Check marks indicating the contents and functions of a disc. Note, however, that in some cases a disc may not include a mark even for a function it supports.

Marks related to video

Mark	Description
	Number of subtitles
	Number of angles
	Recorded under the standard 4:3 aspect ratio
	Screen includes black bands at top and bottom of image which has a standard 4:3 aspect ratio (letter box)
	Video playback is in Wide video mode (16:9) on wide televisions, but in letter box on televisions with standard 4:3 aspect ratio.
	Video playback is in Wide video mode (16:9) on wide televisions, but pan and scan is used on televisions with standard 4:3 aspect ratio (either the left or right side of the image is cut-out).

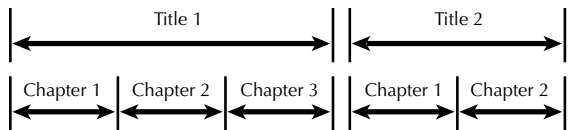
Marks related to audio

Mark	Description
	Number of audio tracks
	Dolby Digital mark Dolby Laboratories has developed a digital surround system for the home. This mark indicates that you may enjoy 5.1-channel audio (front left and right, center, rear left and right, and a channel for LFE (Low-Frequency Effects)).
	DTS (Digital Theater System) The DTS decoder on this unit enables you to enjoy DTS audio with the connected TV's speakers by converting 5.1 channel audio signals into 2 channel signals (DTS Down Mixing). The decoder also outputs the original DTS 5.1 channel audio signals from the DIGITAL AUDIO OUT connector on this unit.

File Structure of Discs

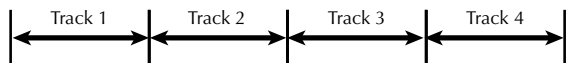
DVD VIDEO

Typically, DVD VIDEO discs are made up of larger units called "titles". Each title has a number (title number) that can be used to select desired titles. Titles are further divided into units called "chapters". Each chapter has a number (chapter number) that can also be used to select desired chapters. Note that some discs are not divided into titles and chapters.



Audio CD/Video CD

Typically, Audio CD discs are divided into separate tracks each containing one song. Each track is assigned a number. For example, the third track is Track 3. The same is true for Video CD discs.



NOTE:

Video CD discs that support Playback Control (PBC)

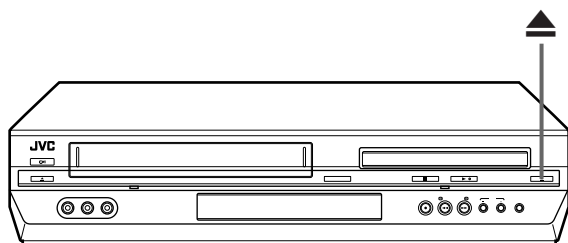
The still image or motion image which follows a menu screen is called a "scene". Each scene has a scene number.

For more details, refer to "Locating a desired scene using the menu of the Video CD with PBC" (☞ pg. 43).

Placing a Disc

1 Open the disc tray.

Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.

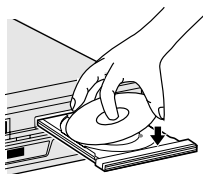


- Pressing the button again closes the disc tray.
- Do not block the disc tray with your hand while it is opening or closing as this may result in hardware failure.
- Do not place unplayable discs or any object other than a disc in the disc tray.
- Do not press down strongly on the disc tray or place any heavy objects on it.

2 Place the disc.

Place the disc in the disc tray with the label side facing up.

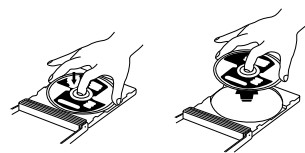
- Since disc size changes depending on the disc to be played back, be sure to correctly align the disc with the grooves for its size. If the disc is not in its groove, it may be scratched or otherwise damaged.
- To insert an 8 cm disc, place it according to the inner groove.



Care and Handling of Discs

How to handle discs

When handling a disc, do not touch the surface of the disc. Since discs are made of plastic, they are easily damaged. If a disc gets dirty, dusty, scratched or warped, the images and sound will not be picked up correctly, and such a disc may cause the unit to malfunction.



Label side

Do not damage the label side, stick paper to or use any adhesive on its surface.

Storage

Make sure that discs are kept in their cases. If discs are piled on top of one another without their protective cases, they can be damaged. Do not put discs in a location where they may be exposed to direct sunlight, or in a place where the humidity or temperature is high. Avoid leaving discs in your car!

Maintenance of discs

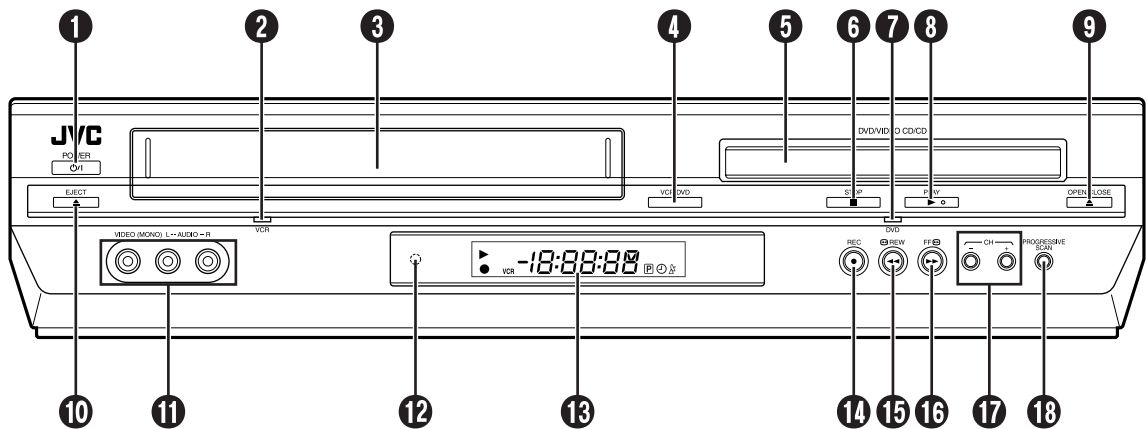
If there are fingerprints or other dirt adhering to a disc, wipe with a soft dry cloth, moving from the center outwards. If a disc is difficult to clean, wipe with a cloth moistened with water. Never use record cleaners, petrol, alcohol or any anti-static agents.



CAUTION

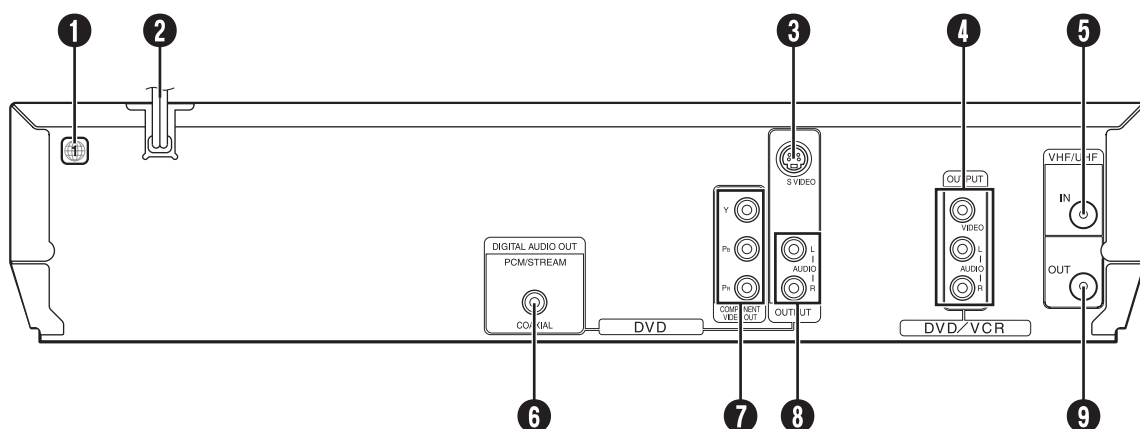
Sometimes during playback, noise or images may be garbled. This is sometimes due to the disc. (It may not be up to industry standards.) These symptoms are caused by the discs, not by the malfunction of the unit.

FRONT VIEW



- ❶ Power Button (POWER (⏻/⏺)) ☞ pg. 18
- ❷ VCR Indicator ☞ pg. 28, 33
- ❸ VHS Cassette Loading Slot
- ❹ VCR/DVD Button ☞ pg. 28, 33, 42
- ❺ Disc Tray
- ❻ Stop Button (STOP (■)) ☞ pg. 28, 33, 42
- ❼ DVD Indicator ☞ pg. 42
- ❽ Play Button (PLAY (▶)) ☞ pg. 28, 42
- ❾ DVD Open/Close Button (OPEN/CLOSE (⏏)) ☞ pg. 42
- ❿ VHS Eject Button (EJECT (⏏)) ☞ pg. 28, 33
- ⓫ Video/Audio Input Connectors (VIDEO/AUDIO) ☞ pg. 68
- ⓬ Remote Sensor
- ⓭ Front Display Panel ☞ pg. 11
- ⓮ Record Button (REC (●)) ☞ pg. 33
- ⓯ Rewind Button (REW (◀◀)) ☞ pg. 28, 29, 44
- ⓰ Fast Forward Button (FF (▶▶)) ☞ pg. 28, 29, 44
- ⓱ Channel Button (CH +/-) ☞ pg. 33
- ⓲ Progressive Scan Button (PROGRESSIVE SCAN) ☞ pg. 80

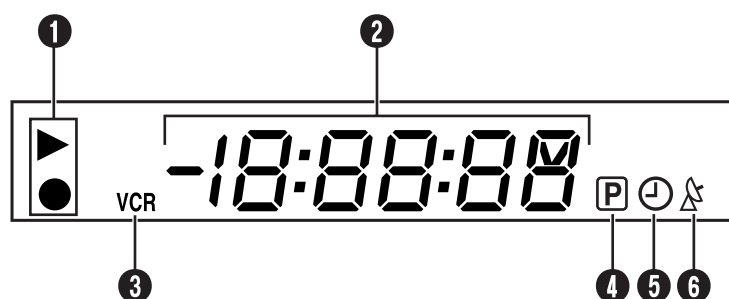
REAR VIEW



- ❶ Region Number Label ☞ pg. 7
- ❷ AC Power Cord ☞ pg. 14
- ❸ S-video Output Connector (S VIDEO OUTPUT)* ☞ pg. 15
- ❹ Audio/Video Output Connectors (AUDIO/VIDEO OUTPUT) ☞ pg. 14, 15, 16, 69
- ❺ Antenna Input Connector (VHF/UHF IN) ☞ pg. 14
- ❻ Digital Audio Output Connector (DIGITAL AUDIO OUT)* ☞ pg. 71
- ❼ Component Video Output Connectors (COMPONENT VIDEO OUT)* ☞ pg. 16
- ❽ Audio Output Connectors (AUDIO OUTPUT (L/R))*
- ❾ Antenna Output Connector (VHF/UHF OUT) ☞ pg. 14

* These connectors are only for DVD deck.

FRONT DISPLAY PANEL



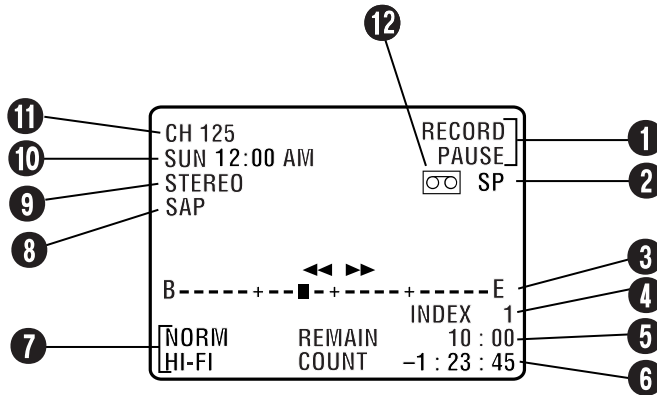
- ❶ Operation Mode Indicators
- ❷ Channel/Clock
Auxiliary Input Mode Display (F-1) (VCR deck only)
Counter Display (VCR deck)
Tape Speed (SP/EP) (VCR deck only)
Multi-information window* (DVD deck)
- ❸ VCR Indicator ☞ pg. 34
- ❹ Progressive Mode Indicator ☞ pg. 80
- ❺ "Timer" Indicator (VCR deck only) ☞ pg. 37
- ❻ Satellite Auto Recording Indicator (⊕) (VCR deck only) ☞ pg. 41

* The current group/title/track/chapter number(s), time and status information.

ON-SCREEN DISPLAY (VCR deck)

If you press **ON SCREEN** on the Remote when "SUPERIMPOSE" is set to "ON" (☞ pg. 75), various operational indicators appear on the TV screen.

For On-screen display for DVD deck, refer to "Using the on-screen bar" (☞ pg. 48).

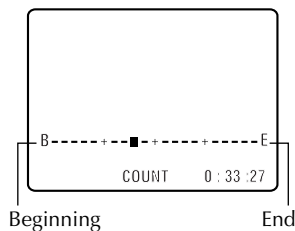


1 Operation Mode Indicators

2 Tape Speed (SP/EP)

3 Tape Position Indicator

The tape position indicator appears on the TV screen when you press **REW** (◀◀) or **FF** (▶▶) from the Stop mode or perform an Index Search. (☞ pg. 30) The position of "■" in relation to "B" (beginning) or "E" (end) shows you where you are on the tape.



NOTE:

Depending on the type of tape being used, the tape position indicator may not appear correctly.

4 Index number ☞ pg. 30

5 Tape Remaining Time Indicator ☞ pg. 35

6 Counter Display

7 Audio Mode Display ☞ pg. 32

8 SAP Indicator ☞ pg. 35

9 Stereo Program Indicator ☞ pg. 35

10 Day/Clock Display

11 Channel Position Number/Auxiliary Input Indicator (F-1)

12 "Cassette Loaded" Mark

To recall an indication

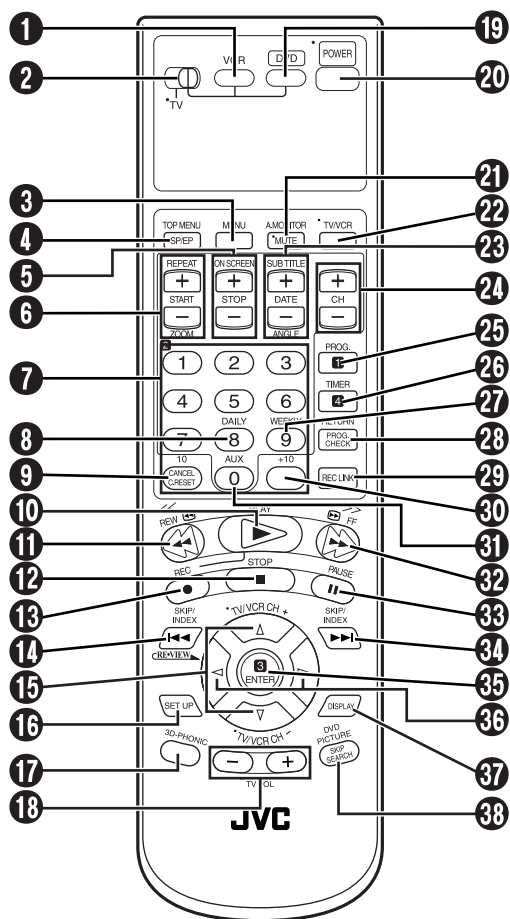
1 Press **ON SCREEN**.

- All indications corresponding to the current status are displayed for 5 seconds. After that, the counter information and RECORD/PAUSE if in the Record Pause mode, remain on the screen.

2 Press **ON SCREEN** again to clear the display.

- The RECORD/PAUSE indication remains on the screen.

REMOTE



Buttons with a small dot on the left side of the name (**POWER** (⏻/⏻), **TV/VCR**, **TV/VCR CH +/-**, **TV VOL +/-**, **MUTE**) can also be used to operate a JVC's TV after setting the TV/VCR/DVD switch to the left.

- ❶ VCR Button ☞ pg. 28, 33
- ❷ TV/VCR/DVD switch ☞ pg. 18
- ❸ Menu Button (MENU) ☞ pg. 43
- ❹ SP/EP Button ☞ pg. 33
Top Menu Button (TOP MENU) ☞ pg. 43
- ❺ Stop Time Button (STOP +/-) ☞ pg. 36
On-Screen Button (ON SCREEN) ☞ pg. 12, 48
- ❻ Start Time Button (START +/-) ☞ pg. 36
Repeat Button (REPEAT) ☞ pg. 50, 64 67
Zooming Button (ZOOM) ☞ pg. 45
- ❼ Number Keys ☞ pg. 27, 33, 64
- ❽ Daily Button (DAILY) ☞ pg. 37
- ❾ Reset Button (C.RESET) ☞ pg. 35
Cancel Button (CANCEL) ☞ pg. 39
10 Button
- ❿ Play Button (PLAY (▶)) ☞ pg. 28, 42
- ⓫ Rewind Button (REW (◀◀)) ☞ pg. 28, 29, 44

- ⓬ Stop Button (STOP (■)) ☞ pg. 28, 33, 42
- ⓭ Record Button (REC (●)) ☞ pg. 33
- ⓮ Reverse Skip/Index Button (SKIP/INDEX (◀◀)) ☞ pg. 30, 43
Review Button (◀◀REVIEW) ☞
- ⓯ △▽ Button ☞ pg. 18
- ⓰ TV/VCR Channel Button (TV/VCR CH +/-) ☞ See the left column
- ⓱ Set Up Button (SET UP) ☞ pg. 18
- ⓲ 3D-Phonic Button (3D-PHONIC) ☞ pg. 46
- ⓳ TV Volume Button (TV VOL +/-) ☞ See the left column
- ⓴ DVD Button ☞ pg. 42
- ⓵ Power Button (POWER (⏻/⏻)) ☞ pg. 18, left column
- ⓶ TV Muting Button (MUTE) ☞ See the left column
Audio Monitor Button (A.MONITOR) ☞ pg. 32, 56, 57
- ⓷ TV/VCR Button ☞ pg. 34, left column
- ⓸ Date Button (DATE +/-) ☞ pg. 36
Subtitle Button (SUB TITLE) ☞ pg. 54
Angle Button (ANGLE) ☞ pg. 55
- ⓹ Channel Button (CH +/-) ☞ pg. 33
- ⓺ Program Button (PROG.) ☞ pg. 36
- ⓻ Timer Button (TIMER) ☞ pg. 37
- ⓼ Weekly Button (WEEKLY) ☞ pg. 37
- ⓽ Program Check Button (PROG. CHECK) ☞ pg. 38
Return Button (RETURN) ☞ pg. 43
- ⓿ Satellite Auto Recording Button (REC LINK) ☞ pg. 41
- ⓫⓪ +10 Button
- ⓫⓫ Auxiliary Button (AUX) ☞ pg. 68
- ⓫⓬ Fast Forward Button (FF (▶▶)) ☞ pg. 28, 29, 44
- ⓫⓭ Pause Button (PAUSE (||)) ☞ pg. 29, 33
- ⓫⓮ Forward Skip/Index Button (SKIP/INDEX (▶▶)) ☞ pg. 30, 43
- ⓫⓯ ENTER Button ☞ pg. 18
- ⓫⓰ ◀ ▶ Button ☞ pg. 18
- ⓫⓱ Display Button (DISPLAY) ☞ pg. 35
- ⓫⓲ Skip Search Button (SKIP SEARCH) ☞ pg. 30
DVD Picture Button (DVD PICTURE) ☞ pg. 47

How To Use

Before use, insert two AA size batteries into the Remote with the polarity (⊕ and ⊖) matched correctly as indicated on the battery compartment or on the lid.

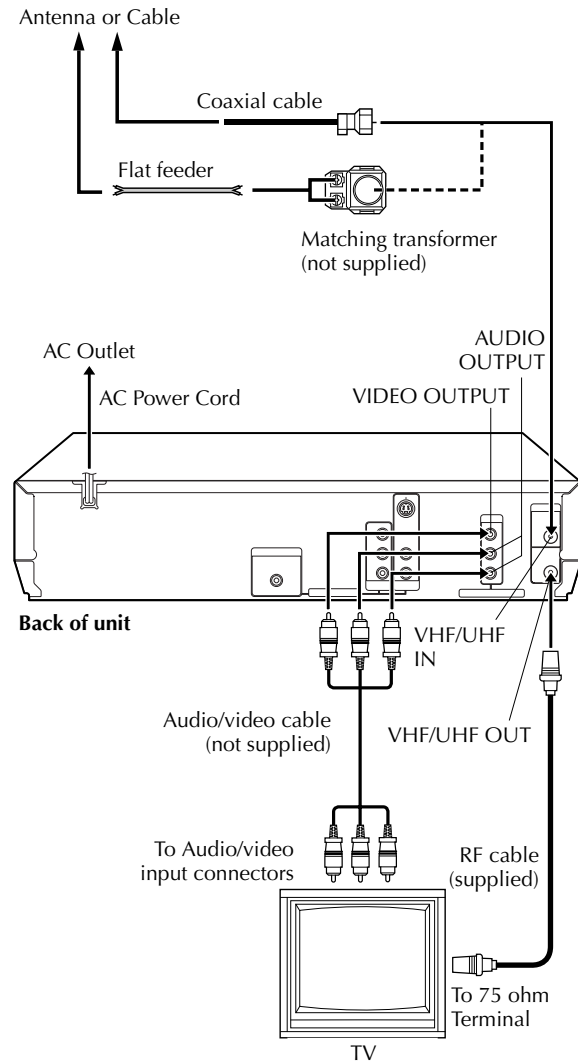
The Remote can operate most of your unit's functions, as well as basic functions of TV sets of JVC. (☞ See the left column)

- Point the Remote toward the remote sensor.
- The maximum operating distance of the remote control is about 8 m.

NOTE:

If the Remote doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.

Basic Connections



It's essential that your unit be properly connected.

THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 Check the contents.

Make sure the package contains all of the accessories listed in "SPECIFICATIONS" on page 87.

2 Situate the unit.

Place the unit on a stable, horizontal surface.

3 Connect the unit to TV.

The connection method you use depends on the type of TV you have.

RF Connection

- To connect to a TV with NO AV input connectors —

 - 1 Disconnect the TV antenna from the TV.
 - 2 Connect the TV antenna cable to the VHF/UHF IN connector on the rear panel of the unit.
 - 3 Connect the supplied RF cable between the VHF/UHF OUT connector on the rear panel of the unit and the TV's antenna terminal.

AV Connection

- To connect to a TV with AV input connectors —

 - 1 Connect the antenna, unit and TV as per "RF Connection".
 - 2 Connect an optional audio/video cable between the AUDIO/VIDEO OUTPUT connectors on the rear panel of the unit and the TV's audio/video input connectors.

 - Set your TV to AV mode.
 - For switching the TV's mode, refer to the instruction manual of your television.
 - To obtain high-quality pictures, you can also use the S-VIDEO connection or Component Video Connection. (DVD deck only) (☞ pg. 15, 16)

4 Connect the unit to power source.

Plug the end of the AC power cord into an AC outlet. This unit performs Plug & Play Set automatically. (☞ pg. 17)

- The clock and tuner channels will automatically be set when the antenna is connected and when the AC power cord is first connected to an AC outlet. (If "AUTO" and the channel indicator are displayed on the front display panel before the unit is powered on, the clock and tuner channels are being set automatically. Wait for the time to be displayed on the front display panel before turning on the unit.)

5 Set the VCR channel.

The VCR channel is the channel on which you can watch the picture from the unit on the TV when only using RF connection.

With RF connection, set the VCR channel to "3 CH" or "4 CH".

- The VCR channel is preset to "3 CH". Set to "4 CH" if the Channel 3 is used for broadcasting in your area.
- With AV connection, set the VCR channel to "- CH" (off). To set the VCR channel, perform the following steps:

Before performing the following steps:

- Make sure there is no cassette inserted in the unit.
- Make sure the unit is turned on, then press **VCR/ DVD** on the unit or **VCR** on the Remote so that the VCR indicator lights up.

- 1 Press **POWER** (⏻) to turn off the unit, then press **STOP** (■) on the unit for more than 5 seconds. "3 CH" appears on the front display panel.
- 2 Press **CH +/-** on the Remote to select "3 CH", "4 CH" or "- CH" (off), then press **ENTER**.

S-VIDEO Connection

(DVD deck only)

ATTENTION

Be sure to connect the unit's VIDEO OUTPUT (DVD/VCR) connector to the TV's VIDEO input connector.

■ To connect to a TV with S-VIDEO/AUDIO input connectors . . .

1 Connect the unit to TV.

- 1 Connect the antenna, unit and TV as per "AV Connection". (pg. 14)
- 2 Connect the unit's S VIDEO OUTPUT (DVD) connector to the TV's S-VIDEO input connector.

2 Connect the unit to power source.

Plug the end of the AC power cord into an AC outlet. This unit performs Plug & Play Set automatically. (pg. 17)

- The clock and tuner channels will automatically be set when the antenna is connected and when the AC power cord is first connected to an AC outlet. (If "AUTO" and the channel indicator are displayed on the front display panel before the unit is powered on, the clock and tuner channels are being set automatically. Wait for the time to be displayed on the front display panel before turning on the unit.)

3 Set the VCR channel to off.

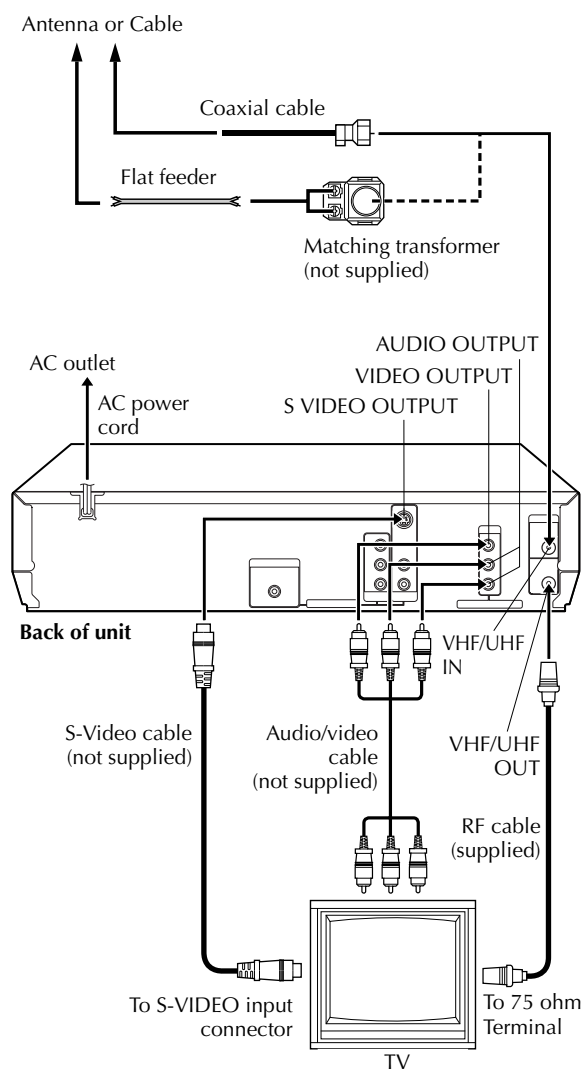
Before performing the following steps:

- Make sure there is no cassette inserted in the unit.
- Make sure the unit is turned on, then press **VCR/DVD** on the unit or **VCR** on the Remote so that the VCR indicator lights up.

- 1 Press **POWER** (⏻) to turn off the unit, then press **STOP** (■) on the unit for more than 5 seconds. "3 CH" appears on the front display panel.
- 2 Press **CH +/-** on the Remote to select "- CH" (off), then press **ENTER**.

NOTES:

- You can obtain high-quality S-VIDEO pictures.
- If your TV is not stereo-capable, use the unit's AUDIO OUTPUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction.
- To operate the unit with your TV using the S-VIDEO connection, set your TV to its AV mode. You can also use the **TV/VCR** button on the unit's Remote to set your TV to the AV mode.
- For switching the TV's mode, refer to the instruction manual of your television.
- Only DVD picture is output from S-VIDEO OUTPUT connector. (VCR picture is not output.)

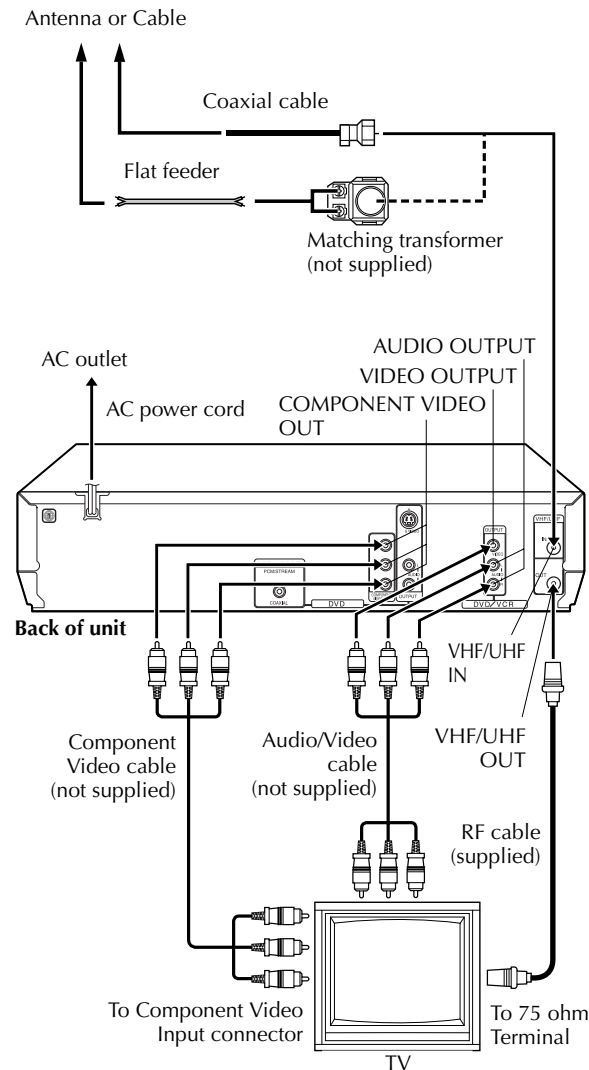


Component Video Connection

(DVD deck only)

ATTENTION

Be sure to connect the unit's VIDEO OUTPUT (DVD/VCR) connector to the TV's VIDEO input connector.



- To connect to a TV with component video input connectors . . .

1 Connect the unit to TV.

- 1 Connect the aerial, unit and TV as per "AV Connection". (☞ pg. 14)
- 2 Connect the unit's COMPONENT VIDEO OUT connectors to the TV's component video input connectors.

2 Connect the unit to power source.

Plug the end of the AC power cord into an AC outlet. This unit performs Plug & Play Set automatically. (☞ pg. 17)

- The clock and tuner channels will automatically be set when the antenna is connected and when the AC power cord is first connected to an AC outlet. (If "AUTO" and the channel indicator are displayed on the front display panel before the unit is powered on, the clock and tuner channels are being set automatically. Wait for the time to be displayed on the front display panel before turning on the unit.)

3 Set the VCR channel to off.

Before performing the following steps:

- Make sure there is no cassette inserted in the unit.
- Make sure the unit is turned on, then press **VCR/DVD** on the unit or **VCR** on the Remote so that the VCR indicator lights up.

- 1 Press **POWER** (⏻) to turn off the unit, then press **STOP** (■) on the unit for more than 5 seconds. "3 CH" appears on the front display panel.
- 2 Press **CH +/-** on the Remote to select "- CH" (off), then press **ENTER**.

NOTES:

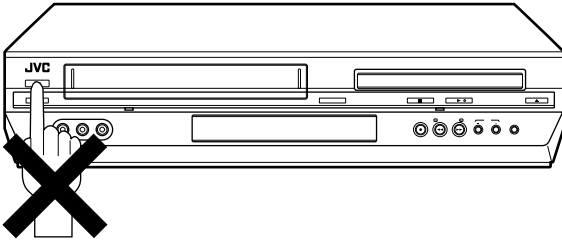
- You can obtain high-quality component video pictures.
- If your TV is not stereo-capable, use the unit's AUDIO OUTPUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction.
- To operate the unit with your TV using the Component Video connection, set your TV to its AV mode. You can also use the **TV/VCR** button on the unit's Remote to set your TV to the AV mode.
- For switching the TV's mode, refer to the instruction manual of your television.
- By using the component video connection, you can view the images in the progressive mode. For switching to the progressive mode, refer to "Scan Mode Set (DVD deck)" (☞ pg. 80).

Plug & Play Set

Auto Clock Set/Auto Tuner Set

ATTENTION

- If you use a cable box, Plug&Play will not function; set the clock and tuner channels separately. (☞ pg. 24 – 27)
- Depending on areas or reception conditions, the unit may not receive the Auto clock setting data from the PBS channel. If this function is taking a considerable amount of time, it may be necessary to perform the Semiauto or Manual Clock Set procedure.



This unit sets the clock and tuner channels automatically when AC power cord is first connected to an AC outlet. The antenna cable must be connected for the Plug & Play setting.

The time and date can be set automatically by the clock setting data transmitted from one of the regular TV broadcast channels. We call this TV channel the “host channel” and it is a PBS channel in your area.

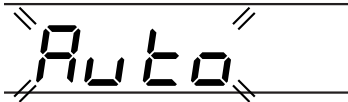
1 Perform Plug & Play setup.

Connect the antenna cable to the unit. (☞ pg. 14) Then connect the AC power cord to an AC outlet. Do not turn on the unit.

The clock and tuner channels will be set automatically.

NOTES:

- Auto Clock Set is performed first. “AUTO” blinks on the front display panel during Auto Clock Set.
- Auto Channel Set is performed next. Auto Channel Set scans all the channels that are receivable by your unit. During Auto Channel Set, the channel numbers are displayed as they are scanned and set.
- When Plug & Play setting has been complete successfully, the correct clock time is displayed. If you perform Plug & Play setting successfully, there is no need to perform “Clock Set” (☞ pg. 24) and “Tuner Set” (☞ pg. 26). If, however, you want to add or delete channels, refer to “Manual Channel Set” (☞ pg. 27).



During Initial Auto Clock Set
“AUTO” blinks.



During Auto Channel Set
The channel numbers are displayed as they are scanned and set.



Plug&Play Completed
The current time is displayed.

* If an incorrect clock time or “--:--” appears on the front display panel, see “What to do if Plug & Play setting failed” below.

INFORMATION

- If “AUTO CLOCK” is set to “ON” (☞ pg. 25), the clock will be adjusted automatically by the host channel every hour (except 11:00 PM, midnight, 1:00 AM and 2:00 AM) using the incoming PBS channel clock setting data. (This automatic clock adjustment can only be performed when the unit is turned off. The clock will be adjusted just on these hours — on the time displayed on the front display panel, not on the actual real time.) The default setting of “AUTO CLOCK” is “ON”. (☞ pg. 25)
- If the memory backup fails, because a power outage occurs or because the AC power cord is unplugged, Plug & Play will be performed when power is restored to the unit.

What to do if Plug & Play setting failed

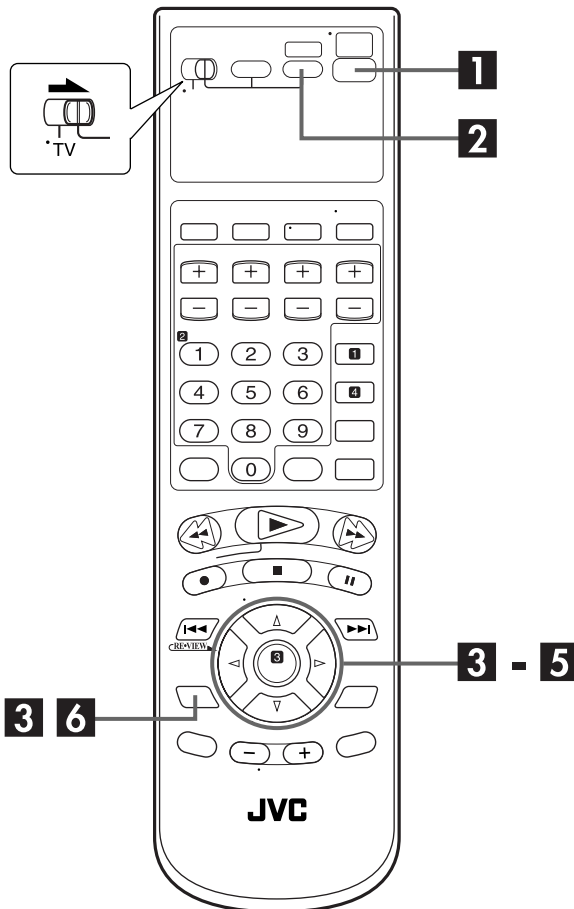
- If an incorrect time is displayed on the front display panel, you may be receiving the clock setting data of a PBS channel from an adjacent time zone, or an incorrect PBS channel from a cable TV system. In this case, perform “Semiauto Clock Set” (☞ pg. 25) or “Manual Clock Set” (☞ pg. 25).
- If “--:--” appears on the front display panel, your antenna cable may not be connected to the unit or there may not be a Host PBS signal available in your area. Ensure that the antenna cable is connected correctly. Then turn on and off the unit; the Plug & Play setting will be automatically reactivated. If Plug & Play setting is not performed though the antenna cable is connected correctly, perform “Manual Clock Set” (☞ pg. 25) and “Auto Channel Set” (☞ pg. 26) or “Manual Channel Set” (☞ pg. 27).

Monitor Set

(DVD deck)

You can select the monitor type depending the TV used when you play back DVD VIDEO discs recorded for wide-screen TVs.

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the DVD deck.

On the unit

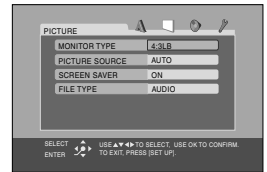
Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

Press **DVD** so that the DVD indicator lights up.

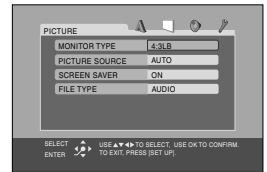
3 Access the DVD Set Up menu screen.

- 1 Press **SET UP**.
- 2 Press **◀ ▶** to select "PICTURE".



4 Select the mode.

Press **▲ ▼** to move the highlight to "MONITOR TYPE", then press **ENTER**.



5 Select the mode setting.

Press **▲ ▼** to select the desired setting, then press **ENTER**.

6 Return to the normal screen.

Press **SET UP**.

* The default setting is **bold** in the table below.

■ MONITOR TYPE

16:9 (Wide television conversion):

Select this when the aspect ratio of your TV is fixed to 16:9 (wide TV). The unit automatically adjusts the screen width of the output signal correctly when playing back a picture whose aspect ratio is 4:3.

4:3 LB (Letter Box conversion):

Select this when the aspect ratio of your TV is 4:3 (conventional TV). While viewing a wide screen picture, the black bars appear on the top and the bottom of the screen.

4:3 PS (Pan&Scan):

Select this when the aspect ratio of your TV is 4:3 (conventional TV). While viewing a wide screen picture, the black bars do not appear; however, the left and right edges of the pictures will not be shown on the screen.

Pan&Scan/Letter Box

In general, DVD VIDEO disc are produced for a wide-screen TV with 16:9 aspect ratio.

Material with this ratio will not fit to a TV with 4:3 aspect ratio. There are two styles to display the image, "Pan&Scan" (PS) and "Letter Box" (LB).

Pan&Scan

The right and left side of the image are cut off. The image fills the screen.



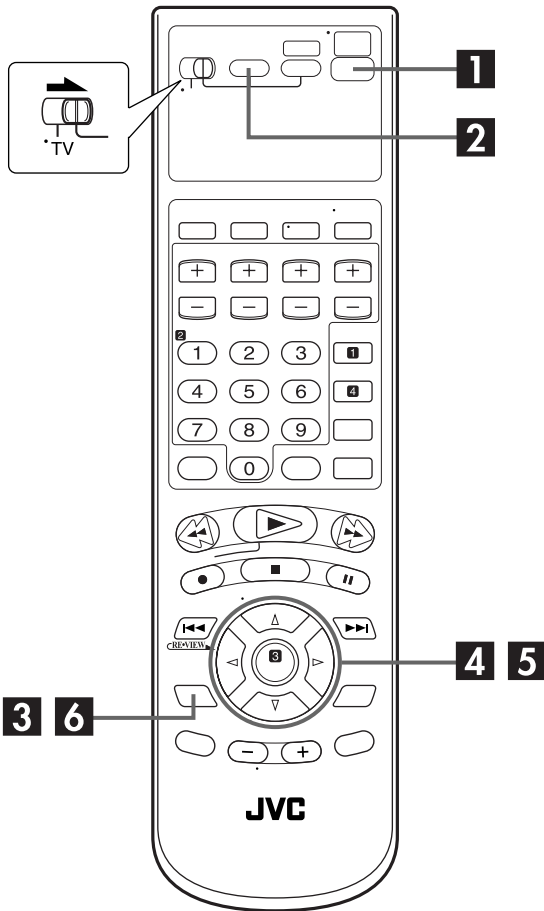
Letter Box

Black bands appear at the top and bottom of the image. The image itself appears in 16:9 aspect ratio.



Language

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



On-screen Language Set (VCR deck)

This VCR deck offers you the choice to view on-screen messages in 3 different languages.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

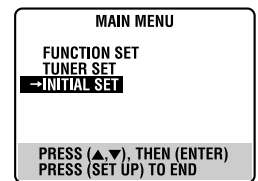
Press **VCR** so that the VCR indicator lights up.

3 Access the Main Menu screen.

Press **SET UP**.

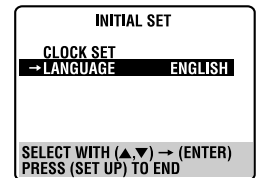
4 Access the Initial Set screen.

Press Δ / ∇ to move the highlight bar (arrow) to "INITIAL SET", then press **ENTER** or \triangleright .



5 Select the language.

Press Δ / ∇ to move the highlight bar (arrow) to "LANGUAGE", then press **ENTER** or \triangleright repeatedly until the desired language is selected.



6 Return to the normal screen.

Press **SET UP**.

On-screen Language Set (DVD deck)

This DVD deck offers you the choice to view on-screen messages in 3 different languages. You can change the language setting manually as required.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

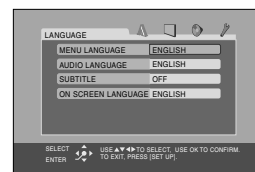
On the Remote

Press **DVD** so that the DVD indicator lights up.

3 Access the DVD Set Up menu screen.

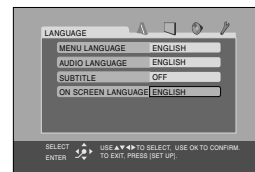
1 Press **SET UP**.

2 Press ◀▶ to select "▲ LANGUAGE".



4 Select the mode.

Press ▲▼ to move the highlight to "ON SCREEN LANGUAGE", then press **ENTER**.

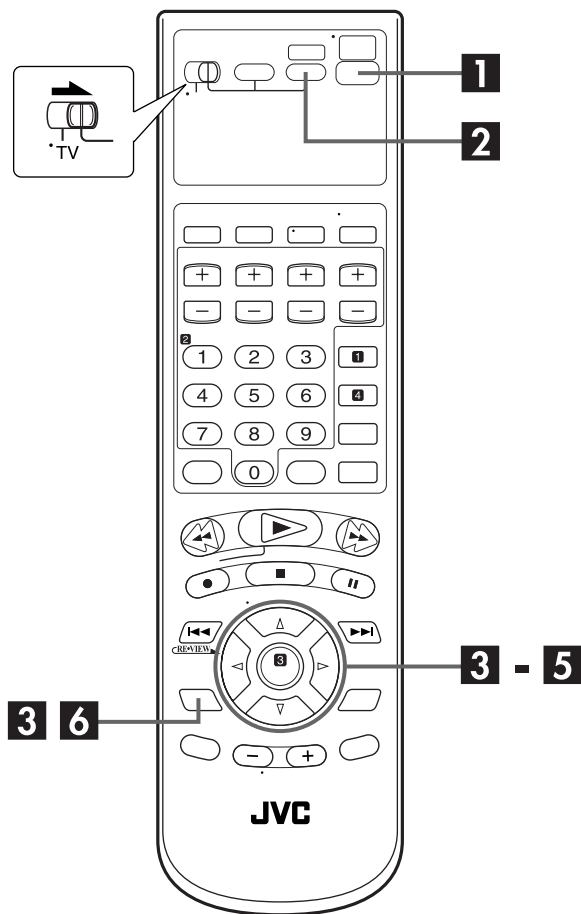


5 Select the mode setting.

Press ▲▼ to select the desired setting, then press **ENTER**.

6 Return to the normal screen.

Press **SET UP**.



Menu/Audio/Subtitle Language Set (DVD deck only)

Some DVD discs contain the DVD menu display, audio, subtitle in the multiple languages. With these discs, you can set the default language as you like.

- The procedure shows how to set “MENU LANGUAGE” on the DVD Set Up menu screen as an example.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the DVD deck.

On the unit

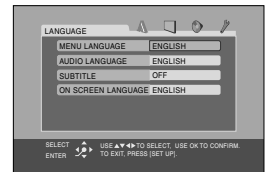
Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

Press **DVD** so that the DVD indicator lights up.

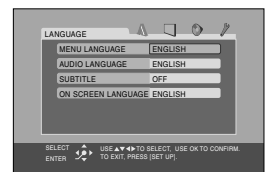
3 Access the DVD Set Up menu screen.

- 1 Press **SET UP**.
- 2 Press **◀ ▶** to select “**LANGUAGE**”.



4 Select the mode.

Press **△ ▽** to move the highlight to “**MENU LANGUAGE**”, then press **ENTER**.



5 Select the mode setting.

Press **△ ▽** to select the desired setting, then press **ENTER**.

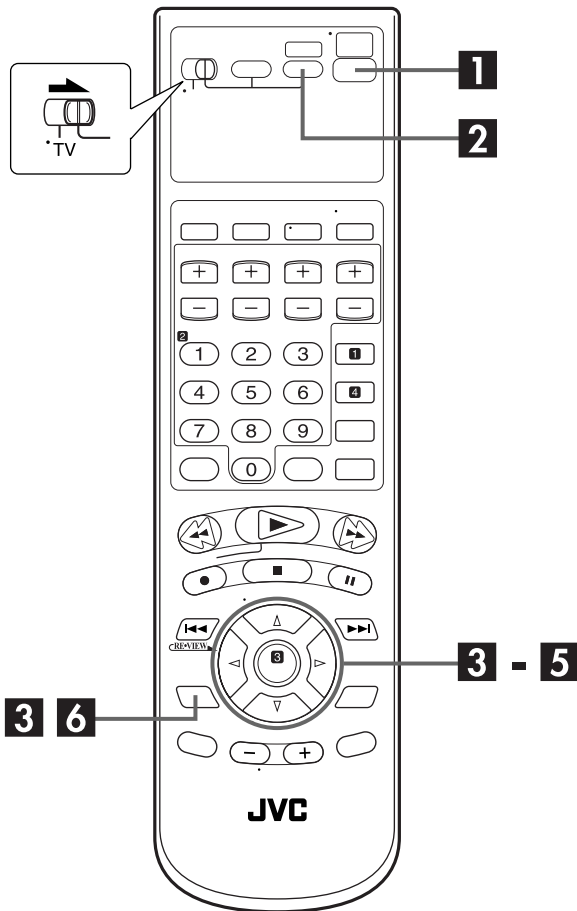
- See “Language Code List” (ⓘ pg. 23).

6 Return to the normal screen.

Press **SET UP**.

NOTE:

When the selected language is not available on the disc, the disc’s default menu language is played back.



Language Code List

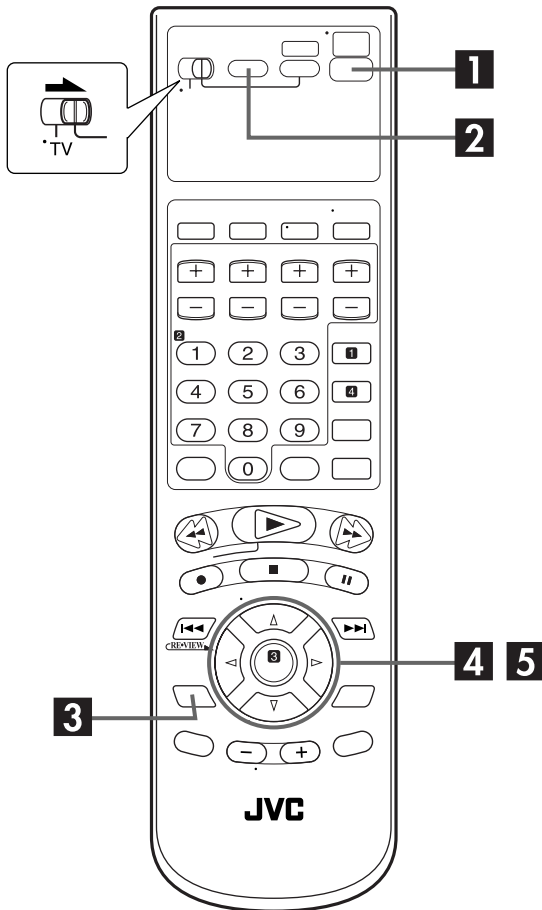
AA	Afar
AB	Abkhazian
AF	Afrikaans
AM	Ameharic
AR	Arabic
AS	Assamese
AY	Aymara
AZ	Azerbaijani
BA	Bashkir
BE	Byelorussian
BG	Bulgarian
BH	Bihari
BI	Bislama
BN	Bengali, Bangla
BO	Tibetan
BR	Breton
CA	Catalan
CO	Corsican
CS	Czech
CY	Welsh
DA	Danish
DZ	Bhutani
EL	Greek
EO	Esperanto
ET	Estonian
EU	Basque
FA	Persian
FI	Finnish
FJ	Fiji
FO	Faroese
FY	Frisian
GA	Irish
GD	Scots Gaelic
GL	Galician
GN	Guarani
GU	Gujarati
HA	Hausa
HI	Hindi
HR	Croatian
HU	Hungarian
HY	Armenian
IA	Interlingua
IE	Interlingue

IK	Inupiak
IN	Indonesian
IS	Icelandic
IW	Hebrew
JI	Yiddish
JW	Javanese
KA	Georgian
KK	Kazakh
KL	Greenlandic
KM	Cambodian
KN	Kannada
KO	Korean (KOR)
KS	Kashmiri
KU	Kurdish
KY	Kirghiz
LA	Latin
LN	Lingala
LO	Laothian
LT	Lithuanian
LV	Latvian, Lettish
MG	Malagasy
MI	Maori
MK	Macedonian
ML	Malayalam
MN	Mongolian
MO	Moldavian
MR	Marathi
MS	Malay (MAY)
MT	Maltese
MY	Burmese
NA	Nauru
NE	Nepali
NL	Dutch
NO	Norwegian
OC	Occitan
OM	(Afan) Oromo
OR	Oriya
PA	Panjabi
PL	Polish
PS	Pashto, Pushto
PT	Portuguese
QU	Quechua
RM	Rhaeto-Romance

RN	Kirundi
RO	Rumanian
RU	Russian
RW	Kinyarwanda
SA	Sanskrit
SD	Sindhi
SG	Sangho
SH	Serbo-Croatian
SI	Singhalese
SK	Slovak
SL	Slovenian
SM	Samoan
SN	Shona
SO	Somali
SQ	Albanian
SR	Serbian
SS	Siswati
ST	Sesotho
SU	Sundanese
SV	Swedish
SW	Swahili
TA	Tamil
TE	Telugu
TG	Tajik
TH	Thai
TI	Tigrinya
TK	Turkmen
TL	Tagalog
TN	Setswana
TO	Tonga
TR	Turkish
TS	Tsonga
TT	Tatar
TW	Twi
UK	Ukrainian
UR	Urdu
UZ	Uzbek
VI	Vietnamese
VO	Volapuk
WO	Wolof
XH	Xhosa
YO	Yoruba
ZU	Zulu

Clock Set

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



Perform clock setting only if the clock has not been set correctly by the Plug&Play setting.

Preparations

1 Turn on the unit.

Press **POWER** (⏻).

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

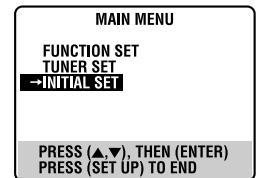
Press **VCR** so that the VCR indicator lights up.

3 Access the Main Menu screen.

Press **SET UP**.

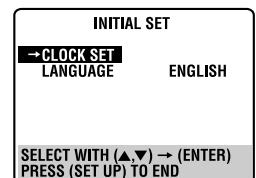
4 Access the Initial Set screen.

Press Δ / ∇ to move the highlight bar (arrow) to "INITIAL SET", then press **ENTER** or \triangleright .



5 Access the Clock Set screen.

Press Δ / ∇ to move the highlight bar (arrow) to "CLOCK SET", then press **ENTER** or \triangleright .



Semiauto Clock Set

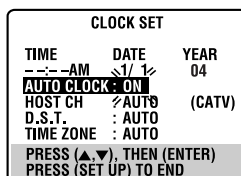
You can change the host channel/D.S.T. (Daylight Saving Time)/time zone setting manually. First follow steps **1** to **5** in "Preparations" (☞ pg. 24), then go to the following steps.

NOTE:

The time set previously will be erased when "AUTO CLOCK", "HOST CH", "D.S.T." or "TIME ZONE" setting is changed.

1 Set "AUTO CLOCK" to "ON".

Press **ENTER** or \triangleright repeatedly to move the highlight bar to "AUTO CLOCK", then press \triangle / ∇ so that "ON" is selected.



2 Select the host channel.

You can either select "AUTO" or enter a PBS channel number.

Press **ENTER** or \triangleright to move the highlight bar to "HOST CH", then press \triangle / ∇ repeatedly until "AUTO" or the desired PBS channel number is selected.

NOTE:

Some PBS channels do not transmit clock setting data.

3 Select the D.S.T. mode.

Press **ENTER** or \triangleright to move the highlight bar to "D.S.T.", then press \triangle / ∇ repeatedly until the desired setting is selected.

AUTO: Select if you want to adjust your VCR's clock automatically by the incoming signal from the host channel. Be sure to select the correct time zone manually in step **4**.

ON: Adjustment will be made by the built-in clock itself.

OFF: Select when Daylight Saving Time does not apply to you.

4 Select the time zone.

Press **ENTER** or \triangleright to move the highlight bar to "TIME ZONE", then press \triangle / ∇ repeatedly until "AUTO" or the desired time zone is selected. Each time you press the button, the time zone changes as follows:

\leftrightarrow AUTO \leftrightarrow ATLANTIC \leftrightarrow EASTERN \leftrightarrow CENTRAL \leftrightarrow
MOUNTAIN \leftrightarrow PACIFIC \leftrightarrow ALASKA \leftrightarrow HAWAII \leftrightarrow
(back to the beginning)

NOTE:

If an incorrect time is displayed by the Plug & Play function, you may be receiving the clock setting data of a PBS channel from an adjacent time zone or from an incorrect PBS channel from a cable TV system. If you selected "AUTO" for the host channel in step **2**, be sure to select the correct time zone manually.

5 Complete the Semiauto Clock Set.

Press **SET UP** to return to normal screen.

IMPORTANT

Turn off the unit after performing Semiauto Clock. "AUTO" will appear on the front display panel while the clock is being set. The current clock time will appear automatically when the clock setting is complete.

AUTO DAYLIGHT SAVING TIME

This function enables automatic adjustment of the unit's clock at the start and end of Daylight Saving Time.

With Auto DST activated, —

- on the first Sunday of April at 2:00 AM, the clock is adjusted to 3:00 AM.
- on the last Sunday of October at 2:00 AM, the clock is adjusted to 1:00 AM.

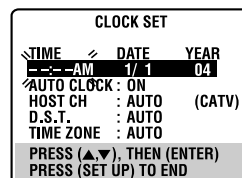
Manual Clock Set

First follow steps **1** to **5** in "Preparations" (☞ pg. 24), then go to the following steps.

1 Set time, date and year.

Press \triangle / ∇ until the desired time appears, then press **ENTER** or \triangleright . Set the date and year in the same way.

- Holding \triangle / ∇ changes the time in 30-minute intervals, or changes the date in 15-day intervals.

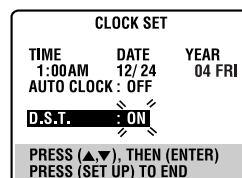


2 Select D.S.T. mode.

Press **ENTER** or \triangleright to move the highlight bar to "D.S.T.", then press \triangle / ∇ to select the desired setting.

ON: Adjustment will be made by the built-in clock itself.

OFF: Select when Daylight Saving Time does not apply to you.



3 Start clock.

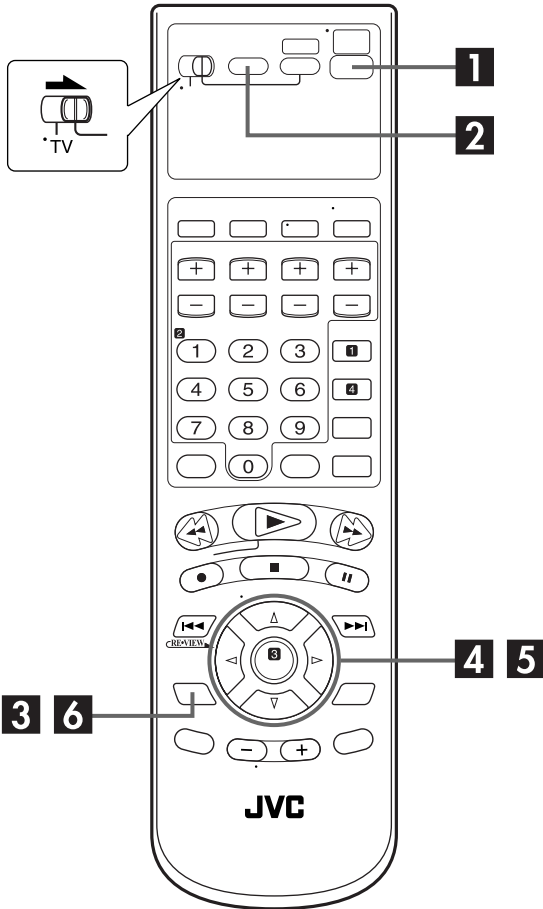
Press **SET UP** and normal screen appears.

To make corrections any time during the process

Press **ENTER** or \triangleright repeatedly until the item you want to change blinks, then press \triangle / ∇ .

Tuner Set

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



INFORMATION

The unit selects the correct band (TV or CATV) automatically during Auto Channel Set. The selected band will be displayed on the right side of "BAND" on the Tuner Set screen.

Auto Channel Set

Perform Auto Channel Set only if channels have not been set correctly by the Plug&Play setting.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

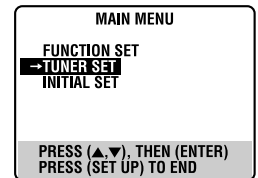
Press **VCR** so that the VCR indicator lights up.

3 Access the Main Menu screen.

Press **SET UP**.

4 Access the Tuner Set screen.

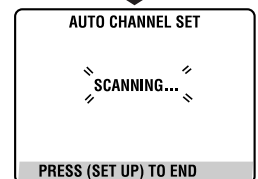
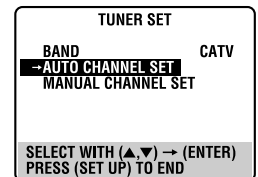
Press Δ / ∇ to move the highlight bar (arrow) to "TUNER SET", then press **ENTER** or \triangleright .



5 Perform Auto Channel Set.

Press Δ / ∇ to move the highlight bar (arrow) to "AUTO CHANNEL SET", then press **ENTER** or \triangleright . You can automatically set the receivable channels in your area in the order of their frequencies.

- When Auto Channel Set is complete, "SCAN COMPLETED" appears on the TV screen.
- If the scan was unsuccessful, "SCAN COMPLETED-NO SIGNAL-" appears on screen. Check the connections and start again.



6 Return to the normal screen.

Press **SET UP**.

Manual Channel Set

You can add the channels you want or delete the channels you do not want manually.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

3 Access the Main Menu screen.

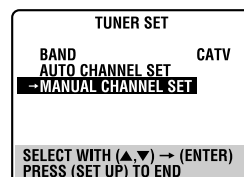
Press **SET UP**.

4 Access the Tuner Set screen.

Press Δ / ∇ to move the highlight bar (arrow) to "TUNER SET", then press **ENTER** or \triangleright .

5 Access the Manual Channel Set screen.

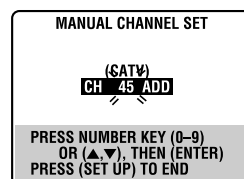
Press Δ / ∇ to move the highlight bar (arrow) to "MANUAL CHANNEL SET", then press **ENTER** or \triangleright .



6 Add or skip the desired channels.

To add channels

- 1 Press the **number keys** to input a channel number you want to add.
- 2 Press **ENTER** or \triangleright to set to "ADD".
- 3 Repeat 1 to 2 to add other channels.

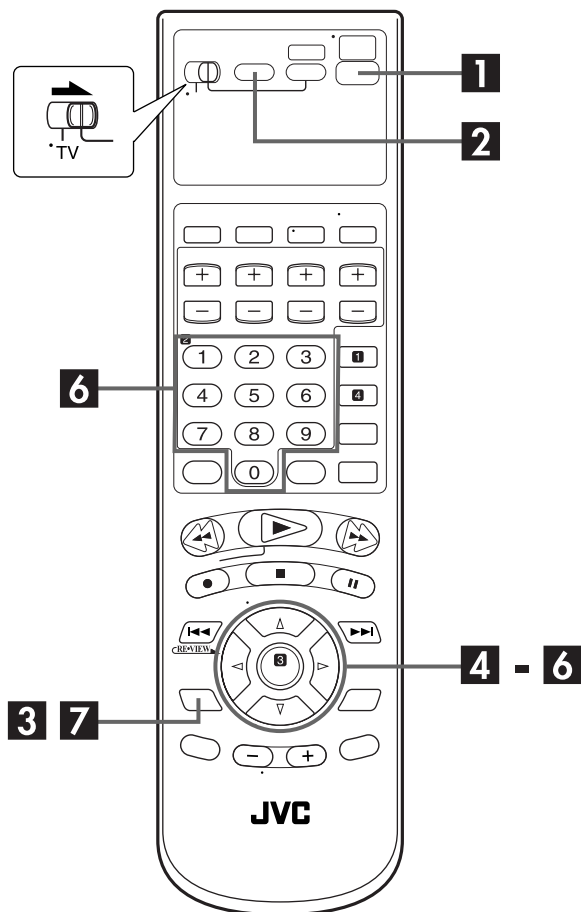


To skip channels

- 1 Press Δ / ∇ or the **number keys** to select a channel number you want to skip.
- 2 Press **ENTER** or \triangleright to set to "SKIP".
- 3 Repeat 1 and 2 to skip other channels.

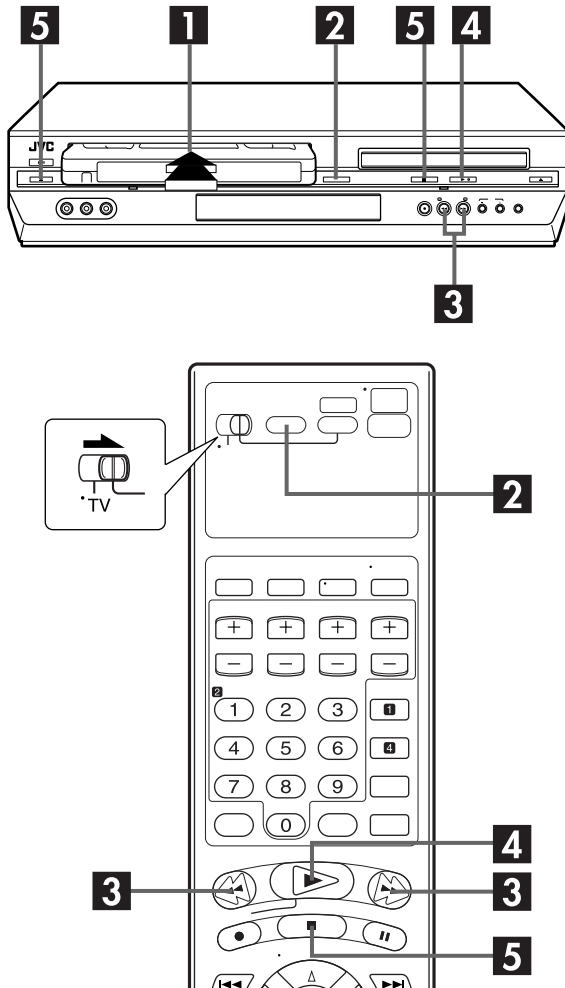
7 Return to the normal screen.

Press **SET UP**.



Basic Playback

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



Clean the video heads using a dry cleaning cassette — ECL-3F — when:

- Rough, poor picture appears while a tape is played back.
- The picture is unclear or no picture appears.
- "USE CLEANING CASSETTE" appears on the screen (only with "SUPERIMPOSE" set to "ON"). (pg. 75)

NOTE:

The heads get dirty in the following cases:

- in an environment prone to extreme temperature or humidity
- in a dusty environment
- flaw, dirt or mold on video tapes
- continuous usage for a long time

1 Load a cassette.

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is pointed toward the unit.

- Do not apply too much pressure when inserting.
- If the record safety tab has been removed, playback begins automatically. Although the DVD deck is selected, the VCR deck is selected automatically if the DVD deck is in stop mode.
- The unit's power comes on automatically and the counter is reset to 0:00:00.

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

3 Find the program start point.

If the tape is advanced past the start point, press **REW** (◀◀). To go forward, press **FF** (▶▶).

4 Start playback.

Press **PLAY** (▶).

5 Stop playback.

Press **STOP** (■). Then press **EJECT** (▲) on the VCR deck to remove the cassette.

Usable cassettes

Full-Size VHS

T-30 (ST-30**)
T-60 (ST-60**)
T90
T-120 (ST-120**)
T-160 (ST-160**)
ST-210**

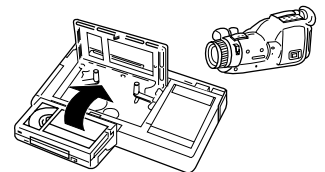
Compact VHS*

TC-20 (ST-C20**)
TC-30 (ST-C30**)
TC-40 (ST-C40**)

* Compact VHS camcorder recordings can be played on this unit. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.

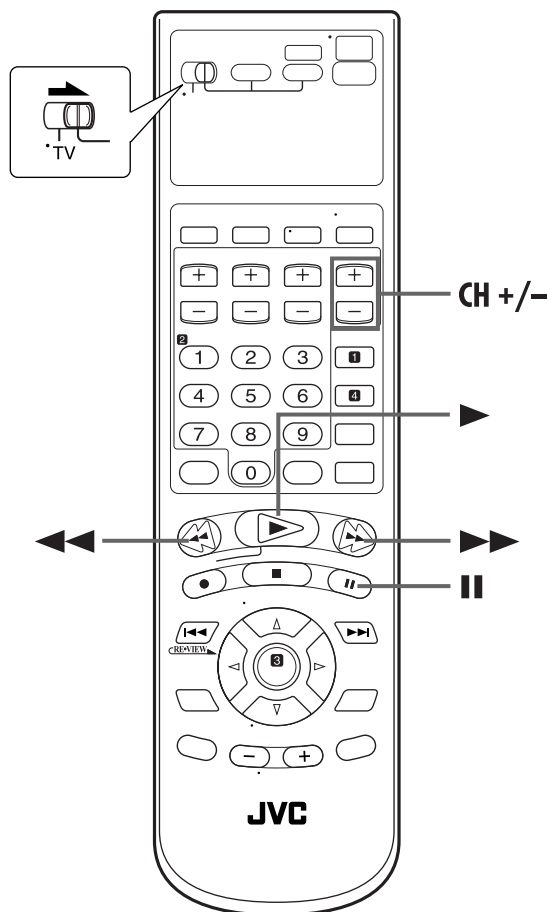
** This unit can record on regular VHS and Super VHS cassettes. However, it will record regular VHS signals only.

- S-VHS recording is not possible with this unit.
- This unit is equipped with SQPB (S-VHS QUASI PLAYBACK) that lets you watch tapes recorded in the S-VHS format and the SP mode with regular VHS resolution.
- SQPB does not deliver Super VHS resolution.



Playback Features

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



ATTENTION

In the search, still, slow-motion or frame-by-frame playback mode,

- the picture will be distorted.
- the noise bars will appear.
- there may be a loss of colour.
- you cannot hear the sound.

Still Picture/Frame-By-Frame Playback

1 Pause during playback.

Press **PAUSE (II)**.

- If there is vertical jitter, press **CH +/-** on the Remote to correct the picture.

2 Activate frame-by-frame playback.

Press **PAUSE (II)** to advance a still picture.

Slow Motion

1 Pause during playback.

Press **PAUSE (II)**.

2 Activate slow motion playback.

Press and hold **PAUSE (II)** for 2 seconds, then release. Press **PAUSE (II)** and release again to return to still picture.

NOTE:

During slow motion playback, some noise may appear on the TV screen. Press **CH +** or **-** on the Remote to eliminate the noises.

Variable Speed Search

During playback, press **FF (▶▶)** for forward variable speed search, or **REW (◀◀)** for reverse variable speed search.

- The speed changes for each direction by pressing **REW (◀◀)** and **FF (▶▶)** repeatedly.

When pressing **FF (▶▶)**:

(SP): +5x ↔ +7x

(EP): +11x ↔ +21x

When pressing **REW (◀◀)**:

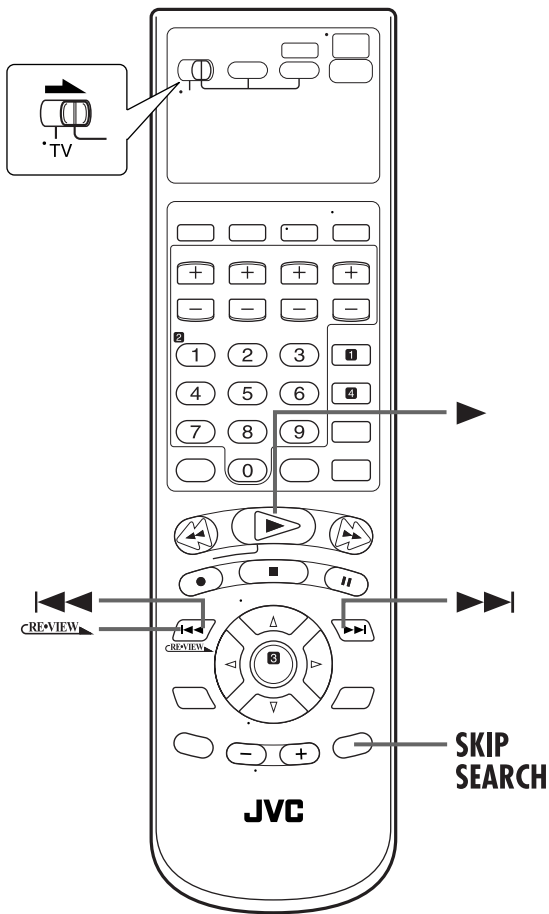
Once **REW (◀◀)** is pressed, reverse search starts in -1x

normal playback speed. After this process, each press of **REW (◀◀)** changes the search speed between -5x and -7x in SP mode, -11x and -21x in EP mode.

(SP): -1x → -5x ↔ -7x

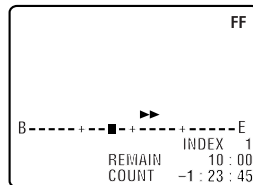
(EP): -1x → -11x ↔ -21x

To resume normal playback, press **PLAY (▶)**.



Index Search

Your unit automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.



NOTE:

Before starting, make sure the unit is in the Stop mode.

Activate Index Search.

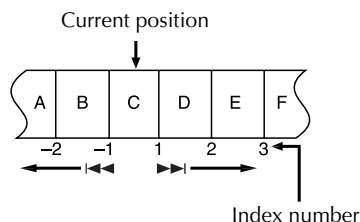
Press **INDEX** (◀◀) or **INDEX** (▶▶). "INDEX -1" or "INDEX 1" is displayed on the TV screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press **INDEX** (◀◀) or **INDEX** (▶▶) repeatedly until the correct index number is displayed.

Example:

To locate the beginning of B from the current position, press **INDEX** (◀◀) twice.

To locate the beginning of D from the current position, press **INDEX** (▶▶) once.



- When the specified index code is located, playback begins automatically.

Instant ReView

Simply by pressing a single button, the unit power comes on, rewinds, and begins playback of the last timer-recorded program. If you have several programs recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the unit is off and that the Timer mode is disengaged.

Activate Instant ReView.

Press **REVIEW**. The unit power comes on and the unit searches for the index code indicating the start of the last timer-recorded program. Once it's found, playback begins automatically.

- To watch the first of the 3 programs, press **REVIEW** three times. The unit searches and begins playback automatically. You can access a program as far as 9 index codes away from the current tape position.

Skip Search

During playback, press **SKIP SEARCH** 1 to 6 times to skip over unwanted sections. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

To resume normal playback during a Skip Search, press **PLAY** (▶).

Next Function Memory

The Next Function Memory "tells" the unit what to do after rewinding. Before continuing, make sure the unit is in the Stop mode.

- a- For Automatic Start Of Playback
Press **REW** (◀◀), then press **PLAY** (▶) within 2 seconds.
- b- For Automatic Power Off
Press **REW** (◀◀), then press **POWER** (⏻) within 2 seconds.
- c- For Automatic Timer Standby
Press **REW** (◀◀), then press **TIMER** within 2 seconds.
- d- For Automatic Cassette Ejection After Tape Rewind
Press **REW** (◀◀), then press **EJECT** (⏏) within 2 seconds.

Repeat Playback

Your unit can automatically play back the whole tape 100 times repeatedly.

1 Start playback.

Press **PLAY** (▶).

2 Activate Repeat Playback.

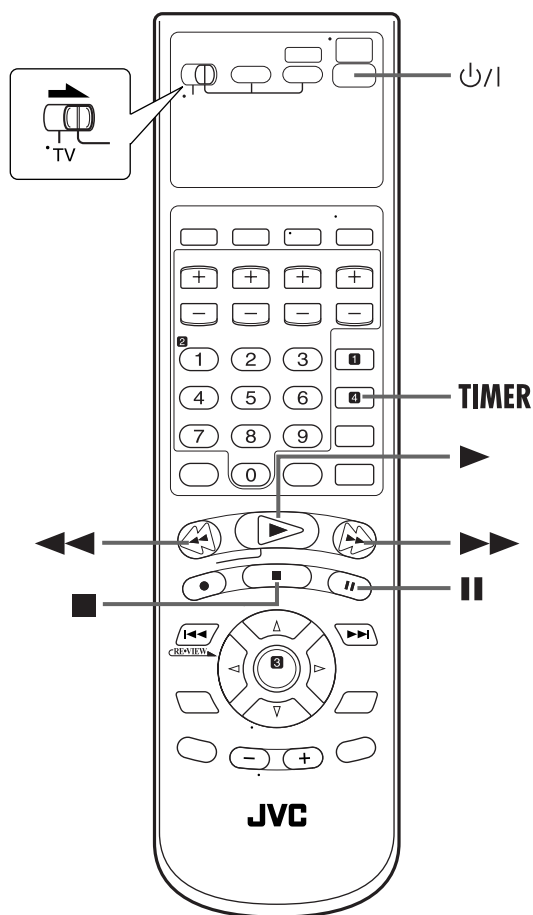
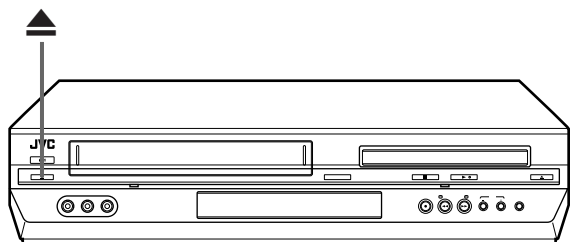
Press **PLAY** (▶) and hold for over 5 seconds, then release.

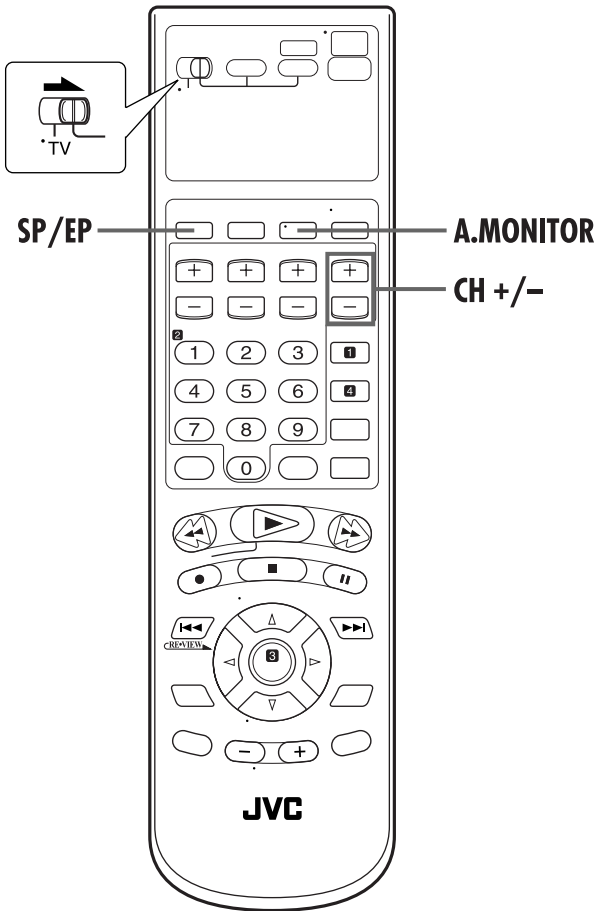
- The Play indicator (▷) on the front display panel blinks slowly.
- After playing back a tape 100 times, the unit stops automatically.

3 Stop Repeat Playback.

Press **STOP** (■) at any time.

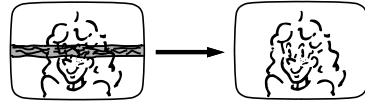
- Pressing **PLAY** (▶), **REW** (◀◀), **FF** (▶▶) or **PAUSE** (||) also stops Repeat Playback.





Manual Tracking

Your unit is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **CH** buttons.



1 Override automatic tracking.

During playback, press **SP/EP** on the Remote.

2 Adjust the tracking manually.

Press **CH +** or **-** on the Remote.

- Press **SP/EP** again to return to automatic tracking.

NOTE:

When a new tape is inserted, the unit enters the automatic tracking mode automatically.

Soundtrack Selection

Your unit is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback

Pressing **A.MONITOR** changes the soundtrack as follows:

- You can also select the soundtrack on the Function Set screen. (☞ pg. 76)

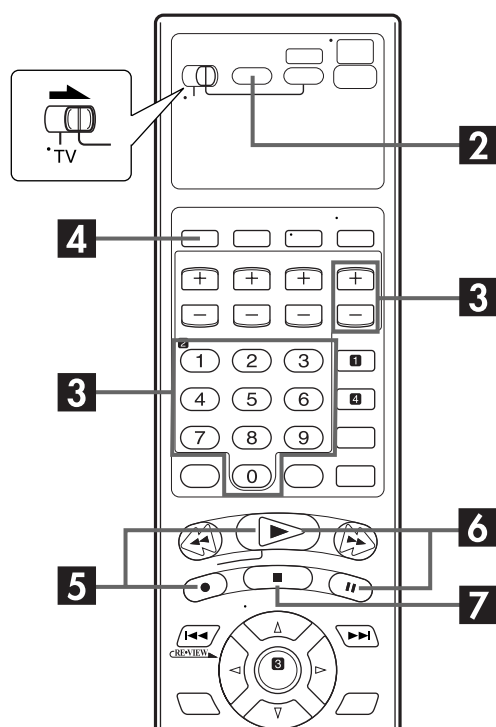
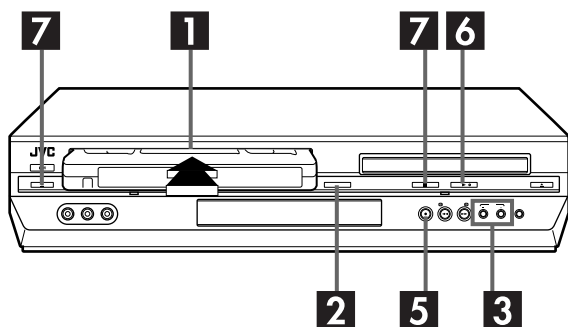
TRACK	USE
On-Screen Display	
H I-F I	Hi-Fi sound is played back
H I-F I L	Sound on the left Hi-Fi channel is played back
H I-F I R	Sound on the right Hi-Fi channel is played back
NORM	Sound on the normal track is played back
NORM H I-F I	Both sounds on the Hi-Fi track and normal track are mixed and played back

NOTES:

- "HIFI" should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.
- "SUPERIMPOSE" must be set to "ON" or the on-screen displays will not appear. (☞ pg. 75)

Basic Recording

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



Recording Resume Function

If there is a power outage during recording, Instant Timer Recording or timer recording (pg. 33, 34, 36), the recording will resume automatically when power is restored to the unit unless the unit's memory backup has expired.

1 Load a cassette.

Insert a cassette with the record safety tab intact.

- The unit's power comes on automatically and the counter is reset to 0:00:00.

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

3 Choose a program.

Press **CH +/-** or the **number keys** to select the channel you wish to record.

4 Set the tape speed.

Press **SP/EP**. The current setting appears on the front display panel or TV screen. Press **SP/EP** again to change the setting while the tape speed is displayed on the TV screen.

5 Start recording.

Press and hold **REC** (●) and press **PLAY** (▶) on the Remote, or press **REC** (●) on the unit.

6 Pause/Resume recording.

Press **PAUSE** (II). Press **PLAY** (▶) to resume recording.

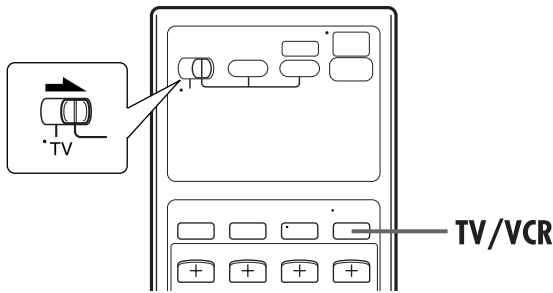
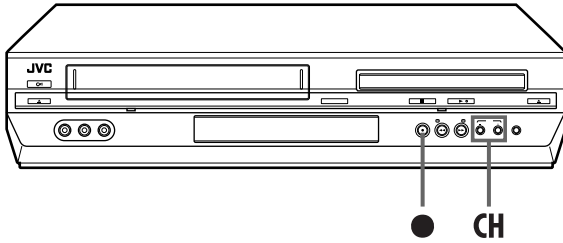
- You can select channel during the Record Pause mode.

7 Stop recording.

Press **STOP** (■). Then press **EJECT** (▲) on the VCR deck to remove the cassette.

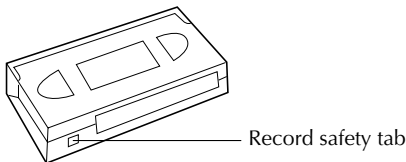
Recording Features

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



Accidental erasure prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Record One Program While Watching Another

If your unit is connected to the TV via the AV connection, press **TV/VCR**. The VCR indicator on the front display panel and the TV broadcast being recorded disappear. Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The program selected with the TV's channel controls appears on the TV screen, while the one selected with the unit's **CH** buttons is recorded on the tape.

NOTE:

You can also use the DVD deck in the following cases. Before use, be sure to turn on the unit and select the DVD deck.

- During recording
- During timer recording
- During timer standby mode

Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the unit off after recording is finished.

1 Start recording.

Press **REC** (●) on the unit.

2 Engage the ITR mode.

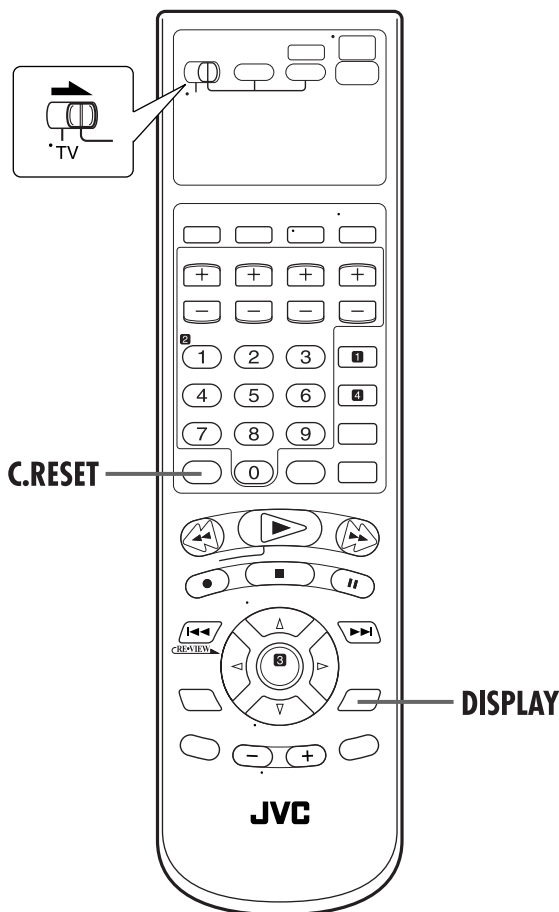
Press **REC** (●) again. "○" blinks and "0:30" appears on the front display panel.

3 Set the recording duration.

If you want to record for more than 30 minutes, press **REC** (●) to extend the time. Each press extends recording time by 30 minutes.

NOTES:

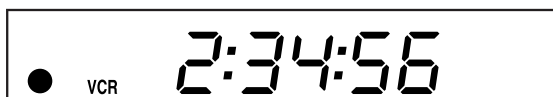
- You can only perform ITR using the **REC** (●) button on the unit's front panel.
- Still picture playback stops automatically after 5 minutes to protect the heads.
- When the end of the tape is reached during timer recording, the unit stops and "○" and "▷" blink on the front display panel.
- When the end of the tape is reached during timer recording or Instant Timer Recording, the unit is turned off and "○" and "▷" blink on the front display panel.
- During Instant Timer Recording, any other timer programmed recording won't start even if their start time has come. In such a case, the timer programmed recording starts (if the end time of the timer programmed recording is set after the end of Instant Timer Recording) after the Instant Timer Recording finishes.



Elapsed Recording Time Indication

1 Set the counter display.

Press **DISPLAY** until a counter reading appears on the front display panel.



2 Reset the counter.

Press **C.RESET** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs. You can check the exact time of a recording or playback.

Tape Remaining Time

Press **DISPLAY** until the time remaining on the tape appears.

- The front display panel shows the tape remaining time with ":" blinking.



- By pressing the **DISPLAY** button, you can change display to show the channel position*, clock time, counter reading or tape remaining time.

* Channel position is not displayed during playback.

NOTES:

- When you press **ON SCREEN**, the on-screen display appears on the TV screen for 5 seconds, then the displays other than the counter disappear. To clear the counter display, press **ON SCREEN**.
- Depending on the type of tape being used, the tape remaining time reading may not appear right away, or is not correct. "--:--" may sometimes appear with ":" blinking, or the display may blink on occasion.

Second Audio Recording

This unit's built-in MTS decoder enables reception of Multichannel TV Sound broadcast. To record a SAP program received, set "2ND AUDIO RECORD" to "ON". (pg. 76)

NOTE:

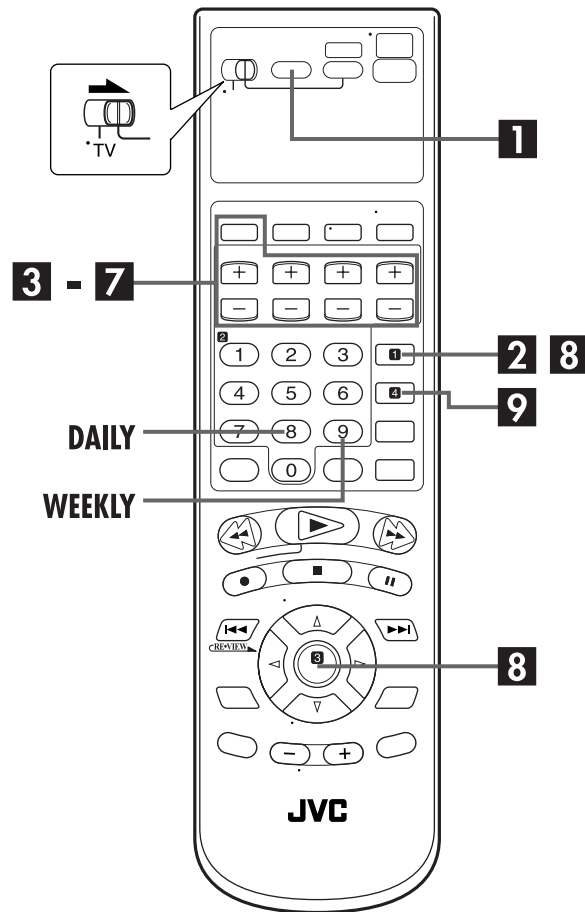
When the channel is changed on the unit;

- The "STEREO" indicator appears on the screen for about 5 seconds if the program is a stereo broadcast.
- The "SAP" indicator appears on the screen for about 5 seconds if the program is a SAP broadcast.
- Both indicators appear when a stereo program is accompanied by SAP sound.

Express Timer Programming

Before performing Express Timer Programming:

- Make sure that the unit's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The unit will come on automatically.
- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



Example: To timer-record the program from 8:00 PM to 10:00 PM on 24th December, on channel 12.

1 Select the VCR deck.

On the unit

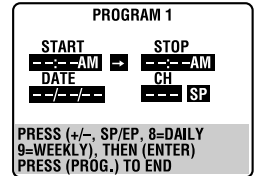
Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

2 Access the Program screen.

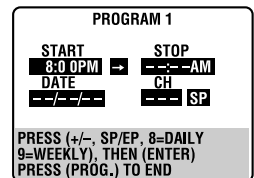
Press **PROG..** (If you're just starting out, "PROGRAM 1" appears.)



3 Enter the program start time.

Press **START +/-** to enter the time you want recording to start.

- Press and hold **START +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



4 Enter the program stop time.

Press **STOP +/-** to enter the time you want recording to stop.

- Press and hold **STOP +/-** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

5 Enter the program date.

Press **DATE +/-**.

- The current date appears on the TV screen. The date you enter appears in its place.

6 Enter the channel position.

Press **CH +/-**.

7 Set the tape speed.

Press **SP/EP**.

8 Return to the normal screen.

Press **PROG.** or **ENTER**. "PROGRAM COMPLETED" appears on the TV screen for about 5 seconds, then the normal screen appears. If "PROGRAM NOT COMPLETED PROGRAM OVERLAP" appears on the TV screen, see page 40.

- Repeat steps **2** – **3** for each additional program.

9 Engage the unit's timer mode.

Press **TIMER**. The unit turns off automatically and "Ⓢ" appears on the front display panel.

- To disengage the timer mode, press **TIMER** again.

To Timer-Record Weekly Or Daily Serials:

— anytime during steps **1** through **7**, press **WEEKLY** (number key "9") for weekly serials or **DAILY** (number key "8") for daily serials (Monday – Friday). Either "WEEKLY" or "DAILY" appears on the TV screen. Pressing the button again makes the corresponding indication disappear.

NOTES:

- You can program this unit to timer-record as many as 8 programs. If you try to program the unit to record a ninth, "PROGRAM FULL" appears on the TV screen. To record the extra program, you must first cancel any unnecessary programs. (Ⓢ pg. 39)
- Programs that start after midnight must have the next day's date.

Cable Box or DBS Receiver Users

To timer-record a satellite broadcast using Express Timer Programming:

- 1 Perform steps **1** – **9**. Enter "F-1" for the channel position in step **6**.
- 2 Set the DBS receiver to the appropriate channel before the selected program begins.
- 3 Leave the DBS receiver's power on.

Check, cancel and change programs

1 Disengage the timer mode.

Press **TIMER**, then press **POWER** (⏻/⏻).

2 Access the Program Check screen.

Press **PROG. CHECK**.

PR	START	STOP	CH	DATE
1	8:00P	10:00	12	12/24
2	10:00A	10:45	40	12/25
3	11:30P	1:00	125	12/25
4				
5				
6				
7				
8				

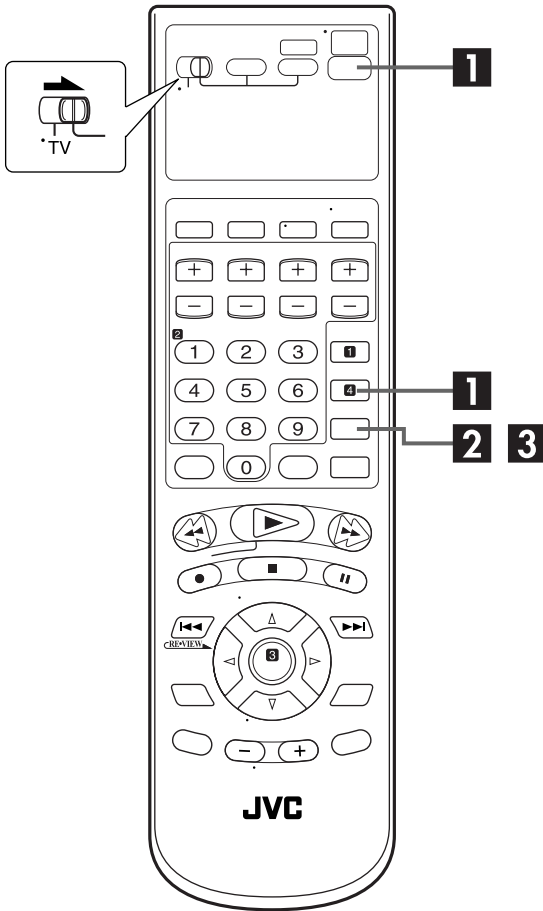
PRESS (CHECK) TO NEXT

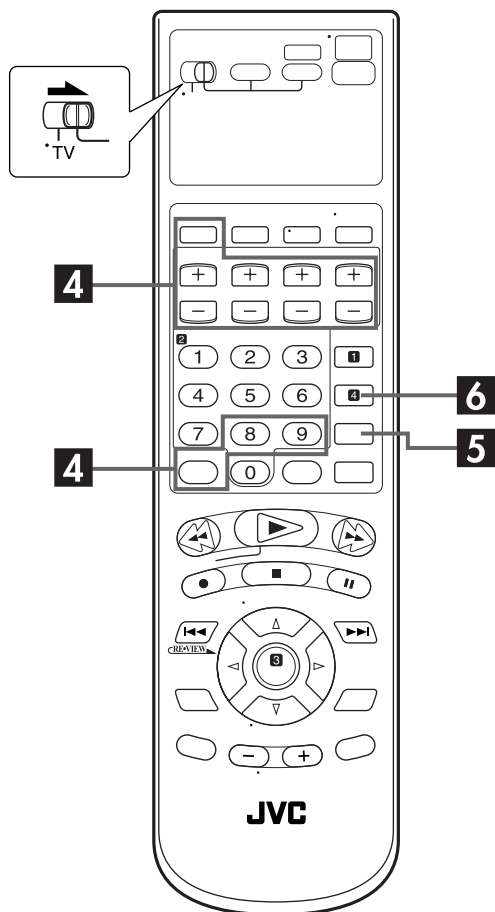
3 Access the Program screen.

Press **PROG. CHECK** again to check more information. Each time you press **PROG. CHECK**, the next program's information appears.

PROGRAM 1			
START	STOP		
8:00AM	10:00AM		
DATE	CH		
12/24/03	12 SP		
WED	TV		

PRESS (CANCEL) TO CANCEL
PRESS (CHECK) TO NEXT





To cancel or change a program

4 Cancel or change a program.

Press **CANCEL** to cancel a program. To change program settings, press the appropriate button: **START +/-**, **STOP +/-**, **DATE +/-**, **CH +/-**, **DAILY** (number key "8"), **WEEKLY** (number key "9") and/or **SP/EP**.

5 Return to the normal screen.

Press **PROG. CHECK** as many times as necessary. If there are still some programs remaining, go on to step **6**.

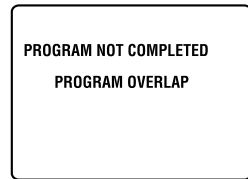
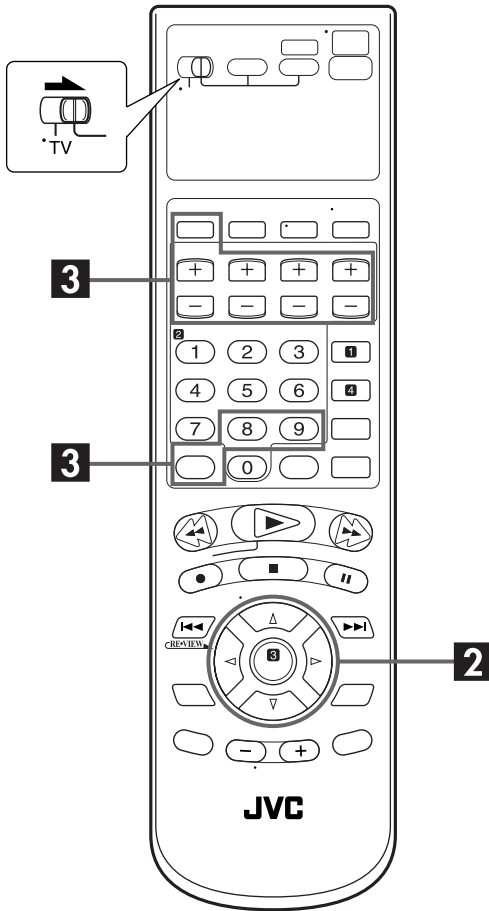
6 Return to the timer mode.

Press **TIMER**.

When programs overlap each other

If "PROGRAM NOT COMPLETED PROGRAM OVERLAP" appears, you have another program overlapping the program you have just made.

The Program Check screen appears and conflicting programs will start blinking.



PR	START	STOP	CH	DATE
1	8:00P	10:00	12	12/24
2	10:00A	10:45	40	12/25
3	11:30P	1:00	125	12/25
4	9:00P	10:00	10	12/24
5				
6				
7				
8				

(▲,▼), THEN (▶) (PROG.): END

Example: Program 1 (you have just made) and Program 4 overlap each other.

1 Confirm the overlapping programs.

Overlapping programs blink on the TV screen.

2 Select the program to modify.

Press ▲▼, then press **ENTER** or ▶.

- You can only select one of the overlapping programs.

NOTE:

If you do not mind this overlap, press **PROG.** to finish the timer program setting. The program with the lower program number will be recorded and the other one will not be recorded correctly. If no changes are made for approximately 1 minute, the unit will return to the normal screen.

3 Cancel or change program setting.

To cancel a program, press **CANCEL** when the Program screen you do not want is shown. "PROGRAM COMPLETED" appears on the TV screen for about 5 seconds, then the normal screen appears.

To change a program, press the appropriate button: **START +/-**, **STOP +/-**, **DATE +/-**, **CH +/-**, **DAILY (number key "8")**, **WEEKLY (number key "9")** and/or **SP/EP** when the Program screen on which you want to make changes is shown, then press **ENTER**. "PROGRAM COMPLETED" appears on the TV screen for about 5 seconds, then the normal screen appears.

NOTE:

If the overlap is not yet solved, or another overlap occurs with the timer program setting after making the last correction on a program, the conflicting programs will be shown on the Program Check screen again. Repeat the above steps again until the overlap is solved.

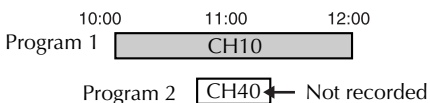
ATTENTION

If there is a conflict in the timer schedule and one program overlaps with another, only the parts shown below in gray will be recorded.

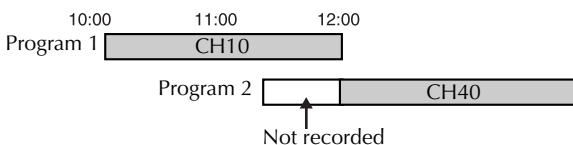
Pattern 1: The program with the lower program number will be recorded.



Pattern 2: The program starting earlier will be recorded.



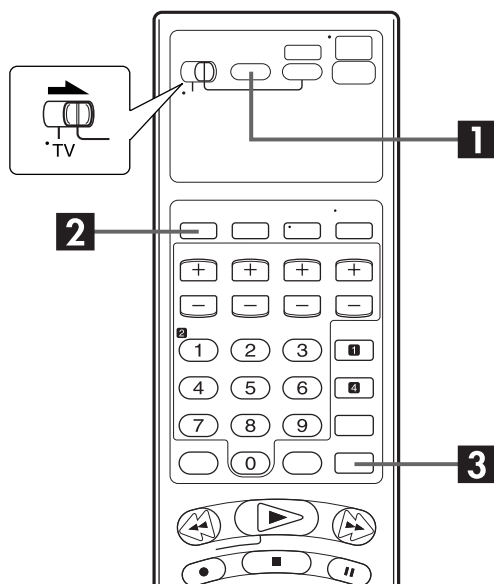
Pattern 3: The program starting earlier will be recorded, followed by the remaining portion of the other program.



Satellite Auto Recording

This function allows you to automatically record a satellite program which is timer-programmed on your external DBS receiver. Connect a DBS receiver to the unit's AUDIO/VIDEO input (F-1) connector and program the timer on the DBS receiver. The unit starts or stops recording by the signals input from the DBS receiver. After recording, the unit's power shuts off automatically.

- You can also connect the cable box if it has a timer.



ATTENTION

- Be sure not to turn on the DBS receiver before the program is executed; otherwise, the unit will start recording when the DBS receiver's power is turned on.
- If you have connected another appliance other than a DBS receiver to the AUDIO/VIDEO input (F-1) connector, be sure not to engage the Satellite Auto Recording mode; otherwise, the unit will start recording when the connected appliance's power is turned on.
- Satellite Auto Recording and timer-recording cannot be done at the same time.

Before performing the following steps:

- Make sure the DBS receiver is connected to the unit's AUDIO/VIDEO input (F-1) connector.
- Program the timer on the DBS receiver.
- Insert a cassette with the safety tab in place.
- Slide the TV/VCR/DVD switch to the right.

1 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

2 Set the tape speed.

Press **SP/EP**.

3 Engage the Satellite Auto Recording mode.

Press and hold **REC LINK** for about 2 seconds. The "⏸" and "⏹" indicators light up and the unit turns off automatically.



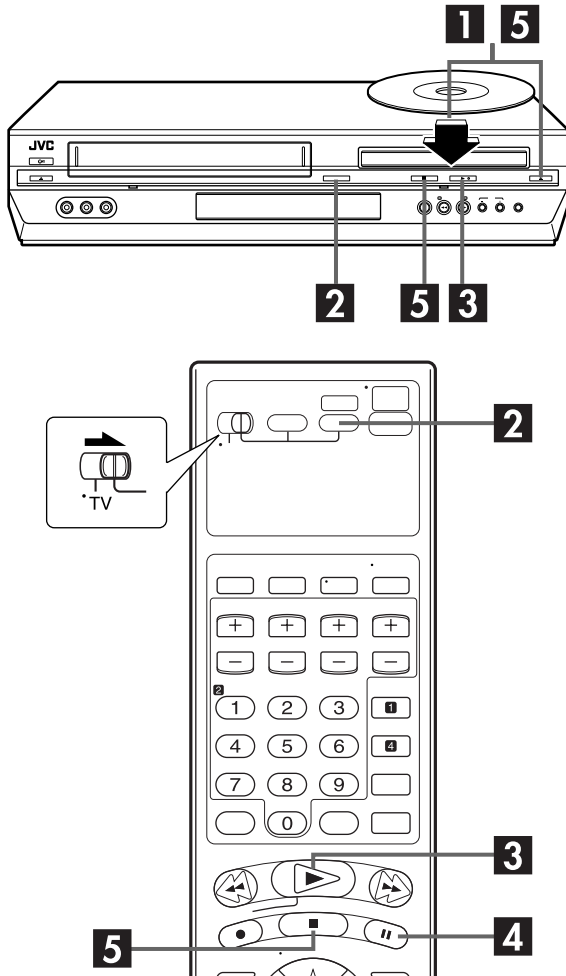
NOTES:

- Operation on the DVD deck are not possible when the Automatic Satellite Program Recording mode is engaged, or timer recording is in progress.
- To disengage the Satellite Auto Recording mode, press **REC LINK**. The "⏸" indicator goes off.
- If the unit's power is off, it is not possible to engage the Satellite Auto Recording mode.
- In step 3, if the "⏸" indicator does not light but instead blinks quickly even though your DBS receiver's power is off, Satellite Auto Recording will not work properly with that DBS receiver*. If this is the case, perform "Express Timer Programming" (pg. 36) to timer-record a satellite program.
* Some DBS receivers output signals even if the power is off. Satellite Auto Recording is not possible with those DBS receivers.
- The "⏸" indicator blinks while Satellite Auto Recording is in progress.
- For timer programming of the DBS receiver, refer to the instruction manual of the DBS receiver.
- Satellite Auto Recording is not possible if your DBS receiver does not have a timer.
- Pressing the unit's **POWER** (⏻) button while Satellite Auto Recording is in progress turns off the unit's power and disengages the Satellite Auto Recording mode.
- If there are more than one satellite programs you wish to record with Satellite Auto Recording, it is not possible to set different tape speeds for each program.
- Depending on the type of DBS receiver, the unit may not record a slight portion of the beginning of the program or may record slightly longer than the actual length of the program.
- If you engage the Satellite Auto Recording mode when the DBS receiver's power is on, the unit will not start Satellite Auto Recording even though the "⏸" and "⏹" indicators blink. When the DBS receiver shuts off once and is turned back on again, the unit starts recording.
- You can also record a program from your cable system in the same way if the system has a timer.

Basic Playback



- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



ATTENTION

- You can not use the DVD deck when the VCR deck is in the Automatic Satellite Recording standby and recording mode.
- You can use the DVD deck when the VCR deck is in the timer standby mode.

To play back a MP3/JPEG disc, see pages 62 – 67.

1 Load the disc.

- 1 Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.
 - The unit's power comes on automatically.

- 2 Place the disc in the disc tray.
 - For details, refer to "Placing a Disc" (☞ pg. 9).
- 3 Press **OPEN/CLOSE** (▲) on the DVD deck to close the disc tray.
 - Pressing **PLAY** (▶) also close the disc tray.
 - Playback begins automatically if the auto-playback DVD disc is loaded. Although the VCR deck is selected, the DVD deck is selected automatically if the VCR deck is in stop mode.

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

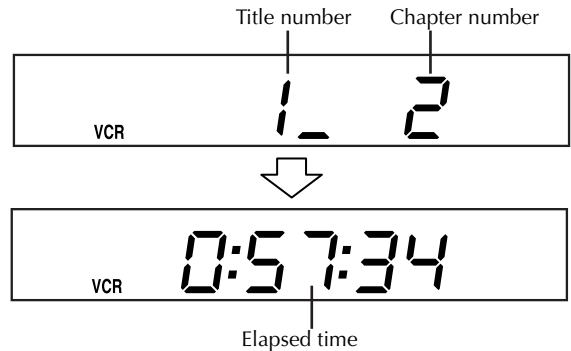
On the Remote

Press **DVD** so that the DVD indicator lights up.

3 Start playback.

Press **PLAY** (▶).

Example: DVD VIDEO



- You can switch the display on the front display panel between the title number/chapter number and the elapsed time by pressing **DISPLAY**.
- It may take a few seconds to start playback.
- If you load a DVD disc whose region code does not match the DVD deck, "REGION CODE ERROR!" appears on the TV screen. For details, refer to "Region Number" (☞ pg. 7).
- With Video CD discs with PBC control or some DVD discs, the menu display may appear on the TV screen after starting playback. In this case, select an item which you want to play back from the menu. Otherwise, the playback cannot go forward. Refer to "Locating a desired scene using the menu of the Video CD with PBC" (☞ pg. 43) or "Locating a desired scene using the DVD menu" (☞ pg. 43).

4 Pause playback.

Press **PAUSE** (II).

- To resume normal playback, press **PLAY** (▶).

5 Stop playback.

Press **STOP** (■). Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray, then remove the disc.

- Pressing **PLAY** (▶) resume playback from the position where you stop playback. For details, see "Resume Function" on page 45.

NOTE:

When you press **OPEN/CLOSE** (▲) while the unit is turned off, the unit's power comes on and the disc tray opens automatically.

Playback Features

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.

Playback Control (PBC) Function — Locating a desired scene using the menu of the Video CD with PBC



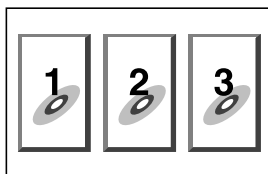
Some Video CD discs supports the PBC function. PBC is an abbreviation of "PlayBack Control." A Video CD disc recorded with PBC has its own menus, such as a list of the songs of the disc. You can locate a specific scene by using the menu.

1 Access the PBC menu.

In stop mode

Press **PLAY** (▶).

- Depending on a disc, PBC menu may automatically appear on the TV screen by simply loading a disc on the unit. "Pbc" appears on the front display panel.



Example:



2 Start playback.

Press the appropriate **number keys**.

- The unit starts playback of the selected item.
- When "NEXT" or "PREVIOUS" appears on the TV screen:
 - Pressing **SKIP** (▶▶) advances to the next page.
 - Pressing **SKIP** (◀◀) returns to the previous page.
- You can return to the menu by pressing **RETURN**.
- The method of the operation is different depending on the disc.

NOTES:

- If you want to playback a PBC-compatible Video CD disc without activating the PBC function, start playback by using the **number keys** instead of the **PLAY** (▶) button.
- To activate the PBC function when a PBC-compatible Video CD disc is being played back without the PBC function, press **TOP MENU** or **MENU**, or press **STOP** (■) (press twice when "RESUME" is set to "ON") then press **PLAY** (▶).

Locating a desired scene using the DVD menu



DVD VIDEO discs may have two types of the menus; top menu and disc menu.

Top menu

DVD discs generally have their own menus which show the disc contents. These menus contain various items such as titles of a movie, names of songs, or artist information. You can locate a desired scene by using the top menu displayed on the TV screen. Press **TOP MENU** to access the top menu.

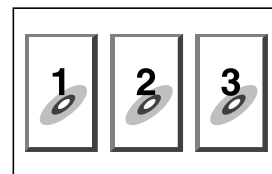
Disc menu

DVD discs have the disc menu to select subtitle and audio language etc. for each title.

Press **MENU** to access the disc menu.

1 Access the DVD menu.

Press **TOP MENU** or **MENU**.



Example:

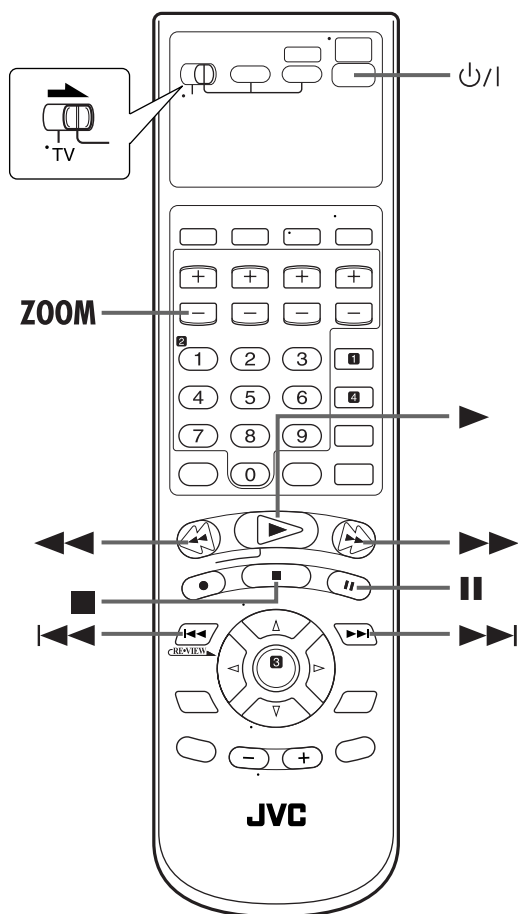
2 Start playback.

Press **△▽◀▶** to select a desired item, then press **ENTER**.

- It may be possible to select the desired item using the **number keys** depending on the disc.

NOTES:

- When "⊙" appears on the TV screen in step 1, the disc does not have a top menu or disc menu.
- Top menu or disc menu may not appear depending on the discs even if it is recorded in DVD VIDEO format and finalized. In that case, press **STOP** (■) to display the total number of titles on a disc, then press the appropriate **number keys** to select the desired title.



Locating the start point of the item or skip the item

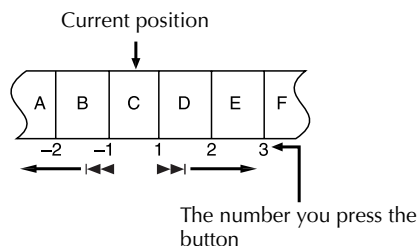


Press **SKIP** (◀◀) or **SKIP** (▶▶) during playback.

Example:

To locate the beginning of item B from the current position, press **SKIP** (◀◀) twice.

To locate the beginning of item D from the current position, press **SKIP** (▶▶) once.



- When the specified item is located, playback begins automatically.

NOTE:

When you press **SKIP** (◀◀) or **SKIP** (▶▶), the counter display may appear instead of title number/chapter number depending on the discs.

Variable Speed Search



During playback, press **FF** (▶▶) for forward variable speed search, or **REW** (◀◀) for reverse variable speed search.

- The more times you press, the faster the playback picture moves.
- To resume normal playback, press **PLAY** (▶).

OR

During playback, press and hold **SKIP** (▶▶) for forward search, or press and hold **SKIP** (◀◀) for reverse search.

- While you press and hold the button, the image is played back at 5x speed.
- To resume normal playback, release **SKIP** (◀◀) or **SKIP** (▶▶).

NOTES:

- Actual speed may be different from that displayed on the TV screen depending on the discs.
- Playback sound is not heard in any variable speed search mode.

Still Picture/Frame-By-Frame Playback



1 Pause during playback.

Press **PAUSE** (II).

2 Activate frame-by-frame playback.

Press **PAUSE** (II) to advance a still picture.

- To resume normal playback, press **PLAY** (▶).

Slow Motion



During playback, press **PAUSE** (II), then press **REW** (◀◀) for reverse slow motion playback, or **FF** (▶▶) for forward slow motion playback.

- Each press of **FF** (▶▶) changes the playback speed as follows: 1/32→1/16→1/8→1/4→1/2
- Each press of **REW** (◀◀) changes the playback speed as follows (only for DVD VIDEO discs): -1/32→-1/16→-1/8→-1/4→-1/2
- To resume normal playback, press **PLAY** (▶).

NOTES:

- Reverse slow motion playback is possible only with the DVD VIDEO discs.
- This function may not work for some Video CD or SVCD.

Resume Function



It is possible to memorize the position where you stop playback and resume playback from that position.

- Be sure to set "RESUME" to "ON". (☞ pg. 80)

1 Memorize the resume point.

Press **STOP** (■) during playback.

- "rESUM" appears on the front display panel.



- The unit enters Resume Stop mode and memorise the position where you stop playback as the resume point.
- To clear the resume point:
 - Press **STOP** (■) in stop mode.
 - Press **POWER** (⏻) to turn off the unit.
 - Eject the disc.
 - Set "RESUME" to "OFF". (☞ pg. 80)

2 Resume playback.

Press **PLAY** (▶). The unit start playback from the resume point.

NOTES:

- Resume Function does not work on the Audio CD. It also may not work depending on the discs.
- If you stop the playback of a disc for which an resume point has already been memorized, the memory will be updated with the new resume point.
- When the unit memorizes a resume point, it also remembers audio language, subtitle and angle settings.
- This function may not work for some Video CD or SVCD.

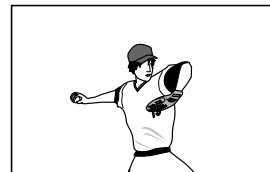
Zooming



Press **ZOOM** during playback or while paused.

- Each press of **ZOOM** changes the magnification in the following steps: ZOOM OFF → ZOOM 1 → ZOOM 2 → ZOOM 3 → ZOOM 4 → ZOOM 5 → ZOOM 6 → (Back to the beginning)
- When a 16:9 aspect picture source is displayed on a 4:3 aspect TV (conventional TV) in Letter Box conversion mode, the margins in black shown on top and bottom of the TV screen will be cropped by zooming. In such a case, note that both left and right side parts of the picture will also be cropped.
- While zoomed, the picture may look coarse or distorted.

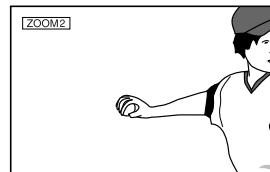
Current magnification

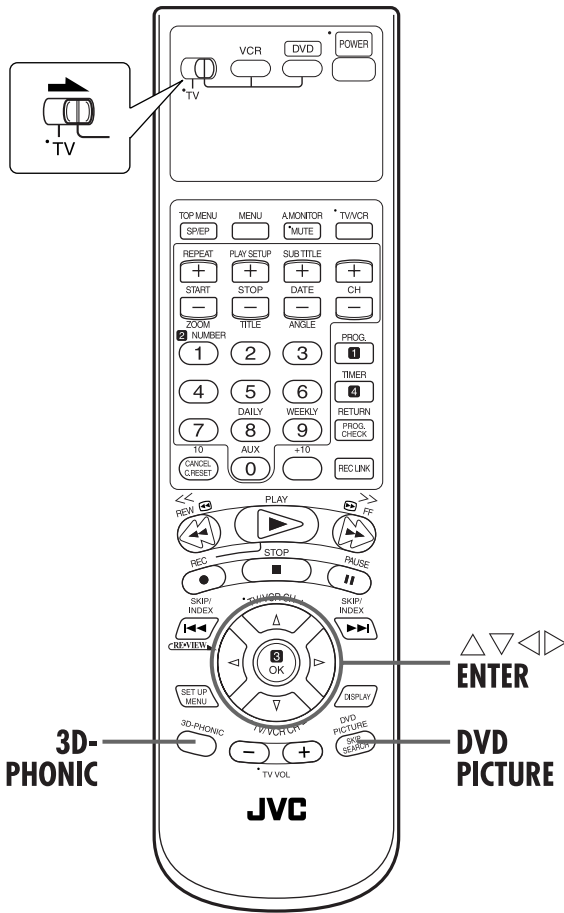


Zoomed-in area



Press **△▽◀▶** to move the zoomed-in scene.





- Each time you press **3D-PHONIC**, the setting changes as follows:
OFF→**ACTION**→**DRAMA**→**THEATER**→(Back to the beginning)

OFF:	No effect
ACTION:	Suitable for action movies and sports programs in which sounds dynamically move.
DRAMA:	Provides the natural and warm sound. You can enjoy movies in a relaxed mood.
THEATER:	You can enjoy sound effects like in a major theater.

- The selection menu disappears automatically if you do not change the selection for 5 seconds.

NOTES:

- The 3D Phonic function works correctly only when playing back a DVD VIDEO disc recorded in the multi channel Digital format. With other sources, you cannot get any effect if you activate 3D Phonic function.
- When playing back a DVD VIDEO disc recorded with the Dolby Digital that does not contain the rear signal, you cannot get a correct 3D Phonic sound even if you activate 3D Phonic function.
- The 3D Phonic function does not affect the Digital bitstream signal from the DIGITAL AUDIO OUT connector.
- When 3D Phonic function is activated, Down Mix and D. Range Compression functions are disabled. (pg. 79)

3D Phonic



3D Phonic function allows you to get a simulated surround effect from your stereo system. You can enjoy the vertical surround sound with your 2-channel stereo system.

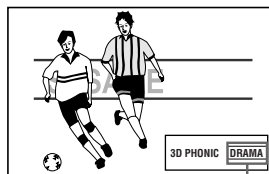
1 Access the selection menu.

Press **3D-PHONIC** during playback.

- The current setting appears on the right bottom corner of the TV screen.

2 Select the mode.

Press **3D-PHONIC** repeatedly.



Selected mode

VFP function

— Adjusting the picture quality



The VFP (Video Fine Processor) function enables you to adjust the picture character according to the type of programing, picture tone or personal preference.

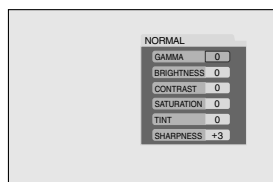
NOTE:

Before you start operation;
The VFP setting screen disappears if no operations are done for more than about 10 seconds. If the setting screen disappears before you finish, start from step 1 again.

1 Access the VFP setting menu.

Press **DVD PICTURE** during playback.

- The current setting appears on the TV screen.



2 Select the VFP mode.

Press $\triangleleft \triangleright$ repeatedly.

- Each time you press $\triangleleft \triangleright$, the VFP mode changes as follows:
NORMAL→CINEMA→USER 1→USER 2→(Back to the beginning)

NORMAL:	Select this normally.
CINEMA:	Suitable for movie.
USER 1/ USER 2:	You can adjust parameters that affect picture appearance and store settings. Go to step 3.

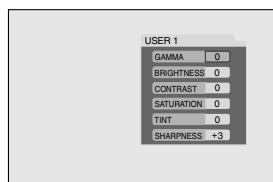
NOTE:

You cannot adjust the parameters of "NORMAL" and "CINEMA".

To adjust picture appearance manually

3 Access USER menu.

Press $\triangleleft \triangleright$ repeatedly to select "USER 1" or "USER 2".



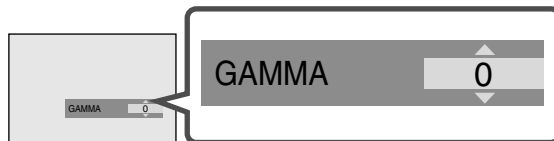
4 Select the parameter.

Press $\triangle \nabla$ repeatedly to select a parameter you want to adjust, then press **ENTER**.

- Adjust gradually and confirm picture appearance results are as preferred.

GAMMA (-3 to +3):	Controls brightness of neutral tints while maintaining brightness of dark and bright portions.
BRIGHTNESS (-8 to +8):	Controls screen brightness.
CONTRAST (-7 to +7):	Controls screen contrast.
SATURATION (-7 to +7):	Controls screen color depth.
TINT (-7 to +7):	Controls screen tint.
SHARPNESS (-8 to +8):	Controls screen sharpness.

- VFP menu disappears and the following pop-up window appears on the TV screen.



- The selection menu disappears automatically if you do not change the selection for 10 seconds.

5 Adjust the parameter.

Press $\triangle \nabla$ repeatedly to change the setting, then press **ENTER**.

- The current VFP settings appear again.

6 Adjust the other parameters.

Repeat steps 4 and 5 to adjust other parameters.

To return to the normal screen

Press **DVD PICTURE**.

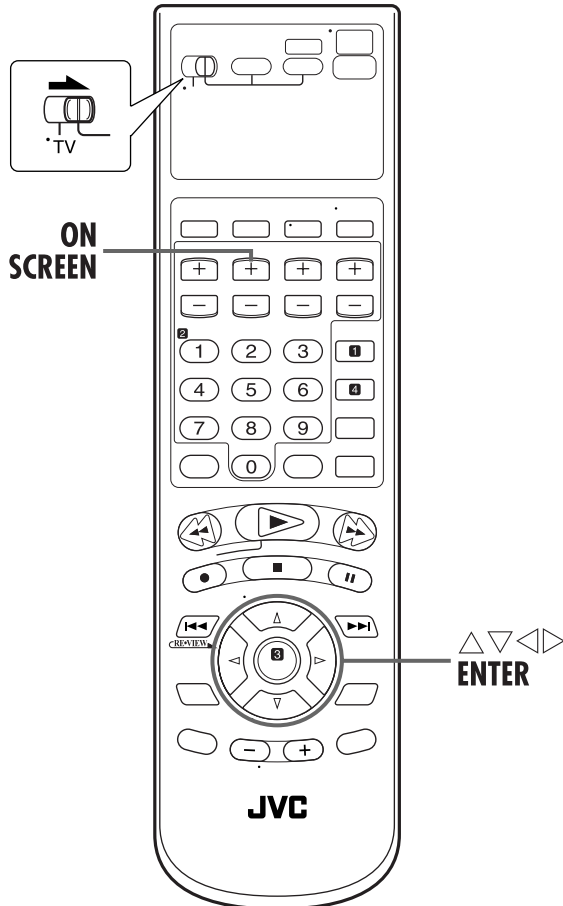
To activate your setting

Press **DVD PICTURE**, then press $\triangleleft \triangleright$ repeatedly to select "USER 1" or "USER 2" that you have changed the parameters.

Using the on-screen bar



You can check disc information while the disc is loaded and you can use some functions using the on-screen bar. The on-screen bar allows you the various playback operations.



How to Access the on-screen bar

Press **ON SCREEN** twice whenever a disc is loaded.

Example: During DVD VIDEO playback

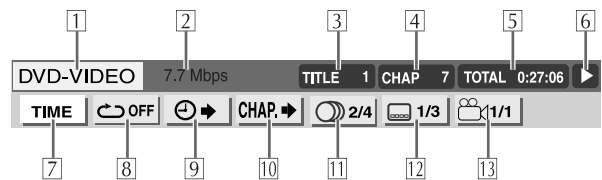


Example: During Video CD playback

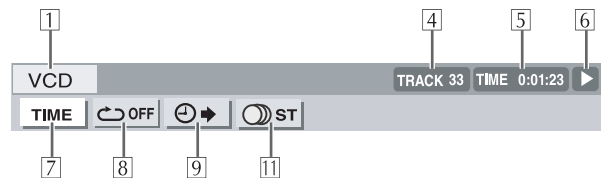


Contents of the on-screen bar during playback

DVD



Video CD



- 1 Disc type
- 2 Current transfer rate (Megabits per second)
- 3 Current title (for DVD)
- 4 Current chapter number (for DVD) or track number (for other type of discs)
- 5 Time information (☞ pg. 49)
- 6 Playback status
 - ▶: appears during playback.
 - ▶▶ / ◀◀: appears during fast forward/reverse.
 - ▶◀ / ◀▶: appears during playback in forward slow-motion/reverse slow-motion.
 - ⏸: appears when paused.
 - : appears when stopped.
- 7 Select this to change time information. (See 5 in the illustration above) (☞ pg. 49)
- 8 Select this for Repeat Playback. (☞ pg. 50)
- 9 Select this for time search function. (☞ pg. 52)
- 10 Select this for chapter search function. (☞ pg. 53)
- 11 Select this to change audio language or channel. (☞ pg. 56, 57)
- 12 Select this to change subtitle language. (☞ pg. 54)
- 13 Select this to change view angle. (☞ pg. 55)

Basic operation on the on-screen bar

Example: When selecting the Repeat mode of DVD

During playback

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

- The currently selected item is highlighted.



2 Select menu item.

Press ◀▶ to move the highlight to **TIME**, then press **ENTER**. The pop-up window appears under the selected item.

- The current setting appears.



3 Select the option.

Press ▲▼ to select the desired option, then press **ENTER**.

- Each time you press ▲▼, the options change.

To clear the on-screen bar

Press **ON SCREEN**.

NOTE:

See the corresponding pages for details on each function.

Change the time information



You can change the time information in the on-screen bar on the TV screen and the front display panel of the unit.

During playback or while stopped

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press ◀▶ to move the highlight to **TIME**, then press **ENTER**.

- Each time you press **ENTER**, the time information changes as follows;

Example: During DVD playback

⇒ **TIME 0:25:58** ⇒ **REM 0:18:14** ⇒ **TOTAL 1:25:58**

⇒ **T.REM 0:45:41** ⇒ (Back to the beginning)

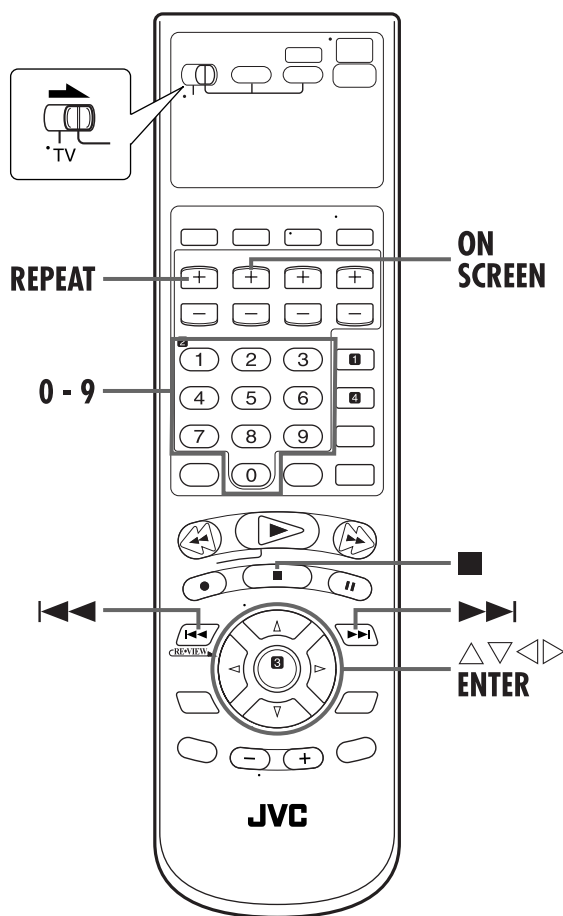
TIME:	Elapsed playing time of current chapter/track
REM:	Remaining time of current chapter/track
TOTAL:	Elapsed time of title/disc
T. REM:	Remaining time of title/disc

To clear the on-screen bar

Press **ON SCREEN**.

NOTE:

While a DVD is stopped, “- : - : - -” appears in the time information display.



Repeat Playback



You can repeat playback as you like according to the type of disc.


- DVD VIDEO: during playback
- Audio CD: during playback or in stop mode
- Video CD/SVCD: in stop mode or during playback with PBC disactivated

When using the on-screen bar

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press $\triangleleft \triangleright$ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.



3 Select the repeat mode.

Press $\triangle \nabla$ repeatedly to select the Repeat mode, then press **ENTER**.

- The mode changes as follows:

DVD VIDEO

CHAPTER \rightarrow TITLE \rightarrow A-B \rightarrow OFF \rightarrow (Back to the beginning)

CHAPTER:	The current chapter is played back repeatedly.
TITLE:	The current title is played back repeatedly.
A-B:	The desired part is played back repeatedly. (pg. 51)
OFF:	Each title and chapter is played back once.

Video CD/SVCD/CD

TRACK \rightarrow ALL \rightarrow A-B \rightarrow OFF \rightarrow (Back to the beginning)

TRACK:	The current track is played back repeatedly.
ALL:	All tracks are played back repeatedly.
A-B:	The desired part is played back repeatedly. (pg. 51)
OFF:	Each track is played back once.

- "A-B" cannot be selected while stopped.

To clear the on-screen bar

Press **ON SCREEN**.

To cancel Repeat Playback

Repeat from step **1**, select "OFF" in step **3**, then press **ENTER**.

When using the REPEAT button:

1 Access the repeat mode.

Press **REPEAT** during playback of the item you want to repeat.

- Repeat mode is displayed on the TV.

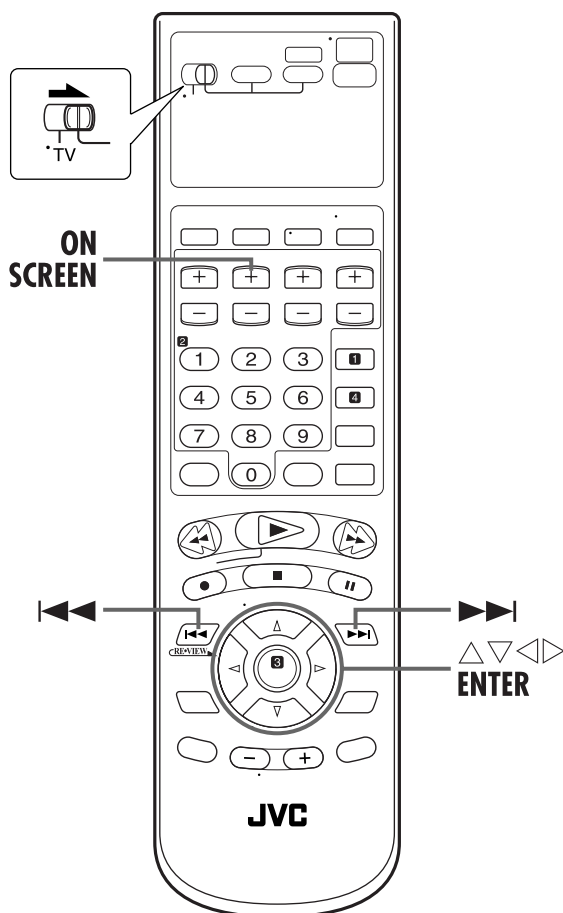
2 Select the repeat mode.

Press **REPEAT** repeatedly to select the desired repeat mode.

- To stop Repeat Playback, press **STOP** (■).
- To cancel Repeat Playback, press **REPEAT** repeatedly until "OFF" appears on the TV screen.
- The pop-up window disappears if no operation is done for about 5 seconds.

NOTES:

- Repeat Playback is not possible with a Video CD and SVCD with PBC function.
- Repeat Playback may not work properly depending on the type of disc being used.
- You cannot select A-B Repeat Playback by pressing **REPEAT**.



A-B Repeat Playback




You can repeat the desired part.

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press ◀▶ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.



3 Select the repeat mode.

Press ▲▼ repeatedly to select "A-B".

4 Select the start point.

Press **ENTER** at the beginning of the part you want to repeat (point A).

- The following display appears in the on-screen bar.



5 Select the end point

Press **ENTER** at the end of the part you want to repeat (point B).

- A-B Repeat Playback starts. The selected part of the disc (between point A and B) is played repeatedly.

To cancel A-B Repeat Playback

Repeat from step **1**, select "OFF" in step **3**, then press **ENTER**.

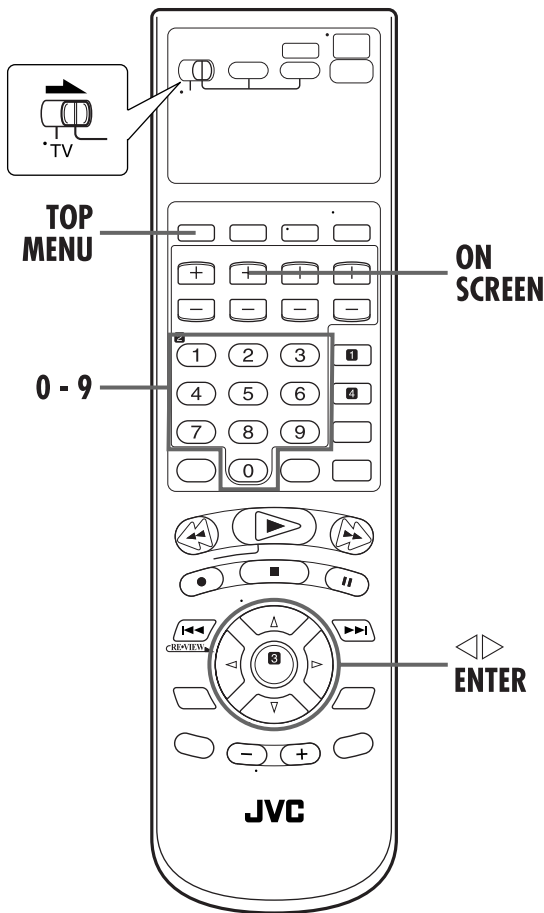
- You can also cancel Repeat Playback by pressing **SKIP** (◀◀) or **SKIP** (▶▶).

To clear the on-screen bar

Press **ON SCREEN**.

NOTES:

- A-B Repeat Playback may not work properly depending on the type of disc being used.
- The subtitles recorded around A-B point may not appear.
- The end of the item will be set as "B" point if the end of the item reached before you set the "B" point.
- When playing back a DVD, A-B Repeat Playback is possible only within the same title.
- "A-B" cannot be selected while stopped.



Time Search



You can play back a disc from the desired point by specifying the elapsed time from the beginning of the current title (for DVD VIDEO) or the disc (for Audio CD/Video CD) using the Time Search.

When a PBC-compatible Video CD is played back, be sure to inactivate PBC function before you perform Time search by pressing the **number keys** instead of the **PLAY** (▶) button when you start playback.

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press ◀▶ to move the highlight to ⏪▶, then press **ENTER**.

- The following pop-up window appears under the selected item.

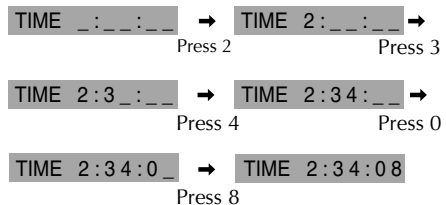


3 Select the time.

Press the **number keys** (0-9) to enter the time, then press **ENTER**.

Example:

To play back from a point 2 (hours): 34 (minutes): 08 (seconds) elapsed



If you have specified a wrong selection,

Press ◀ repeatedly until the wrong number is erased, then press **number keys** to enter the correct numbers.

- The unit starts playback from the specified time.

To clear the on-screen bar

Press **ON SCREEN**.

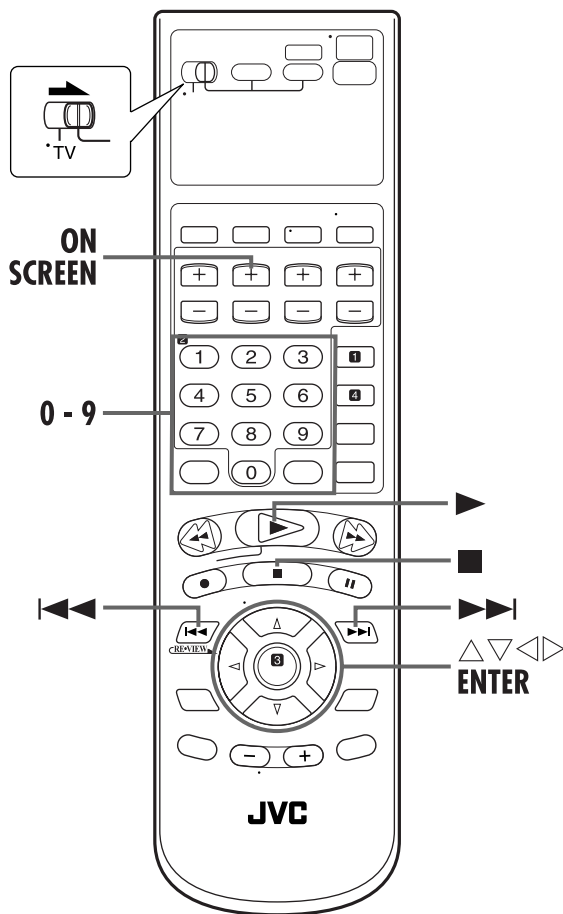
NOTES:

- When "⊙" is displayed on the TV screen in step 3, you have selected a point that exceeds the recording time of the disc.
- Some DVD VIDEO discs do not contain time information, and it is no possible to use the Time Search function. In such a case, "⊙" is displayed on the TV screen as well.
- Time Search does not work while you play back the Video CD or SVCD with the PBC Function.

Reactivate the Playback Control (PBC) Function

You can reactivate the PBC function when you play back a PBC-compatible Video CD disc without PBC function.

- Press **TOP MENU** during playback.



Chapter Search



You can start playback the desired chapter using the on-screen bar.

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press ◀▶ to move the highlight to **CHAP.▶**, then press **ENTER**.

- The following pop-up window appears under the selected item.



3 Select the chapter.

Press the **number keys** (0-9) to enter the desired chapter number, then press **ENTER**.

- The unit starts playback from the selected chapter.

Examples:

To select track 5, press the **number key "5"**.

To select track 15, press the **number key "1"** and **"5"**.

To select track 25, press **number key "2"** and **"5"**.

- It is not possible to use the **number key "+10"** and **"-10"**.

If you have specified a wrong selection

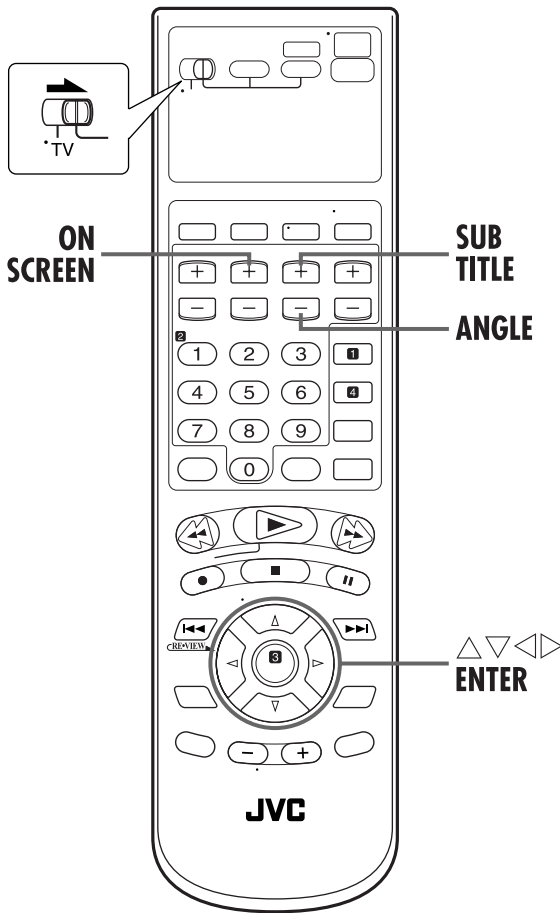
Enter the appropriate **number keys** again.

To clear the on-screen bar

Press **ON SCREEN**.

NOTES:

- When "⊗" is displayed on the TV screen in step **3**, the chapter you have selected is not contained in the disc, or chapter search does not work on the disc.
- Chapter Search starts automatically when you select the desired chapter in step **3** depending on the disc.



Subtitle Selection



You can select subtitle language.


- During playback

When using the on-screen bar

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press $\triangleleft \triangleright$ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.

Example (DVD): "ENGLISH" is selected out of 3 subtitle languages recorded.



3 Select the subtitle language.

Press $\triangle \nabla$ repeatedly to select the desired subtitle language, then press **ENTER**.

- Each time you press the button, the subtitle language changes.

To clear the on-screen bar

Press **ON SCREEN**.

NOTES:

- It is impossible to select "OFF" when using the on-screen bar. To select "OFF", press **ON SCREEN** to clear the on-screen bar, then press **SUB TITLE** until "OFF" is selected.
- **For DVD VIDEO**
Some subtitle languages are abbreviated in the pop-up window. See "Language Code List" (pg. 23).
- **For SVCD**
SVCD can contain up to four subtitles. Pressing **SUB TITLE** changes the subtitles regardless of whether the subtitles are recorded or not. (Subtitles will not change if no subtitle is recorded.)
- When "⊗" appears on the TV screen in step 3, subtitle language is not recorded.

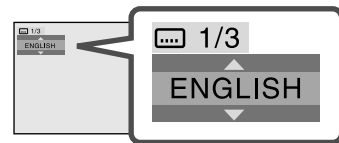
When using the SUB TITLE button:

1 Access the menu.

Press **SUB TITLE**.

- The following pop-up window appears on the TV screen.

Example (DVD): "ENGLISH" is selected out of 3 subtitle languages recorded.



2 Select the subtitle language.

Press $\triangle \nabla$ or **SUB TITLE** repeatedly to select the desired subtitle language. To select "OFF", press **SUB TITLE** until "OFF" is selected.

- Each time you press the button, the subtitle language changes.
- The pop-up window disappears if no operation is done for about 5 seconds.

NOTE:

When "⊗" appears on the TV screen in step 2, subtitle language is not recorded.

Angle Selection



You can enjoy a variety of scene angles if the DVD VIDEO disc contains "multi-angle" parts, where multiple cameras were used to shoot the same scene from different angles.

If the disc contains "multi-angle" parts, "1/3" appears on the TV screen at the beginning of the "multi-angle" part when "ON SCREEN GUIDE" is set to "ON".


- During playback

When using the on-screen bar

1 Access the on-screen bar.

Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press $\triangleleft \triangleright$ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.

Example: The first view angle is selected out of 3 view angles recorded.



3 Select the view angle.

Press $\triangle \nabla$ repeatedly to select the desired view angle, then press **ENTER**.

- Each time you press the button, the angle of the scene changes.

To clear the on-screen bar

Press **ON SCREEN**.

NOTE:

When "⊗" appears on the TV screen in step **3**, the current scene is not recorded from multiple angles.

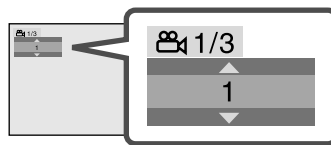
When using the **ANGLE** button:

1 Access the menu.

Press **ANGLE**.

- The following pop-up window appears on the TV screen.

Example: The first view angle is selected out of 3 view angles recorded.



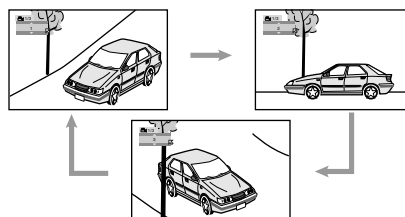
2 Select the view angle.

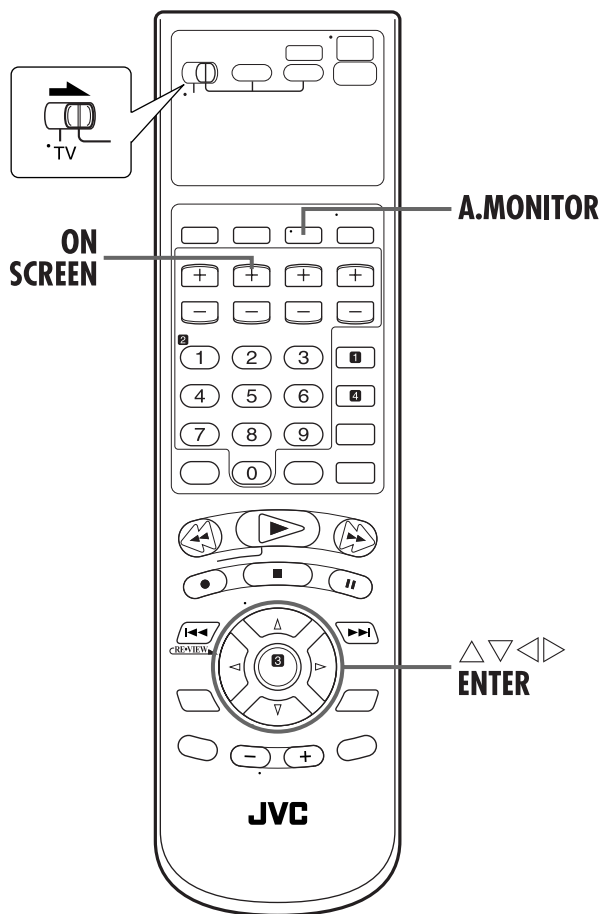
Press $\triangle \nabla$ or **ANGLE** repeatedly to select the desired view angle.

- Each time you press the button, the angle of the scene changes.
- The pop-up window disappears if no operation is done for about 5 seconds.

Example:

1/3 → 2/3 → 3/3 → (Back to the beginning)





Audio Language Selection



Some DVD discs contain the multiple audio. You can select the audio language of movies (DVD VIDEO).


- During playback

When using the on-screen bar

1 Access the on-screen bar.

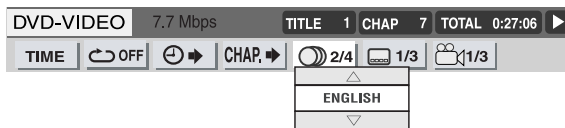
Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press ◀▶ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.

Example: "ENGLISH" is selected out of 4 audio languages recorded.



3 Select the audio language.

Press ▲▼ repeatedly to select the desired audio language, then press **ENTER**.

- Each time you press the button, the audio language changes.

To clear the on-screen bar

Press **ON SCREEN**.

NOTES:

- Some audio languages are abbreviated in the pop-up window. See "Language Code List" (☞ pg. 23)
- If "Ⓞ" appears on the TV, the current scene does not contain plural audio languages.

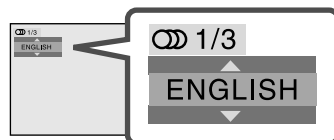
When using the A.MONITOR button:

1 Access the menu.

Press **A.MONITOR**.

- The following pop-up window appears on the TV screen.

Example: "ENGLISH" is selected out of 3 audio languages recorded.



2 Select the audio language.

Press ▲▼ or **A.MONITOR** repeatedly to select the desired audio language.

- Each time you press the button, the audio language changes.
- The pop-up window disappears if no operation is done for about 5 seconds.

NOTE:

Some audio languages are abbreviated in the pop-up window. See "Language Code List" (☞ pg. 23).

Audio Channel Selection



When you play certain karaoke (Video CD/SVCD), you can enjoy karaoke by selecting the audio channel to play.


- The sound of each audio channel depends on the contents of the disc.
- During playback

When using the on-screen bar

1 Access the on-screen bar.

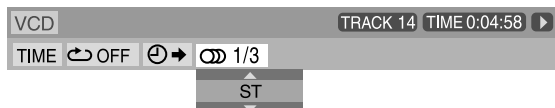
Press **ON SCREEN** twice. The on-screen bar appears on the TV screen.

2 Select menu item.

Press $\triangleleft \triangleright$ to move the highlight to , then press **ENTER**.

- The following pop-up window appears under the selected item.

Example: "ST" (stereo) is selected.



3 Select the audio channel.

Press $\triangle \nabla$ repeatedly to select the desired audio channel, then press **ENTER**.

- Each time you press the button, the audio channel changes.

To clear the on-screen bar

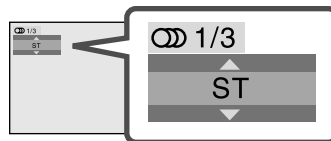
Press **ON SCREEN**.

When using the **A.MONITOR** button:

1 Access the menu.

Press **A.MONITOR**.

- The following pop-up window appears on the TV screen.
- Example: "ST" (stereo) is selected out of 3 audio channels recorded.



2 Select the audio channel.

Press $\triangle \nabla$ or **A.MONITOR** repeatedly to select the desired audio channel.

- Each time you press the button, the audio channel changes.
- The pop-up window disappears if no operation is done for about 5 seconds.

For Video CD

ST \rightarrow L \rightarrow R \rightarrow (Back to the beginning)

ST:	To listen to normal stereo playback.
L:	To listen to L (left) audio channel only.
R:	To listen to R (right) audio channel only.

For SVCD

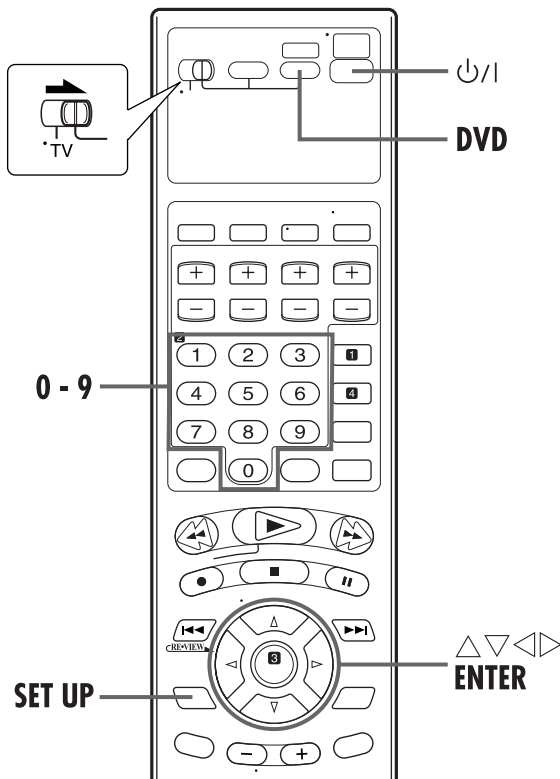
ST 1 \rightarrow ST 2 \rightarrow L 1 \rightarrow R 1 \rightarrow L 2 \rightarrow R 2 \rightarrow (Back to the beginning)

ST 1/ST 2:	To listen to normal stereo playback of ST 1 or ST 2 channel.
L 1/L 2:	To listen to the L (left) 1 or 2 audio channel.
R 1/R 2:	To listen to the R (right) 1 or 2 audio channel.

Parental Lock

This function restricts playback of DVD VIDEO discs which contain violent (and other) scenes according to the level set by the user. For example, if a movie which includes violent scenes supports the parental lock feature, such scenes which you do not want to let children view can be cut or replaced with other scenes.

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



To set Parental Lock for the first time

1 Turn on the unit.

Press **POWER** (⏻/I).

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

Press **DVD** so that the DVD indicator lights up.

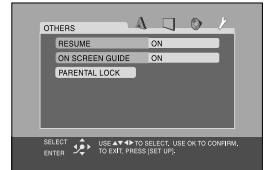
3 Access the DVD Set Up menu.

- 1 Press **SET UP**.
- 2 Press **◀▶** to select "OTHERS".

4 Access the "PARENTAL LOCK" menu.

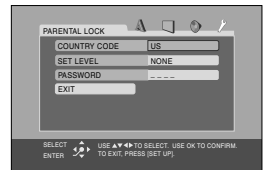
Press **△▽** repeatedly to move the highlight to "PARENTAL LOCK", then press **ENTER**.

- The "PARENTAL LOCK" sub-menu appears on the TV screen.
- It is possible to access the "PARENTAL LOCK" menu only in the stop mode when a DVD disc is loaded on the unit.



5 Access the country code menu.

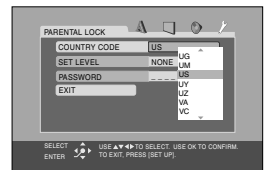
Press **ENTER**, then press **△▽** repeatedly to move the highlight to "COUNTRY CODE", then press **ENTER**.



6 Select the country code.

Press **△▽** repeatedly to move the highlight to select the country code, then press **ENTER**.

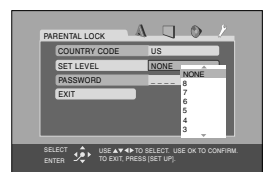
- See "Country/Area Code List for Parental Lock" (pg. 60).
- The highlight moves to "SET LEVEL".



7 Select the Level.

Press **ENTER**, then press **△▽** repeatedly to move the highlight to select the level of restriction, then press **ENTER**.

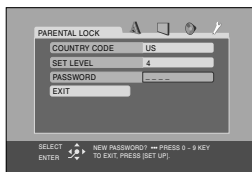
- The highlight moves to "PASSWORD".
- The smaller the value of level is, the more restrictive the Parental Lock level is.
- Select "NONE" to cancel this function.



8 Enter the password.

Press the **number keys** to enter a four-digit number as your password, then press **ENTER**.

- The highlight moves to "EXIT".



5 Enter your new password.

Press the appropriate **number keys** to enter 4-digit password, then press **ENTER**.

- The password entered in this step becomes the new password. If you do not change the password, enter the same password as in step 2.
- Even if you want to change only the country code and/or level, do not forget to enter the password after changing the country code and/or the level. Otherwise, the new country code and/or the level will not become effective.

6 Return to the normal screen.

Press **SET UP**.

NOTES:

- When you enter the wrong password more than 3 times in step 2 on the left column, the highlight moves to "EXIT" automatically and $\Delta\nabla$ does not work.
- If you forget your password, enter "8888" in step 2.

9 Return to the OTHERS menu screen.

Press **ENTER**.

- The "OTHERS" menu resumes.

To return to the normal screen

Press **SET UP**.

NOTE:

Remember your password, or make a note of it.

To change the settings

You can change the Parental lock settings later.

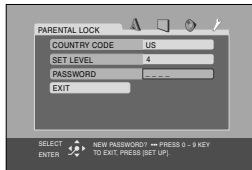
1 Access the Parental Lock screen.

- 1 Press **SET UP**.
 - 2 Press \triangleleft \triangleright to select "OTHERS".
 - 3 Press $\Delta\nabla$ repeatedly to move the highlight to "PARENTAL LOCK", then press **ENTER**.
- The "PARENTAL LOCK" sub-menu appears on the TV screen.
 - You can only move the highlight to "PASSWORD" or to "EXIT" before you enter your password.

2 Enter the password.

Press the appropriate **number keys** to enter 4-digit password, then press **ENTER**.

If you enter the wrong password, "WRONG! RETRY..." appears at the bottom of the TV screen. Enter the correct password.



1 Access the password screen.

- 1 Place the disc in the disc tray.
- If the disc rated higher than the selected level, the following screen appears.
- 2 Press $\Delta\nabla$ to move the highlight to "TEMPORARY RELEASE", then press **ENTER**.
- If you select "NOT RELEASE", you cannot play back that disc.



2 Enter the password.

Press the appropriate **number keys** to enter 4-digit password, then press **ENTER**.

- If you enter the wrong password, "WRONG! RETRY..." appears on the TV screen. Enter the correct password.
- If you enter the correct password, the Parental lock is released and the unit starts playback.

NOTES:

- When you enter the wrong password more than 3 times in step 2 above, the highlight moves to "NOT RELEASE" automatically and $\Delta\nabla$ do not work. In such a case, press **ENTER**, then press **OPEN/CLOSE** (\blacktriangle) to remove the disc.
- If you forget your password, enter "8888" in step 2.

3 Change the country code.

Press $\Delta\nabla$ to select the country code, then press **ENTER**.

- See "Country/Area Code List for Parental Lock" (pg. 60).
- When you change the country code, you must select the level.

4 Change the level.

Press $\Delta\nabla$ to select the desired level, then press **ENTER**.

Country/Area Code List for Parental Lock

AD	Andorra	ES	Spain
AE	United Arab Emirates	ET	Ethiopia
AF	Afghanistan	FI	Finland
AG	Antigua and Barbuda	FJ	Fiji
AI	Anguilla	FK	Falkland Islands (Malvinas)
AL	Albania	FM	Micronesia (Federated States of)
AM	Armenia	FO	Faroe Islands
AN	Netherlands Antilles	FR	France
AO	Angola	FX	France, Metropolitan
AQ	Antarctica	GA	Gabon
AR	Argentina	GB	United Kingdom
AS	American Samoa	GD	Grenada
AT	Austria	GE	Georgia
AU	Australia	GF	French Guiana
AW	Aruba	GH	Ghana
AZ	Azerbaijan	GI	Gibraltar
BA	Bosnia and Herzegovina	GL	Greenland
BB	Barbados	GM	Gambia
BD	Bangladesh	GN	Guinea
BE	Belgium	GP	Guadeloupe
BF	Burkina Faso	GQ	Equatorial Guinea
BG	Bulgaria	GR	Greece
BH	Bahrain	GS	South Georgia and the South Sandwich Islands
BI	Burundi	GT	Guatemala
BJ	Benin	GU	Guam
BM	Bermuda	GW	Guinea-Bissau
BN	Brunei Darussalam	GY	Guyana
BO	Bolivia	HK	Hong Kong
BR	Brazil	HM	Heard Island and McDonald Islands
BS	Bahamas	HN	Honduras
BT	Bhutan	HR	Croatia
BV	Bouvet Island	HT	Haiti
BW	Botswana	HU	Hungary
BY	Belarus	ID	Indonesia
BZ	Belize	IE	Ireland
CA	Canada	IL	Israel
CC	Cocos (Keeling) Islands	IN	India
CF	Central African Republic	IO	British Indian Ocean Territory
CG	Congo	IQ	Iraq
CH	Switzerland	IR	Iran (Islamic Republic of)
CI	Côte d'Ivoire	IS	Iceland
CK	Cook Islands	IT	Italy
CL	Chile	JM	Jamaica
CM	Cameroon	JO	Jordan
CN	China	JP	Japan
CO	Colombia	KE	Kenya
CR	Costa Rica	KG	Kyrgyzstan
CU	Cuba	KH	Cambodia
CV	Cape Verde	KI	Kiribati
CX	Christmas Island	KM	Comoros
CY	Cyprus	KN	Saint Kitts and Nevis
CZ	Czech Republic	KP	Korea, Democratic People's Republic of
DE	Germany	KR	Korea, Republic of
DJ	Djibouti	KW	Kuwait
DK	Denmark	KY	Cayman Islands
DM	Dominica	KZ	Kazakhstan
DO	Dominican Republic	LA	Lao People's Democratic Republic
DZ	Algeria	LB	Lebanon
EC	Ecuador		
EE	Estonia		
EG	Egypt		
EH	Western Sahara		
ER	Eritrea		

LC	Saint Lucia
LI	Liechtenstein
LK	Sri Lanka
LR	Liberia
LS	Lesotho
LT	Lithuania
LU	Luxembourg
LV	Latvia
LY	Libyan Arab Jamahiriya
MA	Morocco
MC	Monaco
MD	Moldova, Republic of
MG	Madagascar
MH	Marshall Islands
ML	Mali
MM	Myanmar
MN	Mongolia
MO	Macau
MP	Northern Mariana Islands
MQ	Martinique
MR	Mauritania
MS	Montserrat
MT	Malta
MU	Mauritius
MV	Maldives
MW	Malawi
MX	Mexico
MY	Malaysia
MZ	Mozambique
NA	Namibia
NC	New Caledonia
NE	Niger
NF	Norfolk Island
NG	Nigeria
NI	Nicaragua
NL	Netherlands
NO	Norway
NP	Nepal
NR	Nauru
NU	Niue
NZ	New Zealand
OM	Oman
PA	Panama
PE	Peru
PF	French Polynesia
PG	Papua New Guinea
PH	Philippines
PK	Pakistan
PL	Poland
PM	Saint Pierre and Miquelon
PN	Pitcairn
PR	Puerto Rico
PT	Portugal
PW	Palau
PY	Paraguay
QA	Qatar
RE	Réunion
RO	Romania
RU	Russian Federation
RW	Rwanda

SA	Saudi Arabia
SB	Solomon Islands
SC	Seychelles
SD	Sudan
SE	Sweden
SG	Singapore
SH	Saint Helena
SI	Slovenia
SJ	Svalbard and Jan Mayen
SK	Slovakia
SL	Sierra Leone
SM	San Marino
SN	Senegal
SO	Somalia
SR	Suriname
ST	Sao Tome and Principe
SV	El Salvador
SY	Syrian Arab Republic
SZ	Swaziland
TC	Turks and Caicos Islands
TD	Chad
TF	French Southern Territories
TG	Togo
TH	Thailand
TJ	Tajikistan
TK	Tokelau
TM	Turkmenistan
TN	Tunisia
TO	Tonga
TP	East Timor
TR	Turkey
TT	Trinidad and Tobago
TV	Tuvalu
TW	Taiwan, Province of China
TZ	Tanzania, United Republic of
UA	Ukraine
UG	Uganda
UM	United States Minor Outlying Islands
US	United States
UY	Uruguay
UZ	Uzbekistan
VA	Vatican City State (Holy See)
VC	Saint Vincent and the Grenadines
VE	Venezuela
VG	Virgin Islands (British)
VI	Virgin Islands (U.S.)
VN	Viet Nam
VU	Vanuatu
WF	Wallis and Futuna Islands
WS	Samoa
YE	Yemen
YT	Mayotte
YU	Yugoslavia
ZA	South Africa
ZM	Zambia
ZR	Zaire
ZW	Zimbabwe

About MP3 Disc

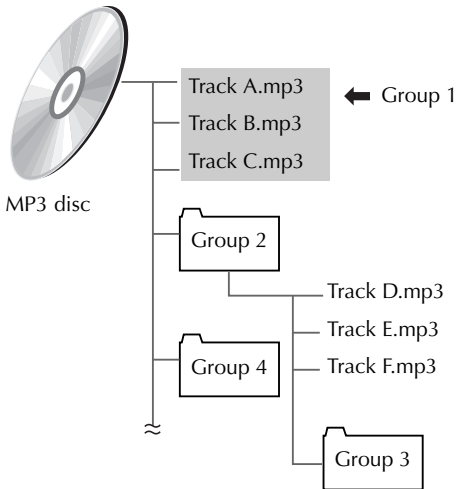
This unit can playback CD discs recorded by the MP3 format (we refer to those discs as MP3 discs in this manual).

Operations for MP3 discs are similar to those for Audio CD discs, though there are some restrictions and differences.

What is MP3?

MP3 is the abbreviation of "MPEG1 Audio Layer 3." MPEG Audio is a compression specification that compresses the audio portion only. This image compression method is used in DVD or Video CD, etc. The audio data has been compressed into about 1/10.

On an MP3 disc, each material (song) is recorded on each Track (file), which usually belongs to a Group (folder).



This unit can recognize up to 99 Groups and up to 150 Tracks per Group. If a disc includes more than the Tracks above limit, the unit stops detecting Tracks when the number of detected Tracks reaches the limit and ignores the subsequent Tracks. The unit also ignores any non-MP3 file in the disc.

NOTES for making a private MP3 disc using a CD-R/ CD-RW disc:

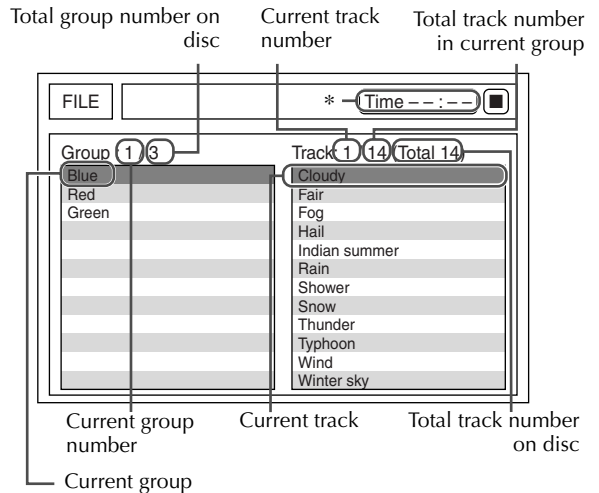
- Select "ISO9660" as the disc format.
- Finalize the disc.

NOTES:

- Because of the disc characteristics or recording condition, some discs may not be played back or it takes time to start playback.
- The unit does not support "packet writing" discs.
- If there are any Tracks (files) which are stored on a disc directly and do not belong to any Group (directory), the unit recognized them as belonging to an independent Group.
- The unit plays back Groups/Tracks on an MP3 disc in the alphabetical order.
- For example, if there are three title Groups [one], [two] and [three] on a disc, the playback order is [one], [three] then [two]. Tracks in a Group are played back in the same way.
- Therefore, an MP3 disc on the market may be played back in the different order from the order printed on its sleeve.

MP3 control display

The MP3 control display appears on the TV screen and playback starts when an MP3 disc is loaded.



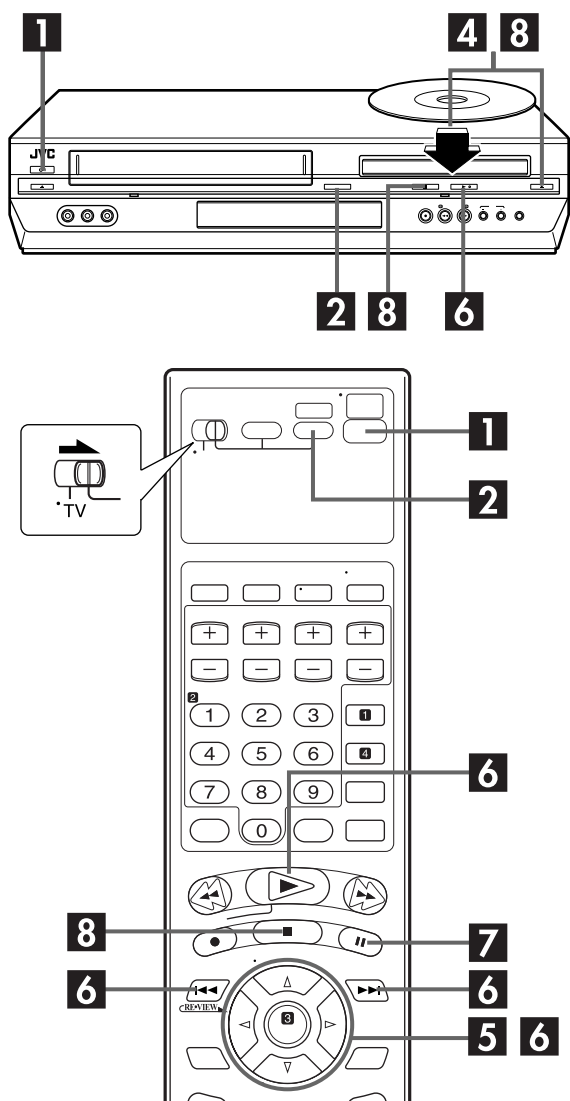
* Elapsed playing time of current track
Elapsed playing time is only shown during playback.

MP3 Playback

MP3

You can search and play back desired groups and tracks using the MP3 control display.

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



NOTES:

- **PLAY** (▶), **STOP** (■), **PAUSE** (⏸), **SKIP** (◀◀) and **SKIP** (▶▶) buttons function the same as with Audio CD discs, however, **REW** (◀◀) and **FF** (▶▶) buttons do not function for MP3 playback.
- Resume playback also does not function for MP3 playback.

Using the MP3 control display

1 Turn on the unit.

Press **POWER** (⏻).

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

Press **DVD** so that the DVD indicator lights up.

3 Select the mode.

Be sure to set "FILE TYPE" to "AUDIO" before loading a disc. (☞ pg. 78)

4 Load the disc.

- 1 Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.
- 2 Place the MP3 disc in the disc tray.
 - For details, refer to "Placing a Disc" (☞ pg. 9).
- 3 Press **OPEN/CLOSE** (▲) on the DVD deck to close the disc tray.
 - The MP3 control display appears on the TV screen when an MP3 disc is loaded. (☞ pg. 62)

5 Select the group.

Press **△▽** to select the desired group, then press **▷**.

6 Start playback.

Press **◀▶** to select the desired track, then press **ENTER** or **PLAY** (▶).

- You can skip a track across a group. Press **SKIP** (▶▶) to skip to the first track of the next group when the last track of the current group is selected.

7 Pause playback.

Press **PAUSE** (⏸).

- To resume normal playback, press **PLAY** (▶).

8 Stop playback.

Press **STOP** (■). Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray, then remove the disc.

Repeat Playback

You can repeat playback of the current group, track or all groups.

- While MP3 control display is on the TV:

1 Select the mode.

Press **REPEAT** to select the desired repeat mode.

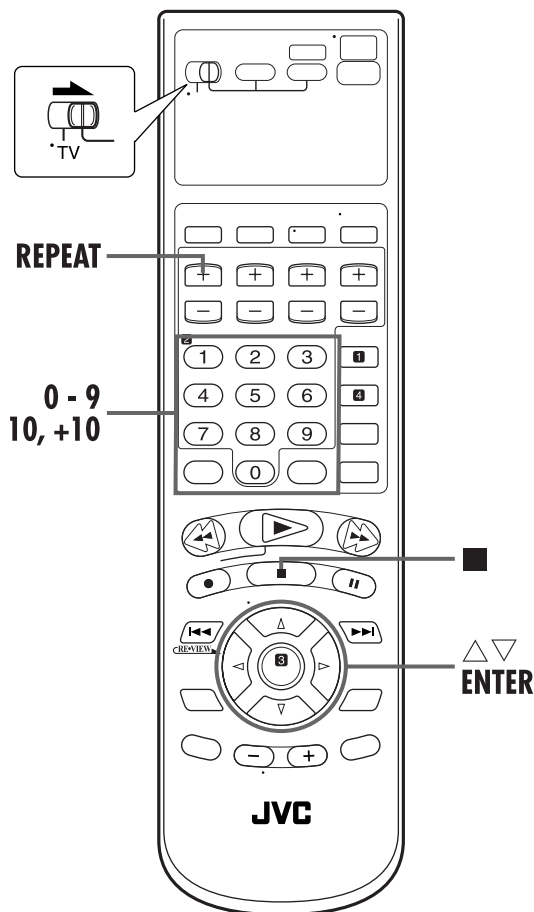
- Each time you press **REPEAT**, the mode changes as follows: TRACK→GROUP→ALL→OFF (No indication)→(Back to the beginning)

TRACK:	The current track is played back repeatedly.
GROUP:	All tracks of the current group are played back repeatedly.
ALL:	All tracks are played back repeatedly.
OFF (no indication):	Each track is played back once.

- To stop Repeat Playback, press **STOP** (■).
- To cancel Repeat Playback, press **REPEAT** repeatedly until the repeat mode display disappears on the TV screen.
- You can also quit Repeat Playback in the following cases:
 - Press **OPEN/CLOSE** (▲) to open the disc tray.
 - Turn off the unit.

To return to the MP3 control display

Press **STOP** (■).



Group/track selection

To start playback by specifying the group/track number

- 1 Press the **number keys** (0-10, +10) to enter the group number.
- 2 Press the **number keys** (0-10, +10) to enter the track number.

- The entered number appears in the track number indication and playback starts from the track you have specified.

Example:

To select 3: Press 3.

To select 14: Press +10, then 4.

To select 20: Press +10, then 10.
Or press +10 twice, then 0.

To select 24: Press +10, +10, then 4.

To select 110: Press +10 ten times, then 10.

To select 150: Press +10 fourteen times, then press 10 once.

NOTE:

You cannot select 150 even if you press +10 fifteen times, then press 0 once.

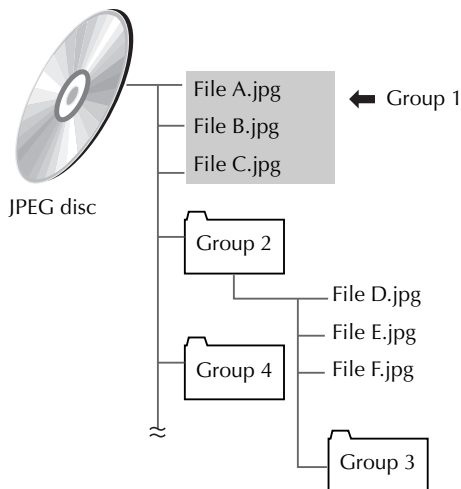
About JPEG Disc

This unit can playback CD discs recorded by the JPEG format (we refer to those discs as JPEG discs in this manual). Operations for JPEG discs are similar to those for Audio CD discs, though there are some restrictions and differences.

What is JPEG?

JPEG is the abbreviation of "Joint Photographic Expert Group." JPEG is a still-picture data compression system.

On a JPEG disc, each still picture is recorded as a file, which usually belongs to a Group (folder).



This unit can recognize up to 99 Groups and up to 150 Files per Group.

If a disc includes more than the Files above limit, the unit stops detecting Files when the number of detected Files reaches the limit and ignores the subsequent Files. The unit also ignores any non-JPEG file in the disc.

NOTES for making a private JPEG disc using a CD-R/ CD-RW disc:

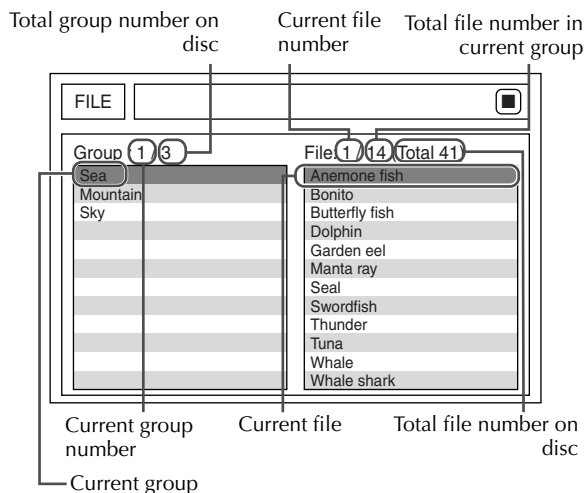
- Select "ISO9660" as the disc format.
- Finalize the disc.

NOTES:

- We recommend to record a file at 640 x 480 resolution. (If a file has been recorded at a resolution of more than 640 x 480, it will take a longer time to be displayed.)
- This unit can only play back baseline JPEG files*. Progressive JPEG files* or lossless JPEG files* cannot be played back.
 - * Baseline JPEG format: Used for digital cameras, web, etc.
 - Progressive JPEG format: Used for web.
 - Lossless JPEG format: An old type and rarely used now.
- Some files on a JPEG disc may be played back distortedly.
- Because of the disc characteristics or recording condition, some discs may not be played back or it takes time to start playback.
- The unit does not support "packet writing" discs.
- If there are any Files which are stored on a disc directly and do not belong to any Group (directory), the unit recognized them as belonging to an independent Group.
- The unit plays back Groups/Files on an JPEG disc in the alphabetical order.
- For example, if there are three title Groups [one], [two] and [three] on a disc, the playback order is [one], [three] then [two]. Files in a Group are played back in the same way.
- Therefore, an JPEG disc on the market may be played back in the different order from the order printed on its sleeve.

JPEG control display

The JPEG control display appears on the TV screen and playback starts when a JPEG disc is loaded.

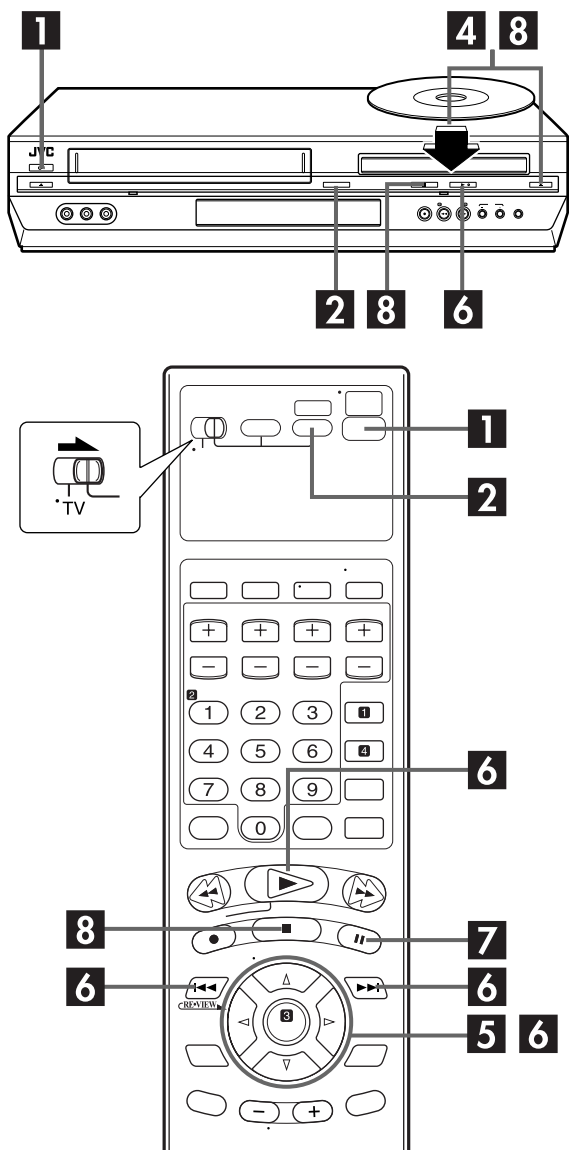


JPEG Playback

JPEG

You can search and play back desired groups and files using the JPEG control display.

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.



NOTES:

- **PLAY** (▶), **STOP** (■), **PAUSE** (⏸), **SKIP** (◀◀) and **SKIP** (▶▶) buttons function the same as with Audio CD discs, however, **REW** (◀◀) and **FF** (▶▶) buttons do not function for JPEG playback.
- Resume playback also does not function for JPEG playback.

Using the JPEG control display

1 Turn on the unit.

Press **POWER** (⏻).

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

Press **DVD** so that the DVD indicator lights up.

3 Select the mode.

Be sure to set "FILE TYPE" to "STILL PICTURE" before loading a disc. (☞ pg. 78)

4 Load the disc.

- 1 Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.
- 2 Place the JPEG disc in the disc tray.
 - For details, refer to "Placing a Disc" (☞ pg. 9).
- 3 Press **OPEN/CLOSE** (▲) on the DVD deck to close the disc tray.
 - The JPEG control display appears on the TV screen when a JPEG disc is loaded. (☞ pg. 65)

5 Select the group.

Press **△▽** to select the desired group, then press **▷**.

6 Start playback.

Press **◀▶** to select the desired file, then press **ENTER** or **PLAY** (▶).

- You can skip a file across a group. Press **SKIP** (▶▶) to skip to the first file of the next group when the last file of the current group is selected.

The slide-show playback starts from the selected file.

- After selecting a file, press **PLAY** (▶) to start slide-show playback from the selected file, or press **ENTER** to show the selected file.
- The playback interval time of slide-show depends on the file size.

7 Pause playback.

Press **PAUSE** (⏸).

- To resume normal playback, press **PLAY** (▶).

8 Stop playback.

Press **STOP** (■). Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray, then remove the disc.

Repeat Playback

You can repeat playback of the current group, file or all groups.

- While JPEG control display is on the TV:

1 Select the mode.

Press **REPEAT** to select the desired repeat mode.

- Each time you press **REPEAT**, the mode changes as follows:
GROUP→ALL→OFF (No indication)→(Back to the beginning)

GROUP:	All files of the current group are played back repeatedly.
ALL:	All files are played back repeatedly.
OFF (No indication):	Each file is played back once.

2 Start playback.

Press **PLAY** (▶).

- To stop Repeat Playback, press **STOP** (■).
- To cancel Repeat Playback, press **REPEAT** repeatedly until the repeat mode display disappears on the TV screen.
- You can also quit Repeat Playback in the following cases:
 - Press **OPEN/CLOSE** (▲) to open the disc tray.
 - Turn off the unit.

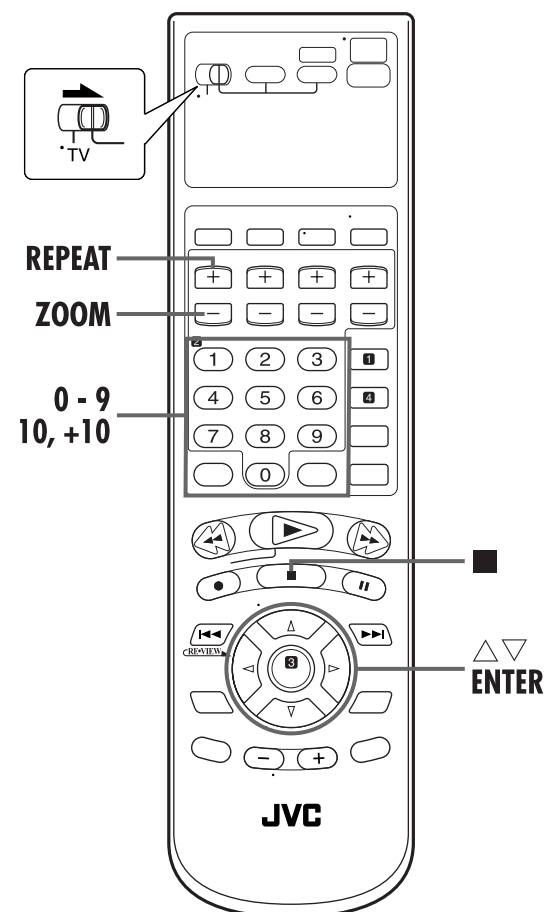
To return to the JPEG control display

Press **STOP** (■).

Zooming

Press **ZOOM** during playback.

- When you want to zoom the picture during slide-show playback, first press **PAUSE** (||), then press **ZOOM**.
- Each press of **ZOOM** changes the magnification in the following steps:
ZOOM OFF → ZOOM 1 → ZOOM 2 → (Back to the beginning)
- To resume normal playback, press **ENTER**.



Group/file selection

To start slide-show playback by specifying the group/file number

- 1 Press the **number keys** (0-10, +10) to enter the group number.
 - 2 Press the **number keys** (0-10, +10) to enter the file number.
- The slide-show playback starts from the file you have specified.
 - To display only the selected file, then press **ENTER**. To start slide-show playback from that file, press **ENTER** again.

Example:

To select 3: Press 3.

To select 14: Press +10, then 4.

To select 20: Press +10, then 10.
Or press +10 twice, then 0.

To select 24: Press +10, +10, then 4.

To select 110: Press +10 ten times, then 10.

To select 150: Press +10 fourteen times, then press 10 once.

NOTE:

You cannot select 150 even if you press +10 fifteen times, then press 0 once.

Edit From A Camcorder

You can use a camcorder as the source player and your unit as the recording deck.

Slide the **TV/VCR/DVD** switch to the right.

1 Make connections.

Connect the camcorder's AUDIO OUT and VIDEO OUT connectors to the unit's front panel AUDIO and VIDEO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your unit.

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

Press **VCR** so that the VCR indicator lights up.

3 Set the unit's input mode.

Press **AUX** (number key "0") and/or **CH** to select "F-1".

4 Set the edit mode.

See "PICTURE CONTROL" on page 75.

5 Engage the Record Pause mode.

Use **PLAY** (▶), **REW** (◀◀), or **FF** (▶▶) to locate the point where you start recording, then press and hold **PAUSE** (⏸) and press **REC** (●) to engage the Record Pause mode.

6 Start the camcorder.

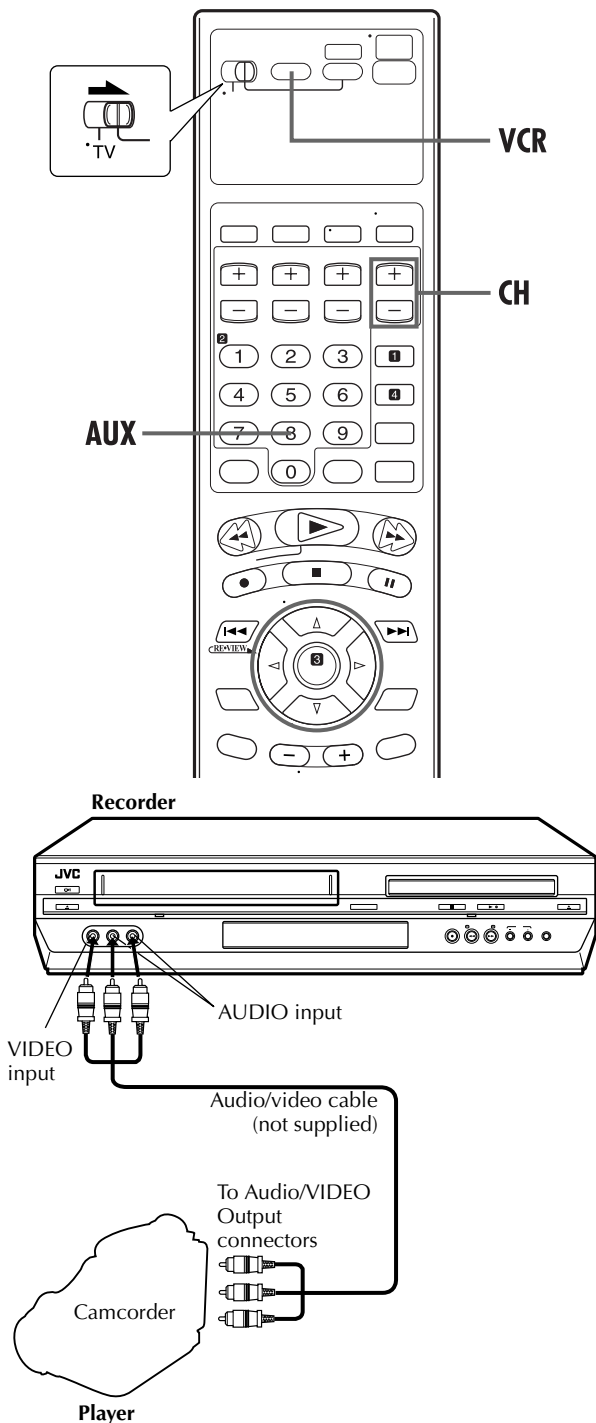
Engage the Play mode of the camcorder.

7 Start the unit.

Press **PLAY** (▶) to engage the Record mode of the unit.

NOTES:

- All necessary cables can be obtained from your dealer.
- When you select "EDIT" to dub tapes in step 4, be sure to select "NORM" after you finish dubbing the tapes.



Edit To Or From Another Video Recorder

You can use your unit as the source player or as the recording deck.

Slide the **TV/VCR/DVD** switch to the right.

1 Make connections.

- 1 When using your unit as the source player ...
... connect its AUDIO/VIDEO OUTPUT connectors to the audio/video input connectors on another recorder.
- 2 When using your unit as the recording deck ...
... connect its AUDIO/VIDEO input connectors to the audio/video output connectors on another recorder.

2 Select the VCR deck.

On the unit
Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote
Press **VCR** so that the VCR indicator lights up.

3 Set the input mode of recording deck.

With this video unit, press **AUX** (number key "0") and/or **CH** to select "F-1".

- When using another recorder as the recording deck, refer to its instruction manual.

4 Set the edit mode.

See "PICTURE CONTROL" on page 75.

5 Engage the Record Pause mode of the recording deck.

Locate the point where you start recording, then engage the Record Pause mode.

6 Start the source player.

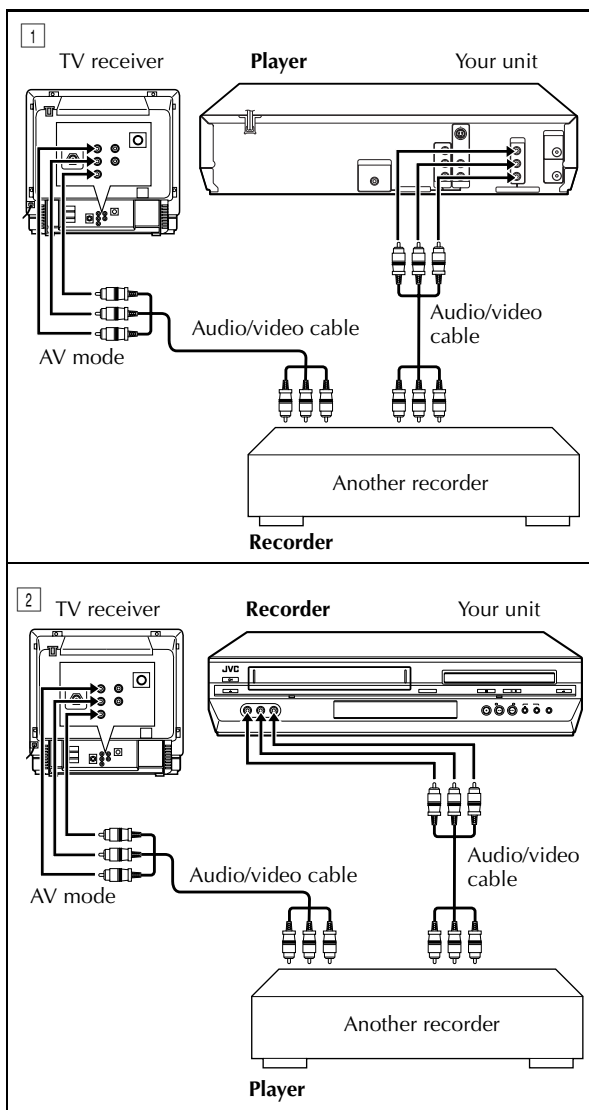
Engage the Play mode of the source player.

7 Start the recording deck.

Engage the Record mode of the recording deck.

NOTES:

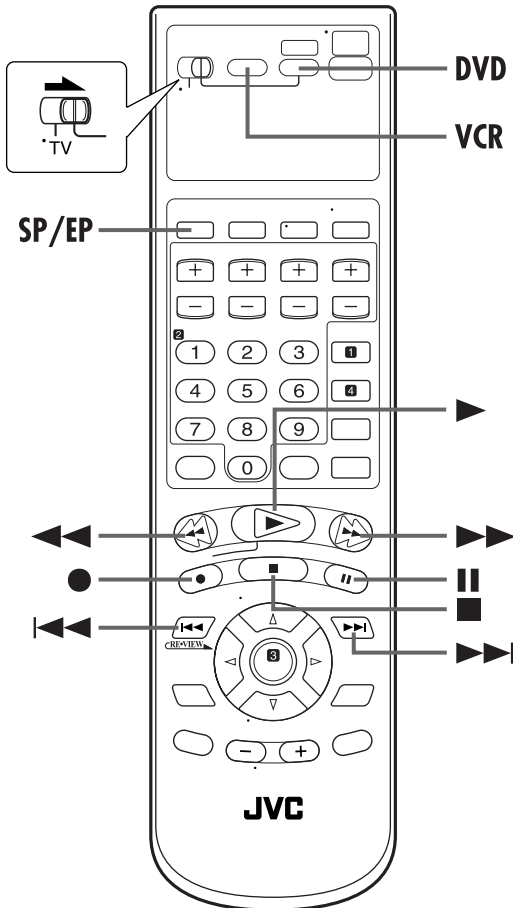
- All necessary cables can be obtained from your dealer.
- When you select "EDIT" to dub tapes in step 4, be sure to select "NORM" after you finish dubbing the tapes.
- When you use this unit as the source player for editing, be sure to set "SUPERIMPOSE" to "OFF" before starting. (pg. 75)



Dubbing

(from DVD to VCR)

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



1 Load a cassette and place a disc.

For the VCR deck

Insert a cassette with the record safety tab intact.

For the DVD deck

- 1 Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.
- 2 Place the disc in the disc tray.
- 3 Press **OPEN/CLOSE** (▲) on the DVD deck to close the disc tray.

2 Prepare the VCR deck for dubbing.

- 1 Press **VCR**.
- 2 Press **SP/EP** to select recording speed.
- 3 Search for the point where you want to start dubbing by pressing **PLAY** (▶), **FF** (▶▶) or **REW** (◀◀) then press **STOP** (■).

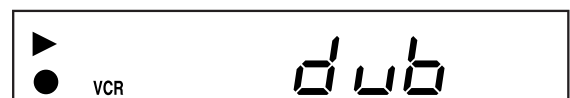
3 Prepare the DVD deck for dubbing.

- 1 Press **DVD**.
- 2 Search for the point where you want to start dubbing by pressing **PLAY** (▶), **FF** (▶▶), **REW** (◀◀), ▶▶ or ◀◀.
- 3 Press **PAUSE** (||) to pause playback a little before the start point.

4 Start dubbing.

Press and hold **REC** (●), then press **PLAY** (▶) on the Remote.

- “dub” lights on the front display panel.



5 End dubbing.

Press **STOP** (■).

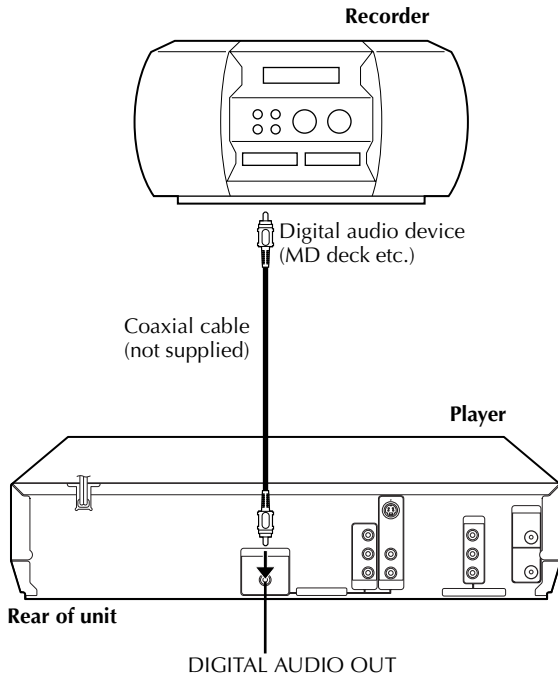
- Be sure to press **STOP** (■) while the VCR indicator lights up on the unit.

NOTES:

- You can dub from DVD to VCR regardless of the scan mode setting. (☞ pg. 80) However, the progressive signals will be converted to the interlace signals when dubbing.
- Set “ON SCREEN GUIDE” to “OFF” (☞ pg. 80) if you do not want to record the on-screen display for DVD discs during dubbing.
- There may be a discrepancy of several seconds between where you intend editing to start, and where it actually starts.
- The superimposed indication during the operation or dubbing is not recorded.
- Set “PICTURE CONTROL” to “EDIT”. (☞ pg. 75)

Digital Audio Dubbing

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



You can dub selected audio from the DVD or Audio CD disc to a MD etc.

However, it is not possible to dub the copy-protected disc.

Example: Dubbing to a MD

1 Make connections.

Connect the coaxial cable between the unit and the digital audio device.

2 Place a disc and load a MD.

For the DVD deck

- 1 Press **OPEN/CLOSE** (▲) on the DVD deck to open the disc tray.
- 2 Place the disc in the disc tray.
- 3 Press **OPEN/CLOSE** (▲) on the DVD deck to close the disc tray.

For the digital audio device

Insert a MD.

3 Prepare the DVD deck for dubbing.

- 1 Press **DVD** and select the audio to be dubbed.
- 2 Search for the point where you want to start dubbing by pressing **PLAY** (▶), **FF** (▶▶) or **REW** (◀◀) then press **STOP** (■).
- 3 Press **REW** (◀◀) a little, then press **PLAY** (▶) to start playback.
- 4 Press **PAUSE** (⏸) to pause playback a little before the start point.

4 Prepare the audio device for dubbing.

Select the input mode.

5 Start dubbing.

- 1 Press **PLAY** (▶) to start playback on the DVD deck.
- 2 Start recording on the audio device.

6 End dubbing.

Stop recording on the audio device. Then press **STOP** (■) to stop playback on the DVD deck.

NOTES:

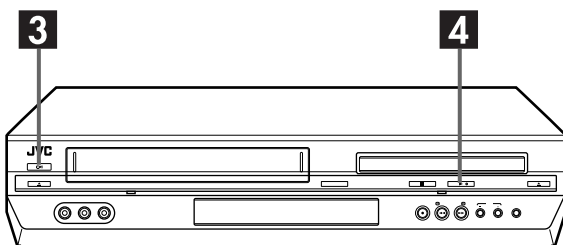
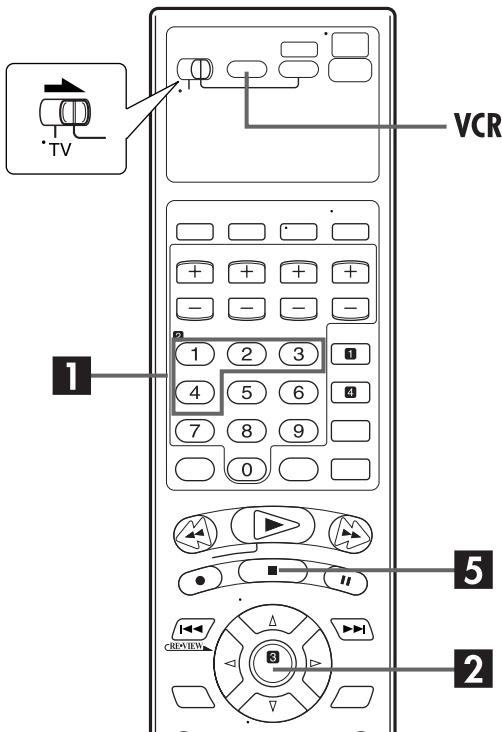
- There may be a discrepancy of several seconds between where you intend editing to start, and where it actually starts.
- You can also dub a Video CD or SVCD. Set "DIGITAL AUDIO OUTPUT" to "PCM ONLY". (ⓘ pg. 78)

Remote Control Functions

Remote A/B/C/D Code Switching

The Remote is capable of controlling four JVC video units independently. Each of units can respond to one of four codes (A, B, C or D). The remote control is preset to send A code signals because your unit is initially set to respond to A code signals. You can easily modify your unit to respond to B, C or D code signals.

Before performing the following steps:
Slide the TV/VCR/DVD switch to the right.



On the Remote

Keep pressing **VCR** down during steps **1** – **2**.

1 Change the remote control code.

Press the **number key** “1” for A, “2” for B, “3” for C or “4” for D.

2 Set the remote control code.

Press **ENTER** to set the code.

On the unit

3 Turn off the unit.

Press **POWER** (⏻/⏻).

4 Display the code.

Press **PLAY** (▶) on the unit for over 5 seconds while the unit is turned off. The code currently set appears on the front display panel.

- If the code displayed on the front display panel is different from the code set on the Remote, go to step **5**.

5 Change the unit's code.

Press **STOP** (■) on the Remote. The code currently set on the Remote will be applied to the unit.

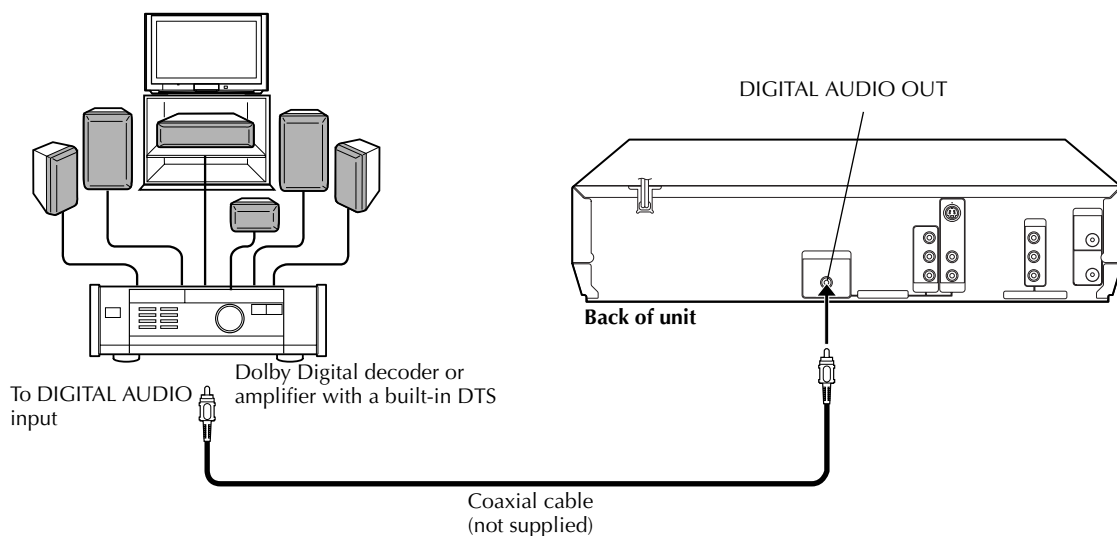
NOTE:

Even if you unplug the end of the mains power cord from the mains, the remote control code is not back to A. However, the batteries are removed from the Remote, the remote control code is back to A.

Connecting To A Dolby Digital Decoder or An Amplifier With A Built-in DTS

(DVD deck only)

These instructions enable you to connect your unit to dolby digital decoder or amplifier with a built-in DTS.



Make connections.

Connect the coaxial cable between the unit and the Dolby Digital decoder or amplifier with a built-in DTS.

NOTES:

- For Dolby digital sound, set "DIGITAL AUDIO OUTPUT" to "DOLBY DIGITAL/PCM". (☞ pg. 78)
- For DTS sound, set "DIGITAL AUDIO OUTPUT" to "STREAM PCM". (☞ pg. 78)

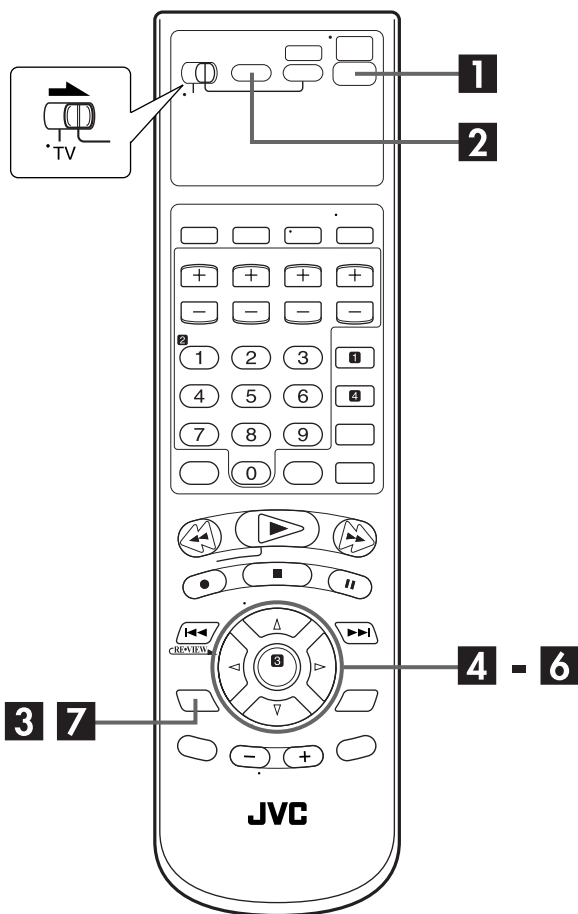
CAUTIONS:

- This unit has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

Mode Set

(VCR deck)

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



You can change various mode settings on the Function Set screen by following the procedure described below.

- For each mode setting, see pages 75 to 76.

1 Turn on the unit.

Press **POWER** (⏻/⏻).

2 Select the VCR deck.

On the unit

Press **VCR/DVD** repeatedly so that the VCR indicator lights up.

On the Remote

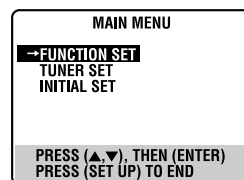
Press **VCR** so that the VCR indicator lights up.

3 Access the Main Menu screen.

Press **SET UP**.

4 Access the Function Set screen.

Press Δ / ∇ to move the highlight bar (arrow) to "FUNCTION SET", then press **ENTER** or \triangleright .



5 Select the mode.

Press Δ / ∇ to move the highlight bar (arrow) to the item you want to change.

FUNCTION	NORM
PICTURE CONTROL	ON
SUPERIMPOSE	ON
AUTO SP-EP TIMER	OFF
VIDEO STABILIZER	OFF
BLUE BACK	ON
2ND AUDIO RECORD	OFF
NEXT PAGE	

SELECT WITH (▲,▼) → (ENTER)
PRESS (SET UP) TO END

PREVIOUS PAGE	HI-FI
AUDIO MONITOR	HI-FI
AUTO POWER OFF	OFF

SELECT WITH (▲,▼) → (ENTER)
PRESS (SET UP) TO END

6 Select the mode setting.

Press **ENTER** or \triangleright .

7 Return to the normal screen.

Press **SET UP**.

* The default setting is **bold** in the table below.

<p>■ PICTURE CONTROL NORM EDIT SOFT SHARP</p>	<p>This feature helps you to adjust the playback picture quality according to your preference. Normally select “NORM”.</p> <p>NORM: Picture quality is adjusted automatically. EDIT: Minimizes picture degradation during editing (recording and playback). SOFT: Reduces image coarseness when viewing overplayed tapes containing a lot of noise. SHARP: Clearer, sharper-edged picture when viewing images with lots of flat, same-coloured surfaces such as cartoons.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • When you select “EDIT”, “SOFT” or “SHARP”, the selected mode will not change until you select another mode. • When you select “EDIT” to dub tapes, be sure to select “NORM” after you finish dubbing the tapes. 				
<p>■ SUPERIMPOSE ON OFF</p>	<p>When this function is set to “ON”, various operational indicators appear on the TV screen. Messages appear in the selected language. (ⓘ pg. 20)</p> <p>NOTES:</p> <ul style="list-style-type: none"> • When you use this unit as the source player for editing, be sure to set “SUPERIMPOSE” to “OFF” before starting. • During playback, the operation mode indicators may be disturbed depending on the type of tape being used. 				
<p>■ AUTO SP→EP TIMER ON OFF</p>	<p>When this function is set to “ON”, the unit automatically switches to EP mode to allow complete recording if there is not enough tape to record the entire program while timer-recording in SP mode.</p> <p>For Example: Recording a program of 140 minutes in length onto a 120-minute tape</p> <table border="1"> <tr> <td style="text-align: center;">Approximately 110 minutes</td> <td style="text-align: center;">Approximately 30 minutes</td> </tr> <tr> <td style="text-align: center;">SP mode</td> <td style="text-align: center;">EP mode</td> </tr> </table> <p style="text-align: center;">Total 140 minutes</p> <p>Make sure you set this function to “ON”, before the timer-recording starts.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • If you have programed the unit to timer-record 2 or more programs, the second program and those thereafter may not fit on the tape if you set “AUTO SP→EP TIMER” to “ON”. In this case, make sure the mode is not engaged, then set the tape speed manually during timer programing. • In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape. • There may be some noise and sound disturbance at the point on the tape where the unit switches from SP to EP mode. • The Auto SP→EP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly on the following tapes: T(ST)-30, T(ST)-60, T(ST)-90, and T(ST)-120 	Approximately 110 minutes	Approximately 30 minutes	SP mode	EP mode
Approximately 110 minutes	Approximately 30 minutes				
SP mode	EP mode				

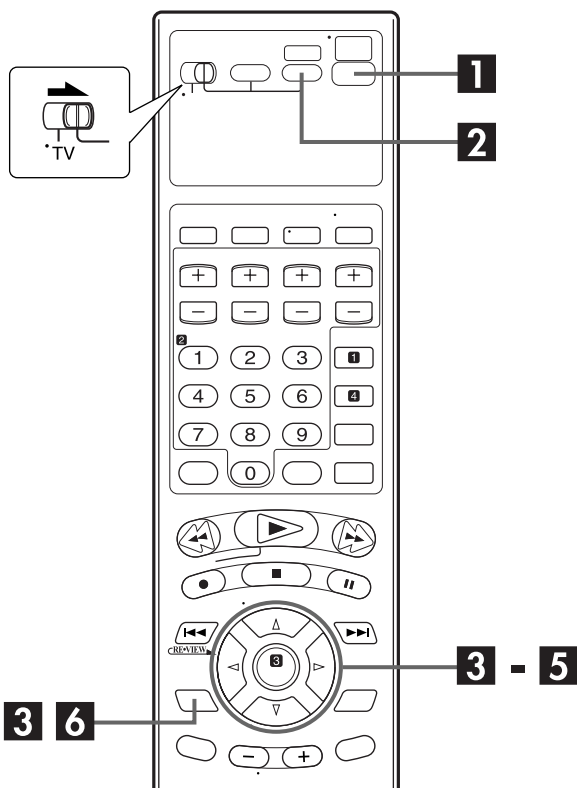
* The default setting is **bold** in the table below.

<p>■ VIDEO STABILIZER ON OFF</p>	<p>When this function is set to "ON", you can automatically correct vertical vibration in the picture when playing back unstable recordings made on another recorder.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • When you finish viewing a tape, be sure to set this function to "OFF". • Regardless of the setting, this function has no effect during recording and during special effects playback. • The on-screen display may jitter vertically when this function is set to "ON". • To watch recordings with close-caption, set this function to "OFF".
<p>■ BLUE BACK ON OFF</p>	<p>When this function is set to "ON", the TV screen becomes all blue when receiving a channel not in use.</p> <p>NOTE: When you want to receive an unstable channel with poor signals, set this function to "OFF".</p>
<p>■ 2ND AUDIO RECORD ON OFF</p>	<ul style="list-style-type: none"> • When this function is set to "ON"; If a SAP program is received, the SAP audio is recorded on both the normal and Hi-Fi tracks. The main audio is not recorded. If a non-SAP program is received, the main audio is recorded on both the Hi-Fi and normal tracks. • When this function is set to "OFF", the SAP audio cannot be recorded. <p>NOTES: When the channel is changed on the unit;</p> <ul style="list-style-type: none"> • The "STEREO" indicator appears on the screen for about 5 seconds if the program is a stereo broadcast. • The "SAP" indicator appears on the screen for about 5 seconds if the program is a SAP broadcast. • Both indicators appear when a stereo program is accompanied by SAP sound.
<p>■ AUDIO MONITOR HI-FI HI-FI L HI-FI R NORM MIX</p>	<p>This unit can record two sound tracks simultaneously (normal and Hi-Fi) on a Hi-Fi stereo tape. You can select the sound track(s) to listen to while playing back a Hi-Fi stereo tape. In addition, when playing back a prerecorded tape containing two separate audio programs on the Hi-Fi tracks, you can choose either one by selecting either "HI-FI L" or "HI-FI R".</p> <p>HI-FI: Normally select this. Hi-Fi sound is played back. HI-FI L: Sound on the left Hi-Fi channel is played back. HI-FI R: Sound on the right Hi-Fi channel is played back. NORM: Sound on the normal track is played back. MIX: Both sounds on the Hi-Fi track and normal track are mixed and played back.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • While playing back a monaural tape, sounds on the normal track will be heard regardless of this setting. • You can also use the A.MONITOR button on the Remote to select the desired monitor sound. (pg. 32)
<p>■ AUTO POWER OFF 3H OFF</p>	<p>When this function is set to "3H", the unit is turned off automatically if no operation is done within 3 hours. "AUTO POWER OFF IN 3 MIN" appears on the screen 3 minutes before the unit is turned off.</p>

Mode Set

(DVD deck)

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the TV/VCR/DVD switch to the right.



You can change various mode settings on the Mode Set screen by following the procedure described below.

- For each mode setting, see pages 78 to 80.

LANGUAGE	MENU LANGUAGE (pg. 22) AUDIO LANGUAGE (pg. 22) SUBTITLE (pg. 22) ON SCREEN LANGUAGE (pg. 21)
PICTURE	MONITOR TYPE (pg. 18, 78) PICTURE SOURCE (pg. 78) SCREEN SAVER (pg. 78) FILE TYPE (pg. 78)
AUDIO	DIGITAL AUDIO OUTPUT (pg. 78) DOWN MIX (pg. 79) D. RANGE COMPRESSION (pg. 79)
OTHERS	RESUME (pg. 80) ON SCREEN GUIDE (pg. 80) PARENTAL LOCK (pg. 58)

- The procedure shows how to set “RESUME” to “ON” on the DVD Set Up menu screen as an example.

1 Turn on the unit.

Press **POWER** (⏻).

2 Select the DVD deck.

On the unit

Press **VCR/DVD** repeatedly so that the DVD indicator lights up.

On the Remote

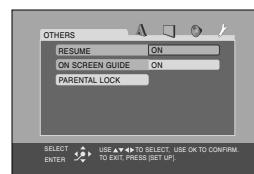
Press **DVD** so that the DVD indicator lights up.

3 Access the DVD Set Up menu screen.

1 Press **SET UP**.

2 Press ◀▶ to select “OTHERS”.

- Each time you press the button, the setup menus change as follows;



LANGUAGE → **PICTURE** → **AUDIO** → **OTHERS**
→ (Back to the beginning)

4 Select the mode.

Press ▲▼ to move the highlight to “RESUME”, then press **ENTER**.

5 Select the mode setting.

Press ▲▼ to select “ON”, then press **ENTER**.

6 Return to the normal screen.

Press **SET UP**.

Picture Settings

* The default setting is **bold** in the table below.

<p>■ MONITOR TYPE 16:9 4:3 LB 4:3 PS</p>	<p>You can select the monitor type depending the TV used when you play back DVD VIDEO discs recorded for wide-screen TVs. For more details, refer to "Monitor Set (DVD deck)" (☞ pg. 18)</p>
<p>■ PICTURE SOURCE AUTO FILM VIDEO</p>	<p>You can obtain optimal picture quality by selecting whether the content on the disc is processed by field (video source) or by frame (film source). Normally set to "AUTO".</p> <p>AUTO: Used to play back a disc containing both video and film source materials. This unit recognizes the picture type (film or video source) of the current disc according to the disc information.</p> <p>FILM: Suitable for playing back a film or progressive source disc.</p> <p>VIDEO: Suitable for playing back a video source disc with relatively a few moments.</p> <p>● If the playback picture is unclear or noisy, or the oblique lines of the picture are rough, try to change to other modes.</p>
<p>■ SCREEN SAVER ON OFF</p>	<p>The TV screen may be burned out if a static picture is displayed for a long time. When this function is set to "ON", the unit automatically activates the screen saver function if a static picture, such as an on-screen display or menu is displayed for over 5 minutes.</p>
<p>■ FILE TYPE AUDIO STILL PICTURE</p>	<p>You can select files to play back, when both MP3 files and JPEG files are recorded on a disc.</p> <p>AUDIO: Select this to play back MP3 files.</p> <p>STILL PICTURE: Select this to play back JPEG files.</p>

Audio Settings

* The default setting is **bold** in the table below.

<p>■ DIGITAL AUDIO OUTPUT PCM ONLY DOLBY DIGITAL/PCM STREAM/PCM</p>	<p>Set to the appropriate mode according to the type of the device connected to DIGITAL AUDIO OUT connector on the rear of unit. It is not necessary to set this mode when you connect no device to DIGITAL AUDIO OUT connector.</p> <p>PCM ONLY: Select this when you connect the unit's DIGITAL AUDIO OUT connector to the linear PCM digital input connector of other audio device.</p> <p>DOLBY DIGITAL/PCM: Select this when you connect the unit's DIGITAL AUDIO OUT connector to the digital input connector of a Dolby Digital decoder or an amplifier with a built-in Dolby Digital decoder.</p> <p>STREAM/PCM: Select this when you connect the unit's DIGITAL AUDIO OUT connector to the digital input connector of an amplifier with a built-in DTS, Dolby Digital, or MPEG multichannel decoder.</p>
---	--

<p>■ DOWN MIX DOLBY SURROUND STEREO</p>	<p>Set to the appropriate mode according to your audio system when you play back a DVD VIDEO disc recorded with surround multichannel audio. This setting affects only the analogue audio output signal from the AUDIO OUTPUT connectors (DVD) when playing back a DVD VIDEO disc recorded with surround multichannel audio.</p> <p>DOLBY SURROUND:</p> <p>Select this when you enjoy multichannel surround audio by connecting the unit's analogue AUDIO OUTPUT connector (DVD) to a surround decoder or an internal amplifier.</p> <p>STEREO:</p> <p>Select this when you enjoy conventional 2-channel stereo audio by connecting the unit's analogue AUDIO OUTPUT connectors (DVD) to a stereo amplifier/receiver or TV, or when you dub audio of a DVD VIDEO disc recorded with surround audio to your MD, cassette, etc.</p> <p>NOTE: The "DOWN MIX" function does not work when the 3D Phonic function is activated. (☞ pg. 46)</p>
<p>■ D. RANGE COMPRESSION AUTO ON</p>	<p>You can compress the dynamic range (the difference between the loudest and quietest audio signals) of the sound when listening to the sound at a low volume or at night.</p> <p>This function is available with DVD VIDEO discs recorded with the Dolby Digital format. Set to the appropriate mode according to the number of channels recorded.</p> <p>AUTO: Audio is played back with channels other than Dolby Digital channel 1 or 2 compressed.</p> <p>ON: Audio is played back with all channel compressed.</p> <p>NOTES:</p> <ul style="list-style-type: none"> • This function works only when playing back a disc recorded with Dolby Digital format. The setting is not effective for other discs. • This function does not work when the 3D Phonic function is activated. (☞ pg. 46)

Playback discs	Output		
	STREAM/PCM	DOLBY DIGITAL/PCM	PCM ONLY
DVD VIDEO with 48 kHz, 16/20/24 bit linear PCM	48 kHz, 16 bit linear PCM		
DVD VIDEO with DTS	DTS bitstream	44.1 kHz, 16 bit stereo linear PCM	
DVD VIDEO with Dolby Digital	Dolby Digital bitstream		48 kHz, 16 bit stereo linear PCM
Audio CD/Video CD	44.1 kHz, 16 bit stereo linear PCM		
Audio CD with DTS	DTS bitstream	44.1 kHz, 16 bit stereo linear PCM	
MP3 disc	Linear PCM		

NOTES:

- The unit is not equipped with the DTS 5.1 channel decoding function.
- When you play back a DVD VIDEO or Audio CD disc with DTS, use a DTS decoder to get correct signals from your speakers. Never use the unit's analog output connectors, which output incorrect signals that may damage your speakers.
- If you connect the analog outputs and digital outputs simultaneously, be sure to select the source of the amplifier correctly, or set the level control of the amplifier connected to the analog outputs to minimum.

Others Settings

* The default setting is **bold** in the table below.

<p>■ RESUME ON OFF</p>	<p>When this function is set to "ON", you can use the resume function. (☞ pg. 45)</p> <p>ON: You can start playback from the resume point of the placed disc.</p> <p>OFF: You cannot use the resume function.</p> <p>NOTE: This function is not available for Audio CDs and MP3 discs.</p>
<p>■ ON SCREEN GUIDE ON OFF</p>	<p>When this function is set to "ON", the unit can display "on-screen guide" icons or characters which shows the conditions of the unit or disc.</p>

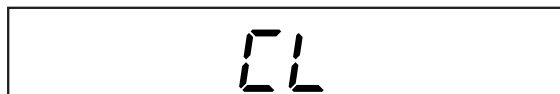
Child Lock

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.

You can disable the unit's operation.

1 Set the Child Lock.

Press and hold **POWER** (⏻) on the Remote for more than 10 seconds while the unit is turned on. The unit turns off, and "CL" appears on the front display panel.



- To release the child lock, press and hold **POWER** (⏻) on the Remote until the unit turns on.

NOTES:

- When the child lock function is in use, keep the Remote out of the children's reach.
- Timer recording programs will be performed even if the child lock function is activated.

Scan Mode Set

(DVD deck)

- Turn on the TV and select the VCR channel (or AV mode).
- Slide the **TV/VCR/DVD** switch to the right.

This unit supports the progressive scan system (eg. 480p*) as well as the conventional interlaced scan system (eg. 480i*).

If your TV equipped with component video connectors supports the progressive video input, you can enjoy a high quality picture by setting the progressive scan mode to active.

- Refer also to the instruction manuals supplied with your TV.
 - If your TV equipped with component video connectors does not support the progressive video input, do not change the scan mode to the "PROGRESSIVE".
- * 480p and 480i indicate the number of scanning lines and scanning format of an image signal.
- 480p indicates 480 scanning lines with progressive format.
 - 480i indicates 480 scanning lines with interlaced format.

1 Switch the mode.

During playback or while stopped, press and hold **PROGRESSIVE SCAN** on the unit or **DVD** on the Remote for more than 3 seconds, to change the scan mode between Progressive and Interlace mode.

- When the Progressive scan mode is selected, the Progressive mode indicator (Ⓟ) lights up on the front display panel.

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your unit off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is supplied to the unit.	• The AC power cord is disconnected.	Connect the AC power cord.
2. The Remote won't function.	• The batteries are discharged.	Replace the dead batteries with new ones.

TAPE TRANSPORT (VCR deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. During recording, the tape does not run. The counter display blinks on the front display panel.	• The unit is in the Record Pause mode.	Press PLAY (▶) to resume recording.
2. The tape will not rewind or fast-forward.	• The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK (VCR deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The VCR deck can not be operated.	• The VCR deck is not selected.	On the unit Press VCR/DVD repeatedly so that the VCR indicator lights up. On the Remote Press VCR so that the VCR indicator lights up.
2. The playback picture does not appear while the tape is running.	• If you are using the RF connection, — the TV receiver's channel selector is not set to the VCR channel. — the unit's VCR channel has not been correctly set. • If you are using the AV, S-VIDEO* or Component Video* connection, the TV receiver is not set to the AV mode. * (DVD deck only)	If you are using the RF connection, — set the TV receiver to the VCR channel. — perform "Set the VCR channel." (☞ pg. 14). If you are using the AV or S-VIDEO*, Component Video* connection, set the TV to its AV mode. * (DVD deck only)
3. Noise appears during visual search.	• This is normal.	
4. Noise appears during normal playback.	• The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 32)
5. The playback picture is blurred or interrupted while TV broadcasts are clear or "USE CLEANING CASSETTE" message appears on the screen.	• The video heads may be dirty.	Use a dry cleaning cassette ECL-3F, or consult your JVC dealer.
6. Breaks are noticeable in Hi-Fi soundtrack.	• The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 32)

PLAYBACK (DVD deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The button do not work.	<ul style="list-style-type: none"> • The operation is prohibited on the placed disc. 	—
2. The DVD deck can not be operated.	<ul style="list-style-type: none"> • The DVD deck is not selected. 	<p>On the unit Press VCR/DVD repeatedly so that the DVD indicator lights up.</p> <p>On the Remote Press DVD so that the DVD indicator lights up.</p>
3. "⊗" appears on the TV screen.	<ul style="list-style-type: none"> • The operation is prohibited on the placed disc. 	—
4. "REGION CODE ERROR!" appears on the TV screen.	<ul style="list-style-type: none"> • The disc's region number does not match that of the unit. 	Use the discs whose region number includes "ALL" or "1". (☞ pg. 7)
5. The disc cannot be played back.	<ul style="list-style-type: none"> • The disc's region number does not match that of the unit. • This type of the disc cannot be played back. • The disc is not placed properly. • The Parental Lock is engaged, and the placed disc is rated higher than the set level. 	<p>Use the discs whose region number includes "ALL" or "1". (☞ pg. 7)</p> <p>See "Unplayable Discs" (☞ pg. 7).</p> <p>Remove the disc, then place the disc properly in the disc tray. (☞ pg. 9, "Placing a Disc")</p> <p>Release the Parental Lock temporarily (☞ pg. 59), or change the set level (☞ pg. 59).</p>
6. The language is not played back as you set.	<ul style="list-style-type: none"> • The disc does not contain the language you set. 	—
7. Changing audio/subtitle language is not possible.	<ul style="list-style-type: none"> • The disc does not contain the audio/subtitle in the multiple languages. 	With some discs, the language should be set on the top menu. (☞ pg. 43)
8. The subtitles do not appears on the TV screen.	<ul style="list-style-type: none"> • The disc does not contain the subtitles. • The subtitle display is set to off. • A-B Repeat Playback is in progress. (☞ pg. 51) 	<p>—</p> <p>Set the subtitles display to on. (☞ pg. 54)</p> <p>The subtitles recorded around A-B point may not appear.</p>
9. Angle cannot be changed.	<ul style="list-style-type: none"> • The scene is not recorded from the multiple angles. 	—

MP3 Playback (DVD deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. A disc cannot be played.	<ul style="list-style-type: none"> • No MP3 files are recorded to the disc. • MP3 files do not have the correct file extension in their file names. • MP3 files are not recorded in a format compliant with ISO 9660 Level 1 or 2. • The different types of files are recorded to the disc. 	<p>Replace the disc.</p> <p>Add correct file extension (.mp3, .MP3 or any uppercase and lowercase combination such as “.Mp3”) to their file names.</p> <p>Replace the disc. (Record MP3 files using a compliant application.)</p> <p>The disc which contains the different types of files may not be played because of its disc characteristics or recording conditions.</p>
2. Not MP3 files but JPEG files are played.	<ul style="list-style-type: none"> • The FILE TYPE setting is set to “STILL PICTURE”. 	<p>When both MP3 files and JPEG files are recorded to a disc, set “FILE TYPE” to “AUDIO” to play MP3 files. (☞ pg. 78)</p>
3. The MP3 control display appears on the TV screen, but no operation can be performed.	<ul style="list-style-type: none"> • No MP3 files or JPEG files are recorded to the disc, or the disc is an unplayable disc (such as CD-ROM). 	<p>Replace the disc. (☞ pg. 9)</p>

JPEG Playback (DVD deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. A disc cannot be played.	<ul style="list-style-type: none"> • No JPEG files are recorded to the disc. • JPEG files do not have the correct file extension in their file names. • JPEG files are not recorded in a format compliant with ISO 9660 Level 1 or 2. 	<p>Replace the disc.</p> <p>Add correct file extension (.jpg, .jpeg, .JPG, .JPEG or any uppercase and lowercase combination such as “.Jpg”) to their file names.</p> <p>Replace the disc. (Record JPEG files using a compliant application.)</p>
2. Not JPEG files but MP3 files are played back.	<ul style="list-style-type: none"> • The FILE TYPE setting is set to “AUDIO”. 	<p>When both MP3 files and JPEG files are recorded to a disc, set “FILE TYPE” to “STILL PICTURE” to play JPEG files. (☞ pg. 78)</p>

RECORDING (VCR deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	<ul style="list-style-type: none"> • There is no cassette loaded, or the cassette loaded has had its record safety tab removed. 	<p>Insert a cassette, or using adhesive tape, cover the hole where the tab was removed.</p>
2. TV broadcasts cannot be recorded.	<ul style="list-style-type: none"> • “F-1” has been selected as the input mode. 	<p>Set to the desired channel.</p>
3. Tape-to-tape editing is not possible.	<ul style="list-style-type: none"> • The source (another video recorder, camcorder) has not been properly connected. • All necessary power switches have not been turned on. • The input mode is not correct. 	<p>Confirm that the source is properly connected.</p> <p>Confirm that all units’ power switches are turned on.</p> <p>Set the input mode to “F-1”.</p>
4. Camcorder recording is not possible.	<ul style="list-style-type: none"> • The camcorder has not been properly connected. • The input mode is not correct. 	<p>Confirm that the camcorder is properly connected.</p> <p>Set the input mode to “F-1”.</p>
5. “○” and “▷” on the front display panel won’t stop blinking.	<ul style="list-style-type: none"> • The end of the tape was reached during recording. 	<p>The program may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire program.</p>

TIMER RECORDING (VCR deck)

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	<ul style="list-style-type: none"> • The clock and/or the timer have been set incorrectly. • The timer is not engaged. 	<p>Re-perform the clock and/or timer settings.</p> <p>Press TIMER and confirm that "⊖" is displayed on the front display panel.</p>
2. Timer programming is not possible.	<ul style="list-style-type: none"> • Timer recording is in progress. 	<p>Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.</p>
3. "⊖" on the front display panel won't stop blinking.	<ul style="list-style-type: none"> • The timer is engaged but there's no cassette loaded. • The loaded cassette has had its record safety tab removed. 	<p>Load a cassette with the record safety tab intact.</p> <p>Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the record safety tab intact.</p>
4. "⊖", "○" and "▷" on the front display panel won't stop blinking.	<ul style="list-style-type: none"> • The end of the tape was reached during timer recording. 	<p>The program may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire program.</p>
5. "⊖" blinks for 10 seconds and the Timer mode is disengaged.	<ul style="list-style-type: none"> • TIMER has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly. 	<p>Check the programmed data and re-program as necessary, then press TIMER again.</p>
6. "○" and "▷" on the front display panel won't stop blinking.	<ul style="list-style-type: none"> • The end of the tape was reached during Instant Timer Recording. 	<p>The program may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire program.</p>
7. "⊖", "○" and "▷" on the front display panel won't stop blinking.	<ul style="list-style-type: none"> • The Satellite Auto Recording mode is engaged but there is no cassette loaded. • The loaded cassette has had its record safety tab removed. • The end of the tape was reached during Satellite Auto Recording. 	<p>Load a cassette with the record safety tab intact.</p> <p>Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the record safety tab intact.</p> <p>The program may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire program.</p>

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The image of TV broadcast appears distorted on the TV screen.	<ul style="list-style-type: none"> The unit leaves turned on and the DVD deck is selected. 	Turn off the unit, or press VCR to select the VCR deck, then press TV/VCR so that the VCR indicator disappears from the front display panel.
2. Whistling or howling is heard from the TV during camcorder recording.	<ul style="list-style-type: none"> The camcorder's microphone is too close to the TV. The TV's volume is too high. 	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
3. When scanning channels, some of them are skipped over.	<ul style="list-style-type: none"> Those channels have been designated to be skipped. 	If you need the skipped channels, restore them. (☞ pg. 27)
4. The channel cannot be changed.	<ul style="list-style-type: none"> Recording is in progress. 	Press PAUSE (II) to pause the recording, change channels, then press PLAY (▶) to resume recording.
5. Channel settings that were made manually seem to have changed or disappeared.	<ul style="list-style-type: none"> After the manual settings were made, Auto Channel Set was performed. 	Perform manual setting again.
6. Even though Auto or Semiauto Clock Set has been performed, the clock is incorrect.	<ul style="list-style-type: none"> The clock setting data received from the host channel is incorrect. 	Select a different host channel during "Semiauto Clock Set" (☞ pg. 25), or perform "Manual Clock Set" (☞ pg. 25).

ATTENTION

This unit contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the unit off and unplug the AC power cord. Then plug it in again and turn the unit on. Take out the cassette. After checking the cassette, operate the unit as usual.

Tray Lock

You can lock the disc tray to prohibit the unwanted disc ejection by children.

To lock the disc tray.

While the unit is turned off, press and hold **■**, then press **⏏** on the unit. "LOCK" appears on the front display panel.

- If you try to eject the discs, "LOCK" appears and indicates that tray is locked.

To unlock tray

While the unit is turned off, press and hold **⏏**, then press **▲** on the unit. "UNLOCK" appears on the display panel.

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?

A. The tape is automatically rewound to the beginning.

Q. During search, slow, still and frame-by-frame playback, I can't hear any audio. What's the problem?

A. This is normal.

Q. Can the unit indefinitely remain in the still mode?

A. No. It stops automatically after 5 minutes to protect the heads.

Q. When returning from search to normal playback, the picture is disturbed. Should I be concerned about this?

A. No, it is normal.

Q. Noise bar appear during search. What's the problem?

A. This is normal.

Q. Sometimes, during Index Search, the unit can't find the program I want to see. Why not?

A. There may be index codes too close together.

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?

A. This is normal. It reduces distortion at the pause and resume points.

Q. Can the unit indefinitely remain in the Record-Pause mode?

A. No. The unit goes to its Stop mode automatically after 5 minutes to protect the heads.

Q. What happens if the tape runs out during recording?

A. The unit stops recording, and "○" and "▷" on the front display panel won't stop blinking.

TIMER RECORDING

Q. "○" and "⊖" remain lit on the front display panel. Is there a problem?

A. No. This is a normal condition for a timer recording in progress.

Q. Can I program the timer while I'm watching a tape or a TV broadcast?

A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the program or tape you're viewing can be heard.

GENERAL

Power requirement : AC 120 V~, 60 Hz
 Power consumption
 Power on : 22 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 to 140°F)
 Operating position : Horizontal only
 Dimensions (WxHxD)
 : 435 mm x 93 mm x 272 mm
 Weight : 4.1 kg
 Format : VHS NTSC standard
 Maximum recording time
 (SP) : 210 min. with ST-210 video cassette
 (EP) : 630 min. with ST-210 video cassette

VIDEO/AUDIO (VCR deck)

Signal system : NTSC colour 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 x 1, OUT x 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 ohm
 Component-P_B/P_R
 : (RCA) 0.7 Vp-p/75 ohm
 Audio : (RCA) 2 Vrms, 1 Kohm
 Digital Audio : (COAXIAL) 0.5 Vp-p/75 ohm

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 ohms, unbalanced

TIMER

Clock reference : Quartz
 Program capacity : 1-year programmable timer/
 8 programs
 Memory backup time : Approx. 5 seconds

ACCESSORIES

Provided accessories
 : RF cable,
 Infrared remote control unit,
 "AA" battery x 2

Specifications shown are for SP mode unless otherwise specified.
 E. & O.E. Design and specifications subject to change without notice.

A		L	
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HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-537-5722

<http://www.jvc.com>

Dear Customer,

In order to receive the most satisfaction from your purchase, please read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location within the Continental United States, please call 1-800-537-5722 for your nearest authorized servicer or visit our website at www.JVC.com. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA

DIVISION OF JVC AMERICAS CORP.

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF JVC AMERICAS CORP.
10 New Maple Avenue
Pine Brook, NJ 07058-9641

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer. From the 48 Continental United States call toll free: 1-800-882-2345 or on the web at www.JVC.com

Don't service the product yourself.

CAUTION

To prevent electrical shock, do not open the cabinet. There are no user serviceable parts inside. Please refer to qualified service personnel for repairs.

LIMITED WARRANTY CONSUMER VIDEO 1-90

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL to be FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period")

PARTS	LABOR
1 YR	90 DAYS

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:

If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:

Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 537-5722.

If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:

This limited warranty provided by JVC does not cover:

1. Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
2. Initial installation and installation and removal for repair;
3. Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
4. Damage that occurs in shipment, due to act of God, and cosmetic damage;
5. Signal reception problems and failures due to line power surge;
6. Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
7. Accessories;
8. Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase);

There are no other express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA
DIVISION OF JVC AMERICAS CORP.

1700 Valley Road
Wayne, New Jersey 07470

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:

Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.: _____

Serial No.: _____

Purchase date: _____

Name of dealer: _____



JVC

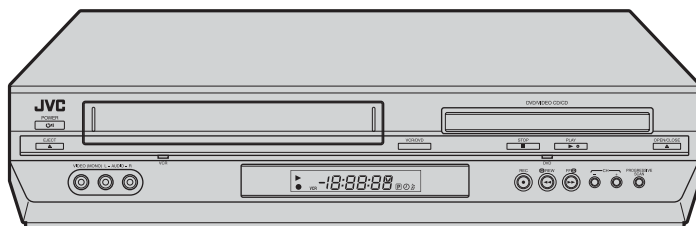
SCHEMATIC DIAGRAMS

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XVC22UC, HR-XVC23UC, HR-XVC26US, HR-XVC27UC, HR-XVC27US



CD-ROM No.SML200404




HR-XVC22UC, HR-XVC23UC, HR-XVC26US, HR-XVC27UC, HR-XVC27US [D3PV0]

CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions

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

1. Units of components on the schematic diagram

Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).

Chip resistors are 1/16 W.

K: K Ω (1000 Ω), M: M Ω (1000K Ω)

2) All capacitance values are in μ F, (P: PF).

3) All inductance values are in μ H, (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

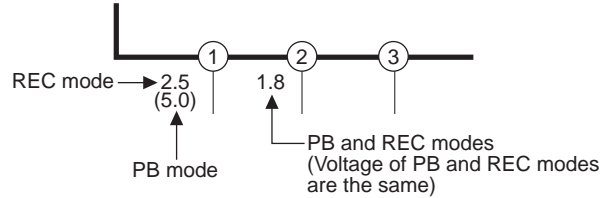
REC : Colour bar signal.

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.



Playback signal path



Playback and recording signal path



Recording signal path
(including E-E signal path)



Capstan servo path



Drum servo path

(Example)



R-Y Playback R-Y signal path



Y Recording Y signal path

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.



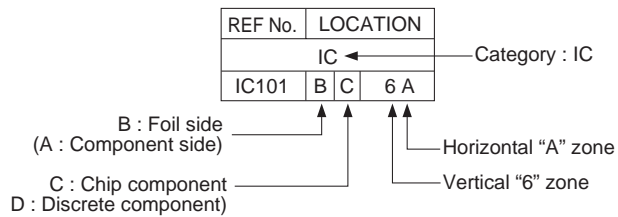
CIRCUIT BOARD NOTES

1. Foil and Component sides

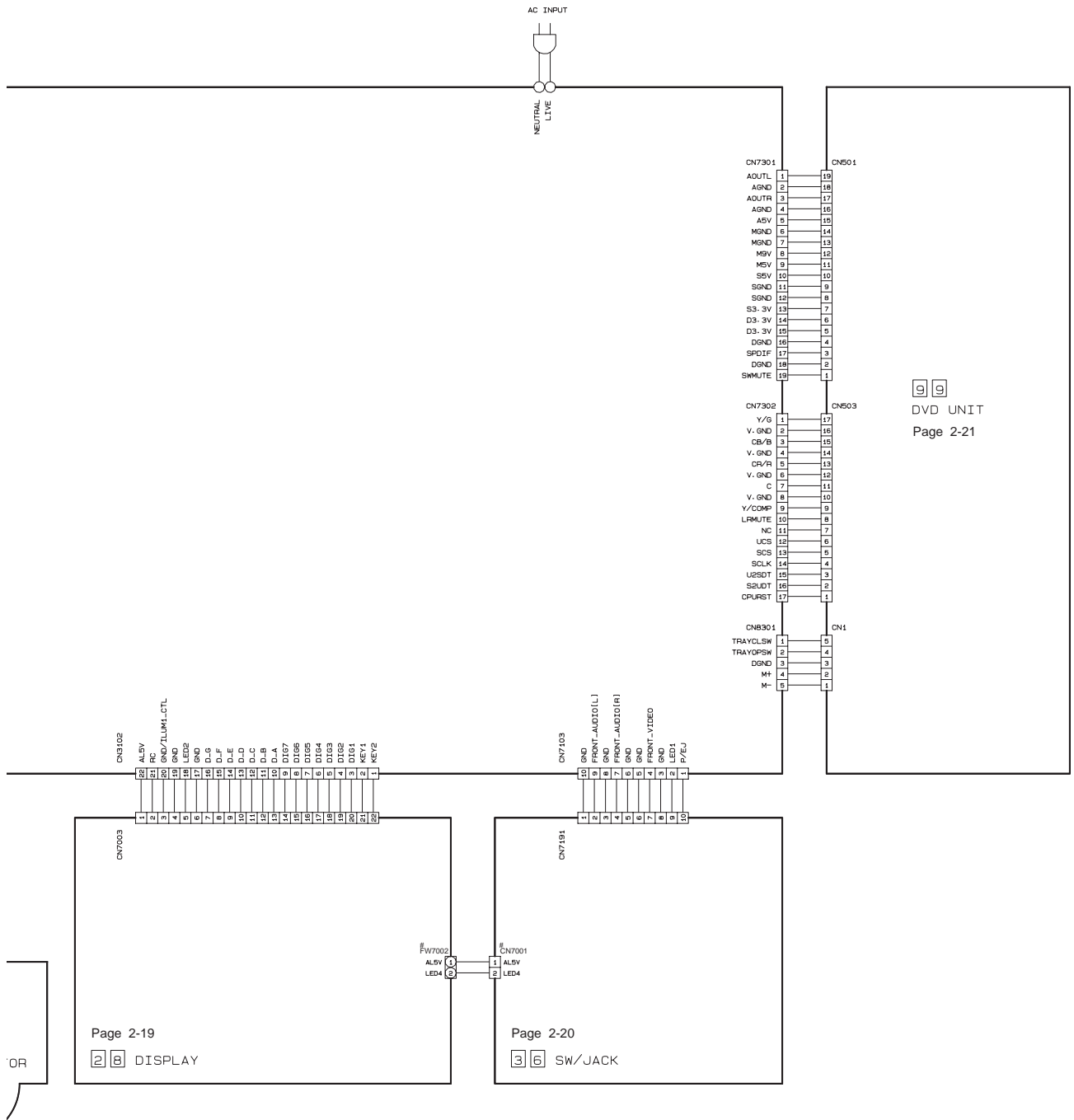
- 1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

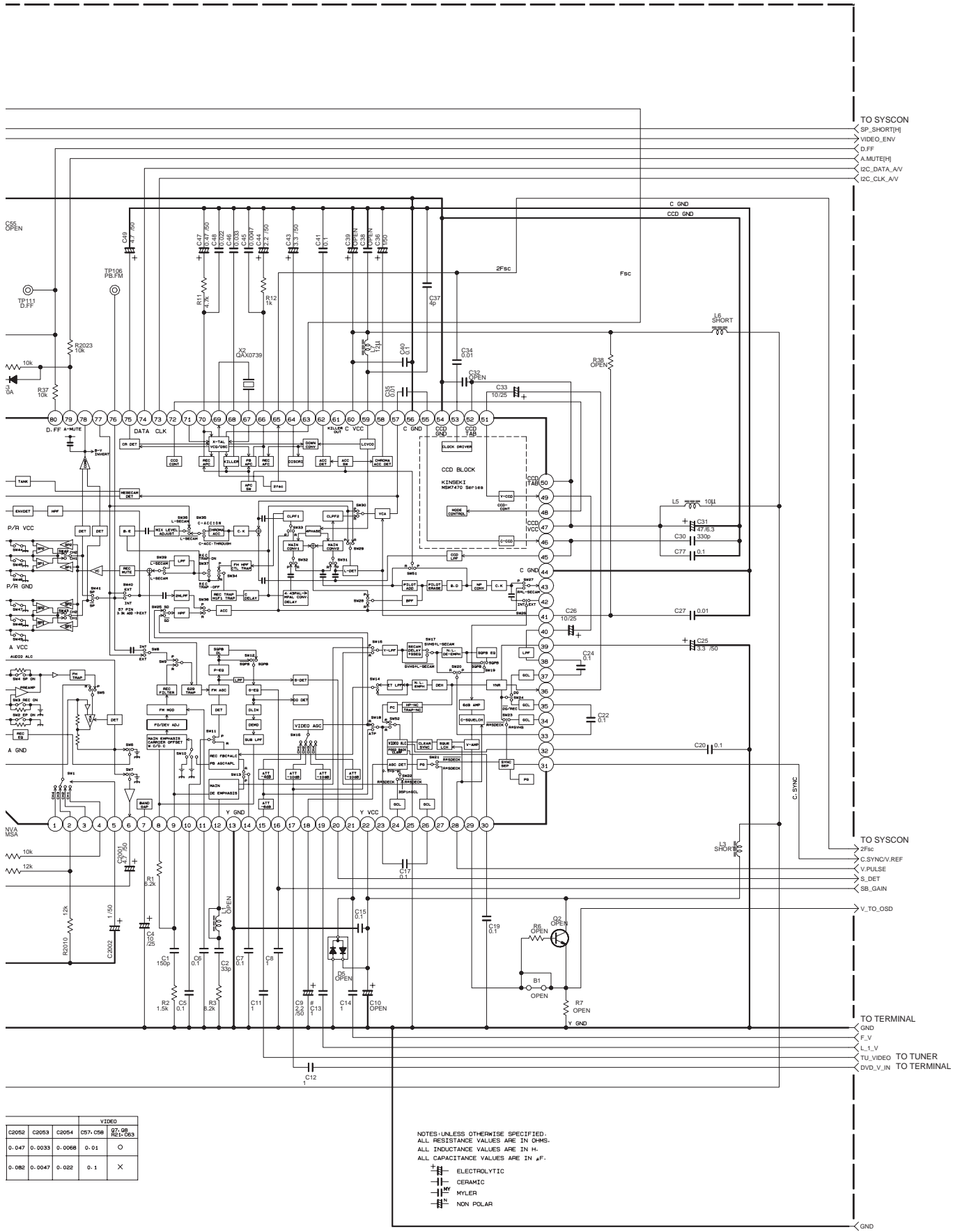
Parts location are indicated by guide scale on the circuit board.



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



.ASH CPU.



TO SYSCON
 SP_SHORT[H]
 VIDEO_ENV
 D_FF
 A_MUTE[H]
 I2C_DATA_AV
 I2C_CLK_AV

TO SYSCON
 2Fsc
 C_SYNCV_REF
 V_PULSE
 S_DET
 SB_GAIN

TO TERMINAL
 GND
 F_V
 L1_V
 TU_VIDEO TO TUNER
 DVD_V_IN TO TERMINAL

C55 OPEN

TP106
 PB.FM

TP111
 D_FF

R2023
 10k

R37
 10k

R37
 10k

R2010
 12k

R2010
 12k

R2010
 12k

R2010
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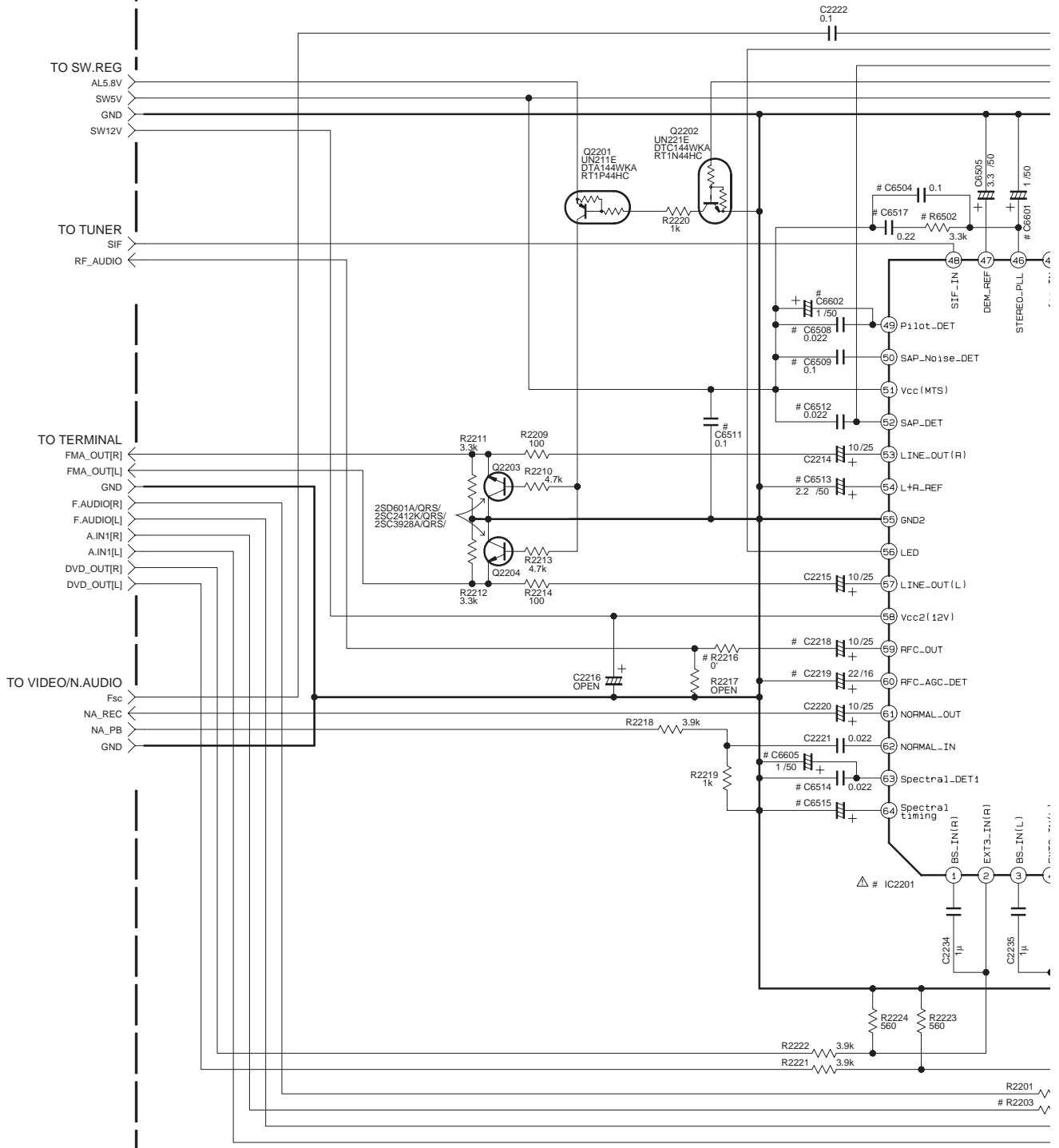
VIDEO				
C2052	CR053	CR054	C57-C58	C7-C8 C21-C23
0.047	0.0033	0.0066	0.01	O
0.082	0.0047	0.002	0.1	X

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

ELECTROLYTIC
 CERAMIC
 MYLER
 NON POLAR

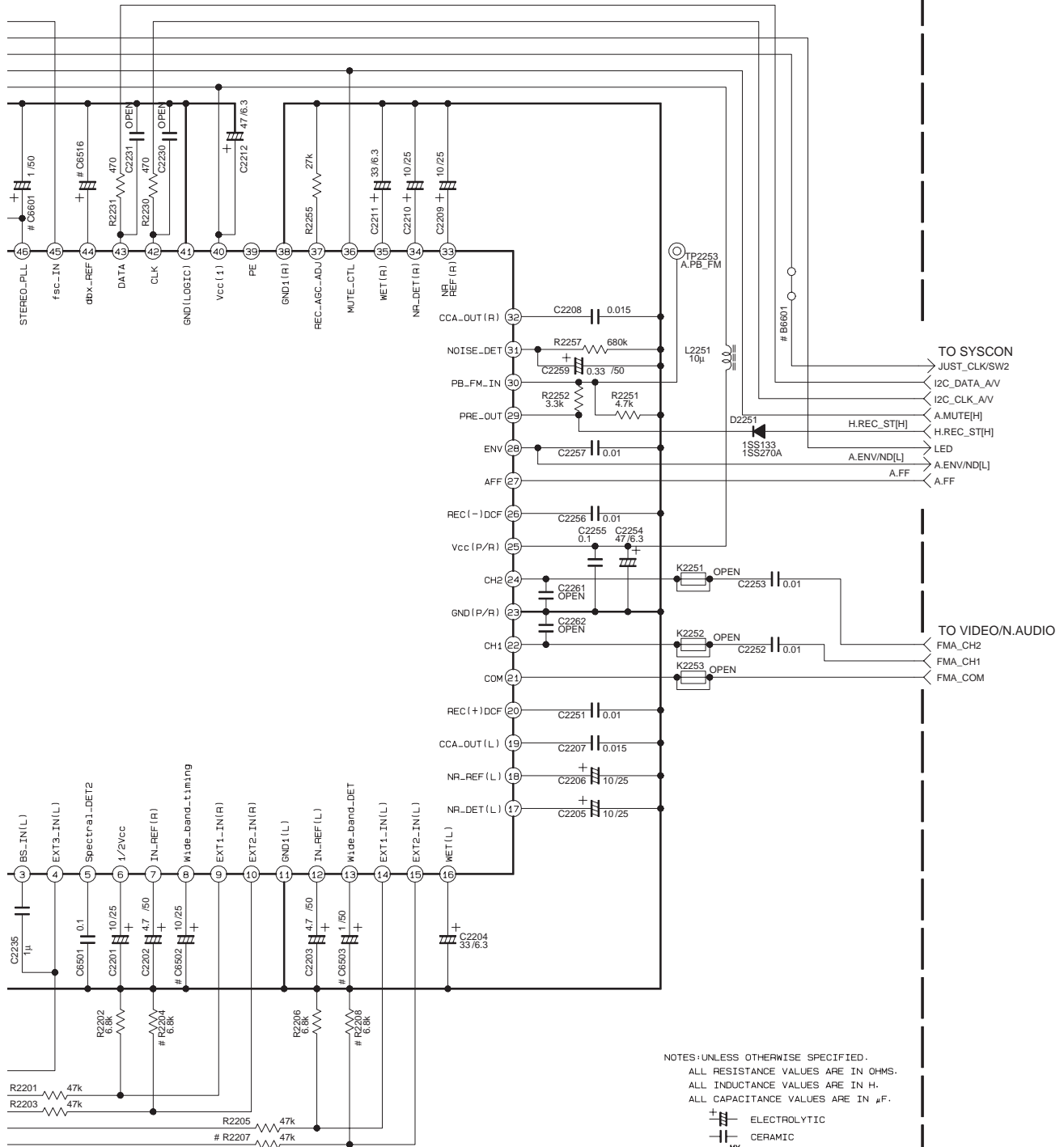
MAIN(FMA/DEMOD) SCHEMATIC DIAGRAM

03 MAIN(FMA/DEMOD)



DIFFERENCE TABLE

JP / OTHERS	IC2201	R6502 C6502 - C6504 C6516 - C6518 C6514 - C6514 C6517	C6515	C6516	R6601 C6601 C6602 C6603 C6605	RF_OUT	R2216 - C2218 - C2219	L-1	R2203 R2207	R2204 R2208
JP	AN3672NFBP	X	1/50	10/25	O	O	O	O	47k	6.8k
OTHERS	AN3663FBP	O	3.3/50	4.7/25	X	X	X	X	X	X



MAIN(SYSCON) SCHEMATIC DIAGRAM

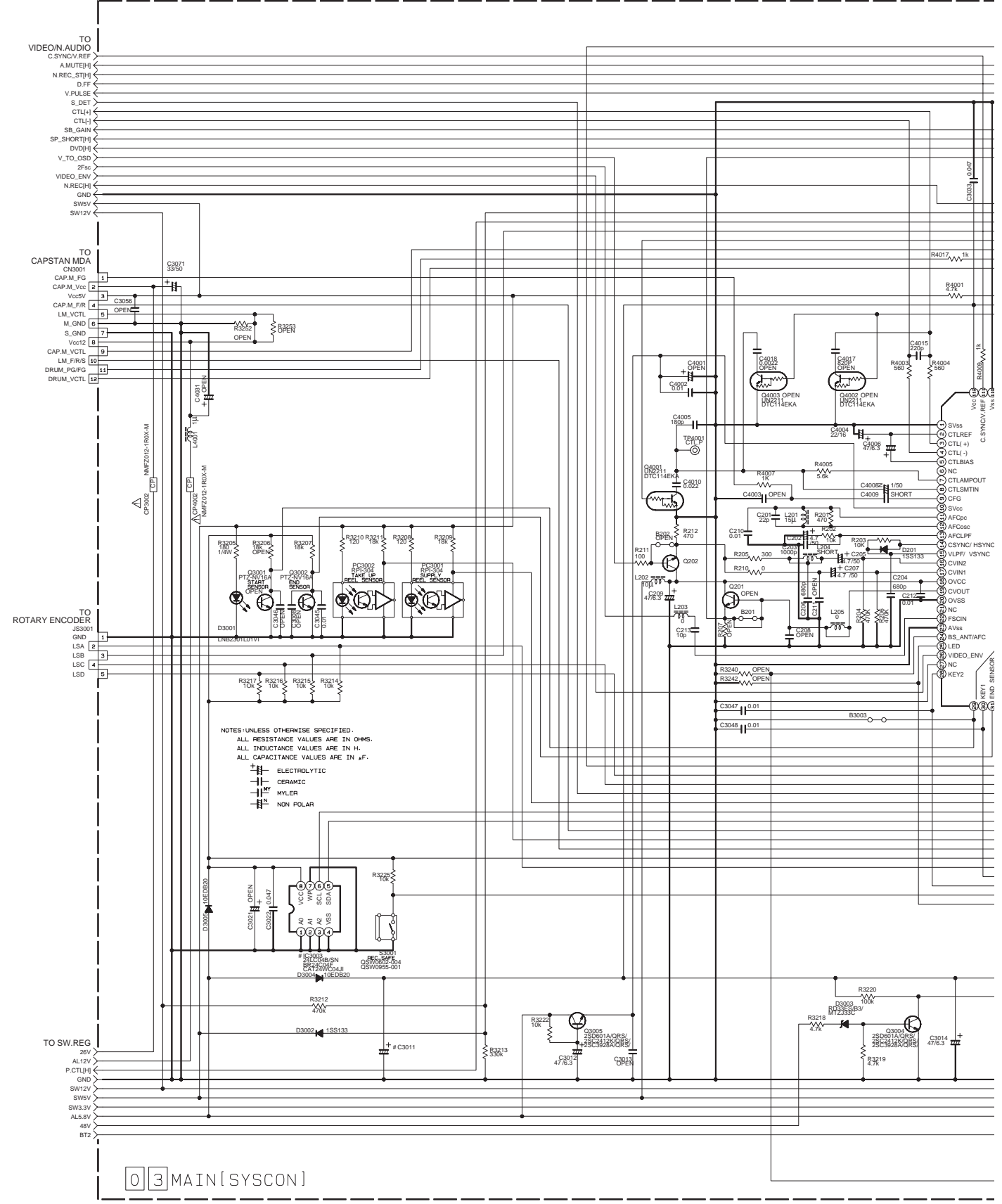
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1



MAIN(SW.REG) SCHEMATIC DIAGRAM

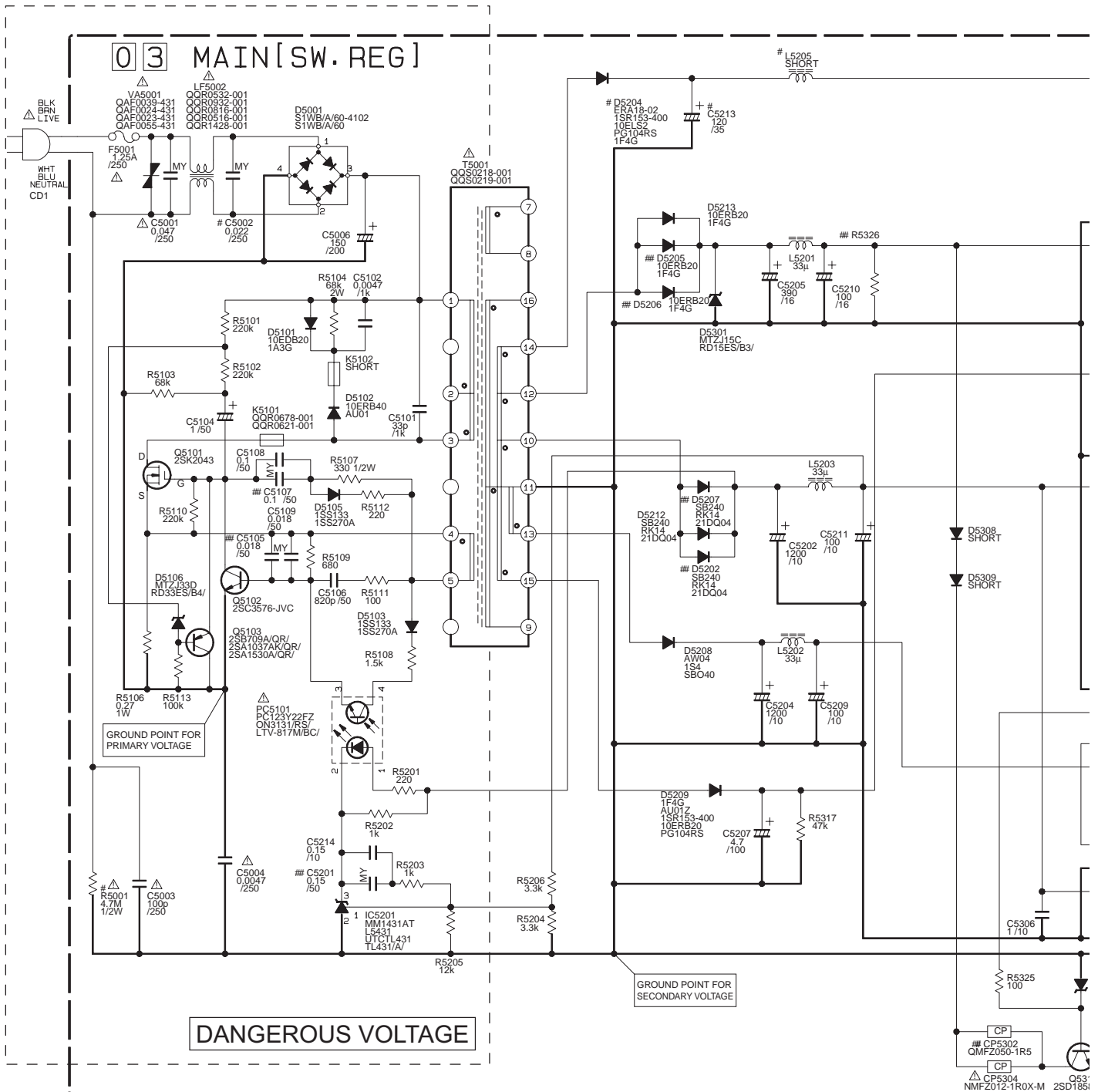
5

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1



DANGEROUS VOLTAGE

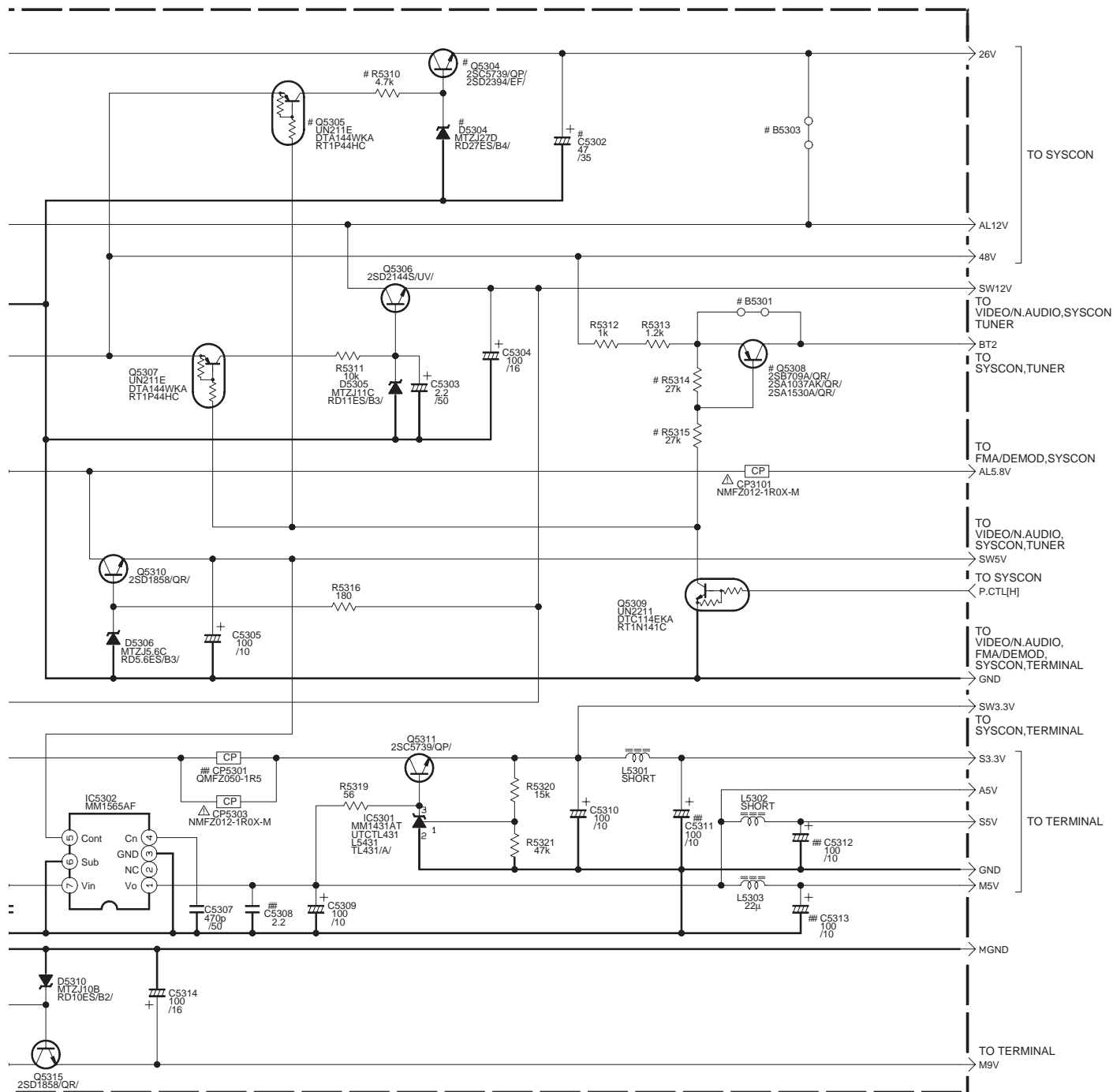
MARK ELEMENTS ARE NOT MOUNTED

DIFFERENCE TABLE

	R5001	C5002	C5213	C5302	C5305	B5303	C5308	B5301
US	YES	NO		NO		YES	NO	YES
JPN	NO	NO		YES		NO	YES	NO

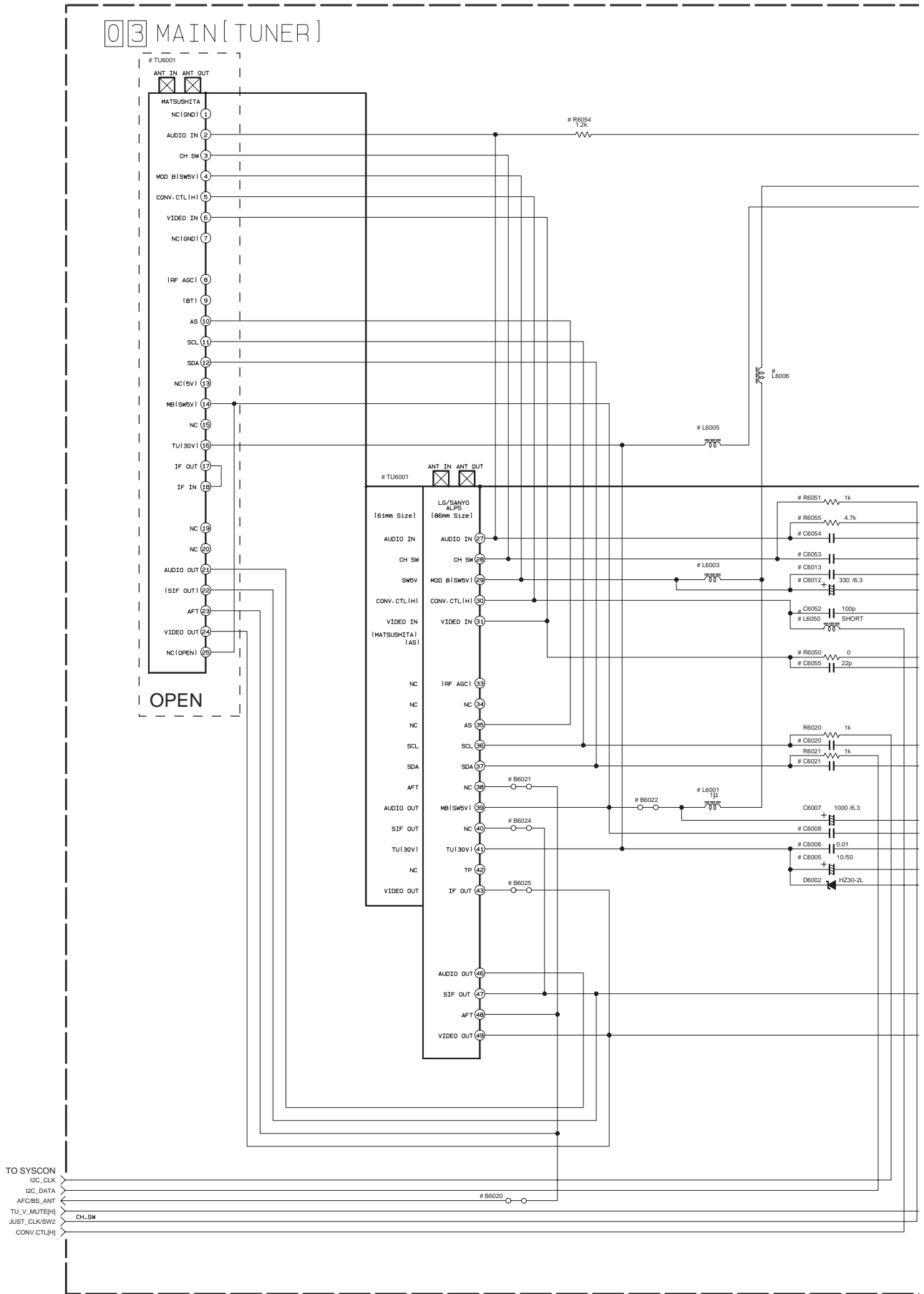
NOTES: UNLESS OTHERWISE SPECIFIED.
 ALL RESISTANCE VALUES ARE IN OHMS
 ALL INDUCTANCE VALUES ARE IN H.
 ALL CAPACITANCE VALUES ARE IN μF.

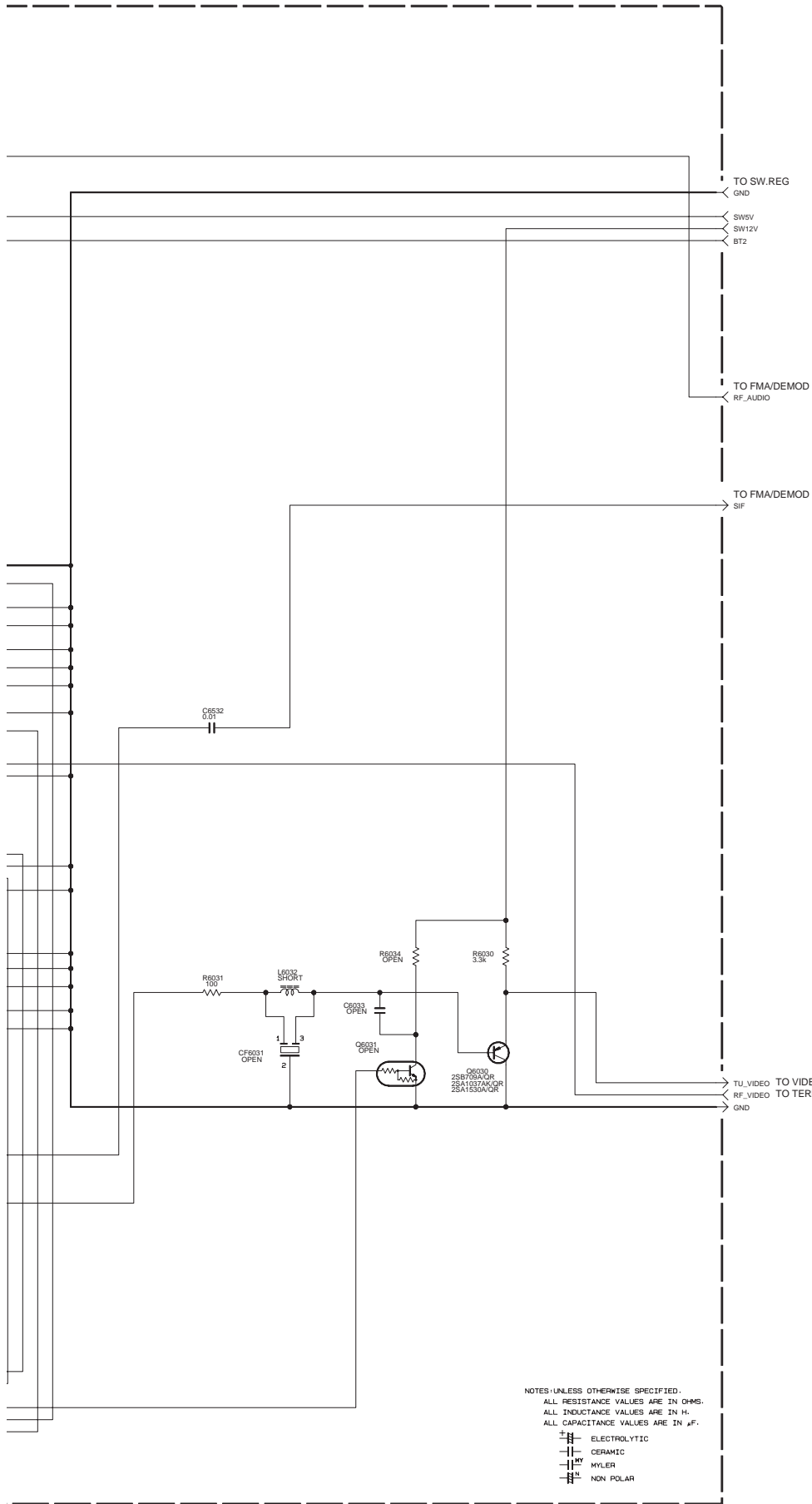
- ELECTROLYTIC
- CERAMIC
- MYLER
- NON POLAR



ED.
 IN OHMS.
 IN H.
 IN μ F.

MAIN(TUNER) SCHEMATIC DIAGRAM





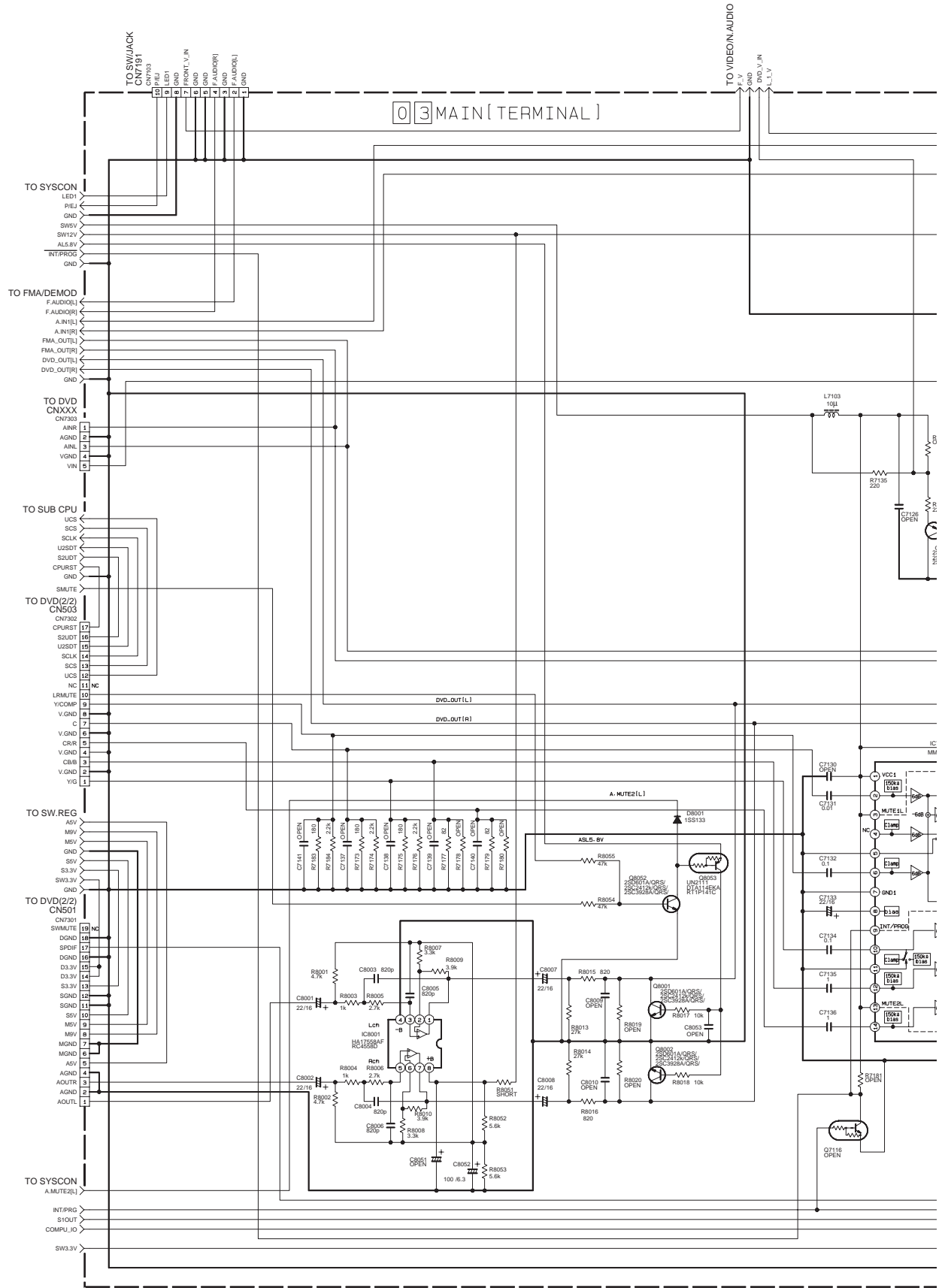
DIFFERENCE TABLE

RF OUT	US/UC				JAPAN	
	○	×	×	×	×	×
TU UNLT	MITSUBISHI GAU0296	LG GAU0336	MITSUBISHI GAU0296	LG GAU0336	MITSUBISHI GAU0296	SANYO GAU0336
TUNER OPTION	B6021	×	○	×	○	×
	B6022	○	×	○	×	○
	B6024	×	○	×	○	×
	B6025	×	○	×	○	×
AUDIO IN	C6054	×	×	×	×	100p 100p
	C6054	○	○	×	×	×
	C6055	○	○	×	×	×
CH SW	R6051	○	○	×	×	×
	C6053	12p	12p	×	×	×
MOD B (SW5V)	L6003	1μ	SHORT	×	SHORT	×
	C6013	1000p	1000p	1000p	1000p	×
	C6012	×	×	×	×	×
	C6052	×	×	×	×	×
CONV. CTL	L6050	SHORT	SHORT	×	×	×
	R6050	0	0	×	×	×
VIDEO IN	C6055	×	×	×	×	×
	C6020	×	×	×	×	×
I2C-BUS	C6021	×	×	×	×	×
	L6005	SHORT	SHORT	SHORT	SHORT	SHORT
ME (SW5V)	L6001	1μ	×	1μ	×	×
	C6007	×	×	×	×	×
	C6008	×	×	×	×	100p 100p
	L6005	SHORT	SHORT	SHORT	SHORT	1μ 1μ
TU(30V)	C6006	×	×	×	×	×
	C6005	×	×	×	×	×
	B6030	○	○	○	○	×

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

ELECTROLYTIC
 CERAMIC
 MYLAR
 NON POLAR

MAIN(TERMINAL) SCHEMATIC DIAGRAM



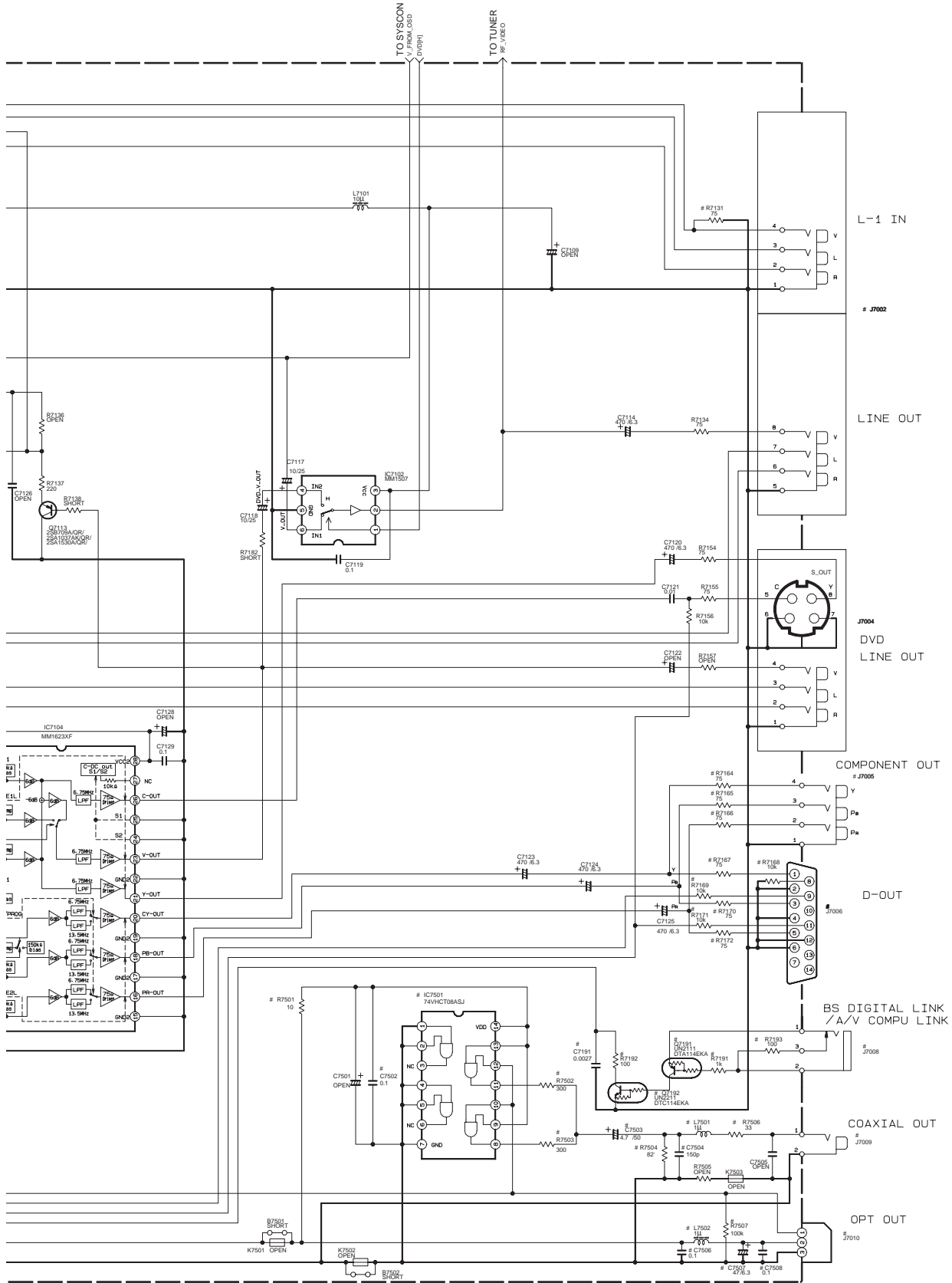
DIFFERENCE TABLE

	0719	0719A	0719B	0719C
BS DIGITAL LINK REC	O	X	O	O
REMOTE PAUSE	X	O	O	O

	J7010 L7502 C7505-C7508 R7007	J7009 L7501 C7502-C7504 L7501
OPT OUT	O	X
COAXIAL OUT	O	O
	X	O
	O	O

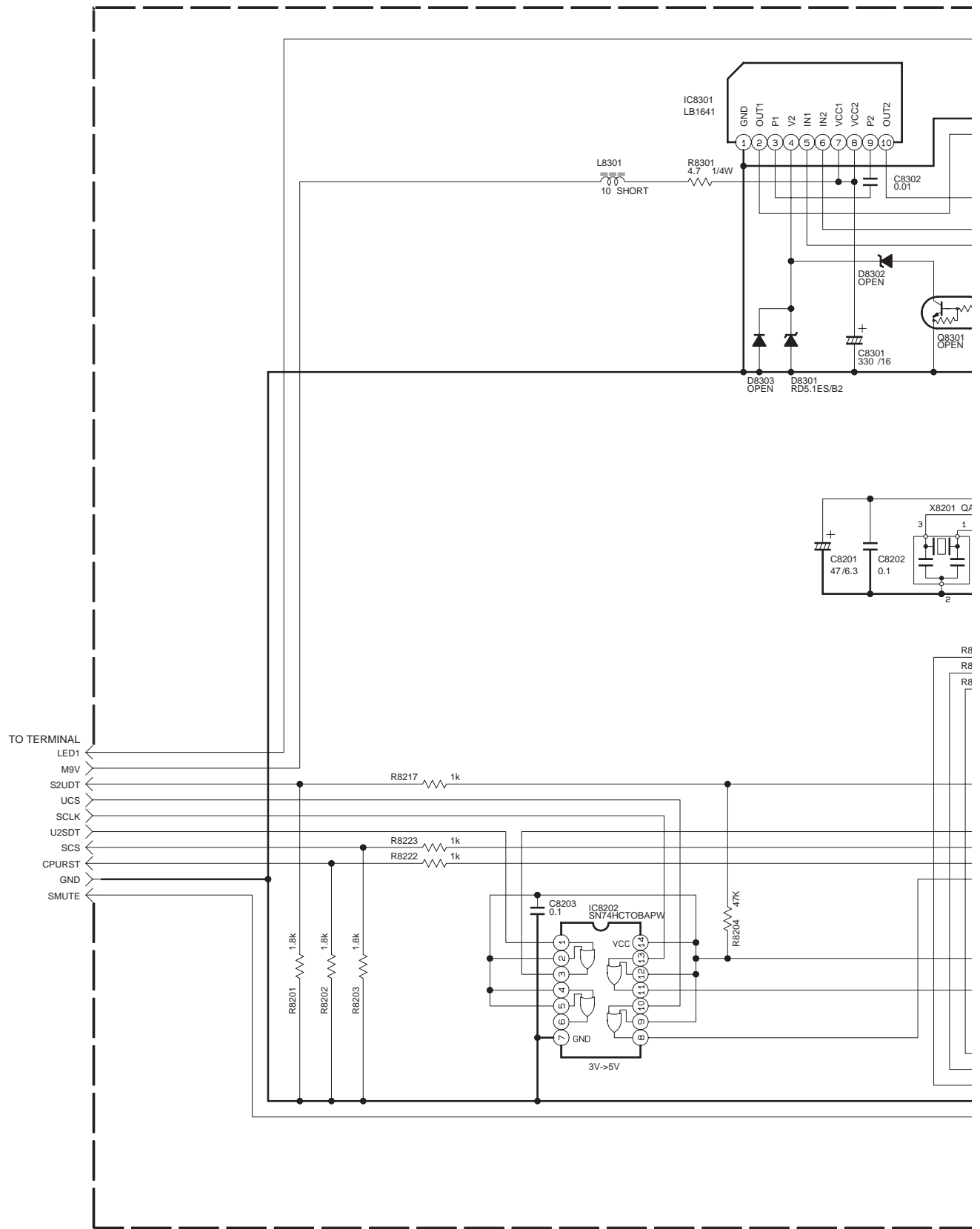
	J7131
INT/PRG	O
INT/PRG	X

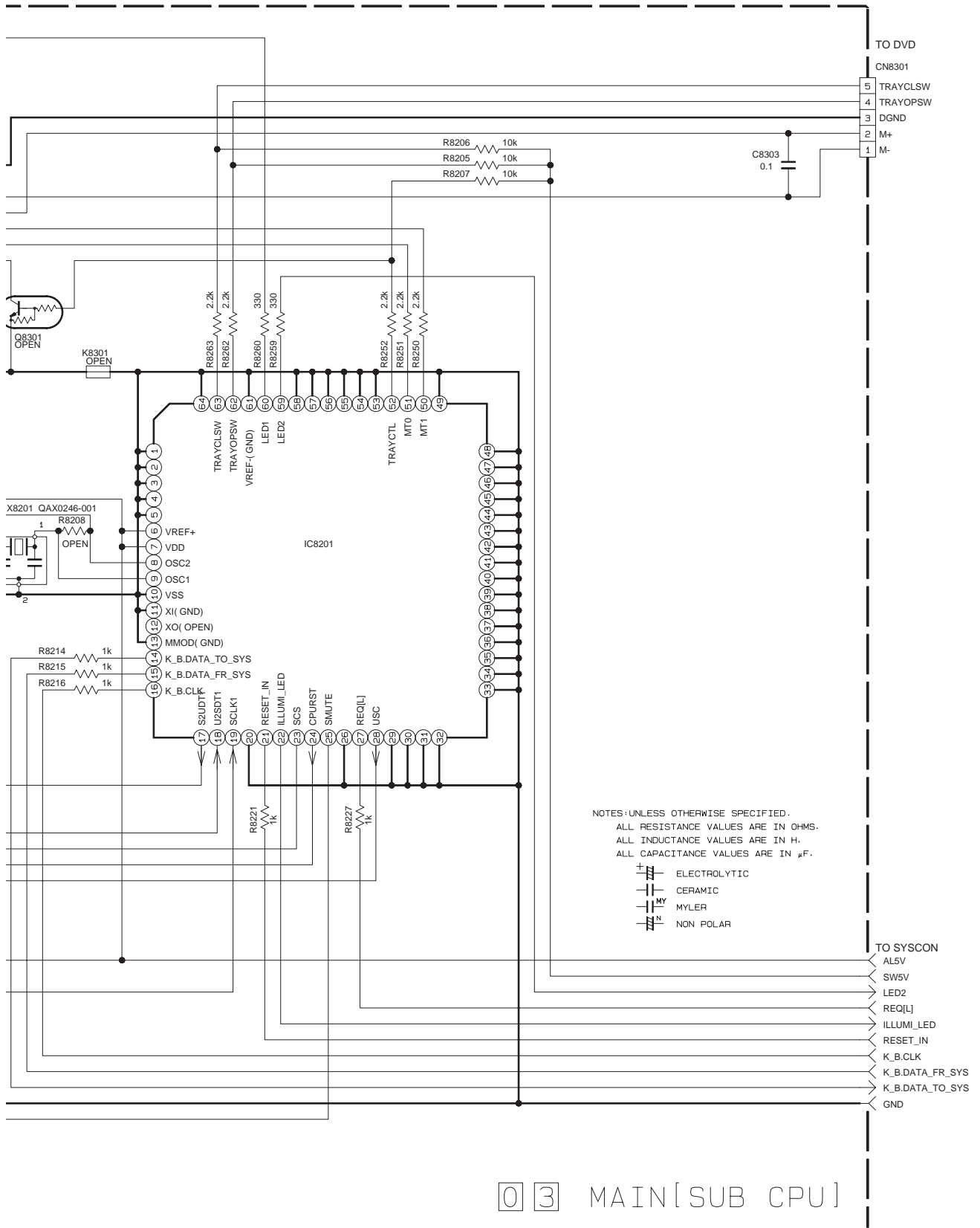
	DVD OUT L7103 L7105 L7106 L7107 L7108 L7109 L7110 L7111 L7112 L7113 L7114 L7115 L7116	J7005
DM	O	X
US/AM	X	O



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

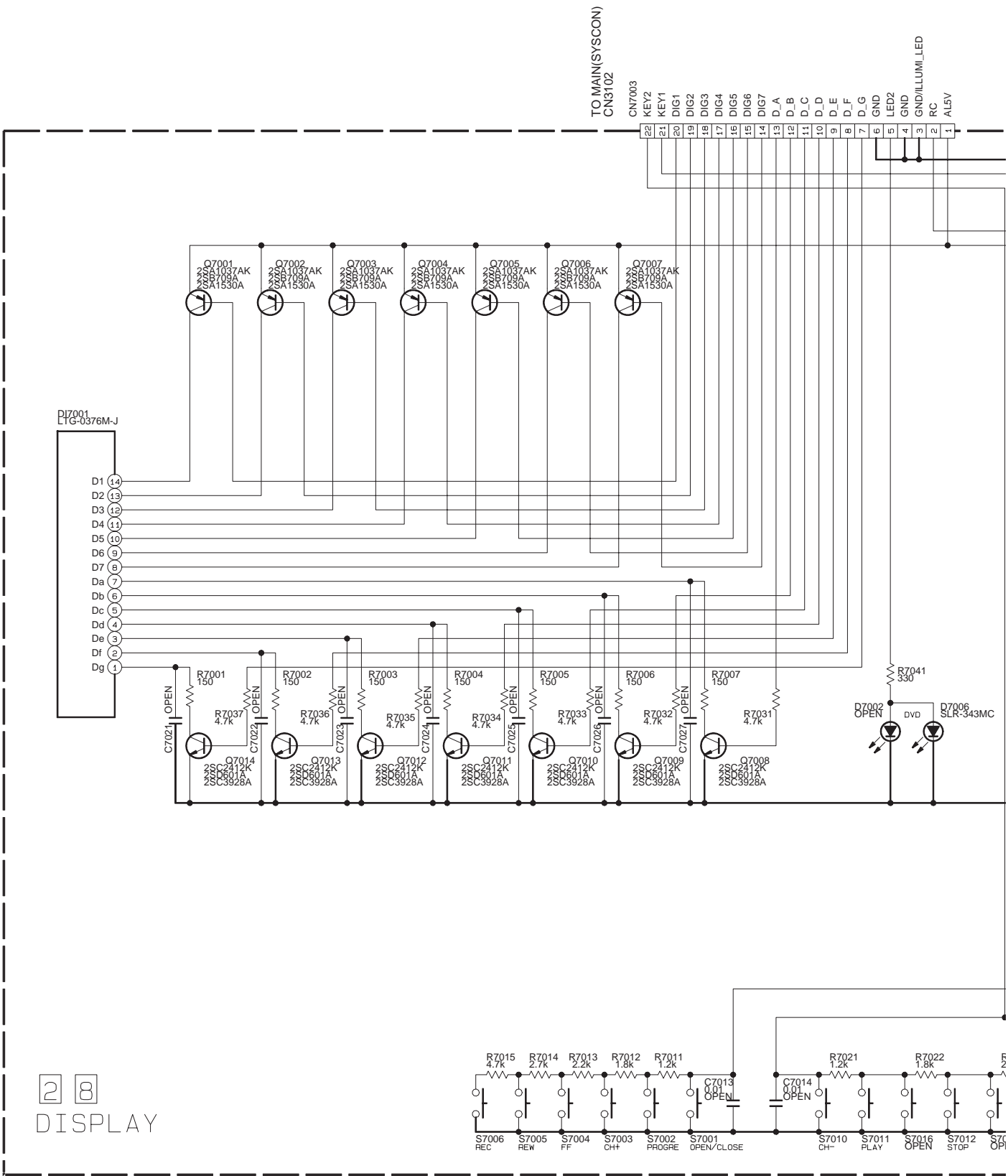
MAIN(SUB CPU) SCHEMATIC DIAGRAM

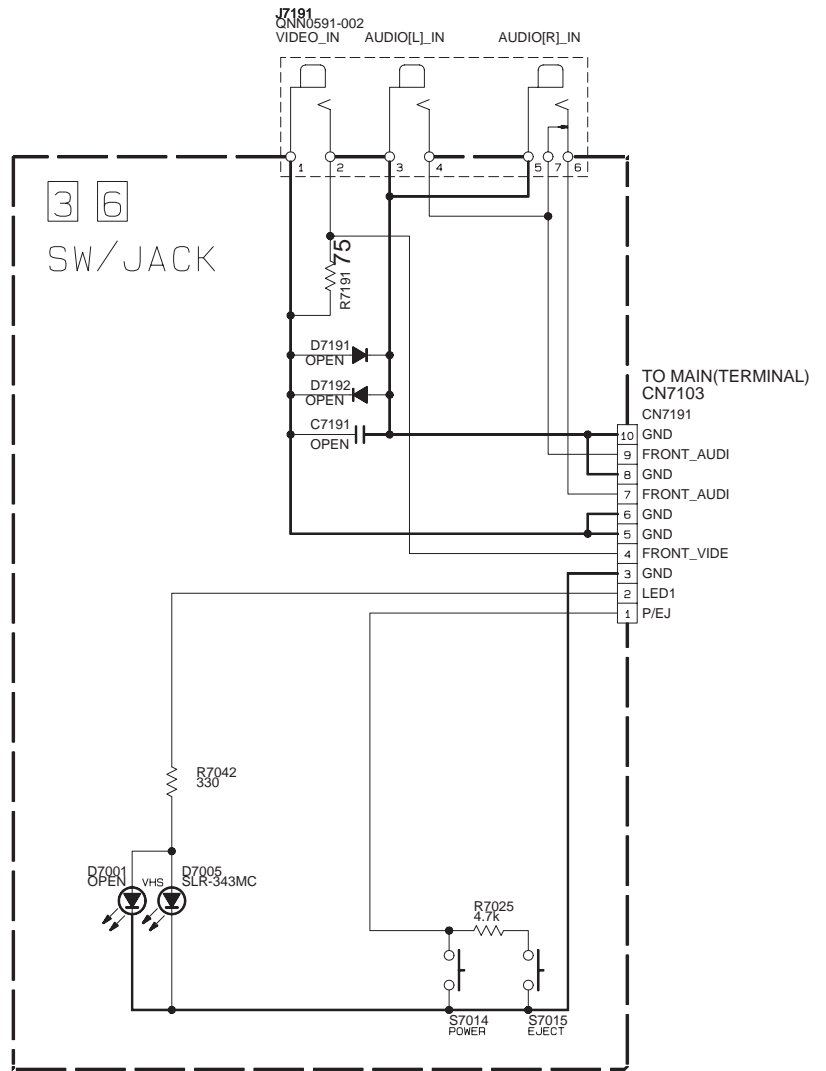
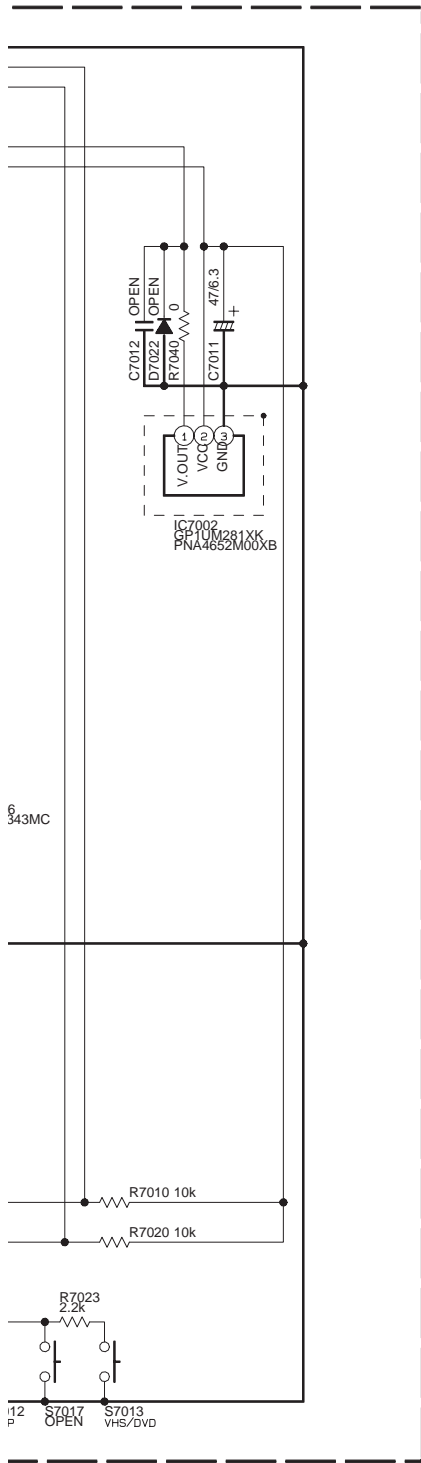




■ DISPLAY AND JACK SCHEMATIC DIAGRAMS

5
4
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1





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

DVD SERVO CONTROL SCHEMATIC DIAGRAM

LVA10452-211B (1/2)

5

4

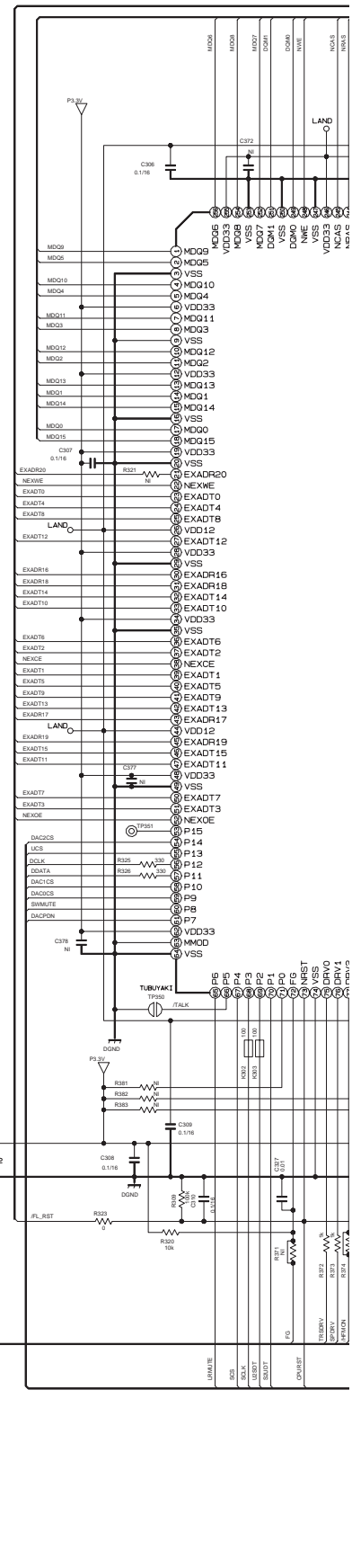
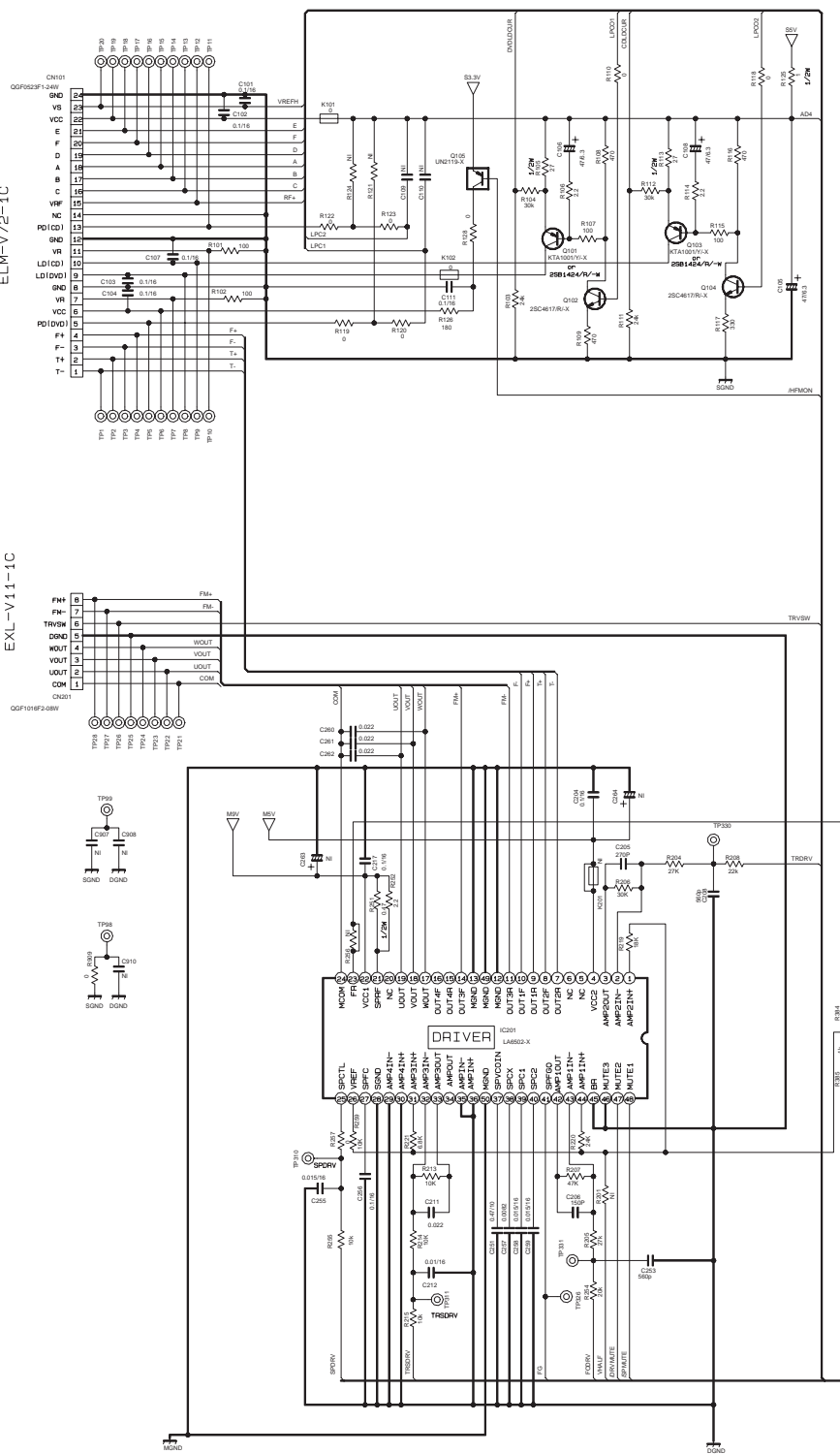
3

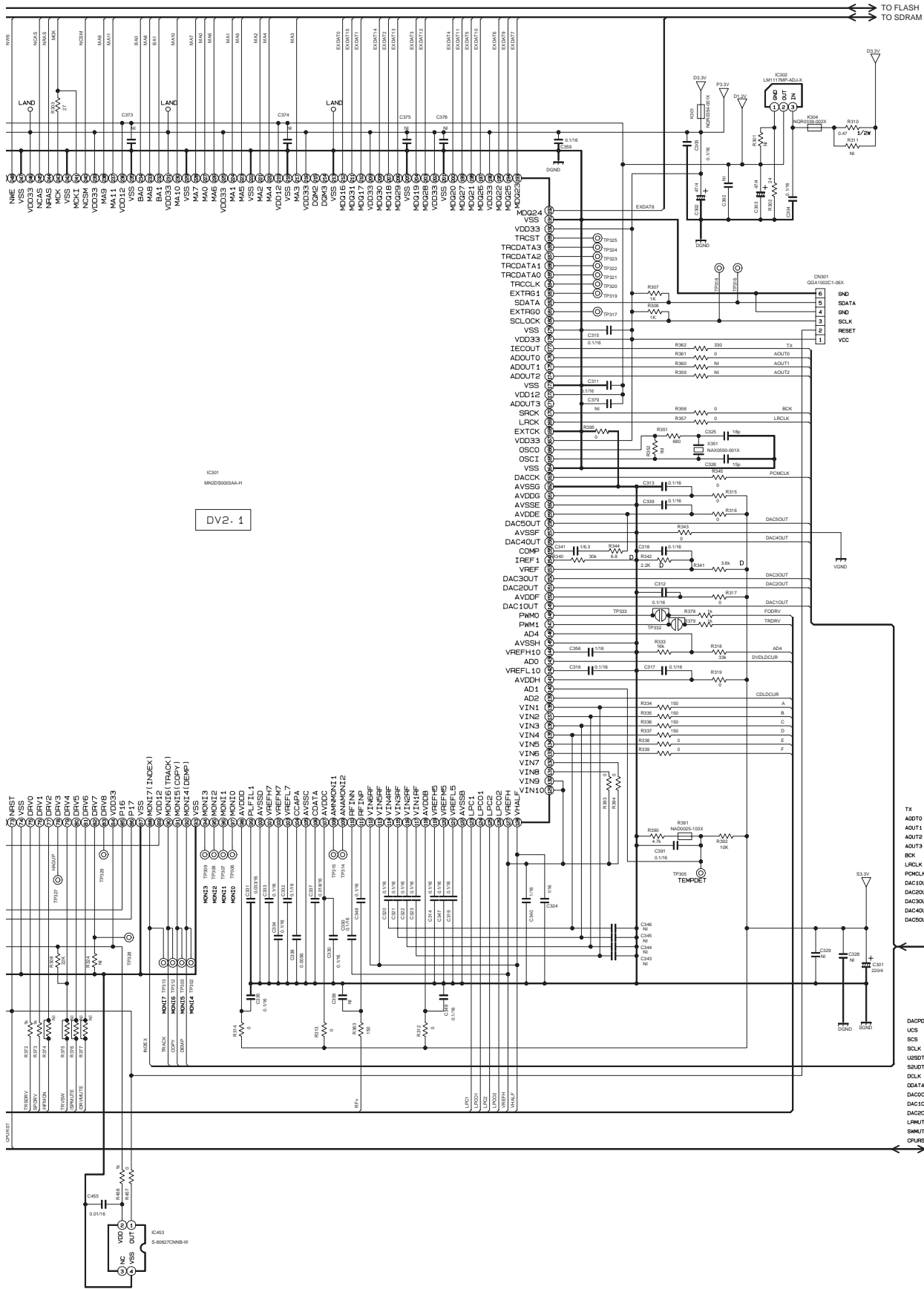
2

1

TO DVD TRAVERSE MECHA
ELM-V72-1C

TO DVD TRAVERSE MECHA
EXL-V41-1C





DVD FLASH ROM SCHEMATIC DIAGRAM

LVA10452-211B(2/2)

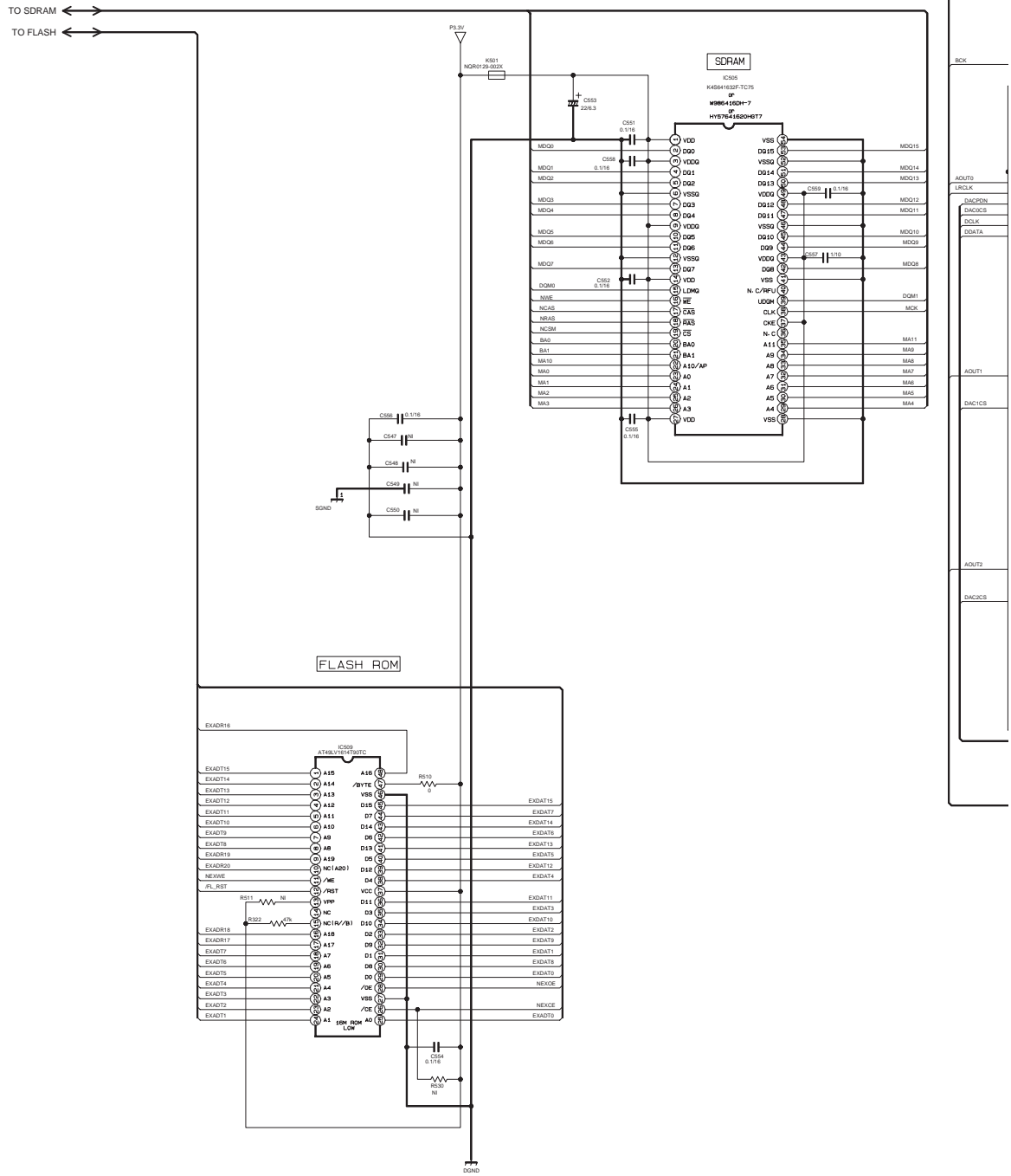
5

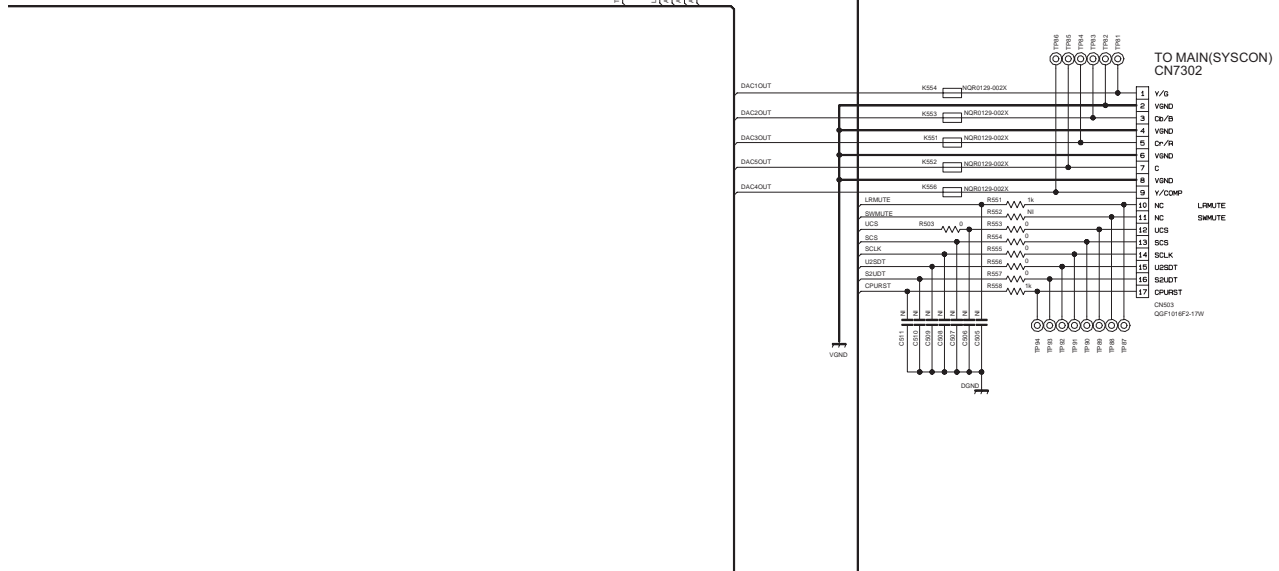
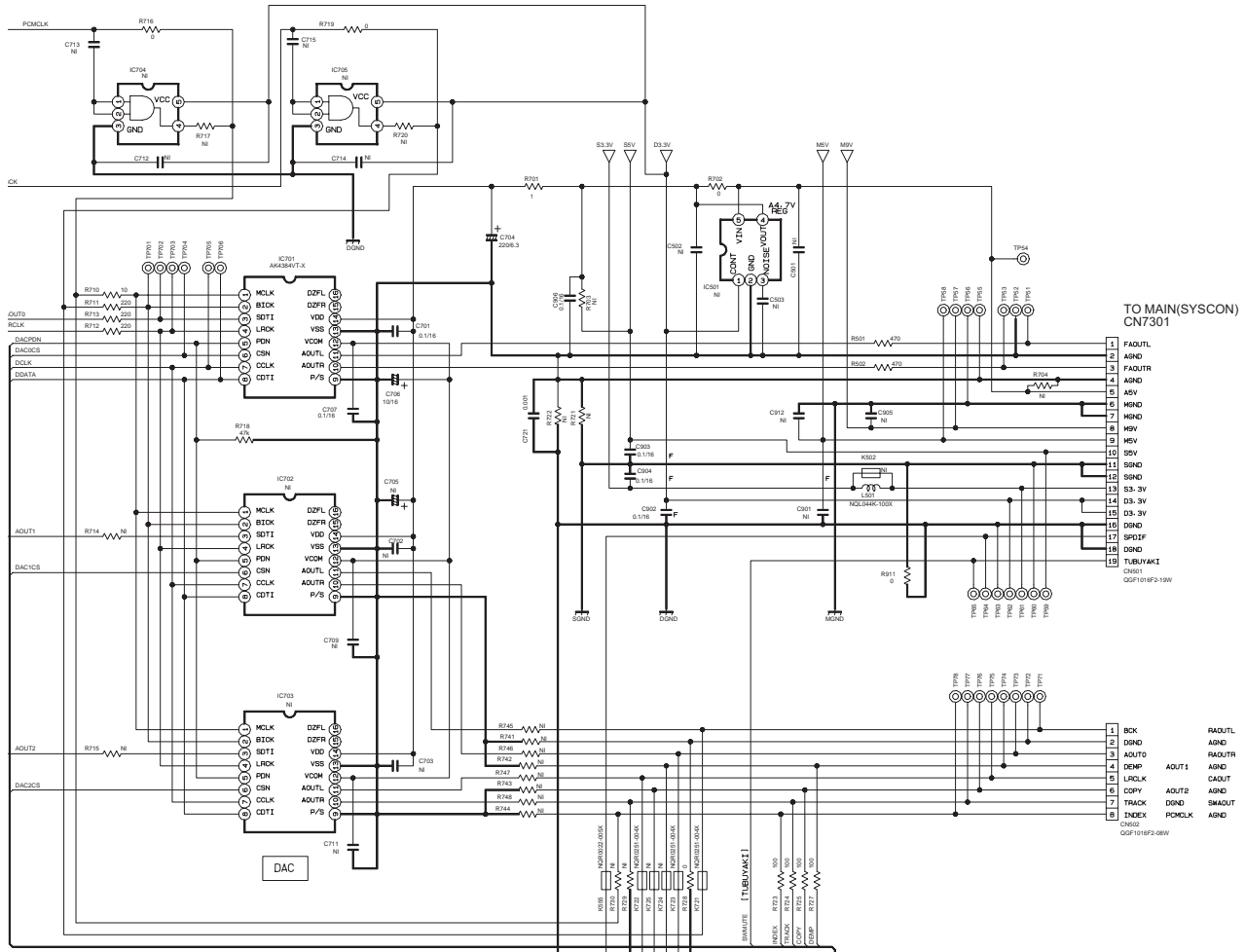
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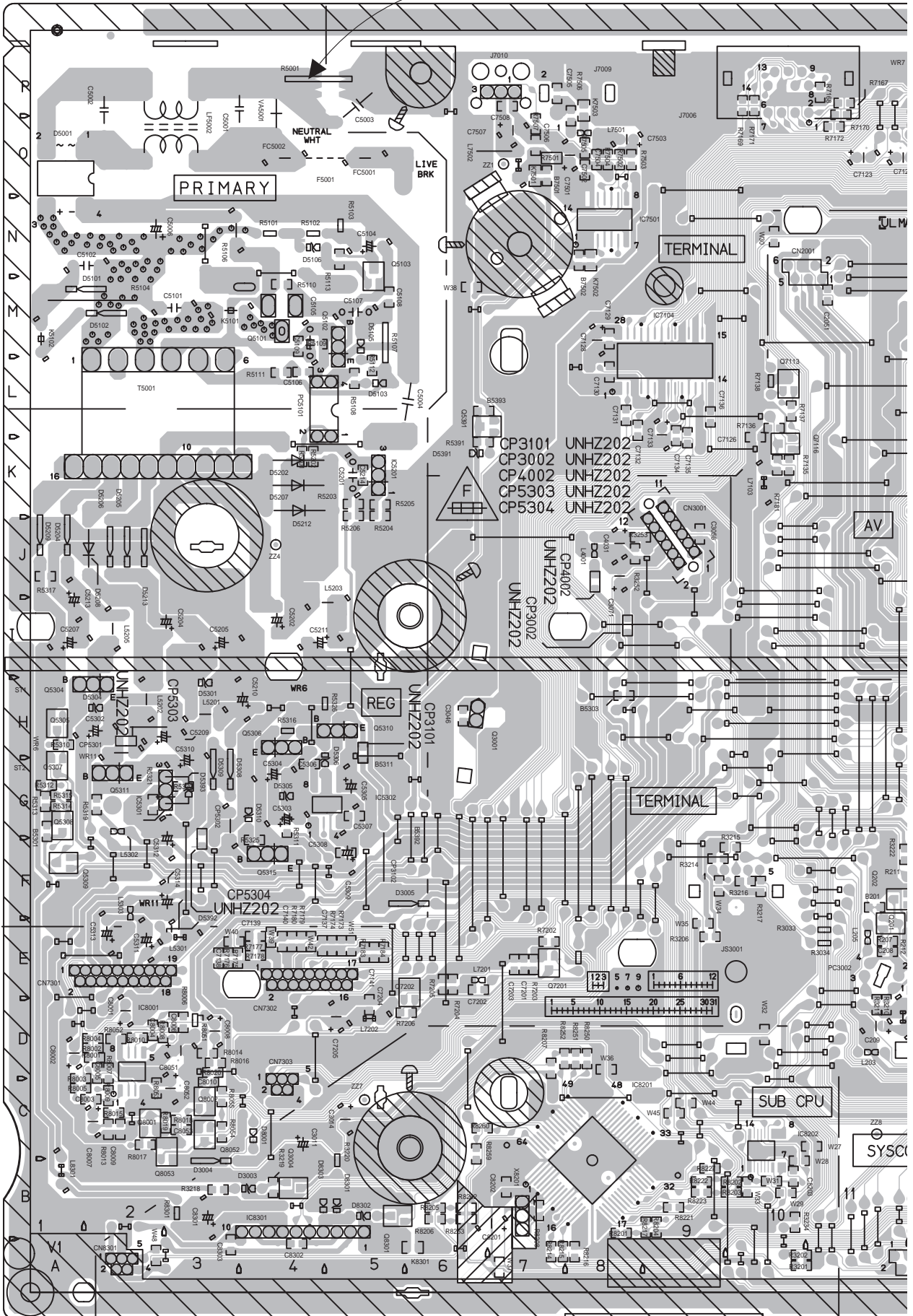




MAIN CIRCUIT BOARD

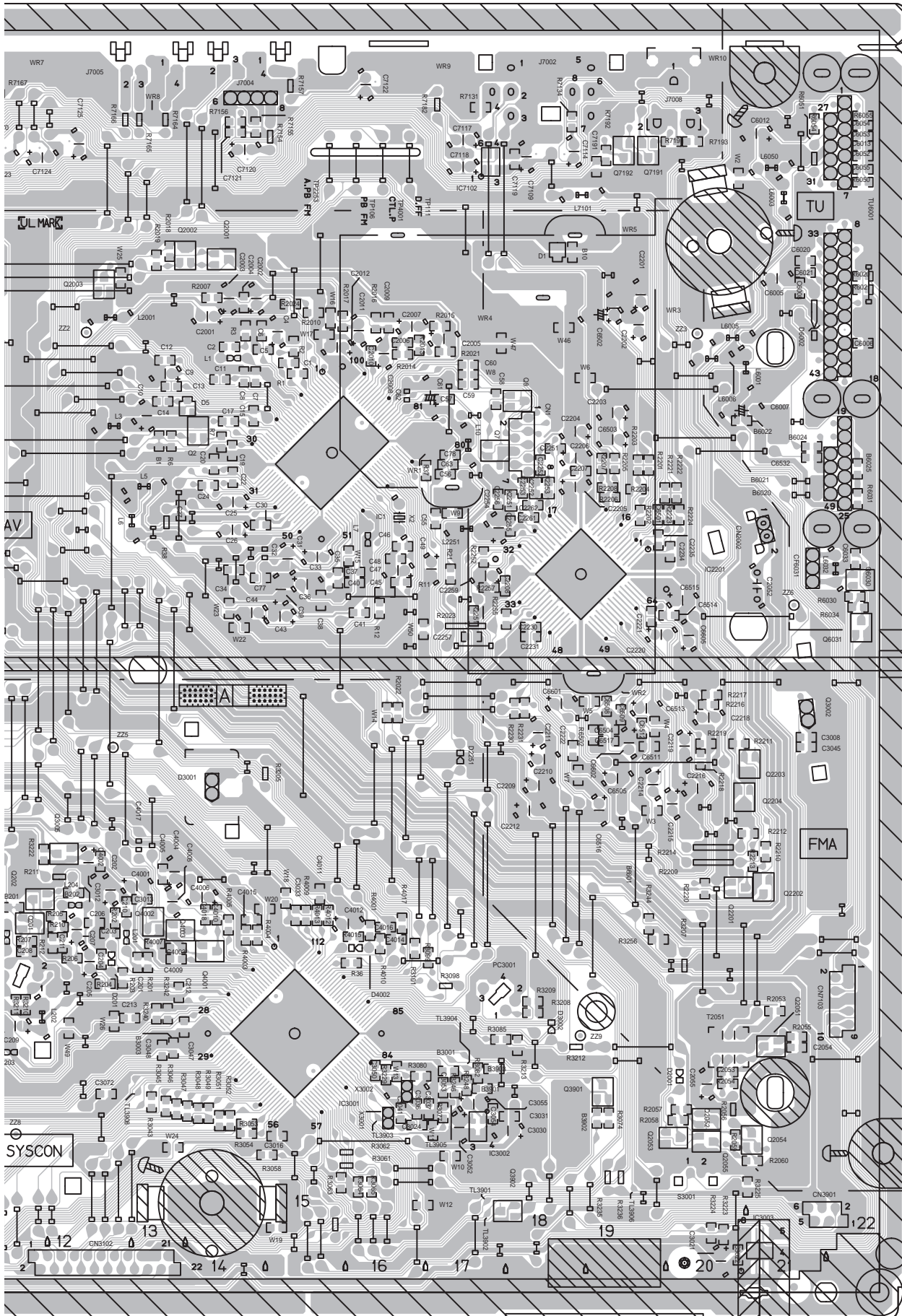
<03> MAIN
LPB10227-001C

DANGEROUS VOLTAGE



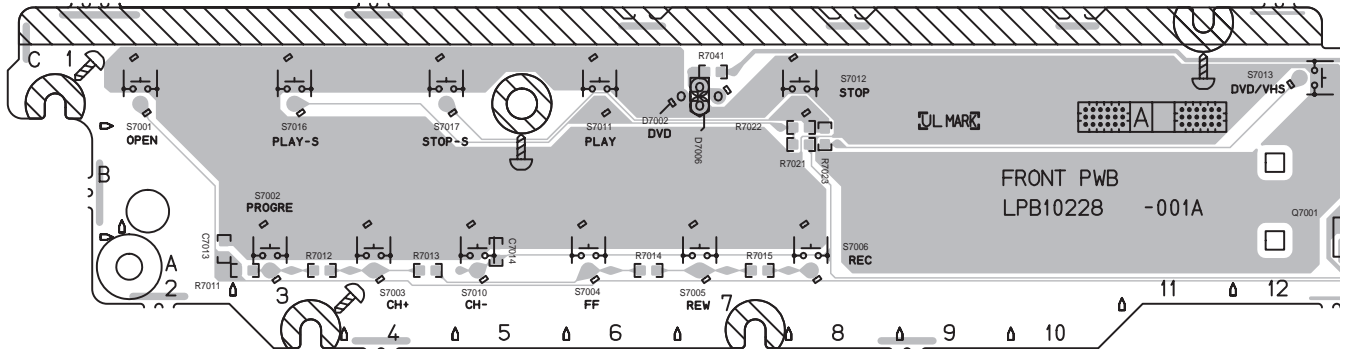


CAUTION :
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE(S).
ATTENTION :
REPLACER PAR DES FUSIBLE DE MEME TYPE.

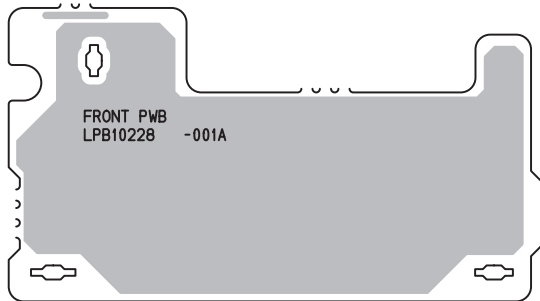


■ DISPLAY, JACK, DVD BRACKET SWITCH AND DVD SERVO CONTROL CIRCUIT BOARDS

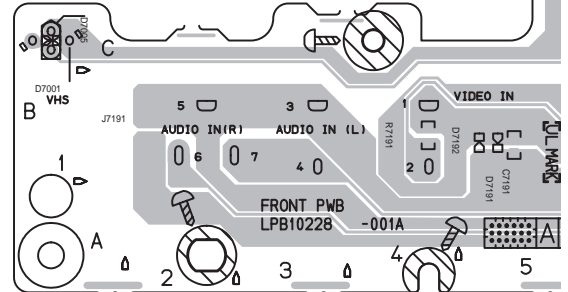
**<28> DISPLAY
LPB10228-001A**



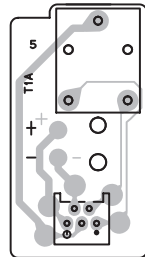
**<31> DVD BRACKET
LPB10228-001A**



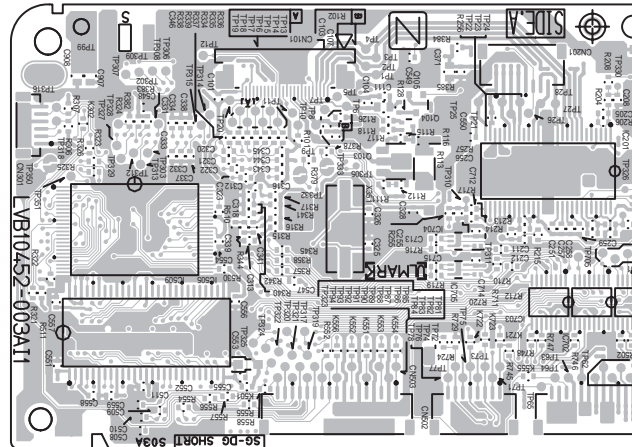
**<36> JACK
LPB10228-001A**

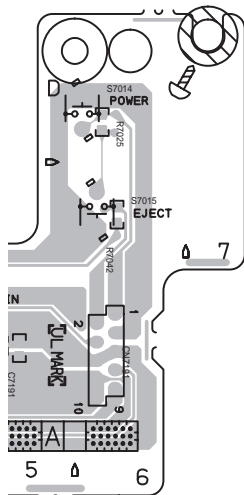
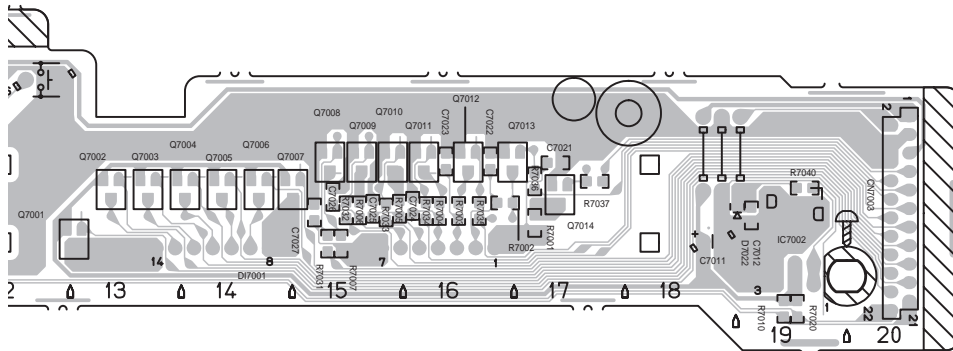


**<98> SWITCH
LEB10070-001A**



**<99> DVD SERVO CONTROL
LVB10452-003A -COMPONENT**

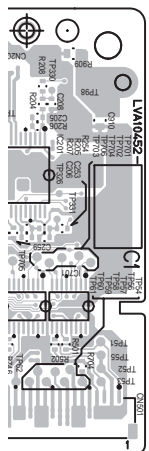




COMPONENT PARTS LOCATION GUIDE <DISPLAY, JACK> LPB10228-001A

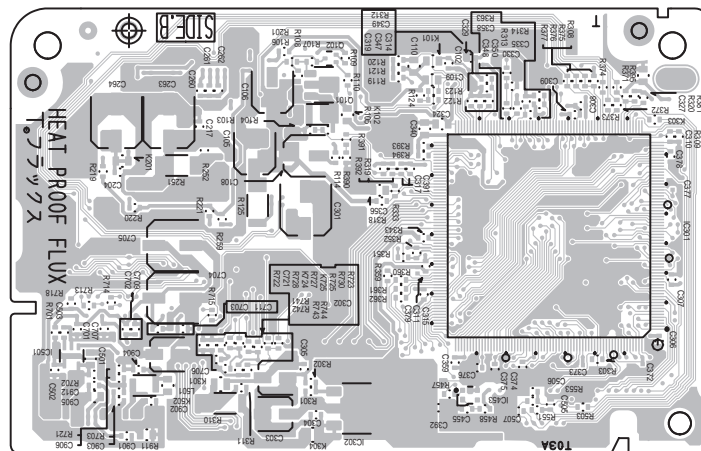
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CAPACITOR											
C7011	A D 18A	D7001	A D 1C	Q7004	B C 14B	R7005	B C 15B	R7034	B C 16B	S7006	A D 8A
C7012	B C 19B	D7002	A D 7C	Q7005	B C 14B	R7006	B C 15B	R7035	B C 16B	S7010	A D 5A
C7013	B C 2A	D7006	A D 7C	Q7006	B C 14B	R7007	B C 15A	R7036	B C 17B	S7011	A D 6C
C7014	B C 5A	D7005	A D 1C	Q7007	B C 15B	R7010	B C 19A	R7037	B C 17B	S7012	A D 8C
C7021	B C 17B	D7006	A D 7C	Q7008	B C 15B	R7011	B C 3A	R7040	B C 19B	S7013	A D 12C
C7022	B C 16B	D7022	B C 19B	Q7009	B C 15B	R7012	B C 3A	R7041	B C 7C	S7016	A D 3C
C7023	B C 16B	D7191	A D 5B	Q7010	B C 15B	R7013	B C 4A	R7042	B C 6C	S7017	A D 4C
C7024	B C 16B	D7192	A D 5B	Q7011	B C 16B	R7014	B C 6A	R7191	B C 4B	S7014	A D 6D
C7025	B C 15B			Q7012	B C 16B	R7015	B C 7A			S7015	A D 6C
C7026	B C 15B			Q7013	B C 17B	R7020	B C 19A	OTHER			
C7027	B C 15B	IC	IC7002 A D 19B	Q7014	B C 17B	R7021	B C 8B	DI7001	A D 15B		
C7191	B C 5B					R7022	B C 8B	J7191	A D 3B		
CONNECTOR											
CN7003	A D 20C	TRANSISTOR		R7001	B C 17B	R7023	B C 8B	S7001	A D 2C		
CN7191	A D 6B	Q7001	B C 13B	R7002	B C 16B	R7025	B C 6D	S7002	A D 3A		
		Q7002	B C 13B	R7003	B C 16B	R7031	B C 15A	S7003	A D 4A		
		Q7003	B C 13B	R7004	B C 16B	R7032	B C 15B	S7004	A D 6A		
						R7033	B C 15B	S7005	A D 7A		

IENT SIDE-



**<99> DVD SERVO CONTROL
LVB10452-003A**

-FOIL SIDE-



CPU PIN FUNCTION

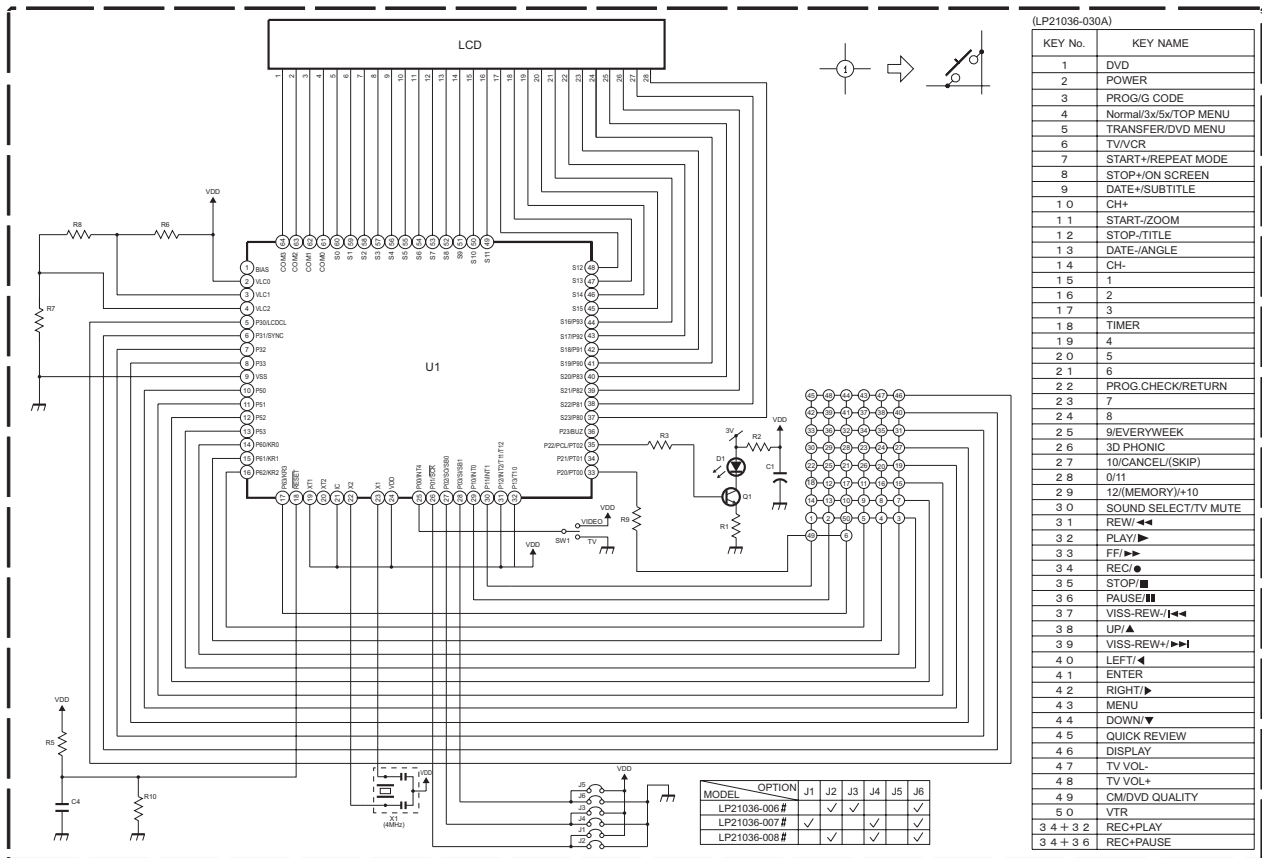
<SYSCON IC3001>

PIN NO.	LABEL	IN/OUT	FUNCTION
1	SVss	-	GND
2	CTLREF	-	CTL REFERENCE VOLTAGE
3	CTL(+)	IN/OUT	CTL(+) SIGNAL
4	CTL(-)	IN/OUT	CTL(-) SIGNAL
5	CTLBIAS	-	CTL BIAS VOLTAGE
6	NC	-	NC
7	CTLAMPOUT	OUT	CTL PULSE OUTPUT
8	CTLSMTIN	IN	CTL PULSE INPUT
9	CFG	IN	CAPSTAN FG PULSE INPUT
10	SVcc	-	SYSTEM POWER
11	AFCpc	OUT	AFC CLOCK(SYNC SEPARATOR FOR OSD/EXTERNAL CIRCUIT FOR AFC)
12	AFCosc	OUT	AFC CLOCK(SYNC SEPARATOR FOR OSD/EXTERNAL CIRCUIT FOR AFC)
13	AFCLPF	IN	FILTER OUTPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
14	CSYNC/HSYNC	-	NC
15	VLPFV/SYNC	-	NC
16	CVIN2	IN	COMPOSITE VIDEO SIGNAL INPUT(2)
17	CVIN1	IN	COMPOSITE VIDEO SIGNAL INPUT(1)
18	OVCC	-	SYSTEM POWER
19	CVOUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
20	OVSS	-	GND
21	NC	-	NC
22	FSCIN	IN	FSC INPUT FOR OSD
23	Avss	-	GND
24	BS_ANT/AFC	IN	TUNNING CHECK
25	LED	IN	LED CONTROL OF STEREO BROADCASTING MODE
26	VIDEO_ENV	IN	AUTO TRACKING DETECT/ INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
27	NC	-	NC
28	KEY2	IN	OPERATION CONTROL SIGNAL
29	START_SENSOR	IN	START SENSOR
30	KEY1	IN	OPERATION CONTROL SIGNAL
31	END_SENSOR	IN	END SENSOR
32	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
33	LSD	IN	MECHANISM MODE DETECT(D)
34	LSC	IN	MECHANISM MODE DETECT(C)
35	S_DET	IN	HiFi/NORMAL AUDIO DETECTION
36	Avcc	-	SYSTEM POWER
37	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
38	JUST_CLK/CH_SW	OUT	RF CONVERTER CHANNEL SELECT
39	REC_SAFETY	IN	REC SAFETY SWITCH DETECT(SW ON:L)
40	NC	-	NC
41	NC	-	NC
42	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
43	SUB_RESET	OUT	DVD CPU RESET
44	LM_FR(LMC1)	OUT	LOADING MOTOR DRIVE
45	DIG1	OUT	LED DRIVE
46	DIG2	OUT	LED DRIVE
47	DIG3	OUT	LED DRIVE
48	12C_DATA	IN/OUT	SERIAL DATA TRANSFER CLOCK FOR TUNER
49	12C_CLK	OUT	SERIAL DATA TRANSFER OUTPUT FOR TUNER
50	NC	-	NC
51	DIG4	OUT	LED DRIVE
52	DIG5	OUT	LED DRIVE
53	DIG6	OUT	LED DRIVE
54	DIG7	OUT	LED DRIVE
55	CAP_M_F/R	OUT	CAPSTAN MOTOR REVERSE CONTROL(FWD:H/REV:L)
56	Vcc	-	SYSTEM POWER

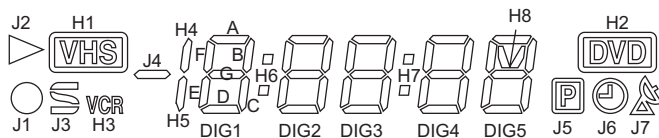
PIN NO.	LABEL	IN/OUT	FUNCTION
57	Vss	-	GND
58	LSA	IN	MECHANISM MODE DETECT(A)
59	D_A	OUT	LED DRIVE
60	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
61	12C_CLK_AV	OUT	SERIAL DATA TRANSFER CLOCK FOR THE VIDEO/AUDIO IC
62	12C_DATA_AV	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR THE VIDEO/AUDIO IC
63	S.CLK	OUT	SERIAL DATA TRANSFER CLOCK FOR DVD CPU
64	S.DATA_FR_SYS	OUT	SERIAL DATA TRANSFERMER OUTPUT FOR DVD CPU
65	S.DATA_TO_SYS	IN	SERIAL DATA TRANSFERMER INPUT FOR DVD CPU
66	D_B	OUT	LED DRIVE
67	D_C	OUT	LED DRIVE
68	D_D	OUT	LED DRIVE
69	BS_DIGI	-	NC
70	D_E	OUT	LED DRIVE
71	D_F	OUT	LED DRIVE
72	RC	IN	REMOTE CONTROL DATA INPUT
73	D_G	OUT	LED DRIVE
74	FWE	OUT	FLASH WRITE ENABLE
75	X2	-	TIMER CLOCK(32.768KHz)
76	X1	-	TIMER CLOCK(32.768KHz)
77	RES	-	RESET TERMINAL(RESET ON:L)
78	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
79	Vss	-	GND
80	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
81	VCL	-	SYSTEM POWER
82	MODE	-	NC
83	HS_FFREW	OUT	HIGH SPEED FF/REW CONTROL
84	CONV.CTL[H]	OUT	RF CONVERTER DETECTION
85	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
86	PROTECT	IN	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
87	A.MUTE2[L]	OUT	AUDIO MUTE CONTROL FOR DVD AUDIO(MUTE:L)
88	SP_SHORT[H]	OUT	MODE SELECT
89	TU_V_MUTE[H]	OUT	TUNER VIDEO MUTE CONTROL(MUTE:H)
90	INT/PROG	OUT	INTERLACE/PROGRESSIVE SELECT
91	P.CTL[H]	OUT	POWER ON/OFF PULSE(POWER ON:H)
92	INT/PROG	OUT	INTERLACE/PROGRESSIVE SELECT
93	H.REC_ST(H)	OUT	HiFi AUDIO SOUND RECORDING START
94	A.MUTE(H)	OUT	AUDIO MUTE CONTROL(MUTE:H)
95	S1OUT	OUT	ADD THE DC BIAS TO S1 OUTPUT
96	NC	-	NC
97	NC	-	NC
98	SUB_REQ[L]	OUT	DVD CPU REQUEST:
99	N.REC[H]	OUT	NORMAL AUDIO REC MODE:H
100	N.REC_ST[H]	OUT	NORMAL AUDIO SOUND RECORDING START
101	LSB	IN	MECHANISM MODE SELECT(B)
102	DVD[H]	OUT	DVD MODE:H
103	CTL_GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCH IN
104	DFG	IN	DRUM FG PULSE INPUT
105	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/ TIMING CONTROL SIGNAL FOR REC
106	A.FF	OUT	AUDIO FF OUTPUT
107	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
108	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
109	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
110	Vss	-	GND
111	C.SYNC/V.REF	IN	DETECTION OF VIDEO SYNC SIGNAL
112	Vcc	-	SYSTEM POWER

REMOTE CONTROLLER SCHEMATIC DIAGRAM

NOTE :
 1. All parts shown in this schematic are critical for safety.
 2. This schematic is only for reference.
 Avoid replacing individual parts.
 Replace the entire unite only.

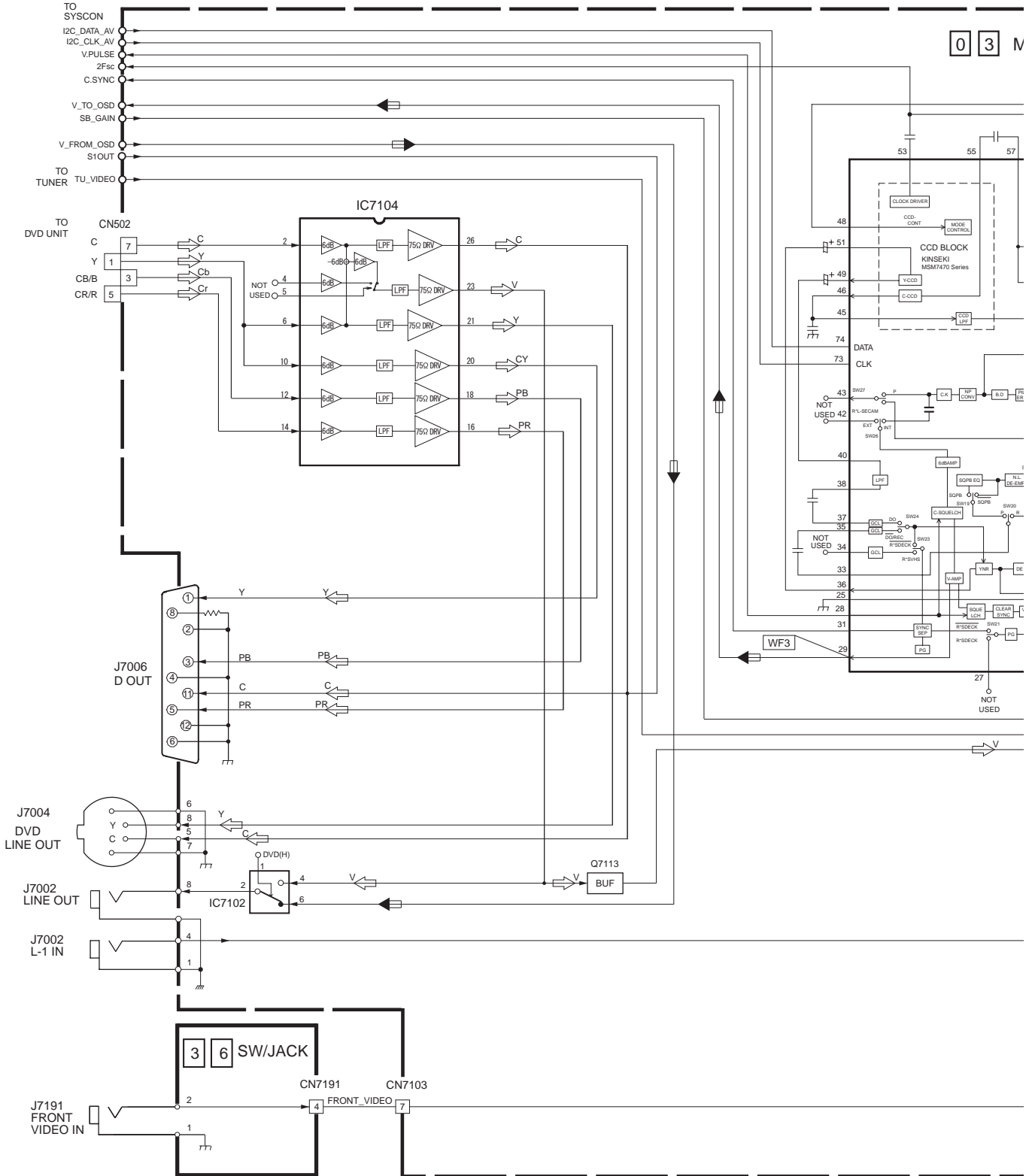
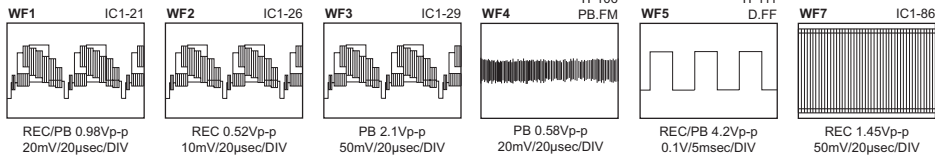


FDP GRID ASSIGNMENT AND ANODE CONNECTION

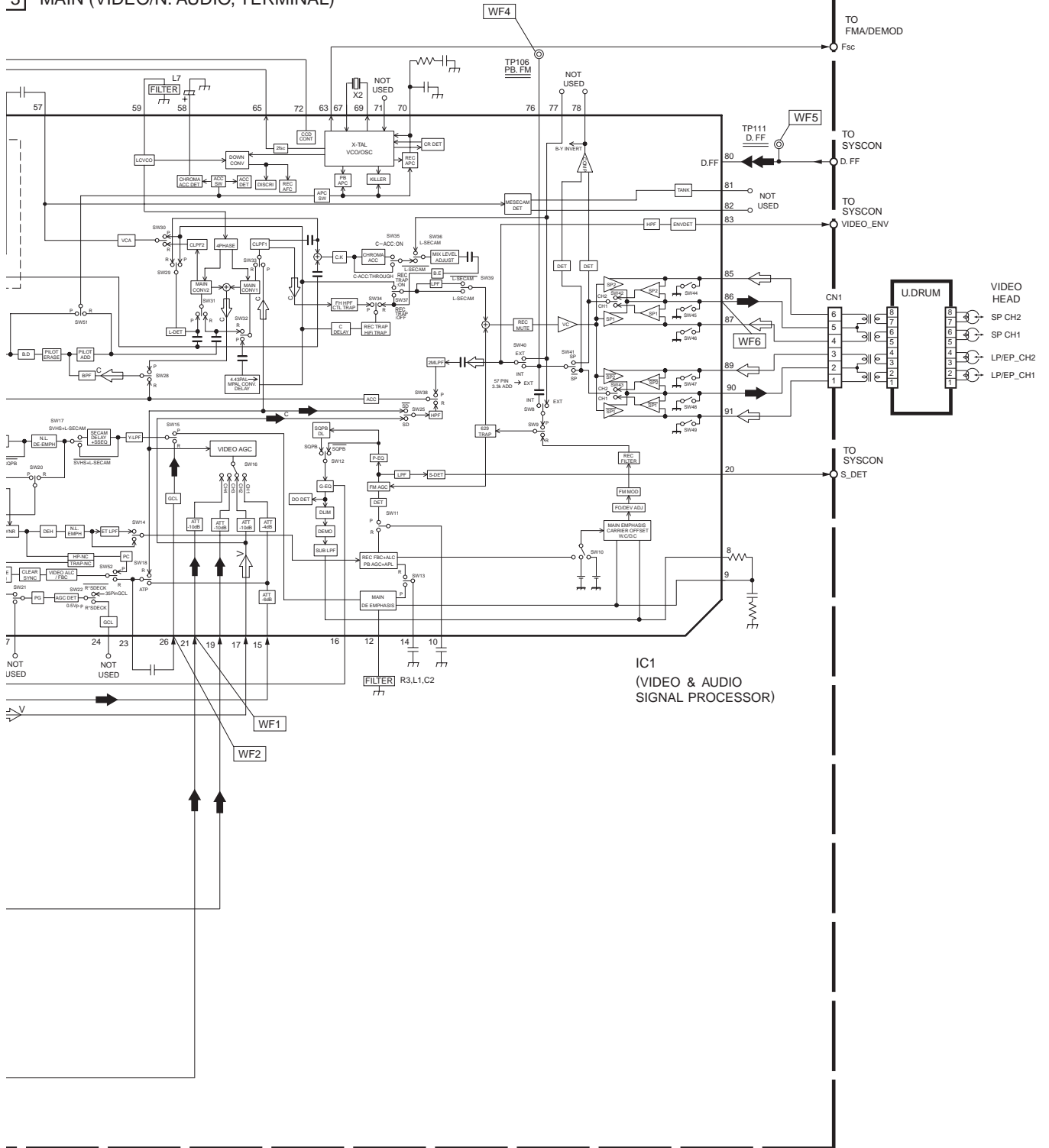


No.	CONNECTION
1	Cathode G, J7, H8
2	Cathode F, J6, H7
3	Cathode E, J5, H6
4	Cathode D, J4, H5,H4
5	Cathode C, J3, H3
6	Cathode B, J2, H2
7	Cathode A, J1, H1
8	Anode H1~H8
9	Anode J1~J7
10	Common Anode Digit5
11	Common Anode Digit4
12	Common Anode Digit3
13	Common Anode Digit2
14	Common Anode Digit1

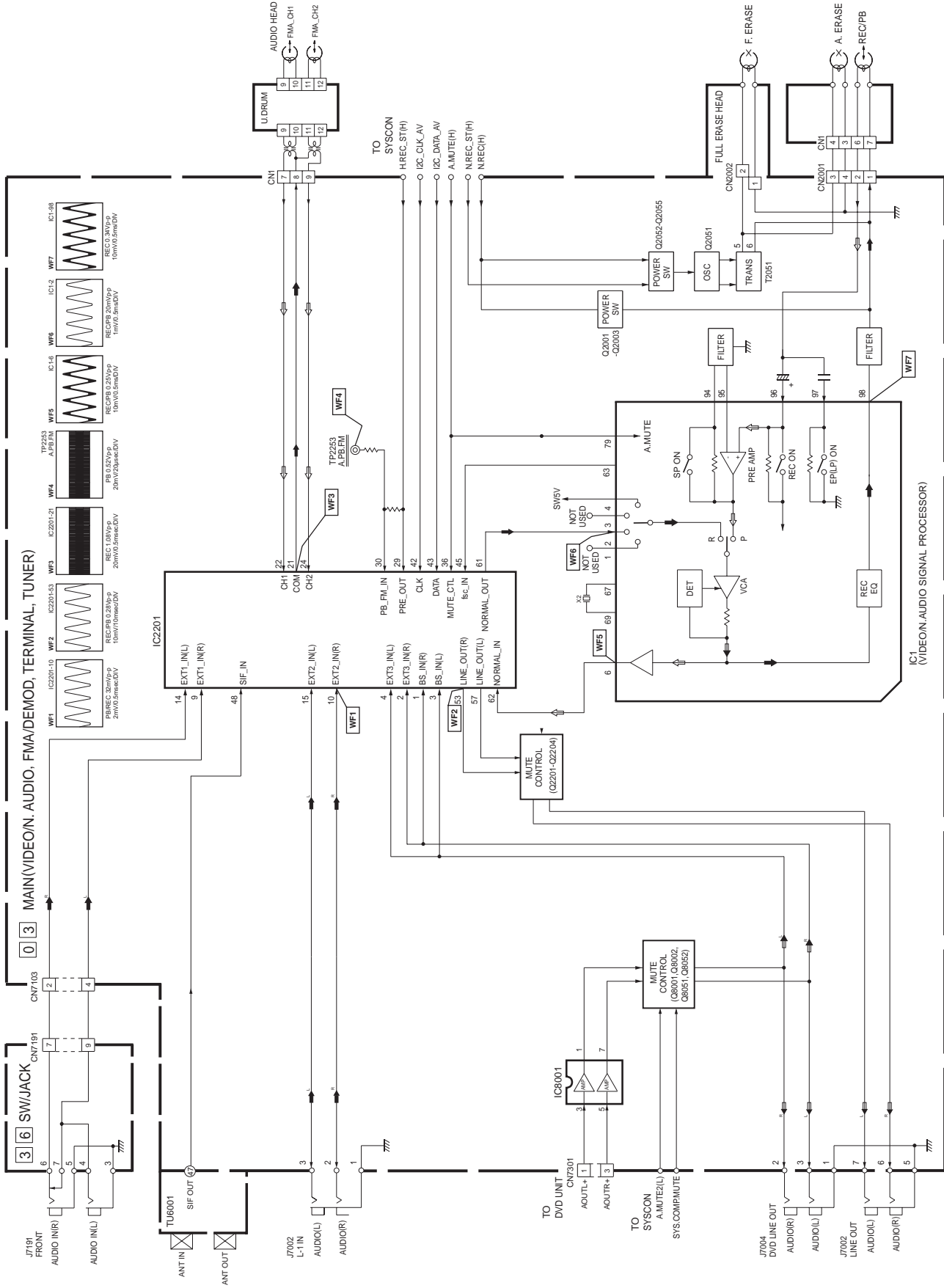
VIDEO BLOCK DIAGRAM



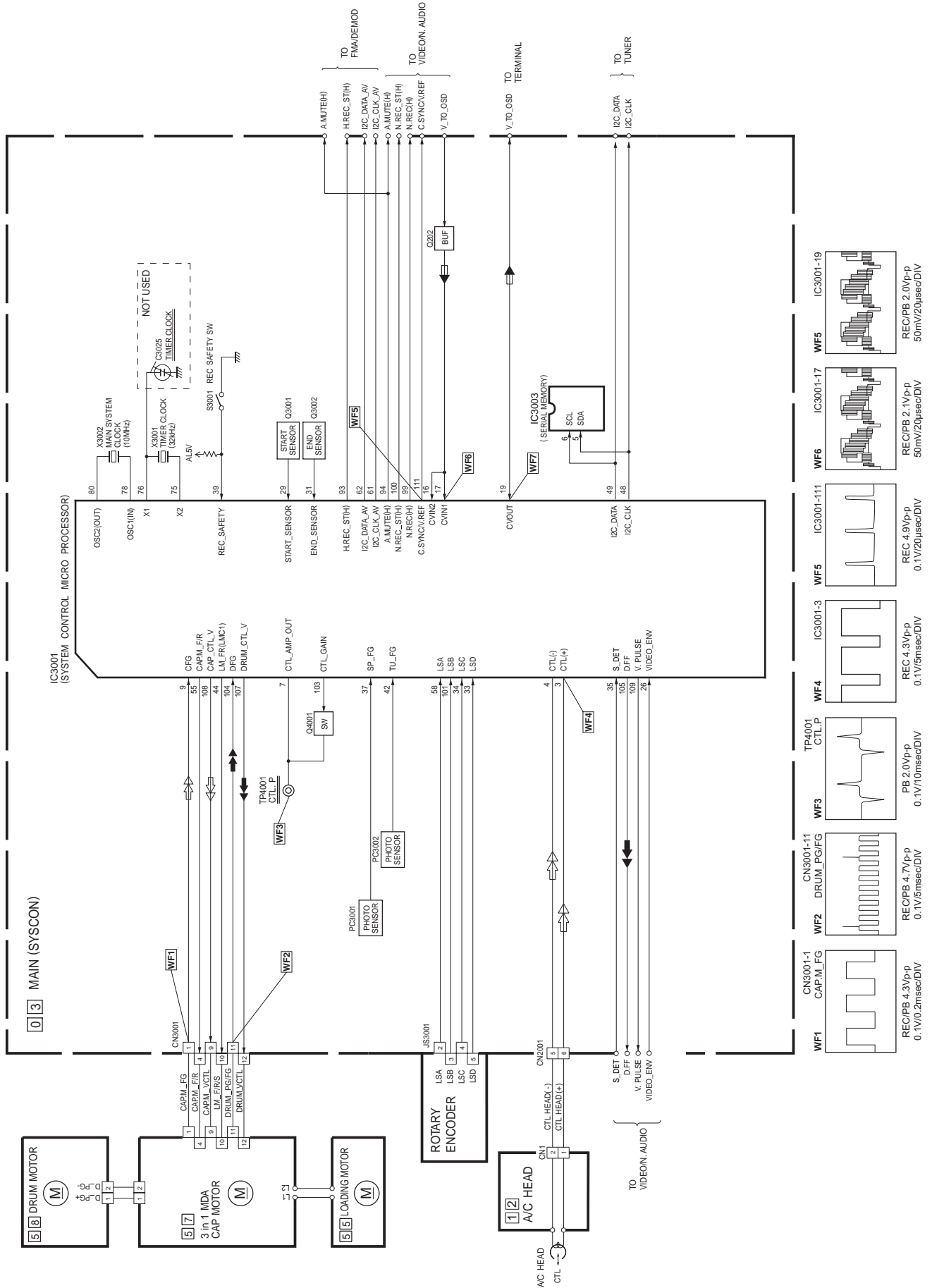
3 MAIN (VIDEO/N. AUDIO, TERMINAL)



AUDIO BLOCK DIAGRAM



SYSTEM CONTROL BLOCK DIAGRAM



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