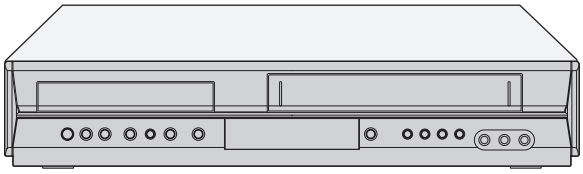
JVC

SERVICE MANUAL

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XV45SEF, HR-XV45SEK, HR-XV45SER, HR-XV45SEU, HR-XV45SEY, HR-XV45SEZ



HR-XV45SEF,HR-XV45SEK,HR-XV45SER,HR-XV45SEU,HR-XV45SEY,HR-XV45SEZ [D5PV1]

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No.YD070
2005/7

SPECIFICATION

	HR-XV45SEF	HR-XV45SEK	HR-XV45SER/SEU/SEY/SEZ
General			
Power requirement	AC 200V - 240V, 50 Hz		
Power consumption	17 W		
Dimensions (approx.)	430 × 78.5 × 265 mm (w/h/d)		
Mass (approx.)	4.2 kg		
Operating temperature	5°C to 35°C (41°F to 95°F)		
Operating humidity	5 % to 90 %		
Timer	24 hours display type		
RF Modulator	-	UHF 22-68 (Adjustable)	
System			
Laser	Semiconductor laser, wavelength 650 nm		
Video Head system	Double azimuth 6 heads, helical scanning.		
Signal system	PAL		
Frequency response	DVD (PCM 96 kHz): 8 Hz to 44 kHz, DVD (PCM 48 kHz): 8 Hz to 22 kHz, CD: 8 Hz to 20 kHz		
Signal-to-noise ratio	More than 100 dB (ANALOG OUT connectors only)		
Harmonic distortion	Less than 0.008%		
Dynamic range	More than 100 dB (DVD), More than 95 dB (CD)		
Inputs (VCR)			
Audio	-6.0 dBm, more than 10 kΩ (SCART), -6.0 dBm, more than 47 kΩ (RCA)		
Video	1.0 V (p-p), 75 Ω, unbalanced (SCART/RCA)		
Outputs (DVD)			
VIDEO OUT	1 Vp-p 75 Ω, sync negative		
Audio output (digital audio)	0.5 V (p-p), 75 Ω, RCA jack × 1		
Audio output (analog audio)	2.0 Vrms (1 kHz, 0 dB), 600 Ω, RCA jack (L, R) x 1/SCART (TO TV)		
Outputs (VCR)			
Audio	-6.0 dBm, less than 1 kΩ (SCART)		
Video	1.0 V (p-p), 75 Ω, unbalanced (SCART)		

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- DTS and DTS Digital Out are trademarks of Digital Theater Systems, Inc.
- SHOWVIEW is a trademark of Gemstar Development Corporation. The SHOWVIEW system is manufactured under license from Gemstar Development Corporation.(EF/ER/EU/EY/EZ models)
- VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation. The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.(EK model)

SECTION 1
PRECAUTION

1.1 SAFTY PRECAUTIONS

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

1.1.1 Precautions during Servicing

(1) Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product.When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

(2) Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

NOTE :

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

(3) Fuse replacement caution notice.
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.

(4) Use specified internal wiring. Note especially:
- Wires covered with PVC tubing
- Double insulated wires
- High voltage leads

(5) Use specified insulating materials for hazardous live parts. Note especially:
- Insulation Tape
- PVC tubing
- Spacers
- Insulation sheets for transistors
- Barrier

(6) When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

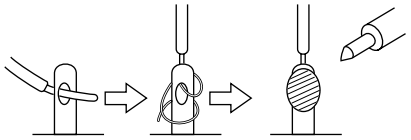


Fig.1-1-1

(7) Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

(8) Check that replaced wires do not contact sharp edged or pointed parts.

(9) When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

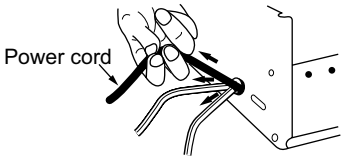


Fig.1-1-2

(10) Also check areas surrounding repaired locations.

(11) Products using cathode ray tubes (CRTs)In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits.Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

(12) Crimp type wire connectorIn such cases as when replacing the power transformer in sets where the connections between the power cord and power trans former primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
- **Connector part number** :E03830-001
- **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
- **Replacement procedure**

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

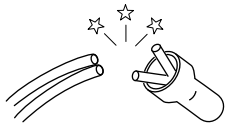


Fig.1-1-3

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

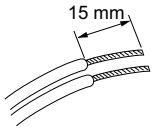


Fig.1-1-4

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

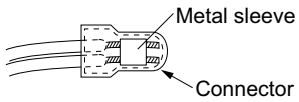


Fig.1-1-5

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

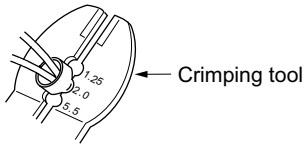


Fig.1-1-6

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

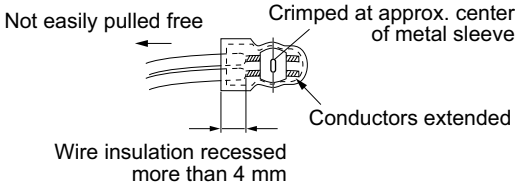


Fig.1-1-7

1.1.2 Safety Check after Servicing

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

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

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

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

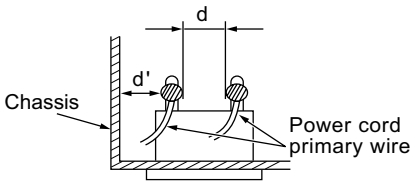


Fig.1-1-8

(4) Leakage current test
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method : (Power ON)Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig.1-1-9 and following Fig.1-1-12.

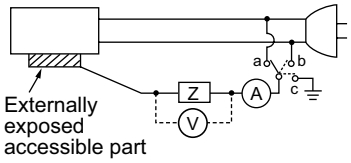
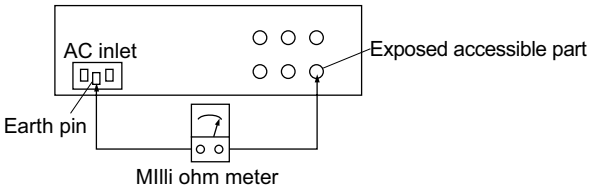


Fig.1-1-9

(5) Grounding (Class 1 model only)
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See Fig.1-1-10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

Fig.1-1-10

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

Fig.1-1-11

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

Fig.1-1-12

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

1.2 Preventing static electricity

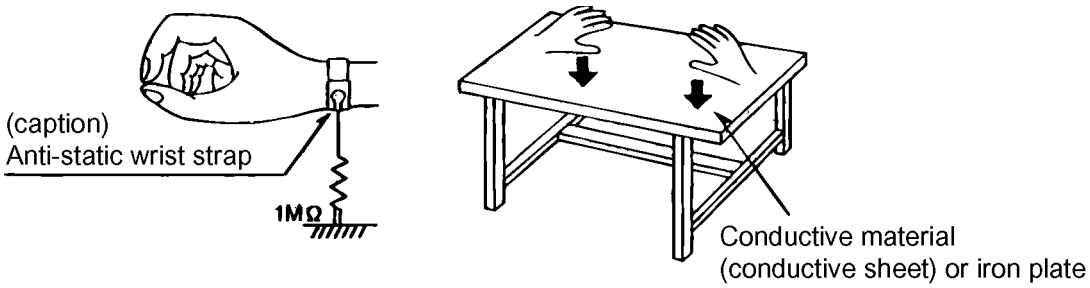
Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

1.2.1 Grounding to prevent damage by static electricity

Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as DVD players.
Be careful to use proper grounding in the area where repairs are being performed.

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

(2) Ground yourself
Use an anti-static wrist strap to release any static electricity built up in your body.



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

SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 DIFFERENT TABLE OF FEATURE

The following table indicates main different points between models HR-XV45SEF, HR-XV45SEK, HR-XV45SER, HR-XV45SEU and HR-XV45SEY/EZ.

MODEL NAME	HR-XV45SEF	HR-XV45SEK	HR-XV45SER
SCART CABLE	PROVIDED	←	OPTIONAL
BROADCASTING SYSTEM	PAL B/G, SECAM L	PAL I, I/I, B/G, SECAM D/K, K1	←
RF OUT CH/RF OUT SYSTEM [INITIAL]	NOT USED	22-68CH,[36CH]/I	22-68CH,[36CH]/K
OSD LANGUAGES	ENGLISH/GERMANY/FRENCH/ ITALIAN/SPANISH/DUTCH	ENGLISH/GERMANY/ITALIAN/ SPANISH/GREEK/PORTU-GUESE	ENGLISH/RUSSIAN
REGIONAL CODE	REGIONAL CODE : 2	←	REGIONAL CODE : 5

MODEL NAME	HR-XV45SEU	HR-XV45SEY/EZ
SCART CABLE	OPTIONAL	←
BROADCASTING SYSTEM	PAL I, I/I, B/G, SECAM D/K, K1	←
RF OUT CH/RF OUT SYSTEM [INITIAL]	22-68CH,[36CH]/G	←
OSD LANGUAGES	ENGLISH/GERMANY/ITALIAN/ SPANISH/GREEK/PORTU-GUESE	ENGLISH/POLISH/CZECH/ HUNGARIAN/SWEDISH/GER-MANY
REGIONAL CODE	REGIONAL CODE : 2	←

Note:
Mark ← is same as left.

2.2 SERVICE INFORMATION FOR EEPROM IC SETTING(VCR)

EEPROM option code No. setting

NAME	HEX	BINARY
OPT0	00	00000000
OPT1	00	00000000
OPT2	00	00000000
OPT3	00	00000000
OPT4	00	00000000
OPT5	00	00000000

12/26 - 00 V00 ← μ-COM Ver.
ID : LG
VERSION : 05 ROM
DATE : 02.17.05 Correction Ver.

MODEL	NAME	HEX	BINARY
HR-XV45SEU	OPT0	00	00000000
	OPT1	F4	00000000
	OPT2	60	00000000
	OPT3	47	00000000
	OPT4	03	00000000
	OPT5	4B	00000000
HR-XV45SEK	OPT0	00	00000000
	OPT1	F4	00000000
	OPT2	21	00000000
	OPT3	87	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000
HR-XV45SEY	OPT0	00	00000000
	OPT1	F4	00000000
	OPT2	60	00000000
	OPT3	47	00000000
	OPT4	0B	00000000
	OPT5	4B	00000000
HR-XV45SEZ	OPT0	00	00000000
	OPT1	D4	00000000
	OPT2	60	00000000
	OPT3	47	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000
HR-XV45SER	OPT0	09	00000000
	OPT1	54	00000000
	OPT2	A3	00000000
	OPT3	47	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000
HR-XV45SEF	OPT0	00	00000000
	OPT1	FC	00000000
	OPT2	E8	00000000
	OPT3	47	00000000
	OPT4	0D	00000000
	OPT5	4B	00000000

WR : OK I : EXIT MOVE : ◄ ►
EDIT : ▲▼

EEPROM option code No. setting procedure

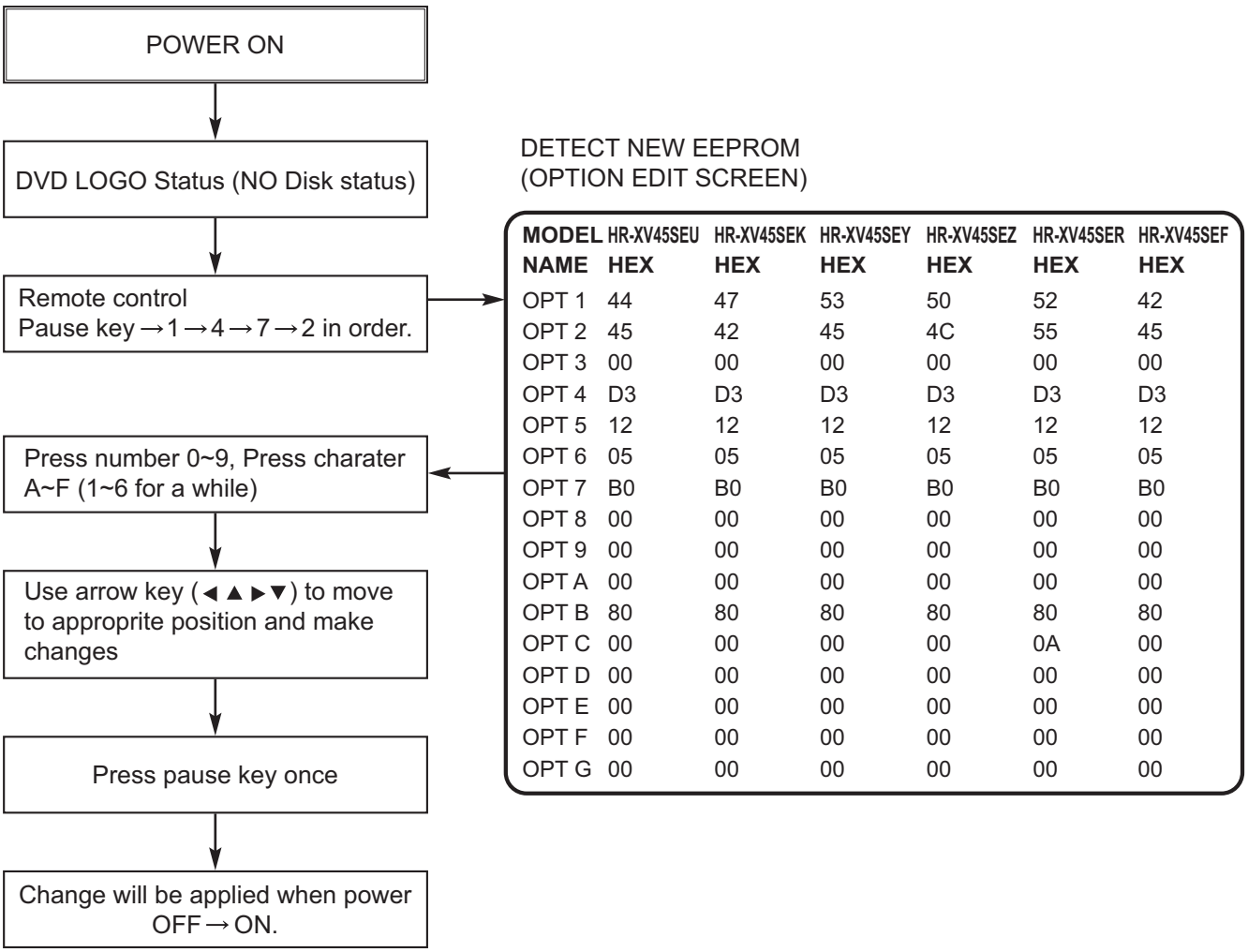
1. DETECT NEW EEPROM (OPTION EDIT SCREEN)
   - Eeprom EDIT screen automatically appears if replacing Eeprom.
   - Setup option data using the cursor Up/Down key of a remote control.
     (Setup upon BOM depending on OPT0~OPT5 model)
   - Since an initial remote control is set to LG for LG model, appropriately set optiona data using the cursor Up/Down key.

2. EEPROM WRITED AND EEPROM INITIAL
   - Writes data on EEPROM by using REMOCON "OK" + FRONT PLAY KEY FOR MORE THAN 5 SECONDS.

3. PG ADJUST
   1) Payback the SP standard tape
   2) Press the "OK" key on the Remote controller and the "PLAY" key on the Front Panel the same time, then it goes in to Tracking initial mode.
   3) Repeat the above step(No.2), then it finishes the PG adjusting automatically.
   4) Stop the playback, then it goes out to PG adjusting mode after mony the PG data.

4. BUYER SELECTION
   - Font ejection key + open/close key for more than 5 seconds.
   - Option code is displayed in TV
   - First byte of OPTO is changed whenever front eject key + open/close key.
   - JVC remote conroller No.0.

2.3 SERVICE INFORMATION FOR EEPROM (DVD)



MODEL	HR-XV45SEU	HR-XV45SEK	HR-XV45SEY	HR-XV45SEZ	HR-XV45SER	HR-XV45SEF
NAME	HEX	HEX	HEX	HEX	HEX	HEX
OPT 1	44	47	53	50	52	42
OPT 2	45	42	45	4C	55	45
OPT 3	00	00	00	00	00	00
OPT 4	D3	D3	D3	D3	D3	D3
OPT 5	12	12	12	12	12	12
OPT 6	05	05	05	05	05	05
OPT 7	B0	B0	B0	B0	B0	B0
OPT 8	00	00	00	00	00	00
OPT 9	00	00	00	00	00	00
OPT A	00	00	00	00	00	00
OPT B	80	80	80	80	80	80
OPT C	00	00	00	00	0A	00
OPT D	00	00	00	00	00	00
OPT E	00	00	00	00	00	00
OPT F	00	00	00	00	00	00
OPT G	00	00	00	00	00	00

*** OPTION**

- NTSC model does not have VCR option and use DVD option B~F as VCR option. (only DVD exist)
- PAL model has another separate VCR option. (Both VCR and DVD exist)

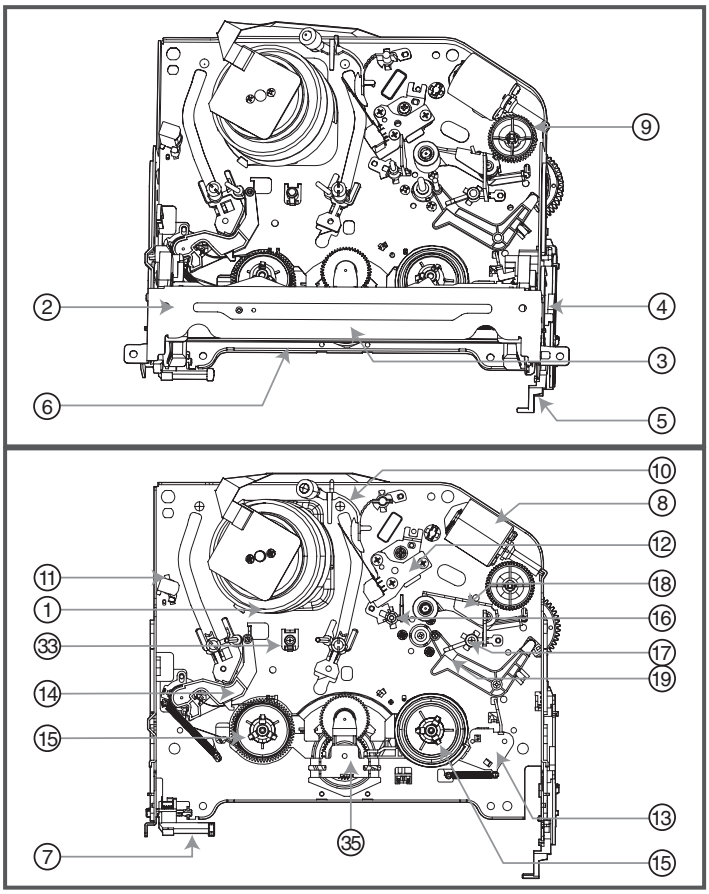
SECTION 3
DISASSEMBLY

This service manual does not describe DISASSEMBLY.

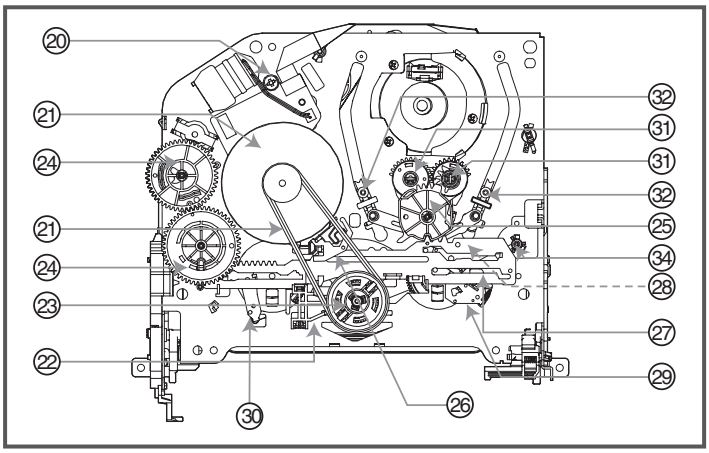
SECTION 4
ADJUSTMENT

4.1 POSITION DRAWING OF DECK MECHANISM PARTS (VCR)

· Top View



· Bottom View



NOTE : Assembly order is a reverse of disassembly order.

(1) For assembly, check the assembly mode is accurate.
(2) Parts firstly disassembled indicate parts firstly disassembled in disassembly of related parts.

Order Of Dis-assembled / Parts firstly Disassembled		Part	Fixing Type	Ref. Draw-ings	Posi tion
	1	Drum Assembly	3 screws	A-1	T
	2	Plate Top	2 hooks	A-2	T
2	3	Holder Assembly CST	6 chasses	A-2	T
2,3	4	Gear Assembly Rack F/L	1 hook	A-2	T
2,3,4	5	Opener Door	Chassis Hole	A-2	T
2,3,4,5	6	Arm Assembly F/L	Chassis Hole	A-2	T
	7	Lever Assembly S/W	Chassis Hole, 1 hook	A-2	T
	8	Motor Assembly L/D	1 screw	A-3	T
	9	Gear Wheel	2 hooks	A-3	T
	10	Arm Assembly Cleaner	Chassis Embossing	A-3	T
	11	Head F/E	Chassis Embossing	A-3	T
	12	Base Assembly A/C Head	1 screw	A-3	T
2,3	13	Brake Assembly T	1 hook	A-4	T
2,3	14	Arm Assembly Tension	1 hook	A-4	T
2,3,13,14	15	Reel S / Reel T	Shaft	A-4	T
	16	Base Assembly P4	Chassis Embossing	A-5	T
	17	Opener Lid	Chassis Embossing	A-5	T
17	18	Arm Assembly Pinch	Shaft	A-5	T
17	19	Arm T/up	1 hook	A-5	T
	20	Supporter, capstan	Chassis Hole	A-6	B
17,18	21	Belt Capstan/Motor Capstan	3 screws	A-6	B
	22	Lever F/R	Tab	A-6	B
21,22	23	Clutch Assembly D37	Washer	A-6	B
	24	Gear Drive/Gear Cam	Washer/Hook	A-7	B
	25	Gear Sector	Hook	A-7	B
21	26	Brake Assembly Capstan	Chassis Hole	A-7	B
21,22,23, 24,25,26	27	Plate Slider	Chassis Guide	A-7	B
21,22,23, 24,25,26,27	28	Lever Tension	1 Hook	A-7	B
21,22,23, 24,25,26,27	29	Lever Spring	1 Hook	A-7	B
21,22,23, 24,25,26,27	30	Lever Brake	1 Hook	A-7	B
25	31	Gear Assembly P2/ Gear Assembly P3	Bass	A-8	B
2,3,14, 25,31	32	Base Assembly P2 /Base Assembly P3	6 Chasses	A-8	B
25,31	33	Base Loading	3 Hooks	A-8	B
2,3,14	34	Base Tension	Chassis Embossing	A-9	T
	35	Arm Assembly Idler Jog	Locking Tab	A-9	T

T:Top, B:Bottom

4.2 DISASSEMBLY AND ASSEMBLY OF DECK MECHANISM (VCR)

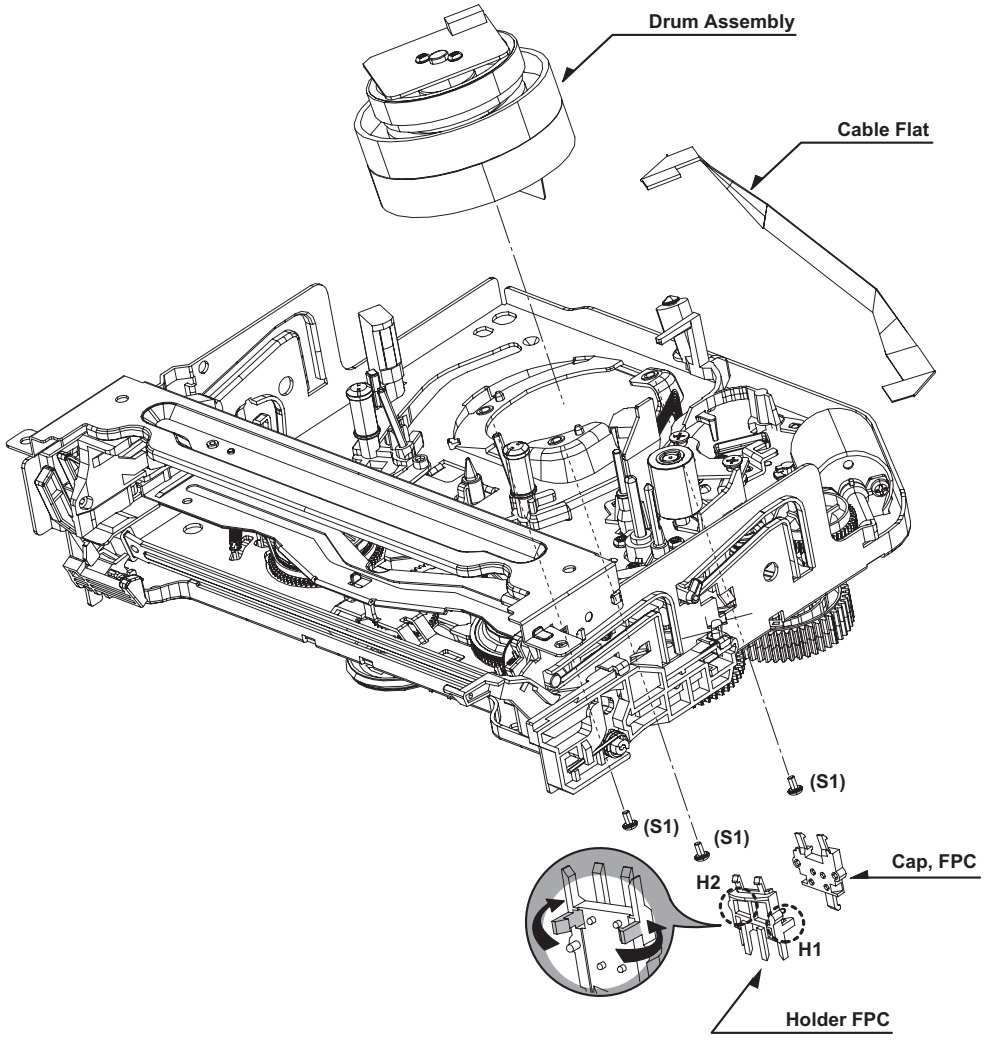
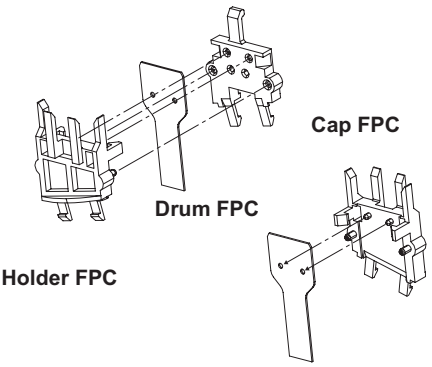


Fig. A-1

1. Disassembly of Drum Assembly (Figure A-1)

1) Separate cable flat from the Drum FPC and the Capstan Motor.
2) Release 3 screws (S1) on the bottom side of the chassis, and separate the drum assembly.
3) Release the hooks (H1, H2) and separate both the holder FPC and the Cap FPC (disassemble if necessary).

Cautions in assembly of FPC



Assembly shape seen in the reverse direction

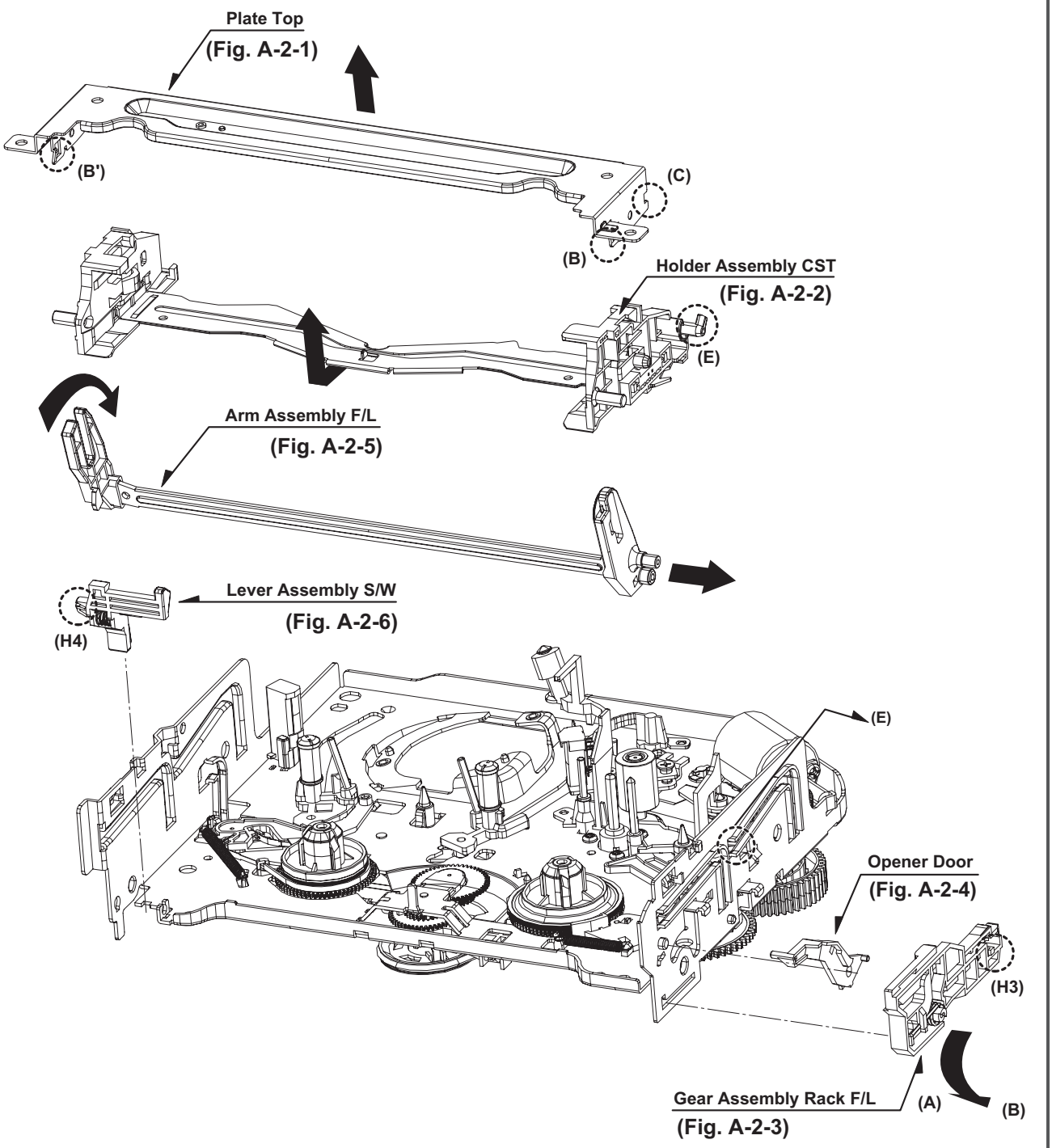


Plate Top
(Fig. A-2-1)
(B')
(C)
(B)
Holder Assembly CST
(Fig. A-2-2)
(E)
Arm Assembly F/L
(Fig. A-2-5)
Lever Assembly S/W
(Fig. A-2-6)
(H4)
(E)
Opener Door
(Fig. A-2-4)
(H3)
Gear Assembly Rack F/L
(Fig. A-2-3)
(A)
(B)

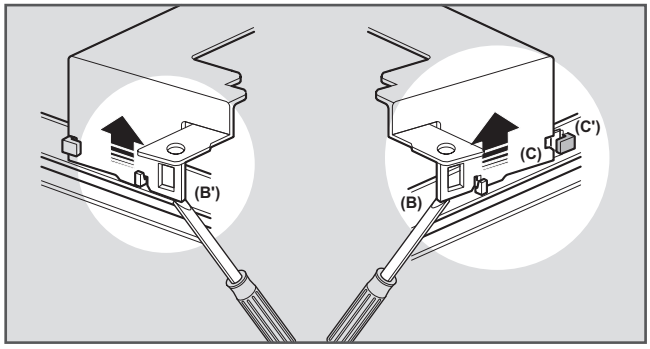
Fig. A-2

2. Disassembly of Plate Top (Fig. A-2-1)

1) Separate the right part while leaning back the (B) part of the plate top toward the arrow direction.
2) Separate the left part while leaning back the (B f) part of the plate top toward the arrow direction.
(Tool used: Tool such as (-) driver, auger, etc with pointed or flat end)

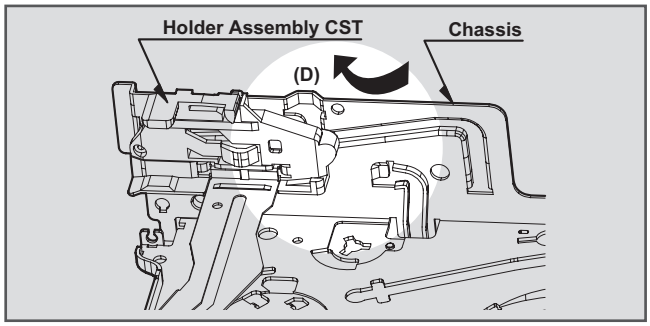
CAUTIONS

Assemble while pressing the (C), (C') part after corresponding them as in drawing.



3. Holder Assembly CST (Fig. A-2-2)

1) Firstly separate the left part from the groove on the (D) part of chassis while moving the holder assembly CST toward the arrow direction.



2) Separate the right part from each groove of chassis

CAUTIONS

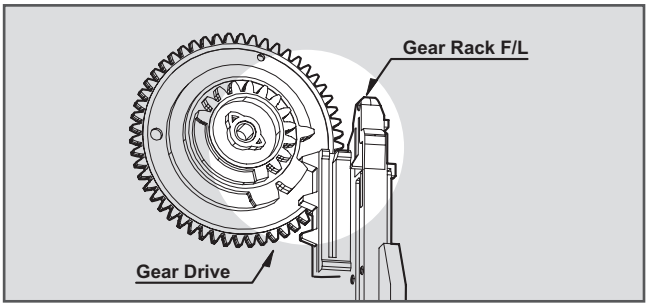
Assemble by inserting the left part after firstly inserting the (E) part of the holder assembly CST into the groove on the (E') part of chassis.

4. Disassembly of Gear Assembly Rack F/L (Fig. A-2-3)

1) Separate the hook (H3) while leaning ahead the hook (3) after moving the gear assembly rack F/L toward the arrow (A) direction.
2) Separate the gear assembly rack F/L toward the arrow (B) direction.

CAUTIONS

For the assembly, correspond the gear part of gear assembly rack F/L to the gear drive.



5. Opener Door (Fig. A-2-4)

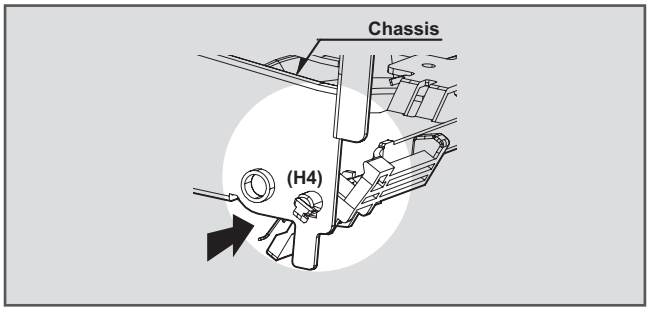
1) Separate the opener door ahead from the guide hole of chassis while turning it clockwise.

6. Arm Assembly F/L (Fig. A-2-5)

1) Firstly separate the left part of the arm assembly F/L from the groove of chassis while pushing the arm assembly F/L toward the arrow direction.
2) Separate the right part from the groove of chassis.).

7. Lever Assembly S/W (Fig. A-2-6)

1) Separate the lever assembly S/W while pushing it toward the arrow direction after removing the hook (4) on the left side of chassis.



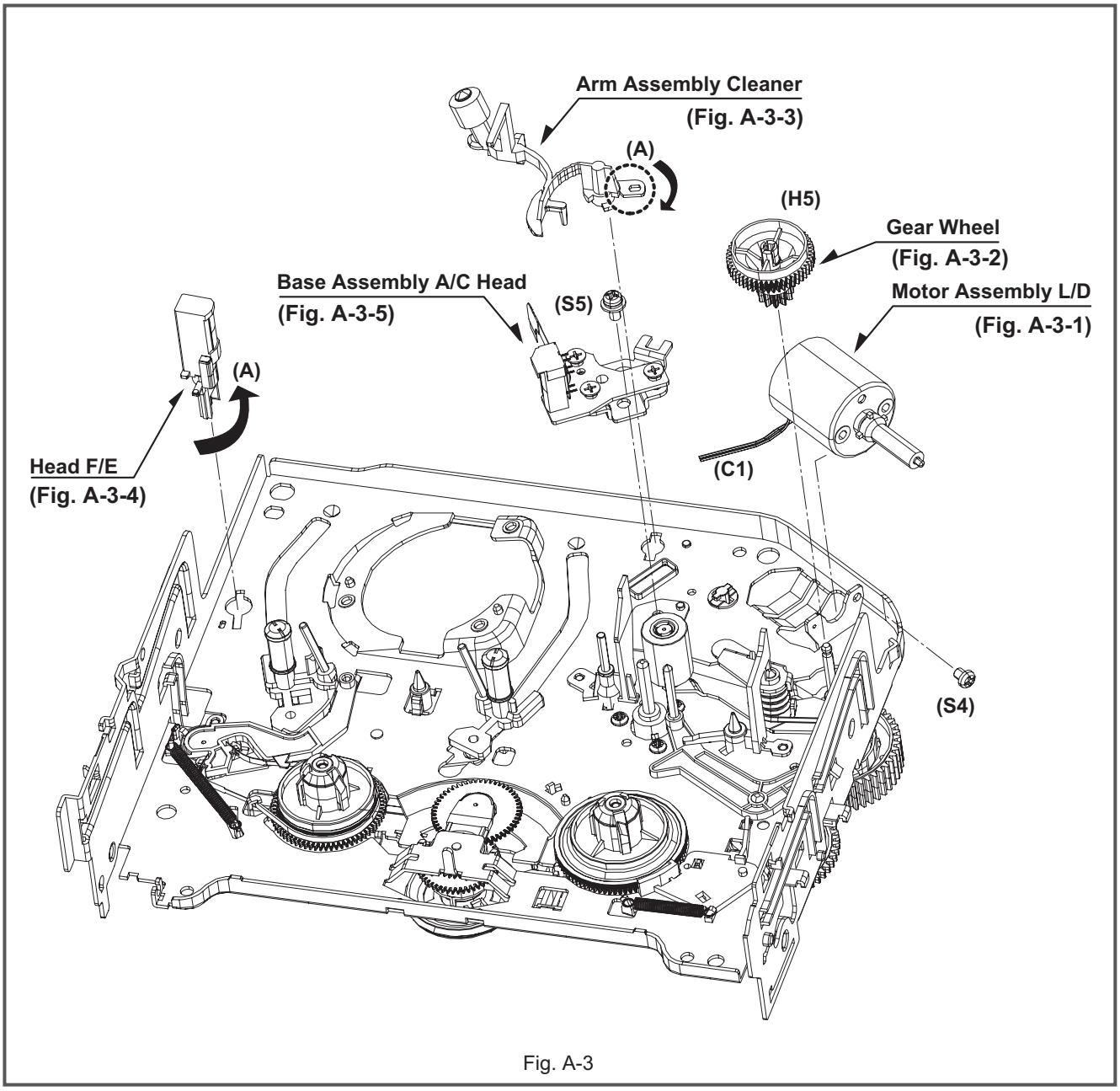


Fig. A-3

8. Motor Assembly L/D (Fig. A-3-1)

1) Take the connector (C1) connected to the Capstan motor PCB out.
2) Remove a screw (S4) of the chassis (S4) and step backward, and disassemble it while holding it up.

9. Gear Wheel (Fig. A-3-2)

1) Release the hook (H5) of the gear wheel and disassemble it upward.

10. Arm Assembly Cleaner (Fig. A-3-3)

1) Separate the (A) part of Fig. A-3-1 from the embossing of chassis, and hold it up while turning it anti-clockwise.

11. Head F/E (Fig. A-3-4)

1) Separate the (A) part of the head F/E from the embossing of chassis, and hold it up while turning it anti-clockwise.

12. Base Assembly A/C Head (Fig. A-3-5)

1) Release a screw (S5) and disassemble while holding it up.

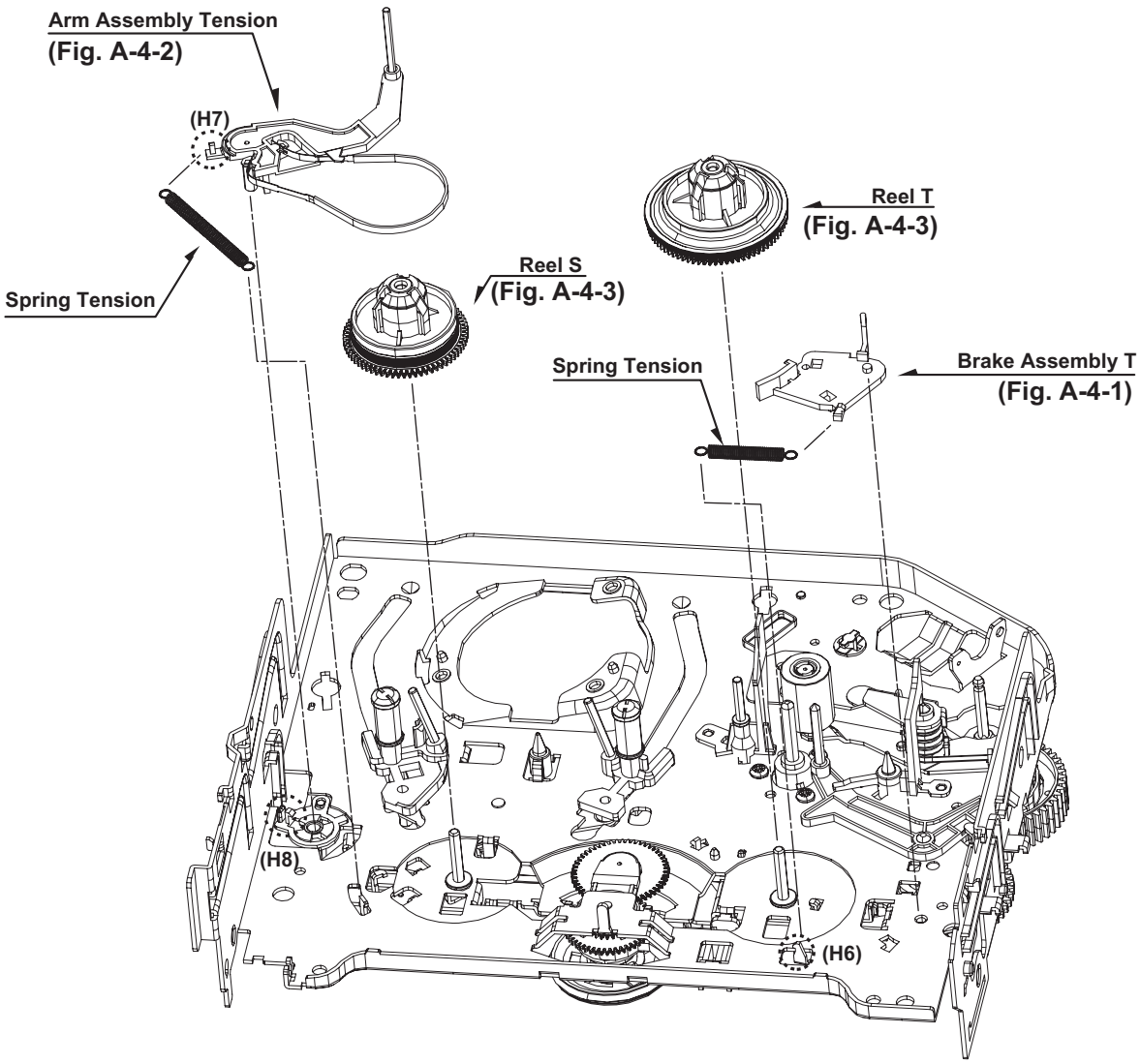


Fig. A-4

13. Brake Assembly T (Fig. A-4-1)

1) Release the spring tension from the lever spring hook (H6).
2) Disassemble the brake assembly T while holding it upward.

14. Arm Assembly Tension (Fig. A-4-2)

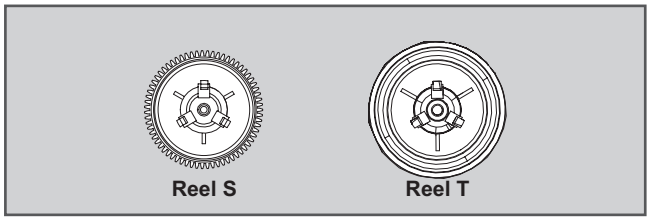
1) Release the spring tension the hook (H7) from the arm assembly tension.
2) After releasing the hook (H8) of the base tension, separate it while holding it up.

CAUTIONS

Spring used for both brake assembly T and arm assembly tension is used (2EA used).

15. Reel S/Reel T (Fig. A-4-3)

1) Disassemble the reel S/ reel T while holding it up (comparison between Reel S and Reel T)



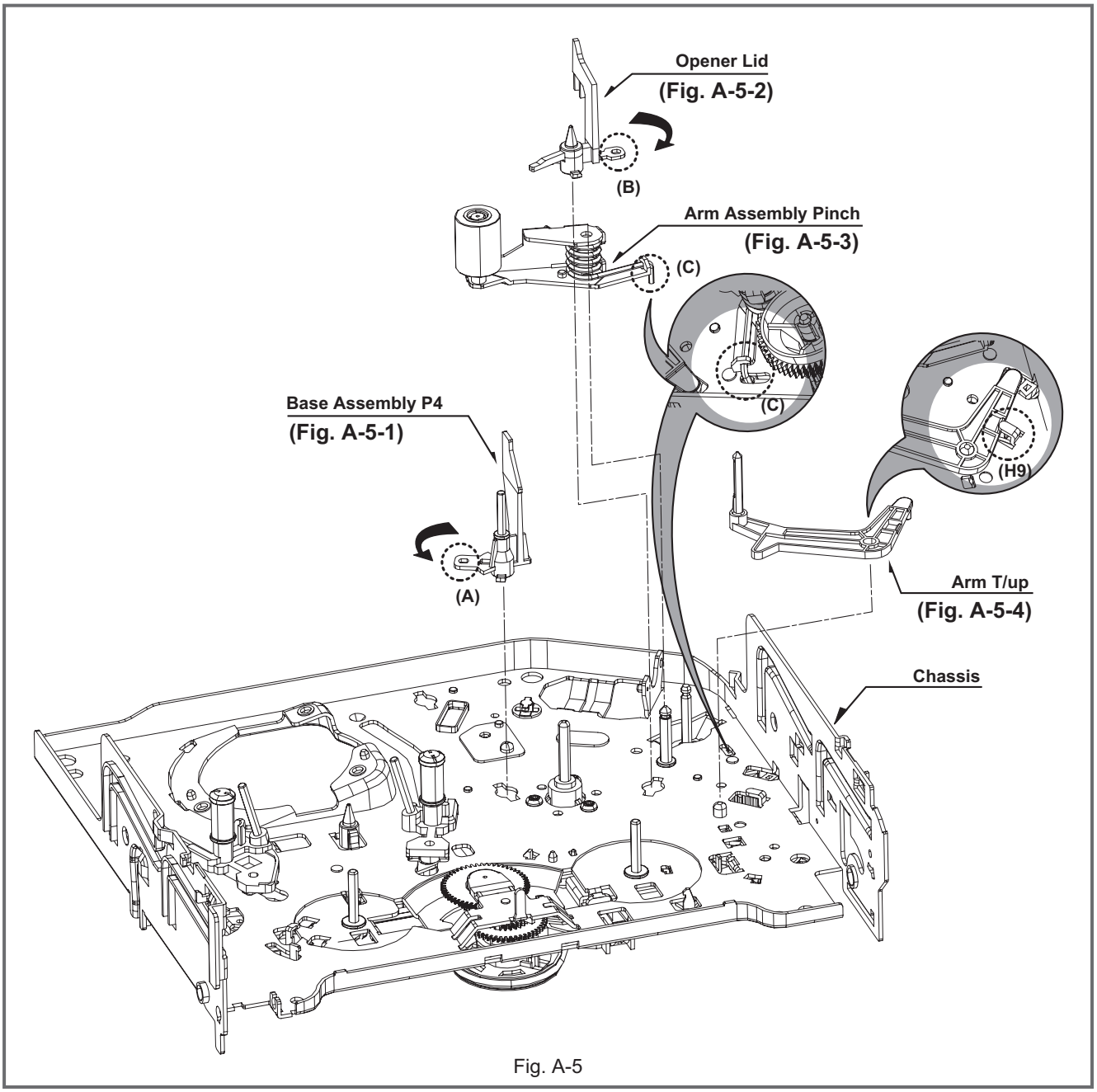


Fig. A-5

16. Base Assembly P4 (Fig. A-5-1)

1) Release the (A) part of the base assembly P4 from the embossing of chassis.
2) Hold the base assembly P4 up while turning it anti-clockwise.

17. Opener Lid (Fig. A-5-2)

1) Release the (B) part of the opener lid from the embossing of chassis.
2) Disassemble the opener lid upward while turning it anticlockwise.

18. Arm Assembly Pinch (Fig. A-5-3)

1) Hold the arm assembly pinch up.

19. Arm T/up (Fig. A-5-4)

1) Turn the arm T/up to release the anchor jaw (H9) part of chassis and then hold it upward.

CAUTIONS

For the assembly, check the (C) part of the arm assembly pinch is assembled as in drawing.

- REVERSE THE MECHANISM.

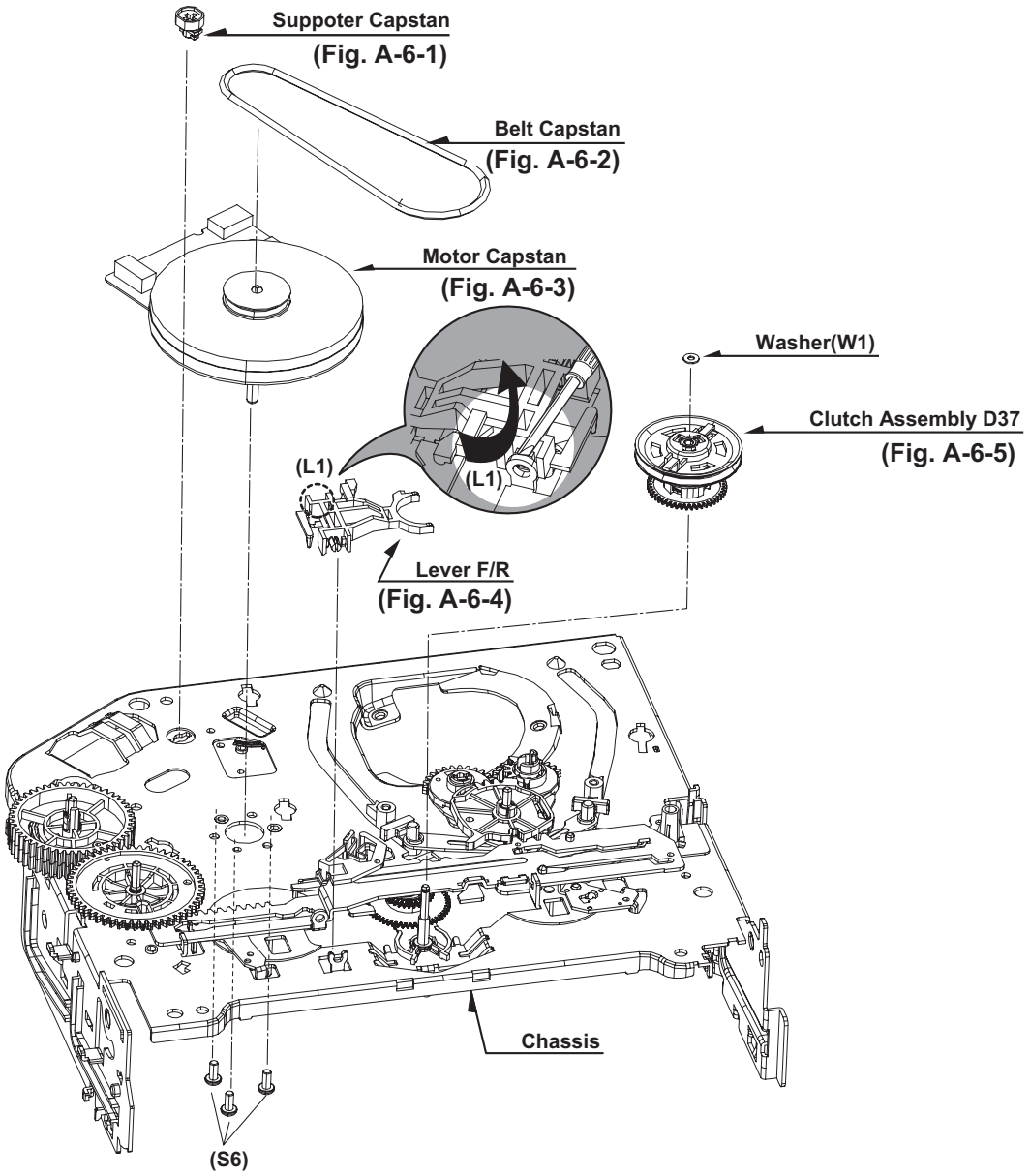


Fig. A-6

20. Supporter, Capstan (Fig. A-6-1)

1) Turn the supporter and Capstan by 90 deg. clockwise with a driver for disassembly.

21. Belt Capstan (Fig. A-6-2) / Motor Capstan (Fig. A-6-3)

1) Separate the belt Capstan.
2) Undo 3 screws (S6) on the bottom side of chassis and disassemble it upward.

22. Lever F/R (Fig. A-6-4)

1) Release the locking tab (L1) and then disassemble it upward.

23. Clutch Assembly D37 (Fig. A-6-5)

1) Remove the washer (W1) and then disassemble it upward.

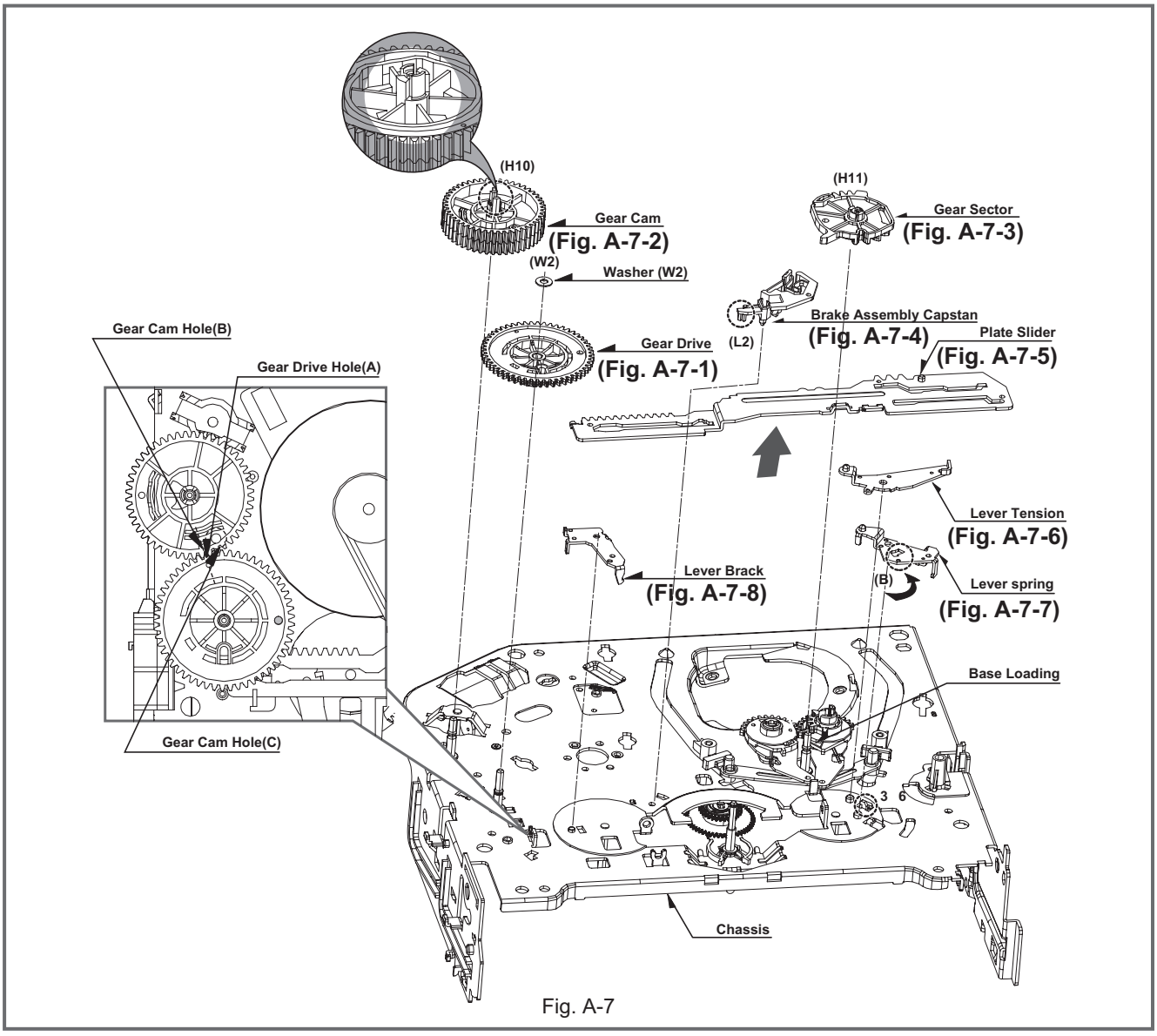


Fig. A-7

24. Gear Drive (Fig. A-7-1)/Gear Cam (Fig. A-7-2)

1) Remove the washer (W2) and then disassemble the gear drive.
2) Release the hook (H10) of the gear cam and then disassemble it upward.

CAUTIONS

For the assembly, adjust both the gear driver hole (A) and the gear cam hole (B) straightly and then correspond the gear cam hole (C) to the chassis hole.

25. Gear Sector (Fig. A-7-3)

1) Release the hook (H11) of the gear sector and then hold the gear sector upward.

26. Brake Assembly Capstan (Fig. A-7-4)

1) Release the locking tab (L2) on the bottom side of the plate slider and then disassemble it upward.

27. Plate Slider (Fig. A-7-5)

1) Disassemble the plate slider while holding it up.

28. Lever Tension (Fig. A-7-6)

1) Release the lever tension from the guide (A) of chassis while turning it anti-clockwise.
2) Disassemble the lever tension while holding it up.

29. Lever Spring (Fig. A-7-7)

1) Release the (B) part of the lever spring from the guide (A) of chassis while turning it anti-clockwise.
2) Disassemble the lever tension while holding it up.

30. Lever Brake (Fig. A-7-8)

1) Disassemble the lever brake while holding it up.

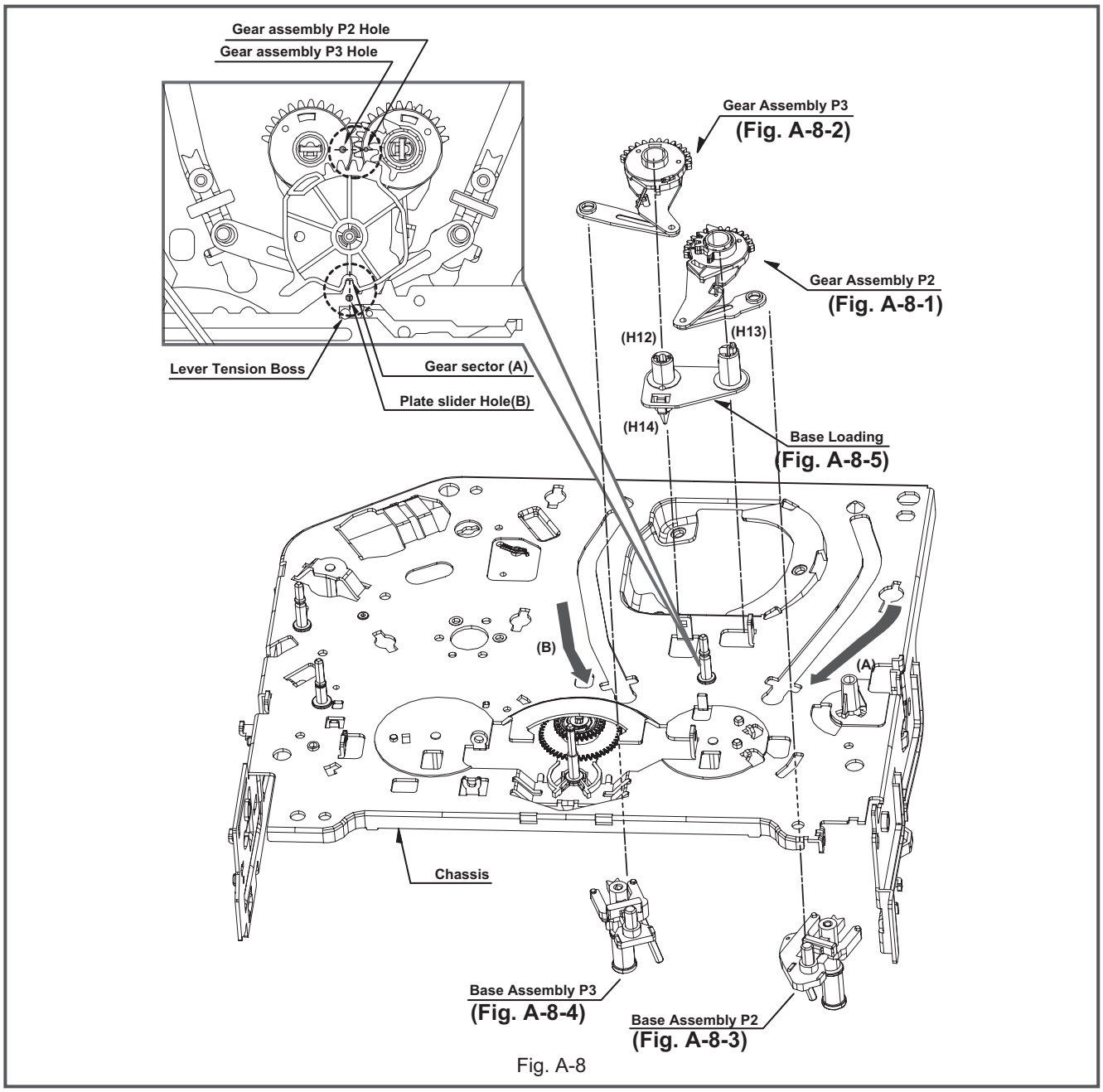


Fig. A-8

31. Gear Assembly P2 (Fig. A-8-1)/ Gear Assembly P3 (Fig. A-8-2)

1) Hold the gear assembly P2 upward.
2) Hold the gear assembly P3 upward.

CAUTIONS

For the assembly, check the holes of both the gear assembly P2 and the P3 are adjusted straightly, and then correspond the gear section groove (A) to the plate slider hole (B).

32. Base Assembly P2 (Fig. A-8-3)/ Base Assembly P3 (Fig. A-8-4)

1) Disassemble the base assembly P2 downward while moving it toward the arrow (A) direction along with the guide hole of chassis.
2) Disassemble the base assembly P2 downward while moving it toward the arrow (B) direction along with the guide hole of chassis.

33. Base Loading (Fig. A-8-5)

1) Release 3 hooks (H12, 13, 14) of the base loading, and then disassemble them upward.

- REVERSE THE MECHANISM.

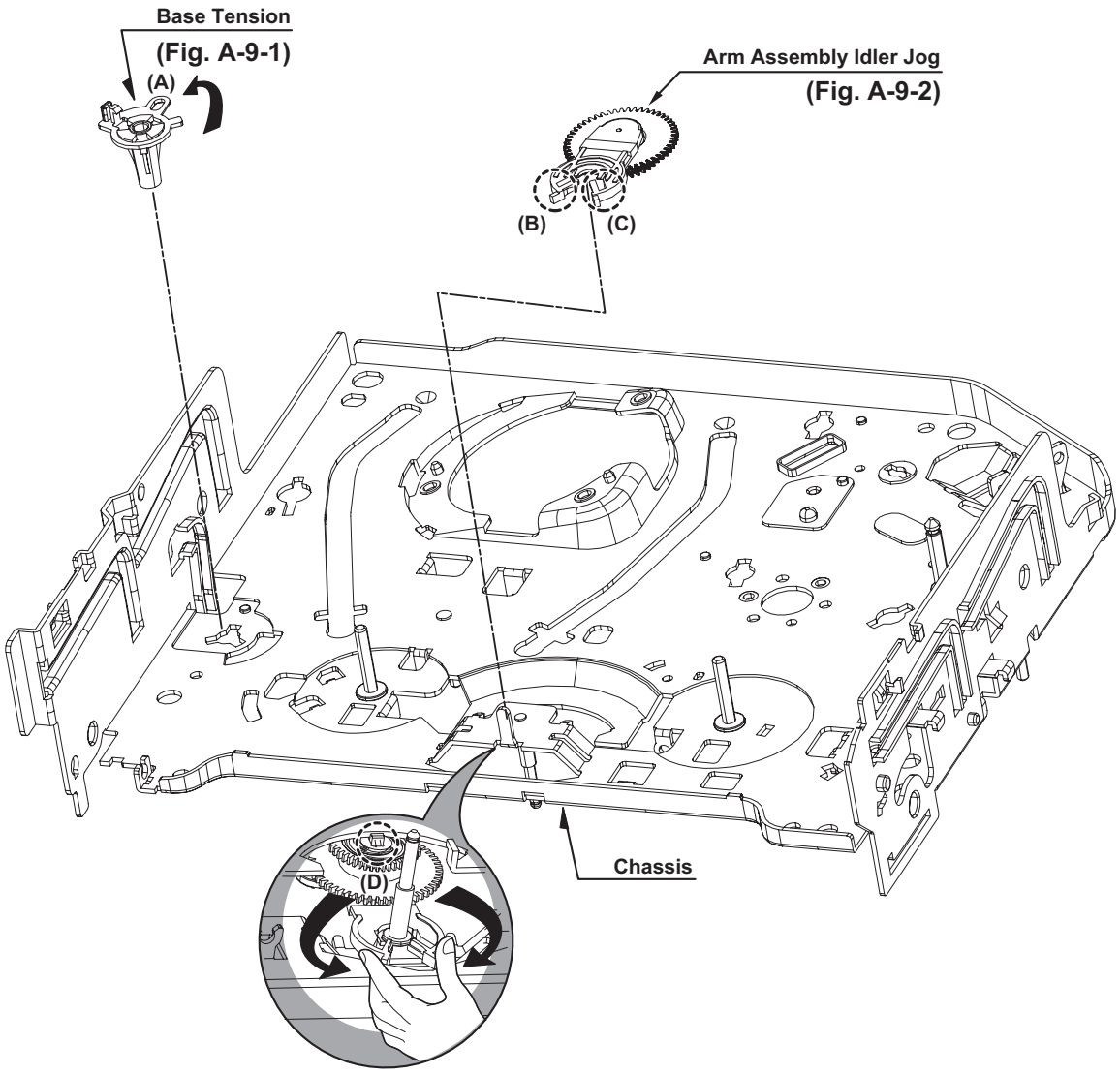


Fig. A-9

34. Base Tension (Fig. A-9-1)

1) Release the (A) part of the base tension from the embossing of chassis.
2) Hold the base tension upward while turning it anti-clockwise.

35. Arm assembly Idler Jog (Fig. A-9-2)

1) Push both (B), (C) parts in Fig. A-9-2 toward the arrow direction.
2) Disassemble the arm assembly idler upward.

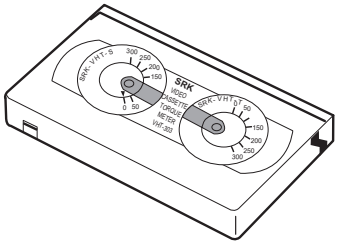
CAUTIONS

Take care to ensure that the (D) part in the drawing is not hung to chassis in disassembly.

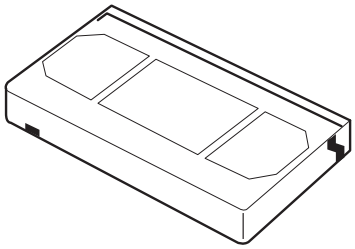
4.3 DECK MECHANISM ADJUSTMENT (VCR)

4.3.1 Tools and Fixfures for Service

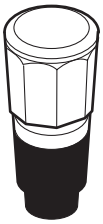
1. Cassette Torque Meter
PUJ42881



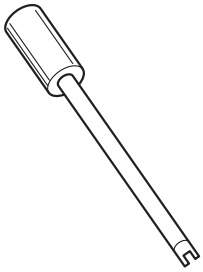
2. Alignment Tape
NTSC: MHP
PAL: MHPE



3. Torque Gauge
PUJ48075-2



5. Post Height Adjusting Driver (Roller driver)
PTU94002

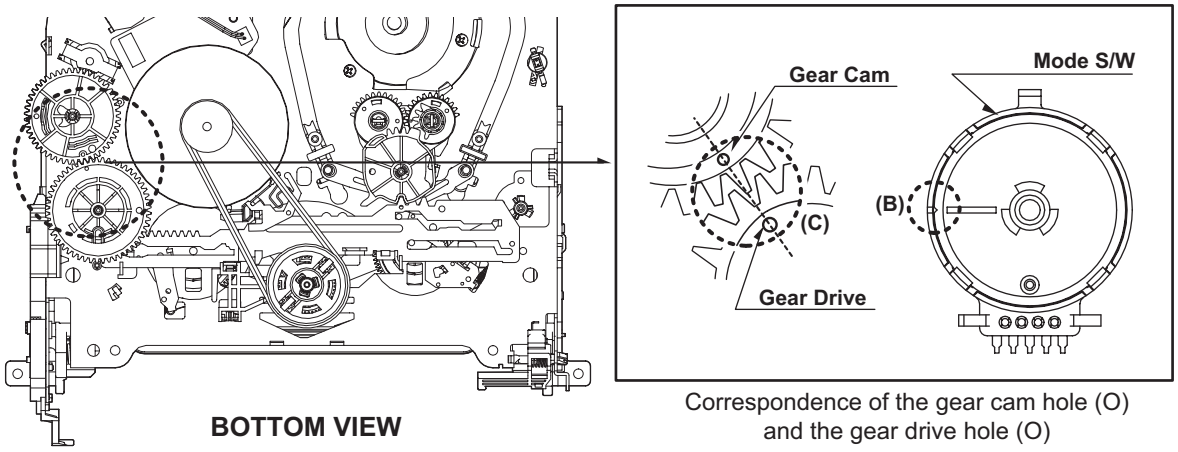


4.3.2 Mechanism Assembly Mode Check

Purpose of adjustment : To make tools normally operate by positioning tools accurately.		
Fixtures and tools used	**VCR (VCP) status**	**Checking Position**
• Blank Tape (empty tape)	• Eject Mode (with cassette withdrawn)	• Mechanism and Mode Switch

1) Turn the VCR on and take the tape out by pressing the eject button.
2) Separate both top cover and plate top, and check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-2).
3) If it is done as in the paragraph 2): Turn the gear cam as in No.2) after mantling the motor assembly L/D.
4) Undo the screw fixing the deck and the main frame, and separate the deck assembly. Check both the hole (A) of gear cam and the hole (A') of chassis correspond (Fig. C-1).
5) Check the mode S/W on the main P.C. board locates at a proper position as in (B) of the Fig. (C-1).
6) Connect the deck to the main P.C. board and perform all types of test.

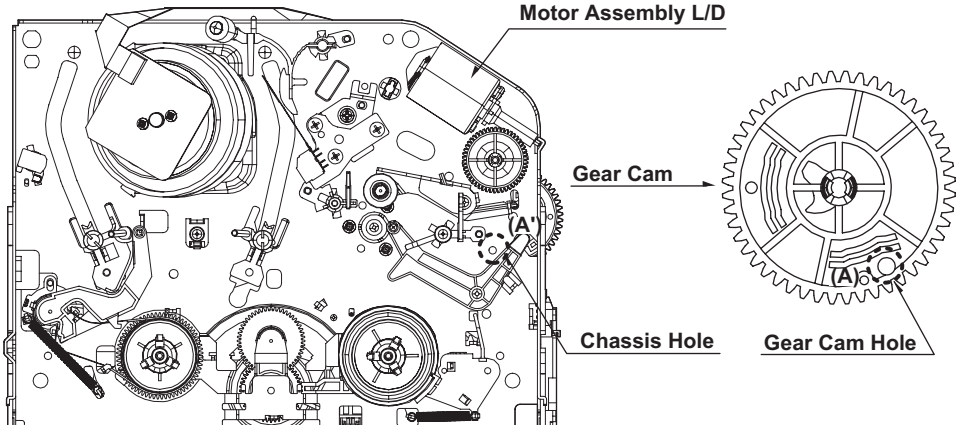
CHECK DIAGRAM



BOTTOM VIEW

Correspondence of the gear cam hole (O) and the gear drive hole (O)

Fig. C-1



TOP VIEW

Fig. C-2

4.3.3 Previous Preparation for Deck Adjustment

(Preparation to load the VCR (VCP) with cassette tape not inserted)

(1) Take the power cord from the consent.
(2) Separate the top cover and the plate assembly top.
(3) Insert the power cord into again.
(4) Turn the VCR (VCP) on and load the cassette while pushing the lever stopper of the holder assembly CST backward. In this case, clog both holes on the housing rail part of chassis to prevent detection of the end sensor.

If doing so, proceeding to the stop mode is done. In this status, input signals of all modes can be received. However, operation of the Rewind and the Review is impossible since the take-up reel remains at stop status and so cannot detect the reel pulse (however, possible for several seconds).

4.3.4 Torque Measuring

Purpose of Measuring : To measure and check the reel torque on the take-up part and the supply part that performs basic operation of the VCR (VCP) for smoothly forwarding the tape.
Measure and check followings when the tape is not smoothly wound or the tape velocity is abnormally proceeded:

Fixtures and tools used	VCR (VCP) status	Measuring method
・Torque Gauge (600 g.cm ATG) ・Torque Gauge Adaptor ・Cassette Torque Meter	・Play (FF) or Review (REW) Mode	・Try to operate the VCR (VCP) per mode with the tape not inserted (See 4.3.3 Prior Preparation for Deck Adjustment). ・Measure after adhering and fixing the torque gauge adaptor to the torque gauge (Fig. C-3-1) ・Read scale of the supply or take-up part of the cassette torque meter (Fig. C-3-2).

Item	Mode	Instruments	Reel Measured	Measuring Value
Fast forward Torque	Fast Forward	Torque Gauge	Take-Up Reel	More than 400g˚cm
Rewind Torque	Rewind	Torque Gauge	Supply Reel	More than 400g˚cm
Play Take-Up Torque	Play	Cassette Torque Meter	Take-Up Reel	40~100g˚cm
Review Torque	Review	Cassette Torque Meter	Supply Reel	40~210g˚cm

NOTE

Adhere the torque gauge adaptor to the torque gauge for measuring the value.

・Torque Gauge (600g.cm ATG)

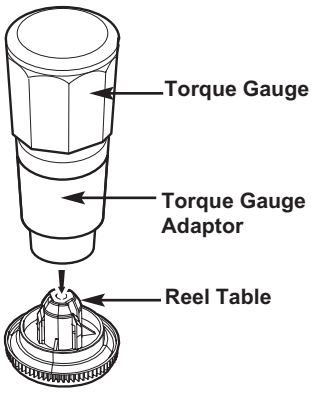


Fig. C-3-1

・Cassette Torque Meter

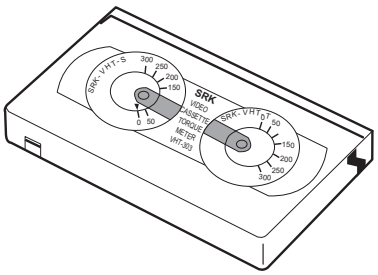


Fig. C-3-2

4.3.5 Guide Roller Height Adjustment

Purpose of adjustment : To ensure that the bottom surface of the tape can travel along with the tape lead line of the lower drum by constantly and adjusting and maintaining the height of the tape.

4.3.5.1 Prior Adjustment

Fixtures and tools used	VCR (VCP) status	Adjustment position
• Post Height Adjusting Driver	• Play or Review Mode	• The guide roller height adjusting screw on the supply guide roller and the take-up guide roller

Adjustment Procedure

1) Travel the tape and check the bottom surface of the tape travels along with the guide line of the lower drum.
2) If the tape travels toward the lower part of guide line on the lower drum, turn the guide roller height adjusting screw to the left
3) If it travels to the upper part, turn it to the right.
4) Adjust the height of the guide roller to ensure that the tape is guided on the guide line of the lower drum at the inlet/outlet of the drum. (Fig. C-4-1)

ADJUSTMENT DIAGRAM

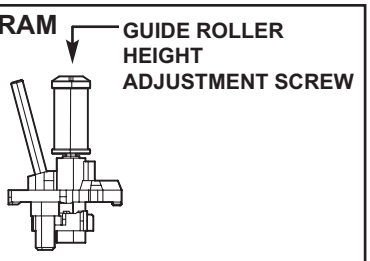


Fig. C-4-1

4.3.5.2 Fine Adjustment

Fixtures and tools used	Measuring tools and connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Alignment tape • Post height adjusting driver	• CH-1: PB RF Envelope • CH-2: NTSC : SW 30Hz PAL : SW 25Hz • Head switching output point • RF Envelope output point	• Play the standard test tape.	• Guide roller height adjusting screw

1) Play the Alignment tape after connecting the probe of oscilloscope to the RF envelope output point and the head switching output point.
2) Tracking control (playback) : Locate it at the center (Set the RF output to the maximum value via the tracking control when such adjustment is completed after the drum assembly is replaced.)
3) Height adjusting screw: Flatten the RF waveform. (Fig. C-4-2)
4) Move the tracking control (playback) to the right/left. (Fig. C-4-3)
5) Check the start and the end of the RF output reduction width are constant.

CAUTIONS

There must exist no crumpling and folding of the tape due to excess adjustment or insufficient adjustment.

Waveform

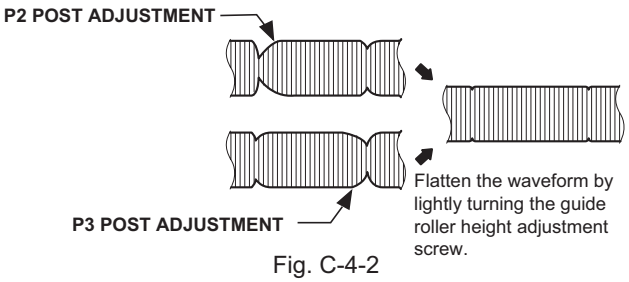


Fig. C-4-2

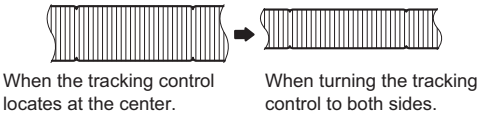
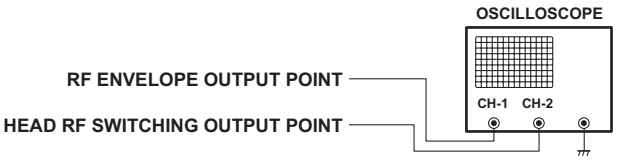


Fig. C-4-2

Connection Diagram



4.3.6 Audio/Control (A/C) Head Adjustment

Purpose of adjustment : To ensure that audio and control signals can be recorded and played according to the contract tract by constantly maintaining distance between tape and head, and tape tension between the P3 post and the P4 post.

4.3.6.1 Prior Adjustment (performed only when no audio output appears in play of the standard test tape)

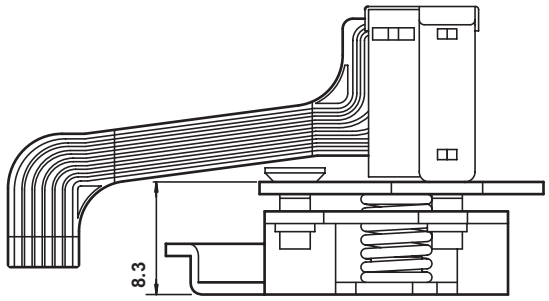
Fixtures and tools used	VCR (VCP) status	Adjustment position
• Blank Tape • Driver (+) Type 5mm	• Play the blank tape	• Tilt adjusting screw (C) • Height adjusting screw (B) • Azimuth adjusting screw (A)

Adjustment Procedure/Adjustment Diagrams

1) Basically use the A/C head assembly adjusted as in SPEC.
2) Check there is crumpling and folding of the tape around the A/C head. If it is, Turn and adjust the tilt adjusting screw to ensure that the tape corresponds to the bottom guide of the P4, and recheck the tape path after proceeding play for 4-5 seconds.
3) Where the tape bottom is not equal to Fig. C-5-3, Adjust the height by using the height adjusting screw (B) and then readjust it by using the tilt adjusting screw (C).

CAUTIONS

Always check the height of the A/C head since most ideal height of A/C head can be obtained when the bottom part of the tape is away 0.2 ~ 0.25mm from the bottom part of the A/C head.



A/C Head Base

Fig. C-5-1

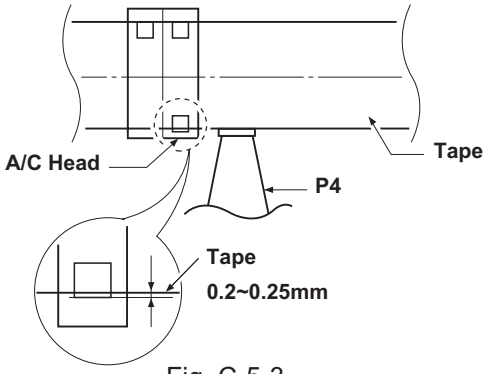
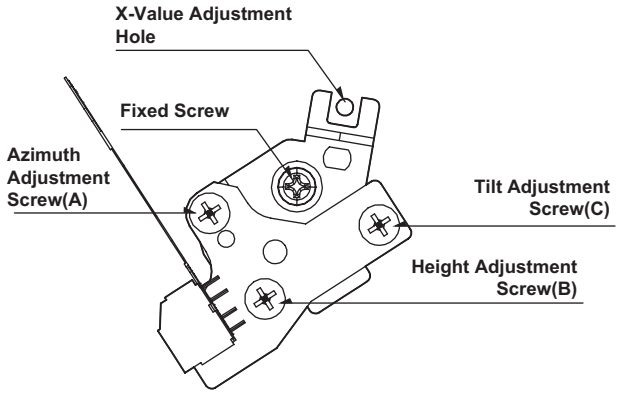


Fig. C-5-3



A/C Head Assembly

Fig. C-5-2

4.3.6.2 Tape Path Check between Pinch Roller and Take up Guide (Check in the Rev Mode)

1) Check the tape pass status between the pinch roller and the take-up guide.(Check there is crumpling of the tape pass and folding of the take-up guide.)
   (1) When holding of the take-up guide bottom occurs
   Turn the tilt adjusting screw (C) clockwise and travel it stably to ensure there is no crumbling or folding of the tape.
   (2) When holding of the take-up guide top occurs
   Turn the tilt adjusting screw (C) anti-clockwise and travel it stably to ensure there is no crumbling or folding of the tape.
2) Check there is folding of the tape at the bottom or top of the take-up guide in cutting-off the REV mode

CAUTIONS

If the RF waveform is changed after adjusting the A/C head, perform fine adjustment to ensure the RF waveform is flattened.

4.3.6.3 Fine Adjustment (Azimuth Adjustment)

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Standard test tape (only for SP) • Driver (+) Type 4mm	• Audio Output Jack	• Play the Alignment tape • 1KHz, 7KHz.	• Azimuth Adjusting Screw (A) • Height Adjusting Screw (B)

Adjustment Procedure

1) Connect the probe of Oscilloscope to the audio output jack.
2) Ensure that Audio 1KHz, 7KHz output is flattened at the maximization point by adjusting the Azimuth adjusting screw (A).

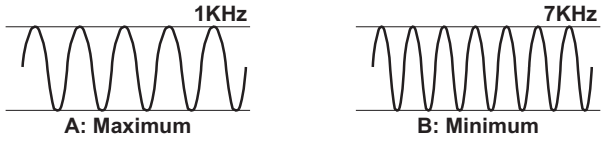
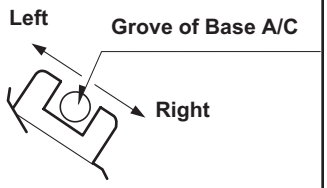


Fig. C-5-4

4.3.7 X-Value Adjustment

Purpose of adjustment : To maintain compatibility with other VCR (VCP).

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
• Oscilloscope • Standard test tape (only for SP) • Driver (+) Type 4mm	• CH-1: PB RF Envelope • CH-2: NTSC ; SW 30Hz PAL:SW 25Hz • Head switching output point • RF Envelope output point	• Play the Alignment tape	

Adjustment Procedure

1) After releasing the auto tracking, lightly turn the fixing screw. Turn the (+) type driver on the X-value adjusting hole to the right or left. Adjust the RF envelope level to the maximum point and then fix the fixing screws.
2) For the 31 µm head, adjust it with the SP tape recorded in the width of 31 µm since the head travels on the tape track only for SP with the width of 58 µm.

Connection Diagram

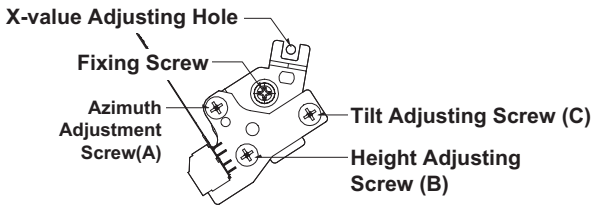
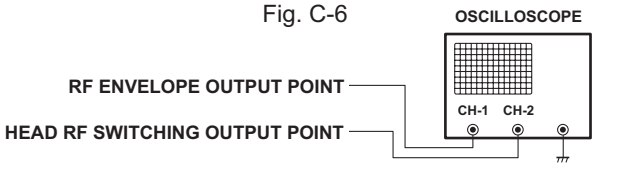


Fig. C-6



4.3.8 Adjustment after Drum Assembly (Video Heads)

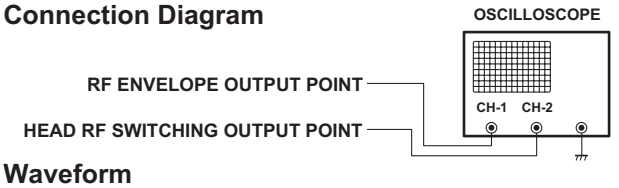
Purpose of adjustment : To adjust and stabilize the height change, X-value change, etc depending on the guide roller after assembling the drum.

Fixtures and tools used	Connection position	VCR (VCP) status	Adjustment position
・Oscilloscope ・Alignment tape (only for SP) ・Post Height Adjusting Driver ・Driver (+) Type 5mm	・CH-1: PB RF Envelope ・CH-2: NTSC : SW 30Hz PAL:SW 25Hz ・Head switching output point ・RF Envelope output point	・Play the blank tape. ・Play the Alignment tape.	・Fine adjustment of guide roller ・Switching Point ・Tracking Preset ・X-value

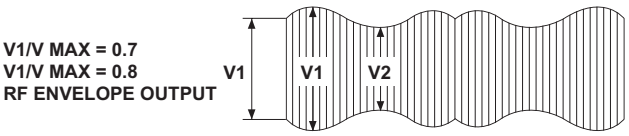
Checking/Adjustment Procedure

1) Play the blank tape and check whether the guide roller crumbles or wrinkles the tape and adjust it if necessary.
2) Check that the RF envelope output waveform is flat, and adjust the height of the guide roller while playing the alignment tape.
3) Adjust the switching point.
4) Check the RF envelope output is the maximum when the tracking control locates at the center. If not maximum, set up to ensure that RF envelope output becomes the maximum by turning the (+) type driver on the base A/C groove.

Connection Diagram



Waveform



4.3.9 Check of Traveling Device after Deck Assembly

4.3.9.1 Audio, RF Normalization Time (Locking Time) Check in Play after CUE or REV

Fixtures and tools used	Measuring standard	Connection position	VCR (VCP) status
・Oscilloscope ・Alignment tape (Colour bar) ・Stop Watch	・RF Locking Time: Within 5 seconds ・Audio Locking Time : Within 10 seconds	・CH-1: PB RF Envelope ・CH-2: Audio output ・RF Envelope output point ・Audio output jack	・Play the Alignment tape (Colour bar)

Checking Procedure

1) Check that locking time of the RF and Audio waveform is fallen within the measuring standard in conversion of the play mode from the CUE or the REV mode.
2) Readjust the paragraph 4.3.6 and 4.3.7 if it deviates from the standard.

4.3.9.2 Check of Tape Curl and Jam Status

Fixtures and tools used	Fixtures and tools used	Fixtures and tools used
・E-240 Tape ・E-160 Tape	・There must be no jam or curl at the first, middle and end position of tape.	・Travel the tape at the position of its first and end.

Checking Procedure

1) Check there is no abnormality of every traveling post status.
2) There must be no abnormal operation of the counter in occurrence of folding of the bottom tape. There must be not abnormality of audio signal in damage of the top tape.
3) If there is abnormality, readjust the adjustment paragraph 4.3.5 and 4.3.6.

4.4 PROTECTION, MAINTENANCE AND CHECK OF VIDEO FUNCTION (VCR)

4.4.1 Checking Points prior to Repair

Following abnormal phenomena may be repaired by removal of foreign materials and oil supply. Check oiling is required at the checking set or cleaning status is complete.

Determine that necessity of checking and repair the set exists after checking the using period of the set together with the user. In this case, followings must be checked:

Phenomena	Checking Points and Cause	Replacement	
Color beat	Pollution of Full-Erase Head	o	F/E Head
S/N, Color Faded	Pollution of Video Head	o	Video Head
Horizontal, Vertical Jitte	Pollution of Video Head or Tape Transport System	o	
Poor Sound, Low Sound	Pollution of Audio/Control Head	o	A/C Head
No tape wound or tape wound loosely. FF or REW impossible, or slow turning	Pollution of Pinch Roller or Belt Capstan Belt	o	Pinch Roller / Belt Capston
Tape loosely wound in REV or Unloading	Deterioration of Clutch Assembly D37 Torque	o	Clutch Assembly A37
	Pollution of Drum and Traveling Device	Fig. C-9-3	

CAUTIONS

If operation of the position with (O) mark is abnormal even after removing cause, replace it with substitute product since it shows damage or wearing.

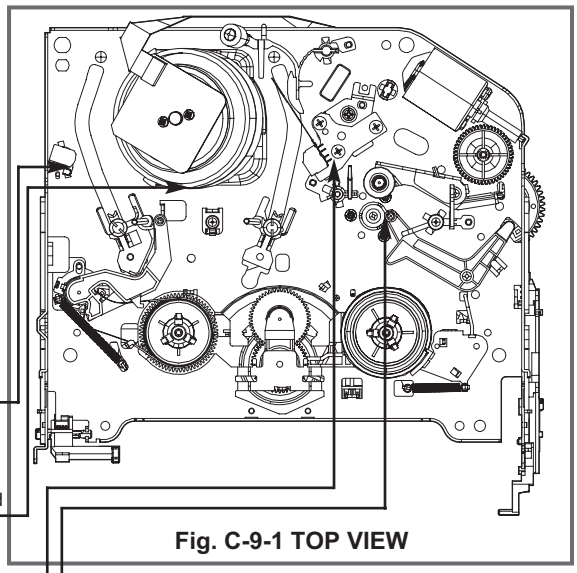


Fig. C-9-1 TOP VIEW

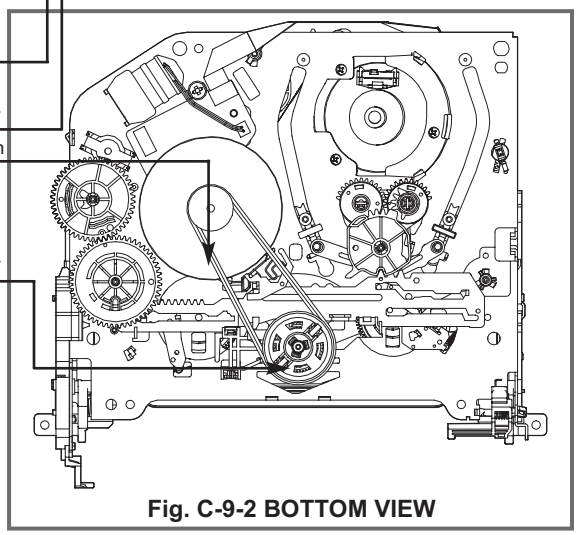


Fig. C-9-2 BOTTOM VIEW

*** No. (1) ~ (12) shows sequence that the tape moves from the supply reel to the take-up reel.)**

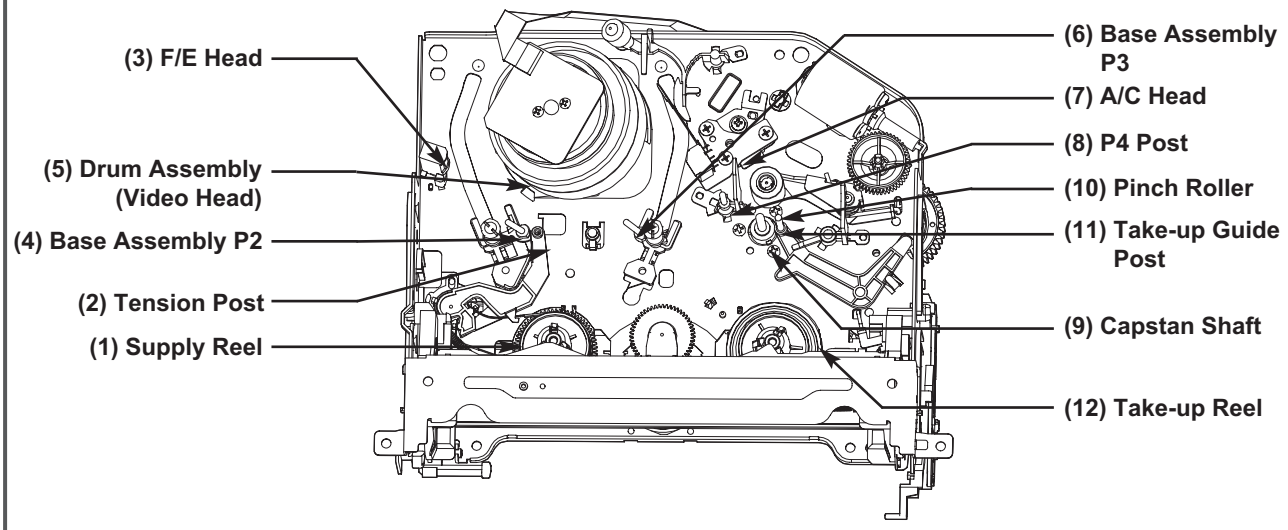


Fig. C-9-3 Tape Transport System

4.4.2 Essential Check and Repair

Recording density of the video is far higher than the audio. Therefore video parts are very precise so as to allow only error of 1/1000mm or so in order to maintain compatibility with other videos.

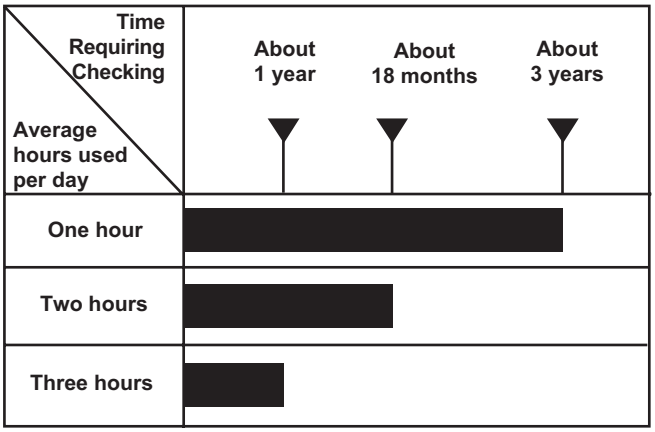
If one of these parts is polluted or old, same phenomena will appear as they are damaged.

To maintain clear screen, regular check, replacement of old and damaged parts and oil supply, etc are essential.

4.4.3 Regular Check and Repair

Check and repair schedule is not constant since they vary depending on method that the consumer uses video and environment where the video is installed at.

However, for the video used by common household, good screen will be maintained if regular check and repair per 1,000 hour is performed. The following chart shows relationship between using time and checking time:



4.4.4 Tools for Check and Repair

(1) Grease: Floil G-3114 (KANTO) or equivalent grease (Green)
(2) Grease: Kanto G-754, PL-433 (Yellow)
(3) Alcohol (Isopropyl Alcohol)
(4) Cleaning Patch (cloth)

4.4.5 Maintenance Process

4.4.5.1 Removal of Foreign Material

(1) Removal of foreign material from video head (Fig. C-9-4)
Firstly try to use a cleaning tape.
Use a cleaning patch if foreign materials are not removed with the cleaning tape due to severe dirty of the head.
Soak the cleaning patch in alcohol and put it to the head tip.
Smoothly turn the drum (turning cylinder) to the right or left (In this case, the cleaning patch must not be moved vertically).
After completely drying the head, test the traveling status of the tape.
If alcohol (Isopropyl Alcohol) remains at the video head, the tape may be damaged when this solution touches with the head surface.

Never use a cloth bar (commercial sale)

(2) Wipe the tape transport system and the drive system with the cleaning patch soaked in alcohol (Isopropyl Alcohol) when removing foreign materials from them.
1) The part touched with the traveling tape is called as tape transport system. The drive system consists of parts to travel the tape.
2) Care must be exercised so that unreasonable force to change the pattern will be applied to the tape transport system during removal of foreign materials.

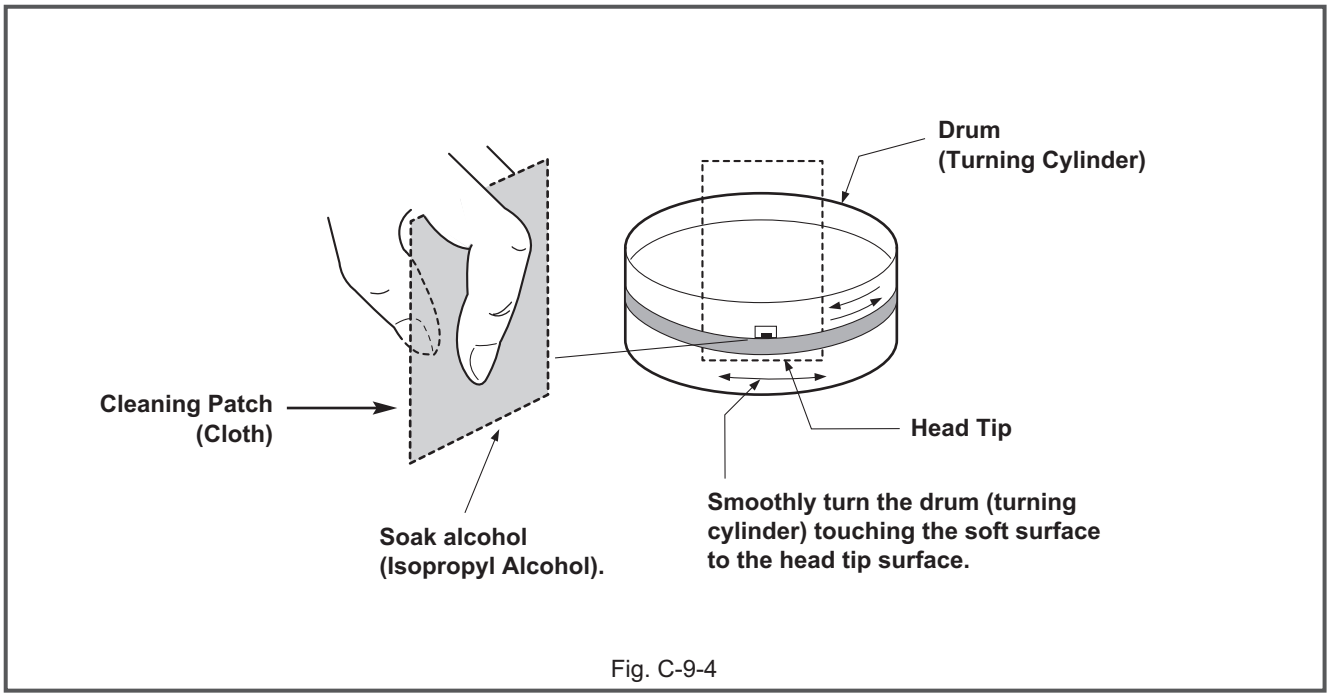


Fig. C-9-4

4.4.5.2 Grease Applications

(1) Grease Application Method

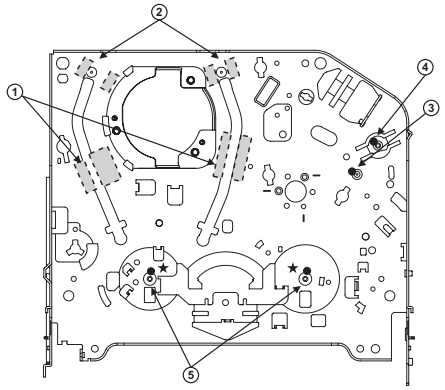
Apply grease by using a cloth swab or brush. Care must be exercised so that excess quantity should not be used. If the excessive quantity is applied, wipe it with the gauze soaked in alcohol (Isopropyl Alcohol).

(2) Regular Grease Application

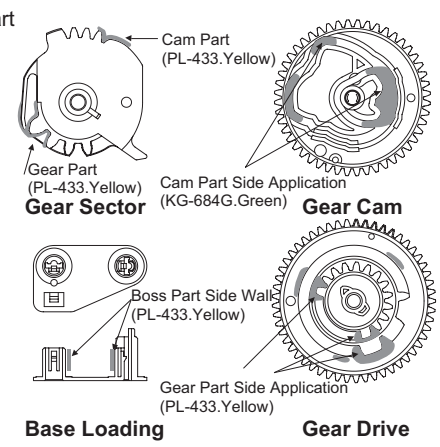
Apply grease to the designated application position every 500 hour.

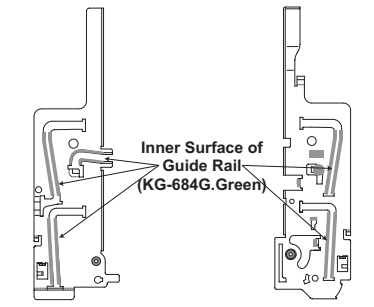
NOTE: POSITION OF GREASE APPLICATION

(1) Inner Side Surface and Top Surface of Loading Path
(2) Stable Adhesion Part of Base P2, P3
(3) Arm Pinch Shaft
(4) Gear Wheel Shaft
(5) Reel S. T. Shaft
(1) (2) (3) (4): KG-684G (Green)
(5): PL-433 (Yellow)

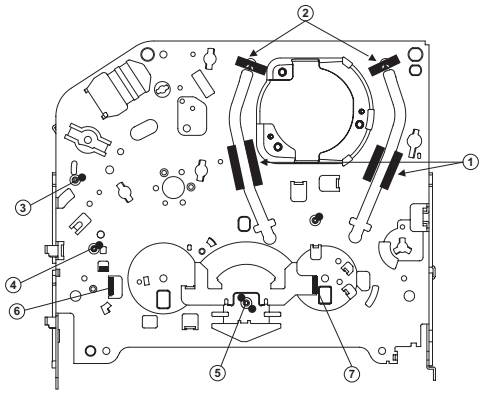


Chassis (TOP)

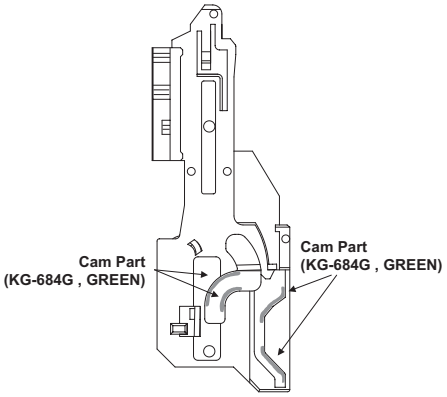




(1) Inner Side Surface and Top Surface of Loading Path
(2) Stable Adhesion Part of Base P2, P3 Coil
(3) Gear Cam Shaft
(4) Gear Drive Shaft
(5) Clutch Shaft Groove
(6) Guide Part on the Plate Slider Side Wall (Left)
(7) Guide Part on the Plate Slider Side Wall (Right)
(1) (2) (3) (4) (5) (6) (7): KG-684G (Green)



Chassis (Bottom)



Gear Rack F/L

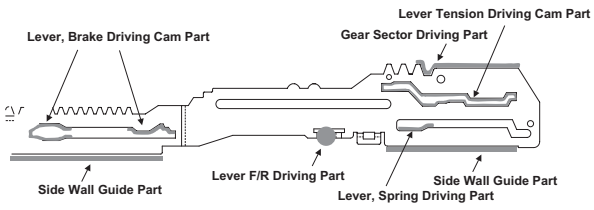
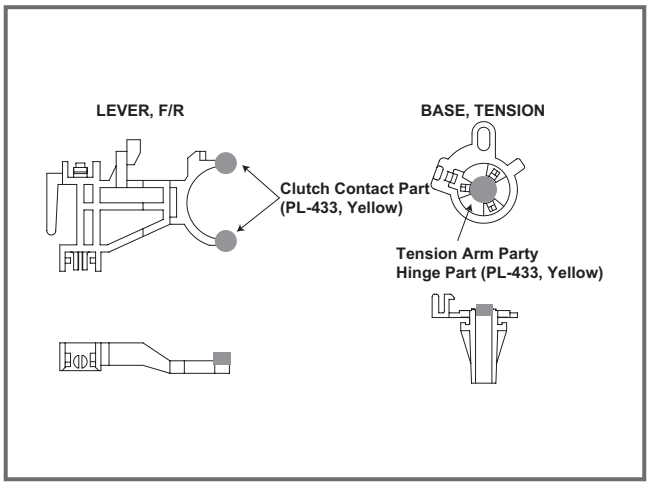
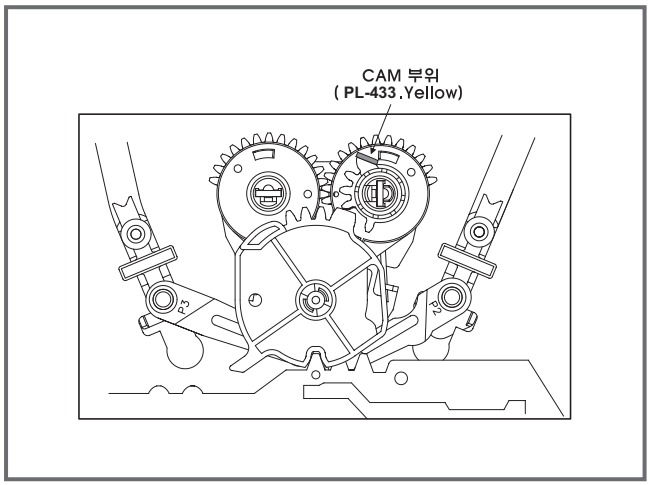


Plate Slider

Lever, F/R, Base, Tension



GEAR AY, P2 & P3



4.5 ELECTRICAL ADJUSTMENT PROCEDURES (VCR)

4.5.1 Servo Adjustment

1) PG Adjustment

▪ Test Equipment

a) OSCILLOSCOPE	b) Alignment tape (SP, stairstep)

▪ Adjustment And Specification

MODE	MEASUREMENT POINT	ADJUSTMENT POINT	SPECIFICATION
PLAY	V.Out H/SW(TP)	R/C TRK JIG KEY	6.5 ± 0.5H

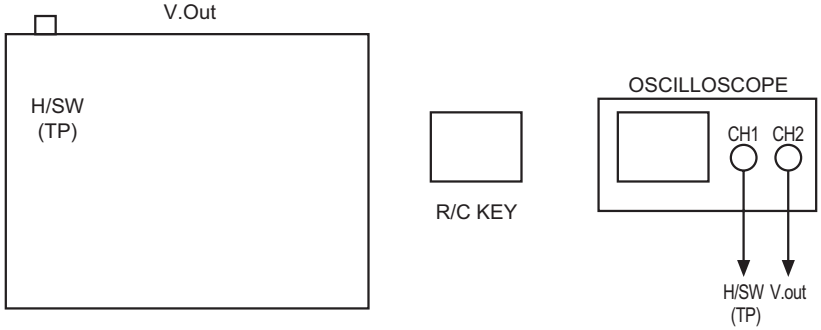
▪ Adjustment Procedure

a) Insert the Alignment Tape and play.
   Note - Adjust the distance of X, pressing the Tracking(+) or Tracking(-) when the "ATR" is blink after the Alignment Tape is inserted.
b) Connect the CH1 of the oscilloscope to the H/SW(TP) and CH2 to the Video Out for the VCR.
c) Trigger the mixed Combo Video Signal of CH2 to the CH1 H/SW(TP) and then check the distance (time difference), which is from the selected A(B) Head point of the H/SW(TP) signal to the starting point of the vertical synchronized signal, to 6.5H ± 0.5H (412μs, 1H=63μs).

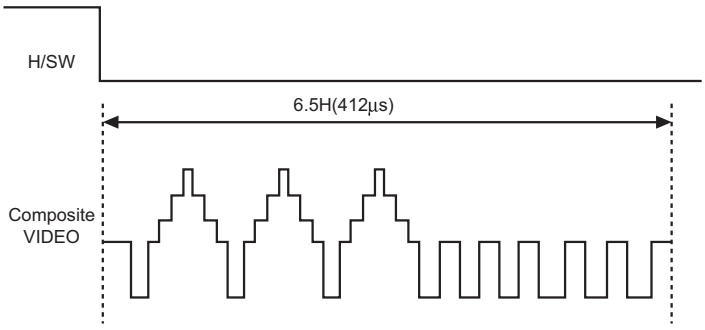
▪ PG Adjustment Method

a-1) Playback the Alignment tape
b-2) Press the "OK(ENTER)" key on the Remote controller and the "REC" key on the Front Panel the same time, then it goes in to Tracking initial mode.
c-3) Repeat the above step(No.b-2), then it finishes the PG adjusting automatically.
d-4) Stop the playback, then it goes out to PG adjusting mode after mony the PG data.

▪ CONNECTION

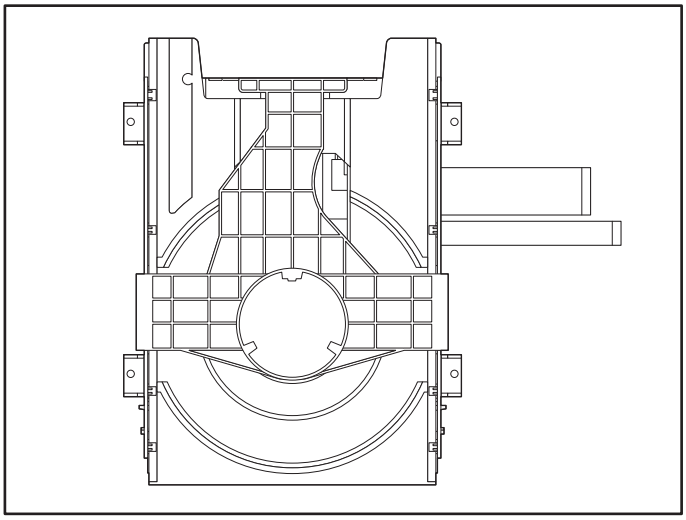


▪ WAVEFORM

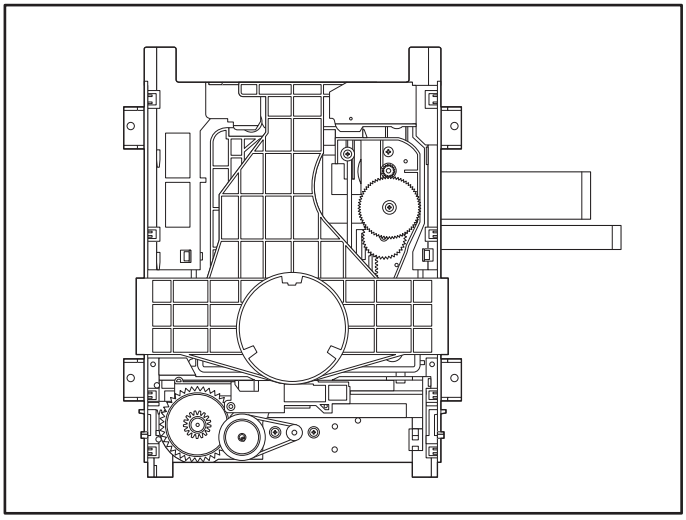


4.6 DECK MECHANISM PARTS LOCATION (DVD)

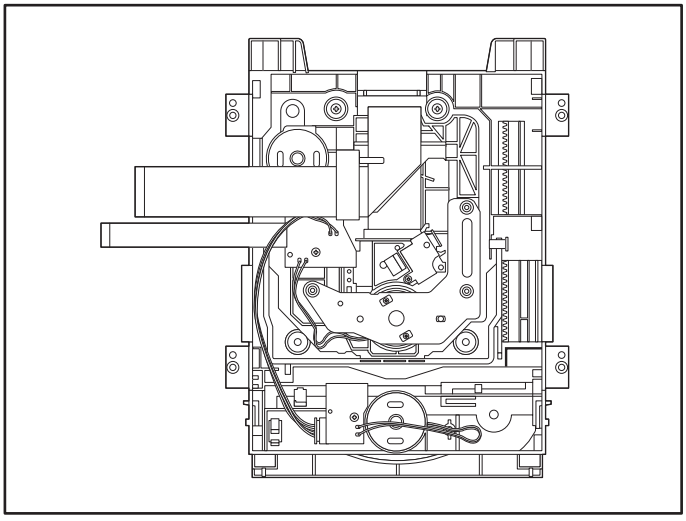
Top View (With Tray)



Top View (Without Tray)



Bottom View



Procedure Starting No.		Parts	Fixing Type	Disassembly	Figure
	1	Main Base			4-6-1
1	2	Clamp Assembly Disc			4-6-1
1, 2	3	Plate Clamp			4-6-1
1, 2, 3	4	Magnet Clamp			4-6-1
1, 2, 3, 4	5	Clamp Upper			4-6-1
1	6	Tray Disc			4-6-2
1, 6	7	Base Assembly Sled			4-6-3
1, 2, 6	8	Gear Feed	4 Screws, 1 Connector 1 Locking Tabs		4-6-3
1, 2, 6, 8	9	Gear Middle			4-6-3
1, 2, 6, 8, 9	10	Gear Rack	1 Screw		4-6-3
1, 2, 7	11	Rubber Rear			4-6-3
1, 2, 7	12	Frame Assembly Up/Down	1 Screw	Bottom	4-6-4
1, 2	13	Belt Loading	1 Locking Tab		4-6-4
1, 2 ,13	14	Gear Pulley			4-6-4
1, 2, 13, 14	15	Gear Loading	1 Locking Tab		4-6-4
1, 2, 7, 12, 13, 14	16	Guide Up/Down			4-6-4
1, 2, 13	17	PWB Assembly Loading	1 Locking Tab 1 Hook 2Screw	Bottom	4-6-4
1, 2, 7, 12, 13, 14, 15, 16, 17	18	Base Main	2 Locking Tabs		4-6-4

Note

When reassembling, perform the procedure in reverse order.

The "Bottom" on Disassembly column of above Table indicates the part should be disassembled at the Bottom side.

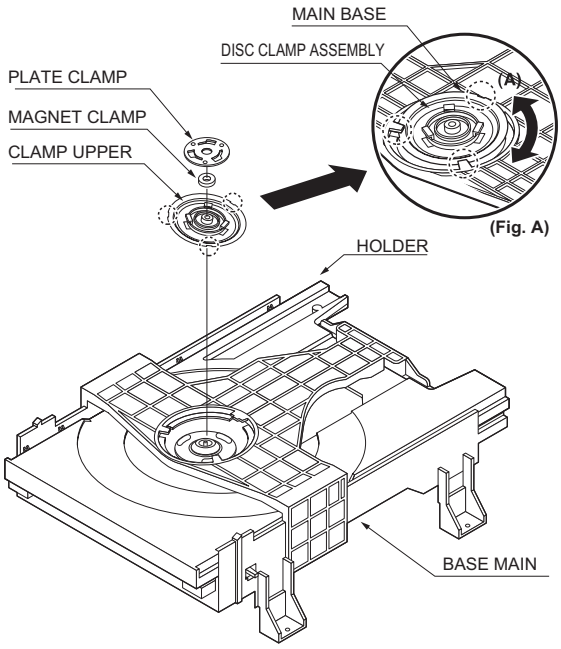


Fig. 4-6-1

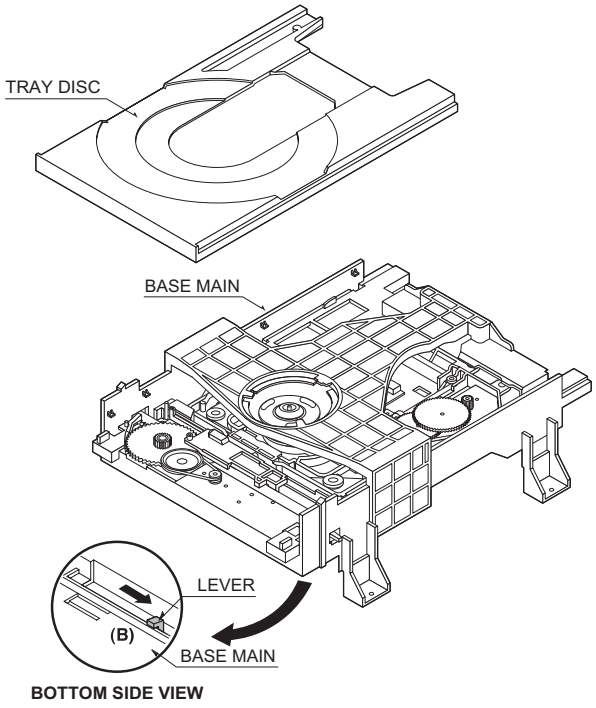


Fig. 4-6-2

1.Main Base (Fig. 4-6-1)

1-1. Clamp Assembly Disc

1) Place the Clamp Assembly Disc as Fig. (A)
2) Lift up the Clamp Assembly Disc in direction of arrow(A).
3) Separate the Clamp Assembly Disc from the Holder Clamp.

1-1-1. Plate Clamp

1) Turn the Plate Clamp to counterclockwise direction and then lift up the Plate Clamp.

1-1-2. Magnet Clamp

1-1-3.Clamp Upper

2. Tray Disc (Fig. 4-6-2)

1) Insert and push a Driver in the emergency eject hole(A) at the right side, or put the Driver on the Lever(B) of the Gear Emergency and pull the Lever(B) in direction of arrow so that the Tray Disc is ejected about 15~20mm.
2) Pull the Tray Disc until it is separated from the Base Main completely.

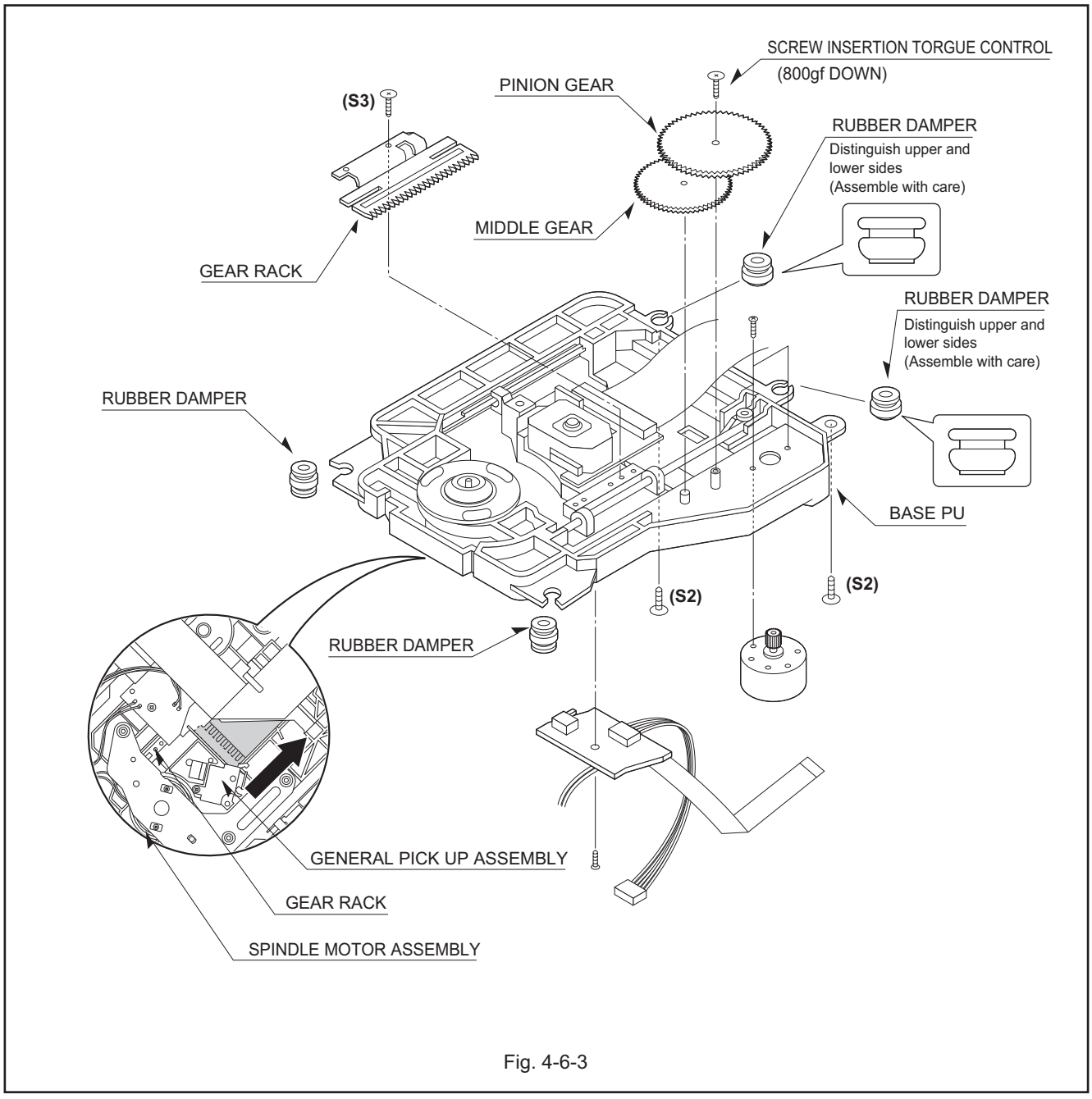


Fig. 4-6-3

3.Base Assembly Sled (Fig. 4-6-3)

1) Release 4 Screw(S2).
2) Disconnect the FFC Connector(C1)

3-1. Gear Feed

3-2. Gear Middle

3-3. Gear Rack

1) Release the Scerw(S3)

4. Rubber Rear (Fig. 4-6-3)

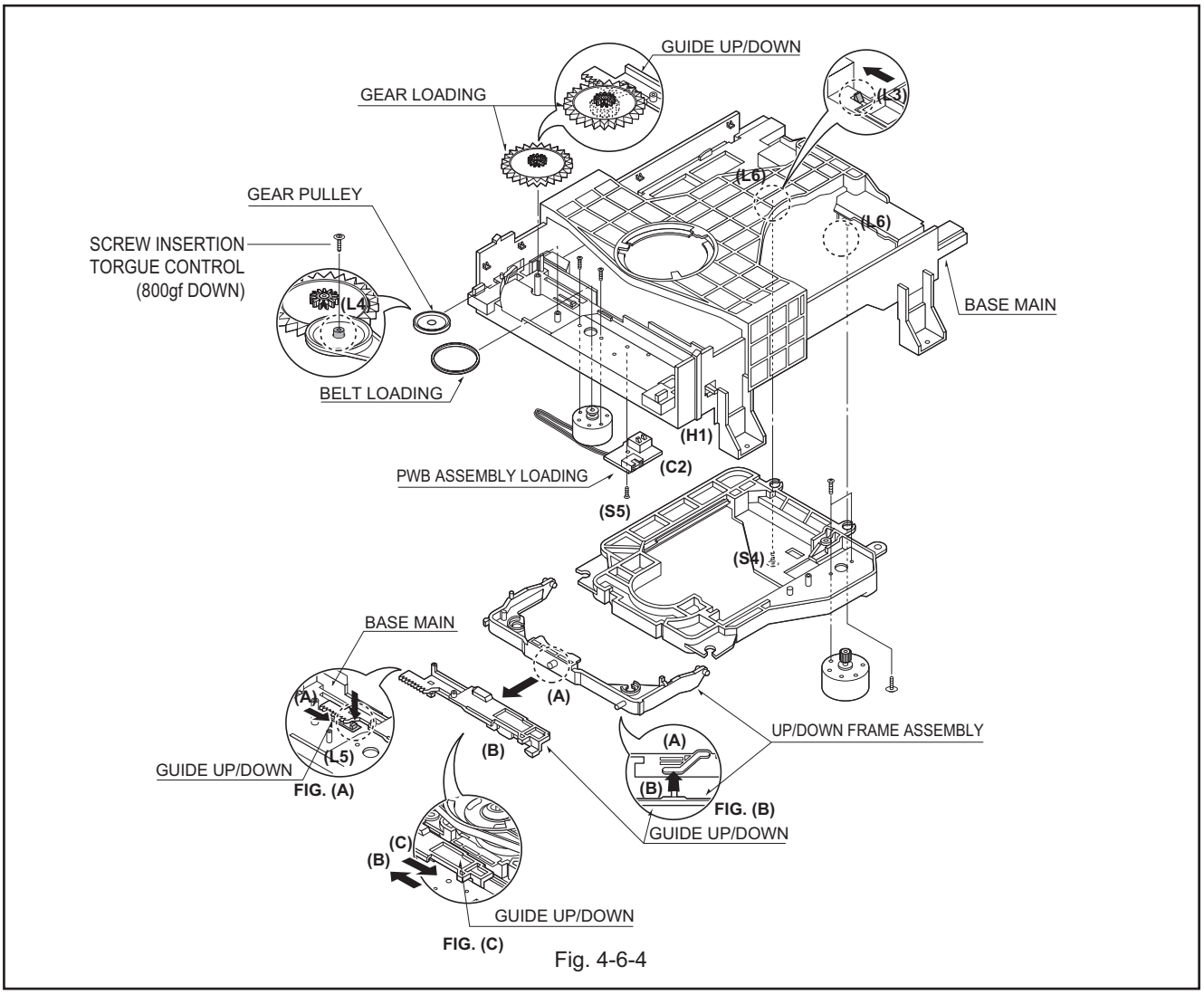


Fig. 4-6-4

5. Frame Assembly Up/Down (Fig. 4-6-4)

Note

Put the Base Main face down(Bottom Side)

1) Release the screw(S4)
2) Unlock the Locking Tab(L3) in direction of arrow and then lift up the Frame Assembly Up/Down to separate it from the Base Main.

Note

- When reassembling move the Guide Up/Down in direction of arrow(C) until it is positioned as Fig.(C).
- When reassembling insert (A) portion of the Frame Assembly Up/Down in the (B) portion of the Guide Up/Down as Fig.(B)

6. Belt Loading(Fig. 4-6-4)

Note

Put the Base Main on original position(Top Side)

7. Gear pulley (Fig. 4-6-4)

1) Unlock the Locking Tab(L4) in direction of arrow(B) and then separate the Gear Pulley from the Base Main.

8. Gear Loading (Fig. 4-6-4)

9. Guide Up/Down (Fig. 4-6-4)

1) Move the Guide Up/Down in direction of arrow(A) as Fig.(A)
2) Push the Locking Tab(L5) down and then lift up the Guide Up/Down to separate it from the Base Main.

Note

When reassembling place the Guide Up/Down as Fig.(C) and move it in direction arrow(B) until it is locked by the Locking Tab(L5). And confirm the Guide Up/Down as Fig.(A)

10. PWB Assembly Loading (Fig. 4-6-4)

Note

Put the Base Main face down(Bottom Side)

1) Release 1 Screws(S5)
2) Unlock the Loading Motor (C2) from the Hook (H1) on the Base Main.
3) Unlock 2 Locking Tabs(L6) and separate the PWB Assembly Loading from the Base Main.

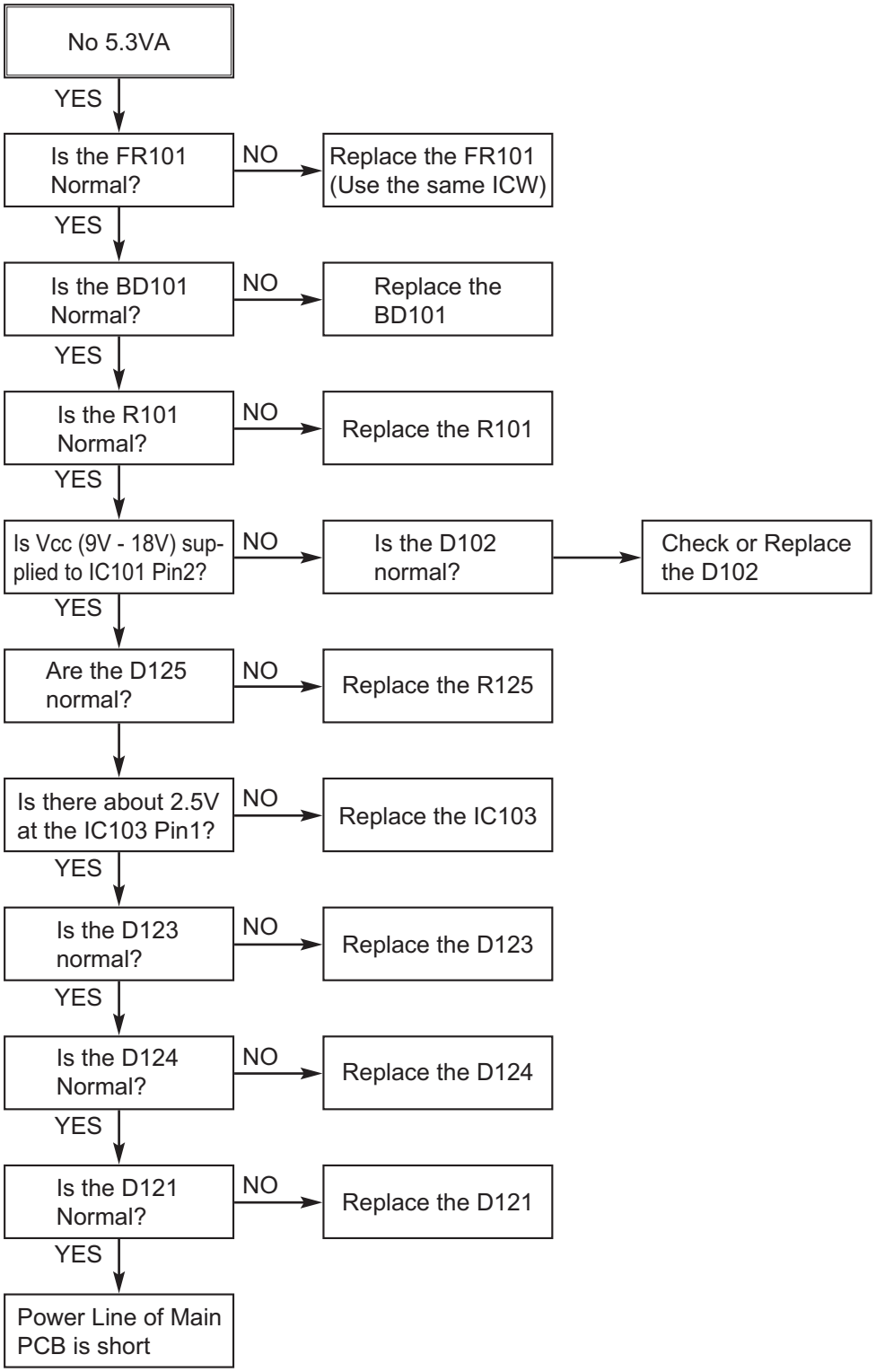
11. Base Main(Fig. 4-6-4)

SECTION 5
TROUBLESHOOTING

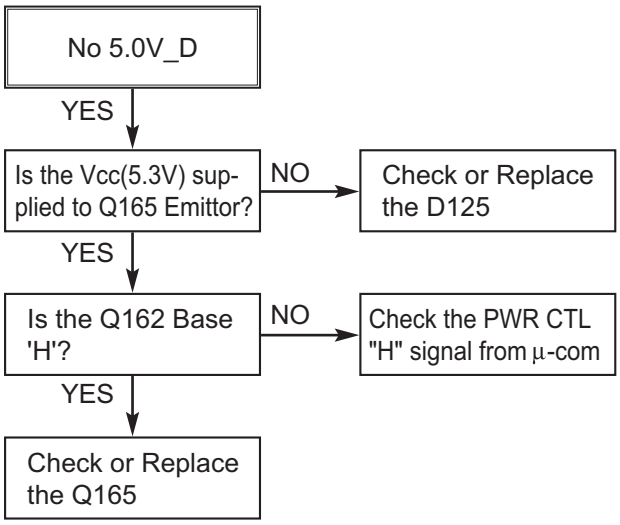
5.1 ELECTRICAL TROUBLESHOOTING GUIDE (VCR PART)

5.1.1 Power(SMPS) CIRCUIT

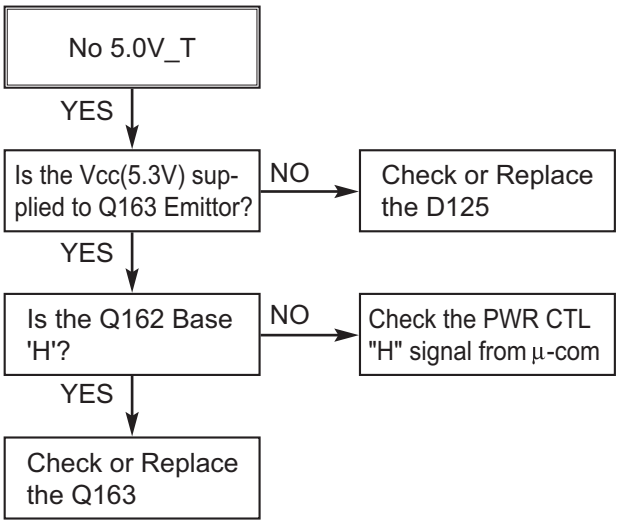
(1) No 5.3VA



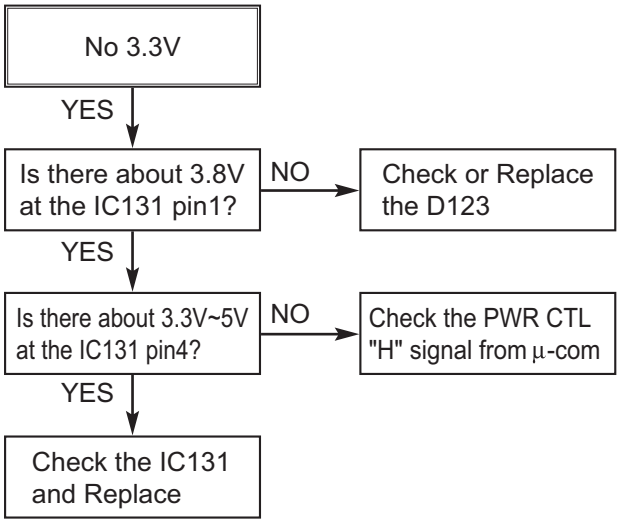
(2) No 5.0V_D



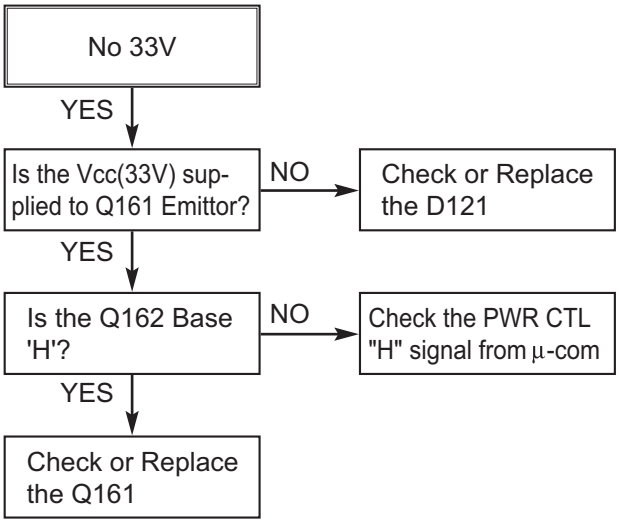
(3) No 5.0V_T



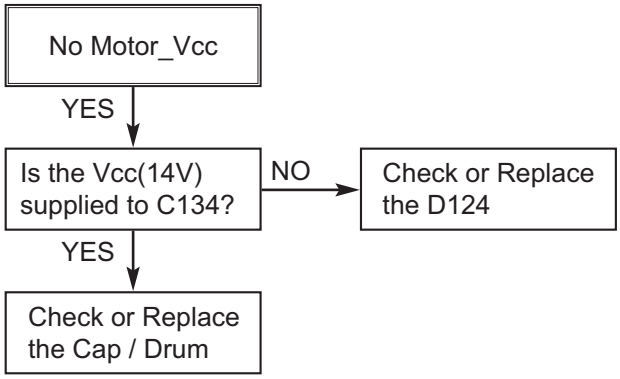
(4) No 3.3V



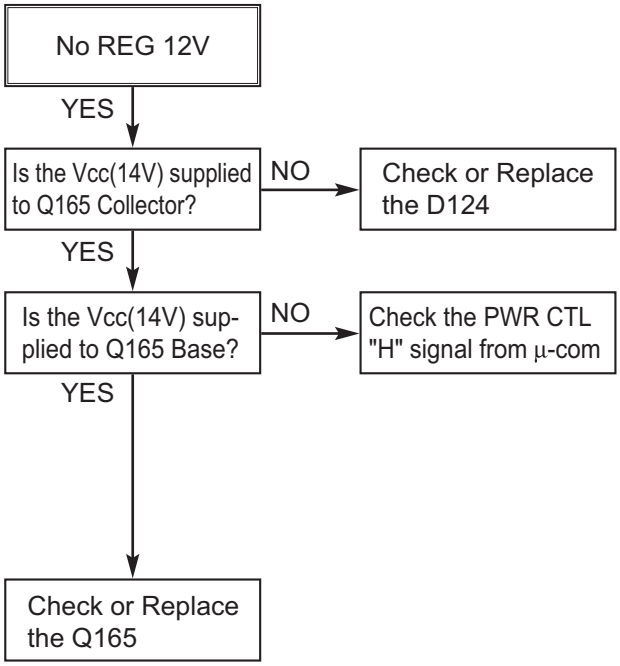
(5) No 33V



(6) No Motor_Vcc (To Cap, Drum Motor)

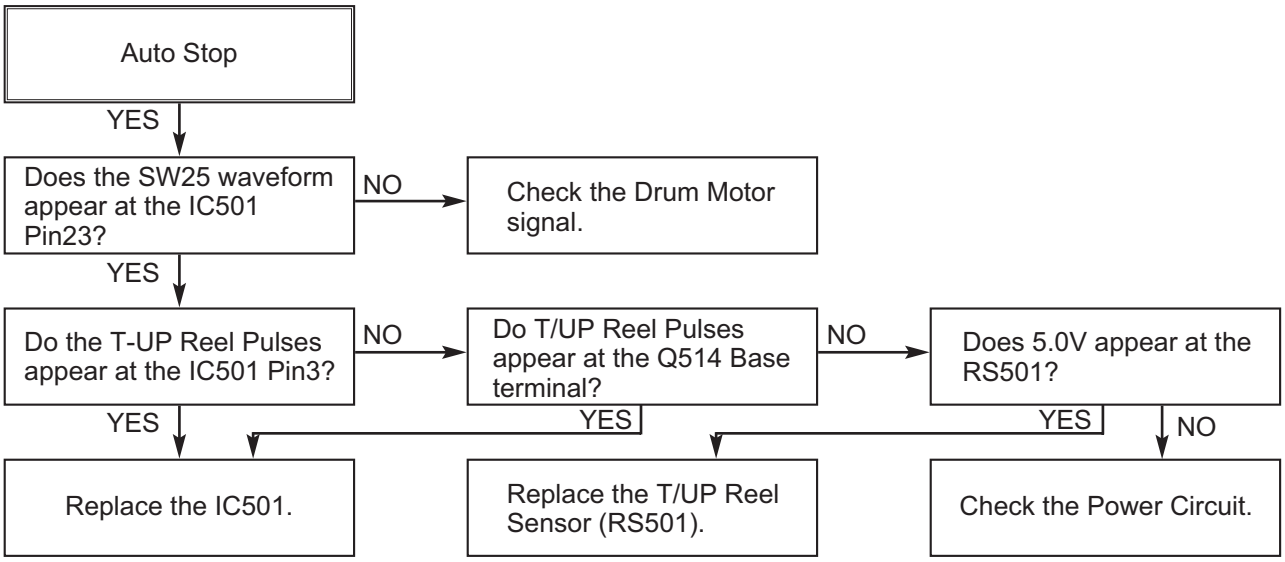


(7) No REG 12V

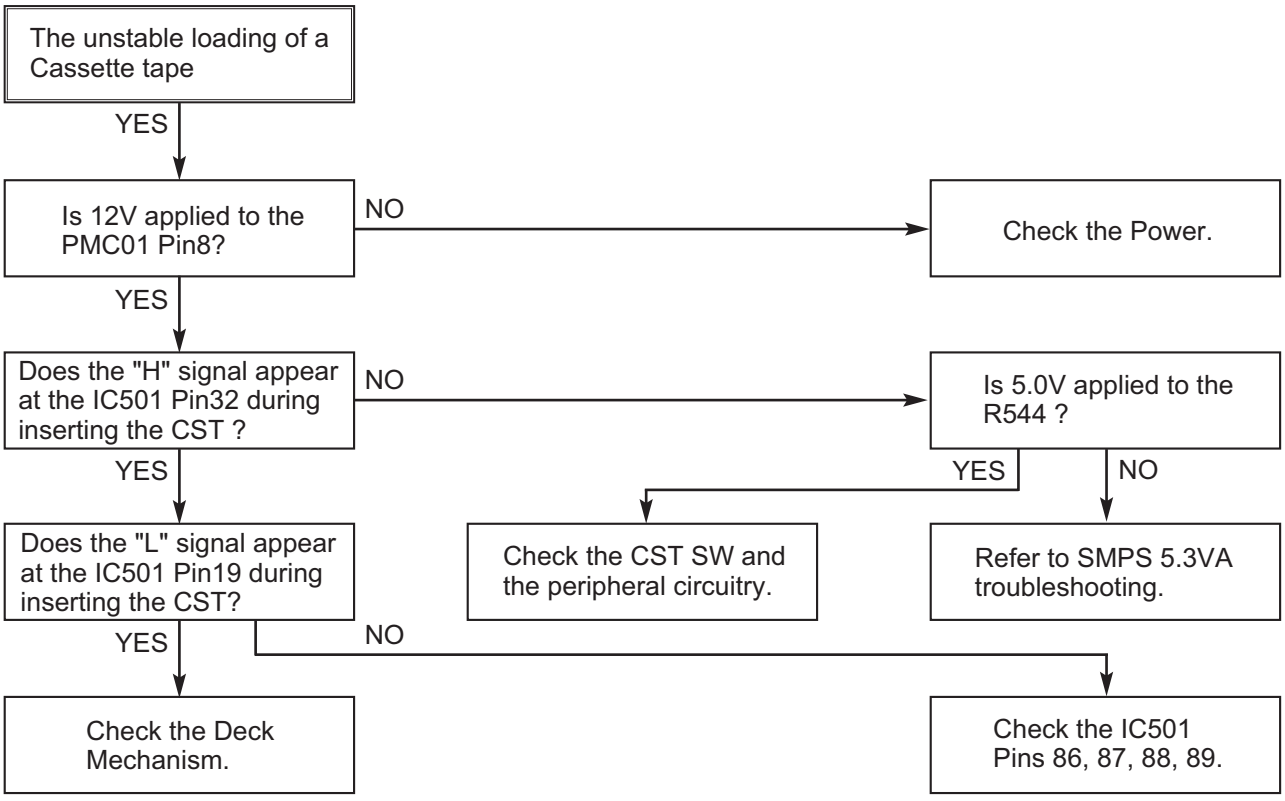


5.1.2 SYSTEM/KEY CIRCUIT

(1) AUTO STOP



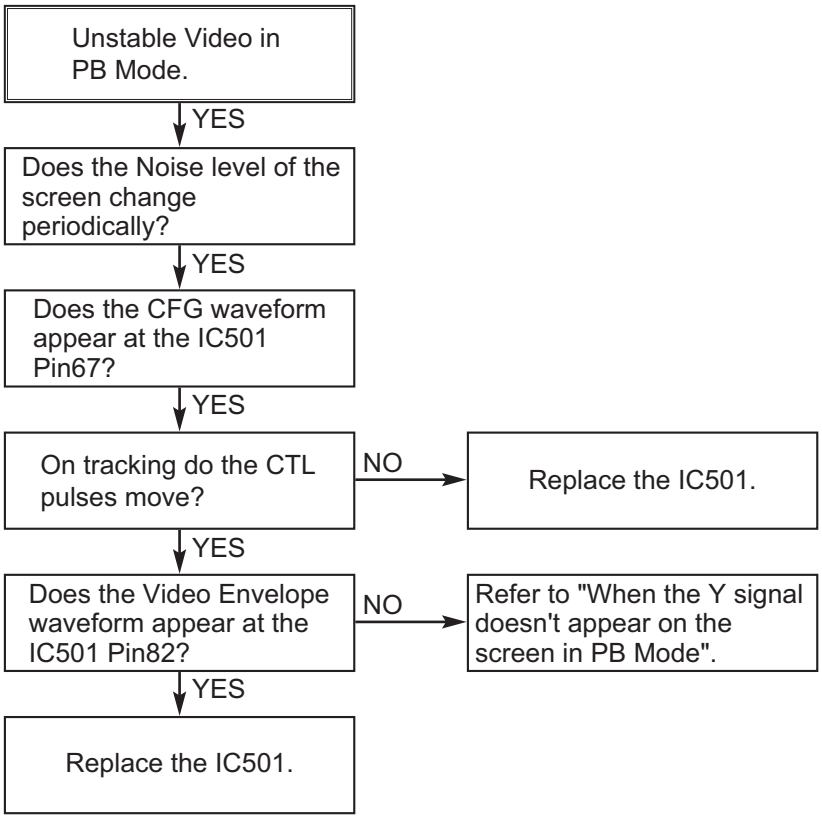
(2) The unstable loading of a Cassette tape



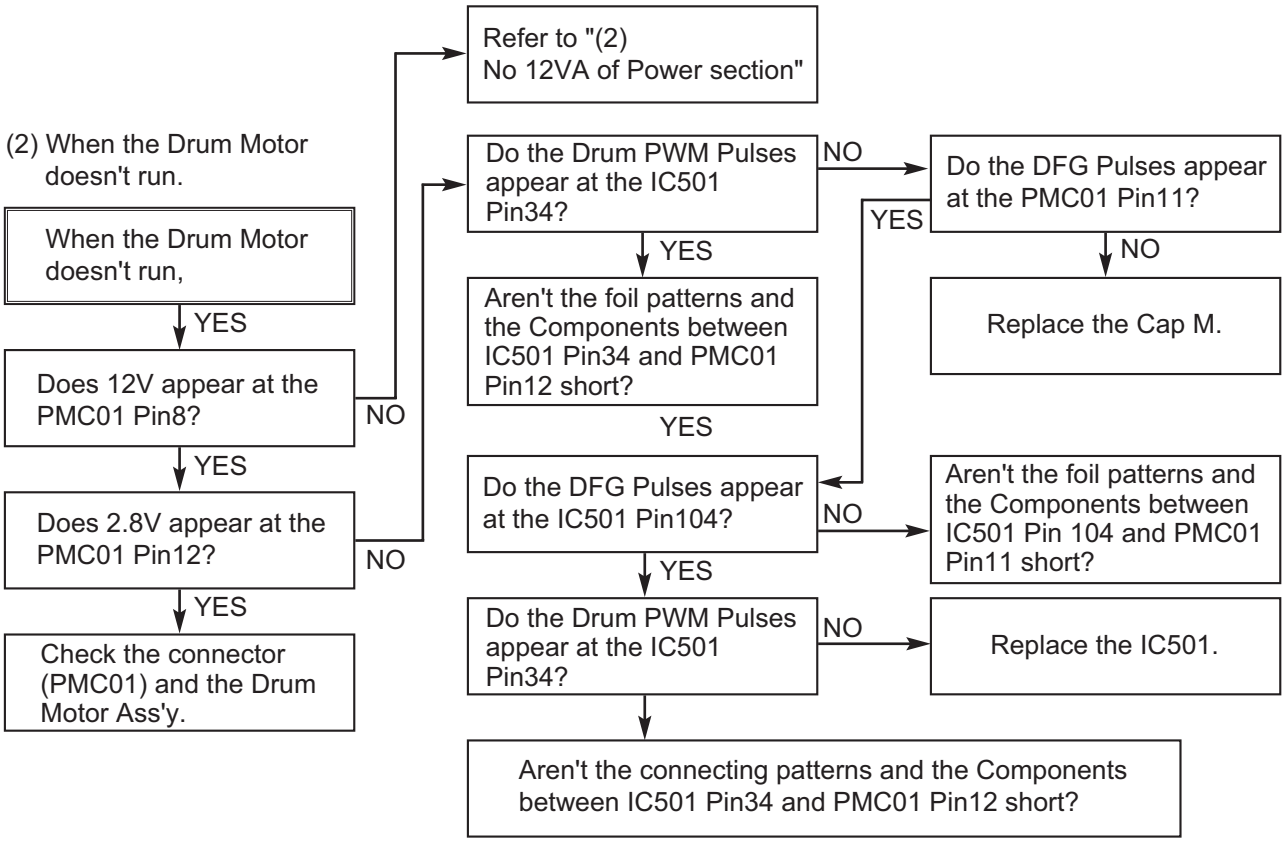
Caution : Auto stop can occur because Grease or Oil is dried up

5.1.3 SERVO CIRCUIT

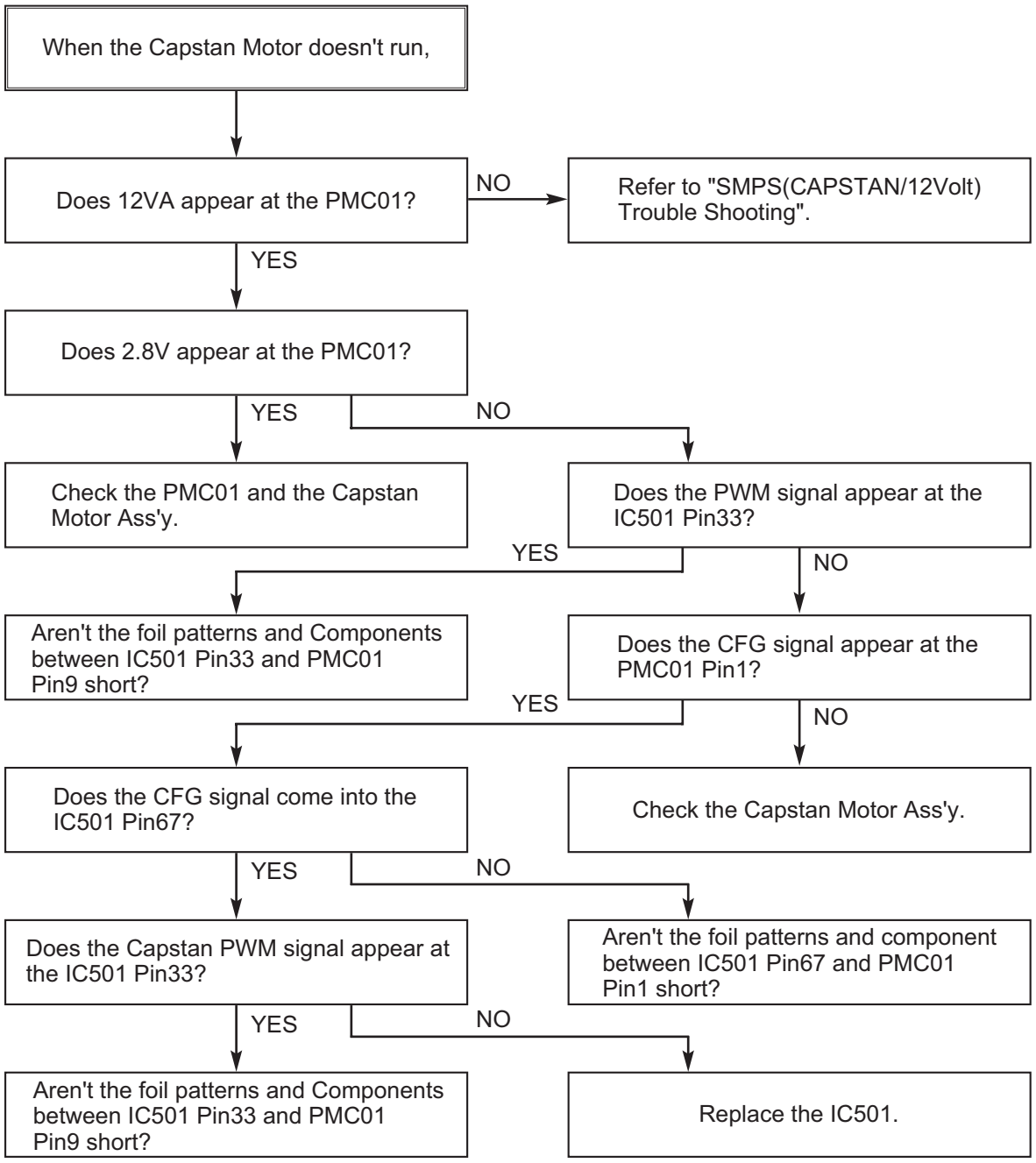
(1) Unstable Video in PB MODE



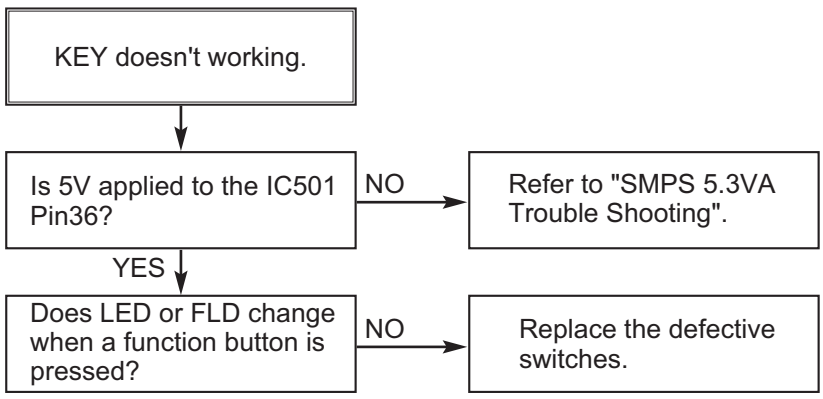
(2) When the Drum Motor doesn't run.



(3) When the Capstan Motor doesn't run,

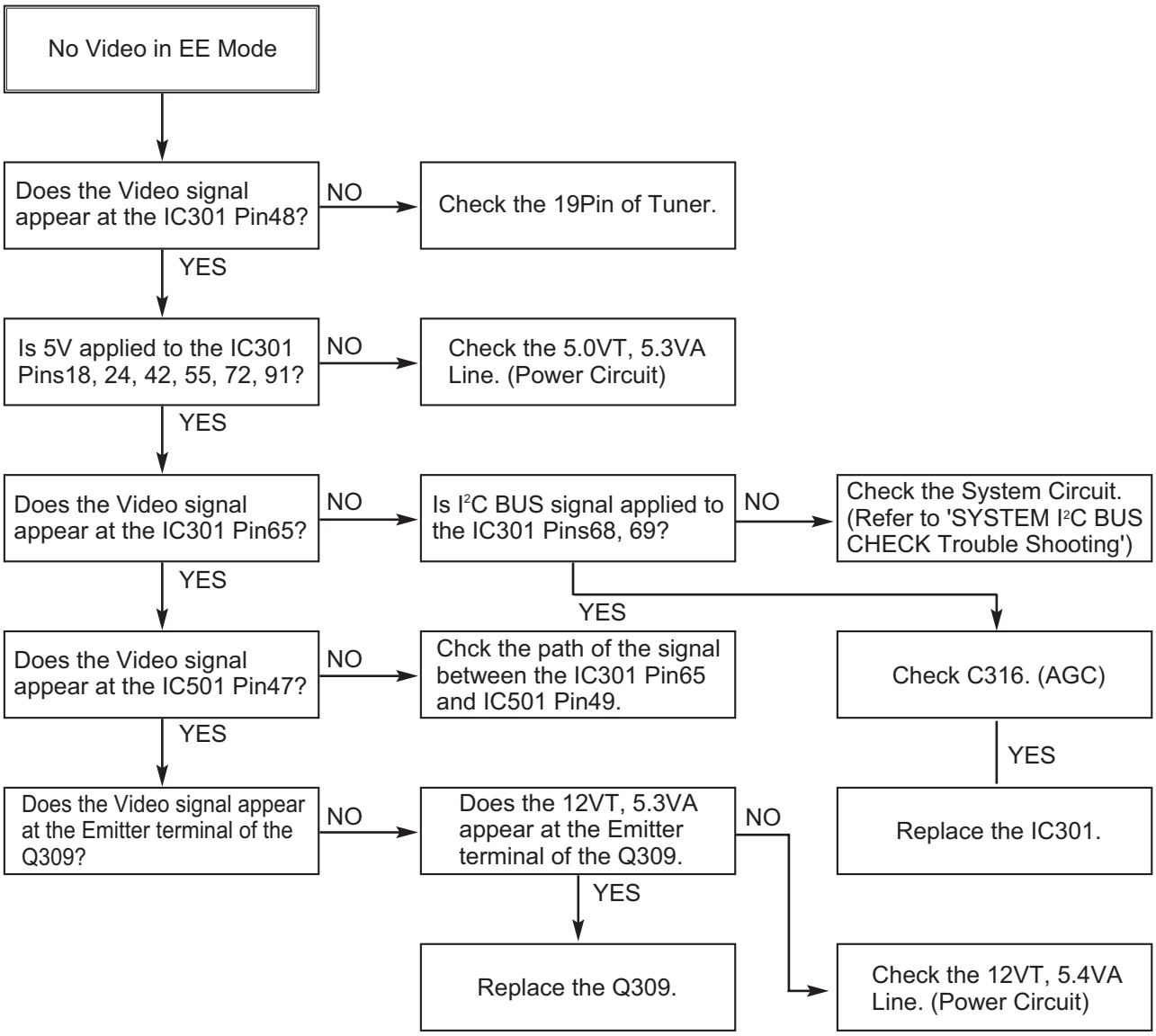


(4) KEY doesn't working

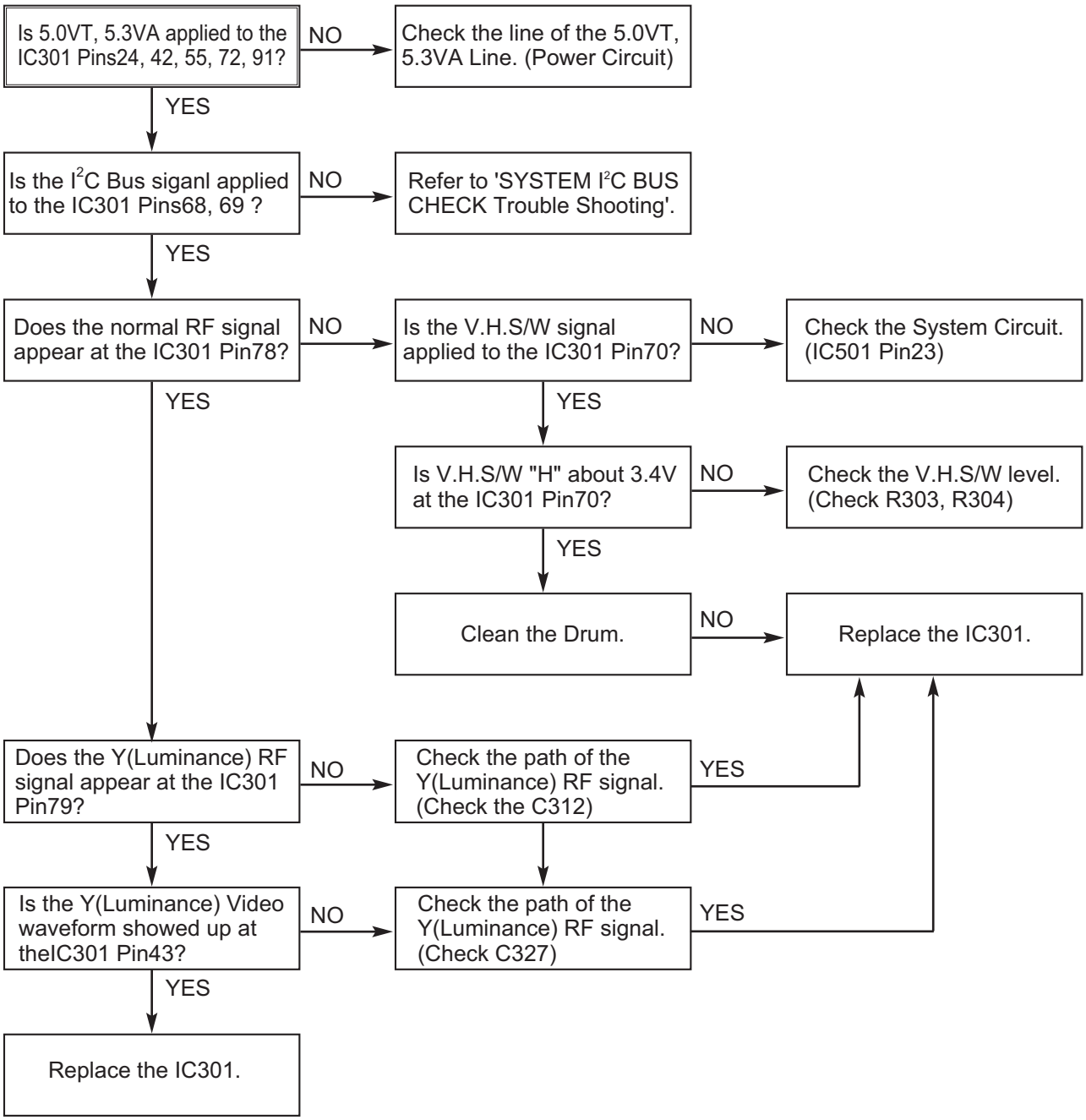


5.1.4 Y/C CIRCUIT

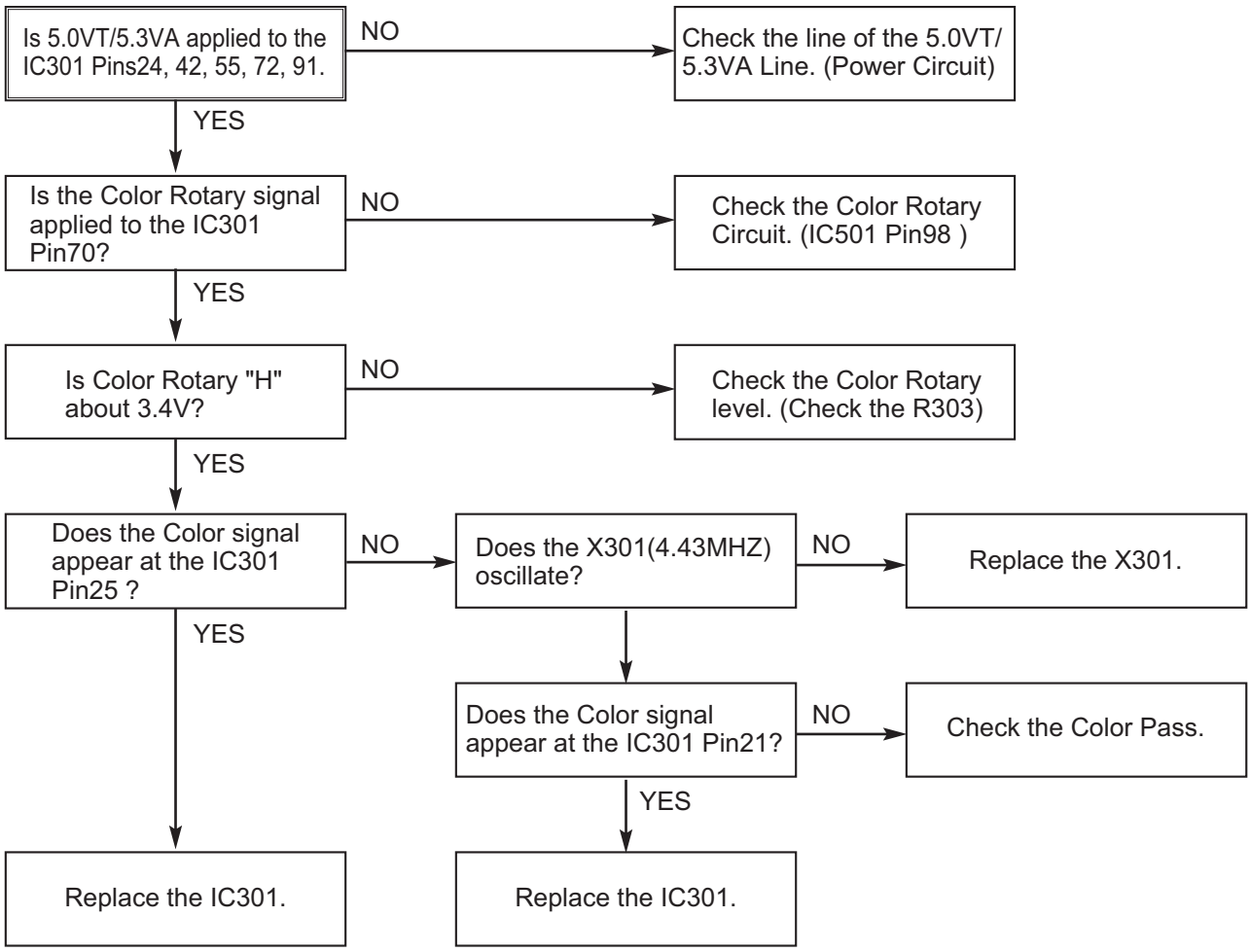
(1) No Video in EE Mode,



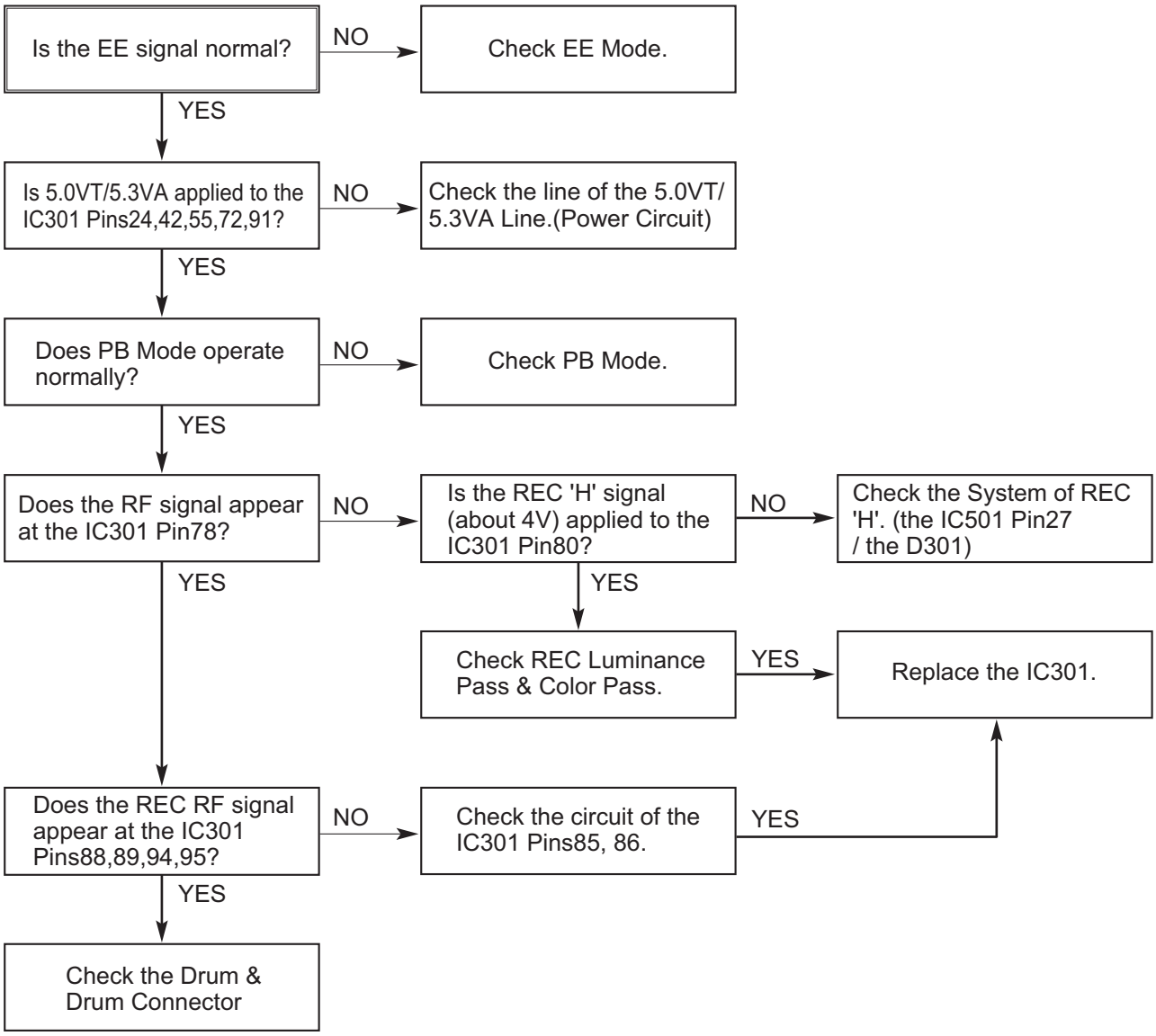
(2) When the Y(Luminance) signal doesn't appear on the screen in PB Mode,



(3) When the C(Color) signal doesn't appear on the screen in PB Mode,

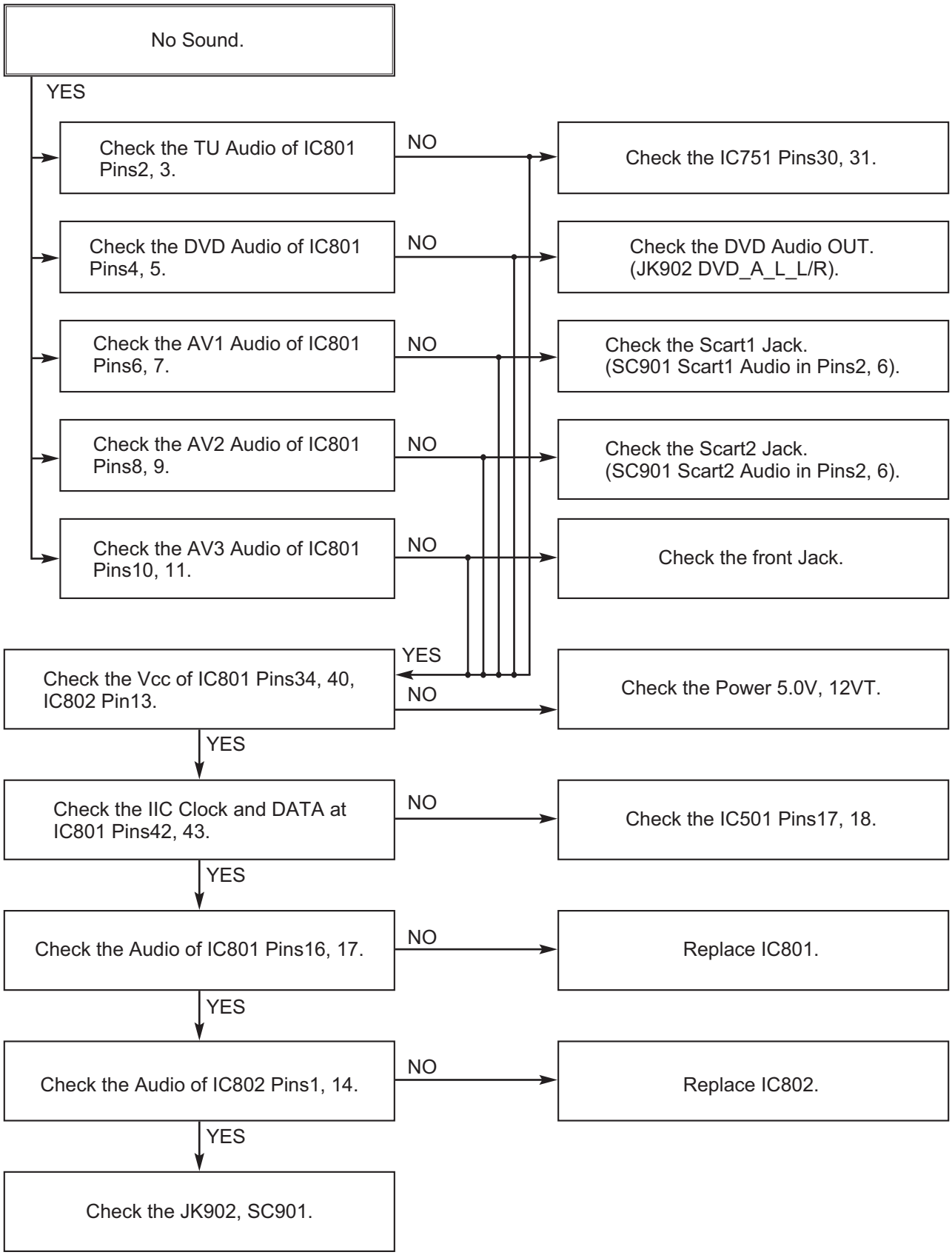


(4) When the Video signal doesn't appear on the screen in REC Mode,

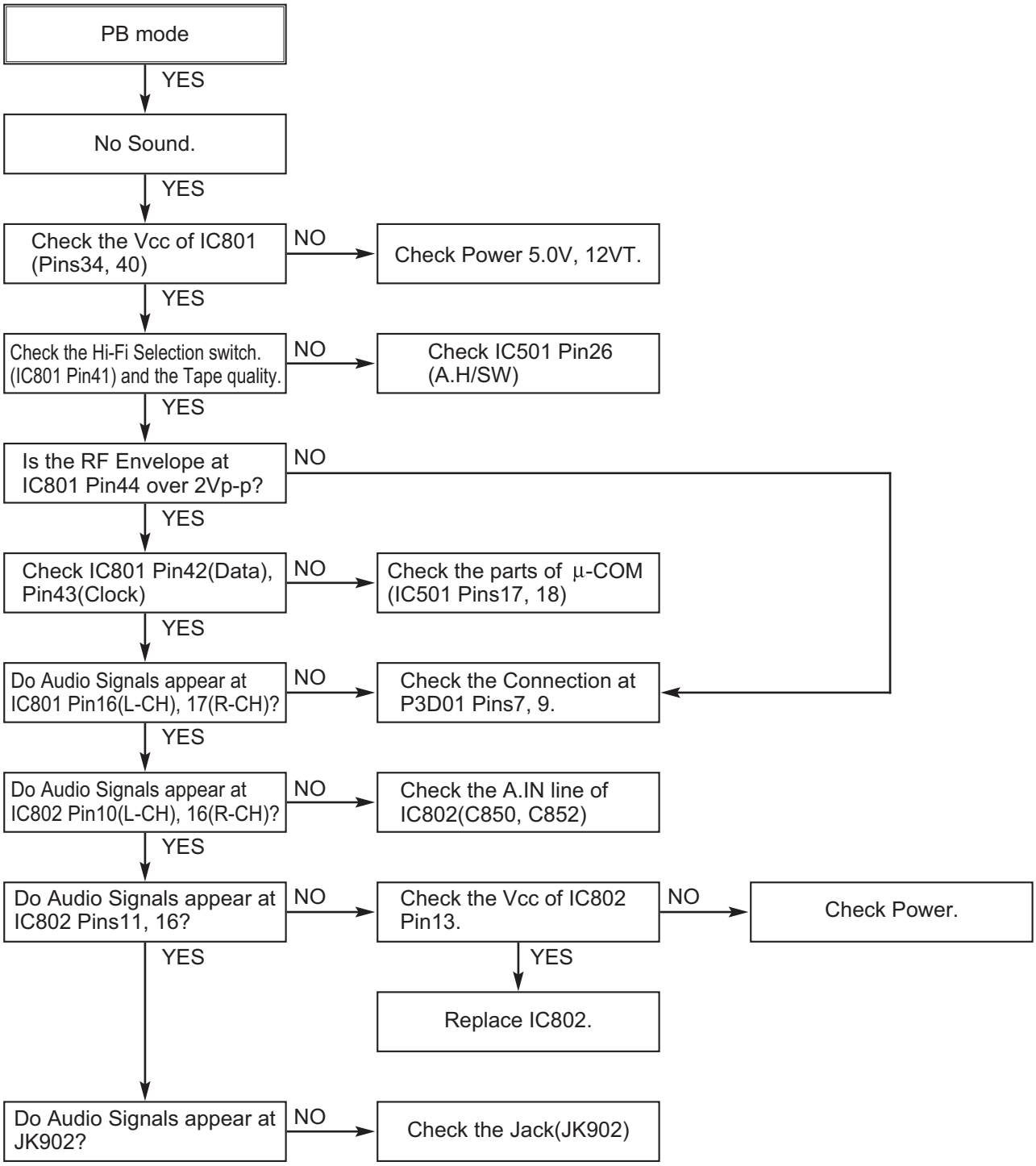


5.1.5 Hi-Fi CIRCUIT

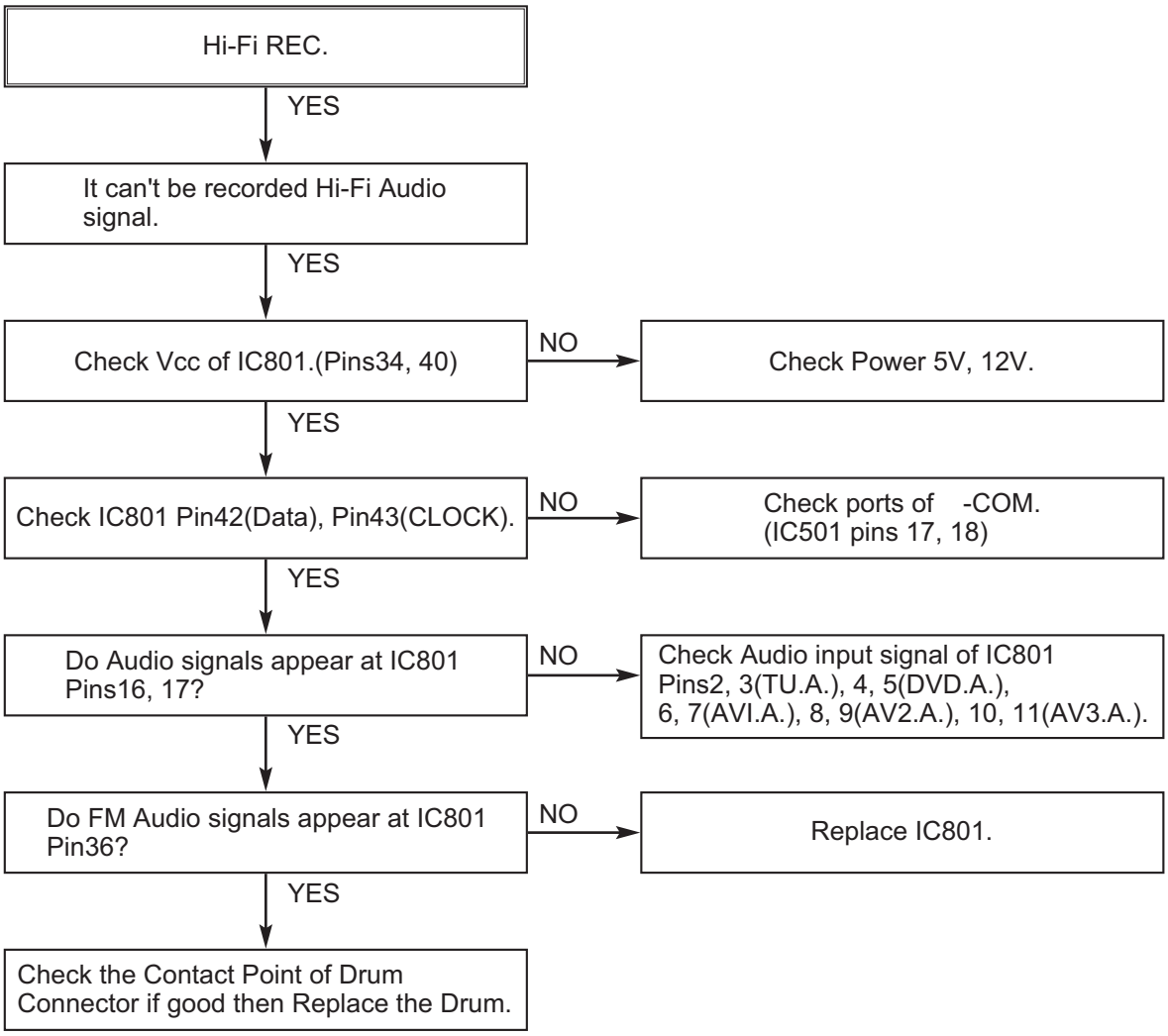
(A) No Sound(EE Mode)



(B) Hi-Fi Playback

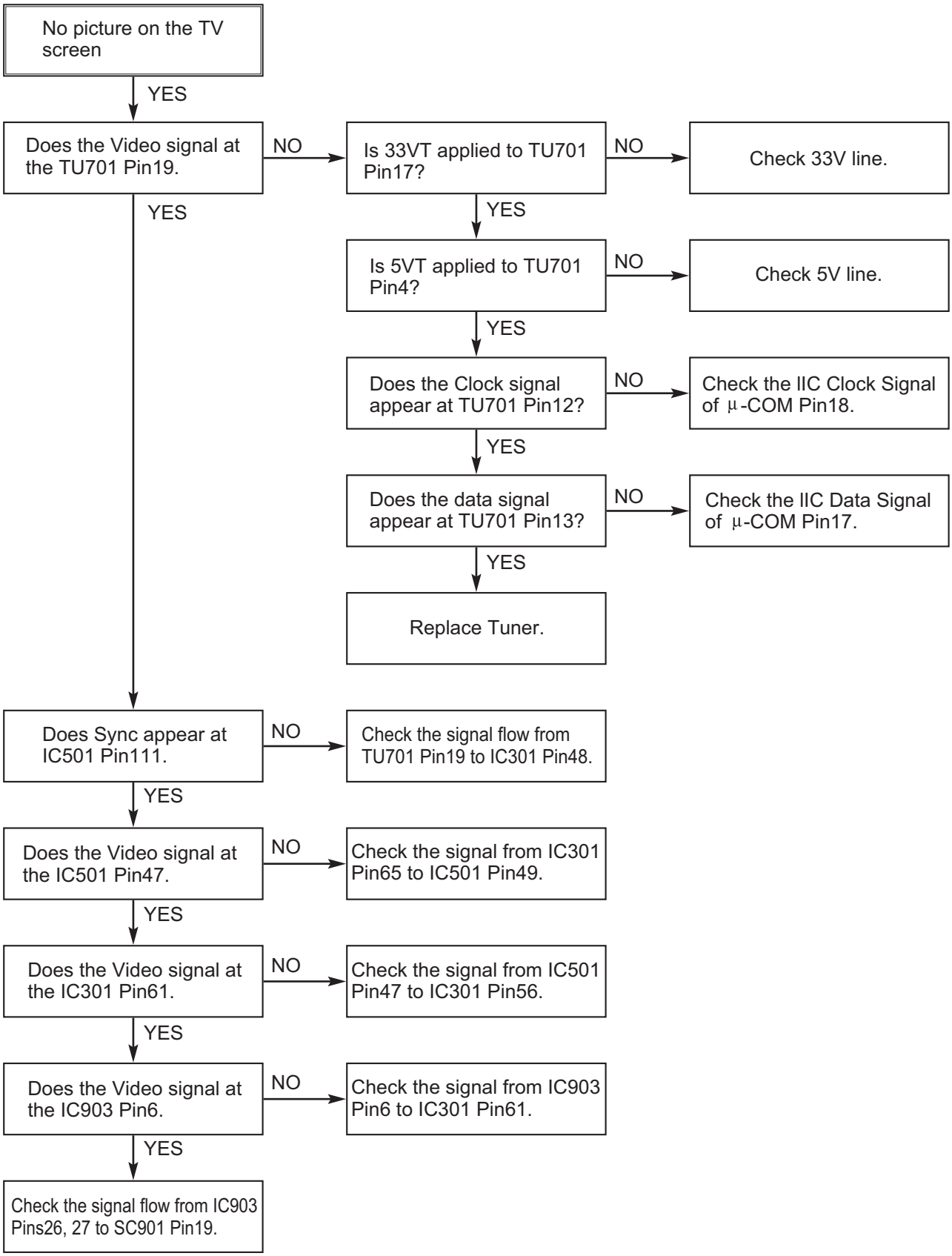


(C)

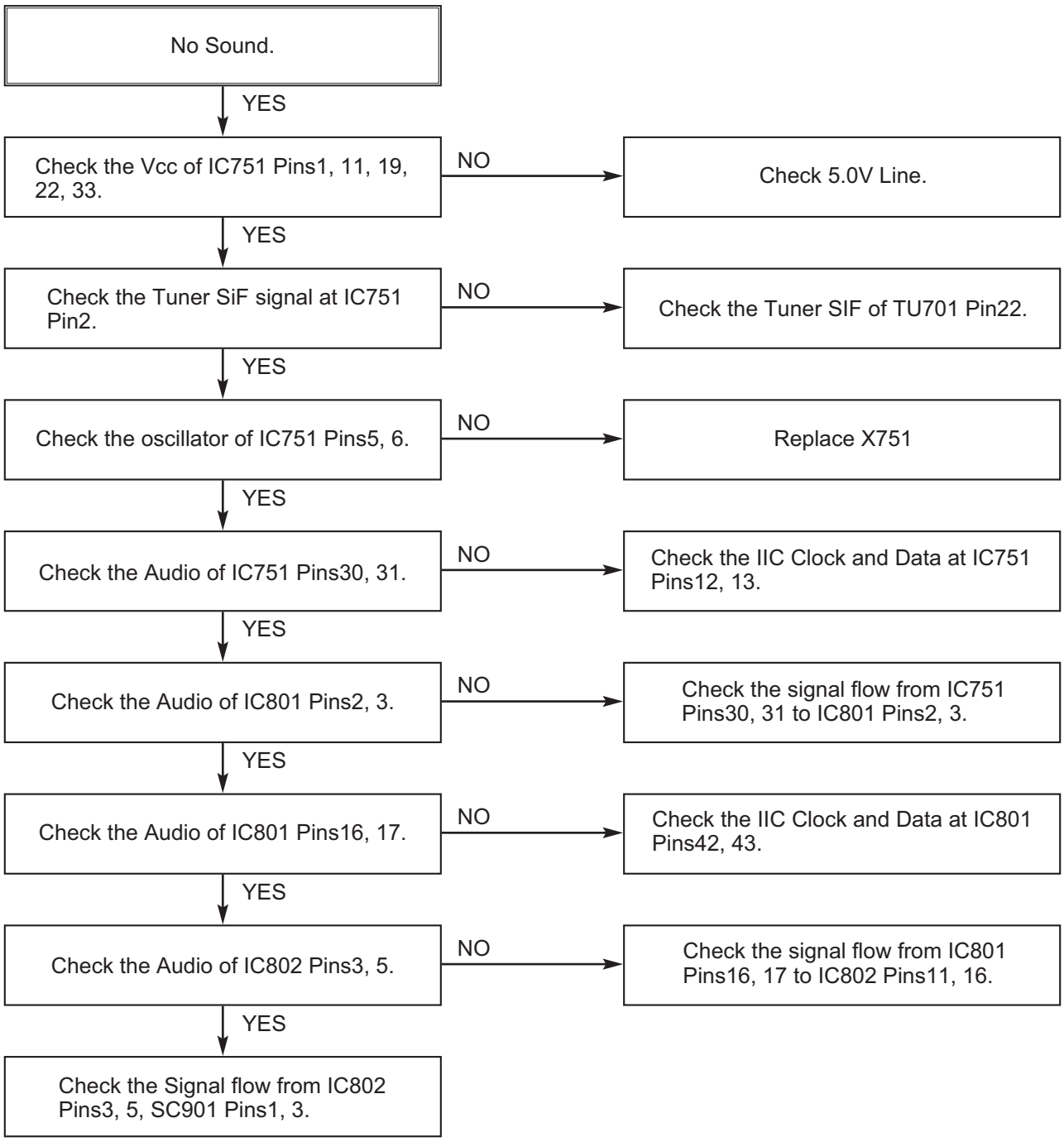

Hi-Fi REC.
YES
It can't be recorded Hi-Fi Audio signal.
YES
Check Vcc of IC801.(Pins34, 40)
NO
Check Power 5V, 12V.
YES
Check IC801 Pin42(Data), Pin43(CLOCK).
NO
Check ports of -COM. (IC501 pins 17, 18)
YES
Do Audio signals appear at IC801 Pins16, 17?
NO
Check Audio input signal of IC801 Pins2, 3(TU.A.), 4, 5(DVD.A.), 6, 7(AVI.A.), 8, 9(AV2.A.), 10, 11(AV3.A.).
YES
Do FM Audio signals appear at IC801 Pin36?
NO
Replace IC801.
YES
Check the Contact Point of Drum Connector if good then Replace the Drum.

5.1.6 Tuner/IF CIRCUIT

(A) No Picture on the TV screen



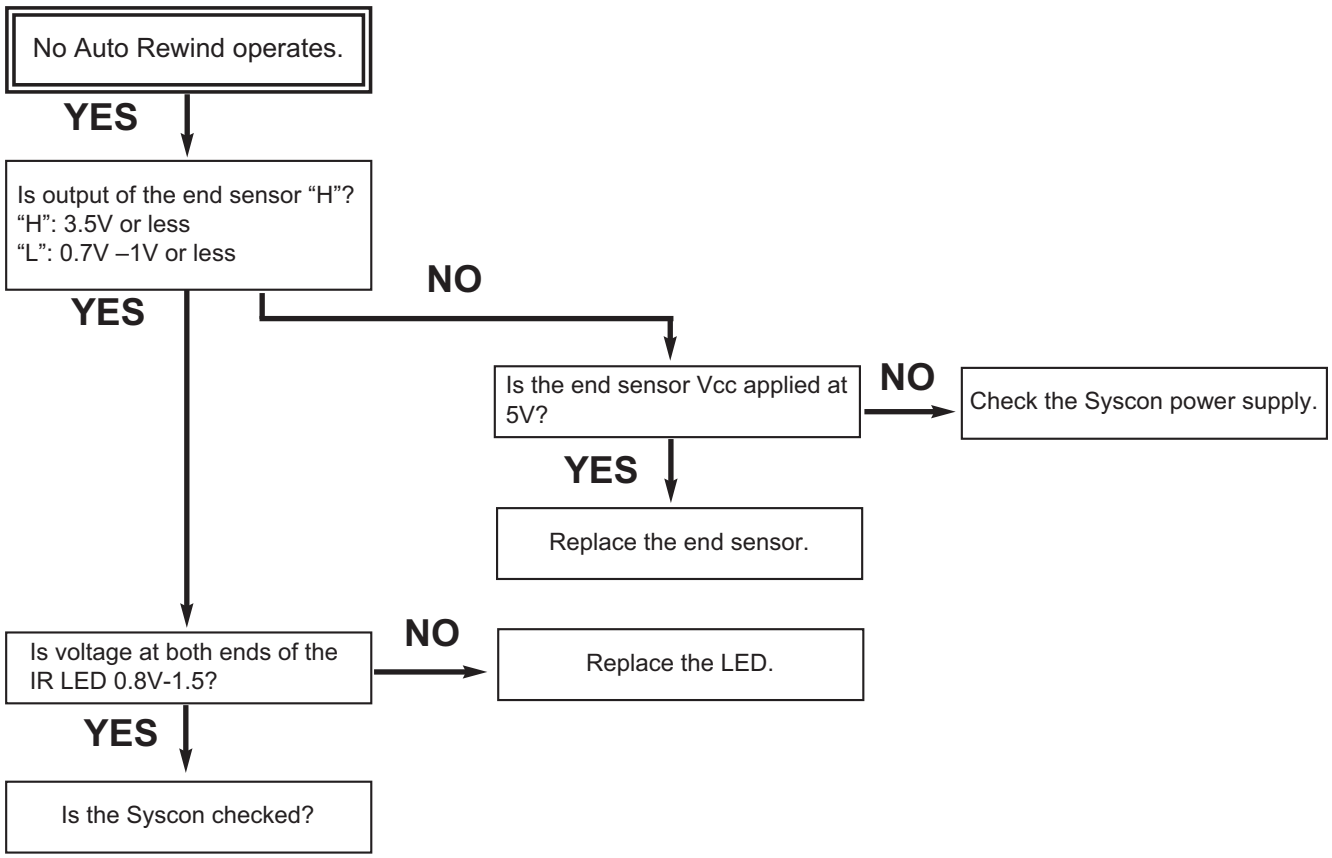
(B) No Sound


No Sound.
YES
Check the Vcc of IC751 Pins1, 11, 19, 22, 33.
NO
Check 5.0V Line.
YES
Check the Tuner SiF signal at IC751 Pin2.
NO
Check the Tuner SIF of TU701 Pin22.
YES
Check the oscillator of IC751 Pins5, 6.
NO
Replace X751
YES
Check the Audio of IC751 Pins30, 31.
NO
Check the IIC Clock and Data at IC751 Pins12, 13.
YES
Check the Audio of IC801 Pins2, 3.
NO
Check the signal flow from IC751 Pins30, 31 to IC801 Pins2, 3.
YES
Check the Audio of IC801 Pins16, 17.
NO
Check the IIC Clock and Data at IC801 Pins42, 43.
YES
Check the Audio of IC802 Pins3, 5.
NO
Check the signal flow from IC801 Pins16, 17 to IC802 Pins11, 16.
YES
Check the Signal flow from IC802 Pins3, 5, SC901 Pins1, 3.

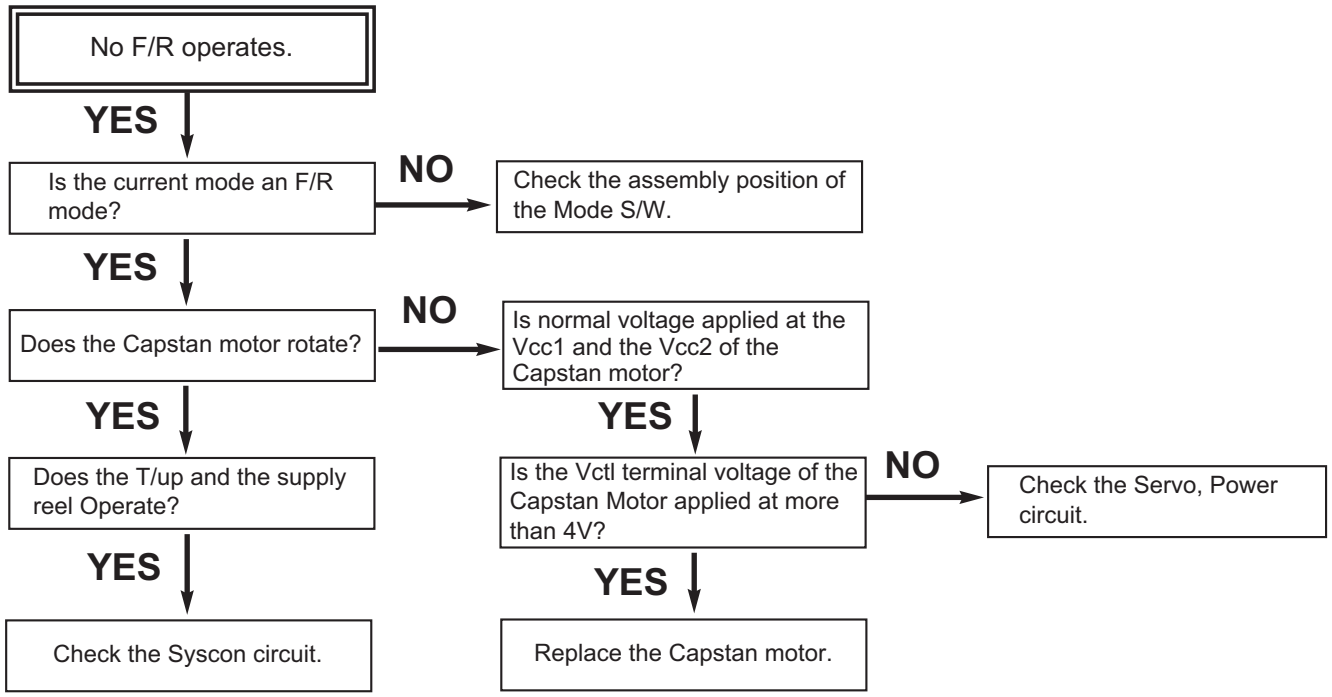
5.2 MECHANISM TROUBLESHOOTING GUIDE (VCR PART)

5.2.1 Deck Mechanism

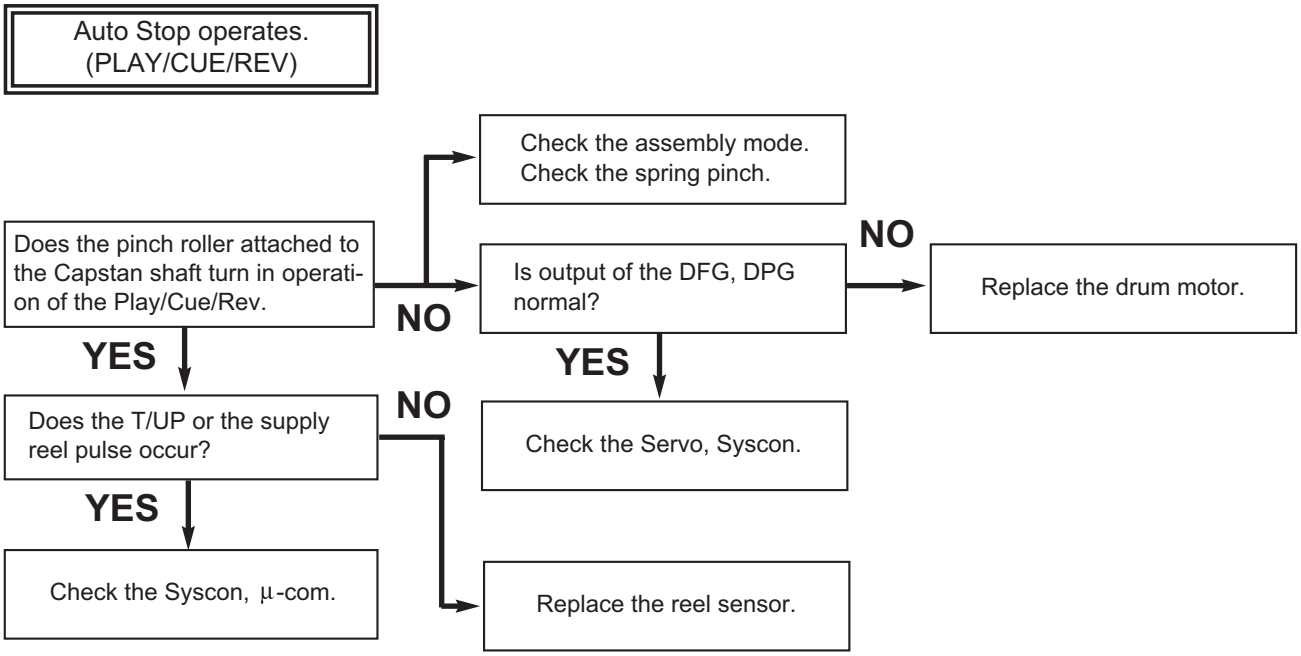
A.



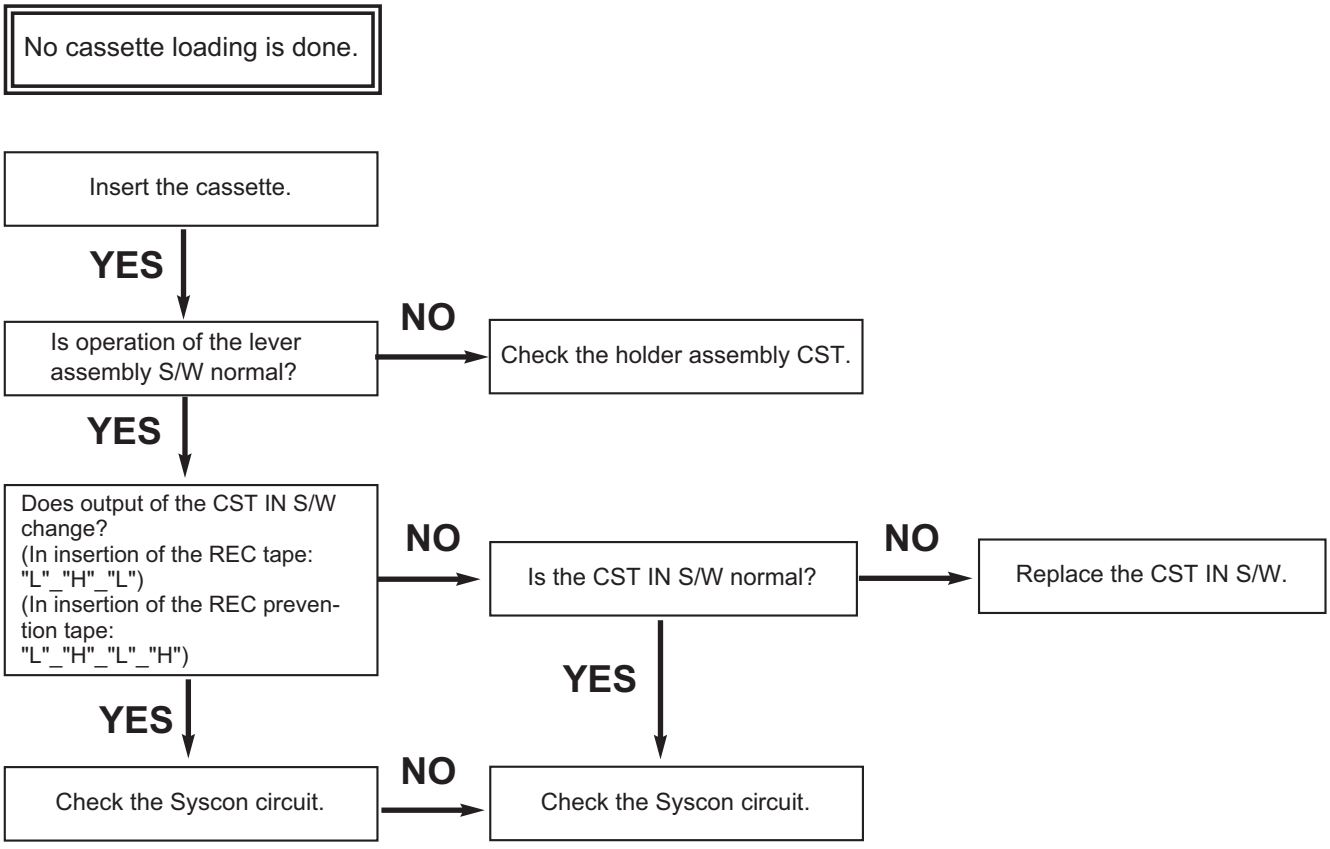
B.



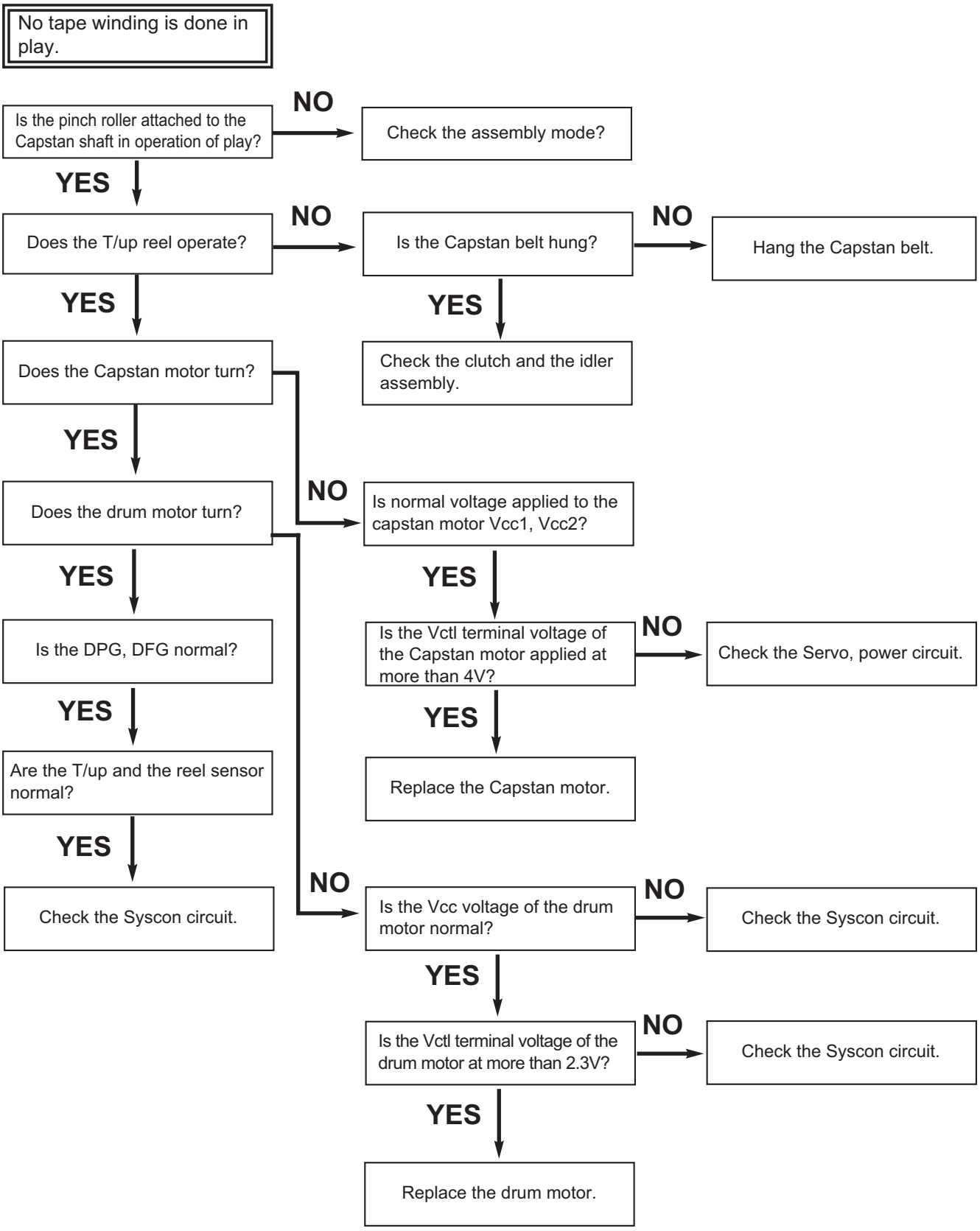
C.


Auto Stop operates.
(PLAY/CUE/REV)
Does the pinch roller attached to the Capstan shaft turn in operation of the Play/Cue/Rev.
Check the assembly mode.
Check the spring pinch.
NO
YES
Is output of the DFG, DPG normal?
NO
Replace the drum motor.
YES
Does the T/UP or the supply reel pulse occur?
NO
Check the Servo, Syscon.
YES
Check the Syscon, μ-com.
Replace the reel sensor.

D.

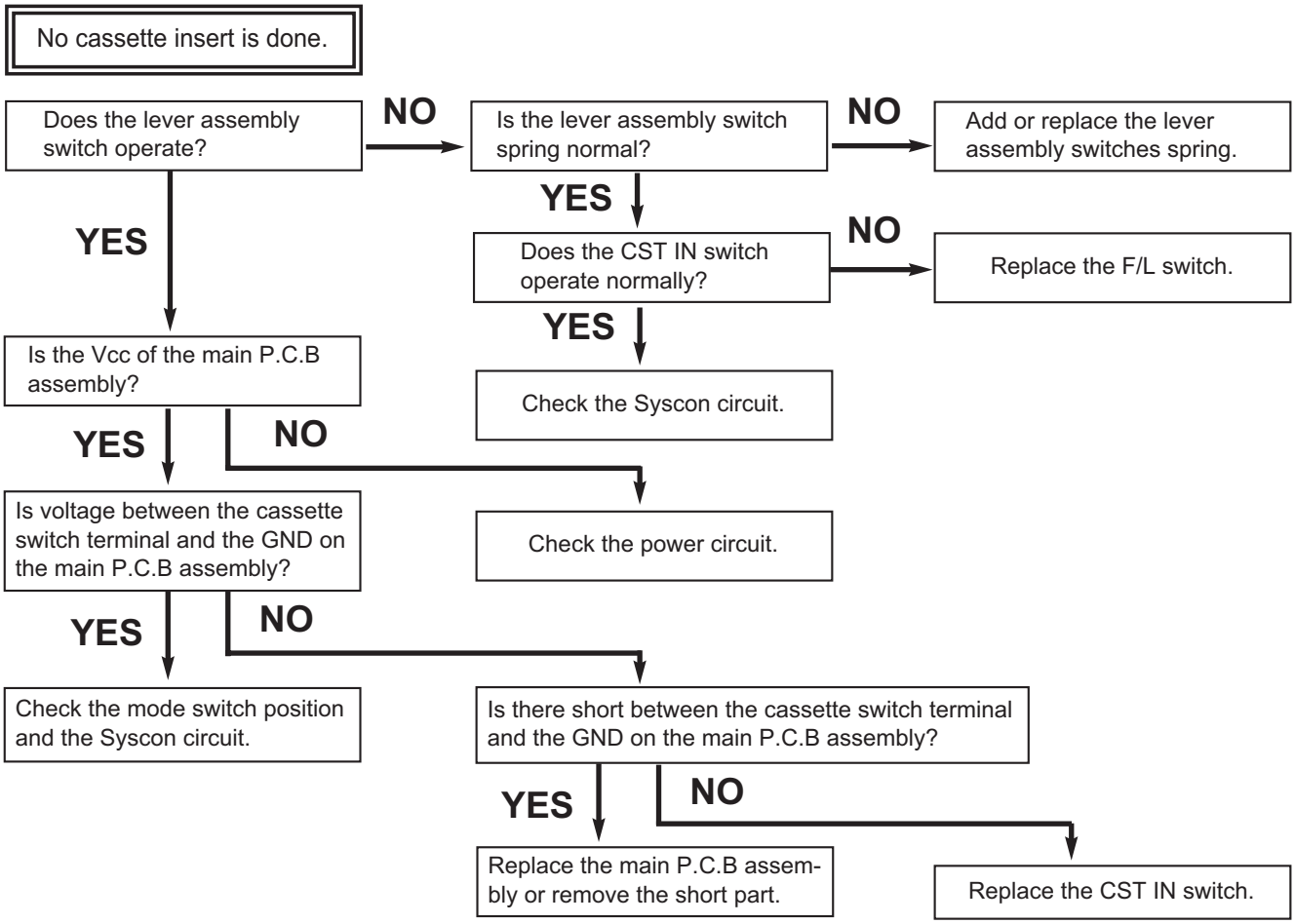

No cassette loading is done.
Insert the cassette.
YES
Is operation of the lever assembly S/W normal?
NO
Check the holder assembly CST.
YES
Does output of the CST IN S/W change?
(In insertion of the REC tape: "L"_"H"_"L")
(In insertion of the REC prevention tape: "L"_"H"_"L"_"H")
NO
Is the CST IN S/W normal?
NO
Replace the CST IN S/W.
YES
YES
Check the Syscon circuit.
NO
Check the Syscon circuit.

E.

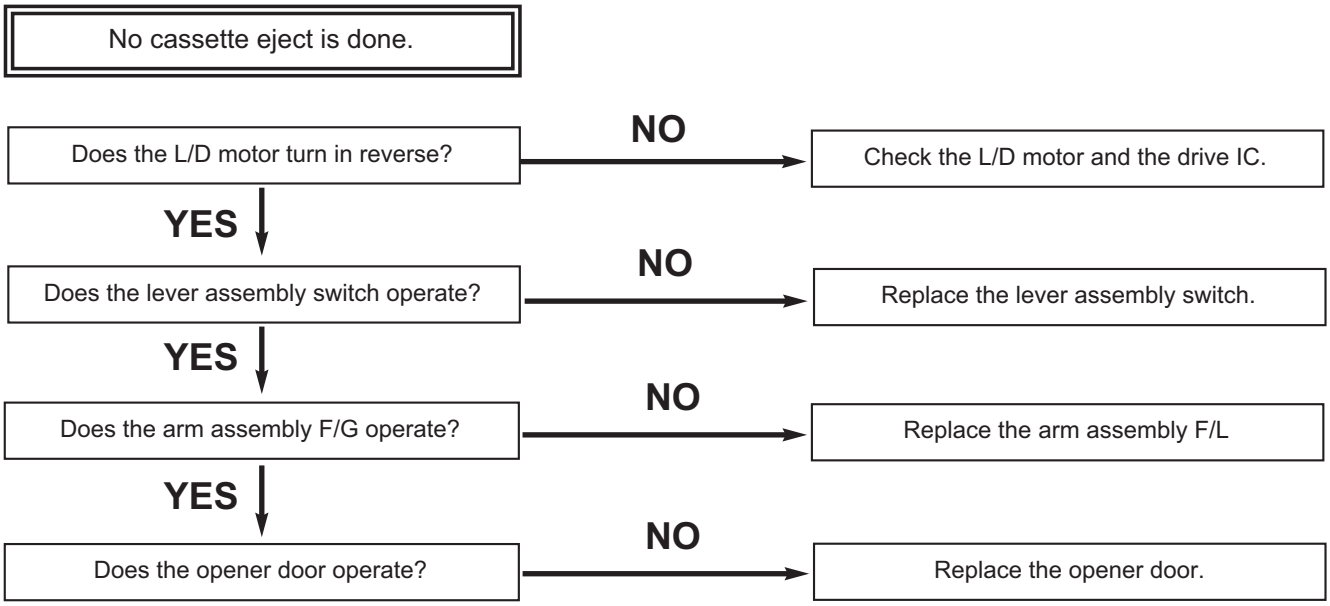

No tape winding is done in play.
Is the pinch roller attached to the Capstan shaft in operation of play?
NO
Check the assembly mode?
YES
Does the T/up reel operate?
NO
Is the Capstan belt hung?
NO
Hang the Capstan belt.
YES
YES
Check the clutch and the idler assembly.
Does the Capstan motor turn?
YES
Does the drum motor turn?
NO
Is normal voltage applied to the capstan motor Vcc1, Vcc2?
YES
YES
Is the DPG, DFG normal?
Is the Vctl terminal voltage of the Capstan motor applied at more than 4V?
NO
Check the Servo, power circuit.
YES
YES
Are the T/up and the reel sensor normal?
Replace the Capstan motor.
YES
NO
Check the Syscon circuit.
Is the Vcc voltage of the drum motor normal?
NO
Check the Syscon circuit.
YES
Is the Vctl terminal voltage of the drum motor at more than 2.3V?
NO
Check the Syscon circuit.
YES
Replace the drum motor.

5.2.2 Front Loading Mechanism

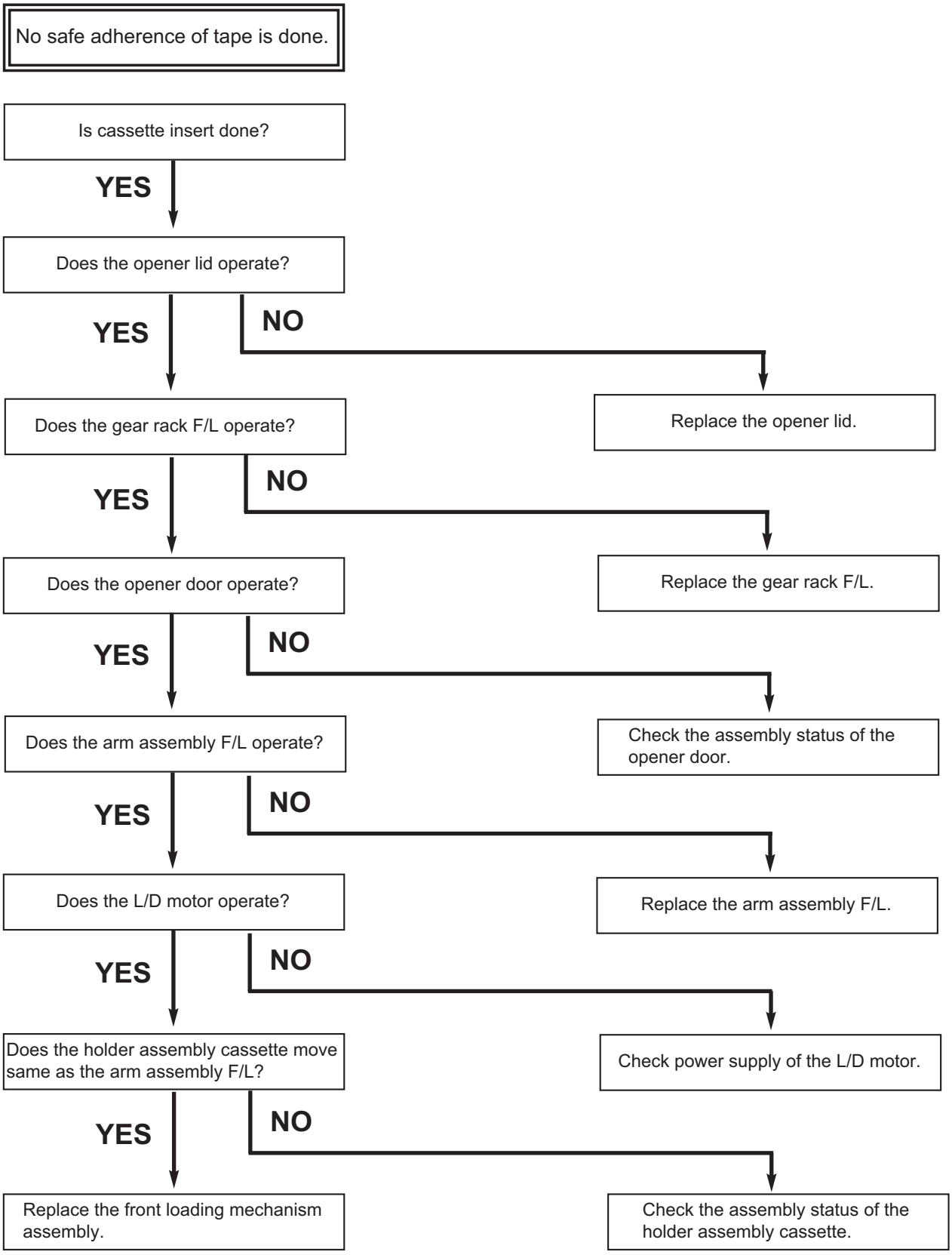
A.



B.

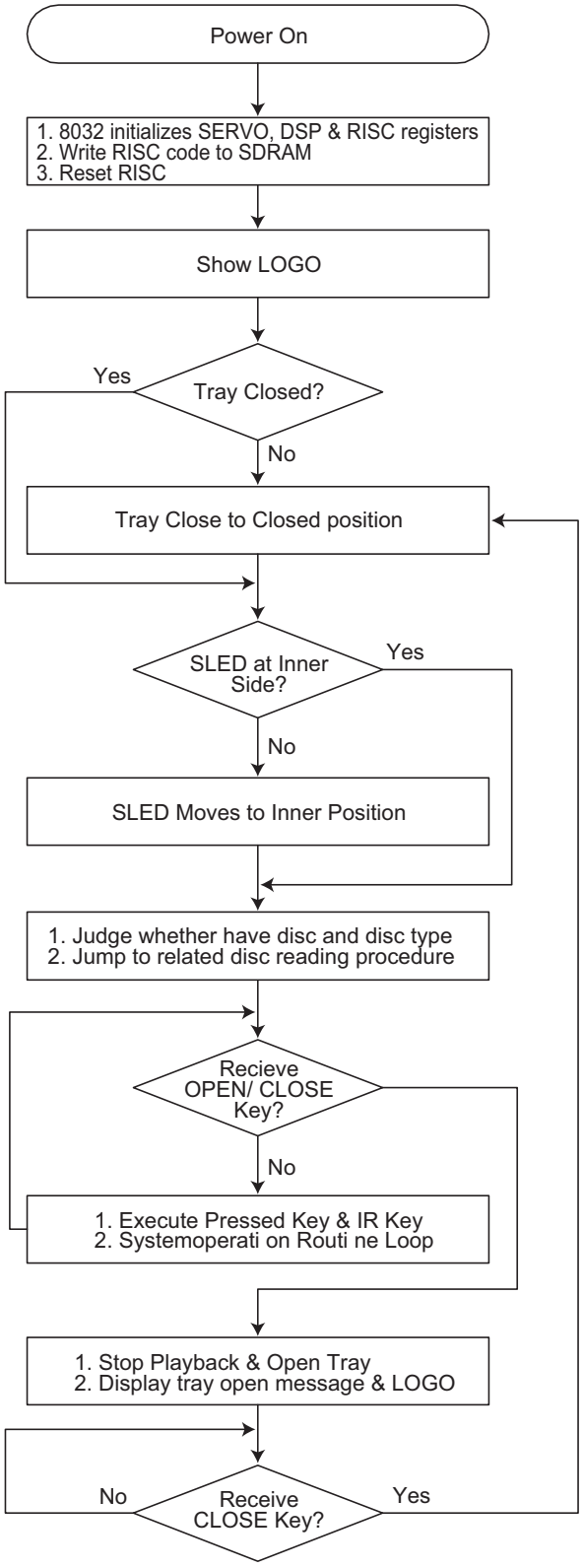


C.

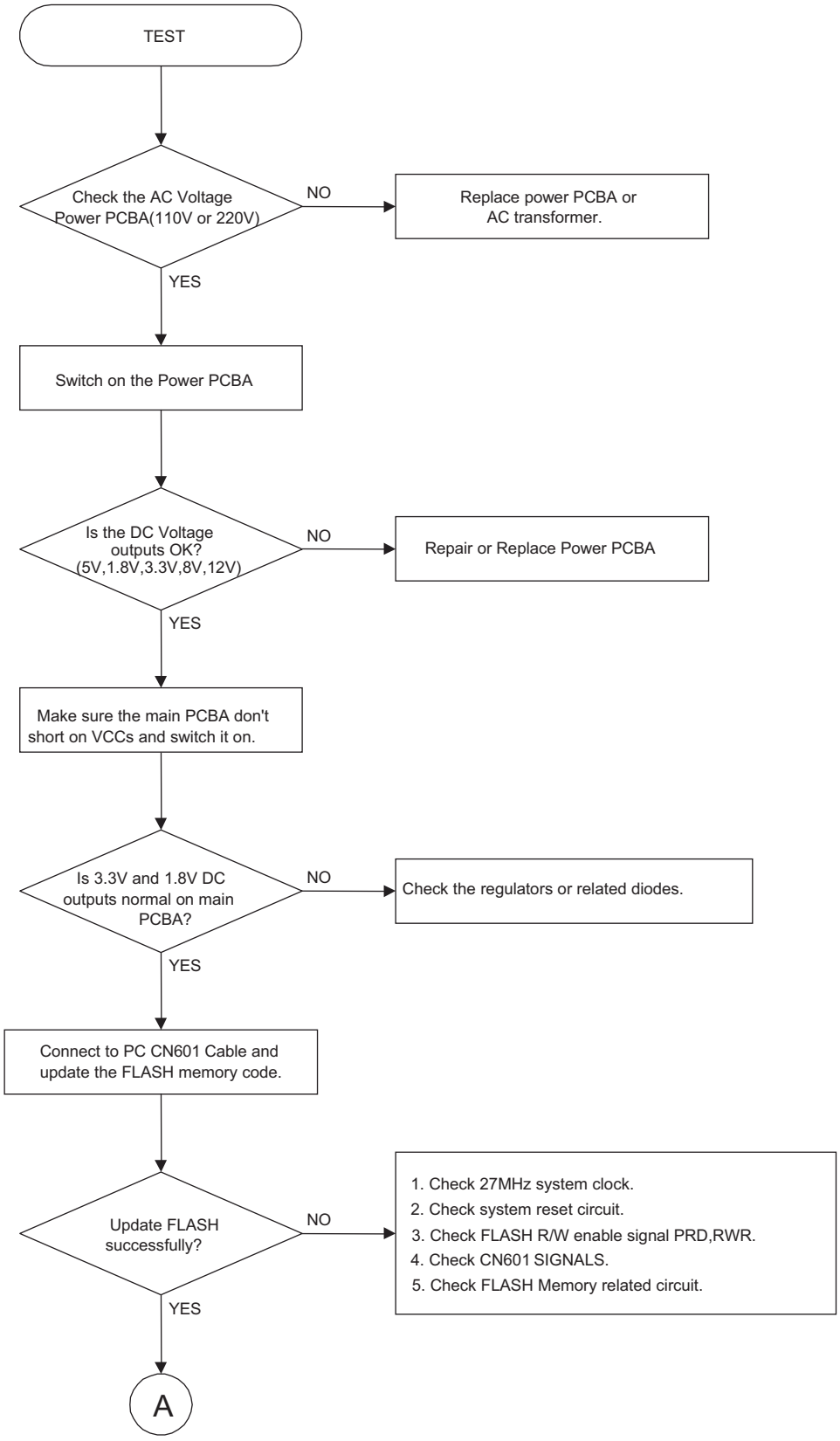

No safe adherence of tape is done.
Is cassette insert done?
YES
Does the opener lid operate?
YES
NO
Replace the opener lid.
Does the gear rack F/L operate?
YES
NO
Replace the gear rack F/L.
Does the opener door operate?
YES
NO
Check the assembly status of the opener door.
Does the arm assembly F/L operate?
YES
NO
Replace the arm assembly F/L.
Does the L/D motor operate?
YES
NO
Check power supply of the L/D motor.
Does the holder assembly cassette move same as the arm assembly F/L?
YES
NO
Check the assembly status of the holder assembly cassette.
Replace the front loading mechanism assembly.

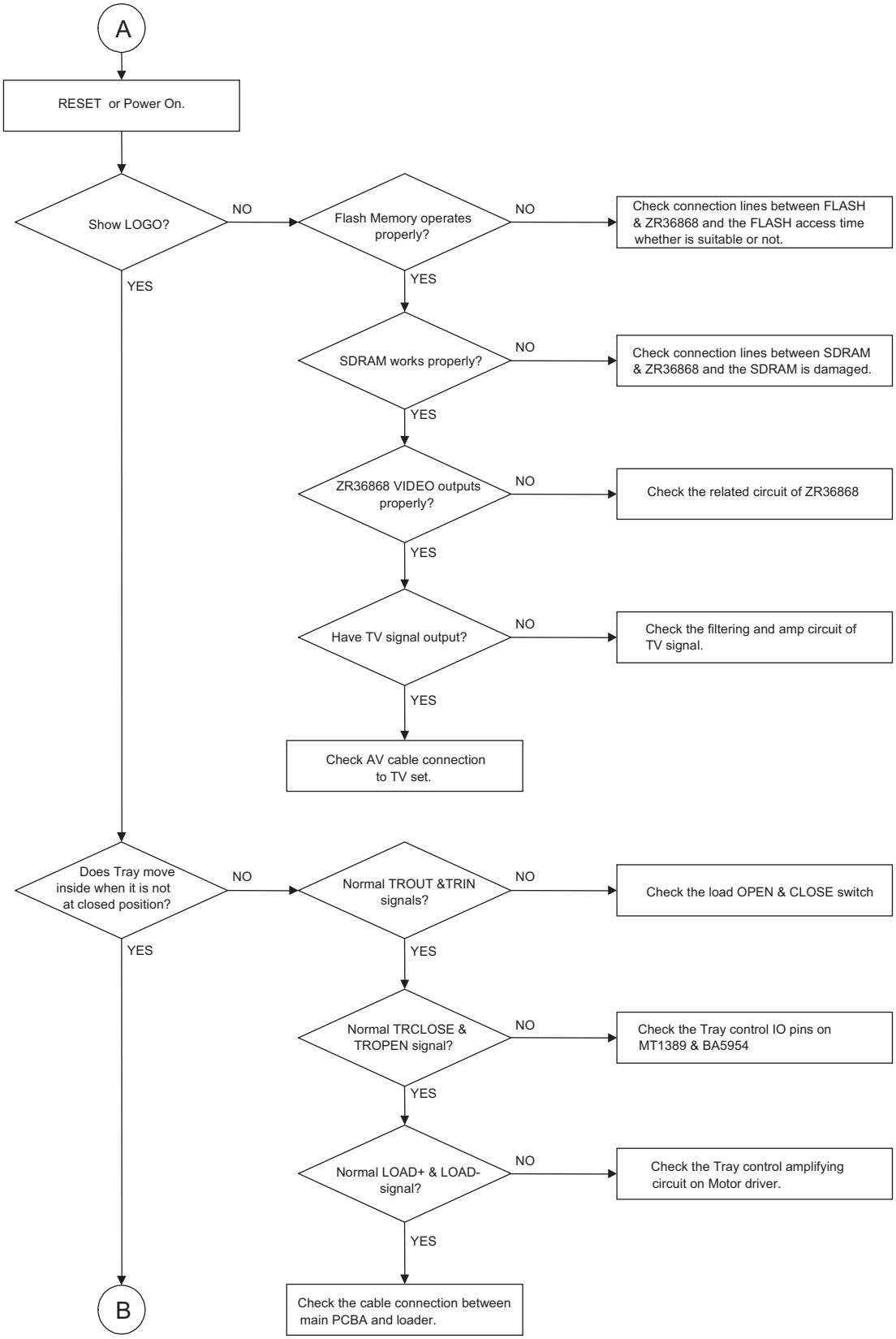
5.3 ELECTRICAL TROUBLESHOOTING GUIDE (DVD PART)

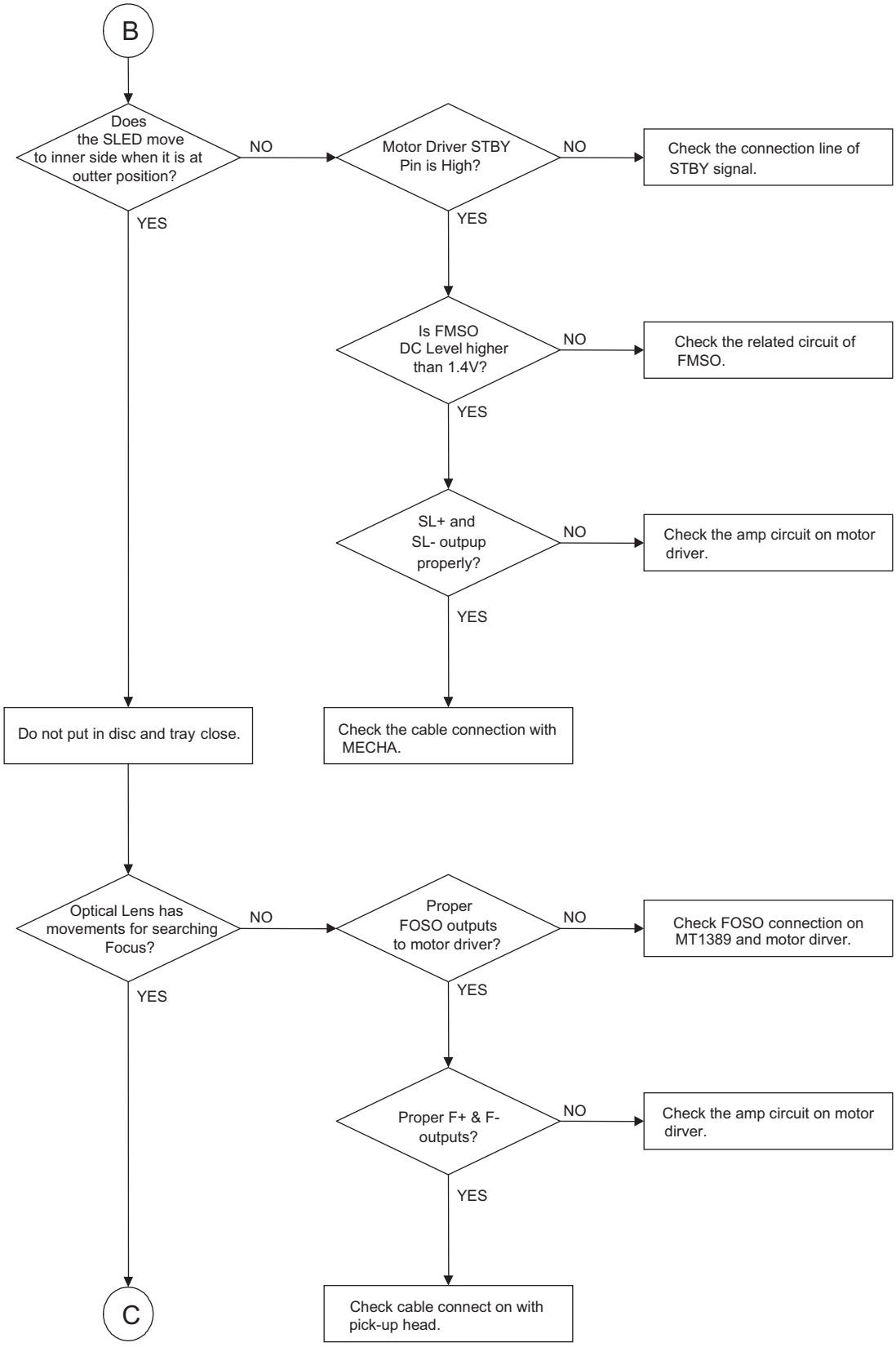
5.3.1 System operation flow

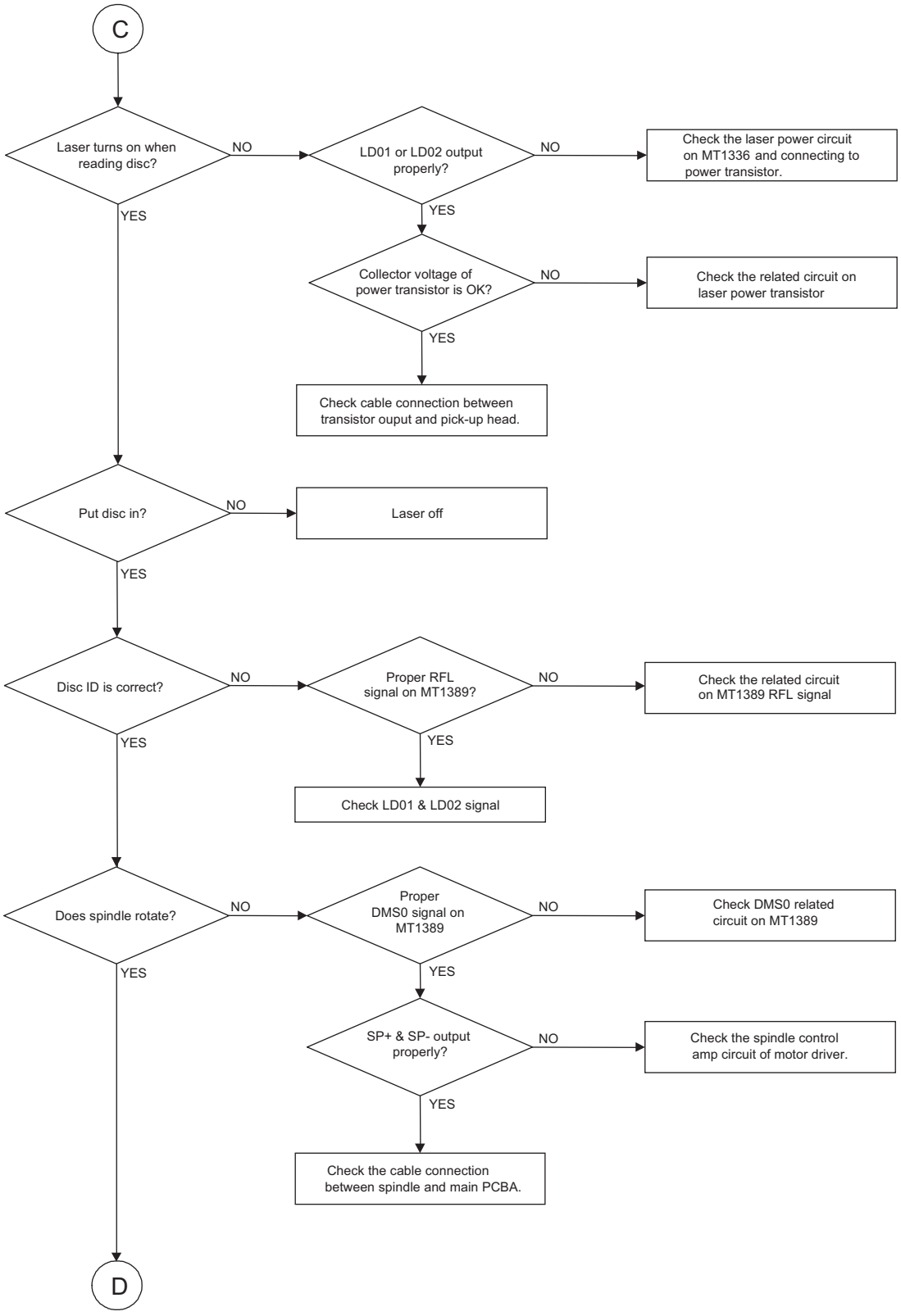


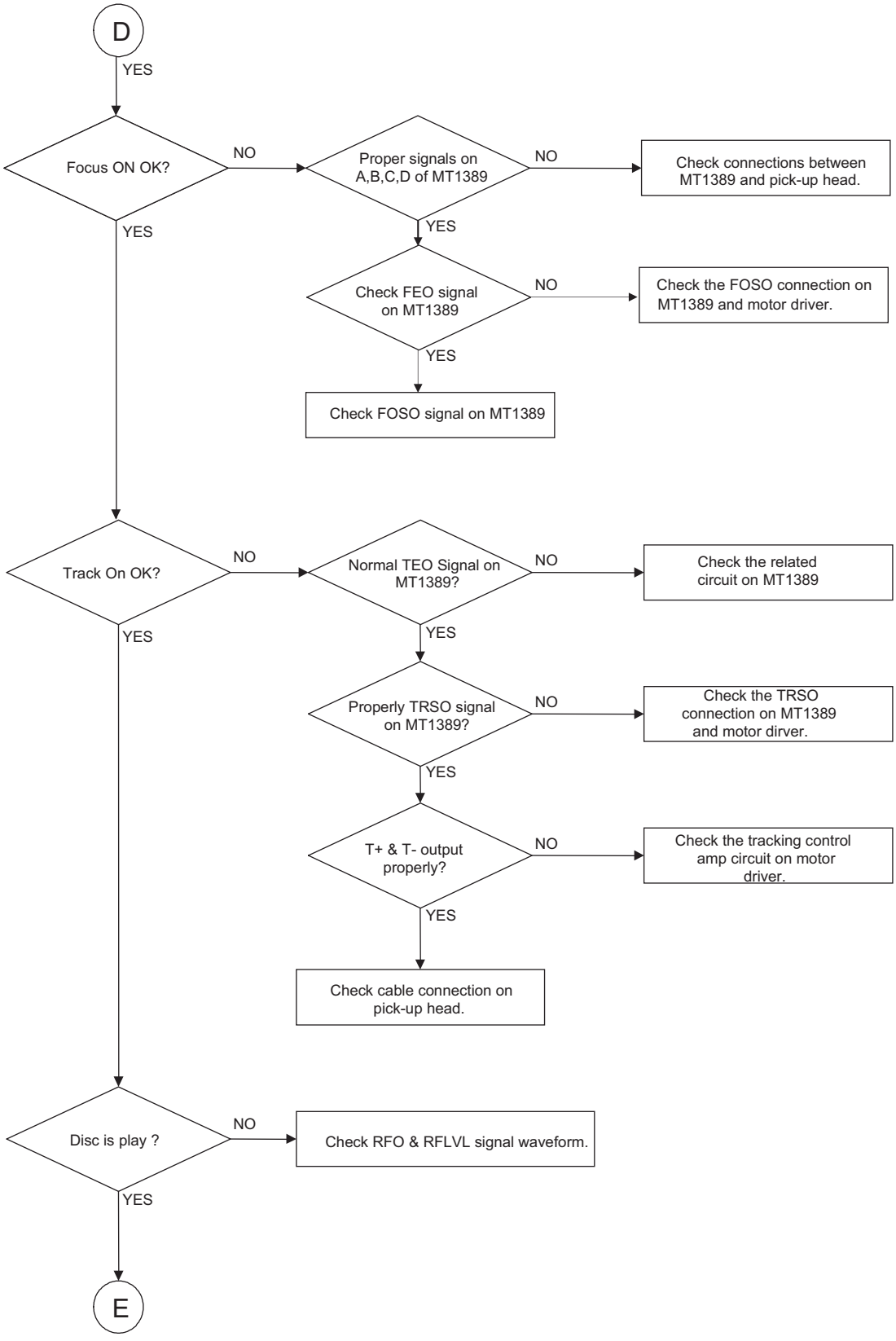
5.3.2 SYSTEM Test flow

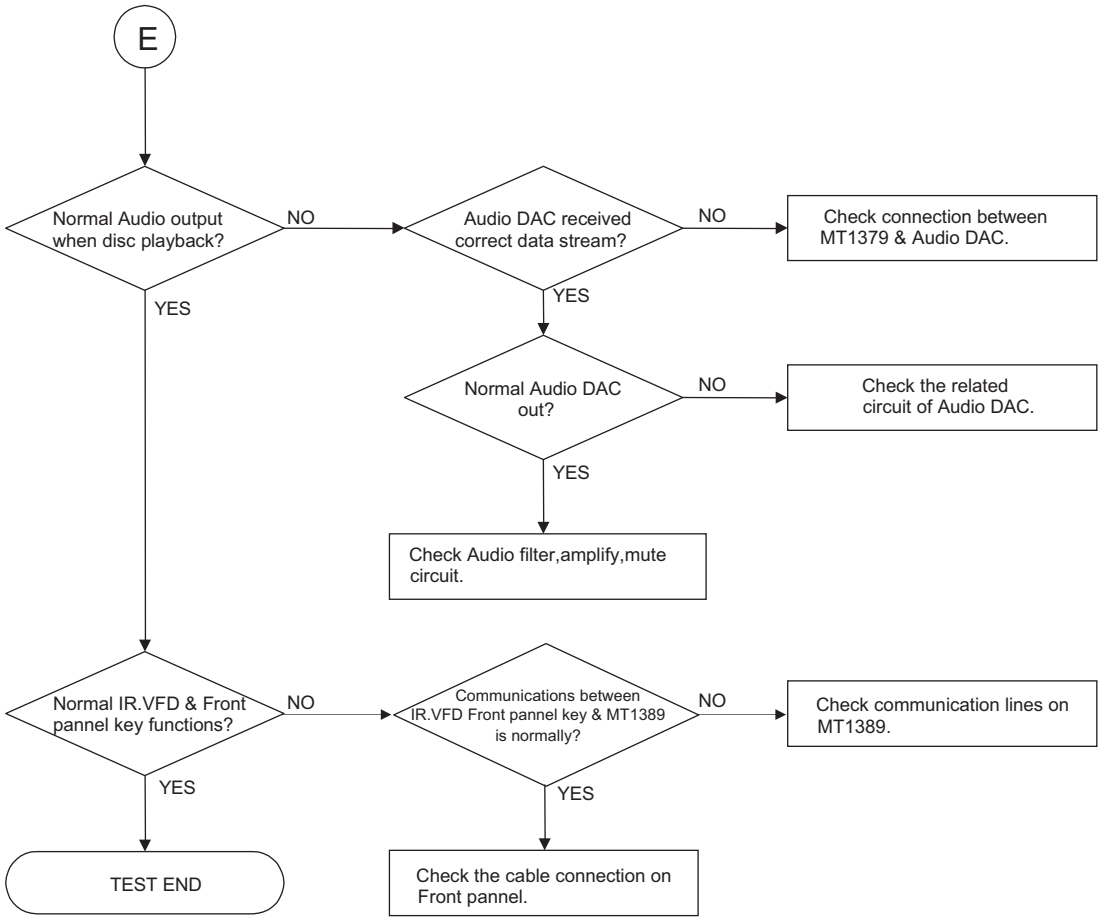



A
RESET or Power On.
Show LOGO?
NO
YES
Flash Memory operates properly?
NO
Check connection lines between FLASH & ZR36868 and the FLASH access time whether is suitable or not.
YES
SDRAM works properly?
NO
Check connection lines between SDRAM & ZR36868 and the SDRAM is damaged.
YES
ZR36868 VIDEO outputs properly?
NO
Check the related circuit of ZR36868
YES
Have TV signal output?
NO
Check the filtering and amp circuit of TV signal.
YES
Check AV cable connection to TV set.
Does Tray move inside when it is not at closed position?
NO
YES
Normal TROUT &TRIN signals?
NO
Check the load OPEN & CLOSE switch
YES
Normal TRCLOSE & TROPEN signal?
NO
Check the Tray control IO pins on MT1389 & BA5954
YES
Normal LOAD+ & LOAD- signal?
NO
Check the Tray control amplifying circuit on Motor driver.
YES
Check the cable connection between main PCBA and loader.
B


B
Does the SLED move to inner side when it is at outter position?
NO
YES
Motor Driver STBY Pin is High?
NO
YES
Check the connection line of STBY signal.
Is FMSO DC Level higher than 1.4V?
NO
YES
Check the related circuit of FMSO.
SL+ and SL- outpup properly?
NO
YES
Check the amp circuit on motor driver.
Do not put in disc and tray close.
Check the cable connection with MECHA.
Optical Lens has movements for searching Focus?
NO
YES
Proper FOSO outputs to motor driver?
NO
YES
Check FOSO connection on MT1389 and motor dirver.
Proper F+ & F- outputs?
NO
YES
Check the amp circuit on motor dirver.
C
Check cable connect on with pick-up head.


C
Laser turns on when reading disc?
NO
LD01 or LD02 output properly?
NO
Check the laser power circuit on MT1336 and connecting to power transistor.
YES
YES
Collector voltage of power transistor is OK?
NO
Check the related circuit on laser power transistor
YES
Check cable connection between transistor ouput and pick-up head.
Put disc in?
NO
Laser off
YES
Disc ID is correct?
NO
Proper RFL signal on MT1389?
NO
Check the related circuit on MT1389 RFL signal
YES
YES
Check LD01 & LD02 signal
Does spindle rotate?
NO
Proper DMS0 signal on MT1389
NO
Check DMS0 related circuit on MT1389
YES
YES
SP+ & SP- output properly?
NO
Check the spindle control amp circuit of motor driver.
YES
Check the cable connection between spindle and main PCBA.
D

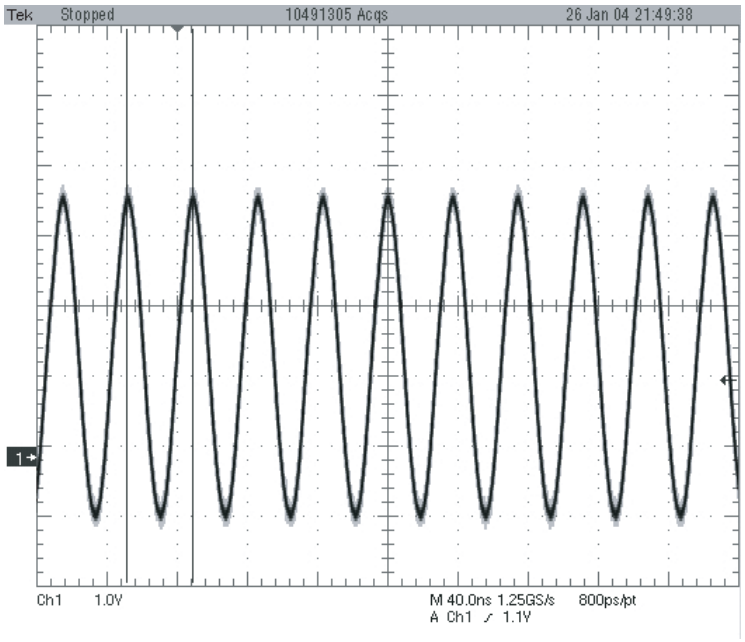

D
YES
Focus ON OK?
NO
Proper signals on A,B,C,D of MT1389
NO
Check connections between MT1389 and pick-up head.
YES
YES
Check FEO signal on MT1389
NO
Check the FOSO connection on MT1389 and motor driver.
YES
Check FOSO signal on MT1389
Track On OK?
NO
Normal TEO Signal on MT1389?
NO
Check the related circuit on MT1389
YES
YES
Properly TRSO signal on MT1389?
NO
Check the TRSO connection on MT1389 and motor dirver.
YES
T+ & T- output properly?
NO
Check the tracking control amp circuit on motor driver.
YES
Check cable connection on pick-up head.
Disc is play ?
NO
Check RFO & RFLVL signal waveform.
YES
E


E
Normal Audio output when disc playback?
NO
Audio DAC received correct data stream?
NO
Check connection between MT1379 & Audio DAC.
YES
YES
Normal Audio DAC out?
NO
Check the related circuit of Audio DAC.
YES
Check Audio filter,amplify,mute circuit.
Normal IR.VFD & Front pannel key functions?
NO
Communications between IR.VFD Front pannel key & MT1389 is normally?
NO
Check communication lines on MT1389.
YES
YES
TEST END
Check the cable connection on Front pannel.

5.4 DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

5.4.1 SYSTEM 27MHz CLOCK, RESET, FLASH R/W SIGNAL

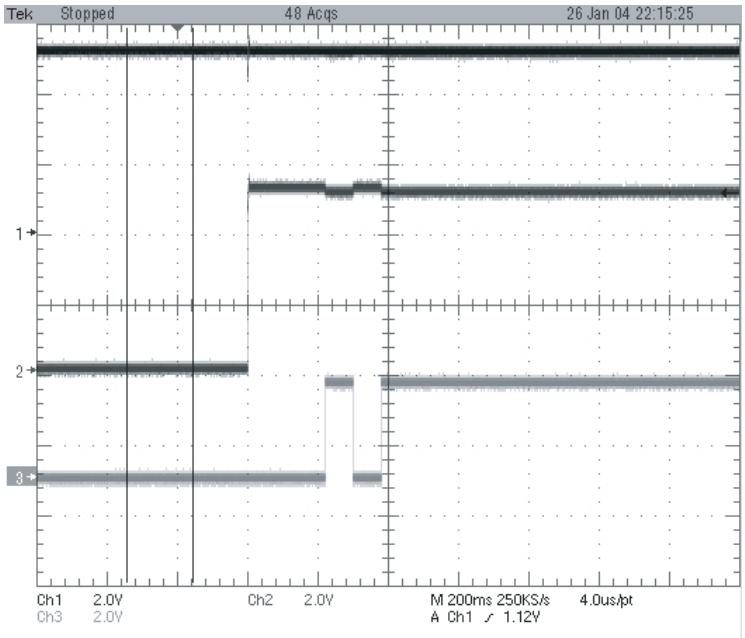
1) MT1389 main clock is at 27MHz(X501)



1.0V, 27MHz

FIG 1-1

2) MT1389 reset is low active



5.2VA

PWR_CTL

M_RESET(FRONT)

FIG 1-2

3) RS232 waveform during procedure(Downloading)

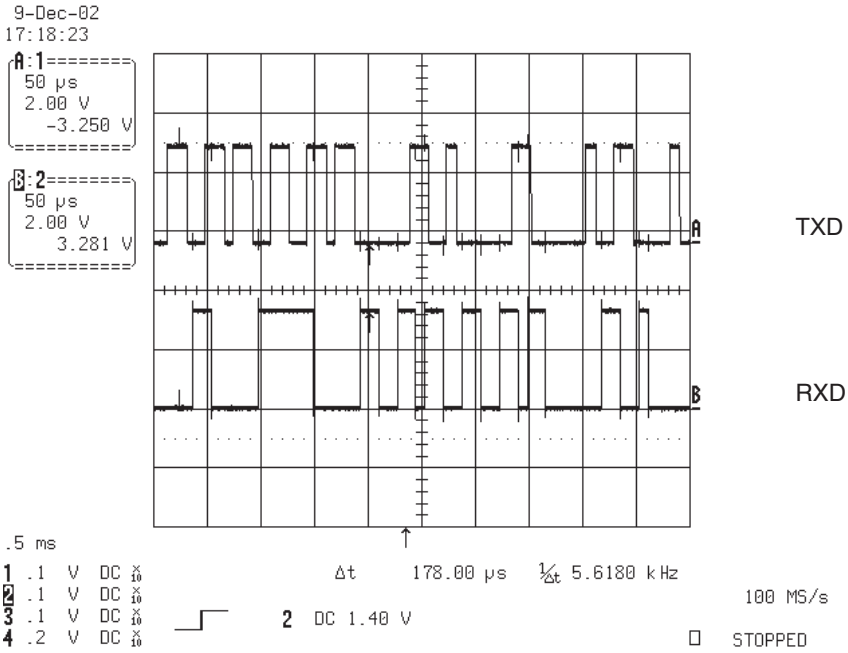


FIG 1-3

4) Flash R/W enable signal during download(Downloading)

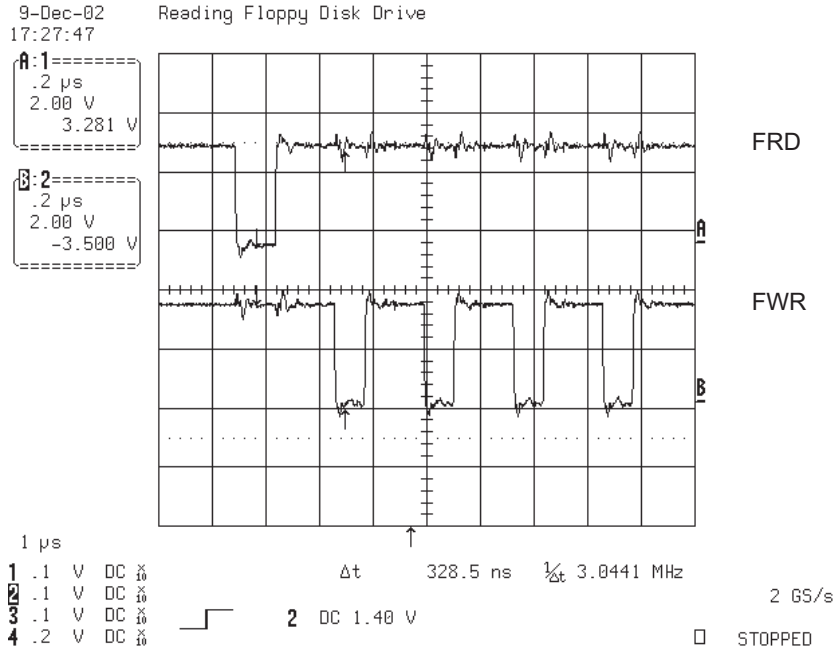


FIG 1-4

5.4.2 SDRAM CLOCK

DCLK = 135MHz, Vp-p=2.2, Vmax=2.7V

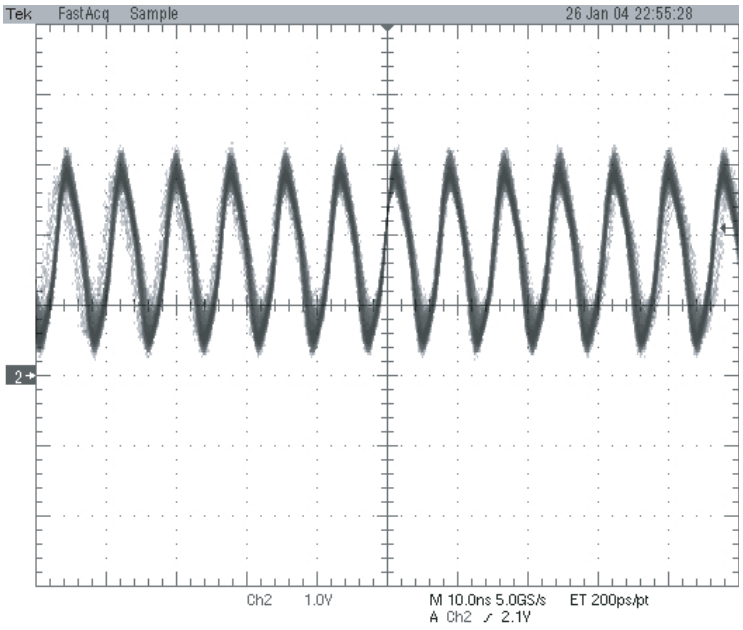


FIG 2-1

5.4.3 TRAY OPEN/CLOSE SIGNAL

1) Tray open/close waveform

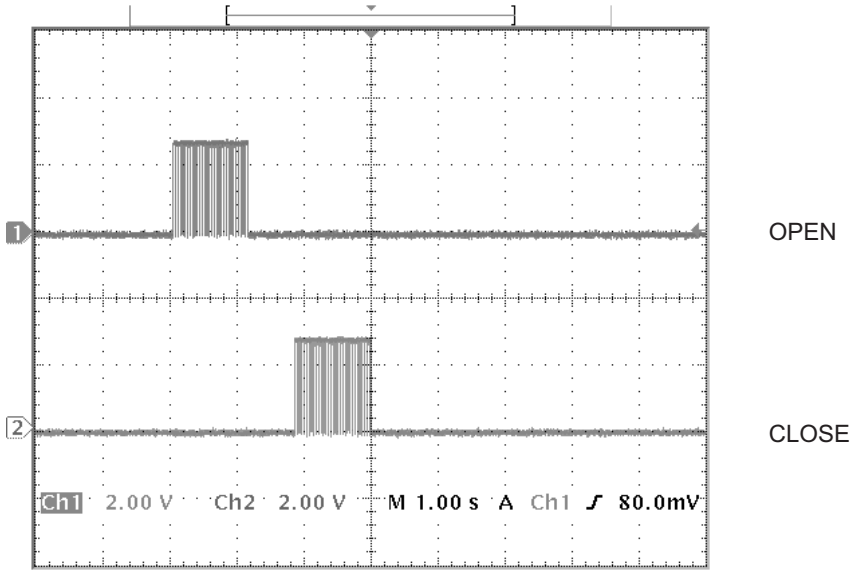
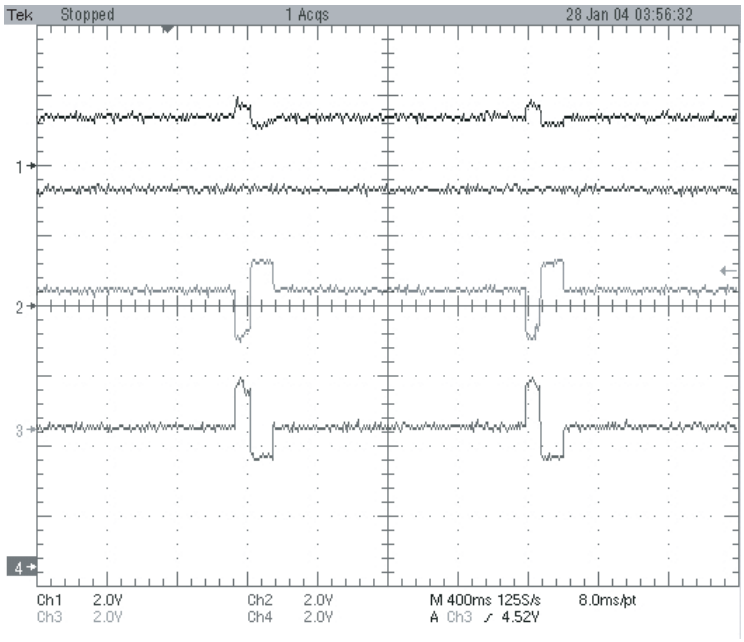


FIG 3-1

5.4.4 SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)



FMSO(2.0V/1.4V/1.0V)

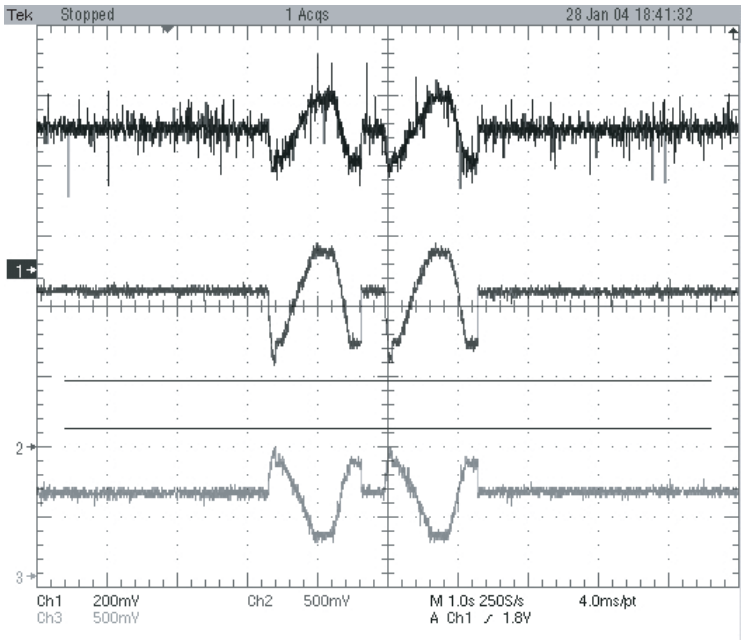
STBY(3.3V)

SL+(4.7V/4.0V/2.6V)

SL-(5.3V/4.0V/3.0V)

FIG 4-1

5.4.5 LENS CONTROL RELATED SIGNAL(NO DISC CONDITION)



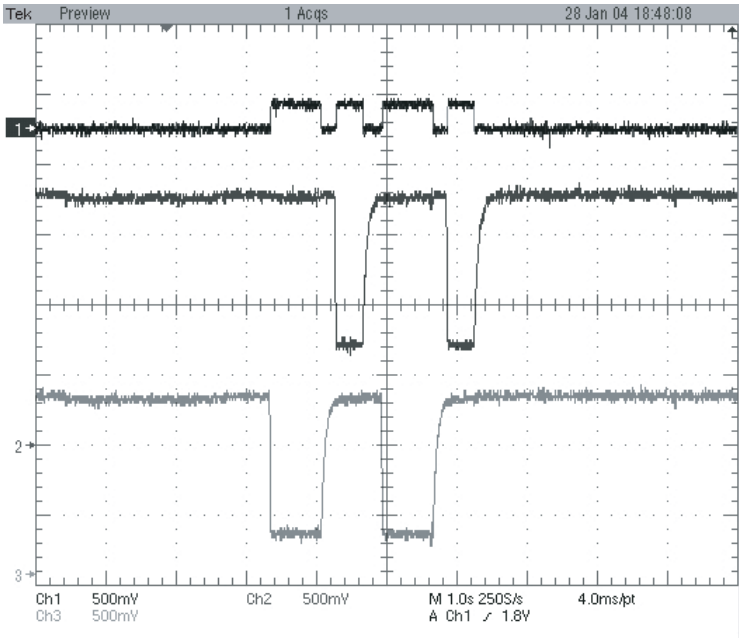
FOSO(1.5V/1.4V/1.3V)

F+(4.0V/3.6V/3.2V)

F-(4.0V/3.6V/3.2V)

FIG 5-1

5.4.6 LASER POWER CONTROL RELATED SIGNAL(NO DISC CONDITION)



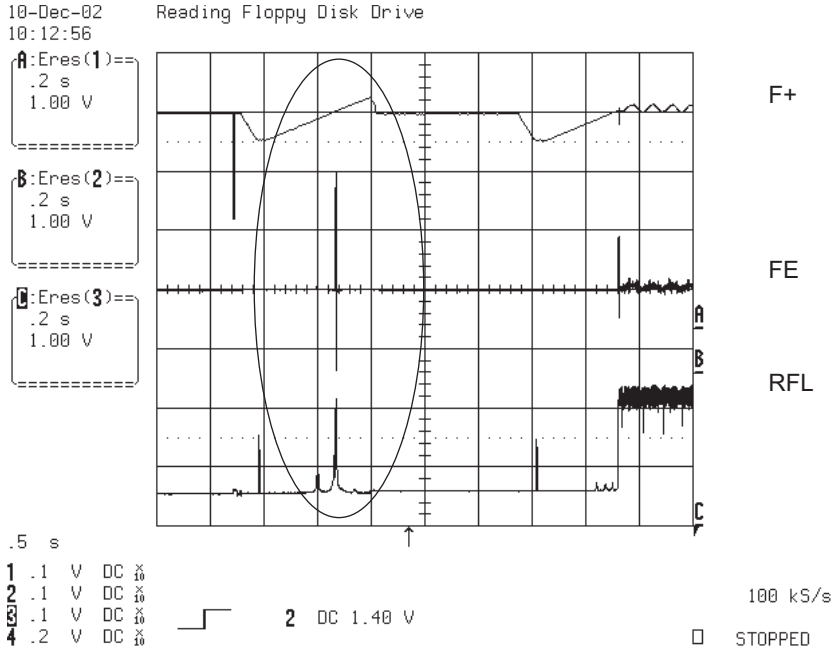
MDI1(0V/180mV)

LD01(5.0V//3.5V)

LD02(5.0V/3.6V)

FIG 6-1

5.4.7 DISC TYPE JUDGEMENT WAVEFORM



F+

FE

RFL

FIG 7-1 (DVD)

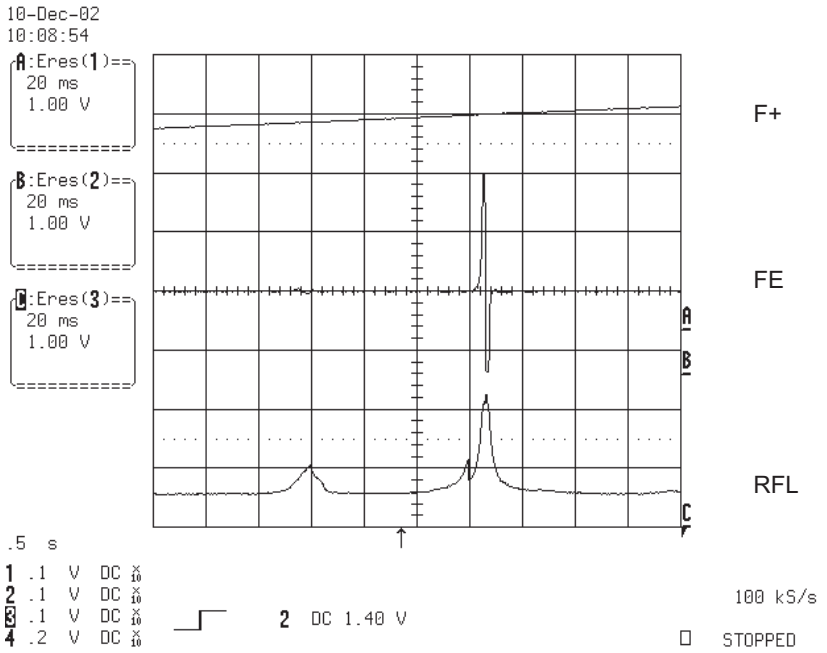


FIG 7-2 (DVD)

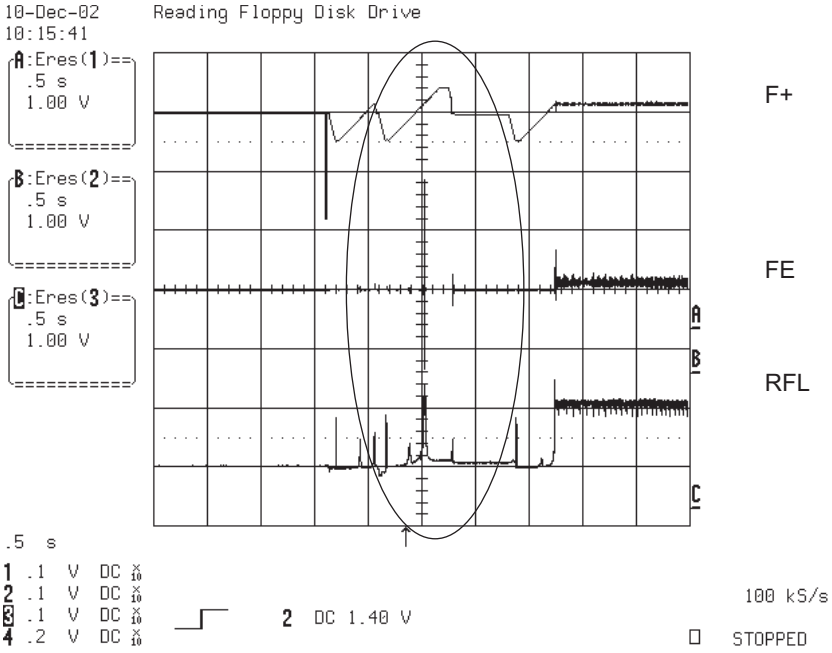


FIG 7-3 (CD)

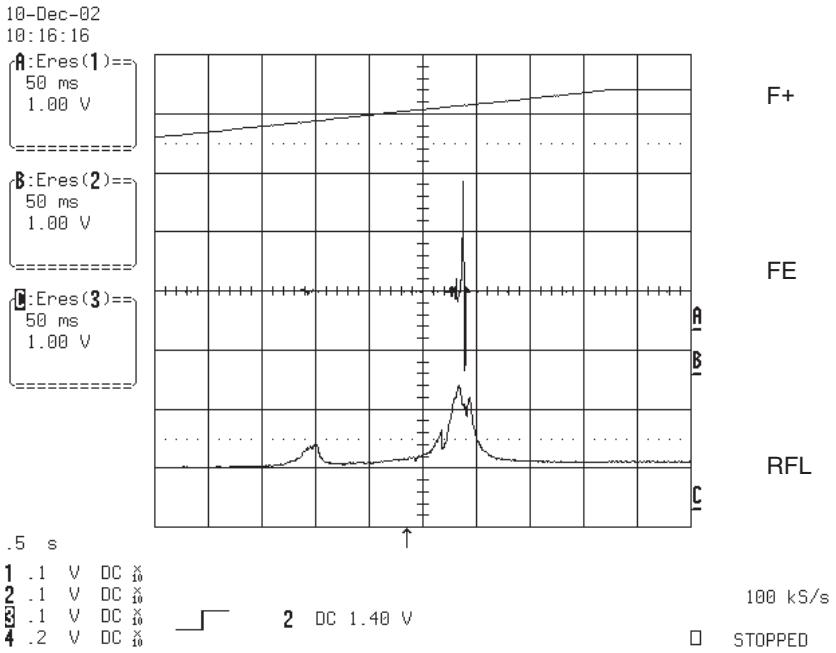


FIG 7-4 (CD)

5.4.8 FOCUS ON WAVEFORM

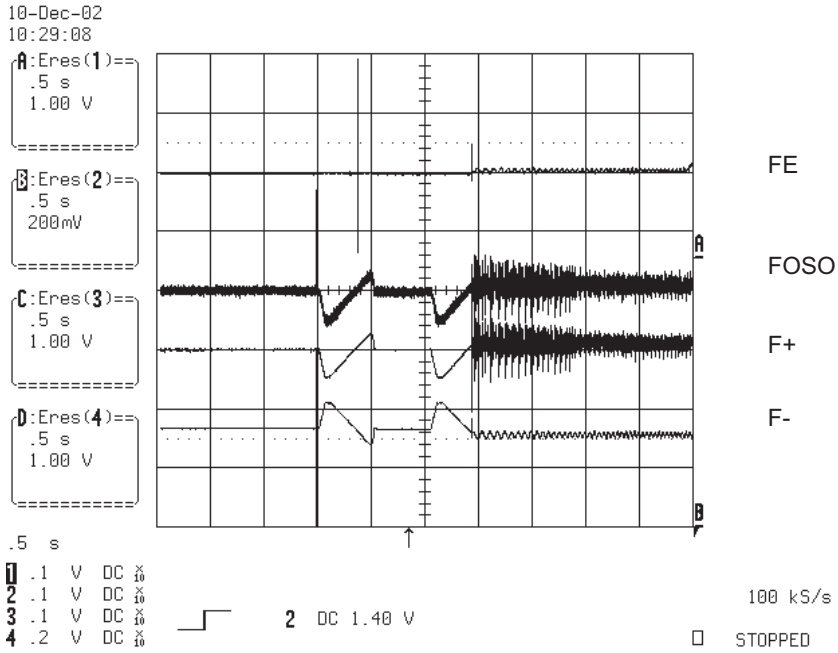


FIG 8-1 (DVD)

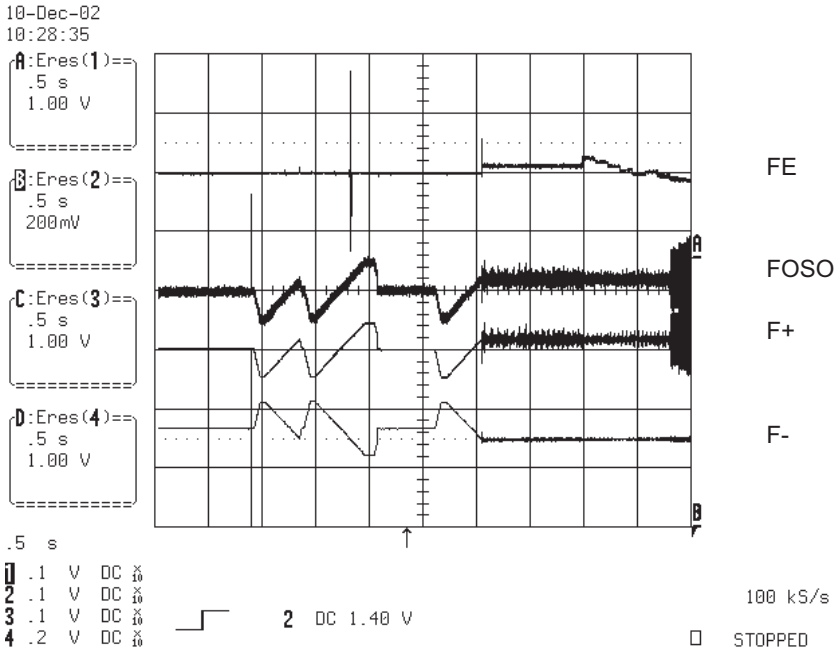


FIG 8-2 (CD)

5.4.9 SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)

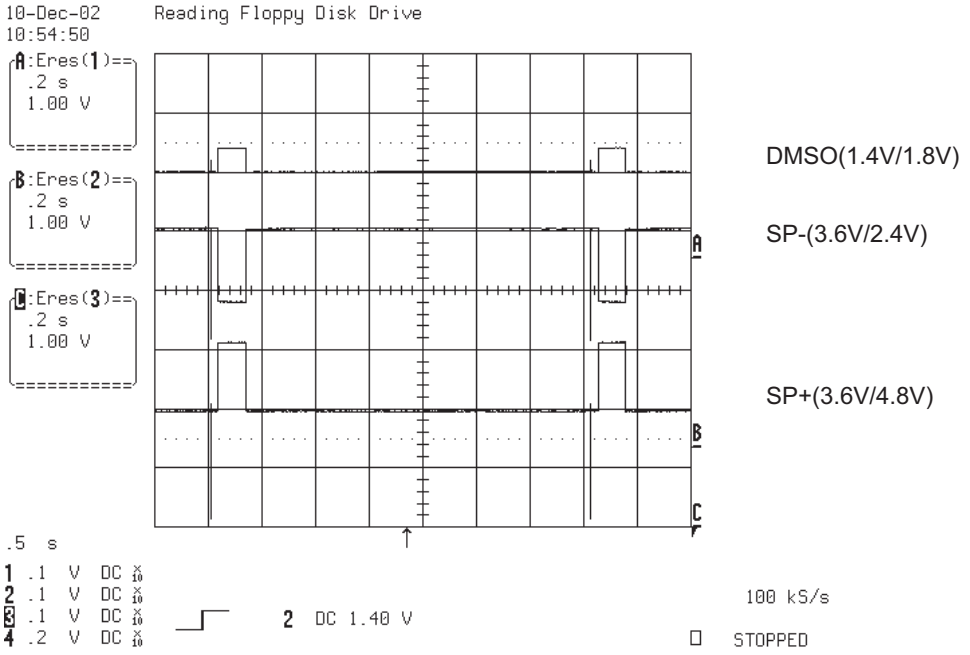


FIG 9-1

5.4.10 TRACKING CONTROL RELATED SIGNAL(System checking)

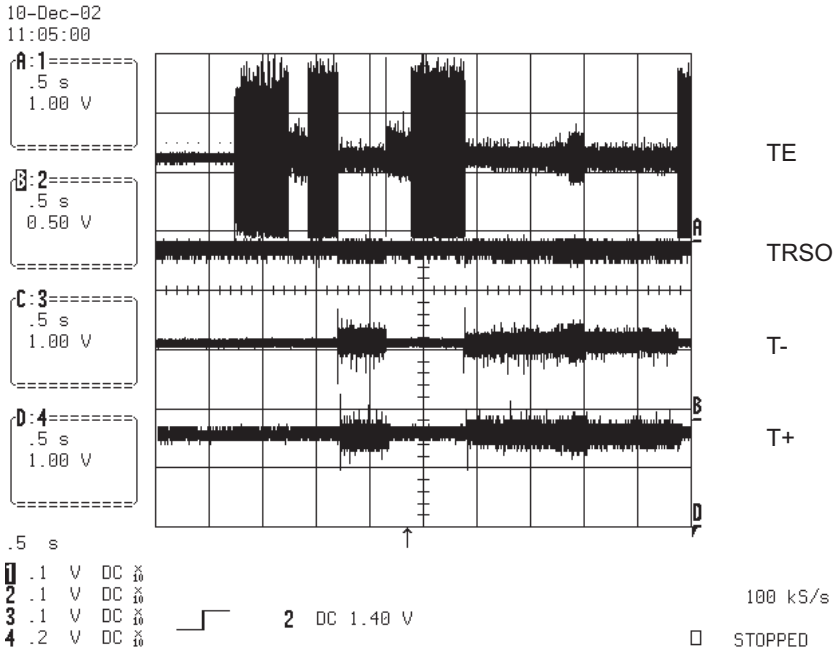


FIG 10-1(DVD)

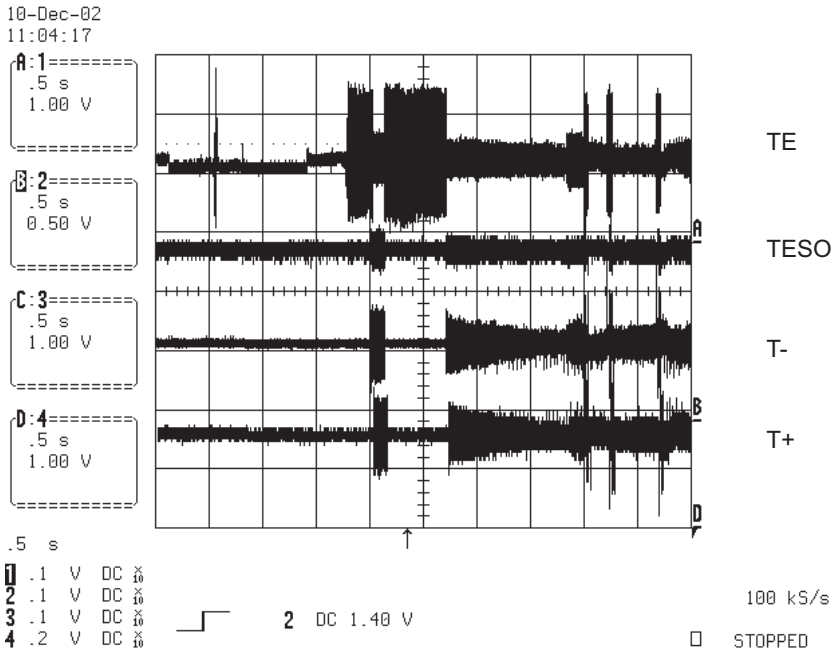


FIG 10-2(CD)

5.4.11 MT1389 AUDIO OPTICAL AND COAXIAL OUTPUT(SPDIF)

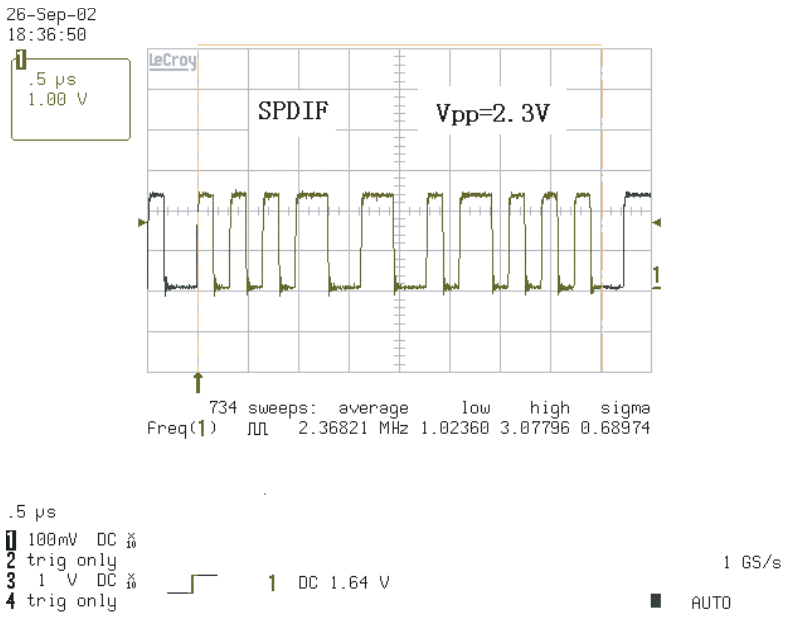


FIG 11-1

5.4.12 MT1389 VIDEO OUTPUT WAVEFORM

1) 100%

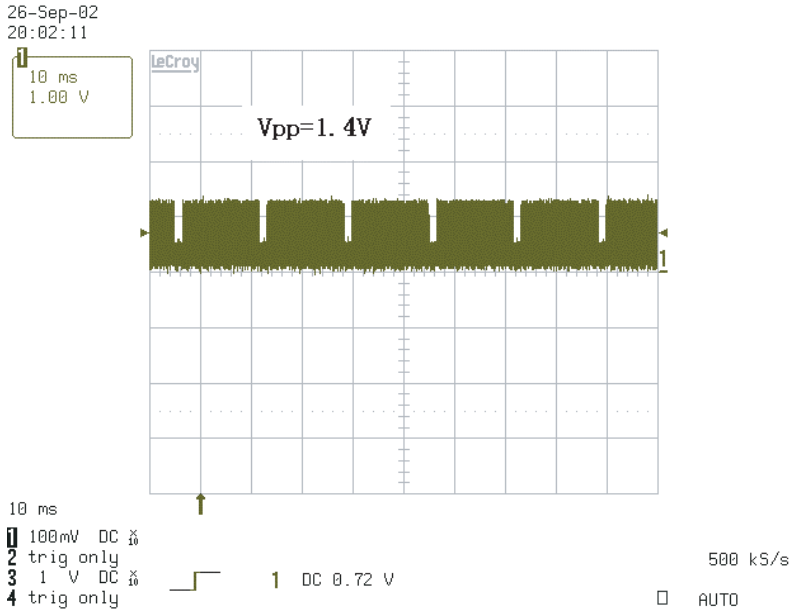


FIG 12-1

2) COMPOSITE VIDEO SIGNAL

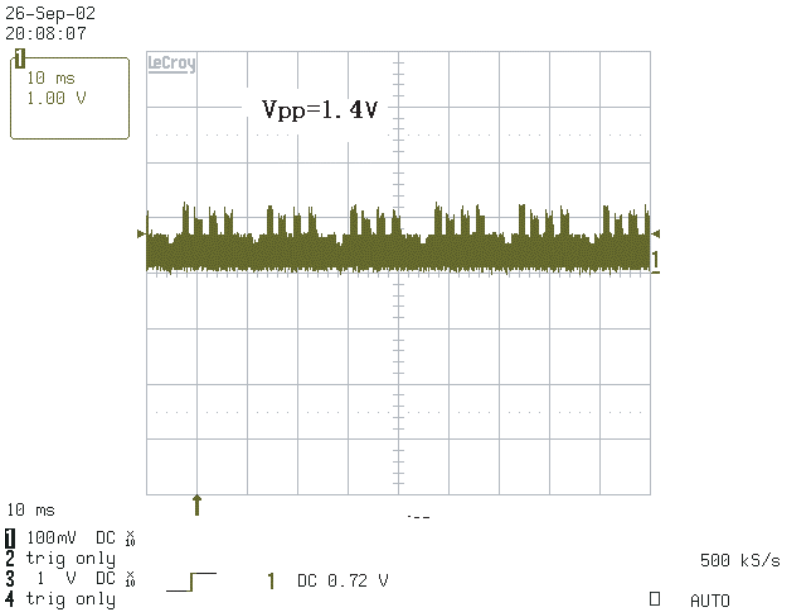


FIG 12-2

5.4.13 MT1389 AUDIO OUTPUT TO AUDIO DAC

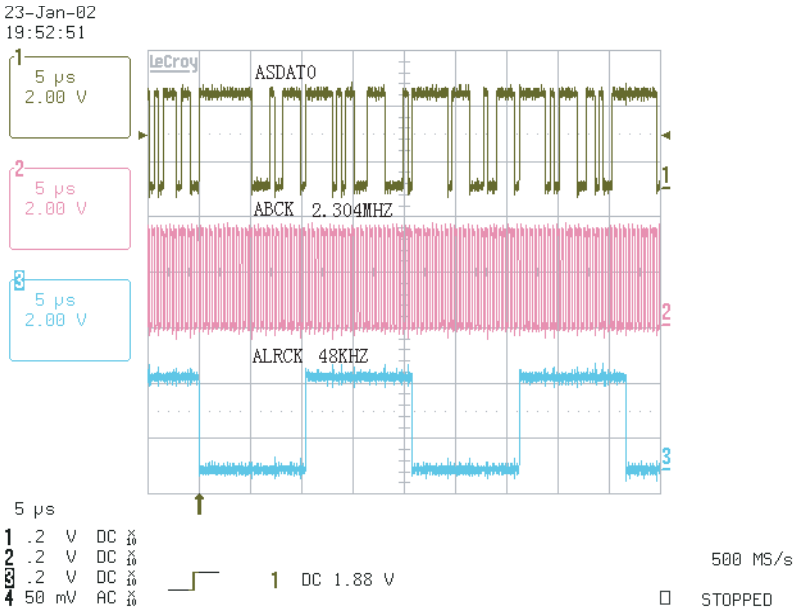


FIG 13-1

5.4.14 AUDIO OUTPUT FROM AUDIO DAC

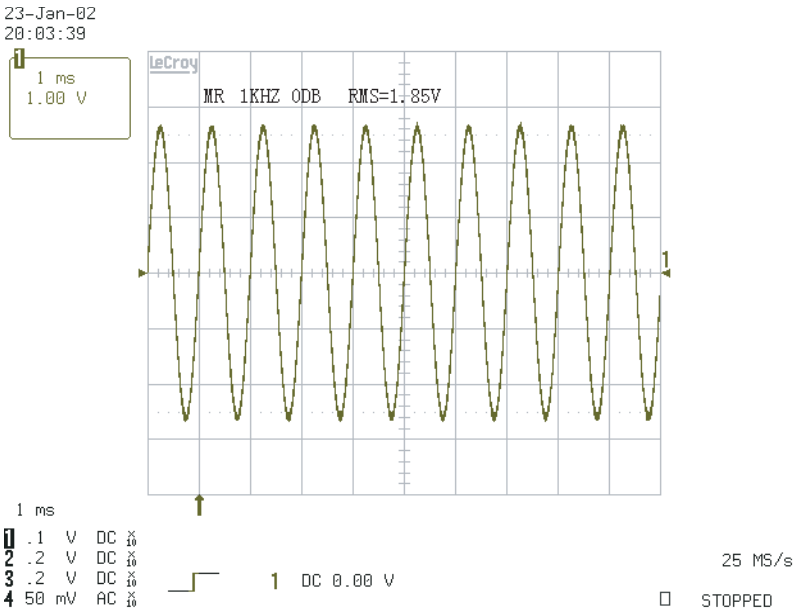


FIG 14-1

JVC

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

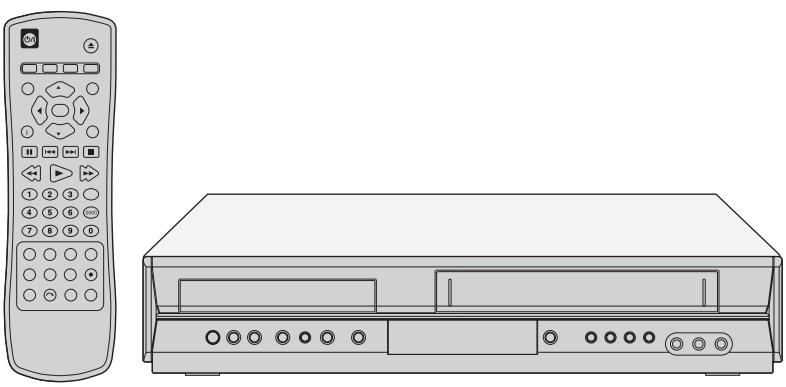
(No.YD070)

Printed in Japan
VPT

JVC

DVD PLAYER &
VIDEO CASSETTE RECORDER

HR-XV45SEK



INSTRUCTIONS

EN

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.

This 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 mark 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 product.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

WARNING: Do not install this equipment in a confined space such as a book case or similar unit.

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT
LUOKAN 1 LASER LAITE
KLASS 1 LASER APPARAT
CLASSE 1 PRODUIT LASER

CAUTION:

This Digital Video Disc Player employs a Laser System.
To ensure proper use of this product, please read this owner's manual carefully and retain for future reference, should the unit require maintenance, contact an authorized service location-see service procedure.
Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure. Visible laser radiation when open. DO NOT STARE INTO BEAM.

CAUTION: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED.

CAUTION: The apparatus shall not be exposed to water, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

CE This product is manufactured to comply with the radio interference requirements of EEC DIRECTIVE 89/336/EEC, 93/68/EEC and 73/23/EEC.

VIDEO Plus+®

VIDEO Plus+ and PlusCode are registered trademarks of Gemstar Development Corporation.
The VIDEO Plus+ system is manufactured under license from Gemstar Development Corporation.

Notes on copyrights:

It is forbidden by law to copy, broadcast, show, broadcast via cable, play in public, or rent copyright material without permission.
This product features the copy protection function developed by Macrovision. Copy protection signals are recorded on some discs.
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 uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

SERIAL NUMBER: The serial number is found on the back of this unit. This number is unique to this unit and not available to others. You should record requested information here and retain this guide as a permanent record of your purchase.

Model No. _____

Serial No. _____

Important notes on controlling this unit

This unit uses one set of controls to operate both DVD and VCR. The following buttons are helpful in successfully controlling each part.

1. **POWER Button**
   Press the POWER button on the remote control or front panel to turn on this unit.
2. **DVD Button**
   Press DVD button on the remote control when you want to control the DVD.
   The DVD indicator will light on the front panel display to show that the DVD is selected.
3. **VCR Button**
   Press the VCR button on the remote control when you want to control the VCR.
   The VCR indicator will light on the front panel display to show that the VCR is selected.
4. **DVD/VCR Button**
   Press the DVD/VCR button on the front panel to toggle control between the DVD and the VCR.

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Introduction

To ensure proper use of this product, please read this owner's manual carefully and retain for future reference.

This manual provides information on the operation and maintenance of your DVD player. Should the unit require service, contact an authorized service location.

Symbol Used in this Manual

The lightning flash symbol alerts you to the presence of dangerous voltage within the product enclosure that may constitute a risk of electric shock.

The exclamation point alerts you to the presence of important operating and maintenance / servicing instructions.

Indicates hazards likely to cause harm to the unit itself or other material damage.

Note:
Indicates special notes and operating features.

Tip:
Indicates tips and hints for making the task easier.

A section whose title has one of the following symbols is applicable only to the disc represented by the symbol.

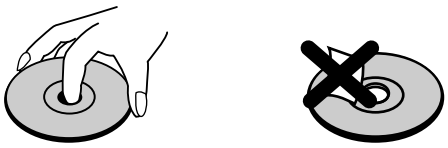
DVD DVD and finalized DVD±R/RW
VCD Video CDs
CD Audio CDs
MP3 MP3 Discs
JPEG JPEG Discs
DivX DivX Discs

About the ⃠ Symbol Display

" ⃠ " may appear on your TV display during operation and indicates that the function explained in this owner's manual is not available on that specific DVD video disc.

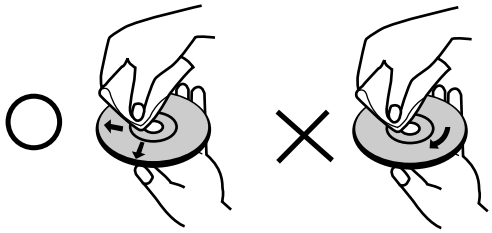
Notes on Discs

Handling Discs
Do not touch the playback side of the disc. Hold the disc by the edges so that fingerprints do not get on the surface. Never stick paper or tape on the disc.



Storing Discs
After playing, store the disc in its case. Do not expose the disc to direct sunlight or sources of heat and never leave it in a parked car exposed to direct sunlight.

Cleaning Discs
Fingerprints and dust on the disc can cause poor picture quality and sound distortion. Before playing, clean the disc with a clean cloth. Wipe the disc from the center out.



Do not use strong solvents such as alcohol, benzine, thinner, commercially available cleaners, or anti-static spray intended for older vinyl records.

Selecting the Viewing Source

You must select one of your output sources (DVD or VCR) to view on the TV screen.

- **If you want to view DVD deck output source:**
Press DVD until DVD indicator in the display window lights and output source of DVD deck is viewed on the TV screen.
- **If you want to view VCR deck output source:**
Press VCR until VCR indicator in the display window lights and output source of VCR deck is viewed on the TV screen.

Notes:
- If you insert a disc while the DVD+VCR is in the VCR mode, the DVD+VCR will switch to DVD mode automatically.
- If you insert a cassette tape without prevention tab while the DVD+VCR is in the DVD mode, the DVD+VCR will switch to VCR mode automatically.

Types of Playable Discs

DVD VIDEO	DVD (8 cm / 12 cm disc)
COMPACT disc SUPER VIDEO / COMPACT disc DIGITAL VIDEO	Video CD (VCD) (8 cm / 12 cm disc)
COMPACT disc DIGITAL AUDIO	Audio CD (8 cm / 12 cm disc)

In addition, this unit plays DivX file, DVD -R, DVD +R, DVD -RW, DVD +RW, SVCD, and CD-R / CD-RW that contains audio titles, MP3 or JPEG files.

RW COMPATIBLE This indicates a product feature that is capable of playing DVD-RW discs recorded with Video Recording format.

Notes:

- Depending on the conditions of the recording equipment or the CD-R/RW (or DVD -R, DVD +R, DVD -RW, DVD +RW) disc itself, some CD-R/RW (or DVD -R, DVD +R, DVD -RW, DVD +RW) discs cannot be played on the unit.
- Do not attach any seal or label to either side (the labeled side or the recorded side) of a disc.
- Do not use irregularly shaped CDs (e.g., heart-shaped or octagonal) since they may result in malfunctions.

Notes on DVDs and Video CDs

Some playback operations of DVDs and Video CDs may be intentionally programmed by software manufacturers. This unit plays DVDs and Video CDs according to disc content designed by the software manufacturer, therefore some playback features may not be available or other functions may be added.

Manufactured under license from Dolby Laboratories. “Dolby”, and the double-D symbol are trademarks of Dolby Laboratories.

DTS and DTS Digital Out are trademarks of Digital Theater Systems, Inc.

Regional code

This DVD player is designed and manufactured for playback of region “2” encoded DVD software. This unit can play only DVD discs labeled “2” or “ALL”.

Notes on Regional Codes

- Most DVD discs have a globe with one or more numbers in it clearly visible on the cover. This number must match your DVD player’s regional code or the disc cannot play.
- If you try to play a DVD with a different region code from your player, the message “Check Regional Code” appears on the TV screen.

Disc-related terms

DVD ±R / DVD ±RW
DVD -R and DVD +R are two different standards for recordable DVD drives and discs. This format allows information to be recorded onto the DVD disc only once. DVD +RW and DVD -RW are two standards for re-writable media, meaning the DVD content can be erased and re-recorded. Single-sided discs can hold 4.38 Gigabytes and double-sided discs hold twice as much. There are no dual layer single sided recordable discs.

VCD (Video CD)
A VCD holds up to 74 minutes (650 MB disc) or 80 minutes (700 MB disc) of MPEG-1 full-motion video along with quality stereo sound.

MPEG
MPEG is an international standard for video and audio compression. MPEG-1 is used in encoding video for VCD and provides for multichannel surround sound coding such as PCM, Dolby Digital, DTS and MPEG audio.

MP3
MP3 is a popular compression format used for digital audio files that yields very high near-CD quality.

JPEG
Joint Pictures Expert Group. JPEG is a compressed file format that allows you to save images with no limit on the number of colors.

DivX
DivX is the name of a revolutionary new video codec which is based on the new MPEG-4 compression standard for video.You will be able to play DivX movies using this DVD player.

PBC: Playback Control (Video CD only)
Playback control is available for Video CD (VCD) version 2.0 disc formats. PBC allows you to interact with the system via menus, search functions, or other typical computer-like operations. Moreover, still pictures of high resolution can be played if they are included in the disc. Video CDs not equipped with PBC (Version 1.1) operate in the same way as audio CDs.

Title (DVD video discs only)
A title is generally a distinct section of a DVD disc. For example the main feature could be title 1, a documentary describing how the film was made could be title 2, and cast interviews could be title 3. Each title is assigned a reference number enabling you to locate it easily.

Chapter (DVD video discs only)
A chapter is a segment of a title such as a scene in a film or one interview in a series. Each chapter is assigned a chapter number, enabling you to locate the chapter you want. Depending on the disc, chapters may not be recorded.

Scene (VCD)
On a video CD with PBC (playback control) functions, moving pictures and still pictures are divided into sections called “scenes”. Each scene is displayed in the menu screen and assigned a scene number, enabling you to locate the scene you want. A scene is composed of one or several tracks.

Track
A distinct element of audiovisual information, such as the picture or sound track for a specific language (DVD), or a musical piece on a video or audio CD. Each track is assigned a track number, enabling you to locate the track you want. DVD discs allow one track of video (with multiple angles) and several tracks of audio.

Front Panel

◀◀
Go to beginning of current chapter/track or to PREVIOUS chapter/track.
Press and hold for two seconds for a fast reverse search.
Rewinds the tape.

▶▶
Go to NEXT chapter/track.
Press and hold for two seconds for a fast forward search.
Winds the tape forwards.

■ Stops playback.

❚❚
Pause playback or recording. Press repeatedly for frame-by-frame playback.

OPEN/CLOSE (⏏)
Opens or closes the disc tray.

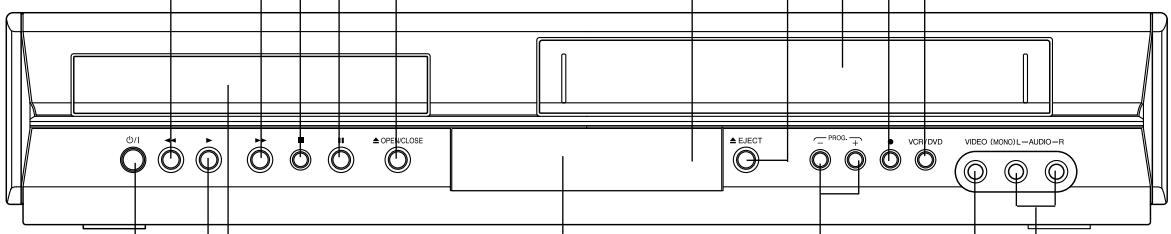
Remote Sensor
Point the remote control here.

⏏ EJECT
Tape Eject

Tape Compartment

●
To record normally or to activate One-touch Timer Recording by repeated presses.

DVD/VCR Selector



⏻/I
Switches the unit to ON or OFF.

Disc Tray
Insert a disc here.

▶ Starts playback.

Display window
Shows the current status of the unit.

PROG.(-/+)
Channel Programme Selectors.

Video IN Jack

Audio IN (L/R) Jacks

Display Window

DVD+VCR is in timer recording or a timer recording is programmed.

Indicates repeat mode.

A disc is loaded in the DVD deck. (Lights when a disc is loaded in the DVD deck and flashes when no disc is loaded.)

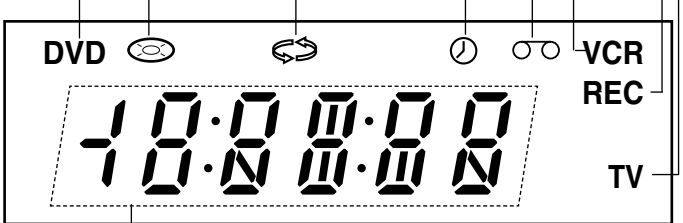
DVD deck is selected.

A Cassette is in the VCR deck.

VCR deck is selected.

VCR recording is engaged. DVD to VHS copy is in progress.

Indicates TV mode. (See Notes on page 23.)



Indicates total playing time/elapsed time/current time

⏻/I
Switches DVD+VCR ON and OFF.

TV/VCR ●
To view channels selected by the VCR tuner or by the TV tuner.

DVD ●
Select the DVD+VCR function mode to DVD.

VCR ●
Select the DVD+VCR function mode to VCR.

DISPLAY
- - : - -
- Accesses On-Screen Display (DVD).
- Shows you the current time or counter (VCR).

◀/▶/▲/▼
- Selects menu options.
- PR/TRK (+/-): Selects VCR channels. Adjusts manually the tape's picture on the screen.

SETUP/MENU (i)
Accesses or removes DVD Setup menu and VCR menu.

ENTER/OK
Confirms menu selections. Displays functions on the TV screen.

❚❚
- Pause playback or recording.
- Press repeatedly for frame-by-frame playback.

<< (◀◀) ●
- For fast reverse picture search.
- Rewinds the tape during the STOP mode.

► ●
Starts playback.

>> (▶▶) ●
- For fast forward picture search.
- Advances the tape during the STOP mode.

0-9 numerical buttons
Selects numbered options in a menu.

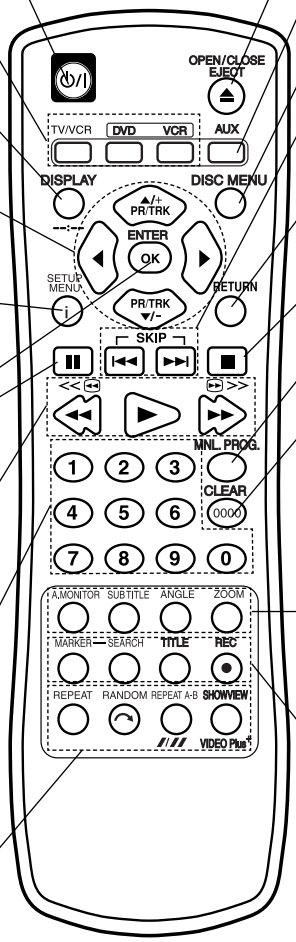
REPEAT ●
Repeat chapter, track, title or all.

RANDOM ( ) ●
- Plays tracks in random order.
- CM SKIP

REPEAT A-B ●
Repeats sequence between two points (A and B)

/ ●
Selects recording speed.

VIDEO Plus+ ●
To display the programme menu for VIDEO Plus+ programming.



OPEN/CLOSE, EJECT(⏏)
- Ejects the tape in the VCR deck.
- Opens and closes the disc tray.

AUX
Select input source for recording into tape.

DISC MENU
Accesses menu on a DVD disc.

SKIP (I◀◀ / ▶▶I)
Skip to beginning of current chapter or track, press twice in quick successions to go to previous chapter or track.
Skip to next chapter or track.

RETURN
- Removes the setup menu.
- Displays the menu of a video CD with PBC.

■
Stops playback or recording.

MNL. PROG.
Places a track on the program list.

CLEAR (0000)
Removes a track number on the program menu or a mark on the MARKER SEARCH menu.

• A.MONITOR
Selects an audio language (DVD) or an audio channel (VCD).

• SUBTITLE
Selects a subtitle language.

• ANGLE
Selects a DVD camera angle, if available.

• ZOOM
Enlarges DVD video image.

• MARKER
Marks any point during playback.

• SEARCH
Displays Marker Search menu.

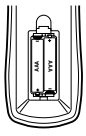
• TITLE
Displays the disc's Title menu, if available.

• REC (●)
Records normally or activates One touch Timer Recording with repeated presses.

Remote Control Operation
Point the remote control at the remote sensor and press the buttons.

⚠ Do not mix old and new batteries and never mix different types of batteries such as standard, alkaline, etc.

Remote control battery installation



Detach the battery cover on the rear of the remote control, and insert two batteries (size AAA) with ⊕ and ⊖ aligned correctly.

Rear Panel

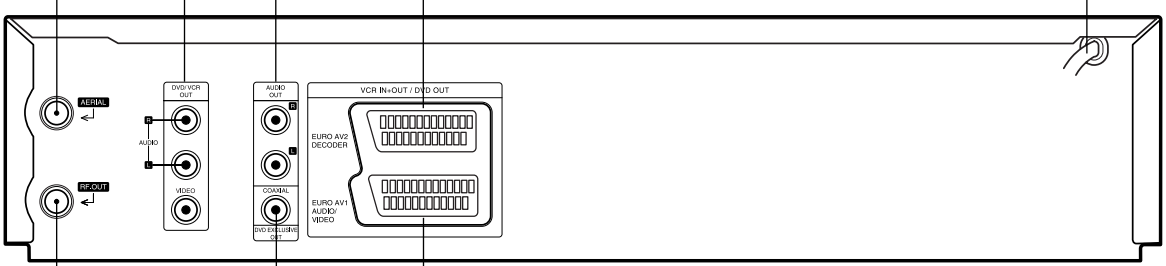
AERIAL
Connect the aerial using this jack.

DVD/VCR OUT (VIDEO/AUDIO (Left/Right))
Connect to a TV with video and audio inputs.

AUDIO OUT (Left/Right) (DVD EXCLUSIVE OUT)
Connect to an amplifier, receiver or stereo system.

EURO AV2 DECODER (VCR IN+OUT/DVD OUT)
Connect to pay-TV decoder, Set Top Box or another video recorder.

AC Power Cord
Connect to a power source.



EURO AV1 AUDIO/VIDEO (VCR IN+OUT/DVD OUT)
Connect to your TV set or another video recorder.

COAXIAL (DVD EXCLUSIVE OUT)
(Digital audio out jack)
Connect to digital (coaxial) audio equipment.

RF.OUT
Connect to your TV using this jack.

⚠

Do not touch the inner pins of the jacks on the rear panel. Electrostatic discharge may cause permanent damage to the unit.

Installation and Setup

***Tips*:**

- Depending on your TV and other equipment there are various ways you can connect the player.
- Please refer to the manuals of your TV, VCR, stereo system or other devices as necessary for additional connection information.

Notes:

- The picture and sound of a nearby TV, VCR, or radio may be distorted during playback. Position the units away from each other or turn off the unit after removing the disc.
- Make sure the DVD+VCR is connected directly to the TV and tune the TV to the correct video input channel.
- Do not connect the DVD+VCR's AUDIO OUT jack to the phono in jack (record deck) of your audio system. Do not connect the DVD+VCR via another VCR. The DVD image could be distorted by the copy protection system.

Connecting to a TV & Decoder (or Satellite)

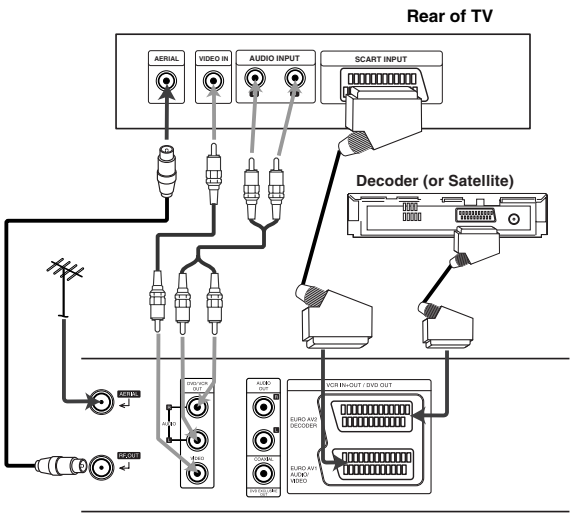
Make one of the following connections, depending on the capabilities of your existing equipment.

Basic connection (AV)

1. Connect the **EURO AV1 AUDIO/VIDEO** on the rear panel of this unit to the SCART input socket on the TV using a SCART lead (not supplied). For TV without SCART, connect the yellow VIDEO OUT jack and DVD/VCR AUDIO OUT jacks of this unit to the TV.
2. Some TV broadcasters transmit encoded television signals which you can only see with a purchased or rented decoder. You can connect such a decoder (descrambler) to this unit.

Basic connection (RF)

1. Connect the RF antenna cable from your indoor/ outdoor antenna to **AERIAL** jack on the rear panel of this unit.
2. Connect the supplied RF antenna cable from the **RF.OUT** jack on the rear panel of this unit to your television's Antenna Input.



Rear of this unit (Basic connection)

Connecting to Optional Equipment

Connecting to an amplifier equipped with two channel analog stereo or Dolby Pro Logic II/Pro Logic

Connect the Left and Right AUDIO OUT jacks on this unit to the audio left and right in jacks on your amplifier, receiver or stereo system, using the audio cables.

Connecting to an amplifier equipped with two channel digital stereo (PCM) or to an Audio/ Video receiver equipped with a multi-channel decoder (Dolby Digital™, MPEG 2 or DTS)

1. Connect this unit's DIGITAL AUDIO OUT jack (COAXIAL) to the corresponding in jack on your amplifier. Use an optional digital (coaxial) audio cable.
2. You will need to activate this unit's digital output. (See "AUDIO" on page 19).

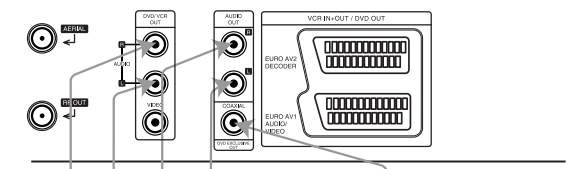
Digital Multi-channel sound

A digital multi-channel connection provides the best sound quality. For this you need a multi-channel Audio/Video receiver that supports one or more of the audio formats supported by your unit (MPEG 2, Dolby Digital and DTS). Check the receiver manual and the logos on the front of the receiver.

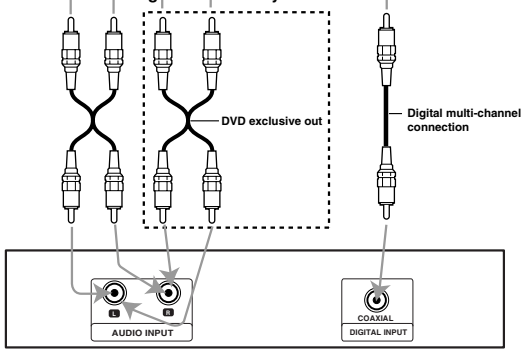
Warning:

Due to the DTS Licensing agreement, the digital output will be in DTS digital out when DTS audio stream is selected.

Rear of this unit



2 channel analog stereo or Dolby Surround connection.



Amplifier (Receiver)

Notes:

- If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.
- To see the audio format of the current DVD in the On-Screen Display, press **A.MONITOR**.

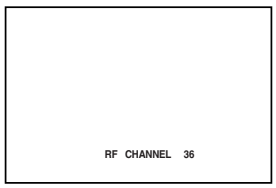
Before Operation-VCR part

Tuning in a video channel on your TV

Notes:

- The output frequency of this DVD+VCR is set at UHF channel 36. If channel 36 is already used by another TV station, or if the picture is distorted, you can change the transmitter channel of your DVD+VCR. Stages 5 ~ 8 will show you how to change the output frequency of your DVD+VCR.
- Your TV receives signals from the DVD+VCR like another TV station. You have to select a channel number on your TV and tune it in so that you may watch video tapes. If you have used a SCART then your TV should already have a dedicated video channel built into it, usually called AV.

1. Make sure that you have correctly installed your DVD+VCR as described earlier in this book.
   Press ⏻/I to turn on your DVD+VCR.
   Turn on your TV.
2. Insert a pre-recorded video tape into your DVD+VCR and press ► on the remote control.
   Select a TV channel which you wish to watch video.
   Don't worry if you don't have a video-tape to play at this stage! If you switch your DVD+VCR on and continue stages **3** ~ **4**, instead of seeing video playback tune your TV until you see a bright blue screen.
3. Tune this channel until the video picture is sharp and the sound is clear.
   If you have used a SCART or AUDIO and VIDEO cables you will not have to tune your TV, simply select the AV channel. The AV channel is already pre-tuned for optimum video playback on your TV.
4. Store this channel on your TV.
   You will need to look at the TV instruction book if you do not know how to do this.
5. **Only carry out stages 5 ~ 8 if you cannot obtain clear video playback as described in stages 1 ~ 4.**
   Select a TV channel which you wish to watch video.
   Make sure that your DVD+VCR is in standby pressing ⏻/I on the remote control (only the clock will be displayed).
6. Press **PROG. (-/+)** on the front of your DVD+VCR for more than 4 seconds.
   RF36 will appear in the display window.
   The following picture will be displayed on the TV screen.



7. Use **PROG. (-/+)** to select another video channel. You may select any channel number between 22 and 68.
8. Select a TV channel which you wish to watch video.

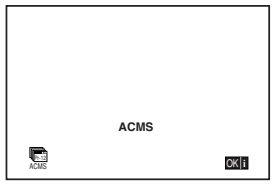
   Press ⏻/I on the front of your DVD+VCR when you have finished.
   Tune this channel so that a bright blue screen appears.
   Store this channel on your TV.

Notes:
Make sure that you have correctly installed your DVD+VCR and successfully tuned in a dedicated video channel on your TV. If you do not tune in a dedicated video channel on your TV you will be unable to view and record video tapes!

Using your VCR for the very first time

Following picture will display on the TV screen when you have just connected your video recorder for the very first time.

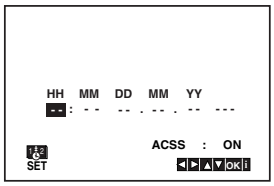
To make tuning TV stations, please follow stages 3 to 4 as shown "ACMS" (see p.14).



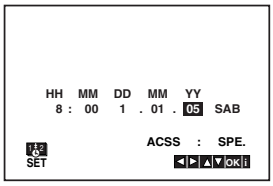
Setting the clock Manually

The clock in your VCR controls time and date settings for your VCR.
The clock is set automatically during **ACMS** (Automatic Channel Memory System) when your VCR detects a channel that broadcasts a Teletext signal. If the broadcast signal is weak the clock will not be set and will require setting manually.

1. Press **i**.
   Press ◄ or ► to select **SET**.
   Press **OK**.
   The ACSS mode can be set to “OFF” by pressing **OK** if you want to set the time manually.



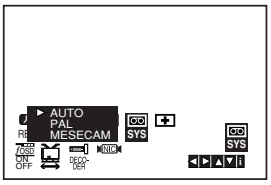
2. Use the ▲ or ▼ on the remote control to alter the **HOURS, MINUTES, DAY, MONTH** and **YEAR**.
   Please note your VCR uses a 24 hour clock. e.g. 1pm will be displayed as 13:00.
   The day of the week will appear automatically when you enter the year.
3. If you make a mistake press ◄ or ► and enter the correct details.



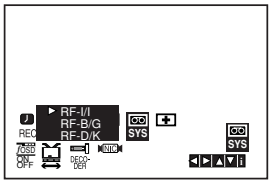
4. Press **i** to return to a TV picture.

To set the colour system

1. Press **i**.
2. The main menu will appear on the TV screen.
3. Press ◄ or ► to select the **SYS** and press **OK**.
4. Press ▲ or ▼ to select according to the **COLOUR** system used.



5. Press ◄ or ► to select the RF AUDIO.
   Press ▲ or ▼ to select according to the RF AUDIO used.

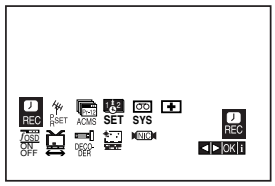


6. Press **i** to remove the menus from the TV screen.

How to using the main menu

This DVD+VCR can easily be programmed by using the menus displayed on screen.
The menus are controlled from the Remote Control Handset.

1. Switch on your TV set and video recorder by pressing the ⏻/**I** button.
2. Press **i** button.
   The main menu will appear on the TV screen.



- **REC -** Timer recording setting (see p. 25).
- **PR SET -** Manual tuning setting (see p. 15).
- **ACMS -** ACMS (Automatic Channel Memory System) (see p. 14).
- **SET -** Date & clock setting (see p. 13).
- **SYS -** To set the Colour TV System (see p. 13).
- **(Dr.) -** To check a problem with your VCR (see p. 36).
- **F.OSD ON/OFF -** To display the operational mode of your VCR (see p. 36).
- **(16:9/4:3) -** To select the aspect ratio of your TV (see p. 37).
- **DECODER -** To use a pay-TV decoder (or Satellite) with your VCR (see p. 37).
- **(OPR) -** To improve the playback picture (see p. 22).
- **NIC -** To activate or deactivate the NICAM digital sound (see p. 37).

Tip:

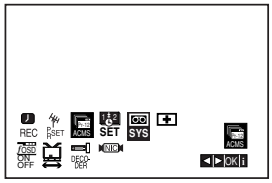
You can change the menu language on the DVD setup menu. (See the Menu Language on page 18.)

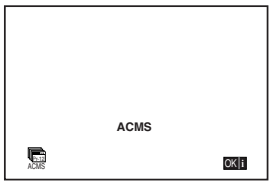
3. Press ◀ and ▶ to select the desired menu.
   Press **OK** and press ▲ or ▼ to select.
4. Press **i** to remove the menus from the TV screen.

Tuning in TV Stations Automatically

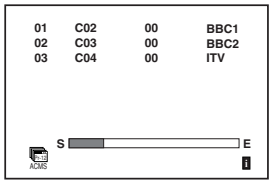
If the TV broadcast signal is weak your VCR may not detect the necessary information and will not be able to store them correctly. To overcome this problem please turn to the MANUAL TUNING section on page 15.

1. Press ⏻/**I** to turn on your DVD+VCR.
2. Press **i** button.
   The main menu will appear on the TV screen.
   Press ◀ or ▶ to select the **ACMS**.
   Press **OK**.

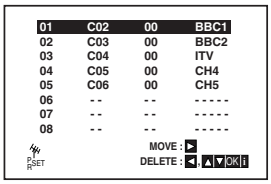




4. Press **OK** to again to start the automatic tuning process.



5. The **TV STATION TABLE** will appear when tuning is completed.
   Press **i** to save your settings.

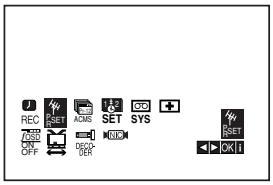


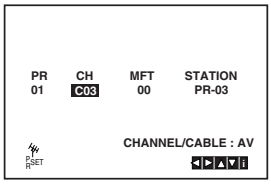
Notes:
Please note currently only a limited number of TV companies transmit the **Programme Delivery Control (PDC)** signal which enables your DVD+VCR to successfully identify and store them. If your DVD+VCR has difficulty in identifying a TV station please turn the page to find out how to manually tune in and name a TV station. While automatic tuning is taking place the time and date will set automatically.
If - - :- - appears in the DVD+VCR display it means that the broadcast signal is weak and the clock was not set. Please turn to CLOCK SET section of this book on page 13.

Tuning in TV Stations Manually

In certain areas of the country broadcast signals may be too weak for your DVD+VCR's automatic tuning process to find or assign TV stations correctly.
You must tune in these weaker broadcast stations manually in order for your DVD+VCR to store them.

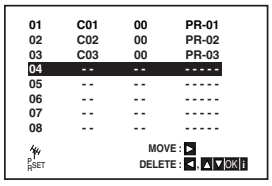
1. Press **i**.
   The main menu will appear on the TV screen.
   Press ◀ or ▶ to select the **PR SET**.
   Press **OK**.



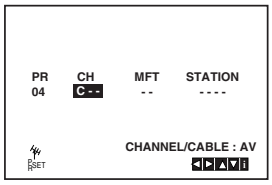


2. Press **i**.
   The station table will appear.

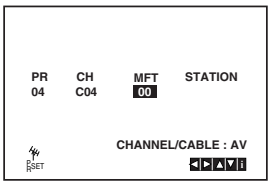
3. Press ▲ or ▼ to select the programme number that you want to tune (for example, PR 04).



4. Press **OK**.
   Press **AUX** to select **C** (Standard stations) or **S** (Cable stations):
   C02 - C69, S01 - S41.
   Enter the channel number of station that you want to tune, use ▲ or ▼ to find the required station.

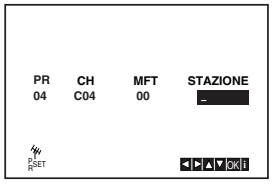


5. Searching will stop when it locates a stations.
   Press ▶ to select **MFT.**
   Control the fine tuning of the station by using ▲ or ▼.

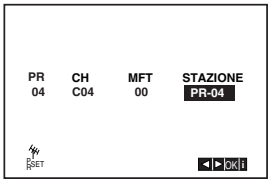


6. Press ▶ to select **STATION** so that you may name your TV station.
   Press **OK**.

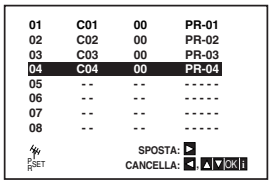
7. Use ▲ or ▼ to select **letters** and **numbers** for the station name.
   Use ◀ or ▶ to move back and forth between characters.
   Press **OK**.



8. Press **i**, confirm the station placement.



   If you wish to manually tune other stations repeat stages **3 - 8.**

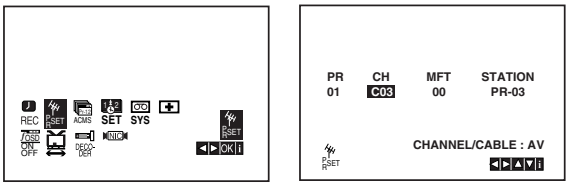


9. Press **i** again.
   Your new TV station has now been tuned into your DVD+VCR.

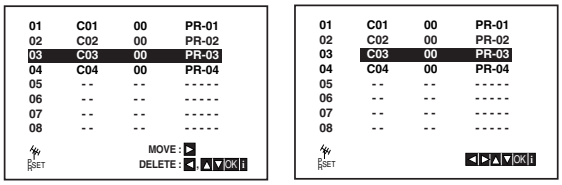
Changing the order of TV Stations

After tuning TV stations into your VCR you may wish to change the order in which they are stored without having to retune them against! The instructions given on this page will show you how you can simply move them into your desired order.

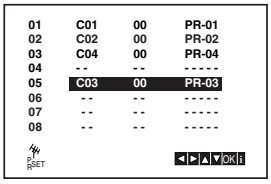
1. Press **i**.
   The main menu will appear on the TV screen.
   Press ◄ or ► to select the **PR SET**.
   Press **OK**.



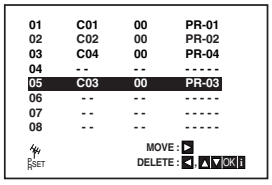
2. Press **i**.
   Press ▲ or ▼ to select the **programme number** you want to move (for example, PR 03).
   Press ►.



3. Press ▲ or ▼ to select the **programme number** you want to move to (for example, PR 05).



4. Press **OK**.
   The selected **programme** will be moved to **the new programme number**.
   If you wish to move other TV stations repeat stages 1 - 4.

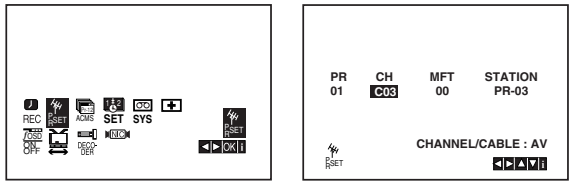


5. Press **i** to remove the menus from the TV screen.

Deleting TV Stations

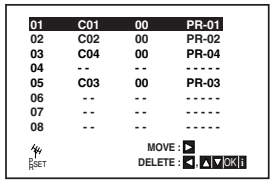
After tuning TV stations into your VCR you may wish to delete a station.
how you can easily delete any unwanted TV stations.

1. Press **i**.
   The main menu will appear on the TV screen.
   Press ◄ or ► to select the **PR SET**.
   Press **OK**.

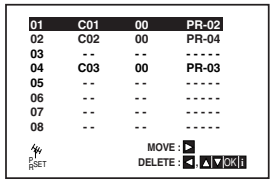


2. Press **i**.

3. Press ▲ or ▼ to select the **programme number** you want to delete. (for example, PR 01)



4. Press ◄.
   After a short while, the selected station will be deleted.
   If you wish to delete other TV stations repeat stages **3 - 4**.



5. Press **i** to remove the menus from the TV screen.

Before Operation-DVD part

On-Screen Display

You can display the general playback status on the TV screen. Some items can be changed using the menu. To use the on-screen display:

1. Press DISPLAY during playback.
2. Press ▲ / ▼ to select an item.
   The selected item is highlighted.
3. Press ◄ / ► to change the setting. You can also use the number buttons if appropriate (e.g. inputting the title number). For some functions, press ENTER to execute the setting.

Notes:

- Some discs may not provide all of the features shown below.
- If no button is pressed for 10 seconds, the on-screen display disappears.

Playback Status/Restrictions

Title — Repeat title

A - B — Repeat sequence

1 / 9 — Enter a Marker

MARKER SEARCH ◄ 1 2 3 4 5 6 7 8 9 ► — Marker Search menu

Resume play from this point

⃠ — Action prohibited or not available

Example: On-Screen Display during playing DVD Video

Items		Selection Method
Title Number	1 / 3	◄ / ►, Numbers ENTER
Chapter Number	1 / 12	◄ / ►, Numbers ENTER
Time search	0:20:09	Numbers, ENTER
Audio language and Digital Audio Output mode	1 ENG DD D 3/2.1CH	◄ / ► or A.MONITOR
Subtitle language	1 ENG	◄ / ► or SUBTITLE
Angle	1 / 3	◄ / ► or ANGLE
Sound	3D SUR	◄ / ►

Example: On-Screen Display during playing VCD

Items		Selection Method
Track Number (or PBC mode)	1 / 3	◄ / ►, Numbers ENTER
Time search	0:20:09	Numbers ENTER
Audio Channel	STEREO	◄ / ► or A.MONITOR
Sound	3D SUR	◄ / ►

Example: On-Screen Display during playing divx movie disc

Items		Selection Method
Track Number	1 / 3	◄ / ►, Numbers ENTER
Time search	0:20:09	Numbers, ENTER
Audio language and Digital Audio Output mode	1 MP3 2 / 0 CH	◄ / ► or A.MONITOR
Subtitle language	1 ENG	◄ / ► or SUBTITLE
Sound	3D SUR	◄ / ►

Initial Settings

By using the Setup menu, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup menu, among other things. For details on each Setup menu item, see pages 18 to 21.

To display and exit the Menu:
Press SETUP MENU to display the menu. A second press of SETUP MENU will take you back to initial screen.

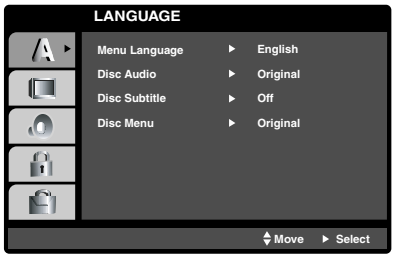
To go to the next level:
Press ► on the remote control.

To go back to the previous level:
Press ◄ on the remote control.

General Operation

1. Press SETUP MENU. The Setup menu appears.
2. Use ▲ / ▼ to select the desired option then press ► to move to the second level. The screen shows the current setting for the selected item, as well as alternate setting(s).
3. Use ▲ / ▼ to select the second desired option then press ► to move to the third level.
4. Use ▲ / ▼ to select the desired setting then press ENTER to confirm your selection. Some items require additional steps.
5. Press SETUP MENU or ► to exit the Setup menu.

LANGUAGE



Menu Language

Select a language for the Setup menu and on-screen display.

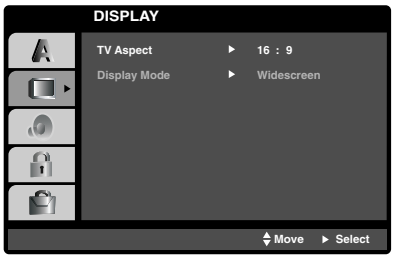
Disc Audio / **Subtitle** / **Menu** DVD

Select the language you prefer for the audio track (disc audio), subtitles, and the disc menu.

Original: Refers to the original language in which the disc was recorded.

Other: To select another language, press number buttons then ENTER to enter the corresponding 4-digit number according to the language code list in the reference chapter. If you enter the wrong language code, press CLEAR (0000).

DISPLAY



TV Aspect DVD

4:3 : Select when a standard 4:3 TV is connected.

16:9 : Select when a 16:9 wide TV is connected.

Display Mode DVD

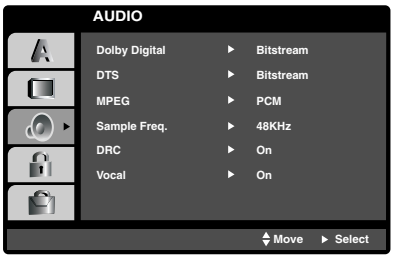
Display Mode setting works only when the TV Aspect mode is set to “4:3”.

LetterBox: Displays a wide picture with bands on the upper and lower portions of the screen.

Panscan: Automatically displays the wide picture on the entire screen and cuts off the portions that do not fit.

AUDIO

Each DVD disc has a variety of audio output options. Set this unit AUDIO options according to the type of audio system you use.



Dolby Digital / DTS / MPEG DVD DivX

Bitstream: Select “Bitstream” if you connect the DVD Player’s DIGITAL OUT jack to an amplifier or other equipment with a Dolby Digital, DTS or MPEG decoder.

PCM (for Dolby Digital / MPEG): Select when connected to a two-channel digital stereo amplifier. DVDs encoded in Dolby Digital or MPEG will be automatically downmixed to two-channel PCM audio.

Off (for DTS): If you select “Off”, the DTS signal is not output through the DIGITAL OUT jack.

Sample Freq. (Frequency) DVD

If your receiver or amplifier is NOT capable of handling 96 kHz signals, select 48 kHz. When this choice is made, this unit automatically converts any 96 kHz signals to 48 kHz so your system can decode them.

If your receiver or amplifier is capable of handling 96 kHz signals, select 96 kHz. When this choice is made, this unit passes each type of signal through without any further processing.

Check the documentation for your amplifier to verify its capabilities.

Dynamic Range Control (DRC) DVD DivX

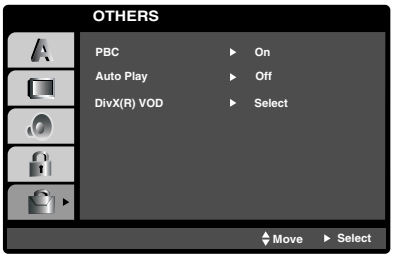
With the DVD format, you can hear a program’s soundtrack in the most accurate and realistic presentation possible, thanks to digital audio technology. However, you may wish to compress the dynamic range of the audio output (the difference between the loudest sounds and the quietest ones). This allows you to listen to a movie at a lower volume without losing clarity of sound. Set DRC to On for this effect.

Vocal DVD

Set to On only when a multi-channel karaoke DVD is playing. The karaoke channels on the disc mix into normal stereo sound.

OTHERS

The PBC, Auto Play and DivX(R) VOD settings can be changed.



PBC VCD

Set Playback Control (PBC) to On or Off.

On: Video CDs with PBC are played according to the PBC.

Off: Video CDs with PBC are played the same way as Audio CDs.

Auto Play DVD

You can set up the DVD Player so a DVD disc automatically starts playing whenever the DVD is inserted. If Auto Play mode is set to On, this DVD player will search for title that has the longest playback time and then play back the title automatically.

On: Auto Play function is active.

Off: Auto Play function is not active.

Notes:

The Auto Play function may not work for some DVDs.

DivX(R) VOD DivX

You can display the DivX DRM (Digital Rights Management) Registration code for your unit only.

DivX(R) Video On Demand

Your registration code is : XXXXXXXX

To learn more visit
www.divx.com/vod

(Done)

The Registration code is used for VOD (Video-On-Demand) service agent. You can purchase or rent an encrypt move file.

Notes:

If you rent the DivX VOD file, it has several options of viewing limits as shown below.

- Display the number which you can watch the file.

View DivX(R) VOD Rental

This rental has 3 views left.

Do you want to use one
of your 3 views now?

(Yes) (No)

- The rental has been expired.

Rental Expired

(Done)

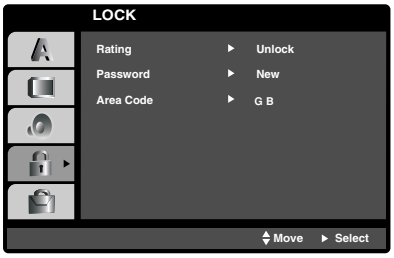
- Display the authorization error.

Authorization Error

This player is not authorized
to play this video.

(Done)

LOCK (Parental Control)



Rating DVD

Some movies contain scenes that may not be suitable for children to view. Many of these discs contain parental control information that applies to the complete disc or to certain scenes on the disc. Movies and scenes are rated from 1 to 8, depending on the country. Some discs offer more suitable scenes as an alternative.

The parental control feature allows you to block access to scenes below the rating you input, there by preventing your children from being able to view material you believe is unsuitable.

1. Select “Rating” on the LOCK menu then press ►.
2. To access the Rating, Password and Country Code features, you must input the 4-digit security code you created. If you have not yet entered a security code you are prompted to do so.

   Input a 4-digit code and press ENTER. Enter it again and press ENTER to verify. If you make a mistake before pressing ENTER, press CLEAR (0000).
3. Select a rating from 1 to 8 using the ▲ / ▼ buttons.

   Rating 1-8: Rating one (1) has the most restrictions and rating eight (8) is the least restrictive.

   Unlock
   If you select unlock, parental control is not active and the disc plays in full.

Notes:

If you set a rating for the player, all disc scenes with the same rating or lower are played. Higher rated scenes are not played unless an alternate scene is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback stops. You must enter the 4-digit password or change the rating level in order to play the disc.

4. Press ENTER to confirm your rating selection, then press SETUP MENU to exit the menu.

Password (Security Code)

You can enter or change password.

1. Select Password on the LOCK menu then press ►.
2. Follow step 2 as shown left (Rating). “Change” or “New” is highlighted.
3. Enter the new 4-digit code, then press ENTER. Input it again to verify.
4. Press SETUP MENU to exit the menu.

If you forget your Security Code

If you forget your security code you can clear it using the following steps:

1. Press SETUP MENU to display the Setup menu.
2. Input the 6-digit number “210499” and the security code is cleared.
3. Enter a new code as described above.

Area Code DVD

Enter the code of the country/area whose standards were used to rate the DVD video disc, based on the list in the reference chapter.

1. Select “Area Code” on the LOCK menu then press ►.
2. Follow step 2 as shown left (Rating).
3. Select the first character using ▲ / ▼ buttons.
4. Press ENTER and select the second character using ▲ / ▼ buttons.
5. Press ENTER to confirm your country code selection.

Operation

Playing a tape

You will only be able to load and eject video cassettes when your DVD+VCR is plugged into the mains.
Your DVD+VCR may also playback recordings from NTSC tapes (on PAL TV).

Getting a better picture
When a cassette is inserted and playback started, the automatic tracking function works to get the best possible picture automatically. If the quality of the recording is poor, repeatedly press ▲ or ▼ on the remote control to manually adjust the tracking until any distortions have been removed.

1. Make sure that you have correctly connected your DVD+VCR as described earlier in this book.
   Turn on your TV.
   Press ⏻/I to turn on your DVD+VCR.
   Insert the video cassette into your DVD+VCR.
   The video cassette should have the window side facing up and the arrow facing away from you.
2. Press ► to start playing your tape.
   If you load a video cassette which has had its record protection tab removed, playback of the cassette will start automatically.

   AUTO TRACKING
   Your DVD+VCR will automatically adjust the tracking to give the best picture quality.
   If noise bars appear during playback, adjust the tracking manually by pressing **PR/TRK (-/+)**.
3. Press ❚❚ to still a picture. Press ❚❚ repeatedly to advance the tape frame by frame.
   If you press ►►, the picture will be slowed down at about 1/19 times the normal playback.
   Tapes can be paused for up to 5 minutes. After 5 minutes your DVD+VCR will stop the tape to prevent damaging the tape or your DVD+VCR .
   Still picture quality can be improved slightly by using ▲ or ▼.
4. Press ► to continue playing your tape.

   Double speed playback
   Press the "► (X2)" button during normal playback. The tape will play back at double speed and without sound.
   Press the "► (X2)" button to return to playback at normal speed

   Picture search:
   During playing back press either ◄◄ or ►► to this will enable you to rapidly wind the tape (7 times normal playback) see where you are on the tape.

Notes:
- When playing back tapes that have been overrecorded with new content, the original audio may be audible during auto tracking.
- The image may be distorted during special playback in LP mode.

Logic search:
During fast forwarding or rewinding press and hold ◄◄ or ►► the picture will be played back at 7 times normal playback speed.

5. **Slow motion playback**, **Shuttle :**
   During playing back or still picture press ◄ or ►.
   You can reach the following playback speeds.
   (-7xplay, -3xplay, -play, still, 1/19 slow, play, 2xplay, 7xplay)
   To switch off the slow motion and shuttle, press the desired function.
   During slow motion and shuttle, the noise bars may appear on the picture according to the status of tape.
   If distortions can be seen in the picture, reduce them with ▲ or ▼.
6. Press ■ to end playback.
   Press **EJECT** (⏏).
   If the end of the tape is reached, your DVD+VCR will stop playback automatically, rewind, stop, eject the tape.

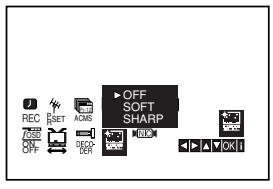
CM (Commercial Message) Skip:

This feature enables you during playback of a tape to skip a commercial break in a few seconds, then resume normal playback.
While tape is playing press ↷ on the remote control to skip commercial (or another programme material).
Repeatedly press ↷ to skip:
1 Press 30 seconds
2 Press 60 seconds
3 Press 90 seconds
4 Press 120 seconds
5 Press 150 seconds
6 Press 180 seconds

OPR (Optimum Picture Response)

This feature automatically improves playback picture quality by adjusting your DVD+VCR to the condition of the tape. Please note that the OPR icon (📺) will only appear in play that mode when playing a tape.

1. Press **i**.
2. Press ◄ or ► to select **(📺)** OPR.
3. Press **OK**.
4. Press ▲ or ▼ repeatedly to select: **OFF**, **SOFT** or **SHARP**.
   Please note you may only set OPR when playing a tape.
5. Press **i** return to screen.



Instant Timer Recording

Your DVD+VCR allows you to make recordings using a variety of simple methods:

Instant Timer Recording start recording immediately for a set period of time or until the video cassette runs out.

Your DVD+VCR incorporates Long Play (LP) which enables you to record up to twice the amount of time on a video cassette. For example an E-180 will record up to 180 minutes using Standard Play (SP); using LP you will be able to record up to 360 minutes. Please note there will be a slight loss in picture and sound quality when using LP.

1. Make sure that you have correctly connected your DVD+VCR as described earlier in this book. Press ⏻/I to turn on your DVD+VCR.
2. Insert a video cassette with protection tab into your DVD+VCR.
   The video cassette should have the window side facing up and the arrow facing away from you.
3. Press ▲ or ▼ to select the **programme number** you wish to record.
   You may also directly select programme number using the **numbered buttons** on the remote control.
4. If you wish to record directly from the SCART or RCA jacks, repeatedly press AUX until the socket you wish to record from is displayed.

   AV 1 for recording from EURO AV1 SCART jacks on the rear of your unit.
   AV 2 for recording from EURO AV2 SCART jacks on the rear of your unit.
   AV 3 for recording from VIDEO IN and AUDIO IN (Left & Right) jacks on the front of your unit.
5. Press ▮/▮▮ if you wish to record in Long Play or Standard Play.
   SP will produce improved picture and sound quality, however LP will provide twice as much recording time as SP.
6. Press **REC (●)** on the remote to start recording.

   Press ● on your unit or press **REC (●)** on the remote several times. Each successive press will increase the record time by 30 minutes until you reach a maximum of 9 hours.
7. Press ▮▮ to avoid recording unwanted scenes. Press ▮▮ to continue recording.

   Tapes can be paused for up to 5 minutes; RECP will be displayed when a tape is paused. After 5 minutes your DVD+VCR will stop recording to prevent damaging the tape or your DVD+VCR.
8. Press ■ to end recording.
   Press **EJECT (⏏)**.

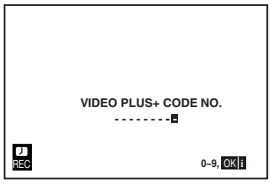
Notes:

- If you do not wish to record on a tape (this can happen quite easily by accident!) remove the protection tab on the back edge of the video cassette.
- It is possible to record on a video cassette with the record protection tab removed by covering the hole with self adhesive tape.
- Remember you can record one programme while watching another by starting your instant recording, press **TV**/**VCR** to select TV mode and then selecting a different channel on your TV.

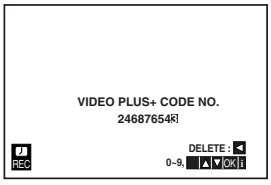
VIDEO Plus+ Programming

VIDEO Plus+ greatly simplifies entering the date, channel, start and end times of a Timer Recording by simply entering VIDEO Plus+ Code. VIDEO Plus+ Codes are published in most TV guide magazines; they can vary one to nine numbers in length.

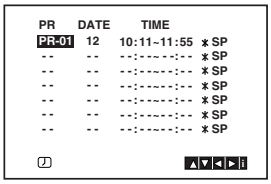
1. Make sure that TV channels have been tuned and stored in correct VIDEO Plus+ order.
   Insert a video cassette with protection tab into your DVD+VCR.



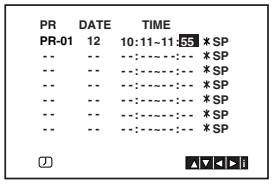
2. Press **VIDEO Plus+.**
3. Press the **numbered buttons** to enter the PlusCode of the TV programme that you wish to record.
   If you make a mistake press ◄ then enter the revised number.



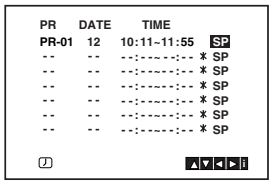
4. Press **OK**.
   If **PLEASE CHECK** is displayed it means that you have entered the wrong VIDEO Plus+ numbers, entered the VIDEO Plus+ numbers incorrectly.
   If "**- -**" is displayed, you have to enter the programme number of the station, you want to record from.



5. Press ◄ or ► to select the settings that you wish to revise. (PR, DATE, TIME VPS/PDC and SP).
   Press ▲ or ▼ to enter the correct information.



6. Press ► to select the recording speed.
   Press ▲ or ▼ to select the desired tape speed (SP, IP, or LP).
   IP mode determines how much tape is left and switches speed from SP to LP, if necessary, to complete recording the program.
   IP mode is not selected when VPS/PDC is ON.
   Check that the timer event details are correct.
   If you wish to record from AUDIO IN and VIDEO IN on the front or from either of the EURO SCART sockets on the back of VCR, press AUX to select for correct display (AV1, AV2 or AV3).



7. If you want to make another VIDEO Plus+ recording repeat stages **2 - 7**.
   Press **i** twice.
   If **PLEASE CHECK** is displayed, you have entered incorrect information and will need to re-enter the data.
   Press ⏻/**I** to switch your DVD+VCR power off mode.
   ⏲ will appear in the video recorder's display while your VCR waits to make the recording.
   To watch a DVD during timer recording standby mode, press ⏻/**I** and DVD to switch to DVD mode.
8. Press ⏻/**I** to end recording.

Notes:

Programme Delivery Control (PDC)

The Programme Delivery Control (**PDC**) system adjusts the start and end times of a timer record event. This can be particularly useful with sports events which may run over into extra time. The PDC signal is transmitted by the broadcaster and this controls your video recorder's timer. Currently only a limited number of TV companies transmit PDC signals. Please make sure that when recording from channels that do not broadcast PDC that you turn PDC OFF.

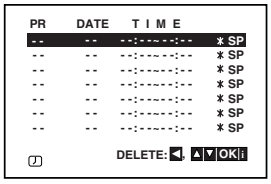
Timer recording using On Screen Display

You may set up to seven timer record events within one month of the current date.

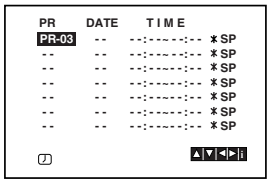
Note:

Before setting the timer make sure that you have set the DVD+VCR clock correctly and you know which stations you have tuned TV stations on your DVD+VCR.

1. Insert a video cassette with protection tab into your DVD+VCR.
   The video cassette should have the window side facing up and the arrow facing away from you.
2. Press **i**.
   Press ◄ or ► to select **REC ( )**.
   Press **OK**.



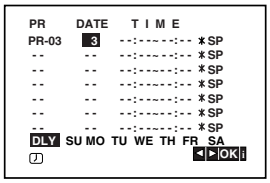
3. Press **OK** to start setting the timer record event.
4. Use the ▲/▼ to enter the station that you wish to record then press ►.



Note:

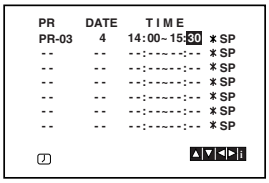
If all timer record events are full press ▲ or ▼ to select the event that you wish to remove and replace. Press ◄ to delete the event.

5. Use the ▲/▼ to enter the date of the programme.
   If you press **OK** before entering the date you may select one of the following automated recording features.
   Press ◄ or ► to select, then press **OK** to confirm.
   DLY To record every day (except Saturday and Sunday) at the same time.
   SU~SA To record at the same time every week.

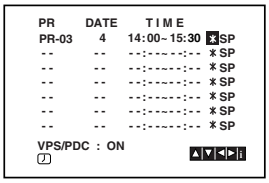


6. Use ▲/▼/◄/► buttons to enter the recording start and end times of the programme that you wish to record.

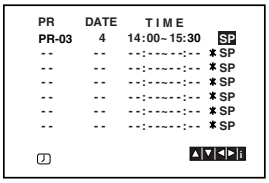
   Please note your DVD+VCR uses a 24 hour clock. e.g. 1pm will be displayed as 13:00.



7. Press ► and press ▲ or ▼ to switch VPS/PDC on or off.



8. Press ► to select the recording speed.
   Press ▲ or ▼ to select the desired tape speed (SP, IP, or LP).
   IP mode determines how much tape is left and switches speed from SP to LP, if necessary, to complete recording the program. IP mode is not selected when VPS/PDC is ON.



Timer recording using On Screen Display (Continued)

9. Press **i** to set another timer record event and follow steps 3 to 8.
   Check that the timer event details are correct.
   Press **i** return to screen.

   If **PLEASE CHECK** is displayed, you have entered incorrectly and will need to re-enter the data.

10. Press ⏻/I to switch your DVD+VCR to Timer Standby mode.

    The timer symbol (⏲) will appear in the display window while your DVD+VCR waits to make the recording.

11. Press ⏻/I to end timer recording.

Notes:

- If you want to stop recording while recording is in progress, press ⏻/I to stop recording.
- The DVD+VCR will automatically power off when Timer Recording ends.
- During timer recording standby mode, the DVD and VCR mode cannot be operated. To use the DVD+VCR, press ⏻/I . After you use the DVD or VCR, press ⏻/I again to put the VCR into timer recording standby mode.
- If at a later date you wish to **delete** or **change** any of the settings in timer event memory you may do so without having to enter all the timer event information again. Simply display the timer event screen. Use ▲ or ▼ to select the event that you wish to **delete** or **change**.

  Press ◄ to delete the event...or
  Press **OK** to change; then press ◄ or ► to select; Station, Date, Start and End times and recording speed. Press ▲ or ▼ to enter the correct information.

- **If Timer record events Overlap...**
  Make sure that the preset times of the timer recording events do not overlap. If they do, the earlier programme will always be given priority.

  Example:
  Programme 1 is programmed to start at 16:00 and end at 17:00.
  Programme 2 is programmed to start at 16:30 and end at 17:30.
  (In this case, Programme 1 will be recorded in its entirety, but only the last 30 minutes of Programme 2 will be recorded.)

- To watch a DVD while performing a timer recording, press DVD to select DVD mode.

Playing a DVD or Video CD

Playback Setup

1. Turn on the TV and select the video input source connected to the DVD player.
2. Turn on the audio system (if applicable) and select the input source connected to the DVD player.
3. Press OPEN/CLOSE (⏏) to open the disc tray and load your chosen disc in the tray, with the playback side down.
4. Press OPEN/CLOSE (⏏) to close the tray. Playback starts automatically. If playback does not start, press ►.

   In some cases, the disc menu might appear instead:

   DVD

   Use the ◄ ► ▲ ▼ buttons to select the title/chapter you want to view, then press ENTER to start. Press TITLE or DISC MENU to return to the menu screen.

   VCD

   Use the number buttons to select the track you want to view and press RETURN to return to the menu screen. Menu settings and operating procedures may differ. Follow the instructions on the each menu screen. You also may set PBC to Off (See “PBC” on page 20).

Notes:

- If parental control is set and the disc is not within the rating settings you must input the password. (See “Lock Menu” on page 21.)
- DVDs may have a region code. Your player does not play discs that have a region code different from your player. The region code for this player is 2 (two).

General Features

Note:

Unless stated otherwise, all operations described use the remote control. Some features may also be available on the Setup menu.

Moving to another TITLE **DVD**

When a disc has more than one title, you can move to another title. Press DISPLAY while playback is stopped then the appropriate number (0-9) or use ◄ / ► to move to another title.
You can play any title by inputting its number while playback is stopped.

Moving to another CHAPTER/TRACK
DVD **VCD** **DivX**

When a title on a disc has more than one chapter or a disc has more than one track, you can move to another chapter/track as follows:

- Press ⏮ or ⏭ briefly during playback to select the next chapter/track or to return to the beginning of the current chapter/track.
- Press ⏮ twice briefly to step back to the previous chapter/track.
- To go directly to any chapter during DVD playback, press DISPLAY and press ▲ / ▼ to select the chapter/track icon. Then, input the chapter/track number or use ◄ / ►.

Search **DVD** **VCD** **DivX**

1. Press ◄◄ or ►► during playback.
2. Press ◄◄ or ►► repeatedly to select the required speed.
   DVD, DivX disc; X2, X4, X16 or X100
   Video CD; X2, X4 or X8
3. To exit SEARCH mode, press ►.

Changing the Audio Channel **VCD**

Press A.MONITOR repeatedly during playback to hear a different audio channel (Stereo, Left, or Right).

Still Picture and Frame-by-Frame Playback
DVD VCD DivX

1. Press ❚❚ on the remote control during playback. Advance the picture frame-by-frame by pressing ❚❚ repeatedly.
2. To exit still motion mode, press ►.

Slow Motion DVD VCD DivX

1. Press ❚❚ during playback.

   The DVD player will now go into PAUSE mode.
2. Use ◄◄ or ►► to select the required speed: ◄❚ 1/16, ◄❚ 1/8, ◄❚ 1/4, or ◄❚ 1/2 (backward), or ❚► 1/16, ❚► 1/8, ❚► 1/4, or ❚► 1/2 (forward).

   With a Video CD, the Slow speed changes: ❚► 1/16, ❚► 1/8, ❚► 1/4 or ❚► 1/2 (forward).
3. To exit Slow Motion mode, press ►.

Note:
Slow motion playback in reverse is not possible with Video CDs and DivX Discs.

Random VCD Karaoke DVD

1. Press RANDOM during playback or in stop mode. The unit automatically begins random playback and RANDOM appears on the TV screen.
2. Press RANDOM again to normal.

Tip:
By pressing ►►❚ during random playback, the unit selects another title (track) and resumes random playback.

Note:
On a Video CD with PBC, You must set PBC to Off on the setup menu to use the random function (See “PBC” on page 20).

Repeat A-B DVD VCD DivX

To repeat a sequence.

1. Press REPEAT A-B at your chosen starting point. “ A * ” appears briefly on the TV screen.
2. Press REPEAT A-B again at your chosen end point.
   “A B” appears briefly on the TV screen and the repeat sequence begins.
3. Press REPEAT A-B again to cancel.

Repeat DVD VCD DivX

You can play a title/chapter/all/track on a disc. Press REPEAT during playback to select a desired repeat mode.

DVD Video Discs - Repeat Chapter/Title/Off
- Chapter: repeats the current chapter.
- Title: repeats the current title.
- Off : does not play repeatedly.

Video CDs, Divx discs - Repeat Track/All/Off
- Track : repeats the current track
- All : repeats all the tracks on a disc.
- Off : does not play repeatedly.

Notes:
- On a Video CD with PBC, you must set PBC to Off on the setup menu to use the repeat function (See “PBC” on page 20).
- If you press ►►❚ once during Repeat Chapter (Track) playback, the repeat playback cancels.

3D Surround DVD VCD DivX

To produce a 3D surround effect that simulates multi-channel audio from two stereo speakers (instead of the five+ speakers normally required for multi-channel audio from a home theater system).

1. Press DISPLAY during playback.
2. Use ▲ or ▼ to select the sound option. The sound option will be highlighted.
3. Use ◄ or ► to to select “3D SUR”. To turn off the 3D Surround effect, select “Normal”.

Time Search DVD VCD DivX

To start playing at any chosen time on the disc:

1. Press DISPLAY during playback. The time search box shows the elapsed playing time.
2. Press ▲ / ▼ to select the time clock icon and “-:--:--” appears.
3. Input the required start time in hours, minutes, and seconds from left to right. If you enter the wrong numbers, press CLEAR (0000) to remove the numbers you entered. Then input the correct numbers.
4. Press ENTER to confirm. Playback starts from the selected time.

Zoom DVD VCD DivX

Use zoom to enlarge the video image.

1. Press ZOOM during playback or still playback to activate the Zoom function. The square frame appears briefly in the right bottom of the picture.
2. Each press of the ZOOM button changes the TV screen in the sequence: 100% size → 400% size → 1600% size → screen fit mode → 100% size

   Screen fit mode:
   You can change the way the image appears on the screen when you're playing a DVD movie. Press ▲/▼ to select between Normal, Enhanced, and Maximum.
3. Use the ◄ ► ▲ ▼ buttons to move through the zoomed picture.
4. To resume normal playback, press ZOOM repeatedly or press CLEAR (0000) button.

Notes:

- Zoom may not work on some DVDs.
- Screen fit mode is available for playing the DVD disc, VR disc and movie file.

Marker Search DVD VCD DivX

To enter a Marker

You can start playback from up to nine memorized points. To enter a marker, press MARKER at the desired point on the disc. The Marker icon appears on the TV screen briefly. Repeat to enter up to nine markers.

To Recall or Clear a Marked Scene

1. During disc playback, press SEARCH. The marker search menu appears on the screen.
2. Within 10 seconds, press ◄ / ► to select a marker number that you want to recall or clear.
3. Press ENTER and playback starts from the marked scene. Or, press CLEAR (0000) and the marker number is erased from the list.
4. You can play any marker by inputting its number on the marker search menu.

Special DVD Features

Checking the contents of DVD discs: Menus
DVDs may offer menus that allow you to access special features. To use the disc menu, press DISC MENU. Input the corresponding number or use the ◄ ► ▲ ▼ buttons to highlight your selection. Then press ENTER.

Title Menu DVD

1. Press TITLE. If the current title has a menu, the menu appears on the screen. Otherwise, the disc menu may appear.
2. The menu offers features such as camera angles, spoken language and subtitle options, and chapters for the title.
3. Press TITLE to exit.

Disc Menu DVD

Press DISC MENU and the disc menu is displayed. Press DISC MENU again to exit.

Camera Angle DVD

If the disc contains scenes recorded at different camera angles, you can change to a different camera angle during playback. Press ANGLE repeatedly during playback to select a desired angle. Note that the number of the current angle appears on the display.

Changing the Audio Language DVD DivX

Press A.MONITOR repeatedly during playback to hear a different audio language or audio track.
With DVD-RW discs recorded in VR mode that have both a main and a Bilingual audio channel, you can switch between Main (L), Bilingual (R), or a mix of both (Main + Bilingual) by pressing AUDIO.

Subtitles DVD DivX

Press SUBTITLE repeatedly during playback to see the different subtitle languages.

Note:

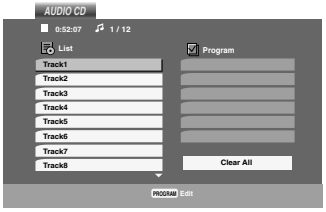
- The subtitle file of the DivX file is displayed only smi, srt and sub.
- If there is no information or there is a code that can not read in the DivX file, " 1 " or etc. are displayed.

Playing an Audio CD or MP3 Disc

The DVD player can play MP3 formatted recordings on CD-ROM, CD-R, or CD-RW discs.

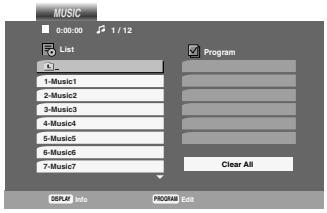
Audio CD

Once you insert an audio CD a menu appears on the TV screen. Press ▲ / ▼ to select a track then press ► or ENTER and playback starts.



MP3

1. Press ▲ / ▼ to select a folder, and press ENTER to see the folder contents.
2. Press ▲ / ▼ to select a track then press ► or ENTER. Playback starts.



ID3 TAG

- When playing a file containing information such as track titles, you can see the information by pressing DISPLAY. [Song, Artist, Album, Comment, Genre]
- If there is no information, “No ID3 TAG” appear on the menu screen.

Tip:

- If you are in a file list on the MUSIC menu and want to return to the Folder list, use the ▲ / ▼ to highlight and press ENTER.
- Press DISC MENU to move to the next page.
- On a CD with MP3 and JPEG you can switch MP3 and JPEG. Press TITLE and MUSIC or PHOTO word on top of the menu is highlighted.
- When playing a file containing information such as track titles, you can see the information by pressing DISPLAY.

MP3 disc compatibility with this player is limited as follows:

- Sampling frequency: within 8 - 48 kHz (MP3)
- Bit rate: within 8 - 320kbps (MP3)
- The player cannot read an MP3 file that has a file extension other than “.mp3”.
- CD-R physical format should be ISO 9660
- If you record MP3 files using software that cannot create a file system (eg. Direct-CD) it is impossible to playback MP3 files.
  We recommend that you use Easy-CD Creator, which creates an ISO 9660 file system.
- File names should have a maximum of 8 letters and must incorporate an .mp3 extension.
- They should not contain special letters such as / ? * : “ < > l etc.
- The total number of files on the disc should be less than 650.

This DVD player requires discs and recordings to meet certain technical standards in order to achieve optimal playback quality. Pre-recorded DVDs are automatically set to these standards. There are many different types of recordable disc formats (including CD-R containing MP3 files) and these require certain pre-existing conditions (see above) to ensure compatible playback.

Customers should note that permission is required in order to download MP3 files and music from the Internet. Our company has no right to grant such permission. Permission should always be sought from the copyright owner.

Audio CD and MP3 Disc Features

Pause CD MP3

1. Press ❚❚ during playback.
2. To return to playback, press ►, ENTER or press ❚❚ again.

Moving to another Track CD MP3

1. Press ⏮ or ⏭ briefly during playback to go to the next track or to return to the beginning of the current track.
2. Press ⏮ twice briefly to go back to the previous track.
3. In case of audio CD, to go directly to any track, enter the track number using the numbered buttons (0-9).

Repeat Track/All/Off CD MP3

You can play a track/all on a disc.

1. Press REPEAT when playing a disc.
   The repeat icon appears.
2. Press REPEAT to select a desired repeat mode.
   - Track: repeats the current track
   - All: repeats all the tracks on a disc.
   - Off(No display): does not play repeatedly.

Note:

If you press ⏭ once during Repeat Track playback, the repeat playback cancels.

Search CD MP3

1. Press ◄◄ or ►► during playback.
2. Press ◄◄ or ►► repeatedly to select the required speed: X2, X4, X8 backward or forward.
3. To exit SEARCH mode, press ►.

Random CD MP3

1. Press RANDOM during playback or when playback is stopped. Random Playback begins immediately and RANDOM appears on the menu screen.
2. To return to normal playback, press RANDOM repeatedly until RANDOM disappears from the menu screen.

Tip:

By pressing ⏭ during random playback, the unit selects another track and resumes random playback.

Repeat A-B CD

1. To repeat a sequence during disc playback press REPEAT A-B at your chosen starting point.
   The Repeat icon and “A” appear on the menu screen.
2. Press REPEAT A-B again at your chosen end point.
   The Repeat icon and “A-B” appear on the menu screen, and the sequence begins to play repeatedly.
3. To exit the sequence and return to normal play, press REPEAT A-B again. The Repeat icon disappears from the menu screen.

3D Surround CD

To produce a 3D surround effect that simulates multi-channel audio from two stereo speakers (instead of the five+ speakers normally required for multi-channel audio from a home theater system).

1. Press A.MONITOR during playback.
   “3D SUR.” appears on the menu screen.
2. To return to normal playback, press A.MONITOR repeatedly until “3D SUR.” disappears from the menu screen.

Programmed Playback

The program function enables you to store your favorite tracks from any disc in the player memory. A program can contain 30 tracks.

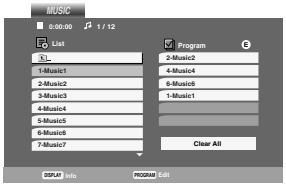
1. Insert a disc.

   Audio CD or MP3 Discs:
   AUDIO CD or MUSIC menu appears.

2. Press MNL.PROG..
   The Ⓔ mark will appear to the right of the word "Program" on the right side of the menu screen.

Note:
Press MNL.PROG. again, then the Ⓔ mark will disappear to exit the Program Edit mode.

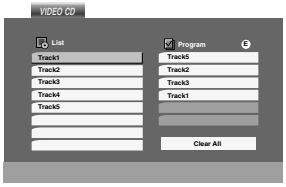
Audio CD Menu



MP3 Menu

Video CD: Press MNL.PROG. while playback is stopped. The program menu appears.
Press MNL.PROG. to exit the menu.

Note:
On a Video CD with PBC, you must set PBC to Off on the setup menu to use the programmed playback (See "PBC" on page 20).



Video CD Menu

3. Select a track on the "List", then press ENTER to place the selected track on the "Program" list. Repeat to place additional tracks on the list.
4. Press ►.
   Select the track you want to start playing on the "Program" list.
5. Press ► or ENTER to start. Playback begins in the order in which you programmed the tracks. Playback stops after all of the tracks on the "Program" list have played once.
6. To resume normal playback from programmed playback, select a track of CD (or MP3) list and then press ►.

Repeat Programmed Tracks

1. Press REPEAT when playing a disc. The repeat icon appears.
2. Press REPEAT to select a desired repeat mode.
   - Track: repeats the current track
   - All: repeats all the tracks on programmed list.
   - Off(No display): does not play repeatedly.

Note:
If you press ►►I once during Repeat Track playback, the repeat playback cancels.

Erasing a Track from Program List

1. Video CD : Press MNL.PROG. in the stop mode to enter Program Edit mode.
2. Press ► to move to the "Program" list.
3. Use ▲/▼ to select the track that you wish to erase from the "Program" list.
4. Press CLEAR (0000). Repeat to erase additional tracks on the list.

Erasing the Complete Program List

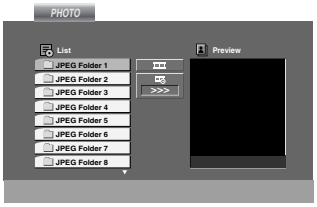
1. Follow steps 1-2 of "Erasing a Track from Program List" as above.
2. Use ▲/▼ to select "Clear All", then press ENTER.
   The complete Program for the disc will be erased.

Note:
The programs are also cleared when the disc is removed.

Viewing a JPEG Disc

Using this DVD Player you can view discs with JPEG files.

1. Insert a disc and close the tray. The PHOTO menu appears on the TV screen.



2. Press ▲ / ▼ to select a folder, and press ENTER. A list of files in the folder appears. If you are in a file list and want to return to the previous Folder list, use the ▲ / ▼ buttons on the remote to highlight and press ENTER.

3. If you want to view a particular file, press ▲ / ▼ to highlight a file and press ENTER or ►. Viewing the file proceeding starts.
   The on-screen messages displayed with the file can be turned off by pressing the **RETURN** (Hide) button on the remote control.
   While viewing a file, you can press ■ to move to the previous menu (PHOTO menu).

Slide Show JPEG

Use ▲ ▼ ◄ ► to highlight the (Slide Show) then press ENTER.

Tip:

- There are three Slide Speed options : >>> (Fast), >> (Normal) and > (Slow).
- On a disc with MP3 and JPEG you can switch MP3 and JPEG. Press TITLE and MUSIC or PHOTO word on top of the menu is highlighted.
- Press RETURN, information of file is hidden.

Still Picture JPEG

1. Press ❚❚ during slide show.
   The player will now go into PAUSE mode.
2. To return to the slide show, press ► or press ❚❚ again.

Moving to another File JPEG

Press ⏮ or ⏭ or cursor ◄ or ► once while viewing a picture to advance to the next or previous file.

Zoom JPEG

Use zoom to enlarge the photo image.
(see 29 page)

To rotate picture

Press ▲ / ▼ during showing a picture to rotate the picture clockwise or counter clockwise.

To listen to MP3 music watching picture JPEG

You can display files while listening to MP3 music files recorded on the same disc.

1. Insert the disc containing the two types of file in the player.
2. Press TITLE to display PHOTO menu.
3. Press ▲ / ▼ to select a photo file.
4. Use ► / ▼ to select icon then press ENTER. Playback starts. The playback will continue until STOP is pressed.

Tip:

To listen to only the desired music watching picture, programmed the desired tracks from the “MUSIC” menu and then proceed as above.

JPEG disc compatibility with this player is limited as follows:

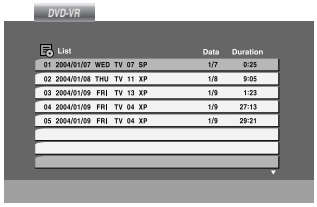
- Depending upon the size and number of JPEG files, it could take a long time for the DVD player to read the disc’s contents. If you don’t see an on-screen display after several minutes, some of the files may be too large — reduce the resolution of the JPEG files to less than 2M pixels as 2760 x 2048 pixels and burn another disc.
- The total number of files and folders on the disc should be less than 650.
- Some discs may be incompatible due to a different recording format or the condition of disc.
- Ensure that all the selected files have the “.jpg” extensions when copying into the CD layout.
- If the files have “.jpe” or “.jpeg” extensions, please rename them as “.jpg” file.
- File names without “.jpg” extension will not be able to be read by this DVD+VCR. Even though the files are shown as JPEG image files in Windows Explorer.

Playing a DVD VR format Disc

This unit will play DVD-R/RW discs recorded using the DVD-Video format that have been finalized using a DVD-recorder.

- This unit will play DVD-RW discs recorded using the Video Recording (VR) format.

1. Insert a disc and close the tray. The DVD-VR menu appears on the TV screen.



2. Press ▲ / ▼ to select a track then press ► or ENTER and playback starts.

3. Press TITLE to move to the list menu.

Note:

- Unfinalized DVD-R/RW discs cannot be played in this player.
- Some DVD-VR disc are made with CPRM data by DVD RECORDER. Player does not support these kinds of discs.

What is 'CPRM'?
CPRM is a copy protection system (with scramble system) only allowing the recording of 'copy once' broadcast programs. CPRM stands for Content Protection for Recordable Media.
This player is CPRM compatible, which means that you can record copy-once broadcast programs, but you cannot then make a copy of those recordings. CPRM recordings can only be made on DVD-RW discs formatted in VR mode, and CPRM recordings can only be played on players that are specifically compatible with CPRM.

Maintenance and Service

Refer to the information in this chapter before contacting a service technician.

Handling the Unit

When shipping the unit

Please save the original shipping carton and packing materials. If you need to ship the unit, for maximum protection, re-pack the unit as it was originally packed at the factory.

Keeping the exterior surfaces clean

- Do not use volatile liquids such as insecticide spray near the unit.
- Do not leave rubber or plastic products in contact with the unit for a long period of time. since they leave marks on the surface.

Cleaning the unit

To clean the player, use a soft, dry cloth. If the surfaces are extremely dirty, use a soft cloth lightly moistened with a mild detergent solution.

Do not use strong solvents such as alcohol, benzine, or thinner, as these might damage the surface of the unit.

Maintaining the Unit

The DVD player is a high-tech, precision device. If the optical pick-up lens and disc drive parts are dirty or worn, the picture quality could be diminished.

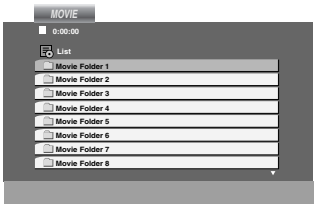
Depending on the operating environment, regular inspection and maintenance are recommended after every 1,000 hours of use.

For details, please contact your nearest authorized service center.

Playing a DivX Movie Disc

Using this DVD Player you can play DivX disc.

1. Insert a disc and close the tray. The MOVIE menu appears on the TV screen.



2. Press ▲ / ▼ to select a folder, and press ENTER. A list of files in the folder appears. If you are in a file list and want to return to the Folder list, use the ▲ / ▼ buttons on the remote to highlight and press ENTER.
3. If you want to view a particular file, press ▲ / ▼ to highlight a file and press ENTER or ►.
4. Press ■ to exit.

Tip:

- Press DISC MENU to move to the next page.
- On a CD with MP3, JPEG and MOVIE file, you can switch MUSIC, PHOTO and MOVIE menu. Press TITLE and MUSIC, PHOTO and MOVIE word on top of the menu is highlighted.
- The disc subtitle may not be displayed properly, if a DivX subtitle is downloaded through the internet.
- If the Disc Subtitle setup menu does not have the DivX Subtitile language you are going to play, the subtitle may not be displayed properly.

Note:

If DivX Subtitle file name is not same with DivX file name, Subtitle will not be displayed on the screen.

A DivX Movie file and the subtitle file must be located in same directory.

DivX disc compatibility with this player is limited as follows:

- Available resolution size of the DivX file is under 720x576 (W x H) pixel.
- The file name of the DivX subtitle is available by 56 characters.
- If there is impossible code to express in the DivX file, it may be displayed as " _ " mark on the display.
- **If the number of the screen frame is over 30 per 1 second, this unit may not operate normally.**
- **If the video and audio structure of recorded file is not interleaved, either video or audio is outputted.**
- **If the file is recorded with GMC, the unit supports only 1-point of the record level.**
  * GMC?
  GMC is the acronym for Global Motion Compensation. It is an encoding tool specified in MPEG4 standard. Some MPEG4 encoders, like DivX or Xvid, have this option. There are different levels of GMC encoding, usually called 1-point, 2-point, or 3-point GMC.

Playable DivX file

● ".avi ", ".mpg ", ".mpeg "

Playable Subtitle format

● SubRip(*.srt/*.txt)
SAMI(*.smi)
SubStation Alpha(*.ssa/*.txt)
MicroDVD(*.sub/*.txt)
SubViewer 2.0(*.sub/*.txt)
TMPlayer(*.txt)
Dvd Subtitle System(*.txt)
VobSub (*.sub) ➧ Sub/idx, stream based format.

Playable Codec format

● "DIVX3.xx ", "DIVX4.xx ", "DIVX5.xx ", "XVID ", "MP43 ", "3IVX ".

Playable Audio format

● "AC3 ", "DTS ", "PCM ", "MP3 ".
  • Sampling frequency: within 8 - 48 kHz (MP3)
  • Bit rate: within 8 - 320kbps (MP3)

Additional Features-VCR part

On Screen Display

You may easily display the current time or tape counter, amount of tape left, day, month, year, day of week, programme channel, tape speed and operational mode of your VCR will appear on the TV screen. If a recording is taking place these On Screen Displays will not be recorded onto the tape.

1. Press **DISPLAY** to display.
   Press **DISPLAY** repeatedly to cycle through the display options. The tape counter and amount of tape left will appear if there is a tape loaded.

2. After 3 seconds the majority of the On Screen Displays will clear leaving only the clock or tape counter and the amount of tape left on the screen. Press **DISPLAY** again to remove all displays from the TV screen.

Note:
It cannot display when f.OSD is OFF.

Tape Counter Memory Stop

The **Digital Tape Counter** can be displayed on the display window instead of the time by pressing **DISPLAY** on the remote control. The Digital Tape Counter indicates the relative positions of recordings on the tape.

1. Press **DISPLAY**.
   Press **CLEAR (** 0000 **)** to set the counter to 0:00:00.
   Press ► or start recording.
   The tape counter will display the actual play time in hours, minutes and seconds.

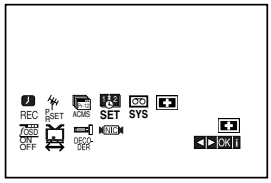
2. Press ■ when playback or recording is complete.
   Press ◄◄.
   The tape will rewind and automatically stop when the counter returns to 0:00:00.

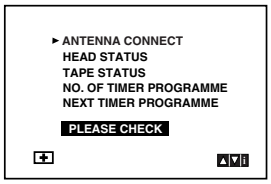
Note:
To rewind to the beginning of the tape, press ◄◄ again.

Video Doctor (Self-Diagnosis)

This feature informs you that there is a problem with your DVD+VCR. These error messages will appear on the TV screen.

1. Press **i**.
   Press ◄ or ► to select .
   Press **OK**.





2. Press ▲ or ▼ to check a problem.

   ANTENNA CONNECT
   ● **PLEASE CHECK:**
   Connect the aerial into the jack securely.

   HEAD STATUS
   ● **PLEASE CLEAN:**
   Clean your video heads.

   TAPE STATUS
   ● **NOT RECORDABLE:**
   Insert a tape with its protection tab in place

   NO. OF TIMER PROGRAMME
   ● **2**
   Shows the number of timer recording.

   NEXT TIMER PROGRAMME
   ● **PR-01 26 10:00~11:00 SP**
   Shows the current status of timer recording.

3. Press **i** to remove the menus from the TV screen.

Hi-Fi Stereo Sound System

Your VCR will record and playback Hi-Fi stereo sound. In addition it has a stereo NICAM digital stereo sound decoder. This allows you to record and playback the sound in several different ways. Video cassettes recorded on your VCR will have a normal mono audio track and two VHS Hi-Fi stereo audio tracks. These stereo tracks allow you to make audio recordings in Hi-Fi stereo or bilingual mode from a TV broadcast, stereo audio system, video disc or another Hi-Fi VCR.

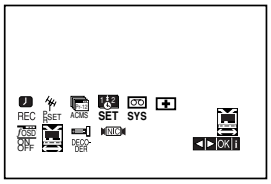
1. Your VCR's NICAM digital sound decoder allows you to enjoy broadcasts with NICAM sound, as well as standard stereo, bilingual and mono sound. The particular type of sound received or that recorded will be briefly displayed on the TV screen for a couple of seconds:
   STEREO NICAM
   Sound is automatically recorded on the Hi-Fi stereo and mono tracks of the video tape.
   BIL NICAM
   Both audio channels will be recorded on the Hi-Fi stereo tracks. The primary language channel (left) will be recorded on the mono track of the video tape.
   MONO
   The sound is recorded on the Hi-Fi tracks and the mono track of the video tape without any separation.
2. Press **AUDIO** repeatedly until the desired audio mode appears.
3. The choice is **STEREO**, **LEFT**, **RIGHT** and **MONO**. In **BIL NICAM** playback the primary language is output on the left channel and the secondary channel is output simultaneously from the right channel when audio output is set to **STEREO**.
   The primary language will be output from both channels when the audio setting is **MONO**.
   Please note that when adjusting the tracking control Hi-Fi stereo sound may revert to **MONO**.

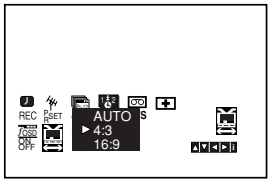
Note:
When OFF is selected in NIC, only mono sound will be output.

Wide Screen Compatibility 16:9

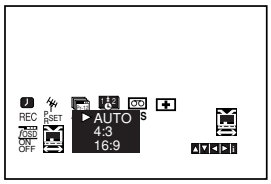
Your DVD+VCR can record and play back wide screen aspect ratio programmes (16:9). To record a wide screen format programme successfully the correct type of wide screen signal must be broadcast by the TV station.

1. Switch on your DVD+VCR.
   Press **i**.
   Press ◄ or ► to select .
   Press **OK**.
2. Press ▲/▼ repeatedly to select: **AUTO, 4:3** or **16:9**.





AUTO:
Automatically plays back Wide-Screen programmes as Wide-Screen and Normal programmes as normal.
4:3
Only for playing back and recording Normal format recordings (4:3).
16:9:
Only for playing back and recording Wide-Screen format recordings (16:9).



3. Press **i** to remove the menus from the TV screen. To enjoy Wide-Screen playback you must connect your VCR to the TV using a SCART cable.

To set the decoder

We have already described, how to connect a decoder for pay-TV station as CANAL+ or PREMIERE on page 10. For the recording of an encoded station you do not have to control anything. You just select the station and wait shortly until the decoding will start.

1. Press **i**.
   The main menu will appear on the TV screen.
   Press ◄ or ► to select the **DECODER**.
   Press **OK**.
2. Press ▲ or ▼ to select.
   ON: When the decoder is connected to the AV2 socket.
   OFF: When another VCR is connected to the AV2 socket.
3. Press **i** to return to a TV picture.

Additional Features

Last Scene Memory

DVD CD VCD

This player memorizes last scene from the last disc that is viewed. The last scene remains in memory even if you remove the disc from the player or switch off the player. If you load a disc that has the scene memorized, the scene is automatically recalled.

Note:

This player does not memorize the scene of a disc if you switch off the player before commencing to play the disc.

Screen Saver

The screen saver appears when you leave the DVD player in Stop mode for about five minutes.

Copying from DVD To VCR

This unit allows you to copy the contents of a DVD to a VHS tape with a press of the REC (●) button.

Notes:

If the DVD you are attempting to copy is copy protected, you may not be able to copy the disc.

1. **Insert Disc**
   Insert the disc you wish to copy in the DVD deck and close the disc tray.
2. **Insert VHS Tape**
   Insert a blank VHS videotape into the VCR deck.
3. **Copy the DVD to VHS Tape**
   Press the REC (●) button.
   - The DVD will go into Play mode and the VCR will go into Record mode.
   - If the DVD disc menu appears, you may need to press the Play button manually to begin copying.

Note:

If you press the REC (●) button, be sure this unit in DVD mode.

4. **Stop the Copy Process**
   When the DVD is finished playing, press ■ to end the copy.
   - You must stop the Copy process manually when the DVD movie ends, or the unit may replay and record over and over again.

Recording from another video recorder

With this video recorder you can make recordings from an external source, such as copying from another video recorder or a camcorder.

Note:

In the following description, this video recorder will be one used for recording and will be referred to as VCR B. The other appliance will be used for playback and will be referred to as VCR A.

1. VCR A should be connected to the SCART socket on the rear panel of your unit or the AV sockets on the front panel of your unit.
2. Insert the recorded tape into VCR A and a blank tape into VCR B.
3. Press **AUX** until the socket you wish to record from is displayed. (VCR B)

   AV 1 for recording from EURO AV1 SCART socket on the rear of your unit.
   AV 2 for recording from EURO AV2 SCART socket on the rear of your unit.
   AV 3 for recording from VIDEO IN and AUDIO IN (Left & Right) sockets on the front of your unit.
4. To start recording, press the REC (●) on VCR B and PLAY on VCR A.
5. When you want to finish copying, press the ■ on both video recorders.

Reference

Language Codes

Use this list to input your desired language for the following initial settings:
Disc Audio, Disc Subtitle, Disc Menu.

Language	Code	Language	Code	Language	Code	Language	Code
Abkhazian	6566	Fiji	7074	Lingala	7678	Singhalese	8373
Afar	6565	Finnish	7073	Lithuanian	7684	Slovak	8375
Afrikaans	6570	French	7082	Macedonian	7775	Slovenian	8376
Albanian	8381	Frisian	7089	Malagasy	7771	Somali	8379
Ameharic	6577	Galician	7176	Malay	7783	Spanish	6983
Arabic	6582	Georgian	7565	Malayalam	7776	Sudanese	8385
Armenian	7289	German	6869	Maltese	7784	Swahili	8387
Assamese	6583	Greek	6976	Maori	7773	Swedish	8386
Aymara	6588	Greenlandic	7576	Marathi	7782	Tagalog	8476
Azerbaijani	6590	Guarani	7178	Moldavian	7779	Tajik	8471
Bashkir	6665	Gujarati	7185	Mongolian	7778	Tamil	8465
Basque	6985	Hausa	7265	Nauru	7865	Tatar	8484
Bengali; Bangla	6678	Hebrew	7387	Nepali	7869	Telugu	8469
Bhutani	6890	Hindi	7273	Norwegian	7879	Thai	8472
Bihari	6672	Hungarian	7285	Oriya	7982	Tibetan	6679
Breton	6682	Icelandic	7383	Panjabi	8065	Tigrinya	8473
Bulgarian	6671	Indonesian	7378	Pashto, Pushto	8083	Tonga	8479
Burmese	7789	Interlingua	7365	Persian	7065	Turkish	8482
Byelorussian	6669	Irish	7165	Polish	8076	Turkmen	8475
Cambodian	7577	Italian	7384	Portuguese	8084	Twi	8487
Catalan	6765	Japanese	7465	Quechua	8185	Ukrainian	8575
Chinese	9072	Javanese	7487	Rhaeto-Romance	8277	Urdu	8582
Corsican	6779	Kannada	7578	Rumanian	8279	Uzbek	8590
Croatian	7282	Kashmiri	7583	Russian	8285	Vietnamese	8673
Czech	6783	Kazakh	7575	Samoan	8377	Volapük	8679
Danish	6865	Kirghiz	7589	Sanskrit	8365	Welsh	6789
Dutch	7876	Korean	7579	Scots Gaelic	7168	Wolof	8779
English	6978	Kurdish	7585	Serbian	8382	Xhosa	8872
Esperanto	6979	Laothian	7679	Serbo-Croatian	8372	Yiddish	7473
Estonian	6984	Latin	7665	Shona	8378	Yoruba	8979
Faroese	7079	Latvian, Lettish	7686	Sindhi	8368	Zulu	9085

Area Codes

Choose a area code from this list.

Area	Code	Area	Code	Area	Code	Area	Code
Afghanistan	AF	Ethiopia	ET	Malaysia	MY	Saudi Arabia	SA
Argentina	AR	Fiji	FJ	Maldives	MV	Senegal	SN
Australia	AU	Finland	FI	Mexico	MX	Singapore	SG
Austria	AT	France	FR	Monaco	MC	Slovak Republic	SK
Belgium	BE	Germany	DE	Mongolia	MN	Slovenia	SI
Bhutan	BT	Great Britain	GB	Morocco	MA	South Africa	ZA
Bolivia	BO	Greece	GR	Nepal	NP	South Korea	KR
Brazil	BR	Greenland	GL	Netherlands	NL	Spain	ES
Cambodia	KH	Islands	HM	Netherlands Antilles	AN	Sri Lanka	LK
Canada	CA	Hong Kong	HK	New Zealand	NZ	Sweden	SE
Chile	CL	Hungary	HU	Nigeria	NG	Switzerland	CH
China	CN	India	IN	Norway	NO	Taiwan	TW
Colombia	CO	Indonesia	ID	Oman	OM	Thailand	TH
Congo	CG	Israel	IL	Pakistan	PK	Turkey	TR
Costa Rica	CR	Italy	IT	Panama	PA	Uganda	UG
Croatia	HR	Jamaica	JM	Paraguay	PY	Ukraine	UA
Czech Republic	CZ	Japan	JP	Philippines	PH	United States	US
Denmark	DK	Kenya	KE	Poland	PL	Uruguay	UY
Ecuador	EC	Kuwait	KW	Portugal	PT	Uzbekistan	UZ
Egypt	EG	Libya	LY	Romania	RO	Vietnam	VN
El Salvador	SV	Luxembourg	LU	Russian Federation	RU	Zimbabwe	ZW

Troubleshooting

Check the following guide for the possible cause of a problem before contacting service.

Symptom	Cause	Correction
DVD or VCR do not work properly.	• DVD or VCR button is not switched properly.	• Refer to page 2.
No power.	• The power cord is disconnected.	• Plug the power cord into the wall outlet securely.
The power is on, but the DVD player does not work.	• No disc is inserted.	• Insert a disc. (Check that the DVD or, audio CD indicator in the display window is lit.)
No picture.	• The TV is not set to receive DVD signal output.	• Select the appropriate video input mode on the TV so the picture from the DVD player appears on the TV screen.
	• The video cable is not connected securely.	• Connect the video cable into the jacks securely.
No sound.	• The equipment connected with the audio cable is not set to receive DVD signal output.	• Select the correct input mode of the audio receiver so you can listen to the sound from the DVD player.
	• The audio cables are not connected securely.	• Connect the audio cable into the jacks securely.
	• The power of the equipment connected with the audio cable is turned off.	• Turn on the equipment connected with the audio cable.
	• The Digital Audio Output is set to the wrong position.	• Set the Digital Audio Output to the correct position, then turn on the DVD player again by pressing ⏻/I.
The picture is poor.	• The disc is dirty. • The TV channels are not tuned in properly.	• Clean the disc. • Check tuning, carry out tuning again.
The DVD player does not start playback.	• An unplayable disc is inserted.	• Insert a playable disc. (Check the disc type and Regional code.)
	• The disc is placed upside down.	• Place the disc with the playback side down.
	• The disc is not placed within the guide.	• Place the disc on the disc tray correctly inside the guide.
	• The disc is dirty.	• Clean the disc.
	• The Rating level is set.	• Cancel the Rating function or change the rating level.
The remote control does not work properly.	• There is an obstacle in the path of the remote control and this unit.	• Remove the obstacle.
	• The batteries in the remote control are exhausted.	• Replace the batteries with new ones.
Video tape cannot be inserted.	• Is the cassette compartment empty?	• Eject the tape in.
No Hi-Fi sound	• Audio mode is not set properly.	• Select “STEREO” by repeatedly pressing “AUDIO” on the remote control.
No NICAM sound recording	• NICAM mode is not set properly.	• Make sure NICAM in the menu is set to AUTO for the station to be recorded.

Specification

General

Power requirements	AC 200-240V, 50 Hz
Power consumption	17W
Dimensions (approx.)	430 X 78.5 X 265 mm (w/h/d)
Mass (approx.)	4.2 kg
Operating temperature	5˚C to 35˚C (41˚F to 95˚F)
Operating humidity	5 % to 90 %
Timer	24 hours display tape
RF Modulator	UHF 22 - 68 (Adjustable)

System

Laser	Semiconductor laser, wavelength 650 nm
Video Head system	Double azimuth 6 heads, helical scanning.
Signal system	PAL
Frequency response	DVD (PCM 96 kHz): 8 Hz to 44 kHz DVD (PCM 48 kHz): 8 Hz to 22 kHz CD: 8 Hz to 20 kHz
Signal-to-noise ratio	More than 100dB (ANALOG OUT connectors only)
Harmonic distortion	Less than 0.008%
Dynamic range	More than 100 dB (DVD) More than 95 dB (CD)

Inputs (VCR)

Audio	-6.0dBm, more than 10 kohms (SCART) -6.0dBm, more than 47 kohms (RCA)
Video	1.0 Vp-p, 75 ohms, unbalanced (SCART/RCA)

Outputs (DVD)

VIDEO OUT	1 Vp-p 75 ohms, sync negative
Audio output (digital audio)	0.5 V (p-p), 75 Ω, RCA jack x 1
Audio output (analog audio)	2.0 Vrms (1 KHz, 0 dB), 600 Ω, RCA jack (L, R)x2/SCART (TO TV)

Outputs (VCR)

Audio	-6.0dBm, less than 1 kohms (SCART)
Video	1.0Vp-p, 75 ohms, unbalanced (SCART)

- Design and specifications are subject to change without notice.

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Precautions

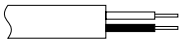
When the equipment is installed in a cabinet or a shelf, make sure that it has sufficient space on all sides to allow for ventilation (10 cm or more on both sides, on top and at the rear).
When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.
Failure to heed the following precautions may result in damage to the unit, remote control or disc.

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 control.**
4. **DO NOT place anything which might spill on top of the unit or remote control.**
   (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.**

IMPORTANT
Connection to the mains supply in the United Kingdom.
DO NOT cut off the mains plug from this equipment.
If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.
In the unlikely event of the plug fuse failing be sure to replace the fuse only with an identical approved type, as originally fitted, and to replace the fuse cover. If the fuse fails again consult your nearest JVC dealer.
If nonetheless the mains plug is cut off remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.
If this product is not supplied fitted with a mains plug then follow the instructions given below:
DO NOT make any connection to the Larger Terminal coded E or Green.


Blue to N (Neutral) or Black
Brown to L (Live) or Red

The wires in the mains lead are coloured in accordance with the following code:
If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

Some Do's And Don'ts On The Safe Use Of Equipment

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.
DO read the operating instructions before you attempt to use the equipment.
DO ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.
DO consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.
DO be careful with glass panels or doors on equipment.
DON'T continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way—switch off, withdraw the mains plug and consult your dealer.
DON'T remove any fixed cover as this may expose dangerous voltages.
DON'T leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure that your family knows how to do this. Special arrangements may need to be made for infirm or handicapped people.
DON'T use equipment such as personal stereos or radios so that you are distracted from the requirements of road safety. It is illegal to watch television whilst driving.
DON'T listen to headphones at high volume, as such use can permanently damage your hearing.
DON'T obstruct the ventilation of the equipment, for example with curtains or soft furnishings. Overheating will cause damage and shorten the life of the equipment.
DON'T use makeshift stands and NEVER fix legs with wood screws—to ensure complete safety always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.
DON'T allow electrical equipment to be exposed to rain or moisture.

ABOVE ALL...

— **NEVER** let anyone especially children push anything into holes, slots or any other opening in the case—this could result in a fatal electrical shock;
— **NEVER** guess or take chances with electrical equipment of any kind—it is better to be safe than sorry!

EN

HR-XV45SEK

JVC

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EK Printed in Indonesia

P/NO : 3834RV0038A

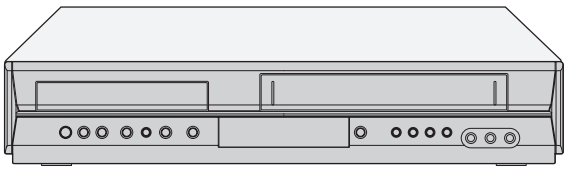
JVC

SCHEMATIC DIAGRAMS

DVD PLAYER & VIDEO CASSETTE RECORDER

HR-XV45SEF, HR-XV45SEK, HR-XV45SER, HR-XV45SEU, HR-XV45SEY, HR-XV45SEZ

CD-ROM No.SML200507



HR-XV45SEF,HR-XV45SEK,HR-XV45SER,HR-XV45SEU,HR-XV45SEY,HR-XV45SEZ [D5PV1]

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No.YD070SCH
2005/7

CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

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

1. Units of components on the schematic diagram

Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ(1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

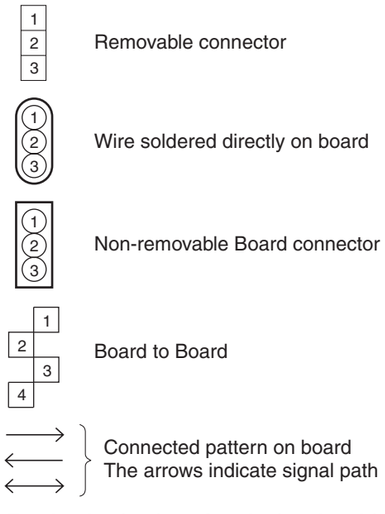
Note: The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

2. Indications of control voltage

AUX : Active at high.

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

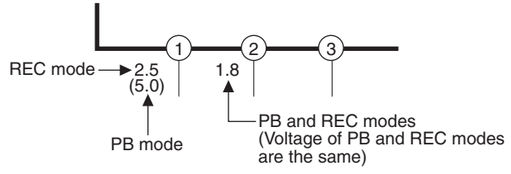
3. Interpreting Connector indications



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

4. Voltage measurement

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

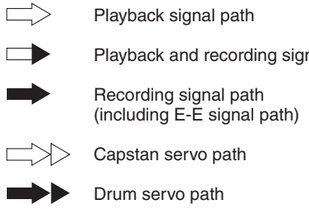


Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

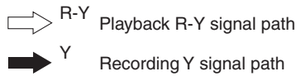
5. Signal path Symbols

The arrows indicate the signal path as follows.

NOTE : The arrow is DVC unique object.

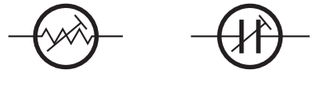


(Example)



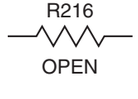
6. Indication of the parts for adjustments

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



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

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



CIRCUIT BOARD NOTES

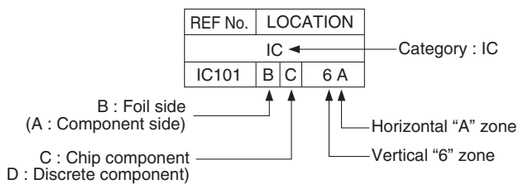
1. Foil and Component sides

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

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

2. Parts location guides

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



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

■ OVERALL WIRING DIAGRAM

DECK

SMPS BOARD

POWER(SMPS) Page2-5 SHEET 1

MD

P3D01	
1	SP PB A
2	SP REC
3	SP PB B
4	EP PB B
5	EP REC
6	EP PBA
7	Hi-Fi PB A
8	Hi-Fi REC
9	Hi-Fi PB B

PMC01	
1	CFG
2	12VA(CAP)
3	5.2VA
4	CAP REVH'
5	I-limit
6	MOTOR GND
7	GND
8	12VA(DRUM)
9	CAP CTL
10	LD IN
11	DFG/FG
12	DRUM CTL

P3D02	
1	CTL(+)
2	CTL(-)
3	A/E(+)
4	A/E(-)
5	A.REC
6	A.PB

P3D03	
1	GND
2	FULL ERASE

PPM01	
1	MOTOR Vcc
2	REG_12V
3	REG_9V
4	GND
5	8V
6	GND
7	3.3V
8	PWR_CTL'H'
9	33V
10	GND
11	5.3VA
12	5V
13	M5V/5VT

PMD01	PMD02	
1	Vcc(HF)	1
2	RF	2
3	DVD_LD	3
4	DVD_PD	4
5	VOL(DVD)	5
6	GND	6
7	VC_INPUT	7
8	Vcc(HF)	8
9	F	9
10	E	10
11	A	11
12	D	12
13	C	13
14	B	14
15	F(+)	15
16	T(-)	16
17	T(+)	17
18	F(-)	18
19	Vcc	19
20	GND	20
21	CD_LD	21
22	CD_PD	22
23	VOL(CD)	23

PMD03	
1	SPM +
2	SPM -
3	FM +
4	FM -
5	LM -
6	LM +
7	SW(OPEN)
8	SW(CLOSE)
9	GND
10	SW(LEAD IN)
11	GND

KEY BOARD

1	K-RTN2	1
2	GND	2

ONE BOARD

A/V	Page2-7	SHEET 2
SYSTEM	Page2-9	SHEET 3
TUNER/IF	Page2-11	SHEET 4
HiFi AUDIO	Page2-13	SHEET 5
SCART(JACK)	Page2-15	SHEET 6
DVD RF & DSP SERVO	Page2-17	SHEET 7
DVD AV/JACK	Page2-19	SHEET 8
DVD SYSTEM	Page2-21	SHEET 9

■ POWER(SMPS) SCHEMATIC DIAGRAM

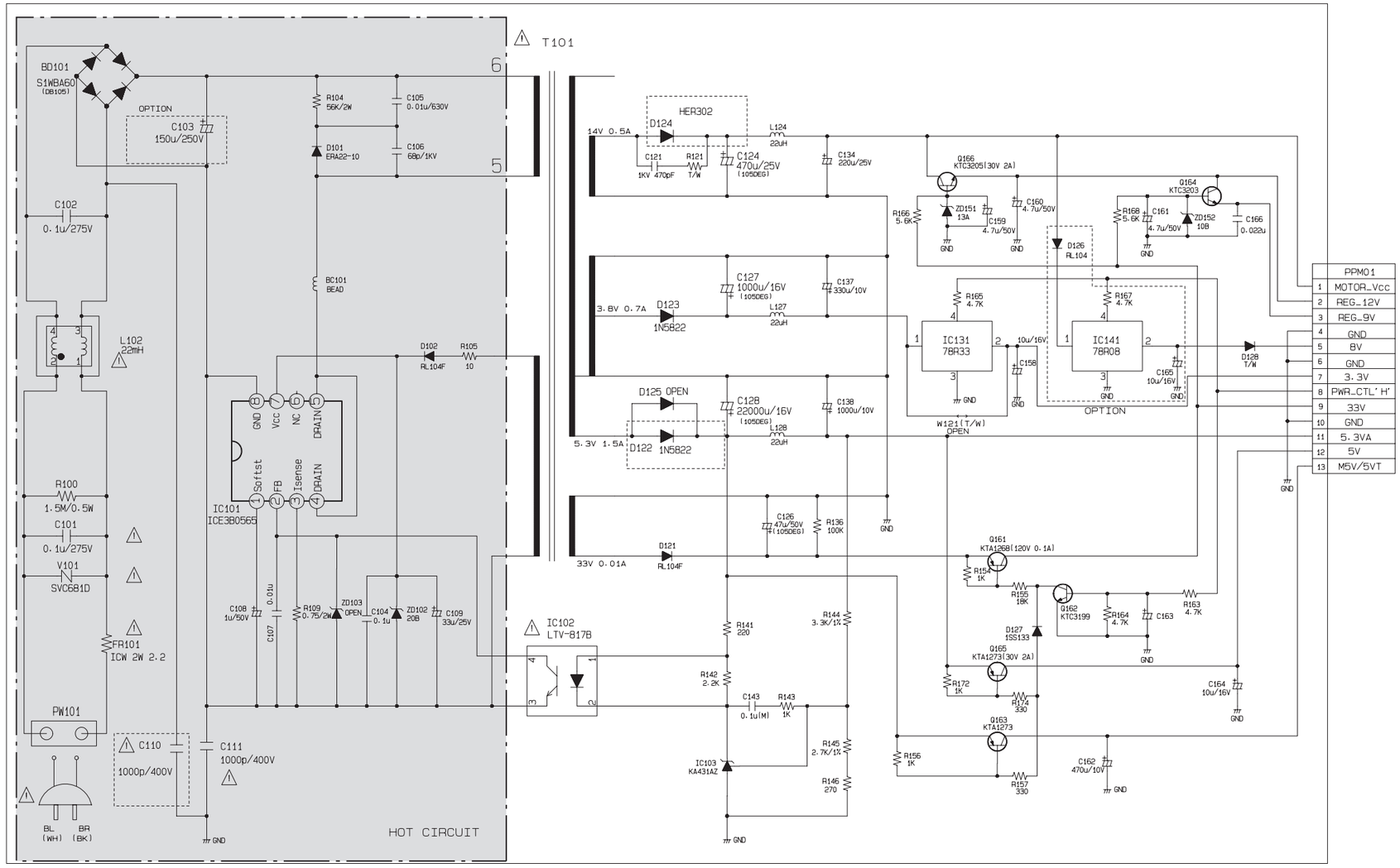
IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE JVC ELECTRONICS CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION.

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

NOTE :

1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



	C103
WIDE	68u/400V
NARROW	150u/250V
CIS, INDO, S.AFRICA	68u/450V

	D124	D122
WIDE	UF5402	D356M
NARROW	HER302	1N5822

	C110
N.T	1000p/400V
PAL	OPEN

	D126	R167	IC141	C165
ZORAN	OPEN	OPEN	OPEN	OPEN
M.T.K	RL104	4.7K	78R08	10u/16V

NOTES) ⏚ Symbol denotes AC ground.
⏚ Symbol denotes DC chassis ground.

NOTE) ▲ Warning
Parts that are shaded are critical
With respect to risk of fire or
electricial shock.

D' SCHEMATIC POWER
V9700' S
2005.02.04
3854R14921A

SHEET 1

A | B | C | D | E | F | G

2-5 2-6

■ AV CIRCUIT DIAGRAM

IC301 Pin70 is defective.
PB COLOR Signal disappear.

Q305 is defective.
EE, PB Screen doesn t appear.

IC301 Pin 69, 68 are defective.
PB and Recording is failed.
(IC301 doesn t operate.)

D301or IC301 Pin 80
REC is defective.

IC301 Pin 84 is defective.
Audio Tracking is failed.

Q302, Q303, Q314
are defective.
No mono Audio Signal
in PB MODE.

Q301, Q306 are defective.
Normal Audio signal is not recorded.

X301 is defective.
PB COLOR Signal disappear.

IC301
LA71750EM

IC3S1
LA7010OM

SECAM OPTION

MONO OPTION

OPTION

	HI-FI	MONO
C378	X	O
C379	X	O
R369	X	O
R370	X	O
R371	X	O
R372	X	O
R343	1K	X
R342	1K	0 Ohm

OPTION

	HI-FI	MONO
C309	270P	220P

PB Y+C
PB Y
PB C
PB SECAM COLOR

REC Y+C
REC Y
REC C
REC SECAM COLOR

REC AUDIO
PB AUDIO(MONO)
WAVEFORM

D'SCHEMATIC AVCP
2005 ZORNA COMBI PAL
3854R14953A

SHEET 2

■ SYSTEM CIRCUIT DIAGRAM

Deck will not operate.
R575, R576, R577, R578 are defective.

Auto stop occures.
RS501,RS502 are defective.

Auto Rew will not working.
ES501, ES502, LD501 are defective.

CLOCK SETTING will not operate.
X501 is defective.

μ-COM will not operate.
X502 is defective.

VCR will not operate.
IC505 is defective.

μ-COM is unstable.
Q501, Q503 are defective.

WAVEFORM

IC501
MN101D10X

IC503
24WC16P

IC504
KIA7031P

IC505
KIA7042

LED501

PT6955

D' SCHEMATIC SYSTEM
2005. ZORAN COMBI PAL

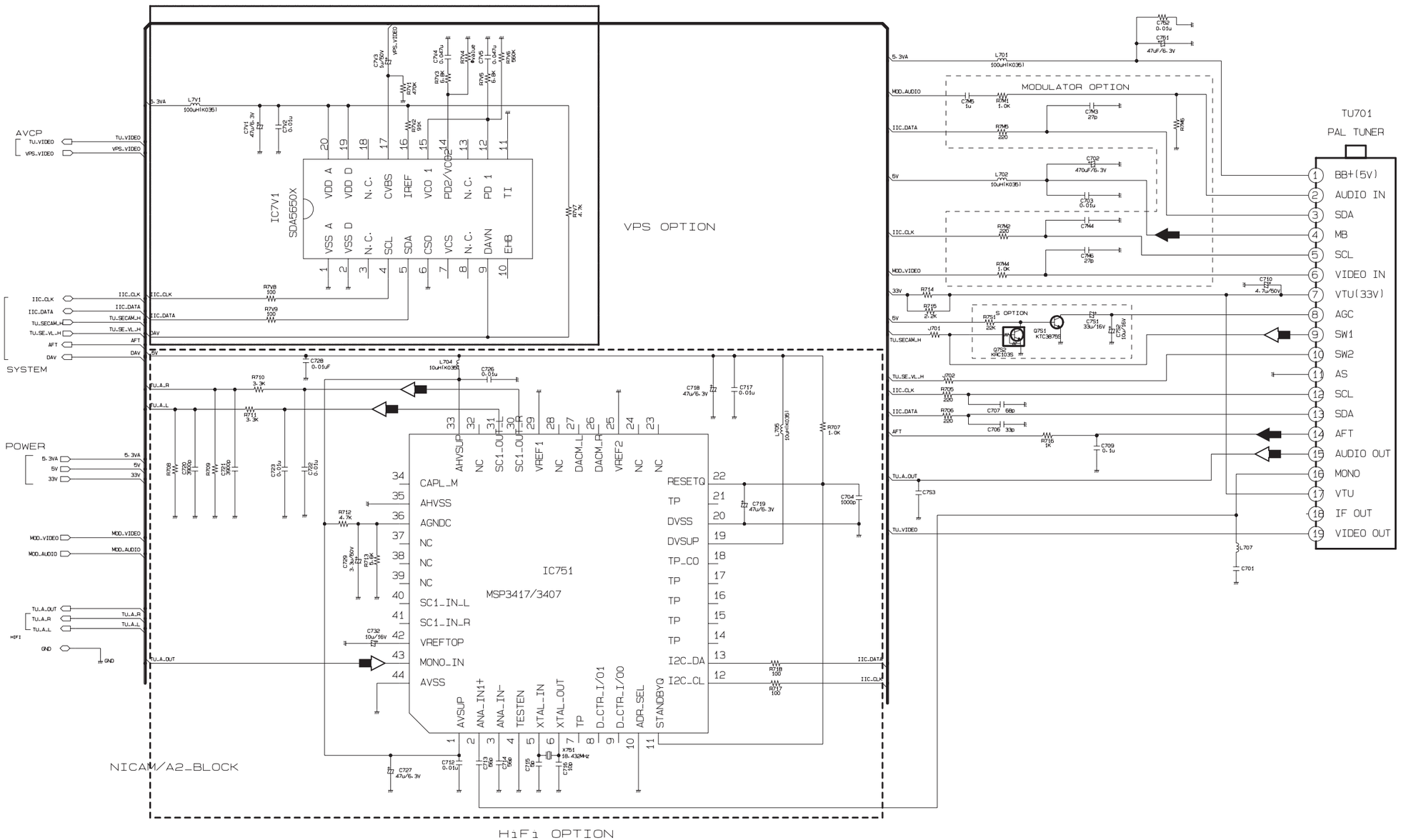
3854R14952A

SHEET 3

2-9

2-10

■ TUNER/IF CIRCUIT DIAGRAM



EE MODE(VIDEO)

TU MODE (AUDIO)

D'SCHEMATIC TUNER
2005 ZORAN COMBI PAL
3854R14955A

■ Hi-Fi CIRCUIT DIAGRAM

44 Pin is defective.
Hi-Fi Audio is not appear.

IC801 Pins42, 43 aredefective.
All Audio is not appear.

IC801
TDA9605H

MODULATOR OPTION

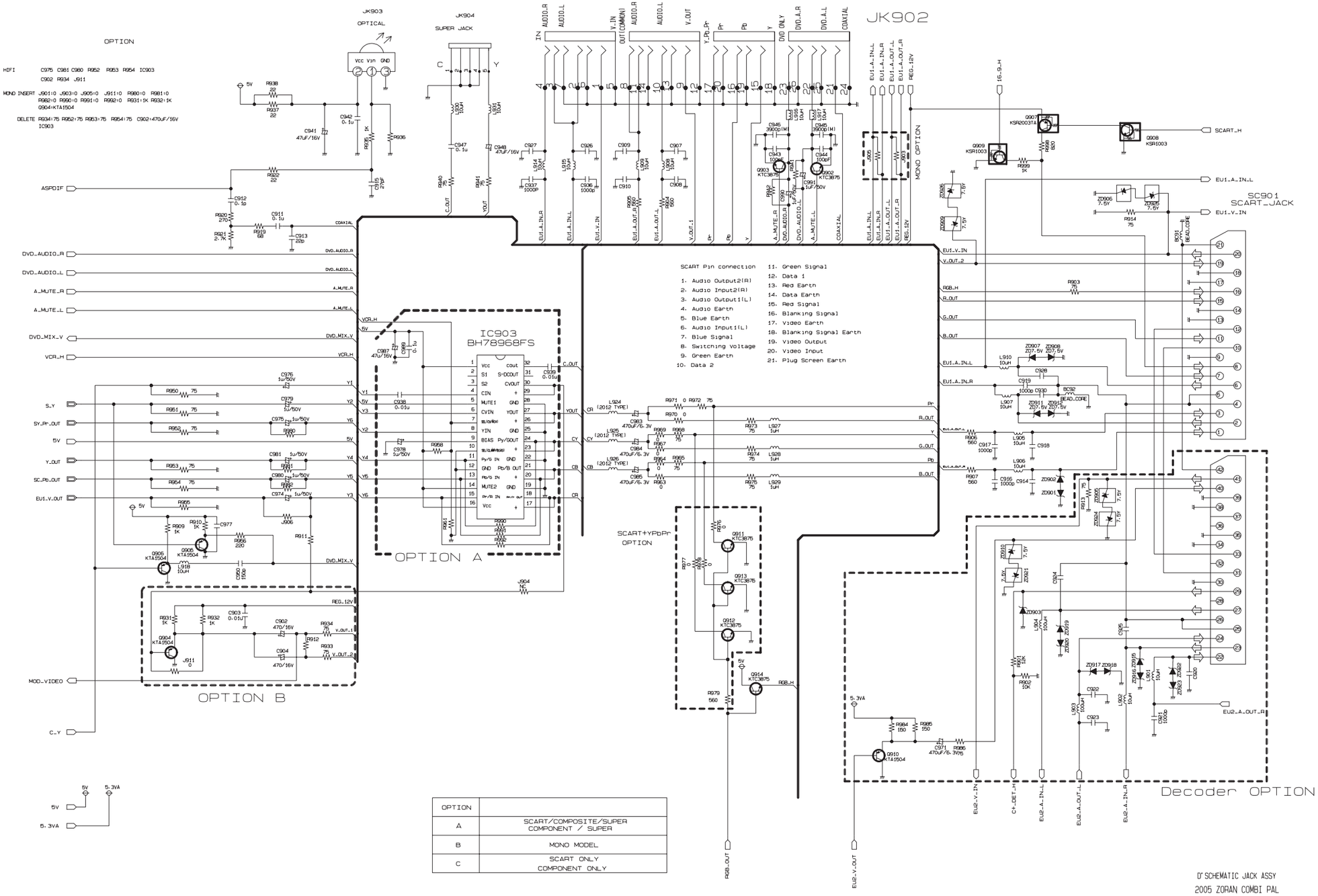
HIFI OPTION

IC802
NM1232

PB
REC

D' SCHEMATIC HI-FI
2005 ZORAN COMBI PAL
3854R14954A

■ SCART(JACK) CIRCUIT DIAGRAM

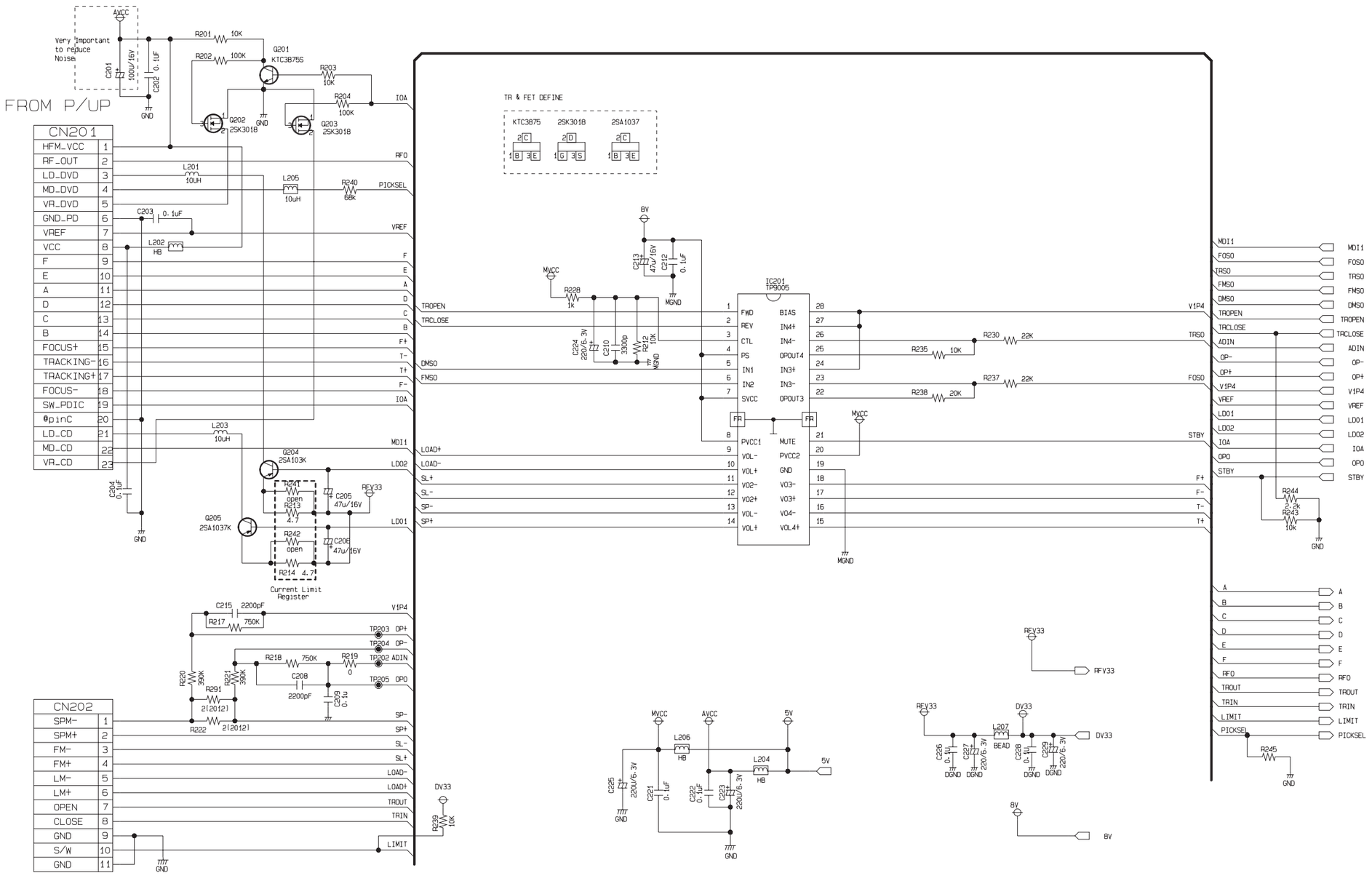


OPTION	
A	SCART/COMPOSITE/SUPER COMPONENT / SUPER
B	MONO MODEL
C	SCART ONLY COMPONENT ONLY

D'SCHEMATIC JACK ASSY
2005 ZORAN COMBI PAL
3854R14959A

SHEET 6

■ DVD RF & DSP SERVO CIRCUIT DIAGRAM



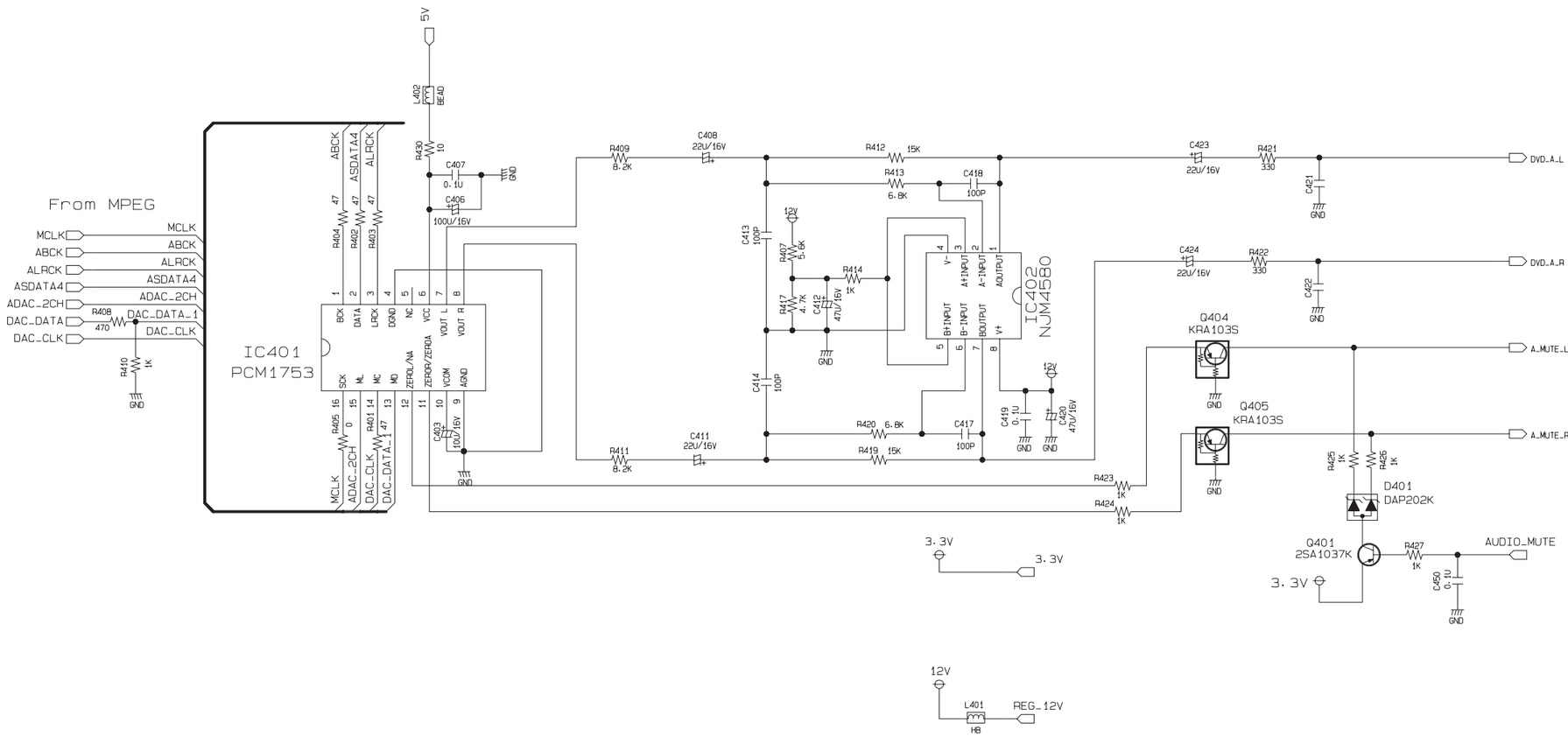
D' SCHEMATIC SYSTEM
2005. ZORAN COMBI PAL

3854R14957B

SHEET 7

2-17 2-18

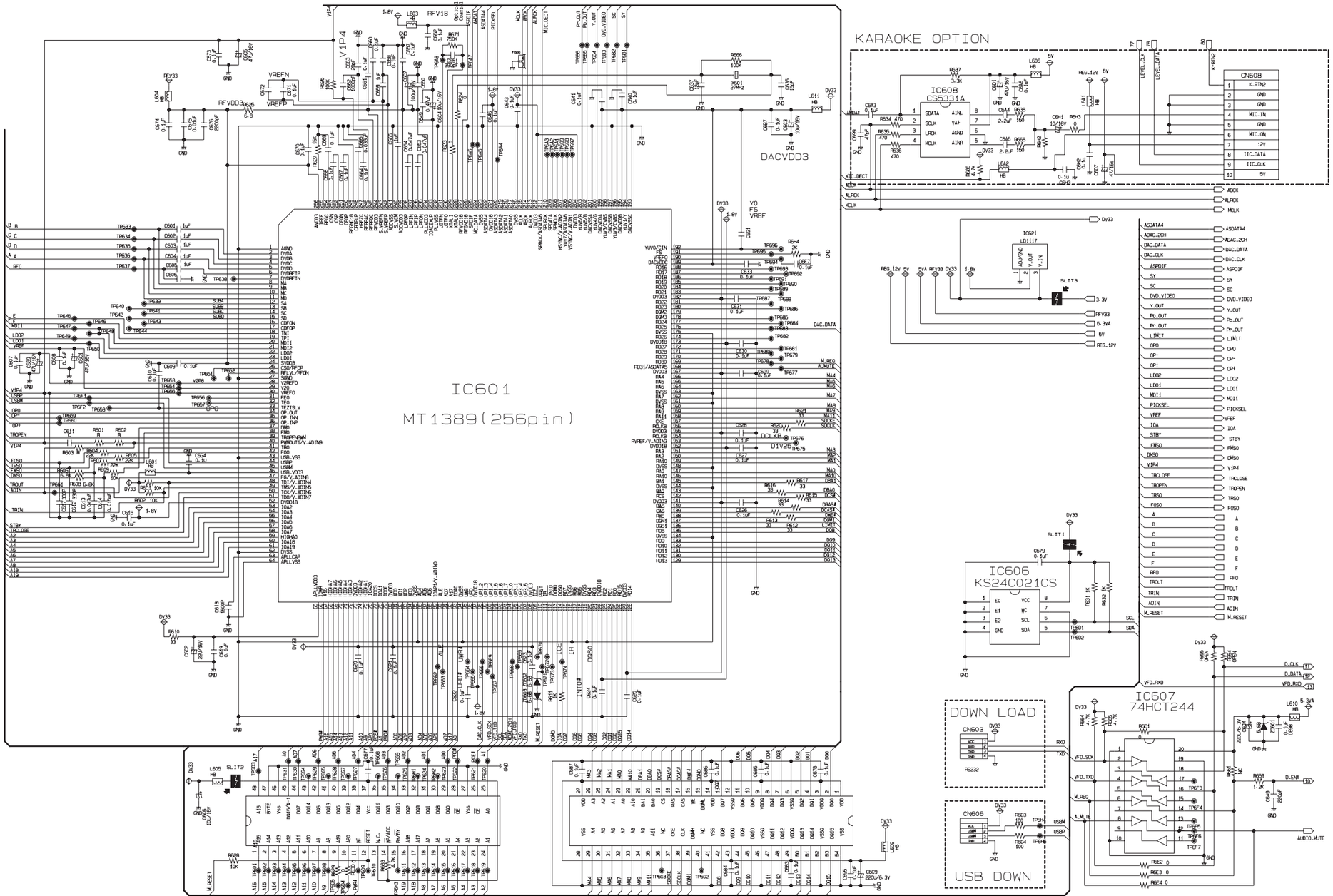
■ DVD AV/JACK CIRCUIT DIAGRAM



D' SCHEMATIC SYSTEM
2005. ZORAN COMBI PAL

3854R14958B

■ DVD SYSTEM CIRCUIT DIAGRAM

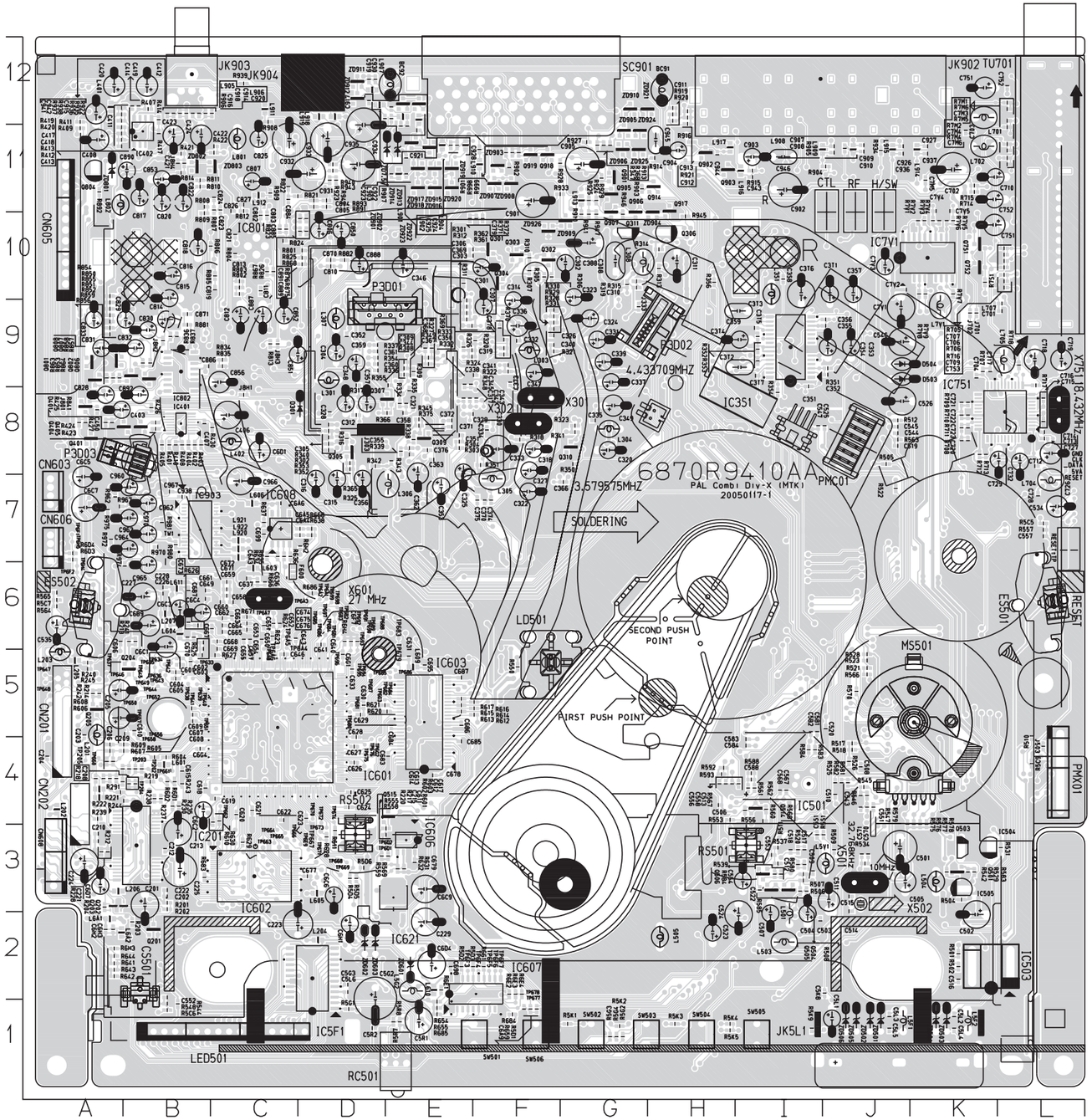


D' SCHEMATIC SYSTEM
2005. ZORAN COMBI PAL

3854R14956B

PRINTED CIRCUIT DIAGRAMS
■ VCR MAIN CIRCUIT BOARD

-TOP SIDE-



LOCATION GUIDE

BC91	H12	C361	D9	C547	I8	C665	C6	C7V2	J10	C934	D11	L401	A12	Q514	I4	R336	D9	R539	I3	R620	E5	R810	B11	R980	B7	TP699	D6
BC92	E12	C362	E8	C551	J4	C667	C6	C7V3	J10	C935	D11	L402	C8	Q515	E4	R337	D9	R542	K3	R621	D5	R811	B11	R981	B7	TP6A1	D6
C201	B3	C363	E8	C552	B2	C668	C6	C7V4	K11	C936	J11	L501	I2	Q751	K10	R338	E8	R544	B1	R623	C6	R812	C11	R998	F11	TP6A2	D6
C202	B3	C366	G7	C553	I3	C669	C5	C7V5	K11	C937	K11	L503	I2	Q752	K10	R339	E8	R545	J4	R624	C6	R813	C9	R999	F11	TP6A3	D6
C203	A5	C367	E9	C554	I3	C670	B6	C802	C10	C938	B7	L504	K3	Q801	A9	R340	D8	R546	J4	R625	B6	R814	B11	RC501	E1	TP6A4	C6
C204	A4	C368	E9	C556	H4	C671	C6	C803	C10	C941	B12	L505	H2	Q802	B9	R341	G8	R547	J4	R626	B6	R821	C11	RESET	TR7	TP6A5	C6
C205	A5	C369	E9	C557	L7	C672	C6	C804	D11	C942	B12	L5F1	J1	Q804	A11	R342	D8	R548	B1	R627	C5	R822	C11	RS501	I3	TP6A6	C6
C206	A5	C370	F7	C558	H4	C673	B6	C805	D11	C943	I11	L5F2	K1	Q806	B9	R343	E8	R550	F5	R628	D3	R823	C10	RS502	D3	TP6A7	C6
C208	B4	C371	E9	C567	I4	C674	B6	C806	D10	C944	H11	L502	E2	Q807	A9	R345	E8	R553	H4	R629	C3	R824	C10	SC901	G12	TP6A8	C5
C209	B5	C372	E8	C568	I4	C675	B5	C807	C11	C945	H11	L5V1	J3	Q808	A9	R347	G11	R555	E3	R630	C4	R825	D10	SW501	F1	TP6B1	D6
C210	A3	C373	F9	C570	J3	C676	B5	C810	D10	C946	I11	L601	B4	Q901	G11	R348	E9	R556	I4	R631	E3	R826	C10	SW502	G1	TP6B2	D6
C212	B3	C374	F7	C571	J3	C677	D3	C811	C10	C960	B7	L603	C6	Q902	H11	R349	E9	R557	L7	R632	E3	R834	C9	SW503	G1	TP6B3	D6
C213	B3	C375	F7	C581	I5	C678	E4	C812	C9	C962	B7	L604	B6	Q903	H11	R350	G8	R558	E3	R634	C7	R835	C9	SW504	H1	TP6B4	D6
C215	A4	C376	E8	C583	I4	C679	E3	C813	C10	C963	B7	L605	D3	Q905	G11	R351	F8	R559	D3	R635	C7	R836	B9	SW505	I1	TP6B5	D6
C221	A3	C378	F9	C584	I4	C683	E4	C814	B9	C964	B7	L606	C7	Q906	G10	R352	D8	R560	I4	R636	C7	R837	B9	SW506	F1	TP6B6	D6
C222	B3	C379	E10	C588	I4	C684	E5	C815	B10	C965	B6	L609	E5	Q907	G10	R353	D8	R561	I4	R637	C7	R841	A8	TP202	B4	TP6D1	E3
C223	C2	C388	G10	C5B2	I5	C685	E4	C816	B10	C966	C7	L610	E2	Q914	H11	R354	D9	R562	I4	R638	D7	R850	A9	TP203	A4	TP6D2	E3
C224	A3	C351	I8	C5G2	D2	C686	E5	C817	B11	C967	B7	L611	B6	Q917	H11	R355	E9	R563	J8	R641	A2	R851	A9	TP204	B4	TP6E9	D3
C225	B3	C352	J9	C5G3	D2	C687	E5	C818	B10	C970	B7	L6A1	A2	Q918	F11	R356	H10	R564	A6	R642	A2	R852	A9	TP205	A4	TP6F1	A7
C226	B6	C353	J9	C5K8	J2	C695	E5	C819	C10	CN201	A5	L6A2	A2	Q919	F11	R361	F10	R565	A6	R643	A2	R853	A9	TP633	B5	TP6F2	A6
C227	B6	C354	J9	C5L1	J1	C698	E2	C820	B11	CN202	A4	L701	K12	R201	B3	R362	F10	R566	J5	R644	A2	R854	A10	TP634	B5	TP6F3	E2
C228	B6	C355	J9	C5L2	K1	C699	C7	C821	C10	CN603	A7	L702	K11	R202	B3	R365	D8	R567	I4	R654	E1	R855	A9	TP635	B5	TP6F4	F2
C229	E2	C356	J9	C5L3	J1	C6A3	C7	C822	B11	CN605	A10	L704	L7	R203	B2	R366	E8	R568	I4	R655	E1	R856	A9	TP636	B5	TP6F5	F2
C301	F10	C357	J10	C5L4	K1	C6A4	D7	C823	C11	CN606	A7	L705	L9	R204	A3	R368	G11	R569	E3	R659	F1	R857	B9	TP637	A5	TP6F6	F2
C302	G10	C358	I10	C5L5	J1	C6A5	D7	C824	C11	CN608	A3	L707	L9	R212	A3	R369	F9	R573	J5	R661	F2	R858	B9	TP638	B5	TP6F7	F2
C303	E9	C359	I9	C5L6	D2	C6A6	C7	C825	C11	CS501	B2	L7V1	K9	R213	B6	R370	F9	R575	J3	R666	C6	R859	A9	TP639	B5	TP6G2	D4
C304	D9	C3T1	J10	C5R1	E1	C6A9	F1	C826	C11	D301	D8	L801	C11	R214	A5	R371	F10	R576	K3	R668	D7	R863	A9	TP640	B5	TP6G3	D5
C305	D8	C3T2	I9	C5R2	D1	C6B7	B6	C827	C11	D401	A8	L802	A11	R217	A4	R372	F10	R577	K3	R671	C6	R864	A9	TP641	B5	TP6H4	A6
C306	E9	C3T3	I9	C5S1	I3	C6B9	B6	C828	A8	D503	J9	L901	E12	R218	B4	R375	E8	R578	K3	R683	B3	R867	C10	TP642	B5	TP6H5	A7
C307	F9	C3T4	I9	C601	B5	C6C1	B6	C829	B9	D504	J9	L902	E11	R219	B4	R351	J9	R579	J4	R684	F1	R868	D10	TP643	B5	TU701	L12
C308	G10	C3T5	I9	C602	B5	C6C2	B4	C830	B9	E5501	L7	L903	E11	R220	A4	R352	I9	R580	I3	R685	E1	R875	D10	TP644	B5	TW1	B7
C309	E9	C3T6	I10	C603	B5	C6C3	B6	C831	A9	E5502	A5	L904	E11	R221	A4	R353	I9	R581	J4	R686	D6	R876	D10	TP645	B5	X301	F8
C310	G10	C3T7	I9	C604	B5	C6C4	B6	C832	B9	F600	C6	L905	D12	R222	A4	R354	I8	R582	J4	R6D1	B4	R881	B9	TP646	A5	X302	F8
C311	H10	C403	A8	C605	B5	C6C5	A7	C833	A9	IC201	B3	L906	E12	R228	A3	R401	B8	R583	K3	R6D2	B4	R882	D10	TP647	A5	X501	J3
C312	D8	C406	C8	C606	A6	C6C6	D3	C850	D10	IC351	I9	L907	D12	R230	B4	R402	B8	R584	I3	R6D3	A7	R891	D11	TP648	A5	X502	J3
C314	F9	C407	B8	C607	B5	C6C7	A7	C851	C9	IC401	B8	L908	I11	R235	B4	R403	B8	R585	I3	R6D4	A7	R892	A11	TP649	B5	X601	C6
C315	D7	C408	A11	C608	B5	C6C9	E3	C852	C9	IC402	B11	L909	J11	R237	B4	R404	B8	R588	I4	R6E1	E2	R893	D11	TP650	B5	X751	L8
C316	D7	C411	A12	C609	B5	C6D1	C8	C853	B11	IC503	L2	L910	F11	R238	B4	R405	B8	R592	H4	R6E2	F2	R901	F11	TP651	B5	ZD501	J1
C317	E8	C412	B12	C610	B5	C6D4	E2	C856	C9	IC504	K3	L911	C12	R239	A4	R407	B12	R593	H4	R6E3	F2	R902	F11	TP652	B5	ZD502	J1
C318	F8	C413	A11	C611	A4	C6D7	A3	C870	D10	IC505	K3	L912	C11	R240	A5	R408	B8	R583	I4	R6E4	F2	R903	J11	TP656	B5	ZD503	K1
C319	E9	C414	B12	C612	B4	C6F7	D6	C871	B9	IC5F1	D2	L913	G11	R241	B6	R409	A11	R584	I4	R6H2	D7	R904	J11	TP657	B5	ZD504	K1
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C321	E8	C418	A11	C614	A4	C6G4	B4	C885	C10	IC602	C3	L915	J11	R243	B4	R411	A12	R5C6	B1	R6H4	D6	R906	D12	TP660	A4	ZD506	J1
C322	F7	C419	B12	C615	B4	C6H1	D2	C886	B9	IC603	E5	L916	I11	R244	B4	R412	A11	R5C7	A6	R705	L10	R907	E12	TP661	B4	ZD601	E2
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C324	G9	C421	B11	C618	B4	C6H3	A2	C888	D10	IC607	F2	L918	D12	R291	A4	R414	B12	R5D1	F1	R707	K9	R909	C11	TP663	C3	ZD603	D2
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C327	F8	C424	B11	C621	C4	C703	K11	C891	D10	IC751	L8	L921	C7	R303	E8	R420	A12	R5D4	D3	R710	K8	R914	H11	TP666	C3	ZD803	C11
C328	D8	C450	A8	C622	C4	C704	K9	C892	B8	IC7V1	K10	L922	C7	R304	E8	R421	B11	R5D5	D3	R711	K8	R915	I11	TP667	D3	ZD901	E11
C329	F8	C501	J3	C623	D4	C706	L10	C901	F11	IC802	B9	LD501	F5	R305	F10	R422	C11	R5D6	D3	R712	K8	R916	H11	TP668	D3	ZD902	E11
C330	F8	C502	K2	C624	D4	C707	L10	C902	I11	IC903	B7	LED501	B1	R306	F10	R423	B8	R5G1	D1	R713	K8	R919	H12	TP669	D3	ZD903	F11
C331	G9	C503	I2	C625	D4	C709	L10	C903	I11	J303	E8	M5501	K4	R307	F10	R424	B8	R5G2	G1	R714	K11	R920	H12	TP670	D4	ZD904	H10
C332	F9	C504	I2	C626	D4	C710	K11	C904	H11	J333	G9	P3D01	E9	R308	E9	R425	A8	R5G3	G1	R715	K11	R921	H12	TP671	D3	ZD905	C11
C333	F8	C505	J3	C627	D4	C712	L8	C905	G11	J503	L4	P3D02	G9	R309	E9	R426	B8	R5G4	G1	R716	L10	R922	C12	TP672	D4	ZD906	G11
C334	F8	C506	H4	C628	D4	C713	L8	C907	J11	J701	K9	P3D03	A8	R310	F10	R427	A8	R5K1	G1	R717	L9	R923	D11	TP673	D3	ZD907	F11
C335	G8	C507	I2	C629	D5	C714	L8	C908	J11	J702	K9	PMC01	J8	R311	E10	R430	C8	R5K2	G1	R718	L9	R924	G11	TP674	D4	ZD908	F11
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C337	G9	C509	I3	C631	E5	C716	L8	C910	J11	J8H1	C8	Q201	B2	R313	H10	R502	K2	R5K4	H1	R7M2	L11	R927	G11	TP676	D4	ZD910	G12
C338	F9	C510	J4	C633	D5	C717	K9	C911	H12	J8H2	B9	Q202	B3	R314	H10	R504	K3	R5K5	H1	R7M4	L11	R928	F11	TP677	F1	ZD911	D12
C339	G9	C511	J3	C636	C6	C718	L9	C912	H11	J8H3	C9	Q203	A3	R315	G10	R505	J8	R5K9	I1	R7M5	L11	R929	G11	TP678	F1	ZD912	D12
C340	F9	C512	I3	C637	C6	C719	L9	C913	H12	J8H4	B11	Q204	B5	R316	D8	R506	I3	R5R7	E1	R7M6	L12	R933	F11	TP679	E5	ZD913	E12
C341	F9	C513	H4	C640	D6	C720	K8	C914	E11	JK5L1	J1	Q205	A5	R317	D9	R507	I3	R5R8	E1	R7S1	K10	R934	J11	TP680	D5	ZD914	E12
C342	E8	C514	J2	C641	D6	C721	K8	C915	B12	JK902	I12	Q301	F10	R318	F8	R508	I3	R5S1	J3	R7V1	K10	R935	B12	TP681	D5	ZD915	E11
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C345	E9	C517	I3	C649	B6	C726	L8	C918	E12	L201	A5	Q304	F10	R321	F9	R511	I3	R603	B4	R7V4	K10	R938	B12	TP684	E5	ZD918	E11
C346	E10	C518	I3	C650	C6	C727	L8	C919	D12	L202	A4	Q305	D8	R322	F9	R512	J8	R604	B4	R7V5	K10	R939	C12	TP685	E5	ZD919	E11
C347	F9	C519	J8	C651	C6	C728	L7	C920	E11	L203	A5	Q306	H10	R323	G8	R517	J4	R605	B4	R7V6	K10	R940	D11	TP686	E5	ZD920	E11
C348	D8	C520	J5	C652	C6	C729	L8	C921	E11	L204	D2	Q307	E8	R324	E9	R518	J4	R606	A4	R7V7	K10	R941	G10	TP687	D5	ZD921	G12
C349	G8	C522	I3	C653	C6	C732	L8	C922	E11	L205	A5	Q309	E8	R325	D8	R520	I3	R607	B4	R7V8	K10	R942	D11	TP688	D6	ZD922	E11
C350	F9	C523	H2	C654	C6	C751	K12	C923	E11	L206	A3	Q310	G8	R326	E9	R521	J5	R608	A4	R7V9	K10	R943	D11	TP689	D6	ZD923	E11
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C352	D9	C525	J8	C657	C6	C7M3	L12	C925	E11	L301	D9	Q401	A8	R328	F9	R523	J5	R610	C4	R802	C10	R946	G10	TP691	D6	ZD925	G11
C353	E7	C526	J8	C658	C6	C7M4	L11	C926	J11	L303	F9	Q404	B8	R329	F9	R525	J4	R611	D3	R803	C10	R947	G10	TP692	D6	ZD926	F10
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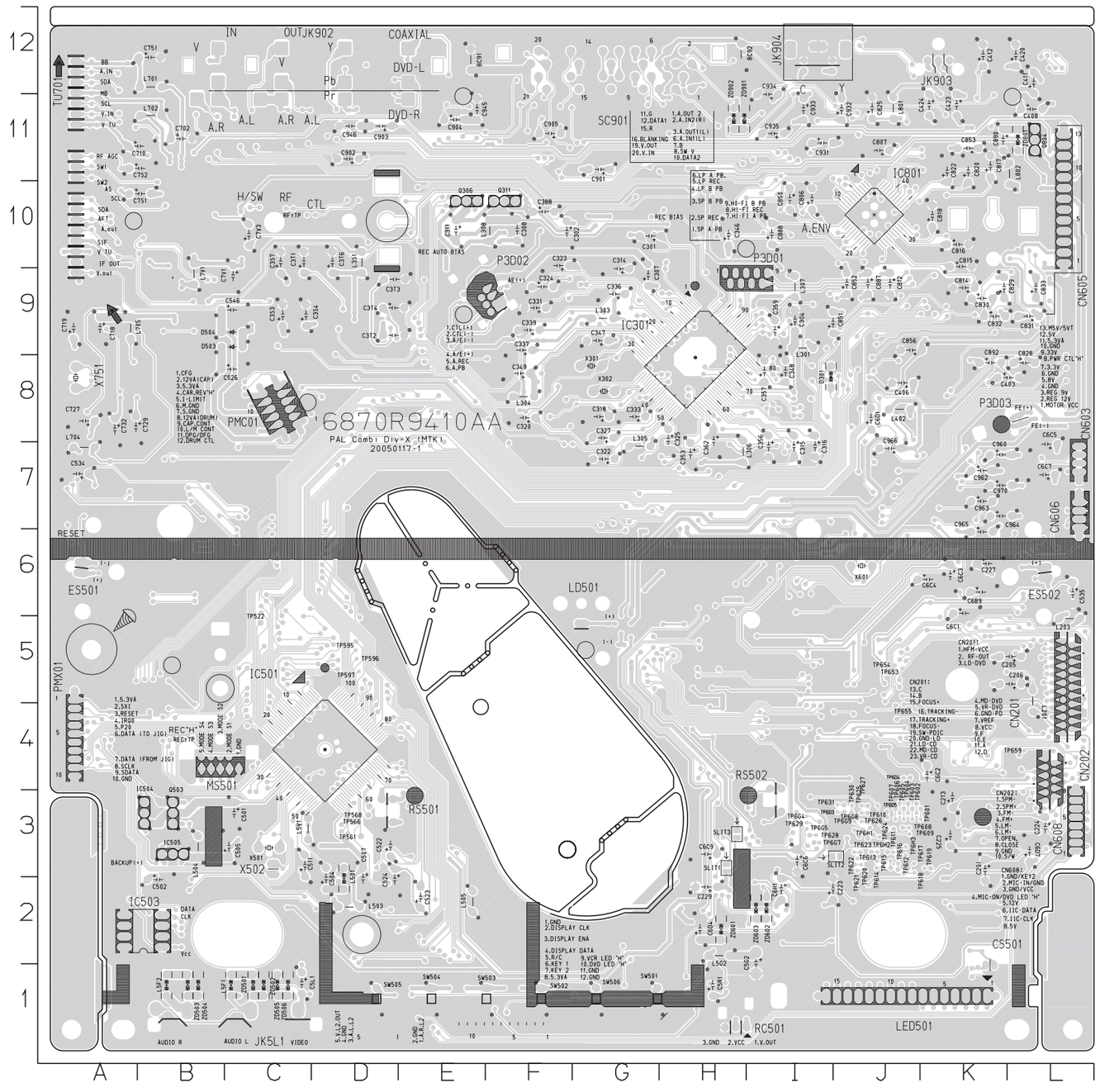
C356	D7	C535	A6	C660	C6	C7M6	L11	C928	F11	L305	F7	Q501	K3	R331	F9	R528	J5	R613	E5	R805	C10	R967	A7	TP694	D5		
C357	D8	C543	J4	C661	B6	C751	K10	C930	D12	L306	E7	Q503	K3	R332	F9	R529	K3	R614	F5	R806	C10	R970	B7	TP695	D5		
C358	E8	C544	J8	C662	C6	C752	K11	C931	D11	L307	D9	Q504	I3	R333	F9	R531	L3	R615	E5	R807	C11	R972	A7	TP696	D5		
C359	D9	C545	J8	C663	C6	C753	L10	C932	C11	L308	G10	Q505	I3	R334	E8	R534	J3	R616	F5	R808	B11	R974	B6	TP697	D6		
C360	D9	C546	J9	C664	C6	C7V1	J9	C933	D11	L351	I10	Q506	I3	R335	E8	R537	I3	R617	E5	R809	B10	R975	A7	TP698	D6		

■ VCR MAIN CIRCUIT BOARD

-BOTTOM SIDE-



LOCATION GUIDE

CTL±TP	D10
H/SW±TP	C10
IC301	H8
IC501	D4
IC801	J10
REC±TP	B4
RF±TP	C10
SLIT1	H3
SLIT2	J3
SLIT3	H3
TP522	C5
TP561	D3
TP566	D3
TP568	D3
TP595	D5
TP596	D5
TP597	D5
TP601	K3
TP602	J3
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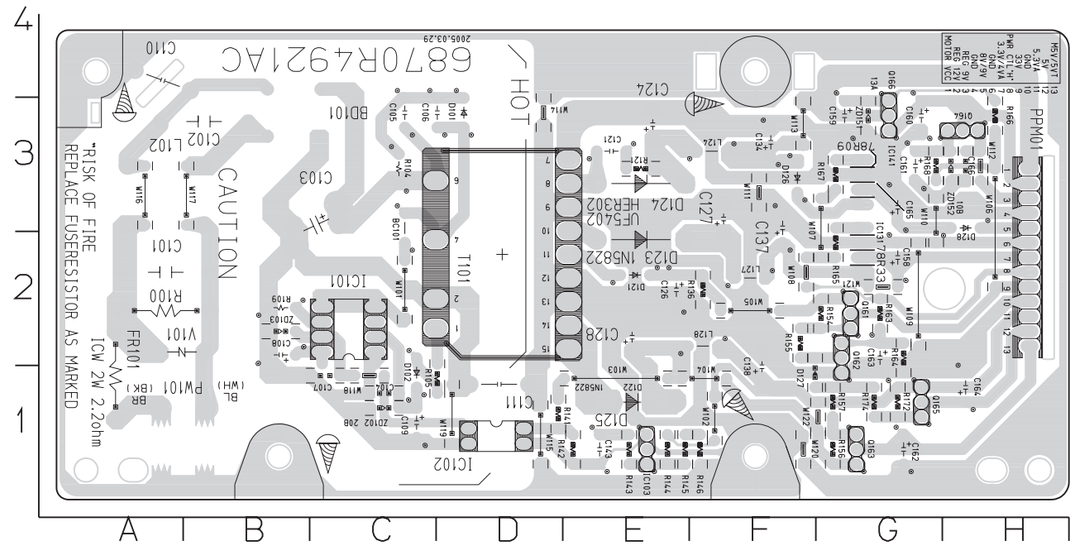
TP628	I3
TP629	I3
TP630	J3
TP631	J3
TP653	J5
TP654	J5
TP655	J4
TP659	L4
TP6D3	J3
TP6D4	J4
TP6D5	J3
TP6G4	I3
TP6G5	I3
TP6G7	I3
TP6G8	J3
TP6G9	J3
TP6H1	J3
TP6H2	J3
TP6H3	J3

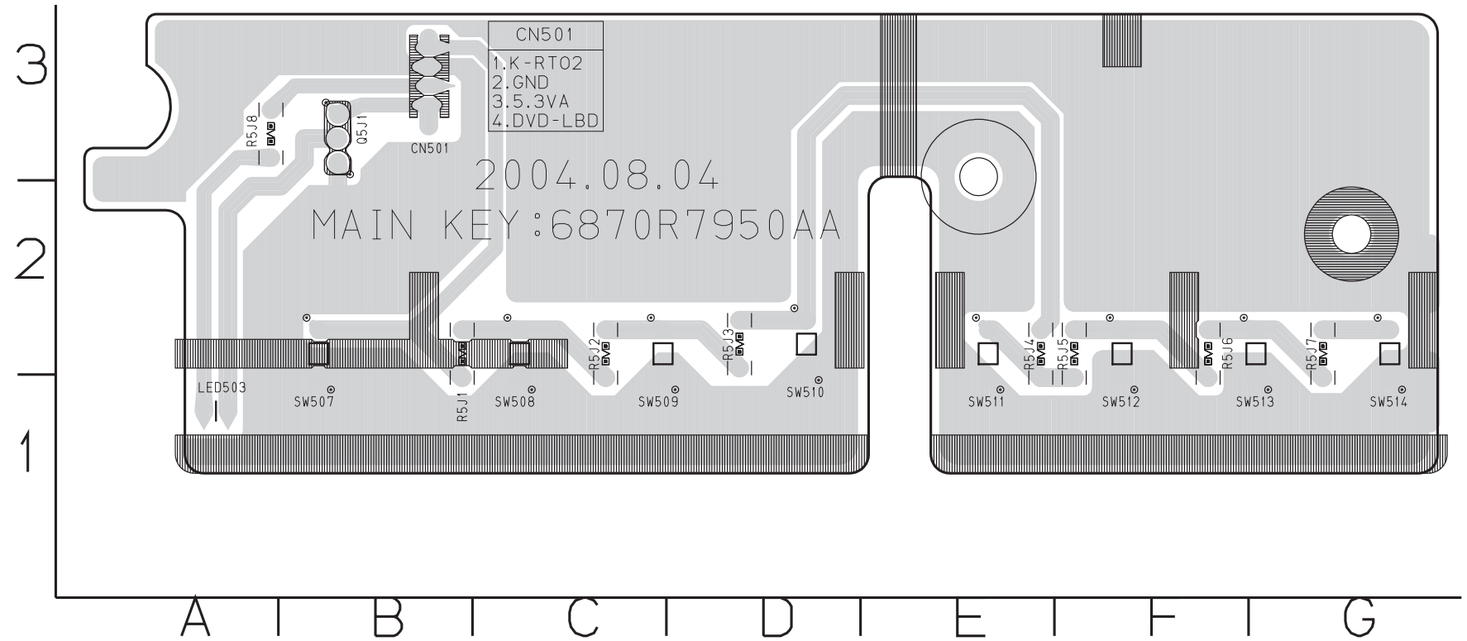
■ POWER BOARD



LOCATION GUIDE

BC101	C3	C159	G3	IC131	G2	R144	E1
BD101	B3	C160	G3	IC141	G3	R145	E1
C101	A2	C161	G3	L102	A3	R146	F1
C102	B3	C162	G1	L124	F3	R154	G2
C103	C3	C163	G2	L127	F2	R155	F2
C104	C1	C164	H1	L128	F2	R156	G1
C105	C3	C165	G3	PPM01	H3	R157	G1
C106	D3	C166	H3	PW101	B1	R163	G2
C107	C1	D101	D3	Q161	G2	R164	G2
C108	B2	D102	C1	Q162	G2	R165	G2
C109	C1	D121	E2	Q163	G1	R166	H3
C110	A4	D122	E1	Q164	H3	R167	G3
C111	D1	D123	E2	Q165	G1	R168	G3
C121	E3	D124	E3	Q166	G3	R172	G1
C124	E3	D125	E1	R100	A2	R174	G1
C126	E2	D126	F3	R104	C3	T101	D2
C127	F3	D127	F1	R105	D1	V101	A2
C128	E2	D128	H3	R109	B2	ZD102	C1
C134	F3	FR101	A1	R121	E3	ZD103	B2
C137	F3	IC101	C2	R136	F2	ZD151	G3
C138	F1	IC102	D1	R141	D1	ZD152	H3
C143	E1	IC103	E1	R142	E1		
C158	G2			R143	E1		

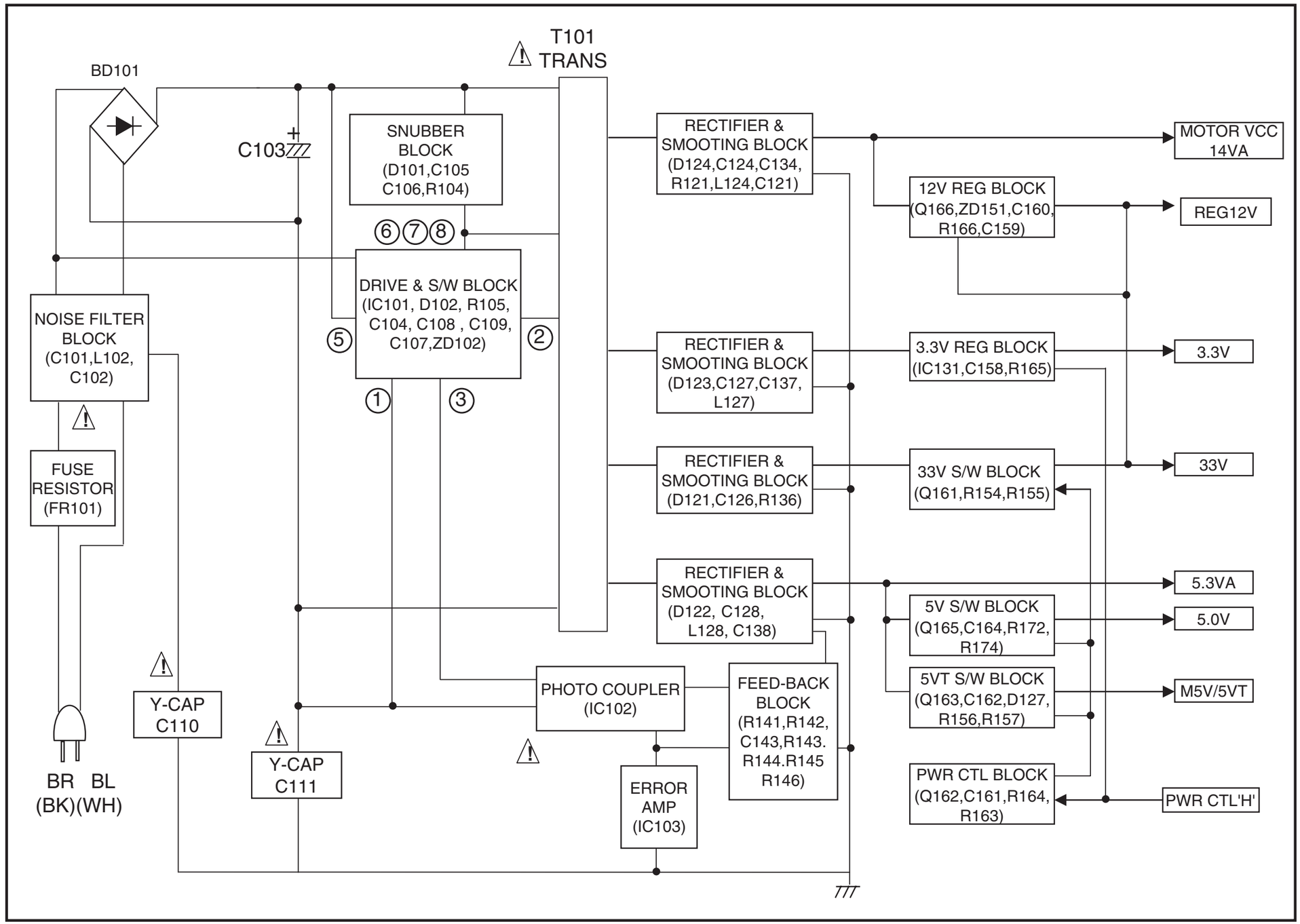
■ KEY BOARD



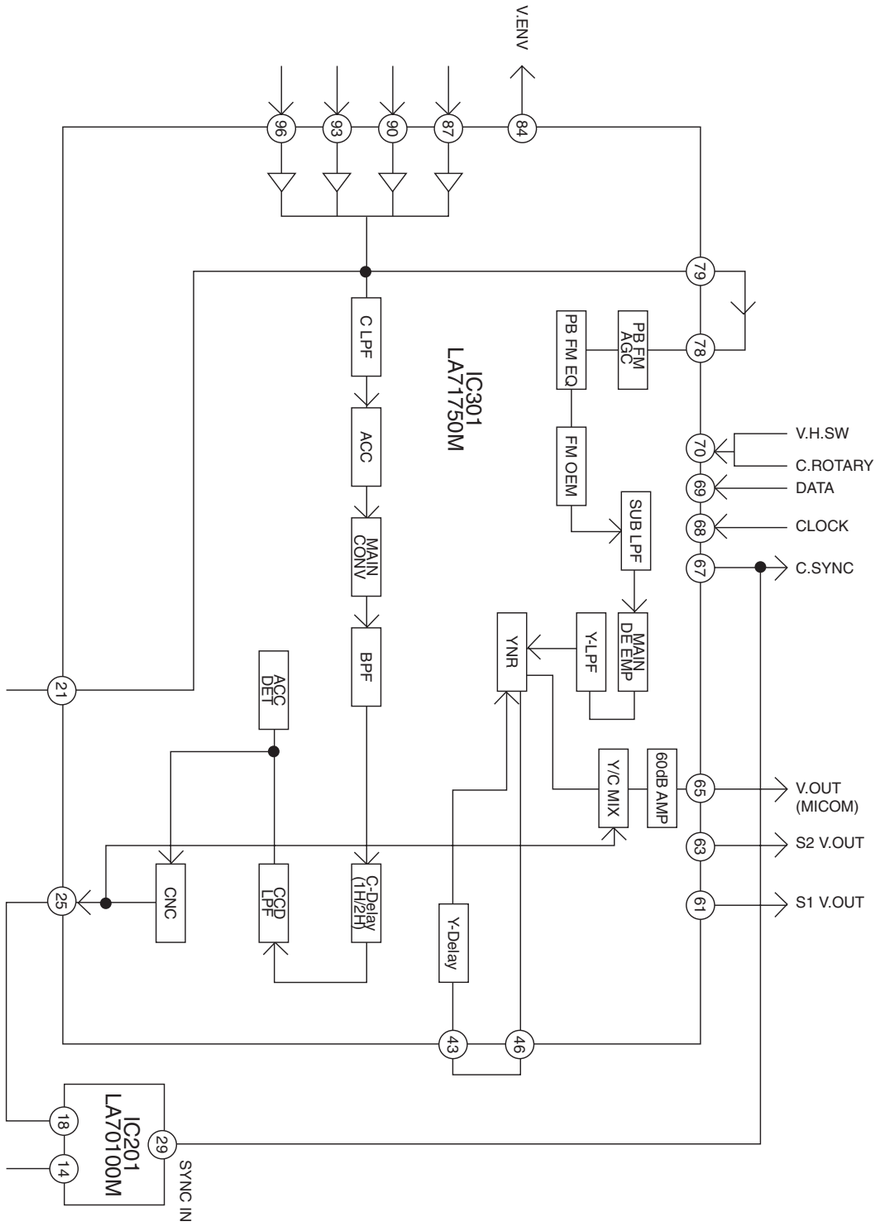
LOCATION GUIDE

CN501	B3
LED503	A1
Q5J1	B3
R5J1	B2
R5J2	C2
R5J3	D2
R5J4	E2
R5J5	F2
R5J6	F2
R5J7	G2
R5J8	A3
SW507	B2
SW508	C2
SW509	C2
SW510	D2
SW511	E2
SW512	F2
SW513	G2
SW514	G2

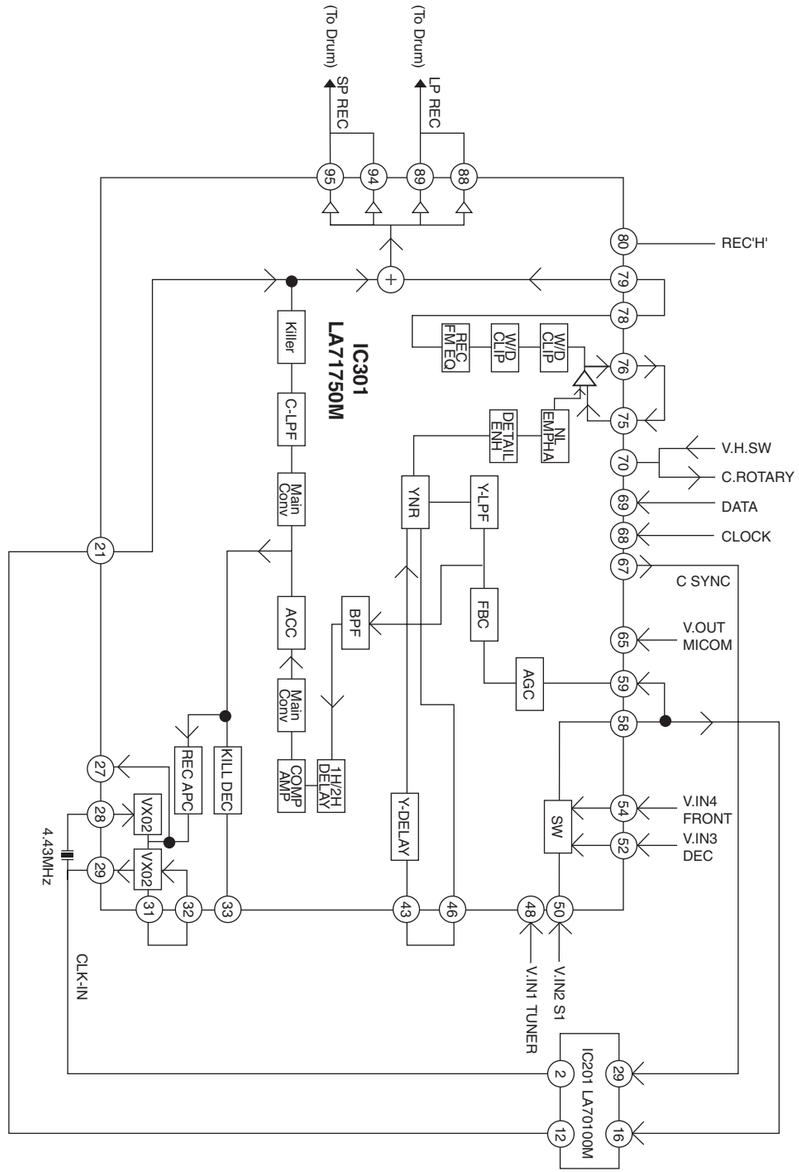
■ POWER(SMPS) BLOCK DIAGRAM



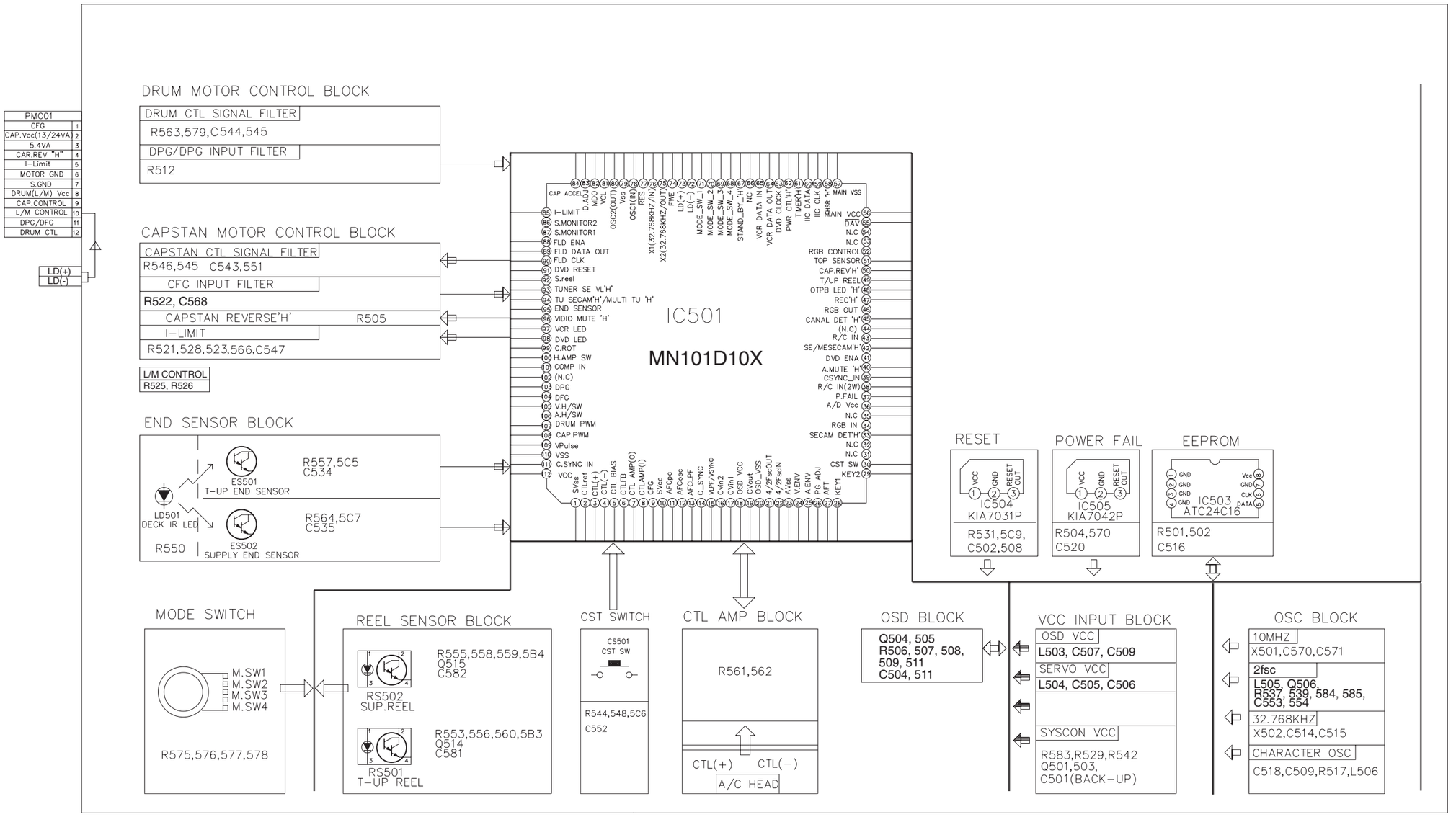
■ Y/C BLOCK DIAGRAM
(PB Mode)



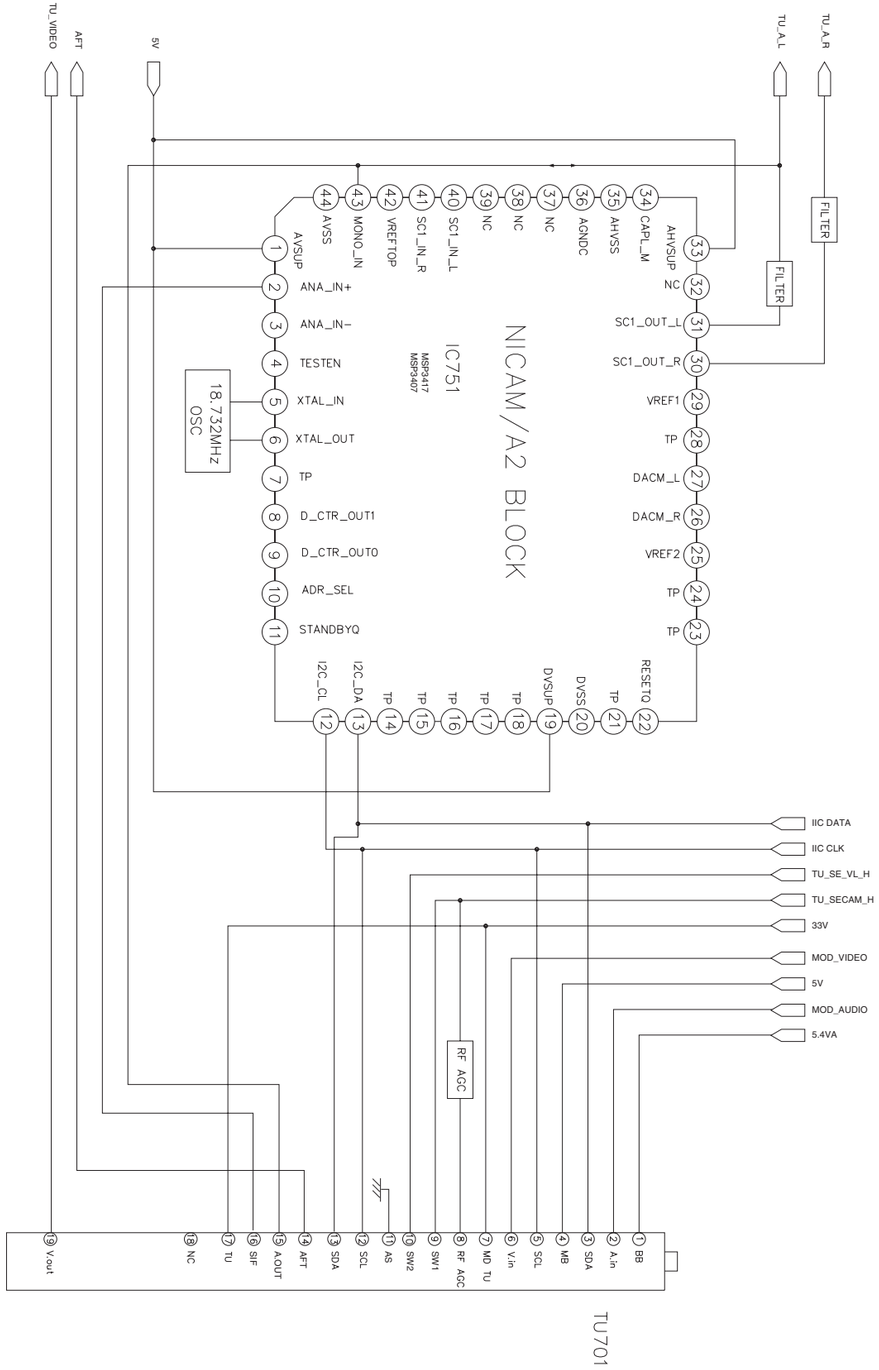
(REC Mode)



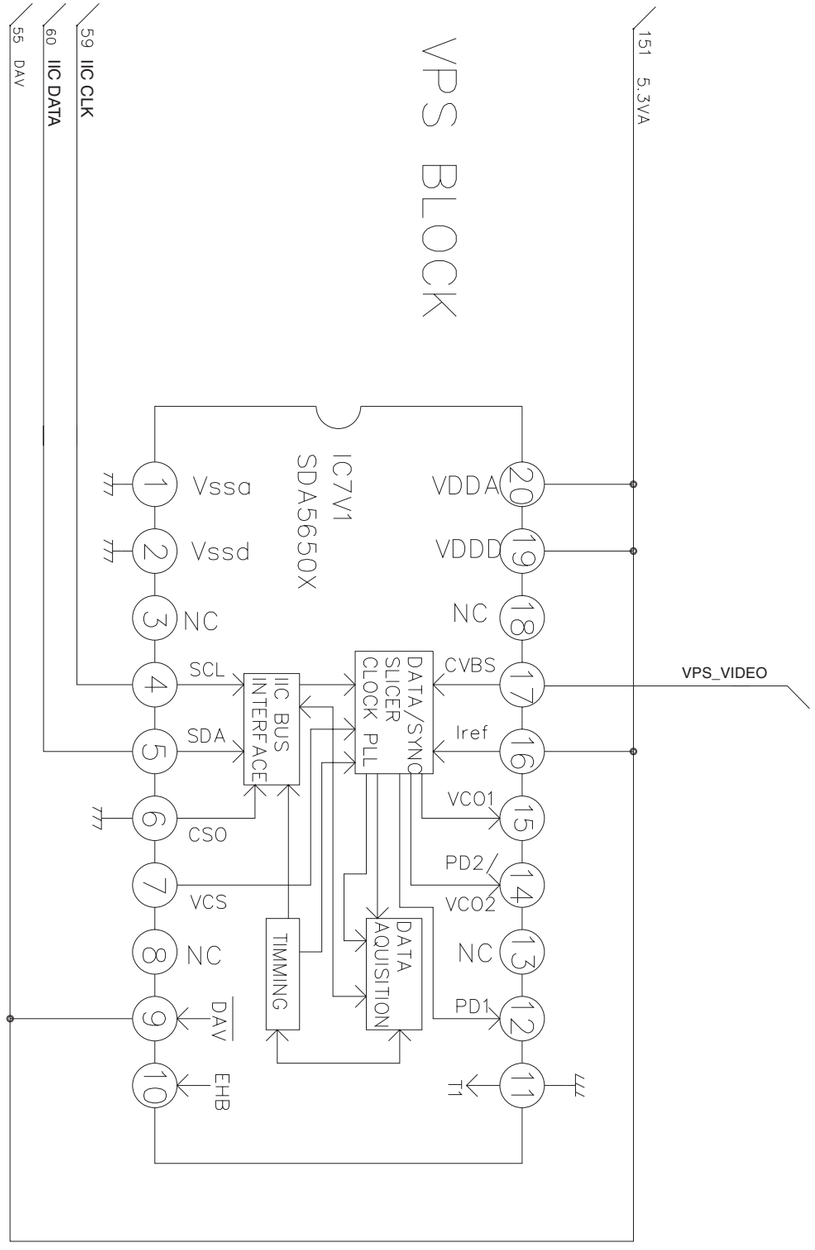
■ SYSTEM BLOCK DIAGRAM



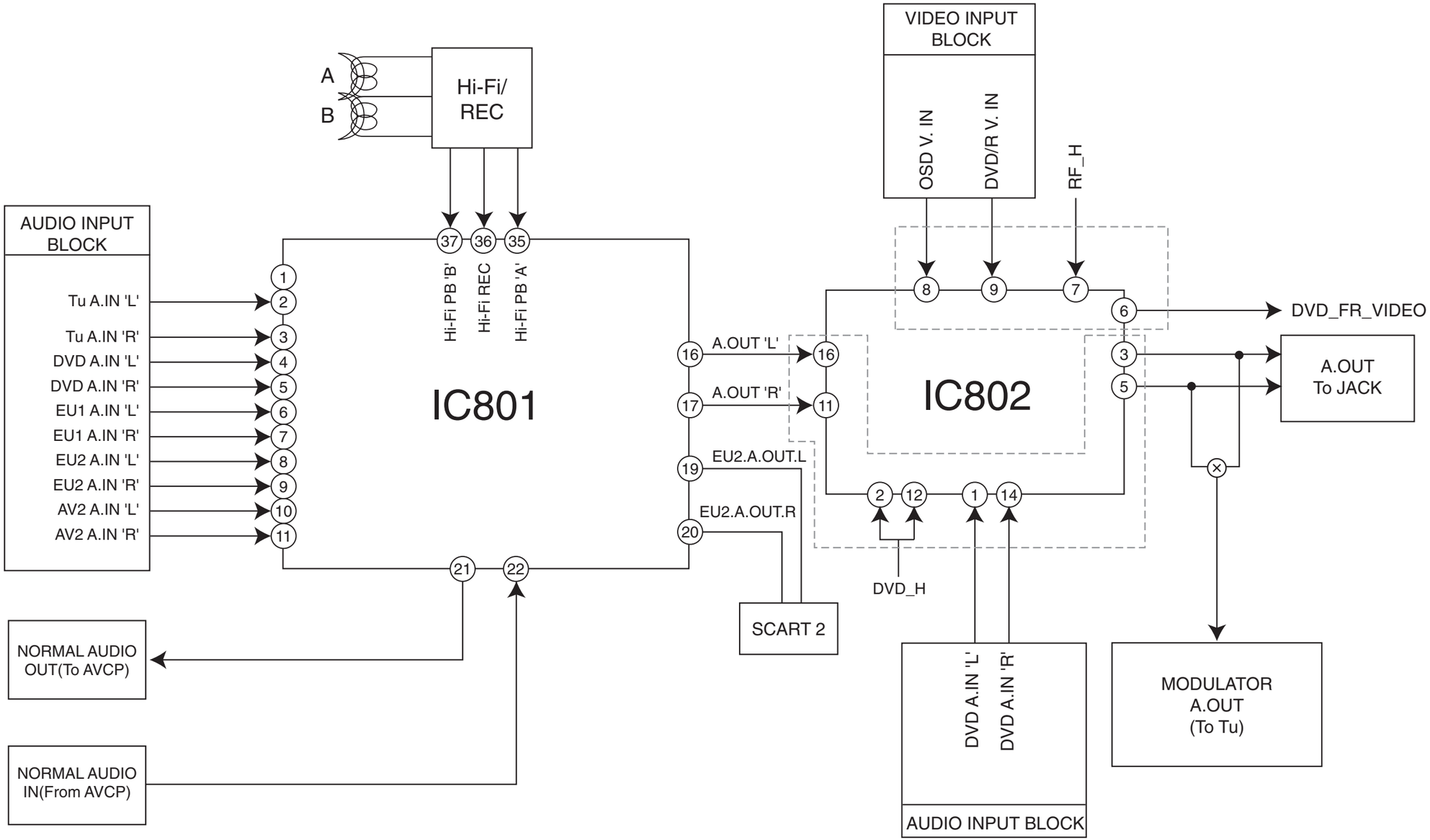
■ TUNER/IF, NICAM & A2 BLOCK DIAGRAM



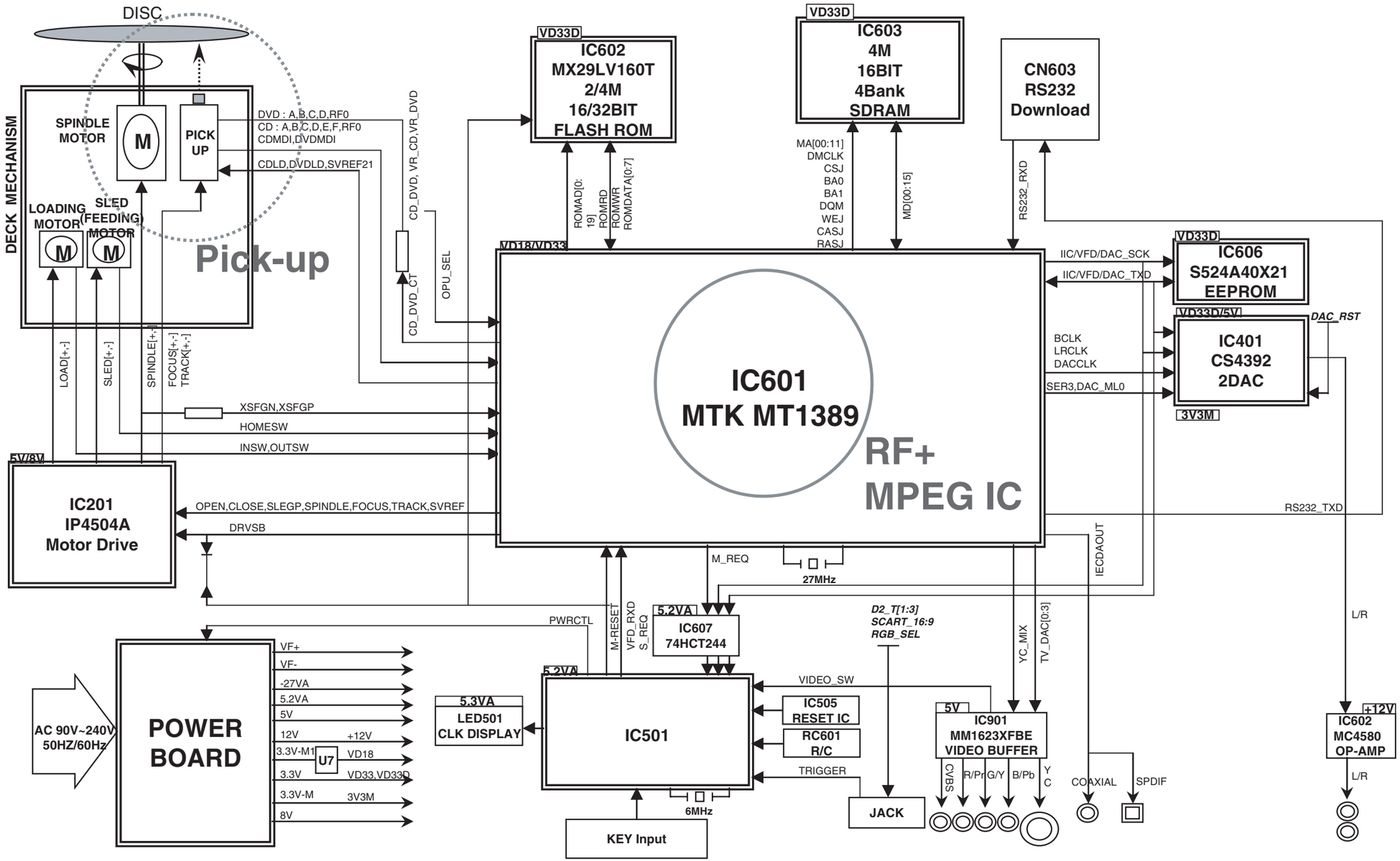
■ VPS BLOCK DIAGRAM



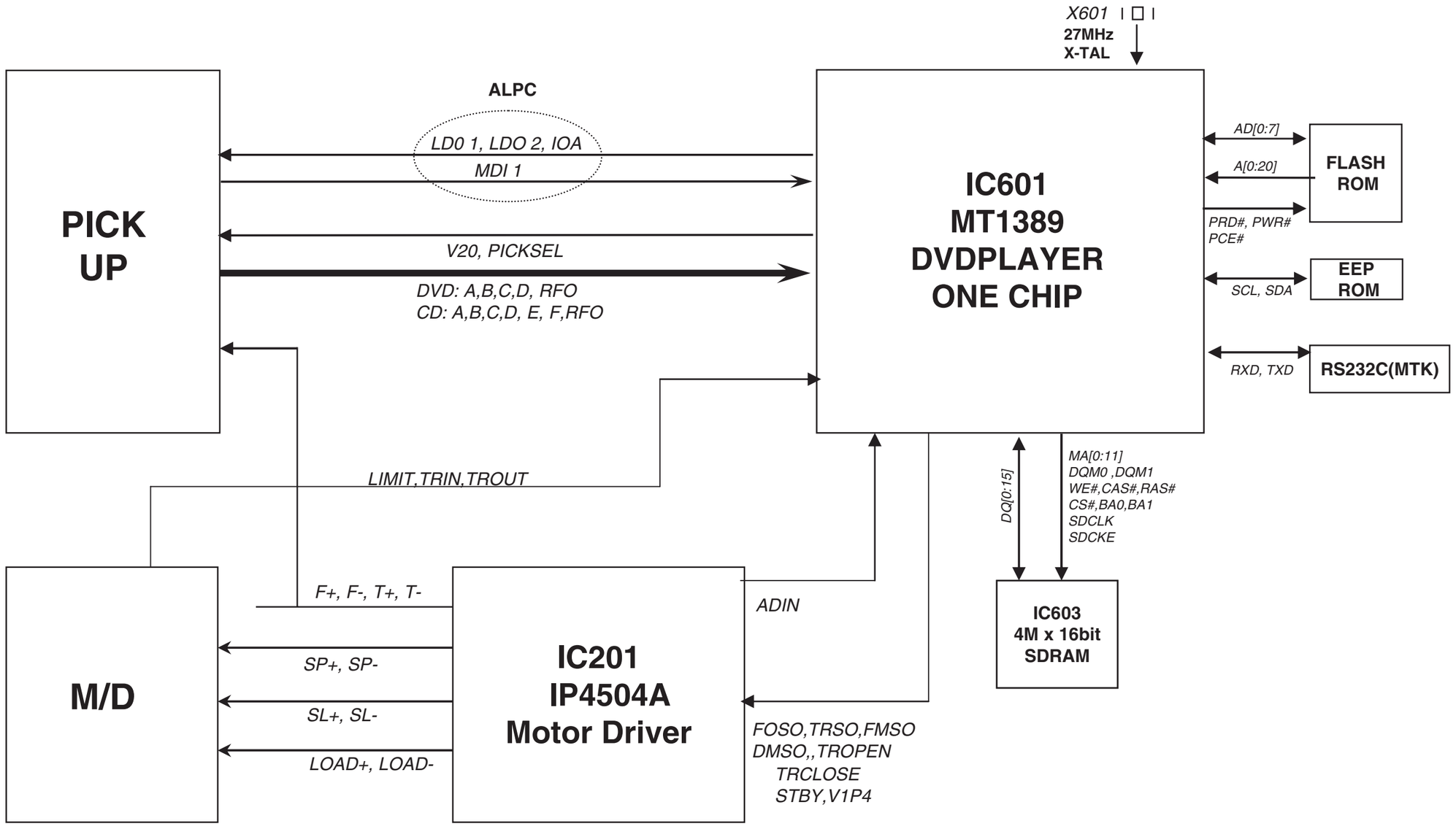
■ Hi-Fi AUDIO BLOCK DIAGRAM



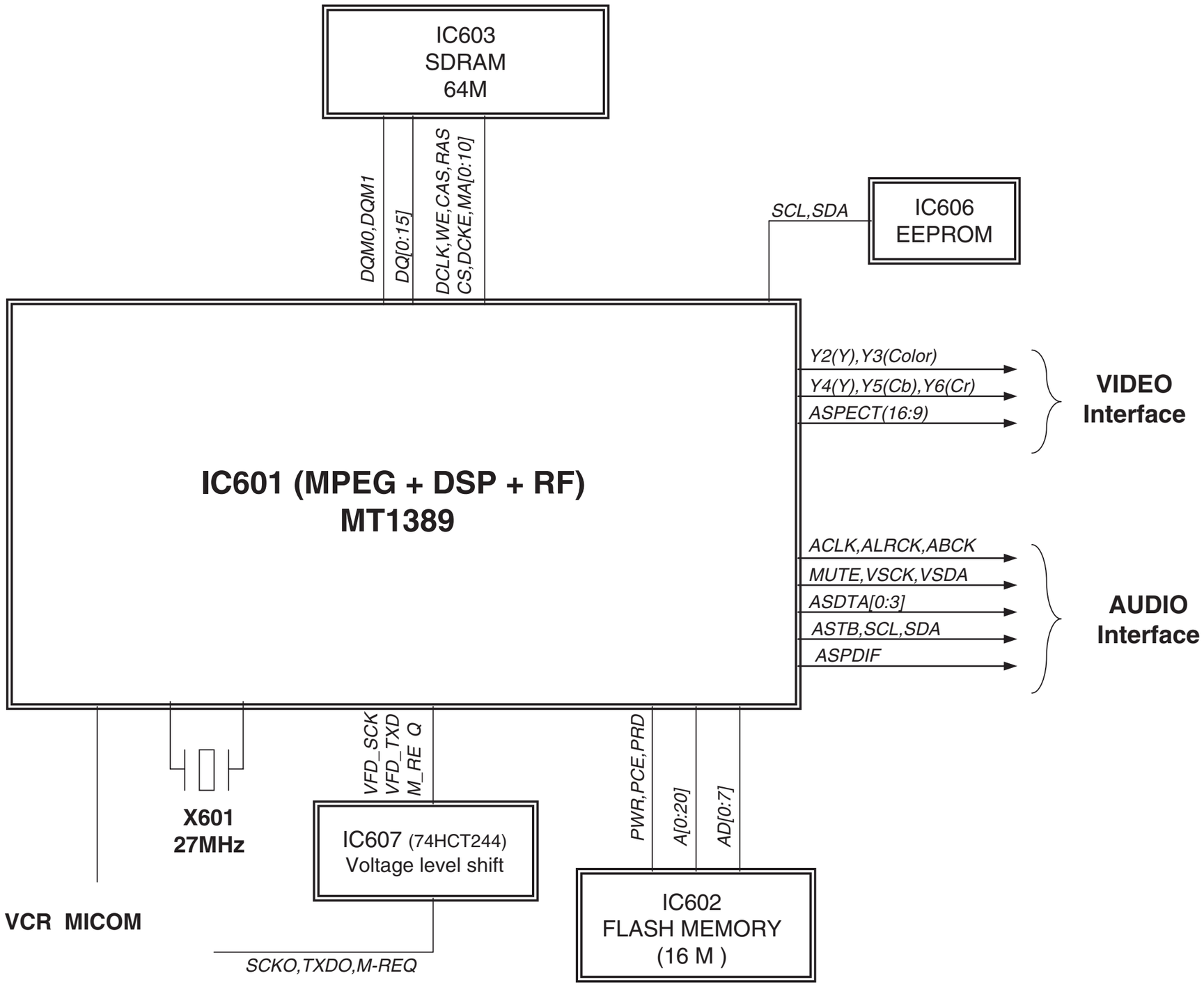
■ DVD OVERALL BLOCK DIAGRAM



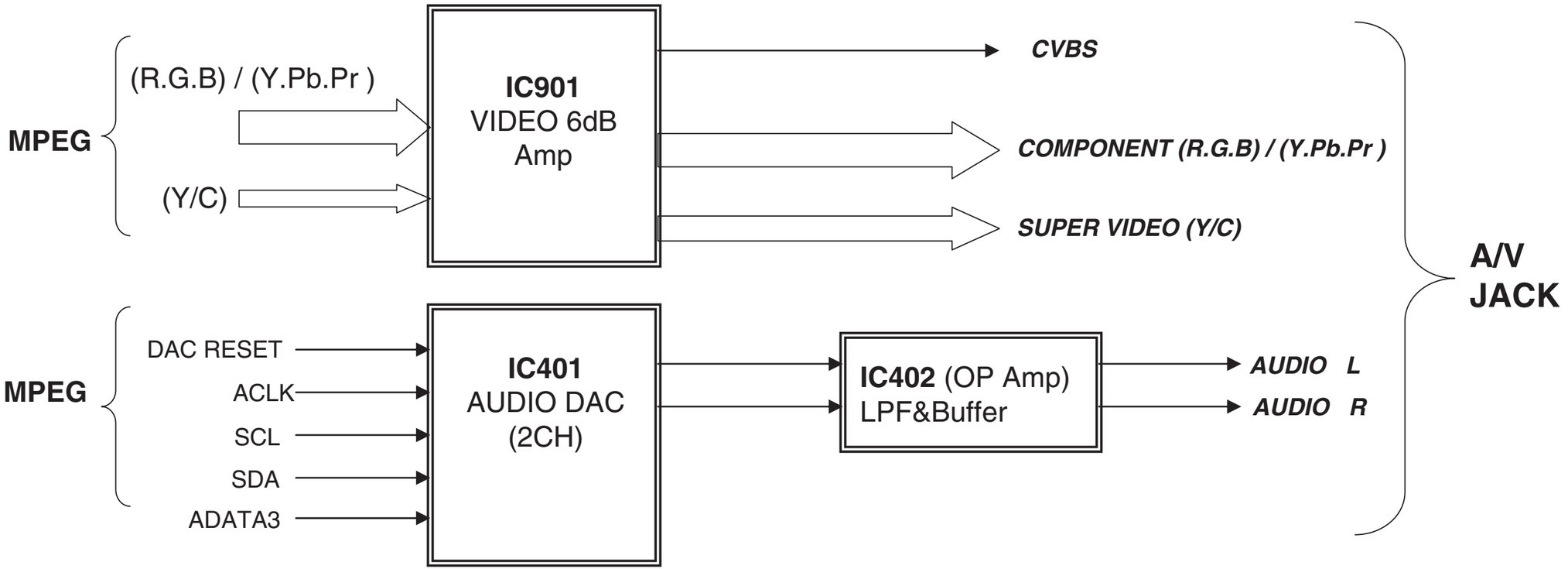
■ DVD SERVO BLOCK DIAGRAM



■ DVD MPEG & MEMORY BLOCK DIAGRAM



■ DVD VIDEO & AUDIO BLOCK DIAGRAM



■ VOLTAGE CHARTS

MODE / PIN NO.	STOP	PLAY
IC201		
2	2.54	2.3
3	2.55	2.3
4	2.53	2.3
5	2.56	2.35
6	2.54	2.43
7	2.56	2.42
8	0.001	0.001
9	1.39	1.38
10	3.5	3.37
11	0.004	0.004
12	0.002	
13	3.97	3.96
14	3.97	3.96
15	3.99	2.71
16	3.96	5.21
17	3.98	4.04
18	3.96	3.88
19	8	8
20	1.38	1.38
21	1.38	1.73
22	1.38	1.38
23	3.24	3.22
24	5.07	4.87
25	2.59	2.46
26	2.55	2.48
27	2.59	2.47
28	2.52	2.43
IC401		
1	3.25	3.24
2	3.25	3.23
3	0.002	1.21
4	1.62	1.61
5	1.62	1.61
6	1.57	1.56
7	0.001	0
8	3.27	3.26
9	3.27	3.26
10	0.001	0
11	5.02	4.81
12	2.38	2.3
13	4.9	0.001
14	2.4	2.36
15	2.4	2.36
16	0.001	0.001
17	5.1	4.93
18	2.4	2.35
19	2.4	2.36
20	4.9	0.001
IC402		
1	5.8	5.72
2	5.8	5.73
3	5.8	5.73
4	0	0
5	5.8	5.72

MODE / PIN NO.	STOP	PLAY
6	5.8	5.73
7	5.8	5.73
8	12.6	12.49
IC601		
1	0.001	0.002
2	1.57	1.58
3	1.57	1.58
4	1.57	1.58
5	1.58	1.58
6	1.58	1.59
7	1.58	1.59
8	1.98	2.02
9	1.98	2.02
10	1.98	2.02
11	1.99	2.03
12	1.46	1.32
13	1.46	1.33
14	1.46	1.31
15	1.46	1.32
16	1.45	1.35
17	1.45	1.35
18	1.99	2.2
19	1.99	2.1
20	0	0.1
21	0	0
22	3.2	3.1
23	3.2	3.1
24	3.2	3.1
25	1.37	1.8
26	0.8	0.07
27	0	0.003
28	2.6	2.7
29	1.9	1
30	1.38	1.2
31	1.34	1.21
32	0.8	1.3
33	0.8	1.3
34	3	2.8
35	3.28	2.8
36	1.38	2.4
37	1.38	2.6
38	1.37	1.3
39	0.003	0
40	1.37	1.3
41	1.41	1.31
42	1.39	1.3
43	0.001	0
44	0.02	0.01
45	0.02	0.01
46	3.25	3.2
47	2.99	3
48	3.25	3.2
49	0	0.001
50	3.23	3.21
51	0.002	0.001

MODE / PIN NO.	STOP	PLAY
52	1.8	1.71
53	3.25	3.19
54	3.25	3.2
55	3.25	3.2
56	3.22	3.1
57	3.21	3.13
58	3.19	3.1
59	3.25	3.1
60	3.25	3.12
61	0.001	0.002
62	0	0.002
63	1.77	1.72
64	0	0.002
65	3.24	3.1
66	3.25	3.21
67	0.001	0.002
68	0.002	0.002
69	0.001	0.003
70	0.001	0.003
71	3.25	3.24
72	3.25	3.24
73	3.25	3.24
74	0.001	0.003
75	0	0.002
76	0.001	0.001
77	0.001	0.002
78	2.44	2.41
79	0.001	0.003
80	3.2	3.1
81	3.2	3.1
82	3.27	3.24
83	3.23	3.16
84	3.2	3.1
85	0.001	0.003
86	3	2.91
87	3	2.99
88	3	2.9
89	0.007	0.008
90	0.001	0.003
91	2.99	1.2
92	0.001	0.003
93	3.27	3.24
94	0.001	0.002
95	3.2	3.2
96	3.97	3.7
97	1.8	1.8
98	4.1	3.2
99	4.1	3.2
100	3.2	3.2
101	3.2	3.16
102	3.27	3.23
103	3.2	3.23
104	4	3.9
105	2.1	2.1
106	4.1	3.99

MODE / PIN NO.	STOP	PLAY
107	3.2	3.21
108	3.25	3.21
109	0.02	0.03
110	5.1	5.15
111	4.2	3.6
112	4.2	3.68
113	2.6	2.5
114	3.2	3.1
115	1.6	1.5
116	0.001	0.003
117	0.4	0.02
118	1.8	1.7
119	0	0
120	0.9	0.8
121	1	0.8
122	1.8	1.8
123	1.38	1.31
124	1.23	1.2
125	1.3	1.25
126	0.34	0.35
127	3.25	3.2
128	1.8	1.81
129	2	1.9
130	1.04	0.8
131	1.8	1.75
132	0.002	0.003
133	0.001	0.9
134	0.002	0.001
135	1.06	0.99
136	3.24	3.2
137	3.06	3
138	3.17	3
139	3.1	3
140	3.26	3.1
141	3.26	3.1
142	3.04	3
143	1.27	1.12
144	0.002	0.003
145	1.57	1.6
146	0.04	0.04
147	1.47	1.39
148	0.002	0.003
149	1.67	1.55
150	1.59	1.6
151	1.8	1.7
152	0.02	0.01
153	0.02	0.01
154	3.25	3.14
155	1.7	3.24
156	0.4	0.04
157	0.002	0.003
158	0.003	0.003
159	0.003	0.003
160	0.02	0.04
161	0.001	0.003

MODE / PIN NO.	STOP	PLAY
162	1.47	1.61
163	0.002	0.002
164	2.25	0.04
165	2.26	2.1
166	1.36	1.45
167	3.25	3.24
168	0.003	0.003
169	0.002	0
170	0.03	0.02
171	0.03	0.01
172	1.8	1.79
173	1.8	1.78
174	3.25	3.24
175	0.001	0.003
176	4	4.1
177	3.25	3.2
178	3.26	3.2
179	4.1	3.61
180	0.03	0.02
181	0.03	0.02
182	3.25	3.2
183	0.03	0.03
184	0.03	0.03
185	0.03	0.03
186	0.03	0.03
187	0.03	0.03
188	0.03	0.01
189	3.23	3.21
190	1.23	1.24
191	1.24	1.24
192	2.22	2.08
193	0	0.001
194	0.3	0.4
195	3.23	3.21
196	0.7	0.7
197	0	0.001
198	3.2	3.21
199	3.23	3.2
200	0.002	0.4
201	0.002	0.002
202	0.2	0.4
203	0.2	0.4
204	3.25	3.23
205	2.96	2.93
206	3.7	3.61
207	2.9	2.91
208	3.7	3.54
209	4	3.5
210	4	3.5
211	3.7	3.4
212	3.7	3.2
213	1.6	1.61
214	1.6	1.61
215	1.57	1.55
216	0.003	0.02

MODE / PIN NO.	STOP	PLAY
217	0.003	0.002
218	0.003	1.2
219	0.003	0.6
220	3	3.1
221	1.8	1.81
222	0.005	1.2
223	0	0
224	0.3	0.01
225	1.6	1.61
226	0	0
227	1.8	1.8
228	0.6	0.7
229	0.6	0.7
230	1.37	1.1
231	1.34	1.12
232	0	0
233	1.8	1.8
234	3.1	3
235	1	1.7
236	1.3	1.67
237	0	0.001
238	0.9	0.4
239	3.1	3.07
240	0.1	0.1
241	0	0
242	0.01	0.1
243	0.01	0.1
244	3.1	3.01
245	1.09	1.65
246	1.35	1.36
247	0.01	0.1
248	1.5	3.07
249	0	0.001
250	0.01	0.24
251	0.01	0.24
252	1.48	1.52
253	1.47	1.51
254	1	1.04
255	0.9	0.98
256	3.2	3.18
IC602		
1	0.002	0.2
2	3.2	0.4
3	3.2	3.07
4	3.2	3.2
5	3.2	3.01
6	3.2	0.5
7	3.2	0.5
8	3.2	2
9	0.002	0.002
10	0.01	0.009
11	3.2	3.2
12	5.1	5.1
13	3.27	3.26
14	3.27	3.26

MODE / PIN NO.	STOP	PLAY
15	4.62	3.8
16	2.13	0.002
17	2.11	1.15
18	2.06	2.36
19	2.06	2.1
20	2.12	2.5
21	2.06	1.7
22	2.07	1.9
23	2.05	1.88
24	1.9	2
25	1.8	2
26	0	0.001
27	0.001	0
28	0	0
29	2.3	1.65
30	1.48	1.4
31	1.17	1.36
32	1.5	1.4
33	0.66	1.3
34	1.5	1.4
35	0.9	1
36	1.5	1.4
37	3.2	3.26
38	1.5	1.58
39	1.5	1.4
40	1.69	2
41	1.3	1.4
42	1.5	1.2
43	1.4	1.4
44	1.3	1.3
45	1.9	1.98
46	0.001	0.002
47	0.001	0.002
48	0	0.002
IC603		
1	3.27	3.25
2	1.27	1.2
3	3.27	3.25
4	1.25	1.1
5	1.38	1.14
6	0.02	0.001
7	1.06	1.14
8	0.93	1.47
9	3.27	3.26
10	1	1.57
11	0.41	1.48
12	0.001	0.001
13	1.98	0.38
14	3.27	3.26
15	2.9	2.71
16	3.23	3.19
17	3.09	3
18	3.19	3.13
19	3.03	2.89
20	1.55	1.49

MODE / PIN NO.	STOP	PLAY
21	0.71	1.2
22	0.03	0.007
23	0.16	0.22
24	1.38	1.39
25	1.36	1.37
26	1.37	1.37
27	3.27	3.26
28	0.002	0.001
29	1.36	1.95
30	2.28	1.46
31	2.25	2.25
32	1.49	1.68
33	0.01	0.01
34	0.02	0.007
35	0.004	0.05
36	0.02	0.01
37	1.03	0.72
38	1.71	1.71
39	2.59	2.7
40	0.01	0.05
41	0.002	0.01
42	1.33	1.1
43	3.27	3.26
44	1.35	1.11
45	1.33	1.02
46	0.002	0.001
47	1.36	0.92
48	1.3	0.92
49	3.27	3.26
50	1.48	1
51	1.91	0.5
52	0.002	0.001
53	0.33	1.47
54	0.002	0.001
IC606		
1	0.002	0.001
2	0.002	0.001
3	0.002	0.001
4	0.002	0.001
5	3.27	3.26
6	3.27	3.26
7	0.002	0.001
8	3.27	3.26
IC607		
1	0.002	0.002
2	3.27	3.24
3	0.002	0.002
4	0.008	3.24
5	0.002	0.001
6	2.26	0.78
7	0.002	0.001
8	2.26	3.24
9	0.002	0.001
10	0.001	0.001
11	3.12	2.56

MODE / PIN NO.	STOP	PLAY
12	2.45	5.14
13	2.94	2.55
14	2.44	1.25
15	2.82	2.65
16	0.002	5.11
17	2.96	2.65
18	0.002	5.11
19	0.001	0.001
20	5.24	5.14
IC5F1		
1	2.26	2.1
2	5	5.04
3	5.07	5.05
4	5.02	5
5	4.6	4.25
6	1.7	2.54
7	1.35	2.49
8	1.43	2.3
9	1.81	2.47
10	1.8	2.48
11	1.75	2.44
12	1.52	0.77
13	0.8	0.83
14	1.14	1.63
15	2.1	1.79
16	2.11	1.81
17	2.17	1.78
18	4.61	4.25
19	0.002	0.002
20	2.2	1.82
21	2.2	1.79
22	2.23	1.82
23	2.23	1.9
24	0.002	0.002

MODE / PIN NO.	EE	PB	REC
IC301			
1	4.8 V	4.84 V	0.99 V
2	0.11 V	0.014 V	0.81 V
3	2.16 V	2.16 V	2.03 V
4	0.69 V	0.63 V	1.73 V
5	2.15 V	2.15 V	2.26 V
6	2.16 V	2.15 V	2.06 V
7	2.15 V	2.15 V	2.1 V
8	2.15 V	2.15 V	2.1 V
9	2.14 V	2.14 V	2.73 V
10	2.16 V	2.16 V	2.66 V
11	2.23 V	2.27 V	2.8 V
12	1.56 V	0.002 V	2.0 V
13	2.14 V	2.14 V	0.095 V
14	0.022 V	0.022 V	2.05 V
15	2.14 V	2.14 V	2.08 V
16	4.85 V	0.146 V	4.68 V
17	2.14 V	2.14 V	2.09 V
18	4.8 V	4.86 V	4.73 V
19	3.88 V	3.92 V	2.72 V
20	2.31 V	0.003 V	0.006 V
21	3 V	1.68 V	3.02 V
22	3.2 V	2.62 V	3.2 V
23	3.2 V	2.55 V	3.2 V
24	4.85 V	4.85 V	4.75 V
25	0.121 V	3.4 V	0.19 V
26	1.65 V	1.25 V	1.6 V
27	2.16 V	2.1 V	2.14 V
28	3.75 V	3.7 V	3.66 V
29	2.43 V	2.46 V	2.34 V
30	0.002 V	0.002 V	0.005 V
31	4.76 V	4.58 V	4.72 V
32	4.68 V	4.58 V	4.71 V
33	2.88 V	2.86 V	2.8 V
34	0.061 V	0.06 V	0.061 V
35	3.02 V	2.34 V	2.99 V
36	3.5 V	2.84 V	3.4 V
37	1.7 V	1.76V	1.61 V
38	2 V	2.05 V	1.94 V
39	8.65 V	8.6 V	8.38 V
40	0.002 V	0.003 V	0.006 V
41	0.002 V	0.003 V	0.006 V
42	4.8 V	4.8 V	4.68 V
43	2.4 V	2.67 V	2.17 V
44	13.8 mV	3.86 V	0.03 V
45	2.5 V	2.52 V	2.55 V
46	2.6 V	2.78 V	2.64 V
47	4.14 V	4.14 V	4.14 V
48	3.3 V	3.09 V	3.30 V
49	2.97 V	2.93 V	3.69 V
50	1.93 V	1.92 V	1.92 V
51	0.002 V	0.003 V	0.005 V
52	1.93 V	1.93 V	1.92 V
53	2.33 V	2.33 V	2.34 V
54	1.93 V	1.92 V	1.92 V
55	5.14 V	5.14 V	5.13 V

■ VOLTAGE CHARTS

MODE / PIN NO.	EE	PB	REC
56	2.24 V	2.57 V	2.22 V
57	1.95 V	2.28 V	0.006 V
58	3 V	2.55 V	3.01 V
59	2.9 V	2.93 V	2.92 V
60	1.47 V	1.54 V	1.48 V
61	1.8 V	2.44 V	1.79 V
62	0.087 V	0.09 V	0.088 V
63	1.8 V	2.55 V	1.78 V
64	0.002 V	0.003 V	0.006 V
65	1.71 V	0.002 V	1.69 V
66	0.002 V	0.003 V	0.006 V
67	0.005 V	0.07 V	0.44 V
68	4.8 V	4.8 V	4.78 V
69	4.7 V	4.7 V	4.7 V
70	7.75 V	2.55 V	5.55 V
71	5.55 V	0.008 V	0.008 V
72	4.84 V	4.8 V	4.72 V
73	2.21 V	2.2 V	2.24 V
74	2.45 V	2.6 V	2.43 V
75	2.38 V	0.72 V	2.38 V
76	2.4 V	0.81 V	2.39 V
77	1.58 V	1.6 V	1.48 V
78	2.44 V	3.35 V	2.33 V
79	1.73 V	1.67 V	2.51 V
80	0.98 V	0.98 V	4.46 V
81	1.1 V	1.13 V	1.15 V
82	0.003 V	0.004 V	0.006 V
83	1.65 V	1.03 V	1.41 V
84	0.258 V	2.5 V	0.014 V
85	0.002 V	0.003 V	1.38 V
86	0.251 V	0.014 V	1.98 V
87	0.77 V	0.78 V	0.78 V
88	0.77 V	0.78 V	0.77 V
89	0.77 V	0.78 V	0.77 V
90	0.77 V	0.78 V	0.77 V
91	4.85 V	4.83 V	4.74 V
92	2.1 mV	0.004 V	0.006 V
93	1.7 V	1.72 V	3.94 V
94	1.7 V	1.71 V	3.93 V
95	1.7 V	1.71 V	3.92 V
96	1.7 V	1.71 V	3.94 V
97	0.002 V	0.005 V	0.006 V
98	2.16 V	2.16 V	2.21 V
99	2.16V	2.16 V	2.25 V
100	2.16 V	2.16 V	2.31 V
IC501			
1	0	0.1	0
2	4.93	4.9	4.2
3	4.93	4.9	4.8
4	4.76	4.7	4.7
5	4.78	4.7	4.75
6	0	0	0
7	0	0	0
8	5.12	5.1	5.1
9	5	5	4.9
10	4.16	4.98	1.3

MODE / PIN NO.	EE	PB	REC
11	4.16	3.19	3.19
12	4.15	3.19	3.1
13	2.4	2.6	2.68
14	5.12	5.1	5.1
15	1.7	1.6	1.8
16	0	0	0
17	5.18	5	5
18	5.1	5	5
19	2.6	2.5	2.56
20	0	0	0
21	0	0	0
22	1.9	2.2	1.8
23	2	2.57	2.57
24	0.1	0	0
25	5.1	5.1	5
26	2.6	2.5	2.53
27	0	0	4.6
28	4.85	4.85	4..84
29	0	0	0
30	0	0	0
31	0	0	0
32	0	0	0
33	0	2.67	2.68
34	0	2.5	2.63
35	0	0	0
36	5.1	5.1	5.13
37	5.14	2.56	2.57
38	2.34	2.4	2.38
39	0	0	0
40	5.1	1.96	2.23
41	2.5	2.5	2.53
42	0	0	0
43	0	0	5.1
44	5.1	5.1	5.1
45	5.1	5.1	5.1
46	0	0	0
47	1.6	1..6	1.6
48	0	0	0
49	1.43	1.86	1.27
50	2.13	2.44	2.63
51	5	5	4.9
52	2.97	2.43	2.96
53	2.45	2.46	2.41
54	2.4	2.43	2.39
55	2	2	1.94
56	0	0	0
57	0	0	0
58	4.4	0	4.5
59	0	0	0
60	5	4.7	5
61	4.73	4.7	4.7
62	0	0	0
63	0	0	0
64	5	5	0
65	0	0	1.3
66	1.7	2.4	1.9

MODE / PIN NO.	EE	PB	REC
67	2.56	2.2	1.4
68	0.2	1.8	2.4
69	2.57	2.56	1.58
70	2.57	2.56	2.56
71	0	0	0
72	2.57	2.57	2.55
73	5.1	5.1	5.1
74	2.5	2.5	2.88
75	2.5	2.5	2.2
76	2.5	2.5	2.56
77	0	0	0
78	0	0	0
79	5.13	5.1	5.1
80	5.13	5.1	5.1
81	4.4	4.4	4.4
82	0	2.4	0
83	0	2.1	0
84	0	0	0
85	0	0	0
86	5.1	5.1	5.1
87	5.1	5.1	5.1
88	5.1	5.1	5.1
89	0	0	0
90	5	5	5.1
91	5.1	5.1	4.97
92	0	0	0
93	5	5	5.1
94	0	0	1.9
95	0	0	0
96	5	5	5
97	0	0	0
98	5	5	2.5
99	0	0	0
100	0	0	0.8
IC801			
1	3.8 V	3.81 V	3.82 V
2	3.8 V	3.82 V	3.82 V
3	3.8 V	3.82 V	3.82 V
4	3.8 V	3.82 V	3.82 V
5	3.8 V	3.82 V	3.82 V
6	3.8 V	3.82 V	3.82 V
7	3.8 V	3.82 V	3.82 V
8	3.8 V	3.82 V	3.82 V
9	3.8 V	3.82 V	3.82 V
10	3.8 V	3.82 V	3.82 V
11	3.8 V	3.82 V	3.82 V
12	0.054 V	~	0.048 V
13	3.87 V	3.8 V	3.99 V
14	0.008 V	0.003 V	0.011 V
15	0.008 V	0.006 V	0.01 V
16	6 V	6.07 V	6.07 V
17	6 V	6.07 V	6.08 V
18	7 V	6.07 V	0.11 V
19	6 V	6.06 V	0.028V
20	6 V	6.07 V	6.07 V
21	4.58 V	4.57 V	5.9 V

MODE / PIN NO.	EE	PB	REC
22	3.82 V	3.82 V	3.82 V
23	3.86 V	3.84 V	3.86 V
24	3.87 V	3.84 V	3.87 V
25	3.87 V	3.9 V	3.87 V
26	0.76 V	0.003 V	0.76 V
27	0.001 V	0.003 V	0.005 V
28	3.84 V	3.83 V	3.83 V
29	3.86 V	3.86 V	3.86 V
30	0.77 V	0.76V	0.76 V
31	3.87 V	3.87 V	3.86 V
32	3.86 V	3.87 V	3.87 V
33	3.86 V	3.86 V	3.86 V
34	11.84 V	11.76 V	11.77 V
35	0.64 V	0.44 V	4.3 V
36	0.64 V	0.62 V	4.3 V
37	0.64 V	0.63 V	4.28 V
38	0.005 V	0.008 V	4.32 V
39	0.002 V	0.005 V	0.006 V
40	5 V	5.07 V	5.05 V
41	0.005 V	0.92 V	0.92 V
42	4.7 V	4.7 V	4.7 V
43	4.8 V	4.8 V	4.8 V
44	0.078 V	3.3 V	0.068 V
IC802			
1	3.82	3.82	3.82
2	3.82	3.82	3.82
3	3.82	3.82	3.82
4	3.82	3.82	3.82
5	3.82	3.82	3.82
6	3.82	3.82	3.82
7	3.82	3.82	3.82
8	3.82	3.82	3.82
9	3.82	3.82	3.82
10	3.82	3.82	3.82
11	3.82	3.82	3.82
12	0.53	0	0
13	3.9	3.87	3.91
14	0	0	0
15	0	0	0
16	6	6	6.08
17	6	6.09	6.08
18	0	0	0
19	6	6.08	6.09
20	6	6.09	6.09
21	4.6	6	4.59
22	3.82	3.82	3.82
23	3.87	3.79	3.86
24	3.87	3.88	3.88
25	3.87	3.11	3.87
26	0.75	0	0.75
27	0	0	0
28	3.84	3.84	3.84
29	2.64	3.87	3.87
30	0.74	0.74	0.73
31	3.88	3.88	3.88
32	3.88	3.82	3.88

MODE / PIN NO.	EE	PB	REC
33	3.86	3.8	3.87
34	12	12.3	12.2
35	0.6	0.64	4.24
36	0	0.63	0
37	0.62	0.63	4.24
38	0	0	4.28
39	0	0	0
40	5	5	5
41	0	0.9	0.9
42	4.95	4.87	4.83
43	4.86	4.79	4.78
44	0.06	0.7	0.14
Q305			
BASE	1.8	1.82	1.9
EMITER	2.5	2.5	2.54
COLECTOR	0	0	0
Q801			
BASE	0.68	-2	0.68
EMITER	0	0	0
COLECTOR	0	-0.42	0
Q802			
BASE	0.68	-2.05	0.68
EMITER	0	0	0
COLECTOR	0	-0.34	0
Q902			
BASE	0.76	0.76	0.76
EMITER	0	0	0
COLECTOR	0	0	0
Q903			
BASE	0.76	0.76	0.76
EMITER	0	0	0
COLECTOR	0	0	0
Q905			
BASE	0.39	0.4	0.39
EMITER	1.03	1.02	1.02
COLECTOR	0	0	0
Q910			
BASE	3.6	2	3.6
EMITER	4.22	2.7	4.28
COLECTOR	0	0	0
Q911			
BASE	0	0	0
EMITER	0	0	0
COLECTOR	3.12	3.24	3.18
Q912			
BASE	0	0	0
EMITER	0	0	0
COLECTOR	2.64	3.24	3.21
Q913			
BASE	0	0	0
EMITER	0	0	0
COLECTOR	3.54	3.05	3.29

Transistor	STOP +	STOP -	PLAY + -	PLAY
C201	5.14	0	5.15	0
C208	3.26	3.12	3.24	2.29
C209	3.26	3.12	3.24	3.11
C214	5.26	0	5.2	0
C221	0	2.11	0	2.11
C310	0.00	0.00	0.00	0.00
C311	2.34	0.38	2.32	0.00
C312	2.34	0.00	2.32	0.00
C315	2.35	0.00	2.33	0.00
C318	2.30	0.00	2.30	0.00
C319	1.54	0.00	1.63	0.00
C324	3.04	1.74	3.00	1.46
C325	5.04	0.00	5.00	0.00
C327	1.45	0.00	1.59	0.00
C328	2.28	0.00	2.28	0.00
C329	2.27	0.49	2.27	0.53
C330	4.02	0.00	4.02	0.00
C331	2.57	1.74	2.27	1.74
C332	2.64	0.00	2.73	0.00
C333	2.95	2.20	2.96	2.25
C334	3.07	0.00	3.08	0.00
C335	2.53	0.01	2.42	0.00
C339	4.90	0.00	4.96	0.00
C362	0.00	0.00	0.00	0.00
C363	0.16	0.00	0.12	0.00
C367	2.27	1.78	2.27	1.33
C402	4.69	0	4.92	0
C405	2.35	0	2.45	0
C406	5.47	2.37	5.44	2.48
C407	5.47	0	5.44	0
C408	5.47	2.37	5.44	2.48
C413	11.9	0	12	0
C414	5.17	0.01	5.44	0
C415	5.47	0.01	5.44	0
C500	5.2	0	5.19	0
C503	5.04	0	5.04	0
C516	4.83	0	4.82	0
C526	13.89	0	13.8	0
C531	3.26	2.1	3.39	2.2
C534	4.38	0	4.38	0
C535	4.4	0	4.4	0
C546	13.95	0	14	0
C561	5.22	0	5.19	0
C578	2.6	0	2.59	0
C579	2.6	0	2.59	0
C584	2.6	0	2.59	0.01
C586	5.21	0	5.17	0
C592	5.21	0	5.18	0
C5G1	4.7	0	4.43	0
C612	3.26	0	3.25	0
C614	3.23	0	3.22	0
C616	3.24	0	3.23	0
C618	1.8	0	1.8	0
C642	1.81	0	1.81	0
C643	3.26	0	3.25	0
C646	3.26	0	3.25	0

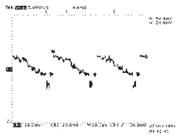
Transistor	STOP +	STOP -	PLAY + -	PLAY
C673	3.26	0	3.25	0
C701	16	0	16	0
C702	4.98	0	4.97	0
C702	4.99	0.00		
C710	32.00	0.00		
C712			5.79	0
C712	5.78	0.00		
C801	4.3	0.01	4.29	0
C806	3.82	0	3.82	0
C807	3.85	0	3.85	0
C808	3.16	0	3.15	0
C816	2.53	0	2.54	0
C821	9.3	0	9.3	0
C826	0.26	0	0.61	0
C828	5.15	0	5.14	0
C829	2.55	0	2.55	0
C830	0.47	0	0.47	0
C831	2.57	0	2.57	0
C840	5.1	0	5.11	0
C842	5.1	0	5.15	0
C843	2.56	0	2.54	0
C846	2.58	0	2.54	0
C847	0.47	0	0.47	0
C851	4.28	0.02	4.2	0.1
C866	2.53	0	2.52	0
C871	2.59		2.59	0
C873	1.22	0	1.22	0
C876	3.84	0	3.84	0
C877	2.05	0	2.05	0
C879	4.54	0	4.53	0
C880	2.44	0	2.49	0
C881	3.85	0	3.84	0
C882	9.3	0	9.3	0
C883	3.18	0	3.15	0
C886	3.84	0	3.84	0
C887	4.07	0	4.08	0
C888	3.86	0	3.85	0
C889	3.9	0	3.92	0
C902	1.12	1	1.12	1
C902	1.10	0.91		
C903	0.9	0.78	0.94	0.77
C904	1.4	1.28	1.41	1.28
C904	1.23	1.13		
C911	2.4	0	2.68	0
C911	2.91	0.00		
C916	5.11	0	5.12	0

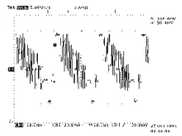
■ VOLTAGE CHARTS

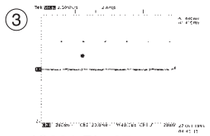
Tran-sistor	STOP			PLAY		
	Base	Emitter	Collector	Base	Emitter	Collector
Q201	3.1	3.28	0.009	2.28	3.05	2.34
Q202	3.14	3.28	0.01	3.1	3.25	0.6
Q203	4.9	0.01	4.9	4.86	5.1	4.85
Q204	4.9	0.04	4.9	4.86	5.2	4.86
Q205	0.003	0.002	4.9	0.003	0.003	4.8
Q206	0.003	0.002	4.9	0.003	0.016	4.86
Q301	4.4	5.08	4.98	4.4	5.08	4.98
Q302	0.74	0.006	0.001	0.74	0.006	0.001
Q303	0.72	0.006	0.008	0.72	0.006	0.008
Q306	1.63	2.22	0.01	1.63	2.22	0.01
Q307	2.15	1.48	0.001	2.15	1.48	0.001
Q308	0.01	4.99	5.24	4.51	3.85	5.23
Q311	0.00	0.00	0.00	-2.20	0.24	3.51
Q403	0.002	1.55	0.76	0.002	0.009	-0.4
Q404	0.002	1.6	0.76	0.002	0.009	-0.6
Q405	2.54	3.27	3.25	3.23	3.26	-0.4
Q501	0.009	0.002	0.02	0.009	0.002	0.02
Q504	2.15	2.83	0.002	2.15	2.83	0.002
Q505	1.63	1.65	5.15	1.63	1.65	5.15
Q507	2.15	2.8	0.002	2.15	2.8	0.002
Q550	0.01	0.002	1.66	0.01	0.002	1.66
Q901	0.76	0.002	0.008	-0.48	0.002	0.004
Q701	5.78	5.03	5.24			

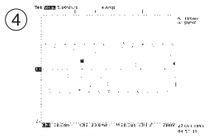
■ WAVEFORMS

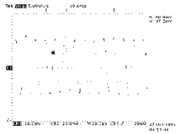
*** IC301 Oscilloscope Waveform**

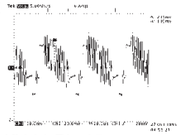
① 
IC301 Pin 75
PB mode
500mvp-p

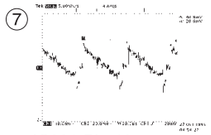
② 
IC301 Pins 48, 50, 54, 56
Video in 1Vp-p

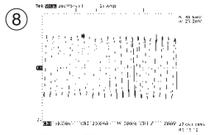
③ 
IC301 Pin 67
PB/REC mode
4.0Vp-p

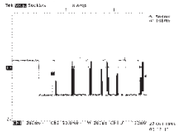
④ 
IC301 Pin 100
REC mode
1.1Vp-p

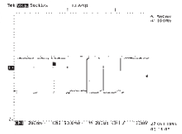
⑤ 
IC301 Pin 3
REC mode
2.0Vp-p

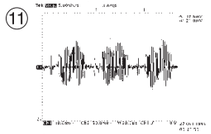
⑥ 
IC301 Pin 65
PB mode
2.02Vp-p

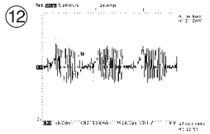
⑦ 
IC301 Pin 43
PB mode
400mVp-p

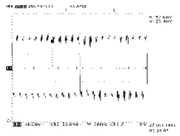
⑧ 
IC301 Pin 28
PB mode
400mVp-p

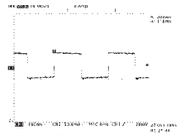
⑨ 
IC301 Pin 68
PB/REC mode
5Vp-p

⑩ 
IC301 Pin 69
PB/REC mode
5Vp-p

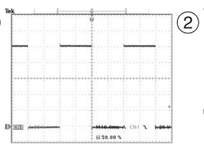
⑪ 
IC301 Pins 21
REC mode
340mVp-p

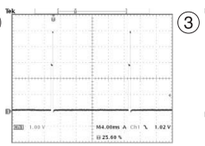
⑫ 
IC301 Pins 25
PB mode
300mVp-p

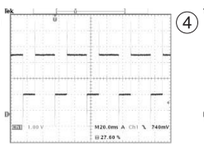
⑬ 
IC301 Pin 29
PB mode
400mVp-p

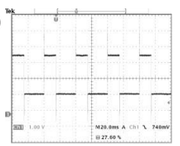
⑭ 
IC301 Pin 70
PB mode
3.6Vp-p

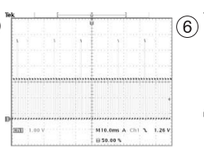
*** IC501 Waveform Photographs**

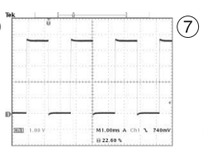
① 
V.HSW
(IC501 Pin 23)
1V/10mS
REC/PB MODE

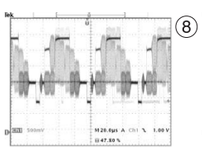
② 
DV.SYNC
(IC501 PIN 24)
1V/100uS
QUE/REV MODE

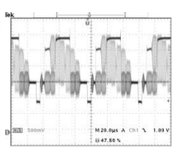
③ 
CTL(+)
(IC501 Pin 74)
1V/10mS

④ 
CTL(-)
(IC501 Pin 75)
1V/10mS

⑤ 
DFG/DFG
(IC501 PIN 65)
1V/10mS
REC/PB MODE

⑥ 
CFG
(IC501 Pin 67)
1V/10mS

⑦ 
V.IN
(IC501 Pin 49)
500mV/20uS

⑧ 
V.OUT
(IC501 Pin 47)
500mV/20uS
EE/PB MODE

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

(No.YD070)

Printed in Japan
VPT

PARTS LIST

[HR-XV45SEF,HR-XV45SEK,HR-XV45SER, HR-XV45SEU,HR-XV45SEY,HR-XV45SEZ]

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

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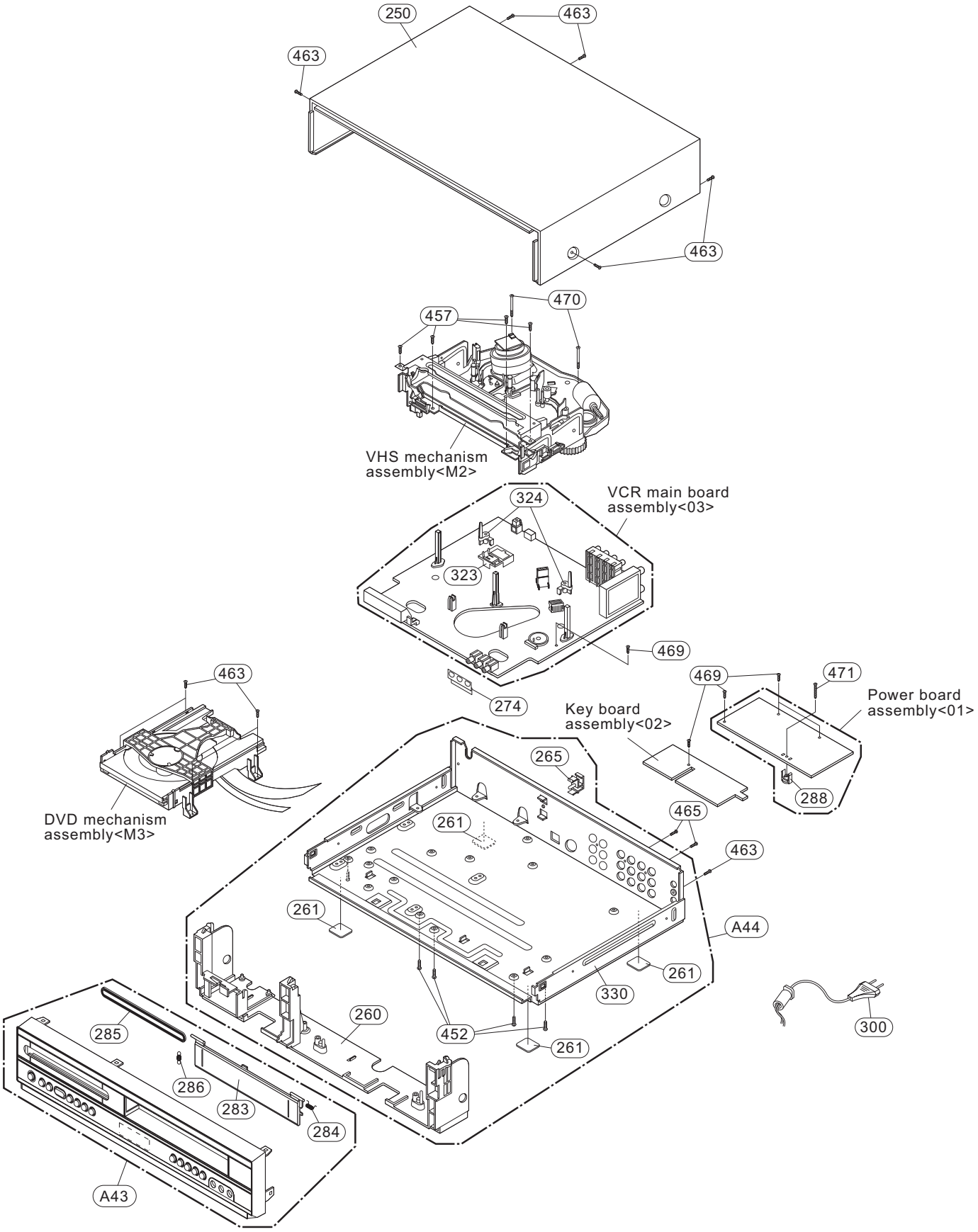
Packing materials and accessories parts list 3-22

Exploded view of general assembly and parts list

Block No. M1MM



MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

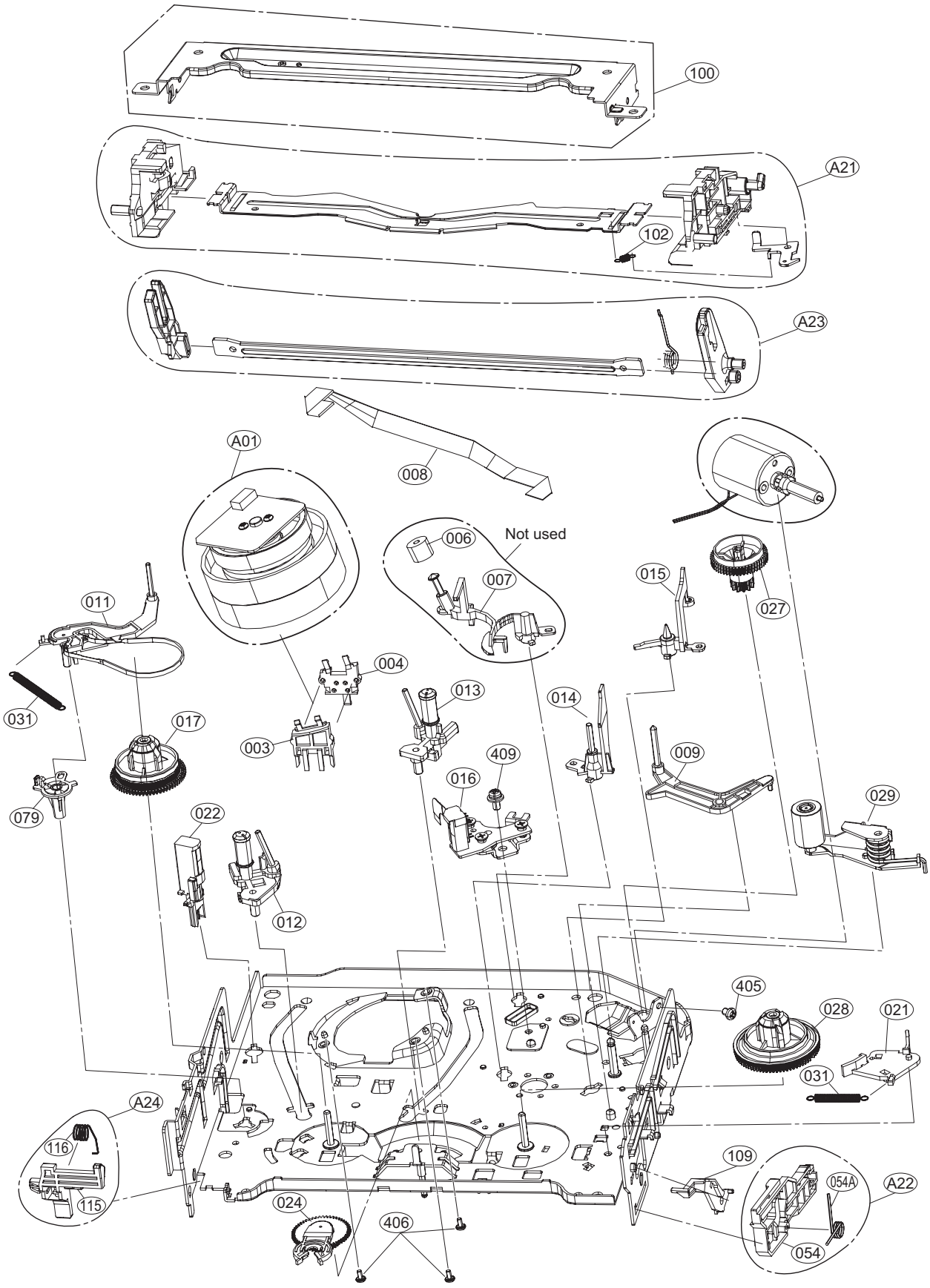
General assembly

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

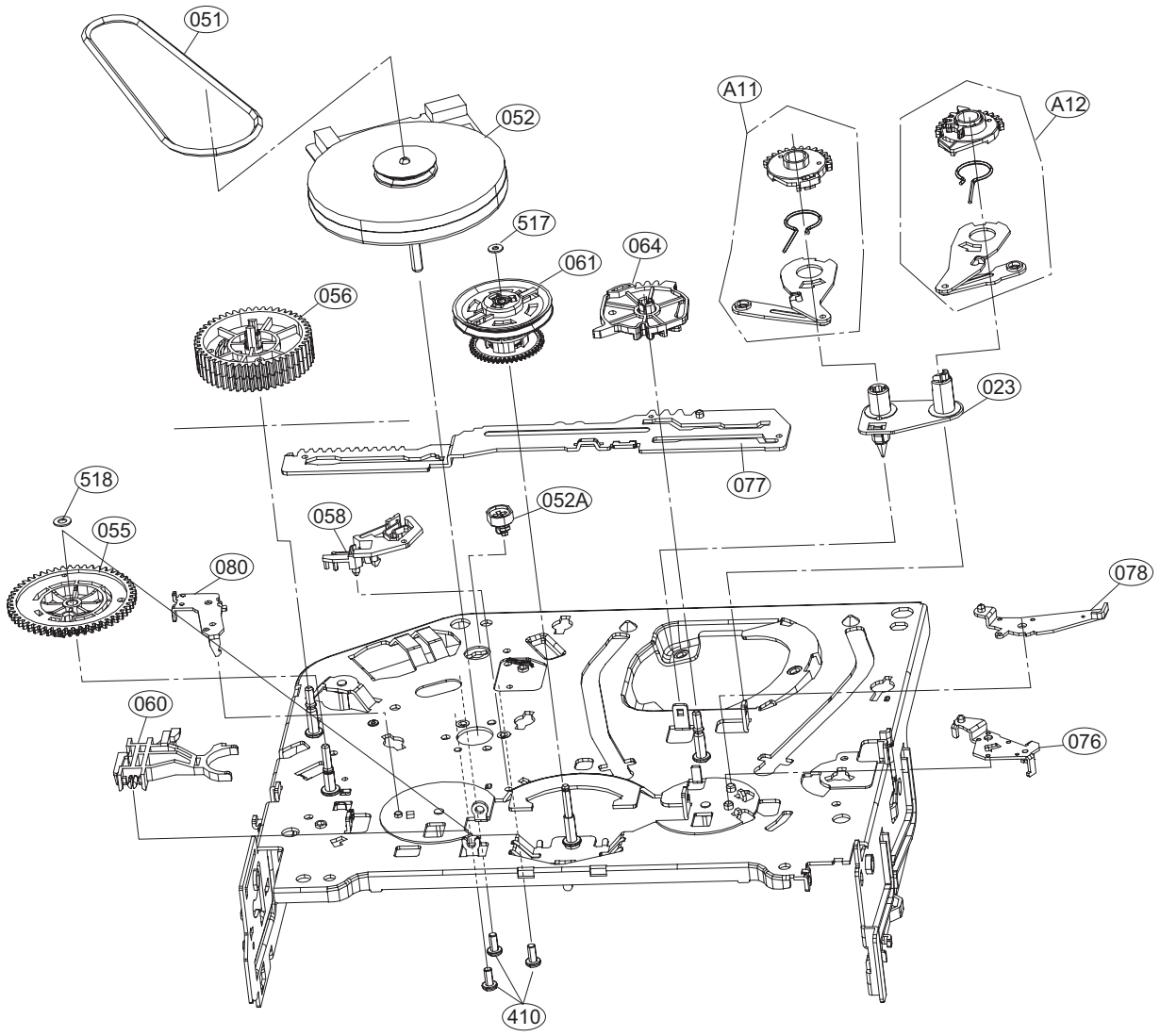
⚠	Symbol No.		Part No.	Part Name	Description	Local
	250		LG-3110R-V024B	CASE	VBW8024 PRESS TOP A288G B:3/S:	
	261		LG-5040R-0069S	RUBBER	CCD 05 NEW SILICON OTHER 2T (3(x4)	
	265		LG-4930R-0384A	HOLDER	POWER CORD	
	274		LG-3300R-V075A	PLATE	ONE BOARD SLIM PRESS A/V JACK	
	283		LG-3580R-V145D	DOOR	VCR VJ9033QP1M NA3GJJ MOLD CST	
	284		LG-442-681A	SPRING	DOOR	
	285		LG-3580R-T192D	DOOR	VCR VJ9033QP1M NA3GJJ MOLD TRA	
	286		LG-4970R-0146A	SPRING	PLATE DR4000 SPRING	
	288		LG-4930R-0573A	HOLDER	VCR V9500 MOLD POWER PWB	
⚠	300		LG-6410RBHV02E	POWER CORD	HIT-102/H03VHH2-F (ST-HS:80MM)	B
⚠	300		LG-6410RCHP02D	POWER CORD	HIT-102/H03VHH2-F (ST-HS:80MM)	A,C,D,E,F
	323		LG-3111R-0089E	CASE ASSEMBLY	PRE AMP SLIM COMBI C-CORE A NO	
	324		LG-4930R-0472A	HOLDER	VCR ONE BOARD SLIM MOLD HIPS 6(x2)	
	330		LG-3140R-V010A	CHASSIS	ONE BOARD PRESS SECC 0.8T	
	452		LG-1SZZR-0098A	SCREW/DRAWING	+ 2 D3.0 L10.0 MSWR3/FZMCY-1 3(x4)	
	457		LG-1SZZR-0098E	SCREW/DRAWING	+ 2 D3.0 L12.0 MSWR3/FZMCW-1 3(x4)	
	463		LG-1SZZR-0098G	SCREW/DRAWING	+ 2 D3.0 L8.0 MSWR3/FZMCW-1 3C(x8)	
	465		LG-1SZZR-0097K	SCREW/DRAWING	+ 2 D3.0 L10.0 MSWR3/FZB 3 CR(x2)	
	469		LG-1SZZR-0098J	SCREW/DRAWING	+ 2 D3.0 L6.5 MSWR3/FZMCY-1 3(x5)	
	470		LG-1SZZR-0098K	SCREW/DRAWING	+ 2 D3.0 21MM MSWR3/FZMCY-1 3C(x2)	
	471		LG-1SZZR-0098L	SCREW/DRAWING	+ 2 D3.0 L16.0 MSWR3/FN SILVER	
	A43		LG-3721R-F432J	PANEL ASSEMBLY/FRONT	VCR VJ9033QSM.NA7BJJ CHANGE P/	A
	A43		LG-3721R-F432K	PANEL ASSEMBLY/FRONT	VCR VJ9033QP1M.NA4UJJ CHANGE P	B
	A43		LG-3721R-F432H	PANEL ASSEMBLY/FRONT	VCR VJ9033QP1M.NA3GJJ CHANGE P	C,D,E,F
	A44		LG-3141R-V027L	CHASSIS ASSEMBLY	2005 COMBI DVD+VCR 4HD HI-FI P	

VHS mechanism assembly and parts list

Block No. M2MM



Back side


051
052
A11
A12
517
061
064
056
023
077
518
052A
058
055
080
078
060
076
410

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

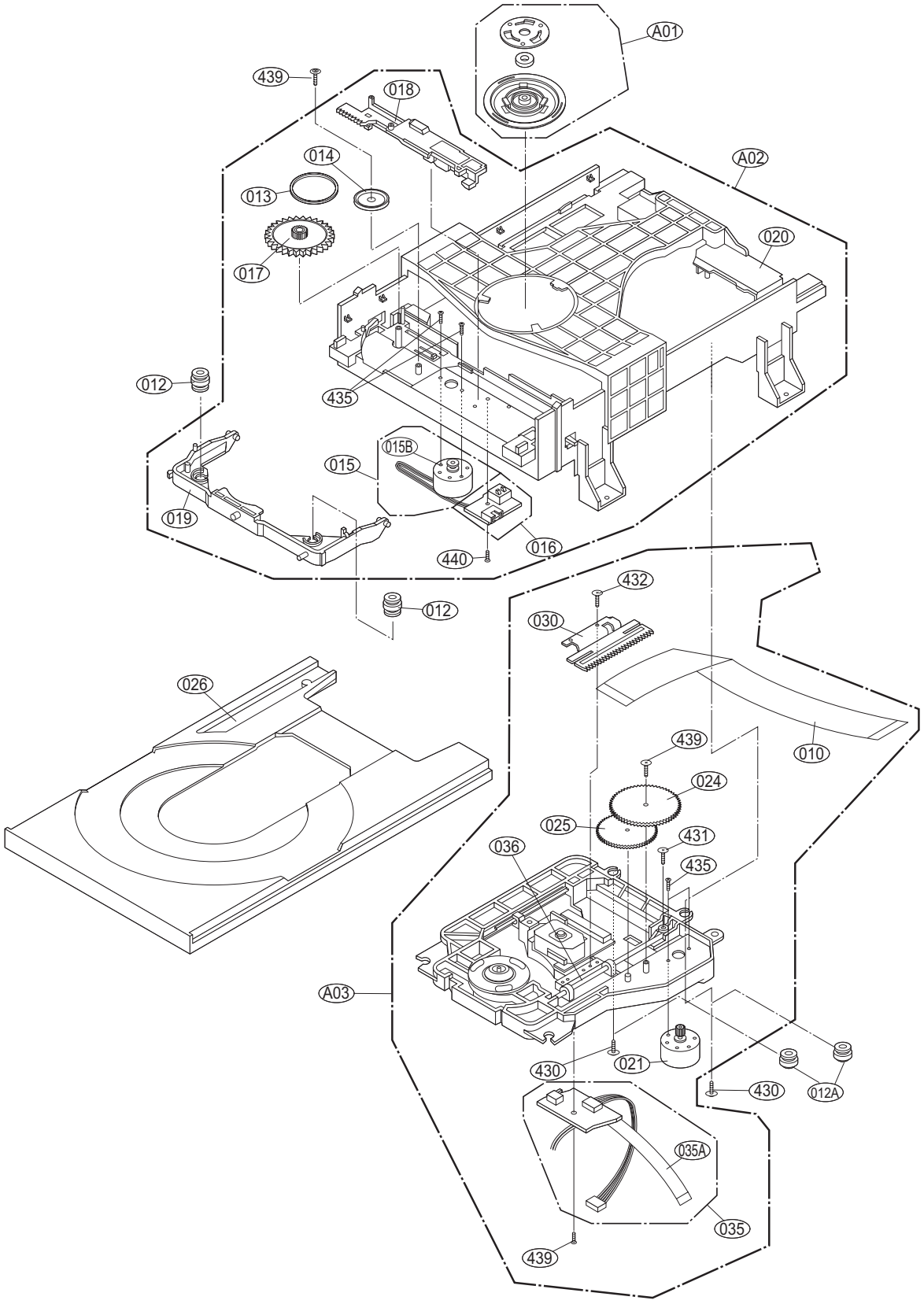
VHS mechanism

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

⚠	Symbol No.		Part No.	Part Name	Description	Local
	003		LG-4930R-0449A	HOLDER	DECK/MECHA FPCB(6CH) - D37C MO	
	004		LG-5006R-0045A	CAP	DECK/MECHA FPCB - D37C MOLD	
	008		LG-6850R-HG18Y	CABLE/FLAT	P=1.25 FFC UL2896(0.05X0.8) 7	
	009		LG-4260R-0056A	ARM	DECK/MECHA T/UP OTHER - D37	
	011		LG-4261R-0040A	ARM ASSEMBLY	DECK/MECHA TENSION - D37	
	012		LG-3041R-M037A	BASE ASSEMBLY	P2 -D37	
	013		LG-3041R-M038A	BASE ASSEMBLY	P3 - D37	
	014		LG-3041R-M039A	BASE ASSEMBLY	P4 - D37	
	015		LG-5870R-0007A	OPENER	DECK/MECHA LID OTHER - D37	
	016		LG-3041R-M036D	BASE ASSEMBLY	A/C HEAD (ALPS) - D37 (DUMMY H	
	017		LG-4408R-0005A	REEL	DECK/MECHA S OTHER - D37	
	021		LG-4421R-M002A	BRAKE ASSEMBLY	T - D37	
	022		LG-6520D00004B	HEAD(CIRC)	ST ST FE HEAD FOR D37 13.5	
	023		LG-3040R-M056A	BASE	LOADING OTHER - D37	
	024		LG-4261R-0042A	ARM ASSEMBLY	DECK/MECHA IDLER(N) - D37	
	027		LG-4470R-0133A	GEAR	DECK/MECHA WHEEL OTHER - D37	
	028		LG-4408R-0006A	REEL	DECK/MECHA T OTHER - D37	
	029		LG-4261R-0037A	ARM ASSEMBLY	DECK/MECHA PINCH - D37 (CHON P	
	031		LG-4970R-0175A	SPRING	COIL TENSION - D37(x2)	
	051		LG-4400R-0005A	BELT	CAPSTAN	
	052		LG-4680R-A015A	MOTOR(MECH)	CAPSTAN F2QVB66 SANKYO FOR D37	
	052A		LG-4980R-0029A	SUPPORTER	DECK/MECHA CAPSTAN OTHER - D37	
	054		LG-4470R-0136A	GEAR	DECK/MECHA RACK F/L OTHER - D3	
	054A		LG-4970R-0171A	SPRING	COIL RACK F/L - D37	
	055		LG-4470R-0140A	GEAR	DECK/MECHA DRIVE OTHER - D37	
	056		LG-4470R-0139A	GEAR	DECK/MECHA CAM OTHER - D37	
	058		LG-4421R-M001A	BRAKE ASSEMBLY	CAPSTAN -D37	
	060		LG-4510R-0065A	LEVER	DECK/MECHA F/R OTHER - D37	
	061		LG-4265R-0007A	CLUTCH ASSEMBLY	DECK/MECHA D37(N)	
	064		LG-4470R-0141A	GEAR	DECK/MECHA SECTOR OTHER - D37	
	076		LG-4510R-0063A	LEVER	DECK/MECHA SPRING OTHER - D37	
	077		LG-3300R-M203A	PLATE	SLIDER OTHER - D37	
	078		LG-4510R-0062A	LEVER	DECK/MECHA TENSION OTHER - D37	
	079		LG-3040R-M057A	BASE	TENSION OTHER - D37	
	080		LG-4510R-0064A	LEVER	DECK/MECHA BRAKE OTHER - D37	
	100		LG-3301R-M193A	PLATE ASSEMBLY	TOP - D37	
	102		LG-4970R-0173A	SPRING	COIL STOPPER - D37	
	109		LG-5870R-0008A	OPENER	DECK/MECHA DOOR OTHER - D37	
	115		LG-4510R-0070A	LEVER	DECK/MECHA SWITCH(C) OTHER - D	
	116		LG-4970R-0163A	SPRING	COIL D35S SWITCH	
	405		LG-1MPC0301270	SCREW MACHINE/PAN HEAD	+ D3.0 L3.5 SWRCH18A/FZW	
	406		LG-1MEC0302018	SCREW MACHINE/PAN HEAD SPR W	+ D3.0 L6.0 MSWR3/FZY(x3)	
	409		LG-1SZZR-0032B	SCREW/DRAWING	+ 1 D2.6 L5.0 SWRCH18A/FZY TAP	
	410		LG-1APF0262218	SCREW TAP TITE(B)/PAN HEAD	+ D2.6 L6.8 MSWR3/FZY(x3)	
	517		LG-1WZZR-0004D	WASHER/DRAWING	STOPPER	
	518		LG-1WZZR-0004A	WASHER/DRAWING	STOPPER	
	A01		LG-6723R-0603F	DRUM(CIRC) ASSEMBLY	DECK/MECHA (9P6S) D37-6CH PAL	
	A11		LG-4471R-0017A	GEAR ASSEMBLY	DECK/MECHA P3 - D37	
	A12		LG-4471R-0015A	GEAR ASSEMBLY	DECK/MECHA P2 - D37	
	A21		LG-4931R-0084A	HOLDER ASSEMBLY	DECK/MECHA CST - D37	
	A22		LG-4471R-0016A	GEAR ASSEMBLY	DECK/MECHA RACK F/L - D37	
	A23		LG-4261R-0038A	ARM ASSEMBLY	DECK/MECHA F/L - D37	
	A24		LG-4511R-0005A	LEVER ASSEMBLY	SWITCH(C) - D37	

DVD mechanism assembly and parts list

Block No. M3MM



MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

DVD mechanism

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

⚠	Symbol No.		Part No.	Part Name	Description	Local
	010		LG-6850R-JW23Z	CABLE/FLAT	P=1.0 FFC UL2896(0.035X0.7) 23	
	012		LG-5040R-0083A	RUBBER	DVD DP-6/ DP-8 FRONT RIGHT 20(x2)	
	012A		LG-5040R-0110A	RUBBER	DVD REAR DP8 RIGHT 20 OTHER BL(x2)	
	013		LG-4400R-0006B	BELT	DECK/MECHA DP2-5/ DP7C/DP7A OT	
	014		LG-4470R-0154A	GEAR	DECK/MECHA DP8 PULLEY MOLD	
	015		LG-4681R-A015A	MOTOR ASSEMBLY	DECK/MECHA LOADING DP-9 SH	
	015B		LG-4560R-0008A	PULLEY	MOTOR	
	016		LG-6871R-9294A	PWB(PCB) ASSEMBLY/TOTAL	DP-9C LOADING	
	017		LG-4470R-0176A	GEAR	DVD DP-9 LOADING MOLD	
	018		LG-4974R-0067A	GUIDE	DVD DP-9C UP/DOWN MOLD	
	019		LG-3210R-M008A	FRAME	DP-9C UP/DOWN MOLD	
	020		LG-3040R-M064A	BASE	MAIN DP-9C MOLD	
	021		LG-4681R-B009B	MOTOR ASSEMBLY	DECK/MECHA DP9 FEEDING	
	024		LG-4470R-0179A	GEAR	DVD DP-9 PINION MOLD	
	025		LG-4470R-0178A	GEAR	DVD DP-9 MIDDLE MOLD	
	026		LG-3390R-0030A	TRAY	DVD DP-9C DISK MOLD	
	030		LG-4470R-0180A	GEAR	DVD DP-9 RACK MOLD	
	035		LG-6871R-9295A	PWB(PCB) ASSEMBLY/TOTAL	DP-9C FEEDING	
	035A		LG-6850R-GK09Z	CABLE/FLAT	P=1.0 FFC UL2896(0.05X0.65) 11	
	036		LG-4370R-0136A	SHAFT	DVD PU/ DR-02 SUS-420J2 OTHER	
	430		LG-1SZZR-0064B	SCREW/DRAWING	+ 1 D1.7 L7.0 SWCH18A/BZN DP8(x2)	
	431		LG-1SZZR-0062A	SCREW/DRAWING	+ 1 D1.7 L4.5 SWCH18A/NI DP8 P	
	432		LG-1SZZR-0072A	SCREW/DRAWING	+ 1 D1.7 L4.5 SWRCH18A/FZY DP8	
	435		LG-1SZZR-0011A	SCREW/DRAWING	MACHINE(x4)	
	439		LG-1SZZR-0075A	SCREW/DRAWING	+ 1 D1.7 L10.0 SWRCH18A/FZW DP(x3)	
	440		LG-1SZZH-1007B	SCREW/DRAWING	+ D2.0 6MM SWRCH16A/ZNBK 4MM 1	
	A01		LG-4861R-0016B	CLAMP ASSEMBLY	DISC DP7 - SH	
	A02		LG-3041R-D024A	BASE ASSEMBLY	MAIN DP-9C	
	A03		LG-3041R-M068B	BASE ASSEMBLY	SLED DP-9C DI	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

Electrical parts list

Power board

Block No. [0][1]

⚠	Symbol No.		Part No.	Part Name	Description	Local
	A47		LG-6871R-4925C	PWB(PCB) ASSEMBLY/TOTAL	2005 COMBI ZORAN CIS SMPS DI	C
	A47		LG-6871R-4925A	PWB(PCB) ASSEMBLY/TOTAL	2005 COMBI ZORAN PAL SMPS DI C	A,B,D, E,F
	IC101		LG-0IPMGIH005A	IC/POWER MANAGEMENT	ICE3B0565 INFINEON 8PIN/DIP ST	
⚠	IC102		PZ0ILI817000B	SENSOR	LTV-817B/PHOTO COUPLER(LITEON)	
⚠	IC102	or	LG-6500RDB010A	SENSOR	PC123YN2J00F SHARP PHOTOCOUPLE	
	IC103		LG-0IKE431000A	IC/KEC	KIA431 3 PIN TP - -	
	IC103	or	LG-0ISS431000A	IC/SAMSUNG ELECTRONICS	KA431AZ (LM431AZ) - - - -	
	IC131		LG-0IPMGKE006B	IC/POWER MANAGEMENT	KIA78R33PI CU KEC 4P TO-220IS	
	IC131	or	LG-0IPMGGM002A	IC/POWER MANAGEMENT	G9133 GMT 4PIN/TO 220F-4L ST 1	
	Q161		LG-0TR126809BA	TRANSISTOR/ BIPOLARS	KTA1268-BL TP KEC - -	
	Q162		LG-0TR319809AC	TRANSISTOR/ BIPOLARS	KTC3198 TP KEC - - -BL (KTC181	
	Q162	or	LG-0TR534309BA	TRANSISTOR/ BIPOLARS	2SC5343-L TP AUK TO92 -	
	Q163		LG-0TR928009AD	TRANSISTOR/ BIPOLARS	KSA928A-Y/TO-92L TP SAMSUNG TO	
	Q163	or	LG-0TR127309AA	TRANSISTOR/ BIPOLARS	KTA1273 TP KEC - - -Y (KTA966A	
	Q164		LG-0TR534309BA	TRANSISTOR/ BIPOLARS	2SC5343-L TP AUK TO92 -	
	Q164	or	LG-0TR534409AA	TRANSISTOR/ BIPOLARS	2SC5344Y TP AUK - -	
	Q165		LG-0TR928009AD	TRANSISTOR/ BIPOLARS	KSA928A-Y/TO-92L TP SAMSUNG TO	
	Q165	or	LG-0TR127309AA	TRANSISTOR/ BIPOLARS	KTA1273 TP KEC - - -Y (KTA966A	
	Q166		LG-0TR232809AB	TRANSISTOR/ BIPOLARS	KSC2328A-Y TP SAMSUNG TO-92L -	
	Q166	or	LG-0TR320509AB	TRANSISTOR/ BIPOLARS	KTC3205-TP-Y (KTC2236A)KEC	
	BD101		S1WB/A/60-4101	BRIDGE DIODE	S1WBA60 BK SHINDENGEN - 600V -	
	BD101	or	LG-0DRRE00060A	DIODE/RECTIFIERS	DB105-C-S-V50 RECTRON BK NON 6	
	D101		ERA22-10	DIODE/RECTIFIERS	ERA22-10 KFLB/TP /R T/P/FUJI	
	D102		LG-0DR104009BA	DIODE/RECTIFIERS	RL104F TP RECTRON - 400V 1A 30	
	D102	or	LG-0DRGF00239A	DIODE/RECTIFIERS	FR104E GULF TP NON 400V 1A 30A	
	D121		LG-0DR104009BA	DIODE/RECTIFIERS	RL104F TP RECTRON - 400V 1A 30	
	D121	or	LG-0DRGF00239A	DIODE/RECTIFIERS	FR104E GULF TP NON 400V 1A 30A	
	D123		LG-0DR810040BA	DIODE/RECTIFIERS	ERC81-004L22 BK FUJI DO201AD 4	
	D123	or	LG-0DR158220AA	DIODE/RECTIFIERS	1N5822 BK RECTRON DO201AD 40V	
	D123	or	LG-0DRGF00210A	DIODE/RECTIFIERS	1N5822 GULF BK DO201AD 40V 3A	
	D124		LG-0DSGF00040A	DIODE/SWITCHING	UF5402-M11 GULF BK DO201AD 200	
	D124	or	LG-0DSDI00110A	DIODE/SWITCHING	UF3003 DIODES BK DO201AD 200V	
	D125		LG-0DRSD00210A	DIODE/RECTIFIERS	D3S6M SHINDENGEN BK AX14 60V 1	
	D127		1SS133-T2	SI DIODE	1SS133 TP ROHM KOREA - - - - -	
	ZD102		LG-0DZ202609AA	DIODE/ZENERS	UZ-20BSB 26MM TP PYUNG CHANG D	
	ZD151		LG-0DZ132609AB	DIODE/ZENERS	GDZJ13A 26MM TP GRANDE DO34 0	
	ZD151	or	LG-0DZ132609BB	DIODE/ZENERS	UZ-13BSA 26MM TP PYUNG CHANG	
	ZD152		LG-0DZ102609BB	DIODE/ZENERS	UZ-10BSB 26MM TP PYUNG CHANG D	
	ZD152	or	LG-0DZ100009HA	DIODE/ZENERS	UZ-10BM TP PYUNG CHANG - 0.5W	
⚠	C101		LG-624-088L	CAPACITOR/ DRAWING	435D SUNIL ELECTRONICS 0.1UF/2	
	C102		LG-624-088L	CAPACITOR/ DRAWING	435D SUNIL ELECTRONICS 0.1UF/2	
	C103		LG-0CE686CU611	CAPACITOR/FIXED ELECTROLYTIC	68UF SHL/SD 400V 20% FL BK7.5	
	C104		LG-0CN1040K948	CAPACITOR/FIXED TUBULAR	0.1UF D 50V 80%/-20% F(Y5V) TA	
	C105		LG-0CQ1031Y519	CAPACITOR/FIXED FILM	0.01UF D 630V 10% PE NI TP5	
	C106		LG-624-087G	CAPACITOR/FIXED CERAMIC	HIGH-VOL 68PF/1KV SMPS SAMHWA	
	C107		LG-0CN1030K518	CAPACITOR/ TUBULAR	0.01UF 50V K B TA26	
	C108		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C109		LG-0CE3366H638	CAPACITOR/FIXED ELECTROLYTIC	33UF SMS/SG 25V 20% FM5 TP 5	
⚠	C111		LG-0CG1020U630	CAPACITOR/FIXED CERAMIC	1000PF D 400V 20% E(Z5U) R	
	C115		LG-0CN1040K948	CAPACITOR/FIXED TUBULAR	0.1UF D 50V 80%/-20% F(Y5V) TA	
	C121		LG-624-087D	CAPACITOR/FIXED CERAMIC	HI-VOL 470P/1KVDC SMPS SAMHWA	
	C124		LG-0CE477BH630	CAPACITOR/FIXED ELECTROLYTIC	470UF KME TYPE 25V 20% FM5 BUL	
	C126		LG-624-085D	CAPACITOR/FIXED ELECTROLYTIC	CE 47UF/50V KME (SMPS)	
	C127		LG-0CE108BF630	CAPACITOR/FIXED ELECTROLYTIC	1000UF KME TYPE 16V 20% FM5 BU	
	C128		LG-0CE228BF630	CAPACITOR/FIXED ELECTROLYTIC	2200UF KME TYPE 16V 20% FM5 BU	
	C134		LG-0CE227CH618	CAPACITOR/FIXED ELECTROLYTIC	220UF SHL/SD 25V 20% FL TP 5	
	C137		LG-0CE3376D638	CAPACITOR/FIXED ELECTROLYTIC	330UF SMS/SG 10V 20% FM5 TP 5	
	C138		LG-624-082H	CAPACITOR/FIXED ELECTROLYTIC	CE 1000UF/10V SHL(10*12.5)T/P	
	C143		LG-0CQ1042K409	CAPACITOR/FIXED FILM	0.1UF S 50V 5% PE TP5	
	C158		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C159		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C160		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C161		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C162		LG-0CE4776D638	CAPACITOR/FIXED ELECTROLYTIC	470UF SMS/SG 10V 20% FM5 TP 5	
	C164		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C166		LG-0CN223AK948	CAPACITOR/ TUBULAR	0.022UF 50V Z F TA26 S	
	R100		QRE121J-155Y	C RESISTOR	1.5M OHM 1/2 W 5.00% MF10	
	R104		LG-0RS5602K619	RESISTOR/FIXED METAL OXIDE FILM	56K OHM 2 W 5.00% TR	
	R105		LG-0RD0102F608	RESISTOR/FIXED CARBON FILM	10 OHM 1/6 W 5% TA26	
	R109		LG-0RS0750K619	RESISTOR/FIXED METAL OXIDE FILM	0.75 OHM 2 W 5.00% TR	
	R136		QRD161J-104Y	C RESISTOR	100K OHM 1/6 W 5% TA26	
	R141		QRD161J-221	C RESISTOR	220 OHM 1/6 W 5% TA26	
	R142		QRD161J-222Y	C RESISTOR	2.2K OHM 1/6 W 5% TA26	
	R143		QRE141J-102Y	C RESISTOR	1K OHM 1/6 W 5% TA26	
	R144		LG-0RN3301F408	RESISTOR/FIXED METAL FILM	3.3K OHM 1/6 W 1% TA26	
	R145		LG-0RN2701F408	RESISTOR/FIXED METAL FILM	2.7K OHM 1/6 W 1% TA26	
	R146		QRD161J-271Y	C RESISTOR	270 OHM 1/6 W 5% TA26	
	R154		QRE141J-102Y	C RESISTOR	1K OHM 1/6 W 5% TA26	
	R155		QRD161J-183Y	C RESISTOR	18K OHM 1/6 W 5% TA26	
	R156		QRE141J-102Y	C RESISTOR	1K OHM 1/6 W 5% TA26	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R157		QRE141J-331Y	C RESISTOR	330 OHM 1/6 W 5% TA26	
	R163		QRD161J-472Y	C RESISTOR	4.7K OHM 1/6 W 5% TA26	
	R164		QRD161J-472Y	C RESISTOR	4.7K OHM 1/6 W 5% TA26	
	R165		QRD161J-472Y	C RESISTOR	4.7K OHM 1/6 W 5% TA26	
	R166		QRD161J-562Y	C RESISTOR	5.6K OHM 1/6 W 5% TA26	
	R168		QRD161J-562Y	C RESISTOR	5.6K OHM 1/6 W 5% TA26	
	R172		QRE141J-102Y	C RESISTOR	1K OHM 1/6 W 5% TA26	
	R174		QRE141J-331Y	C RESISTOR	330 OHM 1/6 W 5% TA26	
	L102		LG-616-145G	FILTER(CIRC)/ DRAWING	SHT LFSQ2215V4-04220	
	L124		LG-633-088G	COIL/CHOKE	22MH TOKO 5MM TP	
	L127		LG-633-088G	COIL/CHOKE	22MH TOKO 5MM TP	
	L128		LG-6140RCC003H	COIL/RF	CHOKE COIL 22 UH 8X8 5 PIE SAM	
⚠	T101		LG-6170RNGW12P	TRANSFORMER/ SMPS[COIL]	EER2828 15 PIN SOOJUNG/SAMWHA	
	BC101		LG-636-004C	FILTER(CIRC)/EMC	BEAD CORE BFS3550R2FD8/R T/P	
⚠	FR101		LG-0RF0221K634	RESISTOR/ VARIABLE[CARBON FILM]	2.2 OHM 2 W 5% MF15	
	PPM01		LG-6630R-BF03M	CONNECTOR (CIRC)/BOARD TO BOARD	JE121-13 JAE EUN 13P 2.54MM	
⚠	PW101		LG-561-292B	CONNECTOR(CIRC) /DRAWING	GP390 LGC 3P 3.96 STRAIGHT SN	
⚠	V101		LG-656-004C	VARISTOR/ DRAWING	SVC681D-10A SAMHWA 4.O CUT	

Key board

Block No. [0][2]

⚠	Symbol No.		Part No.	Part Name	Description	Local
	A50		LG-6871R-7960D	PWB(PCB) ASSEMBLY/TOTAL	05 COMBI PAL MAIN KEY TOOL JVC	
	R5J1		QRE141J-152Y	C RESISTOR	1.5K OHM 1/6 W 5% TA26	
	R5J2		QRD161J-122	C RESISTOR	1.2K OHM 1/6 W 5% TA26	
	R5J3		QRE141J-152Y	C RESISTOR	1.5K OHM 1/6 W 5% TA26	
	R5J4		QRD161J-222Y	C RESISTOR	2.2K OHM 1/6 W 5% TA26	
	R5J5		QRD161J-332Y	C RESISTOR	3.3K OHM 1/6 W 5% TA26	
	R5J6		QRE141J-123Y	C RESISTOR	12K OHM 1/6 W 5% TA26	
	CN501		LG-6631R-E007T	CONNECTOR ASSEMBLY	8283-02/9073-02ST 2PIN 60M/M P	
	SW507		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW508		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW509		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW510		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW511		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW512		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW513		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	

VCR main board

Block No. [0][3]

⚠	Symbol No.		Part No.	Part Name	Description	Local
	A46		LG-3501R-9412A	BOARD ASSEMBLY	VCR MAIN OF VJ9033QSM NA7BJJ	A
	A46		LG-3501R-9410W	BOARD ASSEMBLY	VCR 05 COMBI PAL MTK VJ9033QP1	B
	A46		LG-3501R-9410Z	BOARD ASSEMBLY	VCR 05 COMBI PAL MTK VJ9033QP4	C
	A46		LG-3501R-9410V	BOARD ASSEMBLY	VCR 05 COMBI PAL MTK VJ9033QP1	D
	A46		LG-3501R-9410X	BOARD ASSEMBLY	VCR 05 COMBI PAL MTK VJ9033QP2	E
	A46		LG-3501R-9410Y	BOARD ASSEMBLY	VCR 05 COMBI PAL MTK VJ9033QP2	F
	IC201		LG-0ILNRIJ003A	IC/LINEAR	IP9005LTF INTERPION 28PIN/SSOP	
	IC301		LG-0ILNRSA005B	IC/LINEAR	LA71750EM SANYO 100PIN QFP TRA	
	IC3S1		LG-0ILNRSA007B	IC/LINEAR	LA70100M-TRM SANYO 30PIN SOP R	A
	IC401		LG-0IPRPTI064A	IC/PERIPHERALS	PCM1753DBQR TEXAS INSTRUMENT 1	
	IC402		NJM4580M-X	IC	NJM4580M 8/DMP8 TP OP AMP 2K/R	
	IC402	or	LG-0ILNRUC001A	IC/LINEAR	MC4580 UTC 8PIN/SOP R/TP 2CH O	
	IC501		LG-0IMCR02041B	IC/MICRO CONTROLLER	MN101D10FLC1 2ND MATSUSHITA 10	
	IC503		LG-0IAL241600B	IC/ATMEL	AT24C16 - - - -	
	IC503	or	LG-0ICS241600B	IC/CATALYST	CAT24WC16P 8P DIP ST 16K SERIA	
	IC504		LG-0IKE703100A	IC/KEC	KIA7031P 3P 3.1V RESET(TAPING)	
	IC504	or	LG-0ISS753100A	IC/SAMSUNG ELECTRONICS	KA7531Z TO-92 TP 3.1V RESET	
	IC505		LG-0IKE704200B	IC/KEC	KIA7042P 3P 4.2V RESET(TAPING)	
	IC5F1		LG-0ILNRPY001B	IC/LINEAR	PT6955 PTC 24PIN SOP R/TP LED	
	IC5F1	or	LG-0IPRPG5001B	IC/PERIPHERALS	LG5-6955 LED DRIVER G-FIVE 24P	
	IC601		LG-0ILNRNF009B	IC/LINEAR	MT1389FE/CO2-L MEDIATEK INCORP	
	IC603		LG-0IMMRHY001E	IC/MEMORIES	HY57V641620HGT-7 HYUNDAI 54PIN	
	IC603	or	LG-0IMMREB004D	IC/MEMORIES	M12L64164A-7TG ESMT 54P TSOPII	
	IC606		LG-0ISS240210A	IC/SAMSUNG ELECTRONICS	S524A40X21-SCT0 SOP8 TP EEPROM	
	IC621		LG-0IPMGUC006A	IC/POWER MANAGEMENT	LD1117A-1.8V UTC TO252 R/TP 1.	
	IC751		LG-0IIT341700C	IC/ITT	MSP3417G-QG-B8-V3 44 QFP TRAY	
	IC7V1		LG-0ILNRMN001B	IC/LINEAR	SDA5650X GEG MICRONAS 20PIN SO	A,B,D, E,F
	IC801		LG-0IPH960500A	IC/PHILIPS	TDA9605H QFP44 BK HIFI AMP+HIF	
	IC802		MM1231XF-X	IC/PERIPHERALS	MM1231XF MITSUMI 16PIN SOP ST	
	IC903		LG-0IPRPRH017A	IC/PERIPHERALS	BH7868FS ROHM 32PIN SSOP R/TP	
	IC602A		LG-6957R-796AZ	PROGRAM	DVD PROGRAM HV9C3020020 VJ9033	A
	IC602A		LG-6957R-796AY	PROGRAM	DVD PROGRAM HV963020050 VJ9033	C
	IC602A		LG-6957R-796AW	PROGRAM	DVD PROGRAM HV9E3020020 VJ9033	B,D
	IC602A		LG-6957R-796AX	PROGRAM	DVD PROGRAM HV9D3020020 VJ9033	E,F
	RC501		LG-6712R1938HA	SENSOR(REMOTE)	356VF4 OPTO 38.0KHZ 19MM(356VF	
	RS501		LG-6500RAB008A	SENSOR	KIT-3001A REEL SENSOR KODENSHI	
	RS502		LG-6500RAB008A	SENSOR	KIT-3001A REEL SENSOR KODENSHI	
	Q201		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q202		LG-0TRRH80042A	TRANSISTOR/ BIPOLARS	2SK3018 T106 ROHM KOREA R/TP U	
	Q203		LG-0TRRH80042A	TRANSISTOR/ BIPOLARS	2SK3018 T106 ROHM KOREA R/TP U	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	Q204		2SA1037K/QR/-X	TRANSISTOR/ BIPOLARS	2SA1037K-Q CHIP TP ROHM - -	
	Q205		2SA1037K/QR/-X	TRANSISTOR/ BIPOLARS	2SA1037K-Q CHIP TP ROHM - -	
	Q302		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q303		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q304		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q305		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q306		LG-0TR534409AA	TRANSISTOR/ BIPOLARS	2SC5344Y TP AUK - -	
	Q309		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q311		LG-0TR534409AA	TRANSISTOR/ BIPOLARS	2SC5344Y TP AUK - -	
	Q401		2SA1037K/QR/-X	TRANSISTOR/ BIPOLARS	2SA1037K-Q CHIP TP ROHM - -	
	Q404		LG-0TR103009AC	TRANSISTOR/ BIPOLARS	KRA103S-T1(PC)22-22 CHIP TP KE	
	Q405		LG-0TR103009AC	TRANSISTOR/ BIPOLARS	KRA103S-T1(PC)22-22 CHIP TP KE	
	Q501		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q503		LG-0TR928009AD	TRANSISTOR/ BIPOLARS	KSA928A-Y/TO-92L TP SAMSUNG TO	
	Q503	or	LG-0TR127709AB	TRANSISTOR/ BIPOLARS	AUK KOREA STB1277LY-AT TP TO-9	
	Q503	or	LG-0TR127309AA	TRANSISTOR/ BIPOLARS	KTA1273 TP KEC - - -Y (KTA966A	
	Q504		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q505		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q506		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q7S1		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	A
	Q7S2		LG-0TR103009AA	TRANSISTOR/ BIPOLARS	CHIP KRC103S-T1(NC)22-22 TP KE	A
	Q801		LG-0TRKE80067A	TRANSISTOR/ BIPOLARS	KTC3531T KEC R/TP TSM 20V 1A	
	Q802		LG-0TRKE80067A	TRANSISTOR/ BIPOLARS	KTC3531T KEC R/TP TSM 20V 1A	
	Q804		LG-0TR320509AB	TRANSISTOR/ BIPOLARS	KTC3205-TP-Y (KTC2236A)KEC	
	Q806		LG-0TR103009AC	TRANSISTOR/ BIPOLARS	KRA103S-T1(PC)22-22 CHIP TP KE	
	Q807		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	B,C,D,E,F
	Q808		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	B,C,D,E,F
	Q901		LG-0TR150409AC	TRANSISTOR/ BIPOLARS	KTA1504 TP KEC - -GR-T1(ASG) C	
	Q902		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q903		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q914		LG-0TR387509AC	TRANSISTOR/ BIPOLARS	CHIP KTC3875S-GR-T1(ALG) TP KE	
	Q917		LG-0TR103009AA	TRANSISTOR/ BIPOLARS	CHIP KRC103S-T1(NC)22-22 TP KE	
	Q918		LG-0TR103009AC	TRANSISTOR/ BIPOLARS	KRA103S-T1(PC)22-22 CHIP TP KE	
	Q919		LG-0TR103009AA	TRANSISTOR/ BIPOLARS	CHIP KRC103S-T1(NC)22-22 TP KE	
	D301		1SS133-T2	SI DIODE	1SS133 TP ROHM KOREA - - - - -	
	D401		LG-0DSRM00118A	DIODE/SWITCHING	DAP202K T146 ROHM R/TP SMD 80V	
	D503		LG-0DR104009AB	DIODE/RECTIFIERS	RL104 R. TP GULF SEMICONDUCTOR	
	D504		LG-0DR104009AB	DIODE/RECTIFIERS	RL104 R. TP GULF SEMICONDUCTOR	
	LED501		LG-6301R2U011A	LED ASSEMBLY	TOS-366AGMGMRMY-B OASIS UNIVER	
	LED501	or	LG-6301R3U011A	LED ASSEMBLY	F3C5-2GWB EVERLIGHT UNIVERSAL	
	ZD602		LG-0DZ562609AB	DIODE/ZENERS	UZ-5.6BSC 26MM TP PYUNG CHANG	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	ZD603		LG-0DZ562609AB	DIODE/ZENERS	UZ-5.6BSC 26MM TP PYUNG CHANG	
	ZD801		LG-0DZ622609AB	DIODE/ZENERS	UZ-6.2BSA 26MM TP PYUNG CHANG	
	ZD802		LG-0DZKE00018A	DIODE/ZENERS	Z02W7.5V KEC R/TP SOT23 250MW	
	ZD803		LG-0DZKE00018A	DIODE/ZENERS	Z02W7.5V KEC R/TP SOT23 250MW	
	C201		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C202		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C203		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C204		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C205		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C206		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C208		LG-0CH1222K562	CAPACITOR/FIXED CERAMIC	2200PF 50V 10% X7R(X) 1608 R/T	
	C210		LG-0CH1332K562	CAPACITOR/FIXED CERAMIC	3300PF 50V 10% X7R(X) 1608 R/T	
	C212		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C213		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C215		LG-0CH1222K562	CAPACITOR/FIXED CERAMIC	2200PF 50V 10% X7R(X) 1608 R/T	
	C221		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C222		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C223		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C224		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C225		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C226		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C227		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C228		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C229		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C302		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C303		LG-0CH1122K562	CAPACITOR/FIXED CERAMIC	1200PF 50V 10% X7R(X) 1608 R/T	
	C304		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C305		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C306		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C307		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C308		LG-0CQ2231N409	CAPACITOR/FIXED FILM	0.022UF D 100V 5% PE TP5	
	C309		LG-0CH4151K412	CAPACITOR/FIXED CERAMIC	150PF 50V 5% NP0 1608 R/TP	
	C310		NDC31HJ-221X	C CAPACITOR	220PF 50V 5% NP0 1608 R/TP	
	C311		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C312		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C314		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C315		QETC1HM-225Z	E CAPACITOR	2.2UF SRA/SS 50V 20% FM5 TP 5	
	C316		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C317		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C318		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C319		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C320		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C321		LG-0CH4680K412	CAPACITOR/FIXED CERAMIC	68PF 50V 5% NP0 1608 R/TP	
	C322		LG-0CE1063F638	CAPACITOR/FIXED ELECTROLYTIC	10UF SRE/SE 16V 20% FM5 TP 5	
	C323		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C324		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C325		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C326		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C327		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C328		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C329		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C330		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C331		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C333		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C334		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C335		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C336		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C337		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C338		LG-0CH1473K562	CAPACITOR/FIXED CERAMIC	47000PF 50V 10% X7R(X) 1608 R/	
	C339		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C340		LG-0CH1473K562	CAPACITOR/FIXED CERAMIC	47000PF 50V 10% X7R(X) 1608 R/	
	C341		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C342		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C343		LG-0CH1473K562	CAPACITOR/FIXED CERAMIC	47000PF 50V 10% X7R(X) 1608 R/	
	C344		LG-0CH4680K412	CAPACITOR/FIXED CERAMIC	68PF 50V 5% NP0 1608 R/TP	
	C345		LG-0CH1473K562	CAPACITOR/FIXED CERAMIC	47000PF 50V 10% X7R(X) 1608 R/	
	C346		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C347		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C348		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C349		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C350		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C351		NDC31HJ-221X	C CAPACITOR	220PF 50V 5% NP0 1608 R/TP	
	C353		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C355		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C356		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C357		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C358		LG-0CH4680K412	CAPACITOR/FIXED CERAMIC	68PF 50V 5% NP0 1608 R/TP	
	C359		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C360		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C361		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C362		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C363		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C366		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C367		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C368		LG-0CH1822K562	CAPACITOR/FIXED CERAMIC	8200PF 50V 10% X7R(X) 1608 R/T	
	C370		LG-0CH4820K412	CAPACITOR/FIXED CERAMIC	82PF 50V 5% NP0 1608 R/TP	
	C371		LG-0CH4820K412	CAPACITOR/FIXED CERAMIC	82PF 50V 5% NP0 1608 R/TP	
	C372		LG-0CH4820K412	CAPACITOR/FIXED CERAMIC	82PF 50V 5% NP0 1608 R/TP	
	C374		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C375		LG-0CH1104K512	CAPACITOR/FIXED CERAMIC	0.1UF 50V 10% B(5YP) 1608 R/TP	
	C376		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	
	C388		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C3S1		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3S2		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3S3		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	A
	C3S4		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	A
	C3S5		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	A
	C3S6		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3S7		QETL1HM-474	E CAPACITOR	0.47UF SRA/SS 50V 20% FM5 TP 5	A
	C3S8		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3S9		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3T1		QETL1HM-474	E CAPACITOR	0.47UF SRA/SS 50V 20% FM5 TP 5	A
	C3T2		LG-0CQ2222K409	CAPACITOR/FIXED FILM	2200PF S 50V 5% PE TP5	A
	C3T3		LG-0CQ2222K409	CAPACITOR/FIXED FILM	2200PF S 50V 5% PE TP5	A
	C3T4		QETC1HM-225Z	E CAPACITOR	2.2UF SRA/SS 50V 20% FM5 TP 5	A
	C3T5		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C3T6		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	A
	C3T7		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	A
	C403		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C406		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C407		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C408		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C411		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C412		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C413		LG-0CH1101K965	CAPACITOR/FIXED CERAMIC	100PF 1608 50V 10% C0G R/TP	
	C414		LG-0CH1101K965	CAPACITOR/FIXED CERAMIC	100PF 1608 50V 10% C0G R/TP	
	C417		LG-0CH1101K965	CAPACITOR/FIXED CERAMIC	100PF 1608 50V 10% C0G R/TP	
	C418		LG-0CH1101K965	CAPACITOR/FIXED CERAMIC	100PF 1608 50V 10% C0G R/TP	
	C419		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C420		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C423		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C424		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C450		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C499		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C501		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C502		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C503		LG-0CH4470K412	CAPACITOR/FIXED CERAMIC	47PF 50V 5% NP0 1608 R/TP	
	C504		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	
	C505		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	
	C506		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C507		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C508		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C509		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C510		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C511		QETA1CM-336	E CAPACITOR	33UF SRA/SS 16V 20% FM5 TP 5	
	C512		LG-0CH1105F942	CAPACITOR/FIXED CERAMIC	1000000PF 16V 80%/-20% Y5V(F)	
	C513		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C514		NDC31HJ-270X	C CAPACITOR	27PF 50V 5% NP0 1608 R/TP	
	C515		NDC31HJ-270X	C CAPACITOR	27PF 50V 5% NP0 1608 R/TP	
	C516		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C517		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C518		LG-0CH1222K512	CAPACITOR/FIXED CERAMIC	2200PF 50V 10% B(5YP) 1608 R/T	
	C520		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C522		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C523		QET61CM-226	E CAPACITOR	22UF SRA/SS 16V 20% FM5 TP 5	
	C524		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C525		LG-0CH1105F942	CAPACITOR/FIXED CERAMIC	1000000PF 16V 80%/-20% Y5V(F)	
	C526		LG-0CE4764J638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 35V 20% FM5 TP 5	
	C534		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C535		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C543		LG-0CH1222K512	CAPACITOR/FIXED CERAMIC	2200PF 50V 10% B(5YP) 1608 R/T	
	C544		LG-0CH1473H942	CAPACITOR/FIXED CERAMIC	0.047UF 25V 80%/-20% Y5V(F) 16	
	C545		LG-0CH1333K562	CAPACITOR/FIXED CERAMIC	0.033UF 50V 10% X7R(X) 1608 R/	
	C546		LG-0CE4764J638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 35V 20% FM5 TP 5	
	C547		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C551		LG-0CH1333K562	CAPACITOR/FIXED CERAMIC	0.033UF 50V 10% X7R(X) 1608 R/	
	C552		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C553		NDC31HJ-270X	C CAPACITOR	27PF 50V 5% NP0 1608 R/TP	
	C554		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C556		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C558		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C567		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C568		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C570		LG-0CH4150K412	CAPACITOR/FIXED CERAMIC	15PF 50V 5% NP0 1608 R/TP	
	C571		LG-0CH4150K412	CAPACITOR/FIXED CERAMIC	15PF 50V 5% NP0 1608 R/TP	
	C581		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C583		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	
	C584		LG-0CH1223K942	CAPACITOR/FIXED CERAMIC	0.022UF 50V 80%/-20% Y5V(F) 16	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C5B2		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C5G2		LG-0CE1086C638	CAPACITOR/FIXED ELECTROLYTIC	1000000000PF SMS/SG 6.3V 20% F	
	C5G3		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C5K8		LG-0CH4470K412	CAPACITOR/FIXED CERAMIC	47PF 50V 5% NP0 1608 R/TP	
	C5L1		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C5L2		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C5L3		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C5L6		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C5R1		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C5R2		LG-0CH4681K412	CAPACITOR/FIXED CERAMIC	680PF 50V 5% NP0 1608 R/TP	
	C5S1		NDC31HJ-101X	C CAPACITOR	100PF 50V 5% NP0 1608 R/TP	
	C601		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C602		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C603		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C604		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C605		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C607		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C608		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C609		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C610		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C612		LG-0CH4331K412	CAPACITOR/FIXED CERAMIC	330PF 50V 5% NP0 1608 R/TP	
	C613		LG-0CH1473K942	CAPACITOR/FIXED CERAMIC	0.047UF 50V 80%/-20% Y5V(F) 16	
	C614		LG-0CH1153K562	CAPACITOR/FIXED CERAMIC	0.015UF 50V 10% X7R(X) 1608 R/	
	C615		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C617		LG-0CH4331K412	CAPACITOR/FIXED CERAMIC	330PF 50V 5% NP0 1608 R/TP	
	C618		LG-0CH1152K562	CAPACITOR/FIXED CERAMIC	1500PF 50V 10% X7R(X) 1608 R/T	
	C619		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C620		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C621		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C622		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C623		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C624		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C625		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C626		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C627		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C628		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C629		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C630		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C631		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C633		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C636		NDC31HJ-180X	C CAPACITOR	18PF 50V 5% NP0 1608 R/TP	
	C637		LG-0CH4120K412	CAPACITOR/FIXED CERAMIC	12PF 50V 5% NP0 1608 R/TP	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C640		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C641		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C643		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C646		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C649		LG-0CH1474H942	CAPACITOR/FIXED CERAMIC	0.47UF 25V 80%/-20% Y5V(F) 160	
	C651		LG-0CH4391K412	CAPACITOR/FIXED CERAMIC	390PF 50V 5% NP0 1608 R/TP	
	C652		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C653		LG-0CH1473K942	CAPACITOR/FIXED CERAMIC	0.047UF 50V 80%/-20% Y5V(F) 16	
	C654		LG-0CH1473K942	CAPACITOR/FIXED CERAMIC	0.047UF 50V 80%/-20% Y5V(F) 16	
	C655		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C657		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C658		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C659		LG-0CH1105D942	CAPACITOR/FIXED CERAMIC	1UF 10V 80%/-20% Y5V(F) 1608 R	
	C660		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C661		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C662		LG-0CH1102K562	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% X7R(X) 1608 R/T	
	C663		LG-0CH4200K412	CAPACITOR/FIXED CERAMIC	20PF 50V 5% NP0 1608 R/TP	
	C664		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C665		LG-0CH1333K562	CAPACITOR/FIXED CERAMIC	0.033UF 50V 10% X7R(X) 1608 R/	
	C667		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C668		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C669		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C670		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C671		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C673		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C674		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C675		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C676		LG-0CH1222K562	CAPACITOR/FIXED CERAMIC	2200PF 50V 10% X7R(X) 1608 R/T	
	C677		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C678		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C679		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C683		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C684		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C685		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C686		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C687		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C695		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C698		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C6A9		NDC31HJ-221X	C CAPACITOR	220PF 50V 5% NP0 1608 R/TP	
	C6B7		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C6B9		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C6C1		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C6C2		LG-0CE2263F638	CAPACITOR/FIXED ELECTROLYTIC	22UF SRE/SE 16V 20% FM5 TP 5	
	C6C3		LG-0CE1063F638	CAPACITOR/FIXED ELECTROLYTIC	10UF SRE/SE 16V 20% FM5 TP 5	
	C6C4		LG-0CE1063F638	CAPACITOR/FIXED ELECTROLYTIC	10UF SRE/SE 16V 20% FM5 TP 5	
	C6C5		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C6C6		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C6C7		QET61CM-107Z	E CAPACITOR	100UF SRA/SS 16V 20% FM5 TP 5	
	C6C9		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C6D4		LG-0CE2274C638	CAPACITOR/FIXED ELECTROLYTIC	220UF SRA/SS 6.3V 20% FM5 TP 5	
	C6F7		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C6G4		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C702		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C703		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C703		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C704		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C706		LG-0CH4330K412	CAPACITOR/FIXED CERAMIC	33PF 50V 5% NP0 1608 R/TP	
	C707		LG-0CH4680K412	CAPACITOR/FIXED CERAMIC	68PF 50V 5% NP0 1608 R/TP	
	C709		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C710		LG-0CE4754K638	CAPACITOR/FIXED ELECTROLYTIC	4.7UF SRA/SS 50V 20% FM5 TP 5	
	C712		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C712		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C713		LG-0CH4560K412	CAPACITOR/FIXED CERAMIC	56PF 50V 5% NP0 1608 R/TP	
	C714		LG-0CH4560K412	CAPACITOR/FIXED CERAMIC	56PF 50V 5% NP0 1608 R/TP	
	C715		LG-0CH4050K012	CAPACITOR/FIXED CERAMIC	5PF 50V O.25 PF NP0 1608 R/TP	A
	C715		LG-0CH4050K172	CAPACITOR/FIXED CERAMIC	5PF 50V 0.5 PF N750 1608 R/TP	B,C,D,E,F
	C716		LG-0CH4100K412	CAPACITOR/FIXED CERAMIC	10PF 50V 5% NP0 1608 R/TP	
	C717		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C717		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C718		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	
	C719		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	
	C720		LG-0CH1392K512	CAPACITOR/FIXED CERAMIC	3900PF 50V 10% B(5YP) 1608 R/T	
	C721		LG-0CH1392K512	CAPACITOR/FIXED CERAMIC	3900PF 50V 10% B(5YP) 1608 R/T	
	C722		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C722		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C723		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C723		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C726		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C726		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C727		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	
	C728		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C728		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C729		QETF1HM-335Z	E CAPACITOR	3.3UF SRA/SS 50V 20% FM5 TP 5	
	C732		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C751		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	
	C752		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A
	C752		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	B,C,D,E,F
	C7M3		NDC31HJ-270X	C CAPACITOR	27PF 50V 5% NP0 1608 R/TP	B,C,D,E,F
	C7M5		LG-0CH1105F942	CAPACITOR/FIXED CERAMIC	1000000PF 16V 80%/-20% Y5V(F)	B,C,D,E,F
	C7M6		NDC31HJ-270X	C CAPACITOR	27PF 50V 5% NP0 1608 R/TP	B,C,D,E,F
	C7S1		QETA1CM-336	E CAPACITOR	33UF SRA/SS 16V 20% FM5 TP 5	A
	C7S2		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	A
	C7V1		LG-0CE4764C638	CAPACITOR/FIXED ELECTROLYTIC	47UF SRA/SS 6.3V 20% FM5 TP 5	A,B,D,E,F
	C7V2		LG-0CH1103K512	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% B(5YP) 1608 R/T	A,B,D,E,F
	C7V3		QETC1HM-105Z	E CAPACITOR	1UF SRA/SS 50V 20% FM5 TP 5	A,B,D,E,F
	C7V4		LG-0CH1473H942	CAPACITOR/FIXED CERAMIC	0.047UF 25V 80%/-20% Y5V(F) 16	A,B,D,E,F
	C7V5		LG-0CH1473H942	CAPACITOR/FIXED CERAMIC	0.047UF 25V 80%/-20% Y5V(F) 16	A,B,D,E,F
	C802		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C803		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C804		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C805		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C806		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C807		QETL1HM-474	E CAPACITOR	0.47UF SRA/SS 50V 20% FM5 TP 5	
	C810		LG-0CH1105F942	CAPACITOR/FIXED CERAMIC	1000000PF 16V 80%/-20% Y5V(F)	
	C811		LG-0CH1105F942	CAPACITOR/FIXED CERAMIC	1000000PF 16V 80%/-20% Y5V(F)	
	C812		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C813		LG-0CH1682K512	CAPACITOR/FIXED CERAMIC	6800PF 50V 10% B(5YP) 1608 R/T	
	C814		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C815		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C816		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C817		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C818		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C819		LG-0CH1682K512	CAPACITOR/FIXED CERAMIC	6800PF 50V 10% B(5YP) 1608 R/T	
	C820		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C821		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C822		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C823		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C824		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C825		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C826		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C828		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C829		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C830		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	B,C,D,E,F
	C831		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	B,C,D,E,F
	C832		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	B,C,D,E,F
	C833		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	B,C,D,E,F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	C850		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C851		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C852		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C853		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C856		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C870		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C871		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C884		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C885		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C887		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C888		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C889		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C890		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C891		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C892		QET61CM-106Z	E CAPACITOR	10UF SRA/SS 16V 20% FM5 TP 5	
	C901		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C902		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C905		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C911		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C912		NDC31HJ-101X	C CAPACITOR	100PF 50V 5% NP0 1608 R/TP	
	C913		NDC31HJ-101X	C CAPACITOR	100PF 50V 5% NP0 1608 R/TP	
	C916		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C917		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C919		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C921		LG-0CH1102K512	CAPACITOR/FIXED CERAMIC	1000PF 50V 10% B(5YP) 1608 R/T	
	C931		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C932		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C933		LG-0CE4775C638	CAPACITOR/FIXED ELECTROLYTIC	470UF SR/SV 6.3V 20% FM5 TP 5	
	C938		LG-0CH1103K562	CAPACITOR/FIXED CERAMIC	0.01UF 50V 10% X7R(X) 1608 R/T	
	C943		NDC31HJ-101X	C CAPACITOR	100PF 50V 5% NP0 1608 R/TP	
	C944		NDC31HJ-101X	C CAPACITOR	100PF 50V 5% NP0 1608 R/TP	
	C945		LG-0CQ3921N449	CAPACITOR/FIXED FILM	3900PF D 100V 5% PP TP5	
	C946		LG-0CQ3921N449	CAPACITOR/FIXED FILM	3900PF D 100V 5% PP TP5	
	C960		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C962		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C963		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C964		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C965		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	C966		QET61CM-476	E CAPACITOR	47UF SRA/SS 16V 20% FM5 TP 5	
	C967		LG-0CH1104K942	CAPACITOR/FIXED CERAMIC	0.1UF 50V 80%/-20% Y5V(F) 1608	
	C970		LG-0CE1053K638	CAPACITOR/FIXED ELECTROLYTIC	1UF SRE/SE 50V 20% FM5 TP 5	
	R201		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R202		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R203		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R204		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R212		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R213		LG-0RH0331C622	RESISTOR/METAL GLAZED(CHIP)	3.3 OHM 1 / 16 W 1608 5.00% D	
	R214		LG-0RH0471C622	RESISTOR/METAL GLAZED(CHIP)	4.7 OHM 1 / 16 W 1608 5.00% D	
	R217		LG-0RJ7503C677	RESISTOR/METAL GLAZED(CHIP)	750K OHM 1/16 W 5% 1608 R/TP	
	R218		LG-0RJ7503C677	RESISTOR/METAL GLAZED(CHIP)	750K OHM 1/16 W 5% 1608 R/TP	
	R219		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R220		LG-0RH3903C622	RESISTOR/METAL GLAZED(CHIP)	390K OHM 1 / 16 W 1608 5.00% D	
	R221		LG-0RH3903C622	RESISTOR/METAL GLAZED(CHIP)	390K OHM 1 / 16 W 1608 5.00% D	
	R222		LG-0RH0201D622	RESISTOR/METAL GLAZED(CHIP)	2 OHM 1 / 10 W 2012 5.00% D	
	R228		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R230		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R235		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R237		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R238		LG-0RH2002C622	RESISTOR/METAL GLAZED(CHIP)	20K OHM 1 / 16 W 1608 5.00% D	
	R239		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R240		LG-0RH6802C622	RESISTOR/METAL GLAZED(CHIP)	68K OHM 1 / 16 W 1608 5.00% D	
	R243		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R244		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R291		LG-0RH0201D622	RESISTOR/METAL GLAZED(CHIP)	2 OHM 1 / 10 W 2012 5.00% D	
	R301		NRSA63J-563X	MG RESISTOR	56K OHM 1 / 16 W 1608 5.00% D	
	R302		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R303		LG-0RH1802C622	RESISTOR/METAL GLAZED(CHIP)	18K OHM 1 / 16 W 1608 5.00% D	
	R304		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R305		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R306		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R307		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R308		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R309		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R310		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R311		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R312		LG-0RH6802C622	RESISTOR/METAL GLAZED(CHIP)	68K OHM 1 / 16 W 1608 5.00% D	
	R313		LG-0RH1800C622	RESISTOR/METAL GLAZED(CHIP)	180 OHM 1 / 16 W 1608 5.00% D	
	R314		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R315		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R316		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R317		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R318		LG-0RH3901C622	RESISTOR/METAL GLAZED(CHIP)	3.9K OHM 1 / 16 W 1608 5.00% D	
	R319		NRSA63J-561X	MG RESISTOR	560 OHM 1 / 16 W 1608 5.00% D	
	R320		LG-0RH1800C622	RESISTOR/METAL GLAZED(CHIP)	180 OHM 1 / 16 W 1608 5.00% D	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R321		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R322		NRSA63J-822X	MG RESISTOR	8.2K OHM 1 / 16 W 1608 5.00% D	
	R324		LG-0RH3303C622	RESISTOR/METAL GLAZED(CHIP)	330K OHM 1 / 16 W 1608 5.00% D	
	R325		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R326		NRSA63J-123X	MG RESISTOR	12K OHM 1 / 16 W 1608 5.00% D	
	R327		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R328		LG-0RH2700C622	RESISTOR/METAL GLAZED(CHIP)	270 OHM 1 / 16 W 1608 5.00% D	
	R329		NRSA63J-123X	MG RESISTOR	12K OHM 1 / 16 W 1608 5.00% D	
	R330		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R331		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R332		LG-0RH4702C622	RESISTOR/METAL GLAZED(CHIP)	47K OHM 1 / 16 W 1608 5.00% D	
	R333		NRSA63J-332X	MG RESISTOR	3.3K OHM 1 / 16 W 1608 5.00% D	
	R334		LG-0RH2701C622	RESISTOR/METAL GLAZED(CHIP)	2.7K OHM 1 / 16 W 1608 5.00% D	
	R335		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R336		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R337		NRSA63J-182X	MG RESISTOR	1.8K OHM 1 / 16 W 1608 5.00% D	
	R338		LG-0RH2700C622	RESISTOR/METAL GLAZED(CHIP)	270 OHM 1 / 16 W 1608 5.00% D	
	R339		LG-0RH2700C622	RESISTOR/METAL GLAZED(CHIP)	270 OHM 1 / 16 W 1608 5.00% D	
	R340		LG-0RH1802C622	RESISTOR/METAL GLAZED(CHIP)	18K OHM 1 / 16 W 1608 5.00% D	
	R342		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R343		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R345		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R347		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R348		LG-0RH1504C622	RESISTOR/METAL GLAZED(CHIP)	1.5M OHM 1 / 16 W 1608 5.00% D	
	R349		NRSA63J-182X	MG RESISTOR	1.8K OHM 1 / 16 W 1608 5.00% D	
	R350		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R351		LG-0RH8203C622	RESISTOR/METAL GLAZED(CHIP)	820K OHM 1 / 16 W 1608 5.00% D	
	R352		NRSA63J-331X	MG RESISTOR	330 OHM 1 / 16 W 1608 5.00% D	
	R353		NRSA63J-331X	MG RESISTOR	330 OHM 1 / 16 W 1608 5.00% D	
	R356		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R361		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R365		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R366		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R375		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R399		LG-0RH0000D622	RESISTOR/METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D	
	R3S1		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	A
	R3S3		LG-0RH2204C622	RESISTOR/METAL GLAZED(CHIP)	2.2M OHM 1 / 16 W 1608 5.00% D	A
	R3S4		LG-0RH4702C622	RESISTOR/METAL GLAZED(CHIP)	47K OHM 1 / 16 W 1608 5.00% D	A
	R401		LG-0RH0472C622	RESISTOR/METAL GLAZED(CHIP)	47 OHM 1 / 16 W 1608 5.00% D	
	R402		LG-0RH0472C622	RESISTOR/METAL GLAZED(CHIP)	47 OHM 1 / 16 W 1608 5.00% D	
	R403		LG-0RH0472C622	RESISTOR/METAL GLAZED(CHIP)	47 OHM 1 / 16 W 1608 5.00% D	
	R404		LG-0RH0472C622	RESISTOR/METAL GLAZED(CHIP)	47 OHM 1 / 16 W 1608 5.00% D	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R405		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R407		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R408		NRSA63J-471X	MG RESISTOR	470 OHM 1 / 16 W 1608 5.00% D	
	R409		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R410		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R411		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R412		NRSA63J-153X	MG RESISTOR	15K OHM 1 / 16 W 1608 5.00% D	
	R413		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R414		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R417		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R419		NRSA63J-153X	MG RESISTOR	15K OHM 1 / 16 W 1608 5.00% D	
	R420		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R421		NRSA63J-331X	MG RESISTOR	330 OHM 1 / 16 W 1608 5.00% D	
	R422		NRSA63J-331X	MG RESISTOR	330 OHM 1 / 16 W 1608 5.00% D	
	R423		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R424		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R425		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R426		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R427		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R430		NRSA63J-100X	MG RESISTOR	10 OHM 1 / 16 W 1608 5.00% D	
	R501		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R502		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R504		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R505		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R506		LG-0RH2701C622	RESISTOR/METAL GLAZED(CHIP)	2.7K OHM 1 / 16 W 1608 5.00% D	
	R507		NRSA63J-471X	MG RESISTOR	470 OHM 1 / 16 W 1608 5.00% D	
	R508		LG-0RH2701C622	RESISTOR/METAL GLAZED(CHIP)	2.7K OHM 1 / 16 W 1608 5.00% D	
	R509		LG-0RH2702C622	RESISTOR/METAL GLAZED(CHIP)	27K OHM 1 / 16 W 1608 5.00% D	
	R510		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R511		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R512		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R517		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R518		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R520		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R521		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R522		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R523		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R525		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R526		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R528		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R529		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R531		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R534		NRSA63J-105X	MG RESISTOR	1M OHM 1 / 16 W 1608 5.00% D	
	R537		LG-0RH1203C622	RESISTOR/METAL GLAZED(CHIP)	120K OHM 1 / 16 W 1608 5.00% D	
	R539		LG-0RH4703C622	RESISTOR/METAL GLAZED(CHIP)	470K OHM 1 / 16 W 1608 5.00% D	
	R542		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R544		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R545		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R546		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R547		NRSA63J-123X	MG RESISTOR	12K OHM 1 / 16 W 1608 5.00% D	
	R548		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R550		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	
	R553		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	
	R555		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	
	R556		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R557		LG-0RH2702C622	RESISTOR/METAL GLAZED(CHIP)	27K OHM 1 / 16 W 1608 5.00% D	
	R558		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R561		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R562		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R563		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R564		LG-0RH2702C622	RESISTOR/METAL GLAZED(CHIP)	27K OHM 1 / 16 W 1608 5.00% D	
	R566		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R567		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R568		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R569		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R570		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R575		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R576		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R577		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R578		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R579		NRSA63J-563X	MG RESISTOR	56K OHM 1 / 16 W 1608 5.00% D	
	R580		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R581		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R582		NRSA63J-153X	MG RESISTOR	15K OHM 1 / 16 W 1608 5.00% D	
	R583		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R584		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R585		NRSA63J-220X	MG RESISTOR	22 OHM 1 / 16 W 1608 5.00% D	
	R588		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R592		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R593		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R5B3		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5B4		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5C5		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5C6		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R5C7		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5C9		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5D1		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5D2		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5D3		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5D4		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5D5		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R5G1		LG-0RH4702C622	RESISTOR/METAL GLAZED(CHIP)	47K OHM 1 / 16 W 1608 5.00% D	
	R5G2		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R5G3		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R5G4		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R5K1		NRSA63J-681X	MG RESISTOR	680 OHM 1 / 16 W 1608 5.00% D	
	R5K2		LG-0RH8200C622	RESISTOR/METAL GLAZED(CHIP)	820 OHM 1 / 16 W 1608 5.00% D	
	R5K3		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R5K4		NRSA63J-152X	MG RESISTOR	1.5K OHM 1 / 16 W 1608 5.00% D	
	R5K5		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R5K9		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R5R7		NRSA63J-331X	MG RESISTOR	330 OHM 1 / 16 W 1608 5.00% D	
	R5R8		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R5S1		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R604		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R605		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R606		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R607		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	
	R608		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	
	R609		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R610		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R611		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R612		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R613		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R614		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R615		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R616		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R617		LG-0RH0332C622	RESISTOR/METAL GLAZED(CHIP)	33 OHM 1 / 16 W 1608 5.00% D	
	R620		LG-0LC11608D01	INDUCTOR/CHIP	HB-1M1608-121JT CERATECH R/TP	
	R621		LG-0LC11608D01	INDUCTOR/CHIP	HB-1M1608-121JT CERATECH R/TP	
	R623		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R624		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R625		LG-0RH0681C622	RESISTOR/METAL GLAZED(CHIP)	6.8 OHM 1 / 16 W 1608 5.00% D	
	R626		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R627		NRSA63J-153X	MG RESISTOR	15K OHM 1 / 16 W 1608 5.00% D	
	R628		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R629		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R630		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R631		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R632		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R659		NRSA63J-122X	MG RESISTOR	1.2K OHM 1 / 16 W 1608 5.00% D	
	R666		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R671		LG-0RJ7503C677	RESISTOR/METAL GLAZED(CHIP)	750K OHM 1/16 W 5% 1608 R/TP	
	R683		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R684		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R685		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R699		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R6D1		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R6D2		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R6E1		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R6E2		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R6E3		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R6E4		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R6H4		LG-0RH2001C622	RESISTOR/METAL GLAZED(CHIP)	2K OHM 1 / 16 W 1608 5.00% D	
	R705		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	
	R706		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	
	R707		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R710		NRSA63J-332X	MG RESISTOR	3.3K OHM 1 / 16 W 1608 5.00% D	
	R711		NRSA63J-332X	MG RESISTOR	3.3K OHM 1 / 16 W 1608 5.00% D	
	R712		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R713		NRSA63J-562X	MG RESISTOR	5.6K OHM 1 / 16 W 1608 5.00% D	
	R715		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R716		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R717		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R718		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R7M1		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R7M2		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R7M4		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R7M5		NRSA63J-221X	MG RESISTOR	220 OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R7S1		NRSA63J-223X	MG RESISTOR	22K OHM 1 / 16 W 1608 5.00% D	A
	R7V1		LG-0RH4703C622	RESISTOR/METAL GLAZED(CHIP)	470K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V2		LG-0RH9102C622	RESISTOR/METAL GLAZED(CHIP)	91K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V3		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V4		LG-0RH5603C622	RESISTOR/METAL GLAZED(CHIP)	560K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V5		NRSA63J-682X	MG RESISTOR	6.8K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V6		LG-0RH5603C622	RESISTOR/METAL GLAZED(CHIP)	560K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V7		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R7V8		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R7V9		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	A,B,D,E,F
	R801		LG-0RH3304C622	RESISTOR/METAL GLAZED(CHIP)	3.3M OHM 1 / 16 W 1608 5.00% D	
	R802		LG-0RH3302C622	RESISTOR/METAL GLAZED(CHIP)	33K OHM 1 / 16 W 1608 5.00% D	
	R803		LG-0RH2701C622	RESISTOR/METAL GLAZED(CHIP)	2.7K OHM 1 / 16 W 1608 5.00% D	
	R804		LG-0RH3902C622	RESISTOR/METAL GLAZED(CHIP)	39K OHM 1 / 16 W 1608 5.00% D	
	R805		LG-0RH2701C622	RESISTOR/METAL GLAZED(CHIP)	2.7K OHM 1 / 16 W 1608 5.00% D	
	R806		LG-0RH3302C622	RESISTOR/METAL GLAZED(CHIP)	33K OHM 1 / 16 W 1608 5.00% D	
	R807		NRSA63J-471X	MG RESISTOR	470 OHM 1 / 16 W 1608 5.00% D	
	R808		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R809		LG-0RH1802C622	RESISTOR/METAL GLAZED(CHIP)	18K OHM 1 / 16 W 1608 5.00% D	
	R810		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R811		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R812		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R821		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R822		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R823		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R824		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R825		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R826		NRSA63J-222X	MG RESISTOR	2.2K OHM 1 / 16 W 1608 5.00% D	
	R834		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R835		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R836		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R837		NRSA63J-104X	MG RESISTOR	100K OHM 1 / 16 W 1608 5.00% D	
	R841		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R850		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R851		LG-0RH3302C622	RESISTOR/METAL GLAZED(CHIP)	33K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R852		NRSA63J-822X	MG RESISTOR	8.2K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R853		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R854		LG-0RH3302C622	RESISTOR/METAL GLAZED(CHIP)	33K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R855		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R856		NRSA63J-822X	MG RESISTOR	8.2K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R857		NRSA63J-332X	MG RESISTOR	3.3K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R858		NRSA63J-332X	MG RESISTOR	3.3K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R859		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	R863		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R864		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R867		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R868		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R875		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R876		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R881		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R882		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	R891		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R892		LG-0RH3901C622	RESISTOR/METAL GLAZED(CHIP)	3.9K OHM 1 / 16 W 1608 5.00% D	
	R893		NRSA63J-472X	MG RESISTOR	4.7K OHM 1 / 16 W 1608 5.00% D	
	R899		LG-0RH3901C622	RESISTOR/METAL GLAZED(CHIP)	3.9K OHM 1 / 16 W 1608 5.00% D	
	R901		NRSA63J-123X	MG RESISTOR	12K OHM 1 / 16 W 1608 5.00% D	
	R902		NRSA63J-103X	MG RESISTOR	10K OHM 1 / 16 W 1608 5.00% D	
	R903		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R904		NRSA63J-561X	MG RESISTOR	560 OHM 1 / 16 W 1608 5.00% D	
	R905		NRSA63J-561X	MG RESISTOR	560 OHM 1 / 16 W 1608 5.00% D	
	R906		NRSA63J-561X	MG RESISTOR	560 OHM 1 / 16 W 1608 5.00% D	
	R907		NRSA63J-561X	MG RESISTOR	560 OHM 1 / 16 W 1608 5.00% D	
	R908		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R909		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R910		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R913		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R914		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R915		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R916		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	R919		NRSA63J-101X	MG RESISTOR	100 OHM 1 / 16 W 1608 5.00% D	
	R920		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R921		NRSA63J-111X	MG RESISTOR	110 OHM 1 / 16 W 1608 5.00% D	
	R927		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R928		NRSA63J-151X	MG RESISTOR	150 OHM 1 / 16 W 1608 5.00% D	
	R929		NRSA63J-151X	MG RESISTOR	150 OHM 1 / 16 W 1608 5.00% D	
	R933		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R934		NRSA63J-750X	MG RESISTOR	75 OHM 1 / 16 W 1608 5.00% D	
	R962		LG-0RH1500C422	RESISTOR/METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
	R970		LG-0RH1500C422	RESISTOR/METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
	R972		LG-0RH1500C422	RESISTOR/METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
	R974		LG-0RH1500C422	RESISTOR/METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
	R975		LG-0RH1500C422	RESISTOR/METAL GLAZED(CHIP)	150 OHM 1 / 16 W 1608 1.00% D	
	R998		NRSA63J-102X	MG RESISTOR	1K OHM 1 / 16 W 1608 5.00% D	
	R999		LG-0RH8200C622	RESISTOR/METAL GLAZED(CHIP)	820 OHM 1 / 16 W 1608 5.00% D	
	L201		LG-0LR0102J025	INDUCTOR/RADIAL LEAD	10UH 5% TP 4 X 5 TR5 -	
	L202		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L203		LG-0LR0102J025	INDUCTOR/RADIAL LEAD	10UH 5% TP 4 X 5 TR5 -	
	L204		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L205		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L206		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L207		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L301		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	
	L303		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

⚠	Symbol No.		Part No.	Part Name	Description	Local
	L304		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	
	L305		LG-0LR1000K035	INDUCTOR/RADIAL LEAD	100UH 10% TP 6 X 6 TR5 -	
	L307		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	
	L308		LG-0LR0392K035	INDUCTOR/RADIAL LEAD	39UH 10% TP 6 X 6 TR5 -	
	L3S1		LG-0LR0102K035	INDUCTOR/RADIAL LEAD	10UH 10% TP 6 X 6 TR5 -	A
	L401		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L503		LG-0LR1000J0N5	INDUCTOR/RADIAL LEAD	100UH 5% TP 3X5 TR5 -	
	L504		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	
	L505		LG-0LR0122K035	INDUCTOR/RADIAL LEAD	12UH 10% TP 6 X 6 TR5 -	
	L5F1		LG-0LA1000K018	INDUCTOR/AXIAL LEAD	100UH 10% TP 2.3 X 3.4 TA26 -	
	L5F2		LG-0LA1000K018	INDUCTOR/AXIAL LEAD	100UH 10% TP 2.3 X 3.4 TA26 -	
	L5G2		LG-0LR4700K035	INDUCTOR/RADIAL LEAD	470UH 10% TP 6 X 6 TR5 -	
	L5V1		LG-0LR0102J0N5	INDUCTOR/RADIAL LEAD	10UH 5% TP 3X5 TR5 -	
	L601		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L603		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L604		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L605		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L609		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L610		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L611		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L701		LG-0LR1000K035	INDUCTOR/RADIAL LEAD	100UH 10% TP 6 X 6 TR5 -	
	L702		LG-0LR0102K035	INDUCTOR/RADIAL LEAD	10UH 10% TP 6 X 6 TR5 -	
	L704		LG-0LR0102K035	INDUCTOR/RADIAL LEAD	10UH 10% TP 6 X 6 TR5 -	
	L705		LG-0LR0102K035	INDUCTOR/RADIAL LEAD	10UH 10% TP 6 X 6 TR5 -	
	L7V1		LG-0LR1000K035	INDUCTOR/RADIAL LEAD	100UH 10% TP 6 X 6 TR5 -	
	L801		LG-0LR1000K035	INDUCTOR/RADIAL LEAD	100UH 10% TP 6 X 6 TR5 -	
	L802		LG-0LR1000K035	INDUCTOR/RADIAL LEAD	100UH 10% TP 6 X 6 TR5 -	
	L901		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L902		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L903		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L904		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L905		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L906		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L907		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L908		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L909		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L910		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L911		LG-0LCCE00004L	INDUCTOR/CHIP	1UH / CHIP2012 CERATECH R/TP	
	L912		LG-0LCCE00004L	INDUCTOR/CHIP	1UH / CHIP2012 CERATECH R/TP	
	L913		LG-0LCCE00004L	INDUCTOR/CHIP	1UH / CHIP2012 CERATECH R/TP	
	L916		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	
	L917		LG-0LCCE00004E	INDUCTOR/CHIP	FI-C2012-103KJT (10UH) CERATEC	

⚠	Symbol No.		Part No.	Part Name	Description	Local
	L920		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L921		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	L922		LG-6200HJC102A	FILTER(CIRC)/EMC	HB-1M2012-102JT CERATECH TP	
	BC91		LG-636-004C	FILTER(CIRC)/EMC	BEAD CORE BFS3550R2FD8/R T/P	
	BC92		LG-636-004C	FILTER(CIRC)/EMC	BEAD CORE BFS3550R2FD8/R T/P	
	CN201		LG-6630R-FB10W	CONNECTOR (CIRC)/FFC/FPC	00-6232-023-006-800 ELCO 23PIN	
	CN202		LG-6630R-FB10K	CONNECTOR (CIRC)/FFC/FPC	00-6232-011-006-800 ELCO 11P 1	
	CN605		LG-6630B60E913	CONNECTOR (CIRC)/BOARD TO BOARD	JE117-D22T-13 JAE EUN 13P 2.54	
	CN608		LG-561-036A	CONNECTOR (CIRC)/WAFER	MA V 8283-0212 WH ELCO	
	CS501		LG-6600M000026	SWITCH/PUSH	MPU12970MLB0 VCR CST IN S/W MI	
	ES501		LG-4931R-0085C	HOLDER ASSEMBLY	VCR DECK/MECHA END(S)	
	ES502		LG-4931R-0085C	HOLDER ASSEMBLY	VCR DECK/MECHA END(S)	
	F600		LG-6200JB8010V	FILTER(CIRC)/EMC	LFA20-2A1E473MT MITSUBISHI MAT	
	J333		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J503		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J701		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	A
	J701		NRSA63J-152X	MG RESISTOR	1.5K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	J702		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	A
	J702		NRSA63J-152X	MG RESISTOR	1.5K OHM 1 / 16 W 1608 5.00% D	B,C,D,E,F
	J801		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J8H1		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J8H2		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J8H3		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	J8H4		NRSA63J-0R0X	MG RESISTOR	0 OHM 1 / 16 W 1608 5.00% D	
	JK5L1		LG-6612J00053A	JACK/RCA	DPAE-0385 DOOWON RGB 2004 CO	
	JK902		LG-6612J00050F	JACK/RCA	ATT-10dB YUQIU RCA-910A-05-01	
	LD501		LG-4931R-0089C	HOLDER ASSEMBLY	VCR DECK/MECHA END(S)	
	MS501		LG-6600JR3002D	SWITCH/MODE	SSS-51MD-3 SHINMEI 5VDC 1MA D3	
	P3D01		LG-561-234S	CONNECTOR (CIRC)/FFC/FPC	GF120-9S-TS-A LG CABLE 9P 1.25	
	P3D02		LG-6630R5S008J	CONNECTOR(CIRC) /DRAWING	06(11)FM22.5H-BTR-SH (LF)(SN)	
	P3D03		LG-561-251B	CONNECTOR(CIRC) /DRAWING	GB201-2P-TS-B(LGC)	
	PMC01		LG-6630BK01612	CONNECTOR (CIRC)/BOARD TO BOARD	JE612-A2T-12A JAE EUN 12P 2.0M	
	SC901		LG-6612M00006A	JACK/SCART	DSAM-0341 DOOWON	
	SW501		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW502		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW503		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW504		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	SW505		LG-556-213C	SWITCH/ DETECTOR	THV10912B TACT DC 12 V 5-0 A V	
	TU701		LG-6700PFPL07A	TUNER	TADM-S101D(SECAM/ LGIT) LG INOT	A
	TU701		LG-6700PFPL07F	TUNER	TADM-M101D(GKI/ LGIT) LG INOTEK	B,C,D,E,F
	X301		LG-6212AA2443Z	RESONATOR/ CRYSTAL	HC-49S CSC/KITELCO 4.433619MHZ	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

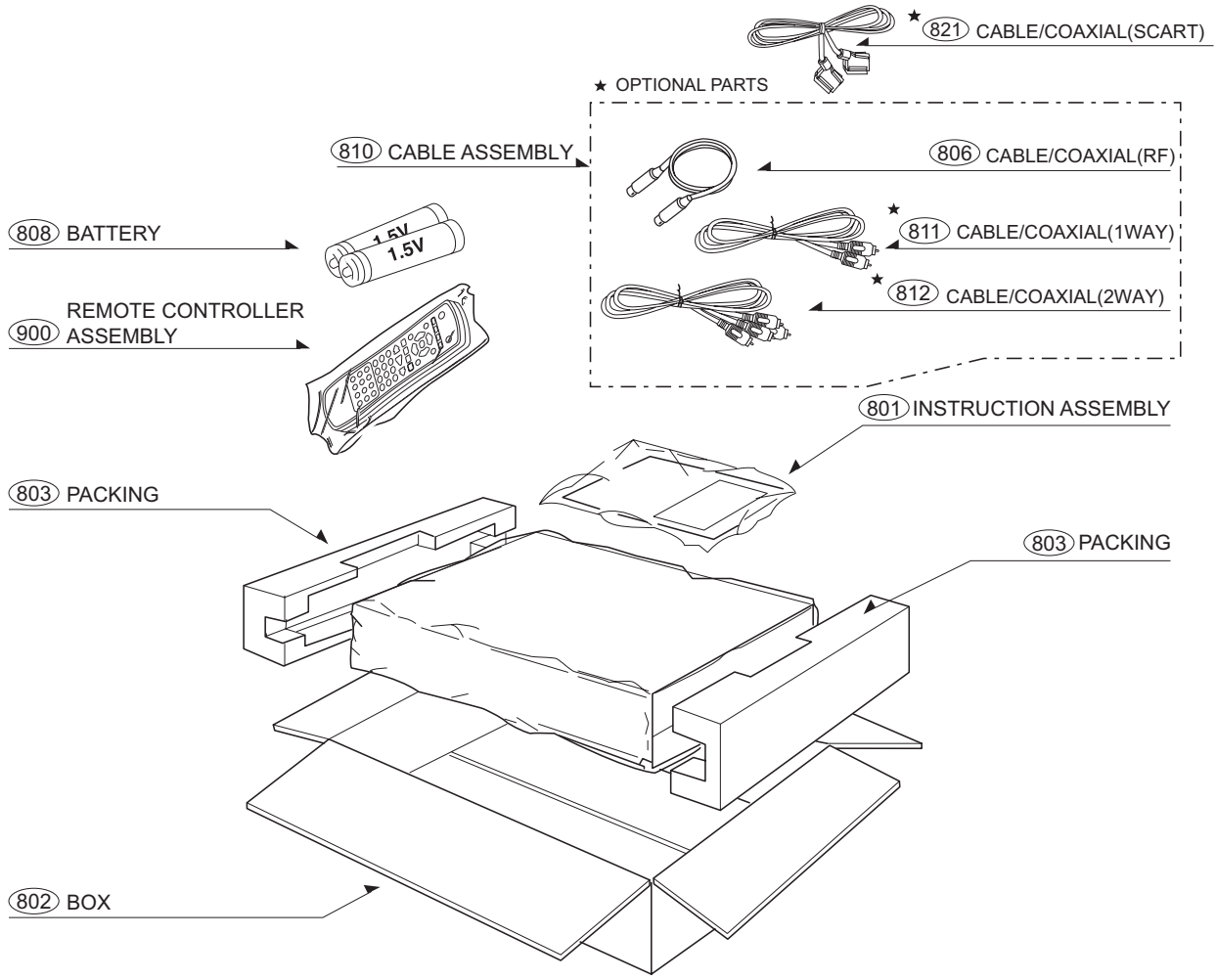
⚠	Symbol No.		Part No.	Part Name	Description	Local
	X501		LG-6212AA2143F	RESONATOR/ CRYSTAL	HC-49U KYUNGIL 14.31818MHZ +/-	
	X502		LG-6202R-DA01B	RESONATOR/ CRYSTAL	CFS-308 CITIZEN 32.768KHZ +/-	
	X601		LG-6202R-BL06C	RESONATOR/ CRYSTAL	HC-49/S BUBANG 27MHZ 20PPM 15	
	X751		LG-529-021Q	RESONATOR/ CRYSTAL	49U BUBANG 18432000HZ 30PPM 16	

MODEL	MARK	MODEL	MARK	MODEL	MARK
HR-XV45SEF	A	HR-XV45SER	C	HR-XV45SEY	E
HR-XV45SEK	B	HR-XV45SEU	D	HR-XV45SEZ	F

Packing materials and accessories parts list

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

Block No. M4MM



Packing and accessories

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

⚠	Symbol No.		Part No.	Part Name	Description	Local
	801		LG-3835RV0038B	INSTRUCTION ASSEMBLY	VCR VJ9033QP1M.NA7BJJ JVC GER/	A
	801		LG-3835RV0038A	INSTRUCTION ASSEMBLY	VCR VJ9033QP1M.NA3GJJ JVC GER/	B
	801		LG-3835RV0038D	INSTRUCTION ASSEMBLY	VCR VJ9033QP4M.NA3RJJ JVC RUSS	C
	801		LG-3835RV0038F	INSTRUCTION ASSEMBLY	VCR VJ9033QP1M.NA3GJJ JVC GER/	D
	801		LG-3835RV0038E	INSTRUCTION ASSEMBLY	VCR VJ9033QP2M.NA8SJJ JVC DEN/	E
	801		LG-3835RV0038C	INSTRUCTION ASSEMBLY	VCR VJ9033QP2M.NA8PJJ JVC POL/	F
	802		LG-3890R-C299X	BOX	VJ9033QSM NA7BJJ SWW3-A	A
	802		LG-3890R-C299Y	BOX	VJ9033QP2M NA8SJJ SWW3-A	B
	802		LG-3890R-C299Z	BOX	VJ9033QP4M NA3RJJ SWW3-A	C
	802		LG-3890R-C317B	BOX	VJ9033QP2M NA8SJJ SWW3-A	D,E,F
	803		LG-3920R-E168A	PACKING	VCR COMBIV9 130 COMBI	
	806		LG-6850R-CAA2H	CABLE/COAXIAL	RF PAL DOUBLE SHIELD DT_HY_HIT	
	808		-	BATTERY/MANGANESE	AAAM(R03) SEOTONG 1-5 V - 1PA	
	810		LG-6851R-0054B	CABLE ASSEMBLY	PAL RF 1.2M FREE OF CD_PB_HG H	A
	810		LG-6851R-0055B	CABLE ASSEMBLY	PAL RF 1.2M + 1WAY YELLOW 1.2M	B,C,D,E,F
	811		LG-6850R-PAA2F	CABLE/COAXIAL	1 WAY COAXIAL DT_HY_HIT_SEIL	B,C,D,E,F
	812		LG-6850R-PBA2H	CABLE/COAXIAL	2 WAY COAXIAL RED_WHITE DT_HY_	B,C,D,E,F
	821		LG-6850R-SUA2F	CABLE/COAXIAL	SCART TO SCART 21 PIN DT_HY_HI	A,B
	900		LG-6711R1P081F	REMOTE CONTROLLER ASSEMBLY	N6 VJ9033P1Z NA3GJJ JVC W/SHOW	