ORDER NO. VRD0004012C2

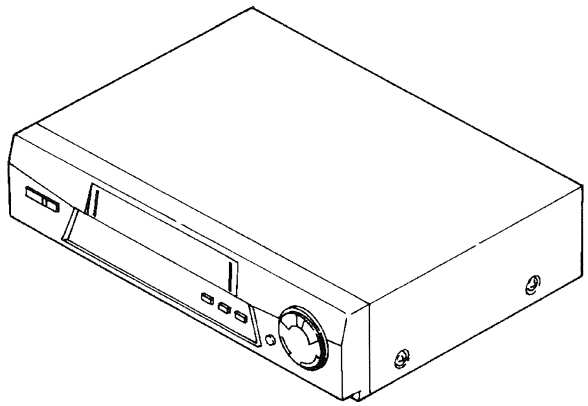
Service Manual

Video Cassette Recorder

Panasonic VHS PAL
Hi-Fi HQ

NV-FJ612EE-S
NV-FJ612EE-K

Z-MECHANISM



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	SOURCE : 220 – 240 V, 50 / 60 Hz
	CONSUMPTION : 21 watts
RECORDING SYSTEM	2 rotary heads, helical scanning system
	PAL
TV TUNER SYSTEM	VHF : CH R1 – CH R12 (OIRT) CH E2 – CH E12 (CCIR), 75 Ω unbalanced UHF : CH 21 – CH 69 (OIRT/ CCIR/ 1), 75 Ω unbalanced CATV: 44MHz - 470MHz (OIRT) CH S1 – CH S41 (8MHz Raster), 75 Ω unbalanced
RF OUT SYSTEM	UHF : CH 21 – CH 69 71 ± 3 dBμ,75Ω close
VIDEO	HEADS : 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L' -R' heads)
	INPUT : EURO AV (AV1/2) Connector (21pinX2) 1.0Vp-p, 75Ω terminated
	OUTPUT: EURO AV (AV1/2) Connector (21 pinX2) 1.0 Vp-p, 75 Ω terminated

ITEM	SPECIFICATION
AUDIO	HEAD : 1 Stationary head (Normal Audio) 2 channels (Hi-Fi Sound- Stereo)
	INPUT : EURO AV (AV1/2) Connector (21 pinX2) –6 dBV (500 mV), More than 10 KΩ
	OUTPUT :EURO AV (AV1/2) Connector (21 pinX2) –6dBV (500 mV), Less than 1 KΩ AUDIO OUT Connector (Photo type) –6dBV (500 mV), Less than 1 KΩ
TAPE FORMAT	VHS Cassette tape (Tape width 12.7 mm)
TAPE SPEED	SP : 23.39 mm/s LP : 11.7 mm/s Record / Playback Time : SP : 4 hours with 240 min. type tape (NV-E240) LP : 8 hours with 240 min. type tape (NV-E240) FF / REW Time : 60 seconds with 180 min. type tape (NV-E180)
OPERATING CONDITION	Temperature : 5 ℃ – 40 ℃ Humidity : 35 % – 80 %
DIMENSIONS	430 (W) X 87 (H) X 303 (D) mm
WEIGHT	3.9 kg
STANDARD ACCESSORIESES	1 pc. Remote Controller 1 pc. AC Mains Lead 1 pc. DIN-RF Cable

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

1 INTRODUCTION

This service manual contains technical information which will allow service personnel to understand and service this model.

If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note:

Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual.
Please refer to the service manual for Z-Mechanism Chassis. (Order No. VRD9802005C2)

2 GENERAL DESCRIPTIONS

2.1. SERVICE INFORMATION

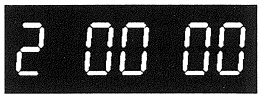
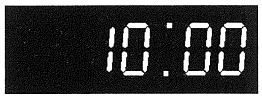
2.1.1. CHANNEL MEMORY IC INITIALIZATION

When replacing the Memory IC7704 and/or Oscillator X6001, Memory IC7704 has to be initialized due to the setting value changes.

Note:

1. **When replacing the memory IC7704, the OSD microprocessor IC7703 should be replaced together.**
2. It has to be performed before tuning.
3. Meaning of "MEMORY IC INITIALIZATION" is to make dependency in different models and to distinguish between different features.
4. It does not need to perform when replacing the System Control IC6001.

<CHANNEL MEMORY IC INITIALIZATION>

PROCEDURES	FIP Display	Monitor Screen
Press the FF and EJECT keys simultaneously for 3 seconds.		None
Press the FF and EJECT keys simultaneously more twice.		None
Press the EJECT key for 3 seconds.		None
Press the CH UP key twice.		None
Press the POWER key.	 (Colon starts flashing)	Service Screen (See Fig. S1 Service Screen (Sample))
Press the REC key on the Remote Controller Unit.		Service Screen (See Fig. S1 Service Screen (Sample))
Set the Model Code and Option Code by pressing 10-key or [RIGHT] [LEFT] [UP] [DOWN] keys on the Remote Controller Unit. (See Fig. S2)		Service Screen (See Fig. S1 Service Screen (Sample))
To release Service Mode, press POWER key and then press FF or turn the shuttle ring to the FF and press EJECT key simultaneously 6 times until the normal indication on the FIP.		None

OSD	**VCEY 0.26 X X**
MAIN	**VCEZ 0.35 X X**
Time ref. Pos	**NONE**
Last error code	**0 0**
Model code	**89 (59h)**
Option code 1	**137 (89h)**
Option code 2	**64 (40h)**
Option code 3	**132 (84h)**
Clock adjust	**- 1**
VPS/PDC default	**ON (depend)**

Fig. S1 Service Screen (Sample)

Caution:

Since the "Clock adjust" and "VPS/PDC default" are future expansion, do not change the initial settings.

Just in case, if these initial setting values had been changed accidentally, it can be recovered by pressing [UP] [DOWN] keys on the Remote Controller.

Model No.	Suffix	Model Code	Option Code 1	Option Code 2	Option Code 3
NV-FJ612	EE-S	89	137	64	132
NV-FJ612	EE-K	89	137	64	132

Fig. S2 Model Code & Option Code

2.1.2. CAUTION FOR AUTO TUNING

PROCEDURE

Auto Tuning will start by the following procedure.

1. Connect the DIN-RF Cable.
2. Connect the AC Mains Lead.
3. Turn on the VCR.
   Auto Tuning will start.
   Auto Tuning searches for TV stations from VHF minimum to UHF maximum and memorizes every tuned program position. Other program positions are skipped.

   Auto Tuning takes five or more minutes to complete its search.

   Do not touch the VCR during Auto Tuning.

   Auto Tuning will stop halfway, if the VCR is operated or the aerial lead and/or the mains lead are disconnected.

   In case the VCR stopped during Auto Tuning, the VCR have to be reset and restarted. See the following item 2.

NOTE

1. If the VCR is turned on with the antenna not connected, all channels are skipped. Therefore, firmly connect the antenna and then turn the VCR off and on again to execute Auto tuning.
2. **When Auto Tuning is canceled halfway, Auto Tuning is not executed even if the VCR is turned off and then turned on again.**
   In this case, Auto Tuning have to be restarted by the following procedure.
   a. **Press EJECT and remove the Video cassette.**
   b. **Keep UP and DOWN on the VCR pressed simultaneously for 3 seconds or more during the VCR on.**
   The channel displayed on the VCR display disappears for a moment then changes to 2.
   c. **Turn off the VCR and then turn it on. Auto Tuning commences.**
3. If you turn the VCR off during Auto Tuning, Auto Tuning will stop halfway.
   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
4. If the VCR starts playback during Auto Tuning, Auto Tuning will stop halfway.
   The VCR should be reset and restarted by the item 2 in order to execute Auto Tuning.
5. To cancel Auto Tuning Mid-operation, press POWER during Auto Tuning (The VCR is turned off).
6. When the VCR is moved to the other area or country, TV broadcasts should be stored again.

2.1.3. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

And then connect the Extension Cable (VFK2744) between the POWER C.B.A. connector (P1103) and the MAIN C.B.A. connector (P1001) as shown in Fig. S3.

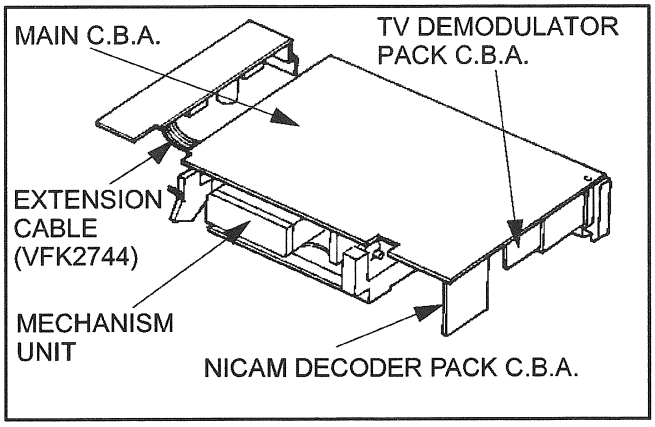


Fig. S3

2.1.4. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

1. Removal of compulsory loading.
   a. Press FF and EJECT buttons simultaneously and set the Service Mode 7.
   b. Press STOP button in order to unload the mechanism. (Pay an attention of tape slack)
   Service Mode Indication:
   7 ** ** (STOP) → 7 00 ** (EJECT)
2. Removal of manual operation of Main cam gear.
   a. Disconnect the AC power cord and remove Top Panel.
   b. Rotate Main Cam Gear to the clockwise and unload the mechanism (Tape is remaining) (Fig. S4).

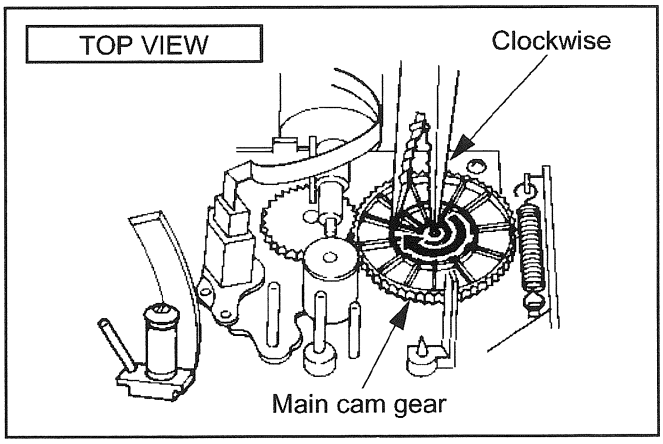


Fig. S4

   c. Rotate the Pole of Capstan motor to the clockwise the from the bottom in order to remove the tape slag.

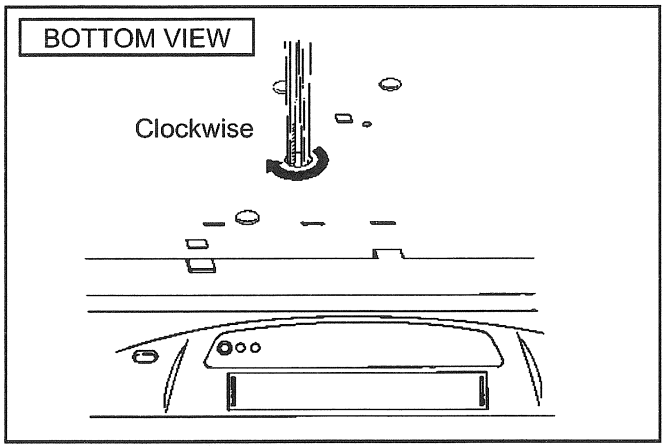


Fig. S5

d. Rotate Main Cam Gear to the clockwise in order to eject the cassette tape.

2.1.5. CYLINDER UNIT REPLACEMENT

1. CYLINDER UNIT REPLACEMENT

a. Remove the Mechanism unit from MAIN C.B.A./Chassis by referring "Disassembly Procedure".

b. Remove the 3 screws (A) of the CYLINDER UNIT with a screw driver.

c. Unlock the 4 locking tabs (B) and disconnect the Cylinder flexible card from the FPC Holder.

d. Remove the CYLINDER UNIT.

CAUTION

Handle the Cylinder flexible card with care. When it damaged, you should replace whole Cylinder unit.

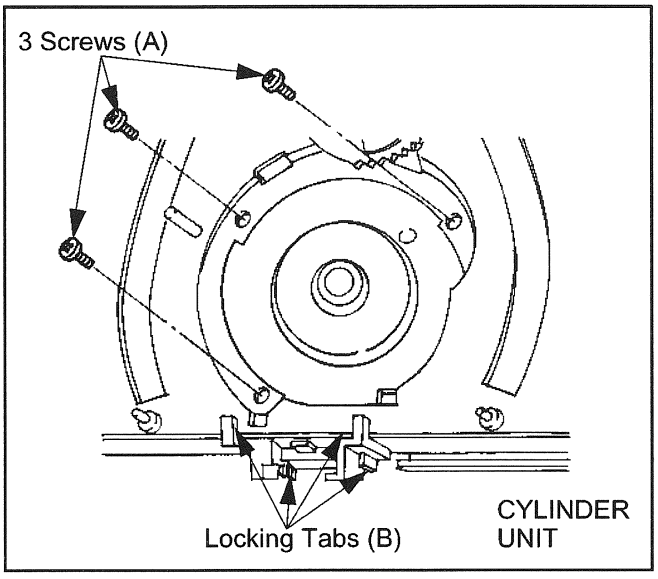


Fig. S6

2. UPPER CYLINDER DISASSEMBLY

a. Remove 2 screws (A).

b. Remove the Cylinder Stator Unit.

c. Remove 2 screws (B).

d. Remove the Cylinder Rotor Unit.

e. Loose Hex screw (C) (1.5 mm) and remove the CYLINDER RETAINER.

f. Remove the Upper Cylinder.

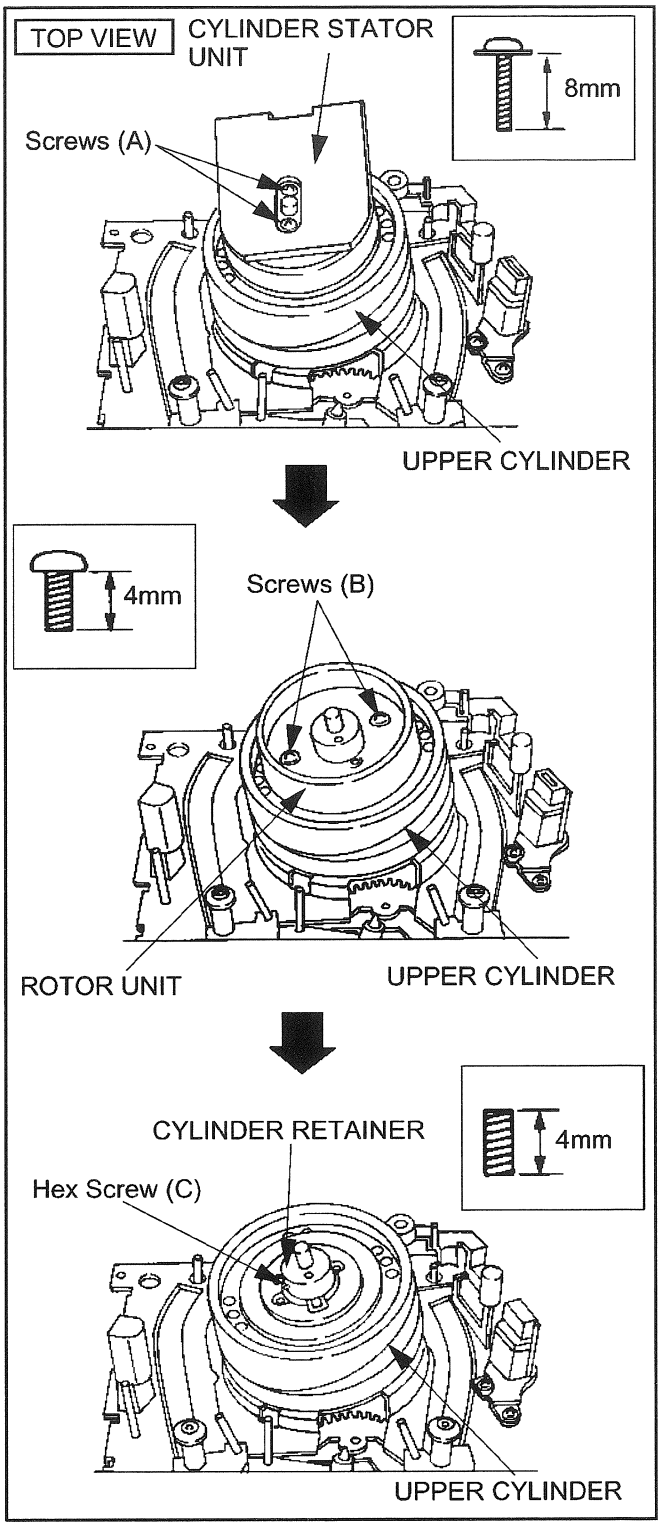


Fig. S7

3. UPPER CYLINDER ASSEMBLY

When reassembling, perform the steps in the reverse order.

Notes:

a. Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the P3502 Connection.

b. Tighten the Hex screw (C) (1.5 mm) while pressing down on top of the Cylinder Retainer.

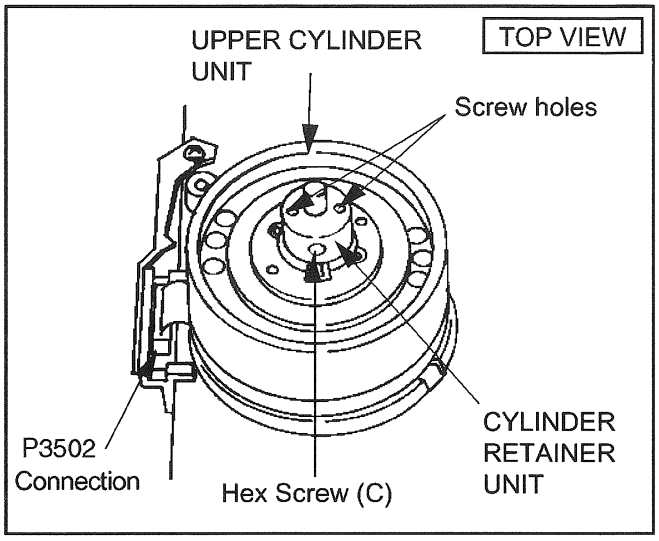


Fig. S8

c. Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.

d. Tighten 2 screws (B).

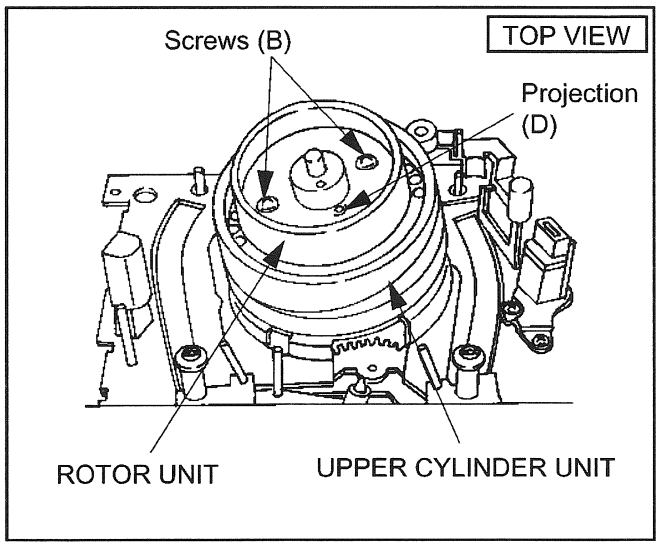


Fig. S9

e. Install the Cylinder Stator Unit.

f. Tighten 2 screws (A).

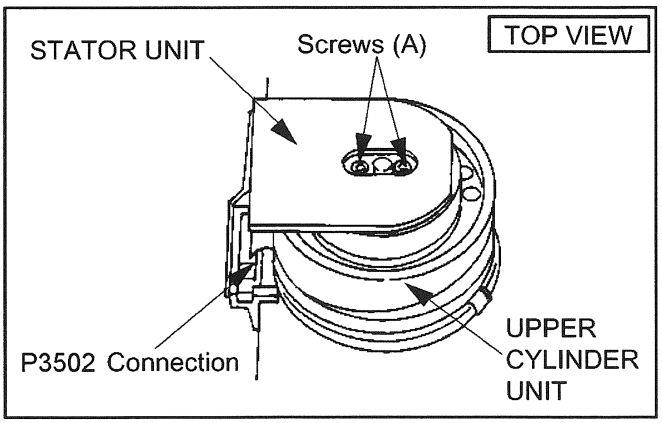


Fig. S10

g. Confirm the PG SHIFTER ADJUSTMENT with the alignment tape (PAL: VFJ8125H3F) and adjust it if necessary.

2.1.6. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

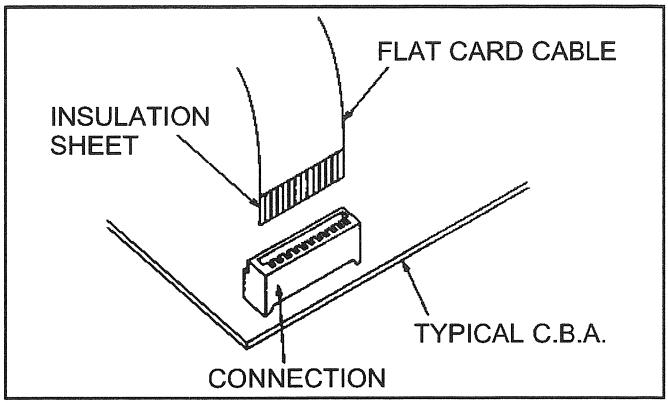


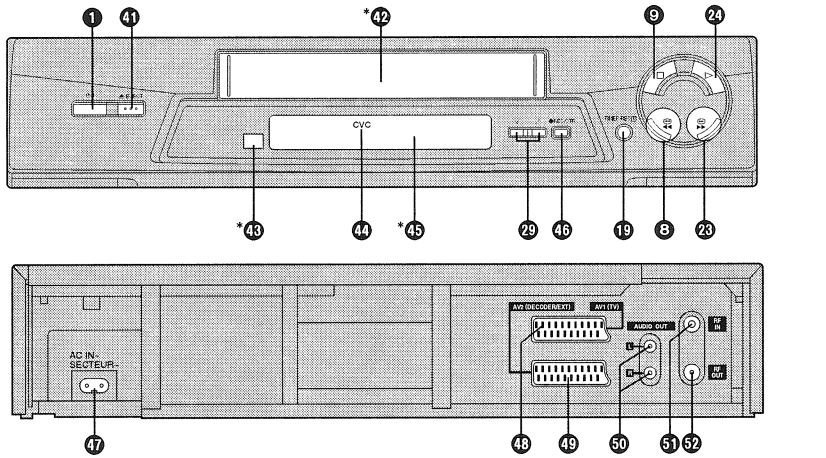
Fig. S11

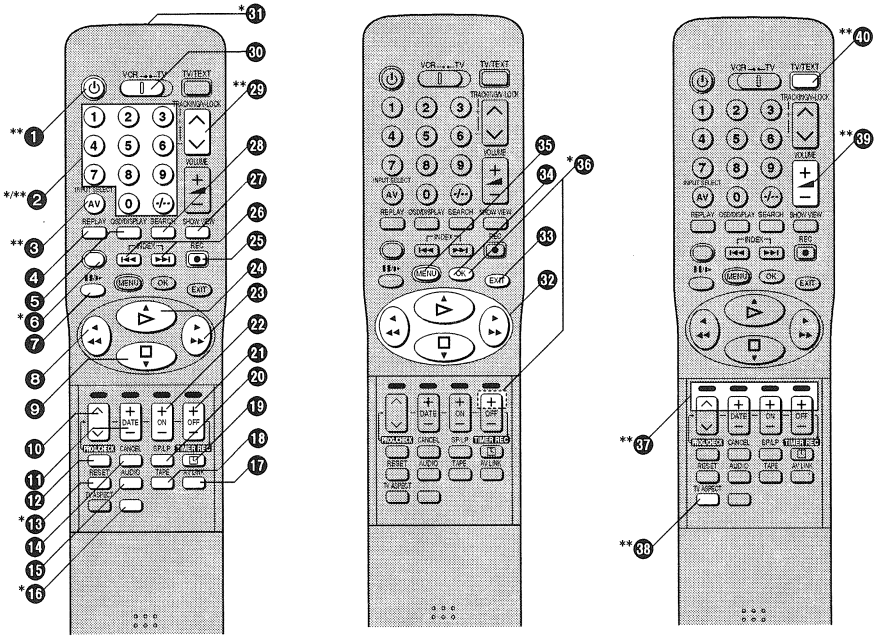
2.2. SELF-TEST & SERVICE INFORMATION DISPLAY

Refer to the Service Manual for Z Mechanism Chassis. (Order No.:VRD9802005C2)

Controls and Components

Keep this page open as you read through the Operating Instructions. Refer to it for the control and component names and numbers which appear in the text.





* See page 4. (VCR Operation)
** See page 6. (TV Operation)

VCR Operation

When you want to operate the VCR, set the VCR/TV switch ㉚ to "VCR".

***② Numeric buttons**
To select the programme positions (1–99) of the VCR.
Example:
9: ⑨
19: ⏲ → ① → ⑨

To enter a ShowView number.

To enter numbers for various settings.

***⑥** No function

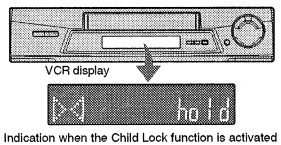
***⑱ Tape Counter Reset button**
To reset the tape counter (elapsed time) to "0:00.00".
- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

***⑯** No function

***㉛ Infra-red transmitter**

***㉘ Child Lock Function buttons (Convenient function to prevent unauthorized use)**
This function deactivates all buttons on the VCR and the remote control. Use this function, when you do not want other people to operate the VCR.

To Activate the Child Lock Function:
1 Hold down the OK and the OFF (+) buttons ㊱ simultaneously until the "⋈ hold" indication appears in the VCR display.
- If you press a button while the Child Lock function is on, the "⋈ hold" indication appears in the VCR display to inform you that no operation is possible.



Indication when the Child Lock function is activated

To Cancel the Child Lock Function:
1 Hold down the OK and the OFF (+) buttons ㊱ simultaneously until the "⋈ hold" indication disappears.
- If you disconnect the power cable, the Child Lock function is automatically cancelled after the power backup time of approximately 60 minutes has elapsed.
- If you cannot cancel the Child Lock function, press the EXIT button ㊲ and perform the operation step 1.

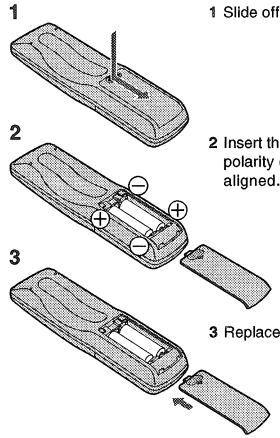
***⑫ Cassette compartment**

***㊽ Infra-red Remote Control Receiver window**

***⑮ VCR display**

Preparing the Remote Control

Inserting Remote Control Batteries



1 Slide off the battery cover.

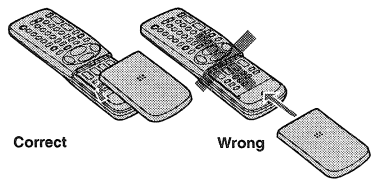
2 Insert the batteries with the polarity (⊕ and ⊖) correctly aligned.

3 Replace the battery cover.

Notes for Battery Replacement:
- The service life of the batteries is approximately 1 year. However, it varies considerably depending on the frequency of use.
- When they are exhausted, replace them with two AA, UM3, or R6 size batteries.
- When the batteries are exhausted, remove them immediately and dispose of them correctly.
- Make sure that the batteries are inserted with the polarity (⊕ and ⊖) correctly aligned.
- Do not mix old battery with new battery.
- Do not mix different battery types, i.e. Alkaline and Manganese.
- Do not use rechargeable (Ni-Cd) batteries.
- Do not heat or short-circuit the batteries.
- When you do not use the remote control for a long time, take out the batteries and store them in a cool, dry place.

If the Sliding Cover of the Remote Control Becomes Detached

If the sliding cover of the remote control becomes detached accidentally, fit it securely in place by placing it on the top of the remote control at the position shown in the illustration below, and pushing it down until it clicks into position.
- It is not possible to fit the sliding cover in place by pushing or sliding it on from the bottom end of the remote control.



Warning and Important Information

As this equipment gets hot during use, operate it in a well ventilated place; do not install this equipment in a confined space such as a book case or similar unit.

IMPORTANT

Your attention is drawn to the fact that the recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**

To prevent electric shock, do not remove cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

Remarks

1. This VCR is also capable of receiving SECAM type broadcasting programmes (SECAM B/G) and recording/playing back its colour television signals.
2. When a cassette which has been recorded on this VCR is played back on a SECAM VCR, the picture may be reproduced in black and white. When it is played back on a PAL VCR without SECAM capability, the picture may not be reproduced in normal colour.
3. When cassettes recorded on a SECAM VCR or SECAM pre-recorded cassettes are played back on this VCR, the picture may be reproduced in black and white.
4. This VCR is not designed for use in France, where a SECAM VCR should be used instead.

Press the VCR-ON/OFF button ❶ to switch the VCR from on to standby mode or vice versa. In the standby mode, the VCR is still connected to the mains.

SHOWVIEW is a trademark of Gemstar Development Corporation. The SHOWVIEW system is manufactured under licence from Gemstar Development Corporation.

Setting the Remote Control to Operate Your TV

Only Panasonic TVs can be operated with the provided remote control.

The settings for operating the TV with the remote control have already been made.
No additional settings need to be performed.

However, some Panasonic TVs cannot be operated using this remote control.

TV Operation

The explanations below show you what functions individual buttons have when the VCR/TV switch ㉚ is set to "TV".

****❶ TV-ON/OFF button**
To switch the TV on from standby mode (OFF) or vice versa.
On some TVs it is only possible to switch the TV to standby mode (OFF) with this button, but not on. In this case, try to turn the TV on with one of the following buttons:
Numeric buttons ❷
AV button ❸
Channel button ㉙

****❷ Numeric buttons**
To select the programme positions (1–99) on the TV.

****❸ AV button**
To select the desired AV input on the TV.

****㉙ Channel button**
To select the desired programme position (TV station) on the TV.

****㉗ Teletext buttons**
If your TV is equipped for Teletext reception, you can use these buttons to change the teletext information displayed on the screen and select desired information. For details, refer to your TV's operating instructions.

****㉘ TV ASPECT button**
To switch the screen format between the wide-screen and other formats.

****㉜ VOLUME button**
To adjust the volume of the TV.

****㉖ TV/TEXT button**
To switch between normal TV mode and teletext mode.

The 3 Methods for Switching to the AV Input on Your Panasonic TV

Your Panasonic TV uses one of three different methods for switching between TV reception and the AV input(s). Perform the operations steps listed for the switching methods A, B and C below to determine which one your Panasonic TV uses.

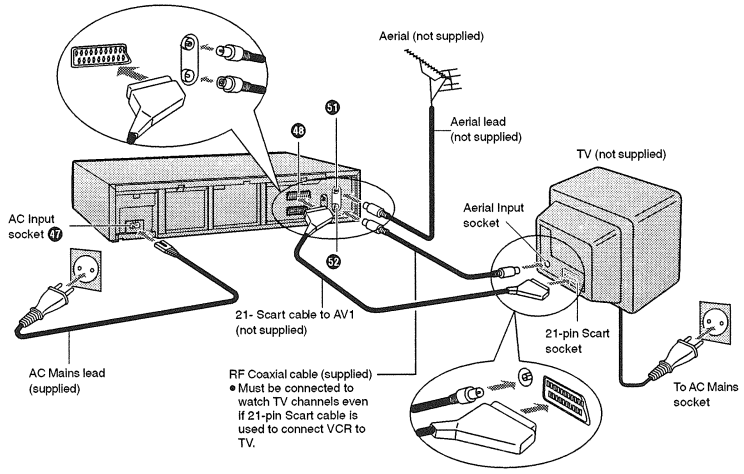
A	1	Set the VCR/TV switch ㉚ to "TV".
	2	Press the AV button ❸ to switch to the AV input. Each press of the AV button ❸ switches between "TV reception" and "AV input(s)".
B	1	Set the VCR/TV switch ㉚ to "TV".
	2	Press the AV button ❸. Colour bars for selecting the AV input appear on the TV screen.
	3	Follow the instructions displayed on the TV screen to select the desired AV input from the displayed colour bars for the AV input by pressing the corresponding colour button ∧ (red) ⑩, DATE+ (green) ⑪, ON+ (yellow) ㉒ or OFF+ (blue) ㉑ on the remote control.
C	1	Set the VCR/TV switch ㉚ to "TV".
	2	Press the AV button ❸. The last previously selected AV input indication appears on the TV screen. The indications for selecting another AV input also appear, but they disappear a few seconds later.
	3	Before the indications for selecting another AV input disappear, press the ∨ button ⑩, DATE– button ⑪, ON– button ㉒ or OFF– button ㉑ to select the desired AV input. With the following four buttons, you can move and select as follows: ∨ ⑩: Move left DATE– ⑪: Move down ON– ㉒: Move up OFF– ㉑: Move right

NV-FJ612EE-S / NV-FJ612EE-K

Connecting the VCR to a TV

Method 1.

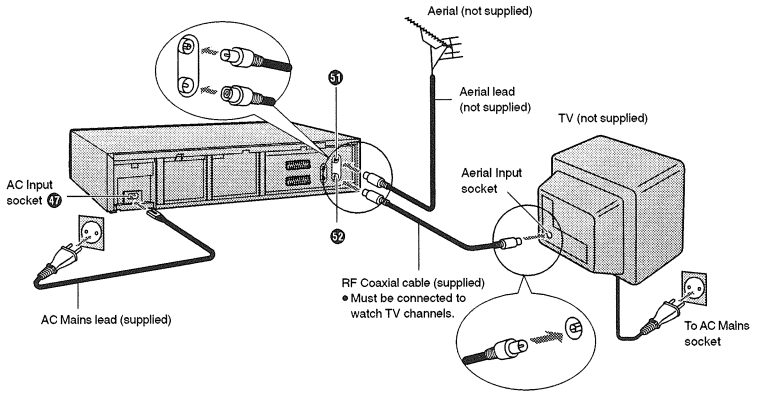
If you are connecting your VCR to a TV using RF coaxial cable and 21-pin Scart cable, then follow the steps below. (AV Connection)



After completing the above connections, proceed to the Auto Setup page (Page 8).

or Method 2.

If you are connecting your VCR to a TV using only RF coaxial cable, then follow the steps below. (RF Connection)



After completing the above connections, proceed to the Auto Setup page (Page 9).

If you are connecting your VCR to a TV using Method 1, follow the operations explained below.

Auto Setup Function

The Auto Setup function automatically tunes all available TV stations and sets the VCR's clock to the current date and time. If the tuning and time/date settings are not correct, performing timer recordings is not possible.

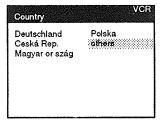
1 Switch the TV on.

2 Select the AV input on your TV.

3 Set the VCR/TV switch ㊵ to "VCR".

4 Press the VCR-ON/OFF button ❶ to switch the VCR on. The Country setting menu appears on the TV screen.

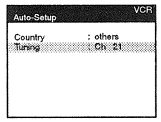
On Screen Display



Menu for Country setting

5 Press the Cursor buttons (▲▼◀▶) ㉜ to select the country where you are using the VCR.

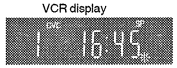
6 Press the OK button ㉞ and the VCR's Auto Setup automatically starts and tunes all available TV stations and also sets the clock. This takes about 5 minutes.



Indication during Auto Setup

VCR display

7 When the indication shown on the right appears on the VCR display, the Auto Setup is complete.



Indication when Auto Setup is complete

8 Press the MENU button ㉟ for more than 5 seconds so that the RF output channel number appears on the VCR display.
The initial setting is channel 38.

Indication when the RF output channel is 38 (example)

9 Press the Numeric button "0" ❷ so that the displayed RF output channel number changes to "– –".

Indication after changing the RF output channel to "– –"

10 Press the OK button ㉞ to conclude the setting.

◆ **To Cancel the Auto Setup Before It Has Finished**
Press the EXIT button ㊳.

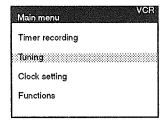
When the clock setting menu appears after Auto Setup has finished:

1 Press the Cursor buttons (▲▼◀▶) ㉜ to set the correct time and date.

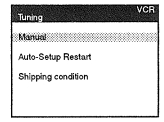
2 Press the OK button ㉞ to conclude the setting.

To Confirm that the TV Stations Have Been Tuned Correctly by the Auto Setup Function

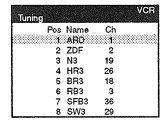
1 Press the MENU button ㉟ to display the OSD Main menu on the TV screen.



2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" and press the OK button ㉞ then select "Manual".



3 Press the OK button ㉞ to display the list of tuned TV stations and confirm that all available TV stations have been set correctly.



List of tuned TV stations (example)

4 Press the EXIT button ㊳ to exit the On Screen Display.

When the station names and/or channel numbers have not been set correctly:
See page 21 for details.

If you are connecting your VCR to a TV using Method 2, follow the operations explained below.

To be able to watch the VCR picture on the TV, RF connection requires the video playback channel to be set on the TV.

1 Switch the TV on.

2 Select an unoccupied programme position (which is not tuned to a TV station).
If you are using a Panasonic TV, select programme position "0".

3 Set the VCR/TV switch ㉚ to "VCR".

4 Press the VCR-ON/OFF button ❶ to switch the VCR on.

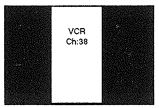
5 Press the MENU button ㉟ for more than 5 seconds.
The number of the RF output channel appears on the VCR display.
The initial setting is channel 38.

VCR display

Indication when the RF output channel is 38 (example)

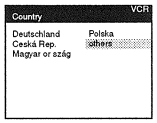
6 Tune your TV until the test pattern shown on the right appears on the TV screen.
Now, the setting of the RF output channel is complete.
- As the tuning method differs depending on the TV you are using, refer to your TV's operating instructions for details about tuning.

On Screen Display



Indication of the test pattern

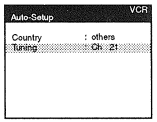
7 Press the OK button ㉞.
The Country setting menu appears on the TV screen.



Menu for Country setting

8 Press the Cursor buttons (▲▼◀▶) ㉜ to select the country where you are using the VCR.

9 Press the OK button ㉞ and the VCR's Auto Setup automatically starts and tunes all available TV stations and also sets the clock. This takes about 5 minutes.



Indication during Auto Setup

10 When the indication shown on the right appears on the VCR display, the Auto Setup is complete.

Indication when Auto Setup is complete

◆ **To Cancel the Auto Setup Before It Has Finished**
Press the EXIT button ㊳.

When the clock setting menu appears after Auto Setup has finished:
See page 8.

RF select:
Set the VCR's RFC system the same as the TV system of the connected TV. (See page 29.)

To Confirm that the TV Stations Have Been Tuned Correctly by the Auto Setup Function

See page 8.

If the Picture on the TV's Video Playback Channel Is Distorted

If, after setup, you select the video playback channel on the TV and view a TV programme on a programme position selected on the VCR, some interference may occur in certain cases. If this happens, you can minimise the distortion by changing the RF output channel on the VCR to another number. Follow the operations below.

1 Set the VCR/TV switch ㉚ to "VCR".

2 Press the MENU button ㉟ for more than 5 seconds.
The number of the RF output channel appears on the VCR display.
The initial setting is channel 38.

Indication when the RF output channel is 38 (example)

3 Press the numeric buttons ❷ to change the RF output channel.
Enter a channel number which differs by 2 or 3 from the one initially set number. For example, as the original number is 38, enter 41.

Indication after changing the RF output channel to 41 (example)

4 Press the OK button ㉞ to conclude the setting.

Note When You Have Changed the RF Output Channel:
After changing the RF output channel to a different number, be sure to retune your TV to the VCR's new RF output channel. (For details about tuning, refer to your TV's operating instructions.)

1 Press the MENU button ㉟ for more than 5 seconds.

2 When the test pattern shown on the right appears sharp and clear on the TV screen, the tuning is complete.

Test pattern indication

3 Press the EXIT button ㊳ to exit the On Screen Display.

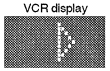
Playback

Preparations
- Confirm that the VCR is on.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Insert a recorded video cassette.

For Normal Playback:

Press the Play button ㉔.

VCR display

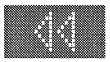


For Cue Playback:

During playback, tap the Fast Forward button ㉘.
- To return to normal playback, press the Play button ㉔.
- If you press and hold down the Fast Forward button ㉘, cue playback continues for as long as you keep the button pressed.

For Review Playback:

During playback, tap the Rewind button ㉙.
- To return to normal playback, press the Play button ㉔.
- If you press and hold down the Rewind button ㉙, review playback continues for as long as you keep the button pressed.



For Still Playback:

During playback, press the Pause/Slow button ❼.
- To return to normal playback, press the Play button ㉔ or the Pause/Slow button ❼.

For Slow Playback:

During playback, keep the Pause/Slow button ❼ pressed for 2 seconds or more.
- To return to normal playback, press the Play button ㉔.

Fast-forwarding or Rewinding the Tape:

To fast-forward the tape:
Press the Fast Forward button ㉘ in the stop mode.

To rewind the tape:
Press the Rewind button ㉙ in the stop mode.
- To stop fast-forwarding or rewinding, press the Stop button ❾.
- To briefly view the picture during fast-forwarding or rewinding, press and hold down the corresponding button.

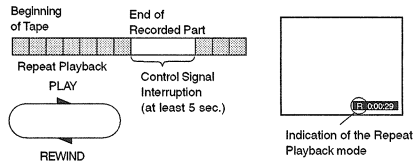
To Stop Playback

Press the Stop button ❾.

Notes:
- Cue, review or slow playback will be automatically cancelled after 10 minutes, and still playback after 5 minutes.
- During playback function other than normal playback, horizontal noise bars may appear in the picture, the colour of the picture may be unstable, or the picture may be otherwise distorted.
  When you play back a tape recorded in the LP mode, the picture may be in black and white. However, these are not malfunctions.

To Play Back a Recorded Part Repeatedly

Press the Play button ㉔ on the remote control for more than 5 seconds.
The "R" indication appears on the On Screen Display.
- If "OSD" is set to "OFF" (See page 27), the "R" indication will not appear in repeat playback mode.



To Cancel the Repeat Playback Mode:
Press the Stop button ❾.

To rewind the tape a little to view the same scene again (Replay Function)

If you want to view the same scene again, for example because you could not catch clearly what a person said, simply press the REPLAY button ❹, to rewind the tape a little from its present position and play it back again.
The direction in which the tape is rewound depends on what playback mode the VCR is in when you press the REPLAY button ❹.
- If you press the REPLAY button ❹ when the VCR is in the stop, rewind, fast-forward, slow playback, or standby (Off) mode, the Replay function does not work.

During Normal Playback, Cue Playback and Still Playback:
When you press the REPLAY button ❹, the VCR switches over to the review playback mode for a few seconds and then resumes normal playback.

During Review Playback:
When you press the REPLAY button ❹, the VCR briefly switches over to Cue playback and then plays back at normal speed in forward direction from the point where the REPLAY button ❹ was pressed.

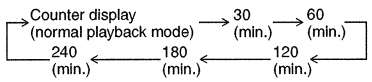
Recording

To Stop Playback Automatically (Playback Off Timer Function)

If you set the playback duration, the playback will stop automatically.
After the set playback time has elapsed, the VCR automatically stops playback and switches off.

To Activate the Playback Off Timer Function:
During normal playback, press the Play button ㉔ on the VCR for more than 2 seconds to put the VCR in the Playback Off Timer mode.
After that, press the Play button ㉔ on the VCR repeatedly until the desired playback duration is displayed on the VCR display.

- Repeatedly pressing this button changes the indication in the following order:



To Stop Midway:
Press the Stop button ⑨.

To Play Back NTSC Video Cassettes on Your PAL TV (Quasi-NTSC Playback Function)

This VCR allows playback of tapes recorded in the NTSC system on a normal PAL system TV with the same operations as usual.
On some TVs, however, the playback picture may roll up or down.

- If your TV has a V-HOLD control or equivalent adjustment function, use it to try to stop the picture movement.

Convenient Automatic Functions

VCR Auto Power On
When you insert a video cassette, the VCR switches on automatically.

Auto Playback Start
When you insert a video cassette with a broken erasure prevention tab, playback start automatically without having to press the Play button ㉔.

VCR-off Playback
When the VCR is off, an inserted cassette can be played back by pressing the Play button ㉔.

Auto Rewind
When the tape reaches the end, the VCR automatically rewinds it to the beginning.

- This function does not work during timer recording and OTR.

Automatic Switching Off and Ejection
When the VCR is switched off, and inserted cassette can be ejected simply by pressing the EJECT button ⑪. The VCR will eject the cassette and automatically turn itself off again.

VCR-off Search
When the VCR is off, the VCR starts intro-jet scan of an inserted cassette by pressing the SEARCH button ㉘.

To Eject the Video Cassette Using the Remote Controller

Keep pressing Stop button ⑨ for at least 3 seconds.

Preparations

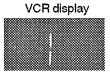
- Confirm that the VCR is on.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Set the VCR/TV switch ㉚ to "VCR".

Operations

1 **Insert a video cassette with an intact erasure prevention tab.**
- If it has already been inserted, press the VCR-ON/OFF button ① to turn the VCR on.

2 **Select the TV station using the Channel buttons ㉙.**
- It is also possible to select by pressing the numeric buttons ②.

VCR display



3 **Press REC (REC/OTR) button ㉕ (⑱) to start recording.**

4 **Press the Stop button ⑨ to stop recording.**

To Select the Desired Tape Speed

Press the SP/LP button ⑳ before recording.

- SP provides standard recording time and optimum picture quality.
  LP provides doubled recording time with slightly reduced picture quality.

To Pause Recording

Press the Pause/Slow button ⑦ during recording.
Press it again to continue recording.

To View One TV Programme while Recording Another TV Programme

After pressing the REC button ㉕ to start recording, select on your TV the programme position of the TV programme that you want to view.

Notes:

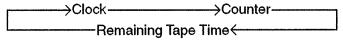
- When playing back an E300 cassette recorded in the LP mode, some picture distortion may occur. However, this is not a malfunction.
- The recording pause mode will be automatically cancelled after 5 minutes and return to the stop mode.

To Display the Approximate Remaining Tape Time

The remaining tape time can be displayed in the VCR display.

1 Press the TAPE button ⑱ and select the corresponding cassette tape length.
See page 27.

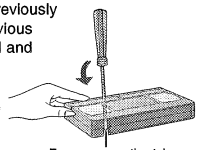
2 Press the OSD/DISPLAY button ⑤ repeatedly until the Remaining Tape Time appears on the VCR display.
- Pressing the OSD/DISPLAY button ⑤ once makes the On Screen Display appear; after that, pressing it repeatedly changes the indication in the following order:



For certain cassettes, the remaining tape time may not be displayed correctly.

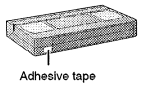
To Prevent Accidental Erasure of Recorded Contents

When you record again onto a previously recorded video cassette, the previous recording is automatically erased and replaced with the new recording. Therefore, to prevent accidental erasure of the recorded contents, break out the erasure prevention tab after recording.



Use a screwdriver or similar tool to break out the tab.

To Record Again onto the Video Cassette with a Broken Out Erasure Prevention Tab:
If you insert a video cassette with a broken out erasure prevention tab and press the REC button ㉕, the "⊙⊙" indication flashes on the VCR display to indicate that recording is not possible. In this case, cover the tab hole with two layers of adhesive tape.
The adhesive tape substitutes for the prevention erasure tab and makes it possible to record again on this cassette.



To Select the Recording Duration and Perform Timer Recording (OTR Recording)

OTR means One-Touch Recording and is called this way, because you can start recording and select the recording duration by repeatedly pressing a single button. This is very convenient, for example when you want to start recording immediately but need to go out or want to go to bed.
After the selected recording duration has elapsed, recording stops and the VCR automatically switches off.

To Perform an OTR Recording:

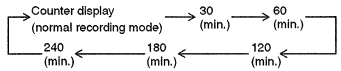
1 Display the VCR picture on the TV.

2 Insert a video cassette with an intact erasure prevention tab.

3 Press the Channel buttons ㉙ to select the programme position on which the TV programme to be recorded will be broadcast.

4 Press the REC/OTR button ⑱ to start recording.

5 Press the REC/OTR button ⑱ repeatedly to select the desired recording duration.
- Every time you press this button, the recording duration indicated in the VCR display changes in the following order.
- For example, if you select "30", the VCR records a programme from that moment on for 30 minutes.



To Stop the OTR Recording Before the End:
Press the Stop button ⑨.

Timer Recording

This function lets you programme the VCR for unattended automatic recording of desired TV programmes when you are not at home or sleeping.
You can programme timer recordings in two different ways:
- By entering the necessary information with the remote control while viewing the On Screen Display (OSD) on the TV screen (explained below) or;
- By entering the ShowView number published alongside the TV programme listings in newspapers and magazines (see page 14).

This VCR lets you programme up to 8 TV programmes (including weekly and daily programmes) for unattended recording up to one month in advance.

To Programme with the On Screen Display (OSD)

This method offers easy step-by-step programming with the remote control while you view the prompts on the TV screen.

Preparations
- Confirm that the VCR is on.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Insert a video cassette with an intact erasure prevention tab.
- Set the VCR/TV switch ㉚ to "VCR".

Example:
Programming the timer recording of a TV programme broadcast on programme position 2 (ZDF) from 20:00 to 21:30 on 27 October.

Follow the on screen operation guide.

Operations

1 **Press the PROG./CHECK button ⑰ to display the menu for programming timer recordings on the TV screen.**
- Alternatively, you can press the MENU button ㉟ and then select "Timer recording".

On Screen Display

2 **Press the Channel buttons ⑩ to select the programme position of the desired TV station.**
- As an alternative method, after pressing the Channel button ⑩, you can use the Cursor buttons (▲▼◀▶) ㉜.

3 **Press the DATE button ⑪ to set the date on which the TV programme will be broadcast.**

4 **Press the ON button ㉒ to set the starting time.**
- When it is kept pressed, the indication changes in 30-minute intervals.

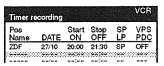
5 **Press the OFF button ㉑ to set the ending time.**

6 **Press the SP/LP button ⑳ to set the desired tape speed.**
- SP provides standard recording time and optimum picture quality.
  LP provides doubled recording time with slightly reduced picture quality.
  Regarding the "A" indication, refer to page 15.

7 **Press the Cursor buttons (▲▼◀▶) ㉜ to set VPS/PDC to ON or OFF (– – –).**
- See page 15 for VPS/PDC recording.

8 **Press the TAPE button ⑱ to select the corresponding cassette tape length.**
(See page 27.)

9 **Press the OK button ㉞ to conclude the settings.**
- To programme additional timer recordings, repeat operation steps **2–9**.



10 **Press the TIMER REC button ⑲ to switch the VCR over to the timer recording standby mode.**
- Check that ⏲ is lit on the VCR display.
  If it is flashing, check the timer recording details again. (See page 15.)

To Suspend the Timer Recording Standby Mode

When you want to use the VCR for playback, normal recording or some other operation before the programmed timer recording will be performed, you can temporarily suspend the timer recording standby mode by pressing the TIMER REC button ⑲ so that the "⏲" indication on the VCR display disappears.

However, after you have finished using the VCR, be sure to reactivate the timer recording standby mode by pressing the TIMER REC button ⑲ again, otherwise the programmed timer recording will not be performed.

Note:
- If the VCR is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the "⏲" indication flashes on the VCR display. In this case, press the TIMER REC button ⑲ to put the VCR in the timer recording standby mode.

To Programme with the ShowView Function

The ShowView numbers assigned to each TV programme and published alongside the TV programme listings in newspapers and magazines make it extremely easy to set the VCR for timer recording.
The duration of a timer recording programmed with ShowView number may be slightly longer than the actual duration of the TV programme.

Preparations
- Confirm that the VCR is on.
- Confirm that the TV is on and the VCR viewing channel is selected.
- Insert a video cassette with an intact erasure prevention tab.
- Set the VCR/TV switch ㉚ to "VCR".

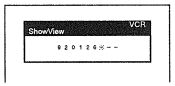
Example:
Programming a timer recording of a TV programme with the ShowView number 920126

Operations

1 **Press the SHOW VIEW button ㉗ to display the menu for entering the ShowView number on the TV.**

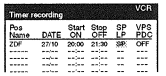
2 **Press the Numeric buttons ❷ to enter the ShowView number.**
- If you have entered a wrong digit, press the Cursor button (◀) ㉜ and then enter the correct digit.

On Screen Display



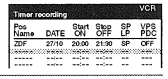
3 **Press the OK button ㉞ to display the programmed content.**

4 **Press the SP/LP button ⑳ to set the desired tape speed.**
- SP provides standard recording time and optimum picture quality.
  LP provides doubled recording time with slightly reduced picture quality.
  Regarding the "A" indication, refer to page 15.
- To extend the ending time or to make any corrections, use the Cursor buttons (▲▼◀▶) ㉜, the Channel buttons ⑩, the DATE button ⑪, the ON button ㉒, the OFF button ㉑, the SP/LP button ⑳.
- See page 15 for VPS/PDC recording.



5 **Press the TAPE button ⑱ to select the corresponding cassette tape length.**
(See page 27.)

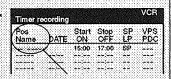
6 **Press the OK button ㉞ again to conclude the settings.**
- To programme additional timer recordings, repeat operation steps **1–6**.



7 **Press the TIMER REC button ⑲ to switch the VCR over to the timer recording standby mode.**
- Check that "⏲" is lit on the VCR display.
  If it is flashing, check the timer recording details again. (See page 15.)

If "– –" Appears under "Pos/Name" after Entering a ShowView Number

Pos/Name stands for Programme Position/TV Station Name. Normally, the name of the TV station or the number of the programme position is displayed under "Pos/Name". However, if the TV station information was not automatically set during Auto Setup due to adverse reception conditions, the "– –" indication appears instead. In such a case, follow the operation steps below to correct it.



Press the Channel buttons ⑩ repeatedly to select the programme position on which the TV programme to be recorded will be broadcast.
After you have entered the information of a TV station, it remains stored in the VCR's memory, and you do not need to enter it again in the future.

If "Pos/Name" (Programme Position) Is Not Entered Correctly When Programming with the ShowView Function

See steps **1–3** on page 21.

4 Press the Cursor buttons (▲▼) ㉜ to select the TV station which you want to delete.
5 Press the Channel button (∧, red) ⑩ and the OK button ㉞ to delete the incorrect programme position (Delete).
6 Press the Date button (+, green) ⑪ to insert a blank programme position (Add).
7 Press the OK button ㉞ to display the Manual Tuning menu.
8 Press the Numeric buttons ❷ to enter the channel number of the desired TV station.
9 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Name".
10 Use the Cursor buttons (▲▼◀▶) ㉜ and OK button ㉞ to enter the station name.
- If the station name needs a blank space, select the blank between "Z" and "+".

11 Press the EXIT button ㊳ to exit the On Screen Display.
12 Perform the operation of the ShowView function.

To Suspend the Timer Recording Standby Mode

See page 13.

Note:
- If the VCR is not put in the timer recording standby mode at the latest 10 minutes before the programmed timer recording starting time, the "⏲" indication flashes on the VCR display. In this case, press the TIMER REC button ⑲ to put the VCR in the timer recording standby mode.

NV-FJ612EE-S / NV-FJ612EE-K

Other Timer Recordings and Convenient Functions

Setting the Recording Date/Day(s)

Perform this operation in operation step **3** when programming a timer recording with the On Screen Display, or in operation step **4** when programming with the ShowView number. (See pages 13 and 14.)
You can select the recording date (day of the month/day of the week) by pressing the DATE button ⑪. If you repeatedly press the + side of the DATE button ⑪, the indication changes in the order shown below. If you press the – side of the DATE button ⑪, the indication changes in the opposite order.

- Programming a timer recording (setting the date) is possible up to one month ahead of the TV programme's broadcasting date and time. Daily and weekly timer recordings will continue until you cancel them.

<To Programme within 1 Month>
Example: 1 2 31
↓
<To Programme a Daily Timer Recording>
Example: Daily recording from Sunday to Saturday (Su-Sa).
Daily recording from Monday to Saturday (Mo-Sa).
Daily recording from Monday to Friday (Mo-Fr).
↓
<To Programme a Weekly Timer Recording >
Example: Weekly recording every Sunday
Weekly recording every Monday
⋮
Weekly recording every Saturday
(Su = Sunday, Mo = Monday, Tu = Tuesday, We = Wednesday, Th = Thursday, Fr = Friday, Sa = Saturday)

Ensuring that a TV Programme Will Be Recorded until Its End (Auto SP/LP Change Function)

If, at the start of a timer recording, the VCR determines that the remaining tape time is insufficient to record the whole programme, the Auto SP/LP Change function automatically selects LP mode to ensure that the whole programme will be recorded. However, if the remaining tape time is still not sufficient even in the LP mode, the programme cannot be recorded to its end.

- If you programme a daily or weekly timer recording, recording will be performed in the LP mode from the start regardless of the remaining tape time.
- In case of a timer recording programmed with the VPS/PDC function, if the TV programme continues past the programmed ending time, the VCR automatically switches over to the LP mode at that moment. However, in some cases it may not be possible to record the programme until its end.
- Use a video cassette on which a few minutes more than the total length of programmed timer recordings remain, otherwise the programmed timer recordings may be performed in the LP mode.
- Be careful that the broadcast times of the TV programmes set for timer recording do not overlap, otherwise the programmed timer recordings may be performed in the LP mode.
- If the recording speed changes from SP to LP during a timer recording, some brief picture distortion occurs at that point.

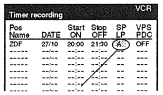
Condition for correct operation of the Auto SP/LP Change function:

- The tape length of the inserted cassette must be set correctly. (See page 27.)

To Activate the Auto SP/LP Change Function:
In operation step **6** when programming a timer recording with the On Screen Display (see page 13), or in operation step **4** when programming with the ShowView number (see page 14), press the SP/LP button ⑳ to select "A".

- When you press this button repeatedly, the indication changes in the following order:

SP → LP → A



Indication when "A" is selected

Setting for Control of the Recording Starting and Ending Time by Special Signal Included in the Broadcasting Signal (VPS/PDC Function)

VPS stands for Video Programme System.
PDC stands for Programme Delivery Control.
If a TV programme, for example a football game runs longer than scheduled, is shortened or starts earlier or later, this function synchronises the recording start and stop with the actual broadcasting start and stop of the TV programme.

Conditions for correct operation of the VPS/PDC function:

- "ON" must be displayed under "VPS/PDC" on the On Screen Display.
- The TV station must broadcast VPS/PDC signals.
- The programme starting time must be set correctly to the starting time listed in the newspaper/magazine.

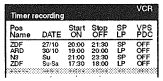
To Activate the VPS/PDC Function:
In operation step **7** when programming a timer recording with the On Screen Display (see page 13), or in operation step **4** when programming with the ShowView number (see page 14), press the Cursor buttons (▲▼◀▶) ㉜ to make the ON indication appear.
See page 30 for details.

To Check the Contents of Timer Recording Programmings

- Display the VCR picture on the TV.
- Set the VCR/TV switch ㉚ to "VCR".

1 Press the PROG./CHECK button ⑫ to display the timer recording programmings on the TV screen.
- When the VCR is in the timer recording standby mode for a VPS/PDC recording, the On Screen Display may be distorted.

2 Press the EXIT button ㉝ to exit the On Screen Display.



To Change a Timer Recording Programming

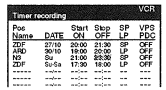
It is not possible to change a programming while the timer recording is being performed.

- Display the VCR picture on the TV.
- Set the VCR/TV switch ㉚ to "VCR".

1 Press the PROG./CHECK button ⑫ to display the timer recording programmings on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select the programming that you want to change.

3 Follow the operations below to change the programmed contents.
To change the broadcasting station:
Use the Channel buttons ⑩.
To change the date of the timer recording:
Use the DATE button ⑪.
To change the recording starting time:
Use the ON button ㉒.
To change the recording ending time:
Use the OFF button ㉑.
To change the recording speed:
Use the SP/LP button ⑳.



4 Press the OK button ㉞ to conclude the setting.

5 Press the EXIT button ㉝ to exit the On Screen Display.

To Cancel the Programming of a Timer Recording

It is not possible to cancel a programming while the timer recording is being performed.

- Display the VCR picture on the TV.
- Set the VCR/TV switch ㉚ to "VCR".

1 Press the PROG./CHECK button ⑫ to display the timer recording programmings on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select the programming that you want to cancel.

3 Press the CANCEL button ⑭.

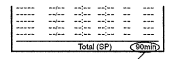
4 Press the EXIT button ㉝ to exit the On Screen Display.

Notes for Cancelling the Programming of a Timer Recording
In some cases, for example as listed below, the programming of a timer recording remains stored in the memory until 4 a.m. the next day. However, this is not a malfunction.

- When a timer recording was not performed up to the TV programme's ending time because the remaining tape time was not sufficient.
- When you have stopped the timer recording while it was being performed.

To Check the Total Timer Recording Programming Time

The total time indication for timer recording programming lets you check how many programmes can be recorded by comparing with the remaining tape time in the VCR display.



Indication for a total timer recording programming time of 90 minutes

- The total time is calculated in the SP mode.
- The total time cannot be calculated when setting Daily/ Weekly timer recording.

To select a Timer-Recorded Programme from the List and Quickly Locate Its Beginning for Automatic Playback (Programme List Search)

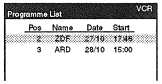
This VCR can display a list of the timer-recorded programmes on the inserted video cassette on the TV screen. You can then select the desired programme, and the VCR will quickly locate its beginning and start playback.

Conditions for correct operation of the Programme List Search function:

- The video cassette must not have been ejected after the timer recordings were performed.
- The tape length of the inserted cassette must be set correctly.
- The VCR must not be in the timer recording standby mode.
- A programme of at least 15 minutes must be recorded on the tape.
- If a timer recording was performed onto a recorded video cassette, the previous recording must have been completely erased by the new recording.

Preparation

- Display the VCR picture on the TV.



Operations

1 Press the SEARCH button ㉘ to display the Programme List menu.

2 Press the Cursor buttons (▲▼) ㉜ to select the programme that you want to locate and play back.

3 Press the SEARCH button ㉘ to start the search for the beginning of the selected programme.
- After the desired recorded programme has been found, playback starts automatically.
- If, after playback has started, you want to search for the beginning of the same or another programme, press the SEARCH button ㉘.
Playback stops, and the Programme List menu appears.
Repeat the above operations steps **2**–**3**.

To Cancel the Programme List Search:
Press the EXIT button ㉝.

Hints:

- When you press the SEARCH button ㉘ in the operation step **1**, the last timer-recorded programme is selected (highlighted).
- If you take out the cassette or insert another cassette after a timer recording has finished, pressing the SEARCH button ㉘ activates the Intro-Jet Scan instead of the Programme List Search. (Refer to page 17.)

Search Functions

To Quickly Find the Beginning of a Desired Programme (VISS=VHS Index Search System)

This VCR automatically records special index signals on the tape every time a recording is started. The Index search function makes use of these index signals to let you find the beginning of a desired programme quickly and easily.

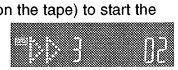
Index signals are automatically recorded in the following cases:
- When you start a recording by pressing the REC button ㉕, or REC/OTR button ⑯.
- When a timer recording starts.
- When you press the REC button ㉕ on the remote control during recording.

Conditions for correct operation of the Index search function:
- The VCR must be in the stop mode or in the playback mode.
- Each programme recorded on the tape must be at least 5 minutes long.

Preparations
- Display the VCR picture on the TV.
- Insert a recorded video cassette.

Operation

1 Press the INDEX button ㉖ (that corresponds to the direction from the current tape position in which the desired programme is located on the tape) to start the index search. For example, if you want to search for the 2nd recorded programme in forward direction, press the INDEX ►►I button ㉖ twice.



- The VCR fast-forwards or rewinds the tape and searches for the specified index signal (the beginning of the desired recorded programme). When it has been found, playback starts automatically.

To Cancel the Index Search or to Stop Playback:
Press the Stop button ⑨.

Hints:
- Searching in either direction is possible up to the 20th index signal.
- If you press either of the INDEX buttons ㉖ too many times, simply press the other INDEX button ㉖ (indicating the opposite direction) to correct it. In this way, you can reduce the displayed figure down to 1.
- The figure on the VCR display decreases by 1 every time an index signal is located.

To Search for a Desired Programme While Checking the Recorded Contents on a Cassette (Intro-Jet Scan)

This VCR automatically records special index signals on the tape every time a recording starts. The Intro-Jet Scan function makes use of these index signals to play back the beginning of each programme recorded on the cassette one after another at high speed. This lets you quickly and easily check the contents of a cassette and find a desired programme.

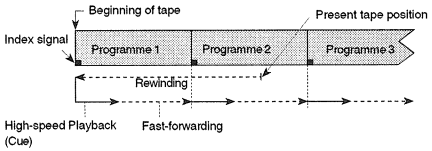
Index signals are automatically recorded in the following cases:
- When you start a recording by pressing the REC button ㉕, or REC/OTR button ⑯.
- When a timer recording starts.
- When you press the REC button ㉕ on the remote control during recording.

Conditions for correct operation of the Intro-Jet Scan function:
- The cassette must have been ejected after the timer recordings were performed.
- VCR must be switched on, be in the playback mode or be in the standby mode.
- Each programme recorded on the tape must be at least 15 minutes long.

Preparations
- Display the VCR picture on the TV.
- Insert a recorded video cassette.

Operations

1 Press the SEARCH button ㉘ to start the Intro-Jet Scan.
- After rewinding the tape to the beginning, the VCR plays it back at high speed for approximately 10 seconds. It then fast-forwards the tape to the next tape position marked by an index signal (beginning of a programme), and every time an index signal is found, the VCR switches over to high-speed playback (Cue) for about 10 seconds.



2 When you have found the programme that you want to view, press the Play button ㉔ to start normal playback.

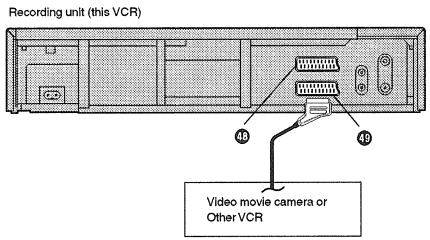
To Cancel the Intro-Jet Scan or to Stop Playback:
Press the Stop button ⑨.

Note:
- If you press the SEARCH button ㉘ after a timer recording has finished, but before ejecting that cassette, the Programme List Search (for details, see page 16) will be activated instead of the Intro-Jet Scan.

Editing

Assemble Editing

The assemble editing function makes it easy to record the picture and sound of virtually any number of scenes or programmes in succession.
Assemble editing from an external source, for example from a video movie camera, can be performed in the same way.



Preparations
- Connect a video movie camera or a VCR to this VCR with a 21-pin Scart cable, as shown in the illustration.
- Display the VCR picture on the TV.
- Insert the cassette on which the assemble editing is to be performed, and make sure that its erasure prevention tab is not broken out.
- Set the VCR/TV switch ㉚ to "VCR".
- Press the INPUT SELECT button ㉝ to select the AV input (external input) "A1" or "A2" according to the socket(s) on the VCR to which the source unit has been connected.

  A1: When connected to the AV1 21-pin Scart socket ㊽
  A2: When connected to the AV2 21-pin Scart socket ㊾
  - Make sure that "AV2" is set to "EXT". (See page 28.)

Operations

1 Press the Play button ㉔ to start playback.

2 At the point where you want to join a new scene, press the Pause/Slow button ⑦ to put it in the still playback mode.

3 Press the REC button ㉕ to put it in the recording pause mode.

4 Start playback on the source unit and search for the point from which you want to record (copy) onto this VCR.

5 When that point is reached, press the Pause/Slow button ⑦ again to start recording the new picture and sound from the playback unit.

6 To record (copy) additional scenes, press the Pause/Slow button ⑦ to put this VCR in the recording pause mode and then perform steps **4** and **5** again.

7 At the point where you want to stop recording, press the Stop button ⑨ to finish recording.

Hint:
- The new sound is recorded on both the Hi-Fi audio tracks and the normal audio track. The sound recorded on the normal audio track is always in mono.

Note:
- If you leave the VCR in the recording pause mode for more than 5 minutes in step **3** or **6**, the VCR automatically switches over to the stop mode to protect the video heads.

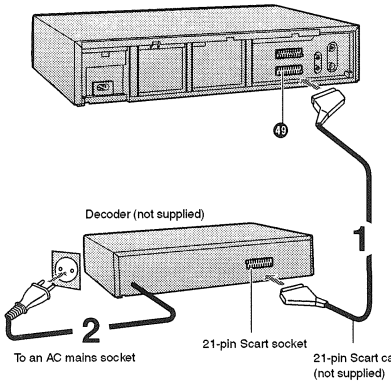
Connecting the VCR to a Decoder/ Connecting the VCR to a Stereo Amplifier

To connect this VCR to a decoder or a stereo amplifier, make the connections shown in the illustration below.
For the connection to the TV, see page 7.
.
For details about the connection, also read the operating instructions of the decoder or stereo amplifier.

Be sure to keep the VCR, TV and decoder or stereo amplifier switched off until you have finished all connections.
For your safety, do not connect or handle the equipment with wet hands.

To Connect the VCR to a Decoder

Decoder here refers to the device used to decode scrambled broadcasts (Pay TV).



1 Connect a 21-pin Scart cable (not supplied) to the AV2 21-pin Scart socket ㊾ on the VCR and to the 21-pin Scart socket on the decoder.

2 Connect the decoder's mains lead to an AC mains socket.

3 Set "AV2" to "DECODER".
For details, see page 28.

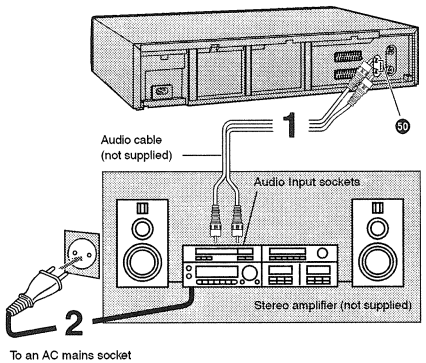
AV Link Function
If the VCR is connected to the TV via a 21-pin Scart cable, you can use AV LINK button ⑰ to switch the TV from normal TV reception over to the video playback channel (AV input) (and vice versa). In the VCR mode (when the VCR indication in the VCR display is lit), the TV is switched to the video playback channel (AV input). In the TV mode (when the VCR indication is not lit), the TV is switched to TV reception.

	VCR	TV
VCR Mode	VCR indication is lit.	AV Input is selected.
TV Mode	VCR indication is not lit.	TV reception is selected.

- When you press the MENU button ㉟ to display the menu on the TV screen, the TV is also automatically switched to the VCR mode, however, the VCR indication does not appear in this case.
- When you start playback on the VCR, the TV is automatically switched to the VCR mode. However, during playback, it is not possible to switch the TV back to the TV mode.
- If a Pay TV station has been selected on the VCR when you switch to the TV mode, the picture on the TV is scrambled when you select a Pay TV station on the TV. In this case, either switch to the VCR mode or select the AV input on the TV.

Hint:
- "RGB" means separate Red/Green/Blue colour signals. If you connect a TV equipped with RGB input capability to the AV1 socket ㊽ on this VCR, and a decoder equipped with RGB output capability to the AV2 socket ㊾, the TV can receive RGB signal input from the decoder via the VCR.

To Connect the VCR to a Stereo Amplifier



1 Connect an Audio cable (not supplied) to the Audio Output sockets ㊿ on the VCR and to Audio Input sockets on the stereo amplifier.

2 Connect the stereo amplifier's mains lead to an AC mains socket.

Connecting the VCR to a Satellite Receiver or Digital Receiver

Satellite receiver here includes a digital receiver.

The connection method differs depending on the type of your satellite receiver.

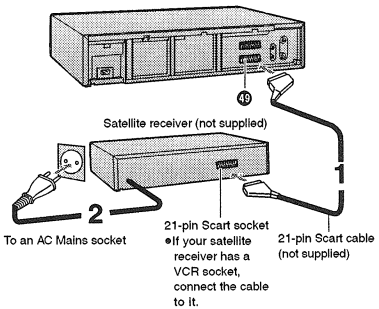
For details about the connection, also read the satellite receiver's operating instructions.

If the Satellite Receiver is Equipped with a 21-pin Scart Socket

If your satellite receiver is equipped with a 21-pin Scart socket, use a 21-pin Scart cable to connect the VCR.

For the connection to the TV, refer to page 7.

Be sure to keep the VCR, TV and satellite receiver switched off until you have finished all connections.
For your safety, do not connect or handle the equipment with wet hands.



1 Connect a 21-pin Scart cable (not supplied) to the AV2 21-pin Scart socket ㊾ on the VCR and to the 21-pin Scart socket on the satellite receiver.

2 Connect the satellite receiver's mains lead to an AC mains socket.

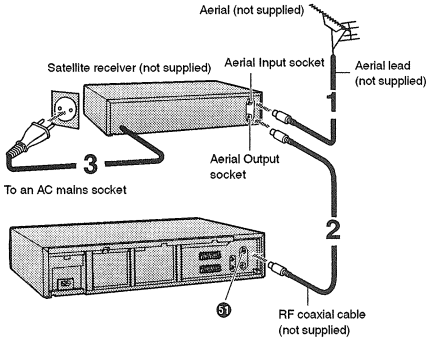
3 Set "AV2" to "EXT".
For details, see page 28.

If the Satellite Receiver Is Not Equipped with a 21-Pin Scart Socket

In case your satellite receiver is not equipped with a 21-pin Scart socket, use the RF coaxial cable to connect it to the VCR.

For the connection to the TV, refer to page 7.

Be sure to keep the VCR, TV and satellite receiver switched off until you have finished all connections.
For your safety, do not connect or handle the equipment with wet hands.



1 Connect the aerial lead to the Aerial Input socket on the satellite receiver.

2 Connect the RF coaxial cable to the Aerial Output socket on the satellite receiver and to the Aerial Input socket ㊶ on the VCR.

3 Connect the satellite receiver's mains lead to an AC mains socket.

Hint:
- The RF output channel of the satellite receiver should be adjusted away from channel 38, which is used by the VCR, e.g. re-adjust to channel 33.

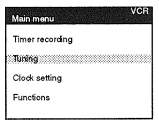
Tuning and Assigning the TV Stations Available in Your Area to the Programme Positions (Manual Tuning)

This VCR has 99 programme positions that can be preset to receive TV stations.
Usually, if you switch the VCR on for the first time after making the necessary connections, the VCR will start the Auto Setup function automatically so that all available TV stations in the area can be received.
However, if Auto Setup is not successful due to extraordinary transmission circumstances, or if you want to change the name of a TV station or change a TV station from its regular programme position to one of your preference, you can set it up manually. This is called Manual Tuning.

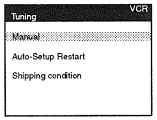
Preparation
- Set the VCR/TV switch ㉚ to "VCR".

To Change the Order in Which the TV Stations Are Assigned to the Programme Positions

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

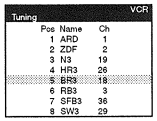


2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.



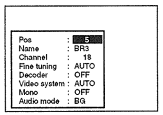
3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the TV station that you want to assign to a different programme position.



5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Pos".



7 Press the Numeric buttons ❷ to enter the number of the desired programme position.

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

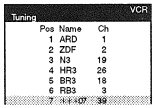
To Enter or Change the Name of a TV Station

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

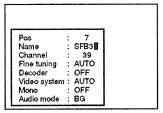
3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select a programme position whose TV station name is indicated as ∗□□□□.



5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Name".



7 Use the Cursor buttons (▲▼◀▶) ㉜ and OK button ㉞ to enter the station name.
- If the station name needs a blank space, select the blank between "Z" and "∗".

8 Press the EXIT button ㊳ to exit the On Screen Display.

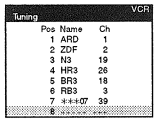
To Enter Newly Available TV Stations

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

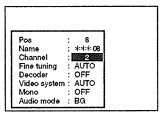
3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select an unused programme position.



5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Numeric buttons ❷ to enter the channel number of the desired TV station.
- Wait a few moments until the desired TV station has been tuned.



7 Press the OK button ㉞ to conclude the setting.

8 Press the EXIT button ㊳ to exit the On Screen Display.

To Change the Channel Number of an Already Tuned TV Station:
You can change it in the same way as explained above. However, in step **4** select the programme position of the TV station that you want to change to another channel number, and after pressing the OK button ㉞ in step **5**, use the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Channel".

List of TV Reception Channels

Channel Indication	TV Channel PAL/SECAM/B.G	SECAM OIRT	PAL I
1	—	R1	—
2–3	—	R2–R3	—
4	—	R4	—
5-8	—	R5–R8	—
9	—	R9	—
10–12	E10–E12	R10–R12	—
13–20	E2–E9	—	—
21–69	21–69	21–69	21–69
74	S1	—	—
75	S2	—	—
76	S3	—	—
79	—	—	—
80–89	M1–M10	—	—
90–99	U1–U10	—	—
121–141	*S21–S41	—	—

*Only for 8 MHz channel raster

To Obtain the Best Tuning Condition

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

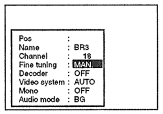
2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the TV station for which you want to obtain the best tuning condition.

5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Fine tuning".



7 Press the Cursor buttons (▲▼) ㉜ to obtain the best tuning condition.
- If you do not want to change the tuning condition, press the Cursor button (▶) ㉜ to return to the original condition (AUTO).

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

To Preset Pay TV Stations

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

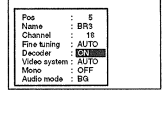
2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the pay TV station.

5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Decoder".



7 Press the Cursor buttons (▲▼) ㉜ to select "ON".
ON: To preset pay TV stations.
OFF: To preset normal TV stations.

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

To Change the Type of Video System (Colour TV system)

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

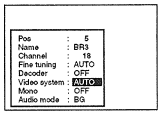
2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the TV station for which you want to change the type of video system.

5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Video system".



7 Press the Cursor buttons (▲▼) ㉜ to select "AUTO".
The VCR automatically distinguishes between PAL, SECAM/MESECAM signals. If the picture lacks colour, press the Cursor buttons (▲▼) ㉜ to select "PAL", or "MESECAM".

PAL: For receiving PAL signals.
MESECAM: For receiving SECAM/MESECAM signals.

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

To Select the Type of Sound to Be Recorded

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

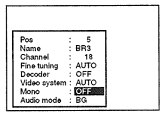
2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the desired TV station.

5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Mono".



7 Press the Cursor buttons (▲▼) ㉜ to select "OFF".
- Select "ON" if you want to record the normal (mono) sound on the Hi-Fi audio tracks during a stereo, bilingual or NICAM broadcast, or if the stereo sound is distorted due to inferior reception conditions.

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

To Change the Audio System

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

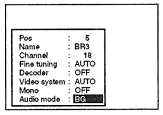
2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the TV station for which you want to change the type of video system.

5 Press the OK button ㉞ to display the Manual Tuning menu.

6 Press the Cursor buttons (▲▼◀▶) ㉜ to select the entry field for "Audio mode".



7 Press the Cursor buttons (▲▼) ㉜ to select the desired Audio mode.

BG: PAL B.G.H/SECAM B.G.
DK: PAL D/SECAM D.K.K1
I: PAL I

8 Press the OK button ㉞ to conclude the setting.

9 Press the EXIT button ㊳ to exit the On Screen Display.

To Facilitate the Following Operations with the Instruction Indications on the On Screen Display

- To delete a programme position
- To insert a blank programme position
- To move a TV station to another programme position

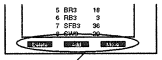
Use the coloured instruction indications displayed below the list of tuned TV stations and the corresponding coloured buttons.

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Manual" then press the OK button ㉞ to display the list of tuned TV stations.

4 Press the Cursor buttons (▲▼) ㉜ to select the desired TV station.



Indications for Delete, Add and Move

5 Follow the operations below.
To delete a programme position (Delete):
Press the Channel button (∧, red) ⑩.
To insert a blank programme position (Add):
Press the DATE button (+, green) ⑪.
To move a TV station to another programme position (Move):
Press the ON button (+, yellow) ㉒, and then use the Cursor buttons (▲▼) ㉜ to select the new programme position to which you want to assign the TV station.

6 Press the OK button ㉞ to conclude the setting.

7 Press the EXIT button ㊳ to exit the On Screen Display.

Hint:
- If you have performed Manual Tuning to enter TV stations, the "– –" indication may appear under "Pos/Name" on the On Screen Display when programming a ShowView timer recording.

Restarting the Auto Setup/ Resetting the VCR to the Shipping Condition

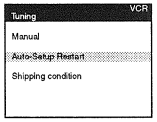
Performing Auto Setup automatically tunes all TV stations available in your area for the VCR.
Restarting this function is convenient when you move to another area and may need to set up the VCR again.

To Restart the Auto Setup

To perform the Auto Setup again, follow the operation steps below.

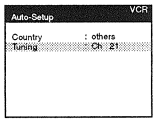
1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼) ㉜ to select "Auto-Setup Restart" then press the OK button ㉞ to prepare for Auto Setup start.

4 Press the OK button ㉞ again to actually start the Auto Setup.



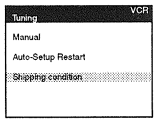
To Return the VCR to the Shipping Condition

If you want to reset the VCR to the factory preset condition, follow the operation steps below.

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Tuning" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼) ㉜ to select "Shipping condition" then press the OK button ㉞ to prepare for resetting the VCR to the shipping condition.



4 Press the OK button ㉞ to actually change the settings back to the shipping condition.
- To re-tune the VCR, disconnect and reconnect the AC Mains Cable.

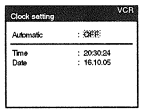
Setting the VCR's Clock

Usually, the VCR's Auto Setup function automatically adjusts the clock to the correct time.
Under some reception conditions, however, the VCR cannot set the clock automatically.
In this case, follow the operation steps below to manually set the clock.

To Manually Adjust the Clock

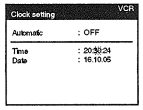
1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Clock setting" then press the OK button ㉞.
- The Clock setting menu appears on the TV.



3 Confirm that "Automatic" is set to "OFF", and then press the OK button ㉞.

4 Use the Cursor buttons (▲▼◀▶) ㉜ to set the date and time.
- Instead of the Cursor buttons (▲▼◀▶) ㉜, you can also use the numeric buttons ❷ to set the date and time.
(Set the VCR/TV switch ㉚ to "VCR".)



5 Press the OK button ㉞ to conclude the setting.

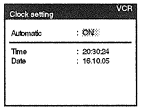
6 Press the EXIT button ㊳ to exit the On Screen Display.

To Activate the Automatic Time Correction Function

If a TV station transmits a signal for time setting, performing the operation steps below activates the Automatic time correction function and the time is corrected automatically.

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Clock setting" then press the OK button ㉞.
- The Clock setting menu appears on the TV.



3 Use the Cursor buttons (▲▼) ㉜ to set "Automatic" to "ON".

4 Press the OK button ㉞ to conclude the setting.
- Under adverse reception conditions, etc., the Automatic time correction function may not work. In this case, the indication for "Automatic" is automatically reset to "OFF".
If the reception conditions improve later on, it may be possible to activate this function.

5 Press the EXIT button ㊳ to exit the On Screen Display.

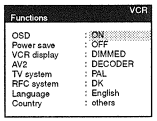
Hints:
- If "Automatic" is set to "ON" when you open the Clock screen, do not set it to "OFF", otherwise, the automatic time correcting function is deactivated.
- The built-in clock employs the 24-hour system.
- In case of a power failure, an automatic back-up system automatically maintains the operation of the clock for at least 60 minutes.
- When "Automatic" on the Clock setting menu is set to "ON", the automatic time correction function checks and if necessary adjusts the time several times every day.
The automatic time correction function only works when the VCR is switched off; it does not work in the timer recording standby mode.
- If "Automatic" is set to "OFF" and "Power save" to "ON" (see page 28), the time may not be maintained correctly. In this case, manually adjust the clock.
- If "Automatic" is set to "ON" and "Power save" to "ON", the Automatic time correction function does not work while the VCR is turned off. However, as soon as it is turned on, the Automatic time correction function is activated and the clock is set correctly.

Other Convenient Functions (Various Settings)

For Automatic Display on the TV Screen of the TV Station Information, etc.

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



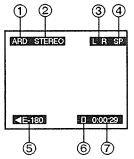
3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "OSD" and the entry field for "OSD" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select "ON".
- The TV station information, type of sound system of the programme being watched and the sound playback mode are displayed on the TV screen.

5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㊳ to exit the On Screen Display.

Indications that Can Be Displayed on the TV Screen with This Function:
At a press of the OSD/DISPLAY button ❺, the following indications appear on the TV screen.



① **TV station name**

② **STEREO, M1 and M2 Indicator**
When receiving a TV programme with the Stereo, Bilingual or NICAM sound system, the type of sound system in which it is broadcast is automatically indicated.
STEREO: When receiving a Stereo/NICAM stereo broadcast.
M1/M2: When receiving a Bilingual/NICAM dual-sound broadcast.
M1: When receiving a NICAM monaural broadcast.

③ **Sound mode during playback (L/R)**
At each press of the AUDIO button ⑮, the selected playback sound is indicated with L (Left) and R (Right).
Stereo playback:
The L and R indications are displayed.
Left audio channel playback:
The L indication alone is displayed.
Right audio channel playback:
The R indication alone is displayed.
Playback of normal audio track:
Neither L nor R indication is displayed.

④ **Tape speed indicator**

⑤ **Tape length indicator**
At each press of the TAPE button ⑰, the selected tape length is indicated.
◀E-180: For E30, -60, -90, -120 and -180 tapes
E-195: For E195 tape
E-240: For E240 tape
E-260 ▶: For E260 and -300 tapes
- Even if you have selected the correct tape length, the remaining tape time may not be indicated correctly with certain kinds of cassettes.

⑥ **Tape running display**

Stop	□
Rewind	◀◀
Fast Forward	▶▶
Playback	▷
Recording	●
Recording pause	▯▯
Repeat Playback	R

⑦ **Present time/Tape counter/Remaining tape time/Index Search/One-Touch Recording (OTR) /Playback Off Timer Function**

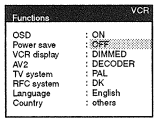
Present time	17:24:31
Tape counter	−2:35.47
Remaining tape time	REMAIN: 2:34
Index Search	▶▶ 02
One-Touch Recording (OTR)	OTR 60
Playback Off Timer Function	30

Notes:
- If "OSD" is set to "OFF", none of the above indications appear.
- None of the above indications appear during special playback.
- During playback and when the AV input for the external source is selected, indications ① and ② do not appear.
- Some of the above indications do not appear when using NTSC tapes.

For Reduced the VCR's Power Consumption When the VCR Is Switched Off

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "Power save" and the entry field for "Power save" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select "ON" or "OFF".

ON: In this setting, the power consumption is greatly minimised when the VCR is turned off (Standby mode). In this case, the following happens:
- The item "VCR display" is automatically set to "OFF".
- To turn the VCR on, keep the VCR-ON/OFF button ❶ pressed on the VCR main unit. It is not possible to turn it on with the remote control.
- The Power save function works only when the VCR is turned off (Standby mode). It does not operate in the timer recording standby mode. After all programmed timer recordings have been made, and after all programmed data have been erased, the VCR switches over to the Power save mode.
- When the VCR is off, Pay TV programmes cannot be watched on the TV because the signal from the connected decoder is not looped through. To watch them, turn on the VCR.

OFF: In this setting, the power consumption is not reduced when the VCR is turned off (Standby mode).

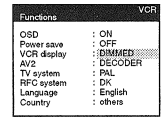
5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㊳ to exit the On Screen Display.

For Automatic Change of the Brightness of the VCR Display When the VCR Is Switched Off

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "VCR display" and the entry field for "VCR display" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select the desired condition.
- When the VCR is switched off, the brightness of the VCR display is as follows:
ON: Indications are brightly lit.
OFF: Indications are not lit.
DIMMED: Indications are dimly lit.

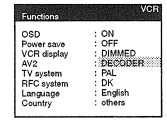
5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㊳ to exit the On Screen Display.

To Set the Type of External Source Equipment that Is Connected to the AV2 21-pin Scart Socket

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "AV2" and "DECODER" or "EXT" in this order.

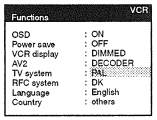
4 Press the Cursor buttons (▲▼) ㉜ to select the type of external source equipment which is connected to the VCR's AV2 21-pin socket.
- Set the external source equipment as follows:
DECODER: When a decoder is connected.
EXT: When another VCR or a satellite receiver is connected.

5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㊳ to exit the On Screen Display.

To Set the Colour TV System Used During Playback or Recording from an External Source

1 Press the MENU button ㉟ to display the Main menu on the TV screen.



2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.

3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "TV system" and "AUTO" in this order.
- The VCR automatically distinguish between PAL, SECAM/MESECAM signals. If the picture lacks colour during playback or during recording from an external source, press the Cursor buttons (▲▼) ㉜ to select "PAL" or "MESECAM".

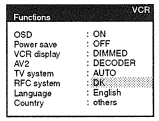
4 Press the OK button ㉞ to conclude the setting.

5 Press the EXIT button ㉝ to exit the On Screen Display.

To Set RFC System the same as the TV system of the connected TV

1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "RFC system" and "DK", "BG" or "I" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select the type of RFC System the same as the TV system of the connected TV.

TV system	RFC system
PAL D/SECAM D.K.K1	DK
PAL B.G.H/SECAM B.G	BG
PAL I	I

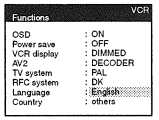
5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㉝ to exit the On Screen Display.

Language Setting

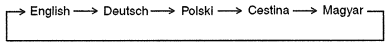
1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "Language" and the entry field for "Language" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select the desired language.
Pressing the Cursor button (▼) ㉜ repeatedly changes the indication in the following order:



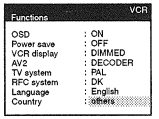
5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㉝ to exit the On Screen Display.

Country Setting

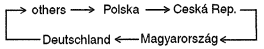
1 Press the MENU button ㉟ to display the Main menu on the TV screen.

2 Press the Cursor buttons (▲▼) ㉜ to select "Functions" then press the OK button ㉞.



3 Press the Cursor buttons (▲▼◀▶) ㉜ to select "Country" and the entry field for "Country" in this order.

4 Press the Cursor buttons (▲▼) ㉜ to select the desired country.
Pressing the Cursor button (▼) ㉜ repeatedly changes the indication in the following order:



5 Press the OK button ㉞ to conclude the setting.

6 Press the EXIT button ㉝ to exit the On Screen Display.

Glossary

VPS (Video Programme System)/ PDC (Programme Delivery Control)

The Video Programme System (VPS) or the Programme Delivery Control (PDC) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and, for example, some special news is inserted, the recording will also be interrupted automatically and resumed when the programme continues.
Depending on the signals sent from the TV stations, the VPS/PDC system may not operate properly even when "VPS/PDC" has been set to "ON".
Please check with the broadcasters in your area for details.

- In the case of VPS/PDC recording, use the correct time (VPS/PDC time) for recording the TV programmes.
  Set "VPS/PDC" to "OFF" when the recording time is not the correct time (VPS/PDC time).
  VPS/PDC recording is not performed when the time (VPS/PDC time) is incorrect, even if only by one minute. To find out the correct time (VPS/PDC time), consult Teletext, a newspaper or magazine, or other source.
- If the actual broadcasting times of timer recordings overlap (regardless of whether they are VPS/PDC controlled), the recording that starts first always has priority, and the recording of the later beginning programme will start only after the first timer recording has finished.
- When the VPS/PDC signal drops out because the broadcast signal is weak, or when a TV station does not transmit a regular VPS/PDC signal, the timer recording will be performed in the normal mode (without VPS/PDC) even if it was programmed for VPS/PDC.
  In this case, even if the timer recording is performed, whatever has been programmed will not be cancelled at that particular time but at 4 a.m. on the following day.
- The start times of scheduled programmes listed in the newspaper or magazine may be changed at a later date. Set "VPS/PDC" to "OFF" when programming a programme whose start time has been subsequently changed. Particular care must be taken in this respect with ShowView programming since "VPS/PDC" is automatically set to "ON" in some countries.
- If a programme listed in a newspaper or magazine has two ShowView numbers, use the ShowView number for VPS/PDC if you wish to proceed with VPS/PDC recording using ShowView programming.
- The default settings for "VPS/PDC" differ depending on the country concerned. Refer to the table on the right.

Programming method / Selected Country	ShowView programming	Changes in ShowView programming start time	Non-ShowView programming
Germany, Other Countries	ON	ON	ON
Poland, Czech, Hungary	OFF	OFF	OFF

- If the broadcasting station is not transmitting VPS/PDC signals, "– – –" appears in the menu for timer programming under "VPS/PDC".

NICAM Broadcasting System

This model features the NICAM digital sound system, a 2-channel sound broadcast system that provides either 2 high-quality stereo sound tracks or 2 independent mono sound tracks, M1 and M2.
NICAM programmes are always accompanied by standard (mono) sound broadcasts, and during playback, you can select the desired sound with the AUDIO button ⑮.

- The NICAM stereo sound can only be recorded on the Hi-Fi audio tracks.
- If, for some reason, you want to record a stereo, bilingual or NICAM TV programme intentionally in mono on the Hi-Fi audio tracks, set "Mono" to "ON" for the programme position on which the desired programme is broadcast, as described on page 23.

Important Note on the NICAM System
When this model is switched on, the tuner automatically switches to a NICAM broadcast if NICAM is being transmitted. During test transmissions, it is possible that the sound received does not correspond to the picture being viewed. In order to receive synchronised sound and picture, select monaural sound with the AUDIO button ⑮ or setting "Mono" to "ON". This applies only until NICAM transmissions are fully operational.
Even if the sound track is in mono, the STEREO indication will appear.

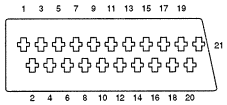
NV-FJ612EE-S / NV-FJ612EE-K

Crystal View Control (CVC)

The crystal view control function ensures that you always obtain the optimum picture quality so that you get the best picture automatically.
While the VCR is turned on, the CVC indication ⓬ is always displayed to show that the Crystal View Control is activated.

21-pin Scart Socket

The 21-pin Scart socket transmits both input and output signals for picture and sound. TVs equipped with the same type of socket can be connected here.
This type of socket is also called Peritel, Euro Connector and Euro AV.



1 Audio output CH2 (R)	12 No connection
2 Audio input CH2 (R)	13 Red ground
3 Audio output CH1 (L)	14 Blanking ground
4 Audio ground	15 Red
5 Blue ground	16 Blanking
6 Audio input CH1 (L)	17 Video output ground
7 Blue	18 Video input ground
8 Switching voltage	19 Video output
9 Green ground	20 Video input
10 Control signal	21 Ground
11 Green	

The Red, Green and Blue (RGB) video signals are looped through only from an external source unit, for example from a connected a pay-TV decoder, i.e. they are not from tape playback.

Cautions

Be sure to read the cautions carefully before you operate this VCR.

Avoid sudden changes in temperature

If the VCR is moved suddenly from a cold to a warm place, condensation may form on the tape surface and inside the VCR. If this happens, leave the VCR at room temperature for at least 1 hour before operating it.

Avoid humidity and dust

Do not use the VCR in very humid or dusty places. This may cause damage to its internal parts.

Do not cover the ventilation holes

The ventilation holes prevents excessive heat build-up inside the VCR during extended periods of use. Do not block these holes; especially avoid covering them with soft materials such as paper or cloth.

Keep the VCR away from high temperatures

Keep the VCR away from extreme heat such as direct sunlight, heating radiators, or closed automobiles.

Avoid magnets or magnetized objects

Never bring a magnet or magnetized object close to the VCR because this could adversely affect the performance of the VCR. When using the VCR together with other equipment, keep as much distance as possible between them to prevent them from adversely affecting each other's performance.

No fingers or other objects inside

Touching internal parts of the VCR is dangerous, and may seriously damage it. Do not attempt to disassemble the VCR. There are no user serviceable parts inside.

Keep water away

Keep the VCR away from flower vases, tubs, sinks, etc.
Caution: If water or some other liquid is spilled into the VCR, serious damage could occur. If you spill any liquid into the VCR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VCR during lightning storms.

Cleaning the VCR

Wipe the VCR with a clean, dry cloth. Never use any cleaning fluid or other chemicals. Also do not use compressed air to remove dust.

Stacking

Install the VCR in a horizontal position and do not place anything heavy on it.

Video head clogging

The video heads record the picture signals on the tape during recording and read picture signals from the tape during playback. They are, therefore, of critical importance for the picture quality. If the VCR is used for a very long time, these heads may become dirty and clogged with dust and fine particles from the tape coating. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, if during the playback of a tape, which you know to have excellent recording quality, the picture and sound quality are inferior. When such a symptom occurs, have the recorder checked by qualified service personnel.

Head cleaning by a service center is not covered by warranty.

Condensation may form in the following cases:

- If the VCR is in a room that was very cold before the heater has just been turned on.
- If the VCR is in a room with steam or high humidity.
- If the VCR is brought from cold surroundings into a well-heated room.
- The VCR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

Note:

- In any of the above-mentioned conditions, do not operate the VCR for at least 1 hour.
  This VCR is not equipped with a dew sensor.

2.4. INTRODUCTION OF VIDEO HEAD CLEANING CASSETTE (POLISHING TYPE)

1. We are pleased to introduce Panasonic Video Head Cleaning Cassette, **VFK0923FT** [for service purposes] and **VFK0923FSE** [for end users] for all VHS/SVHS VCP and VCR.
2. These cleaning cassettes are exclusive removing the hard and sticky clogging on video heads.
3. These improve the efficiency of video head cleaning service and shortening cleaning time for end users.

	VFK0923FT (For Service usage)	**VFK0923FSE** (For end users)
Type of Cassette	Full VHS Cassette	Full VHS Cassette
Cleaning Time	10 Seconds/Time	10 Seconds/Time
Tape Length	20 m	3.34 m
Usability in a Path	180 Times	30 Times

Note:

The tape material itself is the same in both types.

[VFK0923FT]

[VFK0923FSE]

3 ADJUSTMENT PROCEDURES

3.1. DISASSEMBLY METHOD

3.1.1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.

When reassembling, perform the steps in the reverse order.

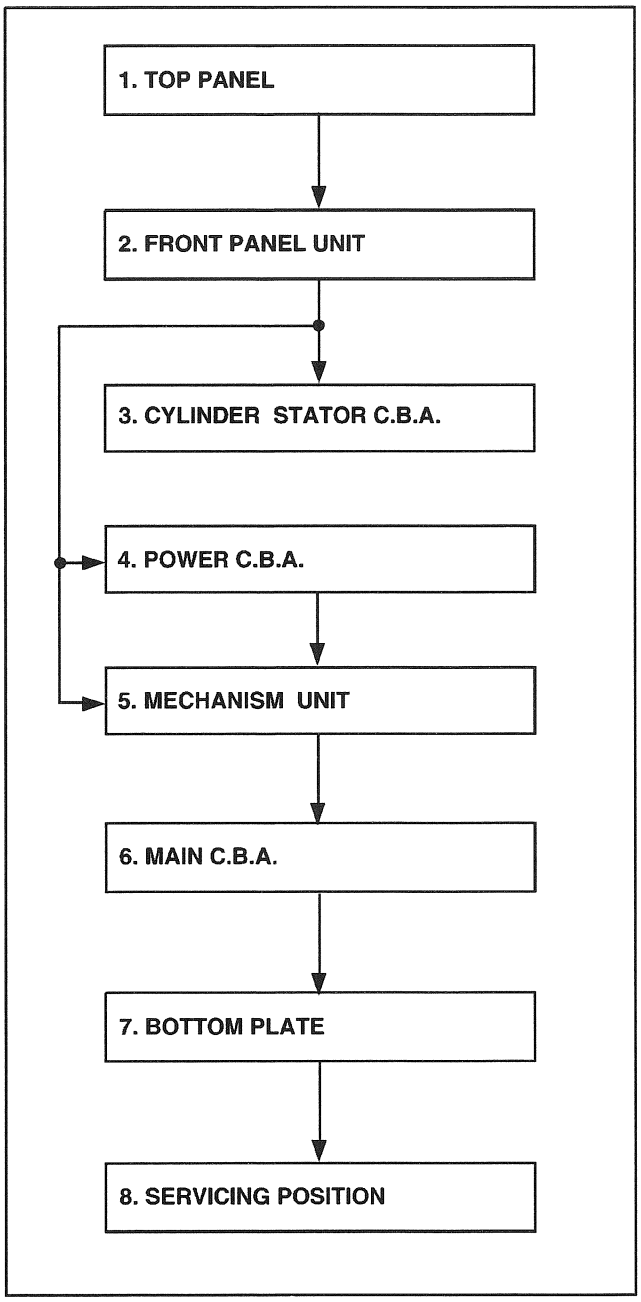


Fig. D1

3.1.2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove	4 Screws (A)

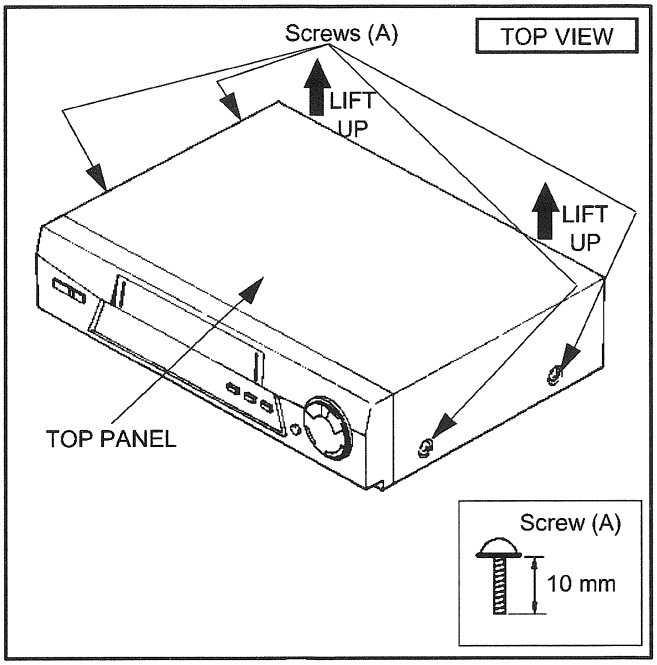


Fig. D2

2. REMOVAL OF THE FRONT PANEL UNIT

Unlock	7 Tabs (B)

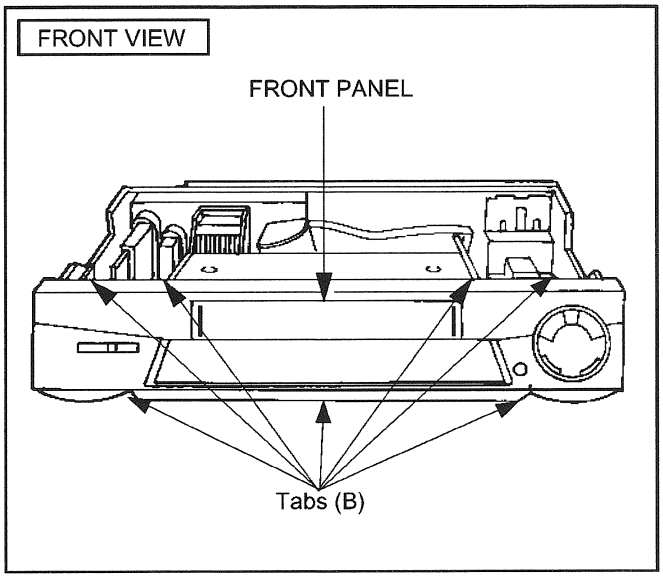


Fig. D3

3. REMOVAL OF THE CYLINDER STATOR C.B.A.

Remove	2 Screws (C)
Disconnect	Flat Card Cable (D)

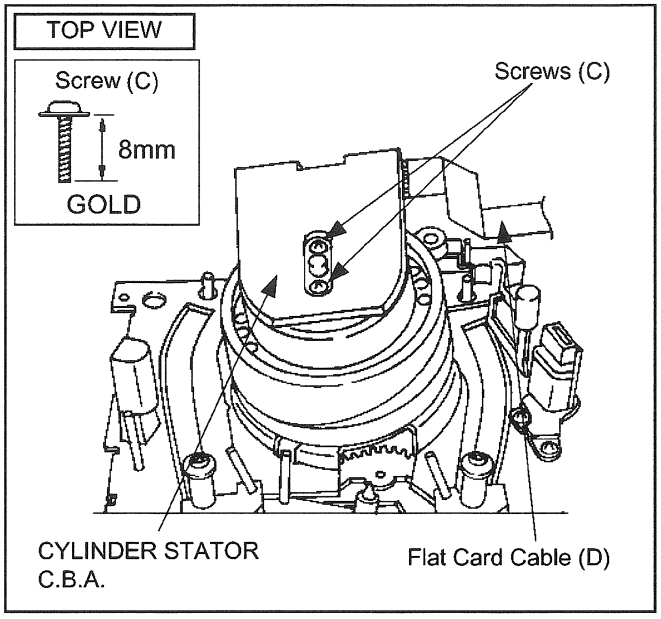


Fig. D4

4. REMOVAL OF THE POWER C.B.A.

Disconnect	Bridge Connector (E)
Unlock	6 Tabs (F)

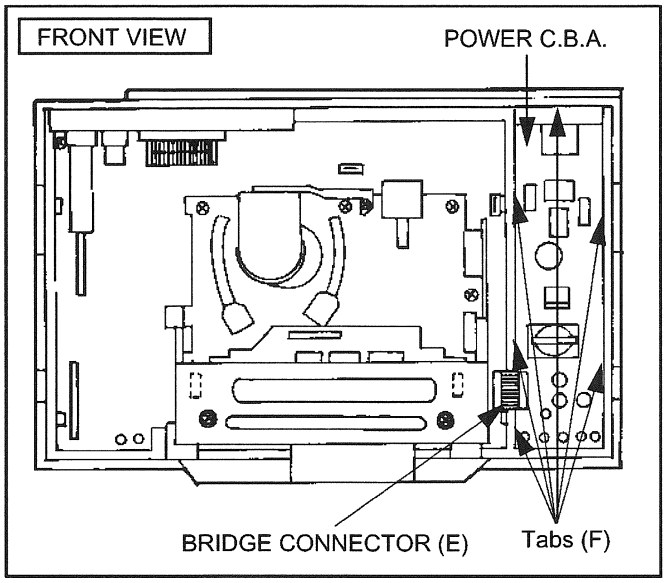


Fig. D5

COUTIONS:

Please pay an attention to disconnect the connector (P1001-P1103) which connected between Main C.B.A. and Power supply unit as shown Fig. D6.

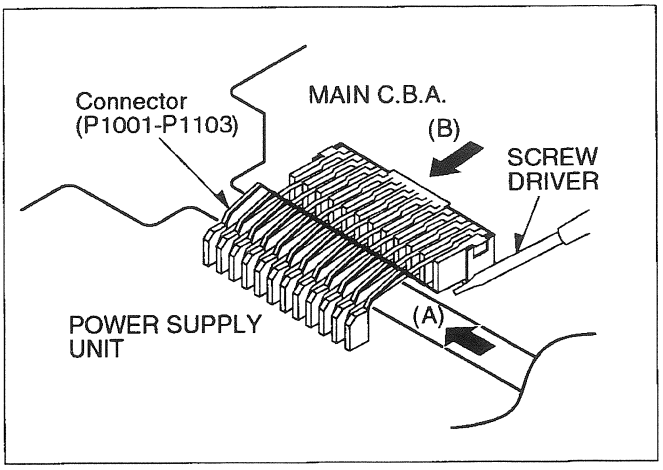


Fig. D6

As shown Fig. D6, disconnect the connector by SCREW DRIVER from the direction (A).
Do not disconnect from direction (B) because it is possibility to damage the parts located by the connector.

5. REMOVAL OF THE MECHANISM UNIT

Remove	3 Screws (G)
Remove	2 Screws (H)
Remove	Screw (I)

NOTE:

Keep pressing 2 stoppers on the Cassette Holder Plate and press the Cassette Holder Plate to the rear.

[CAUTION -Mounting the Mechanism unit to Main C.B.A.]

a. **When assembling, insert the Cylinder Flexible card to the Connector (P3502) carefully, to avoid any damage.**

b. **Be sure to tighten the Screw (I), otherwise, S/N ration may become worse.**

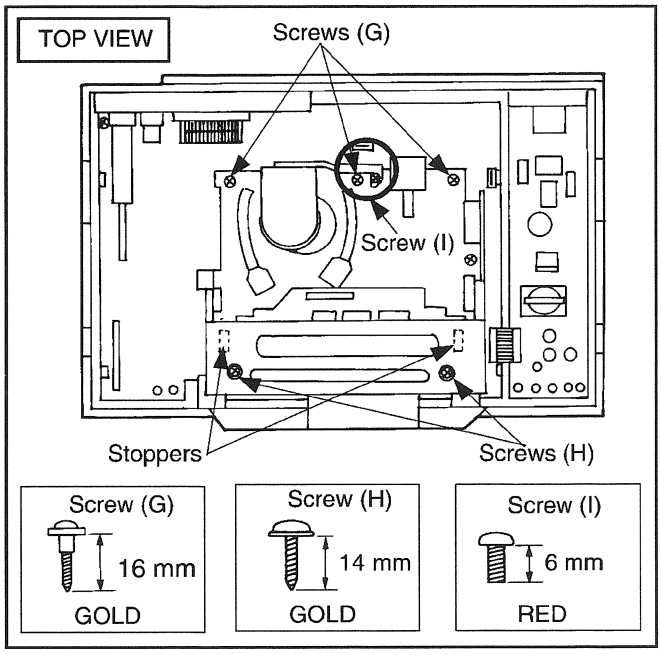


Fig. D7-1

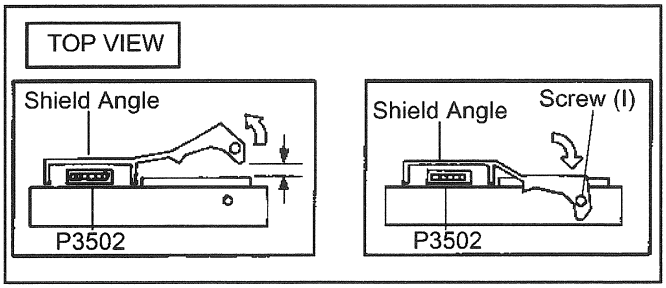


Fig. D7-2

6. REMOVAL OF THE MAIN C.B.A.

Disconnect	Bridge Connector (E)
Remove	Screw (J)
Unlock	7 Tabs (K)

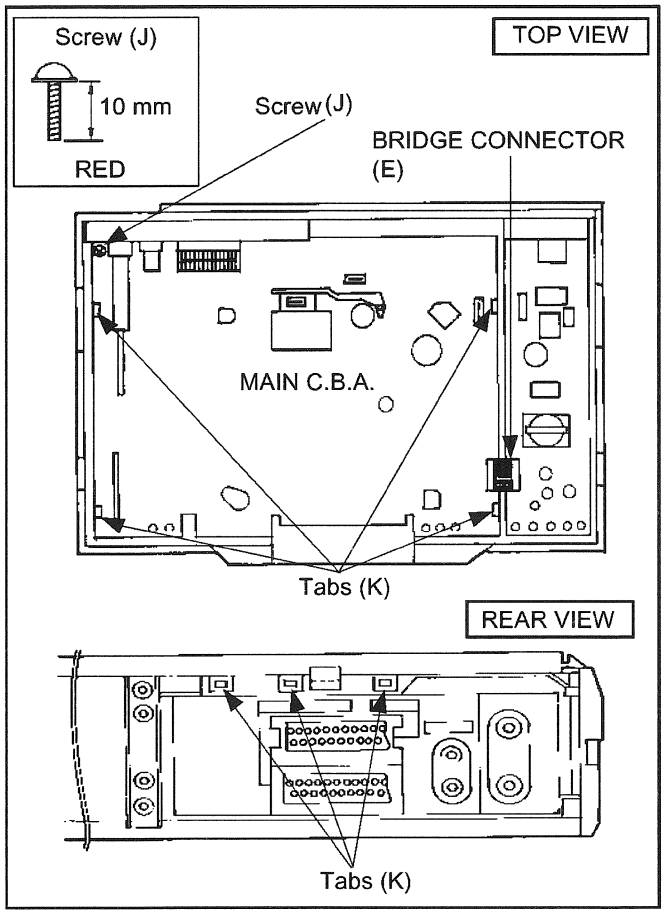


Fig. D8

7. REMOVAL OF THE BOTTOM PLATE

Unlock	10 Tabs (L)

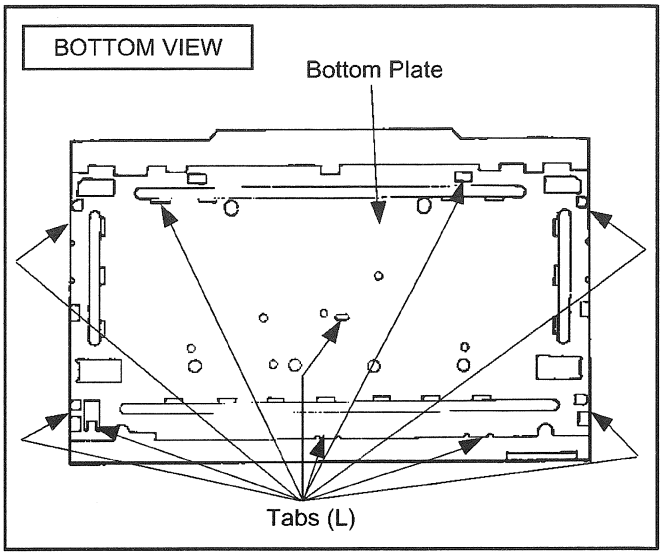


Fig. D9

8. SERVICING POSITION

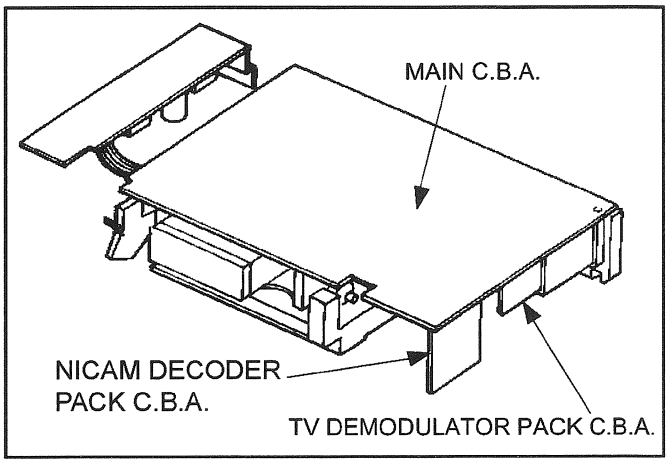


Fig. D10

3.2. MECHANICAL ADJUSTMENT PROCEDURES

Refer to the Service Manual for Z-Mechanism Chassis.
(Order No. VRD9802005C2)

3.3. ELECTRICAL ADJUSTMENT PROCEDURES

3.3.1. TEST EQUIPMENT

The following equipments are required for Electrical Adjustments.

1. Dual-Trace Oscilloscope
   - Voltage Range: 0.005-5V/div
   - Frequency Range: DC-35MHz
   - Probes: 10:1 / 1:1
2. Frequency Counter
   - Frequency Range: 0-10MHz
   - Probes: 1:1
3. Universal Counter
4. Digital Volt Meter (D.V.M.)
5. Video Sweep Generator
6. Sinewave Generator
7. Video Pattern Generator
8. Monitor TV
9. DC Power Supply
10. VHS Blank Tape
11. VHS Alignment Tape
    - Parts No.: VFJ8125H3F(PAL)

3.3.2. VCR SETTING

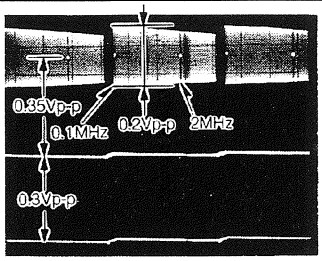
When no indication in the procedure, set each selector as follows.

1. TAPE SPEED: SP
2. CHANNEL: AV1/AV2
   (Set to signal input terminal number)

3.3.3. ADJUSTMENTS

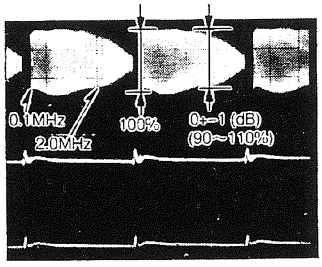
ITEM	TP	ADJ.	MODE	INPUT	TAPE	M. EQ.	SPEC.	REMARKS
PG SHIFTER ADJUSTMENT	---	---	PLABACK	---	ALIGNMENT TAPE (PAL)	---	---	Refer to the procedure of PG SHIFTER ADJUSTMENT as shown in Fig.E3.
VIDEO FREQUENCY RESPONSE ADJUSTMENT	VIDEO OUT	---	SP/LP PLAYBACK (SELF-REC)	VIDEO SWEEP (See Fig.E1)	BLANK TAPE	OSCILLO SCOPE/ VIDEO SWEEP GENERAT OR	SP: 0+-1 (dB) (90~110%) LP: 0+-1 (dB) (90~110%) (See Fig. E2)	Refer to the procedure of VIDEO FREQUENCY RESPONSE ADJUSTMENT as shown in Fig. E5.
AI FUNCTION ADJUSTMENT	---	---	PLAYBACK (SELF-REC)	PAL COLOUR BAR	BLANK TAPE	---	---	Refer to the procedure of AI FUNCTION ADJUSTMENT as shown in Fig.E4.

Fig.E1



CONDITION:
BURST SIGNAL OFF
75 ohm TERMINATED

Fig.E2



3.3.4. PG SHIFTER ADJUSTMENT (AUTOMATIC)

PROCEDURES	FIP Display
Press the FF and EJECT buttons simultaneously for 3 seconds.	0 00 00
Press the FF and EJECT buttons simultaneously twice.	2 00 00
Press the EJECT key for 3 seconds.	2 00 00
Press the CH UP key once.	2 01 00
Insert the Alignment Tape. (PAL: VFJ81215H3F)	2 01 00
This adjustment is automatically started. (During the adjustment, the picture will be appeared on the monitor.)	2 01 00
When this Adjustment is terminated, the following operation will be activated. • Adjustment completed: The tape will be ejected. • Adjustment incompleted: "F2*" is indicated on the FIP.Check the Servo/System Control circuit and Cylinder Unit.	
To release Service Mode, press EJECT key and key Simultaneously 6 times until the FIP becomes normal indication.	

Fig. E3

3.3.5. AI FUNCTION ADJUSTMENT (AUTOMATIC)

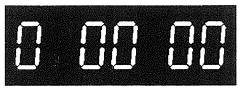
PROCEDURES	FIP Display
Press the FF and EJECT buttons simultaneously for 3 seconds.	
Press the FF and EJECT buttons simultaneously twice.	
Press the EJECT key for 3 seconds.	
Press the CH UP key 3 times.	
Insert the Blank Tape.	
This adjustment is automatically started.	
When this Adjustment is terminated, the following operation will be activated. • Adjustment completed: The VCR goes to STOP Mode.	
To release Service Mode, press EJECT key and key Simultaneously 6 times until the FIP becomes normal indication.	

Fig. E4

3.3.6. VIDEO FREQUENCY RESPONSE ADJUSTMENT

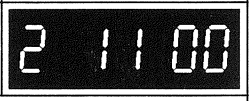
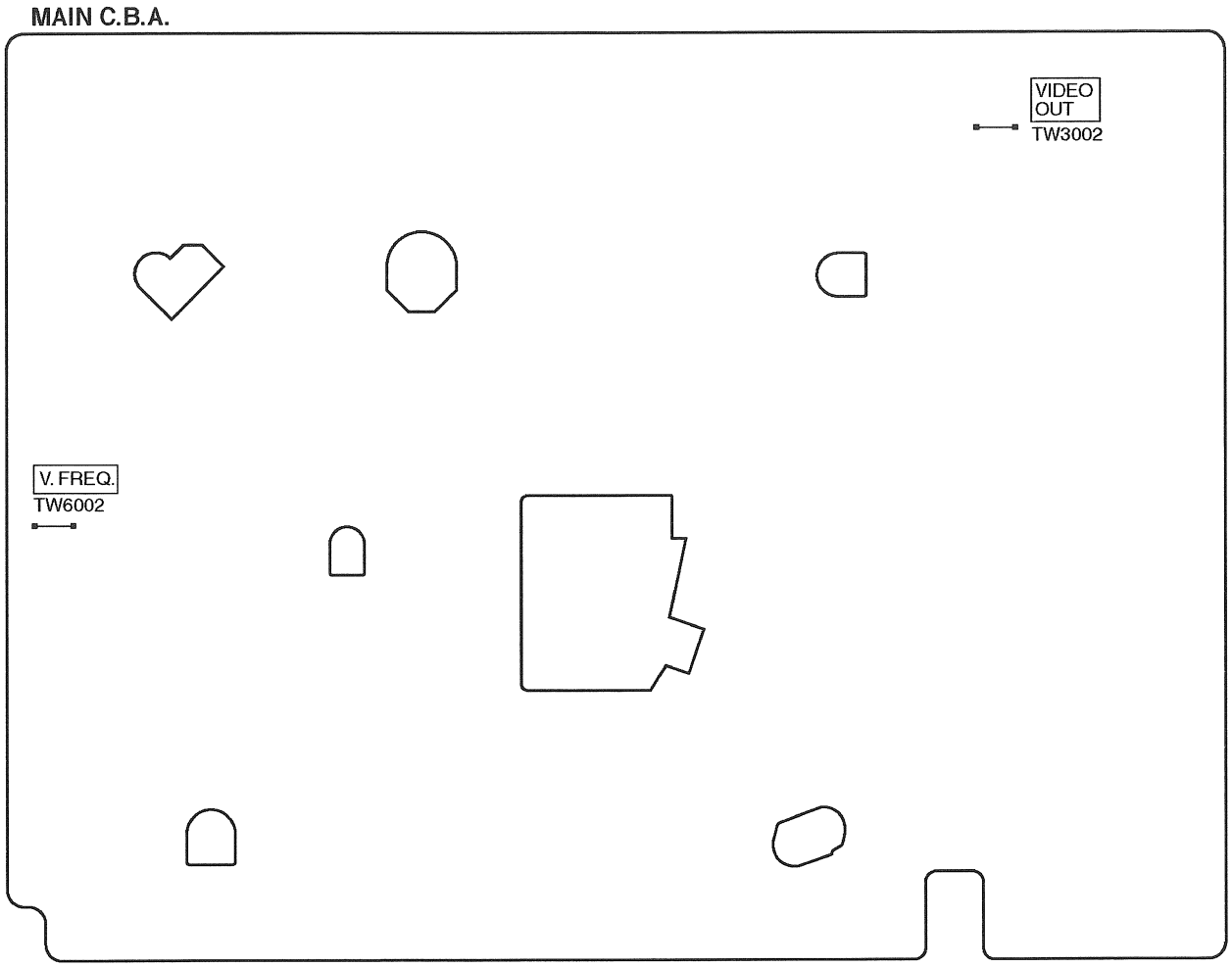
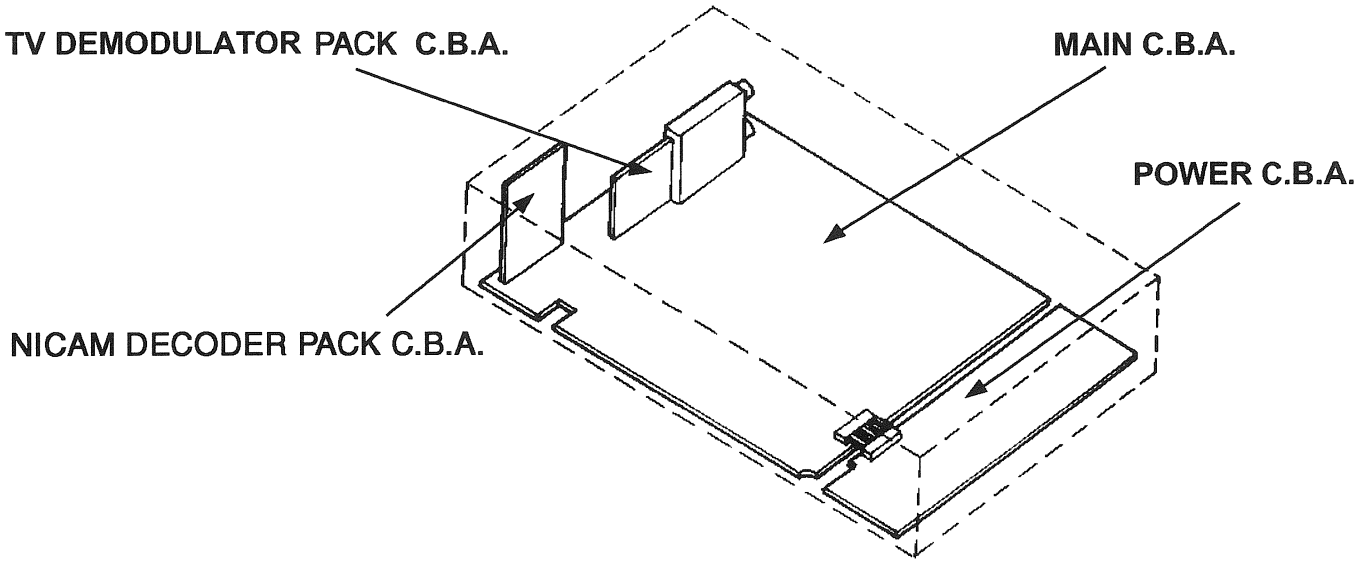
PROCEDURES	FIP Display
Set the Video Sweep signal (See Fig.E1)	
Make the self-recording tape.	
Press the FF and EJECT Buttons simultaneously for 3 seconds.	
Press the FF and EJECT Buttons simultaneously twice.	
Press the EJECT key for 3 seconds.	
Press the CH UP and/or CH DOWN key until "11" is displayed on the FIP.	
Insert the Self-recorded tape and playback it.	
Connect the Oscilloscope to: *CH1... Video Out.(TW3002). *CH2... V.FREQ. (TW6002).	
Press the "4" key on the Remote Controller. (Confirm that TW6002 becomes high (5V).)	
Adjust the Frequency response by pressing the "2" (increase) and/or "8"(decrease) key on the Remote Controller.	
Store the Adjusted value by pressing "5" key on the Remote Controller.	
Release the Service mode by pressing the EJECT and FF keys simultaneously 6 times until the FIP becomes normal indication.	

Fig. E5

3.3.7. LOCATION OF TEST POINTS & CONTROLS



3.3.8. CIRCUIT BOARD LAYOUT



4 ABBREVIATIONS

443NT [L]	4.43 NTSC Ⓛ
A. COMP	AUDIO COMPONENT SIGNAL
A. COMPO	AUDIO COMPONENT SIGNAL
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ
A. DEF [S]	AUDIO DEFEAT
A.DEF [S] [L]	AUDIO DEFEAT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ
A. DUB [H]	AUDIO DUBBING Ⓗ
A. ERASE	AUDIO ERASE
A. H. SW	AUDIO HEAD SWITCHING PULSE
A. HEAD [R]	AUDIO HEAD (REC)
A. HEAD [W]	AUDIO HEAD (PLAY)
A. IN [L]	AUDIO INPUT (L)
A. IN [R]	AUDIO INPUT (R)
A. MUT [H]	AUDIO MUTE Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)
A. OUT [R]	AUDIO OUTPUT (R)
A. RF OUT	AUDIO RF SIGNAL OUTPUT
A/VS/S. DATA	AV SW/SERIAL DATA
AC ONLINE	AC ONLINE
AC. O/EE. H	AC ONLINE/EE Ⓗ
AFC S C	AFC S CURVE
AFC [S]	AFC S CURVE
AFC. DEF	AFC DEFEAT
ARFC OUT	AUDIO RF SIGNAL OUTPUT
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ / NORMAL
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
AUDIO IN [L]	AUDIO INPUT (L)
AUDIO IN [R]	AUDIO INPUT (R)
AUDIO OUT [L]	AUDIO OUTPUT (L)
AUDIO OUT [R]	AUDIO OUTPUT (R)
AUDIO SELECT [H]	AUDIO SELECT Ⓗ
AUDIO. L	AUDIO (L)
AUDIO. R	AUDIO (R)
AV CNT	AV CONTROL
AV CTL	AV CONTROL
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
AV. C.M.	AV CONTROL MODE
AVCNT/METER. R	AV CONTROL/LEVEL METER(R)
AVSW/METER. L	AV SW/LEVEL METER (L)
B MODE. H	B MODE Ⓗ
B.G.P	BURST GATE PULSE
BACKUP 5V	BACK UP 5V
BAND. U.E.	BAND U
BANDVL. D	BAND VL
BI/MI [L]	BILINGUAL/MIX Ⓛ
BIL	BILINGUAL
BIL [L]	BILINGUAL Ⓛ
BIL. [H]	BILINGUAL Ⓗ
BIL/M1[L]	BILINGUAL Ⓛ
BS CLOCK	BS CLOCK
BS DATA	BS DATA
BS LCH IN	BS L CHANNEL INPUT
BS MIX [H]	BS MIX Ⓗ
BS MON [H]	BS MONITOR Ⓗ
BS MONI [H]	BS MONITOR Ⓗ
BS RCH IN	BS R CHANNEL INPUT
BS VIDEO	BS VIDEO SIGNAL
BS VIDEO/BS1	BS VIDEO SIGNAL
BS [H]	BS Ⓗ
BS. LEVEL	BS LEVEL
BS. M [H]	BS MONITOR Ⓗ
BS/VTR [H]	BS/VTR Ⓗ
BUS CLK	BUS CLOCK
BUS LSN	BUS LISTEN
BUS TLK	BUS TALK
BUZZER	BUZZER
CAP EC	CAPSTAN TORQUE CONTROL
CAP M GND	CAPSTAN MOTOR GND
CAP. ET	CAPSTAN TORQUE CONTROL
CAP. FG1	CAPSTAN FG1 PULSE
CAP. FG2	CAPSTAN FG2 PULSE
CAS. SW	CASSETTE SW
CCN	PLAYBACK CONTROL SIGNAL (-)
CCP	PLAYBACK CONTROL SIGNAL (+)
CHM	CONTROL SIGNAL (+)
CHP	CONTROL SIGNAL (-)
CINEM [L]	CINEMA Ⓛ
CINEMA [L]	CINEMA Ⓛ
CINEMA/MIX	CINEMA/MIX
CKL	RATCH LOCK
CKS	SHIFT LOCK
CL	CLOCK
CLK	CLOCK
CLK (C.G)	CLOCK
CLOCK. IN	CLOCK INPUT
CLP	CLAMP
COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
COLOR [H]	COLOUR Ⓗ
CONV	CONVERTOR
CS	CHIP SELECT
CTL GND	CONTROL GND
CTL HEAD [+]	CONTROL HEAD (+)
CTL HEAD [-]	CONTROL HEAD (-)
CTL[+]	CONTROL HEAD (+)
CTL[-]	CONTROL HEAD (-)
CUE BIAS	CUE BIAS
CURRENT LIM	CURRENT LIMITER
CYL ET	CYLINDER TORQUE CONTROL
CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAYED FM RECORDING Ⓗ
D. FM REC [L]	DELAYED FM RECORDING Ⓛ
D. GND	DIGITAL GND
D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ

EP/LP [H]	LP Ⓗ
EP/ LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FAST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJ.	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOGUE)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H.SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [-]	HEATER (-)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [+]	HEATER (+)
HTR [-]	HEATER (-)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA 1	INPUT SELECT A1 POSITION
IN SELA 2	INPUT SELECT A2 POSITION
IN SELA 3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)
LINE IN [R]	LINE INPUT (R)
LINE OUT [L]	LINE OUTPUT (L)
LINE OUT [R]	LINE OUTPUT (R)
LP [H]	LP Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING
M GND	MOTOR GND
M REG	MOTOR REGULATOR
MAIN OUT	MAIN OUTPUT
MAIN [L]	MAIN Ⓛ
MAIN/MONO	MAIN/MONAURAL
MAX IN	MAXIMUM INPUT
MES [H]	MESECAM Ⓗ
MESE [H]	MESECAM Ⓗ
MESE [L]	MESECAM Ⓗ
METER 5V	LEVEL METER 5V
METER [L]	LEVEL METER (L)
METER [R]	LEVEL METER (R)
METER. L/AVS	LEVEL METER (L)
METER. R/AVC	LEVEL METER (R)
MI/BI [L]	MIX Ⓛ/BILINGUAL Ⓛ
MIC GND	MIC GND
MIC IN	MIC INPUT
MIC IN [L]	MIC INPUT (L)
MIC IN [R]	MIC INPUT (R)
MIC [H]	MIC Ⓗ
MIX [H]	MIX Ⓗ
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/ CINE	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ
MODE SEL	AUDIO MODE SELECT
MODE SW	AUDIO MODE SW
MODE. S. IN	AUDIO MODE SELECT INPUT
MODE. S. OUT	AUDIO MODE SELECT OUTPUT
MONO [H]	MONAURAL Ⓗ
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ
MONO2 [L]	MONAURAL 2 Ⓛ
MONO2/MESE[FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)
MOTOR GND	MOTOR GND
MUTE	MUTE
N. A. REC [L]	NORMAL AUDIO RECORDING Ⓛ
N. SW 12V	NON SW 12V
N. SW. 5. DET	NON SW 5V DETECT
NICAM	NICAM
NICAM [L]	NICAM Ⓛ
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ FORWARD/REVERSE
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ
NORMAL [H]	NORMAL Ⓗ
NR BIAS	NR BIAS
NTSC [L]	NTSC Ⓛ
OCH	CONTROL AGC CIRCUIT
OUT	OUTPUT
P-OFF [H]	POWER OFF Ⓗ
P-OFF [L]	POWER OFF Ⓛ
P. FAIL	POWER FAILURE DETECT
P. OFF [H]	POWER OFF Ⓗ
P. OFF [L]	POWER OFF Ⓛ
PAL [H]	PAL Ⓗ
PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
PB ADJ. OUT	PLAYBACK ADJUST OUTPUT
PB OUT	PLAYBACK OUTPUT
PB. H	PLAYBACK Ⓗ
PFG	PG/FG
PHOTSN +B	PHOTO SENSOR +B
PICT. CNT	PICTURE CONTROL

PLAY LED/RVS LED	PLAY LED/REVERSE LED
PLAY. PO	PLAY POSITION
PLAY/R.LED	PLAY LED/REVERSE LED
PLY/DEW	PLAY/DEW Ⓗ
POWER OFF [L]	POWER OFF Ⓛ
PREROLL [H]	PREROLL Ⓗ
PWRFAIL	POWER FAILURE DETECT
R. CH [H]	Rch Ⓗ
R. CH [L]	Rch Ⓛ
R. ST	RESET
R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
RCH [H]	Rch Ⓗ
REC 12V	RECORDING 12V
REC CHROMA	RECORDING CHROMINANCE SIGNAL
REC H	RECORDING Ⓗ
REC IN	RECORDING INPUT
REC OUT [L]	RECORDING OUTPUT Ⓛ
REC START	RECORDING START
REC VR [C]	RECORDING VOLUME (COMMON)
REC VR [L]	RECORDING VOLUME (L)
REC VR [R]	RECORDING VOLUME (R)
REC Y	RECORDING LUMINANCE SIGNAL
REC [H]	RECORDING Ⓗ
REC. C	RECORDING CHROMINANCE SIGNAL
REC. Y	RECORDING LUMINANCE SIGNAL
REC/EE CTL	RECORDING/EE CONTROL
REEL-T	REEL PULSE(TAKE-UP)
REEL-S	REEL PULSE (SUPPLY)
REGULATOR FILTER	REGULATOR FILTER
RESET	RESET
REV M F/R	REVIEW MOTOR FORWARD/REVERSE
REV M V1	REVIEW MOTOR V1
REV M V2	REVIEW MOTOR V2
REV MOTOR F/R	REVIEW MOTOR
REV MOTOR V1	REVIEW MOTOR V1
REV MOTOR V2	REVIEW MOTOR V2
REV MOTOR [+]	REVIEW MOTOR (+)
REV MOTOR [-]	REVIEW MOTOR (-)
REV. M. GND	REVIEW MOTOR GND
RF.CHROMA	RF CHROMINANCE SIGNAL
RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT
ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESET Ⓛ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA / AUDIO
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S.TAB [L]	SAFETY TAB SW ON Ⓛ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
TUN. AUDIO IN	TUNER AUDIO INPUT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTE Ⓗ
SLNID [+]	SOLENOID (+)
SLNID [-]	SOLENOID (-)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE

SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAY Ⓗ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ
SOLENOID ON [L]	SOLENOID ON Ⓛ
SP [H]	SP Ⓗ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOP Ⓛ
STEREO LED	STEREO LED
STEREO [H]	STEREO Ⓗ
STEREO [L]	STEREO Ⓛ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL : ST	STOP 1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2 / S-TAB	STOP POSITION/SAFETY TAB SW
STREO [H]	STEREO Ⓗ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTE Ⓛ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNC Ⓛ
SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE END Ⓛ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE END Ⓛ
TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRICK PLAY Ⓛ
TRICK [L]	TRICK PLAY Ⓛ
TRK. ENV	AUDIO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFF Ⓗ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ON Ⓛ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG 19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EE Ⓗ
V. EE [L]	VIDEO EE Ⓛ
VCO REF	REFERENCE OSCILLATOR
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EE Ⓛ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTR Ⓗ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

5 INPUT/OUTPUT CHART

5.1. INPUT/OUTPUT CHART FOR IC6001

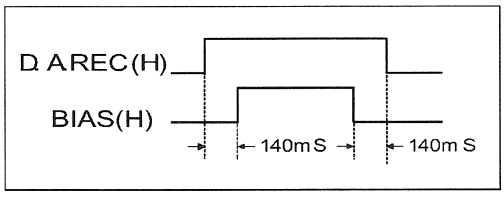
<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>1</td><td>O</td><td>AUDIO DEF(H)</td><td>This port is low while Decoder IC is reset.</td></tr>
<tr><td>2</td><td>O</td><td>LP(H)</td><td>This port is high during LP(X2) mode.</td></tr>
<tr><td>3</td><td>I</td><td>AFC(S)</td><td>Tuner S curve input.</td></tr>
<tr><td>4</td><td>O</td><td>SLP(H)</td><td>This port is high during SLP(X3) mode.</td></tr>
<tr><td>5</td><td>I</td><td>L6/U6/U4/U2/U2L</td><td>Cylinder unit selection (HI-FI/Normal)
<table>
<tr><th>Input voltage</th><th>Cylinder Type</th><th>HI-FI/NORMAL</th></tr>
<tr><td>More than 4.2V</td><td>LDD 6CH</td><td>HI-FI</td></tr>
<tr><td>3.0V - 4.2V</td><td>UDD 6CH</td><td>HI-FI</td></tr>
<tr><td>2.0V - 3.0V</td><td>UDD 2CH
(No LP mode)</td><td>NORMAL</td></tr>
<tr><td>0.8V - 2.0V</td><td>UDD 2CH
(With LP mode)</td><td>NORMAL</td></tr>
<tr><td>Less than 0.8V</td><td>UDD 4CH</td><td>NORMAL</td></tr>
</table></td></tr>
<tr><td>6</td><td>I</td><td>NORM/SER/T1/T2</td><td>Normal/Service/Test1/Test2 mode selection.
<table>
<tr><th>Input voltage</th><th>Mode</th></tr>
<tr><td>More than 4.0V</td><td>Normal</td></tr>
<tr><td>2.5V - 4.0V</td><td>Service</td></tr>
<tr><td>1.0V - 2.5V</td><td>Test2</td></tr>
<tr><td>Less than 1.0V</td><td>Test3</td></tr>
</table></td></tr>
<tr><td>7</td><td>I</td><td>S-PHOT</td><td>This port receives 2.4V or less when Supply photo sensor detects the tape end.</td></tr>
<tr><td>8</td><td>I</td><td>T-PHOT</td><td>This port receives 2.4V or less when Take-up photo sensor detects the tape beginning.</td></tr>
<tr><td>9</td><td>I</td><td>TRACKING ENVE</td><td>Playback envelope input for auto tracking adjustment and CVC.</td></tr>
<tr><td>10</td><td>O</td><td>Not used</td><td></td></tr>
<tr><td>11</td><td>O</td><td>CURRENT LIMIT</td><td>Capstan motor current limitter output.</td></tr>
<tr><td>12</td><td>O</td><td>F.ADJUST</td><td>Frequency responsibility adjustment voltage output.</td></tr>
<tr><td>13</td><td>O</td><td>ART.V/H/N</td><td>This port supplies artificial vertical sync signal to stabilize the picture in special playback mode.</td></tr>
<tr><td>14</td><td>I</td><td>REMOCON</td><td>Remote contoroll signal input and Digital Link input.</td></tr>
<tr><td>15</td><td>O</td><td>ROTARY.SW</td><td>Rotary switching signal output.</td></tr>
<tr><td>16</td><td>O</td><td>H.A.SW</td><td>Head amp switching signal output.</td></tr>
<tr><td>17</td><td>I</td><td>ENVE.SLECT</td><td>This port receives the playback envelope signal level to select the video head in special playback mode.</td></tr>
<tr><td>18</td><td>O</td><td>VIDEO.H.SW</td><td>Video head switching signal output.</td></tr>
<tr><td>19</td><td>O</td><td>AUDIO.H.SW</td><td>Audio head switching signal output.</td></tr>
<tr><td>20</td><td>O</td><td>CAL(H)</td><td>This port supplies high during audio IC automatic adjustment.</td></tr>
<tr><td>21</td><td>O</td><td>D.REC(H)</td><td>Video signal recording on/off control.</td></tr>
<tr><td>22</td><td>O</td><td>C.EMPHA(H)</td><td>This port supplies high during a certain time from starting the recording to control the HI-FI audio recording current.</td></tr>
<tr><td>23</td><td>O</td><td>FM.REC.MUTE(H)</td><td>HI-FI audio recording on/off control.</td></tr>
<tr><td>24</td><td>O</td><td>VIDEO.EE(L)</td><td>This port is low during EE mode.</td></tr>
<tr><td>25</td><td>O</td><td>PLAY REC(L)</td><td>Capstan voltage switching control output.
Except Play/Rec : High
Play/Rec : Low (Jog/Shuttle mode in Playback : High)</td></tr>
<tr><td>26</td><td>O</td><td>D.A.REC(H)</td><td rowspan="2">DC voltage control for recording mode.
 
</td></tr>
<tr><td>27</td><td>O</td><td>BIAS(L)</td></tr>
</table>

Fig. MP1

<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>28</td><td>O</td><td>FM.MUTE(H)</td><td>This port is high during special playback (CUE,REV,SLOW,STILL) mode, head cleaning and so on.</td></tr>
<tr><td>29</td><td>O</td><td>VSYNC(L)</td><td>This port is low when detecting the V-Sync signal.</td></tr>
<tr><td>30</td><td>O</td><td>FULL.ERASE(H)</td><td>Full erase on/off control.
ON : High
OFF : Low</td></tr>
<tr><td>31</td><td>I</td><td>POS.SW3</td><td rowspan="3">
<table>
<tr><th>P. SW 3</th><th>P. SW 2</th><th>P. SW 1</th><th>Position (Mode) Name</th></tr>
<tr><td>O</td><td>O</td><td>O</td><td>EJECT</td></tr>
<tr><td>O</td><td>O</td><td>I</td><td>CASSETTE DOWN</td></tr>
<tr><td>O</td><td>I</td><td>O</td><td>REV,REV SLOW</td></tr>
<tr><td>O</td><td>I</td><td>I</td><td>MID (LOADING/UNLOADING)</td></tr>
<tr><td>I</td><td>O</td><td>O</td><td>PLAY/REC,STILL/PAUSE,CUE</td></tr>
<tr><td></td><td></td><td></td><td>FWD SLOW,STOP3*1</td></tr>
<tr><td>I</td><td>O</td><td>I</td><td>STOP</td></tr>
<tr><td>I</td><td>I</td><td>O</td><td>FF/REW</td></tr>
<tr><td>I</td><td>I</td><td>I</td><td>INTERMEDIATE</td></tr>
</table>
(*1) The Pinch Roller is on the Capstan motor shaft.
</td></tr>
<tr><td>32</td><td>I</td><td>POS.SW2</td></tr>
<tr><td>33</td><td>I</td><td>POS.SW1</td></tr>
<tr><td>34</td><td>I</td><td>RESET(L)</td><td>This port is low while IC6001 is reset.</td></tr>
<tr><td>35</td><td>I</td><td>32KHz.IN</td><td>Oscillator input.</td></tr>
<tr><td>36</td><td>O</td><td>32KHz.OUT</td><td>Oscillator output.</td></tr>
<tr><td>37</td><td>-</td><td>5V(D)</td><td>Digital 5V.</td></tr>
<tr><td>38</td><td>I</td><td>16MHz.IN</td><td>Oscillator input.</td></tr>
<tr><td>39</td><td>O</td><td>16MHz.OUT</td><td>Oscillator output.</td></tr>
<tr><td>40</td><td>-</td><td>GND(OSC)</td><td>Oscillator GND.</td></tr>
<tr><td>41</td><td>O</td><td>P.OFF(H)</td><td>This port is high during power off.
Power off,Timer REC stand-by etc. : High
VPS/PDC stand-by,ACS,Timer REC confirmation,Head cleaning : Low</td></tr>
<tr><td>42</td><td>O</td><td>FIP(L)</td><td>FIP on/off control.</td></tr>
<tr><td>43</td><td>I</td><td>16M.START(H)</td><td>Clock source selection at starting reset.</td></tr>
<tr><td>44</td><td>I</td><td>LC.OSD IN</td><td>OSD clock oscillator input.</td></tr>
<tr><td>45</td><td>O</td><td>LC.OSD OUT</td><td>OSD clock oscillator output.</td></tr>
<tr><td>46</td><td>-</td><td>GND</td><td>GND</td></tr>
<tr><td>47</td><td>I</td><td>4FC.LPF</td><td>LPF connection port</td></tr>
<tr><td>48</td><td>I</td><td>OSD FSC IN</td><td>OSD fsc input.</td></tr>
<tr><td>49</td><td>-</td><td>GND</td><td>OSD GND</td></tr>
<tr><td>50</td><td>I</td><td>CV IN</td><td>Composite video signal input</td></tr>
<tr><td>51</td><td>I</td><td>LECHA</td><td>White level of composite video signal input</td></tr>
<tr><td>52</td><td>O</td><td>CV OUT</td><td>Composite video signal output</td></tr>
<tr><td>53</td><td>I</td><td>5V(OSD)</td><td>OSD 5V</td></tr>
<tr><td>54</td><td>I</td><td>HLF</td><td>LPF connection port</td></tr>
<tr><td>55</td><td>I</td><td>SECAM.V.IN</td><td>Chrominance signal input for SECAM superimpose</td></tr>
<tr><td>56</td><td>I</td><td>Not used</td><td></td></tr>
<tr><td>57</td><td>-</td><td>GND</td><td>GND</td></tr>
<tr><td>58</td><td>I</td><td>C.SYNC</td><td>Composite sync signal input</td></tr>
<tr><td>59</td><td>I</td><td>PAL-I/BG/DK</td><td>System 4 (H:I/L, Z:D/K, L:B/G)</td></tr>
<tr><td>60</td><td>O</td><td>SECAM(L)</td><td>System 2 (H:OTHER, L:SECAM)</td></tr>
<tr><td>61</td><td>O</td><td>SLEEP(L)</td><td>This port supplies low during super power save mode.</td></tr>
<tr><td>62</td><td>O</td><td>UNLOADING(H)</td><td>This port supplies high during the mechanism is unloaded.</td></tr>
<tr><td>63</td><td>O</td><td>LOADING(H)</td><td>This port supplies high during the mechanism is loaded.</td></tr>
</table>

Fig. MP2

Pin No.	In/Out	Port Name	Function
64	O	FLD/OSD CS	FIP driver and OSD microprocessor chip selection. FIP driver chip is selected : Low OSD microprocessor chip is selected : High
65	O	FLD/T2.DATA.OUT	FIP driver/Serial data output for factory.
66	I	FLD/T2.DATA.IN	FIP driver/Serial data input for factory.
67	O	FLD/T2.CLOCK	FIP driver/Serial data clock for factory.
68	O	T-BUS TLK	OSD microprocessor serial data output.
69	I	T-BUS LSN	OSD microprocessor serial data input.
70	O	T-BUS CLK	OSD microprocessor serial clock output.
71	O	IIC.CLOCK	Tuner and HI-FI audio IC serial clock output.
72	I/O	IIC.DATA	Tuner and HI-FI audio IC serial data input/output.
73	O	125Hz	Oscillator output for main clock adjustment.
74	O	CAP.R/F	Capstan rotation direction control. Reverse : High Forward : Low
75	O	HALF WAVE(H)	Capstan driver selection.
76	O	CAP.ET	Capstan torque control.
77	O	CYL.ET	Cylinder torque control.
78	I	POWER FAIL(L)	Power failure detection.
79	I	S.REEL.PULSE	Supply reel pulse input.
80	I	T.REEL.PULSE	Take-up reel pulse input.
81	I	STAB(L)	This port receives low when inserting the cassette tape with safety tab.
82	I	POWER KEY(H)	Power on/off key input.
83	I	SHORT DN	DC voltage (BIAS (H)) detection. When detecting High at BIAS (H) during BIAS (H) is set to except high, complsory power is turned off (Self test indication display F08). When detecting Low at BIAS (H) during BAIS (H) is set to high, complsory power is turned off (Self test indication display F07).
84	I	SECAM24(H)	Video head selection input. In SECAM model, this port is high when using 24u head chip for LP mode is mounted on the cylinder.
85	I	Not used	
86	O	CAP.FG OUT	Capstan FG output.
87	I	CAP.FG IN	Capstan FG input.
88	-	GND	GND.
89	I	Not used	
90	I	CYL.PFG	Cylinder PFG input.
91	O	OREF	Op amp output for 1/2 VDD reference.
92	I	IREF	Op amp input for 1/2 VDD reference.
93	I	Not used	
94	I	CTL.HEAD(-)	Control signal (-) input.
95	I	CTL.HEAD(+)	Control signal (+) input.
96	I	CTL.AMP.REF	Control amp reference input.
97	O	PB.CTL.OUT	Control amp output.
98	-	5V(A)	Analog 5V.
99	-	5V(AD)	5V.
100	O	EX.FF/REW(L)	This port supplies low during except FF and REW modes.

Fig. MP3

5.2. TRUTH TABLE

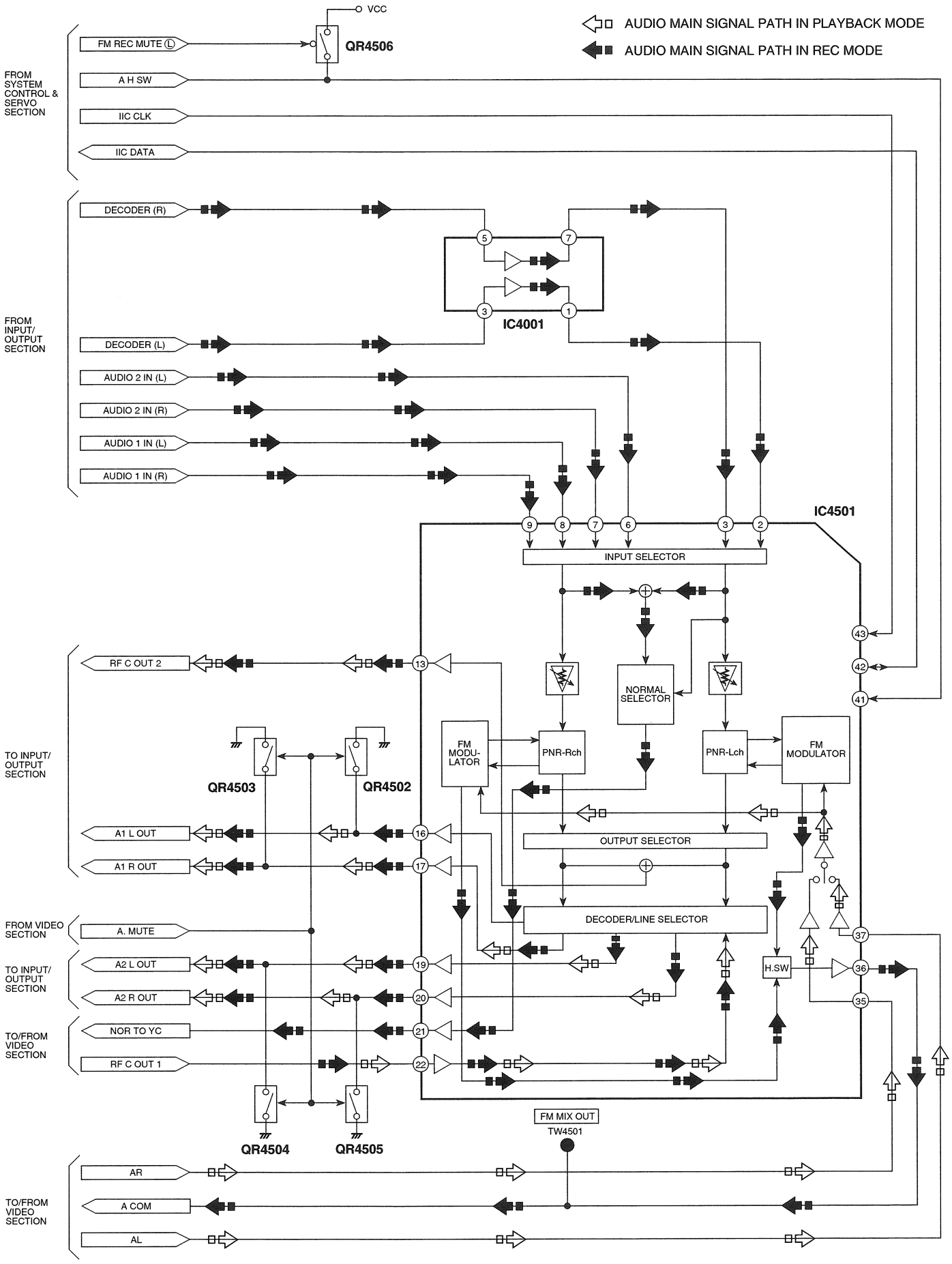
INPUT CONDITION							OUTPUT RESULT					
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	RGB SW	VCR IN	VCR OUT
P.OFF	---	---	---	---	---	L	AV2 IN	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
VPS STAND BY	EXT	---	---	L	NORMAL TUN	L	AV2 IN	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
					C+ TUNER	L	AV2 IN	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
					AV1	L	AV2 IN	AV1 IN	L	OFF	AV1	AV1
						H	AV2 IN	AV1 IN	H	ON	AV1	AV1
					AV2	L	AV2 IN	AV1 IN	L	OFF	AV2	AV2
						H	AV2 IN	AV1 IN	H	ON	AV2	AV2
					AV3	L	AV2 IN	AV1 IN	L	OFF	AV3	AV3
						H	AV2 IN	AV1 IN	H	ON	AV3	AV3
					SAT.NOR TUN	L	AV2 IN	AV1 IN	L	OFF	SAT.TUN	SAT.TUN
						H	AV2 IN	AV1 IN	H	ON	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	AV2 IN	AV1 IN	L	OFF	SAT.TUN	SAT.TUN
						H	AV2 IN	AV1 IN	H	ON	SAT.TUN	SAT.TUN
				H	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					C+ TUNER	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	AV1
						H	VTR OUT	AV1 IN	H	OFF	AV1	AV1
					AV2	L	VTR OUT	AV1 IN	H	ON	AV2	AV2
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV3	L	VTR OUT	AV1 IN	H	OFF	AV3	AV3
						H	VTR OUT	AV1 IN	H	OFF	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
	DECODER	---	---	L	NORMAL TUN	L	AV2 IN	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
					C+ TUNER	L	AV2 IN	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
					AV1	L	AV2 IN	AV1 IN	L	OFF	AV1	AV1
						H	AV2 IN	AV1 IN	H	ON	AV2	AV2
					AV2	L	AV2 IN	AV1 IN	L	OFF	AV2	AV2
						H	AV2 IN	AV1 IN	H	ON	AV2	AV2
					AV3	L	AV2 IN	AV1 IN	L	OFF	AV3	AV3
						H	AV2 IN	AV1 IN	H	ON	AV3	AV3
					SAT.NOR TUN	L	AV2 IN	AV1 IN	L	OFF	SAT.TUN	SAT.TUN
						H	AV2 IN	AV1 IN	H	ON	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	AV2 IN	AV1 IN	L	OFF	SAT.TUN	SAT.TUN
						H	AV2 IN	AV1 IN	H	ON	SAT.TUN	SAT.TUN
				H	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					C+ TUNER	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	AV1
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV2	L	VTR OUT	AV1 IN	H	ON	AV2	AV2
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV3	L	VTR OUT	AV1 IN	H	OFF	AV3	AV3
						H	VTR OUT	AV1 IN	H	OFF	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN

INPUT CONDITION							OUTPUT RESULT					
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	RGB SW	VCR IN	VCR OUT
P.ON	EXT	TV	EE	L	NORMAL TUN	---	VTR OUT	VTR OUT	L	OFF	TUN	TUN
					C+ TUNER	---	VTR OUT	VTR OUT	L	OFF	TUN	TUN
					AV1	---	VTR OUT	VTR OUT	L	OFF	AV1	AV1
					AV2	---	VTR OUT	VTR OUT	L	ON	AV2	AV2
					AV3	---	VTR OUT	VTR OUT	L	OFF	AV3	AV3
					SAT.NOR TUN	---	VTR OUT	VTR OUT	L	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	---	VTR OUT	VTR OUT	L	OFF	SAT.TUN	SAT.TUN
				H	NORMAL TUN	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					C+ TUNER	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					AV1	---	VTR OUT	VTR OUT	H	OFF	AV1	AV1
					AV2	---	VTR OUT	VTR OUT	H	ON	AV2	AV2
					AV3	---	VTR OUT	VTR OUT	H	OFF	AV3	AV3
					SAT.NOR TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
		VTR	EE	L	NORMAL TUN	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					C+ TUNER	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					AV1	---	VTR OUT	VTR OUT	H	OFF	AV1	AV1
					AV2	---	VTR OUT	VTR OUT	H	ON	AV2	AV2
					AV3	---	VTR OUT	VTR OUT	H	OFF	AV3	AV3
					SAT.NOR TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
				H	NORMAL TUN	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					C+ TUNER	---	VTR OUT	VTR OUT	H	OFF	TUN	TUN
					AV1	---	VTR OUT	VTR OUT	H	OFF	AV1	AV1
					AV2	---	VTR OUT	VTR OUT	H	ON	AV2	AV2
					AV3	---	VTR OUT	VTR OUT	H	OFF	AV3	AV3
					SAT.NOR TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	SAT.TUN
			VV	---	NORMAL TUN	---	VTR OUT	VTR OUT	H	OFF	TUN	PB
					C+ TUNER	---	VTR OUT	VTR OUT	H	OFF	TUN	PB
					AV1	---	VTR OUT	VTR OUT	H	OFF	AV1	PB
					AV2	---	VTR OUT	VTR OUT	H	OFF	AV2	PB
					AV3	---	VTR OUT	VTR OUT	H	OFF	AV3	PB
					SAT.NOR TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	PB
					SAT.C+ TUN	---	VTR OUT	VTR OUT	H	OFF	SAT.TUN	PB
	DECODER	TV	EE	L	NORMAL TUN	L	VTR OUT	AV1 IN	L	OFF	TUN	TUN
						H	AV2 IN	AV1 IN	H	ON	TUN	TUN
					C+ TUNER	L	VTR OUT	TUN IN	L	OFF	TUN	TUN
						H	VTR OUT	TUN IN	L	OFF	AV2	AV2
					AV1	L	VTR OUT	AV1 IN	L	OFF	AV1	AV1
						H	AV2 IN	AV1 IN	H	ON	AV2	AV2
					AV2	L	VTR OUT	AV1 IN	L	ON	AV2	AV2
						H	AV2 IN	AV1 IN	H	ON	AV2	AV2
					AV3	L	VTR OUT	AV1 IN	L	OFF	AV3	AV3
						H	AV2 IN	AV1 IN	H	ON	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	L	OFF	SAT.TUN	SAT.TUN
						H	AV2 IN	AV1 IN	H	ON	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	SAT IN	L	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	SAT IN	L	OFF	AV2	AV2
				H	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					C+ TUNER	L	VTR OUT	TUN IN	H	OFF	TUN	TUN
						H	VTR OUT	TUN IN	H	ON	AV2	AV2
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	AV1
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV2	L	VTR OUT	AV1 IN	H	ON	AV2	AV2
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2

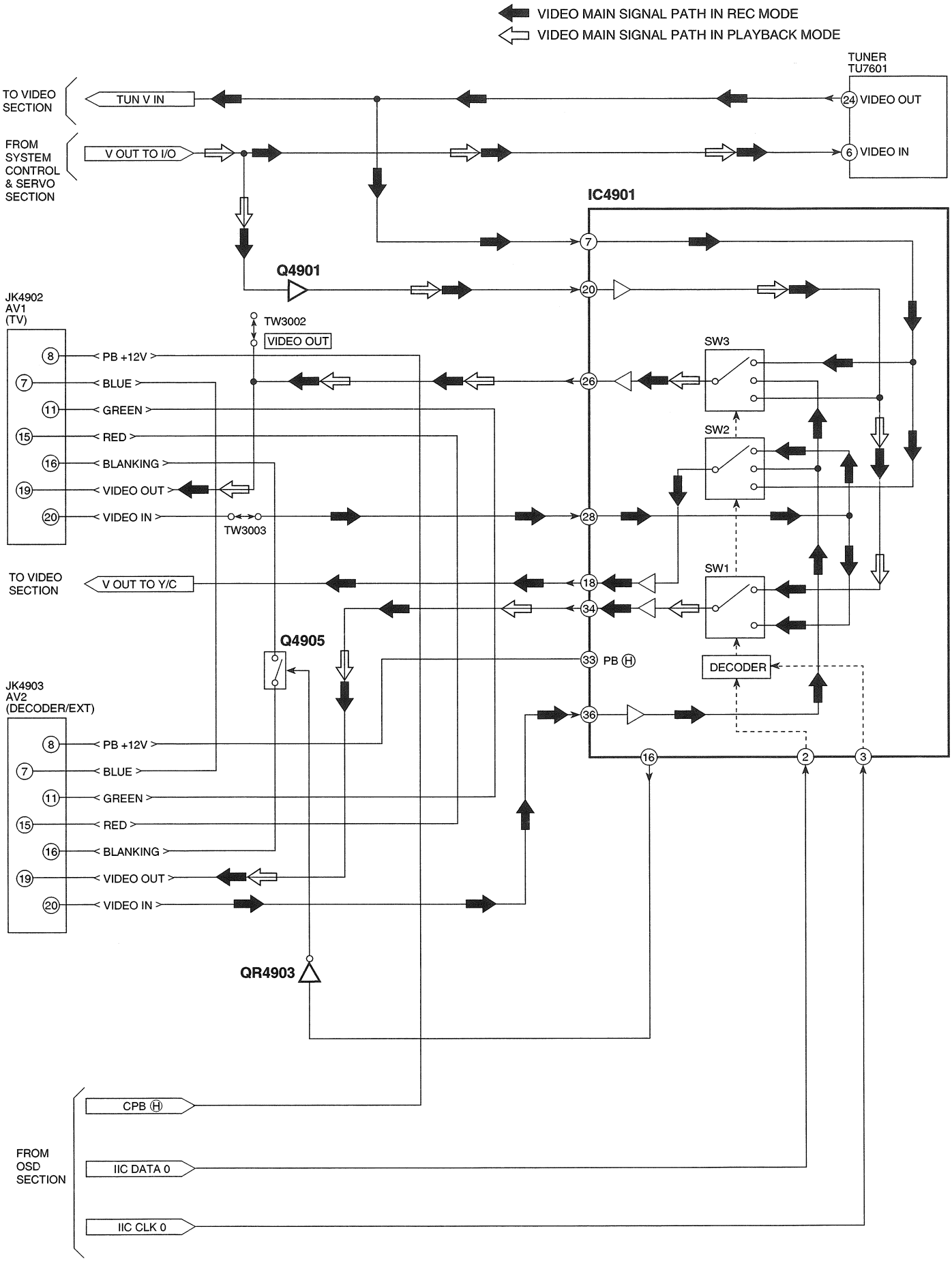
INPUT CONDITION							OUTPUT RESULT					
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	RGB SW	VCR IN	VCR OUT
P.ON	DECODER	TV	EE	H	AV3	L	VTR OUT	AV1 IN	H	OFF	AV3	AV3
						H	VTR OUT	AV1 IN	H	OFF	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	SAT IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	SAT IN	H	ON	AV2	AV2
		VTR	EE	L	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					C+ TUNER	L	VTR OUT	TUN IN	H	OFF	TUN	TUN
						H	VTR OUT	TUN IN	H	ON	AV2	AV2
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	AV1
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV2	L	VTR OUT	AV1 IN	H	ON	AV2	AV2
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV 3	L	VTR OUT	AV1 IN	H	OFF	AV3	AV3
						H	VTR OUT	AV1 IN	H	OFF	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	SAT IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	SAT IN	H	ON	AV2	AV2
				H	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	TUN
						H	VTR OUT	AV1 IN	H	OFF	TUN	TUN
					C+ TUNER	L	VTR OUT	TUN IN	H	OFF	TUN	TUN
						H	VTR OUT	TUN IN	H	ON	AV2	AV2
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	AV1
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV2	L	VTR OUT	AV1 IN	H	ON	AV2	AV2
						H	VTR OUT	AV1 IN	H	ON	AV2	AV2
					AV3	L	VTR OUT	AV1 IN	H	OFF	AV3	AV3
						H	VTR OUT	AV1 IN	H	OFF	AV3	AV3
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	SAT.TUN
					SAT.C+ TUN	L	VTR OUT	SAT IN	H	OFF	SAT.TUN	SAT.TUN
						H	VTR OUT	SAT IN	H	ON	AV2	AV2
			VV	---	NORMAL TUN	L	VTR OUT	AV1 IN	H	OFF	TUN	PB
						H	VTR OUT	AV1 IN	H	OFF	TUN	PB
					C+ TUNER	L	VTR OUT	TUN IN	H	OFF	TUN	PB
						H	VTR OUT	TUN IN	H	OFF	AV2	PB
					AV1	L	VTR OUT	AV1 IN	H	OFF	AV1	PB
						H	VTR OUT	AV1 IN	H	OFF	AV2	PB
					AV2	L	VTR OUT	AV1 IN	H	OFF	AV2	PB
						H	VTR OUT	AV1 IN	H	OFF	AV2	PB
					AV3	L	VTR OUT	AV1 IN	H	OFF	AV3	PB
						H	VTR OUT	AV1 IN	H	OFF	AV3	PB
					SAT.NOR TUN	L	VTR OUT	AV1 IN	H	OFF	SAT.TUN	PB
						H	VTR OUT	AV1 IN	H	OFF	SAT.TUN	PB
					SAT.C+ TUN	L	VTR OUT	SAT IN	H	OFF	SAT.TUN	PB
						H	VTR OUT	SAT IN	H	OFF	AV2	PB

6 BLOCK DIAGRAMS

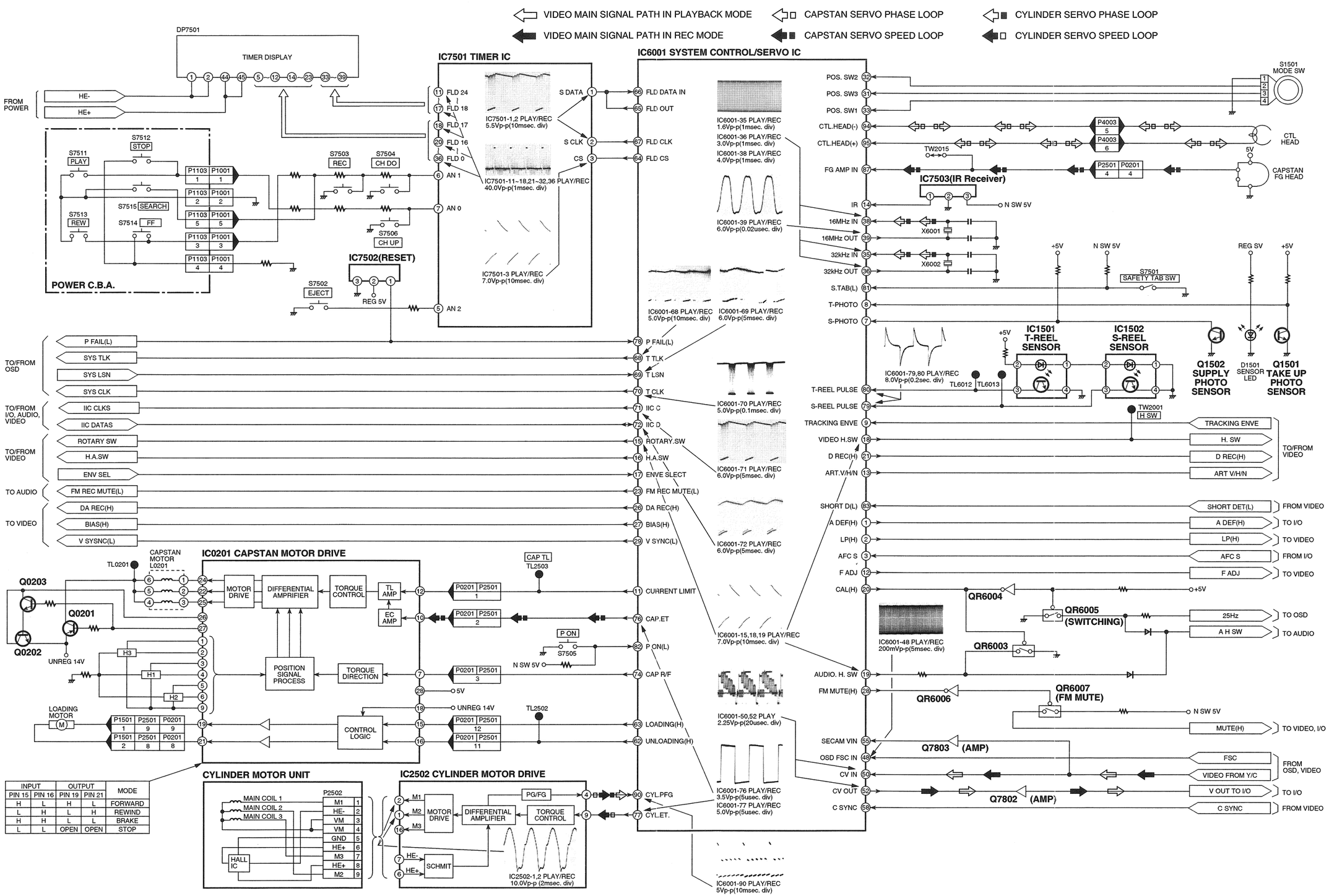
6.1. Hi-Fi AUDIO SECTION BLOCK DIAGRAM



6.2. INPUT/OUTPUT SECTION BLOCK DIAGRAM

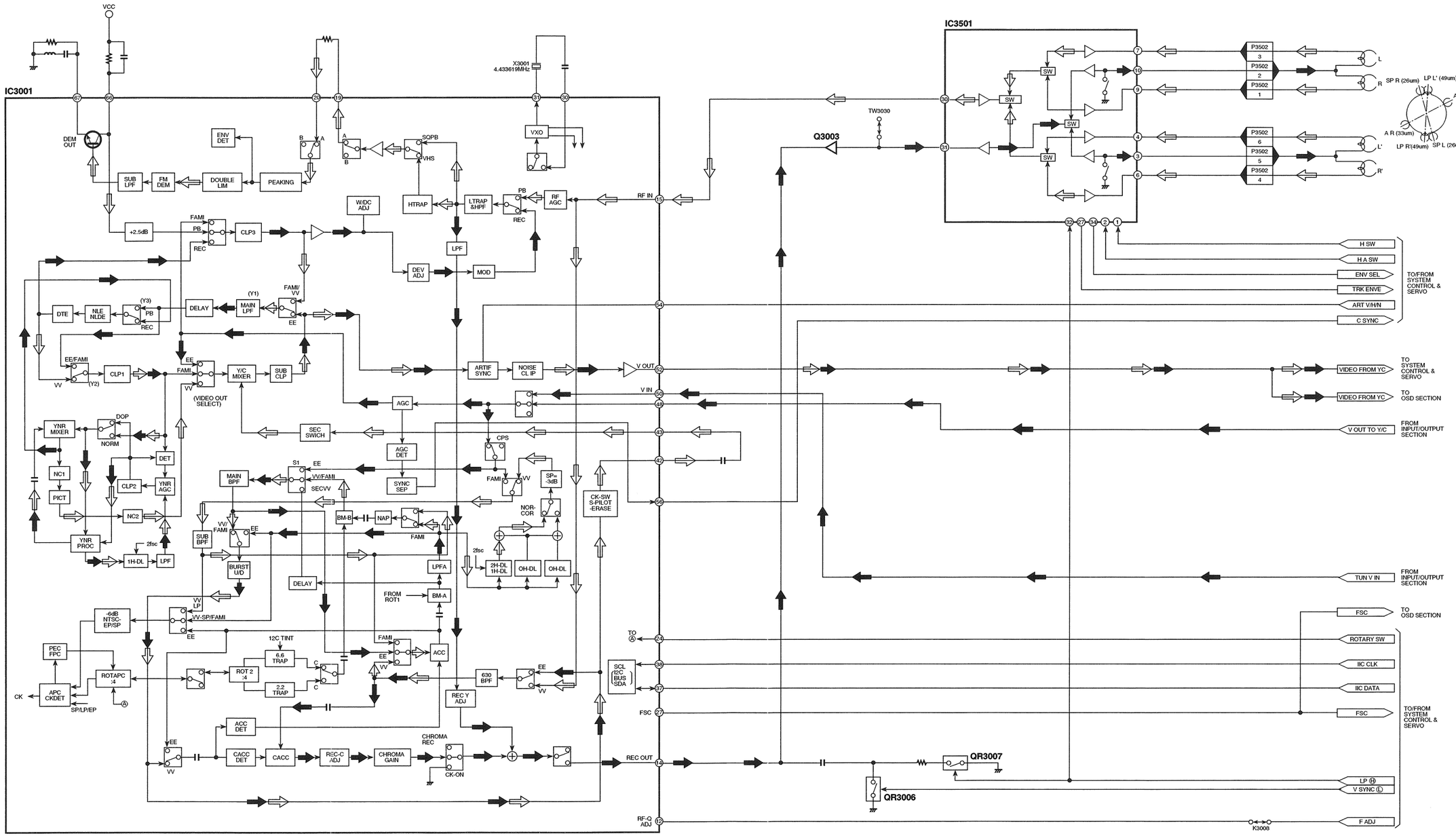


6.3. SYSTEM CONTROL & SERVO / TIMER SECTION BLOCK DIAGRAM



6.4. VIDEO SECTION BLOCK DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE



7 SCHEMATIC DIAGRAMS

7.1. POWER SCHEMATIC DIAGRAM

CAUTION THE ▨ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

HOT

P1101 VJS3306 — AC INLET
F1101 XBA2C16TH15
C1104 1000P
LB1101
L1107 ELF15N005A
L1108 ELF17N004A
C1118 0.1
R1122 330K
C1119 0.1
D1102 S1WBA80 or S1WBA60S
LB1103
C1120 400V 33
LB1102
LB1104
LB1106
C1101 1000P
C1103 1000P
C1106 0.1
D1109 ERA15-08V5
D1110 ERA15-08V5
R1105 3.9M
R1106 4.7M
D1118 RD100E-TB
R1102 39K
C1108 47P
C1109 0.01
D1103 AP01CV2
K1108
R1115 33
D1104 MA185
C1114 35V47
D1130 MA7300B
R1110 10K
D1106 MA4220
IC1101-5 STOP 1.0Vp-p(5µsec.div)
IC1101-1 STOP 500Vp-p(5µsec.div)
T1101-3 STOP 11Vp-p(5msec.div)

IC1101 STRM6559LF
START, O.V.P, LATCH, DRIVE, REG, TRIGER, T.S.D, O.S.C, O.C.P
LB1105 VLP0056
R1109 1500
R1111 150
R1112 220
R1113 1
R1114 3300
D1107 1SS254
C1112 8200P
IC1101-4 STOP 1.0Vp-p(5µsec.div)
IC1101-2 STOP 14Vp-p(10µsec.div)
IC1101-7 STOP 640mVp-p(5µsec.div)
IC1101-6 STOP 4.4Vp-p(5µsec.div)
R1108 100
D1105 MA700
R1107 150K
C1110 6V330
C1111 1000P

T1101 ETE28K127AZ
S9 S8 S7 S3 S4 S6 S1 S2 S5
PT P1 P2 NC V1 V2 NC
C1116 100P
D1125 11EQS06
IP1101 VSF0015A10T
C1143 10V330
C1144 0.01
C1145 0.01
C1136 220P
D1114 RK36LF-C4
L1122 22µ
C1134 10V2200
C1135 10V330
L1124 100µ
C1140 50V100
C1141 0.01
C1142 220P
D1124 ERA22-04
K1109
C1133 220P
D1121 RL2ZPLF-C4
L1121 22µ
C1131 25V680
C1132 25V330
L1123 100µ
C1137 50V47
C1138 0.01
C1139 100P
D1123 ERA22-04
SHIELD CASE

Q1111 CNX82A5387
R1121 2700
R1101 560
R1125 270
R1120 2400
R1119 10K
IC1102 µPC1093J
C1102 0.1
R1116 2700

PLAY S7511 VEQ11L07B
STOP S7512 VEQ11L07B
SEARCH S7515 VEQ11L07B
REW S7513 VEQ11L07B
FF S7514 VEQ11L07B

P1103
1 AN 3
2 GND(F1)
3 AN 2
4 AN F
5 S3
6 N.SW -29V
7 ——
8 HEATER(+)
9 UNREG 5.6V
10 HEATER(-)
11 UNREG 36V
12 GND
13 GND
14 GND(MOTOR)
15 UNREG 14V
16 ——
TO SYSTEM CONTROL & SERVO/ TIMER SECTION P1001 (D-13)

NOTE: THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

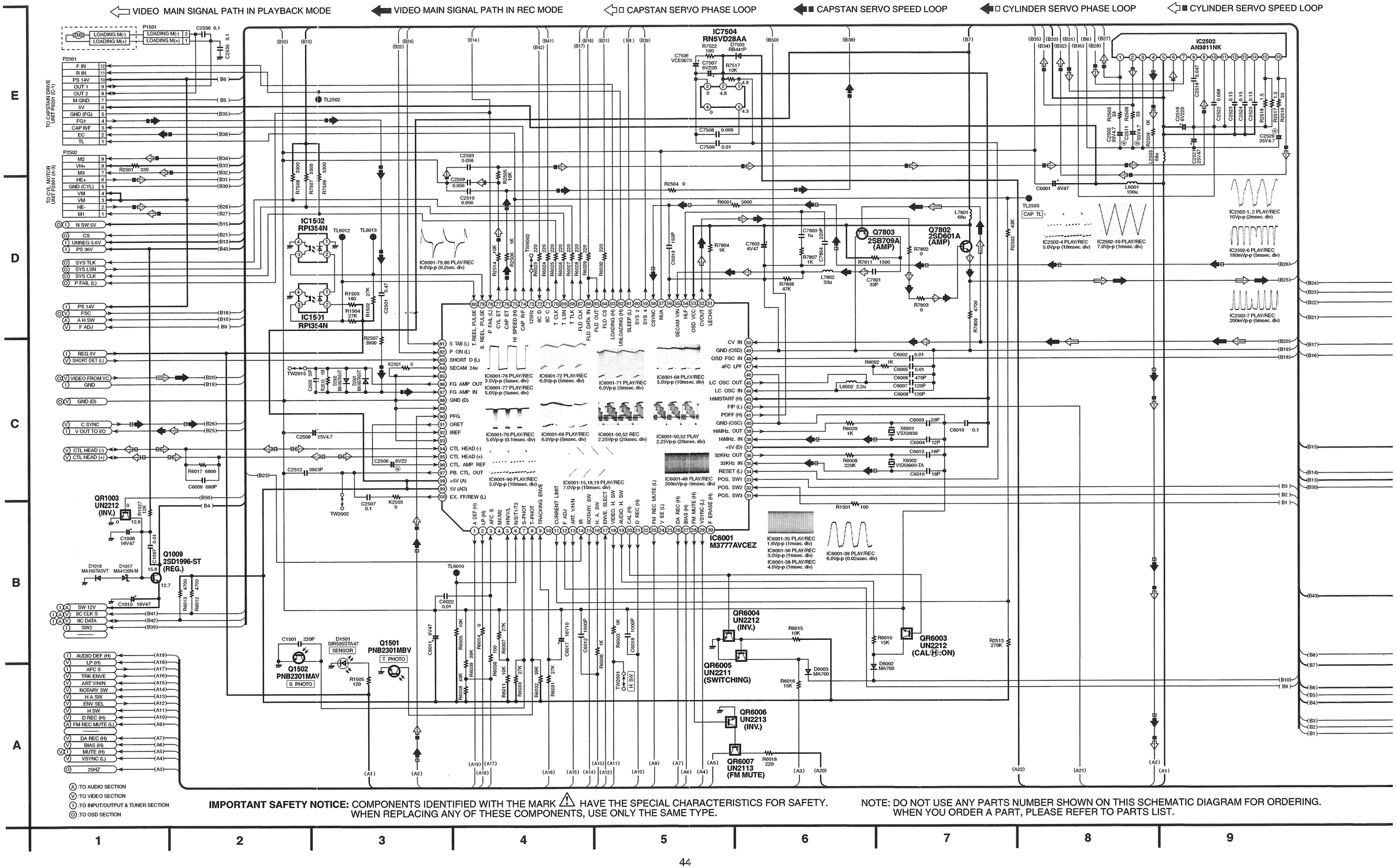
NOTE1: WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT,SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

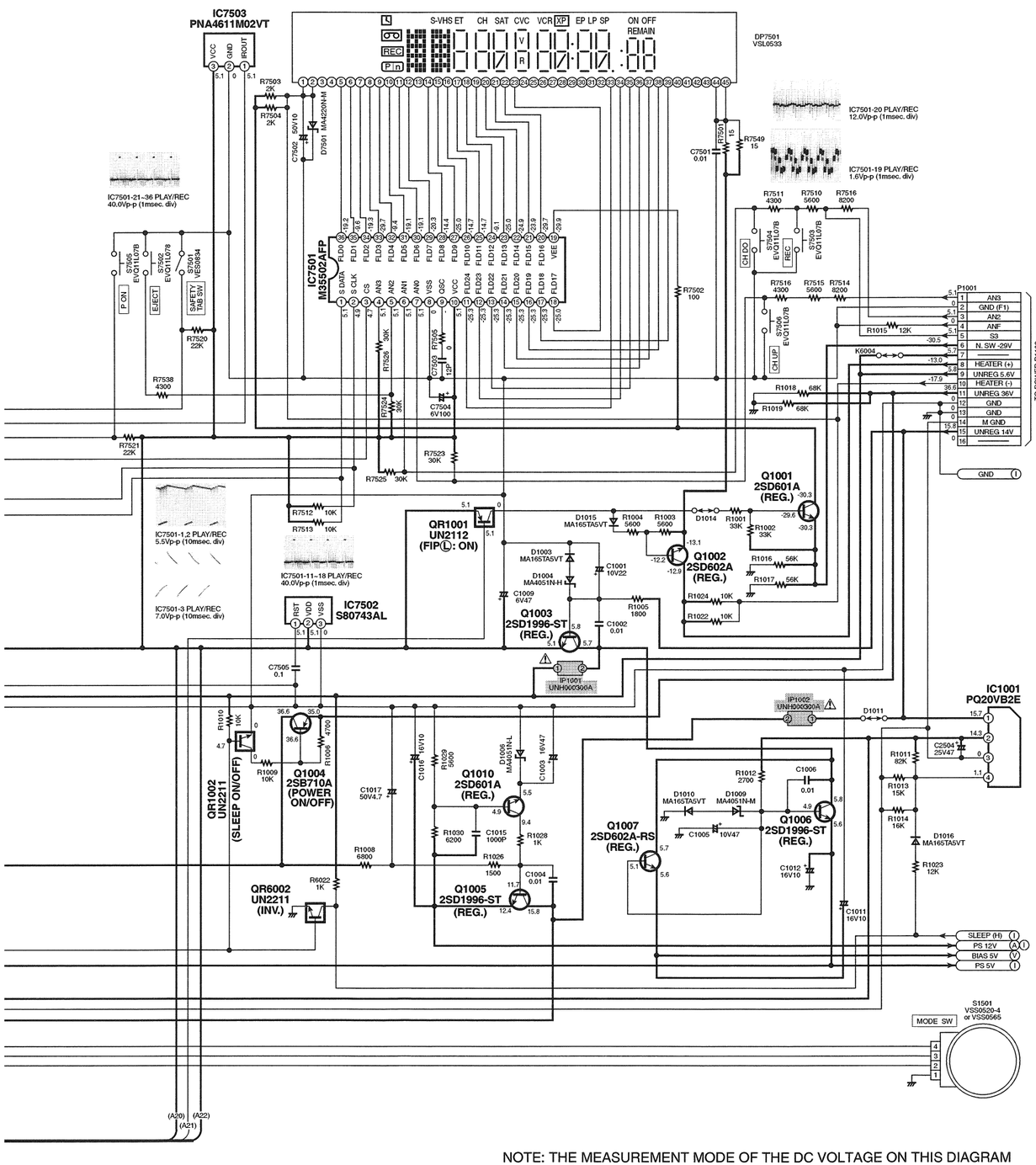
NOTE2: THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

7.2. SYSTEM CONTROL & SERVO / TIMER SECTION IN MAIN SCHEMATIC DIAGRAM





NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

10 | 11 | 12 | 13

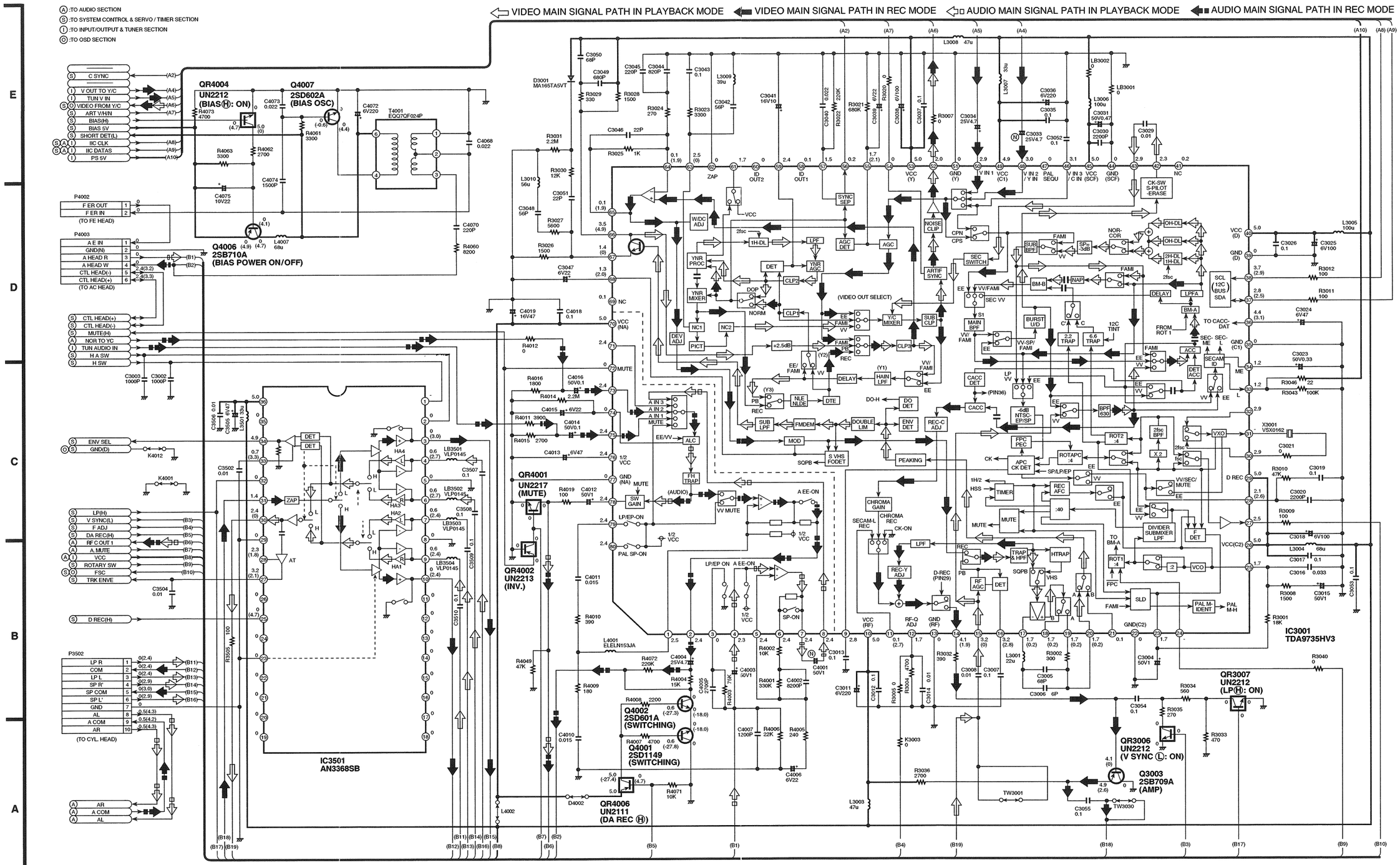
SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

REF.NO.	IC2502																		
PIN.NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
STOP	14.3	14.6	14.3	1.1	4.9	1.0	1.1	0.4	2.3	1.3	0	3.7	3.7	3.7	0	13.9			
PLAY	13.9	13.9	14.3	1.1	4.9	1.0	1.1	0.4	2.3	1.3	0	3.7	3.7	3.7	0	13.9			
REC	14.5	13.5	14.3	1.1	4.9	1.0	1.1	0.4	2.3	1.3	0	3.7	3.7	3.7	0	13.9			
F.F	14.5	13.8	14.3	1.1	4.9	1.0	1.1	0.4	2.3	1.3	0	3.7	3.7	3.7	0	13.9			
REW	14.5	14.2	14.3	1.1	4.9	1.0	1.1	0.4	2.3	1.3	0	3.7	3.7	3.7	0	14.5			
REF.NO.	IC6001																		
PIN.NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	4.4	0	2.3	0	3.5	4.9	4.8	4.6	1.1	0	0	1.7	0	5.1	0	0	0	4.7	0	0
PLAY	4.4	0	2.3	0	3.5	4.9	4.8	4.6	3.4	0	4.6	1.7	0	5.1	4.7	0	4.8	4.2	4.7	0
REC	4.4	0	2.3	0	3.5	4.9	4.8	4.6	2.1	0	4.6	1.7	0	5.1	4.7	0	4.8	4.7	0	0
F.F	4.4	0	2.3	0	3.5	4.9	4.8	4.6	2.1	0	4.9	1.7	0	5.1	0	0	0	4.7	0	0
REW	4.4	0	2.3	0	3.5	4.9	4.8	4.6	2.4	0	4.6	1.7	0	5.1	0	0	3.9	4.3	0	0
REF.NO.	IC6001																		
PIN.NO.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	0	0	4.7	0	0	0	0	0	4.7	0	0	4.7	1.3	1.6	4.8	-	-	0
PLAY	4.7	0	4.7	4.7	4.7	0	0	0	0	0	4.7	0	0	4.7	1.3	1.6	4.8	-	-	0
REC	0	0	4.7	4.7	4.7	4.7	4.7	0	0	4.7	4.7	0	0	4.7	1.3	1.6	4.8	-	-	0
F.F	0	0	0	0	4.7	0	0	0	0	0	4.7	4.7	0	4.7	1.3	1.6	4.8	-	-	0
REW	0	0	0	0	4.7	0	0	0	0	0	4.7	4.7	0	4.7	1.3	1.6	4.8	-	-	0
REF.NO.	IC6001																		
PIN.NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	4.8	4.7	4.7	0	1.6	2.1	0	2.0	2.4	2.0	4.8	1.9	0	0	0	0.2	0	4.7
PLAY	0	0	4.8	4.7	4.7	0	1.6	2.1	0	2.0	2.4	2.0	4.8	1.9	0	0	0	0.2	0	4.7
REC	0	0	4.8	4.7	5.0	0	0	2.1	0	2.0	2.4	2.0	4.8	1.9	0	0	0	0.2	0	4.7
F.F	0	0	4.8	4.7	4.7	0	1.6	2.1	0	2.0	2.4	2.0	4.8	1.9	0	0	0	0.2	0	4.7
REW	0	0	4.8	4.7	4.3	0	1.6	2.1	0	2.0	2.4	2.0	4.8	1.9	0	0	0	0.2	0	4.7
REF.NO.	IC6001																		
PIN.NO.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	4.7	0	0	4.7	5.1	4.9	4.7	5.0	5.1	4.2	2.8	2.4	0	0	0	0	2.3	5.1	0.1	4.9
PLAY	4.7	0	0	4.7	5.1	4.9	4.7	5.0	5.1	4.2	2.8	2.8	0	0	0.3	2.3	2.3	5.1	0.1	4.9
REC	4.7	0	0	3.5	5.1	4.9	4.7	5.0	5.1	4.2	2.8	2.4	0	0	0.3	2.3	2.3	5.1	4.9	4.9
F.F	4.7	0	0	4.7	5.1	5.1	5.1	5.1	5.1	4.2	3.3	3.2	0	0	4.3	2.7	2.3	5.1	4.9	2.4
REW	4.7	0	0	4.0	4.9	4.7	4.8	5.1	5.1	4.2	3.5	3.4	0	4.7	4.3	4.7	2.3	5.1	2.3	2.4
REF.NO.	IC6001																		
PIN.NO.	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	5.1	5.1	0.3	0	0	2.4	2.4	0	0	1.3	2.4	2.4	0	2.4	2.4	2.4	2.4	4.9	4.9	0
PLAY	5.1	5.1	0.3	0	0	2.4	2.4	0	0	1.3	2.4	2.4	0	2.4	2.4	2.4	2.4	4.9	4.9	0
REC	0	5.1	4.4	0	0	2.4	2.4	0	0	1.3	2.4	2.4	0	2.4	3.5	2.4	2.4	4.9	4.9	0
F.F	0	5.1	0.3	0	0	2.4	2.4	0	0	1.3	2.4	2.4	0	2.4	2.4	2.4	2.4	4.9	4.9	1.4
REW	0	5.1	0.3	0	0	2.4	2.4	0	0	1.3	2.4	2.4	0	2.4	2.4	2.4	2.4	4.9	4.9	1.4
REF.NO.	IC1501					IC1502														
PIN.NO.	1	2	3	4		1	2	3	4											
STOP	1.1	2.2	4.9	0		0	1.1	4.9	0											
PLAY	1.1	2.2	4.9	0		0	1.1	4.9	0											
REC	1.1	2.2	4.9	0		0	1.1	4.9	0											
F.F	1.1	2.2	2.3	0		0	1.1	2.3	0											
REW	1.1	2.2	2.3	0		0	1.1	2.3	0											

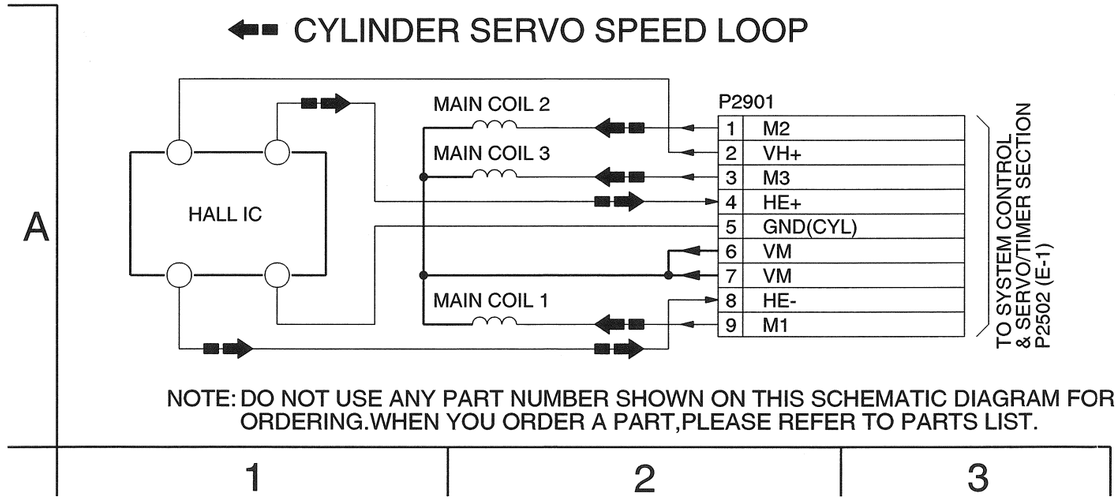
SYSTEM CONTROL & SERVO TRs DC VOLTAGE CHART (SP MODE)

REF.NO.	Q1501			Q1502			Q7802			Q7803								
PIN.NO.	+	-		+	-		E	C	B	E	C	B						
STOP	4.6	0		4.8	0		1.4	4.8	1.9	4.6	0	2.0						
PLAY	4.6	0		4.8	0		1.4	4.8	1.9	4.6	0	2.0						
REC	4.6	0		4.8	0		1.4	4.8	1.9	4.6	0	2.0						
F.F	4.6	0		4.8	0		1.4	4.8	1.9	4.6	0	2.0						
REW	4.6	0		4.8	0		1.4	4.8	1.9	4.6	0	2.0						
REF.NO.	QR6002			QR6003			QR6004			QR6005			QR6006			QR6007		
PIN.NO.	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	4.7	0	0	0	0	2.6	0	0	0	2.6	0	5.1	0	5.1	0	5.1
PLAY	0	0	4.7	0	2.0	0	0	2.6	0	0	0	2.6	0	5.1	0	5.1	0	5.1
REC	0	0	4.7	0	0	0	0	2.6	0	0	0	2.6	0	5.1	0	5.1	0	5.1
F.F	0	0	4.7	0	0	0	0	2.6	0	0	0	2.6	0	5.1	0	5.1	0	5.1
REW	0	0	4.7	0	0	0	0	2.6	0	0	0	2.6	0	5.1	0	5.1	0	5.1

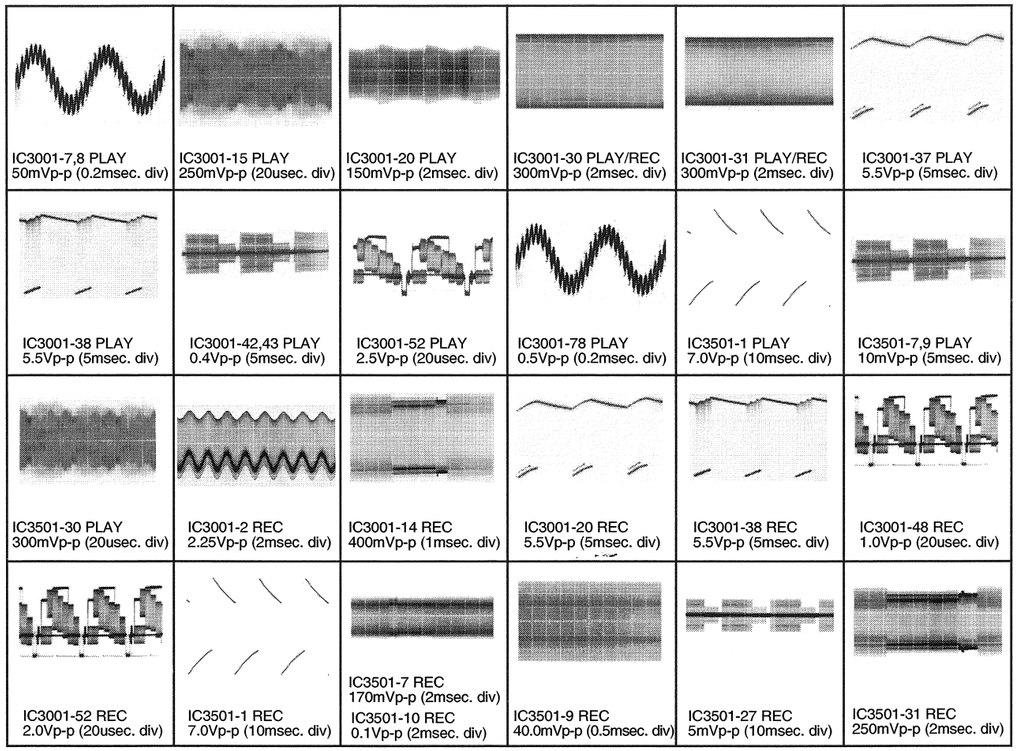
7.3. VIDEO SECTION IN MAIN SCHEMATIC DIAGRAM



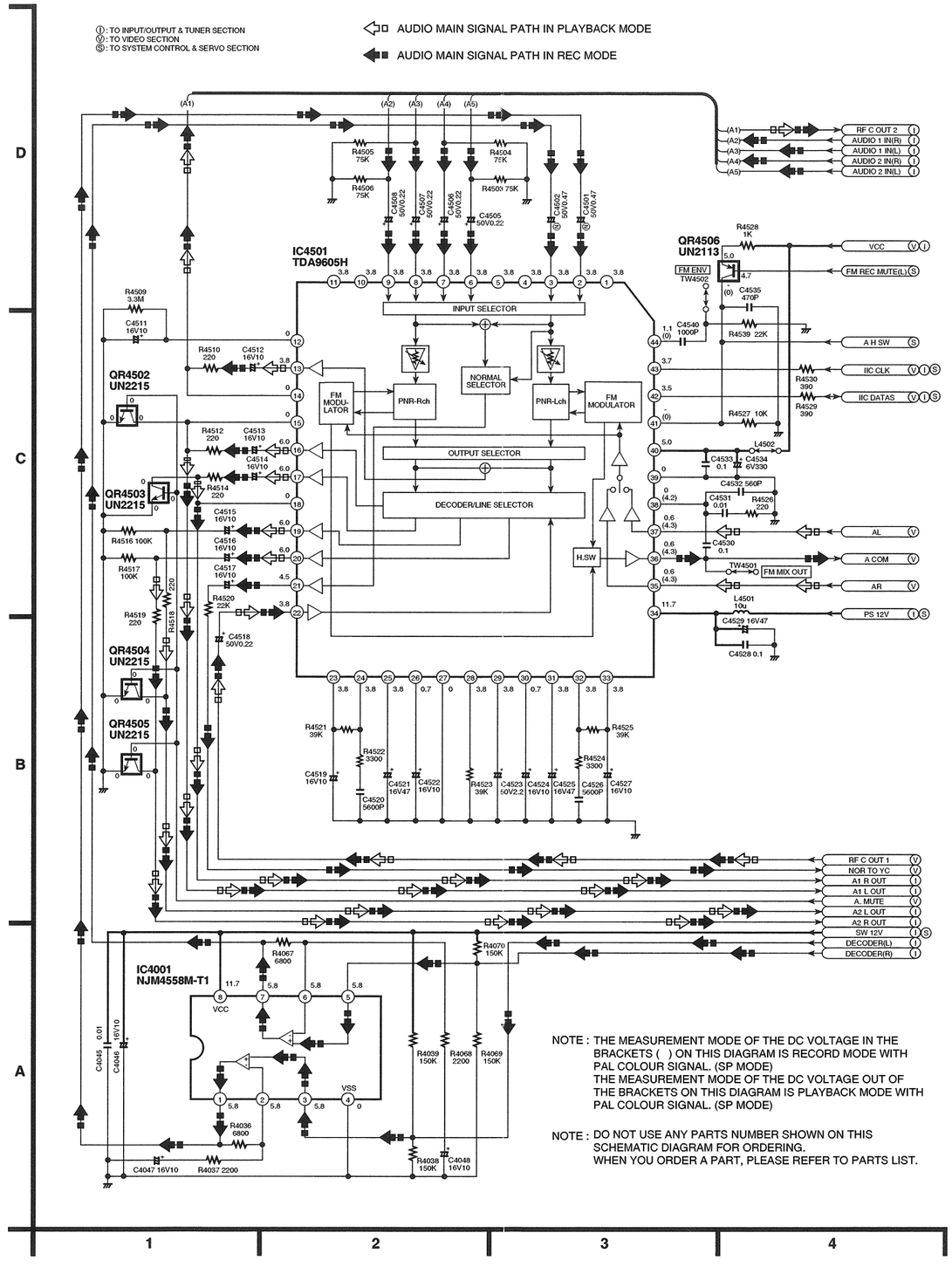
7.4. CYLINDER MOTOR UNIT SCHEMATIC DIAGRAM



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.



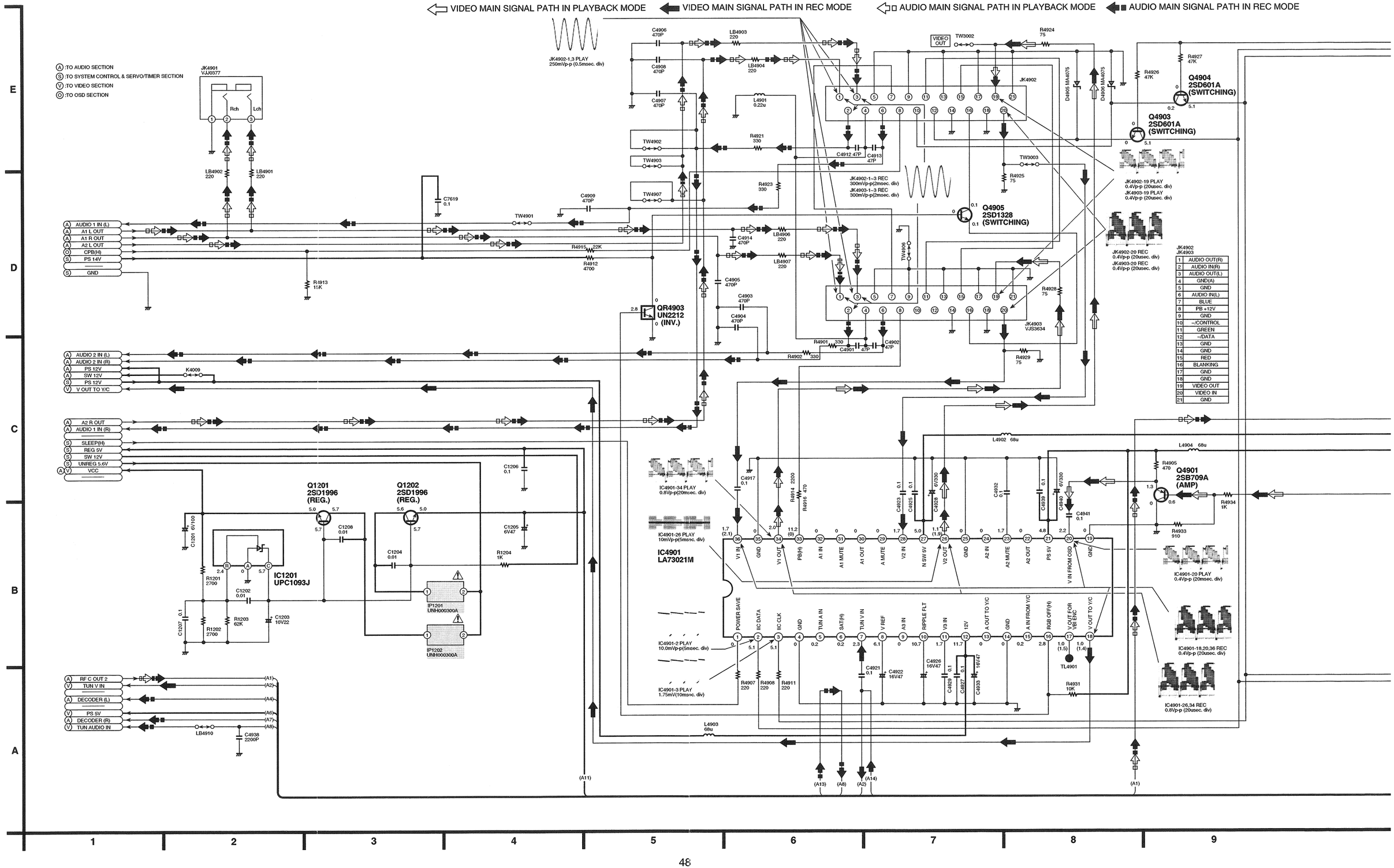
7.5. Hi-Fi AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM



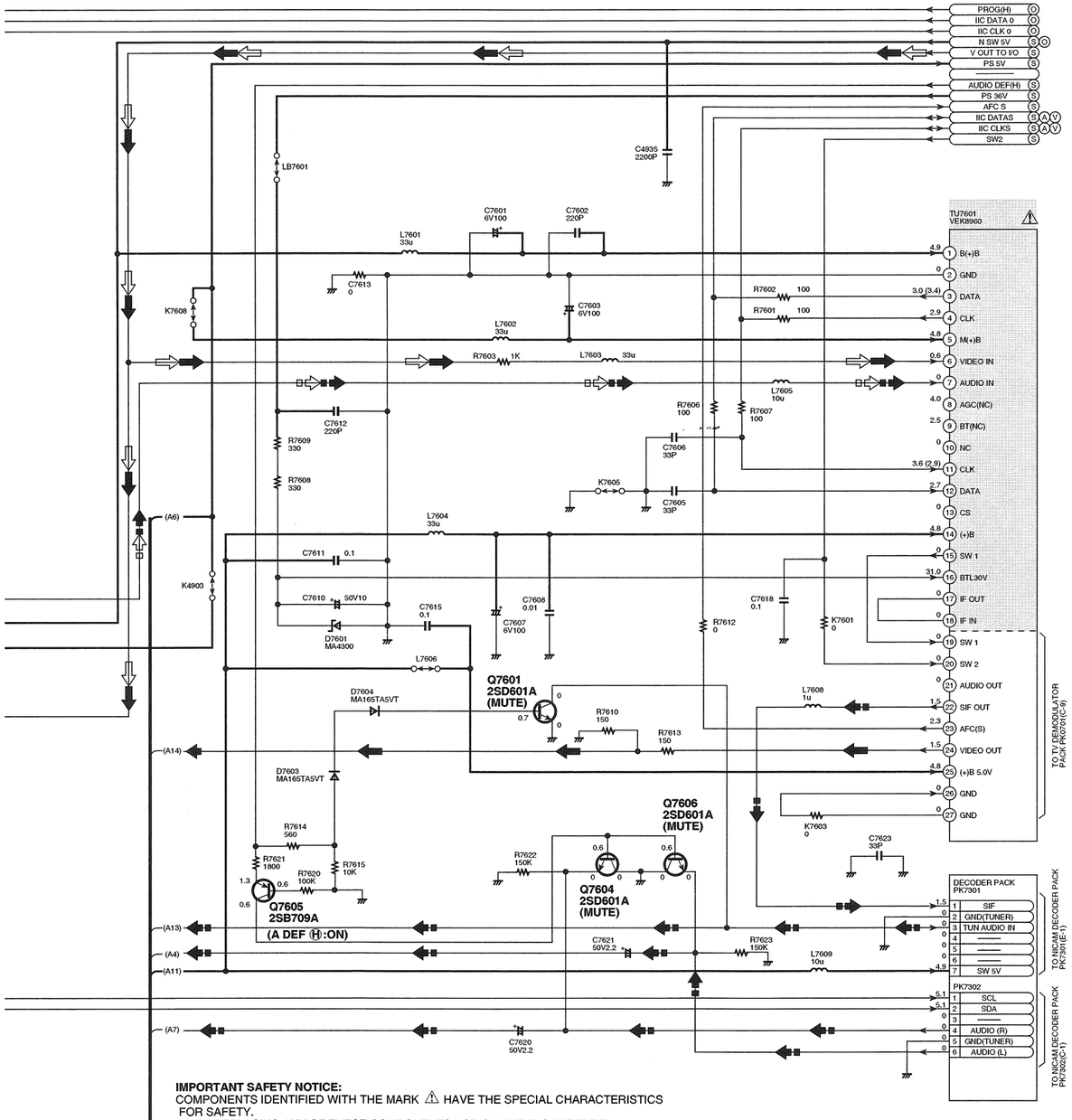
NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (SP MODE)

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

7.6. INPUT/OUTPUT & TUNER SECTION IN MAIN SCHEMATIC DIAGRAM



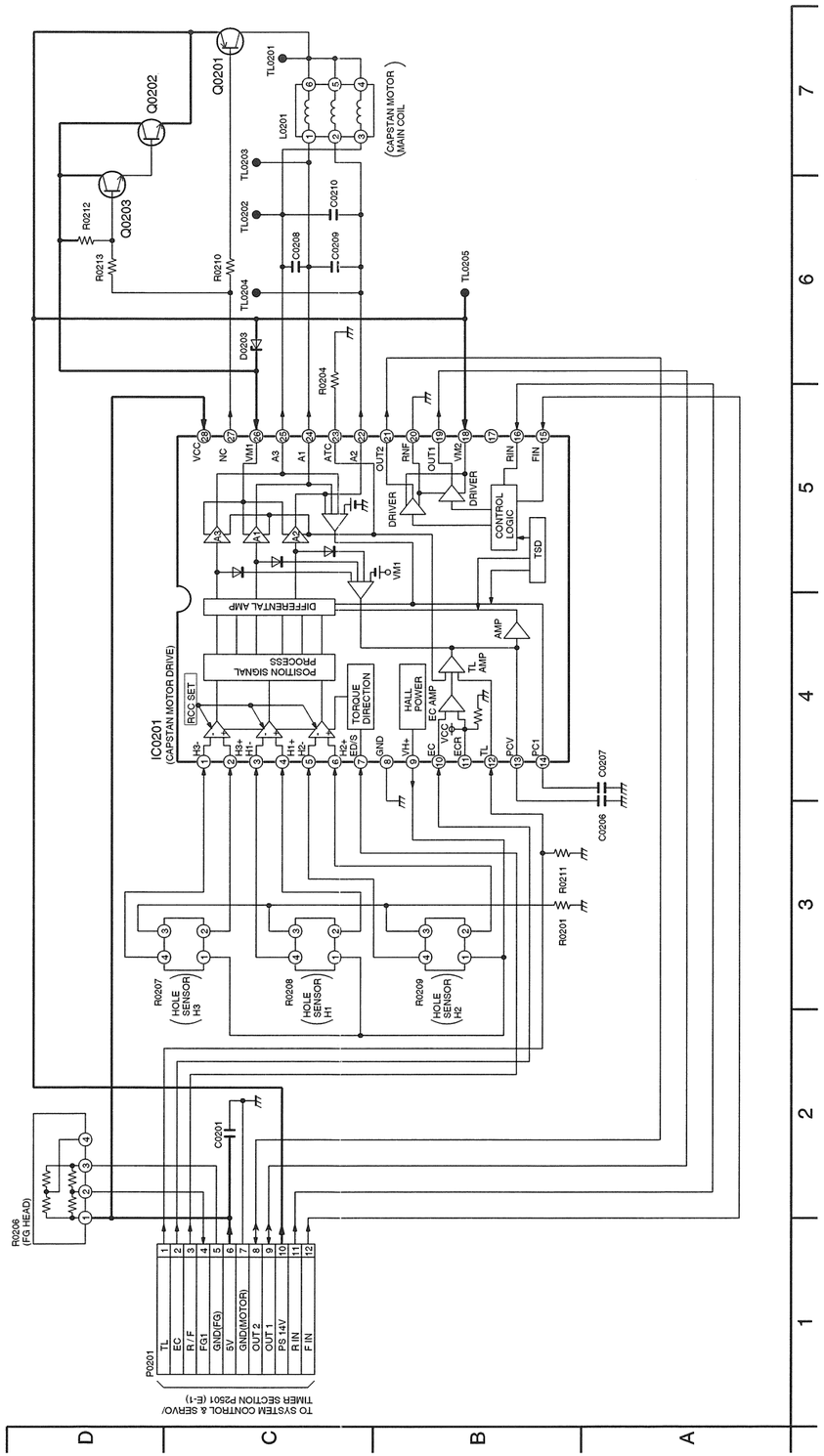
7.7. CAPSTAN DRIVE UNIT SCHEMATIC DIAGRAM



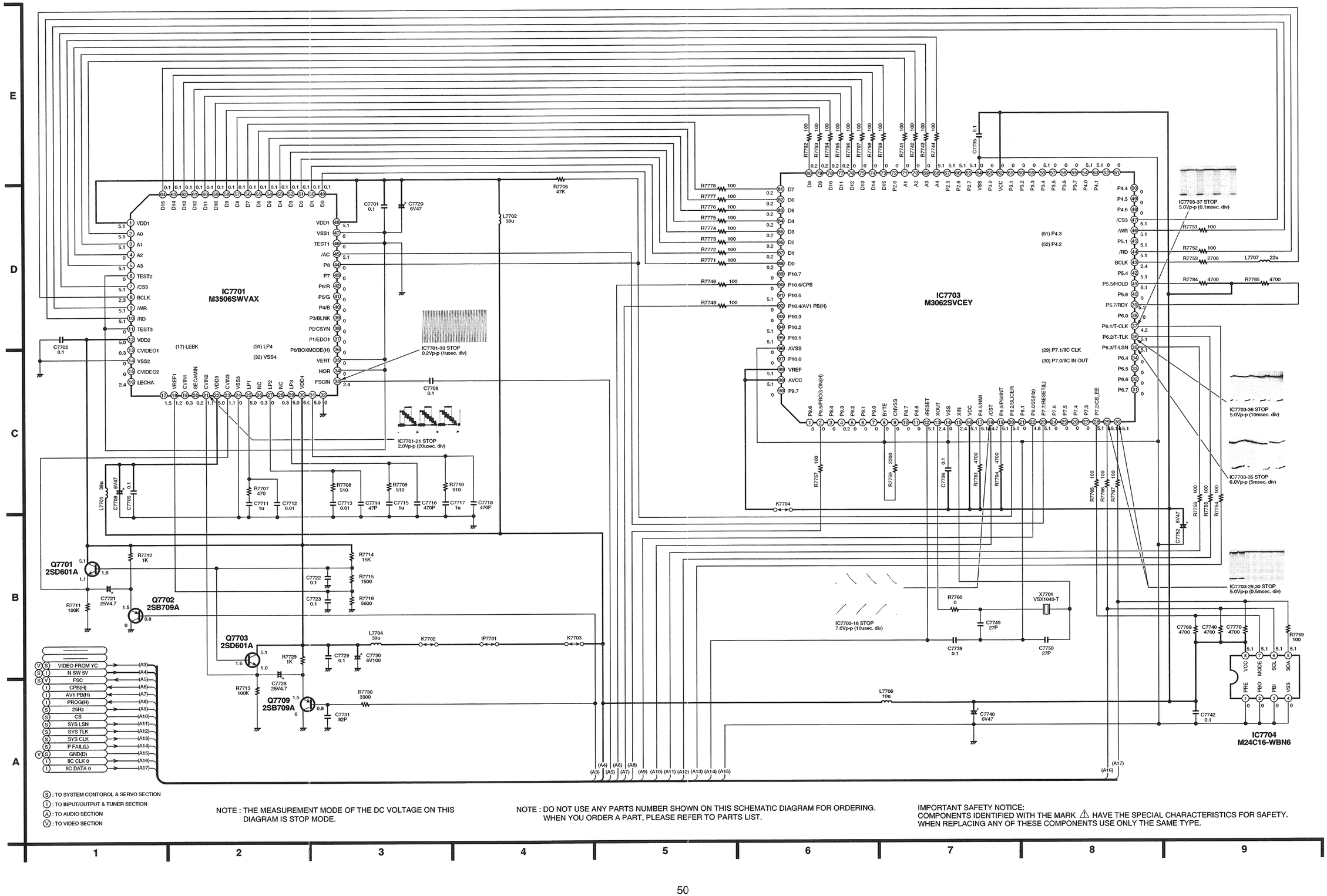
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (SP MODE)

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



7.8. OSD SECTION IN MAIN SCHEMATIC DIAGRAM

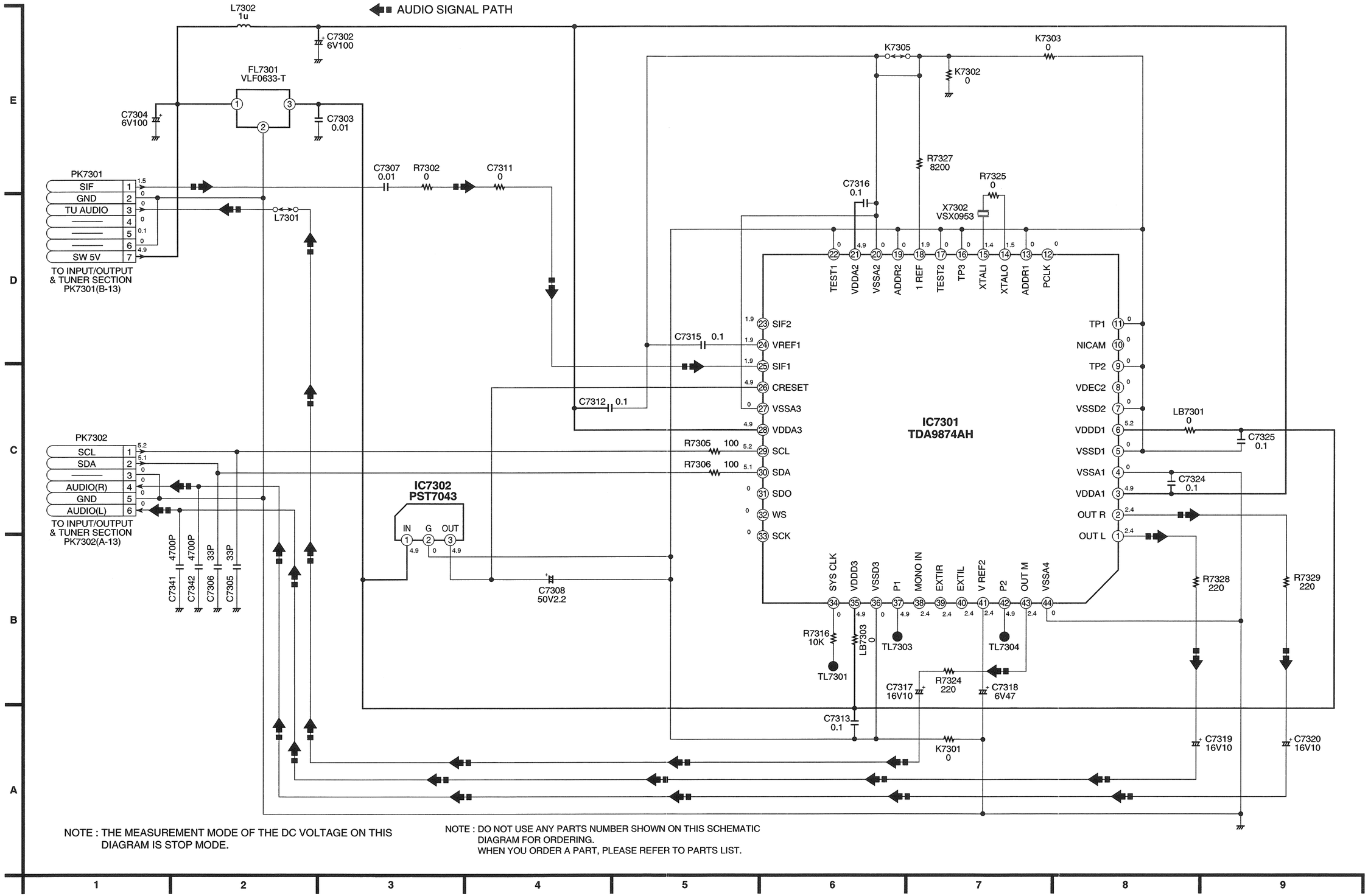


NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

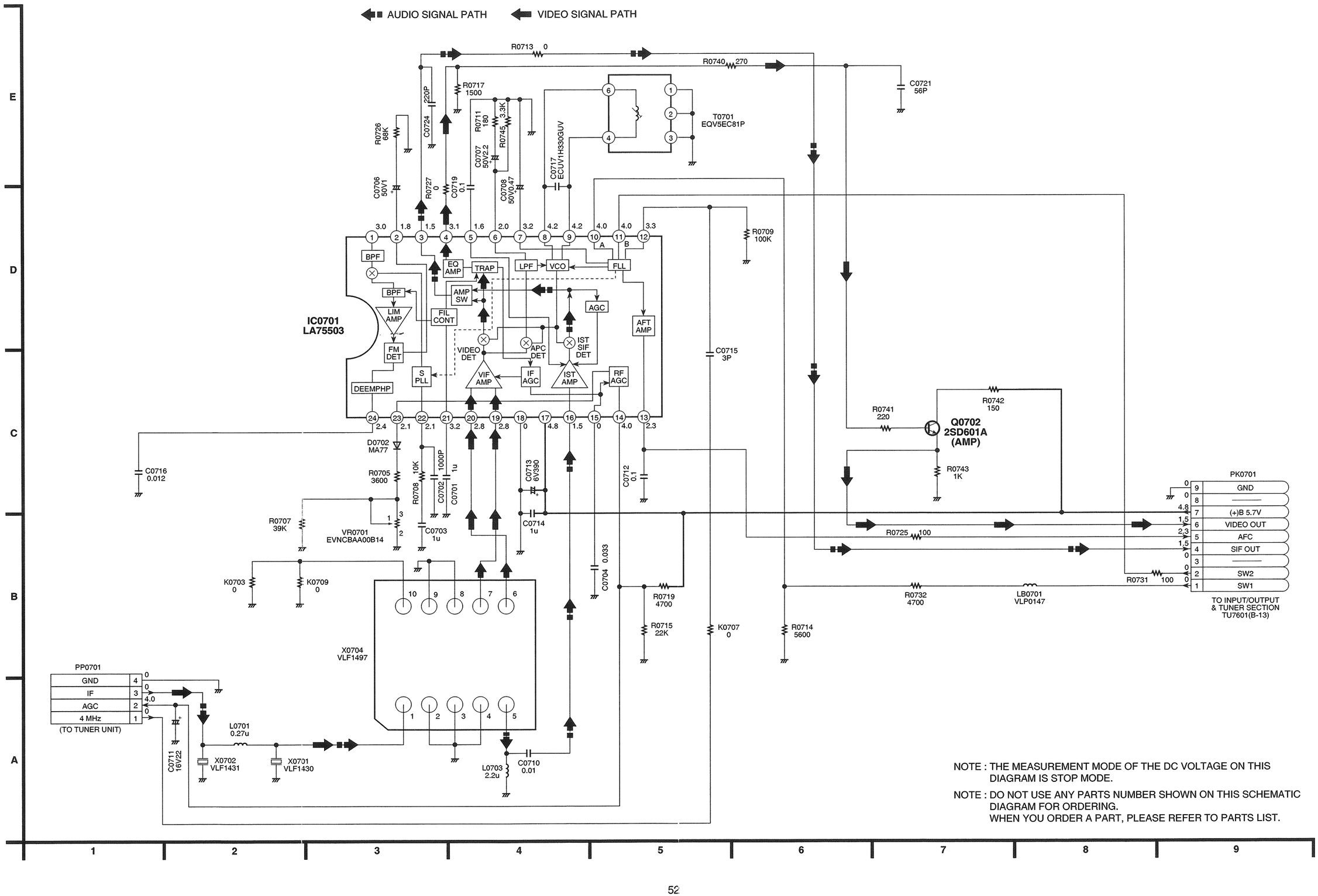
7.9. NICAM DECODER PACK SCHEMATIC DIAGRAM



NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

7.10. TV DEMODULATOR PACK SCHEMATIC DIAGRAM

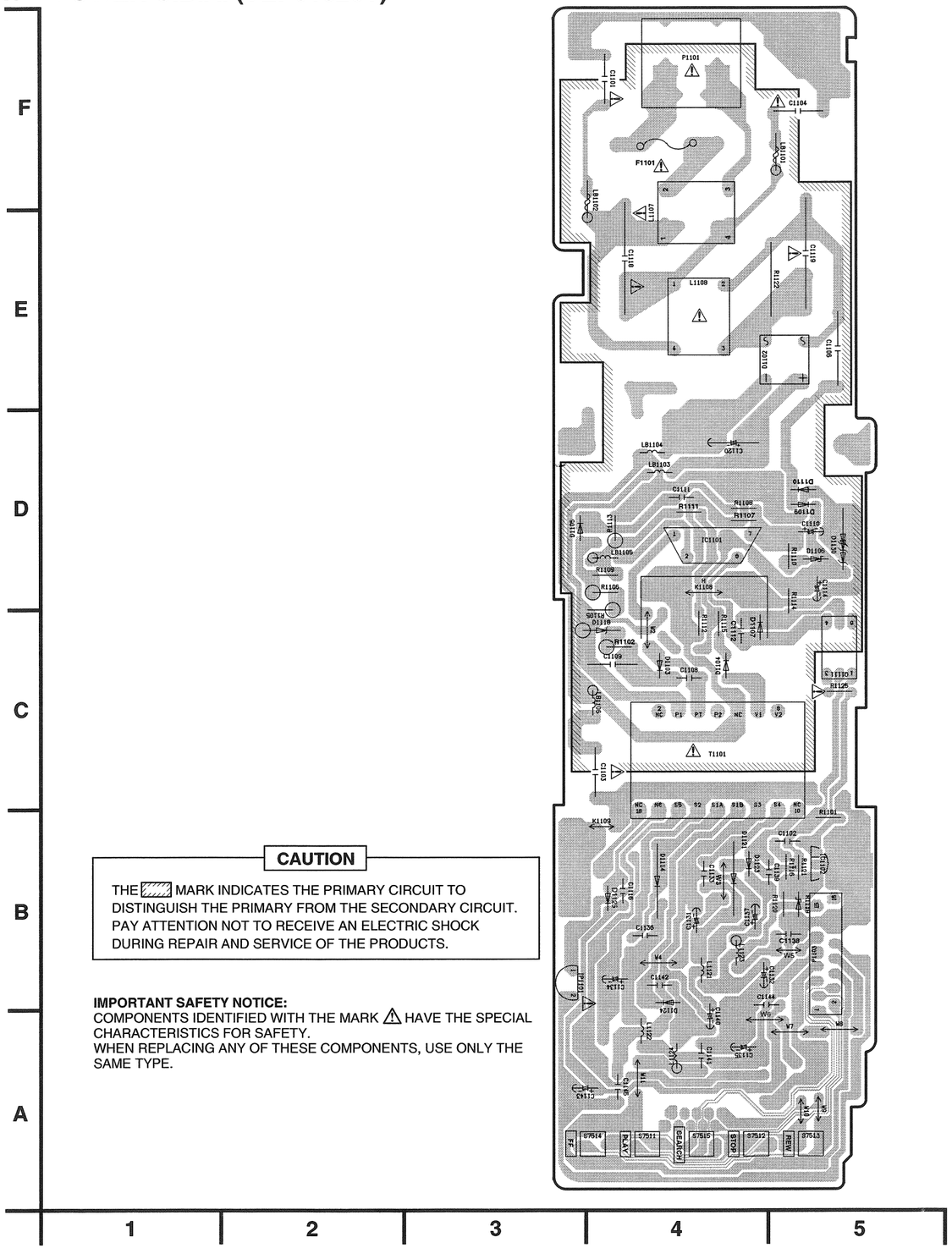


NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE : DO NOT USE ANY PARTS NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

8 CIRCUIT BOARD ASSEMBLIES

8.1. POWER C.B.A. (VEP01826T)

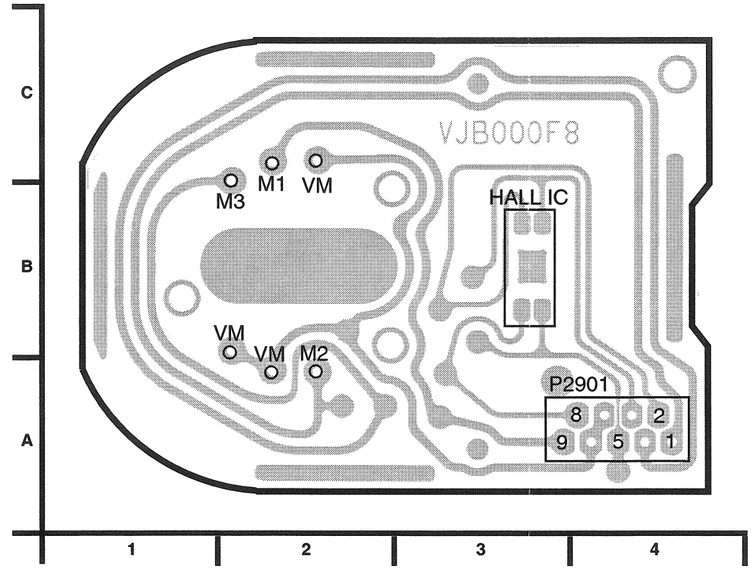


CAUTION

THE ▨ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

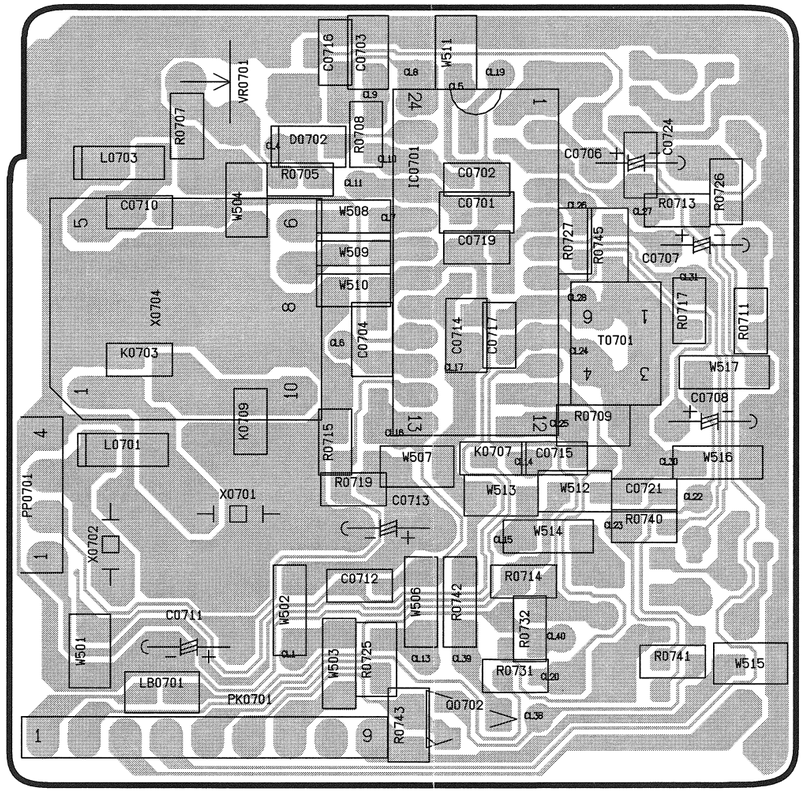
8.2. CYLINDER MOTOR UNIT



CYLINDER MOTOR UNIT	
Integrated Circuit	
HALL IC	B-3
Connector	
P2901	A-4

ADDRESS INFORMATION

8.3. TV DEMODULATOR PACK C.B.A. (VEP07A31D)

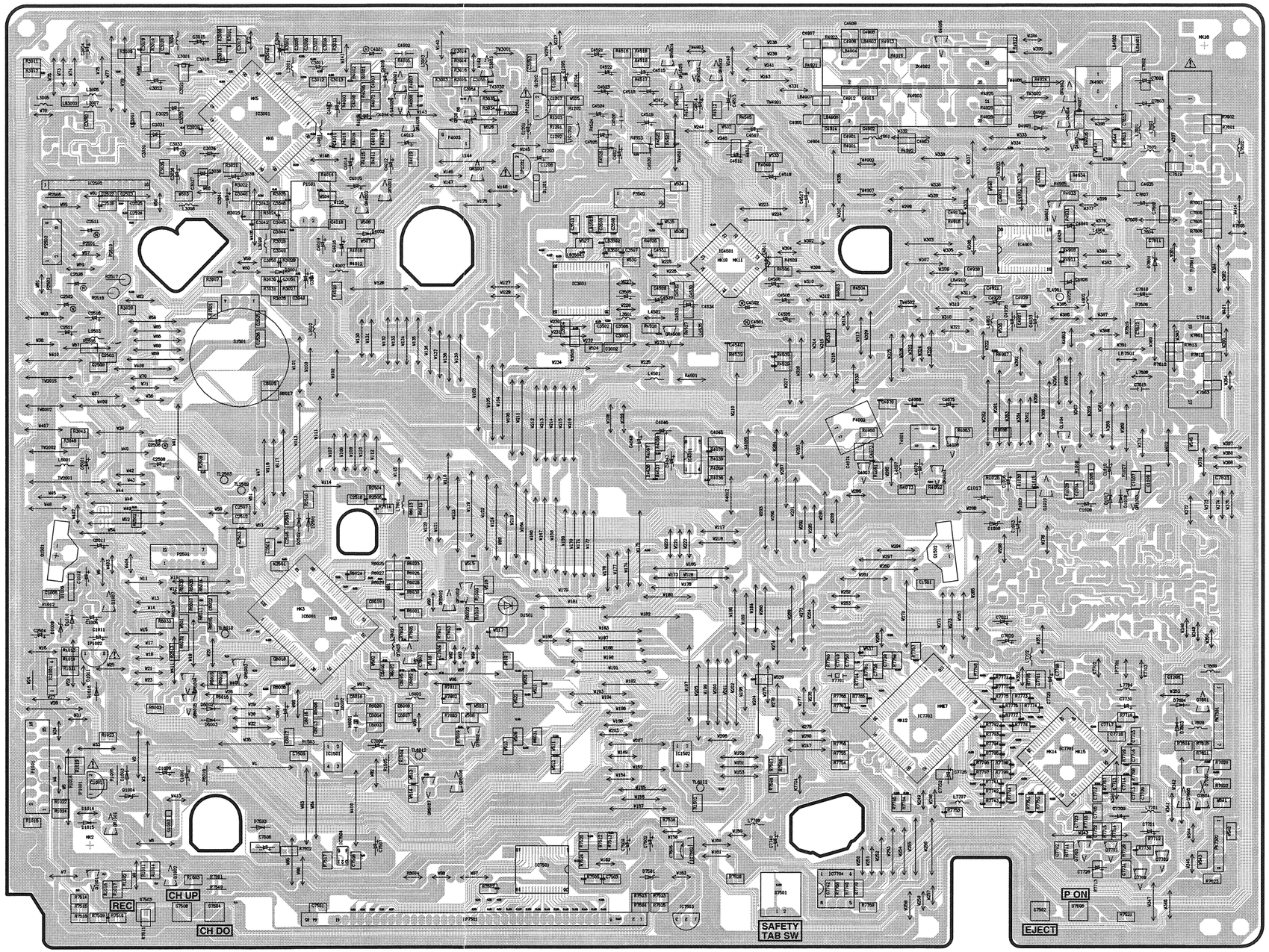


8.4. MAIN C.B.A. (VEP06D57C)

MAIN C.B.A.			
Transistor		Integrated Circuit	
Q1001	A-3	IC1001	B-3
Q1002	A-3	IC1201	E-5
Q1003	A-3	IC1501	B-4
Q1004	D-7	IC1502	B-6
Q1005	C-8	IC2502	E-3
Q1006	C-3	IC3001	E-4
Q1007	C-3	IC3501	D-5
Q1009	C-8	IC4001	C-6
Q1010	C-7	IC4501	E-6
Q1201	E-5	IC4901	E-7
Q1202	F-5	IC6001	C-4
Q1501	C-3	IC7501	A-5
Q1502	C-7	IC7502	A-6
Q3003	F-5	IC7503	A-6
Q4001	F-4	IC7504	A-4
Q4002	F-4	IC7701	B-7
Q4006	D-7	IC7703	B-7
Q4007	C-7	IC7704	A-6
Q4901	E-7		
Q4903	E-8	Test Land	
Q4904	E-8	TL2502	C-4
Q4905	F-7	TL2503	C-3
Q7601	B-8	TL4901	D-7
Q7604	B-8	TL6010	B-3
Q7605	B-8	TL6012	B-4
Q7606	B-8	TL6013	B-6
Q7701	A-8		
Q7702	A-8	Test Wire	
Q7703	A-8	TW2001	C-3
Q7709	A-8	TW2002	D-3
Q7802	B-5	TW2015	D-3
Q7803	B-4	TW3001	F-5
		TW3002	F-7
Transistor & Resistor		TW3003	E-7
QR1001	A-3	TW3030	F-5
QR1002	C-5	TW4501	E-6
QR1003	C-8	TW4502	D-7
QR3006	E-5	TW4901	F-6
QR3007	E-5	TW4902	E-7
QR4001	E-4	TW4903	F-6
QR4002	E-4	TW4906	F-7
QR4004	C-7	TW4907	E-7
QR4006	E-4	TW6002	D-3
QR4502	F-6		
QR4503	F-6	Connector	
QR4504	F-6	P1001	B-3
QR4505	F-6	P1501	E-4
QR4506	D-6	P2501	C-3
QR4903	F-8	P2502	E-3
QR6002	C-5	P3502	E-5
QR6003	B-4	P4002	D-6
QR6004	B-3	P4003	E-5
QR6005	B-3	PK7301	B-8
QR6006	B-5	PK7302	A-8
QR6007	B-4	TU7601	E-8

ADDRESS INFORMATION

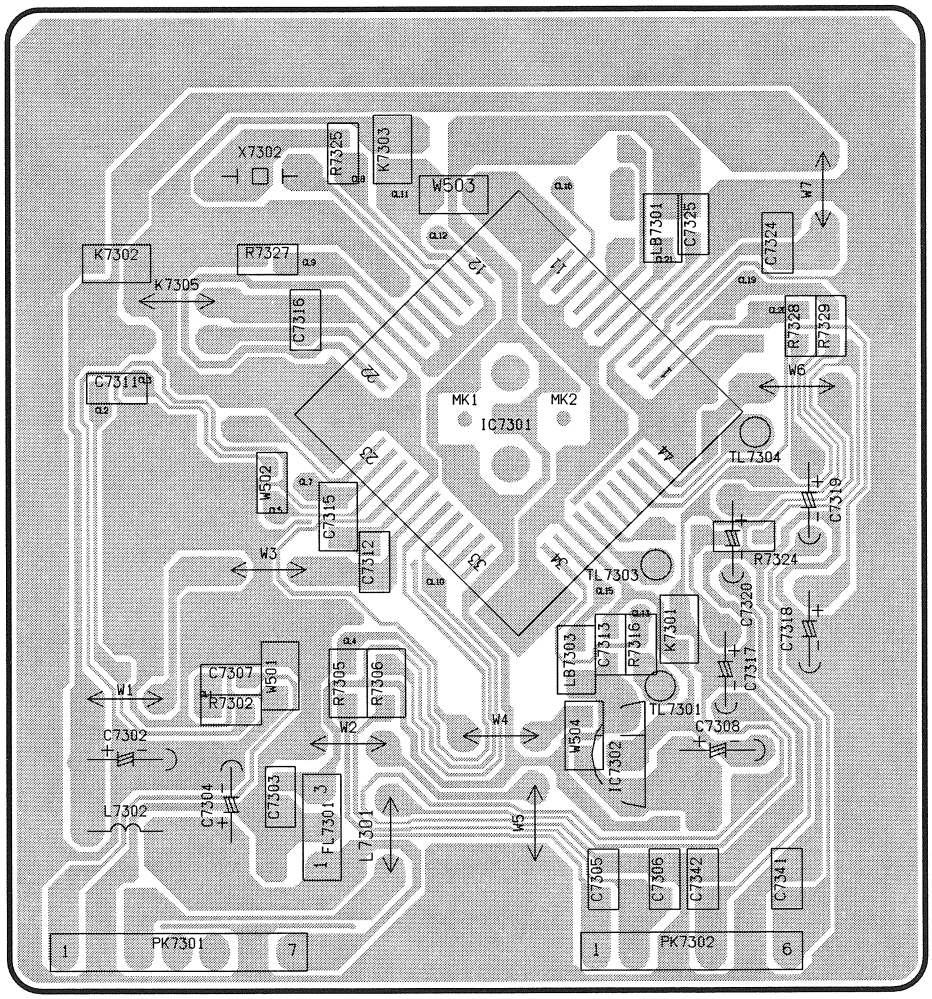
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



F E D C B A

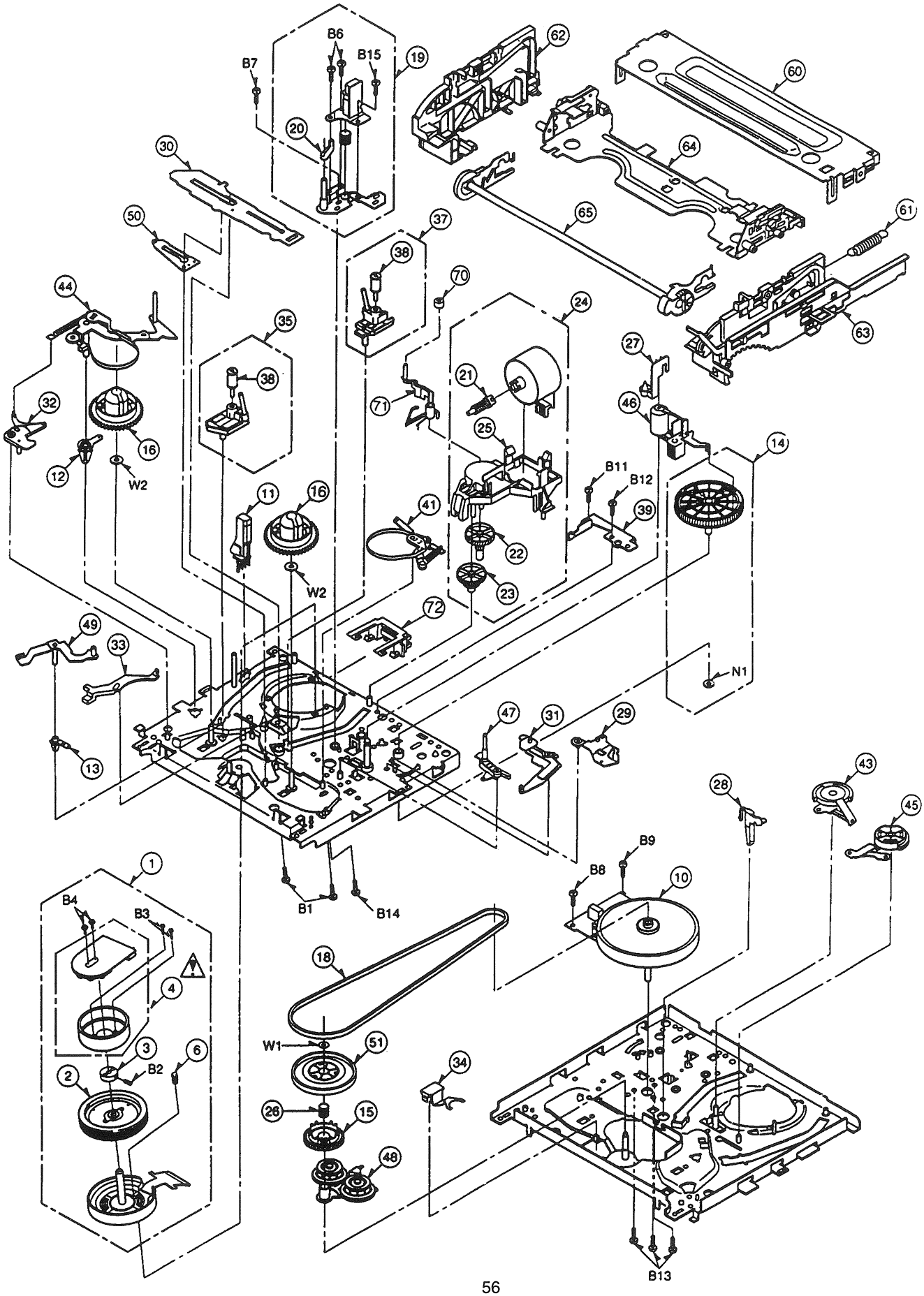
1 2 3 4 5 6 7 8

8.5. NICAM DECODER PACK C.B.A. (VEP07A18D)



9 EXPLODED VIEWS & MECHANICAL REPLACEMENT PARTS LIST

9.1. CHASSIS PARTS SECTION



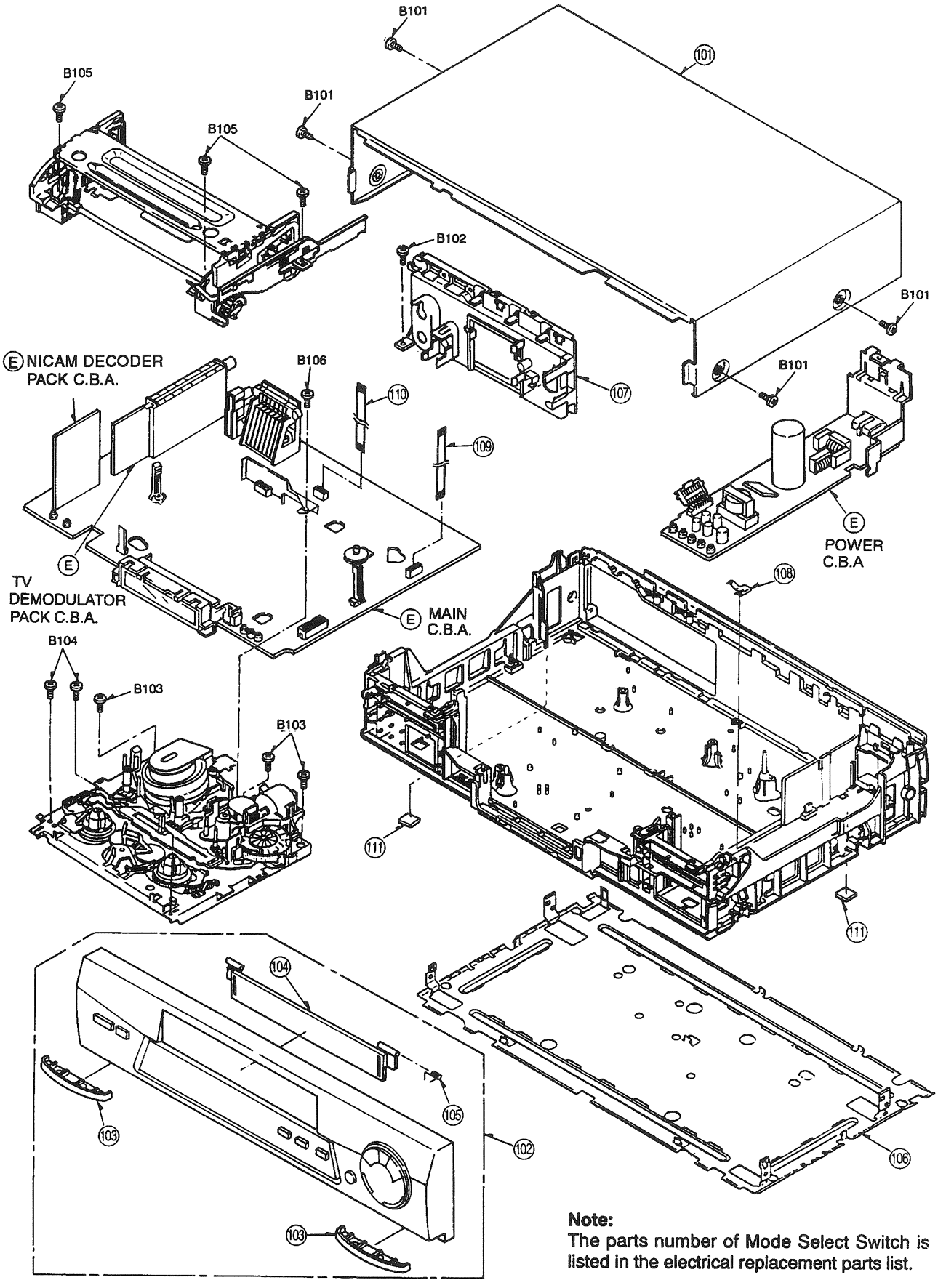
Note: 1.* Be sure to make your orders of replacement parts according to this list.

2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1 (1)	VEG1535	CYLINDER UNIT	1	[SUPPLIED FROM MBV]
2 (1)	VXP2015	UPPER CYLINDER UNIT	1	[SUPPLIED FROM MBV]
3 (1)	VDB1256	CYLINDER RETAINER	1	
4 (1)	VEM0715	CYLINDER MOTOR UNIT	1	[SUPPLIED FROM MBV]
6 (1)	VXS0135	EARTH BRUSH UNIT	1	
10 (1)	VEK8841	CAPSTAN UNIT	1	[SUPPLIED FROM MBV]
11 (1)	VBS0155	FE HEAD	1	
12 (1)	VDB1431	TENSION ARM BOSS	1	
13 (1)	VDB1460	SUPPLY BRAKE ARM BOSS	1	
14 (1)	VDG1220KIT	MAIN CAM GEAR	1	
15 (1)	VDG1221	CONVERSION GEAR	1	
16 (1)	VDR0350	SUPPLY/TAKE-UP REEL TABLE	2	
18 (1)	VDV0382	CAPSTAN BELT	1	[SUPPLIED FROM MBV]
19 (1)	VED0412	A/C HEAD UNIT	1	
20 (1)	VMX2656	P4 CAP	1	
21 (1)	VDG1217	WORM GEAR	1	
22 (1)	VDG1218	WORM WHEEL GEAR	1	
23 (1)	VDG1219	CENTRE GEAR	1	
24 (1)	VEM0604	LOADING MOTOR UNIT	1	[SUPPLIED FROM MBV]
25 (1)	VMD2619	MOTOR BRACKET	1	
26 (1)	VMB3045	CONVERESION GEAR SPRING	1	
27 (1)	VMD2620	OPENER PIECE	1	
28 (1)	VMD2738	LED PRISM	1	
29 (1)	VML3165	DRIVE RACK ARM	1	[SUPPLIED FROM MBV]
30 (1)	VML3166	MAIN LEVER	1	[SUPPLIED FROM MBV]
31 (1)	VML3167	DRIVE MAIN LEVER ARM	1	[SUPPLIED FROM MBV]
32 (1)	VML3172	SUPPLY SPRING ARM	1	[SUPPLIED FROM MBV]
33 (1)	VML3176	CONVERSION LEVER A	1	[SUPPLIED FROM MBV]
34 (1)	VML3177	CONVERSION LEVER B	1	[SUPPLIED FROM MBV]
35 (1)	VXA6040	INCLINED BASE (S) UNIT	1	
37 (1)	VXA5854	INCLINED BASE (T) UNIT	1	
38 (1)	VXP1840	ROLLER POST	2	
39 (1)	VMA9672	SUPPORT ANGLE	1	
41 (1)	VXL2667	TAKE UP BRAKE ARM UNIT	1	
43 (1)	VXL2670	TAKE UP LOADING ARM UNIT	1	
44 (1)	VXL2798	TESION ARM UNIT	1	[SUPPLIED FROM MBV]
45 (1)	VXL2672	SUPPLY LOADING	1	
46 (1)	VXL2785	PINCH ARM UNIT	1	[SUPPLIED FROM MBV]
47 (1)	VXL2996	P5 ARM UNIT	1	[SUPPLIED FROM MBV]
48 (1)	VXL2792	IDLER ARM UNIT	1	[SUPPLIED FROM MBV]
49 (1)	VXL2733	SUPPLY BRAKE ARM UNIT	1	
50 (1)	VXL2747	LOADING RACK UNIT	1	
51 (1)	VXP2035	CENTRE CLUTHCH UNIT	1	[SUPPLIED FROM MBV]
60 (1)	VMA9516	TOP PLATE	1	
61 (1)	VMB3047	CONNECTION SPRING	1	
62 (1)	VMD3379	SIDE PLATE (L)	1	[SUPPLIED FROM MBV]
63 (1)	VXA6607	SIDE PLATE (R) UNIT	1	[SUPPLIED FROM MBV]
64 (1)	VXA5746	CASSETTE HOLDER UNIT	1	
65 (1)	VXP1730	MAIN SHAFT UNIT	1	
70 (1)	VDP1668	CLEANER ROLLER	1	[SUPPLIED FROM MBV]
71 (1)	VML3164	CLEANER ARM	1	[SUPPLIED FROM MBV]
72 (1)	VMD3795	FPC HOLDER	1	[SUPPLIED FROM MBV]

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B1 (1)	VHD1117	SCREW	2	
B2 (1)	VHD0842	SCREW	1	
B3 (1)	VHD0843	SCREW	2	
B4 (1)	VHD0844	SCREW	2	
B6 (1)	VHD1066	SCREW	2	
B7 (1)	VHD1044	SCREW	1	
B8 (1)	VHD1060	SCREW	1	
B9 (1)	VHD1071	SCREW	1	
B11 (1)	XTS26+6F	SCREW	1	
B12 (1)	XTN26+6F	SCREW	1	
B13 (1)	XTN26+7J	SCREW	3	
B14 (1)	VHD1095	SCREW	1	
B15 (1)	VHD1185	SCREW	1	
N1 (1)	VHN0311	PUSH NUT	1	
W1 (1)	VMX2208	WASHER	1	[SUPPLIED FROM MBV]
W2 (1)	VMX2650	WASHER	2	

9.2. CASING PARTS SECTION



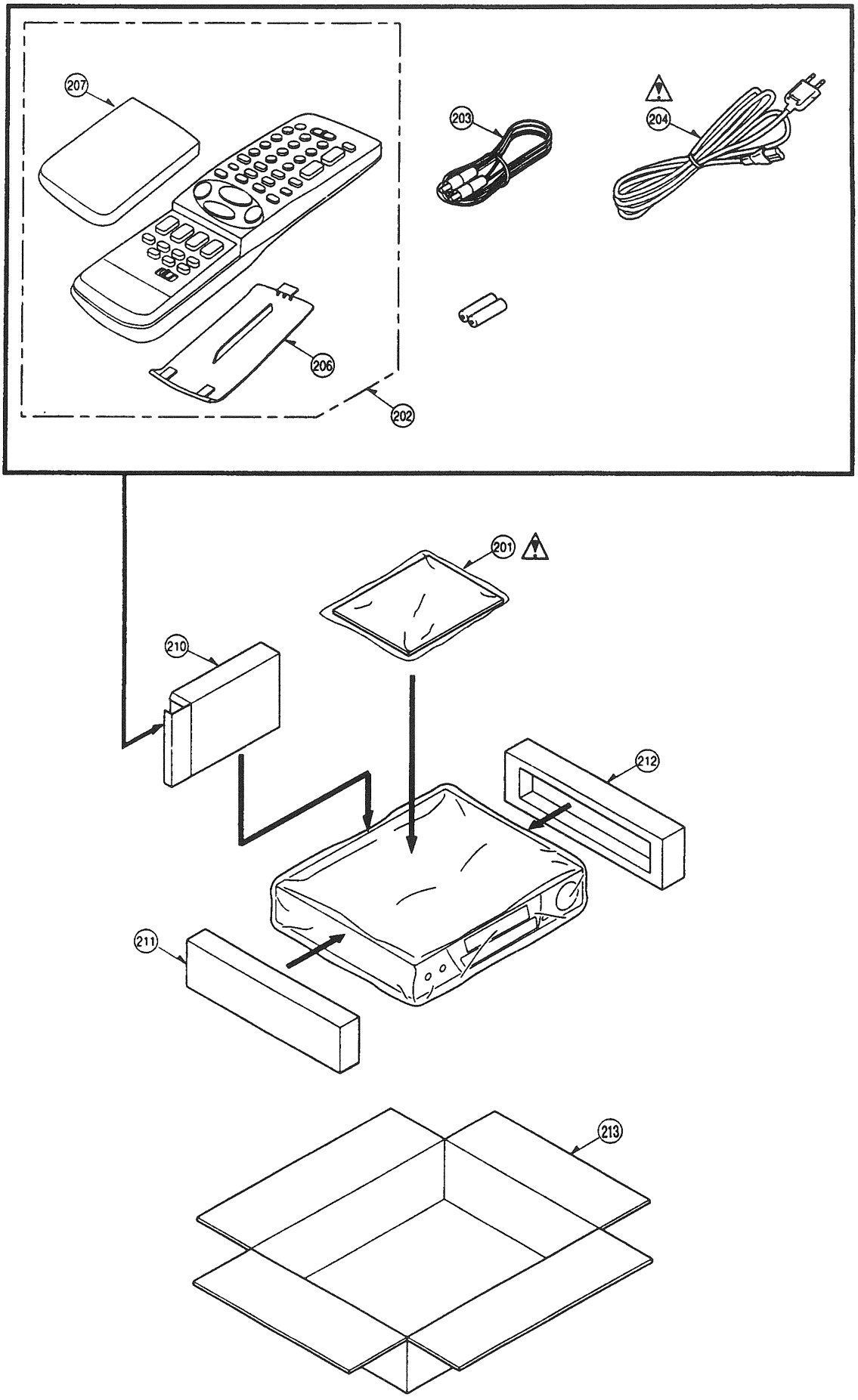
Note:
The parts number of Mode Select Switch is listed in the electrical replacement parts list.

Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
101 (2)	VGM1466	TOP PANEL	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-K
101 (2)	VGM1556	TOP PANEL	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-S
102 (2)	VYP7544	FRONT PANEL UNIT	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-K
102 (2)	VYP7543	FRONT PANEL UNIT	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-S
103 (2)	VKA0191	LEG	1	
104 (2)	VKF3037	BLINDER PANEL	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-K
104 (2)	VKF3011	BLINDER PANEL	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-S
105 (2)	VMB2521	BLINDER SPRING	1	
106 (2)	VKU0519	BOTTOM PLATE	1	
107 (2)	VJH1024	JACK BOARD	1	[SUPPLIED FROM MBV]
108 (2)	VMC1065	EARTH SPRING	1	
109 (2)	VWJ1282	FLAT CARD CABLE (9P)	1	[SUPPLIED FROM MBV]
				P2502 - CYL. MOTOR
110 (2)	VWJ1281	FLAT CARD CABLE (6P)	1	[SUPPLIED FROM MBV]
				P4003 - AC HEAD
111 (2)	RKA0072	FOOT	2	
B101 (2)	XTW3+10TFZ	SCREW	4	NV-FJ612EE-K
B101 (2)	XTW3+10TFC	SCREW	4	NV-FJ612EE-S
B102 (2)	VHD0773	SCREW	1	
B103 (2)	VHD1065	SCREW	3	
B104 (2)	VHD0168	SCREW	2	
B105 (2)	XTV26+8FR	SCREW	3	
B106 (2)	XTV26+6FR	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

9.3. PACKING PARTS SECTION



Note: 1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 201 (3)	VQT8561	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MBV]
		(ENGLISH, POLISH)		
⚠ 201 (3)	VQT8562	OPERATING INSTRUCTIONS	1	[SUPPLIED FROM MBV]
		(CZECH, HUNGARIAN)		
202 (3)	EUR571739	REMOTE CONTROLLER	1	[SUPPLIED FROM MBV]
203 (3)	VJA0728	RF COAXIAL CABLE	1	[SUPPLIED FROM MBV]
⚠ 204 (3)	VJA1059	AC CORD	1	[SUPPLIED FROM MBV]
206 (3)	UR57EC679F	BATTERY COVER	1	[SUPPLIED FROM MBV]
207 (3)	UR57CV680C	DOOR PANEL	1	[SUPPLIED FROM MBV]
210 (3)	VPK2246	ACCESSORIES PACKING	1	[SUPPLIED FROM MBV]
211 (3)	VPN5340	CUSHION (L)	1	[SUPPLIED FROM MBV]
212 (3)	VPN5341	CUSHION (R)	1	[SUPPLIED FROM MBV]
213 (3)	VPG0C83	PACKING CASE	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-K
213 (3)	VPG0C82	PACKING CASE	1	[SUPPLIED FROM MBV]
				NV-FJ612EE-S
		SERVICE FIXTURES & TOOLS		
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	1	
	VFK0335	RETAINING RING REMOVER	1	
		(3mm/4mm)		
	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
	VFK0326	HEX WRENCH SET	1	
	VFK0132	BACK TENSION METER	1	
	VFK27	HEAD CLEANING STICK	1	
	VFK1024	MOLYTONE GREASE	1	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	
	VFK2744	16P EXTENSION CABLE	1	MAIN - POWER
	VFK1301	SILICONE GREASE	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

10 ELECTRICAL REPLACEMENT PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE : Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS , K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf) , P=uuF.
4. The P.C.Board units marked width"■"show below the main assembled parts.
5. The marking(RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	VEP06D57C	MAIN C. B. A.	1	[SUPPLIED FROM MBV]
				(RTL)
				THE FOLLOWING C. B. A. S ARE
				INCLUDED IN MAIN C. B. A.
				VEP07A31D
				VEP07A18D
■	VEP07A18D	NICAM DECODER PACK C. B. A.	1	[SUPPLIED FROM MBV]
				(RTL)
				INCLUDED IN MAIN C. B. A.
				(VEP06D57C).
■	VEP07A31D	TV DEMODULATOR PACK C. B. A	1	[SUPPLIED FROM MBV]
				(RTL)
				INCLUDED IN MAIN C. B. A.
				(VEP06D57C).
⚠ ■	VEP01826T	POWER C. B. A.	1	[SUPPLIED FROM MBV]
				(RTL)
■	————————	CYLINDER STATOR C. B. A.	1	INCLUDED IN
				CYLINDER MOTOR UNIT
				(VEM0715).
■	————————	CAPSTAN DRIVE C. B. A.	1	INCLUDED IN
				CAPSTAN UNIT (VEK8841).
⚠ TU7601	ENG47310G1	TUNER	1	[SUPPLIED FROM MBV]
⚠ F1101	XBA2C16TH15	FUSE	1	[SUPPLIED FROM MBV]
■	VEP06D57C	MAIN C. B. A.		[SUPPLIED FROM MBV]
				(RTL)
C0701	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C0702	ECUX1H102KBV	C. CAPACITOR CH 50V 1000P	1	
C0703	ECUM1A105KBN	C. CAPACITOR CH 10V 1U	1	
C0704	ECUM1E333KBN	C. CAPACITOR CH 25V 0. 033U	1	
C0706	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C0707	ECEA1HKA2R2	E. CAPACITOR 50V 2. 2U	1	
C0708	ECEA1HKAR47	E. CAPACITOR 50V 0. 47U	1	
C0710	ECUX1H103ZFV	C. CAPACITOR CH 50V 0. 01U	1	
C0711	ECEA1CKA220	E. CAPACITOR 16V 22U	1	
C0712	ECUX1C104ZFV	C. CAPACITOR CH 16V 0. 1U	1	
C0713	EEUFA1A391	E. CAPACITOR 10V 390U	1	
C0714	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C0715	ECUX1H030CCV	C. CAPACITOR CH 50V 3P	1	
C0716	ECUX1H123KBV	C. CAPACITOR CH 50V 0. 012U	1	
C0717	ECUM1H330GUV	C. CAPACITOR CH 50V 33P	1	
C0719	ECUX1E104ZFV	C. CAPACITOR CH 25V 0. 1U	1	
C0721	ECUX1H560JCV	C. CAPACITOR CH 50V 56P	1	
C0724	ECUX1H221KBV	C. CAPACITOR CH 50V 220P	1	
C1001	ECEA1AKG220	E. CAPACITOR 10V 22U	1	[SUPPLIED FROM MBV]
C1002	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C1003	ECEA1CGE470	E. CAPACITOR 16V 47U	1	
C1004	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C1005	ECEA1AKA470	E. CAPACITOR 10V 47U	1	
C1006, 07	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	2	
C1008	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C1009	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C1010	ECEA1CGE470	E. CAPACITOR 16V 47U	1	
C1011, 12	ECEA1CKA100	E. CAPACITOR 16V 10U	2	
C1015	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C1016	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C1017	ECEA1HKA4R7	E. CAPACITOR 50V 4. 7U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C1201	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	1	
C1202	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C1203	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C1204	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C1205	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C1206, 07	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	2	
C1208	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C1209	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C1501	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C2501	ECUM1C474ZFN	C. CAPACITOR CH 16V 0. 47U	1	
C2502	ECEA1VKN4R7	E. CAPACITOR 35V 4. 7U	1	
C2503	ECUM1H563ZFN	C. CAPACITOR CH 50V 0. 056U	1	
C2504	ECEA1EKA470	E. CAPACITOR 25V 47U	1	
C2505	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C2506	ECEA0JKN220	E. CAPACITOR 6. 3V 22U	1	
C2507	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C2508	ECEA1EKA4R7	E. CAPACITOR 25V 4. 7U	1	
C2509, 10	ECUM1H563ZFN	C. CAPACITOR CH 50V 0. 056U	2	
C2511	ECEA1VKN4R7	E. CAPACITOR 35V 4. 7U	1	
C2512	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1	
C2516	ECEA0JKA221	E. CAPACITOR 6. 3V 220U	1	
C2518	ECUM1H473ZFN	C. CAPACITOR CH 50V 0. 047U	1	
C2521	ECEA1EKA470	E. CAPACITOR 25V 47U	1	
C2522	ECUM1E683KBN	C. CAPACITOR CH 25V 0. 068U	1	
C2523-25	ECUM1C154KBN	C. CAPACITOR CH 16V 0. 15U	3	
C2526	ECEA1VKN4R7	E. CAPACITOR 35V 4. 7U	1	
C2535, 36	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C3002, 03	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	2	
C3004	ECEA1HKA3R3	E. CAPACITOR 50V 3. 3U	1	
C3005	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1	
C3006	ECUM1H060DCN	C. CAPACITOR CH 50V 6P	1	
C3007	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3008	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3011	ECEA0JKA221	E. CAPACITOR 6. 3V 220U	1	
C3012, 13	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C3014	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3015	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C3016	ECUM1H333KBN	C. CAPACITOR CH 50V 0. 033U	1	
C3017	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3018	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	1	
C3019	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	1	
C3020	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3021	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
C3023	ECEA1HKAR33	E. CAPACITOR 50V 0. 33U	1	
C3024	ECEA0JKA470	E. CAPACITOR 6. 3V 47U	1	
C3025	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	1	
C3026	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3029	ECUM1H103ZFN	C. CAPACITOR CH 50V 0. 01U	1	
C3030	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C3031	ECEA1HKAR47	E. CAPACITOR 50V 0. 47U	1	
C3033	ECEA1EKN4R7	E. CAPACITOR 25V 4. 7U	1	
C3034	ECEA1EKA4R7	E. CAPACITOR 25V 4. 7U	1	
C3035	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3036	ECEA0JKA221	E. CAPACITOR 6. 3V 220U	1	
C3037	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3038	ECEA0JKA101	E. CAPACITOR 6. 3V 100U	1	
C3039	ECEA0JKA220	E. CAPACITOR 6. 3V 22U	1	
C3040	ECUM1H223KBN	C. CAPACITOR CH 50V 0. 022U	1	
C3041	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C3042	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C3043	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	1	
C3044	ECUM1H821JCN	C. CAPACITOR CH 50V 820P	1	
C3045	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C3046	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C3047	ECEA0JKA220	E. CAPACITOR 6. 3V 22U	1	
C3048	ECUM1H560JCN	C. CAPACITOR CH 50V 56P	1	
C3049	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C3050	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1	
C3051	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1	
C3052, 53	ECUM1H104ZFN	C. CAPACITOR CH 50V 0. 1U	2	
C3054, 55	ECUM1E104KBN	C. CAPACITOR CH 25V 0. 1U	2	
C3502	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C3504	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	
C3505	ECEA0JKS470	E. CAPACITOR 6. 3V 47U	1	
C3506	ECUM1H103KBN	C. CAPACITOR CH 50V 0. 01U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C3507-10	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	4	
C4001	ECEA1HKN010	E. CAPACITOR 50V 1U	1	
C4002	ECQB1H822JF	P. CAPACITOR 50V 8200P	1	
C4003	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C4004	ECEA1EKA4R7	E. CAPACITOR 25V 4.7U	1	
C4005	ECUM1H272KBN	C. CAPACITOR CH 50V 2700P	1	
C4006	ECEA0JKA220	E. CAPACITOR 6.3V 22U	1	
C4007	ECUM1H122JCN	C. CAPACITOR CH 50V 1200P	1	[SUPPLIED FROM MBV]
C4010, 11	ECUM1H153KBN	C. CAPACITOR CH 50V 0.015U	2	
C4012	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C4013	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C4014	ECEA1HKA0R1	E. CAPACITOR 50V 0.1U	1	
C4015	ECEA0JKA220	E. CAPACITOR 6.3V 22U	1	
C4016	ECEA1HKA0R1	E. CAPACITOR 50V 0.1U	1	
C4018	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4019	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C4045	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C4046-48	ECA1CAK100X	E. CAPACITOR 16V 10U	3	
C4068	ECQB1H223JF	P. CAPACITOR 50V 0.022U	1	
C4070	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C4072	ECEA0JKA221	E. CAPACITOR 6.3V 220U	1	
C4073	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1	
C4074	ECUM1H152JCN	C. CAPACITOR CH 50V 1500P	1	
C4075	ECEA1AKA220	E. CAPACITOR 10V 22U	1	
C4501, 02	ECEA1HKNR47	E. CAPACITOR 50V 0.47U	2	
C4505-08	ECA1HAKR22X	E. CAPACITOR 50V 0.22U	4	
C4511, 12	ECEA1CKA100	E. CAPACITOR 16V 10U	2	
C4513-16	ECA1CAK100X	E. CAPACITOR 16V 10U	4	
C4517	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C4518	ECEA1HKAR22	E. CAPACITOR 50V 0.22U	1	
C4519	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4520	ECQB1H562JF	P. CAPACITOR 50V 5600P	1	
C4521	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C4522	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4523	ECA1HAK2R2X	E. CAPACITOR 50V 2.2U	1	
C4524	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4525	ECA1CAK470X	E. CAPACITOR 16V 47U	1	
C4526	ECQB1H562JF	P. CAPACITOR 50V 5600P	1	
C4527	ECA1CAK100X	E. CAPACITOR 16V 10U	1	
C4528	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4529	ECEA1CKS470	E. CAPACITOR 16V 47U	1	
C4530	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C4531	ECUM1H103KBN	C. CAPACITOR CH 50V 0.01U	1	
C4532	ECUM1H561JCN	C. CAPACITOR CH 50V 560P	1	
C4533	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4534	ECEA0JKS331	E. CAPACITOR 6.3V 330U	1	
C4535	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C4540	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C4901, 02	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	2	
C4903-09	ECUM1H471KBN	C. CAPACITOR CH 50V 470P	7	
C4912, 13	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	2	
C4914	ECUM1H471KBN	C. CAPACITOR CH 50V 470P	1	
C4917	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C4921	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C4922	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C4923	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C4925	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4926	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C4927	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4928	ECEA0JKA331	E. CAPACITOR 6.3V 330U	1	
C4929	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4932	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4933	ECEA1CKA470	E. CAPACITOR 16V 47U	1	
C4935	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C4938	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1	
C4939	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C4940	ECEA0JKA331	E. CAPACITOR 6.3V 330U	1	
C4941	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C6001	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C6002	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C6003	ECUM1H200JCN	C. CAPACITOR CH 50V 20P	1	
C6004	ECUM1H120JCN	C. CAPACITOR CH 50V 12P	1	
C6005	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C6006	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C6007, 08	ECUM1H121JCN	C. CAPACITOR CH 50V 120P	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6009	ECUM1H681JCN	C. CAPACITOR CH 50V 680P	1	
C6010	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C6011	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C6012	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6013	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6016	ECUM1H180JCN	C. CAPACITOR CH 50V 18P	1	
C6017	ECEA1CKA100	E. CAPACITOR 16V 10U	1	
C6018	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C6019	ECUM1H151JCN	C. CAPACITOR CH 50V 150P	1	
C6022	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7302	VCEA0JAW101	E. CAPACITOR 6.3V 100U	1	
C7303	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C7304	VCEA0JAW101	E. CAPACITOR 6.3V 100U	1	
C7305, 06	ECUX1H330JCV	C. CAPACITOR CH 50V 33P	2	
C7307	ECUX1H103ZFV	C. CAPACITOR CH 50V 0.01U	1	
C7308	ECEA1HKA2R2	E. CAPACITOR 50V 2.2U	1	
C7311	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
C7312, 13	ECUX1C104ZFV	C. CAPACITOR CH 16V 0.1U	2	
C7315	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C7316	ECUX1C104ZFV	C. CAPACITOR CH 16V 0.1U	1	
C7317	VCEA1CAW100	E. CAPACITOR 16V 10U	1	
C7318	VCEA0JAW470	E. CAPACITOR 6.3V 47U	1	
C7319, 20	VCEA1CAW100	E. CAPACITOR 16V 10U	2	
C7324, 25	ECUX1C104ZFV	C. CAPACITOR CH 16V 0.1U	2	
C7341, 42	ECUX1H472KBV	C. CAPACITOR CH 50V 4700P	2	
C7501	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7502	ECEA1HKA100	E. CAPACITOR 50V 10U	1	
C7503	ECUM1H120JCN	C. CAPACITOR CH 50V 12P	1	
C7504	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C7505	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7506	VCE0073	SUPER CAPACITOR	1	
C7507	ECEA0JKA221	E. CAPACITOR 6.3V 220U	1	
C7508	ECUM1H683ZFN	C. CAPACITOR CH 50V 0.068U	1	
C7509	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7601	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C7602	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C7603	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C7605, 06	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	2	
C7607	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C7608	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	1	
C7610	ECEA1HKA100	E. CAPACITOR 50V 10U	1	
C7611	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7612	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
C7613	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
C7615	ECQV1H104JM	P. CAPACITOR 50V 0.1U	1	
C7618	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	1	
C7619	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7620, 21	ECA1HAK2R2X	E. CAPACITOR 50V 2.2U	2	
C7623	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7701, 02	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C7705	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7708	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7709	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C7711	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C7712, 13	ECUM1H103ZFN	C. CAPACITOR CH 50V 0.01U	2	
C7714	ECUM1H470JCN	C. CAPACITOR CH 50V 47P	1	
C7715	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C7716	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C7717	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C7718	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1	
C7720	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C7721	ECEA1EKA4R7	E. CAPACITOR 25V 4.7U	1	
C7722, 23	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C7728	ECEA1EKA4R7	E. CAPACITOR 25V 4.7U	1	
C7729	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7730	ECEA0JKA101	E. CAPACITOR 6.3V 100U	1	
C7731	ECUM1H820JCN	C. CAPACITOR CH 50V 82P	1	
C7735, 36	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2	
C7739	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7740	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C7742	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C7749, 50	ECUM1H270JCN	C. CAPACITOR CH 50V 27P	2	
C7752	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	
C7801	ECUM1H330JCN	C. CAPACITOR CH 50V 33P	1	
C7802	ECEA0JKA470	E. CAPACITOR 6.3V 47U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C7803	ECUM1C105ZFN	C. CAPACITOR CH 16V 1U	1	
C7804	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1	
D0702	MA77	DIODE	1	
D1003	1SS254	DIODE	1	
D1004	MA4051N-H	DIODE	1	[SUPPLIED FROM MBV]
D1006	MA4051N-L	DIODE	1	[SUPPLIED FROM MBV]
D1009	MA4051N-M	DIODE	1	
D1010	1SS254	DIODE	1	
D1015, 16	1SS254	DIODE	2	
D1017	MA4120N-M	DIODE	1	
D1018	1SS254	DIODE	1	
D1501	SIR505S	DIODE	1	
D2501, 02	1SS254	DIODE	2	
D3001	1SS254	DIODE	1	
D4905, 06	MA4075-M	DIODE	2	
D6002, 03	MA700	DIODE	2	
D7501	MA4220N-M	DIODE	1	[SUPPLIED FROM MBV]
D7503	RB441P	DIODE	1	
D7601	MA4300M	DIODE	1	
D7603, 04	1SS254	DIODE	2	
DP7501	VSL0533-B	FIP	1	[SUPPLIED FROM MBV]
FL7301	VLF0633	FILTER	1	
IC0701	LA75503	IC	1	[SUPPLIED FROM MBV]
IC1001	PQ20VB2E	IC	1	[SUPPLIED FROM MBV]
IC1201	UPC1093J	IC	1	[SUPPLIED FROM MBV]
IC1501, 02	RPI354N	IC	2	[SUPPLIED FROM MBV]
IC2502	AN3811NK	IC	1	[SUPPLIED FROM MBV]
IC3001	TDA9735HV3	IC	1	[SUPPLIED FROM MBV]
IC3501	AN3368SB	IC	1	[SUPPLIED FROM MBV]
IC4001	NJM4558M	IC	1	
IC4501	TDA9605H	IC	1	[SUPPLIED FROM MBV]
IC4901	LA73021M	IC	1	[SUPPLIED FROM MBV]
IC6001	M3777AVCEZ	IC	1	[SUPPLIED FROM MBV]
IC7301	TDA9874AH	IC	1	[SUPPLIED FROM MBV]
IC7302	PST7043	IC	1	
IC7501	M35502AFP	IC	1	[SUPPLIED FROM MBV]
IC7502	S80743AL	IC	1	
IC7503	PNA4611M02VT	IR RECEIVER UNIT	1	[SUPPLIED FROM MBV]
IC7504	RN5VD28AA	IC	1	[SUPPLIED FROM MBV]
IC7701	M3506SWVAX	IC	1	[SUPPLIED FROM MBV]
IC7703	M3062SVCEY	IC	1	[SUPPLIED FROM MBV]
IC7704	M24C16-WBN6	IC	1	[SUPPLIED FROM MBV]
⚠ IP1001, 02	UNH000300A	IC PROTECTOR	2	
⚠ IP1201, 02	UNH000300A	IC PROTECTOR	2	
JK4901	VJJ0377	RCA JACK	1	[SUPPLIED FROM MBV]
JK4903	VJS3634	21-PIN SCART JACK	1	[SUPPLIED FROM MBV]
K0703	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K0707	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K0709	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
K2501	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K2503	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K3003	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7301-03	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	3	
K7601	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
K7603	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
L0701	ELJNAR27JF	INDUCTOR 0.27UH	1	
L0703	ELJNA2R2JF	CHIP INDUCTOR	1	
L2503	VLQ0599J680	COIL 68UH	1	
L3001	VLQ0599J220	COIL 22UH	1	
L3003	VLQ0599J470	COIL 47UH	1	
L3004	VLQ0599J680	COIL 68UH	1	
L3005, 06	VLQ0599J101	COIL 100UH	2	
L3007	VLQ0599J330	COIL 33UH	1	
L3008	VLQ0599J470	COIL 47UH	1	
L3009	VLQ0599J390	COIL 39UH	1	
L3010	VLQ0599J560	COIL 56UH	1	
L3501	VLQ0599J330	COIL 33UH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L4001	ELELN153JA	INDUCTOR 15000UH	1	[SUPPLIED FROM MBV]
L4007	VLQ0599J680	COIL 68UH	1	
L4501	VLQ0599J100	COIL 10UH	1	
L4901	VLQ0599JR22	COIL 0.22UH	1	[SUPPLIED FROM MBV]
L4902-04	VLQ0599J680	COIL 68UH	3	
L6001	VLQ0599J101	COIL 100UH	1	
L6002	VLQ0599J2R2	COIL 2.2UH	1	
L7302	VLQ0599J1R0	COIL 1UH	1	
L7601-04	VLQ0599J330	COIL 33UH	4	
L7605	VLQ0599J100	COIL 10UH	1	
L7608	VLQ0599J1R0	COIL 1UH	1	
L7609	VLQ0599J100	COIL 10UH	1	
L7701, 02	VLQ0599J390	COIL 39UH	2	
L7704	VLQ0599J390	COIL 39UH	1	
L7706	VLQ0599J100	COIL 10UH	1	
L7707	VLQ0599J220	COIL 22UH	1	
L7801	VLQ0599J680	COIL 68UH	1	
L7802	VLQ0599J330	COIL 33UH	1	
LB0701	VLP0147	COIL	1	
LB3001, 02	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	2	
LB3501-04	VLP0145	COIL	4	
LB4901-04	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	4	
LB4906, 07	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
LB4911, 12	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	2	
LB7301	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
LB7303	ERJ6GEY0R00	M. RESISTOR CH 1/10W 0	1	
P1001	VJS3917A016W	CONNECTOR (FEMALE) 16P	1	
P1501	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P2501	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2502	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3502	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P4003	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
PK0701	VJR0826E009W	CONNECTOR (MALE) 9P	1	
PK7301	VJR0777B007W	CONNECTOR (MALE) 7P	1	
PK7302	VJR0777B006W	CONNECTOR (MALE) 6P	1	
PP0701	VJP3589A004B	CONNECTOR (MALE) 4P	1	
Q0702	2SD601A-S	TRANSISTOR	1	[SUPPLIED FROM MBV]
Q1001	2SD601A	TRANSISTOR	1	
Q1002	2SD602A	TRANSISTOR	1	
Q1003	2SD1996-S	TRANSISTOR	1	
Q1004	2SB710A	TRANSISTOR	1	
Q1005, 06	2SD1996-S	TRANSISTOR	2	
Q1007	2SD602A-R	TRANSISTOR	1	
Q1009	2SD1996-S	TRANSISTOR	1	
Q1010	2SD601A	TRANSISTOR	1	
Q1201, 02	2SD1996-S	TRANSISTOR	2	
Q1203	2SD601A	TRANSISTOR	1	
Q1501	PNB2301MBV	TRANSISTOR	1	
Q1502	PNB2301MAV	TRANSISTOR	1	
Q3003	2SB709A	TRANSISTOR	1	
Q4001	2SD1149	TRANSISTOR	1	
Q4002	2SD601A	TRANSISTOR	1	
Q4006	2SB710A-R	TRANSISTOR	1	
Q4007	2SD602A-R	TRANSISTOR	1	
Q4501	2SB709A	TRANSISTOR	1	
Q4901	2SB709A	TRANSISTOR	1	
Q4903, 04	2SD601A	TRANSISTOR	2	
Q4905	2SD1328-S	TRANSISTOR	1	
Q7601	2SD601A	TRANSISTOR	1	
Q7604	2SD601A	TRANSISTOR	1	
Q7605	2SB709A	TRANSISTOR	1	
Q7606	2SD601A	TRANSISTOR	1	
Q7701	2SD601A	TRANSISTOR	1	
Q7702	2SB709A	TRANSISTOR	1	
Q7703	2SD601A	TRANSISTOR	1	
Q7709	2SB709A	TRANSISTOR	1	
Q7802	2SD601A	TRANSISTOR	1	
Q7803	2SB709A	TRANSISTOR	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
QR1001	MUN2112	TRANSISTOR-RESISTOR	1	
QR1002	MUN2211	TRANSISTOR-RESISTOR	1	
QR1003	MUN2212	TRANSISTOR-RESISTOR	1	
QR3006, 07	MUN2212	TRANSISTOR-RESISTOR	2	
QR4001	UN2217	TRANSISTOR-RESISTOR	1	
QR4002	MUN2113	TRANSISTOR-RESISTOR	1	
QR4004	MUN2212	TRANSISTOR-RESISTOR	1	
QR4006	MUN2111	TRANSISTOR-RESISTOR	1	
QR4502-05	UN2215	TRANSISTOR	4	
QR4506	MUN2113	TRANSISTOR-RESISTOR	1	
QR4903	MUN2212	TRANSISTOR-RESISTOR	1	
QR6002	MUN2211	TRANSISTOR-RESISTOR	1	
QR6003, 04	MUN2212	TRANSISTOR-RESISTOR	2	
QR6005	MUN2211	TRANSISTOR-RESISTOR	1	
QR6006	MUN2213	TRANSISTOR-RESISTOR	1	
QR6007	MUN2113	TRANSISTOR-RESISTOR	1	
R0705	ERJ3GEYJ362	M. RESISTOR CH 1/16W 3.6K	1	
R0707	ERJ3GEYJ393	M. RESISTOR CH 1/16W 39K	1	
R0708	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R0709	ERJ6GEYJ104	M. RESISTOR CH 1/10W 100K	1	
R0711	ERJ3GEYJ181	M. RESISTOR CH 1/16W 180	1	
R0713	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R0714	ERJ3GEYJ562	M. RESISTOR CH 1/16W 5.6K	1	
R0715	ERJ3GEYJ223	M. RESISTOR CH 1/16W 22K	1	
R0717	ERJ3GEYG471	M. RESISTOR CH 1/16W 470	1	
R0719	ERJ3GEYG472	M. RESISTOR CH 1/16W 4.7K	1	
R0725	ERJ6GEYJ101	M. RESISTOR CH 1/10W 100	1	
R0726	ERJ3GEYJ683	M. RESISTOR CH 1/16W 68K	1	
R0727	ERJ3GEY0R00	M. RESISTOR CH 1/16W 0	1	
R0731	ERJ3GEYJ101	M. RESISTOR CH 1/16W 100	1	
R0732	ERJ3GEYG472	M. RESISTOR CH 1/16W 4.7K	1	
R0740	ERJ3GEYG271	M. RESISTOR CH 1/16W 270	1	[SUPPLIED FROM MBV]
R0741	ERJ3GEYJ221	M. RESISTOR CH 1/16W 220	1	
R0742	ERJ8GEYJ151	M. RESISTOR CH 1/8W 150	1	
R0745	ERJ6GEYJ335	M. RESISTOR CH 1/10W 3.3M	1	
R1001, 02	ERJ6GMYJ333	M. RESISTOR CH 1/10W 33K	2	
R1003, 04	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	2	
R1005	ERDS2TJ182	C. RESISTOR 1/4W 1.8K	1	
R1006	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R1008	ERDS2TJ682	C. RESISTOR 1/4W 6.8K	1	
R1009, 10	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R1011	ERJ6GMYG823	M. RESISTOR CH 1/10W 82K	1	
R1012	ERDS2TJ272	C. RESISTOR 1/4W 2.7K	1	
R1013	ERJ6GMYG153	M. RESISTOR CH 1/10W 15K	1	
R1014	ERJ6GMYG163	M. RESISTOR CH 1/10W 16K	1	
R1015	ERJ6GMYG123	M. RESISTOR CH 1/10W 12K	1	
R1016, 17	ERJ6GMYJ563	M. RESISTOR CH 1/10W 56K	2	
R1018, 19	ERJ6GMYJ683	M. RESISTOR CH 1/10W 68K	2	
R1022	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R1023	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R1024	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R1026	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R1027	ERDS2TJ123	C. RESISTOR 1/4W 12K	1	
R1028	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R1029	ERJ6GMYG562	M. RESISTOR CH 1/10W 5.6K	1	
R1030	ERJ6GMYG622	M. RESISTOR CH 1/10W 6.2K	1	
R1201, 02	ERJ6GMYG272	M. RESISTOR CH 1/10W 2.7K	2	
R1203	ERJ6GMYJ623	M. RESISTOR CH 1/10W 6.2K	1	
R1204	ERDS2TJ102	C. RESISTOR 1/4W 1K	1	
R1205	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R1206	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R1501	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R1502	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R1503	ERDS2TJ181	C. RESISTOR 1/4W 180	1	
R1504	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R1505	ERDS2TJ121	C. RESISTOR 1/4W 120	1	
R2501	ERDS2TJ331	C. RESISTOR 1/4W 330	1	
R2502	ERJ6GMYG433	M. RESISTOR CH 1/10W 43K	1	
R2503	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R2504	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R2505	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2506	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R2507	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R2508	ERDS2TJ330	C. RESISTOR 1/4W 33	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R2509	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R2510	ERJ6GMYJ105	M. RESISTOR CH 1/10W 1M	1	
R2513	ERJ6GMYJ274	M. RESISTOR CH 1/10W 270	1	
R2514	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R2517	ERDS1TJ1R2	C. RESISTOR 1/2W 1.2	1	
R2518	ERDS1TJ1R5	C. RESISTOR 1/2W 1.5	1	
R2519	ERDS2TJ330	C. RESISTOR 1/4W 33	1	
R3001	ERJ6GMYJ183	M. RESISTOR CH 1/10W 18K	1	
R3002	ERJ6GMYG301	M. RESISTOR CH 1/10W 300	1	
R3004	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R3005	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3007	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3008	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
R3009	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R3010	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R3011, 12	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R3020	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3021	ERJ6GMYJ684	M. RESISTOR CH 1/10W 680K	1	
R3022	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	
R3023	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R3024	ERJ6GMYG271	M. RESISTOR CH 1/10W 270	1	
R3025	ERJ6GMYG102	M. RESISTOR CH 1/10W 1K	1	
R3026	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	1	
R3027	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R3028	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	1	
R3029	ERJ6GMYG331	M. RESISTOR CH 1/10W 330	1	
R3030	ERJ6GMYJ123	M. RESISTOR CH 1/10W 12K	1	
R3031	ERJ6GMYJ225	M. RESISTOR CH 1/10W 2.2M	1	
R3032	ERJ6GMYG391	M. RESISTOR CH 1/10W 390	1	
R3033	ERJ6GMYG471	M. RESISTOR CH 1/10W 470	1	
R3034	ERJ6GMYG561	M. RESISTOR CH 1/10W 560	1	
R3035	ERJ6GMYG271	M. RESISTOR CH 1/10W 270	1	
R3036	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R3040	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R3043	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R3505	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R4001	ERJ6GMYG334	M. RESISTOR CH 1/10W 330K	1	
R4002	ERJ6GMYG103	M. RESISTOR CH 1/10W 10K	1	
R4003	ERJ6GMYJ753	M. RESISTOR CH 1/10W 75K	1	
R4004	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4005	ERJ6GMYG241	M. RESISTOR CH 1/10W 240	1	
R4006	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R4007	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4008	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4009	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	1	
R4010	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	1	
R4011	ERJ6GMYJ392	M. RESISTOR CH 1/10W 3.9K	1	
R4012	ERJ6GMZ0R00	M. RESISTOR CH 1/10W 0	1	
R4014	ERJ6GMYK225	M. RESISTOR CH 1/10W 2.2M	1	
R4015	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R4016	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R4019	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R4036	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R4037	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4038, 39	ERJ6GMYJ154	M. RESISTOR CH 1/10W 150K	2	
R4049	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R4060	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R4061	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4062	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R4063	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4067	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R4068	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R4069, 70	ERJ6GMYJ154	M. RESISTOR CH 1/10W 150K	2	
R4071	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4072	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	
R4073	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4503-06	ERJ6GMYJ753	M. RESISTOR CH 1/10W 75K	4	
R4509	ERJ6GMYK335	M. RESISTOR CH 1/10W 3.3M	1	
R4510	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4512	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4514	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4516, 17	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	2	
R4518, 19	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R4520	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R4521	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R4522	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4523	ERJ6RBD393	M. RESISTOR CH 1/10W 39K	1	
R4524	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R4525	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R4526	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4527	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4528	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R4529, 30	ERJ6GMYJ391	M. RESISTOR CH 1/10W 390	2	
R4539	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R4540	ERDS2TJ2R2	C. RESISTOR 1/4W 2.2	1	
R4901, 02	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	2	
R4905	ERDS2TJ471	C. RESISTOR 1/4W 470	1	
R4907, 08	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	2	
R4911	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	1	
R4912	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R4913	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R4915	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	1	
R4916	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R4921	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R4923	ERJ6GMYJ331	M. RESISTOR CH 1/10W 330	1	
R4924, 25	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	2	
R4926, 27	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	2	
R4928, 29	ERJ6GMYJ750	M. RESISTOR CH 1/10W 75	2	
R4931	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R4933	ERJ6GMYJ911	M. RESISTOR CH 1/10W 910	1	
R4934	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6001	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R6002, 03	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R6005	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6006	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6007	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6008	ERJ6GMYJ224	M. RESISTOR CH 1/10W 220K	1	
R6010	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R6011	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6012, 13	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	2	
R6014	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R6015	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R6016	ERJ6GMYJ153	M. RESISTOR CH 1/10W 15K	1	
R6017	ERJ6GMYJ682	M. RESISTOR CH 1/10W 6.8K	1	
R6018	ERDS2TJ221	C. RESISTOR 1/4W 220	1	
R6020	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6022	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R6023-30	ERJ6GMYJ221	M. RESISTOR CH 1/10W 220	8	
R6031	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6032	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R6033	ERJ6GMYJ273	M. RESISTOR CH 1/10W 27K	1	
R6036	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R6038	ERJ6GMYJ433	M. RESISTOR CH 1/10W 43K	1	
R6039	ERJ6GMYJ393	M. RESISTOR CH 1/10W 39K	1	
R7302	ERJ3GEYOR00	M. RESISTOR CH 1/16W 0	1	
R7305, 06	ERJ6GEYJ101	M. RESISTOR CH 1/10W 100	2	
R7316	ERJ3GEYJ103	M. RESISTOR CH 1/16W 10K	1	
R7324	ERJ3GEYJ221	M. RESISTOR CH 1/16W 220	1	
R7325	ERJ3GEYOR00	M. RESISTOR CH 1/16W 0	1	
R7327	ERJ3GEYG822	M. RESISTOR CH 1/16W 8.2K	1	
R7328, 29	ERJ3GEYJ221	M. RESISTOR CH 1/16W 220	2	
R7501	ERDS2TJ150	C. RESISTOR 1/4W 15	1	
R7502	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7503, 04	ERJ6GMYJ202	M. RESISTOR CH 1/10W 2K	2	
R7505	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R7506-08	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	3	
R7509	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R7510	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R7511	ERJ6GMYJ432	M. RESISTOR CH 1/10W 4.3K	1	
R7512, 13	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	2	
R7514	ERJ6GMYJ822	M. RESISTOR CH 1/10W 8.2K	1	
R7515	ERJ6GMYJ562	M. RESISTOR CH 1/10W 5.6K	1	
R7516	ERJ6GMYJ432	M. RESISTOR CH 1/10W 4.3K	1	
R7517	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7520, 21	ERJ6GMYJ223	M. RESISTOR CH 1/10W 22K	2	
R7522	ERJ6GMYJ181	M. RESISTOR CH 1/10W 180	1	
R7523-26	ERJ6GMYJ303	M. RESISTOR CH 1/10W 30K	4	
R7538	ERJ6GMYJ432	M. RESISTOR CH 1/10W 4.3K	1	
R7549	ERDS2TJ150	C. RESISTOR 1/4W 15	1	
R7601, 02	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R7603	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R7606, 07	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R7608, 09	ERDS2TJ331	C. RESISTOR 1/4W 330	2	
R7610	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7612	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R7613	ERJ6GMYJ151	M. RESISTOR CH 1/10W 150	1	
R7614	ERJ6GMYJ561	M. RESISTOR CH 1/10W 560	1	
R7615	ERJ6GMYJ103	M. RESISTOR CH 1/10W 10K	1	
R7620	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R7621	ERJ6GMYJ182	M. RESISTOR CH 1/10W 1.8K	1	
R7622, 23	ERJ6GMYJ154	M. RESISTOR CH 1/10W 150K	2	
R7704	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7705	ERJ6GMYJ473	M. RESISTOR CH 1/10W 47K	1	
R7707	ERJ6GMYJ471	M. RESISTOR CH 1/10W 470	1	
R7708-10	ERJ6GMYJ511	M. RESISTOR CH 1/10W 510	3	
R7711	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R7712	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R7713	ERJ6GMYJ104	M. RESISTOR CH 1/10W 100K	1	
R7714	ERJ6GMYG153	M. RESISTOR CH 1/10W 15K	1	
R7715	ERJ6GMYG152	M. RESISTOR CH 1/10W 1.5K	1	
R7716	ERJ6GMYG562	M. RESISTOR CH 1/10W 5.6K	1	
R7729	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R7730	ERJ6GMYJ332	M. RESISTOR CH 1/10W 3.3K	1	
R7740	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7741-44	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	4	
R7746	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7751, 52	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	2	
R7753	ERJ6GMYJ272	M. RESISTOR CH 1/10W 2.7K	1	
R7754-57	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	4	
R7759	ERJ6GMYJ222	M. RESISTOR CH 1/10W 2.2K	1	
R7760	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	1	
R7761	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7765-67	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	3	
R7768	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7769	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	1	
R7770	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7771-78	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	8	
R7784, 85	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	2	
R7792-99	ERJ6GMYJ101	M. RESISTOR CH 1/10W 100	8	
R7802, 03	ERJ6GMZOR00	M. RESISTOR CH 1/10W 0	2	
R7804, 05	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	2	
R7807	ERJ6GMYJ102	M. RESISTOR CH 1/10W 1K	1	
R7809	ERJ6GMYJ472	M. RESISTOR CH 1/10W 4.7K	1	
R7811	ERJ6GMYJ152	M. RESISTOR CH 1/10W 1.5K	1	
S1501	VSS0520-3	MODE SELECT SWITCH	1	[SUPPLIED FROM MBV]
S7501	VES0834	S-TAB SWITCH	1	
S7502-06	EVQ11L07B	SWITCH	5	
T0701	EQV5EC081P	TRANSFORMER	1	
T4001	EQQ7QF024P	TRANSFORMER	1	
TH1001	VRT0162M220	THERMISTOR	1	
⚠TU7601	ENG47310G1	TUNER	1	[SUPPLIED FROM MBV]
VR0701	EVNCBAA00B14	V. RESISTOR	1	
X0701	VLF1430	TRANSFORMER	1	[SUPPLIED FROM MBV]
X0702	VLF1431	TRANSFORMER	1	[SUPPLIED FROM MBV]
X0704	VLF1497	TRANSFORMER	1	[SUPPLIED FROM MBV]
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X6001	VSX0830	CRYSTAL OSCILLATOR	1	
X6002	VSX0660	CRYSTAL OSCILLATOR	1	
X7302	VSX0953	CRYSTAL OSCILLATOR	1	
X7701	VSX1043	CRYSTAL OSCILLATOR	1	
		MISCELLANEOUS		
	VSC4999	SHIELD CASE (MIDDLE)	1	[SUPPLIED FROM MBV]
	VSC4998	HA ANGLE	1	[SUPPLIED FROM MBV]
	VXQ0648	FIP HOLDER	1	
	VSC4752	SHIELD CASE (MAIN)	1	FOR NICAM DECODER C.B.A.
	VMP4471	TV DEMODULATOR ANGLE	1	FOR TV DEMODULATOR C.B.A.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ ■	VEP01826T	POWER C.B.A.		[SUPPLIED FROM MBV]
				(RTL)
⚠C1101	VCK0286E102	CERAMIC CAPACITOR	1	
C1102	ECQV1H104JM	P.CAPACITOR 50V 0.1U	1	
⚠C1103,04	VCK0286E102	CERAMIC CAPACITOR	2	
C1106	ECQE6104KF	P.CAPACITOR 630V 0.1U	1	
C1108	ECCD3A470KGE	C.CAPACITOR 1KV 47P	1	
C1109	ECKD2H103PU	C.CAPACITOR 500V 0.01U	1	
C1110	ECEA0JGE331	E.CAPACITOR 6.3V 330U	1	
C1111	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C1112	ECQB1H822JF	P.CAPACITOR 50V 8200P	1	
C1114	ECA1VGE470X	E.CAPACITOR 35V 47U	1	
C1116	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
⚠C1118,19	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	2	
C1120	ECEC2GG330	E.CAPACITOR 400V 33U	1	
C1131	EEUFA1E681	E.CAPASITOR 25V 680U	1	
C1132	EEUFA1E331L	E.CAPASITOR 25V 330U	1	[SUPPLIED FROM MBV]
C1133	ECKD2H221KB	C.CAPACITOR 500V 220P	1	
C1134	EEUFA1A222E	E.CAPACITOR 10V 2200U	1	
C1135	ECEA1AGE331	E.CAPACITOR 10V 330U	1	
C1136	ECKD2H221KB	C.CAPACITOR 500V 220P	1	
C1137	ECEA1HGE470	E.CAPACITOR 50V 47U	1	
C1138	ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	
C1139	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1140	ECEA1HGE101	E.CAPACITOR 50V 100U	1	
C1141	ECKF1H103ZF	C.CAPACITOR 50V 0.01U	1	
C1142	ECKD2H221KB	C.CAPACITOR 500V 220P	1	
C1143	ECEA1AFZ331	E.CAPACITOR 10V 330U	1	
C1144,45	ECQB1H103JF	P.CAPACITOR 50V 0.01U	2	
D1102	S1WBA80	DIODE	1	
D1103	AP01C	DIODE	1	
D1104	MA185	DIODE	1	
D1105	MA700	DIODE	1	
D1106	MA4220-H	DIODE	1	
D1107	1SS254	DIODE	1	
⚠D1109,10	ERA15-08	DIODE	2	
D1114	RK36	DIODE	1	
D1118	RD100E	ZENER DIODE	1	[SUPPLIED FROM MBV]
D1121	RL2ZP	DIODE	1	
D1123,24	ERA22-04	DIODE	2	
D1125	11EQS06	DIODE	1	
D1130	MA7300B	DIODE	1	
⚠F1101	XBA2C16TH15	FUSE	1	[SUPPLIED FROM MBV]
IC1101	STRM6559LF	IC	1	[SUPPLIED FROM MBV]
IC1102	UPC1093J	IC	1	[SUPPLIED FROM MBV]
⚠IP1101	VSF0015A10	FUSE	1	[SUPPLIED FROM MBV]
⚠L1107	ELF15N005A	LINE FILTER	1	
⚠L1108	ELF17N004A	LINE FILTER	1	
L1121,22	VLQ0655K220	COIL 22UH	2	
L1123,24	ELESE101KA	COIL 100UH	2	
LB1105	VLP0056	FERRITE BEAD	1	
⚠P1101	VJS3306	AC INLET	1	
P1103	VJP3917A016G	CONNECTOR (MALE) 16P	1	
⚠Q1111	CNX82A5387	PHOTO COUPLER	1	[SUPPLIED FROM MBV]
R1101	ERDS2TJ561	C.RESISTOR 1/4W 560	1	
R1102	ERG1SJ393	M.RESISTOR 1W 39K	1	
R1105	ERDS1TJ395	C.RESISTOR 1/2W 3.9M	1	
R1106	ERDS1TJ475	C.RESISTOR 1/2W 4.7M	1	
R1107	ERDS2FJ154	C.RESISTOR 1/4W 150K	1	[SUPPLIED FROM MBV]
R1108	ERDS2FJ101	C.RESISTOR 1/4W 100	1	
R1109	ERDS2FJ152	C.RESISTOR 1/4W 1.5K	1	
R1110	ERDS2FJ103	C.RESISTOR 1/4W 10K	1	
R1111	ERDS2FJ151	C.RESISTOR 1/4W 150	1	[SUPPLIED FROM MBV]
R1112	ERDS2FJ221	C.RESISTOR 1/4W 220	1	
R1113	ERX1SJ1R0	M.RESISTOR 1W 1	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R1114	ERDS2FJ332	C.RESISTOR 1/4W 3.3K	1	
R1115	ERDS2FJ330	C.RESISTOR 1/4W 33	1	[SUPPLIED FROM MBV]
R1116	ERDS2TJ272	C.RESISTOR 1/4W 2.7K	1	
R1119	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1120	ERQS2CKG2401	M.RESISTOR 1/4W 2.4K	1	
R1121	ERQS2CKG2701	M.RESISTOR 1/4W 2.7K	1	
⚠R1122	ERC12AGM334	S.RESISTOR 1/2W 330K	1	
R1125	ERDS2TJ271	C.RESISTOR 1/4W 270	1	
S7511-15	EVQ11L07B	SWITCH	5	
⚠T1101	ETE28K127AZ	SWITCHING TRANSFORMER	1	[SUPPLIED FROM MBV]
		MISCELLANEOUS		
	VMP5133	INLET ANGLE	1	
	VHD0418	SCREW	1	
	TP00351-51	FUSE HOLDER	2	
■	VEP000F8A	CYLINDER STATOR C.B.A.		
		MISCELLANEOUS		
	HW-300A-DF	HALL IC	1	[SUPPLIED FROM MBV]
	VJS3537B009G	CONNECTOR (FEMALE) 9P	1	

INTERNAL REFERENCE CODES

NOTE: This chart is only for internal reference.
Do not order any parts according to these codes.

P. C. B.	FILM CODE
MAIN	FUMF00-06D57
POWER	FUMF02-01826
NICAM DECODER	FUMF00-07A18
TV DEMODU	FUMF00-07A31
CAPSTAN MOTOR	FUMF01-000F8

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