

SLV-SE220/SE420/SE620/SE720/ SE727/SE820/SX720/SX727

RMT-V405/V405A/V406/V406A/V406B/V407A/V407B/V407C

SERVICE MANUAL

AEP Model
SLV-SE220/SE620/SE720/SE727/
SE820/SX720/SX727

UK Model
SLV-SE220G/SE720G/SE820

Russian Model
SLV-SE420K/SE620N/SE720N/
SE820N/SX720N



Hi-Fi

SHOWVIEW®

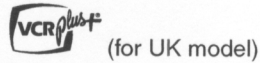


Photo : SLV-SE620D
RMT-V406

TS-10 MECHANISM

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT MANUAL VII for MECHANICAL ADJUSTMENTS. (9-921-790-11)

The abbreviations of SLV-SE220/SE420/SE620/SE720/SE727/SE820/SX720/SX727 contained in this service manual are indicated when these models are common to all their corresponding models as given below.

Abbreviated models name	SE220	SE420	SE620	SE720	SE727	SE820	SX720	SX727
AEP models SLV-	SE220B SE220D SE220I	-	SE620B SE620D SE620E	SE720B SE720D SE720E SE720I	SE727E	SE820B SE820D SE820E	SX720D SX720E	SX727D
UK models SLV-	SE220G	-	-	SE720G	-	SE820G	-	-
Russian models SLV-	-	SE420K	SE620N	SE720N	-	SE820N	SX720N	-

The SLV-SE220D/SE620D/SE720D/SX720D/SX727D/SE820D model and SLV-SE420K/SE620N/SE720N/SX720N/SE820N model that have destination of Germany, Hungary and Austria are repaired only at the centralized service centers. Send these model to the centralized service centers for repair.

SPECIFICATIONS

System

Channel coverage
PAL (B/G, D/K)
VHF E2-E12, R1-R12
UHF E21-E69, R21-R69
CATV S1-S41, S01-S05

RF output signal
UHF channels 21-69

Aerial out
75-ohm asymmetrical aerial socket

Tape speed
SP: PAL/MESECAM*
23.39 mm/s
(recording/playback)
NTSC 33.35 mm/s
(playback only)

LP: PAL/MESECAM*
11.70 mm/s
(recording/playback)
NTSC 16.67 mm/s
(playback only)
EP: NTSC 11.12 mm/s
(playback only)
*MESECAM: for B model
Maximum recording/playback time
10 hrs. in LP mode (with E300 tape)

Rewind time
Approx. 1 min. (with E180 tape)

Inputs and outputs

LINE-1 (EURO AV)
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

— Continued on next page —

VIDEO CASSETTE RECORDER

SONY®

LINE-2 (DEC/EXT)/LINE-3 (DEC/EXT)*1

21-pin

Video input: pin 20

Audio input: pins 2 and 6

LINE-2 L - R*2

VIDEO IN, phono jack (1)

Input signal: 1 Vp-p, 75 ohms,
unbalanced, sync negative

AUDIO IN, phono jack (2)

Input level: 327 mVrms

Input impedance: more than 47 kilohms

AUDIO (OUT/SORTIE) R/D L/G*3

Phono jack (2)

Rated output level: 327 mVrms

Load impedance: 47 kilohms

Output impedance: less than 10 kilohms

*1 not available on SLV-SE620N

*2 SLV-SE820N only

*3 not available on SLV-SE620N and
SE420K

General

Power requirements

220 - 240 V AC, 50 Hz

Power consumption

15 W (SLV-SE420K)

17 W (SLV-SE820N, SE720N, SX720N
and SE620N)

3 W (POWER SAVE is set to ON,
minimum)

Operating temperature

5°C to 40°C

Storage temperature

-20°C to 60°C

**Dimensions including projecting parts and
controls (w/h/d)**

Approx. 360 × 95 × 243 mm

(SLV-SE420K)

Approx. 430 × 96 × 242 mm

(SLV-SE720N, SX720N and SE620N)

Approx. 430 × 96 × 251 mm

(SLV-SE820N)

Mass

Approx. 2.8 kg (SLV-SE420K)

Approx. 3.1 kg (SLV-SE820N, SE720N,
SX720N and SE620N)

Supplied accessories

Remote commander (1)

R6 (size AA) batteries (2)

Aerial cable (1)

Design and specifications are subject to
change without notice.

SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH
MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS
LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE
COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS
APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS
PUBLISHED BY SONY.**

SAFETY CHECK-OUT

After correcting the original service problem, perform the following
safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

TABLE OF CONTENTS

Important Service Guide

- ◆ Mode Switch (Program Switch) Assembly Point 4
- ◆ How to eject the cassette tape
(If the unit does not operate on condition that tape is inserted
into housing ass'y) 4

1. General

Getting Started

- Index to parts and controls 1-1
- Step 1: Unpacking 1-2
- Step 2: Setting up the remote commander 1-3
- Step 3: Connecting the VCR 1-4
- Step 4: Setting up the VCR with the Auto Set Up function 1-5
- Step 5: Selecting the TV system 1-5
- Setting the dark 1-6
- Downloading the TV tuner's preset data (SLV-SE820N,
SE720N and SX720N only) 1-6
- Selecting a language 1-6
- Presetting channels 1-7
- Changing/disabling programme positions 1-7
- Setting the Canal Plus decoder (not available on SLV-SE620N) .. 1-9

Basic Operations

- Playing a tape 1-9
- Recording TV programmes 1-10
- Recording TV programmes using the Dial Timer
(SLV-SE820N only) 1-11
- Recording TV programmes using the ShowView® system
(SLV-SE820N, SE720N and SX720N only) 1-12
- Rescording TV programmes using the timer 1-13

Additional Operations

- Playing/searching at various speeds 1-14
- Setting the recording duration time 1-15
- Checking/changing/cancelling timer settings 1-15
- Recording stereo and bilingual programmes (not available on
SLV-SE420K) 1-15
- Searching using the index function (not available on SLV-
SE420K) 1-16
- Adjusting the picture 1-17
- Reducing the VCR's power consumption 1-17
- Changing menu options 1-17

Editing

- Connecting to a VCR or stereo system 1-18
- Basic editing 1-18
- Audio dubbing (SLV-SE820N only) 1-18

Additional Informatoin

- Troubleshooting 1-19

2. Disassembly

- 2-1 Mono Models 2-1
 - 2-1-1 Cabinet Top 2-1
 - 2-1-2 Cover Bottom 2-1
 - 2-1-3 Ass'y-Panel Front 2-2
 - 2-1-4 Ass'y MAIN-PCB, DECK 2-3
- 2-2 Hi-Fi Models 2-4
 - 2-2-1 Cabinet Top 2-4
 - 2-2-2 Cover Bottom 2-4
 - 2-2-3 Ass'y-Panel Front 2-5
 - 2-2-4 Ass'y Jack PCB 2-5
 - 2-2-5 Ass'y MAIN-PCB, DECK 2-6

3. P.C.Boards

- 3-1 Main PCB (SLV-SE220D/SE220I/SE220G/SE220B/
SE420K/SE620D/SE620E/SE620B/SE620N) 3-3
- 3-2 Main PCB (SLV-SE720D/SX720D/SE720E/SX720E/
SE720G/SE720I/SE720B/SX727D/SE727E/SE720N/
SX720N/SE820D/SE820E/SE820G/SE820B/SE820N) 3-7
- 3-3 Function PCB (SLV-SE620D/SE620E/SE620B/SE620N/
SE720D/SX720D/SE720E/SX720E/SE720G/SE720I/
SE720B/SX727D/SE727E/SE720N/SX720N/SE820D/
SE820E/SE820G/SE820B/SE820N) 3-11

4. Schematic Diagrams

- ◆ Block Identification of Main PCB 4-3
- 4-1 S.M.P.S. (A) (SLV-SE220/SE420/SE620) 4-5
- 4-2 S.M.P.S. (B) (SLV-SE720/SE727/SE820/SX720/SX727) · 4-7
- 4-3 Power (A) (SLV-SE220/SE420/SE620) 4-9
- 4-4 Power (B) (SLV-SE720/SE727/SE820/SX720/SX727) ... 4-11
- 4-5 System Control/Servo (A) (SLV-SE220/SE420/SE620) .. 4-13
- 4-6 System Control/Servo (B)
(SLV-SE720/SE727/SE820/SX720/SX727) 4-15
- 4-7 Audio/Video 4-17
- 4-8 Hi-Fi (Option)
(SLV-SE620/SE720/SE727/SE820/SX720/SX727) 4-19
- 4-9 TM-Block 4-21
- 4-10 OSD/VPS/PDC (A) 4-23
- 4-11 OSD/VPS/PDC (B)
(SLV-SE620/SE720/SE727/SE820/SX720/SX727) 4-25
- 4-12 SECAM; SLV-SE220B/SE620B/SE720B/SE820B Only · 4-27
- 4-13 A2/NICAM; Hi-Fi Models Only 4-29
- 4-14 Input-Output (2 Scart Jack) 4-31
- 4-15 Input-Output (1 Scart Jack); SLV-SE620D/SE620N Only · 4-33
- 4-16 Sub 4-35
- ◆ Waveform 4-37
- ◆ Voltage Table 4-39

5. Alignment and Adjustment

- 5-1 Reference 5-1
 - 5-1-1 Location of adjustment button of remote control 5-1
 - 5-1-2 Test point location for adjustment mode setting 5-2
 - 5-1-3 SW7T21 (TEST) location for adjustment mode setting 5-3
- 5-2 Mechanical Adjustment 5-4
 - 5-2-1 The number and position of test point 5-4
 - 5-2-2 ACE Head Position (X-Point) Adjustment 5-4
- 5-3 Head Switching Point Adjustment 5-5
- 5-4 NVRAM Option Setting 5-5

6. Repair Parts List

- 6-1 Exploded Views 6-2
 - 6-1-1 Instrument Assembly (Mono Models)(SE220/SE420) 6-2
 - 6-1-2 Instrument Assembly (Hi-Fi Models) 6-3
 - 6-1-3 Mechanical Parts (Top Side) 6-4
 - 6-1-4 Mechanical Parts (Bottom Side) 6-5
- 6-2 Electrical Parts List 6-9

IMPORTANT SERVICE GUIDE

◆ MODE SWITCH (PROGRAM SWITCH) ASSEMBLY POINT

1) When installing the ass'y deck on the Main PCB, be sure to align the assembly point of mode switch.

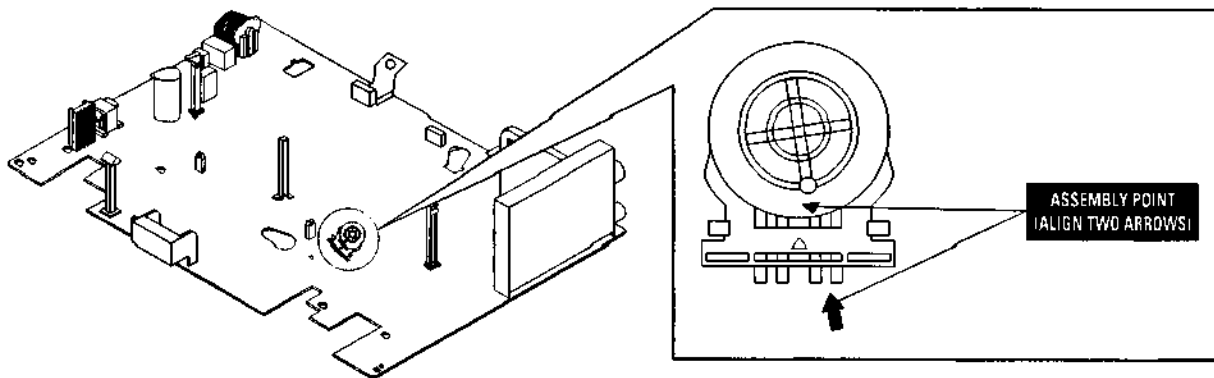


Fig. 1

◆ HOW TO EJECT THE CASSETTE TAPE

(If the unit does not operate on condition that tape is inserted into housing ass'y)

- 1) Turn the Gear Worm ❶ clockwise in the direction of arrow with screw driver. (See Fig. 2)
(Other method ; Remove the screw of Motor Load Ass'y, Separate the Motor Load Ass'y)
- 2) When Slider S, T are approached in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig. 3)
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizontally.)
- 3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape. (Refer to Fig. 2)

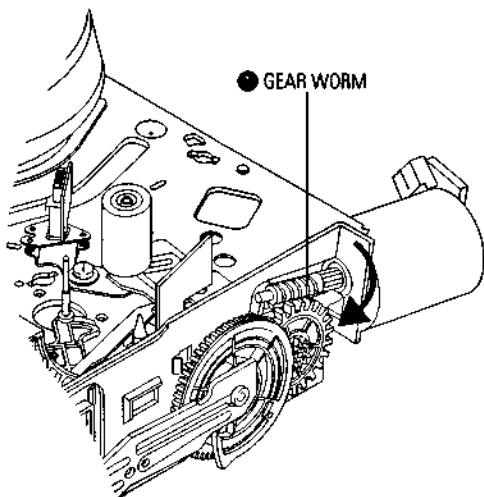


Fig. 2

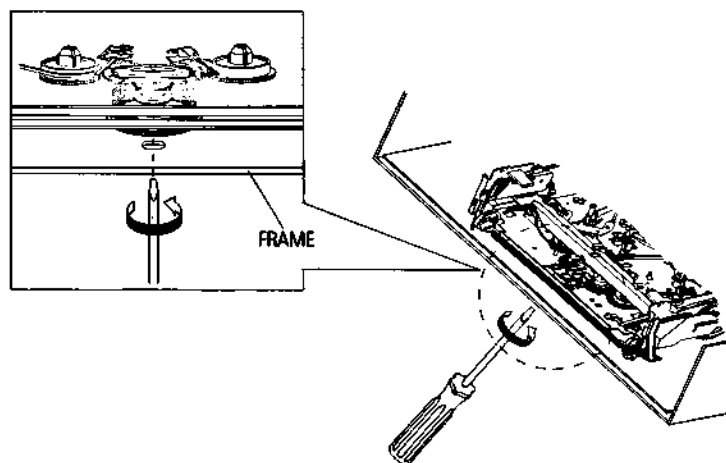


Fig. 3

1. General

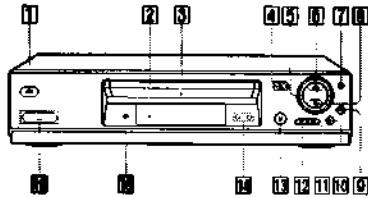
Getting Started

Index to parts and controls

Refer to the pages indicated in parentheses () for details.

Front panel

For SLV-SE820N

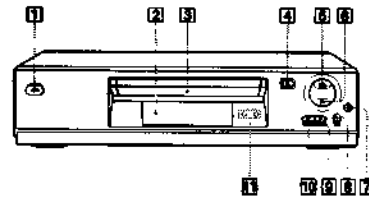


- | | |
|--|--|
| 1 I/O (on/standby) switch | 12 ◀◀ (rewind) button (39) (58) |
| 2 Remote sensor (12) | 13 DIAL TIMER (46) |
| 3 Tape compartment | 14 PROGRAM +/- buttons* (47) (59) (68) |
| 4 Eject button (39) | 15 AUDIO DUB button (75) |
| 5 Shuttle ring (58) | 16 LINE-2 L (left) - R (right) jacks (covered)* (72) (73) (75) |
| 6 ▷ (play) button* (39) (58) | |
| 7 JOG button (58) | |
| 8 ■ (stop) button* (22) (39) (74) (75) | |
| 9 REC ● (record) button (43) (60) (74) | |
| 10 (pause) button (39) (50) (74) (75) | |
| 11 ▷▷ (fast-forward) button (39) (58) | |

How to open the jack cover
 1 Press the bottom of the cover.
 2 Hook your finger on the top edge of the cover and pull it open.

* The ▷ (play), ■ (stop) and PROGRAM +/- buttons and jack cover have a tactile dot.

For SLV-SE720N, SX720N and SE620N



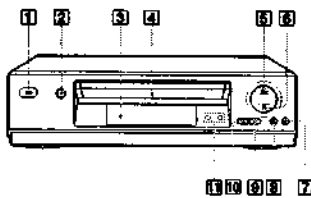
- | | |
|--|--|
| 1 I/O (on/standby) switch | 7 REC ● (record) button (43) (60) (74) |
| 2 Remote sensor (12) | 8 (pause) button (39) (74) (75) |
| 3 Tape compartment | 9 ▷▷ (fast-forward) button (39) (58) |
| 4 Eject button (39) | 10 ◀◀ (rewind) button (39) (58) |
| 5 ▷ (play) button* (39) (58) | 11 PROGRAM +/- buttons* (59) (68) |
| 6 ■ (stop) button* (22) (39) (74) (75) | |

* The ▷ (play), ■ (stop) and PROGRAM +/- buttons have a tactile dot.

Getting Started

4 | Index to parts and controls

For SLV-SE420K



- | | |
|--|--|
| 1 I/O (on/standby) switch | 7 REC ● (record) button (43) (60) (74) |
| 2 Eject button (39) | 8 (pause) button (39) (74) (75) |
| 3 Remote sensor (12) | 9 ▷▷ (fast-forward) button (39) (58) |
| 4 Tape compartment | 10 ◀◀ (rewind) button (39) (58) |
| 5 ▷ (play) button* (39) (58) | 11 PROGRAM +/- buttons* (59) (68) |
| 6 ■ (stop) button* (22) (39) (74) (75) | |

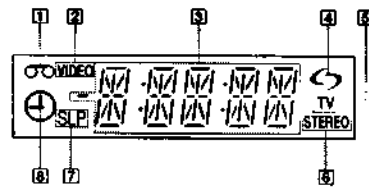
* The ▷ (play), ■ (stop) and PROGRAM +/- buttons have a tactile dot.

continued

Index to parts and controls | 5

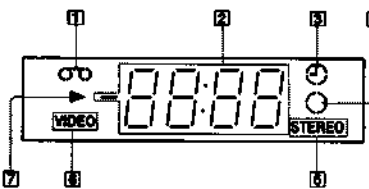
Display window

For SLV-SE820N, SE720N and SX720N



- | | |
|---|---|
| 1 Tape indicator | 5 TV indicator (45) |
| 2 VIDEO indicator (17) (43) | 6 STEREO indicator (63) |
| 3 Time counter/clock/line/programme position indicator (40) (42) (74) | 7 Tape speed indicators (42) |
| 4 SLP (smartlink) indicator (18) | 8 Timer/recording indicator (43) (48) (53) (56) |

For SLV-SE620N and SE420K



- | | |
|---|-----------------------------|
| 1 Tape indicator | 5 STEREO indicator* (63) |
| 2 Time counter/clock/line/programme position indicator (40) (42) (74) | 6 VIDEO indicator (17) (43) |
| 3 Timer indicator (48) (53) (56) | 7 Playback indicator |
| 4 Recording indicator (43) | |

* not available on SLV-SE420K

Getting Started

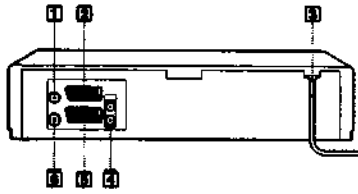
6 | Index to parts and controls

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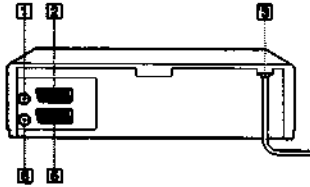
Index to parts and controls | 7

Rear panel

For SLV-SE820N, SE720N, SX720N and SE620N

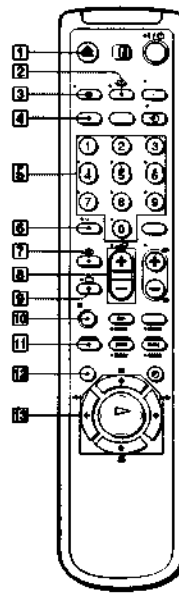


For SLV-SE420K



- 1 (in from antenna) connector (16) (17)
 - 2 LINE-3 (DEC/EXT) connector*1
LINE-2 (DEC/EXT) connector*2
(19) (36) (73)
 - 3 Mains lead (16) (17)
 - 4 AUDIO (OUT/SORTIE) R/D (right)
L/G (left) jacks*3 (19)
 - 5 LINE-1 (EURO AV) connector (17)
(36) (72)
 - 6 (out to tv) connector (16) (17)
- *1 SLV-SE820N only
*2 SLV-SE720N, SX720N and SE420K only
*3 not available on SLV-SE620N

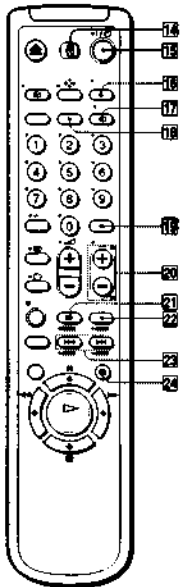
Remote commander



- 1 (eject) button (39)
- 2 (wide) button (for TV) (14) (15)
- 3 DISPLAY button (14) (40) (43)
- 4 COUNTER/REMAIN button (43)
- 5 Programme number buttons*1 (13) (44)
- 6 +/- (ten's digit) button (13) (44)
- 7 (Teletext) button (for TV)*2 (14)
- 8 (volume) +/- buttons (for TV) (13)
- 9 TV power on/TV mode select button (for TV)*2 (13)
- 10 REC (record) button (43) (60)
- 11 SP (Standard Play)/LP (Long Play) button (42)
- 12 MENU button (24) (61)
- 13 (pause) button (24) (39)
(stop) button (24) (39)
(rewinds) button (24) (39) (58)
(fast-forward) button (24) (39) (58)
(play) button*4 (24) (39) (58)

*1 The (play), AUDIO MONITOR, number 5 and PROG + buttons have a tactile dot.
*2 SLV-SE820N only

Getting Started



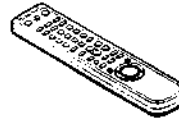
- 14 (TV / VIDEO) remote control switch (12)
- 15 (on/standby) switch (13) (14) (53)
- 16 AUDIO MONITOR button*1*2 (14) (64)
- 17 TV/VIDEO button (13) (17) (43)
- 18 CLEAR button (40) (52) (61)
- 19 INPUT SELECT button (42) (56) (74)
- 20 PROG (programme) +/- buttons*1 (13) (42)
- 21 Teletext page access buttons (for TV)*2 (14)
- 22 SLOW button*4 (58)
- 23 2 button*4 (58)
- 24 (index search) buttons*4*5 (66)
- 25 TIMER button (51) (55)

*1 The (play), AUDIO MONITOR, number 5 and PROG + buttons have a tactile dot.
*2 SLV-SE820N only
*3 not available on SLV-SE420K
*4 FASTTEXT buttons (for TV) (SLV-SE820N only)

Step 1 : Unpacking

Check that you have received the following items with the VCR:

• Remote commander



• R6 (size AA) batteries



• Aerial cable



Getting Started

Check your model name

The instructions in this manual are for the 5 models: SLV-SE820N, SE720N, SX720N, SE620N and SE420K. Check your model name by looking at the rear panel of your VCR. SLV-SE820N is the model used for illustration purposes. Any difference in operation is clearly indicated in the text, for example, "SLV-SE820N only."

Step 2 : Setting up the remote commander

Inserting the batteries

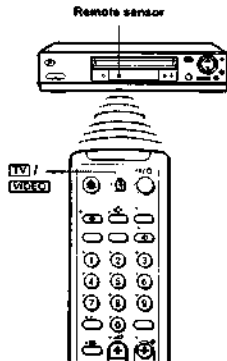
Insert two R6 (size AA) batteries by matching the + and - on the batteries to the diagram inside the battery compartment.

Insert the negative (-) end first, then push in and down until the positive (+) end clicks into position.

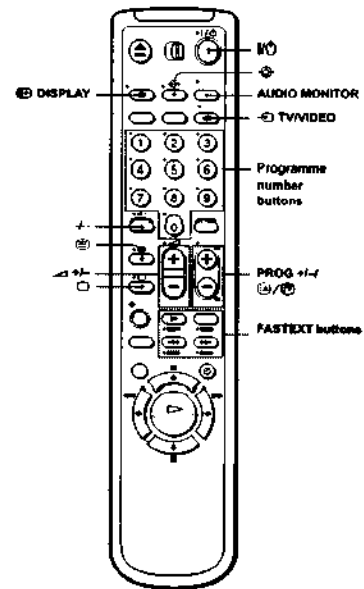


Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV. If the TV does not have the symbol near the remote sensor, this remote commander will not operate the TV.



To operate	Set [TV] / [VIDEO] to
the VCR	[VIDEO] and point at the remote sensor at the VCR
a Sony TV	[TV] and point at the remote sensor at the TV



TV control buttons

To	Press
Set the TV to standby mode	I/O
Select an input source: aural in or line in	TV/VIDEO
Select the TV's programme position	Programme number buttons, PROG +/-
Adjust the volume of the TV	▲ +/-
Switch to TV (Teletext off)*	□ (TV)

continued

Setting up the remote commander 13

12 Setting up the remote commander

To	Press
Switch to Teletext*	Teletext
Select the sound**	AUDIO MONITOR
Use FASTEXT**	FASTEXT buttons
Call up the on-screen display	DISPLAY
Change the Teletext page**	Teletext
Switch to/from wide mode of a Sony wide TV (For other manufacturers' wide TVs, see 'Controlling other TVs with the remote commander (SLV-SE820N only)' below)	◀ (wide)

Notes

- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery together with an old one.
- Do not use different types of batteries together.
- Some buttons may not work with certain Sony TVs.

* SLV-SE820N only

** not available on SLV-SE420K

Controlling other TVs with the remote commander (SLV-SE820N only)

The remote commander is preprogrammed to control non-Sony TVs. If your TV is listed in the following table, set the appropriate manufacturer's code number.

1 Set [TV] / [VIDEO] at the top of the remote commander to [TV].

2 Hold down I/O, and enter your TV's code number using the programme number buttons. Then release I/O.

Now you can use the following TV control buttons to control your TV:

I/O, TV/VIDEO, programme number buttons, ▲ (ten's digit), PROG +/-, ▼ +/-, □ (TV), Teletext, FASTEXT buttons, ▶ (wide)*, MENU*, ⏏, and OK*.

* These buttons may not work with all TVs.

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

To switch to wide mode, see the footnotes below this table for the applicable code numbers.

Manufacturer	Code number	Manufacturer	Code number
Sony	01** ¹ , 02	Panasonic	17** ¹ , 49
Alcal	68	Philips	06** ¹ , 07** ¹ , 08** ¹
Ferguson	52	Saba	12, 13
Grundig	10** ¹ , 11** ¹	Samsung	22, 23
Hitachi	24	Sanyo	25
JVC	33	Sharp	29
Loewe	45	Telefunken	36
Mivar	09, 70	Thomson	43** ¹
NEC	66	Toshiba	38
Nokia	15, 16, 69** ¹		

** Press ▶ (wide) to switch the wide picture mode on or off.

** Press ▶ (wide), then press ▲ +/- to select the wide picture mode you want.

** Press ▶ (wide). The menu appears on the TV screen. Then, press ⏏/OK to select the wide picture you want and press OK.

Tip

- When you set your TV's code number correctly while the TV is turned on, the TV turns off automatically.

Notes

- If you enter a new code number, the code number previously entered will be erased.
- If the TV uses a different remote control system from the one programmed to work with the VCR, you cannot control your TV with the remote commander.
- When you replace the batteries of the remote commander, the code number may change. Set the appropriate code number every time you replace the batteries.

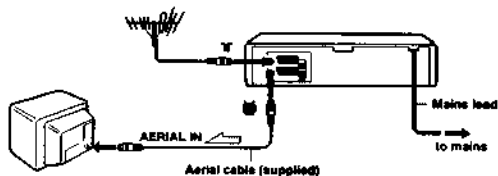
14 Setting up the remote commander

Setting up the remote commander 15

Step 3 : Connecting the VCR

If your TV has a Scart (EURO-AV) connector, see page 17

If your TV does not have a Scart (EURO-AV) connector



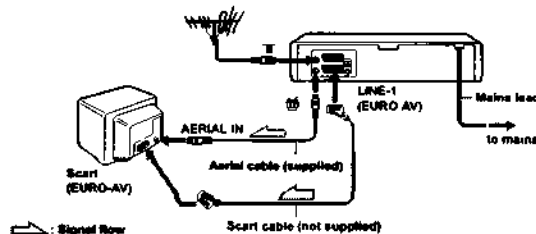
Signal flow

- 1 Disconnect the aerial cable from your TV and connect it to **A** on the rear panel of the VCR.
- 2 Connect **B** of the VCR and the aerial input of your TV using the supplied aerial cable.
- 3 Connect the mains lead to the mains.

Note

- When you connect the VCR and your TV only with an aerial cable, you have to tune your TV to the VCR (see page 20).

If your TV has a Scart (EURO-AV) connector



- 1 Disconnect the aerial cable from your TV and connect it to **A** on the rear panel of the VCR.
- 2 Connect **B** of the VCR and the aerial input of your TV using the supplied aerial cable.
- 3 Connect LINE-1 (EURO AV) on the VCR and the Scart (EURO-AV) connector on the TV with the optional Scart cable. This connection improves picture and sound quality. Whenever you want to watch the VCR picture, press **TV VIDEO** to display the VIDEO indicator in the display window.
- 4 Connect the mains lead to the mains.

Getting Started

About the SMARTLINK features (not available on SLV-SE620N and SE420K)

If the connected TV complies with SMARTLINK, MEGALOGIC^{®1}, EASYLINK^{®2}, Q-Link^{®3}, EURO VIEW LINK^{®4}, or T-V LINK^{®5}, this VCR automatically runs the SMARTLINK function after you complete the steps on the previous page (the **↔** indicator appears in the VCR's display window when you turn on the TV). You can enjoy the following SMARTLINK features.



- **TV Direct Rec**
You can easily record what you are watching on the TV when the VCR is turned on. For details, see "Recording what you are watching on the TV (TV Direct Rec) (not available on SLV-SE620N and SE420K)" on page 45.
- **One Touch Play**
With One Touch Play, you can start playback automatically without turning on the TV. For details, see "Starting playback automatically with one button (One Touch Play) (not available on SLV-SE620N and SE420K)" on page 41.
- **One Touch Menu**
When the VCR is turned on, you can turn on the TV, set the TV to the video channel, and display the VCR's on-screen display automatically by pressing MENU on the remote commander.
- **One Touch Timer**
When the VCR is turned on, you can turn on the TV, set the TV to the video channel, and display the timer recording menu (the TIMER PROGRAMMING menu or the SHOWVIEW menu) automatically by pressing **⊗** TIMER on the remote commander. You can set which timer recording menu is displayed using **TIMER METHOD** in the EASY OPERATION menu (see page 71).
- **NextView Download**
You can easily set the timer by using the NextView Download function on your TV. Please refer to your TV's instruction manual.

^{®1}"MEGALOGIC" is a registered trademark of Grundig Corporation.
^{®2}"EASYLINK" is a trademark of Philips Corporation.
^{®3}"Q-Link" is a trademark of Panasonic Corporation.
^{®4}"EURO VIEW LINK" is a trademark of Toshiba Corporation.
^{®5}"T-V LINK" is a trademark of JVC Corporation.

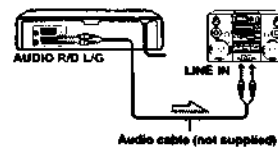
Note

- Not all TVs respond to the functions above.

Additional connections

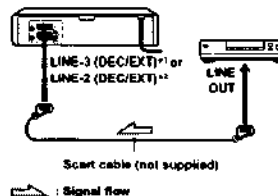
To a stereo system (not available on SLV-SE620N and SE420K)

You can improve sound quality by connecting a stereo system to the AUDIO R/D L/G jacks as shown on the right.



To a satellite or digital tuner with Line Through (not available on SLV-SE620N)

Using the Line Through function, you can watch programmes from a satellite or digital tuner connected to this VCR on the TV even when the VCR is turned off. When you turn on the satellite or digital tuner, this VCR automatically sends the signal from the satellite or digital tuner to the TV without turning itself on.



- 1 Connect the satellite or digital tuner to the LINE-3 (DEC/EXT)^{®1} or LINE-2 (DEC/EXT)^{®2} connector as shown above.
- 2 Turn off the VCR.
To watch a programme, turn on the satellite or digital tuner and the TV.

Notes

- The Line Through function will not operate properly if POWER SAVE in the USER SET menu is set to ON. Set POWER SAVE to OFF to ensure proper operation (see page 69).
- You cannot watch programmes on the TV while recording unless you are recording a satellite or digital programme.
- This function may not work with some types of satellite or digital tuners.
- When the VCR is turned off, set the TV to the video channel.

^{®1}SLV-SE820N only
^{®2}SLV-SE720N, SX720N and SE420K only

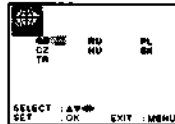
Getting Started

Step 4 : Setting up the VCR with the Auto Set Up function

Before using the VCR for the first time, set up the VCR using the Auto Set Up function. With this function, you can set the language for the on-screen display, TV channels, guide channels for the ShowView system*, and VCR clock* automatically.

- 1 Turn on your TV and set it to the video channel.
If your TV does not have a Scart (EURO-AV) connector, tune the TV to channel 32 (the initial RF channel for this VCR). Refer to your TV manual for TV tuning instructions. If the picture does not appear clearly, see "To change the RF channel" on page 22.

- 2 Connect the mains lead to the mains.
The VCR automatically turns on, and the language abbreviations appear on the TV screen.



The abbreviations of the languages are as follows:

Abbreviation	Country	Language
CZ	Czechia	Czech
HU	Hungary	Hungarian
PL	Poland	Polish
SK	Slovakia	Slovak
TR	Turkey	Turkish
RU	Russia	Russian

- 3 Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to select the language abbreviation from the table in step 2, then press OK.
The message for the Auto Set Up function appears.

To cancel the Auto Set Up function

Press MENU.

To change the RF channel

If the picture does not appear clearly on the TV, change the RF channel on the VCR and TV. Select INSTALLATION from the menu, then press \uparrow/\downarrow to highlight VCR OUTPUT CH and press \rightarrow . Select the RF channel by pressing the \uparrow/\downarrow buttons. Then, tune the TV to the new RF channel so that a clear picture appears.

Tip

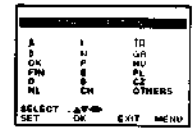
- If you want to change the language for the on-screen display from the one preset in the Auto Set Up function, see page 27.

Notes

- Whenever you operate the Auto Set Up function, some of the settings (Show View*, timer, etc.) will be reset. If this happens, you have to set them again.
- Auto preset starts automatically only when you plug in the mains lead for the first time after you purchase the VCR.
- After using the Auto Set Up function, the language abbreviations do not appear automatically when you connect the mains lead again. If you want to use the Auto Set Up function again, press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight INSTALLATION and press OK. Press \uparrow/\downarrow to highlight AUTO SET UP, then repeat all procedures from step 4.
- Auto preset can be performed by pressing \blacksquare (stop) on the VCR continuously for 5 seconds or more with no tape inserted.

* not available on SLV-SE620N and SE420K

- 4 Press OK.
The COUNTRY SELECTION menu* appears.



The abbreviations of the countries are as follows:

Abbreviation	Country
A	Austria
B	Belgium
DK	Denmark
FIN	Finland
D	Germany
NL	Netherlands
I	Italy
N	Norway
P	Portugal

Abbreviation	Country
E	Spain
S	Sweden
CH	Switzerland
TR	Turkey
GR	Greece
HU	Hungary
PL	Poland
CZ	Czech
OTHERS	other countries

- 5 For SLV-SE820N, SE720N and SK720N



Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to select the abbreviation of your country from the table in step 4, then press OK.
If your country does not appear, select OTHERS.

The VCR starts searching for all of the receivable channels and presets them in the appropriate order for your local area.

If you want to change the order of the channels or disable unwanted programing positions, see "Changing/disabling programing positions" on page 31.

After the search or download is complete, the current time appears for any stations that transmit a time signal. If the time does not appear, set the clock manually. See "Setting the clock" on page 24.

For SLV-SE620N and SE420K

The clock setting menu appears. See "Setting the clock" on page 24.



continued

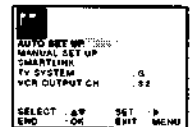
Step 5 : Selecting the TV system

You must select the appropriate TV system for your area.

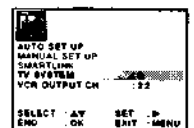
Before you start

- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

- 1 Press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight INSTALLATION and press OK.



- 2 Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight TV SYSTEM, then press \rightarrow .



- 3 Press \rightarrow to select the appropriate TV system. Select "G" for the H-G TV system or "K" for the D-K TV system.



- 4 Press MENU to exit the menu.




Setting the clock

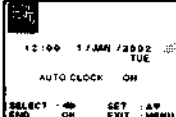

You must set the time and date on the VCR to use the timer features properly. The Auto Clock Set function* works only if a station in your area is broadcasting a time signal.

Before you start...

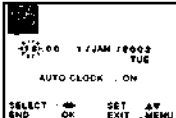

- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

- 

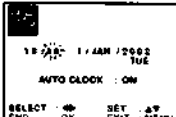
Press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight CLOCK SET and press OK.



- 

Press \uparrow/\downarrow to set the hour.




- 

Press \rightarrow to select the minutes and set the minutes by pressing \uparrow/\downarrow .





- 

Set the day, month, and year in sequence by pressing \rightarrow to select the item to be set, and press \uparrow/\downarrow to select the digits, then press \rightarrow . The day of the week is set automatically.


- 

Press \uparrow/\downarrow to select ON for the setting of the Auto Clock Set function*. The VCR automatically sets the clock according to the time signal broadcast between the channels PR 1 to PR 5. If you do not need the Auto Clock Set function, select OFF.


- 

Press MENU to exit the menu.

Tip

- If you set AUTO CLOCK* to ON, the Auto Clock Set function is activated whenever the VCR is turned off. The time is adjusted automatically by making reference to the time signal from the station.
- To change the digits while setting, press \leftarrow to return to the item to be changed, and select the digits by pressing \uparrow/\downarrow .


* not available on SLV-SE620N and SE420K

Downloading the TV tuner's preset data (SLV-SE820N, SE720N and SX720N only)

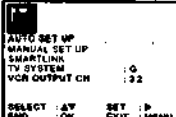

You can download your TV tuner's preset data to the VCR and tune the VCR according to that data using the SMARTLINK connection.

Before you start...



- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

- 

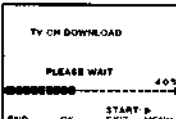
Press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight INSTALLATION and press OK.


- 

Press \uparrow/\downarrow to highlight SMARTLINK, then press \rightarrow .


- 

Press \uparrow/\downarrow to highlight TV CH DOWNLOAD, then press \rightarrow . The Preset Download function starts and the \leftrightarrow indicator flashes in the display window during download.




Selecting a language



You can change the on-screen display language from the one you selected with the Auto Set Up function.

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

- 

Press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight LANGUAGE SET and press OK.


- 

Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight the abbreviation of the desired language from the table on page 20, then press OK.

Presetting channels

If some channels could not be preset using the Auto Set Up function, you can preset them manually.

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

1 Press MENU, then press to highlight INSTALLATION and press OK.

2 Press to highlight MANUAL SET UP, then press .

3 Press to highlight the row which you want to preset, then press . To display other pages for programme positions 6 to 80, press repeatedly.

4 Press repeatedly until the channel you want is displayed.

5 Press to highlight NAME, then press .

6 Enter the station name.

1 Press to select a character. Each time you press , the character changes as shown below.

A → B → ... → Z → 0 → 1 → ... → 9 → A

2 Press to set the next character. The next space is flashed. To correct a character, press until the character you want to correct is flashed, then reset it. You can set up to 4 characters for the station name.

7 Press OK to confirm the station name.

8 Press MENU to exit the menu.

If the picture is not clear

If the picture is not clear, you may use the Manual Fine Tuning (MFT) function. After step 4, press to select MFT. Press to get a clear picture, then press MENU to exit the menu.

Tips

- To set the programme position for the decoder, see "Setting the Canal Plus decoder (not available on SLV-SE620N)" on page 36.
- The VCR must receive channel information for station names to appear automatically.

Notes

- If the TV sound is distorted or noisy, select the appropriate TV system ("G" or "K") for your area (see page 23).
- When adjusting MFT, the menu may become difficult to read due to interference from the picture being received.

Changing/disabling programme positions

After setting the channels, you can change the programme positions as you like. If any programme positions are unused or contain unwanted channels, you can disable them.

You can also change the station names. If the station names are not displayed, you can enter them manually.

Changing programme positions

Before you start...


- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

1 Press MENU, then press to highlight INSTALLATION and press OK.

2 Press to highlight MANUAL SET UP, then press .


3 Press to highlight the row containing the programme position you want to change. To display other pages for programme positions 6 to 80, press repeatedly.

4 Press OK, then press \uparrow/\downarrow to move to the desired programme position.




PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5	028	LMN-	OFF

5 Press OK to confirm the setting.



6 To change the programme position of another station, repeat steps 3 through 5.

7 Press MENU to exit the menu.




Disabling unwanted programme positions
After presetting channels, you can disable unused programme positions. The disabled positions will be skipped later when you press the PROG +/- buttons.

Before you start...


- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

1 Press MENU, then press \uparrow/\downarrow to highlight INSTALLATION, and press OK.


AUTO SET UP	
MANUAL SET UP	
SMARTLING	
TV SYSTEM	0
VCR OUTPUT CH	02
SELECT : \uparrow/\downarrow SET : \rightarrow	
END : OK EXIT : MENU	

2 Press \uparrow/\downarrow to highlight MANUAL SET UP, then press \rightarrow .




PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5			

3 Press \uparrow/\downarrow to highlight the row which you want to disable. To display other pages for programme positions 6 to 80, press \uparrow/\downarrow repeatedly.



PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5			


4 Press CLEAR. The selected row will be cleared as shown on the right.



PR	CH	NAME	DEC
1	027	AAB-	OFF
2	020	CDE-	OFF
3	022	JJK-	OFF
4			
5			

5 Repeat steps 3 and 4 for any other programme positions you want to disable.

6 Press MENU to exit the menu.





Note
• Be sure to select the programme position you want to disable correctly. If you disable a programme position by mistake, you need to reset that channel manually.

Changing the station names
(not available on SLV-SE620N and SE420K)
You can change or enter the station names (up to 4 characters). The VCR must receive channel information for station names to appear automatically.

Before you start...


- Turn on the VCR and the TV.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

1 Press MENU, then press \uparrow/\downarrow to highlight INSTALLATION, and press OK.


AUTO SET UP	
MANUAL SET UP	
SMARTLING	
TV SYSTEM	0
VCR OUTPUT CH	02
SELECT : \uparrow/\downarrow SET : \rightarrow	
END : OK EXIT : MENU	

2 Press \uparrow/\downarrow to highlight MANUAL SET UP, then press \rightarrow .




PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5	028	LMN-	OFF

3 Press \uparrow/\downarrow to highlight the row which you want to change or enter the station name, then press \rightarrow . To display other pages for programme positions 6 to 80, press \uparrow/\downarrow repeatedly.



PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5	028	LMN-	OFF

4 Press \uparrow/\downarrow to highlight NAME, then press \rightarrow .




PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5	028	LMN-	OFF

5 Enter the station name

1 Press \uparrow/\downarrow to select a character. Each time you press \uparrow/\downarrow the character changes as shown below.


A → B → ... → 2 → 0 → 1 → ... → 9 → A

2 Press \rightarrow to set the next character. The next space flashes. To correct a character, press \leftarrow until the character you want to correct flashes, then reset it. You can set up to 4 characters for the station name.




PR	CH	NAME	DEC
1	027	AAB-	OFF
2	029	LNK-	OFF
3	020	CDE-	OFF
4	022	JJK-	OFF
5	028	LMN-	OFF

6 Press OK to confirm the new name.



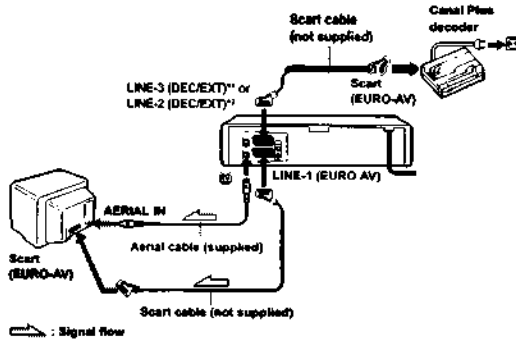
7 Press MENU to exit the menu.



Setting the Canal Plus decoder (not available on SLV-SE620N)

You can watch or record Canal Plus programmes if you connect a decoder (not supplied) to the VCR.

Connecting a decoder



Setting Canal Plus channels

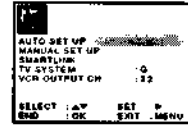
To watch or record Canal Plus programmes, set your VCR to receive the channels using the on-screen display.

In order to set the channels correctly, be sure to follow all of the steps below.

Before you start...

- Turn on the VCR, the TV, and the decoder.
- Set the TV to the video channel.
- Refer to "Index to parts and controls" for button locations.

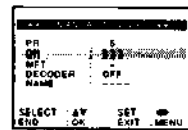
- 1 Press MENU, then press to highlight INSTALLATION and press OK.



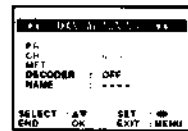
- 2 Press to highlight MANUAL SET UP, then press .



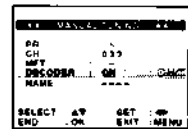
- 3 Press to highlight the row which you want to set for the decoder, then press . To display positions 6 to 00, press repeatedly.



- 4 Press to highlight DECODER.



- 5 Press to set DECODER to ON, then press OK.



continued

36 | Setting the Canal Plus decoder (not available on SLV-SE620N)

Setting the Canal Plus decoder (not available on SLV-SE620N) | 37

- 6 Press MENU to exit the menu.



Notes

- To superimpose subtitles while watching Canal Plus programmes, make both decoder-VCR and VCR-TV connections using 21-pin Scart cables that are compatible with the RGB signals. You cannot record subtitles on the VCR.
- When you watch Canal Plus programmes through the RFU input of the TV, press so that the VIDEO indicator appears in the display window.

*SLV-SE620N only

*SLV-SE720N, SX720N and SE420K only

Basic Operations

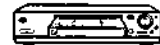
Playing a tape

Before you start...

- Refer to "Index to parts and controls" for button locations.

- 1 Turn on your TV and set it to the video channel.

- 2 Insert a tape. The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.



- 3 Press (play). When the tape reaches the end, it will rewind automatically.



Additional tasks

To	Press
Stop play	(stop)
Pause play	(pause)
Resume play after pause	(pause) or (play)
Fast-forward the tape	(fast-forward) during stop
Rewind the tape	(rewind) during stop
Eject the tape	(eject)

continued

38 | Setting the Canal Plus decoder (not available on SLV-SE620N)

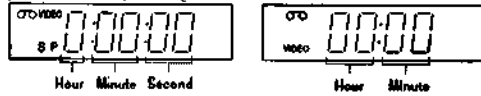
Playing a tape | 39

To set the colour system

If the playback picture has no colour, or streaks appear during playback, set COLOUR SYSTEM in the USER SET menu to conform to the system that the tape was recorded in (see page 70). (Normally set the option to AUTO.)

To use the time counter

Press CLEAR at the point on the tape that you want to find later. The counter in the display window resets to "0:00:00" or "00:00." Search for the point afterwards by referring to the counter.



To display the counter on the TV screen, press **DISPLAY**.

Notes

- The counter resets to "0:00:00" or "00:00" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.
- Depending on your TV, the following may occur while playing an NTSC-recorded tape:
 - The picture becomes black and white.
 - The picture shakes.
 - No picture appears on the TV screen.
 - Black streaks appear horizontally on the TV screen.
 - The colour density increases or decreases.
- While setting the menu on the TV screen, buttons for playback on the remote command do not function.

Starting playback automatically with one button (One Touch Play) (not available on SLV-SE620N and SE420K)

If you use the SMARTLINK connection, you can turn on the TV, set the TV to the video channel, and start playback automatically with one button.

- Insert a tape.
The VCR automatically turns on.
If you insert a tape with its safety tab removed, the TV turns on and switches to the video channel. Playback starts automatically.
- Press **▶** (play).
The TV turns on and switches to the video channel automatically. Playback starts.

Tip

- When there already is a tape in the VCR, press **⏻** to turn on the VCR first. When you press **▶** (play), the TV turns on, the TV is set to the video channel, and playback starts automatically in one sequence.

Note

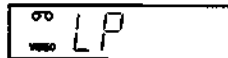
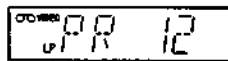
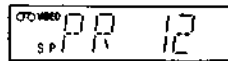
- When you use the One Touch Play function, leave the TV on or in the standby mode.

Recording TV programmes

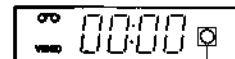
Before you start...

- Refer to "Index to parts and controls" for button locations.

- Turn on your TV and set it to the video channel.
To record from a decoder, turn it on.
- Insert a tape with its safety tab in place.
- To record a normal channel, press **PROG** until the programme position number you want appears in the display window.
 - To record from a decoder or other source connected to one or more of the LINE inputs, press **INPUT SELECT** until the connected line appears in the display window.
- Press **SP/LP** to select the tape speed: SP or LP.
LP (Long Play) provides recording time twice as long as SP. However, SP (Standard Play) produces better picture and audio quality.



- Press **REC** to start recording.
The recording indicator lights up red in the display window.



To stop recording

Press **■** (stop).

To check the remaining time

Press **DISPLAY** twice. With the display on, press **COUNTER/REMAIN** to check the remaining time. Each time you press **COUNTER/REMAIN**, the time counter and the remaining time appear alternately.



Time counter



Remaining time

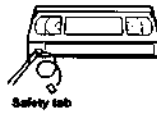
In order to get an accurate remaining time indication, be sure TAPE SELECT in the USER SET menu is set according to the tape type you use (see page 70).

To watch another TV programme while recording

- Press **TV/VIDEO** to turn off the VIDEO indicator in the display window.
- Select another programme position on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on the same tape again, cover the tab hole with adhesive tape.



Tips

- To select a programme position, you can use the programme number buttons on the remote commander. For two-digit numbers, for example, press 2 and 3 to select "PR 23."
- If you connect additional equipment to a LINE connector or jack, you can select the input signal using the INPUT SELECT or PROG +/- buttons.
- The (i) DISPLAY information appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you do not want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.

Notes

- The (i) DISPLAY information does not appear during still (pause) mode or slow-motion playback.
- If a tape has portions recorded in both PAL (MESECAM) and NTSC systems, the time counter reading will not be correct. This discrepancy is due to the difference between the counting cycles of the two video systems.
- You cannot watch a Canal Plus programme while recording another Canal Plus programme.*
- When you insert a non-standard commercially available tape, the remaining time may not be correct.
- The remaining time is intended for rough measurement only.
- About 30 seconds after the tape begins playback, the tape remaining time will be displayed.

* not available on SLV-SE620N

Recording what you are watching on the TV (TV Direct Rec) (not available on SLV-SE620N and SE420K)

If you use the SMARTLINK connection, you can easily record what you are watching on the TV (other than tapes being played on the VCR).

- Press **TV** to turn on the VCR.
- Insert a tape with its safety tab in place.
- Press **REC** while you are watching a TV programme or external source.

The TV indicator lights up and the VCR starts recording what you are watching on the TV.

Tip

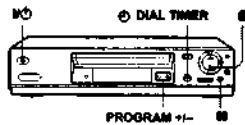
- The TV indicator appears in the display window after you press **REC** in some situations such as:
 - when you are watching a source connected to the TV's line input, or
 - when the TV tuner preset data for the programme position is different from the data in the VCR tuner preset

Notes

- You cannot record what you are watching using this method when the VCR is in the following modes: pause, timer standby, tuner preset, Auto Set Up, and recording.
- When the TV indicator is lit in the display window, do not turn off the TV nor change the TV programme position. When the TV indicator is not lit, the VCR continues recording the programme even if you change the TV programme position on the TV.
- To use the TV Direct Rec function, select SMARTLINK in the INSTALLATION menu, then set TV DIRECT RECORD to ON.

Recording TV programmes using the Dial Timer (SLV-SE820N only)

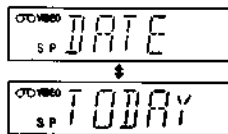
The Dial Timer function allows you to make timer recordings of programmes without turning on your TV. Set the recording timer to record up to eight programmes, including settings made with other timer methods, that will be broadcast within the next month. The recording start time and recording stop time can be set at one minute intervals.



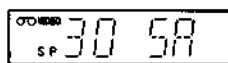
Before you start...

- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- To record from a decoder, turn it on.
- Refer to "Index to parts and controls" for button locations.

- DIAL TIMER** Press **DIAL TIMER**. "DATE" and "TODAY" appear alternately in the display window. If the date and time are not set, "DAY" will appear. See step 2 in the following section, "To set the clock" to set the date and time.



- DIAL TIMER** Turn **DIAL TIMER** to set the recording date.



- DIAL TIMER** Press **DIAL TIMER**. "START" and the current time appear alternately in the display window.



- DIAL TIMER** Turn **DIAL TIMER** to set the recording start time. You can set the recording start time in 15 minute intervals or adjust the time in one minute intervals by pressing the PROGRAM +/- buttons.








- DIAL TIMER** Press **DIAL TIMER**. "STOP" and the recording stop time alternately appear in the display window.




- DIAL TIMER** Turn **DIAL TIMER** to set the recording stop time. You can set the recording stop time in 15 minute intervals or adjust the time in one minute intervals by pressing the PROGRAM +/- buttons.



- 7  Press **DIAL TIMER**.
The programme position or LINE input appears in the display window.
- 8  Turn **DIAL TIMER** to set the programme position.
 To record from a decoder or other source connected to one or more of the LINE inputs, turn **DIAL TIMER** or press **INPUT SELECT** to display the connected line in the display window.
- 9  Press **DIAL TIMER** to complete the setting.
"OK" appears in the display window for about five seconds.
The  indicator appears in the display window and the VCR stands by for recording.
To record from a decoder or other source, leave the connected equipment switched on.

To return to the previous step
To return to the previous step, press the **PROGRAM +** and **-** buttons on the VCR at the same time during any of the Dial Timer settings.


To stop recording
To stop the VCR while recording, press **STOP**.

To use the VCR after setting the timer
To use the VCR before a recording begins, just press **STOP**. The  indicator turns off and the VCR switches on. Remember to press **STOP** to reset the VCR to recording standby after using the VCR.

- You can also do the following tasks while the VCR is recording:
- Reset the counter (page 40).
 - Display tape information on the TV screen (page 43).
 - Check the timer settings (page 61).
 - Watch another TV programme (page 43).

- To set the clock**
- 1 Hold down **DIAL TIMER** so that "DAY" appears in the display window. However, if the clock has already been set, the current setting appears.
 - 2 Turn **DIAL TIMER** to set the day.
 - 3 Press **DIAL TIMER**. "MONTH" appears in the display window.
 - 4 Turn and press **DIAL TIMER** to set the month, and then the year. After you set the year, "CLOCK" appears in the display window again.
 - 5 Turn and press **DIAL TIMER** to set the hour and minute.
 - 6 When you have finished setting the time, press **DIAL TIMER** to start the clock.

- Tips**
- To cancel a Dial Timer setting, press **STOP** on the VCR while you are making the setting.
 - The programme is recorded in the current tape speed mode. To change the tape speed, press **SP/FP** before you complete the setting in step 9.
 - To check, change, or cancel the programme setting, see "Checking/changing/cancelling timer settings" on page 61.

- Notes**
- If eight programmes have already been set using the ShowView system or the **TIMER PROGRAMMING** menu, "FULL" appears in the display window for about five seconds.
 - The  indicator flashes in the display window when you complete the setting in step 9 with no tape inserted.
 - If you set the clock using the Auto Clock Set function and **AUTO CLOCK** is set to **ON**, the clock will adjust itself to the incoming time signal regardless of adjustments made with the Dial Timer. Be sure you have set the Auto Clock Set correctly.
 - When the time is set incorrectly, "ERROR" appears in the display window in step 9. Set the timer again from step 1.
 - You cannot set the tape speed to **AUTO** using the Dial Timer. To select **AUTO**, set the tape speed in the **TIMER PROGRAMMING** menu (see page 61).

About the Demonstration Mode

The Dial Timer function has a Demonstration Mode that allows the user, such as a salesperson, to enter more than eight examples of timer settings when demonstrating the use of the Dial Timer. It cancels the "FULL" notice which appears if eight programmes have already been set. Do not use the Demonstration Mode for making timer recordings. Doing so may cause the settings to be inaccurate.


To activate the Demonstration Mode
Press **PAUSE** on the VCR while turning the **DIAL TIMER**. "DEMO" appears in the display window for a few seconds.

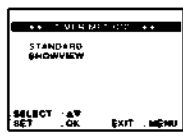
To cancel the Demonstration Mode
Turn the power off and unplug the mains lead. Although the Demonstration Mode is cancelled, the timer settings entered while using the Demonstration Mode will remain. Be sure to manually cancel the timer settings before you use the Dial Timer or any other timer method after reconnecting the mains lead (see page 61).

Recording TV programmes using the ShowView® system (SLV-SE820N, SE720N and SX720N only)

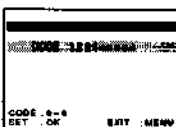
The ShowView system is the feature that simplifies programming the VCR to make timer recordings. Just enter the ShowView number listed in the TV programme guide. The date, times, and programme position of that programme are set automatically. You can preset a total of eight programmes, including settings made with other timer methods.

- Before you start...**
- Check that the VCR clock is set to the correct time and date.
 - Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
 - To record from a decoder, turn it on.
 - Turn on your TV and set it to the video channel.
 - Set **TIMER METHOD** to **SHOWVIEW** or **VARIABLE** in the **EASY OPERATION** menu (see page 71).
 - Refer to "Index to parts and controls" for button locations.

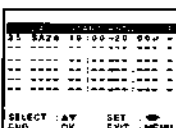
- 1  Press **TIMER**.
 - When you set **TIMER METHOD** to **VARIABLE**:
The **TIMER METHOD** menu appears on the TV screen. Press **UP**/**DOWN** to select **SHOWVIEW**, then press **OK**.
- When you set **TIMER METHOD** to **SHOWVIEW**:
The **SHOWVIEW** menu appears on the TV screen.



2 Press the programme number buttons to enter the ShowView number. If you make a mistake, press CLEAR and re-enter the correct number.



3 Press OK. The date, start and stop times, programme position, tape speed and VPS/PDC setting appear on the TV screen.




- If "-" appears in the "PR" (programme) column (this may happen for local broadcasts), you have to set the appropriate programme position manually. Press \uparrow/\downarrow to select the desired programme position.
- To record from a decoder or other source connected to one or more of the LINE inputs, press INPUT SELECT to display the connected line in the "PR" position. You will only have to do this operation once for the referred channel. The VCR will then store your setting. If the information is incorrect, press CLEAR to cancel the setting.

4 If you want to change the date, tape speed and the VPS/PDC setting:

- Press \leftarrow/\rightarrow to select the item you want to change.
- Press \uparrow/\downarrow to reset it.

- To record the same programme every day of the same day every week, see "Daily/weekly recording" on page 53.
- To use the VPS/PDC function, set V/P to ON. For details about the VPS/PDC function, see "Timer recording with VPS/PDC signals" on page 53.

5 Press MENU to exit the menu.



6 Press VCR to turn off the VCR. The VCR indicator appears in the display window and the VCR stands by for recording. To record from a decoder or other source, leave the connected equipment switched on.

To stop recording
To stop the VCR while recording, press STOP (stop).

Daily/weekly recording

In step 4 above, press \downarrow to select the recording pattern. Each time you press \downarrow , the indication changes as shown below. Press \uparrow to change the indication in reverse order:
today \rightarrow DLY (Monday to Sunday) \rightarrow W-SA (every Saturday) \rightarrow \rightarrow W-SU (every Sunday) \rightarrow 1 month later \rightarrow (dates count down) \rightarrow today

Timer recording with VPS/PDC signals

Some broadcast systems transmit VPS (Video Programme System) or PDC (Programme Delivery Control) signals with their TV programmes. These signals ensure that your timer recordings are made regardless of broadcast delays, early starts, or broadcast interruptions.

To use the VPS/PDC function, set V/P to ON in step 4 above. You can also use the VPS/PDC function for a source connected to one or more of the LINE inputs.

To use the VCR after setting the timer

To use the VCR before a recording begins, just press VCR . The VCR indicator turns off and the VCR switches on. Remember to press VCR to reset the VCR to recording standby after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter (page 40).
- Display tape information on the TV screen (page 43).
- Check the timer settings (page 61).
- Watch another TV programme (page 43).

To use the Auto Tape Speed function

In step 4 above, press \downarrow to select AUTO. When you are recording a programme in the SP mode and the remaining tape length becomes shorter than the recording time, the recording tape speed is automatically changed to the LP mode. Note that some noise will appear on the picture when the tape speed is changed. To operate this function correctly, the "TAPE SELECT" setting in the USER SET menu must be accurate (see page 70).

Tips

- To set the line input video source, you can also use the INPUT SELECT button.
- You can set the extended time for the ShowView setting by 10, 20, 30, 40, 50, or 60 minutes. Set SHOWVIEW-EXTEND in the EASY OPERATION menu to the desired extended time on page 71.
- To check, change, or cancel the programme setting, see "Checking/changing/cancelling timer settings" on page 61.

Notes

- If the VPS/PDC signal is too weak or the broadcasting station failed to transmit VPS/PDC signals, the VCR will start recording at the set time without using the VPS/PDC function.
- The VCR and VCR indicators flash in the display window when you press VCR with no tape inserted.
- When you set TIMER METHOD to STANDARD in the EASY OPERATION menu, the SHOWVIEW menu does not appear on the TV screen. Select SHOWVIEW or VARIABLE.

Recording TV programmes using the timer

You can preset a total of eight programmes, including settings made with other timer methods.

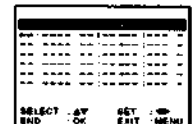
Before you start...

- Check that the VCR clock is set to the correct time and date.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- To record from a decoder, turn it on.
- Turn on your TV and set it to the video channel.
- Set TIMER METHOD to STANDARD or VARIABLE in the EASY OPERATION menu (see page 71).
- Refer to "Index to parts and controls" for button locations.

1 Press TIMER .

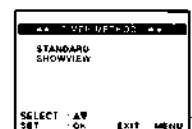


For SLV-SE620N and SE420K
The TIMER PROGRAMMING menu appears on the TV screen.

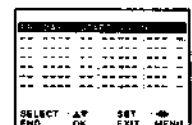



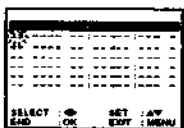
For SLV-SE820N, SE720N and SX720N

- When you set TIMER METHOD to VARIABLE, The TIMER METHOD menu appears on the TV screen. Press \uparrow/\downarrow to select STANDARD, then press OK.



- When you set TIMER METHOD to STANDARD, The TIMER PROGRAMMING menu appears on the TV screen.



- 2** Set the date, start and stop times, programme position, tape speed and VPS/PDC function*.
- 
- 
- Press **INPUT SELECT** to select each item in turn.
 - Press **↑/↓** to set each item. To correct a setting, press **←** to return to that setting and reset.
- To record the same programme every day or the same day every week, see "Daily/weekly recording" on page 56.
 - To use the VPS/PDC function*, set V/P to ON. For details about the VPS/PDC function, see "Timer recording with VPS/PDC signals" on page 53.
 - To record from a decoder or other source connected to one or more of the LINE inputs, press INPUT SELECT to display the connected line in the "PR" position.
- 3** Press **MENU** to exit the menu.
- 4** Press **RECORD** to turn off the VCR. The **⊙** indicator appears in the display window and the VCR stands by for recording. To record from a decoder or other source, leave the connected equipment switched on.

To stop recording

To stop the VCR while recording, press **STOP** (stop).

Daily/weekly recording

In step 2 above, press **↓** to select the recording pattern. Each time you press **↓**, the indication changes as shown below. Press **↑** to change the indication in reverse order.

today → DLY (Monday to Sunday) → W-SA (every Saturday) → W-SU (every Sunday) → 1 month later → (dates count down) → today

To use the VCR after setting the timer

To use the VCR before a recording begins, just press **RECORD**. The **⊙** indicator turns off and the VCR switches on. Remember to press **RECORD** to reset the VCR to recording standby after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter (page 40).
- Display tape information on the TV screen (page 43).
- Check the timer settings (page 61).
- Watch another TV programme (page 43).

To use the Auto Tape Speed function

In step 2 above, press **↓** to select AUTO. When you are recording a programme in the SP mode and the remaining tape length becomes shorter than the recording time, the recording tape speed is automatically changed to the LP mode. Note that some noise will appear on the picture when the tape speed is changed. To operate this function correctly, the "TAPE SELECT" setting in the USER SET menu must be accurate (see page 70).

Tip

- To set the line input video source, you can also use the INPUT SELECT button.
- Even if you set TIMER METHOD* to SHOWVIEW in the EASY OPERATION menu, you can set the timer manually. Press MENU to select TIMER PROGRAMMING, then go to step 2.
- To check, change or cancel the programme setting, see "Clocking/changing/cancelling timer settings" on page 61.

Notes

- When setting the timer with VPS/PDC* signals, enter the start and stop times exactly as indicated in the TV programme guide. Otherwise, the VPS/PDC function will not work.
- If the VPS/PDC* signal is too weak or the broadcasting station failed to transmit VPS/PDC signals, the VCR will start recording at the set time without using the VPS/PDC function.
- The **⊙** and **⊙** indicators flash in the display window when you press **RECORD** with no tape inserted.
- The VPS/PDC* function* is automatically set to off for the timer recording of a satellite programme.

* not available on SLV-SE620N and SE420K

Additional Operations

Playing/searching at various speeds

Before you start...

- Refer to "Index to parts and controls" for button locations.

Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, hold down FF (fast-forward). During rewind, hold down REW (rewind).
Play at high speed	<ul style="list-style-type: none"> During playback, press FF (fast-forward) or REW (rewind) on the remote commander. During playback, hold down FF (fast-forward) or REW (rewind). When you release the button, normal playback resumes.
Play at twice the normal speed	During playback, press *2 .
Play in slow motion	During playback, press SLOW .
Play frame by frame	During pause, press FF (fast-forward) or REW (rewind)* on the remote commander.

* SLV-SE20N only

To resume normal playback

Press **▶** (play).

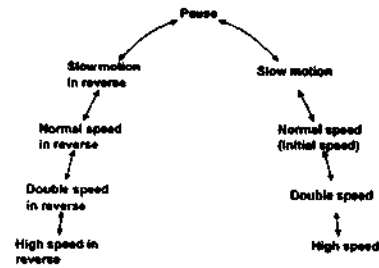
Using the shuttle ring (SLV-SE820N only)

With the shuttle ring, you can operate a variety of playback options. There are two ways for using the shuttle ring, normal mode and jog mode.



To use the shuttle ring in normal mode

During playback or pause, turn the shuttle ring clockwise or anticlockwise. Each change in the shuttle ring position changes the playback mode in the following way.



To use the shuttle ring in jog mode

Use this mode for frame-by-frame playback.

Press **JOG** to enter the jog mode. The **JOG** button lights up. If you change to the jog mode during any playback mode, playback pauses so you can see a still picture. Each change in the shuttle ring position shifts the picture one frame. To shift frames in reverse, turn the shuttle ring anticlockwise. The frame shift speed depends on the speed you turn the shuttle ring.

To resume normal mode, press **JOG** again. The **JOG** button turns off.

Tip

- Adjust the picture using the **PROGRAM** **↔** buttons on the VCR if:
 - Streaks appear while playing in slow motion.
 - Bands appear at the top or bottom while pausing.
 - The picture shakes while pausing.
- To set tracking to the centre position, press both buttons (**↔**) at the same time.

Notes

- The sound is muted during these operations.
- In the LP mode, noise may appear or there may be no colour.
- If the playback mode mark does not appear on the TV screen, press **⊕** DISPLAY.
- The picture may show noise when playing at high speed in reverse.
- The picture returns to normal playback from slow motion in reverse in 30 seconds.

Setting the recording duration time

After you have started recording in the normal way, you can have the VCR stop recording automatically after a specified duration.

Before you start...

- Refer to "Index to parts and controls" for button locations.

1 While recording, press **REC**.

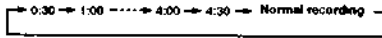
The **Ⓢ** indicator appears in the display window.



2 Press **REC** repeatedly to set the duration time.

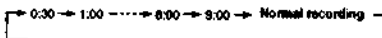
In SP mode

Each press advances the time in increments of 30 minutes.



In LP mode

Each press advances the time as shown below.



The tape counter decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press **REC** repeatedly to set a new duration time.

To cancel the duration

Press **REC** repeatedly until the **Ⓢ** indicator disappears and the VCR returns to the normal recording mode.

To stop recording

To stop the VCR while recording, press **STOP**.

Note

- You cannot display the current tape time in the display window when setting the recording duration time.

Checking/changing/cancelling timer settings

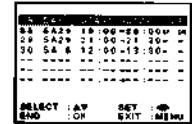
Before you start...

- Turn on your TV and set it to the video channel.
- Refer to "Index to parts and controls" for button locations.

1 Press **POWER** to turn on the VCR.

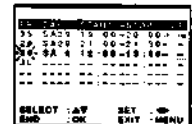
2 Press **MENU**, then press **↑/↓** to highlight **TIMER PROGRAMMING** and press **OK**.

- If you want to change or cancel a setting, go on to the next step.
- If you do not need to change or cancel the settings, press **MENU** then turn off the VCR to return to recording standby.



3 Press **↑/↓** to select the setting you want to change or cancel, then press **→**.

The PR number on the selected row flashes.



4 To change the setting, press **←/→** to select the item you want to change, then press **↑/↓** to reset it.

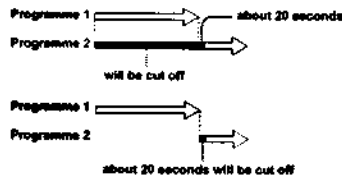
- To cancel the setting, press **CLEAR**.

5 Press **MENU** to exit the menu.

If any settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The programme that starts first has priority and the second programme starts recording only after the first programme has finished. If the programmes start at the same time, the programme listed first in the menu has priority.



Recording stereo and bilingual programmes (not available on SLV-SE420K)

In the ZWEITON (German stereo) system

This VCR automatically receives and records stereo and bilingual programmes based on the ZWEITON system. When a stereo or bilingual programme is received, the **STEREO** indicator appears in the display window.

To select bilingual sound while recording

Press **AUDIO MONITOR** to select the sound you want.

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO
Standard sound*	MONO	STEREO

* Usually the main channel heard from both the left and right in bilingual programmes.

To select stereo programme while recording

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Left channel	LCH	STEREO
Right channel	RCH	STEREO
Standard sound	LCH + RCH	STEREO

* Usually the mixed sound of left and right channels in stereo programmes.

In the NICAM system

This VCR receives and records stereo and bilingual programmes based on the NICAM system (NICAM appears on the TV screen). When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To record a NICAM programme, NICAM in the USER SET menu should be set to ON (initial setting). To check the menu setting, see page 71 for details.

To select the sound while recording

Press AUDIO MONITOR to select the sound you want.

Stereo programmes

To listen to	On-screen display	Display window
Stereo	NICAM, STEREO	STEREO
Left channel	NICAM, LCH	STEREO
Right channel	NICAM, RCH	STEREO
Left and right channels*	NICAM, LCH + RCH	STEREO

* Usually the mixed sound of left and right channels.

Bilingual programmes

To listen to	On-screen display	Display window
Main	NICAM, MAIN	STEREO
Sub	NICAM, SUB	STEREO
Main and sub	NICAM, MAIN/SUB	STEREO
Standard sound*	NICAM, MONO	STEREO

* Usually the main sound (monaural).

Selecting the sound during Hi-fi playback

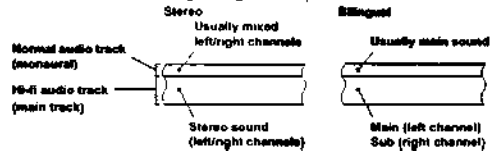
Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Left channel	LCH	STEREO
Right channel	RCH	STEREO
Mix sound*	MIX	STEREO
Mono sound	MONO	No indicator

* The mixed sound of left and right channels, and the normal mono audio track.

How sound is recorded on a video tape

The VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Notes

- To listen to playback sounds in stereo, you must use the Scart or AUDIO OUT connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

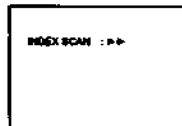
Additional Operations

Searching using the index function (not available on SLV-SE420K)

The VCR automatically marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording.

To find a specific recording by scanning (Index scan)

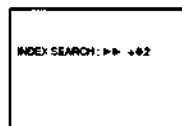
- 1 Insert an indexed tape into the VCR.
- 2 Press **◀▶** (index search). The VCR starts scanning each recording for five seconds in the corresponding direction.



- 3 Press **▶** (play) to start playback when you find the desired point.

To search a specific recording (Index search)

- 1 Insert an indexed tape into the VCR.
- 2 Press **◀▶** (index search) twice.
 - To search ahead, press **▶▶** (index search) twice.
 - To search backwards, press **◀◀** (index search) twice.



- 3 Press **◀▶** (index search) depending on the direction where your desired programme is located. Each time you press the button, the number increases or decreases up to ±20, respectively.
- 4 The VCR starts searching, and playback starts automatically from that point.

To stop searching

Press **■** (stop).

Notes

- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the programme position during recording pause.
- When you press **◀◀** (index search), if there is nothing recorded before the selected index signal, playback may not start exactly at the index signal.

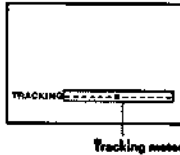
Additional Operations

Adjusting the picture

Adjusting the tracking

Although the VCR automatically adjusts the tracking when playing a tape, distortion may occur if the recording is in poor condition. In this case, manually adjust the tracking.

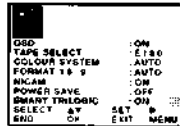
During playback, press PROGRAM +/- on the VCR to display the tracking meter. The distortion should disappear as you press one of the two buttons. To resume automatic tracking adjustments, eject the tape and reinsert it.



Adjusting the picture sharpness (Smart Trillogic)

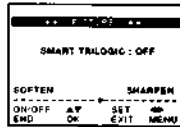
You can automatically adjust the sharpness of the picture.

- 1 During playback, press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight USER SET and press OK.
- 2 Press \uparrow/\downarrow to highlight SMART TRILOGIC, then press \rightarrow .



- 3 Press \uparrow/\downarrow to set SMART TRILOGIC to ON or OFF.

- ON: Picture sharpness is automatically adjusted.
- OFF: Adjust the picture sharpness manually. To soften the picture, press \leftarrow . To sharpen the picture, press \rightarrow .



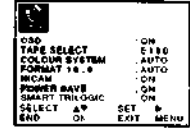
- 4 Press MENU to return to the original screen.

Reducing the VCR's power consumption

You can turn off the indicators in the display window when the VCR is off (standby mode) to reduce the VCR's power consumption.

- 1 Press MENU, then press $\uparrow/\downarrow/\leftarrow/\rightarrow$ to highlight USER SET and press OK.
- 2 Press \uparrow/\downarrow to highlight POWER SAVE.
- 3 Press \rightarrow to set to ON, then press OK.

The power consumption is reduced to a minimum.



To turn on the indicators in the display window

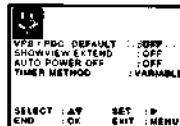
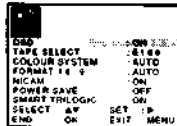
Set POWER SAVE to OFF in step 3.

Notes

- When the VCR stands-by for recording, the Ⓢ indicator in the display window remains lit even when POWER SAVE is set to ON.
- The Line Through function will not operate properly if POWER SAVE is set to ON. Set POWER SAVE to OFF to ensure proper operation.

Changing menu options

- 1 Press MENU, then select USER SET or EASY OPERATION and press OK.



- 2 Press \uparrow/\downarrow to select the option.

- 3 Press \rightarrow to change the setting, then press OK.

Menu choices

Initial settings are indicated in bold print.

USER SET

Menu option	Set this option to
OSD	<ul style="list-style-type: none"> • ON to display the menu on the TV screen. • OFF to disappear the menu from the TV screen.
TAPE SELECT	<ul style="list-style-type: none"> • E180 to use an E-180 or shorter type tape. • E240 to use an E-240 type tape. • E260 to use an E-260 type tape. • E300 to use an E-300 type tape.
COLOUR SYSTEM	<ul style="list-style-type: none"> • AUTO to set the colour system automatically. • PAL to play back a tape recorded in the PAL colour system. • MESECAM to play back a tape recorded in the MESECAM colour system. <p>If you press \blacktriangle (eject) or turn the VCR off, COLOUR SYSTEM will be reset to AUTO.</p>
FORMAT 16:9*	<ul style="list-style-type: none"> • AUTO when you use a wide screen TV. The VCR automatically detects if programmes being played back or recorded are in normal or wide screen format. • ON if the VCR cannot detect wide screen TV programmes with AUTO. The VCR always plays back and records in wide screen format. • OFF if you are not using a wide screen TV.

Menu option	Set this option to
NICAM*	<ul style="list-style-type: none"> • ON to record NICAM broadcasts on the hi-fi audio track. • OFF to record standard sound on the hi-fi audio track. For details, see page 63.
POWER SAVE	<ul style="list-style-type: none"> • ON to turn off the indicators in the display window to conserve the VCR's power. • OFF to turn on the indicators in the display window when the VCR is standing-by.
SMART TRILOGIC	<ul style="list-style-type: none"> • ON to automatically adjust the sharpness of the picture. • OFF to manually adjust the sharpness of the picture.

EASY OPERATION

Menu option	Set this option to
VPS/PDC DEFAULT	<ul style="list-style-type: none"> • OFF to deactivate the VPS/PDC function. • ON to activate it.
SHOWVIEW EXTEND	<ul style="list-style-type: none"> • OFF to deactivate the ShowView Extend function. • 15/30/60 (minutes) to extend the time of the ShowView setting by the selected amount of time.
AUTO POWER OFF	<ul style="list-style-type: none"> • OFF to deactivate the Auto Power Off function. • 10/15/30/60 to turn the VCR off automatically if no signal is received and you do not press any of the buttons for this time.
TIMER METHOD	<ul style="list-style-type: none"> • VARIABLE to display the TIMER METHOD menu for STANDARD or SHOWVIEW when pressing the Ⓢ TIMER button. • STANDARD to display the TIMER PROGRAMMING menu when pressing the Ⓢ TIMER button. • SHOWVIEW to display the SHOWVIEW menu when pressing the Ⓢ TIMER button. <p>For details, see pages 51 and 55.</p>

* Not available on SLV-SE630N.

* Not available on SLV-SE420K.

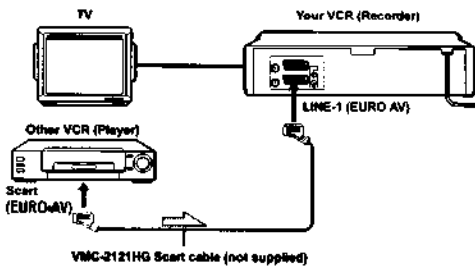
* Not available on SLV-SE630N and SE420K.

Connecting to a VCR or stereo system

How to connect to record on this VCR

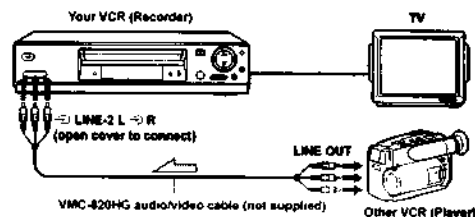
Connect the line outputs of the other VCR to the input connector of this VCR. Refer to the examples A through C and choose the connection that best suits your VCR.

Example A



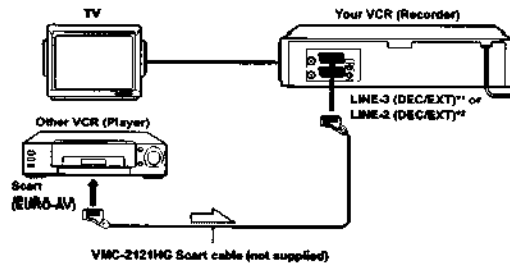
➤ : Signal flow

Example B (SLV-SE820N only)



➤ : Signal flow

Example C



➤ : Signal flow

How to connect to a stereo system (SLV-SE820N only)

Connect the LINE-2 L & R jacks on this VCR to the audio output jacks on the stereo system, using the RK-CS10HG audio cable (not supplied).

Notes

- Make sure you connect the plugs to jacks of the same colour.
- If the other VCR is a monaural type, leave the red plugs unconnected.
- If you connect this VCR to both the LINE-IN and LINE-OUT jacks of the other VCR, select the input correctly to prevent a humming noise.
- If the other VCR does not have a Scart (EURO-AV) connector, use the VMC-2100HG cable instead and connect the cable to the line out jacks of the other VCR.
- When you connect another VCR to the LINE-3 (DEC/EXT)^{*)} or LINE-2 (DEC/EXT)^{*)} connector, press INPUT SELECT to display "L3"^{*)} or "L2"^{*)} in the display window.

^{*)} SLV-SE820N only

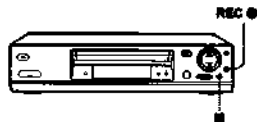
^{*)} SLV-SE720N, SX720N and SE420K only

Basic editing

When recording on this VCR

Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT to display the connected line in the display window.
- Press SP/LP to select the tape speed, SP or LP.



- 1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.
- 2 Insert a tape with its safety tab in place into this (recording) VCR. Search for the point to start recording and press II (pause) to set it to playback pause.
- 3 Press REC ● on this VCR to set it to recording pause.
- 4 To start editing, press the II (pause) buttons on both VCRs at the same time.

To stop editing

Press the ■ (stop) buttons on both VCRs.

Tip

- To cut out unwanted scenes while editing, press II (pause) on this VCR when an unwanted scene begins. When it ends, press II (pause) again to resume recording.

Audio dubbing (SLV-SE820N only)

This feature lets you record over the normal audio track. The monaural sound previously recorded is replaced while the original hi-fi sound remains unchanged. Use this feature to add commentary to a tape that you have recorded with a camcorder.



Before you start...

- Open the LINE-2 L & R jacks cover on the front panel and connect a playback source.
- Turn on the TV and set it to the video channel.

- 1 Insert a source tape into your stereo system (or the playback VCR). Search for the point to start playback and set it to playback pause.
- 2 Insert a prerecorded tape with its safety tab in place into this (recording) VCR. Search for the start of the section to be replaced and press II (pause). The VCR enters pause mode.
- 3 Press AUDIO DUB. "A_DUB" and the ■ indicator appears in the display window.
- 4 To start editing, press the II (pause) buttons on this VCR and the stereo system (or other VCR) at the same time. After you use this feature, the audio in playback mode is automatically set to monaural.

To stop editing

Press ■ (stop) on this VCR and the stereo system (or other VCR).

Troubleshooting

If you have any questions or problems not covered below, please consult your nearest Sony service facility.

	Symptom	Remedy
Power	The TV (on standby) switch does not function.	• Connect the mains lead to the mains securely.
	The power is turned on but the VCR does not operate.	• Moisture condensation has occurred. Turn the power off, unplug the mains lead and leave the VCR to dry for over three hours.
Clock	The VCR is plugged in but the display window remains dark.	• Set POWER SAVE in the USER SET menu to OFF (see page 69).
	The clock has stopped and "----" appears in the display window.	• The clock stops if the VCR is disconnected from the mains. Reset the clock (and timer).
Playback	The playback picture does not appear on the TV screen.	• Make sure the TV is set to the video channel. If you are using a monitor, set it to video input. • If the VCR is connected to the TV with the Scart cable, make sure the VIDEO indicator is lit in the display window. Use the TV-VIDEO button on the remote commander to light up the VIDEO indicator.
	The picture is not clear.	• Existing broadcasts may interfere with the VCR. Reset the RF channel output of your VCR (see page 22). • Adjust the tracking with the PROGRAM +/- buttons on the VCR. • The video heads are dirty (see the last page of Troubleshooting). Clean the video heads using the Sony T-25CLD, E-25CLDR or T-25CLW video head cleaning cassette. If these cleaning cassettes are not available in your area, have the heads cleaned at your nearest Sony service facility (a standard service charge will be required). Do not use a commercially available liquid type cleaning cassette other than Sony's, as it may damage the video heads. • The video heads may have to be replaced. Consult your local Sony service facility for more information.
	The picture has no colour.	• The COLOUR SYSTEM option in the USER SET menu is set to the wrong position. Set the option to conform to the system that the tape was recorded on.
	The picture rolls vertically during picture search.	• Adjust the vertical hold control on the TV or monitor.

	Symptom	Remedy
Playback	The picture has no sound.	• The tape is defective. • If you made A/V connections, check the audio cable connection.
	The sound from a tape recorded with the VCR is not in stereo or the STEREO indicator in the display window is flashing.	• Adjust the tracking. • The video heads are dirty. Clean the video heads using the Sony T-25CLD, E-25CLDR, or T-25CLW video head cleaning cassette as explained above.
Recording	No TV programme appears on the TV screen.	• Make sure the TV is set to the video channel. If you are using a monitor, set it to video input. • Existing broadcasts may interfere with the VCR. Reset the RF channel output of your VCR (see page 22). • Select the correct source with the INPUT SELECT button. Select a programme position when recording TV programmes; select a line input when recording from other equipment.
	TV reception is poor.	• Make sure the aerial cable is connected securely. • Adjust the TV aerial. • Make sure the TV system is correctly set for your TV. • Make sure TV SYSTEM (B/G or D/K) in the INSTALLATION menu is set to the same system in your local area.
	The tape starts playing as soon as it is inserted.	• The safety tab has been removed. To record on this tape, cover the tab hole (see page 44).
	The tape is ejected when you press REC .	• The safety tab has been removed. To record on this tape, cover the tab hole (see page 44).
Timer recording	Nothing happens when you press REC .	• Make sure the tape is not at its end.
	The timer does not operate.	• Check that the clock is set. • Make sure a tape has been inserted. • Check that the safety tab has not been removed. • Make sure the tape is not at its end. • Make sure a programme has been set for timer recording. • Make sure your timer settings are past the current time. • Check that the decoder is turned on. • Check that the satellite tuner is turned on. • The clock stops if the VCR is disconnected from the mains. Reset the clock and timer. • Turn the power off and unplug the mains lead.

	Symptom	Remedy
Timer recording	The SHOWVIEW menu or the TIMER PROGRAMMING menu does not appear.	• Check that TIMER METHOD in the EASY OPERATION menu is set correctly (see page 71).
	The VPS/PDC function does not operate properly.	• Check that the clock and the date are set correctly. • Check that the VPS/PDC time you set is the correct one (there might be a mistake in the TV programme guide). If the broadcast you wanted to record did not send the good VPS/PDC information, the VCR will not start recording. • If the reception is poor, the VPS/PDC signal might be altered and the VCR might not start recording.
Canal Plus	You cannot watch Canal Plus programmes when the VCR is in standby mode.	• Check that DEC is set to ON for this channel in the TV STATION TABLE menu. • Make sure the Canal Plus Scart cable is plugged securely.
	A Canal Plus programme is always recorded scrambled.	• Make sure the Canal Plus Scart cable is plugged securely. • Check that DEC is set to ON for this channel in the TV STATION TABLE menu.
Others	A tape cannot be inserted.	• Check that a tape is not already in the tape compartment.
	The remote commander does not function.	• Make sure you are pointing the remote commander at the remote sensor on the VCR. • Replace all the batteries in the remote commander with new ones if they are weak. • Make sure the TV/VIDEO remote control switch is set correctly.
	The selected input line connector number does not appear in the display window.	• Press INPUT SELECT to display the connected line.
	The tracking meter does not appear on the TV screen.	• The recording condition of the tape is very poor and tracking cannot be adjusted.
	You cannot control other TVs.	• Set your TV's code number. The code number may change when you replace the batteries of the remote commander.
	The display window becomes dim.	• The display window automatically becomes dim when the VCR is in standby or timer recording mode.
	The VCR needs to be cleaned.	• Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine.

Symptom	Remedy
The Line Through function does not operate.	• Set POWER SAVE in the USER SET menu to OFF (see page 69).

Symptoms caused by contaminated video heads

• Normal picture • Rough picture • Unclear picture • No picture (or black & white screen appears)

initial contamination terminal

2. Disassembly

2-1 Mono Models

2-1-1 Cabinet Top

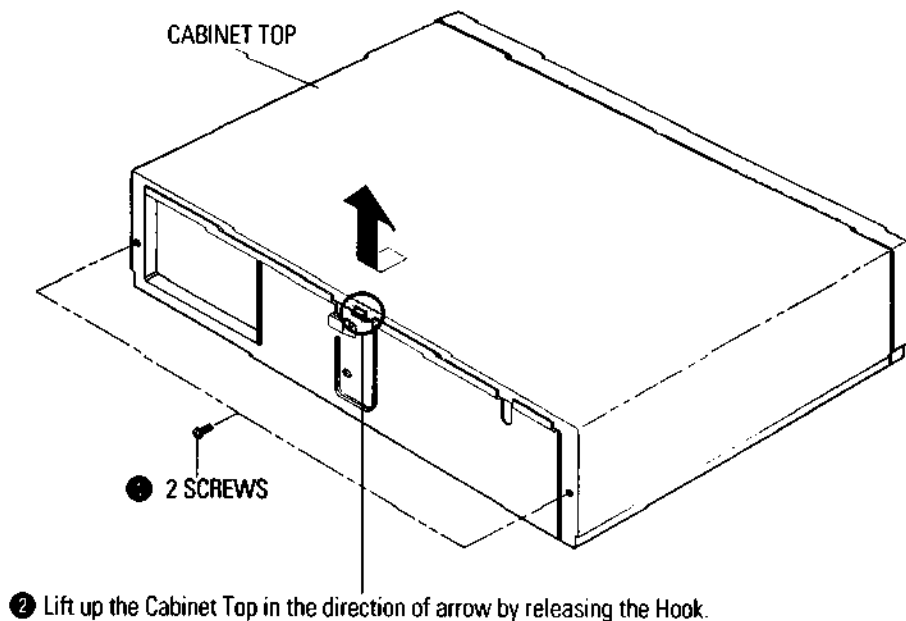


Fig. 2-1 Cabinet Top

2-1-2 Cover Bottom

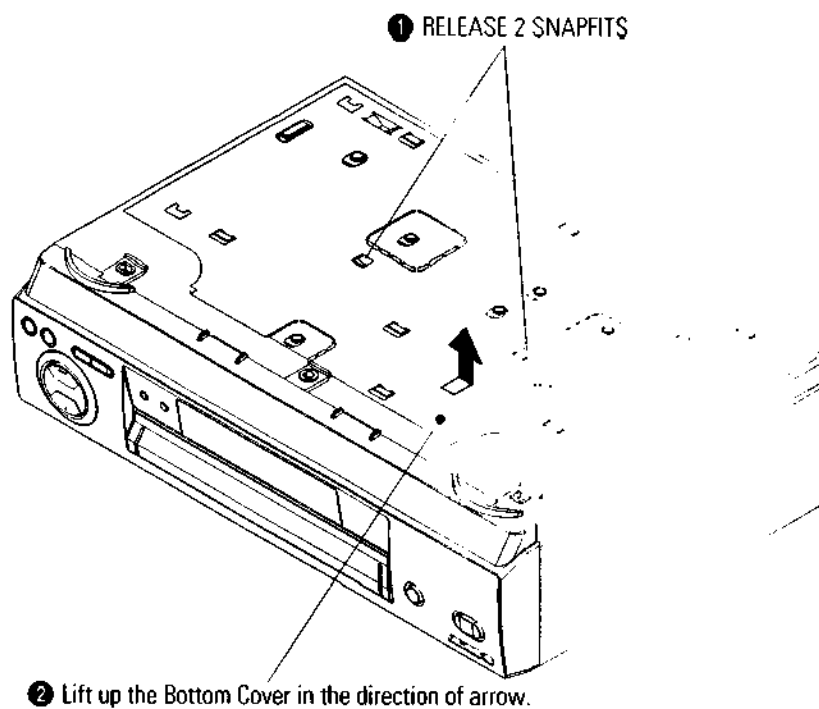


Fig. 2-2 Cover Bottom

2-1-3 Ass'y-Panel Front

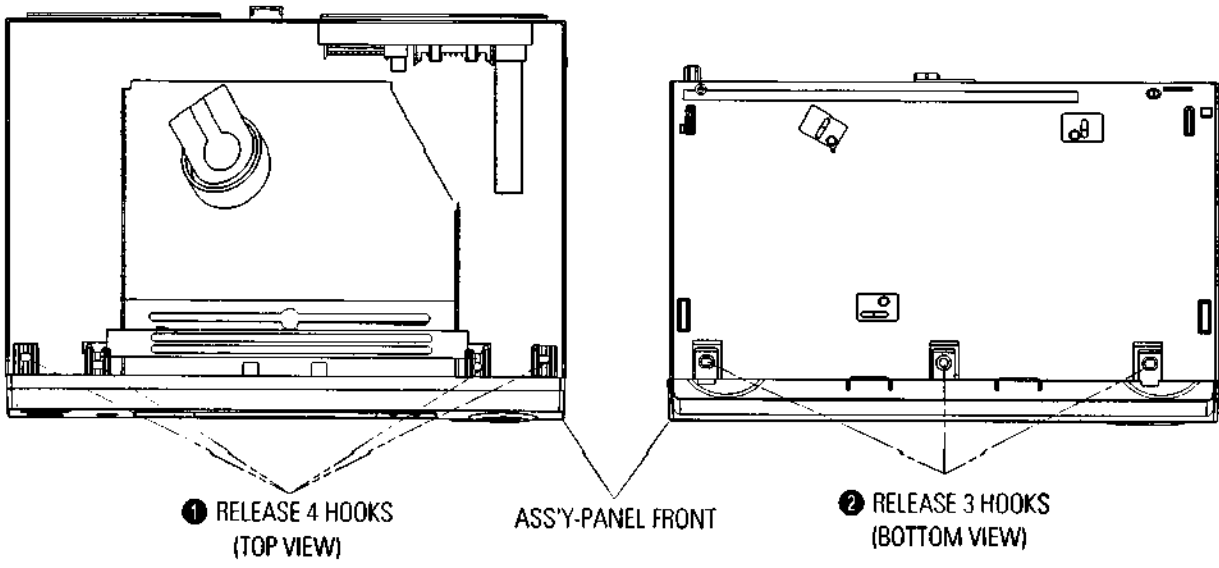


Fig. 2-3 Ass'y-Panel Front

2-1-4 Ass'y MAIN-PCB, DECK

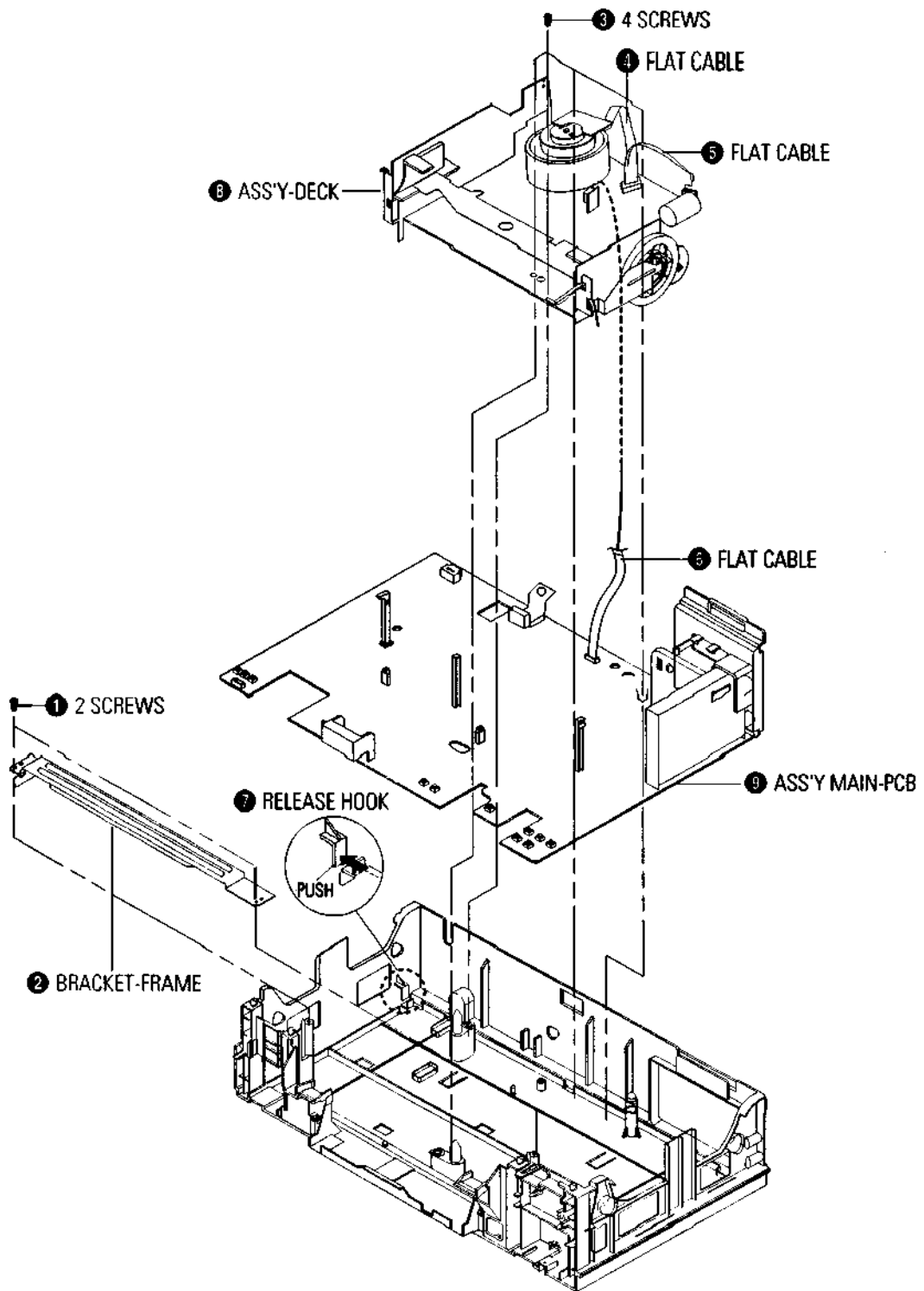


Fig. 2-4 Ass'y Main-PCB, Deck

2-2 Hi-Fi Models

2-2-1 Cabinet Top

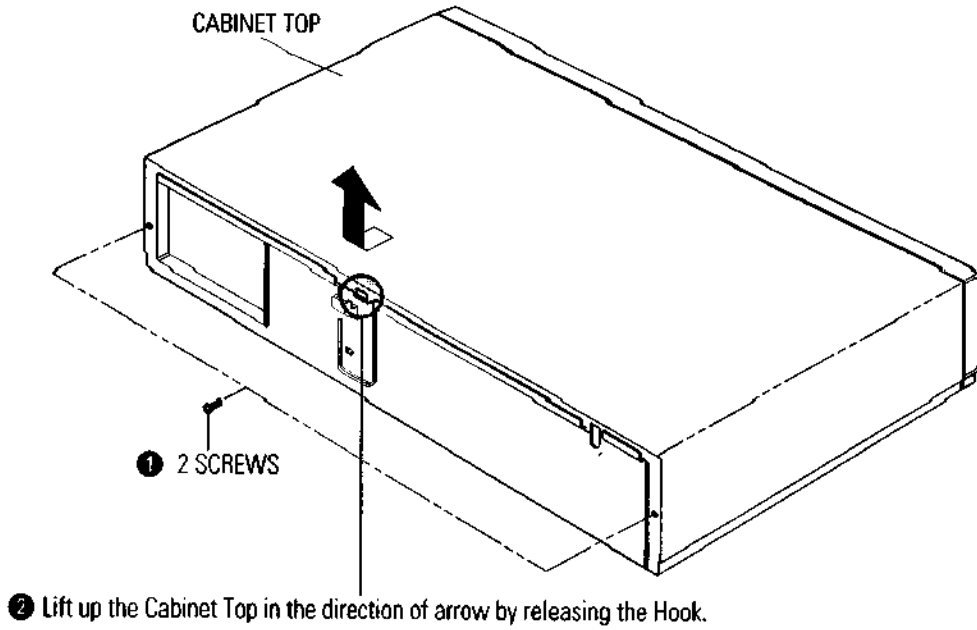


Fig. 2-5 Cabinet Top

2-2-2 Cover Bottom

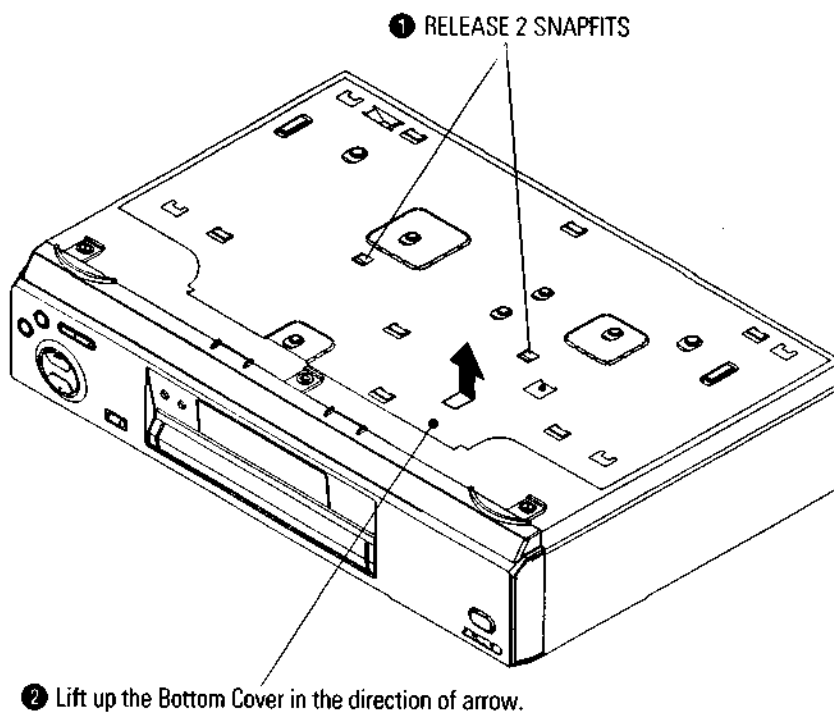


Fig. 2-6 Cover Bottom

2-2-3 Ass'y-Panel Front

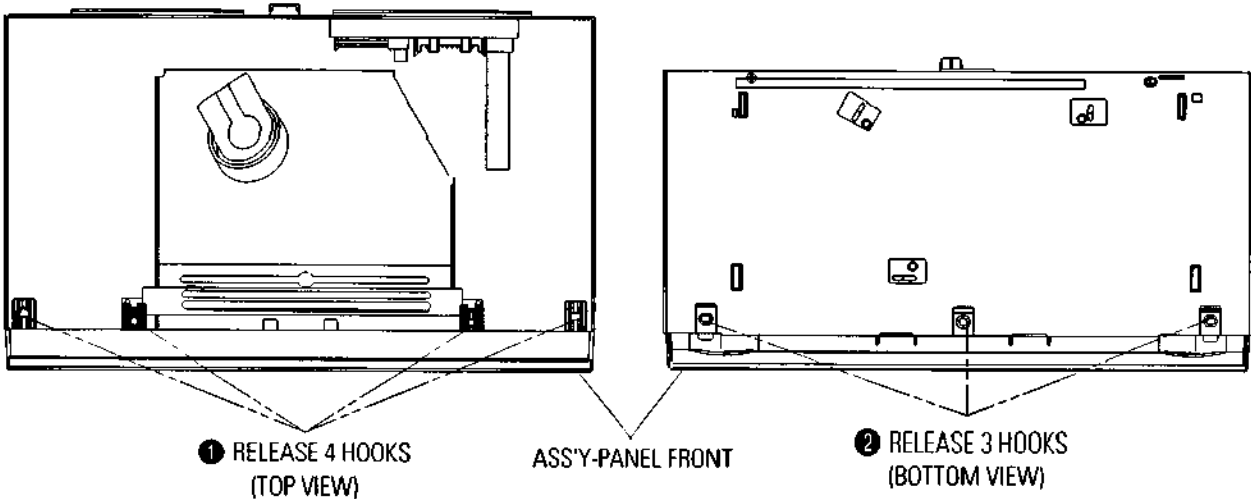


Fig. 2-7 Ass'y-Panel Front

2-2-4 Ass'y Jack PCB

Disconnect the CN701 from the Ass'y PCB-Main and then lift the Ass'y PCB-Jack up.

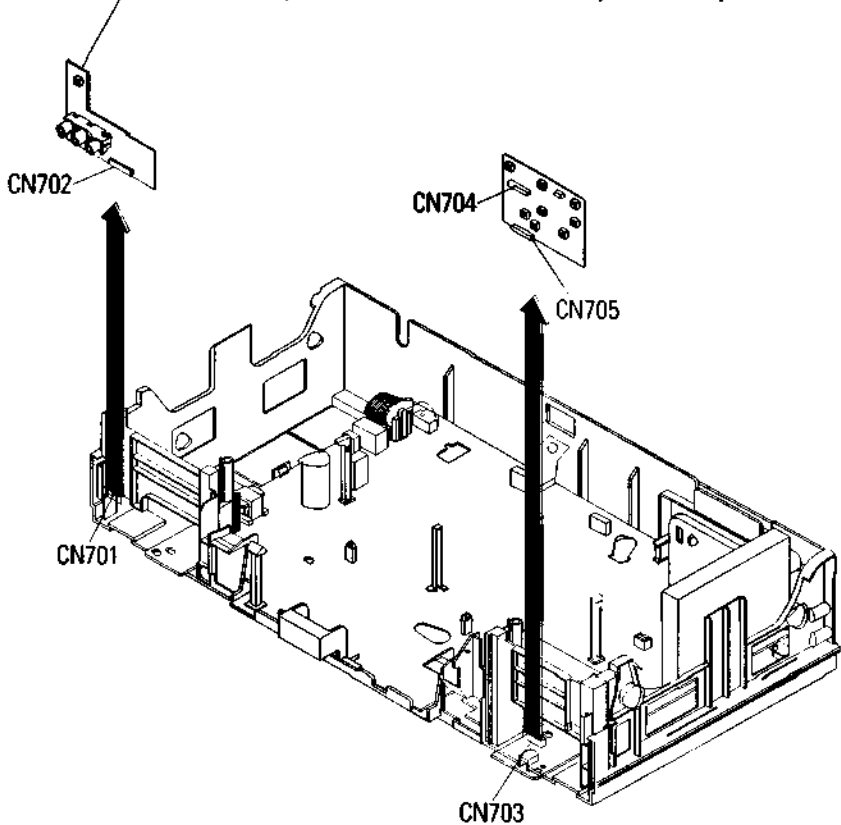


Fig. 2-8 Ass'y Jack-PCB

2-2-5 Ass'y MAIN-PCB, DECK

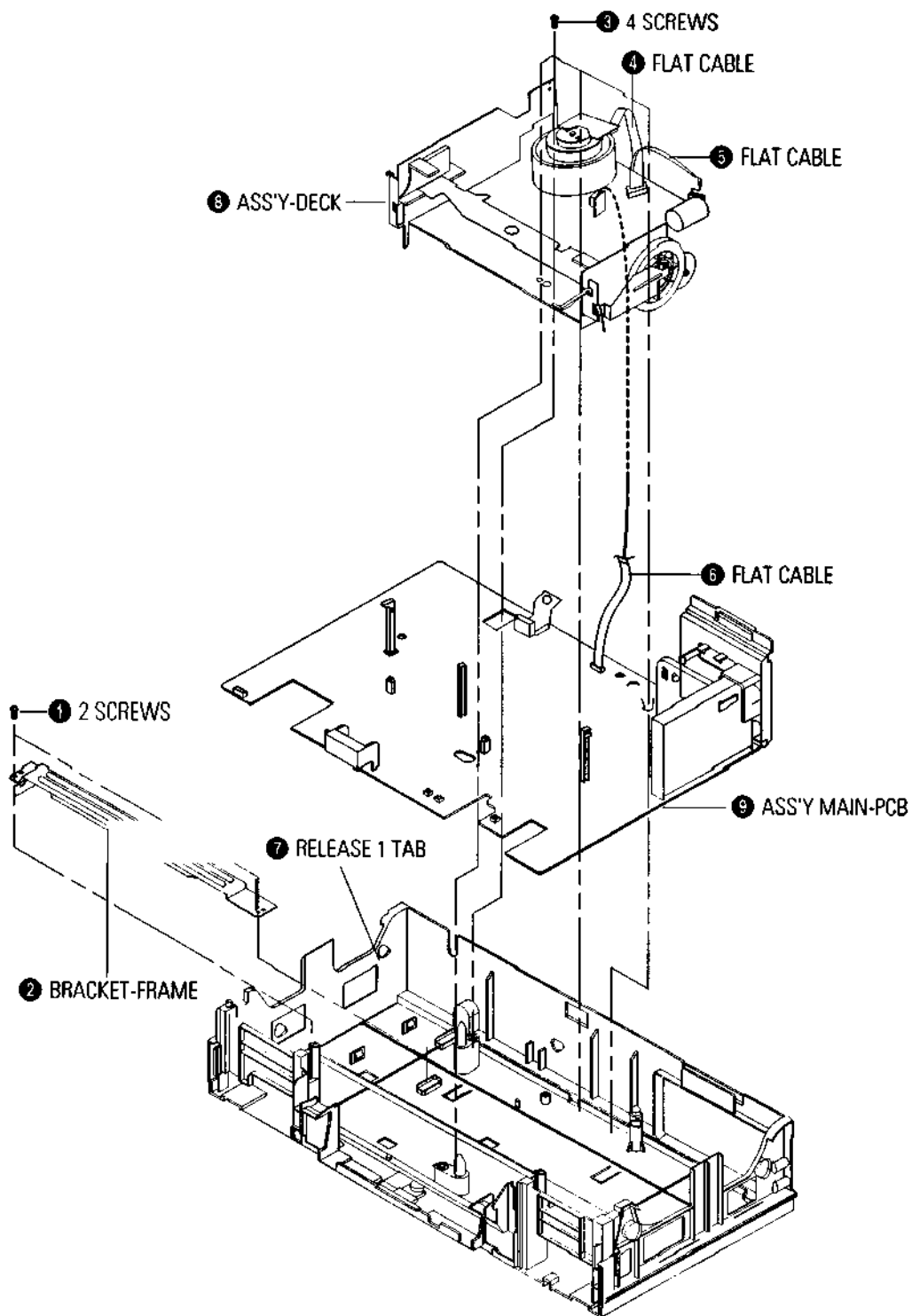


Fig. 2-9 Ass'y Main-PCB, Deck

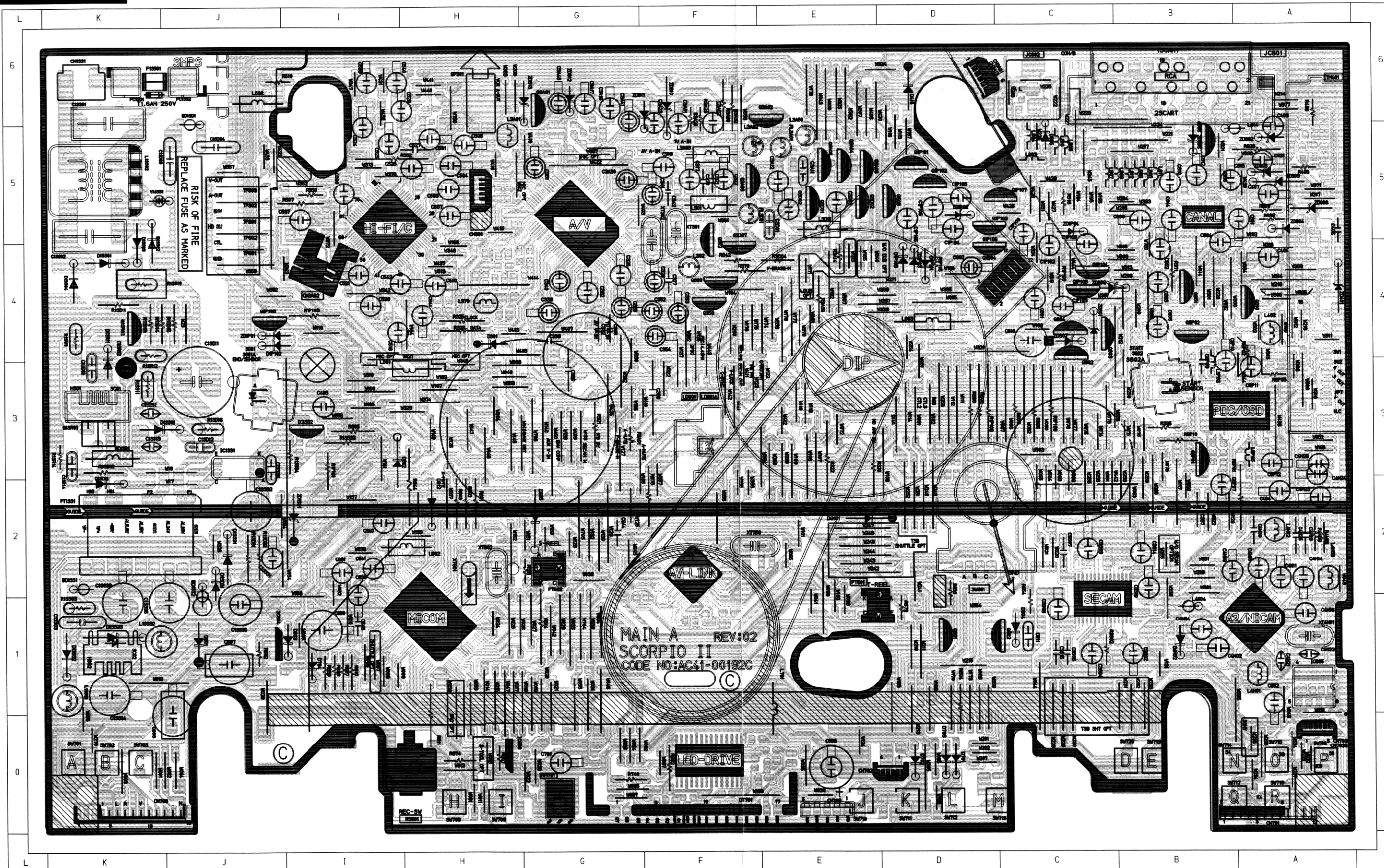
4. Schematic Diagrams

◆ Block Identification of Main PCB	4-3
4-1 S.M.P.S. (A) (SLV-SE220/SE420/SE620)	4-5
4-2 S.M.P.S. (B) (SLV-SE720/SE727/SE820/SX720/SX727)	4-7
4-3 Power (A) (SLV-SE220/SE420/SE620)	4-9
4-4 Power (B) (SLV-SE720/SE727/SE820/SX720/SX727)	4-11
4-5 System Control/Servo (A) (SLV-SE220/SE420/SE620)	4-13
4-6 System Control/Servo (B) (SLV-SE720/SE727/SE820/SX720/SX727)	4-15
4-7 Audio/Video	4-17
4-8 Hi-Fi (Option) (SLV-SE620/SE720/SE727/SE820/SX720/SX727)	4-19
4-9 TM-Block	4-21
4-10 OSD/VPS/PDC (A)	4-23
4-11 OSD/VPS/PDC (B) (SLV-SE620/SE720/SE727/SE820/SX720/SX727)	4-25
4-12 SECAM; SLV-SE220B/SE620B/SE720B/SE820B Only	4-27
4-13 A2/NICAM; Hi-Fi Models Only	4-29
4-14 Input-Output (2 Scart Jack)	4-31
4-15 Input-Output (1 Scart Jack); SLV-SE620D/SE620N Only	4-33
4-16 Sub	4-35
◆ Waveform	4-37
◆ Voltage Table	4-39
◆ A Models SLV-SE220D/SE220I/SE220G/SE220B/SE420K/SE620D/SE620E/SE620B/SE620N	
◆ B Models SLV-SE720D/SX720D/SE720E/SX720E/SE720G/SE720I/SE720B/SX727D/SE727E/SE720N/ SX720N/SE820D/SE820E/SE820G/SE820B/SE820N)	

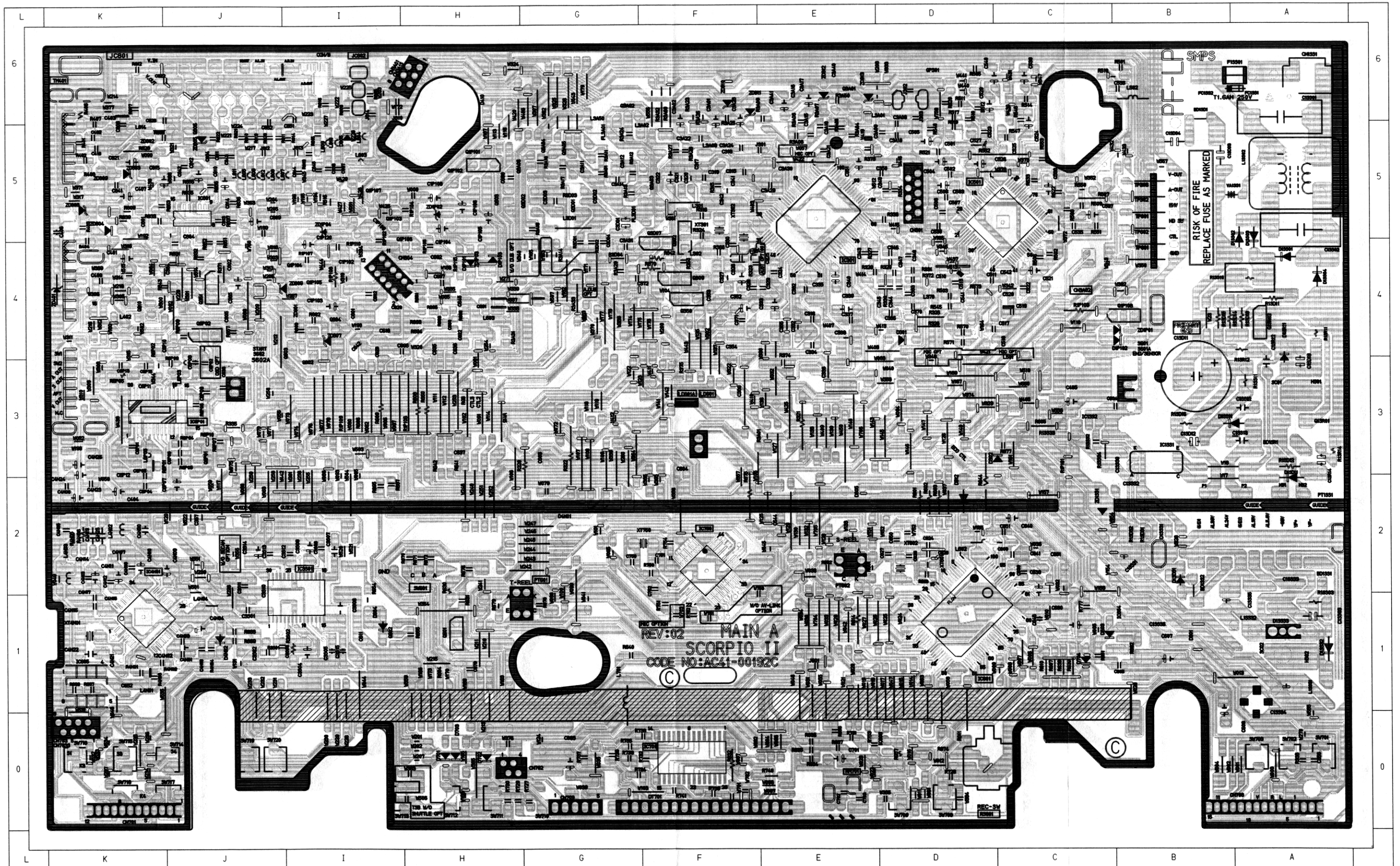
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3-1 Main PCB (SLV-SE220D/SE220I/SE220G/SE220B/SE420K/SE620D/SE620E/SE620B/SE620N)

COMPONENT SIDE

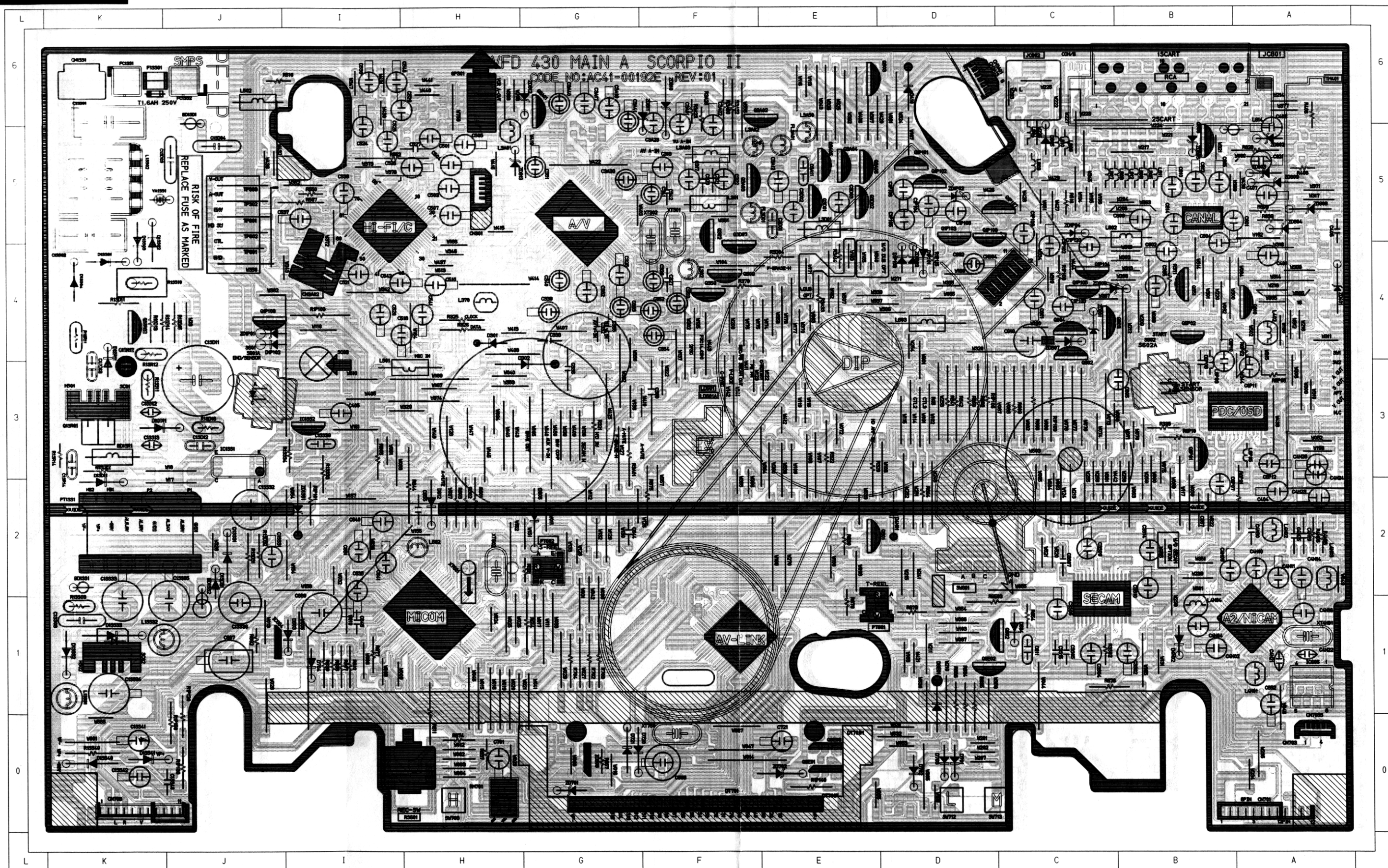


CONDUCTOR SIDE

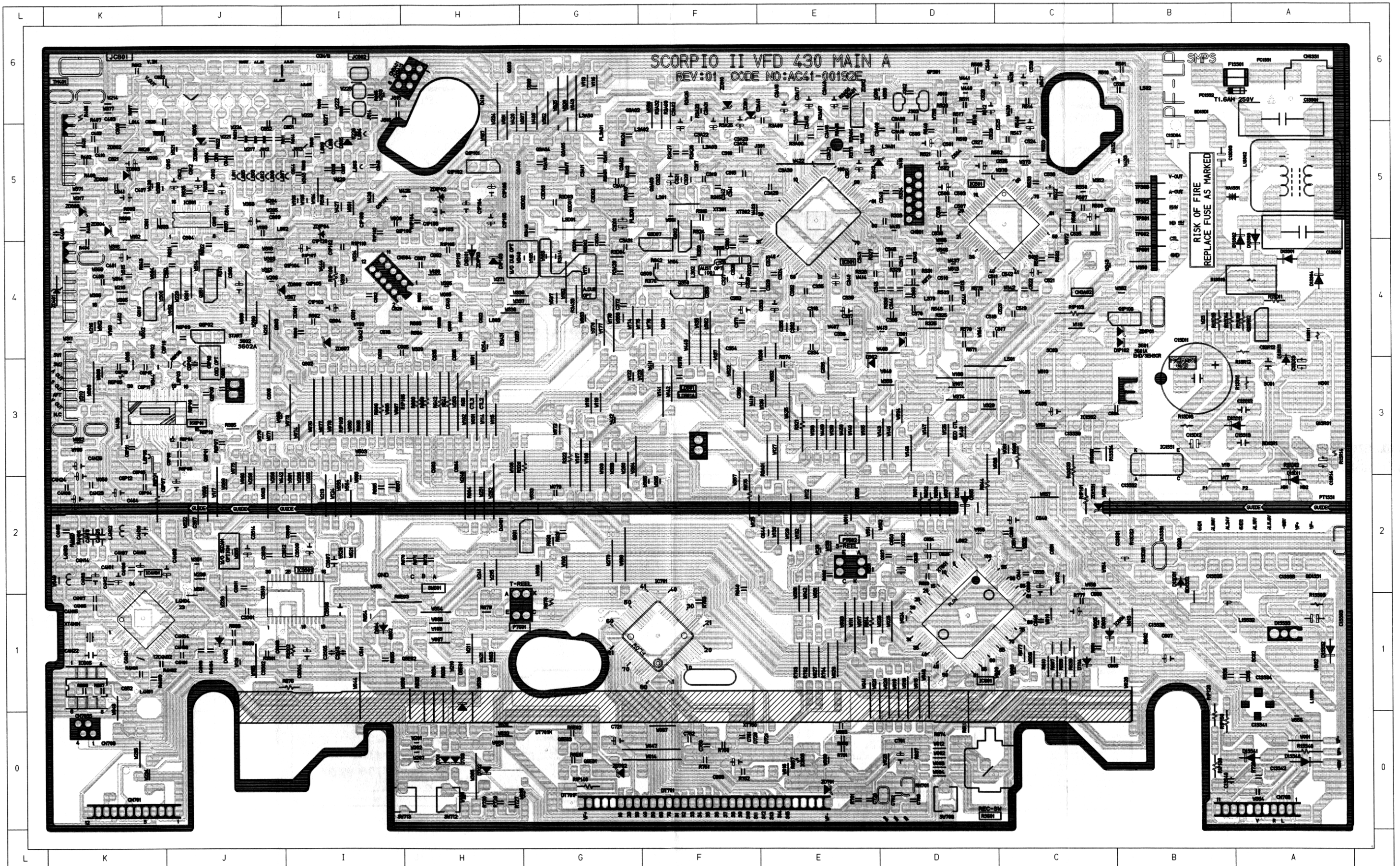


3-2 Main PCB (SLV-SE720D/SX720D/SE720E/SX720E/SE720G/SE720I/SE720B/SX727D/SE727E/SE720N/SX720N/SE820D/SE820E/SE820G/SE820B/SE820N)

COMPONENT SIDE

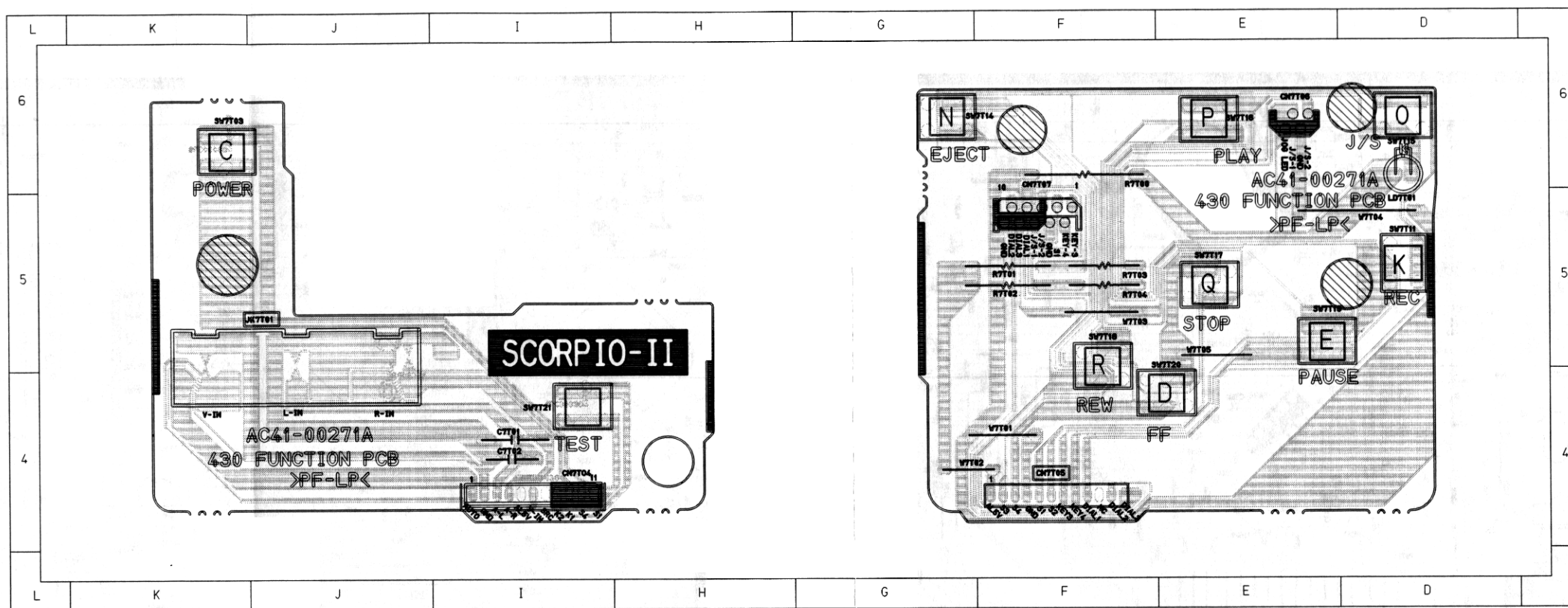


CONDUCTOR SIDE

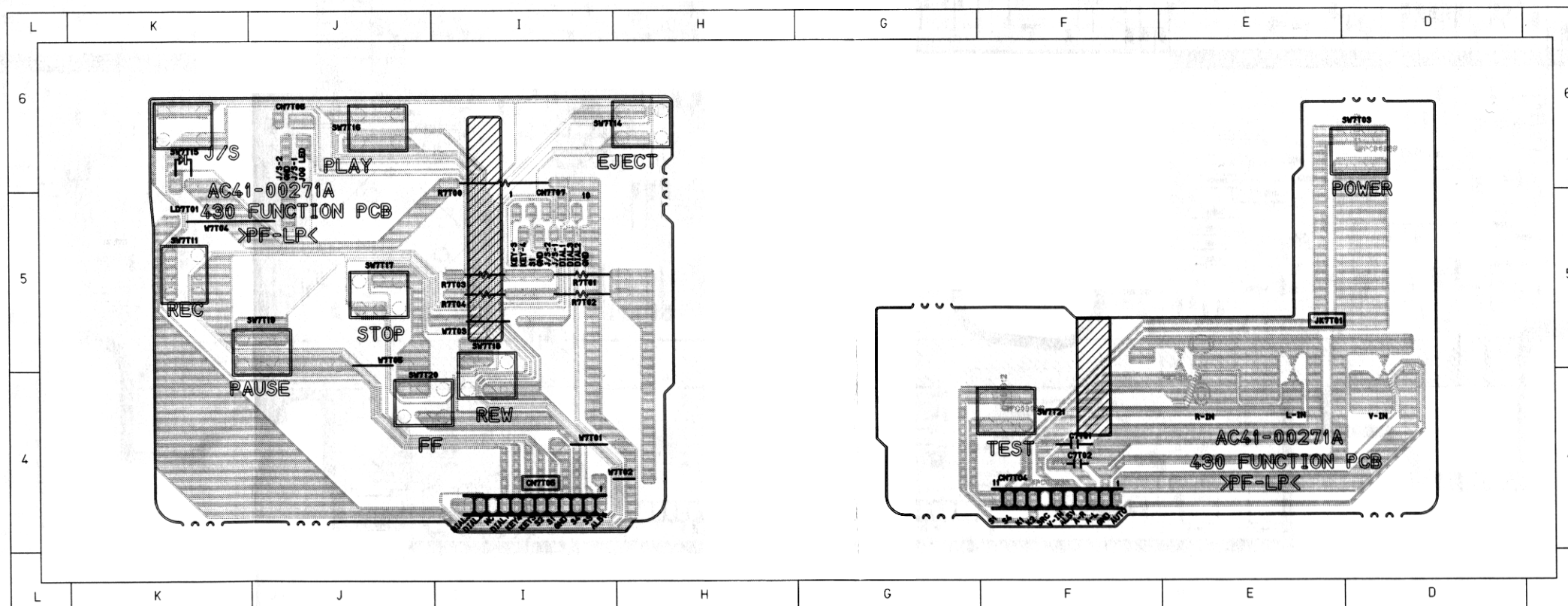


3-3 Function PCB (SLV-SE620D/SE620E/SE620B/SE620N/SE720D/SX720D/SE720E/SX720E/SE720G/SE720I/SE720B/SX727D/SE727E/SE720N/SX720N/SE820D/SE820E/SE820G/SE820B/SE820N)

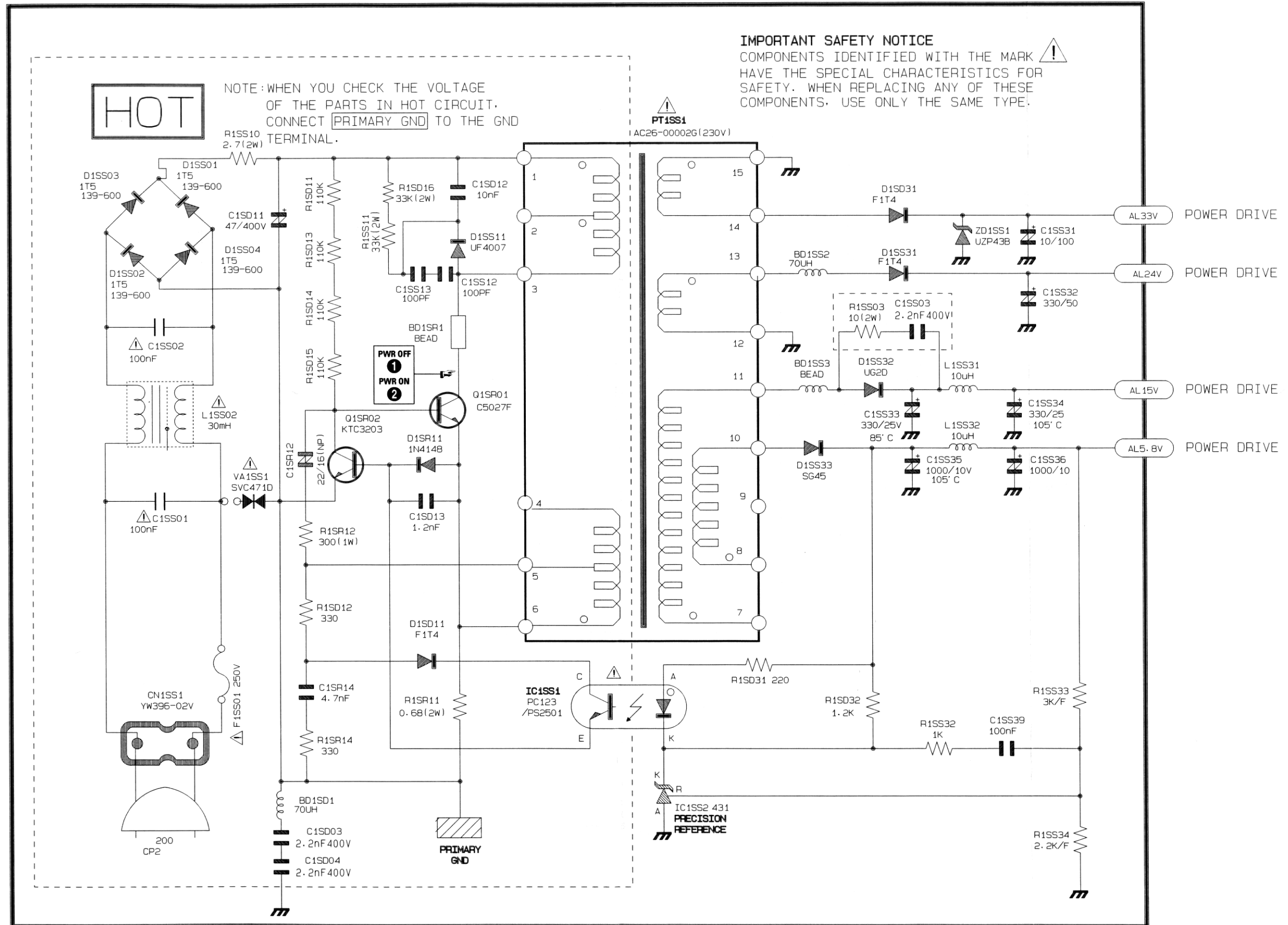
COMPONENT SIDE



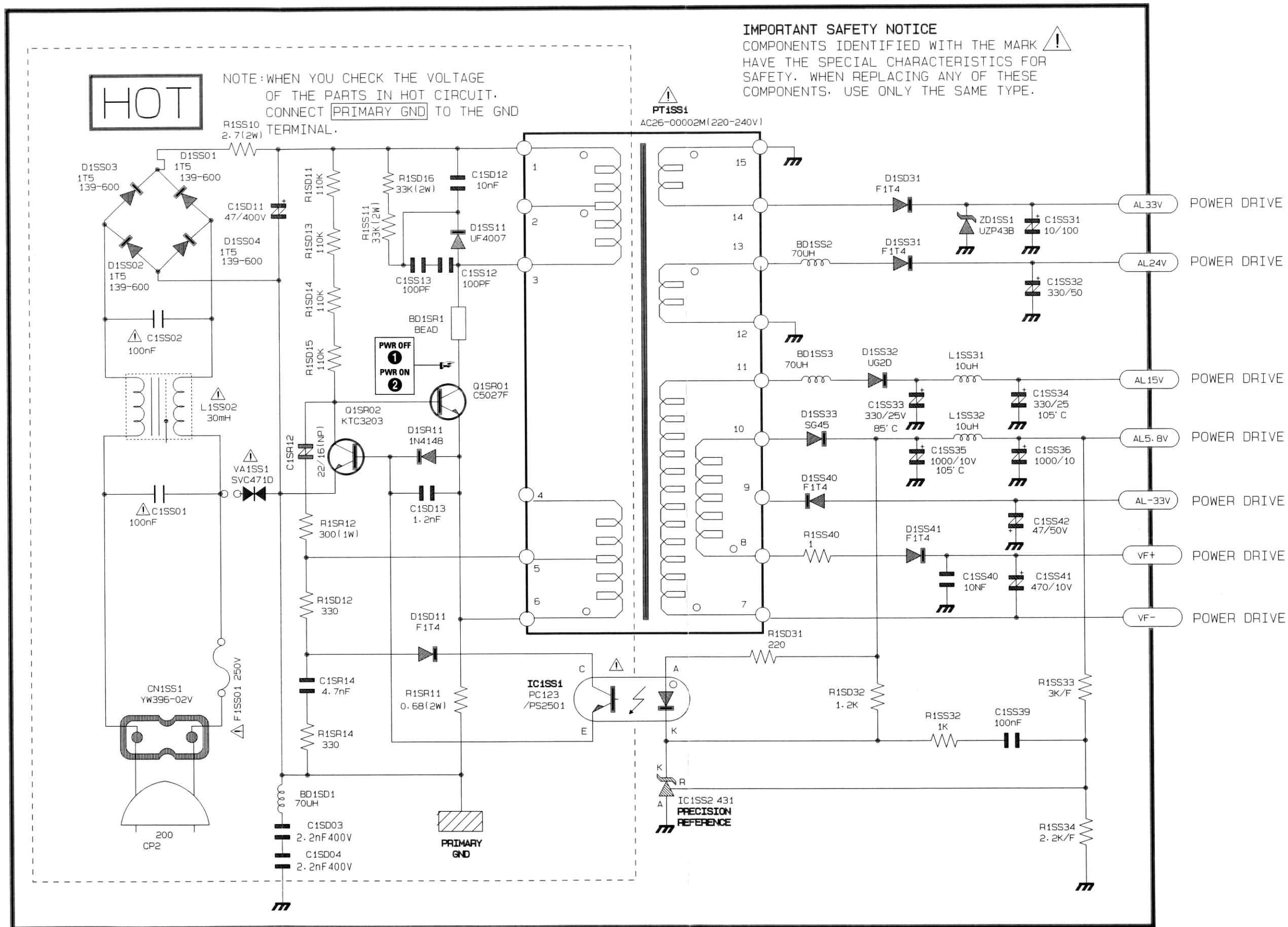
CONDUCTOR SIDE



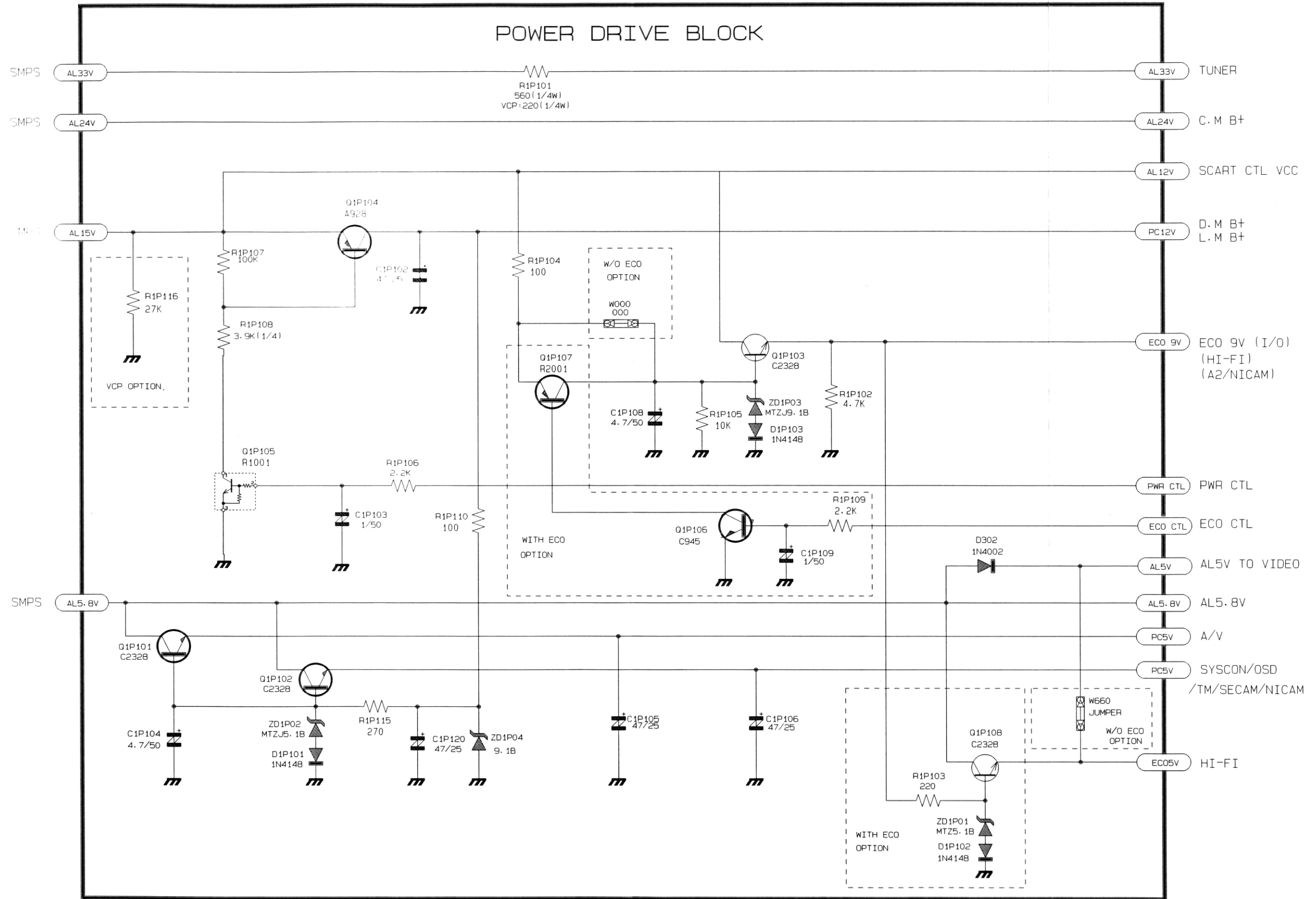
4-1 S.M.P.S. (A) (SLV-SE220/SE420/SE620)



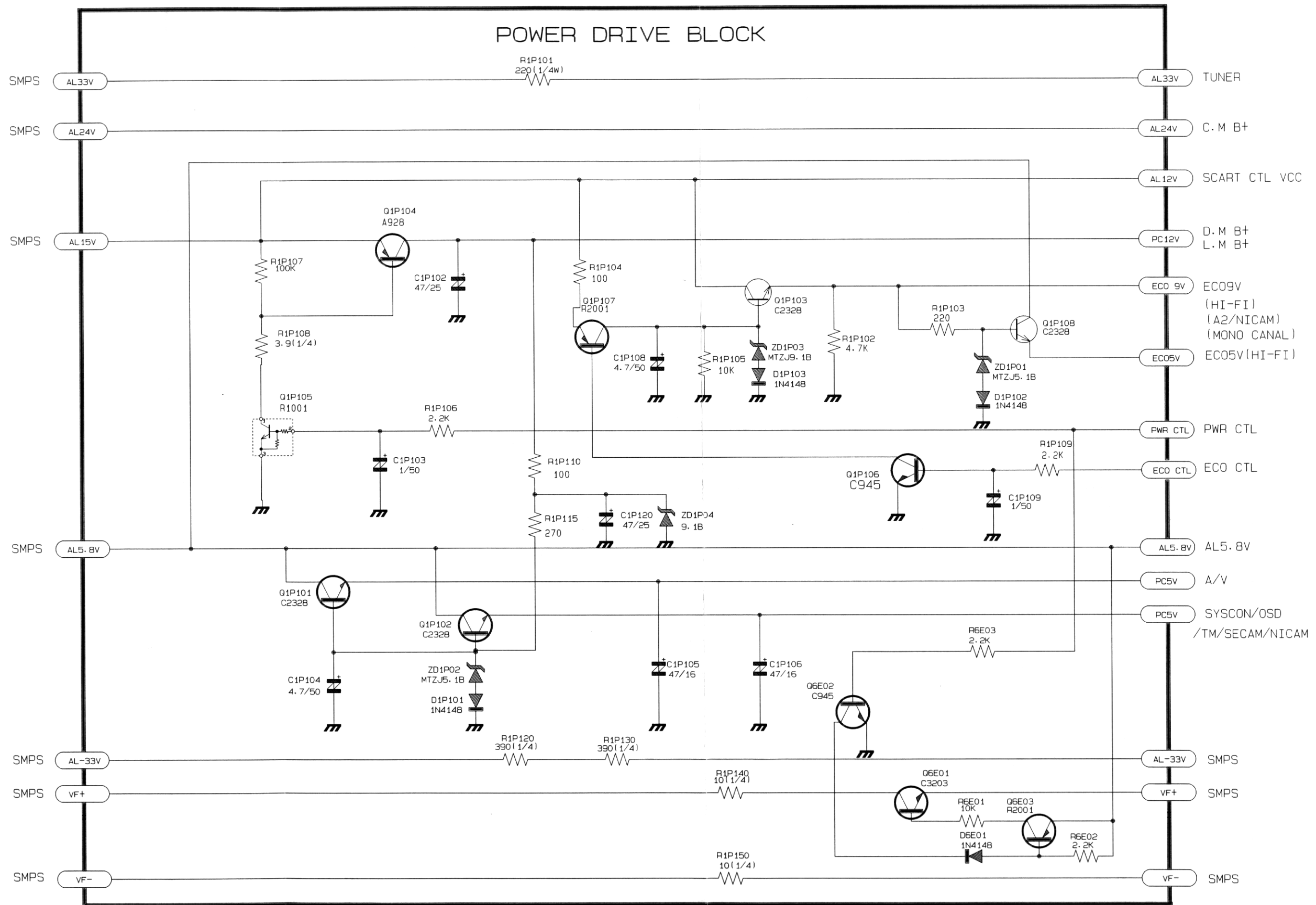
4-2 S.M.P.S. (B) (SLV-SE720/SE727/SE820/SX720/SX727)



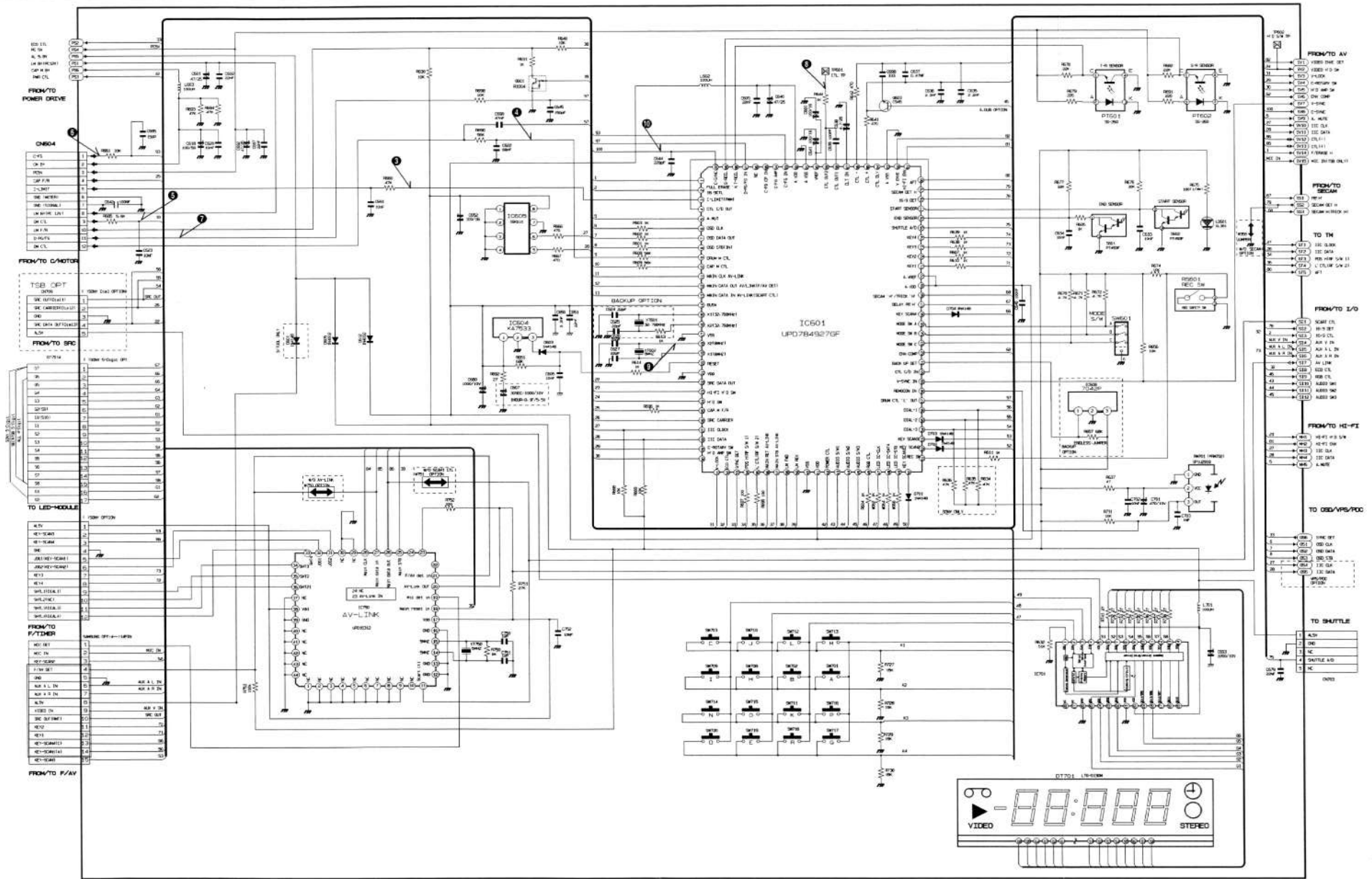
4-3 Power (A) (SLV-SE220/SE420/SE620)



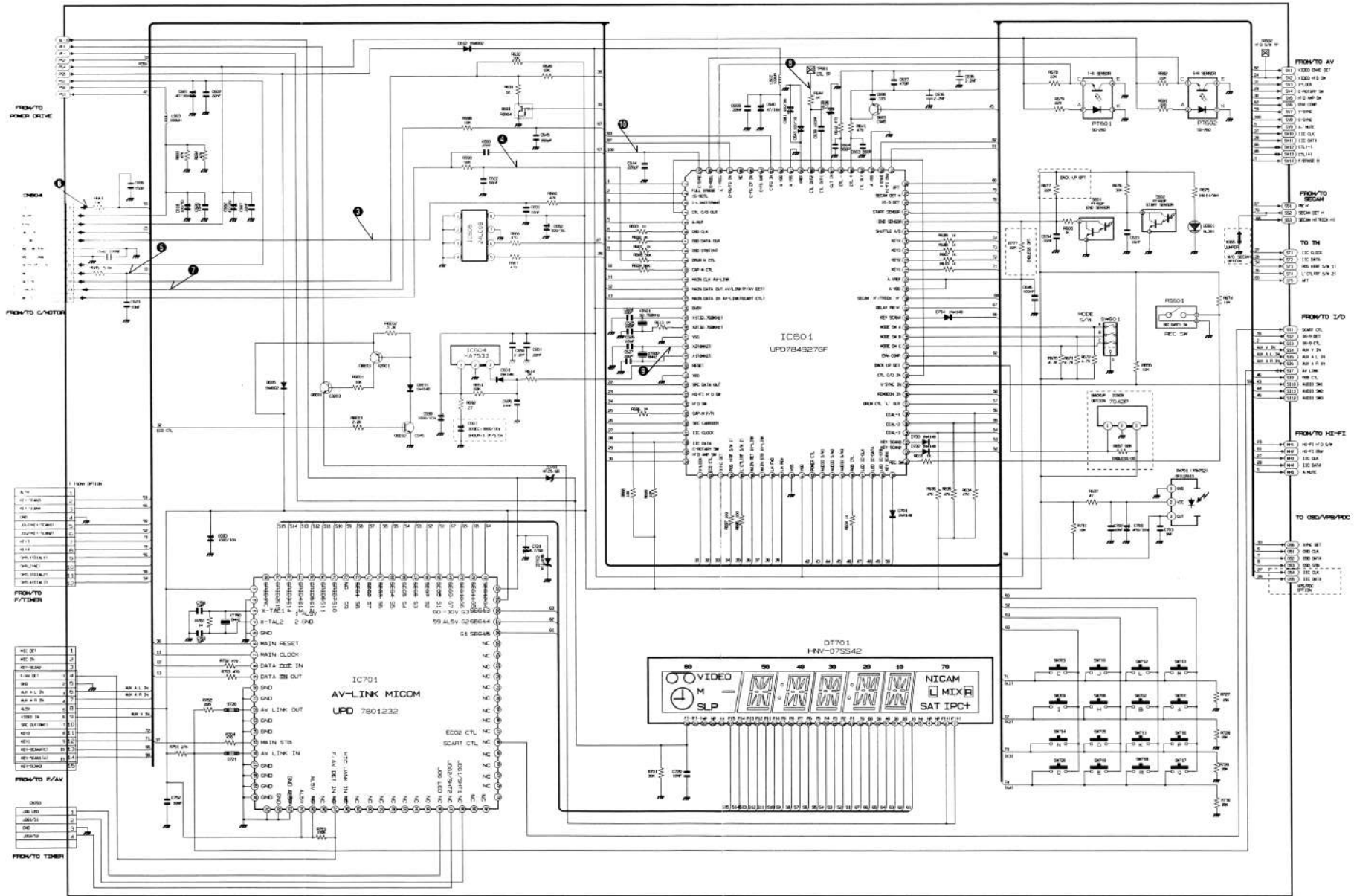
4-4 Power (B) (SLV-SE720/SE727/SE820/SX720/SX727)



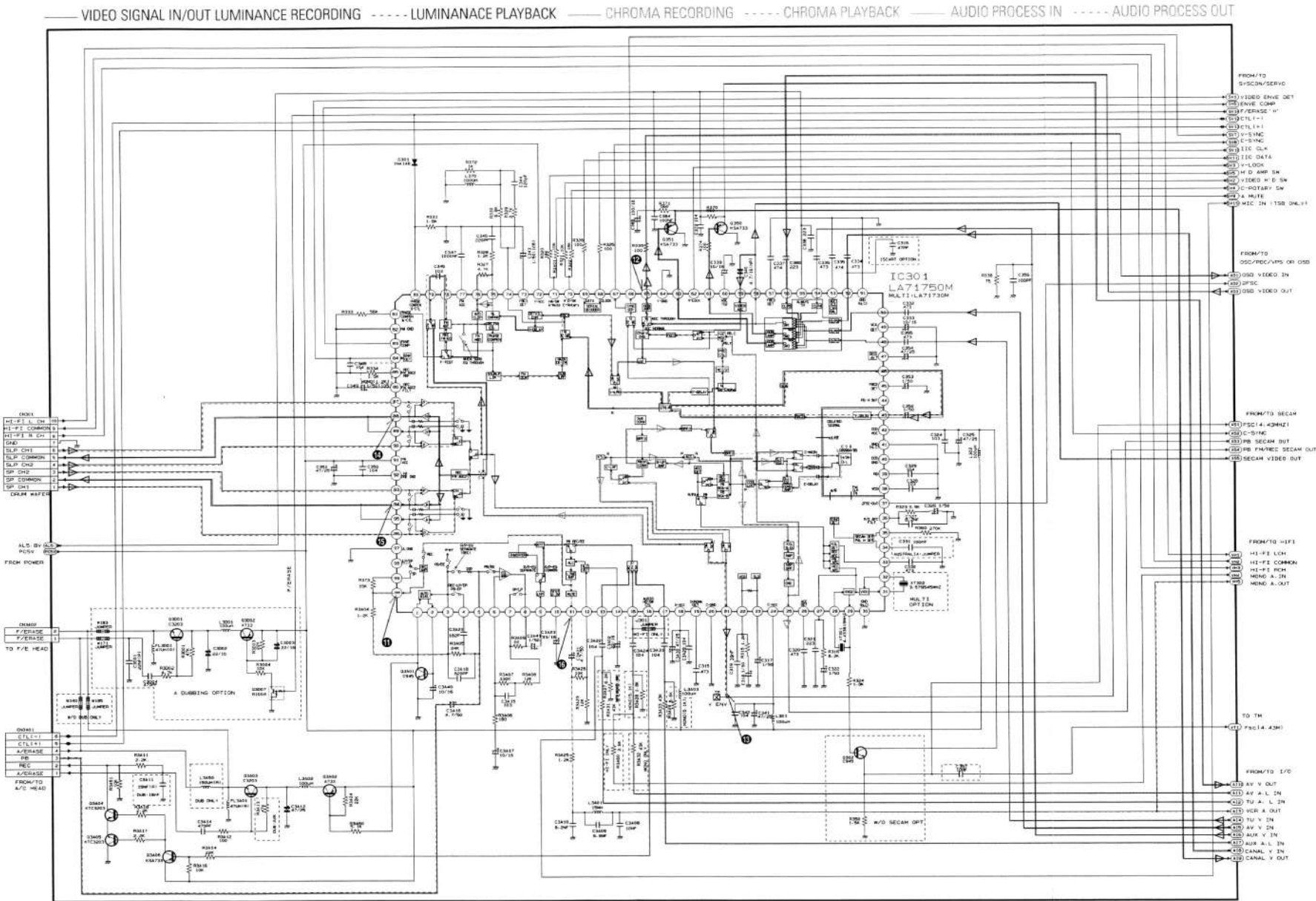
4-5 System Control/Servo (A) (SLV-SE220/SE420/SE620)



System Control/Servo (B) (SLV-SE720/SE727/SE820/SX720/SX727)

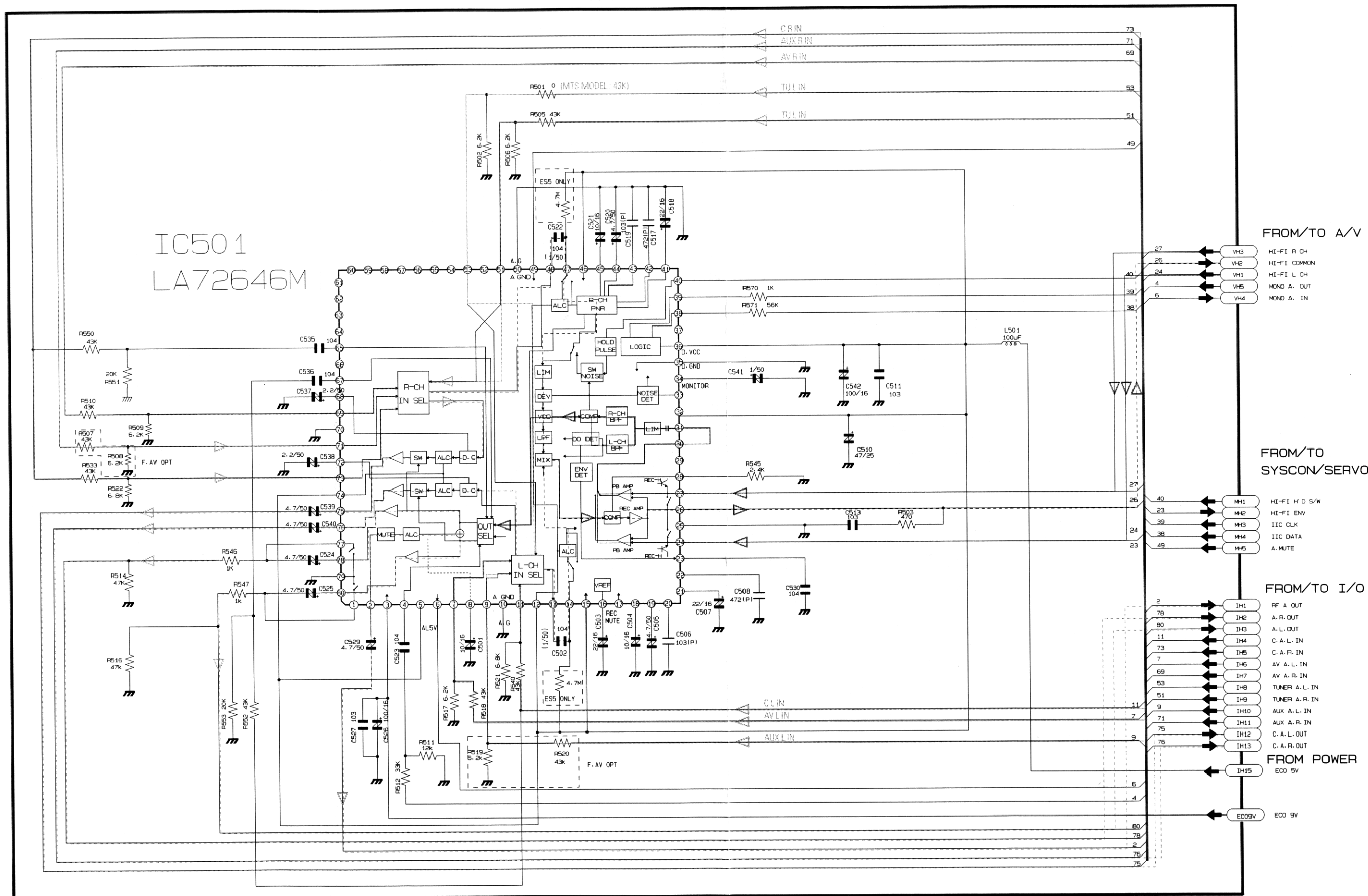


4-7 Audio/Video



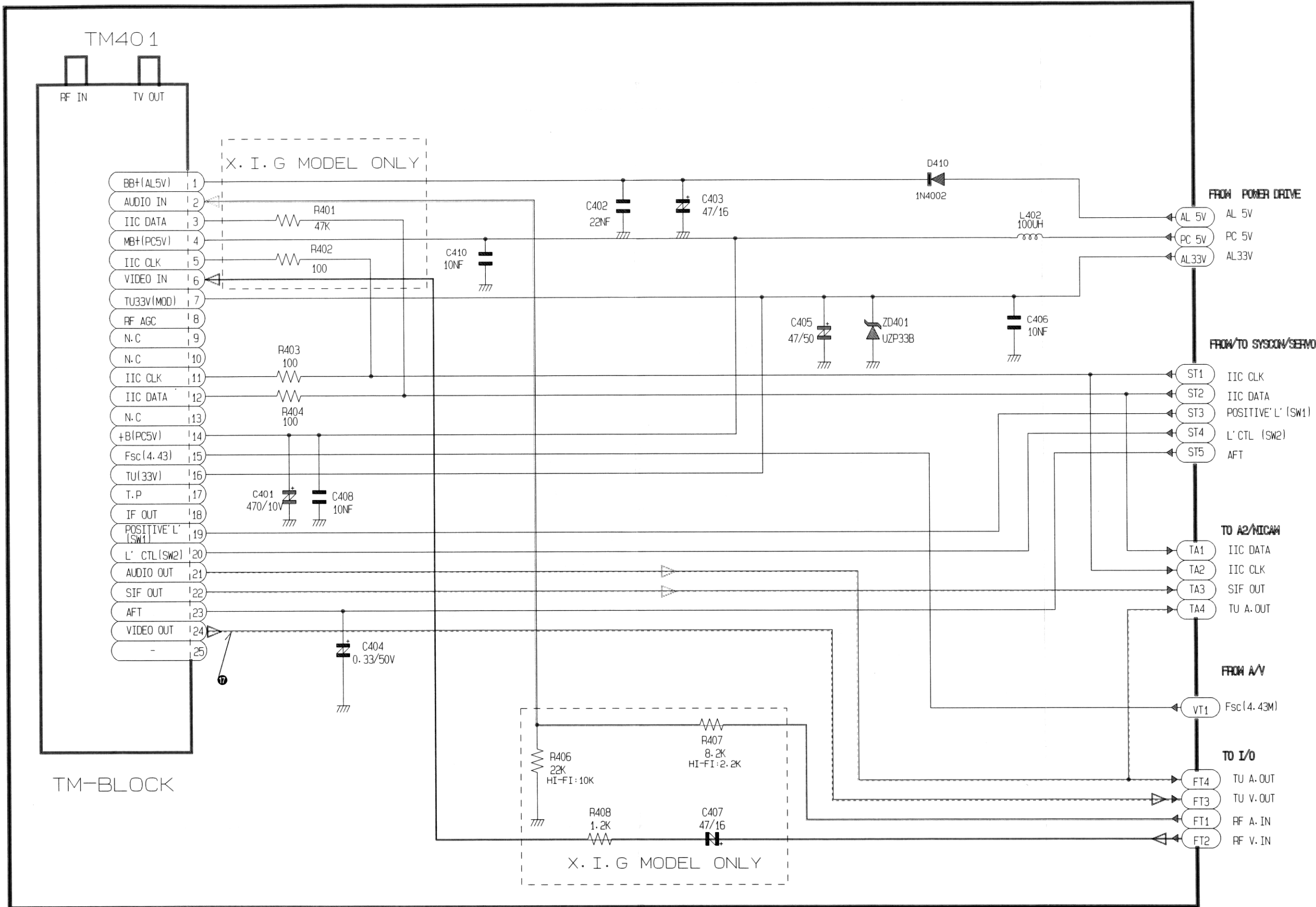
4-8 Hi-Fi (Option) (SLV-SE620/SE720/SE727/SE820/SX720/SX727)

— AUDIO PB PROCESS - - - - - AUDIO REC PROCESS — AUDIO PROCESS (IN) - - - - - AUDIO PROCESS (OUT)



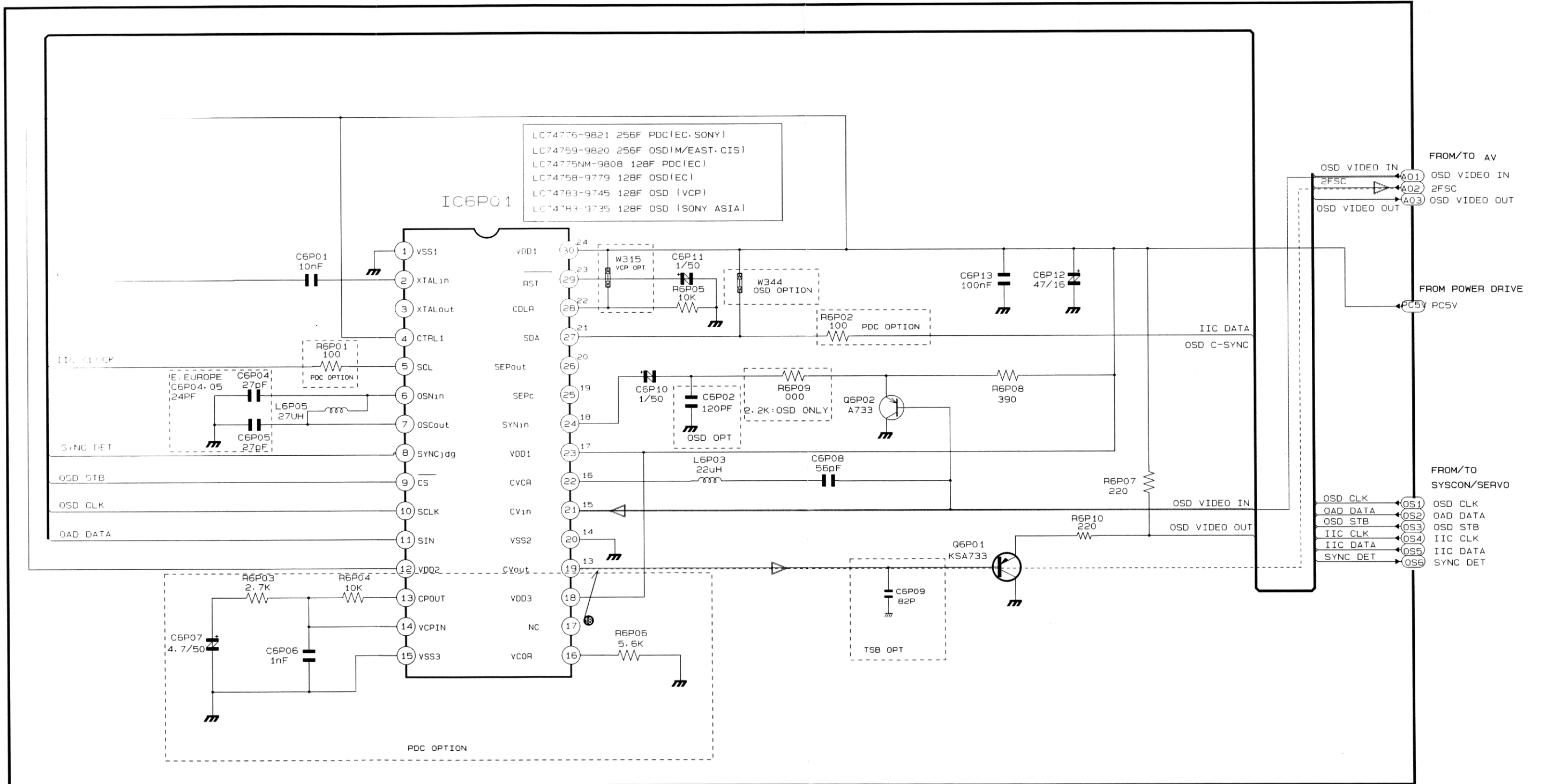
4-9 TM-Block

— VIDEO PROCESS (IN) - - - - VIDEO PROCESS (OUT) — AUDIO PROCESS (IN) - - - - AUDIO PROCESS (OUT)

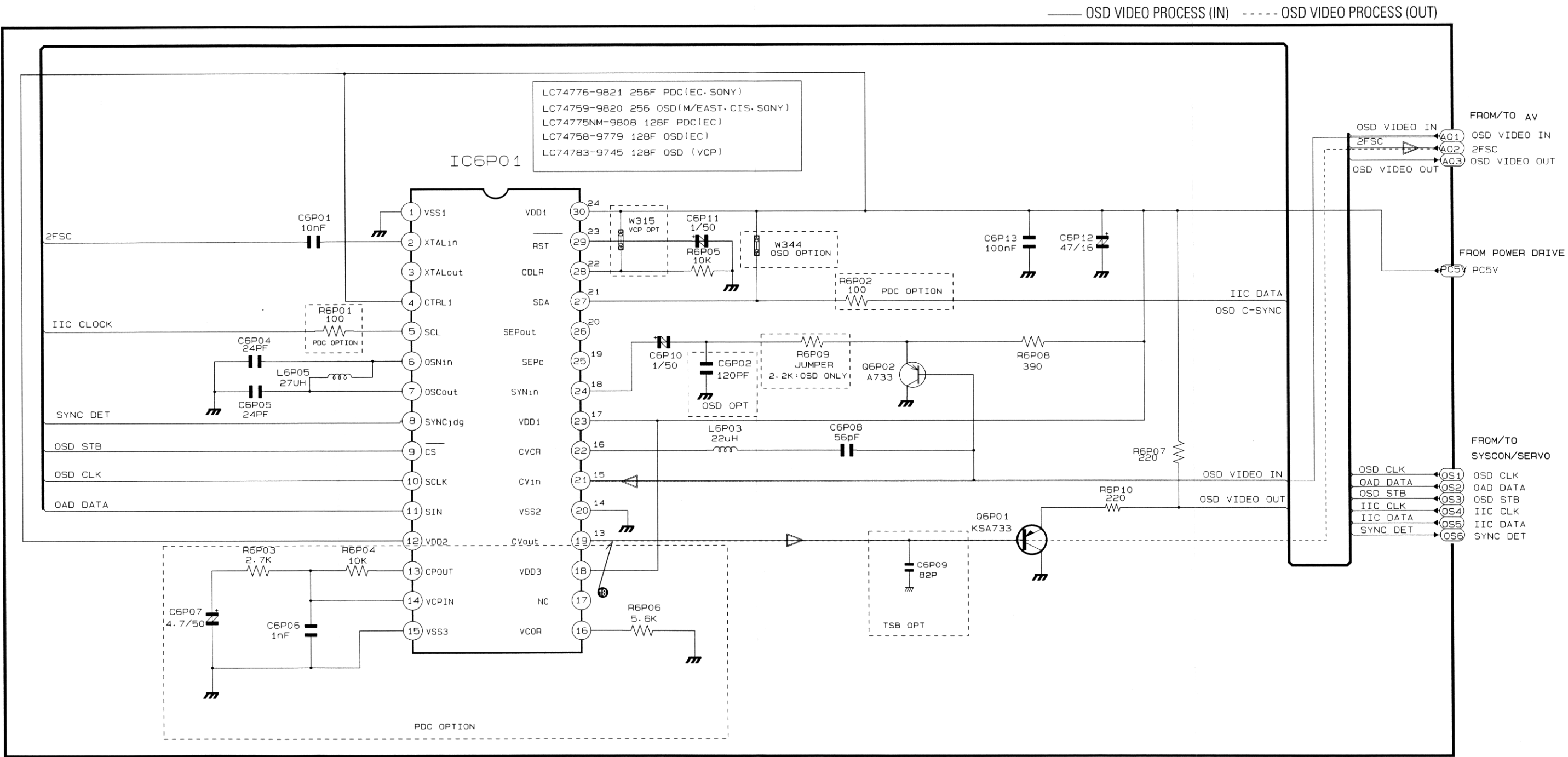


4-10 OSD/VPS/PDC

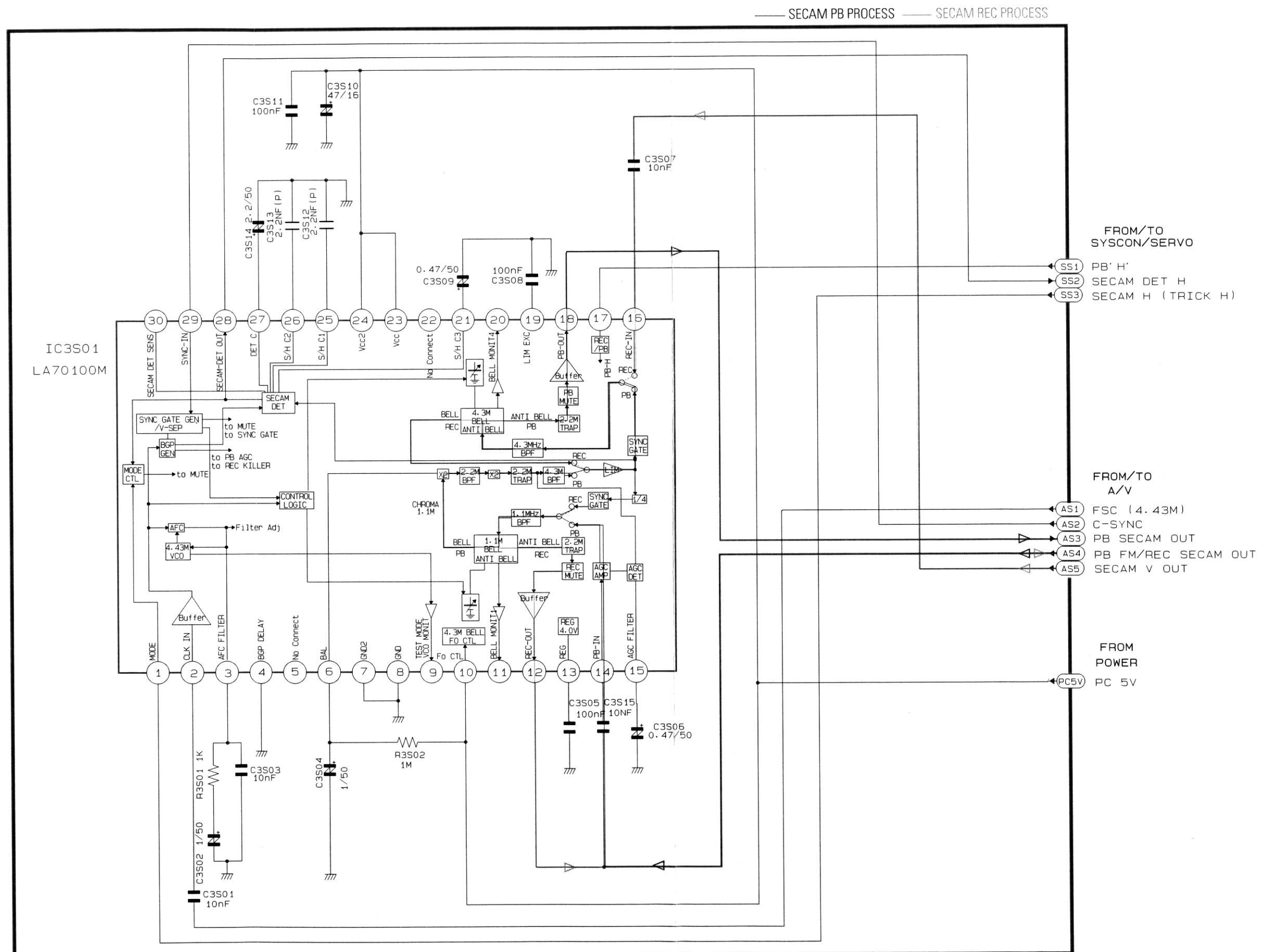
— OSD VIDEO PROCESS (IN) - - - - OSD VIDEO PROCESS (OUT)



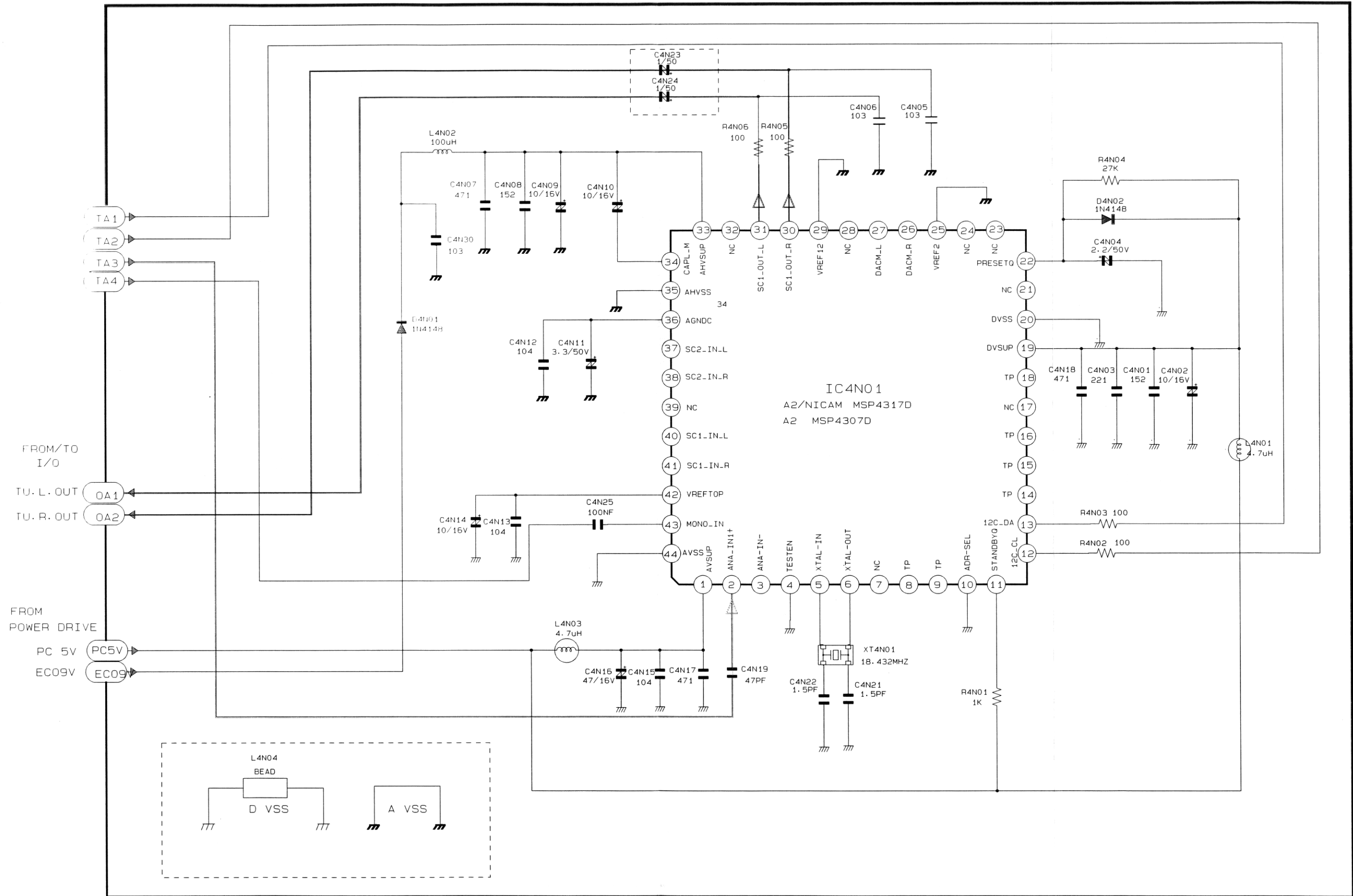
4-11 OSD/VPS/PDC (B) (SLV-SE620/SE720/SE727/SE820/SX720/SX727)



4-12 SECAM; SLV-SE220B/SE620B/SE720B/SE820B Only

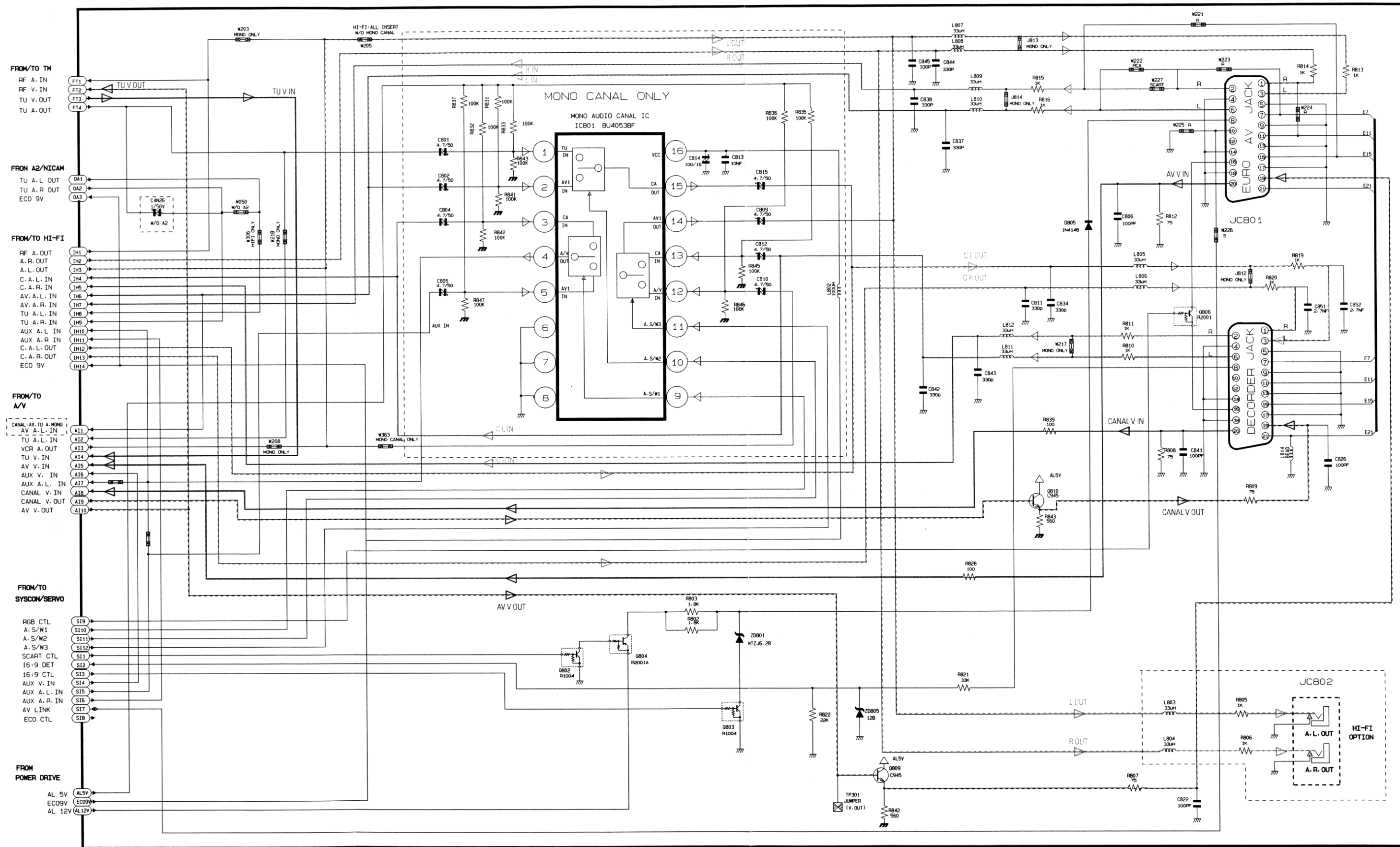


4-13 A2/NICAM; Hi-Fi Models Only

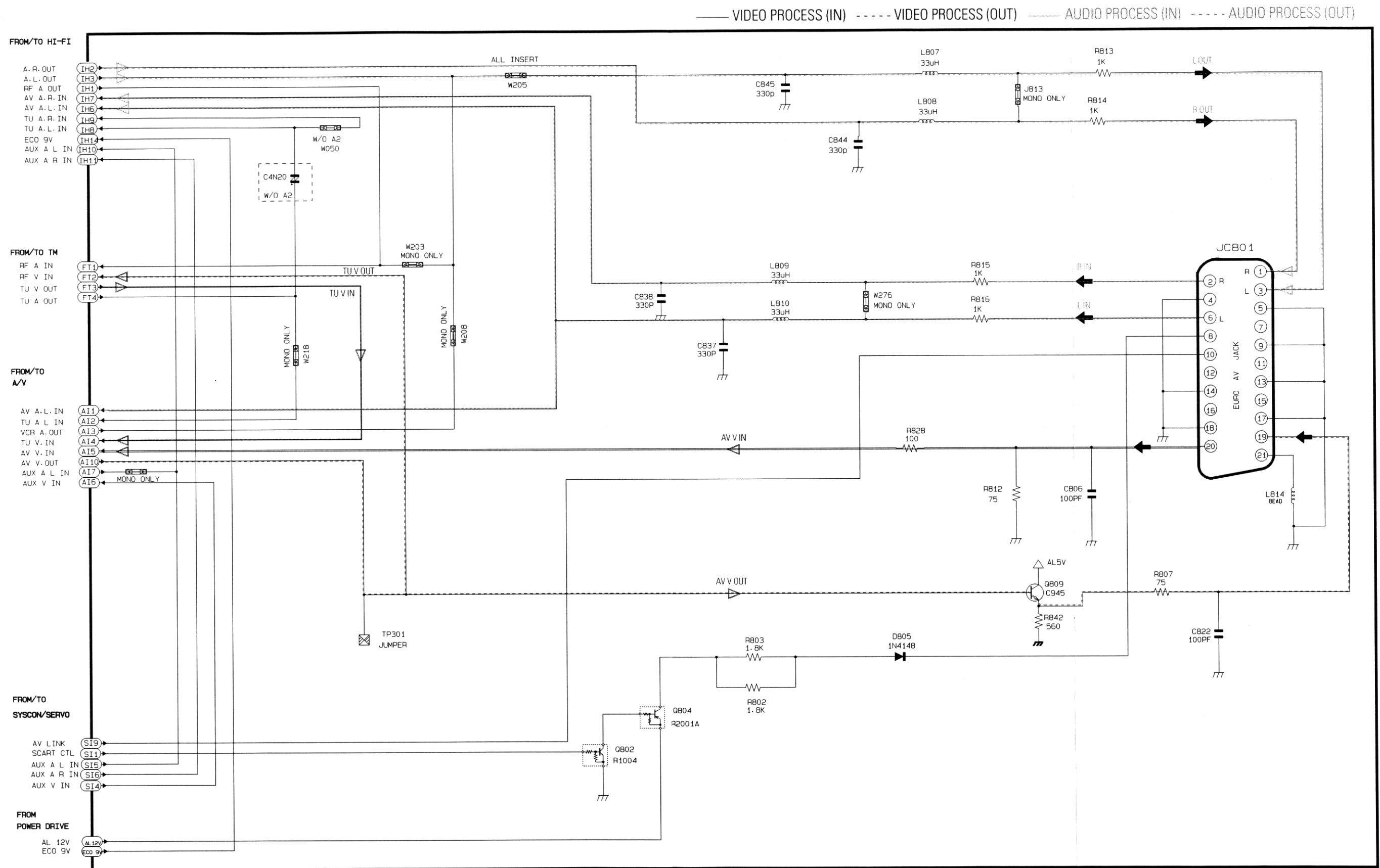


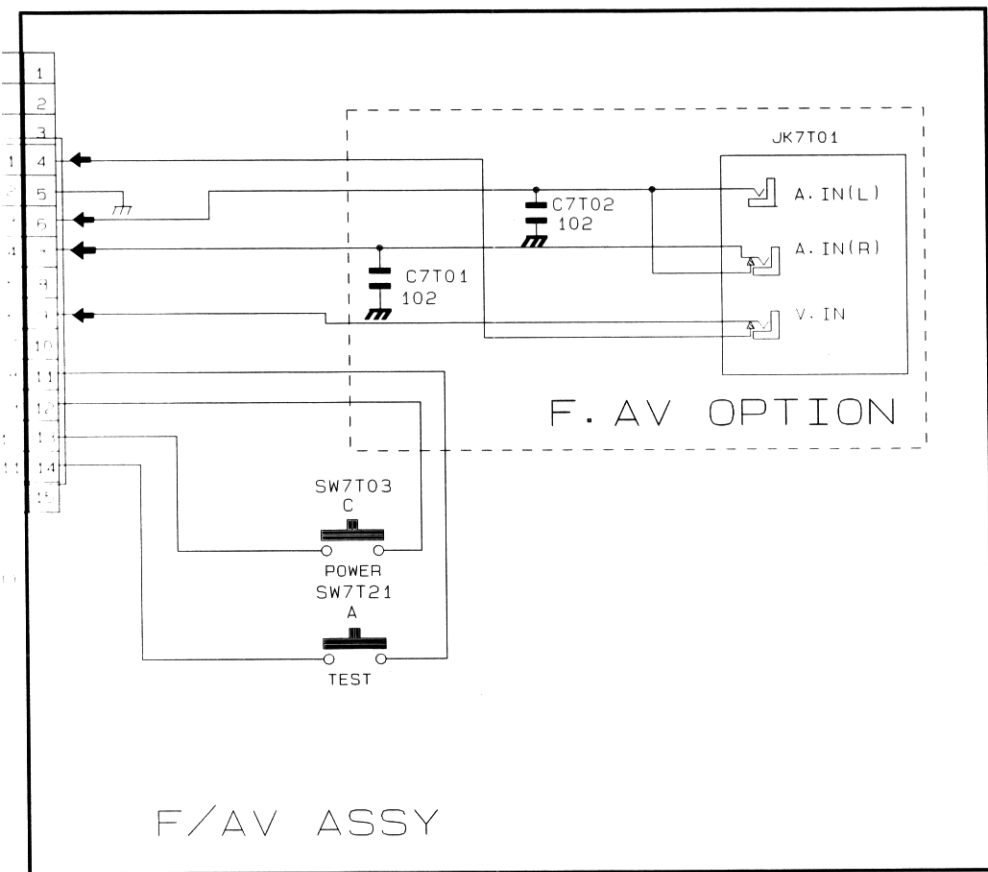
4-14 Input-Output (2 Scart Jack)

— VIDEO PROCESS (IN) - - - - VIDEO PROCESS (OUT) — AUDIO PROCESS (IN) - - - - AUDIO PROCESS (OUT)

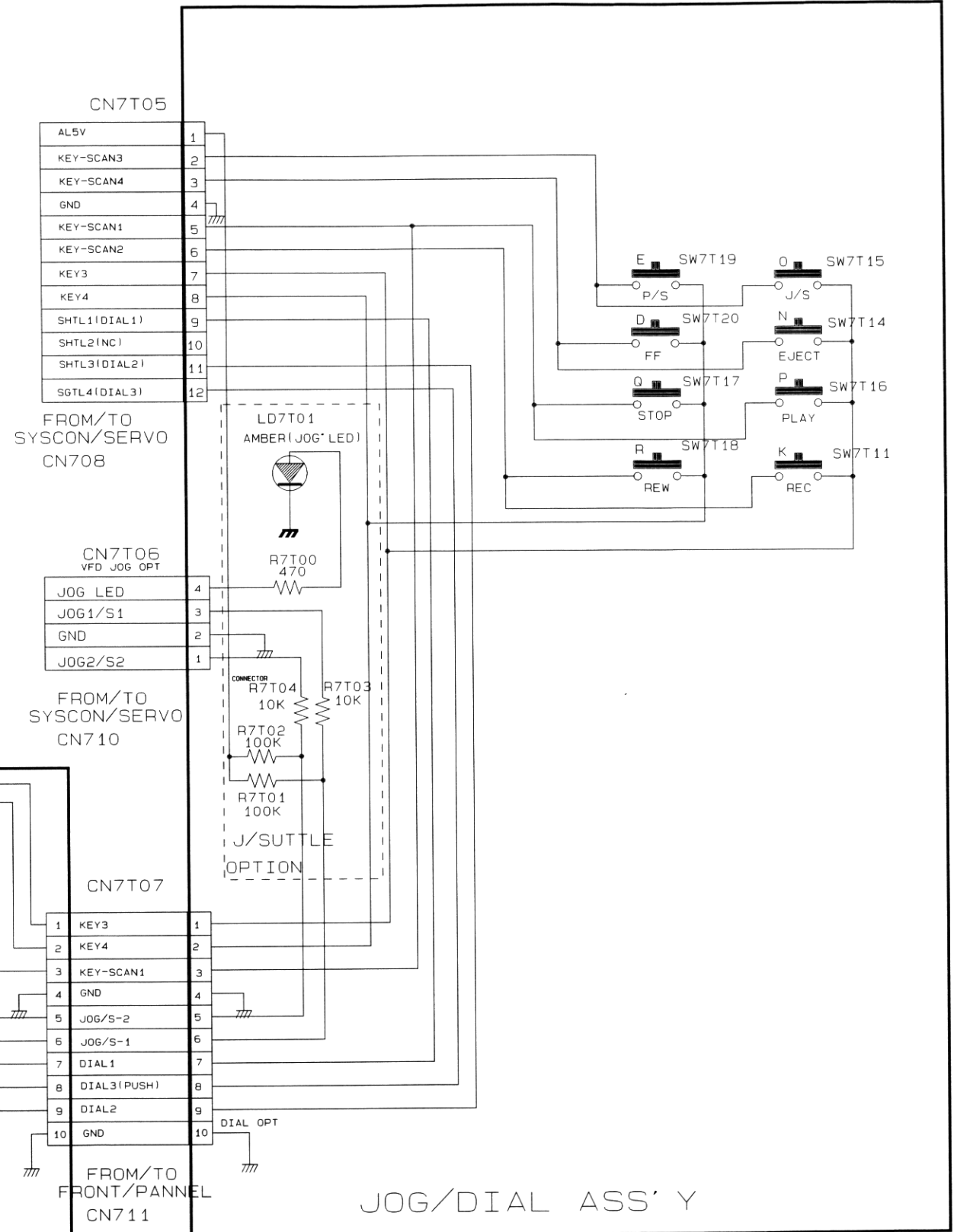
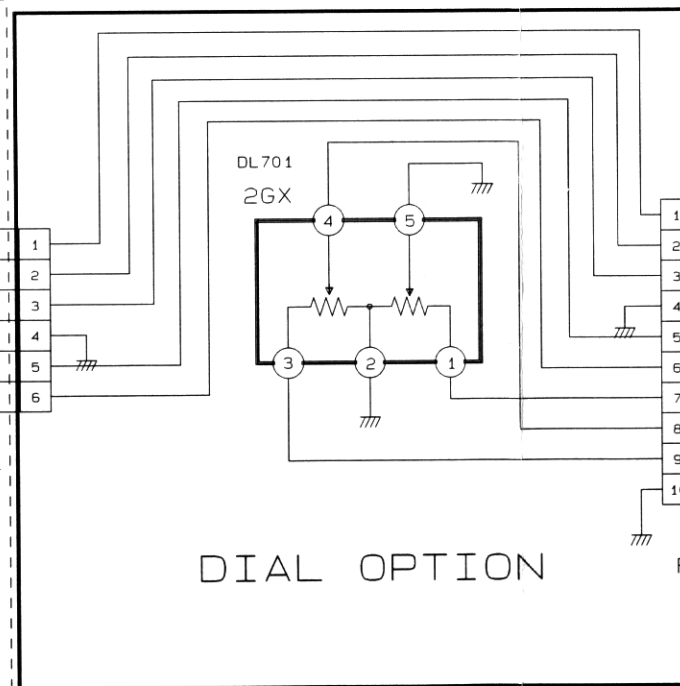
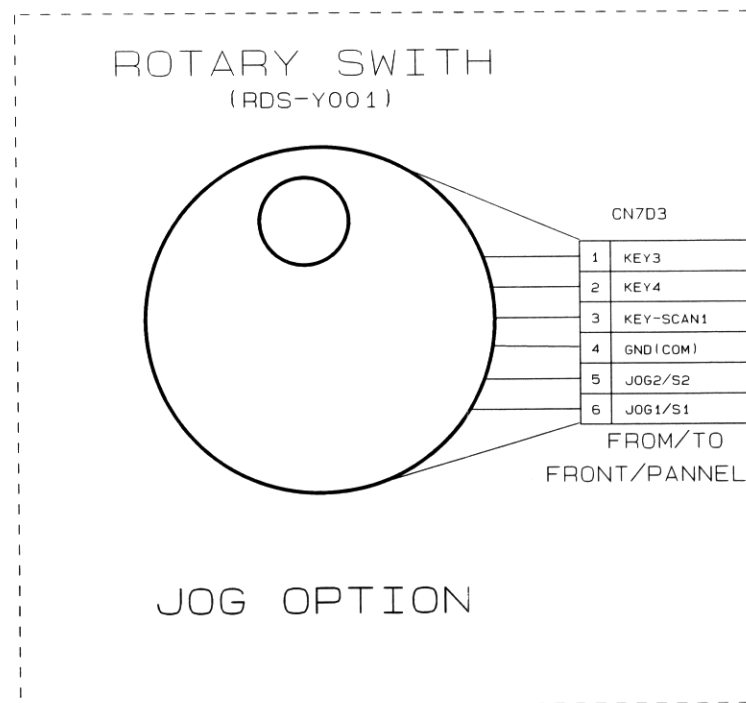


4-15 Input-Output (1 Scart Jack) ;SLV-SE620D/SE620N Only



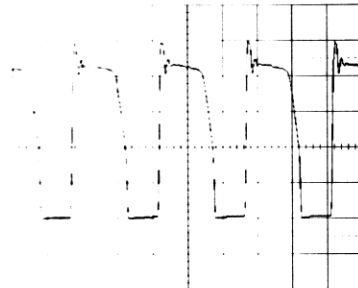


TO FRONT PANNEL

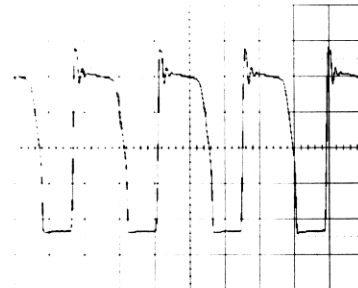


S.M.P.S. BLOCK

① Q1SR01-COLLECTOR
POWER OFF/380Vp-p

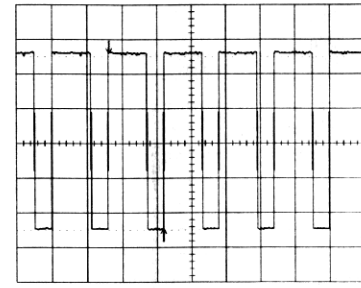


② Q1SR01-COLLECTOR
POWER ON/400Vp-p

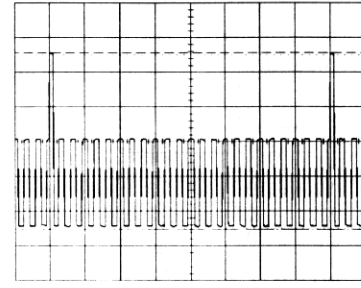


SYSTEM CONTROL/SERVO BLOCK

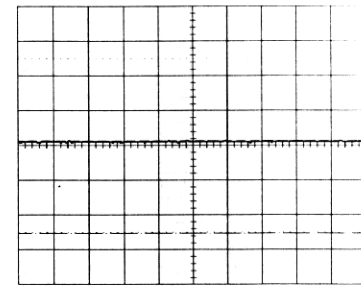
③ IC601-3
PB/5.1Vp-p



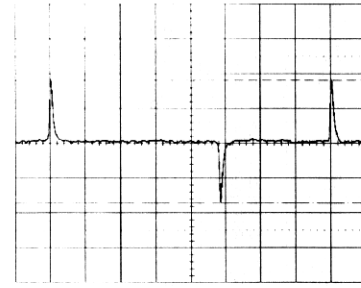
⑦ IC610-97
PB/5.1V



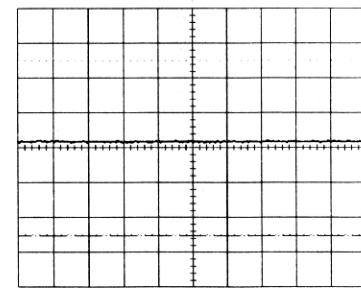
④ IC601-9
PB/2.7Vp-p



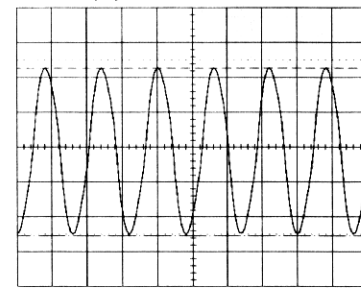
⑧ TP601-89
PB/3.6Vp-p



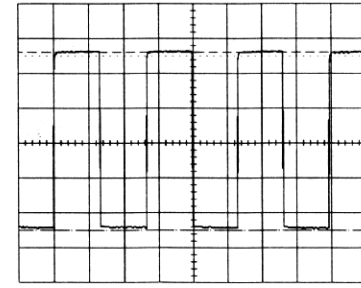
⑤ IC601-10
PB/2.7Vp-p



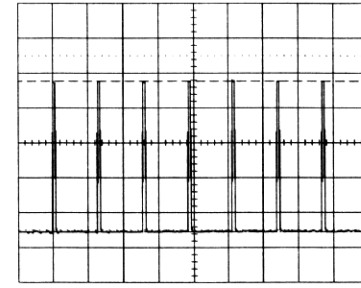
⑨ IC601-18
4.8Vp-p



⑥ CN604-93
PB/5.1Vp-p

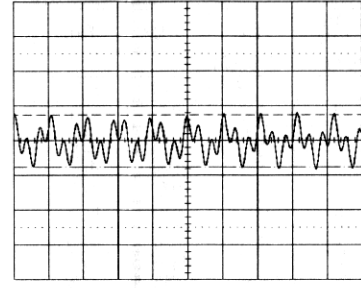


⑩ IC601-100
PB/4.3Vp-p

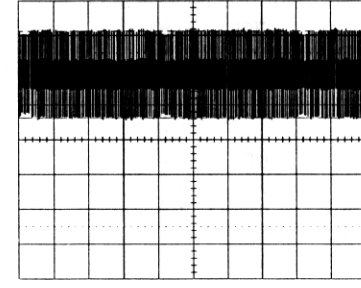


AUDIO/VIDEO BLOCK

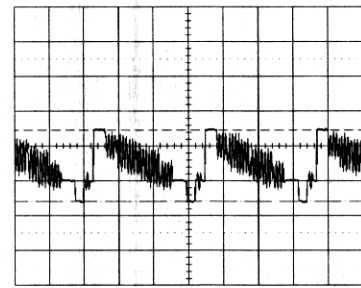
⑪ IC301-100
REC/1.5Vp-p



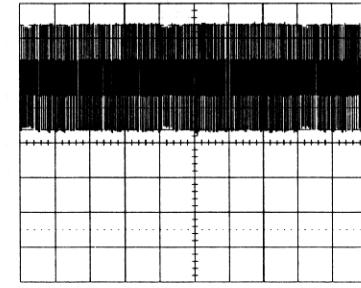
⑭ IC301-88
REC(LP)/2.5Vp-p



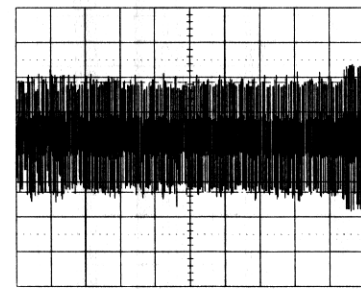
⑫ IC301-65
PB/2.1Vp-p



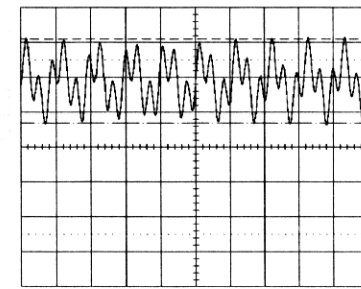
⑮ IC301-94
REC(SP)/3.0Vp-p



⑬ IC301-21
PB/320mVp-p

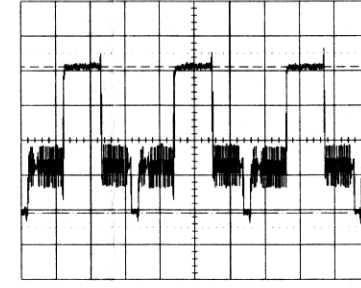


⑯ IC301-11
REC/102Vp-p



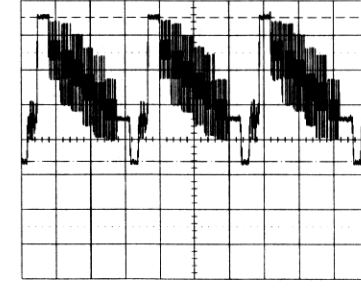
TM BLOCK

⑰ TM401-24
0.9Vp-p



O. S. D. BLOCK

⑱ IC6P01-19
2.1Vp-p



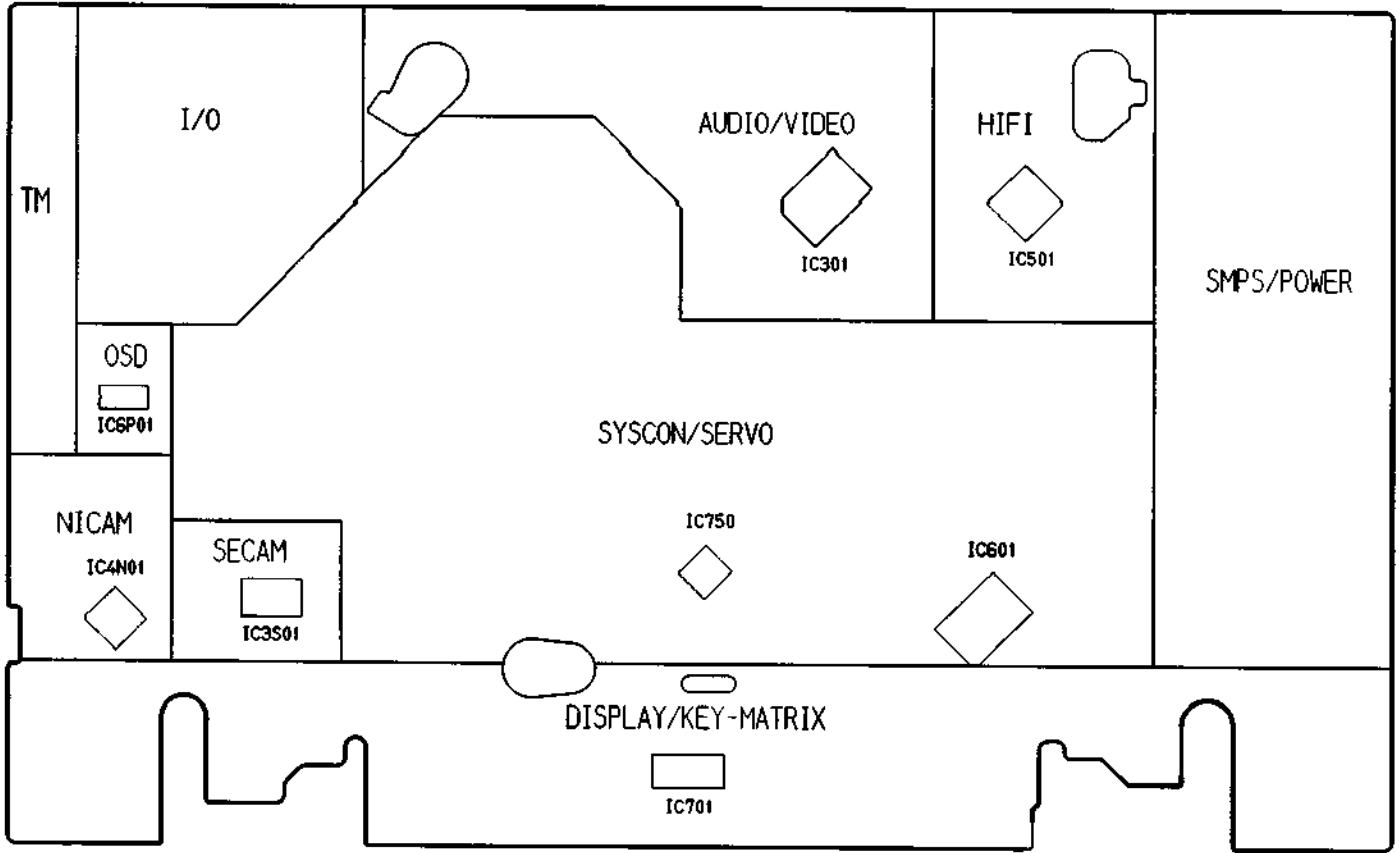
HI-FI BLOCK			
PIN MODE	PLAY	STOP	REC
IC501	LA72646M		
1	0.0	0.0	0.0
2	2.5	2.5	2.5
3	9.5	9.5	9.5
4	2.5	2.5	2.5
5	4.9	4.9	4.8
6	2.0	1.9	1.9
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	4.8	4.8	4.8
13	2.6	2.0	2.0
14	2.5	2.5	2.5
15	4.8	4.9	4.8
16	2.5	2.5	2.5
17	0.0	0.3	0.3
18	1.3	0.0	0.0
19	2.6	2.5	2.5
20	2.2	2.5	2.5
21	2.6	2.5	2.5
22	2.6	2.5	2.5
23	4.2	0.0	0.0
24	1.9	0.1	3.9
25	0.0	0.0	0.0
26	1.9	0.1	3.9
27	1.9	0.1	3.9
28	0.0	0.5	2.1
29	0.0	0.0	0.0
30	2.1	4.1	3.9
31	2.3	4.1	3.9
32	4.8	4.4	4.8
33	2.2	0.4	0.0
34	3.5	2.5	2.5
35	2.5	0.0	0.0
36	2.7	4.9	4.8
37	0.0	0.4	0.0
38	4.4	4.6	4.5
39	4.5	4.6	4.5
40	2.8	0.0	2.3
41	2.6	2.5	2.5
42	2.5	2.5	2.5
43	2.6	2.5	2.5
44	2.6	2.5	2.5
45	0.2	0.0	0.0
46	4.8	4.9	0.4
47	2.5	2.5	5.0
48	2.6	2.0	2.0
49	0.0	0.0	0.0
50	0.0	0.0	0.0

AV-LINK BLOCK			
PIN MODE	PLAY	STOP	REC
IC750			
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	0.0	0.0	0.0
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	5.1	5.1	5.1
11	5.1	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0
14	3.0	3.0	3.1
15	2.7	2.7	2.8
16	0.0	0.0	0.0
17	5.1	5.1	5.1
18	5.1	5.1	5.1
19	0.0	0.0	0.0
20	5.1	5.1	5.1
21	0.0	0.0	0.0
22	0.9	0.7	0.3
23	5.1	5.1	5.1
24	5.0	5.1	5.0
25	1.4	1.3	1.6
26	2.3	2.3	2.5
27	2.3	2.1	5.1
28	5.1	5.1	5.1
29	0.0	0.0	0.0
30	0.0	0.0	0.0
31	0.0	0.0	0.0
32	5.0	5.1	5.0
33	0.0	0.0	0.2
34	0.0	0.0	0.0
35	0.0	0.0	0.0
36	0.0	0.0	0.0
37	0.0	0.0	0.0
38	5.1	5.1	5.1
39	0.0	0.0	0.0
40	0.0	0.0	0.0
41	0.0	0.0	0.0
42	0.0	0.0	0.0
43	0.0	0.0	0.0
44	0.0	0.0	0.0

A2-NICAM BLOCK			
PIN MODE	PLAY	STOP	REC
IC701	MSP4317D		
1	5.1	5.1	5.1
2	1.5	1.5	1.5
3	1.5	0.0	1.5
4	0.0	0.0	0.0
5	2.4	2.4	2.4
6	2.3	2.3	2.2
7	1.5	1.5	0.8
8	0.0	0.0	0.0
9	0.0	0.0	0.0
10	0.0	0.0	0.0
11	5.1	5.1	5.1
12	4.7	4.8	4.5
13	4.7	4.6	4.5
14	2.5	2.5	2.5
15	2.5	2.5	2.5
16	0.0	5.0	5.0
17	0.8	3.2	0.2
18	1.6	3.2	0.3
19	5.1	5.1	5.1
20	0.0	0.0	0.0
21	1.0	3.1	0.2
22	5.1	5.1	5.1
23	0.0	0.0	0.0
24	0.0	0.0	0.0
25	0.0	0.0	0.0
26	0.1	0.1	0.1
27	0.1	0.1	0.1
28	0.1	0.1	0.1
29	0.0	0.0	0.0
30	3.8	3.8	0.4
31	3.8	3.8	0.0
32	0.0	0.0	0.0
33	8.7	8.8	8.8
34	7.8	7.8	7.8
35	0.0	0.0	0.0
36	3.8	3.8	3.8
37	0.1	0.0	0.0
38	0.0	0.4	0.0
39	0.0	0.0	0.0
40	3.8	3.8	3.8
41	3.8	3.8	3.8
42	2.6	2.6	2.6
43	3.8	3.8	3.8
44	0.0	0.0	0.0

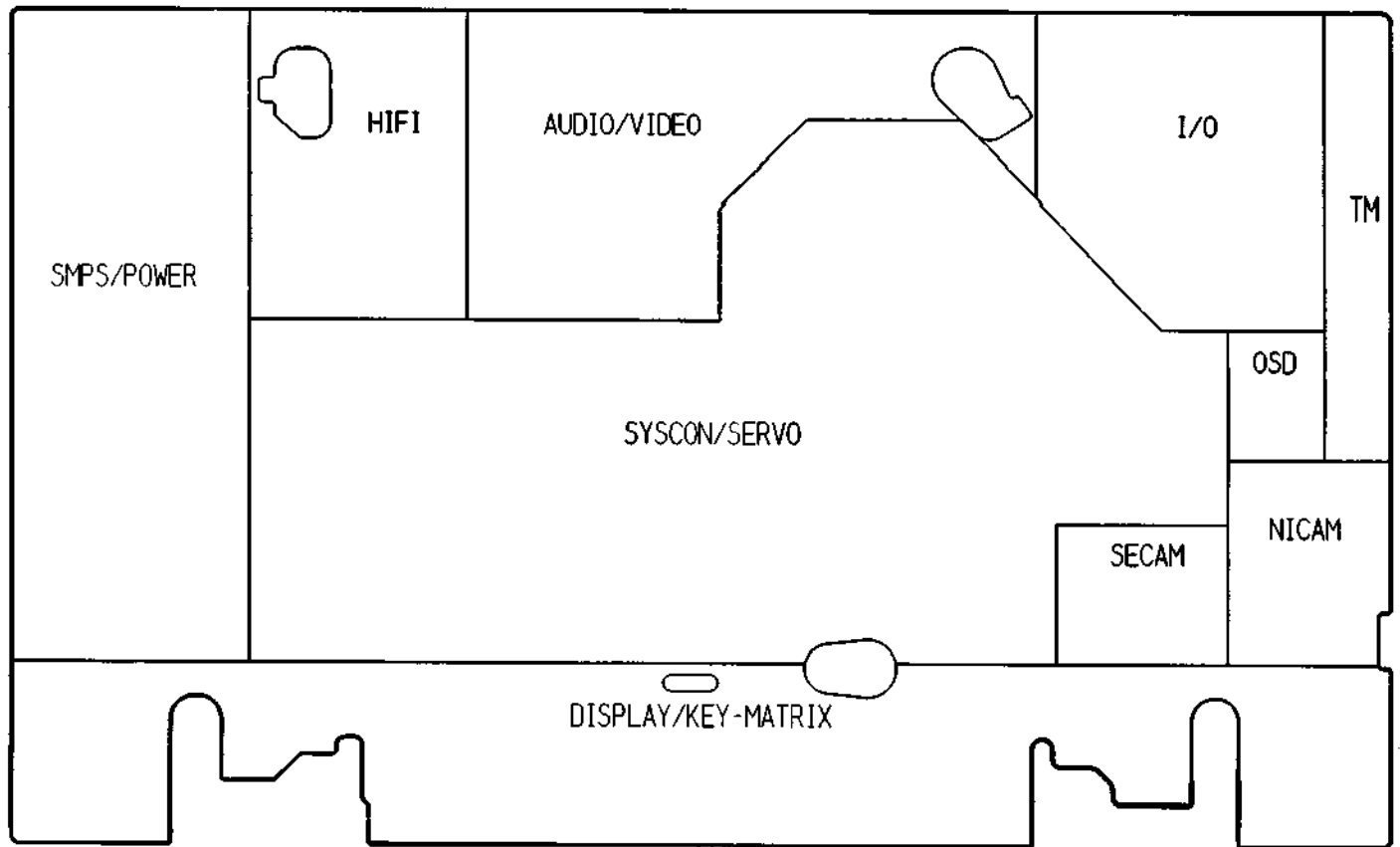
SECAM BLOCK			
PIN MODE	PLAY	STOP	REC
IC3S01	LA70100M		
1	0.0	0.0	0.0
2	2.4	0.1	2.4
3	3.4	0.4	3.4
4	0.0	0.0	0.0
5	0.0	0.0	0.0
6	3.7	0.1	4.7
7	0.0	0.0	0.0
8	0.0	0.0	0.0
9	3.1	0.0	3.1
10	5.1	0.1	5.1
11	2.5	0.1	2.2
12	2.0	0.0	3.2
13	4.0	0.0	4.0
14	2.6	0.0	2.6
15	2.0	0.3	3.1
16	3.2	0.3	3.2
17	5.2	0.0	0.0
18	3.4	0.0	0.1
19	2.2	0.1	2.2
20	2.3	0.0	0.0
21	2.0	0.3	2.0
22	0.0	0.0	0.0
23	5.1	0.1	5.1
24	5.1	0.1	5.1
25	3.0	0.0	3.2
26	2.9	0.0	3.2
27	2.1	0.0	2.1
28	0.1	0.1	0.2
29	1.6	0.0	0.1
30	2.1	0.0	2.1

VPS/PDC BLOCK			
PIN MODE	PLAY	STOP	REC
IC6P01	LC747XX		
1	0.0	0.0	0.0
2	2.7	2.7	2.7
3	5.1	5.1	5.1
4	5.1	5.1	5.1
5	4.6	4.7	4.5
6	2.5	2.5	2.5
7	2.6	2.6	2.8
8	5.1	0.0	0.0
9	4.1	4.4	0.0
10	5.1	5.1	5.1
11	5.2	5.2	5.1
12	5.1	5.1	5.1
13	2.2	2.3	2.3
14	2.2	2.3	2.3
15	0.0	0.0	0.0
16	0.9	1.0	1.0
17	0.0	0.0	0.0
18	5.1	5.1	5.1
19	1.9	1.7	1.7
20	0.0	0.0	0.0
21	1.9	1.8	1.8
22	0.6	1.0	1.1
23	5.1	5.1	5.1
24	3.0	3.1	3.1
25	2.5	2.5	2.5
26	4.6	5.0	5.0
27	4.6	4.6	4.7
28	3.7	3.7	3.7
29	5.1	5.1	5.1
30	5.1	5.1	5.1



Conductor Side

◆ Block Identification of Main PCB



Component Side

5-1-3 SW7T21 (TEST) location for adjustment mode setting
**(SLV-SE620D/SE620E/SE620B/SE620N/SE720D/SX720D/SE720E/SX720E/SE720G/SE720I/SE720B/SX727D/SE727E/SE720N/
SX720N/SE820D/SE820E/SE820G/SE820B/SE820N)**

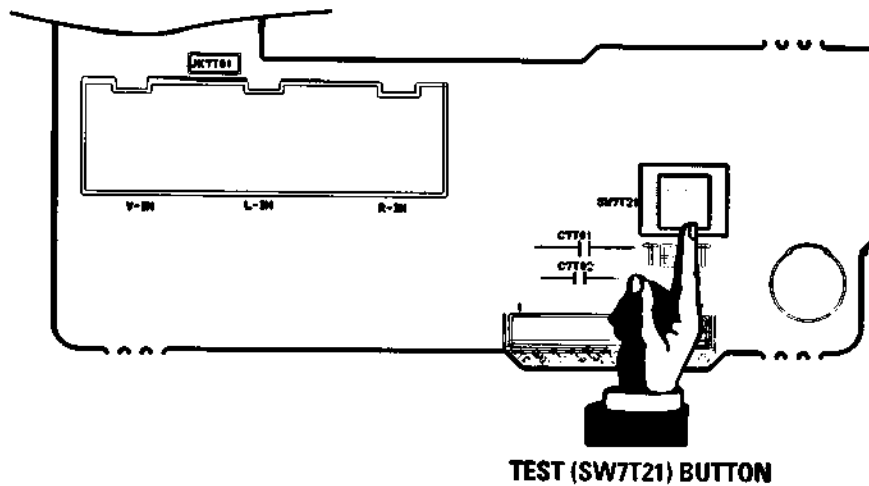


Fig. 5-3 Function PCB (Top View)

5-2 Mechanical Adjustment

Note : Refer to the Mechanical Manual for the adjustment and confirmation of Ass'y deck.

5-2-1 The number and position of test point

Test point :	TP602 (H'D S/W -Trigger)
	TP301 (Envelope)
	TP302 (Audio output)

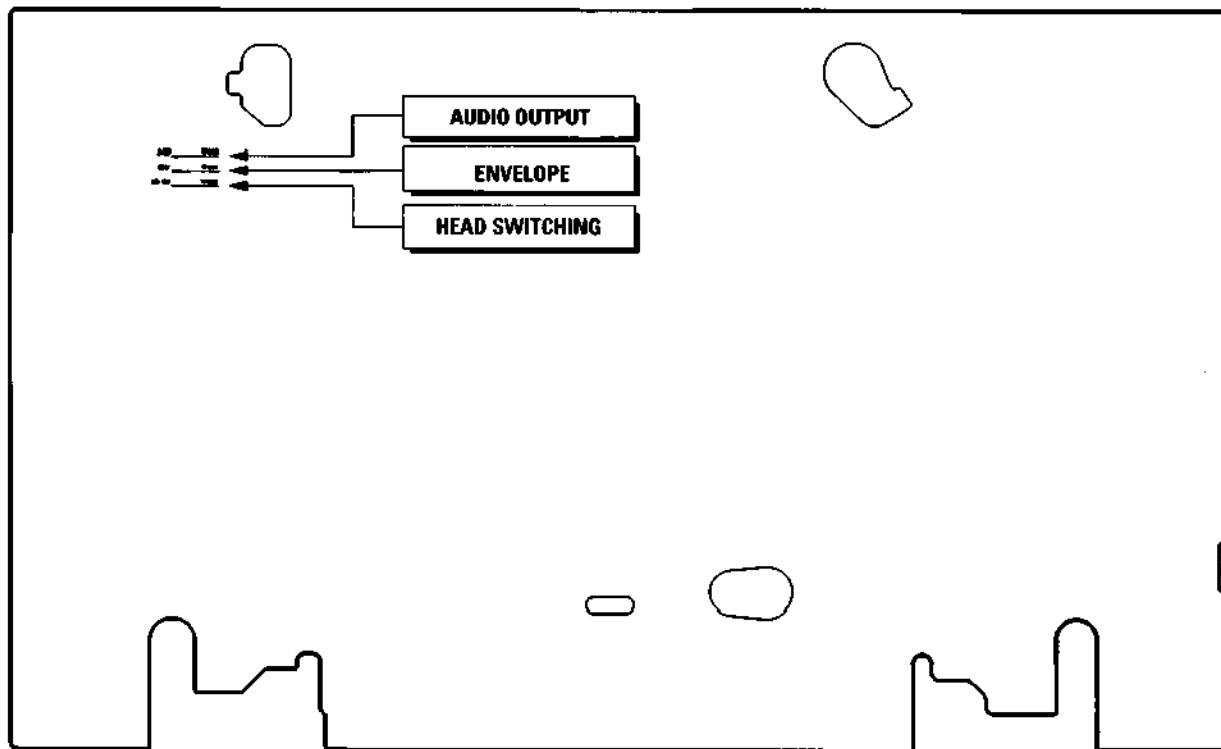


Fig. 5-4 Location of Test point (Main PCB-Top View)

5-2-2 ACE Head Position (X-Point) Adjustment

(See the 5-2-1(d) ACE Head Position (X-Point) Adjustment on page 5-2 of the Mechanical Manual)

- 1) Playback the alignment tape (Color bar).
- 2) Press the "TEST" button on Main PCB/Function PCB to set the adjustment mode.
(See Fig. 5-2 and 5-3)
- 3) Press the "5" button of remote control then adjustment is operated automatically. (See Fig. 5-1)

- 4) Connect the CH-1 probe to TP301 (Envelope) the CH-2 probe to TP602 (H'D switching pulse) and hen trigger to CH-1.
- 5) Insert the (-) driver into the X-Point adjustment hole and adjust it so that envelope waveform is maximum.
- 6) Turn the Power off.

5-3 Head Switching Point Adjustment

- 1) Playback the alignment tape.
- 2) Press the "TEST" button on Main PCB/Function PCB to set the adjustment mode. (See Fig. 5-2 and 5-3)
- 3) Press the "SP/LP" button of remote control then adjustment is operated automatically. (See Fig. 5-1)
- 4) Turn the Power off.

5-4 NVRAM Option Setting

- 1) NVRAM Option is adjusted at production line basically.
- 2) In case Micom (IC601) and NVRAM (IC605 ; EEPROM) is replaced, be sure to set the corresponding option number of the required model.
(If the option is not set, the unit is not operated.)
- 1) Press the "TEST" button on Main PCB/Function PCB to set the adjustment mode. (See Fig. 5-2 and 5-3)
- 2) Press the "MENU" button on the remote control about 5 seconds then option setting display is appeared.
(See Fig. 5-5 and 5-6)
- 3) Select the option number (See Table 5-1) of corresponding model with "FF/REW/STOP/PAUSE" button on the remote control.
- 4) If selecting the option number is completed, press the "OK (PLAY)" button of remote control.
(If "OK (PLAY)" button is pressed, the selected number is changes reversed color. ; See Fig. 5-5)
- 5) Press the "MENU" button of remote control again to store the option number.
("PLEASE WAIT" is displayed for a second as shown Fig. 5-6 and this setting is completed.)
- 6) Turn the Power off.

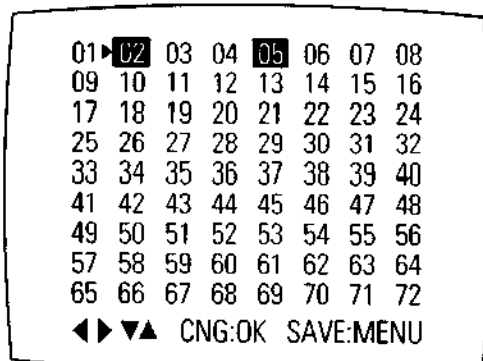


Fig. 5-5

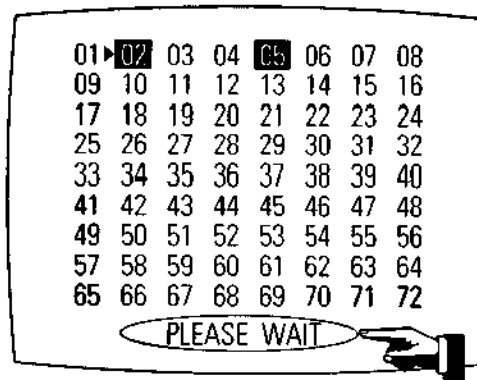


Fig. 5-6

<Table 5-1>

MODELS	OPTION NUMBER
SLV-SE220D	2, 4, 5, 11, 13, 14, 34, 35, 38, 40, 42, 45, 47, 49, 60, 61, 63, 69, 72
SLV-SE220I	3, 4, 5, 10, 11, 13, 14, 25, 26, 33, 34, 35, 38, 40, 43, 45, 47, 49, 60, 61, 63, 69, 72
SLV-SE220G	3, 4, 5, 10, 11, 13, 14, 27, 33, 34, 35, 38, 40, 41, 45, 47, 49, 60, 61, 63, 69, 72
SLV-SE220B	2, 4, 5, 11, 13, 14, 20, 21, 26, 33, 34, 35, 36, 38, 40, 45, 47, 49, 60, 61, 63, 69, 72
SLV-SE420K	9, 10, 11, 13, 14, 20, 36, 38, 42, 45, 47, 49, 54, 60, 61, 63, 69, 72
SLV-SE620D	6, 7, 9, 10, 12, 13, 34, 35, 38, 42, 45, 47, 49, 51, 60, 61, 63, 69, 72
SLV-SE620D	6, 7, 8, 9, 10, 11, 12, 13, 14, 34, 35, 38, 42, 45, 47, 49, 51, 60, 61, 63, 69, 72
SLV-SE620B	6, 7, 8, 9, 10, 11, 12, 13, 14, 20, 21, 26, 33, 34, 35, 36, 38, 45, 47, 49, 51, 60, 61, 63, 69, 72
SLV-SE620N	6, 7, 8, 9, 10, 12, 13, 20, 36, 38, 42, 45, 47, 49, 51, 54, 60, 61, 63, 69, 72
SLV-SE720D/SX720D	2, 4, 6, 7, 9, 10, 11, 12, 13, 14, 19, 34, 35, 40, 42, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE720E/SX720E	2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 34, 35, 40, 42, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE720G	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 27, 33, 34, 35, 40, 41, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE720I	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 25, 26, 33, 34, 35, 40, 43, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE720B	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 21, 26, 33, 34, 35, 36, 40, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SX727D	2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 19, 32, 34, 35, 40, 42, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE727E	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 32, 34, 35, 40, 42, 45, 47, 51, 60, 61, 63, 66, 69, 72
SLV-SE720N/SX720N	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 36, 42, 45, 47, 51, 54, 60, 61, 63, 66, 69, 72
SLV-SE820D	2, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 19, 23, 29, 32, 34, 35, 40, 42, 45, 47, 48, 49, 50, 60, 61, 63, 64, 66, 69, 72
SLV-SE820E	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 23, 29, 32, 34, 35, 40, 42, 45, 47, 48, 49, 50, 60, 61, 63, 64, 66, 69, 72
SLV-SE820G	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 23, 27, 29, 32, 33, 34, 35, 40, 41, 45, 47, 48, 49, 50, 60, 61, 63, 64, 66, 69, 72
SLV-SE820B	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20, 21, 23, 26, 29, 32, 33, 34, 35, 36, 40, 45, 47, 48, 49, 50, 60, 61, 63, 64, 66, 69, 72
SLV-SE820N	2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20, 23, 29, 32, 36, 42, 45, 47, 48, 49, 50, 54, 60, 61, 63, 64, 66, 69, 72

6. Repair Parts List

	Page
6-1 Exploded Views	6-2
6-1-1 Instrument Assembly (Mono Models) (SE220/SE420)	6-2
6-1-2 Instrument Assembly (Hi-Fi Models)	6-3
6-1-3 Mechanical Parts (Top Side)	6-4
6-1-4 Mechanical Parts (Bottom Side)	6-5
6-2 Electrical Parts List	6-6

6-1 Exploded Views

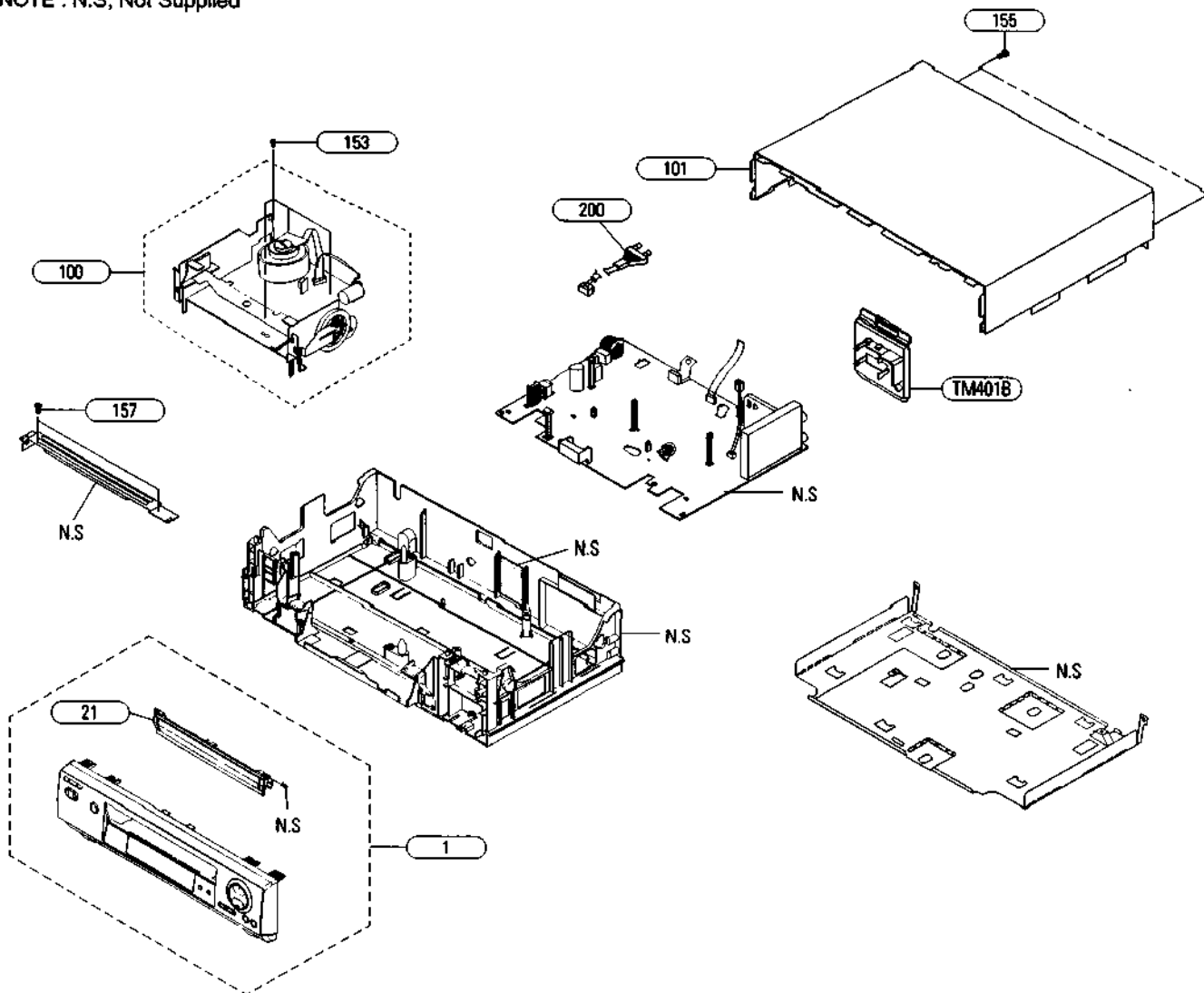
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

6-1-1 Instrument Assembly (Mono Models)(SE220/SE420)

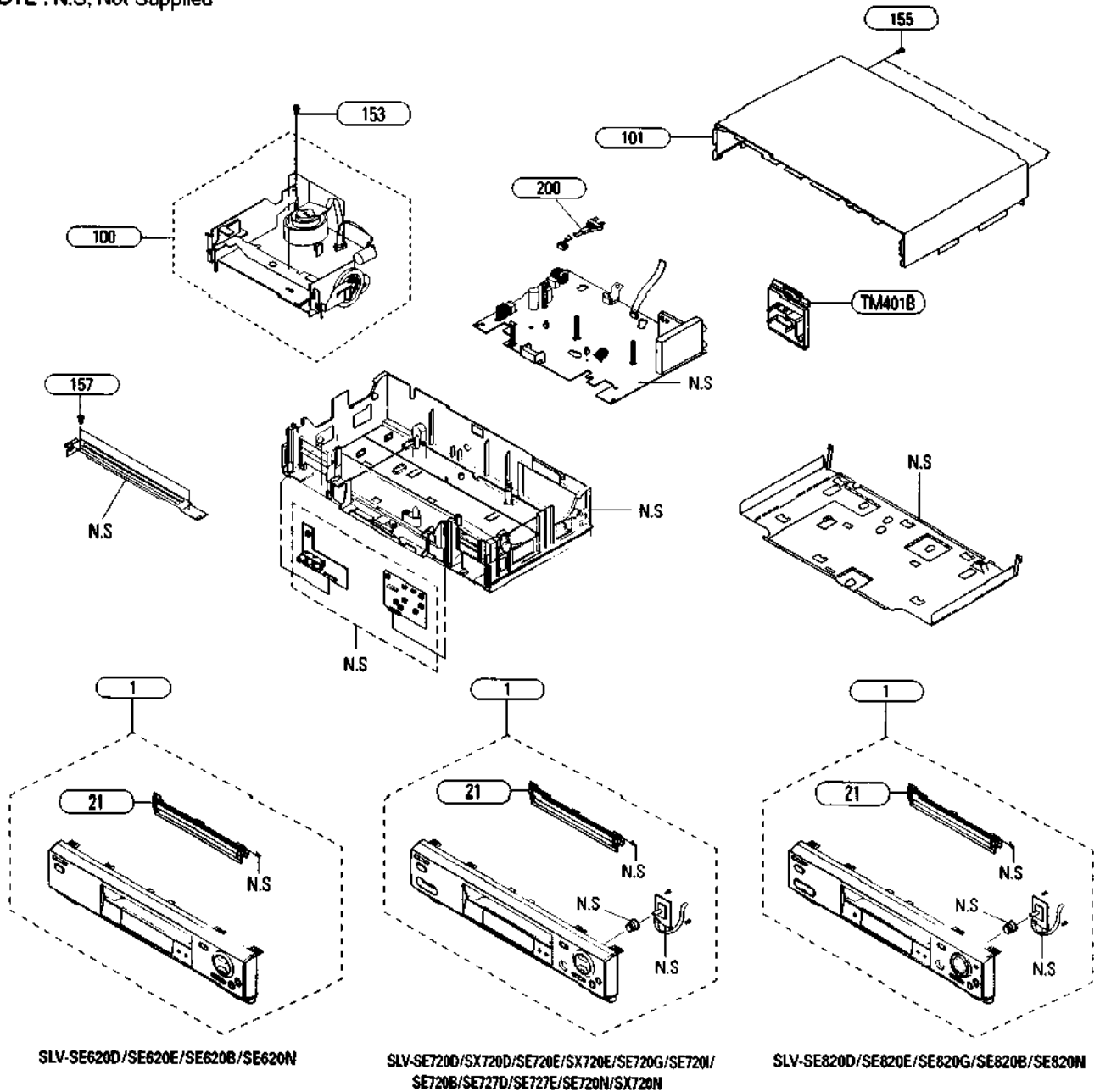
NOTE : N.S; Not Supplied



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-075-060-01	ASSY PANEL FRONT (SE420)		155	7-685-646-11	SCREW-TAPTITE	
1	3-075-061-01	ASSY PANEL FRONT (SE220:G,I)		157	7-685-548-19	SCREW-TAPTITE	
1	3-075-062-01	ASSY PANEL FRONT (SE220:B)		Δ 200	1-823-023-11	POWER CORD (SE220:B,D/SE420)	
1	3-075-063-01	ASSY PANEL FRONT (SE220:D)		Δ 200	1-823-025-11	POWER CORD (SE220:G,I)	
21	3-075-705-01	DOOR-CASSETTE (SE220/SE420)		TM401B	1-693-553-11	TM BLOCK (SE220:B)	
100	3-709-670-01	ASSY-DECK		TM401B	1-693-584-11	TM BLOCK (SE220:D)	
101	3-075-020-01	CABINET-TOP (SE220/SE420)		TM401B	1-693-585-11	TM BLOCK (SE220:G)	
153	7-685-661-11	SCREW-BH		TM401B	1-693-589-11	TM BLOCK (SE220:I/SE420)	

6-1-2 Instrument Assembly (Hi-Fi Models)

NOTE : N.S; Not Supplied

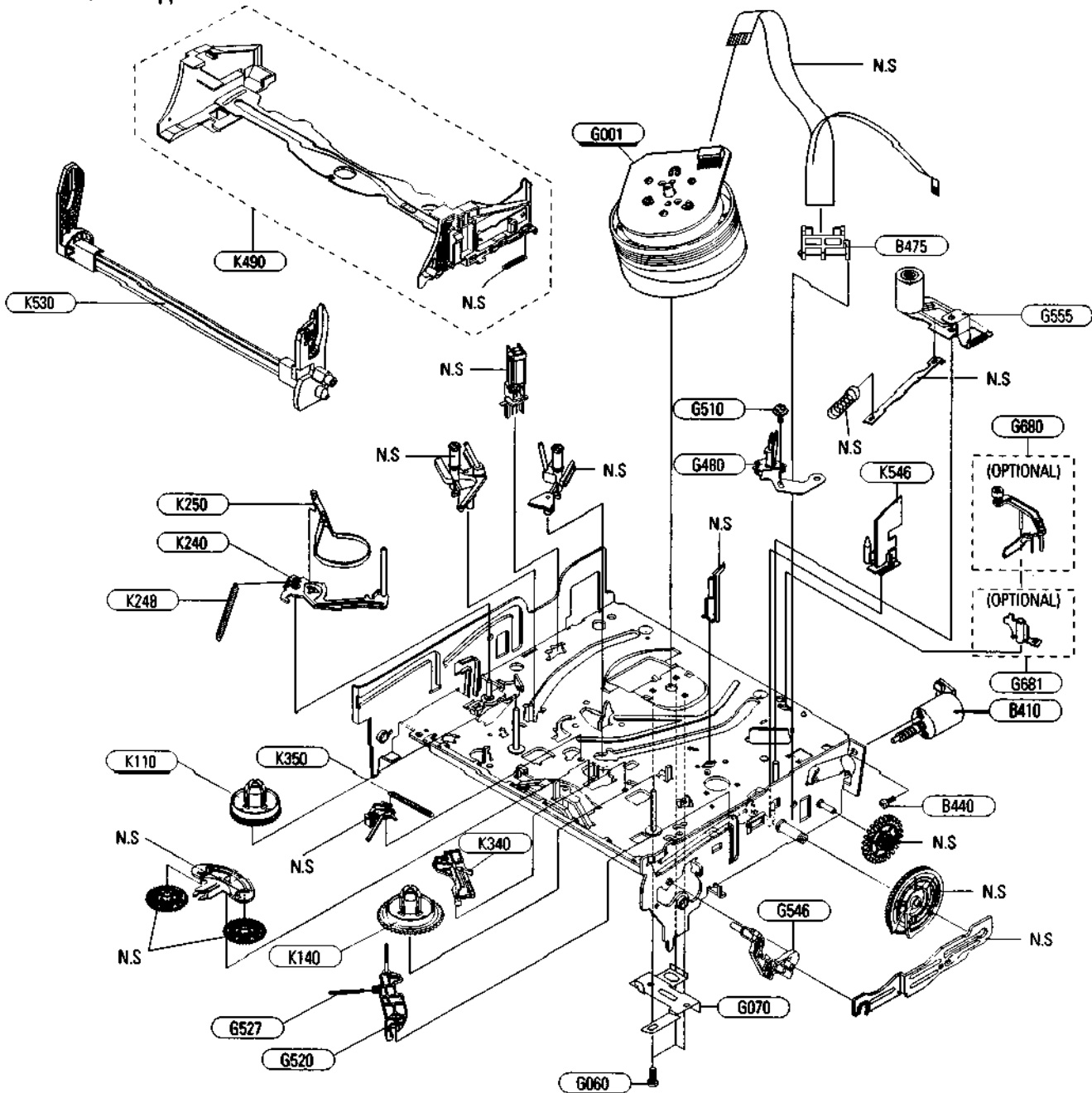


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-075-049-01	ASSY-PANEL FRONT (SE820:G)		100	3-709-670-01	ASSY-DECK	
1	3-075-050-01	ASSY-PANEL FRONT (SE820:B)		101	3-075-019-01	CABINET-TOP (SE620/SE720/SE727/SE820)	
1	3-075-051-01	ASSY-PANEL FRONT (SE820:D,E,N)		101	3-075-019-11	CABINET-TOP (SX720/SX727)	
1	3-075-052-01	ASSY-PANEL FRONT (SE720:G,I,B)		153	7-685-661-11	SCREW-BH	
1	3-075-054-01	ASSY-PANEL FRONT (SE720:D,E,N)		155	7-685-646-11	SCREW-TAPTITE	
1	3-075-055-01	ASSY-PANEL FRONT (SE727)		157	7-685-548-19	SCREW-TAPTITE	
1	3-075-056-01	ASSY-PANEL FRONT (SX727)		△ 200	1-823-023-11	POWER CORD	
1	3-075-057-01	ASSY-PANEL FRONT (SX720)				(SE620/SE720:B,D,E,N/SE727/SE820:B,D,E,N/SX720/SX727)	
1	3-075-058-01	ASSY-PANEL FRONT (SE620:B)		△ 200	1-823-025-11	POWER CORD (SE720:G,I/SE820:G)	
1	3-075-059-01	ASSY-PANEL FRONT (SE620:D,E,N)		TM401B	1-693-553-11	TM BLOCK (SE620:B/SE720:B/SE820:B)	
21	3-075-918-01	DOOR-CASSETTE		TM401B	1-693-585-11	TM BLOCK (SE720:G/SE820:G)	
		(SE620/SE720:B,D,E,N/SE727/SE820/SX720/SX727)		TM401B	1-693-589-11	TM BLOCK	
21	3-075-919-01	DOOR-CASSETTE (SE720:G,I)				(SE620:D,E,N/SE720:D,E,I,N/SE727/SE820:D,E,N/SX720/SX727)	

Note : The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

6-1-3 Mechanical Parts (Top Side)

NOTE : N.S; Not Supplied

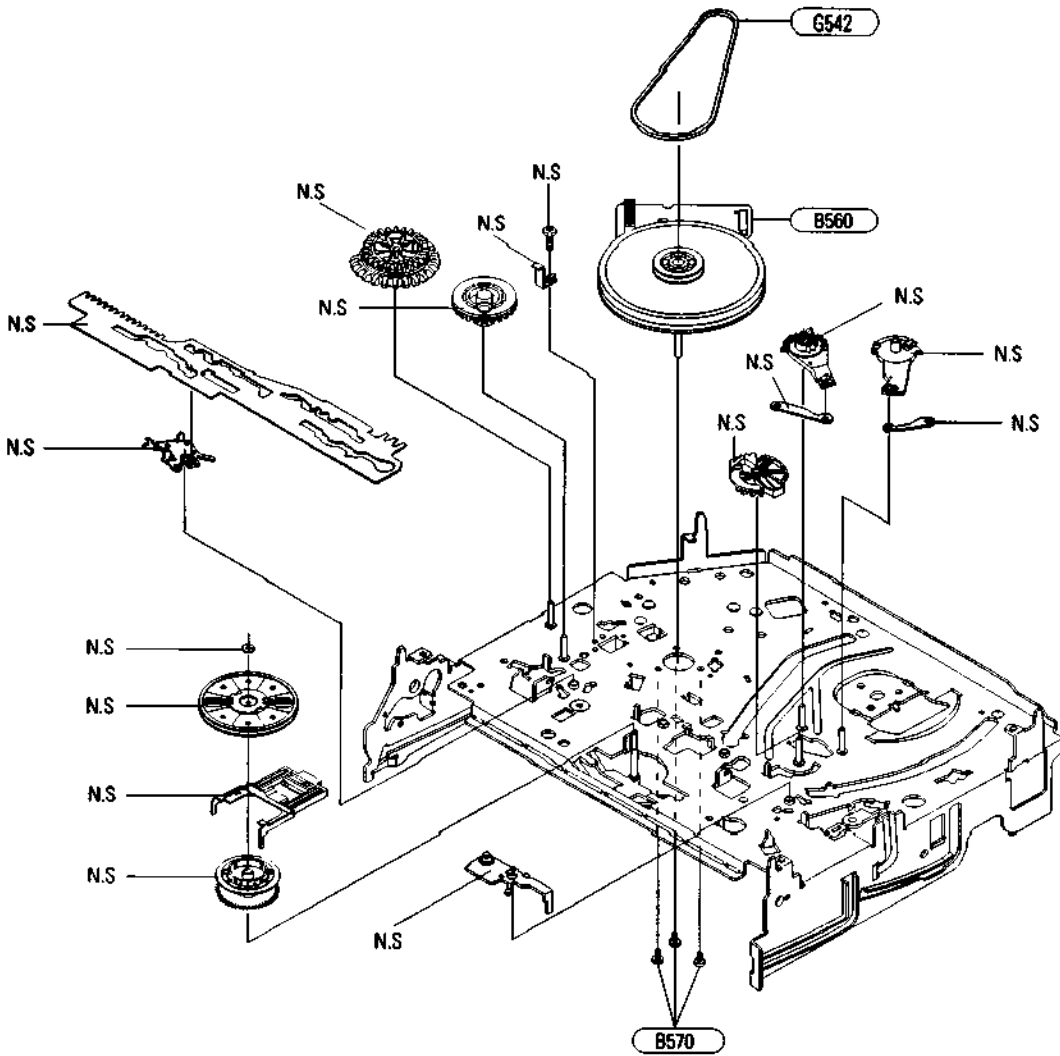


Ref. No.	Part No.	Description	Remarks
B410	1-796-434-11	MOTOR-LOADING ASSY	
B440	7-682-144-01	SCREW, MACHINE	
B475	1-796-433-11	DAMPER-CAPSTAN	
G001	1-804-707-11	ASSY CYLINDER (SE220:B,D)	
G001	1-804-708-11	ASSY CYLINDER (SE220:G,I)	
G001	1-804-709-11	ASSY CYLINDER (SE420)	
G001	1-804-710-11	ASSY CYLINDER (SE620:D,E,N/SE720:D,E,G,I/SE727/SE820:D,E,G,N/SX720/SX727)	
G001	1-804-711-11	ASSY CYLINDER (SE620:B/SE720:B/SE820:B)	
G060	7-682-647-01	SCREW-ASSY MACH (+M3X6)	
G070	3-067-796-01	PLATE-GROUND DECK	
G480	3-709-671-01	ASSY-HEAD ACE	
G510	7-621-759-35	SCREW-ASSY TAPT	
G520	3-067-779-01	LEVER-#9 GUIDE ASSY	
G527	3-067-780-01	SPRING ETC-GUIDE 9	

Ref. No.	Part No.	Description	Remarks
G546	3-075-704-01	LEVER-FL DOOR	
G555	3-067-784-01	LEVER-UNIT PINCH ASSY	
G680	3-075-021-01	LEVER-HEAD CLEANER ASSY (EXCEPT SE220/SE420)	
G681	3-075-022-01	SLEEVE-HEAD CLEANER (EXCEPT SE220/SE420)	
K110	3-075-046-01	REEL-DISK S	
K140	3-075-047-01	REEL-DISK T	
K240	3-067-781-01	LEVER-TENSION ASSY	
K248	3-067-782-01	SPRING ETC-TENSION LEVER	
K250	3-067-783-01	BAND-BRAKE ASSY	
K340	3-067-785-01	LEVER-T. BRAKE ASSY	
K350	3-067-786-01	SPRING ETC-BRAKE	
K490	3-067-788-01	HOLDER-FL CASS.	
K546	3-067-789-01	GUIDE-CASS. DOOR	

6-1-4 Mechanical Parts (Bottom Side)

NOTE : N.S; Not Supplied



Ref. No.	Part No.	Description	Remarks
B560	1-796-432-11	MOTOR-CAPSTAN	
B570	7-685-133-11	SCREW-CAPSTAN	
G542	3-067-790-01	BELT-PULLEY	

MAIN

6-2 Electrical Parts List

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
uF: μ F

- COILS
uH: μ H
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

When indicating parts by reference number, please include the board name.

The components identified by mark \perp or dotted line with mark \perp are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
< FERRITE BEAD >			
BD1SD1	1-400-085-11	INDUCTOR	
BD1SR1	1-400-086-11	CORE-FERRITE BEAD	
BD1SS1	1-400-085-11	INDUCTOR	
BD1SS2	1-400-085-11	INDUCTOR	
< CAPACITOR >			
C1P102	1-126-437-11	C-AL	47uF 20% 25V
C1P103	1-126-458-61	C-AL	1uF 20% 50V
C1P105	1-126-437-11	C-AL	47uF 20% 25V
C1P106	1-126-437-11	C-AL	47uF 20% 25V
C1P109	1-126-458-61	C-AL	1uF 20% 50V
(EXCEPT SE220/SE420K)			
C1P120	1-126-437-11	C-AL	47uF 20% 25V
C1SD03	1-165-557-11	C-CERAMIC	2.2nF 20% 400V
C1SD04	1-165-557-11	C-CERAMIC	2.2nF 20% 400V
C1SD11	1-165-577-11	C-AL	47uF 20% 400V
C1SD12	1-165-574-11	C-FILM, MPEF	10nF 10% 630V
C1SD13	1-165-567-11	C-FILM, PEF	1.2nF 10% 50V
C1SR14	1-165-571-11	C-FILM, PEF	4.7nF 5% 50V
C1SS01	1-165-573-11	C-FILM, MPEF	100nF 20% 275V
C1SS02	1-165-573-11	C-FILM, MPEF	100nF 20% 275V
C1SS03	1-165-557-11	C-CERAMIC	2.2nF 20% 400V
(SE220/SE420K)			
C1SS32	1-126-970-11	C-AL	330UF 20% 50V
C1SS33	1-126-940-11	C-AL	330UF 20% 25V
C1SS34	1-126-940-11	C-AL	330UF 20% 25V
C1SS35	1-126-926-11	C-AL	1000UF 20% 10V
C1SS36	1-126-926-11	C-AL	1000uF 20% 10V
C1SS39	1-136-497-11	C-FILM, PEF	100nF 5% 50V
C1SS41	1-126-925-11	C-AL	470uF 20% 10V
(SE720/SE727E/SX720/SX727D/SE820)			
C317	1-126-458-61	C-AL	1uF 20% 50V
C318	1-126-458-61	C-AL	1uF 20% 50V
C321	1-161-494-11	C-CERAMIC	22nF +80-20% 25V
C322	1-126-458-61	C-AL	1uF 20% 50V
C325	1-126-437-11	C-AL	47uF 20% 25V
C326	1-126-458-61	C-AL	1uF 20% 50V
C331	1-216-295-11	R-CHIP	0 5% 1/10W
(SE220D,G,I/SE620D,E/SE720D,E,G,I/SX720D,E/SX727D/SE727E/SE820D,E,G)			
C333	1-126-109-11	C-AL	10uF 20% 16V

Ref. No.	Part No.	Description	Remarks
C338	1-161-494-11	C-CERAMIC	22nF +80-20% 25V
C339	1-126-109-11	C-AL	10uF 20% 16V
C341	1-126-437-11	C-AL	47uF 20% 25V
C343	1-165-319-11	C-CERAMIC, CHIP	1000nF +80-20% 16V
C347	1-165-319-11	C-CERAMIC, CHIP	1000nF +80-20% 16V
C349	1-165-319-11	C-CERAMIC, CHIP	1000nF +80-20% 16V
C351	1-126-437-11	C-AL	47uF 20% 25V
C352	1-126-458-61	C-AL	1uF 20% 50V
C353	1-126-458-61	C-AL	1uF 20% 50V
C354	1-126-437-11	C-AL	47uF 20% 25V
C356	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V
(SE820)			
C380	1-161-494-11	C-CERAMIC	22nF +80-20% 25V
C384	1-115-339-11	C-CERAMIC, CHIP	100nF +80-20% 50V
(SE720/SE727E/SX720/SX727D/SE820)			
C3A02	1-126-435-71	C-AL	22uF 20% 16V
(SE720/SE727E/SX720/SX727D/SE820)			
C3A12	1-126-437-11	C-AL	47uF 20% 25V
C3A14	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V
C3A17	1-126-109-11	C-AL	10uF 20% 16V
C3A30	1-126-437-11	C-AL	47uF 20% 25V
C3A40	1-126-109-11	C-AL	10uF 20% 16V
C3A41	1-126-458-61	C-AL	1uF 20% 50V
C3D04	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V
(SE820)			
C3S02	1-126-458-61	C-AL	1uF 20% 50V
(SE220B/SE620B/SE720B/SE820B)			
C3S04	1-126-458-61	C-AL	1uF 20% 50V
(SE220B/SE620B/SE720B/SE820B)			
C3S06	1-126-456-61	C-AL	470nF 20% 50V
(SE220B/SE620B/SE720B/SE820B)			
C3S09	1-126-456-61	C-AL	470nF 20% 50V
(SE220B/SE620B/SE720B/SE820B)			
C3S10	1-126-437-11	C-AL	47uF 20% 25V
(SE220B/SE620B/SE720B/SE820B)			
C401	1-126-925-11	C-AL	470uF 20% 10V
C402	1-163-033-11	C-CERAMIC, CHIP	22nF 10% 50V
C403	1-104-660-11	C-AL	47uF 20% 16V
(SE720/SE727E/SX720/SX727D/SE820)			
C407	1-104-660-11	C-AL	47uF 20% 16V
(SE720/SE727E/SX720/SX727D/SE820D,E,G,N)			

Ref. No.	Part No.	Description	Remarks
C4N02	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C4N07	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V (EXCEPT SE220/SE420K)
C4N09	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C4N10	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C4N11	1-126-461-61	C-AL	3.3UF 20% 50V (EXCEPT SE220/SE420K)
C4N14	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C4N16	1-104-660-11	C-AL	47uF 20% 16V (SE720/SE727E/SX720/SX727D/SE820)
C4N17	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V (EXCEPT SE220/SE420K)
C4N18	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V (EXCEPT SE220/SE420K)
C4N23	1-126-458-61	C-AL	1uF 20% 50V (EXCEPT SE220/SE420K)
C4N24	1-126-458-61	C-AL	1uF 20% 50V (EXCEPT SE220/SE420K)
C501	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C503	1-126-435-71	C-AL	22uF 20% 16V (SE720/SE727E/SX720/SX727D/SE820)
C504	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C507	1-126-435-71	C-AL	22uF 20% 16V (SE720/SE727E/SX720/SX727D/SE820)
C508	1-163-017-11	C-CERAMIC, CHIP	4.7nF 10% 50V (EXCEPT SE220/SE420K)
C510	1-126-437-11	C-AL	47uF 20% 25V (EXCEPT SE220/SE420K)
C517	1-163-017-11	C-CERAMIC, CHIP	4.7nF 10% 50V (EXCEPT SE220/SE420K)
C518	1-126-435-71	C-AL	22uF 20% 16V (SE720/SE727E/SX720/SX727D/SE820)
C521	1-126-109-11	C-AL	10uF 20% 16V (EXCEPT SE220/SE420K)
C541	1-126-458-61	C-AL	1uF 20% 50V (EXCEPT SE220/SE420K)
C601	1-126-437-11	C-AL	47uF 20% 25V
C602	1-163-033-11	C-CERAMIC, CHIP	22nF 10% 50V
C609	1-163-033-11	C-CERAMIC, CHIP	22nF 10% 50V
C618	1-126-968-11	C-AL	100uF 20% 50V
C624	1-161-283-51	C-CERAMIC, CHIP	0.022nF 5% 50V (SE420K/SE620/SE720N/SX720N/SE820N)
C625	1-161-283-51	C-CERAMIC, CHIP	0.022nF 5% 50V (SE420K/SE620/SE720N/SX720N/SE820N)
C626	1-161-283-51	C-CERAMIC, CHIP	0.022nF 5% 50V
C627	1-161-283-51	C-CERAMIC, CHIP	0.022nF 5% 50V
C637	1-163-267-11	C-CERAMIC, CHIP	0.47nF 5% 50V
C639	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V
C640	1-126-437-11	C-AL	47uF 20% 25V
C645	1-163-121-11	C-CERAMIC, CHIP	0.15nF 5% 50V (SE720/SE727E/SX720/SX727D/SE820)
C651	1-163-033-11	C-CERAMIC, CHIP	22nF 10% 50V
C655	1-163-121-11	C-CERAMIC, CHIP	0.15nF 5% 50V (SE220/SE420K/SE620)

Ref. No.	Part No.	Description	Remarks
C679	1-163-033-11	C-CERAMIC, CHIP	22nF 10% 50V (SE220/SE420K/SE620)
C680	1-126-926-11	C-AL	1000uF 20% 10V
C692	1-126-437-11	C-AL	47uF 20% 25V
C693	1-126-926-11	C-AL	1000uF 20% 10V (SE720/SE727E/SX720/SX727D/SE820)
C695	1-163-121-11	C-CERAMIC, CHIP	0.15nF 5% 50V
C697	1-163-033-11	C-CERAMIC CHIP	22nF 10% 50V
C6P06	1-163-275-11	C-CERAMIC, CHIP	1nF 10% 50V (SE220/SE720/SE727E/SX720/SX727D/SE820)
C6P10	1-126-458-61	C-AL	1uF 20% 50V
C6P11	1-126-458-61	C-AL	1uF 20% 50V
C6P12	1-104-660-11	C-AL	47uF 20% 16V (SE720/SE727E/SX720/SX727D/SE820)
C701	1-126-925-11	C-AL	470uF 20% 10V
C703	1-163-275-11	C-CERAMIC, CHIP	1nF 10% 50V
C7T01	1-161-323-11	C-CERAMIC	1nF 10% 50V (SE820)
C7T02	1-161-323-11	C-CERAMIC	1nF 10% 50V (SE820)
C806	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V
C822	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V
C826	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V (EXCEPT SE620D,N)
C841	1-163-251-11	C-CERAMIC, CHIP	0.1nF 5% 50V (EXCEPT SE620D,N)
CT02	1-115-339-11	C-CERAMIC, CHIP	100nF +80-20% 50V (SX727D/SE727E/SE820)
CT04	1-115-339-11	C-CERAMIC, CHIP	100nF +80-20% 50V (SE220/SE420K/SE620/SE720/SE727E/SX720/SX727D)
< CONNECTOR >			
CN701	1-816-509-11	CONNECTOR-HEADER	3WALL 12P (EXCEPT SE220/SE420K)
< DIODE >			
D1P101	1-804-407-11	DIODE-SWITCHING1N4148	
D1P102	1-804-407-11	DIODE-SWITCHING1N4148	(EXCEPT SE220/SE420K)
D1P103	1-804-407-11	DIODE-SWITCHING1N4148	(EXCEPT SE220/SE420K)
D1SD11	1-804-412-11	DIODE-RECTIFIER F1T4	
D1SD31	1-804-412-11	DIODE-RECTIFIER F1T4	
D1SR11	1-804-407-11	DIODE-SWITCHING1N4148	
D1SS01	1-804-413-11	DIODE-RECTIFIER 1T5	
D1SS02	1-804-413-11	DIODE-RECTIFIER 1T5	
D1SS03	1-804-413-11	DIODE-RECTIFIER 1T5	
D1SS04	1-804-413-11	DIODE-RECTIFIER 1T5	
D1SS11	1-804-408-11	DIODE-RECTIFIER UF4007	
D1SS31	1-804-412-11	DIODE-RECTIFIER F1T4	
D1SS32	1-804-411-11	DIODE-RECTIFIER UG2D	
D1SS33	1-804-782-11	DIODE-SCHOTTKY SG45	
D1SS40	1-804-412-11	DIODE-RECTIFIER F1T4	(SE720/SE727E/SX720/SX727D/SE820)

MAIN

Ref. No.	Part No.	Description	Remarks
D1SS41	1-804-412-11	DIODE-RECTIFIER F1T4 (SE720/SE727E/SX720/SX727D/SE820)	
D301	1-804-407-11	DIODE-SWITCHING1N4148	
D4N01	1-804-407-11	DIODE-SWITCHING1N4148 (EXCEPT SE220/SE420K)	
D4N02	1-804-407-11	DIODE-SWITCHING1N4148 (EXCEPT SE220/SE420K)	
D603	1-804-407-11	DIODE-SWITCHING1N4148	
D6E01	1-804-407-11	DIODE-SWITCHING1N4148 (SE720/SE727E/SX720/SX727D/SE820)	
D701	1-804-407-11	DIODE-SWITCHING1N4148	
D702	1-804-407-11	DIODE-SWITCHING1N4148	
D703	1-804-407-11	DIODE-SWITCHING1N4148	
D704	1-804-407-11	DIODE-SWITCHING1N4148	
D805	1-804-407-11	DIODE-SWITCHING1N4148	
< TIMER >			
DL701	1-786-352-11	DIAL-TIMER (SE820)	
< DISPLAY >			
DT701	1-804-699-11	LED DISPLAY LTG-0129M (SE220/SE420K/SE620)	
DT701	1-518-816-11	VFD DISPLAY (SE720/SE727E/SX720/SX727D/SE820)	
< FUSE >			
△F1SS01	1-576-526-11	FUSE-CARTRIDGE 250V 1.6A	
FC1SS1	1-576-527-11	FUSE-CLIP	
FC1SS2	1-576-527-11	FUSE-CLIP	
< IC >			
IC1SS1	1-804-784-11	PHOTO-COUPLER	
IC1SS2	1-804-445-11	IC KA431Z	
IC301	1-804-702-11	IC-VIDEO PROCESS LA71750M	
IC3S01	1-804-701-11	IC-CHROMA LA70100M (SE220B/SE620B/SE720B/SE820B)	
IC4N01	1-804-795-11	IC-AUDIO PROCESSOR MSP3417D(PQFP) (SE620B,E,N/SE720E,G,I,B,N/SX720N,E/SE727E/SE820B,E,G,N)	
IC501	1-804-703-11	IC-AUDIO PROCESSOR LA72646M (EXCEPT SE220/SE420K)	
IC601	1-804-696-11	IC MICOM N120-A69-3BA (SE220/SE620B,D,E/SE720D,E,G,I,B/SX720D,E/ SX727D/SE727E/SE820B,D,E,G)	
IC601	1-804-697-11	IC MICOM N120-A70-3BA (SE420K/SE620N/SE720N/SX720N/SE820N)	
IC604	1-804-444-11	IC KA7533	
IC605	1-804-432-11	IC-EEPROM 524C80D81	
IC608	1-804-480-11	IC-VOL. DETECTOR 7042 (SE420K/SE620N/SE720N/SX720N/SE820N)	
IC6P01	1-804-454-11	IC-OSD PROCESSOR LC74759JM-9820 (SE420K/SE620)	
IC6P01	1-804-453-11	IC-OSD PROCESSOR LC74776NM-9821 (SE220/SE720/SE727E/SX720/SX727D/SE820)	
IC701	1-804-698-11	IC MICOM UPD780232GC (SE720/SE727E/SX720/SX727D/SE820)	
IC701	1-804-706-11	IC-LED DRIVER PT6959 (SE220/SE420K/SE620)	

Ref. No.	Part No.	Description	Remarks
IC801	1-804-700-11	IC-FP BU4053BCF (SE220/SE420K)	
< JUMPER >			
J301	1-216-295-11	R-CHIP 0 5% 1/10W (EXCEPT SE220/SE420K)	
J812	1-216-295-11	R-CHIP 0 5% 1/10W (SE220/SE420K)	
J813	1-216-295-11	R-CHIP 0 5% 1/10W (SE220/SE420K)	
J814	1-216-295-11	R-CHIP 0 5% 1/10W (SE220/SE420K)	
J815	1-216-295-11	R-CHIP 0 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)	
J816	1-216-295-11	R-CHIP 0 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)	
< LINE FILTER >			
L1SS02	1-424-830-11	FILTER LINE NOISE30mH	
< COIL >			
L1SS31	1-424-828-11	COIL-CHOKE 10UH	
L1SS32	1-424-828-11	COIL-CHOKE 10UH	
L4N04	1-400-085-11	INDUCTOR (EXCEPT SE220/SE420K)	
L502	1-400-086-11	CORE-FERRITE BEAD	
L814	1-400-085-11	INDUCTOR	
< LED >			
LD601	1-804-438-11	LED-IR	
< TRANS >			
PT1SS1	1-437-395-11	TRANS SWITCHING EE2621 (SE220/SE420K/SE620)	
PT1SS1	1-437-758-11	TRANS SWITCHING EE2621 (SE720/SE727E/SX720/SX727D/SE820)	
< TRANSISTOR >			
Q1P101	1-804-424-11	TR-SMALL SIGNAL KSC2328A-Y	
Q1P102	1-804-424-11	TR-SMALL SIGNAL KSC2328A-Y	
Q1P103	1-804-424-11	TR-SMALL SIGNAL KSC2328A-Y (EXCEPT SE220/SE420K)	
Q1P104	1-804-423-11	TR-SMALL SIGNAL KSA928A-Y	
Q1P105	1-804-427-11	TR-DIGITAL KSR1001	
Q1P106	1-804-421-11	TR-SMALL SIGNAL KSC945 (EXCEPT SE220/SE420K)	
Q1P107	1-804-429-11	TR-DIGITAL KSR2001 (EXCEPT SE220/SE420K)	
Q1P108	1-804-424-11	TR-SMALL SIGNAL KSC2328A-Y (EXCEPT SE220/SE420K)	
Q1SR01	1-804-783-11	TR-POWER	
Q1SR02	1-804-422-11	TR-SMALL SIGNAL KTC3203-Y	
Q302	1-804-421-11	TR-SMALL SIGNAL KSC945 (SE220B/SE620B/SE720B/SE820B)	
Q350	1-804-420-11	TR-SMALL SIGNAL KSA733	
Q351	1-804-420-11	TR-SMALL SIGNAL KSA733 (EXCEPT SE620D,N)	
Q3A01	1-804-421-11	TR-SMALL SIGNAL KSC945	
Q3A02	1-804-420-11	TR-SMALL SIGNAL KSA733	

Note : The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
Q3A03	1-804-422-11	TR-SMALL SIGNALKTC3203-Y	
Q3A04	1-804-422-11	TR-SMALL SIGNALKTC3203-Y	
Q3A05	1-804-422-11	TR-SMALL SIGNALKTC3203-Y	
Q3A06	1-804-420-11	TR-SMALL SIGNALKSA733	
Q3D01	1-804-422-11	TR-SMALL SIGNALKTC3203-Y (SE820)	
Q3D02	1-804-420-11	TR-SMALL SIGNALKSA733 (SE820)	
Q603	1-804-421-11	TR-SMALL SIGNALKSC945 (SE820)	
Q6E01	1-804-422-11	TR-SMALL SIGNALKTC3203-Y (SE620/SE720/SE727E/SX720/SX727D/SE820)	
Q6E02	1-804-421-11	TR-SMALL SIGNALKSC945 (SE620/SE720/SE727E/SX720/SX727D/SE820)	
Q6E03	1-804-429-11	TR-DIGITAL KSR2001 (SE620/SE720/SE727E/SX720/SX727D/SE820)	
Q6P01	1-804-420-11	TR-SMALL SIGNALKSA733	
Q6P02	1-804-420-11	TR-SMALL SIGNALKSA733	
Q804	1-804-429-11	TR-DIGITAL KSR2001	
Q806	1-804-429-11	TR-DIGITAL KSR2001(EXCEPT SE620D.N)	
Q809	1-804-421-11	TR-SMALL SIGNALKSC945	
Q810	1-804-421-11	TR-SMALL SIGNALKSC945 (EXCEPT SE620D.N)	
< RESISTOR >			
R1P102	1-216-667-11	R-CHIP	4.7K 5% 1/10W (EXCEPT SE220/SE420K)
R1P103	1-247-815-11	R-CARBON	220 5% 1/8W (EXCEPT SE220/SE420K)
R1P104	1-216-627-11	R-CHIP	100 5% 1/10W (EXCEPT SE220/SE420K)
R1P105	1-216-675-11	R-CHIP	10K 5% 1/10W (EXCEPT SE220/SE420K)
R1P108	1-247-845-11	R-CARBON	3.9K 5% 1/4W
R1P110	1-216-627-11	R-CHIP	100 5% 1/10W
R1SD11	1-247-880-11	R-CARBON	110K 5% 1/8W
R1SD13	1-247-880-11	R-CARBON	110K 5% 1/8W
R1SD14	1-247-880-11	R-CARBON	110K 5% 1/8W
R1SD15	1-247-880-11	R-CARBON	110K 5% 1/8W
R1SD16	1-215-901-11	R-METAL OXIDE(S)	33K 5% 2W
R1SD31	1-247-815-11	R-CARBON	220 5% 1/8W
R1SD32	1-247-833-11	R-CARBON	1.2K 5% 1/8W
R1SR11	1-216-367-11	R-METAL OXIDE	0.68 5% 2W
R1SR12	1-244-369-11	R-METAL OXIDE	300 5% 1W
R1SS03	1-245-346-11	R-FUSIBLE(S)	10 5% 2W (SE220/SE420K)
R1SS10	1-244-373-11	R-CEMENT	2.7 10% 2W
R1SS11	1-215-901-11	R-METAL OXIDE(S)	33K 5% 2W
R1SS32	1-216-651-11	R-CHIP	1K 5% 1/10W
R1SS33	1-244-372-11	R-METAL	3K 1% 1/8W
R1SS34	1-244-371-11	R-METAL	2.2K 1% 1/8W
R316	1-216-673-11	R-CHIP	8.2K 5% 1/10W
R323	1-216-665-11	R-CHIP	3.9K 5% 1/10W
R327	1-216-667-11	R-CHIP	4.7K 5% 1/10W
R329	1-216-661-11	R-CHIP	2.7K 5% 1/10W
R333	1-216-693-11	R-CHIP	56K 5% 1/10W
R334	1-216-655-11	R-CHIP	1.5K 5% 1/10W (EXCEPT SE220/SE420K)
R350	1-216-655-11	R-CHIP	1.5K 5% 1/10W (SE220B/SE620B/SE720B/SE820B)
R372	1-216-651-11	R-CHIP	1K 5% 1/10W
R374	1-216-627-11	R-CHIP	100 5% 1/10W

Ref. No.	Part No.	Description	Remarks
R3A09	1-216-295-11	R-CHIP	0 5% 1/10W
R3A11	1-216-659-11	R-CHIP	2.2K 5% 1/10W
R3A12	1-216-627-11	R-CHIP	100 5% 1/10W
R3A13	1-216-683-11	R-CHIP	22K 5% 1/10W (SE820)
R3A13	1-216-691-11	R-CHIP	47K 5% 1/10W (SE220/SE420K/SE620)
R3A16	1-216-675-11	R-CHIP	10K 5% 1/10W
R3A17	1-216-659-11	R-CHIP	2.2K 5% 1/10W
R3A18	1-216-659-11	R-CHIP	2.2K 5% 1/10W
R3A24	1-216-683-11	R-CHIP	22K 5% 1/10W
R3A31	1-216-295-11	R-CHIP	0M 5% 1/10W
R3A51	1-216-675-11	R-CHIP	10K 5% 1/10W
R3D01	1-216-691-11	R-CHIP	47K 5% 1/10W (SE820)
R3D02	1-216-667-11	R-CHIP	4.7K 5% 1/10W (SE820)
R3D03	1-216-683-11	R-CHIP	22K 5% 1/10W (SE820)
R3S01	1-216-651-11	R-CHIP	1K 5% 1/10W (SE220B/SE620B/SE720B/SE820B)
R401	1-216-691-11	R-CHIP	47K 5% 1/10W (EXCEPT SE220B/SE620B/SE720B/SE820B)
R402	1-216-627-11	R-CHIP	100 5% 1/10W (EXCEPT SE220B/SE620B/SE720B/SE820B)
R403	1-216-627-11	R-CHIP	100 5% 1/10W
R404	1-216-627-11	R-CHIP	100 5% 1/10W
R407	1-216-659-11	R-CHIP	2.2K 5% 1/10W (EXCEPT SE220/SE420K/SE620B/SE720B/SE820B)
R407	1-216-673-11	R-CHIP	8.2K 5% 1/10W (SE220D.G./SE420K)
R408	1-247-833-11	R-CARBON	1.2K 5% 1/8W (EXCEPT SE220B/SE620B/SE720B/SE820B)
R4N01	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE220/SE420K)
R4N02	1-216-627-11	R-CHIP	100 5% 1/10W (EXCEPT SE220/SE420K)
R4N03	1-216-627-11	R-CHIP	100 5% 1/10W (EXCEPT SE220/SE420K)
R4N04	1-216-661-11	R-CHIP	27K 5% 1/10W (EXCEPT SE220/SE420K)
R503	1-216-643-11	R-CHIP	470 5% 1/10W (EXCEPT SE220/SE420K)
R512	1-216-687-11	R-CHIP	33K 5% 1/10W (EXCEPT SE220/SE420K)
R514	1-216-691-11	R-CHIP	47K 5% 1/10W (EXCEPT SE220/SE420K)
R546	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE220/SE420K)
R547	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE220/SE420K)
R570	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE220/SE420K)
R571	1-216-693-11	R-CHIP	56K 5% 1/10W (EXCEPT SE220/SE420K)
R601	1-247-831-11	R-CARBON	1K 5% 1/8W
R602	1-247-831-11	R-CARBON	1K 5% 1/8W

MAIN

Ref. No.	Part No.	Description	Remarks
R603	1-247-831-11	R-CARBON	1K 5% 1/8W
R604	1-247-831-11	R-CARBON	1K 5% 1/8W
R605	1-247-831-11	R-CARBON	1K 5% 1/8W
R607	1-247-831-11	R-CARBON	1K 5% 1/8W
R608	1-247-873-11	R-CARBON	56K 5% 1/8W
R609	1-247-873-11	R-CARBON	56K 5% 1/8W
R610	1-247-831-11	R-CARBON	1K 5% 1/8W
R611	1-247-831-11	R-CARBON	1K 5% 1/8W
R613	1-216-651-11	R-CHIP	1K 5% 1/10W (SE420K/SE620/SE720N/SX720N/SE820N)
R614	1-247-831-11	R-CARBON	1K 5% 1/8W
R631	1-216-651-11	R-CHIP	1K 5% 1/10W
R638	1-247-831-11	R-CARBON	1K 5% 1/8W
R639	1-247-831-11	R-CARBON	1K 5% 1/8W
R640	1-216-675-11	R-CHIP	10K 5% 1/10W
R641	1-216-643-11	R-CHIP	470 5% 1/10W (SE220/SE420K/SE620)
R642	1-216-643-11	R-CHIP	470 5% 1/10W (SE220/SE420K/SE620)
R644	1-247-831-11	R-CARBON	1K 5% 1/8W
R656	1-216-675-11	R-CHIP	10K 5% 1/10W
R657	1-247-875-11	R-CARBON	68K 5% 1/8W (SE420K/SE620/SE720N/SX720N/SE820N)
R661	1-216-687-11	R-CHIP	33K 5% 1/10W
R666	1-216-643-11	R-CHIP	470 5% 1/10W
R667	1-216-643-11	R-CHIP	470 5% 1/10W
R668	1-216-675-11	R-CHIP	10K 5% 1/10W
R669	1-216-675-11	R-CHIP	10K 5% 1/10W
R670	1-216-667-11	R-CHIP	4.7K 5% 1/10W
R671	1-216-667-11	R-CHIP	4.7K 5% 1/10W
R672	1-216-667-11	R-CHIP	4.7K 5% 1/10W
R675	1-247-837-11	R-CARBON	180 5% 1/4W
R676	1-216-686-11	R-CHIP	30K 5% 1/10W (SE220/SE420K/SE620)
R678	1-216-683-11	R-CHIP	22K 5% 1/10W (SE220/SE420K/SE620)
R679	1-247-815-11	R-CARBON	220 5% 1/8W
R682	1-216-683-11	R-CHIP	22K 5% 1/10W
R690	1-216-693-11	R-CHIP	56K 5% 1/10W
R691	1-247-815-11	R-CARBON	220 5% 1/8W
R693	1-216-691-11	R-CHIP	47K 5% 1/10W
R694	1-216-691-11	R-CHIP	47K 5% 1/10W
R695	1-216-627-11	R-CHIP	100 5% 1/10W (SE220B/SE620B/SE720B/SE820B)
R696	1-247-831-11	R-CARBON	1K 5% 1/8W
R697	1-216-627-11	R-CHIP	100 5% 1/10W (SE220B,I/SE620B/SE720B/SE820B)
R698	1-216-675-11	R-CHIP	10K 5% 1/10W
R6E01	1-216-675-11	R-CHIP	10K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R6E02	1-216-659-11	R-CHIP	2.2K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R6P03	1-216-661-11	R-CHIP	2.7K 5% 1/10W (SE220/SE720/SE727E/SX720/SX727D/SE820)
R6P04	1-216-675-11	R-CHIP	10K 5% 1/10W (SE220/SE720/SX720/SX727D/SE820)
R6P07	1-216-635-11	R-CHIP	220 5% 1/10W

Ref. No.	Part No.	Description	Remarks
R6P09	1-216-295-11	R-CHIP	0 5% 1/10W (EXCEPT SE420K/SE620)
R6P09	1-216-659-11	R-CHIP	2.2K 5% 1/10W (SE420K/SE620)
R6P10	1-247-815-11	R-CARBON	220 5% 1/8W
R701	1-216-686-11	R-CHIP	30K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R731	1-216-675-11	R-CHIP	10K 5% 1/10W
R751	1-216-661-11	R-CHIP	27K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R752	1-216-635-11	R-CHIP	220 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R777	1-216-683-11	R-CHIP	22K 5% 1/10W (SE220/SE720D,E,G,I,B/SX720D,E/SE727E/SX727D/SE820B,D,E,G)
R805	1-216-651-11	R-CHIP	1K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R806	1-216-651-11	R-CHIP	1K 5% 1/10W (SE720/SE727E/SX720/SX727D/SE820)
R809	1-247-828-11	R-CARBON	75 5% 1/8W (EXCEPT SE620D,N)
R810	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE620D,N)
R811	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE620D,N)
R813	1-216-651-11	R-CHIP	1K 5% 1/10W
R814	1-216-651-11	R-CHIP	1K 5% 1/10W
R815	1-216-651-11	R-CHIP	1K 5% 1/10W
R816	1-216-651-11	R-CHIP	1K 5% 1/10W
R819	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE620D,N)
R820	1-216-651-11	R-CHIP	1K 5% 1/10W (EXCEPT SE620D,N)
R821	1-216-687-11	R-CHIP	33K 5% 1/10W (EXCEPT SE620D,N)
R822	1-216-683-11	R-CHIP	22K 5% 1/10W (EXCEPT SE620D,N)
< PHOTO TRANSISTOR >			
S601	1-804-439-11	PHOTO TR	
S602	1-804-439-11	PHOTO TR	
< SWITCH >			
SW601	1-786-198-11	SWITCH-MODE	
< TM BLOCK >			
TM401	1-693-553-11	TM BLOCK	TCPL0601PD11A (SE220B/SE620B/SE720B/SE820B)
TM401	1-693-584-11	TM BLOCK	TCMB0600PD13A (SE220D)
TM401	1-693-585-11	TM BLOCK	TCMI0610PD13A (SE220G/SE720G/SE820G)
TM401	1-693-589-11	TM BLOCK	TCMK0601PD13A (SE220I/SE420K/SE620D,E,N/SE720D,E,I,N/SX720/SX727D/SE727E/SE820D,E,N)
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VA1SS1	1-804-437-11	VARISTOR	

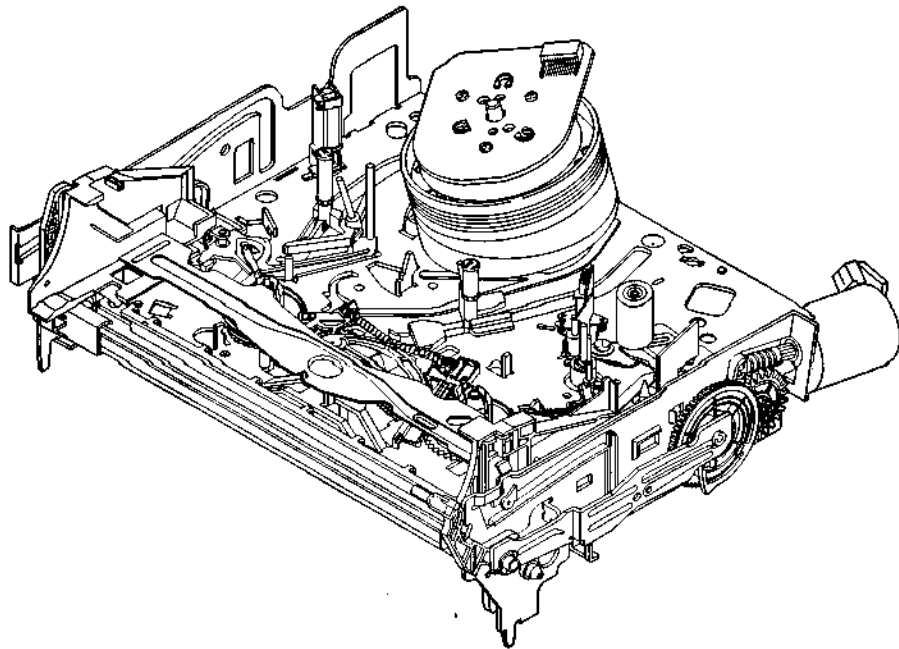
Ref. No.	Part No.	Description	Remarks
< RESISTOR >			
W079	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K)
W172	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W199	1-216-295-11	R-CHIP	0 5% 1/10W
W376	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W383	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W384	1-216-295-11	R-CHIP	0 5% 1/10W
W386	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W506	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W515	1-216-295-11	R-CHIP	0 5% 1/10W
W701	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W702	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W750	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W751	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
W752	1-216-295-11	R-CHIP	0 5% 1/10W (SE220/SE420K/SE620)
< VIBRATOR >			
XT01	1-795-616-11	RESONATOR-CERAMIC	3.84MHz (EXCEPT SE727E/SX727D/SE820)
XT301	1-795-330-11	CRYSTAL-UNIT	4.433619MHz
XT4N01	1-795-615-11	CRYSTAL-UNIT	18.432MHz (EXCEPT SE220/SE420K)
XT601	1-795-332-11	CRYSTAL-UNIT	32.768KHz (SE420K/SE620/SE720N/SX720N/SE820N)
XT602	1-795-331-11	CRYSTAL-UNIT	8MHz
XT750	1-795-625-11	CRYSTAL-UNIT	5MHz (SE720/SE727E/SX720/SX727D/SE820)
< DIODE >			
ZD1P01	1-804-416-11	DIODE-ZENER	MTZJ5.1B (EXCEPT SE220/SE420K)
ZD1P02	1-804-416-11	DIODE-ZENER	MTZJ5.1B
ZD1P03	1-804-417-11	DIODE-ZENER	MTZJ9.1B (EXCEPT SE220/SE420K)
ZD1P04	1-804-417-11	DIODE-ZENER	MTZJ9.1B
ZD1SS1	1-804-415-11	DIODE-ZENER	UZP43B

Ref. No.	Part No.	Description	Remarks
ACCESSORIES *****			
1-477-269-11		REMOCON-ASSY (RMT-V405)	(SE220D,I,G/SE420K)
1-477-270-11		REMOCON-ASSY (RMT-V405A)	(SE220B)
1-477-271-11		REMOCON-ASSY (RMT-V406)	(SE620D,E,N/SE720D,E,I,G,N)
1-477-272-11		REMOCON-ASSY (RMT-V406A)	(SE620B/SE720B)
1-477-273-11		REMOCON-ASSY (RMT-V407A)	(SE727E/SE820D,E,G,N)
1-477-274-11		REMOCON-ASSY (RMT-V407B)	(SE820B)
1-477-275-11		REMOCON-ASSY (RMT-V407C)	(SX727D)
1-477-276-11		REMOCON-ASSY (RMT-V406B)	(SX720)
3-075-088-01		DOOR-BATTERY REMOCON	(SE220/SE420K/SE620/SE720/SE727E/SE820)
3-075-089-01		DOOR-BATTERY REMOCON (Black)	(SX720/SX727D)
3-073-151-11		MANUAL USERS	(SE220D/SE620E/SE720D,E/SX720D,E/SE820D,E)
3-073-151-21		MANUAL USERS	(SE620E/SE720E/SE820E)
3-073-151-31		MANUAL USERS	(SE220D/SE720D/SX720D/SE820D/SX727D)
3-073-151-41		MANUAL USERS	(SE220D/SE620D/SE720D/SX720D/SE820D)
3-073-151-51		MANUAL USERS	(SE220D/SE620D,E/SE720D,E/SX720D,E/SE820D,E)
3-073-151-61		MANUAL USERS	(SE620E/SE720E/SX720E/SE820E)
3-073-151-71		MANUAL USERS	(SE620E/SE720E/SX720E/SE820E)
3-073-152-11		MANUAL USERS	(SE727E)
3-073-152-21		MANUAL USERS	(SE727E)
3-073-152-31		MANUAL USERS	(SE727E)
3-073-153-11		MANUAL USERS	(SE220G,I/SE720G,I/SE820G)
3-073-154-11		MANUAL USERS	(SE220B/SE620B/SE720B/SE820B)
3-073-155-11		MANUAL USERS	(SE420K/SE620N/SE720N/SX720N/SE820N)
3-073-155-21		MANUAL USERS	(SE420K/SE620N/SE820N)
3-073-155-31		MANUAL USERS	(SE420K/SE620N/SE720N/SE820N/SX720N)
3-073-155-41		MANUAL USERS	(SE420K/SE620N/SE720N/SE820N/SX720N)
3-073-155-51		MANUAL USERS	(SE420K/SE620N/SE720N/SE820N/SX720N)

VHS MECHANICAL ADJUSTMENT MANUAL VII

TS-10 MECHANISM

Please use this manual with the service manual.



VHS MECHANISM DECK

SONY®

TABLE OF CONTENTS

1. Disassembly and Reassembly	
1-1 Deck Parts Locations	3
1-1-1 Top View	3
1-1-2 Bottom View	5
1-2 Main Deck	6
1-2-1 Lever FL Door Removal	6
1-2-2 Holder FL Cassette Ass'y Removal	6
1-2-4 Lever FL Arm Ass'y Removal	7
1-2-3 Slider FL Drive, Gear FL Cam Removal	7
1-2-5 Gear Worm Wheel Removal	8
1-2-6 Motor Loading Ass'y Removal	8
1-2-7 Bracket Gear, Gear Joint 2, 1 Removal	9
1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal	9
1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly	10
1-2-10 Lever Pinch Drive, Lever Tension Drive Removal	10
1-2-11 Lever Tension Ass'y, Band Brake Ass'y Removal	11
1-2-12 Lever Brake S, T Ass'y Removal	11
1-2-13 Gear Idle Ass'y Removal	12
1-2-14 Disk S, T Reel Removal	12
1-2-15 Holder Clutch Ass'y Removal	13
1-2-16 Lever Up Down Ass'y, Gear Center Ass'y Removal	13
1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal	14
1-2-17 Guide Cassette Door Removal	14
1-2-19 Lever #9 Guide Ass'y Removal	15
1-2-20 FE Head Removal	15
1-2-21 ACE Head Removal	16
1-2-22 Slider S, T Ass'y Removal	16
1-2-23 Plate Ground Deck, Cylinder Ass'y Removal	17
1-2-24 Belt Pulley Removal	17
1-2-26 Damper Capstan, Motor Capstan Ass'y Removal	18
1-2-27 How to Eject the Cassette Tape	18
1-3 The table of clearing, Lubrication and replacement time about principal parts	19
1-4 Tools and fixtures required for service.....	20
 2. Alignment and Adjustment	
2-1 Tape Transport System and Adjustment Locations	21
2-2 Tape Transport System Adjustment	22
2-2-1 ACE Head Assembly Adjustment	22
2-2-2 Linearity Adjustment (Guide roller S, T adjustment)	23
2-2-3 Check Transitional Operation from RPS to Play	24
2-2-4 Envelope Check	24
2-2-5 Tape Wrinkle Check	24
2-3 Reel Torque	24

1. Disassembly and Reassembly

1-1 Deck Parts Locations

1-1-1 Top View

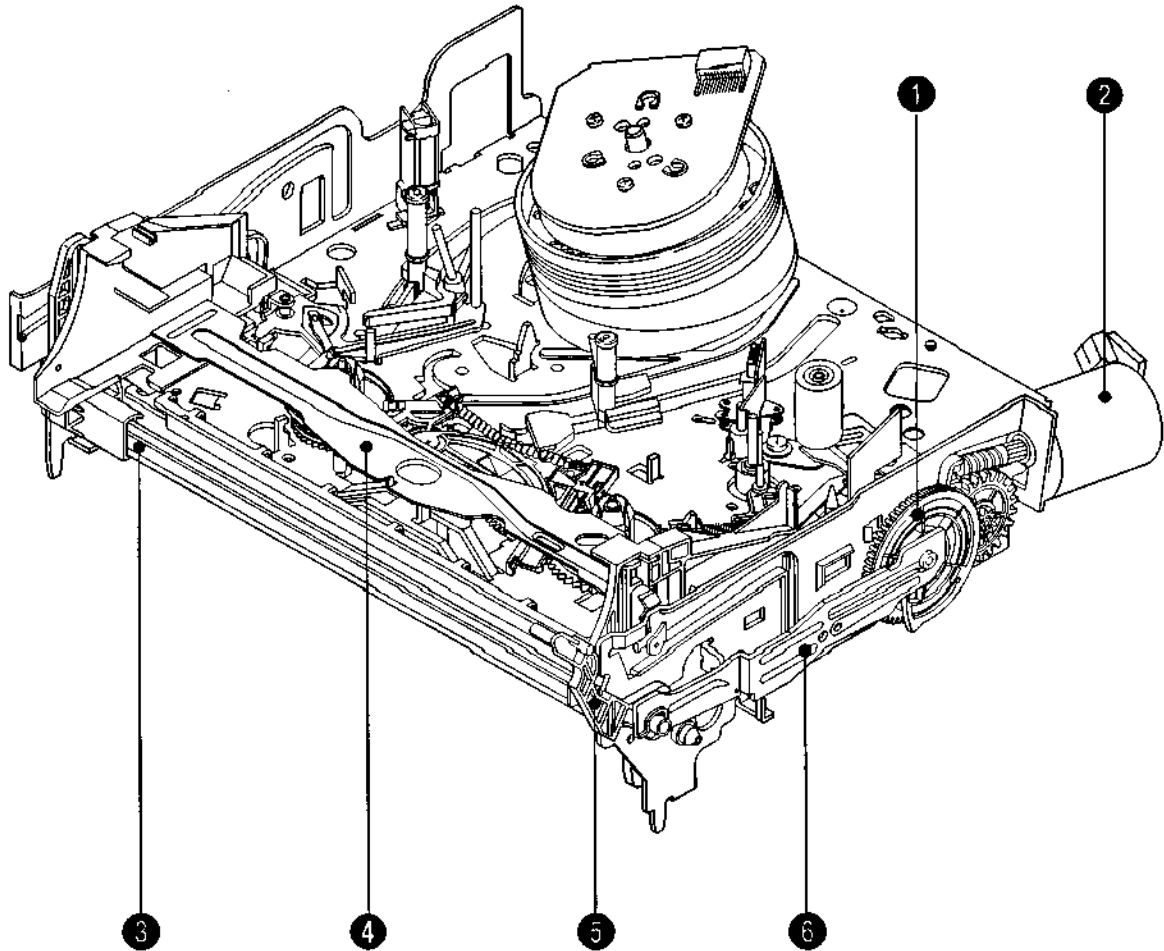


Fig. 1-1 Top parts Location-1

- ① GEAR FL CAM
- ② MOTOR LOADING ASS'Y
- ③ LEVER FL ARM ASS'Y
- ④ HOLDER FL CASSETTE ASS'Y
- ⑤ LEVER FL DOOR
- ⑥ SLIDER FL DRIVE

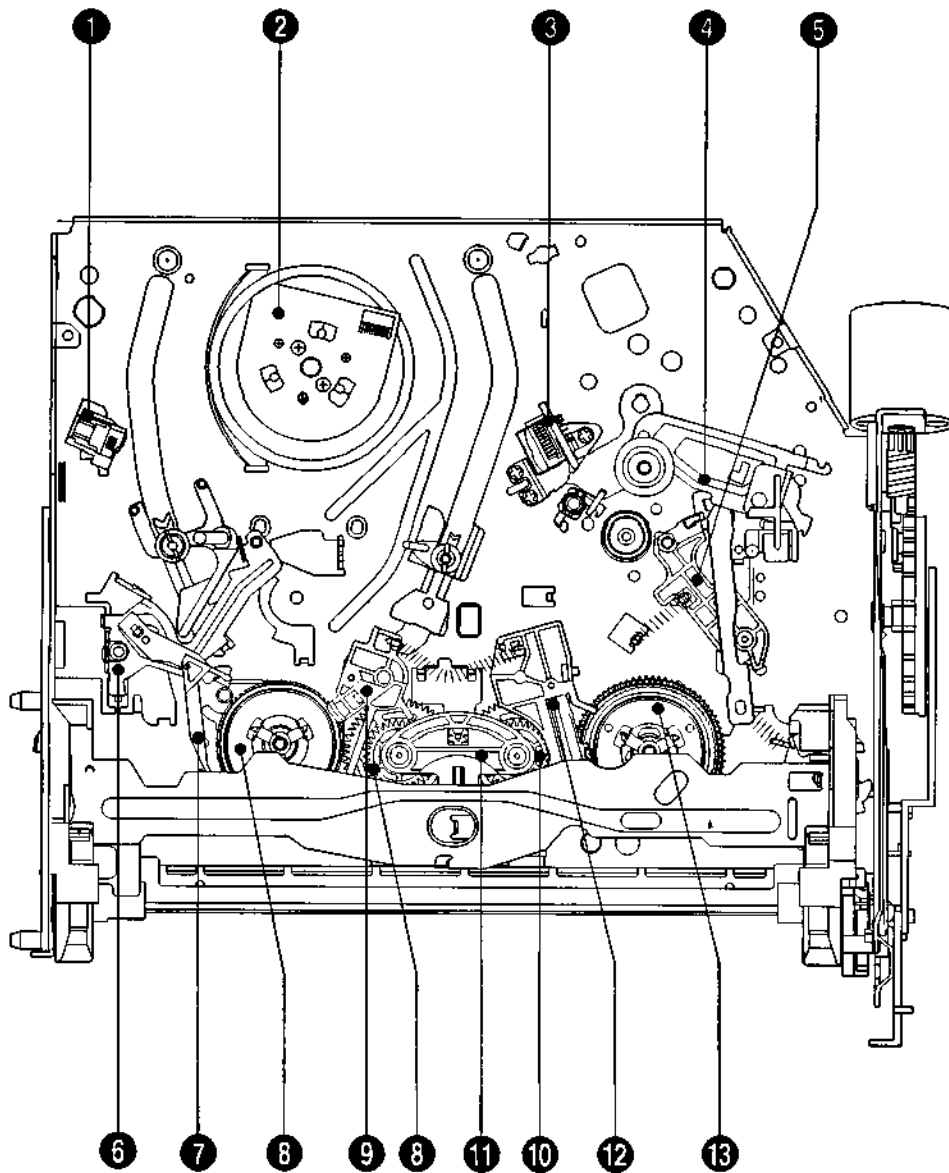


Fig. 1-2 Top Parts Location-2

- | | |
|--------------------------|-----------------------|
| ① FE HEAD | ⑧ DISK S REEL |
| ② CYLINDER ASS'Y | ⑨ LEVER S BRAKE ASS'Y |
| ③ ACE HEAD ASS'Y | ⑩ GEAR IDLE |
| ④ LEVER UNIT PINCH ASS'Y | ⑪ LEVER IDLE |
| ⑤ LEVER #9 GUIDE ASS'Y | ⑫ LEVER T BRAKE ASS'Y |
| ⑥ LEVER TENSION ASS'Y | ⑬ DISK T REEL |
| ⑦ BAND BRAKE ASS'Y | |

1-1-2 Bottom View

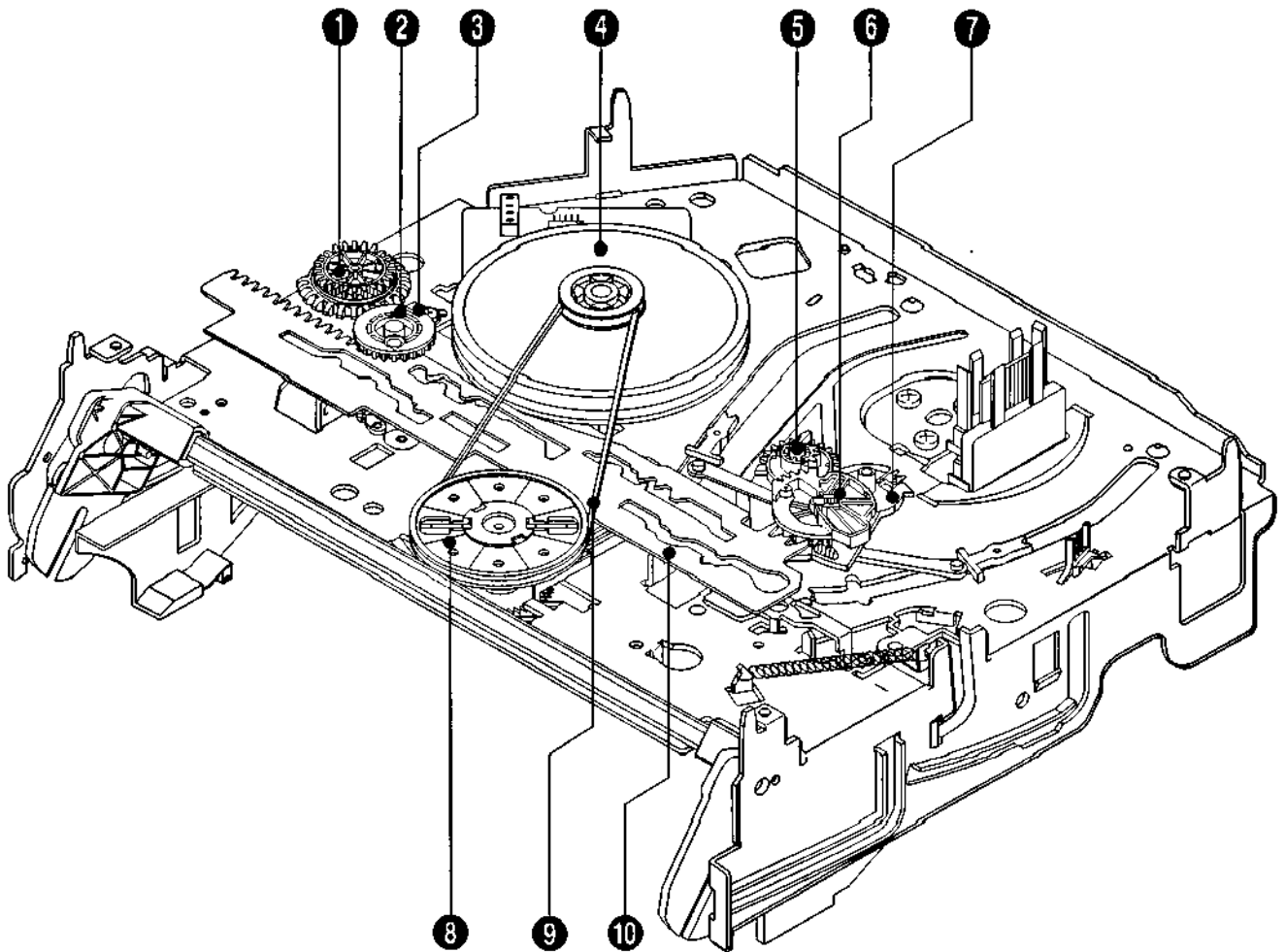


Fig. 1-3 Bottom Parts Location

- ① GEAR JOINT 1
- ② GEAR JOINT 2
- ③ BRACKET GEAR
- ④ MOTOR CAPSTAN ASS'Y
- ⑤ LEVER T LOAD ASS'Y
- ⑥ GEAR LOADING DRIVE
- ⑦ LEVER S LOAD ASS'Y
- ⑧ HOLDER CLUTCH ASS'Y
- ⑨ BELT PULLEY
- ⑩ SLIDER CAM

1-2 Main Deck

1-2-1 Lever FL Door Removal

- 1) Push the Holder FL Cassette Ass'y ① about 20mm in the direction of arrow "A".
- 2) Rotate the Lever FL Door ② in the direction of arrow "B".
- 3) Release the Hook ③ and Remove the Lever FL Door ② in the direction of arrow "C".

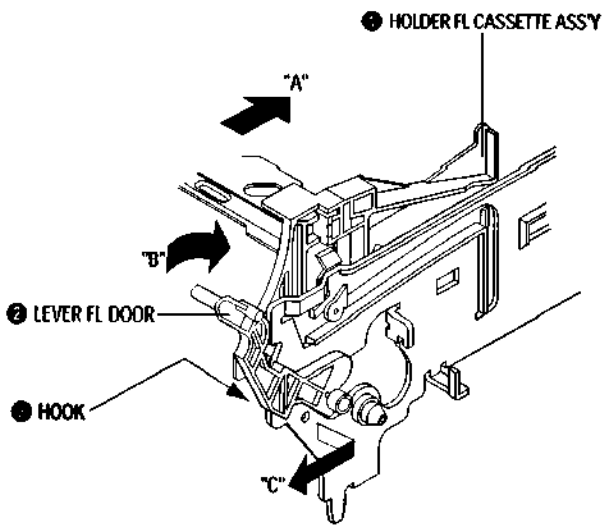


Fig. 1-4 Lever FL Door Removal

1-2-2 Holder FL Cassette Ass'y Removal

- 1) Pull the Holder FL Cassette Ass'y ① to the eject position.
- 2) Pull the Holder FL Cassette Ass'y ① as grasping the Holder FL Cassette Ass'y ① and Lever FL Cassette-R ② in the same time to release hooking from Main Base until the Boss [A] of Holder FL Cassette Ass'y ① is taken out from the Rail [B].
- 3) Lift the Holder FL Cassette Ass'y ①, in this time, you have to grasp the Lever FL Cassette-R ② continuously until the Holder FL Cassette Ass'y ① is taken out completely.

Note : Be sure to insert Lever FL Cassette-R ② in the direction of "A" to prevent separation and breakage of the Lever FL Cassette-R ② at disassembling and reassembling.

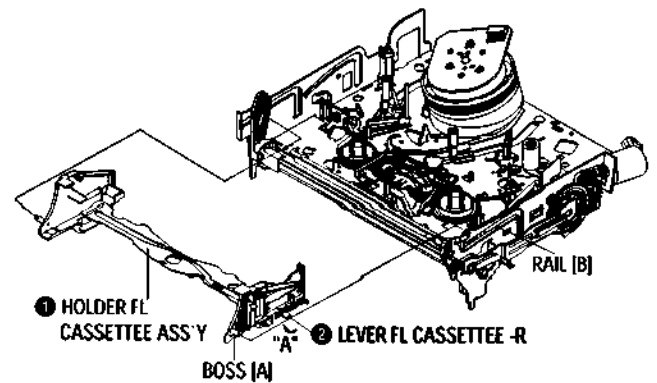


Fig. 1-5 Holder FL Cassette Ass'y Removal

1-2-3 Slider FL Drive, Gear FL Cam Removal

- 1) Pull the Slider FL Drive ❶ to the front direction.
- 2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 1-6)
- 3) Remove the Gear FL cam ❷.

Note : When reinstalling be sure to reassemble Slider FL drive ❶ after you insert the Boss of Lever FL ARM-R in Groove of Slider FL drive ❶.

Assembly : Align the Gear FL Cam ❶ with the Gear worm wheel Post as shown drawing. (Refer to Timing point)

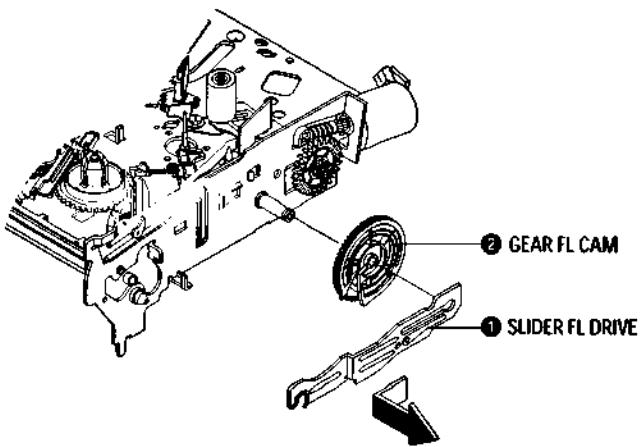


Fig. 1-6 Slider FL Drive Removal

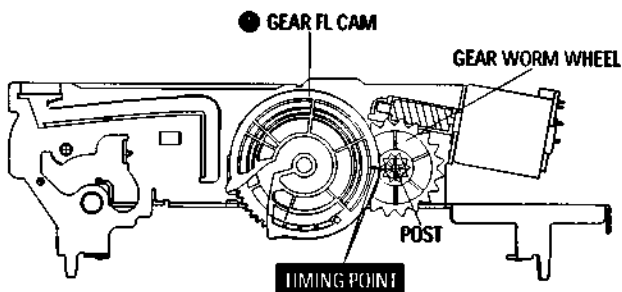


Fig. 1-7 Gear FL Cam, Gear Worm

1-2-4 Lever FL Arm Ass'y Removal

- 1) Push the hole "A" in the direction of arrow "B" use the pin.(about Dia.2.5)
- 2) Pull out the Lever FL Arm Ass'y ❶ from the Boss of Main Base.
- 3) Remove the Lever FL Arm Ass'y ❶ in the direction of arrow "C".

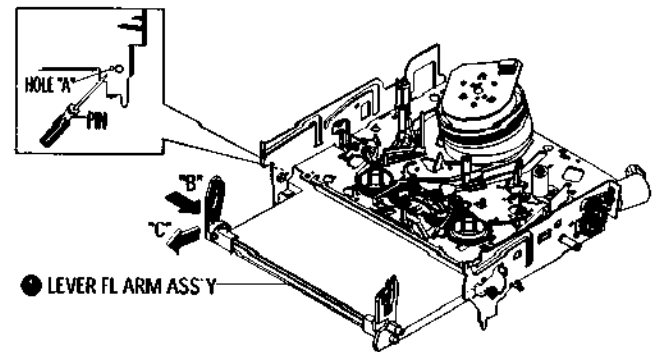


Fig. 1-8 Lever FL Arm Ass'y Removal

1-2-5 Gear Worm Wheel Removal

- 1) Remove the Gear Worm wheel ❶.

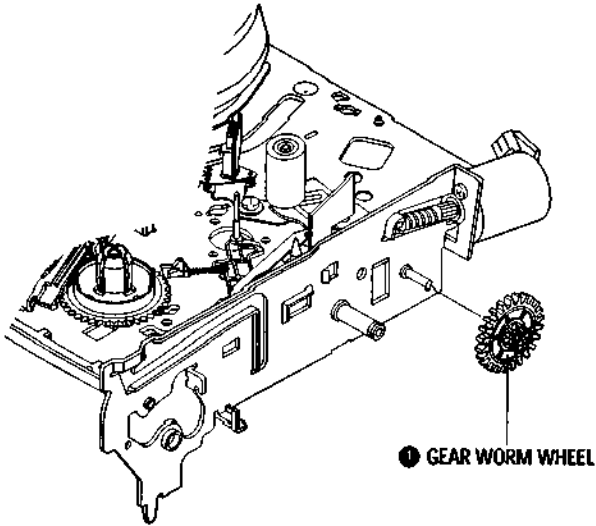


Fig. 1-9 Gear Worm Wheel Removal

1-2-6 Motor Loading Ass'y Removal

- 1) Remove the screw ❶.
- 2) Remove the Motor Loading Ass'y ❷.

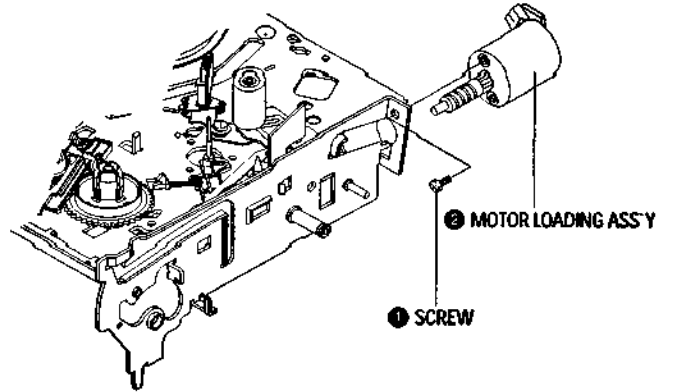


Fig. 1-10 Motor Loading Ass'y Removal

1-2-7 Bracket Gear, Gear Joint 2, 1 Removal

- 1) Remove the SCREW ❶.
- 2) Remove the Bracket Gear ❷.
- 3) Remove the Gear Joint 2 ❸.
- 4) Remove the Gear Joint 1 ❹.

Assembly :

- 1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig 1-12. (Refer to Timing point1)
- 2) Confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.

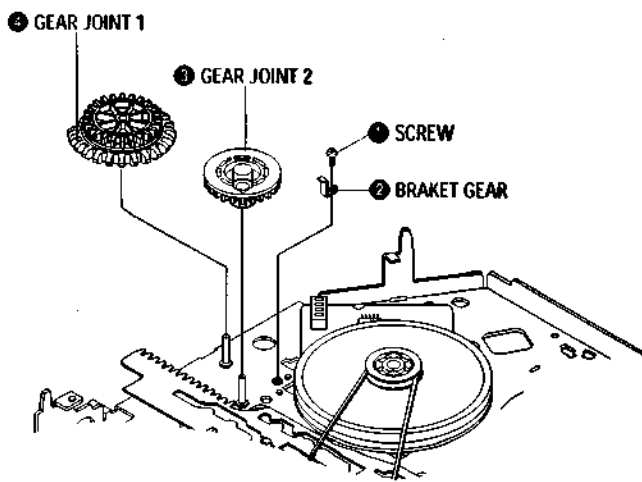


Fig. 1-11 Bracket Gear, Gear Joint 1,2 Removal

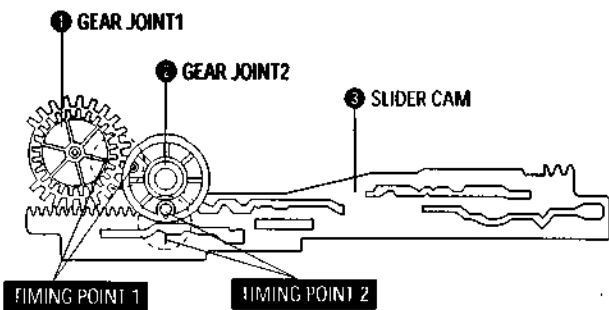


Fig. 1-12 Gear Joint 1,2 Assembly

1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal

- 1) Remove the Belt Pulley. (Refer to Fig. 1-30)
- 2) Remove the Gear Loading Drive ❶ after releasing Hook [A] in the direction arrow as shown in detail drawing.
- 3) Remove the Slider Cam ❷.
- 4) Remove the Lever Load S ❸, Link Load S ❹ & Lever Load T ❺, Link Load T ❻.

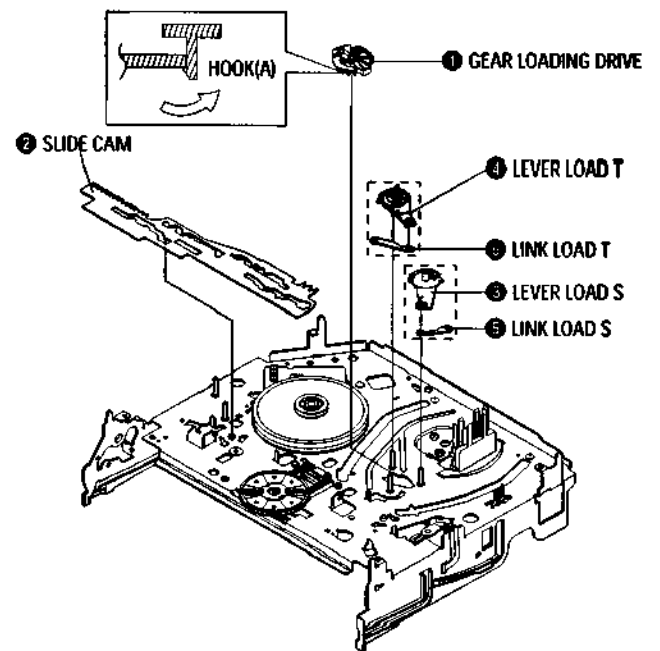


Fig. 1-13 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

- 1) When reinstalling, be sure to align dot of Lever Load T Ass'y ① with dot of Lever Load S Ass'y ② as shown in drawing. (Refer to Timing Point 1).
- 2) Insert the Pin A,B,C,D into the Slider Cam ③ hole,
- 3) Be sure to align dot of Lever Load T ① and dot of Gear Loading Drive ④. (Refer to Timing Point 2).
- 4) Aline dot of Gear Loading drive ④ with mark of Slider Cam ③ as shown in drawing(Refer to Timing Point 3).

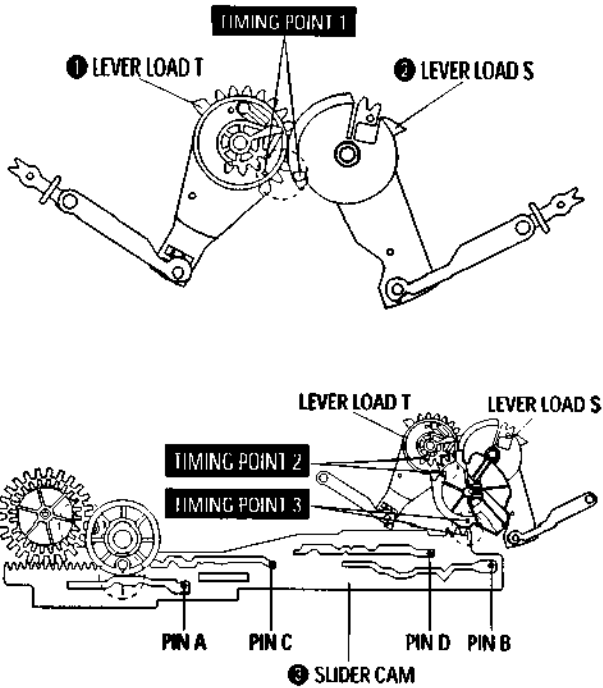


Fig. 1-14 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

1-2-10 Lever Pinch Drive, Lever Tension Drive Removal

- 1) Remove the Lever Pinch Drive ①, Lever Tension Drive ②.

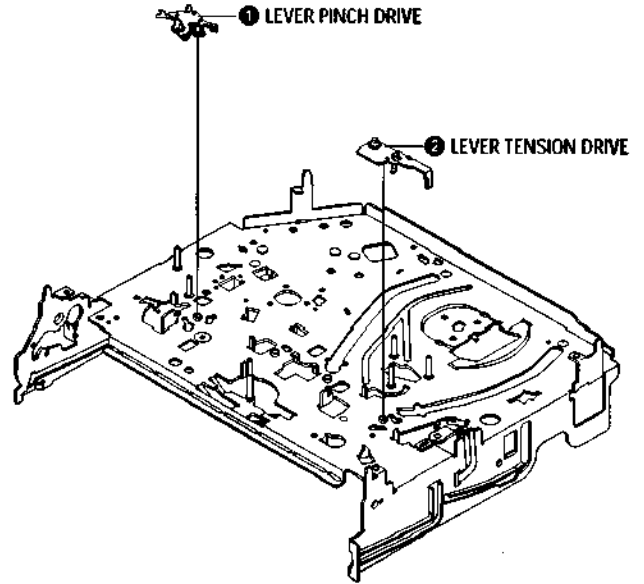


Fig. 1-15 Lever Pinch Drive, Lever Tension Drive Removal

1-2-11 Lever Tension Ass'y, Band Brake Ass'y Removal

- 1) Remove the Lever Brake S Ass'y (Refer to Fig 1-17).
- 2) Remove the Spring Tension Lever ❶.
- 3) Rotate stopper of Main Base in the direction of arrow "A".
- 4) Lift the Lever Tension Ass'y ❷ & Band brake Ass'y ❸.

Note :

- 1) When replacing the Lever Tension Ass'y ❷, be sure to apply Grease on the post,
- 2) Take care not to touch stain on the felt side, and not to be folded and broken Band brake Ass'y
- 3) After Lever Tension Ass'y seated, Rotate stopper of Main Base to the Mark[B].

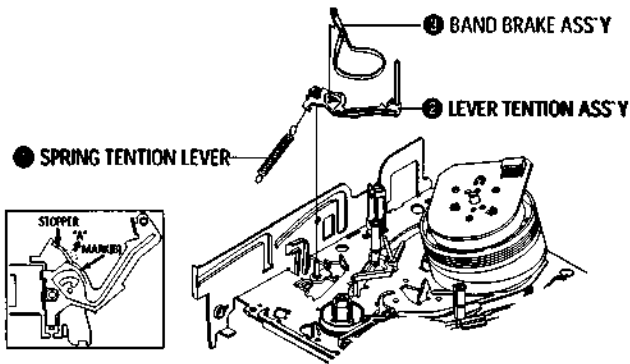


Fig. 1-16 Lever Tension Ass'y,
Band Brake Ass'y Removal

1-2-12 Lever Brake S, T Ass'y Removal

- 1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig 1-17.
- 2) Lift the Lever S, T Brake Ass'y ❶, ❷ with spring brake ❸.

Assembly :

- 1) Assembly the Lever S Brake Ass'y ❶ on the Main Base.
- 2) Assembly the Lever T Brake Ass'y ❷ with spring brake ❸.

Note : Take extreme care not to be folded and transformed Spring Brake at removing or reinstalling.

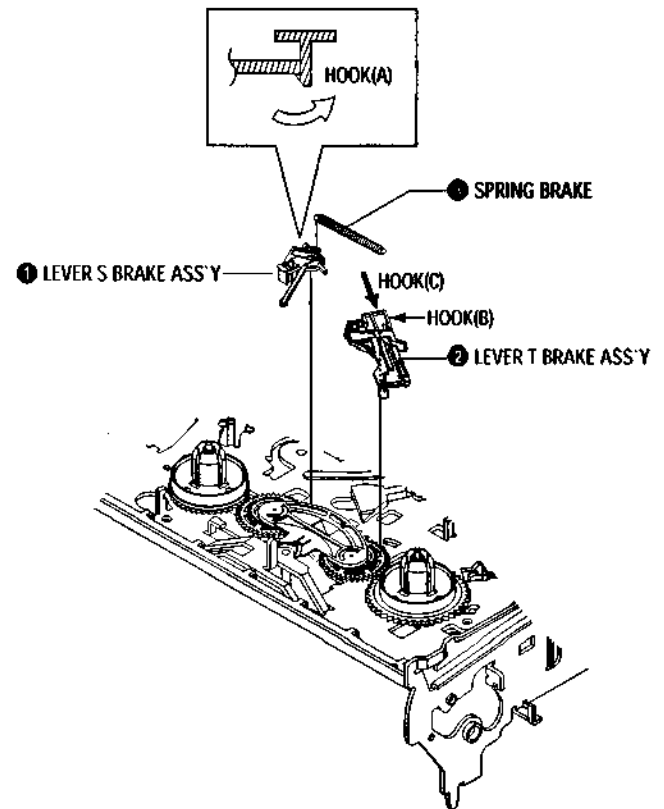


Fig. 1-17 Lever Brake S, T Ass'y Removal

1-2-13 Gear Idle Ass'y Removal

- 1) Push the Lever Idle ❶ in the direction of arrow "A", "B".
- 2) Lift the Lever Idle ❶.

Assembly :

- 1) Apply oil in two Bosses of Lever Idle ❶.
- 2) Assemble the Gear Idle ❷ with the Lever Idle ❶.

Note : When replacing the Gear Idle ❷, be sure to add oil in the boss of Lever Idle ❶.

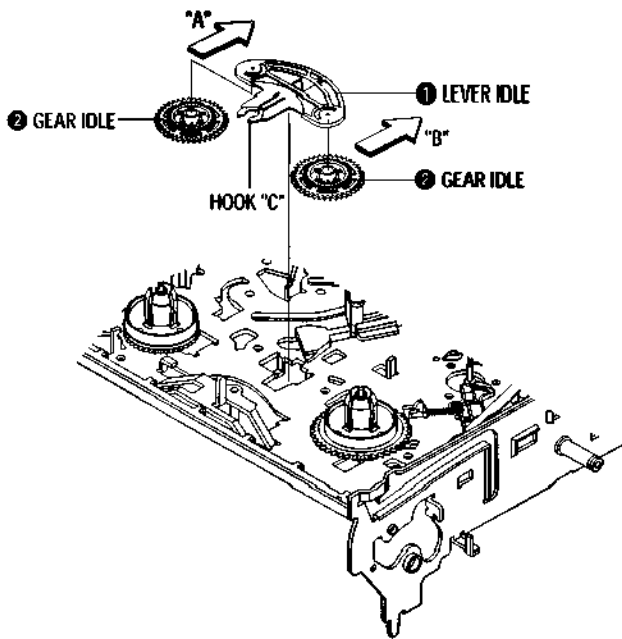


Fig. 1-18 Gear Idle Ass'y Removal

1-2-14 Disk S, T Reel Removal

- 1) Lift the Disk S, T Reel ❶, ❷.

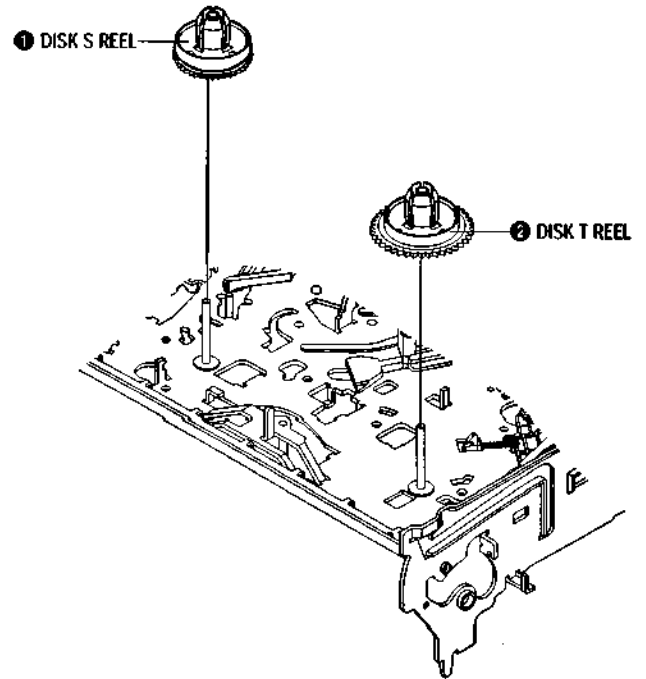


Fig. 1-19 Disk S, T Reel Removal

1-2-15 Holder Clutch Ass'y Removal

- 1) Remove the Washer Slit ❶.
- 2) Lift the Holder Clutch Ass'y ❷.

Note : When you reinstall Holder Clutch Ass'y

- 1) Check the condition of spring as shown in detail A.
- 2) Don't push Holder Clutch Ass'y down with excessive force just insert Holder Clutch Ass'y into post center with dead force and Rotate it smoothly. Be sure to confirm that spring is in the slit of Gear Center Ass'y as shown in detail B.

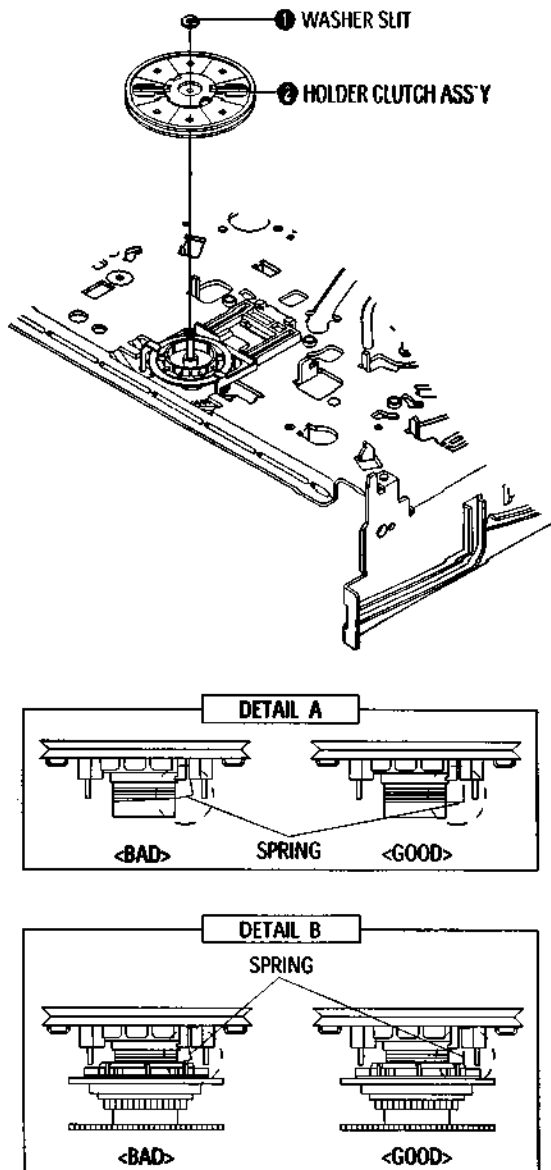


Fig. 1-20 Holder Clutch Ass'y Removal

1-2-16 Lever Up Down Ass'y, Gear Center Ass'y Removal

- 1) Remove the 2 hooks in the direction of arrow as shown Fig. 1-21 and lift the Lever Up Down Ass'y ❶.
- 2) Lift the Gear Center Ass'y ❷.

Assembly :

- 1) Insert the Lever Up Down Ass'y ❶ in the rectangular holes on Main Base as shown in Fig 1-22.
- 2) Lift the Lever Up Down Ass'y ❶ about 35 degree.(Refer to Fig 1-22)
- 3) Insert Ring of the Gear Center Ass'y ❷ in the Guide of the Lever Up Down Ass'y ❶.
- 4) Insert the Gear Center Ass'y ❷ in the post on Main Base.
- 5) Push down the Lever Up Down Ass'y ❶ for locking of the Hook.

Note :

- 1) Take care not to separate and sentence does not mark sense.
- 2) Be sure to confirm that Ring of the Gear Center Ass'y ❷ is in the Guide of the Lever Up Down Ass'y ❶ after finishing assembly of Lever Up

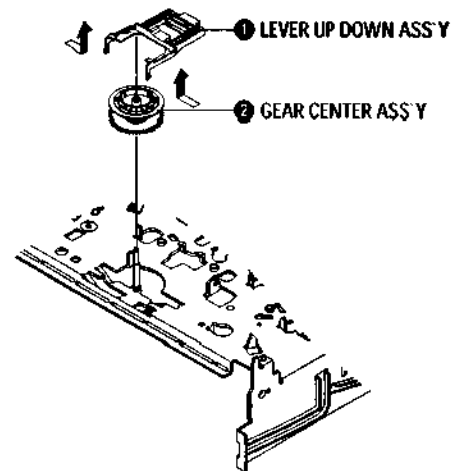


Fig. 1-21 Lever Up Down Ass'y Removal

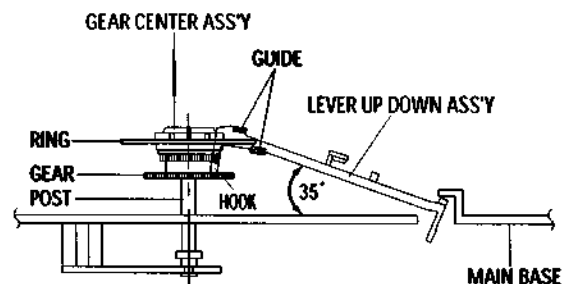


Fig. 1-22 Lever Up Down Ass'y Removal

1-2-17 Guide Cassette Door Removal

- 1) Lift the Hook [A].
- 2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

Note : After reinstalling the Guide Cassette Door ❶ sure the Hook [A].

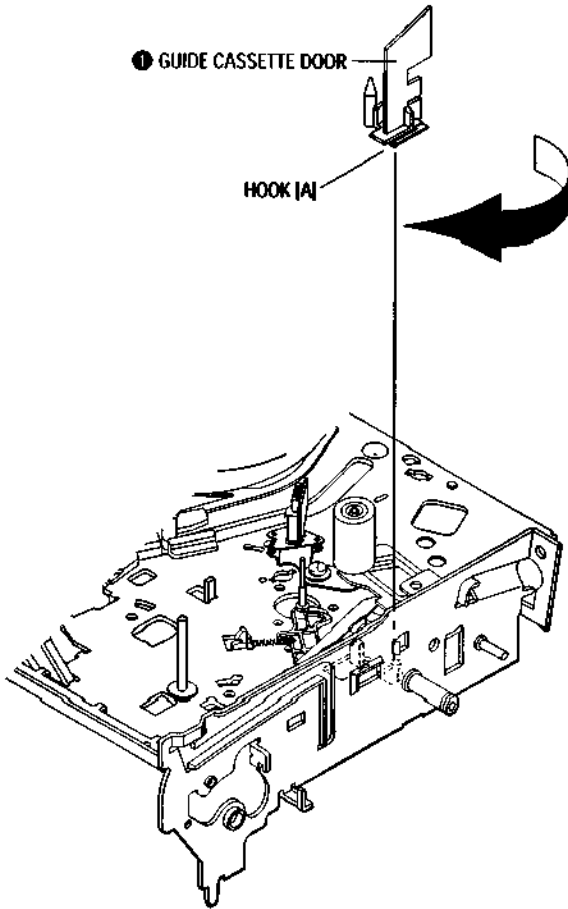


Fig. 1-23 Guide Cassette Door Removal

1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

- 1) Lift the Unit Pinch Ass'y ❶.
- 2) Remove the Plate Joint ❷ from Lever Pinch Drive.
- 3) Remove the Spring Pinch Drive ❸.

Note :

- 1) Take extreme care not to touch the grease on the Roller Pinch.
- 2) When reinstalling, be sure to apply grease on the post pinch roller.

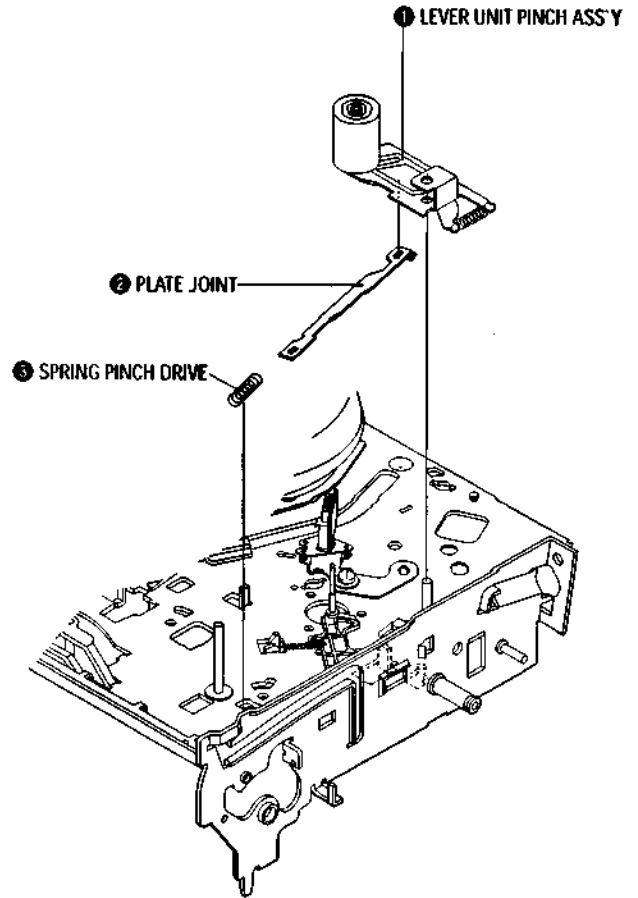


Fig. 1-24 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1-2-19 Lever #9 Guide Ass'y Removal

- 1) Remove the Spring #9 Guide ❶.
- 2) Lift the Spring #9 Guide Ass'y ❷ in the direction of arrow "A".

Note :

- 1) Take extreme care not to get grease on the tape Guide Post.
- 2) After reinstalling, check the bottom side of the Post #9 Guide to the top side of Main Base.

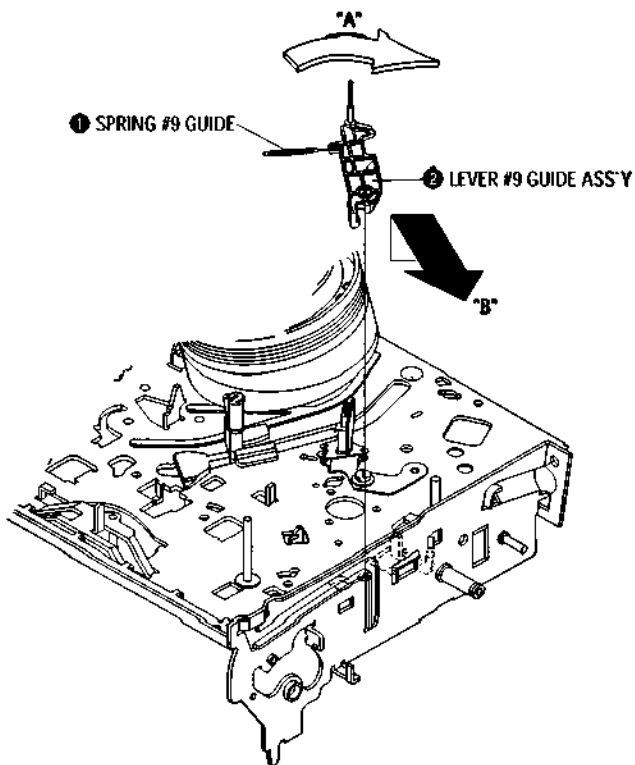


Fig. 1-25 Lever #9 Guide Ass'y Removal

1-2-20 FE Head Removal

- 1) Remove the screw ❶.
- 2) Lift the FE Head ❷.

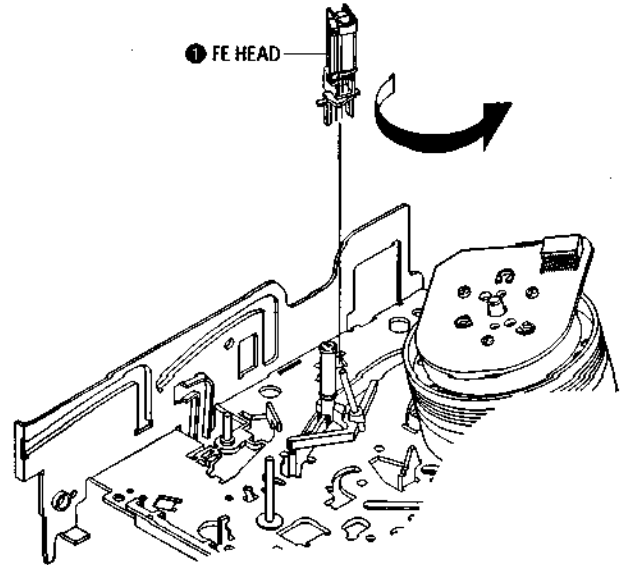


Fig. 1-26 FE Head Removal

1-2-21 ACE Head Removal

- 1) Pull out the FPC from connector of ACE Head Ass'y ②.
- 2) Remove the screw ①.
- 3) Lift the ACE Head Ass'y ②.

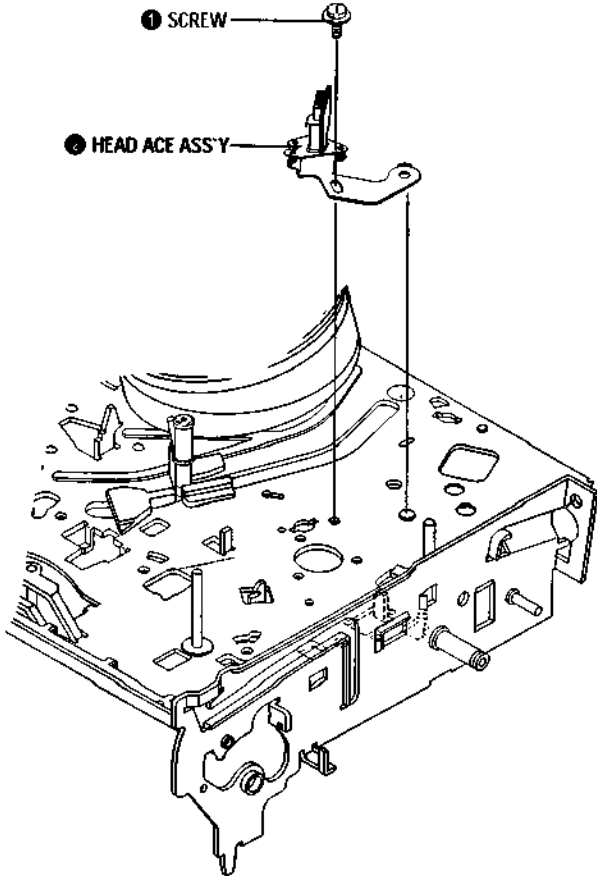


Fig. 1-27 ACE Head Removal

1-2-22 Slider S, T Ass'y Removal

- 1) Move the Slider S, T Ass'y ①, ② to slot, and then lift it to remove. (Refer to arrow)

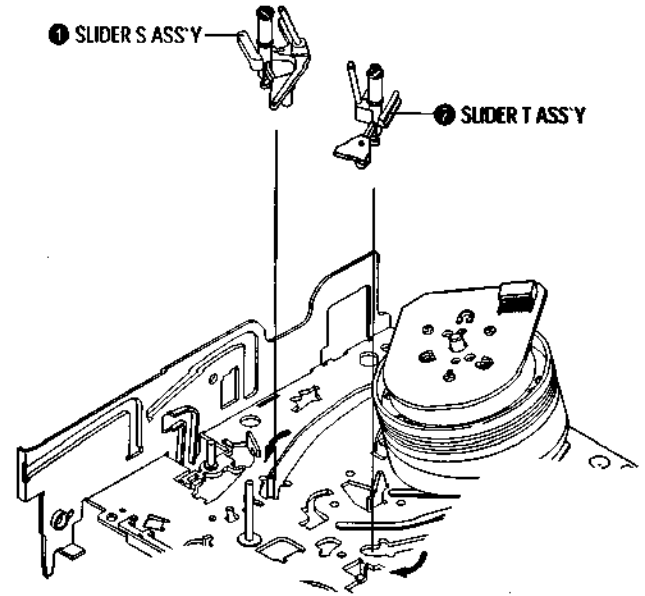


Fig. 1-28 Slider S, T Ass'y Removal

1-2-23 Plate Ground Deck, Cylinder Ass'y Removal

- 1) Remove the 3 Screws ❶.
- 2) Lift the Plate Ground Deck ❷.
- 3) Lift the Cylinder Ass'y ❸.

Assembly :

- 1) Match the 3 holes in the bottom of Cylinder ass'y ❸ to the 3 holes of Main Base as attending not to drop or knock the Cylinder ass'y ❸.
- 2) Tighten the 1 Screw ❶.
- 3) Match the Plate Ground Deck ❷ to the Hole of Base Main.
- 4) Tighten the other 2 Screws ❷.

Note :

- 1) Take care not to touch the Cylinder Ass'y ❸ and the tape guide post at reinstalling.
- 2) When reinstalling, Don't push down too much on Screw Driver.

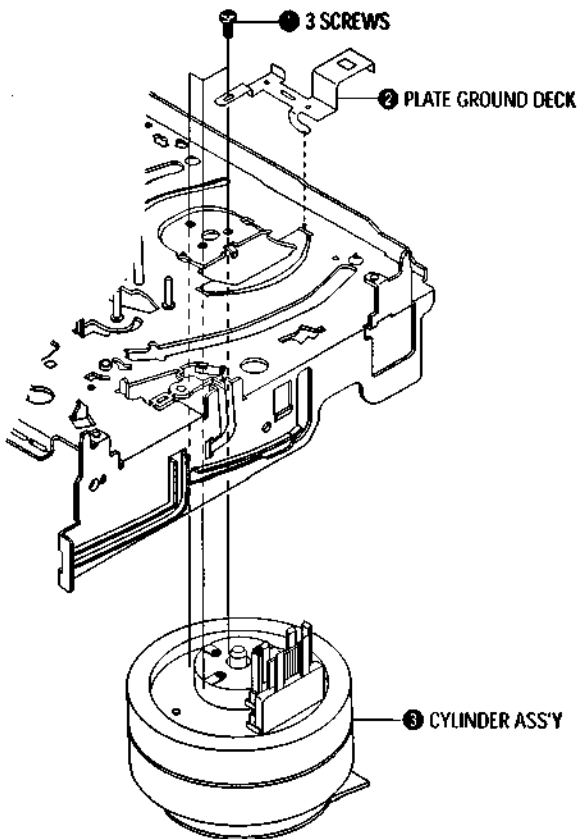


Fig. 1-29 Plate Ground Deck, Cylinder Ass'y Removal

1-2-24 Belt Pulley Removal

- 1) Remove the Belt Pulley ❶.

Note : Take extreme care not to get grease on Belt Pulley ❶ at assembling or reassembling.

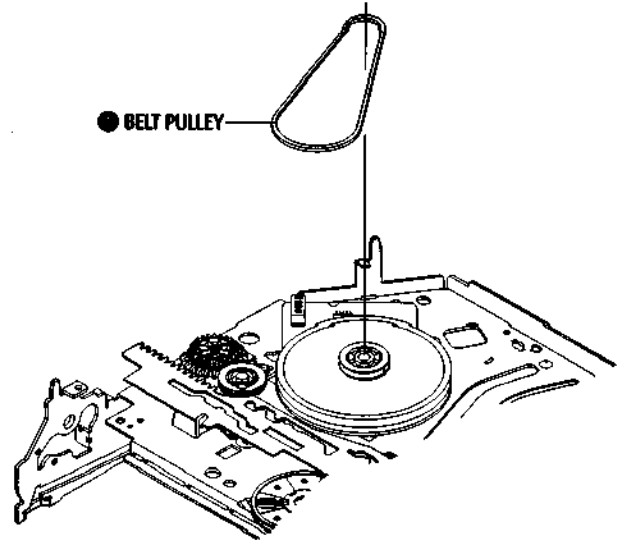


Fig. 1-30 Belt Pulley Removal

1-2-25 Level Head Cleaner Ass'y Removal

- 1) Release the Hook ❶.
- 2) Lift the Lever Head Cleaner Ass'y ❷.

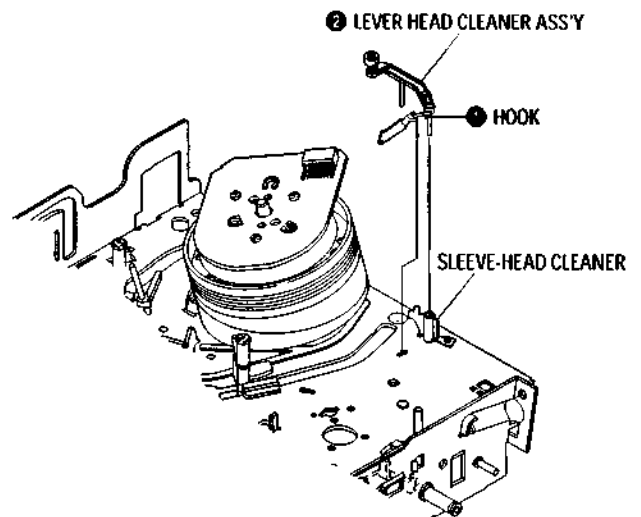


Fig. 1-31 Level Head Cleaner Ass'y Removal

1-2-26 Damper Capstan, Motor Capstan Ass'y Removal

- 1) Remove the Damper Capstan ❶ in the direction of arrow.
- 2) Remove the 3 Screws ❷.
- 3) Remove the Motor Capstan Ass'y ❸.

Assembly :

- 1) Match the 3 holes of Motor Capstan Ass'y ❸ to the 3 holes of Main Base. Be careful not to drop or knock the Motor Capstan Ass'y ❸.
- 2) Tighten the 3 Screws ❷ in the direction of arrow as shown detail drawing.
- 3) Assemble the Damper Capstan ❶.

Note : After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base. After reinstalling, adjusting the tape transport system again.

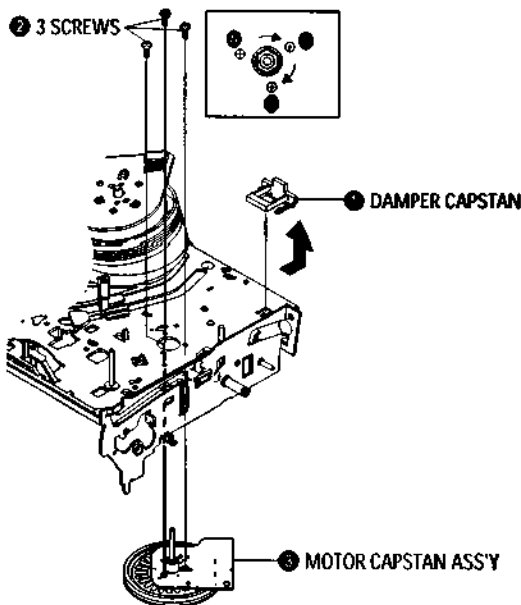


Fig. 1-32 Damper Capstan, Motor Capstan Ass'y Removal

1-2-27 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass'y)

- 1) Turn the Gear worm ❶ clockwise with screw driver. (Refer to arrow)
(Other method : Remove the Screw of Motor Load Ass'y, Separate the Motor Load Ass'y)

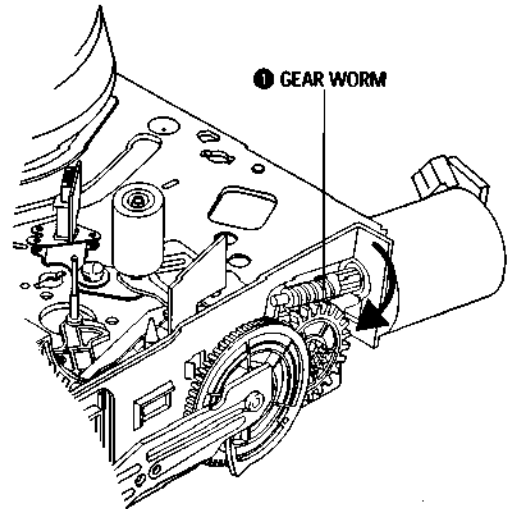


Fig. 1-33

- 2) When Slider S.T are approached in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig.1-34)
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizontally.)
- 3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape. (Refer to Fig.1-33)

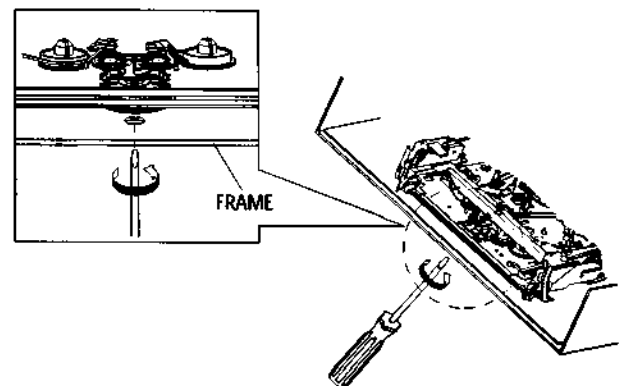


Fig. 1-34

1-3 The table of clearing, Lubrication and replacement time about principal parts

- 1) The replacement time of parts is not life of parts.
- 2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).
The checking period may be changed owing to the condition of use, runtime and environmental conditions.
- 3) Life of the Cylinder Ass'y is depend on the condition of use.
- 4) See exploded view for location of each parts.

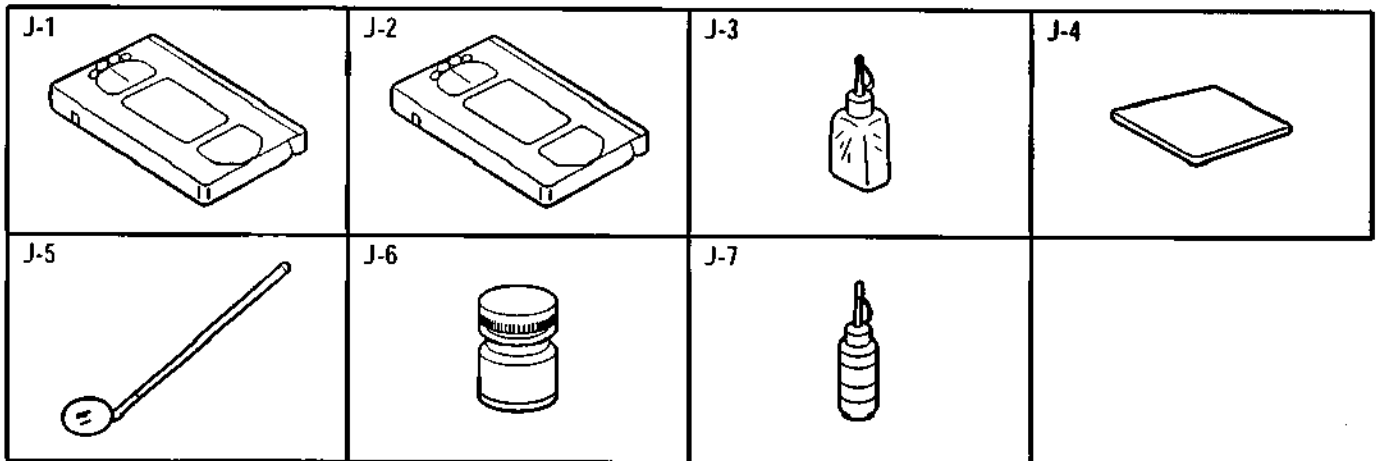
<Table 1-1>

Parts Name	Checking Period											Remark
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000		
T A P E P A T H S Y S T E M	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent). - After cleaning, use the video tape after alcohol is gone away completely. - We recommend to use oil [NT-68] or solvent. - One or two drops of oil should be applied after cleaning with alcohol. - Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	0	0	0	0	0	0	0	
	CYLINDER ASS'Y	Δ	0	0	0	0	0	0	0	0	0	
	FE HEAD	Δ	Δ	Δ	0	0	0	0	0	0	0	
	ACE HEAD	Δ	0	0	0	0	0	0	0	0	0	
	PINCH ROLLER	Δ	0	0	0	0	0	0	0	0	0	
	POST REEL S, T		◆		◆		◆		◆		◆	
	SLEEVE TENSION		◆		◆		◆		◆		◆	
	POST CENTER		◆		◆		◆		◆		◆	
LEVER IDLE BOSS (2Point)		◆		◆		◆		◆		◆		
D R I V I N G S Y S T E M	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	0	0	0	0		
	BELT PULLEY				0	0	0	0	0	0		
	HOLDER CLUTCH ASS'Y	Δ	0	0	0	0	0	0	0	0		
	GEAR CENTER ASS'Y		0	0	0	0	0	0	0	0		
	GEAR IDLE (2Point)		0	0	0	0	0	0	0	0		
	LOADING MOTOR		0	0	0	0	0	0	0	0		
B R A K E S Y S T E M	BAND BRAKE ASS'Y		0	0	0	0	0	0	0	0		
	BRAKE T ASS'Y		0	0	0	0	0	0	0	0		

Δ : Cleaning 0 : Check and replacement in necessary ◆ : Add Oil

1-4 Tools and fixtures required for service

Ref. No.	Name	Part No.	Caved Jig No.	Remarks
J-1	Torque Measurement Cassette VHT-103S	J-6090-072-A		For FWD & back tension torque measurement
	Torque Measurement Cassette VHT-404S	J-6082-012-A		For CUE and REVIEW torque measurement
J-2	Alignment Tape	KRV-52NE (NTSC)	8-192-605-41	Tape path, Audio azimuth, X-value adjustments
		KRV-51N2 (NTSC)	8-192-605-32	Electrical adjustments, Operation check
		KRV-52PL (PAL)	8-192-605-46	Tape path, Audio azimuth, X-value adjustments
		KRV-51P (PAL)	8-192-605-36	Electrical adjustments, Operation check
J-3	Cleaning Fluid	Y-2031-001-0	—	
J-4	Chamois Leather	2-034-697-00	—	
J-5	Dental Mirror (with Handle)	J-6080-029-A	SL-5052	Tape path and tape traveling adjustments or checks
	Dental Mirror (Mirror)	J-6080-030-1		
J-6	Grease Molykote EM 30LG	J-6090-014-A		Net. 20 g
J-6	Diamond Oil NT-68	7-661-018-18		



<Fig 1-35>

2. Alignment and Adjustment

2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

- 1) Noise observed on the screen.
- 2) Tape damage.
- 3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.

To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

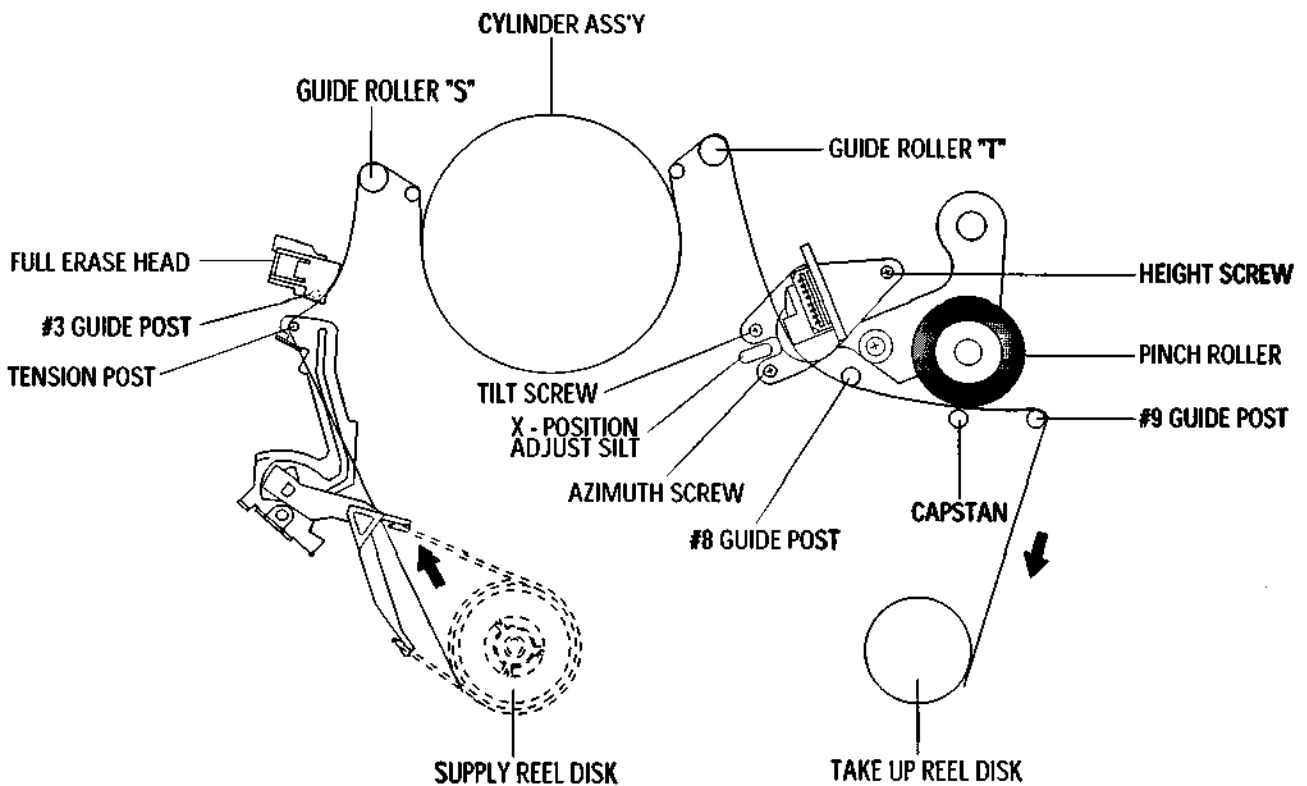


Fig. 2-1 Location of Tape Transport Adjustment

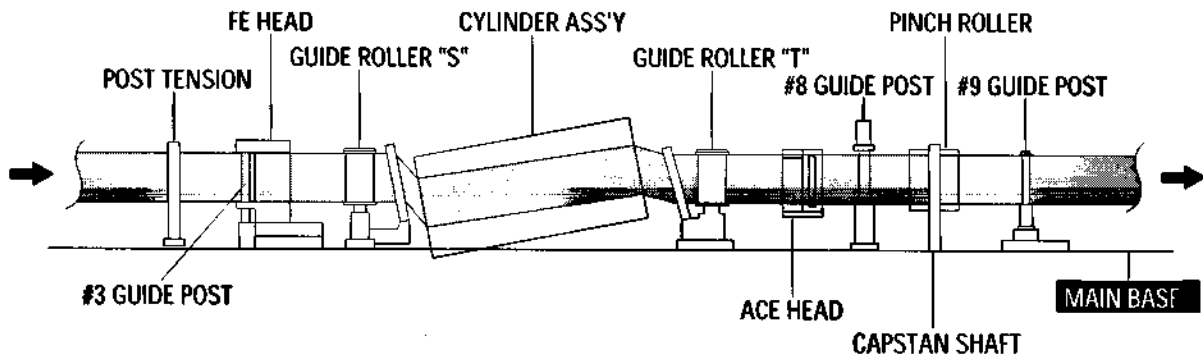


Fig. 2-2 Tape Travel Diagram

2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

- 1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
- 2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head. (See page 5-3 of the Service Manual for Test Point Locations.)

2-2-1 ACE Head Assembly Adjustment

2-2-1(a) ACE HEAD HEIGHT ADJUSTMENT

- 1) Run the alignment tape (KRV-52NE (NTSC)/52PL (PAL)) in the playback mode.
- 2) Observe surface of the audio head using a dental mirror.
- 3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 2-3 and 2-4)

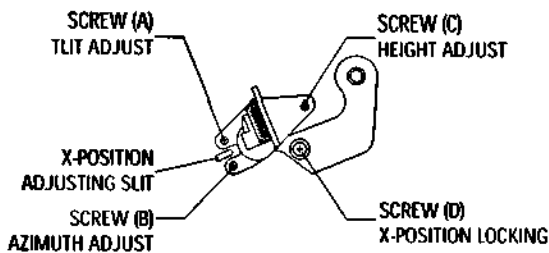


Fig. 2-3 Location of ACE Head Adjustment Screw

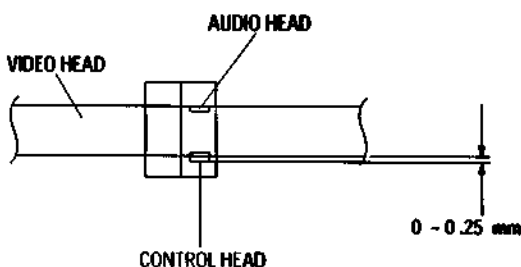


Fig. 2-4 ACE Head Height Adjustment

2-2-1(b) ACE HEAD TILT ADJUSTMENT

- 1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
- 2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 2-5 (B).
- 3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
- 4) Reconfirm the ACE head height.

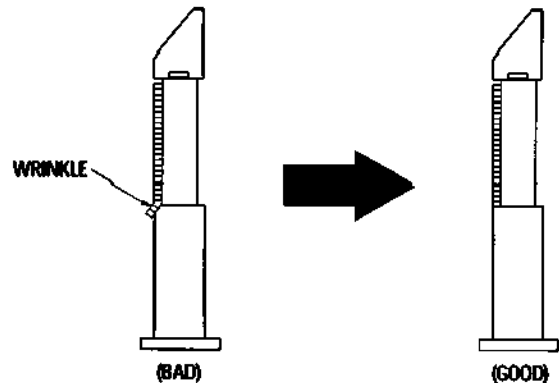


Fig. 2-5 Tape Guide Check

2-2-1(c) AUDIO AZIMUTH ADJUSTMENT

- 1) Load alignment tape (KRV-52NE (NTSC)/52PL (PAL)) and playback the NTSC : 5KHz (PAL : 4KHz) signal.
- 2) Connect channel-1 scope probe to audio output test point.
- 3) Adjust screw (B) to achieve maximum audio level. (See Fig. 2-3)

2-2-1(d) ACE HEAD POSITION (X-POINT) ADJUSTMENT

- 1) See "2. Alignment and Adjustment" for ACE Head position (X-Point) adjustment.

2-2-2 Linearity Adjustment (Guide roller S, T adjustment)

- 1) Playback the alignment tape (KRV-51N2 (NTSC)/51P (PAL)) (SP mode, Mono Scope).
- 2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
- 3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 2-6.

If it does not, adjust as follows :

Note :

- a=Maximum output of the video RF envelope.
- b=Minimum output of the video RF envelope at the entrance side.
- c=Minimum output of the video RF envelope at the center point.
- d=Maximum output of the video RF envelope at the exit side.

- 4) If the section A in Fig. 2-7 does not meet the specification, adjust the guide roller S up or down.
- 5) If the section B in Fig. 2-7 does not meet the specification, adjust the guide roller T up or down.

- 6) Play back the alignment tape (SP mode, Mono Scope).
- 7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H'D SW Pulse for triggering.
- 8) Turn the guide roller heads with a flat head (■) driver to obtain a flat video RF envelope as shown in Fig. 2-8.

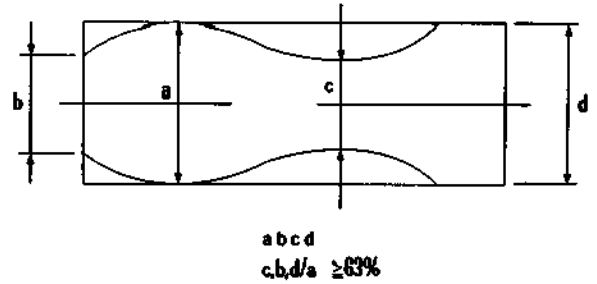


Fig. 2-6 Envelope Waveform Adjustment

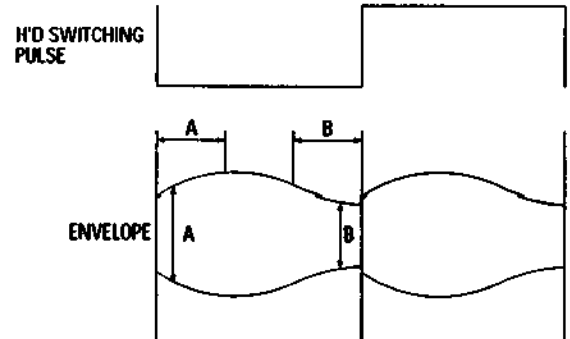


Fig. 2-7 Adjustment Points

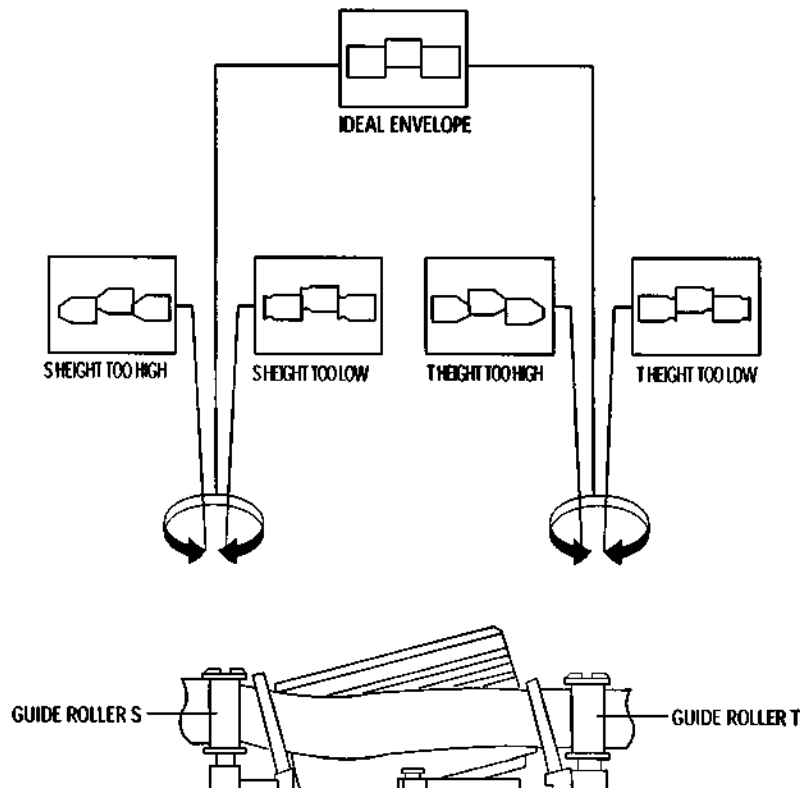


Fig. 2-8 Guide Roller S, T Height Adjustment

2-2-3 Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode :
Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 2-9).
If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

- 1) Make sure there is no gap between the supply roller lower flange and the tape.
If there is a gap, adjust the supply guide roller again.
- 2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

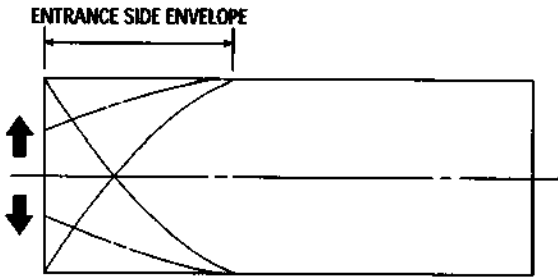


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

2-2-4 Envelope Check

- 1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.
Make sure the playback output envelope meets the specification as shown in Fig. 2-10.
- 2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120)).
The video envelope should meet the specification as shown in Fig. 2-10.
In SP mode, (A) should equal (B).
If the head gap is wide, upper cylinder should be checked.

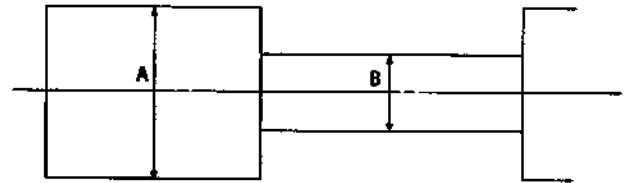


Fig. 2-10 Envelope Output and Output Level

2-2-5 Tape Wrinkle Check

- 1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
- 2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :
 - ◆ Tape wrinkle at the guide roller S, T section :
Linearity adjustment.
 - ◆ Tape wrinkle at tape guide flange :
ACE head assembly coarse adjustment.

2-3 Reel Torque

- 1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
- 2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
- 3) Brake is operated by slider cam at FF/REW mode.
- 4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

Note : If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

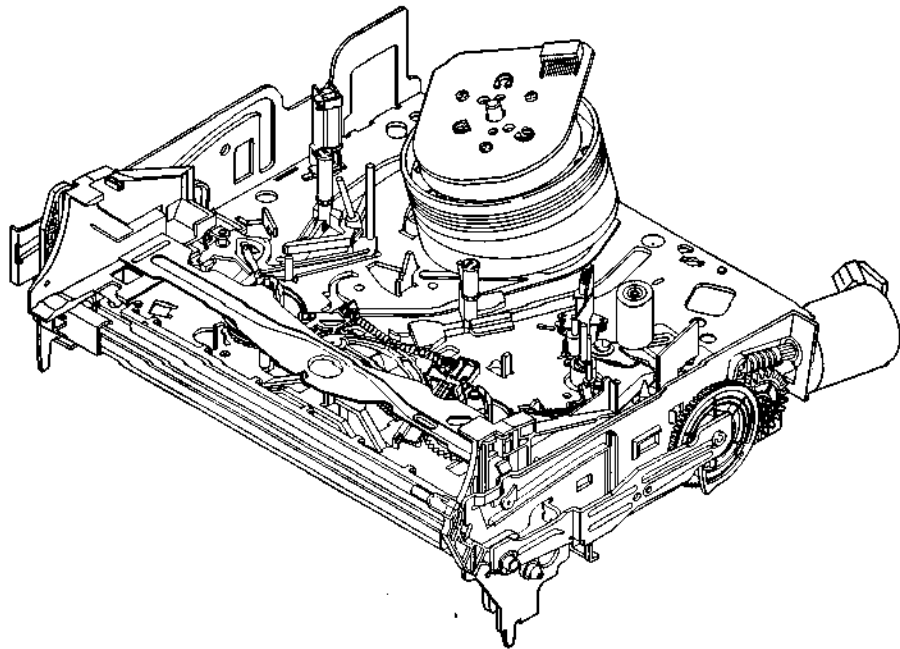
<Table 2-1>

MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter

VHS MECHANICAL ADJUSTMENT MANUAL VII

TS-10 MECHANISM

Please use this manual with the service manual.



VHS MECHANISM DECK

SONY®

TABLE OF CONTENTS

1. Disassembly and Reassembly	
1-1 Deck Parts Locations	3
1-1-1 Top View	3
1-1-2 Bottom View	5
1-2 Main Deck	6
1-2-1 Lever FL Door Removal	6
1-2-2 Holder FL Cassette Ass'y Removal	6
1-2-4 Lever FL Arm Ass'y Removal	7
1-2-3 Slider FL Drive, Gear FL Cam Removal	7
1-2-5 Gear Worm Wheel Removal	8
1-2-6 Motor Loading Ass'y Removal	8
1-2-7 Bracket Gear, Gear Joint 2, 1 Removal	9
1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal	9
1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly	10
1-2-10 Lever Pinch Drive, Lever Tension Drive Removal	10
1-2-11 Lever Tension Ass'y, Band Brake Ass'y Removal	11
1-2-12 Lever Brake S, T Ass'y Removal	11
1-2-13 Gear Idle Ass'y Removal	12
1-2-14 Disk S, T Reel Removal	12
1-2-15 Holder Clutch Ass'y Removal	13
1-2-16 Lever Up Down Ass'y, Gear Center Ass'y Removal	13
1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal	14
1-2-17 Guide Cassette Door Removal	14
1-2-19 Lever #9 Guide Ass'y Removal	15
1-2-20 FE Head Removal	15
1-2-21 ACE Head Removal	16
1-2-22 Slider S, T Ass'y Removal	16
1-2-23 Plate Ground Deck, Cylinder Ass'y Removal	17
1-2-24 Belt Pulley Removal	17
1-2-26 Damper Capstan, Motor Capstan Ass'y Removal	18
1-2-27 How to Eject the Cassette Tape	18
1-3 The table of clearing, Lubrication and replacement time about principal parts	19
1-4 Tools and fixtures required for service.....	20
 2. Alignment and Adjustment	
2-1 Tape Transport System and Adjustment Locations	21
2-2 Tape Transport System Adjustment	22
2-2-1 ACE Head Assembly Adjustment	22
2-2-2 Linearity Adjustment (Guide roller S, T adjustment)	23
2-2-3 Check Transitional Operation from RPS to Play	24
2-2-4 Envelope Check	24
2-2-5 Tape Wrinkle Check	24
2-3 Reel Torque	24

1. Disassembly and Reassembly

1-1 Deck Parts Locations

1-1-1 Top View

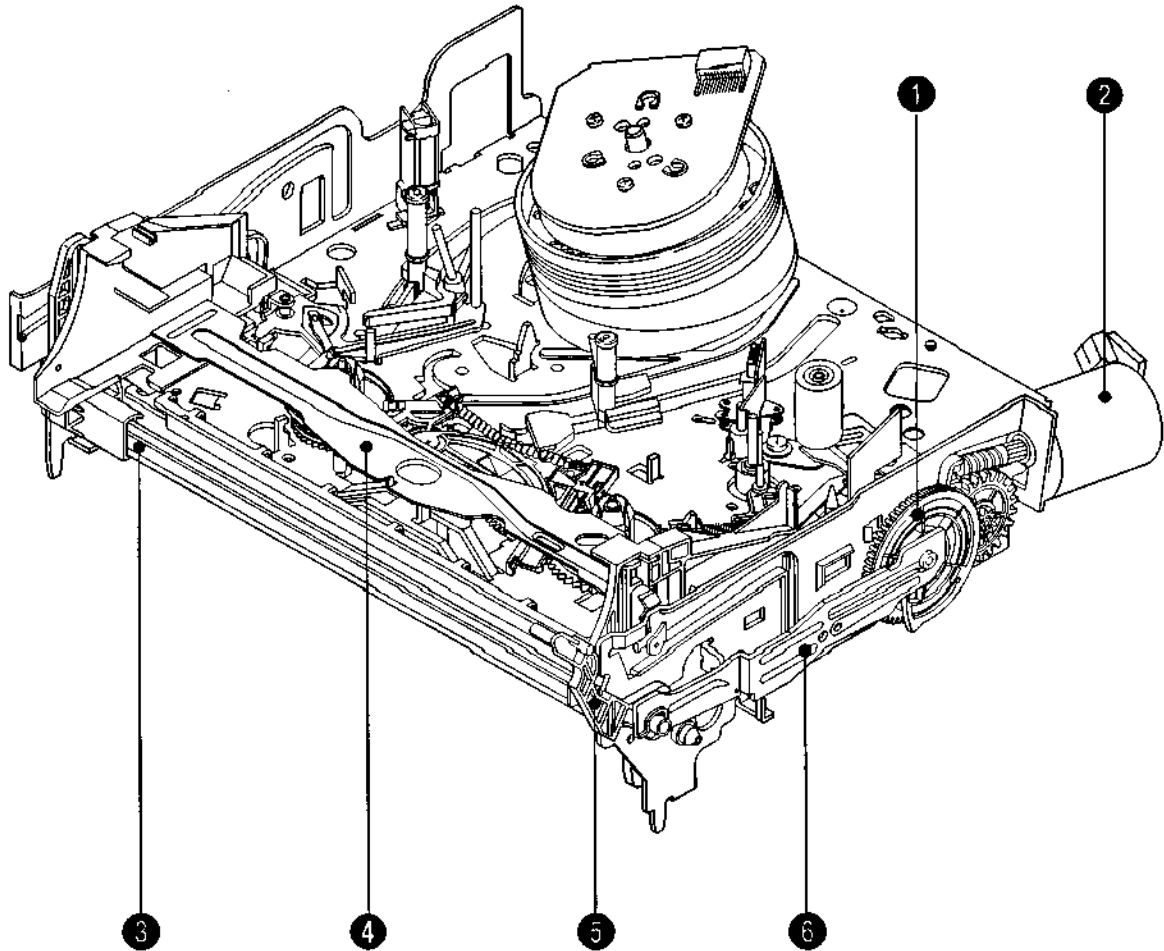


Fig. 1-1 Top parts Location-1

- ① GEAR FL CAM
- ② MOTOR LOADING ASS'Y
- ③ LEVER FL ARM ASS'Y
- ④ HOLDER FL CASSETTE ASS'Y
- ⑤ LEVER FL DOOR
- ⑥ SLIDER FL DRIVE

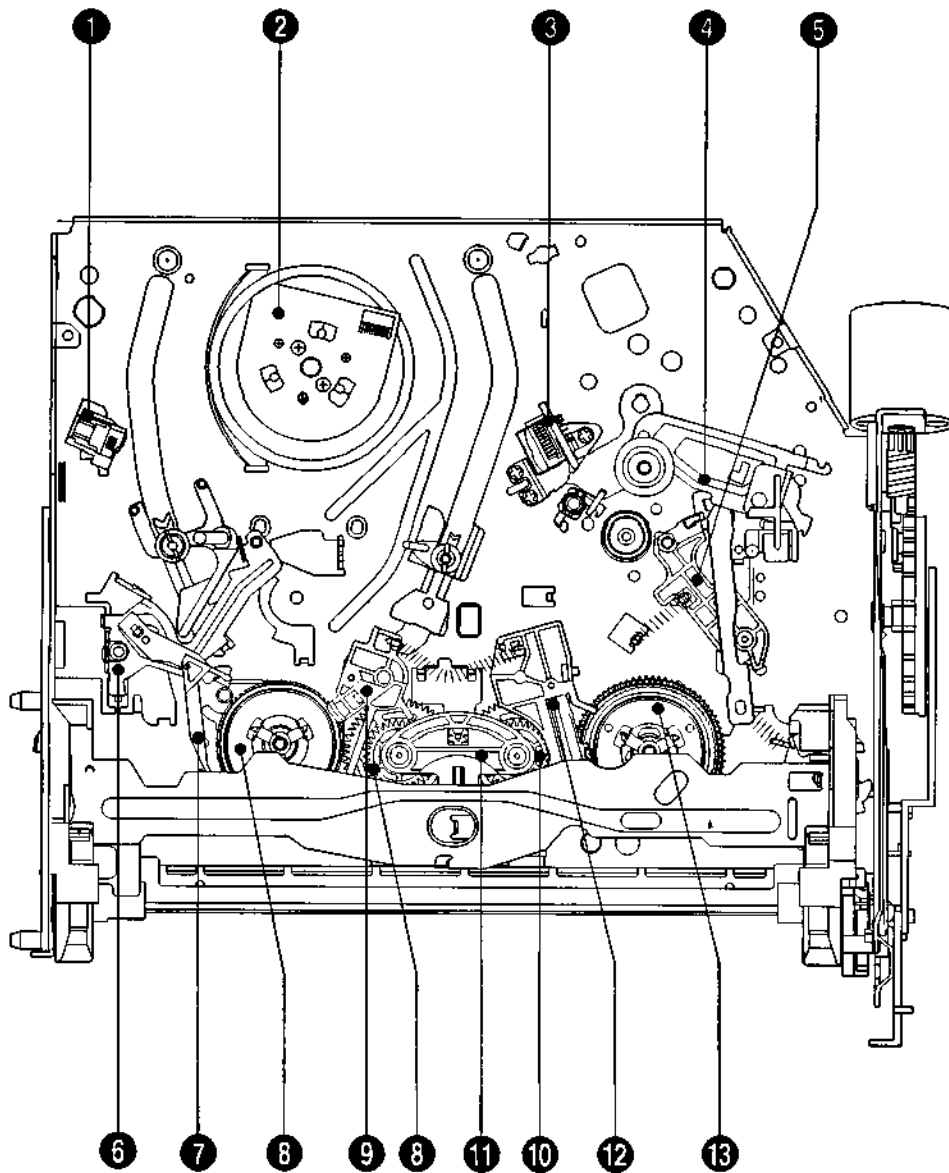


Fig. 1-2 Top Parts Location-2

- | | |
|--------------------------|-----------------------|
| ① FE HEAD | ⑧ DISK S REEL |
| ② CYLINDER ASS'Y | ⑨ LEVER S BRAKE ASS'Y |
| ③ ACE HEAD ASS'Y | ⑩ GEAR IDLE |
| ④ LEVER UNIT PINCH ASS'Y | ⑪ LEVER IDLE |
| ⑤ LEVER #9 GUIDE ASS'Y | ⑫ LEVER T BRAKE ASS'Y |
| ⑥ LEVER TENSION ASS'Y | ⑬ DISK T REEL |
| ⑦ BAND BRAKE ASS'Y | |

1-1-2 Bottom View

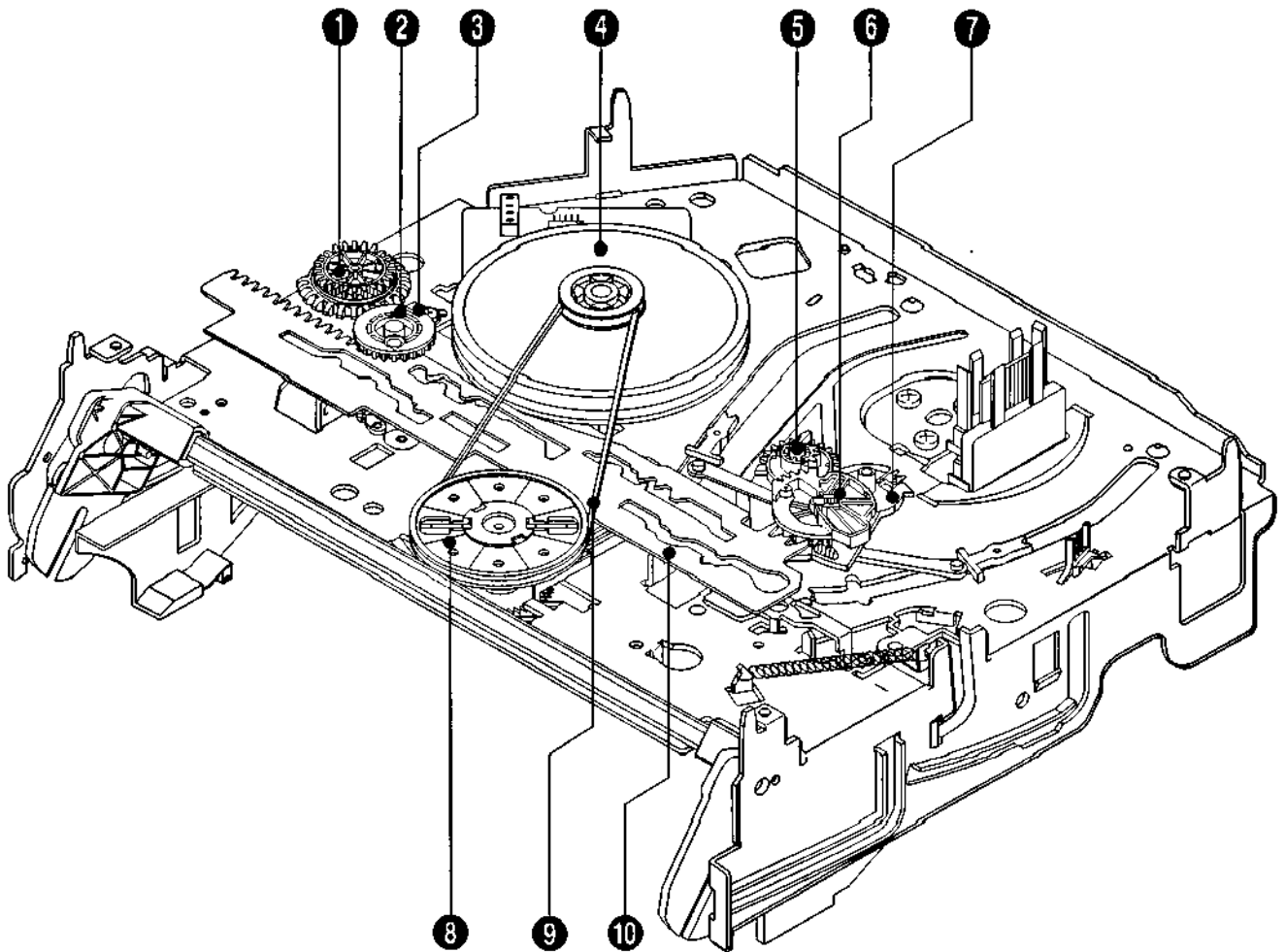


Fig. 1-3 Bottom Parts Location

- ① GEAR JOINT 1
- ② GEAR JOINT 2
- ③ BRACKET GEAR
- ④ MOTOR CAPSTAN ASS'Y
- ⑤ LEVER T LOAD ASS'Y
- ⑥ GEAR LOADING DRIVE
- ⑦ LEVER S LOAD ASS'Y
- ⑧ HOLDER CLUTCH ASS'Y
- ⑨ BELT PULLEY
- ⑩ SLIDER CAM

1-2 Main Deck

1-2-1 Lever FL Door Removal

- 1) Push the Holder FL Cassette Ass'y ① about 20mm in the direction of arrow "A".
- 2) Rotate the Lever FL Door ② in the direction of arrow "B".
- 3) Release the Hook ③ and Remove the Lever FL Door ② in the direction of arrow "C".

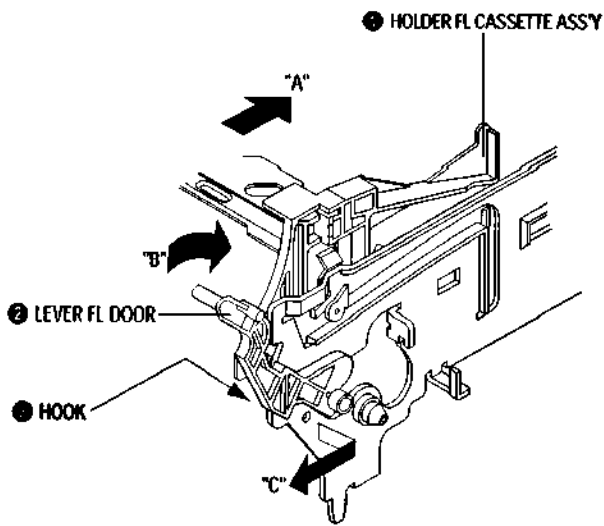


Fig. 1-4 Lever FL Door Removal

1-2-2 Holder FL Cassette Ass'y Removal

- 1) Pull the Holder FL Cassette Ass'y ① to the eject position.
- 2) Pull the Holder FL Cassette Ass'y ① as grasping the Holder FL Cassette Ass'y ① and Lever FL Cassette-R ② in the same time to release hooking from Main Base until the Boss [A] of Holder FL Cassette Ass'y ① is taken out from the Rail [B].
- 3) Lift the Holder FL Cassette Ass'y ①, in this time, you have to grasp the Lever FL Cassette-R ② continuously until the Holder FL Cassette Ass'y ① is taken out completely.

Note : Be sure to insert Lever FL Cassette-R ② in the direction of "A" to prevent separation and breakage of the Lever FL Cassette-R ② at disassembling and reassembling.

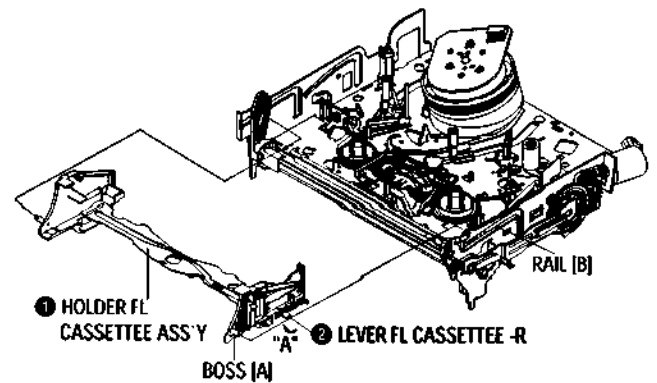


Fig. 1-5 Holder FL Cassette Ass'y Removal

1-2-3 Slider FL Drive, Gear FL Cam Removal

- 1) Pull the Slider FL Drive ❶ to the front direction.
- 2) Remove the Slider FL Drive ❶ in the direction of arrow. (Refer to Fig. 1-6)
- 3) Remove the Gear FL cam ❷.

Note : When reinstalling be sure to reassemble Slider FL drive ❶ after you insert the Boss of Lever FL ARM-R in Groove of Slider FL drive ❶.

Assembly : Align the Gear FL Cam ❶ with the Gear worm wheel Post as shown drawing. (Refer to Timing point)

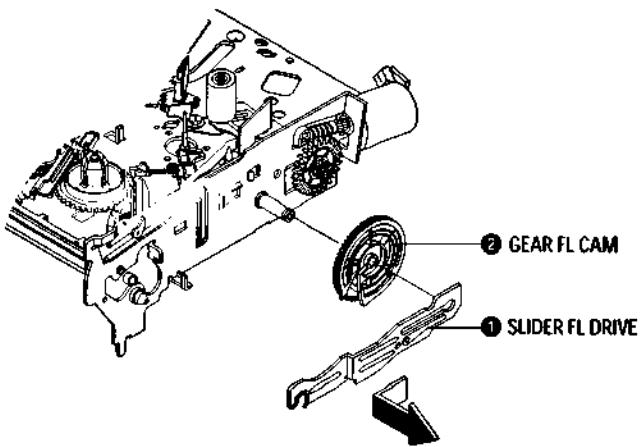


Fig. 1-6 Slider FL Drive Removal

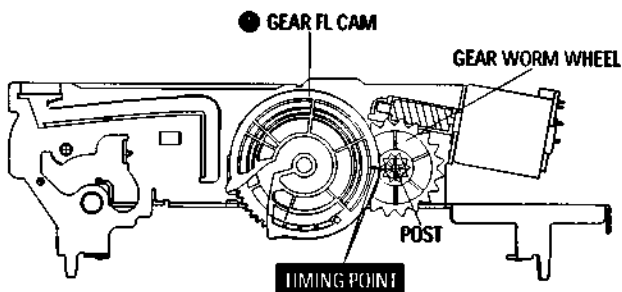


Fig. 1-7 Gear FL Cam, Gear Worm

1-2-4 Lever FL Arm Ass'y Removal

- 1) Push the hole "A" in the direction of arrow "B" use the pin.(about Dia.2.5)
- 2) Pull out the Lever FL Arm Ass'y ❶ from the Boss of Main Base.
- 3) Remove the Lever FL Arm Ass'y ❶ in the direction of arrow "C".

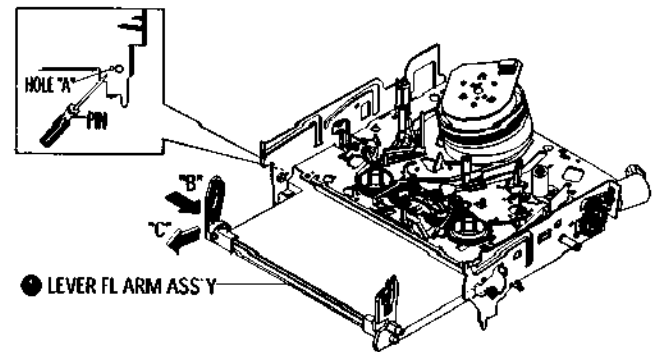


Fig. 1-8 Lever FL Arm Ass'y Removal

1-2-5 Gear Worm Wheel Removal

- 1) Remove the Gear Worm wheel ❶.

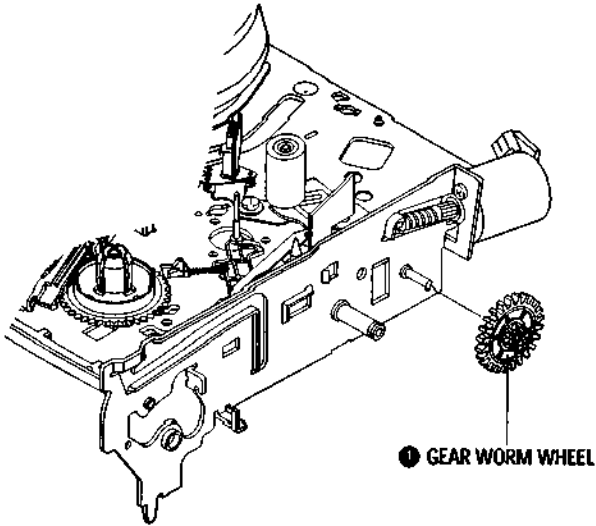


Fig. 1-9 Gear Worm Wheel Removal

1-2-6 Motor Loading Ass'y Removal

- 1) Remove the screw ❶.
- 2) Remove the Motor Loading Ass'y ❷.

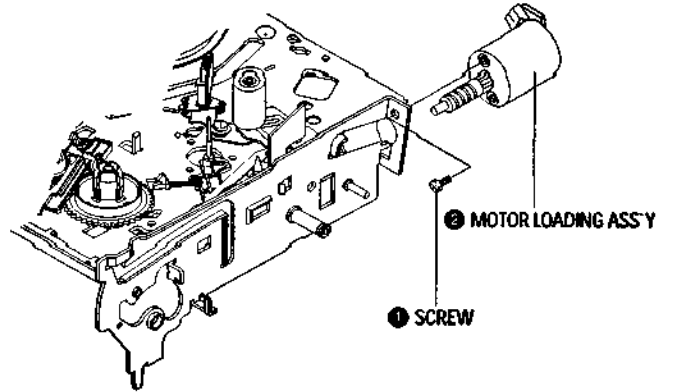


Fig. 1-10 Motor Loading Ass'y Removal

1-2-7 Bracket Gear, Gear Joint 2, 1 Removal

- 1) Remove the SCREW ❶.
- 2) Remove the Bracket Gear ❷.
- 3) Remove the Gear Joint 2 ❸.
- 4) Remove the Gear Joint 1 ❹.

Assembly :

- 1) Be sure to align dot mark of Gear Joint 1 ❶ with dot mark of Gear Joint 2 ❷ as shown Fig 1-12. (Refer to Timing point1)
- 2) Confirm the Timing Point 2 of the Gear Joint 2 ❷ and Slider Cam ❸.

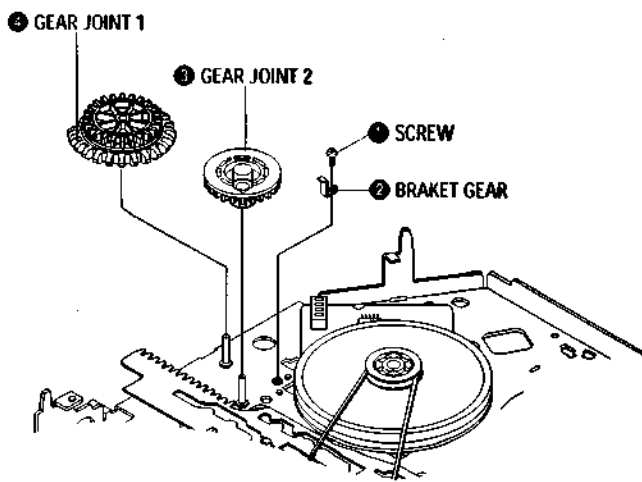


Fig. 1-11 Bracket Gear, Gear Joint 1,2 Removal

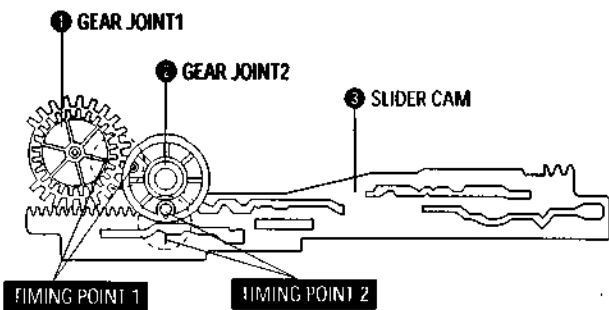


Fig. 1-12 Gear Joint 1,2 Assembly

1-2-8 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Removal

- 1) Remove the Belt Pulley. (Refer to Fig. 1-30)
- 2) Remove the Gear Loading Drive ❶ after releasing Hook [A] in the direction arrow as shown in detail drawing.
- 3) Remove the Slider Cam ❷.
- 4) Remove the Lever Load S ❸, Link Load S ❹ & Lever Load T ❺, Link Load T ❻.

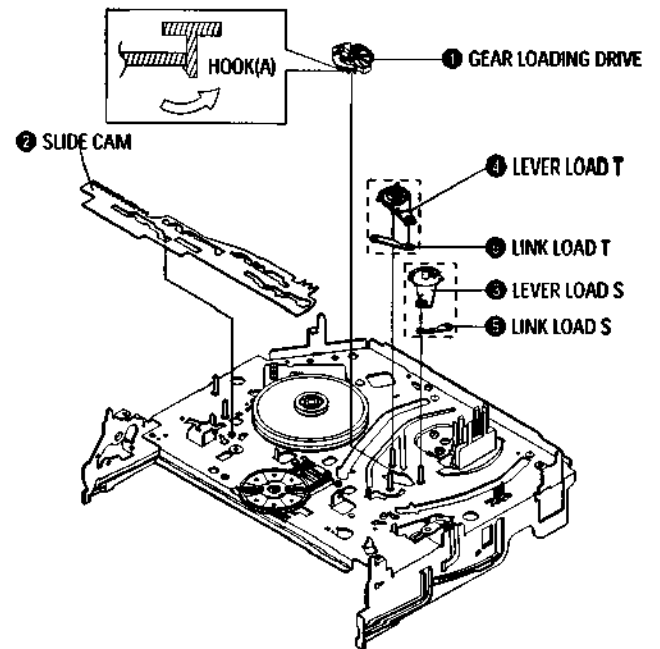


Fig. 1-13 Gear Loading Drive, Slider Cam, Lever T, S Load Ass'y Removal

1-2-9 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

- 1) When reinstalling, be sure to align dot of Lever Load T Ass'y ① with dot of Lever Load S Ass'y ② as shown in drawing. (Refer to Timing Point 1).
- 2) Insert the Pin A,B,C,D into the Slider Cam ③ hole,
- 3) Be sure to align dot of Lever Load T ① and dot of Gear Loading Drive ④. (Refer to Timing Point 2).
- 4) Aline dot of Gear Loading drive ④ with mark of Slider Cam ③ as shown in drawing(Refer to Timing Point 3).

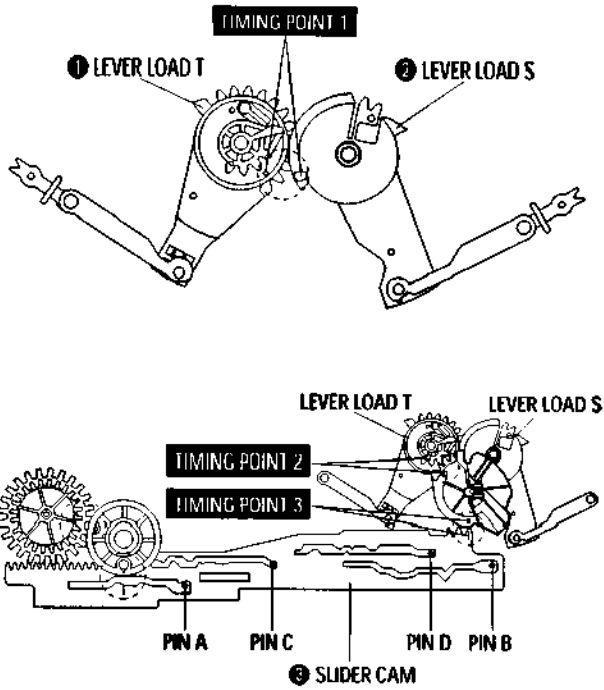


Fig. 1-14 Gear Loading Drive, Slider Cam, Lever Load S, T Ass'y Assembly

1-2-10 Lever Pinch Drive, Lever Tension Drive Removal

- 1) Remove the Lever Pinch Drive ①, Lever Tension Drive ②.

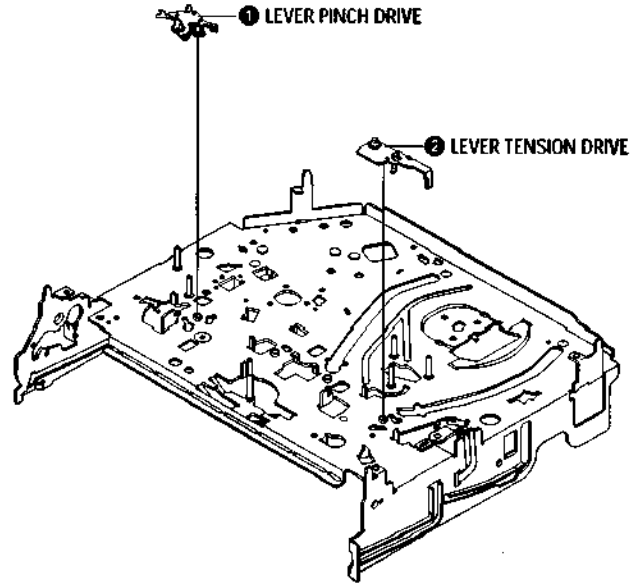


Fig. 1-15 Lever Pinch Drive, Lever Tension Drive Removal

1-2-11 Lever Tension Ass'y, Band Brake Ass'y Removal

- 1) Remove the Lever Brake S Ass'y (Refer to Fig 1-17).
- 2) Remove the Spring Tension Lever ❶.
- 3) Rotate stopper of Main Base in the direction of arrow "A".
- 4) Lift the Lever Tension Ass'y ❷ & Band brake Ass'y ❸.

Note :

- 1) When replacing the Lever Tension Ass'y ❷, be sure to apply Grease on the post,
- 2) Take care not to touch stain on the felt side, and not to be folded and broken Band brake Ass'y
- 3) After Lever Tension Ass'y seated, Rotate stopper of Main Base to the Mark[B].

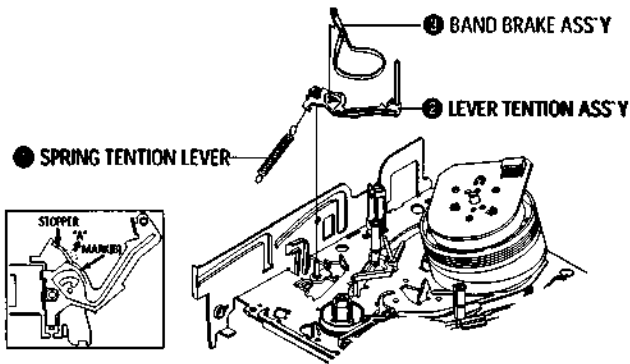


Fig. 1-16 Lever Tension Ass'y,
Band Brake Ass'y Removal

1-2-12 Lever Brake S, T Ass'y Removal

- 1) Release the Hook [A] and the Hook [B], [C] in the direction of arrow as shown in Fig 1-17.
- 2) Lift the Lever S, T Brake Ass'y ❶, ❷ with spring brake ❸.

Assembly :

- 1) Assembly the Lever S Brake Ass'y ❶ on the Main Base.
- 2) Assembly the Lever T Brake Ass'y ❷ with spring brake ❸.

Note : Take extreme care not to be folded and transformed Spring Brake at removing or reinstalling.

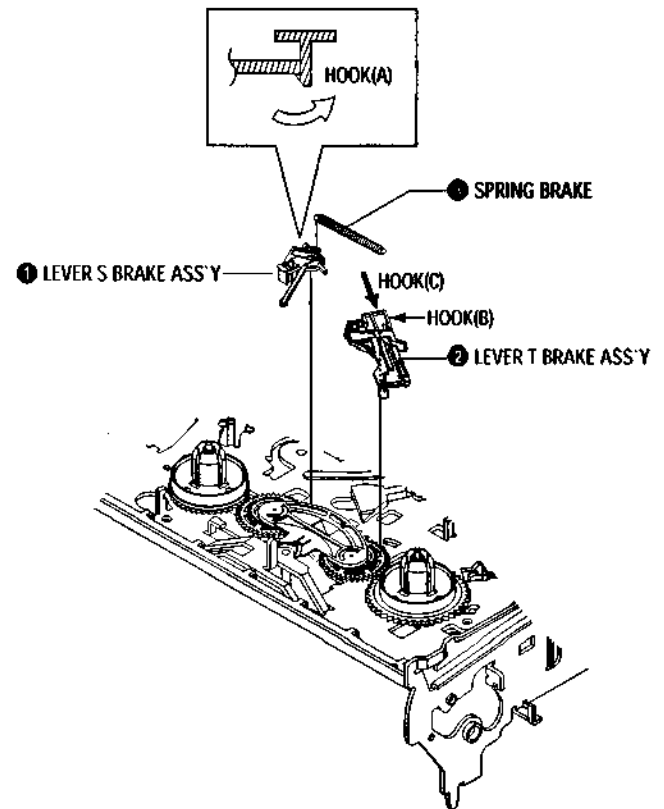


Fig. 1-17 Lever Brake S, T Ass'y Removal

1-2-13 Gear Idle Ass'y Removal

- 1) Push the Lever Idle ❶ in the direction of arrow "A", "B".
- 2) Lift the Lever Idle ❶.

Assembly :

- 1) Apply oil in two Bosses of Lever Idle ❶.
- 2) Assemble the Gear Idle ❷ with the Lever Idle ❶.

Note : When replacing the Gear Idle ❷, be sure to add oil in the boss of Lever Idle ❶.

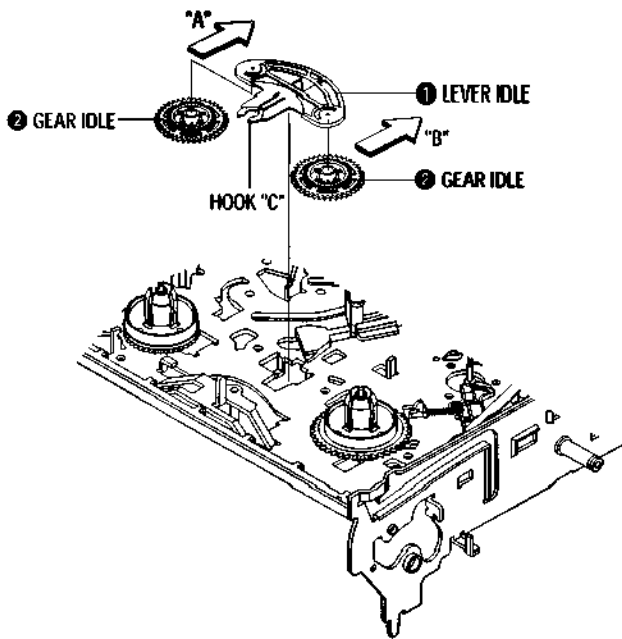


Fig. 1-18 Gear Idle Ass'y Removal

1-2-14 Disk S, T Reel Removal

- 1) Lift the Disk S, T Reel ❶, ❷.

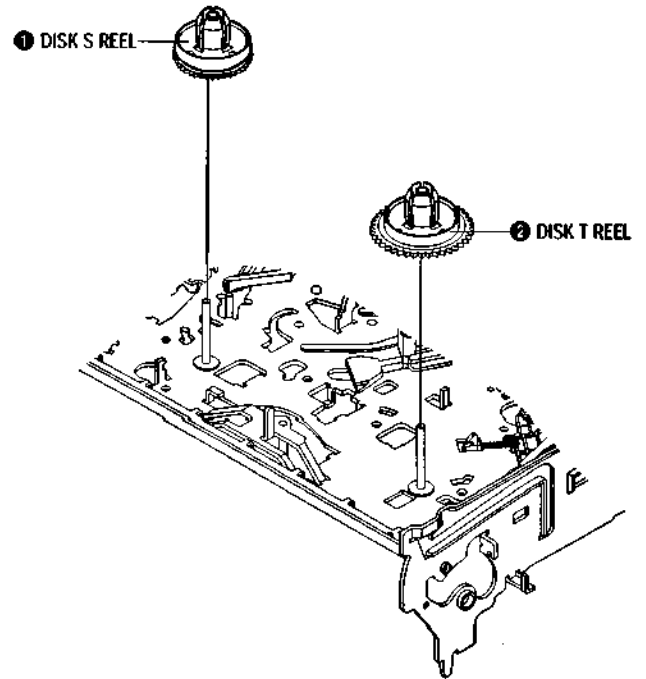


Fig. 1-19 Disk S, T Reel Removal

1-2-15 Holder Clutch Ass'y Removal

- 1) Remove the Washer Slit ❶.
- 2) Lift the Holder Clutch Ass'y ❷.

Note : When you reinstall Holder Clutch Ass'y

- 1) Check the condition of spring as shown in detail A.
- 2) Don't push Holder Clutch Ass'y down with excessive force just insert Holder Clutch Ass'y into post center with dead force and Rotate it smoothly. Be sure to confirm that spring is in the slit of Gear Center Ass'y as shown in detail B.

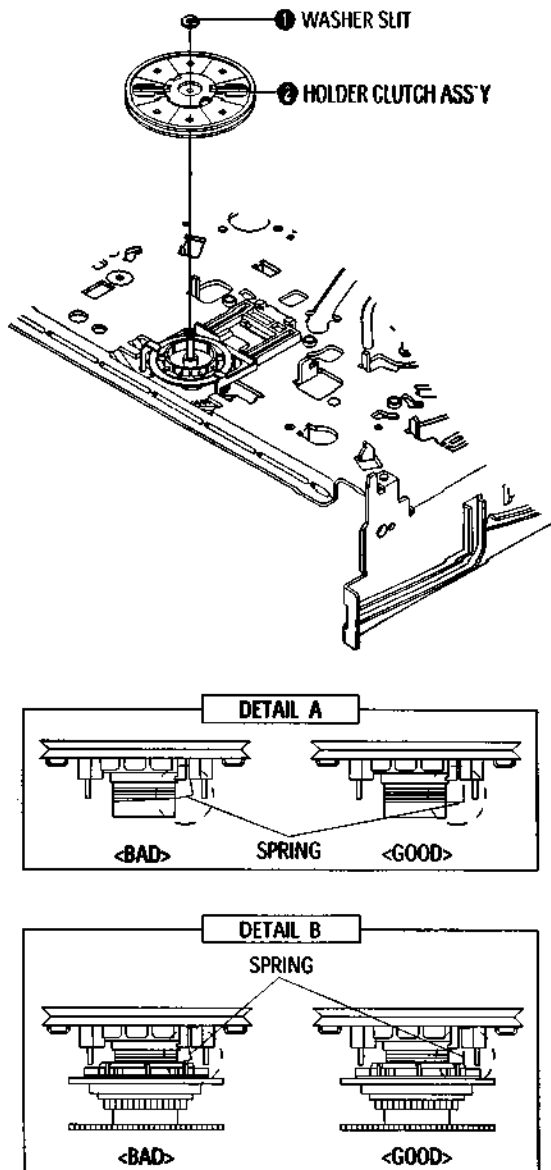


Fig. 1-20 Holder Clutch Ass'y Removal

1-2-16 Lever Up Down Ass'y, Gear Center Ass'y Removal

- 1) Remove the 2 hooks in the direction of arrow as shown Fig. 1-21 and lift the Lever Up Down Ass'y ❶.
- 2) Lift the Gear Center Ass'y ❷.

Assembly :

- 1) Insert the Lever Up Down Ass'y ❶ in the rectangular holes on Main Base as shown in Fig 1-22.
- 2) Lift the Lever Up Down Ass'y ❶ about 35 degree.(Refer to Fig 1-22)
- 3) Insert Ring of the Gear Center Ass'y ❷ in the Guide of the Lever Up Down Ass'y ❶.
- 4) Insert the Gear Center Ass'y ❷ in the post on Main Base.
- 5) Push down the Lever Up Down Ass'y ❶ for locking of the Hook.

Note :

- 1) Take care not to separate and sentence does not mark sense.
- 2) Be sure to confirm that Ring of the Gear Center Ass'y ❷ is in the Guide of the Lever Up Down Ass'y ❶ after finishing assembly of Lever Up

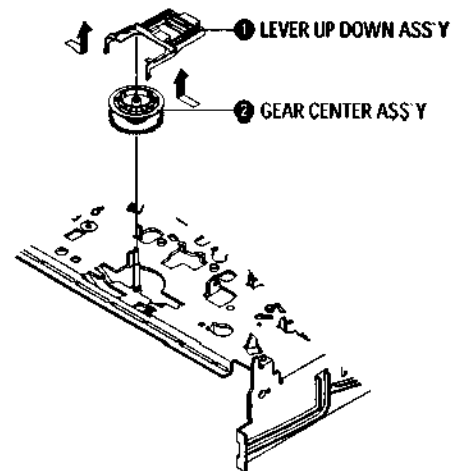


Fig. 1-21 Lever Up Down Ass'y Removal

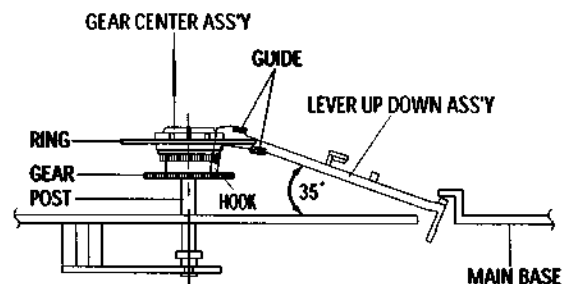


Fig. 1-22 Lever Up Down Ass'y Removal

1-2-17 Guide Cassette Door Removal

- 1) Lift the Hook [A].
- 2) Rotate the Guide Cassette Door ❶ in the direction of arrow.

Note : After reinstalling the Guide Cassette Door ❶ sure the Hook [A].

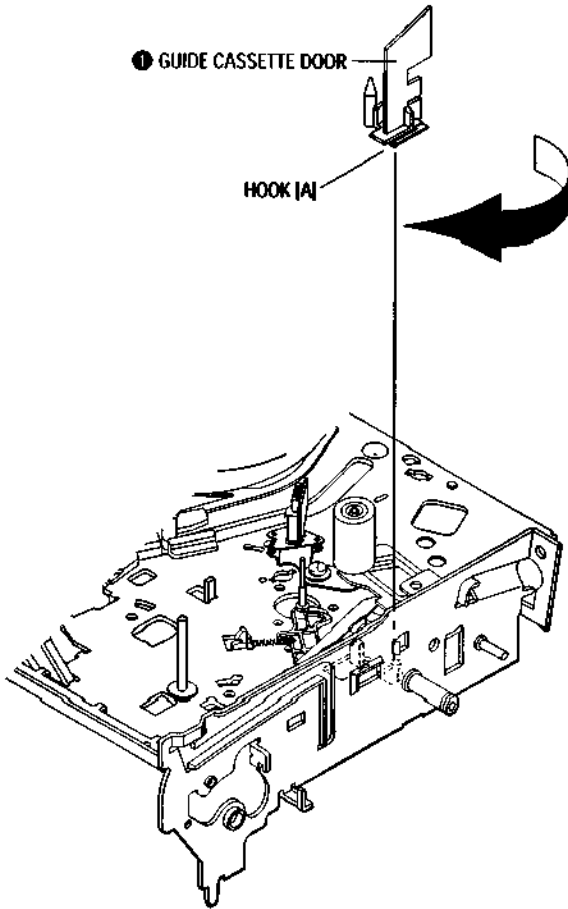


Fig. 1-23 Guide Cassette Door Removal

1-2-18 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

- 1) Lift the Unit Pinch Ass'y ❶.
- 2) Remove the Plate Joint ❷ from Lever Pinch Drive.
- 3) Remove the Spring Pinch Drive ❸.

Note :

- 1) Take extreme care not to touch the grease on the Roller Pinch.
- 2) When reinstalling, be sure to apply grease on the post pinch roller.

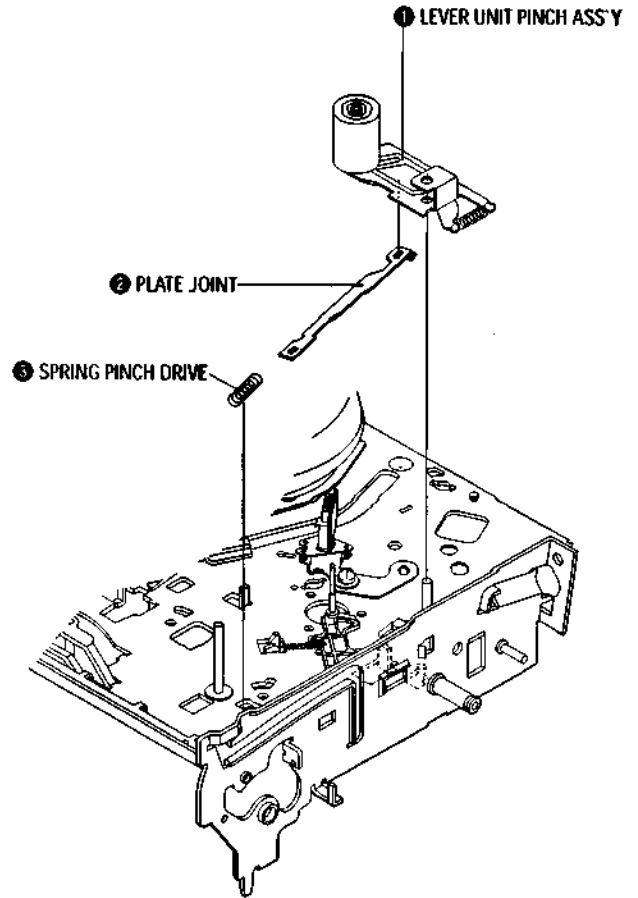


Fig. 1-24 Lever Unit Pinch Ass'y, Plate Joint, Spring Pinch Drive Removal

1-2-19 Lever #9 Guide Ass'y Removal

- 1) Remove the Spring #9 Guide ❶.
- 2) Lift the Spring #9 Guide Ass'y ❷ in the direction of arrow "A".

Note :

- 1) Take extreme care not to get grease on the tape Guide Post.
- 2) After reinstalling, check the bottom side of the Post #9 Guide to the top side of Main Base.

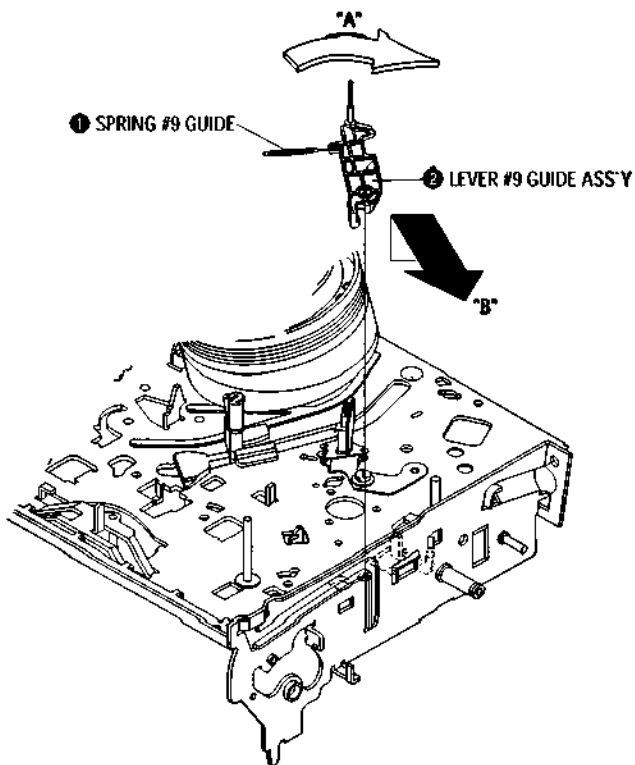


Fig. 1-25 Lever #9 Guide Ass'y Removal

1-2-20 FE Head Removal

- 1) Remove the screw ❶.
- 2) Lift the FE Head ❷.

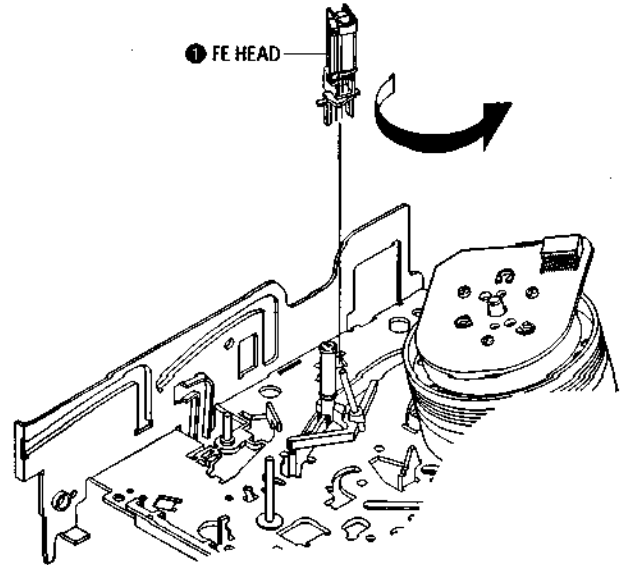


Fig. 1-26 FE Head Removal

1-2-21 ACE Head Removal

- 1) Pull out the FPC from connector of ACE Head Ass'y ②.
- 2) Remove the screw ①.
- 3) Lift the ACE Head Ass'y ②.

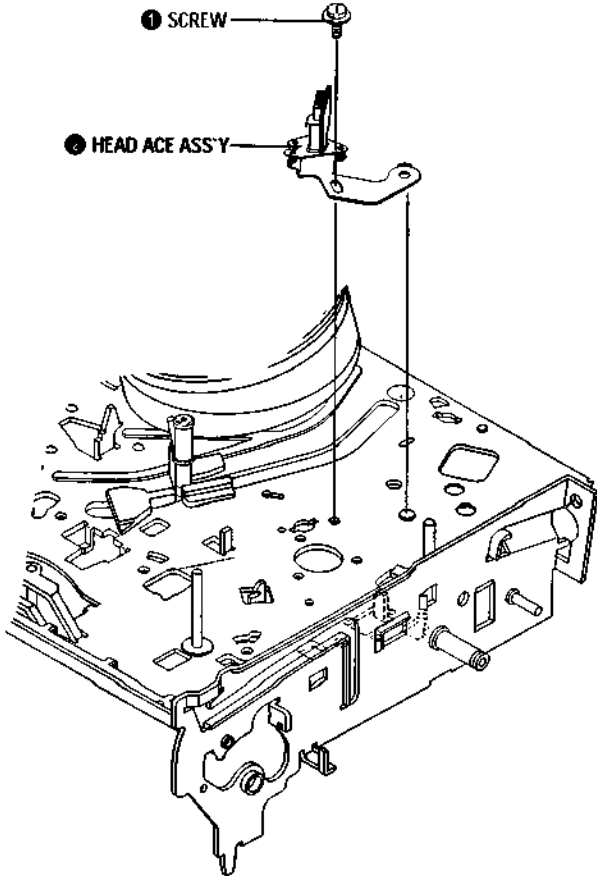


Fig. 1-27 ACE Head Removal

1-2-22 Slider S, T Ass'y Removal

- 1) Move the Slider S, T Ass'y ①, ② to slot, and then lift it to remove. (Refer to arrow)

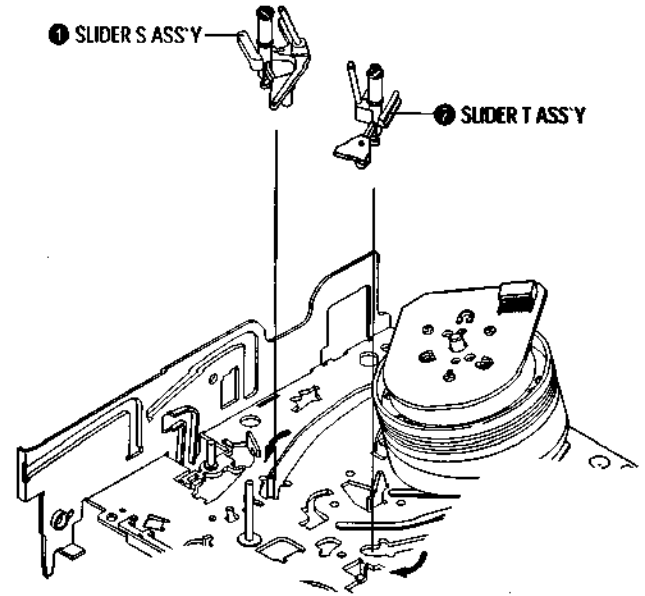


Fig. 1-28 Slider S, T Ass'y Removal

1-2-23 Plate Ground Deck, Cylinder Ass'y Removal

- 1) Remove the 3 Screws ❶.
- 2) Lift the Plate Ground Deck ❷.
- 3) Lift the Cylinder Ass'y ❸.

Assembly :

- 1) Match the 3 holes in the bottom of Cylinder ass'y ❸ to the 3 holes of Main Base as attending not to drop or knock the Cylinder ass'y ❸.
- 2) Tighten the 1 Screw ❶.
- 3) Match the Plate Ground Deck ❷ to the Hole of Base Main.
- 4) Tighten the other 2 Screws ❷.

Note :

- 1) Take care not to touch the Cylinder Ass'y ❸ and the tape guide post at reinstalling.
- 2) When reinstalling, Don't push down too much on Screw Driver.

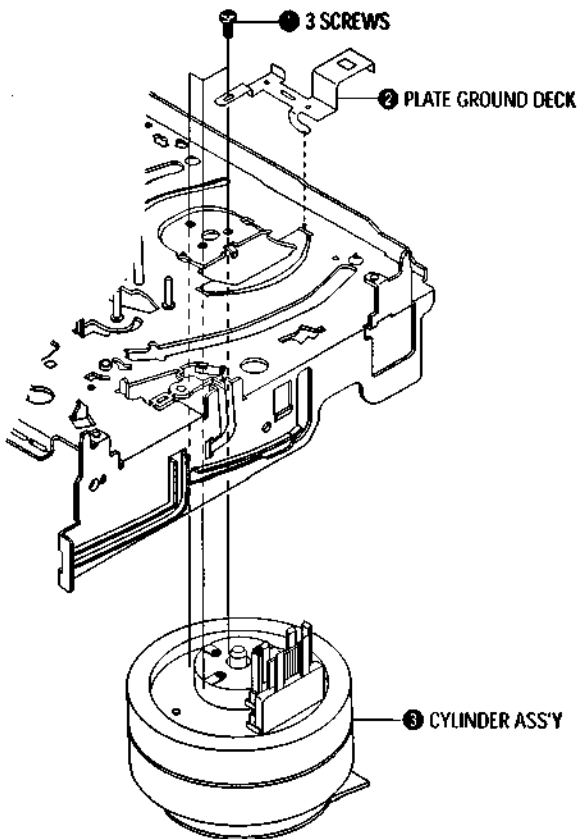


Fig. 1-29 Plate Ground Deck, Cylinder Ass'y Removal

1-2-24 Belt Pulley Removal

- 1) Remove the Belt Pulley ❶.

Note : Take extreme care not to get grease on Belt Pulley ❶ at assembling or reassembling.

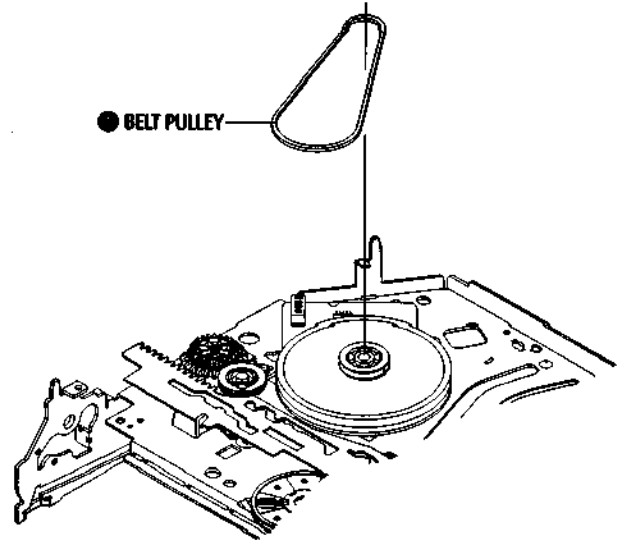


Fig. 1-30 Belt Pulley Removal

1-2-25 Level Head Cleaner Ass'y Removal

- 1) Release the Hook ❶.
- 2) Lift the Lever Head Cleaner Ass'y ❷.

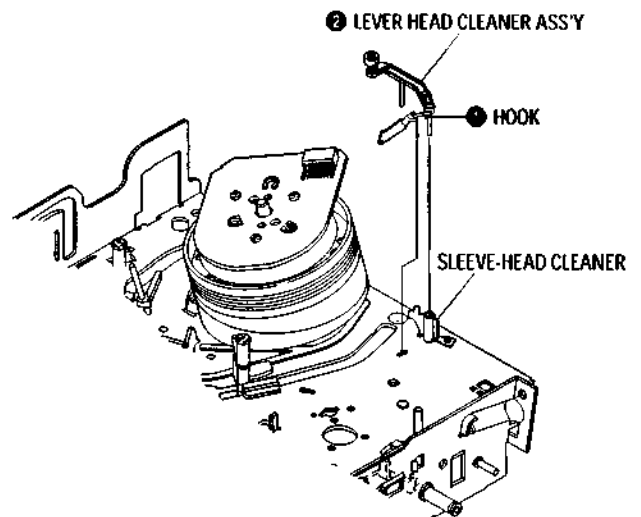


Fig. 1-31 Level Head Cleaner Ass'y Removal

1-2-26 Damper Capstan, Motor Capstan Ass'y Removal

- 1) Remove the Damper Capstan ❶ in the direction of arrow.
- 2) Remove the 3 Screws ❷.
- 3) Remove the Motor Capstan Ass'y ❸.

Assembly :

- 1) Match the 3 holes of Motor Capstan Ass'y ❸ to the 3 holes of Main Base. Be careful not to drop or knock the Motor Capstan Ass'y ❸.
- 2) Tighten the 3 Screws ❷ in the direction of arrow as shown detail drawing.
- 3) Assemble the Damper Capstan ❶.

Note : After tightening screws, check if there is gap between the head of screws and the top side of Main Base. There should have no gap between the head of screws and the top side of Main Base. After reinstalling, adjusting the tape transport system again.

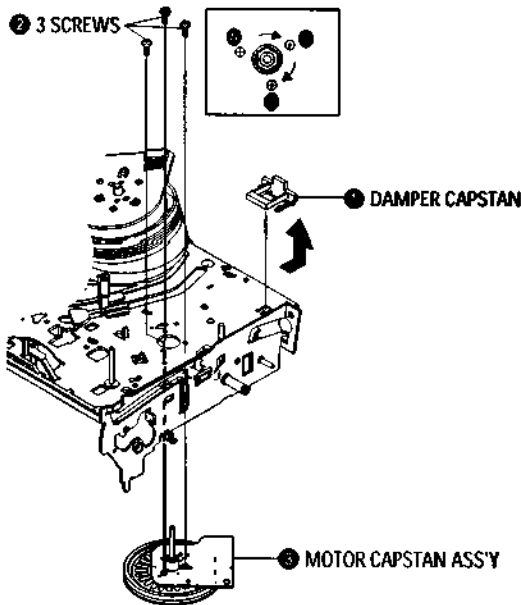


Fig. 1-32 Damper Capstan, Motor Capstan Ass'y Removal

1-2-27 How to Eject the Cassette Tape (If the unit does not operate on condition that is inserted into housing ass'y)

- 1) Turn the Gear worm ❶ clockwise with screw driver. (Refer to arrow)
(Other method : Remove the Screw of Motor Load Ass'y, Separate the Motor Load Ass'y)

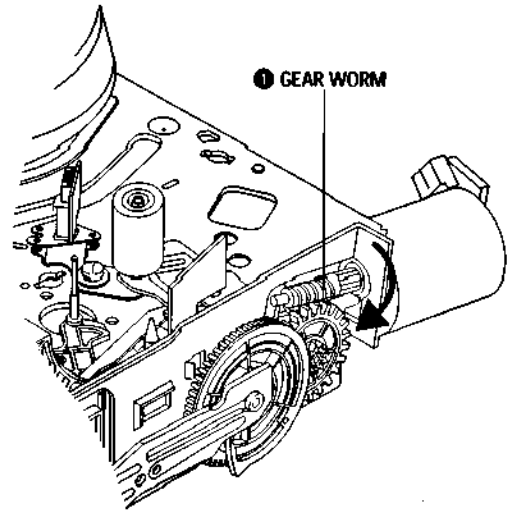


Fig. 1-33

- 2) When Slider S.T are approached in the position of unloading, rotate holder Clutch counterclockwise after inserting screw driver in the hole of frame's bottom in order to wind the unwinded tape. (Refer to Fig.1-34)
(If you rotate Gear Worm ❶ continuously when tape is in state of unwinding, you may cause a tape contamination by grease and tape damage. Be sure to wind the unwinded tape in the state of set horizontally.)
- 3) Rotate Gear Worm ❶ clockwise using screw driver again up to the state of eject mode and then pick out the tape. (Refer to Fig.1-33)

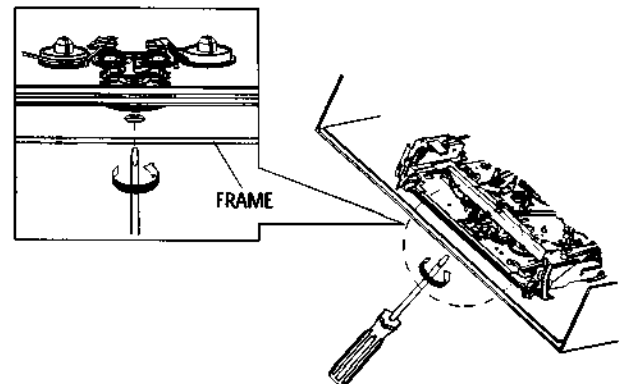


Fig. 1-34

1-3 The table of clearing, Lubrication and replacement time about principal parts

- 1) The replacement time of parts is not life of parts.
- 2) The table 1-1 is that the VCR Set is in normal condition (normal temperature, normal humidity).
The checking period may be changed owing to the condition of use, runtime and environmental conditions.
- 3) Life of the Cylinder Ass'y is depend on the condition of use.
- 4) See exploded view for location of each parts.

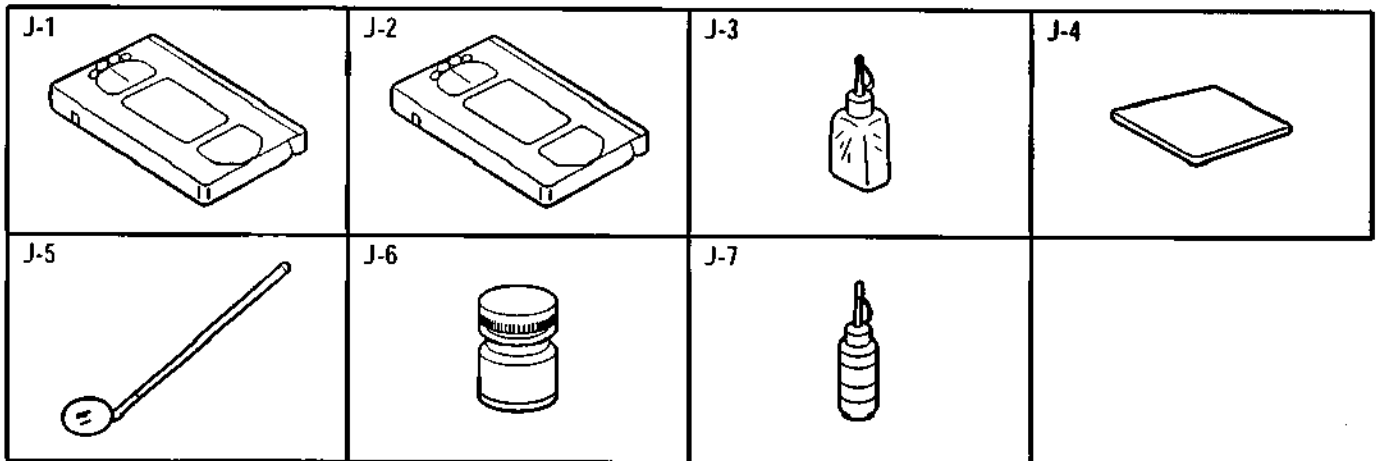
<Table 1-1>

Parts Name	Checking Period											Remark
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000		
T A P E P A T H S Y S T E M	POST TENSION	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	- To clean the parts, use patch and alcohol (solvent). - After cleaning, use the video tape after alcohol is gone away completely. - We recommend to use oil [NT-68] or solvent. - One or two drops of oil should be applied after cleaning with alcohol. - Periodic time of applying oil (Apply oil after cleaning) - The excessive applying oil may be the cause of malfunction.
	SLANT POST S, T	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#8 GUIDE SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	CAPSTAN SHAFT	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#9 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	#3 GUIDE POST	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
	GUIDE ROLLER S, T	Δ	Δ	Δ	0	0	0	0	0	0	0	
	CYLINDER ASS'Y	Δ	0	0	0	0	0	0	0	0	0	
	FE HEAD	Δ	Δ	Δ	0	0	0	0	0	0	0	
	ACE HEAD	Δ	0	0	0	0	0	0	0	0	0	
	PINCH ROLLER	Δ	0	0	0	0	0	0	0	0	0	
	POST REEL S, T		◆		◆		◆		◆		◆	
	SLEEVE TENSION		◆		◆		◆		◆		◆	
	POST CENTER		◆		◆		◆		◆		◆	
LEVER IDLE BOSS (2Point)		◆		◆		◆		◆		◆		
D R I V I N G S Y S T E M	CAPSTAN MOTOR PULLEY	Δ	Δ	Δ	Δ	Δ	0	0	0	0		
	BELT PULLEY				0	0	0	0	0	0		
	HOLDER CLUTCH ASS'Y	Δ	0	0	0	0	0	0	0	0		
	GEAR CENTER ASS'Y		0	0	0	0	0	0	0	0		
	GEAR IDLE (2Point)		0	0	0	0	0	0	0	0		
	LOADING MOTOR		0	0	0	0	0	0	0	0		
B R A K E S Y S T E M	BAND BRAKE ASS'Y		0	0	0	0	0	0	0	0		
	BRAKE T ASS'Y		0	0	0	0	0	0	0	0		

Δ : Cleaning 0 : Check and replacement in necessary ◆ : Add Oil

1-4 Tools and fixtures required for service

Ref. No.	Name	Part No.	Caved Jig No.	Remarks
J-1	Torque Measurement Cassette VHT-103S	J-6090-072-A		For FWD & back tension torque measurement
	Torque Measurement Cassette VHT-404S	J-6082-012-A		For CUE and REVIEW torque measurement
J-2	Alignment Tape	KRV-52NE (NTSC)	8-192-605-41	Tape path, Audio azimuth, X-value adjustments
		KRV-51N2 (NTSC)	8-192-605-32	Electrical adjustments, Operation check
		KRV-52PL (PAL)	8-192-605-46	Tape path, Audio azimuth, X-value adjustments
		KRV-51P (PAL)	8-192-605-36	Electrical adjustments, Operation check
J-3	Cleaning Fluid	Y-2031-001-0	—	
J-4	Chamois Leather	2-034-697-00	—	
J-5	Dental Mirror (with Handle)	J-6080-029-A	SL-5052	Tape path and tape traveling adjustments or checks
	Dental Mirror (Mirror)	J-6080-030-1		
J-6	Grease Molykote EM 30LG	J-6090-014-A		Net. 20 g
J-6	Diamond Oil NT-68	7-661-018-18		



<Fig 1-35>

2. Alignment and Adjustment

2-1 Tape Transport System and Adjustment Locations

The tape transport system has been adjusted precisely in the factory. Alignment is not necessary except for the following :

- 1) Noise observed on the screen.
- 2) Tape damage.
- 3) Parts replacement in the tape transport system.

Lower flange height of tape guide is used as the reference for the transport adjustment.

To maintain the height of the tape guide and prevent damage, do not apply excessive force onto the main base.

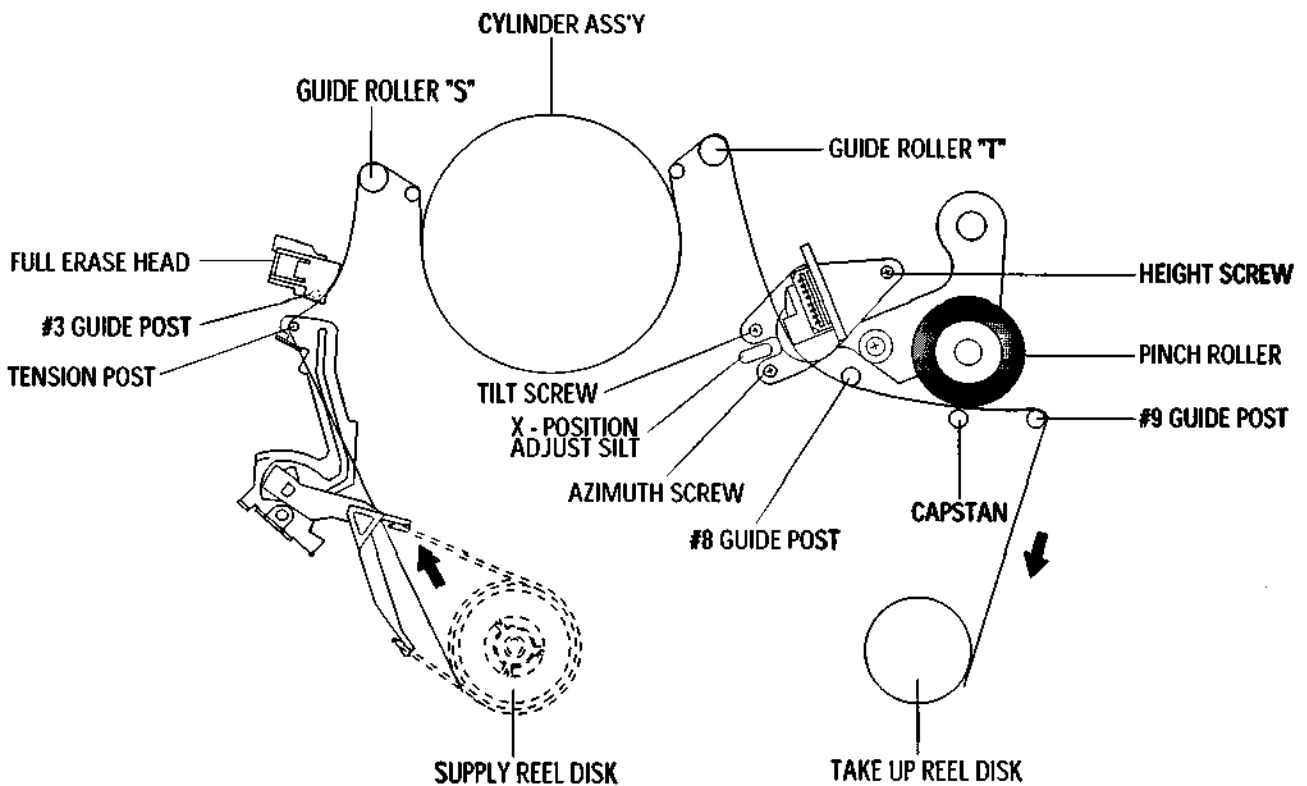


Fig. 2-1 Location of Tape Transport Adjustment

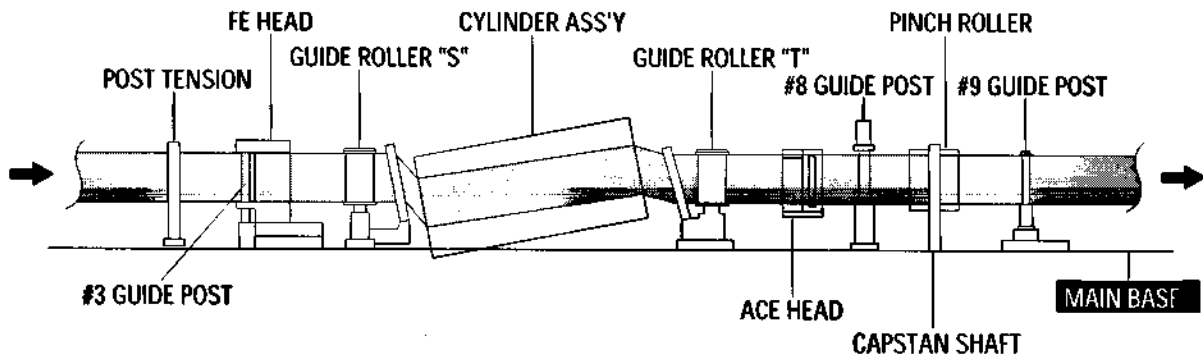


Fig. 2-2 Tape Travel Diagram

2-2 Tape Transport System Adjustment

When parts are replaced, perform the required adjustments by referring to procedures for the tape transport system. If there are any changes to the tape path, first run a T-120 tape and make sure excessive tape wrinkle does not occur at the tape guides.

- 1) If tape wrinkle is observed at the guide roller S, T, turn the guide roller S, T until wrinkle disappears.
- 2) If the tape wrinkle is still observed at the tape guide, perform the tilt adjustment of the ACE head. (See page 5-3 of the Service Manual for Test Point Locations.)

2-2-1 ACE Head Assembly Adjustment

2-2-1(a) ACE HEAD HEIGHT ADJUSTMENT

- 1) Run the alignment tape (KRV-52NE (NTSC)/52PL (PAL)) in the playback mode.
- 2) Observe surface of the audio head using a dental mirror.
- 3) Turn screw (C) clockwise or counterclockwise until the gap of lower tape edge and the lower edge of the control head is about 0.25mm. (Refer to Fig. 2-3 and 2-4)

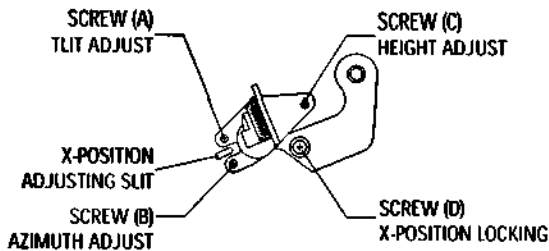


Fig. 2-3 Location of ACE Head Adjustment Screw

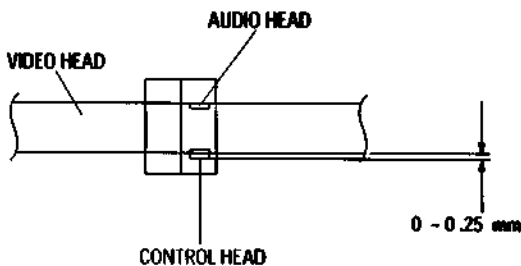


Fig. 2-4 ACE Head Height Adjustment

2-2-1(b) ACE HEAD TILT ADJUSTMENT

- 1) Playback a blank tape and observe the position of the tape at the lower flange of tape guide.
- 2) Confirm that there is no curl or wrinkle at the lower flange of tape guide as shown in Fig. 2-5 (B).
- 3) If a curl or wrinkle of the tape occurs, slightly turn the screw (A) tilt adjust on the ACE head ass'y.
- 4) Reconfirm the ACE head height.

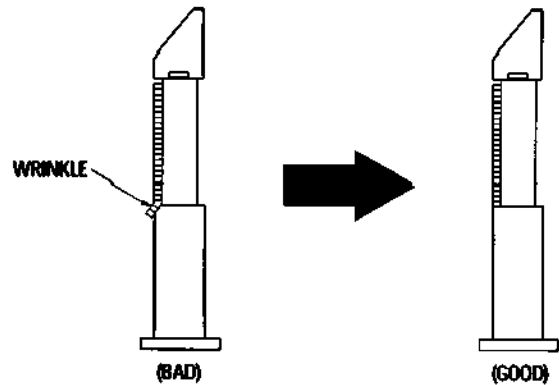


Fig. 2-5 Tape Guide Check

2-2-1(c) AUDIO AZIMUTH ADJUSTMENT

- 1) Load alignment tape (KRV-52NE (NTSC)/52PL (PAL)) and playback the NTSC : 5KHz (PAL : 4KHz) signal.
- 2) Connect channel-1 scope probe to audio output test point.
- 3) Adjust screw (B) to achieve maximum audio level. (See Fig. 2-3)

2-2-1(d) ACE HEAD POSITION (X-POINT) ADJUSTMENT

- 1) See "2. Alignment and Adjustment" for ACE Head position (X-Point) adjustment.

2-2-2 Linearity Adjustment (Guide roller S, T adjustment)

- 1) Playback the alignment tape (KRV-51N2 (NTSC)/51P (PAL)) (SP mode, Mono Scope).
- 2) Observe the video envelope signal on an oscilloscope (triggered by the video switching pulse).
- 3) Make sure the video envelope waveform (at its minimum) meets the specification shown in Fig. 2-6.

If it does not, adjust as follows :

Note :

- a=Maximum output of the video RF envelope.
- b=Minimum output of the video RF envelope at the entrance side.
- c=Minimum output of the video RF envelope at the center point.
- d=Maximum output of the video RF envelope at the exit side.

- 4) If the section A in Fig. 2-7 does not meet the specification, adjust the guide roller S up or down.
- 5) If the section B in Fig. 2-7 does not meet the specification, adjust the guide roller T up or down.

6) Play back the alignment tape (SP mode, Mono Scope).

7) Connect an oscilloscope CH-1 to the Envelope and CH-2 to the H'D SW Pulse for triggering.

8) Turn the guide roller heads with a flat head (■) driver to obtain a flat video RF envelope as shown in Fig. 2-8.

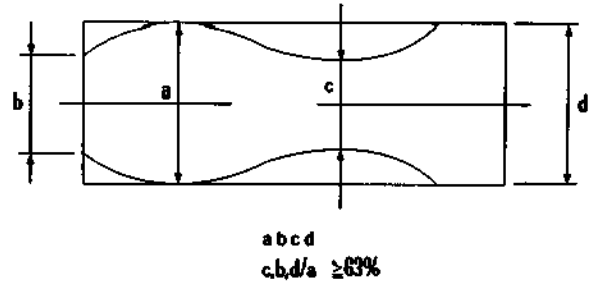


Fig. 2-6 Envelope Waveform Adjustment

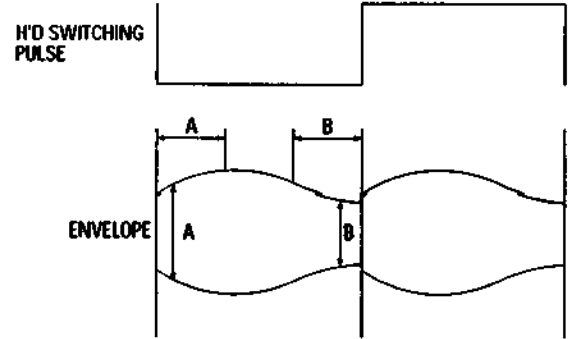


Fig. 2-7 Adjustment Points

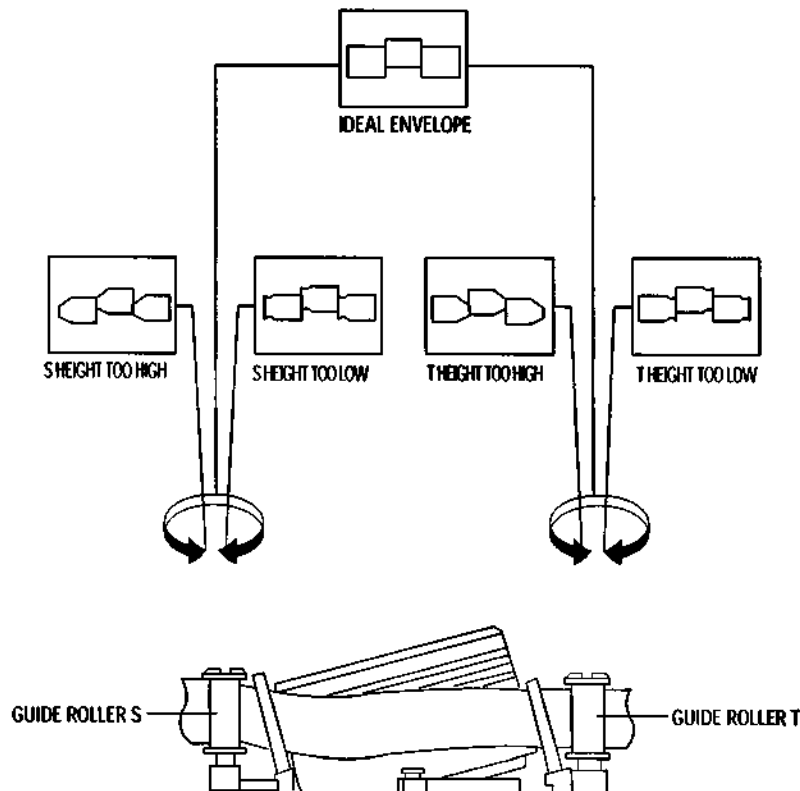


Fig. 2-8 Guide Roller S, T Height Adjustment

2-2-3 Check Transitional Operation from RPS to Play

Check transition from RPS mode to play mode :
Using a pre-recorded SP tape, make sure the entry side of envelope comes to an appropriate steady state within 3 seconds (as shown in Fig. 2-9).
If the envelope waveform does not reach specified peak-to-peak amplitude within 3 seconds, adjust as follows :

- 1) Make sure there is no gap between the supply roller lower flange and the tape.
If there is a gap, adjust the supply guide roller again.
- 2) Change operation mode from the RPS to the play mode (again) and make sure the entry side of envelope rises within 3 second.

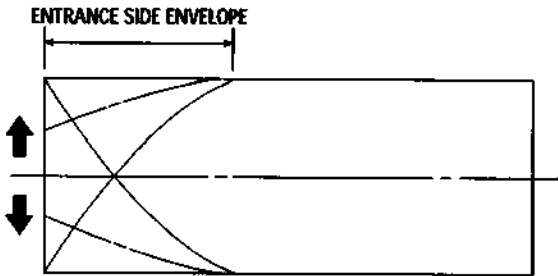


Fig. 2-9 Video Envelope Rising when Operation mode Changes from RPS to Play Mode

2-3 Reel Torque

- 1) The rotation of the capstan motor causes the Holder Clutch Ass'y to rotate through the Belt Pulley.
- 2) The spring wrap PLAY/REV of holder clutch ass'y drives the disk reel S, T through gear idle by rotation of gear center ass'y.
- 3) Brake is operated by slider cam at FF/REW mode.
- 4) Transportation of accurate driving force is done by gears. (Gear Center Ass'y)

Note : If the spec. does not meet the followings specifications, replace the holder clutch ass'y and then recheck.

2-2-4 Envelope Check

- 1) Make recordings on T-120 (E-120) and T-160 (E-180) tape.
Make sure the playback output envelope meets the specification as shown in Fig. 2-10.
- 2) Play back a self recorded tape (recording made on the unit using with T-120 (E-120)).
The video envelope should meet the specification as shown in Fig. 2-10.
In SP mode, (A) should equal (B).
If the head gap is wide, upper cylinder should be checked.

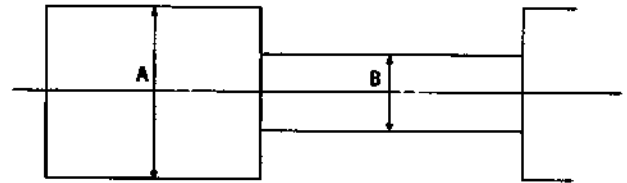


Fig. 2-10 Envelope Output and Output Level

2-2-5 Tape Wrinkle Check

- 1) Run the T-160 (E-180) tape in the playback, FPS, RPS and Pause modes and observe tape wrinkle at each guide.
- 2) If excessive tape wrinkle is observed, perform the following adjustments in Playback mode :
 - ◆ Tape wrinkle at the guide roller S, T section :
Linearity adjustment.
 - ◆ Tape wrinkle at tape guide flange :
ACE head assembly coarse adjustment.

<Table 2-1>

MODE	TORQUE g/cm	GAUGE
PB	42 ± 11	Cassette Torquemeter
RPS	145 ± 30	Cassette Torquemeter