

DCR-TRV360/TRV361/TRV460/TRV460E/TRV461E

RMT-831

SERVICE MANUAL

LEVEL 2

Ver 1.0 2003.12

Revision History

How to use
Acrobat Reader



US Model
DCR-TRV360/TRV460

Canadian Model
DCR-TRV460

AEP Model

UK Model

East European Model

North European Model

Australian Model

DCR-TRV460E

E Model

DCR-TRV361/TRV460/TRV460E/TRV461E

M2000/M2200 MECHANISM

Photo: DCR-TRV460

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	

- For ADJUSTMENTS (SECTION 6), refer to SERVICE MANUAL, ADJ (987629351.pdf).
- For INSTRUCTION MANUAL, refer to SERVICE MANUAL, LEVEL1 (987629341.pdf).
- For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL IX [M2000 MECHANISM]" (9-929-861-11).
- Reference No. search on printed wiring boards is available.
- Table for differences of function of each model.
- TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)
- HELP: Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

On the VC-345 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-345 board.

Therefore, schematic diagrams, printed wiring boards, mounted parts location and electrical parts list of the VC-345 board are not shown.

The following pages are not shown.

Schematic diagrams	Pages 4-9 to 4-44	Mounted parts location	Pages 4-69 and 4-70
Printed wiring boards	Pages 4-59 to 4-62	Electrical parts list	Pages 5-16 to 5-24

Digital 8 DIGITAL VIDEO CAMERA RECORDER

SONY®



HANDYCAM



SPECIFICATIONS

Video camera recorder

System

Video recording system

2 rotary heads, Helical scanning system

Still image recording system

Exif Ver. 2.2*¹

*¹ Exif is a file format for still images, established by the JEITA (Japan Electronics and Information Technology Industries Association). Files in this format can have additional information such as your camcorder's setting information at the time of recording.

Audio recording system

Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)

Video signal

DCR-TRV360/TRV361/TRV460:
NTSC color, EIA standards
DCR-TRV460E/TRV461E:
PAL color, CCIR standards

Usable cassette

8 mm video format cassette

Tape speed

DCR-TRV360/TRV361/TRV460:
SP: Approx. 28.67 mm/s
LP: Approx. 19.11 mm/s
DCR-TRV460E/TRV461E:
SP: Approx. 28.70 mm/s
LP: Approx. 19.13 mm/s

Recording/play back time

DCR-TRV360/TRV361/TRV460:
(using 120 min. Hi8/Digital8 video cassette)
DCR-TRV460E/TRV461E:
(using 90 min. Hi8/Digital8 video cassette)
SP: 60 min
LP: 90 min

Fast forward/rewind time

DCR-TRV360/TRV361/TRV460:
(using 120 min. Hi8/Digital8 video cassette)
DCR-TRV460E/TRV461E:
(using 90 min. Hi8/Digital8 video cassette)
Approx. 5 min

Viewfinder

Electric viewfinder (monochrome)

Image device

3.0 mm (1/6 type) CCD (Charge Coupled Device)
DCR-TRV360/TRV361/TRV460:
Gross: Approx. 460 000 pixels
Effective (still): Approx. 290 000 pixels
Effective (movie): Approx. 290 000 pixels
DCR-TRV460E/TRV461E:
Gross: Approx. 540 000 pixels
Effective (still): Approx. 350 000 pixels
Effective (movie): Approx. 350 000 pixels

Lens

Combined power zoom lens
Filter diameter: 37 mm (1 7/16 in.)
20 × (Optical), 990 × (Digital)
F = 1.6 ~ 2.4

Focal length

2.5 - 50 mm (1/8 - 2 in.)
When converted to a 35 mm still camera
In CAMERA-TAPE:
42 - 840 mm (1 11/16 - 33 1/8 in.)
In CAMERA-MEMORY:
42 - 840 mm (1 11/16 - 33 1/8 in.)

Color temperature

Auto

Minimum illumination

4 lx (lux) (F 1.6)
0 lx (lux) (during the NightShot plus function)*²
*² Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

S video input/output

Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal:
DCR-TRV360/TRV361/TRV460: 0.286 Vp-p
DCR-TRV460E/TRV461E: 0.3 Vp-p
75 Ω (ohms), unbalanced
4-pin mini DIN

Audio/Video input/output

AV MINIJACK
Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative
Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Input impedance more than 47 kΩ (kilohms), Output impedance with less than 2.2 kΩ (kilohms)
Stereo minijack (φ 3.5mm)

DV input/output

4-pin connector

USB jack

mini-B

LCD screen

Picture

6.2 cm (2.5 type)

Total dot number

123 200 (560 × 220)

General

Power requirements

DC 7.2 V (battery pack)
DC 8.4 V (AC Adaptor)

Average power consumption (when using the battery pack)

During camera recording using the viewfinder
2.9 W
During camera recording using the LCD
3.8 W

Operating temperature

0° C to 40° C (32° F to 104° F)

Storage temperature

-20° C to +60° C (-4° F to +140° F)

Dimensions (approx.)

85 × 98 × 151 mm (3 3/8 × 3 7/8 × 6 in.) (w/h/d)

Mass (Approx.)

800 g (1 lb 12 oz) main unit only
940 g (2 lb 1 oz) including the NP-FM30 rechargeable battery pack, Hi8/Digital8 cassette, lens cap, and shoulder strap.

Supplied accessories

Memory Stick 8MB (1)
(DCR-TRV361/TRV461E)
AC Adaptor (1)
Power cord (1)
Lens cap (1)
Shoulder strap (1)
Wireless Remote commander RMT-831 (1)
A/V connecting cable (1)
USB cable (1)
Rechargeable battery pack NP-FM30 (1)
CD-ROM SPVD-012 USB Driver (1)
21-pin adaptor (1)
(AEP, UK, EE)
Camera Operations Guide (1)
Computer Applications Guide (1)
See page 7.

AC Adaptor AC-L15A/L15B

Power requirements

AC 100 - 240 V, 50/60 Hz

Current consumption

0.35 - 0.18 A

Power consumption

18 W

Output voltage

DC 8.4 V, 1.5 A

Operating temperature

0° C to 40° C (32° F to 104° F)

Storage temperature

-20° C to +60° C (-4° F to +140° F)

Dimensions (approx.)

56 × 31 × 100 mm (2 1/4 × 1 1/4 × 4 in.) (w/h/d) excluding the projecting parts

Mass (approx.)

190 g (6.7 oz) excluding the power cord

Rechargeable battery pack (NP-FM30)

Maximum output voltage

DC 8.4 V

Output voltage

DC 7.2 V

Capacity

5.0 Wh (700 mAh)

Dimensions (approx.)

38.2 × 20.5 × 55.6 mm
(1 9/16 × 1 3/16 × 2 1/4 in.) (w/h/d)

Mass (approx.)

65 g (2.3 oz)

Operating temperature

0° C to 40° C (32° F to 104° F)

Type

Lithium ion

Design and specifications are subject to change without notice.

Table for differences of function

Model	DCR-TRV360	DCR-TRV361	DCR-TRV460	DCR-TRV460E	DCR-TRV461E
Destination	US	E	US, CND, E	AEP, UK, EE NE, E, AUS	E
Color system	NTSC	NTSC	NTSC	PAL	PAL
Playback system	Digital8	Digital8	Hi8/8/Digital8	Hi8/8/Digital8	Hi8/8/Digital8
Mechanism deck	M2200	M2200	M2000	M2000	M2000

- Abbreviation

AUS : Australian model
CND : Canadian model

EE : East European model
NE : North European model

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR 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.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

**: LEAD FREE MARK**

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350°C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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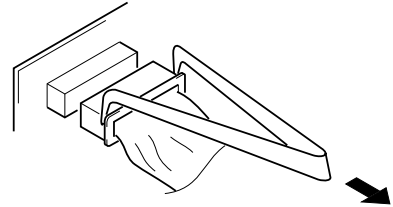
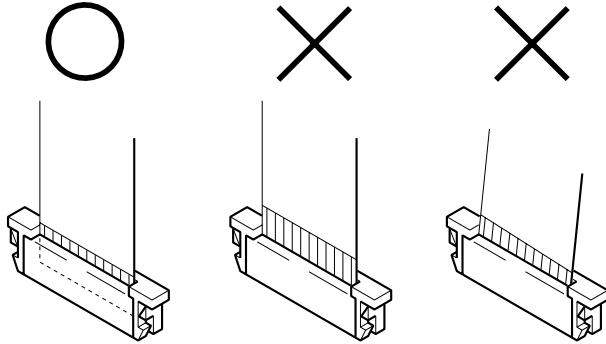
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**SECTION 1
SERVICE NOTE**

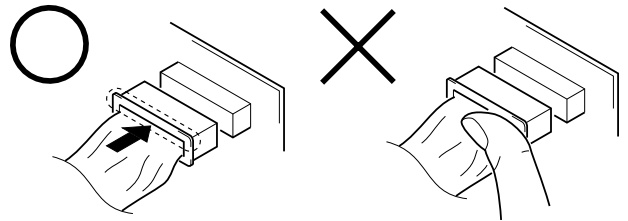
1-1. NOTE FOR REPAIR

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.

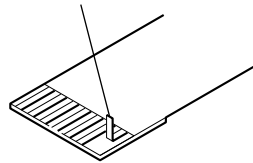
When remove a connector, don't pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.



Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)



1-2. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
The following method is available to prevent this.

Method 1.

Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

1-4-3. Self-diagnosis Code Table

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN1551 of VC-345 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC1554 of VC-345 board) when the focusing is not performed.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑬ of CN1551 of VC-345 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC1554 of VC-345board) when zooming is not performed.
E	6 2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE752 of SI-041 board) peripheral circuits.
E	6 2	0 1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE751 of SI-041 board) peripheral circuits.

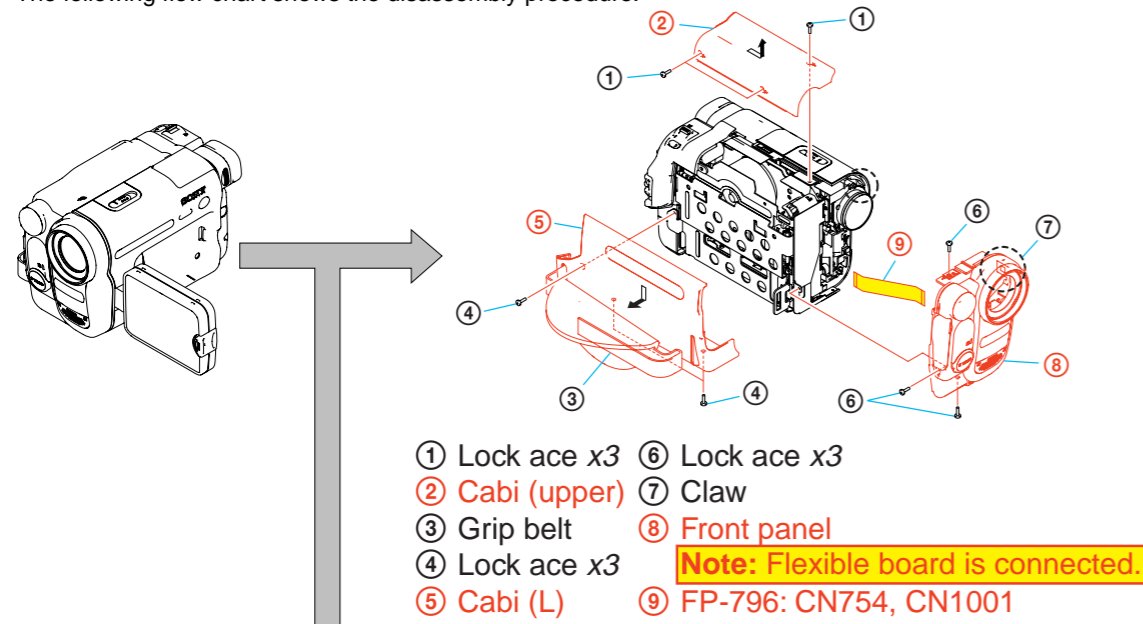
"1-5. CHANGE OF IC4501" is not shown.
Pages 1-6 is not shown.



**SECTION 2
DISASSEMBLY**

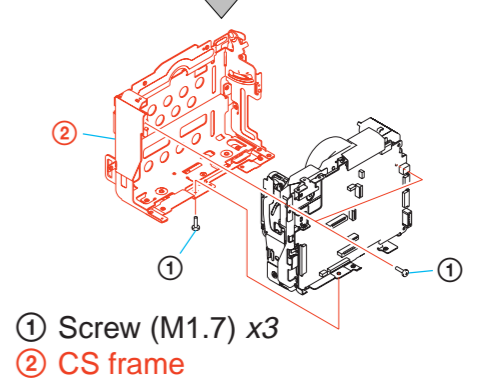
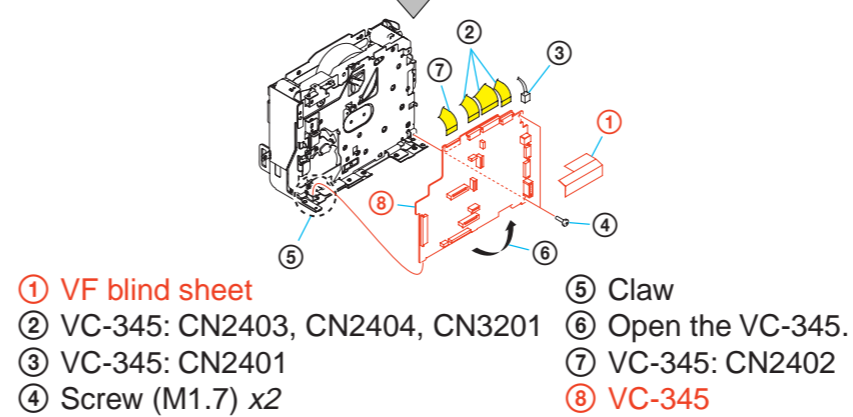
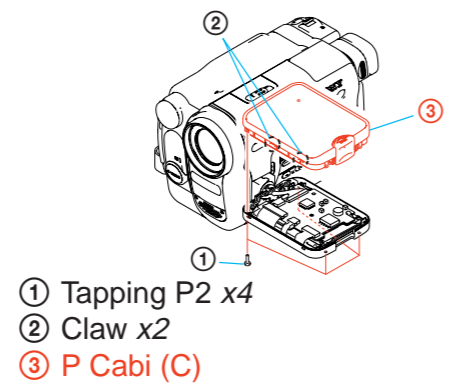
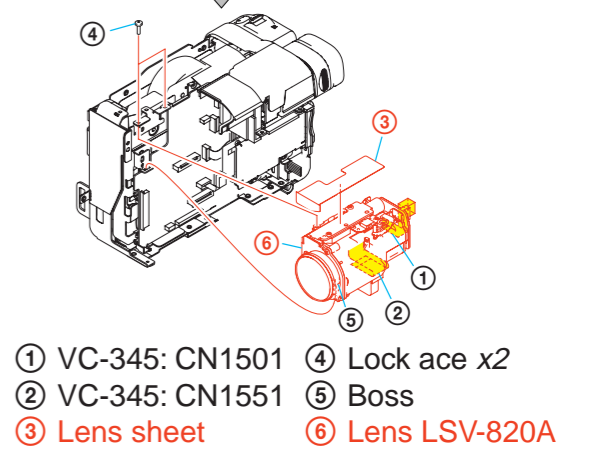
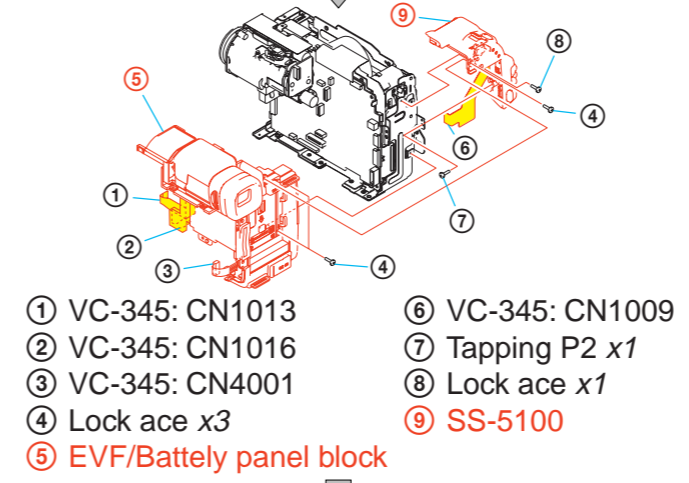
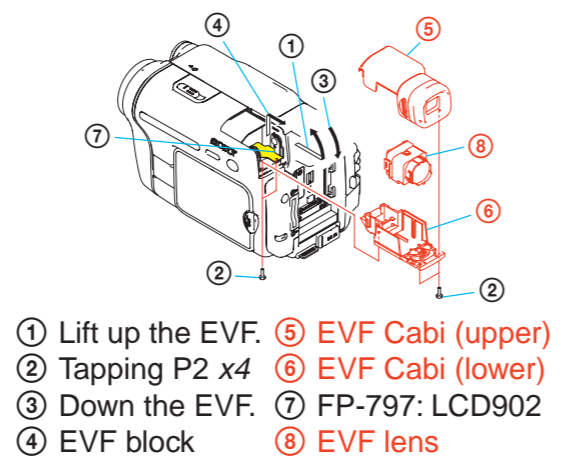
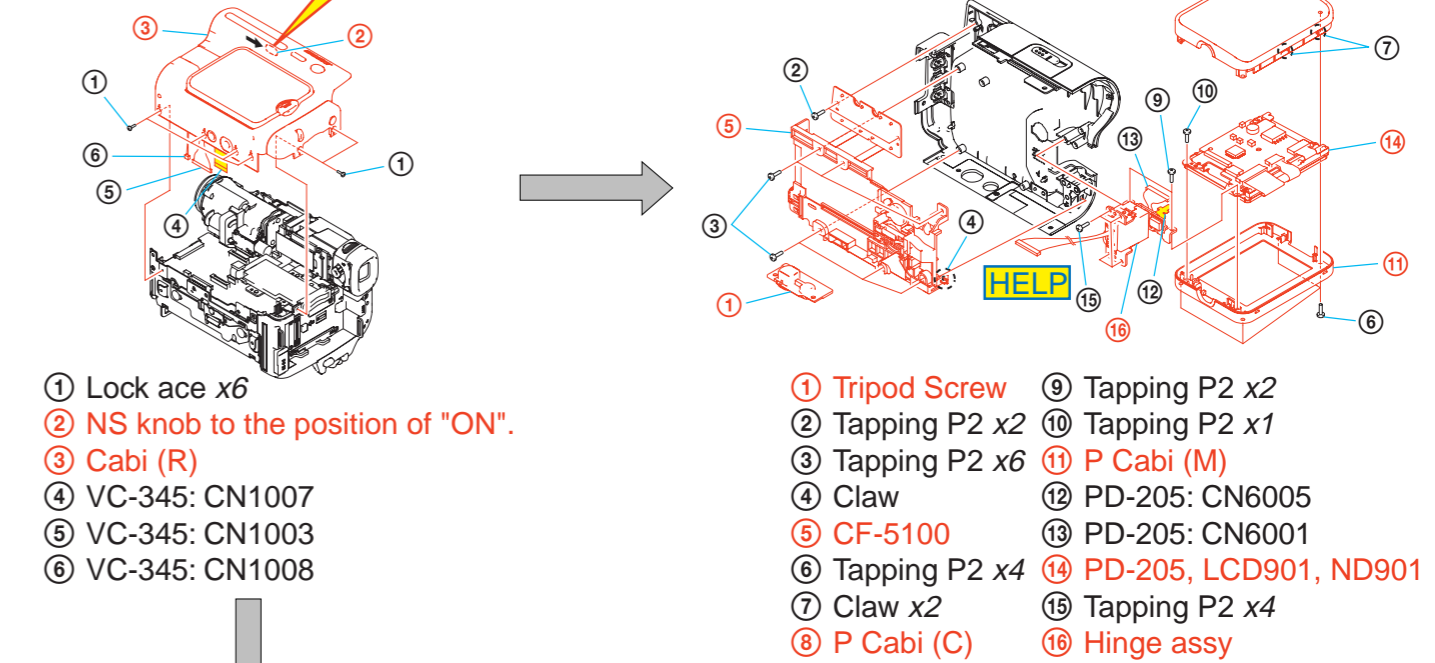
2-1. FLOW CHART

The following flow chart shows the disassembly procedure.

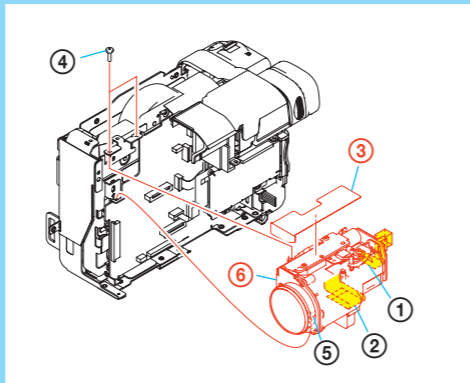
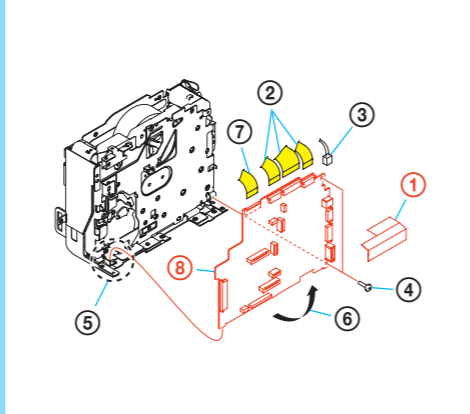
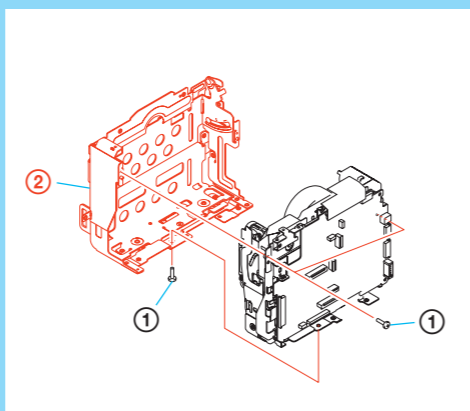
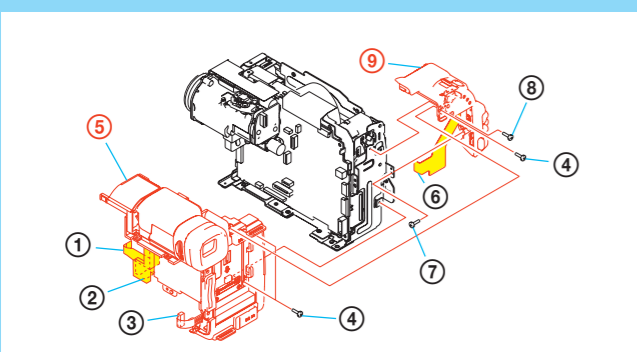
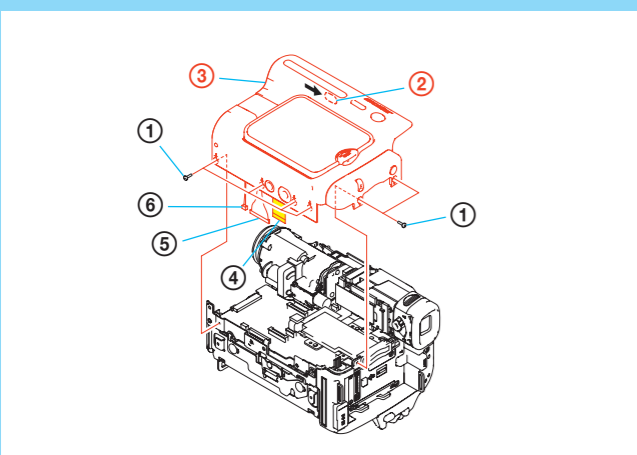
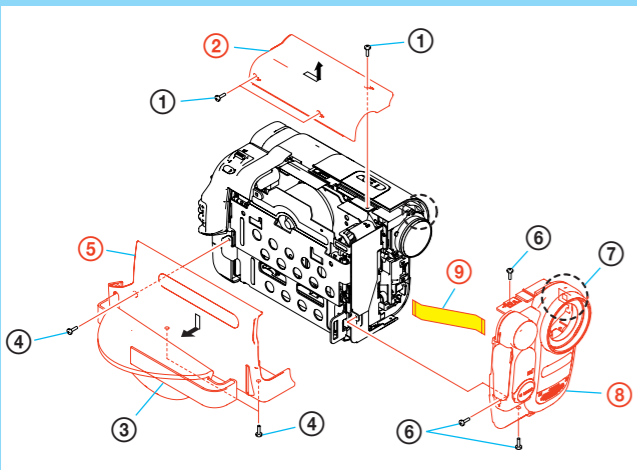
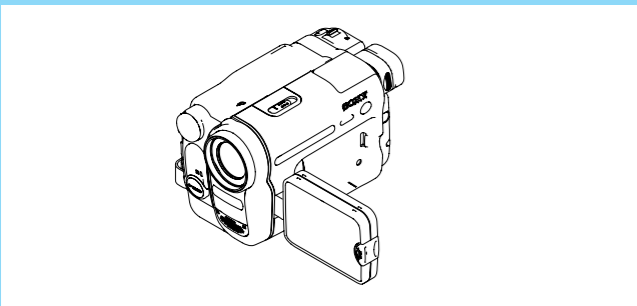


Note: When you remove Cabinet (R) Block, or when you assembly, please slide NS knob to the position of "ON".

OFF ON
 NS knob



2-2. MECHANISM DECK SERVICE POSITION



Connection to Check the Mechanism deck

To check the mechanism deck, set the Camera or VTR to the "Forced power ON" mode. (Or, connect the control key block (SS-5100) to the CN1009 of VC-345 board and set the power switch to the "CAMERA" or "PLAY/edit" position.) Operate the Camera functions of the zoom and focus, the VTR function using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the "Forced Camera Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

Exiting the "Forced Power ON" mode

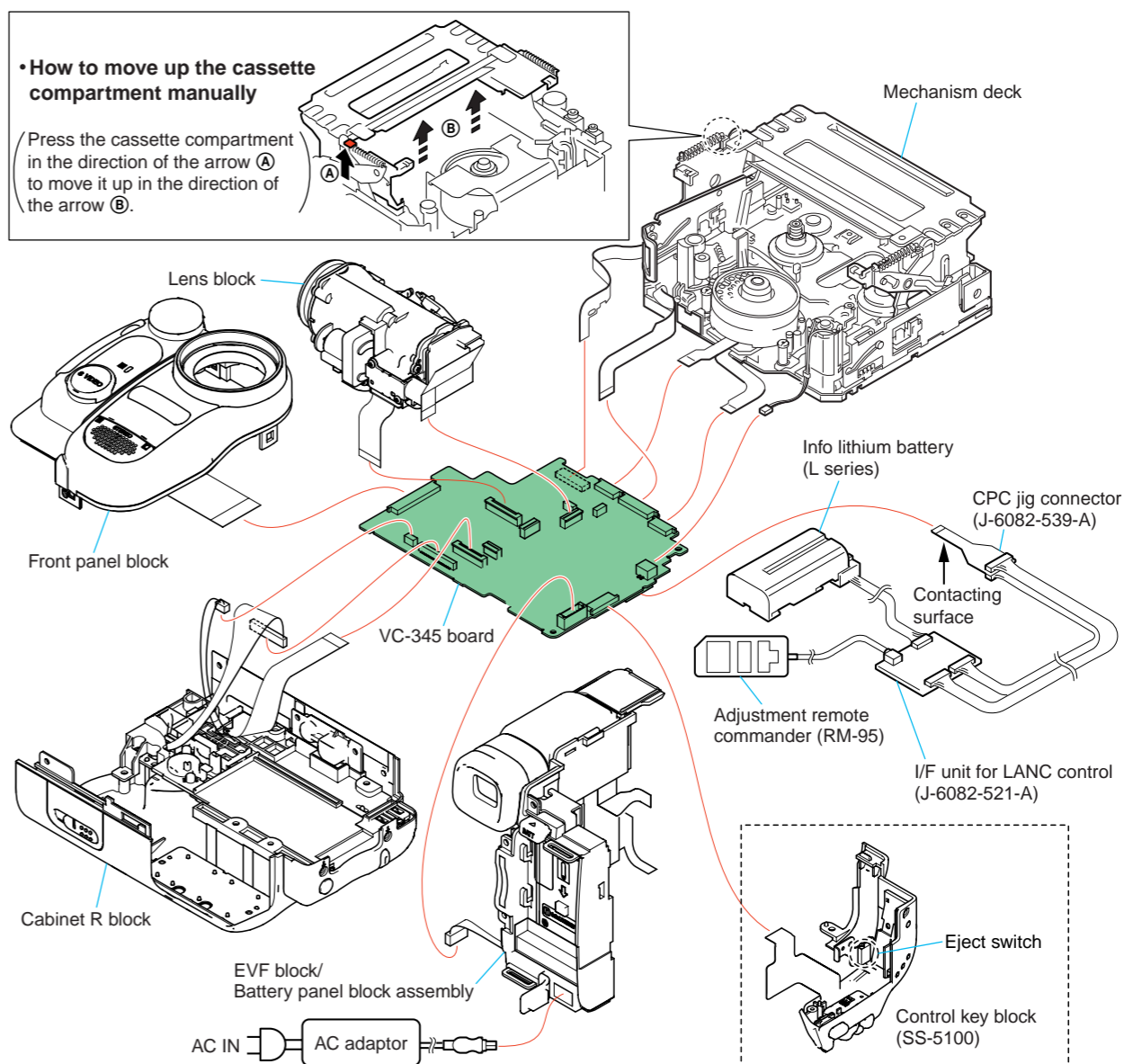
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

Setting the "Forced VTR Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

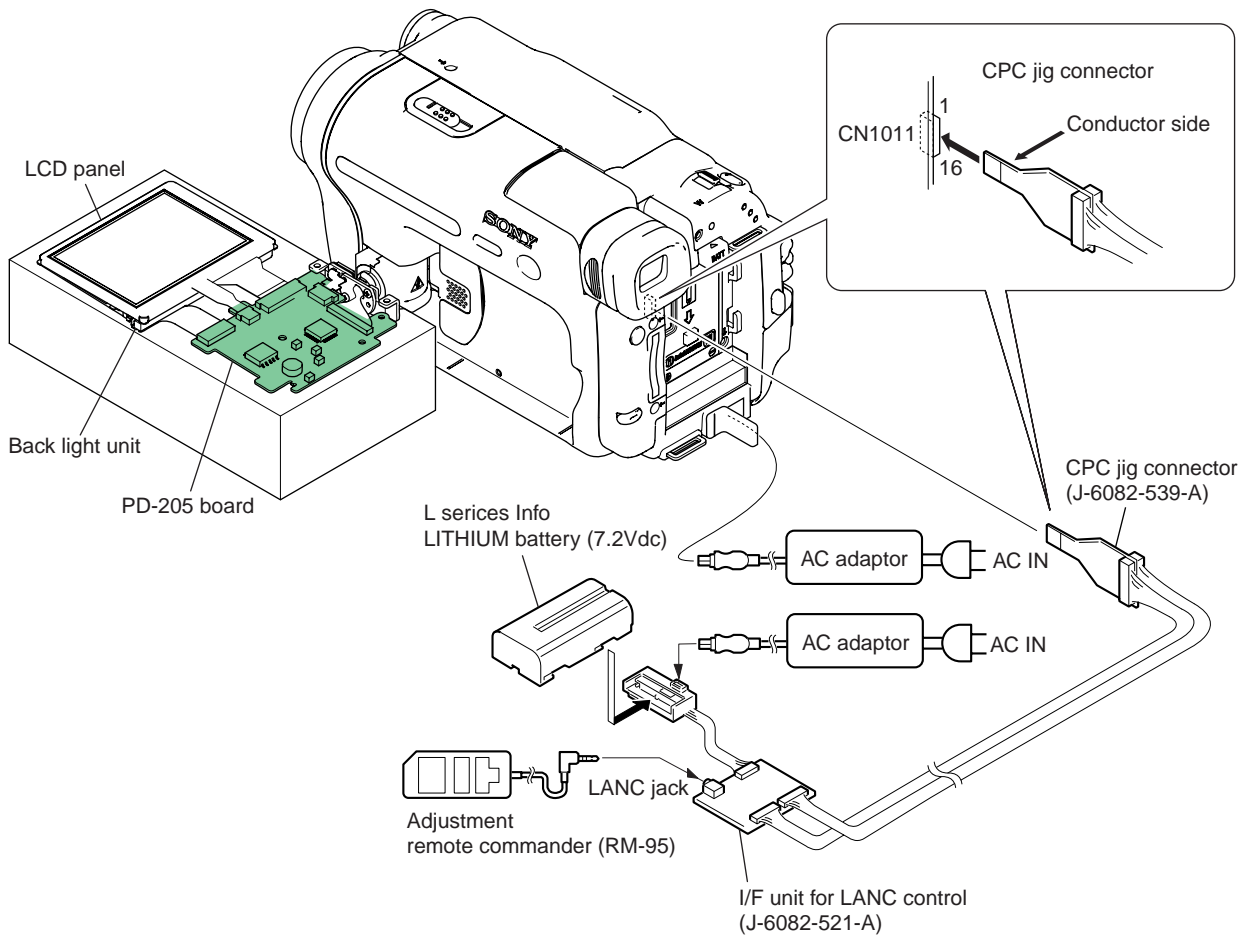
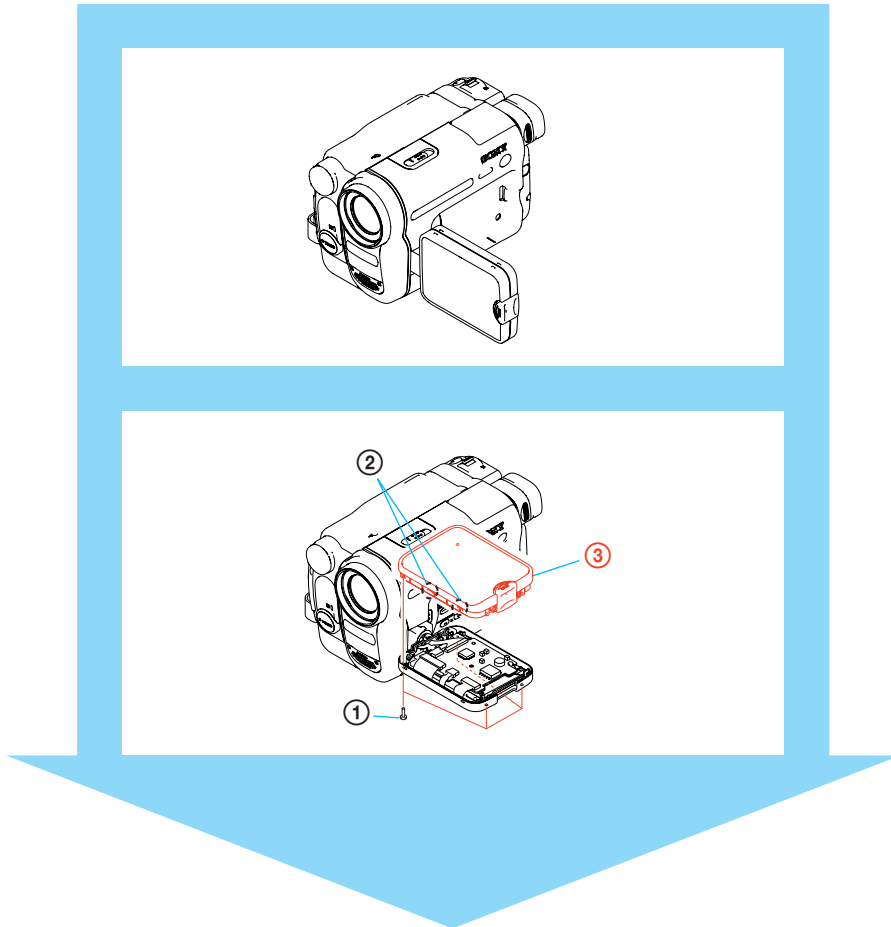
• How to move up the cassette compartment manually

(Press the cassette compartment in the direction of the arrow (A) to move it up in the direction of the arrow (B).)

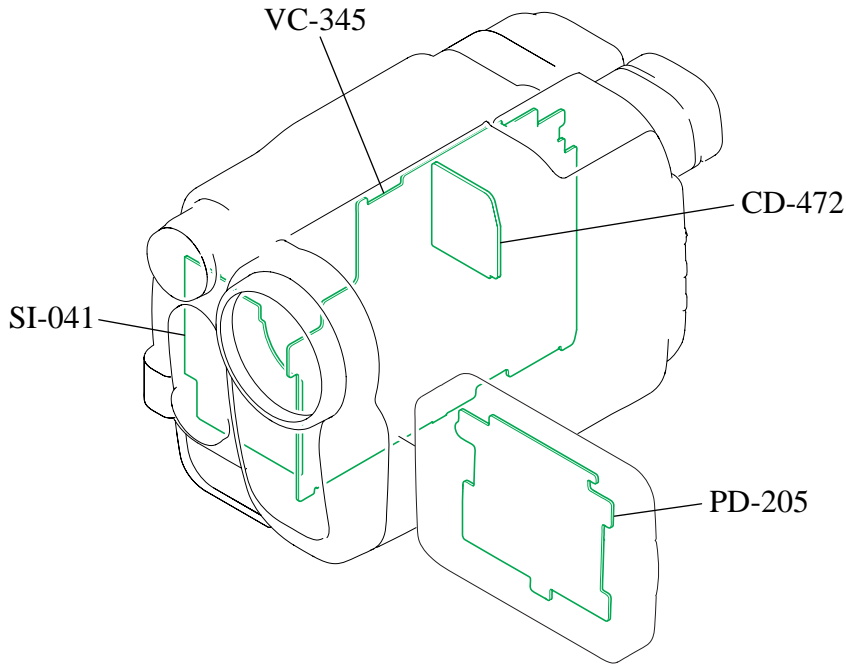


When exiting the "Forced Power ON" mode, connect the control key block (SS-5100) to the CN1009 of VC-345 board. Or, when ejecting the cassette, connect the control key block (SS-5100) to the CN1009 of VC-345 board, and press the Eject switch.

2-3. LCD SERVICE POSITION

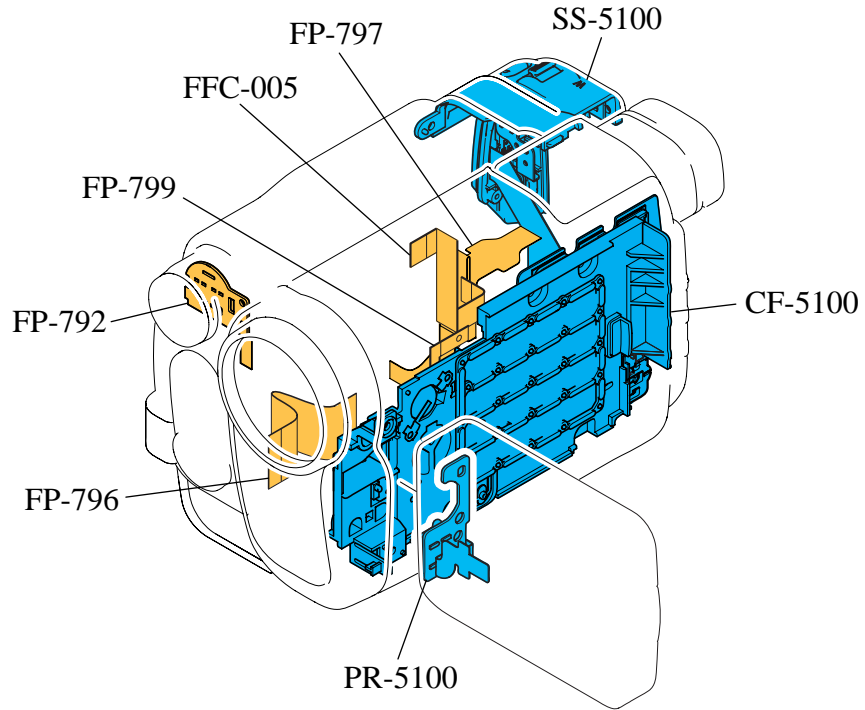


2-4. CIRCUIT BOARDS LOCATION



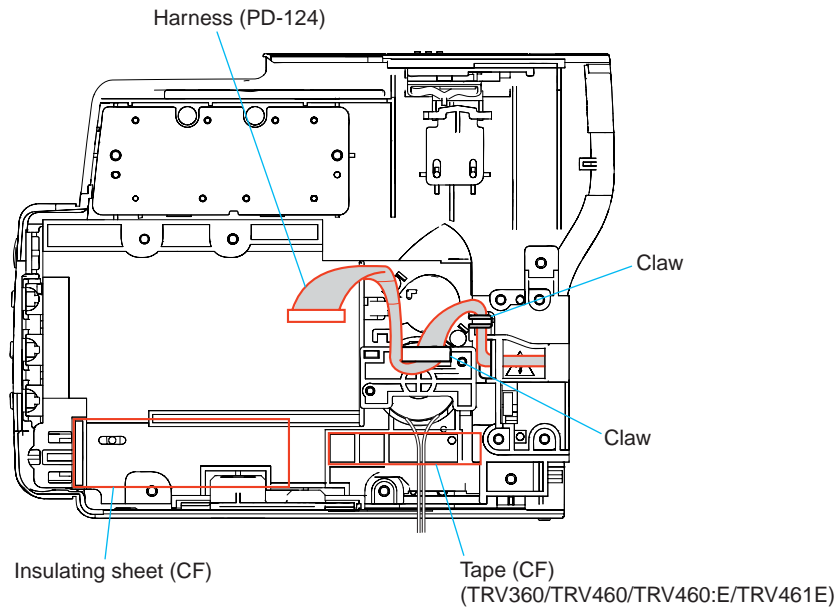
Board Name	Function
CD-472	CCD IMAGER
VC-345	A/D CONVERTER, TIMING GENERATOR, VIDEO/AUDIO DSP, LENS CONTROL, LENS DRIVE, Hi8/Std8 VTR PROCESS, VIDEO IN/OUT , DV SIGNAL PROCESS, REC/PB AMP, DV INTERFACE, STEADYSHOT, Hi8/Std8 PB AMP, USB/MODE CONTROL, MS INTERFACE, MEMORY, HI CONTROL, CAMERA/MECHA CONTROL, SERVO, AUDIO, DC CONTROL, CONNECTOR
PD-205	LCD DRIVE, BACKLIGHT DRIVE
SI-041	STEADYSHOT, JACK

2-5. FLEXIBLE BOARDS LOCATION



HELP

Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.



Note: Close the LCD panel, when you work.

3. BLOCK DIAGRAMS

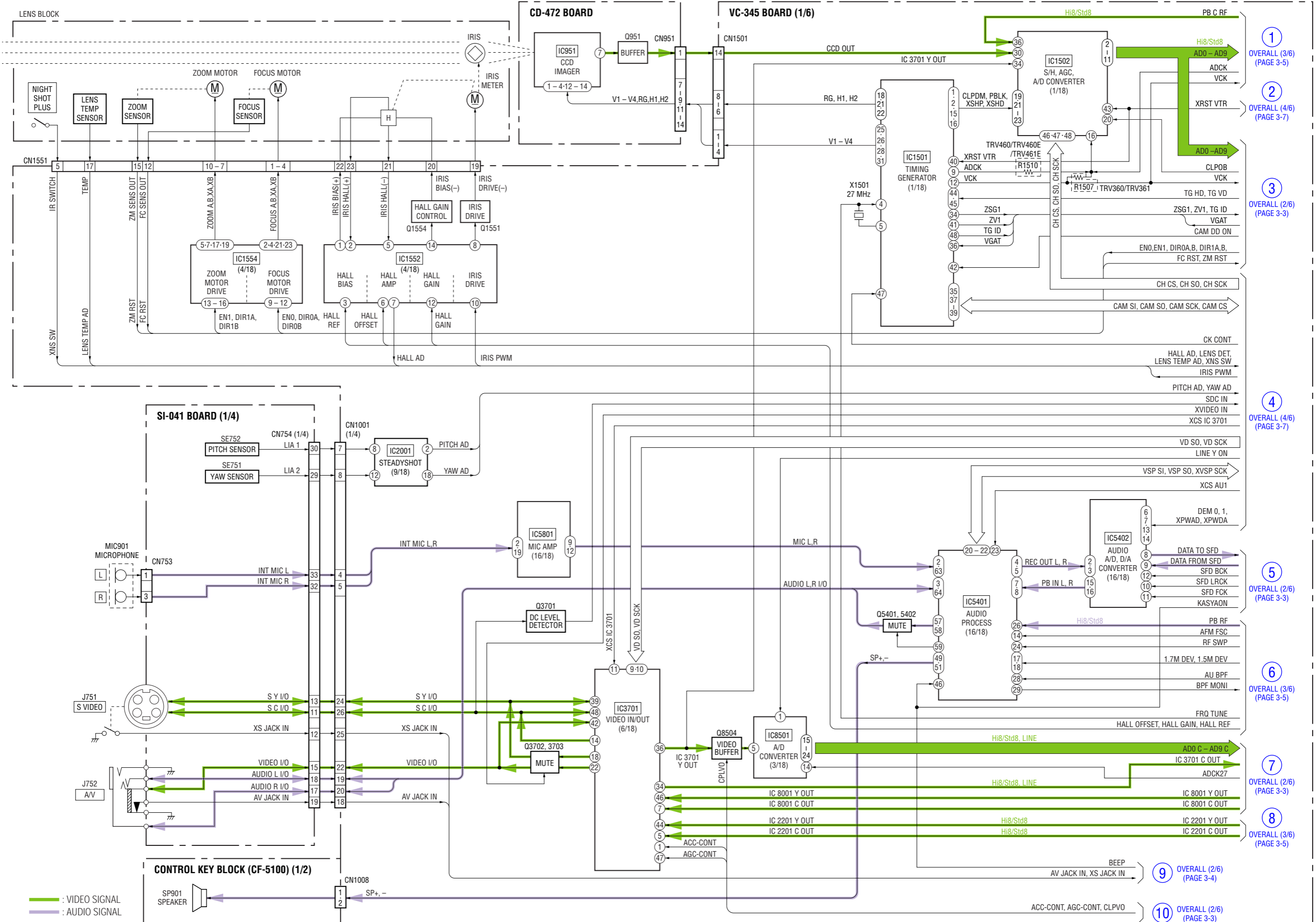
Link

OVERALL BLOCK DIAGRAM (1/6)	OVERALL BLOCK DIAGRAM (6/6)
OVERALL BLOCK DIAGRAM (2/6)	POWER BLOCK DIAGRAM (1/3)
OVERALL BLOCK DIAGRAM (3/6)	POWER BLOCK DIAGRAM (2/3)
OVERALL BLOCK DIAGRAM (4/6)	POWER BLOCK DIAGRAM (3/3)
OVERALL BLOCK DIAGRAM (5/6)	

**SECTION 3
BLOCK DIAGRAMS**

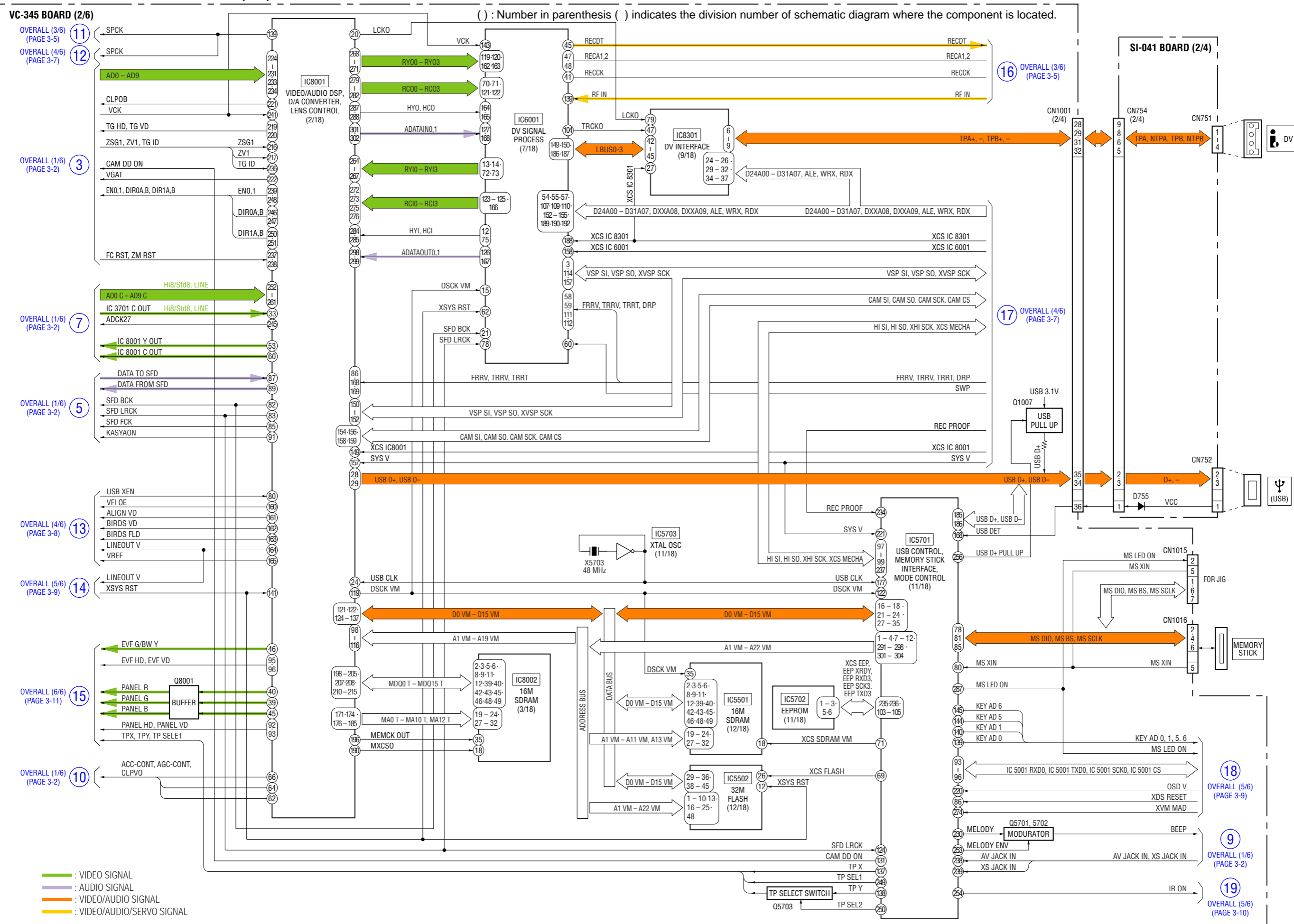
3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



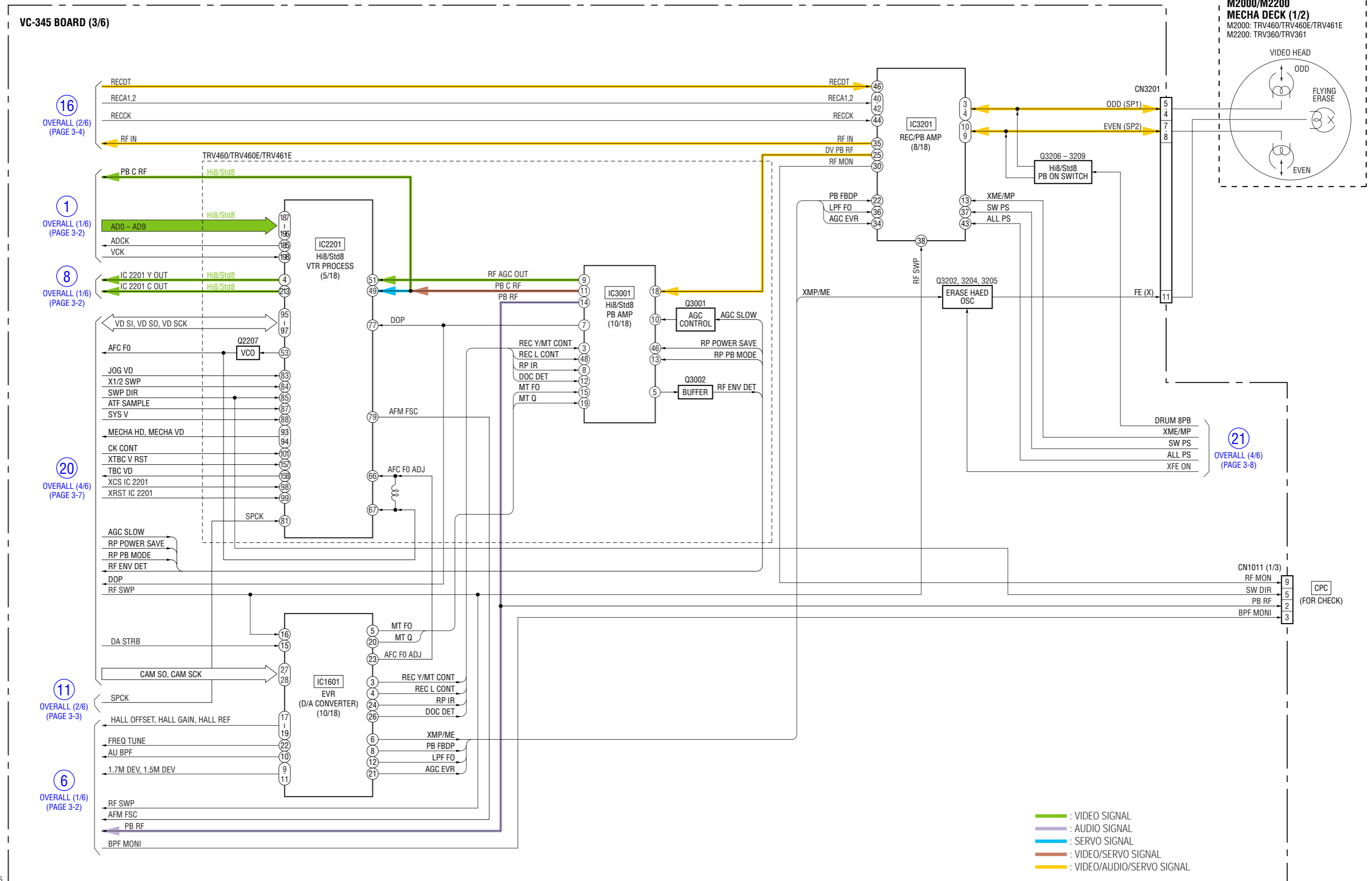
3. BLOCK DIAGRAMS

3-2. OVERALL BLOCK DIAGRAM (2/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



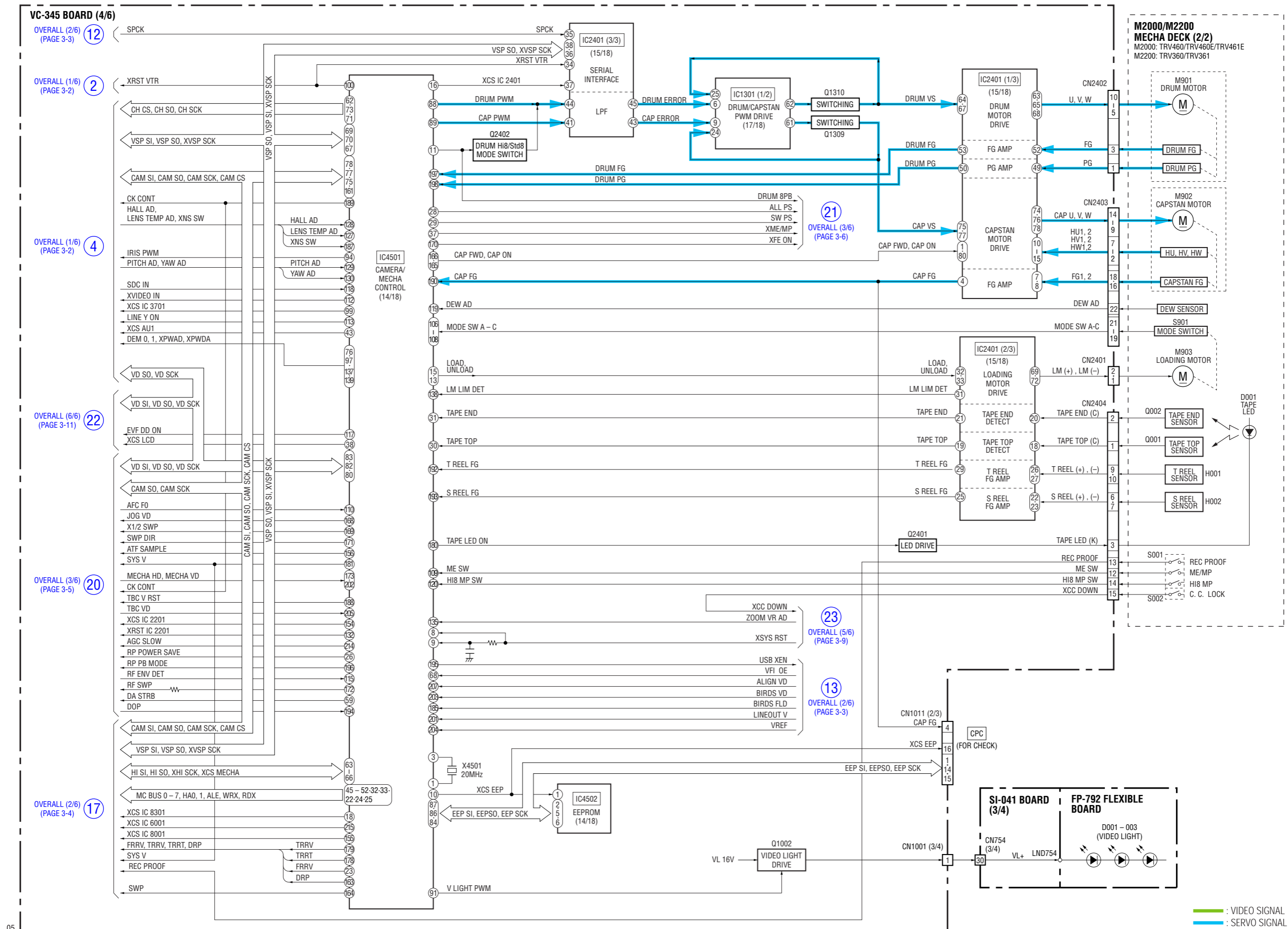
3. BLOCK DIAGRAMS

3-3. OVERALL BLOCK DIAGRAM (3/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



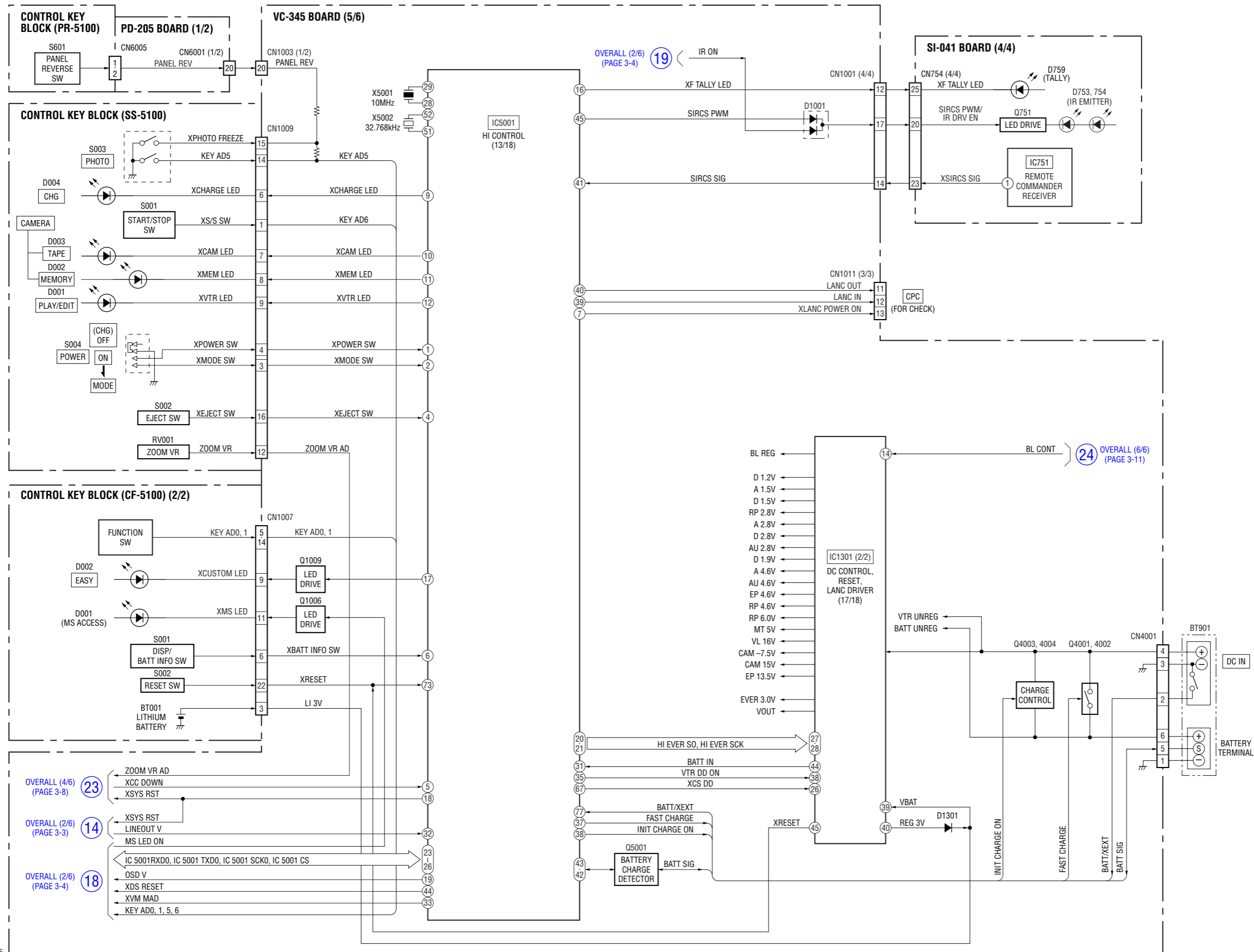
3. BLOCK DIAGRAMS

3-4. OVERALL BLOCK DIAGRAM (4/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



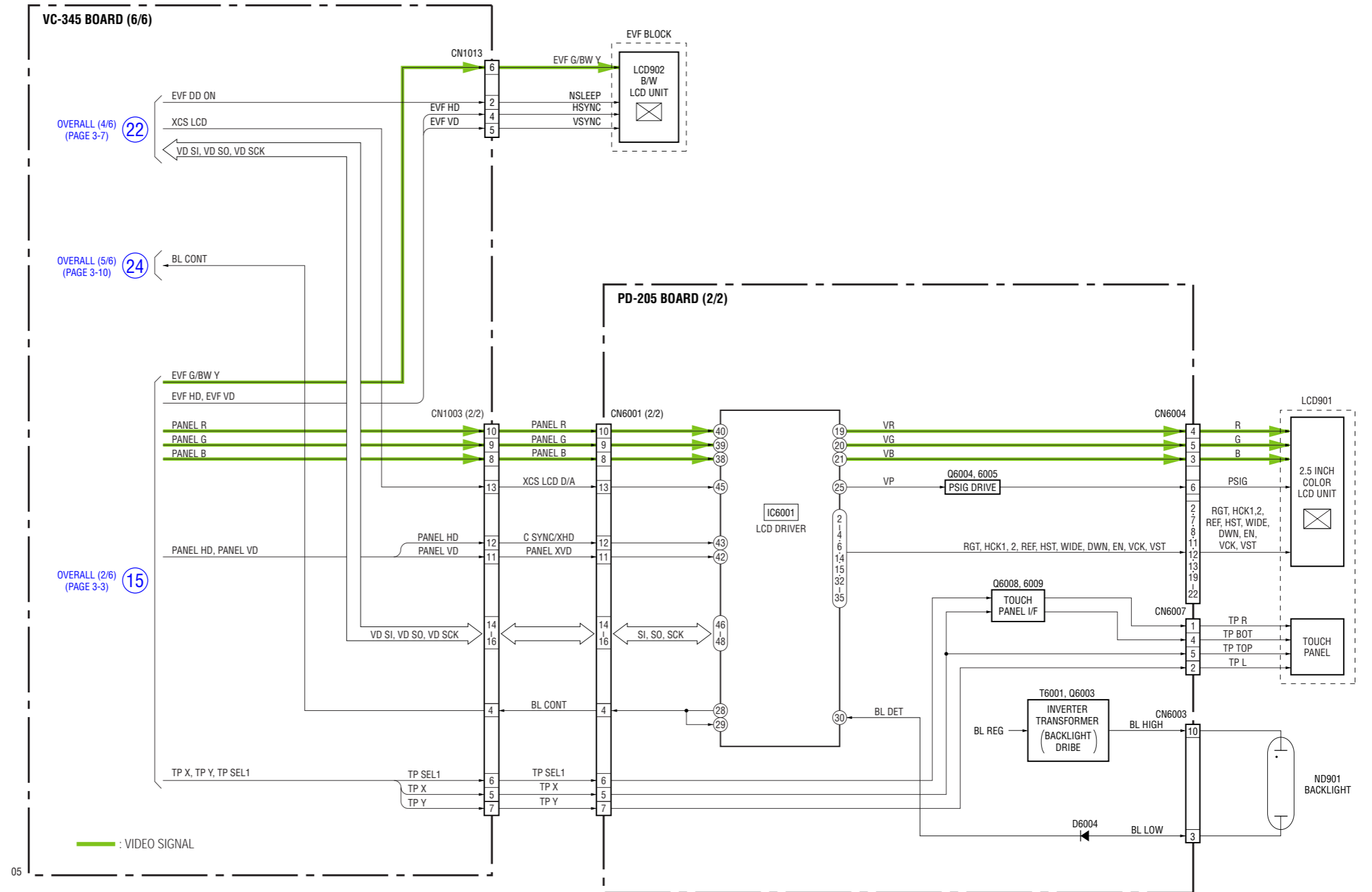
3. BLOCK DIAGRAMS

3-5. OVERALL BLOCK DIAGRAM (5/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



3. BLOCK DIAGRAMS

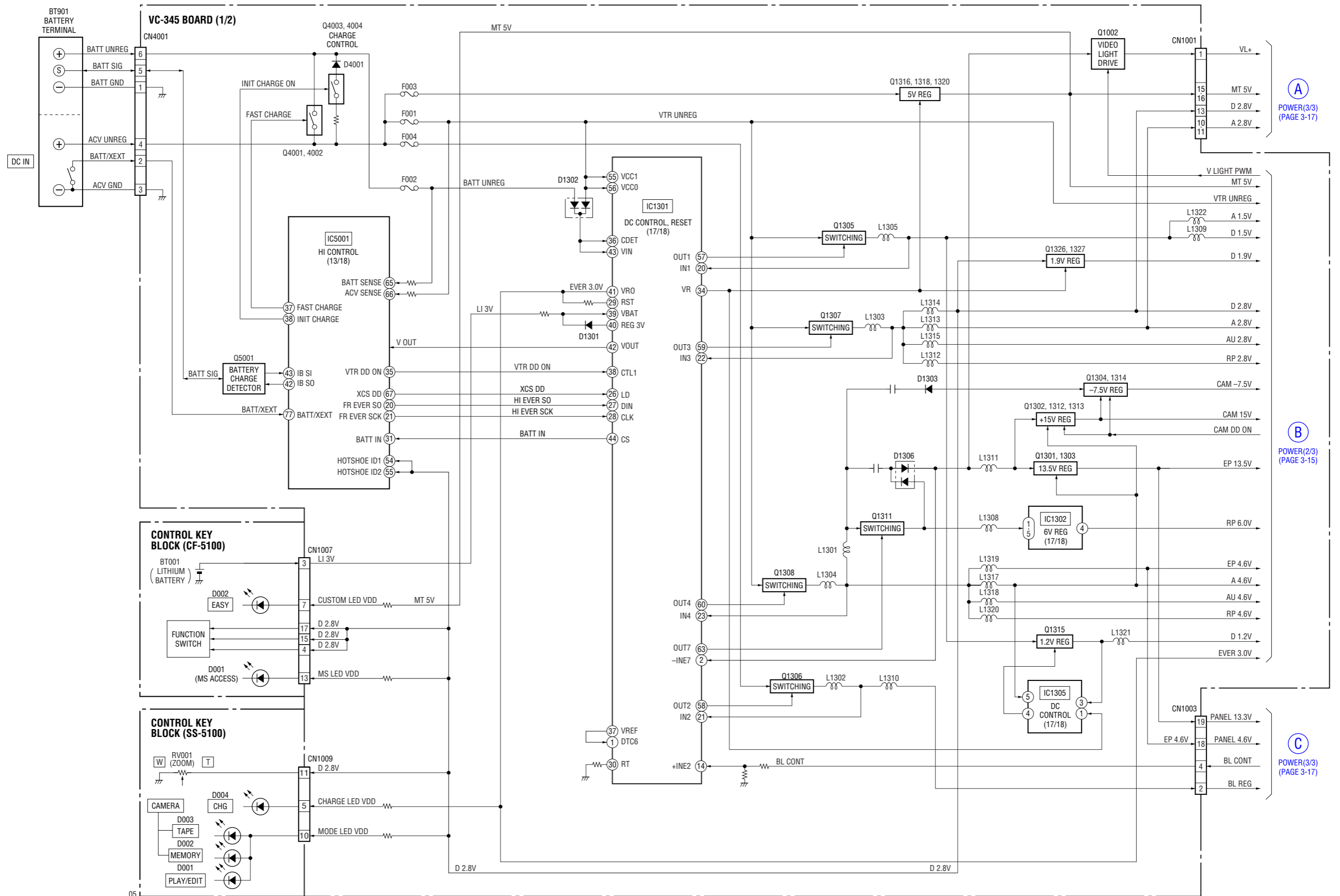
3-6. OVERALL BLOCK DIAGRAM (6/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



05

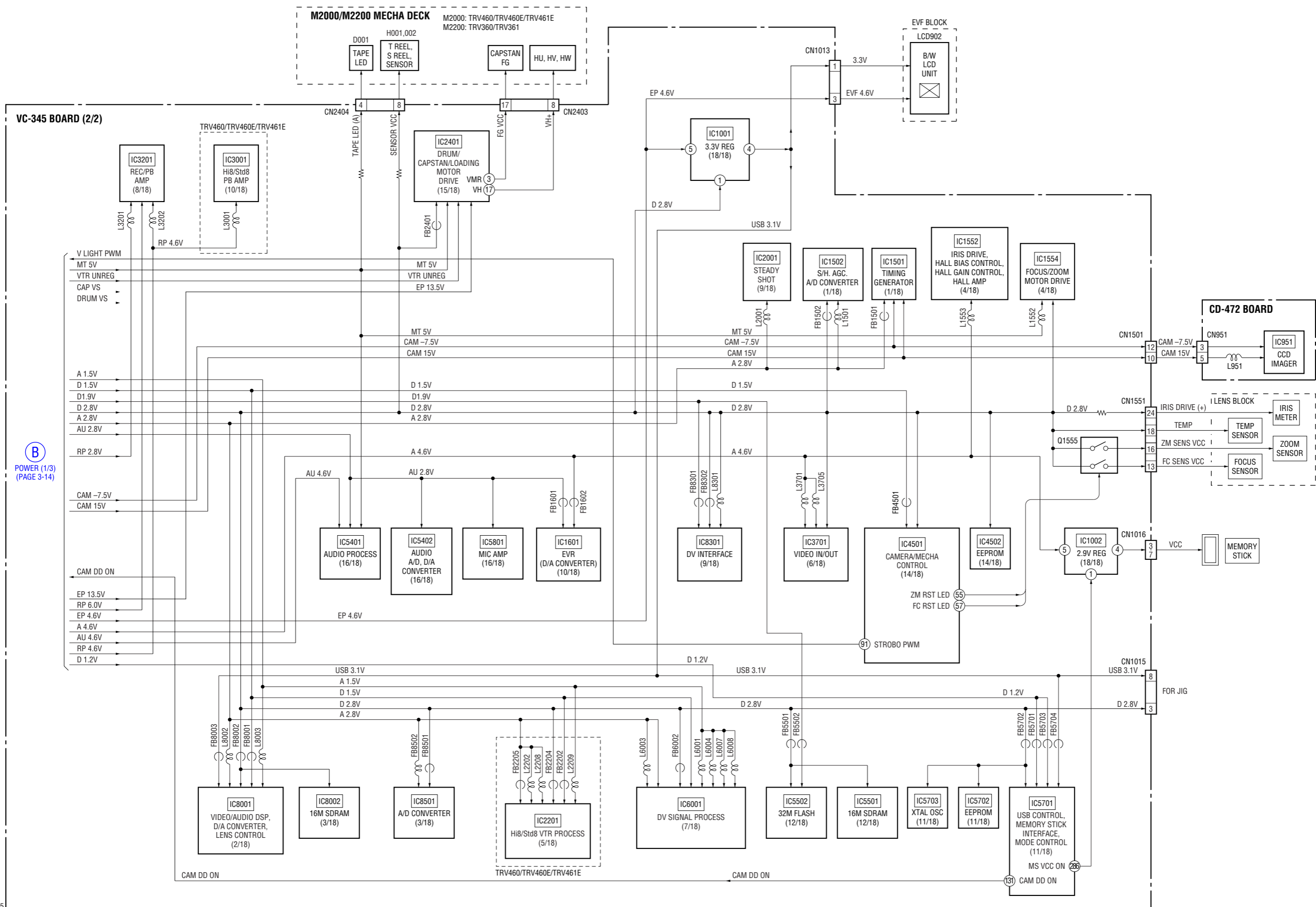
3. BLOCK DIAGRAMS

3-7. POWER BLOCK DIAGRAM (1/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



3. BLOCK DIAGRAMS

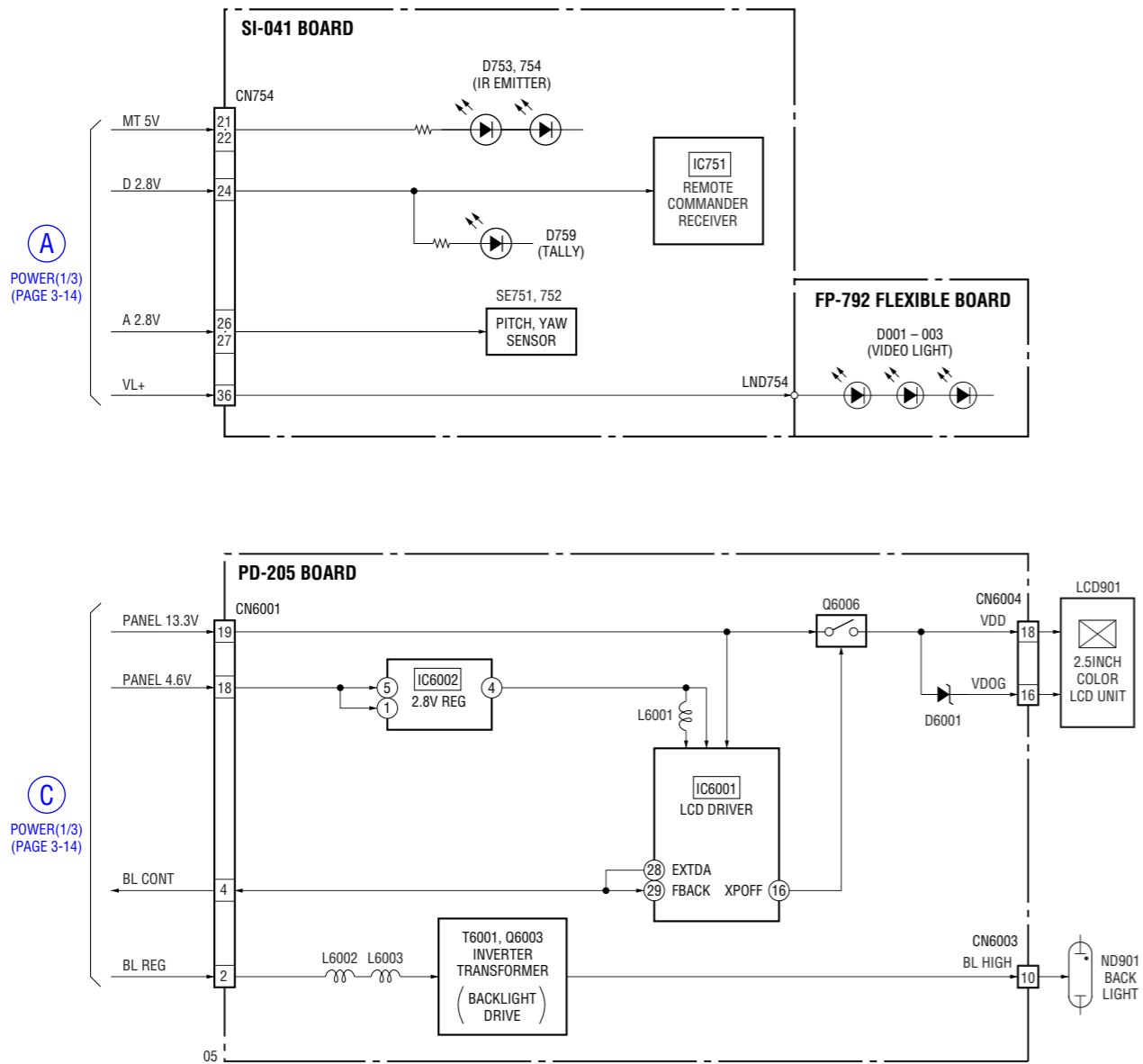
3-8. POWER BLOCK DIAGRAM (2/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



B
POWER (1/3)
(PAGE 3-14)

3. BLOCK DIAGRAMS

3-9. POWER BLOCK DIAGRAM (3/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



(A)
POWER(1/3)
(PAGE 3-14)

(C)
POWER(1/3)
(PAGE 3-14)

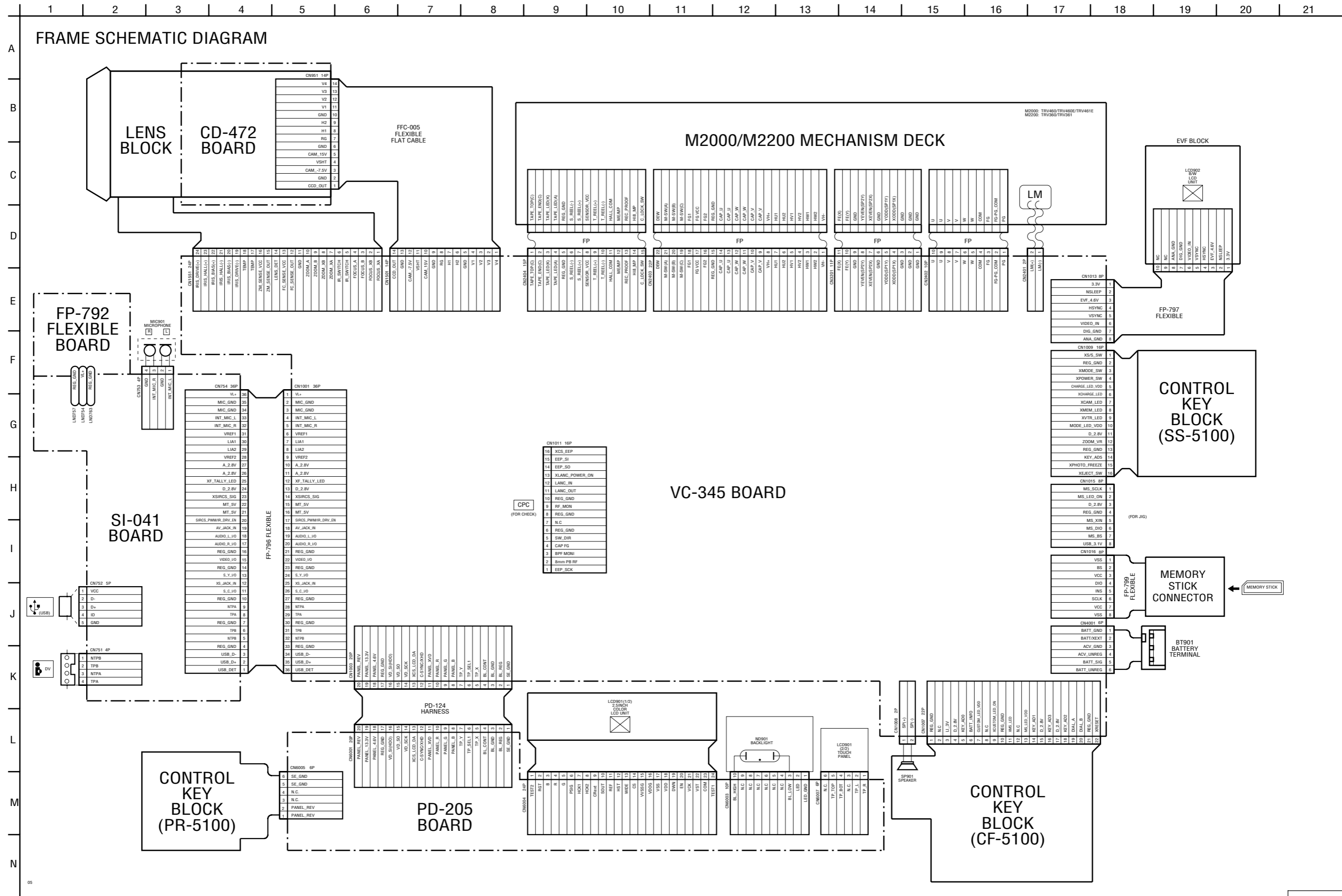
4-2. SCHEMATIC DIAGRAMS

4-3. PRINTED WIRING BOARDS

SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAMS



4-2. SCHEMATIC DIAGRAMS

Link

<ul style="list-style-type: none"> CD-472 BOARD (CCD IMAGER) 	<ul style="list-style-type: none"> CONTROL KEY BLOCK (SS-5100)
<ul style="list-style-type: none"> PD-205 BOARD (LCD DRIVER, BACKLIGHT DRIVE) 	<ul style="list-style-type: none"> CONTROL KEY BLOCK (PR-5100)
<ul style="list-style-type: none"> SI-041 BOARD (STEADYSHOT, JACK) FP-792 FLEXIBLE BOARD 	<ul style="list-style-type: none"> CONTROL KEY BLOCK (CF-5100)
<ul style="list-style-type: none"> FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE BOARD 	
<ul style="list-style-type: none"> COMMON NOTE FOR SCHEMATIC DIAGRAMS 	

4-2. SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS














THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS

(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μF . 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. $\text{k}\Omega=1000 \Omega$, $\text{M}\Omega=1000 \text{k}\Omega$.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520
Kinds of capacitor		
	Case size	External dimensions (mm)

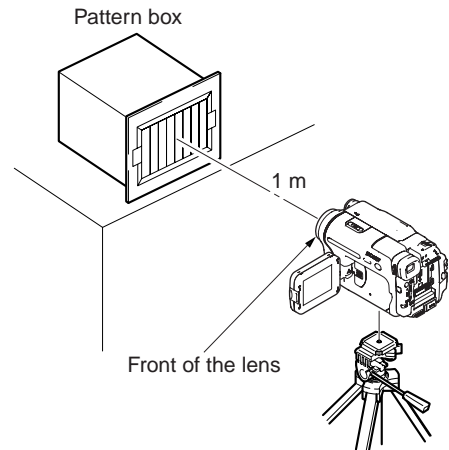
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT → $\overline{\text{EDIT}}$ PB/XREC → $\overline{\text{PB/REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : VIDEO SIGNAL (ANALOG)
- : AUDIO SIGNAL (ANALOG)
- : VIDEO/AUDIO SIGNAL
- : VIDEO/AUDIO/SERVO SIGNAL
- : VIDEO/SERVO SIGNAL
- : SERVO SIGNAL
- Circled numbers refer to waveforms.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
(VOM of DC 10 M Ω input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

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

1. Connection



- Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

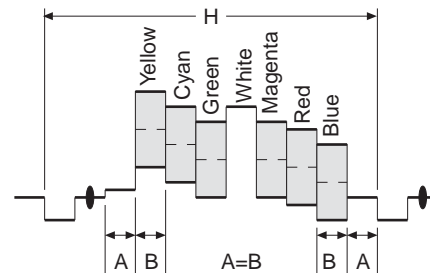


Fig. a (Video output terminal output waveform)

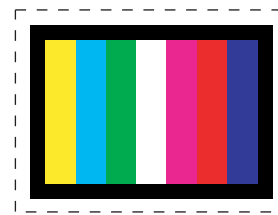


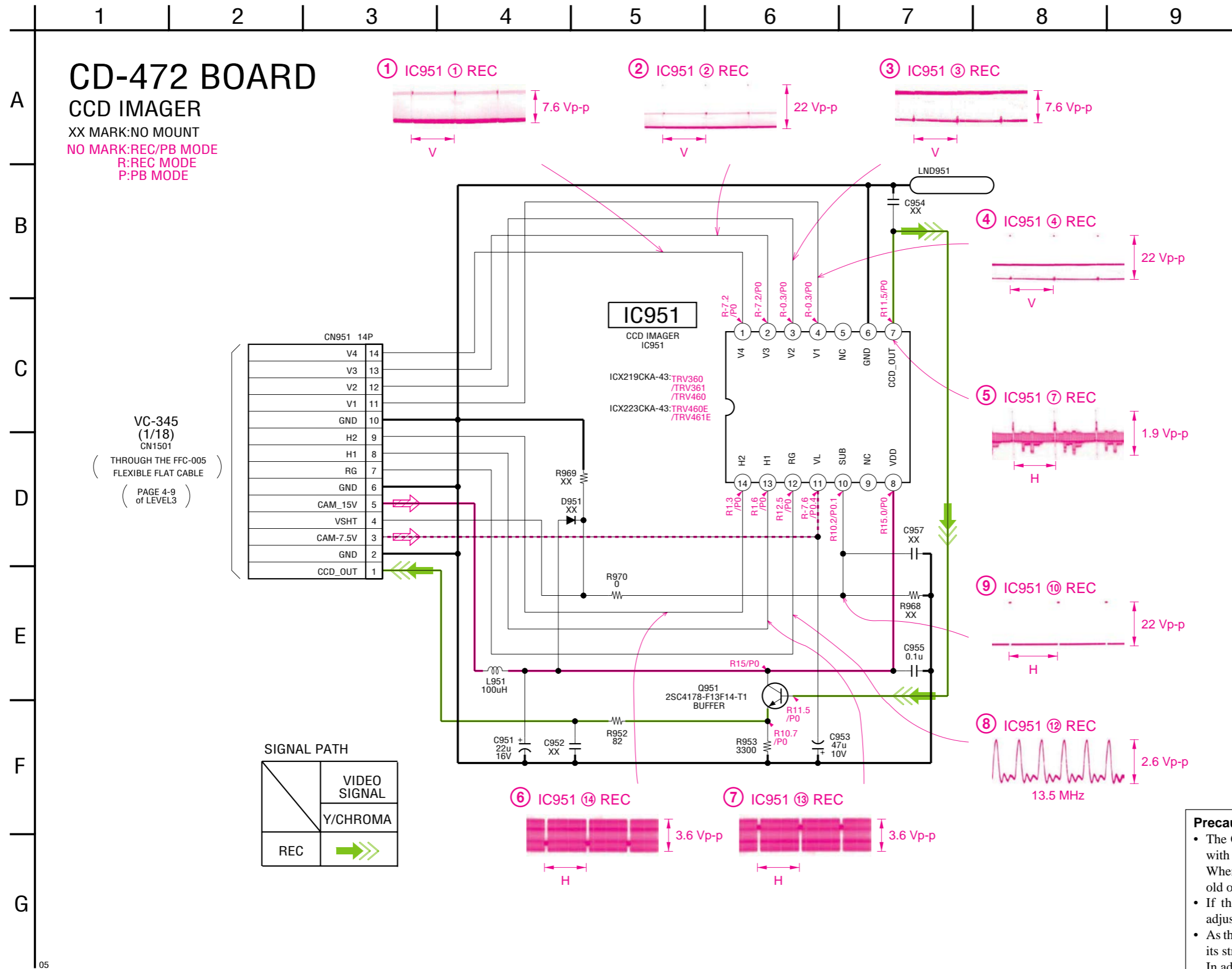
Fig.b (Picture on monitor TV)

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

Note : Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifique.

4-2. SCHEMATIC DIAGRAMS CD-472 BOARD

For Schematic Diagram
 • Refer to page 4-57 for printed wiring board.



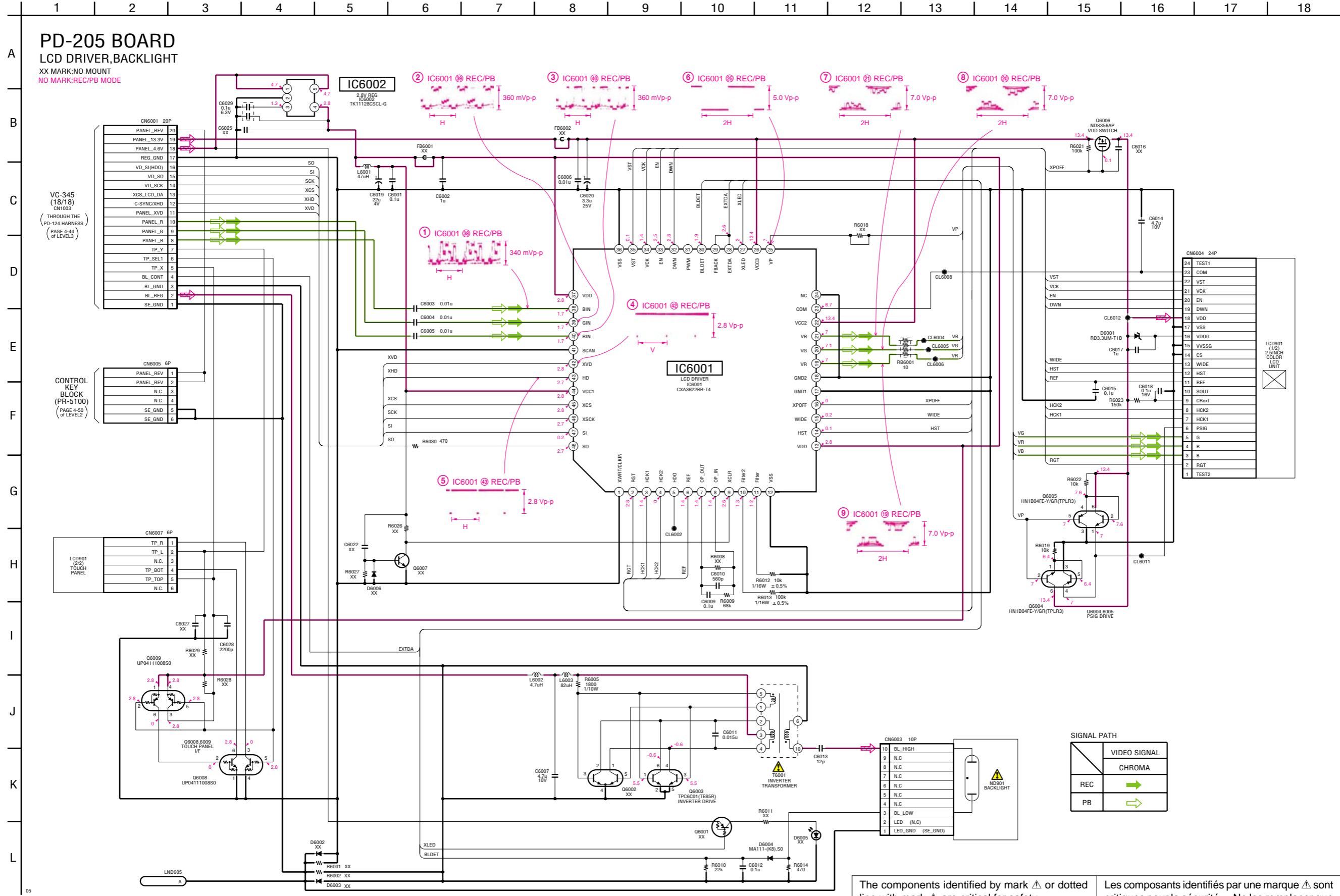
Precautions for Replacement of CCD Imager

- The CD-472 board mounted as a repair part is not equipped with a CCD imager. When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

Schematic diagrams of the VC-345 board are not shown.
Pages from 4-9 to 4-44 are not shown.

4-2. SCHEMATIC DIAGRAMS PD-205 BOARD

For Schematic Diagram
 • Refer to page 4-63 for printed wiring board.



SIGNAL PATH

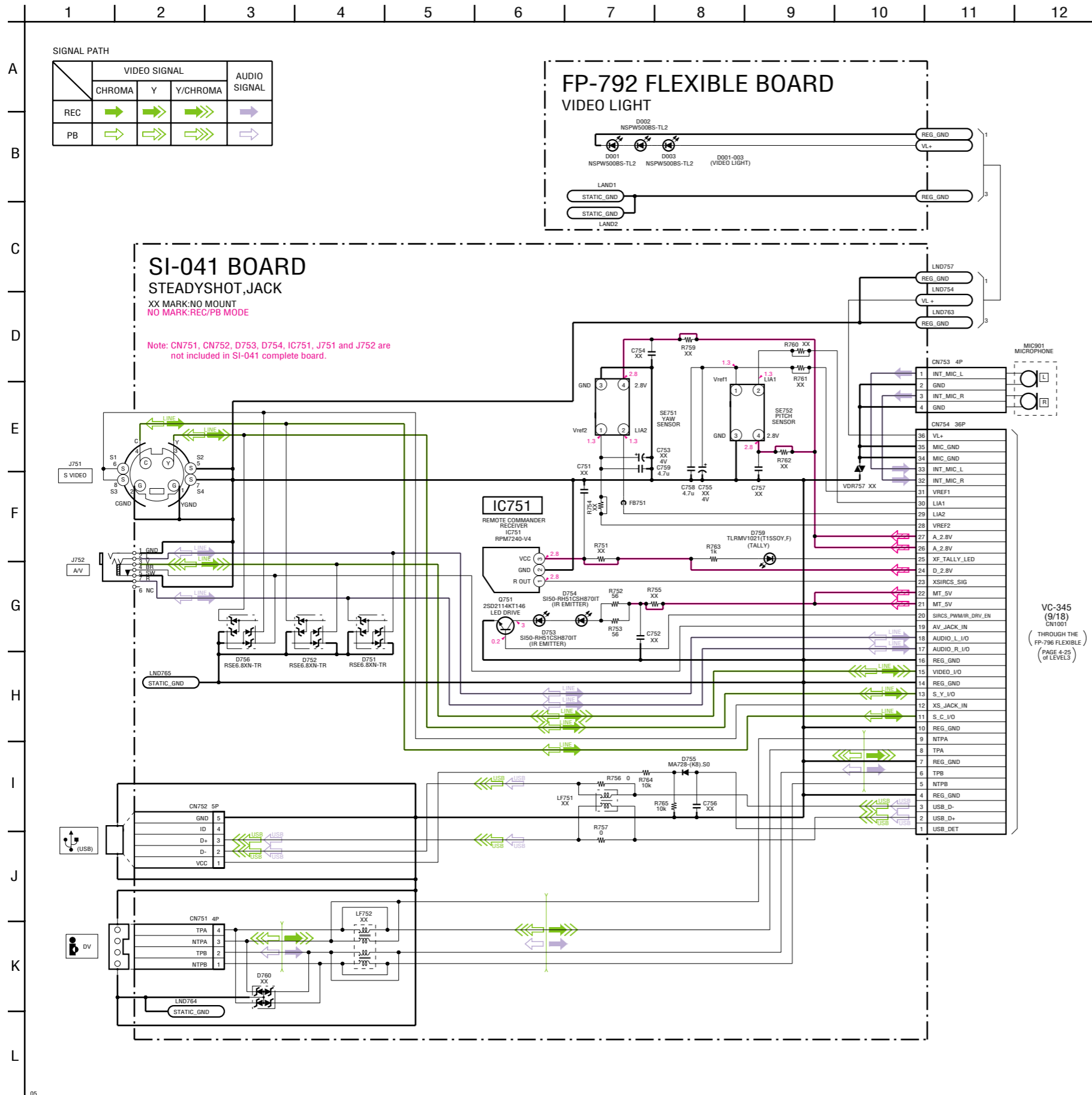
	VIDEO SIGNAL
	CHROMA
REC	→
PB	→

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

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

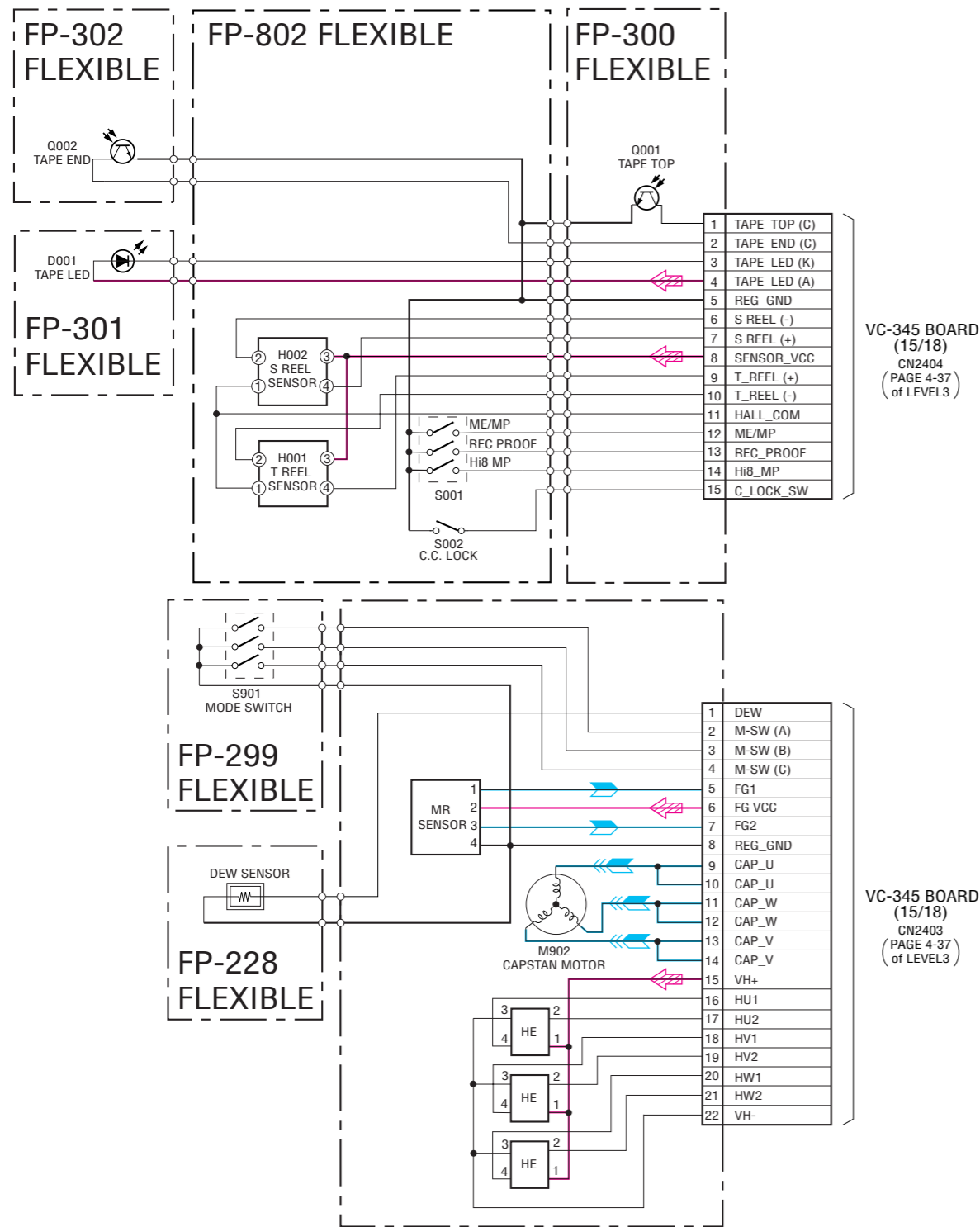
4-2. SCHEMATIC DIAGRAMS SI-041 BOARD, FP-792 FLEXIBLE BOARD

For Schematic Diagram
 • Refer to page 4-65 for printed wiring board.



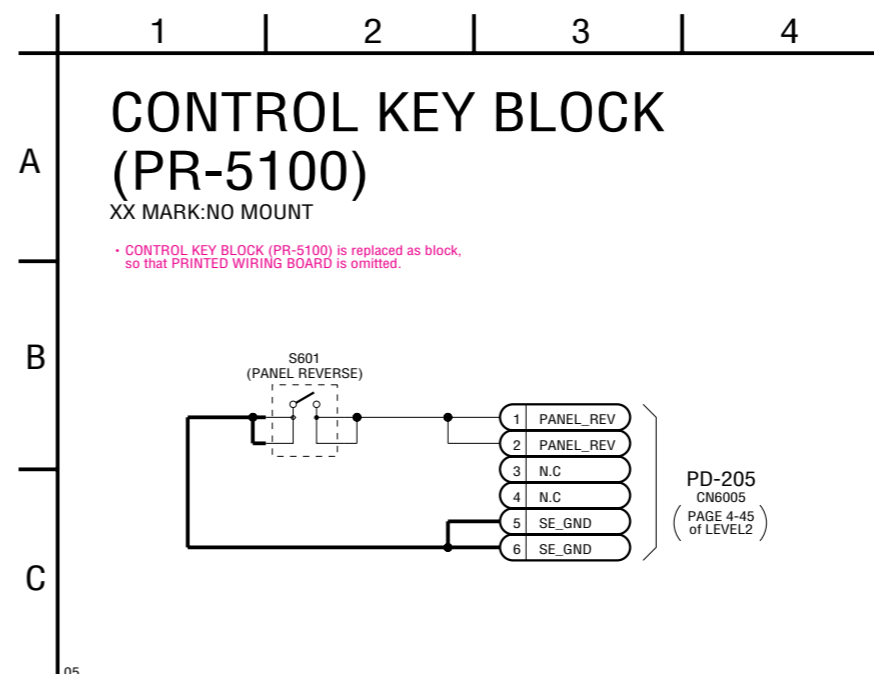
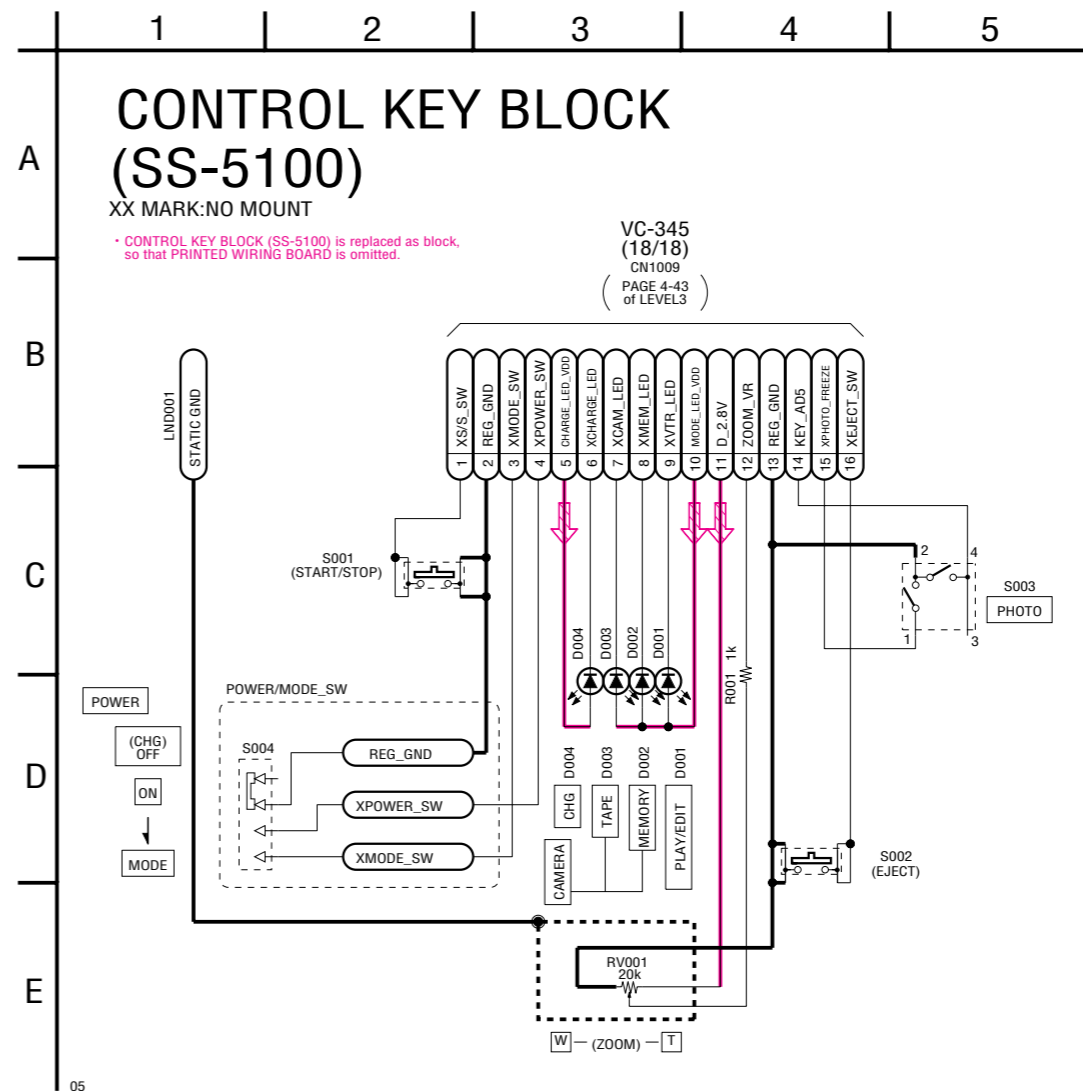
4-2. SCHEMATIC DIAGRAMS FP-228, 299, 300, 301, 302, 802 FLEXIBLE BOARD

For Schematic Diagram
 • Refer to page 4-67 for printed wiring board.



SIGNAL PATH

	REC	REC/PB	PB
Capstan speed servo		➔	
Capstan servo(speed and phase)		➔➔	

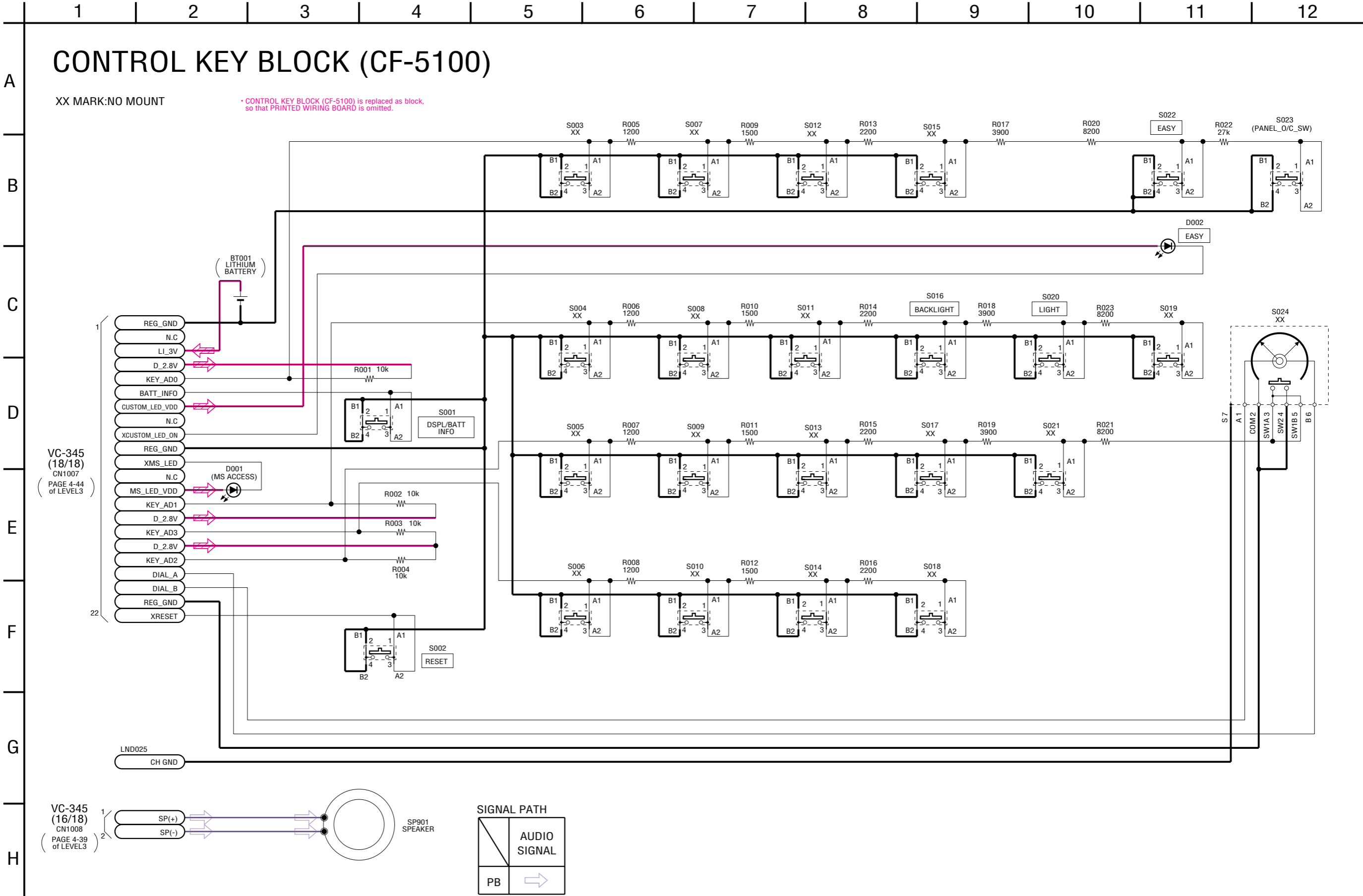


4-2. SCHEMATIC DIAGRAMS

CONTROL KEY BLOCK (CF-5100)

XX MARK:NO MOUNT

CONTROL KEY BLOCK (CF-5100) is replaced as block, so that PRINTED WIRING BOARD is omitted.



4-3. PRINTED WIRING BOARDS

Link

• CD-472 BOARD	• FP-792 FLEXIBLE BOARD
• PD-205 BOARD	• FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE BOARD
• SI-041 BOARD	







• COMMON NOTE FOR PRINTED WIRING BOARDS		
• MOUNTED PARTS LOCATION	• CIRCUIT BOARDS LOCATION	• FLEXIBLE BOARDS LOCATION

Board Name	Function
CD-472	CCD IMAGER
PD-205	LCD DRIVE, BACKLIGHT DRIVE
SI-041	STEADYSHOT, JACK

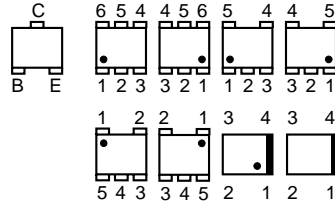
4-3. PRINTED WIRING BOARDS

4-3. PRINTED WIRING BOARDS

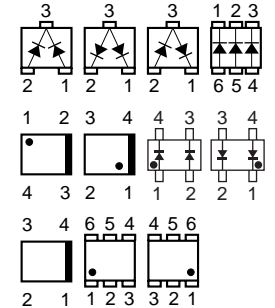
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

-  : Uses unleaded solder.
-  : Circuit board
-  : Flexible board
-  : Pattern from the side which enables seeing.
-  : pattern of the rear side
(The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
-  : panel designation

- Chip parts.
Transistor



- Diode



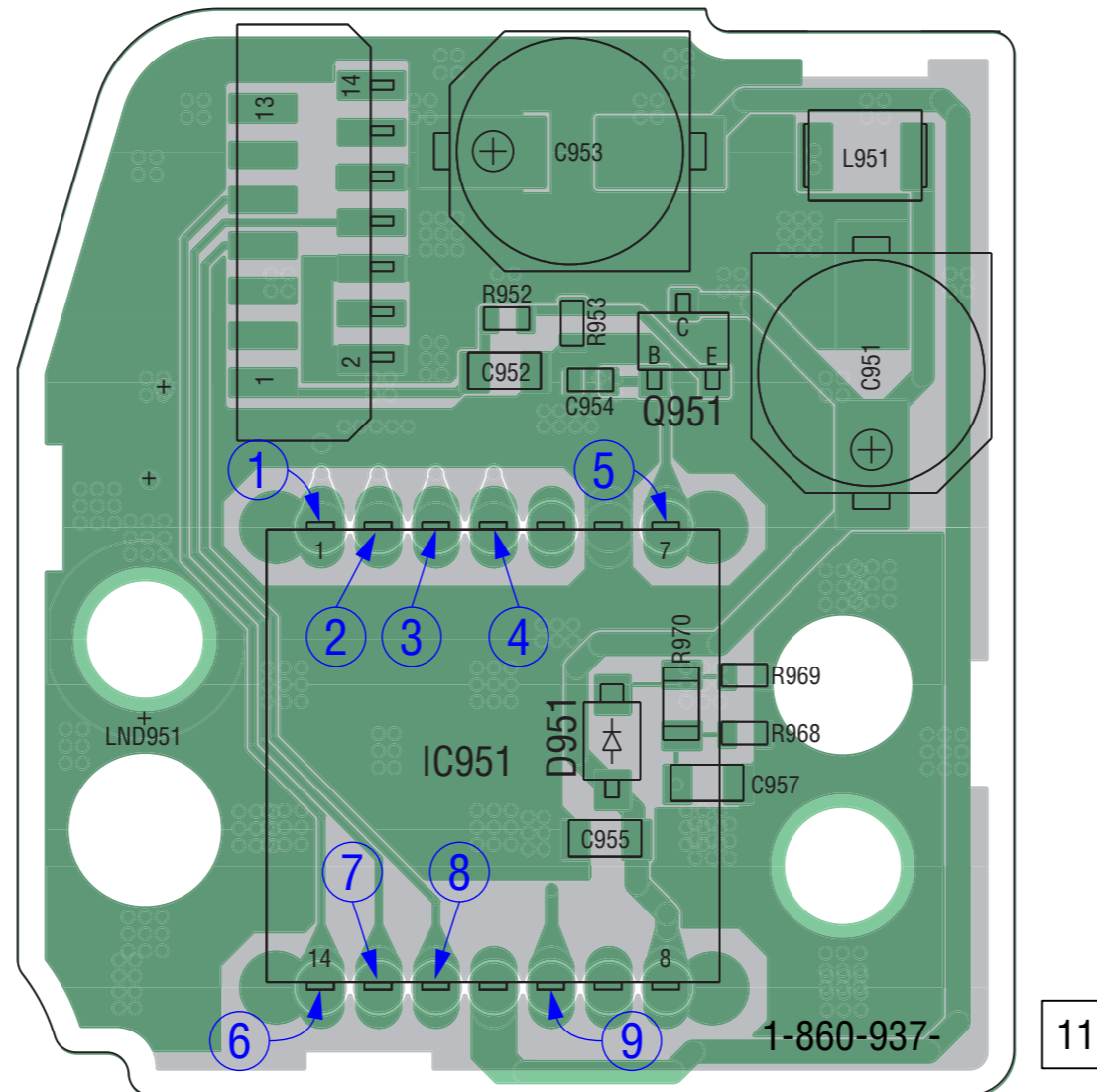
Board Name	Parts Location	Pattern	
		Total Number of Layers	Layers Not Indicated
CD-472	–	8 layers	2 to 7 layers
PD-205	4-71	2 layers	–
SI-041	4-71	2 layers	–
FP-792 Flexible	–	1 layer	–
FP-228 Flexible	–	1 layer	–
FP-299 Flexible	–	1 layer	–
FP-300 Flexible	–	1 layer	–
FP-301 Flexible	–	1 layer	–
FP-302 Flexible	–	1 layer	–
FP-802 Flexible	–	1 layer	–

CD-472

Note for Printed Wiring Board (See page 4-55).

 : Uses unleaded solder.

CD-472 BOARD



05

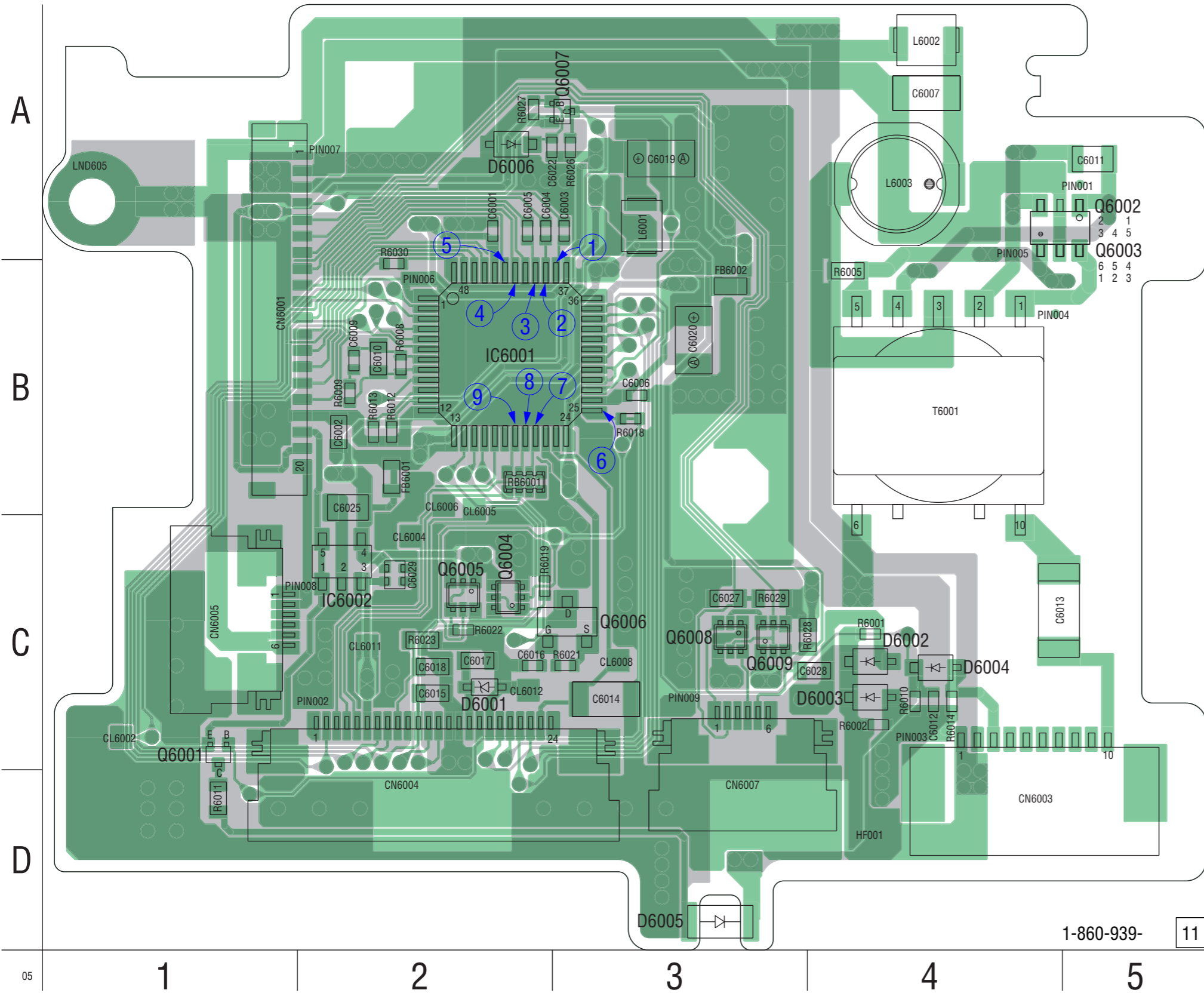
Printed wiring boards of the VC-345 board are not shown.
Pages from 4-59 to 4-62 are not shown.

PD-205

Note for Printed Wiring Board (See page 4-55).

 : Uses unleaded solder.

PD-205 BOARD



Note: Q6002 and Q6003 have the same mount location. When replacing Q6002 or Q6003, please refer to schematic diagram and electrical parts list.

1-860-939- 11

4-2. SCHEMATIC DIAGRAMS

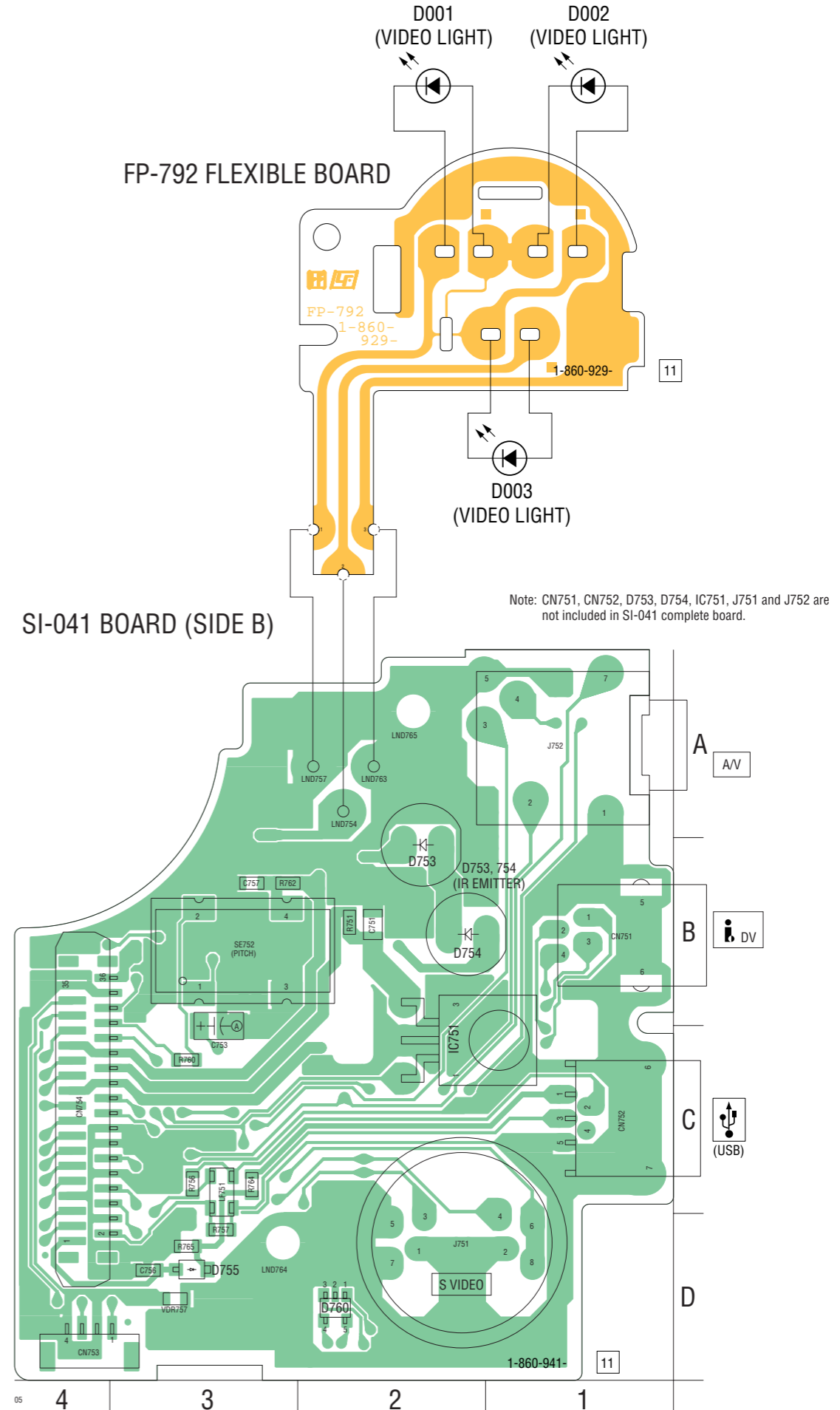
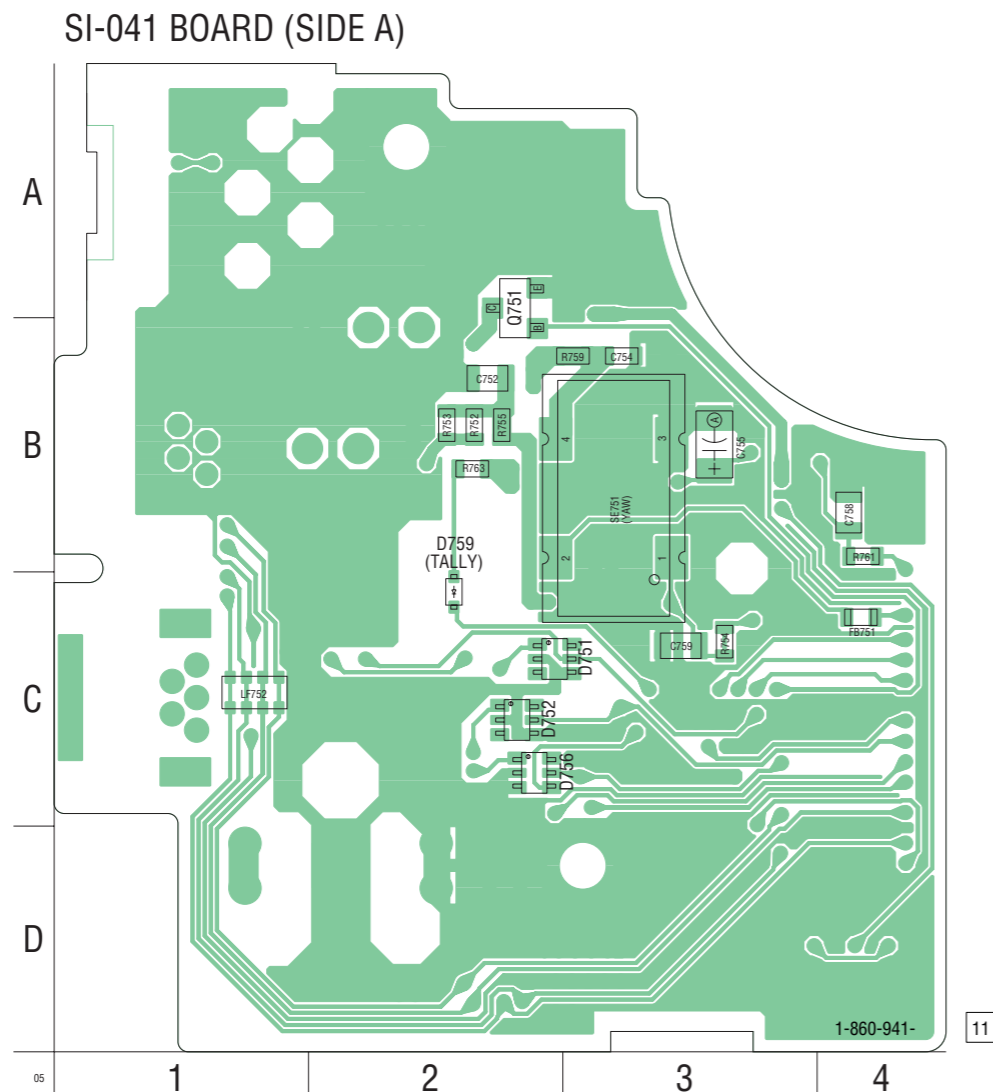
4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

SI-041, FP-792 FLEXIBLE

Note for Printed Wiring Board (See page 4-55).

 : Uses unleaded solder.



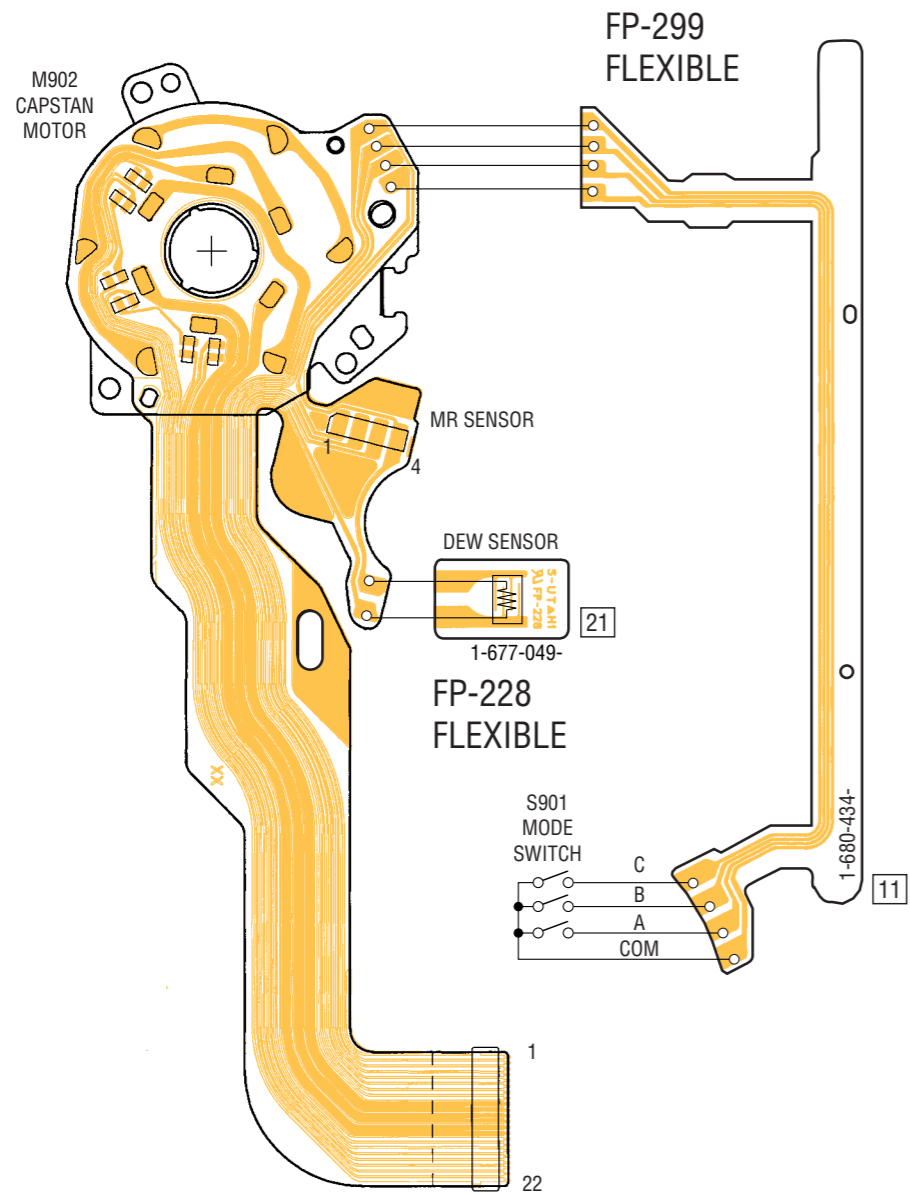
4-2. SCHEMATIC DIAGRAMS

4-3. PRINTED WIRING BOARDS

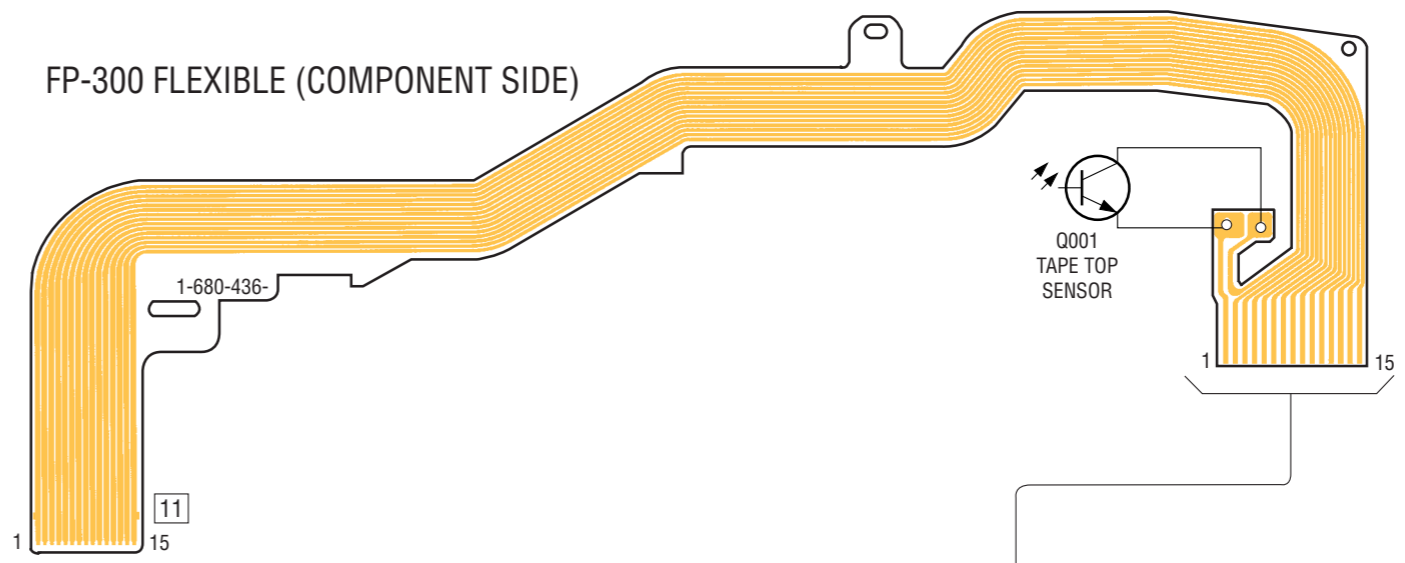
FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE

Note for Printed Wiring Board (See page 4-55).

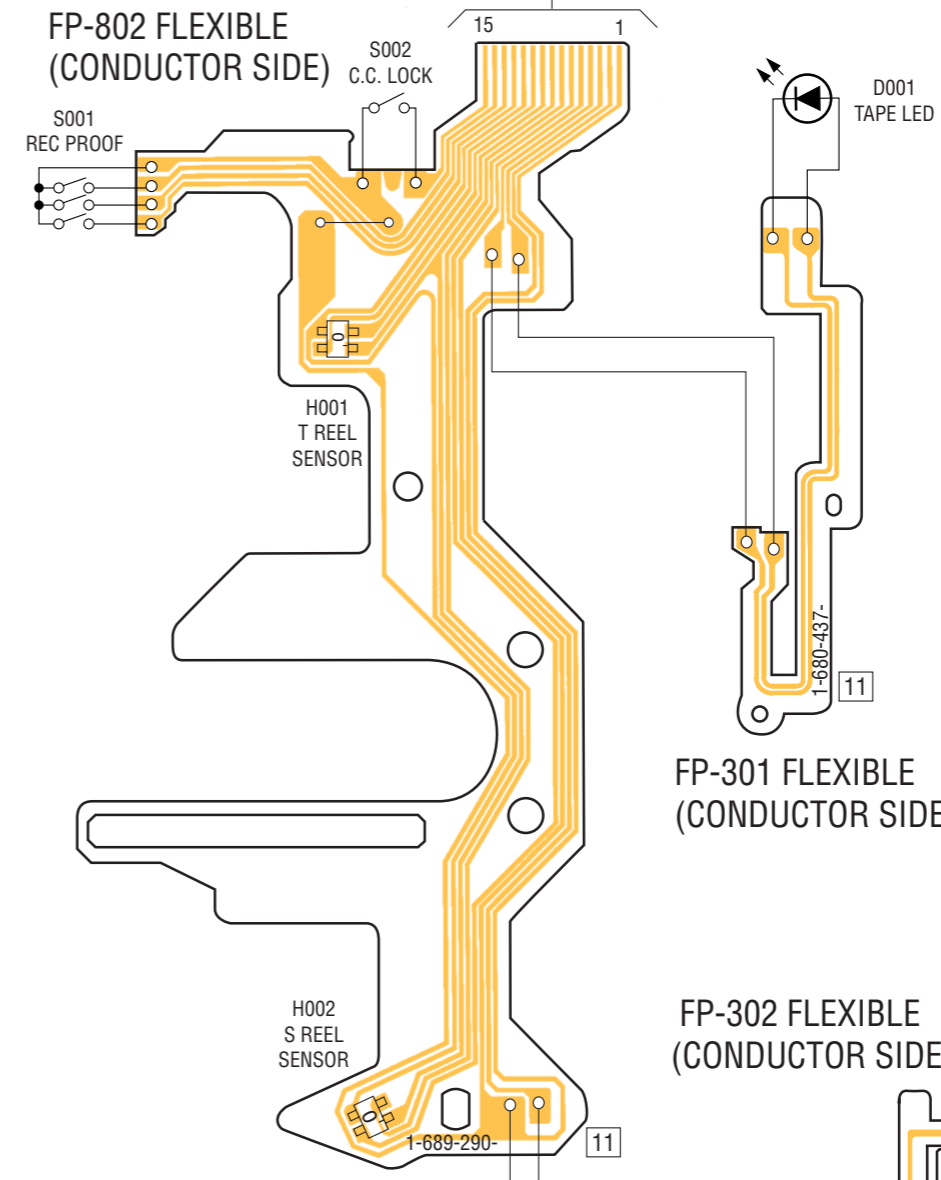
 : Uses unleaded solder.



FP-300 FLEXIBLE (COMPONENT SIDE)

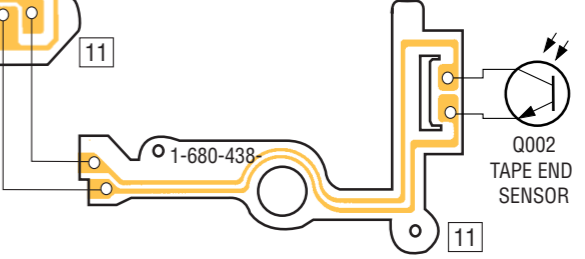


FP-802 FLEXIBLE (CONDUCTOR SIDE)



FP-301 FLEXIBLE (CONDUCTOR SIDE)

FP-302 FLEXIBLE (CONDUCTOR SIDE)



Mounted parts location of the VC-345 board is not shown.
Pages 4-69 and 4-70 are not shown.

4-3. PRINTED WIRING BOARDS

4-4. MOUNTED PARTS LOCATION

no mark : side A

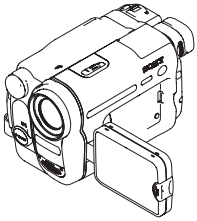
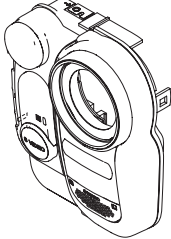
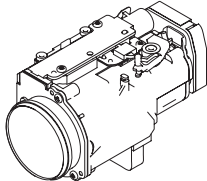
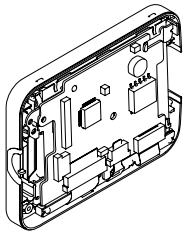
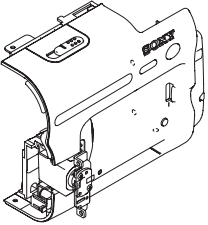
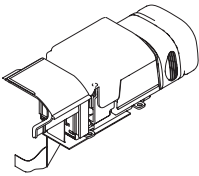
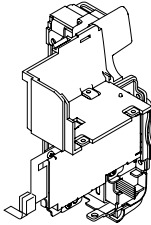
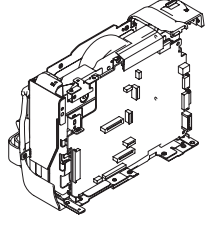
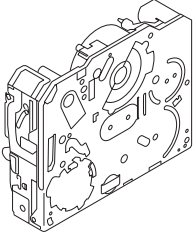
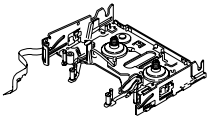
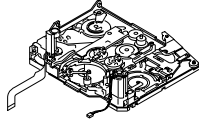
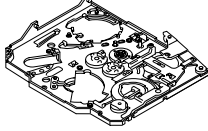
* mark : side B

PD-205 BOARD SI-041 BOARD

C6001	A-2	C758	B-4
C6002	B-2	C759	C-3
C6003	A-3		
C6004	A-2	* CN751	B-1
C6005	A-2	* CN752	C-1
C6006	B-3	* CN753	D-4
C6007	A-4	* CN754	C-4
C6009	B-2		
C6010	B-2	D751	C-2
C6011	A-5	D752	C-2
C6012	C-4	* D753	B-2
C6013	C-4	* D754	B-2
C6014	C-3	* D755	D-3
C6015	C-2	D756	C-2
C6017	C-2	D759	C-2
C6018	C-2		
C6019	A-3	FB751	C-4
C6020	B-3		
C6028	C-4	* IC751	C-2
C6029	C-2		
		* J751	D-2
CN6001	B-1	* J752	A-1
CN6003	D-4		
CN6004	D-2	Q751	A-2
CN6005	C-1		
CN6007	D-3	R752	B-2
		R753	B-2
D6001	C-2	* R756	C-3
D6004	C-4	* R757	D-3
		R763	B-2
IC6001	B-2	* R764	C-3
IC6002	C-2	* R765	D-3
L6001	A-3	SE751	B-3
L6002	A-4	* SE752	B-3
L6003	A-4		
Q6003	A-4		
Q6004	C-2		
Q6005	C-2		
Q6006	C-3		
Q6008	C-3		
Q6009	C-3		
R6005	B-4		
R6009	B-2		
R6010	C-4		
R6012	B-2		
R6013	B-2		
R6014	C-4		
R6019	C-2		
R6021	C-3		
R6022	C-2		
R6023	C-2		
R6030	B-2		
RB6001	C-4		
T6001	B-4		

5. REPAIR PARTS LIST

NOTE: Characters **A** to **L** of the electrical parts list indicate location of exploded views in which the desired part is shown.

Link	EXPLODED VIEWS		
 A	 B	 C	 D
OVERALL ASSEMBLY	FRONT PANEL BLOCK	LENS BLOCK	LCD BLOCK
 E	 F	 G	 H
CABINET R BLOCK	EVF BLOCK	BATTERY PANEL BLOCK	MD FRAME BLOCK
 I	 J	 K	 L
CASSETTE COMPARTMENT ASSEMBLY, DRUM ASSEMBLY	LS CHASSIS BLOCK ASSEMBLY	MECHANICAL CHASSIS BLOCK ASSEMBLY-1	MECHANICAL CHASSIS BLOCK ASSEMBLY-2

Link

ELECTRICAL PARTS LIST

ACCESSORIES

• CD-472 BOARD C	• FP-302 FLEXIBLE BOARD J	• PD-205 BOARD D
• FP-300 FLEXIBLE BOARD J	• FP-792 FLEXIBLE BOARD B	• SI-041 BOARD B
• FP-301 FLEXIBLE BOARD J	• FP-802 FLEXIBLE BOARD J	

5. REPAIR PARTS LIST

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.
- 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.
- 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...
- Abbreviation
AUS : Australian model
CND : Canadian model
EE : East European model
NE : North European model

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

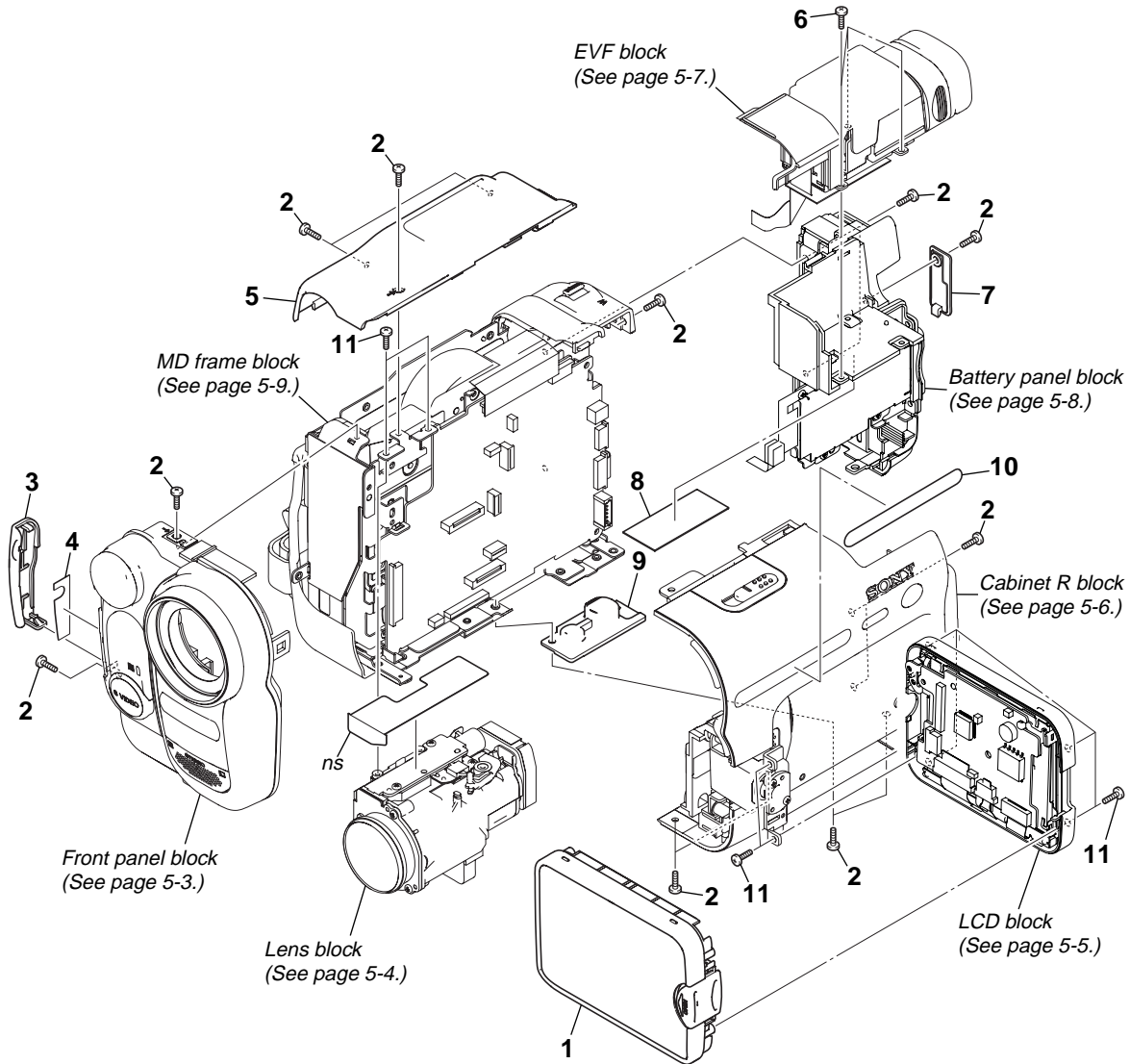
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.
--

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	X-3954-008-1	CABINET (C) (595) ASSY, P	7	3-087-810-01	LID (51), CPC
2	3-080-203-31	SREW (M2), LOCK ACE, P2	8	COUTION	RETAINER (51), EVF FLEXIBLE
3	3-087-813-01	COVER (51), JACK	9	3-079-012-01	SCREW (30), TRIPOD
4	3-087-812-41	SHEET (51), JACK	10	3-087-831-21	LABEL (51) (TRV360/TRV361)
5	3-087-811-01	CABINET (UPPER) (51)	10	3-087-831-31	LABEL (51) (TRV460/TRV460E/TRV461E)
6	3-078-889-11	SCREW (M1.7)	11	3-080-204-21	SCREW, TAPPING, P2

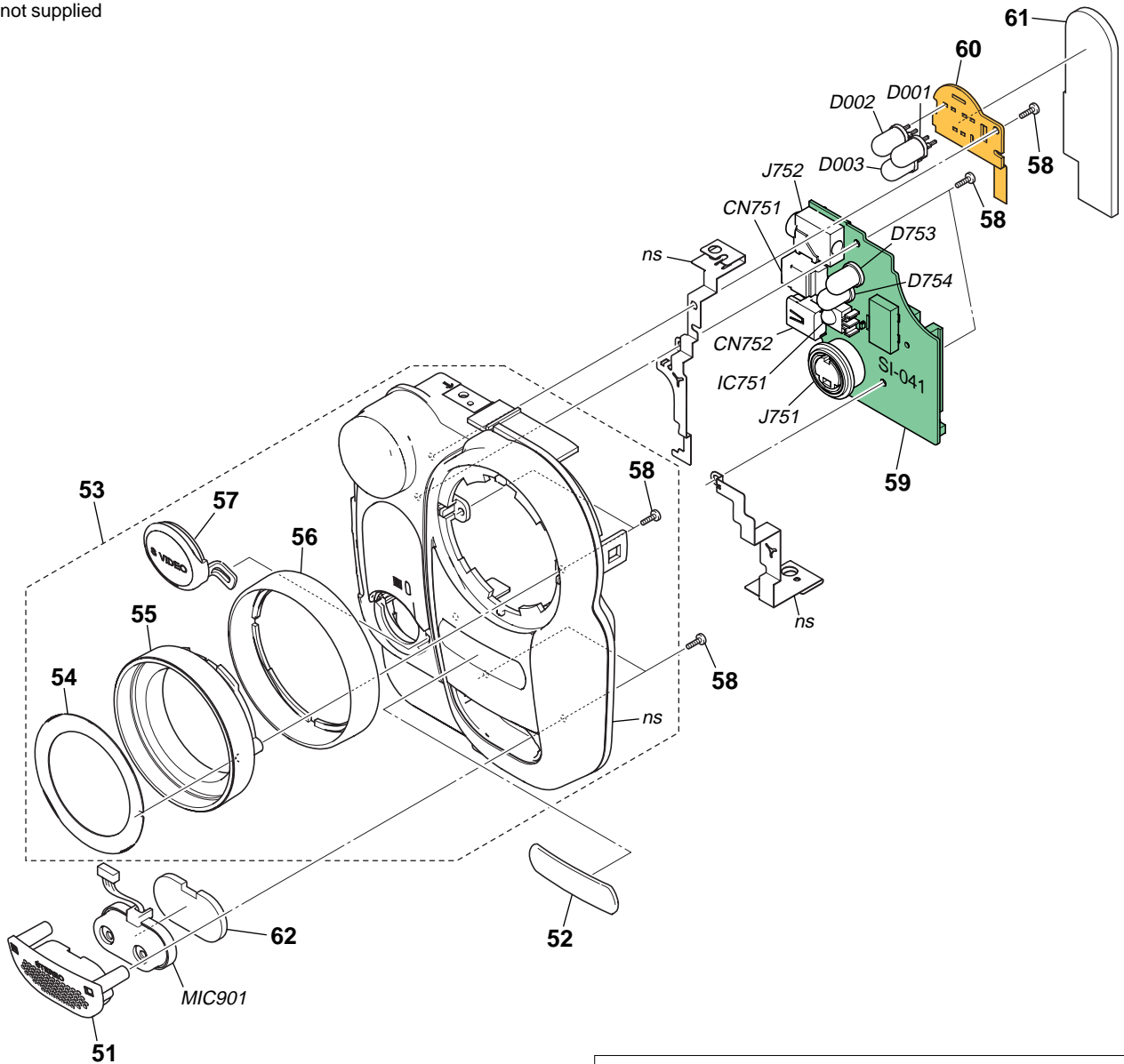
CAUTION :

For the part of 8 : RETAINER (51), EVF FLEXIBLE (3-088-616-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

5. REPAIR PARTS LIST

5-1-2. FRONT PANEL BLOCK

ns: not supplied

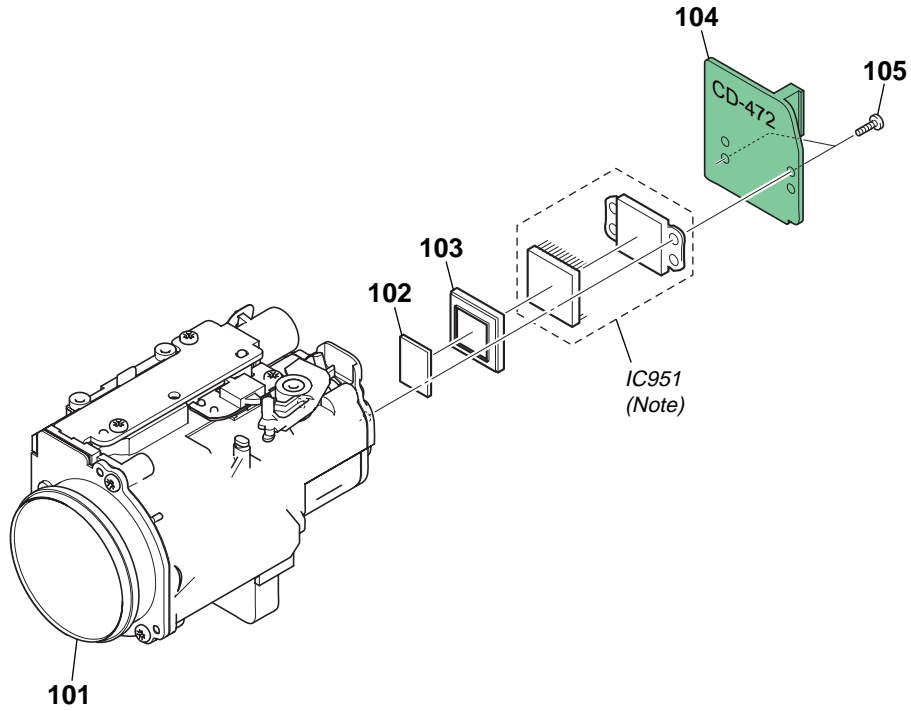


(Note) CN751, CN752, D753, D754, IC751, J751 and J752 are not included in SI-041 complete board.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
51	3-087-738-11	RETAINER (51), MICROPHONE	CN751	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV) (Note)
52	3-087-740-01	PLATE (51), MAGNIFICATION	CN752	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB) (Note)
53	X-3954-009-1	PANEL (595) ASSY, FRONT	D001	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
54	3-087-739-01	PLATE (51), NAME	D002	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
55	3-087-743-01	SCREW (51), FILTER	D003	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
56	3-087-742-01	RING (51), FRONT	D753	8-719-078-24	DIODE DAC3825 (IR EMITTER) (Note)
57	3-087-749-01	COVER (51), S TERMINAL	D754	8-719-078-24	DIODE DAC3825 (IR EMITTER) (Note)
58	3-080-204-21	SCREW, TAPPING, P2	IC751	6-704-975-01	IC RPM7240-V4 (Note)
59	A-7111-982-A	SI-041 BOARD, COMPLETE (Note)	J751	1-778-518-11	CONNECTOR, EXTERNAL (S VIDEO OUT) (Note)
60	1-860-929-11	FP-792 FLEXIBLE BOARD	J752	1-778-040-11	JACK, SMALL TYPE (A/V OUT) (Note)
61	3-087-994-01	CUSHION (51), JACK	MIC901	1-542-513-11	MICROPHONE
62	3-088-031-01	CUSHION (51), MICROPHONE			

5. REPAIR PARTS LIST

5-1-3. LENS BLOCK



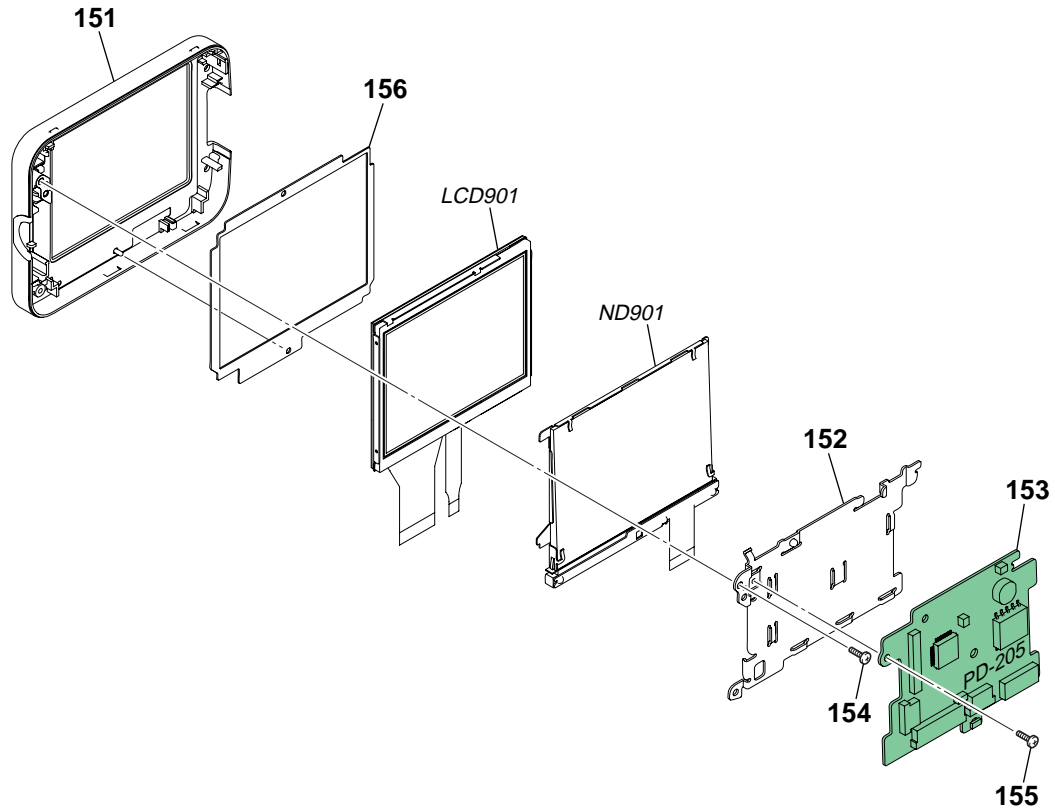
(Note) Be sure to read "Precautions for Replacement of CCD Imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description
101	8-848-765-01	DEVICE, LENS LSV-820A
102	1-758-554-11	FILTER BLOCK, OPTICAL
103	3-053-973-01	RUBBER (W), SEAL
104	A-7111-980-A	CD-472 BOARD, COMPLETE

Ref. No.	Part No.	Description
105	3-080-204-21	SCREW, TAPPING, P2
IC951	A-7013-401-A	CCD BLOCK ASSY (CCD IMAGER) (TRV460E/TRV461E) (Note)
IC951	A-7016-724-A	CCD BLOCK ASSY (CCD IMAGER) (TRV360/TRV361/TRV460) (Note)

5. REPAIR PARTS LIST

5-1-4. LCD BLOCK



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

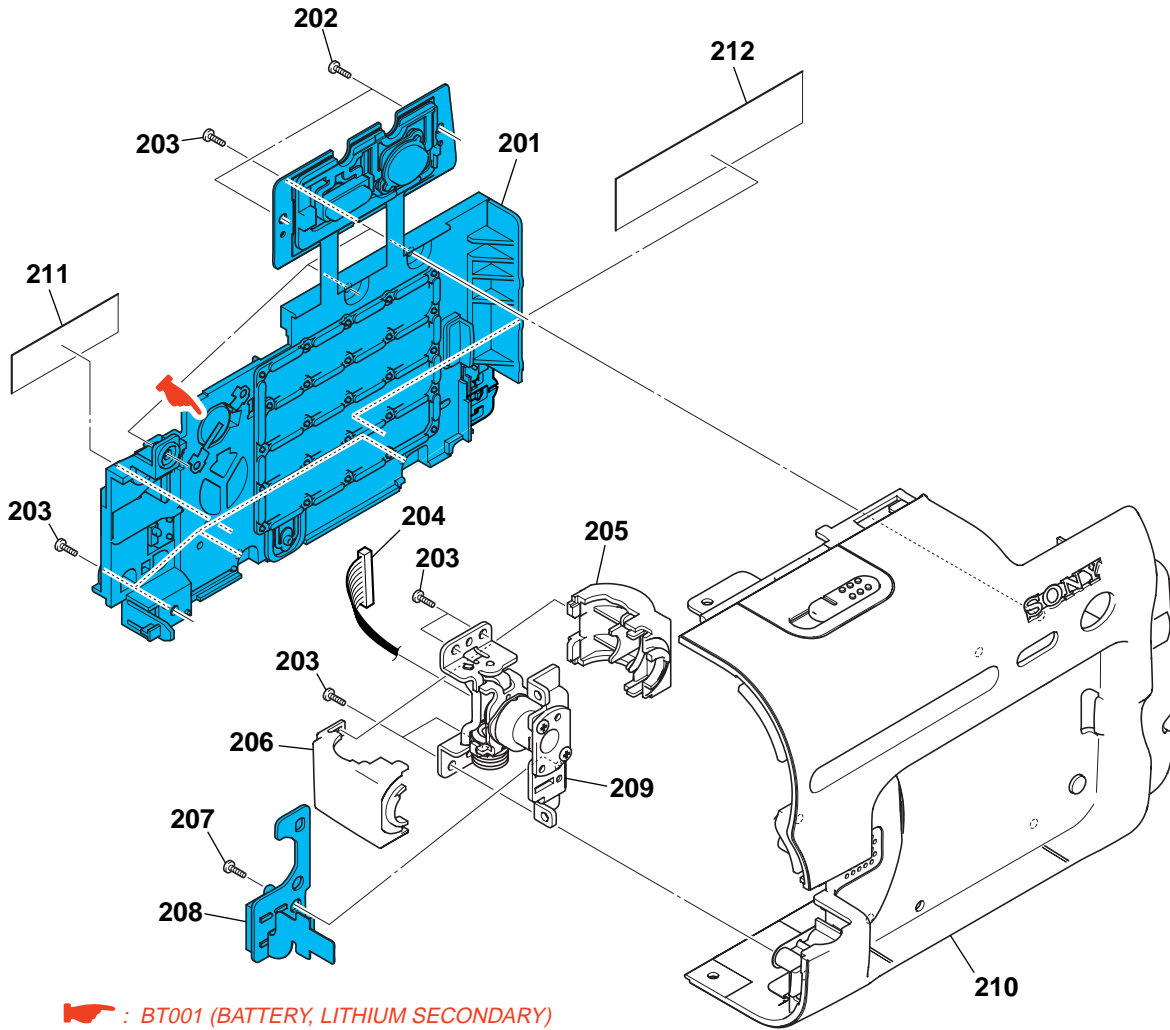
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
151	X-3954-007-1	CABINET (M) (595) ASSY, P
152	3-087-902-01	FRAME (61), PANEL
153	A-7111-981-A	PD-205 BOARD, COMPLETE
154	3-080-204-21	SCREW, TAPPING, P2

Ref. No.	Part No.	Description
155	3-078-889-11	SCREW (M1.7)
156	3-088-536-01	CUSHION (61), LCD
LCD901	8-753-052-10	ACX307AKM-1
\triangle ND901	1-518-951-21	TUBE, FLUORESCENT, COLD CATHODE

5. REPAIR PARTS LIST

5-1-5. CABINET R BLOCK



 : BT001 (BATTERY, LITHIUM SECONDARY)
Included in the control switch block (CF-5100).

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
201	1-478-416-61	KEY BLOCK, CONTROL (CF-5100)	207	3-078-889-11	SCREW (M1.7)
202	3-080-206-11	SCREW, TAPPING, P2	208	1-478-418-11	KEY BLOCK, CONTROL (PR-5100)
203	3-080-205-21	SCREW, TAPPING, P2	209	X-3953-962-1	HINGE (51) ASSY
204	1-962-648-11	HARNESS (PD-124)	210	X-3954-005-1	CABINET (R) (595) ASSY
205	3-087-826-01	COVER (M) (51), HINGE	211	CAUTION TAPE (CF)	(TRV360/TRV460/TRV460E: E/TRV461E)
206	3-087-825-11	COVER (C) (51), HINGE	212	3-091-207-01	SHEET (CF), INSULATING

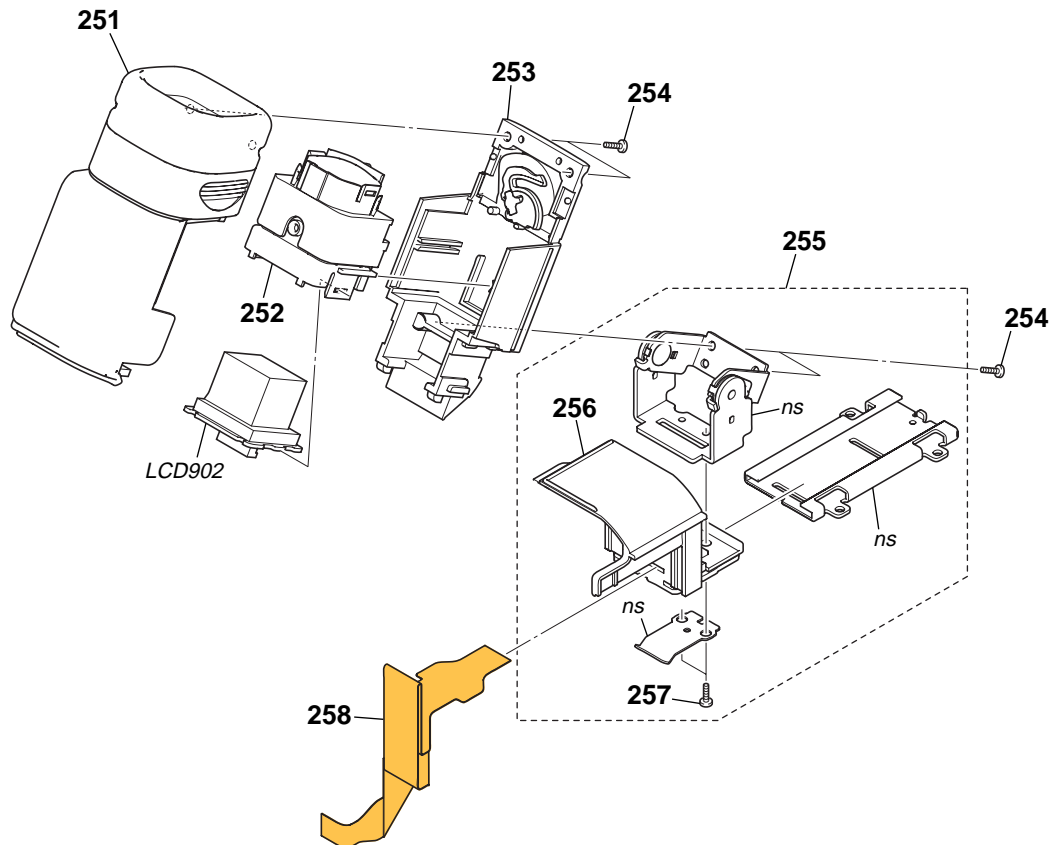
CAUTION :

For the part of 211 : TAPE (CF) (3-090-115-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

5. REPAIR PARTS LIST

5-1-6. EVF BLOCK

ns: not supplied

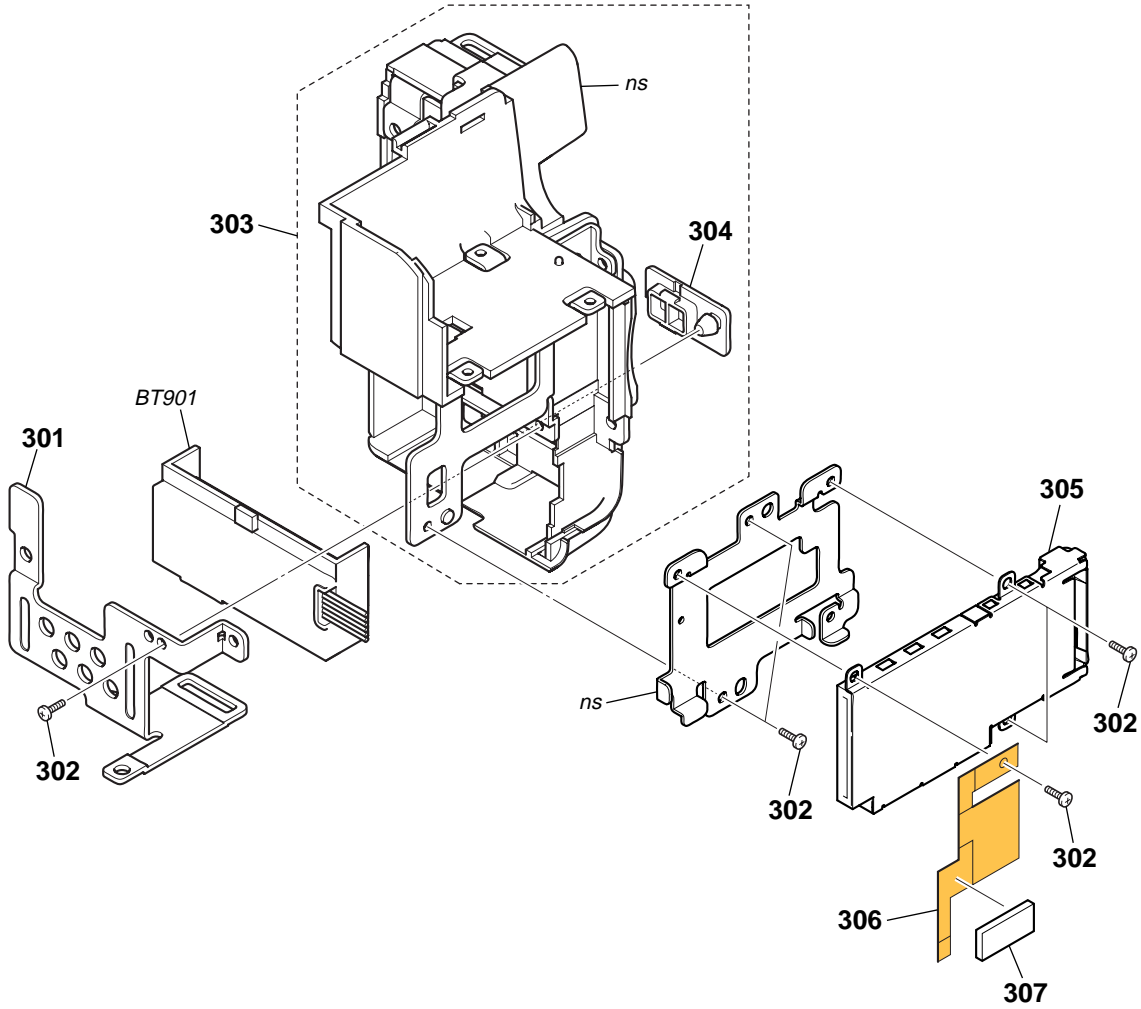


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
251	X-3953-982-1	CABINET (UPPER) (587) ASSY, EVF	257	3-080-203-31	SCREW (M2), LOCK ACE, P2
252	X-3951-166-1	LENS (M) ASSY, VF	258	1-860-928-11	FP-797 FLEXIBLE BOARD
253	X-3953-966-1	CABINET (LOWER) (515) ASSY, EVF	LCD902	1-805-465-61	INDICATOR MODULE LIQUID CRYSTAL (TRV360/TRV361/TRV460)
254	3-080-204-21	SCREW, TAPPING, P2	LCD902	1-805-465-81	INDICATOR MODULE LIQUID CRYSTAL (TRV460E/TRV461E)
255	X-3953-967-1	BASE (51) ASSY, SLIDE			
256	3-087-788-01	BASE (51), SLIDE			

5. REPAIR PARTS LIST

5-1-7. BATTERY PANEL BLOCK

ns: not supplied



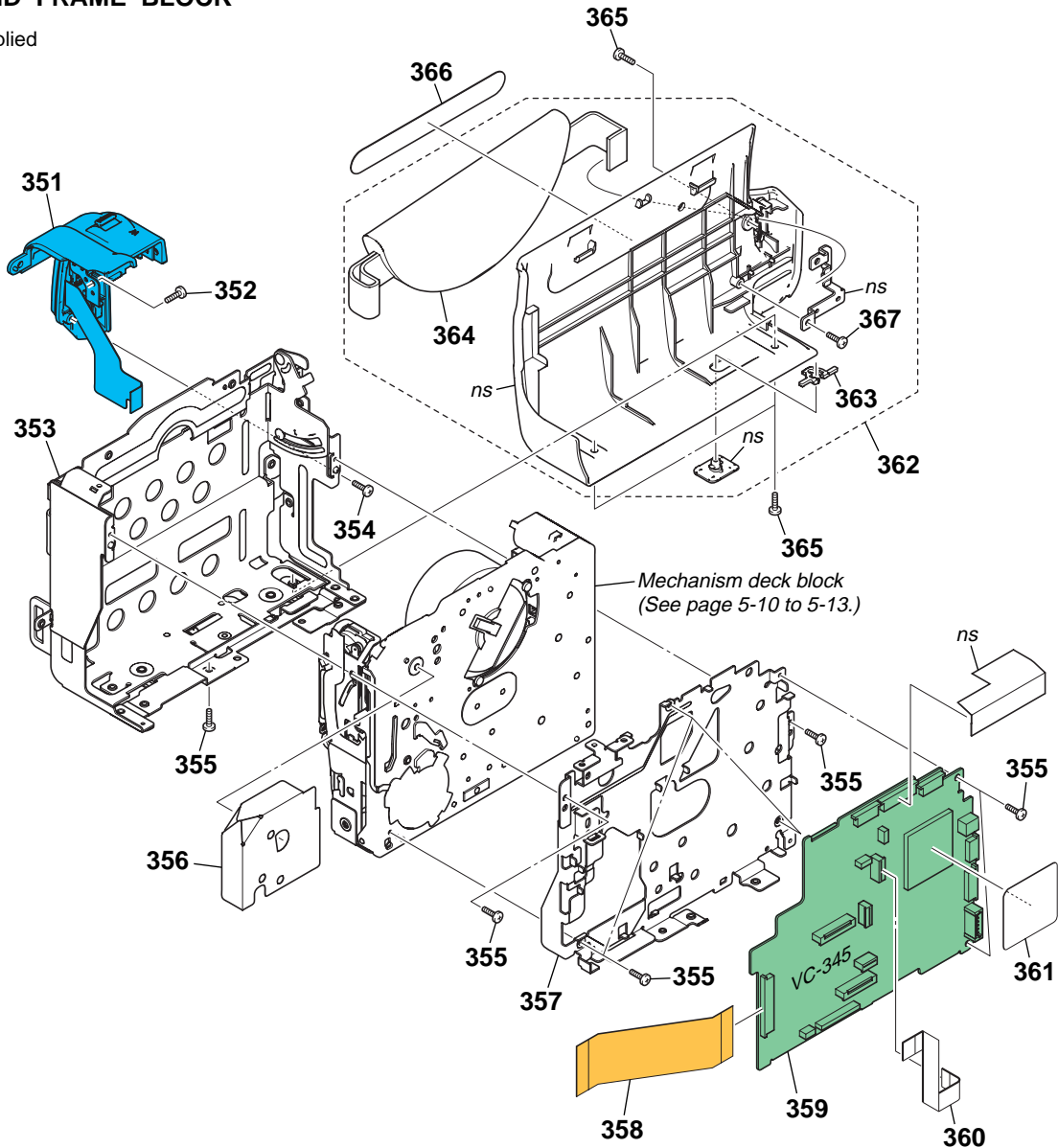
Ref. No.	Part No.	Description
301	3-087-799-01	SHEET METAL (LOWER) (51), STRAP
302	3-078-889-11	SCREW (M1.7)
303	X-3954-006-1	PANEL (595) ASSY, BATTERY
304	3-072-305-01	LID (2500), JACK

Ref. No.	Part No.	Description
305	1-816-271-21	MEMORY STICK CONNECTOR 10P
306	1-860-931-11	FP-799 FLEXIBLE BOARD
307	3-088-741-01	SHEET (61), SHIELD
BT901	1-694-772-11	TERMINAL BOARD, BATTERY

5. REPAIR PARTS LIST

5-1-8. MD FRAME BLOCK

ns: not supplied

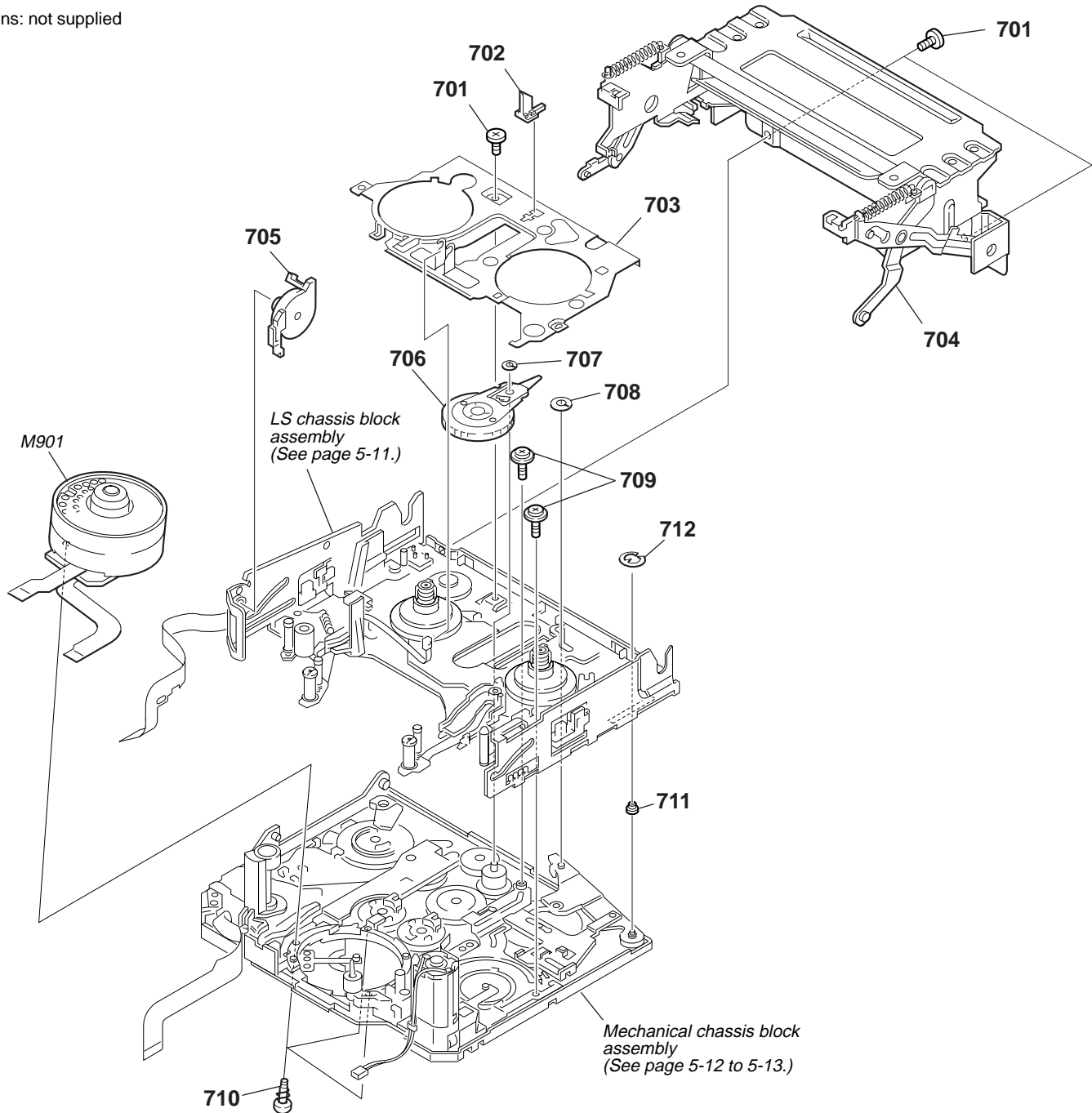


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
351	1-478-417-41	KEY BLOCK, CONTROL (SS-5100)	361	3-089-368-01	LABEL, FUSE REPLACEMENT (51) (TRV360/TRV460)
352	3-080-253-01	SCREW (M1.7), LOCK ACE, P2	362	X-3953-957-1	CABINET (L) (51) ASSY
353	X-3953-958-2	FRAME (51) ASSY, CS	363	3-978-765-01	SLIDER, G LOCK
354	3-080-204-21	SCREW, TAPPING, P2	364	3-087-802-01	BELT (51), GRIP
355	3-078-889-11	SCREW (M1.7)	365	3-080-203-31	SREW (M2), LOCK ACE, P2
356	3-066-169-01	SHEET (30), MD	366	3-087-833-51	LABEL (L) (56) (TRV360)
357	3-087-809-01	FRAME (51), MD	366	3-087-833-61	LABEL (L) (56) (TRV361)
358	1-860-927-11	FP-796 FLEXIBLE BOARD	366	3-088-539-01	LABEL (L) (61) (TRV460)
359	A-7112-399-A	VC-345 BOARD, COMPLETE (SERVICE) (TRV360/TRV361)	366	3-088-539-11	LABEL (L) (61) (TRV460E)
359	A-7112-400-A	VC-345 BOARD, COMPLETE (SERVICE) (TRV460/TRV460E/TRV461E)	366	3-088-539-31	LABEL (L) (61) (TRV461E)
360	1-827-980-11	CABLE, FLEXIBLE FLAT (FFC-005)	367	3-080-204-11	SCREW, TAPPING, P2

5. REPAIR PARTS LIST

5-1-9. CASSETTE COMPARTMENT ASSEMBLY, DRUM ASSEMBLY

ns: not supplied



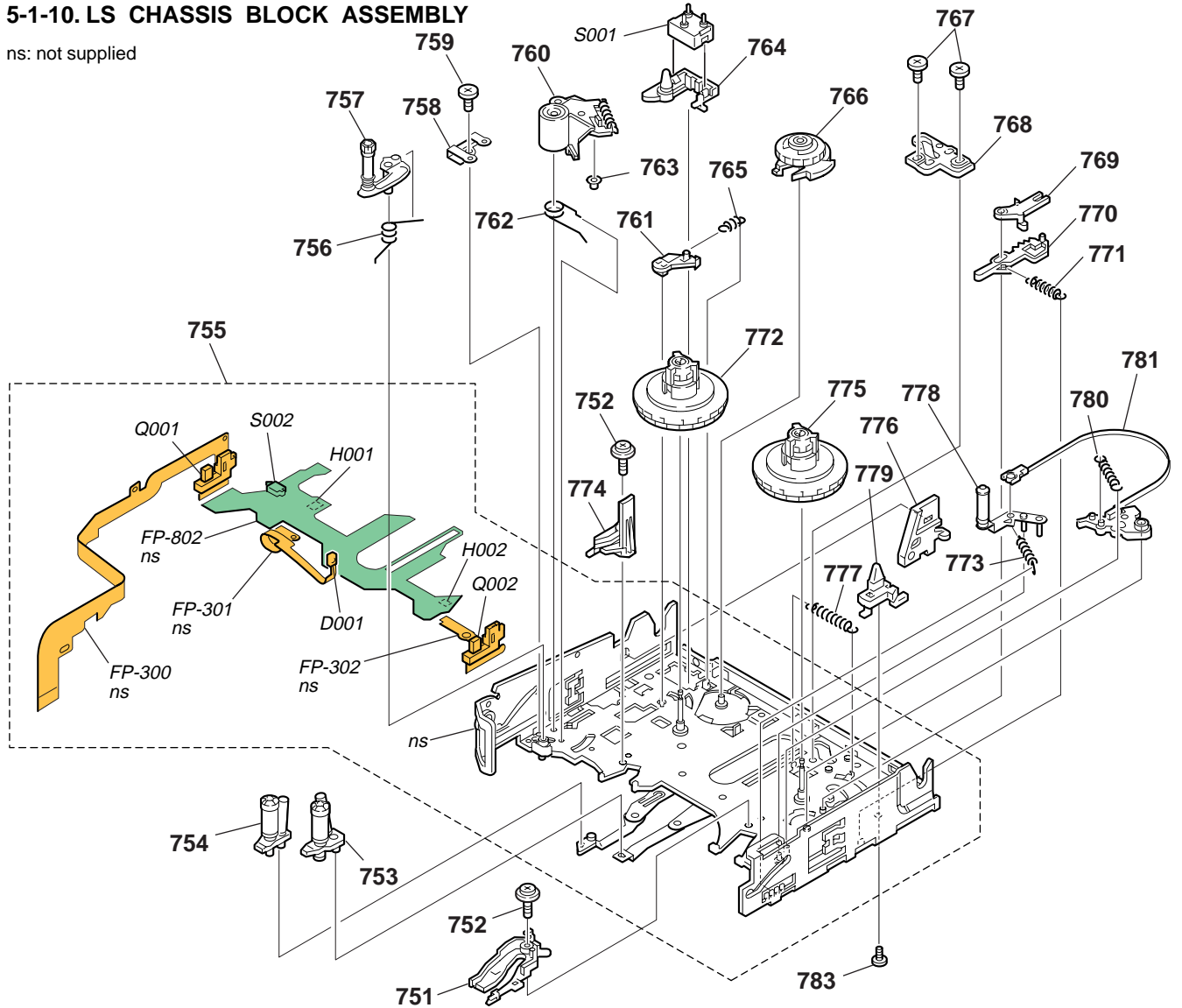
Ref. No.	Part No.	Description
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
702	3-065-895-01	LEVER, REEL RELEASE
703	3-065-896-01	PLATE, BLIND
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY
705	X-3951-302-1	DAMPER ASSY
706	X-3951-297-1	GEAR ASSY, R DRIVE
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)

Ref. No.	Part No.	Description
708	3-065-935-01	HLC CUT 1.8X4X0.5
709	3-947-503-01	SCREW (M1.4)
710	X-3951-299-1	SCREW ASSY, DRUM FITTING
711	3-074-309-01	ROLLER A, LS GUIDE
712	7-624-101-04	STOP RING 1.2 (E TYPE)
M901	A-7048-986-A	DRUM (DKH-04B-R) (SERVICE)

5. REPAIR PARTS LIST

5-1-10. LS CHASSIS BLOCK ASSEMBLY

ns: not supplied



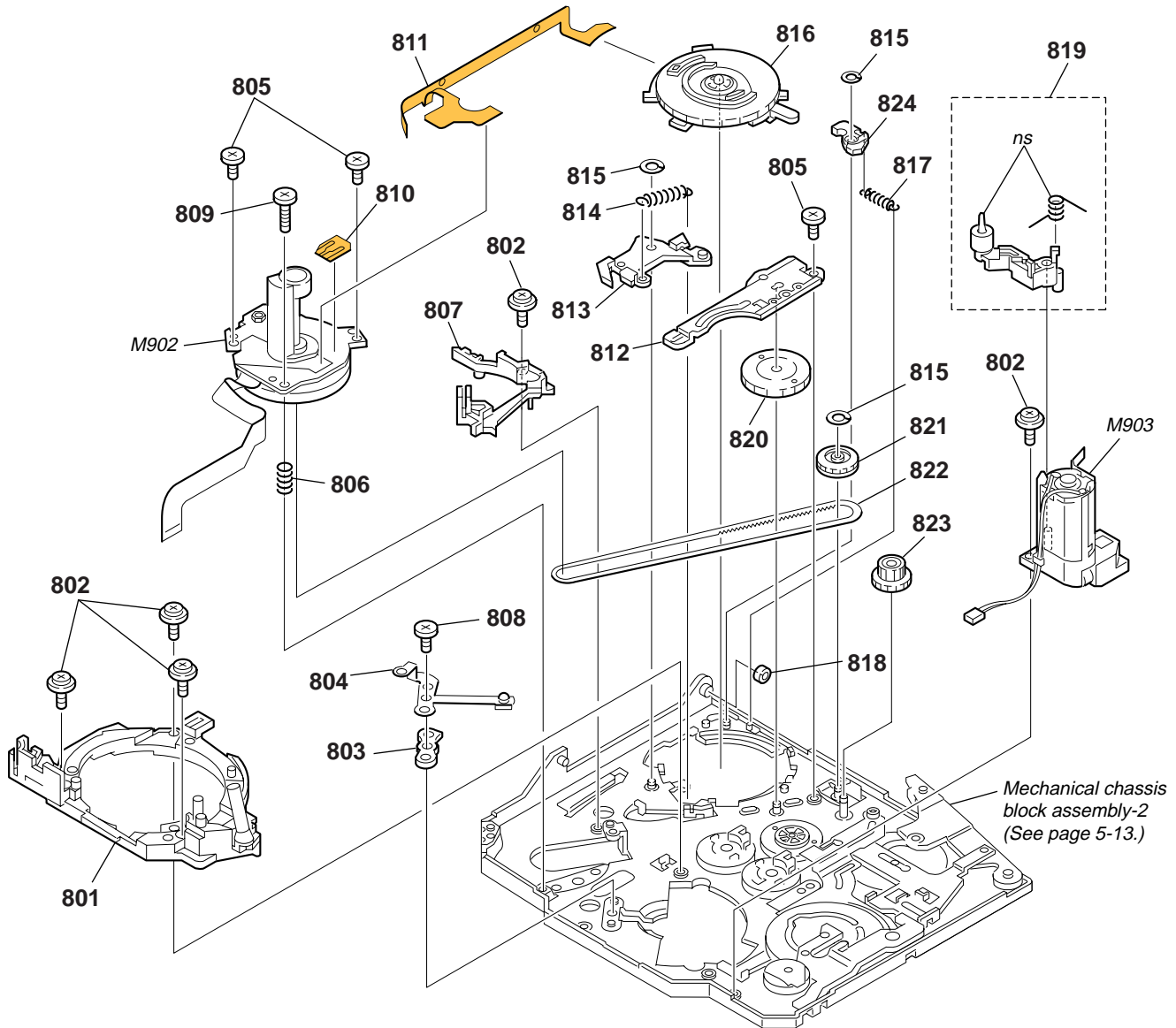
Ref. No.	Part No.	Description
751	3-065-822-02	RAIL (S), GUIDE
752	3-947-503-01	SCREW (M1.4)
753	A-7096-416-B	BASE (S) BLOCK ASSY, GUIDE
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE
755	A-7096-426-A	CHASSIS ASSY, LS
756	3-065-802-01	SPRING, TG7 ARM
757	A-7096-414-A	ARM BLOCK ASSY, TG7
758	3-065-801-01	RETAINER, TG7
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
760	X-3951-303-1	ARM ASSY, PINCH
761	3-065-823-01	ARM, T RATCHET
762	3-065-794-01	ROAD (SPR), PINCH ARM
763	3-065-792-01	ROLLER, P LIM ARM
764	3-065-834-01	GUIDE (T), CASSETTE
765	3-065-824-01	SPRING, T RATCHET
766	A-7096-417-A	SOFT ASSY, T
767	3-071-650-01	SCREW (M1.7) (S)
768	3-065-832-01	PLATE, LS CAM
769	3-065-828-01	ARM, S RATCHET
770	3-065-829-01	PLATE, S RATCHET (RE)

Ref. No.	Part No.	Description
771	3-065-830-01	SPRING, S RATCHET
772	X-3951-288-1	TABLE (T) ASSY, REEL
773	3-065-819-01	SPRING, TG1 ARM
774	3-065-821-01	RAIL (T), GUIDE
775	X-3951-289-1	TABLE (S) ASSY, REEL
776	3-065-833-01	GUIDE, LOCK
777	3-065-831-01	PLATE (SPR), RE RETURN
778	X-3951-304-1	ARM ASSY, TG1
779	3-065-835-01	GUIDE (S), CASSETTE
780	3-065-820-01	SPRING, RVS ARM
781	X-3951-296-1	BAND (ASSY), BT
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING
D001	8-719-988-42	DIODE GL453 (TAPE LED)
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)
S002	1-572-688-11	SWITCH, PUSH LEVER (1 KEY) (C. C. LOCK)

5. REPAIR PARTS LIST

5-1-11. MECHANICAL CHASSIS BLOCK ASSEMBLY-1

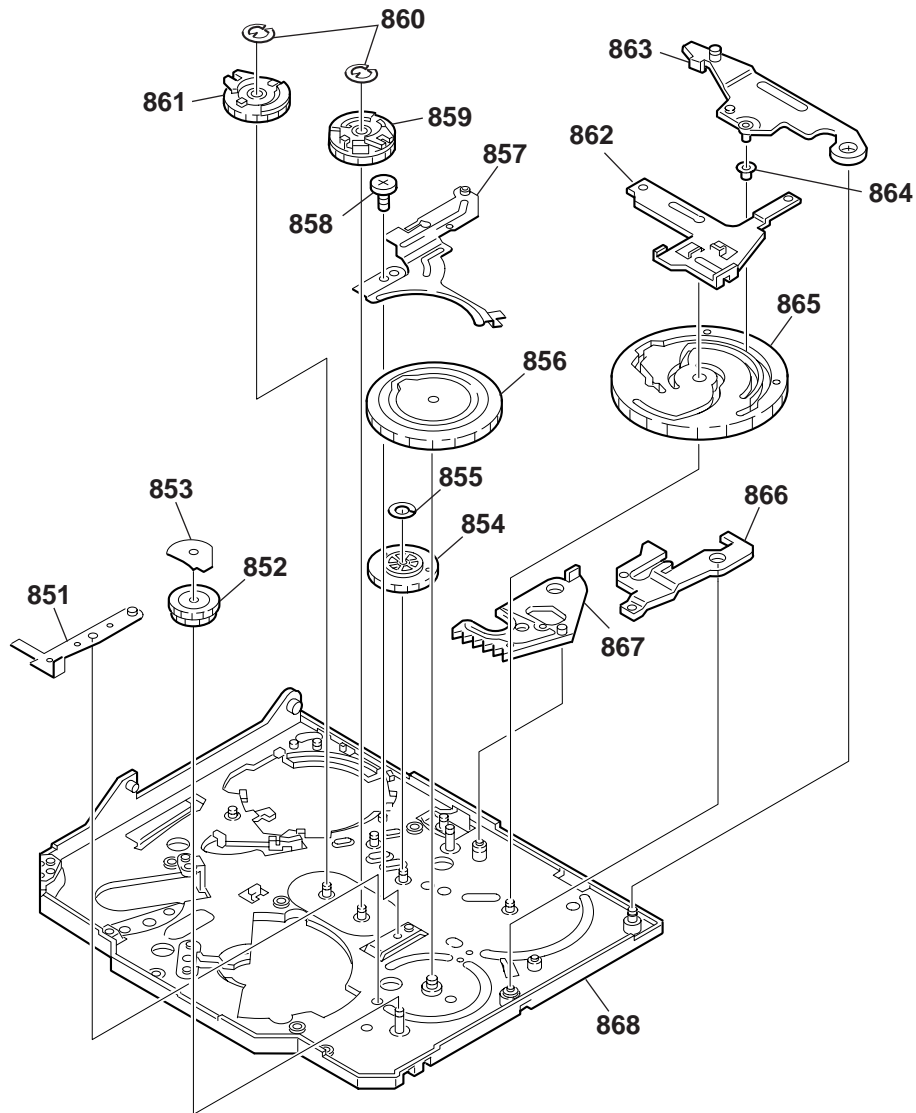
ns: not supplied



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
801	A-7096-422-A	BASE ASSY, DRUM	814	3-065-881-01	SPRING, P PRESSURE PLATE
802	3-947-503-01	SCREW (M1.4)	815	3-065-934-01	HLW CUT 0.98X3X0.25
803	3-065-928-01	SPACER, GROUND	816	1-786-096-11	SWITCH, ROTARY
804	3-065-927-01	GROUND, DRUM	817	3-065-898-01	SPRING, EJECT ARM
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	818	3-065-870-01	ROLLER, LS GUIDE
806	3-067-154-01	SPRING, CAPSTAN	819	A-7096-421-A	ARM ASSY, HCL
807	3-065-931-01	RAIL (T2), GUIDE	820	3-065-918-01	GEAR (2), CAM RELAY
808	X-3947-398-1	SCREW ASSY, M1.7 PW	821	A-7096-419-A	GEAR ASSY, CHANGE
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA	822	3-065-902-01	BELT, TIMING
810	1-677-049-11	FP-228 FLEXIBLE BOARD	823	3-065-905-01	GEAR, RELAY
811	1-680-434-11	FP-299 FLEXIBLE BOARD	824	3-065-882-01	ARM, EJECT
812	3-065-877-01	PLATE (T), GUIDE LOCK	M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE	M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)

5. REPAIR PARTS LIST

5-1-12. MECHANICAL CHASSIS BLOCK ASSEMBLY-2



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
851	3-065-920-01	ARM, HC DRIVE	860	7-624-101-04	STOP RING 1.2 (E TYPE)
852	3-065-913-01	GEAR (4), LD	861	A-7096-412-A	GEAR (T) ASSY, GUIDE
853	3-065-914-01	SHEET, COVER	862	X-3951-307-1	PLATE ASSY, M SLIDE
854	3-065-917-01	GEAR (1), CAM RELAY	863	X-3951-305-1	ARM ASSY, LS
855	3-065-934-01	HLW CUT 0.98X3X0.25	864	3-065-901-01	ROLLER, LS ARM
856	3-065-915-01	GEAR (1), CAM	865	3-065-916-01	GEAR (2), CAM
857	3-065-878-01	PLATE (S), GUIDE LOCK	866	3-065-919-01	ARM, T1 LIMITTER
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	867	X-3951-308-1	ARM ASSY, GL
859	A-7096-413-A	GEAR (S) ASSY, GUIDE	868	X-3951-300-2	CHASSIS ASSY, MECHANICAL

CD-472

FP-300

FP-301

FP-302

FP-792

FP-802

PD-205

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	A-7111-980-A	CD-472 BOARD, COMPLETE ***** (IC951 is not included in this complete board.)
		< CAPACITOR >
C951	1-126-395-11	ELECT CHIP 22uF 20% 16V
C953	1-128-994-21	ELECT CHIP 47uF 20% 10V
C955	1-164-360-11	CERAMIC CHIP 0.1uF 16V
		< CONNECTOR >
CN951	1-815-762-11	CONNECTOR, FFC/FPC 14P
		< IC >
IC951	A-7013-401-A	CCD BLOCK ASSY (CCD IMAGER) (Note) (TRV460E/TRV461E)
IC951	A-7016-724-A	CCD BLOCK ASSY (CCD IMAGER) (Note) (TRV360/TRV361/TRV460)
		< COIL >
L951	1-469-528-91	INDUCTOR 100uH
		< TRANSISTOR >
Q951	8-729-117-73	TRANSISTOR 2SC4178-F14
		< RESISTOR >
R952	1-218-940-11	RES-CHIP 82 5% 1/16W
R953	1-218-959-11	RES-CHIP 3.3K 5% 1/16W
R970	1-216-864-11	SHORT CHIP 0
		FP-300 FLEXIBLE BOARD (Not Supplied) *****
		< PHOTO TRANSISTOR >
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
		FP-301 FLEXIBLE BOARD (Not Supplied) *****
		< DIODE >
D001	8-719-988-42	DIODE GL453S (TAPE LED)
		FP-302 FLEXIBLE BOARD (Not Supplied) *****
		< PHOTO TRANSISTOR >
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
		1-860-929-11 FP-792 FLEXIBLE BOARD ***** (D001, D002 and D003 are not included in this flexible board.)
		< DIODE >
D001	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)

Ref. No.	Part No.	Description
D002	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
D003	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
		FP-802 FLEXIBLE BOARD (Not Supplied) *****
		< HOLE ELEMENT >
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)
		< SWITCH >
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)
S002	1-572-688-11	SWITCH, PUSH LEVER (1 KEY) (C.C. LOCK)
	A-7111-981-A	PD-205 BOARD, COMPLETE *****
		< CAPACITOR >
C6001	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6002	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V
C6003	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6004	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6005	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6006	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6007	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V
C6009	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6010	1-164-739-11	CERAMIC CHIP 560PF 5% 50V
C6011	1-164-657-11	CERAMIC CHIP 0.015uF 1% 50V
C6012	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6013	1-100-371-11	CERAMIC CHIP 12PF 5% 3.15KV
C6014	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V
C6015	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V
C6017	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C6018	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V
C6019	1-104-847-11	TANTALUM CHIP 22uF 20% 4V
C6020	1-100-502-11	TANTALUM CHIP 3.3uF 20% 25V
C6028	1-162-966-11	CERAMIC CHIP 0.0022uF 1% 50V
C6029	1-100-252-11	CERAMIC CHIP 0.1uF 10% 6.3V
		< CONNECTOR >
CN6001	1-794-997-11	PIN, CONNECTOR 20P
CN6003	1-764-709-11	FFC/CONNECTOR, FPC (LIF) 10P
CN6004	1-815-031-11	CONNECTOR, FFC/FPC (ZIF) 24P
CN6005	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P
CN6007	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P
		< DIODE >
D6001	8-719-050-42	DIODE RD3.3UM-T1B
D6004	8-719-073-01	DIODE MA111-(K8).S0
		< IC >
IC6001	8-752-115-66	IC CXA3622BR-T4
IC6002	6-704-149-01	IC TK11128CSC-LG

Note: Be sure to read "Precautions for Replacement of CCD Imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description
< COIL >		
L6001	1-469-527-91	INDUCTOR 47uH
L6002	1-412-056-11	INDUCTOR 4.7uH
L6003	1-428-878-11	INDUCTOR 82uH
< TRANSISTOR >		
Q6003	6-550-083-01	TRANSISTOR TPC6C01 (TE85R)
Q6004	8-729-054-48	TRANSISTOR UP04601008S0
Q6005	8-729-054-48	TRANSISTOR UP04601008S0
Q6006	8-729-041-23	TRANSISTOR NDS356AP
Q6008	8-729-054-89	TRANSISTOR UP04211008S0
Q6009	8-729-054-44	TRANSISTOR UP04111008S0
< RESISTOR >		
R6005	1-216-824-11	METAL CHIP 1.8K 5% 1/10W
R6009	1-218-975-11	RES-CHIP 68K 5% 1/16W
R6010	1-218-969-11	RES-CHIP 22K 5% 1/16W
R6012	1-208-707-11	METAL CHIP 10K 0.5% 1/16W
R6013	1-208-935-11	METAL CHIP 100K 0.5% 1/16W
R6014	1-218-949-11	RES-CHIP 470 5% 1/16W
R6019	1-218-965-11	RES-CHIP 10K 5% 1/16W
R6021	1-218-977-11	RES-CHIP 100K 5% 1/16W
R6022	1-218-965-11	RES-CHIP 10K 5% 1/16W
R6023	1-216-847-11	METAL CHIP 150K 5% 1/10W
R6030	1-218-949-11	RES-CHIP 470 5% 1/16W
< COMPOSITION CIRCUIT BLOCK >		
RB6001	1-234-369-21	RES, NETWORK 10 x 4 (1005)
< TRANSFORMER >		
△ T6001	1-435-786-31	TRANSFORMER, INVERTER
A-7111-982-A SI-041 BOARD, COMPLETE *****		
(CN751, CN752, D753, D754, IC751, J751 and J752 are not included in this complete board.)		
< CAPACITOR >		
C758	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C759	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
< CONNECTOR >		
CN751	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV)
CN752	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB)
CN753	1-816-232-11	PIN, CONNECTOR (PC BOARD) 4P
CN754	1-818-074-11	CONNECTOR, FFC/FPC (ZIF) 36P
< DIODE >		
D751	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D752	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D753	8-719-078-24	DIODE DAC3825 (IR EMITTER)
D754	8-719-078-24	DIODE DAC3825 (IR EMITTER)
D755	8-719-421-27	DIODE MA728
D756	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D759	6-500-506-01	DIODE TLRMV1021 (T15SOY, F) (TALLY)

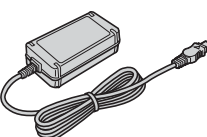
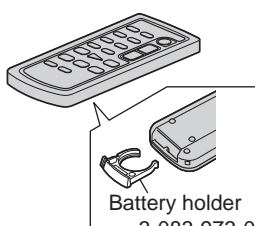
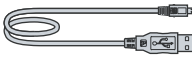
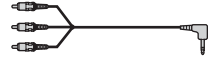
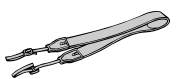
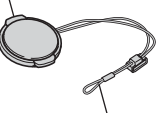
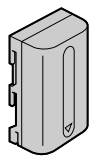
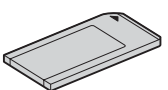

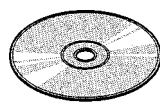
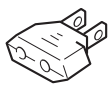
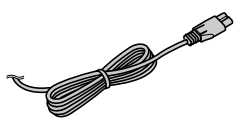
Ref. No.	Part No.	Description
< FERRITE BEAD >		
FB751	1-414-760-21	INDUCTOR, FERRITE BEAD
< IC >		
IC751	6-704-975-01	IC RPM7240-V4
< JACK >		
J751	1-778-518-11	CONNECTOR, EXTERNAL (S VIDEO)
J752	1-778-040-11	JACK, SMALL TYPE (AV)
< TRANSISTOR >		
Q751	8-729-023-22	TRANSISTOR 2SD2114K
< RESISTOR >		
R752	1-216-806-11	METAL CHIP 56 5% 1/10W
R753	1-216-806-11	METAL CHIP 56 5% 1/10W
R756	1-216-864-11	SHORT CHIP 0
R757	1-216-864-11	SHORT CHIP 0
R763	1-216-821-11	METAL CHIP 1K 5% 1/10W
R764	1-216-833-11	METAL CHIP 10K 5% 1/10W
R765	1-216-833-11	METAL CHIP 10K 5% 1/10W
< SENSOR >		
SE751	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)
SE752	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)

Electrical parts list of the VC-345 board is not shown.
Pages 5-16 to 5-24 are not shown.

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

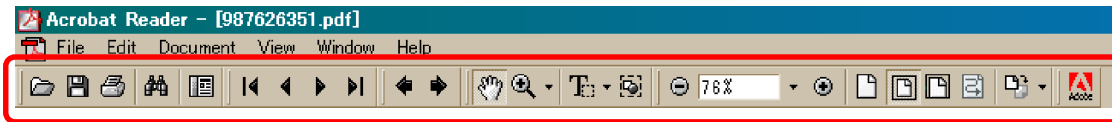
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Checking supplied accessories.

 <p>AC-L15A/L15B AC Adaptor (1) ▲ 1-477-533-32 (TRV461E) ▲ 1-477-533-51 (EXCEPT TRV461E)</p>	 <p>Battery holder 3-083-973-01</p> <p>Wireless Remote Commander RMT-831 (1) 1-477-898-41 (EXCEPT TRV461E) 1-477-898-61 (TRV461E)</p>	 <p>USB cable (1) 1-823-931-21</p>	 <p>A/V connecting cable (1) 1-824-097-41</p>
 <p>Shoulder strap (1) 3-987-015-01</p>	 <p>Lens cap (1) X-3952-971-1</p> <p>Cap string (1) 3-979-194-12</p>	<p>Other accessories CAMERA OPERATIONS GUIDE 3-087-921-11 MANUAL, INSTRUCTION (ENGLISH) (TRV360/TRV361/TRV460) 3-087-921-21 MANUAL, INSTRUCTION (FRENCH) (TRV460: CND) 3-087-921-31 MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV361/TRV460: E) 3-087-921-41 MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV460: E) 3-087-923-11 MANUAL, INSTRUCTION (ENGLISH) (TRV460E: AEP, UK, E, AUS/TRV461E) 3-087-923-21 MANUAL, INSTRUCTION (FRENCH) (TRV460E: AEP, E) 3-087-923-31 MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV460E: AEP) 3-087-923-41 MANUAL, INSTRUCTION (ITALIAN, GREEK) (TRV460E: AEP) 3-087-923-51 MANUAL, INSTRUCTION (GERMAN, DUTCH) (TRV460E: AEP) 3-087-923-61 MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (TRV460E: NE) 3-087-923-71 MANUAL, INSTRUCTION (DANISH, FINNISH) (TRV460E: NE) 3-087-923-81 MANUAL, INSTRUCTION (POLISH, CZECH) (TRV460E: EE) 3-087-923-91 MANUAL, INSTRUCTION (HUNGALIAN, SLOVAKIAN) (TRV460E: EE) 3-087-924-11 MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TRV460E: E/TRV461E) 3-087-924-31 MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV460E: E)</p>	
 <p>Rechargeable battery pack NP-FM30 (1) ▲ A-7096-387-A (US, CND) ▲ A-7096-388-B (EXCEPT US, CND)</p>	 <p>Memory Stick 8MB (1)</p>	<p>COMPUTER APPLICATIONS GUIDE 3-087-936-11 MANUAL (PC), INSTRUCTION (ENGLISH) (EXCEPT TRV460E: AEP, NE, EE) 3-087-936-21 MANUAL (PC), INSTRUCTION (FRENCH) (TRV460: CND/TRV460E: AEP, E) 3-087-936-31 MANUAL (PC), INSTRUCTION (GERMAN, DUTCH) (TRV460E: AEP) 3-087-936-41 MANUAL (PC), INSTRUCTION (SPANISH, PORTUGUESE) (TRV361/TRV460: E/TRV460E: AEP) 3-087-936-51 MANUAL (PC), INSTRUCTION (ITALIAN, GREEK) (TRV460E: AEP) 3-087-936-61 MANUAL (PC), INSTRUCTION (SWEDISH, RUSSIAN) (TRV460E: NE) 3-087-936-71 MANUAL (PC), INSTRUCTION (DANISH, FINNISH) (TRV460E: NE) 3-087-936-81 MANUAL (PC), INSTRUCTION (POLISH, CZECH) (TRV460E: EE) 3-087-936-91 MANUAL (PC), INSTRUCTION (HUNGALIAN, SLOVAKIAN) (TRV460E: EE) 3-087-937-11 MANUAL (PC), INSTRUCTION (ARABIC, PERSIAN) (TRV460E: E/TRV461E) 3-087-937-21 MANUAL (PC), INSTRUCTION (TRADITIONAL CHINESE) (TRV460: E) 3-087-937-31 MANUAL (PC), INSTRUCTION (SIMPLIFIED CHINESE) (TRV460E: E)</p>	
 <p>21-pin adaptor (1) 1-770-783-21 (AEP, UK, NE, EE)</p>	 <p>CD-ROM (SPVD-012 (V) USB Driver) (1) 3-086-790-01 (US, CND) (SPVD-012 USB Driver) (1) 3-087-821-01 (EXCEPT US, CND)</p>		
 <p>Conversion 2P adaptor (1) ▲ 1-569-008-12 (TRV361: E, TRV460: E, TRV461: E)</p>	 <p>Power cord (1) ▲ 1-696-819-21 (AUS) ▲ 1-769-608-11 (AEP, NE, EE, E) ▲ 1-783-374-11 (UK) ▲ 1-790-542-12 (US, CND)</p>		


<p>The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]




Toolbar



Printing a text

1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

Application of printing:

To set a range to be printed within a page, select the graphic selection tool  and drag on the page to enclose a range to be printed, and then click the Print button.


Reversing the screens displayed once

- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

Application to the Service Manual:

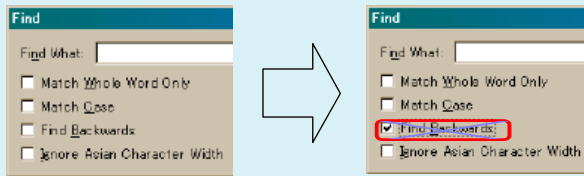
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

Finding a text

1. Click the Find button .
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

Application to the Service Manual:

To execute “find” from current page toward the previous pages, select the check box “Find Backwards” and then click the “Find”.








3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

Application to the Service Manual:


The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.


Note: The find function may not be applied to the Service Manual depending on the date of issue.

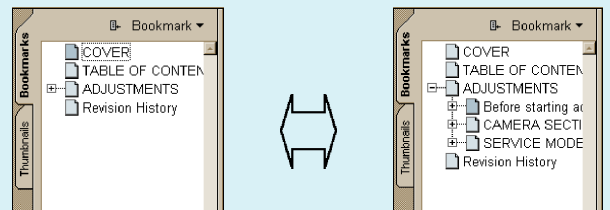
Moving with link

1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form .
3. Then, click the link. (You will go to the link destination.)

Moving with bookmark:



Click an item (text) on the bookmark pallet. and you can move to the link destination. Also, clicking  can display the hidden items.

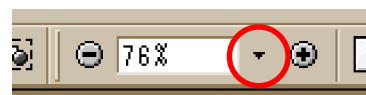
(To go back to original state, click )




Zooming or rotating the screen display

“Zoom in/out”

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click  or  for zooming in or out.







“Rotate”

- Click rotate tool , and the page then rotates 90 degrees each.

Application to the Service Manual:

The printed circuit board diagram you see now can be changed to the same direction as the set.

Switching a page

- To move to the first page, click the .
- To move to the last page, click the .
- To move to the previous page, click the .
- To move to the next page, click the .

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2003.12	Official Release	—	—