

DCR-HC44E/HC46/HC46E

RMT-831

SERVICE MANUAL

LEVEL 2

Ver. 1.4 2007.12

Revision History

How to use
Acrobat Reader



Photo: DCR-HC46

N MECHANISM (MDX-N110)

US Model
Canadian Model
AEP Model
UK Model
East European Model
North European Model
E Model
Australian Model
Chinese Model
Hong Kong Model
Korea Model
Tourist Model
Japanese Model

Link

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

• Precaution on Replacing the VC-418 Board

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

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

Mini DV Digital Video Cassette

DIGITAL VIDEO CAMERA RECORDER

SONY®

These specifications are extracted from instruction manual of
DCR-HC36E/HC44E/HC46E/HC94E/HC96E.



HANDYCAM



SPECIFICATIONS

System

Video recording system

2 rotary heads, Helical scanning system

Still image recording system

Exif Ver. 2.2^{*1}

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

PAL color, CCIR standards

Usable cassette

Mini DV cassette with the mark printed

Tape speed

SP: Approx. 18.81 mm/s

LP: Approx. 12.56 mm/s

Recording/playback time

SP: 60 min (using a DVM60 cassette)

LP: 90 min (using a DVM60 cassette)

Fast forward/rewind time

Approx. 2 min 40 s (using a DVM60 cassette and rechargeable battery pack)

Approx. 1 min 45 s (using a DVM60 cassette and AC Adaptor)

Viewfinder

Electric viewfinder (color)

Image device

DCR-HC44E/HC46E:

3.27 mm (1/5.5 type) CCD (Charge Coupled Device)

Gross: Approx. 1 070 000 pixels

Effective (still): 1 000 000 pixels

Effective (movie): 690 000 pixels

Lens

DCR-HC44E/HC46E:

Carl Zeiss Vario-Tessar

12 × (Optical), 800 × (Digital)

Focal length

DCR-HC44E/HC46E:

f=3.0 ~ 36 mm (1/8 ~ 1 7/16 in.)

When converted to a 35 mm still camera

In CAMERA-TAPE:

46 ~ 628.5 mm (1 13/16 ~ 24 3/4 in.)

(16:9)^{*2}

48 ~ 576 mm (1 15/16 ~ 22 3/4 in.)

(4:3)

In CAMERA-MEMORY:

43.6 ~ 523.2 mm (1 3/4 ~ 20 5/8 in.)

(16:9)

40 ~ 480 mm (1 5/8 ~ 19 in.) (4:3)

F1.8 ~ 2.5

Filter diameter: 25 mm (1 in.)

Color temperature

[AUTO], [ONE PUSH], [INDOOR]

(3 200 K), [OUTDOOR] (5 800 K)

Minimum illumination

DCR-HC44E/HC46E:

7 lx (lux) (F 1.8)

0 lx (lux) (NightShot plus function)^{*3}

^{*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.

^{*2}In 16:9 mode, the focal length figures are actual figures resulting from wide angle pixel read-out.

^{*3}Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

Audio/Video output

DCR-HC36E/HC44E/HC46E/HC94E:

10-pin connector

Video signal: 1 Vp-p, 75Ω (ohms), unbalanced

Luminance signal: 1 Vp-p, 75Ω

(ohms), unbalanced

Chrominance signal: 0.3 Vp-p, 75Ω

(ohms), unbalanced

Audio signal: 327 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)

LCD screen

Picture

DCR-HC44E/HC46E/HC94E/HC96E:

6.9 cm (2.7 type, aspect ratio 16:9)

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

DCR-HC44E/HC46E:

During camera recording using the viewfinder 2.4 W

During camera recording using the LCD 2.7 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.)

DCR-HC36E/HC44E/HC46E:

65 × 79 × 113 mm

(2 5/8 × 3 1/8 × 4 1/2 in.) (w/h/d)

Mass (approx.)

DCR-HC44E/HC46E:

380 g (13 oz) main unit only,

445 g (15 oz) including the NP-FP50 rechargeable battery pack and DVM60 cassette

Supplied accessories

AC Adaptor (1)

Mains lead (1)

Handycam Station (1)

(DCR-HC44E/HC46E/HC94E/HC96E)

Wireless Remote Commander (1)

A/V connecting cable (1)

USB cable (1)

Lens cap (1)

(DCR-HC36E/HC44E/HC46E)

Rechargeable battery pack (1)

NP-FP50

(DCR-HC44E/HC46E/HC94E/HC96E)

CD-ROM "Picture Package Ver. 1.5.1" (1)

21-pin adaptor (1)

(DCR-HC44E/HC46E/HC94E/HC96E)

Operating Guide (1)

See page 5-21.

Handycam Station Input/Output connectors

DCRA-C150 (DCR-HC44E/HC94E)

Audio/Video output

10-pin connector

Video signal: 1 Vp-p, 75Ω (ohms), unbalanced

Luminance signal: 1 Vp-p, 75Ω

(ohms), unbalanced

Chrominance signal: 0.3 Vp-p, 75Ω

(ohms), unbalanced

Audio signal: 327 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)

USB jack

mini-B

DV output

i.LINK Interface (IEEE1394, 4-pin connector S100)

DCRA-C151 (DCR-HC46E)

Audio/Video output

10-pin connector

Video signal: 1 Vp-p, 75Ω (ohms), unbalanced

Luminance signal: 1 Vp-p, 75Ω

(ohms), unbalanced

Chrominance signal: 0.3 Vp-p, 75Ω

(ohms), unbalanced

Audio signal: 327 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)

USB jack

mini-B

DV input/output

i.LINK Interface (IEEE1394, 4-pin connector S100)

AC Adaptor AC-L25A/L25B

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*

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 mains lead

* See the label on the AC Adaptor for other specifications.

Rechargeable battery pack

NP-FP50 (DCR-HC44E/HC46E/HC94E/HC96E)

Maximum output voltage

DC 8.4 V

Output voltage

DC 7.2 V

Capacity

4.9 Wh (680 mAh)

Dimensions (approx.)

31.8 × 18.5 × 45.0 mm

(1 5/16 × 3/4 × 1 13/16 in.) (w/h/d)

Mass (approx.)

45 g (1.6 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.

Model information table

Model	DCR-HC44E	DCR-HC46	DCR-HC46E
Destination	AEP, UK, EE, NE	US, CND, E, KR, JE	AEP, UK, EE, NE, E, AUS, CH, HK, JE
Color system	PAL	NTSC	PAL
DV Interface on the Cradle (Handycam Station)	OUT	IN/OUT	IN/OUT

- Abbreviation
 - AR : Argentine model
 - AUS : Australian model
 - BR : Brazilian model
 - CH : Chinese model
 - CND : Canadian model
 - EE : East European model
 - HK : Hong Kong model
 - J : Japanese model
 - JE : Tourist model
 - KR : Korea model
 - NE : North European model

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  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 IDENTIFÉS PAR UNE MARQUE  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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1. SERVICE NOTE

1-1. 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.

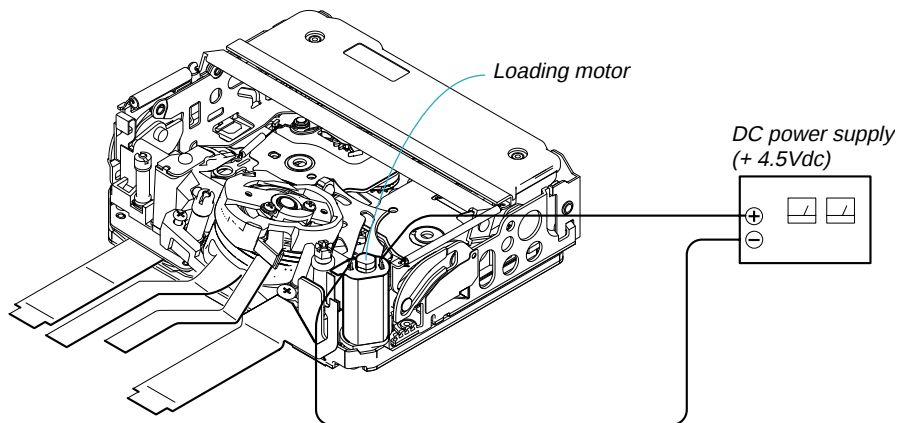
The following method is available to prevent this.

Method:

Use the AC power adaptor (AC-L25A/L25B).

1-2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- ① Refer to “2. DISASSEMBLY” to remove the mechanism deck block.
- ② Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.



1-3. SETTING THE “FORCED POWER ON” MODE

It is possible to turn on power by adjustment remote commander (RM-95 or NEW LANC JIG).
Operate the VTR function using the adjustment remote commander.

1-3-1. 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:01 and press the “PAUSE (Write)” button of the adjustment remote commander.

1-3-2. Setting the “Forced VTR Power ON” Mode

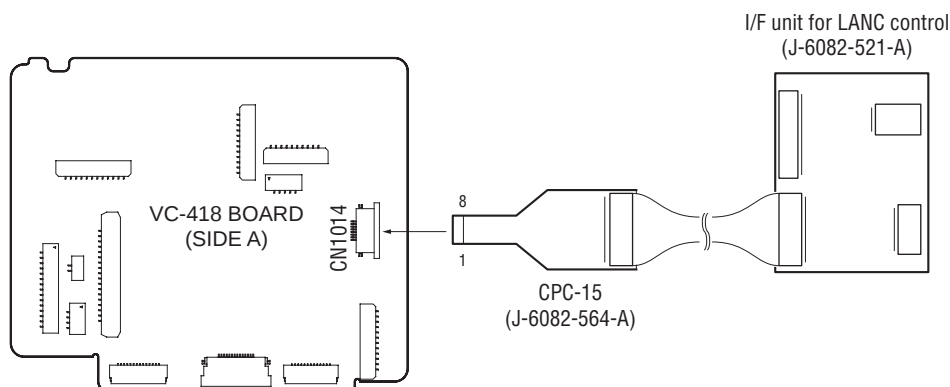
- 1) Select page: 0, address: 01, and set data:01.
- 2) Select page: A, address: 10, set data:02 and press the “PAUSE (Write)” button of the adjustment remote commander.

1-3-3. Exiting the “Forced Power ON” Mode

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

1-4. USING SERVICE JIG

Connect the CPC-15 jig connector (J-6082-564-A) and I/F unit for LANC control (J-6082-521-A) to the CN1014 of VC-418 board.



1-5. SELF-DIAGNOSIS FUNCTION

1-5-1. Self-diagnosis Function

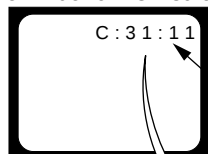
When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or LCD screen what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

1-5-2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or LCD screen shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.

Viewfinder or LCD screen



Blinks at 3.2Hz

C : 3 1 : 1 1

Repaired by:

Block

Detailed Code

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31Reload the tape.
32Turn on power again.

Refer to "1-5-3. Self-diagnosis Code Table".

1-5-3. Self-diagnosis Code Table

Repaired by:	Self-diagnosis Code		Symptom/State	Correction
	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 MR sensor (Pin ②, ④ of CN3801 of VC-418 board) when focusing is performed when the touch panel is operated in the focus manual mode and the focus motor drive circuit (IC3801 of VC-418 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 ⑳ of CN3801 of VC-418 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC3801 of VC-418 board) when zooming is not performed.
E	6 1	1 1	Focus lens initializing failure and zoom lens initializing failure occur simultaneously.	Inspect the flexible board for breakage or loose connection. If not faulty, inspect the focus and zoom motor drive circuit (IC3801 of VC-418 board).
E	6 2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE601 of SI-053 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 (SE602 of SI-053 board) peripheral circuits.

1-6. PRECAUTION ON REPLACING THE VC-418 BOARD

Exif Model Data Check

When you replace to the repairing board, the written data of repairing board also might be changed to original setting.

When the data has changed because of board replacing etc, check the data setting (Exif Model Data) is right. If not, rewrite to the right value.

Exif Model Data

Page	Address	Data		
		DCR-HC44E	DCR-HC46	DCR-HC46E
C	D2	34	34	34
C	D3	34	36	36
C	D4	45	00	45

Writing Method:

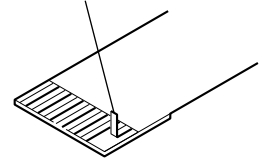
- 1) Select page: 0, address: 01 and set data: 01.
- 2) Select page: C, address: D2 to D4, and set the Exif Model Data.
Note: To write in the non-volatile memory (EEPROM), press the PAUSE (Write) button each time to set the data.
- 3) Select page: 0, address: 01, and set data: 00.

2. DISASSEMBLY

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)

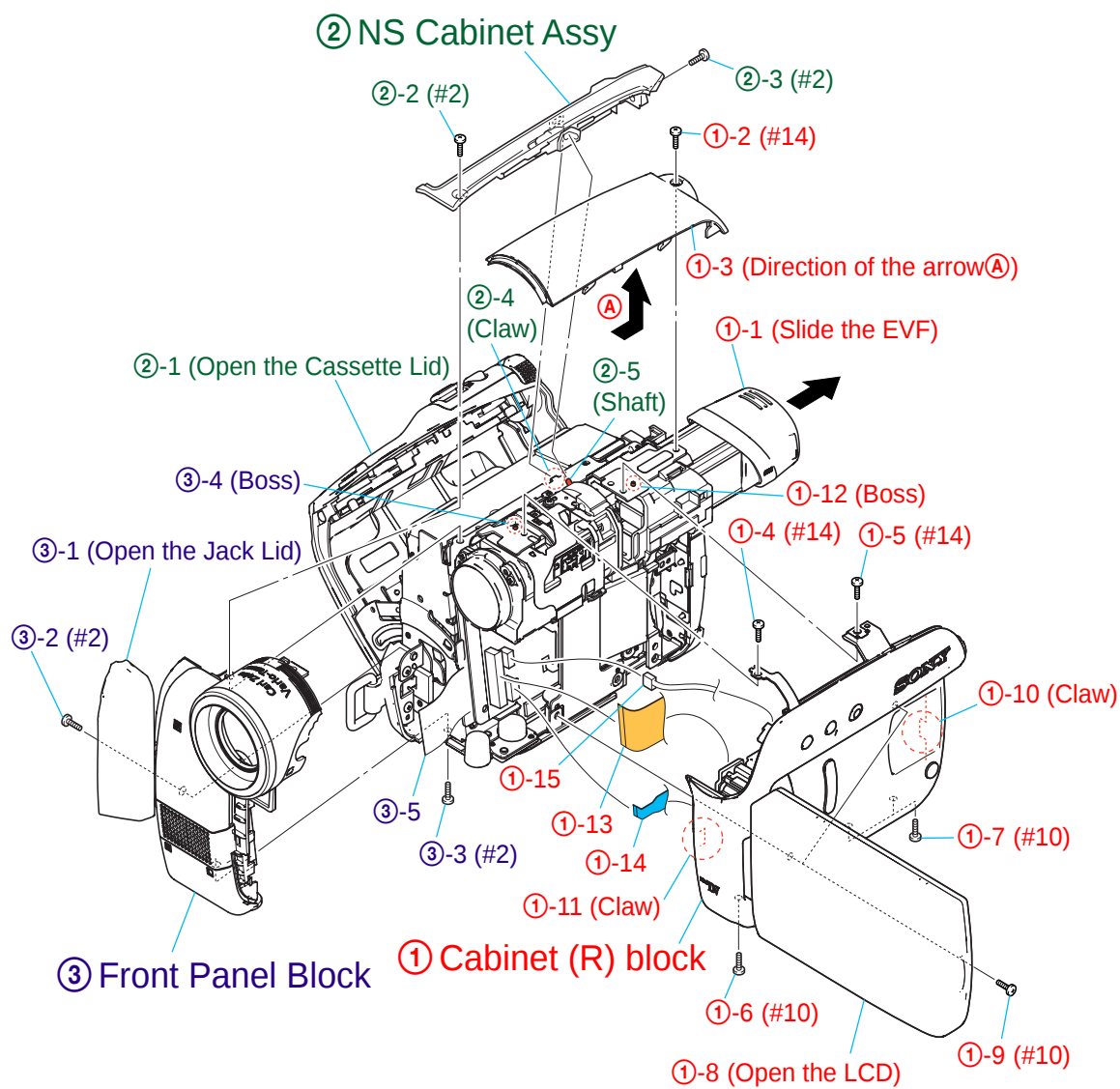


2-1. DISASSEMBLY

EXPLODED VIEW

HARDWARE LIST

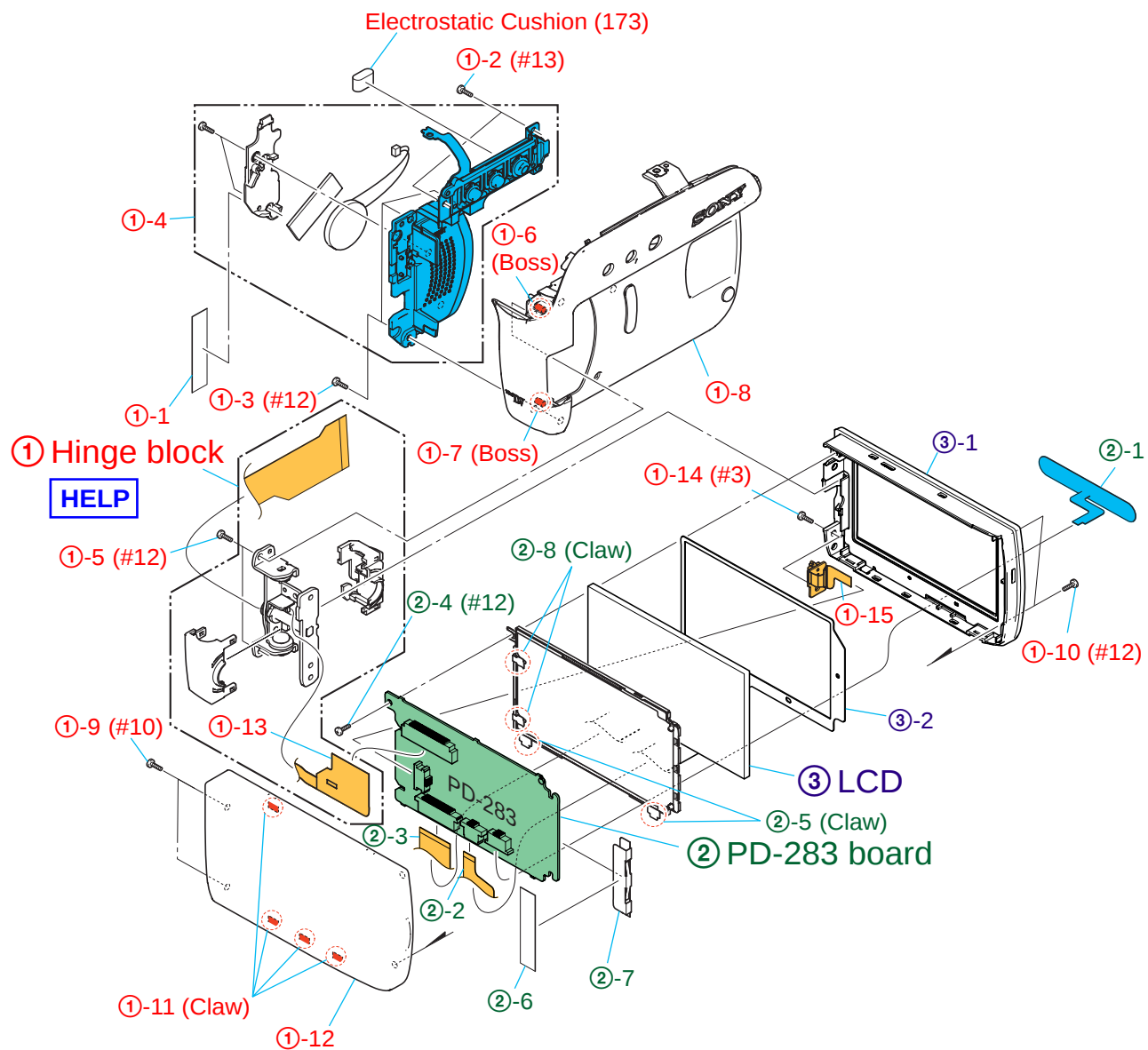
2-1-1. OVERALL ASSEMBLY



2-1-2. CABINET (R) BLOCK

EXPLODED VIEW

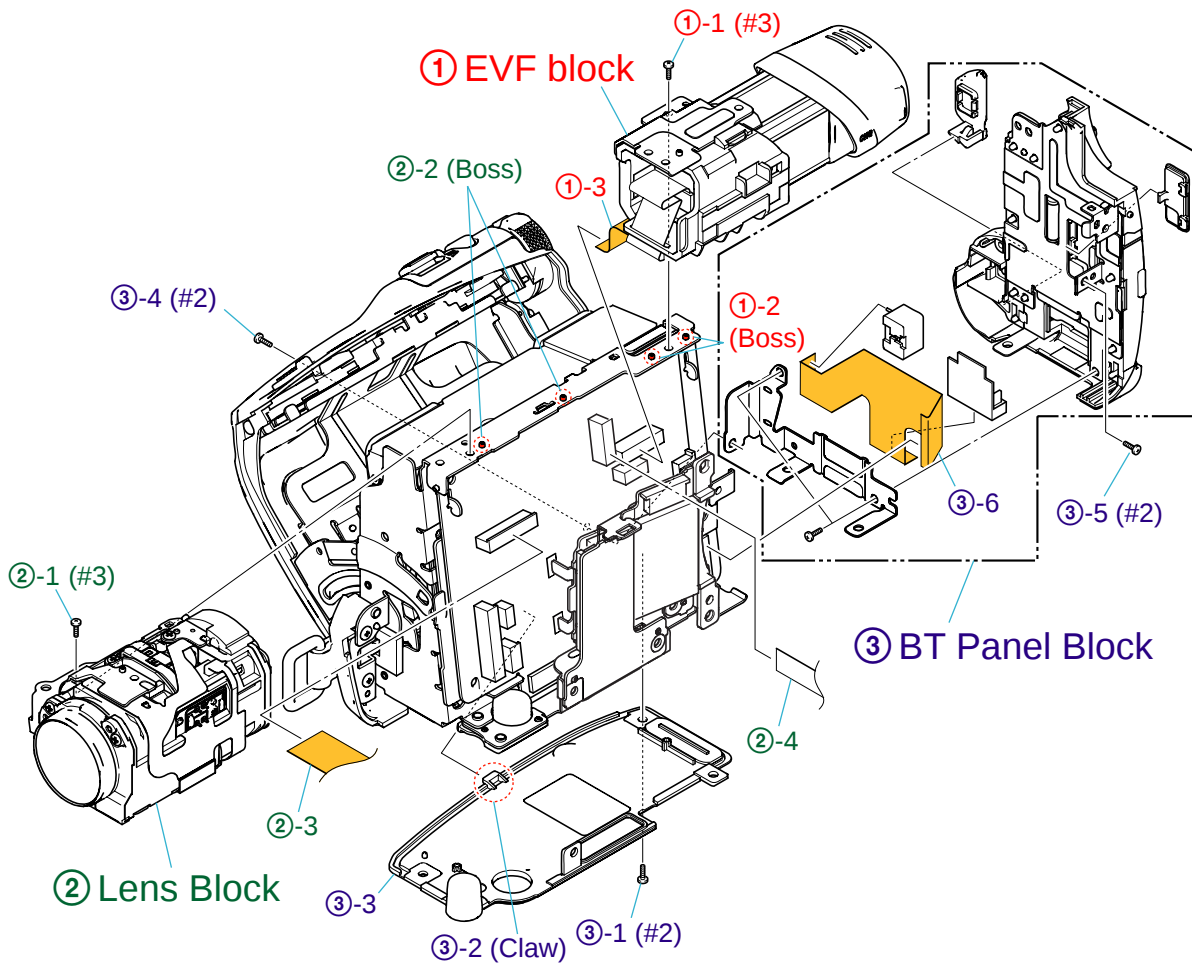
HARDWARE LIST

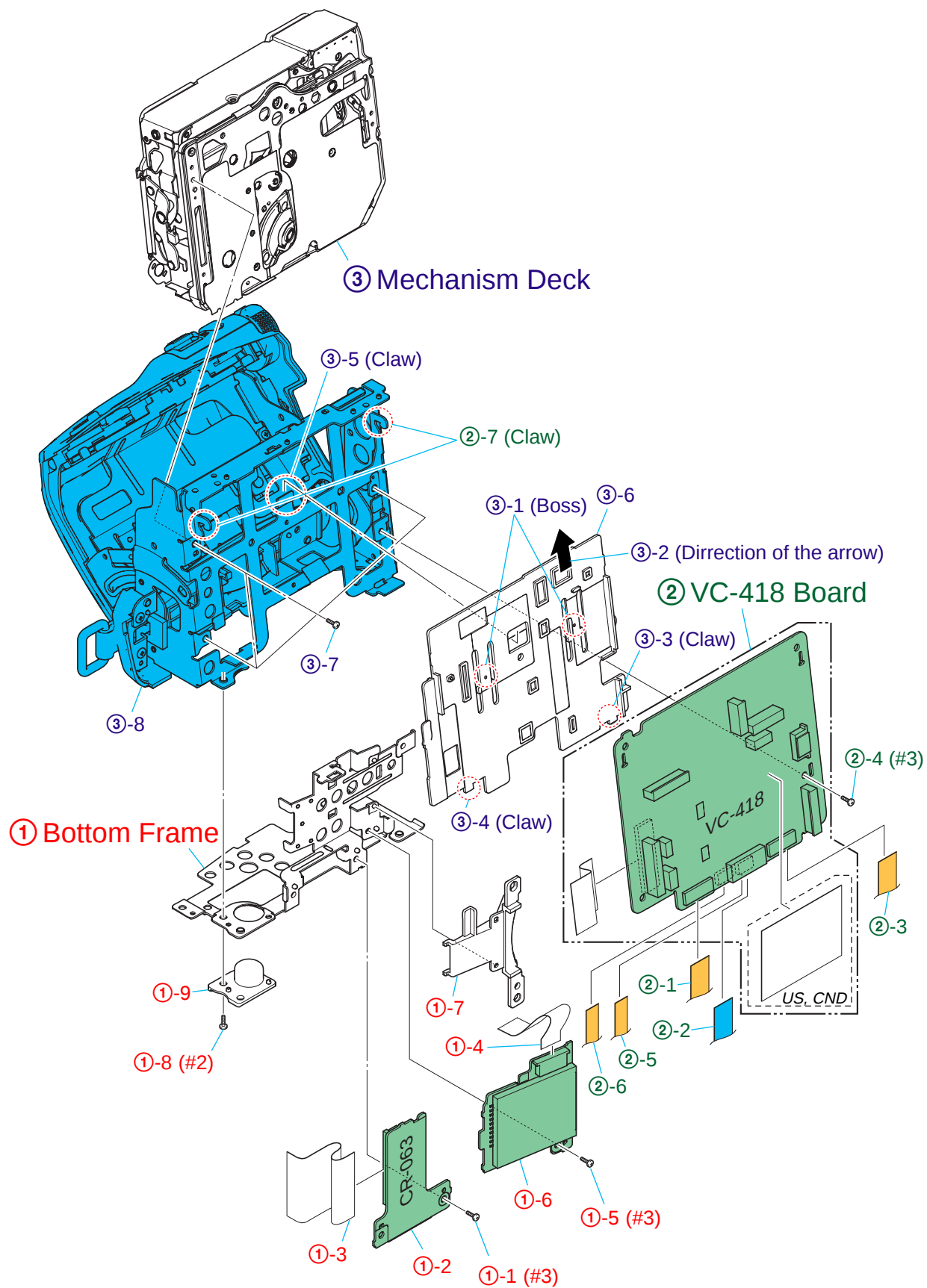


2-1-3. MAIN BLOCK-1

EXPLODED VIEW

HARDWARE LIST



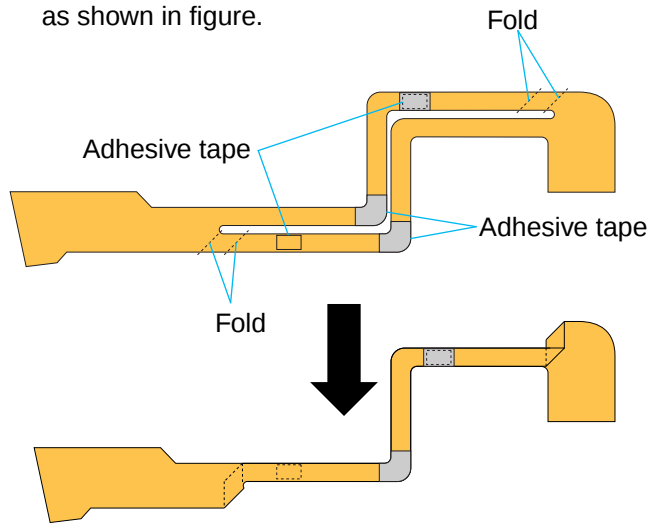


HELP

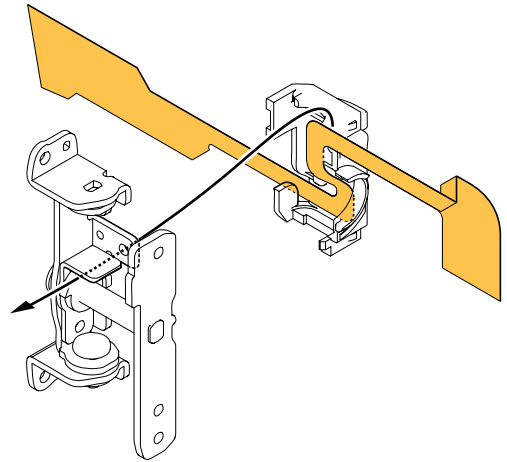
Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

THE METHOD OF ATTACHMENT OF FP-380 FLEXIBLE BOARD

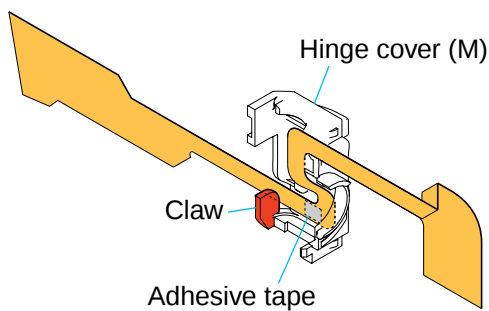
- ① Fold dotted line parts of the FP-380 flexible board as shown in figure.



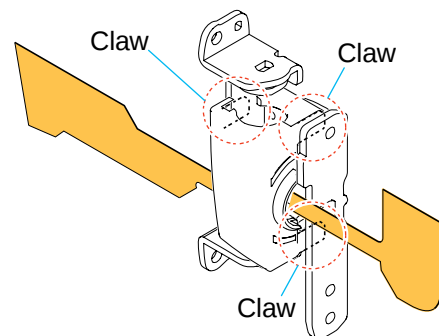
- ③ Roll the the FP-380 flexible board 90 degrees.



- ② Hang it on the claw after putting the FP-380 flexible board on the hinge cover (M).



- ④ Attach two hinge covers as shown in figure.



3. BLOCK DIAGRAMS

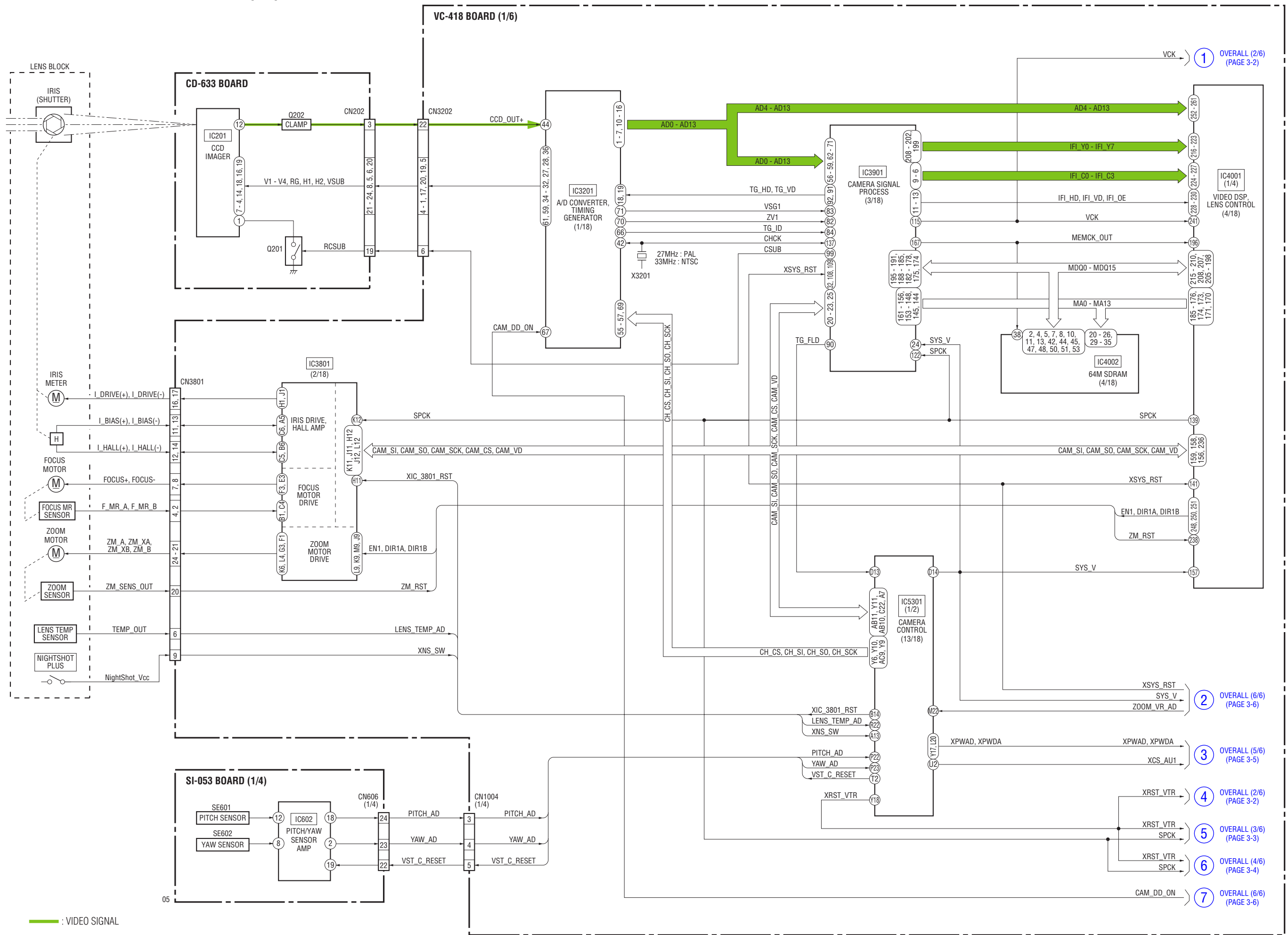
Link

● 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)	

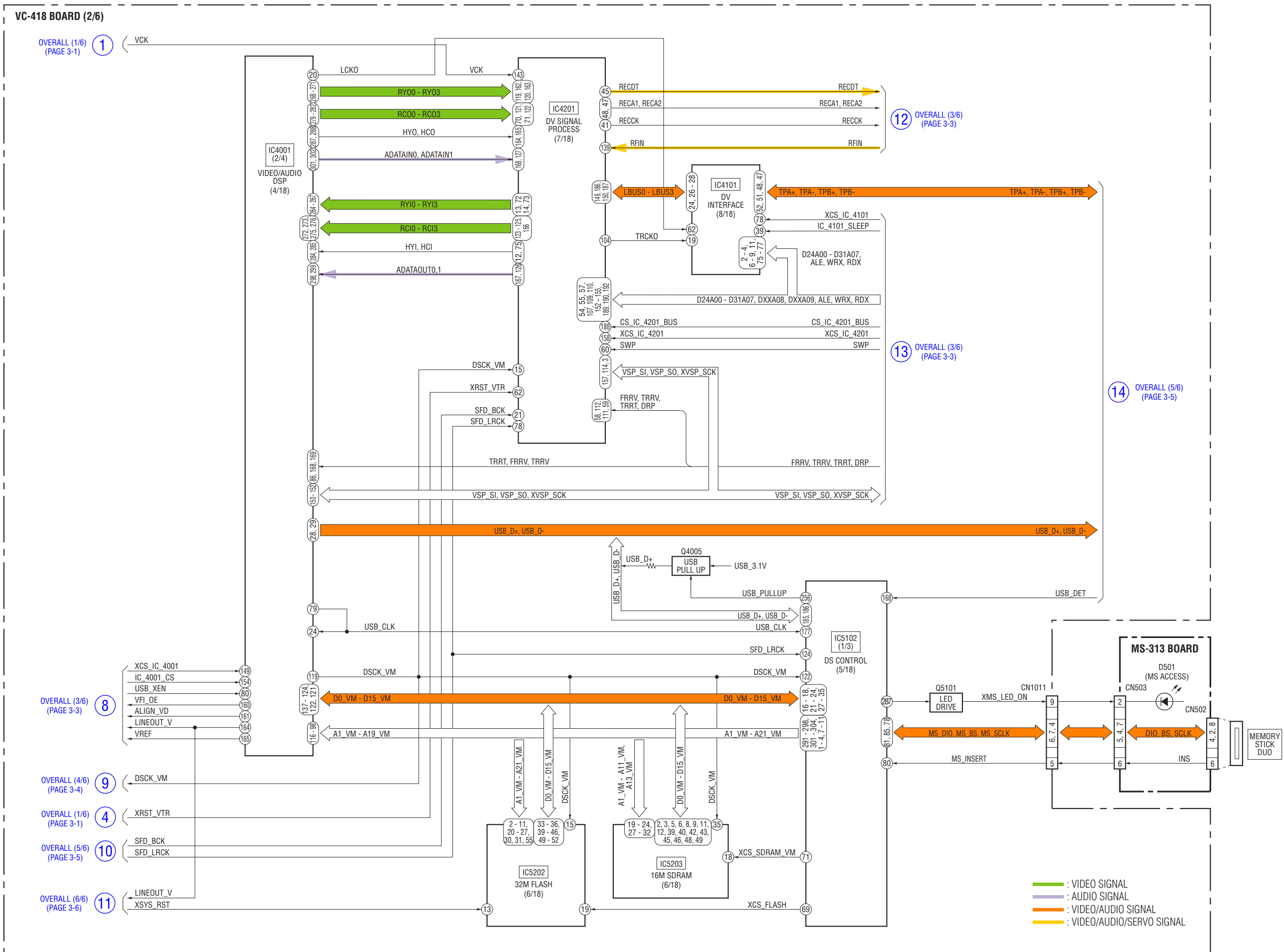
3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/6)

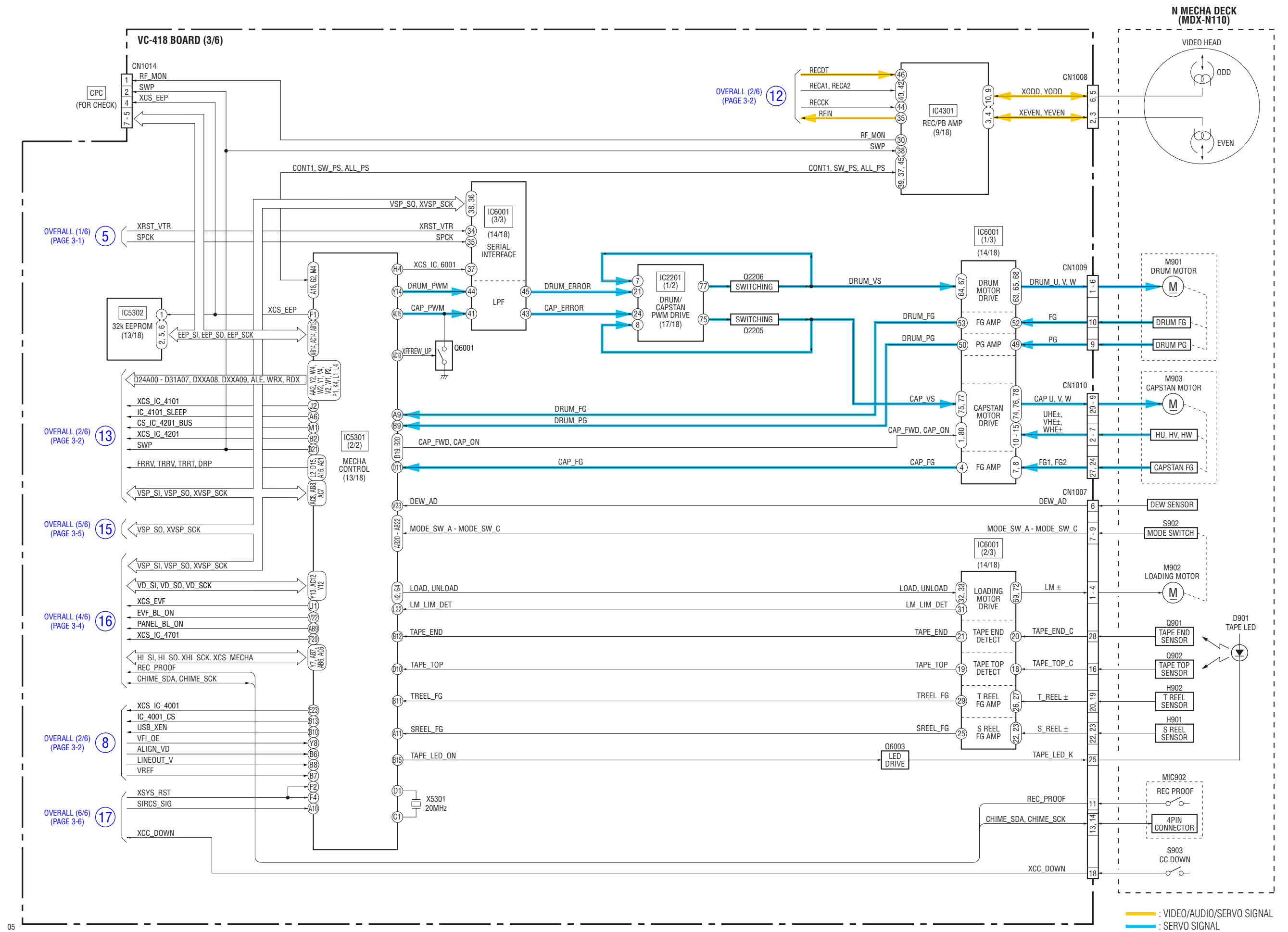
() : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



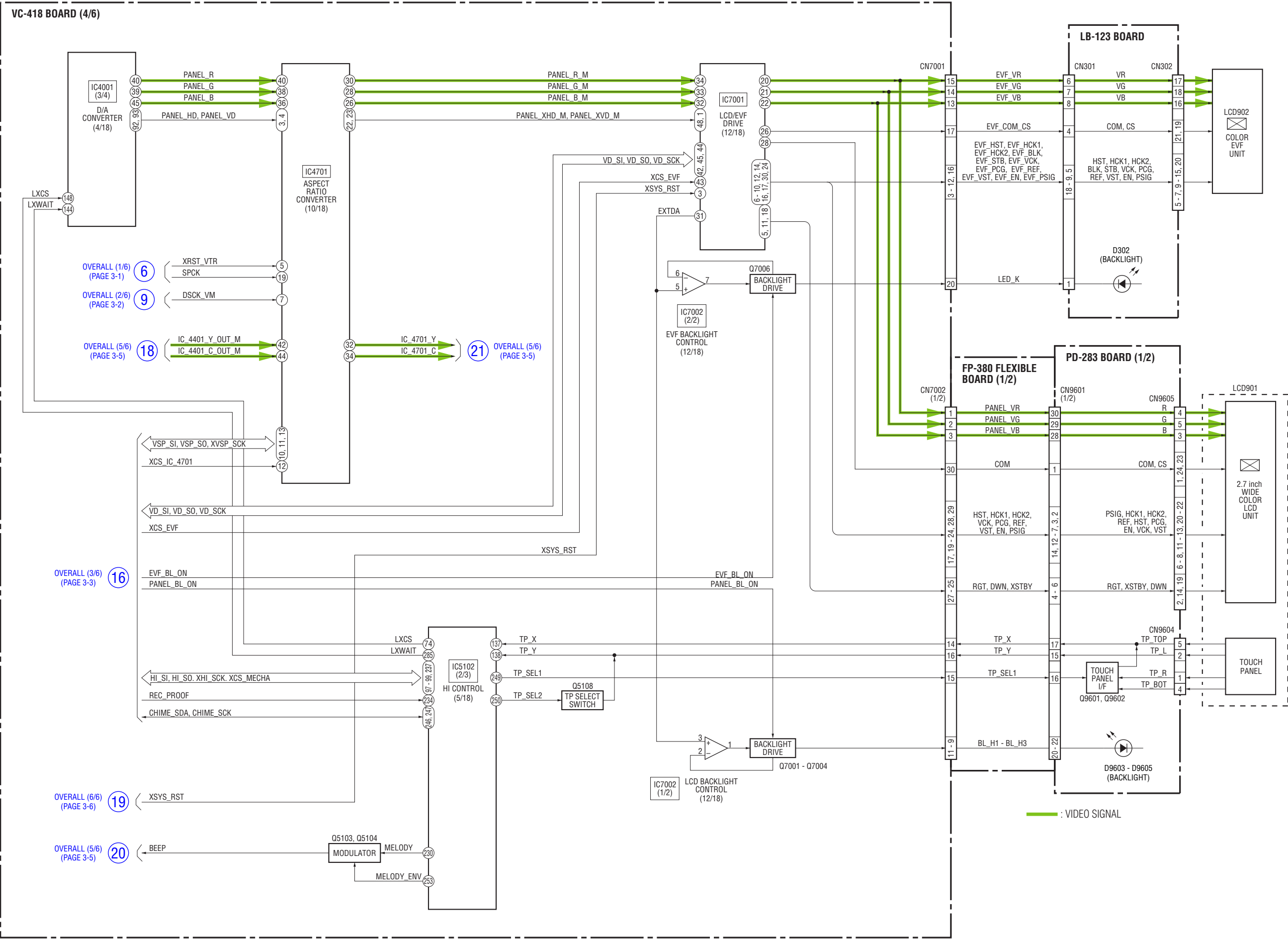
3-2. OVERALL BLOCK DIAGRAM (2/6)



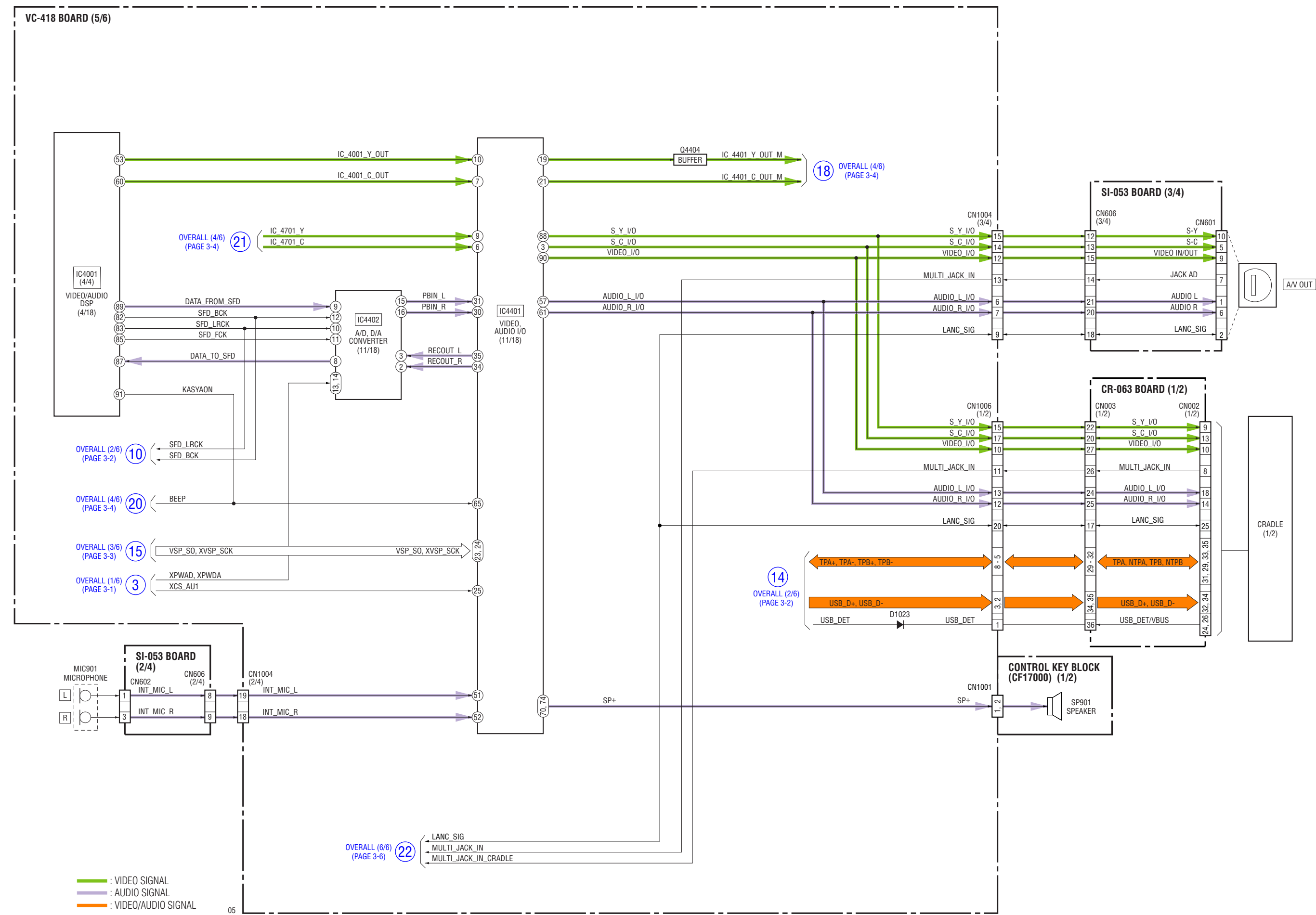
3-3. OVERALL BLOCK DIAGRAM (3/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



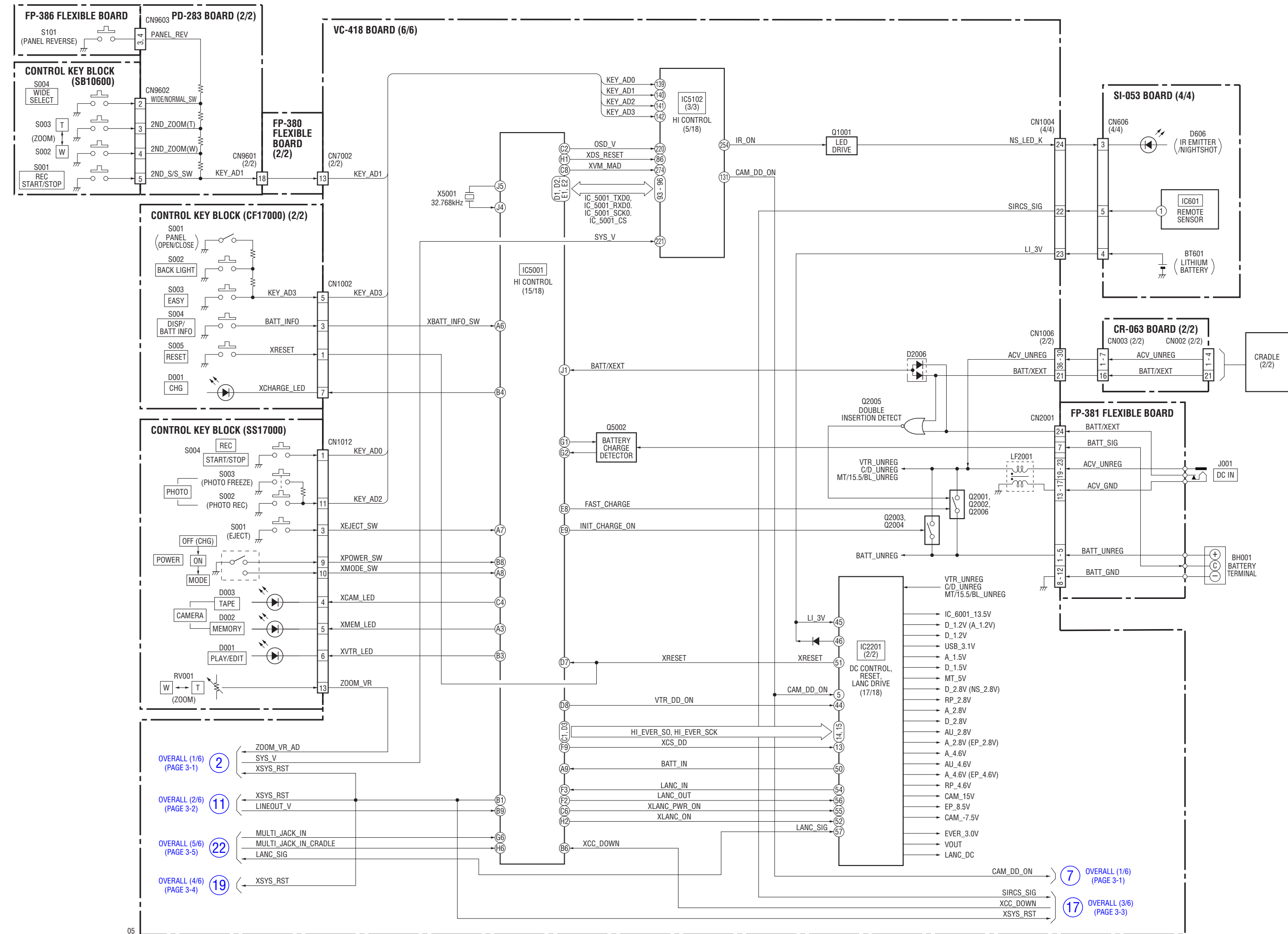
3-4. OVERALL BLOCK DIAGRAM (4/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



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

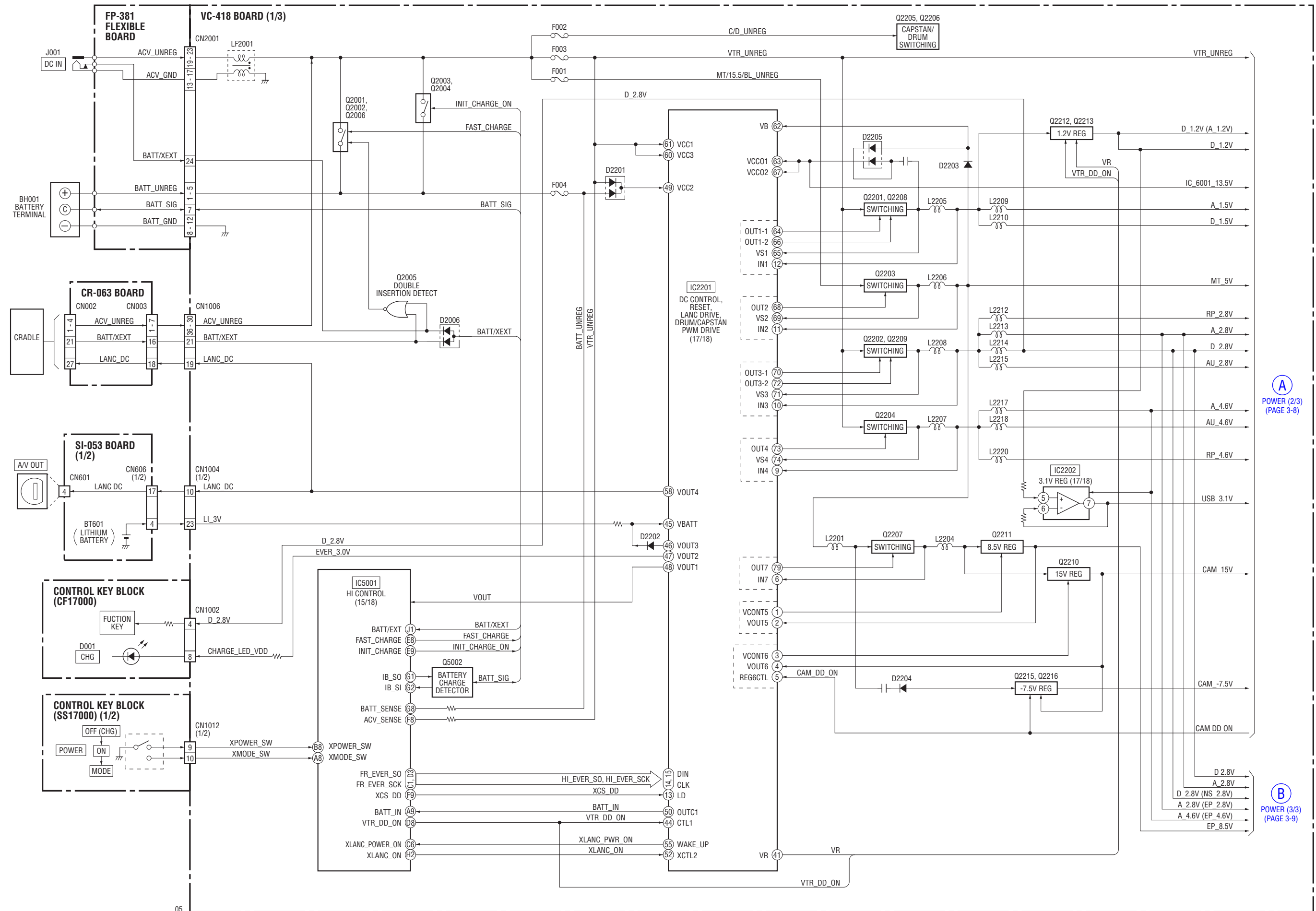


3-6. OVERALL BLOCK DIAGRAM (6/6) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



05

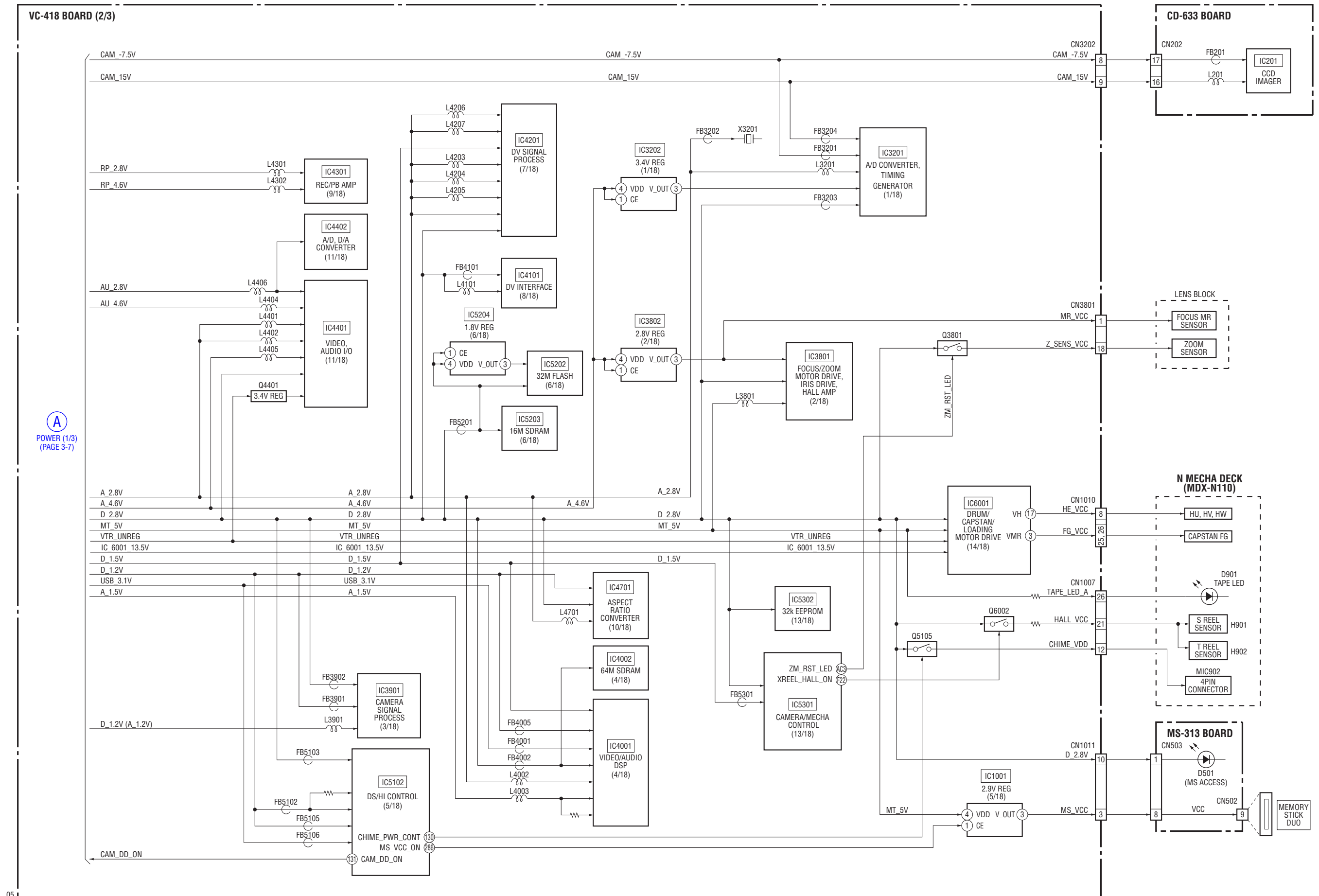
3-7. POWER BLOCK DIAGRAM (1/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



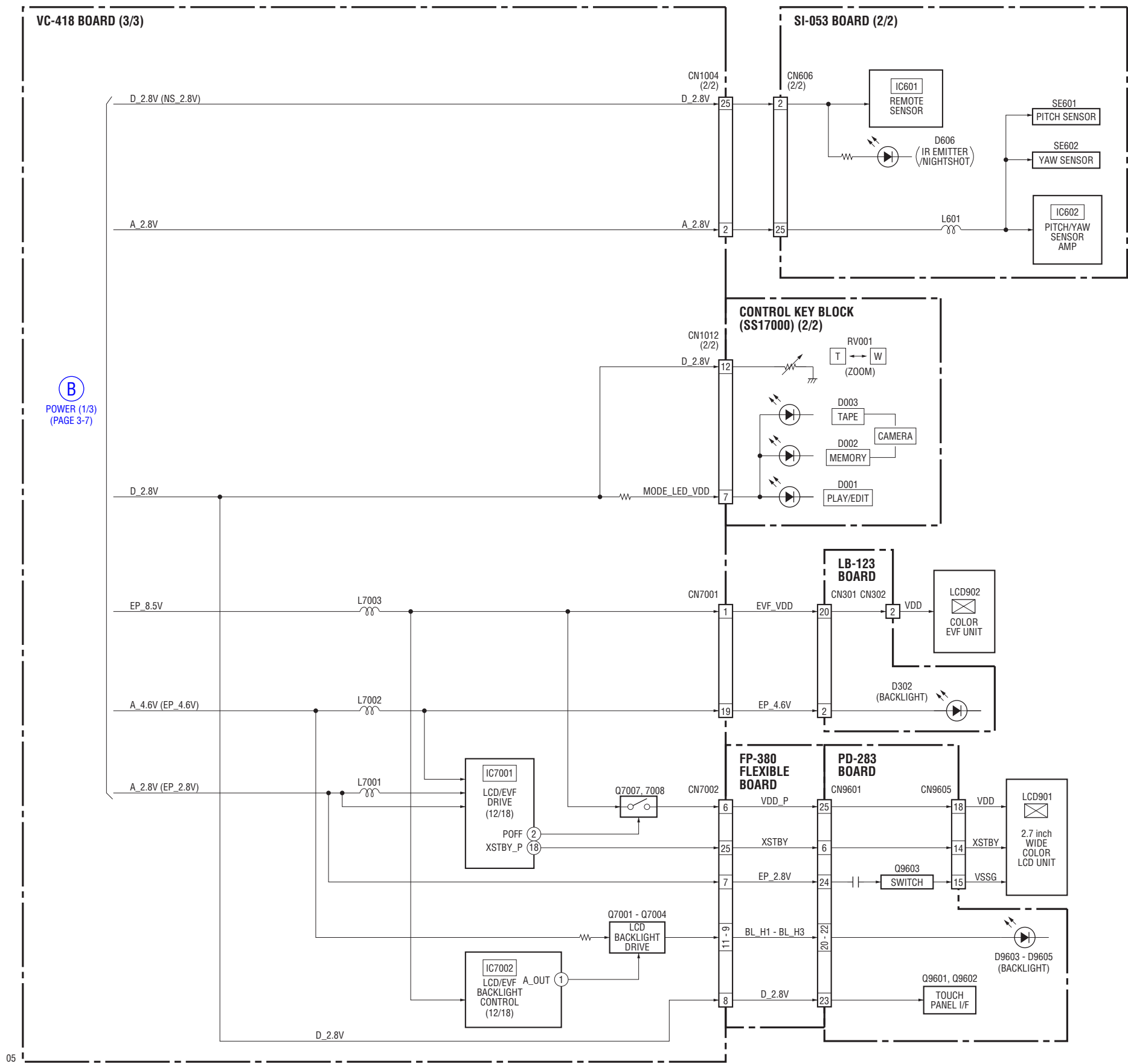
(A)
POWER (2/3)
(PAGE 3-8)

(B)
POWER (3/3)
(PAGE 3-9)

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

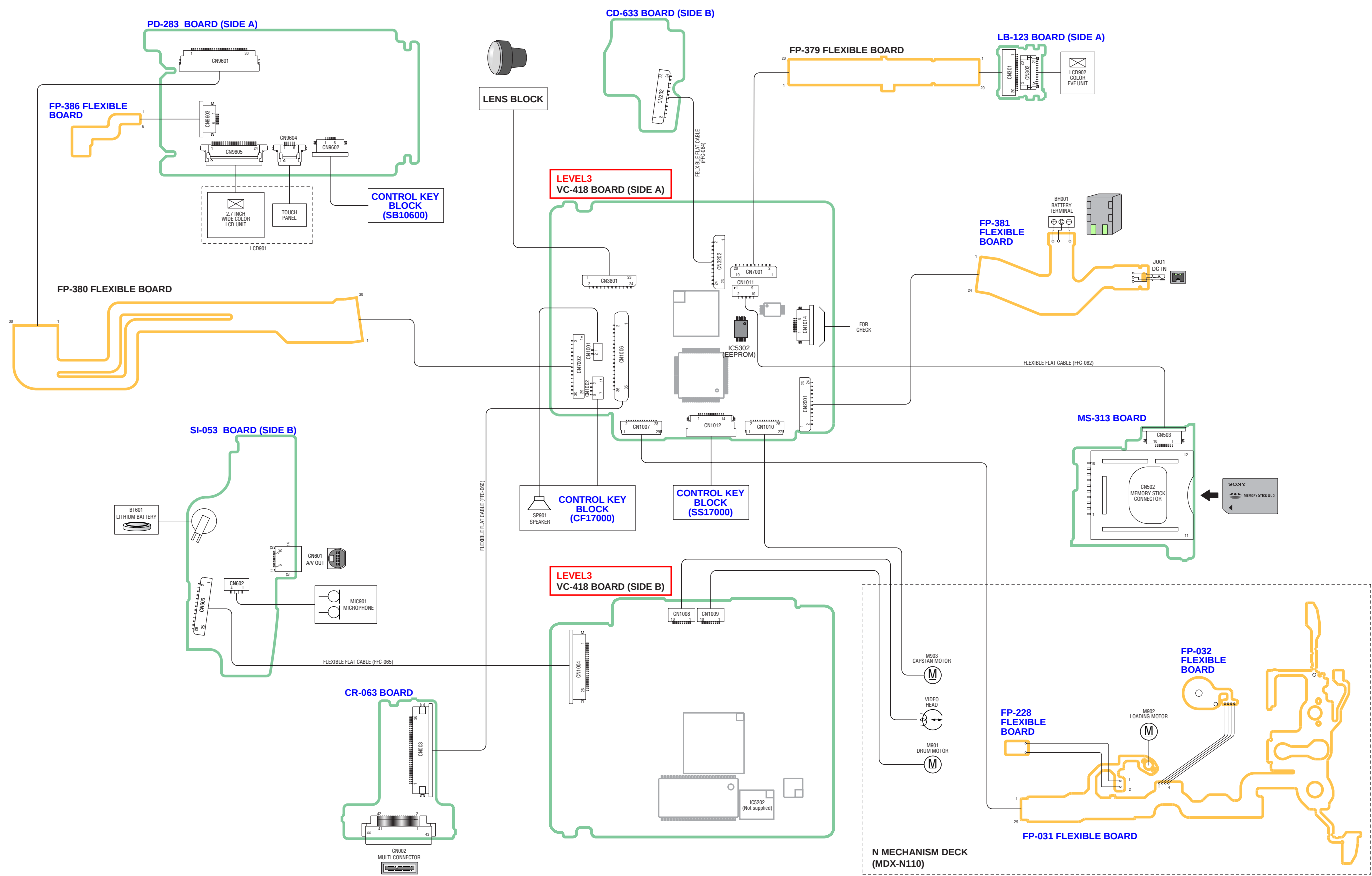


3-9. POWER BLOCK DIAGRAM (3/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. SCHEMATIC DIAGRAMS

Link

• CD-633 BOARD (CCD IMAGER)	• LB-123 BOARD (EVF, EVF BACKLIGHT)
• PD-283 BOARD (LCD, LCD BACKLIGHT)	• MS-313 BOARD (MS CONNECTOR)
• FP-380 FLEXIBLE BOARD	• FP-381 FLEXIBLE BOARD (DC IN)
• FP-386 FLEXIBLE BOARD (PANEL REVERSE DETECT)	• FP-031, FP-032, FP-228 FLEXIBLE BOARD
• CONTROL KEY BLOCK (SB10600)	• CONTROL KEY BLOCK (CF17000)
• CR-063 BOARD (CRADLE TERMINAL)	• CONTROL KEY BLOCK (SS17000)
• SI-053 BOARD (PITCH/YAW SENSOR, AV CONNECTOR)	

• 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. $\text{pF} : \mu\text{F} : 50\text{ V}$ or less are not indicated except for electrolytics and tantalums.
- Chip resistors are $1/10\text{ W}$ 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
	TA	A
Kinds of capacitor	External dimensions (mm)	Case size

- 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 → EDIT PB/XREC → PB/REC
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : not use circuit

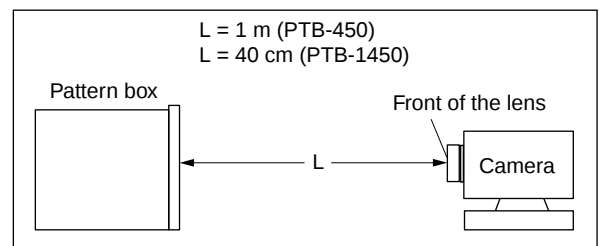
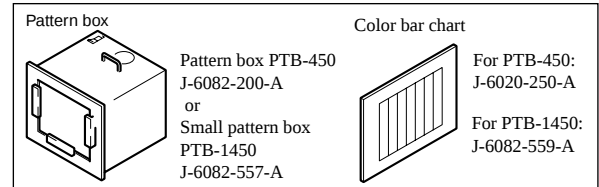
(Measuring conditions voltage and waveform)

- 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 $10\text{ M}\Omega$ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Precautions for Replacement of Imager

- If the imager has been replaced, carry out all the adjustments for the camera section.
- As the 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.

1. Connection



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

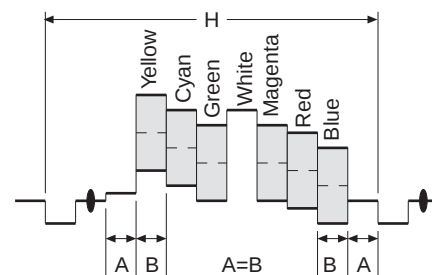


Fig. a (Video output terminal output waveform)

Electronic beam scanning frame

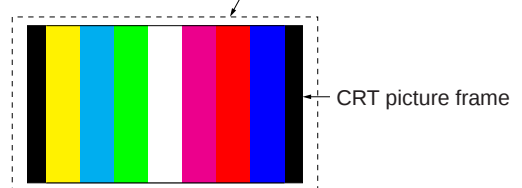


Fig.b (Picture on monitor TV)

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.

CD-633 BOARD

CCD IMAGER

XX MARK:NO MOUNT

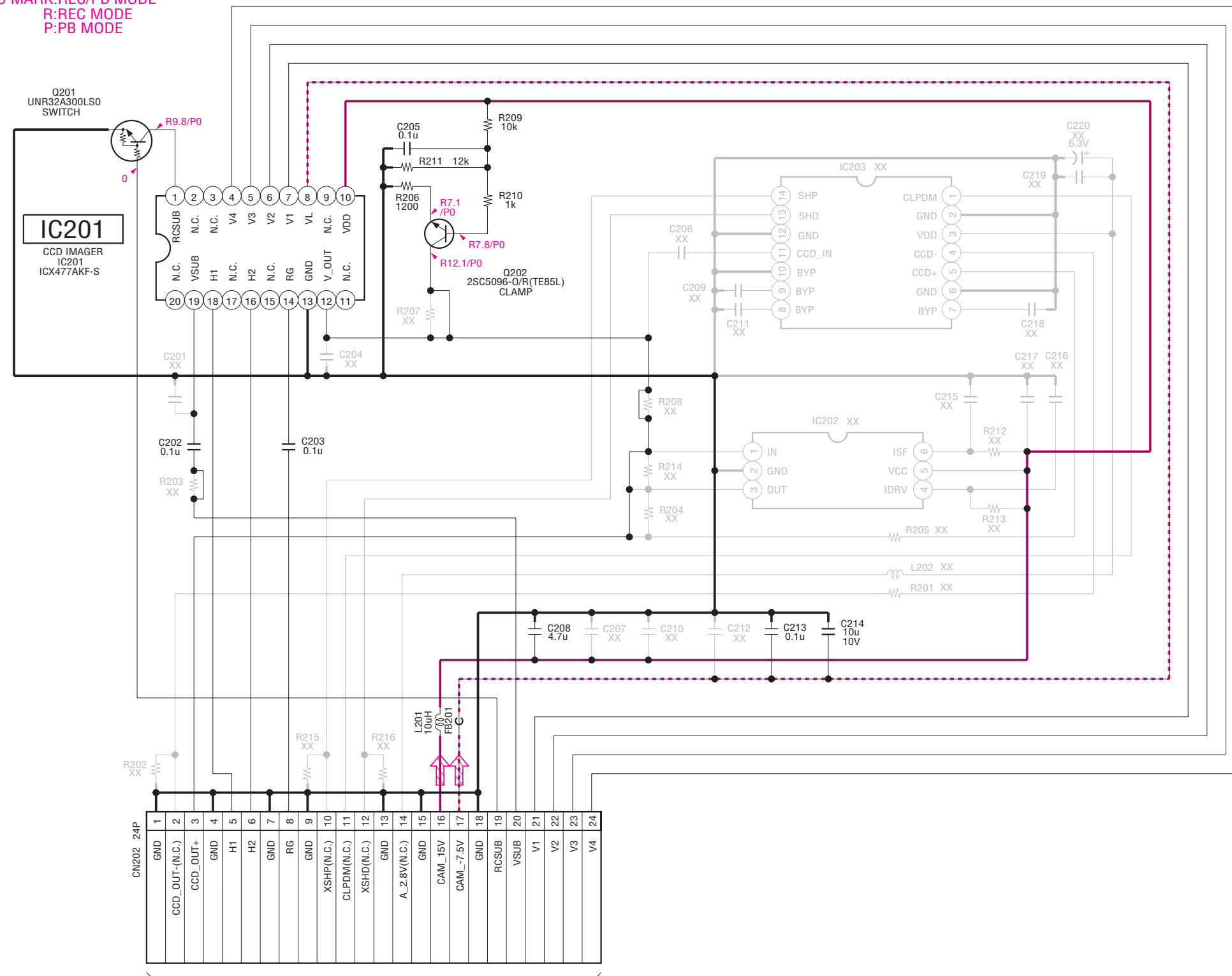
NO MARK:REC/PB MODE

R:REC MODE

P:PB MODE

Note: IC201 is not supplied, but this is included in CCD block assy.

Note: Voltages of IC201 can not be measured, because this is mounted by the side of the lens.

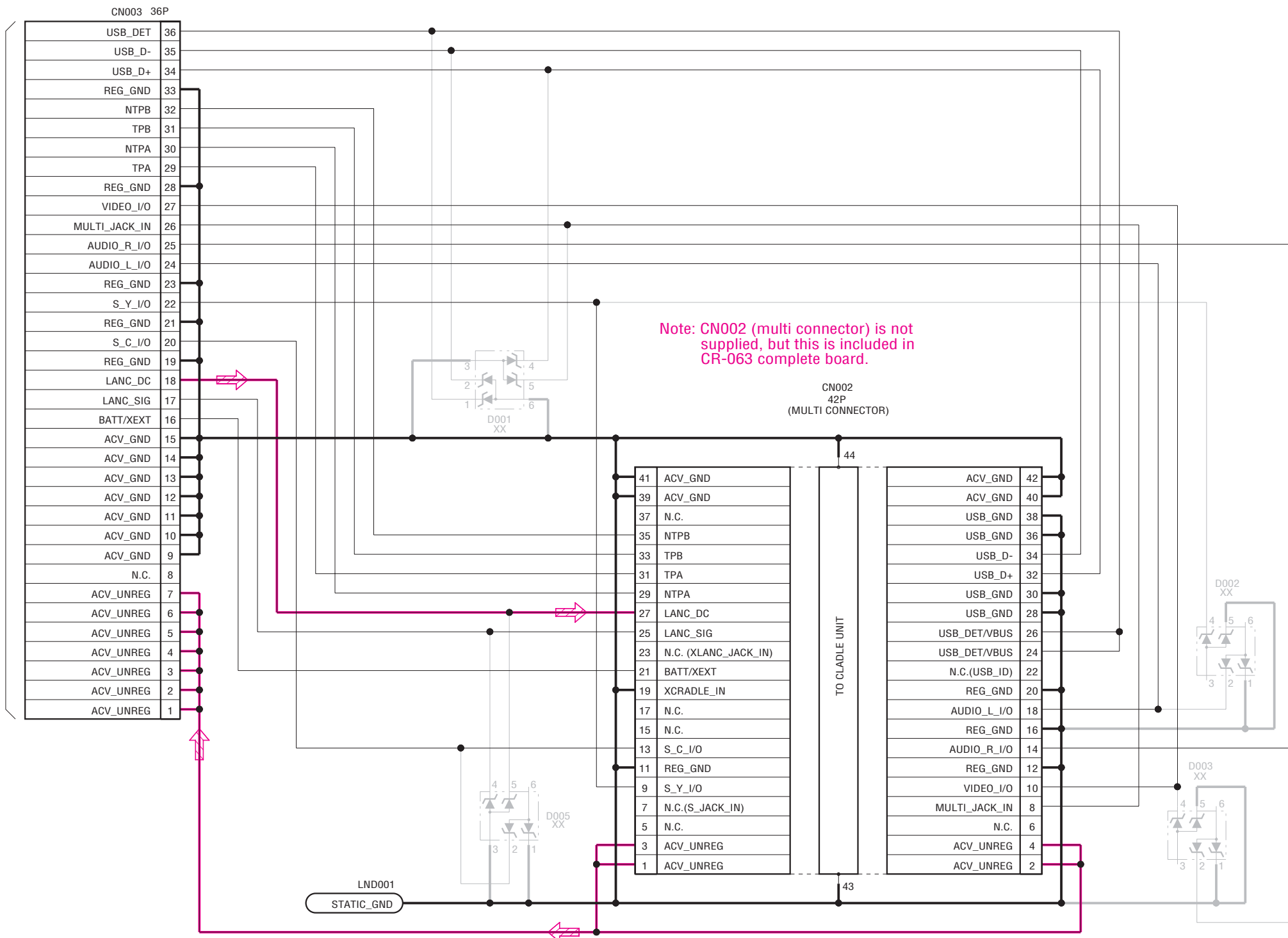


VC-418
(1/18)
CN3202
(THROUGH THE
FLEXIBLE FLAT CABLE
(FFC-064)
(PAGE 4-6
of LEVEL3)

Schematic diagrams of the VC-418 board are not shown.
Pages from 4-6 to 4-23 are not shown.

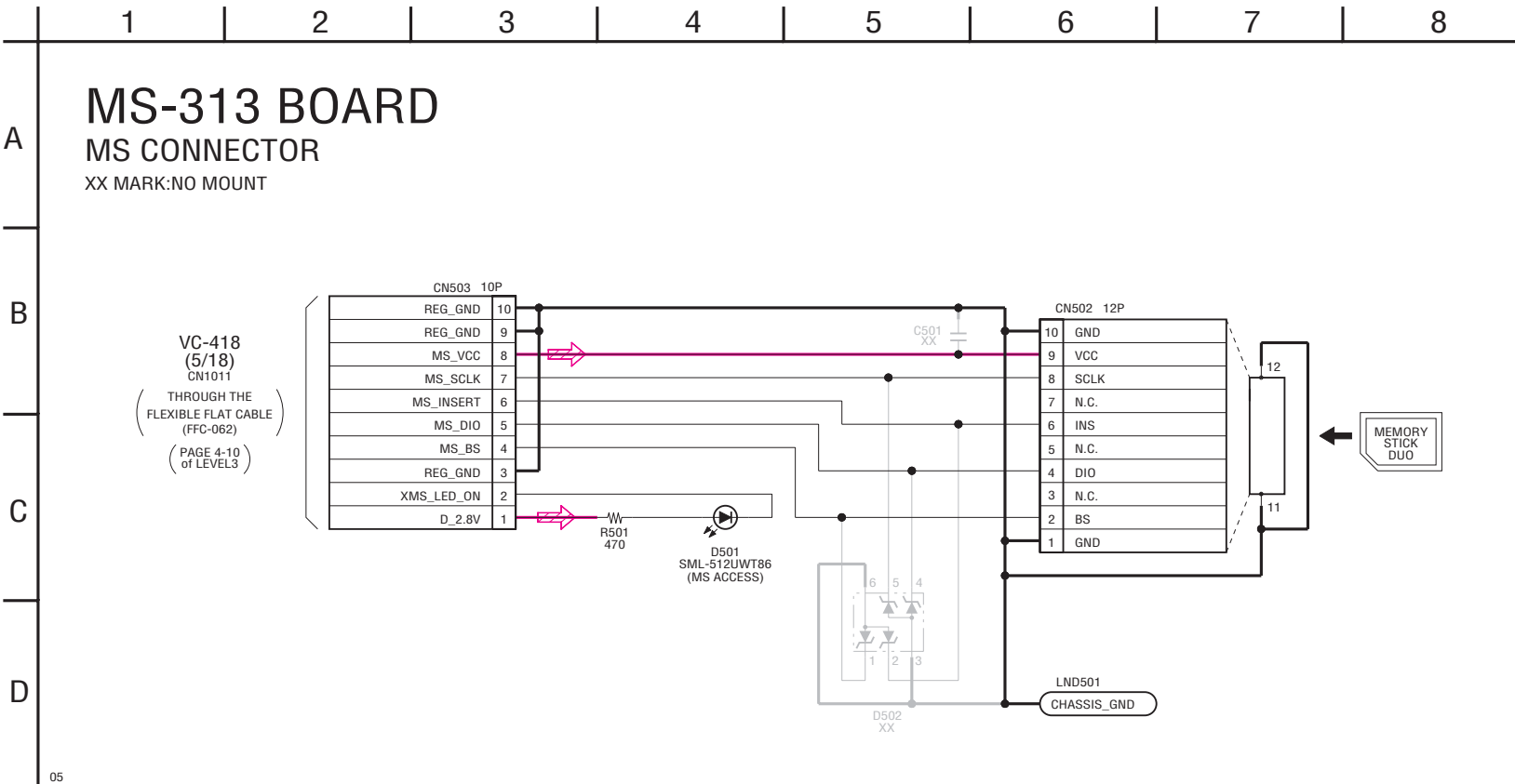
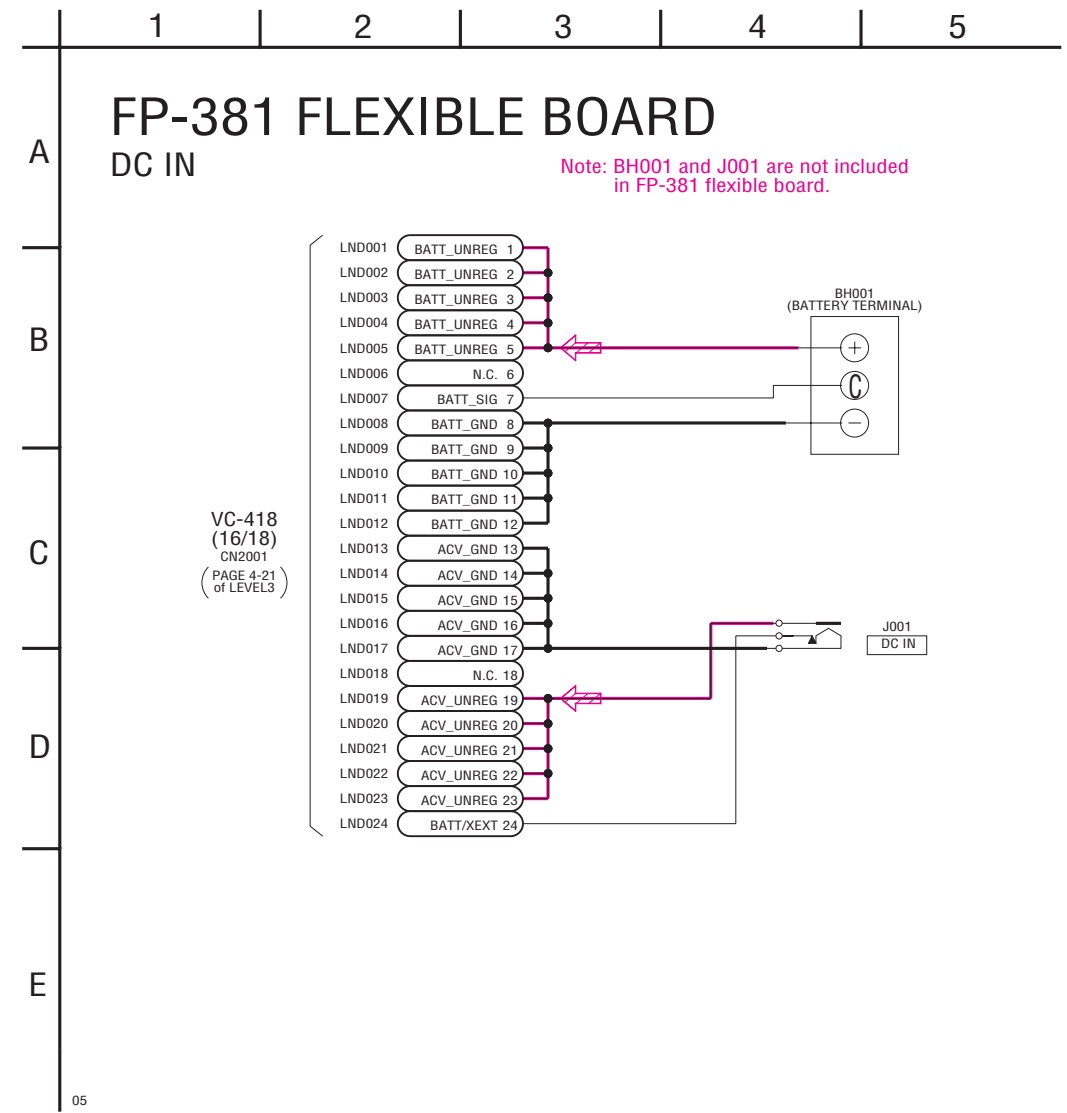
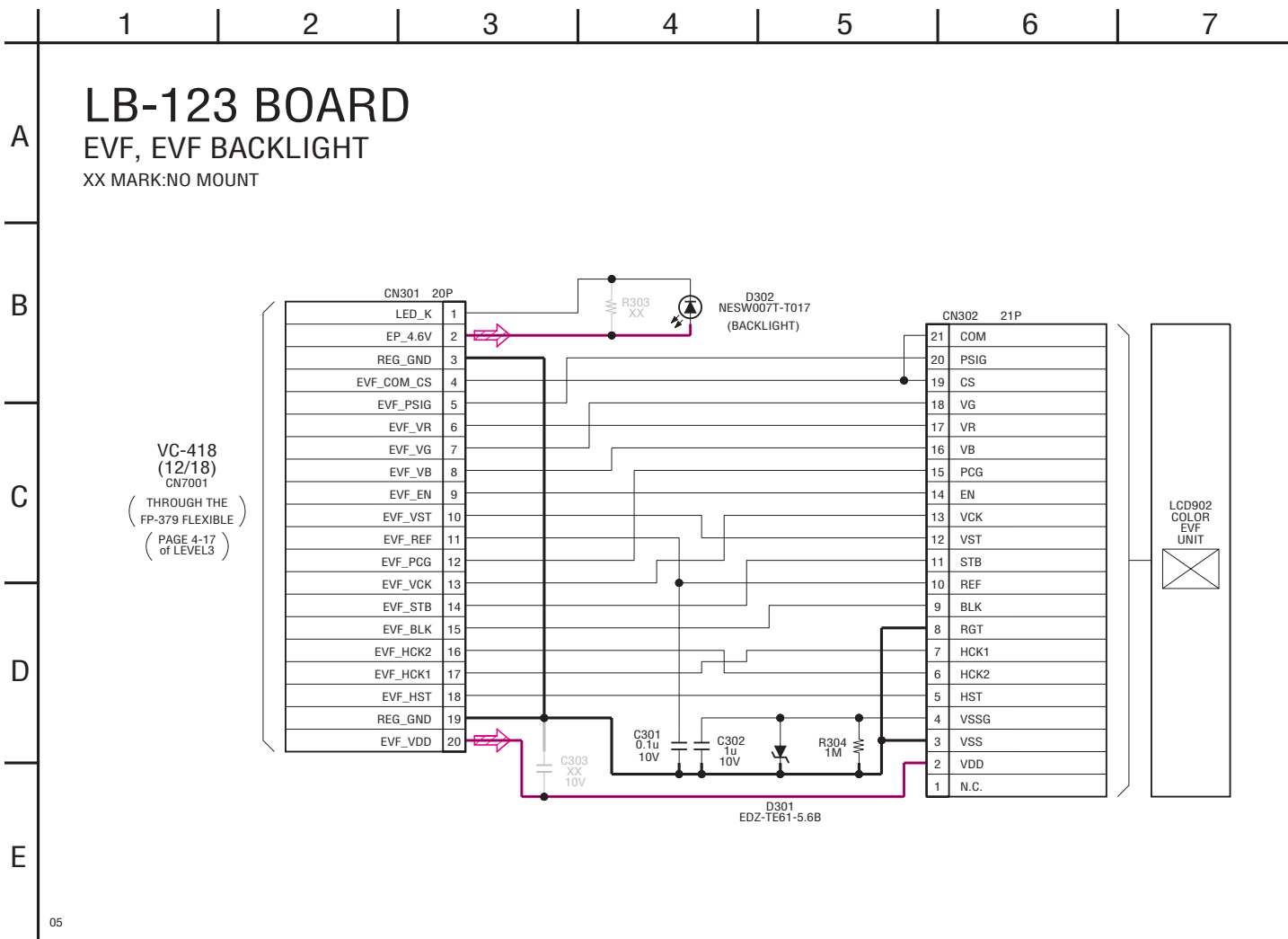


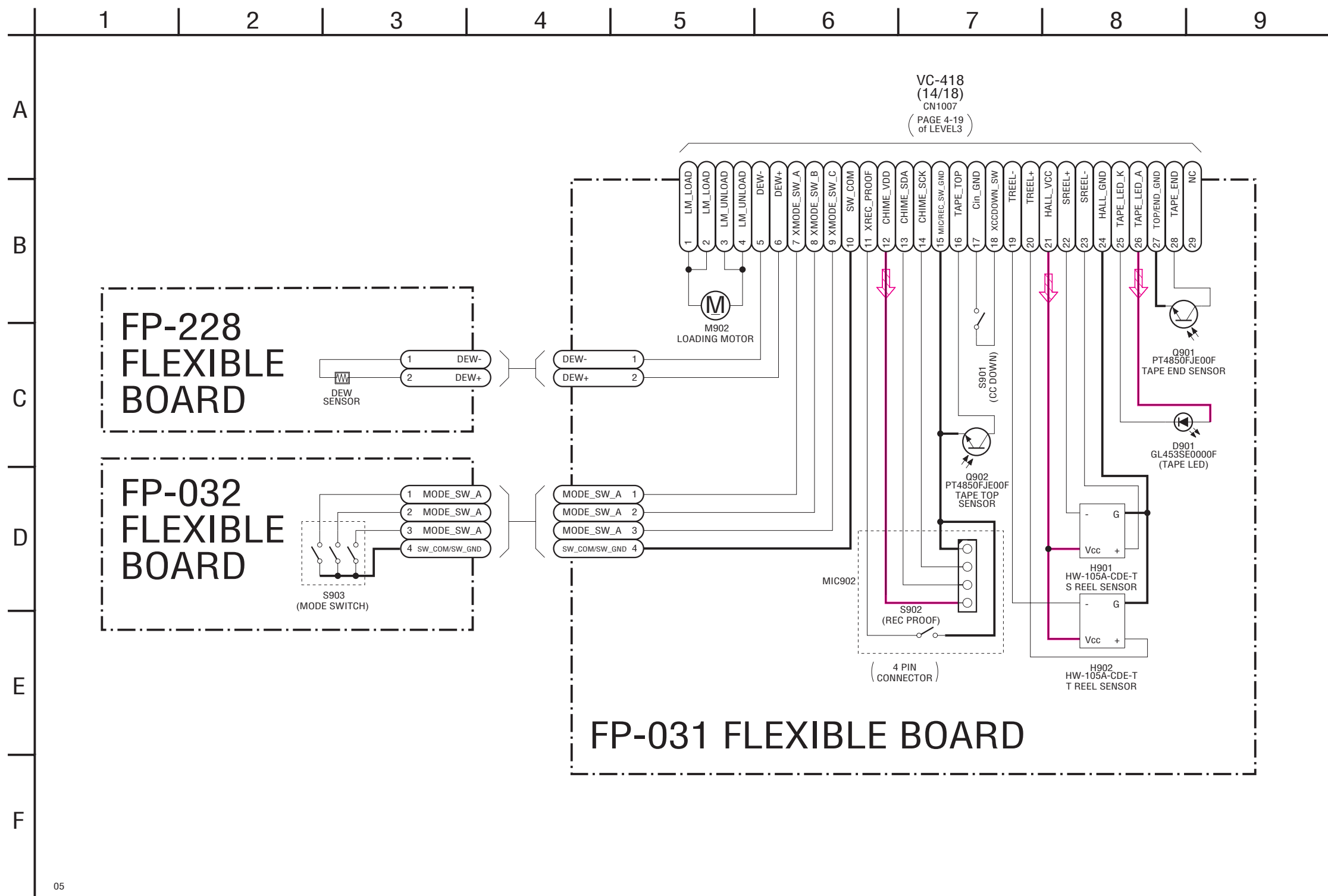
XX MARK:NO MOUNT

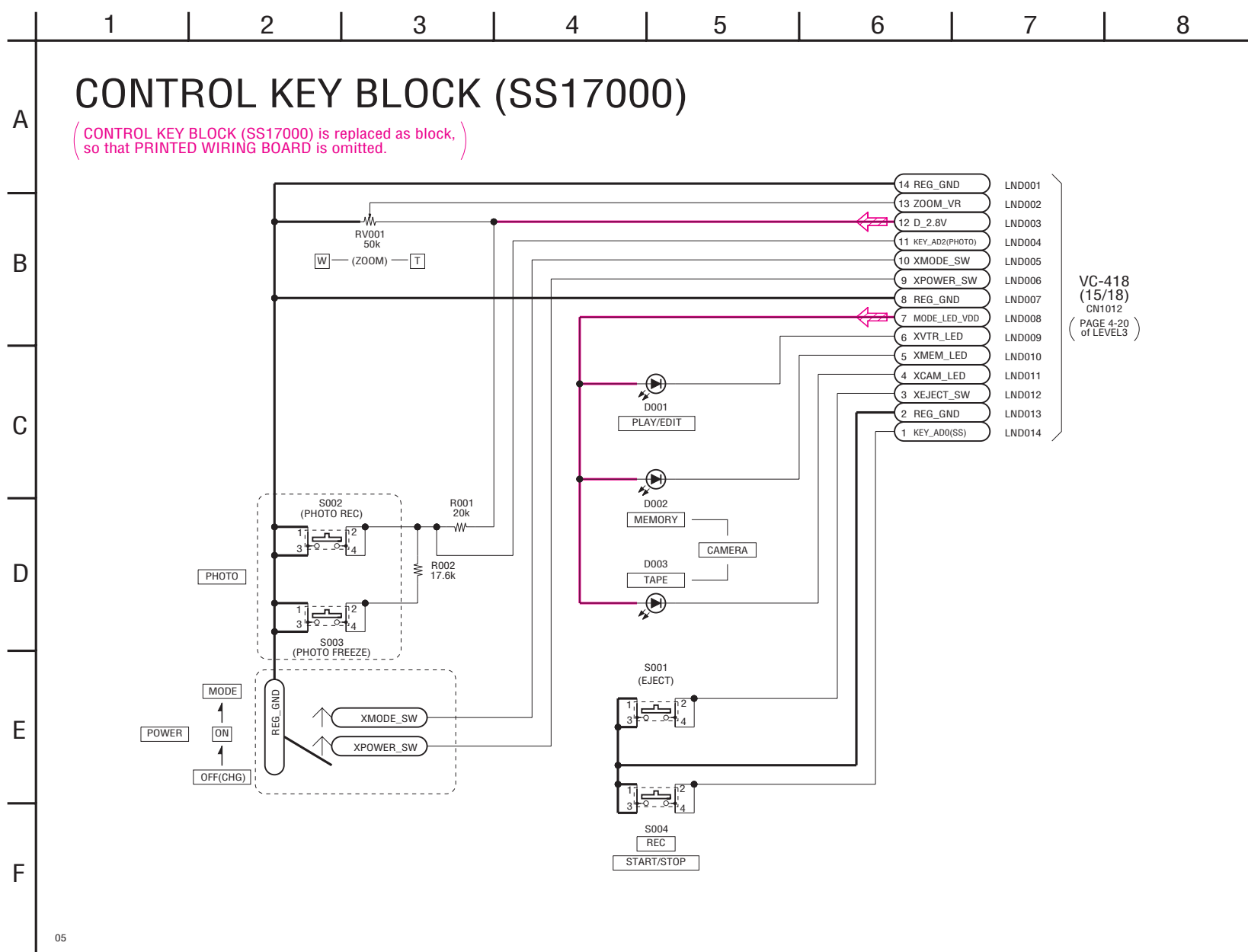
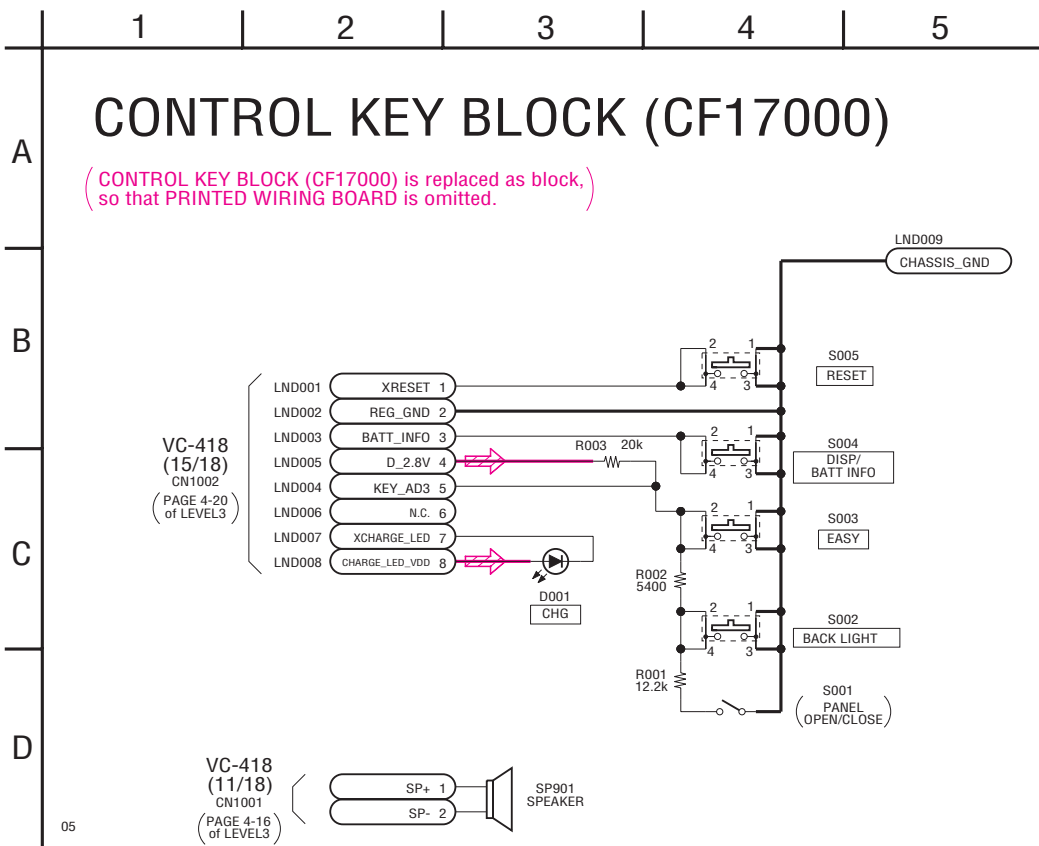


A vertical scale with seven horizontal tick marks. The labels A, B, C, D, E, F, and G are positioned to the left of the scale, aligned with each tick mark from top to bottom.









4-3. PRINTED WIRING BOARDS

Link

• CD-633 BOARD	• SI-053 BOARD
• PD-283 BOARD (SIDE A)	• LB-123 BOARD
• PD-283 BOARD (SIDE B)	• MS-313 BOARD
• FP-386 FLEXIBLE BOARD	• FP-381 FLEXIBLE BOARD
• CR-063 BOARD	• FP-031, FP-032, FP-228 FLEXIBLE BOARD

• COMMON NOTE FOR PRINTED WIRING BOARDS	• MOUNTED PARTS LOCATION
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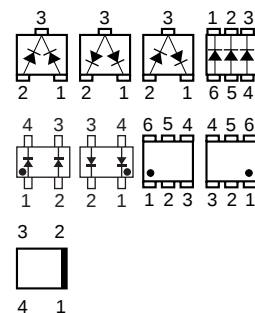
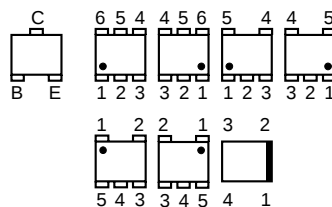
4-3. PRINTED WIRING BOARDS

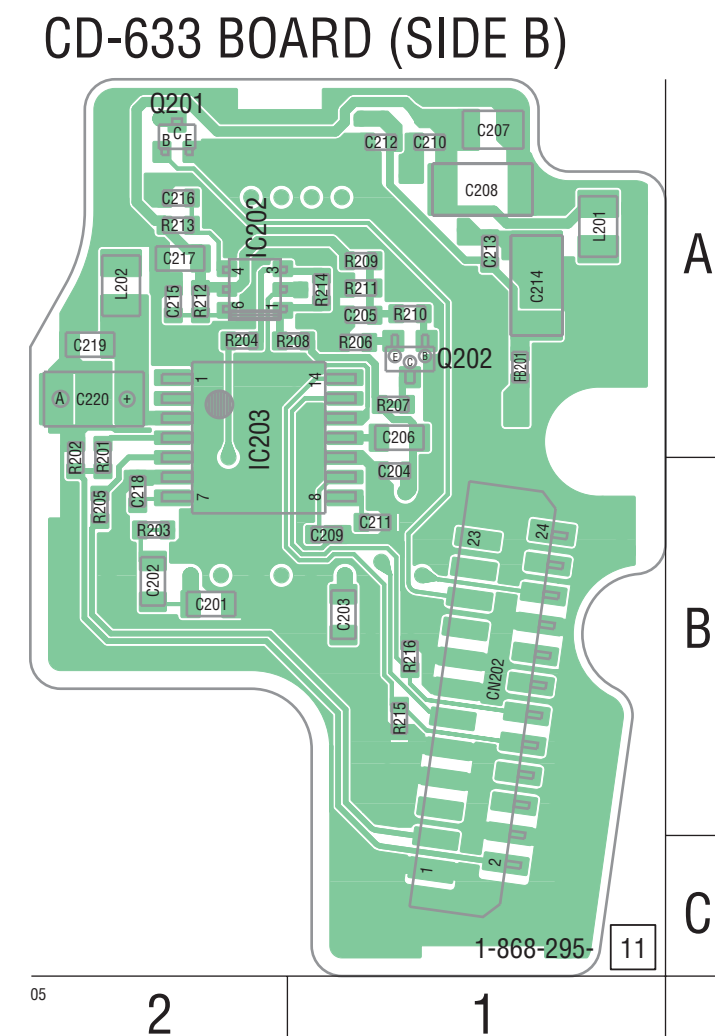
4-3. PRINTED WIRING BOARDS

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.
 - There are a few cases that the part printed on diagram isn't mounted in this model.
 -  : panel designation

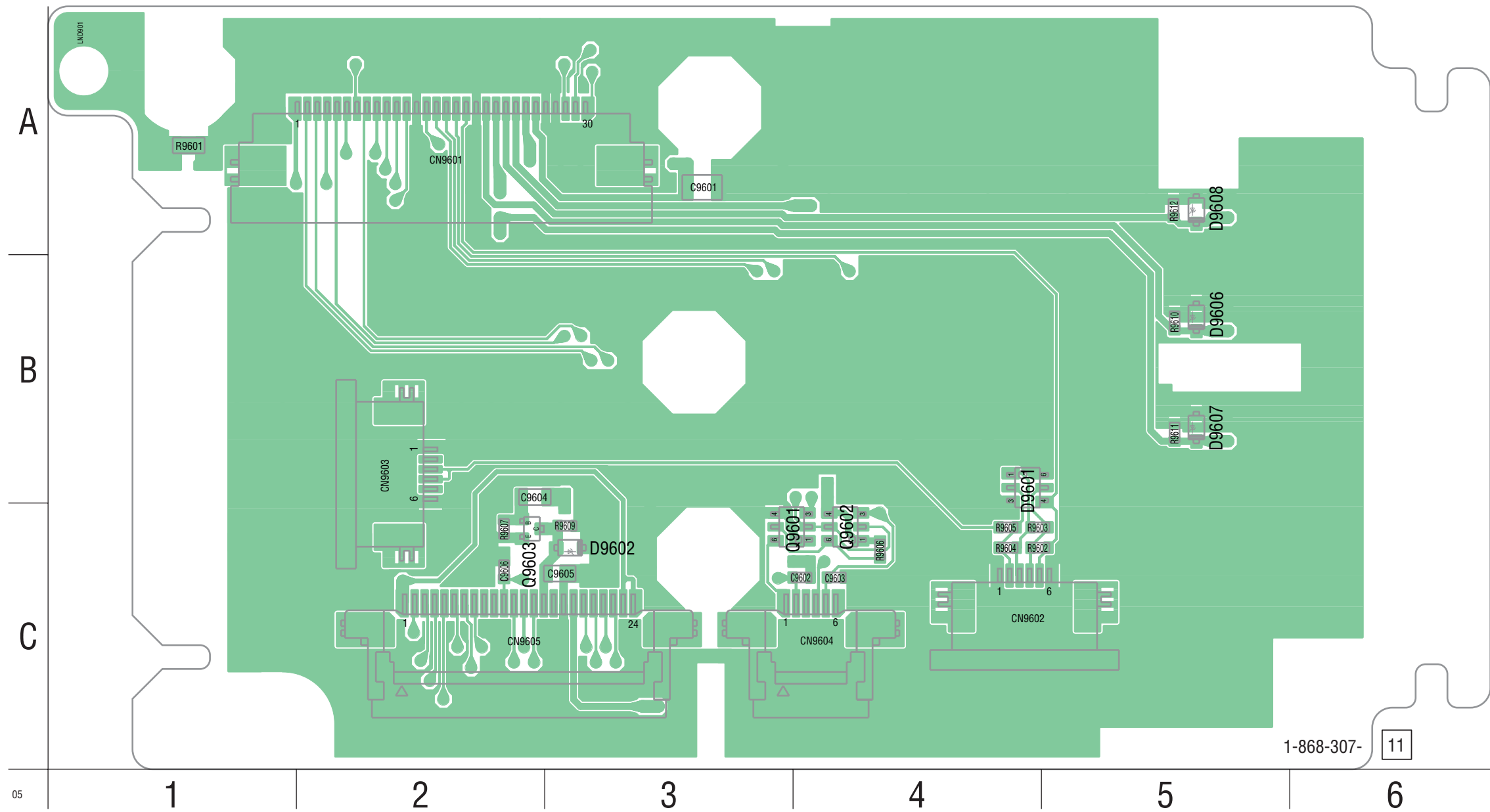
- Chip parts.
Transistor



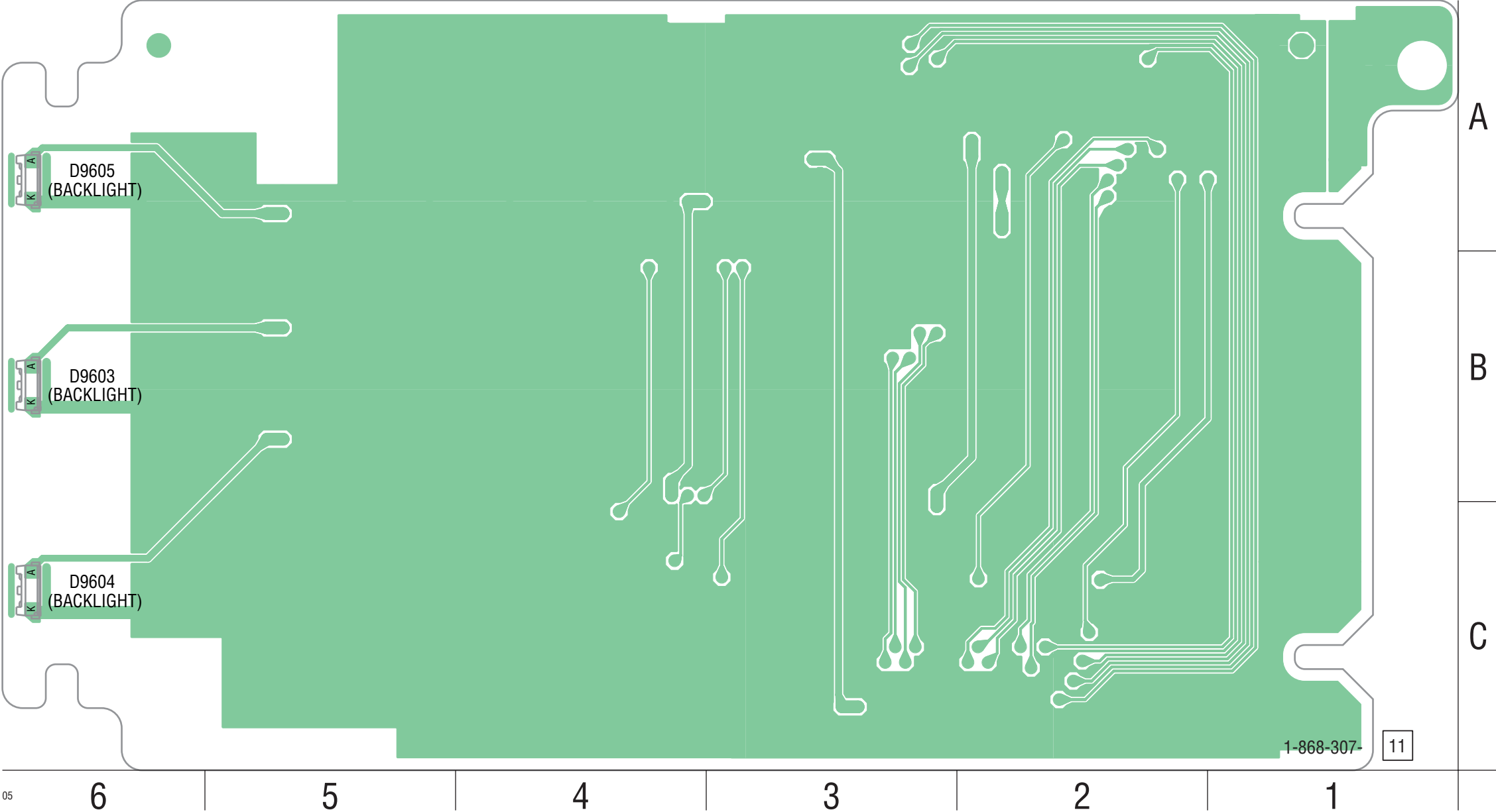


Printed wiring boards of the VC-418 board are not shown.
Pages from 4-34 to 4-35 are not shown.

PD-283 BOARD (SIDE A)



PD-283 BOARD (SIDE B)



LF : Uses unleaded solder.

Diagram of the back of the S101 panel. The panel is labeled "S101 (PANEL REVERSE)". It features a connector labeled "FP-386" with a "1" in a circle. Below the connector is a label ">PI< ▲ ◆ FX". To the right, there are three labels: "LND103", "LND104", and "LND105". At the bottom left, there is a label "1-867-795-". At the bottom right, there is a label "11".

DCR-HC44E/HC46/HC46E_L2

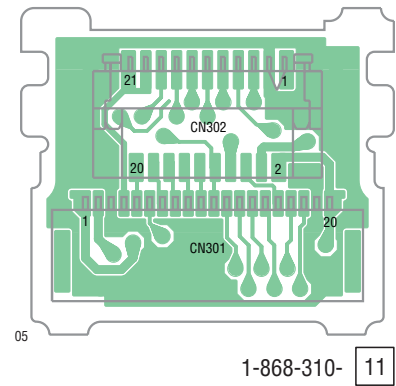
BT601 BATTERY, M SECONDARY

1-868-302-11

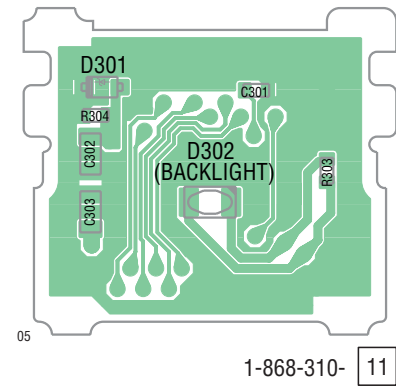
FP-386, CR-063, SI-053

 : Uses unleaded solder.

LB-123 BOARD (SIDE A)

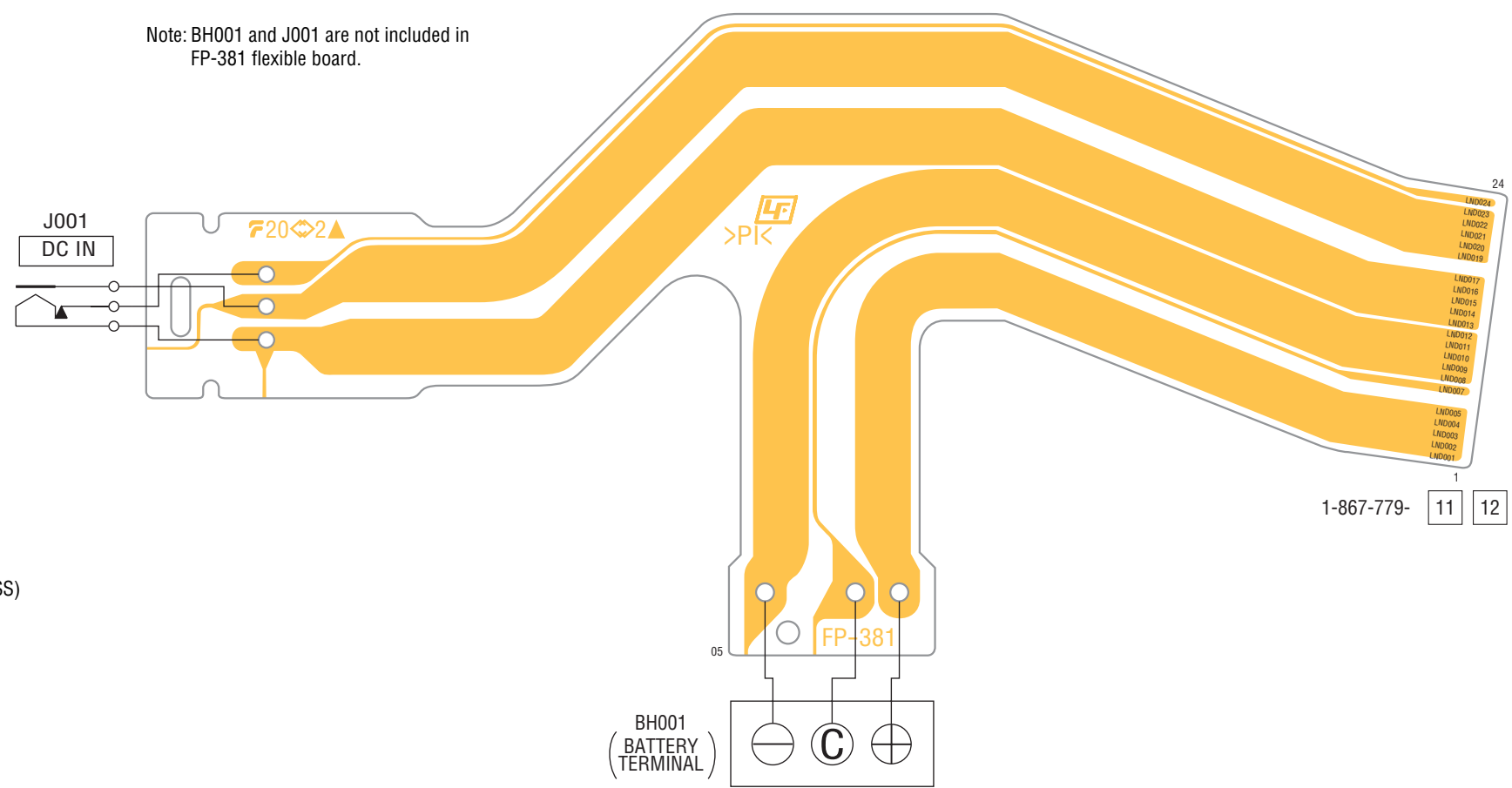


LB-123 BOARD (SIDE B)

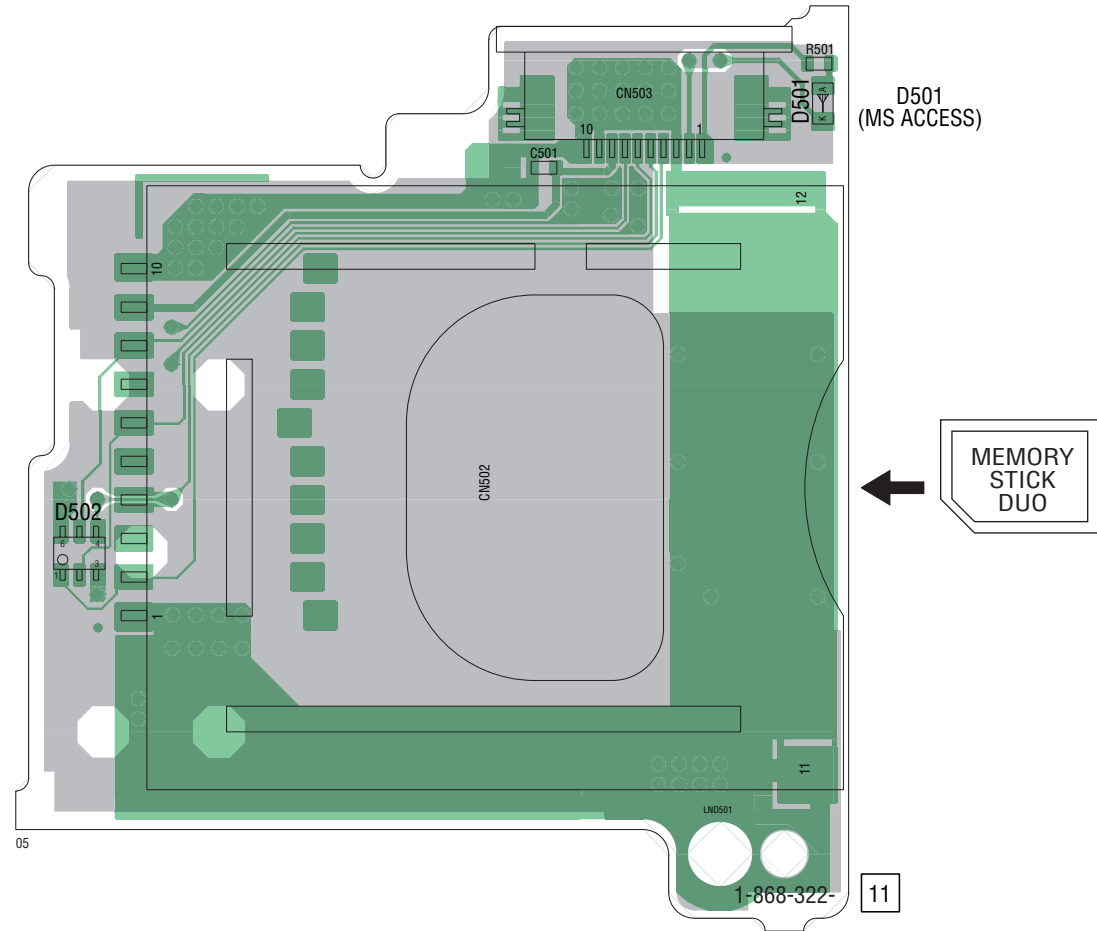


FP-381 FLEXIBLE BOARD

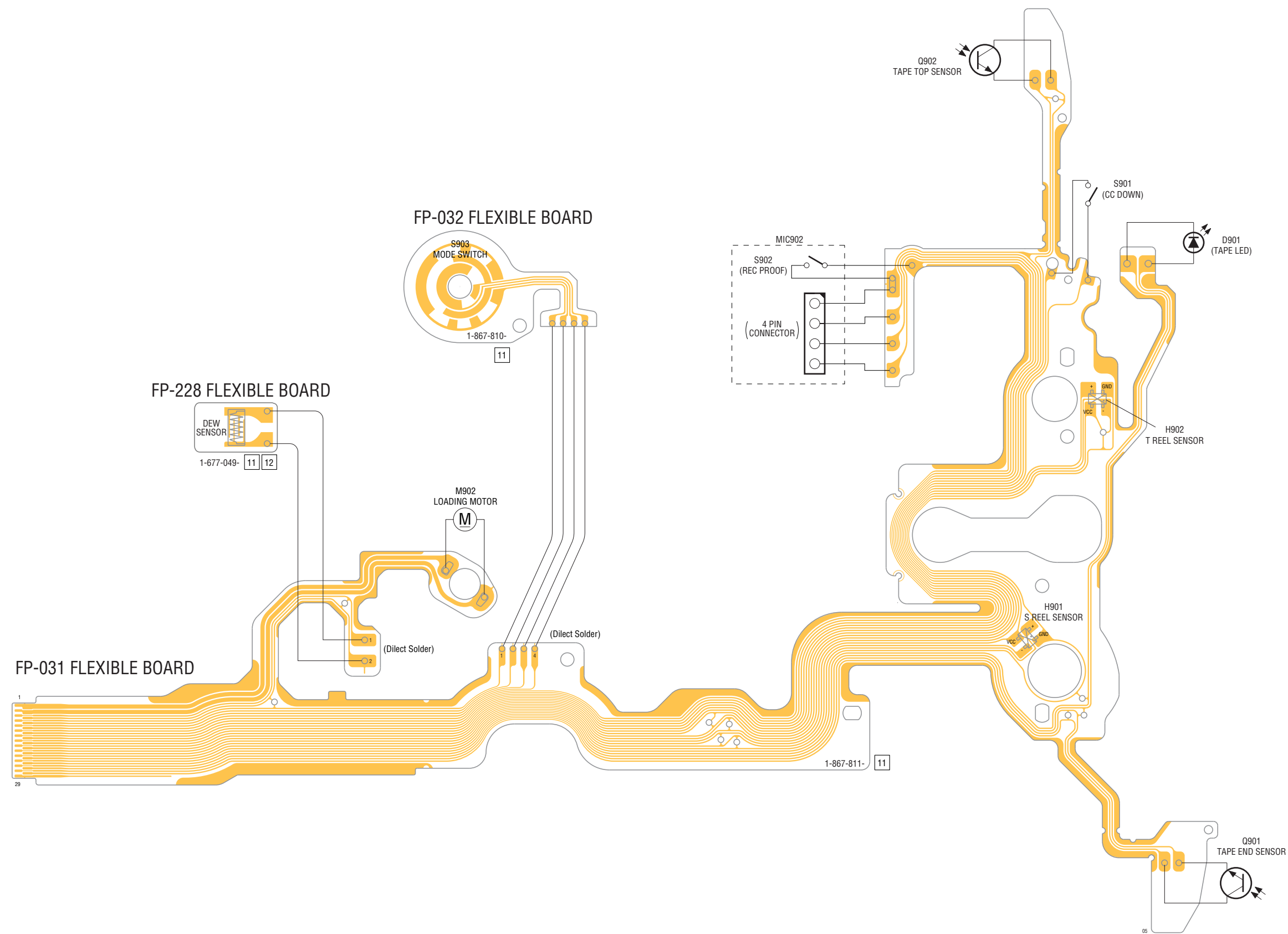
Note: BH001 and J001 are not included in FP-381 flexible board.



MS-313 BOARD



 : Uses unleaded solder.



4-4. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

CD-633 BOARD

* C202	B-2
* C203	B-1
* C205	A-1
* C208	A-1
* C213	A-1
* C214	A-1
* CN202	B-1
* FB201	A-1
IC201	A-1
* L201	A-1
* Q201	A-2
* Q202	A-1
* R206	A-1
* R209	A-1
* R210	A-1
* R211	A-1

Mounted parts location of the VC-418 board are not shown.
Page 4-42 to 4-43 are not shown.

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

PD-283 BOARD

SI-053 BOARD

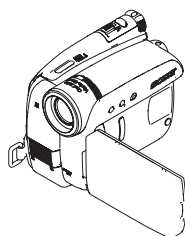
C9602	C-4	* BT601	B-2
C9603	C-4		
C9604	B-2	C602	D-1
C9605	C-3	* C604	E-1
C9606	C-2	C608	E-2
		C610	E-1
CN9601	A-2	* C611	E-2
CN9602	C-4	* C612	D-2
CN9603	B-2	* C613	D-1
CN9604	C-4	* C614	E-2
CN9605	C-2	* C615	E-2
		* C616	D-1
D9602	C-3	* C617	D-1
* D9603	B-6		
* D9604	C-6	CN601	C-1
* D9605	A-6	* CN602	D-2
		* CN606	D-2
Q9601	C-3		
Q9602	C-4	* D602	D-1
Q9603	C-2	* D603	D-1
		D606	B-2
R9602	C-4		
R9603	C-4	FB601	D-1
R9604	C-4	FB602	D-1
R9605	C-4		
R9607	C-2	* IC601	C-2
R9609	C-3	* IC602	D-2
		* L601	E-2
		* R616	D-2
		* R617	D-2
		* R618	D-1
		* R619	D-1
		* R623	B-2
		* R624	B-1
		* RB601	E-2
		SE601	E-2
		* SE602	E-2

5. REPAIR PARTS LIST

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

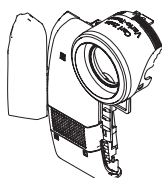
Link

EXPLODED VIEWS



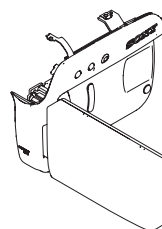
A

OVERALL ASSEMBLY



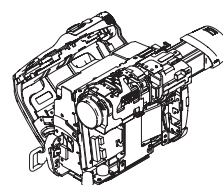
B

FRONT PANEL BLOCK



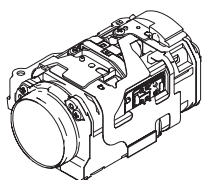
C

CABINET (R) BLOCK



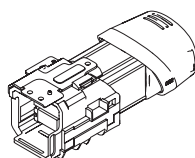
D

MAIN BLOCK-1



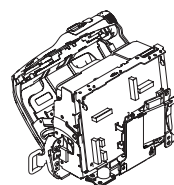
E

LENS BLOCK



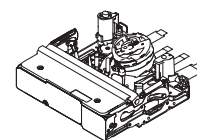
F

EVF BLOCK



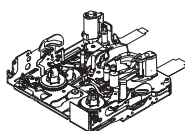
G

MAIN BLOCK-2



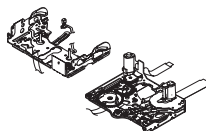
H

MECHANISM DECK
SECTION



I

LS/MECHANICAL CHASSIS
BLOCK ASSEMBLY-1



J

LS/MECHANICAL CHASSIS
BLOCK ASSEMBLY-2

Link

ELECTRICAL PARTS LIST

ACCESSORIES

• CD-633 BOARD E	• FP-228 FLEXIBLE BOARD J	• LB-123 BOARD F
• CR-063 BOARD G	• FP-380 FLEXIBLE BOARD C	• MS-313 BOARD G
• FP-031 FLEXIBLE BOARD J	• FP-381 FLEXIBLE BOARD D	• PD-283 BOARD C
• FP-032 FLEXIBLE BOARD J	• FP-386 FLEXIBLE BOARD C	• SI-053 BOARD B

5. REPAIR PARTS LIST

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...

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.

- Abbreviation
AR : Argentine model
AUS : Australian model
BR : Brazilian model
CH : Chinese model
CND : Canadian model
EE : East European model
HK : Hong Kong model
J : Japanese model
JE : Tourist model
KR : Korea model
NE : North European model

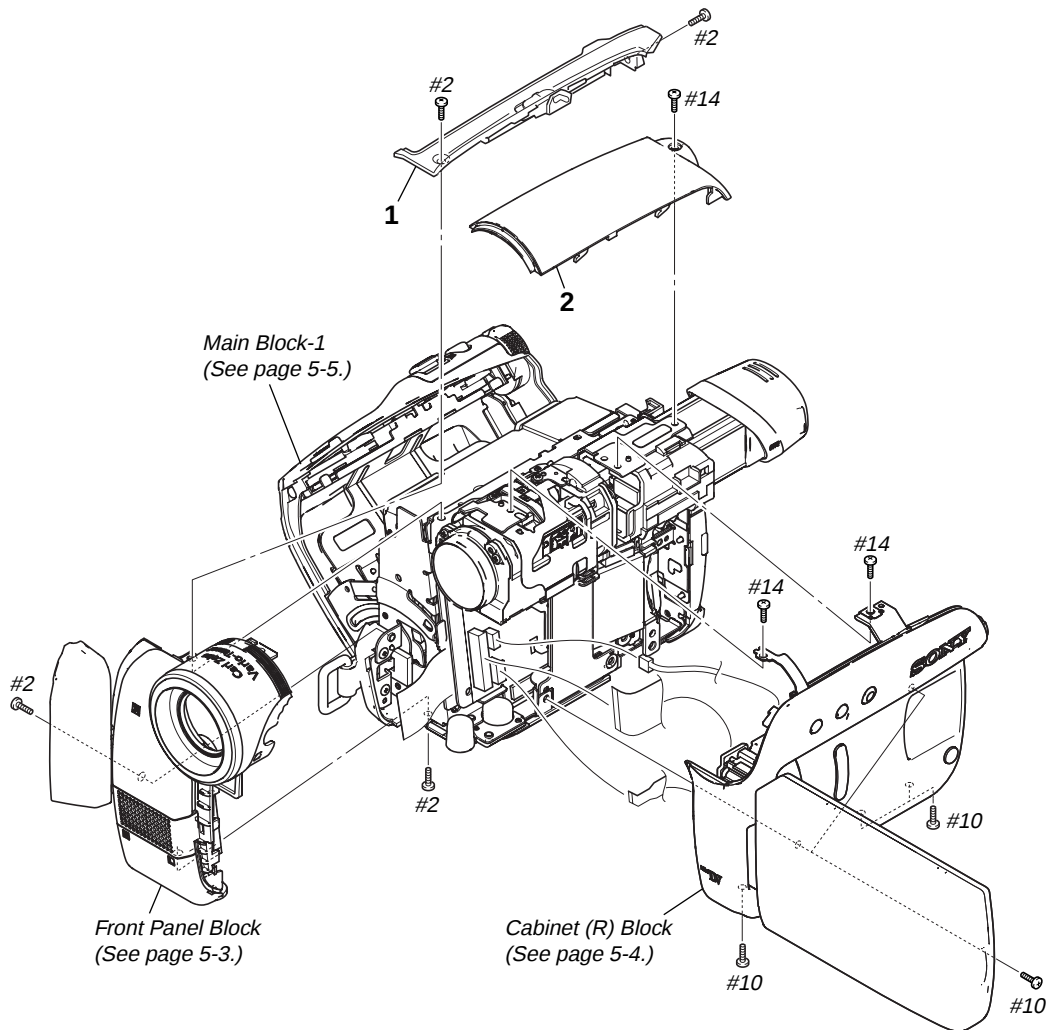
5. REPAIR PARTS LIST

DISASSEMBLY

HARDWARE LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description
1	X-2108-031-1	CABINET (173) ASSY, NS
2	2-664-983-01	CABINET (UPPER (172))
#2	2-635-562-31	SCREW (M1.7) (Black)

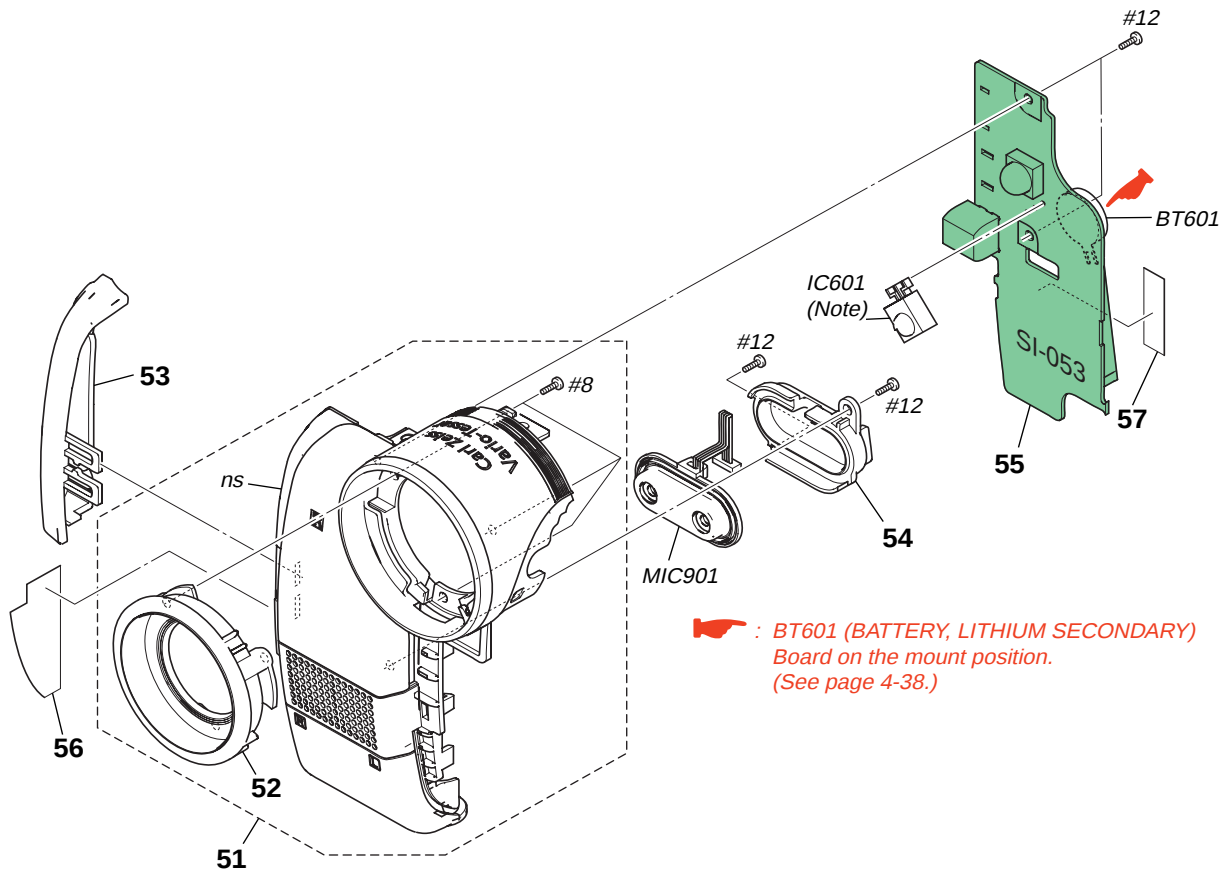
Ref. No.	Part No.	Description
#10	2-599-475-31	SCREW (M1.7) (Silver)
#14	2-599-475-11	SCREW (M1.7) (Silver)

5. REPAIR PARTS LIST

HARDWARE LIST

5-1-2. FRONT PANEL BLOCK

ns: not supplied



CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

Note: IC601 is not included in SI-053 complete board.

- Refer to page 5-1 for mark $\triangle$.

Ref. No.	Part No.	Description
51	X-2108-153-1	PANEL (173) ASSY, F
52	2-664-940-11	SCREW (173), FILTER
53	2-664-986-01	COVER, JACK
* 54	2-664-946-01	RETAINER, MICROPHONE
55	A-1153-876-A	SI-053 BOARD, COMPLETE
* 56	2-672-995-01	SHEET (F)

Ref. No.	Part No.	Description
57	3-941-343-01	TAPE (A)
$\triangle$ *BT601	1-756-640-11	BATTERY, LITHIUM SECONDARY
* IC601	6-600-505-01	IC RPM7640-V17 (Note)
MIC901	1-542-513-21	MICROPHONE
#8	3-078-890-01	SCREW, TAPPING (Silver)
#12	3-080-204-21	SCREW, TAPPING, P2 (Black)

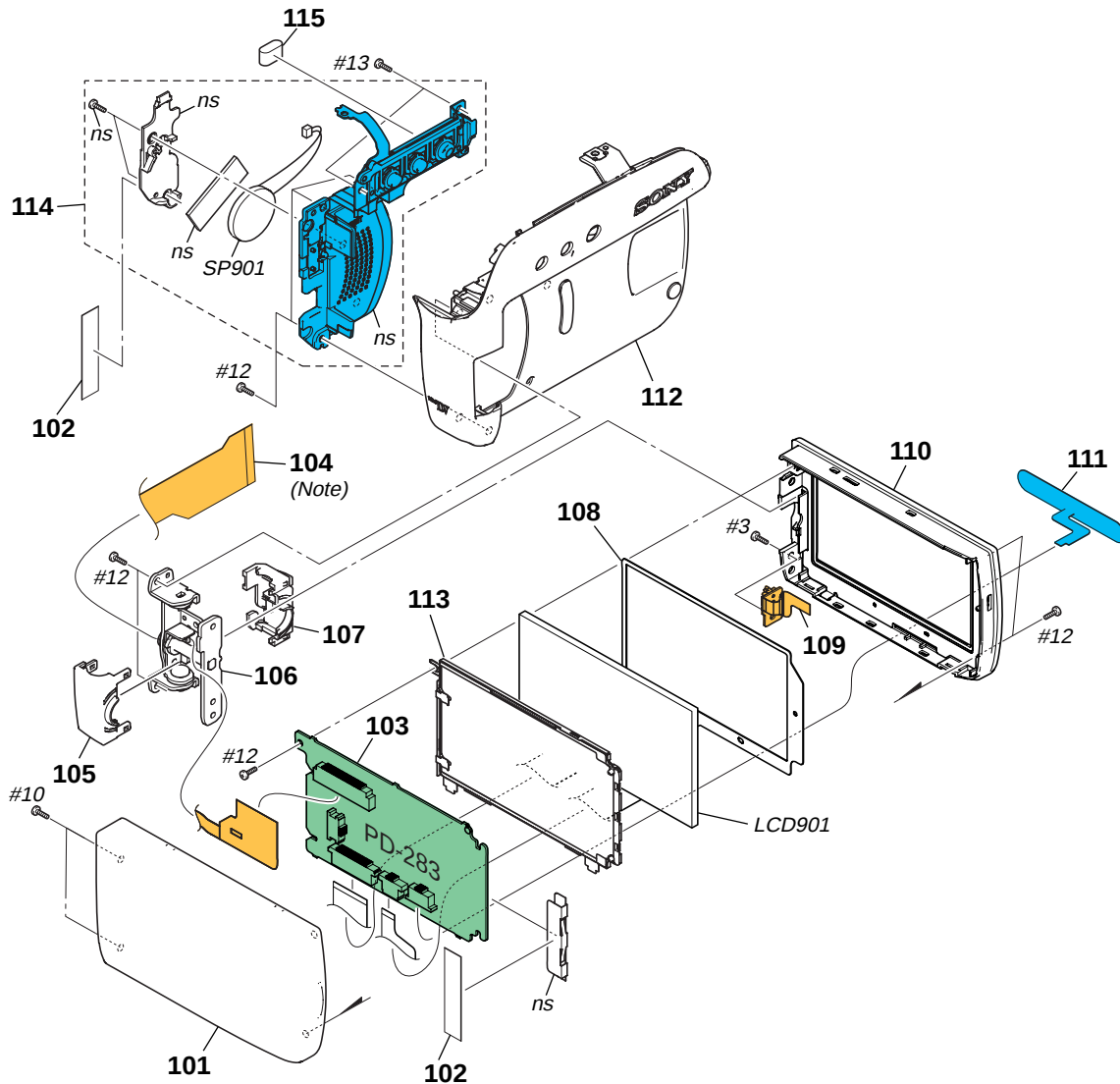
5. REPAIR PARTS LIST

DISASSEMBLY

HARDWARE LIST

5-1-3. CABINET (R) BLOCK

ns: not supplied



Note: Be sure read "HELP" when you install the FP-380 flexible board.

Ref. No.	Part No.	Description
101	2-664-728-21	CABINET (C), P (HC46/HC46E)
101	2-664-728-71	CABINET (C), P (HC44E)
102	3-941-343-01	TAPE (A)
103	A-1153-883-A	PD-283 BOARD, COMPLETE
* 104	1-867-778-11	FP-380 FLEXIBLE BOARD (Note)
105	2-664-737-01	COVER (C), HINGE
106	X-2067-431-1	HINGE ASSY
107	2-664-738-01	COVER (M), HINGE
* 108	2-664-734-01	CUSHION (173), TP
109	A-1153-842-A	FP-386 FLEXIBLE BOARD, COMPLETE
110	X-2108-000-1	CABINET (M (173)) ASSY, P

Ref. No.	Part No.	Description
111	1-478-984-11	KEY BLOCK, CONTROL (SB10600)
112	X-2103-697-1	CABINET (R (172)) ASSY
113	A-1153-904-A	LIGHT GUIDE BLOCK (2.7)
114	1-479-506-21	KEY BLOCK, CONTROL (CF17000)
* 115	2-667-911-01	CUSHION (173), ELECTROSTATIC
LCD901	A-1083-763-A	TP BLOCK ASSY 27STGU
* SP901	1-825-260-31	K016NA503-12
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#10	2-599-475-31	SCREW (M1.7) (Silver)
#12	3-080-204-21	SCREW, TAPPING, P2 (Black)
#13	3-085-397-01	SCREW (Silver)

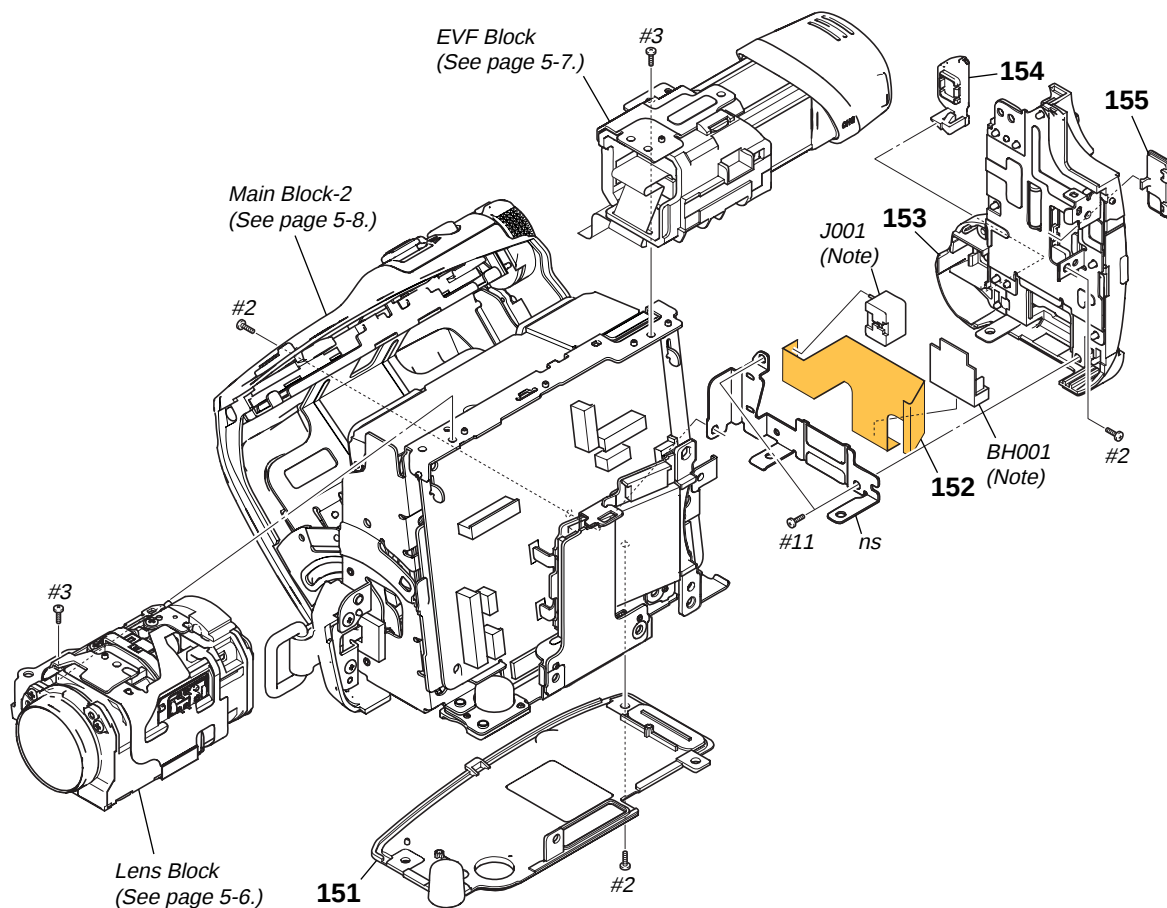
5. REPAIR PARTS LIST

DISASSEMBLY

HARDWARE LIST

5-1-4. MAIN BLOCK-1

ns: not supplied



Note: BH001 and J001 are not included in FP-381 flexible board.

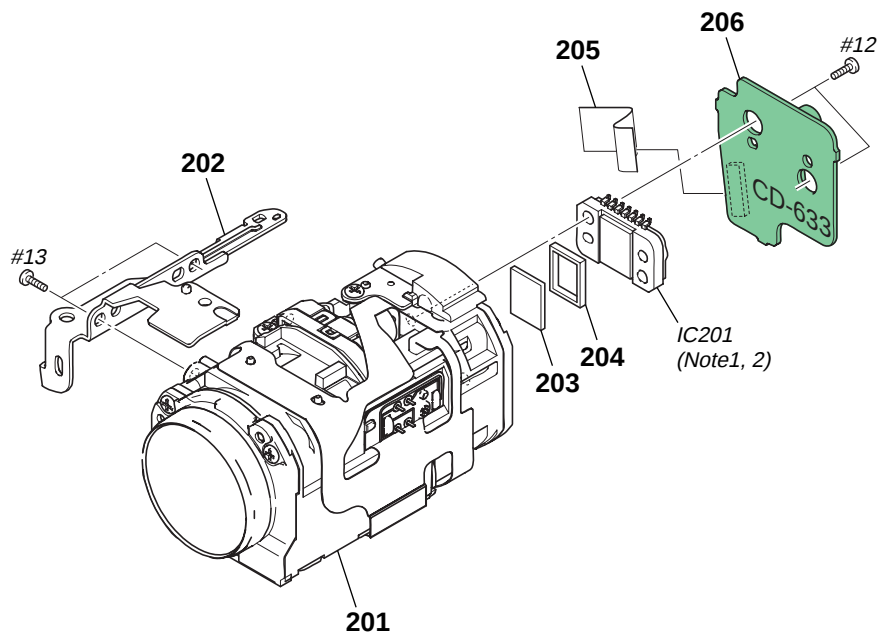
Ref. No.	Part No.	Description
151	X-2108-033-1	BOTTOM (173) ASSY, CABINET
* 152	1-867-779-11	FP-381 FLEXIBLE BOARD
153	X-2108-652-1	PANEL (172) ASSY, BT
154	2-664-984-01	COVER, DC (IN)
155	2-664-985-01	LID, CPC

Ref. No.	Part No.	Description
BH001	1-780-064-21	BATTERY TERMINAL BOARD (Note)
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (Note)
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#11	3-078-890-11	SCREW, TAPPING (Silver)

5. REPAIR PARTS LIST

HARDWARE LIST

5-1-5. LENS BLOCK



Note 1: IC201 is not included in CD-633 complete board.

Note 2: Be sure to read "Precautions for Replacement of Imager" on page 4-3 when changing the imager.

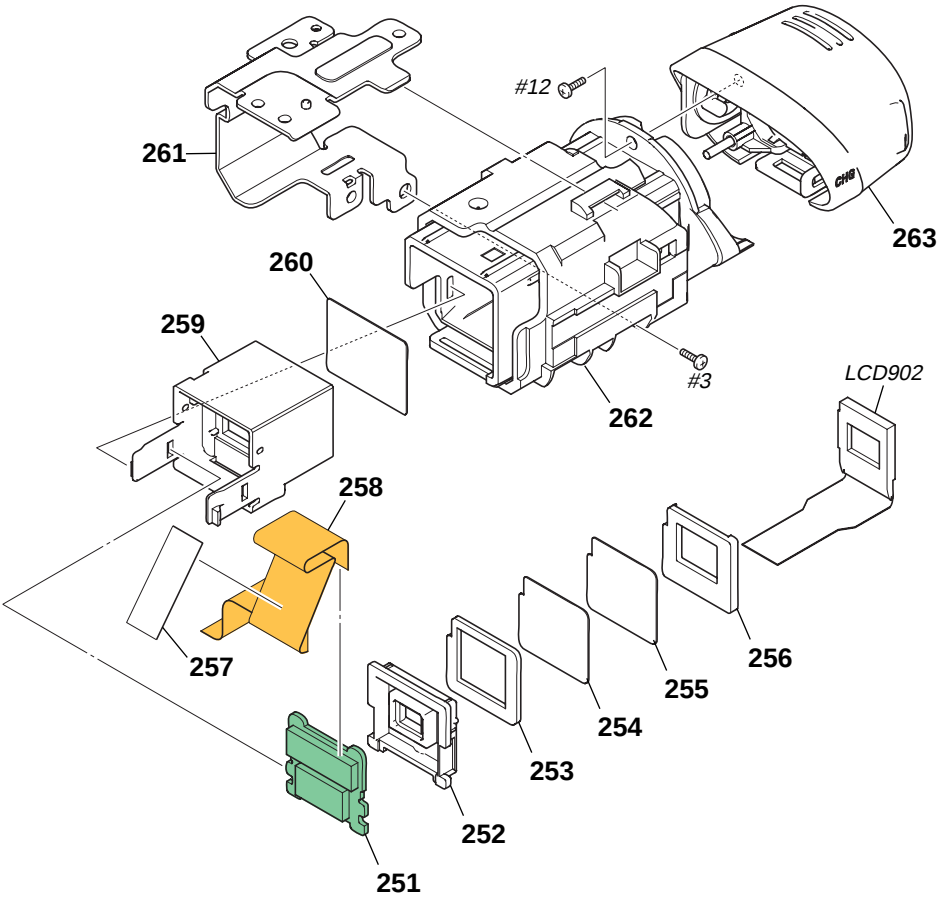
Ref. No.	Part No.	Description
201	8-848-812-01	LSV-1080C
* 202	2-664-981-01	FRAME (172), LENS
203	1-788-242-11	OPTICAL FILTER BLOCK
204	3-088-645-01	RUBBER (Z), SEAL
205	1-830-779-11	CABLE, FLEXIBLE FLAT (FFC-064)

Ref. No.	Part No.	Description
206	A-1153-884-A	CD-633 BOARD, COMPLETE
IC201	A-1103-137-A	CCD BLOCK ASSY (1M) (CCD IMAGER)
		(Note 1, 2)
#12	3-080-204-21	SCREW, TAPPING, P2 (Black)
#13	3-085-397-01	SCREW (Silver)

5. REPAIR PARTS LIST

HARDWARE LIST

5-1-6. EVF BLOCK



Ref. No.	Part No.	Description
251	A-1153-877-A	LB-123 BOARD, COMPLETE
252	2-664-672-01	GUIDE, LAMP
* 253	2-638-819-01	CUSHION, LCD
* 254	2-638-818-01	ILLUMINATOR
* 255	2-638-816-01	PLATE (TFT), DEFLECTION
256	2-664-671-01	SPACER, LCD
257	3-941-343-01	TAPE (A)
* 258	1-867-777-11	FP-379 FLEXIBLE BOARD

Ref. No.	Part No.	Description
* 259	2-664-670-01	CABINET, INNER
* 260	2-638-813-01	PLATE (CF), DEFLECTION
* 261	2-664-669-01	FRAME (172), FIXED
262	X-2103-696-1	VF (172) ASSY
263	X-2103-695-1	EYE CUP ASSY
LCD902	8-753-245-09	LCX059CKK-1
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#12	3-080-204-21	SCREW, TAPPING, P2 (Black)

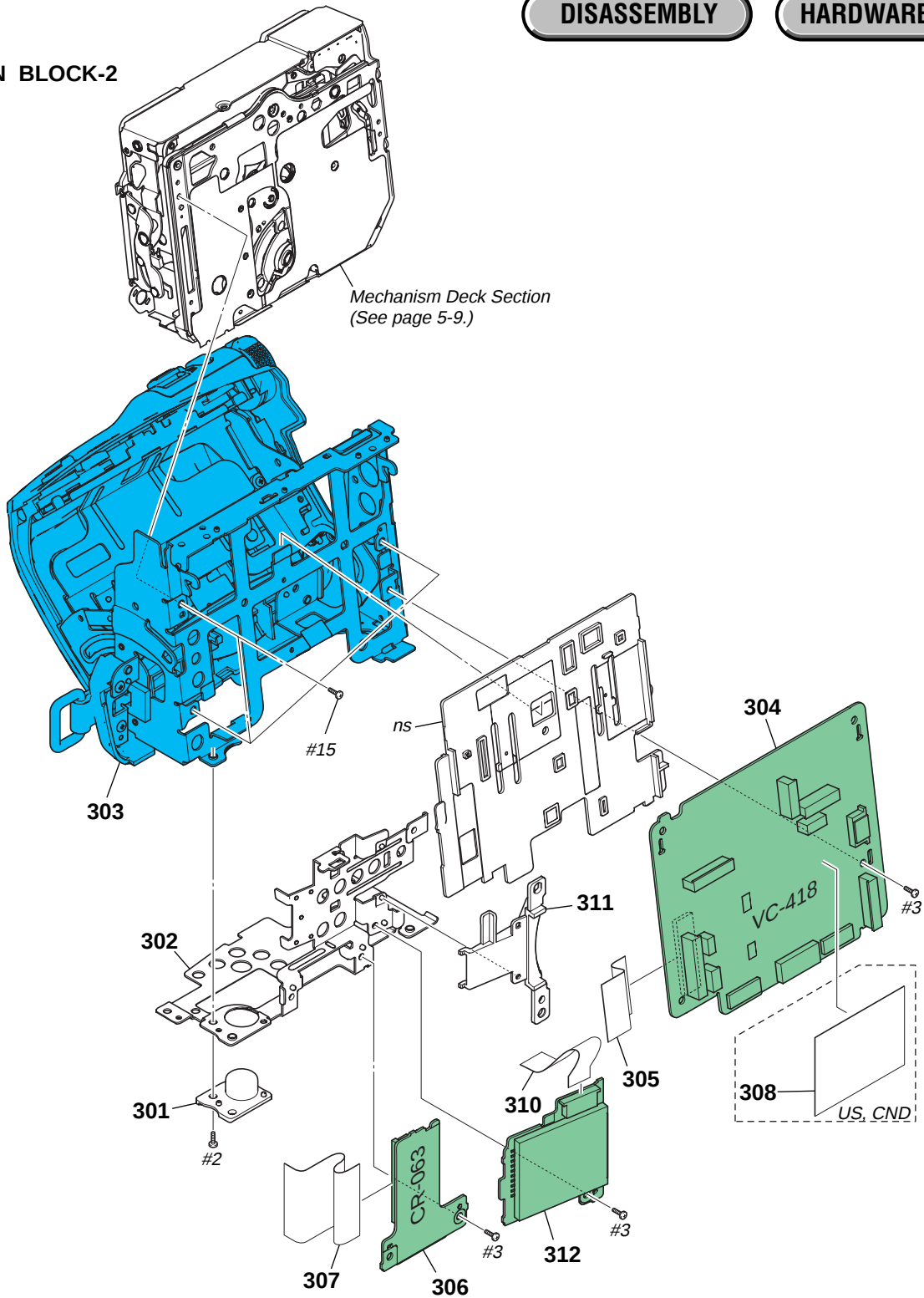
5. REPAIR PARTS LIST

DISASSEMBLY

HARDWARE LIST

5-1-7. MAIN BLOCK-2

ns: not supplied



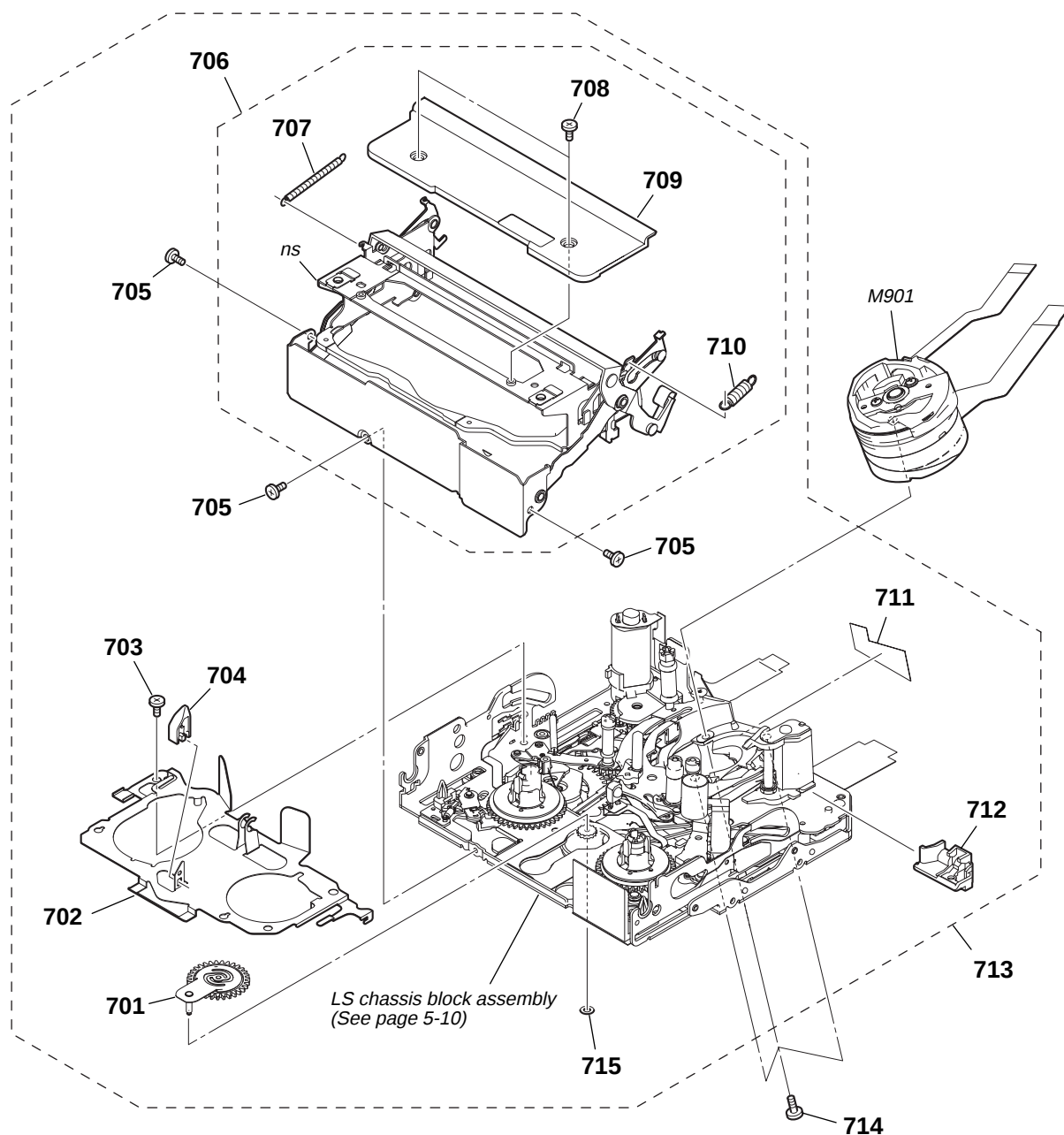
Ref. No.	Part No.	Description
301	2-664-982-01	SCREW, TRIPOD
* 302	2-664-977-01	FRAME (172), BOTTOM
303	1-479-507-21	KEY BLOCK, CONTROL (SS17000)
304	A-1154-407-A	VC-418 BOARD, COMPLETE (SERVICE) (HC46)
304	A-1154-408-A	VC-418 BOARD, COMPLETE (SERVICE) (HC44E/HC46E)
* 305	1-830-835-11	CABLE, FLEXIBLE FLAT (FFC-065)
306	A-1153-869-A	CR-063 BOARD, COMPLETE
307	1-830-775-11	CABLE, FLEXIBLE FLAT (FFC-060)

Ref. No.	Part No.	Description
308	2-659-500-01	LABEL, FUSE REPLACEMENT CAUTION (US, CND)
* 310	1-830-777-11	CABLE, FLEXIBLE FLAT (FFC-062)
* 311	2-664-978-01	CABINET, MS
312	A-1153-867-A	MS-313 BOARD, COMPLETE
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#15	3-062-214-01	SCREW (M1.4X1.5)

5. REPAIR PARTS LIST

5-1-8. MECHANISM DECK SECTION

ns : not supplied



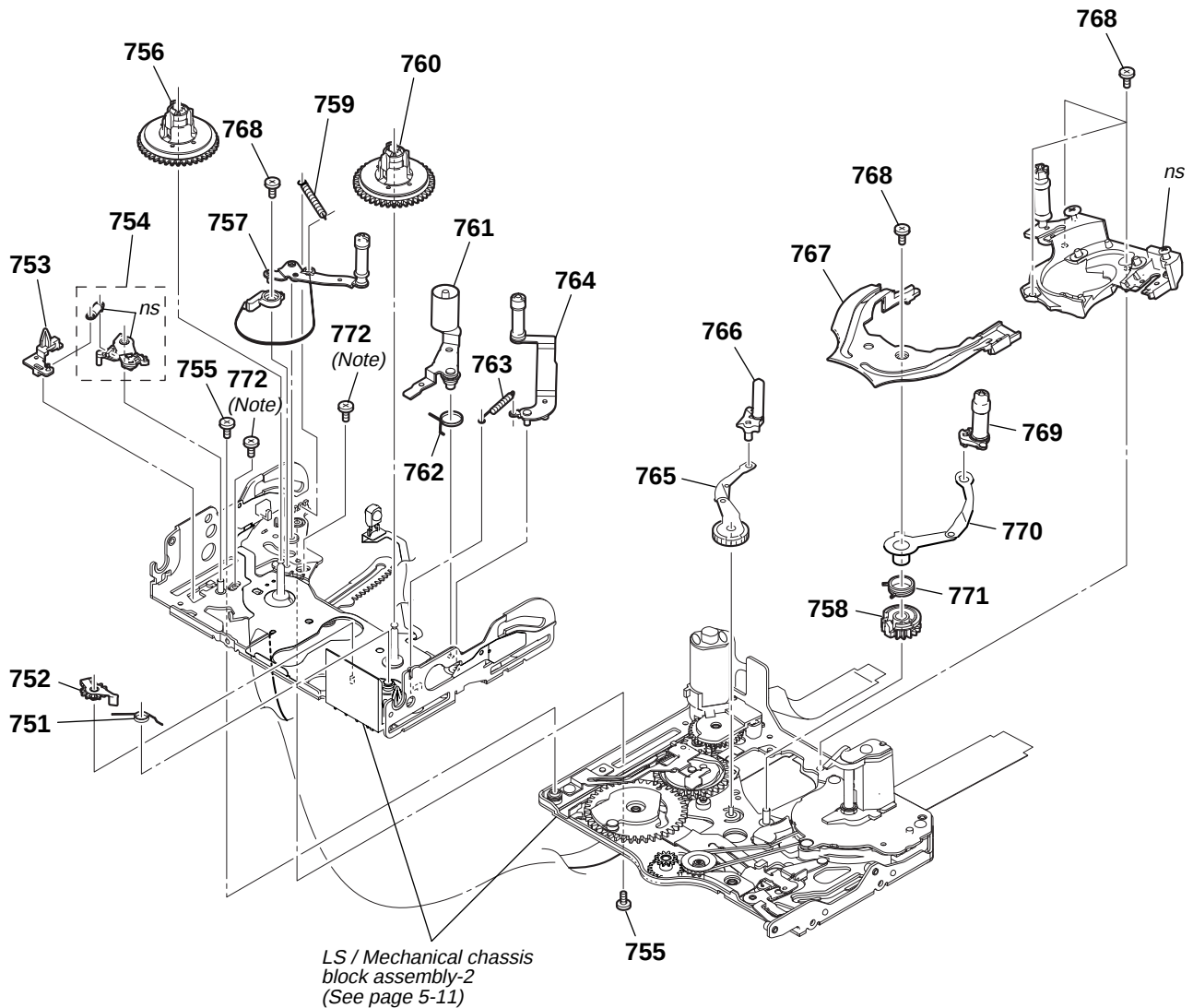
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
701	X-2024-478-1	PENDULUM ASSY
702	2-342-917-02	LED BASE
703	7-627-850-77	SCREW, PRECISION +P 1.4X1.8
704	3-079-366-11	RELEASE, REEL LOCK
705	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD
706	X-2024-450-1	COMPARTMENT ASSY, CASSETTE
707	2-342-926-01	SPRING (ARM S), TENSION COIL
708	2-546-417-01	SCREW (M1.4)

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
709	2-342-933-01	PLATE, TOP
710	2-342-927-01	SPRING (ARM T), TENSION COIL
711	2-541-585-01	SHEET, FLEXIBLE ADHESIVE
712	2-342-918-01	TG6 CATCHER
713	A-1080-997-A	MD (N100) SUB ASSY A
714	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
715	3-315-414-31	WASHER
M901	A-1154-545-A	DRUM (DEH-33E-R) (SERVICE)

5. REPAIR PARTS LIST

5-1-9. LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-1

ns : not supplied



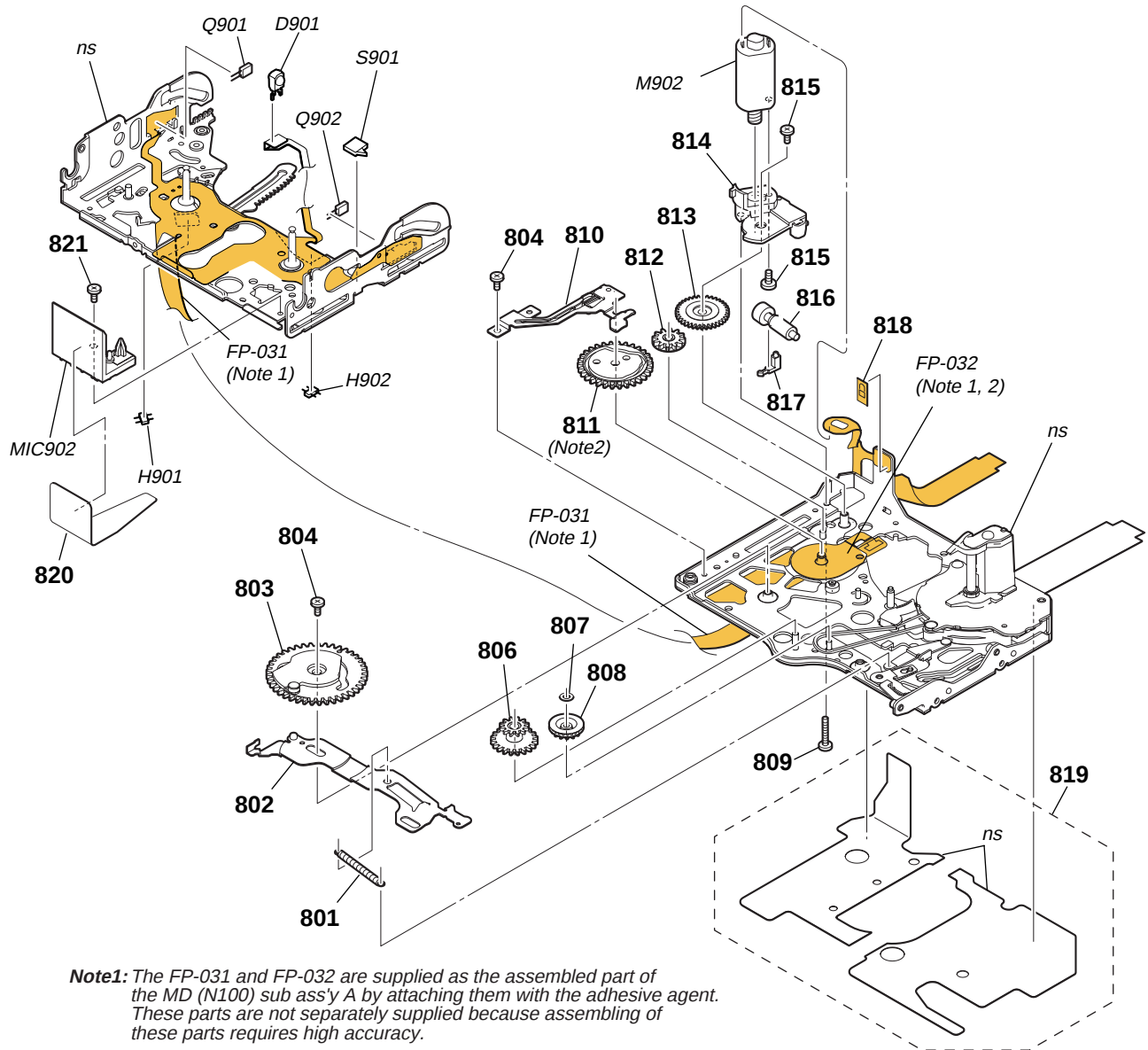
Note: These two screws are the fixing screws of the LS cam plate.
These two fixing screws are used for adjusting the LS cam plate position.
(refer to 4-2. LS cam adjustment of DV mechanical adjustment manual IX)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
751	2-342-759-01	SPRING, RVS BRAKE	762	2-342-906-01	SPRING (PINCH RETURN), TORSION
752	A-1083-005-A	BLOCK ASSY, RVS BRAKE	763	2-342-626-01	SPRING (RETURN TG6), EXTENSION
753	2-342-731-01	POSITIONING, S	764	A-1083-002-A	BLOCK ASSY, TG6
754	A-1083-006-A	BLOCK ASSY, S BRAKE	765	X-2024-468-1	ARM ASSY (S), GL
755	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD	766	X-2024-465-1	COASTER (S) ASSY
756	X-2024-473-1	TABLE ASSY, S REEL	767	2-342-612-01	RAIL
757	A-1083-007-B	BLOCKASSY, TENSION REGULATOR	768	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
758	2-342-705-01	GEAR (T), GL	769	X-2024-466-1	COASTER (T) ASSY
759	2-342-902-01	SPRING, TENSION REGULATOR	770	X-2024-469-1	ARM (T) ASSY, GL
760	X-2024-474-1	TABLE ASSY, T REEL	771	2-342-716-01	SPRING (T), TORSION COIL
761	X-2024-476-1	ARM ASSY, PINCH	772	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD (for adjustment)

5. REPAIR PARTS LIST

5-1-10. LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-2

ns : not supplied



Note1: The FP-031 and FP-032 are supplied as the assembled part of the MD (N100) sub ass'y A by attaching them with the adhesive agent. These parts are not separately supplied because assembling of these parts requires high accuracy.

Note2: The mode switch (S903) function works when the contactor of the FP-032 contacts with the bottom surface of wiper of the mode gear ass'y.

Ref. No.	Part No.	Description
801	2-342-624-01	SPRING (PINCH LIMITTER), EXTENSION
802	X-2024-463-1	SLIDER ASSY, MODE
803	X-2024-462-1	GEAR ASSY, CAM
804	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
806	2-342-621-01	GEAR, RELAY
807	3-315-414-31	WASHER
808	2-342-620-01	GEAR, CONVERSION
809	3-084-377-01	HEAD (SCREW M1.2)
810	X-2024-460-1	BASE ASSY, CAM
811	X-2024-461-1	GEAR ASSY, MODE
812	2-342-615-01	GEAR, NO.2
813	2-342-691-01	GEAR, NO.1
814	2-637-945-01	MOTOR HOLDER
815	3-895-822-71	SCREW (M1.2X2), SPECIAL, 0

Ref. No.	Part No.	Description
816	2-342-689-01	WORM SHAFT (2J)
817	2-637-947-01	BASE, MOTOR HOLDER
818	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
819	2-342-686-01	COVER, CAPSTAN
820	2-541-984-01	MIC COVER
821	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
M902	X-2024-464-1	MOTOR ASSY (LOADING)
MIC902	1-818-576-11	PIN, CONNECTOR (WITH DETECTION SWITCH)
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
S901	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)

CD-633

CR-063

FP-031

FP-032

FP-228

FP-380

FP-381

FP-386

LB-123

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
A-1153-884-A	CD-633 BOARD, COMPLETE	*****
	(IC201 is not supplied, but this is included in CCD block assy.)	
	< CAPACITOR >	
C202	1-100-566-91	CERAMIC CHIP 0.1uF 10% 25V
C203	1-100-566-91	CERAMIC CHIP 0.1uF 10% 25V
C205	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C208	1-127-820-11	CERAMIC CHIP 4.7uF 10% 16V
C213	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C214	1-165-875-11	CERAMIC CHIP 10uF 10% 10V
	< CONNECTOR >	
* CN202	1-815-763-51	CONNECTOR, FFC/FPC 24P
	< FERRITE BEAD >	
FB201	1-400-331-11	FERRITE, EMI (SMD) (1005)
	< IC >	
IC201	A-1103-137-A	CCD BLOCK ASSY (1M) (CCD IMAGER) (Note)
	< COIL >	
L201	1-400-588-11	INDUCTOR 10uH
	< TRANSISTOR >	
Q201	6-550-234-01	TRANSISTOR UNR32A300LS0
Q202	8-729-055-21	TRANSISTOR 2SC5096-O/R (TE85L)
	< RESISTOR >	
R206	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R209	1-218-965-11	RES-CHIP 10K 5% 1/16W
R210	1-218-953-11	RES-CHIP 1K 5% 1/16W
R211	1-218-966-11	RES-CHIP 12K 5% 1/16W
A-1153-869-A	CR-063 BOARD, COMPLETE	*****
	(CN002 (multi connector) is not supplied, but this is included in CR-063 complete board.)	
	< CONNECTOR >	
CN002	(Not supplied)	CONNECTOR, MULTIPLE (SOCKET)
CN003	1-766-613-51	CONNECTOR, FFC/FPC 36P
(Not supplied)	FP-031 FLEXIBLE BOARD	*****
	(This flexible board is included in MD (N100) SUB ASSY A (A-1080-997-A).)	
	< DIODE >	
D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
	< HOLE ELEMENT >	
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)

Ref. No.	Part No.	Description
	< CONNECTOR >	
MIC902	1-818-576-11	PIN, CONNECTOR (WITH DETECTION SWITCH)
	< TRANSISTOR >	
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
	< SWITCH >	
S901	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)
(Not supplied)	FP-032 FLEXIBLE BOARD	*****
	(This flexible board with S903 is included in MD (N100) SUB ASSY A (A-1080-997-A).)	
1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)	*****
* 1-867-778-11	FP-380 FLEXIBLE BOARD	*****
* 1-867-779-11	FP-381 FLEXIBLE BOARD	*****
	(BH001 and J001 are not included in FP-381 flexible board.)	
	< BATTERY TERMINAL >	
BH001	1-780-064-21	BATTERY TERMINAL BOARD
	< JACK >	
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V)
A-1153-842-A	FP-386 FLEXIBLE BOARD, COMPLETE	*****
	< SWITCH >	
S101	1-786-180-31	SWITCH, PUSH (1KEY) (PANEL REVERSE)
A-1153-877-A	LB-123 BOARD, COMPLETE	*****
	< CAPACITOR >	
C301	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C302	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
	< CONNECTOR >	
* CN301	1-818-046-51	CONNECTOR, FFC/FPC 20P
* CN302	1-817-560-51	CONNECTOR, FPC (ZIP) 21P

Ref. No.	Part No.	Description
		< DIODE >
D301	8-719-074-67	DIODE EDZ-TE61-5.6B
* D302	6-501-325-01	DIODE NESW007T-T017 (BACKLIGHT)
		< RESISTOR >
R304	1-218-989-11	RES-CHIP 1M 5% 1/16W
	A-1153-867-A	MS-313 BOARD, COMPLETE *****
		< CONNECTOR >
CN502	1-817-913-41	MEMORY STICK DUO CONNECTOR 10P
CN503	1-766-340-51	CONNECTOR, FFC/FPC 10P
		< DIODE >
D501	6-500-817-01	DIODE (LED) SML-512UWT86 (MS ACCESS)
		< RESISTOR >
R501	1-218-949-11	RES-CHIP 470 5% 1/16W
	A-1153-883-A	PD-283 BOARD, COMPLETE *****
		< CAPACITOR >
C9602	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V
C9603	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V
C9604	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9605	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9606	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
		< CONNECTOR >
* CN9601	1-817-513-51	CONNECTOR, FFC/FPC (ZIF) 30P
CN9602	1-573-915-51	CONNECTOR, FFC/FPC (ZIF) 6P
CN9603	1-573-915-51	CONNECTOR, FFC/FPC (ZIF) 6P
* CN9604	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P
CN9605	1-818-071-51	CONNECTOR, FFC/FPC (ZIF) 24P
		< DIODE >
D9602	8-719-074-67	DIODE EDZ-TE61-5.6B
* D9603	6-501-476-01	DIODE NSSW008CT-T071 (BACKLIGHT)
* D9604	6-501-476-01	DIODE NSSW008CT-T071 (BACKLIGHT)
* D9605	6-501-476-01	DIODE NSSW008CT-T071 (BACKLIGHT)
		< TRANSISTOR >
Q9601	8-729-427-67	TRANSISTOR XP421F-TXE
Q9602	8-729-427-37	TRANSISTOR XP411F-TXE
Q9603	6-550-232-01	TRANSISTOR 2SA2029T2LQ/R
		< RESISTOR >
R9602	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R9603	1-218-955-11	RES-CHIP 1.5K 5% 1/16W
R9604	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R9605	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R9607	1-218-978-11	RES-CHIP 120K 5% 1/16W
R9609	1-218-989-11	RES-CHIP 1M 5% 1/16W

Ref. No.	Part No.	Description
	A-1153-876-A	SI-053 BOARD, COMPLETE ***** (IC601 is not included in SI-053 complete board.)
		< BATTERY >
△* BT601	1-756-640-11	BATTERY, LITHIUM SECONDARY
		< CAPACITOR >
C602	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C604	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C608	1-110-666-11	ELECT CHIP 22uF 20% 6.3V
C610	1-110-666-11	ELECT CHIP 22uF 20% 6.3V
C611	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C612	1-100-251-11	CERAMIC CHIP 0.047uF 10% 10V
C613	1-100-251-11	CERAMIC CHIP 0.047uF 10% 10V
C614	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C615	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C616	1-164-935-11	CERAMIC CHIP 470PF 10% 50V
C617	1-164-935-11	CERAMIC CHIP 470PF 10% 50V
		< CONNECTOR >
CN601	1-815-794-21	CONNECTOR (MULTIPLE) (A/V OUT)
CN602	1-778-507-21	PIN, CONNECTOR (PC BOARD) 4P
CN606	1-815-460-51	CONNECTOR, FFC/FPC 26P
		< DIODE >
D602	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D603	6-500-776-01	DIODE MAZW068H0LS0
D606	6-500-512-01	DIODE CL-330IRS-X-TU (IR EMITTER/NIGHTSHOT)
		< FERRITE BEAD >
FB601	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
FB602	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
		< IC >
* IC601	6-600-505-01	IC RPM7640-V17
IC602	8-759-489-19	IC uPC6756GR-8JG-E2
		< COIL >
L601	1-400-588-11	INDUCTOR 10uH
		< RESISTOR >
R616	1-218-989-11	RES-CHIP 1M 5% 1/16W
R617	1-218-965-11	RES-CHIP 10K 5% 1/16W
R618	1-218-965-11	RES-CHIP 10K 5% 1/16W
R619	1-218-989-11	RES-CHIP 1M 5% 1/16W
R623	1-216-801-11	METAL CHIP 22 5% 1/10W
R624	1-216-801-11	METAL CHIP 22 5% 1/10W
		< COMPOSITION CIRCUIT BLOCK >
RB601	1-234-379-21	RES, NETWORK 22K (1005X4)

• Refer to page 5-1 for mark △.

CAUTION

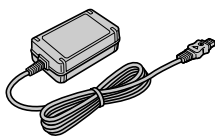
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SI-053

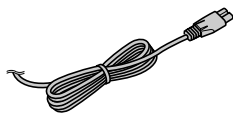
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
< SENSOR >		
SE601	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)
SE602	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)

Electrical parts list of the VC-418 board is not shown.
Pages 5-15 to 5-20 are not shown.

Checking supplied accessories.



AC Adaptor
(AC-L25A/L25B)
▲ 1-479-288-13



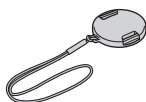
Power Cord
▲ 1-555-074-71 (AUS)
▲ 1-782-476-41 (CH)
▲ 1-783-374-22 (HK)
▲ 1-790-107-51 (US, CND)
▲ 1-792-549-31 (JE)
▲ 1-823-150-21 (AEP, EE, NE)
▲ 1-824-910-31 (E: PAL)
▲ 1-830-518-31 (E: NTSC)
▲ 1-830-736-21 (UK)
▲ 1-832-115-11 (KR)



Conversion (2P) Adaptor
▲ 1-569-007-12
(E: NTSC, JE)



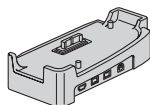
Conversion (2P) Adaptor
▲ 1-569-008-12
(E: PAL, HK)



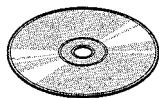
Lens Cap
X-2108-241-1



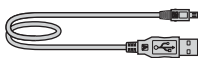
A/V Connection Cable
1-823-156-51



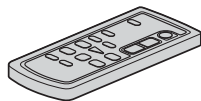
Handycam Station
▲ 1-819-870-11
(DCRA-C151)
(HC46/HC46E)
▲ 1-819-870-31
(DCRA-C150)
(HC44E)



CD-ROM
"Picture Package Ver. 1.5.1"
2-666-755-01



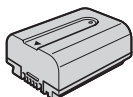
USB Cable
1-829-868-31



Wireless Remote Commander
RMT-831
1-478-495-41



21-pin Adaptor
1-770-783-21
(AEP, UK, EE, NE)



Rechargeable Battery Pack
NP-FP50
(not supplied)

Other accessories

2-659-813-11	MANUAL, INSTRUCTION (ENGLISH) (HC46: US, CND, E, JE)
2-659-813-21	MANUAL, INSTRUCTION (FRENCH) (CND)
2-659-813-31	MANUAL, INSTRUCTION (SPANISH) (HC46: E, JE)
2-659-813-41	MANUAL, INSTRUCTION (PORTUGUESE) (HC46: JE)
2-659-813-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (E)
2-659-813-61	MANUAL, INSTRUCTION (KOREAN) (HC46: KR, JE)
2-659-814-11	MANUAL, INSTRUCTION (ENGLISH) (HC44E: AEP, UK/HC46E: AEP, UK, JE, E, HK, AUS)
2-659-814-21	MANUAL, INSTRUCTION (FRENCH) (AEP)
2-659-814-31	MANUAL, INSTRUCTION (GERMAN, DUTCH) (AEP)
2-659-814-41	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (AEP)
2-659-814-51	MANUAL, INSTRUCTION (ITALIAN, GREECE) (AEP)
2-659-814-61	MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (HC44E: NE/HC46E: NE, JE)
2-659-814-71	MANUAL, INSTRUCTION (DANISH, FINNISH) (NE)
2-659-814-81	MANUAL, INSTRUCTION (POLISH, CZECH) (EE)
2-659-814-91	MANUAL, INSTRUCTION (HUNGARIAN, SLOVAKIAN) (EE)
2-665-186-11	MANUAL, INSTRUCTION (ARABIC, PERUVIAN) (HC46E: E)
2-665-186-21	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HK)
2-665-186-31	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (HC46E: JE, E, CH)

• Refer to page 5-1 for mark ▲.

DCR-HC44E/HC46/HC46E

RMT-831

SONY®

LEVEL 2

SERVICE MANUAL

Ver 1.2 2006.05

US Model
Canadian Model
AEP Model
UK Model
East European Model
North European Model
E Model
Australian Model
Chinese Model
Hong Kong Model
Korea Model
Tourist Model
Japanese Model

SUPPLEMENT-1

File this supplement with the service manual.
(PV05-097)

- Addition of Japanese Model
- Addition of Japanese Notes

**HANDYCAM**

概略仕様

システム

録画方式	回転2ヘッドヘリカルスキャン
静止画記録方式	Exif Ver.2.2 ^{*1}
録音方式	回転2ヘッド 12ビット32kHz (ステレオ1、ステレオ2) 16ビット48kHz(ステレオ)
映像信号	NTSCカラー、EIA標準方式
使用可能セット	Mini DV マークのついたミニDVカセット
テープ速度	SP:約18.81mm/秒 LP:約12.56mm/秒
録画/再生時間	SP:60分(DVM60使用時) LP:90分(DVM60使用時)
早送り、巻き戻し時間	バッテリー使用時: 約2分40秒(DVM60使用時) ACアダプター使用時: 約1分45秒(DVM60使用時)
ファインダー	電子ファインダー:カラー
撮像素子	3.27mm(1/5.5型)CCD固体撮像素子 総画素数:約107万画素 静止画時有効画素数:約100万画素 動画時有効画素数:約69万画素
ズームレンズ	カール ツァイス バリオ テッサー 12倍(光学)、800倍(デジタル) f=3.0~36mm 35mmカメラ換算では 「撮るーテープ」時: 46~628.5mm(16:9モード) ^{*2} (4:3モードでは48~576mm) 「撮るーメモリー」時: 40~480mm(4:3モード) (16:9モードでは43.6~523.2mm) F1.8~2.5 フィルター径25mm
色温度切り換え	【オート】、【ワンプッシュ】、 【屋内】(3200K)、 【屋外】(5800K)
最低被写体照度	15 lx(ルクス)(F1.8) 0 lx(ルクス)(NightShot plus 時)

^{*1} (社)電子情報技術産業協会(JEITA)にて制定された、撮影情報などの付帯情報を追加することができる静止画用のファイルフォーマット。
^{*2} 広角画素読み出しによる実動作値

出力端子

A/V OUT 端子	10ピン特殊コネクター 映像:1 Vp-p、75 Ω不平衡 Y出力 1Vp-p、75 Ω不平衡 C出力 0.286Vp-p、75 Ω不平衡 音声:327mV(47 kΩ負荷時)、出カインピーダンス2.2 kΩ以下
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液晶画面

画面サイズ	6.9cm(2.7型、アスペクト比16:9)
総ドット数	123 200ドット 横560×縦220

電源部、その他

電源電圧	バッテリー端子入力7.2V DC端子入力8.4V
消費電力	2.4W(ファインダー使用時、明るさ標準) 2.7W(液晶画面使用時、明るさ標準)
動作温度	0℃~+40℃
保存温度	-20℃~+60℃
外形寸法	65×79×113mm (最大突起部を除く)(幅×高さ×奥行き)
本体質量	約380g(本体のみ)
撮影時総質量	約445g(バッテリーNP-FP50、テープ(DVM60)含む。)
付属品	ACアダプター (1) 電源コード (1) ハンディカムステーション (1) ワイヤレスリモコン (1) AV接続ケーブル (1) USBケーブル (1) レンズキャップ (1) リチャージャブルバッテリーバックNP-FP50 (1) CD-ROM【Picture Package Ver.1.5.1】 (1) 取扱説明書 (1) 保証書 (1)

ハンディカムステーション 入出力端子 DCRA-C151

A/V OUT 端子	10ピン特殊コネクター 映像:1 Vp-p、75 Ω不平衡 Y出力 1 Vp-p、75 Ω不平衡 C出力 0.286Vp-p、75 Ω不平衡 音声:327 mV(47 kΩ負荷時)、出カインピーダンス2.2 kΩ以下
USB端子	mini-B
DV端子	i.LINK(IEEE1394 4ピンコネクターS100)

ACアダプター AC-L25A/L25B

電源	AC100~240V、50/60Hz
消費電力	18W
定格出力	DC8.4V *
動作温度	0℃~+40℃
保存温度	-20℃~+60℃
外形寸法	約56×31×100mm(最大突起部をのぞく)(幅×高さ×奥行き)
質量	約190g(本体のみ)

* その他の仕様については AC アダプターのラベルをご覧ください。

リチャージャブルバッテリーバック NP-FP50

最大電圧	DC8.4V
公称電圧	DC7.2V
容量	4.9Wh(680mAh)
最大外形寸法	約31.8×18.5×45.0mm (幅×高さ×奥行き)
質量	約45g
使用温度	0℃~+40℃
使用電池	Li-ion

本機の仕様および外観は、改良のため予告なく変更することがありますが、ご了承ください。

 : Points added portion.

Model information table
(Service manual page 3)

Model	DCR-HC44E	DCR-HC46	DCR-HC46E
Destination	AEP, UK, EE, NE	US, CND, E, KR, JE, J	AEP, UK, EE, NE, E, AUS, CH, HK, JE
Color system	PAL	NTSC	PAL
DV Interface on the Cradle (Handycam Station)	OUT	IN/OUT	IN/OUT

- Abbreviation
 - AR : Argentine model
 - AUS : Australian model
 - BR : Brazilian model
 - CH : Chinese model
 - CND : Canadian model
 - EE : East European model
 - HK : Hong Kong model
 - J : Japanese model
 - JE : Tourist model
 - KR : Korea model
 - NE : North European model

注意

電池の交換は、正しく行わないと破裂する恐れがあります。電池を交換する場合には必ず同じ型名の電池又は同等品と交換してください。

サービス、点検時には次のことにご注意下さい。

1. 注意事項をお守りください。

サービスのとき特に注意を要する個所については、キャビネット、シャーシ、部品などにラベルや捺印で注意事項を表示しています。これらの注意書き及び取扱説明書等の注意事項を必ずお守り下さい。

2. 指定部品のご使用を

セットの部品は難燃性や耐電圧など安全上の特性を持ったものとなっています。従って交換部品は、使用されていたものと同じ特性の部品を使用して下さい。特に回路図、部品表に△印で指定されている安全上重要な部品は必ず指定のものをご使用下さい。

3. 部品の取付けや配線の引きまわしはもとどおりに

安全上、チューブやテープなどの絶縁材料を使用したり、プリント基板から浮かして取付けた部品があります。また内部配線は引きまわしやクランパによって発熱部品や高圧部品に接近しないよう配慮されていますので、これらは必ずもとどおりにして下さい。

4. サービス後は安全点検を

サービスのために取外したネジ、部品、配線がもとどおりになっているか、またサービスした個所の周辺を劣化させてしまったところがないかなどを点検し、安全性が確保されていることを確認して下さい。

5. チップ部品交換時の注意

- 取外した部品は再使用しないで下さい。
- タンタルコンデンサのマイナス側は熱に弱いいため交換時は注意して下さい。

6. フレキシブルプリント基板の取扱いについて

- コテ先温度を270℃前後にして行なって下さい。
- 同一パターンに何度もコテ先を当てないで下さい。（3回以内）
- パターンに力が加わらないよう注意して下さい。

7. 無鉛半田について

無鉛半田を使用している基板には、無鉛（Lead Free）を意味するレッドフリーマークがプリントされています。

（注意：基板サイズによっては、無鉛半田を使用してもレッドフリーマークがプリントされていないものがあります）



：レッドフリーマーク

無鉛半田には、以下の特性があります。

- 融点が従来の半田よりも約40℃高い。
従来の半田こてをそのまま使用することは可能ですが、少し長めにこてを当てる必要があります。
温度調節機能のついた半田こてを使用する場合、約350℃に設定して下さい。
注意：半田こてを長く当てすぎると、基板のパターン（銅箔）がはがれてしまうことがありますので、注意して下さい。
- 粘性が強い
従来の半田よりも粘性が強いため、IC端子などが半田ブリッジしないように注意して下さい。
- 従来の半田と混ぜて使用可能
無鉛半田には無鉛半田を追加するのが最適ですが、従来の半田を追加しても構いません。

1. SERVICE NOTE

1-1. 修理時の電源供給について

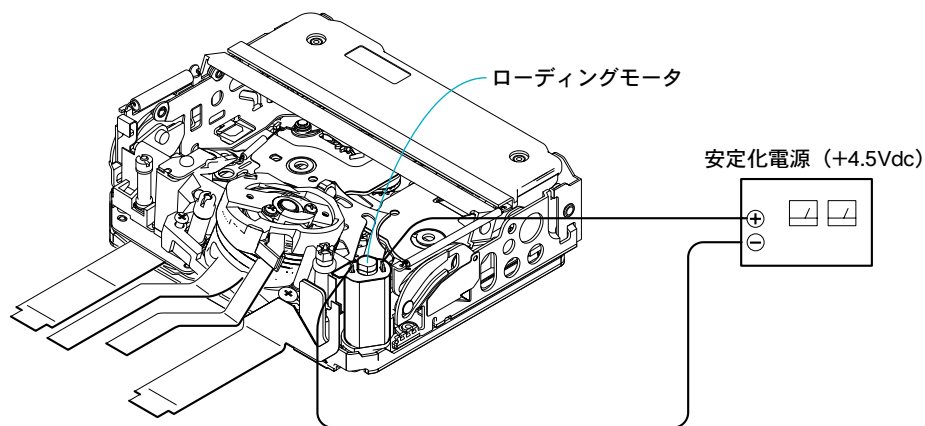
本機では、安定化電源（8.4Vdc）からバッテリー端子に電源を供給した場合、約10秒後にシャットオフし、動作しなくなります。これを避けるため、下記の方法を用いてください。

方法：

DC入力端子を使用する。（ACアダプタ（AC-L25A/L25Bなど）を使用する。）

1-2. イジェクトしない時のカセット取出し方法（強制イジェクト）

- ① 2. DISASSEMBLYを参照し、メカデッキを外す。
- ② カセコン組立を押さえながら、安定化電源より+4.5Vをローディングモータに加え、アンローディングさせる。



1-3. 強制電源ONモードの設定

調整リモコン（RM-95またはNEW LANC JIG）を使用して、電源を入れることができます。VTR操作は調整リモコンで行えます。

1-3-1. 強制カメラ電源ONモードの設定

- 1) ページ：0，アドレス：01にデータ：01をセット。
- 2) ページ：A，アドレス：10にデータ：01をセットしPAUSE（Write）ボタンを押す。

1-3-2. 強制VTR電源ONモードの設定

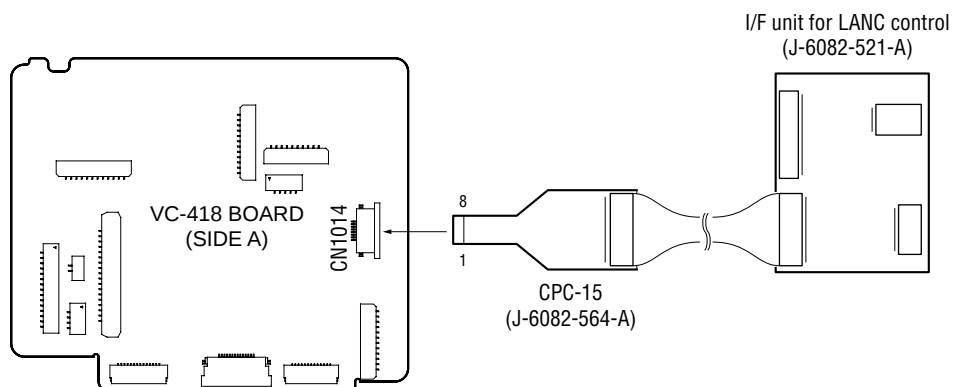
- 1) ページ：0，アドレス：01にデータ：01をセット。
- 2) ページ：A，アドレス：10にデータ：02をセットしPAUSE（Write）ボタンを押す。

1-3-3. 強制電源ONモードの解除

- 1) ページ：0，アドレス：01にデータ：01をセット。
- 2) ページ：A，アドレス：10にデータ：00をセットしPAUSE（Write）ボタンを押す。
- 3) ページ：0，アドレス：01にデータ：00をセット。

1-4. 使用サービス治具

CPC-15治具コネクタ (J-6082-564-A), LANC変換用I/F (J-6082-521-A) をVC-418基板CN1014に接続します。



1-5. 自己診断機能

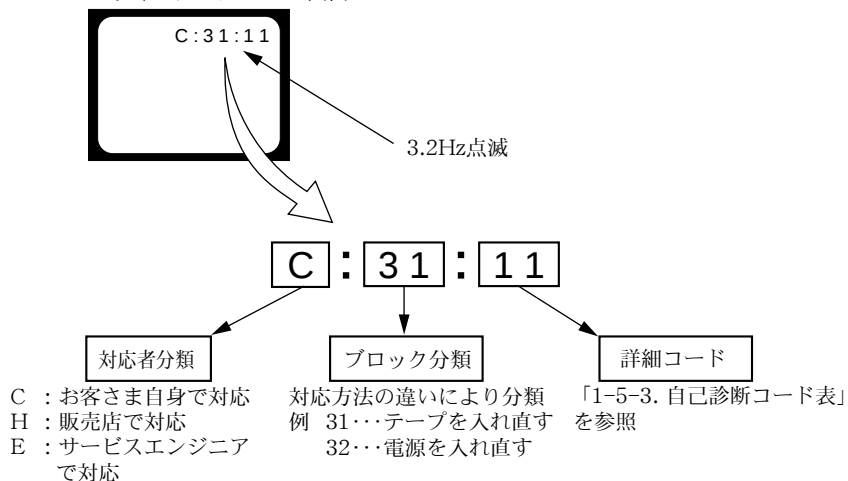
1-5-1. 自己診断機能について

本機の動作に不具合が生じたとき、自己診断機能が働き、ビューファインダまたはLCD画面に、どう処置したらよいか判断できる表示を行います。「自己診断表示」と「サービスモード表示」の2つの表示があります。自己診断機能については取扱説明書にも掲載されています。

1-5-2. 自己診断表示

本機の動作に不具合が生じたとき、ビューファインダまたはLCD画面のカウンタ表示部分がアルファベットと数字の4桁表示になり、3.2Hzで点滅します。この5文字の表示によって対応者分類および不具合の生じたブロックの分類、不具合の詳細コードを示します。

ビューファインダまたはLCD画面



1-5-3. 自己診断コード表

自己診断コード				症状／状態	対応／方法
対応者	ブロック機能	詳細コード			
C	0 4	0 0		標準でないバッテリーを使用している	インフォリチウムバッテリーを使用する
C	2 1	0 0		結露している	カセットを取り出して、約1時間してからもう一度入れ直す
C	2 2	0 0		ビデオヘッドが汚れている	別売のクリーニングカセットできれいにする
C	3 1	1 0		LOAD方向、ローディング所定時間内終了せず	テープを入れ直し、再度操作し直す
C	3 1	1 1		UNLOAD方向、ローディング所定時間内終了せず	テープを入れ直し、再度操作し直す
C	3 1	2 0		UNLOAD時、Tリール側テープ弛み	テープを入れ直し、再度操作し直す
C	3 1	2 1		UNLOAD時、Sリール側テープ弛み	テープを入れ直し、再度操作し直す
C	3 1	2 2		Tリール異常	テープを入れ直し、再度操作し直す
C	3 1	2 3		Sリール異常	テープを入れ直し、再度操作し直す
C	3 1	3 0		キャプスタン起動時FG異常	テープを入れ直し、再度操作し直す
C	3 1	3 1		キャプスタン定常時FG異常	テープを入れ直し、再度操作し直す
C	3 1	4 0		ドラム起動時FG異常	テープを入れ直し、再度操作し直す
C	3 1	4 1		ドラム起動時PG異常	テープを入れ直し、再度操作し直す
C	3 1	4 2		ドラム定常時FG異常	テープを入れ直し、再度操作し直す
C	3 1	4 3		ドラム定常時PG異常	テープを入れ直し、再度操作し直す
C	3 1	4 4		ドラム定常時位相異常	テープを入れ直し、再度操作し直す
C	3 2	1 0		LOAD方向、ローディング所定時間内終了せず	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	1 1		UNLOAD方向、ローディング所定時間内終了せず	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	2 0		UNLOAD時、Tリール側テープ弛み	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	2 1		UNLOAD時、Sリール側テープ弛み	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	2 2		Tリール異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	2 3		Sリール異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	3 0		キャプスタン起動時FG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	3 1		キャプスタン定常時FG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	4 0		ドラム起動時FG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	4 1		ドラム起動時PG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	4 2		ドラム定常時FG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	4 3		ドラム定常時PG異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す
C	3 2	4 4		ドラム定常時位相異常	バッテリーまたは電源ケーブルを外して付け直し、再度操作し直す

自己診断コード			症状／状態	対応／方法
対応者	ブロック機能	詳細コード		
E	6 1	0 0	フォーカスが合いにくい (フォーカスの初期化ができない)	フォーカス手動モードでタッチパネルを操作した時、フォーカス動作をすればレンズブロックのフォーカスMRセンサ(VC-418基板CN3801 ②, ④ピン)を点検。フォーカス動作をしなければフォーカスモータドライブ回路(VC-418基板IC3801)を点検。
E	6 1	1 0	ズーム動作の異常(ズームレンズの初期化ができない)	ズームレバーを操作した時、ズーム動作をすればレンズブロックのズームMRセンサ(VC-418基板CN3801 ⑩ピン)を点検。ズーム動作をしなければズームモータドライブ回路(VC-418基板IC3801)を点検。
E	6 1	1 1	フォーカスレンズ初期化異常, ズームレンズ初期化異常の同時発生	フレキシブル基板の切れ, 半挿しを点検。 問題がなければフォーカス, ズームモータドライブ回路(VC-418基板IC3801)を点検。
E	6 2	0 0	手振れ補正が効きにくい (PITCH角速度センサ出力張り付き)	PITCH角速度センサ(SI-053基板SE601)周辺回路点検
E	6 2	0 1	手振れ補正が効きにくい (YAW角速度センサ出力張り付き)	YAW角速度センサ(SI-053基板SE602)周辺回路点検

1-6. VC-418基板交換時の注意

Exif機種データ確認

補修用基板と交換する時、補修用基板に書かれているデータは元の設定と違っている場合があります。

基板交換などでデータが変更された場合は、Exif機種データが正しいか確認し、違っている場合は正しい値に書き換えてください。

Exif機種データ

ページ	アドレス	データ
		DCR-HC46
C	D2	34
C	D3	36
C	D4	00

書き換え方法：

- 1) ページ：0, アドレス：01にデータ：01をセットする。
- 2) ページ：C, アドレス：D2～D4にExif機種データをセットする。

注：不揮発性メモリ（EEPROM）に書き込むため、データをセットする度にPAUSE（Write）ボタンを押してください。

- 3) ページ：0, アドレス：01にデータ：00をセットする。

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS (JAPANESE)

回路図共通ノート

(他に必要なノートは各ブロックに記載してあります)

【回路図ノート】

- ・ケミコン、タンタルを除くコンデンサで、耐圧50V以下のものはその耐圧を省略。単位はすべて μF (pはpF)。
- ・チップ抵抗で指示のないものは、1/10W以下。
 $k\Omega=1000\Omega$, $M\Omega=1000k\Omega$
- ・チップ部品交換時の注意
取り外した部品は再使用せず、未使用の部品をご使用ください。
タンタルコンデンサのマイナス側は熱に弱いため注意してください。
- ・チップ部品には下記のように表示したものがあります。

例	C 541	L 452
	22U	10UH
	TA A	2520
	↑ ↑	↑
	種類 ケースサイズ	外形寸法 (mm)

- ・抵抗、コンデンサ、ICなど定数にXXがあるものは、使用していない事を示しています。このため、使用していない回路が記載されている事があります。
- ・★印のある部品は、機種などにより異なりますので機能別マウンティング表を参照してください。
- ・可変抵抗と半固定抵抗で、B特性の表示を省略。
- ・信号名表記について、下記のような場合があります。
XEDIT → EDIT PB/XREC → PB/REC

- ・ は不燃性抵抗。
- ・ はヒューズ抵抗。
- ・ はパネル表示名称。
- ・ はB+ライン。
- ・ はB-ライン。
- ・ はBライン (+, -) の入出力方向を示す。
- ・ は調整名称。
- ・ は未使用回路。

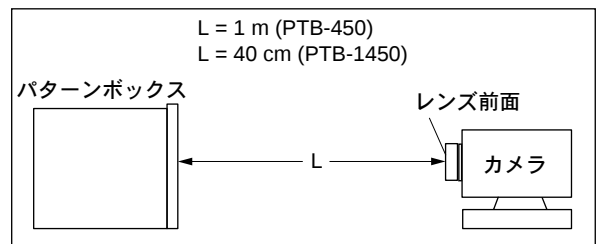
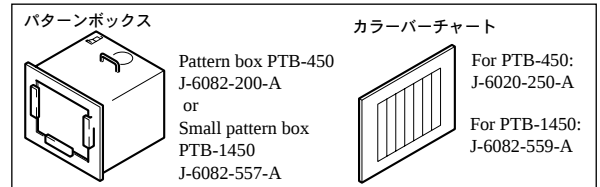
【電圧・波形測定条件ノート】

- ・電圧値及び信号波形はパターンボックスのカラーバーチャートを被写体としたときの測定点对アース間の参考値。
(デジタルマルチメータ；入力インピーダンス DC10M Ω 使用)
- ・使用テストの入力インピーダンスにより電圧値が多少異なります。

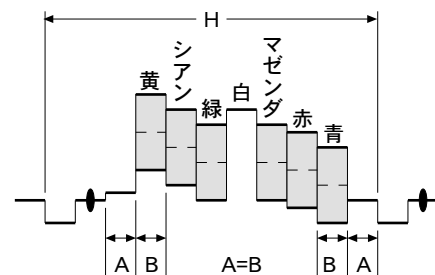
イメージ交換時の注意

- ・イメージを交換した場合は、カメラ部の全調整を行ってください。
 - ・イメージは構造上、静電気により破壊される恐れがあるため、MOS ICと同様に注意して取り扱ってください。
- また、受光部にはゴミの付着、および強い光がはいることのないように注意してください。

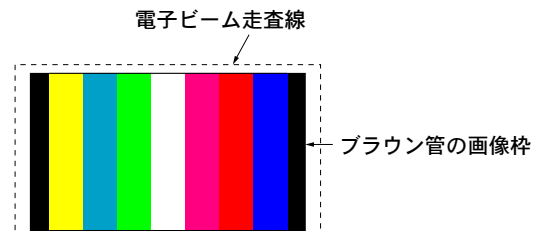
1. 接続図



2. 図a及び図bの波形が得られるように画枠調整して下さい。



図a (映像入出力端子出力波形)



図b (テレビモニタの映像)

△印の部品、または△印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用して下さい。

お願い
図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

4-3. PRINTED WIRING BOARDS

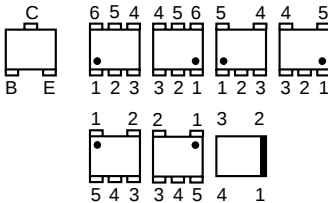
(ENGLISH)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

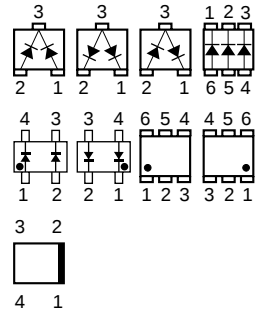
-  : Uses unleaded solder.
-  : Circuit board
-  : Flexible board
-  : Pattern from the side which enables seeing.
-  : pattern of the rear side
(The other layers' patterns are not indicated)
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.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

- Chip parts.

Transistor



Diode



(JAPANESE)

プリント図共通ノート

【プリント図ノート】

-  : 無鉛半田を使用しています。
-  : 基板
-  : フレキシブル配線板
-  : 見ている面側のパターン。
-  : 裏側のパターン
(他のパターンについては表示されていません)
- スルーホールは省略。
- プリント図には、本機で使用していない部品が記載されている場合があります。
-  はパネル表示名称。

5. REPAIR PARTS LIST

(ENGLISH)

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...

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.

(JAPANESE)

【使用上の注意】

- ここに記載されている部品は、補修用部品であるため、回路図及びセットに付いている部品と異なる場合があります。
- -XX, -Xは標準化部品のため、セットに付いている部品と異なる場合があります。
- *印の部品は常備在庫していません。
- コンデンサの単位でuFは μ Fを示します。
- 抵抗の単位 Ω は省略してあります。
金 被：金属被膜抵抗。
サンキン：酸化金属被膜抵抗。
- インダクタの単位でuHは μ Hを示します。
- 半導体の名称でuA..., uPA..., uPB..., uPC..., uPD...等はそれぞれ μ A..., μ PA..., μ PB..., μ PC..., μ PD...を示します。

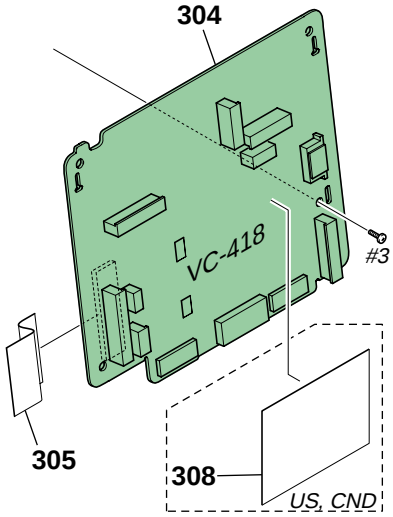
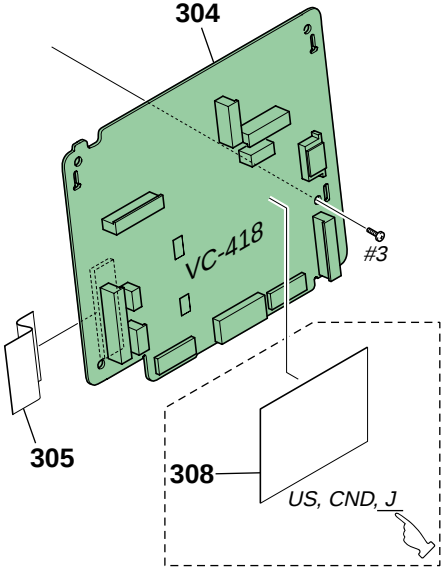
— お願い —
図面番号で部品を指定するときは基板名又はブロックを併せて指定してください。

$\triangle$ 印の部品、または $\triangle$ 印付の点線で囲まれた部品は、安全性を維持するために、重要な部品です。従って交換時は、必ず指定の部品を使用してください。

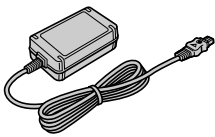
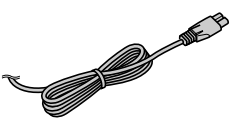
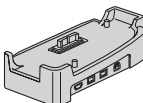
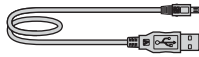
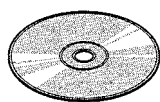
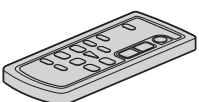
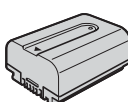
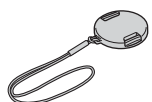
- Abbreviation
AR : Argentine model
AUS : Australian model
BR : Brazilian model
CH : Chinese model
CND : Canadian model
EE : East European model
HK : Hong Kong model
J : Japanese model
JE : Tourist model
KR : Korea model
NE : North European model

5-1. EXPLODED VIEWS

 : Points added portion.

Page	Former			New		
5-4	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
	110	X-2108-000-1	CABINET (M (173)) ASSY, P	110	X-2108-000-1	CABINET (M (173)) ASSY, P (EXCEPT J)
	—	—	—	110	X-2108-416-1	CABINET (M (175)) ASSY, P (J)
5-8						
	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
	303	1-479-507-21	KEY BLOCK, CONTROL (SS17000)	303	1-479-507-21	KEY BLOCK, CONTROL (SS17000) (EXCEPT J)
	—	—	—	303	1-479-507-31	KEY BLOCK, CONTROL (SS17000) (J)
	—	—	—	* 308	2-283-326-01	LABEL, CAUTION (J)

● J MODEL
付属品

		図面 番号	部品コード	部品名
	AC アダプター (AC-L25A/L25B) △ 1-479-288-13		△ 1-792-549-31	電源コード
	ハンディカムステーション △ 1-819-870-11 (DCRA-C151)		1-823-156-51	A/V 接続ケーブル
	USB ケーブル 1-829-868-31		CD-ROM 「Picture Package Ver. 1.5.1」 2-666-755-01	
	ワイヤレスリモコン RMT-831 1-478-495-31		リチャージブルバッテリーパック NP-FP50 (供給せず)	
	レンズキャップ X-2108-241-1			

● △マークについては、5-1ページを参照して下さい。

DCR-HC44E/HC46/HC46E

RMT-831

SONY®

LEVEL 2

SERVICE MANUAL

Ver 1.3 2006.08

US Model
Canadian Model
AEP Model
UK Model
East European Model
North European Model
E Model
Australian Model
Chinese Model
Hong Kong Model
Korea Model
Tourist Model
Japanese Model

SUPPLEMENT-2

File this supplement with the service manual.
(DI06-051)

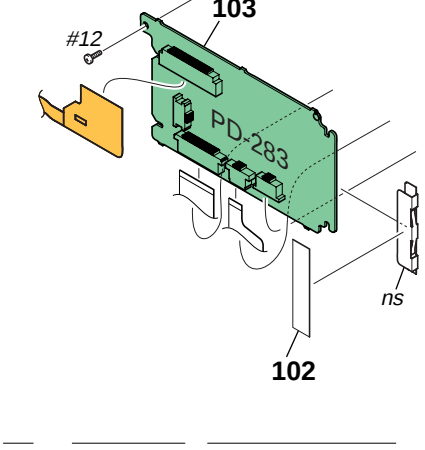
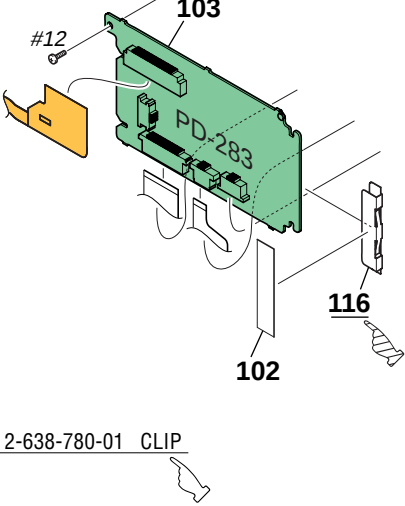
- Change of Board's Suffix No.
- Change of Repair Parts

- Suffix No. of FP-031 flexible board has been changed from **11** into **12**.
About suffix No. **11** and **12**, there are no changes of schematic diagram and printed wiring board.
- Suffix No. of FP-381 flexible board has been changed from **11**, **12** into **13**.
About suffix No. **11**, **12** and **13**, there are no changes of schematic diagram and printed wiring board.

5. REPAIR PARTS LIST

 : Points added portion.
 : Points changed portion.

5-1. EXPLODED VIEWS

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-3	51	X-2108-153-1	PANEL (173) ASSY, F	51	X-2108-153-4	PANEL (173) ASSY, F
5-4				 * 116 2-638-780-01 CLIP		
5-5	* 152	1-867-779-11	FP-381 FLEXIBLE BOARD	152	1-867-779-13	FP-381 FLEXIBLE BOARD
5-9	706	X-2024-450-1	COMPARTMENT ASSY, CASSETTE	706	X-2024-450-3	COMPARTMENT ASSY, CASSETTE
5-10	765	X-2024-468-1	ARM ASSY (S), GL	765	X-2024-468-3	ARM ASSY (S), GL
5-11	802	X-2024-463-1	SLIDER ASSY, MODE	802	X-2024-463-2	SLIDER ASSY, MODE

5-2. ELECTRICAL PARTS LIST

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-12	*	1-867-779-11	FP-381 FLEXIBLE BOARD *****		1-867-779-13	FP-381 FLEXIBLE BOARD *****
5-13	A-1153-876-A SI-053 BOARD, COMPLETE ***** < CONNECTOR >			A-1153-876-A SI-053 BOARD, COMPLETE ***** < CONNECTOR >		
	CN601	1-815-794-21	CONNECTOR (MULTIPLE) (A/V OUT)	CN601	1-815-794-13	CONNECTOR (MULTIPLE) (A/V OUT)

DCR-HC44E/HC46/HC46E

RMT-831

SONY®

LEVEL 2

SERVICE MANUAL

Ver. 1.4 2007.12

US Model
Canadian Model
AEP Model
UK Model
East European Model
North European Model
E Model
Australian Model
Chinese Model
Hong Kong Model
Korea Model
Tourist Model
Japanese Model

SUPPLEMENT-3

File this supplement with the service manual.
(DI07-240)

- Change of Board's Suffix No.
- Addition of VC-418 Board Type (DCR-HC46 only)
- Change of Repair Parts

- Suffix No. of FP-381 flexible board has been changed from **11**, **12**, **13** into **21**.
About suffix No. **11**, **12**, **13** and **21**, there are no changes of schematic diagram and printed wiring board.
- Suffix No. **21** is added to suffix No. of VC-418 board. (DCR-HC46 only)

This information supports the DCR-HC46 only.

There are three types in the VC-418 board as follows.

Type B is separated into the suffix -11 and the suffix -21.

1. SERVICE NOTE

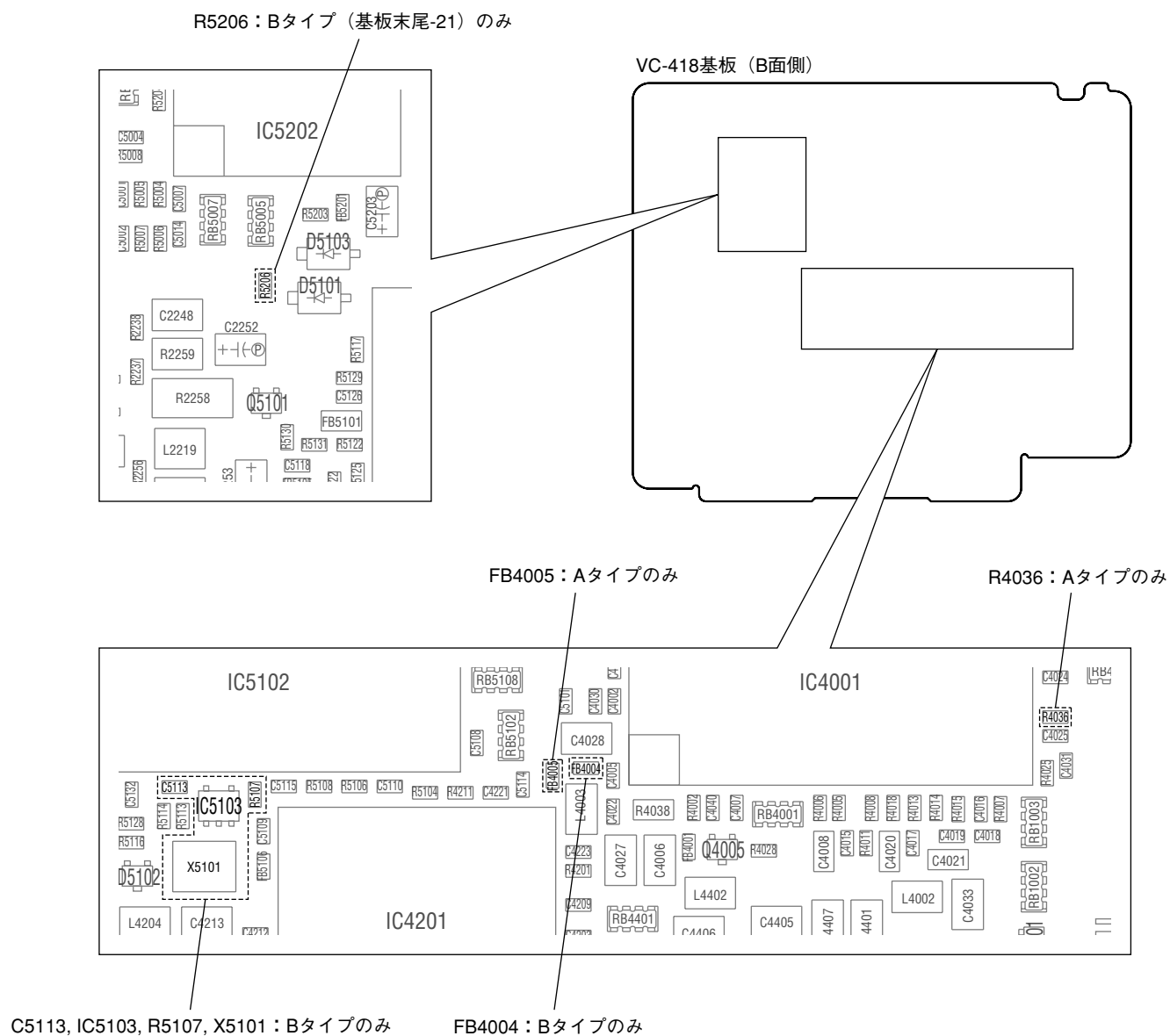
1-7. VC-418基板のタイプの相違 (DCR-HC46のみ)

VC-418基板は次の3種類に分かれます。

Bタイプは基板末尾-11と基板末尾-21とに分かれます。

	Aタイプ	Bタイプ
基板末尾：-11	○	○
基板末尾：-21	—	○

AタイプとBタイプおよび基板末尾の判別方法

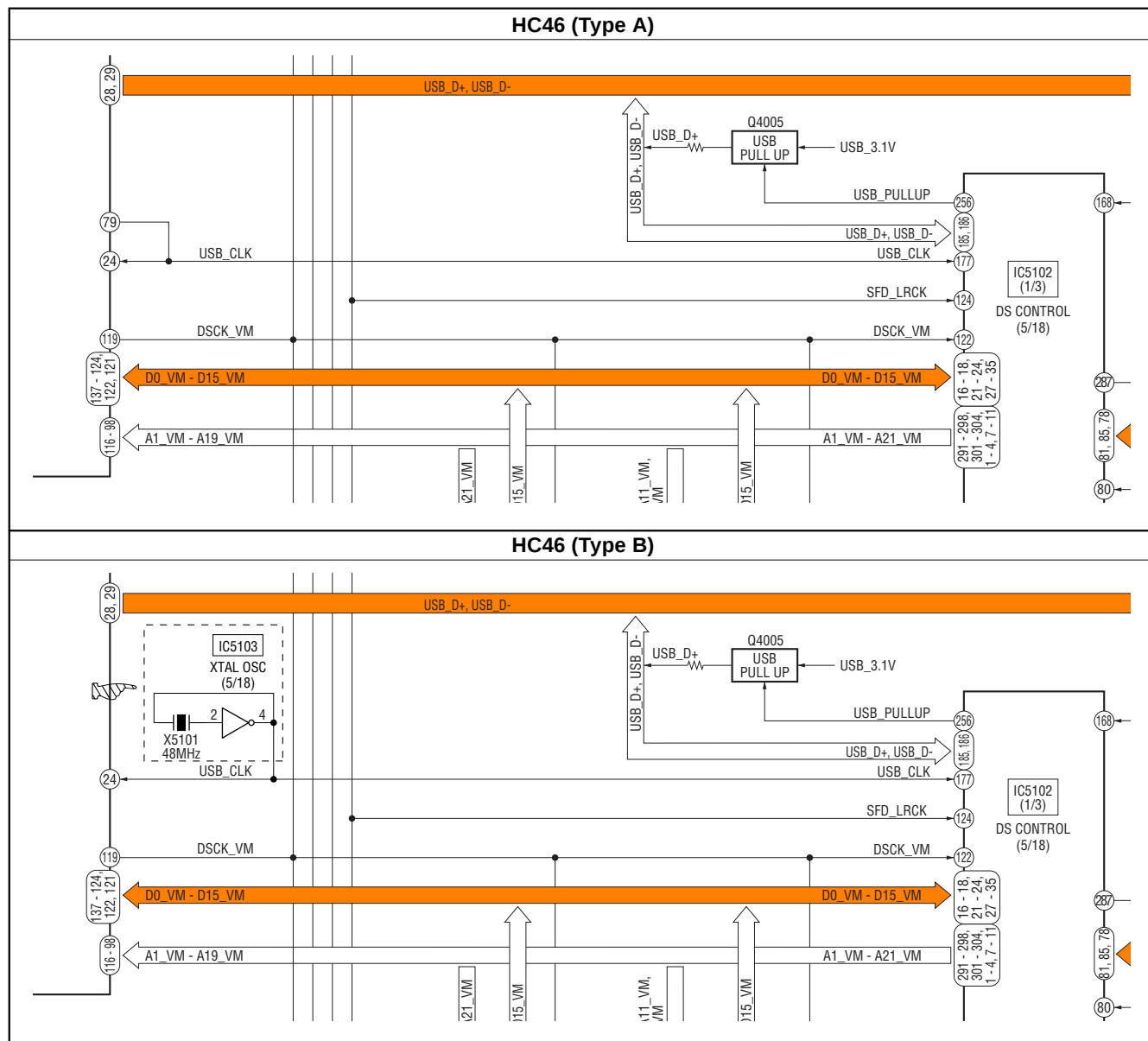


 : Points changed portion.

3. BLOCK DIAGRAMS

3-2. OVERALL BLOCK DIAGRAM (2/6)

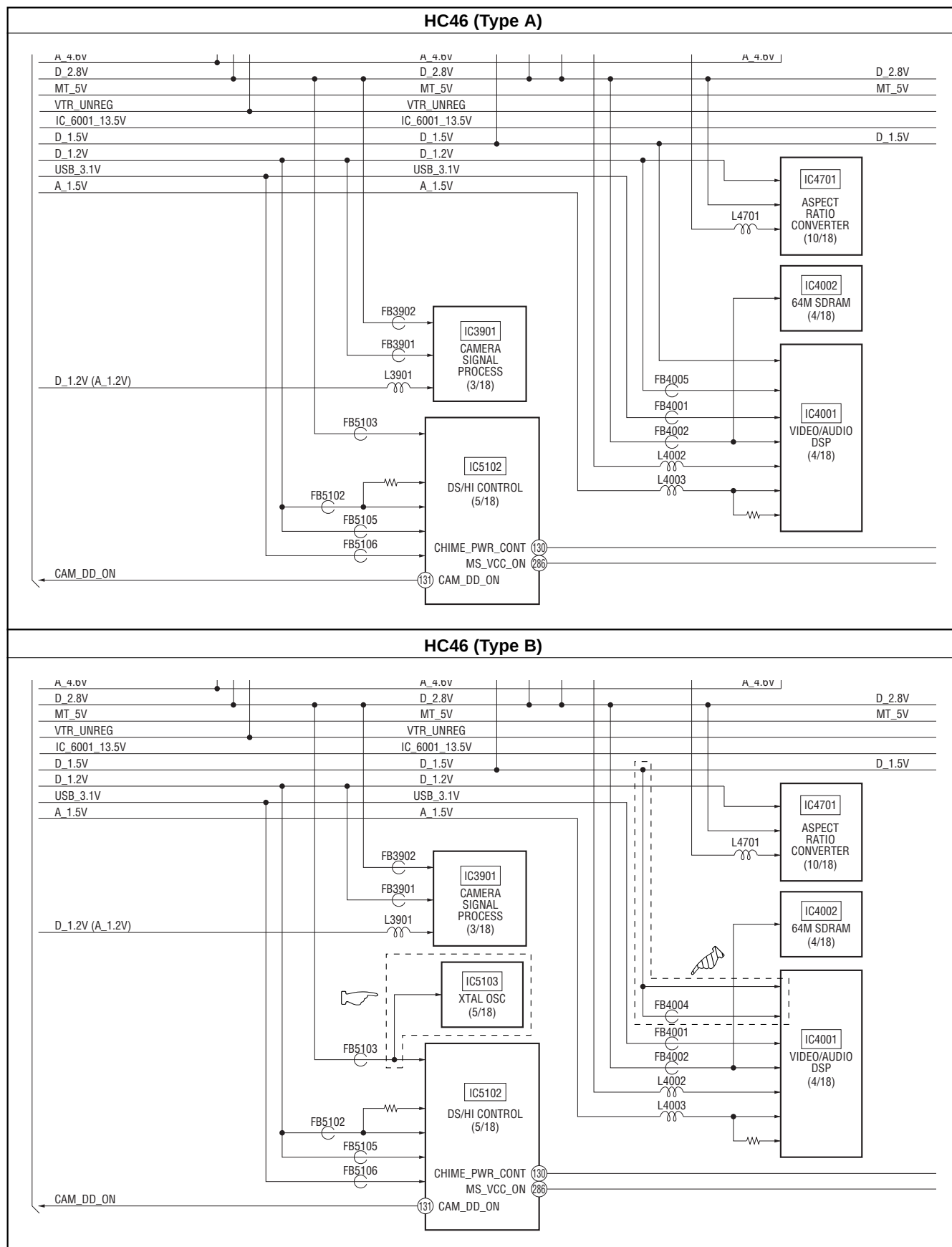
(Service manual page 3-2)



-  : Points added portion.
 : Points changed portion.

3-8. POWER BLOCK DIAGRAM (2/3)

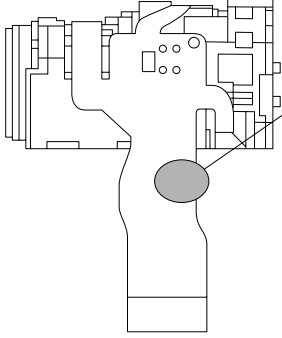
(Service manual page 3-8)



• Change of Repair Parts

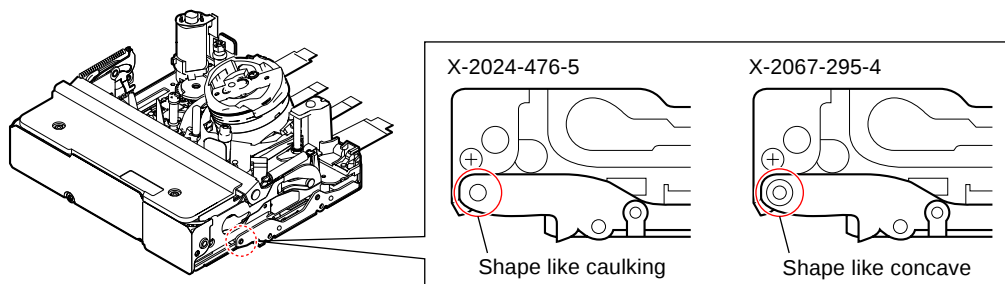
5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-5	152	1-867-779-13	FP-381 FLEXIBLE BOARD (Note)	152	1-867-779-21	FP-381 FLEXIBLE BOARD
5-6	201	8-848-812-01	LSV-1080C	201	8-848-812-01	LSV-1080C (Note 3)
				201	8-848-805-01	LSV-1080B (Note 3)
				Note 3: When the lens block is replaced, check the marking B or C on the lens flexible board, and replace the lens block with the same type. 		
5-9	709	2-342-933-01	PLATE, TOP	709	2-342-933-02	PLATE, TOP
	713	A-1080-997-A	MD (N100) SUB ASSY A	713	A-1156-601-A	MD (N110) SUB ASSY (S) A
5-10	756	X-2024-473-1	TABLE ASSY, S REEL	756	X-2067-290-1	TABLE ASSY, S REEL
	757	A-1083-007-B	BLOCKASSY, TENSION REGULATOR	757	A-1132-279-A	REGULATOR BLOCK ASSY, TENSION
	760	X-2024-474-1	TABLE ASSY, T REEL	760	X-2067-291-1	TABLE ASSY, T REEL
	761	X-2024-476-1	ARM ASSY, PINCH	761	X-2024-476-5	ARM ASSY, PINCH (Note 2)
				761	X-2067-295-4	ARM ASSY, PINCH (Note 2)
				Note 2: When replace the pinch arm assy, refer to "How to distinguish Pinch Arm Assy" below.		
5-11	Note 1: The FP-031 and FP-032 are supplied as the assembled part of the MD (N100) sub ass'y A by attaching them with the adhesive agent. These parts are not separately supplied because assembling of these parts requires high accuracy.			Note 1: The FP-031 and FP-032 are supplied as the assembled part of the MD (N110) sub ass'y (S) A by attaching them with the adhesive agent. These parts are not separately supplied because assembling of these parts requires high accuracy.		

Note: This part have been changed in the supplement-2 (9-876-930-84).

• How to distinguish Pinch Arm Assy



5-2. ELECTRICAL PARTS LIST

Page	Former			New		
5-12	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
		(Not supplied)	FP-031 FLEXIBLE BOARD ***** (This flexible board is included in MD (N100) SUB ASSY A (A-1080-997-A).)		(Not supplied)	FP-031 FLEXIBLE BOARD ***** (This flexible board is included in MD (N110) SUB ASSY (S) A (A-1156-601-A).)
		(Not supplied)	FP-032 FLEXIBLE BOARD ***** (This flexible board with S903 is included in MD (N100) SUB ASSY A (A-1080-997-A).)		(Not supplied)	FP-032 FLEXIBLE BOARD ***** (This flexible board with S903 is included in MD (N110) SUB ASSY (S) A (A-1156-601-A).)
	1-867-779-13		FP-381 FLEXIBLE BOARD (Note) *****	1-867-779-21		FP-381 FLEXIBLE BOARD *****
5-13	A-1153-877-A		LB-123 BOARD, COMPLETE ***** < CONNECTOR >	A-1153-877-A		LB-123 BOARD, COMPLETE ***** < CONNECTOR >
	* CN302	1-817-560-51	CONNECTOR, FPC (ZIP) 21P	* CN302	1-817-560-71	CONNECTOR, FPC (ZIP) 21P
5-14	A-1153-876-A		SI-053 BOARD, COMPLETE ***** < FERRITE BEAD >	A-1153-876-A		SI-053 BOARD, COMPLETE ***** < FERRITE BEAD >
	FB601	1-414-760-21	BEAD, FERRITE (CHIP) (1608)	FB601	1-500-238-11	BEAD, FERRITE (CHIP) (1608)
	FB602	1-414-760-21	BEAD, FERRITE (CHIP) (1608)	FB602	1-500-238-11	BEAD, FERRITE (CHIP) (1608)
			< SENSOR >			< SENSOR >
	SE601	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)	SE601	1-476-807-11	SENSOR, ANGULAR VELOCITY (22.4kHz) (PITCH)
	SE602	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)	SE602	1-476-807-21	SENSOR, ANGULAR VELOCITY (25.0kHz) (YAW)

Note: This part has been changed in the supplement-2 (9-876-930-84).

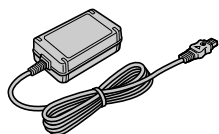
-  : Points added portion.
 : Points changed portion.

• EXCEPT J MODEL

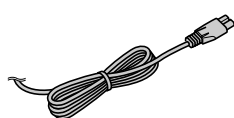
Checking supplied accessories.

to J MODEL

Note: This item is supplied with the unit as an accessory, but is not prepared as a service part.



AC Adaptor
(AC-L25A/L25B)
△ 1-479-288-13



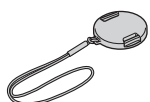
Power Cord
 △ 1-555-074-91 (AUS)
 △ 1-782-476-41 (CH)
 △ 1-783-374-22 (HK)
 △ 1-790-107-61 (US, CND)
 △ 1-792-549-41 (JE)
 △ 1-823-150-21 (AEP, EE, NE)
 △ 1-824-910-71 (E: PAL)
 △ 1-830-518-31 (E: NTSC)
 △ 1-830-736-31 (UK)
 △ 1-832-115-11 (KR)



Conversion (2P) Adaptor
△ 1-569-007-12
(E: NTSC, JE)



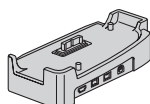
Conversion (2P) Adaptor
△ 1-569-008-12
(E: PAL, HK)



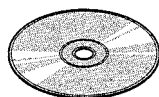
Lens Cap
X-2108-241-1



A/V Connection Cable
1-823-156-51



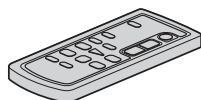
Handycam Station
△ 1-819-870-11
(DCRA-C151)
(HC46/HC46E)
△ 1-819-870-31
(DCRA-C150)
(HC44E)



CD-ROM
"Picture Package Ver. 1.5.1"
2-666-755-01



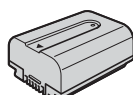
USB Cable
1-829-868-31



Wireless Remote Commander
RMT-831
1-478-495-41



21-pin Adaptor
1-770-783-21
(AEP, UK, EE, NE)



Rechargeable Battery Pack
NP-FP50
(Note) 

Other accessories

2-659-813-11	MANUAL, INSTRUCTION (ENGLISH) (HC46: US, CND, E, JE)
2-659-813-21	MANUAL, INSTRUCTION (FRENCH) (CND)
2-659-813-31	MANUAL, INSTRUCTION (SPANISH) (HC46: E, JE)
2-659-813-41	MANUAL, INSTRUCTION (PORTUGUESE) (HC46: JE)
2-659-813-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (E)
2-659-813-61	MANUAL, INSTRUCTION (KOREAN) (HC46: KR, JE)
2-659-814-11	MANUAL, INSTRUCTION (ENGLISH) (HC44E: AEP, UK/HC46E: AEP, UK, JE, E, HK, AUS)
2-659-814-21	MANUAL, INSTRUCTION (FRENCH) (AEP)
2-659-814-31	MANUAL, INSTRUCTION (GERMAN, DUTCH) (AEP)
2-659-814-41	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (AEP)
2-659-814-51	MANUAL, INSTRUCTION (ITALIAN, GREECE) (AEP)
2-659-814-61	MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (HC44E: NE/HC46E: NE, JE)
2-659-814-71	MANUAL, INSTRUCTION (DANISH, FINNISH) (NE)
2-659-814-81	MANUAL, INSTRUCTION (POLISH, CZECH) (EE)
2-659-814-91	MANUAL, INSTRUCTION (HUNGARIAN, SLOVAKIAN) (EE)
2-665-186-11	MANUAL, INSTRUCTION (ARABIC, PERUVIAN) (HC46E: E)
2-665-186-21	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HK)
2-665-186-31	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (HC46E: JE, E, CH)

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.

 : 追加箇所
 : 変更箇所

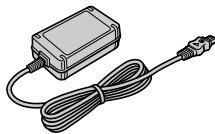
● J MODEL

付属品

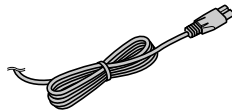
Note : 当商品はアクセサリとして同梱されておりますがサービス用補修部品としては準備しておりません。

図面
番号

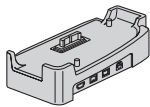
部品コード 部品名
2-683-427-01 取扱説明書



AC アダプター
(AC-L25A/L25B)
△ 1-479-288-13



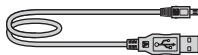
電源コード
△ 1-792-549-41



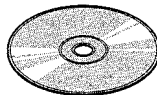
ハンディカムステーション
△ 1-819-870-11
(DCRA-C151)



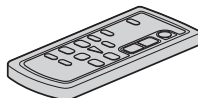
A/V 接続ケーブル
1-823-156-51



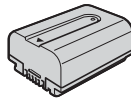
USB ケーブル
1-829-868-31



CD-ROM
「Picture Package Ver. 1.5.1」
2-666-755-01



ワイヤレスリモコン
RMT-831
1-478-495-31



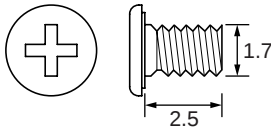
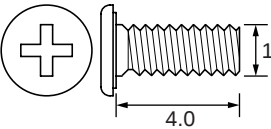
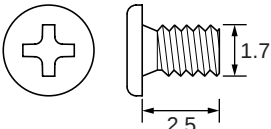
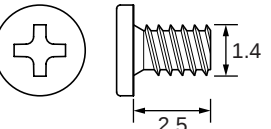
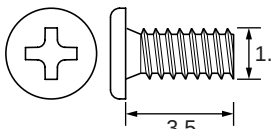
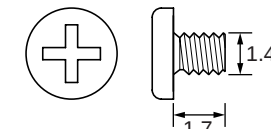
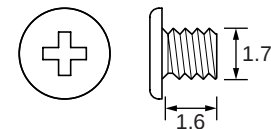
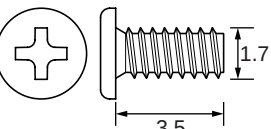
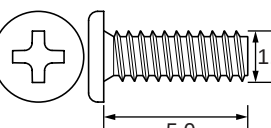
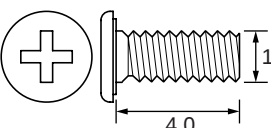
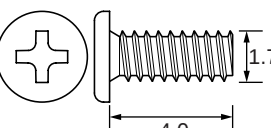
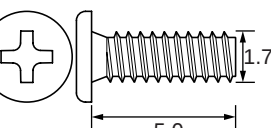
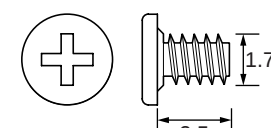
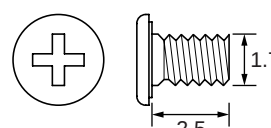
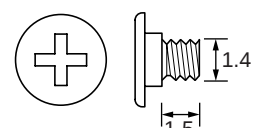
リチャージブルバッテリーパック
NP-FP50
(Note) 



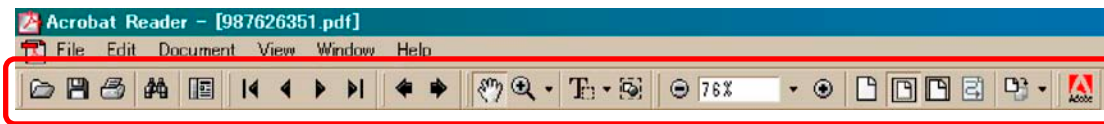
レンズキャップ
X-2108-241-1

△印の部品、または△印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用して下さい。

HARDWARE LIST

#1: M1.7 X 2.5 (Black) 2-635-562-11 	#2: M1.7 X 4.0 (Black) 2-635-562-31 	#3: M1.7 X 2.5 (Red) 2-660-401-01 	#4: M1.4 X 2.5 (Dark Silver) 3-348-998-81 
#5: M1.7 X 3.5 (Black) 3-080-204-01 	#6: M1.4 X 1.7 (Silver) 2-598-474-01 	#7: M1.7 X 1.6 (Black) 7-627-552-18 	#8: M1.7 X 3.5 (Silver) 3-078-890-01 
#9: M1.7 X 5.0 (Silver) 3-078-890-21 	#10: M1.7 X 4.0 (Silver) 2-599-475-31 	#11: M1.7 X 4.0 (Silver) 3-078-890-11 	#12: M1.7 X 5.0 (Black) 3-080-204-21 
#13: M1.7 X 2.5 (Silver) 3-085-397-01 	#14: M1.7 X 2.5 (Silver) 2-599-475-11 	#15: M1.4 X 1.5 (Silver) 3-062-214-01 	

[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]



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:

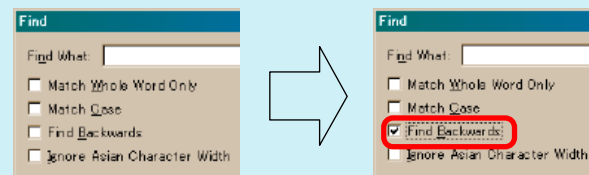
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

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.

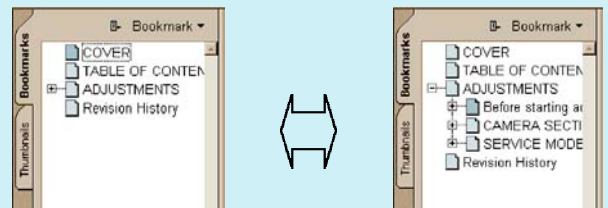
Moving with link

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.

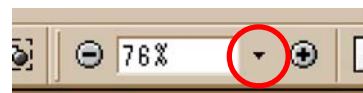
(To go back to original state, click )



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.

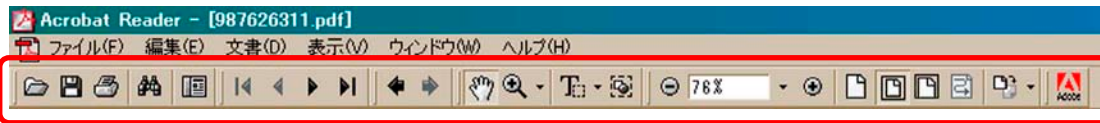
Application to the Service Manual:

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 .

【Adobe Acrobat Reader Ver 5.0(for Windows)ツールバーにある主なボタンの機能説明】



文章を印刷する

1. 印刷ボタンをクリックする。
2. プリンター、印刷範囲、印刷部数、および他のオプションを指定して「OK」をクリックする。

印刷の応用：

ページ内で印刷したい範囲を設定するには、グラフィック選択ツールを選択し、ページ上をドラッグして印刷したい範囲を囲ってから印刷ボタンをクリックする。

文章内を検索する

1. 検索ボタンをクリックする。
2. 検索したい文字列をテキストボックスに入力して「検索」をクリックする。(必要に応じて検索オプションを指定する)

サービスマニュアルへの応用：

現在のページから前ページに向かって検索する場合は「先頭に向かって検索」のチェックボックスを選択してから「検索」をクリックする。



3. 検索ダイアログボックスをもう一度開き、「次を検索」をクリックすると次に出てくる一致文字列を検索することができる。(前回入力した文字列が、テキストボックスにそのまま表示されている)

サービスマニュアルへの応用：

文章内にある図面ページ(ブロックダイアグラム、回路図、プリント図)および部品表ページなどは、この検索機能を使って部品検索することができる。例えば、ブロックダイアグラム上でICのRef. No.を検索し、「次を検索」を続けることによって回路図、プリント図上にあるICのRef. No.へ次々と移動する。

注意:発行年月日によって検索できない場合もあります。

ページを切り換える

- 最初のページに移動する場合、をクリックする。
- 最後のページに移動する場合、をクリックする。
- 前のページに移動する場合、をクリックする。
- 次のページに移動する場合、をクリックする。

一度表示した画面へ逆戻りする

- 前の画面(操作)へ1つずつ逆戻りする場合、をクリックする。
- 戻した画面(操作)を1つずつ前に進める場合、をクリックする。

サービスマニュアルへの応用：

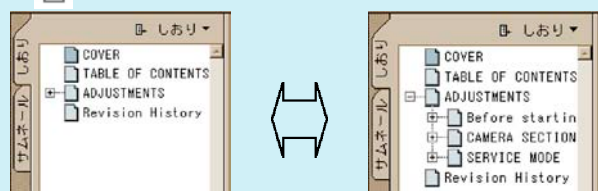
回路図とプリント図を行き来できるので電圧チェックに便利です。

リンクを使用して移動する

1. 手のひらツール、ズームツール、テキスト選択ツール、グラフィック選択ツールのいずれかを選択する。
2. 文章内のリンクのある場所(表紙および章目次ページのボタン、外し方のフローページ、図面ページでは文字が青色になっているところなど)にポインタを置くと、ポインタが人差し指の形に変わる。
3. そのままリンクをクリックする。(リンク先へ移動する)

しおりを利用して移動する：

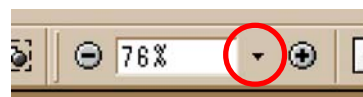
しおりパレット上の項目(テキスト)をクリックするとリンク先へ移動することができる。また、「+」をクリックすると隠れている項目を表示することができる。
(「-」をクリックすると元に戻る)



画面の表示を拡大、縮小または回転させる

「拡大/縮小」

- 倍率ボックスの三角矢印ボタンをクリックし、表示倍率を選択する。または、をクリックしても使えます。



「回転」

- 回転ツールをクリックすると、ページが90度ずつ回転する。

サービスマニュアルへの応用：

見ているプリント図をセットと同じ向きに変えられます。

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2006.01	Official Release	—	—
1.1	2006.03	Supplement-1 (S1 PV05-097)	• Addition of Japanese Model • Addition of Japanese Notes	No
1.2	2006.05	Correction-1 (C1)	• Correction of Repair Parts S. M. correction: Page 5-21 S. M. Supplement-1 correction: Page 5-3 (Because the Supplement-1 was corrected, the Ver. is Changed from 1.1 to 1.2.)	Yes
1.3	2006.08	Supplement-2 (S2 DI06-051)	• Change of Board's Suffix No. • Change of Repair Parts	No
1.4	2007.12	Supplement-3 (S3 DI07-240)	• Change of Board's Suffix No. • Addition of VC-418 Board Type (DCR-HC46 only) • Change of Repair Parts	No