DCR-HC17E/HC19E/HC21/HC21E/HC22E/ HC32/HC32E/HC33/HC33E

RMT-830/831

SERVICE MANUAL

LEVEL 2

Ver 1.4 2006.10
Revision History

How to use Acrobat Reader

Photo: DCR-HC32

DCR-HC21/HC32
US Model
Canadian Model
Korea Model

DCR-HC17E/HC19E/HC22E/HC32E
AEP Model
East European Model
North European Model

DCR-HC19E/HC22E/HC32E
UK Model

DCR-HC21/HC21E/HC32/HC32E
E Model

DCR-HC21E/HC32E
Australian Model
Hong Kong Model

DCR-HC21/HC33
Brazilian Model

DCR-HC21E/HC33E
Chinese Model

DCR-HC32/HC32E
Tourist Model

Z MECHANISM (MDX-Z210)

Link

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

NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

- For ADJUSTMENTS (SECTION 6), refer to SERVICE MANUAL, ADJ (9-876-782-51).
- For INSTRUCTION MANUAL, refer to SERVICE MANUAL, LEVEL 1 (9-876-782-41).
- For MECHANISM ADJUSTMENTS, refer to the “DV MECHANICAL ADJUSTMENT MANUAL VIII Z (Z200/Z210/Z300/Z310) MECHANISM ” (9-876-724-1□).
- Reference No. search on printed wiring boards is available.
- Table for differences of function of each model.
- TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)
- HELP: Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

On the VC-376/377 boards
This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-376/377 boards.
Therefore, schematic diagrams, printed wiring boards, mounted parts location and electrical parts list of the VC-376/377 boards are not shown.

Mini DV Digital Video Cassette

DIGITAL VIDEO CAMERA RECORDER

SONY®

DCR-HC17E/HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E
9-876-782-31
Sony EMCS Co.
2006J0500-1

Published by Kohda TEC

Self Diagnosis Supported model

HANDYCAM

MEMORY STICK ™

InfoLITHIUM P SERIES

SPECIFICATIONS

System

Video recording system	2 rotary heads, Helical scanning system
DCR-HC32/HC32E/HC33/HC33E:	
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	DCR-HC21/HC32/HC33: NTSC color, EIA standards DCR-HC17E/HC19E/HC21E/HC22E/HC32E/HC33E: PAL color, CCIR standards
Usable cassette	Mini DV cassette with the Mini DV mark printed
Tape speed	SP: Approx. 18.81 mm/s LP: Approx. 12.56 mm/s
Recording/playback time	SP: 60 min LP: 90 min (using a DVM60 cassette)
Fast forward/rewind time	Approx. 2 min 40 s (using a DVM60 cassette)
Viewfinder	Electric viewfinder (black and white)
Image device	3 mm (1/6 type) CCD (Charge Coupled Device) DCR-HC32/HC33: Gross: Approx. 680 000 pixels Effective (still): Approx. 340 000 pixels Effective (movie): Approx. 340 000 pixels DCR-HC21: Gross: Approx. 680 000 pixels Effective (movie): Approx. 340 000 pixels DCR-HC17E/HC19E/HC21E/HC22E: Gross: Approx. 800 000 pixels Effective (movie): Approx. 400 000 pixels DCR-HC32E/HC33E: Gross: Approx. 800 000 pixels Effective (still): Approx. 400 000 pixels Effective (movie): Approx. 400 000 pixels
Lens	Carl Zeiss Vario-Tessar Combined power zoom lens Filter diameter: 25 mm (1 in.) 20 × (Optical), 640 × (Digital, DCR-HC17E), 800 × (Digital, DCR-HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E) F=1.8 - 3.1
Focal length	f=2.3 - 46 mm (3/32 - 1 13/16 in.) When converted to a 35 mm still camera DCR-HC17E/HC19E/HC21/HC21E/HC22E: In CAMERA: 44 - 880 mm (1 3/4 - 34 1/32 in.) DCR-HC32/HC32E/HC33/HC33E: In CAMERA-TAPE: 44 ~ 880 mm (1 3/4 - 34 1/32 in.) In CAMERA-MEMORY: 44 ~ 880 mm (1 3/4 - 34 1/32 in.)
Color temperature	[AUTO], [ONE PUSH], [INDOOR] (3 200 K), [OUTDOOR] (5 800 K)
Minimum illumination	5 lx (lux) (F 1.8) 0 lx (lux) (during NightShot plus function)*2

*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 Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/Output connectors

Audio/Video input/output (DCR-HC32/HC32E/HC33/HC33E)	10-pin connector Input/output auto switch Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.286 Vp-p, 75 Ω (ohms, DCR-HC32/HC33), 0.3 Vp-p, 75 Ω (ohms, DCR-HC32E/HC33E), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Input impedance more than 47 kΩ (kilohms), Output impedance with less than 2.2 kΩ (kilohms)
Audio/Video output (DCR-HC17E/HC19E/HC21/HC21E/HC22E)	10-pin connector Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.286 Vp-p, 75 Ω (ohms, DCR-HC21), 0.3 Vp-p, 75 Ω (ohms, DCR-HC17E/HC19E/HC21E/HC22E), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)
USB jack (DCR-HC17E/HC19E/HC21/HC21E)	mini-B
LANC jack	Stereo mini-minijack (ϕ 2.5 mm)
DV input/output (DCR-HC21/HC21E)	4- pin connector
DV output (DCR-HC17E/HC19E)	4- pin connector

LCD screen

Picture	6.2 cm (2.5 type)
Total dot number	123 200 (560 × 220)

General

Power requirements	DC 7.2 V (battery pack) DC 8.4 V (AC Adaptor)
Average power consumption	DCR-HC32/HC32E/HC33/HC33E: During camera recording using the viewfinder 2.1 W During camera recording using the LCD 2.5 W During camera recording using the viewfinder and the LCD 2.6 W DCR-HC17E/HC19E/HC21/HC21E/HC22E: During camera recording using the viewfinder 1.9 W During camera recording using the LCD 2.4 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.)	54.7 × 90 × 111.7 mm (2 1/4 × 3 5/8 × 4 1/2 in.) (w/h/d)
Mass (approx.)	400 g (14 oz) main unit only 460 g (1 lb) including the NP-FP30 rechargeable battery pack and DVM60 cassette.
Supplied accessories	AC Adaptor (1) Power cord (1) Handycam Station (1) (DCR-HC22E/HC32/HC32E/HC33/HC33E) Wireless Remote Commander (1) (DCR-HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E) A/V connecting cable (1) USB cable (1) (DCR-HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E) Shoulder Strap (1) (DCR-HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E) Rechargeable battery pack NP-FP30 (1) CD-ROM "Picture Package Ver. 1.5" (1) Shoe cover (1) Operating Guide (1) 21-pin adaptor (1) (DCR-HC22E/HC32E) Conversion 2P adaptor (1) (DCR-HC21/HC32: E, JE/HC32E: JE) "Memory Stick Duo" 16MB (1) (DCR-HC33/HC33E) Memory Stick Duo adaptor (1) (DCR-HC33/HC33E) See page 5-29

– Continued on next page –

Handycam Station DCRA-C121 (DCR-HC32/HC32E/HC33/HC33E)

Audio/Video input/output	10-pin connector Input/output auto switch Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.286 Vp-p, 75 Ω (ohms, DCR-HC32/HC33), 0.3 Vp-p, 75 Ω (ohms, DCR-HC32E/HC33E), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Input impedance more than 47 kΩ (kilohms), Output impedance with less than 2.2 kΩ (kilohms)
USB jack	mini-B
DV input/output	4-pin connector

Handycam Station DCRA-C122 (DCR-HC22E)

Audio/Video output	10-pin connector Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.3 Vp-p, 75 Ω (ohms,), unbalanced Audio signal: 327 mV (at output impedance more than 47 kΩ (kilohms)), Otput impedance with less than 2.2 kΩ (kilohms)
USB jack	mini-B
DV input/output	4-pin connector

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 power cord

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

Rechargeable battery pack NP-FP30

Maximum output voltage	DC 8.4 V
Output voltage	DC 7.2 V
Capacity	3.6 wh (500 mAh)
Dimensions (approx.)	31.8 × 18.5 × 40.5 mm (1 5/16 × 3/4 × 1 13/16 in.) (w/h/d)
Mass (approx.)	40 g (1.5 oz)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Type	Lithium ion

Design and specifications are subject to change without notice.

Table for differences of function

NON MS model

Model	DCR-HC17E	DCR-HC19E	DCR-HC21	DCR-HC21E	DCR-HC22E
Destination	AEP, NE, EE	AEP, UK, NE, EE	US, CND, E, KR, BR	E, HK, AUS, CH	AEP, UK, NE, EE
Color system	PAL	PAL	NTSC	PAL	PAL
Memory Stick Duo	×	×	×	×	×
A/V jack	OUT	OUT	OUT	OUT	OUT
DV Interface	OUT	OUT	IN/OUT	IN/OUT	IN/OUT (Note)
Remote commander	×	○ (RMT-830)	○ (RMT-830)	○ (RMT-830)	○ (RMT-830)
Cradle (Handycam Station)	×	×	×	×	○
CR board	×	×	×	×	CR-050
VC board	VC-376	VC-376	VC-376	VC-376	VC-376

MS model

Model	DCR-HC32	DCR-HC32E	DCR-HC33	DCR-HC33E
Destination	US, CND, E, KR, JE	AEP, UK, NE, EE, E, HK, AUS, JE	BR	CH
Color system	NTSC	PAL	NTSC	PAL
Memory Stick Duo	○	○	○	○
A/V jack	IN/OUT	IN/OUT	IN/OUT	IN/OUT
DV Interface	IN/OUT (Note)	IN/OUT (Note)	IN/OUT (Note)	IN/OUT (Note)
Remote commander	○ (RMT-831)	○ (RMT-831)	○ (RMT-831)	○ (RMT-831)
Cradle (Handycam Station)	○	○	○	○
CR board	CR-050	CR-050	CR-050	CR-050
VC board	VC-377	VC-377	VC-377	VC-377

Note: DV Interface on the Cradle (Handycam Station)

- Abbreviation
  AUS : Australian model
  BR : Brazilian model
  CH : Chinese model
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  JE : Tourist model
  KR : Korean 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 PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS 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.

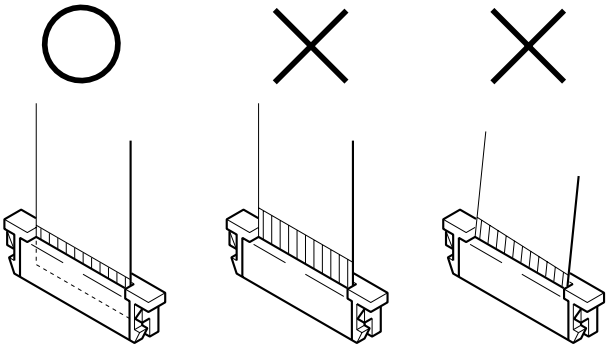
- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed 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.

TABLE OF CONTENTS

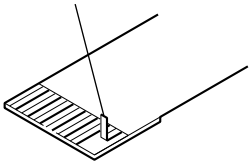
1. SERVICE NOTE

1-1. NOTE FOR REPAIR

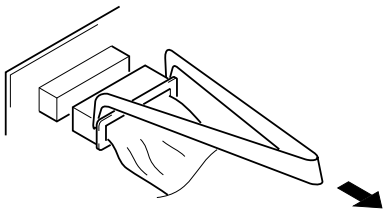
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



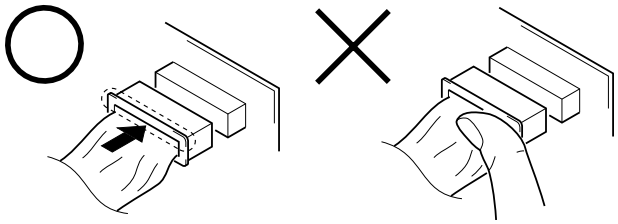
Cut and remove the part of gilt which comes off at the point. (Be careful or some pieces of gilt may be left inside)



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.



1-2. POWER SUPPLY DURING REPAIRS

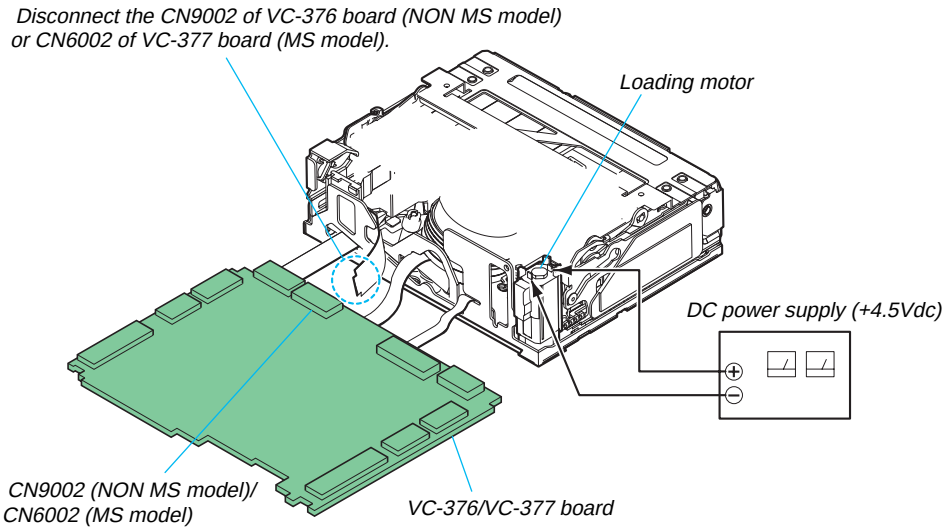
In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
These following method is available to prevent this.

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

1-3. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to “2. DISASSEMBLY” to remove the mechanism deck block.
② Disconnect the CN9002 of VC-376 board (NON MS model) or CN6002 of VC-377 board (MS model).
③ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.

NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E



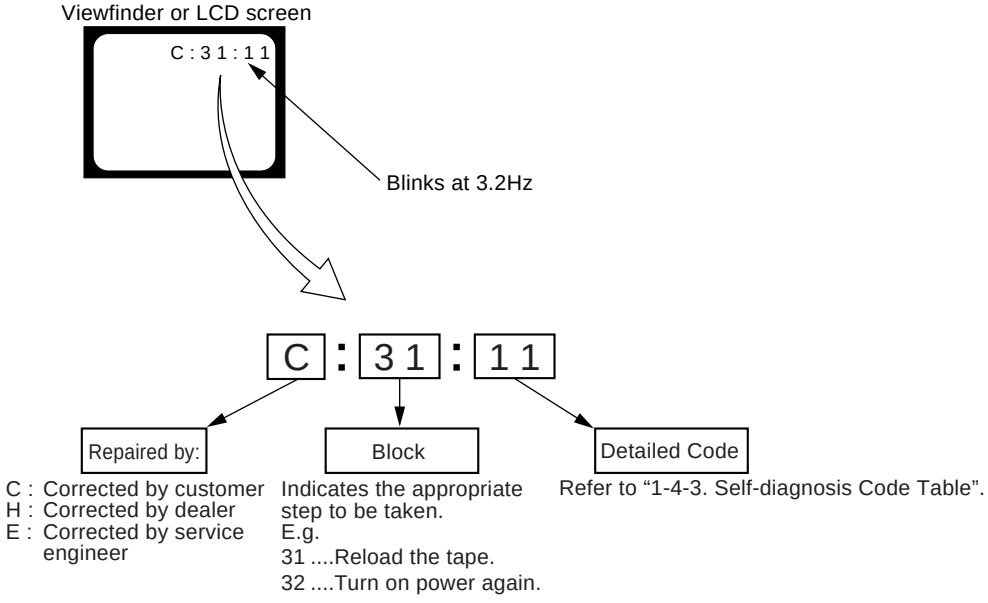
1-4. SELF-DIAGNOSIS FUNCTION

1-4-1. 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.

1-4-2. 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.



1-4-3. Self-diagnosis Code Table

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

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Note) when focusing is performed when the touch panel is operated in the focus manual mode and the focus motor drive circuit (Note) 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 (Note) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (Note) when zooming is not performed.
E	6 1	1 1	Focus lens intializing 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 (Note).
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-042 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-042 board) peripheral circuits.

Note:

Focus reset sensor	Pin ㉑ of CN3101 on VC-376 board (NON MS model)
	Pin ㉑ of CN3701 on VC-377 board (MS model)
Focus motor drive circuit	IC3101 of VC-376 board (NON MS model)
	IC3707 of VC-377 board (MS model)
Zoom reset sensor	Pin ⑯ of CN3101 on VC-376 board (NON MS model)
	Pin ⑯ of CN3701 on VC-377 board (MS model)
Zoom motor drive circuit	IC3101 of VC-376 board (NON MS model)
	IC3707 of VC-377 board (MS model)

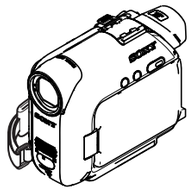
NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

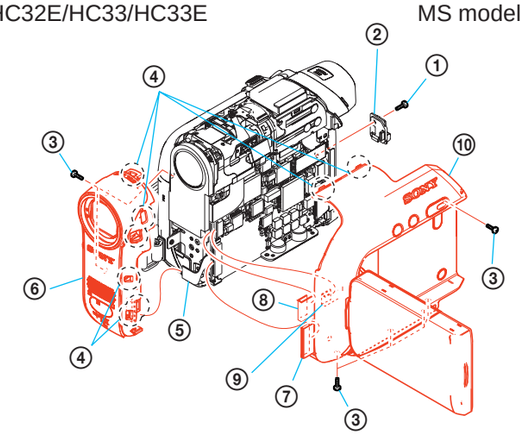
2. DISASSEMBLY

The following flow chart shows the disassembly procedure.

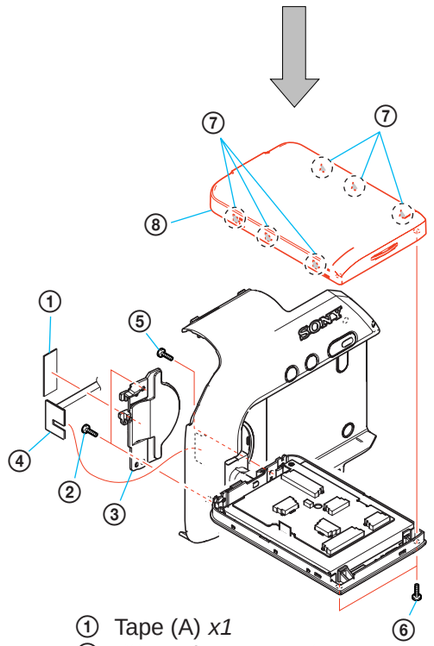
2-1. DISASSEMBLY

Non Cradle model: DCR-HC17E/HC19E/HC21/HC21E
Cradle model: DCR-HC22E/HC32E/HC33/HC33E



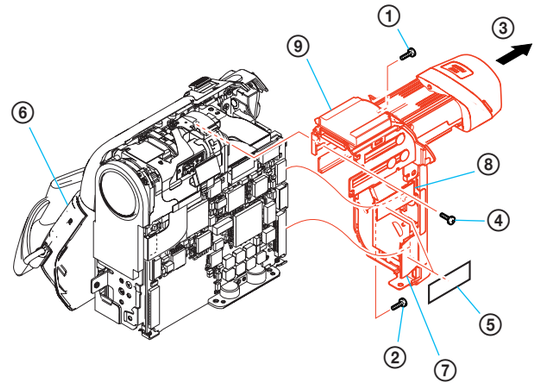


① P2 lock ace screw (M1.7) *x1*
② Cpc lid
③ Screw (M1.7) *x7*
④ Claw *x8*
⑤ Flexible flat cable (FFC-038): CN603
⑥ F panel block
⑦ FP-190 flexible board: CN1003 (cradle model)
⑧ FP-185 flexible board: CN1006
⑨ FP-187 flexible board: CN1002
⑩ Cabinet (R) block

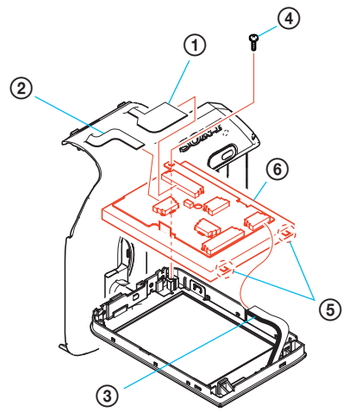


① Tape (A) *x1*
② P2 tapping screw *x2*
③ Hinge blind
④ FP-187 flexible board
⑤ Tapping screw *x1*
⑥ P2 tapping screw *x2*
⑦ Claw *x6*
⑧ P cabinet (C) 103

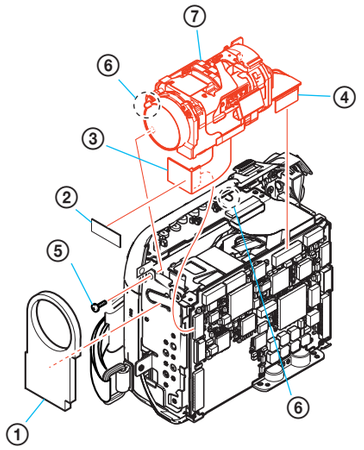
Non MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E



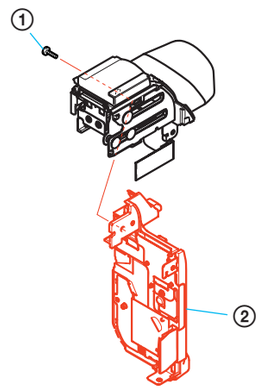
① P2 lock ace screw (M1.7) *x1*
② P2 lock ace screw (M1.7) *x1*
③ Slide the EVF block.
④ P2 tappping screw *x1*
⑤ Tape (A) *x2* HELP
⑥ Open the cabinet (G) block.
⑦ FP-180 flexible board: CN2001
⑧ FP-181 flexible board: CN7001 (MS model)/ CN9301 (non MS model)
⑨ BAT EVF block



① FP-185 flexible board: CN601
② FP-186 flexible board: CN609
③ Control key block (SB9000): CN602
④ P2 tapping screw *x1*
⑤ Claw *x2*
⑥ PD-237 board, D901, LCD901



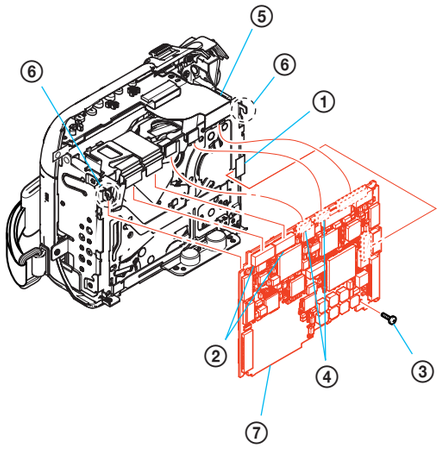
① Cushion (F2)
② Tape (W) *x1*
③ Flexible board: CN 3101 (VC-376 board)/ CN3701 (VC-377 board)
④ FP-178 flexible board: CN3002 (VC-376 board)/ CN3101 (VC-377 board)
⑤ P2 lock ace screw (M1.7) *x1*
⑥ Boss *x2*
⑦ Lens block



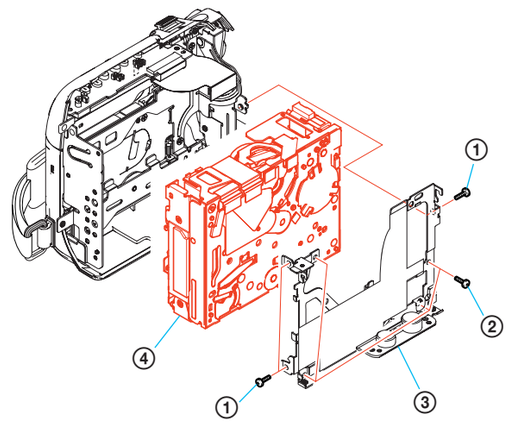
① Ccrew (M1.7) *x1*
② BT panel block

to Page 2-3

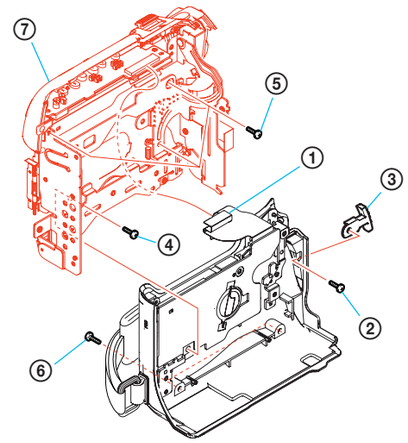
from Page 2-2



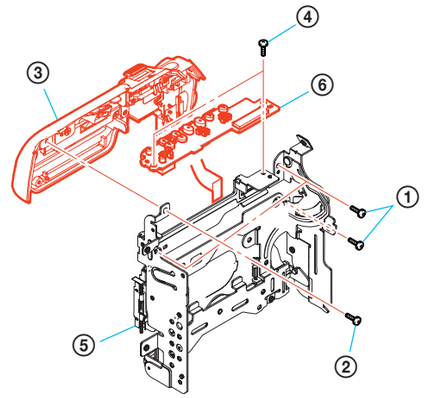
① Flexible board: CN1001
② Connector *x2*: CN9002, 9003 (VC-376 board)/ CN6002, 6003 (VC-377 board)
③ P2 lock ace screw (M1.7) *x1*
④ Connector *x2*: CN6501, 9001 (VC-376 board)/ CN4301, 6001 (VC-377 board)
⑤ FP-182 flexible board: CN1008
⑥ Hook *x2*
⑦ VC-376 board/VC-377 board



① P2 lock ace screw (M1.7) *x3*
② Screw (M1.4x1.5) *x4*
③ MD frame block
④ Mechanism deck

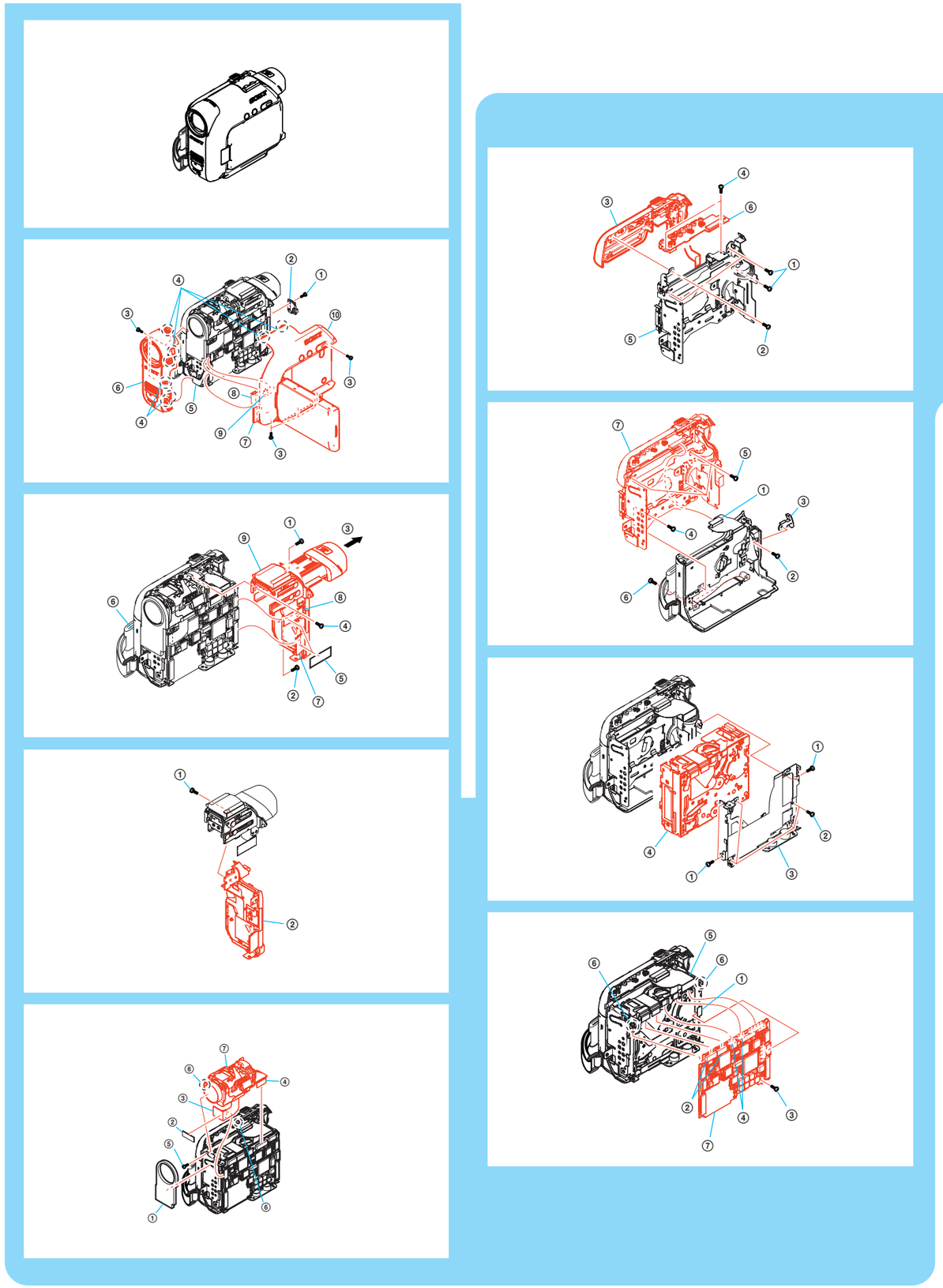


① Flexible board: CN704
② P2 lock ace screw (M1.7) *x1*
③ Eject knob
④ P2 lock ace screw (M1.7) *x1*
⑤ Tapping screw *x3*
⑥ P2 lock ace screw (M1.7) *x2*
⑦ CS block



① P2 tapping screw (M1.7) *x3*
② P2 lock ace screw (M1.7) *x1*
③ Control key block (SS10300)
④ P2 lock ace screw (M1.7) *x2*
⑤ CS frame block
⑥ JK-278 board

2-2. MECHANISM DECK SERVICE POSITION



Connection to Check the Mechanism deck

To check the mechanism deck, set the Camera or VTR to the "Forced power ON" mode.
(Or, connect the control key block (SS10300) to the CN1001 of VC-376/VC-377 board and set the power switch to the "CAMERA" or "PLAY/EDIT" position.)
Operate the VTR function using the adjustment remote commander
(with the HOLD switch set in the OFF position).

Setting the "Forced Camera Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: A (MS model)/ D (Non MS model), address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

Setting the "Forced VTR Power ON" mode

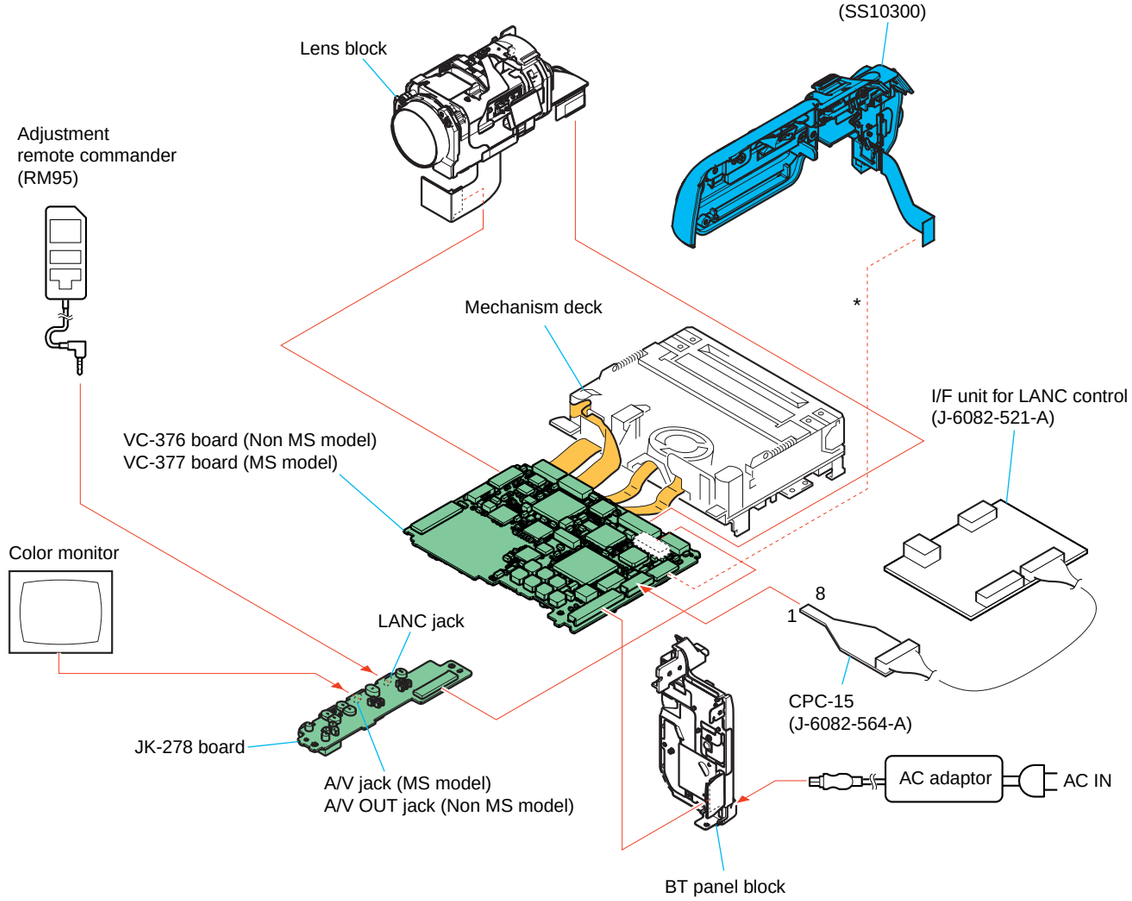
1) Select page: 0, address: 01, and set data: 01.
2) Select page: A (MS model)/ D (Non MS model), address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

Exiting the "Forced Power ON" mode

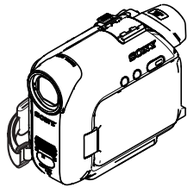
1) Select page: 0, address: 01, and set data: 01.
2) Select page: A (MS model)/ D (Non MS model), address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

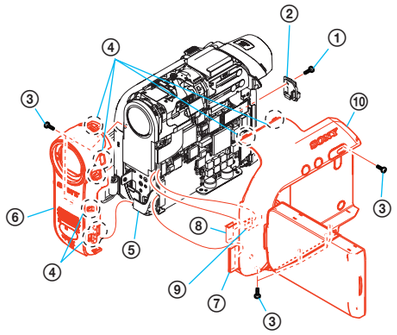
Non MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

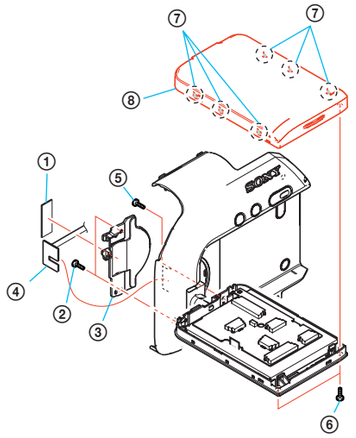
*: To eject a cassette, connect the cabinet (L) block assembly.

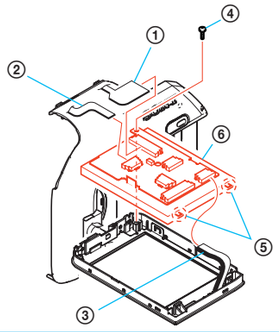


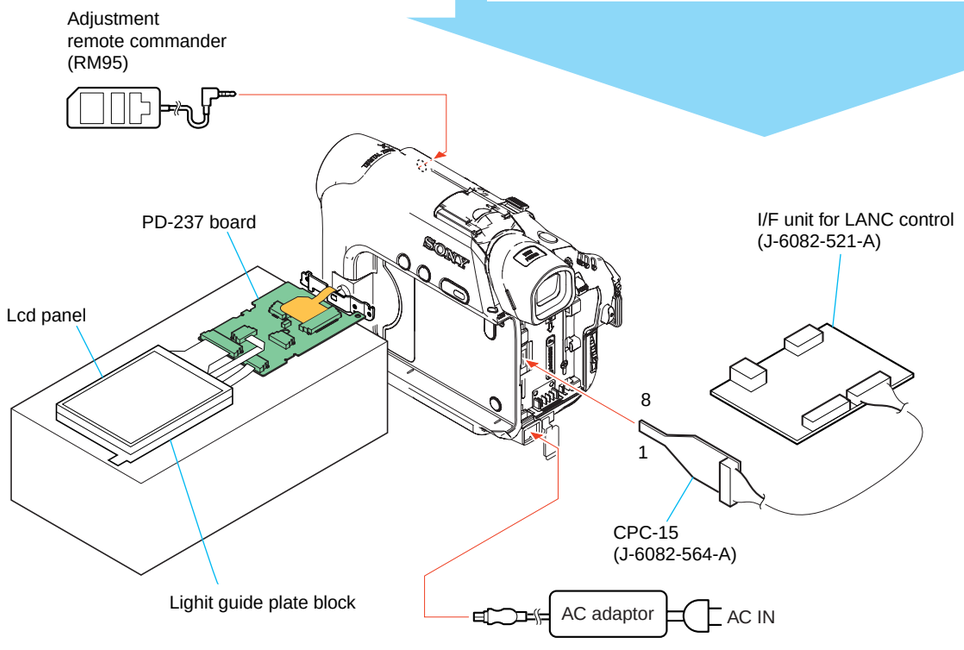
2-3. LCD SERVICE POSITION



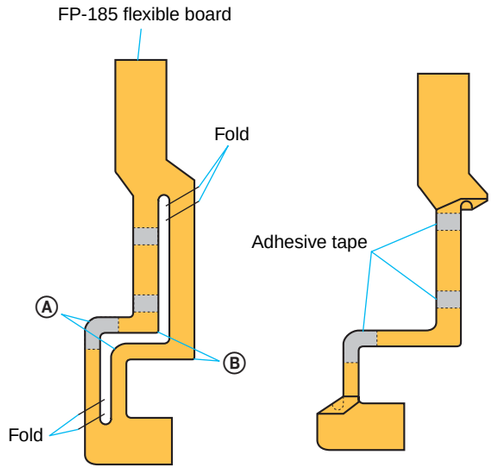




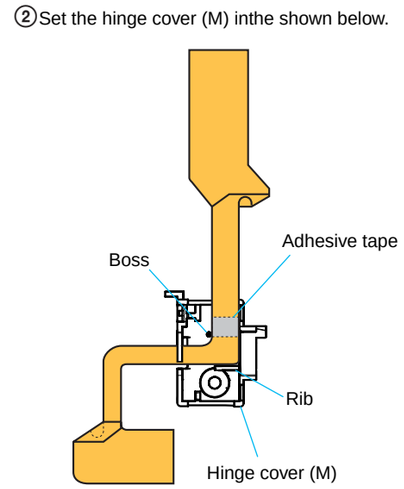




2-4. THE METHOD OF ATTACHMENT OF FP-185 FLEXIBLE BOARD

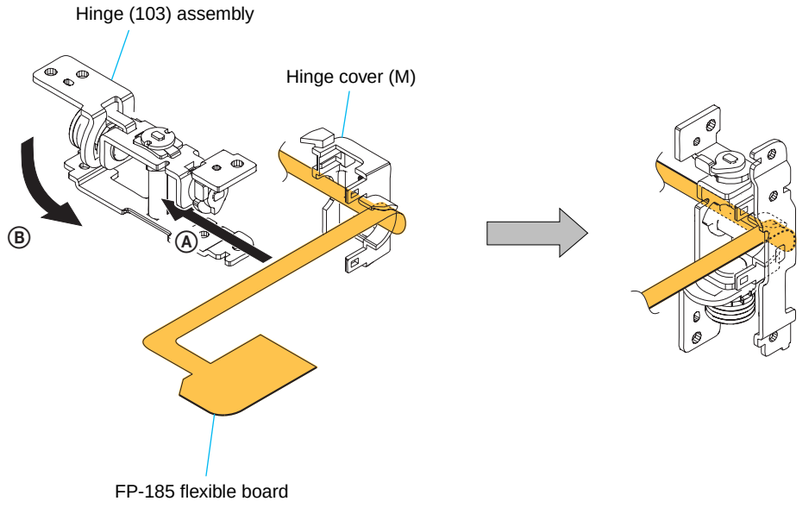


① The Ⓐ and Ⓐ, Ⓑ and Ⓑ section are united and an angle is folded.



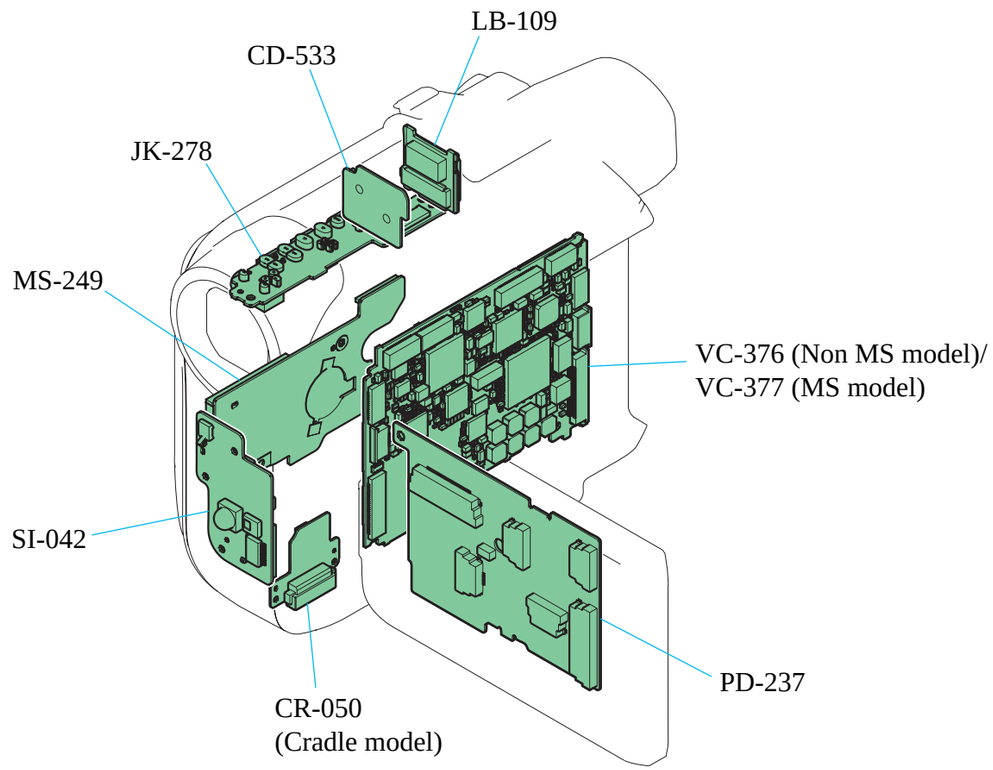
② Set the hinge cover (M) inthe shown below.

③ Set the FP-185 flexible board in the direction of arrow Ⓐ, and then turn the hinge (103) assembly in the direction of arrow Ⓑ.



2-5. CIRCUIT BOARDS LOCATION

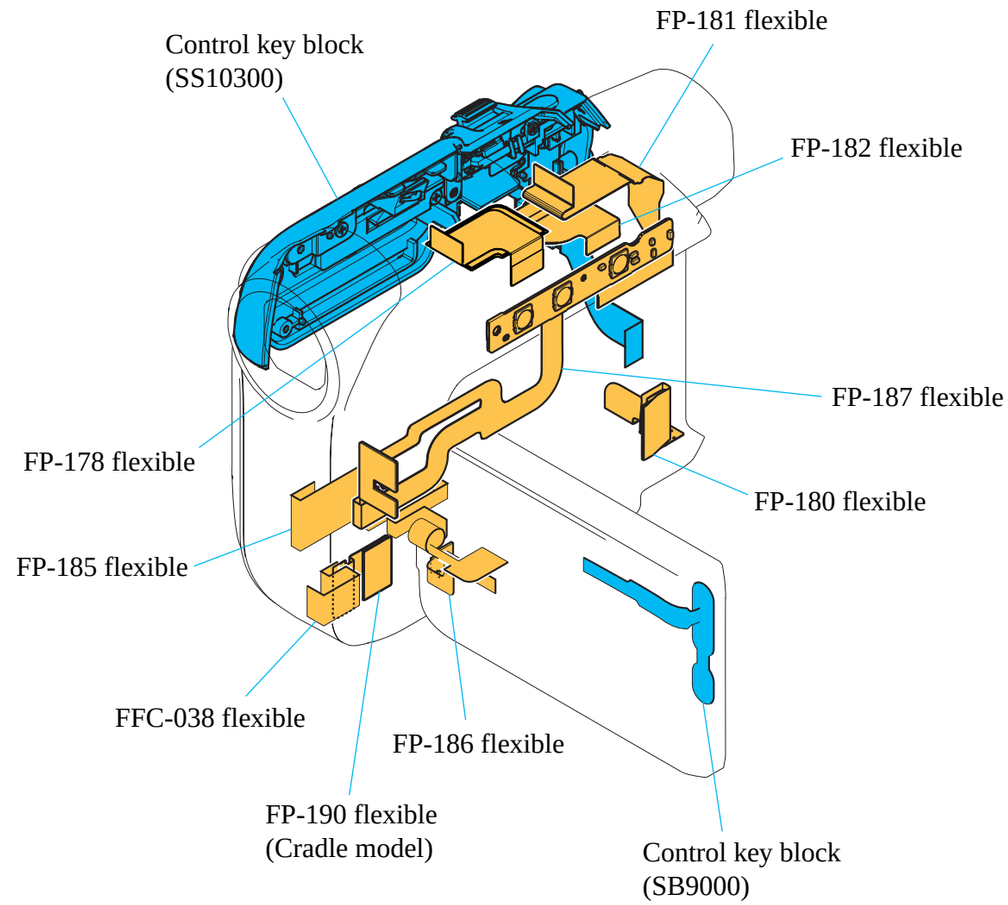
Non Cradle model: DCR-HC17E/HC19E/HC21/HC21E
Cradle model: DCR-HC22E/HC32/HC32E/HC33/HC33E
Non MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E



Board Name	Function
CD-533	CCD IMAGER
CR-050	CRADLE TERMINAL
JK-278	JACK
LB-109	EVF, EVF BACKLIGHT
MS-249	MS CONNECTOR
PD-237	LCD DRIVE, BACKLIGHT DRIVE
SI-042	REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR
VC-376	A/D CONVERTER, TIMING GENERATOR, LENS DRIVE, EVR, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, VIDEO OUT, AUDIO I/O EVF DRIVE, CAMERA/MECHA CONTROL, SERVO, HI CONTROL, DC IN, DC/DC CONVERTER, CONNECTOR
VC-377	A/D CONVERTER, TIMING GENERATOR, LENS DRIVE, VIDEO/AUDIO DSP, DS/HI CONTROL, FLASH, SDRAM, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, VIDEO, AUDIO I/O, EVF DRIVE, CAMERA/MECHA CONTROL, SERVO, HI CONTROL, DC IN, DC/DC CONVERTER, CONNECTOR

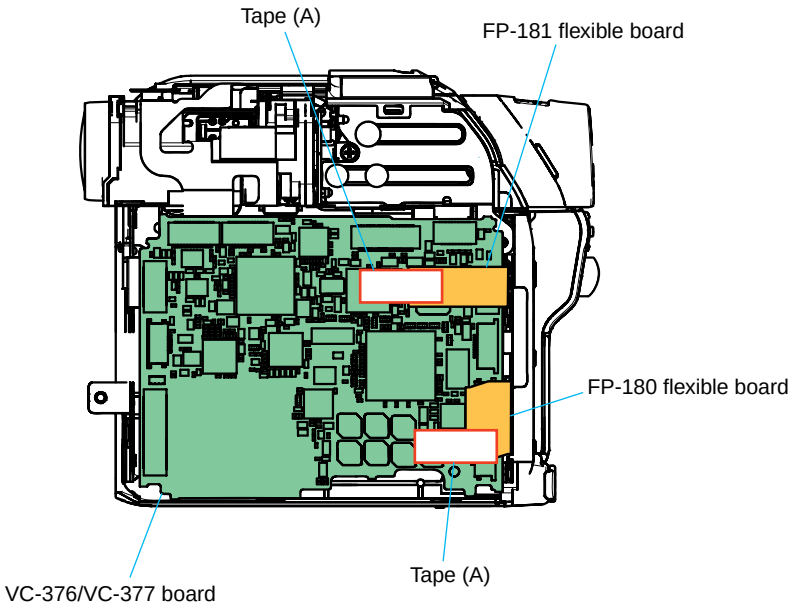
2-6. FLEXIBLE BOARDS LOCATION

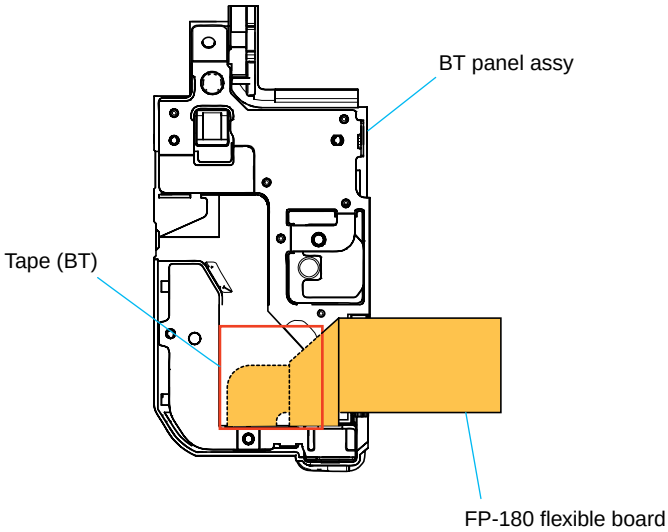
Non Cradle model: DCR-HC17E/HC19E/HC21/HC21E
Cradle model: DCR-HC22E/HC32/HC32E/HC33/HC33E



HELP

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





3. BLOCK DIAGRAMS

NON MS model

Link

MS model

Link

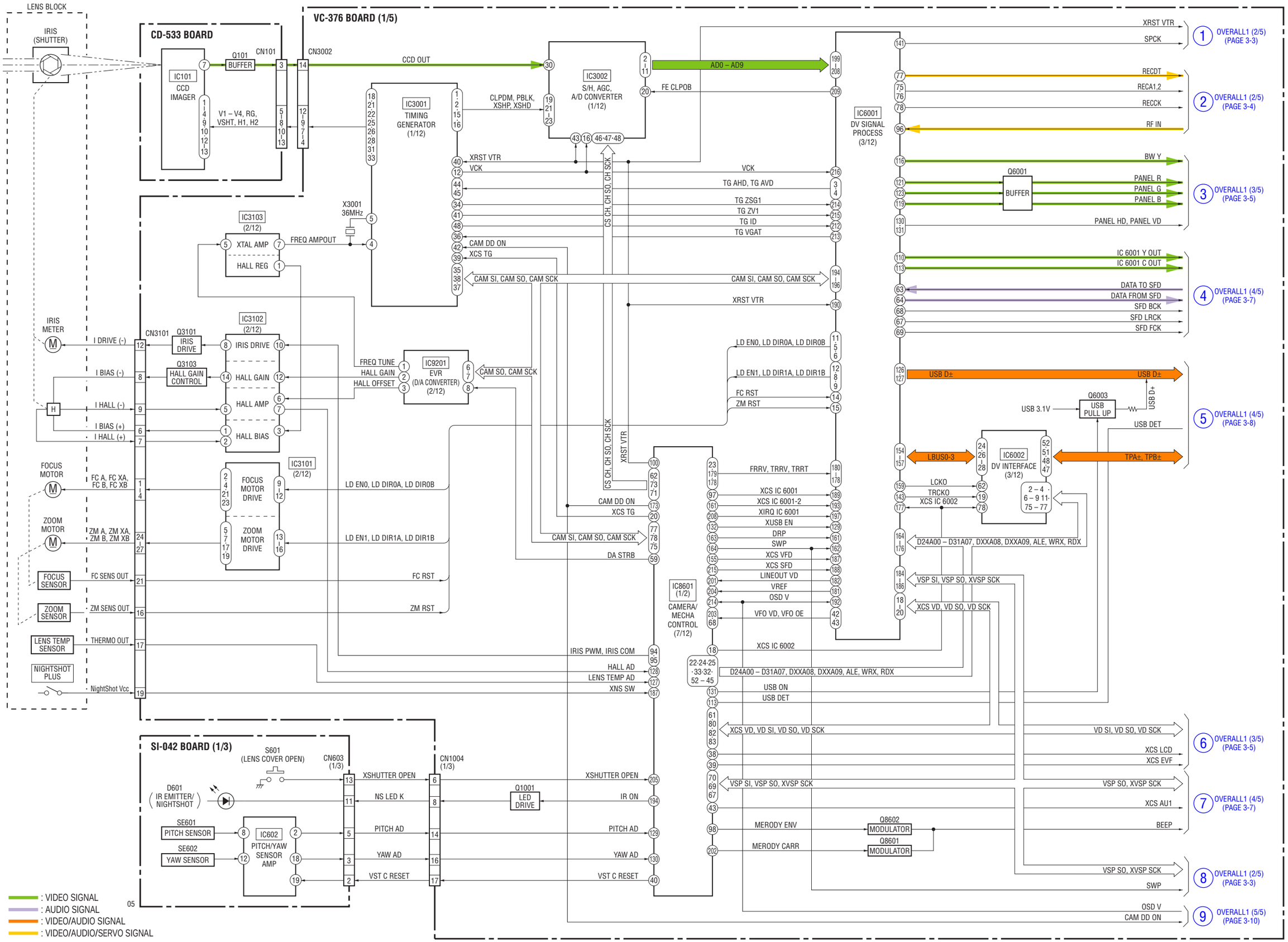
NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

3. BLOCK DIAGRAMS

3-1. BLOCK DIAGRAMS (NON MS model)

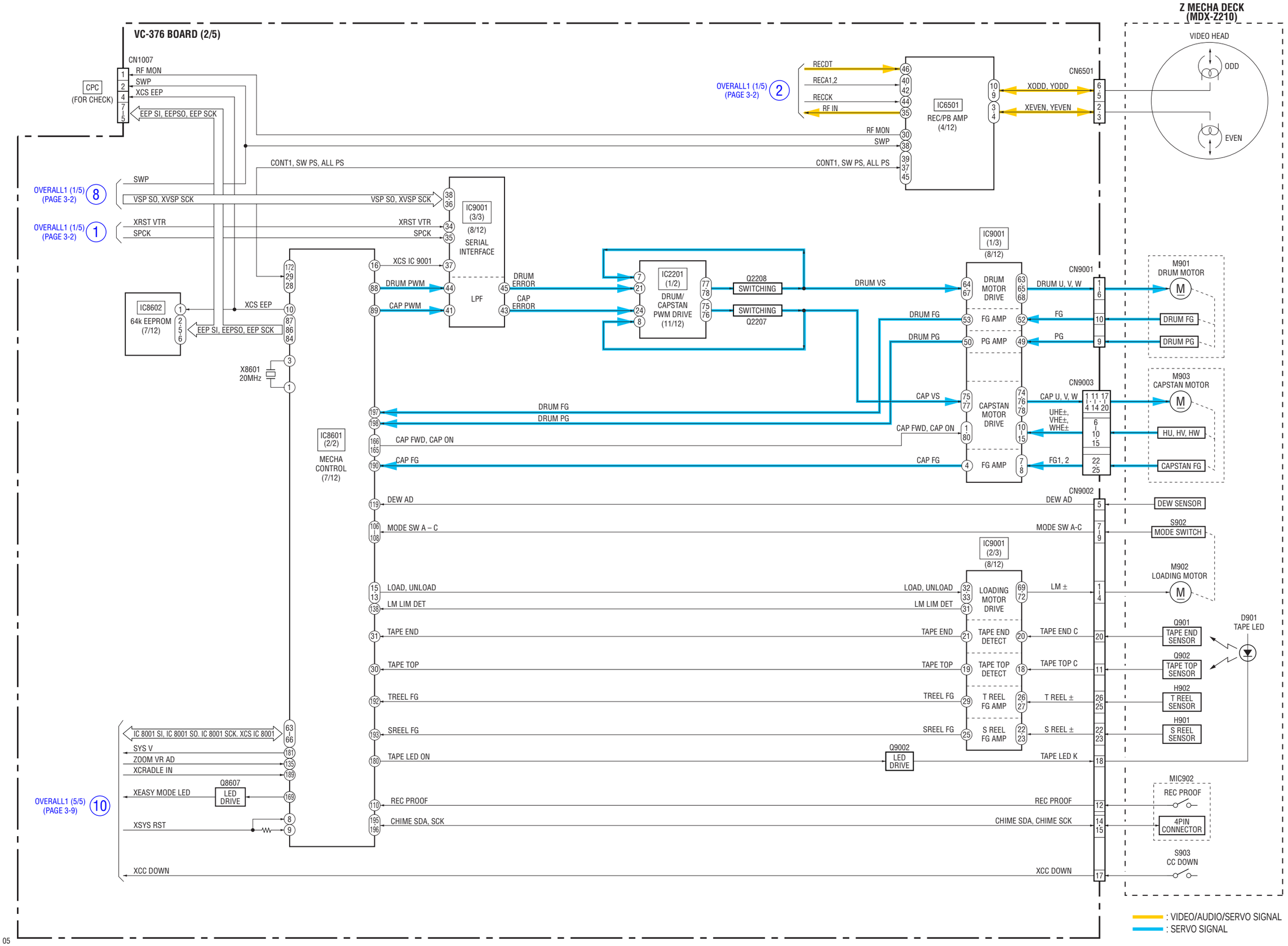
3-1-1. OVERALL BLOCK DIAGRAM (1/5) (NON MS model)

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



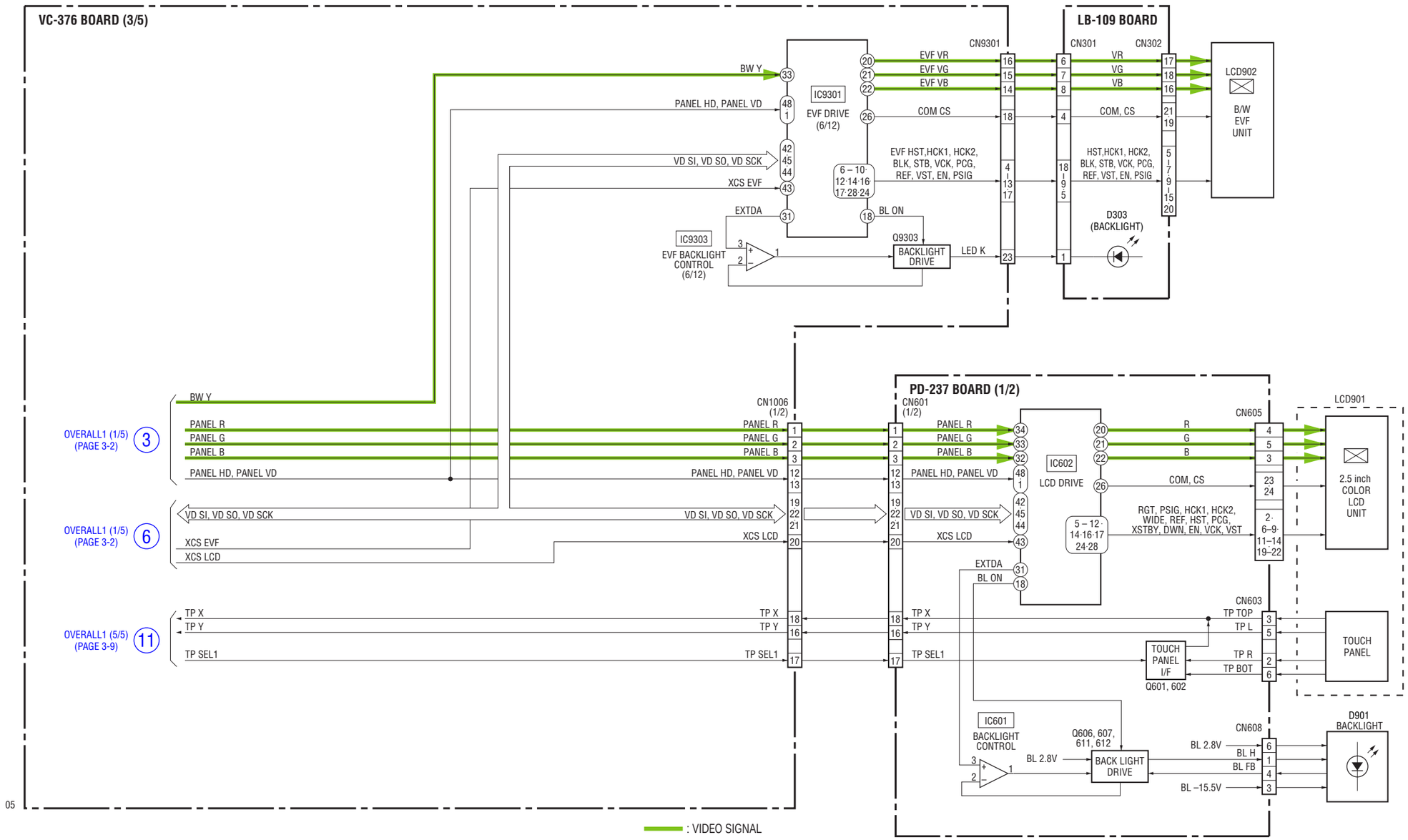
3-1-2. OVERALL BLOCK DIAGRAM (2/5) (NON MS model)

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



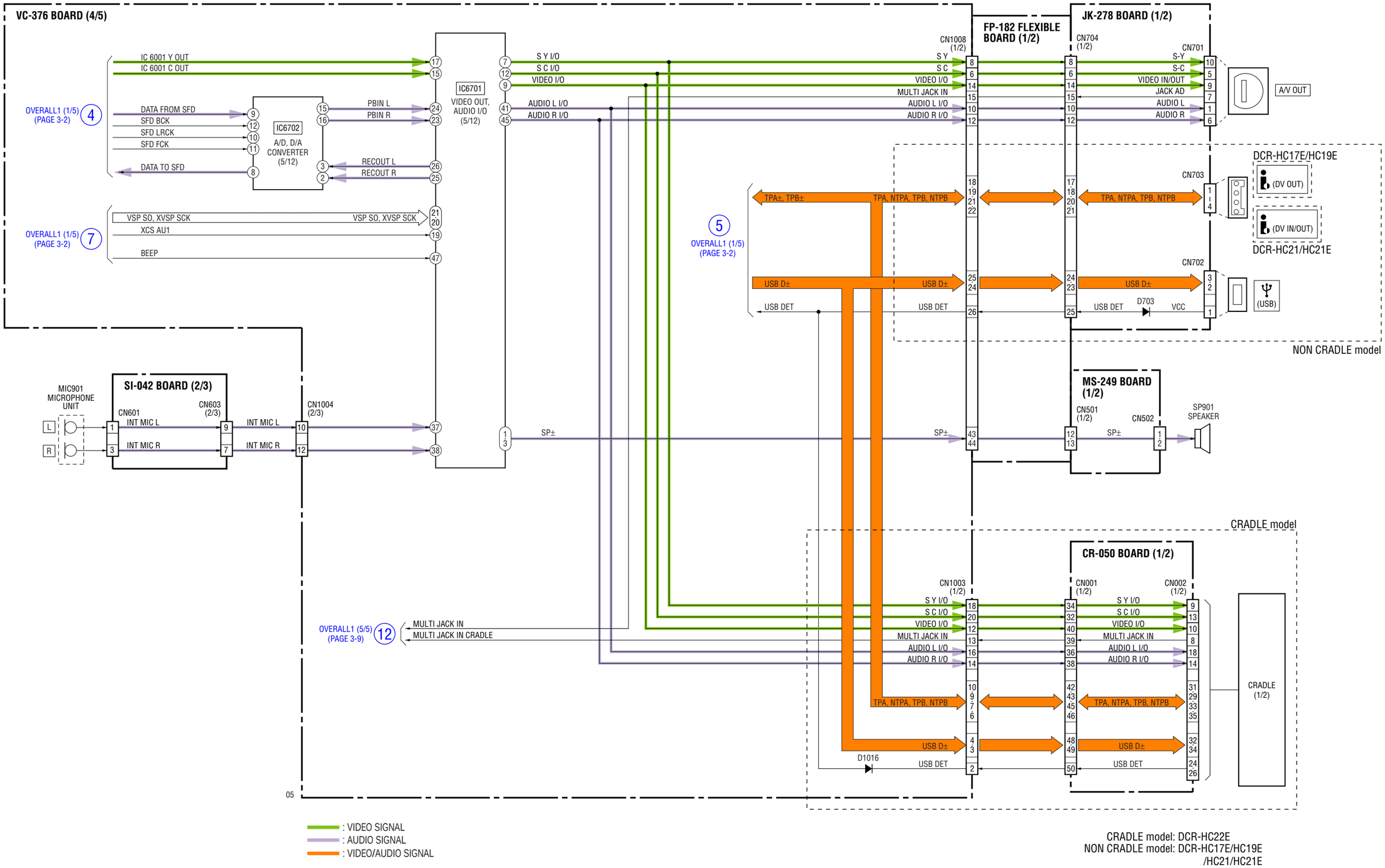
3-1-3. OVERALL BLOCK DIAGRAM (3/5) (NON MS model)

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



3-1-4. OVERALL BLOCK DIAGRAM (4/5) (NON MS model)

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

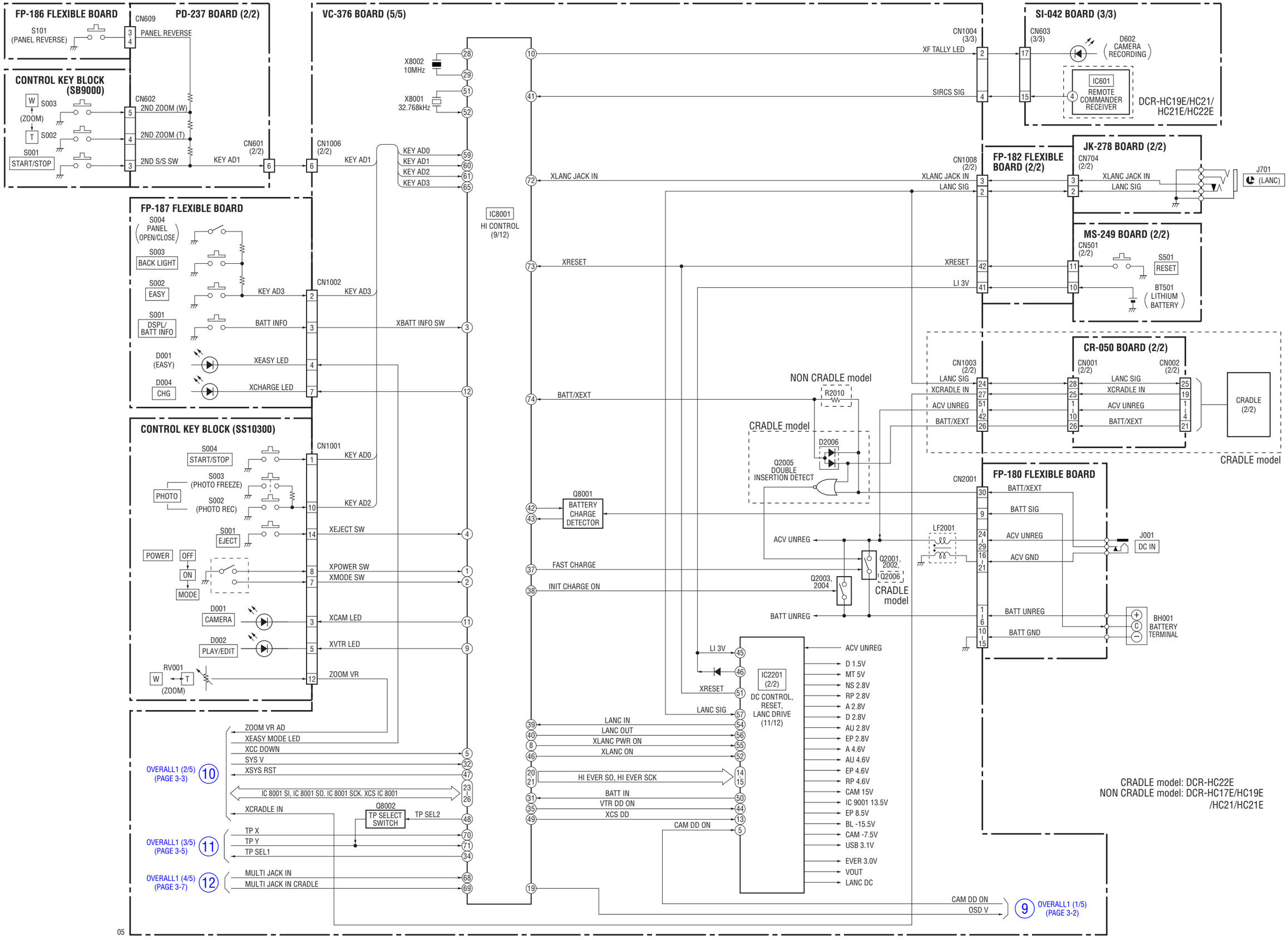


: VIDEO SIGNAL
: AUDIO SIGNAL
: VIDEO/AUDIO SIGNAL

CRADLE model: DCR-HC22E
NON CRADLE model: DCR-HC17E/HC19E /HC21/HC21E

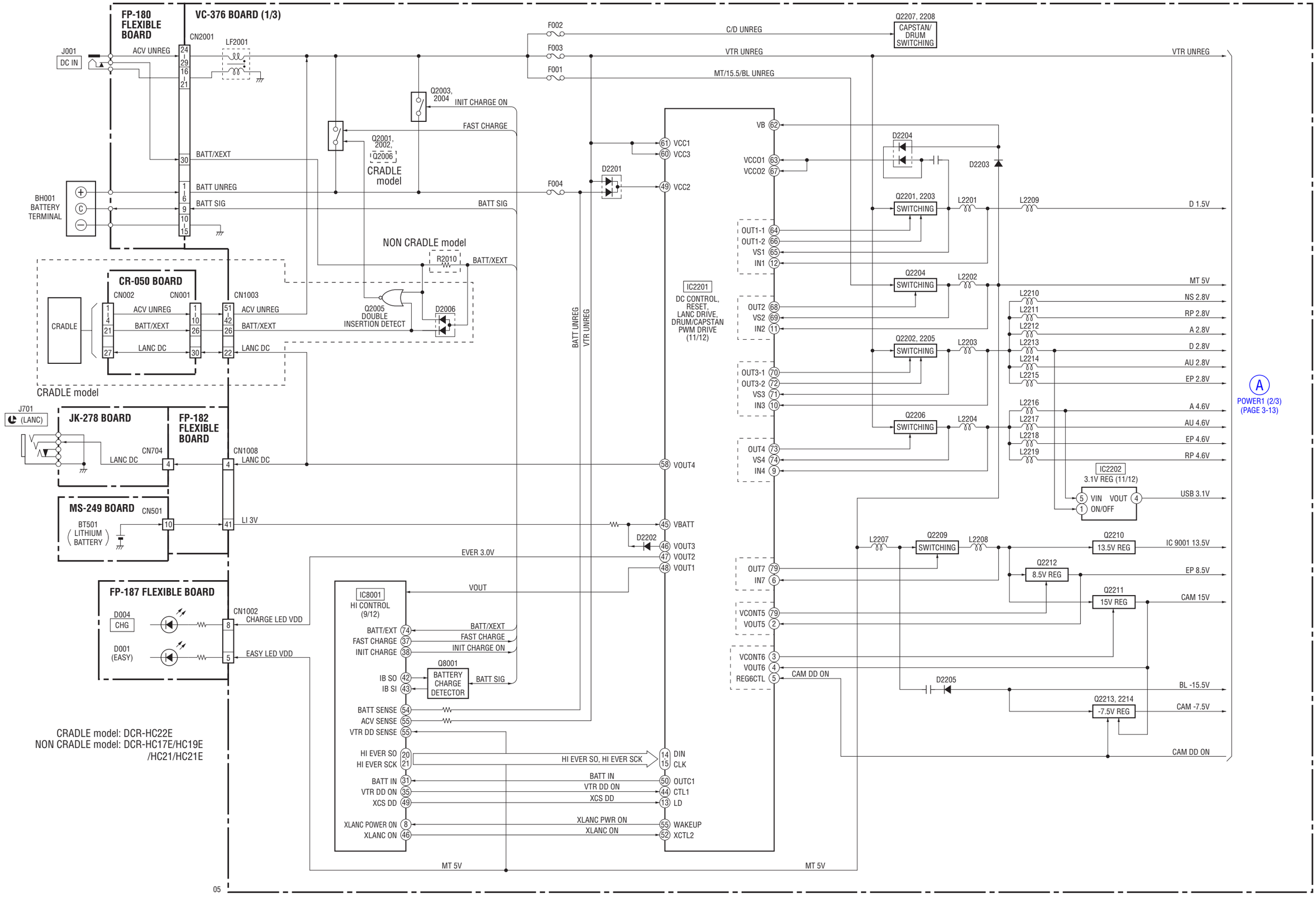
3-1-5. OVERALL BLOCK DIAGRAM (5/5) (NON MS model)

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



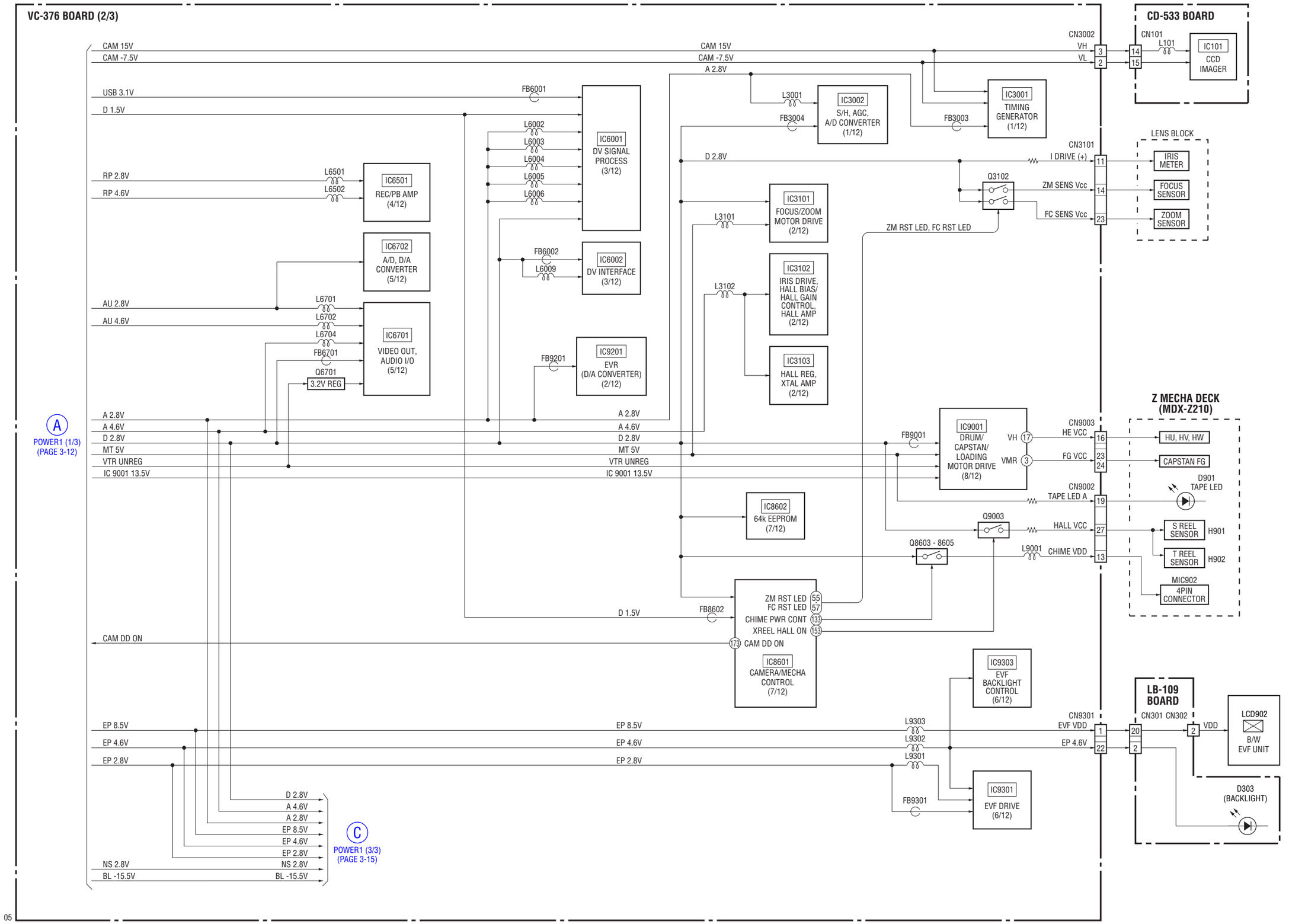
3-1-6. POWER BLOCK DIAGRAM (1/3) (NON MS model)

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



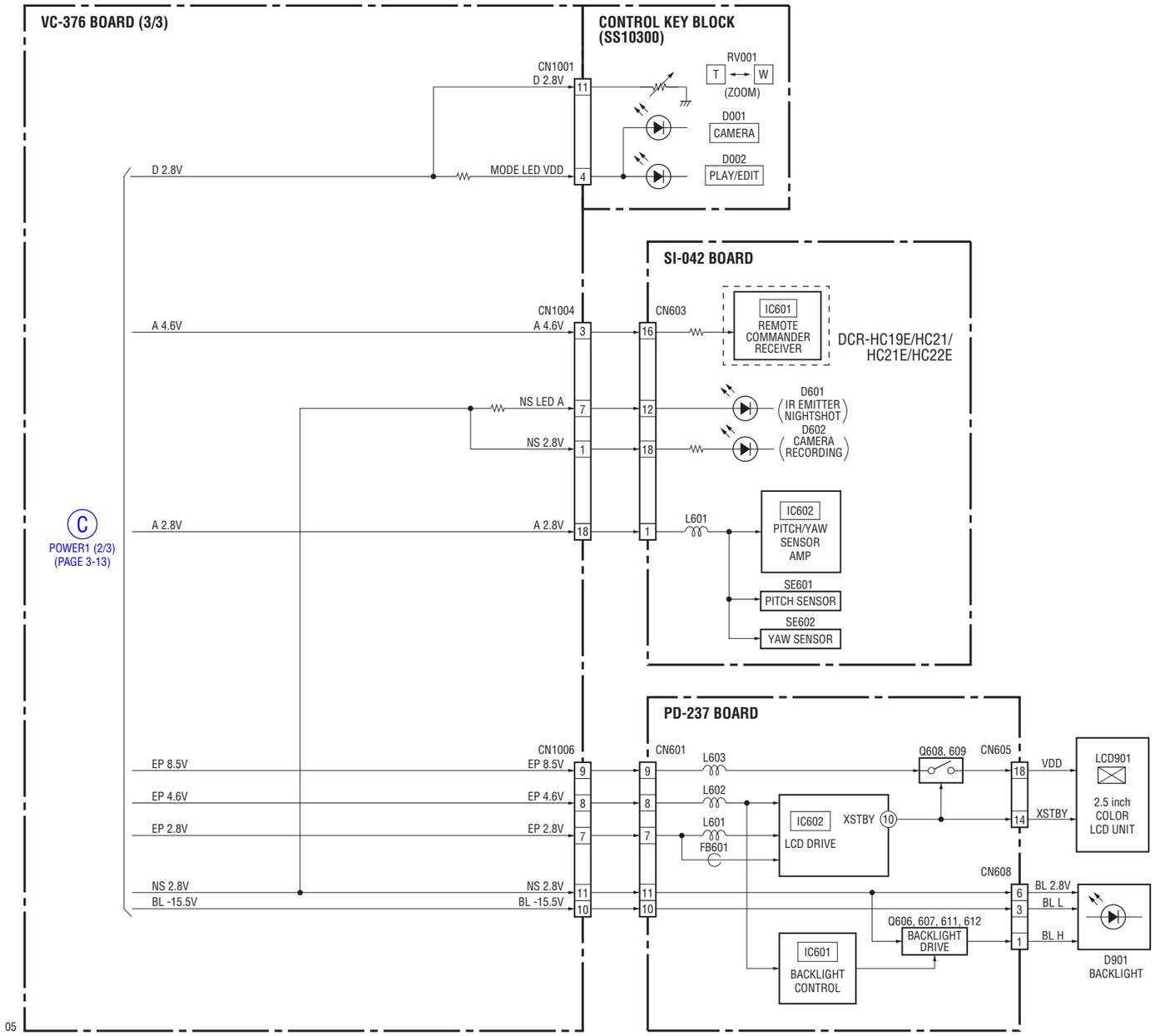
3-1-7. POWER BLOCK DIAGRAM (2/3) (NON MS model)

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



3-1-8. POWER BLOCK DIAGRAM (3/3) (NON MS model)

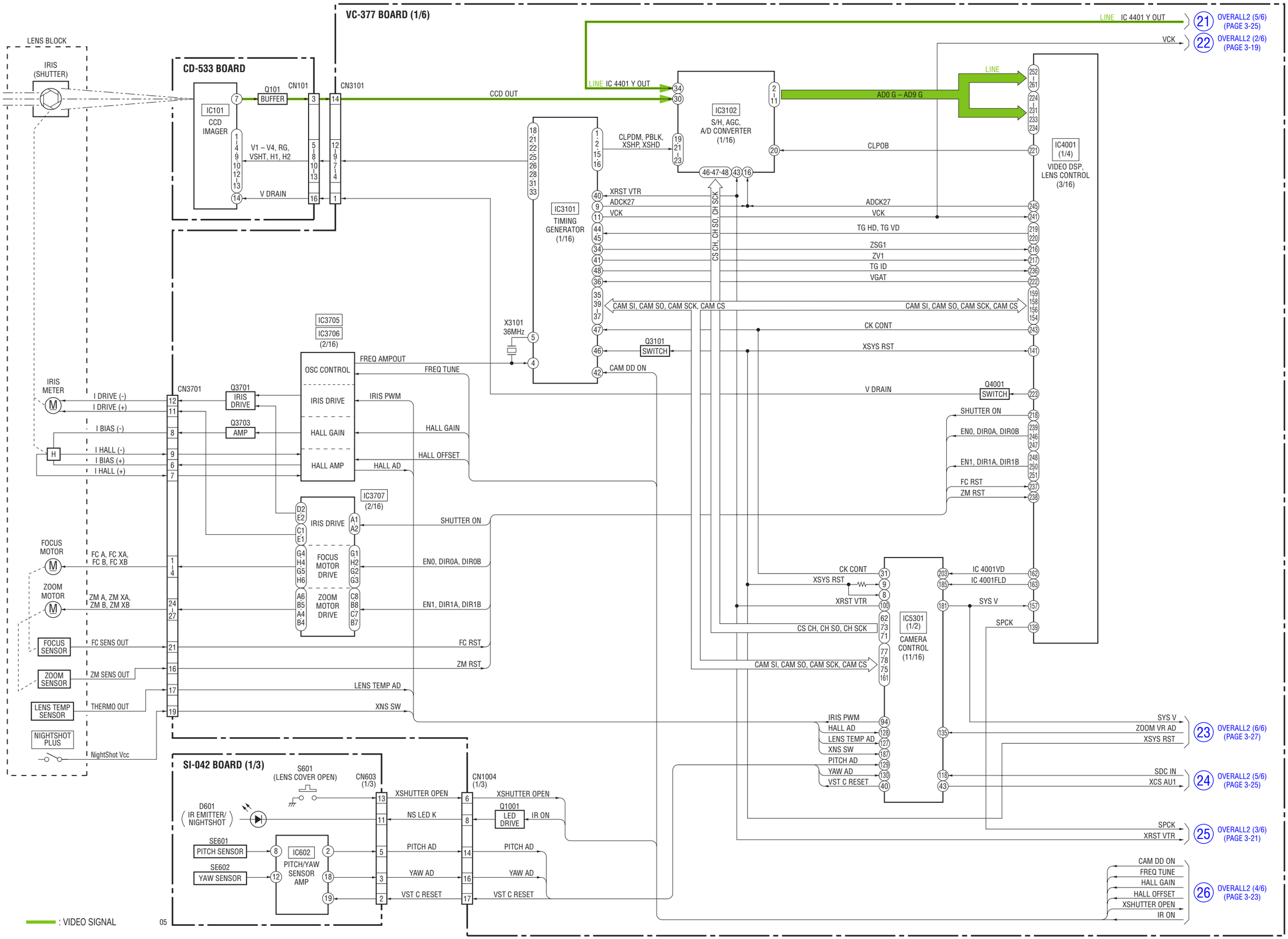
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



3-2. BLOCK DIAGRAMS (MS model)

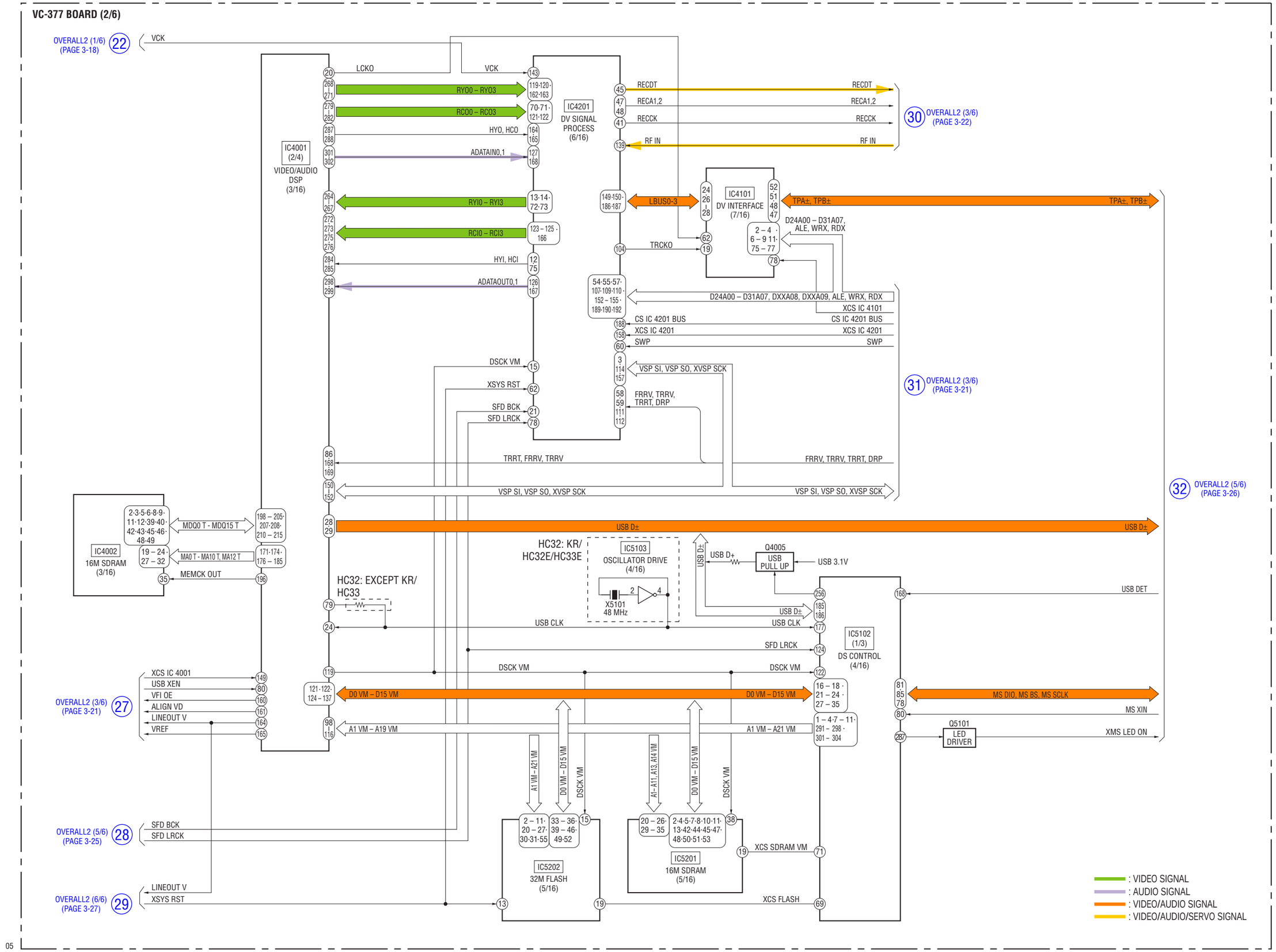
3-2-1. OVERALL BLOCK DIAGRAM (1/6) (MS model)

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



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

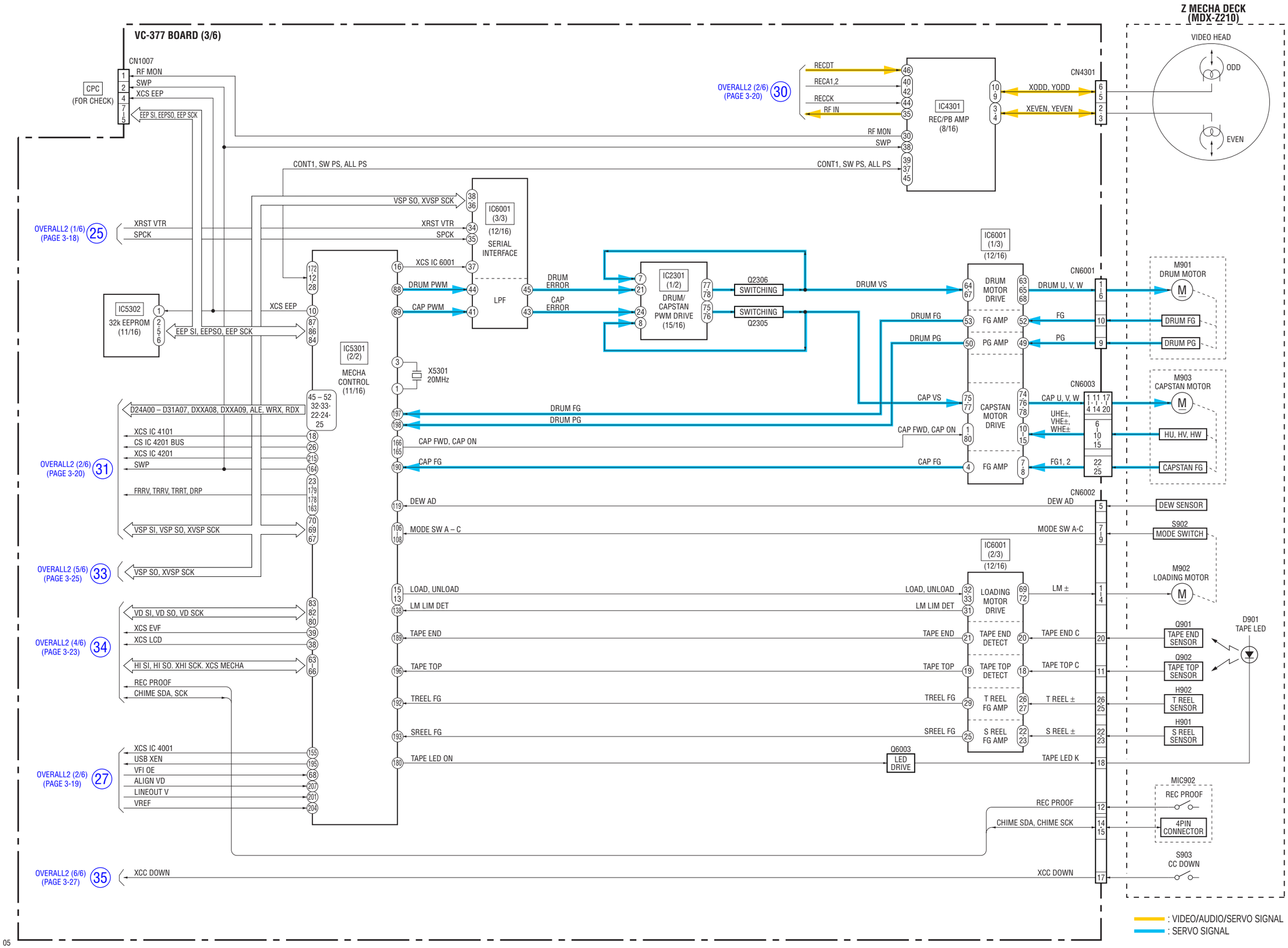
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



05

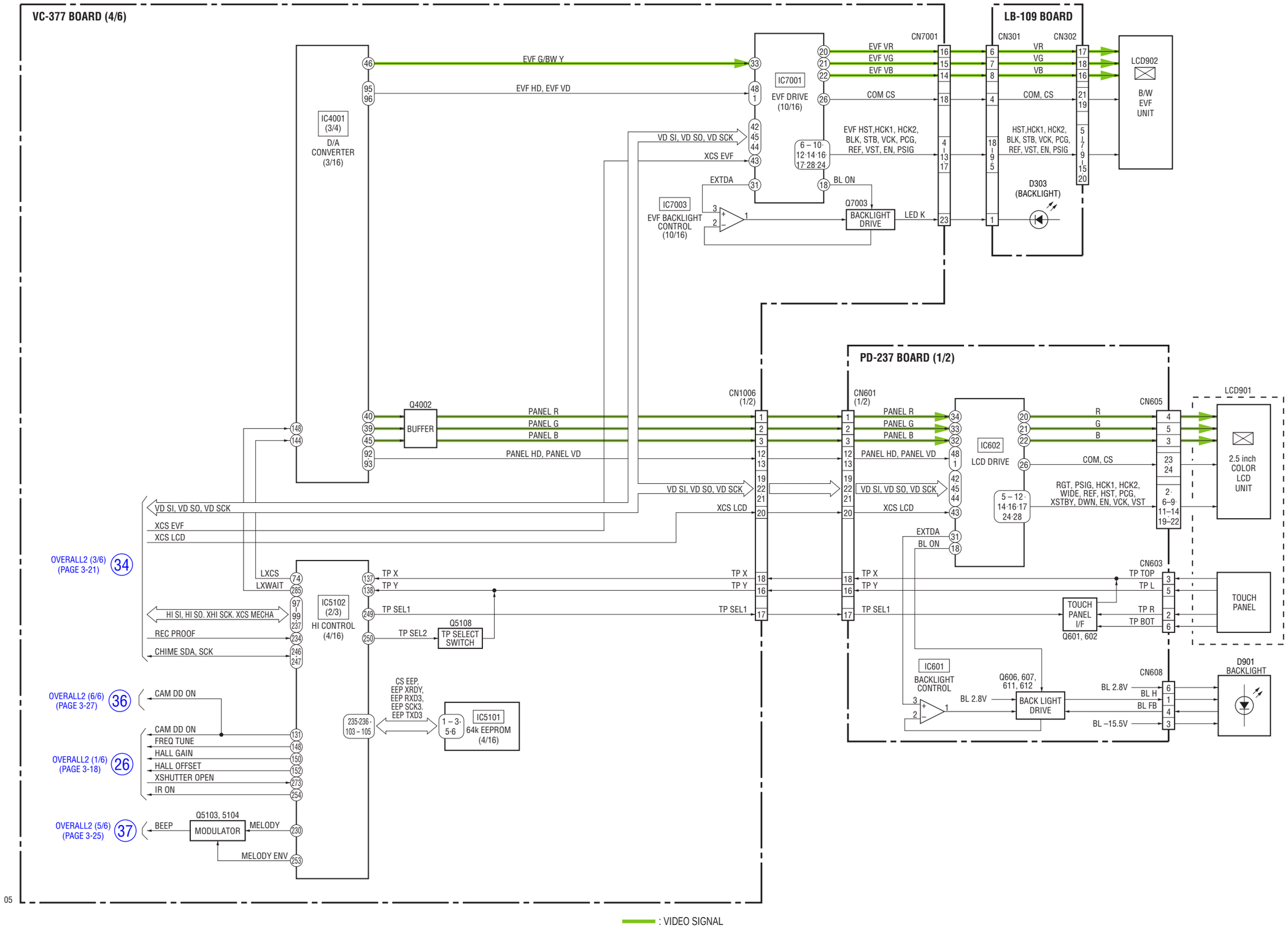
3-2-3. OVERALL BLOCK DIAGRAM (3/6) (MS model)

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



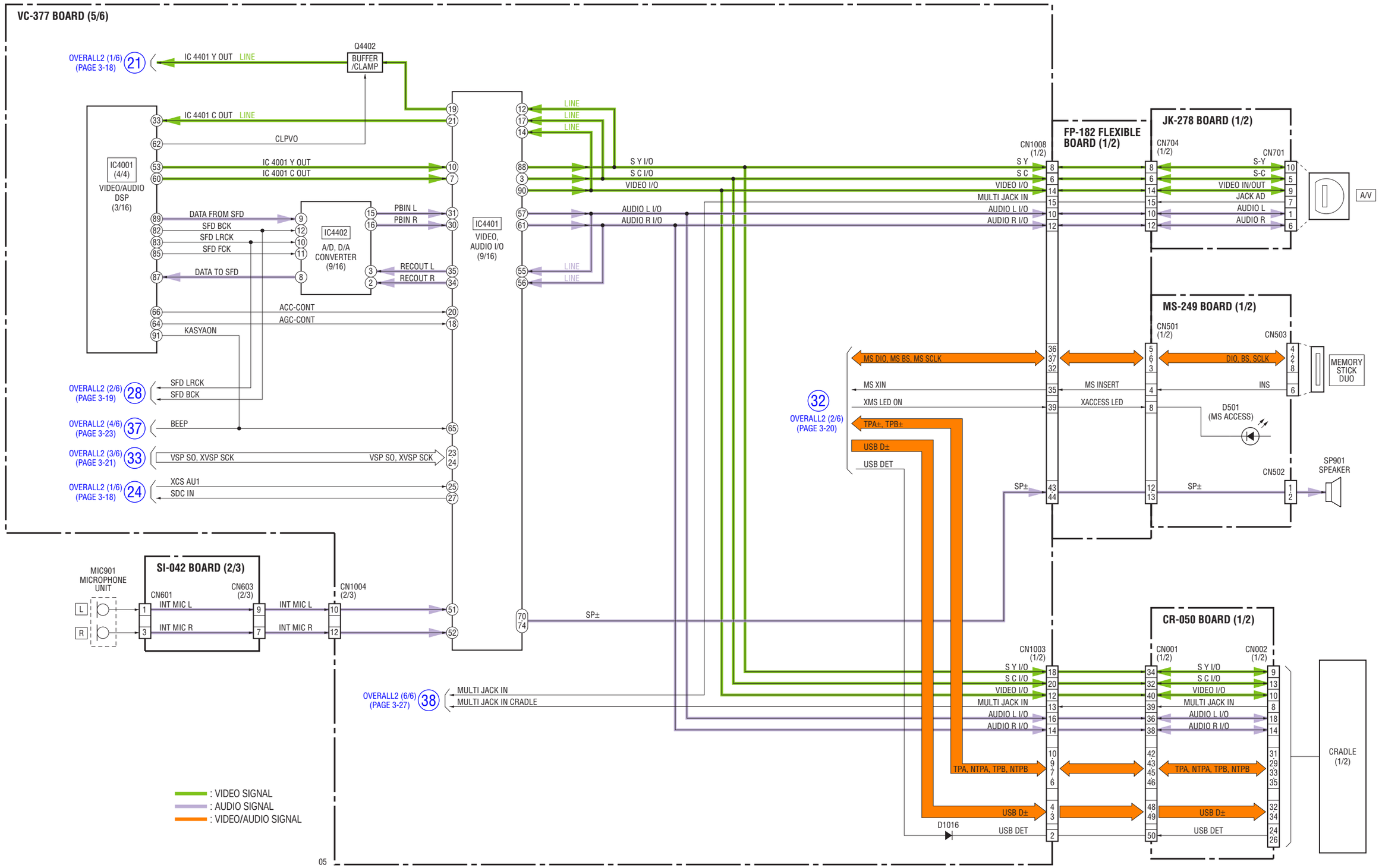
3-2-4. OVERALL BLOCK DIAGRAM (4/6) (MS model)

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



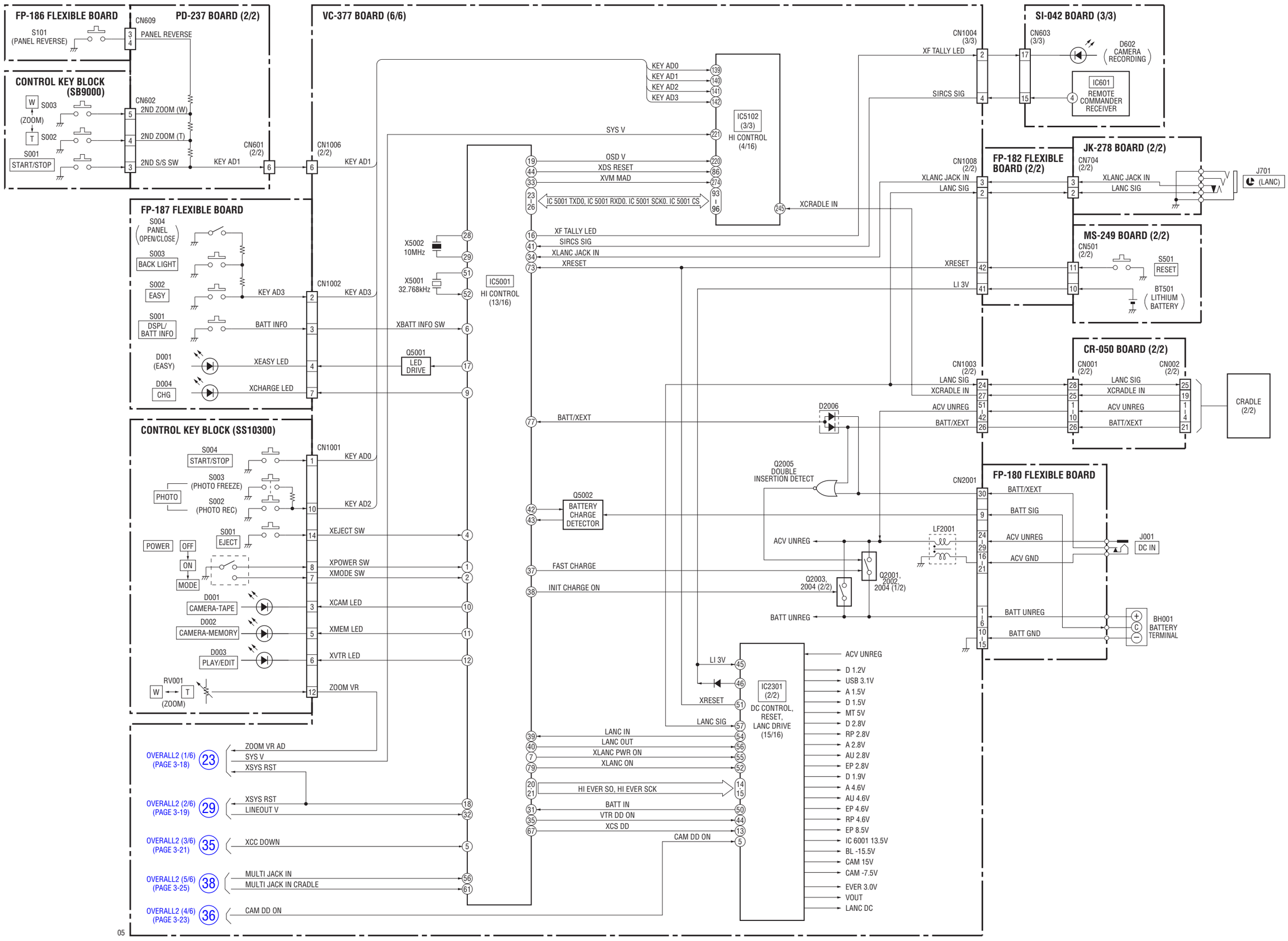
3-2-5. OVERALL BLOCK DIAGRAM (5/6) (MS model)

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



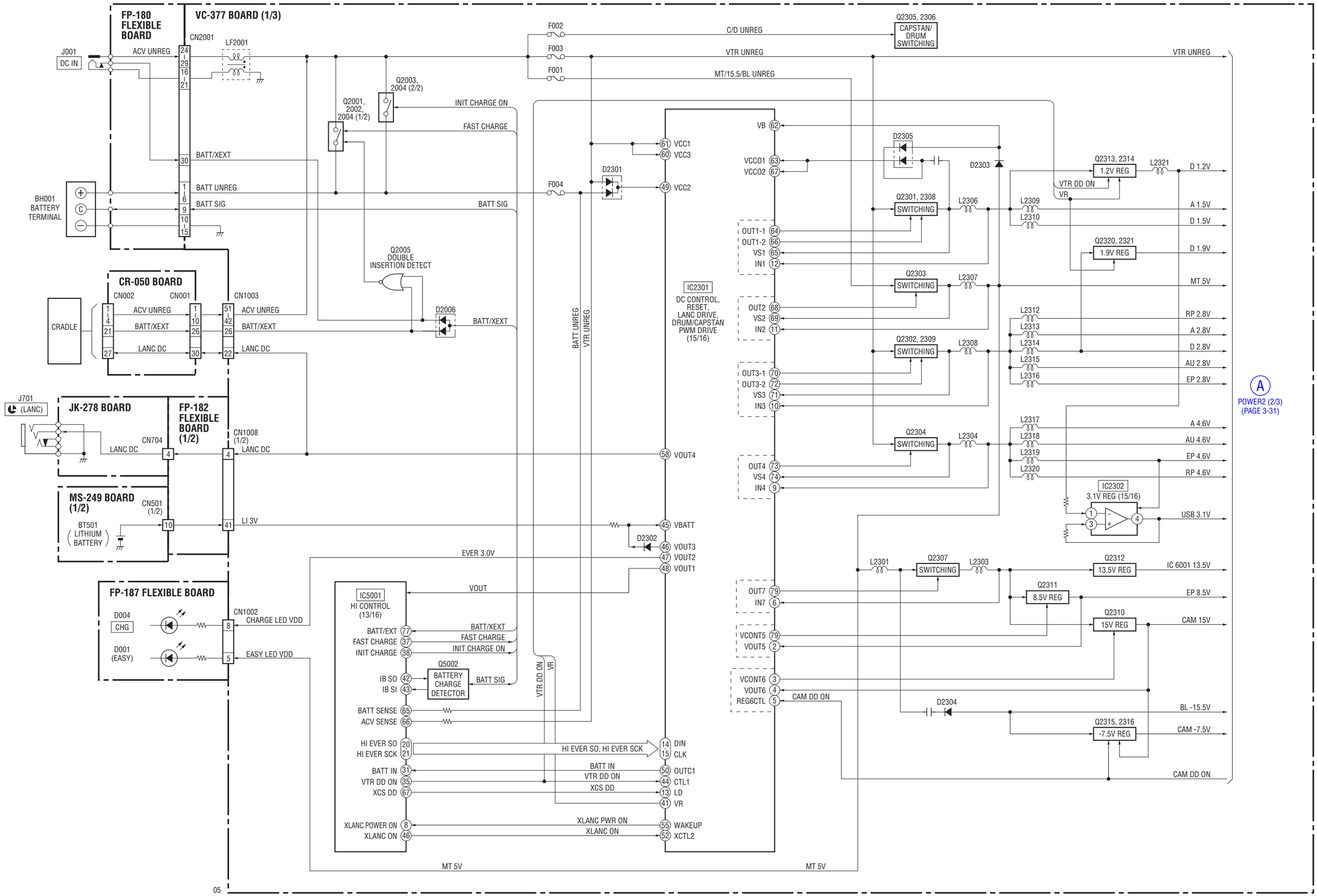
3-2-6. OVERALL BLOCK DIAGRAM (6/6) (MS model)

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



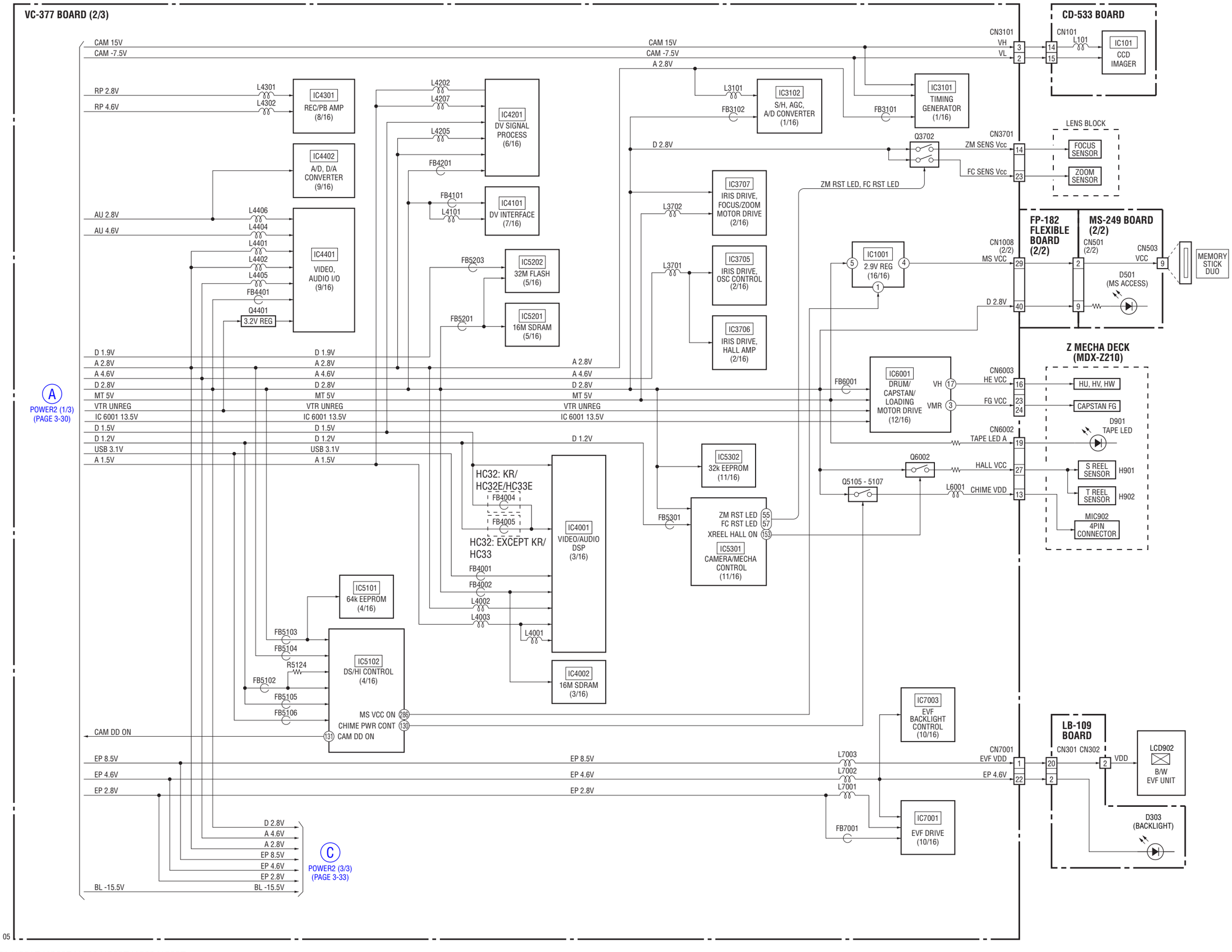
3-2-7. POWER BLOCK DIAGRAM (1/3) (MS model)

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



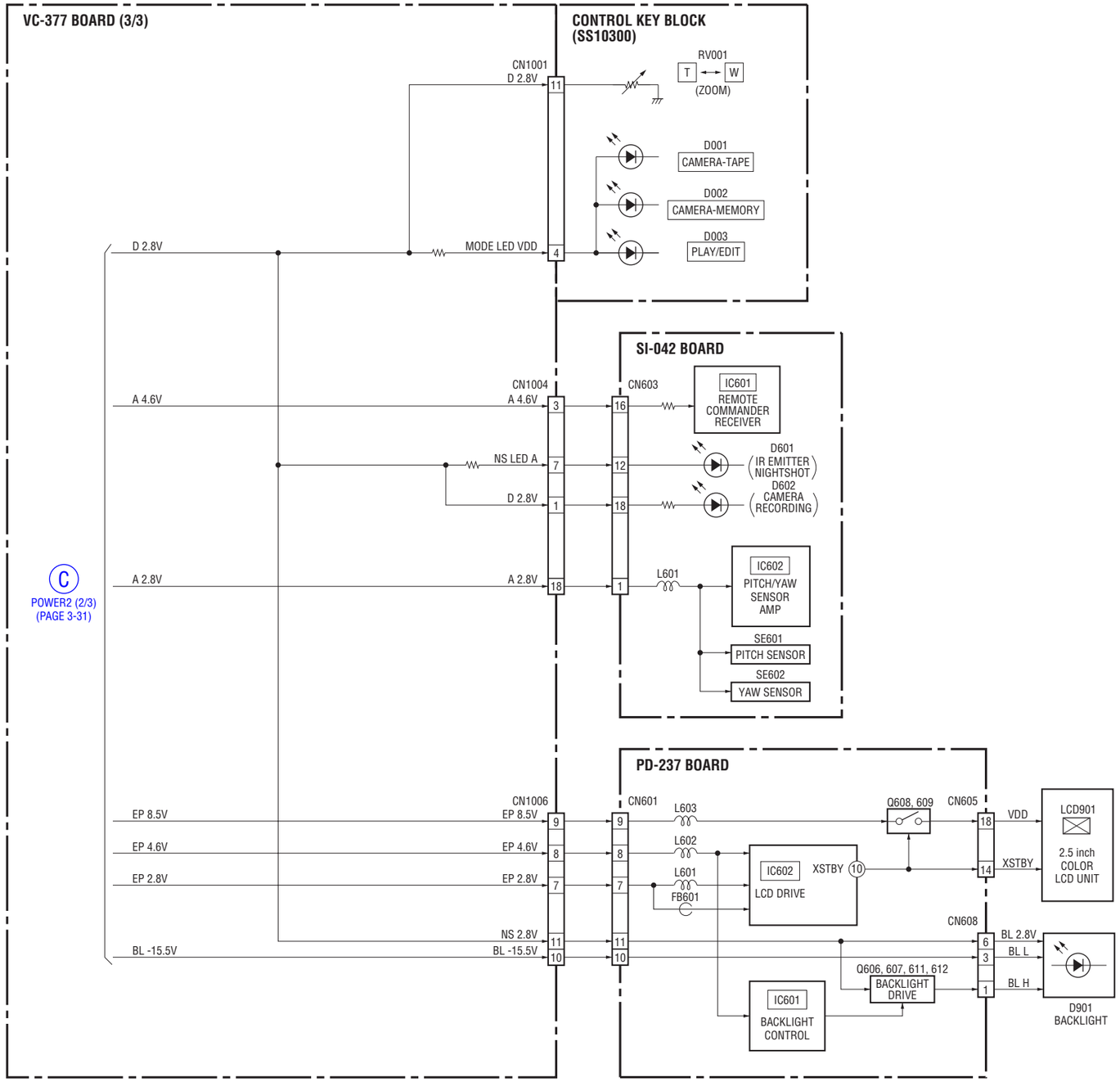
3-2-8. POWER BLOCK DIAGRAM (2/3) (MS model)

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

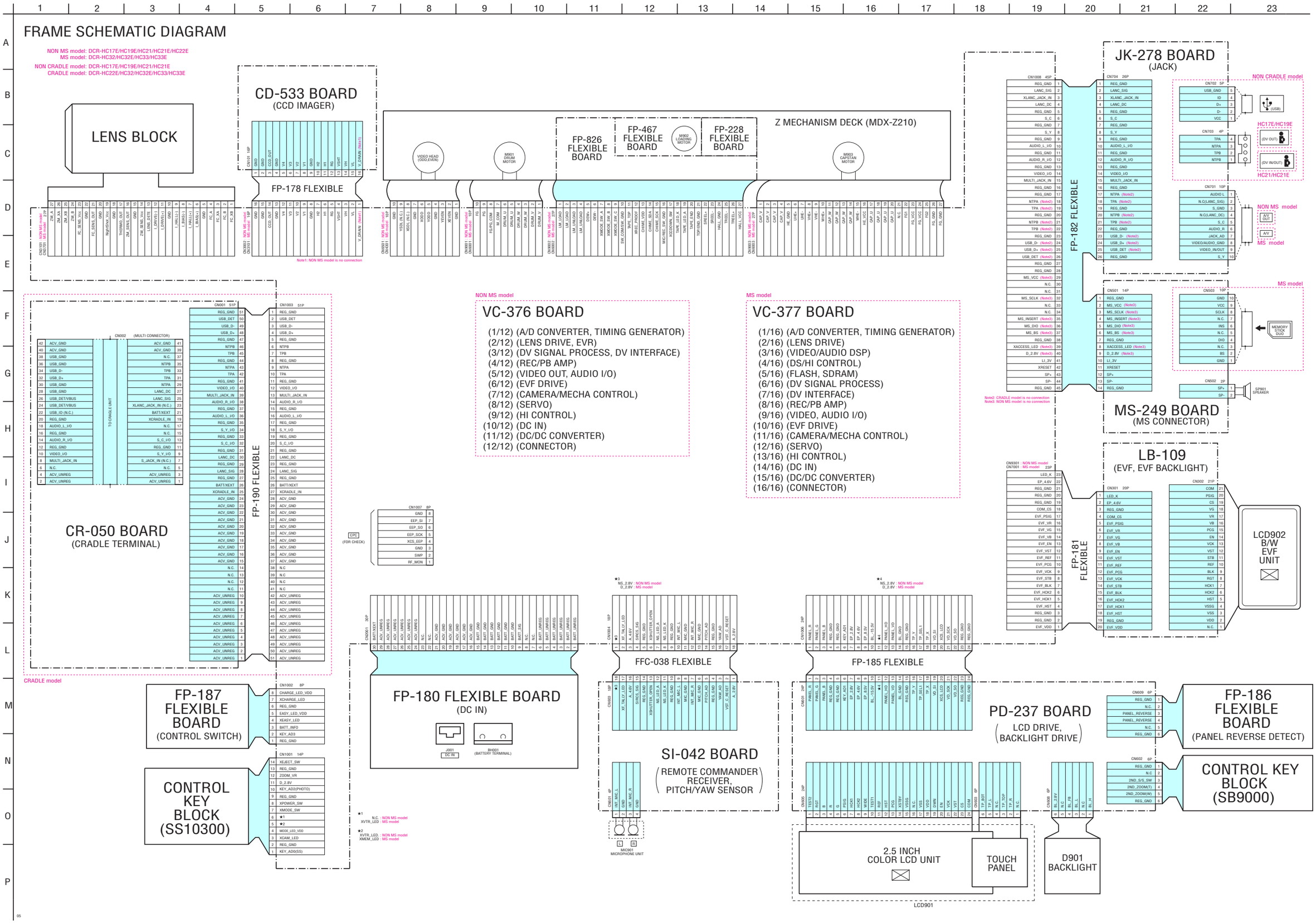


3-2-9. POWER BLOCK DIAGRAM (3/3) (MS model)

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



4-1. FRAME SCHEMATIC DIAGRAM



4-2. SCHEMATIC DIAGRAMS

Link

CD-533 BOARD (CCD IMAGER)	LB-109 BOARD (EVF, EVF BACKLIGHT)
PD-237 BOARD (LCD DRIVE, BACKLIGHT DRIVE)	FP-186 FLEXIBLE BOARD (PANEL REVERSE DETECT)
CR-050 BOARD (CRADLE TERMINAL)	FP-180 FLEXIBLE BOARD (DC IN)
SI-042 BOARD (REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR)	FP-187 FLEXIBLE BOARD (CONTROL SWITCH)
FP-182 FLEXIBLE BOARD	FP-826, FP-467, FP-228 FLEXIBLE BOARD
JK-278 BOARD (JACK)	CONTROL KEY BLOCK (SS10300)
MS-249 BOARD (MS CONNECTOR)	CONTROL KEY BLOCK (SB9000)

COMMON NOTE FOR SCHEMATIC DIAGRAMS	WAVEFORMS

4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- 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 22U TA A — Kinds of capacitor / Case size; L452 10UH 2520 — External dimensions (mm)

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

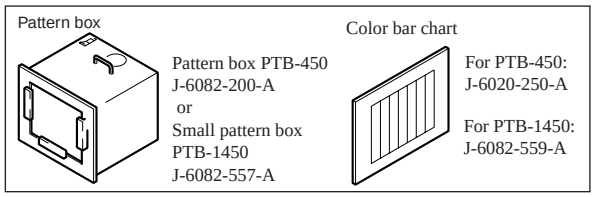
(Measuring conditions voltage and waveform)

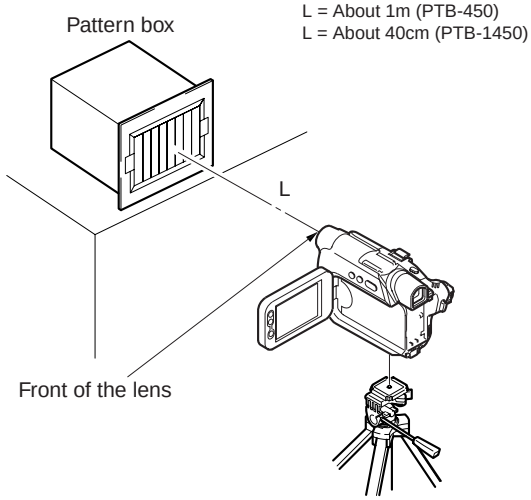
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Precautions for Replacement of CCD Imager

- The CD-533 board mounted as a repair part is not equipped with a CCD imager. When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

1. Connection





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

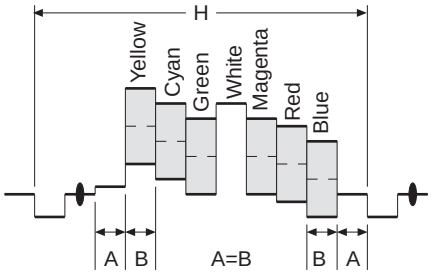


Fig. a (Video output terminal output waveform)

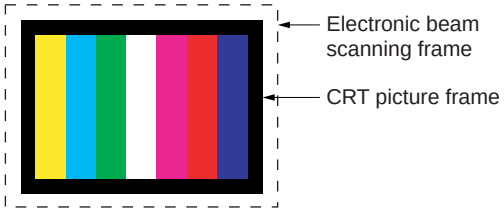


Fig.b (Picture on monitor TV)

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

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 spécifie.

For Schematic Diagram
• Refer to page 4-81 for printed wiring board.

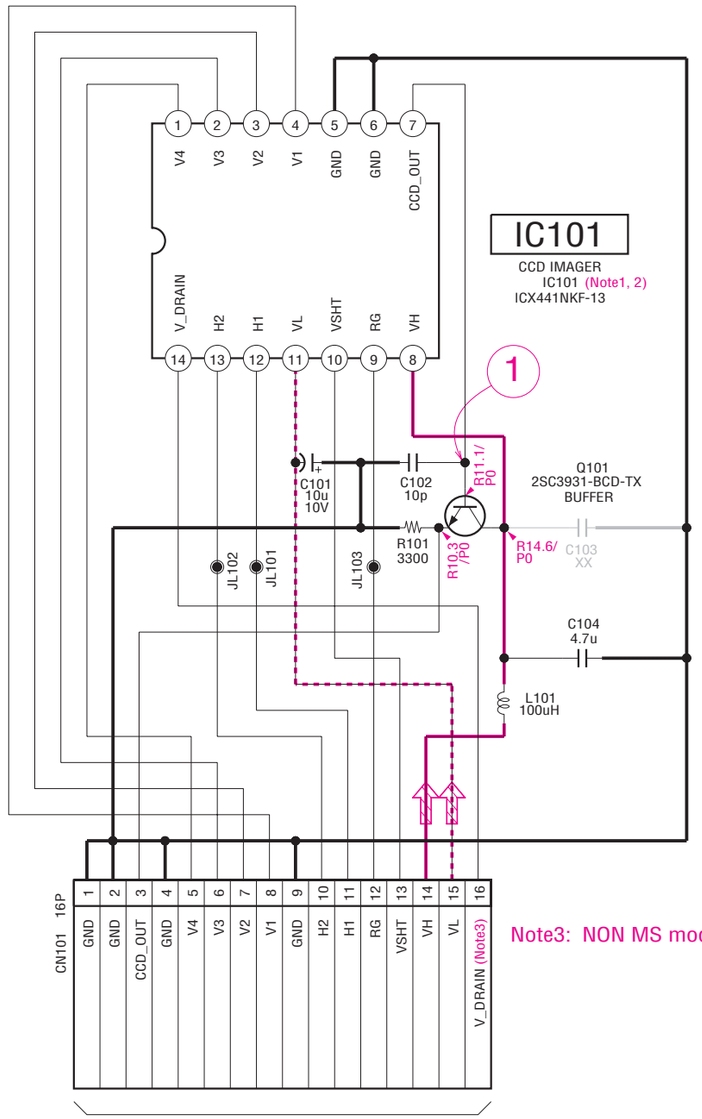
CD-533 BOARD

CCD IMAGER

XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

Note1: IC101 is not included in CD-533 complete board.

Note2: Voltage and Waveform of mounted IC101 on CD-533 board can not be measured, because this is mounted by side of the lens.



Note3: NON MS model is no connection.

VC-376 (1/12) CN3002 (THROUGH THE FP-178 FLEXIBLE) (PAGE 4-9 of LEVEL3) — NON MS model

VC-377 (1/16) CN3101 (THROUGH THE FP-178 FLEXIBLE) (PAGE 4-33 of LEVEL3) — MS model

NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

05

Schematic diagrams of the VC-376/377 board are not shown.
Pages from 4-9 to 4-64 are not shown.

For Schematic Diagram
• Refer to page 4-91 for printed wiring board.

PD-237 BOARD

LCD DRIVE, BACKLIGHT DRIVE

XX MARK:NO MOUNT
NO MARK:REC/PB MODE

★1
NS_2.8V : NON MS model
D_2.8V : MS model

NON MS model
VC-376 (12/12) CN1006
(THROUGH THE FP-185 FLEXIBLE)
(PAGE 4-32 of LEVEL3)

MS model
VC-377 (16/16) CN1006
(THROUGH THE FP-185 FLEXIBLE)
(PAGE 4-64 of LEVEL3)

CONTROL KEY BLOCK (SB9000)
LND001-LND006
(PAGE 4-78 of LEVEL2)

FP-186 FLEXIBLE
LND101-LND106
(PAGE 4-73 of LEVEL2)

LCD901 (2/2) TOUCH PANEL (With LCD UNIT)

CN601 24P: PANEL_R 1, PANEL_G 2, PANEL_B 3, REG_GND 4, REG_GND 5, KEY_AD1 6, EP_2.8V 7, EP_4.6V 8, EP_8.5V 9, BL_-15.5V 10, ★1 11, PANEL_HD 12, PANEL_VD 13, BL_GND 14, REG_GND 15, TP_Y 16, TP_SEL1 17, TP_X 18, VD_SI 19, XCS_LCD 20, VD_SCK 21, VD_SO 22, REG_GND 23, REG_GND 24

CN602 6P: REG_GND 1, N.C 2, 2ND_S/S_SW 3, 2ND_ZOOM(T) 4, 2ND_ZOOM(W) 5, REG_GND 6

CN609 6P: REG_GND 1, N.C 2, PANEL_REVERSE 3, PANEL_REVERSE 4, N.C 5, REG_GND 6

CN603 6P: TP_BOT 6, TP_L 5, N.C. 4, TP_TOP 3, TP_R 2, N.C. 1

L601 10uH, L602 10uH, L603 10uH, FB601 0uH

C603 10u 6.3V, C604 22u 4V, C605 XX, C606 1u, C609 10u, C611 22u 10V, C617 XX, C618 2.2u, C619 2.2u, C620 XX, C621 10u 16V, C622 4.7u, C623 10u, C624 0.1u, C625 0.01u, C626 1u, C627 0.1u, C630 XX, C631 1u, C632 10u 6.3V, C633 4.7u, C634 1M, C601 XX, C602 2200p, C607 XX, C608 0.1u, C610 0.1u, C612 560p, C613 XX

C614 0.01u, C615 0.01u, C616 0.01u

R603 XX, R604 XX, R605 47 ±0.5%, R606 220k ±0.5%, R607 XX, R608 47k ±0.5%, R609 68k, R610 2200, R611 XX, R612 470, R613 91k ±0.5%, R614 10k ±0.5%, R615 4700, R616 2200, R617 1k, R618 XX, R619 47 ±0.5%, R620 10k, R623 47 ±0.5%, R624 100k, R625 0, R626 1200, R627 1500, R633 XX, R634 1M, R636 0, R637 120k, R638 0, R639 0, R642 47k, R643 47k

RB601 10 ×4

D601 XX, D602 EDZ-TE61-5.6B, D603 XX, D604 XX

Q601,602 TOUCH PANEL I/F
Q601 XP4216-TXE
Q602 XP4116-TXE
Q603 XX
Q606 2SA1576A-T106-QR
Q607 2SA1576A-T106-QR
Q608 UNR32A300LS0 SWITCH
Q609 NDS356AP B+ SWITCH
Q610 2SA2078OOLS0 SWITCH
Q611 2SA1576A-T106-QR
Q612 EMX112R BACKLIGHT DRIVE

Q606,607,611 BACKLIGHT DRIVE

IC602
LCD DRIVE
IC602
CXM3006CR-T4
Filter1, VCC1, RIN, GIN, BIN, EXTDA, BLDET, XLED, REF, COMREF, COMOUT, COMDA
Filter2, GND1, OPOUT, OPIN, FVCC, SO, XCS, XSCK, SI, VDD, SCAN, HD
VP, VCC2, VB, VG, VR, GND2, PWM, WIDE, VST, VDD, VCK, VSS
VXD, XVMRT/CLKIN, XCLR, VSS, RGT, HCK1, HCK2, HST, PCG, XSTBY, DWN, EN

IC601
BACKLIGHT CONTROL
IC601
NJM12904V(TE2)
A_OUT, A_IN-, A_IN+, GND, Vcc, B_OUT, B_IN-, B_IN+

CN605 24P: COM 24, CS 23, VST 22, VCK 21, EN 20, DWN 19, VDD 18, VSS 17, N.C. 16, VSSG 15, XSTBY 14, PCG 13, HST 12, REF 11, TEST1 10, WIDE 9, HCK2 8, HCK1 7, PSIG 6, G 5, R 4, B 3, RGT 2, TEST2 1

CN608 6P: BL_2.8V 6, NC 5, BL_FB 4, BL_L 3, NC 2, BL_H 1

D901 BACKLIGHT

LCD901 (1/2) 2.5 INCH COLOR LCD UNIT (With TOUCH PANEL)

LND601 CH_GND

PANEL_XHD, PANEL_XVD, VD_SI, XCS_LCD, VD_SCK, VD_SO, REF, EXTDA, BL_ON, VST, VCK, EN, DWN, XSTBY, PCG, HST, HCK1, HCK2, RGT, WIDE, VP, VG, VR, VB

NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

05

CR-050 BOARD

:CRADLE model

CRADLE TERMINAL

HC22E

VC-376
(12/12)
CN1003
(THROUGH THE FP-190 FLEXIBLE)
(PAGE 4-32 of LEVEL3)

MS model

VC-377
(16/16)
CN1003
(THROUGH THE FP-190 FLEXIBLE)
(PAGE 4-64 of LEVEL3)

CN001 51P

REG_GND	51
USB_DET	50
USB_D-	49
USB_D+	48
REG_GND	47
NTPB	46
TPB	45
REG_GND	44
NTPA	43
TPA	42
REG_GND	41
VIDEO_I/O	40
MULTI_JACK_IN	39
AUDIO_R_I/O	38
REG_GND	37
AUDIO_L_I/O	36
REG_GND	35
S_Y_I/O	34
REG_GND	33
S_C_I/O	32
REG_GND	31
LANC_DC	30
REG_GND	29
LANC_SIG	28
REG_GND	27
BATT/XEXT	26
XCRADLE_IN	25
ACV_GND	24
ACV_GND	23
ACV_GND	22
ACV_GND	21
ACV_GND	20
ACV_GND	19
ACV_GND	18
ACV_GND	17
ACV_GND	16
ACV_GND	15
N.C.	14
N.C.	13
N.C.	12
N.C.	11
ACV_UNREG	10
ACV_UNREG	9
ACV_UNREG	8
ACV_UNREG	7
ACV_UNREG	6
ACV_UNREG	5
ACV_UNREG	4
ACV_UNREG	3
ACV_UNREG	2
ACV_UNREG	1

Note: CN002 (multi connector) is not supplied,
but this is included in CR-050 complete board.

D006
MAZW068H0LS0

D005
MAZB068H0LS0

LND001
REG_GND

D007
EDZ TE61 6.8B

CN002 (MULTI CONNECTOR)

41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1		
ACV_GND	ACV_GND	N.C.	NTPB	TPB	TPA	NTPA	LANC_DC	LANC_SIG	XLANC_JACK_IN (N.C.)	BATT/XEXT	XCRADLE_IN	N.C.	N.C.	S_C_I/O	REG_GND	S_Y_I/O	S_JACK_IN (N.C.)	N.C.	ACV_UNREG	ACV_UNREG		

44 TO CRADLE UNIT 43

42	40	38	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2		
ACV_GND	ACV_GND	USB_GND	USB_GND	USB_D-	USB_D+	USB_GND	USB_GND	USB_DET/VBUS	USB_DET/VBUS	USB_ID (N.C.)	REG_GND	AUDIO_L_I/O	REG_GND	AUDIO_R_I/O	REG_GND	VIDEO_I/O	MULTI_JACK_IN	N.C.	ACV_UNREG	ACV_UNREG		

D001
MAZB068H0LS0

D002
MAZB068H0LS0

D003
MAZB068H0LS0

CRADLE model: DCR-HC22E/HC32/HC32E/HC33/HC33E
MS model: DCR-HC32/HC32E/HC33/HC33E

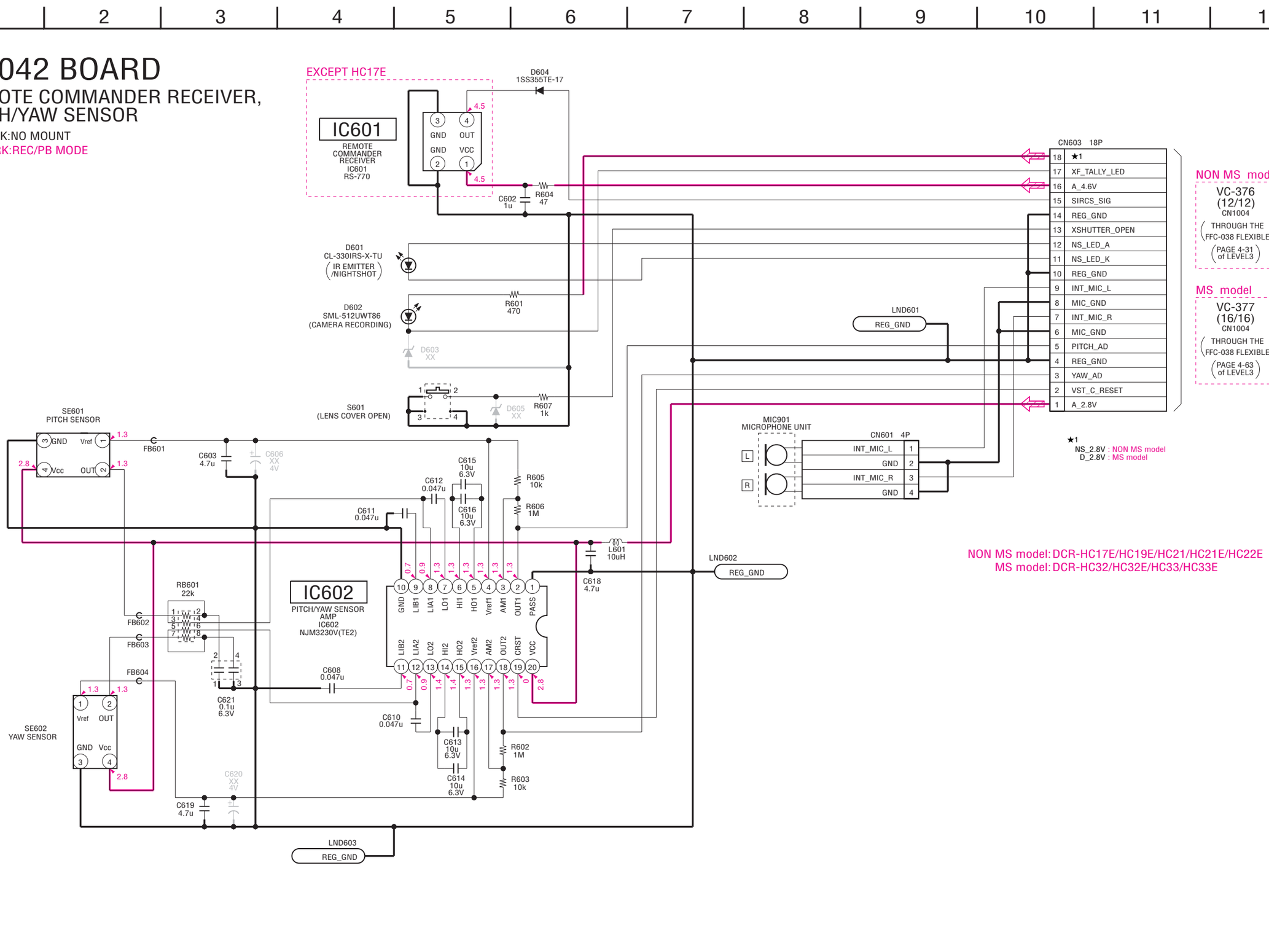
05

For Schematic Diagram
• Refer to page 4-93 for printed wiring board.

SI-042 BOARD

REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR

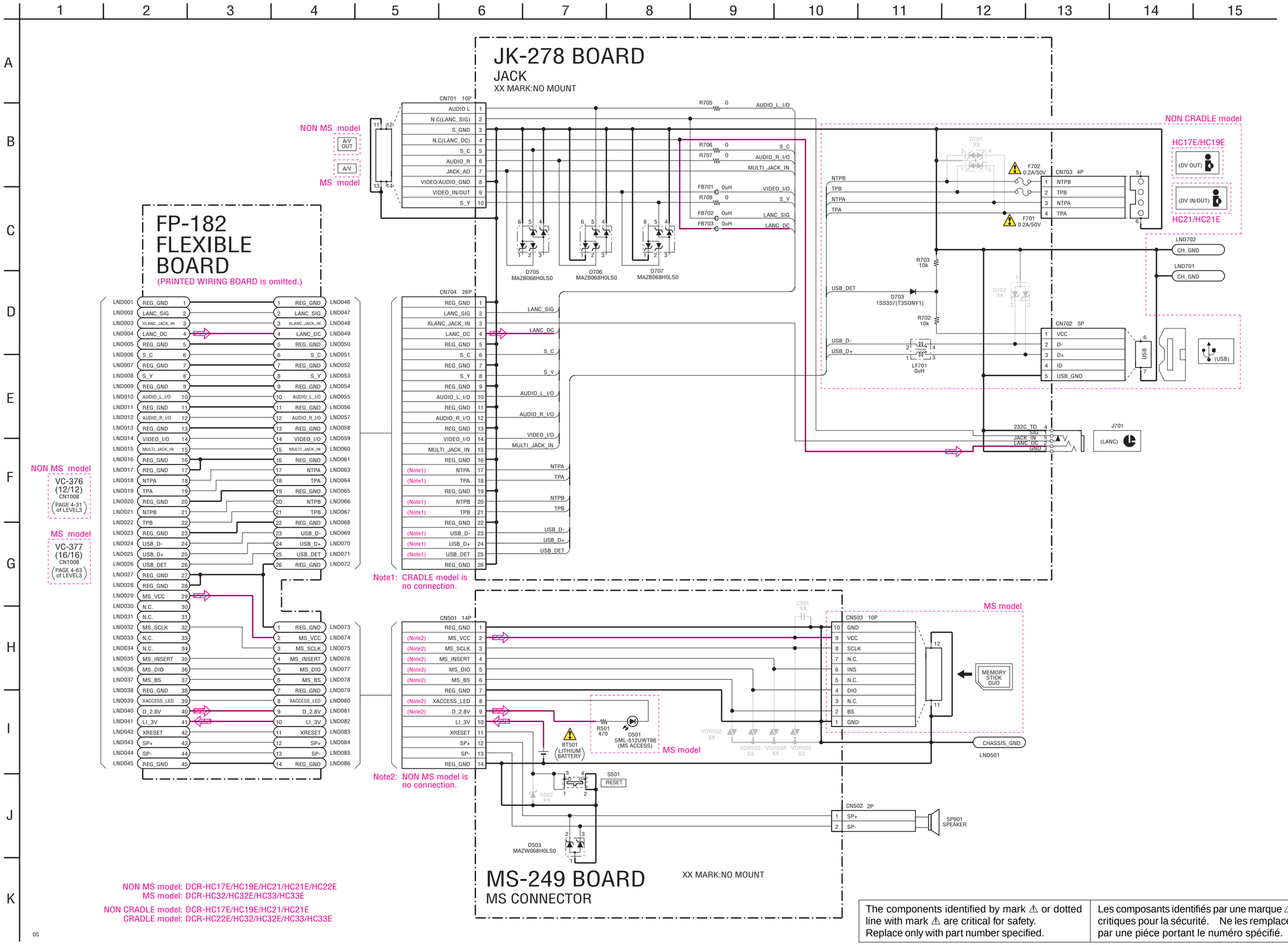
XX MARK:NO MOUNT
NO MARK:REC/PB MODE



NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

For Schematic Diagram

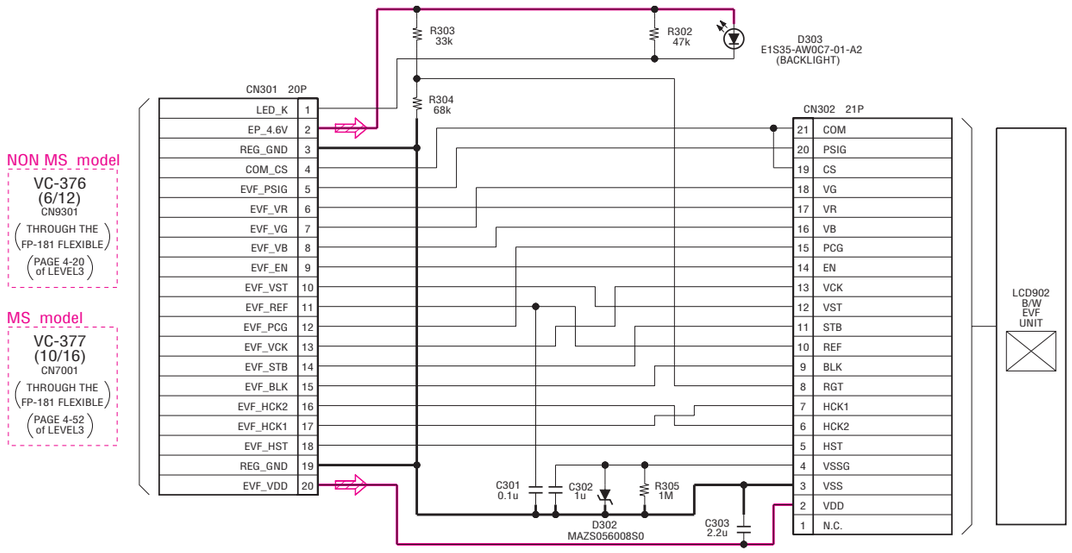
• Refer to page 4-95 for printed wiring board.



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 piéce portant le numéro spécifié.

For Schematic Diagram
• Refer to page 4-93 for printed wiring board.

LB-109 BOARD
EVF, EVF BACKLIGHT



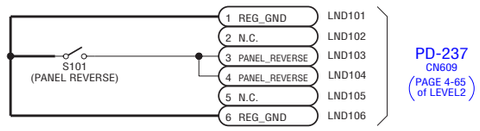
NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

05

For Schematic Diagram
• Refer to page 4-97 for printed wiring board.

FP-186 FLEXIBLE BOARD
PANEL REVERSE DETECT

XX MARK:NO MOUNT
NO MARK:REC/PB MODE

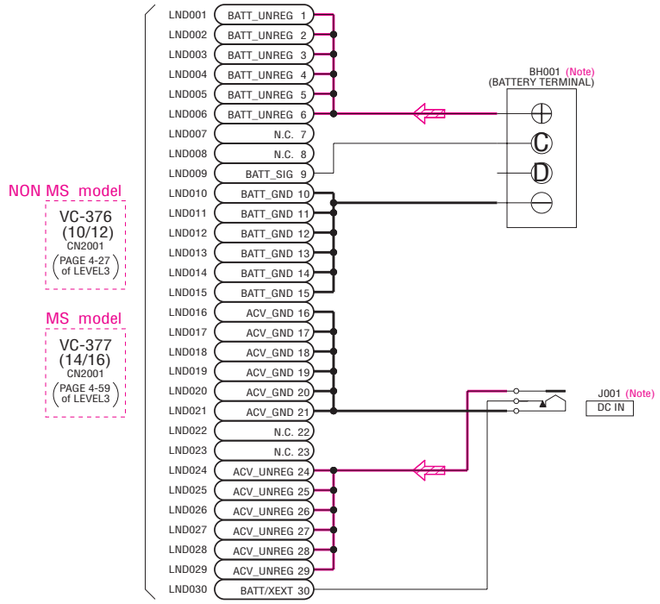


05

For Schematic Diagram
• Refer to page 4-97 for printed wiring board.

FP-180 FLEXIBLE BOARD
DC IN

Note: BH001 and J001 are not included in FP-180 flexible board.

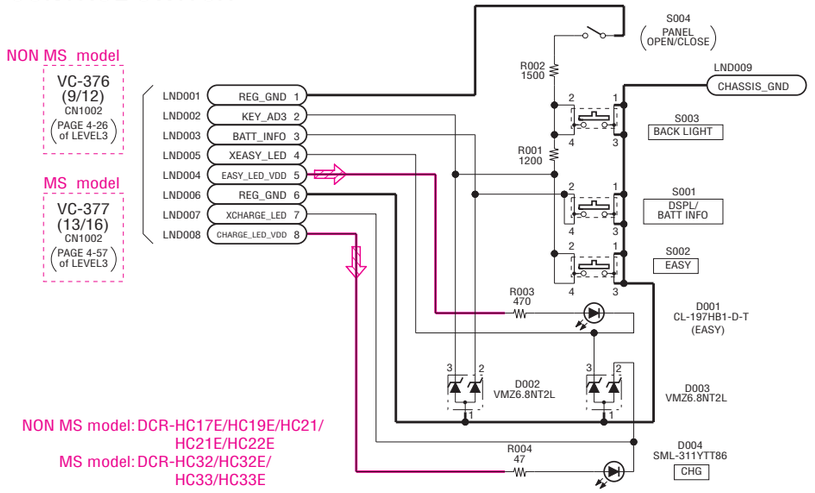


NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

05

For Schematic Diagram
• Refer to page 4-97 for printed wiring board.

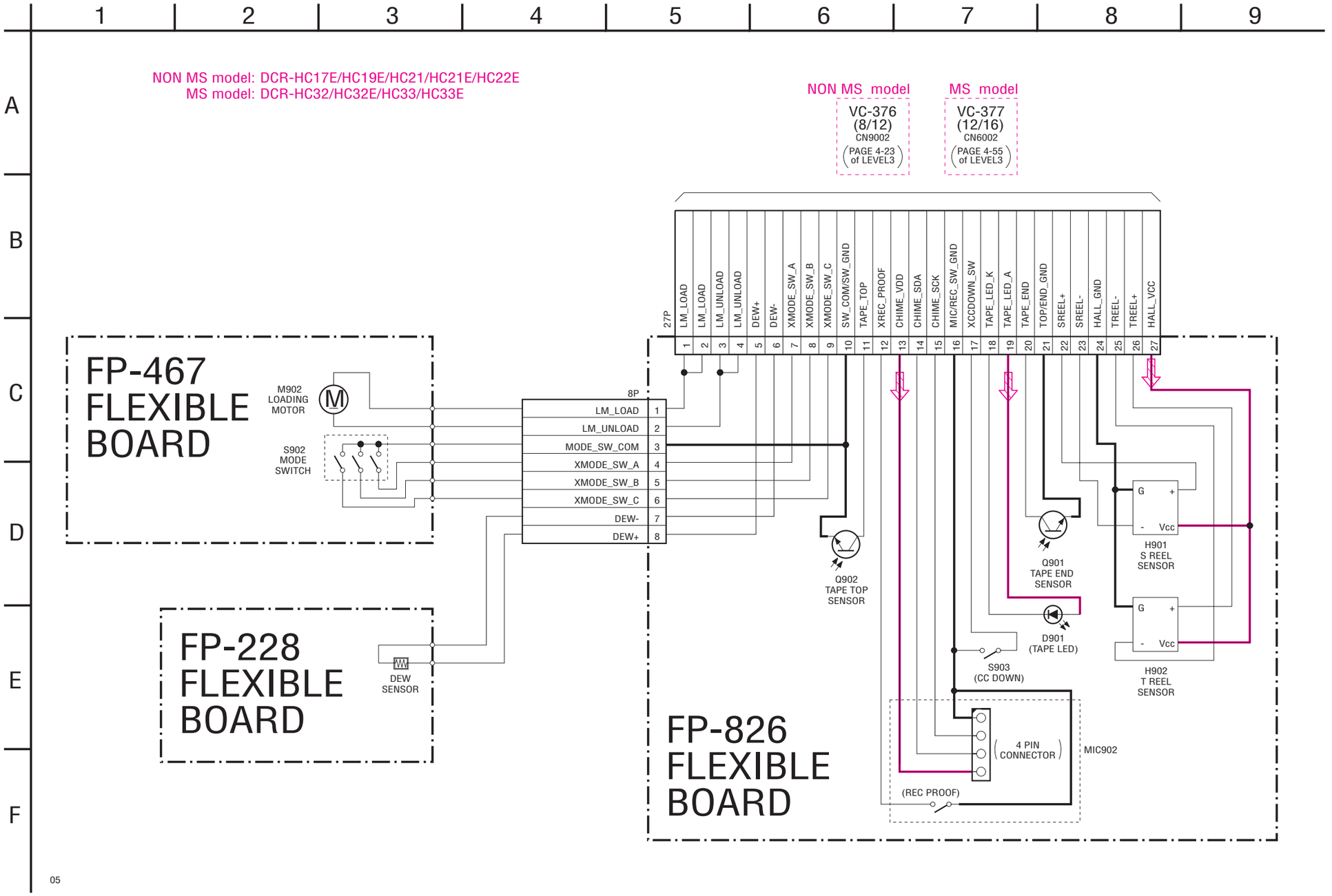
FP-187 FLEXIBLE BOARD
CONTROL SWITCH



NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

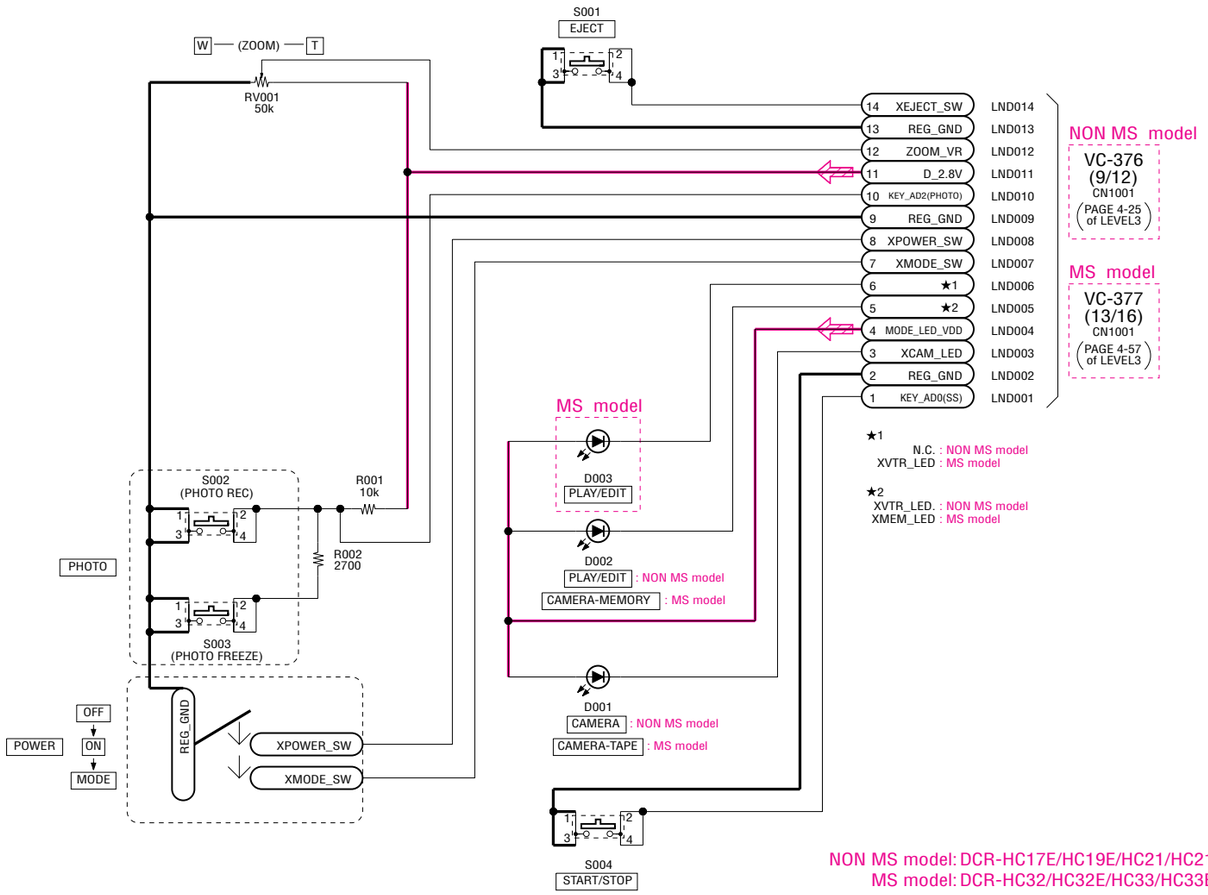
05

For Schematic Diagram
• Refer to page 4-99 for printed wiring board.



CONTROL KEY BLOCK (SS10300)

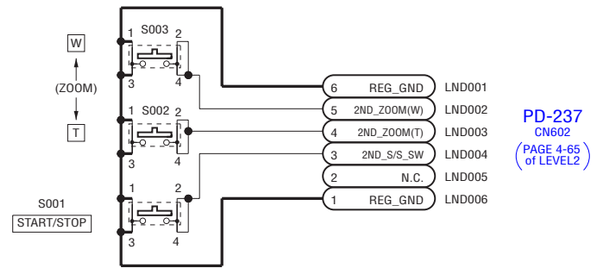
CONTROL KEY BLOCK (SS10300) is replaced as block, so that PRINTED WIRING BOARD is omitted.



NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E

CONTROL KEY BLOCK (SB9000)

CONTROL KEY BLOCK (SB9000) is replaced as block, so that PRINTED WIRING BOARD is omitted.



4-3. PRINTED WIRING BOARDS

Link

- CD-533 BOARD
- JK-278 BOARD
- PD-237 BOARD
- MS-249 BOARD
- CR-050 BOARD
- FP-180, FP-186, FP-187 FLEXIBLE BOARD
- SI-042 BOARD
- FP-826, FP-467, FP-228 FLEXIBLE BOARD
- LB-109 BOARD

- COMMON NOTE FOR PRINTED WIRING BOARDS
- WAVEFORMS
- MOUNTED PARTS LOCATION
- CIRCUIT BOARDS LOCATION
- FLEXIBLE BOARDS LOCATION

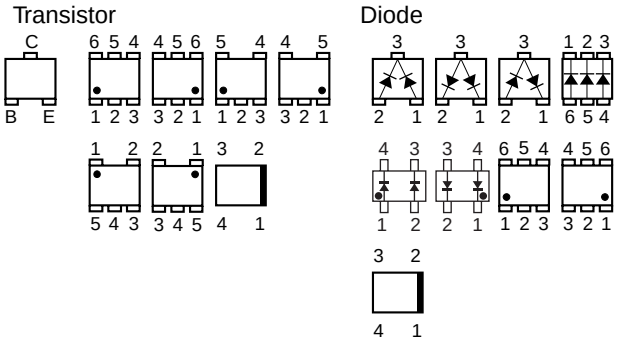
Board Name	Function
CD-533	CCD IMAGER
PD-237	LCD DRIVE, BACKLIGHT DRIVE
CR-050	CRADLE TERMINAL
SI-042	REMOTE COMMANDER RECEIVER, PITCH/YAW SENSOR
LB-109	EVF, EVF BACKLIGHT
JK-278	JACK
MS-249	MS CONNECTOR
FP-180	DC IN
FP-186	PANEL REVERSE DETECT
FP-187	CONTROL SWITCH

4-3. PRINTED WIRING BOARDS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

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

- Chip parts.



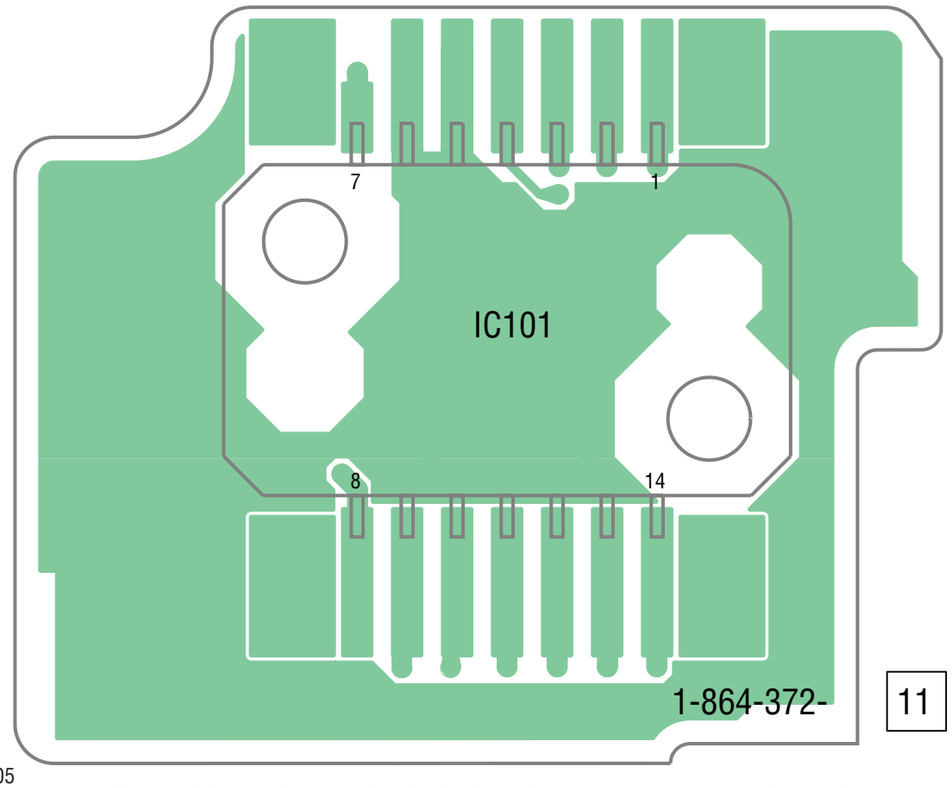
BOARD INFORMATION

Board Name	Waveform (Shown on Page)	Parts Location (Shown on Page)	Pattern	
			Total Number of Layers	Layers Not Indicated
CD-533	4-101	–	2 layers	–
PD-237	4-112	4-117	2 layers	–
CR-050	–	–	2 layers	–
SI-042	–	4-117	2 layers	–
LB-109	–	–	2 layers	–
JK-278	–	4-117	2 layers	–
MS-249	–	–	2 layers	–
FP-180 Flexible	–	–	1 layer	–
FP-186 Flexible	–	–	1 layer	–
FP-187 Flexible	–	–	1 layer	–
FP-826 Flexible	–	–	1 layer	–
FP-467 Flexible	–	–	1 layer	–
FP-228 Flexible	–	–	1 layer	–

Note for Printed Wiring Board (See page 4-79).

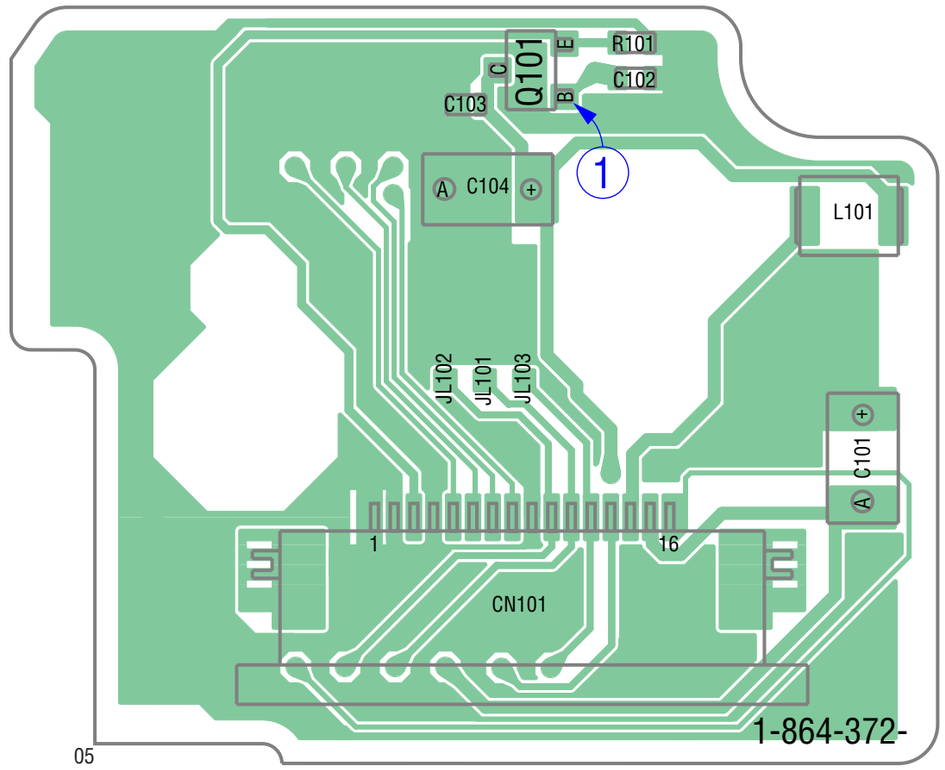
: Uses unleaded solder.

CD-533 BOARD (SIDE A)



Note: IC101 is not included in CD-533 complete board.

CD-533 BOARD (SIDE B)



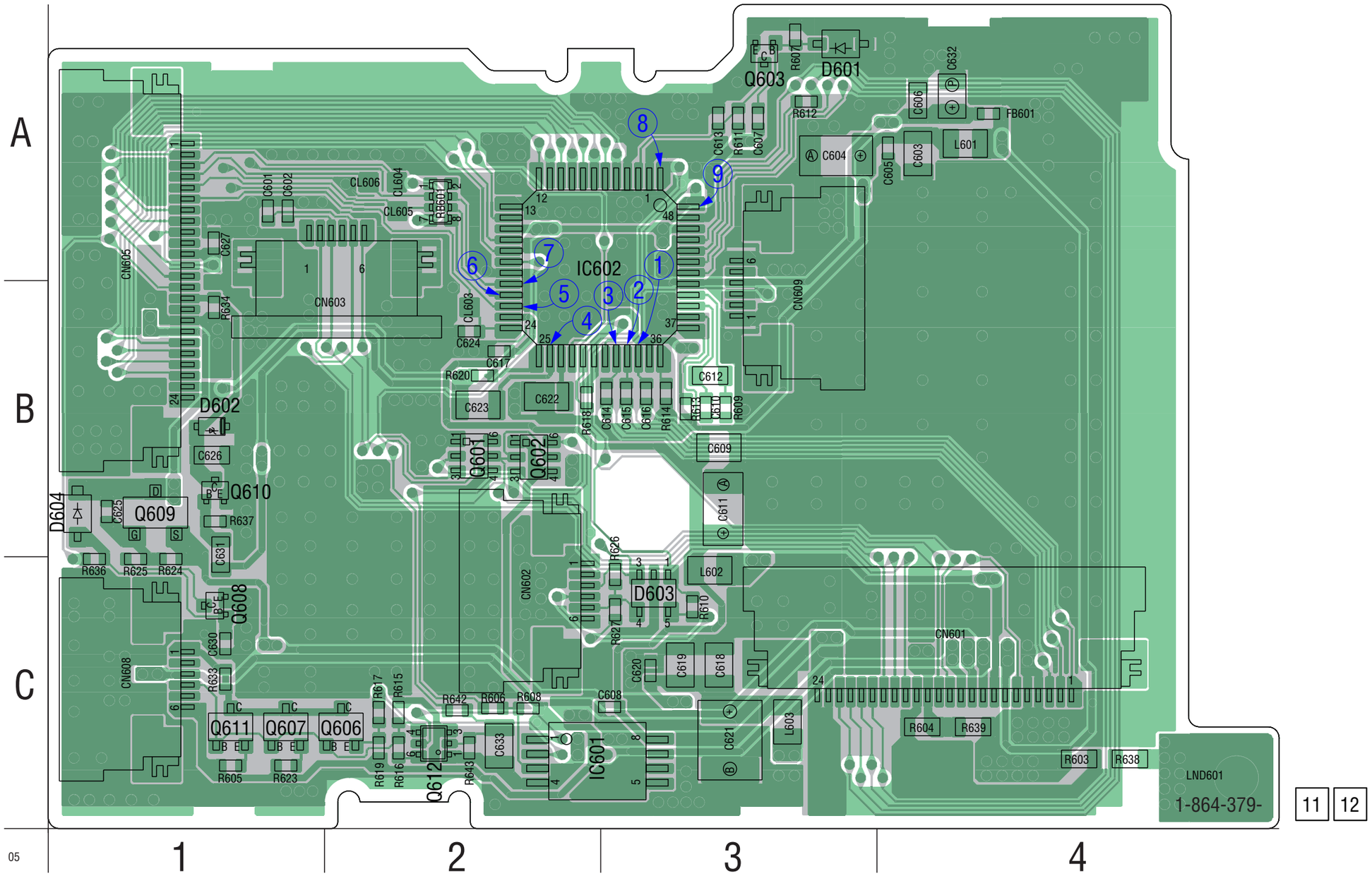
Printed wiring boards of the VC-376/377 board are not shown.
Pages from 4-83 to 4-90 are not shown.

PD-237

Note for Printed Wiring Board (See page 4-79).

: Uses unleaded solder.

PD-237 BOARD



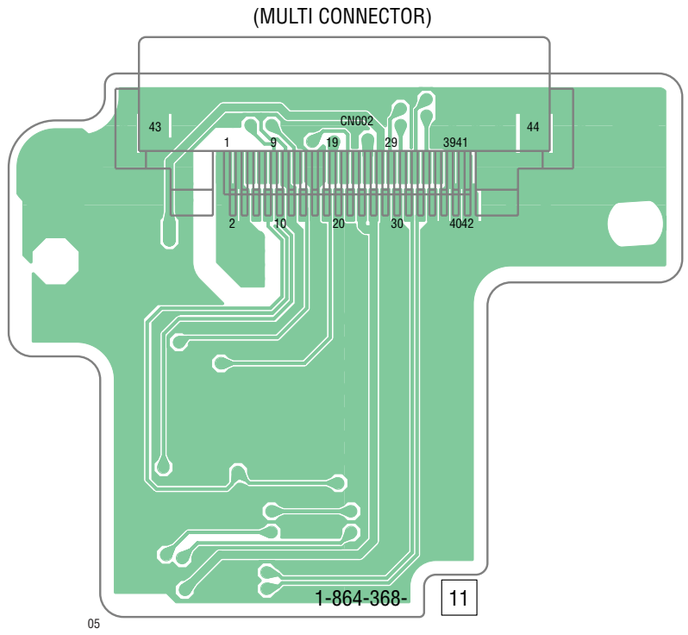
Note for Printed Wiring Board (See page 4-79).

CR-050

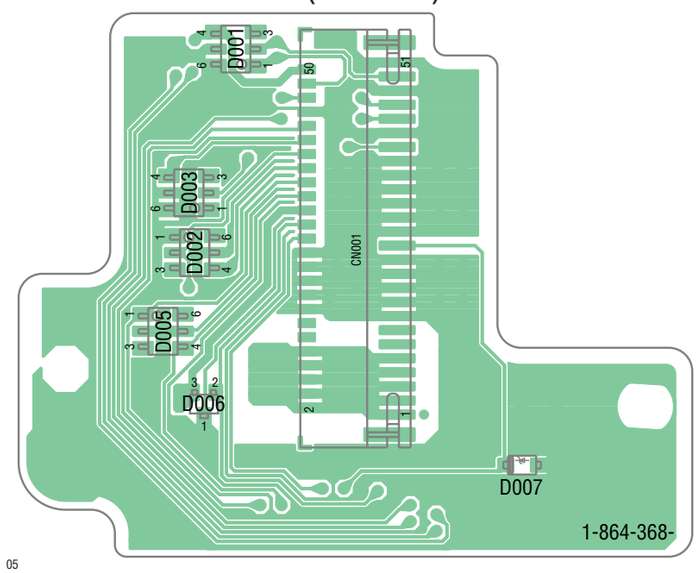
: Uses unleaded solder.

CR-050 BOARD (SIDE A)

Note: CN002 (multi connector) is not supplied,
but this is included in CR-050 complete board.



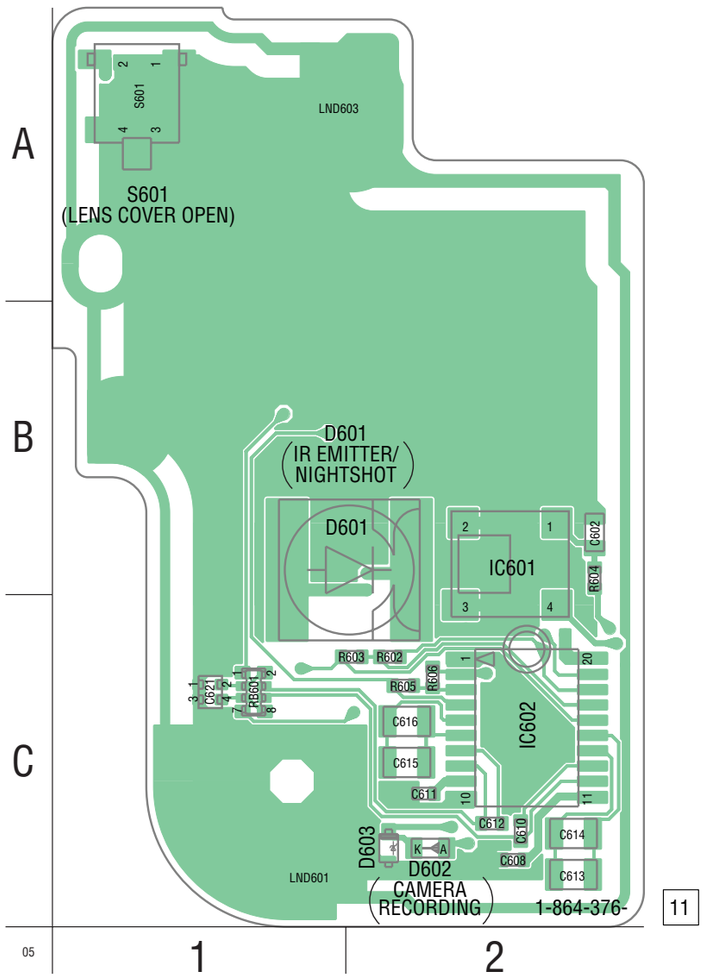
CR-050 BOARD (SIDE B)



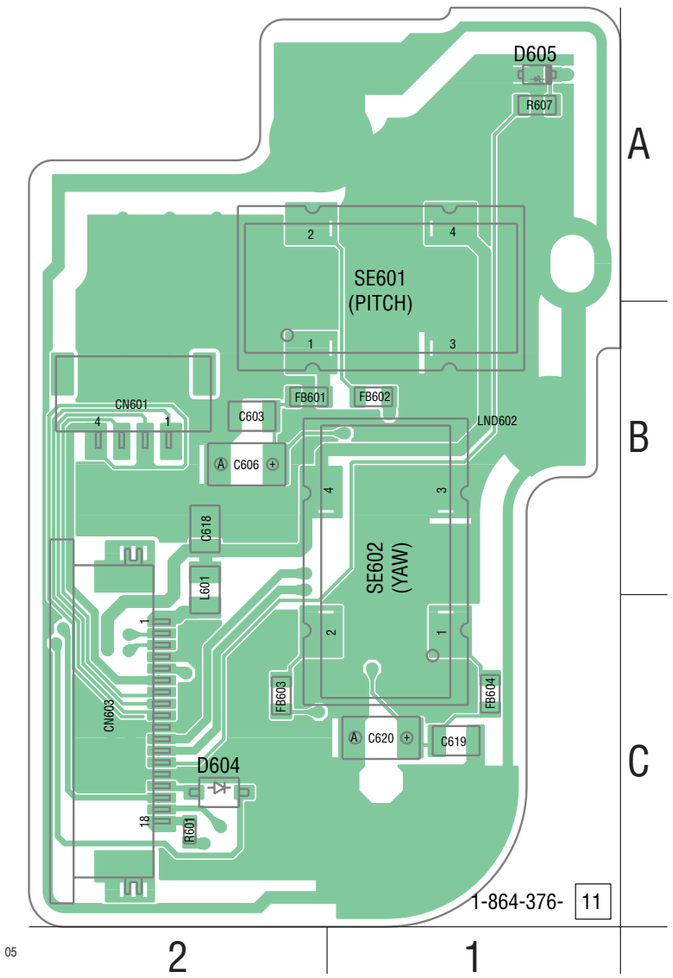
SI-042

: Uses unleaded solder.

SI-042 BOARD (SIDE A)



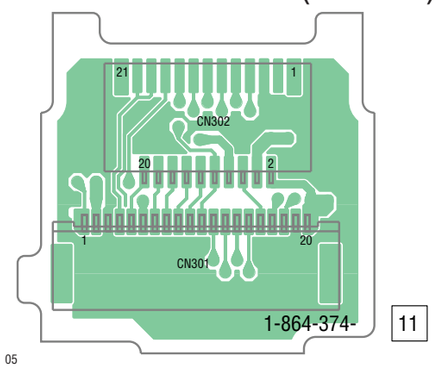
SI-042 BOARD (SIDE B)



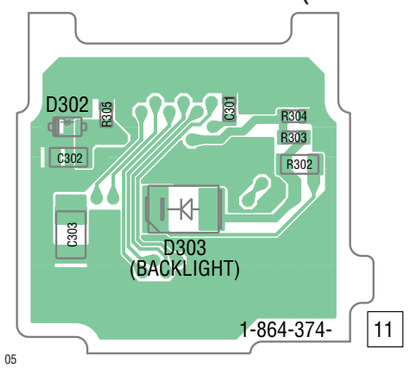
LB-109

: Uses unleaded solder.

LB-109 BOARD (SIDE A)



LB-109 BOARD (SIDE B)



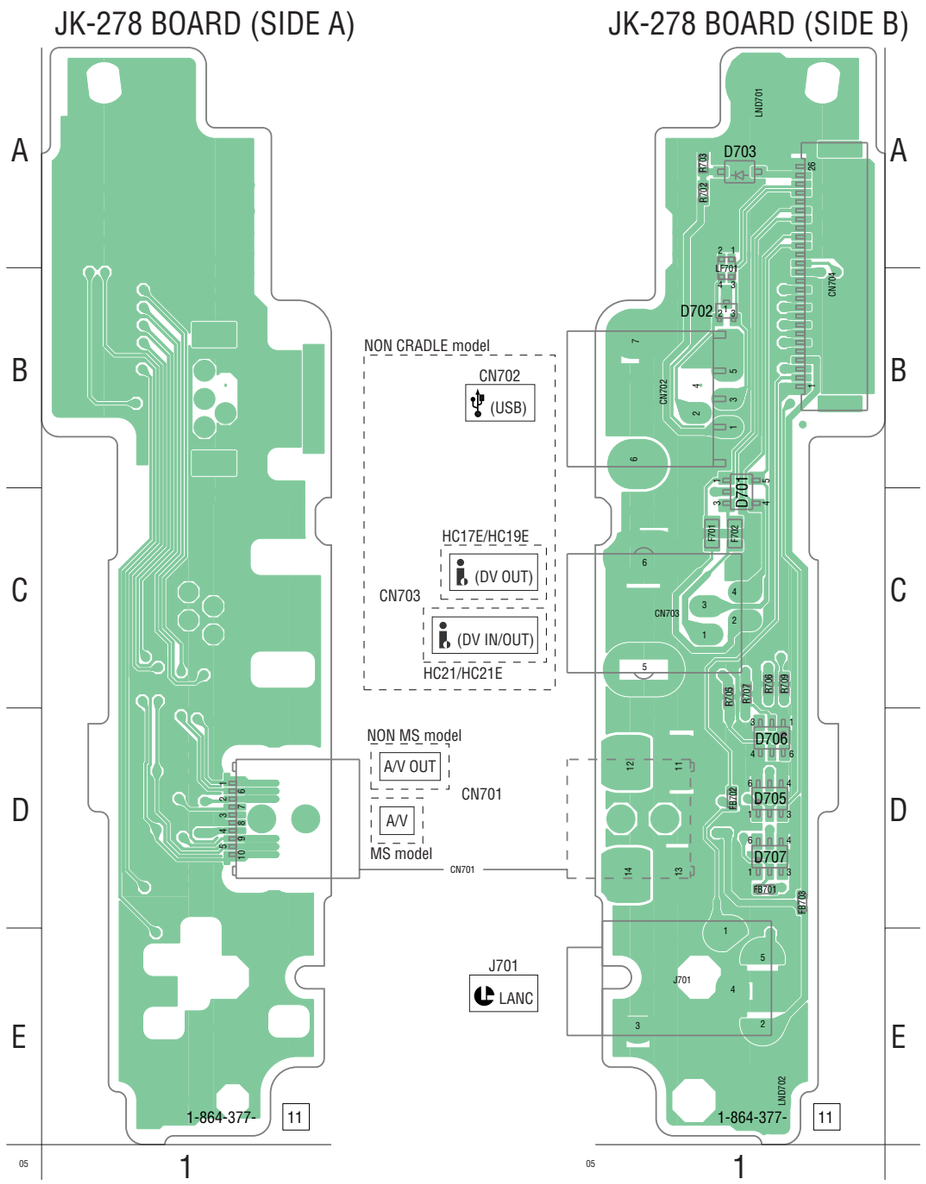
Note for Printed Wiring Board (See page 4-79).

JK-278

: Uses unleaded solder.

JK-278 BOARD (SIDE A)

JK-278 BOARD (SIDE B)

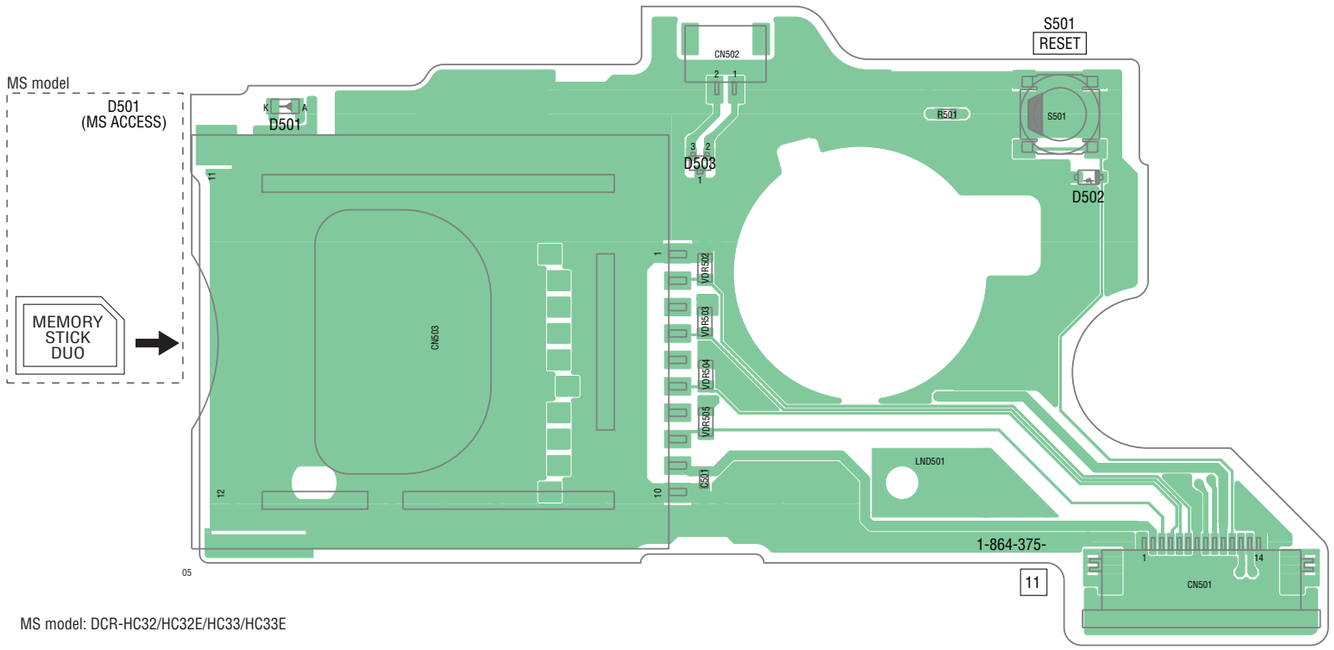


NON MS model: DCR-HC17E/HC19E/HC21/HC21E/HC22E
MS model: DCR-HC32/HC32E/HC33/HC33E
NON CRADLE model: DCR-HC17E/HC19E/HC21/HC21E

MS-249

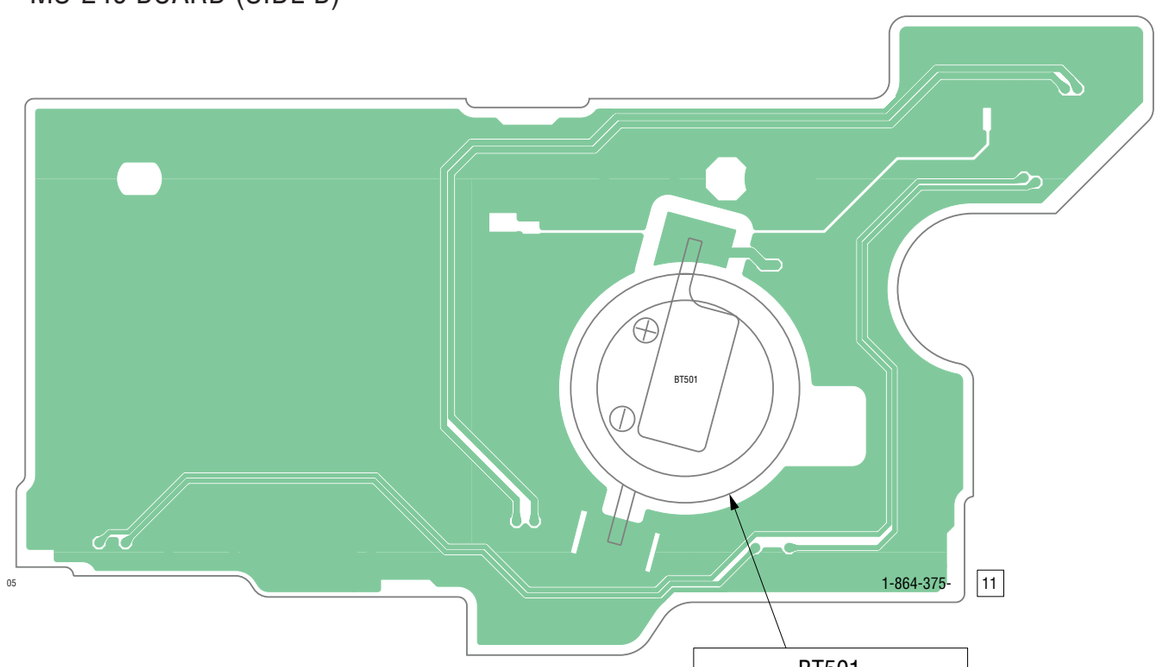
: Uses unleaded solder.

MS-249 BOARD (SIDE A)



MS model: DCR-HC32/HC32E/HC33/HC33E

MS-249 BOARD (SIDE B)



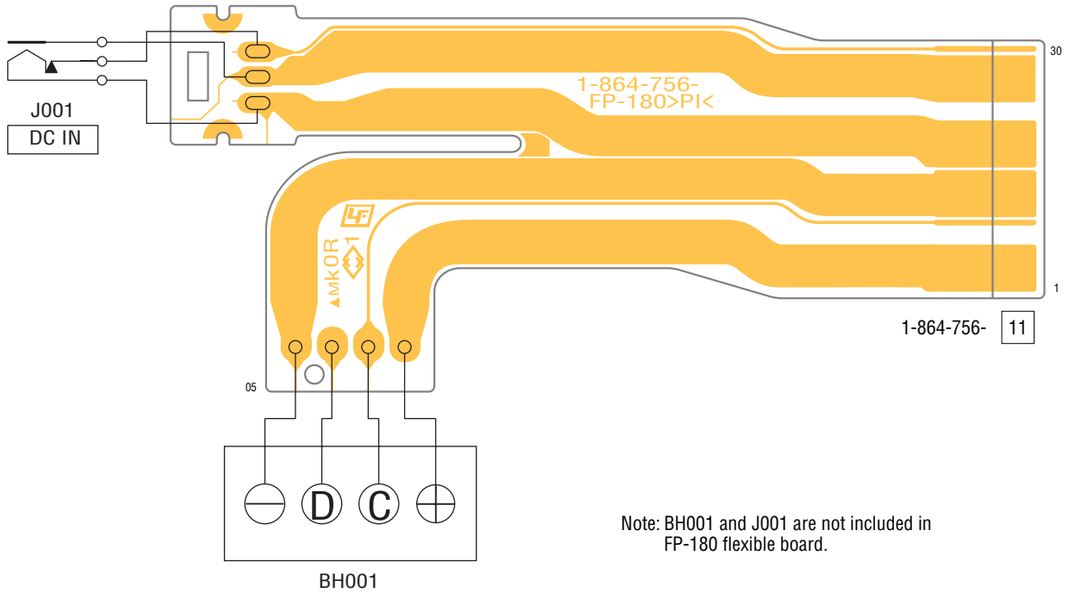
CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

BT501
BATTERY,
LITHIUM SECONDARY

FP-180

: Uses unleaded solder.

FP-180 FLEXIBLE BOARD

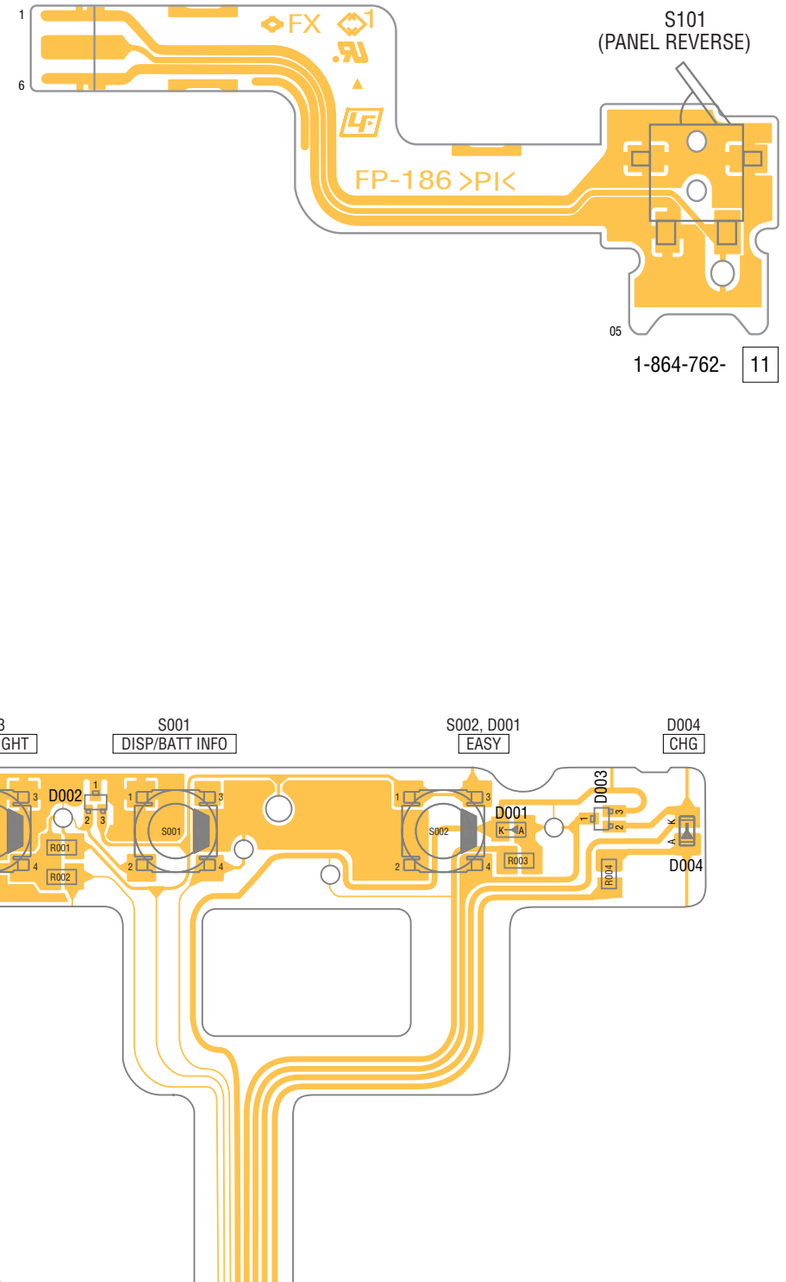


Note: BH001 and J001 are not included in FP-180 flexible board.

FP-186

: Uses unleaded solder.

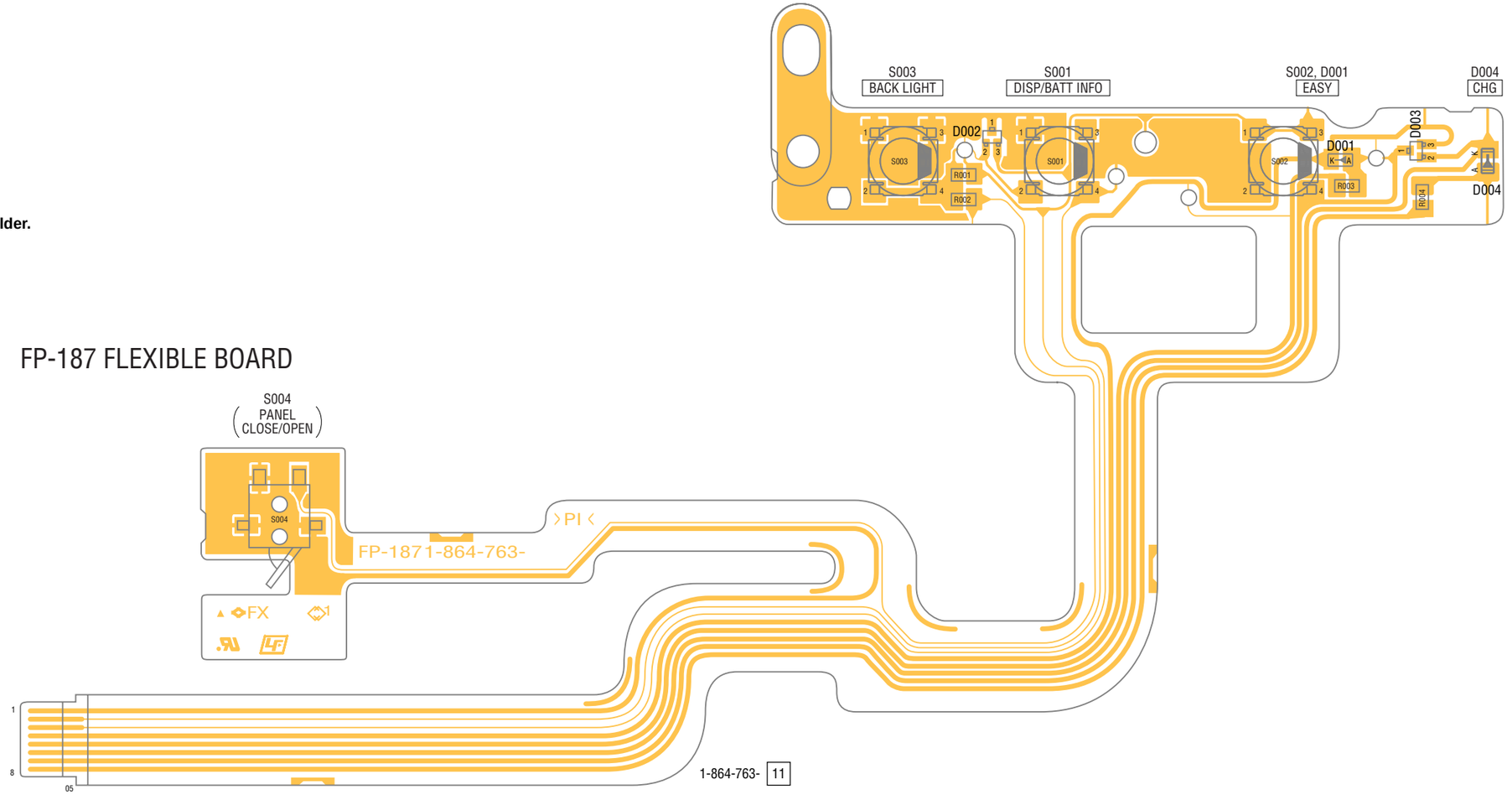
FP-186 FLEXIBLE BOARD



FP-187

: Uses unleaded solder.

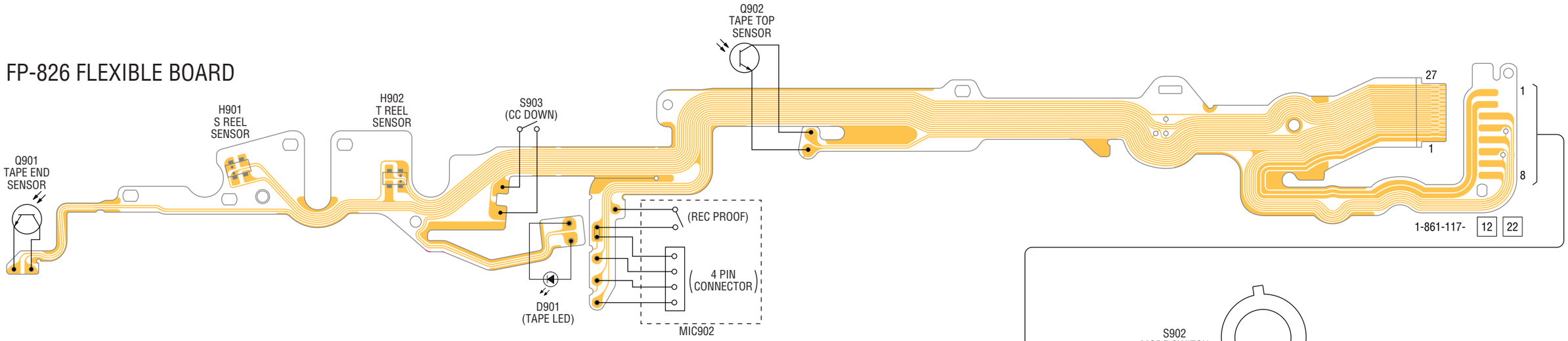
FP-187 FLEXIBLE BOARD

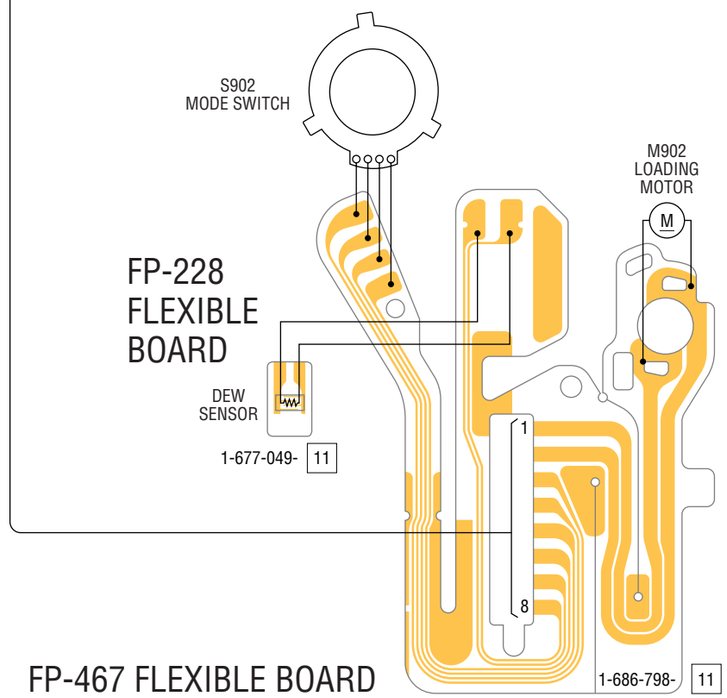


Note for Printed Wiring Board (See page 4-79).

: Uses unleaded solder.

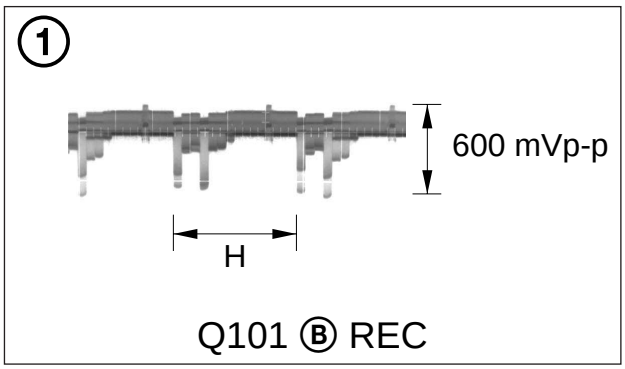
FP-826 FLEXIBLE BOARD





4-4. WAVEFORMS

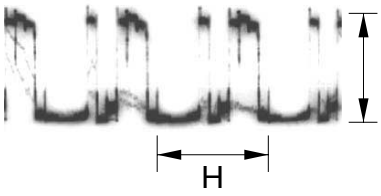
CD-533 BOARD



Waveforms of the VC-376/377 board are not shown.
Pages 4-102 to 4-111 are not shown.

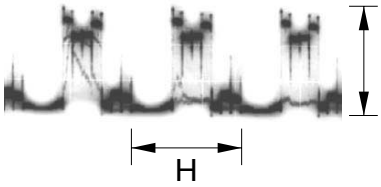
PD-237 BOARD

①



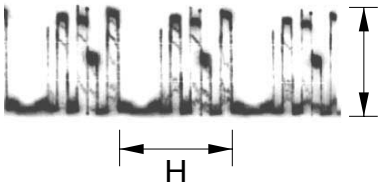
IC602 ㉞ REC/PB

②



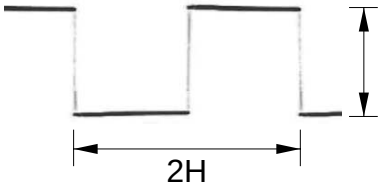
IC602 ㉝ REC/PB

③



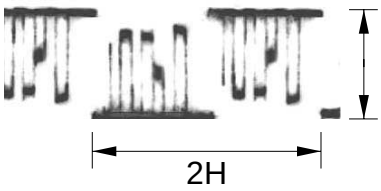
IC602 ㉜ REC/PB

④



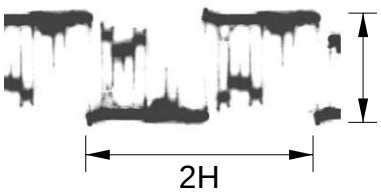
IC602 ㉖ REC/PB

⑤



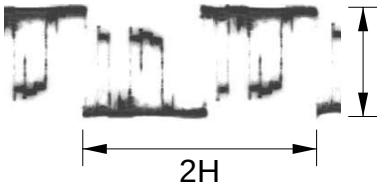
IC602 ㉒ REC/PB

⑥



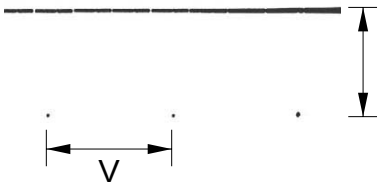
IC602 ㉑ REC/PB

⑦



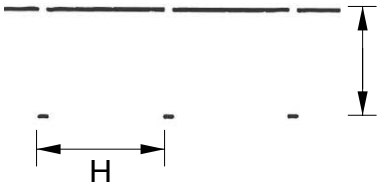
IC602 ⑳ REC/PB

⑧



IC602 ① REC/PB

⑨



IC602 ㊽ REC/PB

Mounted parts location of the VC-376/377 board are not shown.
Pages 4-113, 4-114, 4-115, 4-116 are not shown.

4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

PD-237 BOARD

C602	A-1
C603	A-4
C604	A-3
C606	A-4
C608	C-3
C609	B-3
C610	B-3
C611	B-3
C612	B-3
C614	B-2
C615	B-3
C616	B-3
C618	C-3
C619	C-3
C621	C-3
C622	B-2
C623	B-2
C624	B-2
C625	B-1
C626	B-1
C627	A-1
C631	C-1
C632	A-4
C633	C-2
CN601	C-4
CN602	C-2
CN603	B-2
CN605	A-1
CN608	C-1
CN609	B-3
D602	B-1
FB601	A-4
IC601	C-3
IC602	A-2
L601	A-4
L602	C-3
L603	C-3
Q601	B-2
Q602	B-2
Q606	C-1
Q607	C-1
Q608	C-1
Q609	B-1
Q610	B-1
Q611	C-1
Q612	C-2
R605	C-1
R606	C-2
R608	C-2
R609	B-3
R610	C-3
R612	A-3
R613	B-3
R614	B-3
R615	C-2
R616	C-2
R617	C-2
R619	C-2
R620	B-2
R623	C-1
R624	C-1
R625	C-1
R626	C-3
R627	C-3
R634	B-1
R636	C-1
R637	B-1
R638	C-4
R639	C-4
R642	C-2
R643	C-2
RB601	A-2

SI-042 BOARD

C602	B-2
* C603	B-2
C608	C-2
C610	C-2
C611	C-2
C612	C-2
C613	C-2
C614	C-2
C615	C-2
C616	C-2
* C618	B-2
* C619	C-1
C621	C-1
* CN601	B-2
* CN603	C-2
D601	B-2
D602	C-2
* D604	C-2
* FB601	B-2
* FB602	B-1
* FB603	C-2
* FB604	C-1
IC601	B-2
IC602	C-2
* L601	B-2
* R601	C-2
R602	C-2
R603	C-2
R604	C-2
R605	C-2
R606	C-2
* R607	A-1
RB601	C-1
S601	A-1
* SE601	A-1
* SE602	B-1

JK-278 BOARD

* CN701	D-1
* CN702	B-1
* CN703	C-1
* CN704	B-1
* D703	A-1
* D705	D-1
* D706	D-1
* D707	D-1
* F701	C-1
* F702	C-1
* FB701	D-1
* FB702	D-1
* FB703	D-1
* J701	E-1
* LF701	B-1
* R702	A-1
* R703	A-1
* R705	C-1
* R706	C-1
* R707	C-1
* R709	C-1

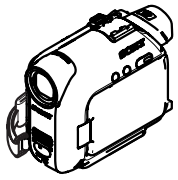
NOTE

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

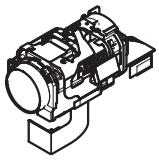


A

OVERALL ASSEMBLY

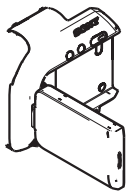
B

F PANEL BLOCK



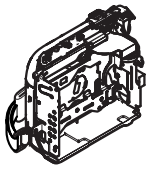
C

LENS BLOCK



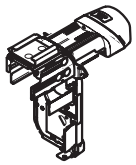
D

CABINET (R) BLOCK



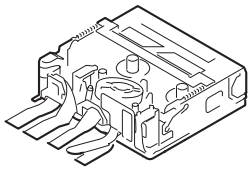
E

CS BLOCK



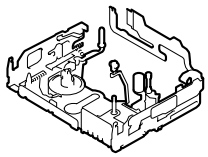
F

BAT EVF BLOCK



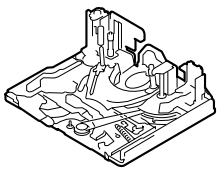
G

MECHANISM DECK



H

LS CHASSIS BLOCK ASSEMBLY



I

MECHANICAL CHASSIS BLOCK ASSEMBLY

Link

ELECTRICAL PARTS LIST

ACCESSORIES

CD-533 BOARD C	FP-187 FLEXIBLE BOARD D	LB-109 BOARD F
CR-050 BOARD D	FP-467 FLEXIBLE BOARD I	MS-249 BOARD E
FP-180 FLEXIBLE BOARD F	FP-826 FLEXIBLE BOARD H	PD-237 BOARD D
FP-186 FLEXIBLE BOARD D	JK-278 BOARD E	SI-042 BOARD B

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: µF
- COILS
  uH: µH
- 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...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...
- Abbreviation
  AUS : Australian model
  CH : Chinese model
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  JE : Tourist model
  KR : Korea model
  NE : North European model

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

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

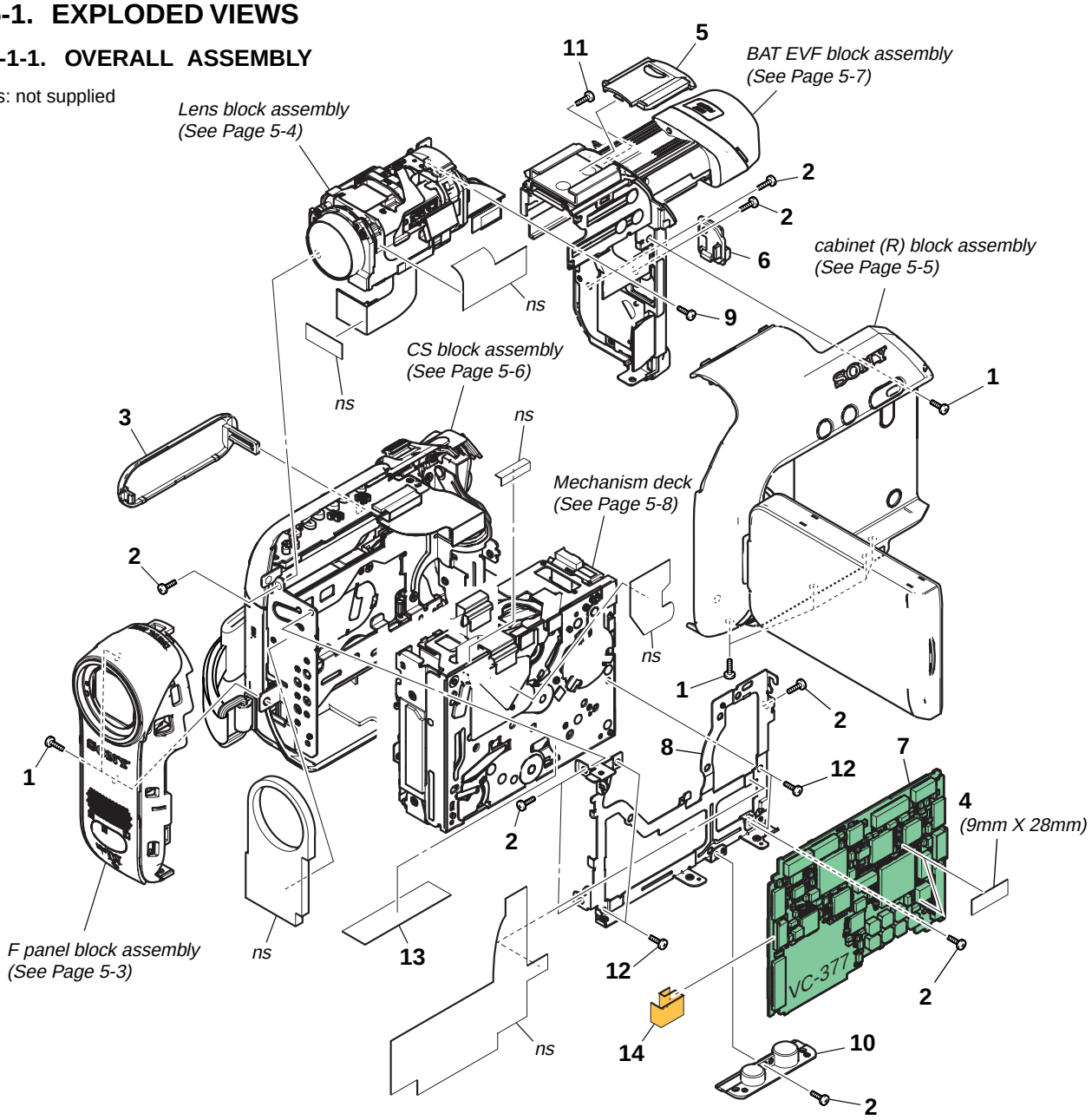
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL ASSEMBLY

ns: not supplied

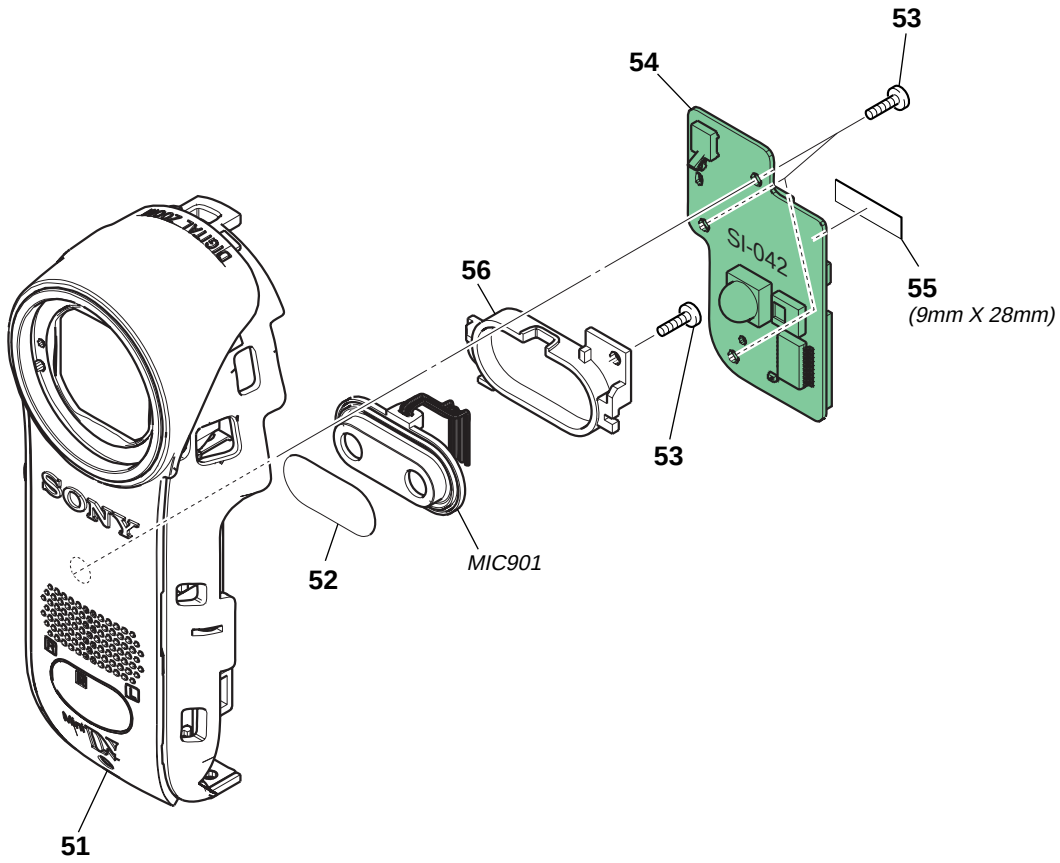


CAUTION :
For the part of 4 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
1	3-078-889-31	SCREW (M1.7)
2	3-080-198-11	SCREW (M1.7), LOCK ACE, P2
3	2-188-477-01	COVER, JACK
4	CAUTION	TAPE (A)
5	2-188-481-01	COVER (103), SHOE
6	2-188-478-01	LID, CPC
7	A-1101-182-A	VC-376 BOARD, COMPLETE (SERVICE) (HC17E/HC19E)
7	A-1101-183-A	VC-376 BOARD, COMPLETE (SERVICE) (HC21/HC21E)
7	A-1101-184-A	VC-376 BOARD, COMPLETE (SERVICE) (HC22E)
7	A-1101-185-A	VC-377 BOARD, COMPLETE (SERVICE) (HC32: EXCEPT KR/HC33)
7	A-1101-190-A	VC-377 BOARD, COMPLETE (SERVICE) (HC32E/HC33E)
7	A-1113-387-A	VC-377 BOARD, COMPLETE (SERVICE) (HC32: KR)
8	X-2023-772-1	FRAME ASSY, MD
9	3-080-204-21	SCREW, TAPPING, P2
10	3-089-520-01	SCREW
11	3-080-198-31	SCREW (M1.7), LOCK ACE, P2
12	3-062-214-01	SCREW (M1.4X1.5)
13	3-081-221-01	LABEL (Z), LS
14	1-829-774-11	CABLE, FLEXIBLE FLAT (FFC-038)

5-1-2. F PANEL BLOCK

ns: not supplied



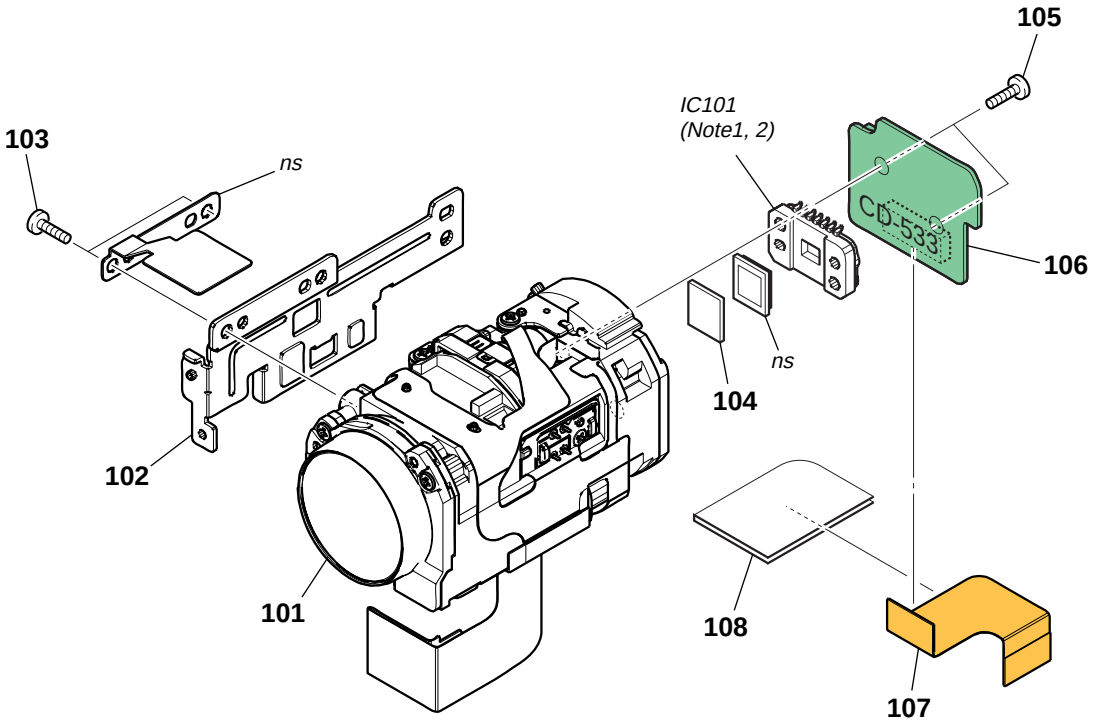
CAUTION :
For the part of 55 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
51	X-2023-770-1	PANEL ASSY, FRONT (EXCEPT HC17E)
51	X-2048-777-1	PANEL ASSY, FRONT (HC17E)
52	3-089-771-01	CUSHION, MICROPHONE
53	3-078-890-11	SCREW, TAPPING
54	A-1081-844-A	SI-042 BOARD, COMPLETE (EXCEPT HC17E)

Ref. No.	Part No.	Description
54	A-1084-828-A	SI-042 BOARD, COMPLETEED) (HC17E)
55	CAUTION	TAPE (A)
56	2-188-425-01	RETAINER, IR
MIC901	1-542-513-21	MICROPHONE

5-1-3. LENS BLOCK

ns: not supplied



Note 1:	IC101 is not included in CD-533 complete board.

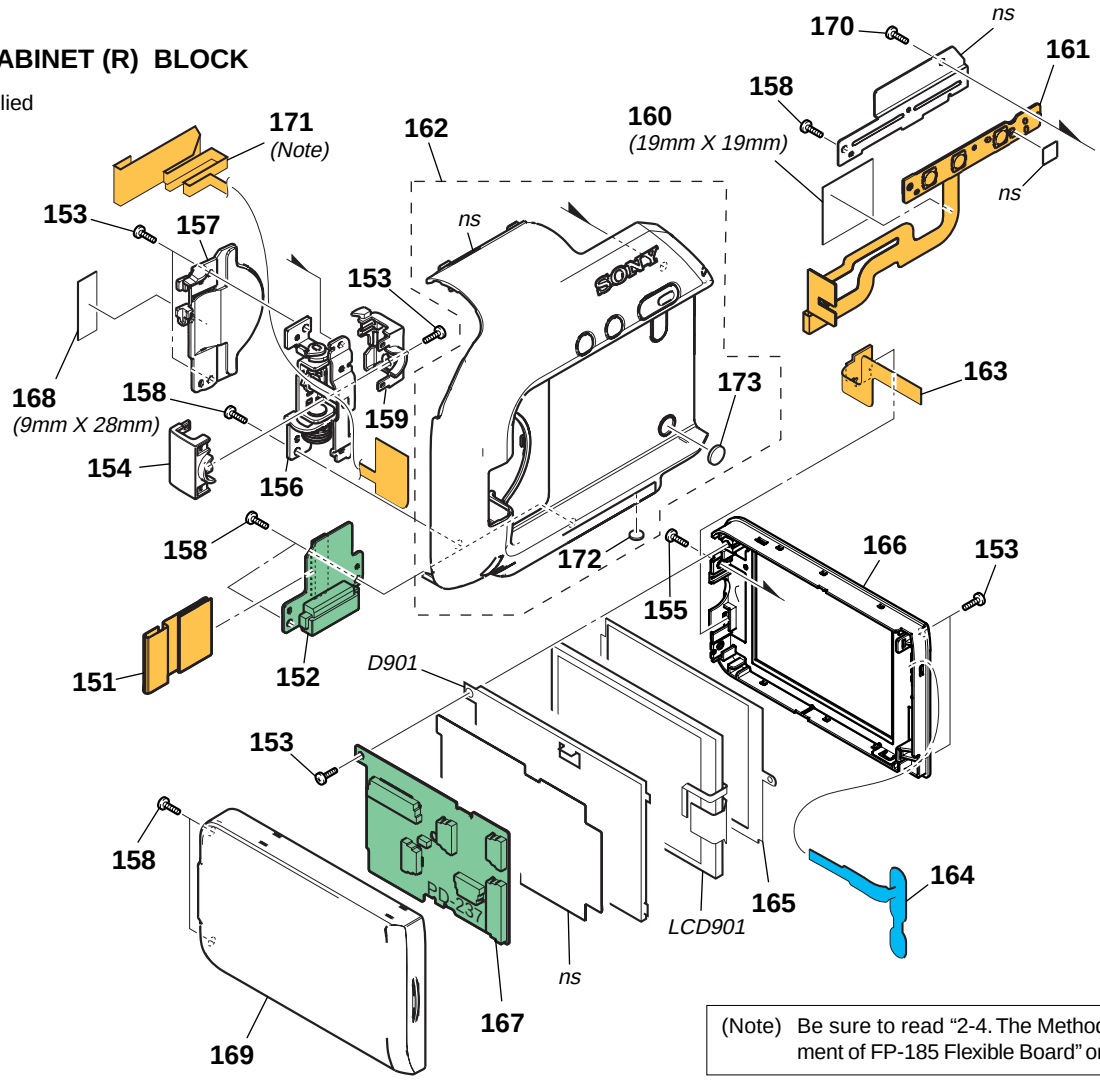
Note 2:	Be sure to read “Precuations for Replacement of CCD Imager” on page 4-5 when changing the CCD imager.

Ref. No.	Part No.	Description
101	1-788-210-11	OPTICAL UNIT (EG03)
102	2-188-472-01	FRAME LENS
103	3-080-204-01	SCREW, TAPPING, P2
104	1-788-242-11	OPTICAL FILTER BLOCK
105	3-080-204-21	SCREW, TAPPING, P2
106	A-1081-698-A	CD-533 BOARD, COMPLETE

Ref. No.	Part No.	Description
107	1-864-754-11	FP-178 FLEXIBLE BOARD
108	2-188-482-01	SHEET, CD SHIELD
IC101	8-753-215-47	ICX440NKF-13 (CCD IMAGER) (HC21/HC32/HC33) (Note1, 2)
IC101	8-753-215-49	ICX441NKF-13 (CCD IMAGER) (EXCEPT HC21/HC32/HC33) (Note1, 2)

5-1-4. CABINET (R) BLOCK

ns: not supplied



(Note) Be sure to read "2-4. The Method of Attachment of FP-185 Flexible Board" on page 2-8.

CAUTION 1 :
For the part of 160 : TAPE (BT) (2-349-851-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

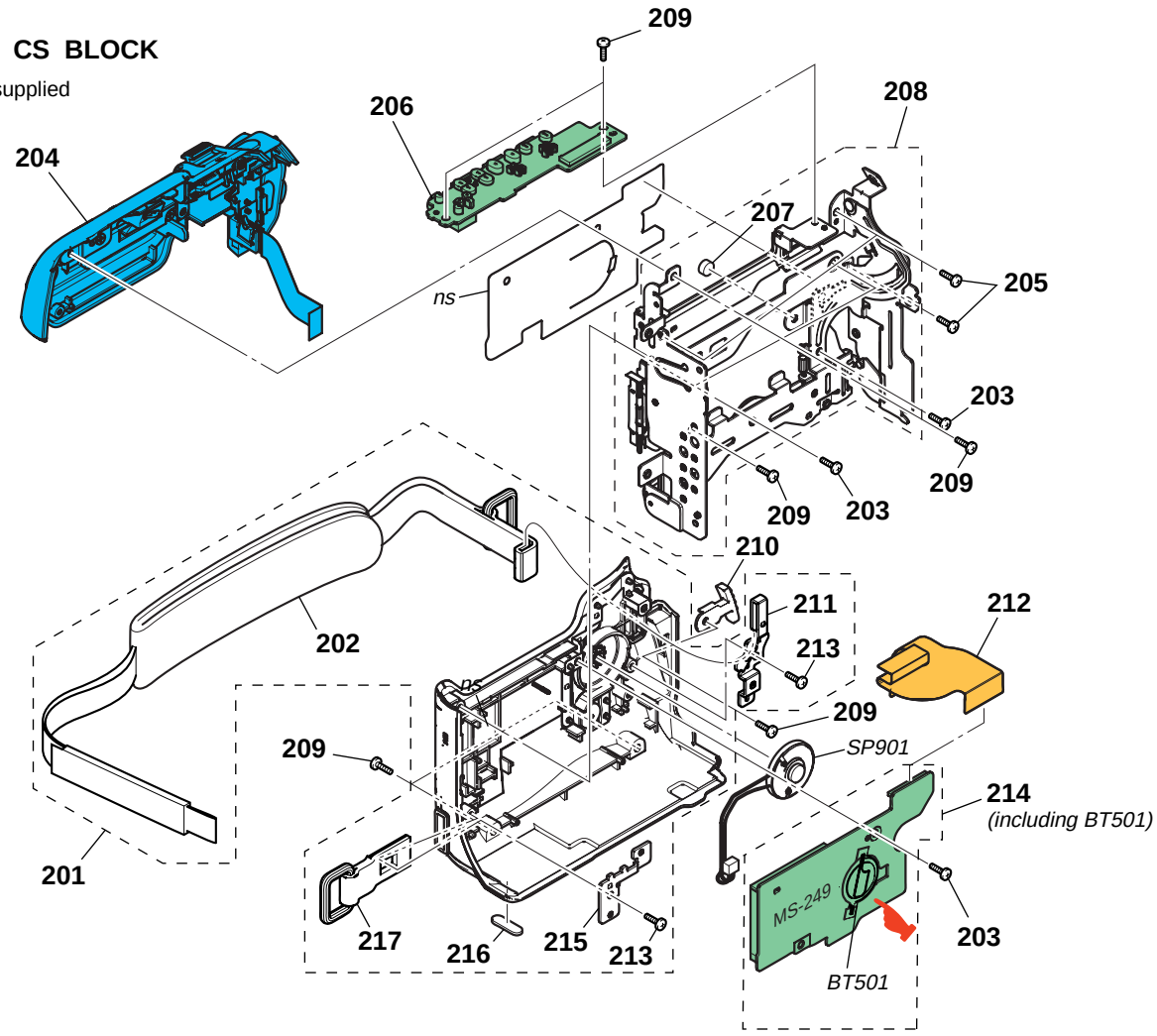
CAUTION 2 :
For the part of 168 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

Ref. No.	Part No.	Description
151	1-864-764-11	FP-190 FLEXIBLE BOARD (HC22E/HC32/HC32E/HC33/HC33E)
152	A-1081-704-A	CR-050 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E)
153	3-080-204-21	SCREW, TAPPING, P2
154	2-188-434-01	COVER (C), HINGE
155	3-078-889-21	SCREW (M1.7)
156	X-2023-771-1	HINGE (103) ASSY
157	2-188-476-01	BLIND, HINGE
158	3-078-890-11	SCREW, TAPPING
159	2-188-433-01	COVER (M), HINGE
160	CAUTION 1	TAPE (BT)
161	A-1082-203-A	FP-187 FLEXIBLE BOARD
162	X-2023-839-1	CABINET R ASSY (HC17E/HC19E/HC21/HC21E)
162	X-2024-694-1	CABINET R ASSY (HC22E/HC32/HC32E/HC33/HC33E)
163	A-1082-042-A	FP-186 FLEXIBLE BOARD
164	1-479-063-21	KEY BLOCK, CONTROL (SB9000)
165	2-188-436-01	CUSHION (103), PANEL
166	X-2024-273-1	CABINET (M) (103) ASSY, P

Ref. No.	Part No.	Description
167	A-1081-848-A	PD-237 BOARD, COMPLETE
168	CAUTION 2	TAPE (A)
169	2-188-432-01	CABINET (C)103, P (HC21)
169	2-188-432-11	CABINET (C)103, P (HC17E)
169	2-188-432-21	CABINET (C)103, P (HC19E)
169	2-188-432-31	CABINET (C)103, P (HC21E)
169	2-188-432-41	CABINET (C)103, P (HC32)
169	2-188-432-51	CABINET (C)103, P (HC32E)
169	2-188-432-61	CABINET (C)103, P (HC33)
169	2-188-432-71	CABINET (C)103, P (HC33E)
169	2-188-432-81	CABINET (C)103, P (HC22E)
170	3-085-397-01	SCREW
171	1-864-761-11	FP-185 FLEXIBLE BOARD
172	3-082-519-01	FOOT (R), RUBBER
173	3-089-565-01	CUSHION (R), PANEL
D901	1-479-067-11	BLOCK, LIGHT GUIDE PLATE (2.5)
LCD901	A-1090-678-A	(TP) BLOCK ASSY (2.5AUMG) (HC32)
LCD901	A-1090-679-A	(TP) BLOCK ASSY (2.5STFU) (HC17E/HC19E/HC21E/HC22E)
LCD901	A-1090-680-A	(TP) BLOCK ASSY (2.5STMG) (HC21/HC32/HC32E/HC33/HC33E)

5-1-5. CS BLOCK

ns: not supplied



BT501(BATTERY, LITHIUM SECONDARY)
Board on the mount position (See page 4-96).

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

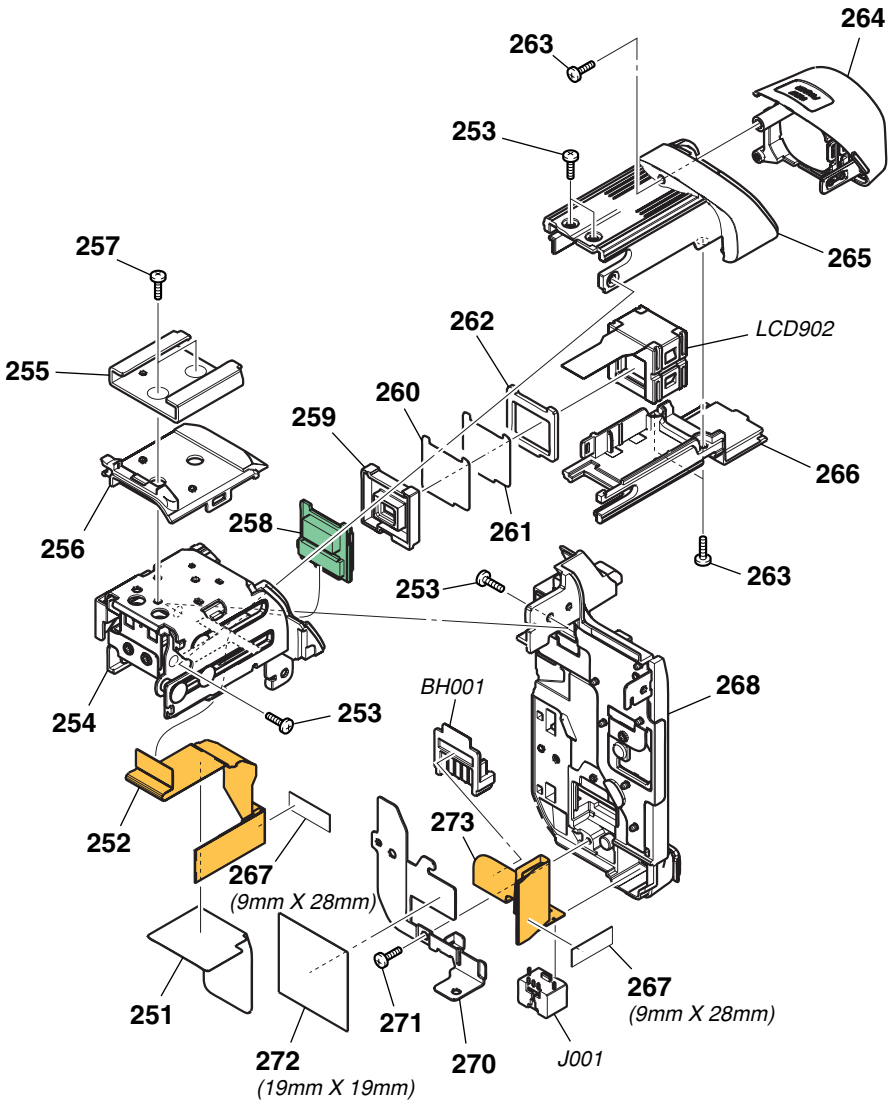
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
201	X-2023-774-1	CABINET (G) ASSY (HC17E/HC19E/HC21/HC21E/HC22E)
201	X-2024-840-1	CABINET (G) ASSY (HC32/HC32E/HC33/HC33E)
202	2-583-631-01	BELT, GRIP
203	3-078-890-11	SCREW, TAPPING
204	1-478-982-11	KEY BLOCK, CONTROL (SS10300) (HC17E/HC19E)
204	1-478-982-21	KEY BLOCK, CONTROL (SS10300) (HC21/HC21E)
204	1-478-982-31	KEY BLOCK, CONTROL (SS10300) (HC22E)
204	1-478-982-41	KEY BLOCK, CONTROL (SS10300) (HC32/HC32E/HC33/HC33E)
205	3-080-204-01	SCREW, TAPPING, P2
206	A-1081-840-A	JK-278 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E)
206	A-1081-841-A	JK-278 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E)
207	3-959-978-02	CUSHION, PANEL
208	X-2023-773-1	FRAME ASSY, CS
209	3-080-198-11	SCREW (M1.7), LOCK ACE, P2
210	2-188-450-01	KNOB, EJECT
211	2-188-455-01	SHEET METAL (REAR), GRIP BELT
212	1-864-758-11	FP-182 FLEXIBLE BOARD
213	3-080-204-11	SCREW, TAPPING, P2
214	A-1081-842-A	MS-249 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E/HC22E)
214	A-1081-843-A	MS-249 BOARD, COMPLETE (HC32/HC32E/HC33/HC33E)
215	2-188-453-01	SHEET METAL (FRONT), GRIP BELT
216	2-188-514-01	FOOT (G), RUBBER
217	2-583-616-01	BELT (FRONT), GRIP
⚠BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)
SP901	1-825-260-23	LOUD SPEAKER (1.6cm)

5. REPAIR PARTS LIST

5-1-6. BAT EVF BLOCK

ns: not supplied



CAUTION 1 :
For the part of 267 : TAPE (A) (3-080-272-01), cut WOVEN (T0.25), FABRIC NON (3-941-343-21) into the desired length and use it.

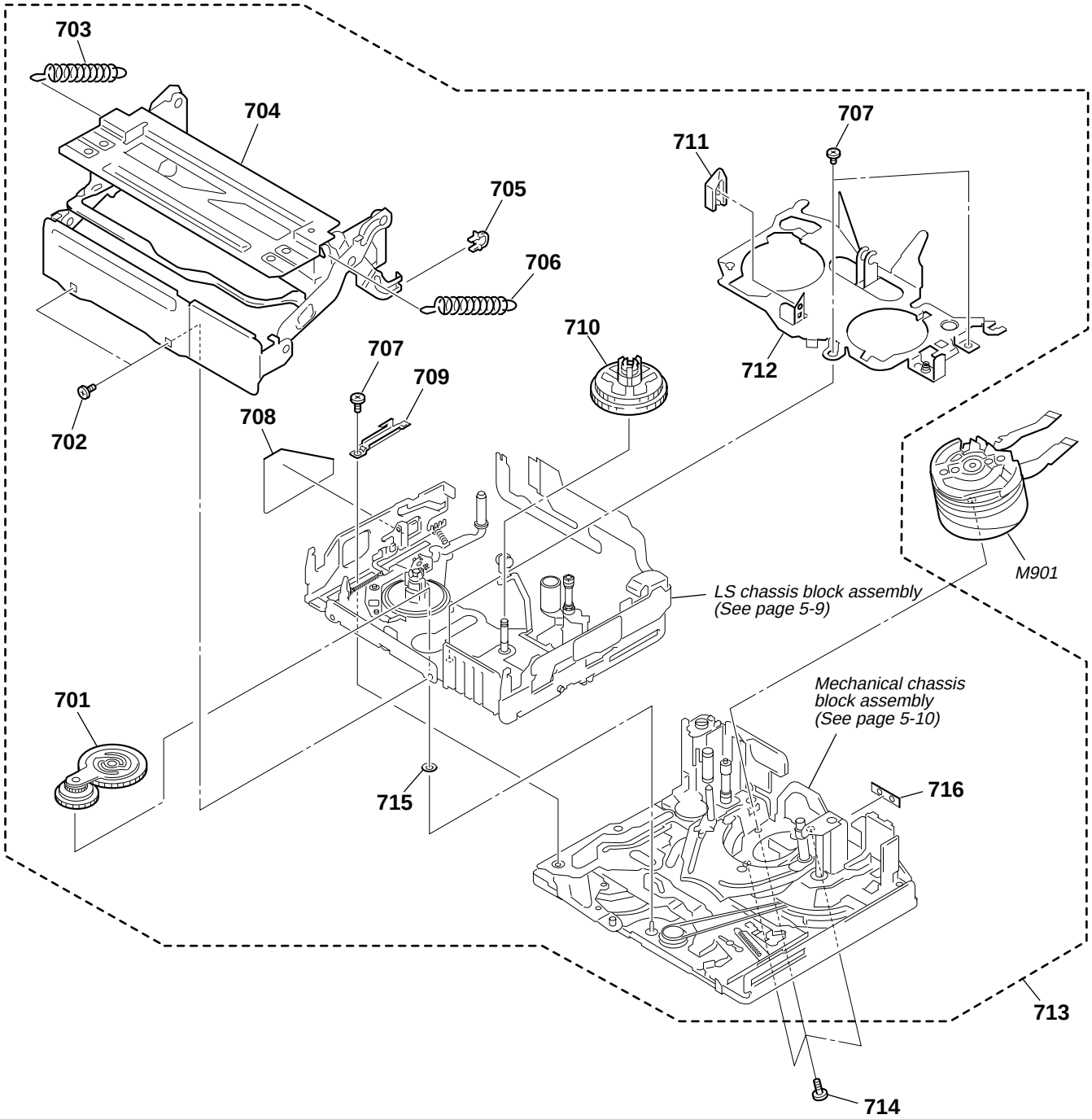
CAUTION 2 :
For the part of 272 : TAPE (BT) (2-349-851-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

Ref. No.	Part No.	Description
251	2-188-512-01	SHEET, VF FLEXIBLE FIXED
252	1-864-757-11	FP-181 FLEXIBLE BOARD
253	3-078-889-21	SCREW (M1.7)
254	X-2023-650-1	VF SLIDE ASSY
255	3-067-469-11	SHOE, ACCESSORY
256	2-188-479-01	BASE (103), SHOE
257	2-188-485-01	0 PLATE BIS M1.7
258	A-1081-845-A	LB-109 BOARD, COMPLETE
259	3-089-415-01	GUIDE, LAMP
260	3-089-417-01	ILLUMINATOR
261	3-089-416-01	SHEET, PRISM
262	3-089-419-01	CUSHION, LCD
263	3-080-204-21	SCREW, TAPPING, P2

Ref. No.	Part No.	Description
264	X-2023-648-1	EYE CUP ASSY
265	X-2023-647-1	CABINET UPPER ASSY VF
266	2-188-511-01	CABINET LOWER, VF
267	CAUTION 1	TAPE (A)
268	X-2048-504-1	BT PANEL ASSY
270	2-188-500-01	PLATE, BT TERMINAL RETAINER
271	3-080-204-01	SCREW, TAPPING, P2
272	CAUTION 2	TAPE (BT)
273	1-864-756-11	FP-180 FLEXIBLE BOARD
BH001	1-780-064-21	BATTERY TERMINAL BOARD
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V)
LCD902	8-753-208-84	LCX059ALA-1 (EXCEPT HC33E)
LCD902	8-753-234-60	LCX059ZLA-1 (HC33E)

5-1-7. MECHANISM DECK

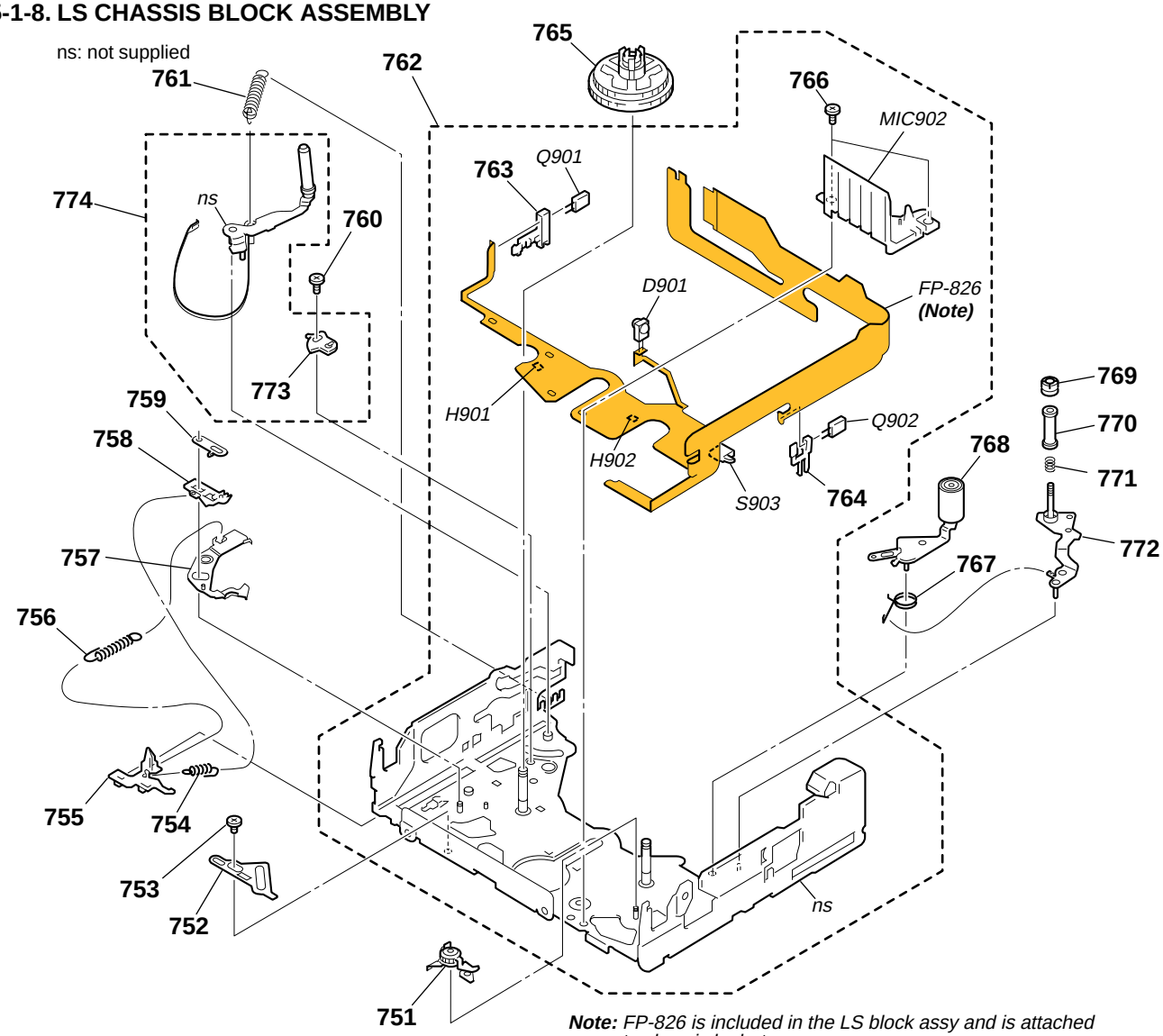
ns: not supplied



Ref. No.	Part No.	Description
701	X-3952-938-6	GEAR ASSY, GOOSENECK
702	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
703	3-079-206-02	SPRING (POP UP S), TXTENSION
704	X-2024-802-1	COMPARTMENT ASSY, CASSETTE
705	3-079-367-01	DAMPER, CASSETTE COMPARTMENT
706	3-079-215-02	SPRING (POP UP T), EXTENSION
707	3-085-330-01	SCREW, SPECIAL
708	3-080-545-01	COVER, SENSOR S
709	3-079-364-01	RETAINER, LS GUIDE

Ref. No.	Part No.	Description
710	X-3952-937-1	TABLE ASSY, T REEL
711	3-079-366-01	RELEASE, REEL LOCK
712	X-3953-257-1	PLATE ASSY, RETAINER
713	A-1082-424-A	MD (Z210) SUB ASSY
714	3-079-741-02	SCREW, DRUM FIXING
715	3-748-682-01	WASHER, T
716	3-087-881-01	SHEET, ADHESIVE, FLEXIBLE
M901	A-7048-994-A	DRUM (DEH-30B-R) (SERVICE)

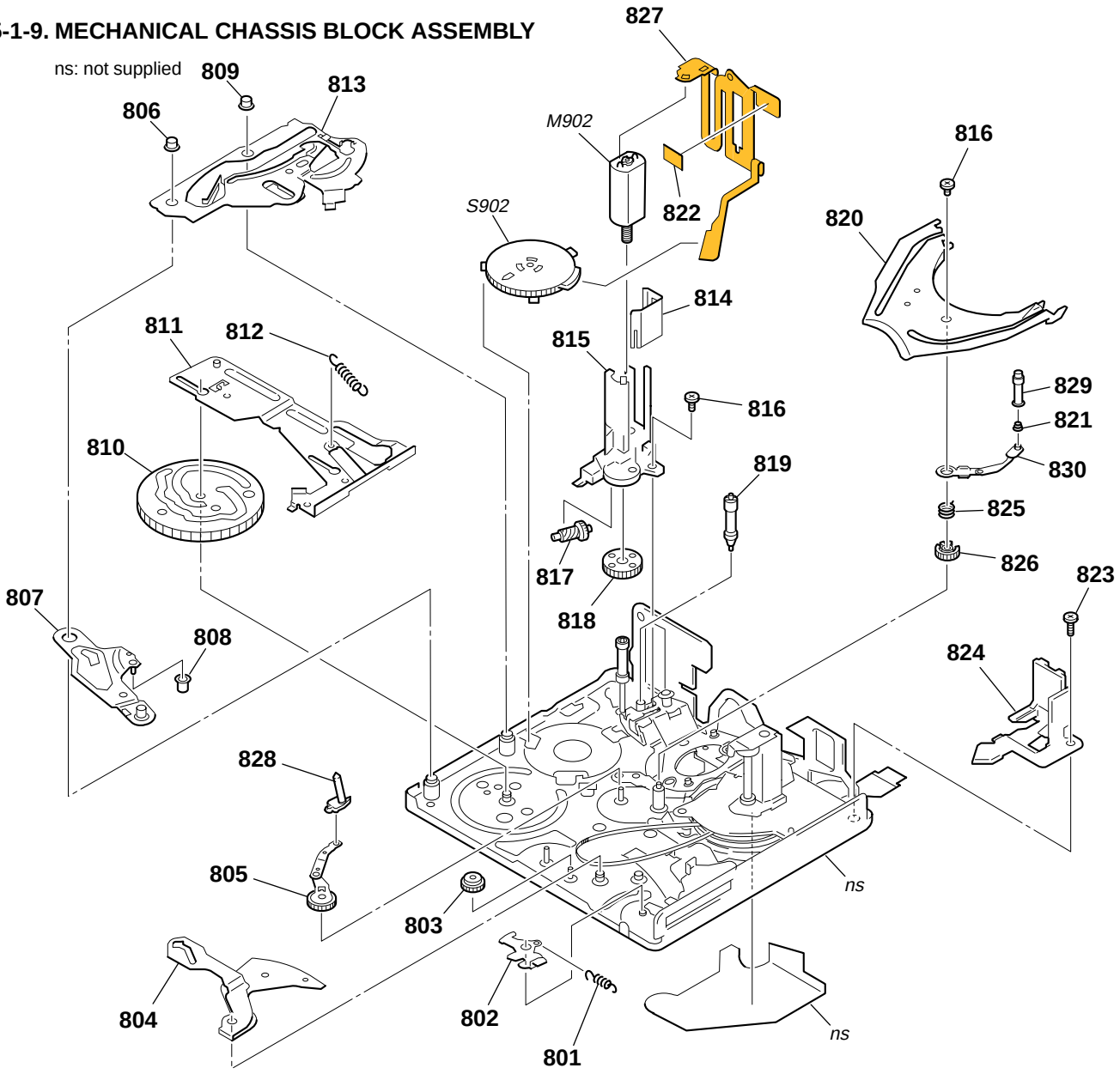
5-1-8. LS CHASSIS BLOCK ASSEMBLY



Note: *FP-826 is included in the LS block assy and is attached to chassis by hot-press.*
Because installation of FP-826 requires a very high accuracy, FP-826 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	A-7095-402-B	BRAKE (T) BLOCK ASSY (S)
752	3-079-241-01	PLATE, LS CAM
753	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
754	3-079-246-01	SPRING (RELEASE RACK), EXTENSION
755	3-079-248-01	POSITIONING (S), CASSETTE
756	3-079-244-01	SPRING (ULE), EXTENSION
757	X-3952-932-1	BRAKE ASSY, ULE
758	3-079-245-01	RACK (S), RELEASE
759	3-079-247-01	BRAKE (S)
760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD
761	3-079-242-01	SPRING, TENSION
762	A-7095-951-A	LS BLOCK ASSY
763	3-079-267-01	HOLDER (S), SENSOR
764	3-079-268-01	HOLDER (T), SENSOR
765	X-3952-936-2	TABLE ASSY, S REEL
766	3-085-330-01	SCREW, SPECIAL
767	3-079-243-02	SPRING (PINCH RETURN), TORSION
768	X-3952-934-1	ARM ASSY, PINCH
769	3-052-062-02	NUT, TG7
770	3-079-219-02	TG7
771	3-081-591-01	SPRING, COMPRESSION (TG7)
772	X-3952-935-3	ARM ASSY, TG7
773	3-079-237-01	ADJUSTOR, BAND
774	A-7095-403-B	TG2 ARM BLOCK ASSY
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)
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DETECTION SWITCH)
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)

5-1-9. MECHANICAL CHASSIS BLOCK ASSEMBLY



Ref. No.	Part No.	Description
801	3-079-314-01	SPRING (EJ), EXTENSION
802	3-079-327-01	ARM, EJ
803	3-079-323-01	GEAR, CONVERSION
804	3-079-324-01	ARM, GL DRIVING
805	X-3952-928-1	GL (S) ASSY
806	3-079-315-01	ROLLER (S1), LS GUIDE
807	X-3952-925-1	ARM ASSY, LS
808	3-079-320-01	ROLLER, LS
809	3-079-316-01	ROLLER (S2), LS GUIDE
810	3-079-319-01	GEAR, CAM
811	X-3954-274-2	SLIDER ASSY (N), M
812	3-079-321-02	SPRING (PINCH), EXTENSION
813	X-3954-273-2	PLATE ASSY (N), TG2 CAM
814	3-079-312-01	SHIELD, MOTOR
815	3-079-307-02	HOLDER, MOTOR
816	3-085-330-01	SCREW, SPECIAL
817	3-079-308-01	SHAFT, WORM
818	3-079-309-01	GEAR, DECELERATION
819	X-3952-942-2	ROLLER ASSY, TG3
820	3-079-325-01	RAIL, GUIDE
821	3-079-295-02	SPRING, TG5
822	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
823	3-079-328-01	SCREW (M1.4), SPECIAL HEAD
824	3-079-326-02	SUPPORT, TG7
825	3-079-301-01	SPRING (GLT), TORSION
826	3-079-298-01	GEAR (T), GL
827	1-686-798-11	FP-467 FLEXIBLE BOARD
828	X-3952-927-2	COASTER (S) ASSY
829	X-3952-930-3	ROLLER ASSY, TG5
830	X-3952-929-1	COASTER (T) ASSY
M902	A-7095-396-A	MOTOR BLOCK ASSY, L (LOARDING)
S902	1-477-679-11	ROTARY, ENCODER (SWITCH) (MODE SWITCH)

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	A-1081-698-A	CD-533 BOARD, COMPLETE
		**********
		(IC101 is not included in this complete board)
		< CAPACITOR >
C101	1-104-851-11	TANTAL. CHIP 10uF 20% 10V
C102	1-164-850-11	CERAMIC CHIP 10PF 0.5PF 50V
C104	1-127-820-11	CERAMIC CHIP 4.7uF 10% 16V
		< CONNECTOR >
CN101	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P
		< COIL >
L101	1-469-528-91	INDUCTOR 100uH
		< IC >
IC101	8-753-215-47	ICX440NKF-13 (CCD IMAGER) (HC21/HC32/HC33) (Note)
IC101	8-753-215-49	ICX441NKF-13 (CCD IMAGER) (EXCEPT HC21/HC32/HC33) (Note)
		< TRANSISTOR >
Q101	8-729-423-55	TRANSISTOR 2SC3931-D
		< RESISTOR >
R101	1-218-959-11	RES-CHIP 3.3K 5% 1/16W
	A-1081-704-A	CR-050 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E)
		**********
		< CONNECTOR >
CN001	1-817-283-41	CONNECTOR, FPC (ZIF) 51P
CN002	(Not supplied)	CONNECTOR, MULTIPLE (SOCKET)
		< DIODE >
D001	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D002	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D003	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D005	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D006	6-500-776-01	DIODE MAZW068H0LS0
D007	8-719-083-91	DIODE EDZ TE61 6.8B
	1-864-756-11	FP-180 FLEXIBLE BOARD
		**********
		(BH001 and J001 are not included in this flexible board)
		< BATTERY TERMINAL >
BH001	1-780-064-21	BATTERY TERMINAL BOARD
		< JACK >
J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (DC IN)

Ref. No.	Part No.	Description
	A-1082-042-A	FP-186 FLEXIBLE BOARD, COMPLETE
		**********
		< SWITCH >
S101	1-786-179-31	SWITCH, PUSH (1KEY) (PANEL REVERSE)
	A-1082-203-A	FP-187 FLEXIBLE BOARD, COMPLETE
		**********
		< DIODE >
D001	6-501-052-01	DIODE CL-197HB1-D-T (EASY)
D002	6-500-776-01	DIODE MAZW068H0LS0
D003	6-500-776-01	DIODE MAZW068H0LS0
D004	8-719-060-92	DIODE SML-311YTT86 (CHG)
		< RESISTOR >
R001	1-216-822-11	METAL CHIP 1.2K 5% 1/10W
R002	1-216-823-11	METAL CHIP 1.5K 5% 1/10W
R003	1-216-817-11	METAL CHIP 470 5% 1/10W
R004	1-216-805-11	METAL CHIP 47 5% 1/10W
		< SWITCH >
S001	1-771-138-82	SWITCH, KEY BOARD (DSPL/BATT INFO)
S002	1-771-138-82	SWITCH, KEY BOARD (EASY)
S003	1-771-138-82	SWITCH, KEY BOARD (BACK LIGHT)
S004	1-786-180-31	SWITCH, PUSH (1KEY) (PANEL OPEN/CLOSE)
	1-686-798-11	FP-467 FLEXIBLE BOARD
		**********
		(S902 is not included in this flexible board)
		< SWITCH >
S902	1-477-679-11	ROTARY, ENCODER (SWITCH) (MODE SWITCH)
	(Not supplied)	FP-826 FLEXIBLE BOARD
		**********
		(This flexible board is included in LS BLOCK ASSY (A-7095-951-A))
		< DIODE >
D901	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
		< HOLL 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)
		< CONNECTOR >
MIC902	1-817-175-12	PIN, CONNECTOR (WITH DELCTION SWITCH)
		< TRANSISTOR >
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)

Note: Be sure to read “Precautions for Replacement of CCD Imager” on page 4-5 when changing the CCD imager.

Ref. No.	Part No.	Description
		< SWITCH >
S903	1-529-566-51	SWITCH, PUSH (1 KEY) (C.C. DOWN)
	A-1081-840-A	JK-278 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E)
	A-1081-841-A	JK-278 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E)
		**********
		< CONNECTOR >
CN701	1-815-794-21	CONNECTOR (MULTIPLE) (A/V OUT: HC17E/HC19E/HC21/HC21E/HC22E) (A/V: HC32/HC32E/HC33/HC33E)
CN702	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB) (HC17E/HC19E/HC21/HC21E)
CN703	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV OUT: HC17E/HC19E) (DV IN/OUT: HC21/HC21E)
CN704	1-818-087-31	CONNECTOR, FFC/FPC (LIF) 26P
		< DIODE >
D703	8-719-078-02	DIODE 1SS357 (T3SONY1) (HC17E/HC19E/HC21/HC21E)
D705	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D706	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D707	6-500-044-01	DIODE DF6A6.8FU (TE85R)
		< FUSE >
⚠F701	1-576-647-11	FUSE (0.2A/50V) (HC17E/HC19E/HC21/HC21E)
⚠F702	1-576-647-11	FUSE (0.2A/50V) (HC17E/HC19E/HC21/HC21E)
		< FERRITE BEAD >
FB701	1-400-823-11	EMI FERRITE (SMD)(1005)
FB702	1-400-823-11	EMI FERRITE (SMD)(1005)
FB703	1-400-823-11	EMI FERRITE (SMD)(1005)
		< JACK >
J701	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)
		< LINE FILTER >
LF701	1-456-583-11	COMMON MODE CHOKE COIL (HC17E/HC19E/HC21/HC21E)
		< RESISTOR >
R702	1-218-965-11	RES-CHIP 10K 5% 1/16W (HC17E/HC19E/HC21/HC21E)
R703	1-218-965-11	RES-CHIP 10K 5% 1/16W (HC17E/HC19E/HC21/HC21E)
R705	1-218-990-11	SHORT CHIP 0
R706	1-218-990-11	SHORT CHIP 0
R707	1-218-990-11	SHORT CHIP 0
R709	1-218-990-11	SHORT CHIP 0

Ref. No.	Part No.	Description
	A-1081-845-A	LB-109 BOARD, COMPLETE
		**********
		< CAPACITOR >
C301	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C302	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C303	1-164-505-11	CERAMIC CHIP 2.2uF 16V
		< CONNECTOR >
CN301	1-818-046-11	CONNECTOR, FFC/FPC 20P
CN302	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P
		< DIODE >
D302	6-500-941-01	DIODE MAZS056008S0
D303	6-500-874-01	DIODE E1S35-AW0C7-01-A2 (BACKLIGHT)
		< RESISTOR >
R302	1-216-841-11	METAL CHIP 47K 5% 1/10W
R303	1-218-971-11	RES-CHIP 33K 5% 1/16W
R304	1-218-975-11	RES-CHIP 68K 5% 1/16W
R305	1-218-989-11	RES-CHIP 1M 5% 1/16W
	A-1081-842-A	MS-249 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E/HC22E)
	A-1081-843-A	MS-249 BOARD, COMPLETE (HC32/HC32E/HC33/HC33E)
		**********
		< BATTERY >
⚠BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)
		< CONNECTOR >
* CN501	1-691-378-21	CONNECTOR, FFC/FPC 14P
CN502	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P
CN503	1-817-913-41	MEMORY STICK DUO CONNECTOR (HC32/HC32E/HC33/HC33E)
		< DIODE >
D501	6-500-817-01	DIODE SML-512UWT86 (MS ACCESS) (HC32/HC32E/HC33/HC33E)
D503	6-500-776-01	DIODE MAZW068H0LS0
		< RESISTOR >
R501	1-218-949-11	RES-CHIP 470 5% 1/16W (HC32/HC32E/HC33/HC33E)
		< SWITCH >
S501	1-771-138-82	SWITCH, KEY BOARD (RESET)
	A-1081-848-A	PD-237 BOARD, COMPLETE
		**********
C602	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 50V
C603	1-137-710-11	CERAMIC CHIP 10uF 20% 6.3V

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

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.

Ref. No.	Part No.	Description			
C604	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C606	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C609	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C611	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
C612	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C614	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C615	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C616	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C618	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C619	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C621	1-135-957-91	TANTAL. CHIP	10uF	20%	16V
C622	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C623	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C624	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C625	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C626	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C627	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C631	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C632	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C633	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< CONNECTOR >			
CN601	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P			
CN602	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P			
CN603	1-691-370-11	CONNECTOR, FFC/FPC 6P			
CN605	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P			
CN608	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN609	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P			
		< DIODE >			
D602	8-719-074-67	DIODE EDZ-TE61-5.6B			
		< FERRITE BEAD >			
FB601	1-400-461-21	FERRITE, EMI (SMD)(1005)			
		< IC >			
IC601	8-759-693-13	IC NJM12904V (TE2)			
IC602	8-753-229-98	IC CXM3006CR-T4			
		< COIL >			
L601	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
L602	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
L603	1-400-588-11	INDUCTOR, LAMINATE CHIP	10uH		
		< TRANSISTOR >			
Q601	8-729-427-52	TRANSISTOR	XP4216		
Q602	8-729-427-23	TRANSISTOR	XP4116-TXE		
Q606	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q607	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q608	6-550-234-01	TRANSISTOR	UNR32A300LS0		
Q609	8-729-041-23	TRANSISTOR	NDS356AP		
Q610	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q611	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q612	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR (TPLR3)		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R605	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R606	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R608	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R609	1-218-975-11	RES-CHIP	68K	5%	1/16W
R610	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R612	1-218-949-11	RES-CHIP	470	5%	1/16W
R613	1-208-934-11	METAL CHIP	91K	0.5%	1/16W
R614	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R615	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R616	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R617	1-218-953-11	RES-CHIP	1K	5%	1/16W
R619	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R620	1-218-965-11	RES-CHIP	10K	5%	1/16W
R623	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R624	1-218-977-11	RES-CHIP	100K	5%	1/16W
R625	1-218-990-11	SHORT CHIP	0		
R626	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R627	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R634	1-218-989-11	RES-CHIP	1M	5%	1/16W
R636	1-218-990-11	SHORT CHIP	0		
R637	1-218-978-11	RES-CHIP	120K	5%	1/16W
R638	1-216-864-11	SHORT CHIP	0		
R639	1-216-864-11	SHORT CHIP	0		
R642	1-218-973-11	RES-CHIP	47K	5%	1/16W
R643	1-218-973-11	RES-CHIP	47K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB601	1-234-369-21	RES, NETWORK	10 (1005X4)		

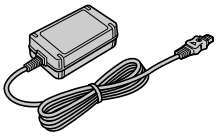
	A-1084-828-A	SI-042 BOARD, COMPLETE (HC17E)			
	A-1081-844-A	SI-042 BOARD, COMPLETE (EXCEPT HC17E)			
		**********			
		< CAPACITOR >			
C602	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C603	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C608	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C610	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C611	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C612	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C613	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C614	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C615	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C616	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C618	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C619	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C621	1-100-252-11	CERAMIC CHIP	0.1uF	10%	6.3V
		< CONNECTOR >			
CN601	1-778-507-21	PIN, CONNECTOR (PC BOARD) 4P			
CN603	1-766-348-21	CONNECTOR, FFC/FPC 18P			
		< DIODE >			
D601	6-500-512-01	DIODE CL-330IRS-X-TU			
		(IR EMITTER/NIGHTSHOT)			

SI-042

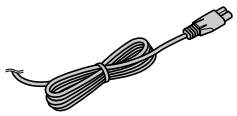
Ref. No.	Part No.	Description			
D602	6-500-817-01	DIODE SML-512UWT86 (CAMERA RECORDING)			
D604	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB601	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB602	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB603	1-469-179-21	INDUCTOR, FERRITE BEAD			
FB604	1-469-179-21	INDUCTOR, FERRITE BEAD			
		< IC >			
IC601	6-600-163-01	IC RS-770 (EXCEPT HC17E)			
IC602	8-759-489-19	IC uPC6756GR-8JG-E2			
		< COIL >			
L601	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH			
		< RESISTOR >			
R601	1-218-949-11	RES-CHIP	470	5%	1/16W
R602	1-218-989-11	RES-CHIP	1M	5%	1/16W
R603	1-218-965-11	RES-CHIP	10K	5%	1/16W
R604	1-218-937-11	RES-CHIP	47	5%	1/16W
R605	1-218-965-11	RES-CHIP	10K	5%	1/16W
R606	1-218-989-11	RES-CHIP	1M	5%	1/16W
R607	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< COMPOSITION CIRCUIT BLOCK >			
RB601	1-234-379-21	RES, NETWORK 22K (1005X4)			
		< SWITCH >			
S601	1-786-148-11	SWITCH, PUSH (1 KEY) (LENS COVER OPEN)			
		< SENSOR >			
SE601	1-476-807-41	SENSOR, ANGULAR VELOCITY (PITCH SENSOR)			
SE602	1-476-807-31	SENSOR, ANGULAR VELOCITY (YAW SENSOR)			

Electrical parts list of the VC-376/377 board is not shown.
Pages 5-15 to 5-28 are not shown.

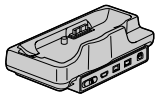
Checking supplied accessories.



AC-L AC Adaptor (1)
⚠ 1-477-534-11

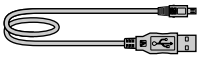


Power Cord (1)
⚠ 1-769-608-31 (AEP, E)
⚠ 1-776-985-11 (KR)
⚠ 1-782-476-51 (CH)
⚠ 1-783-374-12 (UK, HK)
⚠ 1-790-107-41 (US, CND)
⚠ 1-790-732-71 (JE)
⚠ 1-827-945-11 (AUS)

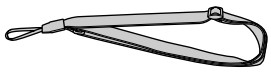


Handycam station (1)
DCRA-C121
1-818-729-11
(HC32/HC32E/HC33E)
DCRA-C122
1-818-729-21 (HC22E)

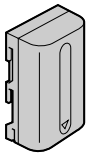
Shoe cover (1)
2-188-481-01



USB cable (1)
1-829-868-31
(EXCEPT HC17E)



Shoulder strap (1)
2-176-235-01
(EXCEPT HC17E)



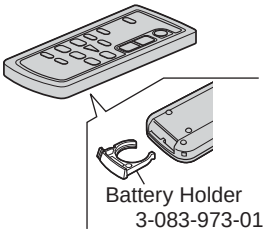
Rechargeable battery pack
NP-FP30 (1)
⚠ A-1082-950-A (US, CND)
⚠ A-1082-951-A
(EXCEPT US, CND)

A/V connecting cable (1)
1-823-156-51

21-pin adaptor (1)
1-770-783-21
(HC22E/HC32E)

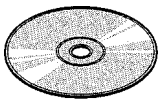
Conversion 2P adaptor (1)
⚠ 1-569-008-12
(HC21/HC32: E)

Conversion 2P adaptor (1)
⚠ 1-569-007-12 (JE)

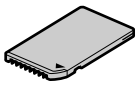


Battery Holder
3-083-973-01

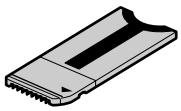
Wireless Remote Commander
RMT-831 (1)
1-477-898-41
(HC32/HC32E/HC33/HC33E)
RMT-830
1-477-898-71
(HC19E/HC21/HC21E/HC22E)



CD-ROM
(SPVD-012 2005 USB Driver)
(Picture Package Ver. 1.5) (1)
2-515-350-01 (EXCEPT HC33E)
2-586-797-01 (HC21E/HC33E)



Memory Stick Duo (1)
(not supplied)
(HC33/HC33E)



Memory Stick Duo adaptor (1)
(not supplied)
(HC33/HC33E)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Checking supplied accessories.

Other accessories

2-584-905-11 MANUAL, INSTRUCTION (ENGLISH) (HC21: US, CND, E/HC32: CND, E)
2-584-905-21 MANUAL, INSTRUCTION (FRENCH) (HC21: CND)
2-584-905-31 MANUAL, INSTRUCTION (SPANISH) (HC21: E/HC32: E)
2-584-905-41 MANUAL, INSTRUCTION (PORTUGUESE) (HC21: E/HC32: E)
2-584-905-51 MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC21: E/HC32: E)

2-584-905-61 MANUAL, INSTRUCTION (KOREAN) (HC21: KR/HC32: KR)
2-584-906-11 MANUAL, INSTRUCTION (ENGLISH) (HC32: US, CND, JE/HC32E: JE)
2-584-906-21 MANUAL, INSTRUCTION (FRENCH) (HC32: CND)
2-584-906-31 MANUAL, INSTRUCTION (SPANISH) (HC32: JE/HC32E: JE)
2-584-906-41 MANUAL, INSTRUCTION (PORTUGUESE) (HC32: JE/HC32E: JE)

2-584-907-11 MANUAL, INSTRUCTION (ENGLISH) (HC32E: AEP, UK)
2-584-907-21 MANUAL, INSTRUCTION (FRENCH) (HC32E: AEP)
2-584-907-31 MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (HC32E: AEP)
2-584-907-41 MANUAL, INSTRUCTION (ITALIAN, GREEK) (HC32E: AEP)
2-584-907-51 MANUAL, INSTRUCTION (GERMAN, DUTCH) (HC32E: AEP)

2-584-907-61 MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (HC32E: AEP)
2-584-907-71 MANUAL, INSTRUCTION (DANISH, FINNISH) ((HC32E: NE)
2-584-907-81 MANUAL, INSTRUCTION (POLISH, CZECH) (HC32E: EE)
2-584-907-91 MANUAL, INSTRUCTION (HUNGARIAN, SLOVAKIAN) (HC32E: EE)
2-586-501-11 MANUAL, INSTRUCTION (ENGLISH) (HC17E: AEP/HC19E: AEP, UK/HC21E: E, HK/HC22E: AEP, UK/HC32E: E, HK, AUS)

2-586-501-21 MANUAL, INSTRUCTION (FRENCH) (HC17E: AEP/HC19E: AEP/HC21E: E/HC22E: AEP/HC32E: E)
2-586-501-31 MANUAL, INSTRUCTION (SPANISH) (HC17E/HC19E/HC22E)
2-586-501-41 MANUAL, INSTRUCTION (PORTUGUESE) (HC17E: AEP/HC19E: AEP/HC22E: AEP)
2-586-501-51 MANUAL, INSTRUCTION (ITALIAN) (HC17E: AEP/HC19E: AEP/HC22E: AEP)
2-586-501-61 MANUAL, INSTRUCTION (GREEK) (HC17E: AEP/HC19E: AEP/HC22E: AEP)

2-586-501-71 MANUAL, INSTRUCTION (GERMAN) (HC17E: AEP/HC19E: AEP/HC22E: AEP)
2-586-501-81 MANUAL, INSTRUCTION (DUTCH) (HC17E: AEP/HC19E: AEP/HC22E: AEP)
2-586-501-91 MANUAL, INSTRUCTION (SWEDISH) (HC17E: NE/HC19E: NE/HC22E: NE)
2-586-507-11 MANUAL, INSTRUCTION (RUSSIAN) (HC17E: NE/HC19E: NE/HC22E: NE)
2-586-507-21 MANUAL, INSTRUCTION (DANISH) (HC17E: NE/HC19E: NE/HC22E: NE)

2-586-507-31 MANUAL, INSTRUCTION (FINNISH) (HC17E: NE/HC19E: NE/HC22E: NE)
2-586-507-41 MANUAL, INSTRUCTION (POLISH) (HC17E: EE/HC19E: EE/HC22E: EE)
2-586-507-51 MANUAL, INSTRUCTION (CZECH) (HC17E: EE/HC19E: EE/HC22E: EE)
2-586-507-61 MANUAL, INSTRUCTION (HUNGARIAN) (HC17E: EE/HC19E: EE/HC22E: EE)
2-586-507-71 MANUAL, INSTRUCTION (SLOVAKIAN) (HC17E: EE/HC19E: EE/HC22E: EE)

2-586-507-81 MANUAL, INSTRUCTION (ARABIC) (HC21E: E/HC32E: E)
2-586-507-91 MANUAL, INSTRUCTION (PERSIAN) (HC21E: E/HC32E: E)
2-586-574-11 MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC21E: HK/HC32E: HK)
2-586-574-21 MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (HC21E: E/HC32E: E)

DCR-HC17E/HC19E/HC21/HC21E/HC22E/ HC32/HC32E/HC33/HC33E

RMT-830/831

SONY

LEVEL 2

SERVICE MANUAL

Ver 1.1 2005.09

DCR-HC21/HC32
US Model
Canadian Model
Korea Model

DCR-HC17E/HC19E/HC22E/HC32E
AEP Model
East European Model
North European Model

DCR-HC19E/HC22E/HC32E
UK Model

DCR-HC21/HC21E/HC32/HC32E
E Model

DCR-HC21E/HC32E
Australian Model
Hong Kong Model

DCR-HC21/HC33
Brazilian Model

DCR-HC21E/HC33E
Chinese Model

DCR-HC32/HC32E
Tourist Model

SUPPLEMENT-1

File this supplement with the service manual.
(PV05-039)

- **Addition of Green and Pink Models (HC33E)**
- **Change of Repair Parts**

Sony EMCS Co.
2005I0500-1

Published by DI Technical Support Department

• Addition of Green and Pink Models (HC33E)

5-1. EXPLODED VIEWS

☞: Points added portion.

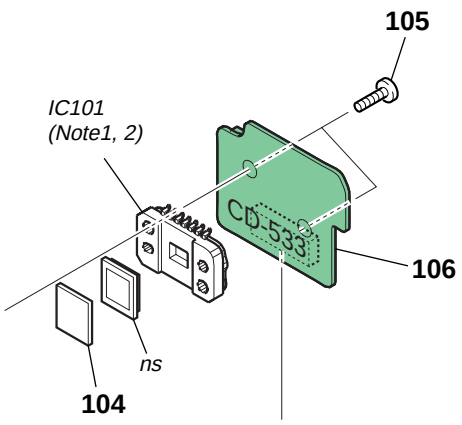
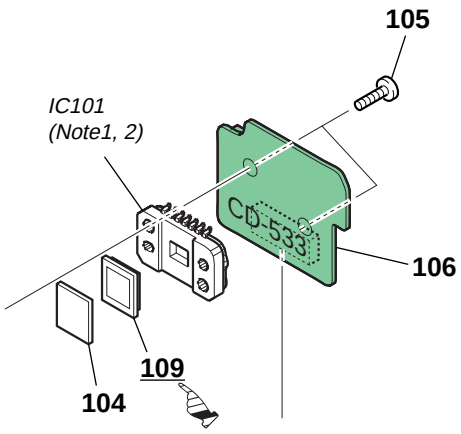
Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-3	51	X-2023-770-1	PANEL ASSY, FRONT (EXCEPT HC17E)	51	X-2023-770-1	PANEL ASSY, FRONT (SILVER) (EXCEPT HC17E)
				51	X-2048-775-1	PANEL ASSY, FRONT (GREEN) (HC33E) ☞
				51	X-2048-776-1	PANEL ASSY, FRONT (PINK) (HC33E) ☞
5-5	154	2-188-434-01	COVER (C), HINGE	154	2-188-434-01	COVER (C), HINGE (SILVER)
				154	2-188-434-21	COVER (C), HINGE (GREEN) (HC33E) ☞
				154	2-188-434-31	COVER (C), HINGE (PINK) (HC33E) ☞
	162	X-2024-694-1	CABINET R ASSY (HC22E/HC32/HC32E/HC33/HC33E)	162	X-2024-694-1	CABINET R ASSY (SILVER) (HC22E/HC32/HC32E/HC33/HC33E)
				162	X-2048-772-1	CABINET R ASSY (GREEN) (HC33E) ☞
				162	X-2048-773-1	CABINET R ASSY (PINK) (HC33E) ☞
	169	2-188-432-71	CABINET (C)103, P (HC33E)	169	2-188-432-71	CABINET (C) 103, P (SILVER) (HC33E)
				169	2-188-456-01	CABINET (C) 103, P (GREEN) (HC33E) ☞
				169	2-188-456-11	CABINET (C) 103, P (PINK) (HC33E) ☞

• Change of Repair Parts

5-1. EXPLODED VIEWS

☞: Points added portion.

☛: Points changed portion.

Page	Former	New
5-4		
	Ref. No. Part No. Description — ———— ————	Ref. No. Part No. Description 109 2-318-138-01 RUBBER, SEAL ☛

DCR-HC17E/HC19E/HC21/HC21E/HC22E/ HC32/HC32E/HC33/HC33E

RMT-830/831

SONY

LEVEL 2

SERVICE MANUAL

Ver 1.2 2006.03

DCR-HC21/HC32
US Model
Canadian Model
Korea Model

DCR-HC17E/HC19E/HC22E/HC32E
AEP Model
East European Model
North European Model

DCR-HC19E/HC22E/HC32E
UK Model

DCR-HC21/HC21E/HC32/HC32E
E Model

DCR-HC21E/HC32E
Australian Model
Hong Kong Model

DCR-HC21/HC33
Brazilian Model

DCR-HC21E/HC33E
Chinese Model

DCR-HC32/HC32E
Tourist Model

SUPPLEMENT-2

File this supplement with the service manual
(PV05-095)

• Addition of LCD Type (AUO TYPE: HC21/HC32)

- Along with SONY TYPE, AUO TYPE is added at type of LCD (DCR-HC21/HC32 only).
- When the machine needs to be repaired, please refer to page 2 to discriminate the type of LCD.

DCR-HC17E/HC19E/HC21/HC21E/HC22E/HC32/HC32E/HC33/HC33E
9-876-782-82
Sony EMCS Co.
2006C0500-1

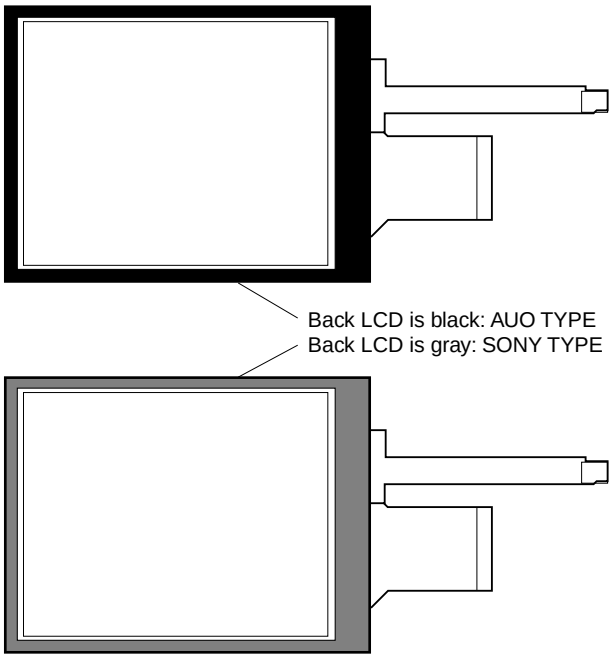
Published by DI Technical Support Department

1. SERVICE NOTE

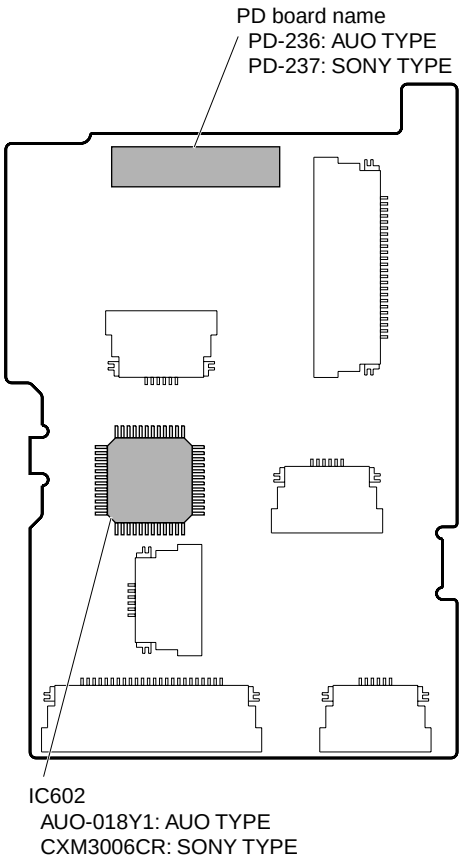
1-5. LCD TYPE CHECK (DCR-HC21/HC32)

Note: About PD-236/237 board and TP assy, discriminate LCD type on the machine, and replace the same type.

• Discrimination method by TP assy



• Discrimination method by PD board

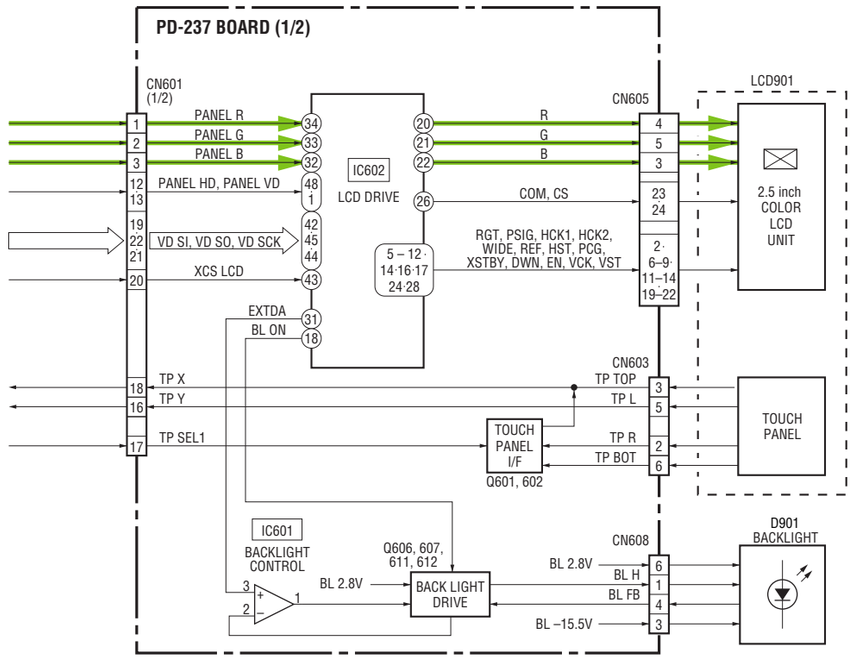


3. BLOCK DIAGRAMS

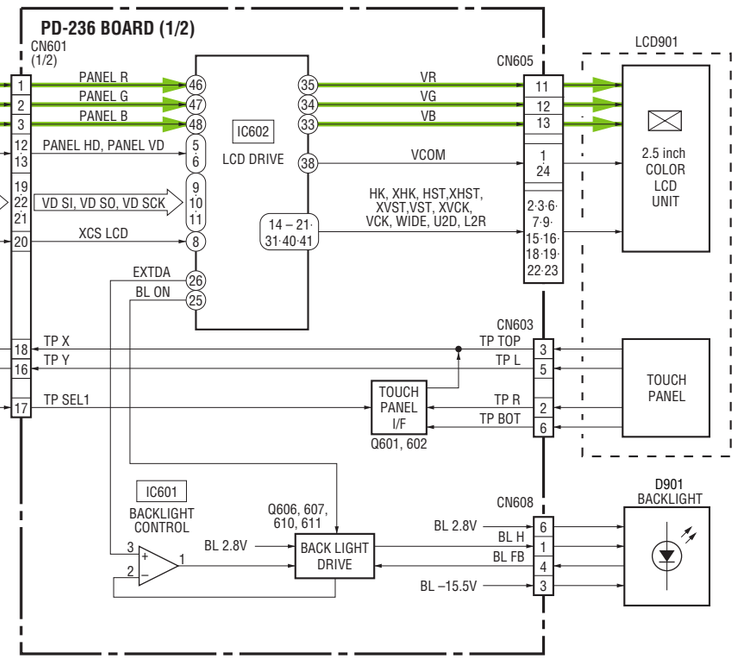
3-1-3. OVERALL BLOCK DIAGRAM (3/5) (NON MS model)
(Service manual page 3-6)

3-2-4. OVERALL BLOCK DIAGRAM (4/6) (MS model)
(Service manual page 3-24)

SONY TYPE



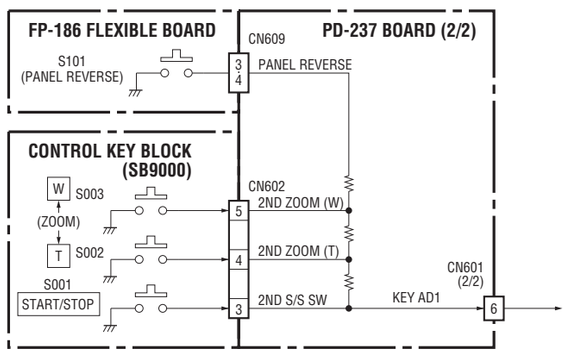
AUO TYPE



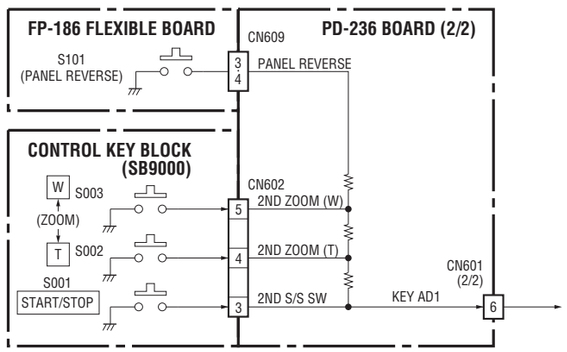
3-1-5. OVERALL BLOCK DIAGRAM (5/5) (NON MS model)
(Service manual page 3-9)

3-2-6. OVERALL BLOCK DIAGRAM (6/6) (MS model)
(Service manual page 3-27)

SONY TYPE



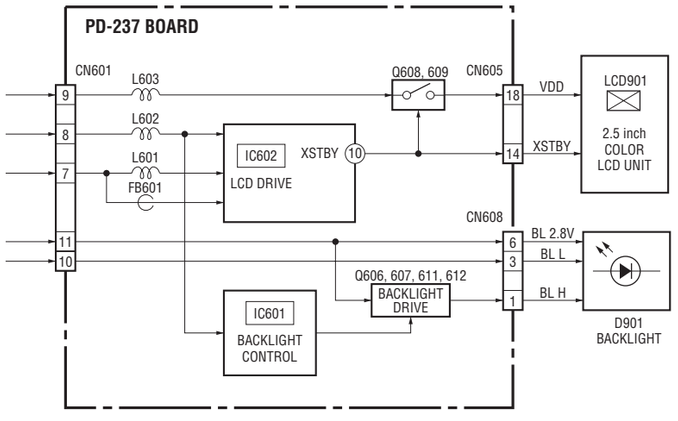
AUO TYPE



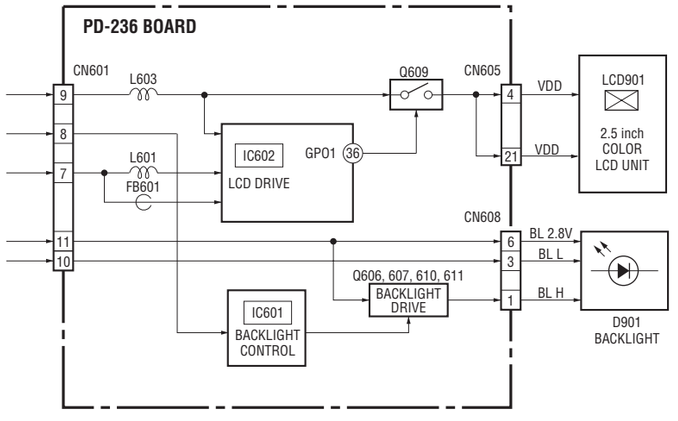
3-1-8. POWER BLOCK DIAGRAM (3/3) (NON MS model)
(Service manual page 3-16)

3-2-9. POWER BLOCK DIAGRAM (3/3) (MS model)
(Service manual page 3-33)

SONY TYPE



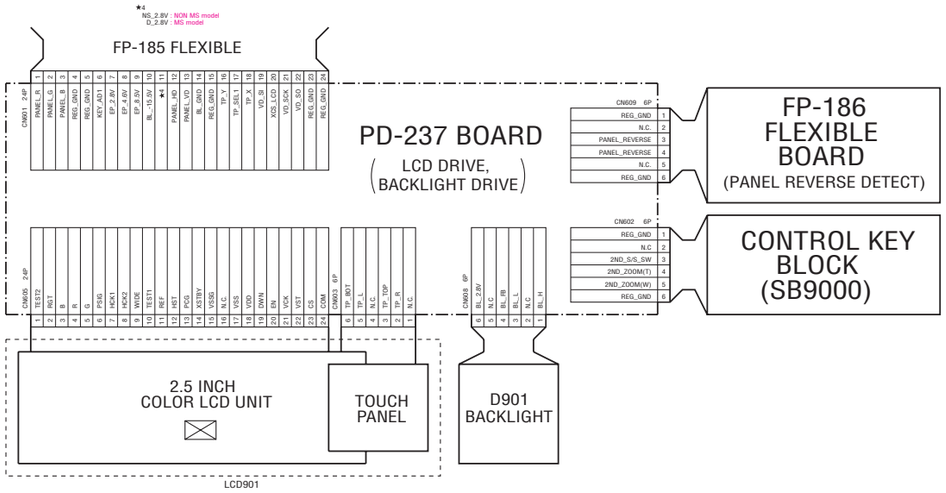
AUO TYPE



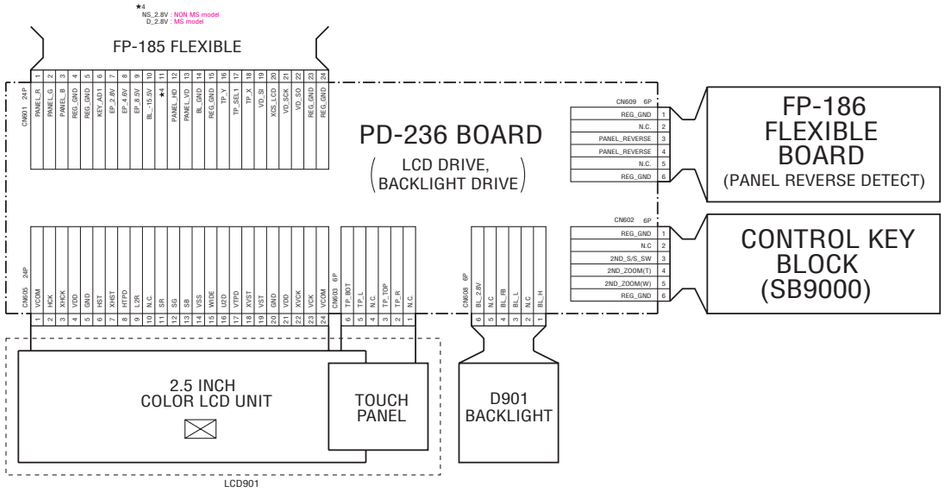
4-1. FRAME SCHEMATIC DIAGRAM

(Service manual page 4-2, Location L-15 to P-23)

SONY TYPE



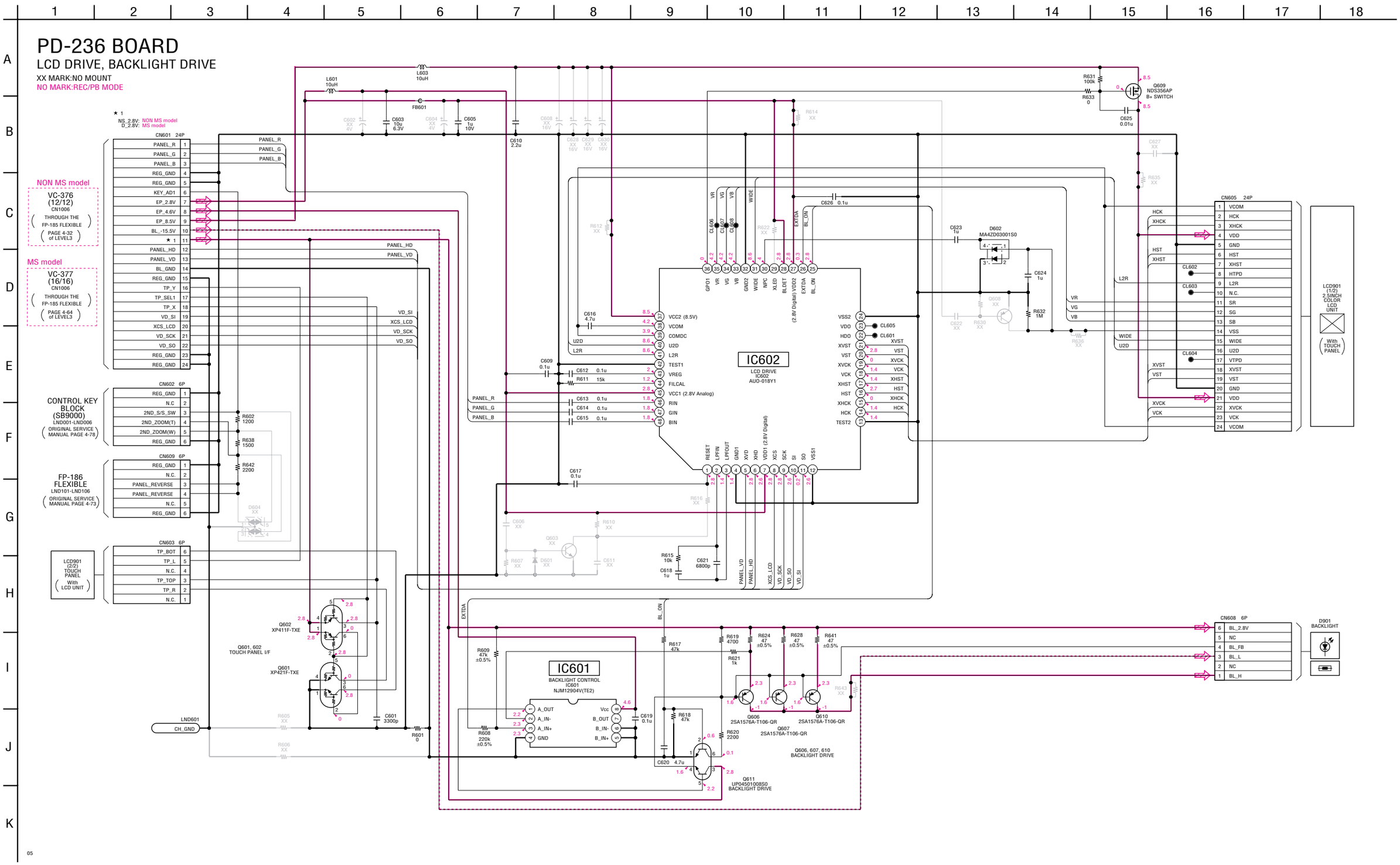
AUO TYPE



4-2. SCHEMATIC DIAGRAMS

For Schematic Diagram

• Refer to page 7 for printed wiring board.



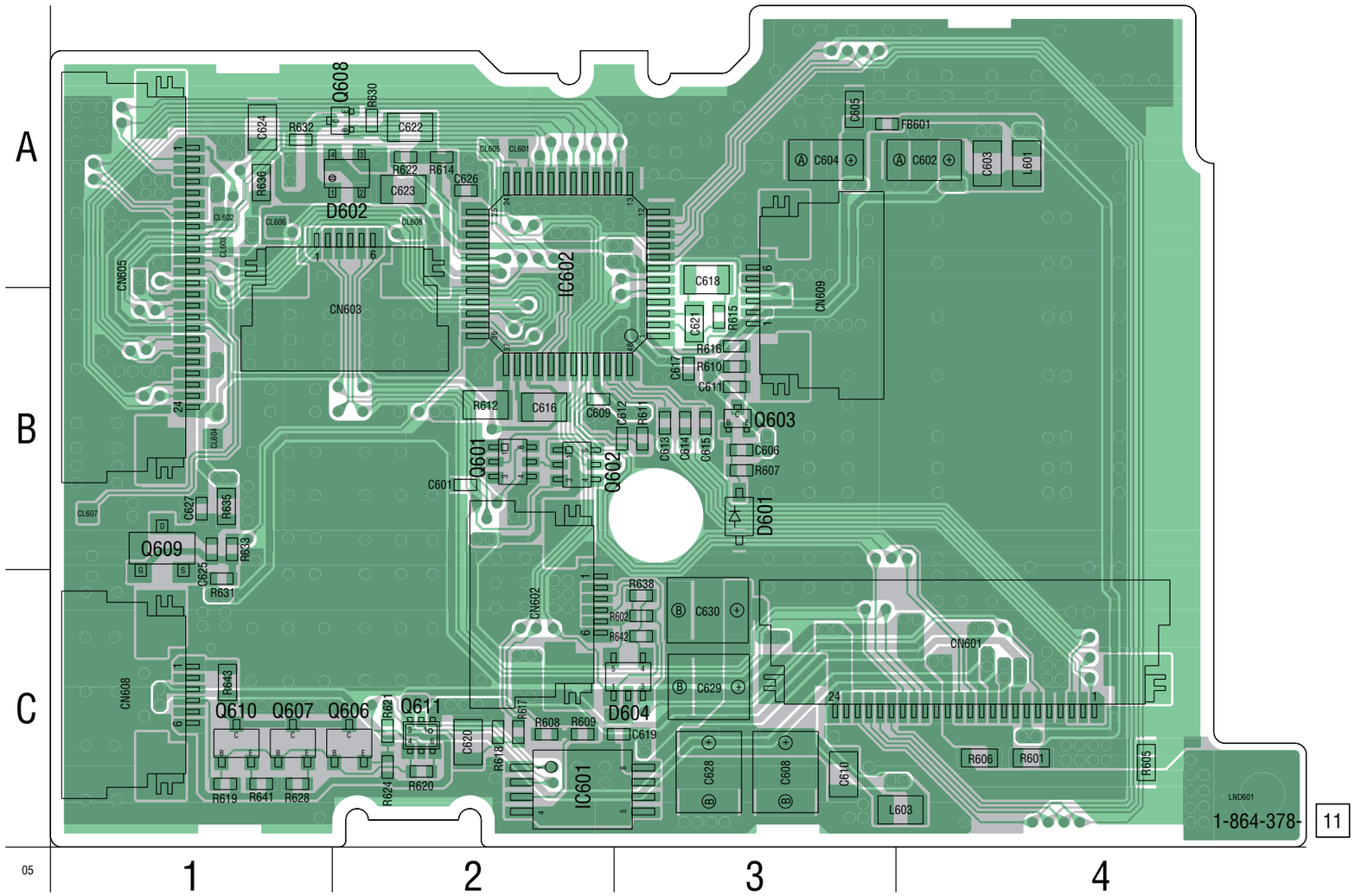
4-3. PRINTED WIRING BOARDS

PD-236

Note for Printed Wiring Board (Original service manual page 4-79).

: Uses unleaded solder.

PD-236 BOARD



4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

PD-236 BOARD

C601 B-2
C603 A-4
C605 A-3
C609 B-2
C610 C-3
C612 B-3
C613 B-3
C614 B-3
C615 B-3
C616 B-2
C617 B-3
C618 A-3
C619 C-3
C620 C-2
C621 B-3
C623 A-2
C624 A-1
C625 B-1
C626 A-2

CN601 C-4
CN602 C-2
CN603 B-2
CN605 A-1
CN608 C-1
CN609 B-3

D602 A-2

FB601 A-3

IC601 C-2
IC602 A-2

L601 A-4
L603 C-4

Q601 B-2
Q602 B-2
Q606 C-2
Q607 C-1
Q609 B-1
Q610 C-1
Q611 C-2

R601 C-4
R602 C-3
R608 C-2
R609 C-2
R611 B-3
R615 B-3
R617 C-2
R618 C-2
R619 C-1
R620 C-2
R621 C-2
R624 C-2
R628 C-1
R631 C-1
R632 A-1
R633 B-1
R638 C-3
R641 C-1
R642 C-3

5. REPAIR PARTS LIST

☞ **: Points added portion.**

5-1. EXPLODED VIEWS

5-1-4. LCD BLOCK

Page	FORMER			NEW		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-5	167	A-1081-848-A	PD-237 BOARD, COMPLETE	167	A-1081-848-A	PD-237 BOARD, COMPLETE (SONY TYPE) (Note)
	—	————	————————	167	A-1081-847-A	PD-236 BOARD, COMPLETE (AUO TYPE) (Note)
	LCD901	A-1090-680-A	(TP) BLOCK ASSY (2.5STMG) (HC21/HC32/HC32E/HC33/HC33E)	LCD901	A-1090-680-A	(TP) BLOCK ASSY (2.5STMG) (HC21/HC32/HC32E/HC33/HC33E) (SONY TYPE) (Note)
	—	————	————————	LCD901	A-1121-498-A	(TP) BLOCK ASSY (2.5AUFU) (HC21/HC32) (AUO TYPE) (Note)

Note: When the machine needs to be repaired, please refer to page 2 discriminate the type of LCD.

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description			
	A-1081-847-A	PD-236 BOARD, COMPLETE (AUO TYPE) **********			
		< CAPACITOR >			
C601	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C603	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C605	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C609	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C610	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C612	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C613	1-125-777-11	CERAMIC CHIP	0.1uF	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	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C617	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C618	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C620	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C621	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C623	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C624	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C625	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C626	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN601	1-818-071-51	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN602	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P			
* CN603	1-691-370-51	CONNECTOR, FFC/FPC 6P			
CN605	1-818-071-51	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN608	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P			
* CN609	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P			
		< DIODE >			
D602	8-719-074-08	DIODE MA4ZD03001S0			
		< FERRITE BEAD >			
FB601	1-400-461-21	FERRITE, EMI (SMD) (1005)			
		< IC >			
IC601	8-759-693-13	IC NJM12904V (TE2)			
IC602	6-707-045-01	IC AUO-018Y1-TBM-E			
		< COIL >			
L601	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH			
L603	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH			
		< TRANSISTOR >			
Q601	8-729-427-67	TRANSISTOR	XP421F-TXE		
Q602	8-729-427-37	TRANSISTOR	XP411F-TXE		
Q606	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q607	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q609	8-729-041-23	TRANSISTOR	NDS356AP		
Q610	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR		
Q611	8-729-054-50	TRANSISTOR	UP04501008S0		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R601	1-216-864-11	SHORT CHIP	0		
R602	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R608	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R609	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R611	1-218-967-11	RES-CHIP	15K	5%	1/16W
R615	1-218-965-11	RES-CHIP	10K	5%	1/16W
R617	1-218-973-11	RES-CHIP	47K	5%	1/16W
R618	1-218-973-11	RES-CHIP	47K	5%	1/16W
R619	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R620	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R621	1-218-953-11	RES-CHIP	1K	5%	1/16W
R624	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R628	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R631	1-218-977-11	RES-CHIP	100K	5%	1/16W
R632	1-218-989-11	RES-CHIP	1M	5%	1/16W
R633	1-218-990-81	SHORT CHIP	0		
R638	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R641	1-208-855-81	METAL CHIP	47	0.5%	1/16W
R642	1-218-957-11	RES-CHIP	2.2K	5%	1/16W

DCR-HC17E/HC19E/HC21/HC21E/HC22E/ HC32/HC32E/HC33/HC33E

RMT-830/831

SONY

LEVEL 2

SERVICE MANUAL

Ver 1.4 2006.10

DCR-HC21/HC32
US Model
Canadian Model
Korea Model
DCR-HC17E/HC19E/HC22E/HC32E
AEP Model
East European Model
North European Model
DCR-HC19E/HC22E/HC32E
UK Model
DCR-HC21/HC21E/HC32/HC32E
E Model
DCR-HC21E/HC32E
Australian Model
Hong Kong Model
DCR-HC21/HC33
Brazilian Model
DCR-HC21E/HC33E
Chinese Model
DCR-HC32/HC32E
Tourist Model

SUPPLEMENT-3

File this supplement with the service manual.
(DI06-108)

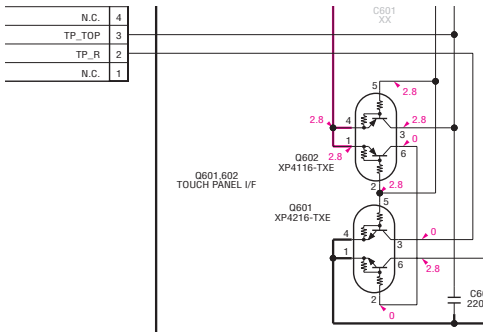
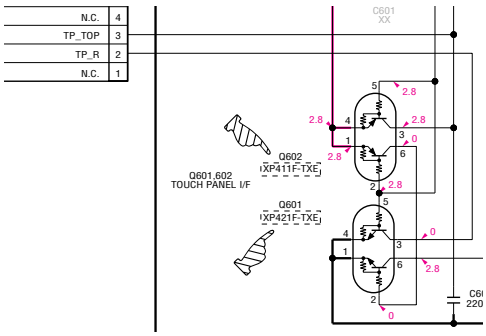
• **Change of Repair Parts**

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

: Points changed portion.

4-2. SCHEMATIC DIAGRAMS

PD-237 BOARD (LCD DRIVE, BACKLIGHT DRIVE)
(Service manual page 4-65, Location H-3 to I-5)

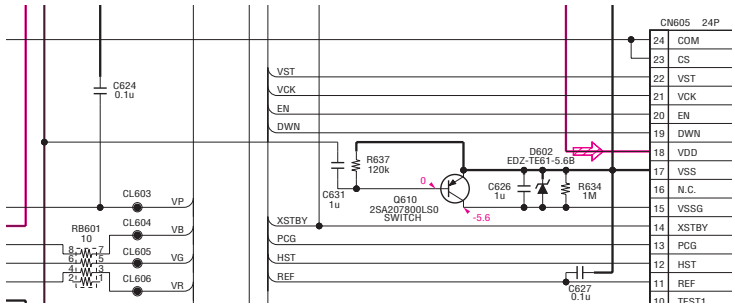
Former	New
	

Published by Kohda TEC

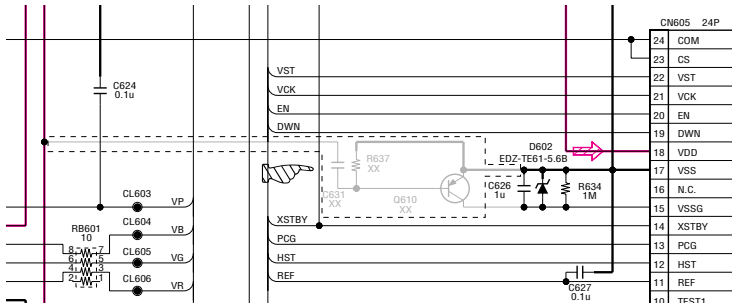
PD-237 BOARD (LCD DRIVE, BACKLIGHT DRIVE)

(Service manual page 4-66, Location C-12 to E-17)

Former



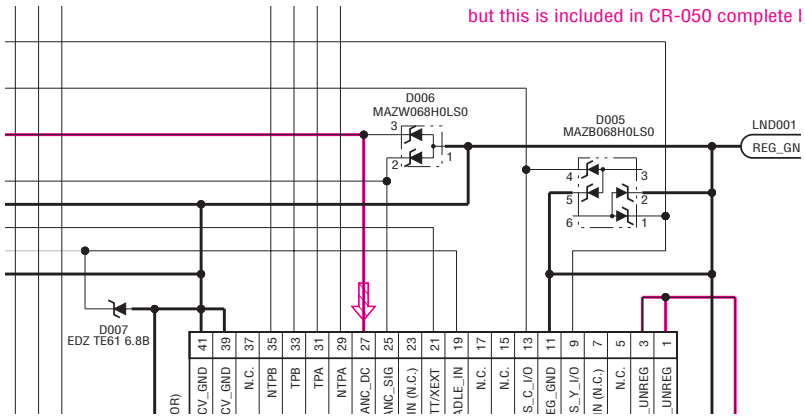
New



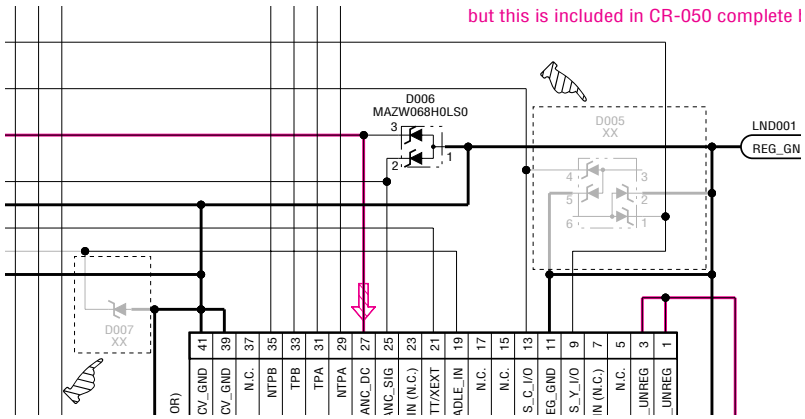
CR-050 BOARD (CRADLE TERMINAL)

(Service manual page 4-67 to 4-68, Location C-6 to E-9)

Former

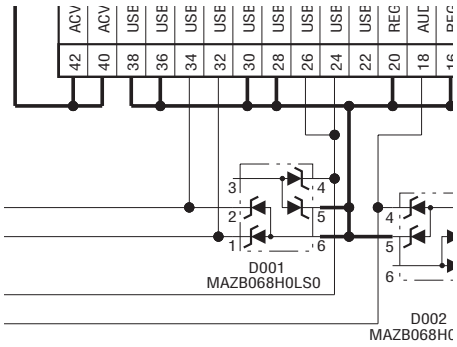
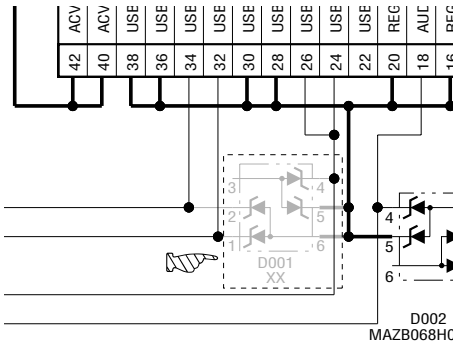


New



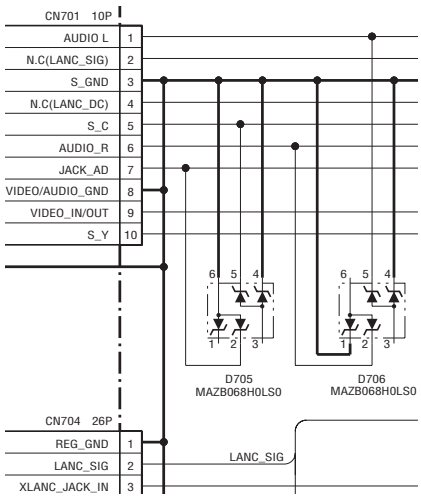
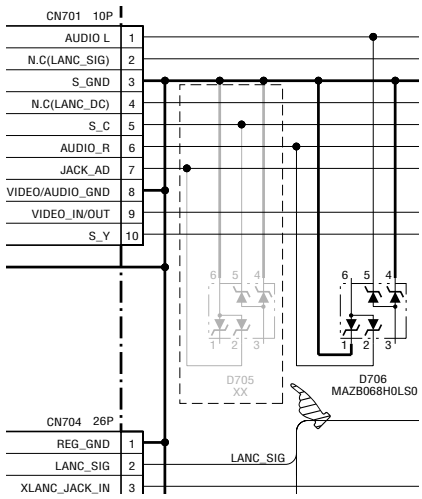
CR-050 BOARD (CRADLE TERMINAL)

(Service manual page 4-68, Location G-6 to H-8)

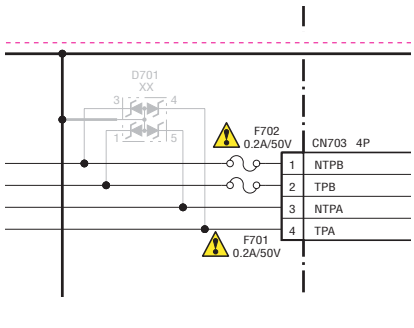
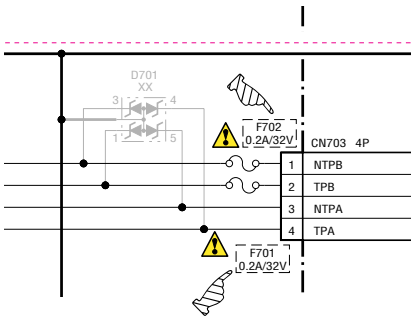
Former	New
	

JK-278 BOARD (JACK)

(Service manual page 4-71, Location B-6 to D-7)

Former	New
	

(Service manual page 4-72, Location B-12 to C-13)

Former	New
	

• Refer to page 4-5 on the service manual for mark ⚠.

: Points changed portion.
: Points deleted portion.

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-5	154	2-188-434-21	COVER (C), HINGE (GREEN) (HC33E)	154	2-188-434-22	COVER (C), HINGE (GREEN) (HC33E)
	159	2-188-433-01	COVER (M), HINGE	159	2-188-433-02	COVER (M), HINGE
	169	2-188-432-61	CABINET (C) (103), P (HC33)	169	2-188-432-62	CABINET (C) (103), P (HC33)
	169	2-188-432-71	CABINET (C) (103), P (SILVER) (HC33E)	169	2-188-432-72	CABINET (C) (103), P (SILVER) (HC33E)
	169	2-188-456-01	CABINET (C) (103), P (GREEN) (HC33E)	169	2-188-456-02	CABINET (C) (103), P (GREEN) (HC33E)
	169	2-188-456-11	CABINET (C) (103), P (PINK) (HC33E)	169	2-188-456-12	CABINET (C) (103), P (PINK) (HC33E)
	172	3-082-519-01	FOOT (R), RUBBER	172	2-593-937-01	FOOT (RR), RUBBER
	D901	1-479-067-11	BLOCK, LIGHT GUIDE PLATE (2.5)	D901	1-479-067-21	BLOCK, LIGHT GUIDE PLATE (2.5)
	LCD901	A-1090-679-A	(TP) BLOCK ASSY (2.5STFU) (HC17E/HC19E/HC21E/HC22E)	LCD901	A-1084-275-A	TP BLOCK ASSY 25STFU (HC17E/HC19E/HC21E/HC22E)
	LCD901	A-1090-680-A	(TP) BLOCK ASSY (2.5STMG) (HC21/HC32/HC32E/HC33/HC33E) (SONY TYPE) (Note)	LCD901	A-1084-276-A	TP BLOCK ASSY 25STMG (HC21/HC32/HC32E/HC33/HC33E) (SONY TYPE) (Note)
5-6	⚠BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)	⚠BT501	1-756-128-11	BATTERY, LITHIUM (SECONDARY)
5-7	268	X-2048-504-1	BT PANEL ASSY	268	X-2023-646-1	BT PANEL ASSY
	LCD902	8-753-208-84	LCX059ALA-1 (EXCEPT HC33E)	LCD902	8-753-208-87	LCX059ALA-J ~~(EXCEPT HC33E)~~
	LCD902	8-753-234-60	LCX059ZLA-1 (HC33E)	———	———	———
5-8	701	X-3952-938-6	GEAR ASSY, GOOSENECK	701	X-3952-938-9	GEAR ASSY, GOOSENECK
	704	X-2024-802-1	CASSETTE COMPARTMENT ASSY	704	X-3952-393-3	CASSETTE COMPARTMENT ASSY
5-9	751	A-7095-402-B	BRAKE (T) BLOCK ASSY (S)	751	A-7095-663-F	BRAKE (T) BLOCK ASSY
	757	X-3952-932-1	BRAKE ASSY, ULE	757	X-3952-932-5	BRAKE ASSY, ULE
	760	3-059-090-11	SCREW (M1.4X2.5), SPECIAL HEAD	760	3-059-090-21	SCREW (M1.4X2.5), SPECIAL HEAD
	762	A-7095-951-A	LS BLOCK ASSY	762	A-7095-953-A	LS BLOCK ASSY (Y)
5-10	805	X-3952-928-1	GL (S) ASSY	805	X-3952-928-4	GL (S) ASSY
	813	X-3954-273-2	PLATE ASSY (N), TG2 CAM	813	X-3954-273-3	PLATE ASSY (N), TG2 CAM

• Refer to page 5-1 on the service manual for mark ⚠.

5-2. ELECTRICAL PARTS LIST

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-11		A-1081-698-A	CD-533 BOARD, COMPLETE **********		A-1081-698-A	CD-533 BOARD, COMPLETE **********
			< CONNECTOR >			< CONNECTOR >
	CN101	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P	CN101	1-691-354-51	CONNECTOR, FFC/FPC (ZIF) 16P
5-11		A-1081-704-A	CR-050 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E) **********		A-1081-704-A	CR-050 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E) **********
			< CONNECTOR >			< CONNECTOR >
	CN001	1-817-283-41	CONNECTOR, FPC (ZIF) 51P	* CN001	1-817-283-51	CONNECTOR, FPC (ZIF) 51P
			< DIODE >			
	D001	6-500-044-01	DIODE DF6A6.8FU (TE85R)			———
	D005	6-500-044-01	DIODE DF6A6.8FU (TE85R)			———
	D007	8-719-083-91	DIODE EDZ TE61 6.8B			———
5-11		A-1082-203-A	FP-187 FLEXIBLE BOARD, COMPLETE **********		A-1082-203-A	FP-187 FLEXIBLE BOARD, COMPLETE **********
			< DIODE >			< DIODE >
	D001	6-501-052-01	DIODE CL-197HB1-D-T (EASY)	D001	6-501-052-02	DIODE CL-197HB1-D-T (EASY)
5-12		A-1081-840-A	JK-278 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E)		A-1081-840-A	JK-278 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E)
		A-1081-841-A	JK-278 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E) **********		A-1081-841-A	JK-278 BOARD, COMPLETE (HC22E/HC32/HC32E/HC33/HC33E) **********
			< CONNECTOR >			< CONNECTOR >
	CN701	1-815-794-21	CONNECTOR (MULTIPLE) (A/V OUT: HC17E/HC19E/HC21/HC21E/HC22E) (A/V: HC32/HC32E/HC33/HC33E)	CN701	1-815-794-13	CONNECTOR (MULTIPLE) (A/V OUT: HC17E/HC19E/HC21/HC21E/HC22E) (A/V: HC32/HC32E/HC33/HC33E)
	CN704	1-818-087-31	CONNECTOR, FFC/FPC (LIF) 26P	* CN704	1-818-087-51	CONNECTOR, FFC/FPC (LIF) 26P
			< DIODE >			
	D705	6-500-044-01	DIODE DF6A6.8FU (TE85R)			———
			< FUSE >			< FUSE >
	⚠F701	1-576-647-11	FUSE (0.2A/50V) (HC17E/HC19E/HC21/HC21E)	⚠F701	1-576-897-21	FUSE (0.2A/32V) (HC17E/HC19E/HC21/HC21E)
	⚠F702	1-576-647-11	FUSE (0.2A/50V) (HC17E/HC19E/HC21/HC21E)	⚠F702	1-576-897-21	FUSE (0.2A/32V) (HC17E/HC19E/HC21/HC21E)
5-12		A-1081-845-A	LB-109 BOARD, COMPLETE **********		A-1081-845-A	LB-109 BOARD, COMPLETE **********
			< CONNECTOR >			< CONNECTOR >
	CN301	1-818-046-11	CONNECTOR, FFC/FPC 20P	CN301	1-818-046-51	CONNECTOR, FFC/FPC 20P
	CN302	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P	CN302	1-784-420-51	CONNECTOR, FFC/FPC (ZIF) 21P

• Refer to page 5-1 on the service manual for mark ⚠.

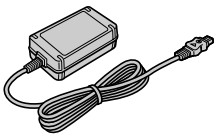
Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
		A-1081-842-A	MS-249 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E/HC22E)		A-1081-842-A	MS-249 BOARD, COMPLETE (HC17E/HC19E/HC21/HC21E/HC22E)
		A-1081-843-A	MS-249 BOARD, COMPLETE (HC32/HC32E/HC33/HC33E)		A-1081-843-A	MS-249 BOARD, COMPLETE (HC32/HC32E/HC33/HC33E)
			**********			**********
5-12			< BATTERY >			< BATTERY >
	⚠ BT501	1-756-075-21	BATTERY, LITHIUM (SECONDARY)	⚠ BT501	1-756-128-11	BATTERY, LITHIUM (SECONDARY)
		A-1081-848-A	PD-237 BOARD, COMPLETE		A-1081-848-A	PD-237 BOARD, COMPLETE
			**********			**********
			< CAPACITOR >			
	C631	1-165-908-11	CERAMIC CHIP 1uF 10% 10V			
			< CONNECTOR >			< CONNECTOR >
	CN601	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P		CN601	1-818-071-51	CONNECTOR, FFC/FPC (ZIF) 24P
	CN602	1-816-176-11	FFC/CONNECTOR, FPC (ZIF) 6P	*	CN602	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P
	CN603	1-691-370-11	CONNECTOR, FFC/FPC 6P	*	CN603	1-691-370-51	CONNECTOR, FFC/FPC 6P
	CN605	1-815-031-11	FFC/CONNECTOR, FPC (ZIF) 24P		CN605	1-818-071-51	CONNECTOR, FFC/FPC (ZIF) 24P
5-13	CN608	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P	*	CN608	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P
	CN609	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P	*	CN609	1-818-069-51	CONNECTOR, FFC/FPC (ZIF) 6P
			< TRANSISTOR >			< TRANSISTOR >
	Q601	8-729-427-52	TRANSISTOR XP4216		Q601	8-729-427-67	TRANSISTOR XP421F-TXE
	Q602	8-729-427-23	TRANSISTOR XP4116-TXE		Q602	8-729-427-37	TRANSISTOR XP411F-TXE
	Q610	6-550-232-01	TRANSISTOR 2SA2029T2LQ/R				
			< RESISTOR >			
	R637	1-218-978-11	RES-CHIP 120K 5% 1/16W			
		A-1084-828-A	SI-042 BOARD, COMPLETE (HC17E)		A-1084-828-A	SI-042 BOARD, COMPLETE (HC17E)
		A-1081-844-A	SI-042 BOARD, COMPLETE (EXCEPT HC17E)		A-1081-844-A	SI-042 BOARD, COMPLETE (EXCEPT HC17E)
			**********			**********
5-13			< CONNECTOR >			< CONNECTOR >
	CN603	1-766-348-21	CONNECTOR, FFC/FPC 18P	*	CN603	1-766-348-51	CONNECTOR, FFC/FPC 18P
5-14			< SENSOR >			< SENSOR >
	SE601	1-476-807-41	SENSOR, ANGULAR VELOCITY (PITCH SENSOR)		SE601	1-476-807-21	SENSOR, ANGULAR VELOCITY (25.0KHZ) (PITCH SENSOR)
	SE602	1-476-807-31	SENSOR, ANGULAR VELOCITY (YAW SENSOR)		SE602	1-476-807-11	SENSOR, ANGULAR VELOCITY (22.4KHZ) (YAW SENSOR)

• Refer to page 5-1 on the service manual for mark ⚠.

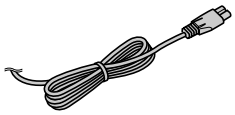
: Points added portion
: Points changed portion.
: Points deleted portion.

Checking supplied accessories.

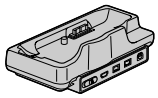
Note: This item is supplied with the unit as an accessory, but is not prepared as a service part.



AC-L AC Adaptor (1)
⚠ 1-479-288-13

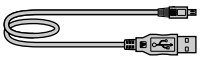


Power Cord (1)
⚠ 1-823-946-12 (AEP, E)
⚠ 1-823-947-51 (KR)
⚠ 1-782-476-51 (CH)
⚠ 1-783-374-11 (UK, HK)
⚠ 1-790-107-42 (US, CND)
⚠ 1-790-732-71 (JE)
⚠ 1-827-945-11 (AUS)

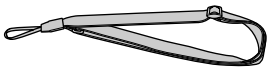


Handycam station (1)
DCRA-C121
1-818-729-11
(HC32/HC32E/HC33E)
DCRA-C122
1-818-729-21 (HC22E)

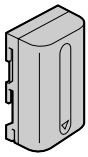
Shoe cover (1)
2-188-481-01



USB cable (1)
1-829-868-31
(EXCEPT HC17E)



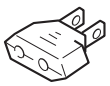
Shoulder strap (1)
2-176-235-11
(EXCEPT HC17E)



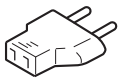
Rechargeable battery pack
NP-FP30 (1)
⚠ A-1144-865-A (US, CND)
⚠ A-1144-866-A
(EXCEPT US, CND)

A/V connecting cable (1)
1-823-156-51

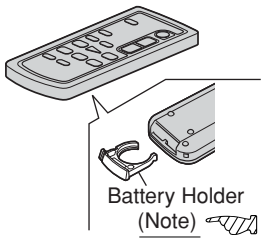
21-pin adaptor (1)
1-770-783-21
(HC22E/HC32E)



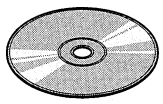
Conversion 2P adaptor (1)
⚠ 1-569-008-12
(HC21/HC32: E)



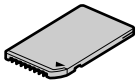
Conversion 2P adaptor (1)
⚠ 1-569-007-12 (JE)



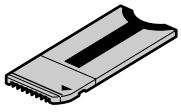
Wireless Remote Commander
RMT-831 (1)
1-478-495-41
(HC32/HC32E/HC33/HC33E)
RMT-830
1-478-495-21
(HC19E/HC21/HC21E/HC22E)



CD-ROM
(SPVD-012 2005 USB Driver)
(Picture Package Ver. 1.5) (1)
2-515-350-01 ~~(EXCEPT HC33E)~~
~~2-586-797-01 (HC21E/HC33E)~~



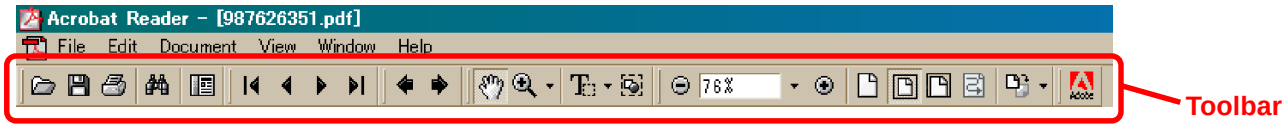
Memory Stick Duo (1)
(Note)
(HC33/HC33E)



Memory Stick Duo adaptor (1)
(Note)
(HC33/HC33E)

• Refer to page 5-1 on the service manual for mark ⚠.

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



Printing a text

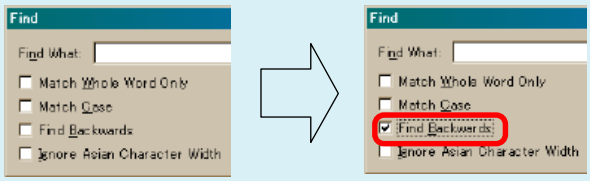
1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

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.

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 Backward" 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.

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 .

Reversing the screens displayed once

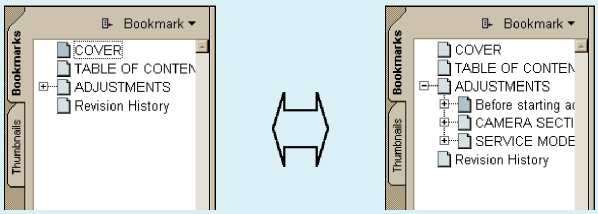
- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

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.

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.)

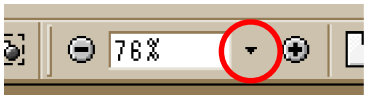
Moving with bookmark:
Click an item (text) on the bookmark pallet, and you can move to the link destination. Also, clicking can display the hidden items.
(To go back to original state, click)



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.

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2005.01	Official Release	—	—
1.1	2005.09	Supplement-1 (S1 PV05-039)	• Addition of Green and Pink Models (HC33E) • Change of Repair Parts	No
1.2	2006.03	Supplement-2 (S2 PV05-095)	• Addition of LCD Type (AUO TYPE: HC21/HC32)	No
1.3	2006.09	Correction-1 (C1)	• Correction of Repair Parts S.M. correction : Page 5-7	Yes
1.4	2006.10	Supplement-3 (S3 DI06-108)	• Change of Repair Parts	No