HDR-HC5/HC5E/HC7/HC7E

RMT-831

SERVICE MANUAL

LEVEL 2

Ver. 1.4 2008.06

Revision History

How to use Acrobat Reader

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

N MECHANISM (MDX-N110)

Photo: HDR-HC7

Link

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

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.

Mini DV Digital Video Cassette

DIGITAL HD VIDEO CAMERA RECORDER

SONY®

HDR-HC5/HC5E/HC7/HC7E_L2
9-852-176-31

Sony EMCS Co.

2008F0500-1

Published by Kohda TEC

Self Diagnosis Supported model

HDV 1080i

SPECIFICATIONS

System

Video recording system (HDV)
2 rotary heads, Helical scanning system
Video recording system (DV)
2 rotary heads, Helical scanning system
Still image recording system
Exif Ver. 2.2*[1]
Audio recording system (HDV)
Rotary heads, MPEG-1 Audio Layer -2, Quantization: 16 bits (Fs 48 kHz, stereo)
transfer rate: 384 kbps
Audio recording system (DV)
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal
HDR-HC5/HC7:
NTSC color, EIA standards
1080/60i specification

HDR-HC5E/HC7E:
PAL color, CCIR standards
1080/50i specification
Usable cassette
Mini DV cassette with the Mini DV mark printed
Tape speed (HDV)
Approx. 18.81 mm/s
Tape speed (DV)
SP: Approx. 18.81 mm/s
LP: Approx. 12.56 mm/s
Recording/playback time (HDV)
60 min (using a DVM60 cassette)
Recording/playback time (DV)
SP: 60 min (using a DVM60 cassette)
LP: 90 min (using a DVM60 cassette)
Fast forward/rewind time
Approx. 2 min 40 s (using a DVM60 cassette and rechargeable battery pack)
Approx. 1 min 45 s (using a DVM60 cassette and AC Adaptor)
Viewfinder
Electric viewfinder (color)
Image device
HDR-HC5/HC5E:
5.9 mm (1/3 type) CMOS sensor
Recording pixels (still, 4:3):
Max. 4.0 mega (2 304 × 1 728) pixels*[2]
Gross: Approx. 2 100 000 pixels
Effective (movie, 16:9):
Approx. 1 430 000 pixels
Effective (movie, 4:3):
Approx. 1 080 000 pixels
Effective (still, 16:9):
Approx. 1 490 000 pixels
Effective (still, 4:3):
Approx. 1 990 000 pixels

HDR-HC7/HC7E:
6.3 mm (1/2.9 type) CMOS sensor
Recording pixels (still, 4:3):
Max. 6.1 mega (2 848 × 2 136) pixels*[2]
Gross: Approx. 3 200 000 pixels
Effective (movie, 16:9):
Approx. 2 280 000 pixels
Effective (movie, 4:3):
Approx. 1 710 000 pixels
Effective (still, 16:9):
Approx. 2 280 000 pixels
Effective (still, 4:3):
Approx. 3 040 000 pixels
Lens
HDR-HC5/HC5E:
Carl Zeiss Vario-Sonnar T∗
10 × (Optical), 20 ×, 80 × (Digital)

HDR-HC7/HC7E:
Carl Zeiss Vario-Sonnar T∗
10 × (Optical), 20 × (Digital)
Focal length
HDR-HC5/HC5E:
f=5.1 ~ 51 mm (7/32 ~ 2 1/8 in.)
When converted to a 35 mm still camera
In CAMERA-TAPE *[3] : 41.3 ~ 485 mm (1 11/16 ~ 19 1/8 in.) (16:9), 50.5 ~ 594 mm (2 ~ 23 1/2 in.) (4:3)
In CAMERA-MEMORY: 40.4 ~ 404 mm (1 5/8 ~ 16 in.) (16:9), 37 ~ 370 mm (1 1/2 ~ 14 5/8 in.) (4:3)
F1.8 ~ 2.9
Filter diameter: 37 mm (1 1/2 in.)

HDR-HC7/HC7E:
f=5.4 ~ 54 mm (7/32 ~ 2 1/4 in.)
When converted to a 35 mm still camera
In CAMERA-TAPE: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9), 49 ~ 490 mm (1 15/16 ~ 19 3/8 in.) (4:3)
In CAMERA-MEMORY: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9), 37 ~ 370 mm (1 1/2 ~ 14 5/8 in.) (4:3)
F1.8 ~ 2.9
Filter diameter: 37 mm (1 1/2 in.)
Color temperature
[AUTO], [ONE PUSH], [INDOOR] (3 200 K),
[OUTDOOR] (5 800 K)
Minimum illumination
HDR-HC5/HC7:
2 lx (lux) ([AUTOSLW SHTR] [ON], Shutter speed 1/30 sec)
0 lx (lux) (during NightShot function)

HDR-HC5E/HC7E:
2 lx (lux) ([AUTOSLW SHTR] [ON], Shutter speed 1/25 sec)
0 lx (lux) (during NightShot function)

*[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] The unique pixel array of Sony's ClearVid CMOS sensor and image processing system (new Enhanced Imaging Processor) allows for still image resolution equivalent to the sizes described.
*[3] The focal length figures are actual figures resulting from wide angle pixel read-out.

Input/Output connectors

Audio/Video output
HDR-HC5/HC7:
10-pin connector
Video signal: 1 Vp-p, 75 Ω (ohms)
Luminance signal: 1 Vp-p, 75 Ω (ohms)
Chrominance signal: 0.286 Vp-p, 75 Ω (ohms)
Audio signal: 327 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)

HDR-HC5E/HC7E:
10-pin connector
Video signal: 1 Vp-p, 75 Ω (ohms)
Luminance signal: 1 Vp-p, 75 Ω (ohms)
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms)
Audio signal: 327 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)
COMPONENT OUT jack
Y: 1 Vp-p, 75 Ω (ohms)
PB/PR, CB/CR: ± 350 mV, 75 Ω (ohms)
HDMI OUT jack
TypeA (19-pin)
Headphone jack (HDR-HC7/HC7E)
Stereo minijack (Ø 3.5 mm)
LANC jack
Stereo mini-minijack (Ø 2.5 mm)
USB jack
mini-B
MIC (PLUG IN POWER) jack (HDR-HC7/HC7E)
Stereo minijack (Ø 3.5 mm)
i HDV/DV jack
i.LINK Interface (IEEE1394, 4-pin connector S100)

LCD screen

Picture
6.9 cm (2.7 type, aspect ratio 16:9)
Total dot number
211 200 (960 × 220)

General

Power requirements
DC 6.8 V/7.2 V (battery pack)
DC 8.4 V (AC Adaptor)
Average power consumption
HDR-HC5:
During camera recording using the viewfinder with normal brightness:
HDV recording 3.8 W
DV recording 3.5 W
During camera recording using the LCD with normal brightness:
HDV recording 4.1 W
DV recording 3.8 W

HDR-HC5E:
During camera recording using the viewfinder with normal brightness:
HDV recording 3.6 W
DV recording 3.3 W
During camera recording using the LCD with normal brightness:
HDV recording 3.9 W
DV recording 3.6 W

HDR-HC7:
During camera recording using the viewfinder with normal brightness:
HDV recording 4.2 W
DV recording 4.0 W
During camera recording using the LCD with normal brightness:
HDV recording 4.5 W
DV recording 4.3 W

HDR-HC7E:
During camera recording using the viewfinder with normal brightness:
HDV recording 4.0 W
DV recording 3.8 W
During camera recording using the LCD with normal brightness:
HDV recording 4.3 W
DV recording 4.1 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.)
HDR-HC5/HC5E:
82 × 82 × 134 mm
(3 1/4 × 3 1/4 × 5 3/8 in.) (w/h/d) including the projecting parts
82 × 82 × 134 mm
(3 1/4 × 3 1/4 × 5 3/8 in.) (w/h/d) including the projecting parts with the supplied battery pack NP-FH60 attached

HDR-HC7/HC7E:
82 × 82 × 138 mm
(3 1/4 × 3 1/4 × 5 1/2 in.) (w/h/d) including the projecting parts
82 × 82 × 138 mm
(3 1/4 × 3 1/4 × 5 1/2 in.) (w/h/d) including the projecting parts with the supplied battery pack NP-FH60 attached
Mass (approx.)
HDR-HC5/HC5E:
530 g (1 lb 2 oz) main unit only
630 g (1 lb 6 oz) including the NP-FH60 rechargeable battery pack and DVM60 cassette.

HDR-HC7/HC7E:
550 g (1 lb 3 oz) main unit only
650 g (1 lb 6 oz) including the NP-FH60 rechargeable battery pack and DVM60 cassette.
Supplied accessories
AC Adaptor (1)
Power cord (1)
Wireless Remote Commander (1)
A/V connecting cable (1)
Component video cable (1)
i.LINK cable (1)
USB cable (1)
Rechargeable battery pack NP-FH60 (1)
CD-ROM "Handycam Application Software" (1)
Operating Guide (1)
See page 5-38.

AC Adaptor AC-L200/L200B

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.)
48 × 29 × 81 mm (1 15/16 × 1 3/16 × 3 1/4 in.) (w/h/d) excluding the projecting parts
Mass (approx.)
170 g (6.0 oz) excluding the power cord

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

Rechargeable battery pack (NP-FH60)

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
7.2 Wh (1 000 mAh)
Dimensions (approx.)
31.8 × 33.3 × 45.0 mm
(1 5/16 × 1 5/16 × 1 13/16 in.) (w/h/d)
Mass (approx.)
80 g (2.9 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.

自己診断搭載機種

HDV 1080i

概略仕様

システム

録画方式(HDV)	回転2ヘッドヘリカルスキャン
録画方式(DV)	回転2ヘッドヘリカルスキャン
静止画記録方式	Exif Ver.2.2*[1]
録音方式(HDV)	回転ヘッド MPEG-1 Audio Layer2 16ビット48kHz(ステレオ) 転送レート 384kbps
録音方式(DV)	回転ヘッド 12ビット32kHz (ステレオ1、ステレオ2) 16ビット48kHz(ステレオ)
映像信号	NTSCカラー、EIA標準方式 1080/60i方式
使用可能カセット	Mini DV マークのついたミニDVカセット
テープ速度(HDV)	約18.81mm/秒
テープ速度(DV)	SP:約18.81mm/秒 LP:約12.56mm/秒
録画/再生時間(HDV)	60分(DVM60使用時)
録画/再生時間(DV)	SP:60分(DVM60使用時) LP:90分(DVM60使用時)
早送り、巻き戻し時間	バッテリー使用時: 約2分40秒(DVM60使用時) ACアダプター使用時: 約1分45秒(DVM60使用時)
ファインダー	電子ファインダー:カラー
撮像素子	6.3mm(1/2.9型)CMOSセンサー 記録画素数:静止画時最大610万画素相当*[2](2 848 × 2 136)(4:3モード) 総画素数:約320万画素 動画時有効画素数(16:9モード):約228万画素 動画時有効画素数(4:3モード):約171万画素 静止画時有効画素数(16:9モード):約228万画素 静止画時有効画素数(4:3モード):約304万画素
ズームレンズ	カール ツァイス バリオゾナーT* 10倍(光学)、20倍(デジタル) f=5.4～54mm 35mmカメラ換算では 「撮る－テープ」時: 40～400mm(16:9モード) (4:3モードでは49～490mm) 「撮る－メモリー」時: 40～400mm(16:9モード) (4:3モードでは37～370mm) F1.8～2.9 フィルター径37mm
色温度切り換え	[オート]、[ワンプッシュ]、 [屋内](3 200K)、 [屋外](5 800K)
最低被写体照度	5 lx(ルクス)([オートスローシャッター][入]、[シャッタースピード]1/30秒) 0 lx(ルクス)(NightShot時)

*[1] (社)電子情報技術産業協会(JEITA)にて制定された、撮影情報などの付帯情報を追加することができる静止画用のファイルフォーマット。

*[2] ソニー独自のクリアビッドCMOSセンサーの画素配列と画像処理システム新エンハンスドイメージングプロセッサーにより、静止画は表記の記載サイズを実現しています。

入/出力端子

A/V OUT端子	10ピン特殊コネクター 映像:1 Vp-p、75Ω Y出力 1Vp-p、75Ω C出力 0.286Vp-p、75Ω 音声:327mV(47kΩ負荷時)、出力インピーダンス2.2kΩ以下
コンポーネントビデオ端子	D1/D3映像:コンポーネントビデオ端子 Y:1Vp-p、75Ω PB/PR、CB/CR:±350mV、75Ω
HDMI OUT端子	タイプA(19ピン)
ヘッドフォン端子	ステレオミニジャック(ø 3.5)
LANC端子	ステレオミニミニジャック(ø 2.5)
USB端子	mini-B
MIC入力端子	ステレオミニジャック(ø 3.5)
HDV/DV端子	i.LINK(IEEE1394 4ピンコネクター S100)

液晶画面

画面サイズ	6.9cm(2.7型、アスペクト比16:9)
総ドット数	211 200ドット 横960×縦220

電源部、その他

電源電圧	バッテリー端子入力6.8V/7.2V DC端子入力8.4V
消費電力	ファインダー使用時、明るさ標準: HDV記録時 4.2W DV記録時 4.0W 液晶画面使用時、明るさ標準: HDV記録時 4.5W DV記録時 4.3W
動作温度	0℃～+40℃
保存温度	－20℃～+60℃
外形寸法	82×82×138mm (最大突起部を含む)(幅×高さ×奥行き) 82×82×138mm (突起部含む、付属バッテリーパックNP-FH60装着状態)
本体質量	約550g(本体のみ)
撮影時総質量	約650g(バッテリーNP-FH60、テープ(DVM60)含む。)
付属品	ACアダプター(1) 電源コード(1) ワイヤレスリモコン(1) AV接続ケーブル(1) D端子コンポーネントビデオケーブル(1) i.LINKケーブル(1) USBケーブル(1) リチャージャブルバッテリーパックNP-FH60(1) CD-ROM「Handycam Application Software」(1) 取扱説明書(1) 保証書(1)

ACアダプター AC-L200/L200B

電源	AC100～240V、50/60Hz
消費電力	18W
定格出力	DC8.4V *
動作温度	0℃～+40℃
保存温度	－20℃～+60℃
外形寸法	約48×29×81mm(最大突起部をのぞく)(幅×高さ×奥行き)
質量	約170g(本体のみ)

* その他の仕様については AC アダプターのラベルをご覧ください。

リチャージャブルバッテリーパック NP-FH60

最大電圧	DC8.4V
公称電圧	DC7.2V
容量	7.2Wh(1 000mAh)
最大外形寸法	約31.8×33.3×45.0mm(幅×高さ×奥行き)
質量	約80g
使用温度	0℃～+40℃
使用電池	Li-ion

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

Model information table

Model	HDR-HC5	HDR-HC5E	HDR-HC7	HDR-HC7E
Destination	US, CND, E, KR,	AEP, UK, EE, NE, E, AUS, CH, HK	US, CND, E, KR, JE, J	AEP, UK, NE, E, AUS, CH, HK, JE
Color system	NTSC	PAL	NTSC	PAL
Recording pixels (Max.)	4.0M pixels	4.0M pixels	6.1M pixels	6.1M pixels
Steadyshot	electronic	electronic	optical	optical
HP jack/MIC jack	×	×	○	○
Camera control dial/ Manual button	×	×	○	○
CM board	CM-076	CM-076	CM-077	CM-077
FP-647 flexible board	×	×	○	○
Control switch block (AD11800)	×	×	○	○

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

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

サービス，点検時には次のことにご注意下さい。

1. 注意事項をお守りください。
   サービスのとき特に注意を要する個所については，キャビネット，シャーシ，部品などにラベルや捺印で注意事項を表示しています。これらの注意書き及び取扱説明書等の注意事項を必ずお守り下さい。
2. 指定部品のご使用を
   セットの部品は難燃性や耐電圧など安全上の特性を持ったものとなっています。従って交換部品は，使用されていたものと同じ特性の部品を使用して下さい。特に回路図，部品表に⚠印で指定されている安全上重要な部品は必ず指定のものをご使用下さい。
3. 部品の取付けや配線の引きまわしはもとどおりに
   安全上，チューブやテープなどの絶縁材料を使用したり，プリント基板から浮かして取付けた部品があります。また内部配線は引きまわしやクランパによって発熱部品や高圧部品に接近しないよう配慮されていますので，これらは必ずもとどおりにして下さい。
4. サービス後は安全点検を
   サービスのために取外したネジ，部品，配線がもとどおりになっているか，またサービスした個所の周辺を劣化させてしまったところがないかなどを点検し，安全性が確保されていることを確認して下さい。
5. チップ部品交換時の注意
   - 取外した部品は再使用しないで下さい。
   - タンタルコンデンサのマイナス側は熱に弱いため交換時は注意して下さい。
6. フレキシブルプリント基板の取扱いについて
   - コテ先温度を270℃前後にして行なって下さい。
   - 同一パターンに何度もコテ先を当てないで下さい。（3回以内）
   - パターンに力が加わらないよう注意して下さい。
7. 無鉛半田について
   無鉛半田を使用している基板には，無鉛（Lead Free）を意味するレッドフリーマークがプリントされています。
   （注意：基板サイズによっては，無鉛半田を使用していてもレッドフリーマークがプリントされていないものがあります）
   ：レッドフリーマーク
   無鉛半田には，以下の特性があります。
   - 融点が従来の半田よりも約40℃高い。
     従来の半田こてをそのまま使用することは可能ですが，少し長めにこてを当てる必要があります。
     温度調節機能のついた半田こてを使用する場合，約350℃に設定して下さい。
     注意：半田こてを長く当てすぎると，基板のパターン（銅箔）がはがれてしまうことがありますので，注意して下さい。
   - 粘性が強い
     従来の半田よりも粘性が強いため，IC端子などが半田ブリッジしないように注意して下さい。
   - 従来の半田と混ぜて使用可能
     無鉛半田には無鉛半田を追加するのが最適ですが，従来の半田を追加しても構いません。

TABLE OF CONTENTS

1. SERVICE NOTE

ENGLISH | JAPANESE

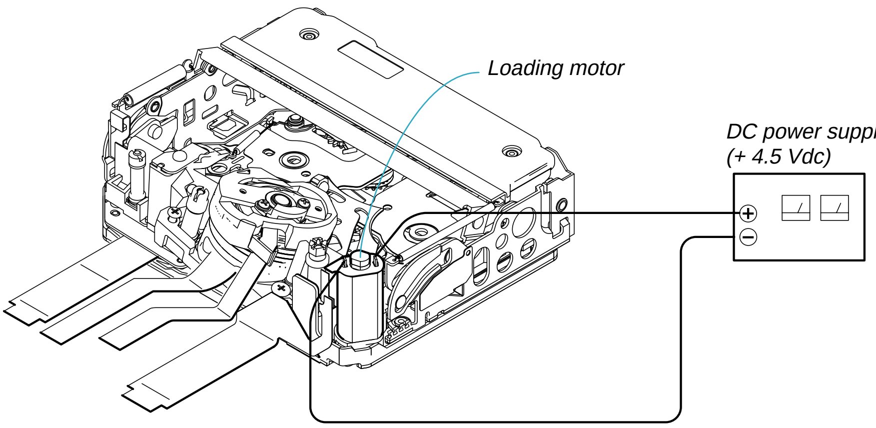
1-1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4 V), 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-L200/L200B).

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

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



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

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

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

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

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

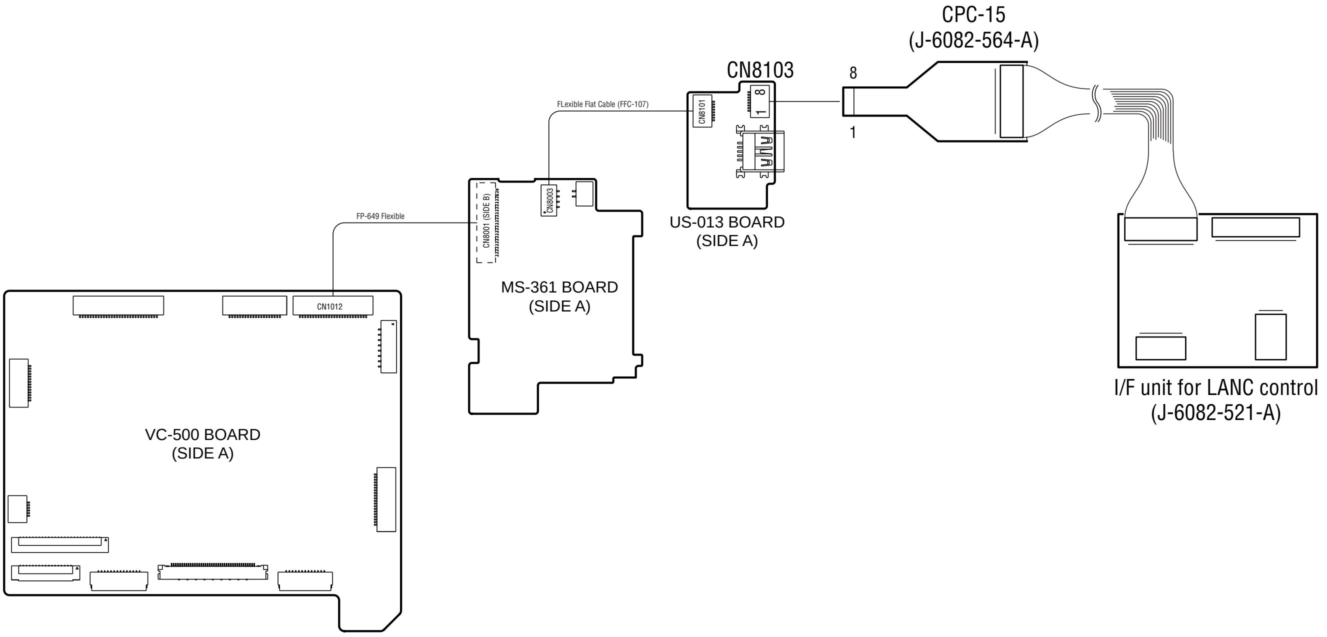
1) Select page: 0, address: 01, and set data:01.
2) Select page: A, address: 10, set data:02 and press the “PAUSE (Write) ” button of the adjustment remote commander.

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

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

1-4. USING SERVICE JIG

Connect the CPC-15 jig connector (J-6082-564-A) and I/F unit for LANC control (J-6082-521 A) to the CN8103 on the US-013 board.



1-5. SELF-DIAGNOSIS FUNCTION

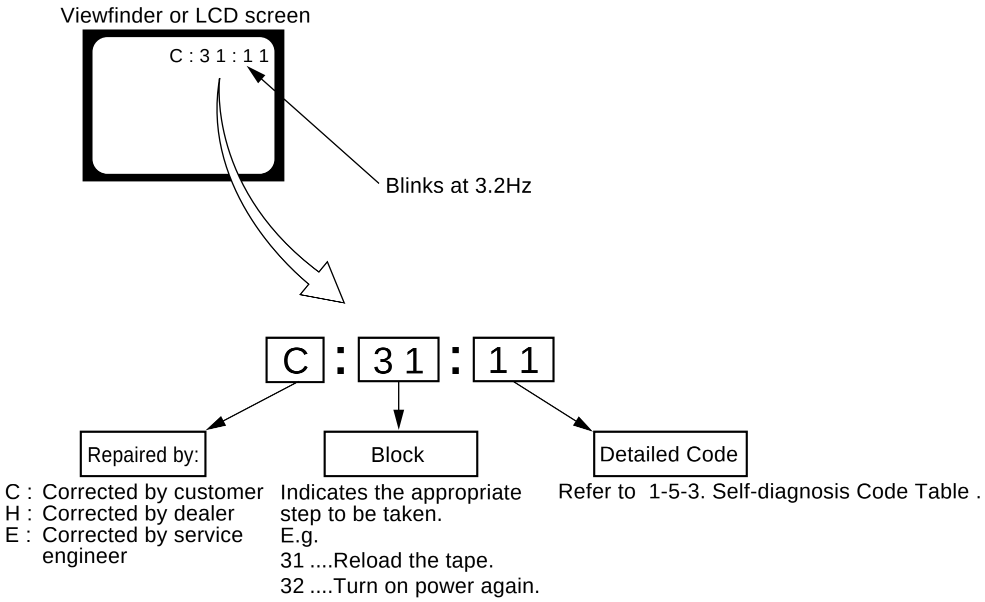
1-5-1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or LCD screen what to do.

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

1-5-2. Self-diagnosis Display

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



1-5-3. 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.
C	3	2	6	0		Difficult to adjust focus. (Cannot initialize focus.)	Remove the battery or power cable, connect, and perform operations from the beginning. If it does not recover, inspect the focus MR sensor of lens block (Pin ⑲, ㉑ of CN5302 (HC5/HC5E) or Pin ⑯, ⑱ of CN5301 (HC7/HC7E) on the LD-221 board). If not faulty, inspect the focus motor drive circuit (IC5404 on the LD-221 board).

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
E	6	1	1	0	Zoom operations fault. (Cannot initialize zoom lens.)	Inspect the zoom MR sensor of lens block (Pin ⑯, ⑱ of CN5302 (HC5/HC5E) or Pin ⑳, ㉑ of CN5301 (HC7/HC7E) on the LD-221 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC5404 on the LD-221 board) when zooming is not performed.
E	6	1	1	1	Focus lens initializing failure and zoom lens initializing failure occur simultaneously.	Check both C: 32: 60 and E: 61: 10 of the self-diagnosis code.
E	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE8202 on the CM-076 board (HC5/HC5E) or SE7202 on the CM-077 board (HC7/HC7E)) 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 (SE8201 on the CM-076 board (HC5/HC5E) or SE7201 on the CM-077 board (HC7/HC7E)) peripheral circuits.
E	6	2	0	2	Abnormality of IC for steadyshot.	Refer to [1-7-1. E : 62 : 02 (Abnormality of IC for Steadyshot) Occurred] (HC7/HC7E only).
E	6	2	0	3	IC for steadyshot and micro controller communication abnormality among.	Inspect the steadyshot circuit (IC5703 on the LD-221 board) (HC7/HC7E only).
E	6	2	1	0	Shift lens initializing failure.	Refer to [1-7-2. E : 62 : 10 (Shift Lens Initializing Failure) Occurred] (HC7/HC7E only).
E	6	2	1	1	Shift lens overheating (Pitch).	Refer to [1-7-3. E : 62 : 11 (Shift Lens Overheating (Pitch)) Occurred] (HC7/HC7E only).
E	6	2	1	2	Shift lens overheating (Yaw).	Refer to [1-7-4. E : 62 : 12 (Shift Lens Overheating (Yaw)) Occurred] (HC7/HC7E only).
E	6	2	2	0	Abnormality of thermistor.	Refer to [1-7-5. E : 62 : 20 (Abnormality of Thermistor) Occurred] (HC7/HC7E only).
E	9	1	0	1	Abnormality when flash is being charged.	Checking of flash unit or replacement of flash unit. (Note)

Note: After repair, be sure to perform “1-6. PROCESS AFTER FIXING FLASH ERROR”.

1-6. PROCESS AFTER FIXING FLASH ERROR

When “FLASH error” (Self-diagnosis Code E:91:**) occurs, to prevent any abnormal situation caused by high voltage, setting of the flash is changed automatically to disabling charge and flash setting.
After fixing, this setting needs to be deactivated. Connect the adjustment remote commander (RM-95 or NEW LANC JIG) and perform the following process.

Order	Page	Address	Data	Procedure
1	7	01	75	
2	7	00	01	Press PAUSE (Write) button.
3	7	02		Check the data changes to “01”.

1-7. METHOD OF COPING WITH SHIFT LENS ERROR (HC7/HC7E)

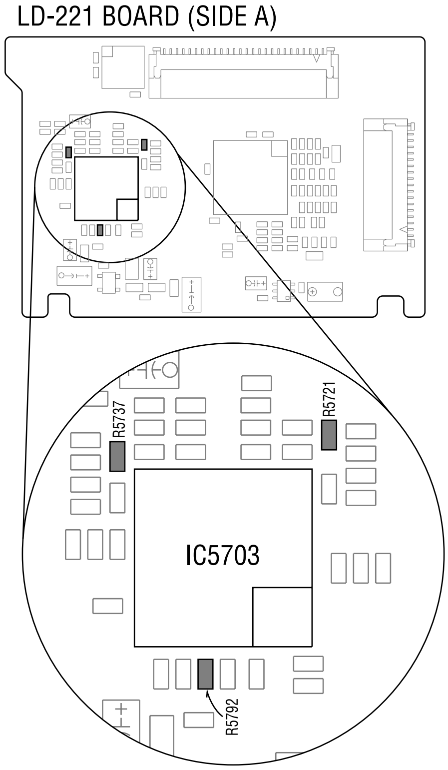


Fig. 1
Measurement points on the LD-221 board

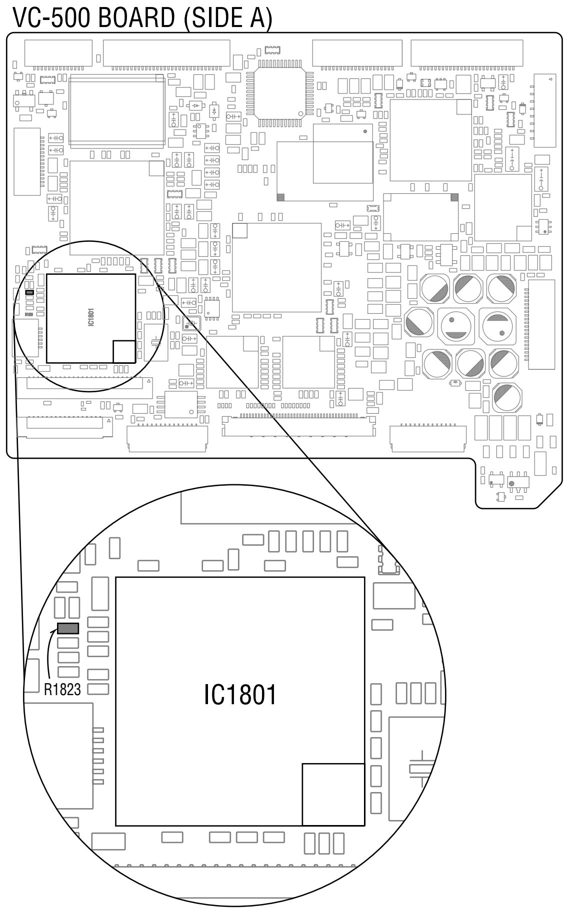
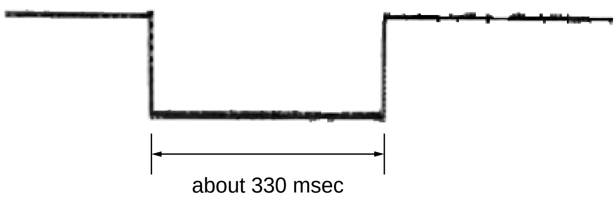


Fig. 3
Measurement points on the VC-500 board



Note: The length of low section will vary a little depending on the conditions.

Fig. 2
Change in output voltage of R5792 on the LD-221 board

1-7-1. E : 62 : 02 [Abnormality of IC for Steadyshot] Occurred

Order	Procedure
1	Turn the power OFF.
2	While measuring with an oscilloscope the output voltage of R5792 in the periphery of IC5703 on the LD-221 board, turn the power ON to check that the output voltage immediately after the power on change as shown in Fig. 2.
3	If the output voltage change as shown in Fig. 2, replace the lens block (Note). If it does not change as shown in Fig. 2, inspect the camera control circuit (IC1801 of VC-500 board) periphery.

Note: When the lens block was replaced, execute a necessary adjustment items referring to Service Manual, ADJ.
After the adjustment, make sure with the STEADYSHOT turned ON that the steadyshot functions appropriately in the handheld operation.

1-7-2. E : 62 : 10 [Shift Lens Initializing Failure] Occurred

Connect the adjustment remote commander (RM-95 or NEW LANC JIG) and perform the following process.

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	07	
3	F (7F)	06		Read the data value and assume it as D_{06}.
4	F (7F)	06		Change the data and check that it has been changed. If no value changes or if value is 00 or FF, inspect the EEPROM (IC1802 of VC-500 board). If value changes, proceed to the order 5.
5	F (7F)	06	D_{06}	Press PAUSE (Write) button.
6	F (7F)	07		Read the data value and assume it as D_{07}.
7	F (7F)	07		Change the data and check that it has been changed. If no value changes or if value is 00 or FF, inspect the EEPROM (IC1802 of VC-500 board). If value changes, proceed to the order 8.
8	F (7F)	07	D_{07}	Press PAUSE (Write) button.
9	0	10	00	
10	0	01	00	
11				Perform “Hall Adjustment”. (Note 1) If the lens does not move at all when adjusting it, proceed to the order 12. When the adjustment ends, proceed to the order 16. (Note 1)
12	2	01	2D	Press PAUSE (Write) button.
13	2	02		Read the data value. If value is not 01, inspect the EEPROM (IC1802 of VC-500 board). When value is 01, proceed to the order 14.
14	2	01	00	Press PAUSE (Write) button.
15				Turn the power OFF and ON again.
16				Check that no error occurs. If an error occurs, replace the lens block (Note 2).

Note 1: Perform adjustment by referring to “Hall Adjustment” in Service Manual, ADJ. After the adjustment, be sure to perform “Angular Velocity Sensor Sensitivity Adjustment”.

Note 2: When the lens block was replaced, execute the necessary adjustment items referring to Service Manual, ADJ.
After the adjustment, make sure with the STEADYSHOT turned ON that the steadyshot functions appropriately in the handheld operation.

1-7-3. E : 62 : 11 [Shift Lens Overheating (Pitch)] Occurred

Connect the adjustment remote commander (RM-95 or NEW LANC JIG) and perform the following process.

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	06	
3	B (6B)	B2	01	Press PAUSE (Write) button.
4	0	10	07	
5	D (7D)	46	F0	Press PAUSE (Write) button.
6	D (7D)	48	01	Press PAUSE (Write) button. (Note 1)
7	D (7D)	48	00	Press PAUSE (Write) button.
8	D (7D)	46	10	Press PAUSE (Write) button.
9	D (7D)	48	01	Press PAUSE (Write) button. (Note 1)
10	D (7D)	48	00	Press PAUSE (Write) button.
11	0	10	06	
12	B (6B)	B2	00	Press PAUSE (Write) button.
13	0	10	00	
14	0	01	00	
15				Check if the shift lens moves while setting the order 5 to 10. If the shift lens does not move, replace the lens block (Note 2). When the shift lens moved, proceed to the order 16.
16				While setting the order 5 to 10, measure with an oscilloscope the output voltage of R5721 in the periphery of IC5703 on the LD-221 board to check the output voltage varies.
17				If the output voltage does not vary, replace the lens block (Note 2). When the output voltage varied, proceed to the order 18.
18				Turn the power OFF.
19				While measuring with an oscilloscope the output voltage of R5792 in the periphery of IC5703 on the LD-221 board, turn the power ON to check that the output voltage immediately after the power on change as shown in Fig. 2.
20				If the output voltage change as shown in Fig. 2, replace the lens block (Note 2). If it does not change as shown in Fig. 2, inspect the camera control circuit (IC1801 of VC-500 board) periphery.

Note 1: Finish this operation within 10 seconds. If it is likely to take more than 10 seconds, set page: D (7D), address: 48, data: 00, and then retry.

Note 2: When the lens block was replaced, execute the necessary adjustment items referring to Service Manual, ADJ.
After the adjustment, make sure with the STEADYSHOT turned ON that the steadyshot functions appropriately in the handheld operation.

1-7-4. E : 62 : 12 [Shift Lens Overheating (Yaw)] Occurred

Connect the adjustment remote commander (RM-95 or NEW LANC JIG) and perform the following process.

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	06	
3	B (6B)	B2	01	Press PAUSE (Write) button.
4	0	10	07	
5	D (7D)	47	F0	Press PAUSE (Write) button.
6	D (7D)	49	01	Press PAUSE (Write) button. (Note 1)
7	D (7D)	49	00	Press PAUSE (Write) button.
8	D (7D)	47	10	Press PAUSE (Write) button.
9	D (7D)	49	01	Press PAUSE (Write) button. (Note 1)
10	D (7D)	49	00	Press PAUSE (Write) button.
11	0	10	06	
12	B (6B)	B2	00	Press PAUSE (Write) button.
13	0	10	00	
14	0	01	00	
15				Check if the shift lens moves while setting the order 5 to 10. If the shift lens does not move, replace the lens block (Note 2). When the shift lens moved, proceed to the order 16.
16				While setting the order 5 to 10, measure with an oscilloscope the output voltage of R5737 in the periphery of IC5703 on the LD-221 board to check the output voltage varies.
17				If the output voltage does not vary, replace the lens block (Note 2). When the output voltage varied, proceed to the order 18.
18				Turn the power OFF.
19				While measuring with an oscilloscope the output voltage of R5792 in the periphery of IC5703 on the LD-221 board, turn the power ON to check that the output voltage immediately after the power on change as shown in Fig. 2.
20				If the output voltage change as shown in Fig. 2, replace the lens block (Note 2). If it does not change as shown in Fig. 2, inspect the camera control circuit (IC1801 of VC-500 board) periphery.

Note 1: Finish this operation within 10 seconds. If it is likely to take more than 10 seconds, set page: D (7D), address: 49, data: 00, and then retry.

Note 2: When the lens block was replaced, execute the necessary adjustment items referring to Service Manual, ADJ.
After the adjustment, make sure with the STEADYSHOT turned ON that the steadyshot functions appropriately in the handheld operation.

1-7-5. E : 62 : 20 [Abnormality of Thermistor] Occurred

Order	Procedure
1	Turn the power ON.
2	Check that R1823 in the periphery of IC1801 on the VC-500 board is 0 Ω and energizes. If it is not energizes, replace the R1823. When R1823 is 0 Ω and energizes, replace the lens block (Note).
3	Check that no error occurs, after replacing the lens block and performing the necessary adjustment. If an error occurs, inspect the camera control circuit (IC1801 of VC-500 board) periphery.

Note: When the lens block was replaced, execute the necessary adjustment items referring to Service Manual, ADJ.
After the adjustment, make sure with the STEADYSHOT turned ON that the steadyshot functions appropriately in the handheld operation.

1. SERVICE NOTE

ENGLISH JAPANESE

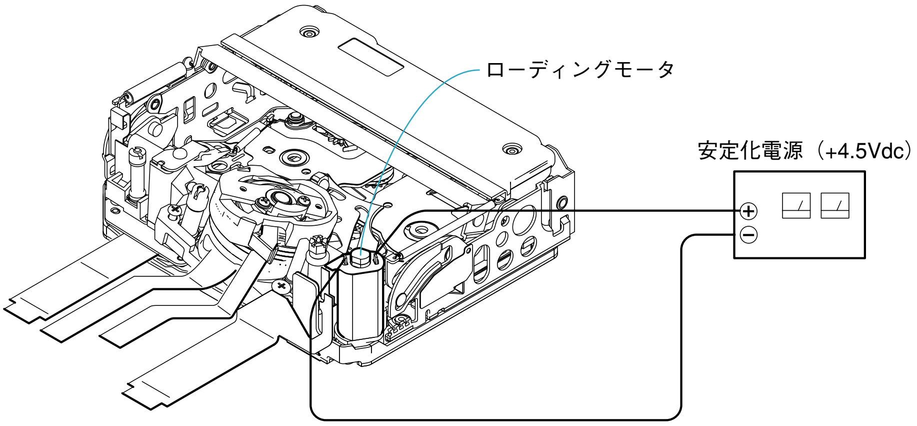
1-1. 修理時の電源供給について

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

方法：
DC入力端子を使用する。（ACアダプタ（AC-L200/L200B）を使用する。）

1-2. イジェクトしない時のカセット取出し方法（強制イジェクト）

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



1-3. 強制電源ONモードの設定

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

1-3-1. 強制カメラ電源ONモードの設定

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

1-3-2. 強制VTR電源ONモードの設定

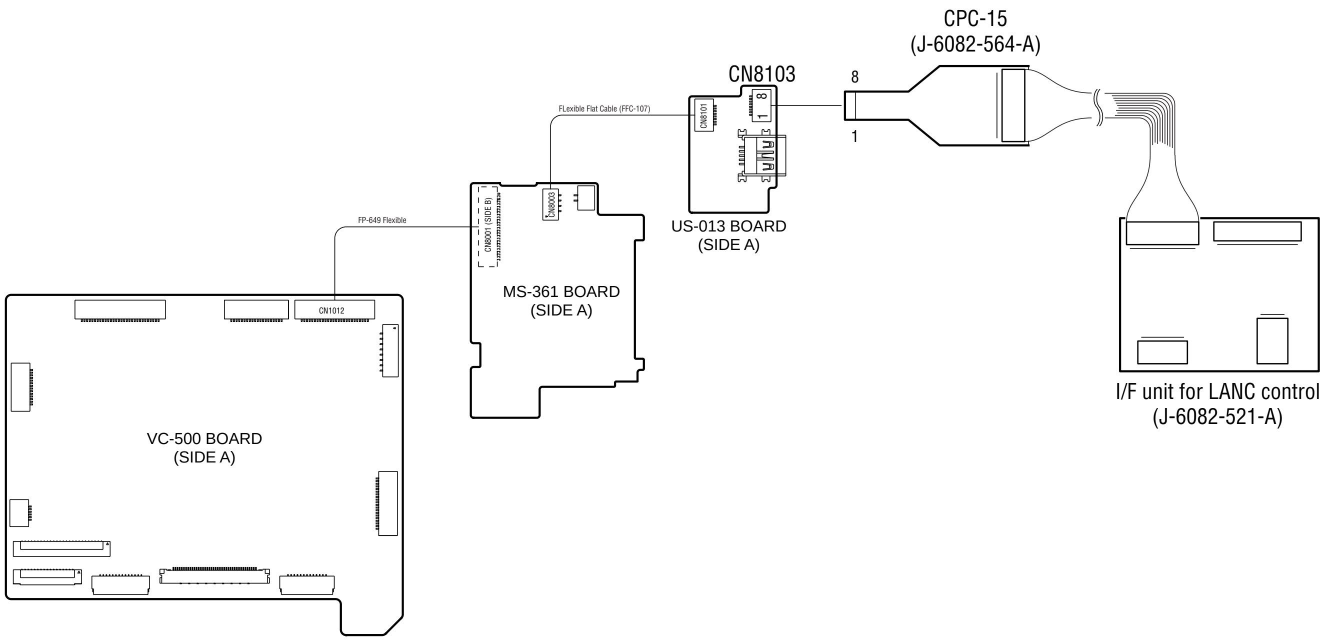
1) ページ：0，アドレス：01にデータ：01をセット。
2) ページ：A，アドレス：10にデータ：02をセットしPAUSE（Write）ボタンを押す。

1-3-3. 強制電源ONモードの解除

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

1-4. 使用サービス治具

CPC-15治具コネクタ（J-6082-564-A），LANC変換用I/F（J-6082-521-A）をUS-013基板CN8103に接続します。



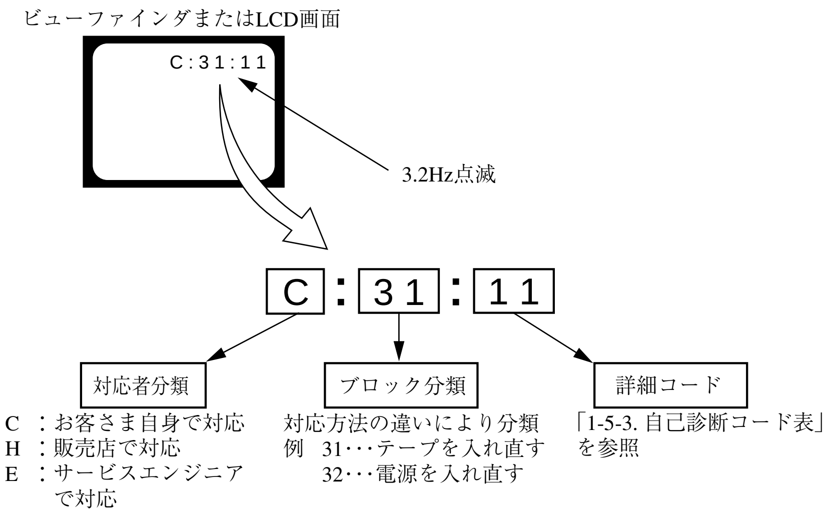
1-5. 自己診断機能

1-5-1. 自己診断機能について

本機の動作に不具合が生じたとき，自己診断機能が働き，ビューファインダまたはLCD画面に，どう処置したらよいか判断できる表示を行います。自己診断機能については取扱説明書にも掲載されています。

1-5-2. 自己診断表示

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



1-5-3. 自己診断コード表

自己診断コード					症状／状態	対応／方法
対応者	ブロック機能		詳細コード			
C	0	4	0	0	標準でないバッテリを使用している	インフォリチウムバッテリを使用する。
C	2	1	0	0	結露している	カセットを取り出して，約1時間してからもう一度入れ直す。
C	2	2	0	0	ビデオヘッドが汚れている	別売のクリーニングカセットできれいにする。
C	3	1	1	0	LOAD方向，ローディング所定時間内終了せず	テープを入れ直し，再度操作し直す。
C	3	1	1	1	UNLOAD方向，ローディング所定時間内終了せず	テープを入れ直し，再度操作し直す。
C	3	1	2	0	UNLOAD時，Tリール側テープ弛み	テープを入れ直し，再度操作し直す。
C	3	1	2	1	UNLOAD時，Sリール側テープ弛み	テープを入れ直し，再度操作し直す。
C	3	1	2	2	Tリール異常	テープを入れ直し，再度操作し直す。
C	3	1	2	3	Sリール異常	テープを入れ直し，再度操作し直す。
C	3	1	3	0	キャプスタン起動時FG異常	テープを入れ直し，再度操作し直す。
C	3	1	3	1	キャプスタン定常時FG異常	テープを入れ直し，再度操作し直す。
C	3	1	4	0	ドラム起動時FG異常	テープを入れ直し，再度操作し直す。
C	3	1	4	1	ドラム起動時PG異常	テープを入れ直し，再度操作し直す。
C	3	1	4	2	ドラム定常時FG異常	テープを入れ直し，再度操作し直す。
C	3	1	4	3	ドラム定常時PG異常	テープを入れ直し，再度操作し直す。
C	3	1	4	4	ドラム定常時位相異常	テープを入れ直し，再度操作し直す。
C	3	2	1	0	LOAD方向，ローディング所定時間内終了せず	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	1	1	UNLOAD方向，ローディング所定時間内終了せず	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	2	0	UNLOAD時，Tリール側テープ弛み	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	2	1	UNLOAD時，Sリール側テープ弛み	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	2	2	Tリール異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	2	3	Sリール異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	3	0	キャプスタン起動時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	3	1	キャプスタン定常時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	4	0	ドラム起動時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	4	1	ドラム起動時PG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	4	2	ドラム定常時FG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	4	3	ドラム定常時PG異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	4	4	ドラム定常時位相異常	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。
C	3	2	6	0	フォーカスが合いにくい（フォーカスの初期化ができない）	バッテリまたは電源ケーブルを外して付け直し，再度操作し直す。復帰しない場合，レンズブロックのフォーカスMRセンサ（LD-221基板CN5302 ⑲,㉑ピン（HC5/HC5E）またはCN5301 ⑯,⑱ ピン（HC7/HC7E））を点検。問題がなければフォーカスモータドライブ回路（LD-221基板IC5404）を点検。

自己診断コード			症状／状態	対応／方法
対応者	ブロック機能	詳細コード		
E	6 1	1 0	ズーム動作の異常(ズームレンズの初期化ができない)	ズームレバーを操作した時, ズーム動作をすればレンズブロックのズームMRセンサ(LD-221基板CN5302 ⑯, ⑱ピン(HC5/HC5E)またはCN5301 ⑳, ㉑ピン(HC7/HC7E))を点検。ズーム動作をしなければズームモータドライブ回路(LD-221基板IC5404)を点検。
E	6 1	1 1	フォーカスレンズ初期化異常, ズームレンズ初期化異常の同時発生	自己診断コードC: 32: 60とE: 61: 10の両方を点検。
E	6 2	0 0	手振れ補正が効きにくい(PITCH角速度センサ出力張り付き)	PITCH角速度センサ(CM-076基板SE8202(HC5/HC5E)またはCM-077基板SE7202(HC7/HC7E))周辺回路を点検。
E	6 2	0 1	手振れ補正が効きにくい(YAW角速度センサ出力張り付き)	YAW角速度センサ(CM-076基板SE8201(HC5/HC5E)またはCM-077基板SE7201(HC7/HC7E))周辺回路を点検。
E	6 2	0 2	手振れ補正用ICの異常	「1-7-1. E:62:02(手振れ補正用ICの異常)が出た場合」を参照。(HC7/HC7Eのみ)
E	6 2	0 3	手振れ補正用ICとマイクロコントローラーとの通信異常	手振れ補正回路(LD-221基板IC5703)を点検。(HC7/HC7Eのみ)
E	6 2	1 0	シフトレンズ初期化異常	「1-7-2. E:62:10(シフトレンズ初期化異常)が出た場合」を参照。(HC7/HC7Eのみ)
E	6 2	1 1	シフトレンズオーバーヒート(PITCH)	「1-7-3. E:62:11(シフトレンズオーバーヒート(PITCH))が出た場合」を参照。(HC7/HC7Eのみ)
E	6 2	1 2	シフトレンズオーバーヒート(YAW)	「1-7-4. E:62:12(シフトレンズオーバーヒート(YAW))が出た場合」を参照。(HC7/HC7Eのみ)
E	6 2	2 0	サーミスタの異常	「1-7-5. E:62:20(サーミスタの異常)が出た場合」を参照。(HC7/HC7Eのみ)
E	9 1	0 1	フラッシュの充電異常	フラッシュユニットの点検または交換(注)

注意：修理後は，必ず「1-6. フラッシュ異常修理後の処置」を行ってください。

1-6. フラッシュ異常修理後の処置

フラッシュエラー（自己診断コードE：91：＊＊）発生時は、高電圧による異常を防止するために自動的にフラッシュ充電・発光禁止の設定になります。修理後は、この設定を解除する必要があります。調整用リモコン（RM-95またはNEW LANC JIG）を接続し、下記の処置を行ってください。

順序	ページ	アドレス	データ	作業内容
1	7	01	75	
2	7	00	01	PAUSE（Write）ボタンを押す
3	7	02		データが“01”になることを確認

1-7.　シフトレンズエラーの対処方法（HC7/HC7E）

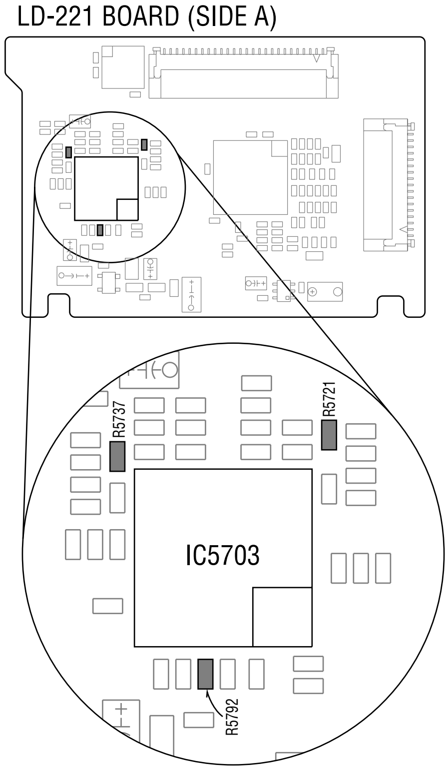


図1. LD-221基板測定箇所

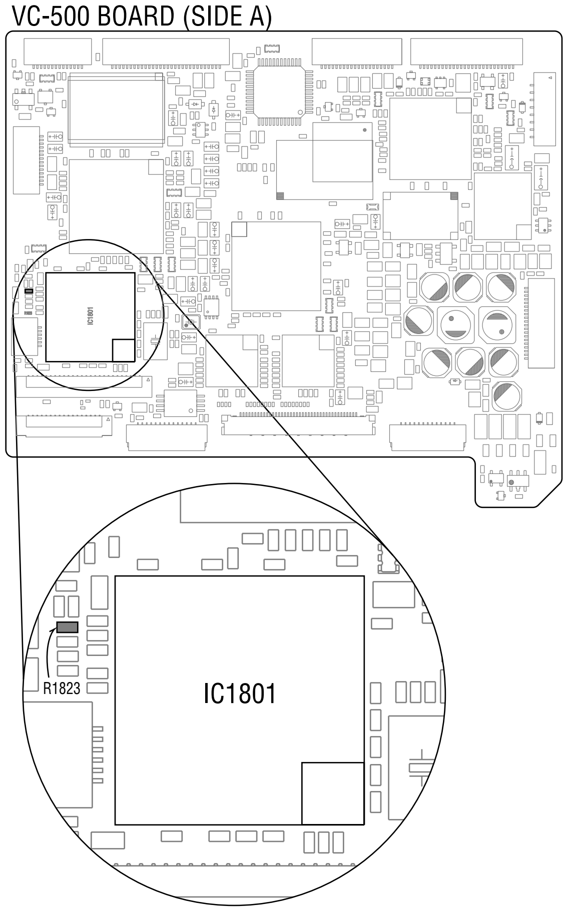
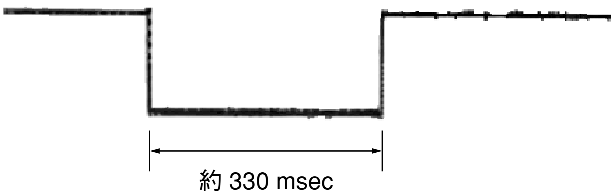


図3. VC-500基板測定箇所



注意：Lowの区間の長さは場合によって多少異なる

図2. LD-221基板R5792の出力電圧の変化

1-7-1.　E：62：02（手振れ補正用ICの異常）が出た場合

順序	作業内容
1	電源を切る。
2	LD-221基板IC5703の周辺にあるR5792の出力電圧をオシロスコープで測定しながら電源を入れる。電源投入直後の出力電圧が図2の様に変化することを確認する。
3	出力電圧が図2の様に変化するときはレンズブロックを交換する（注）。図2の様に変化しないときはカメラコントロール回路（VC-500基板IC1801）周辺を点検する。

注意：レンズブロックを交換した場合は，ＡＤＪ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ＯＮの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

1-7-2. E：62：10（シフトレンズ初期化異常）が出た場合
調整用リモコン（RM-95またはNEW LANC JIG）を接続し、次の手順を行う。

順序	ページ	アドレス	データ	作業内容
1	0	01	01	
2	0	10	07	
3	F (7F)	06		データ値を読み取り，その値をD_{06}とする。
4	F (7F)	06		データを変更し値が変わることを確認する。値が変化しない，もしくは値が00またはFFになっている場合はEEPROM（VC-500基板IC1802）を点検。値が変化する場合は順序5に進む。
5	F (7F)	06	D_{06}	PAUSE（Write）ボタンを押す。
6	F (7F)	07		データ値を読み取り，その値をD_{07}とする。
7	F (7F)	07		データを変更し値が変わることを確認する。値が変化しない，もしくは値が00またはFFになっている場合はEEPROM（VC-500基板IC1802）を点検。値が変化する場合は順序8に進む。
8	F (7F)	07	D_{07}	PAUSE（Write）ボタンを押す。
9	0	10	00	
10	0	01	00	
11				ホール調整を行う（注1）。 調整時にレンズが全く動かない場合は順序12に進む。調整が終了したら順序16に進む。（注1）
12	2	01	2D	PAUSE（Write）ボタンを押す。
13	2	02		データ値が01以外になっている場合はEEPROM（VC-500基板IC1802）を点検。値が01の場合は順序14に進む。
14	2	01	00	PAUSE（Write）ボタンを押す。
15				電源を切り，再び電源を入れる。
16				エラーが発生しないことを確認する。もしエラーが発生する場合はレンズブロックを交換する（注2）。

注意1：ADJ編「Hall Adjustment」を参照して調整を実施すること。調整後は「Angular Velocity Sensor Sensitivity Adjustment」を必ず実施すること。
注意2：レンズブロックを交換した場合は，ADJ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ONの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

1-7-3. E：62：11（シフトレンズオーバーヒート（PITCH））が出た場合

調整用リモコン（RM-95またはNEW LANC JIG）を接続し、次の手順を行う。

順序	ページ	アドレス	データ	作業内容
1	0	01	01	
2	0	10	06	
3	B (6B)	B2	01	PAUSE（Write）ボタンを押す。
4	0	10	07	
5	D (7D)	46	F0	PAUSE（Write）ボタンを押す。
6	D (7D)	48	01	PAUSE（Write）ボタンを押す。（注1）
7	D (7D)	48	00	PAUSE（Write）ボタンを押す。
8	D (7D)	46	10	PAUSE（Write）ボタンを押す。
9	D (7D)	48	01	PAUSE（Write）ボタンを押す。（注1）
10	D (7D)	48	00	PAUSE（Write）ボタンを押す。
11	0	10	06	
12	B (6B)	B2	00	PAUSE（Write）ボタンを押す。
13	0	10	00	
14	0	01	00	
15				順序5～10を設定している間にシフトレンズが動いたか確認する。もしシフトレンズが動かない場合はレンズブロックを交換する（注2）。動く場合は順序16に進む。
16				LD-221基板IC5703の周辺にあるR5721の出力電圧をオシロスコープで測定しながら，順序5～10を設定したときに出力電圧が変化することを確認する。
17				出力電圧が変化しないときはレンズブロックを交換する（注2）。変化するときは順序18に進む。
18				電源を切る。
19				LD-221基板IC5703の周辺にあるR5792の出力電圧をオシロスコープで測定しながら電源を入れる。電源投入直後の出力電圧が図2の様に変化することを確認する。
20				出力電圧が図2の様に変化するときはレンズブロックを交換する（注2）。図2の様に変化しないときはカメラコントロール回路（VC-500基板IC1801）周辺を点検する。

注意1：この操作は10秒以内に終了してください。もし10秒以上経過しそうな場合は，ページ：D （7D），アドレス：48，データ：00 に設定しなおしてから再度実行してください。

注意2：レンズブロックを交換した場合は，ADJ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ONの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

1-7-4. E：62：12（シフトレンズオーバーヒート（YAW））が出た場合

調整用リモコン（RM-95またはNEW LANC JIG）を接続し、次の手順を行う。

順序	ページ	アドレス	データ	作業内容
1	0	01	01	
2	0	10	06	
3	B (6B)	B2	01	PAUSE（Write）ボタンを押す。
4	0	10	07	
5	D (7D)	47	F0	PAUSE（Write）ボタンを押す。
6	D (7D)	49	01	PAUSE（Write）ボタンを押す。（注1）
7	D (7D)	49	00	PAUSE（Write）ボタンを押す。
8	D (7D)	47	10	PAUSE（Write）ボタンを押す。
9	D (7D)	49	01	PAUSE（Write）ボタンを押す。（注1）
10	D (7D)	49	00	PAUSE（Write）ボタンを押す。
11	0	10	06	
12	B (6B)	B2	00	PAUSE（Write）ボタンを押す。
13	0	10	00	
14	0	01	00	
15				順序5～10を設定している間にシフトレンズが動いたか確認する。もしシフトレンズが動かない場合はレンズブロックを交換する（注2）。動く場合は順序16に進む。
16				LD-221基板IC5703の周辺にあるR5737の出力電圧をオシロスコープで測定しながら，順序5～10を設定したときに出力電圧が変化することを確認する。
17				出力電圧が変化しないときはレンズブロックを交換する（注2）。変化するときは順序18に進む。
18				電源を切る。
19				LD-221基板IC5703の周辺にあるR5792の出力電圧をオシロスコープで測定しながら電源を入れる。電源投入直後の出力電圧が図2の様に変化することを確認する。
20				出力電圧が図2の様に変化するときはレンズブロックを交換する（注2）。図2の様に変化しないときはカメラコントロール回路（VC-500基板IC1801）周辺を点検する。

注意1：この操作は10秒以内に終了してください。もし10秒以上経過しそうな場合は，ページ：D（7D），アドレス：49，データ：00 に設定しなおしてから再度実行してください。

注意2：レンズブロックを交換した場合は，ADJ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ONの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

1-7-5. E：62：20（サーミスタの異常）が出た場合

順序	作業内容
1	電源を入れる。
2	VC-500基板IC1801の周辺にあるR1823が0 Ωであり，かつ通電していることを確認する。通電していない場合はR1823を交換する。R1823が0 Ωであり，かつ通電している場合はレンズブロックを交換する（注）。
3	レンズブロックを交換し必要な調整を行った後，エラーが発生しないことを確認する。もしエラーが発生する場合はカメラコントロール回路（VC-500基板IC1801）周辺を点検する。

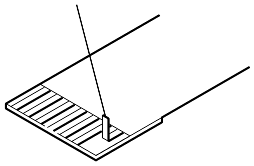
注意：レンズブロックを交換した場合は，ADJ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ONの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

2. DISASSEMBLY

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

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

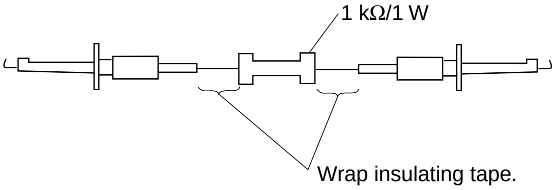


DISCHARGING OF THE ST-164 BOARD'S CHARGING CAPACITOR (C901)

The charging capacitor (C901) of the ST-164 board is charged up to the maximum 330 V potential.
There is a danger of electric shock by this high voltage when the capacitor is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the unit is simply turned off. Therefore, the remaining voltage must be discharged as described below.

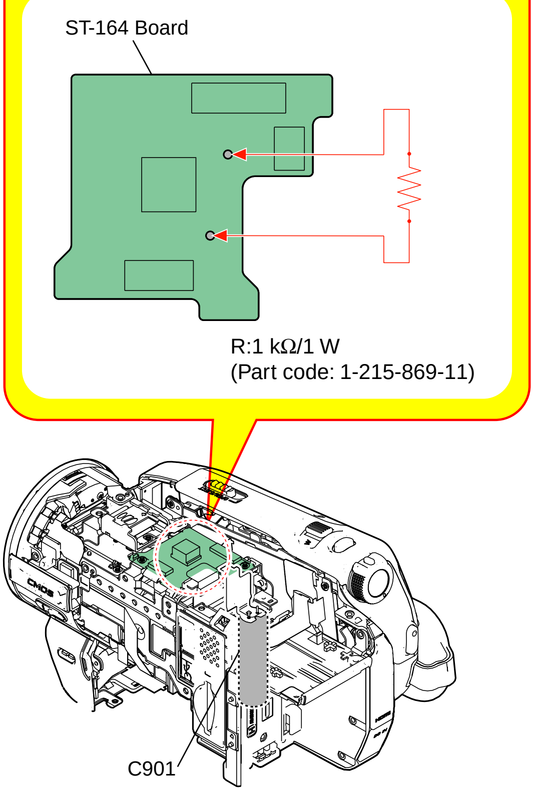
Preparing the Short Jig

To preparing the short jig, a small clip is attached to each end of a resistor of 1 kΩ /1 W (1-215-869-11).
Wrap insulating tape fully around the leads of the resistor to prevent electrical shock.

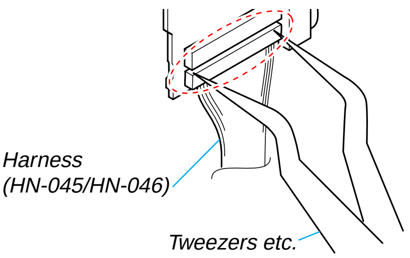


Note: High-voltage cautions

Discharging the Capacitor
Short-circuit between the two points with the short jig about 10 seconds.



NOTE FOR DISCONNECTING THE HARNESS (HN-045/HN-046)



When disconnecting the harness (HN-045/HN-046), do not pull the harness part but pull off the connector body with tweezers etc.

HELP

EXPLODED VIEW HARDWARE LIST

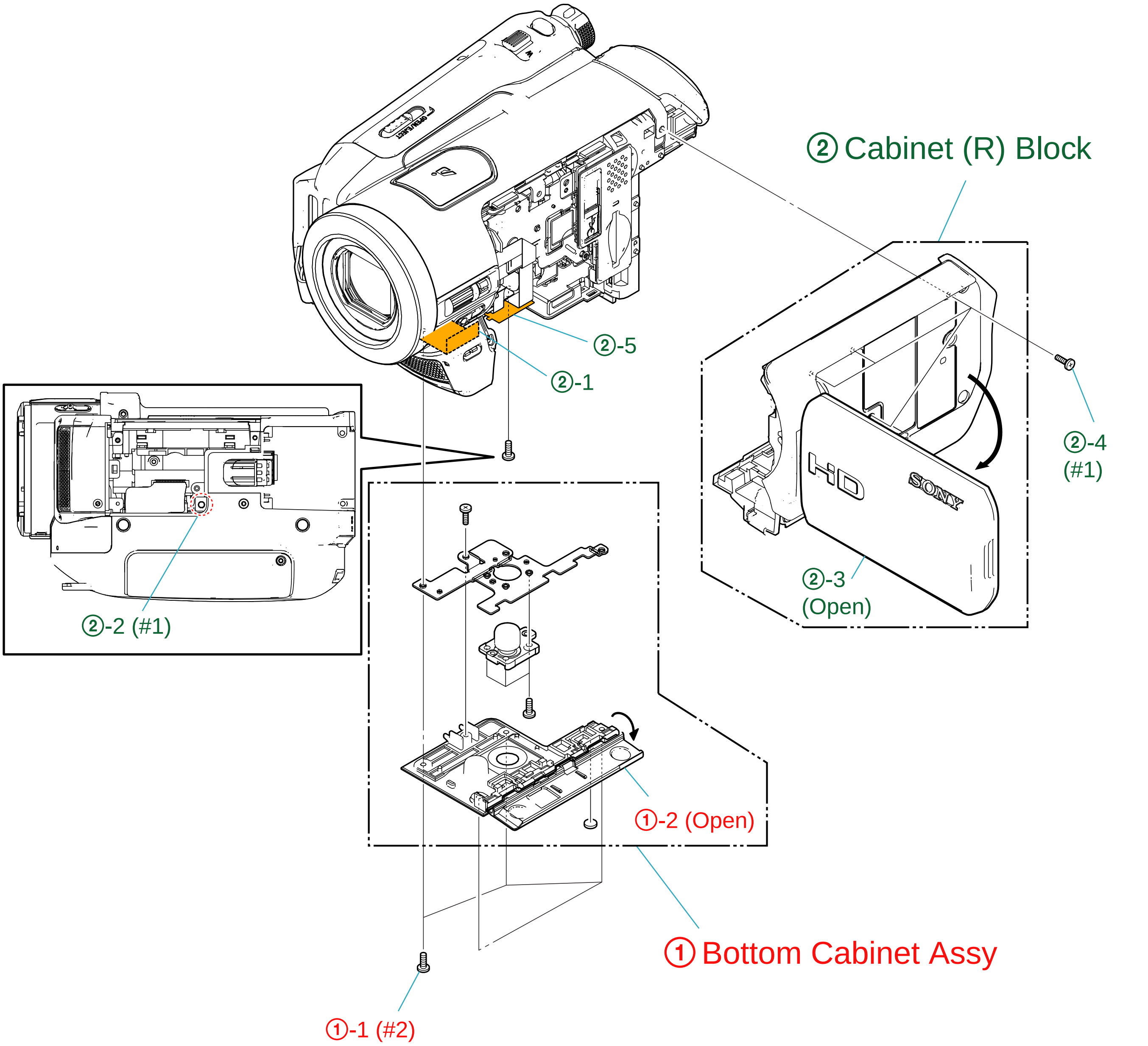
2-1. DISASSEMBLY

2-1-1. OVERALL SECTION

Follow the disassembly in the numerical order given.

① Bottom Cabinet Assy (①-1 to ①-2)

② Cabinet (R) Block (②-1 to ②-5)

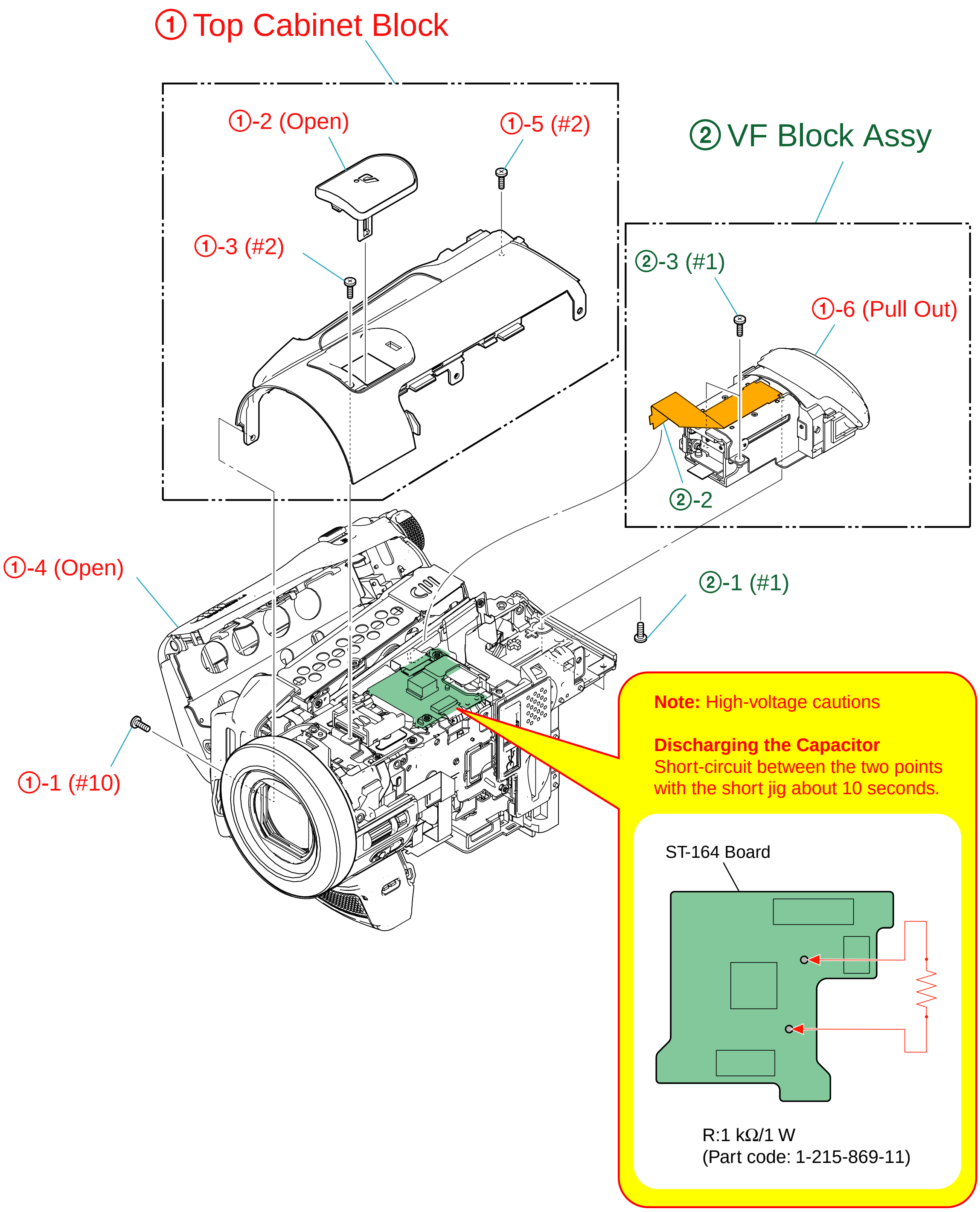


2-1-2. TOP CABINET SECTION

Follow the disassembly in the numerical order given.

① Top Cabinet Block (①-1 to ①-6)
② VF Block Assy (②-1 to ②-3)

EXPLODED VIEW HARDWARE LIST

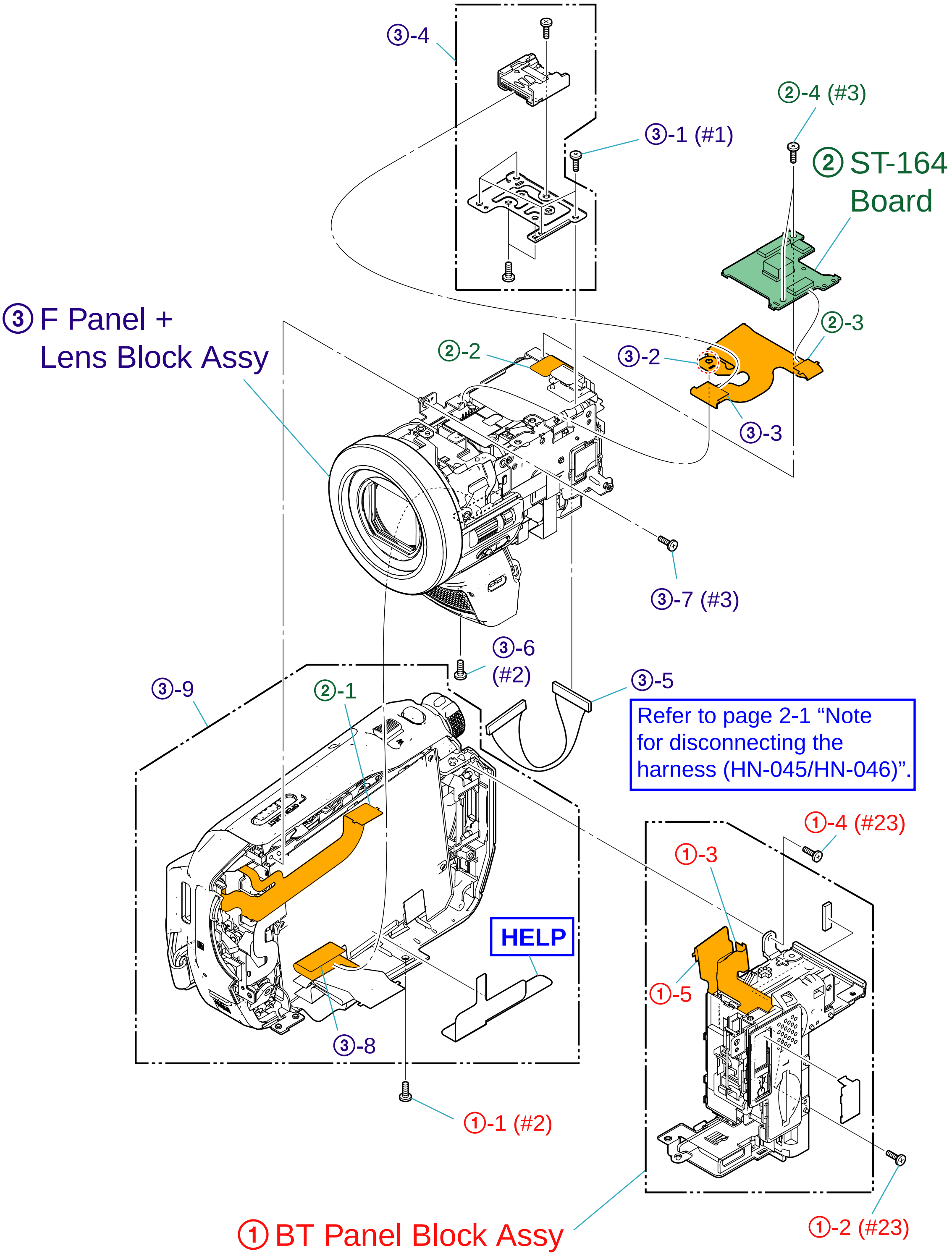


2-1-3. FRONT/BT SECTION

EXPLODED VIEW　HARDWARE LIST

Follow the disassembly in the numerical order given.

① BT Panel Block Assy (①-1 to ①-5)
② ST-164 Board (②-1 to ②-4)
③ F Panel + Lens Block Assy (③-1 to ③-9)



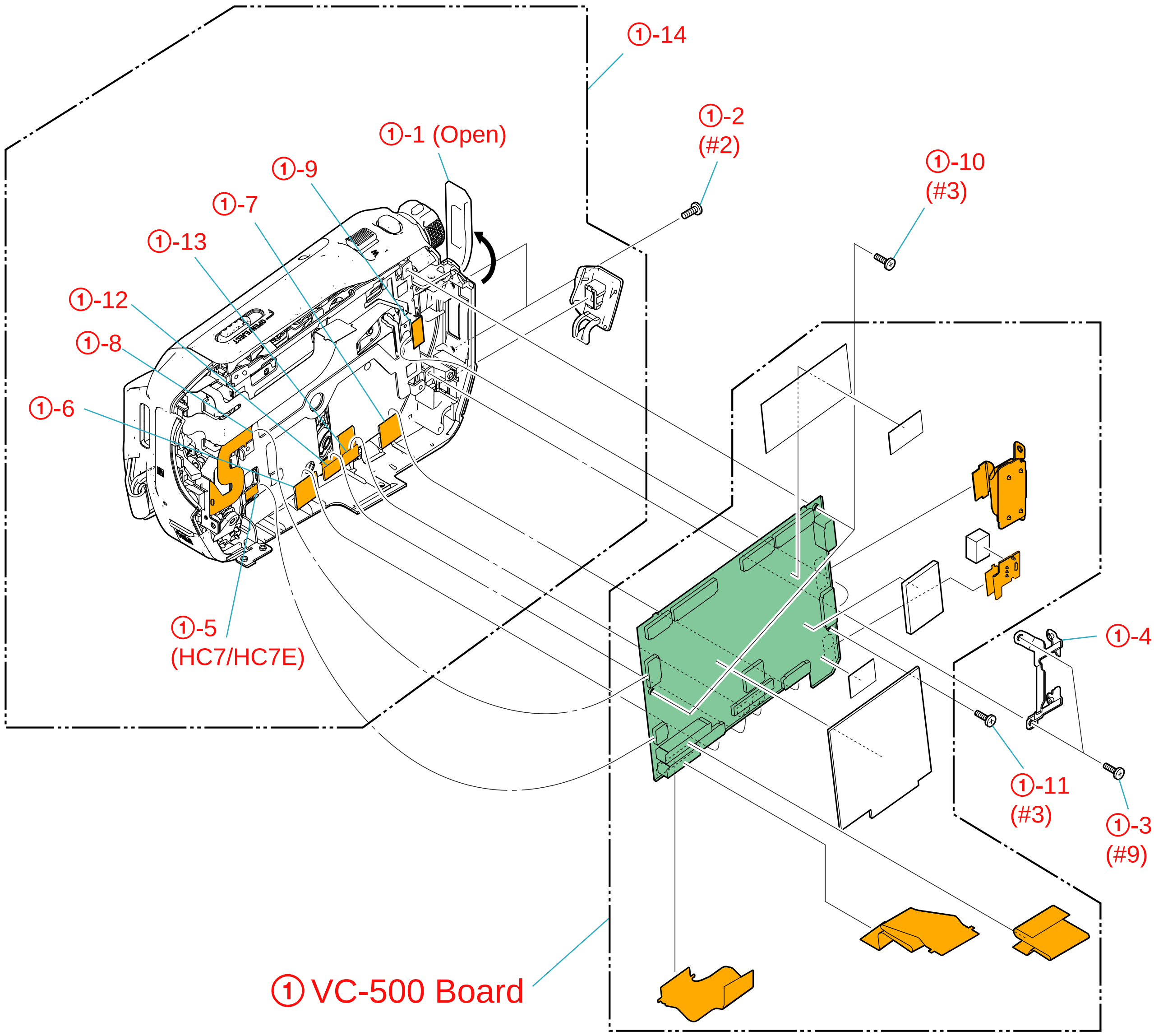
2-1-4. MAIN BOARD SECTION

Follow the disassembly in the numerical order given.

① VC-500 Board (①-1 to ①-14)

EXPLODED VIEW

HARDWARE LIST



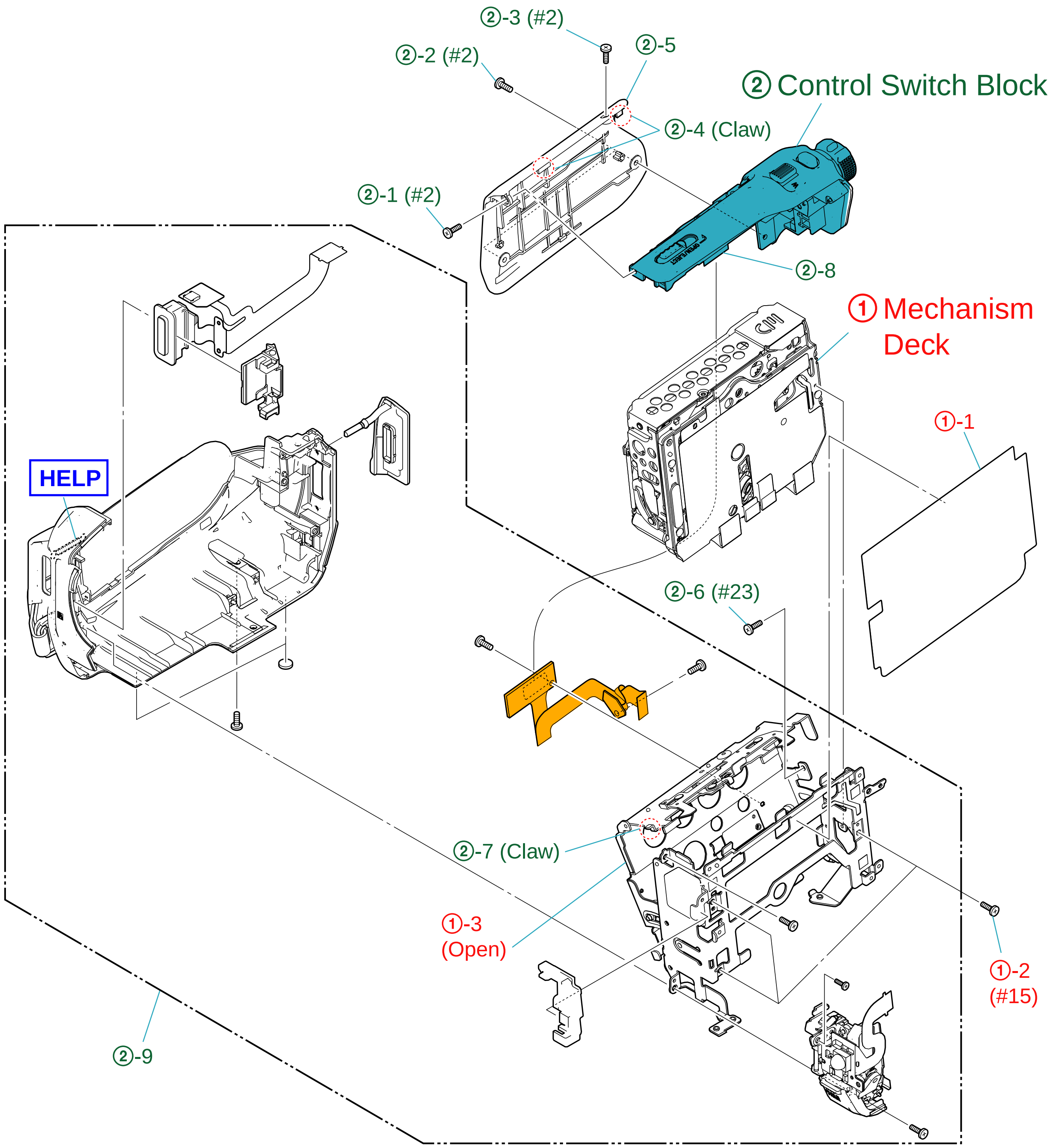
2-1-5. CABINET (L) BLOCK

Follow the disassembly in the numerical order given.

① Mechanism Deck (①-1 to ①-3)

② Control Switch Block (②-1 to ②-9)

EXPLODED VIEW HARDWARE LIST



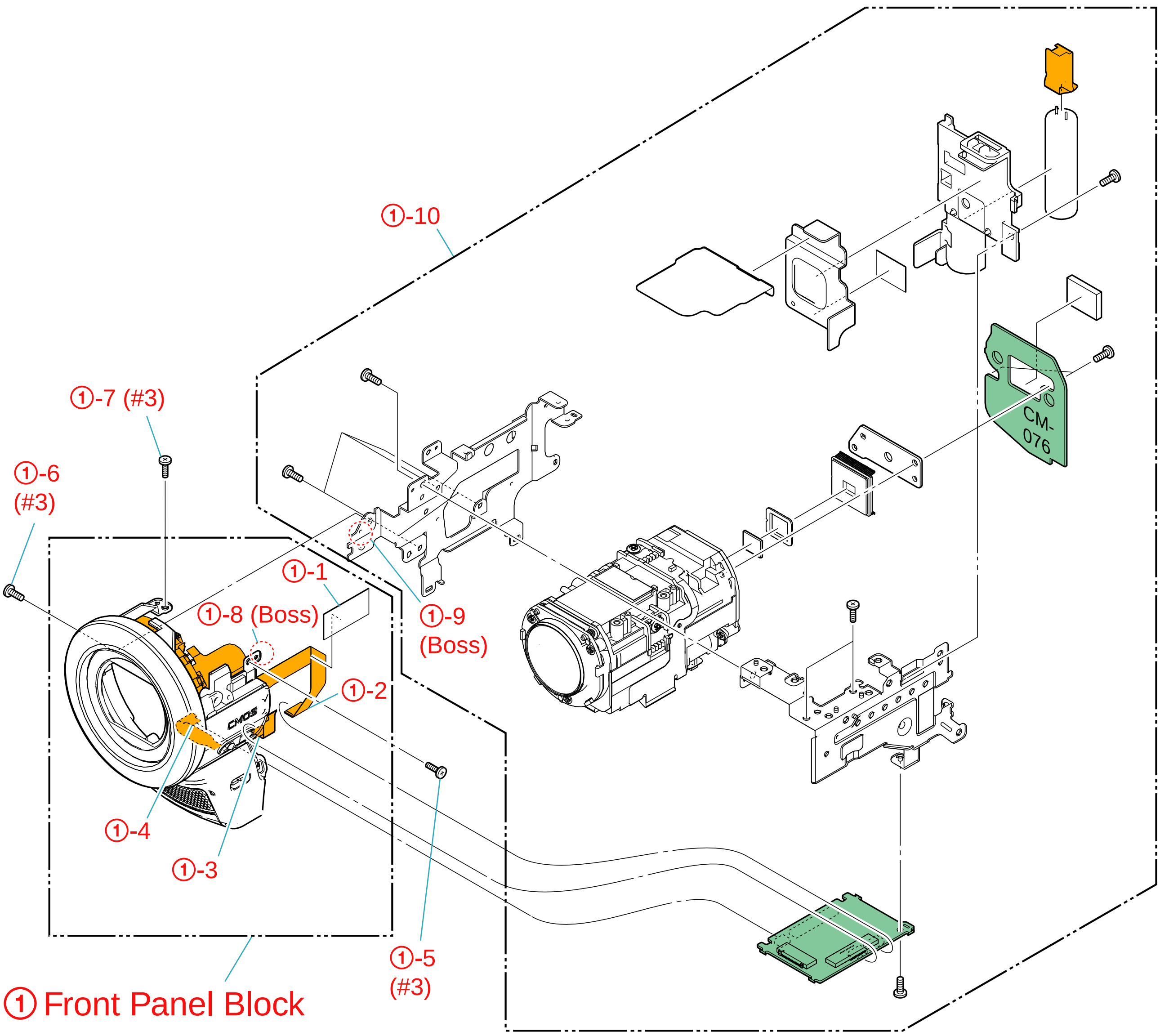
2-1-6. FRONT PANEL/LENS SECTION (HC5/HC5E)

EXPLODED VIEW

HARDWARE LIST

Follow the disassembly in the numerical order given.

① Front Panel Block (①-1 to ①-10)



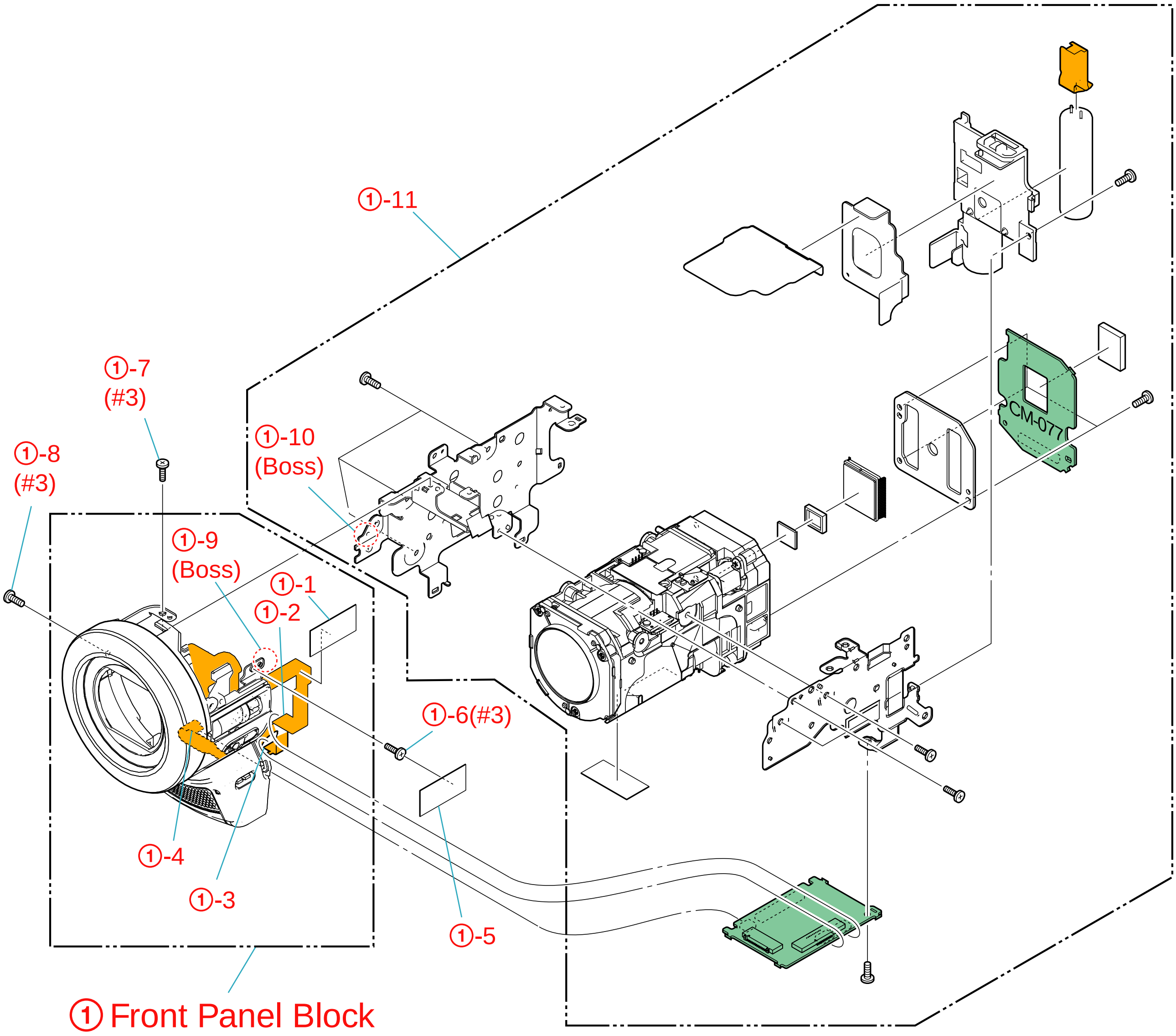
2-1-7. FRONT PANEL/LENS SECTION (HC7/HC7E)

Follow the disassembly in the numerical order given.

① Front Panel Block (①-1 to ①-11)

EXPLODED VIEW

HARDWARE LIST



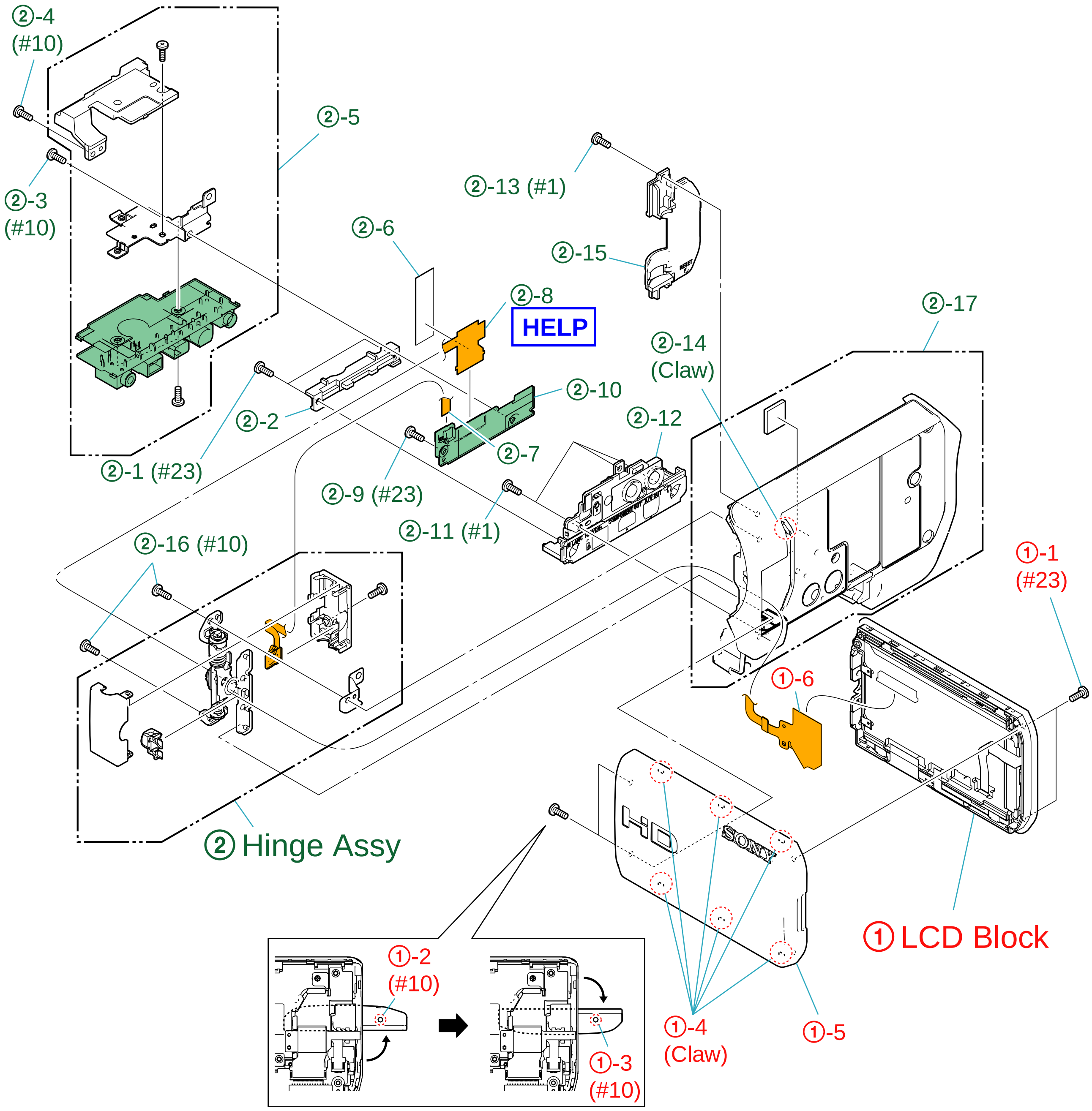
2-1-8. CABINET (R) BLOCK

EXPLODED VIEW HARDWARE LIST

Follow the disassembly in the numerical order given.

① LCD Block (①-1 to ①-6)

② Hinge Assy (②-1 to ②-17)

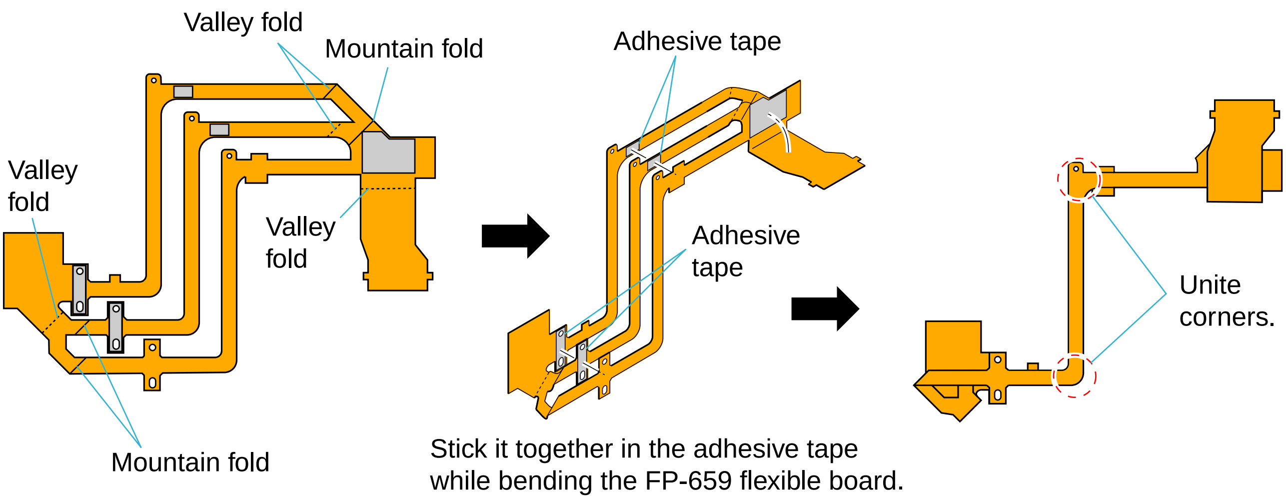


HELP

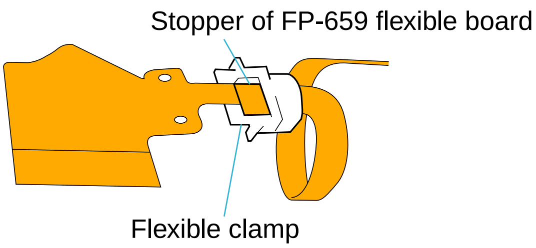
Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

THE METHOD OF ATTACHMENT OF FP-659 FLEXIBLE BOARD

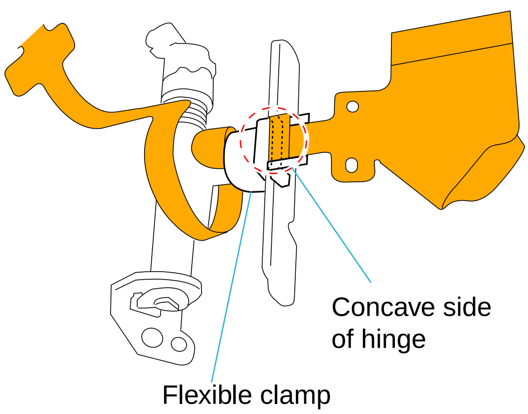
① Fold dotted line parts of the FP-659 flexible board as shown in figure.



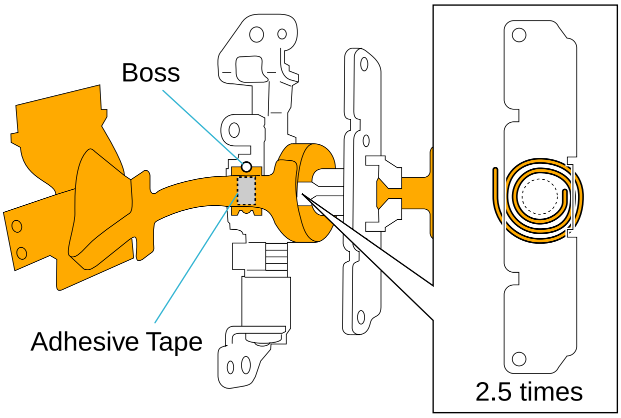
② Pass FP-659 flexible board through the flexible clamp as shown in figure.



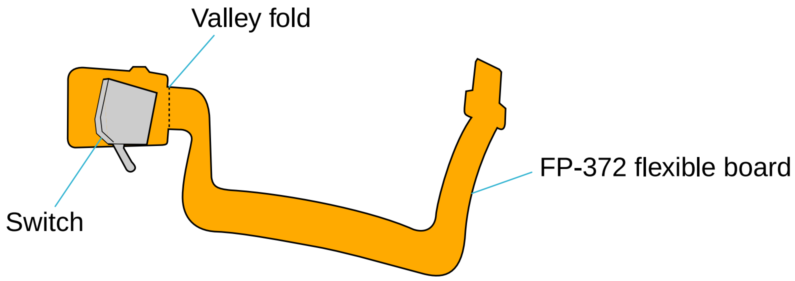
③ Install the flexible clamp in the hinge assy as shown in figure.



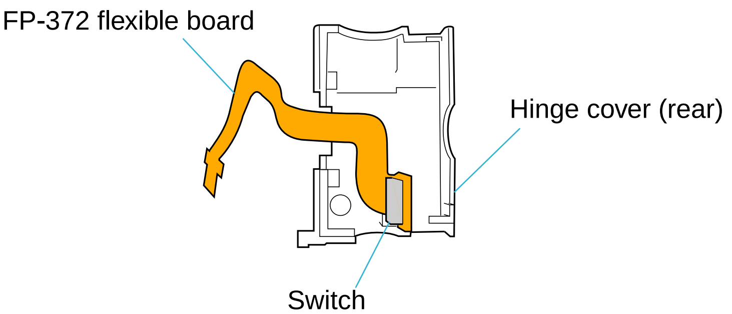
④ Roll the FP-659 flexible board 2.5 times in the hinge assy and put it on the hinge assy with the adhesive tape as shown in figure.



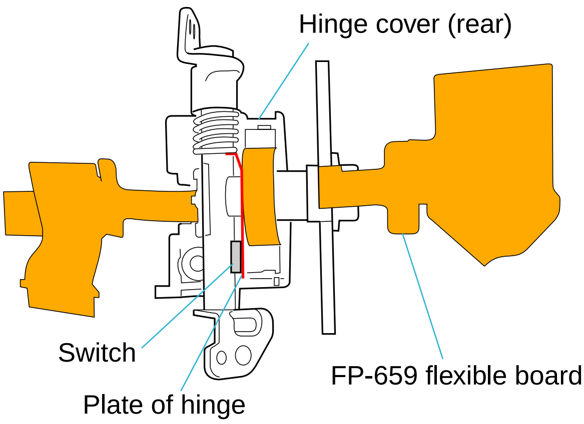
⑤ Fold dotted line parts of the FP-372 flexible board as shown in figure.

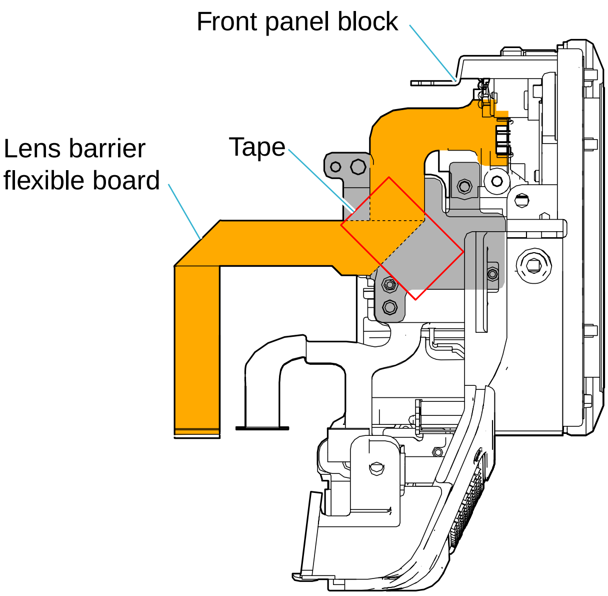


⑥ Install the FP-372 flexible board in the hinge cover (rear) as shown in figure.

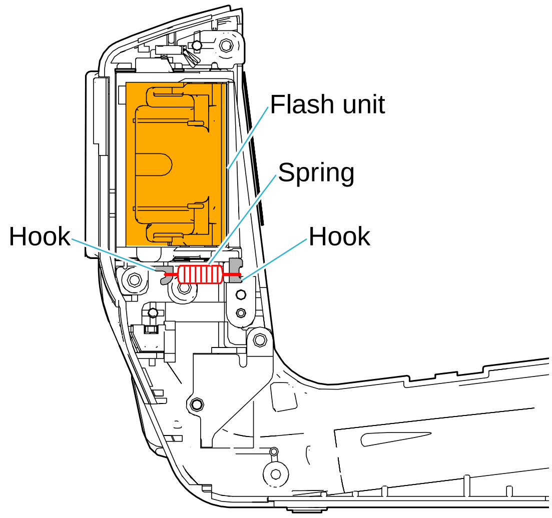


⑦ Install the hinge cover (rear) in the hinge assy as shown in figure.

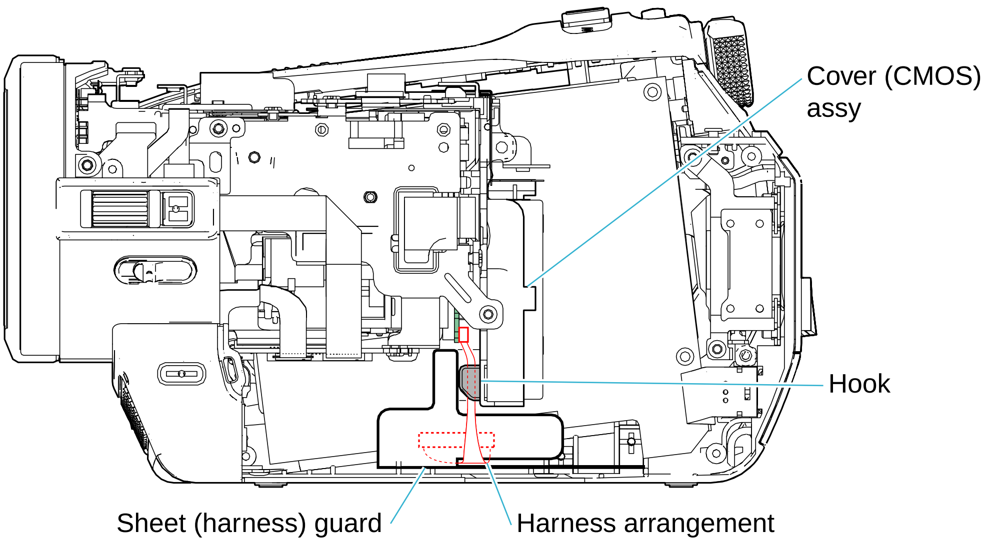




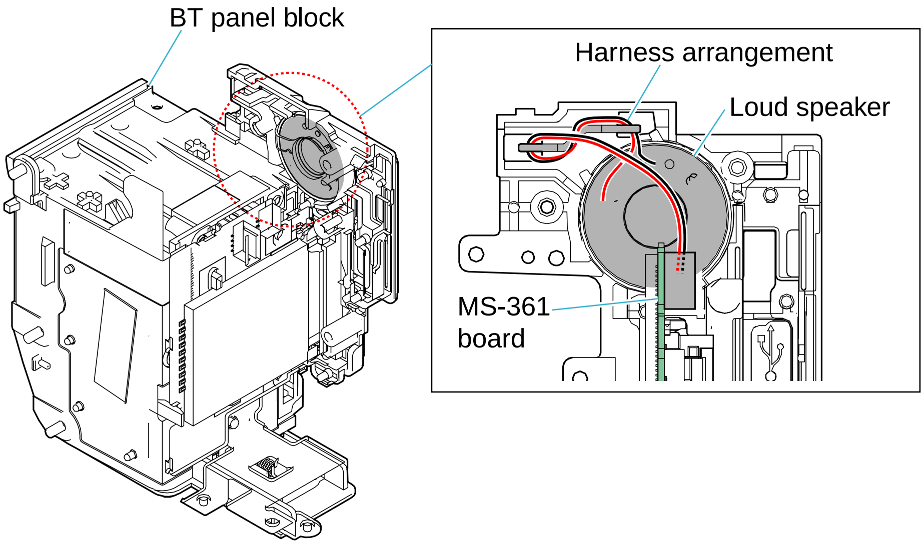
Front panel block
Lens barrier
flexible board
Tape



Flash unit
Spring
Hook
Hook



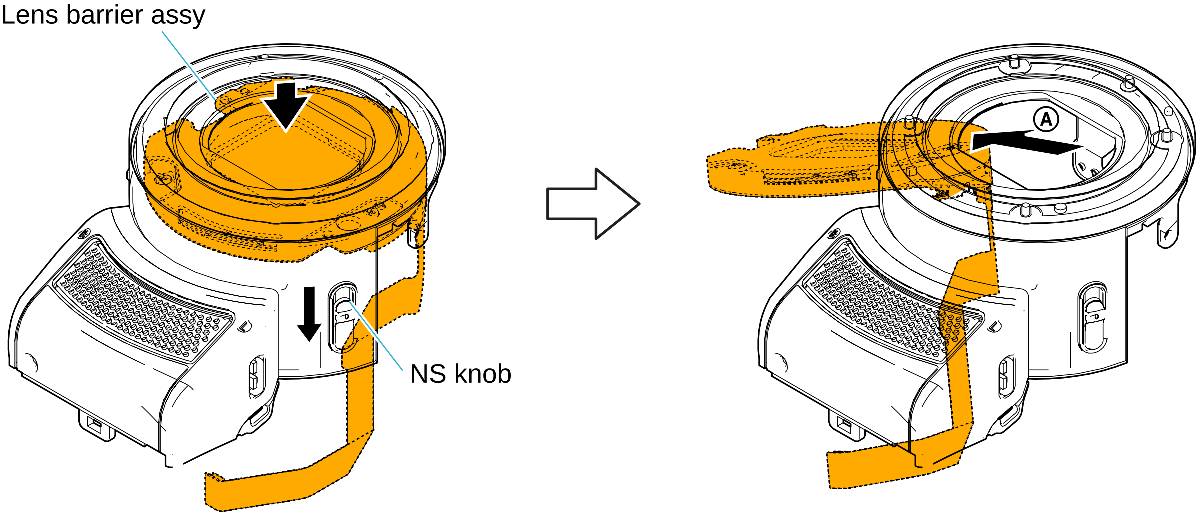
Cover (CMOS)
assy
Hook
Sheet (harness) guard
Harness arrangement



BT panel block
Harness arrangement
Loud speaker
MS-361
board

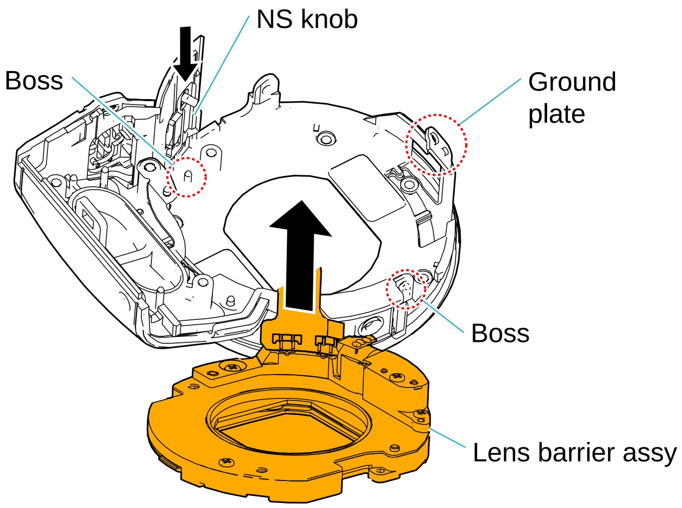
HOW TO REMOVE THE LENS BARRIER ASSY

- NS knob is adjusted to the turning OFF side.
- After the hand is affixed under the lens barrier assy, and the lens barrier assy is pushed on in parallel, it removes in the direction of the arrow Ⓐ as shown in figure.



HOW TO INSTALL THE LENS BARRIER ASSY

- NS knob is adjusted to the turning OFF side.
- The lens barrier assy is put in the diagonal to avoid the ground plate and the NS knob, and the boss is matched.



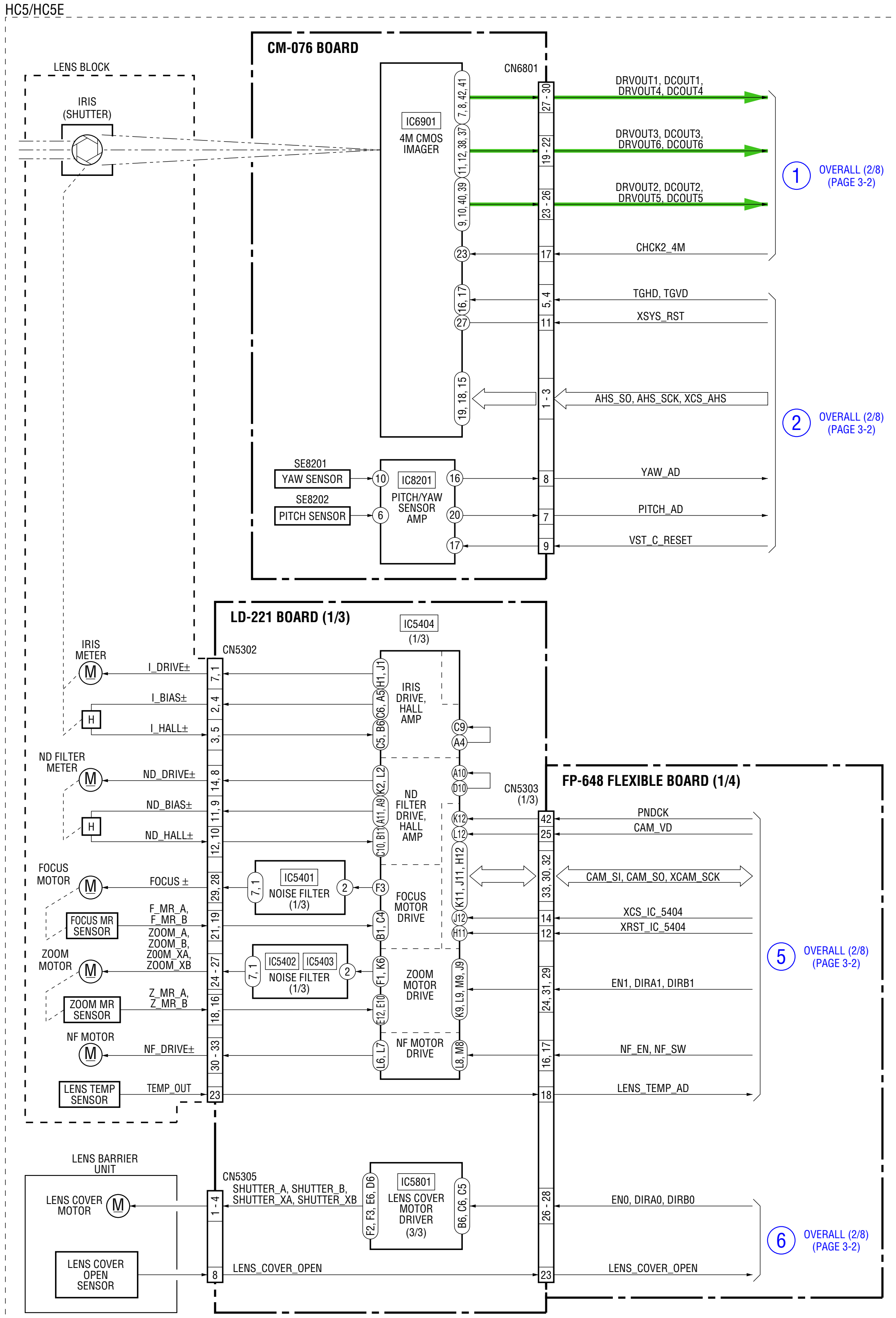
3. BLOCK DIAGRAMS

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/8)

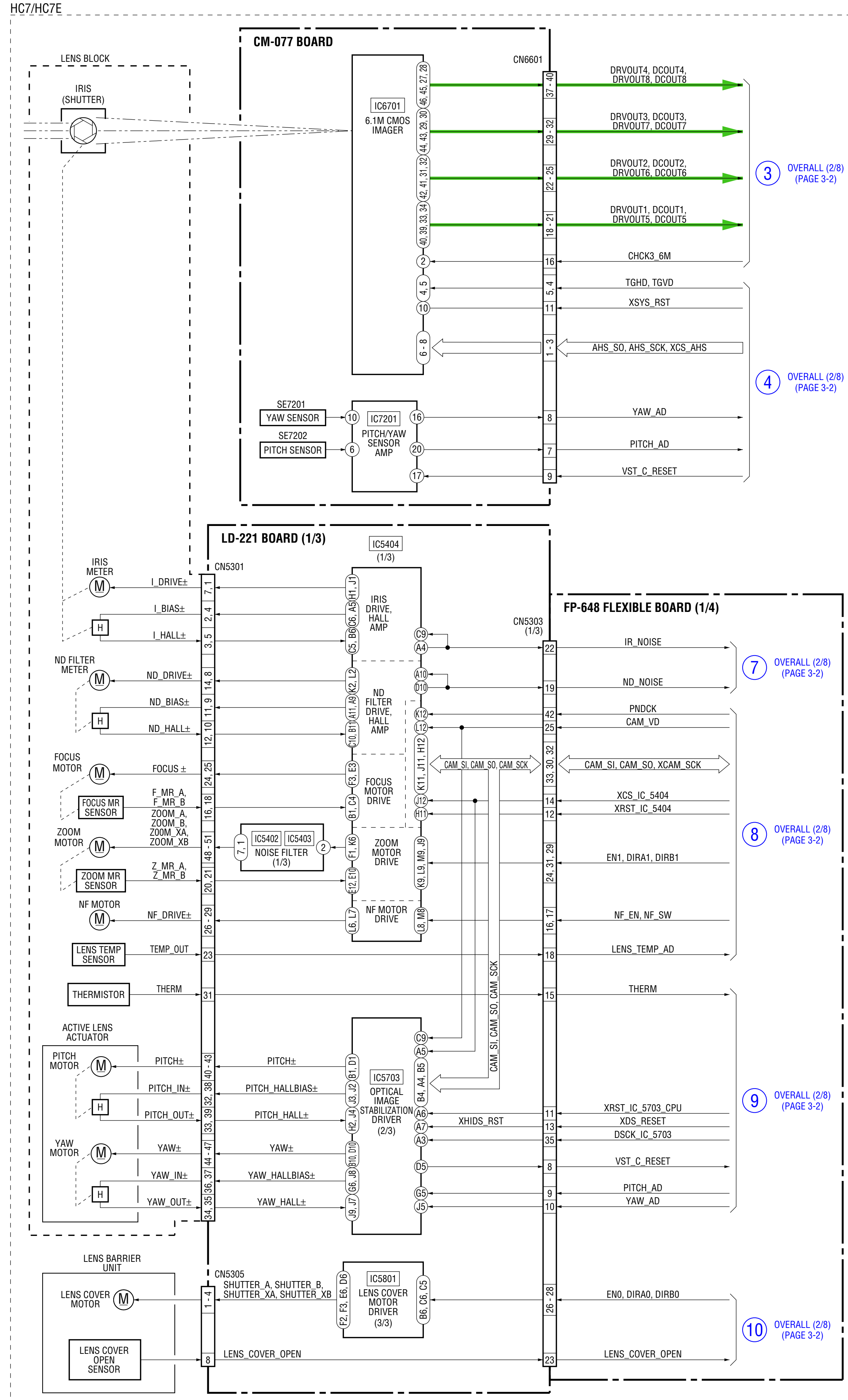
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

HC5/HC5E



05

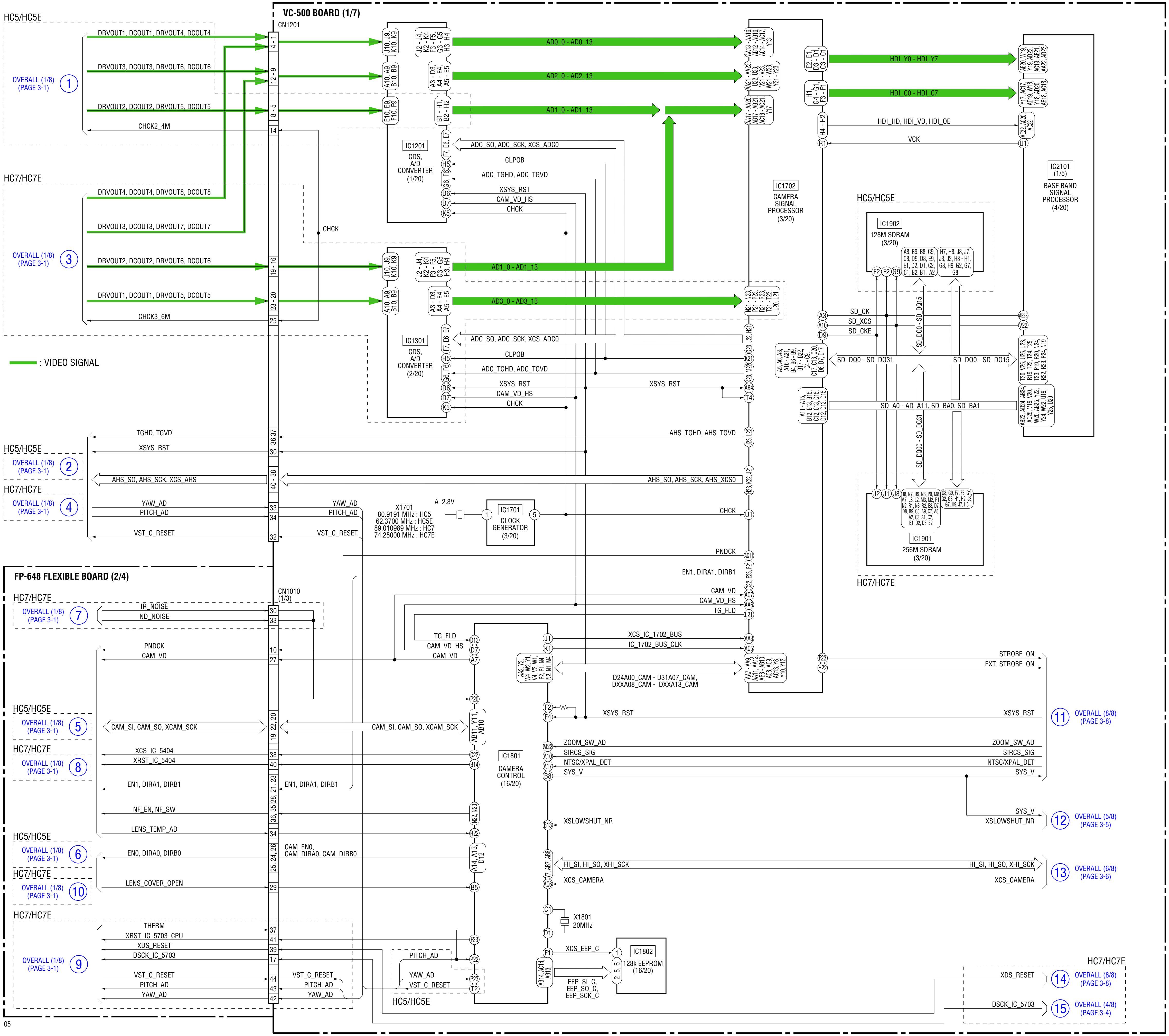
HC7/HC7E



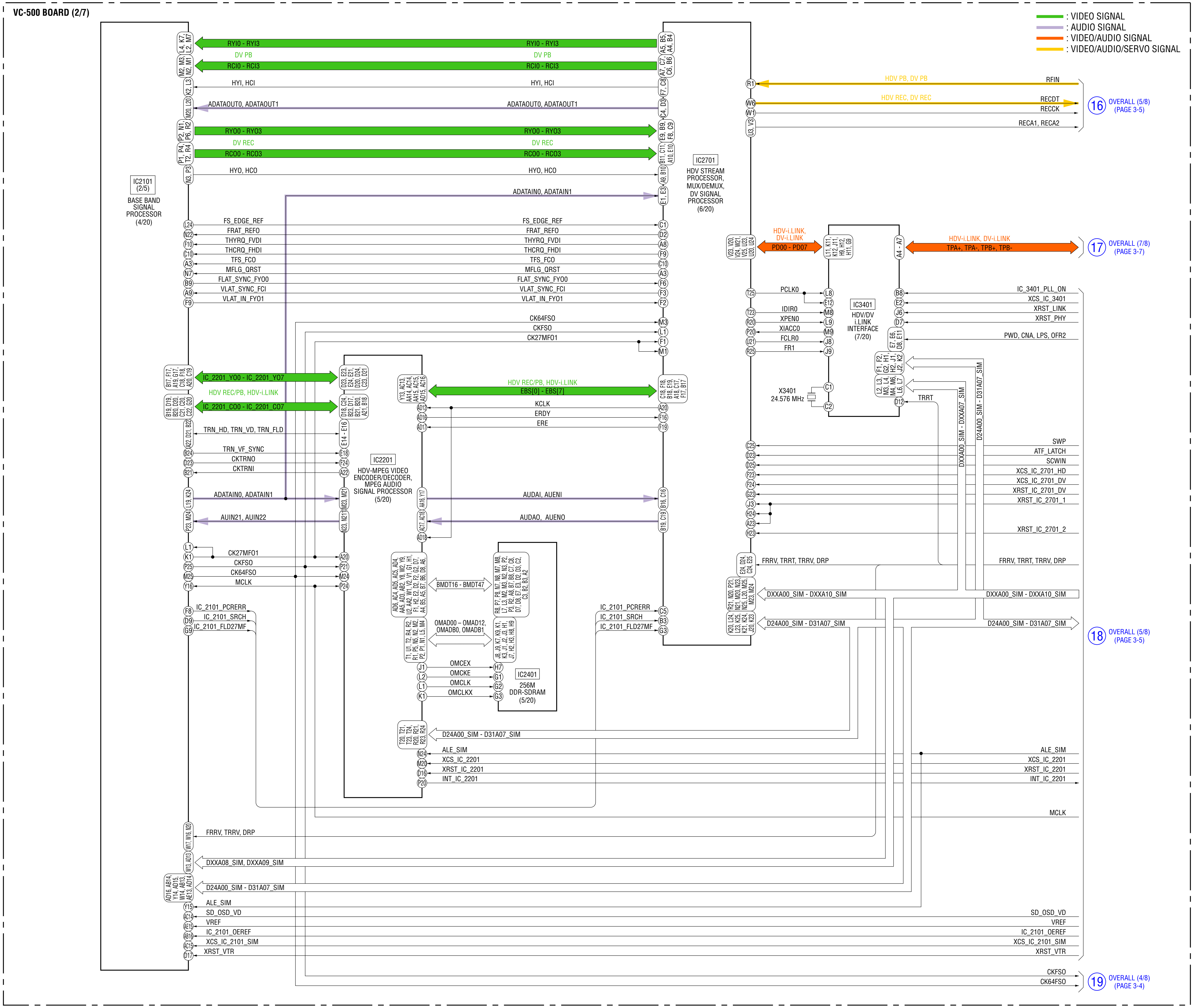
: VIDEO SIGNAL

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

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

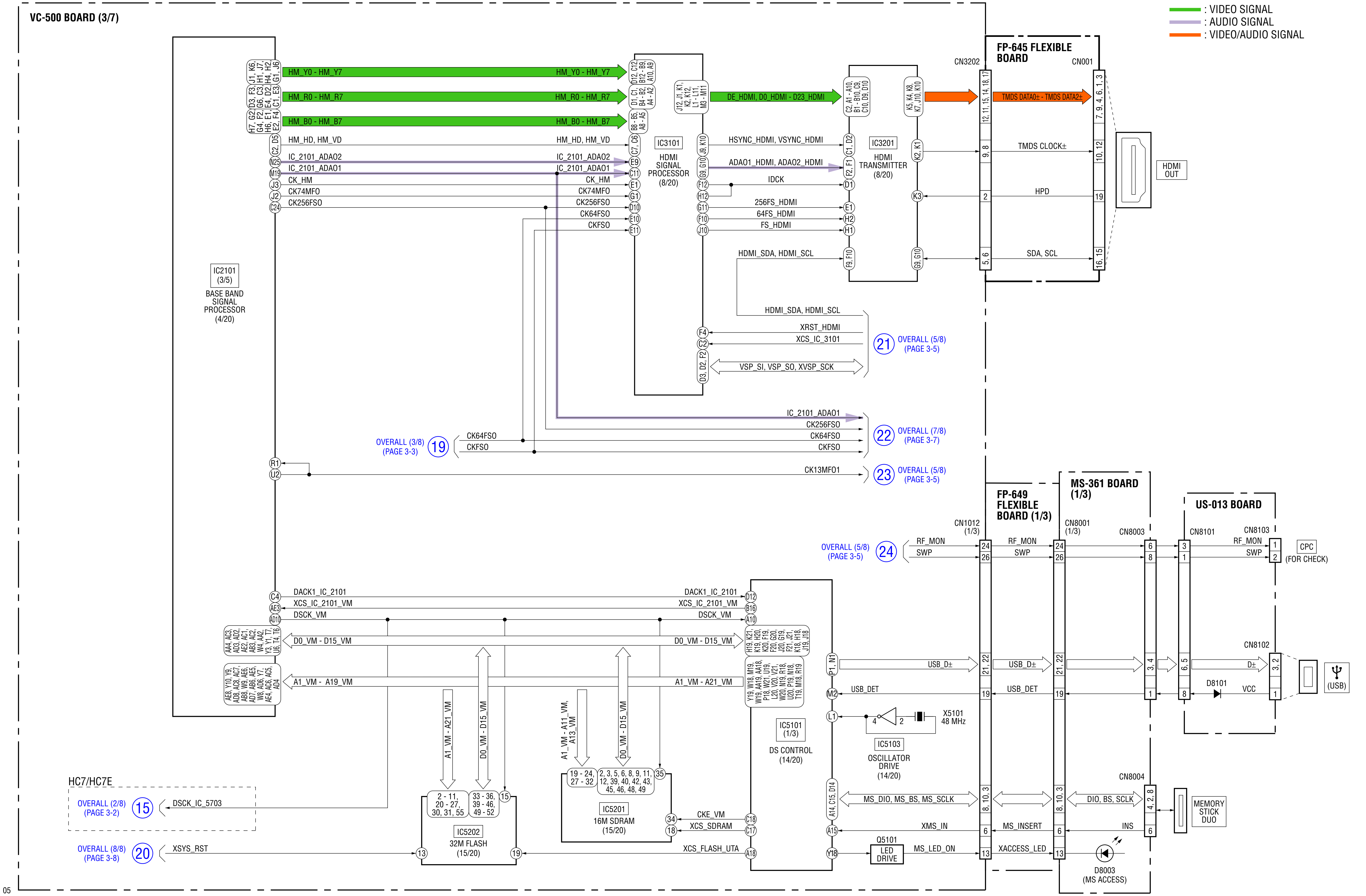


( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



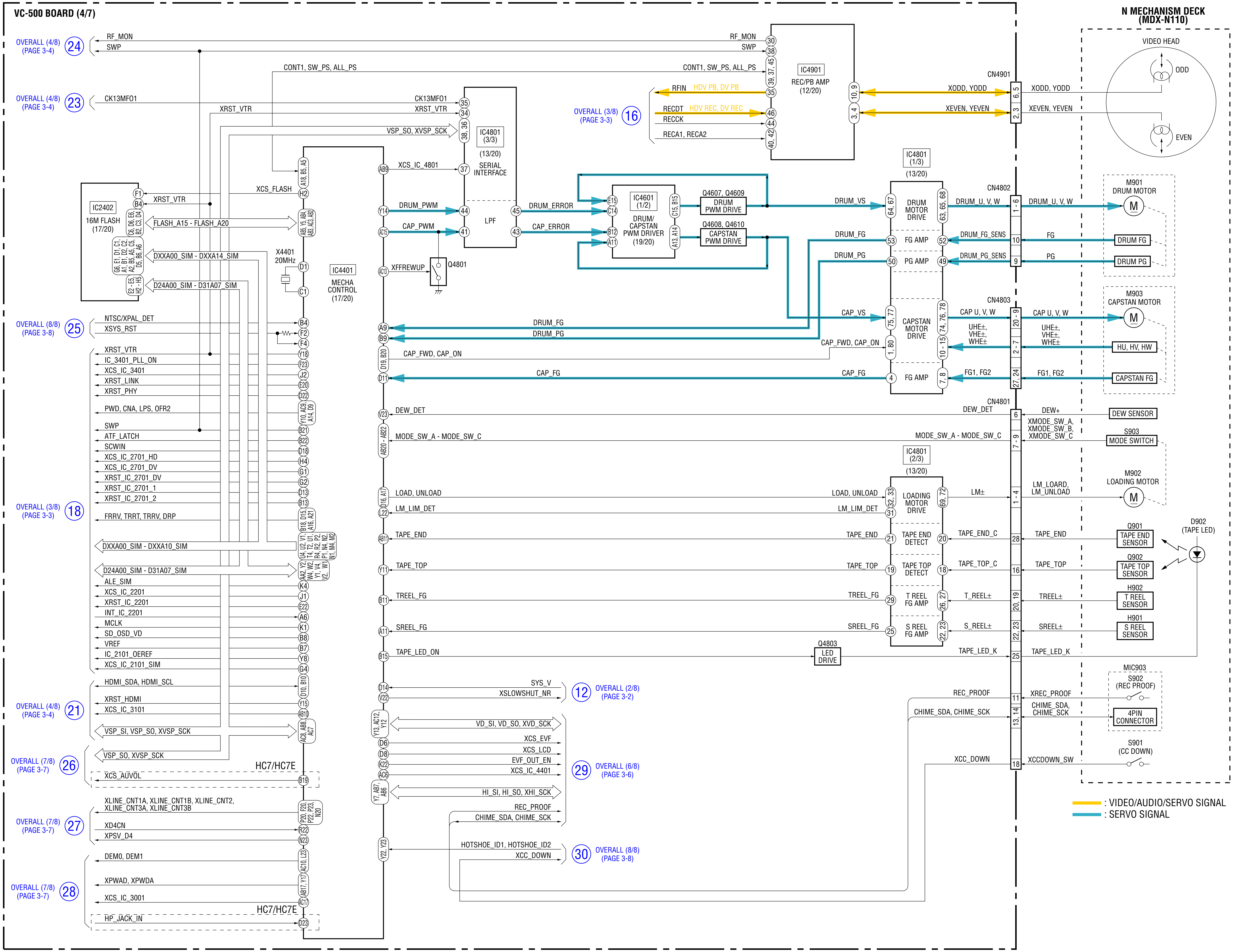
3-4. OVERALL BLOCK DIAGRAM (4/8)

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



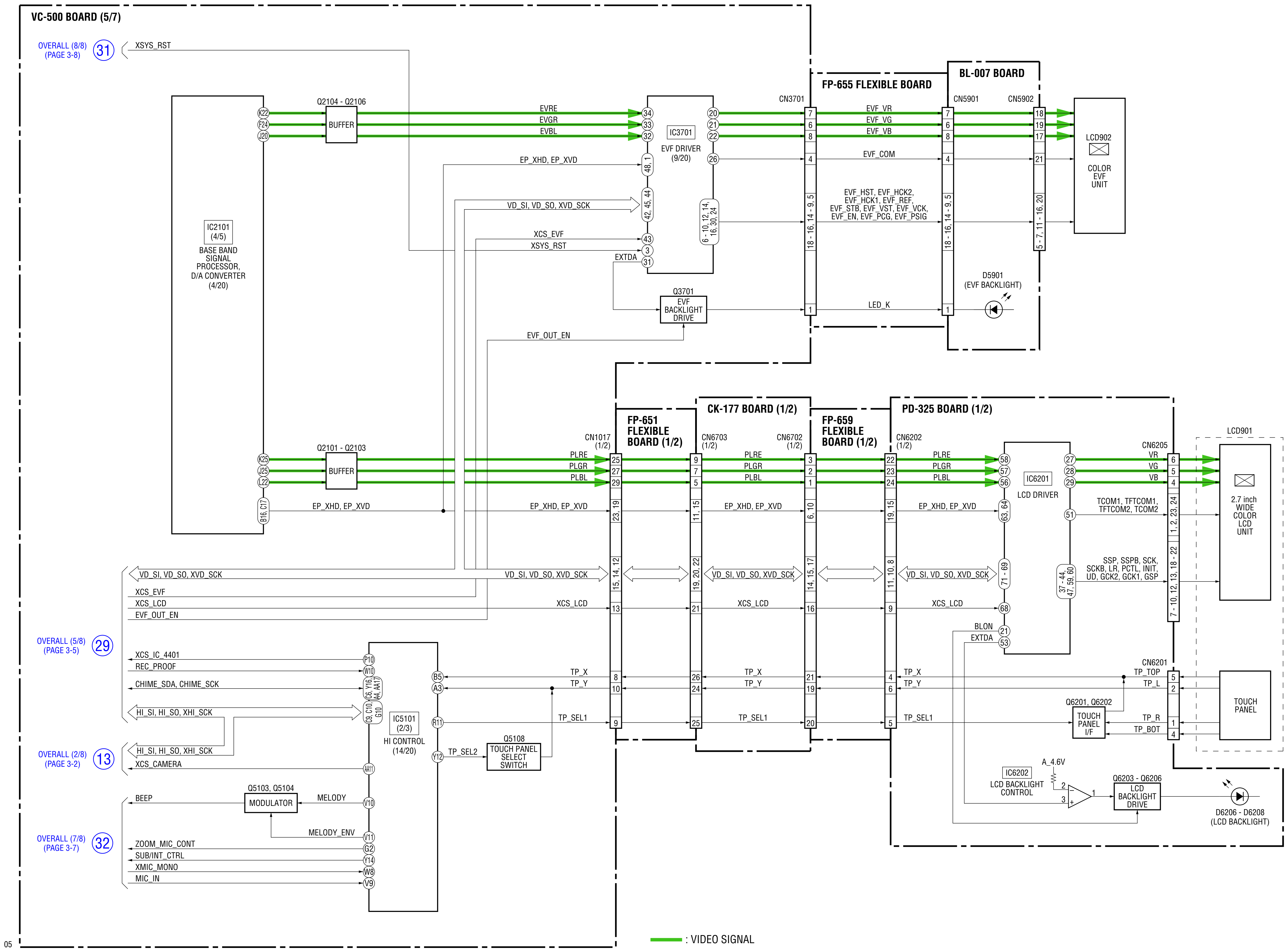
3-5. OVERALL BLOCK DIAGRAM (5/8)

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



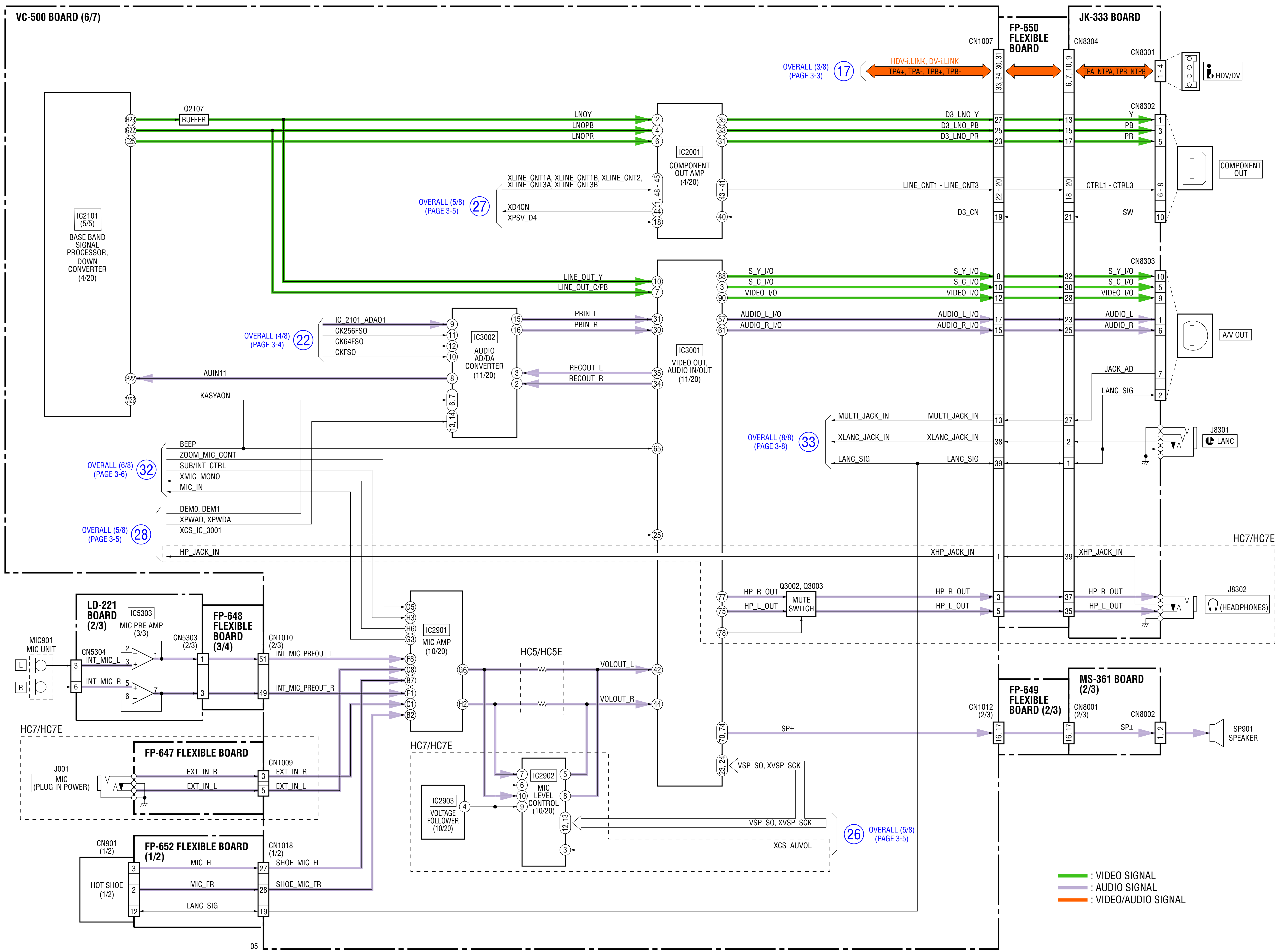
3-6. OVERALL BLOCK DIAGRAM (6/8)

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



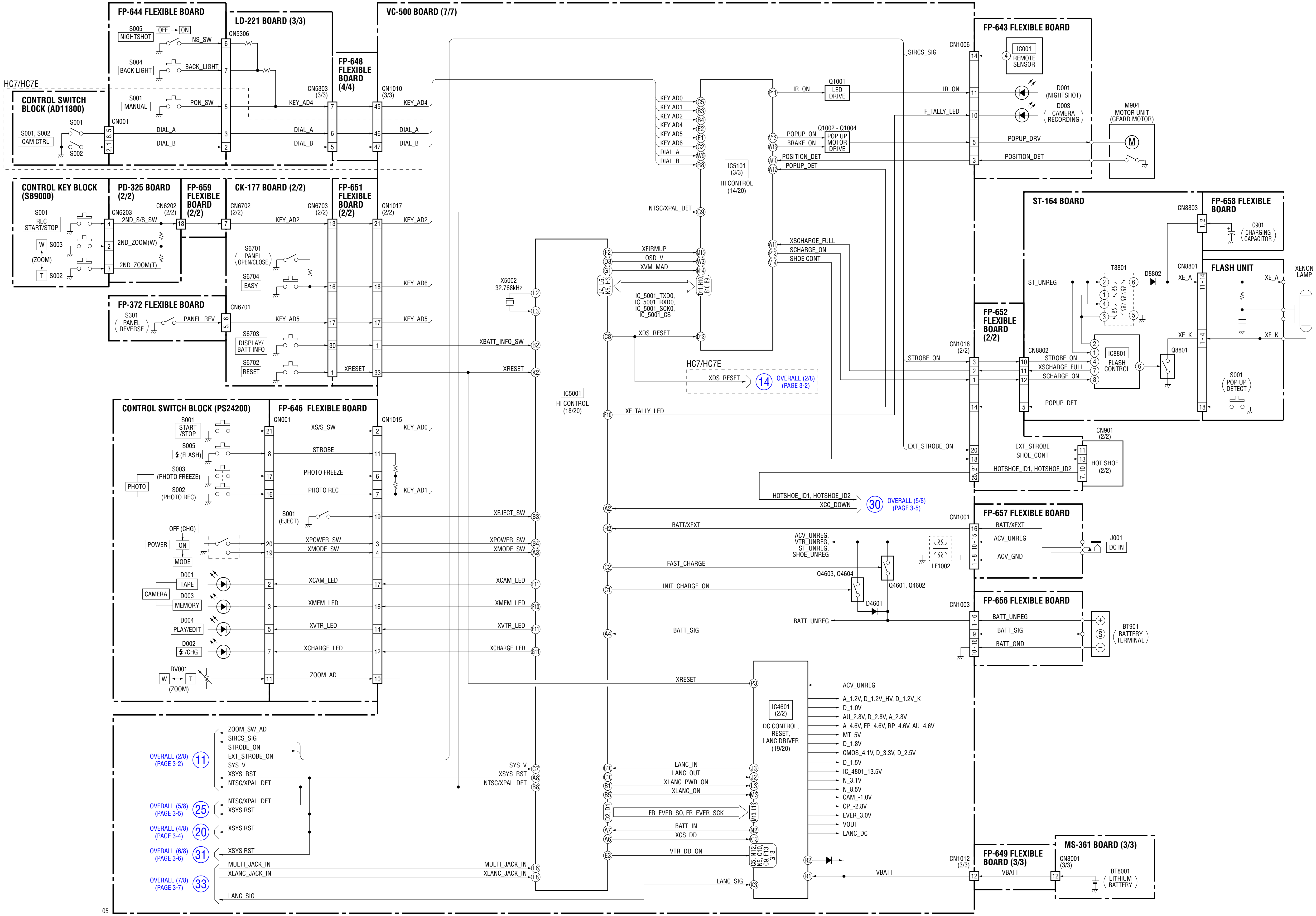
3-7. OVERALL BLOCK DIAGRAM (7/8)

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



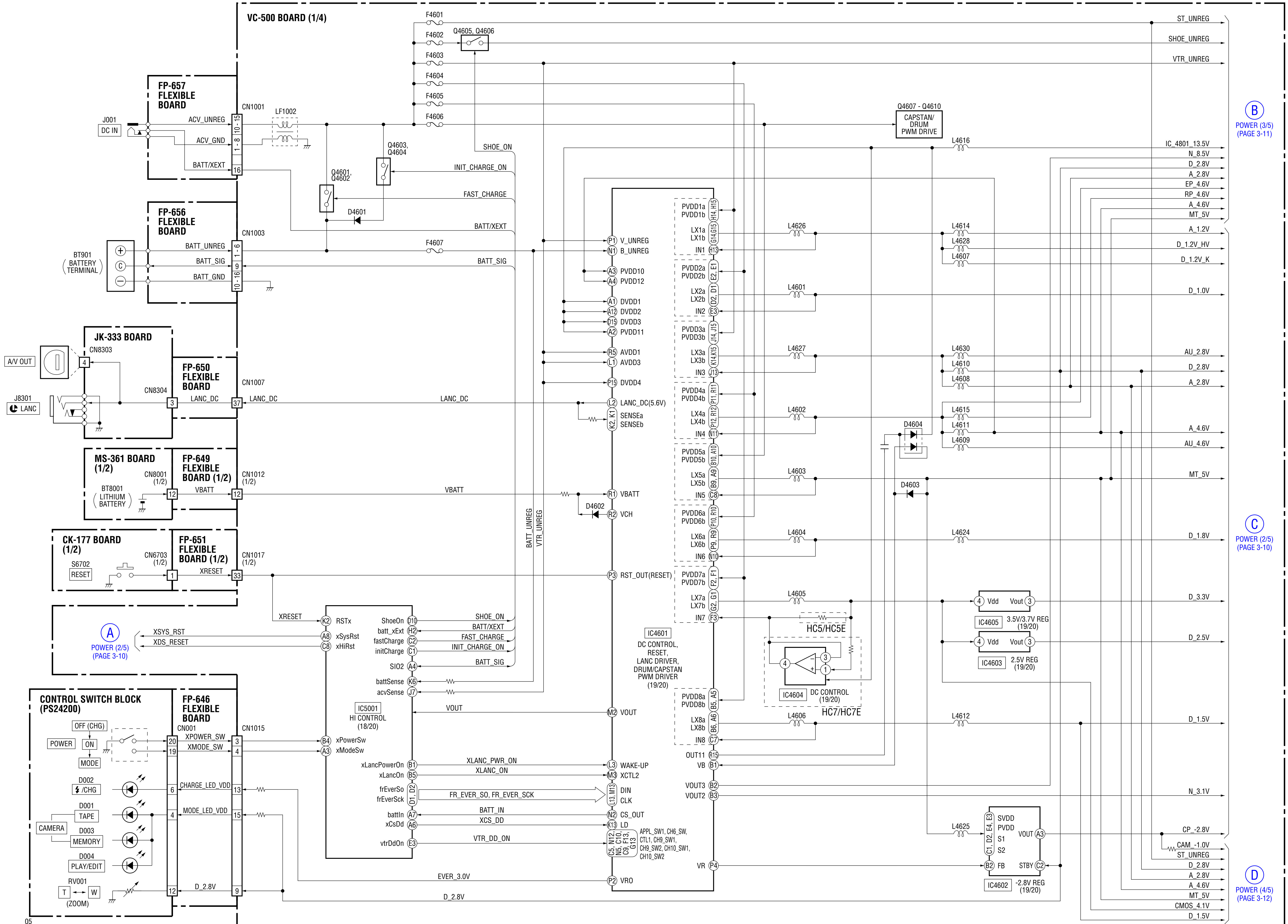
3-8. OVERALL BLOCK DIAGRAM (8/8)

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



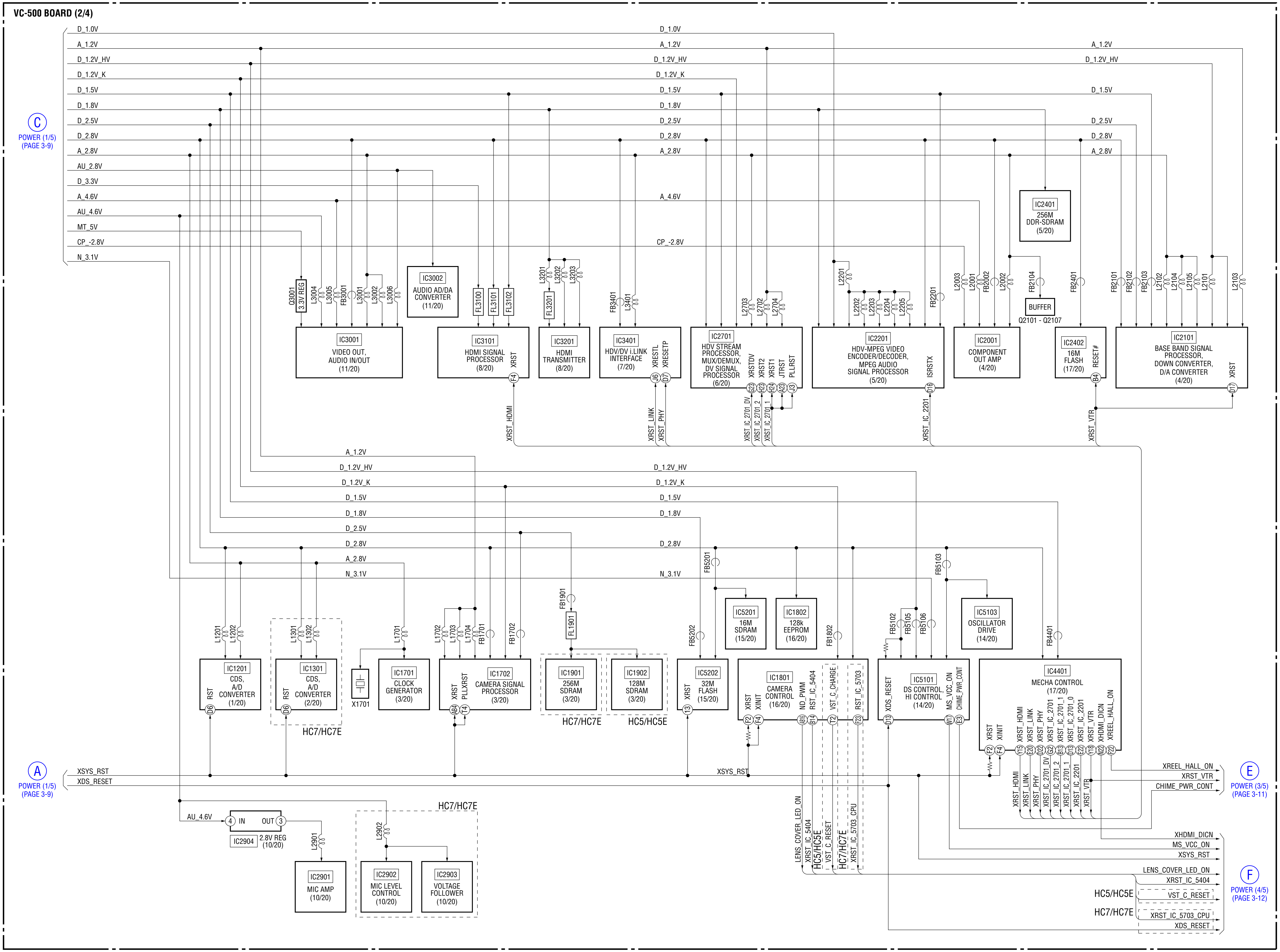
3-9. POWER BLOCK DIAGRAM (1/5)

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



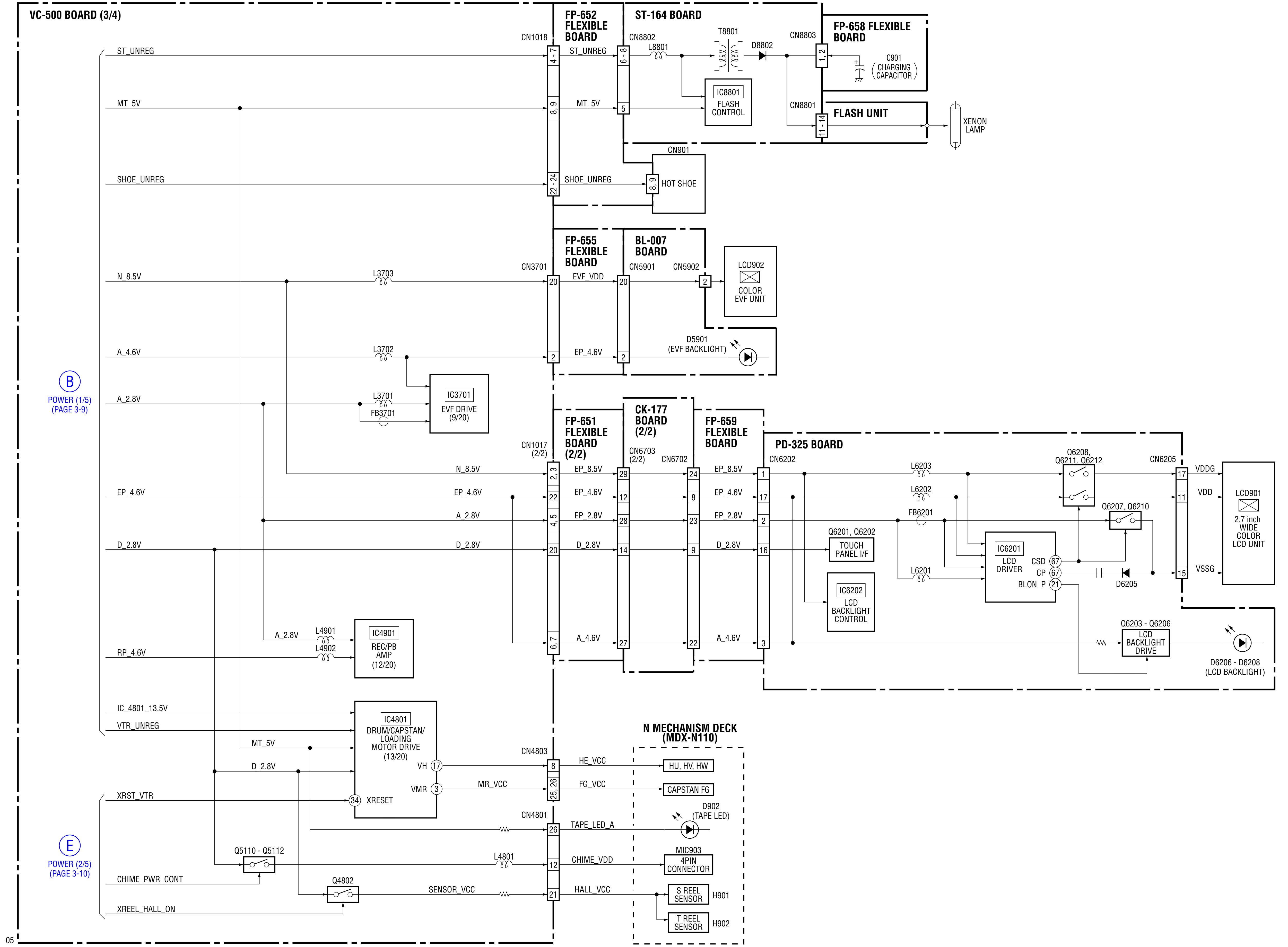
3-10. POWER BLOCK DIAGRAM (2/5)

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



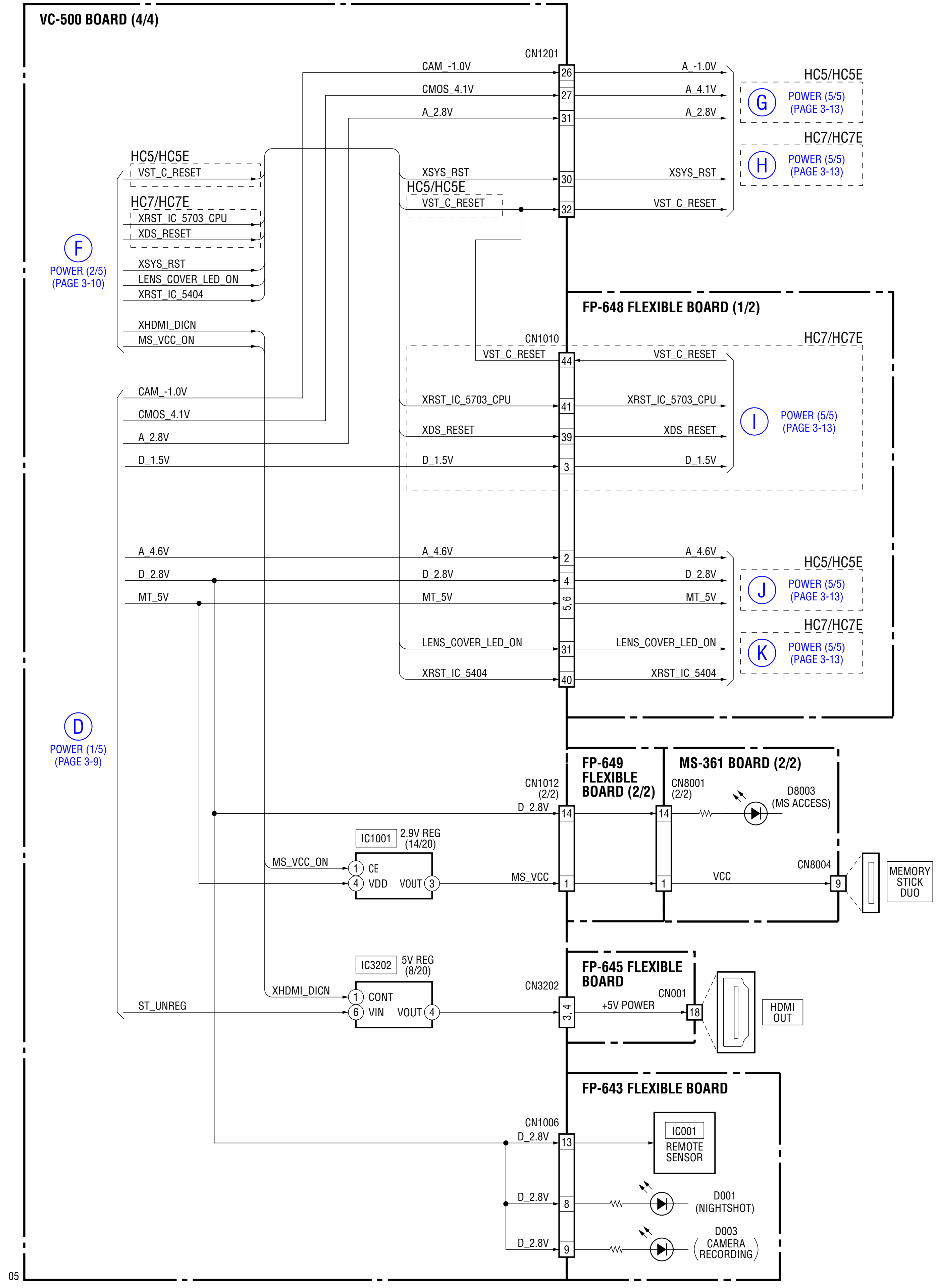
3-11. POWER BLOCK DIAGRAM (3/5)

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



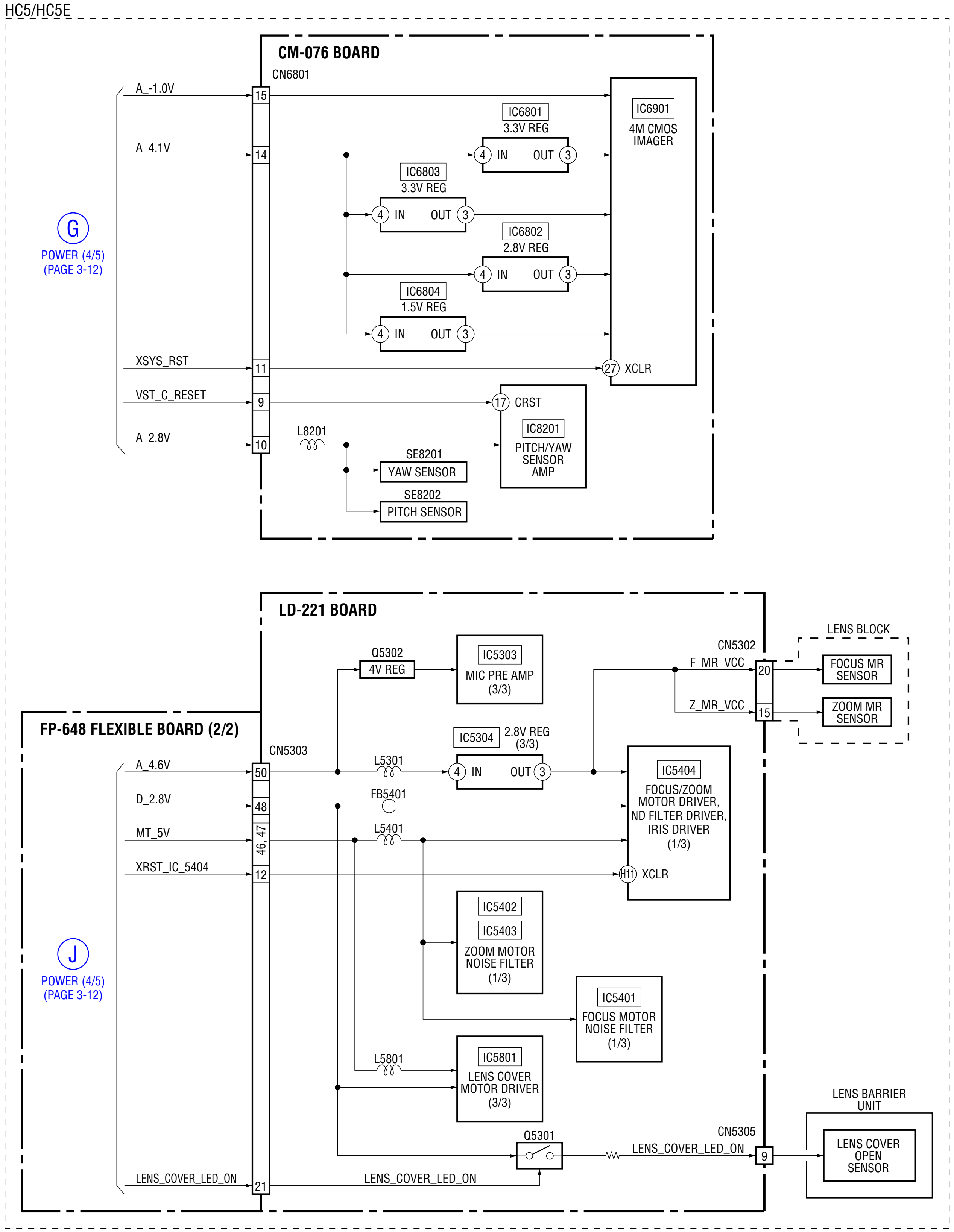
3-12. POWER BLOCK DIAGRAM (4/5)

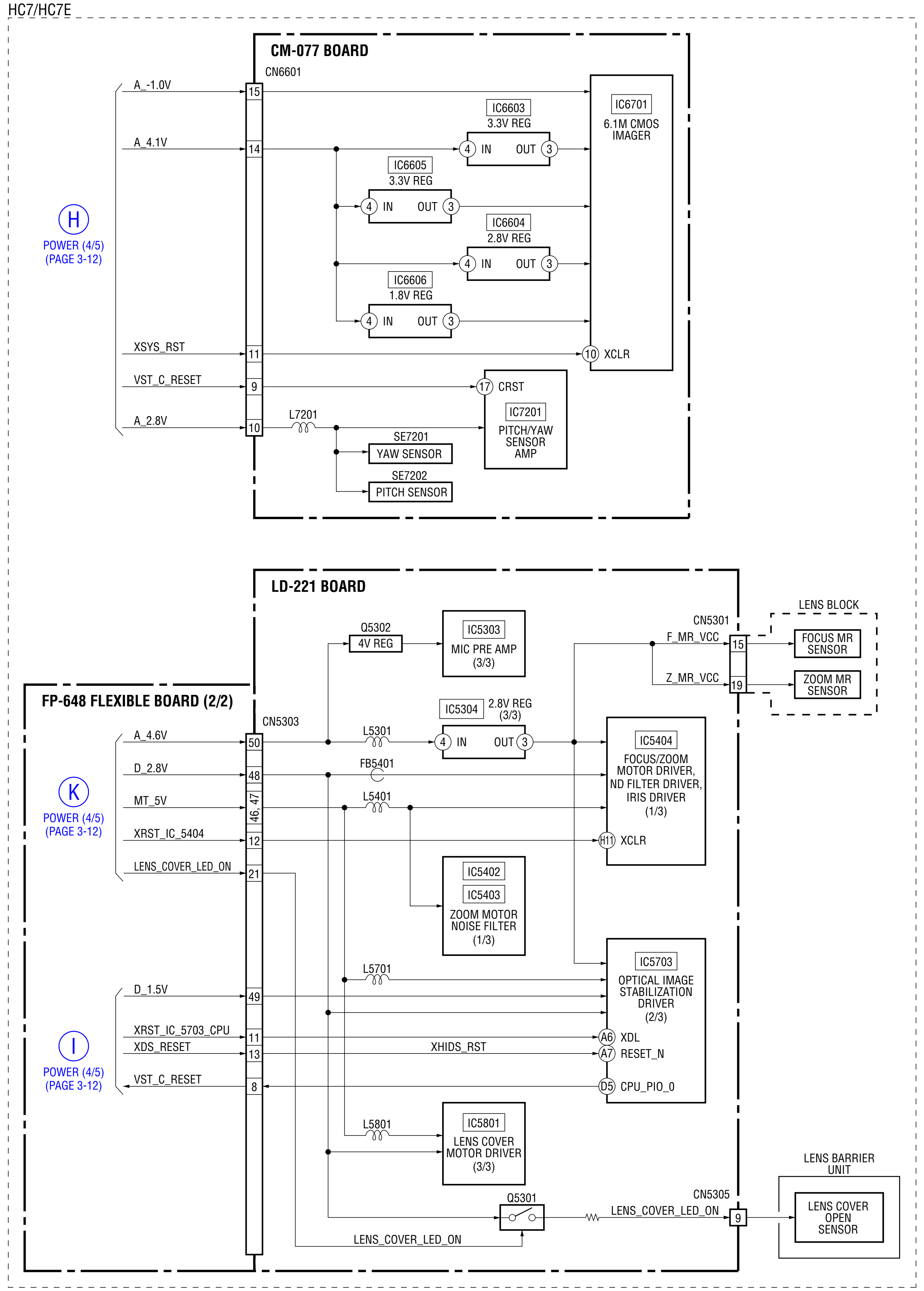
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



3-13. POWER BLOCK DIAGRAM (5/5)

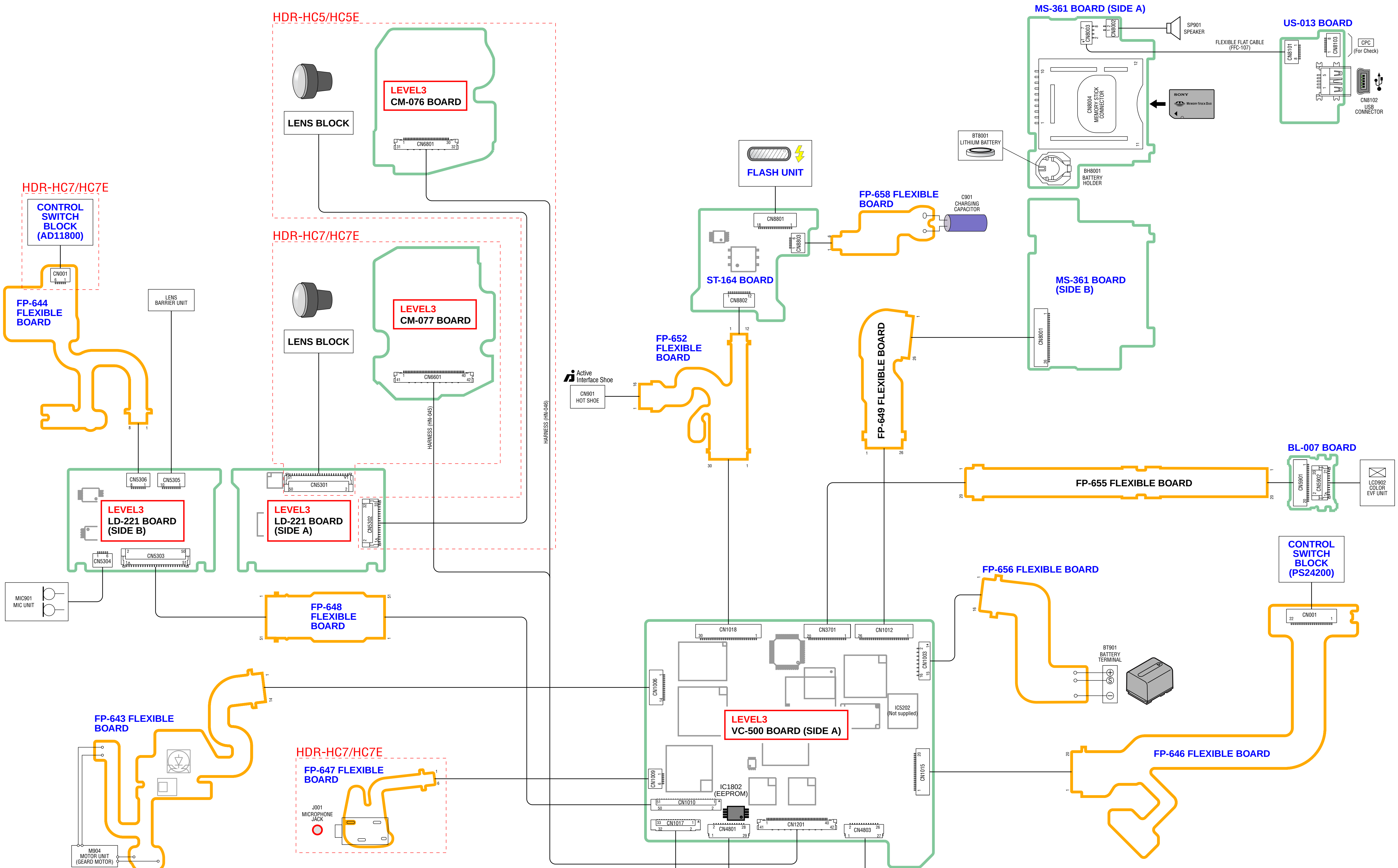
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.





4-1. FRAME SCHEMATIC DIAGRAMS

FRAME SCHEMATIC DIAGRAM (1/2)

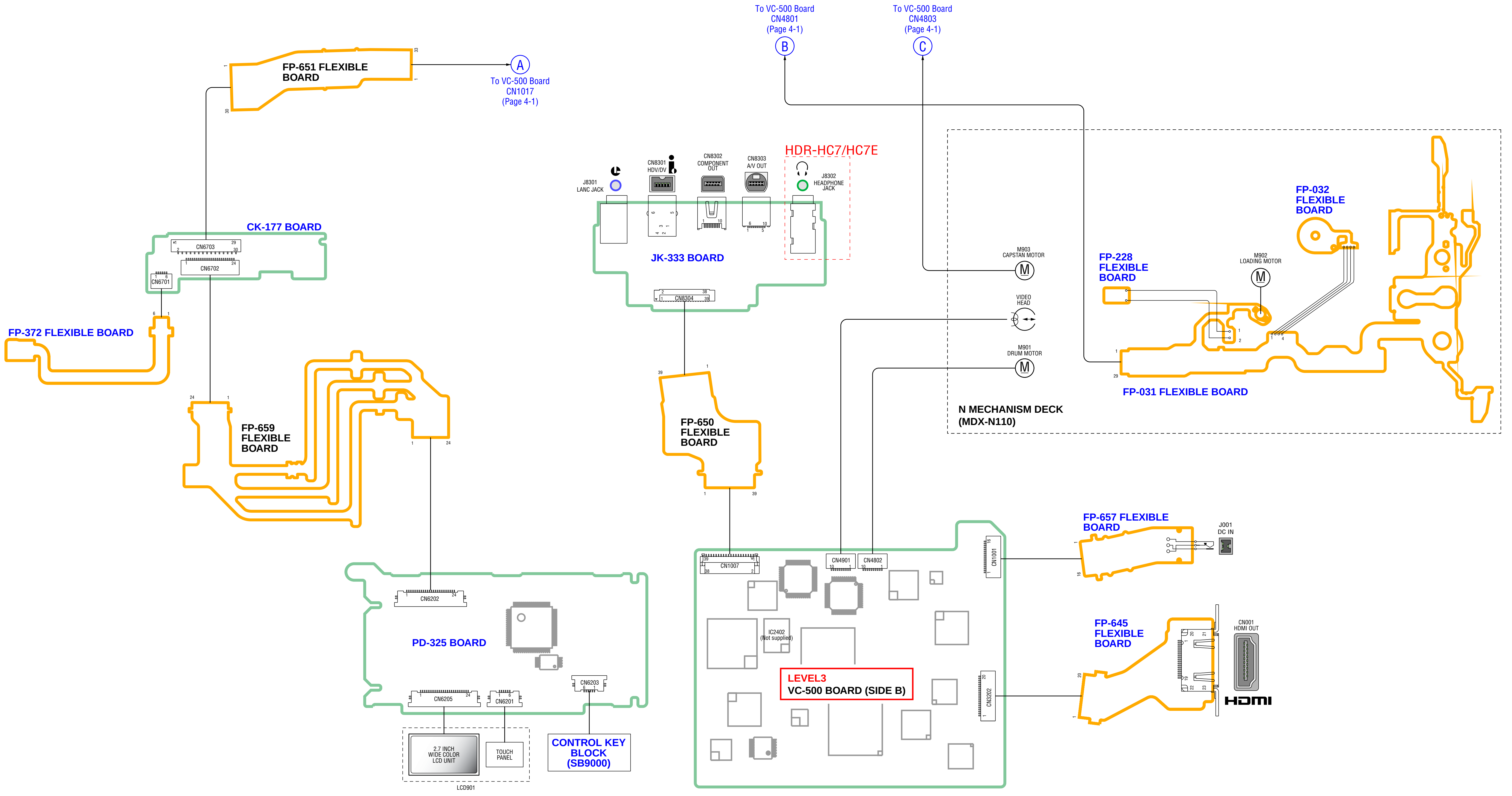


A
To CK-177 Board CN6703 (through the FP-651 flexible board) (Page 4-2)

B
To FP-031 flexible board (Page 4-2)

C
To M903 CAPSTAN MOTOR (Page 4-2)

FRAME SCHEMATIC DIAGRAM (2/2)



4-2. SCHEMATIC DIAGRAMS

Link

PD-325 BOARD (LCD DRIVE)	FP-650 FLEXIBLE BOARD (VC-JK CONNECTION)
CONTROL KEY BLOCK (SB9000)	FP-645 FLEXIBLE BOARD (HDMI CONNECTOR)
CK-177 BOARD (CONTROL SWITCH)	FP-647 FLEXIBLE BOARD: HC7/HC7E (MIC JACK)
FP-372 FLEXIBLE BOARD (PANEL REVERSE)	BL-007 BOARD (EVF, EVF BACKLIGHT)
FP-651 FLEXIBLE BOARD (VC-CK CONNECTION)	FP-643 FLEXIBLE BOARD (REMOTE SENSOR, STROBE POP UP)
FP-659 FLEXIBLE BOARD (CK-PD CONNECTION)	FP-656 FLEXIBLE BOARD (BATTERY TERMINAL)
ST-164 BOARD (FLASH DRIVE)	FP-657 FLEXIBLE BOARD (DC IN)
FP-652 FLEXIBLE BOARD (HOT SHOE, VC-ST CONNECTION)	FP-648 FLEXIBLE BOARD (VC-LD CONNECTION)
FP-658 FLEXIBLE BOARD (CHARGING CAPACITOR)	FP-644 FLEXIBLE BOARD (CONTROL SWITCH)
FLASH UNIT	CONTROL SWITCH BLOCK (AD11800) : HC7/HC7E
MS-361 BOARD (MS CONNECTOR)	FP-646 FLEXIBLE BOARD (EJECT, VC-CTRL SW CONNECTION)
US-013 BOARD (USB CONNECTOR)	CONTROL SWITCH BLOCK (PS24200)
JK-333 BOARD (A/V, COMPONENT, HDV/DV CONNECTOR)	FP-031, FP-032, FP-228 FLEXIBLE BOARD (MECHANISM BLOCK)

COMMON NOTE FOR SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS (ENGLISH)

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	L452
	22U	10UH
	TA A	2520

Kinds of capacitor — TA; Case size — A; External dimensions (mm) — 2520

- 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

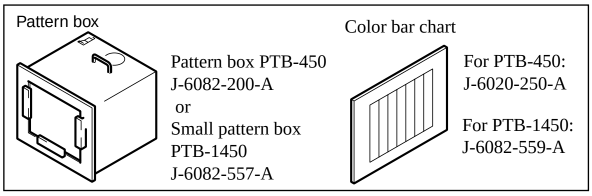
(Measuring conditions voltage and waveform)

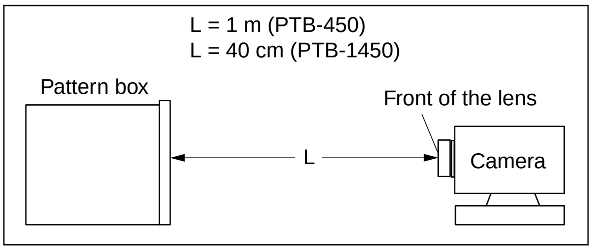
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Precautions for Replacement of Imager

- If the imager has been replaced, carry out all the adjustments for the camera section.
- As the imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

1. Connection





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

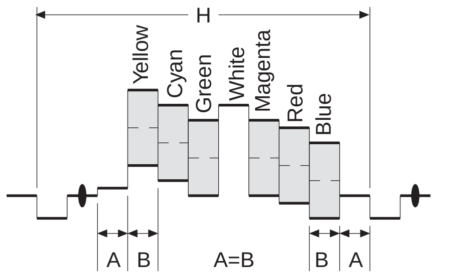


Fig. a (Video output terminal output waveform)

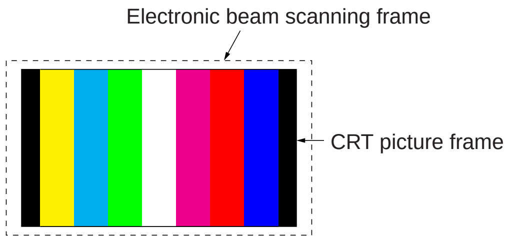


Fig.b (Picture on monitor TV)

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.

(JAPANESE)

回路図共通ノート
（他に必要なノートは各ブロックに記載してあります）

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

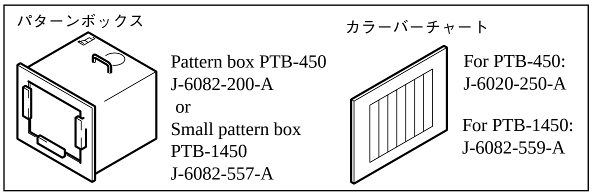
例	C 541	L 452
	22U	10UH
	TA　A	2520
	↑　↑	↑
	種類　ケースサイズ	外形寸法（mm）

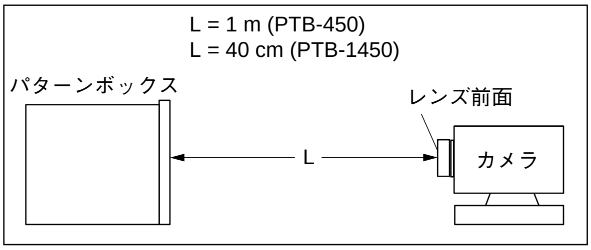
- 抵抗，コンデンサ，ICなど定数にXXがあるものは，使用していない事を示しています。このため，使用していない回路が記載されている事があります。
- ★印のある部品は，機種などにより異なりますので機能別マウント一覧表を参照してください。
- 可変抵抗と半固定抵抗で，B特性の表示を省略。
- 信号名表記について，下記のような場合があります。
  XEDIT → $\overline{\text{EDIT}}$　　PB/XREC → PB/$\overline{\text{REC}}$
- は不燃性抵抗。
- はヒューズ抵抗。
- はパネル表示名称。
- はB＋ライン。
- はB－ライン。
- はBライン（＋，－）の入出力方向を示す。
- は調整名称。
- は未使用回路。

【電圧・波形測定条件ノート】
- 電圧値及び信号波形はパターンボックスのカラーバーチャートを被写体としたときの測定点対アース間の参考値。
  （デジタルマルチメータ；入力インピーダンス　DC10MΩ使用）
- 使用テスタの入力インピーダンスにより電圧値が多少異なります。

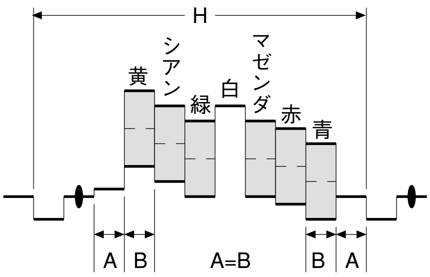
イメージャ交換時の注意
- イメージャを交換した場合は，カメラ部の全調整を行ってください。
- イメージャは構造上，静電気により破壊される恐れがあるため，MOS ICと同様に注意して取り扱ってください。
  また，受光部にはゴミの付着，および強い光がはいることのないように注意してください。

1. 接続図

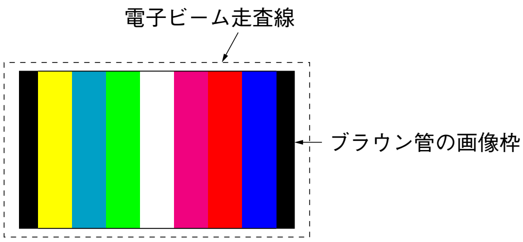




2. 図a及び図bの波形が得られるように画枠調整して下さい。



図a（映像入出力端子出力波形）

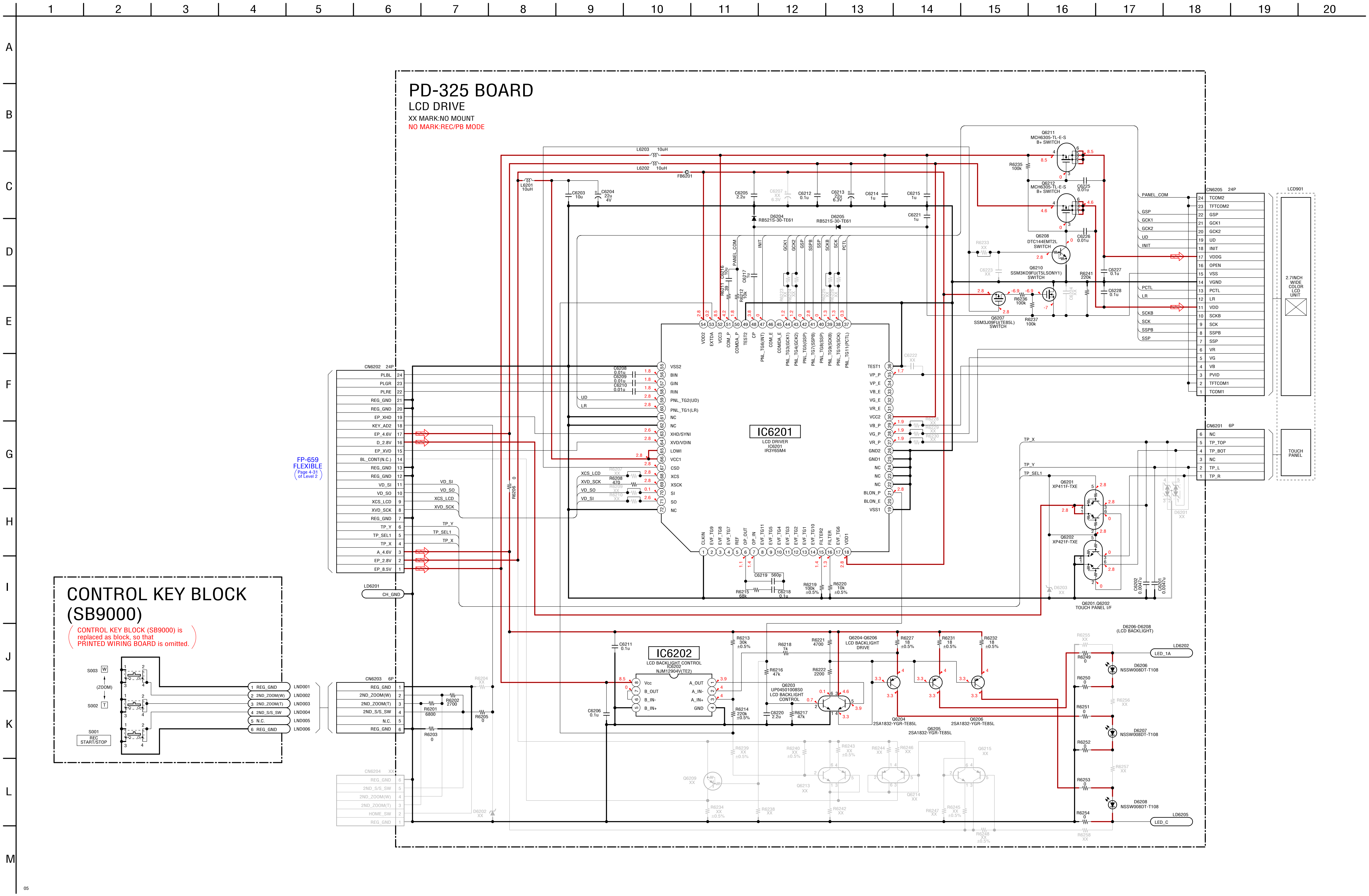


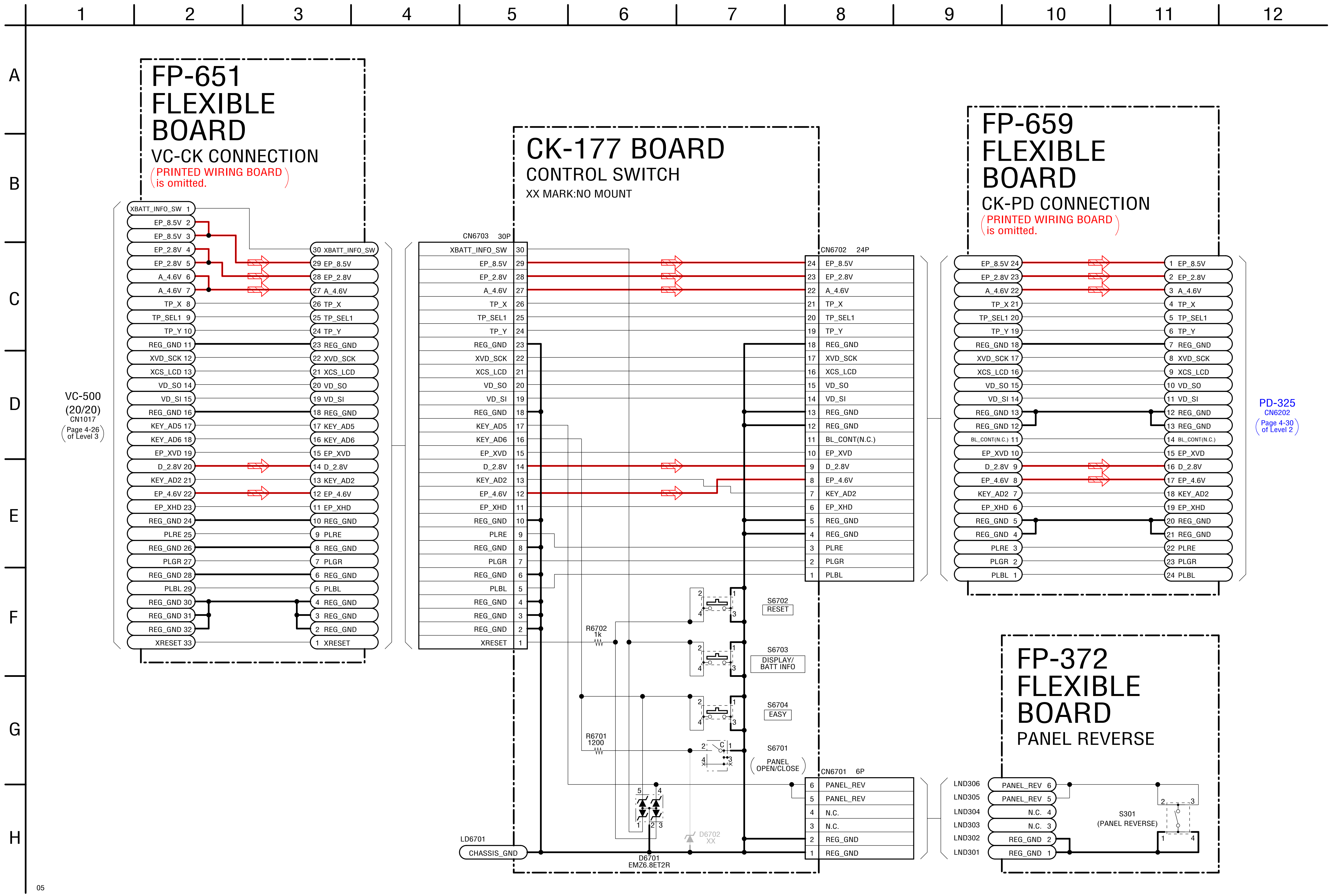
図b（テレビモニタの映像）

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

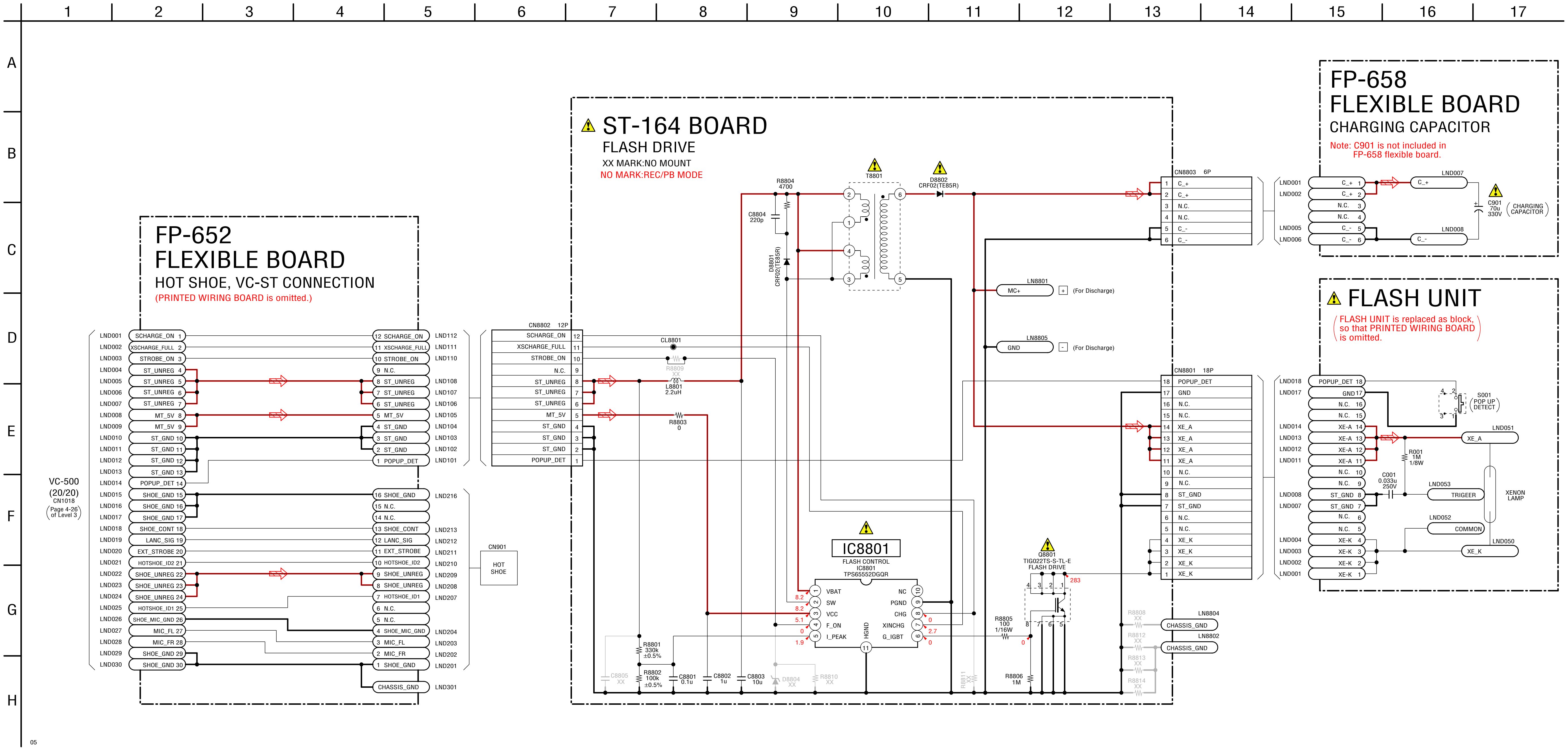
お願い
図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

Schematic diagrams of the CM-076, CM-077, VC-500 and LD-221 boards are not shown.
Pages 4-5 to 4-29 are not shown.

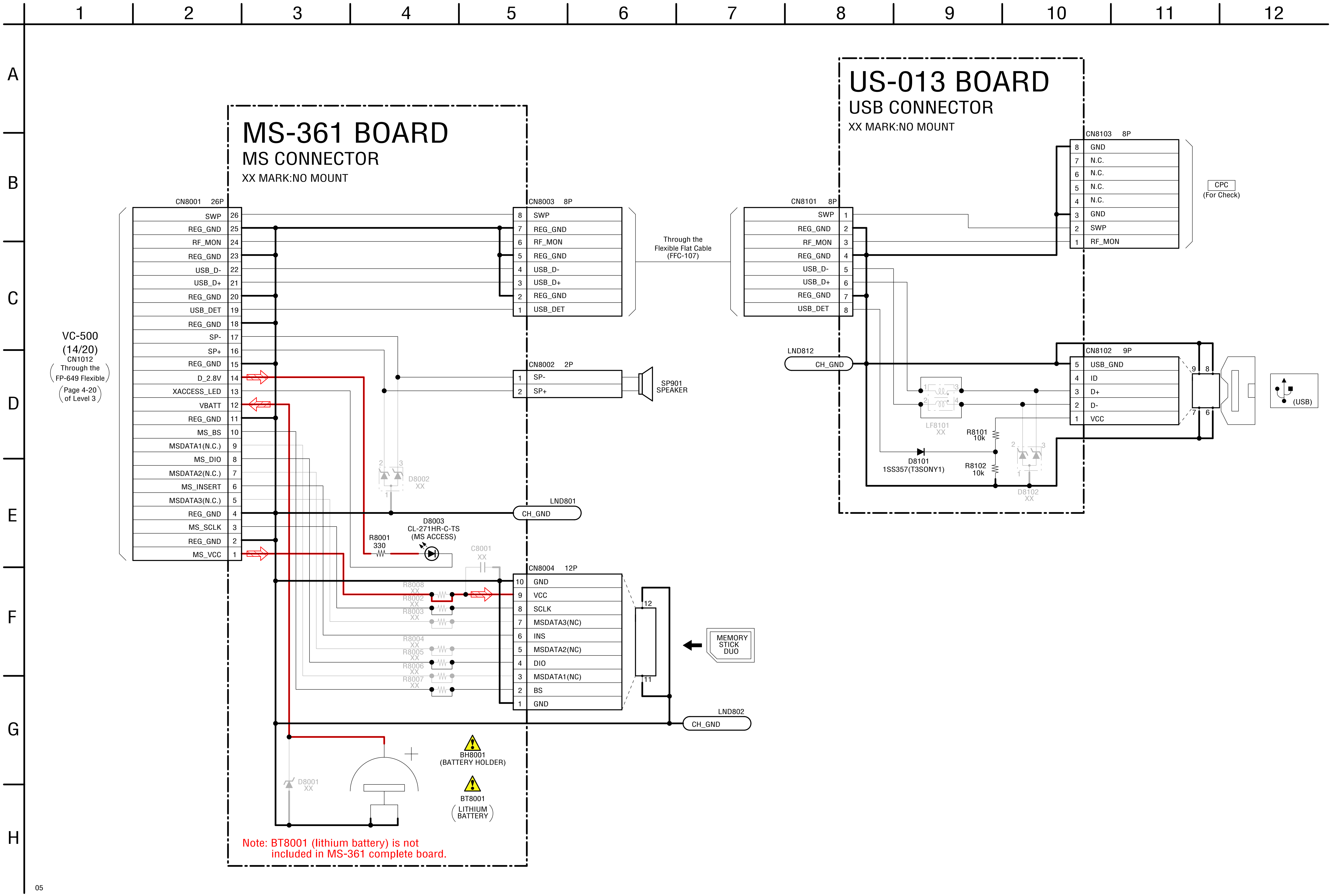

PD-325 BOARD
LCD DRIVE
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC6201
LCD DRIVER
IC6201
IR3Y65M4
IC6202
LCD BACKLIGHT CONTROL
IC6202
NJM12904V(TE2)
CONTROL KEY BLOCK
(SB9000)
CONTROL KEY BLOCK (SB9000) is
replaced as block, so that
PRINTED WIRING BOARD is omitted.
FP-659
FLEXIBLE
(Page 4-31 of Level 2)
2.7INCH WIDE COLOR LCD UNIT
TOUCH PANEL
Q6201,Q6202
TOUCH PANEL I/F
D6206-D6208
(LCD BACKLIGHT)
Q6204-Q6206
LCD BACKLIGHT DRIVE

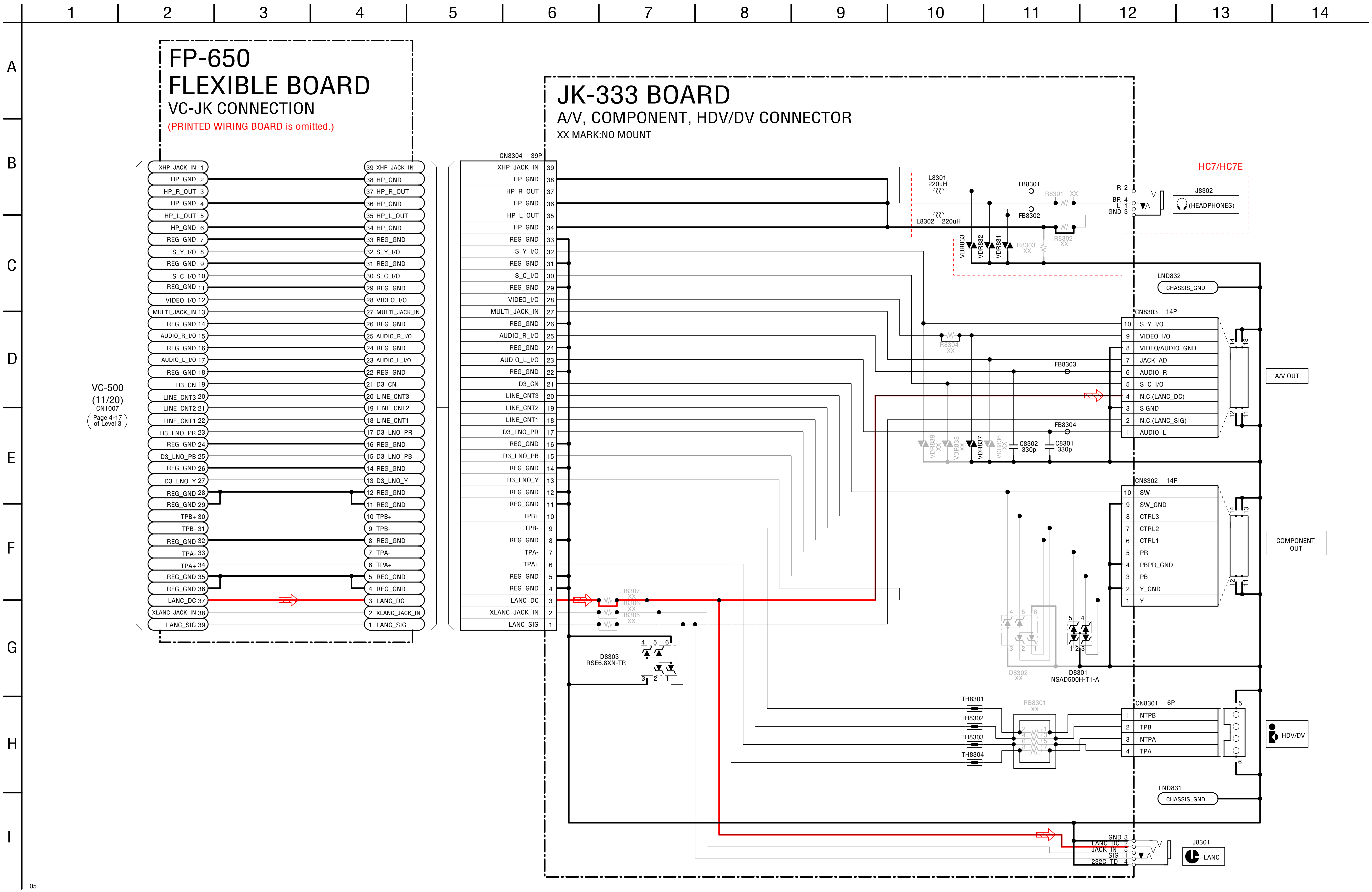

FP-651 FLEXIBLE BOARD
VC-CK CONNECTION
(PRINTED WIRING BOARD is omitted.)
CK-177 BOARD
CONTROL SWITCH
XX MARK:NO MOUNT
FP-659 FLEXIBLE BOARD
CK-PD CONNECTION
(PRINTED WIRING BOARD is omitted.)
FP-372 FLEXIBLE BOARD
PANEL REVERSE
VC-500 (20/20) CN1017 (Page 4-26 of Level 3)
PD-325 CN6202 (Page 4-30 of Level 2)
CN6703 30P
CN6702 24P
CN6701 6P
S6702 RESET
S6703 DISPLAY/ BATT INFO
S6704 EASY
S6701 PANEL OPEN/CLOSE
R6702 1k
R6701 1200
D6701 EMZ6.8ET2R
D6702 XX
LD6701 CHASSIS_GND
S301 (PANEL REVERSE)
05

• Refer to page 4-3 (English), 4-4 (Japanese) for mark ⚠.



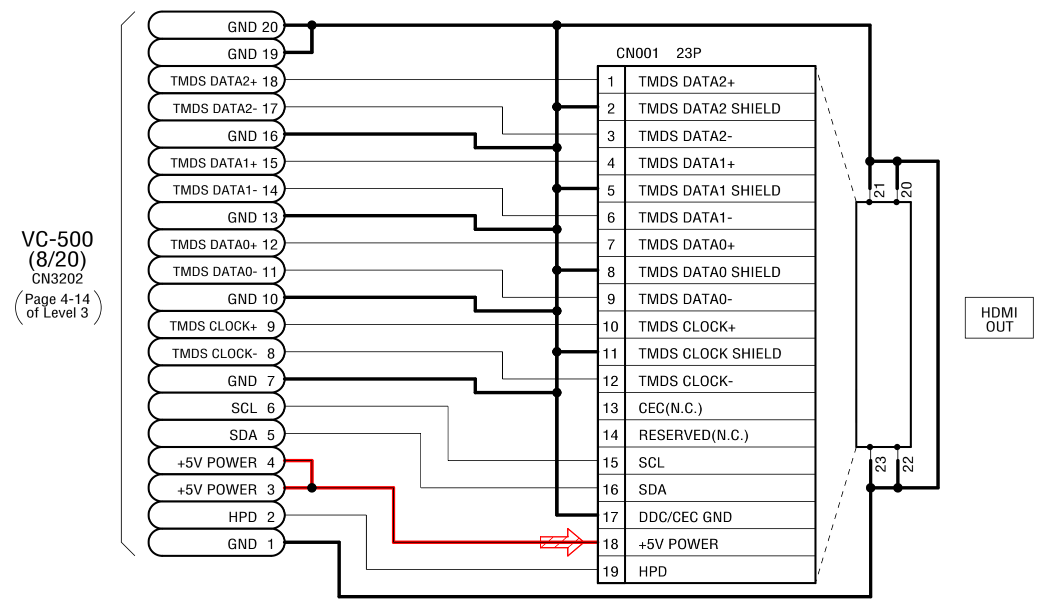
• Refer to page 4-3 (English), 4-4 (Japanese) for mark ⚠.




FP-650
FLEXIBLE BOARD
VC-JK CONNECTION
(PRINTED WIRING BOARD is omitted.)
JK-333 BOARD
A/V, COMPONENT, HDV/DV CONNECTOR
XX MARK:NO MOUNT
VC-500
(11/20)
CN1007
Page 4-17
of Level 3
CN8304 39P
HC7/HC7E
J8302
(HEADPHONES)
LND832
CHASSIS_GND
CN8303 14P
A/V OUT
CN8302 14P
COMPONENT
OUT
D8303
RSE6.8XN-TR
D8301
NSAD500H-T1-A
CN8301 6P
HDV/DV
LND831
CHASSIS_GND
J8301
LANC

FP-645 FLEXIBLE BOARD

HDMI CONNECTOR

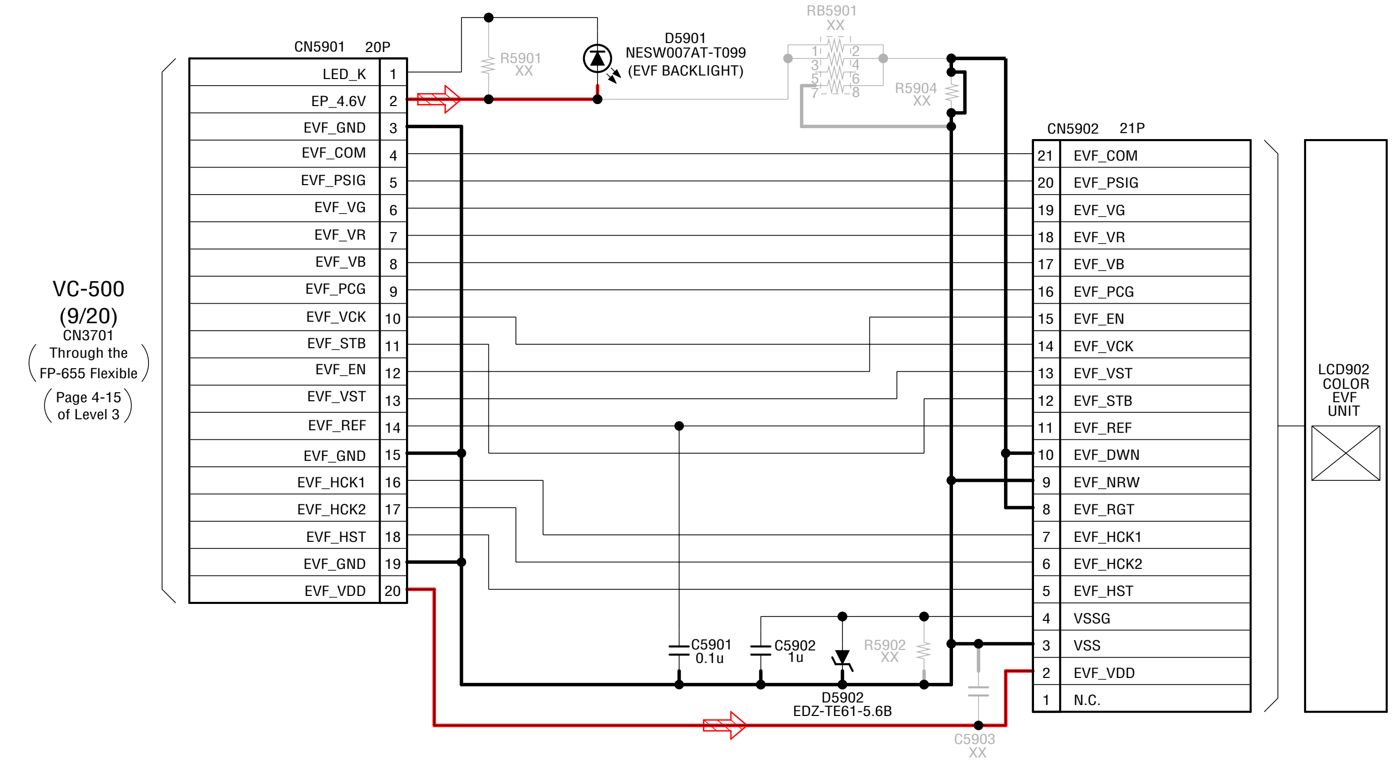


05

BL-007 BOARD

EVF, EVF BACKLIGHT

XX MARK:NO MOUNT

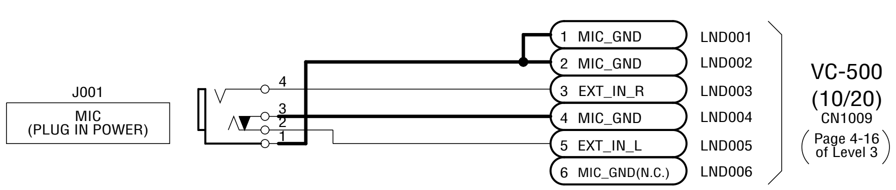


05

FP-647 FLEXIBLE BOARD:HC7/HC7E

MIC JACK

Note: J001 is not included in
FP-647 flexible board.



05

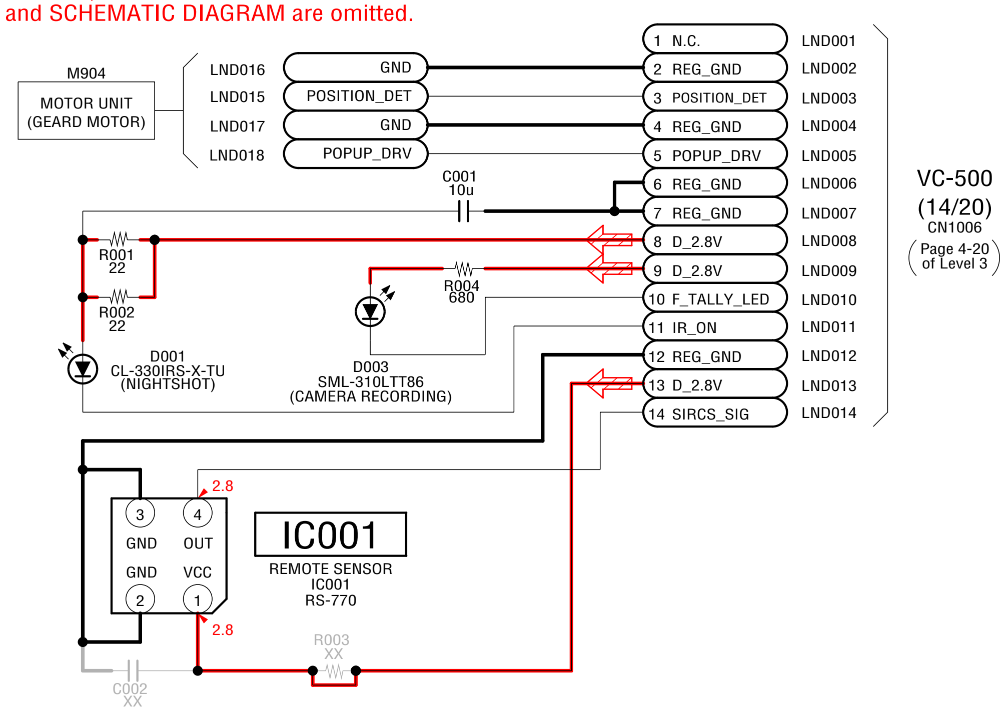
FP-643 FLEXIBLE BOARD

REMOTE SENSOR, STROBE POP UP

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

Note: MOTOR UNIT(GEARD MOTOR) is not included in FP-643 flexible complete board.

MOTOR UNIT(GEARD MOTOR) is replaced as block, so that PRINTED WIRING BOARD and SCHEMATIC DIAGRAM are omitted.

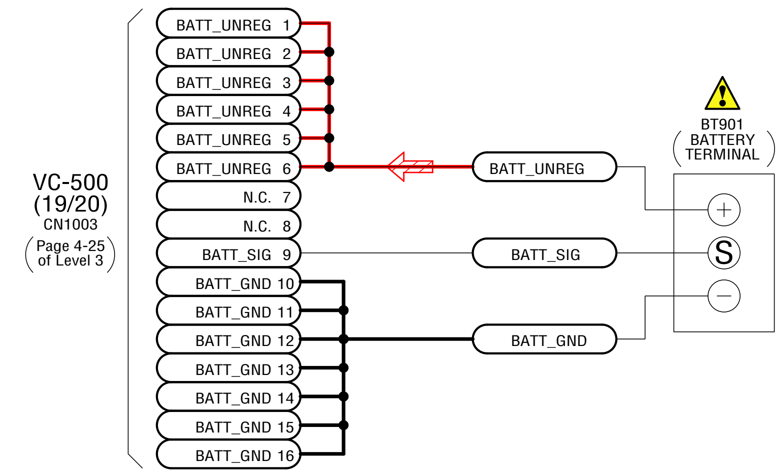


05

FP-656 FLEXIBLE BOARD

BATTERY TERMINAL

Note: BT901 is not included in FP-656 flexible board.

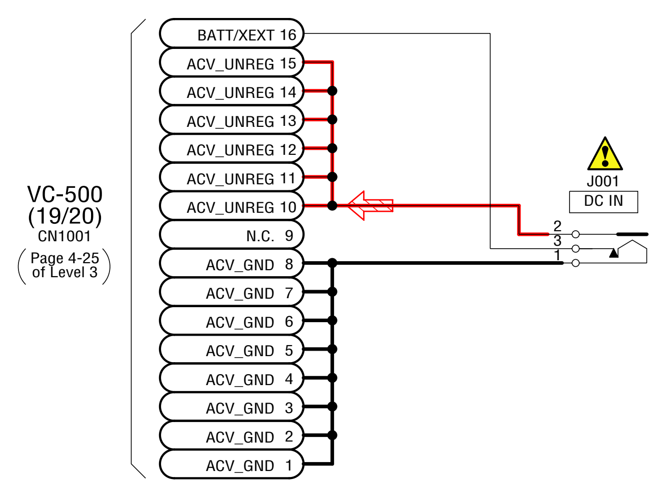


05

FP-657 FLEXIBLE BOARD

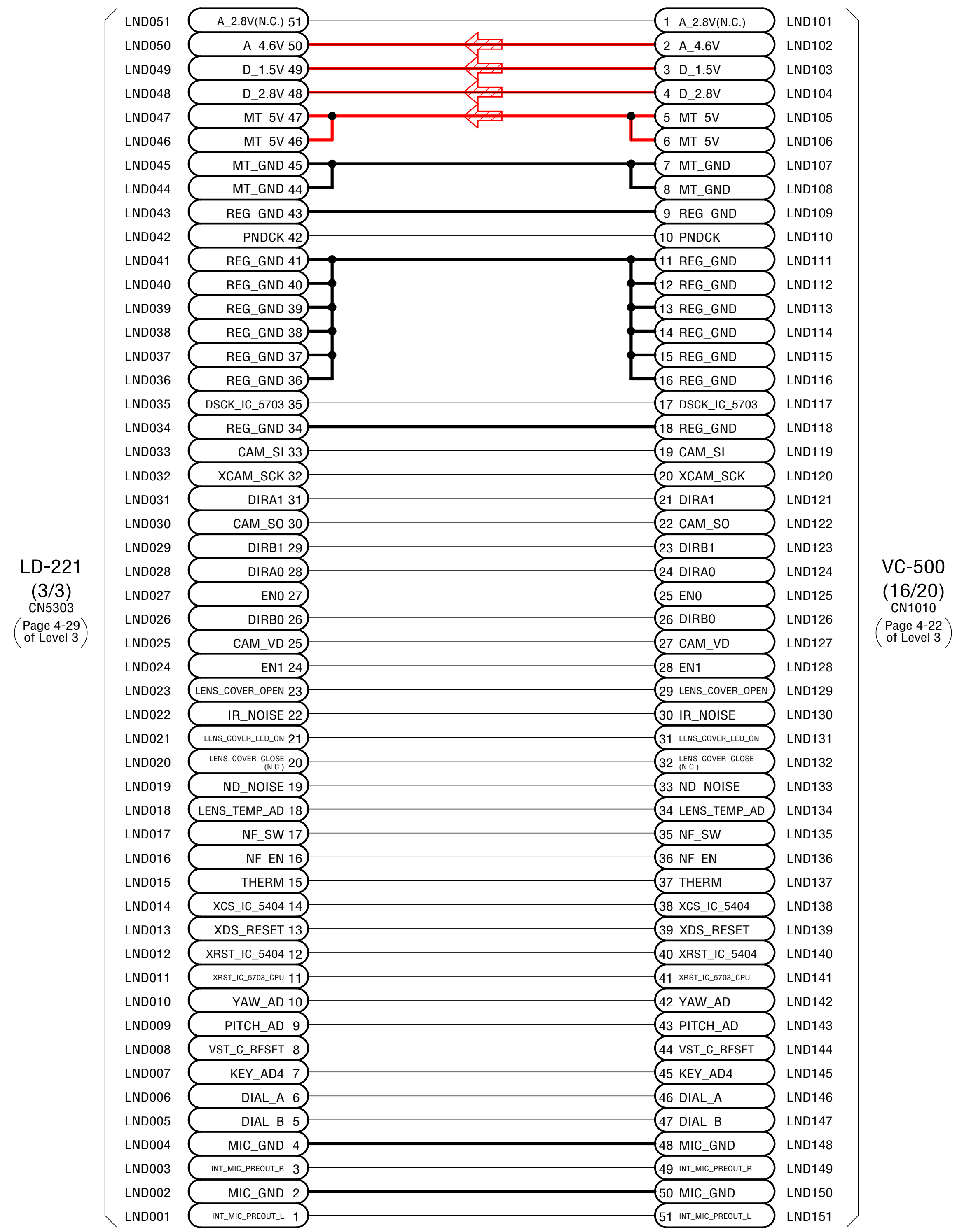
DC IN

Note: J001 is not included in FP-657 flexible board.



05

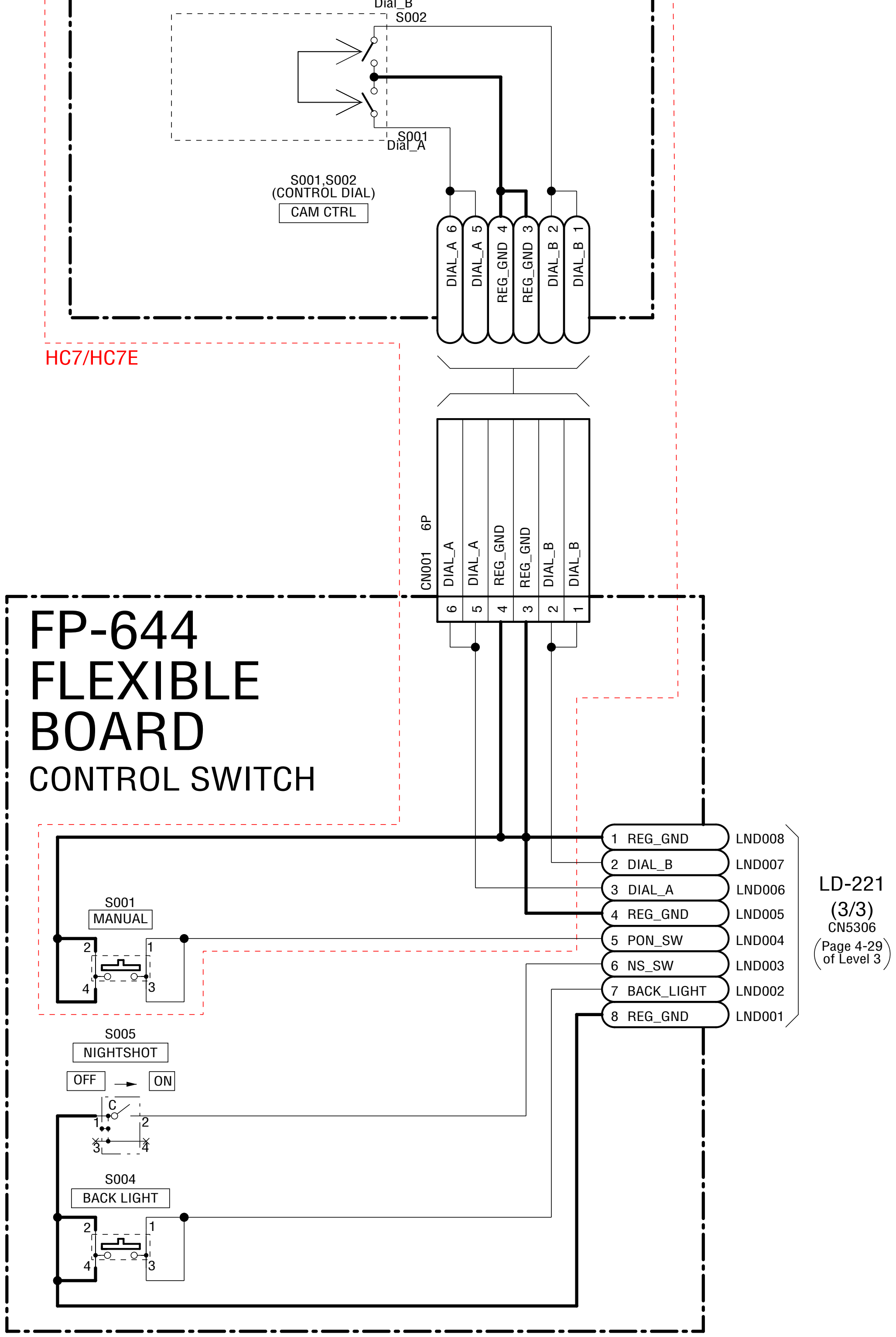
FP-648 FLEXIBLE BOARD
VC-LD CONNECTION
(PRINTED WIRING BOARD is omitted.)



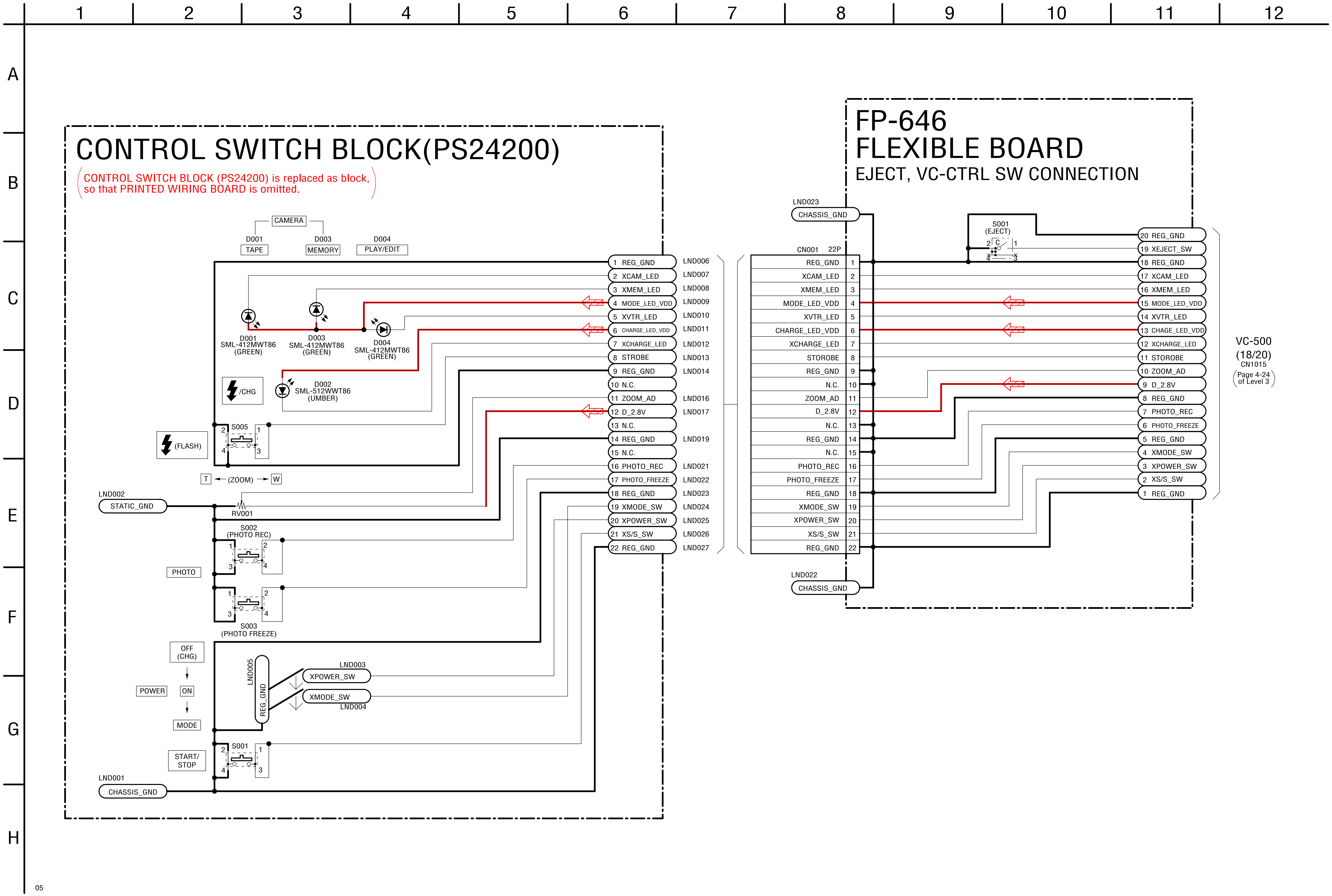
05

CONTROL SWITCH BLOCK (AD11800)
CONTROL SWITCH BLOCK (AD11800) is replaced as block, so that PRINTED WIRING BOARD is omitted.

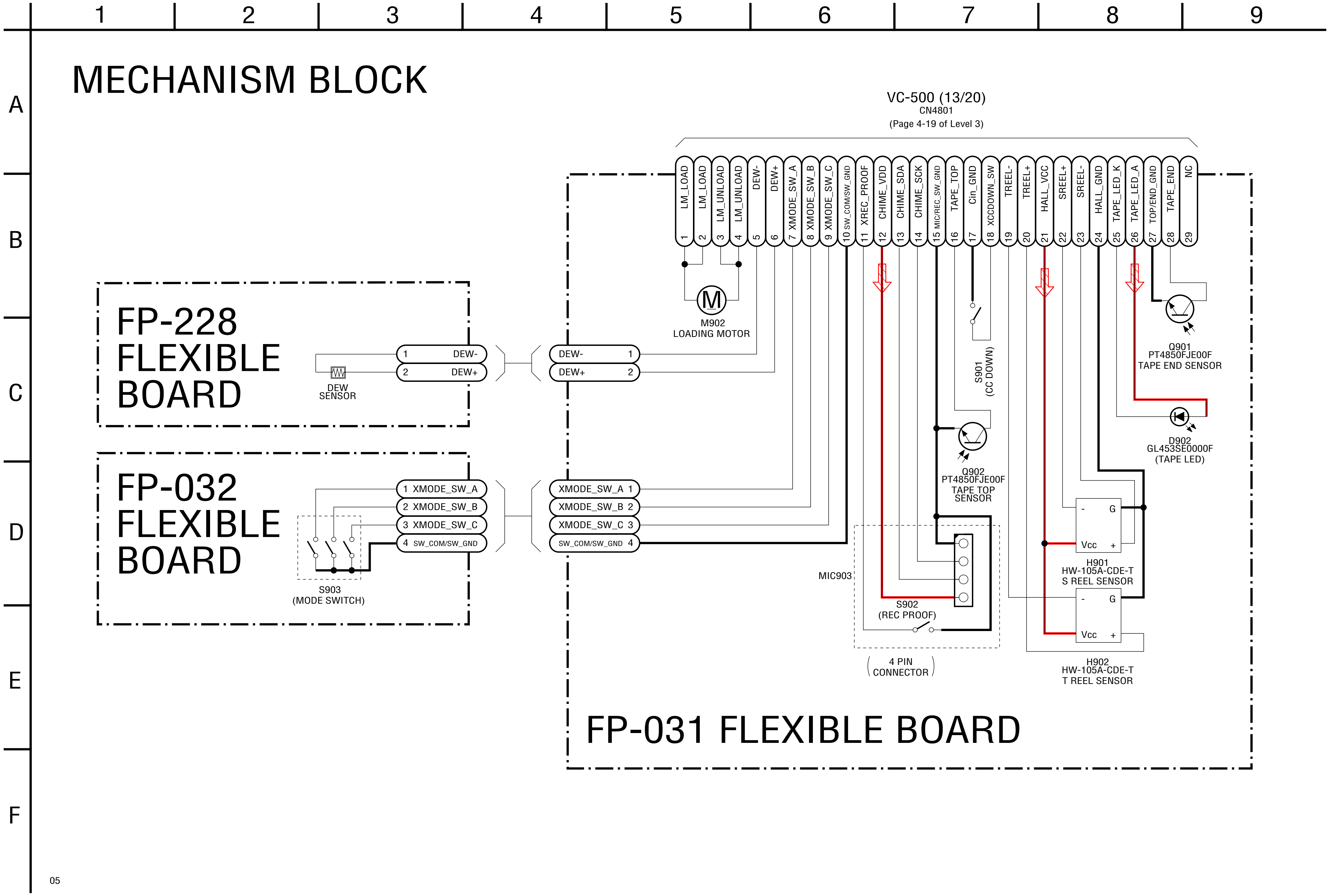
FP-644 FLEXIBLE BOARD
CONTROL SWITCH



05



1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H
CONTROL SWITCH BLOCK(PS24200)
CONTROL SWITCH BLOCK (PS24200) is replaced as block, so that PRINTED WIRING BOARD is omitted.
FP-646
FLEXIBLE BOARD
EJECT, VC-CTRL SW CONNECTION
CAMERA
D001 TAPE
D003 MEMORY
D004 PLAY/EDIT
D001 SML-412MWT86 (GREEN)
D003 SML-412MWT86 (GREEN)
D004 SML-412MWT86 (GREEN)
D002 SML-512WWT86 (UMBER)
/CHG
(FLASH)
S005
T (ZOOM) W
LND002 STATIC_GND
RV001
S002 (PHOTO REC)
PHOTO
S003 (PHOTO FREEZE)
OFF (CHG)
POWER
ON
MODE
LND005 REG_GND
LND003 XPOWER_SW
XMODE_SW LND004
START/ STOP
S001
LND001 CHASSIS_GND
1 REG_GND LND006
2 XCAM_LED LND007
3 XMEM_LED LND008
4 MODE_LED_VDD LND009
5 XVTR_LED LND010
6 CHARGE_LED_VDD LND011
7 XCHARGE_LED LND012
8 STROBE LND013
9 REG_GND LND014
10 N.C.
11 ZOOM_AD LND016
12 D_2.8V LND017
13 N.C.
14 REG_GND LND019
15 N.C.
16 PHOTO_REC LND021
17 PHOTO_FREEZE LND022
18 REG_GND LND023
19 XMODE_SW LND024
20 XPOWER_SW LND025
21 XS/S_SW LND026
22 REG_GND LND027
LND023 CHASSIS_GND
CN001 22P
REG_GND 1
XCAM_LED 2
XMEM_LED 3
MODE_LED_VDD 4
XVTR_LED 5
CHARGE_LED_VDD 6
XCHARGE_LED 7
STROBE 8
REG_GND 9
N.C. 10
ZOOM_AD 11
D_2.8V 12
N.C. 13
REG_GND 14
N.C. 15
PHOTO_REC 16
PHOTO_FREEZE 17
REG_GND 18
XMODE_SW 19
XPOWER_SW 20
XS/S_SW 21
REG_GND 22
LND022 CHASSIS_GND
S001 (EJECT)
20 REG_GND
19 XEJECT_SW
18 REG_GND
17 XCAM_LED
16 XMEM_LED
15 MODE_LED_VDD
14 XVTR_LED
13 CHAGE_LED_VDD
12 XCHARGE_LED
11 STOROBE
10 ZOOM_AD
9 D_2.8V
8 REG_GND
7 PHOTO_REC
6 PHOTO_FREEZE
5 REG_GND
4 XMODE_SW
3 XPOWER_SW
2 XS/S_SW
1 REG_GND
VC-500 (18/20) CN1015
(Page 4-24 of Level 3)
05


MECHANISM BLOCK
VC-500 (13/20)
CN4801
(Page 4-19 of Level 3)
FP-228 FLEXIBLE BOARD
FP-032 FLEXIBLE BOARD
FP-031 FLEXIBLE BOARD
M902
LOADING MOTOR
DEW SENSOR
S903
(MODE SWITCH)
S901
(CC DOWN)
Q901
PT4850FJE00F
TAPE END SENSOR
D902
GL453SE0000F
(TAPE LED)
Q902
PT4850FJE00F
TAPE TOP SENSOR
MIC903
S902
(REC PROOF)
4 PIN CONNECTOR
H901
HW-105A-CDE-T
S REEL SENSOR
H902
HW-105A-CDE-T
T REEL SENSOR
05

4-3. PRINTED WIRING BOARDS

Link

PD-325 BOARD (SIDE A)	FP-645 FLEXIBLE BOARD
PD-325 BOARD (SIDE B)	FP-647 FLEXIBLE BOARD: HC7/HC7E
CK-177 BOARD	BL-007 BOARD
FP-372 FLEXIBLE BOARD	FP-643 FLEXIBLE BOARD
ST-164 BOARD	FP-656 FLEXIBLE BOARD
FP-658 FLEXIBLE BOARD	FP-657 FLEXIBLE BOARD
MS-361 BOARD	FP-644 FLEXIBLE BOARD
US-013 BOARD	FP-646 FLEXIBLE BOARD
JK-333 BOARD	FP-031, FP-032, FP-228 FLEXIBLE BOARD

COMMON NOTE FOR PRINTED WIRING BOARDS	MOUNTED PARTS LOCATION

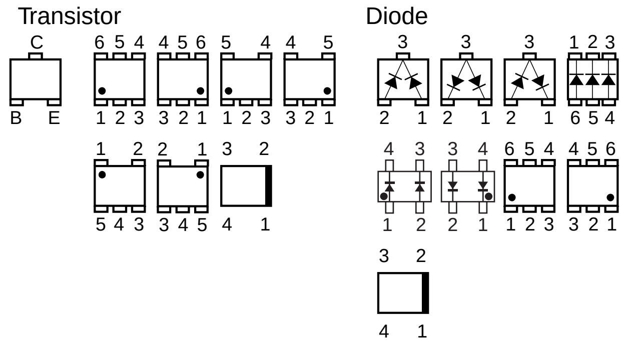
4-3. PRINTED WIRING BOARDS

(ENGLISH)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

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

- Chip parts.



(JAPANESE)

プリント図共通ノート

【プリント図ノート】

・：無鉛半田を使用しています。

・：基板

：フレキシブル配線板

見ている面側のパターン。

：裏側のパターン

（他のパターンについては表示されていません）

・スルーホールは省略。

・プリント図には，本機で使用していない部品が記載されている場合があります。

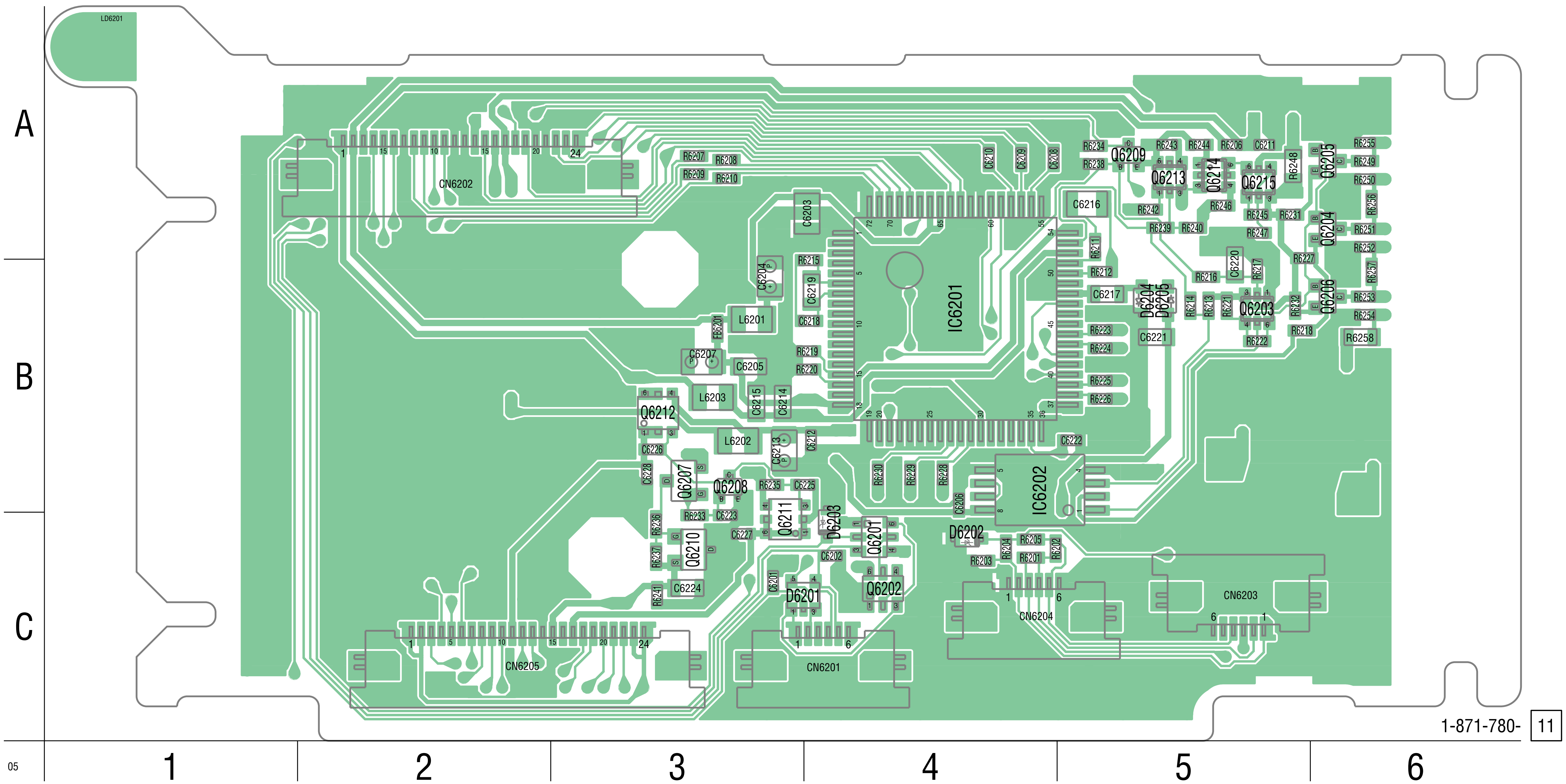
・はパネル表示名称。

Printed wiring boards of the CM-076, CM-077, VC-500 and LD-221 boards are not shown.
Pages 4-43 to 4-47 are not shown.

PD-325 (2 layers)

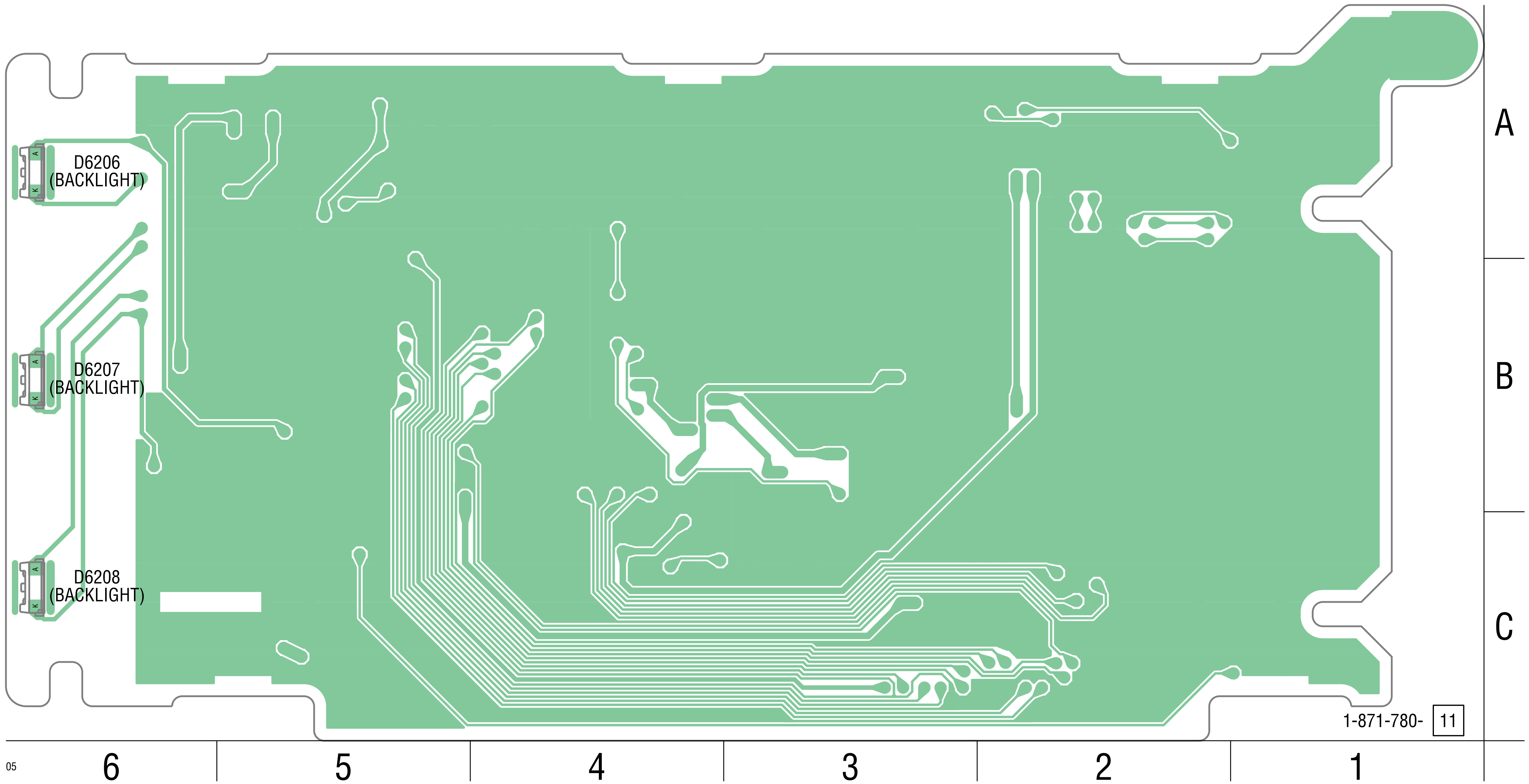
: Uses unleaded solder.

PD-325 BOARD (SIDE A)



: Uses unleaded solder.

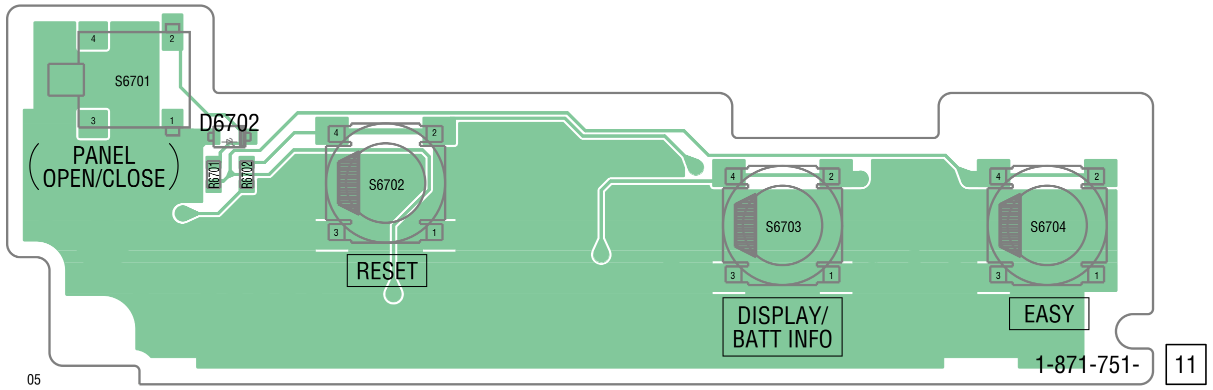
PD-325 BOARD (SIDE B)



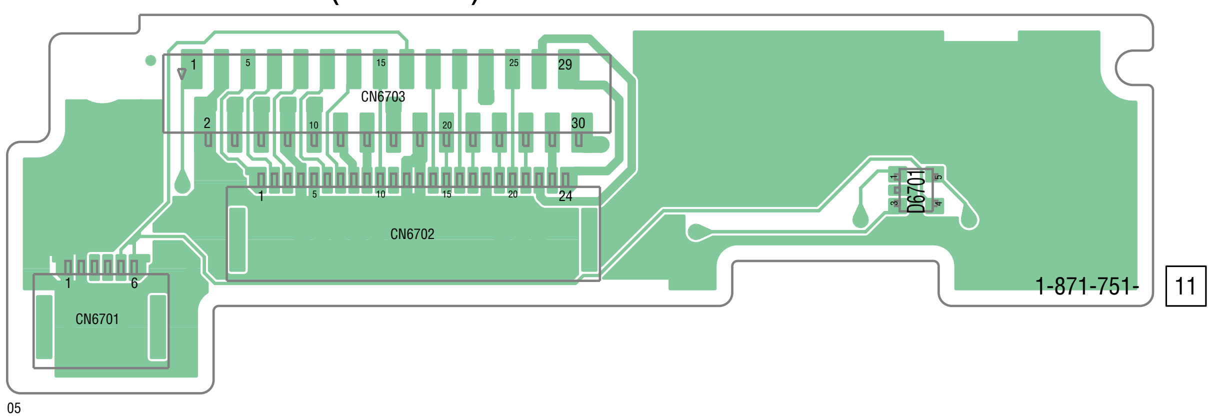
CK-177 (2 layers), FP-372 (1 layer), ST-164 (2 layers), FP-658 (1 layer)

: Uses unleaded solder.

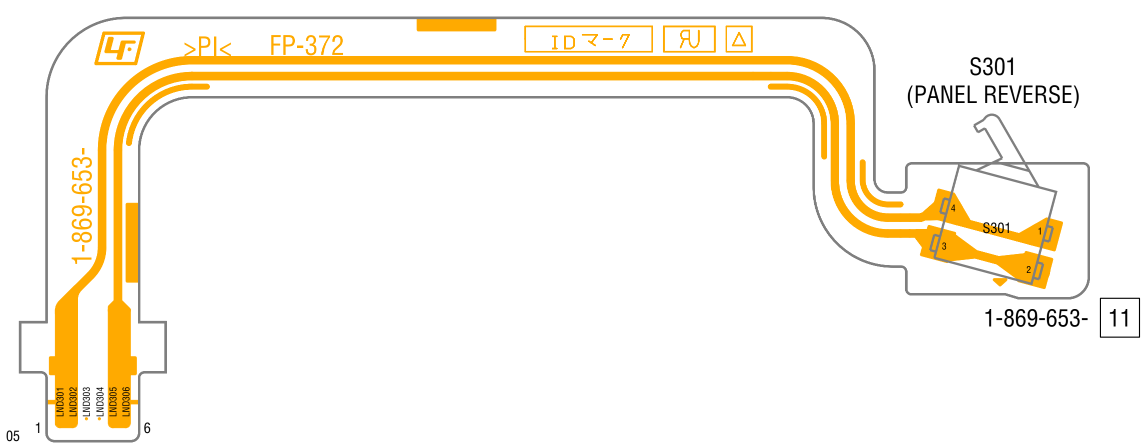
CK-177 BOARD (SIDE A)



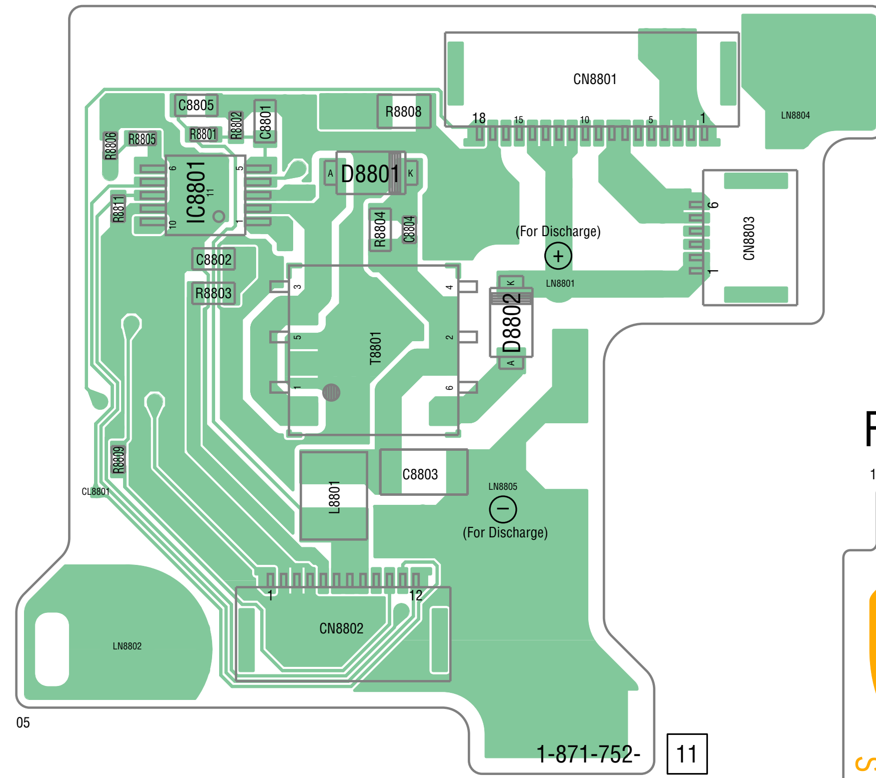
CK-177 BOARD (SIDE B)



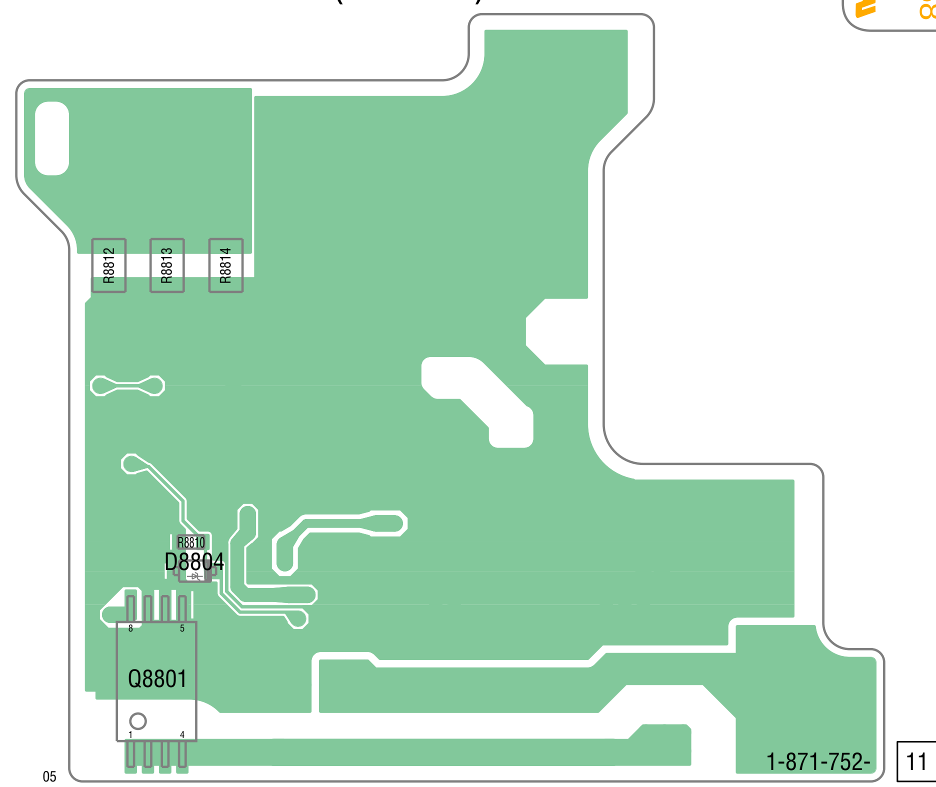
FP-372 FLEXIBLE BOARD



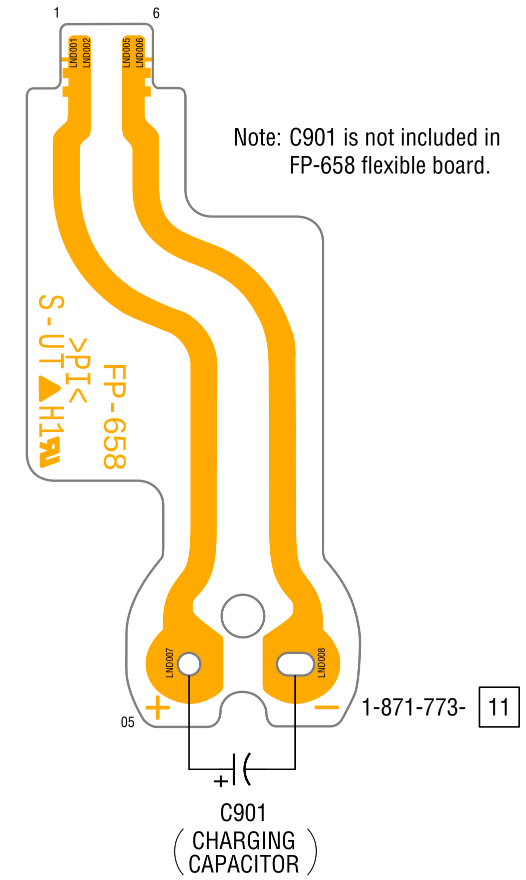
ST-164 BOARD (SIDE A)



ST-164 BOARD (SIDE B)



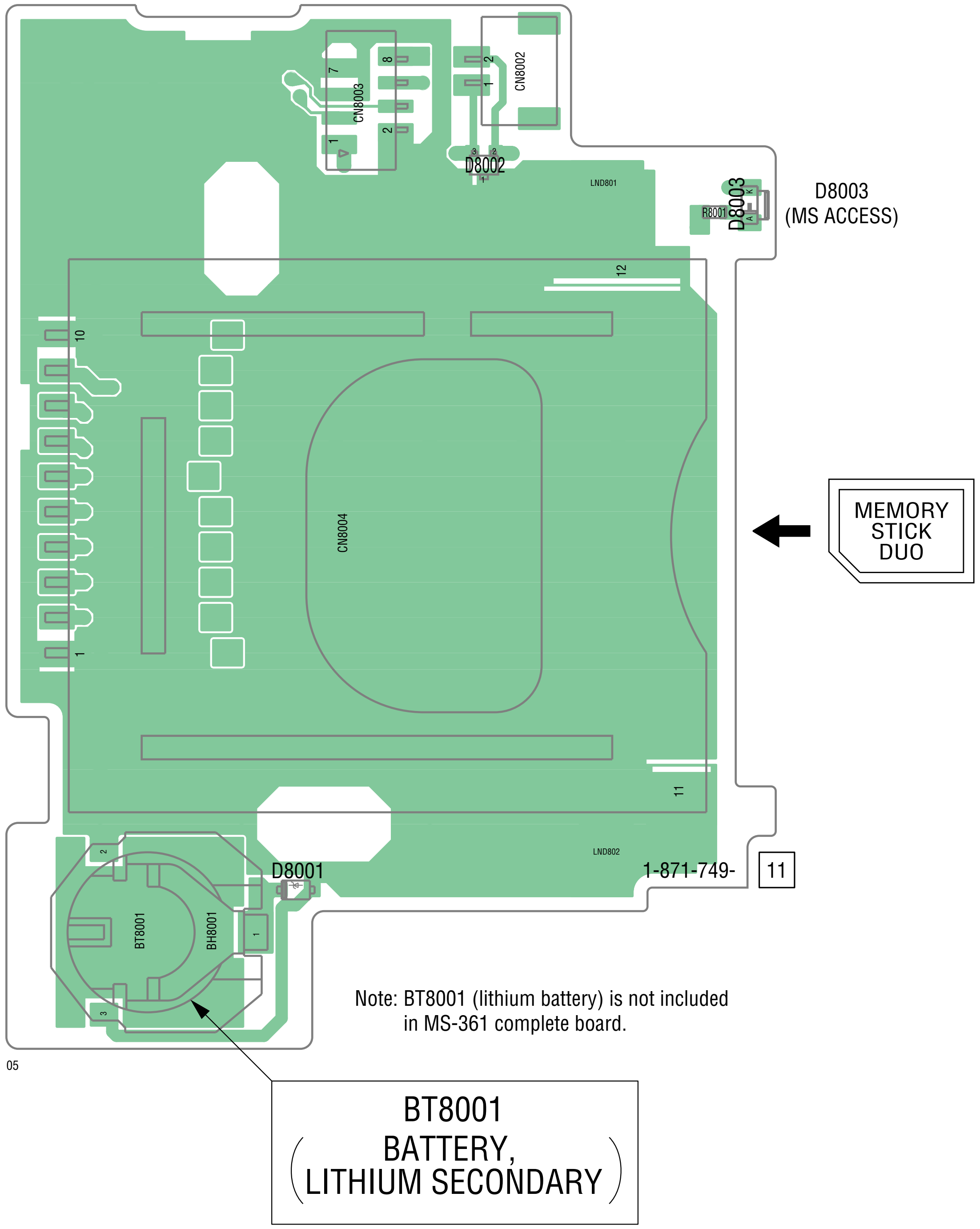
FP-658 FLEXIBLE BOARD



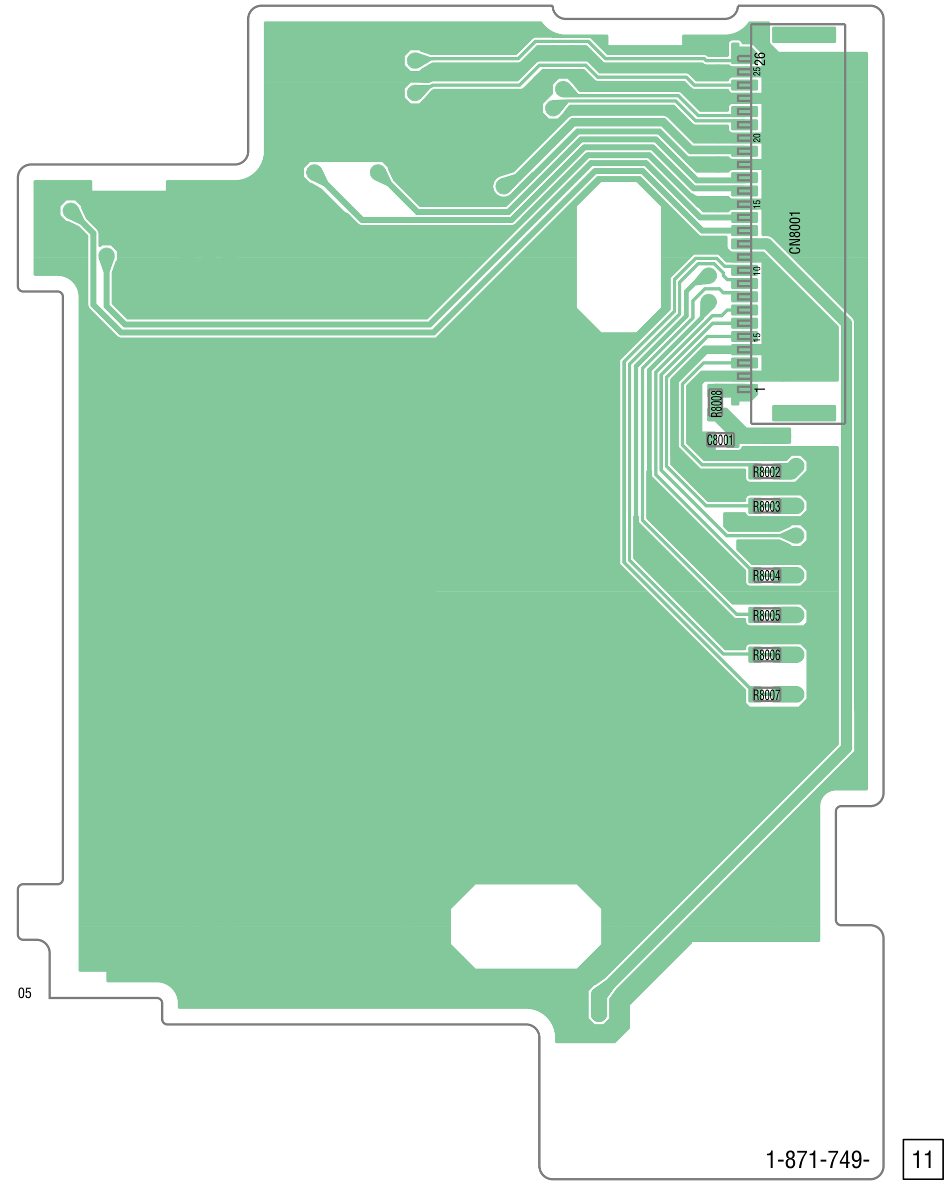
MS-361 (2 layers), US-013 (2 layers)

: Uses unleaded solder.

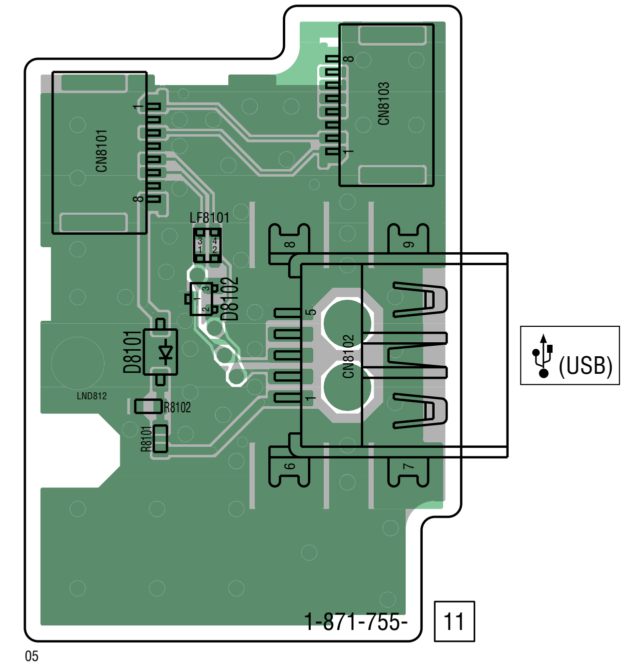
MS-361 BOARD (SIDE A)



MS-361 BOARD (SIDE B)



US-013 BOARD



Note:	Replace the battery holder (BH8001) together when replacing the lithium battery (BT8001) on the MS-361 board. (The battery holder removed once cannot be used again.) When mounting these parts, mount new battery holder first and attach new lithium battery next.

Note:	MS-361基板のリチウム電池（BT8001）を交換する場合はバッテリホルダ（BH8001）も同時に新品に交換して下さい。（一度使用したバッテリホルダは再使用できません。）部品取り付けの際は、先にバッテリホルダを取り付けてからリチウム電池を装着して下さい。

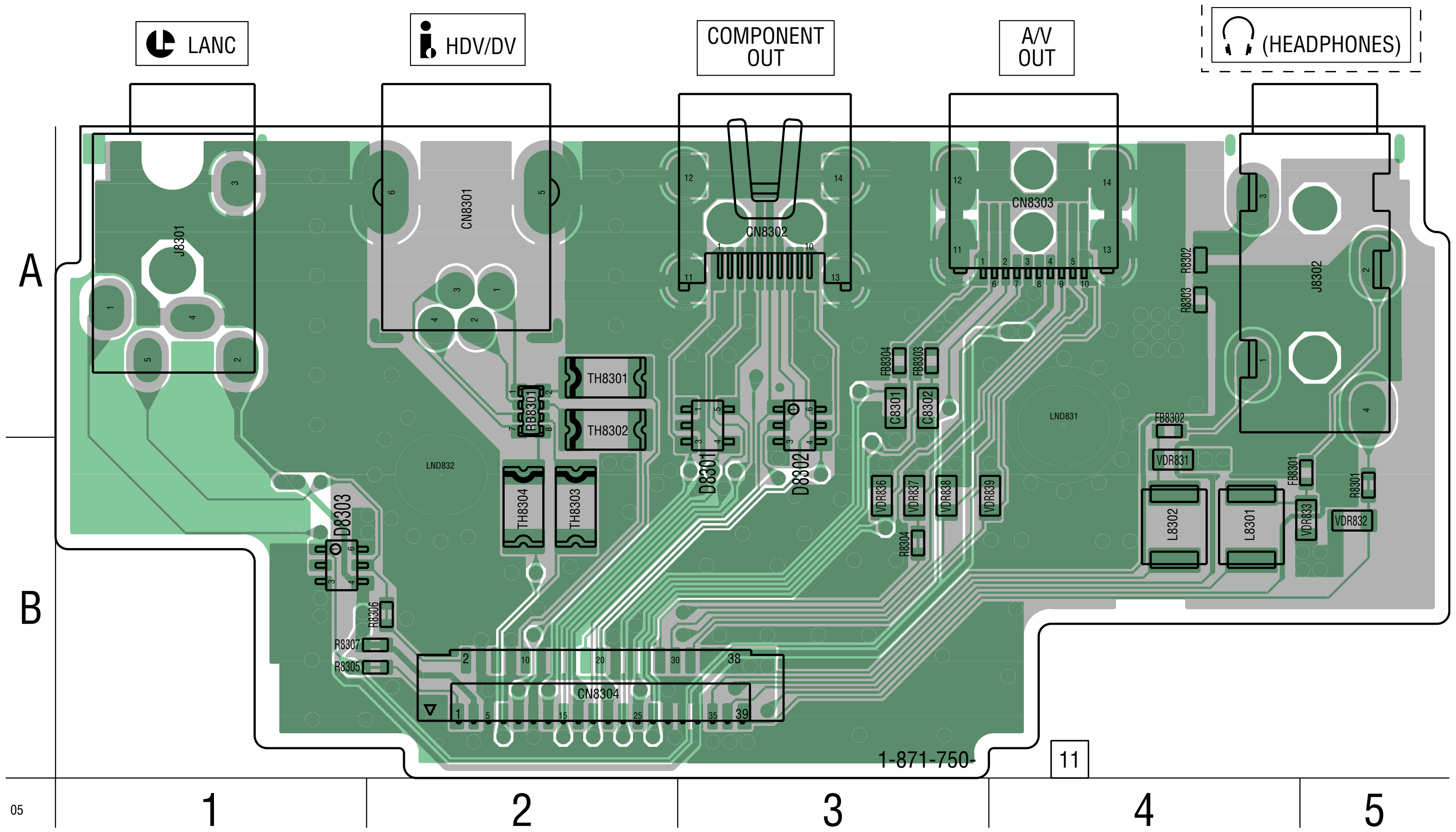
CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

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

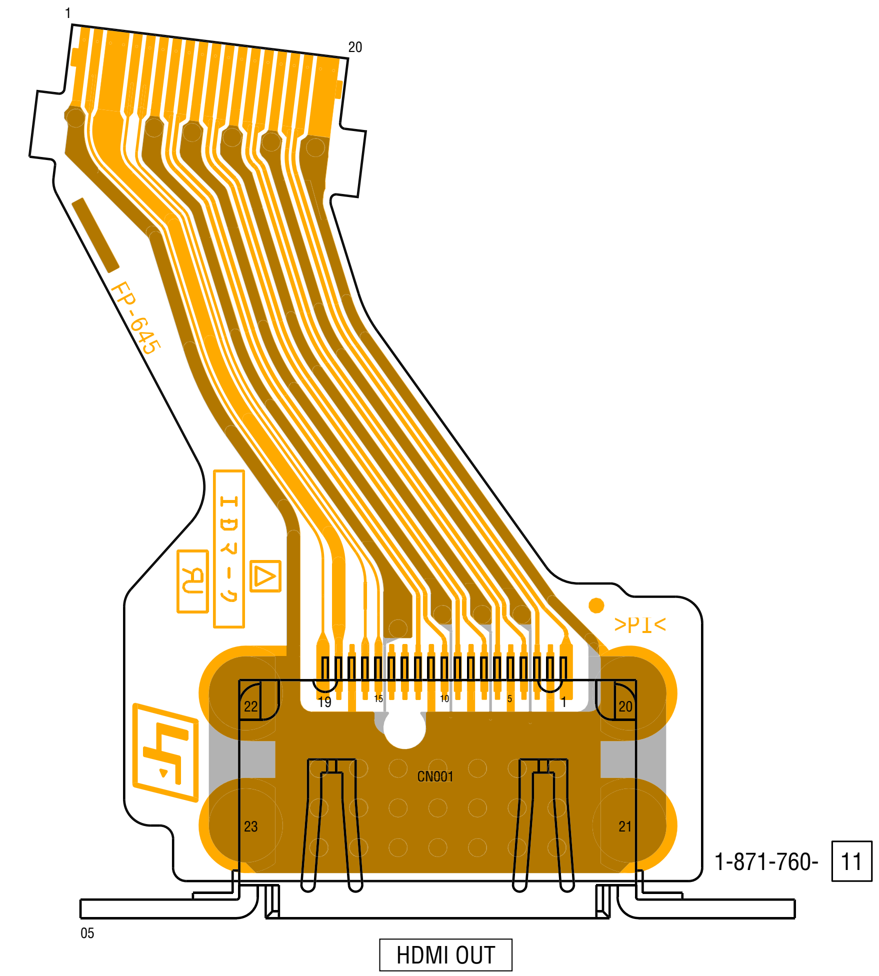
JK-333 (2 layers), FP-645 (2 layers), FP-647 (1 layer), BL-007 (2 layers)

: Uses unleaded solder.

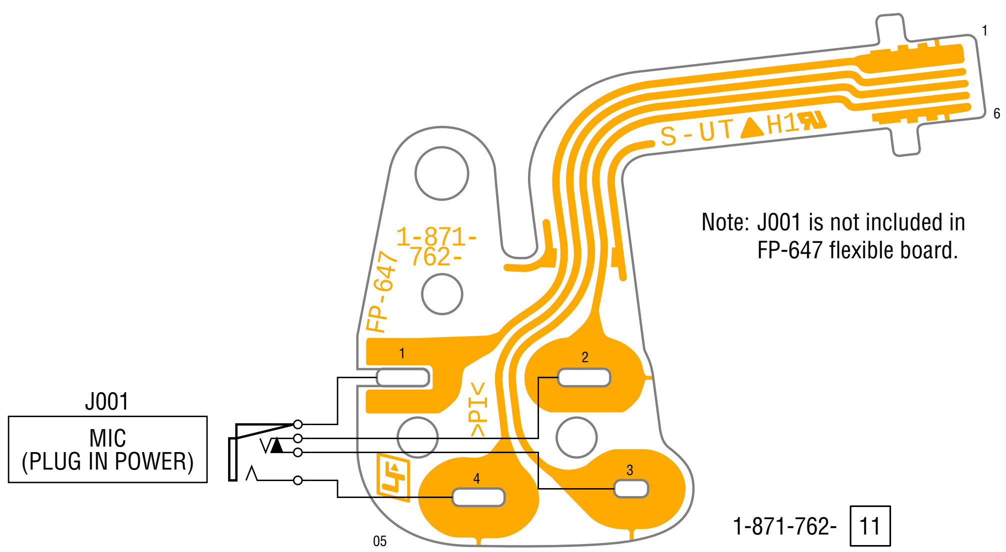
JK-333 BOARD



FP-645 FLEXIBLE BOARD

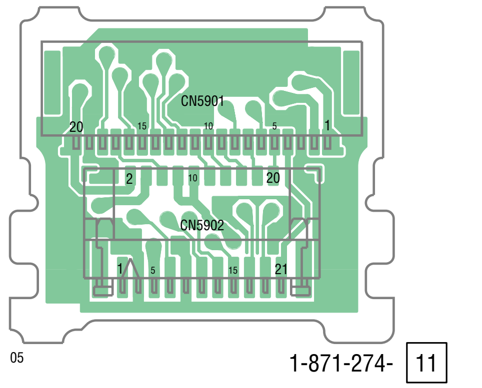


FP-647 FLEXIBLE BOARD

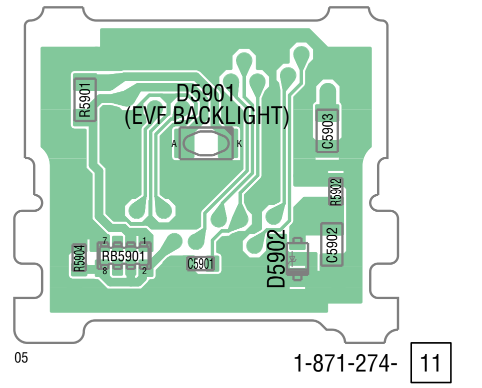


Note: J001 is not included in FP-647 flexible board.

BL-007 BOARD (SIDE A)

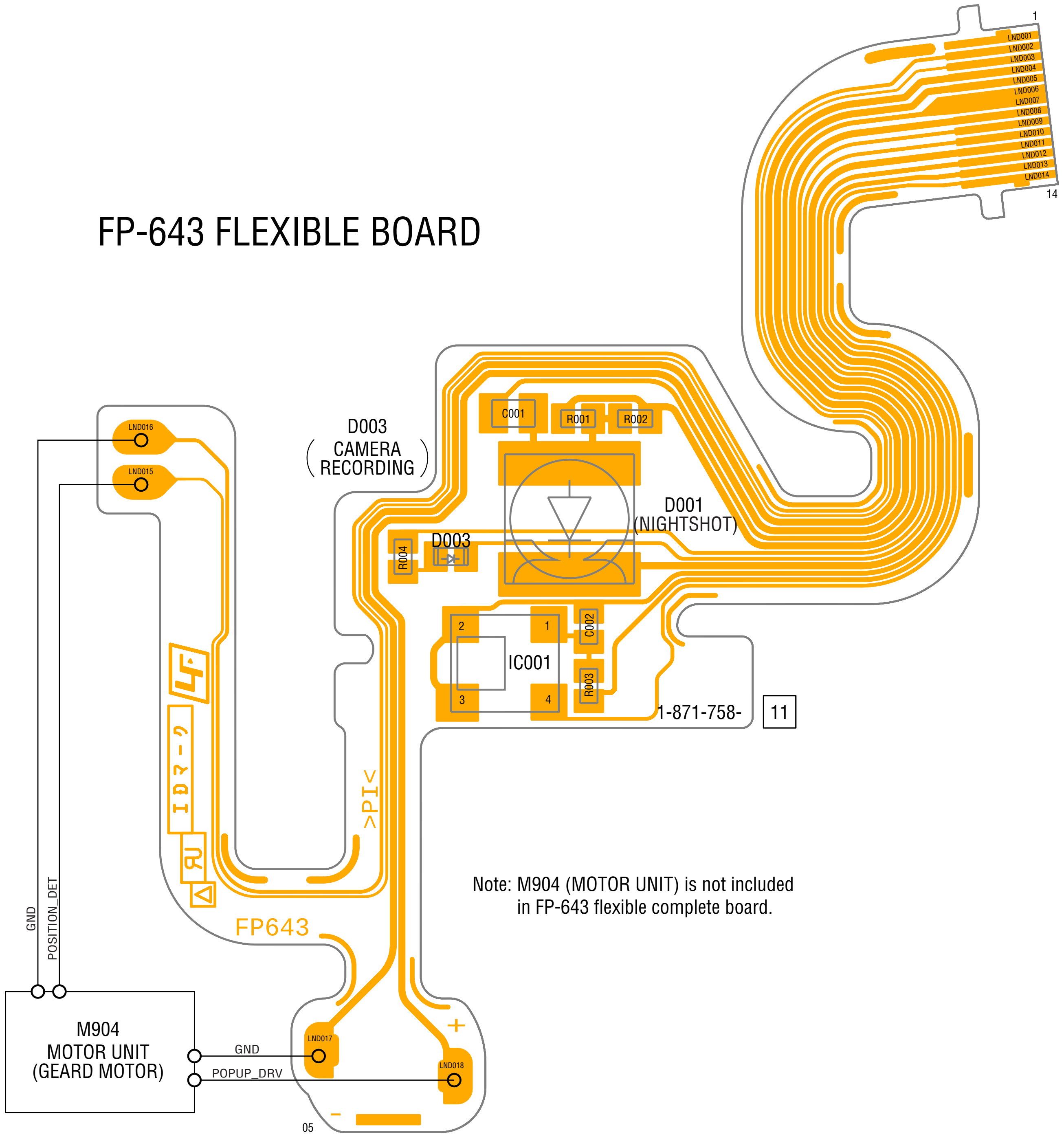


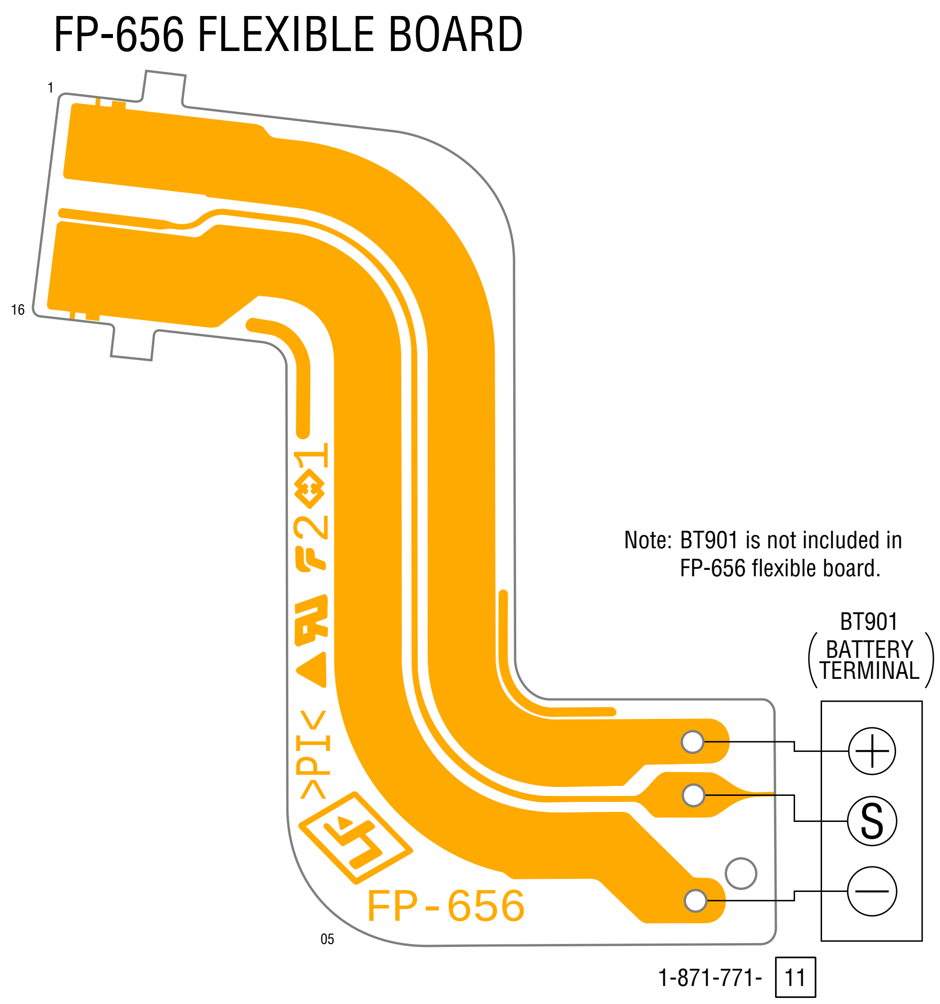
BL-007 BOARD (SIDE B)

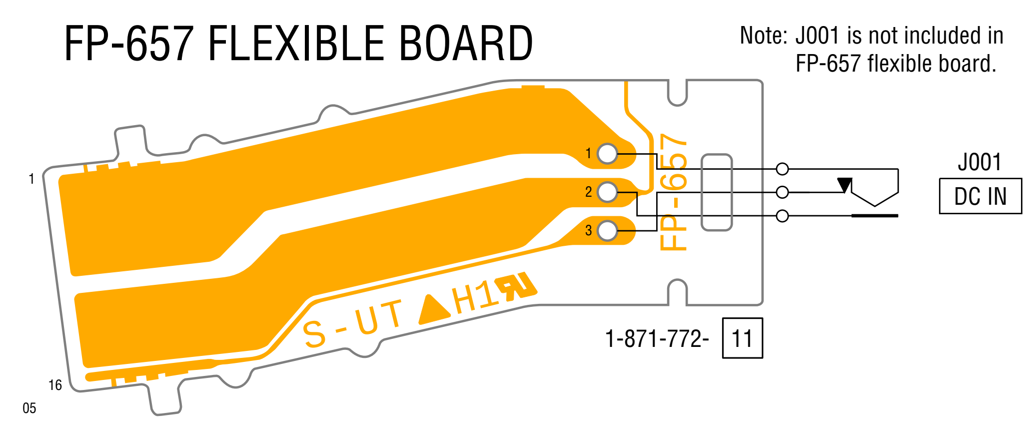


FP-643 (1 layer), FP-656 (1 layer), FP-657 (1 layer)

: Uses unleaded solder.



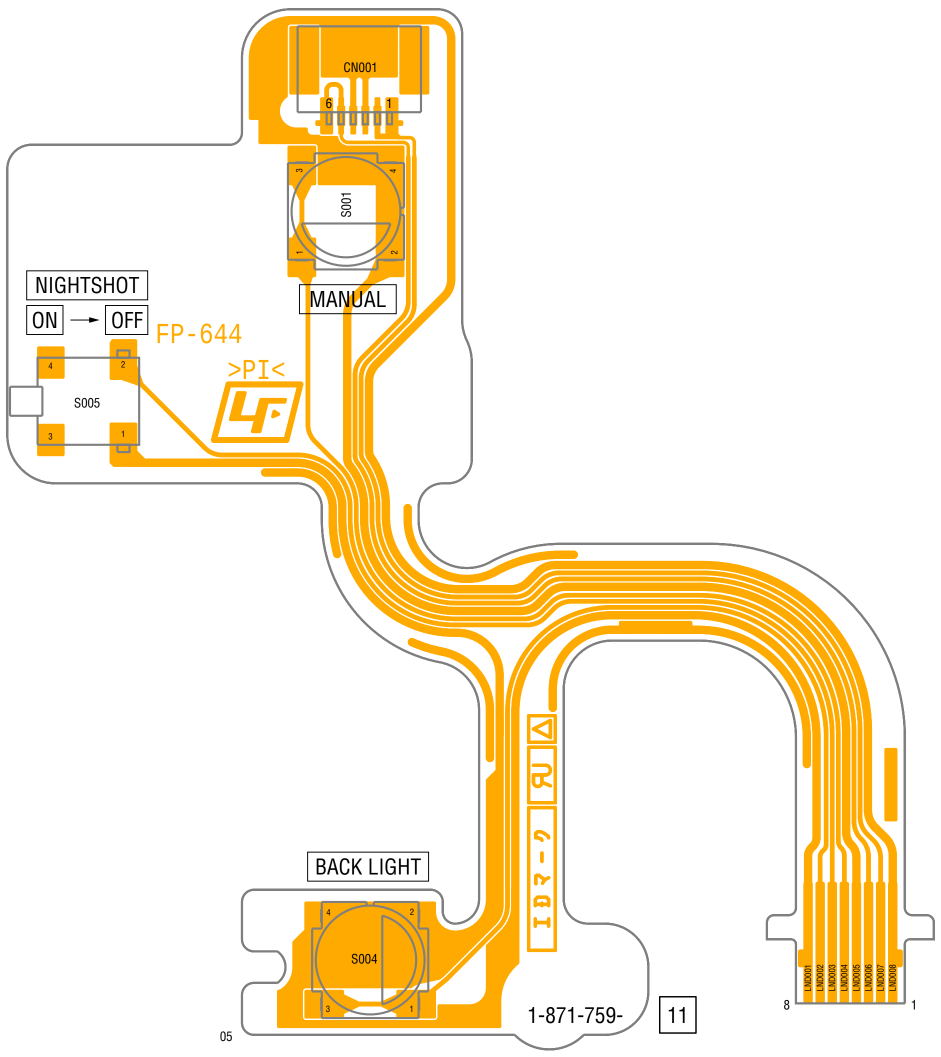




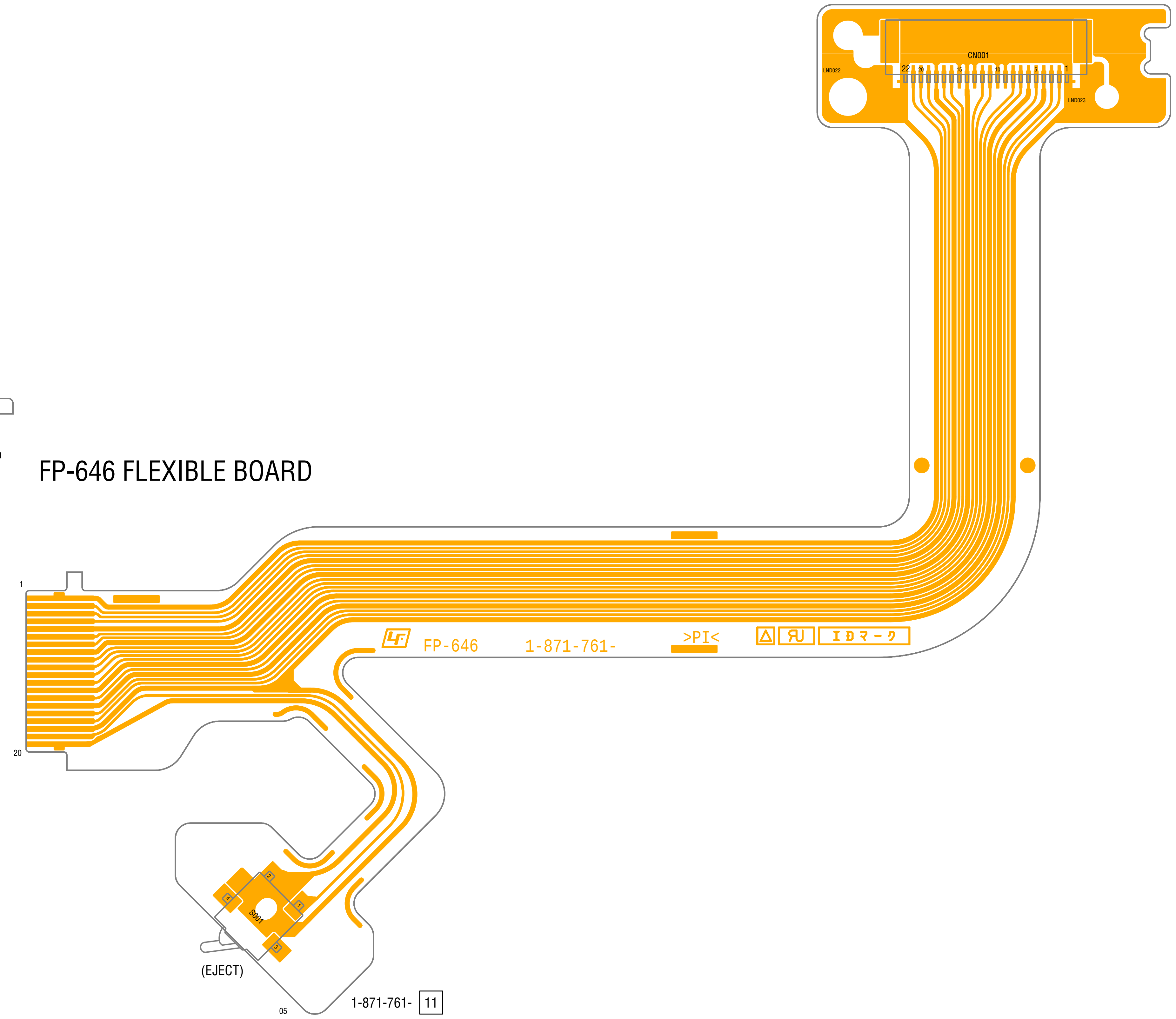
FP-644 (1 layer), FP-646 (1 layer)

: Uses unleaded solder.

FP-644 FLEXIBLE BOARD

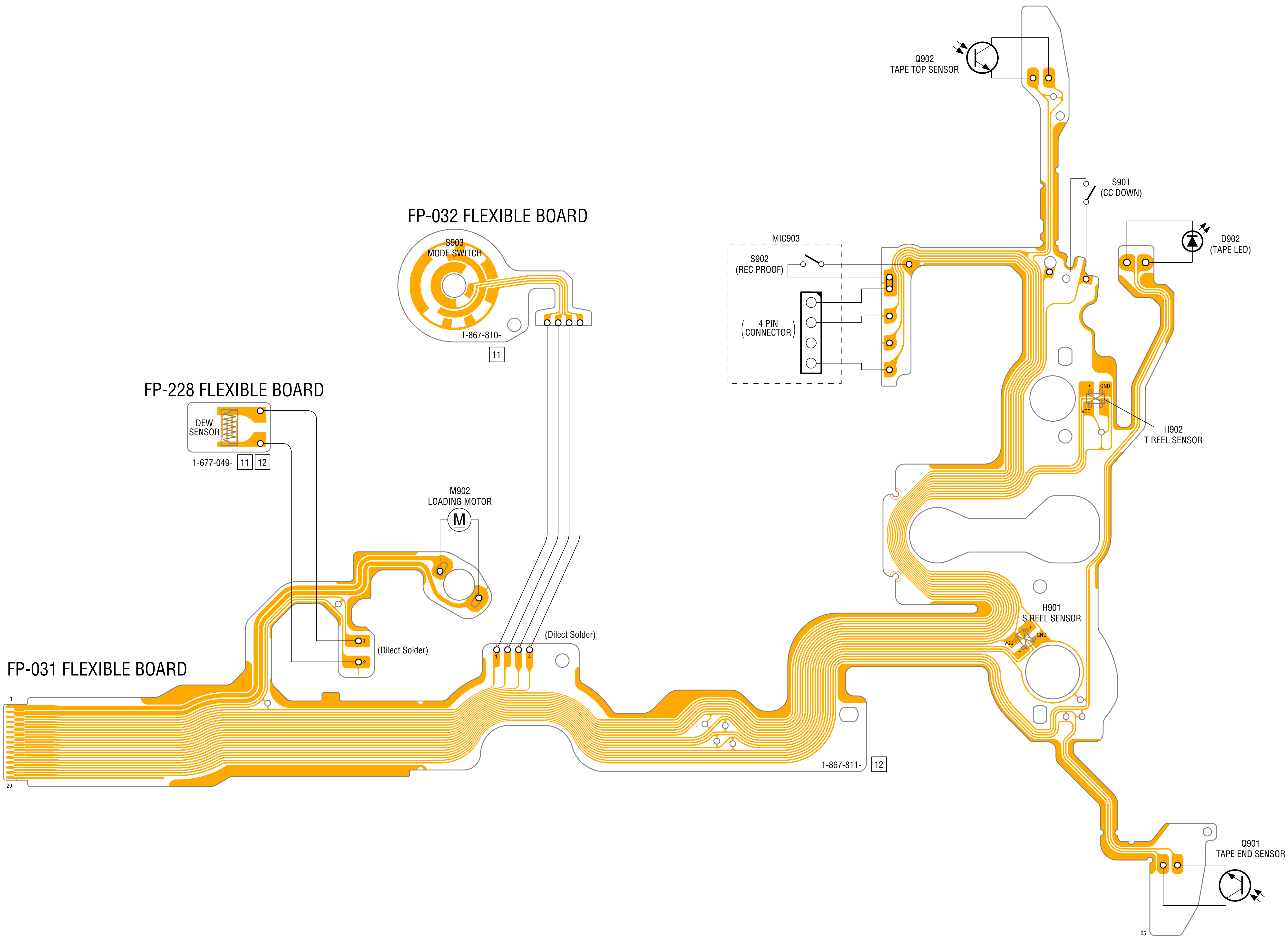


FP-646 FLEXIBLE BOARD



FP-031 (1 layer), FP-032 (1 layer), FP-228 (1 layer)

: Uses unleaded solder.



Mounted parts location of the CM-076, CM-077, VC-500 and LD-221 boards are not shown.
Pages 4-57 to 4-60 are not shown.

4-4. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

PD-325 BOARD

C6201	C-3
C6202	C-4
C6203	A-3
C6204	B-3
C6205	B-3
C6206	B-4
C6208	A-4
C6209	A-4
C6210	A-4
C6211	A-5
C6212	B-4
C6213	B-3
C6214	B-3
C6215	B-3
C6216	A-5
C6217	B-5
C6218	B-4
C6219	B-4
C6220	B-5
C6221	B-5
C6225	B-3
C6226	B-3
C6227	C-3
C6228	B-3
CN6201	C-4
CN6202	A-2
CN6203	C-5
CN6205	C-2
D6204	B-5
D6205	B-5
* D6206	A-6
* D6207	B-6
* D6208	C-6
FB6201	B-3
IC6201	B-4
IC6202	B-4
L6201	B-3
L6202	B-3
L6203	B-3
Q6201	C-4
Q6202	C-4
Q6203	B-5
Q6204	A-6
Q6205	A-6
Q6206	B-6
Q6207	B-3
Q6208	B-3
Q6210	C-3
Q6211	C-3
Q6212	B-3
R6201	C-4
R6202	C-4
R6203	C-4
R6205	C-4
R6206	A-5
R6208	A-3
R6211	A-5
R6212	B-5
R6213	B-5
R6214	B-5
R6215	B-3
R6216	B-5
R6217	B-5
R6218	B-5
R6219	B-3
R6220	B-3
R6221	B-5
R6222	B-5
R6227	B-5
R6231	A-5
R6232	B-5
R6235	B-3
R6236	C-3
R6237	C-3
R6241	C-3
R6249	A-6
R6250	A-6
R6251	A-6
R6252	A-6
R6253	B-6
R6254	B-6

JK-333 BOARD

C8301	A-3
C8302	A-3
CN8301	A-2
CN8302	A-3
CN8303	A-4
CN8304	B-2
D8301	B-3
D8303	B-1
FB8301	B-4
FB8302	A-4
FB8303	A-3
FB8304	A-3
J8301	A-1
J8302	A-5
L8301	B-4
L8302	B-4
TH8301	A-2
TH8302	B-2
TH8303	B-2
TH8304	B-2
VDR831	B-4
VDR832	B-5
VDR833	B-5
VDR837	B-3

NOTE

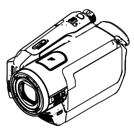
5. REPAIR PARTS LIST (1/2)

TO (2/2)

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

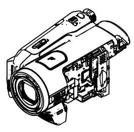
Link

EXPLODED VIEWS



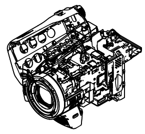
A

OVERALL SECTION



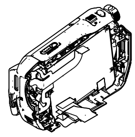
B

TOP CABINET SECTION



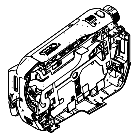
C

FRONT/BT SECTION



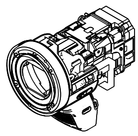
D

MAIN BOARD SECTION



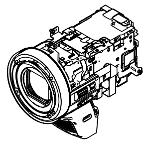
E

CABINET (L) BLOCK



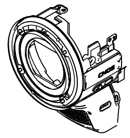
F

FRONT PANEL/
LENS SECTION (HC5/HC5E)



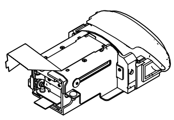
G

FRONT PANEL/
LENS SECTION (HC7/HC7E)



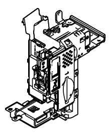
H

FRONT PANEL BLOCK



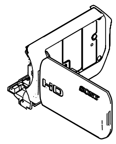
I

VF BLOCK ASSY



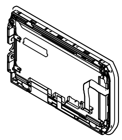
J

BT PANEL BLOCK



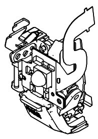
K

CABINET (R) BLOCK



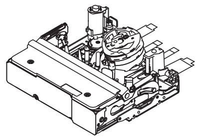
L

LCD PANEL BLOCK



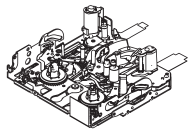
M

ST LOCK BLOCK



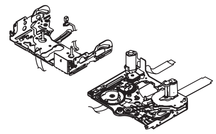
N

MECHANISM DECK SECTION



O

LS/MECHANICAL CHASSIS
BLOCK ASSEMBLY-1



P

LS/MECHANICAL CHASSIS
BLOCK ASSEMBLY-2

NOTE

5. REPAIR PARTS LIST (2/2)

TO (1/2)

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

Link

ELECTRICAL PARTS LIST

ACCESSORIES

5. REPAIR PARTS LIST

(ENGLISH)

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:
  uF: 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...

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.

- Color Indication of Appearance Parts
  Example:
  (SILVER) : Cabinet's Color
  (Silver) : Parts Color

(JAPANESE)

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

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

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

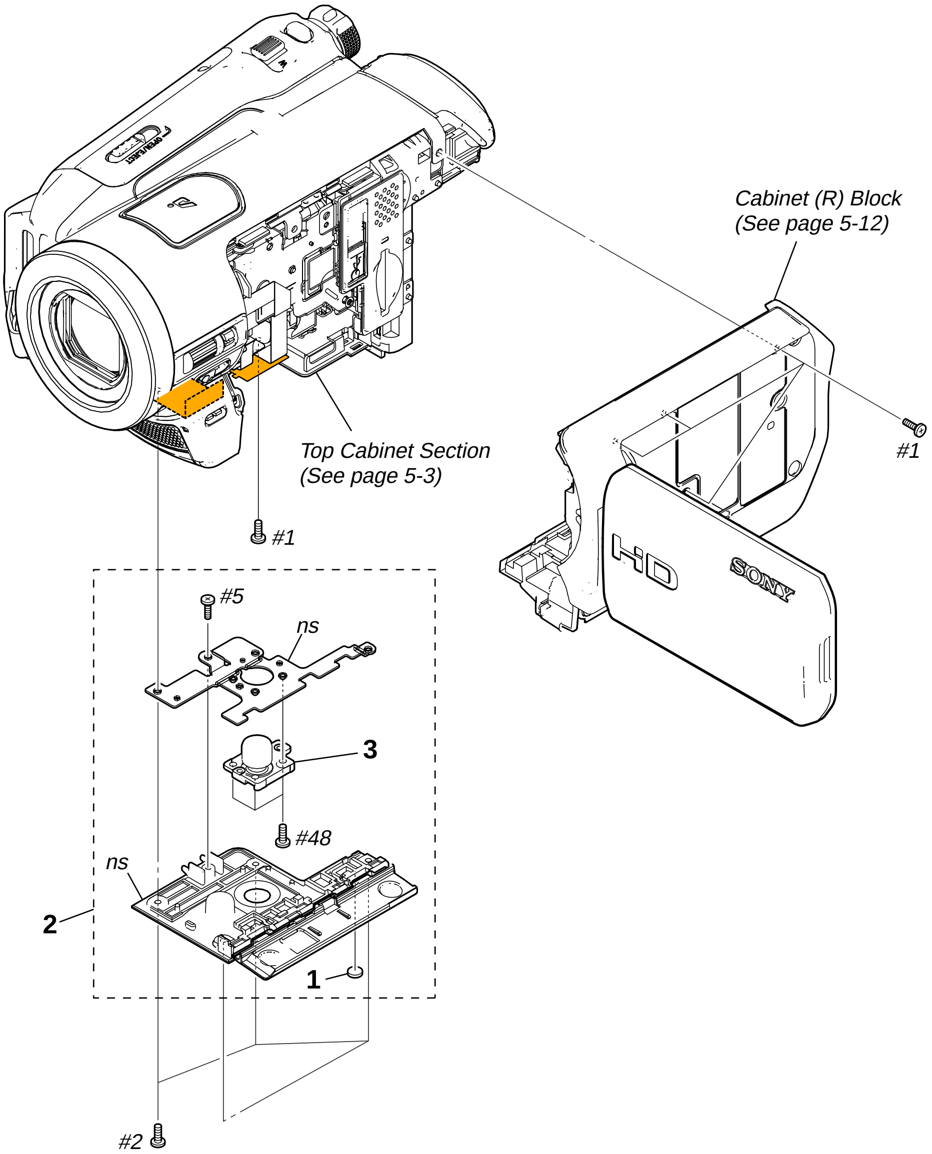
- 外装部品色表示
  例：
  (SILVER):セットの色を表す。
  (Silver)　: 部品の色を表す。

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

5-1. EXPLODED VIEWS

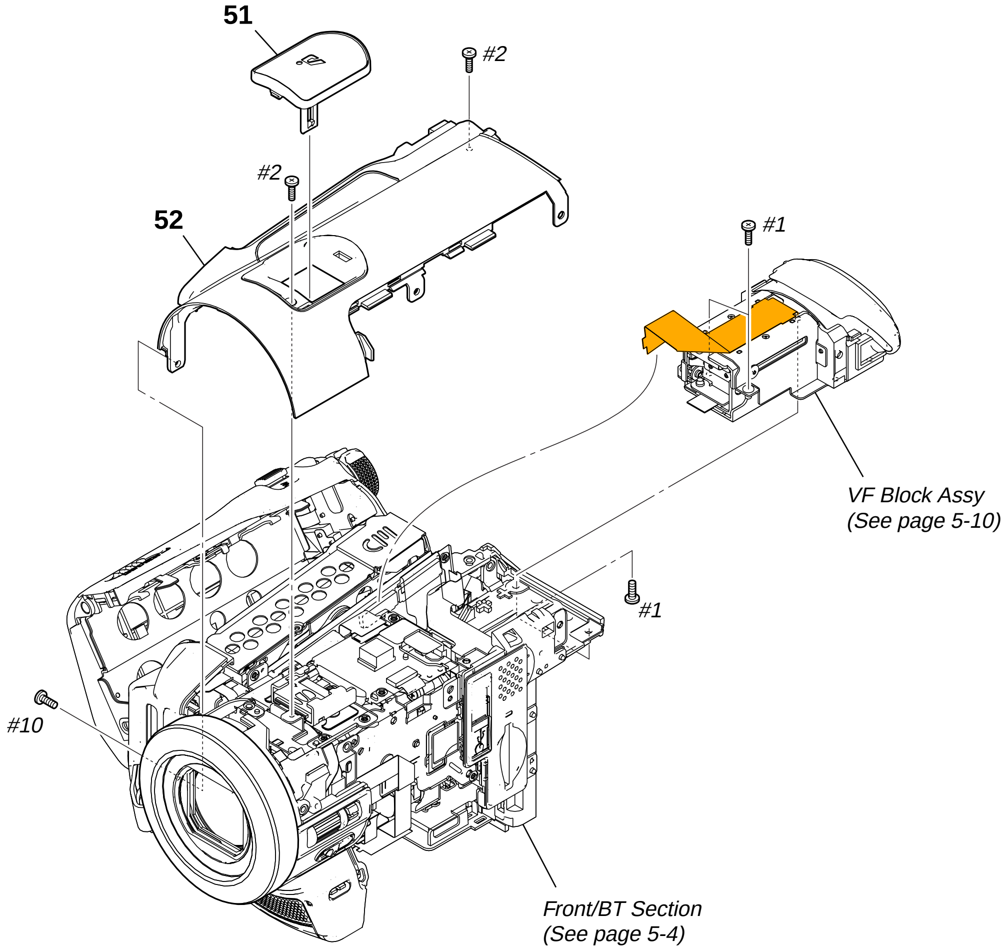
5-1-1. OVERALL SECTION

ns: not supplied



Ref. No.	Part No.	Description
1	2-589-376-01	FOOT (395), RUBBER
2	X-2176-768-1	CABINET ASSY, BOTTOM
3	3-095-744-01	TRIPOD
#1	2-635-562-11	SCREW (M1.7) (Black)
#2	2-635-562-31	SCREW (M1.7) (Black)
#5	3-080-204-01	SCREW, TAPPING, P2 (Black)
#48	3-973-497-91	SCREW (M1.7), 0-NO. +P 2 (Silver)

5-1-2. TOP CABINET SECTION

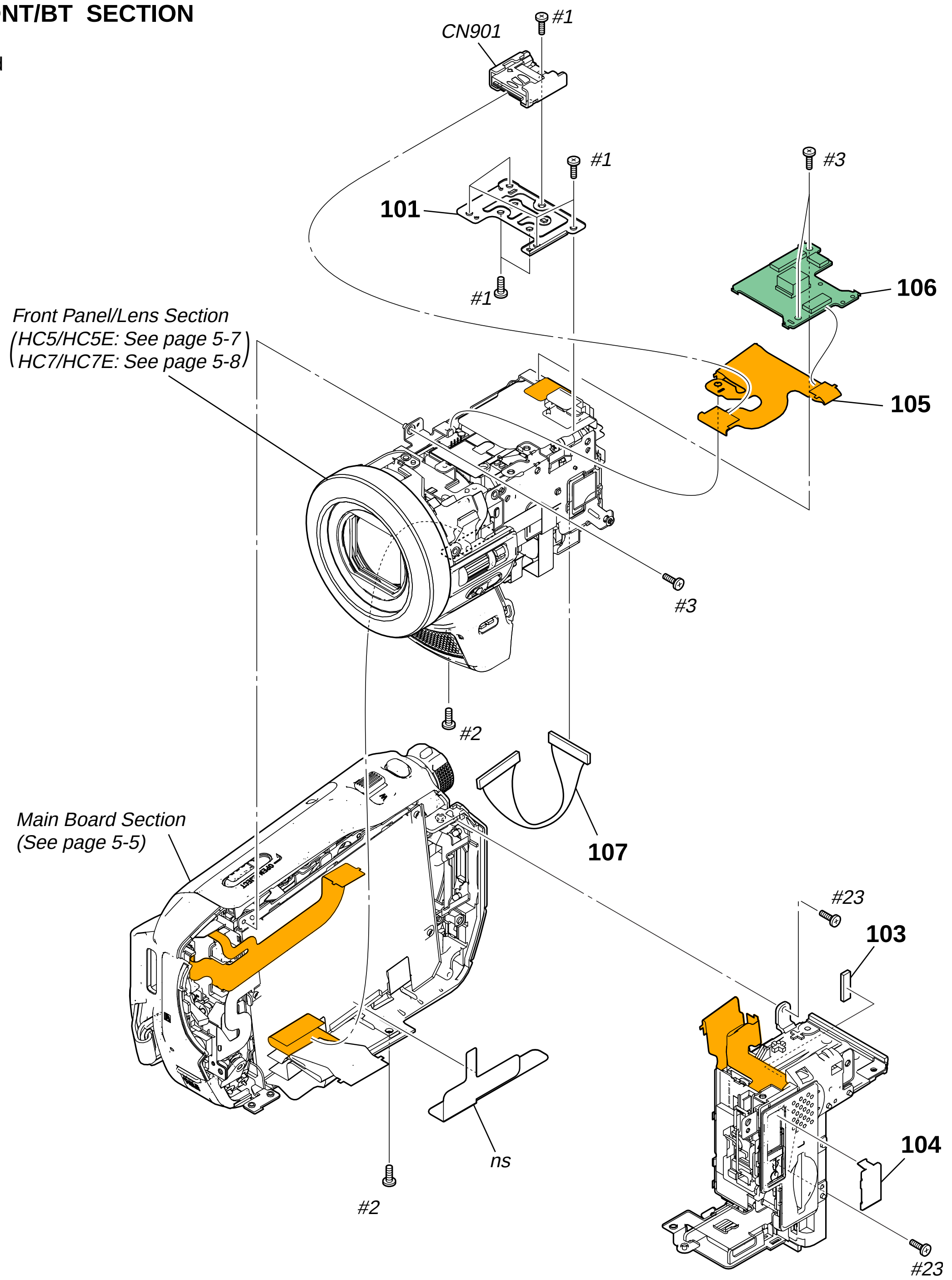


Ref. No.	Part No.	Description
51	X-2176-763-1	COVER ASSY, SHOE (HC7/HC7E)
51	X-2176-764-1	COVER ASSY (241), SHOE (HC5/HC5E)
52	X-2176-766-1	CABINET ASSY, TOP (HC7/HC7E)
52	X-2176-767-1	CABINET ASSY TOP (241) (HC5/HC5E)

Ref. No.	Part No.	Description
#1	2-635-562-11	SCREW (M1.7) (Black)
#2	2-635-562-31	SCREW (M1.7) (Black)
#10	2-599-475-31	SCREW (M1.7) (Silver)

5-1-3. FRONT/BT SECTION

ns: not supplied



Note : ハーネス（HN-045/HN-046）の交換時は2-1ページの“Note for disconnecting the harness (HN-045/HN-046)”を参照してください。

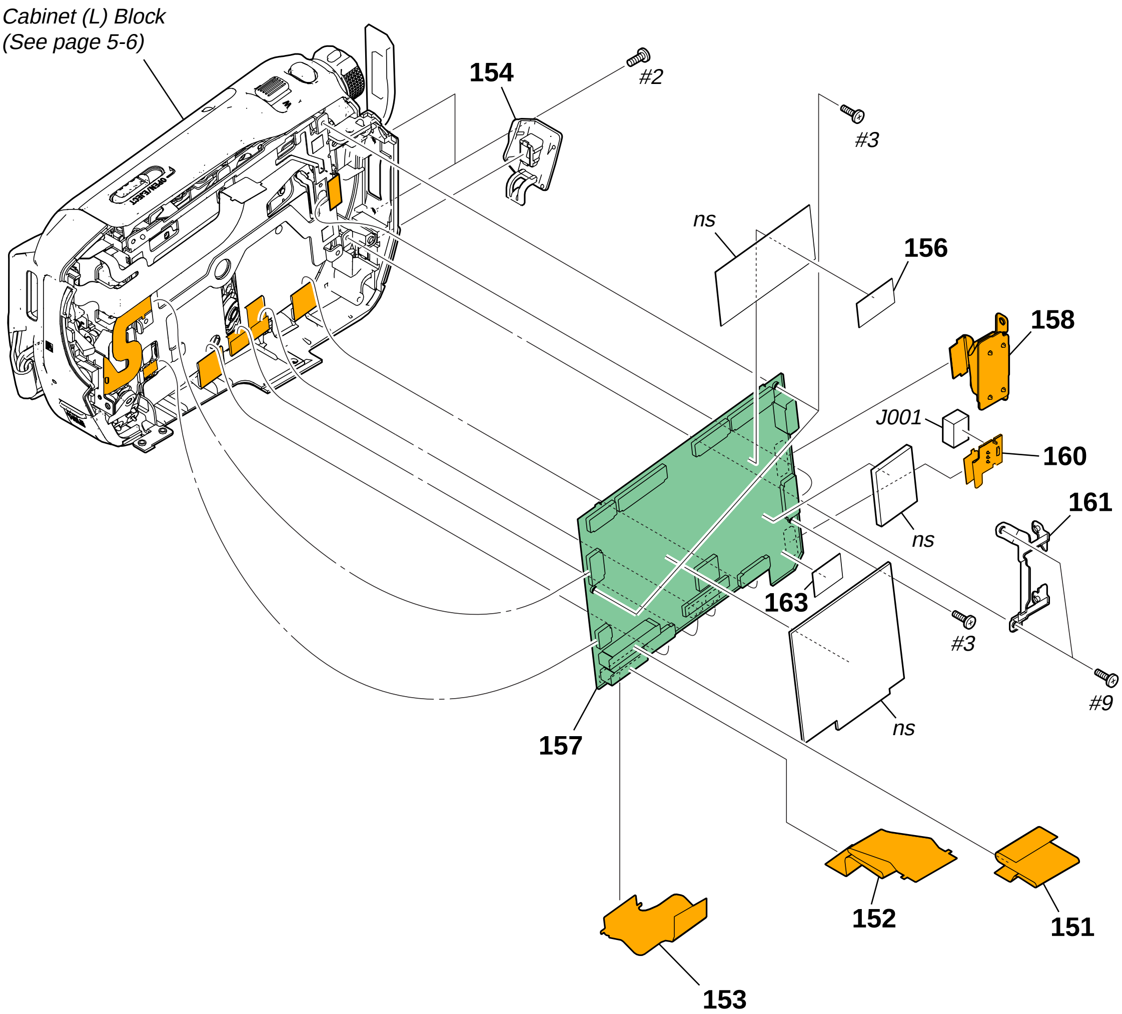
Note : Refer to page 2-1 “Note for disconnecting the harness (HN-045/HN-046)” when changing the harness (HN-045/HN-046).

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
* 101	3-095-795-01	BRACKET (242), SHOE (HC7/HC7E)
* 101	3-095-796-01	BRACKET (241), SHOE (HC5/HC5E)
* 103	3-098-451-01	GASKET (HDMI)
104	3-095-749-01	LID, CPC
105	1-871-767-11	FP-652 FLEXIBLE BOARD
⚠106	A-1234-567-A	ST-164 BOARD, COMPLETE
107	1-965-256-31	HARNESS (HN-045) (HC7/HC7E)
107	1-965-258-51	HARNESS (HN-046) (HC5/HC5E)
CN901	1-818-890-11	CONNECTOR, EXTERNAL (HOT SHOE)
#1	2-635-562-11	SCREW (M1.7) (Black)
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-4. MAIN BOARD SECTION

ns: not supplied

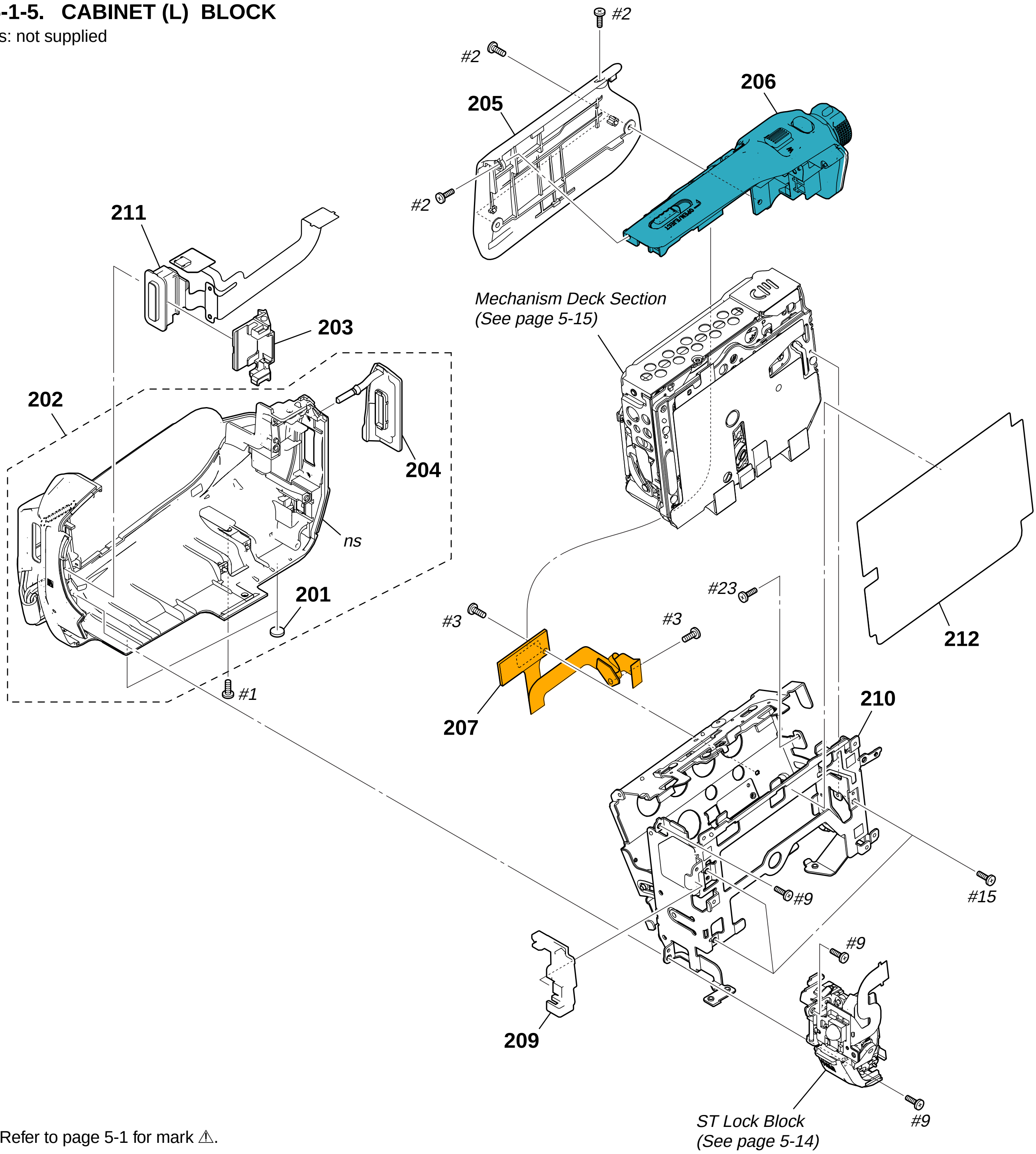


• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
* 151	1-871-763-11	FP-648 FLEXIBLE BOARD
152	1-871-766-11	FP-651 FLEXIBLE BOARD
153	1-871-765-11	FP-650 FLEXIBLE BOARD
154	3-095-747-01	COVER (DCIN), JACK
* 156	3-098-734-01	SHEET (VC1), ELECTROSTATIC
157	A-1237-526-A	VC-500 BOARD, COMPLETE (SERVICE) (HC7)
157	A-1237-527-A	VC-500 BOARD, COMPLETE (SERVICE) (HC7E)
157	A-1237-528-A	VC-500 BOARD, COMPLETE (SERVICE) (HC5)
157	A-1237-529-A	VC-500 BOARD, COMPLETE (SERVICE) (HC5E)
158	A-1231-941-A	FP-645 FLEXIBLE BOARD, COMPLETE
160	1-871-772-11	FP-657 FLEXIBLE BOARD
* 161	3-095-752-01	FRAME, HDMI
163	2-590-635-01	TAPE (AS 1/2)
⚠J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (DC IN)
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#9	3-078-890-21	SCREW, TAPPING (Silver)

5-1-5. CABINET (L) BLOCK

ns: not supplied

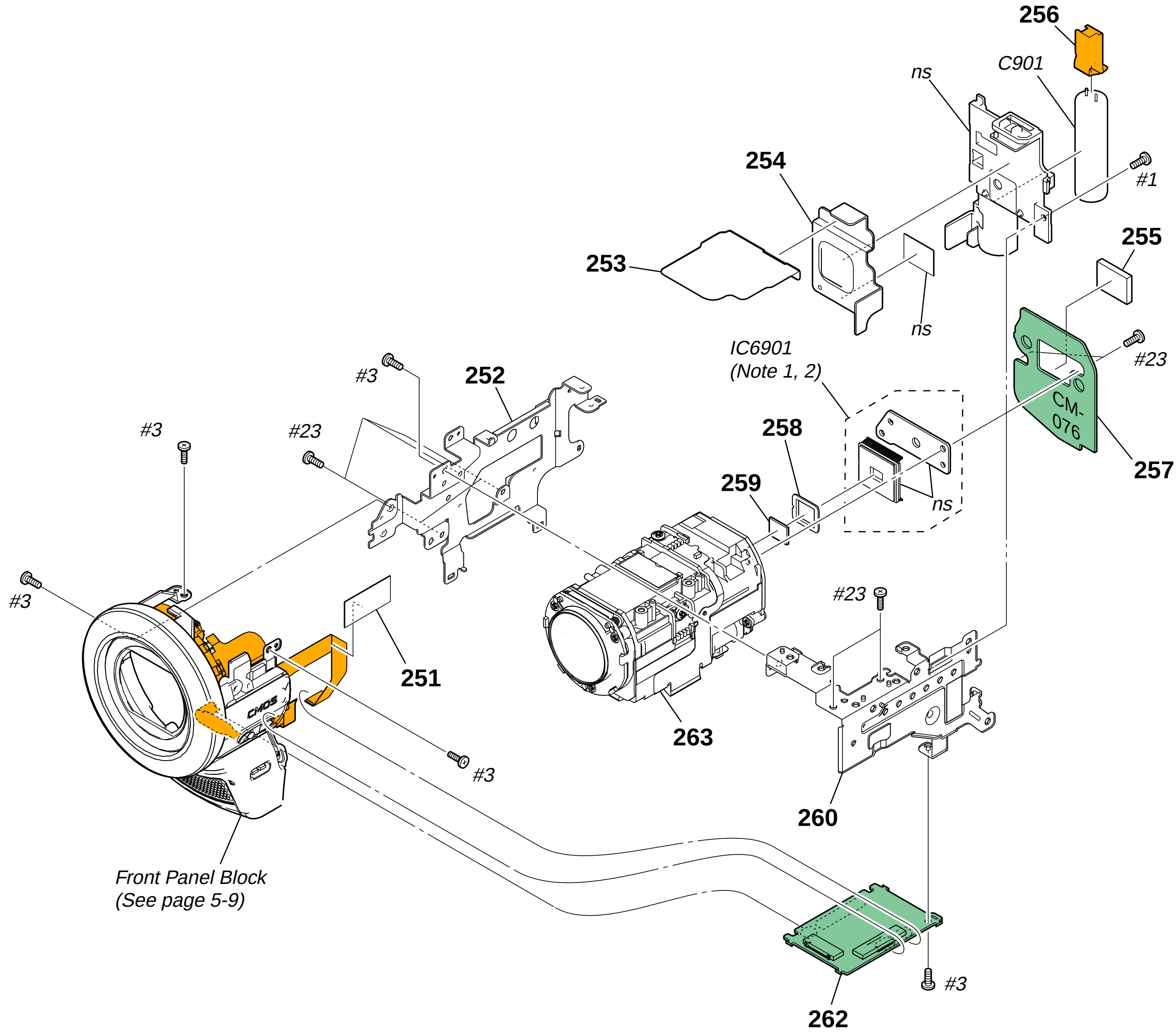


• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
201	2-589-376-01	FOOT (395), RUBBER
202	X-2176-769-1	CABINET (L) ASSY (242) (HC7/HC7E)
202	X-2176-770-1	CABINET (L) ASSY (241) (HC5/HC5E)
203	3-095-779-01	RETAINER, ST
204	3-095-770-01	COVER (HDMI), JACK
205	3-095-755-01	CABINET (G)
206	1-479-895-11	SWITCH BLOCK, CONTROL (PS24200) (J)
206	1-479-895-21	SWITCH BLOCK, CONTROL (PS24200) (EXCEPT J)
207	A-1231-942-A	FP-646 FLEXIBLE BOARD, COMPLETE
* 209	3-095-754-01	CLAMP (ST), FLEXIBLE
210	X-2176-765-1	FRAME ASSY, MD
⚠211	1-479-888-11	FLASH UNIT
212	3-095-751-01	SHEET (VC), INSULATING
#1	2-635-562-11	SCREW (M1.7) (Black)
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#9	3-078-890-21	SCREW, TAPPING (Silver)
#15	3-062-214-01	SCREW (M1.4 X 1.5) (Silver)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-6. FRONT PANEL/LENS SECTION (HC5/HC5E)

ns: not supplied



Note 1: IC6901はマウント済CM-076基板には含まれません。	Note 1: IC6901 is not included in CM-076 complete board.
Note 2: イメージャの交換時は4-4ページの“イメージャ交換時の注意”を必ずお読みください。	Note 2: Be sure to read “Precuations for Replacement of Imager” on page 4-3 when changing the imager.

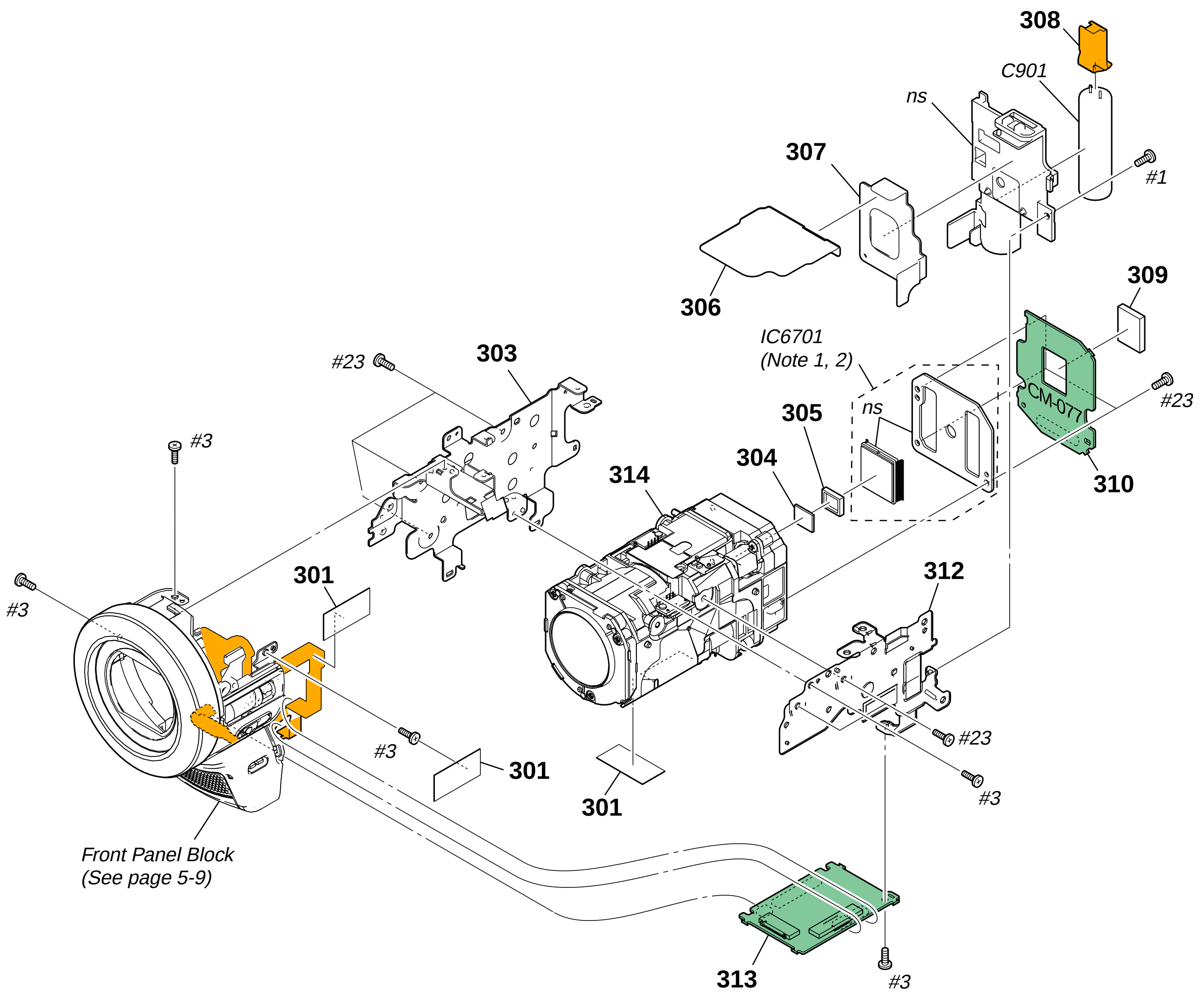
• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
* 251	3-941-343-01	TAPE (A)
252	X-2176-773-1	FRAME (L) ASSY (241), LENS
* 253	3-095-797-01	SHEET (CMOS), SHIELD
* 254	3-095-787-01	HEAT SINK (CMOS) (241)
* 255	3-095-788-01	SHEET (CMOS) (C), RADIATION
* 256	1-871-773-11	FP-658 FLEXIBLE BOARD
257	A-1231-932-A	CM-076 BOARD, COMPLETE
258	2-629-086-01	RUBBER (871), SEAL
259	1-788-382-11	OPTICAL FILTERBLOCK (OFB-03-26)
260	X-2176-775-1	FRAME (R) ASSY (241), LENS

Ref. No.	Part No.	Description
262	A-1231-929-A	LD-221 BOARD, COMPLETE
263	8-848-825-01	DEVICE, LENS LSV-942C
⚠C901	1-112-766-11	CAP, ELECT 70uF 330V
IC6901	A-1172-742-A	CMOS BLOCK ASSY (CMOS IMAGER) (Note 1, 2)
#1	2-635-562-11	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-7. FRONT PANEL/LENS SECTION (HC7/HC7E)

ns: not supplied



Note 1: IC6701はマウント済CM-077基板には含まれません。

Note 2: イメージャの交換時は4-4ページの“イメージャ交換時の注意”を必ずお読みください。

Note 1: IC6701 is not included in CM-077 complete board.

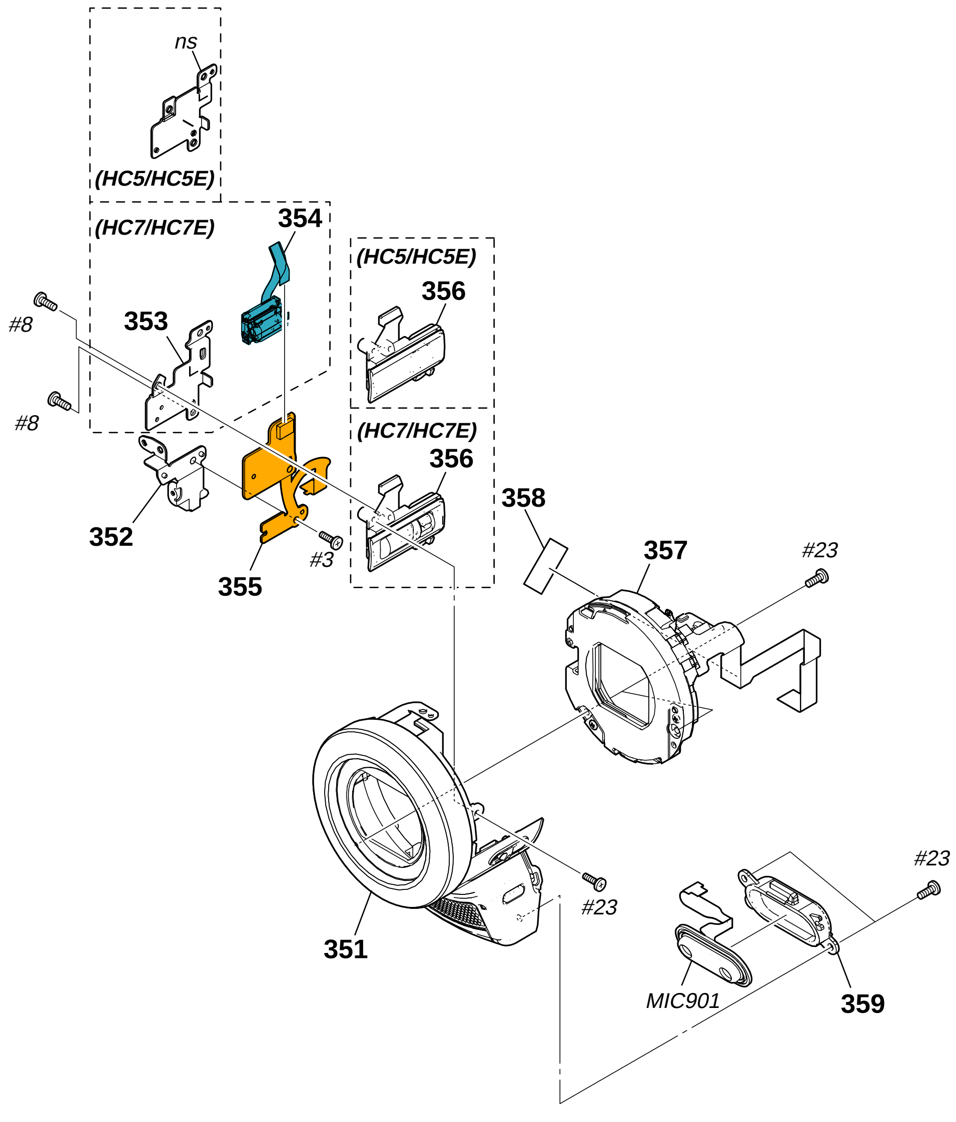
Note 2: Be sure to read “Precuations for Replacement of Imager” on page 4-3 when changing the imager.

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
* 301	3-941-343-01	TAPE (A)
303	X-2176-772-1	FRAME (L) ASSY (242), LENS
304	1-788-558-11	FILTER BLOCK, OPTICAL
305	2-698-010-01	RUBBER (1190), SEAL
* 306	3-095-797-01	SHEET (CMOS), SHIELD
* 307	3-095-786-01	HEAT SINK (CMOS) (242)
* 308	1-871-773-11	FP-658 FLEXIBLE BOARD
* 309	3-095-788-01	SHEET (CMOS) (C), RADIATION
310	A-1237-309-A	CM-077 BOARD, COMPLETE (SERVICE)
312	X-2176-774-1	FRAME (R) ASSY (242), LENS
313	A-1231-928-A	LD-221 BOARD, COMPLETE
314	A-1227-735-A	DEVICE, LENS LSV-1190A (SERVICE)
⚠C901	1-112-766-11	CAP, ELECT 70uF 330V
IC6701	A-1209-688-A	CMOS BLOCK ASSY (CMOS IMAGER) (Note 1, 2)
#1	2-635-562-11	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-8. FRONT PANEL BLOCK

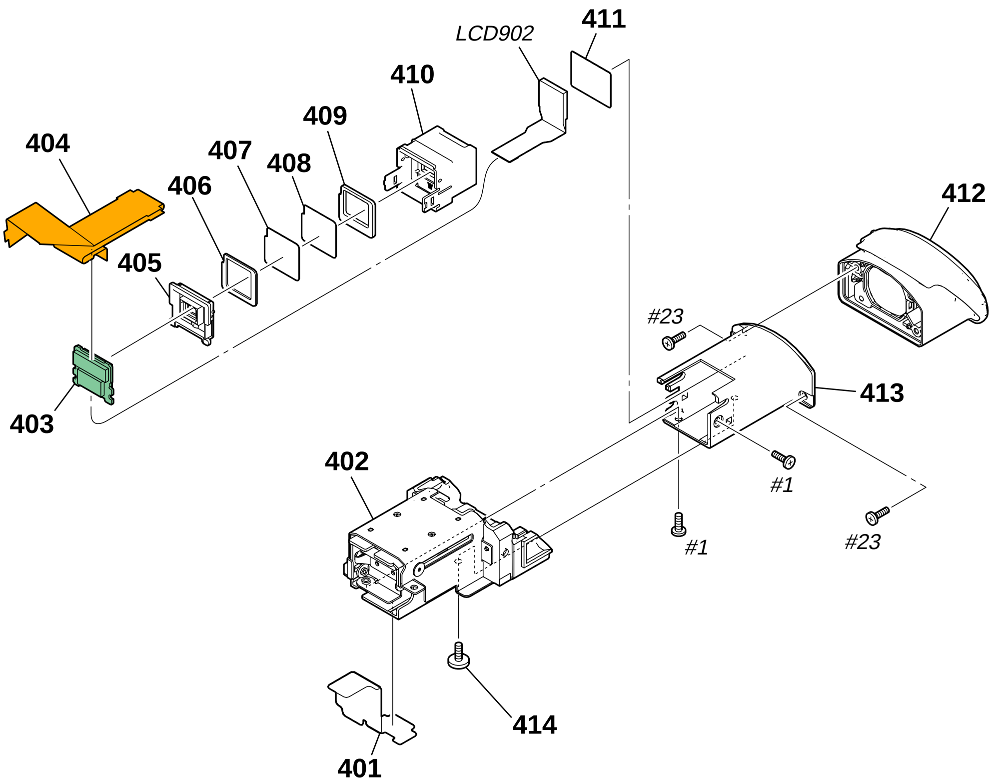
ns: not supplied



Ref. No.	Part No.	Description
351	X-2176-776-1	PANEL ASSY (242), F (HC7: J)
351	X-2176-777-1	PANEL ASSY (241), F (HC5/HC5E)
351	X-2176-778-1	PANEL ASSY (242E), F (HC7: US, CND, E, KR, JE/HC7E)
* 352	3-095-825-01	BRACKET, BL
* 353	3-095-822-01	BRACKET (242), AD (HC7/HC7E)
354	1-479-004-31	SWITCH BLOCK, CONTROL (AD11800) (HC7/HC7E)
355	A-1231-943-A	FP-644 FLEXIBLE BOARD, COMPLETE (HC7/HC7E)
355	A-1231-944-A	FP-644 FLEXIBLE BOARD, COMPLETE (HC5/HC5E)
356	X-2176-779-2	BUTTON ASSY, AD (HC7/HC7E)
356	3-095-821-02	BASE (241), AD (HC5/HC5E)
357	A-1217-971-A	LENS BARRIER UNIT
* 358	3-941-343-01	TAPE (A)
* 359	3-095-824-01	RETAINER, MICROPHONE
MIC901	1-542-658-11	MIC UNIT
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#8	3-078-890-01	SCREW, TAPPING (Silver)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

HARDWARE LIST

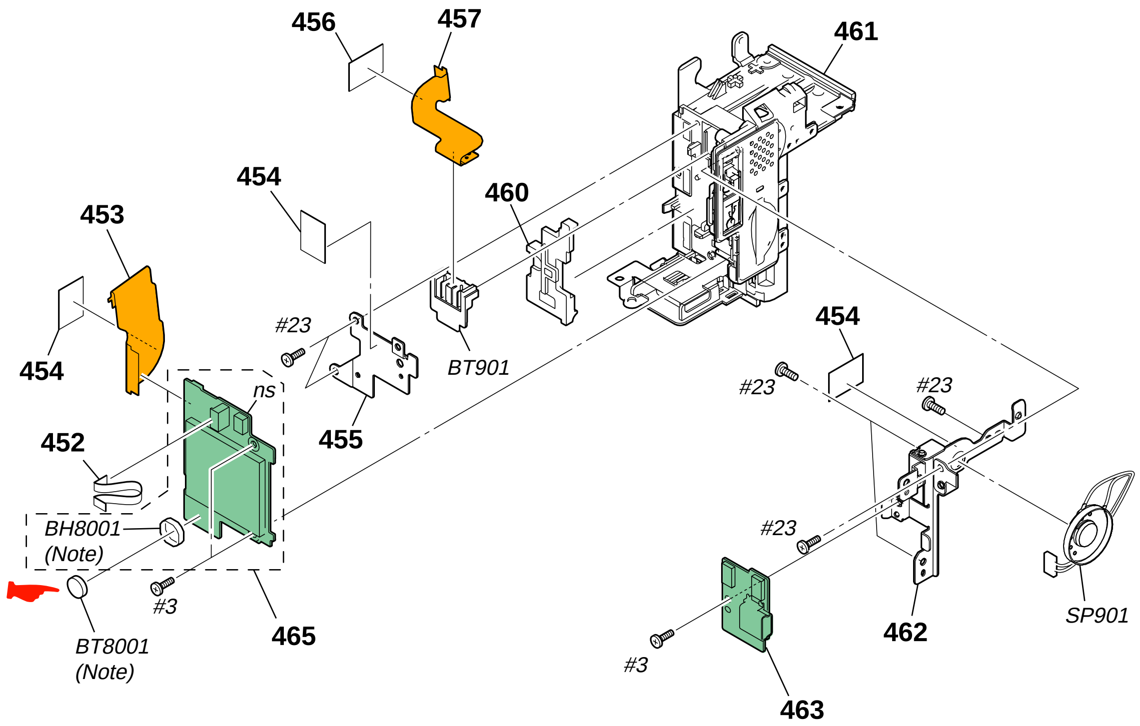
5-1-9. VF BLOCK ASSY



Ref. No.	Part No.	Description
* 401	3-095-859-01	SHEET (CAPACITOR), INSULATING
402	X-2176-782-1	BASE ASSY, SLIDE
403	A-1231-935-A	BL-007 BOARD, COMPLETE
404	1-871-770-11	FP-655 FLEXIBLE BOARD
405	2-664-672-01	GUIDE, LAMP
* 406	2-638-819-01	CUSHION, LCD
* 407	2-638-818-01	ILLUMINATOR
* 408	2-638-816-01	PLATE (TFT), DEFLECTION
409	2-664-671-01	SPACER, LCD
* 410	2-699-236-01	CABINET (222), INNER
* 411	2-668-134-01	PANEL (CF), POLARIZATION
412	X-2176-781-1	EYE CUP ASSY
413	3-095-855-01	CABINET, VF
414	3-095-854-01	SHAFT, VF GUIDE
LCD902	8-753-241-14	LCX076AKE-1
#1	2-635-562-11	SCREW (M1.7) (Black)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-10. BT PANEL BLOCK

ns: not supplied



: BT8001 (BATTERY, LITHIUM SECONDARY)
Board on the mount position.
(See page 4-51.)

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

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

Note: Replace the battery holder (BH8001) together when replacing the lithium battery (BT8001) on the MS-361 board. (The battery holder removed once cannot be used again.) When mounting these parts, mount new battery holder first and attach new lithium battery next.

ノート: MS-361基板のリチウム電池（BT8001）を交換する場合はバッテリホルダ（BH8001）も同時に新品に交換して下さい。（一度使用したバッテリホルダは再使用できません。）
部品取り付けの際は，先にバッテリホルダを取り付けてからリチウム電池を装着して下さい。

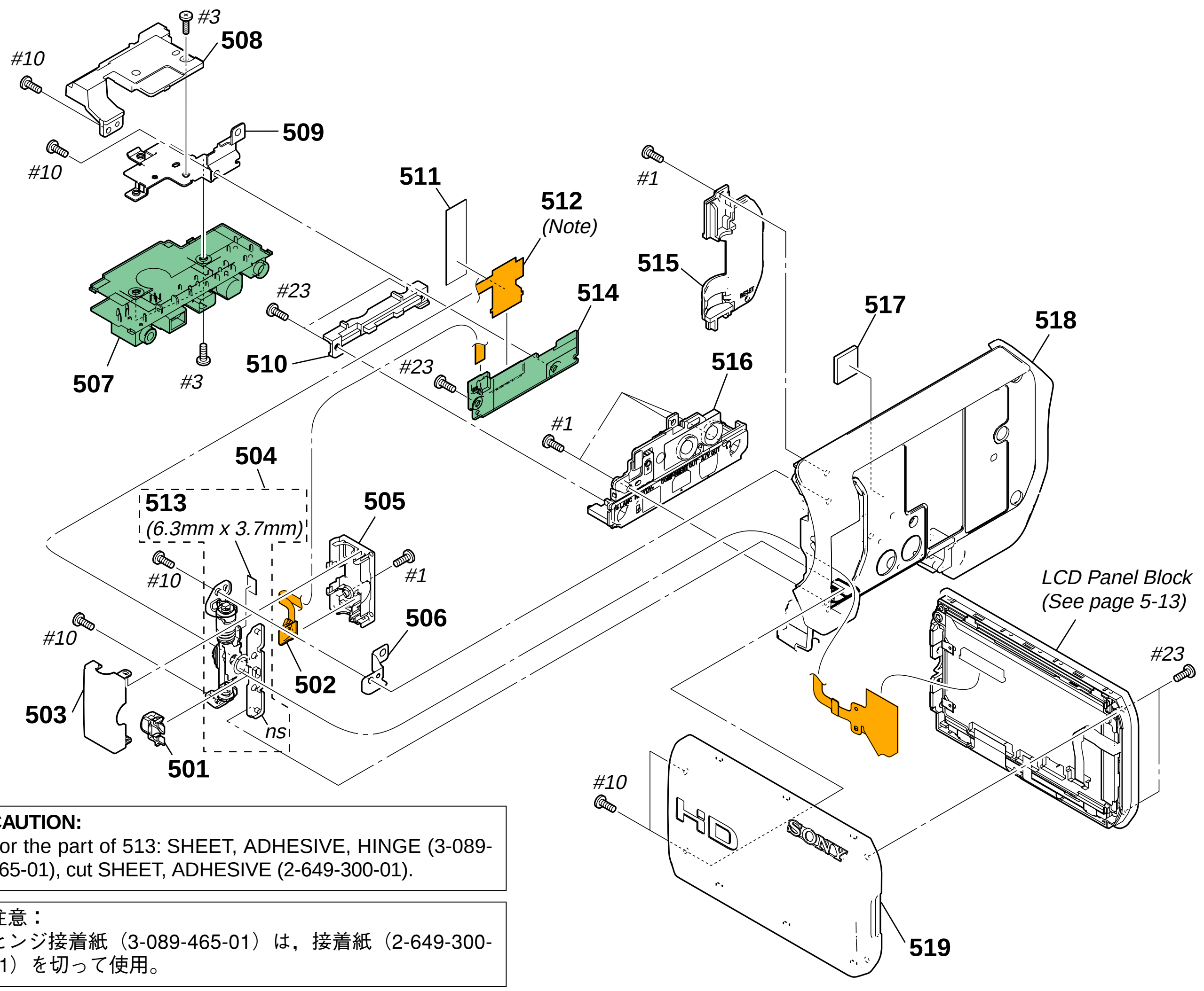
• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
452	1-833-788-11	CABLE, FLEXIBLE FLAT (FFC-107)
* 453	1-871-764-11	FP-649 FLEXIBLE BOARD
454	2-590-635-01	TAPE (AS 1/2)
* 455	3-095-837-01	RETAINER, BT TERMINAL
* 456	3-098-733-01	SEET (BT), ELECTROSTATIC
* 457	1-871-771-11	FP-656 FLEXIBLE BOARD
* 460	3-097-852-01	RETAINER, USB TERMINAL
461	X-2176-780-1	PANEL ASSY, BT
462	X-2177-013-1	BRACKET ASSY, MS

Ref. No.	Part No.	Description
463	A-1231-933-A	US-013 BOARD, COMPLETE
465	A-1231-934-A	MS-361 BOARD, COMPLETE
⚠BH8001	1-756-615-41	HOLDER, BATTERY (Note)
⚠BT8001	1-756-134-12	BATTERY, STORAGE, LITHIUM (Note)
⚠BT901	1-780-064-21	BATTERY TERMINAL BOARD
SP901	1-825-260-23	LOUD SPEAKER (1.6CM)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-11. CABINET (R) BLOCK

ns: not supplied



CAUTION:
For the part of 513: SHEET, ADHESIVE, HINGE (3-089-465-01), cut SHEET, ADHESIVE (2-649-300-01).

注意：
ヒンジ接着紙（3-089-465-01）は，接着紙（2-649-300-01）を切って使用。

Note: FP-659フレキシブル基板取付時はヘルプを必ずお読みください。

Note: Be sure to read “HELP” when you install the FP-659 flexible board.

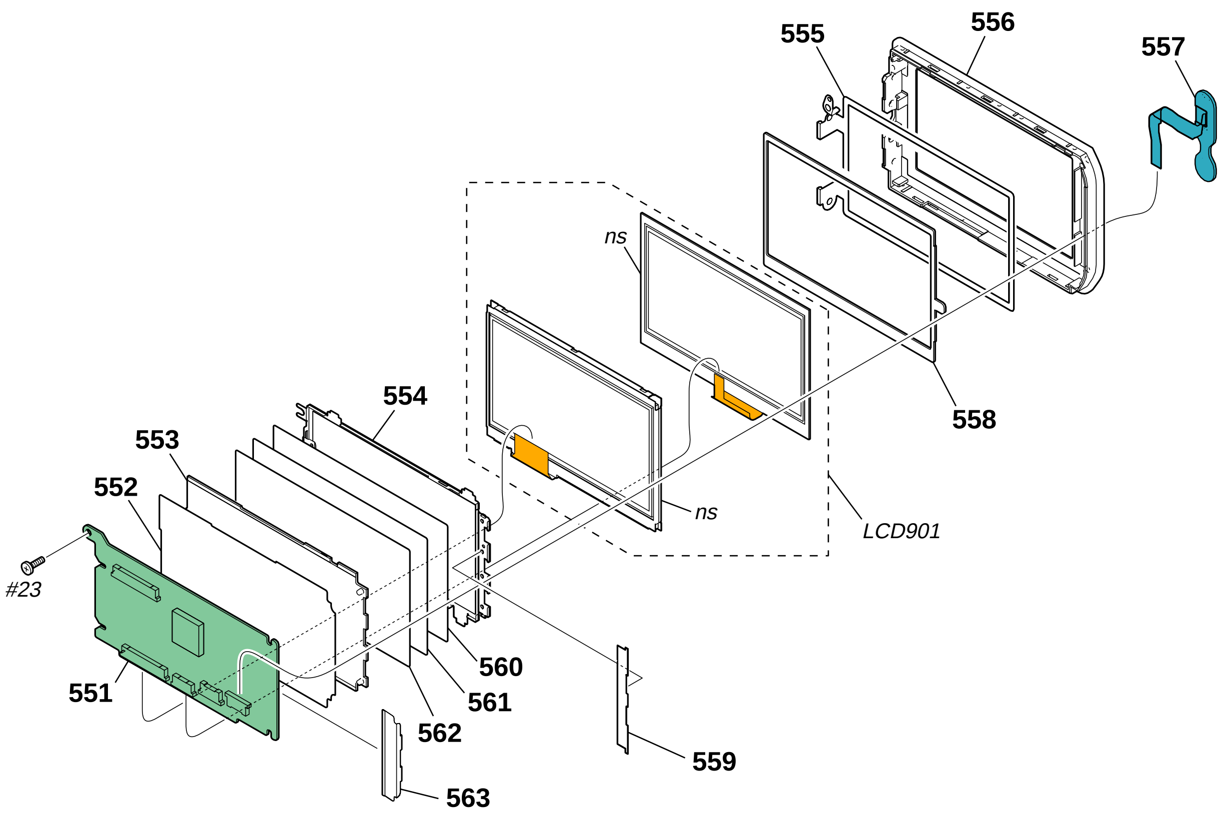
	Ref. No.	Part No.	Description
	501	2-668-087-01	CLAMP, FLEXIBLE
	502	A-1174-647-A	FP-372 FLEXIBLE BOARD, COMPLETE
	503	3-095-878-01	COVER (FRONT), HINGE (HC7/HC7E)
	503	3-095-878-11	COVER (FRONT), HINGE (HC5/HC5E)
	504	X-2108-475-1	HINGE ASSY
	505	3-095-879-01	COVER (REAR), HINGE
*	506	3-095-871-01	PLATE (HINGE), GROUND
	507	A-1231-937-A	JK-333 BOARD, COMPLETE (HC7/HC7E)
	507	A-1231-938-A	JK-333 BOARD, COMPLETE (HC5/HC5E)
*	508	3-095-873-01	GUARD, JK
*	509	3-095-872-01	PLATE, JK RETAINER
*	510	3-095-874-01	RETAINER, JK TERMINAL
	511	2-590-635-01	TAPE (AS 1/2)
	512	1-871-774-11	FP-659 FLEXIBLE BOARD
	513	CAUTION	SHEET, ADHESIVE, HINGE
	514	A-1231-936-A	CK-177 BOARD, COMPLETE
	515	3-095-875-01	BLIND, HINGE
	516	X-2176-786-1	CABINET ASSY (242), TERMINAL (HC7/HC7E)
	516	X-2176-787-1	CABINET ASSY (241), TERMINAL (HC5/HC5E)
*	517	3-095-789-01	SHEET (CMOS) (R), RADIATION
	518	X-2176-783-1	CABINET (R) ASSY (HC7: J)
	518	X-2176-784-1	CABINET (R) ASSY (241) (HC5/HC5E)
	518	X-2176-785-1	CABINET (R) ASSY (E) (HC7: US, CND, E, KR, JE/HC7E)
	519	X-2176-788-1	CABINET (C) ASSY, P (HC7/HC7E)
	519	X-2176-789-1	CABINET (C) ASSY (241), P (HC5/HC5E)
	#1	2-635-562-11	SCREW (M1.7) (Black)
	#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
	#10	2-599-475-31	SCREW (M1.7) (Silver)
	#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5. REPAIR PARTS LIST

HARDWARE LIST

5-1-12. LCD PANEL BLOCK

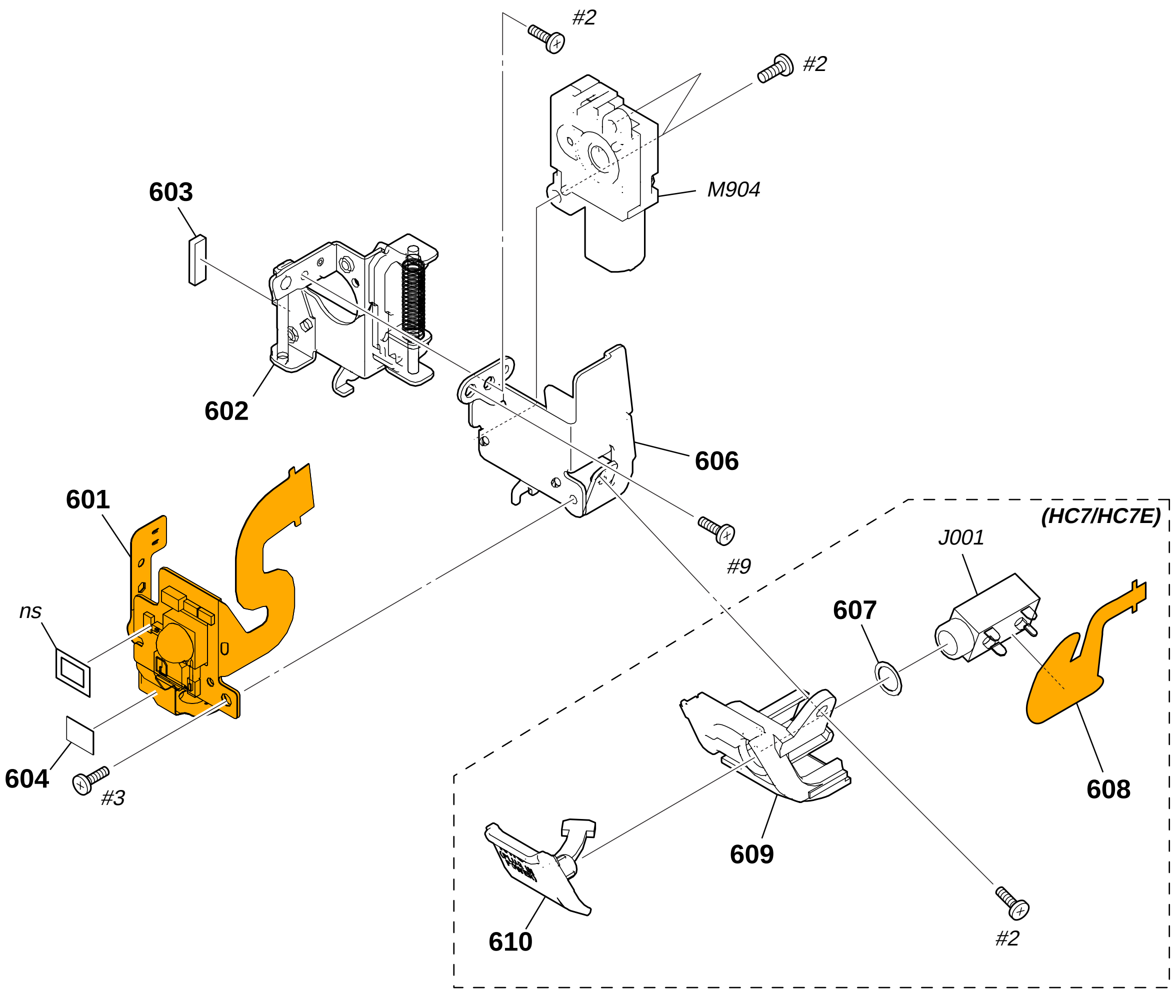
ns: not supplied



Ref. No.	Part No.	Description
551	A-1231-939-A	PD-325 BOARD, COMPLETE
552	2-894-347-01	REFLECTION SHEET (2.7J)
553	2-666-801-01	LIGHT GUIDE (2.7)
554	2-887-999-01	FRONT FRAME (2.7J)
* 555	3-095-876-01	PLATE (P), GROUND
556	3-095-877-01	CABINET (M), P (J)
556	3-095-877-11	CABINET (M), P (EXCEPT J)
557	1-479-063-21	KEY BLOCK, CONTROL (SB9000)
* 558	2-672-277-01	CUSHION, TP
559	2-666-807-02	AG SHEET (2.7)
560	2-666-802-01	PRISM SHEET V (2.7)
561	2-666-803-01	PRISM SHEET H (2.7)
562	2-666-804-01	DIFFUSION SHEET (2.7)
* 563	2-638-780-01	CLIP
LCD901	A-1228-786-A	TP BLOCK ASSY (27ESHGU07)
#23	3-080-204-11	SCREW, TAPPING, P2 (Black)

5-1-13. ST LOCK BLOCK

ns: not supplied

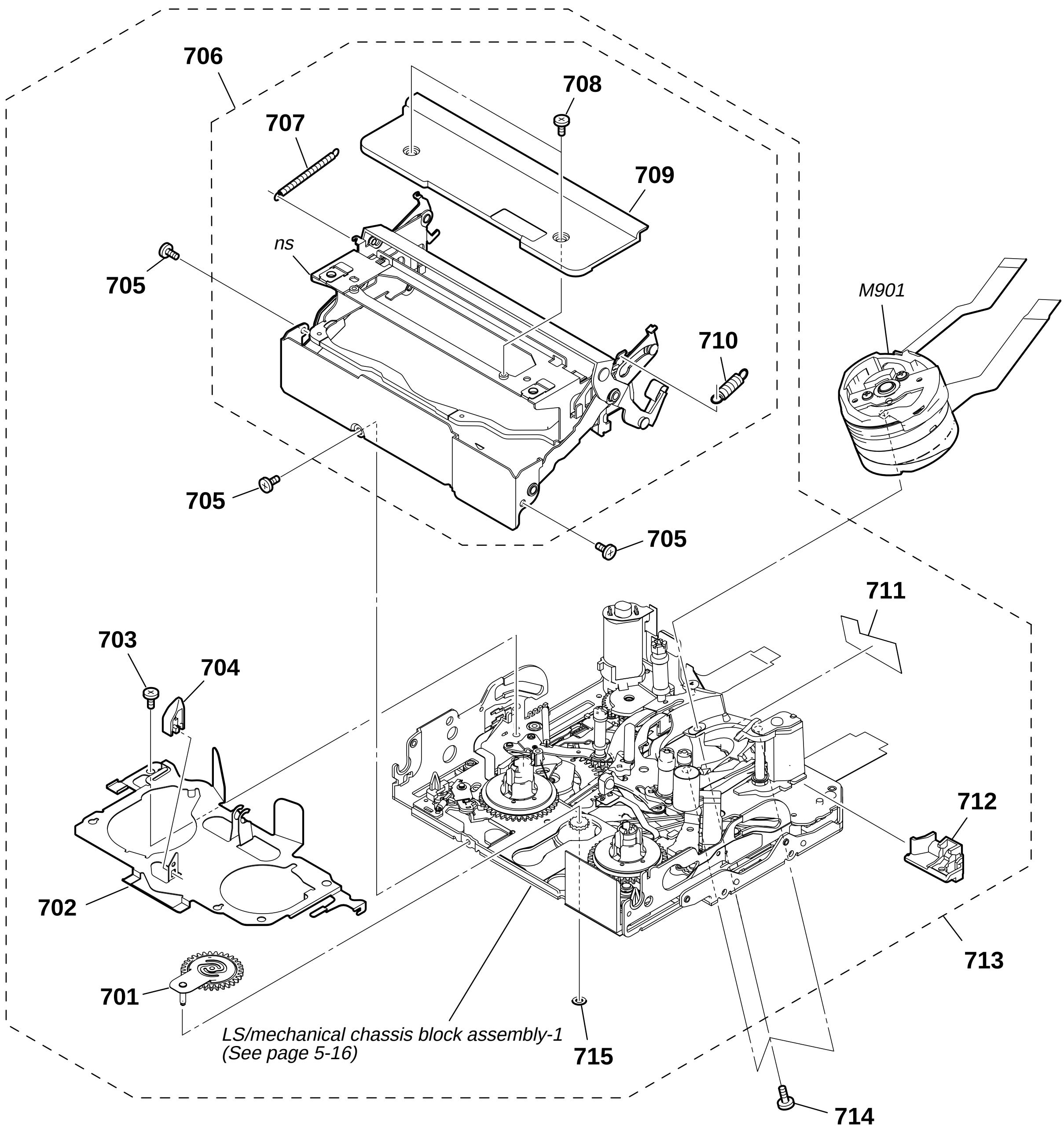


Ref. No.	Part No.	Description
601	A-1231-940-A	FP-643 FLEXIBLE BOARD, COMPLETE
602	X-2176-771-1	LOCK ASSY, ST
* 603	3-196-455-01	GASKET (ST)
604	2-319-256-01	TAPE AS (0409)
* 606	3-095-778-01	BRACKET, IR CHASSIS
607	3-098-924-01	SHEET, MICROPHONE RETAINER (HC7/HC7E)
608	1-871-762-11	FP-647 FLEXIBLE BOARD (HC7/HC7E)
* 609	3-095-753-01	ESCUTCHEON, MICROPHONE (HC7/HC7E)

Ref. No.	Part No.	Description
610	3-095-748-01	COVER (MIC), JACK (HC7/HC7E)
J001	1-691-737-41	JACK (SMALL TYPE) (MIC (PLUG IN POWER)) (HC7/HC7E)
M904	1-787-561-11	MOTOR UNIT (GEARD MOTOR)
#2	2-635-562-31	SCREW (M1.7) (Black)
#3	2-660-401-01	SCREW (M1.7), NEW TRU-STAR, P2 (Red)
#9	3-078-890-21	SCREW, TAPPING (Silver)

5-1-14. MECHANISM DECK SECTION

ns: not supplied

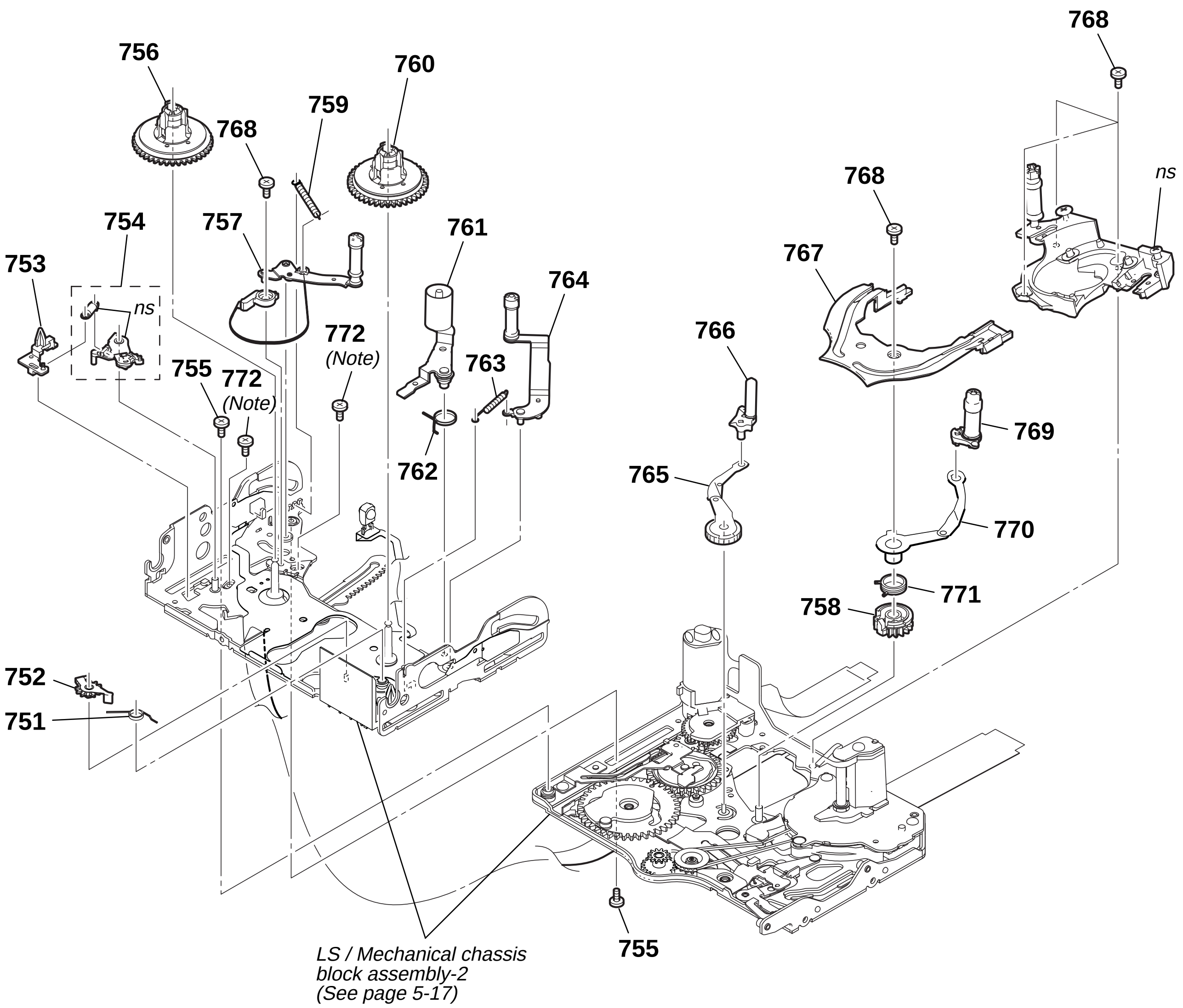


Ref. No.	Part No.	Description
701	X-2024-478-1	PENDULUM ASSY
702	2-342-917-02	LED BASE
703	7-627-850-77	SCREW, PRECISION +P 1.4X1.8
704	3-079-366-11	RELEASE, REEL LOCK
705	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD
706	X-2024-450-3	COMPARTMENT ASSY, CASSETTE
707	2-342-926-01	SPRING (ARM S), TENSION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

Ref. No.	Part No.	Description
709	2-342-933-02	PLATE, TOP
710	2-342-927-01	SPRING (ARM T), TENSION COIL
711	2-637-905-01	SHEET, FLEXIBLE ADHESIVE
712	2-342-918-01	TG6 CATCHER
713	A-1080-997-A	MD (N100) SUB ASSY A
714	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
715	3-315-414-31	WASHER
M901	A-1154-545-A	DRUM (DEH-33E-R)

5-1-15. LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-1

ns: not supplied



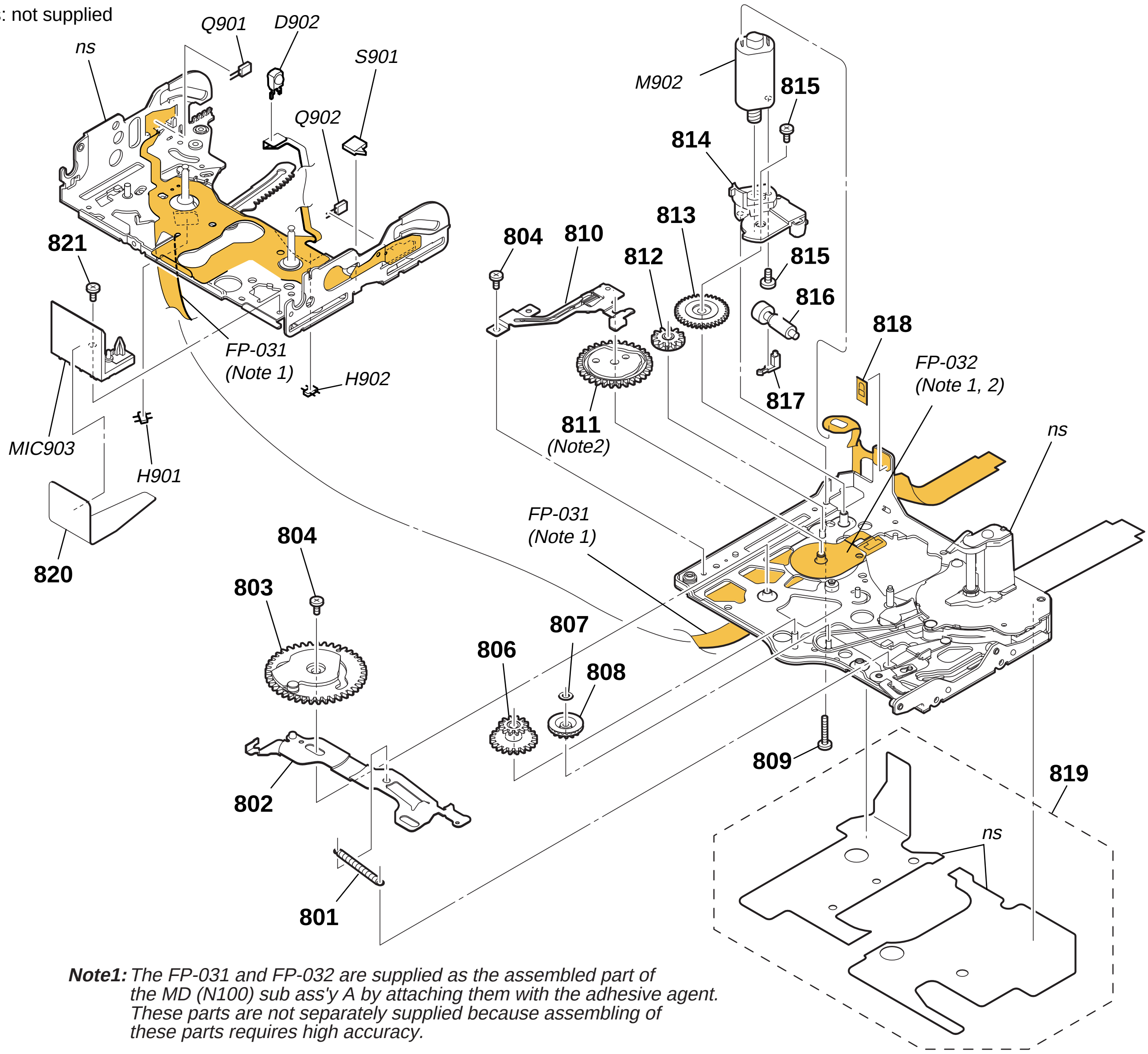
Note: *These two screws are the fixing screws of the LS cam plate.*
These two fixing screws are used for adjsting the LS cam plate position.
(refar to 4-2. LS cam adjustment of DV mechanical adjustment manual IX)

Ref. No.	Part No.	Description
751	2-342-759-01	SPRING, RVS BRAKE
752	A-1083-005-A	BLOCK ASSY, RVS BRAKE
753	2-342-731-01	POSITIONING, S
754	A-1083-006-A	BLOCK ASSY, S BRAKE
755	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD
756	X-2024-473-1	TABLE ASSY, S REEL
757	A-1083-007-B	BLOCK ASSY, TENSION REGULATOR
758	2-342-705-01	GEAR (T), GL
759	2-342-902-01	SPRING, TENSION REGULATOR
760	X-2024-474-1	TABLE ASSY, T REEL
761	X-2024-476-1	ARM ASSY, PINCH
762	2-342-906-01	SPRING (PINCH RETURN), TORSION

Ref. No.	Part No.	Description
763	2-342-626-01	SPRING (RETURN TG6), EXTENSION
764	A-1083-002-A	BLOCK ASSY, TG6
765	X-2024-468-3	ARM ASSY (S), GL
766	X-2024-465-1	COASTER (S) ASSY
767	2-342-612-01	RAIL
768	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
769	X-2024-466-1	COASTER (T) ASSY
770	X-2024-469-1	ARM (T) ASSY, GL
771	2-342-716-01	SPRING (T), TORSION COIL
772	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD (for adjustment)

5-1-16. LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-2

ns: not supplied



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

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

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

Ref. No.	Part No.	Description
816	2-342-689-01	WORM SHAFT (2J)
817	2-637-947-01	BASE, MOTOR HOLDER
818	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
819	2-342-686-01	COVER, CAPSTAN
820	2-541-984-01	MIC COVER
821	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
D902	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
M902	X-2024-464-1	MOTOR ASSY (LOADING)
MIC903	1-818-576-11	PIN, CONNECTOR (WITH DETECTION)
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
S901	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description			
	A-1231-935-A	BL-007 BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C5901	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5902	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
		< CONNECTOR >			
* CN5901	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
* CN5902	1-817-560-71	CONNECTOR, FPC (ZIP) 21P			
		< DIODE >			
* D5901	6-501-591-01	DIODE NESW007AT-T099 (EVF BACKLIGHT)			
D5902	8-719-074-67	DIODE EDZ-TE61-5.6B			

Ref. No.	Part No.	Description			
	A-1231-936-A	CK-177 BOARD, COMPLETE			
		********************			
		< CONNECTOR >			
* CN6701	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P			
* CN6702	1-816-650-51	FFC/FPC CONNECTOR (LIF) 24P			
CN6703	1-779-339-51	CONNECTOR, FFC/FPC 30P			
		< DIODE >			
D6701	8-719-084-17	DIODE EMZ6.8ET2R			
		< RESISTOR >			
R6701	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R6702	1-218-953-11	RES-CHIP	1K	5%	1/16W
		< SWITCH >			
S6701	1-786-148-11	SWITCH, PUSH (1 KEY) (PANEL OPEN/CLOSE)			
S6702	1-771-138-21	SWITCH, KEY BOARD (RESET)			
S6703	1-771-138-21	SWITCH, KEY BOARD (DISPLAY/BATT INFO)			
S6704	1-771-138-21	SWITCH, KEY BOARD (EASY)			

Electrical parts list of the CM-076 and CM-077 boards are not shown.
Pages 5-19 and 5-20 are not shown.

Ref. No.	Part No.	Description
	(Not supplied)	FP-031 FLEXIBLE BOARD
		********************
		(This flexible board is included in MD (N100) sub assy A (A-1080-997-A).)
		< DIODE >
D902	6-500-652-01	DIODE GL453SE0000F (TAPE LED)
		< HOLE ELEMENT >
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
		< CONNECTOR >
MIC903	1-818-576-11	PIN, CONNECTOR (WITH DETECTION)
		< TRANSISTOR >
Q901	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
Q902	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
		< SWITCH >
S901	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)

Ref. No.	Part No.	Description
	(Not supplied)	FP-032 FLEXIBLE BOARD
		********************
		(This flexible board with S903 is included in MD (N100) sub assy A (A-1080-997-A).)

Ref. No.	Part No.	Description
	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
		********************

Ref. No.	Part No.	Description
	A-1174-647-A	FP-372 FLEXIBLE BOARD, COMPLETE
		******************************
		< SWITCH >
S301	1-786-680-21	SWITCH, DETECTION (SMD) (PANEL REVERSE)

Ref. No.	Part No.	Description
	A-1231-940-A	FP-643 FLEXIBLE BOARD, COMPLETE
		******************************
		(M904 is not included in FP-643 flexible complete board.)
		< CAPACITOR >
C001	1-165-989-11	CERAMIC CHIP 10uF 10% 6.3V
		< DIODE >
D001	6-500-512-01	DIODE CL-330IRS-X-TU (NIGHTSHOT)
D003	8-719-064-07	DIODE SML-310LTT86 (CAMERA RECORDING)
		< IC >
IC001	6-600-163-01	IC RS-770
		< MOTOR >
M904	1-787-561-11	MOTOR UNIT (GEARD MOTOR)
		< RESISTOR >
R001	1-216-801-11	METAL CHIP 22 5% 1/10W
R002	1-216-801-11	METAL CHIP 22 5% 1/10W
R004	1-216-819-11	METAL CHIP 680 5% 1/10W

Ref. No.	Part No.	Description
	A-1231-943-A	FP-644 FLEXIBLE BOARD, COMPLETE (HC7/HC7E)
	A-1231-944-A	FP-644 FLEXIBLE BOARD, COMPLETE (HC5/HC5E)
		******************************
		< CONNECTOR >
* CN001	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P (HC7/HC7E)
		< SWITCH >
S001	1-786-157-31	TACTILE SWITCH (MANUAL) (HC7/HC7E)
S004	1-786-157-31	TACTILE SWITCH (BACK LIGHT)
S005	1-786-148-11	SWITCH, PUSH (1 KEY) (NIGHTSHOT)

Ref. No.	Part No.	Description
	A-1231-941-A	FP-645 FLEXIBLE BOARD, COMPLETE
		******************************
		< CONNECTOR >
* CN001	1-819-696-21	CONNECTOR, HDMI (HDMI OUT)

Ref. No.	Part No.	Description
	A-1231-942-A	FP-646 FLEXIBLE BOARD, COMPLETE
		******************************
		< CONNECTOR >
* CN001	1-816-649-51	FFC/FPC CONNECTOR (LIF) 22P
		< SWITCH >
S001	1-786-180-31	SWITCH, PUSH (1KEY) (EJECT)

Ref. No.	Part No.	Description
	1-871-762-11	FP-647 FLEXIBLE BOARD (HC7/HC7E)
		********************
		(J001 is not included in FP-647 flexible board.)
		< JACK >
J001	1-691-737-41	JACK (SMALL TYPE) (MIC (PLUG IN POWER))

Ref. No.	Part No.	Description
*	1-871-771-11	FP-656 FLEXIBLE BOARD
		********************
		(BT901 is not included in FP-656 flexible board.)
		< BATTERY TERMINAL >
⚠BT901	1-780-064-21	BATTERY TERMINAL BOARD

Ref. No.	Part No.	Description
	1-871-772-11	FP-657 FLEXIBLE BOARD
		********************
		(J001 is not included in FP-657 flexible board.)
		< JACK >
⚠J001	1-815-792-11	CONNECTOR, DC-IN (7.2V) (DC IN)

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
*	1-871-773-11	FP-658 FLEXIBLE BOARD
		********************
		(C901 is not included in FP-658 flexible board.)
		< CAPACITOR >
⚠C901	1-112-766-11	CAP, ELECT 70uF 330V

Ref. No.	Part No.	Description
	A-1231-937-A	JK-333 BOARD, COMPLETE (HC7/HC7E)
	A-1231-938-A	JK-333 BOARD, COMPLETE (HC5/HC5E)
		**********************
		< CAPACITOR >
C8301	1-162-961-11	CERAMIC CHIP 330PF 10% 50V
C8302	1-162-961-11	CERAMIC CHIP 330PF 10% 50V
		< CONNECTOR >
* CN8301	1-794-276-21	CONNECTOR, SQUARE TYPE 4P (HDV/DV)
CN8302	1-818-607-12	CONNECTOR, SQUARE TYPE 10P (COMPONENT OUT)
CN8303	1-815-794-13	CONNECTOR (MULTIPLE) (A/V OUT)
* CN8304	1-819-934-51	CONNECTOR, FPC (ZIF) 39P
		< DIODE >
D8301	6-500-750-01	DIODE NSAD500H-T1-A
D8303	6-500-044-01	DIODE DF6A6.8FU (TE85R)
		< FERRITE BEAD >
FB8301	1-400-927-31	BEAD, FERRITE (1005) (HC7/HC7E)
FB8302	1-400-927-31	BEAD, FERRITE (1005) (HC7/HC7E)
FB8303	1-400-927-31	BEAD, FERRITE (1005)
FB8304	1-400-927-31	BEAD, FERRITE (1005)
		< JACK >
J8301	1-793-995-31	JACK, SUPER SMALL TYPE (LANC)
J8302	1-818-055-21	JACK (HEADPHONES) (HC7/HC7E)
		< COIL >
L8301	1-414-406-11	INDUCTOR 220uH (HC7/HC7E)
L8302	1-414-406-11	INDUCTOR 220uH (HC7/HC7E)
		< THERMISTOR >
TH8301	1-805-726-11	THERMISTOR, POSITIVE
TH8302	1-805-726-11	THERMISTOR, POSITIVE
TH8303	1-805-726-11	THERMISTOR, POSITIVE
TH8304	1-805-726-11	THERMISTOR, POSITIVE
		< VARISTOR >
VDR831	1-803-974-21	VARISTOR, CHIP (1608) (HC7/HC7E)
VDR832	1-803-974-21	VARISTOR, CHIP (1608) (HC7/HC7E)
VDR833	1-803-974-21	VARISTOR, CHIP (1608) (HC7/HC7E)
VDR837	1-803-974-21	VARISTOR, CHIP (1608)

Electrical parts list of the LD-221 board is not shown.
Pages 5-23 and 5-24 are not shown.

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description			
	A-1231-934-A	MS-361 BOARD, COMPLETE			
		************************			

(BT8001 (lithium battery) is not included in MS-361 complete board.)

Ref. No.	Part No.	Description			
		< BATTERY HOLDER>			
⚠BH8001	1-756-615-41	HOLDER, BATTERY (Note)			
		< BATTERY >			
⚠BT8001	1-756-134-12	BATTERY, STORAGE, LITHIUM (Note)			
		< CONNECTOR >			
* CN8001	1-818-087-51	CONNECTOR, FFC/FPC (LIF) 26P			
CN8002	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P			
CN8003	1-779-328-51	CONNECTOR, FFC/FPC 8P			
CN8004	1-817-913-41	MEMORY STICK DUO CONNECTOR 10P			
		< DIODE >			
D8003	6-501-216-01	DIODE CL-271HR-C-TS (MS ACCESS)			
		< RESISTOR >			
R8001	1-218-947-11	RES-CHIP	330	5%	1/16W

Ref. No.	Part No.	Description			
	A-1231-939-A	PD-325 BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C6201	1-100-581-81	CERAMIC CHIP	0.0047uF	10%	50V
C6202	1-100-581-81	CERAMIC CHIP	0.0047uF	10%	50V
C6203	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C6204	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C6205	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C6206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6208	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C6209	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C6210	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C6211	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6212	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6213	1-100-786-91	TANTAL. CHIP	22uF	20%	6.3V
C6214	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6215	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6216	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C6217	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6218	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6219	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C6220	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C6221	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6225	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C6226	1-100-567-81	CERAMIC CHIP	0.01uF	10%	25V
C6227	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6228	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
* CN6201	1-794-322-51	FFC/CONNECTOR, FPC (ZIF) 6P			
* CN6202	1-785-905-51	FFC/CONNECTOR, FPC (ZIF) 24P			
CN6203	1-816-180-71	CONNECTOR, FPC (ZIF) 6P			
* CN6205	1-785-905-51	FFC/CONNECTOR, FPC (ZIF) 24P			

Ref. No.	Part No.	Description			
		< DIODE >			
D6204	8-719-071-34	DIODE RB521S-30-TE61			
D6205	8-719-071-34	DIODE RB521S-30-TE61			
* D6206	6-501-597-01	DIODE NSSW008DT-T108			
* D6207	6-501-597-01	DIODE NSSW008DT-T108			
* D6208	6-501-597-01	DIODE NSSW008DT-T108			
		< FERRITE BEAD >			
FB6201	1-400-331-11	FERRITE, EMI (SMD) (1005)			
		< IC >			
* IC6201	6-710-240-01	IC IR3Y65M4			
IC6202	8-759-693-13	IC NJM12904V (TE2)			
		< COIL >			
L6201	1-400-588-11	INDUCTOR	10uH		
L6202	1-400-588-11	INDUCTOR	10uH		
L6203	1-400-588-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q6201	8-729-427-37	TRANSISTOR	XP411F-TXE		
Q6202	8-729-427-67	TRANSISTOR	XP421F-TXE		
Q6203	8-729-054-50	TRANSISTOR	UP04501008S0		
Q6204	8-729-425-50	TRANSISTOR	2SB1462-Q		
Q6205	8-729-425-50	TRANSISTOR	2SB1462-Q		
Q6206	8-729-425-50	TRANSISTOR	2SB1462-Q		
Q6207	6-550-150-01	TRANSISTOR	SSM3J09FU (TE85L)		
Q6208	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q6210	8-729-053-84	TRANSISTOR	SSM3KO9FU (T5LSONY1)		
Q6211	6-551-184-01	TRANSISTOR	MCH6305-TL-E-S		
Q6212	6-551-184-01	TRANSISTOR	MCH6305-TL-E-S		
		< RESISTOR >			
R6201	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R6202	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R6203	1-218-990-81	SHORT CHIP	0		
R6205	1-218-990-81	SHORT CHIP	0		
R6206	1-218-990-81	SHORT CHIP	0		
R6208	1-218-949-11	RES-CHIP	470	5%	1/16W
R6211	1-218-936-11	RES-CHIP	39	5%	1/16W
R6212	1-218-965-11	RES-CHIP	10K	5%	1/16W

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

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

Note: Replace the battery holder (BH8001) together when replacing the lithium battery (BT8001) on the MS-361 board. (The battery holder removed once cannot be used again.)
When mounting these parts, mount new battery holder first and attach new lithium battery next.

Note: MS-361基板のリチウム電池（BT8001）を交換する場合はバッテリホルダ（BH8001）も同時に新品に交換して下さい。（一度使用したバッテリホルダは再使用できません。）
部品取り付けの際は，先にバッテリホルダを取り付けてからリチウム電池を装着して下さい。

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description			
R6213	1-208-922-11	METAL CHIP	30K	0.5%	1/16W
R6214	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R6215	1-218-975-11	RES-CHIP	68K	5%	1/16W
R6216	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6217	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6218	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6219	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R6220	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6221	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6222	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R6227	1-220-876-81	METAL CHIP	18	0.5%	1/16W
R6231	1-220-876-81	METAL CHIP	18	0.5%	1/16W
R6232	1-220-876-81	METAL CHIP	18	0.5%	1/16W
R6235	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6236	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6237	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6241	1-218-981-11	RES-CHIP	220K	5%	1/16W
R6249	1-218-990-81	SHORT CHIP	0		
R6250	1-218-990-81	SHORT CHIP	0		
R6251	1-218-990-81	SHORT CHIP	0		
R6252	1-218-990-81	SHORT CHIP	0		
R6253	1-218-990-81	SHORT CHIP	0		
R6254	1-218-990-81	SHORT CHIP	0		

⚠	A-1234-567-A	ST-164 BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C8801	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8802	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C8803	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C8804	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
		< CONNECTOR >			
* CN8801	1-816-647-51	FFC/FPC CONNECTOR (LIF) 18P			
* CN8802	1-816-644-51	FFC/FPC CONNECTOR (LIF) 12P			
* CN8803	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P			
		< DIODE >			
D8801	6-501-096-01	DIODE CRF02 (TE85R)			
⚠D8802	6-501-096-01	DIODE CRF02 (TE85R)			
		< IC >			
⚠IC8801	6-707-554-01	IC TPS65552DGQR			
		< COIL >			
L8801	1-412-027-11	INDUCTOR	2.2uH		
		< TRANSISTOR >			
⚠* Q8801	6-551-447-01	TRANSISTOR	TIG022TS-S-TL-E		
		< RESISTOR >			
R8801	1-208-947-11	METAL CHIP	330K	0.5%	1/16W
R8802	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R8803	1-216-864-11	SHORT CHIP	0		
R8804	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R8805	1-218-941-81	RES-CHIP	100	5%	1/16W
R8806	1-218-989-11	RES-CHIP	1M	5%	1/16W
		< TRANSFORMER >			
⚠T8801	1-443-568-21	TRANSFORMER, D.C.-D.C.CONVERTER			

	A-1231-933-A	US-013 BOARD, COMPLETE			
		**********************			
		< CONNECTOR >			
* CN8101	1-816-655-51	FFC/FPC CONNECTOR (LIF) 8P			
CN8102	1-819-436-11	CONNECTOR (SQUARE TYPE) (USB) 5P			
* CN8103	1-816-655-51	FFC/FPC CONNECTOR (LIF) 8P			
		< DIODE >			
D8101	8-719-078-02	DIODE 1SS357 (T3SONY1)			
		< RESISTOR >			
R8101	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8102	1-218-965-11	RES-CHIP	10K	5%	1/16W

Electrical parts list of the VC-500 board is not shown.
Pages 5-27 to 5-37 are not shown.

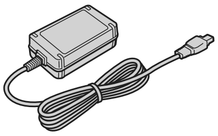
• Refer to page 5-1 for mark ⚠.

Ver. 1.4 2008.06
The changed portions from
Ver. 1.3 are shown in blue.

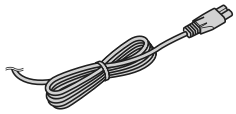
• EXCEPT J MODEL

Checking supplied accessories.

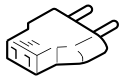
to J MODEL



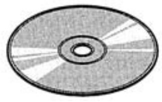
AC Adaptor
(AC-L200/L200B)
⚠ 1-479-285-61



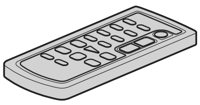
Power Cord
⚠ 1-555-074-91 (AUS)
⚠ 1-832-121-31 (CH)
⚠ 1-790-107-61 (US, CND)
⚠ 1-833-892-21 (KR)
⚠ 1-827-269-12 (UK, HK)
⚠ 1-824-910-71
(AEP, EE, NE, E: PAL)
⚠ 1-792-549-41 (JE)
⚠ 1-834-852-11 (E: NTSC)



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

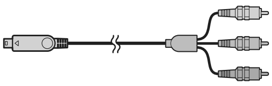


CD-ROM
"Handycam Application Software"
(including "Help Software" and
"First Step Guide (HTML)")
3-093-914-04

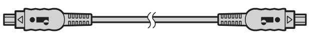


Wireless Remote Commander
(RMT-831)
1-478-495-41

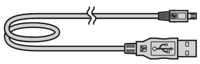
A/V Connecting Cable
1-823-156-61



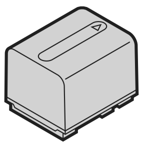
Component Video Cable
1-829-414-61



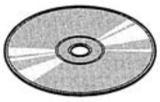
i. LINK Cable
1-757-541-12



USB Cable
1-829-868-31



Rechargeable Battery Pack
(NP-FH60)
⚠ A-1201-666-A (US, CND)
⚠ A-1201-667-A
(EXCEPT US, CND, CH)
⚠ A-1201-668-A (CH)



DVD-ROM
"ENJOY HANDYCAM"
3-093-691-01 (KR)
ENGLISH/KOREAN/JAPANESE
3-093-691-11 (US, CND)
ENGLISH/FRENCH/SPANISH/PORTUGUESE
3-093-691-21 (UK)
ENGLISH/RUSSIAN/GERMAN
3-093-691-31 (AEP, EE, NE, E)
ENGLISH/SPANISH/PORTUGUESE/ITALIAN
3-093-691-41 (AEP)
ENGLISH/FRENCH/PORTUGUESE/DUTCH
3-093-691-61 (HK, AUS, CH)
ENGLISH/FRENCH/SIMPLIFIED CHINESE for CHINA/
TRADITIONAL CHINESE for HONG KONG
3-093-691-71 (E)
ENGLISH/TRADITIONAL CHINESE for TAIWAN/
SPANISH/PORTUGUESE

Other accessories

2-319-806-11	MANUAL, INSTRUCTION (ENGLISH) (HC5: US, CND, E/HC7: US, CND, E, JE)
2-319-806-21	MANUAL, INSTRUCTION (FRENCH) (HC5: CND/HC7: CND)
2-319-806-31	MANUAL, INSTRUCTION (SPANISH) (HC5: E/HC7: E, JE)
2-319-806-51	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC5: E/HC7: E)
2-319-806-61	MANUAL, INSTRUCTION (KOREAN) (HC5: KR/HC7: KR, JE)
2-319-807-11	MANUAL, INSTRUCTION (ENGLISH) (HC5E: AEP, UK, E, HK, AUS/HC7E: AEP, UK, E, HK, AUS, JE)
2-319-807-21	MANUAL, INSTRUCTION (FRENCH) (HC5E: AEP/HC7E: AEP)
2-319-807-31	MANUAL, INSTRUCTION (GERMAN) (HC5E: AEP/HC7E: AEP)
2-319-807-41	MANUAL, INSTRUCTION (DUTCH) (HC5E: AEP/HC7E: AEP)
2-319-807-51	MANUAL, INSTRUCTION (SPANISH) (HC5E: AEP/HC7E: AEP)
2-319-807-61	MANUAL, INSTRUCTION (PORTUGUESE) (HC5E: AEP/HC7E: AEP)
2-319-807-71	MANUAL, INSTRUCTION (ITALIAN) (HC5E: AEP/HC7E: AEP)
2-319-807-81	MANUAL, INSTRUCTION (GREEK) (HC5E: AEP/HC7E: AEP)
2-319-807-91	MANUAL, INSTRUCTION (RUSSIAN) (HC5E: NE/HC7E: NE, JE)
2-319-808-11	MANUAL, INSTRUCTION (SWEDISH) (HC5E: NE/HC7E: NE)
2-319-808-21	MANUAL, INSTRUCTION (DANISH) (HC5E: NE/HC7E: NE)
2-319-808-31	MANUAL, INSTRUCTION (FINNISH) (HC5E: NE/HC7E: NE)
2-319-808-41	MANUAL, INSTRUCTION (POLISH) (HC5E: EE)
2-319-808-51	MANUAL, INSTRUCTION (CZECH) (HC5E: EE)
2-319-808-61	MANUAL, INSTRUCTION (HUNGARIAN) (HC5E: EE)
2-319-808-71	MANUAL, INSTRUCTION (SLOVAK) (HC5E: EE)
2-319-808-81	MANUAL, INSTRUCTION (TURKISH) (HC5E: EE)
2-319-808-91	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (HC5E: E, CH/HC7E: E, CH, JE)
2-319-809-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HC5E: HK/HC7E: HK)
2-319-809-51	MANUAL, INSTRUCTION (ARABIC) (HC5E: E/HC7E: E)
2-319-809-61	MANUAL, INSTRUCTION (PERSIAN) (HC5E: E/HC7E: E)

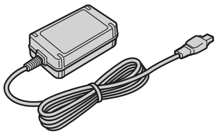
• Refer to page 5-1 for mark ⚠.

Ver. 1.4 2008.06

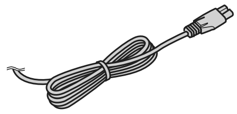
Ver. 1.3からの変更部分は
青色で記載されています。

• J MODEL

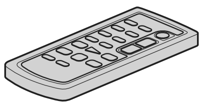
付属品



AC アダプター
（AC-L200/L200B）
⚠ 1-479-285-61

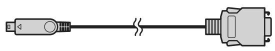


電源コード
⚠ 1-792-549-41

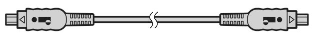


ワイヤレスリモコン
（RMT-831）
1-478-495-31

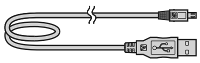
AV 接続ケーブル
1-823-156-61



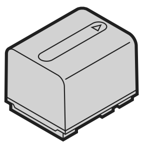
D端子コンポーネント
ビデオケーブル
1-829-414-11



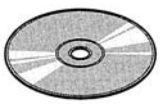
i. LINK ケーブル
1-757-541-12



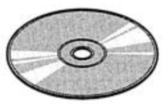
USB ケーブル
1-829-868-31



リチャージャブル
バッテリーパック
（NP-FH60）
⚠ A-1201-665-A



CD-ROM
「Handycam Application
Software」
（「ヘルプソフトウェア」
「はじめにお読みください
（HTML）」を含む）
3-093-914-04



DVD-ROM
「エンジョイハンディーカム」
3-093-691-01
英語/韓国語/日本語

その他の付属品

2-319-806-01　取扱説明書 (日本語)

• ⚠マークについては，5-1ページを参照して下さい。

HDR-HC5/HC5E/HC7/HC7E

RMT-831

SONY

LEVEL 2

SERVICE MANUAL

Ver. 1.3 2007.11

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

SUPPLEMENT-1

File this supplement with the service manual.
(DI07-219)

• **Change of Repair Parts**

5. REPAIR PARTS LIST

5-2. ELECTRICAL PARTS LIST

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-25		A-1231-939-A	PD-325 BOARD, COMPLETE **********************		A-1231-939-A	PD-325 BOARD, COMPLETE **********************
			< CONNECTOR >			< CONNECTOR >
	* CN6202	1-785-905-51	FFC/CONNECTOR, FPC (ZIF) 24P	* CN6202	1-819-913-71	CONNECTOR, FPC (ZIF) 24P
	* CN6205	1-785-905-51	FFC/CONNECTOR, FPC (ZIF) 24P	* CN6205	1-819-913-71	CONNECTOR, FPC (ZIF) 24P

Sony EMCS Co.

2007K0500-1

Published by Kohda TEC

HDR-HC5/HC5E/HC7/HC7E

RMT-831

SONY®

LEVEL 2

SERVICE MANUAL

Ver. 1.4 2008.06

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

SUPPLEMENT-2

File this supplement with the service manual.

(DI08-140)

- **Change of Board's Suffix No.**
- **Change of Help**
- **Change of Repair Parts**
- **Revision of Accessories**

Note: Please refer to Ver. 1.4 of SERVICE MANUAL (9-852-176-31) for the revision of accessories.

- **Suffix No. of FP-647, FP-657 and FP-658 flexible boards have been changed from $\boxed{11}$ into $\boxed{21}$.**
  About suffix No. $\boxed{11}$ and $\boxed{21}$, there are no change of schematic diagram and printed wiring board.

Sony EMCS Co.
2008F0500-1

Published by Kohda TEC

: Points added portion.
: Points changed portion.

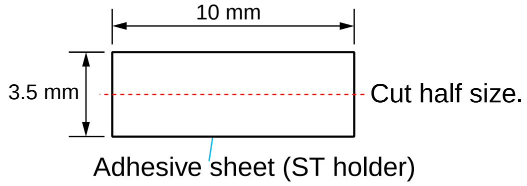
• Change of Help

HELP

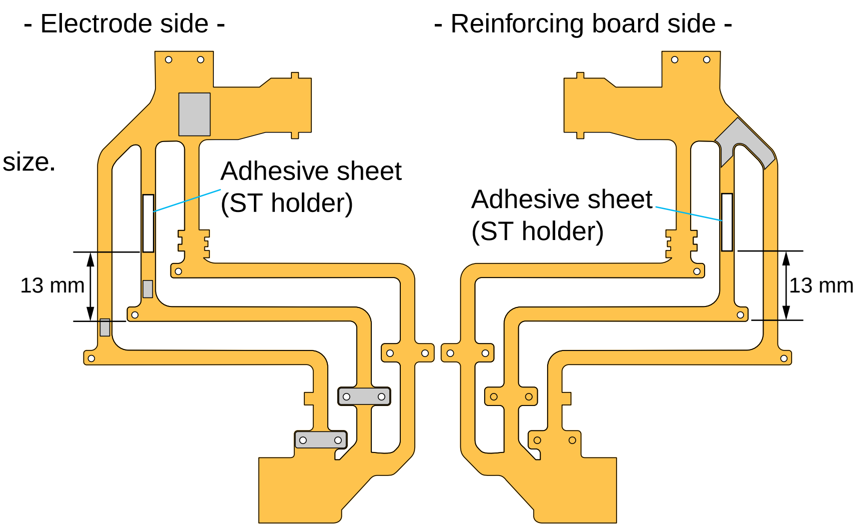
Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.

THE METHOD OF ATTACHMENT OF FP-659 FLEXIBLE BOARD

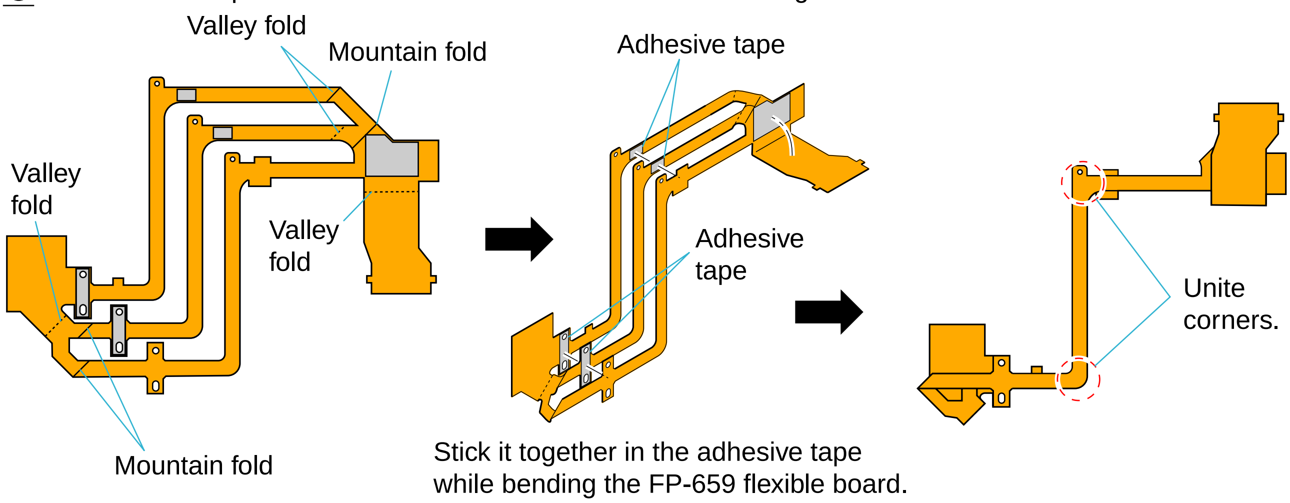
① Cut "SHEET (ST HOLDER), ADHESIVE" (3-272-247-01) to the half size.



② Paste cut adhesive sheets on FP-659 flexible board.

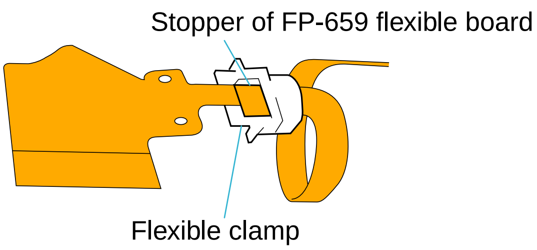


③ Fold dotted line parts of the FP-659 flexible board as shown in figure.

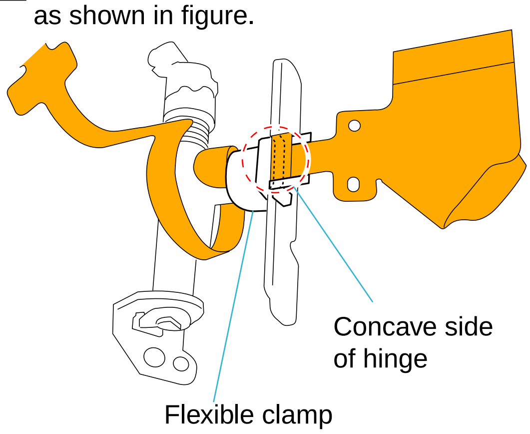


Stick it together in the adhesive tape while bending the FP-659 flexible board.

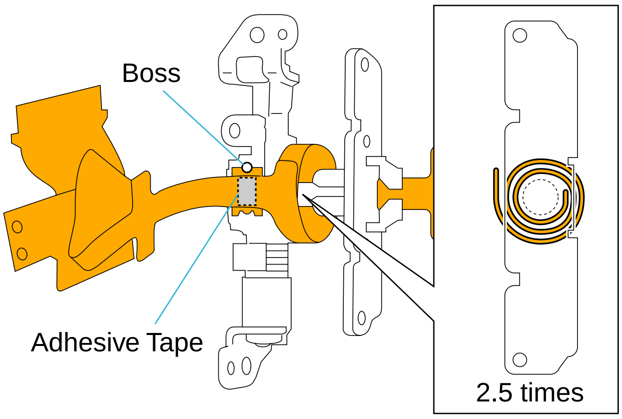
④ Pass FP-659 flexible board through the flexible clamp as shown in figure.



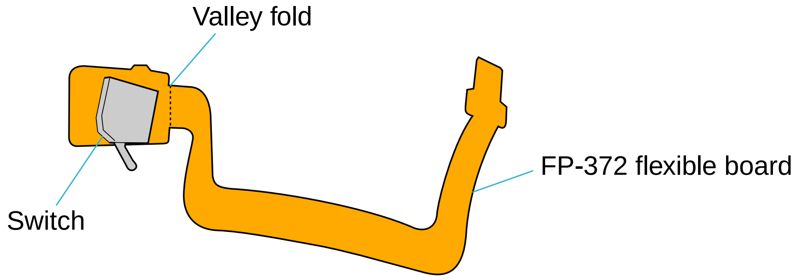
⑤ Install the flexible clamp in the hinge assy as shown in figure.



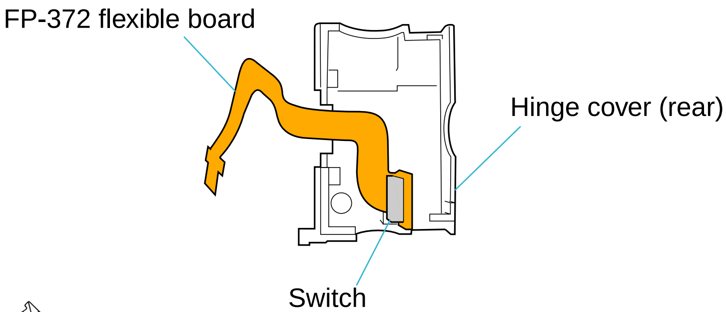
⑥ Roll the FP-659 flexible board 2.5 times in the hinge assy and put it on the hinge assy with the adhesive tape as shown in figure.



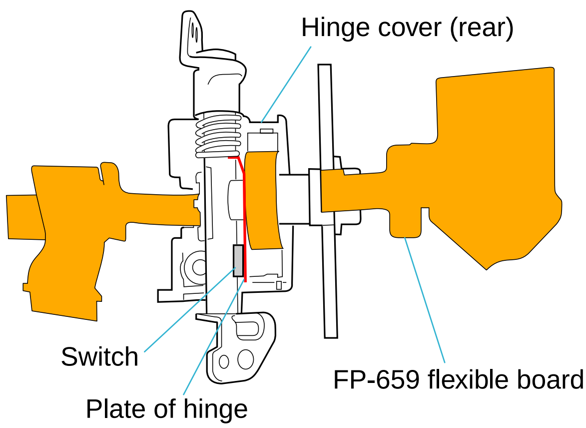
⑦ Fold dotted line parts of the FP-372 flexible board as shown in figure.



⑧ Install the FP-372 flexible board in the hinge cover (rear) as shown in figure.



⑨ Install the hinge cover (rear) in the hinge assy as shown in figure.

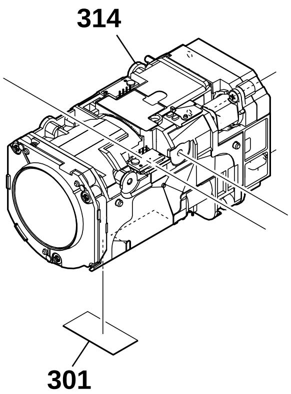
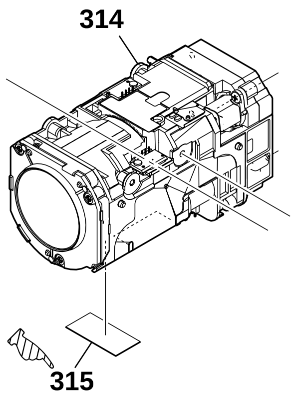


: **Points changed portion.**

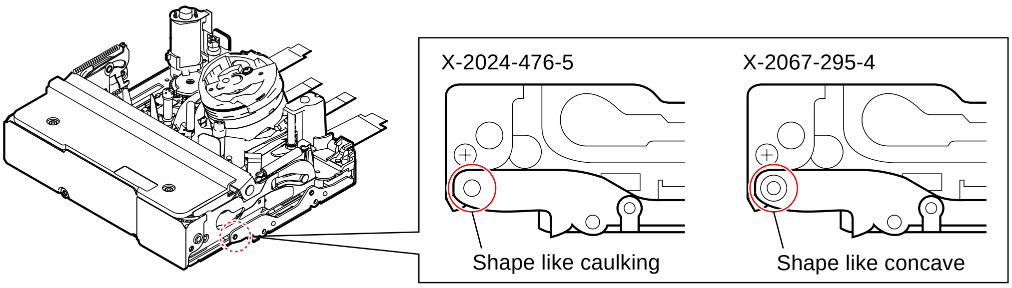
• Change of Repair Parts

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

Page	Former Ref. No.	Former Part No.	Former Description	New Ref. No.	New Part No.	New Description
5-5	* 151 153 160	1-871-763-11 1-871-765-11 1-871-772-11	FP-648 FLEXIBLE BOARD FP-650 FLEXIBLE BOARD FP-657 FLEXIBLE BOARD	151 153 160	1-871-763-21 1-871-765-21 1-871-772-21	FP-648 FLEXIBLE BOARD FP-650 FLEXIBLE BOARD FP-657 FLEXIBLE BOARD
5-7	* 256	1-871-773-11	FP-658 FLEXIBLE BOARD	256	1-871-773-21	FP-658 FLEXIBLE BOARD
5-8	 * 308	1-871-773-11	FP-658 FLEXIBLE BOARD	 (28mm X 9mm) **CAUTION:** For the part of 315, cut SHEET, LENS FLEXIBLE (3-052-196-01) into the desired length and use it. CAUTION: 315番は，レンズフレキシート（3-052-196-01）を切って使用。 308 315	1-871-773-21 CAUTION	FP-658 FLEXIBLE BOARD TAPE AS
5-9	351 351 351	X-2176-776-1 X-2176-777-1 X-2176-778-1	PANEL ASSY (242), F (HC7: J) PANEL ASSY (241), F (HC5/HC5E) PANEL ASSY (242E), F (HC7: US, CND, E, KR, JE/HC7E)	351 351 351	X-2176-776-6 X-2176-777-6 X-2176-778-6	PANEL ASSY (242), F (HC7: J) PANEL ASSY (241), F (HC5/HC5E) PANEL ASSY (242E), F (HC7: US, CND, E, KR, JE/HC7E)
5-11	461 SP901	X-2176-780-1 1-825-260-23	PANEL ASSY, BT LOUD SPEAKER (1.6CM)	461 SP901	X-2176-780-2 1-825-260-51	PANEL ASSY, BT LOUD SPEAKER (1.6CM)
5-13	559	2-666-807-02	AG SHEET (2.7)	559	2-666-807-21	AG SHEET (2.7)
5-14	608	1-871-762-11	FP-647 FLEXIBLE BOARD (HC7/HC7E)	608	1-871-762-21	FP-647 FLEXIBLE BOARD (HC7/HC7E)
5-15	711 713	2-637-905-01 A-1080-997-A	SHEET, FLEXIBLE ADHESIVE MD (N100) SUB ASSY A	711 713	2-637-905-02 A-1156-601-A	SHEET, FLEXIBLE ADHESIVE MD (N110) SUB ASSY (S) A
5-16	756 757 760 761	X-2024-473-1 A-1083-007-B X-2024-474-1 X-2024-476-1	TABLE ASSY, S REEL BLOCK ASSY, TENSION REGULATOR TABLE ASSY, T REEL ARM ASSY, PINCH	756 757 760 761 761	X-2067-290-1 A-1132-279-A X-2067-291-1 X-2024-476-5 X-2067-295-4	TABLE ASSY, S REEL REGULATOR BLOCK ASSY, TENSION TABLE ASSY, T REEL ARM ASSY, PINCH (Note 2) ARM ASSY, PINCH (Note 2) ***Note 2:*** *When replace the pinch arm assy, refer to "How to distinguish Pinch Arm Assy" next page.*
5-17	***Note 1:*** *The FP-031 and FP-032 are supplied as the assembled part of the MD (N100) sub ass'y A by attaching them with the adhesive agent. These parts are not separately supplied because assembling of these parts requires high accuracy.*			***Note 1:*** *The FP-031 and FP-032 are supplied as the assembled part of the MD (N110) sub ass'y (S) A by attaching them with the adhesive agent. These parts are not separately supplied because assembling of these parts requires high accuracy.*		

• **How to distinguish Pinch Arm Assy**

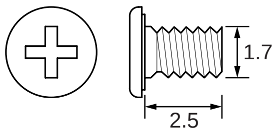


5-2. ELECTRICAL PARTS LIST

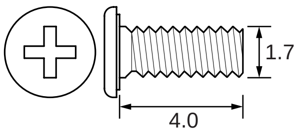
Page	Former	New
5-21	Ref. No. Part No. Description **FP-031 FLEXIBLE BOARD** (This flexible board is included in MD (N100) sub assy A (A-1080-997-A).)	Ref. No. Part No. Description **FP-031 FLEXIBLE BOARD** (This flexible board is included in MD (N110) sub assy (S) A (A-1156-601-A).)
5-21	**FP-032 FLEXIBLE BOARD** (This flexible board with S903 is included in MD (N100) sub assy A (A-1080-997-A).)	**FP-032 FLEXIBLE BOARD** (This flexible board with S903 is included in MD (N110) sub assy (S) A (A-1156-601-A).)
5-21	1-871-762-11 FP-647 FLEXIBLE BOARD (HC7/HC7E) ********************	1-871-762-21 FP-647 FLEXIBLE BOARD (HC7/HC7E) ********************
5-21	1-871-772-11 FP-657 FLEXIBLE BOARD ********************	1-871-772-21 FP-657 FLEXIBLE BOARD ********************
5-22	* 1-871-773-11 FP-658 FLEXIBLE BOARD ********************	1-871-773-21 FP-658 FLEXIBLE BOARD ********************
5-22	**JK-333 Board** < CONNECTOR > * CN8304 1-819-934-51 CONNECTOR, FPC (ZIF) 39P	**JK-333 Board** < CONNECTOR > CN8304 1-819-934-61 CONNECTOR, FPC (ZIF) 39P

HARDWARE LIST (1/4)

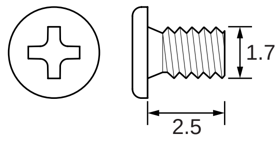
#1: M1.7 X 2.5
(Black)
2-635-562-11



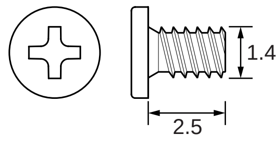
#2: M1.7 X 4.0
(Black)
2-635-562-31



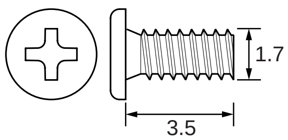
#3: M1.7 X 2.5
(Red)
2-660-401-01



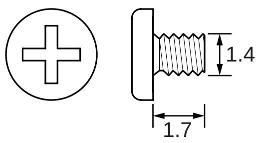
#4: M1.4 X 2.5 (Tapping)
(Dark Silver)
3-348-998-81



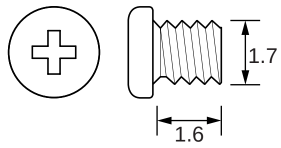
#5: M1.7 X 3.5 (Tapping)
(Black)
3-080-204-01



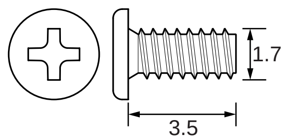
#6: M1.4 X 1.7
(Silver)
2-598-474-01



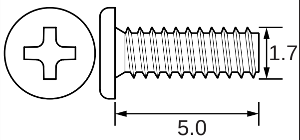
#7: M1.7 X 1.6
(Black)
7-627-552-18



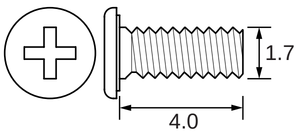
#8: M1.7 X 3.5 (Tapping)
(Silver)
3-078-890-01



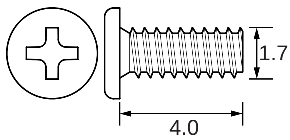
#9: M1.7 X 5.0 (Tapping)
(Silver)
3-078-890-21



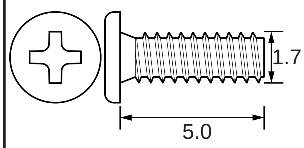
#10: M1.7 X 4.0
(Silver)
2-599-475-31



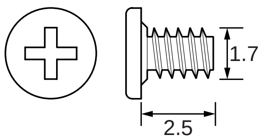
#11: M1.7 X 4.0 (Tapping)
(Silver)
3-078-890-11



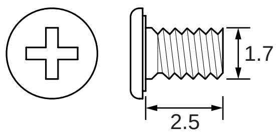
#12: M1.7 X 5.0 (Tapping)
(Black)
3-080-204-21



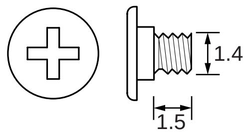
#13: M1.7 X 2.5 (Tapping)
(Silver)
3-085-397-01



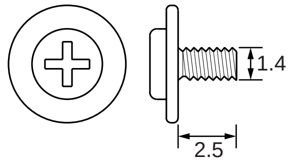
#14: M1.7 X 2.5
(Silver)
2-599-475-11



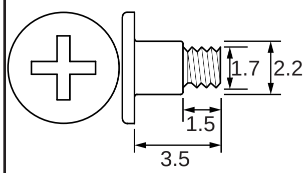
#15: M1.4 X 1.5
(Silver)
3-062-214-01



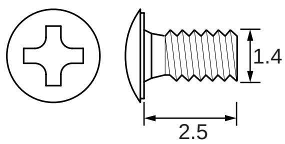
#16: M1.4 X 2.5
(Silver)
2-586-337-01



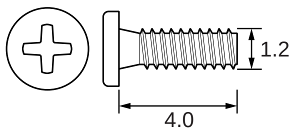
#17: M1.7 X 1.5
(Silver)
2-586-389-01



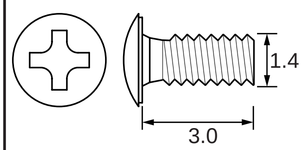
#18: M1.4 X 2.5
(Silver)
2-635-591-21



#19: M1.2 X 4.0 (Tapping)
(Red)
3-086-156-21

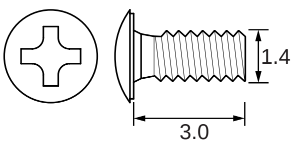


#20: M1.4 X 3.0
(Silver)
2-635-591-31

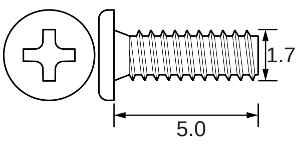


HARDWARE LIST (2/4)

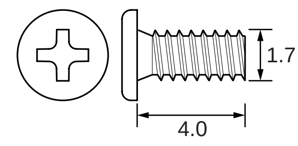
#21: M1.4 X 3.0
(Black)
2-662-396-21



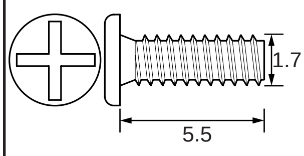
#22: M1.7 X 5.0 (Tapping)
(Silver)
3-083-261-01



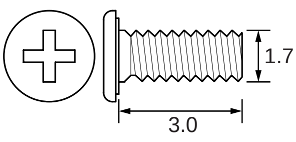
#23: M1.7 X 4.0 (Tapping)
(Black)
3-080-204-11



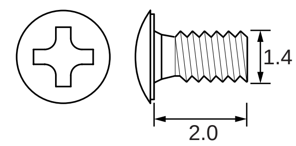
#24: B1.7 X 5.5 (Tapping)
(Black)
4-679-805-11



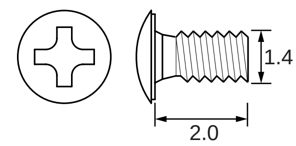
#25: M1.7 X 3.0
(Black)
2-635-562-21



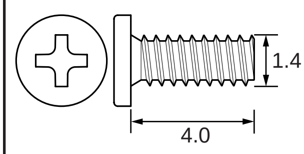
#26: M1.4 X 2.0
(Silver)
2-635-591-11



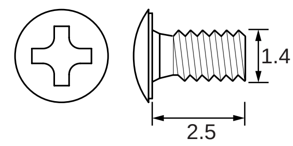
#27: M1.4 X 2.0
(Black)
2-662-396-11



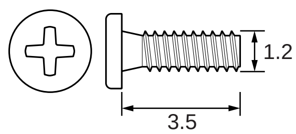
#28: M1.4 X 4.0 (Tapping)
(Dark Silver)
3-348-998-61



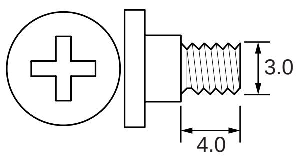
#29: M1.4 X 2.5
(Black)
2-662-396-01



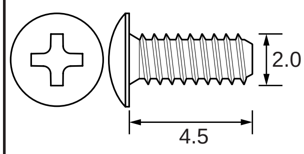
#30: M1.2 X 3.5 (Tapping)
(White)
3-086-156-11



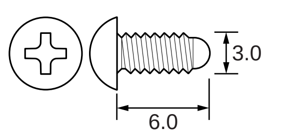
#31: M3.0 X 4.0
(Silver)
2-102-434-01



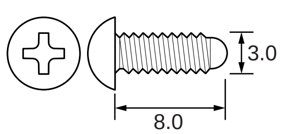
#32: M2.0 X 4.5 (Tapping)
(Silver)
2-102-498-01



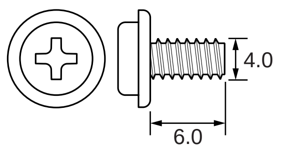
#33: M3.0 X 6.0
(Silver)
3-077-331-21



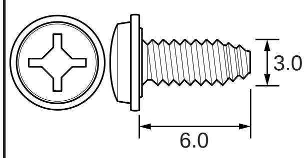
#34: M3.0 X 8.0
(Black)
3-077-331-41



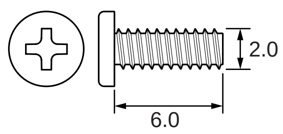
#35: M4.0 X 6.0 (Tapping)
(Silver)
3-975-291-02



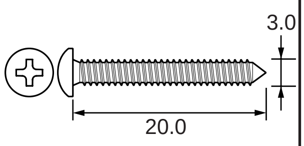
#36: M3.0 X 6.0
(Silver)
4-886-821-11



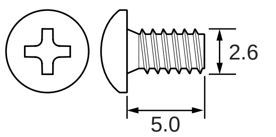
#37: M2.0 X 6.0 (Tapping)
(Black)
3-080-206-31



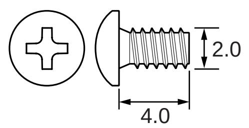
#38: M3.0 X 20.0 (Tapping)
(Silver)
7-685-651-79



#39: M2.6 X 5.0 (Tapping)
(Black)
7-685-791-09

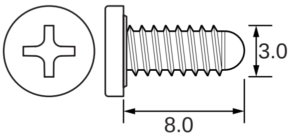


#40: M2.0 X 4.0 (Tapping)
(Silver)
7-685-851-04

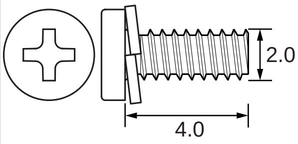


HARDWARE LIST (3/4)

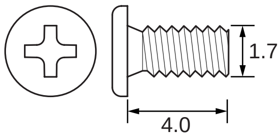
#41: M3.0 X 8.0 (Tapping)
(Silver)
3-065-748-01



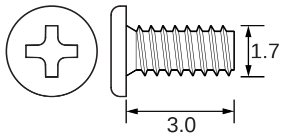
#42: M2.0 X 4.0 (Tapping)
(Silver)
7-628-253-00



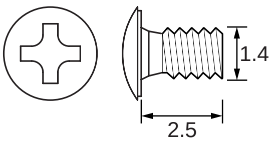
#43: M1.7 X 4.0
(Red)
2-660-401-31



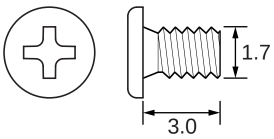
#44: M1.7 X 3.0 (Tapping)
(Silver)
3-078-890-61



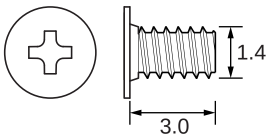
#45: M1.4 X 2.5
(Silver)
2-587-151-01



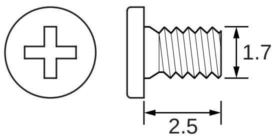
#46: M1.7 X 3.0
(Red)
2-660-401-11



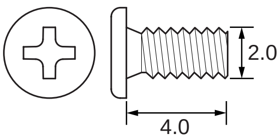
#47: M1.4 X 3.0 (Tapping)
(Silver)
2-665-774-01



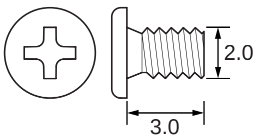
#48: M1.7 X 2.5
(Silver)
3-973-497-91



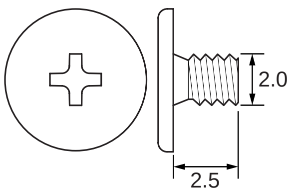
#49: M2.0 X 4.0
(Black)
2-630-005-31



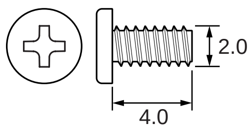
#50: M2.0 X 3.0
(Red)
2-891-494-11



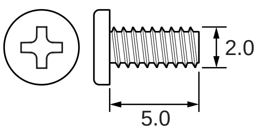
#51: M2.0 X 2.5
(Silver)
3-073-686-01



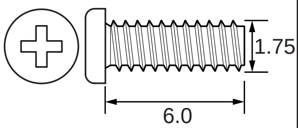
#52: M2.0 X 4.0 (Tapping)
(Black)
3-080-206-11



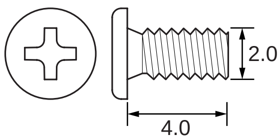
#53: M2.0 X 5.0 (Tapping)
(Black)
3-080-206-21



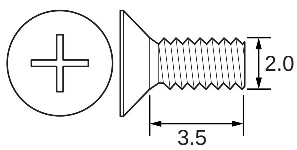
#54: M1.75 X 6.0 (Tapping)
(Black)
3-318-203-11



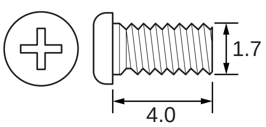
#55: M2.0 X 4.0
(Silver)
2-655-582-11



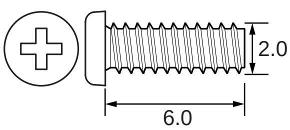
#56: M2.0 X 3.5
(Silver)
3-067-187-11



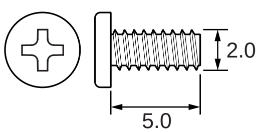
#57: M1.7 X 4.0
(Black)
7-627-852-18



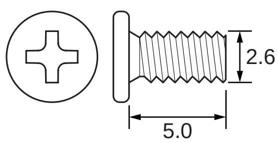
#58: M2.0 X 6.0 (Tapping)
(Silver)
3-719-408-11



#59: M2.0 X 5.0 (Tapping)
(Silver)
3-080-205-21

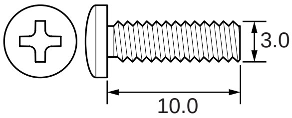


#60: M2.6 X 5.0
(Black)
3-061-062-11

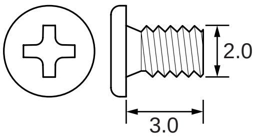


HARDWARE LIST (4/4)

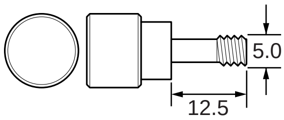
#61: M3.0 X 10.0
(Black)
7-682-549-09



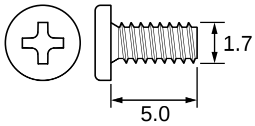
#62: M2.0 X 3.0
(Silver)
3-080-202-21



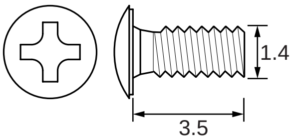
#63: M5.0 X 12.5
(Black)
3-060-811-21



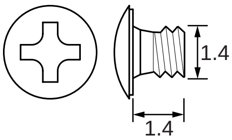
#64: M1.7 X 5.0 (Tapping)
(Silver)
2-666-551-21



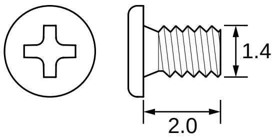
#65: M1.4 X 3.5
(Silver)
2-635-591-01



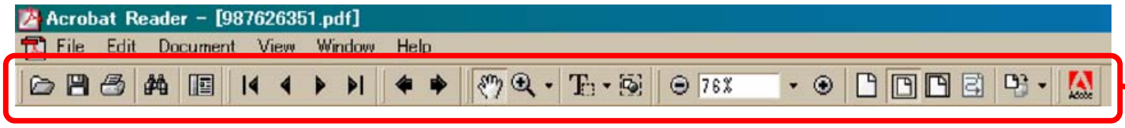
#66: M1.4 X 1.4
(Silver)
2-635-591-41



#67: M1.4 X 2.0
(Silver)
3-389-523-16



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



Toolbar

Printing a text

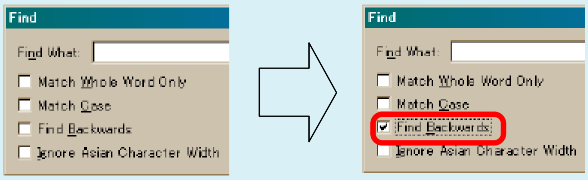
1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

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

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

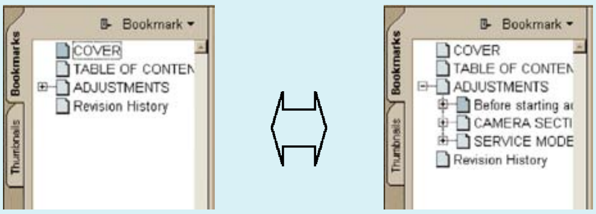
- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

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.

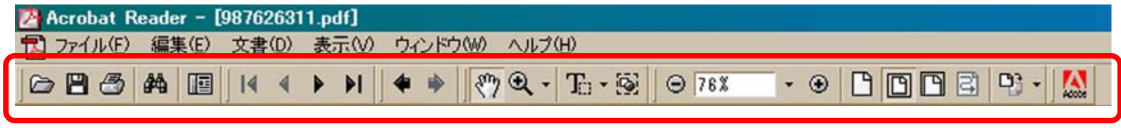
"Rotate"

- 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.

ENGLISH | JAPANESE

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



文章を印刷する

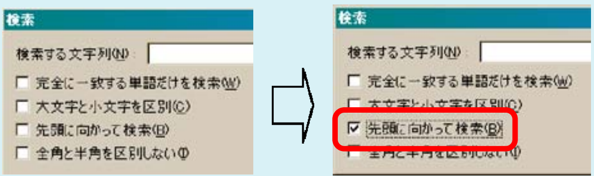
1. 印刷ボタン をクリックする。
2. プリンター、印刷範囲、印刷部数、および他のオプションを指定して「OK」をクリックする。

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

文章内を検索する

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

サービスマニュアルへの応用：
現在のページから前ページに向かって検索する場合は「先頭に向かって検索」のチェックボックスを選択してから「検索」をクリックする。



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

サービスマニュアルへの応用：
文章内にある図面ページ（ブロックダイヤグラム、回路図、プリント図）および部品表ページなどは、この検索機能を使って部品検索することができる。例えば、ブロックダイヤグラム上でICのRef. No.を検索し、「次を検索」を続けることによって回路図、プリント図上にあるICのRef. No.へ次々と移動する。
注意：発行年月日によって検索できない場合もあります。

ページを切り換える

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

一度表示した画面へ逆戻りする

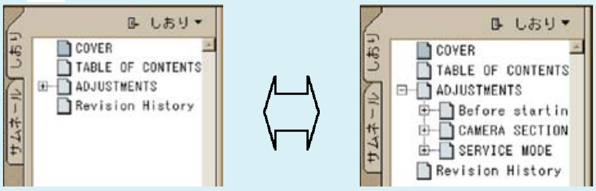
- 前の画面（操作）へ1つずつ逆戻りする場合、 をクリックする。
- 戻した画面（操作）を1つずつ前に進める場合、 をクリックする。

サービスマニュアルへの応用：
回路図とプリント図を行き来できるので電圧チェックに便利です。

リンクを使用して移動する

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

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



画面の表示を拡大、縮小または回転させる

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

「回転」
- 回転ツール をクリックすると、ページが90度ずつ回転する。

サービスマニュアルへの応用：
見ているプリント図をセットと同じ向きに変えられます。

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2007.01	Official Release	—	—
1.1	2007.03	Correction-1 (C1)	• Correction of Repair Parts S.M. correction: Page 5-38, 5-39	Yes
1.2	2007.06	Correction-2 (C2)	• Correction of Repair Parts S.M. correction: Page 5-2, Page 5-7, Page 5-8, Page 5-9, Page 5-13, Page 5-22, Page 5-26	Yes
1.3	2007.11	Supplement-1 (S1 DI07-219)	• Change of Repair Parts	No
1.4	2008.06	Supplement-2 (S2 DI08-140)	• Change of Board's Suffix No. • Change of Help • Change of Repair Parts • Revision of Accessories S.M. revised: Page 5-38, Page 5-39	Yes