HVR-V1J/V1U/V1N/V1E/V1P/V1C

RMT-831

SERVICE MANUAL

Ver. 1.3 2007.09

Revision History

How to use Acrobat Reader

US Model
Canadian Model
AEP Model
E Model
Chinese Model
Japanese Model

Revised-1

Replace the previously issued SERVICE MANUAL 9-852-158-11 with this manual.

N MECHANISM (MDX-N111)

Link

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

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®

HVR-V1J/V1U/V1N/V1E/V1P/V1C
9-852-158-12

Sony EMCS Co.

2007I0500-1

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Published by Kohda TEC

These specifications are extracted from instruction manual of HVR-V1U/V1N.

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SPECIFICATIONS

System

Video recording system (HDV)
2 rotary heads, Helical scanning system
Video recording system (DVCAM (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
Fs48kHz (stereo)
transfer rate: 384 kbps
Audio recording system (DVCAM (DV))
Rotary heads, PCM system
Quantization: 12 bits
Fs32kHz (channel 1/2 stereo),
Quantization: 16 bits
Fs48kHz (channel 1/2 stereo)
Video signal
NTSC color, EIA standards
1080/60i specification
Usable cassette
Mini DV cassette with the Mini DV mark printed or Mini DVCAM cassette with DVCAM mark printed
Tape speed (HDV)
Approx. 18.812 mm/s
Tape speed (DVCAM)
Approx. 28.218 mm/s
Tape speed (DV SP)
Approx. 18.812 mm/s
Recording/playback time (HDV)
63 min (using a PHDVM-63DM cassette)
Recording/playback time (DVCAM)
41 min (using a PHDVM-63DM cassette)
Recording/playback time (DV SP)
63 min (using a PHDVM-63DM cassette)
Fast forward/rewind time
Approx. 2 min 40 s (using a PHDVM-63DM cassette and rechargeable battery pack)
Approx. 1 min 45 s (using a PHDVM-63DM cassette and AC Adaptor)
Viewfinder
Electric viewfinder (color, black and white)
Image device
4.5 mm (1/4 type) 3CMOS sensor
Recording Pixels (HDV/DV 16:9 still recording):
Max. 1.20 Mega (1 440 × 810) pixels *2
Gross: Approx. 1 120 000 pixels
Effective (movie, 16:9):
1 037 000 pixels
Effective (movie, 4:3):
778 000 pixels
Effective (still, 16:9):
1 037 000 pixels
Effective (still, 4:3):
778 000 pixels
Lens
Carl Zeiss Vario-Sonnar T∗
20 × (Optical), Approx. 30 × (Digital, when [D.EXTENDER] is set to [ON])
Focal length
f=3.9 - 78 mm (5/32 ~ 3 1/8 in.)
When converted to a 35 mm still camera *3
37.4 - 748 m m (1 1/2 ~ 29 1/2 in.) (16:9),
45.7 - 914 m m (1 13/16 ~ 36 in.) (4:3)
F1.6 - 2.8
Filter diameter: 62 mm (2 1/2 in.)
Color temperature
Indoor (3 200 K),
Outdoor (5 800 K)
Minimum illumination
4 lx (lux) (F 1.6)

*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 Still image resolution is obtained by the unique pixel array of Sony's ClearVid CMOS Sensor and image processing system (new Enhanced Imaging Processor).
*3 The focal length figures are actual figures resulting from wide angle pixel read out.

Output connectors

AUDIO/VIDEO output
10-pin connector
Video signal: 1 Vp-p, 75Ω (ohms), unbalanced
Luminance signal: 1 Vp-p, 75Ω (ohms), unbalanced
Chrominance signal: 0.286 Vp-p (burst signal), 75Ω (ohms), unbalanced
Audio signal: 461 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)
COMPONENT OUT jack
Y: 1 Vp-p, 75Ω (ohms), unbalanced PB/PR, CB/CR: +/- 350 mV, 75Ω (ohms), unbalanced
HDMI OUT jack
TypeA (19-pin)

Input/Output connectors

LANC jack
Stereo mini-minijack (Ø 2.5 mm)
INPUT1/INPUT2 jack
XLR3-pin, female,
-60 dBu: 3kΩ (kilohms)
+4 dBu: 10kΩ (kilohms)
(0 dBu=0.775 Vrms)
USB jack
mini-B
HDV/DV jack
i.LINK interface (IEEE 1394, 4-pin connector S100)

LCD screen

Picture
8.8 cm (3.5 type, aspect ratio 16:9)
Total dot number
211 200 (960 × 220)

General

Power requirements
DC 7.2 V (battery pack)
DC 8.4 V (AC Adaptor)
Average power consumption*
During camera recording using the viewfinder with normal brightness:
HDV recording 6.8 W
DVCAM (DV) recording 6.6 W
During camera recording using the LCD with normal brightness:
HDV recording 6.8 W
DVCAM (DV) recording 6.6 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.)
145 × 184 × 431 mm
(5 3/4 × 7 1/4 × 17 in.) (w/h/d)
including the projecting parts
145 × 184 × 431 mm
(5 3/4 × 7 1/4 × 17 in.) (w/h/d)
including the projecting parts with batterypack NP-F570
Mass (approx.)
1.5 kg (3 lb 6 oz) main unit only
1.9 kg (4 lb 2 oz) including the NP-F570 rechargeable battery pack, cassette (PHDVM-63DM), and lens hood with lens cover, microphone
Supplied accessories
AC Adaptor (1)
Power cord (1)
Wireless Remote Commander (1)
A/V connecting cable (1)
Component video cable (1)
USB cable (1)
Large eyecup (1)
Rechargeable battery pack NP-F570 (1)
Lens hood with lens cover (1)
Wind Screen (1)
Microphone (1)
CD-ROM "Manuals for Digital HD Video Camera Recorder" (1)
Operating Guide (1)
See page 5-38.

* When using the supplied microphone

AC Adaptor AC-L15A

Power requirements
AC 100 - 240 V, 50/60 Hz
Current consumption
0.35 - 0.18 A
Power consumption
18 W
Output voltage
DC 8.4 V*
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Storage temperature
-20 °C to + 60 °C (-4 °F to + 140 °F)
Dimensions (approx.)
56 × 31 × 100 mm
(2 1/4 × 1 1/4 × 4 in.) (w/h/d)
excluding the projecting parts
Mass (approx.)
190 g (6.7 oz) excluding the power cord

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

Rechargeable batterypack NP-F570

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
15.8 Wh (2 200 mAh)
Dimensions (approx.)
38.4 × 20.6 × 70.8 mm
(1 9/16 × 13/16 × 2 7/8in.) (w/h/d)
Mass (approx.)
100 g (3.5 oz)
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Type
Lithium ion

Design and specifications are subject to change without notice.

ENGLISH JAPANESE

自己診断搭載機種　HDV HDV 1080i　DVCAM　MEMORY STICK　InfoLITHIUM　HDMI

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（DVCAM (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Fs48kHz（ステレオ） 転送レート 384kbps
録音方式（DVCAM (DV)）	回転ヘッド、PCMシステム 12ビット Fs32kHz （チャンネル1/2　ステレオ） 16ビット Fs48kHz （チャンネル1/2　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カセットまたは DVCAM マークのついたミニDVCAMカセット
テープ速度（HDV）	約18.812mm/秒
テープ速度（DVCAM）	約28.218mm/秒
テープ速度（DV SP）	約18.812mm/秒
録画／再生時間（HDV）	63分（PHDVM-63DM使用時）
録画/再生時間（DVCAM）	41分（PHDVM-63DM使用時）
録画/再生時間（DV SP）	63分（PHDVM-63DM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（PHDVM-63DM使用時） ACアダプター使用時: 約1分45秒（PHDVM-63DM使用時）
ファインダー	電子ファインダー :カラー、モノクロ
撮像素子	4.5mm（1/4型）3CMOSセンサー 総画素数 :約112万画素 静止画記録画素数:最大120万画素相当*2(1440×810)（HDV/DV 16：9記録時） 動画時有効画素数（16：9モード）：約104万画素 動画時有効画素数（4：3モード）：約78万画素 静止画時有効画素数（16：9モード）：約104万画素 静止画時有効画素数（4：3モード）：約78万画素
ズームレンズ	カールツァイス　バリオゾナー T* 20倍（光学）、約30倍（デジタル、デジタルエクステンダー[ON]時） f=3.9～78mm 35mmカメラ換算*3 37.4～748mm（16:9モード） （4:3モードでは45.7～914mm） F1.6～2.8 フィルター径62mm
色温度切り換え	屋内（3 200K）、 屋外（5 800K）
最低被写体照度	8 lx（ルクス）（F1.6）

*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ト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、静止画は表記の記録サイズを実現しています。

*3広角画素読み出しによる実動作値

出力端子

A/V OUT 端子	10ピン特殊コネクター 映像: 1 Vp-p、75Ω不平衡 Y出力　1Vp-p、75Ω不平衡 C出力　0.286Vp-p（バースト）、75Ω不平衡 音声: 461mV（47kΩ負荷時）、出力インピーダンス2.2 kΩ以下
COMPONENT OUT端子	Y：1Vp-p、75Ω不平衡 PB/PR, CB/CR：±350mV、75Ω不平衡
HDMI OUT 端子	タイプA（19ピン）

入/出力端子

LANC端子	ステレオミニミニジャック （ø 2.5）
INPUT1/ INPUT2端子	XLR3ピン、凹 -60dBu：3kΩ +4dBu：10kΩ （0dBu=0.775Vrms）
USB端子	mini-B
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	8.8cm（3.5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 6.8W DVCAM(DV)記録時 6.6W 液晶画面使用時、明るさ標準: HDV記録時 6.8W DVCAM(DV)記録時 6.6W
動作温度	0℃～+40℃
保存温度	−20℃～+60℃
外形寸法	145×184×431 （最大突起部を含む）（幅×高さ×奥行き） 145×184×431 （最大突起部含む、バッテリーパックNP-F570装着状態）（幅×高さ×奥行き）
本体質量	約1.5kg（本体のみ）
撮影時総質量	約1.9kg（バッテリーNP-F570、テープ（PHDVM-63DM）、レンズカバー付きフード、マイク含む。）
付属品	ワイヤレスリモコン（1） AV接続ケーブル（1） コンポーネントビデオケーブル（1） USBケーブル（1） 大型アイカップ（1） レンズカバー付きフード（1） ウインドスクリーン（1）、マイク（1） CD-ROM 「Manuals for Digital HD Video Camera Recorder」（1） 取扱説明書（1） 保証書（1） ソニー業務用製品ご相談窓口のご案内（1）

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

* 同梱マイク使用時

Model information table

Model	HVR-V1J	HVR-V1U	HVR-V1N	HVR-V1E	HVR-V1P	HVR-V1C
Destination	J	US, CND	E	AEP	E	CH
Color system	NTSC	NTSC	NTSC	PAL	PAL	PAL

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

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

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES 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）
   LF：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

Section	Title	Page
1.	**SERVICE NOTE**	
1-1.	Power Supply During Repairs	1-1
1-2.	To Take Out a Cassette when not Eject (Force Eject)	1-1
1-3.	Setting the “Forced Power On” Mode	1-1
1-4.	Using Service Jig	1-2
1-5.	Self-diagnosis Function	1-2
1-6.	Method of Coping with Shift Lens Error	1-4
2.	**DISASSEMBLY**	
2-1.	Disassembly	2-2
2-2.	Method of Lens Unit Disassembly	2-9
3.	**BLOCK DIAGRAMS**	
3-1.	Overall Block Diagram (1/8)	3-1
3-2.	Overall Block Diagram (2/8)	3-2
3-3.	Overall Block Diagram (3/8)	3-3
3-4.	Overall Block Diagram (4/8)	3-4
3-5.	Overall Block Diagram (5/8)	3-5
3-6.	Overall Block Diagram (6/8)	3-6
3-7.	Overall Block Diagram (7/8)	3-7
3-8.	Overall Block Diagram (8/8)	3-8
3-9.	Power Block Diagram (1/4)	3-9
3-10.	Power Block Diagram (2/4)	3-10
3-11.	Power Block Diagram (3/4)	3-11
3-12.	Power Block Diagram (4/4)	3-12
4.	**PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS**	
4-1.	Frame Schematic Diagrams	4-1
4-2.	Schematic Diagrams	4-3
4-3.	Printed Wiring Boards	4-45
4-4.	Mounted Parts Location	4-67
5.	**REPAIR PARTS LIST**	
5-1.	Exploded Views	5-2
5-2.	Electrical Parts List	5-17
6.	**ADJUSTMENTS**	
Before Starting Adjustments		6-1
1-1.	Adjusting Items when Replacing Main Parts and Boards	6-2
1-2.	List of Service Tools	6-4
6-1.	Camera Section Adjustments	6-6
1-1.	Preparations before Adjustments (CAMERA Section)	6-6
1-2.	Initialization of EVR Data	6-8
1-3.	Camera System Adjustments	6-31
1-4.	Electronic Viewfinder System Adjustments	6-74
1-5.	LCD System Adjustments	6-79
6-2.	Mechanism Section Adjustments	6-83
1.	Preparations for Check, Adjustment and Replacement of Mechanism Block	6-83
2.	Periodic Inspection and Maintenance	6-83
3.	Check, Adjustment and Replacement of Mechanical Parts	6-89
4.	Adjustment	6-122
6-3.	Video Section Adjustments	6-129
3-1.	Preparations Before Adjustments	6-129
3-2.	System Control System Adjustments	6-131
3-3.	Servo and RF System Adjustments	6-133
3-4.	Video System Adjustments	6-136
3-5.	Audio System Adjustments	6-141
6-4.	Service Mode	6-146
4-1.	Adjustment Remote Commander (RM-95)	6-146
4-2.	Adjustment Remote Commander (New Lanc Jig)	6-147
4-3.	Data Process	6-148
4-4.	Service Mode	6-149

* The camera color reproduction frame is shown on page 6-157 to 160.

1. SERVICE NOTE

ENGLISH JAPANESE

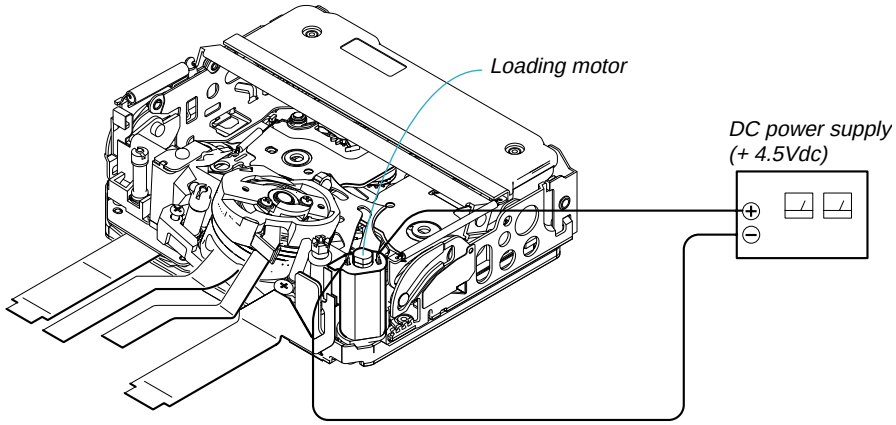
1-1. POWER SUPPLY DURING REPAIRS

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

Method:
Use the AC power adaptor (AC-L15A).

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

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



1-3. SETTING THE "FORCED POWER ON" MODE

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

1-3-1. Setting the "Forced Camera Power ON" Mode

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

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

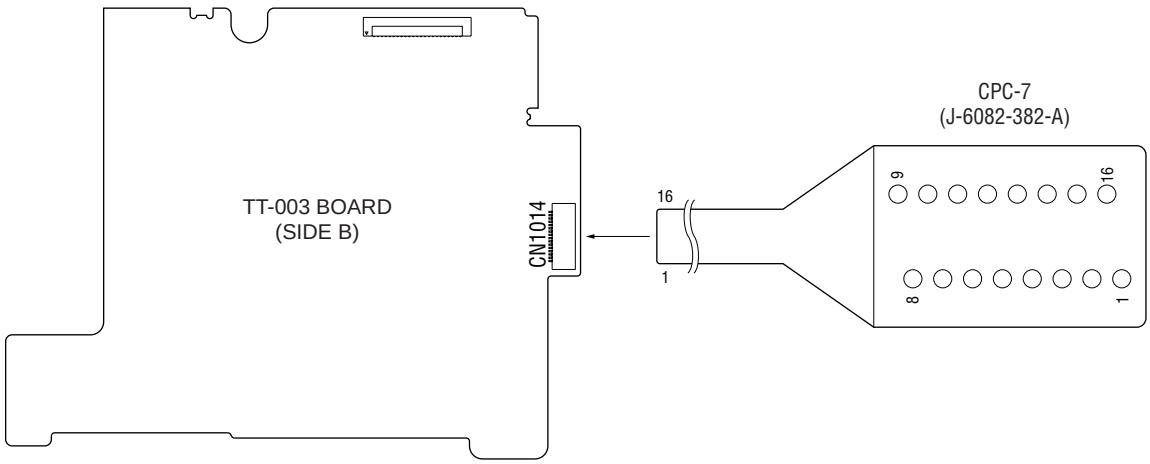
1) Select page: 0, address: 01, and set data:01.
2) Select page: A, address: 10, set data:02 and press the "PAUSE (Write) " button of the adjustment remote commander.

1-3-3. Exiting the "Forced Power ON" Mode

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

1-4. USING SERVICE JIG

Connect the CPC-7 jig connector (J-6082-382-A) to the CN1014 on the TT-003 board.



1-5. SELF-DIAGNOSIS FUNCTION

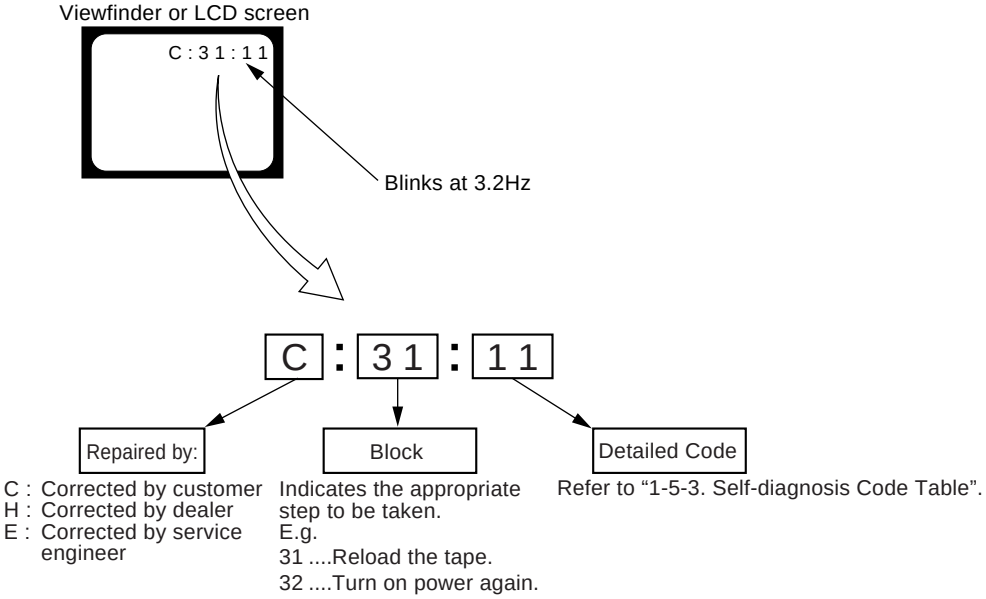
1-5-1. Self-diagnosis Function

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 ㉙, ㉛ of CN5802 on the YY-003 board). If not faulty, inspect the focus motor drive circuit (IC6004 on the YY-003 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 ㉝, ㉟ of CN5802 on the YY-003 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC6004 on the YY-003 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 (SE8001 on the JJ-004 board) peripheral circuits.
E	6 2	0 1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE8002 on the JJ-004 board) peripheral circuits.
E	6 2	0 2	Abnormality of IC for steadyshot.	Refer to [1-6-1. E : 62 : 02 (Abnormality of IC for Steadyshot) Occurred].
E	6 2	0 3	IC for steadyshot and micro controller communication abnormality among.	Inspect the steadyshot circuit (IC6203 on the YY-003 board).
E	6 2	1 0	Shift lens initializing failure	Refer to [1-6-2. E : 62 : 10 (Shift Lens Initializing Failure) Occurred].
E	6 2	1 1	Shift lens overheating (Pitch)	Refer to [1-6-3. E : 62 : 11 (Shift Lens Overheating (Pitch)) Occurred].
E	6 2	1 2	Shift lens overheating (Yaw)	Refer to [1-6-4. E : 62 : 12 (Shift Lens Overheating (Yaw)) Occurred].

1-6. METHOD OF COPING WITH SHIFT LENS ERROR

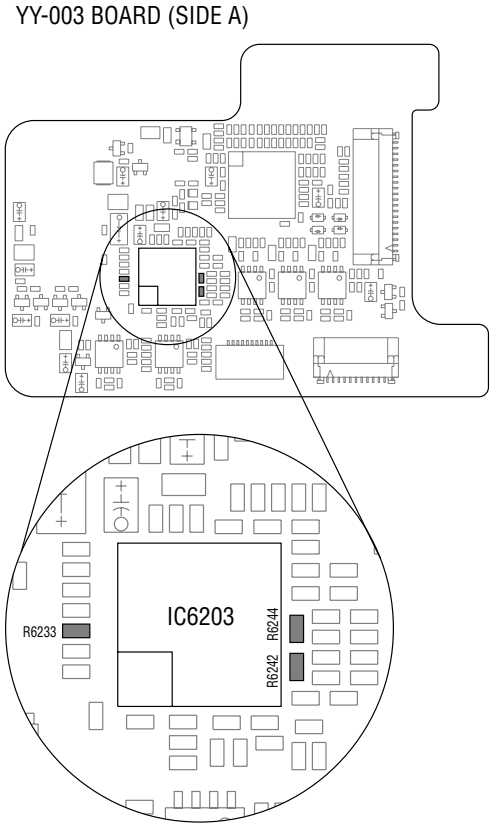
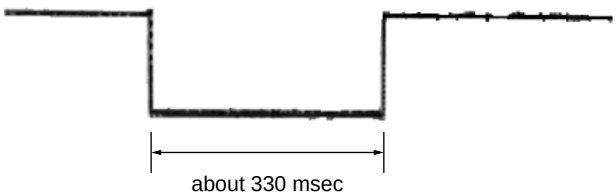


Fig. 1
Measurement points on the YY-003 board



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

Fig. 2
Change in output voltage of R6233

1-6-1. 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 R6233 in the periphery of IC6203 on the YY-003 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 (IC4201 of TT-003 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.

1-6-2. 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)	04		Read the data value and assume it as D_{04}.
4	F (7F)	04		Change the data and check that it has been changed. If no value changes or if value is 00 or FF, inspect the EEPROM (IC4202 of TT-003 board). If value changes, proceed to the order 5.
5	F (7F)	04	D_{04}	Press PAUSE (Write) button.
6	F (7F)	05		Read the data value and assume it as D_{05}.
7	F (7F)	05		Change the data and check that it has been changed. If no value changes or if value is 00 or FF, inspect the EEPROM (IC4202 of TT-003 board). If value changes, proceed to the order 8.
8	F (7F)	05	D_{05}	Press PAUSE (Write) button.
9	0	10	00	
10	0	01	00	
11				Perform “PSD Sensor Gradient Adjustment”. (Note 1)
12				Turn the power OFF and ON again.
13				Check that no error occurs. If an error occurs, replace the lens block (Note 2).

Note 1: Perform adjustment by referring to “PSD Sensor Gradient Adjustment” in Service Manual, ADJ. After the adjustment, be sure to perform “Optical Axis Adjustment” and “Angular Velocity Sensor Sensitivity Adjustment”.
Note 2: 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.

1-6-3. 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	07	
3	D (7D)	46	F0	Press PAUSE (Write) button.
4	D (7D)	48	01	Press PAUSE (Write) button. (Note 1)
5	D (7D)	48	00	Press PAUSE (Write) button.
6	D (7D)	46	10	Press PAUSE (Write) button.
7	D (7D)	48	01	Press PAUSE (Write) button. (Note 1)
8	D (7D)	48	00	Press PAUSE (Write) button.
9	0	10	00	
10	0	01	00	
11				Check if the shift lens moves while setting the order 3 to 8. If the shift lens does not move, replace the lens block (Note 2). When the shift lens moved, proceed to the order 12.
12				While setting the order 3 to 8, measure with an oscilloscope the output voltage of R6242 in the periphery of IC6203 on the YY-003 board to check the output voltage varies.
13				If the output voltage does not vary, replace the lens block (Note 2). When the output voltage varied, proceed to the order 14.
14				Turn the power OFF.
15				While measuring with an oscilloscope the output voltage of R6233 in the periphery of IC6203 on the YY-003 board, turn the power ON to check that the output voltage immediately after the power on change as shown in Fig. 2.
16				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 (IC4201 of TT-003 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 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.

1-6-4. 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	07	
3	D (7D)	47	F0	Press PAUSE (Write) button.
4	D (7D)	49	01	Press PAUSE (Write) button. (Note 1)
5	D (7D)	49	00	Press PAUSE (Write) button.
6	D (7D)	47	10	Press PAUSE (Write) button.
7	D (7D)	49	01	Press PAUSE (Write) button. (Note 1)
8	D (7D)	49	00	Press PAUSE (Write) button.
9	0	10	00	
10	0	01	00	
11				Check if the shift lens moves while setting the order 3 to 8. If the shift lens does not move, replace the lens block (Note 2). When the shift lens moved, proceed to the order 12.
12				While setting the order 3 to 8, measure with an oscilloscope the output voltage of R6244 in the periphery of IC6203 on the YY-003 board to check the output voltage varies.
13				If the output voltage does not vary, replace the lens block (Note 2). When the output voltage varied, proceed to the order 14.
14				Turn the power OFF.
15				While measuring with an oscilloscope the output voltage of R6233 in the periphery of IC6203 on the YY-003 board, turn the power ON to check that the output voltage immediately after the power on change as shown in Fig. 2.
16				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 (IC4201 of TT-003 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 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. SERVICE NOTE

ENGLISH JAPANESE

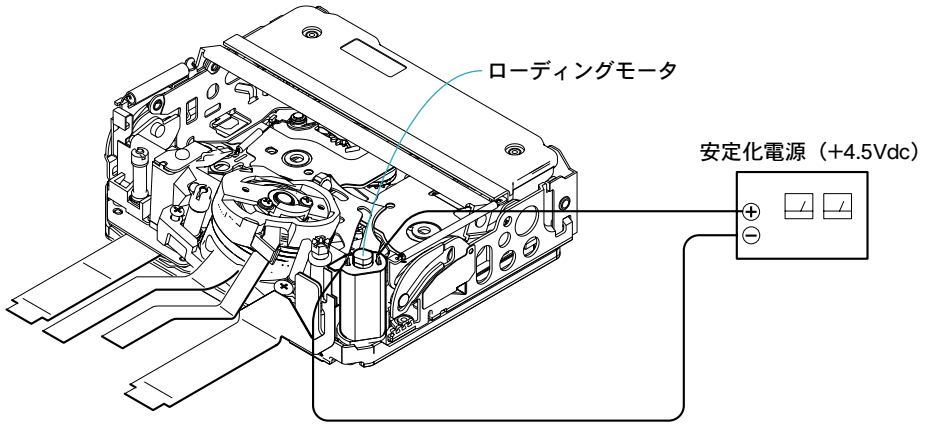
1-1. 修理時の電源供給について

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-L15A）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

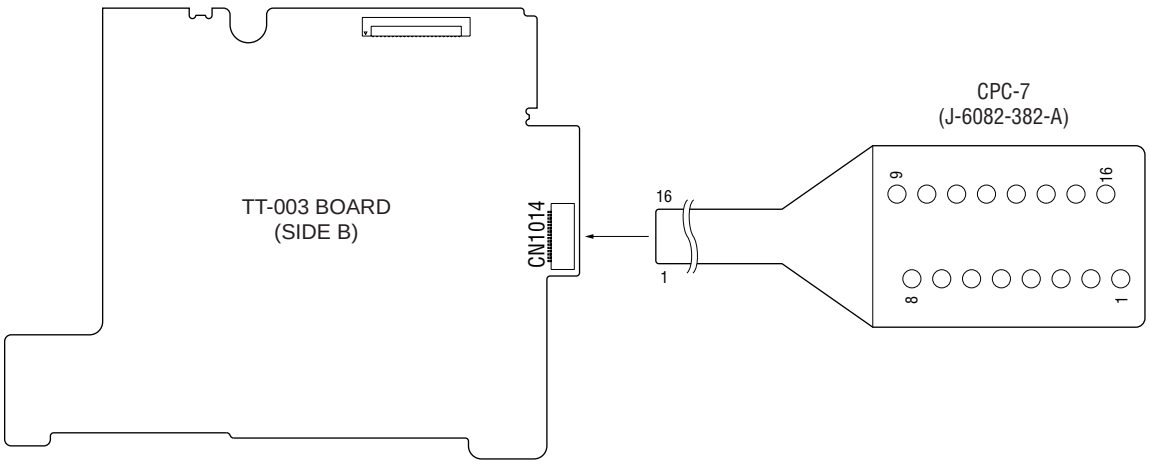
1) ページ：0，アドレス：01にデータ：01をセット。
2) ページ：A，アドレス：10にデータ：02をセットしPAUSE（Write）ボタンを押す。

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-7治具コネクタ（J-6082-382-A）をTT-003基板CN1014に接続します。



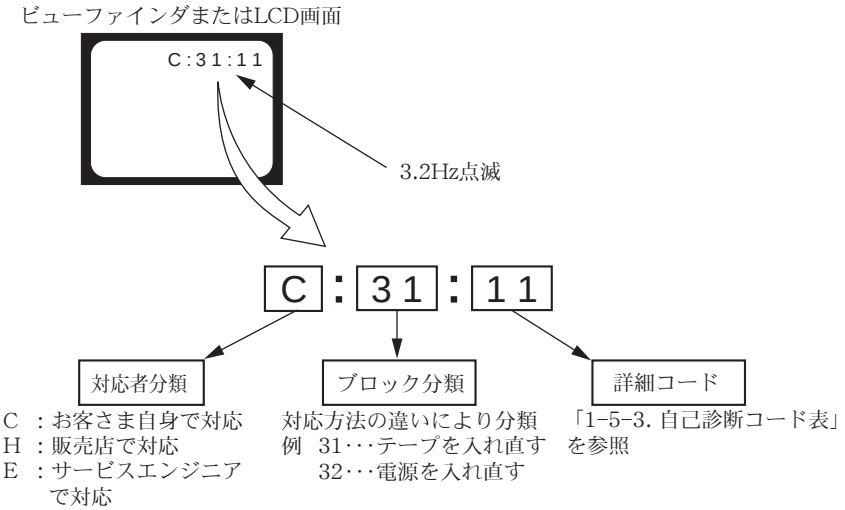
1-5. 自己診断機能

1-5-1. 自己診断機能について

本機の動作に不具合が生じたとき，自己診断機能が働き，ビューファインダまたはLCD画面に，どう処置したらよいか判断できる表示を行います。自己診断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（YY-003基板CN5802 ㉙, ㉛ ピン）を点検。問題がなければフォーカスモータドライブ回路（YY-003基板IC6004）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(YY-003基板CN5802 ㉝, ㉟ピン)を点検。ズーム動作をしなければズームモータドライブ回路(YY-003基板IC6004)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(JJ-004基板SE8001)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(JJ-004基板SE8002)周辺回路を点検
E	6 2	0 2	手振れ補正用ICの異常	「1-6-1. E:62:02(手振れ補正用ICの異常)が出た場合」を参照
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(YY-003基板IC6203)を点検
E	6 2	1 0	シフトレンズ初期化異常	「1-6-2. E:62:10(シフトレンズ初期化異常)が出た場合」を参照
E	6 2	1 1	シフトレンズオーバーヒート(PITCH)	「1-6-3. 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
E	6 2	1 2	シフトレンズオーバーヒート(YAW)	「1-6-4. 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

1-6. シフトレンズエラーの対処方法

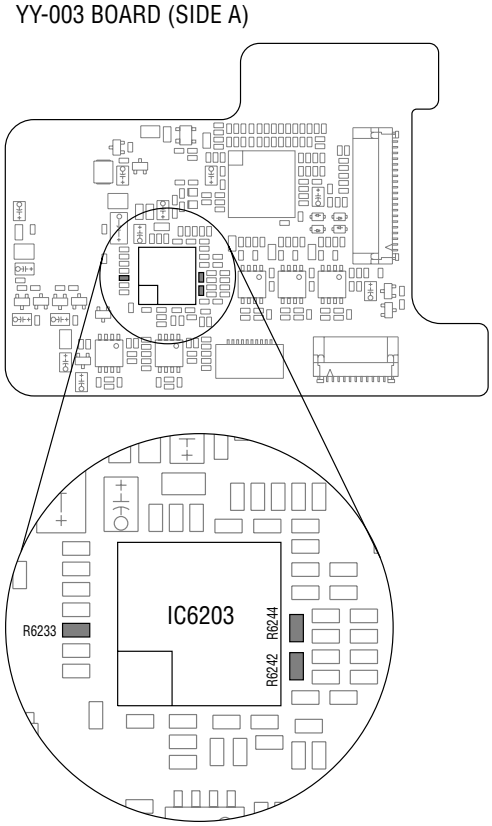
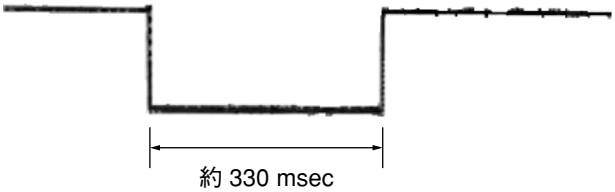


図1. YY-003基板測定箇所



注意：Lowの区間の長さは場合によって多少異なる

図2. R6233の出力電圧の変化

1-6-1. 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	YY-003基板IC6203の周辺にあるR6233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(TT-003基板IC4201)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。

1-6-2. 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)	04		データ値を読み取り，その値をD_{04}とする。
4	F (7F)	04		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(TT-003基板IC4202)を点検。値が変化する場合は順序5に進む。
5	F (7F)	04	D_{04}	PAUSE（Write）ボタンを押す。
6	F (7F)	05		データ値を読み取り，その値をD_{05}とする。
7	F (7F)	05		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(TT-003基板IC4202)を点検。値が変化する場合は順序8に進む。
8	F (7F)	05	D_{05}	PAUSE（Write）ボタンを押す。
9	0	10	00	
10	0	01	00	
11				PSDセンサ傾き調整を行う。(注1)
12				電源を切り，再び電源を入れる。
13				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「PSD Sensor Gradient Adjustment」を参照して調整を実施すること。調整後は「Optical Axis Adjustment」，「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。

1-6-3. 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	07	
3	D (7D)	46	F0	PAUSE（Write）ボタンを押す。
4	D (7D)	48	01	PAUSE（Write）ボタンを押す。（注1）
5	D (7D)	48	00	PAUSE（Write）ボタンを押す。
6	D (7D)	46	10	PAUSE（Write）ボタンを押す。
7	D (7D)	48	01	PAUSE（Write）ボタンを押す。（注1）
8	D (7D)	48	00	PAUSE（Write）ボタンを押す。
9	0	10	00	
10	0	01	00	
11				順序3～8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12に進む。
12				YY-003基板IC6203の周辺にあるR6242の出力電圧をオシロスコープで測定しながら，順序3～8を設定したときに出力電圧が変化することを確認する。
13				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14に進む。
14				電源を切る。
15				YY-003基板IC6203の周辺にあるR6233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。
16				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（TT-003基板IC4201）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。

1-6-4. 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	07	
3	D (7D)	47	F0	PAUSE（Write）ボタンを押す。
4	D (7D)	49	01	PAUSE（Write）ボタンを押す。（注1）
5	D (7D)	49	00	PAUSE（Write）ボタンを押す。
6	D (7D)	47	10	PAUSE（Write）ボタンを押す。
7	D (7D)	49	01	PAUSE（Write）ボタンを押す。（注1）
8	D (7D)	49	00	PAUSE（Write）ボタンを押す。
9	0	10	00	
10	0	01	00	
11				順序3～8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12に進む。
12				YY-003基板IC6203の周辺にあるR6244の出力電圧をオシロスコープで測定しながら，順序3～8を設定したときに出力電圧が変化することを確認する。
13				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14に進む。
14				電源を切る。
15				YY-003基板IC6203の周辺にあるR6233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。
16				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（TT-003基板IC4201）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。

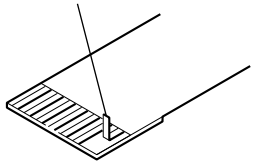
注意2：レンズブロックを交換した場合は，ADJ編を参照して必要な調整項目を実施すること。調整後は手振れ補正ONの状態にして，手持ち動作で手振れ補正が適切に動作していることを確認する。

2. DISASSEMBLY

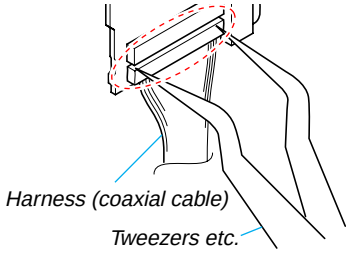
NOTE FOR REPAIR

- 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)



NOTE FOR DISCONNECTING THE HARNESS (COAXIAL CABLE)



When disconnecting the harness (coaxial cable), do not pull the harness part but pull off the connector body with tweezers etc.

2-1. DISASSEMBLY

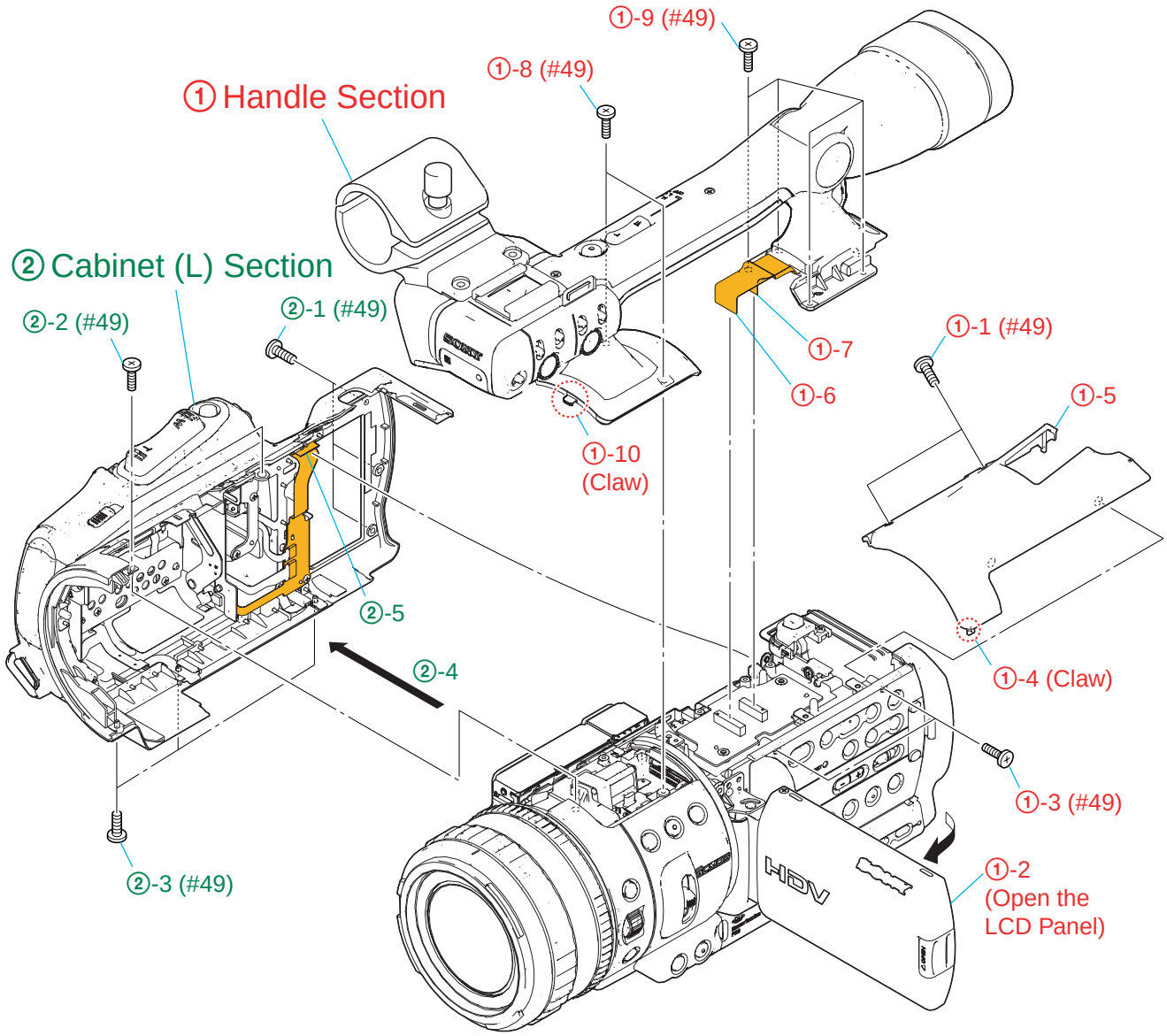
EXPLODED VIEW HARDWARE LIST

2-1-1. OVERALL SECTION-1

Follow the disassembly in the numerical order given.

① Handle Section (①-1 to ①-10)

② Cabinet (L) Section (②-1 to ②-5)



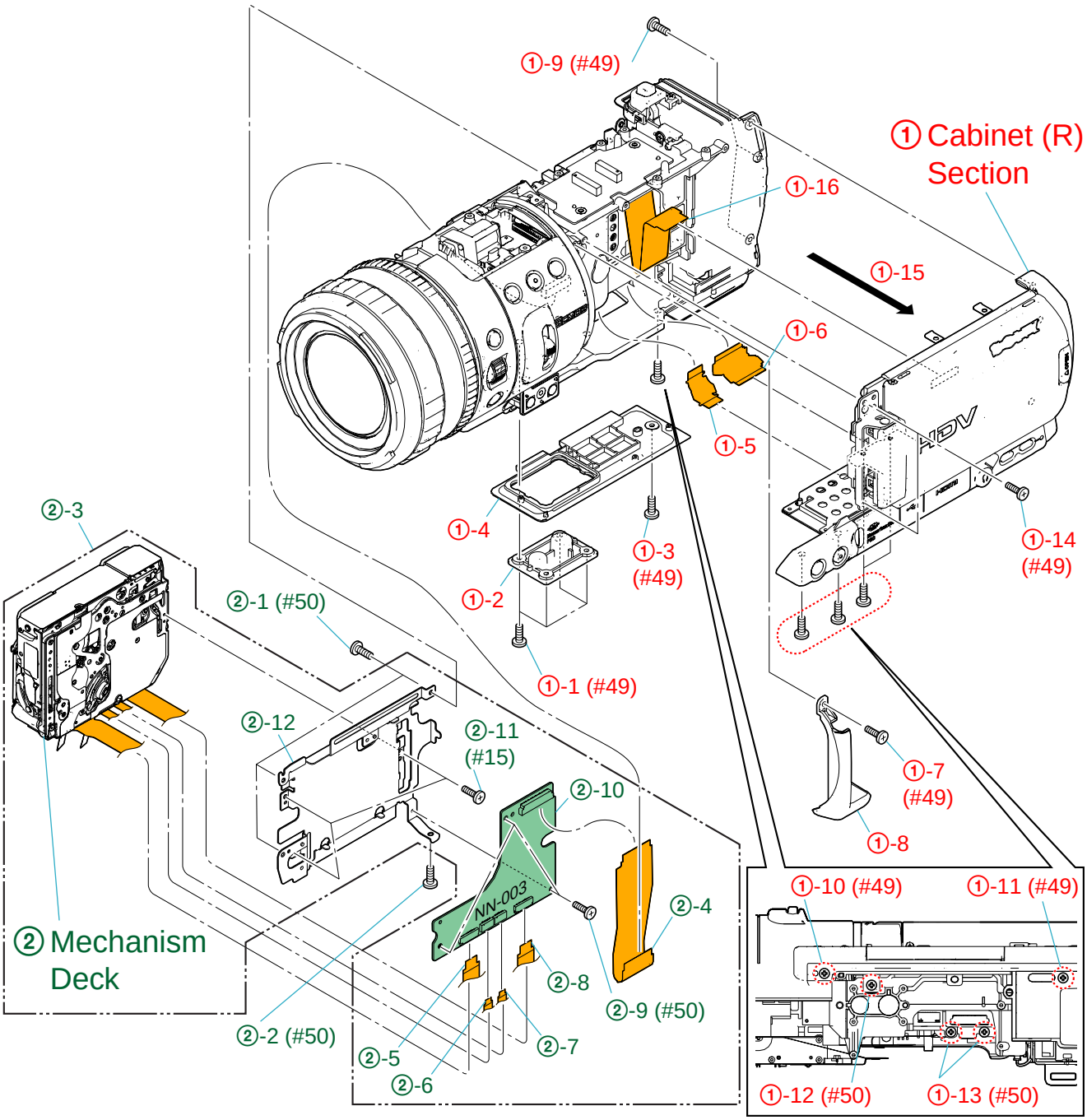
2-1-2. OVERALL SECTION-2

EXPLODED VIEW HARDWARE LIST

Follow the disassembly in the numerical order given.

① Cabinet (R) Section (①-1 to ①-16)

② Mechanism Deck (②-1 to ②-12)

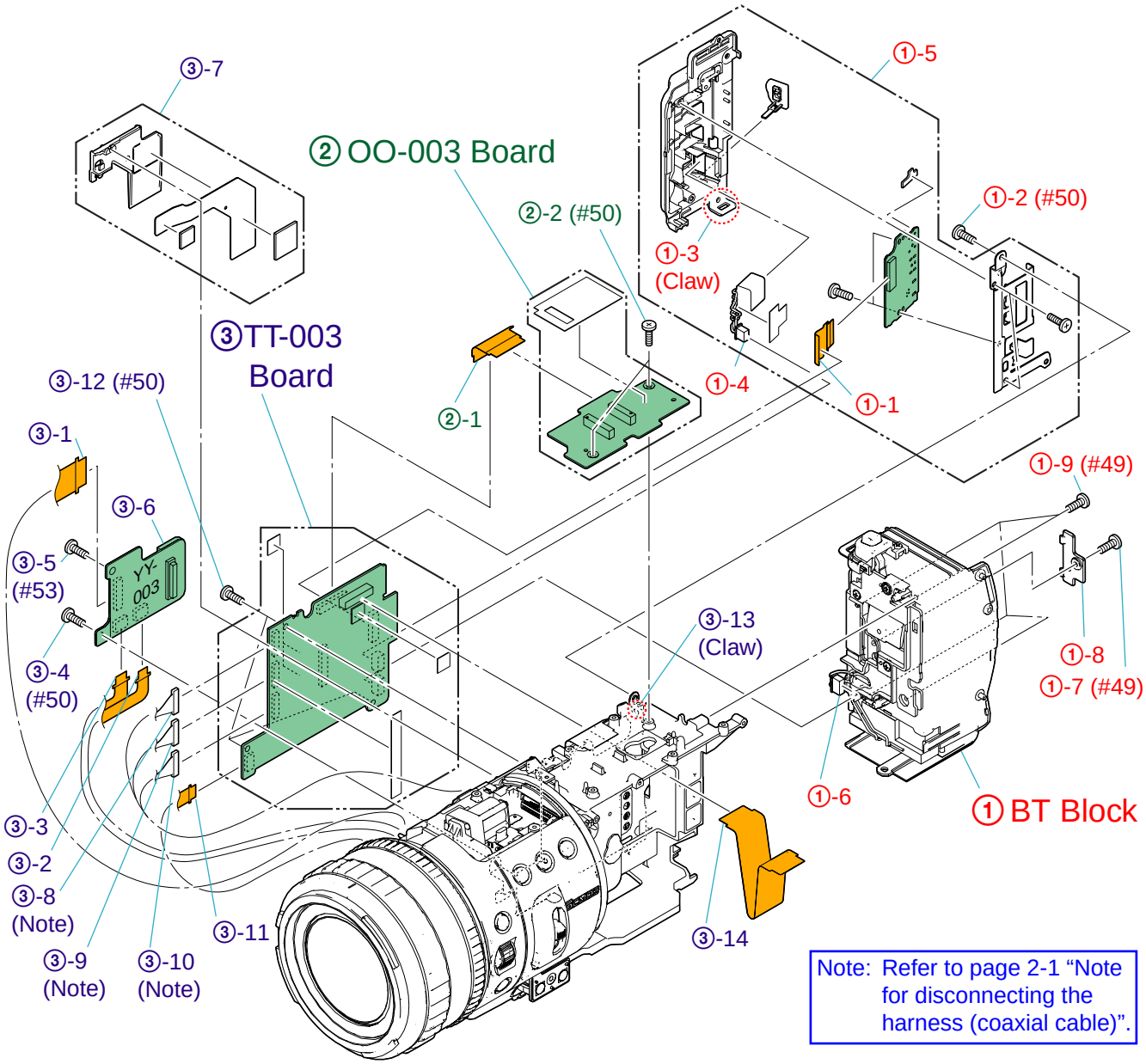


2-1-3. OVERALL SECTION-3

EXPLODED VIEW HARDWARE LIST

Follow the disassembly in the numerical order given.

① BT Block (①-1 to ①-9)
② OO-003 Board (②-1 to ②-2)
③ TT-003 Board (③-1 to ③-14)

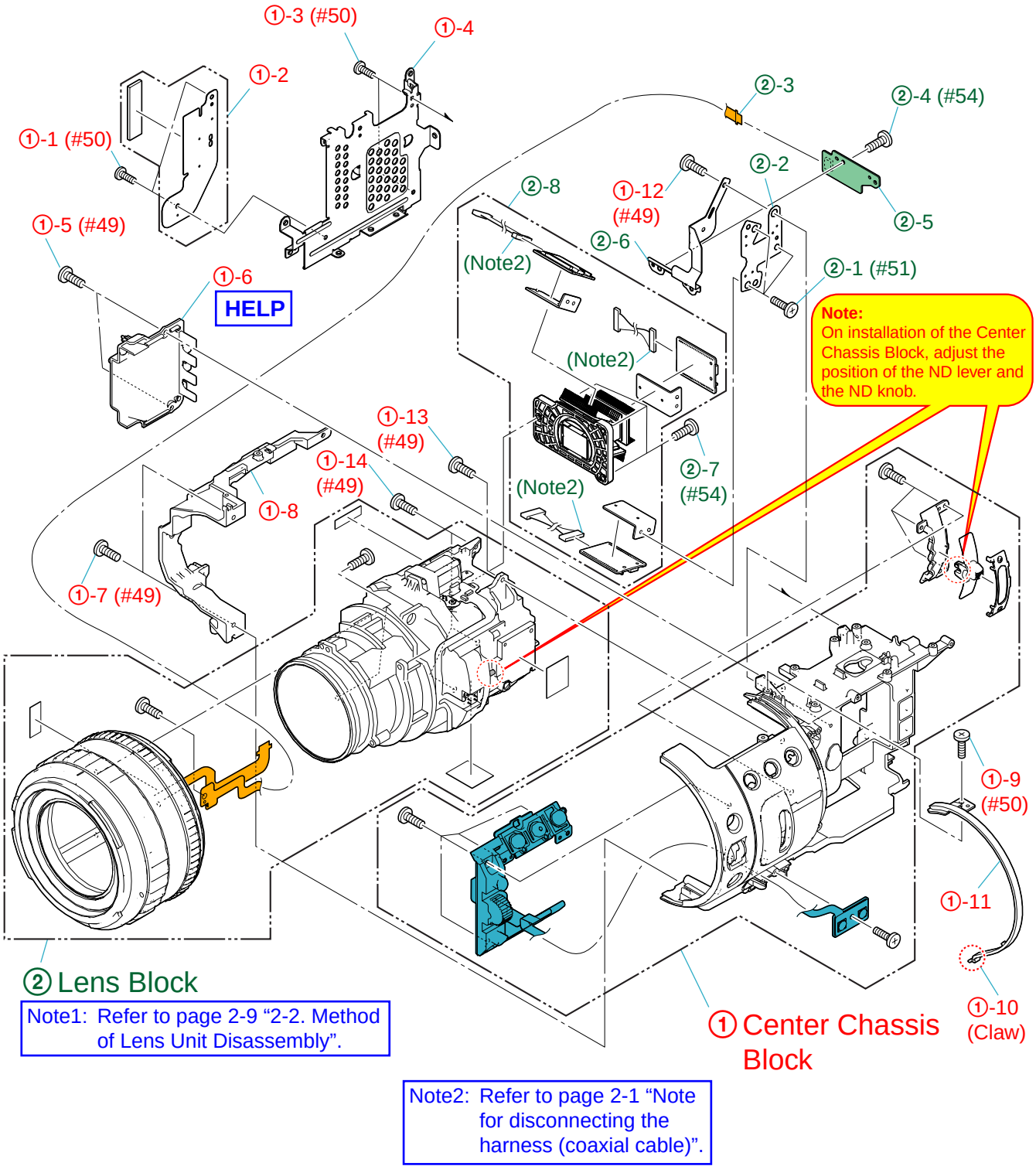


Note: Refer to page 2-1 “Note for disconnecting the harness (coaxial cable)”.

2-1-4. LENS SECTION

EXPLODED VIEW HARDWARE LIST

Follow the disassembly in the numerical order given.
① Center Cassis Block (①-1 to ①-14)
② Lens Block (②-1 to ②-8)



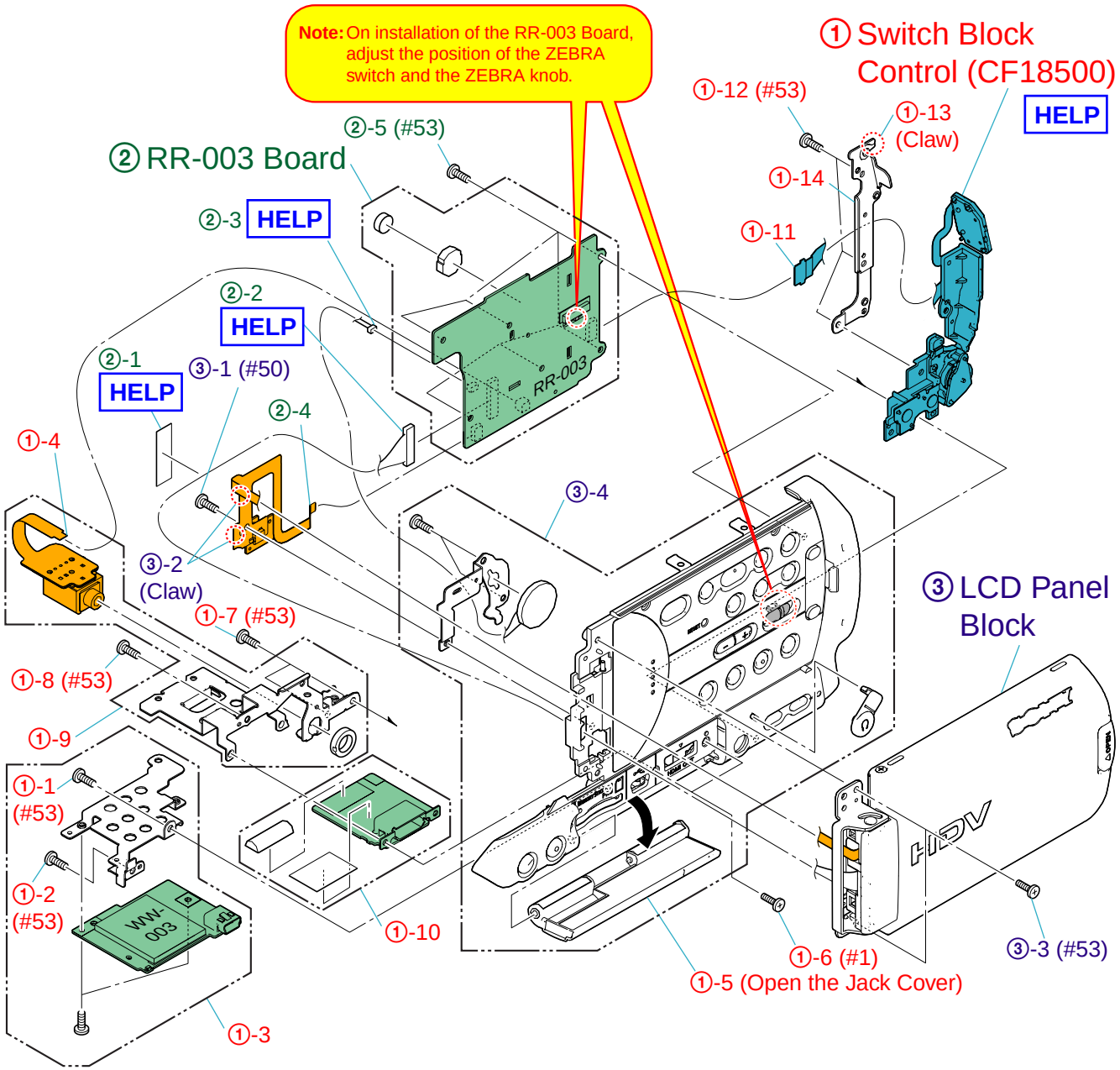
Note1: Refer to page 2-9 “2-2. Method of Lens Unit Disassembly”.

Note2: Refer to page 2-1 “Note for disconnecting the harness (coaxial cable)”.

2-1-5. CABINET (R) SECTION

EXPLODED VIEW | HARDWARE LIST

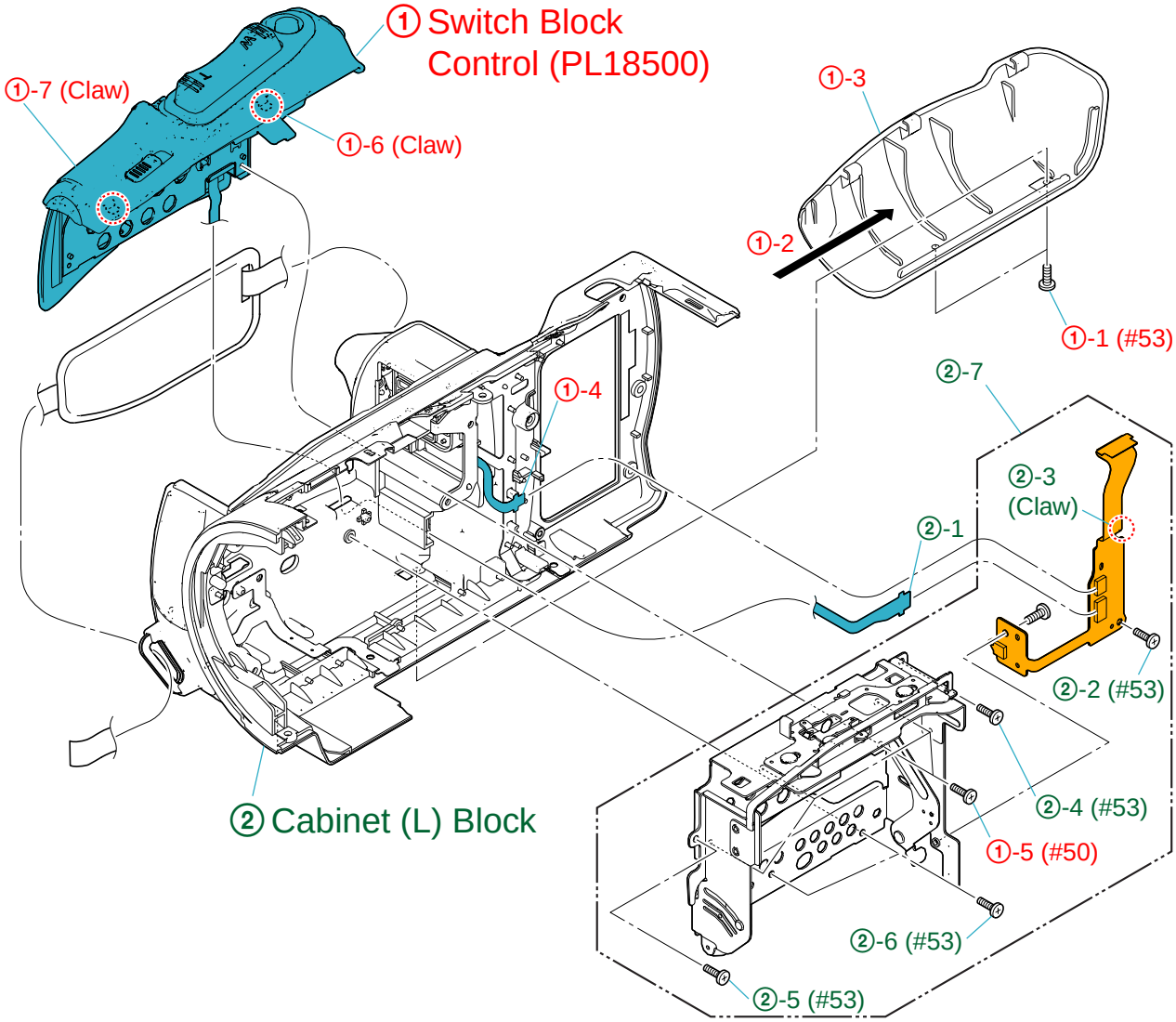
Follow the disassembly in the numerical order given.
① Switch Block Control (CF18500) (①-1 to ①-14)
② RR-003 Board (②-1 to ②-5)
③ LCD Panel Block (③-1 to ③-4)



2-1-6. CABINET (L) SECTION

EXPLODED VIEW HARDWARE LIST

Follow the disassembly in the numerical order given.
① Switch Block Control (PL18500) (①-1 to ①-7)
② Cabinet (L) Block (②-1 to ②-7)

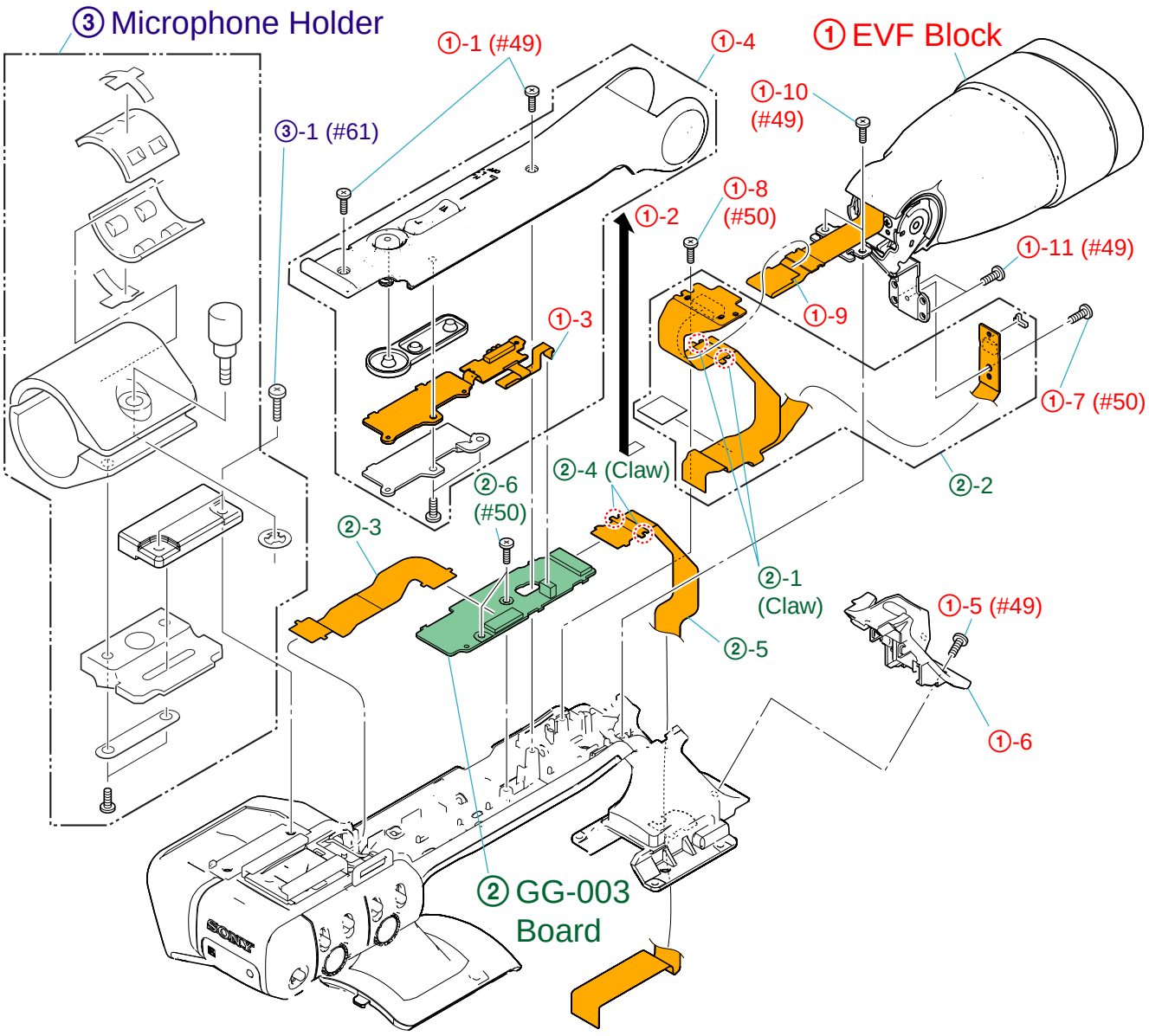


2-1-7. HANDLE SECTION

EXPLODED VIEW HARDWARE LIST

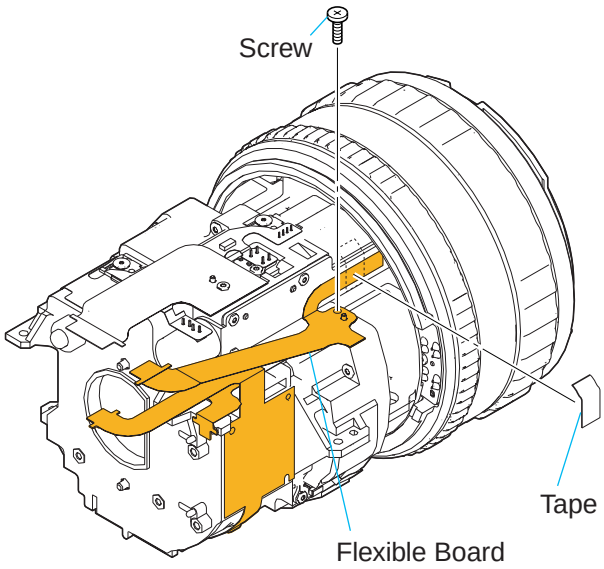
Follow the disassembly in the numerical order given.

① EVF Block (①-1 to ①-11)
② GG-003 Board (②-1 to ②-6)
③ Microphone Holder (③-1)

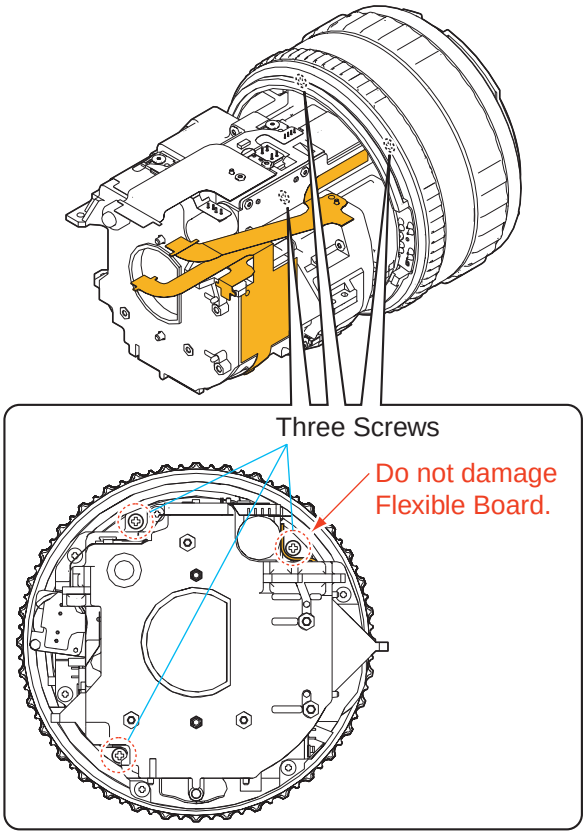


2-2. METHOD OF LENS UNIT DISASSEMBLY

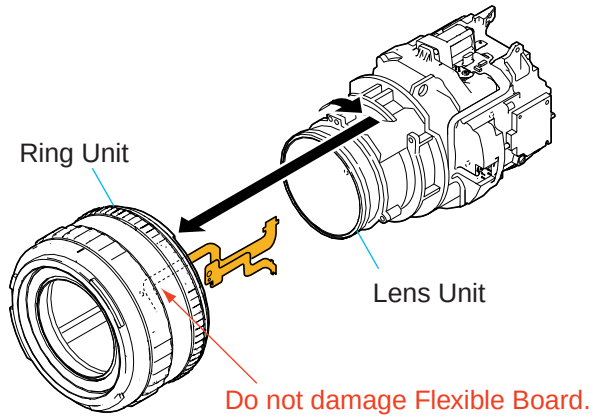
① Remove the screw and the tape that is the fixation of Flexible Board.



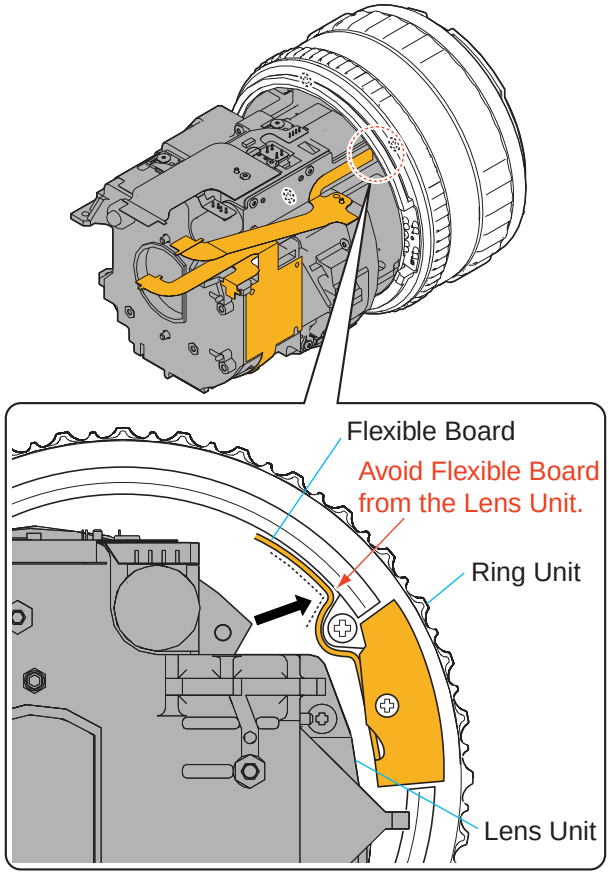
② Remove three screws for connection.



③ Remove after rotating the Ring Unit a little.

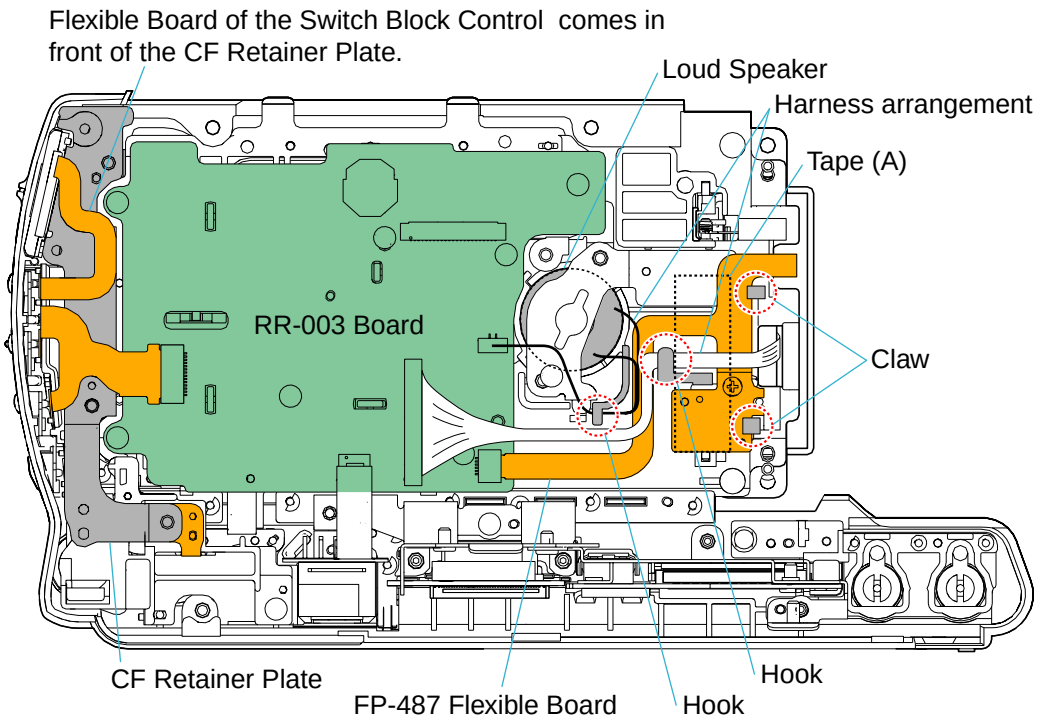


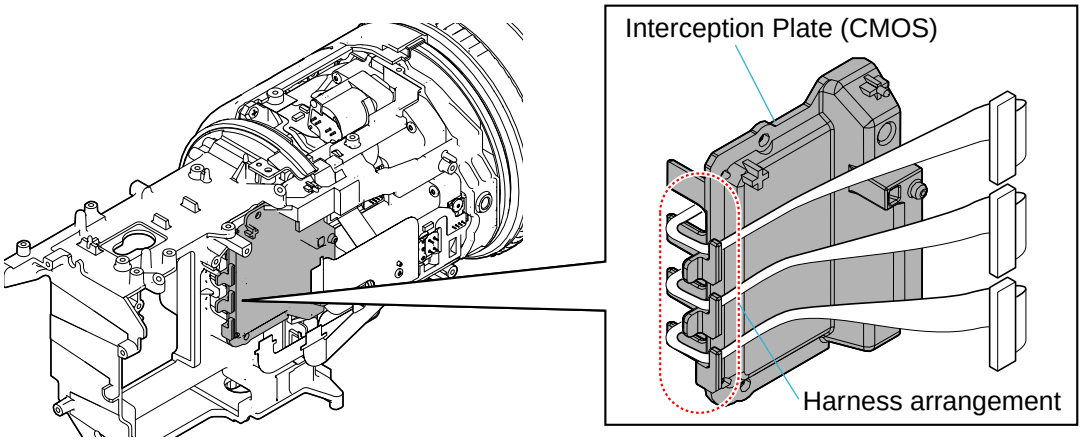
Note: Avoid Flexible Board from the Lens Unit when you install the Lens Unit.



HELP

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





3. BLOCK DIAGRAMS

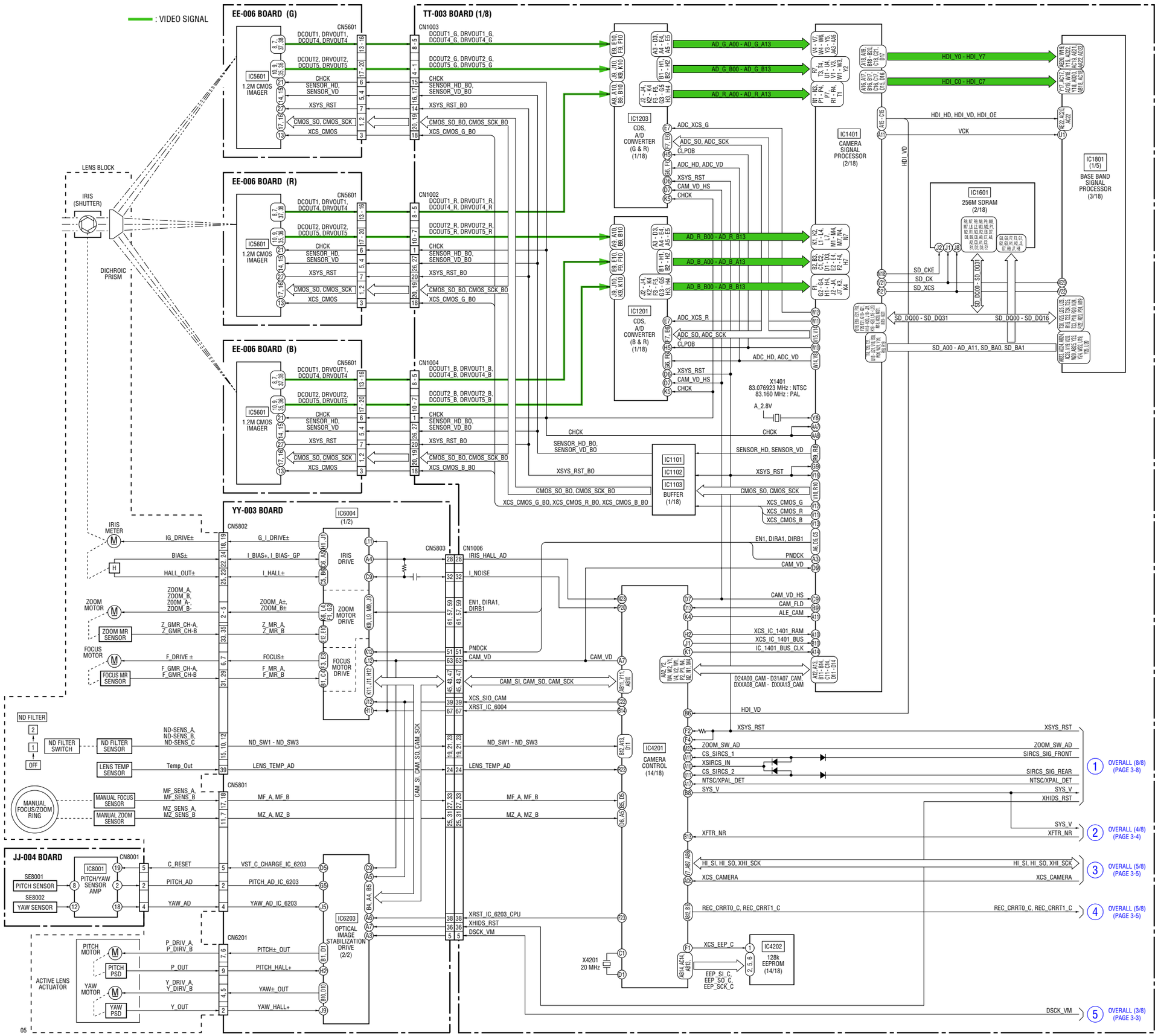
Link

OVERALL BLOCK DIAGRAM (1/8)	OVERALL BLOCK DIAGRAM (7/8)
OVERALL BLOCK DIAGRAM (2/8)	OVERALL BLOCK DIAGRAM (8/8)
OVERALL BLOCK DIAGRAM (3/8)	POWER BLOCK DIAGRAM (1/4)
OVERALL BLOCK DIAGRAM (4/8)	POWER BLOCK DIAGRAM (2/4)
OVERALL BLOCK DIAGRAM (5/8)	POWER BLOCK DIAGRAM (3/4)
OVERALL BLOCK DIAGRAM (6/8)	POWER BLOCK DIAGRAM (4/4)

3. BLOCK DIAGRAMS

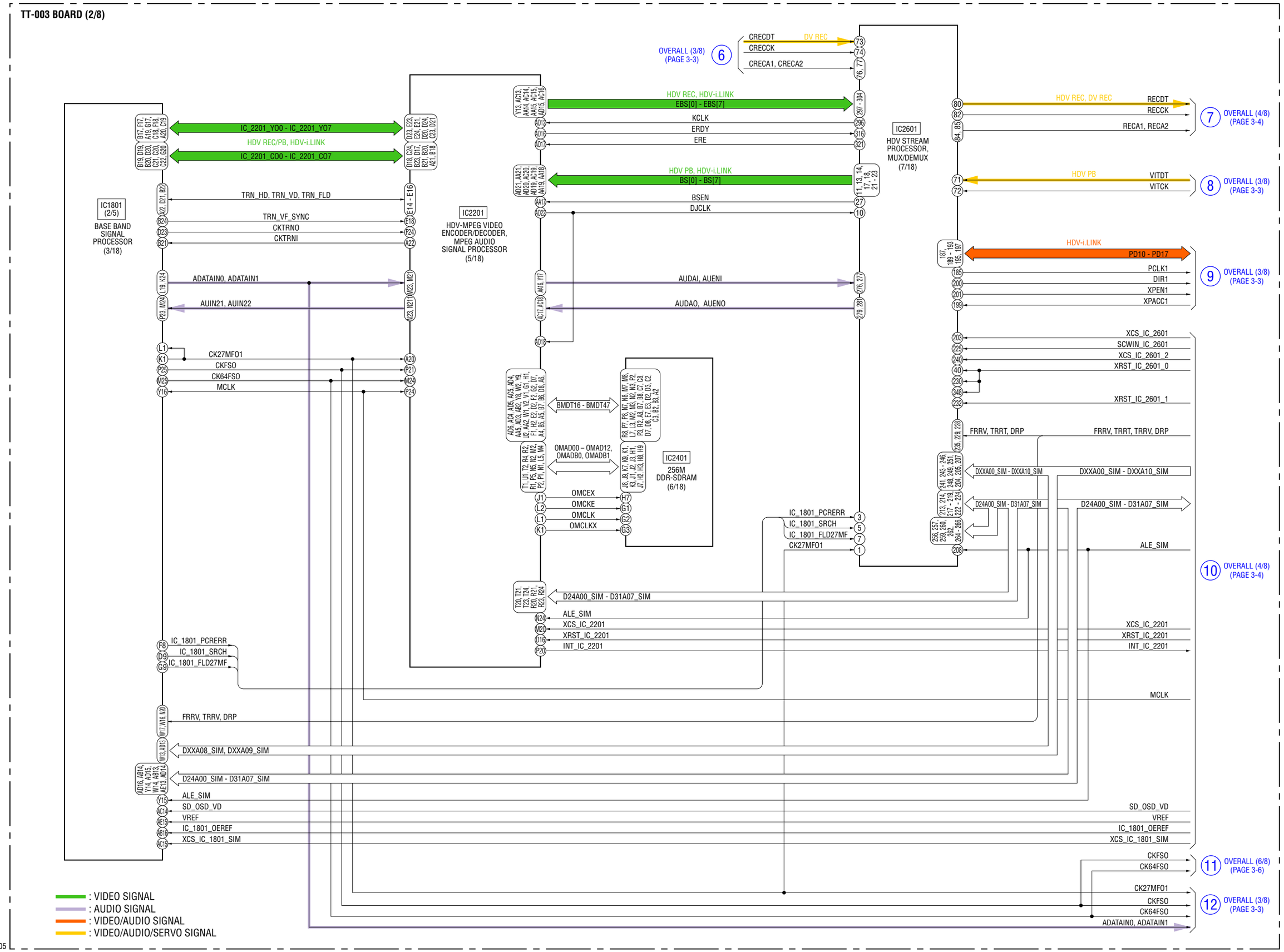
3-1. OVERALL BLOCK DIAGRAM (1/8)

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



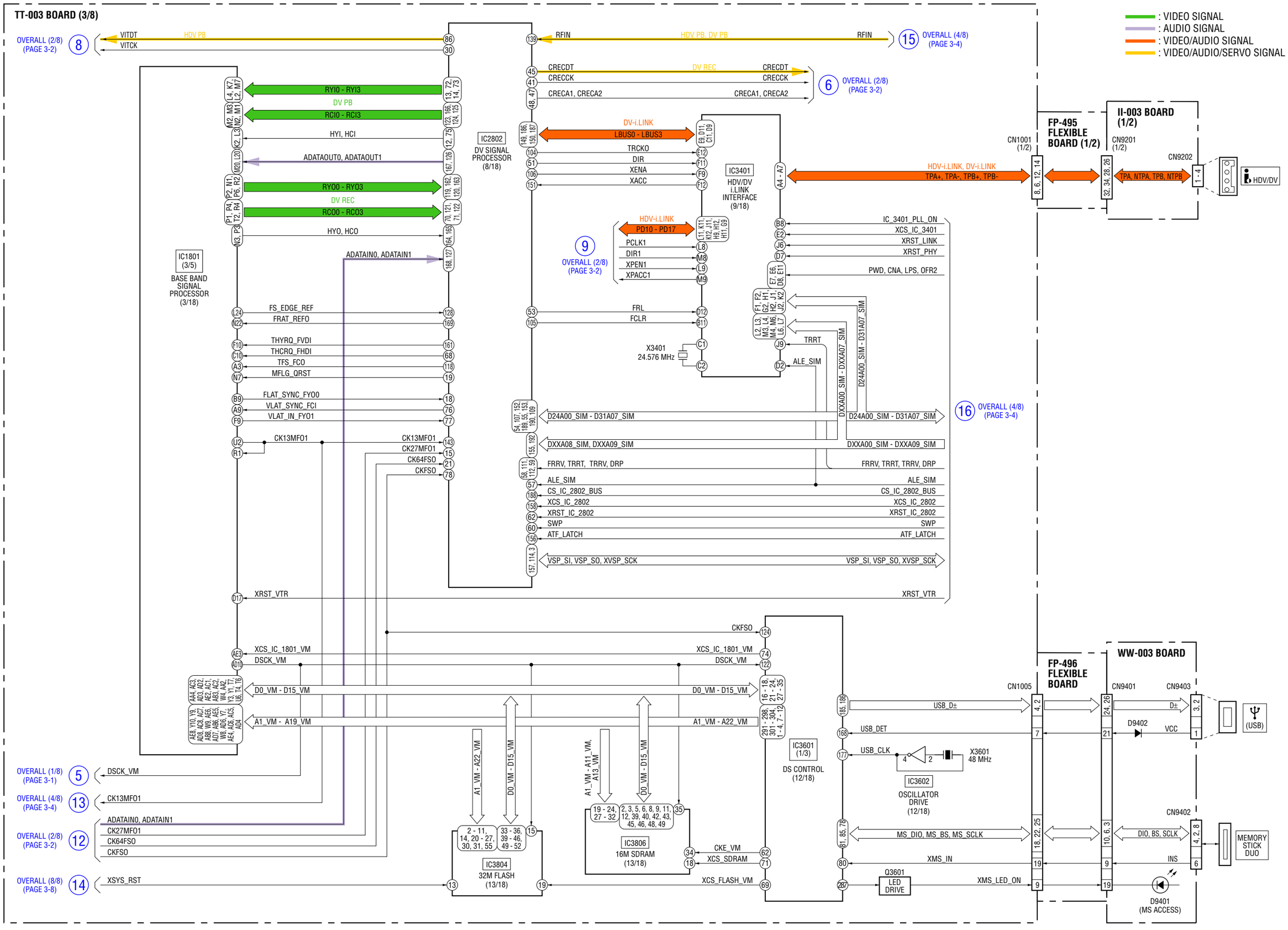
3-2. OVERALL BLOCK DIAGRAM (2/8)

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



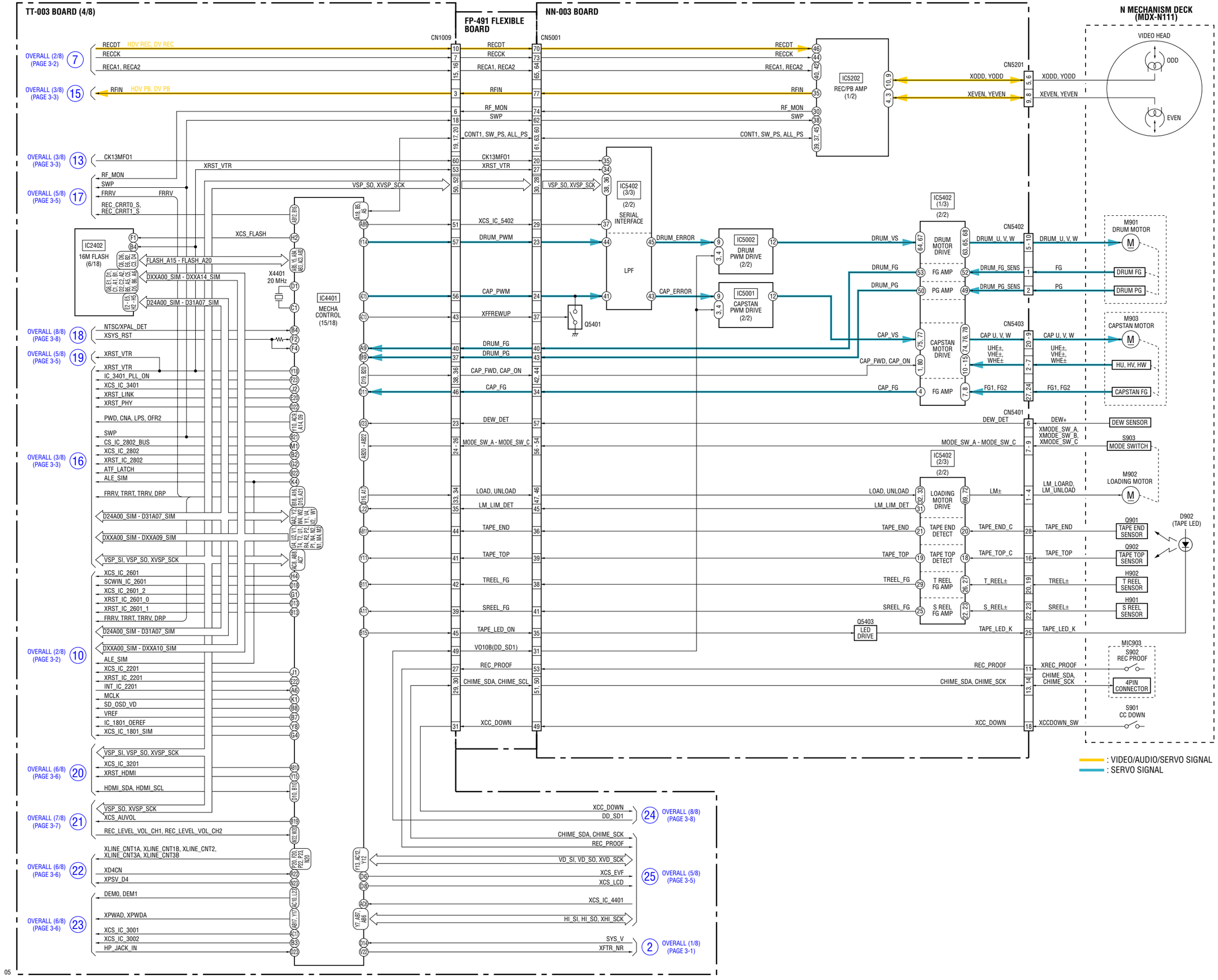
3-3. OVERALL BLOCK DIAGRAM (3/8)

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



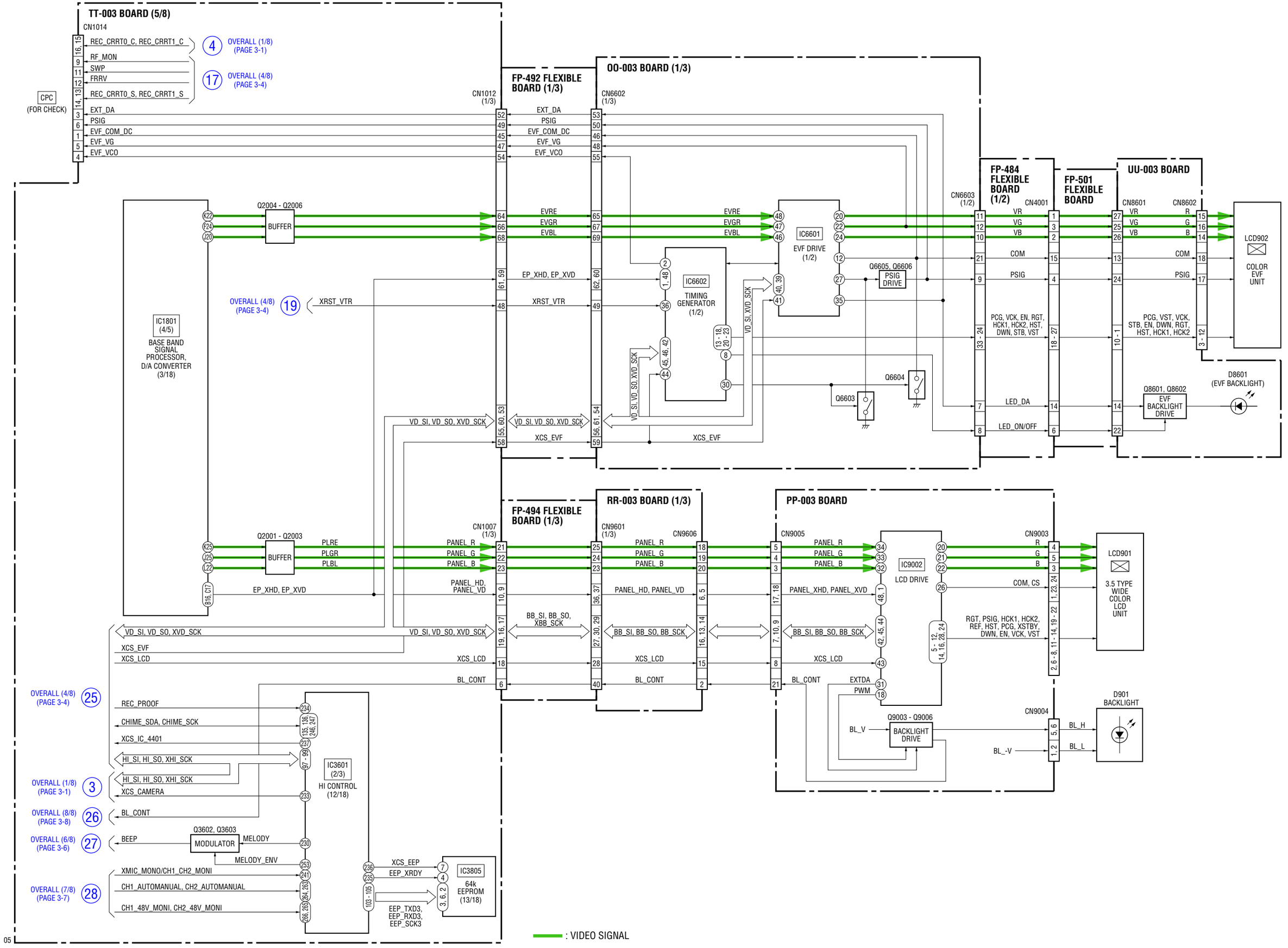
3-4. OVERALL BLOCK DIAGRAM (4/8)

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



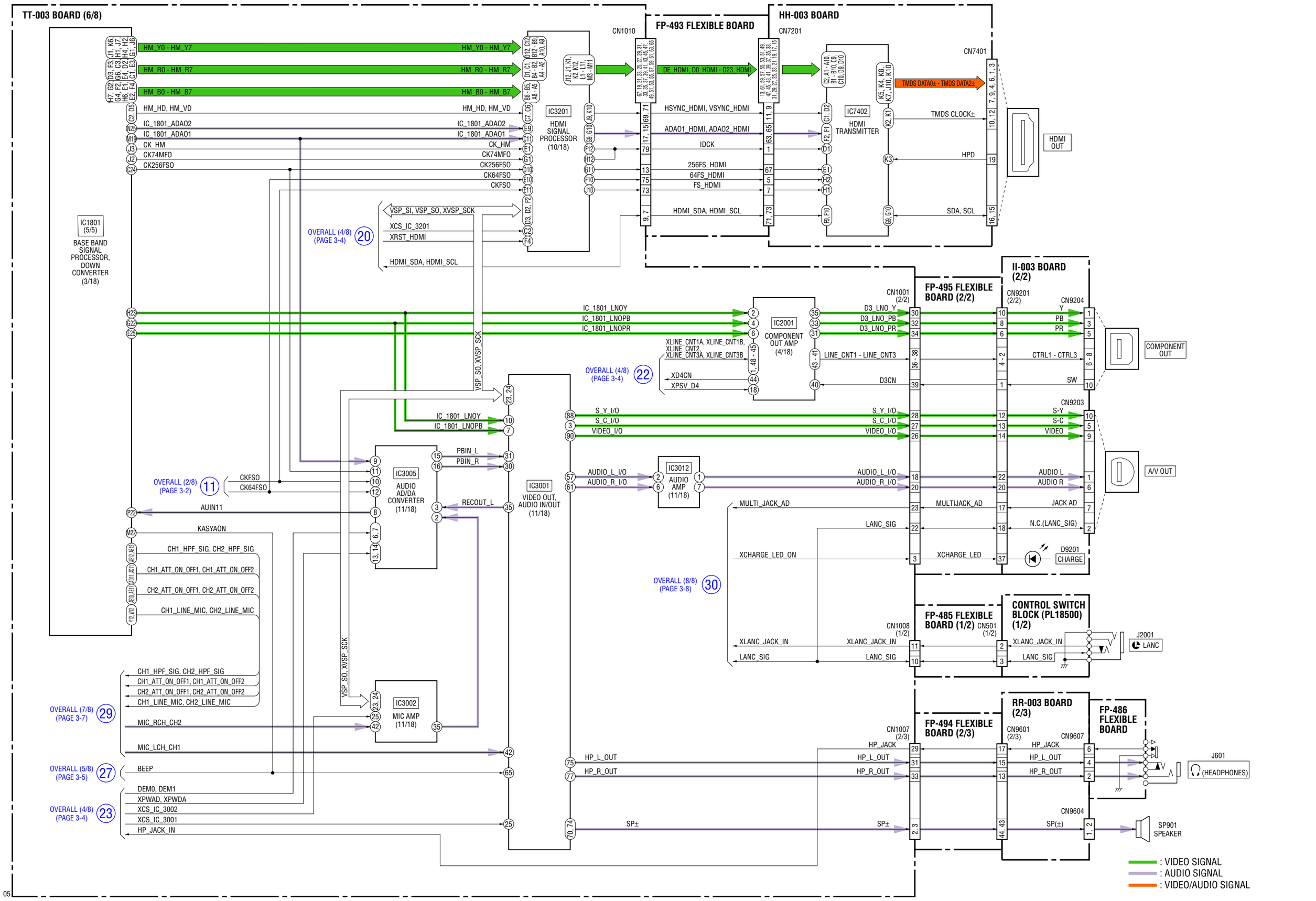
3-5. OVERALL BLOCK DIAGRAM (5/8)

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



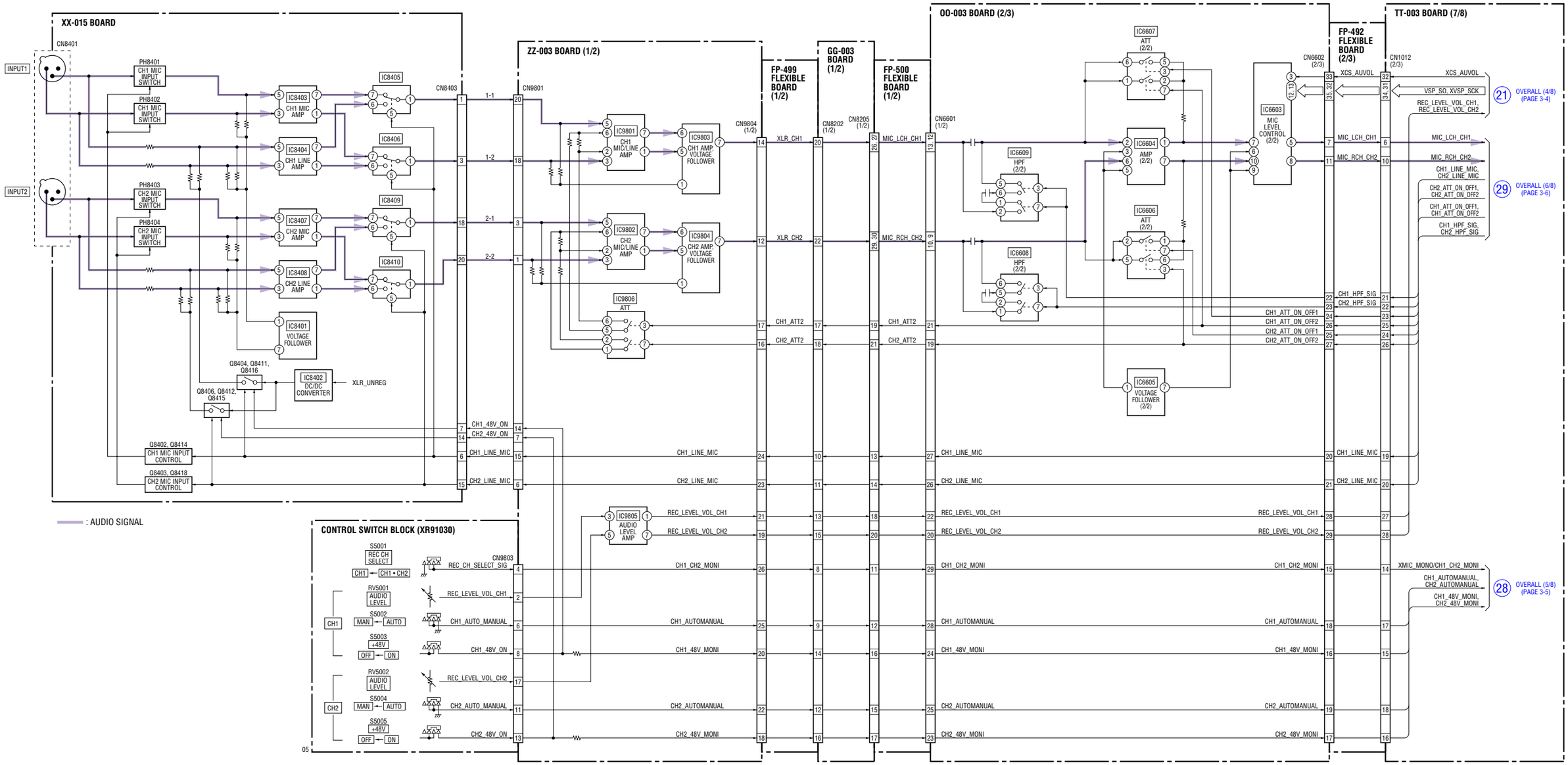
3-6. OVERALL BLOCK DIAGRAM (6/8)

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



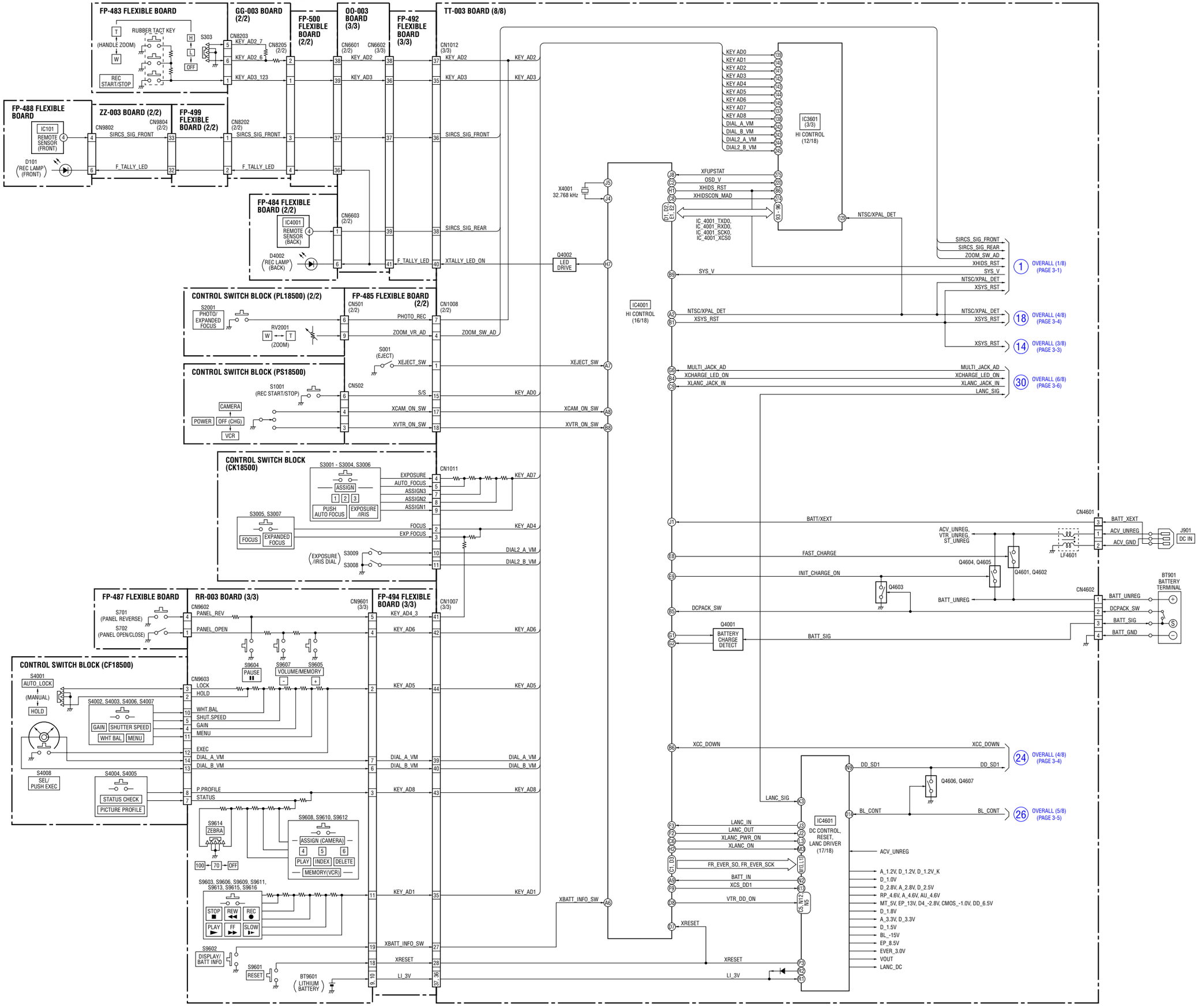
3-7. OVERALL BLOCK DIAGRAM (7/8)

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



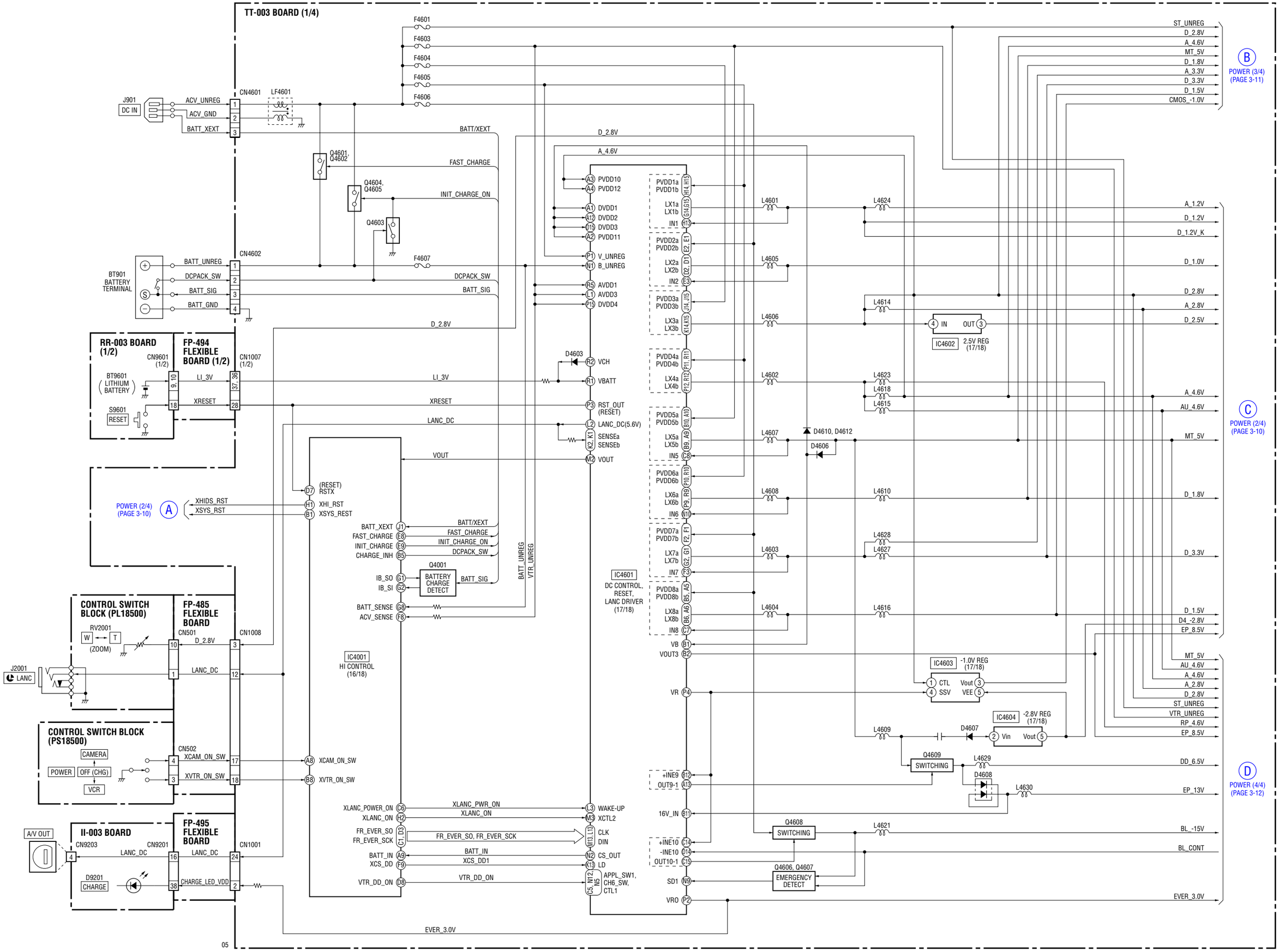
3-8. OVERALL BLOCK DIAGRAM (8/8)

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



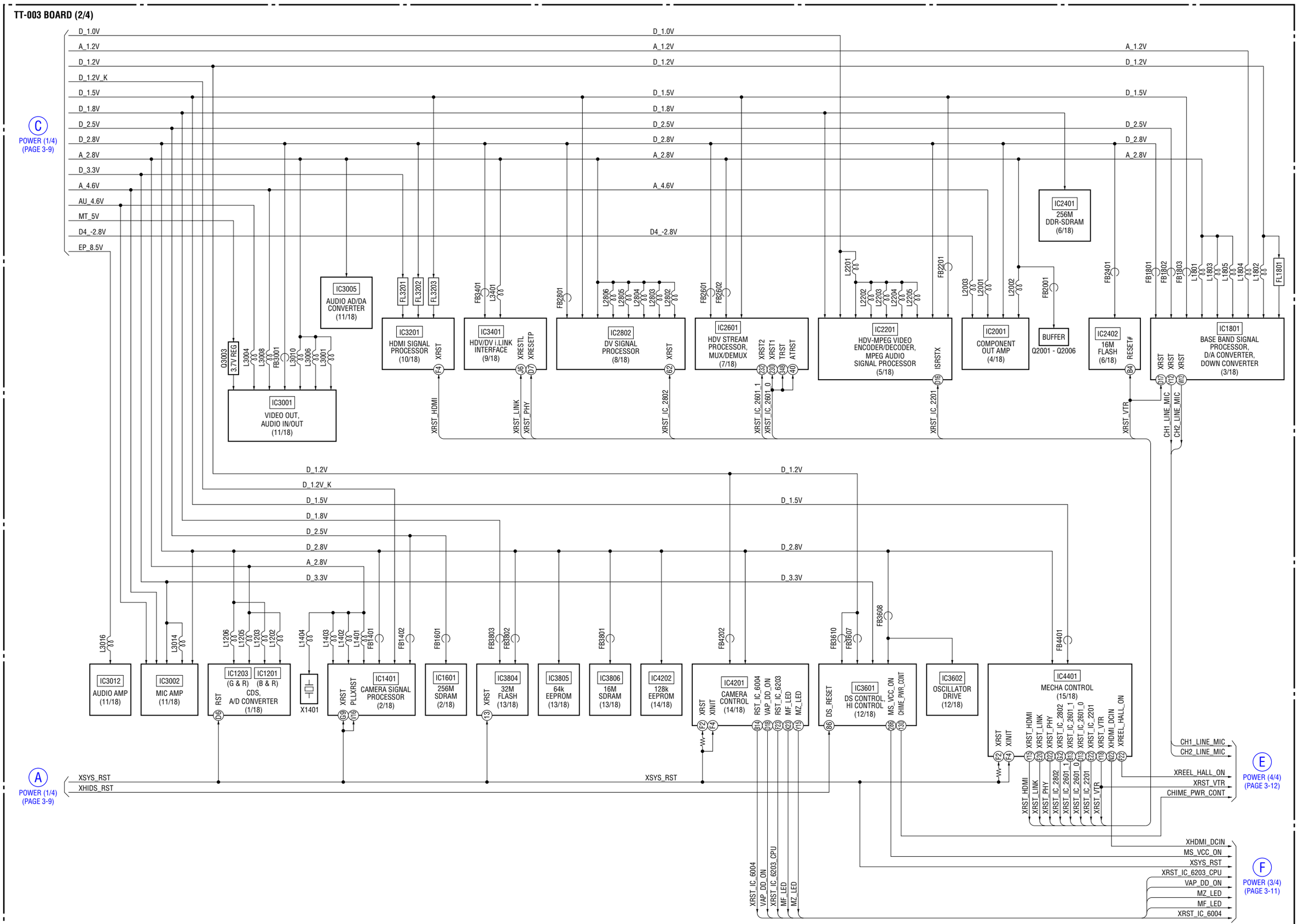
3-9. POWER BLOCK DIAGRAM (1/4)

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



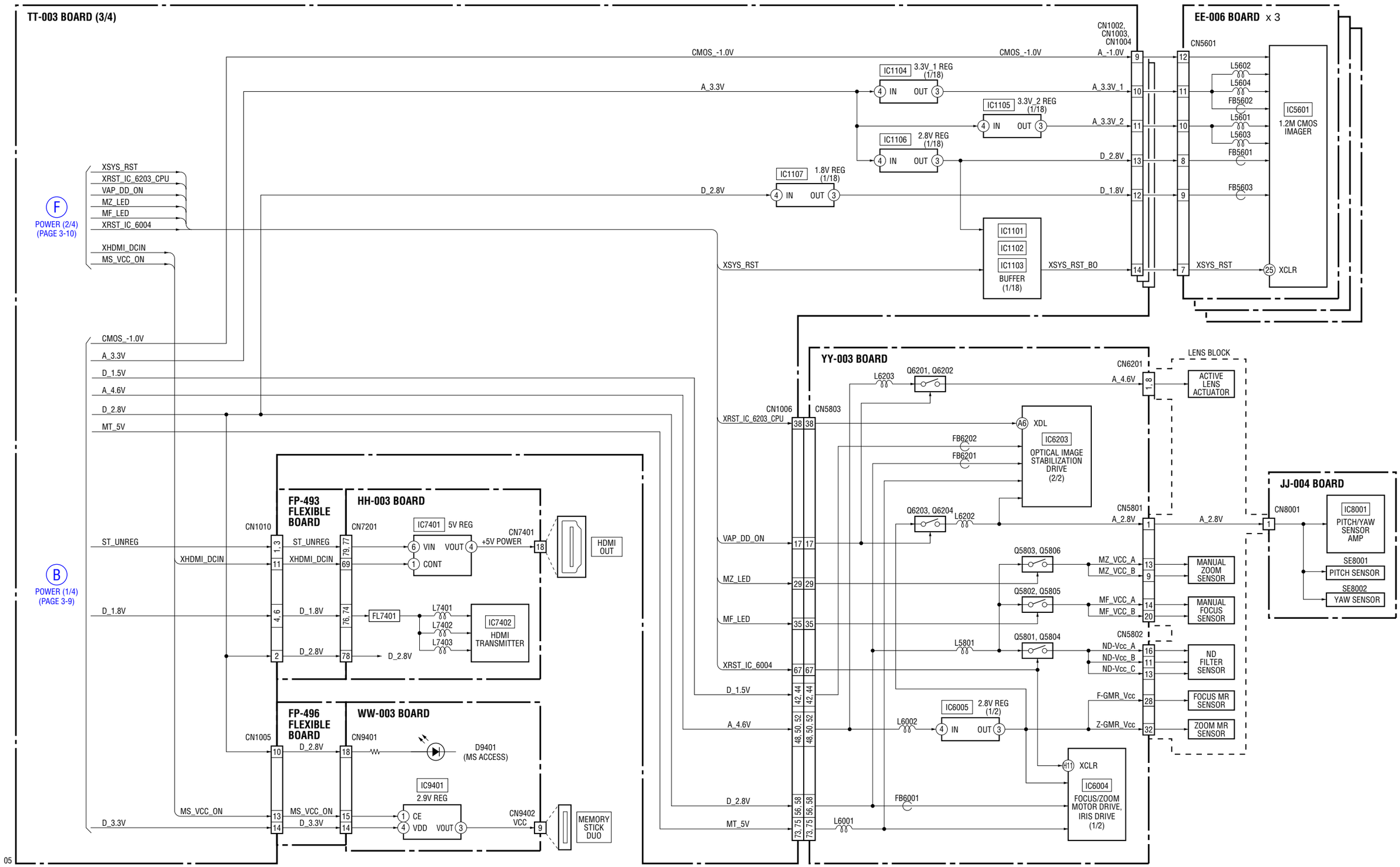
3-10. POWER BLOCK DIAGRAM (2/4)

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



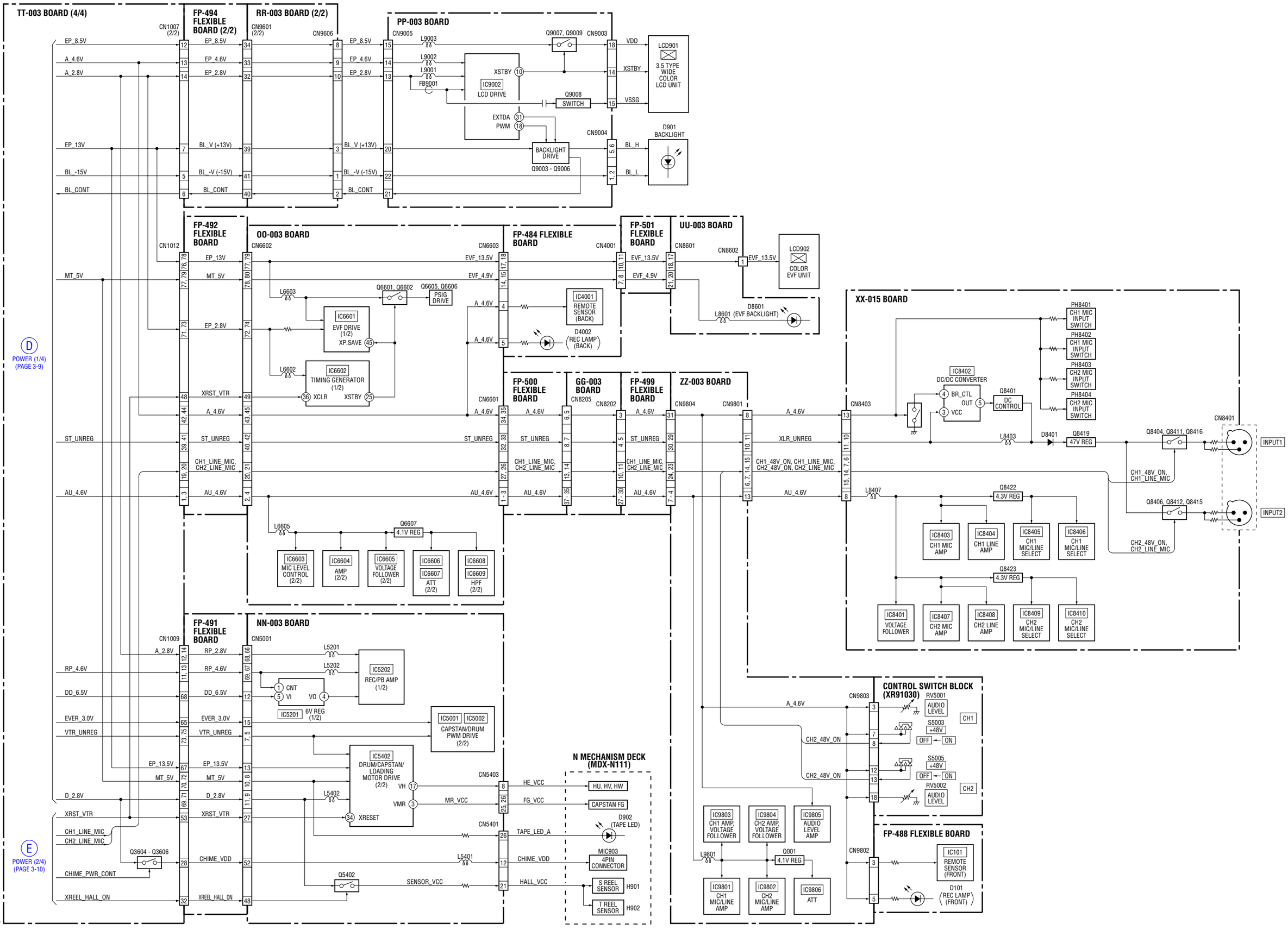
3-11. POWER BLOCK DIAGRAM (3/4)

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



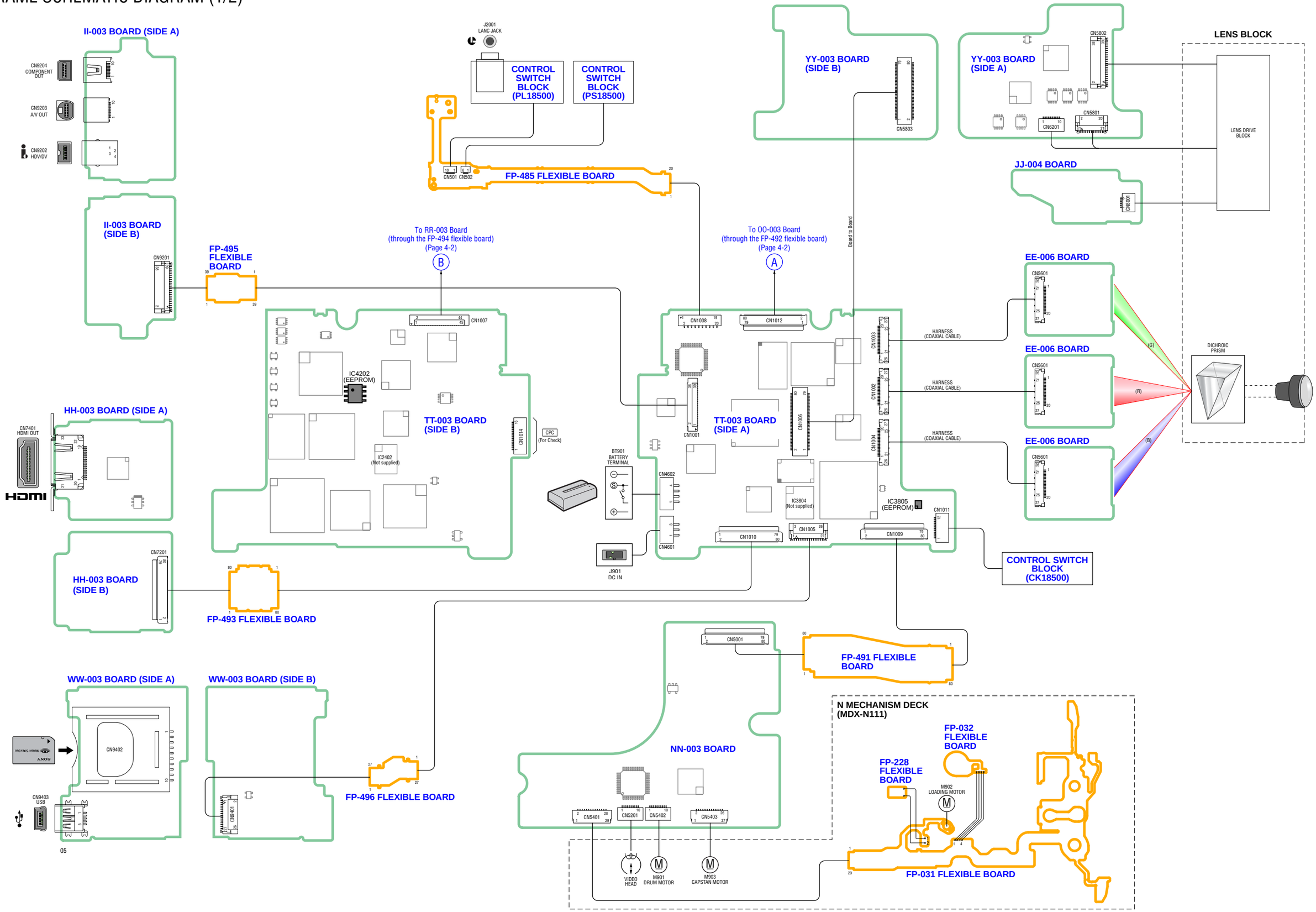
3-12. POWER BLOCK DIAGRAM (4/4)

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

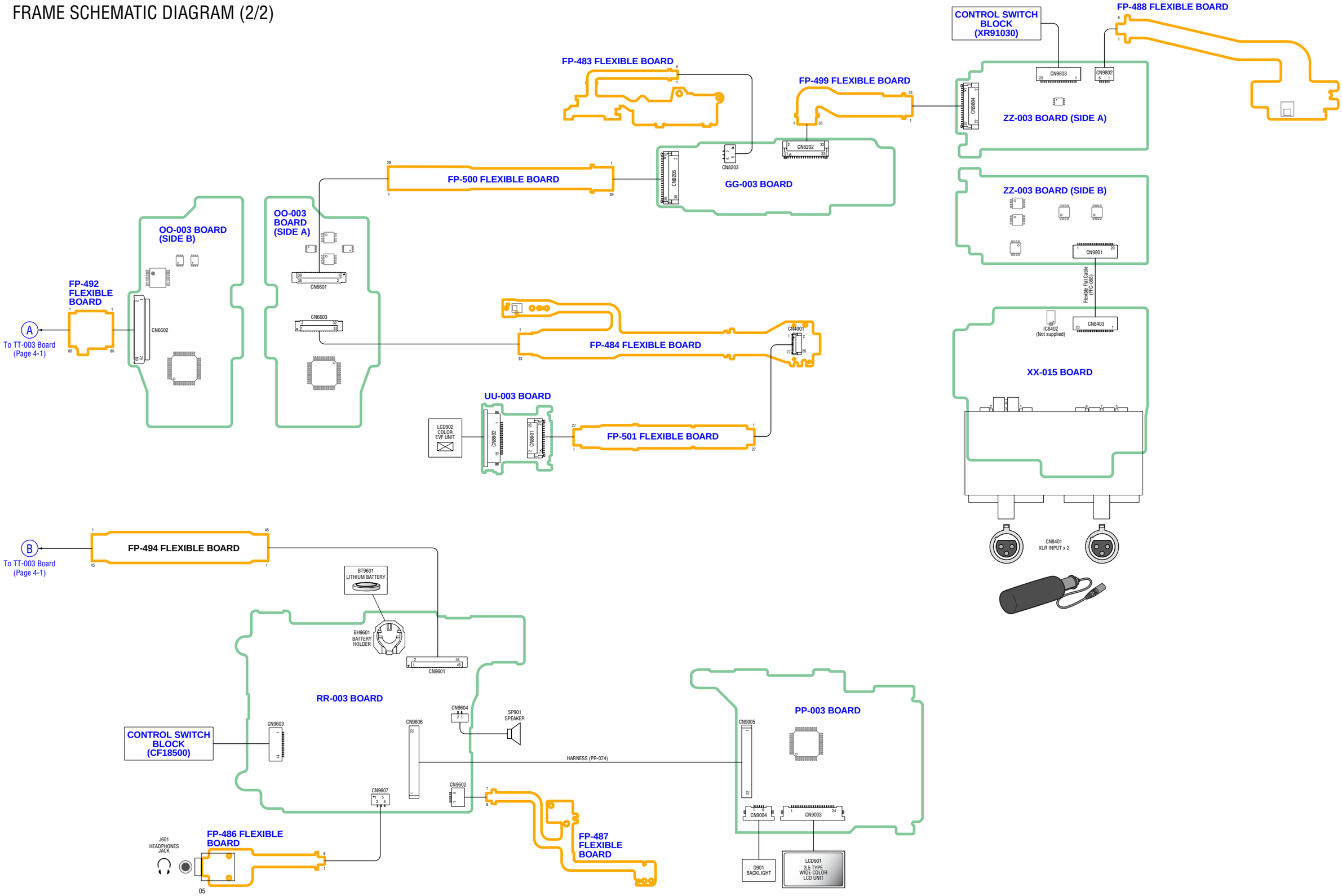


4-1. FRAME SCHEMATIC DIAGRAMS

FRAME SCHEMATIC DIAGRAM (1/2)



FRAME SCHEMATIC DIAGRAM (2/2)



4-2. SCHEMATIC DIAGRAMS (1/2)

Link

TO (2/2)

EE-006 BOARD (CMOS IMAGER)	TT-003 BOARD (15/18) (MECHA CONTROL)
TT-003 BOARD (1/18) (A/D CONVERTER)	TT-003 BOARD (16/18) (HI CONTROL)
TT-003 BOARD (2/18) (CAMERA SIGNAL PROCESS)	TT-003 BOARD (17/18) (DC/DC CONVERTER)
TT-003 BOARD (3/18) (BASE BAND SIGNAL PROCESS)	TT-003 BOARD (18/18) (CONNECTOR)
TT-003 BOARD (4/18) (COMPONENT OUT AMP)	YY-003 BOARD (1/2) (LENS DRIVE)
TT-003 BOARD (5/18) (HDV-MPEG VIDEO ENCODE/DECODE)	YY-003 BOARD (2/2) (OIS DRIVE)
TT-003 BOARD (6/18) (SDRAM, FLASH)	NN-003 BOARD (1/2) (REC/PB AMP)
TT-003 BOARD (7/18) (HDV STREAM PROCESS)	NN-003 BOARD (2/2) (SERVO)
TT-003 BOARD (8/18) (DV SIGNAL PROCESS)	HH-003 BOARD (HDMI OUT)
TT-003 BOARD (9/18) (HDV/DV i.LINK INTERFACE)	GG-003 BOARD (CONNECTOR)
TT-003 BOARD (10/18) (HDMI SIGNAL PROCESS)	RR-003 BOARD (CONTROL SWITCH)
TT-003 BOARD (11/18) (VIDEO OUT, AUDIO IN/OUT)	FP-486 FLEXIBLE BOARD (HEADPHONE JACK)
TT-003 BOARD (12/18) (DS CONTROL, HI CONTROL)	FP-487 FLEXIBLE BOARD (PANEL DETECT)
TT-003 BOARD (13/18) (SDRAM, FLASH, EEPROM)	CONTROL SWITCH BLOCK (CF18500)
TT-003 BOARD (14/18) (CAMERA CONTROL)	PP-003 BOARD (LCD DRIVE)

COMMON NOTE FOR SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS (2/2)

TO (1/2)

- UU-003 BOARD (EVF, EVF BACKLIGHT)
- FP-484 FLEXIBLE BOARD (REMOTE SENSOR (BACK))
- FP-501 FLEXIBLE BOARD (FP-UU CONNECTION)
- OO-003 BOARD (1/2) (EVF DRIVE)
- OO-003 BOARD (2/2) (MIC LEVEL CONTROL)
- FP-500 FLEXIBLE BOARD (GG-OO CONNECTION)
- XX-015 BOARD (XLR INPUT)
- ZZ-003 BOARD (MIC/LINE AMP)
- FP-488 FLEXIBLE BOARD (REMOTE SENSOR (FRONT))
- FP-499 FLEXIBLE BOARD (GG-ZZ CONNECTION)
- CONTROL SWITCH BLOCK (XR91030)
- II-003 BOARD (HDV/DV, A/V, COMPONENT CONNECTOR)
- FP-495 FLEXIBLE BOARD (TT-II CONNECTION)
- WW-003 BOARD (USB/MS CONNECTOR)
- FP-496 FLEXIBLE BOARD (TT-WW CONNECTION)
- JJ-004 BOARD (PITCH/YAW SENSOR)
- FP-483 FLEXIBLE BOARD (HANDLE ZOOM/SS)
- FP-491 FLEXIBLE BOARD (TT-NN CONNECTION)
- FP-492 FLEXIBLE BOARD (TT-OO CONNECTION)
- FP-493 FLEXIBLE BOARD (TT-HH CONNECTION)
- FP-485 FLEXIBLE BOARD (TT-CONTROL SW CONNECTION)
- CONTROL SWITCH BLOCK (PL18500)
- CONTROL SWITCH BLOCK (PS18500)
- CONTROL SWITCH BLOCK (CK18500)
- 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 22U TA A — Kinds of capacitor / Case size
  L452 10UH 2520 — External dimensions (mm)
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
  Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B– Line
- : IN/OUT direction of (+,–) B LINE.
- : adjustment for repair.
- : not use circuit

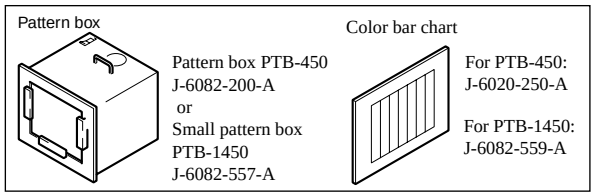
(Measuring conditions voltage and waveform)

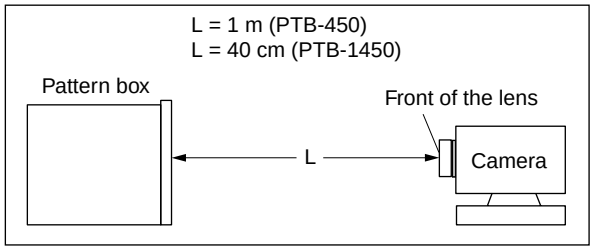
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

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.

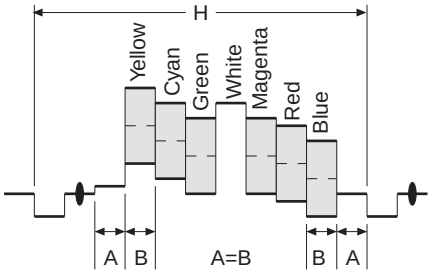


Fig. a (Video output terminal output waveform)

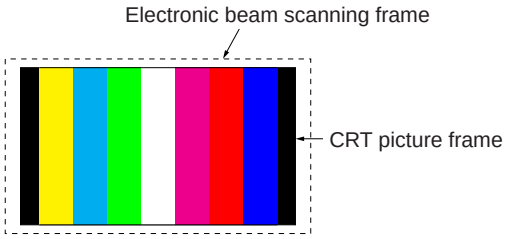


Fig.b (Picture on monitor TV)

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。

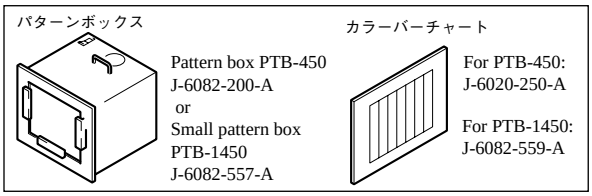
例	C 541	L 452
	22U	10UH
	TA A	2520
	↑ ↑	↑
	種類 ケースサイズ	外形寸法（mm）

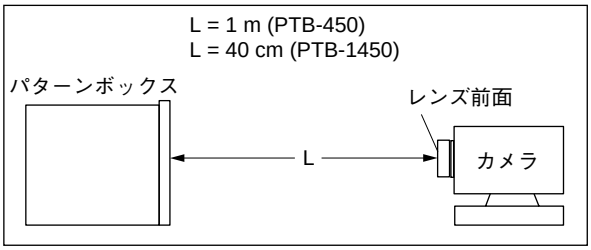
・抵抗，コンデンサ，ICなど定数にXXがあるものは，使用していない事を示しています。このため，使用していない回路が記載されている事があります。
・★印のある部品は，機種などにより異なりますので機能別マウント一覧表を参照してください。
・可変抵抗と半固定抵抗で，B特性の表示を省略。
・信号名表記について，下記のような場合があります。
XEDIT → $\overline{\text{EDIT}}$　　PB/XREC → PB/$\overline{\text{REC}}$
・ は不燃性抵抗。
・ はヒューズ抵抗。
・ はパネル表示名称。
・はB＋ライン。
・はB－ライン。
・ はBライン（＋，－）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

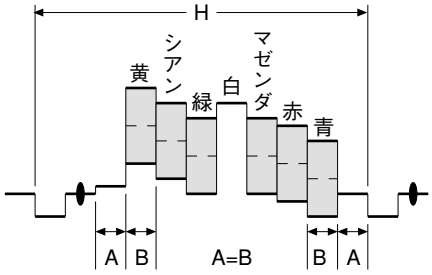
イメージャ交換時の注意
・イメージャを交換した場合は，カメラ部の全調整を行ってください。
・イメージャは構造上，静電気により破壊される恐れがあるため，MOS ICと同様に注意して取り扱ってください。
また，受光部にはゴミの付着，および強い光がはいることのないように注意してください。

1. 接続図

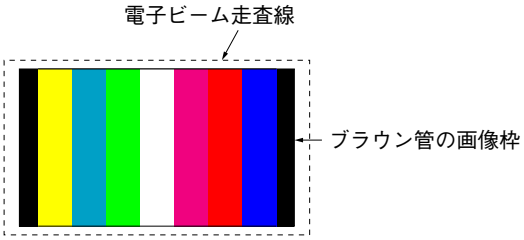




2. 図a及び図bの波形が得られるように画枠調整して下さい。



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。

EE-006 BOARD

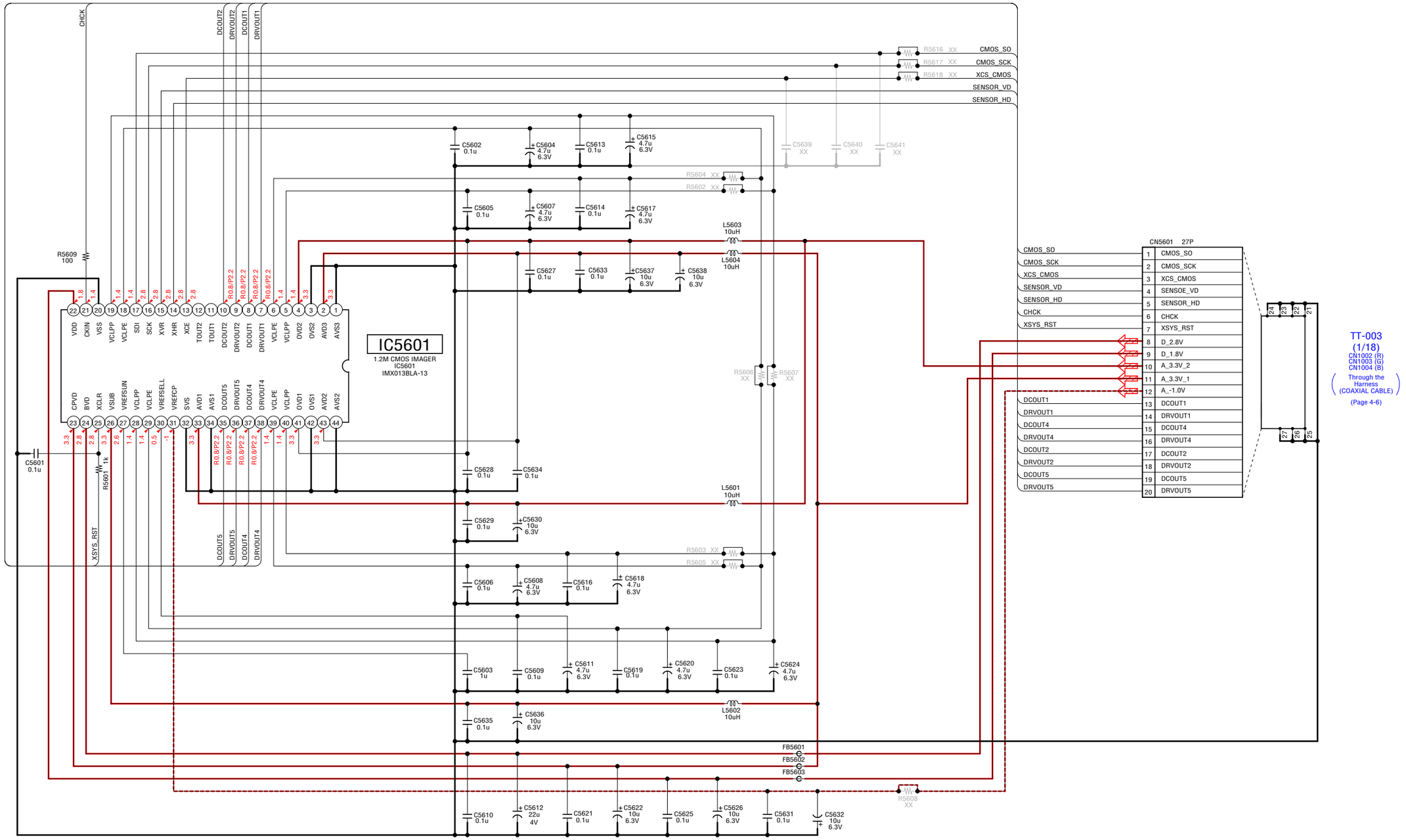
CMOS IMAGER

XX MARK:NO MOUNT

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

Note: In red, green and blue, the same EE-006 board is used respectively.

Note: EE-006 complete board and IC5601 are not supplied, but they are included in prism assy.



05

TT-003 BOARD (1/18)

A/D CONVERTER

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

Note: In red, green and blue, the same EE-006 board is used respectively.

EE-006 CN5601 Through the Harness (COAXIAL CABLE) (Page 4-5)

CN1002 27P — R

CN1003 27P — G

CN1004 27P — B

CMOS_SO, CMOS_SCK, XCS_CMOS, SENSOR_VD, SENSOR_HD, CHCK, XSYS_RST, D_2.8V, D_1.8V, A_3.3V_2, A_3.3V_1, A_-1.0V, DCOUT1, DRVOUT1, DCOUT4, DRVOUT4, DCOUT2, DRVOUT2, DCOUT5, DRVOUT5

R1002 33 / R1003 33 / R1004 33

LND101 CHASSI_GND, LND102 CHASSI_GND, LND103 CHASSI_GND

(17/18) CMOS_-1.0V, A_2.8V, D_2.8V, A_3.3V

IC1104 3.3V_1 REG IC1104 R1114Q331D-TR-FA

IC1105 3.3V_2 REG IC1105 R1114Q331D-TR-FA

IC1106 2.8V REG IC1106 R1114Q281D-TR-FA

IC1107 1.8V REG IC1107 R1114Q181D-TR-FA

C1114 0.1u, C1112 1u, C1115 0.1u, C1113 1u, C1122 0.1u, C1120 1u, C1123 0.1u, C1121 1u

CMOS_SO_BO, CMOS_SCK_BO, XCS_CMOS_R_BO, SENSOR_VD_BO, SENSOR_HD_BO, CHCK, XSYS_RST_BO, XCS_CMOS_G_BO, XCS_CMOS_B_BO

IC1201 CDS, A/D CONVERTER (B&R) IC1201 VSP2433JWDR

IC1203 CDS, A/D CONVERTER (G&R) IC1203 VSP2433JWDR

ADC_VD, ADC_HD, CLPOB — @004 (2/18)

AD_B_B05, AD_B_B02, AD_B_B13, AD_B_B07, AD_B_B09, AD_B_B03, AD_B_B01, AD_B_B10, AD_B_B11, AD_B_B12 — @001 (2/18)

AD_B_B06, AD_B_B08, AD_B_B04, AD_B_B00, AD_B_A12, AD_B_A11, AD_B_A10, AD_B_A09, AD_B_A08, AD_B_A07, AD_B_A03, AD_B_A04, AD_B_A00, AD_B_A06, AD_B_A13, AD_B_A02, AD_B_A05, AD_B_A01

AD_R_B05, AD_R_B02, AD_R_B13, AD_R_B07, AD_R_B09, AD_R_B03, AD_R_B01, AD_R_B10, AD_R_B11, AD_R_B12, AD_R_B06, AD_R_B08, AD_R_B04, AD_R_B00, AD_R_A06, AD_R_A00, AD_R_A12, AD_R_A10, AD_R_A09, AD_R_A13, AD_R_A11, AD_R_A08, AD_R_A07, AD_R_A05, AD_R_A03, AD_R_A01, AD_R_A02, AD_R_A04 — @002 (2/18)

AD_G_B12, AD_G_B11, AD_G_B10, AD_G_B09, AD_G_B08, AD_G_B07, AD_G_B03, AD_G_B04, AD_G_B00, AD_G_B06, AD_G_B13, AD_G_B02, AD_G_B05, AD_G_B01, AD_G_A06, AD_G_A00 — @003 (2/18)

AD_G_A12, AD_G_A10, AD_G_A09, AD_G_A13, AD_G_A11, AD_G_A08, AD_G_A07, AD_G_A05, AD_G_A03, AD_G_A01, AD_G_A02, AD_G_A04

ADC_SCK, ADC_SO, ADC_XCS_G, ADC_XCS_R — @005 (2/18)

CAM_VD_HS — @006 (2/18) (14/18)

CAM_VD — @007 (2/18) (14/18) (18/18)

SENSOR_VD, SENSOR_HD, XCS_CMOS_R, XCS_CMOS_G, XCS_CMOS_B, CMOS_SO, CMOS_SCK, CHCK — @008 (2/18)

IC1101 BUFFER IC1101 HD74ALVC2G34USE-E

IC1102 BUFFER IC1102 HD74ALVC2G34USE-E

IC1103 BUFFER IC1103 HD74ALVC2G34USE-E

XSYS_RST — @009 (2/18) (13/18) (14/18) (15/18) (16/18) (18/18)

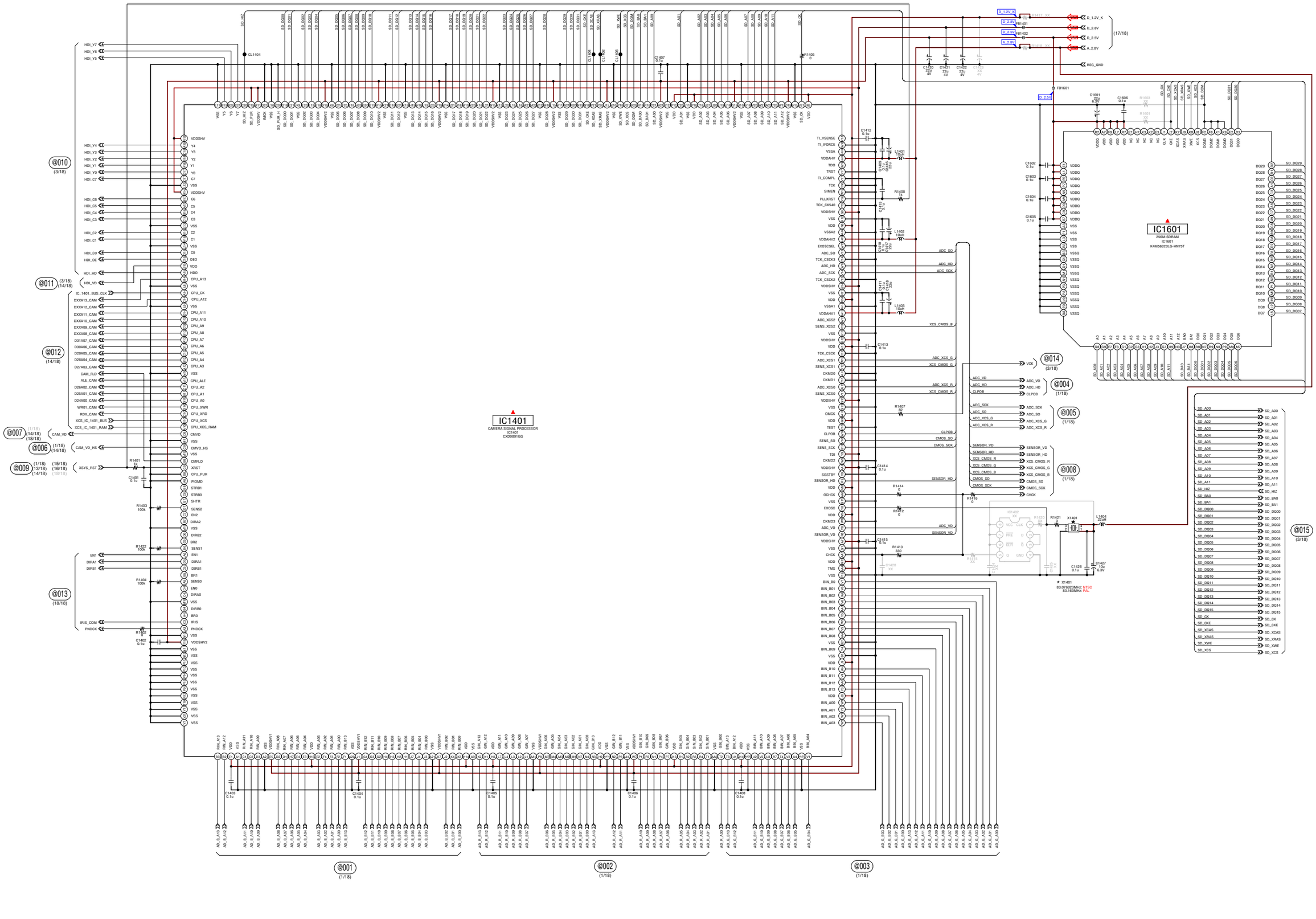
REG_GND

TT-003 BOARD (2/18)

CAMERA SIGNAL PROCESS

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

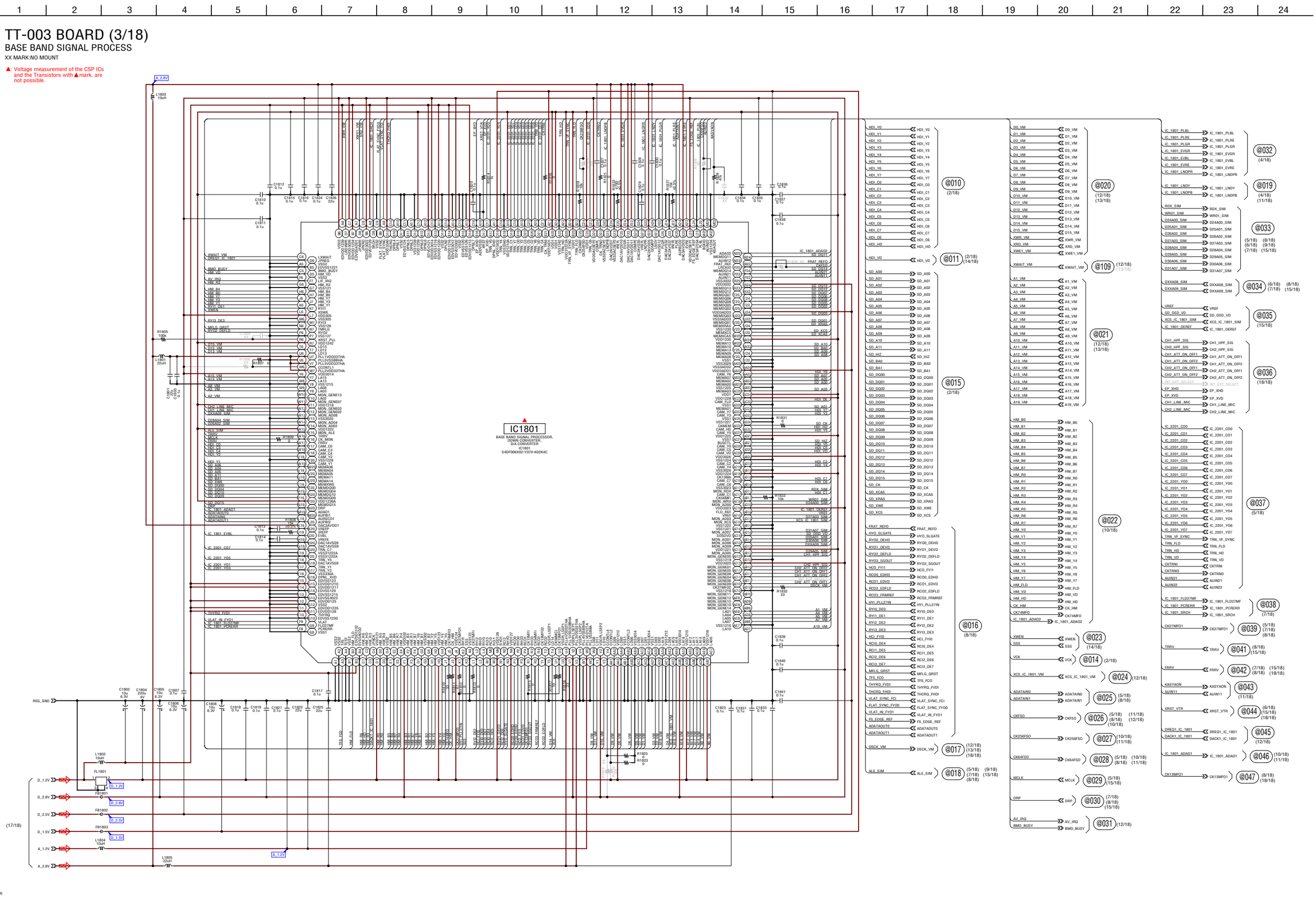


TT-003 BOARD (3/18)

BASE BAND SIGNAL PROCESS

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

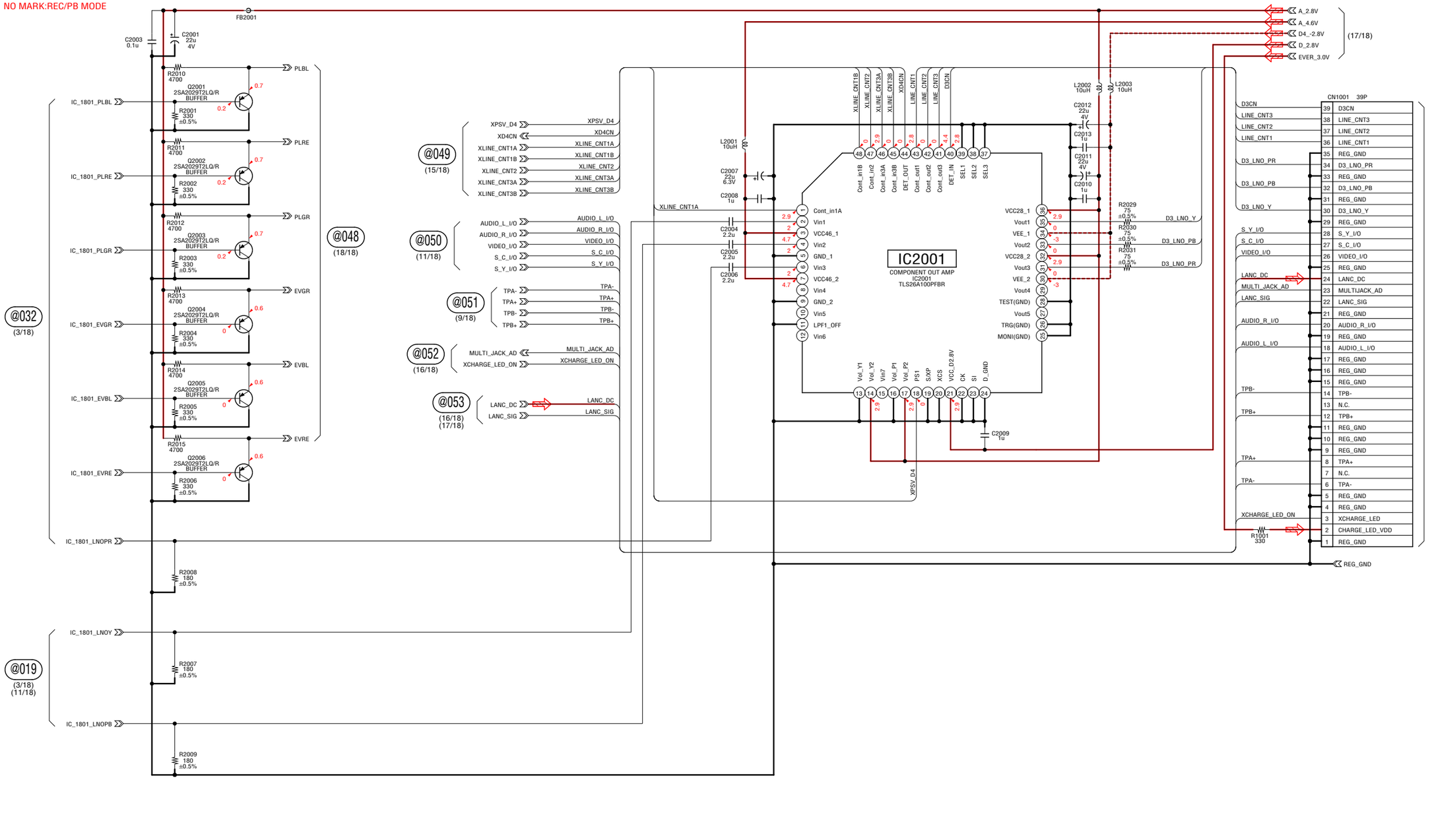


TT-003 BOARD (4/18)

COMPONENT OUT AMP

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

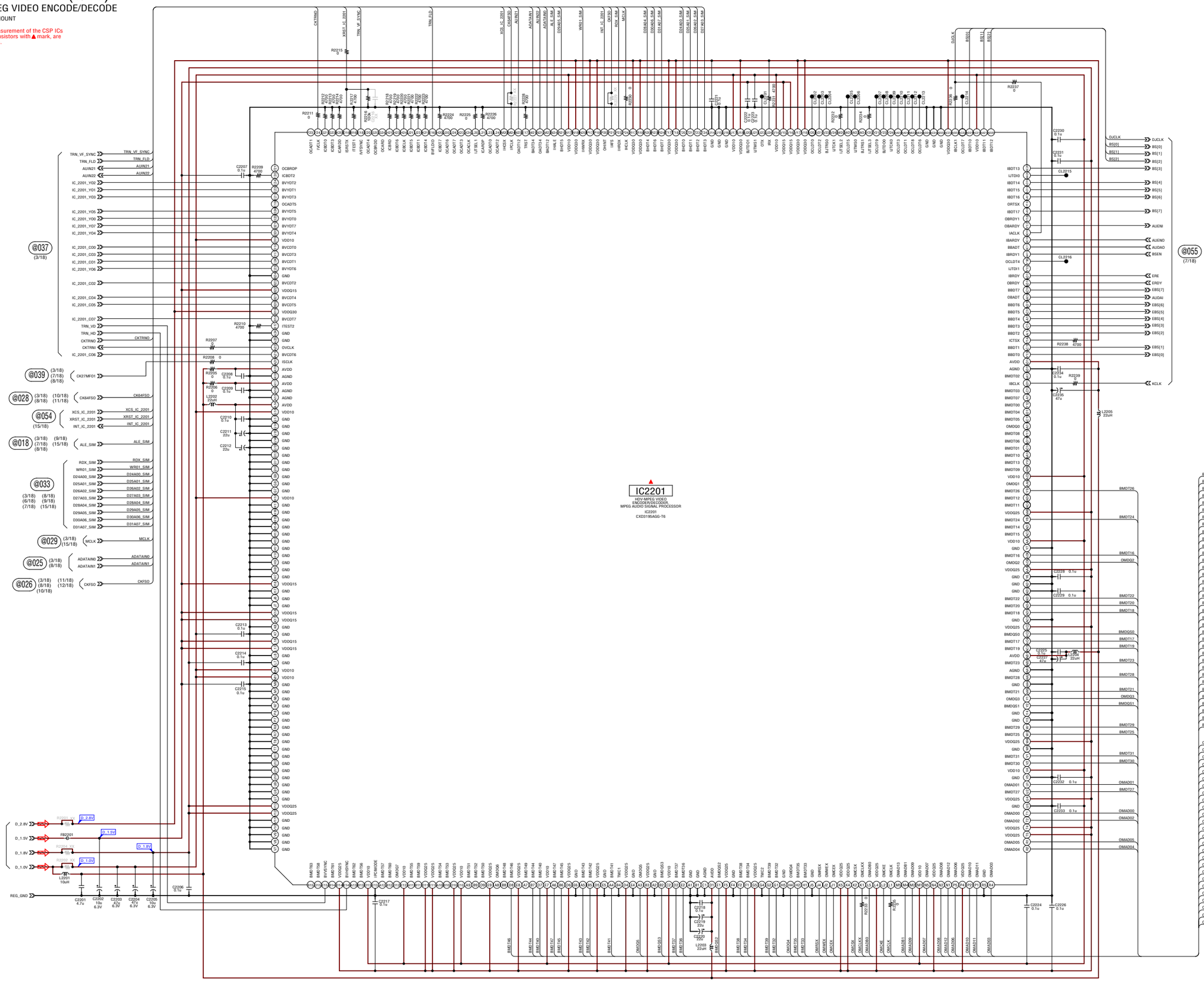


TT-003 BOARD (5/18)

HDV-MPEG VIDEO ENCODE/DECODE

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

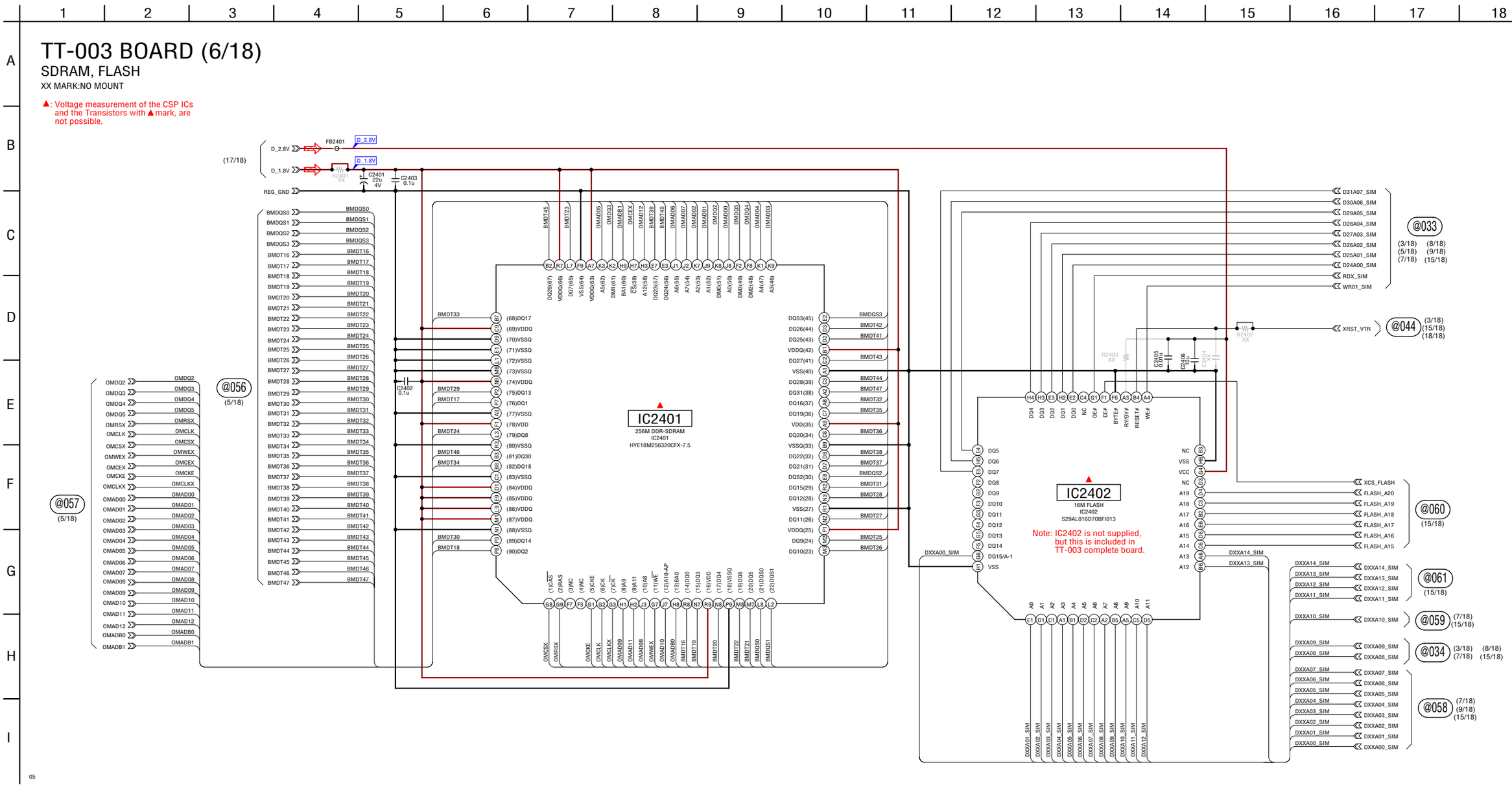


TT-003 BOARD (6/18)

SDRAM, FLASH

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

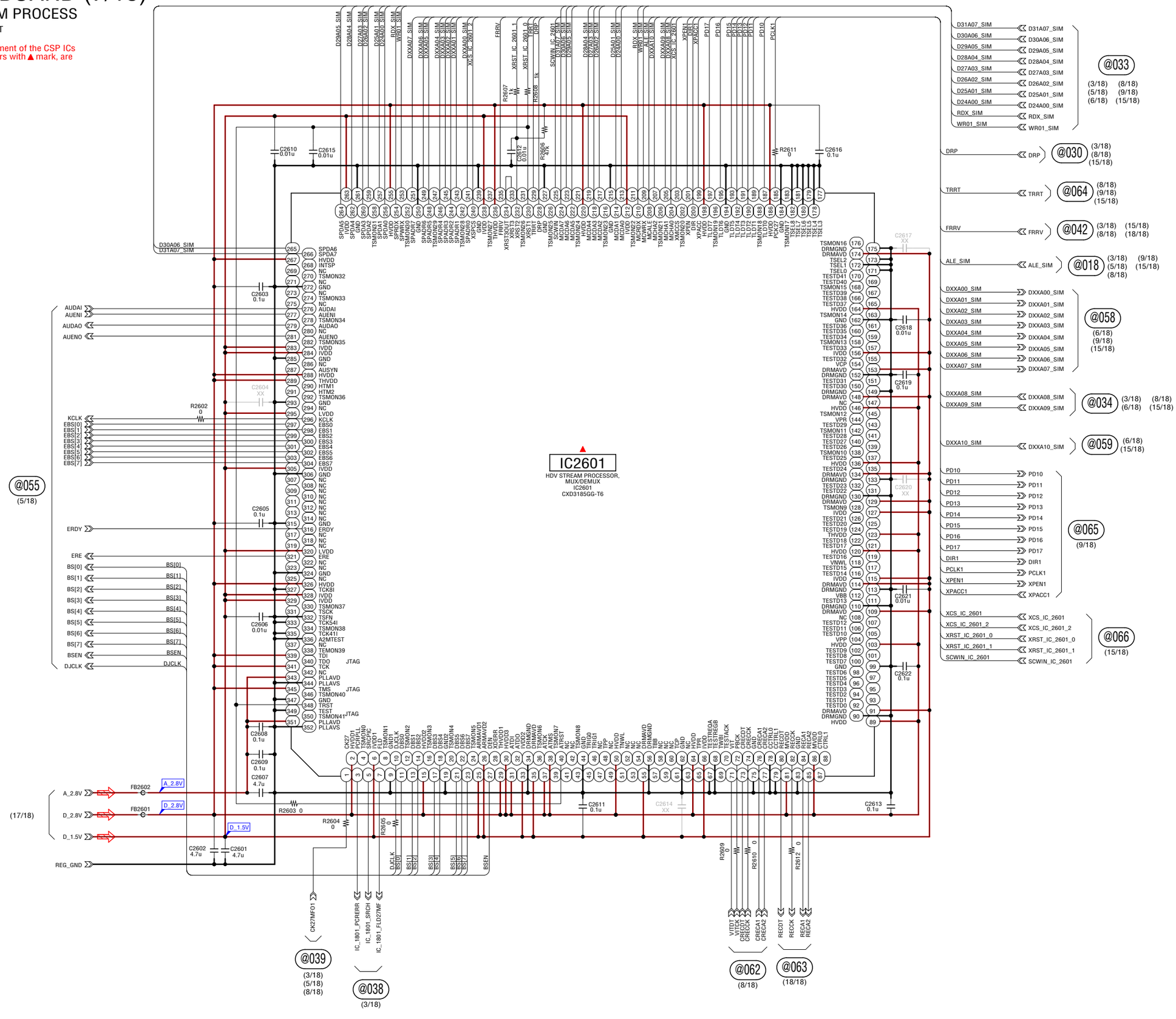


TT-003 BOARD (7/18)

HDV STREAM PROCESS

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

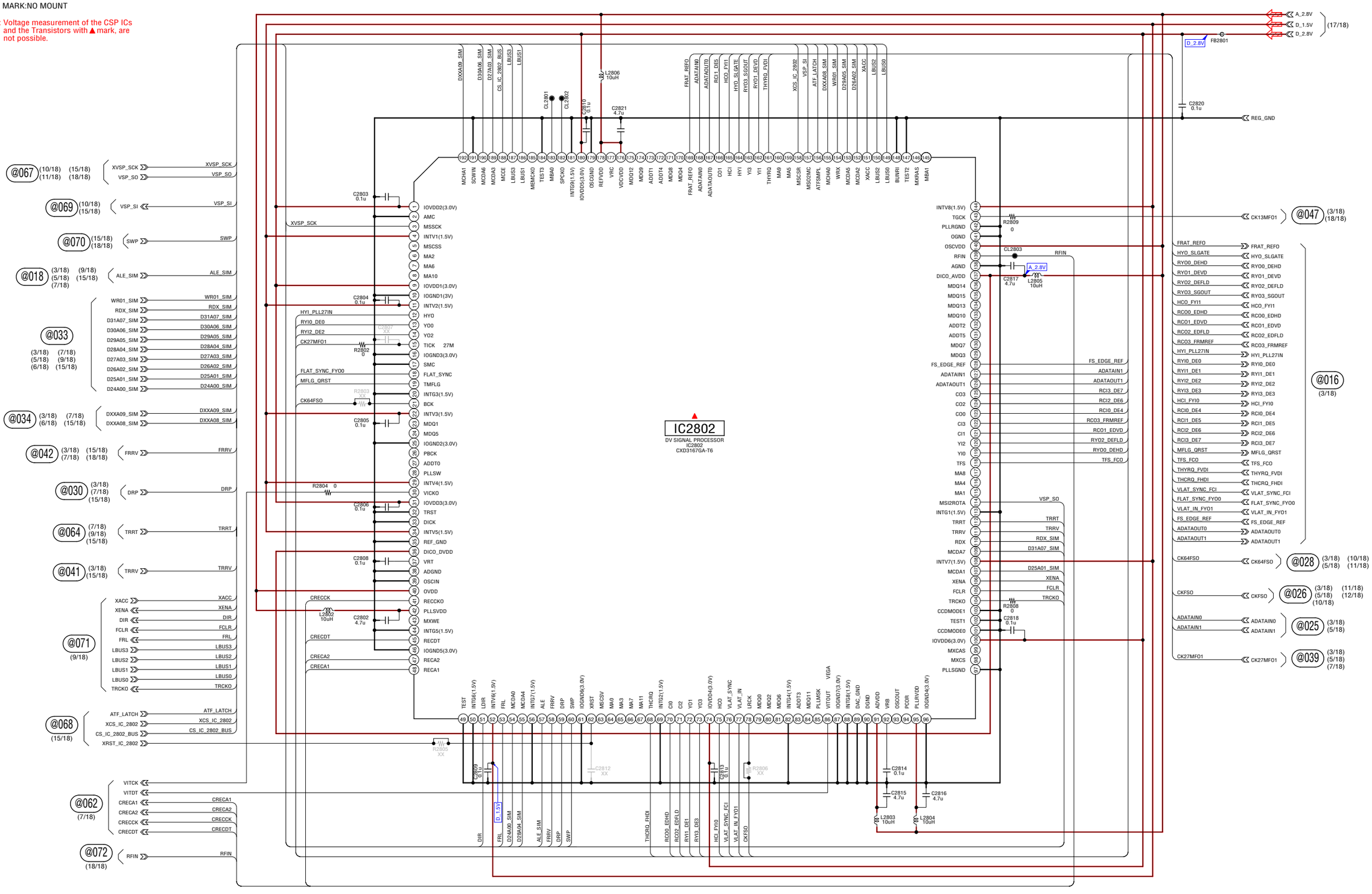


TT-003 BOARD (8/18)

DV SIGNAL PROCESS

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

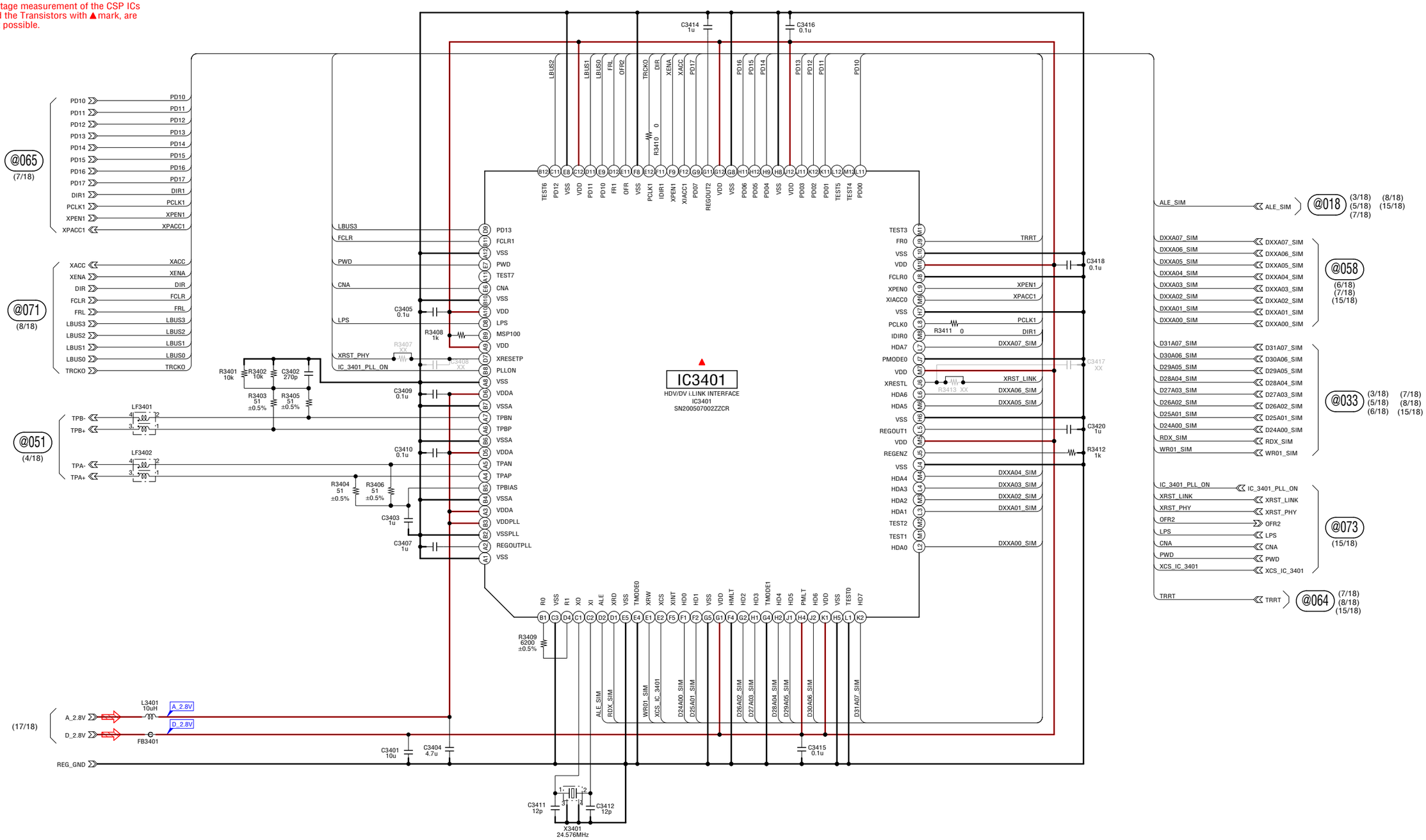


TT-003 BOARD (9/18)

HDV/DV i.LINK INTERFACE

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

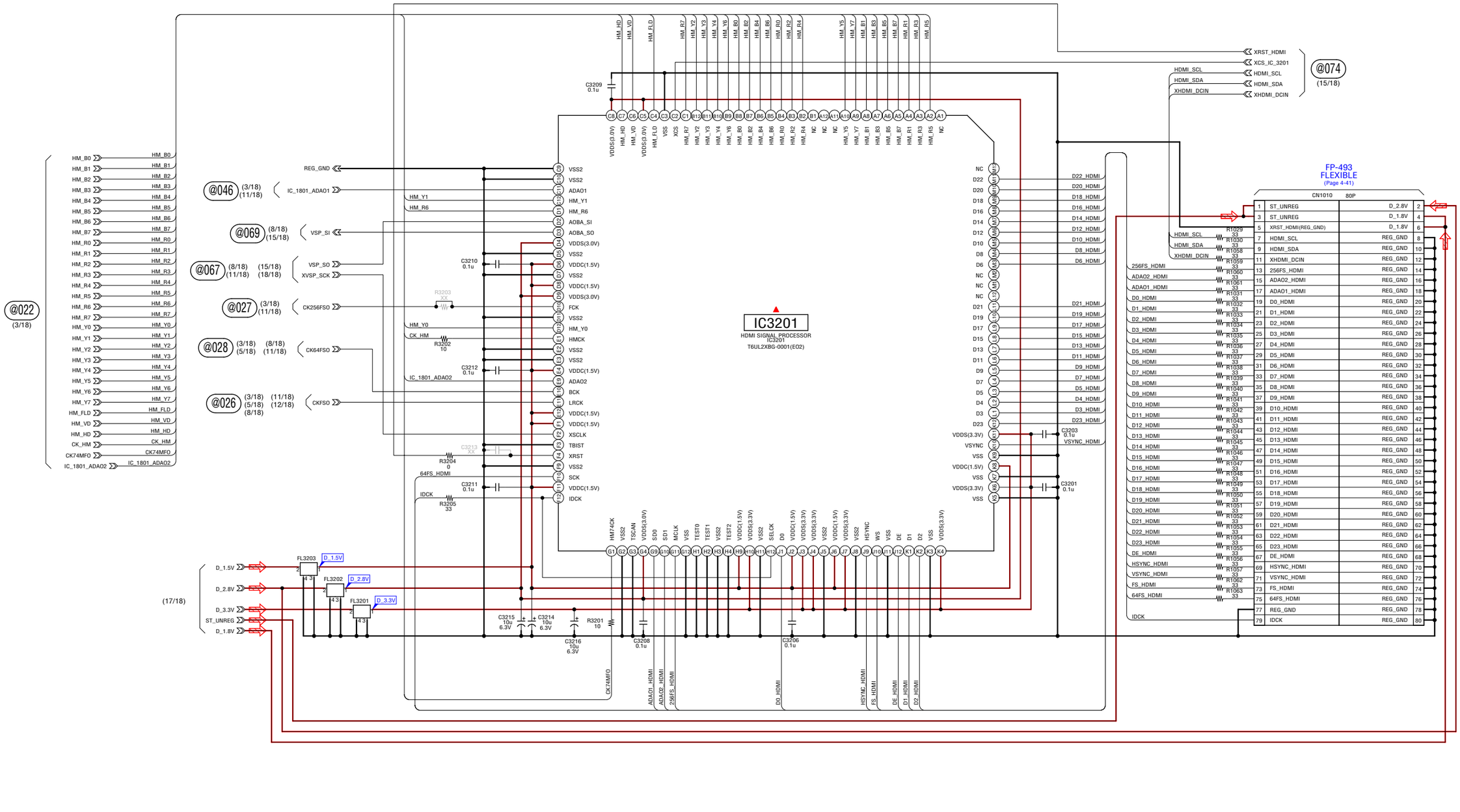


TT-003 BOARD (10/18)

HDMI SIGNAL PROCESS

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



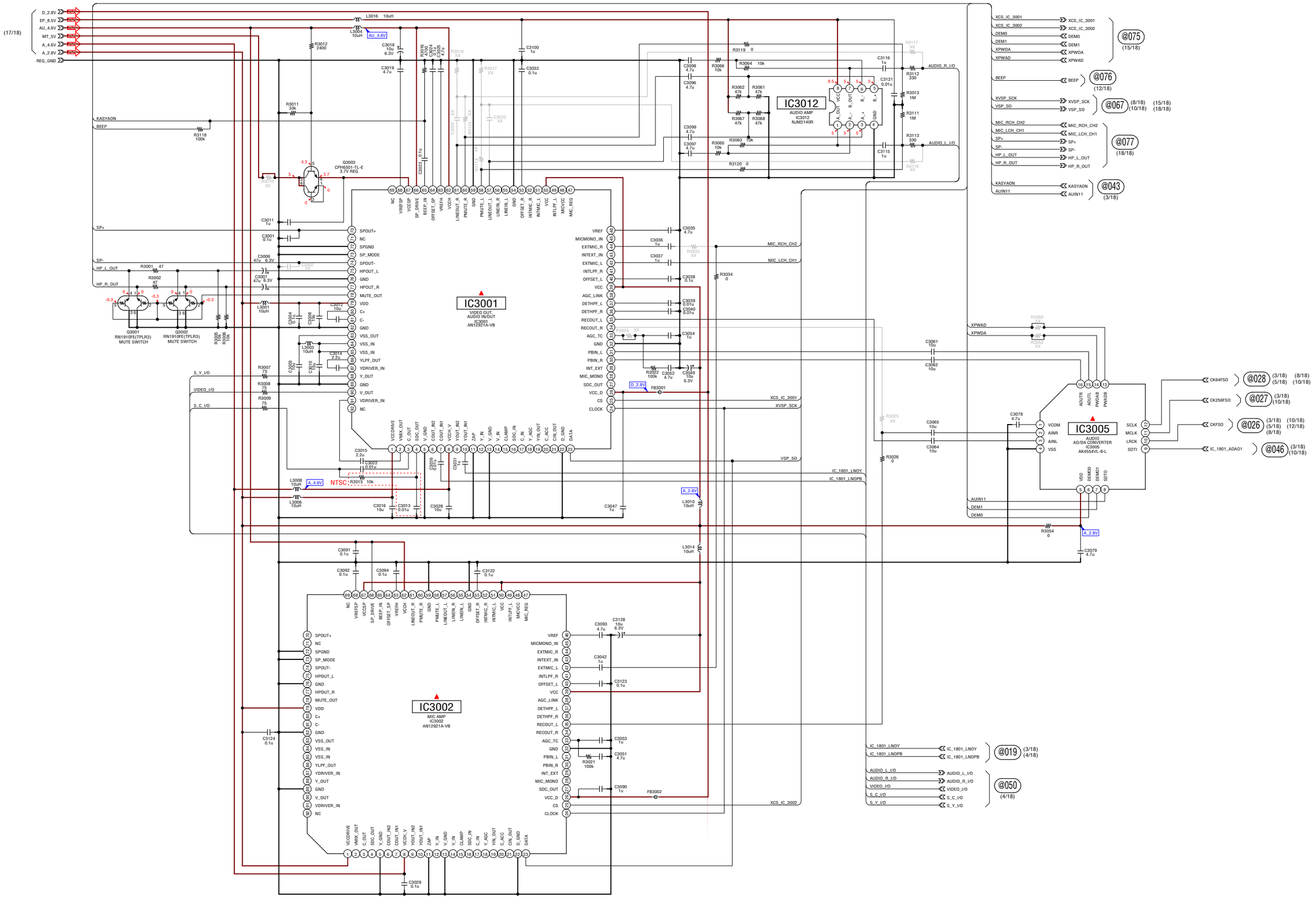
TT-003 BOARD (11/18)

VIDEO OUT, AUDIO IN/OUT

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.



HVR-V1J/V1U/V1N/V1E/V1P/V1C

TT-003 (11/18)

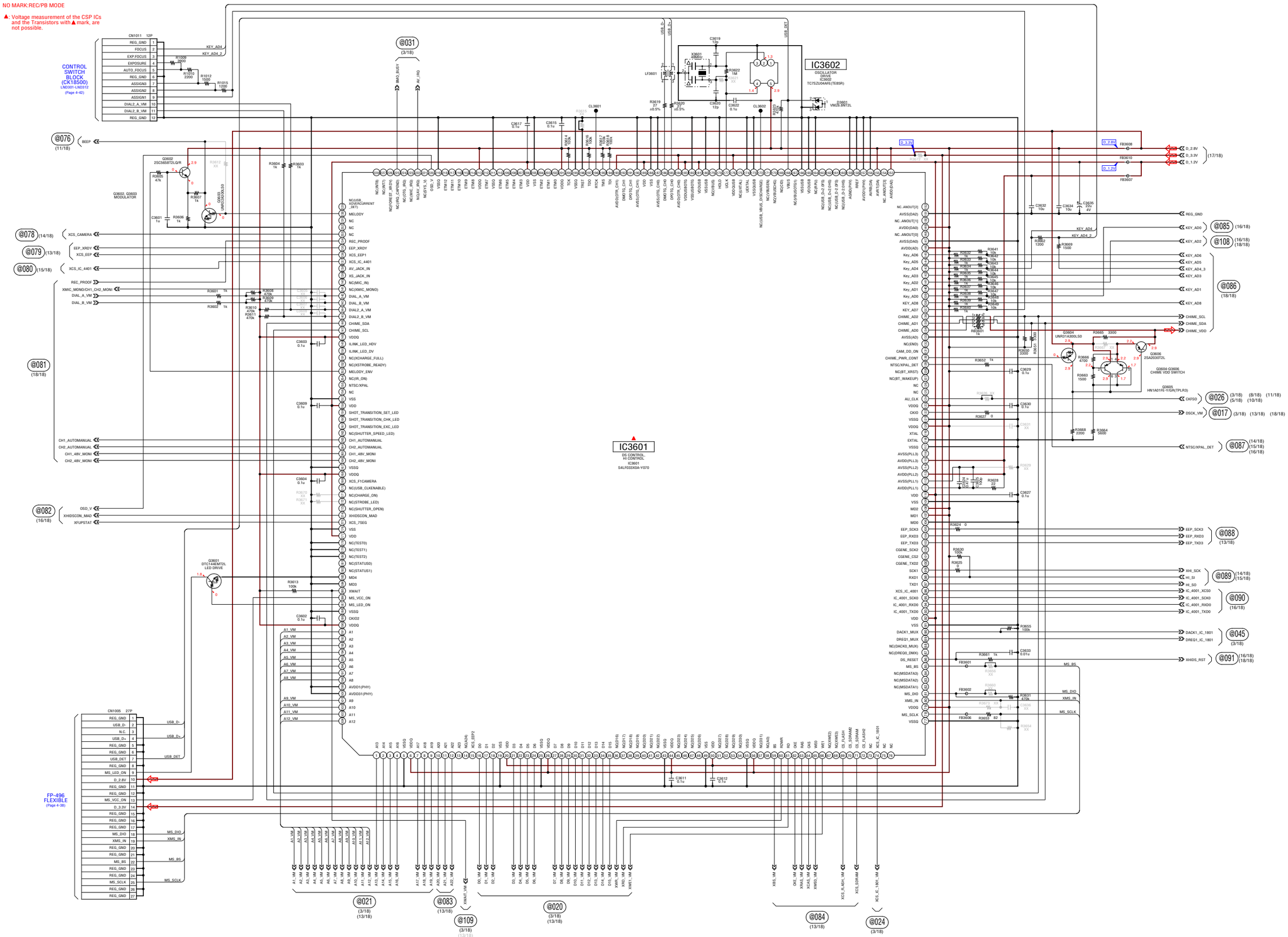
TT-003 BOARD (12/18)

DS CONTROL, HI CONTROL

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

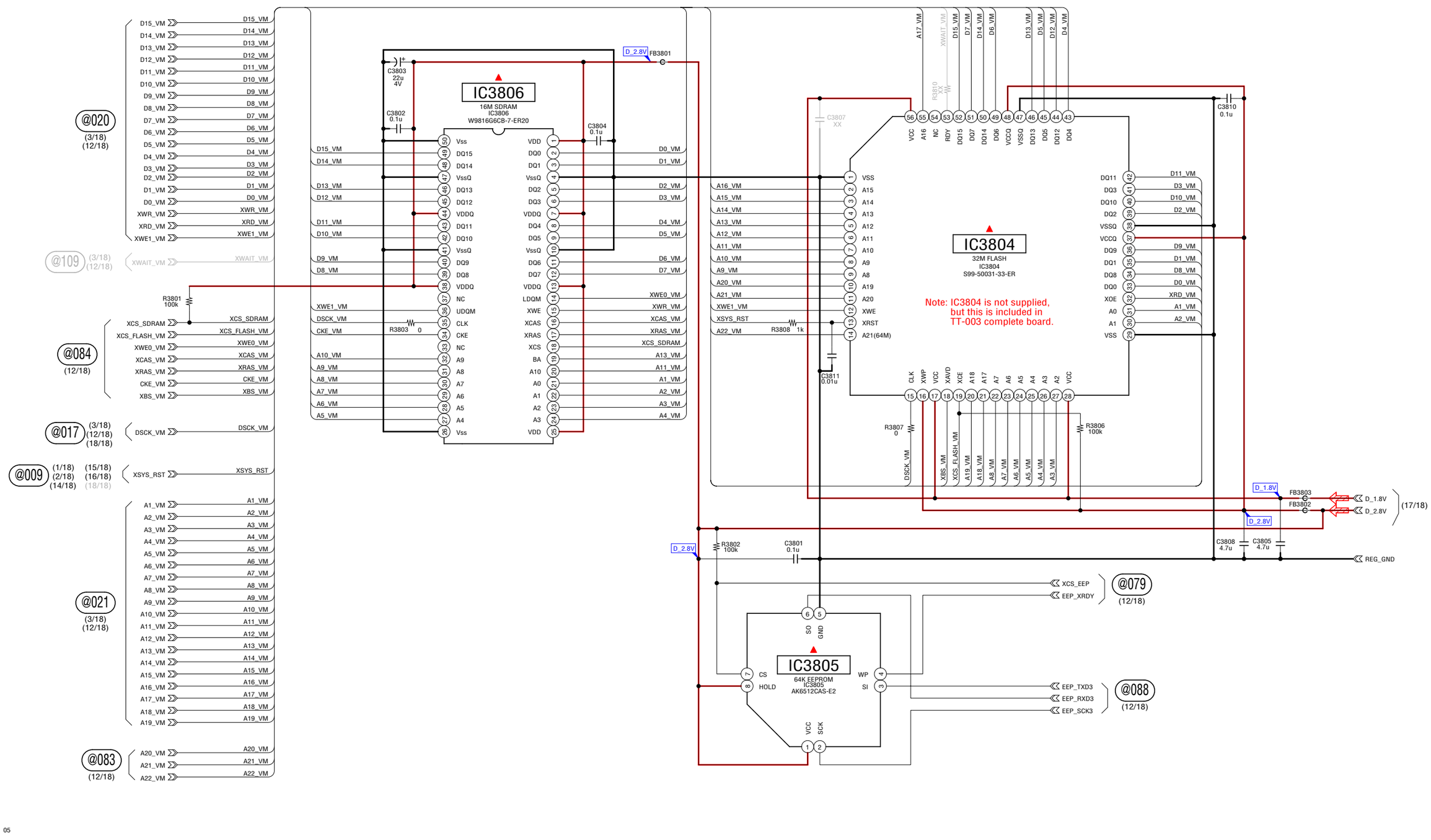


TT-003 BOARD (13/18)

SDRAM, FLASH, EEPROM

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



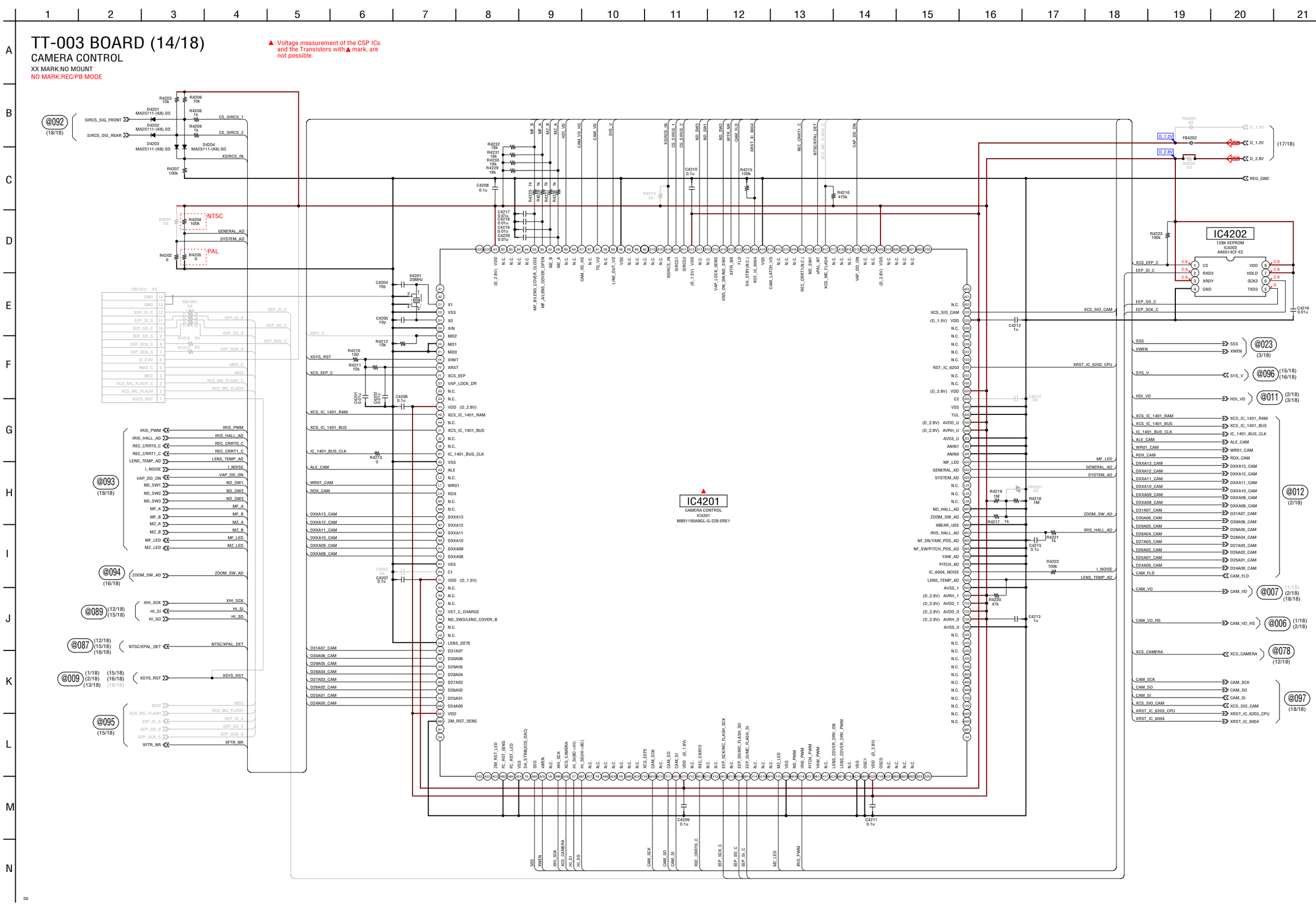
TT-003 BOARD (14/18)

CAMERA CONTROL

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

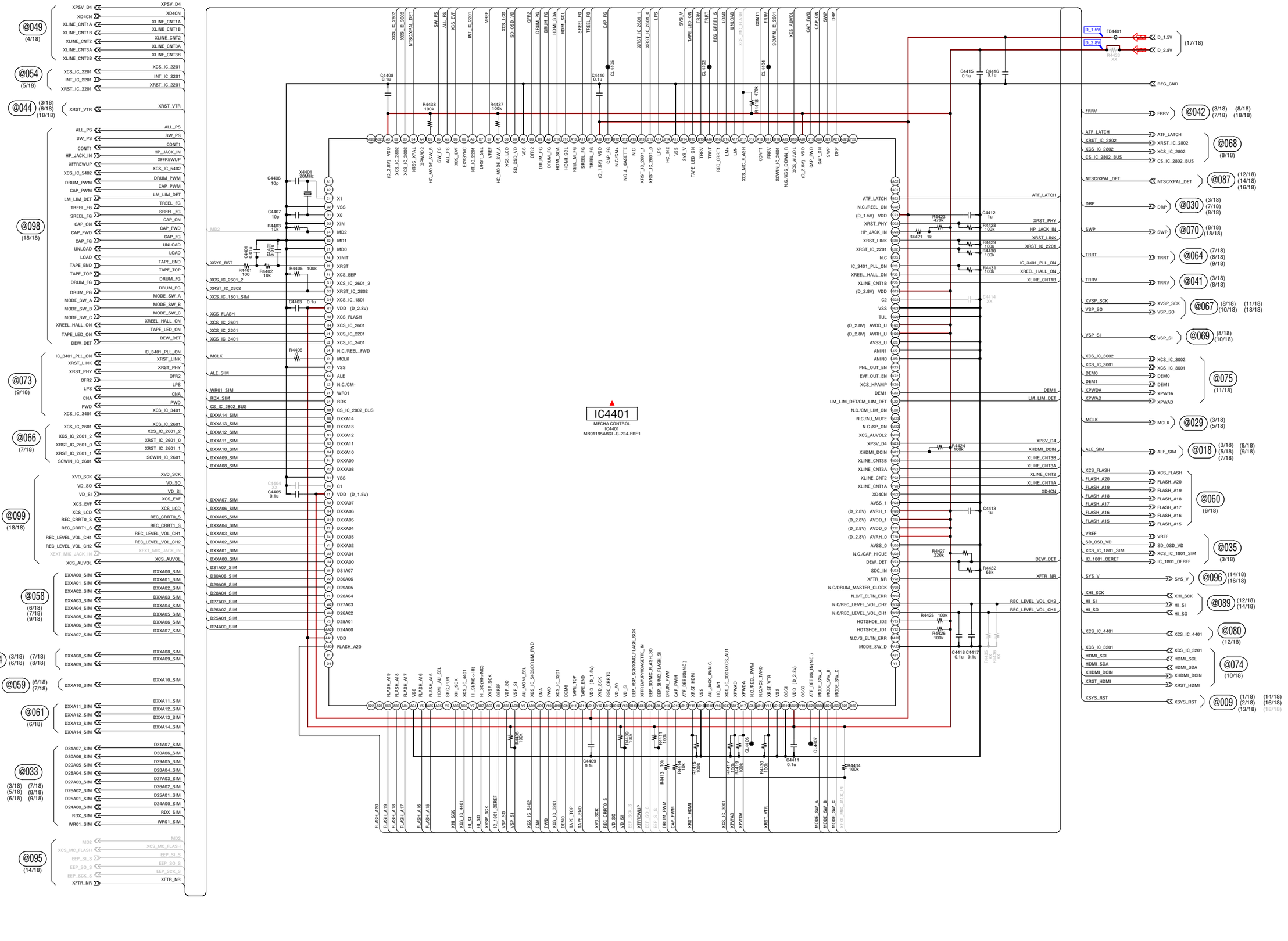


TT-003 BOARD (15/18)

MECHA CONTROL

XX MARK:NO MOUNT

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

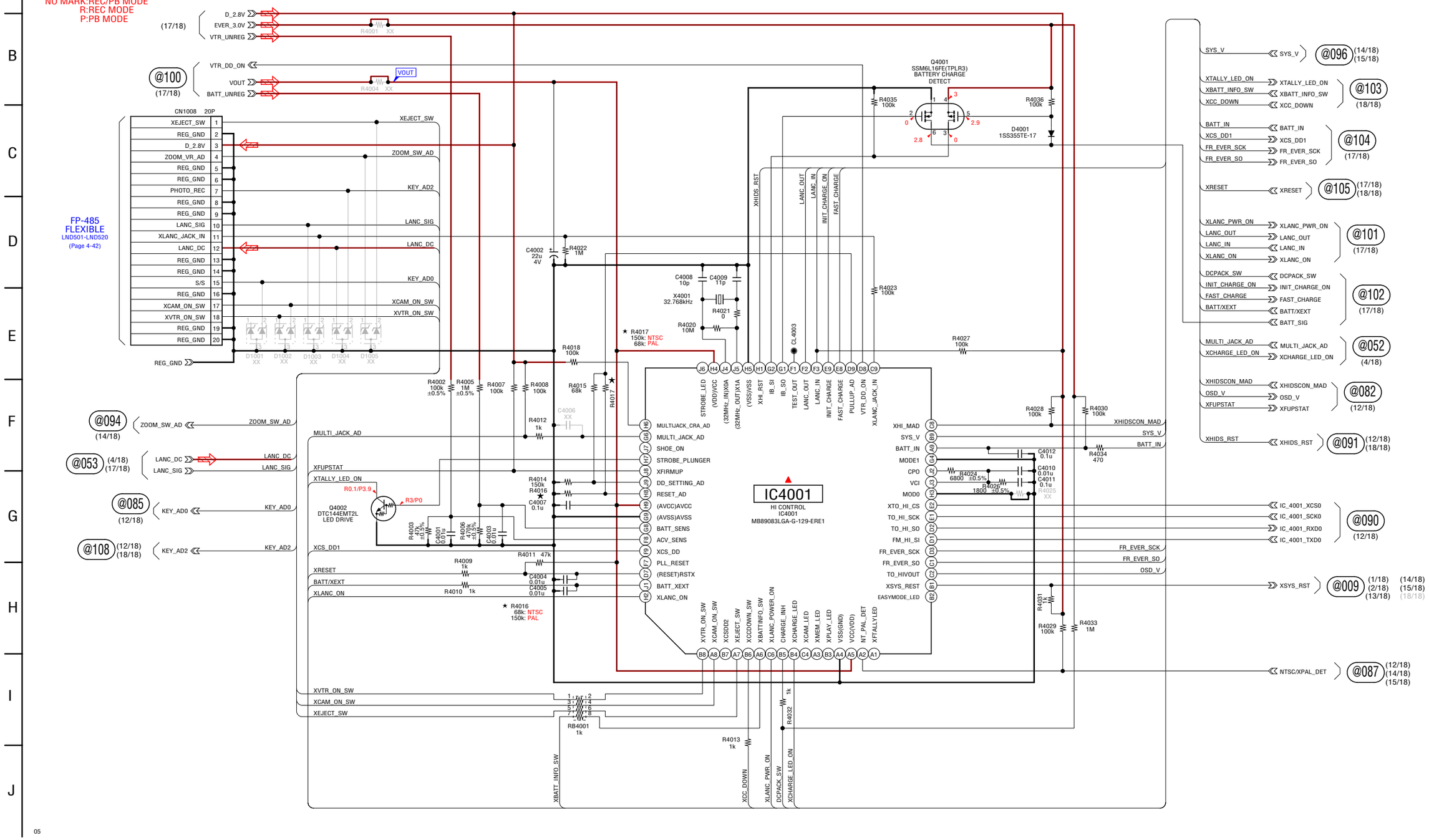


TT-003 BOARD (16/18)

HI CONTROL

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

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.



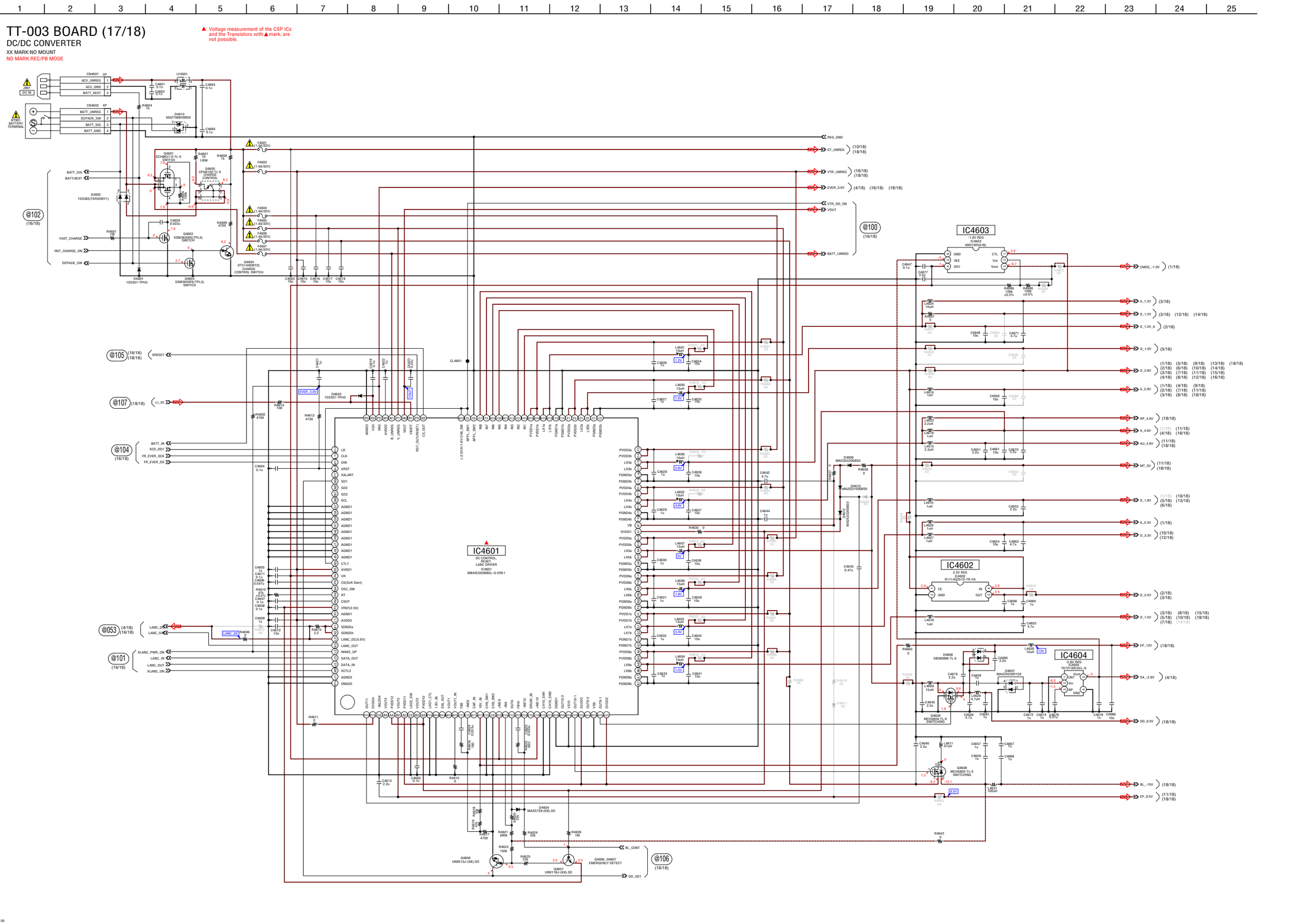
TT-003 BOARD (17/18)

DC/DC CONVERTER

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

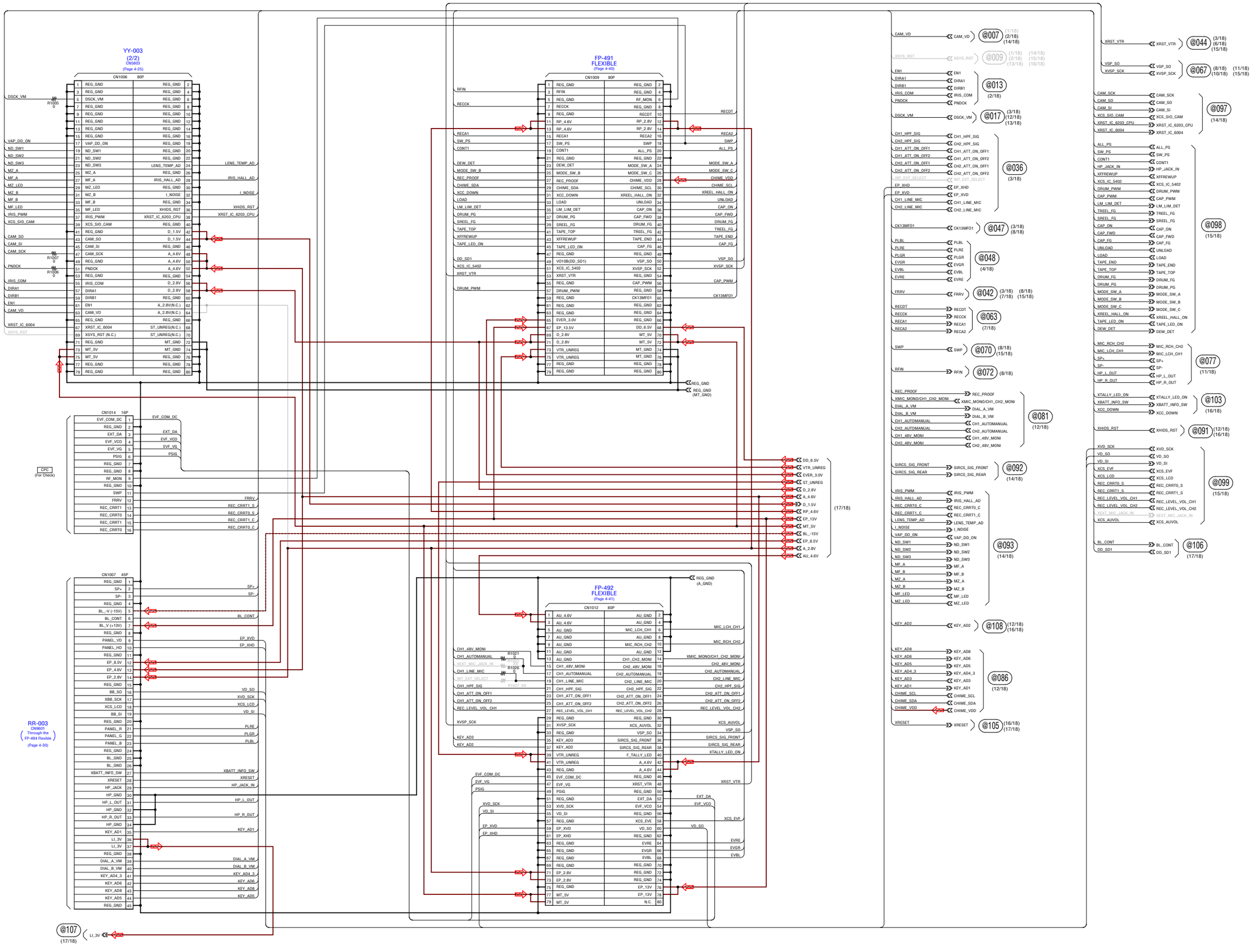
▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.



TT-003 BOARD (18/18)

CONNECTOR

XX MARK:NO MOUNT



YY-003 BOARD (1/2)

LENS DRIVE

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

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

LENS BLOCK is replaced as block, so that PRINTED WIRING BOARD and SCHEMATIC DIAGRAM are omitted.

LENS BLOCK (1/2)

IRIS METER
ND FILTER SWITCH
FOCUS MOTOR
ZOOM MOTOR

CN5802 39P

N.C.	1	
ZOOM_B-	2	ZOOM_B-
ZOOM_A-	3	ZOOM_A-
ZOOM_A	4	ZOOM_A+
ZOOM_B	5	ZOOM_B+
F_DRIVE+	6	FOCUS+
F_DRIVE-	7	FOCUS-
N.C.	8	
ND-GND_B/C	9	
ND-SENS_B	10	ND_SW2
ND-Vcc_B	11	
ND-SENS_C	12	ND_SW3
ND-Vcc_C	13	
ND-GND_A	14	
ND-SENS_A	15	ND_SW1
ND-Vcc_A	16	
N.C.	17	
IG_DRIVE+	18	
IG_DRIVE-	19	
N.C.	20	
N.C.	21	
BIAS-	22	
HALL_OUT-	23	
BIAS+	24	
HALL_OUT+	25	
N.C.	26	
N.C.	27	
F-GMR_Vcc	28	
F-GMR_CH-B	29	
F-GMR_GND	30	
F-GMR_CH-A	31	
Z-GMR_Vcc	32	
Z-GMR_CH-A	33	
Z-GMR_GND	34	
Z-GMR_CH-B	35	
Z-Rst_SENS	36	
Z-Rst_Vcc	37	
Z-Rst_GND	38	
Temp_Out	39	

IC6004
FOCUS/ZOOM MOTOR DRIVE, IRIS DRIVE
IC6004
BU2343GLU-E2

IC6005
2.8V REG
IC6005
R1114Q281D-TR-FA

IC6001 IC6002 IC6003

Q6001 EC3201C-PM-TL IRIS DRIVE
Q5801 2SB1462J-(K8).SO B+ SWITCH
Q5804 UN9213J-(K8).SO SWITCH
D6005 MA4L111100AS0

@300 (2/3)
@301 (2/2)
@302 (2/2)
@303 (2/2)
@304 (2/2)

YY-003 BOARD (2/2)

OIS DRIVE

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

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

LENS BLOCK (2/2)

LENS BLOCK is replaced as block, so that PRINTED WIRING BOARD and SCHEMATIC DIAGRAM are omitted.

MANUAL FOCUS/ZOOM SENSOR

JJ-004 CN8001 (Through the LENS BLOCK Flexible) (Page 4-39)

CN5801 21P

N.C.	21	
MF_VCC_B	20	
N.C.	19	
MF_SENS_B	18	
MF_SENS_A	17	
N.C.	16	
MF_GND	15	
MF_VCC_A	14	
MZ_VCC_A	13	
MZ_GND	12	
MZ_SENS_A	11	
N.C.	10	
MZ_VCC_B	9	
N.C.	8	
MZ_SENS_B	7	
REG_GND	6	
C_RESET	5	
YAW_AD	4	
REG_GND	3	
PITCH_AD	2	
A_2.8V	1	

Q5802 2SB1462J-QR(K8).SO SWITCH
Q5805 UN9213J-(K8).SO B+ SWITCH
Q5803 2SB1462J-QR(K8).SO SWITCH
Q5806 UN9213J-(K8).SO B+ SWITCH

R5815 47k
R5812 1k
R5816 47k
R5813 1k

MF_B
MF_A
MZ_A
MZ_B

CL5802
CL5803
CL5804

VST_C_CHARGE_IC_6203
YAW_AD_IC_6203
PITCH_AD_IC_6203

D_2.8V_MR
ND_SW1
ND_SW2
ND_SW3
LENS_TEMP_AD
MT_GND
XRST_IC_6004
CAM_VD
XCS_SIO_CAM
CAM_SCK
CAM_SI
CAM_SO
PNDCK
IRIS_HALL_AD
I_NOISE
IRIS_COM
IRIS_PWM

@300 (1/2)
@303 (1/2)
@301 (1/2)

D_1.5V
MT_5V

C6224 22u 4V
C6223 22u 4V
C6206 1u
C6210 1u
C6225 22u
C6207 0.1u

CL6204
CL6201

CPU_PIO_1
CPU_PIO_0
MARK
TEST3
TEST2
TEST1
GMOD15
VCC015
VCC015
GMOD3
VCC03
VCC03
RESET_N
CLK
SI
SO
XSCS

CAM_SO
CAM_SI
XCS_SIO_CAM

VM5_0
VM5_1
PGND
PGND
PGND
PGND
DVCC
DGND
OUT0A
OUT0B
OUT1A
OUT1B
MD_IN0
MD_BR0
MD_EN0
MD_IN1
MD_BR1
MD_EN1
xMD_PS
TEST

PITCH-_OUT
PITCH+_OUT
YAW-_OUT
YAW+_OUT

IC6203
OPTICAL IMAGE STABILIZATION DRIVE IC6203
R2JJ30500LG

VCCA3
VCCA3
GNDA3
OP_IP0
OP_OUT0
OP_IN0
DA0
IA0
OP_OUT2
OP_IN2
OP_IP1
OP_OUT1
OP_IN1
DA1
IA1
IB1
OP_OUT3
OP_IN3

R6216 8200
R6223 8200
R6212 0
R6219 27k
R6213 0
R6218 27k
R6229 27k
R6217 0
R6202 0
R6203 27k
R6214 0
R6204 27k

C6208 0.001u
R6250 33k
R6260 22k
C6212 0.001u
R6251 33k
R6261 22k

PITCH_HALL+
YAW_HALL+

SCK
XDL
PIO0
PIO1
PIO2
PIO3
VD
UDITDI
UDITDO
UTITMS
UDITCK
UDITRST
UDIDEBUG
PWM3
PWM2
VB
CH3
CH2
CH1
CH0

CL6205
CL6206
CL6207
CL6208
CL6202
CL6203

R6226 100k
R6227 100k
R6228 100k
R6229 100k
R6230 100k
R6231 100k
R6225 100k
R6233 0

CAM_SCK
CAM_VD
YAW_AD_IC_6203
PITCH_AD_IC_6203

C6216 XX
C6217 XX
C6218 XX

IC6201 XX
IC6202 XX
VCC
GND
A
B

R6205 XX
R6207 XX
R6603 XX
R6204 XX
R6206 XX
R6208 XX
R6602 XX
R6202 XX
R6201 XX
C6201 XX
C6202 XX
R6246 XX
R6247 XX
R6248 XX
R6249 XX
R6254 XX
R6255 XX
R6256 XX
R6257 XX
R6258 XX
R6259 XX
C6603 XX
C6604 XX

PITCH+_OUT
PITCH-_OUT
YAW+_OUT
YAW-_OUT

R6244 XX
R6245 XX
R6243 XX

D_2.8V
FB6201

TT-003 (18/18) CN1006 (Page 4-23)

CN5803 80P

1	REG_GND	REG_GND	2
3	REG_GND	REG_GND	4
5	DSCK_VM	REG_GND	6
7	REG_GND	REG_GND	8
9	REG_GND	REG_GND	10
11	REG_GND	REG_GND	12
13	REG_GND	REG_GND	14
15	REG_GND	REG_GND	16
17	VAP_DD_ON	REG_GND	18
19	ND_SW1	REG_GND	20
21	ND_SW2	REG_GND	22
23	ND_SW3	LENS_TEMP_AD	24
25	MZ_A	REG_GND	26
27	MF_A	IRIS_HALL_AD	28
29	MZ_LED	REG_GND	30
31	MZ_B	I_NOISE	32
33	MF_B	REG_GND	34
35	MF_LED	XHIDS_RST	36
37	IRIS_PWM	XRST_IC_6203_CPU	38
39	XCS_SIO_CAM	REG_GND	40
41	REG_GND	D_1.5V	42
43	CAM_SO	D_1.5V	44
45	CAM_SI	REG_GND	46
47	CAM_SCK	A_4.6V	48
49	REG_GND	A_4.6V	50
51	PNDCK	A_4.6V	52
53	REG_GND	REG_GND	54
55	IRIS_COM	D_2.8V	56
57	DIRA1	D_2.8V	58
59	DIRB1	REG_GND	60
61	EN1	A_2.8V(N.C.)	62
63	CAM_VD	A_2.8V(N.C.)	64
65	REG_GND	REG_GND	66
67	XRST_IC_6004	ST_UNREG(N.C.)	68
69	XSYS_RST (N.C.)	ST_UNREG(N.C.)	70
71	REG_GND	MT_GND	72
73	MT_5V	MT_GND	74
75	MT_5V	REG_GND	76
77	REG_GND	REG_GND	78
79	REG_GND	REG_GND	80

R5823 0
R6241 0
R5825 0
R5824 0
R6240 XX

A_4.6V
D_2.8V
A_2.8V
CL5801
MT_GND
REG_GND

@302 (1/2)

L6202 10uH
L6203 10uH

Q6203 2SB1462J-QR(K8).SO B+ SWITCH
Q6204 UN9213J-(K8).SO SWITCH
Q6201 2SB1462J-QR(K8).SO B+ SWITCH
Q6202 UN9213J-(K8).SO SWITCH

R6238 47k
R6237 1k
R6235 47k
R6236 1k

R2.8/P1
R2.1/P2.8
R0.1/P2.8
R2.9/P0.5
R4.7/P0
R4/P4.7
R0.1/P4.7

MT_5V
A_2.8V_IC_6203
MT_5V_IC_6203
DIRA1
EN1
DIRB1

C6220 22u 4V
C6221 0.1u
C6219 10u 6.3V
C6222 10u 6.3V

@304 (1/2)

CN6201 10P

GND	10	
P_OUT	9	
A_4.6V	8	
P_DRIV_A	7	
P_DRIV_B	6	
Y_DRIV_B	5	
Y_DRIV_A	4	
GND	3	
Y_OUT	2	
A_4.6V	1	

ACTIVE LENS ACTUATOR

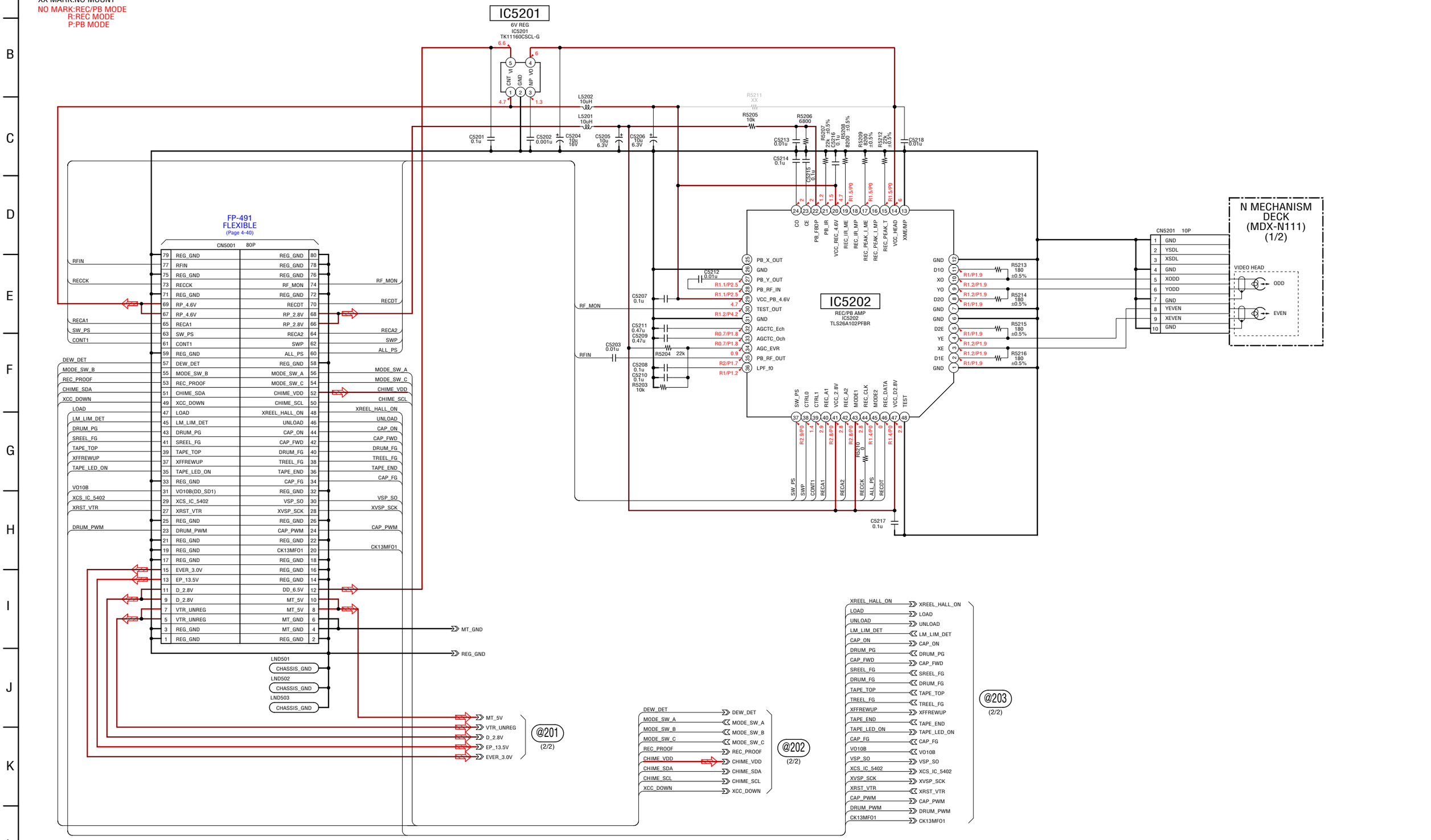
PITCH_HALL+
YAW_HALL+

NN-003 BOARD (1/2)

REC/PB AMP

XX MARK:NO MOUNT

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



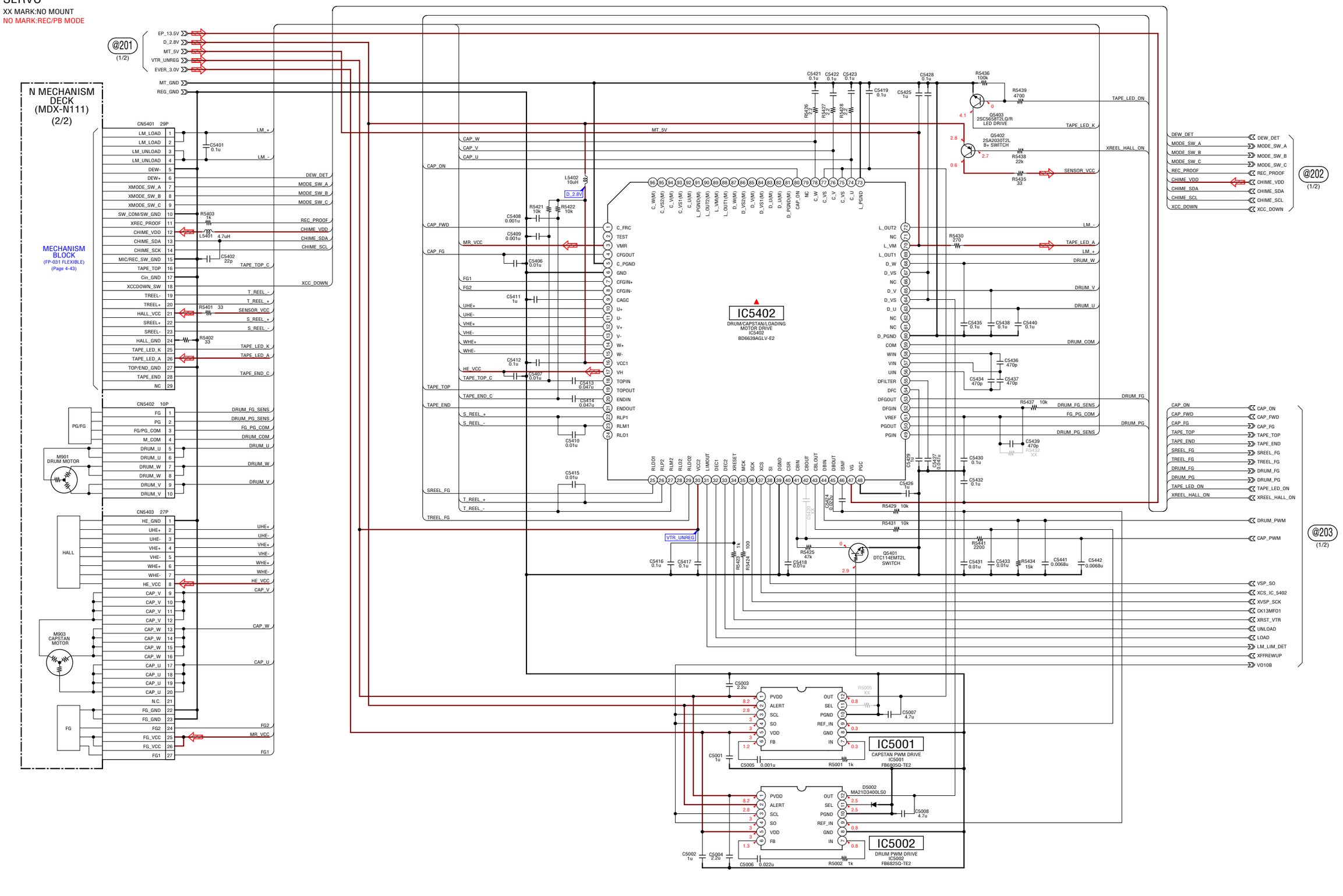
NN-003 BOARD (2/2)

SERVO

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.

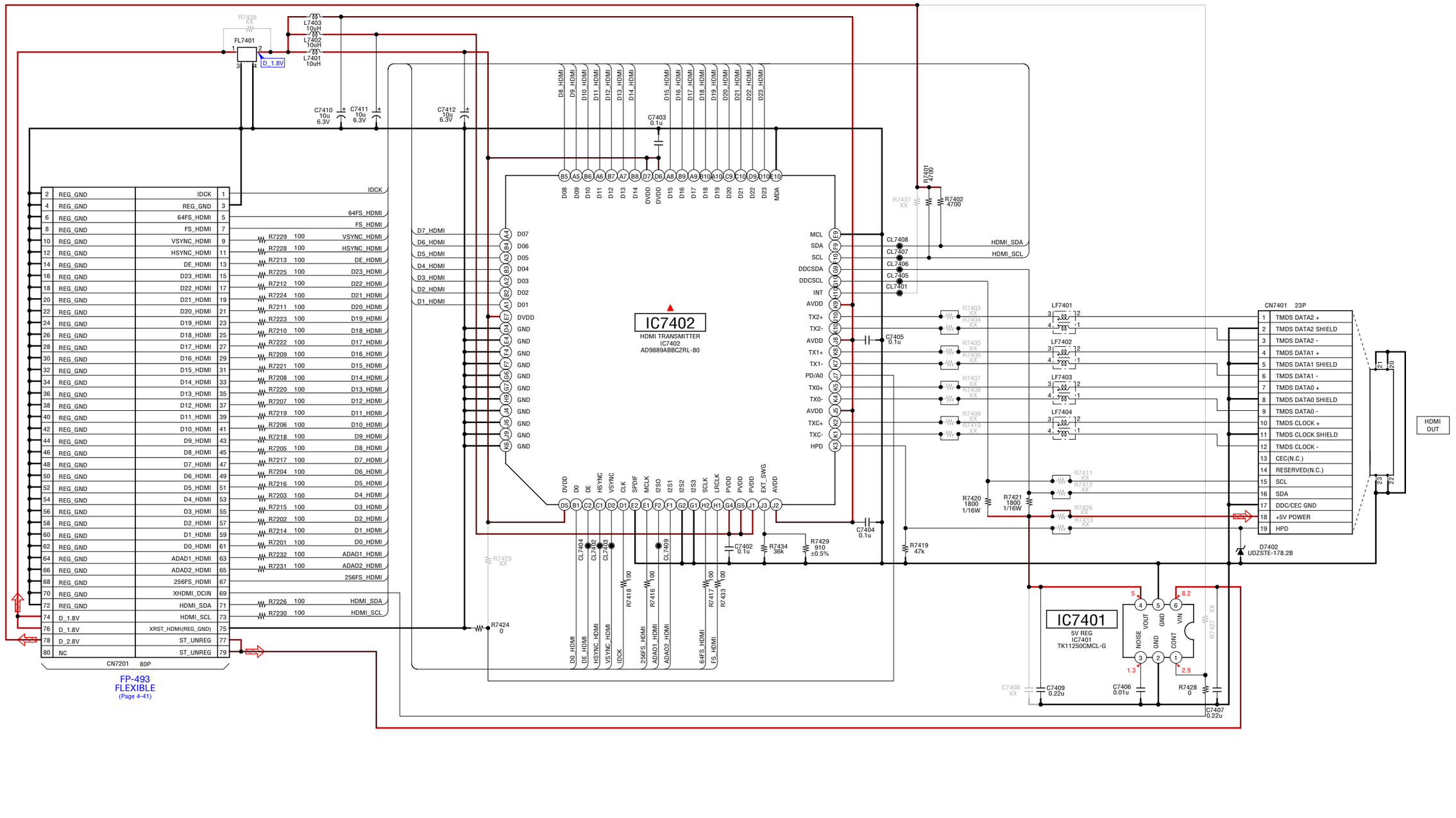


HH-003 BOARD

HDMI OUT

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

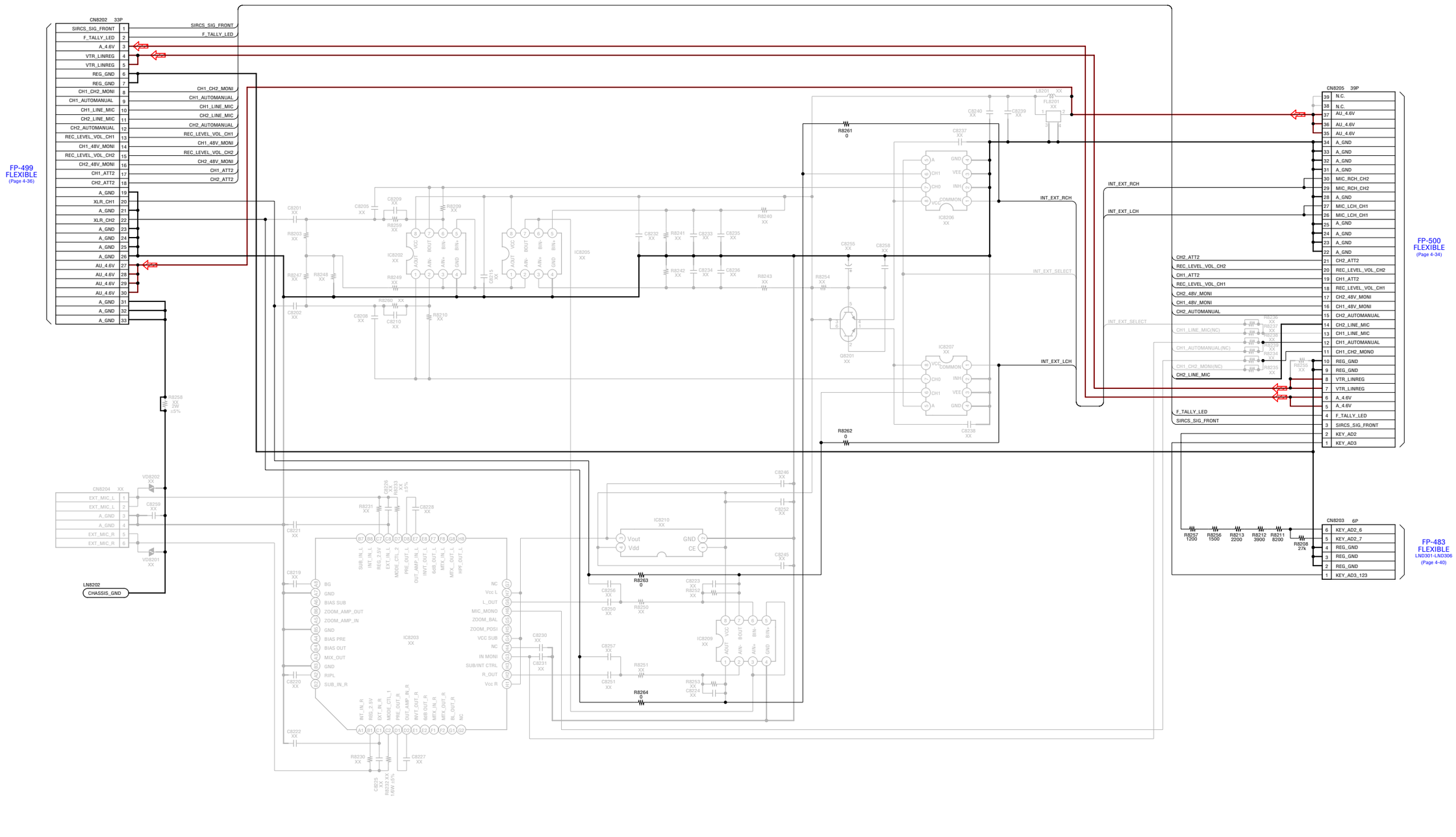
▲: Voltage measurement of the CSP ICs and the Transistors with ▲mark, are not possible.



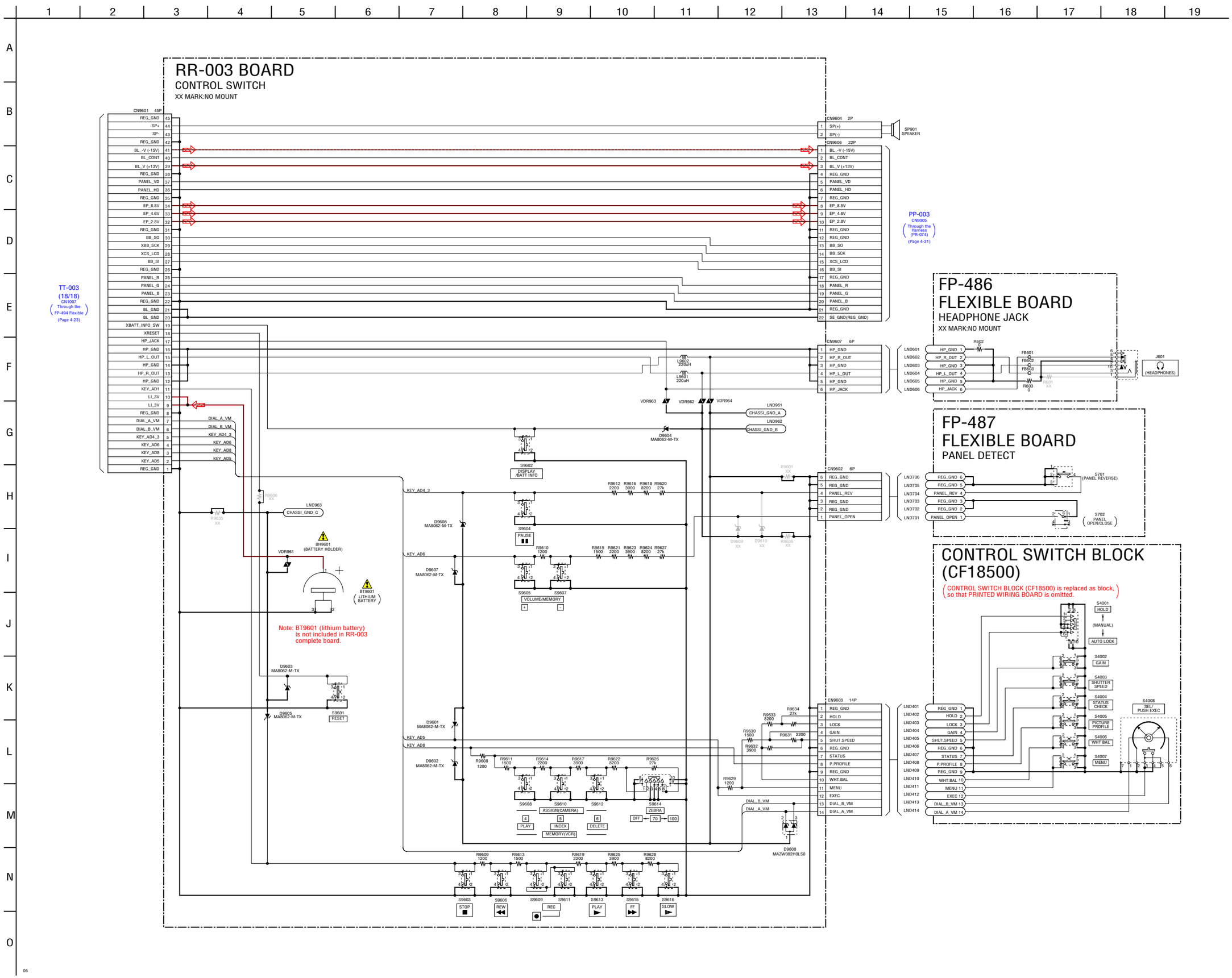
GG-003 BOARD

CONNECTOR

XX MARK:NO MOUNT



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

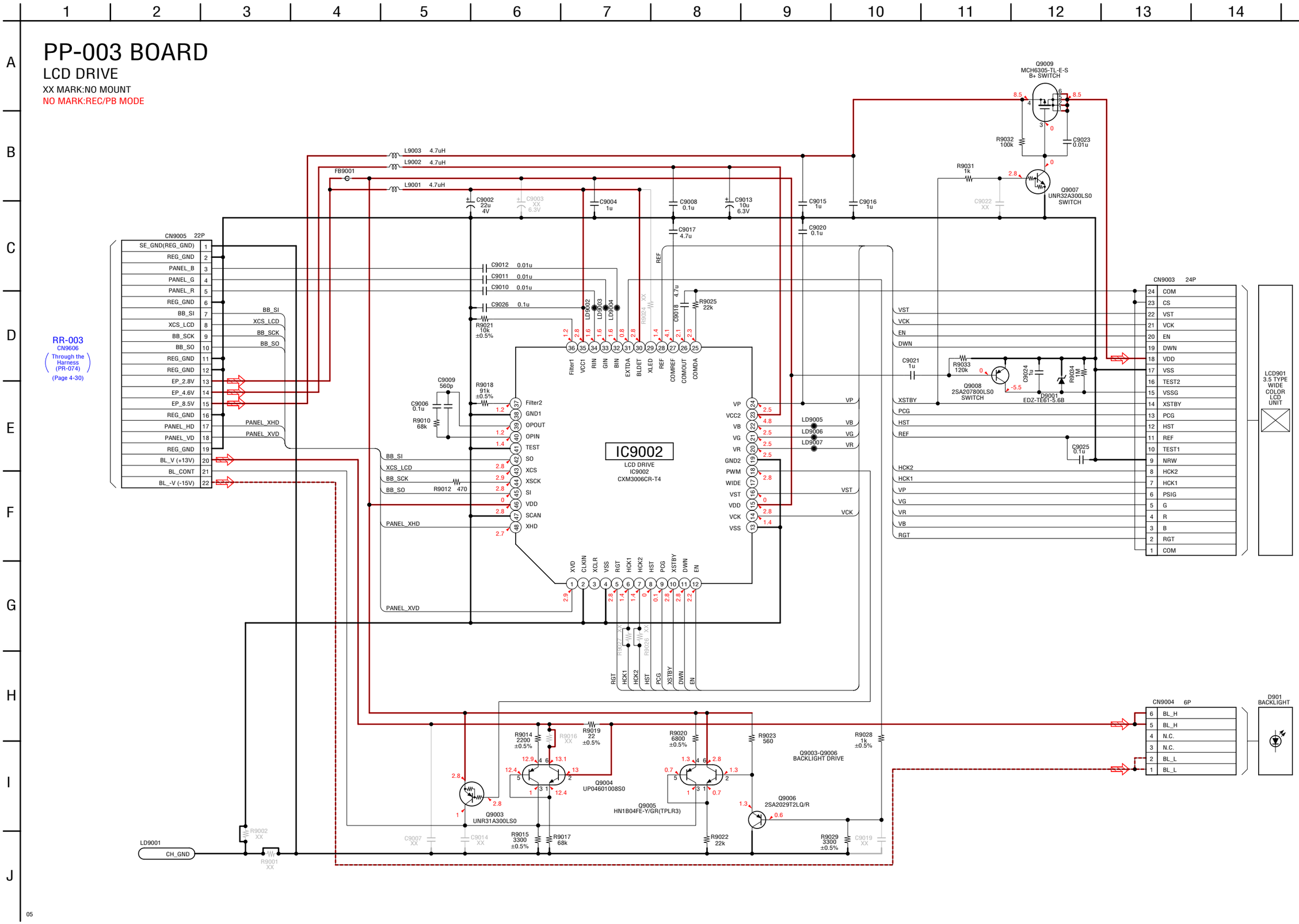


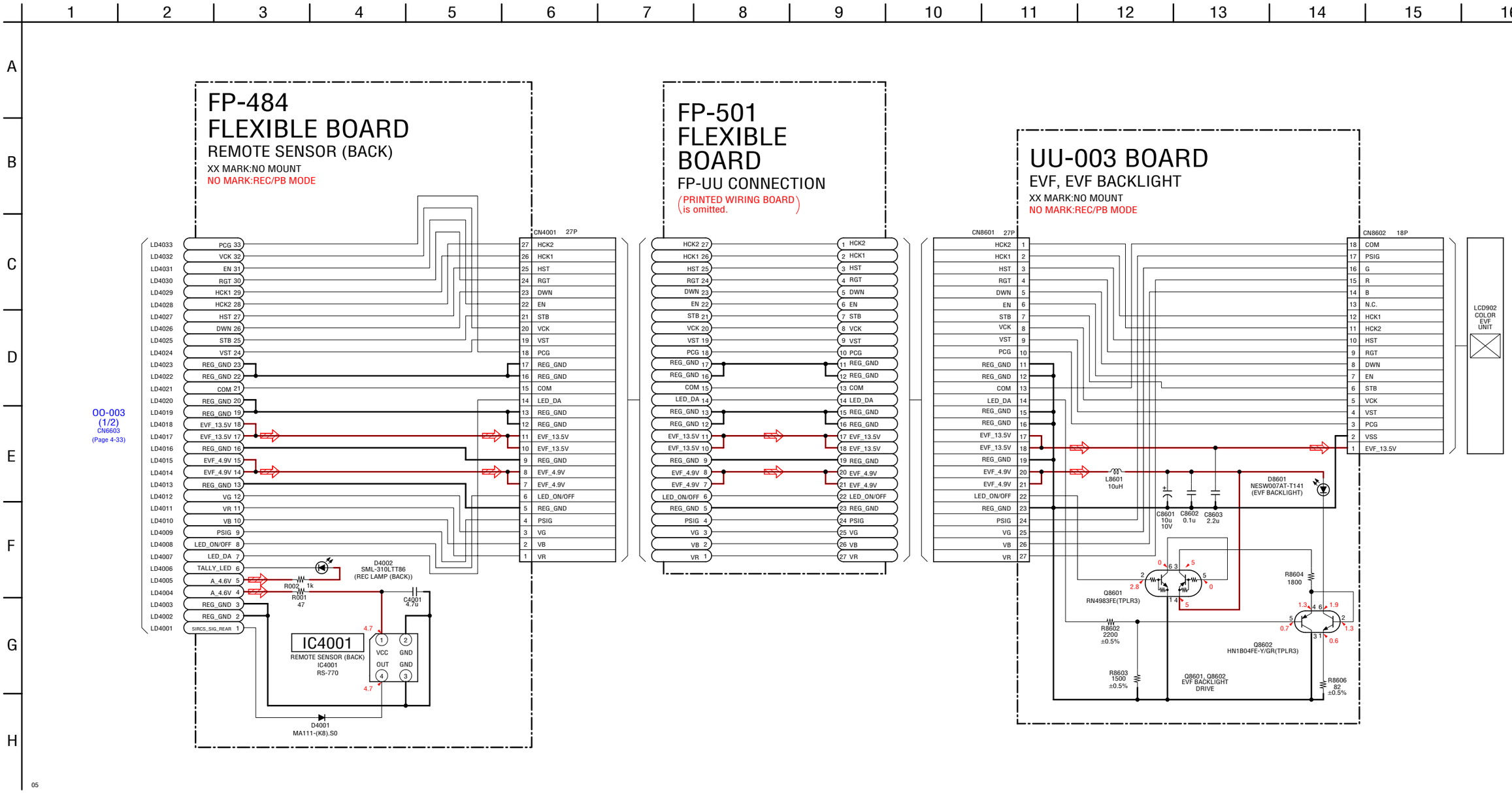
PP-003 BOARD

LCD DRIVE

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

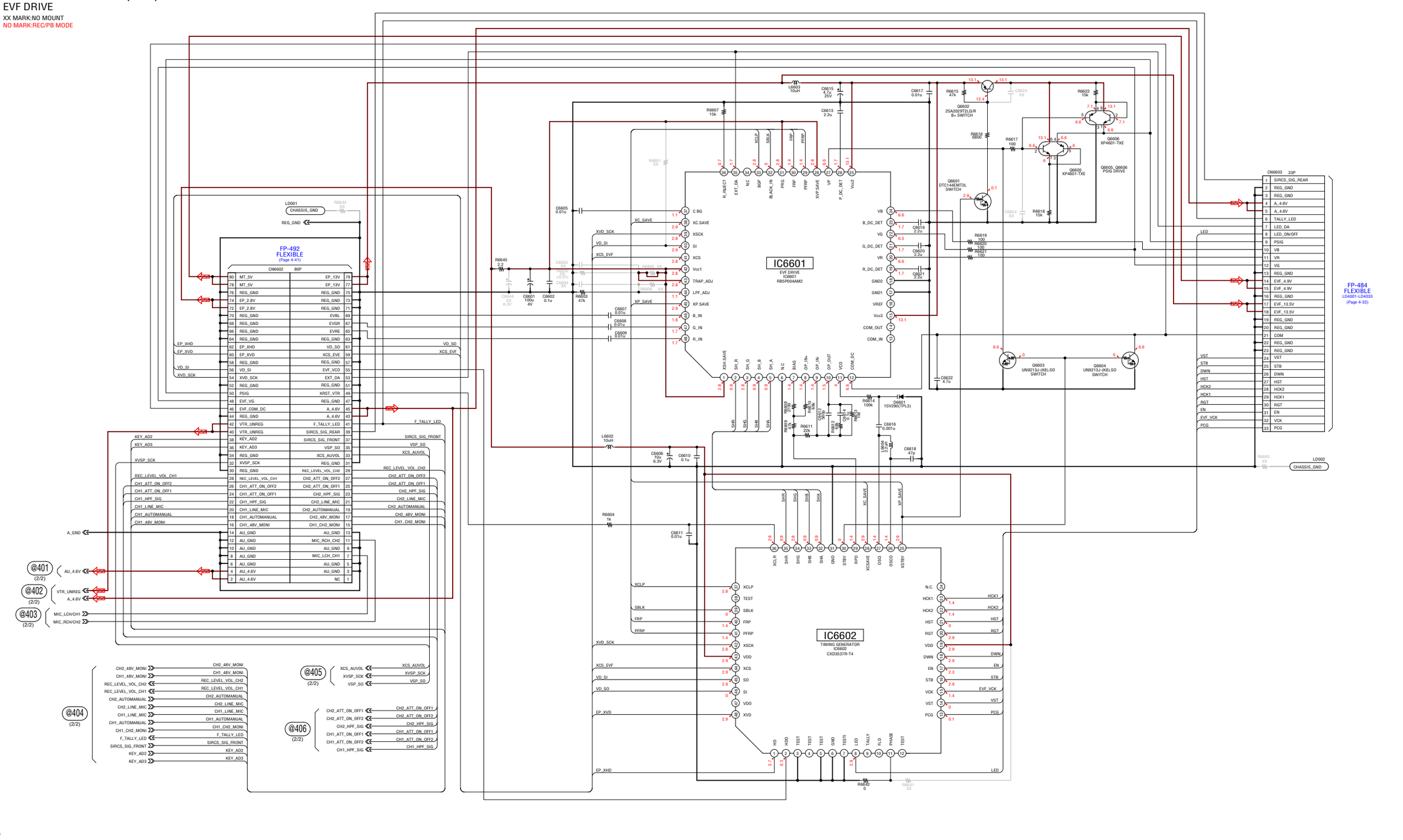



FP-484
FLEXIBLE BOARD
REMOTE SENSOR (BACK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
FP-501
FLEXIBLE
BOARD
FP-UU CONNECTION
(PRINTED WIRING BOARD
is omitted.
UU-003 BOARD
EVF, EVF BACKLIGHT
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
CN4001 27P
CN8601 27P
CN8602 18P
00-003
(1/2)
CN6603
(Page 4-33)
D4002
SML-310LTT86
(REC LAMP (BACK))
R002 1k
R001 47
C4001 4.7u
IC4001
REMOTE SENSOR (BACK)
IC4001
RS-770
VCC
GND
OUT
GND
D4001
MA111-(K8).S0
L8601 10uH
C8601 10u 10V
C8602 0.1u
C8603 2.2u
D8601
NESW007AT-T141
(EVF BACKLIGHT)
Q8601
RN4983FE(TPLR3)
R8602 2200 ±0.5%
R8603 1500 ±0.5%
R8604 1800
Q8602
HN1B04FE-Y/GR(TPLR3)
Q8601, Q8602
EVF BACKLIGHT
DRIVE
R8606 82 ±0.5%
LCD902
COLOR
EVF
UNIT

OO-003 BOARD (1/2)

EVF DRIVE

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

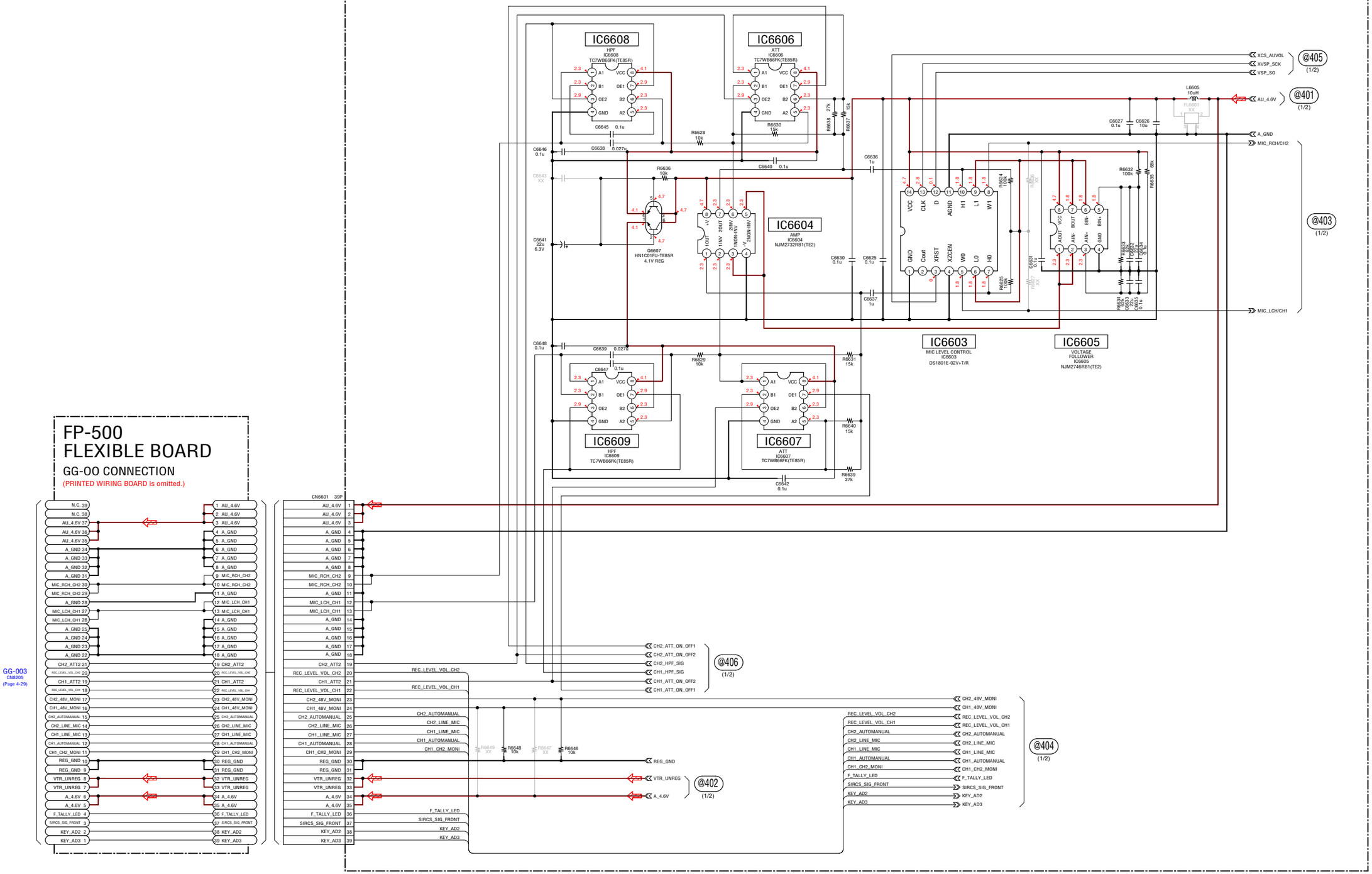


OO-003 BOARD (2/2)

MIC LEVEL CONTROL

XX MARK:NO MOUNT

NO MARK:REC/PB MODE



FP-500
FLEXIBLE BOARD

GG-OO CONNECTION

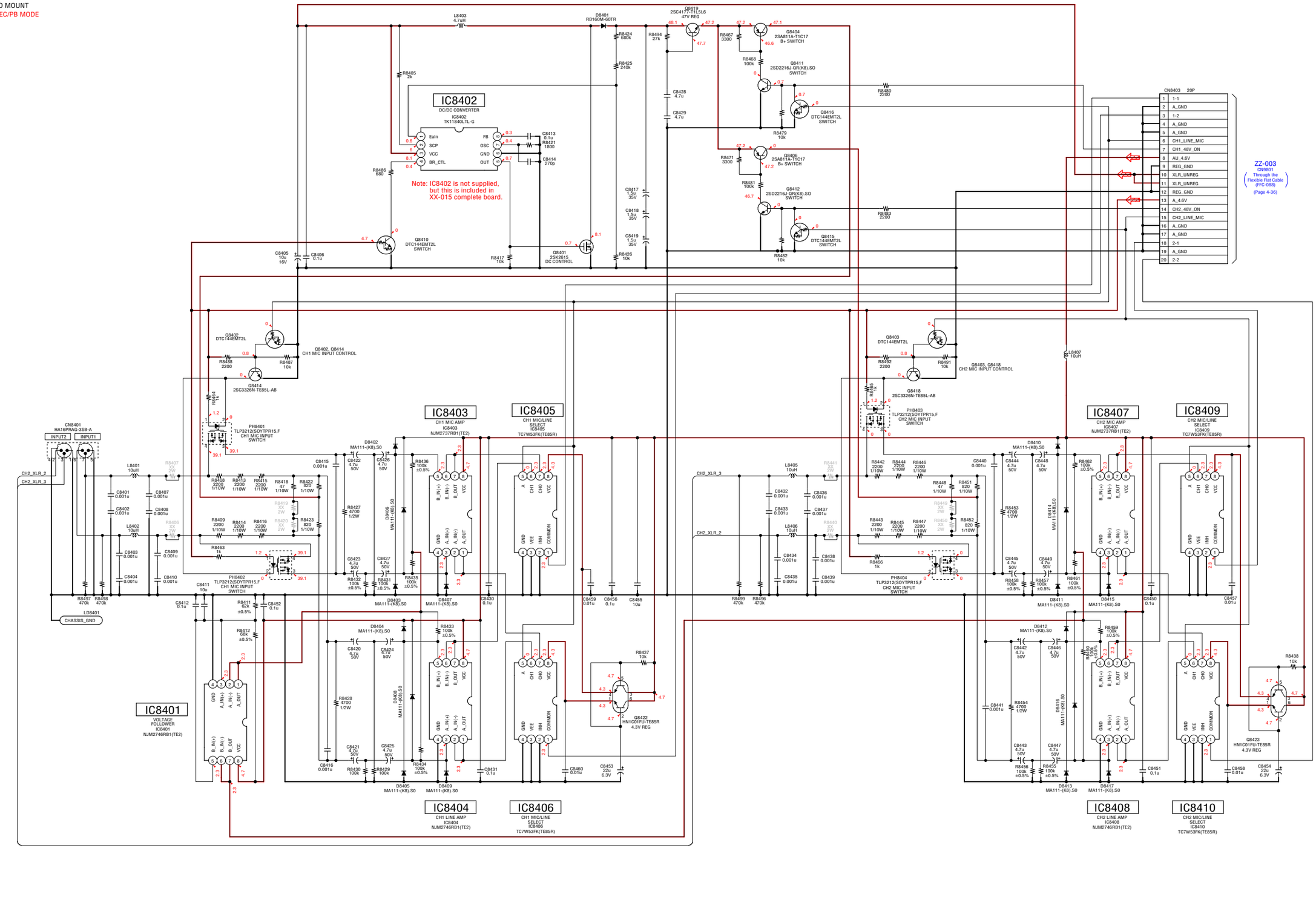
(PRINTED WIRING BOARD is omitted.)

XX-015 BOARD

XLR INPUT

XX MARK:NO MOUNT

NO MARK:REC/PB MODE



ZZ-003 BOARD

MIC/LINE AMP

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

CONTROL SWITCH BLOCK (XR91030)

CONTROL SWITCH BLOCK (XR91030) is replaced as block, so that PRINTED WIRING BOARD is omitted.

S5001 REC CH SELECT — CH1 / CH1+CH2

RV5001 10k AUDIO LEVEL — S5002 MAN/AUTO

RV5002 10k AUDIO LEVEL — S5004 MAN/AUTO

S5003 +48V OFF/ON

S5005 +48V OFF/ON

CHASSIS_GND

XX-015 CN8403 (Through the Flexible Flat Cable (FFC-088)) (Page 4-35)

CN9801 20P

1-1	20		
A_GND	19		
1-2	18		
A_GND	17		
A_GND	16		
CH1_LINE_MIC	15		
CH1_48V_ON	14		
AU_4.6V	13		
REG_GND	12		
XLR_UNREG	11		
XLR_UNREG	10		
REG_GND	9		
A_4.6V	8		
CH2_48V_ON	7		
CH2_LINE_MIC	6		
A_GND	5		
A_GND	4		
2-1	3		
A_GND	2		
2-2	1		

CN9803 20P

REG_GND	1		
REC_LEVEL_VOL_CH1	2		
A_4.6V	3		
REC_CH_SELECT_SIG	4		
REG_GND	5		
CH1_AUTO_MANUAL	6		
A_4.6V	7		
CH1_48V_ON(4.6V)	8		
CH1_48V_SIG	9		
REG_GND	10		
CH2_AUTO_MANUAL	11		
A_4.6V	12		
CH2_48V_ON(4.6V)	13		
CH2_48V_SIG	14		
REG_GND	15		
REG_GND	16		
REC_LEVEL_VOL_CH2	17		
A_4.6V	18		
CHASSIS	19		
CHASSIS	20		

CH1_LINE_MIC, CH2_LINE_MIC, CH1_CH2_MONI, CH1_AUTOMANUAL, CH1_48V_MONI, CH2_AUTOMANUAL, CH2_48V_MONI, LD9801 CHASSIS_GND, REC_LEVEL_VOL_CH1, REC_LEVEL_VOL_CH2

R9837 6800; R9836 6800; R9834 XX; R9835 XX

IC9801
CH1 MIC/LINE AMP
IC9801
NJM2737RB1(TE2)

IC9803
CH1 AMP, VOLTAGE FOLLOWER
IC9803
NJM2746RB1(TE2)

R9801 100k ±0.5%; R9805 6800 ±0.5%; C9805 680p; C9801 2.2u; R9803 100k ±0.5%; C9803 2.2u; R9806 6800 ±0.5%; C9806 6800; C9809 0.1u

C9811 2.2u; R9814 1100 ±0.5%; R9823 1500 ±0.5%; C9819 0.0022u; C9812 2.2u; R9815 1100 ±0.5%; R9819 1500 ±0.5%; R9811 68k ±0.5%; C9815 0.0022u; R9828 1100 ±0.5%; R9812 62k ±0.5%; C9816 4.7u 6.3V; C9822 10u 6.3V; C9824 0.1u; C9821 0.1u; C9831 0.1u

L9801 10uH; C9827 10u 6.3V

IC9806
ATT
IC9806
TC7WB66FK(TE85R)

Q001 2SC4177-T1LSL6 4.1V REG; R9827 10k; C9832 0.1u; C9833 22u 6.3V; C9834 XX

IC9802
CH2 MIC/LINE AMP
IC9802
NJM2737RB1(TE2)

IC9804
CH2 AMP, VOLTAGE FOLLOWER
IC9804
NJM2746RB1(TE2)

R9802 100k ±0.5%; R9807 6800 ±0.5%; C9807 680p; C9802 2.2u; R9804 100k ±0.5%; C9804 2.2u; R9808 680p ±0.5%; C9838 6800; C9810 0.1u

C9813 2.2u; R9820 1100 ±0.5%; R9824 1500 ±0.5%; C9820 0.0022u; C9814 2.2u; R9821 1100 ±0.5%; R9822 1500 ±0.5%; R9816 68k ±0.5%; C9817 0.0022u; R9810 11k ±0.5%; R9829 1100 ±0.5%; R9817 62k ±0.5%; C9818 4.7u 6.3V; C9825 10u 6.3V; C9826 0.1u; C9823 0.1u

IC9805
AUDIO LEVEL AMP
IC9805
NJM2732RB1(TE2)

A_OUT, A_IN(-), A_IN(+), GND, VCC, B_OUT, B_IN(-), B_IN(+)

R9830 390k; R9831 620k; C9835 0.1u; R9832 390k; C9836 0.1u; C9829 0.1u; R9833 620k

CN9804 33P

1	A_GND		
2	A_GND		
3	A_GND		
4	AU_4.6V		
5	AU_4.6V		
6	AU_4.6V		
7	AU_4.6V		
8	A_GND		
9	A_GND		
10	A_GND		
11	A_GND		
12	XLR_CH2		
13	A_GND		
14	XLR_CH1		
15	A_GND		
16	CH2_ATT2		
17	CH1_ATT2		
18	CH2_48V_MONI		
19	REC_LEVEL_VOL_CH2		
20	CH1_48V_MONI		
21	REC_LEVEL_VOL_CH1		
22	CH2_AUTOMANUAL		
23	CH2_LINE_MIC		
24	CH1_LINE_MIC		
25	CH1_AUTOMANUAL		
26	CH1_CH2_MONI		
27	REG_GND		
28	REG_GND		
29	VTR_UNREG		
30	VTR_UNREG		
31	A_4.6V		
32	F_TALLY_LED		
33	SIRCS_SIG_FRONT		

CH2_48V_MONI, REC_LEVEL_VOL_CH2, CH1_48V_MONI, REC_LEVEL_VOL_CH1, CH2_AUTOMANUAL, CH2_LINE_MIC, CH1_LINE_MIC, CH1_AUTOMANUAL, CH1_CH2_MONI

FP-499 FLEXIBLE BOARD

GG-ZZ CONNECTION

(PRINTED WIRING BOARD is omitted.)

A_GND	1	33	A_GND
A_GND	2	32	A_GND
A_GND	3	31	A_GND
AU_4.6V	4	30	AU_4.6V
AU_4.6V	5	29	AU_4.6V
AU_4.6V	6	28	AU_4.6V
AU_4.6V	7	27	AU_4.6V
A_GND	8	26	A_GND
A_GND	9	25	A_GND
A_GND	10	24	A_GND
A_GND	11	23	A_GND
XLR_CH2	12	22	XLR_CH2
A_GND	13	21	A_GND
XLR_CH1	14	20	XLR_CH1
A_GND	15	19	A_GND
CH2_ATT2	16	18	CH2_ATT2
CH1_ATT2	17	17	CH1_ATT2
CH2_48V_MONI	18	16	CH2_48V_MONI
REC_LEVEL_VOL_CH2	19	15	REC_LEVEL_VOL_CH2
CH1_48V_MONI	20	14	CH1_48V_MONI
REC_LEVEL_VOL_CH1	21	13	REC_LEVEL_VOL_CH1
CH2_AUTOMANUAL	22	12	CH2_AUTOMANUAL
CH2_LINE_MIC	23	11	CH2_LINE_MIC
CH1_LINE_MIC	24	10	CH1_LINE_MIC
CH1_AUTOMANUAL	25	9	CH1_AUTOMANUAL
CH1_CH2_MONI	26	8	CH1_CH2_MONI
REG_GND	27	7	REG_GND
REG_GND	28	6	REG_GND
VTR_UNREG	29	5	VTR_UNREG
VTR_UNREG	30	4	VTR_UNREG
A_4.6V	31	3	A_4.6V
F_TALLY_LED	32	2	F_TALLY_LED
SIRCS_SIG_FRONT	33	1	SIRCS_SIG_FRONT

GG-003 CN8202 (Page 4-29)

FP-488 FLEXIBLE BOARD

REMOTE SENSOR (FRONT)

NO MARK:REC/PB MODE

CN9802 6P

1	REG_GND	REG_GND	1
2	REG_GND	REG_GND	2
3	A_4.6V	A_4.6V	3
4	SIRCS_SIG	SIRCS_SIG_FRONT	4
5	A_4.6V	A_4.6V	5
6	F_TALLY_LED	F_TALLY_LED	6

C101 4.7u; R102 47; D102 MA111-(K8).S0; R101 1k; D101 SML-310LTT86 (REC LAMP (FRONT))

IC101
REMOTE SENSOR (FRONT)
IC101
RS-770

VCC, GND, OUT, GND

FP-495 FLEXIBLE BOARD

TT-II CONNECTION

(PRINTED WIRING BOARD is omitted.)

REG_GND	1	39	REG_GND
CHARGE_LED_VDD	2	38	CHARGE_LED_VDD
XCHARGE_LED	3	37	XCHARGE_LED
REG_GND	4	36	REG_GND
REG_GND	5	35	REG_GND
TPA-	6	34	TPA-
N.C.	7	33	N.C.
TPA+	8	32	TPA+
REG_GND	9	31	REG_GND
REG_GND	10	30	REG_GND
REG_GND	11	29	REG_GND
TPB+	12	28	TPB+
N.C.	13	27	N.C.
TPB-	14	26	TPB-
REG_GND	15	25	REG_GND
REG_GND	16	24	REG_GND
REG_GND	17	23	REG_GND
AUDIO_L_I/O	18	22	AUDIO_L_I/O
REG_GND	19	21	REG_GND
AUDIO_R_I/O	20	20	AUDIO_R_I/O
REG_GND	21	19	REG_GND
LANC_SIG	22	18	LANC_SIG
MULTIJACK_AD	23	17	MULTIJACK_AD
LANC_DC	24	16	LANC_DC
REG_GND	25	15	REG_GND
VIDEO_I/O	26	14	VIDEO_I/O
S_C_I/O	27	13	S_C_I/O
S_Y_I/O	28	12	S_Y_I/O
REG_GND	29	11	REG_GND
D3_LNO_Y	30	10	D3_LNO_Y
REG_GND	31	9	REG_GND
D3_LNO_PB	32	8	D3_LNO_PB
REG_GND	33	7	REG_GND
D3_LNO_PR	34	6	D3_LNO_PR
REG_GND	35	5	REG_GND
LINE_CNT1	36	4	LINE_CNT1
LINE_CNT2	37	3	LINE_CNT2
LINE_CNT3	38	2	LINE_CNT3
D3CN	39	1	D3CN

TT-003
(4/18)
CN1001
(Page 4-9)

II-003 BOARD

HDV/DV, A/V, COMPONENT CONNECTOR

XX MARK:NO MOUNT

CN9201 39P

REG_GND	39	39	REG_GND
CHARGE_LED_VDD	38	38	CHARGE_LED_VDD
XCHARGE_LED	37	37	XCHARGE_LED
REG_GND	36	36	REG_GND
REG_GND	35	35	REG_GND
TPA-	34	34	TPA-
N.C.	33	33	N.C.
TPA+	32	32	TPA+
REG_GND	31	31	REG_GND
REG_GND	30	30	REG_GND
REG_GND	29	29	REG_GND
TPB+	28	28	TPB+
N.C.	27	27	N.C.
TPB-	26	26	TPB-
REG_GND	25	25	REG_GND
REG_GND	24	24	REG_GND
REG_GND	23	23	REG_GND
AUDIO_L_I/O	22	22	AUDIO_L_I/O
REG_GND	21	21	REG_GND
AUDIO_R_I/O	20	20	AUDIO_R_I/O
REG_GND	19	19	REG_GND
LANC_SIG	18	18	LANC_SIG
MULTIJACK_AD	17	17	MULTIJACK_AD
LANC_DC	16	16	LANC_DC
REG_GND	15	15	REG_GND
VIDEO_I/O	14	14	VIDEO_I/O
S_C_I/O	13	13	S_C_I/O
S_Y_I/O	12	12	S_Y_I/O
REG_GND	11	11	REG_GND
D3_LNO_Y	10	10	D3_LNO_Y
REG_GND	9	9	REG_GND
D3_LNO_PB	8	8	D3_LNO_PB
REG_GND	7	7	REG_GND
D3_LNO_PR	6	6	D3_LNO_PR
REG_GND	5	5	REG_GND
LINE_CNT1	4	4	LINE_CNT1
LINE_CNT2	3	3	LINE_CNT2
LINE_CNT3	2	2	LINE_CNT3
D3CN	1	1	D3CN

D9201
SML-512WWT86
CHARGE

LF9201
XX

LF9202
XX

TH9203
TH9204
TH9201
TH9202

CN9202 6P

4	TPA
3	NTPA
2	TPB
1	NTPB

LND921
CHASSI_GND

HDV/DV

FB9201

FB9202

R9201 XX
R9202 XX
R9203 XX
R9204 XX
R9205 XX
R9206 XX

VDR921
VDR922
VDR924

D9203
UDZSTE-178.2B

D9204
UDZSTE-178.2B

D9205
UDZSTE-178.2B

CN9203 14P

1	AUDIO L
2	N.C.(LANC_SIG)
3	S GND
4	LANC_DC
5	S-C
6	AUDIO R
7	JACK AD
8	VIDEO/AUDIO GND
9	VIDEO
10	S-Y

A/V OUT

D9206
NSAD500H-T1-A

R9207 XX
R9208 XX
R9209 XX

CN9204 14P

1	Y
2	Y_GND
3	PB
4	PRPB_GND
5	PR
6	CTRL1
7	CTRL2
8	CTRL3
9	SW_GND
10	SW

COMPONENT OUT

LND922
CHASSI_GND

05

FP-496 FLEXIBLE BOARD

TT-WW CONNECTION

(PRINTED WIRING BOARD is omitted.)

REG_GND	1	27	REG_GND
USB_D-	2	26	USB_D-
N.C.	3	25	N.C.
USB_D+	4	24	USB_D+
REG_GND	5	23	REG_GND
REG_GND	6	22	REG_GND
USB_DET	7	21	USB_DET
REG_GND	8	20	REG_GND
MS_LED_ON	9	19	MS_LED_ON
D_2.8V	10	18	D_2.8V
REG_GND	11	17	REG_GND
REG_GND	12	16	REG_GND
MS_VCC_ON	13	15	MS_VCC_ON
D_3.3V	14	14	D_3.3V
REG_GND	15	13	REG_GND
REG_GND	16	12	REG_GND
REG_GND	17	11	REG_GND
MS_DIO	18	10	MS_DIO
XMS_IN	19	9	XMS_IN
REG_GND	20	8	REG_GND
REG_GND	21	7	REG_GND
MS_BS	22	6	MS_BS
REG_GND	23	5	REG_GND
REG_GND	24	4	REG_GND
MS_SCLK	25	3	MS_SCLK
REG_GND	26	2	REG_GND
REG_GND	27	1	REG_GND

TT-003
(12/18)
CN1005
(Page 4-17)

WW-003 BOARD

USB/MS CONNECTOR

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

CN9401 27P

D9402
1SS357(T3SONY1)

R9405
10k

R9416
XX

R9417
XX

R9404
10k

LF9401
XX

R9418
XX

R9419
XX

D9405
XX

CN9403 9P

1	VCC
2	D-
3	D+
4	ID
5	GND

(USB)

R9401
100

D9401
CL-270HR-C-TSL
(MS ACCESS)

D9403
MAZS082008SO

D9404
MAZS082008SO

D9406
XX

LND942
CHASSI_GND

IC9401
2.9V REG
IC9401
R1114Q291D-TR-FA

R9402
1k

C9401
0.1u

C9402
XX

C9403
0.1u

CN9402 12P

10	GND
9	VCC
8	SCLK
7	MSDATA3(NC)
6	INS
5	MSDATA2(NC)
4	DIO
3	MSDATA1(NC)
2	BS
1	GND

MEMORY STICK DUO

FB9401

R9408 XX

FB9404 XX

R9412 XX

LND941
CHASSI_GND

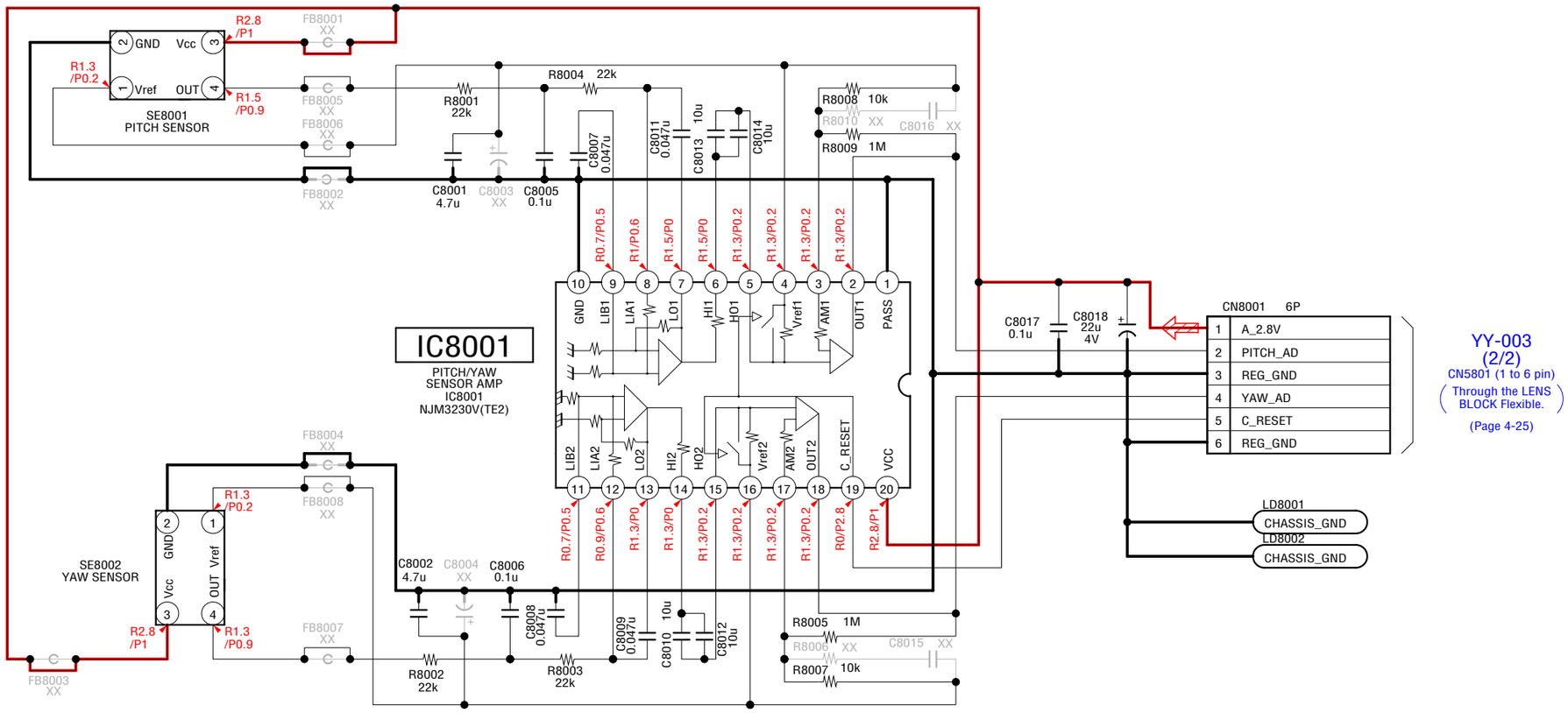
05

JJ-004 BOARD

PITCH/YAW SENSOR

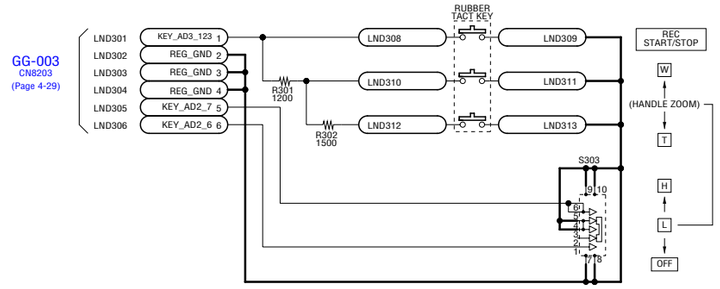
XX MARK:NO MOUNT

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



FP-483 FLEXIBLE BOARD

HANDLE ZOOM/SS

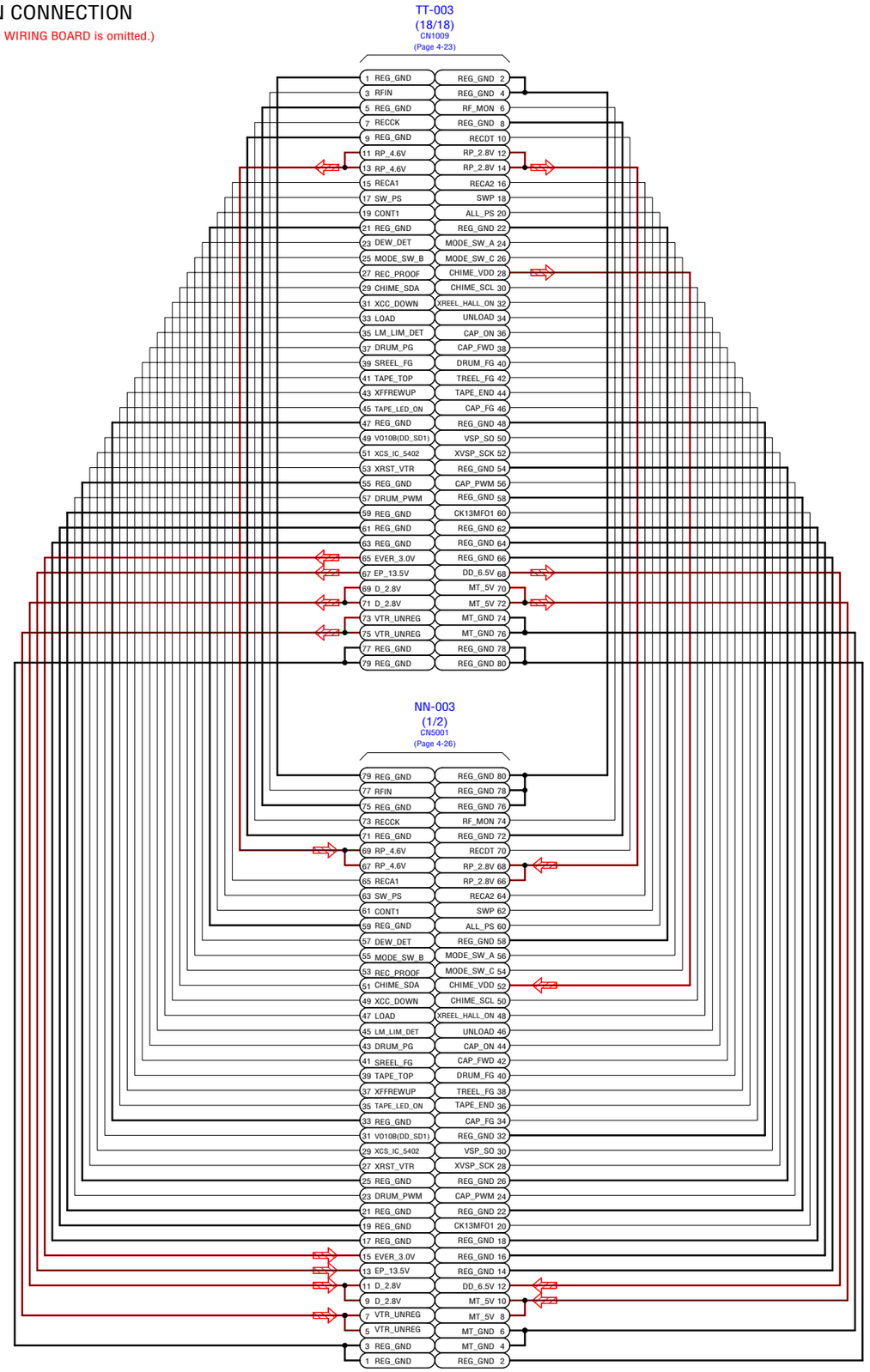


05

FP-491 FLEXIBLE BOARD

TT-NN CONNECTION

(PRINTED WIRING BOARD is omitted.)

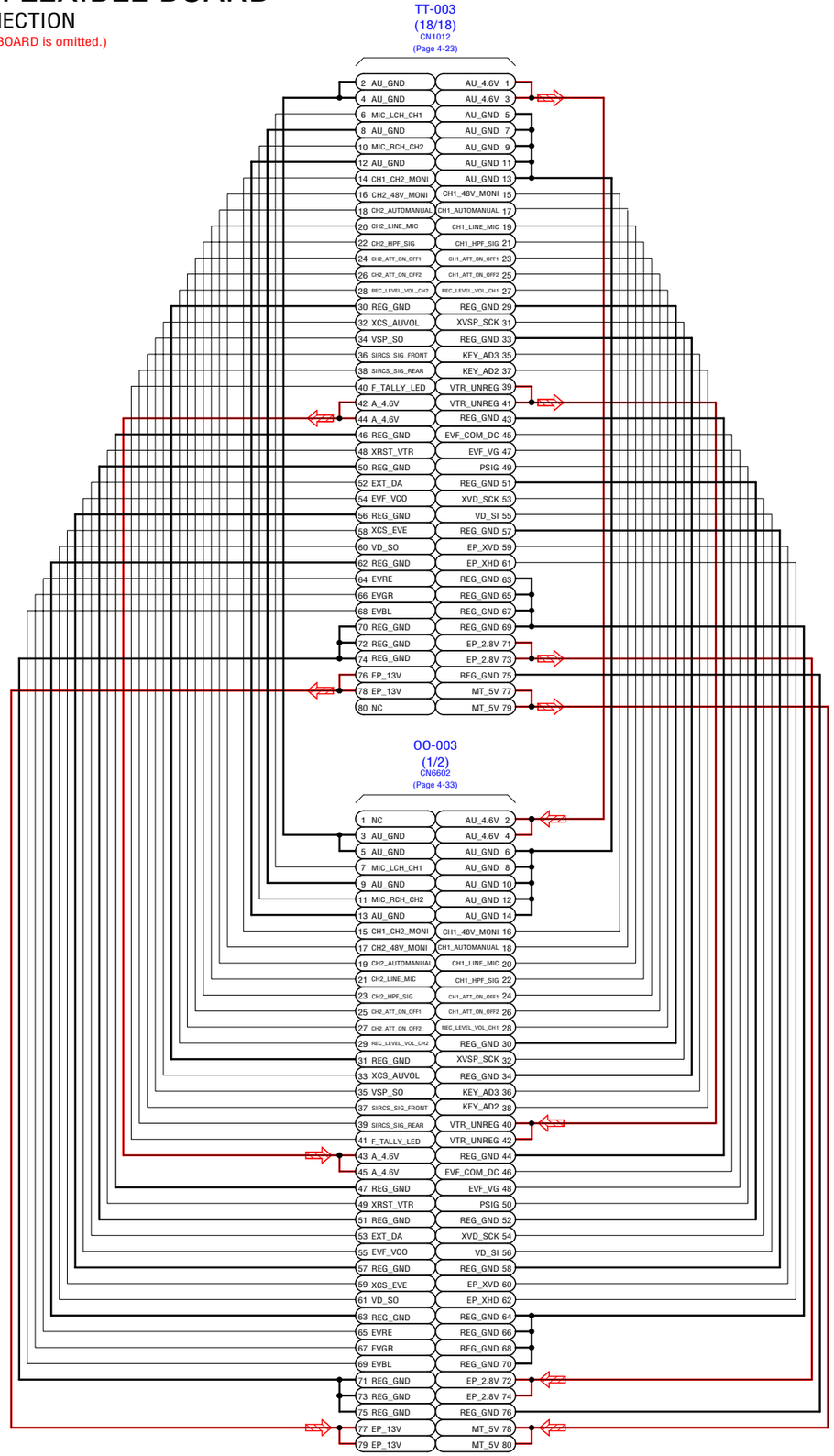


05

FP-492 FLEXIBLE BOARD

TT-00 CONNECTION

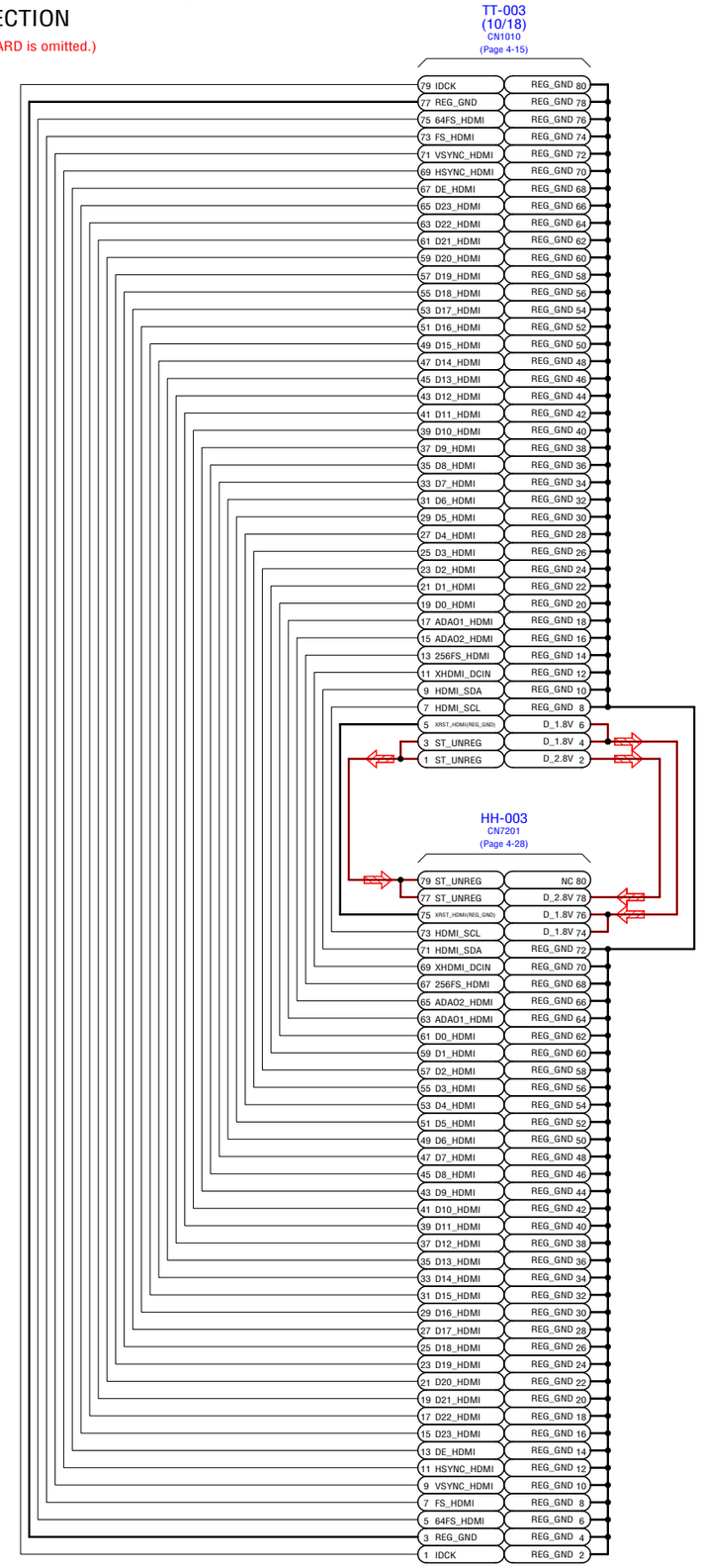
(PRINTED WIRING BOARD is omitted.)



FP-493 FLEXIBLE BOARD

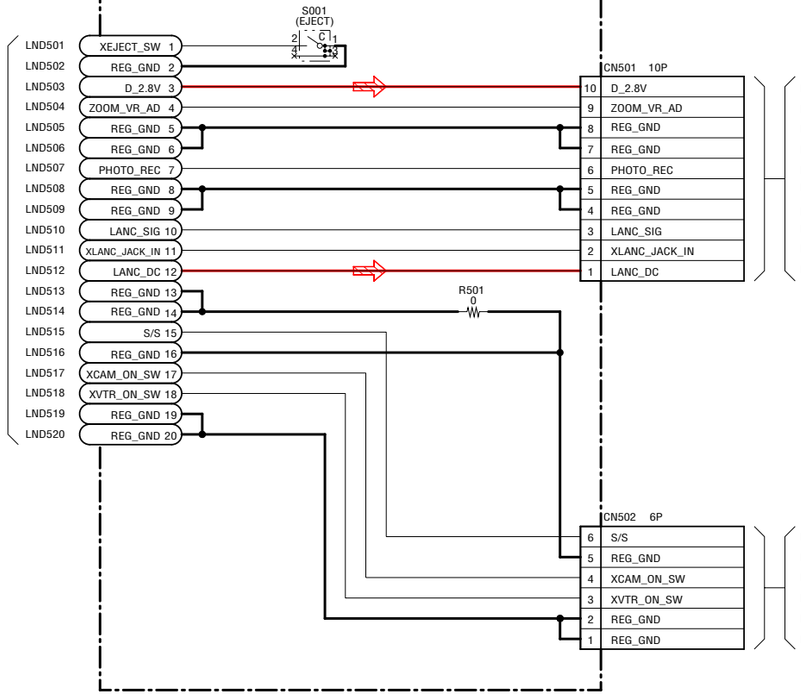
TT-HH CONNECTION

(PRINTED WIRING BOARD is omitted.)



FP-485
FLEXIBLE BOARD
TT-CONTROL SW CONNECTION

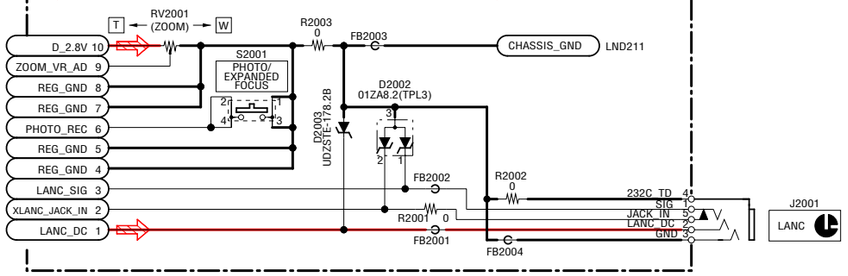
XX MARK:NO MOUNT



TT-003
(16/18)
CN1008
(Page 4-21)

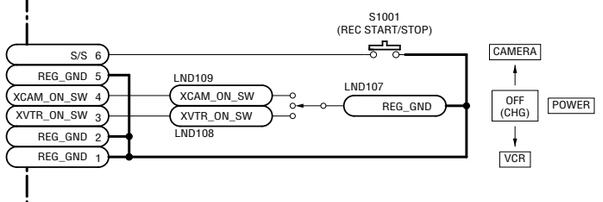
CONTROL SWITCH BLOCK (PL18500)

CONTROL SWITCH BLOCK (PL18500) is replaced as block, so that PRINTED WIRING BOARD is omitted.



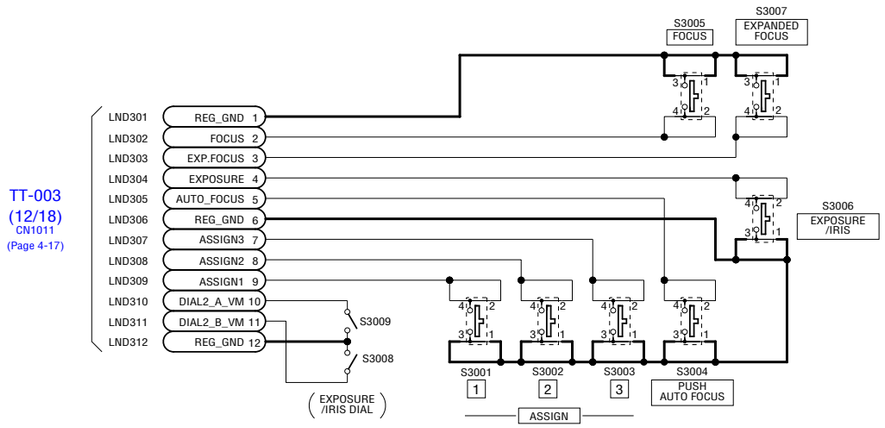
CONTROL SWITCH BLOCK (PS18500)

CONTROL SWITCH BLOCK (PS18500) is replaced as block, so that PRINTED WIRING BOARD is omitted.



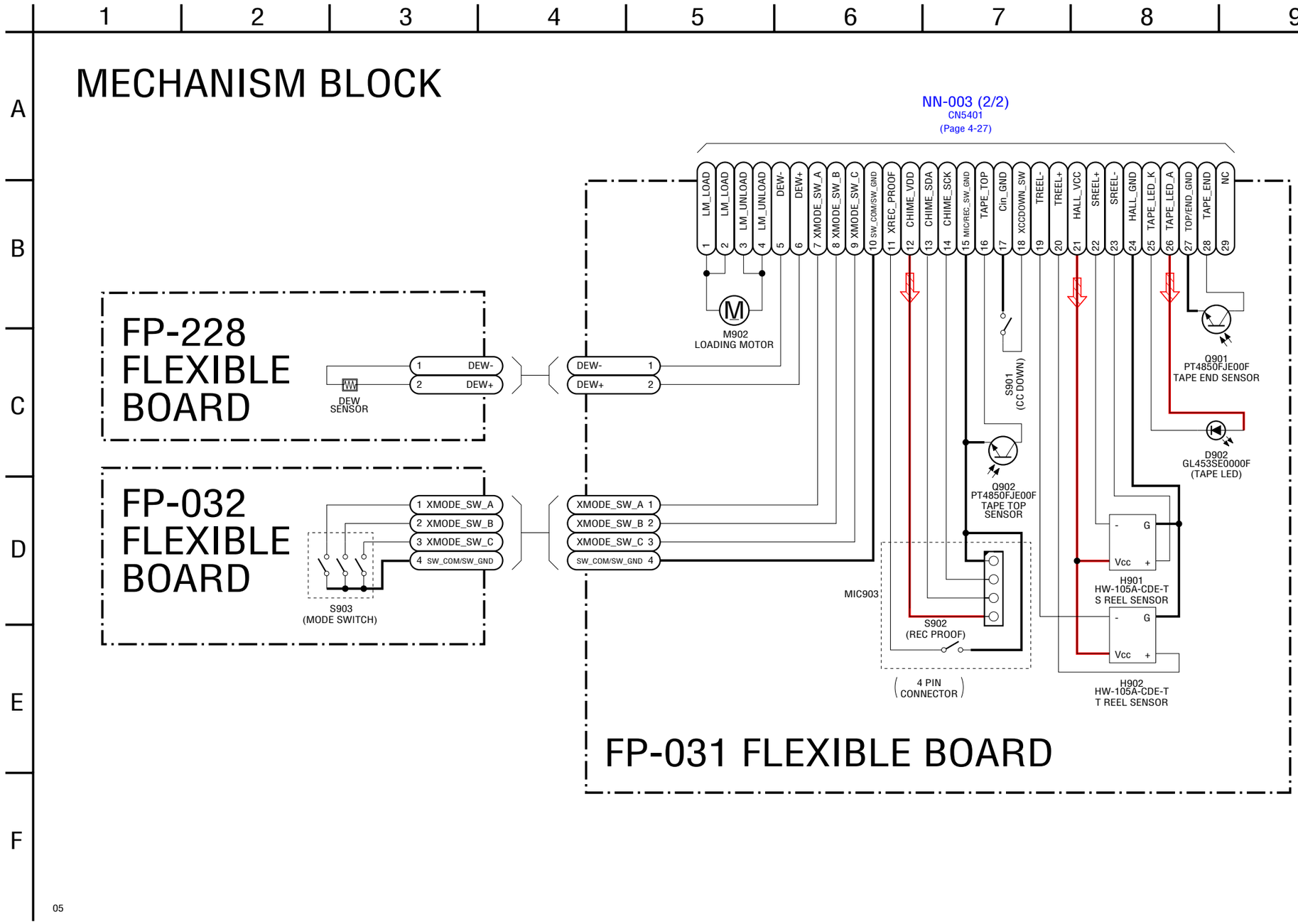
CONTROL SWITCH BLOCK (CK18500)

CONTROL SWITCH BLOCK (CK18500) is replaced as block, so that PRINTED WIRING BOARD is omitted.



TT-003
(12/18)
CN1011
(Page 4-17)

MECHANISM BLOCK



4-3. PRINTED WIRING BOARDS

Link

EE-006 BOARD	FP-486 FLEXIBLE BOARD
TT-003 BOARD (SIDE A)	FP-487 FLEXIBLE BOARD
TT-003 BOARD (SIDE B)	OO-003 BOARD
YY-003 BOARD	XX-015 BOARD
NN-003 BOARD (SIDE A)	ZZ-003 BOARD
NN-003 BOARD (SIDE B)	FP-488 FLEXIBLE BOARD
HH-003 BOARD	II-003 BOARD
GG-003 BOARD	WW-003 BOARD
RR-003 BOARD (SIDE A)	JJ-004 BOARD
RR-003 BOARD (SIDE B)	FP-483 FLEXIBLE BOARD
PP-003 BOARD	FP-485 FLEXIBLE BOARD
UU-003 BOARD	FP-031, FP-032, FP-228 FLEXIBLE BOARD
FP-484 FLEXIBLE BOARD	

COMMON NOTE FOR PRINTED WIRING BOARDS	MOUNTED PARTS LOCATION

4-3. PRINTED WIRING BOARDS

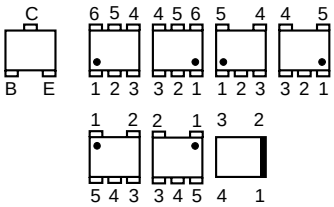
(ENGLISH)

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS

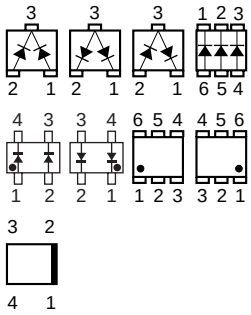
- : Uses unleaded solder.
- : Circuit board
  : Flexible board
  Pattern from the side which enables seeing.
  : pattern of the rear side
  (The other layers' patterns are not indicated)
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.
-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

- Chip parts.

Transistor



Diode



(JAPANESE)

プリント図共通ノート

【プリント図ノート】

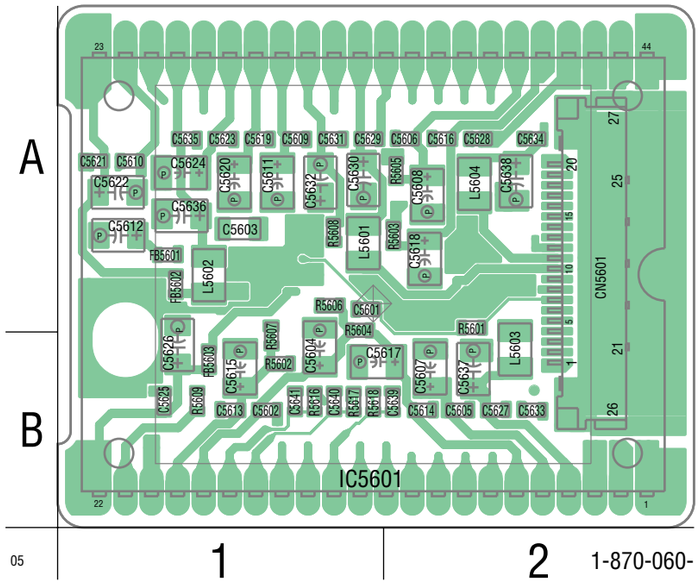
- ：無鉛半田を使用しています。
- ：基板
  ：フレキシブル配線板
  見ている面側のパターン。
  ：裏側のパターン
  （他のパターンについては表示されていません）
- スルーホールは省略。
- プリント図には，本機で使用していない部品が記載されている場合があります。
- はパネル表示名称。

EE-006 (6 layers)

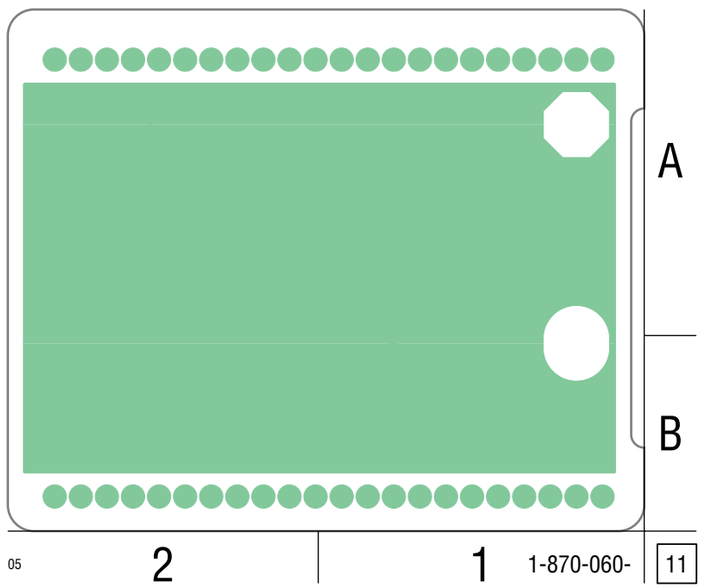
: Uses unleaded solder.

EE-006 BOARD (SIDE A)

Note: EE-006 complete board and IC5601 are not supplied,
but they are included in prism assy.



EE-006 BOARD (SIDE B)

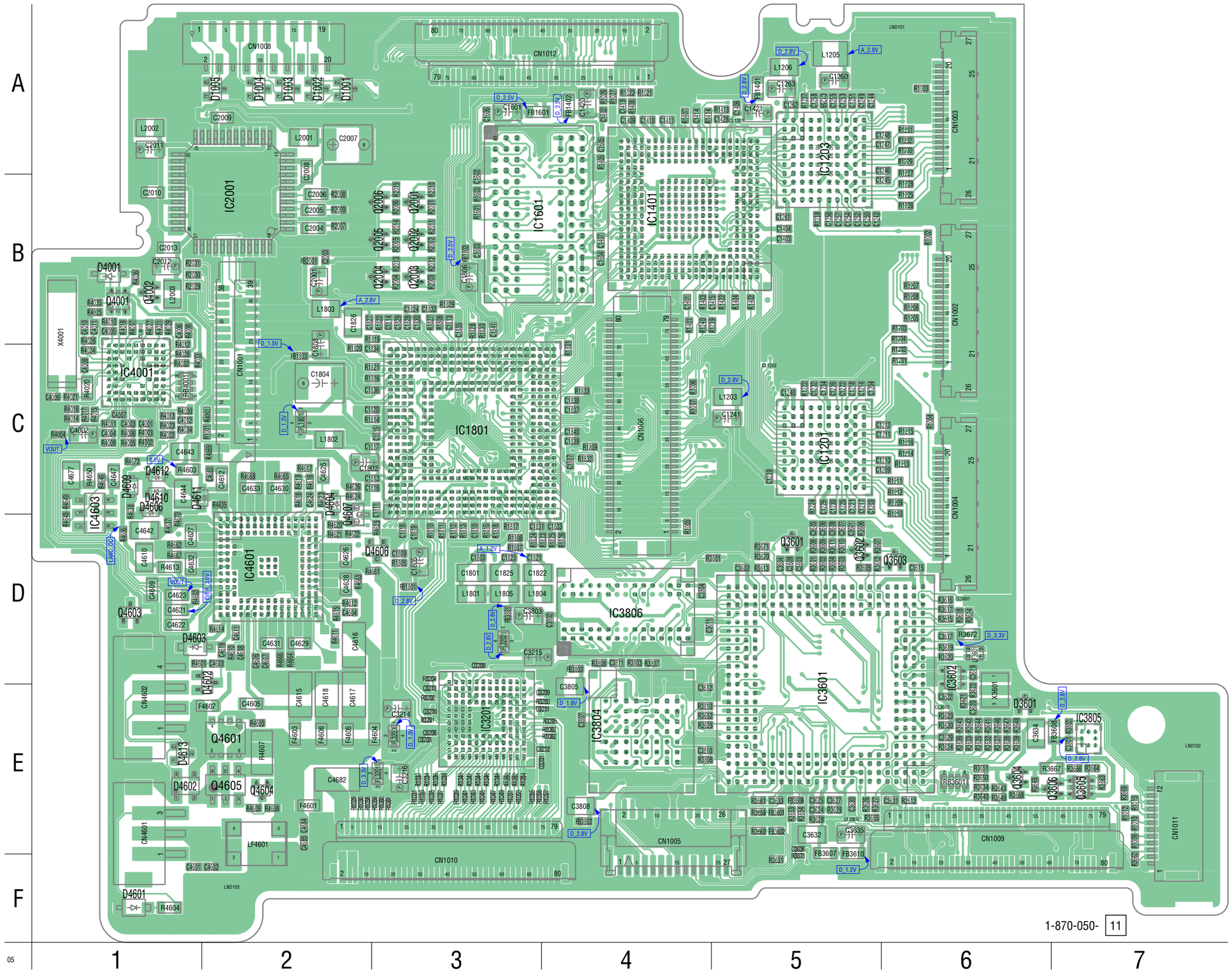


TT-003 (10 layers)

: Uses unleaded solder.

TT-003 BOARD (SIDE A)

Note: IC3804 is not supplied, but this is included in TT-003 complete board.


A
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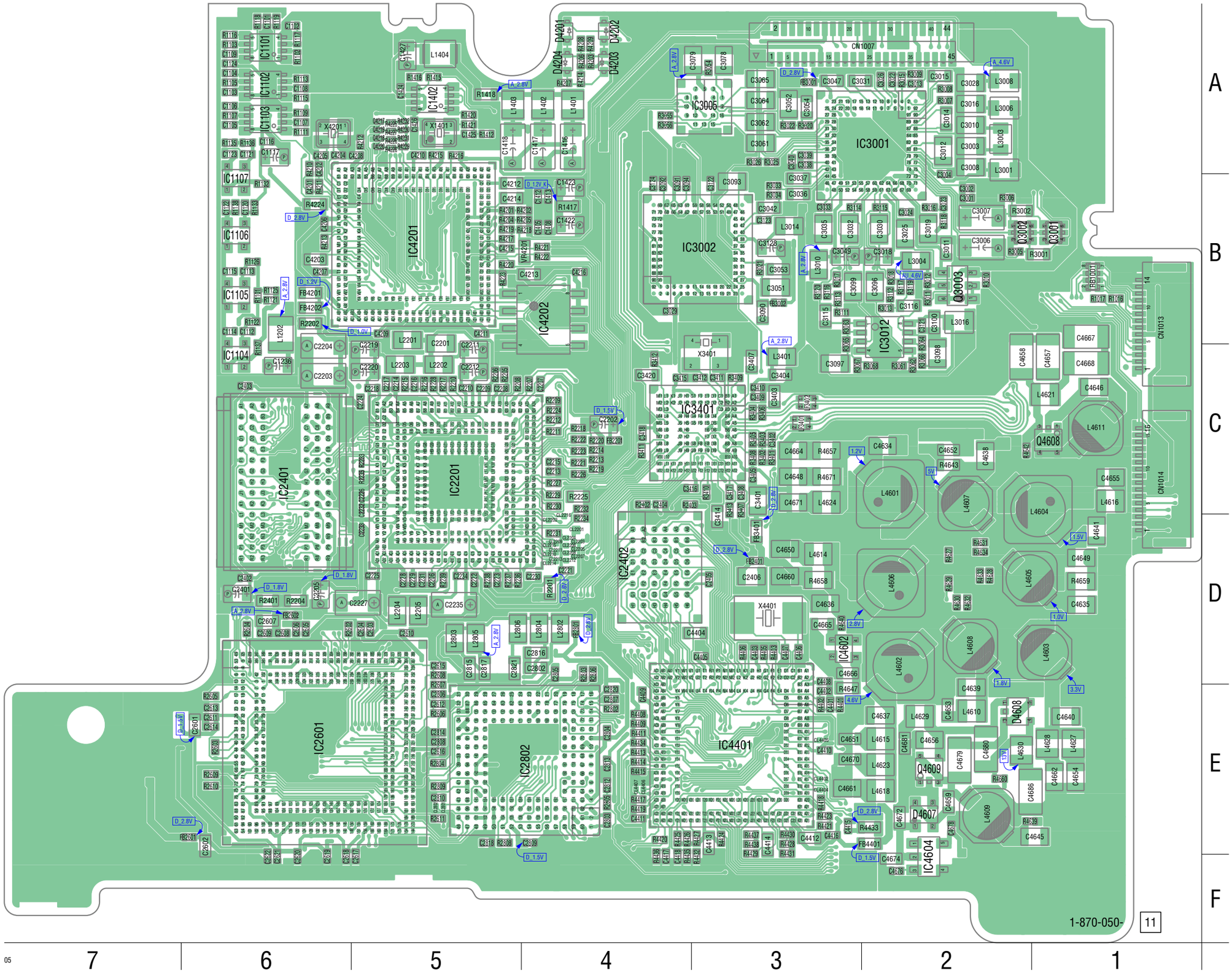
TT-003 (10 layers)

: Uses unleaded solder.

TT-003 BOARD (SIDE B)

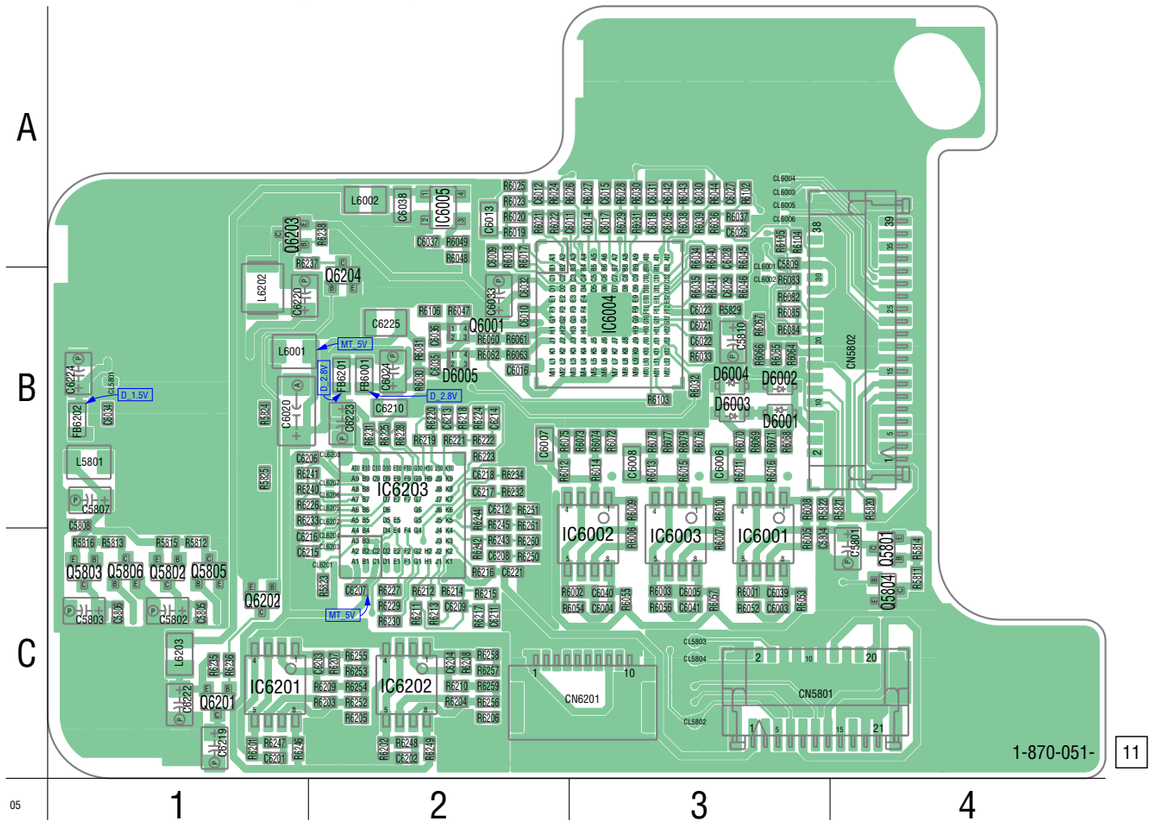
Note: IC2402 is not supplied, but this is included in TT-003 complete board.



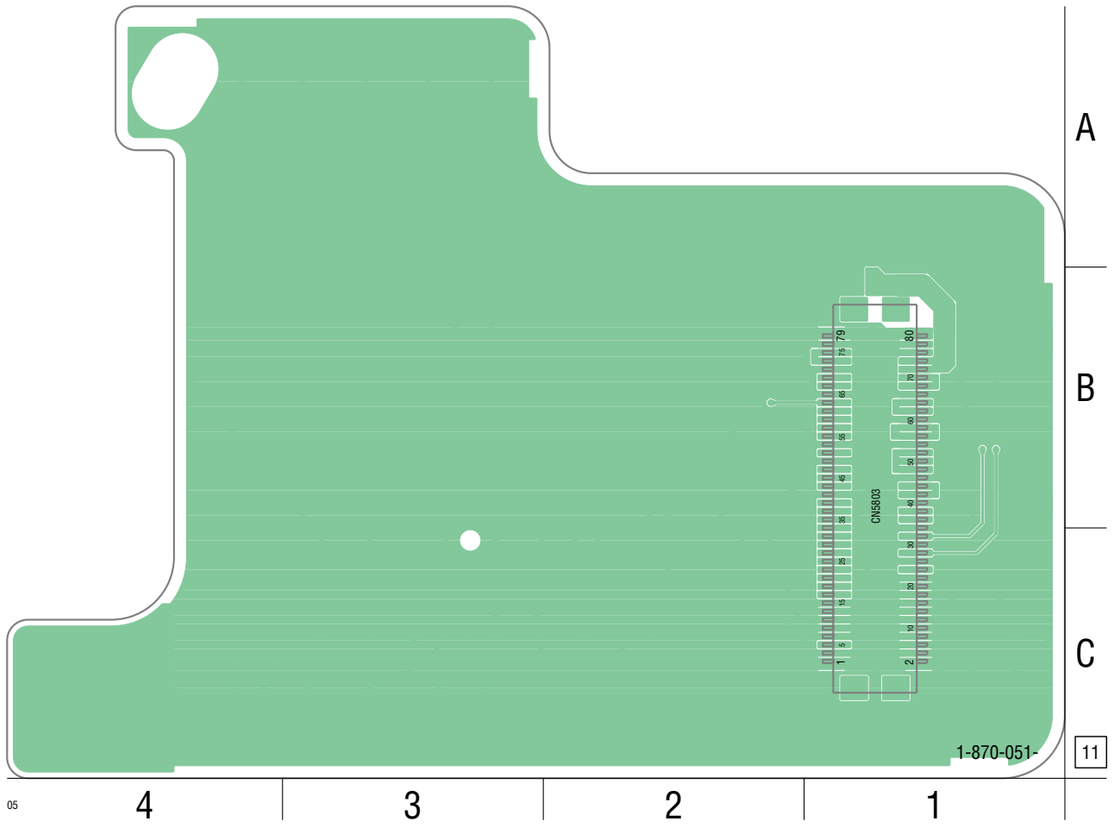
YY-003 (6 layers)

: Uses unleaded solder.

YY-003 BOARD (SIDE A)



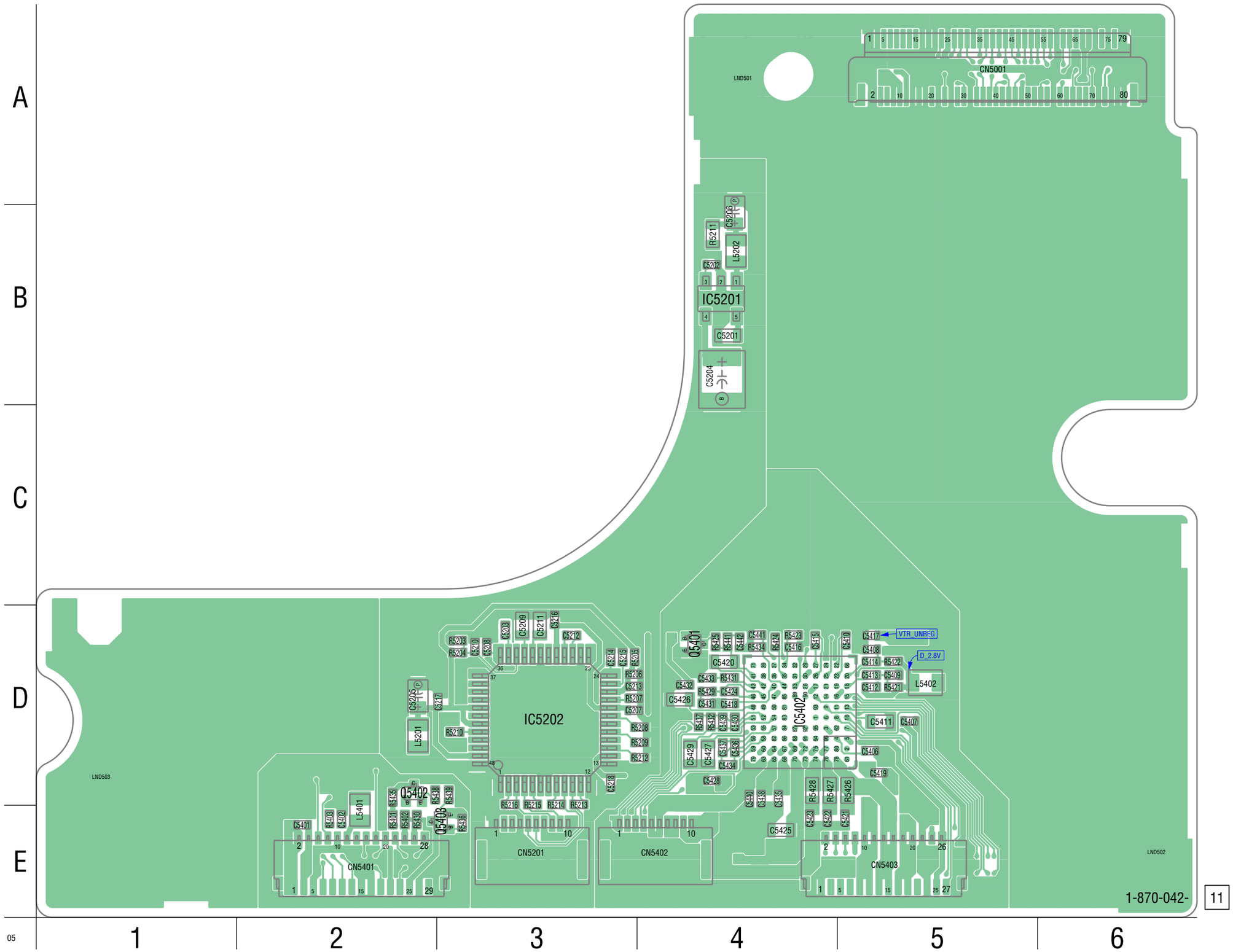
YY-003 BOARD (SIDE B)



NN-003 (6 layers)

: Uses unleaded solder.

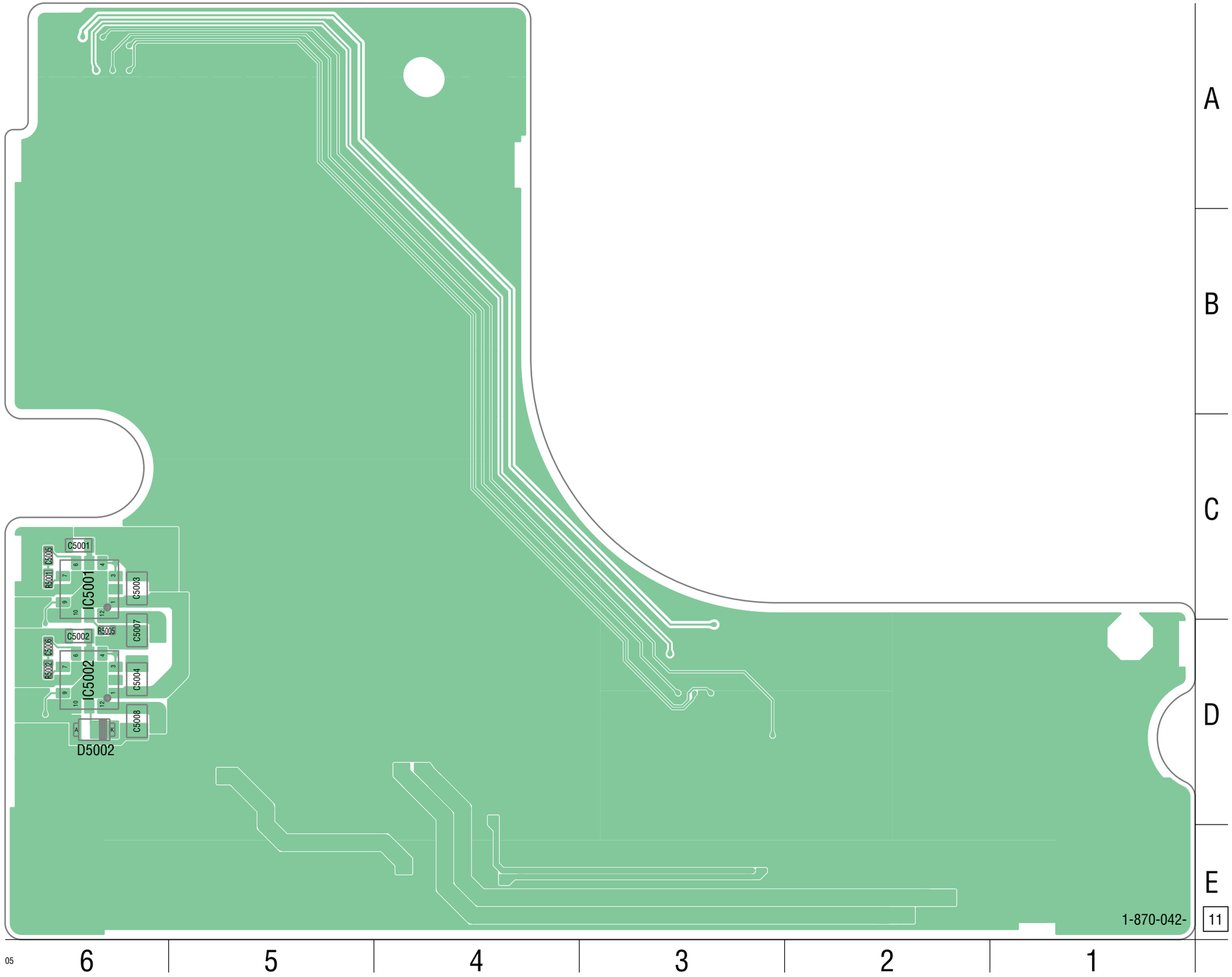
NN-003 BOARD (SIDE A)



NN-003 (6 layers)

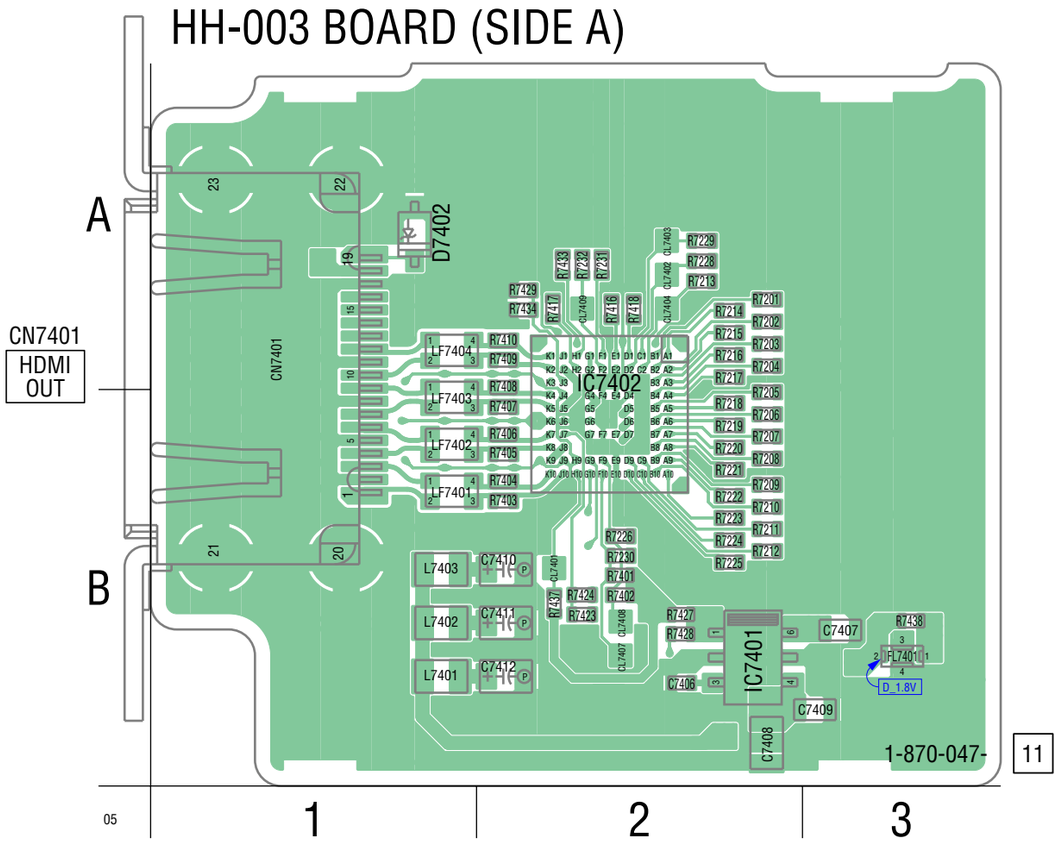
: Uses unleaded solder.

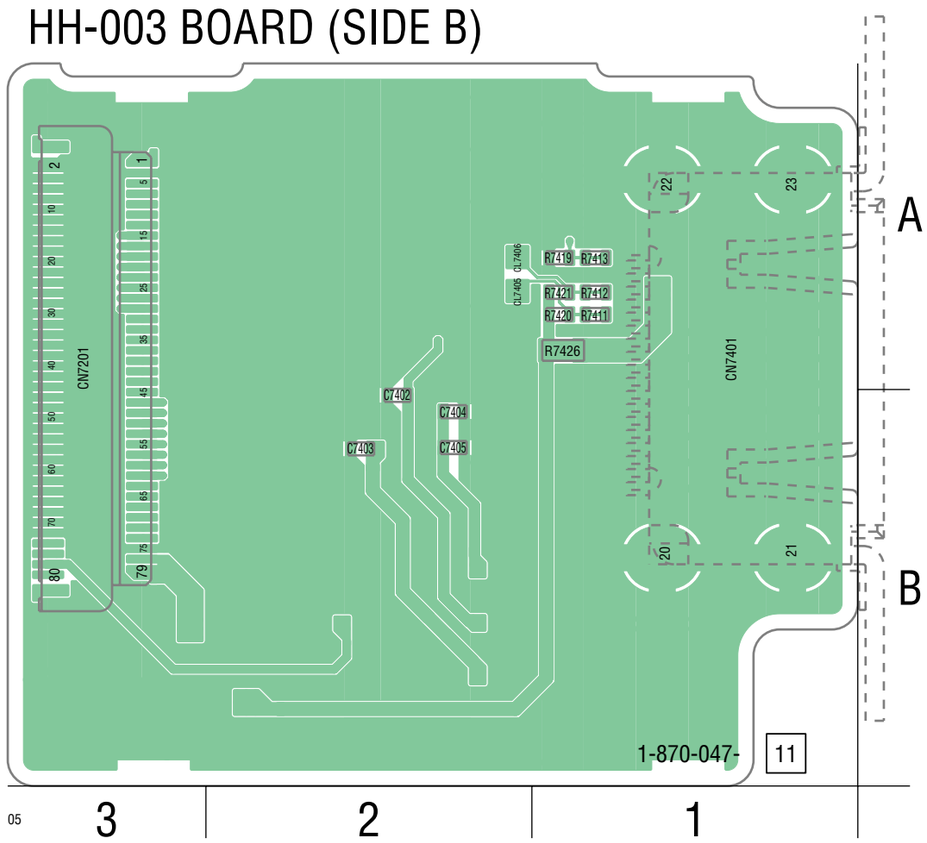
NN-003 BOARD (SIDE B)



HH-003 (6 layers)

: Uses unleaded solder.

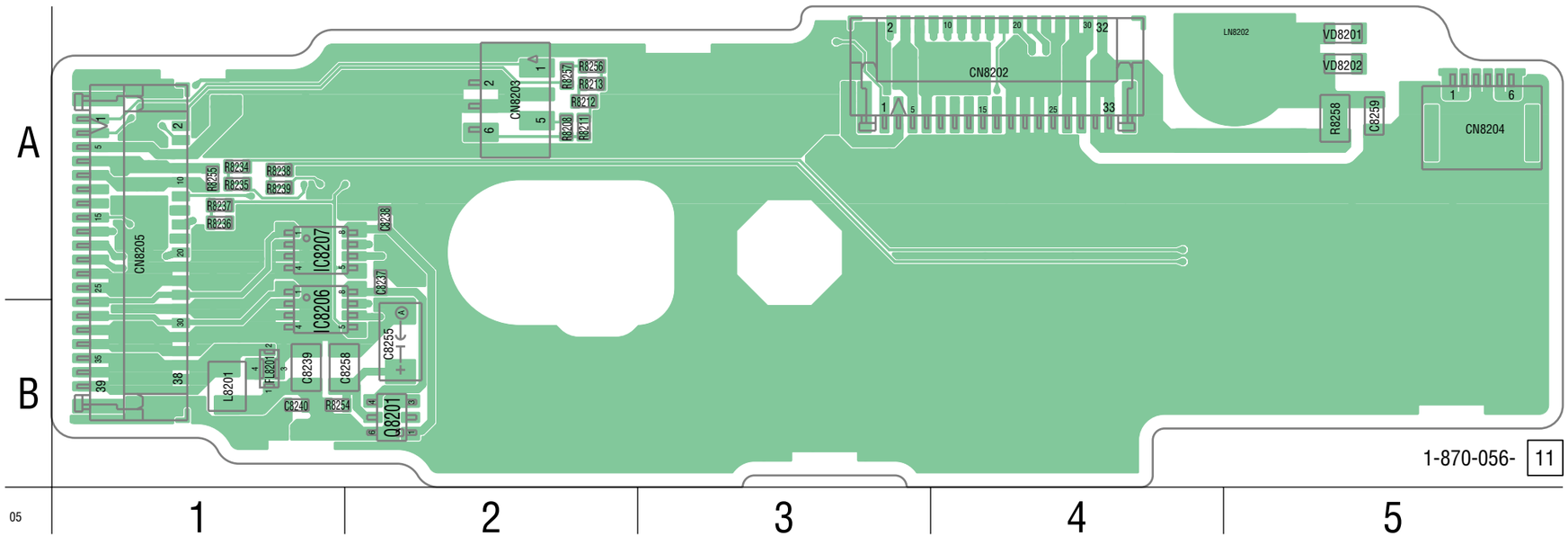




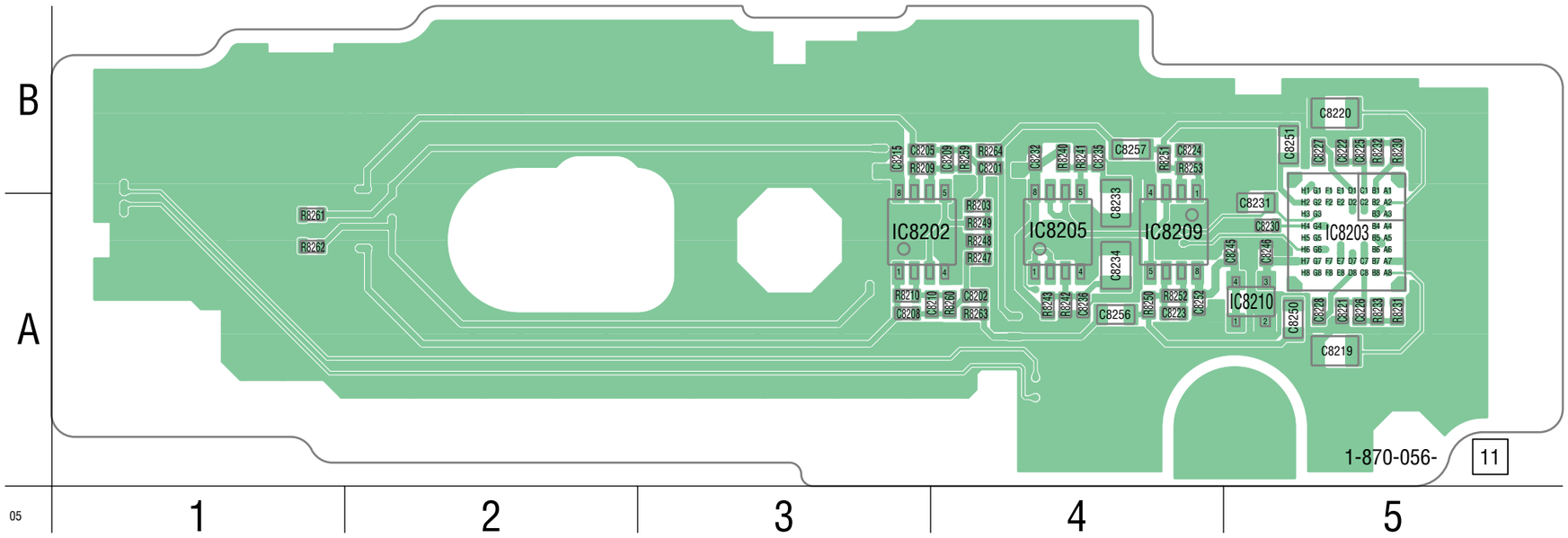
GG-003 (6 layers)

: Uses unleaded solder.

GG-003 BOARD (SIDE A)

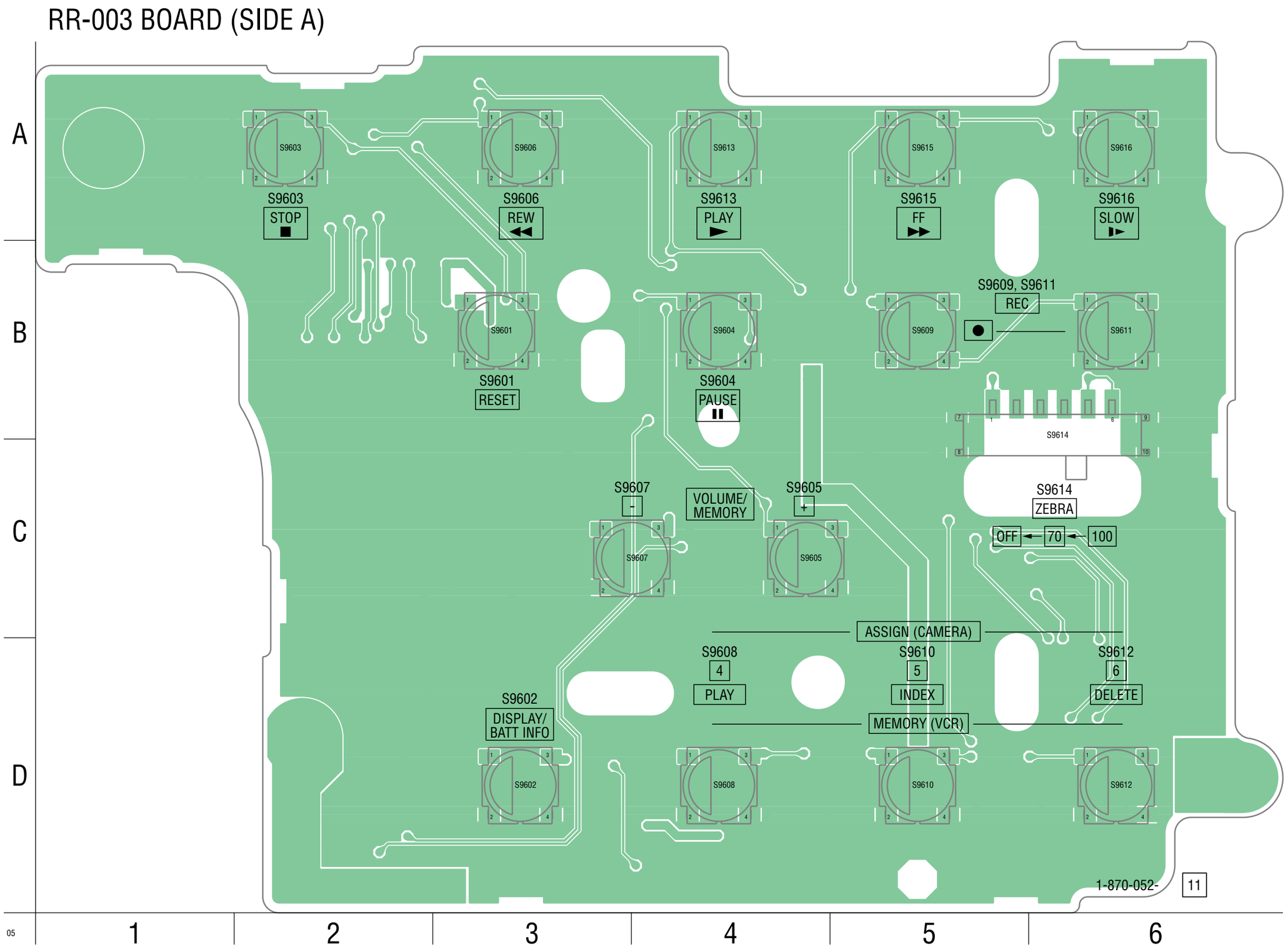


GG-003 BOARD (SIDE B)



RR-003 (2 layers)

: Uses unleaded solder.



RR-003 (2 layers)

: Uses unleaded solder.

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。

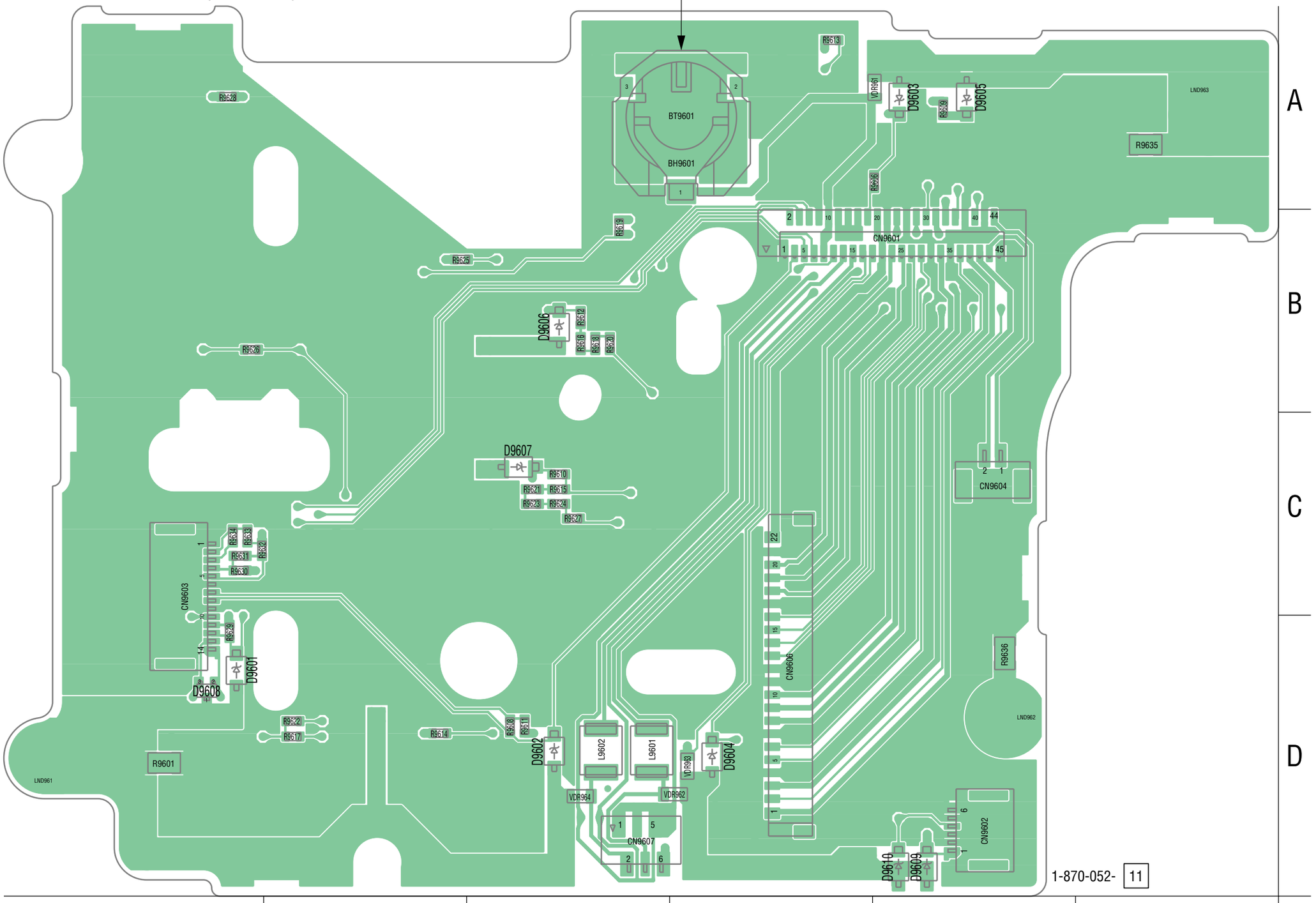
Note: Replace the battery holder (BH9601) together when replacing the lithium battery (BT9601) on the RR-003 board. (The battery holder removed once cannot be used again.)
When mounting these parts, mount new battery holder first and attach new lithium battery next.

Note: RR-003基板のリチウム電池（BT9601）を交換する場合はバッテリホルダ（BH9601）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。

BT9601
BATTERY,
LITHIUM SECONDARY

Note: BT9601 (lithium battery) is not included in RR-003 complete board.

RR-003 BOARD (SIDE B)

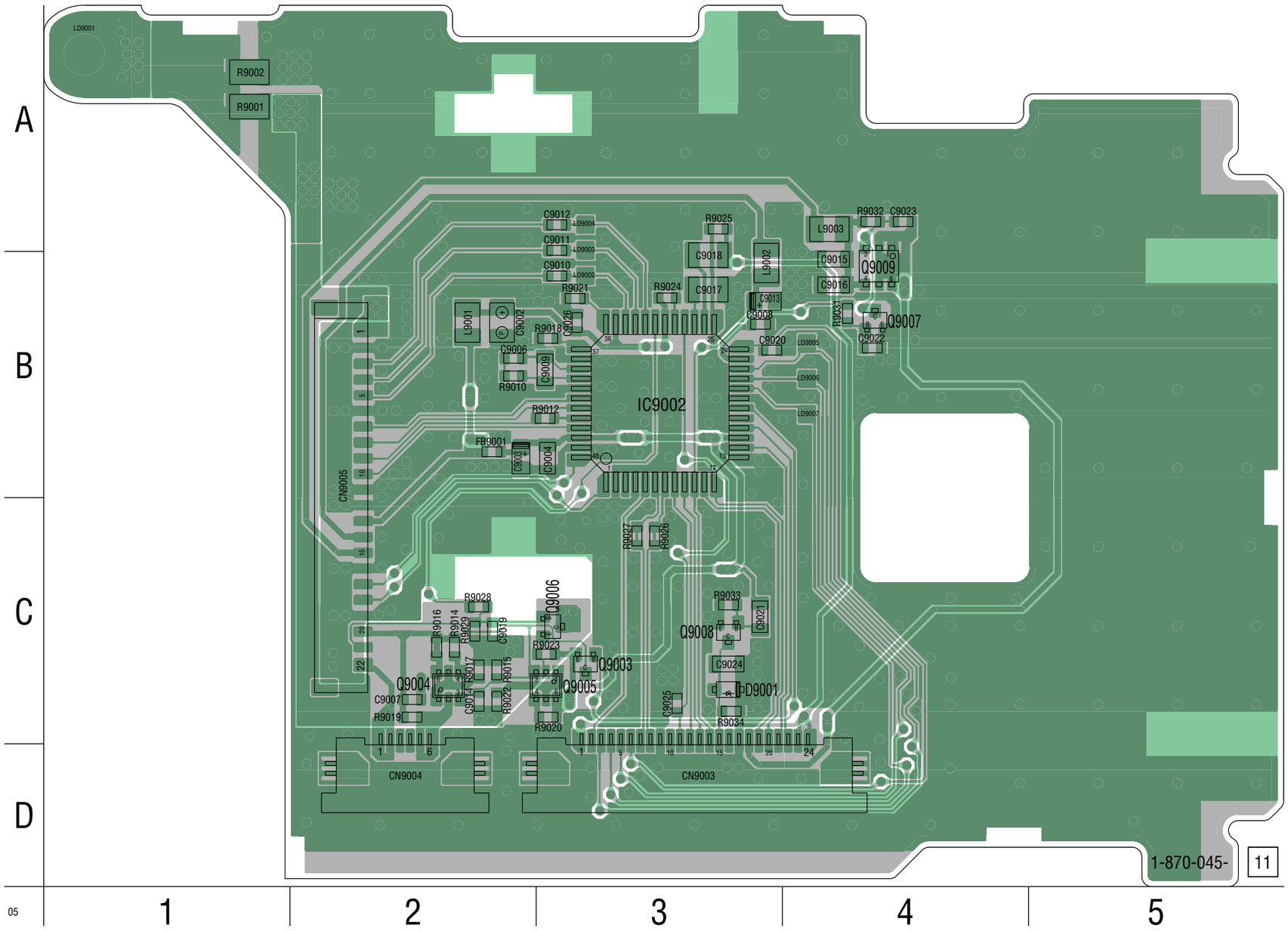


1-870-052- 11

PP-003 (2 layers)

: Uses unleaded solder.

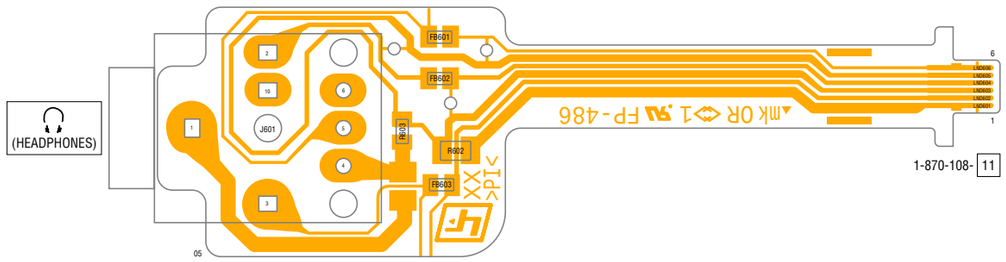
PP-003 BOARD



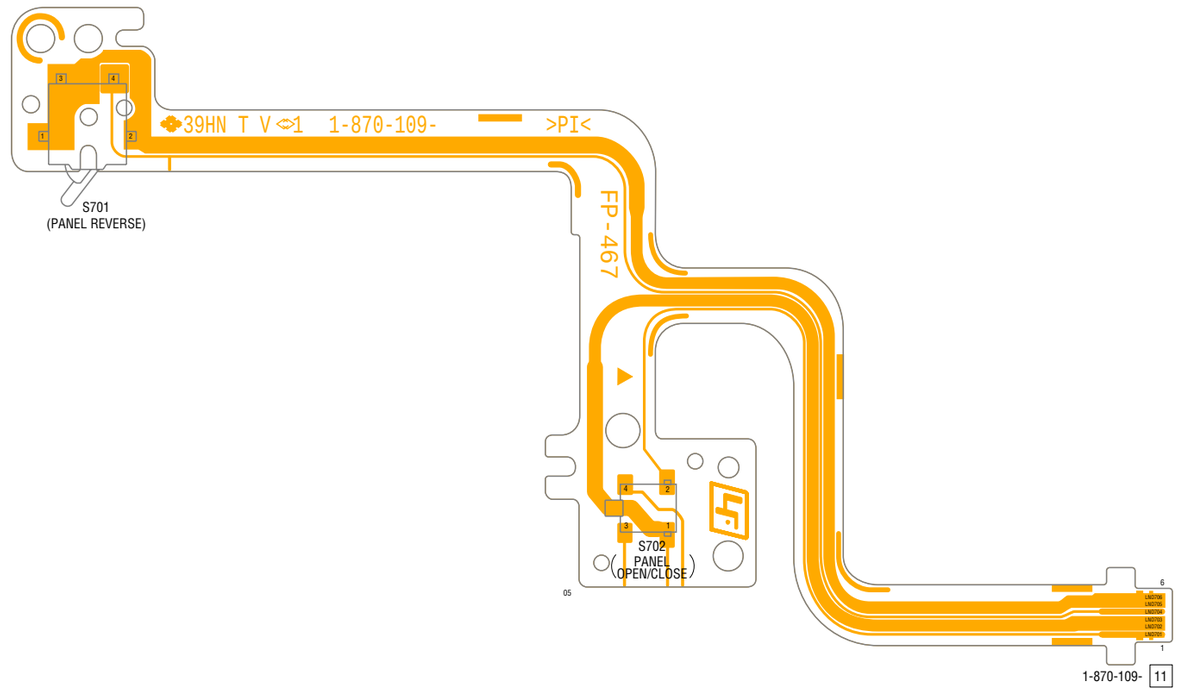
FP-486 (1 layer), FP-487 (1 layer), FP-484 (1 layer), UU-003 (2 layers)

: Uses unleaded solder.

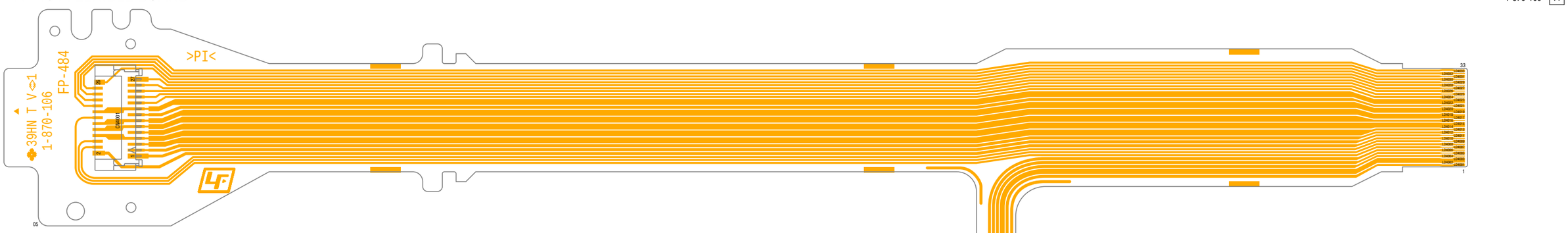
FP-486 FLEXIBLE BOARD



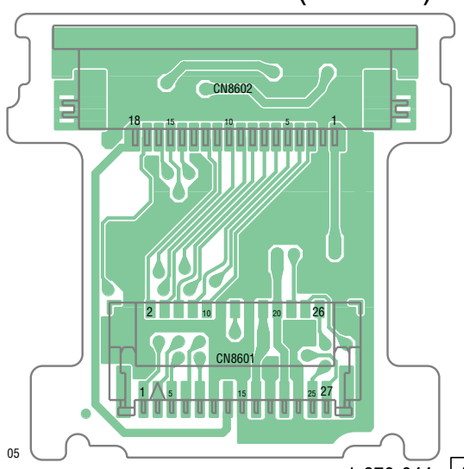
FP-487 FLEXIBLE BOARD



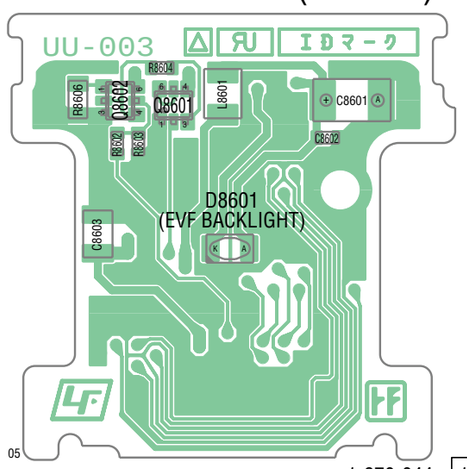
FP-484 FLEXIBLE BOARD

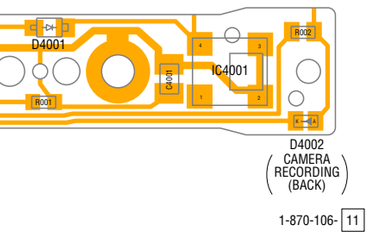


UU-003 BOARD (SIDE A)



UU-003 BOARD (SIDE B)

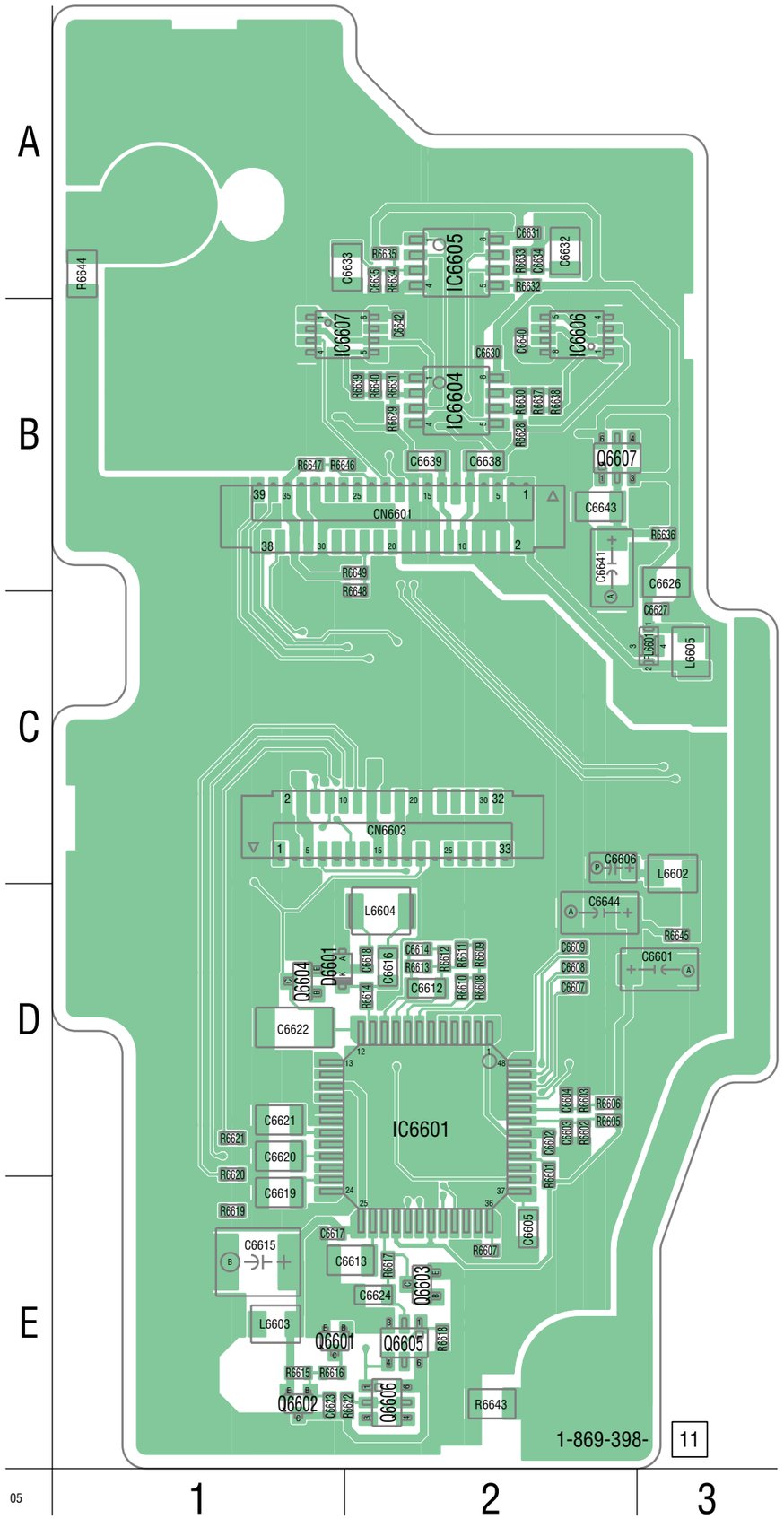




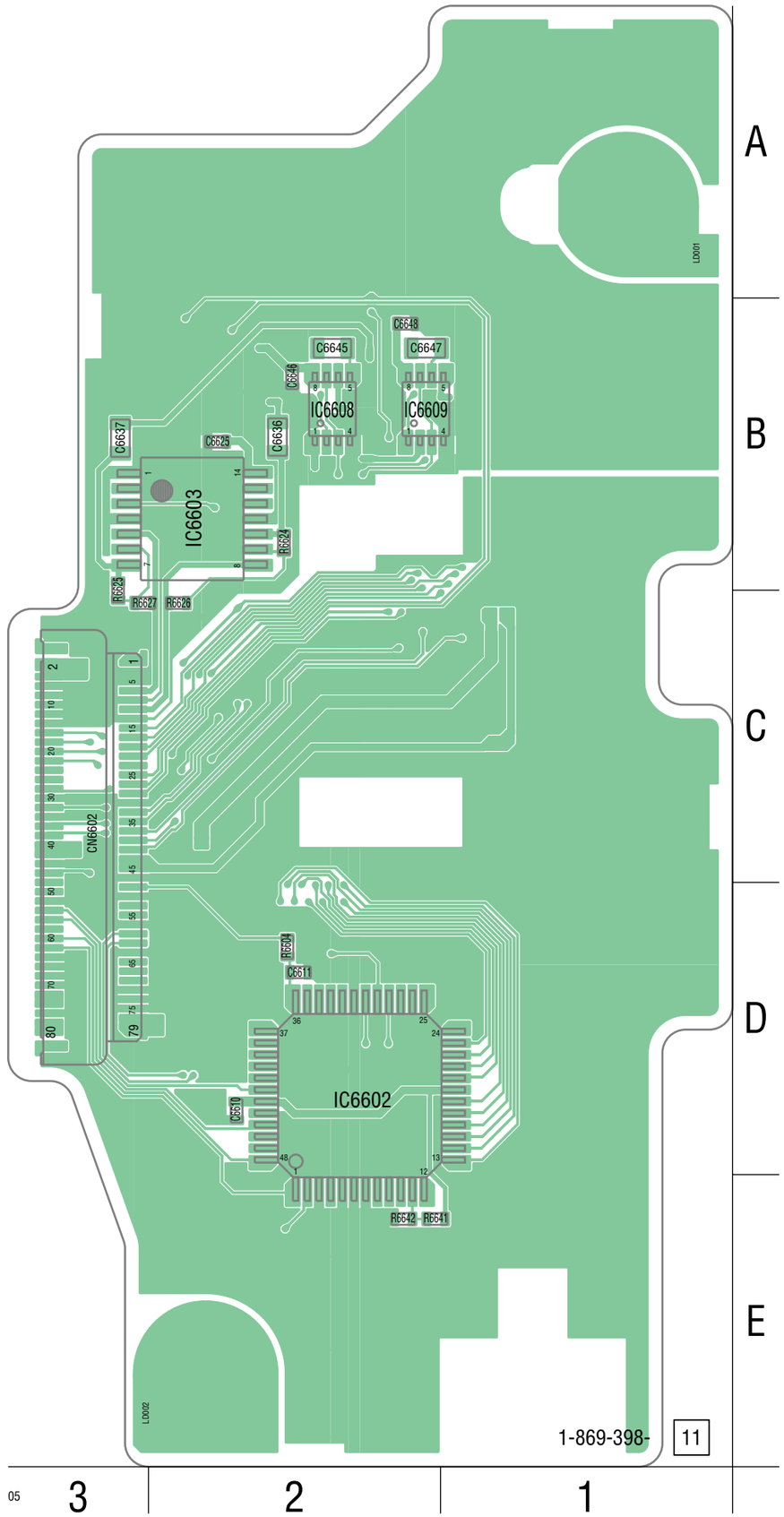
OO-003 (6 layers)

: Uses unleaded solder.

OO-003 BOARD (SIDE A)



OO-003 BOARD (SIDE B)

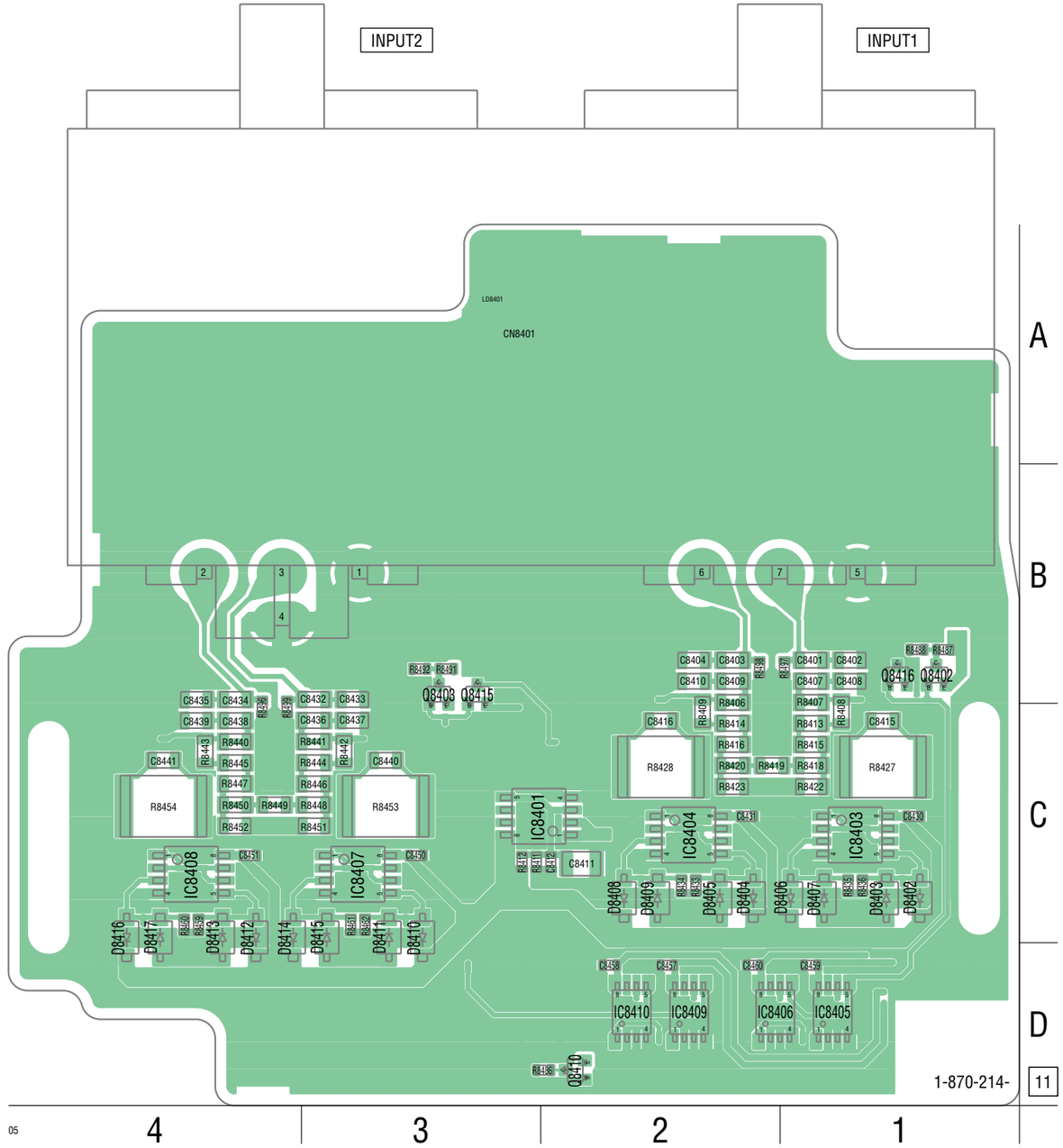


XX-015 (6 layers)

: **Uses unleaded solder.**

XX-015 BOARD (SIDE A)

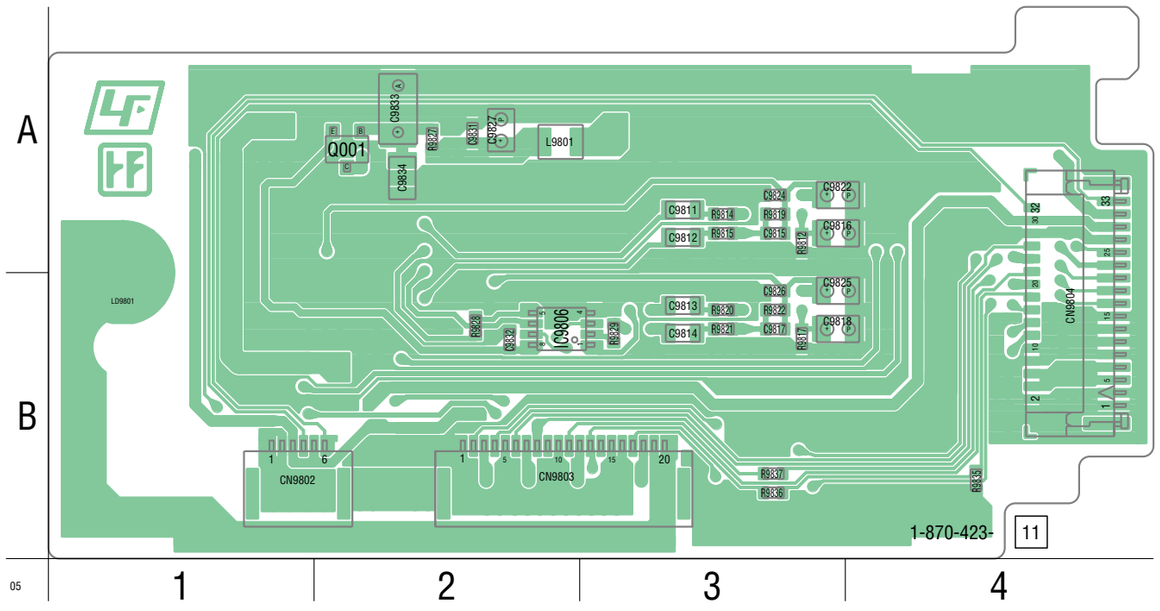
XX-015 BOARD (SIDE B)



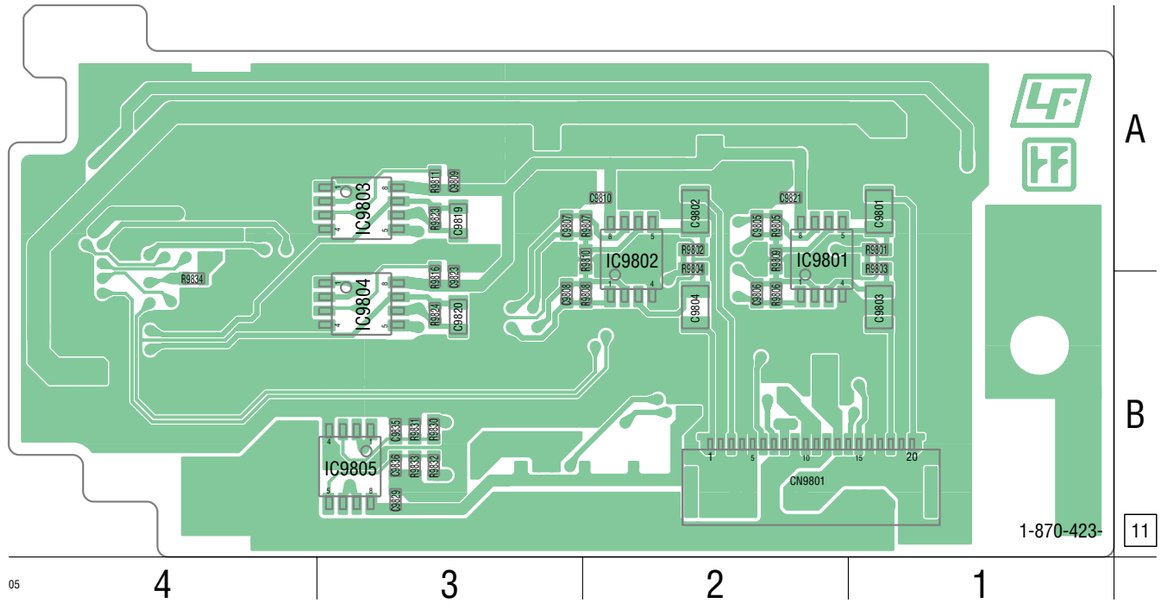
ZZ-003 (2 layers), FP-488 (1 layer)

: Uses unleaded solder.

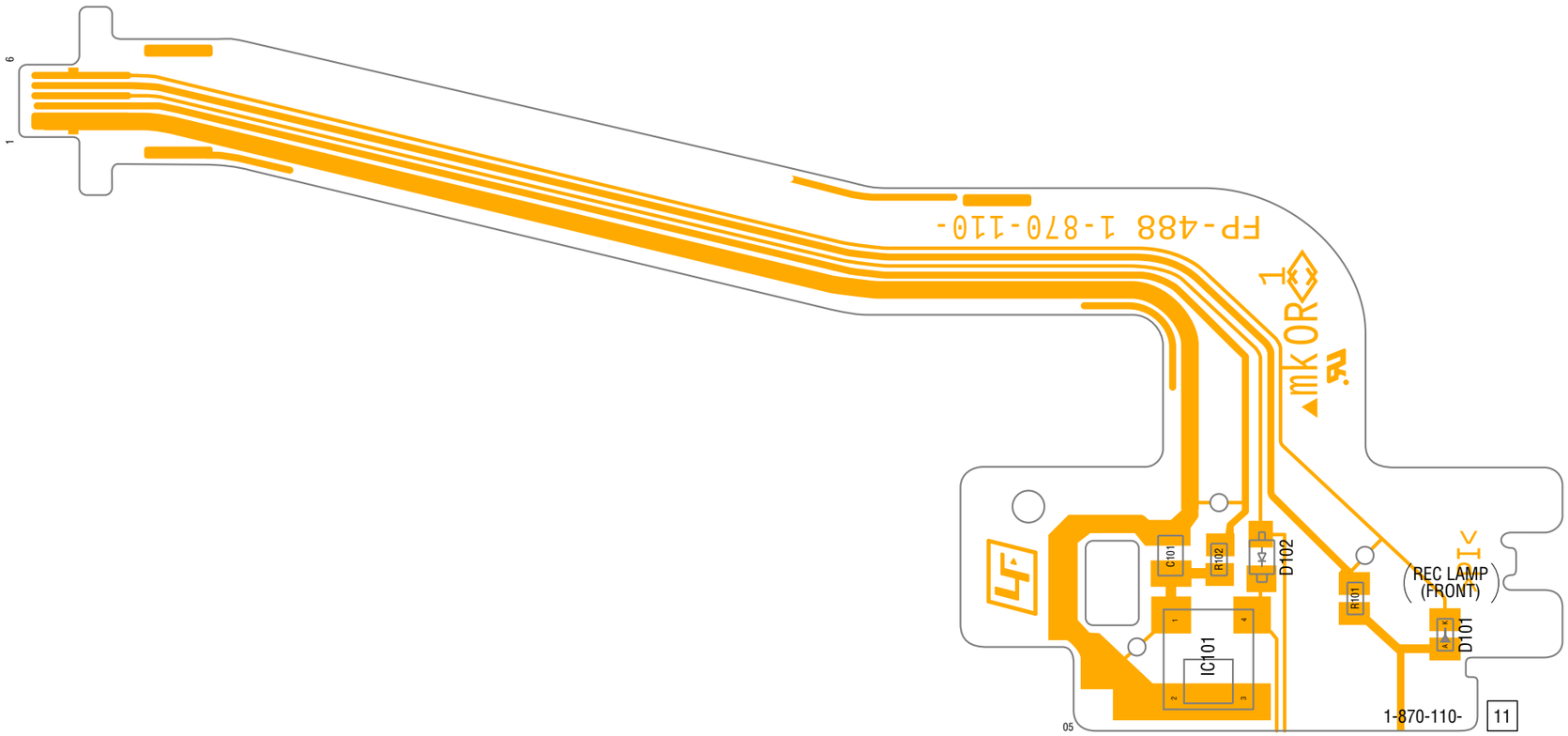
ZZ-003 BOARD (SIDE A)



ZZ-003 BOARD (SIDE B)



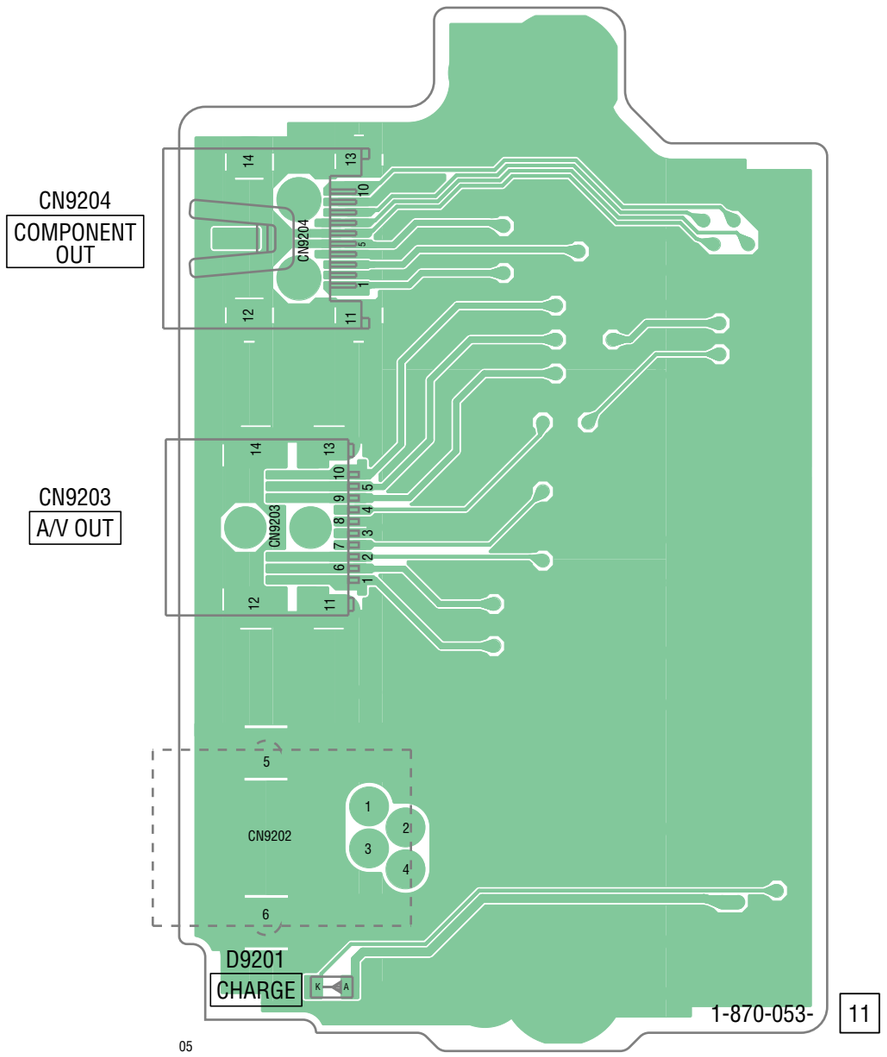
FP-488 FLEXIBLE BOARD



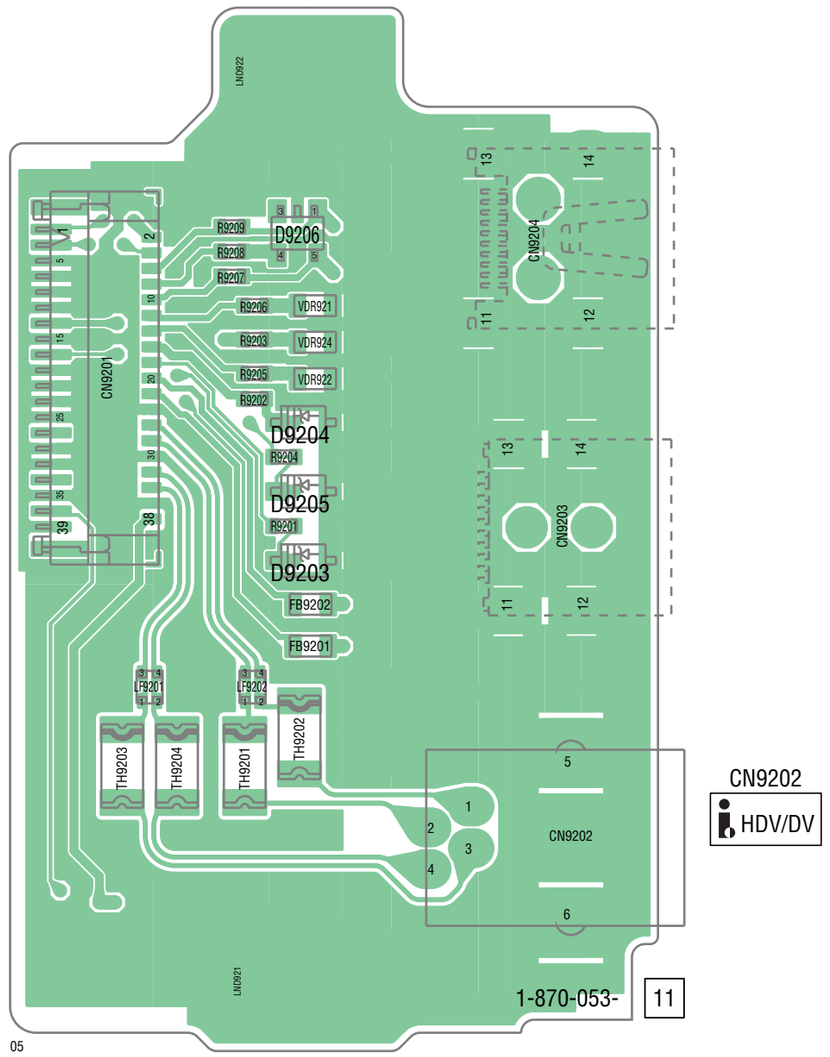
II-003 (2 layers)

: Uses unleaded solder.

II-003 BOARD (SIDE A)



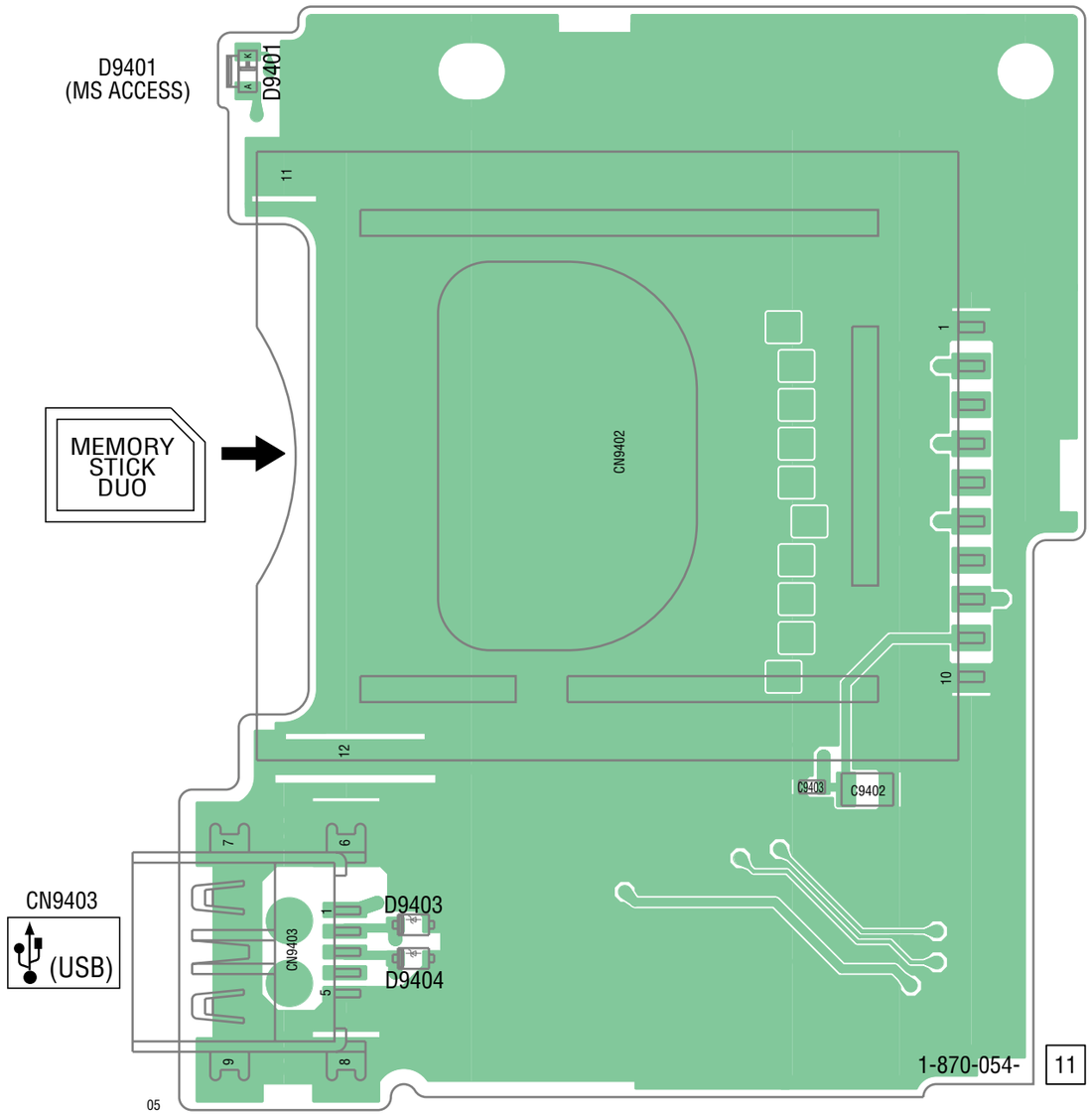
II-003 BOARD (SIDE B)



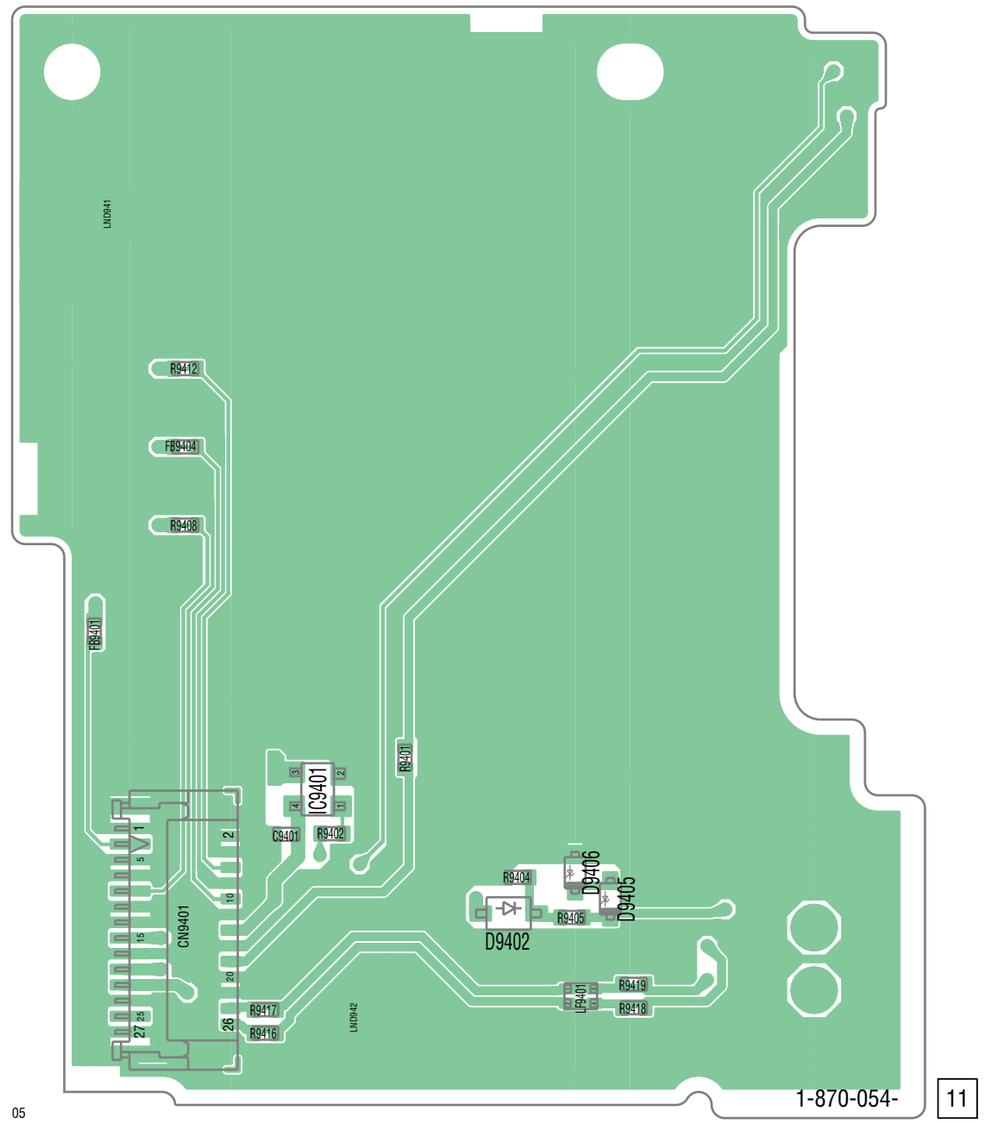
WW-003 (2 layers)

: Uses unleaded solder.

WW-003 BOARD (SIDE A)



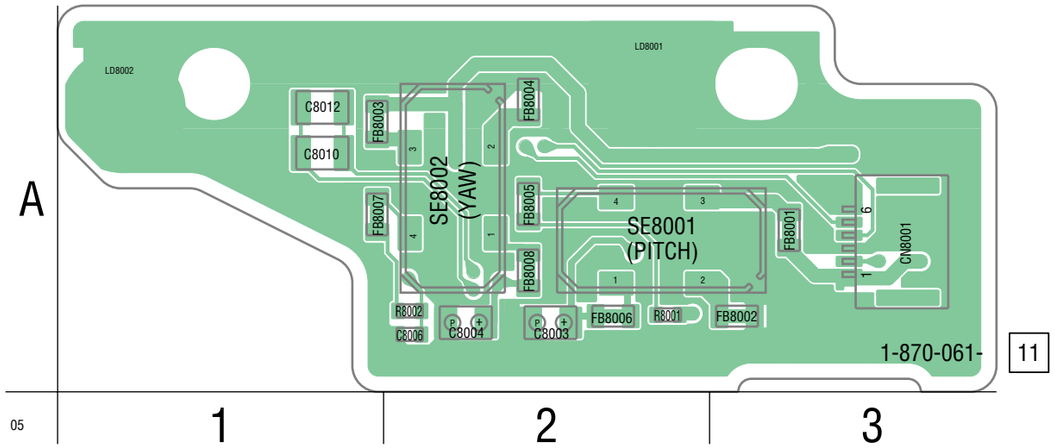
WW-003 BOARD (SIDE B)



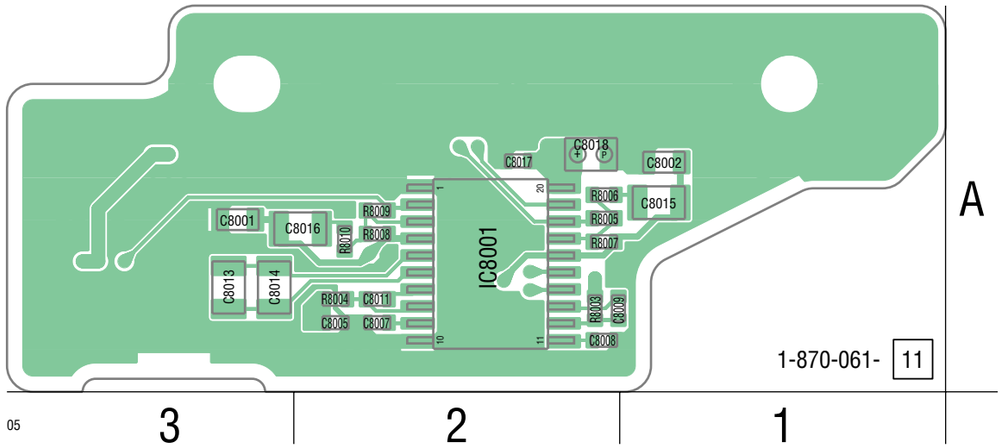
JJ-004 (2 layers)

: Uses unleaded solder.

JJ-004 BOARD (SIDE A)



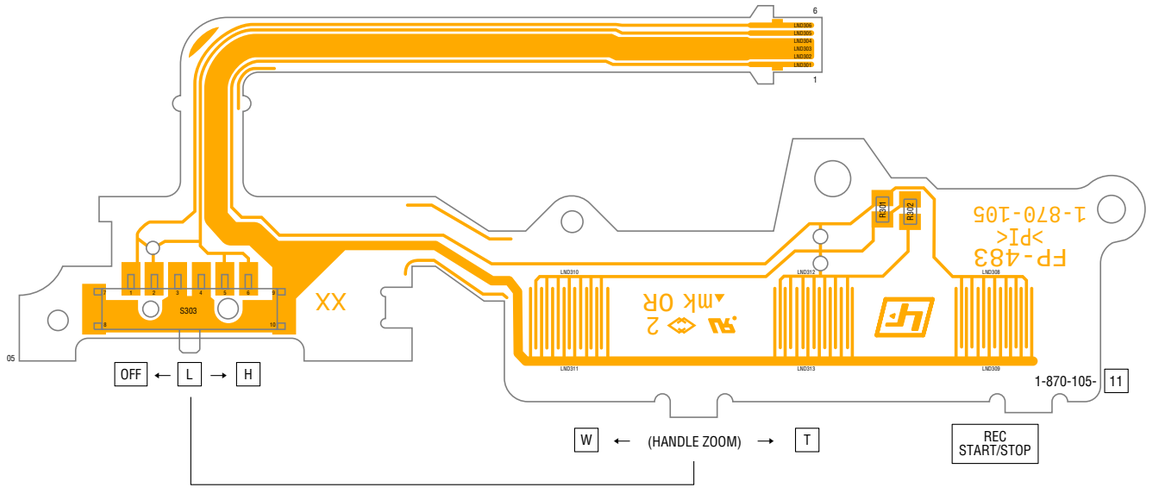
JJ-004 BOARD (SIDE B)



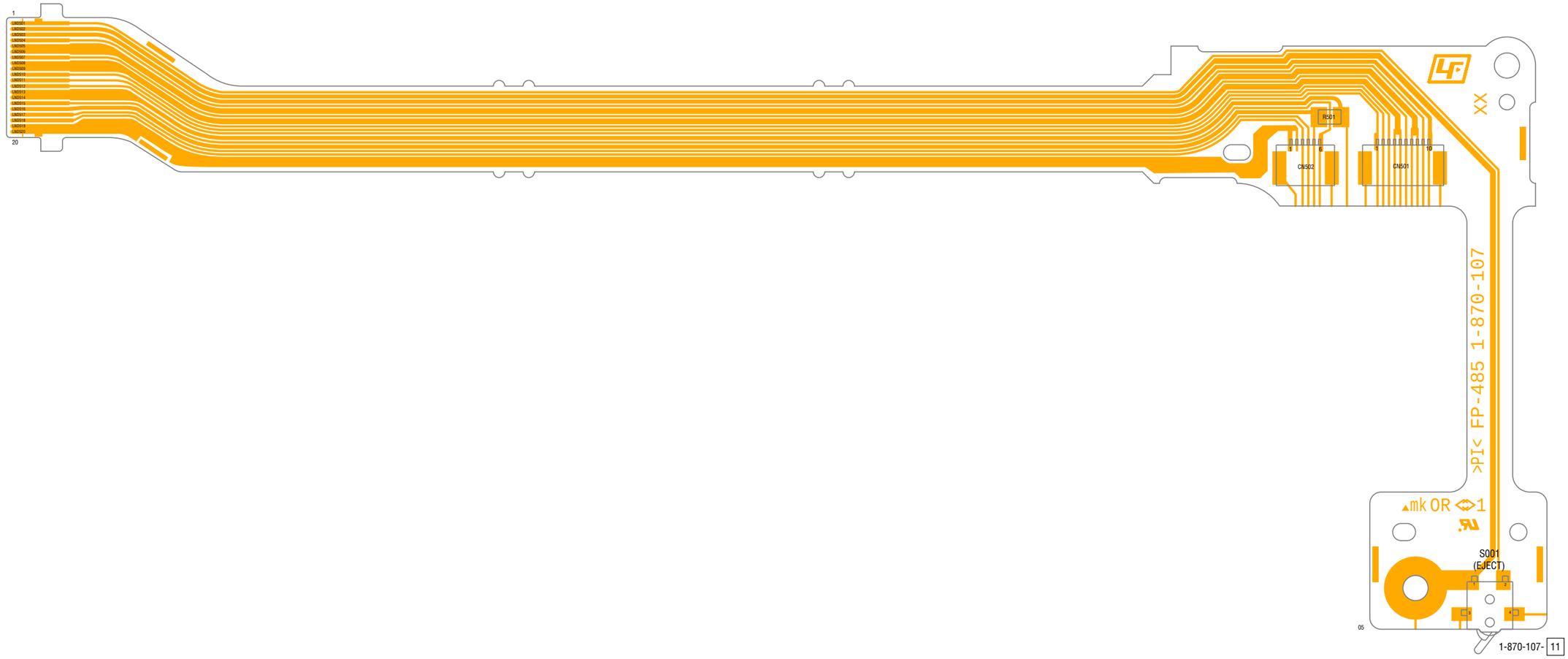
FP-483 (1 layer), FP-485 (1 layer)

: Uses unleaded solder.

FP-483 FLEXIBLE BOARD

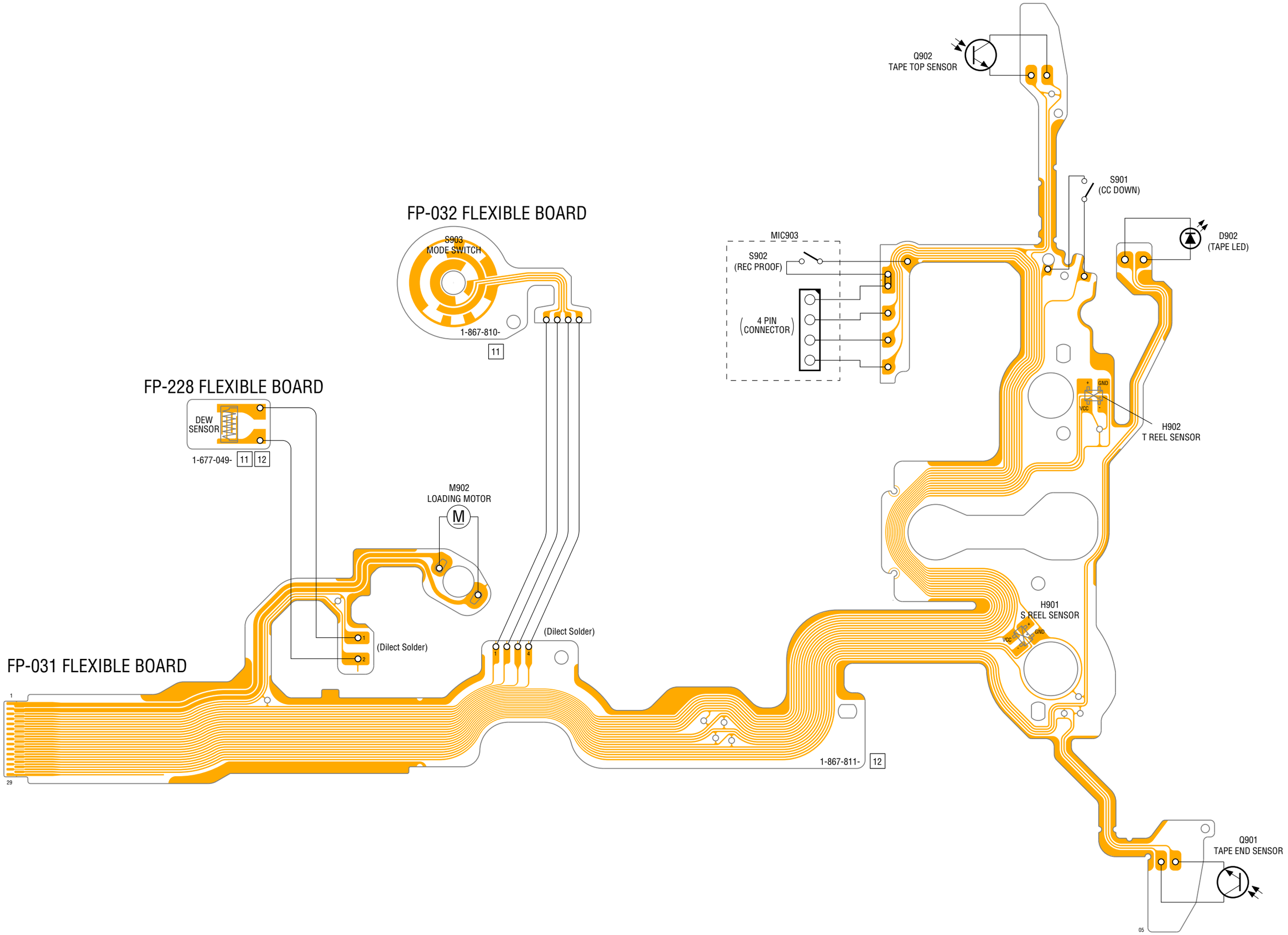


FP-485 FLEXIBLE BOARD



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

: Uses unleaded solder.



4-4. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

EE-006 BOARD TT-003 BOARD

C5601 A-1
C5602 B-1
C5603 A-1
C5604 B-1
C5605 B-2
C5606 A-2
C5607 B-2
C5608 A-2
C5609 A-1
C5610 A-1
C5611 A-1
C5612 A-1
C5613 B-1
C5614 B-2
C5615 B-1
C5616 A-2
C5617 B-1
C5618 A-2
C5619 A-1
C5620 A-1
C5621 A-1
C5622 A-1
C5623 A-1
C5624 A-1
C5625 B-1
C5626 B-1
C5627 B-2
C5628 A-2
C5629 A-1
C5630 A-1
C5631 A-1
C5632 A-1
C5633 B-2
C5634 A-2
C5635 A-1
C5636 A-1
C5637 B-2
C5638 A-2

CN5601 A-2

FB5601 A-1
FB5602 A-1
FB5603 B-1

IC5601 B-1

L5601 A-1
L5602 A-1
L5603 B-2
L5604 A-2

R5601 B-2
R5609 B-1

* C1112 B-6
* C1113 B-6
* C1114 B-6
* C1115 B-6
* C1116 A-6
* C1117 A-6
* C1120 B-6
* C1121 A-6
* C1122 B-6
* C1123 A-6
* C1124 A-6
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4-3. PRINTED WIRING BOARDS

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FL3203 E-3

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* X1401 A-5
* X3401 C-3
X3601 E-6
X4001 B-1
* X4201 A-6
* X4401 D-3

YY-003 BOARD

C5807 B-1
C5808 C-1
C6009 A-2
C6010 B-2
C6011 A-2
C6012 A-2
C6013 A-2
C6014 A-3
C6015 A-3
C6016 B-2
C6017 A-3
C6020 B-1
C6021 B-3
C6022 B-3
C6023 B-3
C6024 B-2
C6025 A-3
C6026 A-3
C6028 A-3
C6029 B-3
C6030 A-3
C6031 A-3
C6032 B-2
C6033 B-2
C6034 B-1
C6035 B-2
C6037 A-2
C6038 A-2
C6206 B-1
C6207 C-2
C6208 C-2
C6209 C-2
C6210 B-2
C6212 B-2
C6213 B-2
C6219 C-1
C6220 B-1
C6221 C-2
C6222 C-1
C6223 B-2
C6224 B-1
C6225

CN5801 C-3
CN5802 B-4
* CN5803 B-1
CN6201 C-3

D6005 B-2

FB6001 B-2
FB6201 B-2
FB6202 B-1

IC6004 B-3
IC6005 A-2
IC6203 B-2

L5801 B-1
L6001 B-1
L6002 A-2
L6202 B-1
L6203 C-1

Q5801 C-4
Q5802 C-1
Q5803 C-1
Q5804 C-4
Q5805 C-1
Q5806 C-1
Q6001 B-2
Q6201 C-1
Q6202 C-1
Q6203 A-1
Q6204 B-2

R5811 C-4
R5812 C-1
R5813 C-1
R5814 C-4
R5815 C-1
R5816 C-1
R5823 C-2
R5824 B-1
R5825 B-1
R6017 A-2
R6018 A-2
R6019 A-2
R6020 A-2
R6021 A-2
R6022 A-2
R6023 A-2
R6024 A-2
R6025 A-2
R6026 A-2
R6027 A-3
R6028 A-3
R6029 A-3
R6030 A-3
R6032 B-3
R6033 B-3
R6034 A-3
R6035 B-3
R6037 A-3
R6038 A-3
R6039 A-3
R6040 A-3
R6041 B-3
R6042 A-3
R6043 A-3
R6044 A-3
R6045 A-3
R6046 B-3
R6047 B-2
R6084 B-3
R6212 C-2
R6213 C-2
R6214 C-2
R6215 C-2
R6216 C-2
R6219 B-2
R6220 B-2
R6221 B-2
R6222 B-2
R6223 B-2
R6225 B-2
R6226 B-1
R6227 C-2
R6228 B-2
R6229 C-2
R6230 C-2
R6231 B-2
R6233 B-1
R6235 C-1
R6236 C-1
R6237 B-1
R6238 A-2
R6241 B-1
R6250 C-2
R6251 B-2
R6260 C-2
R6261 C-2

NN-003 BOARD

* C5001 C-6
* C5002 D-6
* C5003 C-6
* C5004 D-6
* C5005 C-6
* C5006 D-6
* C5007 D-6
* C5008 D-6
C5201 B-4
C5202 B-4
C5203 D-3
C5204 B-4
C5205 D-2
C5206 B-4
C5207 D-3
C5208 D-3
C5209 D-3
C5210 D-3
C5211 D-3
C5212 D-3
C5213 D-3
C5214 D-3
C5215 D-3
C5216 D-3
C5217 D-2
C5218 D-3
C5401 E-2
C5402 E-2
C5406 D-5
C5407 D-5
C5408 D-5
C5409 D-5
C5410 D-5
C5411 D-5
C5412 D-5
C5413 D-5
C5414 D-5
C5415 D-4
C5416 D-4
C5417 D-5
C5418 D-4
C5419 D-5
C5421 E-5
C5422 E-4
C5423 E-4
C5424 D-4
C5425 E-4
C5426 D-4
C5427 D-4
C5428 D-4
C5429 D-4
C5430 D-4
C5431 D-4
C5432 D-4
C5433 D-4
C5434 D-4
C5435 D-4
C5436 D-4
C5437 D-4
C5438 D-4
C5439 D-4
C5440 D-4
C5441 D-4
C5442 D-4

CN5001 A-5
CN5201 E-3
CN5401 E-2
CN5402 E-4
CN5403 E-5

* D5002 D-6

* IC5001 C-6
* IC5002 D-6
IC5201 B-4
IC5202 D-3
IC5402 D-4

L5201 D-2
L5202 B-4
L5401 E-2
L5402 D-5
Q5401 D-4
Q5402 D-2
Q5403 E-3

* R5001 C-6
* R5002 D-6
R5203 D-3
R5204 D-3
R5205 D-3
R5206 D-3
R5207 D-3
R5208 D-3
R5209 D-3
R5210 D-3
R5212 D-3
R5213 E-3
R5214 E-3
R5215 E-3
R5216 E-3
R5401 E-2
R5402 E-2
R5403 E-2
R5421 D-5
R5422 D-5
R5423 D-4
R5424 D-4
R5425 D-4
R5426 D-5
R5427 D-4
R5428 D-4
R5429 D-4
R5430 E-2
R5431 D-4
R5434 D-4
R5435 D-2
R5436 E-3
R5437 D-4
R5438 D-2
R5439 D-3
R5441 D-4

4-3. PRINTED WIRING BOARDS

HH-003 BOARD

* C7402 B-2
* C7403 B-2
* C7404 B-2
* C7405 B-2
C7406 B-2
C7407 B-3
C7409 B-3
C7410 B-2
C7411 B-2
C7412 B-2

* CN7201 A-3
CN7401 A-1

D7402 A-1

FL7401 B-3

IC7401 B-2
IC7402 B-2

L7401 B-1
L7402 B-1
L7403 B-1

LF7401 B-1
LF7402 B-1
LF7403 B-1
LF7404 A-1

R7201 A-2
R7202 A-2
R7203 A-2
R7204 A-2
R7205 B-2
R7206 B-2
R7207 B-2
R7208 B-2
R7209 B-2
R7210 B-2
R7211 B-2
R7212 B-2
R7213 A-2
R7214 A-2
R7215 A-2
R7216 A-2
R7217 A-2
R7218 B-2
R7219 B-2
R7220 B-2
R7221 B-2
R7222 B-2
R7223 B-2
R7224 B-2
R7225 B-2
R7226 B-2
R7228 A-2
R7229 A-2
R7230 B-2
R7231 A-2
R7232 A-2
R7401 B-2
R7402 B-2
R7416 A-2
R7417 A-2
R7418 A-2
* R7419 A-1
* R7420 A-1
* R7421 A-1
R7424 B-2
R7428 B-2
R7429 A-2
R7433 A-2
R7434 A-2

GG-003 BOARD

CN8202 A-4
CN8203 A-2
CN8205 A-1

R8208 A-2
R8211 A-2
R8212 A-2
R8213 A-2
R8256 A-2
R8257 A-2
* R8261 A-1
* R8262 A-1
* R8263 A-4
* R8264 B-4

RR-003 BOARD

* BH9601 A-3

* BT9601 A-3

* CN9601 B-2
* CN9602 D-2
* CN9603 C-6
* CN9604 C-2
* CN9606 D-3
* CN9607 D-4

* D9601 D-6
* D9602 D-4
* D9603 A-2
* D9604 D-3
* D9605 A-2
* D9606 B-4
* D9607 C-4
* D9608 D-6

* L9601 D-4
* L9602 D-4

* R9608 D-4
* R9609 A-2
* R9610 C-4
* R9611 D-4
* R9612 B-4
* R9613 A-3
* R9614 D-5
* R9615 C-4
* R9616 B-4
* R9617 D-5
* R9618 B-4
* R9619 B-4
* R9620 B-4
* R9621 C-4
* R9622 D-5
* R9623 C-4
* R9624 C-4
* R9625 B-5
* R9626 B-6
* R9627 C-4
* R9628 A-6
* R9629 D-6
* R9630 C-6
* R9631 C-6
* R9632 C-6
* R9633 C-6
* R9634 C-6

S9601 B-3
S9602 D-3
S9603 A-2
S9604 B-4
S9605 C-4
S9606 A-3
S9607 C-4
S9608 D-4
S9609 B-5
S9610 D-5
S9611 B-6
S9612 D-6
S9613 A-4
S9614 C-6
S9615 A-5
S9616 A-6

* VDR961 A-2
* VDR962 D-3
* VDR963 D-3
* VDR964 D-4

PP-003 BOARD

C9002 B-2
C9004 B-3
C9006 B-2
C9008 B-3
C9009 B-3
C9010 B-3
C9011 A-3
C9012 A-3
C9013 B-3
C9015 B-4
C9016 B-4
C9017 B-3
C9018 B-3
C9020 B-3
C9021 C-3
C9023 A-4
C9024 C-3
C9025 C-3
C9026 B-3

CN9003 D-3
CN9004 D-2
CN9005 B-2

D9001 C-3

FB9001 B-2

IC9002 B-3

L9001 B-2
L9002 B-3
L9003 A-4

Q9003 C-3
Q9004 C-2
Q9005 C-3
Q9006 C-3
Q9007 B-4
Q9008 C-3
Q9009 B-4

R9010 B-2
R9012 B-3
R9014 C-2
R9015 C-2
R9017 C-2
R9018 B-3
R9019 C-2
R9020 C-3
R9021 B-3
R9022 C-2
R9023 C-3
R9025 A-3
R9028 C-2
R9029 C-2
R9031 B-4
R9032 A-4
R9033 C-3
R9034 C-3

OO-003 BOARD

C6601 D-3
C6602 D-2
C6605 E-2
C6606 C-2
C6607 D-2
C6608 D-2
C6609 D-2
* C6610 B-1
* C6611 B-1
C6612 D-2
C6613 E-2
C6614 D-2
C6615 E-1
C6616 D-2
C6617 E-1
C6618 D-2
C6619 E-1
C6620 D-1
C6621 D-1
C6622 D-1
* C6625 D-1
C6626 B-3
C6627 C-3
C6630 B-2
C6631 A-2
C6632 A-2
C6633 A-1
C6634 A-2
C6635 A-2
* C6636 D-1
* C6637 D-1
C6638 B-2
C6639 B-2
C6640 B-2
C6641 B-2
C6642 B-2
* C6645 D-2
* C6646 D-1
* C6647 D-2
* C6648 D-2

CN6601 B-2
* CN6602 C-1
CN6603 C-2

D6601 D-1

IC6601 D-2
* IC6602 B-2
* IC6603 D-1
IC6604 B-2
IC6605 A-2
IC6606 B-2
IC6607 B-1
* IC6608 D-2
* IC6609 D-2

L6602 C-3
L6603 E-1
L6604 D-2
L6605 C-3

Q6601 E-1
Q6602 E-1
Q6603 E-2
Q6604 D-1
Q6605 E-2
Q6606 E-2
Q6607 B-2

R6603 D-2
* R6604 B-1
R6607 E-2
R6608 D-2
R6609 D-2
R6610 D-2
R6611 D-2
R6612 D-2
R6613 D-2
R6614 D-2
R6615 E-1
R6616 E-1
R6617 E-2
R6618 E-2
R6619 E-1
R6620 E-1
R6621 D-1
R6622 E-1
* R6624 D-1
* R6625 D-1
R6628 B-2
R6629 B-2
R6630 B-2
R6631 B-2
R6632 A-2
R6633 A-2
R6634 A-2
R6635 A-2
R6636 B-3
R6637 B-2
R6638 B-2
R6639 B-2
R6640 B-2
* R6642 A-2
R6645 D-3
R6646 B-1
R6648 C-2

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

XX-015 BOARD

* C8401 B-1
* C8402 B-1
* C8403 B-2
* C8404 B-2
C8405 D-2
C8406 D-2
* C8407 B-1
* C8408 B-1
* C8409 B-2
* C8410 B-2
* C8411 C-2
* C8412 C-2
C8413 D-3
C8414 D-3
* C8415 C-1
* C8416 C-2
C8417 C-3
C8418 C-3
C8419 C-3
C8420 C-2
C8421 C-2
C8422 C-1
C8423 C-1
C8424 C-2
C8425 C-2
C8426 C-1
C8427 C-1
C8428 C-2
C8429 C-3
* C8430 C-1
* C8431 C-2
* C8432 C-3
* C8433 C-3
* C8434 C-4
* C8435 C-4
* C8436 C-3
* C8437 C-3
* C8438 C-4
* C8439 C-4
* C8440 C-3
* C8441 C-4
C8442 C-4
C8443 C-4
C8444 C-3
C8445 C-3
C8446 C-4
C8447 C-4
C8448 C-3
C8449 C-3
* C8450 C-3
* C8451 C-4
C8452 D-1
C8453 D-1
C8454 D-1
C8455 D-1
C8456 D-1
* C8457 D-2
* C8458 D-2
* C8459 D-1
* C8460 D-2

* CN8401 A-3
CN8403 D-2

D8401 D-3
* D8402 C-1
* D8403 C-1
* D8404 C-2
* D8405 C-2
* D8406 C-1
* D8407 C-1
* D8408 C-2
* D8409 C-2
* D8410 D-3
* D8411 D-3
* D8412 D-4
* D8413 D-4
* D8414 D-4
* D8415 D-3
* D8416 D-4
* D8417 D-4

* IC8401 C-3
IC8402 D-3
* IC8403 C-1
* IC8404 C-2
* IC8405 D-1
* IC8406 D-2
* IC8407 C-3
* IC8408 C-4
* IC8409 D-2
* IC8410 D-2

L8401 B-1
L8402 B-2
L8403 D-2
L8405 C-3
L8406 C-4
L8407 D-1

PH8401 B-1
PH8402 B-2
PH8403 C-3
PH8404 C-4

Q8401 D-3
* Q8402 B-1
* Q8403 B-3
Q8404 B-2
Q8406 B-3
* Q8410 D-2
Q8411 C-3
Q8412 C-3
Q8414 B-1
* Q8415 B-3
* Q8416 B-1
Q8418 B-3
Q8419 C-2
Q8422 D-1
Q8423 D-1

R8405 D-2
* R8408 C-1
* R8409 C-2
* R8411 C-3
* R8412 C-3
* R8413 C-1
* R8414 C-2
* R8415 C-1
* R8416 C-2
R8417 D-3
* R8418 C-1
R8421 D-3
* R8422 C-1
* R8423 C-2
R8424 C-3
R8425 C-3
R8426 C-2
* R8427 C-1
* R8428 C-2
R8429 C-2
R8430 C-2
R8431 C-1
R8432 C-1
* R8433 C-2
* R8434 C-2
* R8435 C-1
* R8436 C-1
R8437 D-1
R8438 D-1
* R8442 C-3
* R8443 C-4
* R8444 C-3
* R8445 C-4
* R8446 C-3
* R8447 C-4
* R8448 C-3
* R8451 C-3
* R8452 C-4
* R8453 C-3
* R8454 C-4
R8455 C-4
R8456 C-4
R8457 C-3
R8458 C-3
* R8459 C-4
* R8460 C-4
* R8461 C-3
* R8462 C-3
R8463 B-2
R8464 B-1
R8465 B-3
R8466 B-4
R8467 B-2
R8468 C-2
R8471 B-3
R8479 C-2
R8480 C-2
R8481 C-3
R8482 C-2
R8483 C-2
* R8486 D-2
* R8487 B-1
* R8488 B-1
* R8491 B-3
* R8492 B-3
R8494 C-3
* R8496 C-4
* R8497 B-1
* R8498 B-2
* R8499 C-4

ZZ-003 BOARD

* C9801 A-1
* C9802 A-2
* C9803 B-1
* C9804 B-2
* C9805 A-2
* C9806 B-2
* C9807 A-3
* C9808 B-3
* C9809 A-3
* C9810 A-2
C9811 A-3
C9812 A-3
C9813 B-3
C9814 B-3
C9815 A-3
C9816 A-3
C9817 B-3
C9818 B-3
* C9819 A-3
* C9820 B-3
* C9821 A-2
C9822 A-3
* C9823 B-3
C9824 A-3
C9825 B-3
C9826 B-3
C9827 A-2
* C9829 B-3
C9831 A-2
C9832 B-2
C9833 A-2
* C9835 B-3
* C9836 B-3

* CN9801 B-2
CN9802 B-1
CN9803 B-2
CN9804 B-4

* IC9801 A-2
* IC9802 A-2
* IC9803 A-3
* IC9804 B-3
* IC9805 B-3
IC9806 B-2

L9801 A-2

Q001 A-2

* R9801 A-1
* R9802 A-2
* R9803 B-1
* R9804 B-2
* R9805 A-2
* R9806 B-2
* R9807 A-2
* R9808 B-2
* R9809 A-2
* R9810 A-2
* R9811 A-3
R9812 A-3
R9814 A-3
R9815 A-3
* R9816 B-3
R9817 B-3
R9819 A-3
R9820 B-3
R9821 B-3
R9822 B-3
* R9823 A-3
* R9824 B-3
R9827 A-2
R9828 B-2
R9829 B-3
* R9830 B-3
* R9831 B-3
* R9832 B-3
* R9833 B-3
R9836 B-3
R9837 B-3

JJ-004 BOARD

* C8001 A-3
* C8002 A-1
* C8005 A-2
C8006 A-2
* C8007 A-2
* C8008 A-2
* C8009 A-2
C8010 A-1
* C8011 A-2
C8012 A-1
* C8013 A-3
* C8014 A-3
* C8017 A-2
* C8018 A-2

CN8001 A-3

* IC8001 A-2

R8001 A-2
R8002 A-2
* R8003 A-2
* R8004 A-2
* R8005 A-2
* R8007 A-2
* R8008 A-2
* R8009 A-2

SE8001 A-2
SE8002 A-2

NOTE

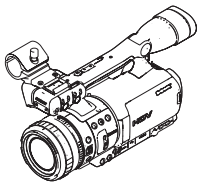
5. REPAIR PARTS LIST (1/2)

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.

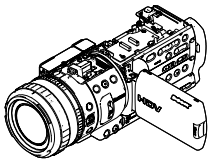
Link

EXPLODED VIEWS



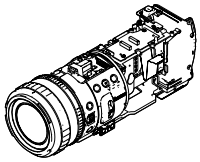
A

OVERALL SECTION-1



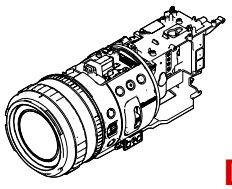
B

OVERALL SECTION-2



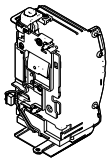
C

OVERALL SECTION-3



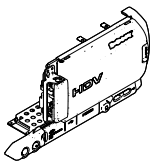
D

LENS SECTION



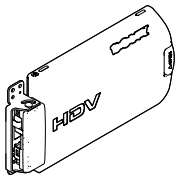
E

BT BLOCK



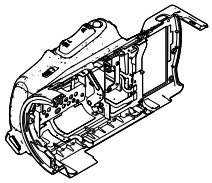
F

CABINET (R) SECTION



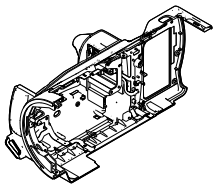
G

LCD PANEL BLOCK



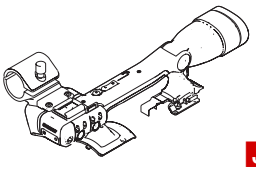
H

CABINET (L) SECTION



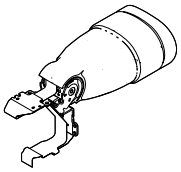
I

CABINET (L) BLOCK



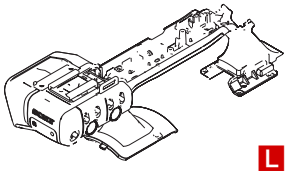
J

HANDLE SECTION



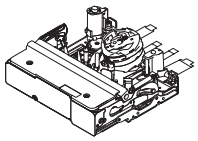
K

EVF BLOCK



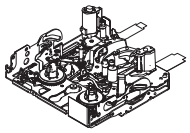
L

HANDLE BLOCK



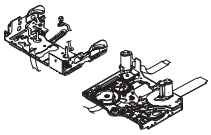
M

MECHANISM DECK SECTION



N

LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-1



O

LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-2

NOTE

5. REPAIR PARTS LIST (2/2)

TO (1/2)

ELECTRICAL PARTS LIST

ACCESSORIES

EE-006 BOARD D	FP-487 FLEXIBLE BOARD G	PP-003 BOARD G
FP-031 FLEXIBLE BOARD O	FP-488 FLEXIBLE BOARD L	RR-003 BOARD F
FP-032 FLEXIBLE BOARD O	GG-003 BOARD J	TT-003 BOARD C
FP-228 FLEXIBLE BOARD O	HH-003 BOARD F	UU-003 BOARD K
FP-483 FLEXIBLE BOARD J	II-003 BOARD C	WW-003 BOARD F
FP-484 FLEXIBLE BOARD J	JJ-004 BOARD D	XX-015 BOARD L
FP-485 FLEXIBLE BOARD H	NN-003 BOARD B	YY-003 BOARD C
FP-486 FLEXIBLE BOARD F	OO-003 BOARD C	ZZ-003 BOARD L

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。

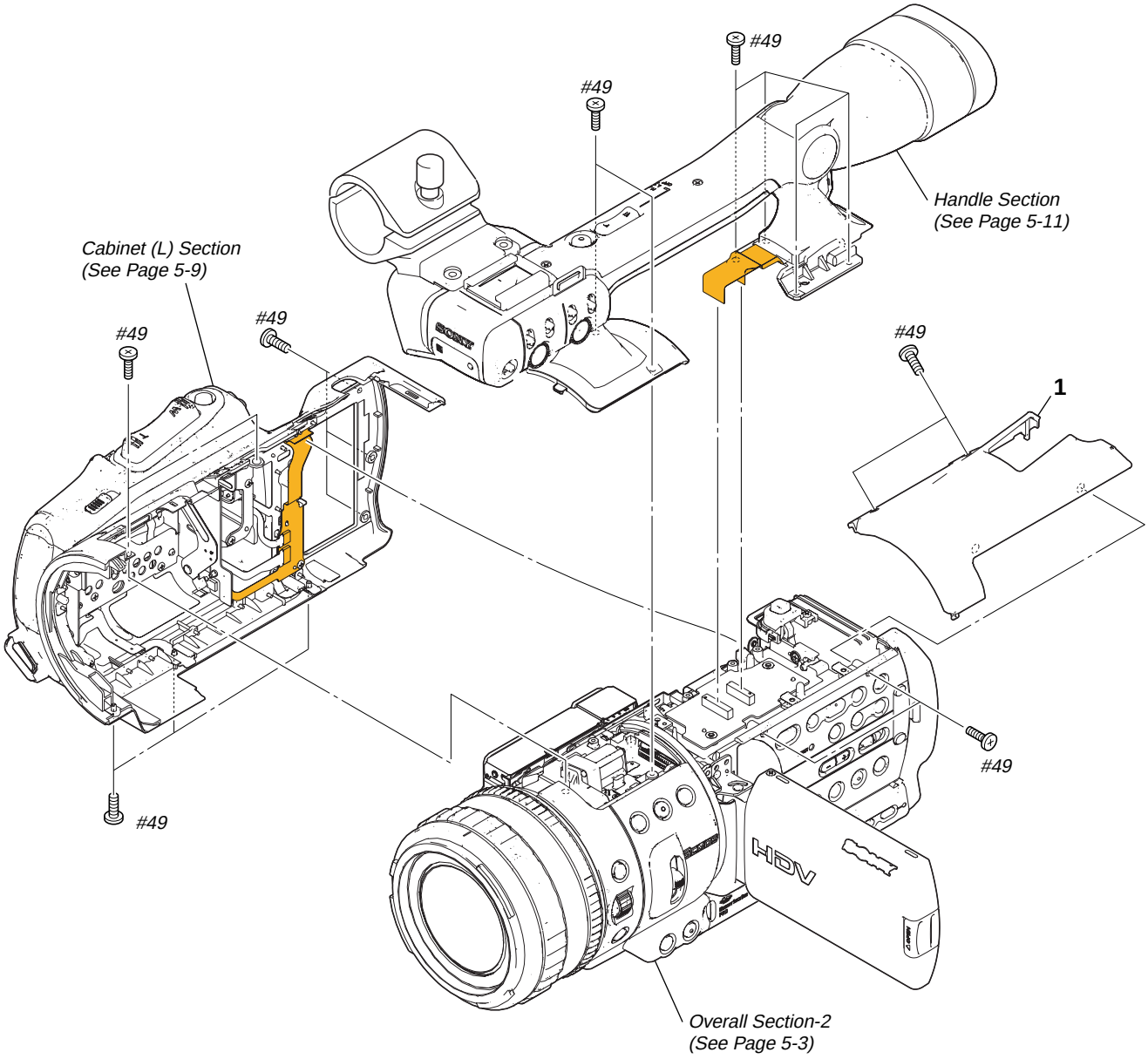
- 外装部品色表示
  例：
  (SILVER):セットの色を表す。
  (Silver) : 部品の色を表す。

- 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

DISASSEMBLY HARDWARE LIST

5-1. EXPLODED VIEWS

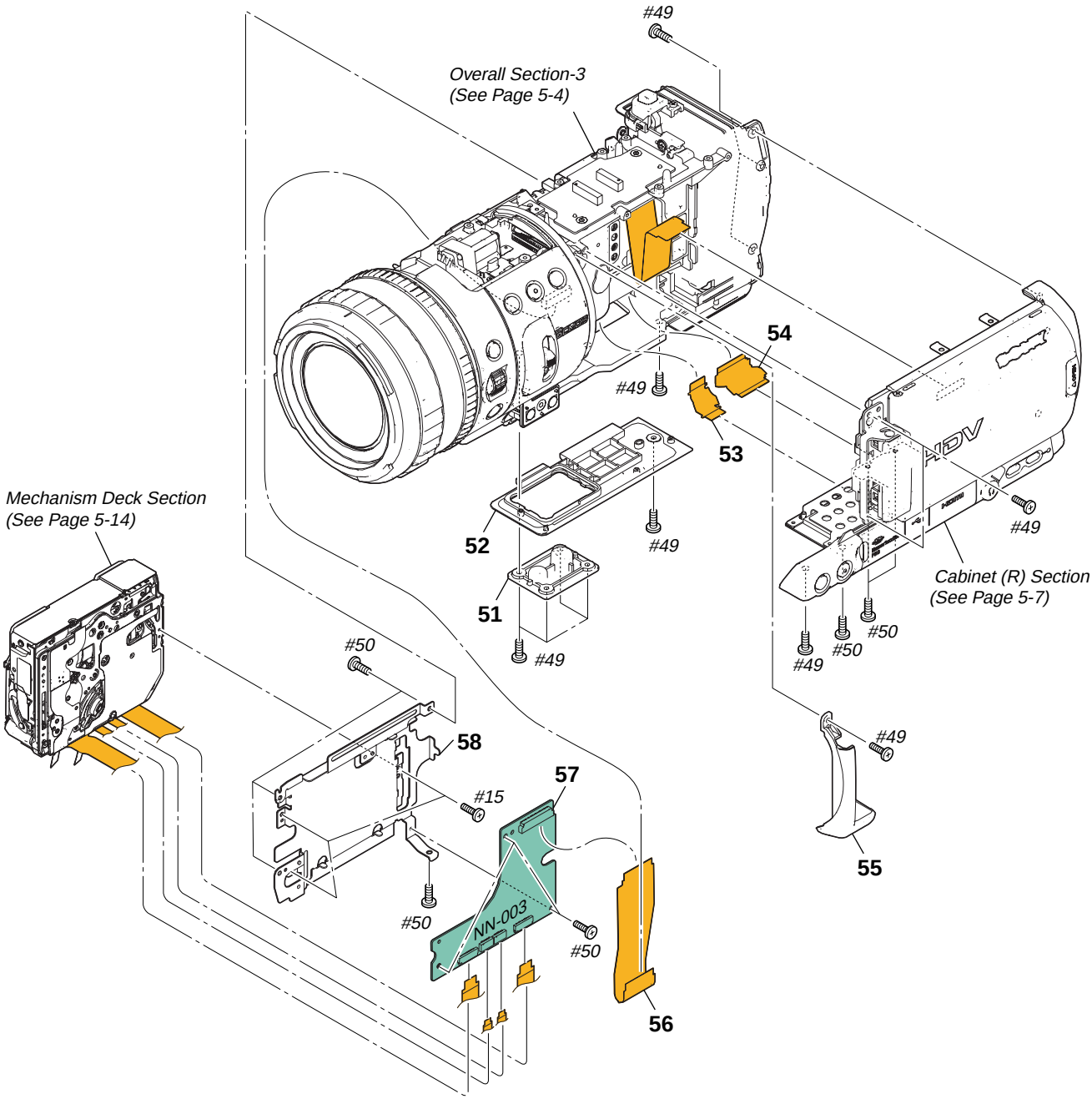
5-1-1. OVERALL SECTION-1



Ref. No.	Part No.	Description
1	2-891-978-11	CABINET, TOP

Ref. No.	Part No.	Description
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)

5-1-2. OVERALL SECTION-2

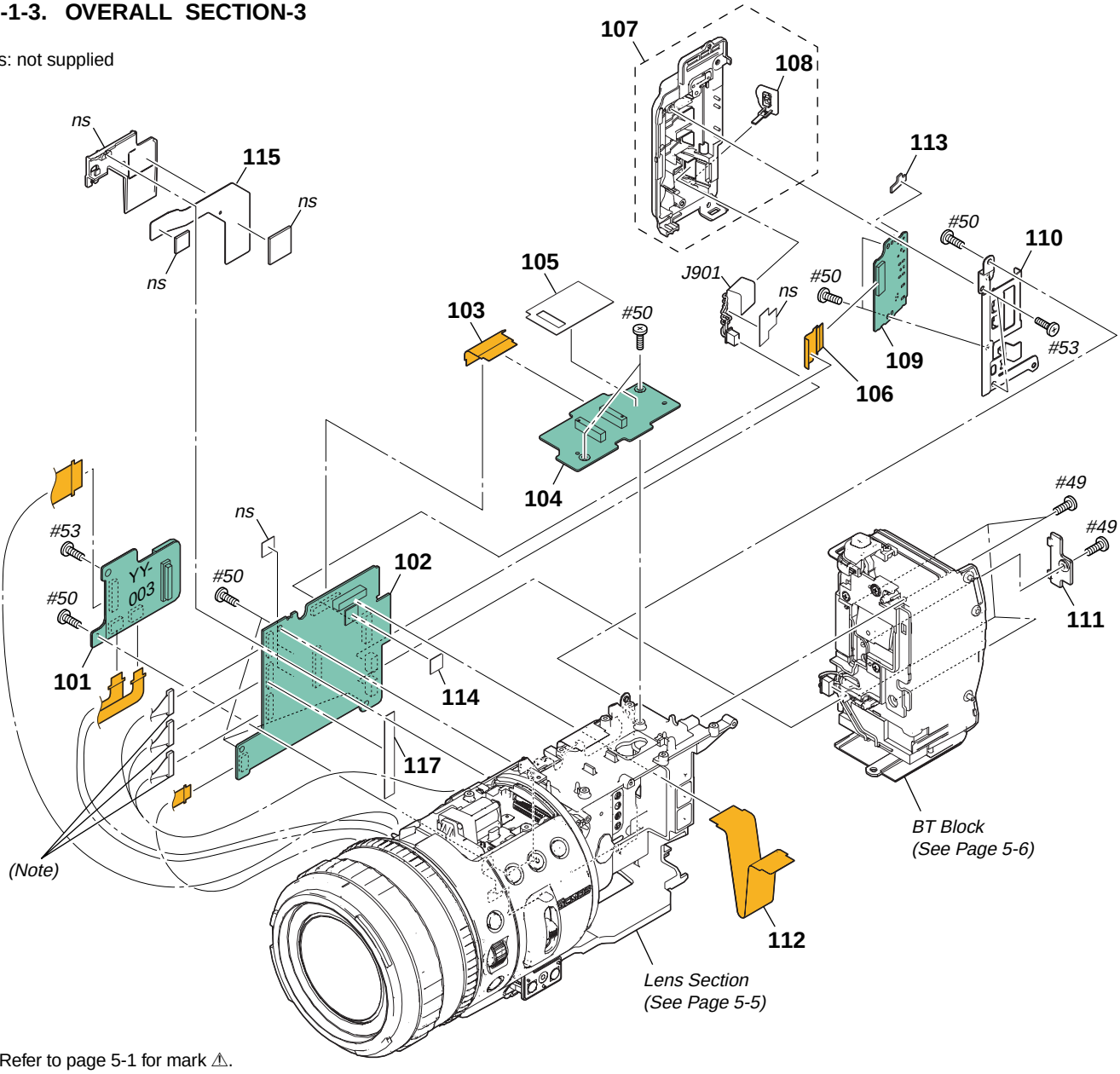


Ref. No.	Part No.	Description
51	2-178-793-01	BRACKET (TRIPOD)
52	2-891-980-01	PLATE, BOTTOM
53	1-870-118-11	FP-496 FLEXIBLE BOARD
54	1-870-115-11	FP-493 FLEXIBLE BOARD
55	2-892-031-11	COVER (F), HINGE
56	1-870-113-11	FP-491 FLEXIBLE BOARD

Ref. No.	Part No.	Description
57	A-1217-221-A	NN-003 BOARD, COMPLETE
* 58	X-2149-998-1	FRAME ASSY, MD
#15	3-062-214-01	SCREW (M1.4X1.5) (Silver)
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)

5-1-3. OVERALL SECTION-3

ns: not supplied



• Refer to page 5-1 for mark ⚠.

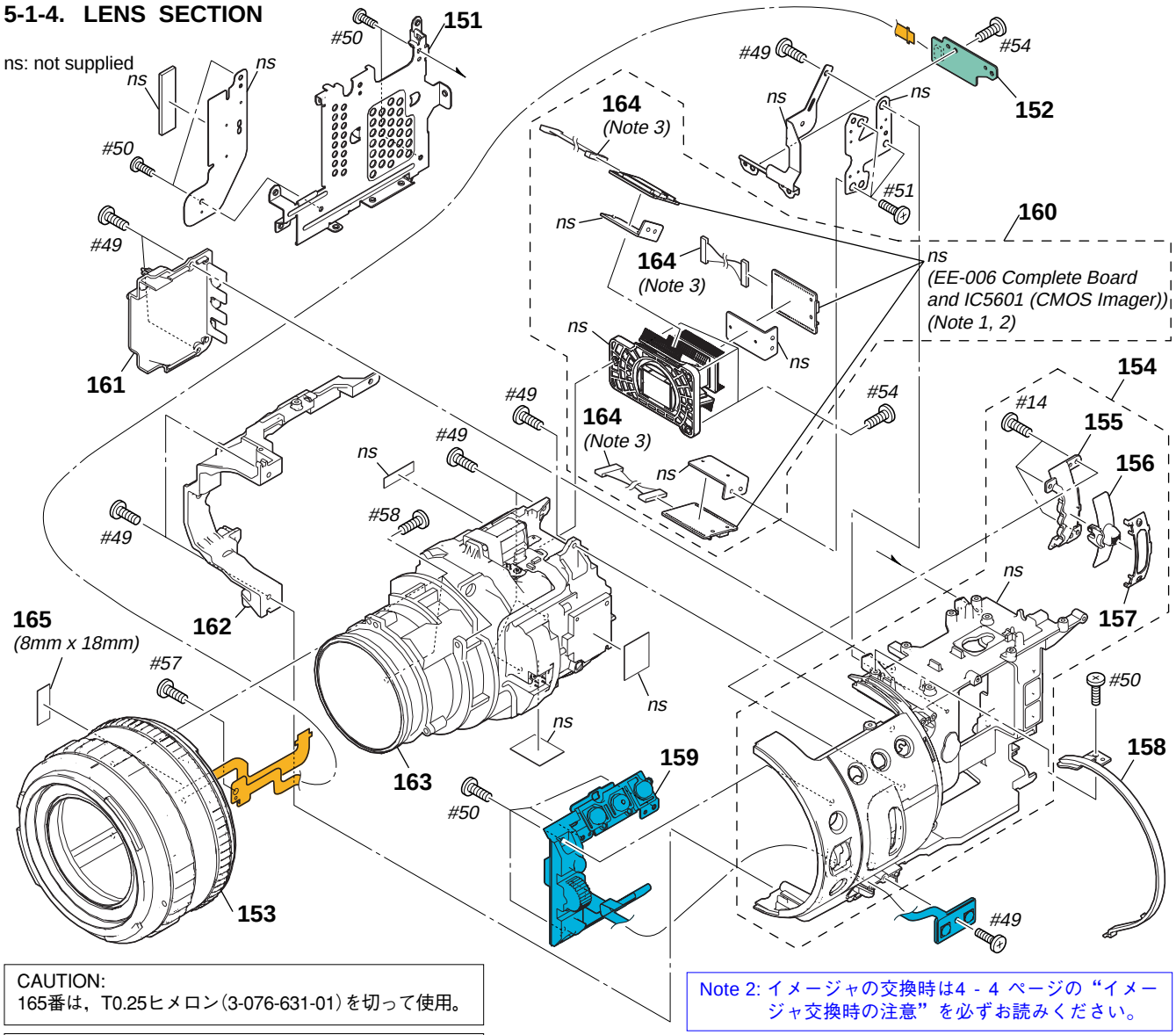
Note: ハーネス（coaxial cable）を抜く時は2-1ページの“Note for disconnecting the harness（coaxial cable）”を参照してください。

Note: Refer to page 2-1 “Note for disconnecting the harness (coaxial cable)” when changing the harness (coaxial cable).

Ref. No.	Part No.	Description
101	A-1217-225-A	YY-003 BOARD, COMPLETE
102	A-1217-722-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)
102	A-1217-723-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)
103	1-870-114-11	FP-492 FLEXIBLE BOARD
104	A-1217-223-A	OO-003 BOARD, COMPLETE
* 105	2-896-054-01	SHEET (TP)
106	1-870-117-11	FP-495 FLEXIBLE BOARD
107	X-2149-995-1	CABINET (L) ASSY (D), JACK
108	2-891-959-01	DC, JACK LID
109	A-1217-208-A	II-003 BOARD, COMPLETE

Ref. No.	Part No.	Description
* 110	2-891-977-01	HOLDER, JACK PC BOARD (L)
111	2-891-982-01	LID, CPC
112	1-870-116-11	FP-494 FLEXIBLE BOARD
* 113	2-891-983-01	CUSHION, LIGHT INTERCEPTION
* 114	2-891-990-01	SPACER (DZ)
* 115	2-891-985-01	SHEET (GF)
* 117	2-899-567-01	SHEET (TT)
⚠J901	1-815-005-11	CONNECTOR, DC-IN
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

5-1-4. LENS SECTION



CAUTION:
165番は，T0.25ヒメロン(3-076-631-01)を切って使用。

CAUTION:
For the part of 165, cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

Note 1: マウント済EE-006基板とIC5601は交換対象ではありませんが，プリズム組立に含まれます。

Note 1: EE-006 complete board and IC5601 are not supplied, but they are included in prism assy.

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 “Precautions for Replacement of Imager” on page 4-3 when changing the imager.

Note 3: ハーネス（coaxial cable）を抜く時は2-1ページの“Note for disconnecting the harness（coaxial cable）”を参照してください。

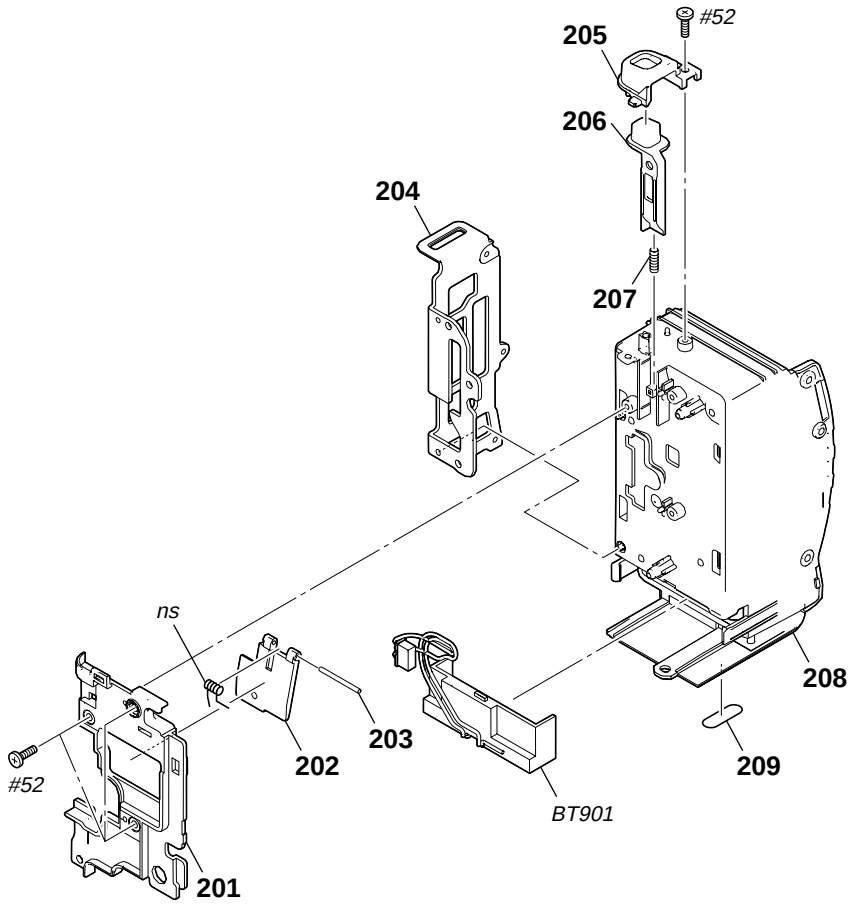
Note 3: Refer to page 2-1 “Note for disconnecting the harness (coaxial cable)” when changing the harness (coaxial cable).

Ref. No.	Part No.	Description
* 151	X-2159-300-1	BRACKET (VC) ASSY
152	A-1227-577-A	JJ-004 BOARD, COMPLETE (SERVICE)
153	2-898-191-01	RING UNIT (B187B (SERVICE))
154	X-2149-993-1	CHASSIS ASSY (D), CENTER
* 155	2-891-955-01	RETAINER, ND KNOB
* 156	2-891-954-01	KNOB, ND
* 157	2-891-956-01	PLATE, ND CLICK
158	2-891-975-01	RING, ORNAMENTAL
159	1-479-812-11	SWITCH BLOCK, CONTROL (CK18500)
160	A-1223-596-A	PRISM ASSY (SERVICE) (Note 1, 2)
* 161	2-891-979-01	PLATE (CMOS), INTERCEPTION

Ref. No.	Part No.	Description
* 162	X-2149-999-1	BRACKET (CL) ASSY
163	A-1227-243-A	UNIT ASSY (B187B (SERVICE))
164	1-963-577-41	HARNESS (COAXIAL CABLE) (Note 3)
165	CAUTION	WOVEN (T0.25), FABRIC NON
#14	2-599-475-11	SCREW (M1.7) (Silver)
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#51	3-073-686-01	SCREW (M2X2.5) (Silver)
#54	3-318-203-11	SCREW, TAPPING, P2 (Black)
#57	7-627-852-18	SCREW, PRECISION +P 1.7X4 TYPE3 (Black)
#58	3-719-408-11	SCREW (B2), TAPPING, P3 (Silver)

5-1-5. BT BLOCK

ns: not supplied

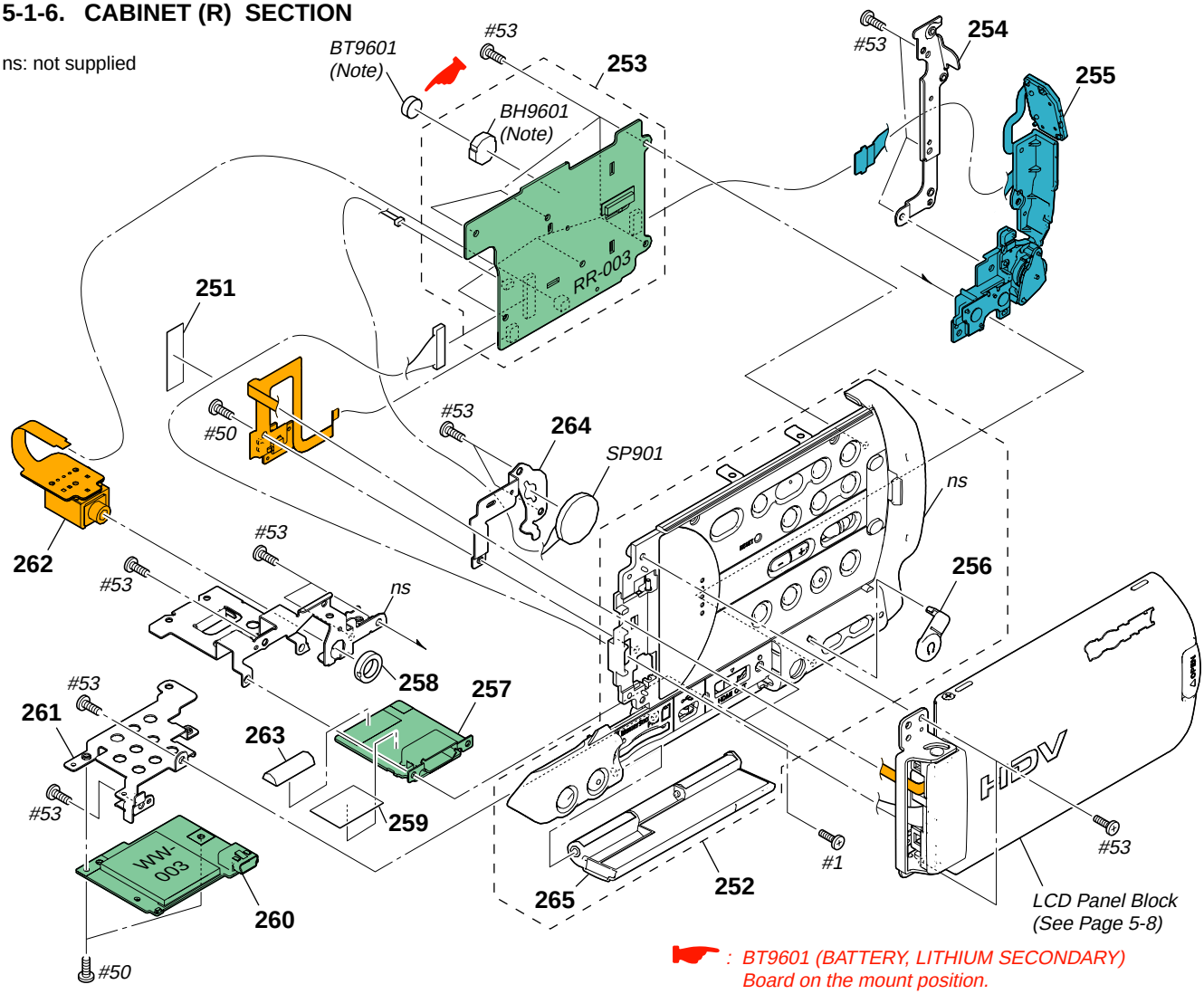


• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
201	2-891-969-01	COVER, BT LOCK
202	3-060-595-01	CLAW, BT LOCK
203	3-968-770-01	SHAFT, BT
204	2-891-968-01	SHEET METAL (L), STRAP
205	2-891-970-11	COVER, BT RELEASE
206	2-891-967-01	RELEASE (SW)
207	3-968-771-01	SPRING, COMPRESSION
208	2-891-966-01	PANEL, BATTERY
209	2-178-805-01	FOOT, RUBBER
⚠BT901	1-694-411-31	TERMINAL BOARD, BATTERY
#52	3-080-206-11	SCREW, TAPPING, P2 (Black)

5-1-6. CABINET (R) SECTION

ns: not supplied



: BT9601 (BATTERY, LITHIUM SECONDARY) Board on the mount position. (See page 4-56.)

Note: Replace the battery holder (BH9601) together when replacing the lithium battery (BT9601) on the RR-003 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: RR-003基板のリチウム電池(BT9601)を交換する場合はバッテリホルダ(BH9601)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。

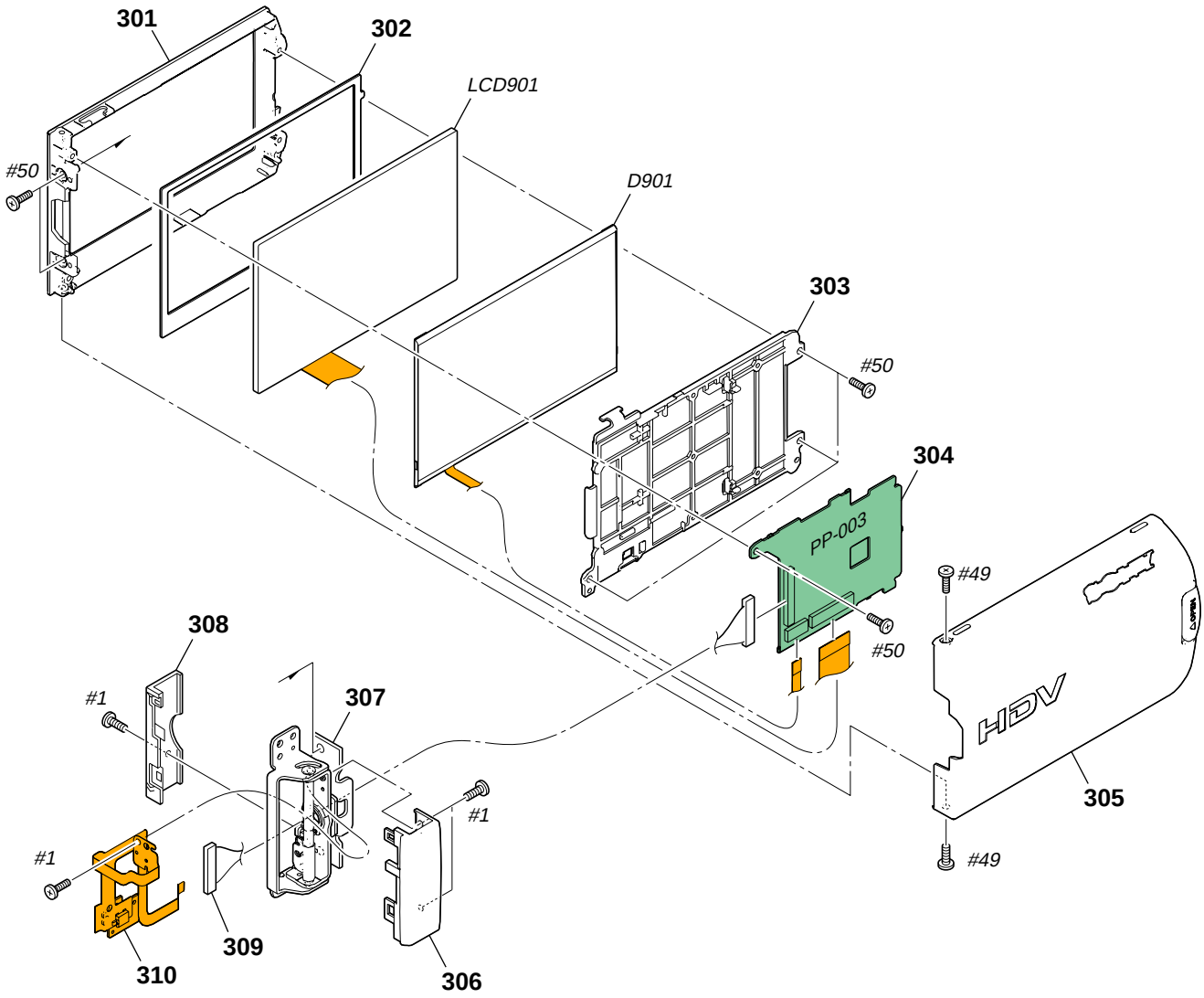
CAUTION
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

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。

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description
251	3-941-343-01	TAPE (A)
252	X-2159-308-1	CABINET (R) ASSY (D)
253	A-1217-212-A	RR-003 BOARD, COMPLETE
* 254	2-892-033-01	PLATE, CF RETAINER
255	1-479-813-11	SWITCH BLOCK, CONTROL (CF18500)
256	2-892-026-01	LID, HEADPHONE
257	A-1217-219-A	HH-003 BOARD, COMPLETE
258	3-061-234-01	NUT (M6X0.5)
* 259	2-899-674-01	SHEET (HH), INSULATING
260	A-1217-214-A	WW-003 BOARD, COMPLETE
* 261	2-892-030-01	FRAME, JACK FIXED
262	A-1217-231-A	FP-486 FLEXIBLE BOARD, COMPLETE
* 263	2-892-034-01	SHEET (HH)
* 264	X-2159-309-1	RETAINER ASSY, SP
265	X-2176-355-1	LID (R) ASSY, JACK
⚠ BH9601	1-756-615-41	HOLDER, BATTERY (Note)
⚠ BT9601	1-756-134-12	BATTERY, STORAGE, LITHIUM (Note)
SP901	1-825-260-23	LOUD SPEAKER (1.6CM)
#1	2-635-562-11	SCREW (M1.7) (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

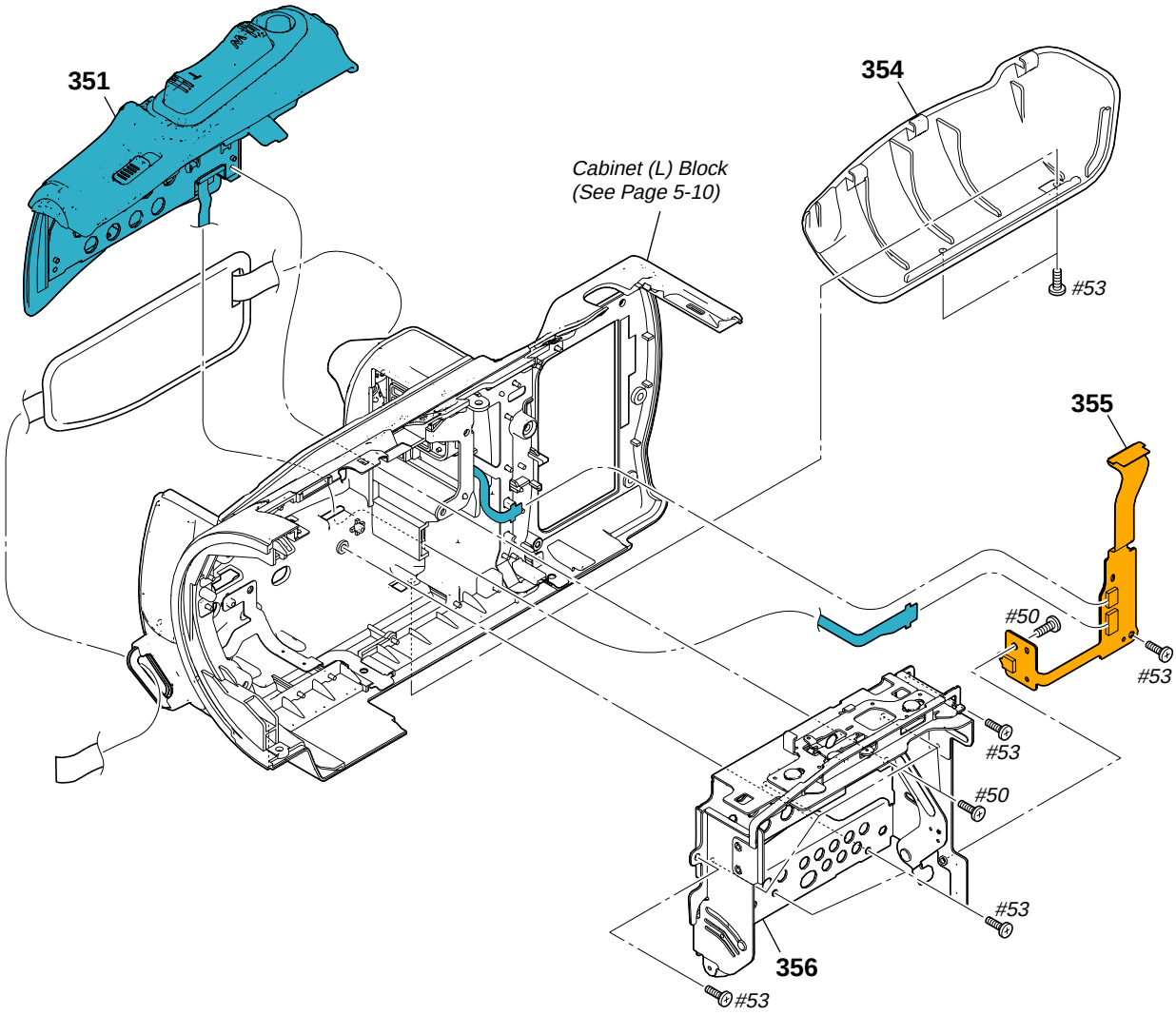
5-1-7. LCD PANEL BLOCK



Ref. No.	Part No.	Description
301	2-892-044-11	CABINET (L), PANEL
* 302	2-892-045-01	CUSHION, LCD
303	X-2159-313-1	FRAME ASSY, PANEL
304	A-1217-211-A	PP-003 BOARD, COMPLETE
305	X-2159-312-1	CABINET (R) ASSY (D), PANEL
306	2-892-046-11	COVER (R), HINGE
307	X-2159-310-1	HINGE ASSY
308	3-090-382-21	COVER (REAR), HINGE

Ref. No.	Part No.	Description
309	1-964-790-11	HARNESS (PR-074)
310	A-1217-232-A	FP-487 FLEXIBLE BOARD, COMPLETE
D901	1-479-622-11	BLOCK, LIGHT GUIDE PLATE (3.5)
LCD901	8-753-270-54	ACX545AKA-1
#1	2-635-562-11	SCREW (M1.7) (Black)
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)

5-1-8. CABINET (L) SECTION



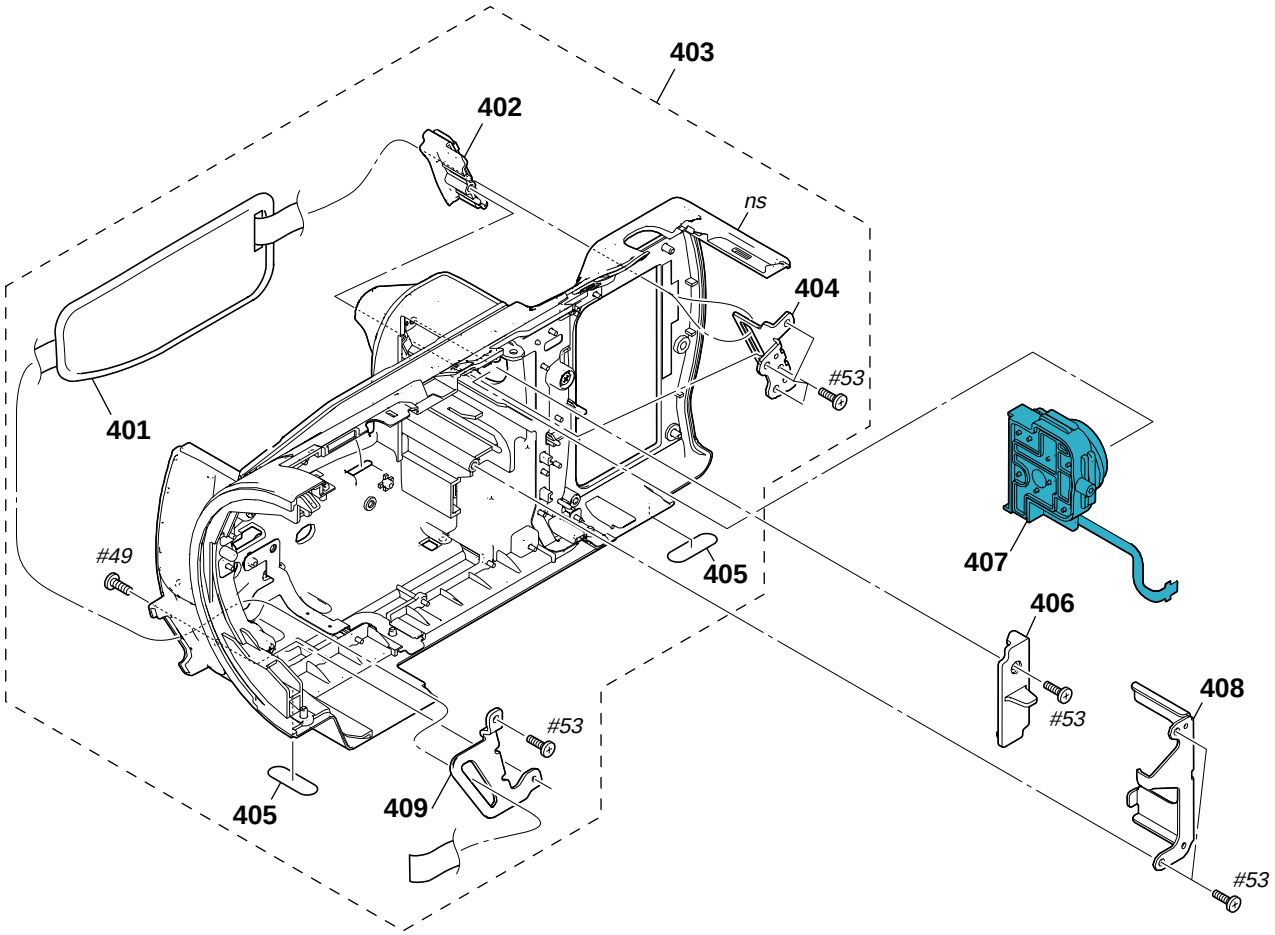
Ref. No.	Part No.	Description
351	1-479-814-21	SWITCH BLOCK, CONTROL (PL18500)
354	2-891-976-01	COVER, GRIP
355	A-1217-230-A	FP-485 FLEXIBLE BOARD, COMPLETE
* 356	X-2159-301-1	FRAME ASSY, CS

Ref. No.	Part No.	Description
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

HARDWARE LIST

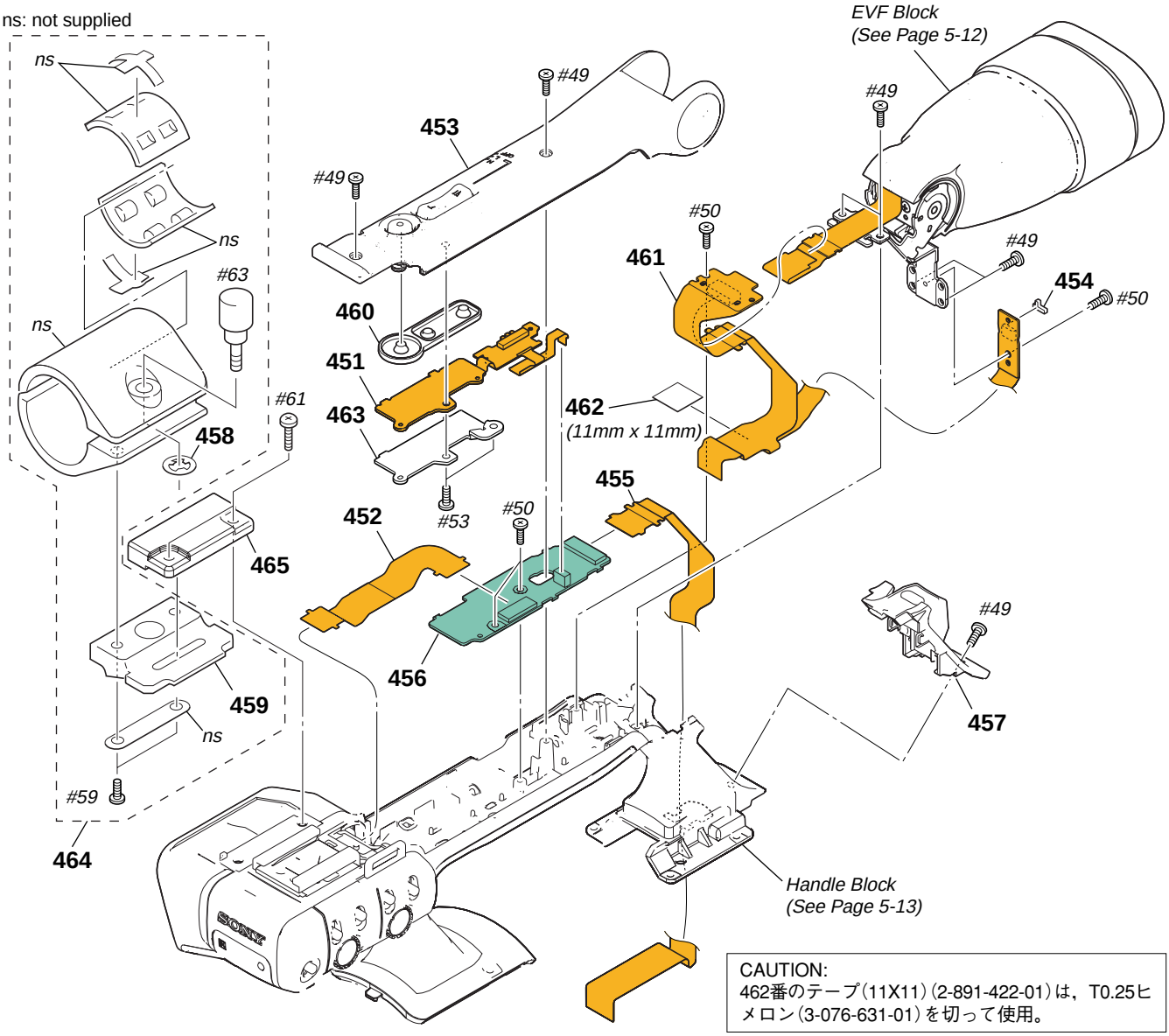
5-1-9. CABINET (L) BLOCK

ns: not supplied



Ref. No.	Part No.	Description
401	2-892-004-01	BELT, GRIP
* 402	2-892-001-01	HOLDER, GRIP BELT
403	X-2159-304-1	CABINET (L) ASSY (D)
* 404	2-892-003-01	BRACKET (R), GRIP BELT
405	2-178-805-01	FOOT, RUBBER
* 406	2-892-005-01	RETAINER, PS
407	1-479-811-11	SWITCH BLOCK, CONTROL (PS18500)
* 408	2-891-981-01	PLATE, PS FIXED
* 409	2-892-002-01	BRACKET (F), GRIP BELT
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)

5-1-10. HANDLE SECTION



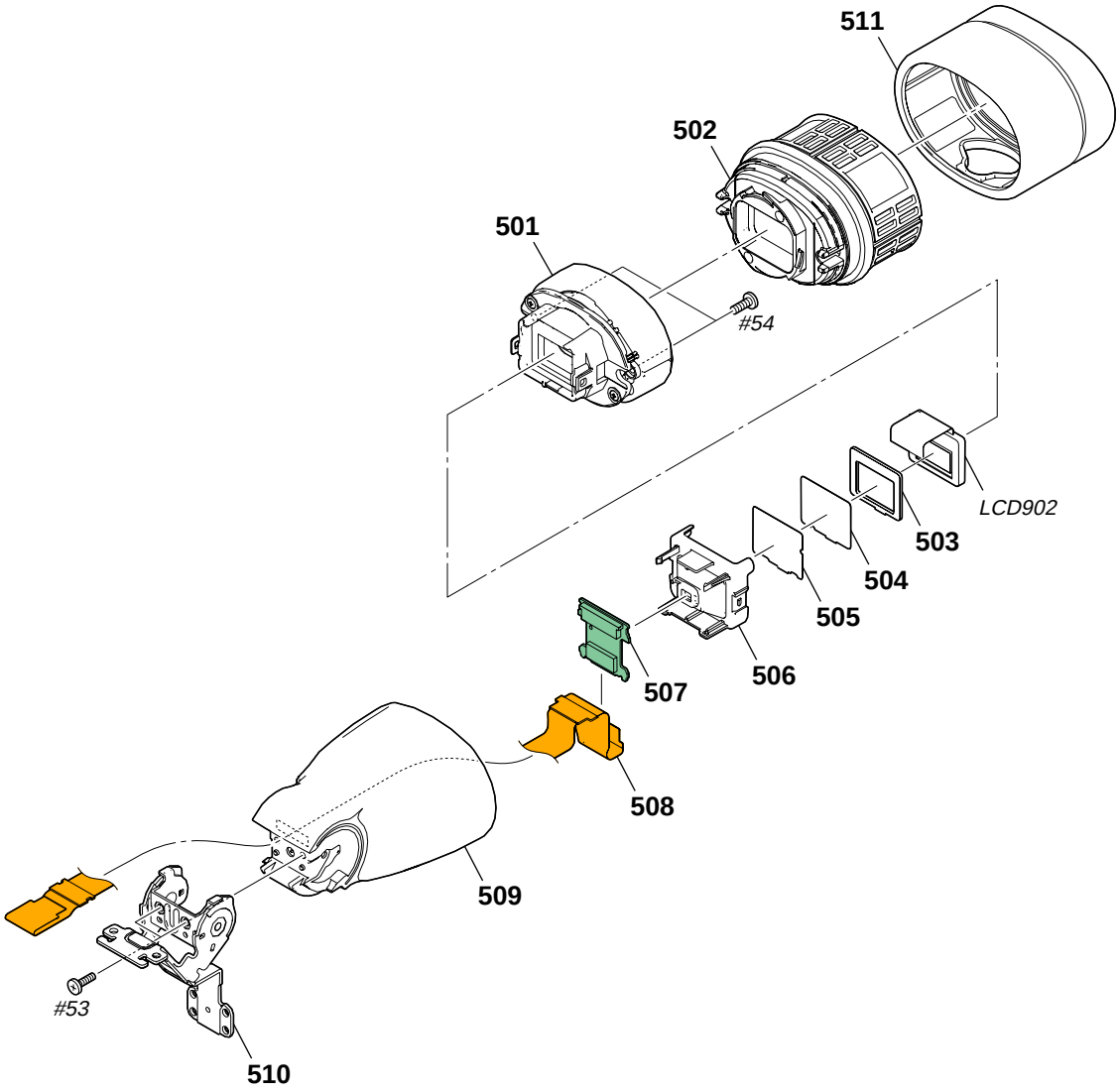
CAUTION:
462番のテープ(11X11)(2-891-422-01)は，T0.25ヒメロン(3-076-631-01)を切って使用。

CAUTION:
For the part of 462: TAPE (11X11) (2-891-422-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

Ref. No.	Part No.	Description
451	A-1217-228-A	FP-483 FLEXIBLE BOARD, COMPLETE
452	1-870-121-11	FP-499 FLEXIBLE BOARD
453	X-2159-321-1	CABINET (UPPER) ASSY (D), HAN
* 454	2-891-983-01	CUSHION, LIGHT INTERCEPTION
455	1-870-122-11	FP-500 FLEXIBLE BOARD
456	A-1217-218-A	GG-003 BOARD, COMPLETE
457	X-2159-323-1	BASE ASSY (D), REMOTE CONTROL
458	3-165-904-01	WASHER, SCREW STOPPER
459	3-060-810-01	BASE, MICROPHONE HOLDER
* 460	2-892-090-01	KEY, RUBBER TACT
461	A-1217-229-A	FP-484 FLEXIBLE BOARD, COMPLETE

Ref. No.	Part No.	Description
462	CAUTION	TAPE (11X11)
463	2-898-108-01	BASE, 2ND KEY
464	X-3950-604-5	HOLDER ASSY, MICROPHONE
465	3-064-629-01	RETAINER (UPPER) D, HOLDER
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)
#59	3-080-205-21	SCREW, TAPPING, P2 (Silver)
#61	7-682-549-09	SCREW +B 3X10 (Black)
#63	3-060-811-21	SCREW (M5) (Black)

5-1-11. EVF BLOCK



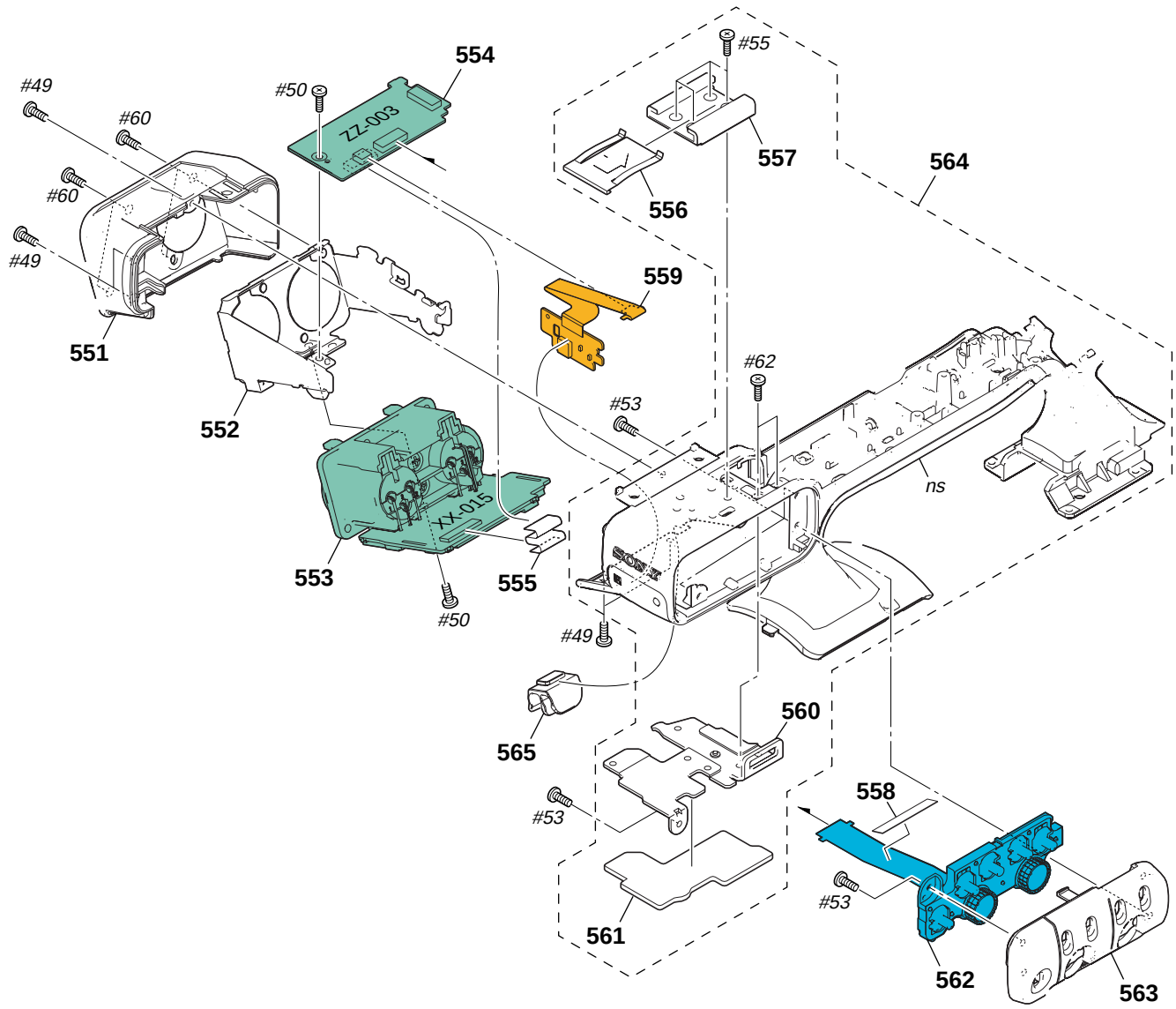
Ref. No.	Part No.	Description
501	X-2159-325-1	HOLDER ASSY, VF PANEL
502	X-2159-324-1	FINDER ASSY
503	2-892-122-01	CUSHION, VF PANEL
504	2-633-596-01	SHEET (1), VF PRISM
505	2-633-595-01	SHEET (2), VF DIFFUSION
506	2-892-120-01	LAMP, VF HOLDER,
507	A-1217-213-A	UU-003 BOARD, COMPLETE

Ref. No.	Part No.	Description
508	1-870-123-11	FP-501 FLEXIBLE BOARD
509	X-2159-328-1	CABINET ASSY (D), VF
510	X-2159-326-1	TILT ASSY, VF
511	2-892-123-01	EYE CUP
LCD902	8-753-210-99	LCX068AK-1
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)
#54	3-318-203-11	SCREW, TAPPING, P2 (Black)

HARDWARE LIST

5-1-12. HANDLE BLOCK

ns: not supplied

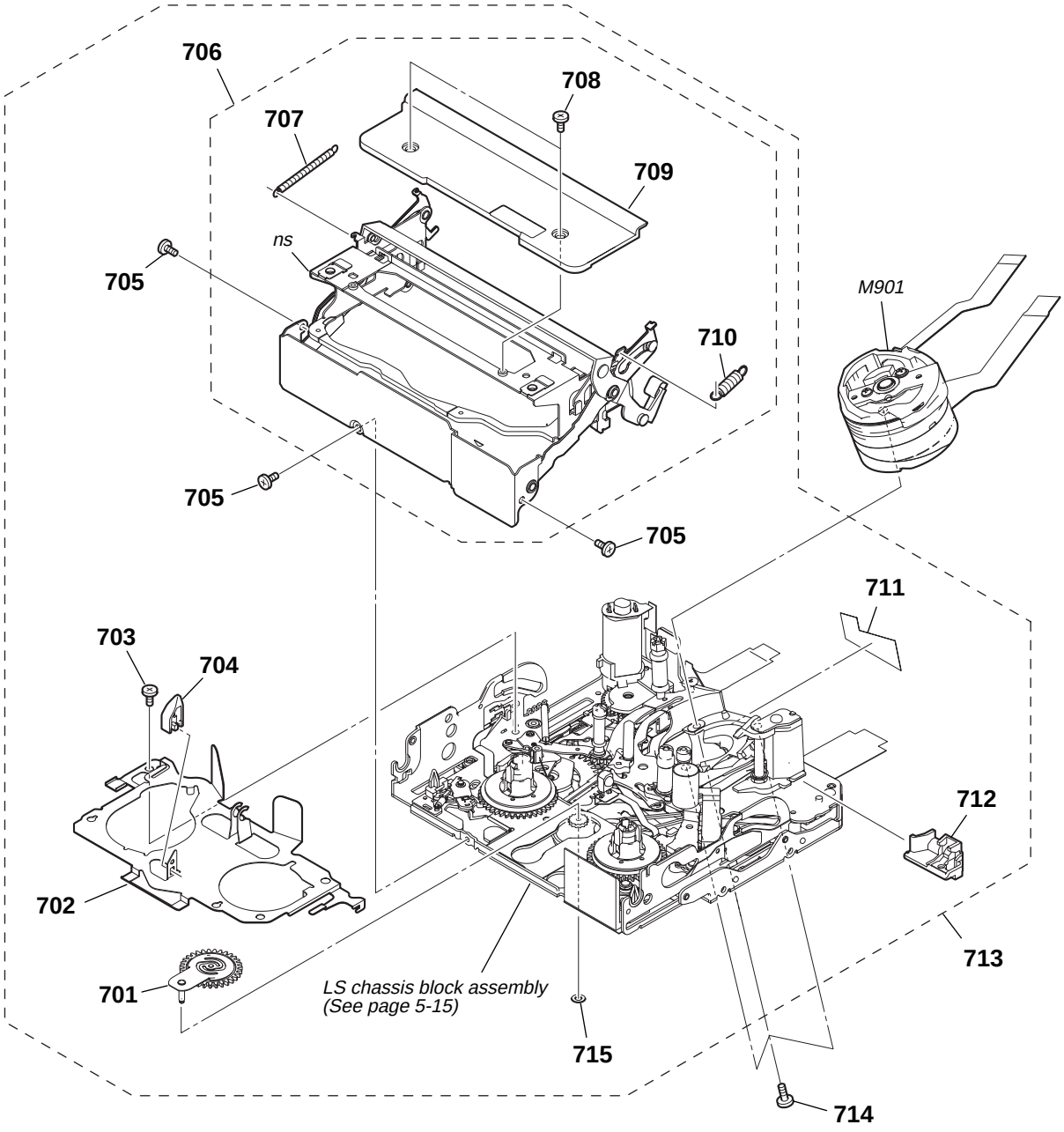


Ref. No.	Part No.	Description
551	2-892-093-01	CABINET (L), XL
* 552	2-892-094-01	SHEET METAL, XL
553	A-1217-224-A	XX-015 BOARD, COMPLETE
554	A-1217-215-A	ZZ-003 BOARD, COMPLETE
555	1-833-615-11	CABLE, FLEXIBLE FLAT (FFC-088)
556	3-688-754-11	SPRING
557	3-069-286-21	SHOE, ACCESSORY
* 558	2-894-845-01	TAPE (XR)
559	A-1217-233-A	FP-488 FLEXIBLE BOARD, COMPLETE
560	2-892-068-01	SHEET METAL, XL BELT
561	2-892-069-01	SHEET (D), POWDER PREVENTION

Ref. No.	Part No.	Description
562	1-479-815-11	SWITCH BLOCK, CONTROL (XR91030)
563	2-892-092-01	CABINET (R), XL
564	X-2159-318-1	CABINET ASSY (D), HANDLE
565	2-892-095-01	CLAMP, CABLE
#49	2-630-005-31	SCREW (M2), NEW TRUSTER, P2 (Black)
#50	2-891-494-11	SCREW (M2), NEW TRUSTER, P2 (Red)
#53	3-080-206-21	SCREW, TAPPING, P2 (Black)
#55	2-655-582-11	SCREW 0+P2 M2 NEWTRU-STAR (Silver)
#60	3-061-062-11	BOLT (M2.6) (Black)
#62	3-080-202-21	SCREW (M2), LOCK ACE, P2 (Silver)

5-1-13. MECHANISM DECK SECTION

ns: not supplied

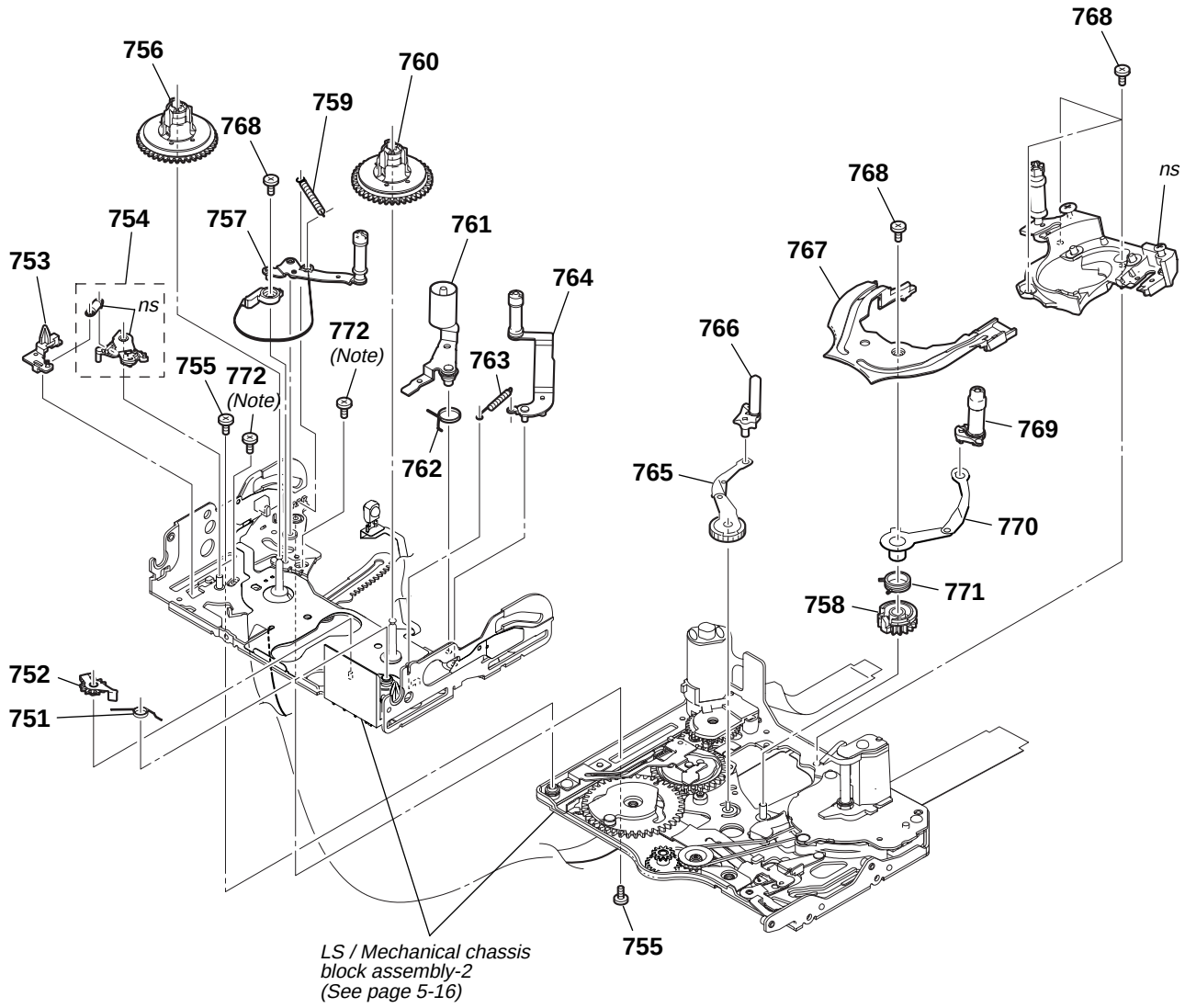


Ref. No.	Part No.	Description
701	X-2024-478-1	PENDULUM ASSY
702	2-342-917-02	LED BASE
703	7-627-850-77	SCREW, PRECISION +P 1.4X1.8
704	3-079-366-11	RELEASE, REEL LOCK
705	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD
706	X-2149-724-1	COMPARTMENT ASSY, CASSETTE
707	2-342-926-01	SPRING (ARM S), TENSION COIL
708	2-546-417-01	SCREW (M1.4)
709	2-342-933-02	PLATE, TOP

Ref. No.	Part No.	Description
710	2-342-927-01	SPRING (ARM T), TENSION COIL
711	2-541-585-01	SHEET, FLEXIBLE ADHESIVE
712	2-342-918-01	TG6 CATCHER
713	A-1080-997-A	MD (N100) SUB ASSY A
714	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
715	3-315-414-31	WASHER
M901	A-1128-533-A	DRUM (DEH-33B-R)

5-1-14. LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-1

ns: not supplied



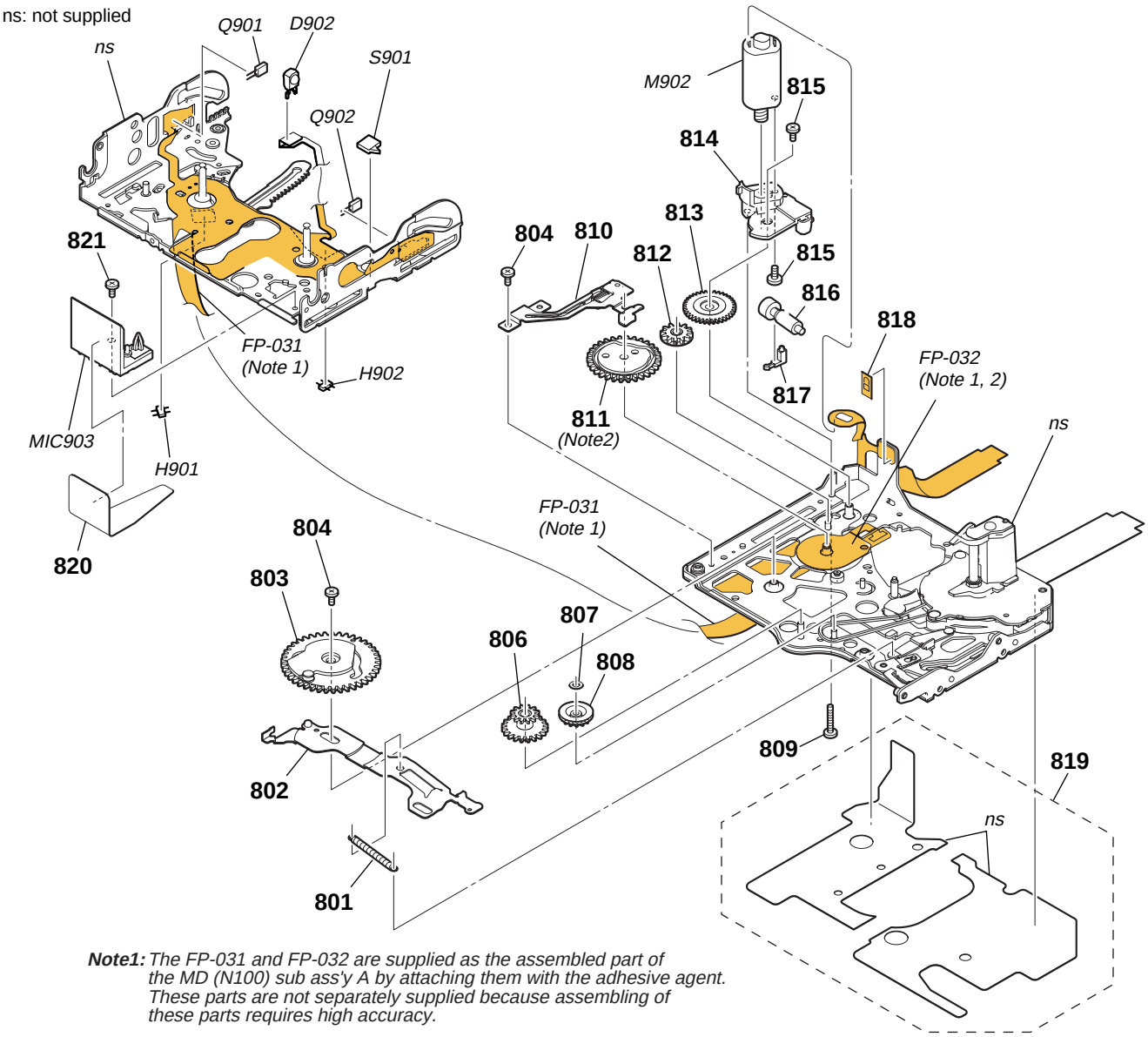
Note: *These two screws are the fixing screws of the LS cam plate.*
These two fixing screws are used for adjsting the LS cam plate position.
(refar to 4-2. LS cam adjustment of DV mechanical adjustment manual IX)

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)

5-1-15. 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
816	2-342-689-01	WORM SHAFT (2J)

Ref. No.	Part No.	Description
817	2-342-690-02	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-1223-596-A	PRISM ASSY (SERVICE)			
	(Not supplied)	EE-006 BOARD, COMPLETE			
		**********			
		(EE-006 complete board and IC5601 are not supplied, but they are included in prism assy.)			
		< CAPACITOR >			
C5601	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5603	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C5604	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5607	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5608	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5609	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5611	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5612	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C5613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5615	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5617	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5618	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5620	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5621	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5622	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5623	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5624	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C5625	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5626	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5627	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5628	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5629	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5630	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5631	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5632	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5633	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5634	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5635	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5636	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5637	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5638	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
		< CONNECTOR >			
* CN5601	1-820-806-21	CONNECTOR, COAXIAL (RECEPTACLE)			
		< FERRITE BEAD >			
FB5601	1-400-331-11	FERRITE, EMI (SMD) (1005)			
FB5602	1-400-331-11	FERRITE, EMI (SMD) (1005)			
FB5603	1-400-331-11	FERRITE, EMI (SMD) (1005)			
		< IC >			
IC5601	(Not supplied)	IMX013BLA-13 (CMOS IMAGER) (Note)			

Ref. No.	Part No.	Description			
		< COIL >			
L5601	1-400-588-11	INDUCTOR	10uH		
L5602	1-400-588-11	INDUCTOR	10uH		
L5603	1-400-588-11	INDUCTOR	10uH		
L5604	1-400-588-11	INDUCTOR	10uH		
		< RESISTOR >			
R5601	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5609	1-218-941-81	RES-CHIP	100	5%	1/16W
	(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)			
	(Not supplied)	FP-032 FLEXIBLE BOARD			
		**********			
		(This flexible board with S903 is included in MD (N100) sub assy A (A-1080-997-A).)			
	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)			
		**********			
	A-1217-228-A	FP-483 FLEXIBLE BOARD, COMPLETE			
		**********			
		< RESISTOR >			
R301	1-216-822-11	METAL CHIP	1.2K	5%	1/10W
R302	1-216-823-11	METAL CHIP	1.5K	5%	1/10W
		< SWITCH >			
S303	1-771-487-21	SWITCH, SLIDE (HANDLE ZOOM (H/L/OFF))			

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

Ref. No.	Part No.	Description			
	A-1217-229-A	FP-484 FLEXIBLE BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C4001	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< CONNECTOR >			
CN4001	1-817-543-51	CONNECTOR, FPC (ZIF) 27P			
		< DIODE >			
D4001	8-719-073-01	DIODE MA111-(K8).S0			
D4002	8-719-064-07	DIODE SML-310LTT86 (REC LAMP (BACK))			
		< IC >			
IC4001	6-600-163-01	IC RS-770			
		< RESISTOR >			
R001	1-216-805-11	METAL CHIP	47	5%	1/10W
R002	1-216-821-11	METAL CHIP	1K	5%	1/10W
	A-1217-230-A	FP-485 FLEXIBLE BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
* CN501	1-816-643-51	FFC/FPC CONNECTOR (LIF) 10P			
* CN502	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P			
		< RESISTOR >			
R501	1-216-295-91	SHORT CHIP	0		
		< SWITCH >			
S001	1-786-180-31	SWITCH, PUSH (1KEY) (EJECT)			
	A-1217-231-A	FP-486 FLEXIBLE BOARD, COMPLETE			
		**********			
		< FERRITE BEAD >			
FB601	1-414-760-21	FERRITE, EMI (SMD) (1608)			
FB602	1-414-760-21	FERRITE, EMI (SMD) (1608)			
FB603	1-414-760-21	FERRITE, EMI (SMD) (1608)			
		< JACK >			
J601	1-794-525-12	JACK, MIC (🎧 (HEADPHONES))			
		< RESISTOR >			
R602	1-216-295-91	SHORT CHIP	0		
R603	1-216-864-11	SHORT CHIP	0		
	A-1217-232-A	FP-487 FLEXIBLE BOARD, COMPLETE			
		**********			
		< SWITCH >			
S701	1-771-039-31	SWITCH, PUSH (PANEL REVERSE)			
S702	1-786-148-11	SWITCH, PUSH (1 KEY) (PANEL OPEN/CLOSE)			
	A-1217-233-A	FP-488 FLEXIBLE BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
		< DIODE >			
D101	8-719-064-07	DIODE SML-310LTT86 (REC LAMP (FRONT))			
D102	8-719-073-01	DIODE MA111-(K8).S0			
		< IC >			
IC101	6-600-163-01	IC RS-770			
		< RESISTOR >			
R101	1-216-821-11	METAL CHIP	1K	5%	1/10W
R102	1-216-805-11	METAL CHIP	47	5%	1/10W
	A-1217-218-A	GG-003 BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
* CN8202	1-817-564-71	CONNECTOR, FPC (ZIF) 33P			
CN8203	1-779-327-51	CONNECTOR, FFC/FPC 6P			
* CN8205	1-816-057-51	CONNECTOR, FPC (ZIF) 39P			
		< RESISTOR >			
R8208	1-218-970-11	RES-CHIP	27K	5%	1/16W
R8211	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R8212	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R8213	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8256	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R8257	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R8261	1-218-990-81	SHORT CHIP	0		
R8262	1-218-990-81	SHORT CHIP	0		
R8263	1-218-990-81	SHORT CHIP	0		
R8264	1-218-990-81	SHORT CHIP	0		
	A-1217-219-A	HH-003 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C7402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7406	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7407	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C7409	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C7410	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C7411	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C7412	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
		< CONNECTOR >			
CN7201	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			

Ref. No.	Part No.	Description			
* CN7401	1-819-696-21	CONNECTOR, HDMI (HDMI OUT)			
		< DIODE >			
D7402	8-719-056-85	DIODE UDZ-TE-17-8.2B			
		< FILTER >			
FL7401	1-234-939-21	FILTER, EMI REMOVAL (SMD)			
		< IC >			
IC7401	6-705-338-01	IC TK11250CMCL-G			
* IC7402	6-710-428-01	IC AD9889ABBCZRL-80			
		< COIL >			
L7401	1-400-588-11	INDUCTOR	10uH		
L7402	1-400-588-11	INDUCTOR	10uH		
L7403	1-400-588-11	INDUCTOR	10uH		
		< LINE FILTER >			
* LF7401	1-813-308-11	COMMON MODE CHOKE			
* LF7402	1-813-308-11	COMMON MODE CHOKE			
* LF7403	1-813-308-11	COMMON MODE CHOKE			
* LF7404	1-813-308-11	COMMON MODE CHOKE			
		< RESISTOR >			
R7201	1-218-941-81	RES-CHIP	100	5%	1/16W
R7202	1-218-941-81	RES-CHIP	100	5%	1/16W
R7203	1-218-941-81	RES-CHIP	100	5%	1/16W
R7204	1-218-941-81	RES-CHIP	100	5%	1/16W
R7205	1-218-941-81	RES-CHIP	100	5%	1/16W
R7206	1-218-941-81	RES-CHIP	100	5%	1/16W
R7207	1-218-941-81	RES-CHIP	100	5%	1/16W
R7208	1-218-941-81	RES-CHIP	100	5%	1/16W
R7209	1-218-941-81	RES-CHIP	100	5%	1/16W
R7210	1-218-941-81	RES-CHIP	100	5%	1/16W
R7211	1-218-941-81	RES-CHIP	100	5%	1/16W
R7212	1-218-941-81	RES-CHIP	100	5%	1/16W
R7213	1-218-941-81	RES-CHIP	100	5%	1/16W
R7214	1-218-941-81	RES-CHIP	100	5%	1/16W
R7215	1-218-941-81	RES-CHIP	100	5%	1/16W
R7216	1-218-941-81	RES-CHIP	100	5%	1/16W
R7217	1-218-941-81	RES-CHIP	100	5%	1/16W
R7218	1-218-941-81	RES-CHIP	100	5%	1/16W
R7219	1-218-941-81	RES-CHIP	100	5%	1/16W
R7220	1-218-941-81	RES-CHIP	100	5%	1/16W
R7221	1-218-941-81	RES-CHIP	100	5%	1/16W
R7222	1-218-941-81	RES-CHIP	100	5%	1/16W
R7223	1-218-941-81	RES-CHIP	100	5%	1/16W
R7224	1-218-941-81	RES-CHIP	100	5%	1/16W
R7225	1-218-941-81	RES-CHIP	100	5%	1/16W
R7226	1-218-941-81	RES-CHIP	100	5%	1/16W
R7228	1-218-941-81	RES-CHIP	100	5%	1/16W
R7229	1-218-941-81	RES-CHIP	100	5%	1/16W
R7230	1-218-941-81	RES-CHIP	100	5%	1/16W
R7231	1-218-941-81	RES-CHIP	100	5%	1/16W
R7232	1-218-941-81	RES-CHIP	100	5%	1/16W
R7401	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R7402	1-218-961-11	RES-CHIP	4.7K	5%	1/16W

Ref. No.	Part No.	Description			
R7416	1-218-941-81	RES-CHIP	100	5%	1/16W
R7417	1-218-941-81	RES-CHIP	100	5%	1/16W
R7418	1-218-941-81	RES-CHIP	100	5%	1/16W
R7419	1-218-973-11	RES-CHIP	47K	5%	1/16W
R7420	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R7421	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R7424	1-218-990-81	SHORT CHIP	0		
R7428	1-218-990-81	SHORT CHIP	0		
R7429	1-208-886-81	METAL CHIP	910	0.5%	1/16W
R7433	1-218-941-81	RES-CHIP	100	5%	1/16W
* R7434	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
	A-1217-208-A	II-003 BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
* CN9201	1-817-544-71	CONNECTOR, FPC (ZIF) 39P			
* CN9202	1-794-276-21	CONNECTOR, SQUARE TYPE 4P (HDV/DV)			
CN9203	1-815-794-13	CONNECTOR (MULTIPLE) (A/V OUT)			
CN9204	1-818-607-12	CONNECTOR, SQUARE TYPE 10P (COMPONENT OUT)			
		< DIODE >			
D9201	6-500-252-01	DIODE SML-512WWT86 (CHARGE)			
D9203	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9204	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9205	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9206	6-500-750-01	DIODE NSAD500H-T1-A			
		< FERRITE BEAD >			
FB9201	1-414-760-21	FERRITE, EMI (SMD) (1608)			
FB9202	1-414-760-21	FERRITE, EMI (SMD) (1608)			
		< THERMISTOR >			
TH9201	1-805-726-11	THERMISTOR, POSITIVE			
TH9202	1-805-726-11	THERMISTOR, POSITIVE			
TH9203	1-805-726-11	THERMISTOR, POSITIVE			
TH9204	1-805-726-11	THERMISTOR, POSITIVE			
		< VARISTOR >			
VDR921	1-803-974-21	VARISTOR, CHIP	(1608)		
VDR922	1-803-974-21	VARISTOR, CHIP	(1608)		
VDR924	1-803-974-21	VARISTOR, CHIP	(1608)		
	A-1227-577-A	JJ-004 BOARD, COMPLETE (SERVICE)			
		**********			
		< CAPACITOR >			
C8001	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C8002	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C8005	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8006	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8007	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C8008	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C8009	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C8010	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C8011	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C8012	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V

JJ-004 **NN-003**

Ref. No.	Part No.	Description			
C8013	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C8014	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C8017	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8018	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
		< CONNECTOR >			
* CN8001	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P			
		< IC >			
IC8001	8-759-489-19	IC uPC6756GR-8JG-E2			
		< RESISTOR >			
R8001	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8002	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8003	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8004	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8005	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8007	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8008	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8009	1-218-989-11	RES-CHIP	1M	5%	1/16W
		< SENSOR >			
* SE8001	1-479-022-51	SENSOR, ANGULAR VELOCITY (PITCH)			
* SE8002	1-479-022-61	SENSOR, ANGULAR VELOCITY (YAW)			
	A-1217-221-A	NN-003 BOARD, COMPLETE **********			
		< CAPACITOR >			
C5001	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C5002	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C5003	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C5004	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C5005	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5006	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5007	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5008	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5201	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5202	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5203	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5204	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C5205	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5209	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C5210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5211	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C5212	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5213	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5214	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5215	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5216	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5217	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5218	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C5402	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C5406	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5407	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5408	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5409	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5410	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5411	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C5412	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C5413	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5414	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C5415	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5416	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5417	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5418	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5419	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5421	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5422	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5423	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5424	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5425	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C5426	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C5427	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C5428	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5429	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C5430	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5431	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5432	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5433	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C5434	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C5435	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5436	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C5437	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C5438	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5439	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C5440	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5441	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C5442	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
		< CONNECTOR >			
CN5001	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
* CN5201	1-816-643-51	FFC/FPC CONNECTOR (LIF) 10P			
* CN5401	1-818-818-51	CONNECTOR, FPC (ZIF) 29P			
* CN5402	1-816-643-51	FFC/FPC CONNECTOR (LIF) 10P			
* CN5403	1-817-829-51	CONNECTOR, FPC (ZIF) 27P			
		< DIODE >			
D5002	6-501-125-01	DIODE MA21D3400LS0			
		< IC >			
IC5001	6-707-401-01	IC FB6805Q-TE2			
IC5002	6-707-633-01	IC FB6825Q-TE2			
IC5201	6-703-228-01	IC TK11160CSCL-G			
IC5202	6-707-432-01	IC TLS26A102PFBR			
IC5402	6-707-428-01	IC BD6639AGLV-E2			
		< COIL >			
L5201	1-400-588-11	INDUCTOR	10uH		
L5202	1-400-588-11	INDUCTOR	10uH		

Ref. No.	Part No.	Description			
L5401	1-400-202-21	INDUCTOR	4.7uH		
L5402	1-414-771-91	INDUCTOR	10uH		
		< TRANSISTOR >			
Q5401	6-550-242-01	TRANSISTOR	DTC114EMT2L		
Q5402	6-550-174-01	TRANSISTOR	2SA2030T2L		
Q5403	6-550-237-01	TRANSISTOR	2SC5658T2LQ/R		
		< RESISTOR >			
R5001	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5002	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5203	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5204	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5205	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5206	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5207	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R5208	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R5209	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R5210	1-218-990-81	SHORT CHIP	0		
R5212	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R5213	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R5214	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R5215	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R5216	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R5401	1-218-935-11	RES-CHIP	33	5%	1/16W
R5402	1-218-935-11	RES-CHIP	33	5%	1/16W
R5403	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5421	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5422	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5423	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5424	1-218-941-81	RES-CHIP	100	5%	1/16W
R5425	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5426	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R5427	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R5428	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R5429	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5430	1-218-946-11	RES-CHIP	270	5%	1/16W
R5431	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5434	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5435	1-218-935-11	RES-CHIP	33	5%	1/16W
R5436	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5437	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5438	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5439	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5441	1-218-957-11	RES-CHIP	2.2K	5%	1/16W

A-1217-223-A	OO-003 BOARD, COMPLETE	
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	< CAPACITOR >	
C6601	1-100-661-11	TANTAL. CHIP 100uF 20% 4V
C6602	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6605	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V
C6606	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C6607	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C6608	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C6609	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V

Ref. No.	Part No.	Description			
C6610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6611	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6612	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C6613	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C6614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6615	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C6616	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C6617	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6618	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C6619	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C6620	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C6621	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C6622	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C6625	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6626	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C6627	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6630	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6631	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6632	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C6633	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C6634	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6635	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6636	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6637	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6638	1-104-700-11	CERAMIC CHIP	0.027uF	10%	16V
C6639	1-104-700-11	CERAMIC CHIP	0.027uF	10%	16V
C6640	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6641	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C6642	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6645	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C6646	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6647	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C6648	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

	< CONNECTOR >	
* CN6601	1-819-934-51	CONNECTOR, FPC (ZIF) 39P
CN6602	1-817-920-11	CONNECTOR, FPC (ZIF) 80P
* CN6603	1-819-778-51	CONNECTOR, FPC (ZIF) 33P
	< DIODE >	
D6601	8-719-084-47	DIODE 1SV290 (TPL3)
	< IC >	
IC6601	8-759-660-93	IC RB5P004AM2
IC6602	8-753-229-41	IC CXD3537R-T4
IC6603	6-701-112-01	IC DS1801E-02V+T/R
IC6604	6-706-906-01	IC NJM2732RB1 (TE2)
IC6605	6-707-702-01	IC NJM2746RB1 (TE2)
IC6606	6-701-979-01	IC TC7WB66FK (TE85R)
IC6607	6-701-979-01	IC TC7WB66FK (TE85R)
IC6608	6-701-979-01	IC TC7WB66FK (TE85R)
IC6609	6-701-979-01	IC TC7WB66FK (TE85R)
	< COIL >	
L6602	1-414-771-91	INDUCTOR 10uH
L6603	1-414-771-91	INDUCTOR 10uH
L6604	1-414-248-11	INDUCTOR 2.2uH
L6605	1-414-771-91	INDUCTOR 10uH

OO-003 **PP-003**

Ref. No.	Part No.	Description			
		< TRANSISTOR >			
Q6601	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q6602	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q6603	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q6604	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q6605	8-729-427-74	TRANSISTOR	XP4601		
Q6606	8-729-427-74	TRANSISTOR	XP4601		
Q6607	8-729-427-72	TRANSISTOR	XP4501		
		< RESISTOR >			
R6603	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6604	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6607	1-218-967-11	RES-CHIP	15K	5%	1/16W
R6608	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R6609	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6610	1-218-975-11	RES-CHIP	68K	5%	1/16W
R6611	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6612	1-218-975-11	RES-CHIP	68K	5%	1/16W
R6613	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6614	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6615	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6616	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R6617	1-218-941-81	RES-CHIP	100	5%	1/16W
R6618	1-218-967-11	RES-CHIP	15K	5%	1/16W
R6619	1-218-941-81	RES-CHIP	100	5%	1/16W
R6620	1-218-941-81	RES-CHIP	100	5%	1/16W
R6621	1-218-941-81	RES-CHIP	100	5%	1/16W
R6622	1-218-967-11	RES-CHIP	15K	5%	1/16W
R6624	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6625	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6628	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R6629	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R6630	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R6631	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R6632	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R6633	1-219-601-81	METAL CHIP	62K	0.5%	1/16W
R6634	1-219-601-81	METAL CHIP	62K	0.5%	1/16W
R6635	1-219-602-11	METAL CHIP	68K	0.5%	1/16W
R6636	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6637	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R6638	1-208-717-11	METAL CHIP	27K	0.5%	1/16W
R6639	1-208-717-11	METAL CHIP	27K	0.5%	1/16W
R6640	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R6642	1-218-990-81	SHORT CHIP	0		
R6645	1-244-161-81	RES-CHIP	2.2	5%	1/16W
R6646	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6648	1-208-911-11	METAL CHIP	10K	0.5%	1/16W

A-1217-211-A	PP-003 BOARD, COMPLETE	
	**********	
	< CAPACITOR >	
C9002	1-127-895-91	TANTAL. CHIP 22uF 20% 4V
C9004	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9006	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C9008	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C9009	1-164-739-11	CERAMIC CHIP 560PF 5% 50V
C9010	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C9011	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C9012	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C9013	1-137-700-11	TANTAL. CHIP 10uF 20% 6.3V
C9015	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9016	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9017	1-112-300-91	CERAMIC CHIP 4.7uF 10% 10V
C9018	1-112-300-91	CERAMIC CHIP 4.7uF 10% 10V
C9020	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C9021	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9023	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C9024	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C9025	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C9026	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
		< CONNECTOR >
* CN9003	1-785-905-51	CONNECTOR, FFC/FPC (ZIF) 24P
* CN9004	1-794-322-51	CONNECTOR, FFC/FPC (ZIF) 6P
CN9005	1-816-928-11	PIN, CONNECTOR 22P
		< DIODE >
D9001	8-719-074-67	DIODE EDZ-TE61-5.6B
		< FERRITE BEAD >
FB9001	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
		< IC >
IC9002	8-753-229-98	IC CXM3006CR-T4
		< COIL >
* L9001	1-400-411-21	INDUCTOR 4.7uH
* L9002	1-400-411-21	INDUCTOR 4.7uH
* L9003	1-400-411-21	INDUCTOR 4.7uH
		< TRANSISTOR >
Q9003	6-550-239-01	TRANSISTOR DTA144EMT2L
Q9004	8-729-054-48	TRANSISTOR UP04601008S0
Q9005	8-729-054-48	TRANSISTOR UP04601008S0
Q9006	6-550-232-01	TRANSISTOR 2SA2029T2LQ/R
Q9007	6-550-234-01	TRANSISTOR UNR32A300LS0
Q9008	6-550-232-01	TRANSISTOR 2SA2029T2LQ/R
Q9009	6-551-184-01	TRANSISTOR MCH6305-TL-E-S
		< RESISTOR >
R9010	1-218-975-11	RES-CHIP 68K 5% 1/16W
R9012	1-218-949-11	RES-CHIP 470 5% 1/16W
R9014	1-208-691-11	METAL CHIP 2.2K 0.5% 1/16W
R9015	1-208-695-11	METAL CHIP 3.3K 0.5% 1/16W
R9017	1-218-975-11	RES-CHIP 68K 5% 1/16W
R9018	1-208-934-11	METAL CHIP 91K 0.5% 1/16W
R9019	1-208-643-11	METAL CHIP 22 0.5% 1/16W
R9020	1-208-703-11	METAL CHIP 6.8K 0.5% 1/16W
R9021	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R9022	1-218-969-11	RES-CHIP 22K 5% 1/16W
R9023	1-218-950-11	RES-CHIP 560 5% 1/16W

Ref. No.	Part No.	Description			
R9025	1-218-969-11	RES-CHIP	22K	5%	1/16W
R9028	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R9029	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R9031	1-218-953-11	RES-CHIP	1K	5%	1/16W
R9032	1-218-977-11	RES-CHIP	100K	5%	1/16W
R9033	1-218-978-11	RES-CHIP	120K	5%	1/16W
R9034	1-218-989-11	RES-CHIP	1M	5%	1/16W

A-1217-212-A RR-003 BOARD, COMPLETE
****

(BT9601 (lithium battery) is not included in RR-003 complete board.)

< BATTERY HOLDER >

⚠ BH9601 1-756-615-41 HOLDER, BATTERY (Note)

< BATTERY >

⚠ BT9601 1-756-134-12 BATTERY, STORAGE, LITHIUM (Note)

< CONNECTOR >

*	CN9601	1-819-781-51	CONNECTOR, FPC (ZIF) 45P
*	CN9602	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P
*	CN9603	1-816-645-51	FFC/FPC CONNECTOR (LIF) 14P
	CN9604	1-794-057-21	PIN, CONNECTOR (PC BOARD) 2P
	CN9606	1-816-928-11	PIN, CONNECTOR 22P
	CN9607	1-779-327-51	CONNECTOR, FFC/FPC 6P

< DIODE >

D9601	8-719-422-64	DIODE	MA8062-M
D9602	8-719-422-64	DIODE	MA8062-M
D9603	8-719-422-64	DIODE	MA8062-M
D9604	8-719-422-64	DIODE	MA8062-M
D9605	8-719-422-64	DIODE	MA8062-M
D9606	8-719-422-64	DIODE	MA8062-M
D9607	8-719-422-64	DIODE	MA8062-M
D9608	6-500-289-01	DIODE	MAZW082H0LS0

< COIL >

L9601	1-414-406-11	INDUCTOR	220uH
L9602	1-414-406-11	INDUCTOR	220uH

< RESISTOR >

R9608	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R9609	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R9610	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R9611	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R9612	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R9613	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R9614	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R9615	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R9616	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R9617	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R9618	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R9619	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R9620	1-218-970-11	RES-CHIP	27K	5%	1/16W
R9621	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R9622	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R9623	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R9624	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R9625	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R9626	1-218-970-11	RES-CHIP	27K	5%	1/16W
R9627	1-218-970-11	RES-CHIP	27K	5%	1/16W
R9628	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R9629	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R9630	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R9631	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R9632	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R9633	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R9634	1-218-970-11	RES-CHIP	27K	5%	1/16W

< SWITCH >

S9601	1-786-157-31	TACTILE SWITCH (RESET)
S9602	1-786-157-31	TACTILE SWITCH (DISPLAY/BATT INFO)
S9603	1-786-157-31	TACTILE SWITCH (STOP ■)
S9604	1-786-157-31	TACTILE SWITCH (PAUSE ❚❚)
S9605	1-786-157-31	TACTILE SWITCH (VOLUME/MEMORY +)
S9606	1-786-157-31	TACTILE SWITCH (REW ◄◄)
S9607	1-786-157-31	TACTILE SWITCH (VOLUME/MEMORY –)
S9608	1-786-157-31	TACTILE SWITCH (ASSIGN (CAMERA)_4/MEMORY (VCR)_PLAY)
S9609	1-786-157-31	TACTILE SWITCH (REC ●)
S9610	1-786-157-31	TACTILE SWITCH (ASSIGN (CAMERA)_5/MEMORY (VCR)_INDEX)
S9611	1-786-157-31	TACTILE SWITCH (REC)
S9612	1-786-157-31	TACTILE SWITCH (ASSIGN (CAMERA)_6/MEMORY (VCR)_DELETE)
S9613	1-786-157-31	TACTILE SWITCH (PLAY ►)
S9614	1-771-487-21	SWITCH, SLIDE (ZEBRA (OFF/70/100))
S9615	1-786-157-31	TACTILE SWITCH (FF ►►)
S9616	1-786-157-31	TACTILE SWITCH (SLOW ❚►)

< VARISTOR >

VDR961	1-801-862-11	VARISTOR, CHIP (1608)
VDR962	1-801-862-11	VARISTOR, CHIP (1608)
VDR963	1-801-862-11	VARISTOR, CHIP (1608)
VDR964	1-801-862-11	VARISTOR, CHIP (1608)

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 (BH9601) together when replacing the lithium battery (BT9601) on the RR-003 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: RR-003基板のリチウム電池（BT9601）を交換する場合はバッテリホルダ（BH9601）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 ⚠.

TT-003

Ref. No.	Part No.	Description			
	A-1217-722-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)			
	A-1217-723-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)			
		**********			
	(IC2402 and IC3804 are not supplied, but they are included in TT-003 complete board.)				
		< CAPACITOR >			
C1112	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C1113	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C1114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1115	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1117	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C1120	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C1121	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C1122	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1123	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1203	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1204	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1211	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1212	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1214	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1217	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1218	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1221	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1222	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1225	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1226	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1229	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1230	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1232	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1234	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1236	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C1239	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1240	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1241	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C1243	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1244	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1245	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1246	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1247	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1248	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1249	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1250	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1251	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1252	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1253	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1254	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1255	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1256	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1257	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1258	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1259	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1260	1-127-895-11	TANTAL. CHIP	22uF	10%	4V

Ref. No.	Part No.	Description			
C1261	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1262	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1263	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C1401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1407	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1408	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1411	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1412	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1413	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1414	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1415	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1416	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C1417	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C1418	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C1419	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1420	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1421	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1422	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1426	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1427	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1601	1-100-786-91	TANTAL. CHIP	22uF	20%	6.3V
C1602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1603	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1801	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C1802	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1803	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1804	1-137-859-11	TANTAL. CHIP	220uF	20%	4V
C1805	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1806	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1807	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1808	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1811	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1812	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1813	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1814	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1815	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1816	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1817	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1818	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1819	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1820	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1821	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1822	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C1823	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1824	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1825	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description			
C1826	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C1827	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1828	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1829	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1830	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1831	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1833	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1834	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1835	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1836	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1837	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1838	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1839	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1840	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1841	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2001	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2003	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2004	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2005	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2006	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2007	1-127-574-91	TANTAL. CHIP	22uF	20%	6.3V
C2008	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2009	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2010	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2011	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2012	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2013	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2201	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C2202	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2203	1-100-842-91	TANTAL. CHIP	47uF	20%	6.3V
C2204	1-100-842-91	TANTAL. CHIP	47uF	20%	6.3V
C2205	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2211	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2212	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2213	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2214	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2215	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2217	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C2218	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C2219	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2220	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2221	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2222	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2223	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2224	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2225	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2226	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C2227	1-100-842-91	TANTAL. CHIP	47uF	20%	6.3V
C2228	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2229	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2230	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2231	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2232	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V

Ref. No.	Part No.	Description			
C2233	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C2234	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2235	1-100-842-91	TANTAL. CHIP	47uF	20%	6.3V
C2401	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2402	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C2403	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C2405	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2406	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C2601	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2602	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2603	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2606	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2607	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2609	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2610	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2611	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2612	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2615	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2618	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2621	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C2622	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2802	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2803	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2804	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2805	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2806	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2808	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2809	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2813	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2814	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2815	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2816	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2817	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C2818	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2820	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2821	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C3001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3003	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3006	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C3007	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C3008	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3010	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3011	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3012	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3013	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
					(NTSC: V1J/V1U/V1N)
C3014	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C3015	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C3016	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3018	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V

TT-003

Ref. No.	Part No.	Description			
C3019	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3022	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3023	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3024	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3025	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3026	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3028	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3029	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3031	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3033	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3035	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3036	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3037	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3038	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3039	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3040	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3042	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3047	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3049	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3051	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3052	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3053	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3054	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3061	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3062	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3064	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3065	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3078	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3079	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3090	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3091	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3092	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3093	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3094	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3096	1-112-300-91	CERAMIC CHIP	4.7uF	10%	10V
C3097	1-112-300-91	CERAMIC CHIP	4.7uF	10%	10V
C3098	1-112-300-91	CERAMIC CHIP	4.7uF	10%	10V
C3099	1-112-300-91	CERAMIC CHIP	4.7uF	10%	10V
C3100	1-100-660-91	CERAMIC CHIP	1uF	10%	10V
C3115	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C3116	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C3121	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3122	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3123	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3128	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3201	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3203	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3206	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3208	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3209	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3210	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3211	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3212	1-112-716-11	CERAMIC CHIP	0.1uF	10%	6.3V
C3214	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3215	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3216	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3401	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			
C3402	1-164-928-11	CERAMIC CHIP	270PF	5%	16V
C3403	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C3404	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C3405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3407	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C3409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3411	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C3412	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C3414	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C3415	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3416	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3418	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3420	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C3601	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C3602	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3603	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3604	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3609	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3611	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3612	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3615	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3617	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3619	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C3620	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C3622	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C3624	1-100-415-11	CERAMIC CHIP	0.47uF	10%	6.3V
C3625	1-164-931-11	CERAMIC CHIP	100PF	10%	50V
C3627	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3629	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3630	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C3632	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3633	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C3634	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C3635	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C3801	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C3802	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C3803	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C3804	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C3805	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3808	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3811	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4001	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4002	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4003	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4004	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4005	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4007	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4008	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C4009	1-128-702-81	CERAMIC CHIP	11PF	5%	50V
C4010	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4011	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4012	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4201	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4202	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4204	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V

Ref. No.	Part No.	Description			
C4205	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C4206	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4209	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4211	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4212	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4213	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4215	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4216	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4217	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4218	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4219	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4220	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4401	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4402	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4406	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C4407	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C4408	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4411	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4412	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4413	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4415	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C4416	1-100-505-91	CERAMIC CHIP	0.1uF	20%	16V
C4417	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4418	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4601	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4603	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C4604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4605	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4606	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C4607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4609	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4610	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4611	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4612	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C4615	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C4616	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C4617	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C4618	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C4619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4621	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4622	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4623	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C4624	1-127-772-81	CERAMIC CHIP	0.033uF	10%	10V
C4625	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C4626	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4627	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4628	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4629	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4630	1-165-908-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description			
C4631	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4632	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4633	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4634	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4635	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4636	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4637	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4638	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4639	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4640	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4641	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4642	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4643	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C4644	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C4645	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C4646	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C4647	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C4648	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4650	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4651	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C4653	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C4654	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4655	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4656	1-100-503-11	CERAMIC CHIP	4.7uF	20%	10V
C4657	1-125-827-91	CERAMIC CHIP	1uF	10%	25V
C4658	1-125-827-91	CERAMIC CHIP	1uF	10%	25V
C4659	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4661	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C4662	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4665	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4666	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4667	1-125-827-91	CERAMIC CHIP	1uF	10%	25V
C4668	1-125-827-91	CERAMIC CHIP	1uF	10%	25V
C4670	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C4671	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4672	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4674	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4676	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C4677	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C4678	1-112-717-91	CERAMIC CHIP	1uF	10%	6.3V
C4679	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C4680	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C4681	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4682	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C4683	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4684	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4685	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4686	1-100-672-11	CERAMIC CHIP	10uF	20%	16V

< CONNECTOR >

* CN1001	1-819-934-51	CONNECTOR, FPC (ZIF) 39P	
* CN1002	1-820-806-21	CONNECTOR, COAXIAL (RECEPTACLE)	
* CN1003	1-820-806-21	CONNECTOR, COAXIAL (RECEPTACLE)	
* CN1004	1-820-806-21	CONNECTOR, COAXIAL (RECEPTACLE)	
CN1005	1-817-543-51	CONNECTOR, FPC (ZIF) 27P	
CN1006	1-779-520-12	CONNECTOR, BOARD TO BOARD 80P	
* CN1007	1-819-781-51	CONNECTOR, FPC (ZIF) 45P	

TT-003

Ref. No.	Part No.	Description
* CN1008	1-779-334-51	CONNECTOR, FFC/FPC 20P
CN1009	1-817-920-11	CONNECTOR, FPC (ZIF) 80P
CN1010	1-817-920-11	CONNECTOR, FPC (ZIF) 80P
* CN1011	1-816-644-51	FFC/FPC CONNECTOR (LIF) 12P
CN1012	1-817-920-11	CONNECTOR, FPC (ZIF) 80P
* CN1014	1-816-646-51	FFC/FPC CONNECTOR (LIF) 16P
CN4601	1-691-550-11	PIN, CONNECTOR (1.5MM) (SMD) 3P
CN4602	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD) 4P
		< DIODE >
D3601	6-500-776-01	DIODE MAZW068H0LS0
D4001	8-719-988-61	DIODE 1SS355TE-17
D4201	8-719-056-23	DIODE MA2S111-(K8).SO
D4202	8-719-056-23	DIODE MA2S111-(K8).SO
D4203	8-719-056-23	DIODE MA2S111-(K8).SO
D4204	8-719-056-23	DIODE MA2S111-(K8).SO
D4601	8-719-027-76	DIODE 1SS357-TPH3
D4602	8-719-081-19	DIODE 1SS383 (T5RSONY1)
D4603	8-719-027-76	DIODE 1SS357-TPH3
D4604	8-719-046-85	DIODE MA2S728
D4606	6-500-813-01	DIODE MA2SD32008S0
D4607	8-719-074-08	DIODE MA4ZD03001S0
D4608	8-719-085-52	DIODE SBS806M-TL-E
D4610	8-719-085-53	DIODE MA2SD10008S0
D4612	6-500-813-01	DIODE MA2SD32008S0
* D4613	6-501-692-01	DIODE MAZT068H08S0
		< FUSE >
⚠F4601	1-576-406-21	FUSE (1.4A/32V)
⚠F4603	1-576-406-21	FUSE (1.4A/32V)
⚠F4604	1-576-406-21	FUSE (1.4A/32V)
⚠F4605	1-576-406-21	FUSE (1.4A/32V)
⚠F4606	1-576-406-21	FUSE (1.4A/32V)
⚠F4607	1-576-406-21	FUSE (1.4A/32V)
		< FERRITE BEAD >
FB1401	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB1402	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB1601	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB1801	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB1802	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB1803	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2001	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2201	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2401	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2601	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2602	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB2801	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB3001	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB3002	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB3401	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB3601	1-469-581-21	INDUCTOR, FERRITE BEAD (1005)
FB3602	1-469-581-21	INDUCTOR, FERRITE BEAD (1005)
FB3606	1-400-723-11	INDUCTOR, FERRITE BEAD (1005)
FB3607	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB3608	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB3610	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB3801	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB3802	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB3803	1-469-082-21	INDUCTOR, FERRITE BEAD (1005)
FB4202	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB4401	1-414-760-21	FERRITE, EMI (SMD) (1608)
		< FILTER >
FL1801	1-234-939-21	FILTER, EMI REMOVAL (SMD)
FL3201	1-234-939-21	FILTER, EMI REMOVAL (SMD)
FL3202	1-234-939-21	FILTER, EMI REMOVAL (SMD)
FL3203	1-234-939-21	FILTER, EMI REMOVAL (SMD)
		< IC >
IC1101	6-706-689-01	IC HD74ALVC2G34USE-E
IC1102	6-706-689-01	IC HD74ALVC2G34USE-E
IC1103	6-706-689-01	IC HD74ALVC2G34USE-E
IC1104	6-703-977-01	IC R1114Q331D-TR-FA
IC1105	6-703-977-01	IC R1114Q331D-TR-FA
* IC1106	6-708-444-01	IC R1114Q281D-TR-FA
IC1107	6-703-976-01	IC R1114Q181D-TR-FA
* IC1201	6-709-440-01	IC VSP2435ZWDR
* IC1203	6-709-440-01	IC VSP2435ZWDR
* IC1401	6-710-308-01	IC CXD9891GG
* IC1601	6-710-302-01	IC K4M56323LG-HN75T
* IC1801	6-709-775-01	IC S4DF006X02-Y070-K02K4C
IC2001	6-708-108-01	IC TLS26A100PFBR
* IC2201	8-753-276-37	IC CXD3195AGG-T6
* IC2401	6-710-306-01	IC HYE18M256320CFX-7.5
IC2402	(Not supplied)	IC S29AL016D70BFI013
IC2601	8-753-231-06	IC CXD3185GG-T6
IC2802	8-752-421-65	IC CXD3167GA-T6
IC3001	6-707-435-01	IC AN12921A-VB
IC3002	6-707-435-01	IC AN12921A-VB
* IC3005	6-709-328-01	IC AK4554VL-8-L
IC3012	8-759-572-38	IC NJM2140R
* IC3201	6-709-444-01	IC T6UL2XBG-0001 (EO2)
* IC3401	6-710-516-01	IC SN200507002ZZCR
* IC3601	6-709-454-01	IC S4LF033X0A-Y070
IC3602	6-702-708-01	IC TC7SZU04AFE (TE85R)
IC3804	(Not supplied)	IC S99-50031-33-ER
IC3805	6-704-974-01	IC AK6512CAS-E2
IC3806	6-702-029-01	IC MD56V16160F-10LAZ03B
* IC4001	6-807-122-01	IC MB89083LGA-G-129-ERE1
* IC4201	6-807-213-01	IC MB91195ABGL-G-228-ERE1
* IC4202	6-706-013-01	IC AK6514CF-E2
* IC4401	6-807-176-01	IC MB91195ABGL-G-224-ERE1
* IC4601	6-710-636-01	IC MB44C005BBGL-G-ERE1
* IC4602	6-708-464-01	IC R1114Q251D-TR-FA
* IC4603	6-708-707-01	IC AN31925A-NL
IC4604	6-708-133-01	IC TK72130CSCL-G
		< COIL >
L1202	1-469-967-21	INDUCTOR 10uH
L1203	1-400-588-11	INDUCTOR 10uH
L1205	1-469-967-21	INDUCTOR 10uH
L1206	1-400-588-11	INDUCTOR 10uH
L1401	1-469-555-21	INDUCTOR 10uH

• Refer to page 5-1 for mark ⚠.

Ref. No.	Part No.	Description	
L1402	1-469-555-21	INDUCTOR	10uH
L1403	1-469-555-21	INDUCTOR	10uH
L1404	1-414-755-11	INDUCTOR	22uH
L1801	1-400-676-11	INDUCTOR	22uH
L1802	1-400-675-11	INDUCTOR	10uH
L1803	1-400-588-11	INDUCTOR	10uH
L1804	1-400-588-11	INDUCTOR	10uH
L1805	1-400-676-11	INDUCTOR	22uH
L2001	1-400-588-11	INDUCTOR	10uH
L2002	1-400-588-11	INDUCTOR	10uH
L2003	1-400-588-11	INDUCTOR	10uH
L2201	1-400-675-11	INDUCTOR	10uH
L2202	1-400-676-11	INDUCTOR	22uH
L2203	1-400-676-11	INDUCTOR	22uH
L2204	1-400-676-11	INDUCTOR	22uH
L2205	1-400-676-11	INDUCTOR	22uH
L2802	1-400-588-11	INDUCTOR	10uH
L2803	1-400-588-11	INDUCTOR	10uH
L2804	1-400-588-11	INDUCTOR	10uH
L2805	1-400-588-11	INDUCTOR	10uH
L2806	1-400-588-11	INDUCTOR	10uH
L3001	1-414-771-91	INDUCTOR	10uH
L3003	1-414-771-91	INDUCTOR	10uH
L3004	1-400-588-11	INDUCTOR	10uH
L3006	1-414-771-91	INDUCTOR	10uH
L3008	1-414-771-91	INDUCTOR	10uH
L3010	1-400-588-11	INDUCTOR	10uH
L3014	1-400-588-11	INDUCTOR	10uH
L3016	1-414-771-91	INDUCTOR	10uH
L3401	1-400-588-11	INDUCTOR	10uH
L4601	1-456-136-21	INDUCTOR	10uH
L4602	1-456-136-21	INDUCTOR	10uH
L4603	1-456-497-11	INDUCTOR	15uH
L4604	1-456-136-21	INDUCTOR	10uH
L4605	1-456-497-11	INDUCTOR	15uH
L4606	1-456-136-21	INDUCTOR	10uH
L4607	1-456-497-11	INDUCTOR	15uH
L4608	1-456-497-11	INDUCTOR	15uH
L4609	1-456-497-11	INDUCTOR	15uH
L4610	1-469-549-21	INDUCTOR	1uH
L4611	1-456-498-11	INDUCTOR	47uH
L4614	1-469-549-21	INDUCTOR	1uH
L4615	1-469-551-21	INDUCTOR	2.2uH
L4616	1-469-549-21	INDUCTOR	1uH
L4618	1-469-549-21	INDUCTOR	1uH
L4621	1-469-561-21	INDUCTOR	100uH
L4623	1-469-551-21	INDUCTOR	2.2uH
L4624	1-469-555-21	INDUCTOR	10uH
L4627	1-469-549-21	INDUCTOR	1uH
L4628	1-469-549-21	INDUCTOR	1uH
L4629	1-469-553-21	INDUCTOR	4.7uH
L4630	1-469-555-21	INDUCTOR	10uH

< LINE FILTER >

LF3401	1-400-633-21	COMMON MODE CHOKE COIL	
LF3402	1-400-633-21	COMMON MODE CHOKE COIL	
LF3601	1-456-583-11	COMMON MODE CHOKE COIL	
LF4601	1-411-957-11	FILTER, COMMON MODE	

Ref. No.	Part No.	Description			
		< TRANSISTOR >			
Q2001	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q2002	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q2003	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q2004	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q2005	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q2006	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q3001	8-729-054-52	TRANSISTOR	UP04216008S0		
Q3002	8-729-054-52	TRANSISTOR	UP04216008S0		
Q3003	8-729-056-73	TRANSISTOR	CPH6501-TL-E		
Q3601	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q3602	6-550-237-01	TRANSISTOR	2SC5658T2LQ/R		
Q3603	6-550-234-01	TRANSISTOR	UNR32A300LS0		
Q3604	6-550-239-01	TRANSISTOR	DTA144EMT2L		
Q3605	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR (TPLR3)		
Q3606	6-550-174-01	TRANSISTOR	2SA2030T2L		
Q4001	6-551-345-01	TRANSISTOR	SSM6L16FE (TPLR3)		
Q4002	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q4601	6-551-115-01	TRANSISTOR	ECH8631-S-TL-E		
Q4602	8-729-047-68	TRANSISTOR	SSM3K03FE (TPL3)		
Q4603	8-729-047-68	TRANSISTOR	SSM3K03FE (TPL3)		
Q4604	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q4605	8-729-043-60	TRANSISTOR	CPH6102-TL-E		
Q4606	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q4607	6-550-006-01	TRANSISTOR	UN911BJ-(K8).SO		
Q4608	8-729-056-72	TRANSISTOR	MCH5805-TL-E		
Q4609	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
		< RESISTOR >			
R1001	1-218-947-11	RES-CHIP	330	5%	1/16W
R1002	1-218-935-11	RES-CHIP	33	5%	1/16W
R1003	1-218-935-11	RES-CHIP	33	5%	1/16W
R1004	1-218-935-11	RES-CHIP	33	5%	1/16W
R1005	1-218-990-81	SHORT CHIP	0		
R1006	1-218-990-81	SHORT CHIP	0		
R1007	1-218-990-81	SHORT CHIP	0		
R1009	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R1010	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1012	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R1015	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R1021	1-218-990-81	SHORT CHIP	0		
R1026	1-218-990-81	SHORT CHIP	0		
R1029	1-240-678-91	METAL CHIP	33	5%	1/20W
R1030	1-240-678-91	METAL CHIP	33	5%	1/20W
R1031	1-240-678-91	METAL CHIP	33	5%	1/20W
R1032	1-240-678-91	METAL CHIP	33	5%	1/20W
R1033	1-240-678-91	METAL CHIP	33	5%	1/20W
R1034	1-240-678-91	METAL CHIP	33	5%	1/20W
R1035	1-240-678-91	METAL CHIP	33	5%	1/20W
R1036	1-240-678-91	METAL CHIP	33	5%	1/20W
R1037	1-240-678-91	METAL CHIP	33	5%	1/20W
R1038	1-240-678-91	METAL CHIP	33	5%	1/20W
R1039	1-240-678-91	METAL CHIP	33	5%	1/20W
R1040	1-240-678-91	METAL CHIP	33	5%	1/20W
R1041	1-240-678-91	METAL CHIP	33	5%	1/20W
R1042	1-240-678-91	METAL CHIP	33	5%	1/20W

TT-003

Ref. No.	Part No.	Description			
R1043	1-240-678-91	METAL CHIP	33	5%	1/20W
R1044	1-240-678-91	METAL CHIP	33	5%	1/20W
R1045	1-240-678-91	METAL CHIP	33	5%	1/20W
R1046	1-240-678-91	METAL CHIP	33	5%	1/20W
R1047	1-240-678-91	METAL CHIP	33	5%	1/20W
R1048	1-240-678-91	METAL CHIP	33	5%	1/20W
R1049	1-240-678-91	METAL CHIP	33	5%	1/20W
R1050	1-240-678-91	METAL CHIP	33	5%	1/20W
R1051	1-240-678-91	METAL CHIP	33	5%	1/20W
R1052	1-240-678-91	METAL CHIP	33	5%	1/20W
R1053	1-240-678-91	METAL CHIP	33	5%	1/20W
R1054	1-240-678-91	METAL CHIP	33	5%	1/20W
R1055	1-240-678-91	METAL CHIP	33	5%	1/20W
R1056	1-240-678-91	METAL CHIP	33	5%	1/20W
R1057	1-240-678-91	METAL CHIP	33	5%	1/20W
R1058	1-240-678-91	METAL CHIP	33	5%	1/20W
R1059	1-240-678-91	METAL CHIP	33	5%	1/20W
R1060	1-240-678-91	METAL CHIP	33	5%	1/20W
R1061	1-240-678-91	METAL CHIP	33	5%	1/20W
R1062	1-240-678-91	METAL CHIP	33	5%	1/20W
R1063	1-240-678-91	METAL CHIP	33	5%	1/20W
R1222	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1224	1-218-990-81	SHORT CHIP	0		
R1237	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1238	1-218-990-81	SHORT CHIP	0		
R1401	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1402	1-218-990-81	SHORT CHIP	0		
R1403	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1404	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1405	1-218-990-81	SHORT CHIP	0		
R1407	1-218-940-11	RES-CHIP	82	5%	1/16W
R1408	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1412	1-218-990-81	SHORT CHIP	0		
R1413	1-218-947-11	RES-CHIP	330	5%	1/16W
R1414	1-218-990-81	SHORT CHIP	0		
R1416	1-218-990-81	SHORT CHIP	0		
R1421	1-218-990-81	SHORT CHIP	0		
R1422	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1805	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1807	1-218-990-81	SHORT CHIP	0		
R1808	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R1809	1-218-990-81	SHORT CHIP	0		
R1810	1-218-935-11	RES-CHIP	33	5%	1/16W
R1811	1-218-937-11	RES-CHIP	47	5%	1/16W
R1812	1-218-990-81	SHORT CHIP	0		
R1813	1-218-990-81	SHORT CHIP	0		
R1814	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1815	1-218-990-81	SHORT CHIP	0		
R1816	1-218-990-81	SHORT CHIP	0		
R1817	1-218-929-11	RES-CHIP	10	5%	1/16W
R1818	1-218-935-11	RES-CHIP	33	5%	1/16W
R1819	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1821	1-218-990-81	SHORT CHIP	0		
R1822	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R1823	1-218-990-81	SHORT CHIP	0		
R1825	1-218-990-81	SHORT CHIP	0		
R1827	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R1829	1-218-973-11	RES-CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			
R1831	1-218-990-81	SHORT CHIP	0		
R1832	1-218-935-11	RES-CHIP	33	5%	1/16W
R1833	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2001	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2002	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2003	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2004	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2005	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2006	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R2007	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R2008	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R2009	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R2010	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2011	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2012	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2013	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2014	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2015	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2029	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2030	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2031	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2205	1-218-990-81	SHORT CHIP	0		
R2206	1-218-990-81	SHORT CHIP	0		
R2207	1-218-990-81	SHORT CHIP	0		
R2208	1-218-990-81	SHORT CHIP	0		
R2209	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2210	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2211	1-218-990-81	SHORT CHIP	0		
R2212	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2213	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2214	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2215	1-218-990-81	SHORT CHIP	0		
R2216	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2217	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2218	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2219	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2220	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2221	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2222	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2223	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2224	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2225	1-216-864-11	SHORT CHIP	0		
R2226	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2228	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2230	1-218-990-81	SHORT CHIP	0		
R2231	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2232	1-218-990-81	SHORT CHIP	0		
R2233	1-694-535-91	SHORT CHIP	0		
R2234	1-218-990-81	SHORT CHIP	0		
R2235	1-694-535-91	SHORT CHIP	0		
R2236	1-218-990-81	SHORT CHIP	0		
R2237	1-218-990-81	SHORT CHIP	0		
R2238	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2239	1-218-990-81	SHORT CHIP	0		
R2602	1-218-990-81	SHORT CHIP	0		
R2603	1-218-990-81	SHORT CHIP	0		
R2604	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R2605	1-218-990-81	SHORT CHIP	0		
R2606	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2607	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2608	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2609	1-218-990-81	SHORT CHIP	0		
R2610	1-218-990-81	SHORT CHIP	0		
R2611	1-218-990-81	SHORT CHIP	0		
R2612	1-218-990-81	SHORT CHIP	0		
R2802	1-218-990-81	SHORT CHIP	0		
R2804	1-218-990-81	SHORT CHIP	0		
R2808	1-218-990-81	SHORT CHIP	0		
R2809	1-218-990-81	SHORT CHIP	0		
R3001	1-216-805-11	METAL CHIP	47	5%	1/10W
R3002	1-216-805-11	METAL CHIP	47	5%	1/10W
R3005	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3006	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3007	1-220-169-11	RES-CHIP	75	5%	1/16W
R3008	1-220-169-11	RES-CHIP	75	5%	1/16W
R3009	1-220-169-11	RES-CHIP	75	5%	1/16W
R3011	1-218-971-11	RES-CHIP	33K	5%	1/16W
R3012	1-208-692-11	METAL CHIP	2.4K	0.5%	1/16W
R3013	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3015	1-218-965-11	RES-CHIP	10K	5%	1/16W
				(NTSC: V1J/V1U/V1N)	
R3016	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3021	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3022	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3026	1-218-990-81	SHORT CHIP	0		
R3034	1-218-990-81	SHORT CHIP	0		
R3054	1-218-990-81	SHORT CHIP	0		
R3061	1-219-598-11	METAL CHIP	47K	0.5%	1/16W
R3062	1-219-598-11	METAL CHIP	47K	0.5%	1/16W
R3063	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3064	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3065	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3066	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3067	1-219-598-11	METAL CHIP	47K	0.5%	1/16W
R3068	1-219-598-11	METAL CHIP	47K	0.5%	1/16W
R3111	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3112	1-218-947-11	RES-CHIP	330	5%	1/16W
R3113	1-218-947-11	RES-CHIP	330	5%	1/16W
R3118	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3119	1-218-990-81	SHORT CHIP	0		
R3120	1-218-990-81	SHORT CHIP	0		
R3201	1-240-672-11	METAL CHIP	10	5%	1/20W
R3202	1-240-672-11	METAL CHIP	10	5%	1/20W
R3204	1-694-535-91	SHORT CHIP	0		
R3205	1-240-678-91	METAL CHIP	33	5%	1/20W
R3401	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3402	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3403	1-208-652-11	METAL CHIP	51	0.5%	1/16W
R3404	1-208-652-11	METAL CHIP	51	0.5%	1/16W
R3405	1-208-652-11	METAL CHIP	51	0.5%	1/16W
R3406	1-208-652-11	METAL CHIP	51	0.5%	1/16W
R3408	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3409	1-208-702-11	METAL CHIP	6.2K	0.5%	1/16W
R3410	1-218-990-81	SHORT CHIP	0		
R3411	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R3412	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3601	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3602	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3603	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3604	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3605	1-218-973-11	RES-CHIP	47K	5%	1/16W
R3606	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3607	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3608	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3609	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3610	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3611	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3613	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3614	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3616	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3617	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3618	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3619	1-208-645-11	METAL CHIP	27	0.5%	1/16W
R3620	1-208-645-11	METAL CHIP	27	0.5%	1/16W
R3622	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3623	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3624	1-218-990-81	SHORT CHIP	0		
R3625	1-218-990-81	SHORT CHIP	0		
R3627	1-218-990-81	SHORT CHIP	0		
R3628	1-218-933-11	RES-CHIP	22	5%	1/16W
R3630	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3631	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3632	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3633	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3634	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3635	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3636	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3637	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3638	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3639	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3640	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3641	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3642	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3643	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3644	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3645	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3646	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3647	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3648	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3649	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3650	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R3651	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R3652	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3653	1-218-940-11	RES-CHIP	82	5%	1/16W
R3655	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3661	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3662	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R3663	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R3664	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R3665	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R3666	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3668	1-218-957-11	RES-CHIP	2.2K	5%	1/16W

TT-003

Ref. No.	Part No.	Description			
R3669	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R3801	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3802	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3803	1-218-990-81	SHORT CHIP	0		
R3806	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3807	1-218-990-81	SHORT CHIP	0		
R3808	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4002	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4003	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4005	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4006	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4007	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4008	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4009	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4010	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4011	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4012	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4013	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4014	1-218-979-11	RES-CHIP	150K	5%	1/16W
R4015	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4016	1-218-975-11	RES-CHIP	68K	5%	1/16W
				(NTSC: V1J/V1U/V1N)	
R4016	1-218-979-11	RES-CHIP	150K	5%	1/16W
				(PAL: V1E/V1P/V1C)	
R4017	1-218-975-11	RES-CHIP	68K	5%	1/16W
				(PAL: V1E/V1P/V1C)	
R4017	1-218-979-11	RES-CHIP	150K	5%	1/16W
				(NTSC: V1J/V1U/V1N)	
R4018	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4020	1-219-570-11	METAL CHIP	10M	5%	1/10W
R4021	1-218-990-81	SHORT CHIP	0		
R4022	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4023	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4024	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R4026	1-208-893-11	METAL CHIP	1.8K	0.5%	1/16W
R4027	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4028	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4029	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4030	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4031	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4032	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4033	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4034	1-218-949-11	RES-CHIP	470	5%	1/16W
R4035	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4036	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4202	1-218-990-81	SHORT CHIP	0		
R4203	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4204	1-218-977-11	RES-CHIP	100K	5%	1/16W
				(NTSC: V1J/V1U/V1N)	
R4205	1-218-990-81	SHORT CHIP	0 (PAL: V1E/V1P/V1C)		
R4206	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4207	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4208	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4209	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4210	1-218-941-81	RES-CHIP	100	5%	1/16W
R4211	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4212	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4213	1-218-990-81	SHORT CHIP	0		
R4215	1-218-977-11	RES-CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			
R4216	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4217	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4218	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4219	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4220	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4221	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4222	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4223	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4225	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4226	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4227	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4228	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4229	1-240-710-91	METAL CHIP	18K	5%	1/20W
R4230	1-240-710-91	METAL CHIP	18K	5%	1/20W
R4231	1-240-710-91	METAL CHIP	18K	5%	1/20W
R4232	1-240-710-91	METAL CHIP	18K	5%	1/20W
R4401	1-218-941-81	RES-CHIP	100	5%	1/16W
R4402	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4403	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4405	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4406	1-218-990-81	SHORT CHIP	0		
R4408	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4409	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4411	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4413	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4414	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4415	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4417	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4418	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4419	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4420	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4421	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4423	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4424	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4425	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4426	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4427	1-218-981-11	RES-CHIP	220K	5%	1/16W
R4428	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4429	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4430	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4431	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4432	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4434	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4437	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4438	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4601	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4602	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4604	1-216-821-11	METAL CHIP	1K	5%	1/10W
R4605	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4606	1-218-990-81	SHORT CHIP	0		
R4607	1-216-150-91	RES-CHIP	10	5%	1/8W
R4608	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4609	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4610	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4611	1-218-990-81	SHORT CHIP	0		
R4612	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4613	1-216-789-11	METAL CHIP	2.2	5%	1/10W

Ref. No.	Part No.	Description			
R4614	1-218-941-81	RES-CHIP	100	5%	1/16W
R4615	1-218-990-81	SHORT CHIP	0		
R4616	1-218-944-11	RES-CHIP	180	5%	1/16W
R4617	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R4618	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R4619	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4620	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4621	1-218-987-11	RES-CHIP	680K	5%	1/16W
R4622	1-218-979-11	RES-CHIP	150K	5%	1/16W
R4623	1-218-951-11	RES-CHIP	680	5%	1/16W
R4624	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4625	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4626	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4635	1-218-990-81	SHORT CHIP	0		
R4637	1-218-990-81	SHORT CHIP	0		
R4638	1-218-990-81	SHORT CHIP	0		
R4642	1-218-990-81	SHORT CHIP	0		
R4646	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R4648	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R4657	1-216-295-91	SHORT CHIP	0		
R4660	1-218-990-81	SHORT CHIP	0		
		< COMPOSITION CIRCUIT BLOCK >			
RB3601	1-234-375-21	RES, NETWORK	1K (1005X4)		
RB4001	1-234-375-21	RES, NETWORK	1K (1005X4)		
		< VIBRATOR >			
* X1401	1-813-906-21	QUARTZ CRYSTAL OSCILLATOR (83.160 MHz) (PAL: V1E/V1P/V1C)			
* X1401	1-813-907-21	QUARTZ CRYSTAL OSCILLATOR (83.076923MHz) (NTSC: V1J/V1U/V1N)			
X3401	1-781-045-21	VIBRATOR, CRYSTAL (24.576 MHz)			
X3601	1-781-620-21	VIBRATOR, CERAMIC (48 MHz)			
X4001	1-767-994-23	VIBRATOR, CRYSTAL (32.768 kHz)			
X4201	1-795-920-11	VIBRATOR, CRYSTAL (20 MHz)			
X4401	1-767-205-21	VIBRATOR, CRYSTAL (20 MHz)			
	A-1217-213-A	UU-003 BOARD, COMPLETE **********			
		< CAPACITOR >			
C8601	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C8602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8603	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN8601	1-817-543-51	CONNECTOR, FPC (ZIF) 27P			
CN8602	1-691-356-51	CONNECTOR, FFC/FPC (ZIF) 18P			
		< DIODE >			
* D8601	6-501-690-01	DIODE NESW007AT-T141 (EVF BACKLIGHT)			
		< COIL >			
L8601	1-414-771-91	INDUCTOR	10uH		

Ref. No.	Part No.	Description			
		< TRANSISTOR >			
Q8601	8-729-054-48	TRANSISTOR	UP04601008S0		
Q8602	8-729-054-48	TRANSISTOR	UP04601008S0		
		< RESISTOR >			
R8602	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R8603	1-208-687-11	METAL CHIP	1.5K	0.5%	1/16W
R8604	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R8606	1-211-991-11	METAL CHIP	82	0.5%	1/10W
	A-1217-214-A	WW-003 BOARD, COMPLETE **********			
		< CAPACITOR >			
C9401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN9401	1-817-543-51	CONNECTOR, FPC (ZIF) 27P			
CN9402	1-817-913-41	MEMORY STICK DUO CONNECTOR			
CN9403	1-819-436-11	CONNECTOR (SQUARE TYPE) (USB) 5P			
		< DIODE >			
D9401	6-500-604-01	DIODE CL-270HR-C-TSL (MS ACCESS)			
D9402	8-719-078-02	DIODE 1SS357 (T3SONY1)			
D9403	8-719-056-61	DIODE MAZS082008SO			
D9404	8-719-056-61	DIODE MAZS082008SO			
		< FERRITE BEAD >			
FB9401	1-469-581-21	INDUCTOR, FERRITE BEAD (1005)			
		< IC >			
* IC9401	6-708-445-01	IC R1114Q291D-TR-FA			
		< RESISTOR >			
R9401	1-218-941-81	RES-CHIP	100	5%	1/16W
R9402	1-218-953-11	RES-CHIP	1K	5%	1/16W
R9404	1-218-965-11	RES-CHIP	10K	5%	1/16W
R9405	1-218-965-11	RES-CHIP	10K	5%	1/16W
	A-1217-224-A	XX-015 BOARD, COMPLETE **********			
		(IC8402 is not supplied, but this is included in XX-015 complete board.)			
		< CAPACITOR >			
C8401	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8403	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8404	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8405	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C8406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8407	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8408	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8409	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8410	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8411	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			
C8412	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8413	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C8414	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C8415	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8416	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8417	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V
C8418	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V
C8419	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V
C8420	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8421	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8422	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8423	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8424	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8425	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8426	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8427	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8428	1-128-643-11	CERAMIC CHIP	4.7uF		35V
C8429	1-128-643-11	CERAMIC CHIP	4.7uF		35V
C8430	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8431	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8432	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8435	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8436	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8437	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8438	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8439	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8440	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8441	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C8442	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8443	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8444	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8445	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8446	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8447	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8448	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8449	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C8450	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8451	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8452	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8453	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C8454	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C8455	1-137-710-91	CERAMIC CHIP	10uF	20%	6.3V
C8456	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8457	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8458	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8459	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8460	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
		< CONNECTOR >			
CN8401	1-820-791-11	XLR CONNECTOR (RECEPTACLE) 3P (INPUT1/INPUT2)			
* CN8403	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
		< DIODE >			
D8401	6-501-123-01	DIODE RB160M-60TR			
D8402	8-719-073-01	DIODE MA111-(K8).S0			
D8403	8-719-073-01	DIODE MA111-(K8).S0			
D8404	8-719-073-01	DIODE MA111-(K8).S0			
D8405	8-719-073-01	DIODE MA111-(K8).S0			
D8406	8-719-073-01	DIODE MA111-(K8).S0			
D8407	8-719-073-01	DIODE MA111-(K8).S0			
D8408	8-719-073-01	DIODE MA111-(K8).S0			
D8409	8-719-073-01	DIODE MA111-(K8).S0			
D8410	8-719-073-01	DIODE MA111-(K8).S0			
D8411	8-719-073-01	DIODE MA111-(K8).S0			
D8412	8-719-073-01	DIODE MA111-(K8).S0			
D8413	8-719-073-01	DIODE MA111-(K8).S0			
D8414	8-719-073-01	DIODE MA111-(K8).S0			
D8415	8-719-073-01	DIODE MA111-(K8).S0			
D8416	8-719-073-01	DIODE MA111-(K8).S0			
D8417	8-719-073-01	DIODE MA111-(K8).S0			
		< IC >			
IC8401	6-707-702-01	IC NJM2746RB1 (TE2)			
IC8402	(Not supplied)	IC TK11840LTL-G			
* IC8403	6-710-823-01	IC NJM2737RB1 (TE2)			
IC8404	6-707-702-01	IC NJM2746RB1 (TE2)			
IC8405	8-759-675-54	IC TC7W53FK (TE85R)			
IC8406	8-759-675-54	IC TC7W53FK (TE85R)			
* IC8407	6-710-823-01	IC NJM2737RB1 (TE2)			
IC8408	6-707-702-01	IC NJM2746RB1 (TE2)			
IC8409	8-759-675-54	IC TC7W53FK (TE85R)			
IC8410	8-759-675-54	IC TC7W53FK (TE85R)			
		< COIL >			
L8401	1-414-398-11	INDUCTOR	10uH		
L8402	1-414-398-11	INDUCTOR	10uH		
L8403	1-456-499-11	INDUCTOR	4.7uH		
L8405	1-414-398-11	INDUCTOR	10uH		
L8406	1-414-398-11	INDUCTOR	10uH		
L8407	1-414-771-91	INDUCTOR	10uH		
		< PHOTO INTERRUPTER >			
* PH8401	6-710-481-01	IC TLP3212 (SOY-TP15, F			
* PH8402	6-710-481-01	IC TLP3212 (SOY-TP15, F			
* PH8403	6-710-481-01	IC TLP3212 (SOY-TP15, F			
* PH8404	6-710-481-01	IC TLP3212 (SOY-TP15, F			
		< TRANSISTOR >			
Q8401	8-729-048-72	TRANSISTOR	2SK2615		
Q8402	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8403	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8404	8-729-119-64	TRANSISTOR	2SA811A-C17		
Q8406	8-729-119-64	TRANSISTOR	2SA811A-C17		
Q8410	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8411	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q8412	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX).SO		
Q8414	8-729-202-38	TRANSISTOR	2SC3326N-A		
Q8415	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8416	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8418	8-729-202-38	TRANSISTOR	2SC3326N-A		
Q8419	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q8422	8-729-427-72	TRANSISTOR	XP4501		
Q8423	8-729-427-72	TRANSISTOR	XP4501		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R8405	1-208-894-81	METAL CHIP	2K	0.5%	1/16W
R8408	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8409	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8411	1-219-601-81	METAL CHIP	62K	0.5%	1/16W
R8412	1-219-602-11	METAL CHIP	68K	0.5%	1/16W
R8413	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8414	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8415	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8416	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8417	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8418	1-211-985-11	METAL CHIP	47	0.5%	1/10W
R8421	1-208-893-11	METAL CHIP	1.8K	0.5%	1/16W
R8422	1-218-845-11	METAL CHIP	820	0.5%	1/10W
R8423	1-218-845-11	METAL CHIP	820	0.5%	1/10W
R8424	1-208-955-11	METAL CHIP	680K	0.5%	1/16W
R8425	1-208-944-81	METAL CHIP	240K	0.5%	1/16W
R8426	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8427	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R8428	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R8429	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8430	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8431	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8432	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8433	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8434	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8435	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8436	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8437	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8438	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8442	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8443	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8444	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8445	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8446	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8447	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R8448	1-211-985-11	METAL CHIP	47	0.5%	1/10W
R8451	1-218-845-11	METAL CHIP	820	0.5%	1/10W
R8452	1-218-845-11	METAL CHIP	820	0.5%	1/10W
R8453	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R8454	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R8455	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8456	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8457	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8458	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8459	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8460	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8461	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8462	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R8463	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8464	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8465	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8466	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8467	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R8468	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8471	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R8479	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8480	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8481	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8482	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8483	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8486	1-208-679-11	METAL CHIP	680	0.5%	1/16W
R8487	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8488	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8491	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8492	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8494	1-218-970-11	RES-CHIP	27K	5%	1/16W
R8496	1-218-985-11	RES-CHIP	470K	5%	1/16W
R8497	1-218-985-11	RES-CHIP	470K	5%	1/16W
R8498	1-218-985-11	RES-CHIP	470K	5%	1/16W
R8499	1-218-985-11	RES-CHIP	470K	5%	1/16W
	A-1217-225-A	YY-003 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C5807	1-100-442-91	TANTAL. CHIP	10uF	20%	6.3V
C5808	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6009	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C6010	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6011	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C6012	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C6013	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6014	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6015	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6016	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6017	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6020	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
C6021	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6022	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6023	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6024	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C6025	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6026	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6028	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C6029	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C6030	1-100-415-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6031	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6032	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6033	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C6034	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6035	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C6037	1-100-415-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6038	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6206	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C6207	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6208	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6209	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6210	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6212	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6213	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6219	1-100-442-91	TANTAL. CHIP	10uF	20%	6.3V
C6220	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C6221	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

YY-003

Ref. No.	Part No.	Description			
C6222	1-100-442-91	TANTAL. CHIP	10uF	20%	6.3V
C6223	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C6224	1-127-895-11	TANTAL. CHIP	22uF	10%	4V
C6225	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
		< CONNECTOR >			
* CN5801	1-817-560-51	CONNECTOR, FPC (ZIP) 21P			
* CN5802	1-817-544-71	CONNECTOR, FPC (ZIF) 39P			
CN5803	1-779-521-12	CONNECTOR, BOARD TO BOARD 80P			
* CN6201	1-816-643-51	FFC/FPC CONNECTOR (LIF) 10P			
		< DIODE >			
D6005	8-719-077-54	DIODE MA4L11100AS0			
		< FERRITE BEAD >			
FB6001	1-414-760-21	FERRITE, EMI (SMD) (1608)			
FB6201	1-414-760-21	FERRITE, EMI (SMD) (1608)			
FB6202	1-414-760-21	FERRITE, EMI (SMD) (1608)			
		< IC >			
IC6004	6-708-814-01	IC BU2343GLU-E2			
* IC6005	6-708-444-01	IC R1114Q281D-TR-FA			
* IC6203	6-709-026-01	IC R2J30500LG			
		< COIL >			
L5801	1-414-771-91	INDUCTOR	10uH		
L6001	1-414-771-91	INDUCTOR	10uH		
L6002	1-469-757-21	INDUCTOR	10uH		
L6202	1-414-754-11	INDUCTOR	10uH		
L6203	1-469-757-21	INDUCTOR	10uH		
		< TRANSISTOR >			
Q5801	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q5802	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q5803	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q5804	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q5805	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q5806	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q6001	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q6201	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q6202	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q6203	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q6204	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
		< RESISTOR >			
R5811	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5812	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5813	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5814	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5815	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5816	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5823	1-218-990-81	SHORT CHIP	0		
R5824	1-218-990-81	SHORT CHIP	0		
R5825	1-218-990-81	SHORT CHIP	0		
R6017	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R6018	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R6019	1-218-958-11	RES-CHIP	2.7K	5%	1/16W

Ref. No.	Part No.	Description			
R6020	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R6021	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R6022	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R6023	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R6024	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R6025	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R6026	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R6027	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6028	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R6029	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R6030	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6032	1-218-990-81	SHORT CHIP	0		
R6033	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6034	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R6035	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R6037	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R6038	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R6039	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6040	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R6041	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R6042	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R6043	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R6044	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R6045	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R6046	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R6047	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6084	1-218-990-81	SHORT CHIP	0		
R6212	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6213	1-218-990-81	SHORT CHIP	0		
R6214	1-218-970-11	RES-CHIP	27K	5%	1/16W
R6215	1-218-970-11	RES-CHIP	27K	5%	1/16W
R6216	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R6219	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6220	1-218-990-81	SHORT CHIP	0		
R6221	1-218-970-11	RES-CHIP	27K	5%	1/16W
R6222	1-218-970-11	RES-CHIP	27K	5%	1/16W
R6223	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R6225	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6226	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6227	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6228	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6229	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6230	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6231	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6233	1-218-990-81	SHORT CHIP	0		
R6235	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6236	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6237	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6238	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6241	1-218-990-81	SHORT CHIP	0		
R6250	1-208-923-11	METAL CHIP	33K	0.5%	1/16W
R6251	1-208-923-11	METAL CHIP	33K	0.5%	1/16W
R6260	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R6261	1-208-715-11	METAL CHIP	22K	0.5%	1/16W

Ref. No.	Part No.	Description			
	A-1217-215-A	ZZ-003 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C9801	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C9802	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C9803	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C9804	1-125-889-91	CERAMIC CHIP	2.2uF	10%	10V
C9805	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C9806	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C9807	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C9808	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C9809	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9811	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C9812	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C9813	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C9814	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C9815	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C9816	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C9817	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C9818	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C9819	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C9820	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C9821	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9822	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C9823	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9824	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9825	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C9826	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9827	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C9829	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9831	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9832	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9833	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C9835	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9836	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
* CN9801	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
* CN9802	1-816-654-51	FFC/FPC CONNECTOR (LIF) 6P			
* CN9803	1-816-648-51	FFC/FPC CONNECTOR (LIF) 20P			
* CN9804	1-817-564-71	CONNECTOR, FPC (ZIF) 33P			
		< IC >			
* IC9801	6-710-823-01	IC NJM2737RB1 (TE2)			
* IC9802	6-710-823-01	IC NJM2737RB1 (TE2)			
IC9803	6-707-702-01	IC NJM2746RB1 (TE2)			
IC9804	6-707-702-01	IC NJM2746RB1 (TE2)			
IC9805	6-706-906-01	IC NJM2732RB1 (TE2)			
IC9806	6-701-979-01	IC TC7WB66FK (TE85R)			
		< COIL >			
L9801	1-414-771-91	INDUCTOR	10uH		
		< TRANSISTOR >			
Q001	8-729-117-32	TRANSISTOR	2SC4177-L6		

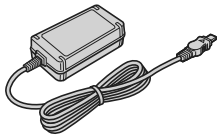
Ref. No.	Part No.	Description			
		< RESISTOR >			
R9801	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R9802	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R9803	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R9804	1-219-606-11	METAL CHIP	100K	0.5%	1/16W
R9805	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R9806	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R9807	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R9808	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
* R9809	1-208-708-11	METAL CHIP	11K	0.5%	1/16W
* R9810	1-208-708-11	METAL CHIP	11K	0.5%	1/16W
R9811	1-219-602-11	METAL CHIP	68K	0.5%	1/16W
R9812	1-219-601-81	METAL CHIP	62K	0.5%	1/16W
R9814	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9815	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9816	1-219-602-11	METAL CHIP	68K	0.5%	1/16W
R9817	1-219-601-81	METAL CHIP	62K	0.5%	1/16W
R9819	1-208-687-11	METAL CHIP	1.5K	0.5%	1/16W
R9820	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9821	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9822	1-208-687-11	METAL CHIP	1.5K	0.5%	1/16W
R9823	1-208-687-11	METAL CHIP	1.5K	0.5%	1/16W
R9824	1-208-687-11	METAL CHIP	1.5K	0.5%	1/16W
R9827	1-218-965-11	RES-CHIP	10K	5%	1/16W
R9828	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9829	1-218-848-11	METAL CHIP	1.1K	0.5%	1/10W
R9830	1-208-949-11	METAL CHIP	390K	0.5%	1/16W
R9831	1-208-954-81	METAL CHIP	620K	0.5%	1/16W
R9832	1-208-949-11	METAL CHIP	390K	0.5%	1/16W
R9833	1-208-954-81	METAL CHIP	620K	0.5%	1/16W
R9836	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W
R9837	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W

• EXCEPT J MODEL

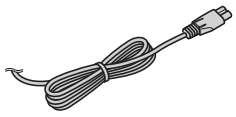
Checking supplied accessories.

to J MODEL

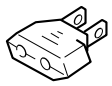
Note: This item is supplied with the unit as an accessory, but is not prepared as a service part.



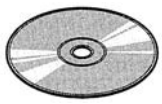
AC Adaptor
(AC-L15A)
⚠ 1-479-283-13



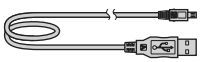
Power Cord
⚠ 1-782-476-51 (CH)
⚠ 1-790-107-42 (US, CND)
⚠ 1-823-946-12 (AEP, E)



Conversion (2P) Adaptor
⚠ 1-569-008-12 (E: NTSC)

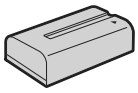


CD-ROM
"Manuals for Digital HD Video Camera Recorder"
2-887-516-01

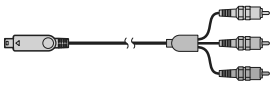


USB Cable
1-829-579-41

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

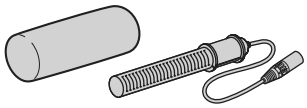


Rechargeable Battery Pack
NP-F570
(Note)



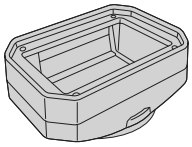
Component Video Cable
1-829-414-61

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



Wind Screen, Microphone
8-814-298-90

Large Eyecup
2-892-124-01



Lens Hood with Lens Cover
2-892-688-01

Other accessories

2-887-519-01 MANUAL, INSTRUCTION (PDF) (JAPANESE) (Note)
2-887-519-11 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (US, CND, E) (Note)
2-887-519-21 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note)
2-887-521-11 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (AEP, E) (Note)
2-887-521-21 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (SIMPLIFIED CHINESE) (CH) (Note)

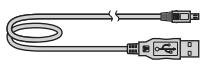
2-887-521-31 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note)
2-887-521-41 MANUAL, INSTRUCTION (PDF) (SPANISH) (Note)
2-887-521-51 MANUAL, INSTRUCTION (PDF) (ITALIAN) (Note)
2-887-521-61 MANUAL, INSTRUCTION (PDF) (GERMAN) (Note)

Note: INSTRUCTION MANUAL (PDF) of each language are included in CD-ROM "Manuals for Digital HD Video Camera Recorder".

• Refer to page 5-1 for mark ⚠.

• J MODEL

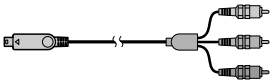
付属品



USB ケーブル
1-829-579-41

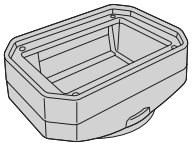
A/V 接続ケーブル
1-823-156-51

ワイヤレスリモコン
RMT-831
1-478-495-41

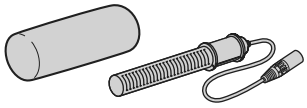


コンポーネントビデオケーブル
1-829-414-61

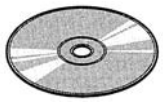
大型アイカップ
2-892-124-01



レンズカバー付フード
2-892-688-01



ウインドスクリーン，
マイク
8-814-298-90



CD-ROM
「Manuals for Digital HD Video Camera Recorder」
2-887-516-01

その他の付属品

2-887-519-01 取扱説明書 (印刷物/PDF) (日本語) (注)
2-887-519-11 取扱説明書 (PDF) (英語) (注)
2-887-519-21 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注)
2-887-521-11 取扱説明書 (PDF) (英語) (注)

2-887-521-21 取扱説明書 (PDF) (中国語 (簡体字)) (注)
2-887-521-31 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注)
2-887-521-41 取扱説明書 (PDF) (ｽﾍﾟｲﾝ語) (注)
2-887-521-51 取扱説明書 (PDF) (ｲﾀﾘｱ語) (注)
2-887-521-61 取扱説明書 (PDF) (ﾄﾞｲﾂ語) (注)

注：各言語の取扱説明書（PDF）は、CD-ROM「Manuals for Digital HD Video Camera Recorder」に含まれています。

• ⚠マークについては，5-1ページを参照して下さい。

6. ADJUSTMENTS

Link

- Before starting adjustments
  - Adjusting items when replacing main parts and boards
  - List of service tools
- CAMERA SECTION ADJUSTMENTS
  - PREPARATIONS BEFORE ADJUSTMENTS
  - INITIALIZATION OF EVR DATA
  - CAMERA SYSTEM ADJUSTMENTS
  - ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS
  - LCD SYSTEM ADJUSTMENTS
- MECHANISM SECTION ADJUSTMENTS
  - PREPARATIONS FOR CHECK, ADJUSTMENT AND REPLACEMENT OF MECHANISM BLOCK
  - PERIODIC INSPECTION AND MAINTENANCE
  - CHECK, ADJUSTMENT AND REPLACEMENT OF MECHANICAL PARTS
  - ADJUSTMENT
- VIDEO SECTION ADJUSTMENTS
  - PREPARATIONS BEFORE ADJUSTMENTS
  - SYSTEM CONTROL SYSTEM ADJUSTMENTS
  - SERVO AND RF SYSTEM ADJUSTMENTS
  - VIDEO SYSTEM ADJUSTMENTS
  - AUDIO SYSTEM ADJUSTMENTS
- SERVICE MODE
  - ADJUSTMENT REMOTE COMMANDER (RM-95)
  - ADJUSTMENT REMOTE COMMANDER (NEW LANC JIG)
  - DATA PROCESS
  - SERVICE MODE

SECTION 6
ADJUSTMENTS

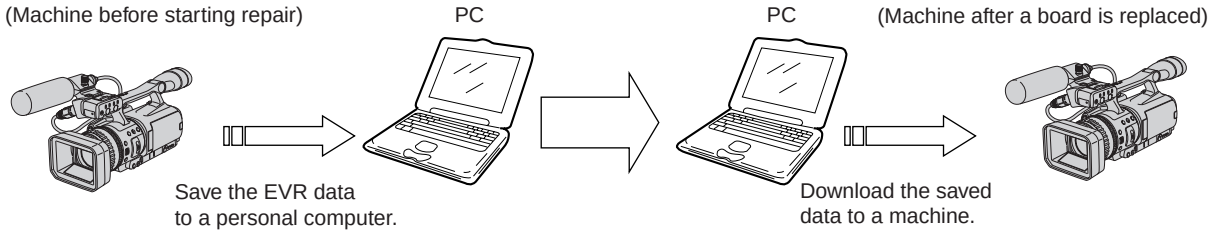
1. Before starting adjustments

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

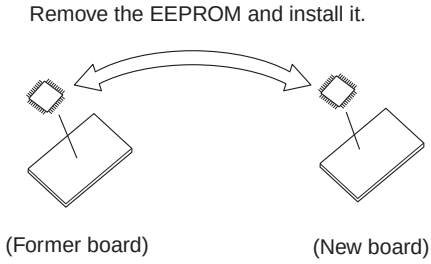
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



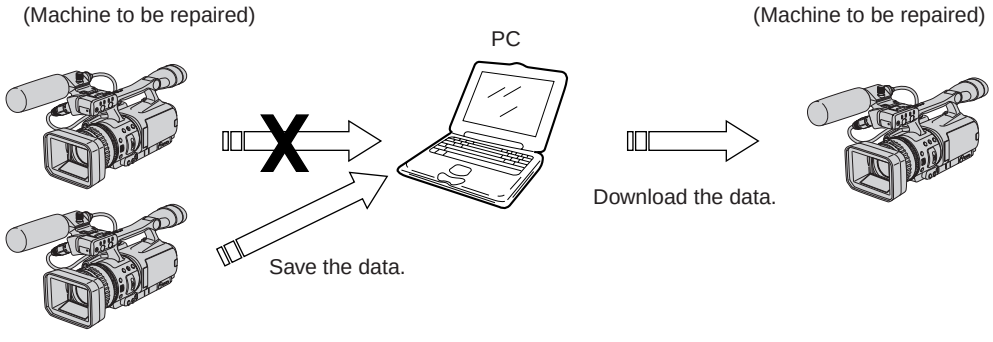
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 6-3 for the items to be checked)

1-1. Adjusting items when replacing main parts and boards

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Note 1: When replacing the drum assy or the mechanism deck, reset the data of page: 7, address: A8 to AB to "00". (Refer to "Record of Use check" of "6-4. SERVICE MODE")

Adjustment Section	Adjustment	Replaced part																					
		Block replacement								Mounted part replacement													
		Lens device	PRISM assy (Inclding EE-006 board and CMOS imager)	LCD block LCD901 (LCD panel)	LCD block D901 (Backlight)	EVF block LCD902 (LCD panel)	Mechanism deck (Note 1)	Mechanism deck M901 (Drum assembly) (Note 1)	Mechanism deck MD block	JJ-004 board SE8001, 8002 (PITCH, YAW sensor)	TT-003 board X1401 (Oscillator)	TT-003 board IC1201, 1203 (CDS, A/D converter)	TT-003 board IC1801 (Base band signal process, etc.)	TT-003 board IC2802 (DV signal processor)	TT-003 board IC3001 (Video out)	TT-003 board IC2001 (Component out AMP)	NN-003 board IC5202 (REC/PB AMP)	OO-003 board IC6601 (EVF drive)	OO-003 board IC6602 (Timing generator (EVF))	UU-003 board D8601 (Backlight (EVF))	PP-003 board IC9002 (LCD drive)
Initialization of EVR data	Initialization of A, B, D, 1A, 1B page data																						
	Initialization of 8, 9, C, 13, 18, 1C, 1D page data																						
	Initialization of camera control page data																						
	Initialization of 7C, 7E, 7F page data																						
Camera	Origin oscillation check										●												
	PSD sensor gradient adj.	●																					
	HALL adj.	●																					
	MR adj.	●																					
	Differential gain adj.		●										●										
	Flange back adj.	●	●																				
	Optical axis adj.	●	●																				
	Linearity adj.		●										●										
	F No. & ND light quality standard data input	●																					
	Linear matrix adj.		●										●										
	Auto white balance standard data input		●										●										
	LV standard data input		●										●										
	Auto white balance adj.		●										●										
	Color reproduction adj.		●										●										
	MAX GAIN adj.		●										●										
	White defect adj.		●																				
	Black defect adj.	●	●																				
	Angular velocity sensor sensitivity adj.	●								●													
EVF	VCO adj.																	●	●				
	Back Light adj.																	●		●			
	PSIG level adj.																	●					
	V-COM level adj.																	●					
	RGB AMP adj.																	●					
	Contrast adj.												●					●					
	White balance adj.					●												●		●			
LCD	LCD automatic adj.												●										●
	V-COM adj.			●																			●
	Transmissive mode white balance adj.			●	●																		●
	Reflective mode white balance adj.			●																			●
	Sample hold phase adj.			●																			●
Mechanism	Tape path adj.						●	●	●														
System control	Node uniqe ID No. input																						
Servo, RF	CAP FG duty adj.						●		●														
	Switching position adj.						●	●	●														
	Error rate check						●	●	●					●			●						
Video	S VIDEO OUT Y level adj.												●		●								
	S VIDEO OUT chroma level adj.												●		●								
	COMPONENT OUT Y level adj.												●			●							
	COMPONENT OUT Pr level adj.												●			●							
	COMPONENT OUT Pb level adj.												●			●							

Table 6-1-1 (1)

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part								
		JJ-004 board (COMPLETE)	TT-003 board (COMPLETE)	NN-003 board (COMPLETE)	OO-003 board (COMPLETE)	UU-003 board (COMPLETE)	PP-003 board (COMPLETE)	TT-003 board IC3805 (EEPROM)	TT-003 board IC4202 (EEPROM)	Supporting RadarW
Initialization of EVR data	Initialization of A, B, D, 1A, 1B page data		●					●		
	Initialization of 8, 9, C, 13, 18, 1C, 1D page data		●							
	Initialization of camera control page data		●						●	
	Initialization of 7C, 7E, 7F page data		●						●	
Camera	Origin oscillation check		●							
	PSD sensor gradient adj.		●						●	●
	HALL adj.		●						●	●
	MR adj.		●						●	●
	Differential gain adj.		●						●	●
	Flange back adj.		●						●	●
	Optical axis adj.		●						●	
	Linearity adj.		●						●	
	F No. & ND light quality standard data input		●						●	●
	Linear matrix adj.		●						●	●
	Auto white balance standard data input		●						●	●
	LV standard data input		●						●	●
	Auto white balance adj.		●						●	●
	Color reproduction adj.		●						●	●
	MAX GAIN adj.		●						●	●
	White defect adj.		●						●	●
	Black defect adj.		●						●	●
	Angular velocity sensor sensitivity adj.	●	●						●	
EVF	VCO adj.		●		●					
	Back Light adj.		●		●	●				
	PSIG level adj.		●		●					
	V-COM level adj.		●		●					
	RGB AMP adj.		●		●					
	Contrast adj.		●		●					
	White balance adj.		●		●	●				
LCD	LCD automatic adj.		●				●			●
	V-COM adj.		●				●			
	Transmissive mode white balance adj.		●				●			
	Reflective mode white balance adj.		●				●			●
	Sample hold phase adj.		●				●			
Mechanism	Tape path adj.									
System control	Node uniqe ID No. input		●							
Servo, RF	CAP FG duty adj.		●							●
	Switching position adj.		●							●
	Error rate check		●	●						●
Video	S VIDEO OUT Y level adj.		●							
	S VIDEO OUT chroma level adj.		●							
	COMPONENT OUT Y level adj.		●							
	COMPONENT OUT Pr level adj.		●							
	COMPONENT OUT Pb level adj.		●							

Table 6-1-1 (2)

Note 2: When the repair is finished, confirm the following items.

1. Shoot the all black subject (Attach the lens cap and shoot), and confirm that a vertical line is not displayed in the center of the screen, and that there is no difference in left-right brightness level of the screen.
2. Shoot a subject of low light, and confirm that a vertical line is not displayed in the center of the screen, and that there is no difference in left-right brightness level of the screen.
3. Shoot a subject of normal light, and confirm that a vertical line is not displayed in the center of the screen, and that there is no difference in left-right brightness level of the screen.

   When the above symptom occurs, perform the whole process of "Differencal Gain Adjustment".

Note 3: IC2402, IC3804 (Flash memory) on the TT-003 board cannot be replaced.

1-2. List of service tools

- Oscilloscope
- Color monitor
- Vectorscope
- Digital voltmeter
- Frequency counter
- Audio level meter
- Audio generator
- Audio attenuator
- Calculating machine capable of calculating hexadecimal numbers

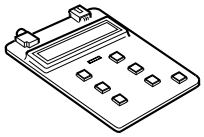
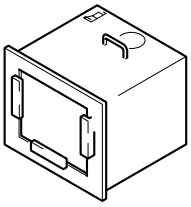
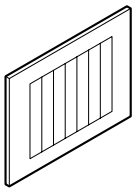
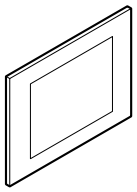
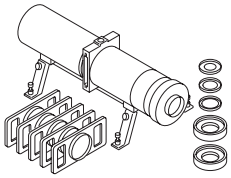
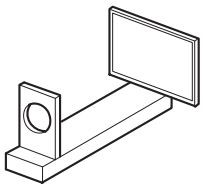
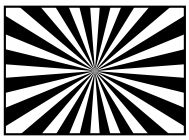
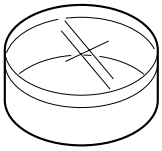
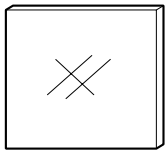
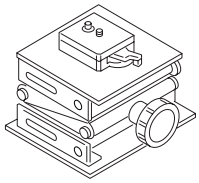
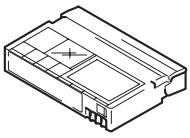
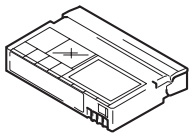
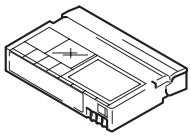
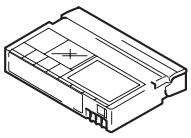
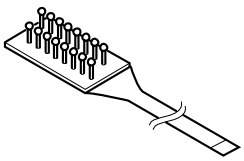
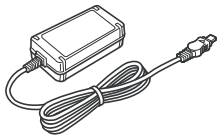
J-1 Adjustment remote commander (RM-95) J-6082-053-B	J-2  Adjustment remote commander (NEW LANC JIG) J-6082-565-A	J-3 LANC cable J-6082-442-A
J-4  Small pattern box PTB-1450 J-6082-557-A	J-5  Color bar chart For PTB-1450: J-6082-559-A	J-6  Clear chart For PTB-1450: J-6082-560-A
J-7  Minipattern box J-6082-353-B	J-8  Flange back adjustment jig J-6082-563-A	J-9  Siemens star chart J-6080-875-A
J-10  Filter for color temperature correction (C14) J-6080-058-A	J-11  ND filter 1.0 J-6080-808-A ND filter 0.4 J-6080-806-A ND filter 0.1 J-6080-807-A	J-12  Camera table J-6082-384-A
J-13  Tracking standard (XH2-1) 8-967-997-01	J-14  SW/OL standard (XH2-3) 8-967-997-11	J-15 Audio operation check  for NTSC (XH5-3) 8-967-997-51 for PAL (XH5-3P) 8-967-997-55
J-16 System operation check  for NTSC (XH5-5) 8-967-997-61 for PAL (XH5-5P) 8-967-997-66	J-17  CPC-7 jig J-6082-382-A	J-18  AC power adaptor AC-L15A 1-479-283-13

Fig. 6-1-1 (1)

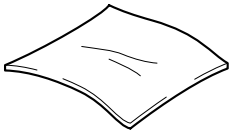
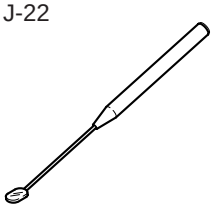
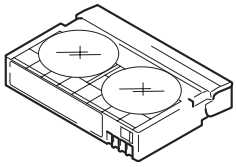
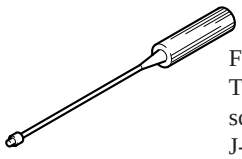
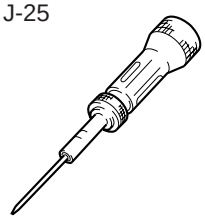
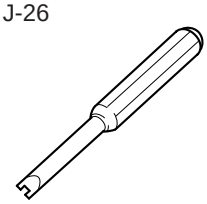
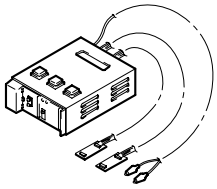
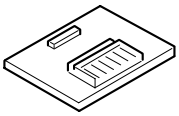
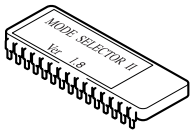
J-19 Cleaning fluid Y-2031-001-0	J-20  Wiping cloth 7-741-900-53	J-21 Super-fine applicator (made by Nippon Applicator (P752D))
J-22  Mirror (samall oval type) J-6080-840-A	J-23  Mini DV torque cassette J-6082-360-A	J-24  FWD/BACK T adjustment screwdriver J-6082-187-A
J-25  Torque screwdriver J-9049-330-A	J-26  Tape path screwdriver J-6082-026-A	J-28  Mode Selector II J-6082-282-B
J-29  Mode Selector II conversion board (N) J-6082-567-A	J-30  Mode Selector II ROM (Note1) J-6082-314-G	

Fig. 6-1-1 (2)

Note 1: This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the N mechanism.
Set the indication to “Z” when using the mode selector II.

6-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENTS (CAMERA SECTION)

1-1-1. Preparations

Note: Before perform the adjustment, check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set data “00”.

1) Connect the equipment for adjustments according to Fig. 6-1-3.

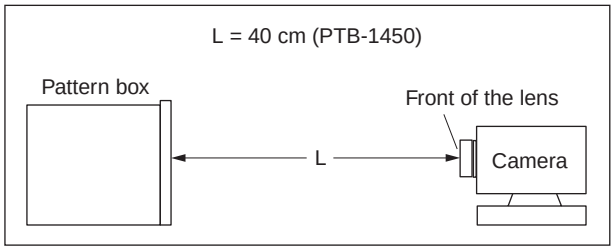


Fig. 6-1-2

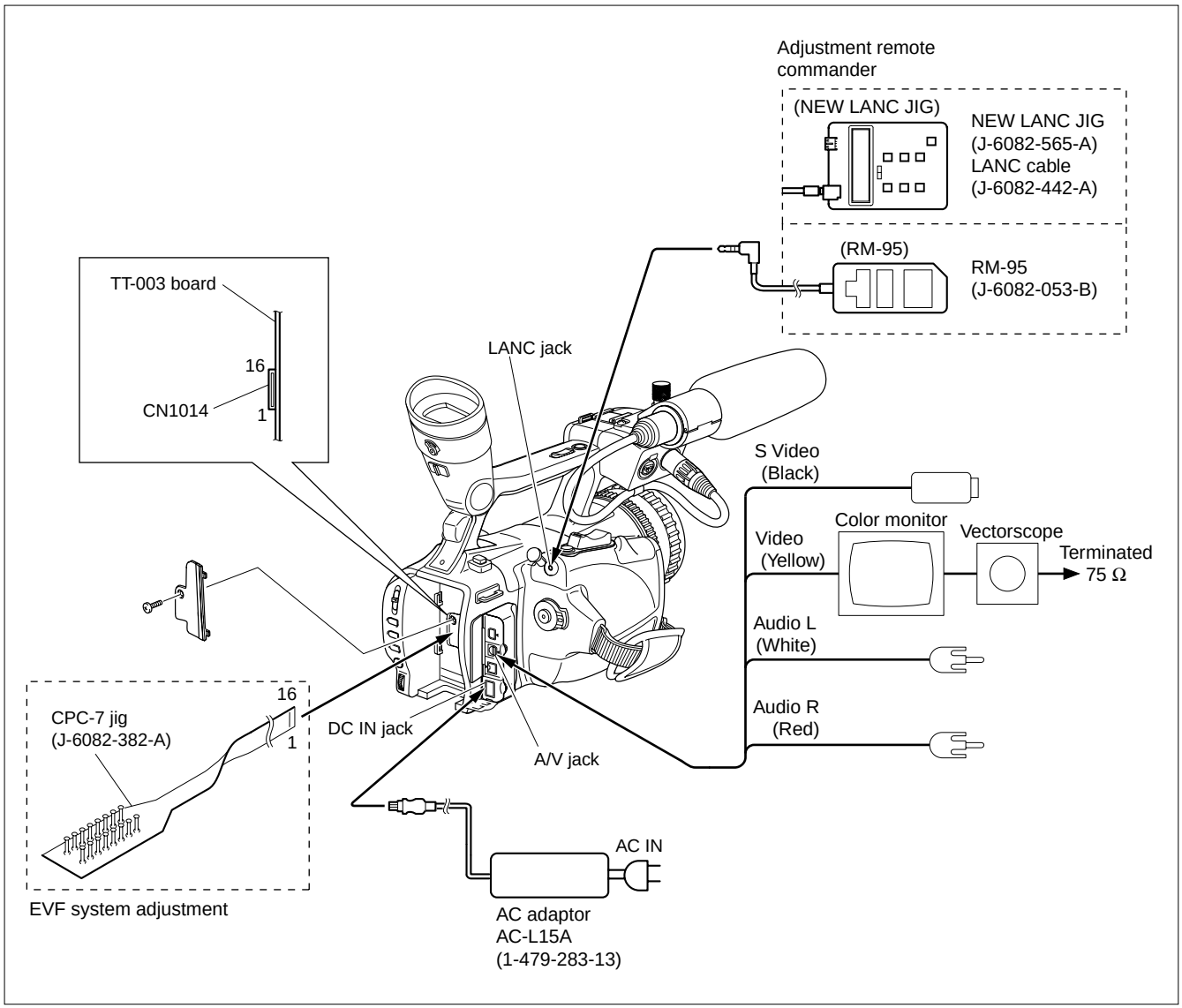


Fig. 6-1-3

1-1-2. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch ..... CAMERA
2. FOUCS switch ..... MANUAL
3. ND FILTER switch ..... MANUAL
4. AUTO LOCK switch ..... AUTO LOCK
5. AE SHIFT (MENU setting) 0
6. AGC LIMIT (MENU setting) ..... OFF
7. AT IRIS LMT (MENU setting) F11
8. BACK LIGHT (MENU setting) ..... OFF
9. D.EXTENDER (MENU setting) ..... OFF
10. STEADYSHOT (MENU setting) ..... OFF
11. REC FORMAT (MENU setting) 1080i

2. Order of Adjustments

Basically carry out adjustments in the order given.

Color bar chart (Color reproduction adjustment frame)

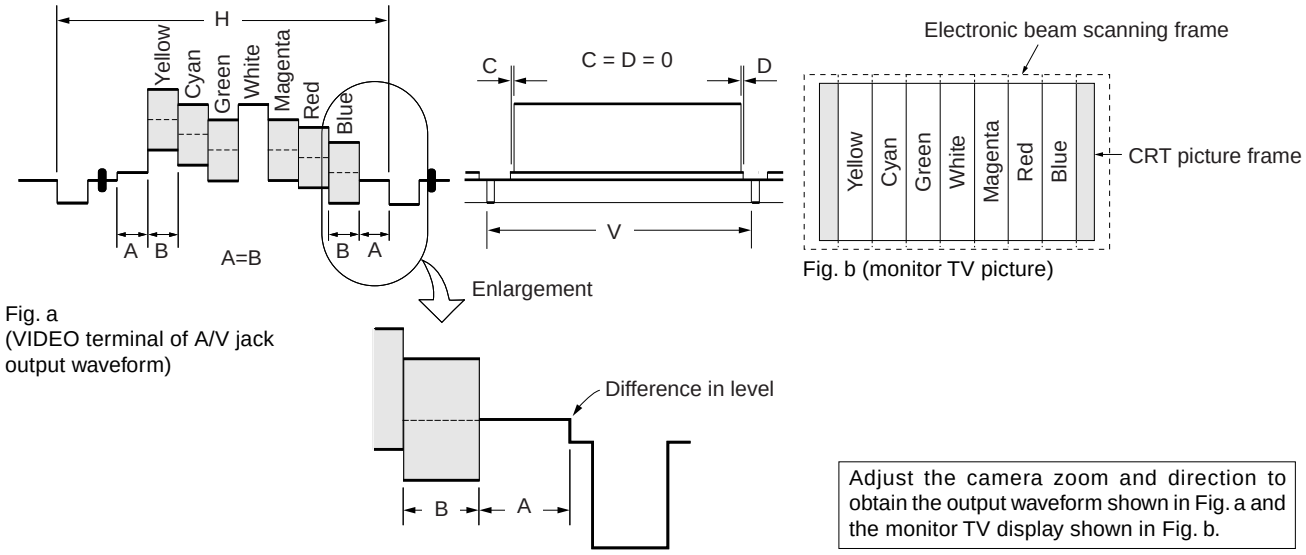


Fig. 6-1-4

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)
3) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189 mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-5.

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

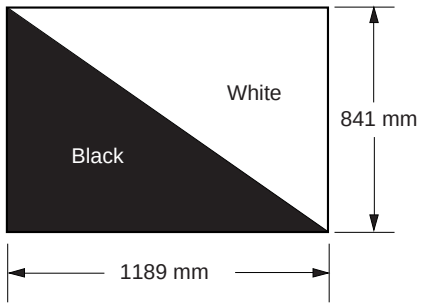


Fig. 6-1-5

1-2. INITIALIZATION OF EVR DATA

Note 1: Pages used for the EVR consists of 39 pages. There are 8, 9, A, B, C, D, 13, 18, 1A, 1B, 1C, 1D, 6D, 6E, 6F, 7B, 7C, 7E, 7F, 8D, 8E, 8F, 9D, 9E, 9F, AD, AE, AF, BE, BF, C2, C3, C4, C5, C6, CC, CD, CE, CF pages.

Note 2: If 2-digit page is selected, set higher-order digit to page: 0, address: 10 as data, and then select lower-order digit by a usual method.
e.g.: Set data: 06 to page: 0, address: 10, and then select page: D. Thus, the page 6D can be selected.

1-2-1. Initialization of A, B, D, 1A, 1B Page Data

Note: Check that the data of page: 0, address: 10 is "00".

1. Initializing of A, B, D, 1A, 1B Page Data

Note: If the A, B, D, 1A, 1B page data has been initialized, the following adjustments need to be performed again.
1) Modification of A, B, D, 1A, 1B page data

Adjustment Page	A
Adjustment Address	10 to FF
Adjustment Page	B
Adjustment Address	00 to FF
Adjustment Page	D
Adjustment Address	10 to FF
Adjustment Page	1A
Adjustment Address	00 to FF
Adjustment Page	1B
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	7	04		Set the following data 10: NTSC model 11: PAL model
4	7	01		Set the following data 20: Initializing A page 21: Initializing B page 22: Initializing D page 23: Initializing 1A page 24: Initializing 1B page 25: Initializing A and 1A page 26: Initializing B and 1B page 28: Initializing A, B, D, 1A and 1B page
5	7	00	01	Press PAUSE (Write) button.
6	7	02		Check the data changes to "01".
7				Perform "Modification of A, B, D, 1A, 1B Page Data"

2. Modification of A, B, D, 1A, 1B Page Data

If the A, B, D, 1A, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If modification of data on pages A, B, D, set data: 00 to page: 0, address: 10, and then select pages A, B, D.
3) If modification of data on pages 1A, 1B, set data: 01 to page: 0, address: 10, and then select pages A, B.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note 1: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE (Write) button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification A, B, D, 1A, 1B page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE (Write) button.

Note 2: If following symptoms occur after completing of the "Modification A, B, D, 1A, 1B page data", check that the data of the "Fixed data-2" address of A, B, D, 1A, 1B page are same as those of same model of same destination.
1) The power is shut off so that unit cannot operate.

3. A Page table

Note 1: Check that the data of page: 0, address: 10 is“00”.

Note 2: Fixed data-1: Initialized data. (Refer to“1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to“2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	00	00	Test mode
11 to 17			Fixed data-1 (Initialized data)
18			Fixed data-2
19 to EF			Fixed data-1 (Initialized data)
F0			Fixed data-2
F1			
F2			
F3			
F4 to FF			Fixed data-1 (Initialized data)

4. B Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

5. D Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10 to 15			Fixed data-1 (Initialized data)
16			Fixed data-2
17 to 28			Fixed data-1 (Initialized data)
29			Fixed data-2
2A			
2B			
2C			
2D			
2E			
2F			
30 to 56			Fixed data-1 (Initialized data)
57			Fixed data-2
58 to 79			Fixed data-1 (Initialized data)
7A			Fixed data-2
7B to FF			Fixed data-1 (Initialized data)

6. 1A Page table

Note 1: If reading/writing data on pages 1A, set data: 01 to page: 0, address: 10, and then select pages: A. By this data setting, the pages 1A can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

7. 1B Page table

Note 1: If reading/writing data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages: B. By this data setting, the pages 1B can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1A, 1B Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1A, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

1-2-2. Initialization of 8, 9, C, 13, 18, 1C, 1D Page Data

1. Initializing of 8, 9, C, 13, 18, 1C, 1D Page Data

Note 1: If "Initialization of Pages 8, 9, C, 13, 18, 1C, 1D" is executed, all data on pages 8, 9, C, 13, 18, 1C, 1D are initialized. (Only an individual page cannot be initialized)

Note 2: If the 8, 9, C, 13, 18, 1C, 1D page data has been initialized, the following adjustments need to be performed again.

1) Modification of 8, 9, C, 13, 18, 1C, 1D page data
2) Electronic viewfinder system adjustments (if all areas were initialized)
3) LCD system adjustments (if all areas were initialized)
4) Node unique ID No. input (if all areas were initialized)
5) Servo, RF system adjustments (if all areas were initialized)
6) Video system adjustments (if all areas were initialized)

Adjustment Page	8
Adjustment Address	00 to FF
Adjustment Page	9
Adjustment Address	00 to FF
Adjustment Page	C
Adjustment Address	10 to FF
Adjustment Page	13
Adjustment Address	00 to FF
Adjustment Page	18
Adjustment Address	00 to FF
Adjustment Page	1C
Adjustment Address	00 to FF
Adjustment Page	1D
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	81		Set the following data, and press PAUSE (Write) button. (Note 3) 00: Initializing all areas 01: Initializing other than adjustment address
4	3	80	0C	Press PAUSE (Write) button.
5	3	80		Check the data changes to "1C".
6				Perform "Modification of 8, 9, C, 13, 18, 1C, 1D Page Data"

Note 3: If other than adjustment address was initialized, the adjusted data is not initialized.

2. Modification of 8, 9, C, 13, 18, 1C, 1D Page Data

If the 8, 9, C, 13, 18, 1C, 1D page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Processing before Modification 8, 9, C, 13, 18, 1C, 1D page data:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	71	01	Press PAUSE (Write) button.

Modifying Method:

1) If modification of data on pages 8, 9, C, set data: 00 to page: 0, address: 10, and then select pages 8, 9, C.
2) If modification of data on pages 13, 18, 1C, 1D, set data: 01 to page: 0, address: 10, and then select pages 3, 8, C, D.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
3) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
4) When changing the data, press the PAUSE (Write) button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
5) If all areas were initialized, check that the data at the addresses for adjustment are initial values (adjustment initial values) listed in the table.
   If different, change them to the adjustment initial values.

Processing after Completing Modification 8, 9, C, 13, 18, 1C, 1D page data:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	70	10	Press PAUSE (Write) button.
4	3	70		Check the data changes to "11".
5	2	00	29	
6	2	01	29	Press PAUSE (Write) button.

3. 8 Page table

Note 1: Check that the data of page: 0, address: 10 is“00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, 9, C, 13, 18, 1C, 1D Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, 9, C, 13, 18, 1C, 1D Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 3D	Fixed data-1 (Initialized data)		
3E	Fixed data-2		
3F			
40 to 92	Fixed data-1 (Initialized data)		
93	Fixed data-2		
94			
95	Fixed data-1 (Initialized data)		
96	Fixed data-2		
97			
98			
99 to A0	Fixed data-1 (Initialized data)		
A1	Fixed data-2		
A2			
A3			
A4			
A5, A6	Fixed data-1 (Initialized data)		
A7	Fixed data-2		
A8 to AE	Fixed data-1 (Initialized data)		
AF	Fixed data-2		
B0			
B1	Fixed data-1 (Initialized data)		
B2	Fixed data-2		
B3			
B4	Fixed data-1 (Initialized data)		
B5	Fixed data-2		
B6			
B7			
B8 to C2	Fixed data-1 (Initialized data)		
C3	Fixed data-2		
C4 to CA	Fixed data-1 (Initialized data)		
CB	Fixed data-2		
CC to DD	Fixed data-1 (Initialized data)		
DE	Fixed data-2		
DF			
E0 to E7	Fixed data-1 (Initialized data)		
E8	Fixed data-2		
E9 to FF	Fixed data-1 (Initialized data)		

4. 9 Page table

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, 9, C, 13, 18, 1C, 1D Page Data”)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, 9, C, 13, 18, 1C, 1D Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

5. C Page table

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 13, 18, 1C Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 13, 18, 1C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10	EE	EE	Switching position adj.
11	00	00	
12	00	00	
13	00	00	
14, 15			Fixed data-1 (Initialized data)
16	E0	E0	CAP FG duty adj.
17 to 24			Fixed data-1 (Initialized data)
25	70	–	S VIDEO OUT Y level adj. (NTSC)/ Fixed data-1 (PAL)
26	8A	–	S VIDEO OUT chroma level adj.
27	61	–	(NTSC)/Fixed data-1 (PAL)
28 to 31			Fixed data-1 (Initialized data)
32	4D	4D	Back light adj. (EVF)
33	98	98	
34	80	80	VCO adj. (EVF)
35	80	80	
36	29	29	V-COM level adj. (EVF)
37	B1	B1	RGB AMP adj. (EVF)
38			Fixed data-1 (Initialized data)
39	4E	4E	PSIG level adj. (EVF)
3A	80	80	White balance adj. (EVF)
3B	80	80	
3C	38	38	Contrast adj. (EVF)
3D to 3F			Fixed data-1 (Initialized data)
40			Fixed data-2
41			Fixed data-1 (Initialized data)
42			Fixed data-2
43, 44			Fixed data-1 (Initialized data)
45	8C	8C	LCD automatic adj. (VCO)
46	AA	AA	
47	BC	BC	V-COM adj. (LCD)
48 to 4A			Fixed data-1 (Initialized data)
4B	79	79	Transmissive mode white balance adj. (LCD)
4C	7D	7D	
4D	5C	5C	LCD automatic adj. (Contrast)
4E to 51			Fixed data-1 (Initialized data)
52			Fixed data-2
53			Fixed data-1 (Initialized data)
54	9F	9F	Sample hold phase adj. (LCD)
55 to 6D			Fixed data-1 (Initialized data)
6E			Fixed data-2
6F			
70	8E	8E	Reflective mode white balance adj. (LCD)
71	87	87	
72 to 75			Fixed data-1 (Initialized data)
76	5C	5C	LCD automatic adj. (Contrast)
77	38	38	Contrast adj. (EVF)
78 to 84			Fixed data-1 (Initialized data)
85	–	70	Fixed data-1 (NTSC)/ S VIDEO OUT Y level adj. (PAL)
86	–	8A	Fixed data-1 (NTSC)/ S VIDEO OUT chroma level adj. (PAL)
87	–	61	
88 to 92			Fixed data-1 (Initialized data)
93	79	79	COMPONENT OUT Y level adj.
94	31	31	COMPONENT OUT Pb level adj.
95	32	32	COMPONENT OUT Pr level adj.
96 to F3			Fixed data-1 (Initialized data)
F4	00	00	Emergence memory address (Mechanism section)
F5	00	00	
F6	00	00	
F7	00	00	
F8	00	00	
F9	00	00	
FA	00	00	
FB	00	00	
FC	00	00	
FD	00	00	
FE	00	00	
FF	00	00	

6. 13 Page table

Note 1: If reading/writing data on pages 13, set data: 01 to page: 0, address: 10, and then select pages: 3. By this data setting, the pages 13 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 13, 18, 1C Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 13, 18, 1C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 03			Fixed data-1 (Initialized data)
04	08	08	Node unique ID No. input
05	00	00	
06	46	46	
07	01	01	
08	02	02	
09	00	00	
0A	00	00	
0B	00	00	
0C			Fixed data-1 (Initialized data)
0D			Fixed data-2
0E, 0F			Fixed data-1 (Initialized data)
10			Fixed data-2
11			
12			
13 to 23			Fixed data-1 (Initialized data)
24			Fixed data-2
25			
26 to C4			Fixed data-1 (Initialized data)
C5			Fixed data-2
C6 to FF			Fixed data-1 (Initialized data)

7. 18 Page table

Note 1: If reading/writing data on pages 18, set data: 01 to page: 0, address: 10, and then select pages: 8. By this data setting, the pages 18 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 13, 18, 1C Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 13, 18, 1C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 71			Fixed data-1 (Initialized data)
72			Fixed data-2
73, 74			Fixed data-1 (Initialized data)
75			Fixed data-2
76 to 95			Fixed data-1 (Initialized data)
96			Fixed data-2
97 to 99			Fixed data-1 (Initialized data)
9A			Fixed data-2
9B to 9F			Fixed data-1 (Initialized data)
A0			Fixed data-2
A1 to A9			Fixed data-1 (Initialized data)
AA			Fixed data-2
AB to FF			Fixed data-1 (Initialized data)

8. 1C Page table

Note 1: If reading/writing data on pages 1C, set data: 01 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 1C can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to"00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 13, 18, 1C Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 13, 18, 1C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to B2	Fixed data-1 (Initialized data)		
B3	00	00	Error rate check
B4	00	00	
B5	00	00	
B6	00	00	
B7	00	00	
B8	80	80	
B9	00	00	
BA	00	00	
BB	00	00	
BC	00	00	
BD	00	00	
BE	00	00	
BF	00	00	
C0	00	00	
C1	00	00	
C2	00	00	
C3	80	80	
C4	00	00	
C5	00	00	
C6	00	00	
C7	00	00	
C8	00	00	
C9 to FF	Fixed data-1 (Initialized data)		

9. 1D Page table

Note 1: If reading/writing data on pages 1D, set data: 01 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 1D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, 9, C, 13, 18, 1C, 1D Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 8, 9, C, 13, 18, 1C, 1D Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 7E	Fixed data-1 (Initialized data)		
7F	Fixed data-2		
80 to 8C	Fixed data-1 (Initialized data)		
8D	Fixed data-2		
8E to A5	Fixed data-1 (Initialized data)		
A6	Fixed data-2		
A7 to FF	Fixed data-1 (Initialized data)		

1-2-3. Initialization of Camera Control Page Data

1. Initializing of Camera Control Page Data

Note 1: If "Initialization of Camera Control Page Data" is executed, all data on camera control page are initialized. (Only an individual page cannot be initialized)

Note 2: If the camera control page data has been initialized, the following adjustments need to be performed again.

1) Modification of camera control page data
2) Camera system adjustment (if all areas were initialized)

Adjustment Page	6D
Adjustment Address	00 to F9
Adjustment Page	6E
Adjustment Address	00 to FF
Adjustment Page	6F
Adjustment Address	10 to FF
Adjustment Page	7B
Adjustment Address	00 to 4F
Adjustment Page	8D
Adjustment Address	00 to FF
Adjustment Page	8E
Adjustment Address	00 to FF
Adjustment Page	8F
Adjustment Address	00 to FF
Adjustment Page	9D
Adjustment Address	00 to 4F
Adjustment Page	9E
Adjustment Address	00 to FF
Adjustment Page	9F
Adjustment Address	00 to F3
Adjustment Page	AD
Adjustment Address	00, 01
Adjustment Page	AE
Adjustment Address	00 to 8F
Adjustment Page	AF
Adjustment Address	00 to FF
Adjustment Page	BE
Adjustment Address	00 to FF
Adjustment Page	BF
Adjustment Address	00 to FF
Adjustment Page	C2
Adjustment Address	00 to FF
Adjustment Page	C3
Adjustment Address	00 to FF
Adjustment Page	C4
Adjustment Address	00 to FF
Adjustment Page	C5
Adjustment Address	00 to FF
Adjustment Page	C6
Adjustment Address	00 to DF
Adjustment Page	CC
Adjustment Address	00 to FF
Adjustment Page	CD
Adjustment Address	00 to FF
Adjustment Page	CE
Adjustment Address	00 to FF
Adjustment Page	CF
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	6	01		Set the following data, and press PAUSE (Write) button. (Note 3) NTSC model: 2D: Initializing all areas 31: Initializing other than adjustment address PAL model 2F: Initializing all areas 33: Initializing other than adjustment address
4	6	03	01	Press PAUSE (Write) button.
5	6	02		Check the data changes to "01".
6	6	01	00	Press PAUSE (Write) button.
7				Perform "Modification of Camera Control Data".

Note 3: If other than adjustment address was initialized, the adjusted data is not initialized.

2. Modification of Camera Control Page Data

If the camera control page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If 2-digit page is selected, set higher-order digit to page: 0, address: 10 as data, and then select lower-order digit by a usual method.
   e.g.: Set data: 06 to page: 0, address: 10, and then select page: D. Thus, the page 6D can be selected.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
3) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
4) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
5) If all areas were initialized, check that the data at the addresses for adjustment are initial values (adjustment initial values) listed in the table. If different, change them to the adjustment initial values.

Processing after Completing Modification Camera Control Data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

3. 6D Page table

Note 1: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00	00	00	
01	00	00	
02	00	00	
03	00	00	
04	00	00	
05	00	00	
06	00	00	
07	00	00	
08	00	00	
09	00	00	
0A	00	00	
0B	00	00	
0C	00	00	
0D	00	00	Differential gain adj.
0E	00	00	
0F	00	00	
10	00	00	
11	00	00	
12	00	00	
13	00	00	
14	00	00	
15	00	00	
16	00	00	
17	00	00	
18	00	00	
19	00	00	
1A	00	00	
1B	00	00	
1C	00	00	
1D	00	00	
1E to 4F			Fixed data-1 (Initialized data)
50	58	58	HALL adj.
51	76	76	
52, 53			Fixed data-1 (Initialized data)
54	28	28	HALL adj.
55	D8	D8	
56, 57			Fixed data-1 (Initialized data)
58	19	19	HALL adj.
59 to 5B			Fixed data-1 (Initialized data)
5C	35	35	LV standard data input
5D	00	00	

6D Page table

Address	Initial value		Remark
	NTSC	PAL	
5E	3E	3E	MAX GAIN adj.
5F			Fixed data-1 (Initialized data)
60	00	00	F No. and ND light quality standard data input
61	00	00	
62	00	00	
63	00	00	
64	00	00	
65	00	00	
66	00	00	
67	00	00	
68	00	00	
69	00	00	
6A	00	00	
6B	00	00	
6C	00	00	
6D	00	00	
6E	00	00	
6F	00	00	
70	EF	EF	Color reproduction adj. (ND 1)
71	CE	CE	
72	40	40	
73	50	50	
74	F9	F9	
75	36	36	
76	5E	5E	
77	60	60	
78	EF	EF	
79	CD	CD	
7A	3F	3F	
7B	50	50	
7C	FF	FF	
7D	42	42	
7E	5F	5F	
7F	6A	6A	
80	EF	EF	
81	CE	CE	
82	40	40	
83	50	50	
84	F9	F9	
85	36	36	
86	5E	5E	
87	60	60	
88	EF	EF	
89	CD	CD	
8A	3F	3F	
8B	50	50	
8C	FF	FF	
8D	42	42	Color reproduction adj. (ND 1)
8E	5F	5F	
8F	6A	6A	
90	EF	EF	Color reproduction adj. (ND 2)
91	CE	CE	
92	40	40	
93	50	50	
94	F9	F9	
95	36	36	
96	5E	5E	
97	60	60	
98	EF	EF	
99	CD	CD	
9A	3F	3F	
9B	50	50	
9C	FF	FF	
9D	42	42	
9E	5F	5F	
9F	6A	6A	
A0	EF	EF	
A1	CE	CE	
A2	40	40	
A3	50	50	
A4	F9	F9	
A5	36	36	
A6	5E	5E	
A7	60	60	
A8	EF	EF	
A9	CD	CD	
AA	3F	3F	
AB	50	50	
AC	FF	FF	
AD	42	42	
AE	5F	5F	
AF	6A	6A	
B0	04	04	Linear matrix adj.
B1	00	00	
B2	00	00	
B3	00	00	
B4	00	00	
B5	00	00	
B6	00	00	
B7	00	00	
B8	04	04	
B9	00	00	
BA	00	00	
BB	00	00	

6D Page table

Address	Initial value		Remark
	NTSC	PAL	
BC	00	00	
BD	00	00	
BE	00	00	
BF	00	00	
C0	04	04	
C1	00	00	
C2	04	04	
C3	00	00	
C4	00	00	
C5	00	00	
C6	00	00	
C7	00	00	
C8	00	00	
C9	00	00	
CA	04	04	
CB	00	00	
CC	00	00	
CD	00	00	
CE	00	00	
CF	00	00	
D0	00	00	
D1	00	00	Linear matrix adj.
D2	04	04	
D3	00	00	
D4	04	04	
D5	01	01	
D6	FF	FF	
D7	FA	FA	
D8	FF	FF	
D9	E8	E8	
DA	FF	FF	
DB	F5	F5	
DC	04	04	
DD	3E	3E	
DE	FF	FF	
DF	AD	AD	
E0	00	00	
E1	07	07	
E2	00	00	
E3	02	02	
E4	04	04	
E5	2E	2E	
E6	05	05	
E7	9D	9D	
E8	FF	FF	
E9	01	01	
EA	00	00	

Address	Initial value		Remark
	NTSC	PAL	
EB	0D	0D	
EC	FF	FF	
ED	DF	DF	
EE	04	04	
EF	B6	B6	
F0	FF	FF	
F1	1B	1B	Linear matrix adj.
F2	FF	FF	
F3	F0	F0	
F4	FF	FF	
F5	F2	F2	
F6	04	04	
F7	21	21	
F8, F9	Fixed data-1 (Initialized data)		

4. 6E Page table

Note 1: If reading/writing data on pages 6E, set data: 06 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 6E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00	00	00	
01	00	00	
02	00	00	
03	00	00	
04	00	00	
05	00	00	
06	00	00	
07	00	00	
08	00	00	
09	00	00	
0A	00	00	
0B	00	00	
0C	00	00	
0D	00	00	
0E	00	00	
0F	00	00	
10	00	00	
11	00	00	
12	00	00	
13	00	00	Differential gain adj.
14	00	00	
15	00	00	
16	00	00	
17	00	00	
18	00	00	
19	00	00	
1A	00	00	
1B	00	00	
1C	00	00	
1D	00	00	
1E	00	00	
1F	00	00	
20	00	00	
21	00	00	
22	00	00	
23	00	00	
24	00	00	
25	00	00	
26	00	00	
27	00	00	
28	00	00	
29	00	00	
2A	00	00	
2B	00	00	
2C	00	00	
2D	00	00	
2E	00	00	
2F	00	00	
30	00	00	
31	00	00	
32	00	00	
33	00	00	
34	00	00	
35	00	00	
36	00	00	
37	00	00	
38	00	00	
39	00	00	
3A	00	00	
3B	00	00	
3C	00	00	
3D	00	00	Differential gain adj.
3E	00	00	
3F	00	00	
40	00	00	
41	00	00	
42	00	00	
43	00	00	
44	00	00	
45	00	00	
46	00	00	
47	00	00	
48	00	00	
49	00	00	
4A	00	00	
4B	00	00	
4C	00	00	
4D	00	00	
4E	00	00	
4F	00	00	
50	00	00	
51	00	00	
52	00	00	
53	00	00	
54	00	00	
55	00	00	
56	00	00	
57	00	00	

6E Page table

Address	Initial value		Remark
	NTSC	PAL	
58	00	00	
59	00	00	
5A	00	00	
5B	00	00	
5C	00	00	
5D	00	00	
5E	00	00	
5F	00	00	
60	00	00	
61	00	00	
62	00	00	
63	00	00	
64	00	00	
65	00	00	
66	00	00	
67	00	00	
68	00	00	
69	00	00	
6A	00	00	
6B	00	00	
6C	00	00	
6D	00	00	
6E	00	00	Differential gain adj.
6F	00	00	
70	00	00	
71	00	00	
72	00	00	
73	00	00	
74	00	00	
75	00	00	
76	00	00	
77	00	00	
78	00	00	
79	00	00	
7A	00	00	
7B	00	00	
7C	00	00	
7D	00	00	
7E	00	00	
7F	00	00	
80	00	00	
81	00	00	
82	00	00	
83	00	00	
84	00	00	
85	00	00	
86	00	00	

Address	Initial value		Remark
	NTSC	PAL	
87	00	00	
88	00	00	
89	00	00	
8A	00	00	
8B	00	00	
8C	00	00	
8D	00	00	
8E	00	00	
8F	00	00	
90	00	00	
91	00	00	
92	00	00	
93	00	00	
94	00	00	
95	00	00	
96	00	00	
97	00	00	
98	00	00	
99	00	00	
9A	00	00	
9B	00	00	
9C	00	00	
9D	00	00	
9E	00	00	Differential gain adj.
9F	00	00	
A0	00	00	
A1	00	00	
A2	00	00	
A3	00	00	
A4	00	00	
A5	00	00	
A6	00	00	
A7	00	00	
A8	00	00	
A9	00	00	
AA	00	00	
AB	00	00	
AC	00	00	
AD	00	00	
AE	00	00	
AF	00	00	
B0	00	00	
B1	00	00	
B2	00	00	
B3	00	00	
B4	00	00	
B5	00	00	

6E Page table

Address	Initial value		Remark
	NTSC	PAL	
B6	00	00	
B7	00	00	
B8	00	00	
B9	00	00	
BA	00	00	
BB	00	00	
BC	00	00	
BD	00	00	
BE	00	00	
BF	00	00	
C0	00	00	
C1	00	00	
C2	00	00	
C3	00	00	
C4	00	00	
C5	00	00	
C6	00	00	
C7	00	00	
C8	00	00	
C9	00	00	
CA	00	00	
CB	00	00	
CC	00	00	Differential gain adj.
CD	00	00	
CE	00	00	
CF	00	00	
D0	00	00	
D1	00	00	
D2	00	00	
D3	00	00	
D4	00	00	
D5	00	00	
D6	00	00	
D7	00	00	
D8	00	00	
D9	00	00	
DA	00	00	
DB	00	00	
DC	00	00	
DD	00	00	
DE	00	00	
DF	00	00	
E0	00	00	
E1	00	00	
E2	00	00	
E3	00	00	
E4	00	00	
E5	00	00	
E6	00	00	
E7	00	00	
E8	00	00	
E9	00	00	
EA	00	00	Differential gain adj.
EB	00	00	
EC	00	00	
ED	00	00	
EE	00	00	
EF	00	00	
F0	00	00	
F1	00	00	
F2	00	00	
F3	00	00	Linearity adj.
F4	00	00	
F5	00	00	
F6	00	00	
F7	00	00	
F8 to FF	Fixed data-1 (Initialized data)		

5. 6F Page table

Note 1: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
10			Fixed data-1 (Initialized data)
11	80	80	Flange back adj.
12 to 1F			Fixed data-1 (Initialized data)
20	15	15	Flange back adj.
21	48	48	
22	A8	A8	
23	A1	A1	
24	29	29	
25	62	62	
26	00	00	
27	00	00	
28	00	00	
29	00	00	
2A	E5	E5	
2B	19	19	
2C	19	19	
2D	26	26	
2E	00	00	
2F	06	06	
30	00	00	MR adj./Flange back adj.
31	00	00	Flange back adj.
32	00	00	
33	00	00	
34	00	00	
35	00	00	
36	00	00	
37	00	00	
38	00	00	
39	00	00	
3A	00	00	
3B	00	00	
3C	00	00	
3D	00	00	
3E	00	00	
3F	00	00	
40	80	80	MR adj.
41	80	80	
42	80	80	
43	80	80	
44	40	40	
45	C0	C0	
46	40	40	MR adj.
47	C0	C0	
48	40	40	
49	C0	C0	
4A	40	40	
4B	C0	C0	
4C	00	00	Flange back adj.
4D	00	00	
4E to 5F			Fixed data-1 (Initialized data)
60	20	20	Linear matrix adj.
61	00	00	
62	00	00	
63	00	00	
64	00	00	
65	00	00	
66	00	00	
67	00	00	
68	20	20	
69	00	00	
6A	00	00	
6B	00	00	
6C	00	00	
6D	00	00	
6E	00	00	
6F	00	00	
70	20	20	
71	00	00	
72 to 83			Fixed data-1 (Initialized data)
84	2D	2D	Auto white balance adj. (ND OFF)
85	44	44	
86	5C	5C	
87	C7	C7	
88	1B	1B	Auto white balance standard data input (ND OFF)
89	DF	DF	
8A	05	05	
8B	29	29	
8C	1B	1B	Auto white balance standard data input (ND 1)
8D	DF	DF	
8E	05	05	
8F	29	29	
90	1B	1B	Auto white balance standard data input (ND 2)
91	DF	DF	
92	05	05	
93	29	29	
94 to 97			Fixed data-1 (Initialized data)
98	10	10	Auto white balance adj. (ND OFF)
99	6B	6B	

6F Page table

Address	Initial value		Remark
	NTSC	PAL	
9A	08	08	Auto white balance adj. (ND OFF)
9B	D4	D4	
9C	10	10	Auto white balance adj. (ND 1)
9D	6B	6B	
9E	08	08	
9F	D4	D4	
A0	10	10	Auto white balance adj. (ND 2)
A1	6B	6B	
A2	08	08	
A3	D4	D4	
A4 to A7	Fixed data-1 (Initialized data)		
A8	00	00	Color reproduction adj. (ND OFF)
A9	C4	C4	
AA	47	47	
AB	47	47	
AC	0C	0C	
AD	B4	B4	
AE	47	47	
AF	4A	4A	
B0	00	00	
B1	C4	C4	
B2	47	47	
B3	47	47	
B4	0C	0C	
B5	B4	B4	
B6	47	47	
B7	4A	4A	
B8	FD	FD	
B9	B9	B9	
BA	45	45	
BB	47	47	
BC	03	03	
BD	AC	AC	
BE	40	40	
BF	41	41	
C0	FD	FD	
C1	B9	B9	
C2	45	45	
C3	47	47	
C4	03	03	
C5	AC	AC	
C6	40	40	
C7	41	41	
C8 to FF	Fixed data-1 (Initialized data)		

6. 7B Page table

Note 1: If reading/writing data on pages 7B, set data: 07 to page: 0, address: 10, and then select pages: B. By this data setting, the pages 7B can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 4F	Fixed data-1 (Initialized data)		

7. 8D Page table

Note 1: If reading/writing data on pages 8D, set data: 08 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 8D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

8. 8E Page table

Note 1: If reading/writing data on pages 8E, set data: 08 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 8E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

9. 8F Page table

Note 1: If reading/writing data on pages 8F, set data: 08 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 8F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 97	Fixed data-1 (Initialized data)		
98	Fixed data-2		
99 to FF	Fixed data-1 (Initialized data)		

10. 9D Page table

Note 1: If reading/writing data on pages 9D, set data: 09 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 9D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 4F	Fixed data-1 (Initialized data)		

11. 9E Page table

Note 1: If reading/writing data on pages 9E, set data: 09 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 9E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 7C	Fixed data-1 (Initialized data)		
7D	Fixed data-2		
7E to FF	Fixed data-1 (Initialized data)		

12. 9F Page table

Note 1: If reading/writing data on pages 9F, set data: 09 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 9F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to F3	Fixed data-1 (Initialized data)		

13. AD Page table

Note 1: If reading/writing data on pages AD, set data: 0A to page: 0, address: 10, and then select pages: D. By this data setting, the pages AD can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00, 01	Fixed data-1 (Initialized data)		

14. AE Page table

Note 1: If reading/writing data on pages AE, set data: 0A to page: 0, address: 10, and then select pages: E. By this data setting, the pages AE can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85 to 8F	Fixed data-1 (Initialized data)		

15. AF Page table

Note 1: If reading/writing data on pages AF, set data: 0A to page: 0, address: 10, and then select pages: F. By this data setting, the pages AF can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00	Fixed data-2		
01 to FF	Fixed data-1 (Initialized data)		

16. BE Page table

Note 1: If reading/writing data on pages BE, set data: 0B to page: 0, address: 10, and then select pages: E. By this data setting, the pages BE can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 7D	Fixed data-1 (Initialized data)		
7E	Fixed data-2		
7F to FF	Fixed data-1 (Initialized data)		

17. BF Page table

Note 1: If reading/writing data on pages BF, set data: 0B to page: 0, address: 10, and then select pages: F. By this data setting, the pages BF can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 07	Fixed data-1 (Initialized data)		
08	Fixed data-2		
09 to 3D	Fixed data-1 (Initialized data)		
3E	Fixed data-2		
3F to 44	Fixed data-1 (Initialized data)		
45	Fixed data-2		
46 to 71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73			
74 to AC	Fixed data-1 (Initialized data)		
AD	Fixed data-2		
AE			
AF			
B0			
B1 to FF	Fixed data-1 (Initialized data)		

18. C2 Page table

Note 1: If reading/writing data on pages C2, set data: 0C to page: 0, address: 10, and then select pages: 2. By this data setting, the pages C2 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

19. C3 Page table

Note 1: If reading/writing data on pages C3, set data: 0C to page: 0, address: 10, and then select pages: 3. By this data setting, the pages C3 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

20. C4 Page table

Note 1: If reading/writing data on pages C4, set data: 0C to page: 0, address: 10, and then select pages: 4. By this data setting, the pages C4 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

21. C5 Page table

Note 1: If reading/writing data on pages C5, set data: 0C to page: 0, address: 10, and then select pages: 5. By this data setting, the pages C5 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

22. C6 Page table

Note 1: If reading/writing data on pages C6, set data: 0C to page: 0, address: 10, and then select pages: 6. By this data setting, the pages C6 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to DF	Fixed data-1 (Initialized data)		

23. CC Page table

Note 1: If reading/writing data on pages CC, set data: 0C to page: 0, address: 10, and then select pages: C. By this data setting, the pages CC can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

24. CD Page table

Note 1: If reading/writing data on pages CD, set data: 0C to page: 0, address: 10, and then select pages: D. By this data setting, the pages CD can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 6F	Fixed data-1 (Initialized data)		
70	Fixed data-2		
71			
72, 73	Fixed data-1 (Initialized data)		
74	Fixed data-2		
75			
76			
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84	Fixed data-1 (Initialized data)		
85	Fixed data-2		
86			
87 to 9F	Fixed data-1 (Initialized data)		
A0	Fixed data-2		
A1			
A2, A3	Fixed data-1 (Initialized data)		
A4	Fixed data-2		
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			
B0			
B1	Fixed data-2		
B2			
B3			
B4	Fixed data-1 (Initialized data)		
B5	Fixed data-2		
B6			
B7 to FF	Fixed data-1 (Initialized data)		

25. CE Page table

Note 1: If reading/writing data on pages CE, set data: 0C to page: 0, address: 10, and then select pages: E. By this data setting, the pages CE can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 07	Fixed data-1 (Initialized data)		
08	Fixed data-2		
09 to BC	Fixed data-1 (Initialized data)		
BD	Fixed data-2		
BE			
BF			
C0 to FF	Fixed data-1 (Initialized data)		

26. CF Page table

Note 1: If reading/writing data on pages CF, set data: 0C to page: 0, address: 10, and then select pages: F. By this data setting, the pages CF can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the Camera Control Data")
Fixed data-2: Modified data. (Refer to "2. Modification of Camera Control Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

1-2-4. Initialization of 7C, 7E, 7F Page Data

Note 1: If "Initialization of Pages 7C, 7E, 7F" is executed, all data on pages 7C, 7E, 7F are initialized.
(Only an individual page cannot be initialized)

Note 2: If the 7C, 7E, 7F page data has been initialized, the following adjustments need to be performed again.
1) Modification of 7C, 7E, 7F page data
2) PSD sensor gradient adjustment (if all areas were initialized)
3) Optical axis adjustment (if all areas were initialized)
4) Angular velocity sensor sensitivity adjustment (if all areas were initialized)

Adjustment Page	7C
Adjustment Address	00 to FF
Adjustment Page	7E
Adjustment Address	00 to FF
Adjustment Page	7F
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	07	
3	2 (72)	01		Set the following data, and press PAUSE (Write) button. (Note 3) 2D: Initializing all areas 31: Initializing other than adjustment address
4	2 (72)	02		Check the data changes to "01".
5	2 (72)	01	00	Press PAUSE (Write) button.
6	0	10	00	
7				Perform "Modification of 7C, 7E, 7F Page Data".

Note 3: If other than adjustment address was initialized, the adjusted data is not initialized.

2. Modification of 7C, 7E, 7F Page Data

If the 7C, 7E, 7F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) If modification of data on pages 7C, 7E, 7F, set data: 01 to page: 0, address: 10, and then select pages C, E, F.
   After the modification of data finished, return the data on page: 0, address: 10 to "00".
3) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
4) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
5) If all areas were initialized, check that the data at the addresses for adjustment are initial values (adjustment initial values) listed in the table. If different, change them to the adjustment initial values.

Processing after Completing Modification Camera Control Data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

3. 7C Page table

Note 1: If reading/writing data on pages 7C, set data: 07 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 7C can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 7C, 7E, 7F Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 7C, 7E, 7F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 05	Fixed data-1 (Initialized data)		
06	Fixed data-2		
07			
08 to FF	Fixed data-1 (Initialized data)		

4. 7E Page table

Note 1: If reading/writing data on pages 7E, set data: 07 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 7E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 7C, 7E, 7F Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 7C, 7E, 7F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 10	Fixed data-1 (Initialized data)		
11	Fixed data-2		
12 to 3A	Fixed data-1 (Initialized data)		
3B	Fixed data-2		
3C			
3D			
3E			
3F	Fixed data-1 (Initialized data)		
40	Fixed data-2		
41 to 5F	Fixed data-1 (Initialized data)		
60	Fixed data-2		
61			
62 to B8	Fixed data-1 (Initialized data)		
B9	Fixed data-2		
BA, BB	Fixed data-1 (Initialized data)		
BC	Fixed data-2		
BD			
BE to C2	Fixed data-1 (Initialized data)		
C3	Fixed data-2		
C4 to F2	Fixed data-1 (Initialized data)		
F3	Fixed data-2		
F4 to FF	Fixed data-1 (Initialized data)		

5. 7F Page table

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 7C, 7E, 7F Page Data")
Fixed data-2: Modified data. (Refer to "2. Modification of 7C, 7E, 7F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 03	Fixed data-1 (Initialized data)		
04	80	80	PSD sensor gradient adj.
05	80	80	
06 to 0D	Fixed data-1 (Initialized data)		
0E	02	02	PSD sensor gradient adj.
0F	C2	C2	
10	02	02	
11	C2	C2	
12	40	40	Angular velocity sensor sensitivity adj.
13	40	40	
14 to 4F	Fixed data-1 (Initialized data)		
50	00	00	Optical axis adj.
51	00	00	
52	00	00	
53	00	00	
54 to FF	Fixed data-1 (Initialized data)		

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied. (Except Origin Oscillation Check")
Check that the data of page: 0, address: 10 is "00".
If not, select page: 0, address: 10, and set the data "00".

1. Origin Oscillation Check (TT-003 board)

Check the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	R1414 (CHCK) on TT-003 board
Measuring Instrument	Frequency counter
Specified value	f = 41538461 ± 835 Hz (NTSC) f = 41580000 ± 835 Hz (PAL)

Switch setting

1) POWER ..... CAMERA mode

Checking method:

1) Check that the frequency (f) satisfies the specified value.

TT-003 BOARD (SIDE A)

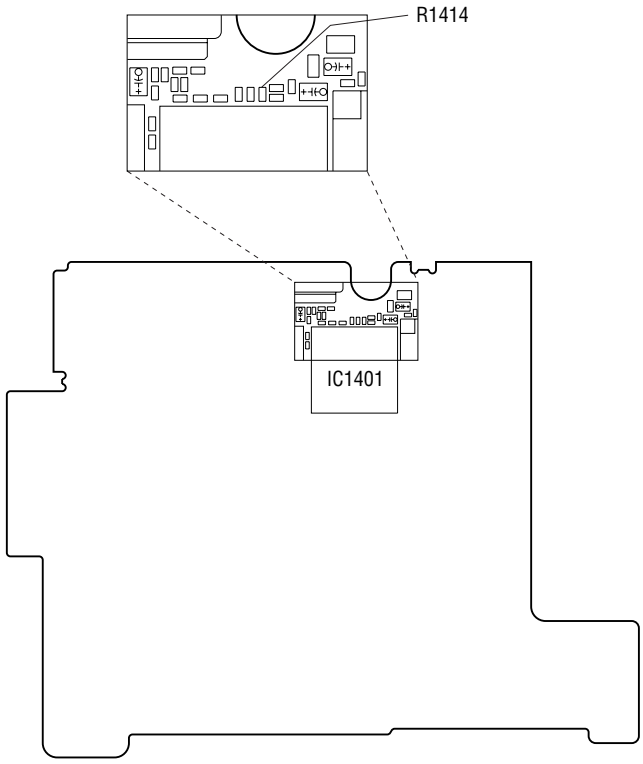


Fig. 6-1-6

2. PSD Sensor Gradient Adjustment RadarW

Adjust the gradient of the PSD sensor.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	7F
Adjustment Address	04, 05, 0E to 11
Specified value	Data of page: 7F address: 00 is "00" Data of page: 7F address: 01 is "00"

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Perform this adjustment only when replacing the lens block. When the microprocessor, circuit etc. is damaged, don't perform this adjustment but check the steady shot operations only.

Note 3: Perform the adjustment with the camcorder in horizontal state.

Switch setting

1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	07	
3	2 (72)	01	97	Press PAUSE (Write) button. (Note 4)
4	2 (72)	02		Check the data changes to "01".
5	F (7F)	00		Check the data is "00". (Note 5)
6	F (7F)	01		Check the data is "00". (Note 5).

Note 4: The adjustment data will be automatically input to page: 7F, address: 04, 05, 0E to 11.

Note 5: If the data is other than "00", perform readjustment.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	2 (72)	01	00	Press PAUSE (Write) button.
2	0	10	00	
3	0	01	00	
4				Turn off the power and turn on again.
5				Shake the camcorder vertically and horizontally to check that the steady shot function operates normally.

3. HALL Adjustment RadarW

For detecting the position of lens iris and ND filter, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6D
Adjustment Address	50, 51, 54, 55, 58
Specified value	Data of page: 6, address: 0C is “00”

Note 1: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages D. By this data setting, the pages 6D can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Check that the data of page: 6, address: 02 is “00”
If not, select page: 6, address: 01, set data: 00, and press the PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	D0	22	
3	6	01	6D	Press PAUSE (Write) button. (Note 3)
4	6	02		Check the data changes to “01”.
5	6	0C		Check the data is “00”.

Note 3: The adjustment data will be automatically input to page: 6D, address: 50, 51, 54, 55, 58.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	01	00	

4. MR Adjustment RadarW

The inner focus lens MR adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6F
Adjustment Address	30, 40 to 4B
Specified value	Data of page: 6, address: 0C is “00”.

Note 1: Perform the adjustment with the lens in horizontal state.

Note 2: Perform “Flange Back Adjustment” after this adjustment.

Note 3: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 4: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press the PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	BD	Press PAUSE (Write) button. (Note 5)
3	6	02		Check the data changes to “01”.
4	6	0C		Check the data is “00”.

Note 5: The adjustment data will be automatically input to page: 6F, address: 30, 40 to 4B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	01	25	Press PAUSE (Write) button.
3	6	02		Check the data changes to “01”.
4	6	01	00	Press PAUSE (Write) button.
5	0	01	00	

5. Differential Gain Adjustment

5-1. Differential Gain Adjustment (1) (Temporary Adjustment of F No.) RadarW

Perform the F No. compensation before "Differential Gain Adjustment (2)".

Subject	Clear chart (All white) (Note 1)
Adjustment Page	6D
Adjustment Address	60 to 6F

Note 1: Shoot the clear chart with the zoom TELE end.

Note 2: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00".
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) FOCUS ..... MANUAL
4) ZOOM ..... TELE end
5) REC FORMAT (Menu setting) HDV1080i
6) STEADY SHOT (Menu setting) ..... OFF
7) D. EXTENDER (Menu setting) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	17	10	
3	6	C9	10	
4	6	10	80	
5	6	D2	60	
6	6	D3	40	
7	6	01	BB	Press PAUSE button. (Note 4)
8	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6D, address: 60 to 6F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	17	00	
2	6	C9	00	
3	6	10	00	
4	6	01	00	Press PAUSE button.
5	0	01	00	

5-2. Differential Gain Adjustment (2) RadarW

Correct the dispersion of between the channels of CMOS imager.

Subject	Clear chart (All white) (Note 1)	
Adjustment Page	6D	6E
Adjustment Address	00 to 1D	00 to EF

Note 1: Shoot the clear chart with the zoom TELE end.

Note 2: If reading/writing data on pages 6D, 6E set data: 06 to page: 0, address: 10, and then select pages: D, E. By this data setting, the pages 6D, 6E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) ZOOM ..... TELE end
4) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	2C	01	
3	6	40	01	
4	6	D0	60	
5	6	D2	01	
6	6	D3	01	
7	6	D6	10	
8	6	01	F5	Press PAUSE (Write) button. (Note 4)
9	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6D, address: 00 to 1D and page: 6E, address: 00 to EF.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	2C	00	
3	6	40	00	
4	0	01	00	

6. Flange Back Adjustment RadarW (Using the minipattern box or flange back adjust ment jig)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for minipattern box (Note 1) or flange back adjustment jig
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6F
Adjustment Address	11, 20 to 3F, 4C, 4D
Specified value	Data of page: 6F, address: 2F is "00" to "0E" Data of pege: 6, address: 0C is "00"

Note 1: Dark Siemens star chart.
Note 2: Perform "HALL Adjustment", "MR Adjustment" and "Differential Gain Adjustment" before this adjustment.
Note 3: Perform the adjustment with the lens in horizontal state.
Note 4: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".
Note 5: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.
Note 6: Don't touch the zoom lever during adjustment.
Note 7: After adjustment, if the focusing to a subject located at infinity failed, increase the illuminance of the chart and perform readjustment.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) REC FORMAT (Menu setting) HDV1080i

Preparation (Using the minipattern box)

1) The minipattern box is installed as shown in the following figure.
Note 8: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of lens of camera is less than 3 cm.
3) Make the height of minipattern box and the camera equal.
4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Specified voltage: The specified voltage varies according to the minipattern box, so adjustment the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

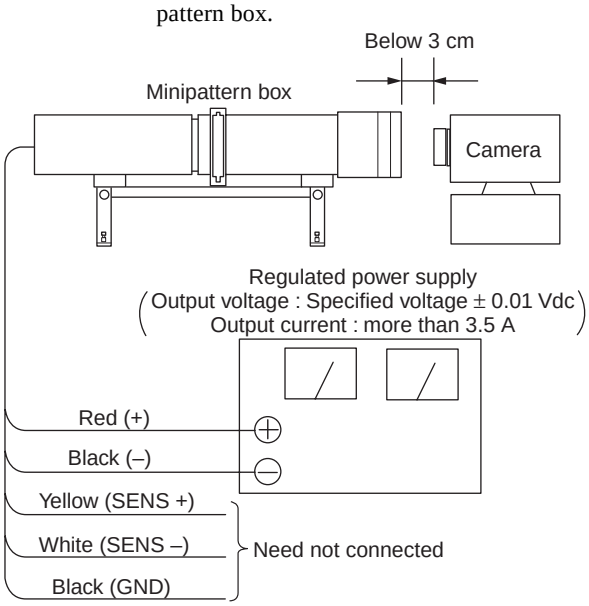


Fig. 6-1-7

Preparation (Using the flange back adjustment jig) (Luminance: 300 to 400 lux)

1) Install the flange back adjustment jig so that the distance between it and the front of lens of camera is less than 3 cm.
2) Make the height of flange back adjustment jig and the camera equal.
3) Check that the center of chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

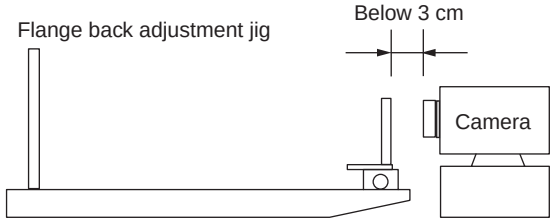


Fig. 6-1-8

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	64	04	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	01	13	Press PAUSE (Write) button.
7				Wait for 2 seconds.
8	6	01	27	Press PAUSE (Write) button. (Note 9)
9	6	02		Check the data changes to “01”.
10	6	0C		Check the data is “00”.
11	0	10	06	
12	F (6F)	2F		Check the data is “00” to “0E”.
13	0	10	00	

Note 9: The adjustment data will be automatically input to page: 6F, address: 11, 20 to 3F, 4C, 4D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	01	25	Press PAUSE (Write) button.
3	6	02		Check the data changes to “01”.
4	6	01	00	Press PAUSE (Write) button.
5	6	64	00	
6	0	10	0A	
7	E (AE)	8C	00	Press PAUSE (Write) button.
8	0	10	00	
9	0	01	00	
10				Perform “Flange Back Check”.

7. Flange Back Adjustment (Using the flange back adjustment chart and subject more than 500 m away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

7-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart (2.0 m from the front of lens) (Luminance: 300 to 400 lux)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6F
Adjustment Address	11, 20 to 3F, 4C, 4D
Specified value	Data of page: 6F, address: 2F is "00" to "0E" Data of pege: 6, address: 0C is "00"

Note 1: Perform "HALL Adjustment", "MR Adjustment" and "Differential Gain Adjustment" before this adjustment.

Note 2: Perform the adjustment with the lens in horizontal state.

Note 3: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 4: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Note 5: Don't touch the zoom lever during adjustment.

Note 6: After adjustment, if the focusing to a subject located at infinity failed, increase the illuminance of the chart and perform readjustment.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) REC FORMAT (Menu setting) HDV1080i

Preparations before adjustments:

1) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	64	04	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	01	13	Press PAUSE (Write) button.
7				Wait for 2 seconds.
8	6	01	15	Press PAUSE (Write) button. (Note 7)
9	6	02		Check the data changes to "01".
10	6	0C		Check the data is "00".
11	0	10	06	
12	F (6F)	2F		Check the data is "00" to "0E".
13	0	10	00	

Note 7: The adjustment data will be automatically input to page: 6F, address: 11, 20 to 3F, 4C, 4D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	01	25	Press PAUSE (Write) button.
3	6	02		Check the data changes to "01".
4	6	01	00	Press PAUSE (Write) button.
5	6	64	00	
6	0	10	0A	
7	E (AE)	8C	00	Press PAUSE (Write) button.
8	0	10	00	
9	0	01	00	
10				Perform "Flange Back Adjustment (2)".

7-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500 m away (Subject with clear contrast such as buildings, etc.)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6F
Adjustment Address	11, 20 to 3F, 4C, 4D
Specified value	Data of page: 6F, address: 2F is"00" to "0E" Data of page: 6, address: 0C is"00"

Note 1: Perform the adjustment with the lens in horizontal state.

Note 2: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Note 4: Don't touch the zoom lever during adjustment.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) REC FORMAT (Menu setting) HDV1080i

Preparations before adjustments:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away.
(subjects with clear contrast such as building, etc.)
(Nearby subjects less than 500 m away should not be in the screen)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	64	04	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	01	13	Press PAUSE (Write) button.
7				Wait for 2 seconds.
8				Place ND filter on the lens so that the optimum image is obtain.
9	6	01	29	Press PAUSE (Write) button. (Note 5)
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12	0	10	06	
13	F (6F)	2F		Check the data is "00" to "0E".
14	0	10	00	

Note 5: The adjustment data will be automatically input to page: 6F, address: 11, 20 to 3F, 4C, 4D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	01	25	Press PAUSE (Write) button.
3	6	02		Check the data changes to "01".
4	6	01	00	Press PAUSE (Write) button.
5	6	64	00	
6	0	10	0A	
7	E (AE)	8C	00	Press PAUSE (Write) button.
8	0	10	00	
9	0	01	00	
10				Perform "Flange Back Check".

8. Flange Back Check (Using the flange back adjustment jig)

Subject	Flange back adjustment jig (Luminance: approx. 200 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Note: Check that the data of page: 0, address: 10 is "00".

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) REC FORMAT (Menu setting) HDV1080i

Preparations before adjustments:

1) Install the flange back adjustment jig so that the distance between it and the front of lens of camera is less than 3 cm.
2) To open the IRIS, decrease the luminous intensity to the chart of the flange back adjustment jig up to a point before noise appear on the image. (approx. 200 lux)
3) Check that the center of chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Checking method:

Order	Page	Address	Data	Procedure
1	6	40	01	
2	6	41	01	
3	6	4D	40	
4				Shoot the chart with the zoom TELE end.
5	6	2C	02	
6				Check that the lens is focused.
7				Shoot the chart with the zoom WIDE end.
8				Check that the lens is focused.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	2C	00	
2	6	40	00	
3	6	41	00	
4	6	4D	00	

9. Flange Back Check (Using the Siemens star)

Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Note 1: Check that the data of page: 0, address: 10 is "00".

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) REC FORMAT (Menu setting) HDV1080i

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page: 1 of the adjusting remote commander.

1 : 00 : XX
- Odd: Focused
- Even: Unfocused

Preparations before adjustments:

1) Place the Siemens star 2.0 m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.

Checking method:

Order	Page	Address	Data	Procedure
1	6	40	01	
2	6	41	01	
3	6	4D	40	
4				Shoot the Siemens star with the zoom TELE end.
5				Turn on the auto focus.
6	0	03	0F	
7	1			Check that the lens is focused. (Note 2)
8	6	21	10	
9				Shoot the Siemens star with the zoom WIDE end.
10				Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	21	00	
2	6	40	00	
3	6	41	00	
4	6	4D	40	
5	0	03	00	

10. Optical Axis Adjustment

Correct a deviation of optical axis between the lens and the imager. If deviated, the screen center will be shifted when the lens is zoomed from TELE end to WIDE end.

Note 1: Perform this adjustment only when replacing the lens block. When the microprocessor, circuit etc. is damaged, don't perform this adjustment but check the optical axis.

Note 2: When performing this adjustment, place the camcorder on a level place, and take care not to move the camcorder during the adjustment.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) FOCUS ..... MANUAL
4) STEADY SHOT (Menu setting) ..... OFF
5) TV TYPE (Menu setting) ..... 16 : 9

10-1. Optical Axis Adjustment (1)

Subject	Pattern A (1.2 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (V period)
Adjustment Page	7F (Note 1)
Adjustment Address	50, 51

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

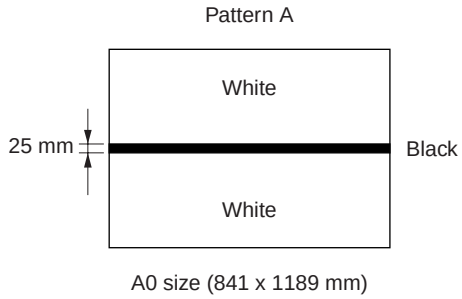
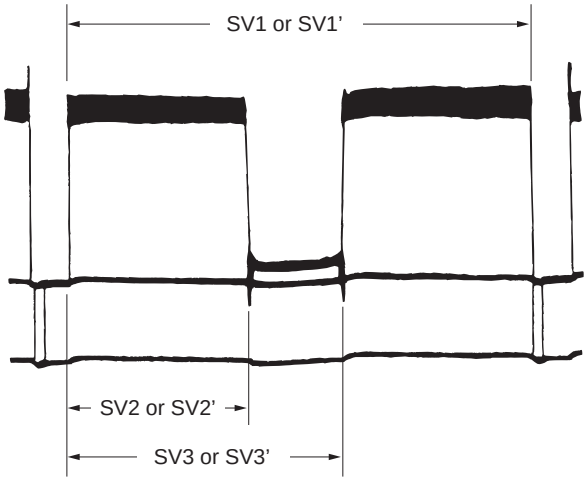


Fig. 6-1-9



When the zoom at TELE end: SV1, SV2, SV3 (msec)
When the zoom at WIDE end: SV1', SV2', SV3' (msec)

Fig. 6-1-10

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	40	01	
3	0	10	07	
4	F (7F)	50	00	Press PAUSE (Write) button.
5	F (7F)	51	00	Press PAUSE (Write) button.
6				Set the zoom to TELE end, and shoot the pattern A.
7				Adjust the focus.
8				Measure the SV1 (msec), SV2 (msec) and SV3 (msec).(Fig. 6-1-10)
9				Set the zoom to WIDE end, and shoot the pattern A. (Note 2)
10				Adjust the focus. (Note 2)
11				Measure the SV1' (msec), SV2' (msec) and SV3' (msec).(Fig. 6-1-10)
12				Calculate D_{50}, D_{51}. (Note 3)
13	F (7F)	50	D_{50}	Press PAUSE (Write) button.
14	F (7F)	51	D_{51}	Press PAUSE (Write) button.

Note 2: Using the adjustment remote commander (HOLD switch in NOR position), operate the zoom and focus without touching the camcorder.

Note 3: Calculate D_{50} and D_{51} through the procedure given below.

1) Calculate P using following equations. (decimal calculation)
   $P = (19.6 \div 18.6) \times (SV2 + SV3) \div (SV1 \times 2) \times 1080$
   $- (1 \div 18.6) \times (SV2' + SV3') \div (SV1' \times 2) \times 1080 - 540$
2) Calculate V_{adj} using following equations. (decimal calculation)
   $V_{adj} = (P \div 1080) \times 2214 \div 0.85 \div 0.1831$
3) Convert V_{adj} into 4-digit hexadecimal V_{adj}' (signed short type), and assume higher-order 1byte as D_{50} and lower-order 1byte as D_{51}.

If V_{adj} is a positive value: Convert as it is.
e.g.: When $V_{adj} = 20$
$V_{adj}' = 0014$
$D_{50} = 00$, $D_{51} = 14$

If V_{adj} is a negative value: Add 65536 and then convert it.
e.g.: When $V_{adj} = -20$
$(-20) + 65536 = 65516$
$V_{adj}' = FFEC$
$D_{50} = FF$, $D_{51} = EC$

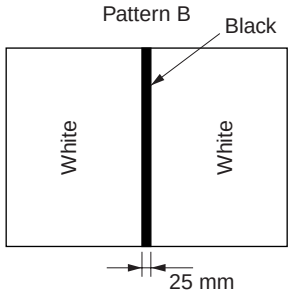
Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	6	40	00	
3	0	01	00	

10-2. Optical Axis Adjustment (2)

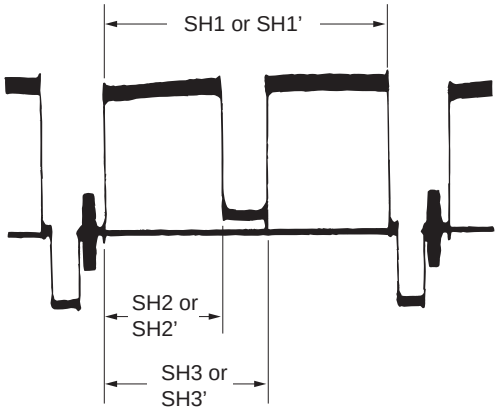
Subject	Pattern B (1.2 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (H period)
Adjustment Page	7F (Note 1)
Adjustment Address	52, 53

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".



A0 size (841 x 1189 mm)

Fig. 6-1-11



When the zoom at TELE end: SH1, SH2, SH3 (µsec)
When the zoom at WIDE end: SH1', SH2', SH3' (µsec)

Fig. 6-1-12

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	40	01	
3	0	10	07	
4	F (7F)	52	00	Press PAUSE (Write) button.
5	F (7F)	53	00	Press PAUSE (Write) button.
6				Set the zoom to TELE end, and shoot the pattern B.
7				Adjust the focus.
8				Measure the SH1 (µsec), SH2 (µsec) and SH3 (µsec). (Fig. 6-1-12)
9				Set the zoom to WIDE end, and shoot the pattern B. (Note 2)
10				Adjust the focus. (Note 2)
11				Measure the SH1' (µsec), SH2' (µsec) and SH3' (µsec). (Fig. 6-1-12)
12				Calculate D_{52}, D_{53}. (Note 3)
13	F (7F)	52	D_{52}	Press PAUSE (Write) button.
14	F (7F)	53	D_{53}	Press PAUSE (Write) button.

Note 2: Using the adjustment remote commander (HOLD switch in NOR position), operate the zoom and focus without touching the camcorder.

Note 3: Calculate D_{52} and D_{53} through the procedure given below.

1) Calculate Y using following equations. (decimal calculation)
   $Y = 960 - (19.6 \div 18.6) \times (SH2 + SH3) \div (SH1 \times 2) \times 1920 + (1 \div 18.6) \times (SH2' + SH3') \div (SH1' \times 2) \times 1920$
2) Calculate H_{adj} using following equations. (decimal calculation)
   $H_{adj} = (Y \div 1920) \times 3916 \div 0.85 \div 0.1831$
3) Convert H_{adj} into 4-digit hexadecimal H_{adj}' (signed short type), and assume higher-order 1byte as D_{52} and lower-order 1byte as D_{53}.

If H_{adj} is a positive value: Convert as it is.
e.g.: When $H_{adj} = 20$
$H_{adj}' = 0014$
$D_{50} = 00$, $D_{51} = 14$

If H_{adj} is a negative value: Add 65536 and then convert it.
e.g.: When $H_{adj} = -20$
$(-20) + 65536 = 65516$
$H_{adj}' = FFEC$
$D_{50} = FF$, $D_{51} = EC$

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	6	40	00	
3	0	01	00	

10-3. Optical Axis Check

Subject	Pattern C (1.2 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	TV monitor
Specified value	Below 8%

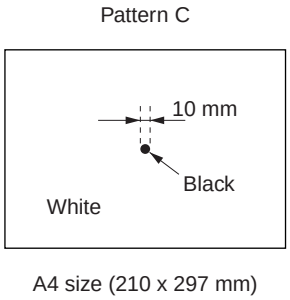


Fig. 6-1-13

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	40	01	
3				Set the zoom to TELE end, and shoot the pattern C.
4				Adjust the camcorder direction so that a dot in the pattern C is displayed in the center of monitor screen.
5				Set the zoom to WIDE end, and shoot the pattern C. (Note 1)
6				Measure the moving amount of a dot (difference in position between TELE end and WIDE end), and assume it as C (mm).
7				Measure vertical length of the monitor screen, and assume it as H (mm).
8				Make sure that C is within 8% of H. (Note 2)

Note 1: Using the adjustment remote commander (HOLD switch in HOR position), operate the zoom and focus without touching the camcorder.

Note 2: If out of specification, perform readjustment.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	40	00	
2	0	01	00	

11. Picture Frame Setting (Color reproduction adjustment frame)

Subject	Color bar chart (Color reproduction adjustment frame) 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope and monitor TV (16:9)
Specified Value	A=B, C=D, E=F

Note 1: Perform "Hall Adjustment" and "Flange Back Adjustment" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Switch setting

1) POWER ..... CAMERA mode
2) FOCUS ..... MANUAL
3) D.EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Setting method:

Order	Page	Address	Data	Procedure
1	6	40	01	
2				Adjust the zoom and the camera direction, and set the specified position.
3				Mark the position of the picture frame on the monitor TV, and adjust the picture frame to this position in following adjustment using "Color reproduction adjustment frame".

How to read the XH, XL, YH and YL data:

Order	Page	Address	Data	Procedure
1	0	03	18	
2	1			Read XH data and XL data. (Note 3)
3	0	03	22	
4	1			Read YH data and YL data. (Note 3)

Note 3: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX : XX
- XL or YL data
- XH or YH data

How to reset the zoom and focus when they deviated:

If the zoom and focus deviated due to some reason, reset them in the following method.

Order	Page	Address	Data	Procedure
1	6	40	01	
2	6	90	XL	
3	6	91	XH	
4	6	92	YL	
5	6	93	YH	
6	6	01	79	Press PAUSE (Write) button.

How to release the picture frame setting:

Order	Page	Address	Data	Procedure
1	6	40	00	
2	6	01	00	Press PAUSE (Write) button.
3	6	90	00	
4	6	91	00	
5	6	92	00	
6	6	93	00	

Check on the oscilloscope

1. Horizontal period

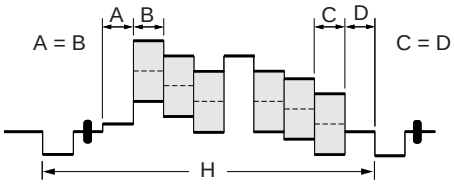


Fig. 6-1-14

2. Vertical period

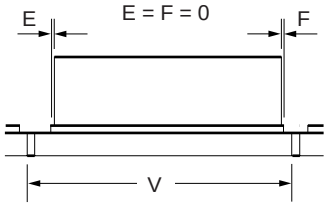


Fig. 6-1-15

Check on the monitor TV (Underscanned mode)

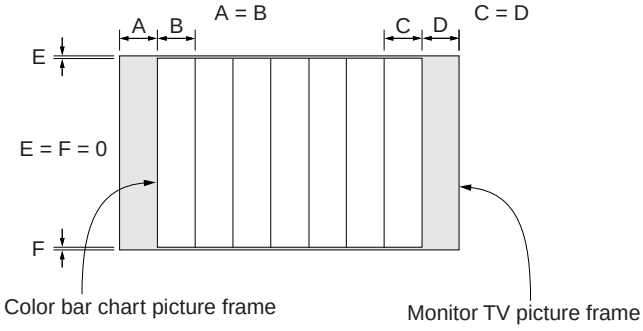


Fig. 6-1-16

12. Linearity Adjustment

Correct the linearity of AFE (analog Front End).

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	6E
Adjustment Address	F0 to F7

Note 1: If reading/writing data on pages 6E, set data: 06 to page: 0, address: 10, and then select pages: E. By this data setting, the pages 6E can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00".
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) REC FORMAT (Menu setting) HDV1080i
4) STEADY SHOT (Menu setting) ..... OFF
5) D. EXTENDER (Menu setting) ..... OFF

Type \ Address	F0	F1	F2	F3	F4	F5	F6	F7
A	00	00	00	00	00	00	00	00
B	E1	E1	EE	F2	F6	FA	FC	FD
C	C2	C2	DC	E4	EB	F3	F7	F9
D	A3	A3	C9	D6	E1	EC	F2	F5
E	83	83	B7	C8	D6	E5	ED	F2
F	80	80	A5	BA	CB	DE	E8	EE
G	80	80	92	AC	C1	D7	E4	EA

Table 6-1-2

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	06	
5	F (6F)	90		Note down the data.
6	F (6F)	91		Note down the data.
7	F (6F)	92		Note down the data.
8	F (6F)	93		Note down the data.
9	D (6D)	5E		Note down the data.
10	D (6D)	5E	5C	Press PAUSE (Write) button.
11	0	10	00	
12	6	CA	07	
13	6	15	92	
14	6	01	0B	Press PAUSE (Write) button.
15	6	02		Check the data changes to "01".
16	6	01	00	Press PAUSE (Write) button.
17	6	C9	10	
18	0	10	0C	
19	D (CD)	0E	0F	Press PAUSE (Write) button.
20	0	10	00	
21	6	14	87	
22	6	9D	10	
23	0	03	29	
24	0	10	0A	
25	F (AF)	1E		Set the bit value of bit6 is "1", and press PAUSE (Write) button. (Note 3)
26	0	10	06	
27	E (6E)	F0 to F7		From Table 6-1-2, set the type A data, and press PAUSE (Write) button.
28	0	10	00	
29	6	01	0F	Press PAUSE (Write) button.
30	6	02		Check the data changes to "01".
31	1			Read the displayed data (Note 4) and write it down.
32				For the type B to type G, perform order 26 - 31, same as type A.
33				Select the type of which data read in the order 31 is nearest to 0. (Note 5, 6)
34	0	10	06	
35	E (6E)	F0 to F7		Set the data of the type selected in the order 33 and press PAUSE button.
36	0	10	00	

Note 3: For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit value discrimination".

Note 4: The upper two digits of the page: 1 displayed data of the adjusting remote commander (RM-95).

1 : XX : XX
└── Displayed data

Read the "Data Section" of adjustment remote commander (New LANC jig).

P : 01 a: XX d: XX
└── Data Section

Note 5: Data is displayed in the signed chart form. (Data: FF becomes –1.)

Note 6: If there are multiple types of which data is nearest to 0, select the type in the center.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	06	
3	F (6F)	90		Set data noted down at step 5, and press PAUSE (Write) button.
4	F (6F)	91		Set data noted down at step 6, and press PAUSE (Write) button.
5	F (6F)	92		Set data noted down at step 7, and press PAUSE (Write) button.
6	F (6F)	93		Set data noted down at step 8, and press PAUSE (Write) button.
7	D (6D)	5E		Set data noted down at step 9, and press PAUSE (Write) button.
8	0	10	0C	
9	D (CD)	90		Press PAUSE (Write) button.
10	0	10	00	
11	6	14	00	
12	6	15	00	
13	6	9D	00	
14	6	C9	00	
15	6	CA	00	
16	6	40	00	
17	6	41	00	
18	0	10	0A	
19	E (AE)	8C	00	Press PAUSE (Write) button.
20	F (AF)	1E		Set the bit value of bit6 is “0”, and press PAUSE (Write) button. (Note 3)
21	0	10	00	
22	0	03	00	
23	0	01	00	

13. Picture Frame Setting (Center frame)

Subject	Clear chart (Center frame) 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Monitor TV
Specified Value	A clear chart must be shot in larger size than nine grids in the center of frame shown on the screen. (Fig. 6-1-17)

Switch setting

1) POWER ..... CAMERA mode
2) FOCUS ..... MANUAL
3) ZOOM ..... WIDE end
4) D. EXTENDER (Menu setting) ..... OFF
5) STEADY SHOT (Menu setting) ..... OFF

Setting method:

Order	Page	Address	Data	Procedure
1				Shoot a clear chart in the center of screen with the zoom at WIDE end.
2	0	01	01	
3	0	10	09	
4	F (9F)	4A	08	Press PAUSE (Write) button.
5	F (9F)	4B	81	Press PAUSE (Write) button.
6				Check that a clear chart is shot in larger size than nine grids in the center of frame shown on the screen.
7	F (9F)	4A	00	Press PAUSE (Write) button.
8	F (9F)	4B	00	Press PAUSE (Write) button.
9	0	10	00	
10	0	01	00	
11				In the following adjustment, if the “Center frame” is used, adjust the clear chart to this position.

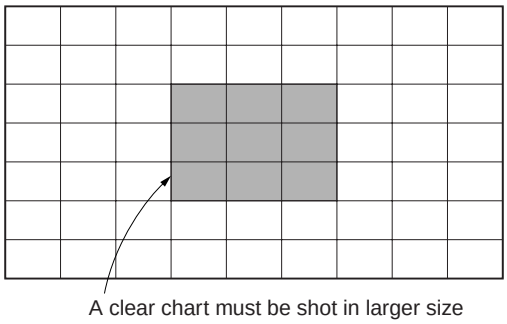


Fig.6-1-17

14. F No. & ND Light Quality Standard Data Input

RadarW

Correct the lens iris and dispersion of the ND filter light quantity.

Subject	Clear chart (Center frame)
Adjustment Page	6D
Adjustment Address	60 to 6F

Note 1: Perform “LV Standard Data Input” after this adjustment.
Note 2: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) FOCUS ..... MANUAL
4) ZOOM ..... WIDE end
5) REC FORMAT (Menu setting) HDV1080i
6) STEADY SHOT (Menu setting) ..... OFF
7) D. EXTENDER (Menu setting) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “Center Frame”. If not, Perform “13. Picture Frame Setting (Center Frame)”
2	0	01	01	
3	6	17	10	
4	6	C9	10	
5	6	10	80	
6	6	D2	60	
7	6	D3	40	
8	6	01	BB	Press PAUSE button. (Note 4)
9	6	02		Check the data changes to “01”.
10	6	0C		Check the data is “00”.

Note 4: The adjustment data will be automatically input to page: 6D, address: 60 to 6F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	17	00	
2	6	C9	00	
3	6	10	00	
4	6	01	00	Press PAUSE button.
5	0	01	00	

15. Linear Matrix Adjustment (1) RadarW

Adjust the matrix coefficient for compensating the variation in spectral sensitivity.

Adjustment Page	6D
Adjustment Address	B0 to F7

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 06.
3) Input the following data to page: D (6D), address: B0 to F7.

Note: Press the PAUSE (Write) button of the adjustment remote commander each time to set data.

Address	Data	Address	Data
B0	03	D4	04
B1	FD	D5	01
B2	FF	D6	FF
B3	F8	D7	FA
B4	00	D8	FF
B5	13	D9	E8
B6	00	DA	FF
B7	25	DB	F5
B8	03	DC	04
B9	E7	DD	3E
BA	FF	DE	FF
BB	EB	DF	AD
BC	FF	E0	00
BD	FA	E1	07
BE	00	E2	00
BF	0A	E3	02
C0	03	E4	04
C1	EC	E5	2E
C2	04	E6	05
C3	02	E7	9D
C4	00	E8	FF
C5	0A	E9	02
C6	FF	EA	00
C7	EE	EB	0D
C8	FF	EC	FF
C9	DC	ED	E0
CA	04	EE	04
CB	19	EF	B6
CC	00	F0	FF
CD	17	F1	1C
CE	00	F2	FF
CF	08	F3	F1
D0	FF	F4	FF
D1	F7	F5	F3
D2	04	F6	04
D3	14	F7	21

4) Select page: 0, address: 10, and set data: 00.
5) Select page: 0, address: 01, and set data: 00.

16. Linear Matrix Adjustment (2) RadarW

Adjust the matrix coefficient for compensating the variation in spectral sensitivity.

Adjustment Page	6F
Adjustment Address	60 to 71

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 06.
3) Input the following data to page: F (6F), address: 60 to 71.

Note: Press the PAUSE (Write) button of the adjustment remote commander each time to set data.

Address	Data
60	20
61	2D
62	00
63	33
64	FE
65	E9
66	00
67	0E
68	1F
69	7E
6A	01
6B	6C
6C	00
6D	2F
6E	FF
6F	F6
70	1F
71	9F

4) Select page: 0, address: 10, and set data: 00.
5) Select page: 0, address: 01, and set data: 00.

17. Auto White Balance Standard Data Input (ND OFF) RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	6F
Adjustment Address	88 to 8B

Note 1: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D.EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	01	0B	Press PAUSE (Write) button. (Note 3)
6	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6F, address: 88 to 8B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

18. Auto White Balance Standard Data Input (ND 1) RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	6F
Adjustment Address	8C to 8F

Note 1: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D.EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	01	0B	Press PAUSE (Write) button. (Note 3)
6	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6F, address: 8C to 8F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

19. Auto White Balance Standard Data Input (ND 2) RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	6F
Adjustment Address	90 to 93

Note 1: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D.EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	01	0B	Press PAUSE (Write) button. (Note 3)
6	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6F, address: 90 to 93.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

20. LV Standard Data Input

Adjust the normal coefficient of the light value at 3200K.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	6D
Adjustment Address	5C, 5D
Specified Value	Data of page: 6 address: 0C is "00"

Note 1: Perform "Auto White Balance Standard Data Input" before this adjustment.

Note 2: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00".
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	C9	10	
3	6	01	0D	Press PAUSE (Write) button. (Note 4)
4	6	02		Check the data changes to "01".
5	6	0C		Check the data is "00".

Note 4: The adjustment data will be automatically input to page: 6D, address: 5C, 5D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	C9	00	
3	0	01	00	

21. Auto White Balance Adjustment (ND OFF) RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	6F
Adjustment Address	84 to 87, 98 to 9B

Note 1: Perform "F No. & ND Light Quality Standard Data Input" and "Auto White Balance Standard Data Input" before this adjustment.

Note 2: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	06	
6	F (6F)	84	2B	Press PAUSE (Write) button.
7	F (6F)	85	D7	Press PAUSE (Write) button.
8	F (6F)	86	5D	Press PAUSE (Write) button.
9	F (6F)	87	DC	Press PAUSE (Write) button.
10	0	10	00	
11	6	01	81	Press PAUSE (Write) button. (Note 4)
12	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6F, address: 98 to 9B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	
6				Remove the C14 filter on the lens.

22. Auto White Balance Adjustment (ND 1) RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	6F
Adjustment Address	9C to 9F

Note 1: Perform "F No. & ND Light Quality Standard Data Input" and "Auto White Balance Standard Data Input" before this adjustment.

Note 2: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	01	81	Press PAUSE (Write) button. (Note 4)
7	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6F, address: 9C to 9F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	
6				Remove the C14 filter on the lens.

23. Auto White Balance Adjustment (ND 2) RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	6F
Adjustment Address	A0 to A3

Note 1: Perform "F No. & ND Light Quality Standard Data Input" and "Auto White Balance Standard Data Input" before this adjustment.

Note 2: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	01	81	Press PAUSE (Write) button. (Note 4)
7	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6F, address: A0 to A3.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	0A	
3	E (AE)	8C	00	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	
6				Remove the C14 filter on the lens.

24. Color Reproduction Adjustment (ND OFF) RadarW

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	6F
Adjustment Address	A8 to C7

Note 1: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 6F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	49	
8	6	01	61	Press PAUSE (Write) button. (Note 3)
9	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6F, address: A8 to C7.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	C9	00	
3	6	CA	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

25. Color Reproduction Adjustment (ND 1) RadarW

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	6D
Adjustment Address	70 to 8F

Note 1: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	48	
8	6	01	61	Press PAUSE (Write) button. (Note 3)
9	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6D, address: 70 to 8F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	C9	00	
3	6	CA	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

26. Color Reproduction Adjustment (ND 2) RadarW

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	6D
Adjustment Address	90 to AF

Note 1: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages: D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	15	86	
6	6	C9	10	
7	6	CA	04	
8	6	D0	47	
9	6	01	61	Press PAUSE (Write) button. (Note 3)
10	6	02		Check the data changes to "01".

Note 3: The adjustment data will be automatically input to page: 6D, address: 90 to AF.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	C9	00	
3	6	CA	00	
4	6	15	00	
5	0	10	0A	
6	E (AE)	8C	00	Press PAUSE (Write) button.
7	0	10	00	
8	0	01	00	

27. MAX GAIN Adjustment RadarW

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Center frame)
Adjustment Page	6D
Adjustment Address	5E

Note 1: Perform "Flange Back Adjustment" before this adjustment.

Note 2: If reading/writing data on pages 6D, set data: 06 to page: 0, address: 10, and then select pages D. By this data setting, the pages 6D can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 3: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) FOCUS ..... MANUAL
4) ZOOM ..... WIDE end
5) D. EXTENDER (Menu setting) ..... OFF
6) STEADY SHOT (Menu setting) ..... OFF
7) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Center Frame". If not, perform "23. Picture Frame Setting (Center Frame)"
2	0	01	01	
3	6	C9	10	
4	6	D0		Set the following data 2A:NTSC model 14: PAL model
5	6	D1		Set the following data 00: NTSC model 80: PAL model
6	6	01	6F	Press PAUSE (Write) button. (Note 4)
7	6	02		Check the data changes to "01".

Note 4: The adjustment data will be automatically input to page: 6D, address: 5E.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	C9	00	
2	6	01	00	Press PAUSE (Write) button.
3	0	01	00	

28. White Defect & HS Defect Adjustment RadarW

Detect white defective pixels of CMOS image sensor.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Specified value	Data of page: 6 address: D3 is “00”

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	07		Check the data is “04”.
3	6	D0	06	
4	6	01	21	Press PAUSE (Write) button.
5	6	02		Check the data changes to “01”.
6	6	D3		Check the data is “00”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	01	00	

29. White Defect Adjustment (FD white point) RadarW

Detect white defective pixels (FD white point) of CMOS image sensor.

Subject	Not required

Note 1: Perform “White Defect & HS Defect Adjustment” before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	07		Check the data is “04”.
3	6	D0	0C	
4	6	01	21	Press PAUSE (Write) button.
5	6	02		Check the data changes to “01”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	01	00	

30. White Defect Check RadarW

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Specified value 1	Data of page: 6 address: D1 is “00”
Specified value 2	Data of page: 6, address: D2 is “00” to “05”

Note 1: Perform “White Defect Adjustment (FD white point)” before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is “00”.
Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting
1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	07		Check the data is “04”.
3	6	D0	04	
4	6	01	21	Press PAUSE (Write) button.
5	6	02		Check the data changes to “01”.
6	6	D1		Check the data is “00”.
7	6	D2		Check the data is “00” to “05”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	01	00	

31. Black Defect Adjustment RadarW

Detect black defective pixels of CMOS image sensor.

Subject	Clear chart (All white) (Note 1)

Note 1: Shoot the clear chart with the zoom TELE end.
Note 2: Perform “White Defect Check” before this adjustment.
Note 3: Check that the data of page: 0, address: 10 is “00”.
Note 4: Check that the data of page: 6, address: 02 is “00”.
If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting
1) POWER ..... CAMERA mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	07		Check the data is “04”
3	6	2C	01	
4	6	90	00	
5	6	91	04	
6	6	92	00	
7	6	93	10	
8	6	01	79	Press PAUSE (Write) button.
9				Wait for 1 second.
10				Check that the entire screen is white.
11	6	D0	01	
12	6	01	21	Press PAUSE (Write) button.
13	6	02		Check the data changes to “01”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	90	00	
3	6	91	00	
4	6	92	00	
5	6	93	00	
6	6	01	79	Press PAUSE (Write) button.
7				Wait for 1 second.
8	6	01	00	Press PAUSE (Write) button.
9	6	2C	00	
10	0	01	00	

32. Angular Velocity Sensor Sensitivity Adjustment

- Perform the angular velocity sensor sensitivity adjustment only when replacing the angular velocity sensor or lens block. When the microprocessor, circuit, etc. malfunctions, do not perform this adjustment but check operations only.
- Record the sensitivity label of the angular velocity sensor (repair part), including to which side of the board it was attached to, etc. If it has been attached incorrectly, the image will move up and down or to the left and right during steady shot operation. Be sure to take note of this.

Precautions on the Parts Replacement

There are two types of repair parts.

Type A ENC03RC
Type B ENC03RD

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, readjust according to the adjusting method after replacement.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

32-1. Angular Velocity Sensor Sensitivity Adjustment (1)

Subject	Pattern A (1.5 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (V period)
Adjustment Page	7F (Note 1)
Adjustment Address	12

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: The PITCH sensor (SE8001 of JJ-004 board) sensitivity is labeled only the repair parts.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) ZOOM ..... TELE end

Preparation

1) Read the PITCH sensor (SE8001 of JJ-004 board) sensitivity written on repair parts, and named this as S_{12}.

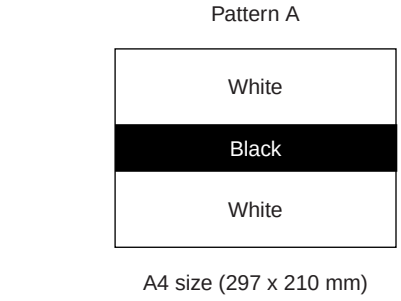


Fig. 6-1-18

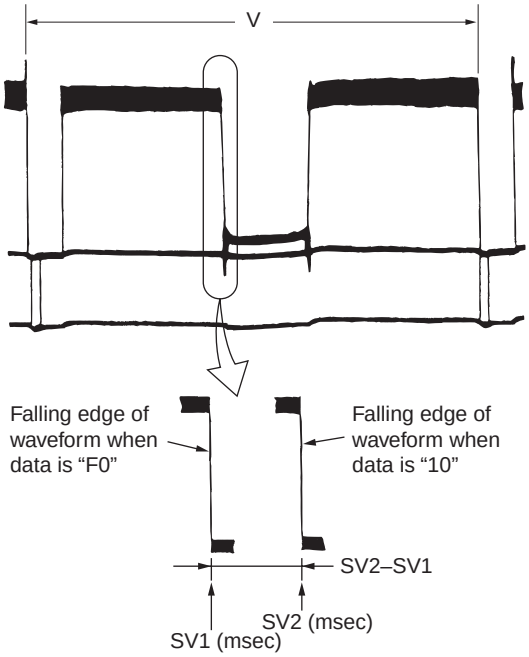


Fig. 6-1-19

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Set the zoom to TELE end, and shoot the pattern A.
3				Adjust the focus.
4	0	10	07	
5	D (7D)	46	F0	Press PAUSE (Write) button.
6	D (7D)	48	01	Press PAUSE (Write) button. (Note 5)
7				Measure the falling edge of waveform, SV1 (msec). (Fig. 6-1-19)
8	D (7D)	48	00	Press PAUSE (Write) button.
9	D (7D)	46	10	Press PAUSE (Write) button.
10	D (7D)	48	01	Press PAUSE (Write) button. (Note 5)
11				Measure the falling edge of waveform, SV2 (msec). (Fig. 6-1-19)
12	D (7D)	48	00	Press PAUSE (Write) button.
13				Calculate D_{12}' using following equations. (decimal calculation) (Note 3) $D_{12}' = ((SV2 - SV1) \div 13.8) \times S_{12} \times 61$
14				Convert D_{12}' to a hexadecimal number, and obtain D_{12}. (Note 4)
15	F (7F)	12	D_{12}	Press PAUSE (Write) button.
16	0	10	00	

Note 3: S_{12} is read in "Preparation".

Note 4: Refer to table 6-4-1. "Hexadecimal-decimal conversion table".

Note 5: 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.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	01	00	
2				Check that the steady shot function operates normally.

32-2. Angular Velocity Sensor Sensitivity Adjustment (2)

Subject	Pattern B (1.5 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (H period)
Adjustment Page	7F (Note 1)
Adjustment Address	13

Note 1: If reading/writing data on pages 7F, set data: 07 to page: 0, address: 10, and then select pages: F. By this data setting, the pages 7F can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: The YAW sensor (SE8002 of JJ-004 board) sensitivity is labeled only the repair parts.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) ZOOM. ..... TELE end

Preparation

1) Read the YAW sensor (SE8002 of JJ-004 board) sensitivity written on repair parts, and named this as S_{13}.

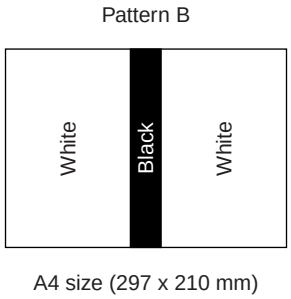


Fig. 6-1-20

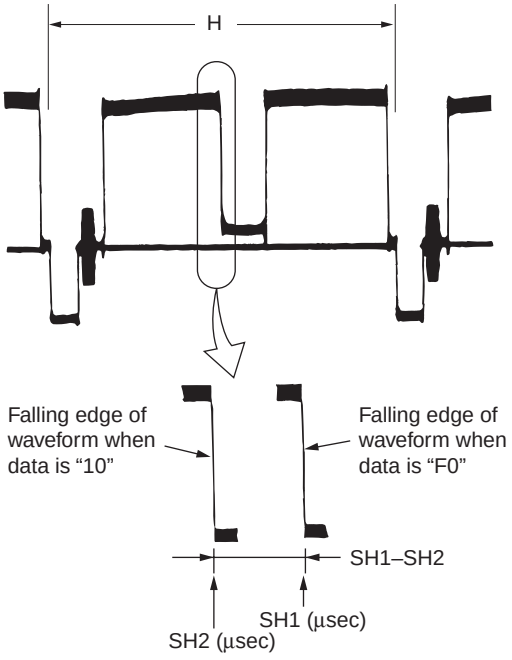


Fig. 6-1-21

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Set the zoom to TELE end, and shoot the pattern B.
3				Adjust the focus.
4	0	10	07	
5	D (7D)	47	F0	Press PAUSE (Write) button.
6	D (7D)	49	01	Press PAUSE (Write) button. (Note 5)
7				Measure the falling edge of waveform, SH1 (µsec). (Fig. 6-1-21)
8	D (7D)	49	00	Press PAUSE (Write) button.
9	D (7D)	47	10	Press PAUSE (Write) button.
10	D (7D)	49	01	Press PAUSE (Write) button. (Note 5)
11				Measure the falling edge of waveform, SH2 (µsec). (Fig. 6-1-21)
12	D (7D)	49	00	Press PAUSE (Write) button.
13				Calculate D_{13}' using following equations. (decimal calculation) (Note 3) $D_{13}' = ((SH2 - SH1) \div 30) \times S_{13} \times 61$
14				Convert D_{13}' to a hexadecimal number, and obtain D_{13}. (Note 4)
15	F (7F)	13	D_{13}	Press PAUSE (Write) button.
16	0	10	00	

Note 3: S_{13} is read in "Preparation".

Note 4: Refer to table 6-4-1. "Hexadecimal-decimal conversion table".

Note 5: 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.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	01	00	
2				Check that the steady shot function operates normally.

33. Auto White Balance Check (ND OFF) RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	ND filter 1.0, 0.4 and 0.1
Measurement Point	Adjusting remote commander
Measuring Instrument	
Specified Value	Data of page: 6, address: 0C is “00”

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080I

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	CA	05	
3	6	C9	10	
4	0	10	0A	
5	E (AE)	8C	01	Press PAUSE (Write) button.
6	0	10	00	
OUTDOOR white balance check				
7	6	01	4F	Press PAUSE (Write) button.
8	6	02		Check the data changes to “01”.
9	6	0C		Check the data is “00”.
10	6	01	00	Press PAUSE (Write) button.
INDOOR white balance check				
11	6	01	0F	Press PAUSE (Write) button.
12	6	02		Check the data changes to “01”.
13	6	0C		Check the data is “00”.
14	6	01	00	Press PAUSE (Write) button.
InOut check				
15	0	10	0A	
16	E (AE)	8C	00	Press PAUSE (Write) button.
17	0	10	00	
18				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
19	6	C9	11	
20	6	01	4B	Press PAUSE (Write) button.
21	6	02		Check the data changes to “01”.
22	6	0C		Check the data is “00”.
23	6	01	00	Press PAUSE (Write) button.
24				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	CA	00	
2	6	C9	00	
3	0	01	00	

34. Auto White Balance Check (ND 1) RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	ND filter 1.0, 0.4 and 0.1
Measurement Point	Adjusting remote commander
Measuring Instrument	
Specified Value	Data of page: 6, address: 0C is “00”

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080I

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	CA	05	
3	6	C9	10	
4	0	10	0A	
5	E (AE)	8C	01	Press PAUSE (Write) button.
6	0	10	00	
OUTDOOR white balance check				
7	6	01	4F	Press PAUSE (Write) button.
8	6	02		Check the data changes to “01”.
9	6	0C		Check the data is “00”.
10	6	01	00	Press PAUSE (Write) button.
INDOOR white balance check				
11	6	01	0F	Press PAUSE (Write) button.
12	6	02		Check the data changes to “01”.
13	6	0C		Check the data is “00”.
14	6	01	00	Press PAUSE (Write) button.
InOut check				
15	0	10	0A	
16	E (AE)	8C	00	Press PAUSE (Write) button.
17	0	10	00	
18				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
19	6	C9	11	
20	6	01	4B	Press PAUSE (Write) button.
21	6	02		Check the data changes to “01”.
22	6	0C		Check the data is “00”.
23	6	01	00	Press PAUSE (Write) button.
24				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	CA	00	
2	6	C9	00	
3	0	01	00	

35. Auto White Balance Check (ND 2) RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	ND filter 1.0, 0.4 and 0.1
Measurement Point	Adjusting remote commander
Measuring Instrument	
Specified Value	Data of page: 6, address: 0C is “00”

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080I

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	CA	05	
3	6	C9	10	
4	0	10	0A	
5	E (AE)	8C	01	Press PAUSE (Write) button.
6	0	10	00	
OUTDOOR white balance check				
7	6	01	4F	Press PAUSE (Write) button.
8	6	02		Check the data changes to “01”.
9	6	0C		Check the data is “00”.
10	6	01	00	Press PAUSE (Write) button.
INDOOR white balance check				
11	6	01	0F	Press PAUSE (Write) button.
12	6	02		Check the data changes to “01”.
13	6	0C		Check the data is “00”.
14	6	01	00	Press PAUSE (Write) button.
InOut check				
15	0	10	0A	
16	E (AE)	8C	00	Press PAUSE (Write) button.
17	0	10	00	
18				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
*19	6	13	BF	(*PAL model only)
20	6	C9	11	
21	6	01	4B	Press PAUSE (Write) button.
22	6	02		Check the data changes to “01”.
23	6	0C		Check the data is “00”.
24	6	01	00	Press PAUSE (Write) button.
25				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	CA	00	
2	6	C9	00	
*3	6	13	00	(*PAL model only)
4	0	01	00	

36. Color Reproduction Check (Indoor HD: ND OFF)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is "00"

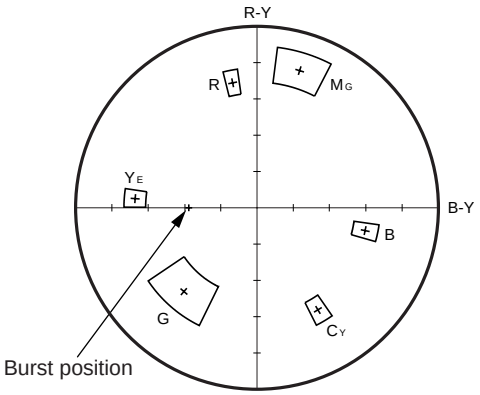
Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

NTSC model (Indoor HD)



PAL model (Indoor HD)

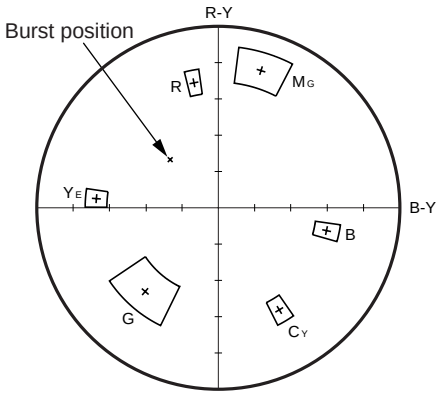


Fig. 6-1-22

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	49	
8	6	01	4D	Press PAUSE (Write) button.
9	6	02		Check the data changes to "01".
10	6	0C		Check the data is "00".
11				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
12				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

37. Color Reproduction Check (Indoor HD: ND 1)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	48	
8	6	01	4D	Press PAUSE (Write) button.
9	6	02		Check the data changes to "01".
10	6	0C		Check the data is "00".
11				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
12				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

38. Color Reproduction Check (Indoor HD: ND 2)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is “00”

Note 1: Perform “Color Reproduction Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	15	86	
6	6	C9	10	
7	6	CA	04	
8	6	D0	47	
9	6	01	4D	Press PAUSE (Write) button.
10	6	02		Check the data changes to “01”.
11	6	0C		Check the data is “00”.
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	6	15	00	
5	0	10	0A	
6	E (AE)	8C	00	Press PAUSE (Write) button.
7	0	10	00	
8	0	01	00	

39. Color Reproduction Check (Indoor SD: ND OFF)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is "00"

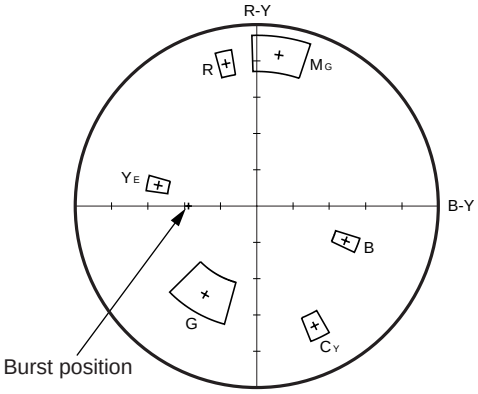
Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

NTSC model (Indoor SD)



PAL model (Indoor SD)

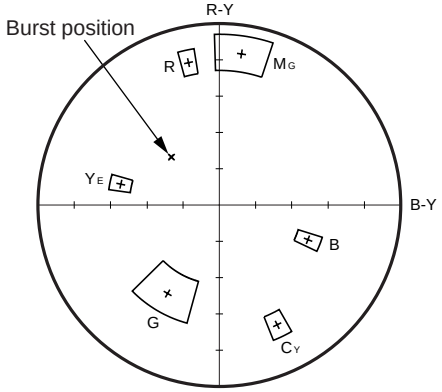


Fig. 6-1-23

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	49	
8	6	01	4D	Press PAUSE (Write) button.
9	6	02		Check the data changes to "01".
10	6	0C		Check the data is "00".
11				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
12				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

40. Color Reproduction Check (Indoor SD: ND 1)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is “00”

Note 1: Perform “Color Reproduction Adjustment” before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is “00”. If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	C9	10	
6	6	CA	04	
7	6	D0	48	
8	6	01	4D	Press PAUSE (Write) button.
9	6	02		Check the data changes to “01”.
10	6	0C		Check the data is “00”.
11				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
12				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	

41. Color Reproduction Check (Indoor SD: ND 2)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6 address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	0A	
3	E (AE)	8C	01	Press PAUSE (Write) button.
4	0	10	00	
5	6	15	86	
6	6	C9	10	
7	6	CA	04	
8	6	D0	47	
9	6	01	4D	Press PAUSE (Write) button.
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	6	15	00	
5	0	10	0A	
6	E (AE)	8C	00	Press PAUSE (Write) button.
7	0	10	00	
8	0	01	00	

42. Color Reproduction Check (Outdoor HD: ND OFF)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

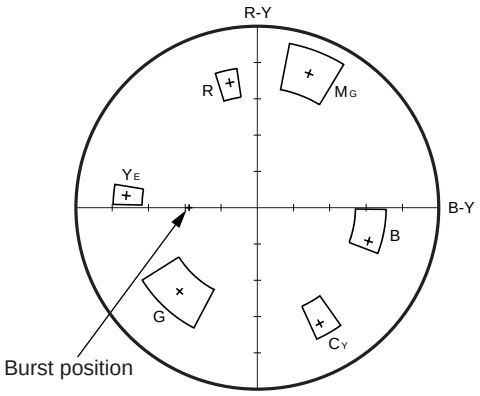
Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

NTSC model (Outdoor HD)



PAL model (Outdoor HD)

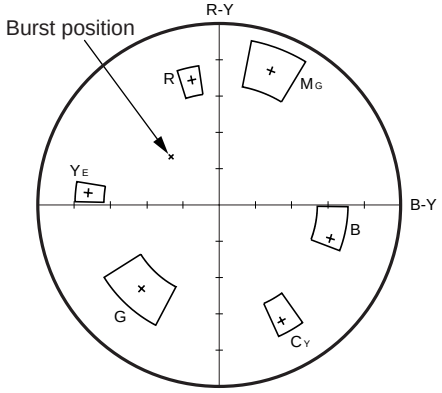


Fig. 6-1-24

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	49	
9	6	01	3D	Press PAUSE (Write) button.
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	
8				Remove the C14 filter on the lens.

43. Color Reproduction Check (Outdoor HD: ND 1)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	48	
9	6	01	3D	Press PAUSE (Write) button.
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	
8				Remove the C14 filter on the lens.

44. Color Reproduction Check (Outdoor HD: ND 2)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) HDV1080i

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	47	
*9	0	10	06	(*PAL model only)
*10	D (6D)	5E		(*PAL model only) Note down the data.
*11	D (6D)	5E	5C	(*PAL model only) Press PAUSE (Write) button.
*12	0	10	00	(*PAL model only)
13	6	01	3D	Press PAUSE (Write) button.
14	6	02		Check the data changes to "01".
15	6	0C		Check the data is "00".
16				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
17				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
*6	0	10	06	(*PAL model only)
*7	D (6D)	5E		(*PAL model only) Set data noted down at step 10, and press PAUSE (Write) button.
8	0	10	00	
9	0	01	00	
10				Remove the C14 filter on the lens.

45. Color Reproduction Check (Outdoor SD: ND OFF)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

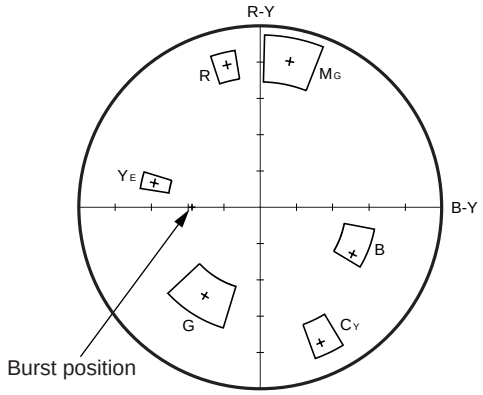
Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER ..... OFF
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

NTSC model (Outdoor SD)



PAL model (Outdoor SD)

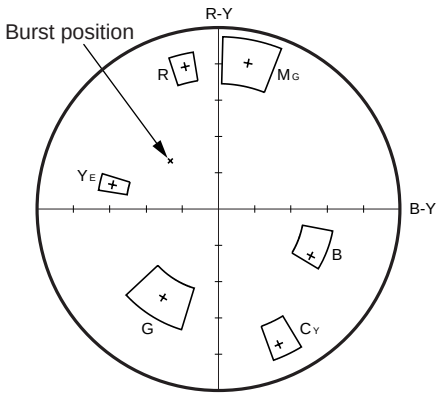


Fig. 6-1-25

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	49	
9	6	01	3D	Press PAUSE (Write) button.
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	
8				Remove the C14 filter on the lens.

46. Color Reproduction Check (Outdoor SD: ND 1)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 1
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	48	
9	6	01	3D	Press PAUSE (Write) button.
10	6	02		Check the data changes to "01".
11	6	0C		Check the data is "00".
12				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
13				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
6	0	10	00	
7	0	01	00	
8				Remove the C14 filter on the lens.

47. Color Reproduction Check (Outdoor SD: ND 2)

RadarW

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Adjusting remote commander
Measuring Instrument	Vectorscope	
Specified Value	All color luminance points should settle within each color reproduction frame.	Data of page: 6, address: 0C is "00"

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, select page: 6, address: 01, set data: 00, and press PAUSE (Write) button.

Switch setting

1) POWER ..... CAMERA mode
2) ND FILTER 2
3) D. EXTENDER (Menu setting) ..... OFF
4) STEADY SHOT (Menu setting) ..... OFF
5) REC FORMAT (Menu setting) ..... DV

Checking method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	0	10	0A	
4	E (AE)	8C	01	Press PAUSE (Write) button.
5	0	10	00	
6	6	C9	10	
7	6	CA	04	
8	6	D0	47	
*9	0	10	06	(*PAL model only)
*10	D (6D)	5E		(*PAL model only) Note down the data.
*11	D (6D)	5E	5C	(*PAL model only) Press PAUSE (Write) button.
*12	0	10	00	(*PAL model only)
13	6	01	3D	Press PAUSE (Write) button.
14	6	02		Check the data changes to "01".
15	6	0C		Check the data is "00".
16				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
17				Check that the each color luminance point is in each color reproduction frame.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	6	CA	00	
3	6	C9	00	
4	0	10	0A	
5	E (AE)	8C	00	Press PAUSE (Write) button.
*6	0	10	06	(*PAL model only)
*7	D (6D)	5E		(*PAL model only) Set data noted down at step 10, and press PAUSE (Write) button.
8	0	10	00	
9	0	01	00	
10				Remove the C14 filter on the lens.

1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

Before perform the viewfinder system adjustments, check the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 2: Perform the following data setting before the viewfinder system adjustments.
1) Select page: 3, address: C4, and set data: 67.
2) Select page: 3, address: C5, and set data: 01.
Reset the data after completing adjustment.
1) Select page: 3, address: C4, and set data: 00.
2) Select page: 3, address: C5, and set data: 00.

Switch setting

1) REC FORMAT (Menu setting) ..... HDV 1080i

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1014 of the TT-003 board.
Connect the Measuring Instruments via the CPC-7 jig (J-6082-382-A).
The following table shown the Pin No. and signal name of CN1014.

Pin No.	Signal Name	Pin No.	Signal Name
1	EVF_COM_DC	9	RF_MON
2	REG_GND	10	REG_GND
3	EXT_DA	11	SWP
4	EVF_VCO	12	FRRV
5	EVF_VG	13	REC_CRRT1_S
6	PSIG	14	REC_CRRT0_S
7	REG_GND	15	REC_CRRT1_C
8	REG_GND	16	REC_CRRT0_C

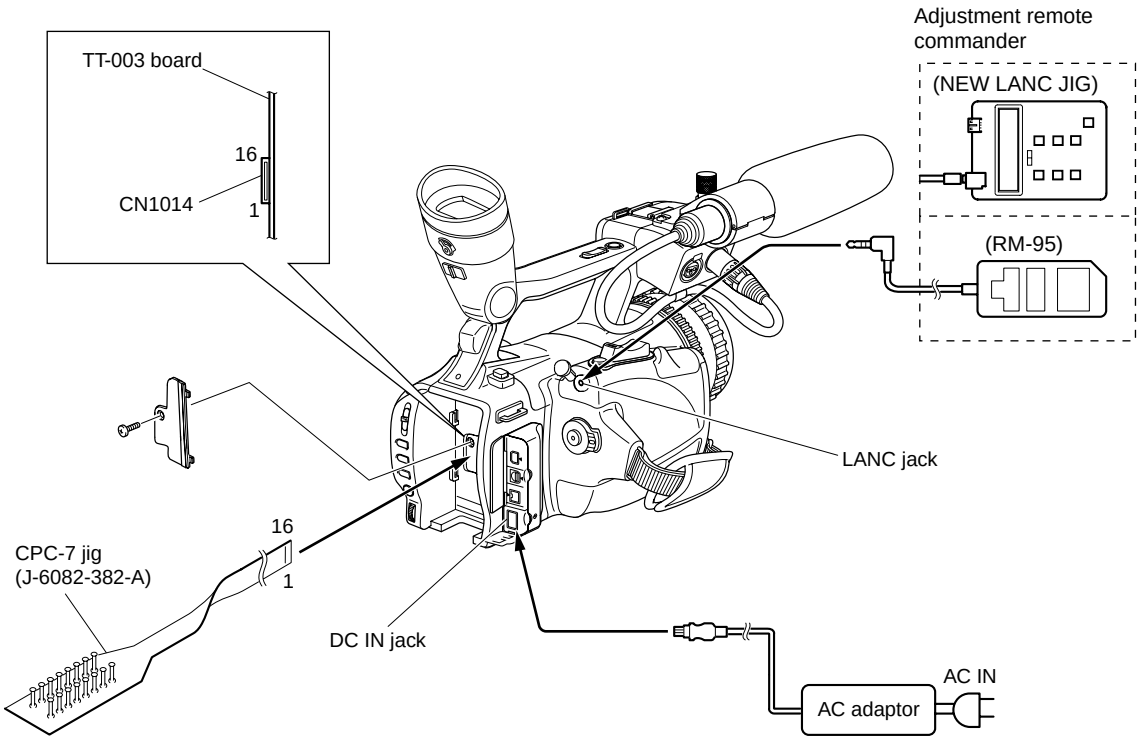


Fig. 6-1-26

1. VCO Adjustment (OO-003 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ④ of CN1014 (EVF_VCO) on TT-003 board
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	34, 35
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 15625 ± 30 Hz (PAL)

Note 1: Check that the data of page: 0, address: 10 is "00".
Note 2: Refer to Table 6-4-1. "Hexadecimal-decimal conversion table"
Note 3: If $D_{35}' > 255$, then $D_{35} = FF$ (NTSC model)
If $D_{34}' < 0$, then $D_{34} = 00$ (PAL model)

Adjusting method for NTSC model:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	34		Change the data and set the frequency (f) to the specified value.
4	C	34		Press PAUSE (Write) button.
5	C	34		Read the data and this data is named D_{34}.
6				Convert D_{34} to decimal notation, and obtain D_{34}'. (Note 2)
7				Calculate D_{35}' using following equations. (decimal calculation) $D_{35}' = D_{34}' + 21$
8				Convert D_{35}' to a hexadecimal number, and obtain D_{35}. (Note 2, 3)
9	C	35	D_{35}	Press PAUSE (Write) button.
10	3	70	10	Press PAUSE (Write) button.
11	3	70		Check the data changes to "11".
12	0	01	00	

Adjusting method for PAL model:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	35		Change the data and set the frequency (f) to the specified value.
4	C	35		Press PAUSE (Write) button.
5	C	35		Read the data and this data is named D_{35}.
6				Convert D_{35} to decimal notation, and obtain D_{35}'. (Note 2)
7				Calculate D_{34}' using following equations. (decimal calculation) $D_{34}' = D_{35}' - 21$
8				Convert D_{34}' to a hexadecimal number, and obtain D_{34}. (Note 2, 3)
9	C	34	D_{34}	Press PAUSE (Write) button.
10	3	70	10	Press PAUSE (Write) button.
11	3	70		Check the data changes to "11".
12	0	01	00	

2. Back Light Adjustment (OO-003 board)

Set the back light luminance.
If deviated, the image may become dark or bright.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ③ of CN1014 (EXT_DA) on TT-003 board
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	32, 33
Specified Value	NORMAL mode: A = 0.94 ± 0.05 Vdc BRIGHT mode: B = 1.73 ± 0.05 Vdc

Note: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	32		Change the data and set the DC voltage (A) to the specified value of NORMAL mode.
4	C	32		Press PAUSE (Write) button.
5	C	33		Change the data and set the DC voltage (B) to the specified value of BRIGHT mode.
6	C	33		Press PAUSE (Write) button.
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to “11”.
9	0	01	00	

3. PSIG Level Adjustment (OO-003 board)

Set the uniformity improvement signal level to an appropriate level.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑥ of CN1014 (PSIG) on TT-003 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	39
Specified Value	A = 6.00 ± 0.05 Vp-p

Note: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	39		Change the data and set the PSIG signal level (A) to the specified value. (The data should be “00” to “7F”.)
4	C	39		Press PAUSE (Write) button.
5	3	70	10	Press PAUSE (Write) button.
6	3	70		Check the data changes to “11”.
7	0	01	00	

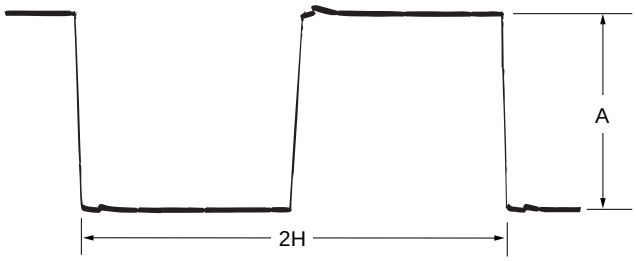


Fig. 6-1-27

4. V-COM Level Adjustment (OO-003 board)

Set the opposed voltage to drive LCD panel to an appropriate level.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ① of CN1014 (EVF_COM_DC) on TT-003 board
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	36
Specified Value	A = 6.65 ± 0.05 Vdc

Note: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	36		Change the data and set the DC voltage (A) to the specified value. (The data should be "00" to "3F".)
4	C	36		Press PAUSE (Write) button.
5	3	70	10	Press PAUSE (Write) button.
6	3	70		Check the data changes to "11".
7	0	01	00	

5. RGB AMP Adjustment (OO-003 board)

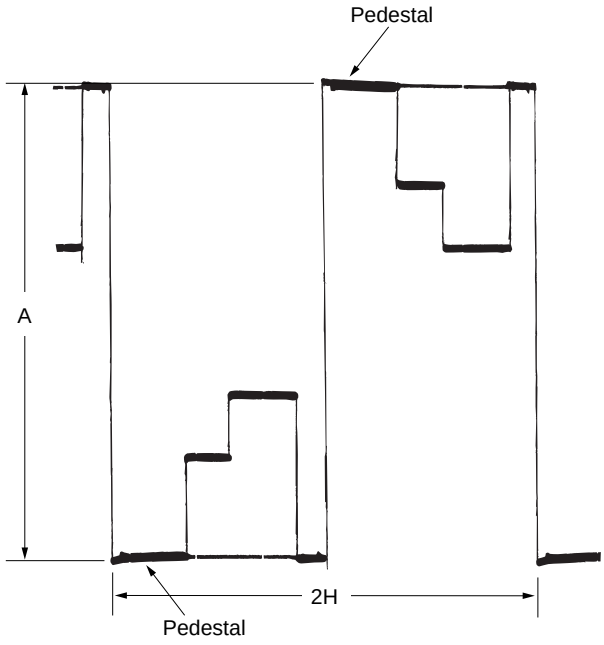
Set the D Range of the RGB decoder for driving the LCD to the specified value.
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑤ of CN1014 (EVF_VG) on TT-003 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	37
Specified Value	A = 7.00 ± 0.10 Vp-p

Note: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	37		Change the data and set the voltage (A) to the specified value.
4	C	37		Press PAUSE (Write) button.
5	3	70	10	Press PAUSE (Write) button.
6	3	70		Check the data changes to "11".
7	0	01	00	



A: Between the reversed waveform pedestal and non-reversed waveform pedestal

Fig. 6-1-28

6. Contrast Adjustment (OO-003 board)

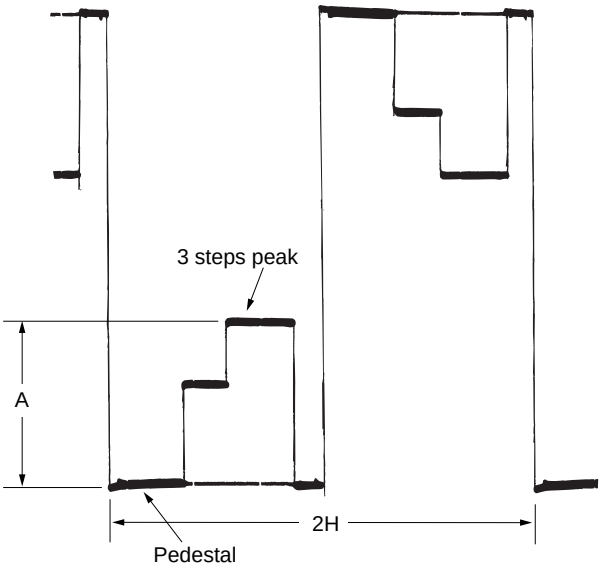
Set the video signal level for driving the LCD to the specified value.
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑤ of CN1014 (EVF_VG) on TT-003 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	3C, 77
Specified Value	A = 2.30 ± 0.05 Vp-p

Note: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	77		Change the data and set the voltage (A) to the specified value. (The data should be “00” to “7F”.)
4	C	77		Press PAUSE (Write) button.
5	C	77		Read the data and this data is named D_{77}.
6	C	3C	D_{77}	Press PAUSE (Write) button.
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to “11”.
9	0	01	00	



A: Between the pedestal and 3 steps peak

Fig. 6-1-29

7. White Balance Adjustment (OO-003 board)

Correct the white balance.
If deviated, the EVF screen color cannot be reproduced.

Mode	CAMERA
Subject	Not required
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	3A, 3B
Specified Value	EVF screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC6601

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	3A	80	Press PAUSE (Write) button.
4	C	3B	80	Press PAUSE (Write) button.
5				Check that the EVF screen is not colored. If not colored, proceed to step 6.
6	C	3A 3B		Change the data so that the EVF screen is not colored. (Note 3)
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to “11”.
9	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE (Write) button each time to set the data.
The data of page: C, address: 3A should be “66” to “B2”.
The data of page: C, address: 3B should be “60” to “A6”.

1-5. LCD SYSTEM ADJUSTMENTS

Before perform the LCD system adjustments, check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

Note 1: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.
Note 2: Set the “LCD BRIGHT”, “LCD COLOR” to the center with the menu settings of the touch panel.
Note 3: Open the LCD panel during the LCD system adjustment.

1. LCD Automatic Adjustment (PP-003 board)

RadarW

This adjustment does the following items automatically.
VCO Adjustment
Contrast Adjustment

Mode	VTR stop (VCR mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	45, 46 (VCO Adjustment) 4D, 76 (Contrast Adjustment)

Note 1: Check that the data of page: 0, address: 10 is “00”.
Note 2: If the data change to “01”, adjustment has error. Contents of error is written into page: 3, address: C6. See the following table.

Data of page: 3, address: C6	Contents of error
58	VCO adjustment error
60	Contrast adjustment error

Note 3: Refer to Table 6-4-1. “Hexadecimal-decimal conversion table”.

Adjusting method for NTSC model:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	03	FF	
3	3	71	01	Press PAUSE (Write) button.
4	C	65	00	Press PAUSE (Write) button.
5	3	01	5A	Press PAUSE (Write) button. (Note 4)
6	3	02		Check the data changes to “00”.
7	3	03		Check the data is “00”. (Note 2)
8	C	45		Read the data and this data is named D_{45}.
9				Convert D_{45} to decimal notation, and obtain D_{45}’. (Note 3)
10				Calculate D_{46}’ using following equations. (decimal calculation) $D_{46}' = D_{45}' + 10$
11				Convert D_{46}’ to a hexadecimal number, and obtain D_{46}. (Note 3)
12	C	46	D_{46}	Press PAUSE (Write) button.
13	C	4D		Read the data and this data is named D_{4D}.
14	C	76	D_{4D}	Press PAUSE (Write) button.
15	3	70	10	Press PAUSE (Write) button.
16	3	70		Check the data changes to “11”.
17	0	01	00	

Note 4: The adjustment data will be automatically input to page: C, address: 45 and 4D.

Adjusting method for PAL model:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	03	FF	
3	3	71	01	Press PAUSE (Write) button.
4	C	65	00	Press PAUSE (Write) button.
5	3	01	5A	Press PAUSE (Write) button. (Note 5)
6	3	02		Check the data changes to "00".
7	3	03		Check the data is "00". (Note 2)
8	C	46		Read the data and this data is named D_{46}.
9				Convert D_{46} to decimal notation, and obtain D_{46}'. (Note 3)
10				Calculate D_{45}' using following equations. (decimal calculation) $D_{45}' = D_{46}' - 10$
11				Convert D_{45}' to a hexadecimal number, and obtain D_{45}. (Note 3)
12	C	45	D_{45}	Press PAUSE (Write) button.
13	C	4D		Read the data and this data is named D_{4D}.
14	C	76	D_{4D}	Press PAUSE (Write) button.
15	3	70	10	Press PAUSE (Write) button.
16	3	70		Check the data changes to "11".
17	0	01	00	

Note 5: The adjustment data will be automatically input to page: C, address: 46 and 4D.

2. V-COM Adjustment (PP-003 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

Mode	VTR stop (VCR mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	47
Specified Value	The brightness difference between the section-A and section-B is minimum

Note 1: Perform "LCD Automatic Adjustment" before this adjustment.
Note 2: Check that the data of page: 0, address: 10 is "00".

Switch setting
LCD BACKLIGHT ..... ON

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	56	0D	Press PAUSE (Write) button.
4	C	47		Change the data so that brightness of the section A and section B is equal.
5	C	47		Press PAUSE (Write) button.
6	C	56	C5	Press PAUSE (Write) button.
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to "11".
9	0	01	00	

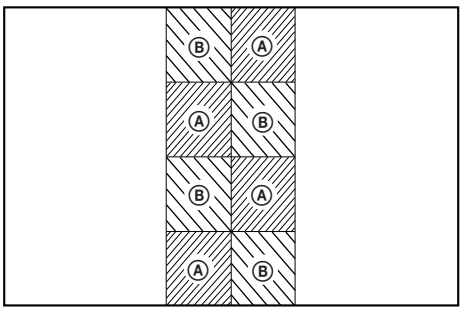


Fig. 6-1-30

3. Transmissive Mode White Balance Adjustment (PP- 003 board)

Correct the white balance at transmissive mode.
If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (VCR mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	4B, 4C
Specified Value	LCD screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is "00".
Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD block
2. Light induction plate
3. IC9002

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	C	4B	8F	Press PAUSE (Write) button.
4	C	4C	79	Press PAUSE (Write) button.
5				Check that the LCD screen is not colored. If not colored, proceed to step 7.
6	C	4B 4C		Change the data so that the LCD screen is not colored. (Note 3)
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to "11".
9	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE (Write) button each time to set the data.
The data of page: C, address: 4B should be "5C" to "A6".
The data of page: C, address: 4C should be "51" to "97".

4. Reflective Mode White Balance Adjustment (PP-003 board) RadarW

Correct the white balance at reflective mode.
If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (VCR mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	70, 71

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	C4	59	
3	3	C5	02	
4	3	0C	20	Press PAUSE (Write) button.
5	3	22	0F	Press PAUSE (Write) button.
6	3	71	01	Press PAUSE (Write) button.
7	3	03	FF	
8	3	01	66	Press PAUSE (Write) button. (Note 2)
9	3	02		Check the data changes to "00".
10	3	03		Check the data is "00". (Note 4)
11	3	03	FF	
12	3	01	67	Press PAUSE (Write) button. (Note 3)
13	3	02		Check the data changes to "00".
14	3	03		Check the data is "00". (Note 4)
15	3	C4	00	
16	3	C5	00	
17	3	0C	00	Press PAUSE (Write) button.
18	3	22	00	Press PAUSE (Write) button.
19	3	70	10	Press PAUSE (Write) button.
20	3	70		Check the data changes to "11".
21	0	01	00	

Note 2: The adjustment data will be automatically input to page: C, address: 70.
Note 3: The adjustment data will be automatically input to page: C, address: 71.
Note 4: If the data is "01", adjustment has error.

5. Sample Hold Phase Adjustment (PP-003 board)

Set the sampling hold timing of the LCD panel to optimum timing.

Mode	VTR stop (VCR mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	54
Specified Value	The LCD screen is brightest

Note 1: Perform "LCD Automatic Adjustment" and "V-COM Adjustment" before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is "00".

Switch setting

LCD BACKLIGHT ..... ON

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	3	0C	20	Press PAUSE (Write) button.
4	3	22	0F	Press PAUSE (Write) button.
5	C	55	01	Press PAUSE (Write) button.
6	C	54		Set the following data, one by one, and investigate which data makes the LCD screen the brightest. 1F, 3F, 5F, 7F, 9F, BF
7	C	54		Set the data which made the LCD screen the brightest. This data named D_{adj}.
8	C	54		Press PAUSE (Write) button.
9	C	55	03	Press PAUSE (Write) button.
10	C	54		Set the data which subtracted 20 from D_{adj}. (hexadecimal calculation) (Note 3)
11				Check that the 2nd position A or 3rd position B of the LCD screen is the brightest. (Fig. 6-1-31)
12	C	54	D_{adj}	Press PAUSE (Write) button.
13	3	0C	00	Press PAUSE (Write) button.
14	3	22	00	Press PAUSE (Write) button.
15	C	55	CC	Press PAUSE (Write) button.
16	3	70	10	Press PAUSE (Write) button.
17	3	70		Check the data changes to "11".
18	0	01	00	

Note 3: For example.
When D_{adj} is "BF", data is "9F".
When D_{adj} is "5F", data is "3F".
However, when D_{adj} is "1F", data is "BF".

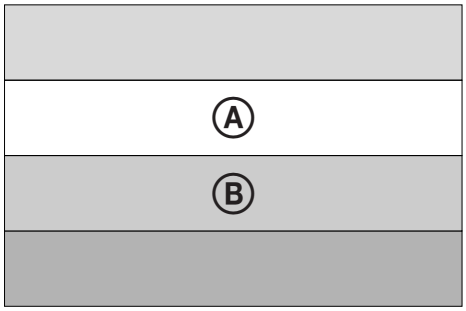


Fig. 6-1-31

6-2. MECHANISM SECTION ADJUSTMENTS

1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the "DISASSEMBLY" section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section "2-5. Mode Selector II" for details on how to enter the mode shown in a rectangle [____] mode in subsequent paragraphs of this manual.

2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-20) moistened with cleaning fluid (Ref. No. J-19) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning (Refer to Fig. 6-2-1.)

1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5 and -6 pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-21) moistened with cleaning fluid.

Note 1: NBe careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-21).
Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.
Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

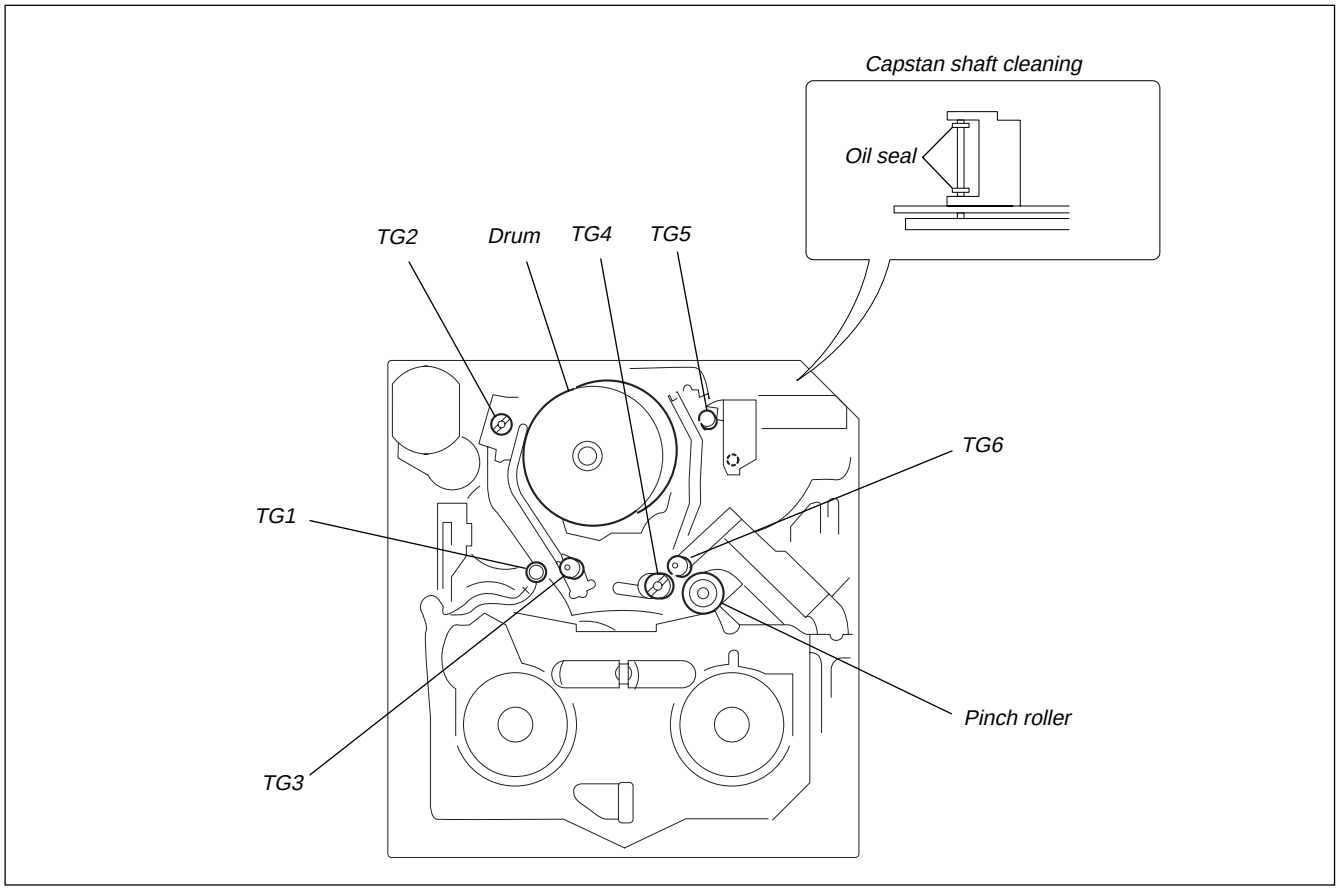


Fig. 6-2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Capstan bearing	—	☆	—	☆	—	☆	—	☆	—	☆	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note 1: When the machine is overhauled, replace the parts referring to the above list.

Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease must not contain any dust or other matter. (otherwise it can cause various trouble.)
- Observe the noted amount of grease. (otherwise the oozed grease can cause troubles.)
- Suncall (FG-87HSR) : Part cord. 7-640-006-08
- FLOIL grease (SG-941) : Part cord. 7-662-001-39

2-4. Mode Selector II Operating Procedure

2-4-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

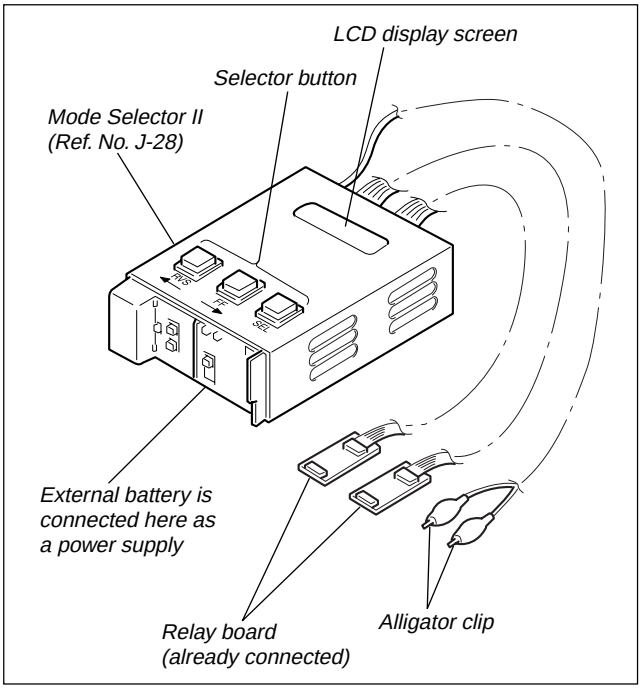


Fig. 6-2-2

Mode Selector II (J-6082-282-B) connection diagram

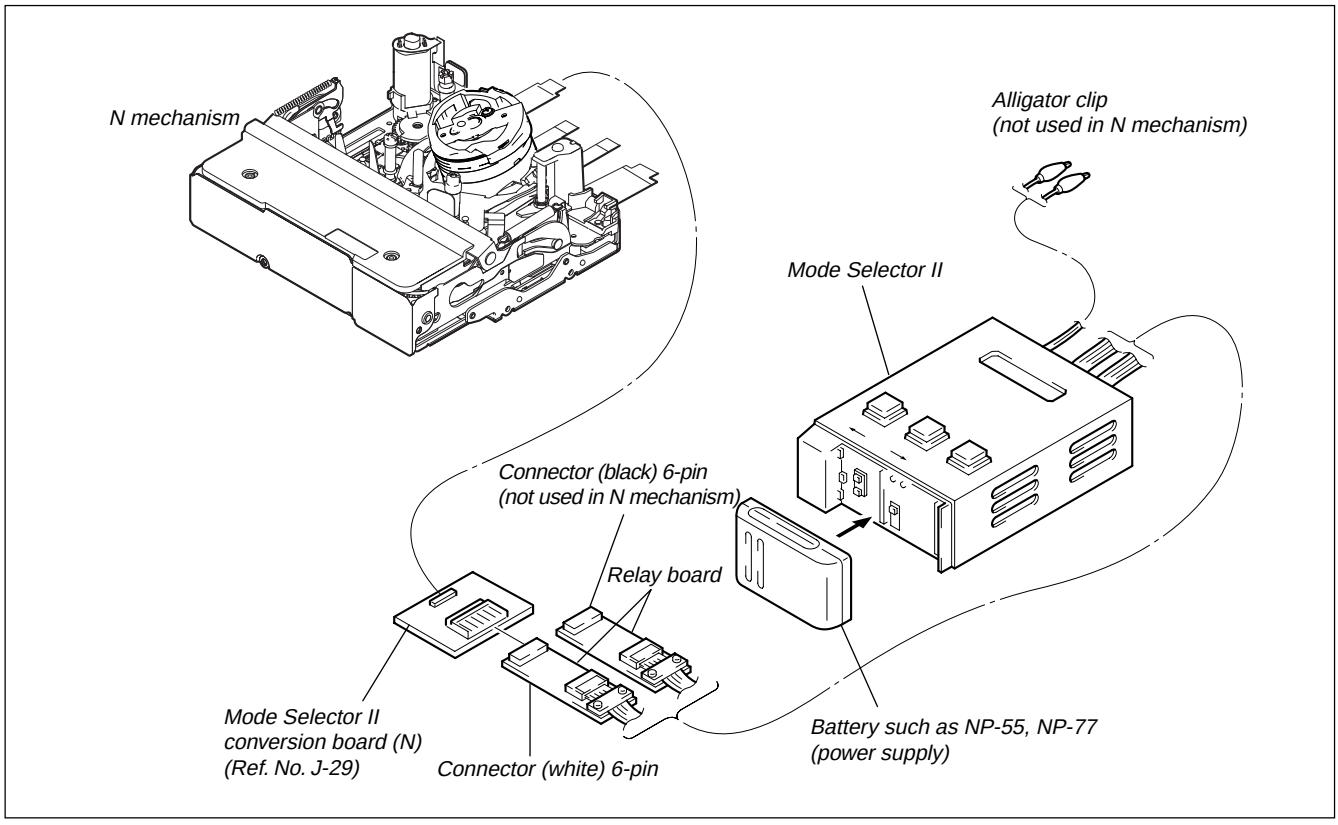
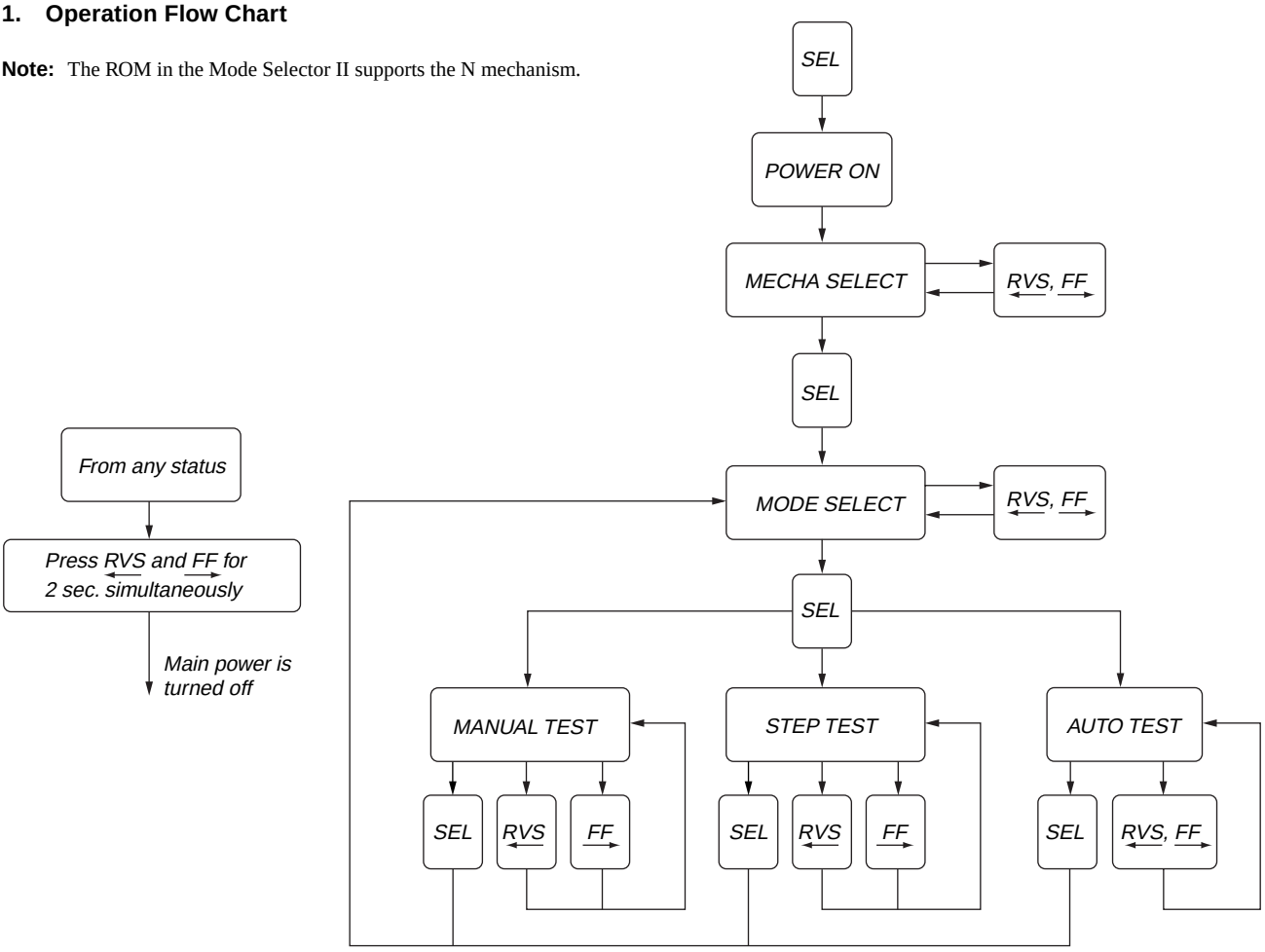


Fig. 6-2-3

2-4-2. Operation

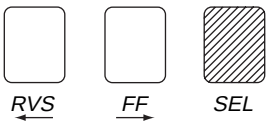
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the N mechanism.



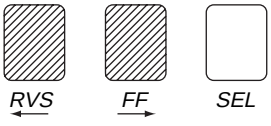
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the N mechanism.)

Note: Set the "MECHA SELECT" indication to "Z" when using the mode selector II to operate the N Mechanism.

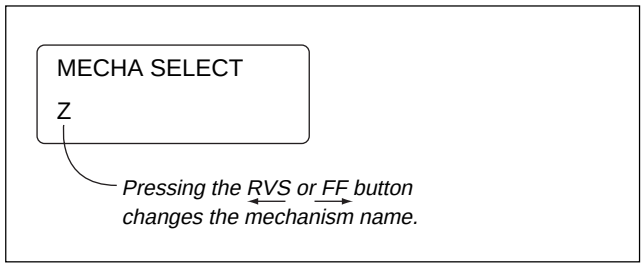


Fig. A

5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

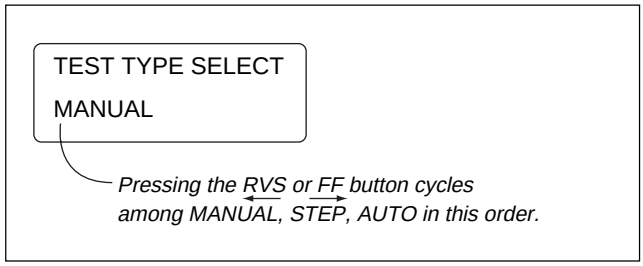


Fig. B

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

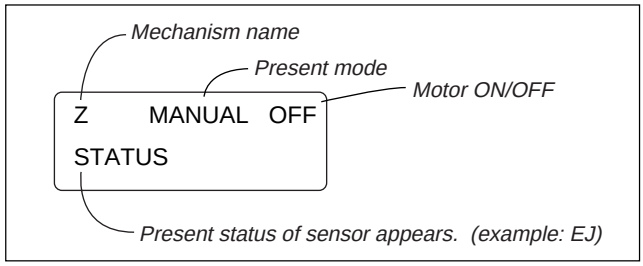


Fig. C

7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

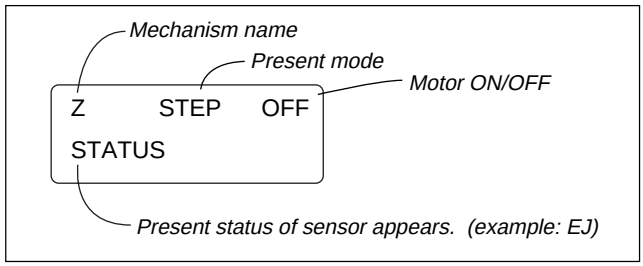


Fig. D

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

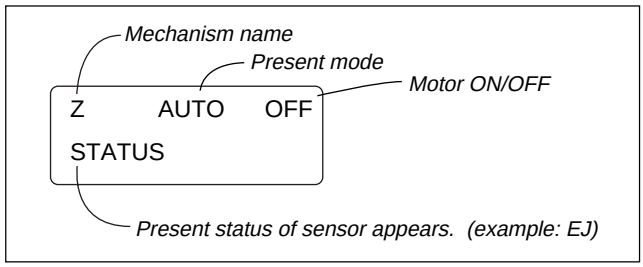


Fig. E

2-4-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ⟷ULE⟷LD1 (SR)⟷LD2 (HL)⟷STOP⟷R/P

Code \ MD name				N Mechanism (Display: Z)
A	B	C		
0	1	0	1	EJ
1	1	0	2	ULE
1	0	0	3	LD1 (SR)
1	0	1	4	LD2 (HL)
0	0	1	5	STOP
0	1	1	6	R/P

2-4-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

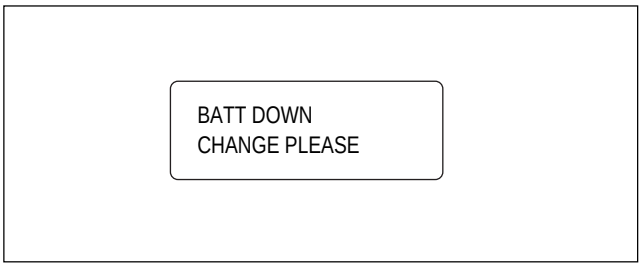
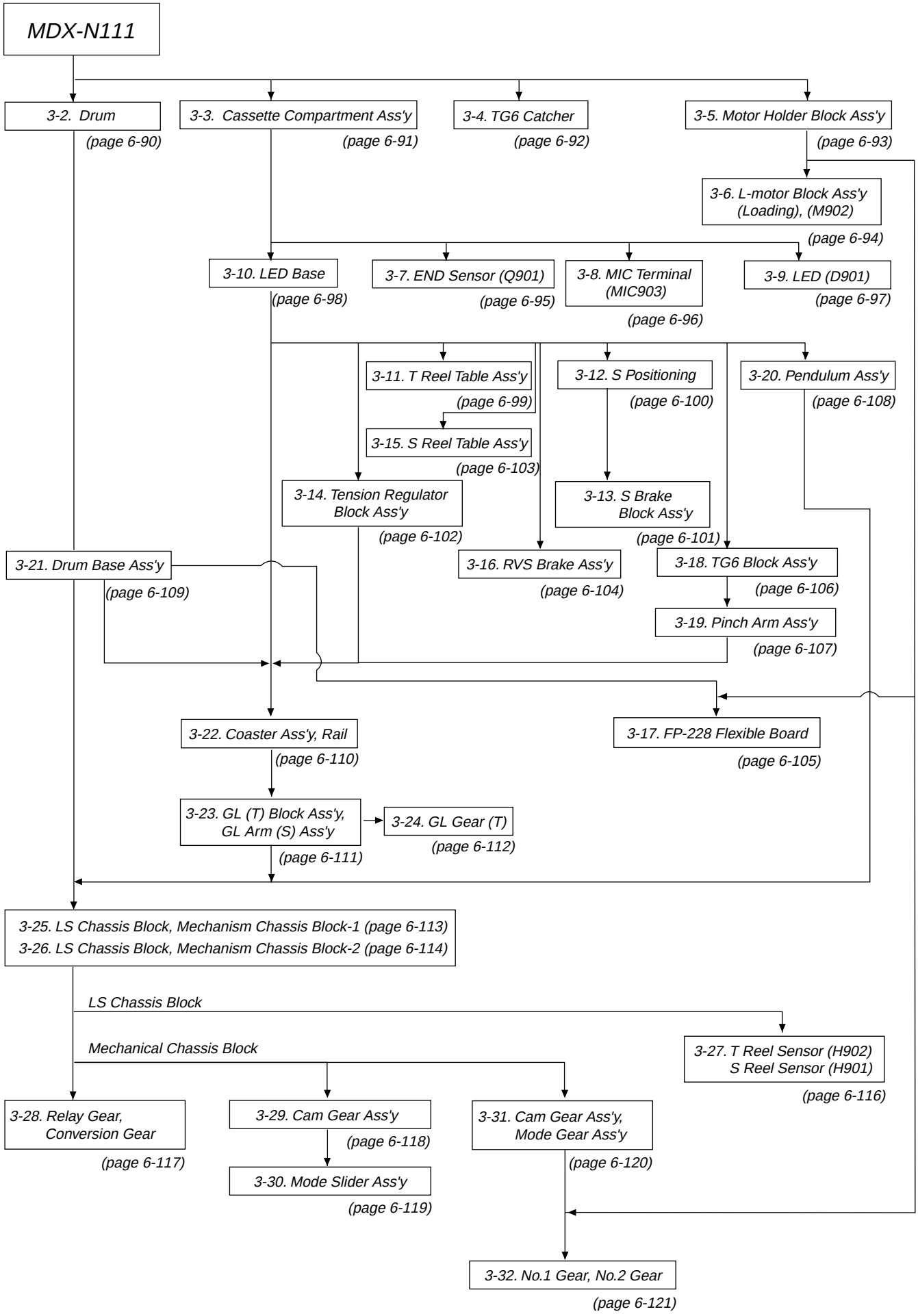


Fig. F

3. Check, Adjustment and Replacement of Mechanical Parts

3-1. Flowchart of Replacement of Mechanical Parts



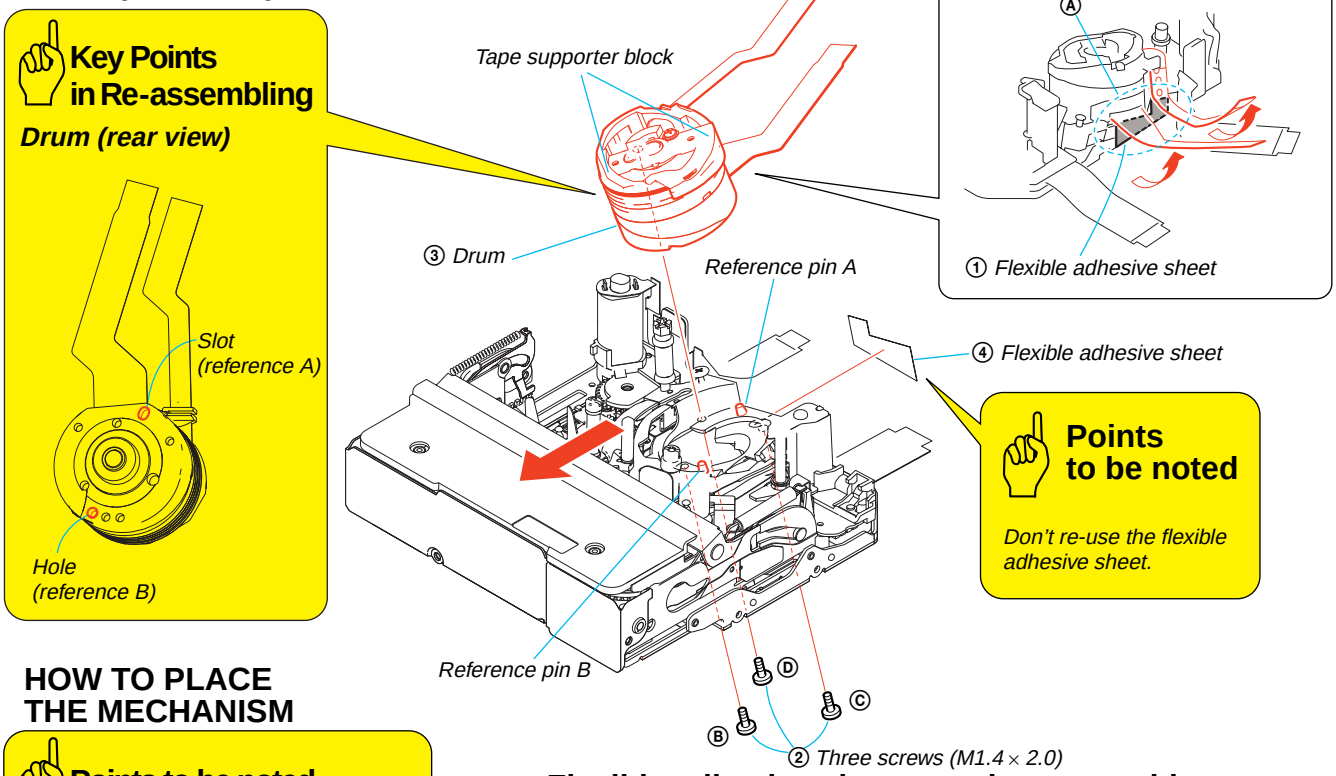
1. Removal procedure

1) Enter the [ULE] mode.
2) Peel away the portion Ⓐ of the drum flexible board from the flexible adhesive sheet ①.
3) Remove the three screws (special head screw M1.4 × 2.0) ② and remove the drum ③.
4) Peel away the flexible adhesive sheet ④.
   (Don't re-use the flexible adhesive sheet.)

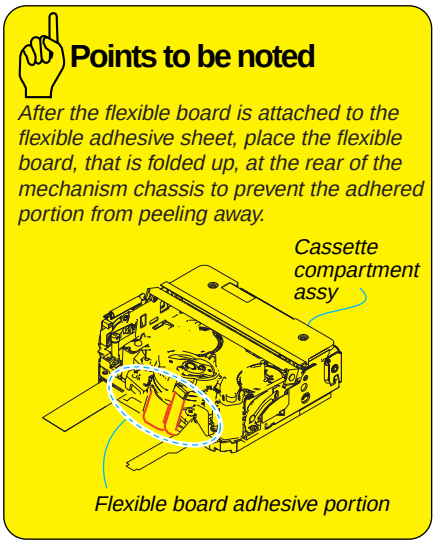
2. Attachment procedure

1) Enter the [ULE] mode.
2) Attach the flexible adhesive sheet ④.
3) Hold the tape supporter block, and set the reference holes A and B to the drum base reference pins A and B.
4) Install the the drum ③ with the three screws (special head screw M1.4 × 2.0) ② in the order of Ⓑ, Ⓒ and Ⓓ.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 × 0.1 kgf•cm)
5) Attach the portion Ⓐ of the drum flexible board to the flexible adhesive sheet ①.
6) Clean the tape path mechanism by referring to Section 2-2. (Refer to Section "2-2. Tape Path System Cleaning".)
7) Implement the tape path adjustment. (Refer to Section "4-3. Tape Path Adjustment")

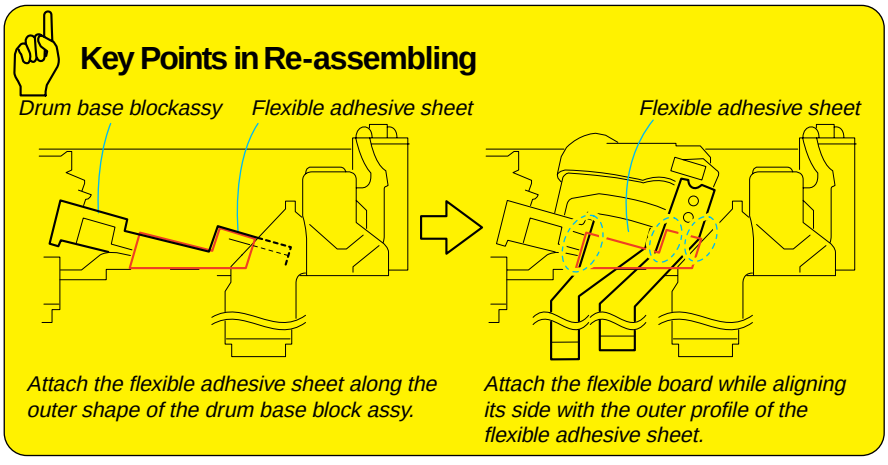
Drum (rear view)



HOW TO PLACE THE MECHANISM



Flexible adhesive sheet attachment position



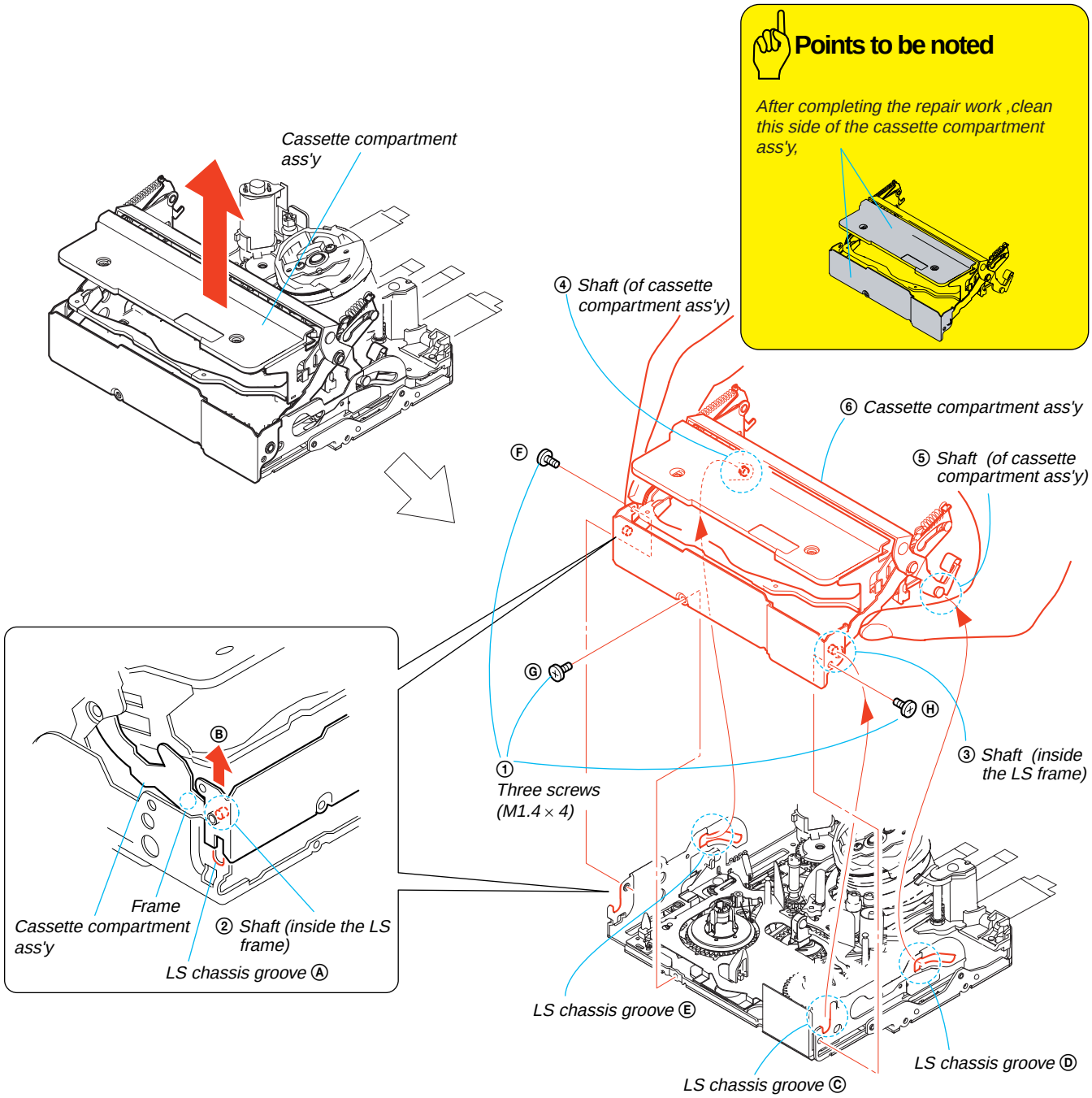
3-3. Cassette Compartment Ass'y

1. Removal procedure

1) Enter the [EJ] mode.
2) Remove the three screws (special head screw M1.4 × 1.4) ①.
3) While pushing the frame of the cassette compartment ass'y toward inside, remove the shaft ② inside the LS frame from the groove Ⓐ of the LS chassis in the direction of the arrow Ⓑ.
4) Remove the shaft ③ inside the LS frame from the groove Ⓒ of the LS chassis.
5) Remove the cassette compartment ass'y shafts ④ and ⑤ from the LS chassis grooves Ⓓ and Ⓔ. Remove the cassette compartment ass'y ⑥.

2. Attachment procedure

1) Enter the [ULE] mode.
2) Install cassette compartment ass'y ⑥ shafts ⑤ and ④ into the LS chassis grooves Ⓔ and Ⓓ.
3) While pushing the LS frame inward, install the shafts ③ and ② inside the LS frame into the grooves Ⓒ and Ⓐ of the LS chassis.
4) Install the three screws (special head screw M1.4 × 1.4) ① in the order of Ⓕ, Ⓖ and Ⓗ.
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)



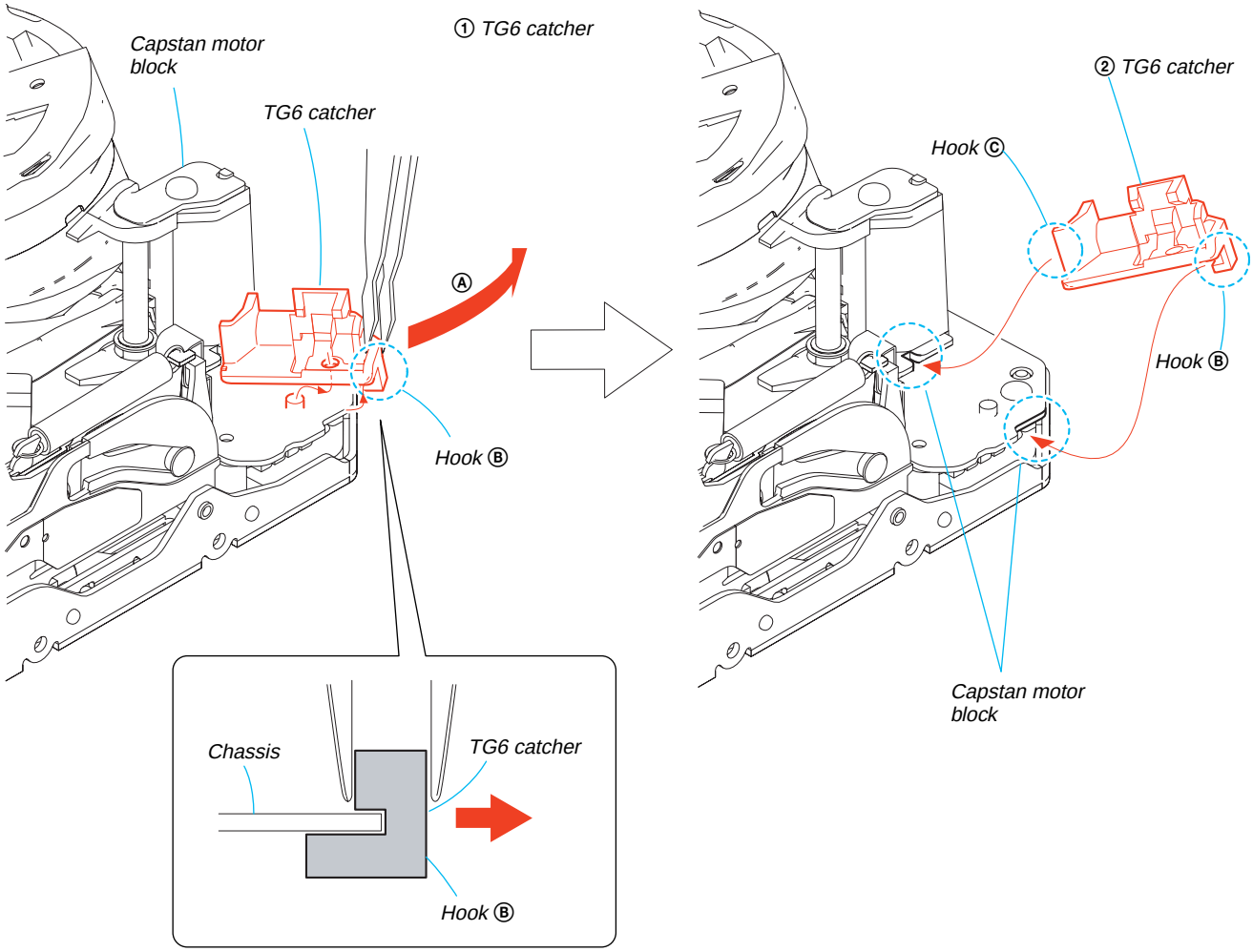
3-4. TG6 Catcher

1. Removal procedure

1) Disengage the hook Ⓑ of the TG6 catcher and remove the TG6 catcher ① from the chassis of the capstan motor block in the direction of the arrow Ⓐ.

2. Attachment procedure

1) Engage the hooks Ⓒ and Ⓑ of the TG6 catcher ② in the capstan motor block.



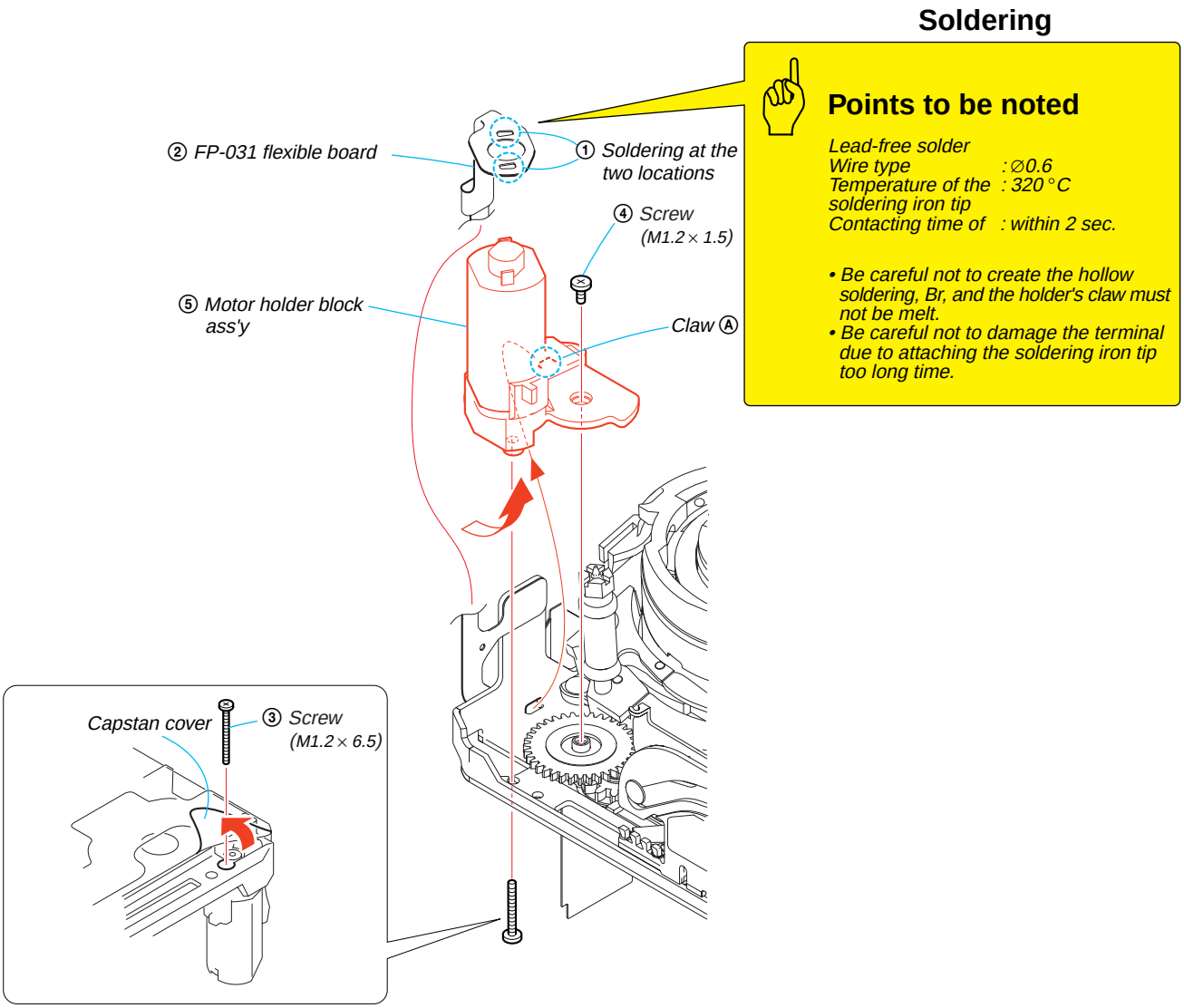
3-5. Motor Holder Block Ass'y

1. Removal procedure

1) Remove the two soldering ① and remove the FP-031 flexible board ② from the motor holder block ass'y ⑤.
2) Turn over the capstan cover and remove the screw (special head screw M1.2 × 6.5) ③.
3) Remove the screw (special head screw M1.2 × 1.5) ④.
4) Disengage the claw A and motor holder block ass'y ⑤.

2. Attachment procedure

1) Engage the claw Ⓐ and install the motor holder block ass'y (loading) ⑤.
2) Install the screw (special head screw M1.2 × 1.5) ④.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)
3) Turn over the capstan cover and install the screw (special head screw M1.2 × 6.5) ③.
4) Solder the two locations ① and install the FP-031 flexible board ② to the motor holder block ass'y (loading) ⑤.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)



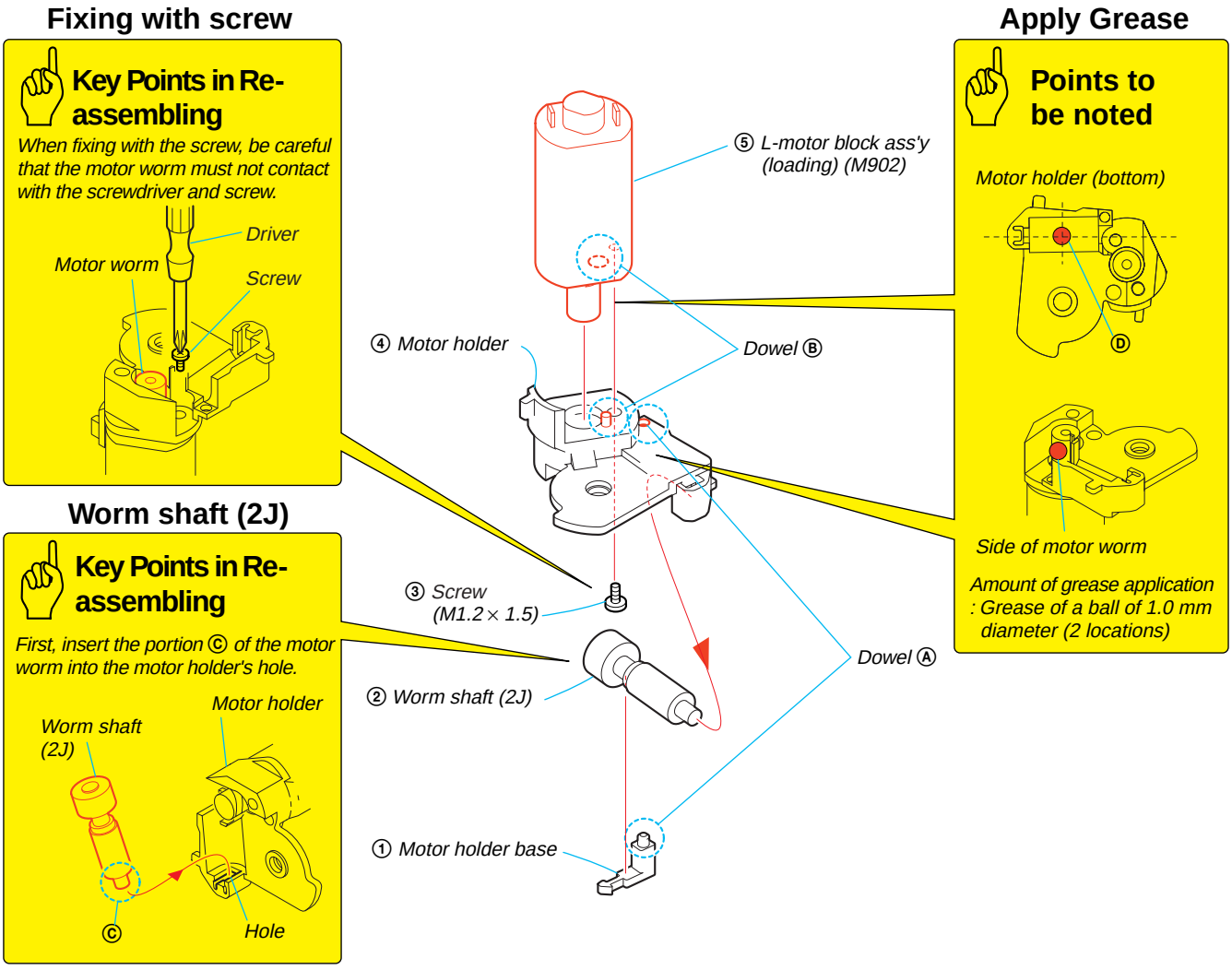
3-6. L-motor Block Ass'y (Loading) (M902)

1. Removal procedure

1) Release the dowel Ⓐ, and remove the motor holder base ①.
2) Remove the worm shaft (2J) ②.
3) Remove the screw (special head screw M1.2 × 1.5) ③ and remove the L-motor block ass'y (loading) (M902) ⑤ from the motor holder ④.

2. Attachment procedure

1) Align the L-motor block ass'y (loading) (M902) ⑤ with the dowel Ⓑ, insert it into the motor holder ④. While being careful not to contact the screw and the screwdriver with the motor worm, install the screw (special head screw M1.2 × 1.5) ③.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)
2) Apply the grease as much as a ball of 1.0 mm diameter on the portion Ⓓ on the bottom of the motor holder ④ and on the sides of the motor worm.
3) Install the worm shaft (2J) ②.
4) Engage the dowel Ⓐ and install the motor holder base ①.



3-7. END Sensor (Q901)

1. Removal procedure

1) Remove soldering at the two locations ① of the END sensor (Q901).
2) Disengage the claw ② and the END sensor (Q901) ③.
3) Remove soldering at the two locations ④ of the TOP sensor (Q902).
4) Disengage the claw ⑤ and the TOP sensor (Q902) ⑥.

2. Attachment procedure

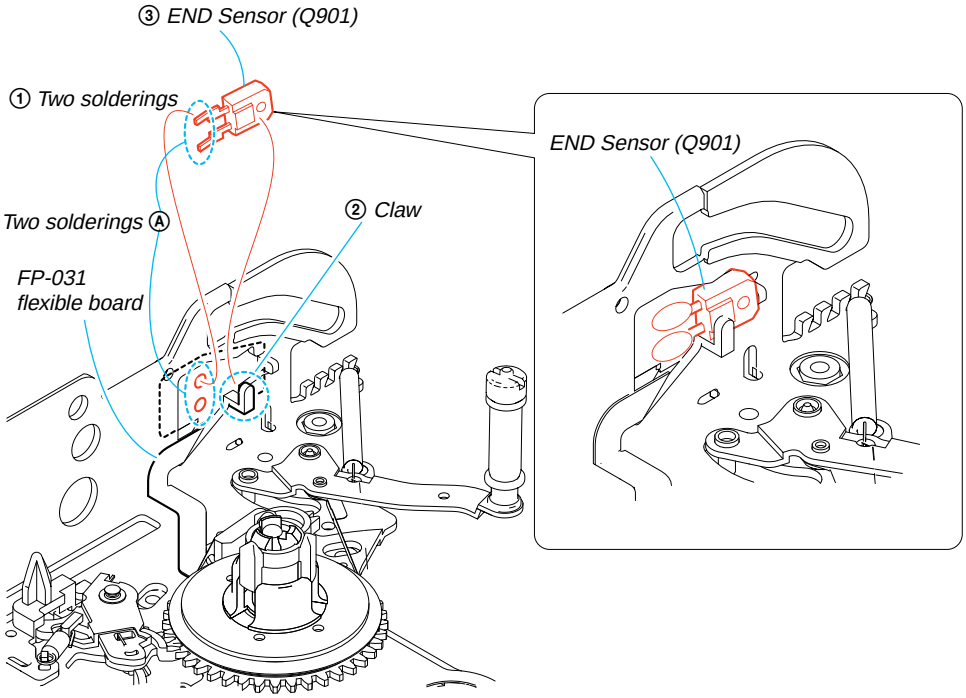
1) Engage the TOP sensor (Q902) ⑥ in the claw ⑤.
2) Solder two locations ④ of the TOP sensor (Q902) and install the TOP sensor (Q902) ⑥ in the FP-031 flexible board.
3) Engage the END sensor (Q901) ③ in the claw ②.
4) Solder two locations ① of the END sensor (Q901) and install the END sensor (Q901) ③ in the FP-031 flexible board.

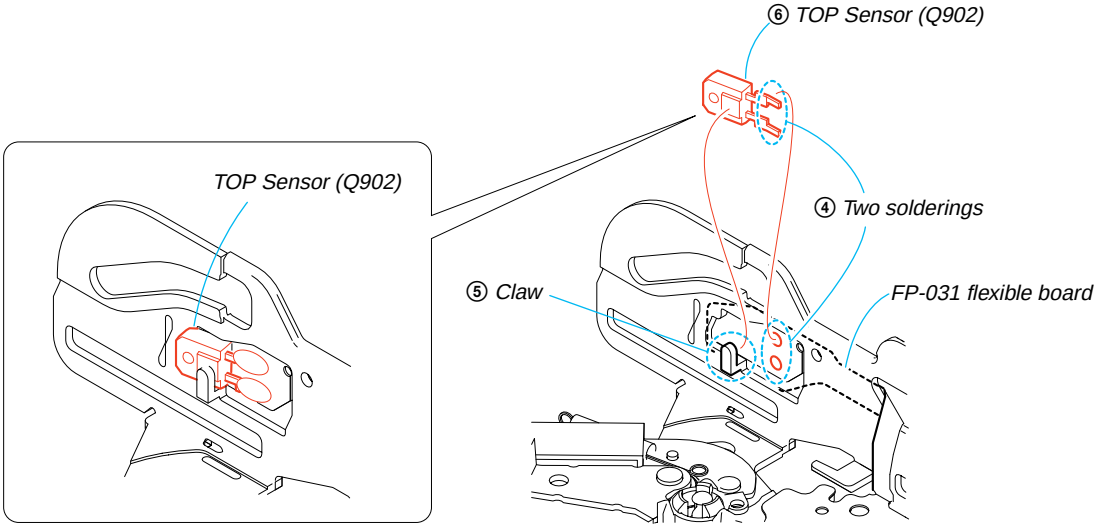
Soldering

Points to be noted

Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC

Soldering iron tip temperature: 300 ±10 °C
Soldering iron tip contacting time within 2 sec.





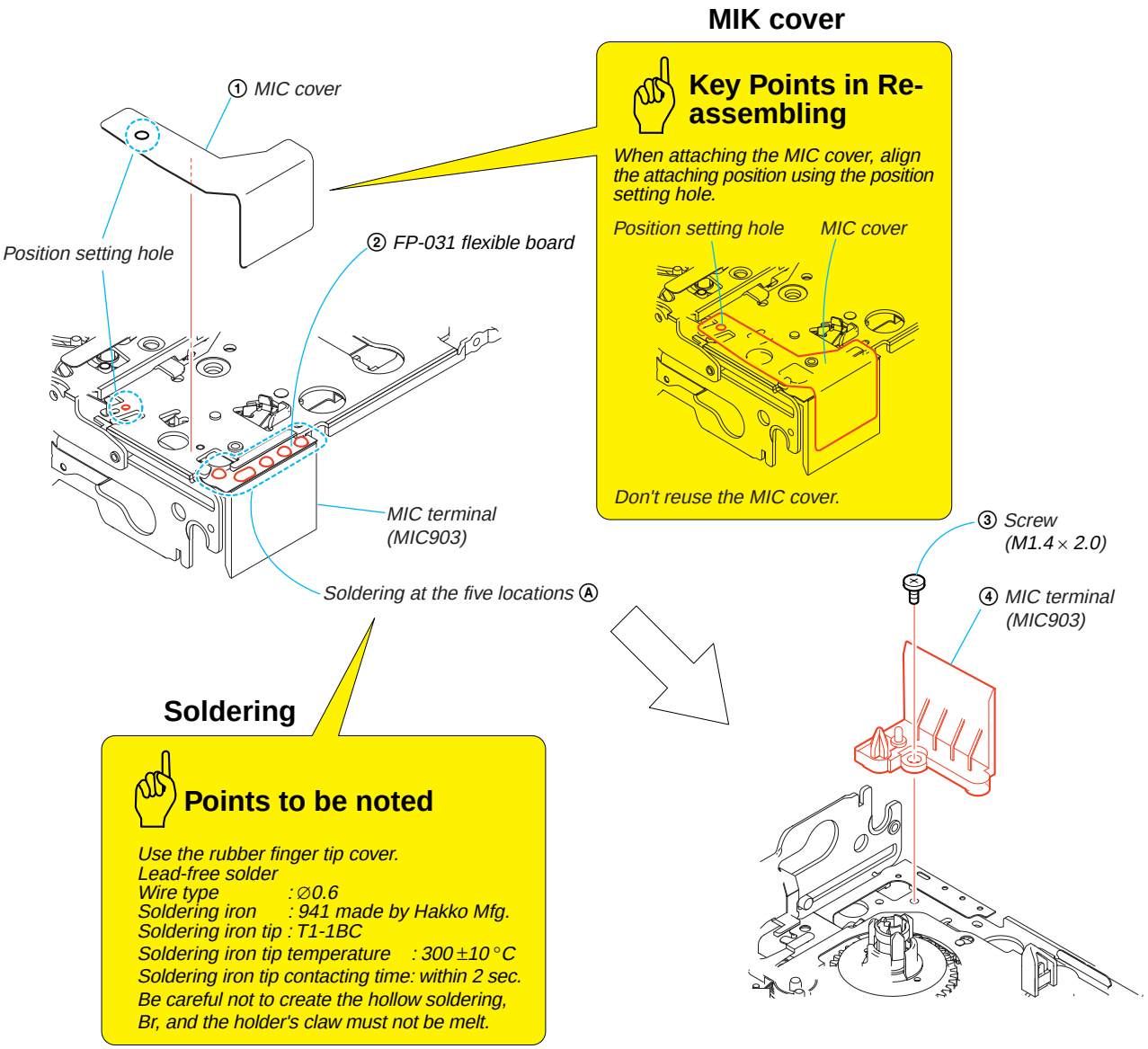
3-8. MIC terminal (MIC903)

1. Removal procedure

1) Enter the ULE mode.
2) Peel away the MIC cover ①.
3) Remove soldering at the five locations Ⓐ, and remove the FP-031 flexible board ② from the MIC terminal (MIC903) ④.
4) Remove the screw (special head screw M1.4 × 2.0) ③, and remove the MIC terminal (MIC903) ④.

2. Attachment procedure

1) While pressing the top of the MIC terminal (MIC903) ④, fix it with the screw (special head screw M1.4 × 2.0) ③.
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)
2) Remove soldering at the five locations Ⓐ, and install the FP-031 flexible board ② to the MIC terminal (MIC903) ④.
3) Align the position setting hole with the hold and attach the MIC cover.
   (Don't reuse the MIC cover.)



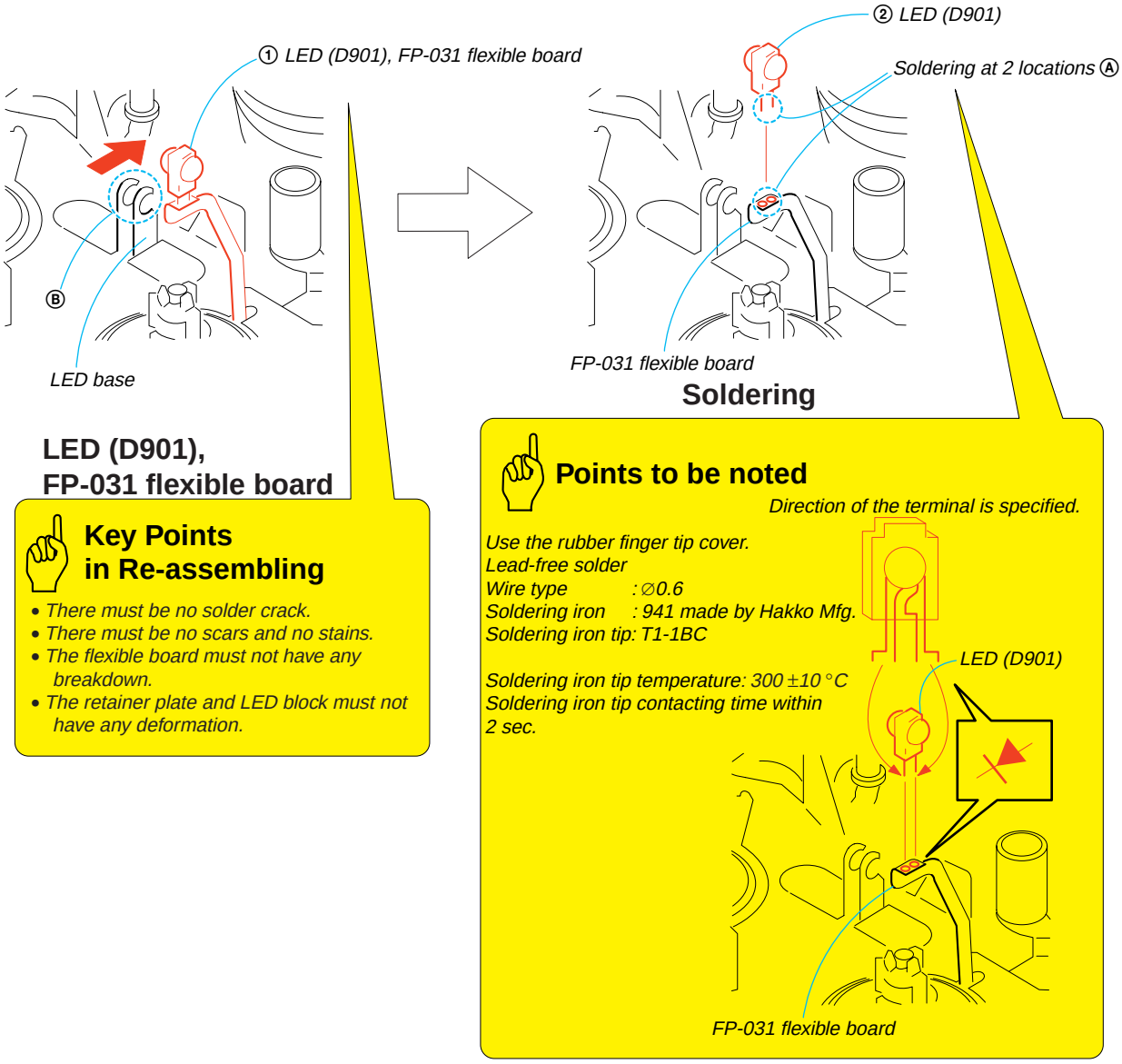
3-9. LED (D901)

1. Removal procedure

1) Remove the LED (D901) and the FP-031 flexible board ① from the LED base.
2) Remove soldering at the two locations Ⓐ, and remove the LED (D901) ②.

2. Attachment procedure

1) Remove soldering at the two locations Ⓐ, and install the LED (D901) ② in the FP-031 flexible board.
2) Roll up the FP-031 flexible board under the LED (D901) ① with fingertip, and insert the LED top head into the portion Ⓑ of the LED base. Then route the flexible board in the specified position.



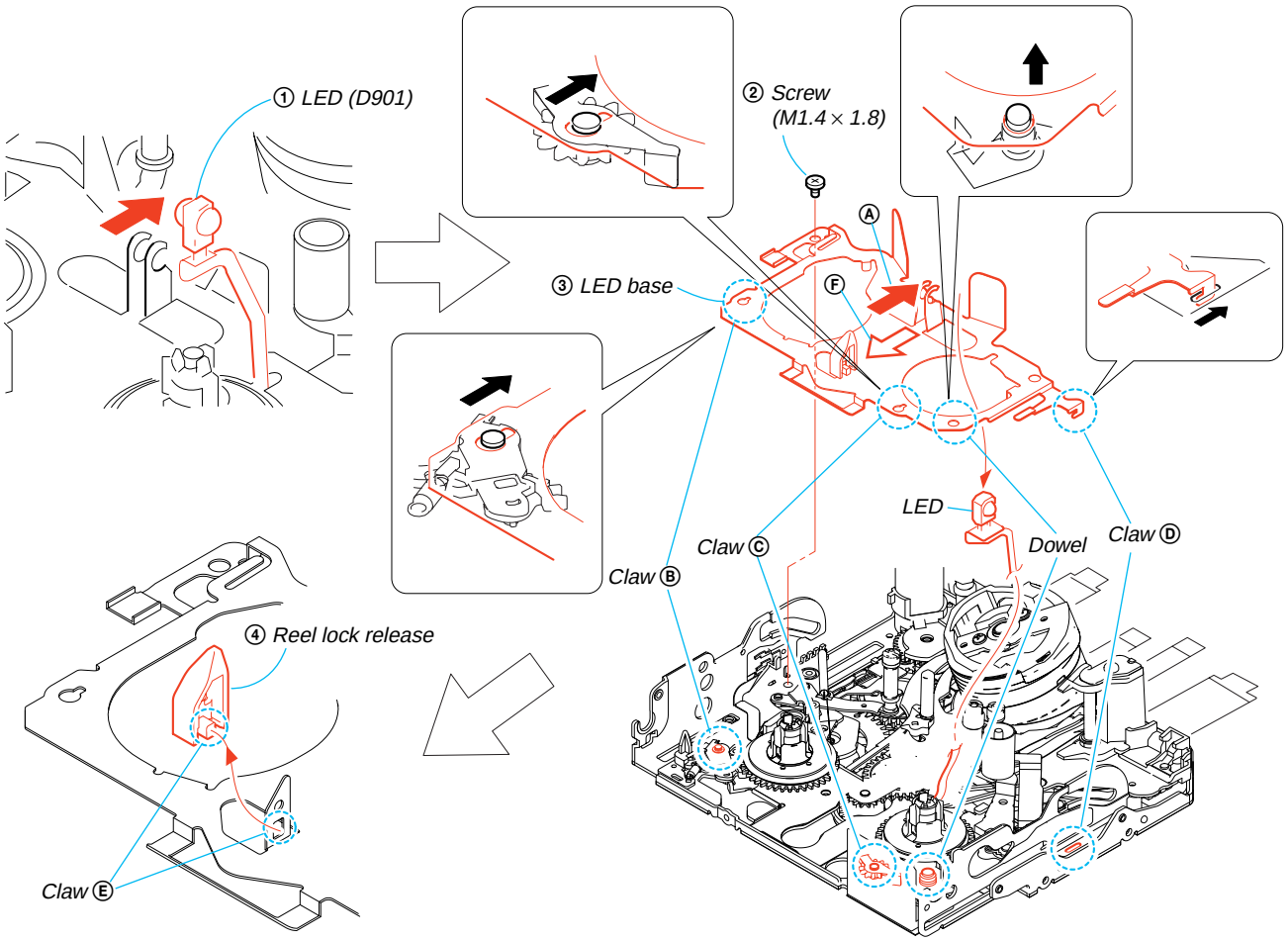
3-10. LED Base

1. Removal procedure

1) Remove the LED (D901) ① from the LED base.
2) Remove the screw (precision screw M1.4 × 1.8) ②.
3) Float the LED base ③ and remove the dowel.
4) Slide the LED base ③ in the direction of the arrow Ⓐ, and disengage the three claws at Ⓑ, Ⓒ and Ⓓ.
5) While freeing the LED from the LED base ③, remove the LED base ③.
6) Disengage the claw Ⓔ and remove the Reel Lock Cancel.

2. Attachment procedure

1) Install the Reel Lock Cancel.
2) While passing the LED (D901) ① through the hole of the LED base ③, place the LED base ③ on top of the LS chassis.
3) Align the position of the LED base ③ first with the claws Ⓑ and Ⓒ, then slide the LED base ③ in the direction of the arrow Ⓕ, and engage the three claws Ⓑ, Ⓒ and Ⓓ, and the dowel.
4) Install the screw (precision screw M1.4 × 1.8) ②.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)
5) Install the LED (D901) ① to the LED base.



Reel lock release

Key Points in Re-assembling

- *The reel lock release part must not be re-used.*
- *The retainer plate must not have any deformation.*
- *The reel lock release must be full engaged. (Must not be left in the half-installed state.)*

LED base

Key Points in Re-assembling

- *All claws must be fully engaged. (Caution : No claws should be left disengaged.)*
- *The flexible board should not be pinched by anything.*
- *The retainer plate must not touch with the MIC terminal.*

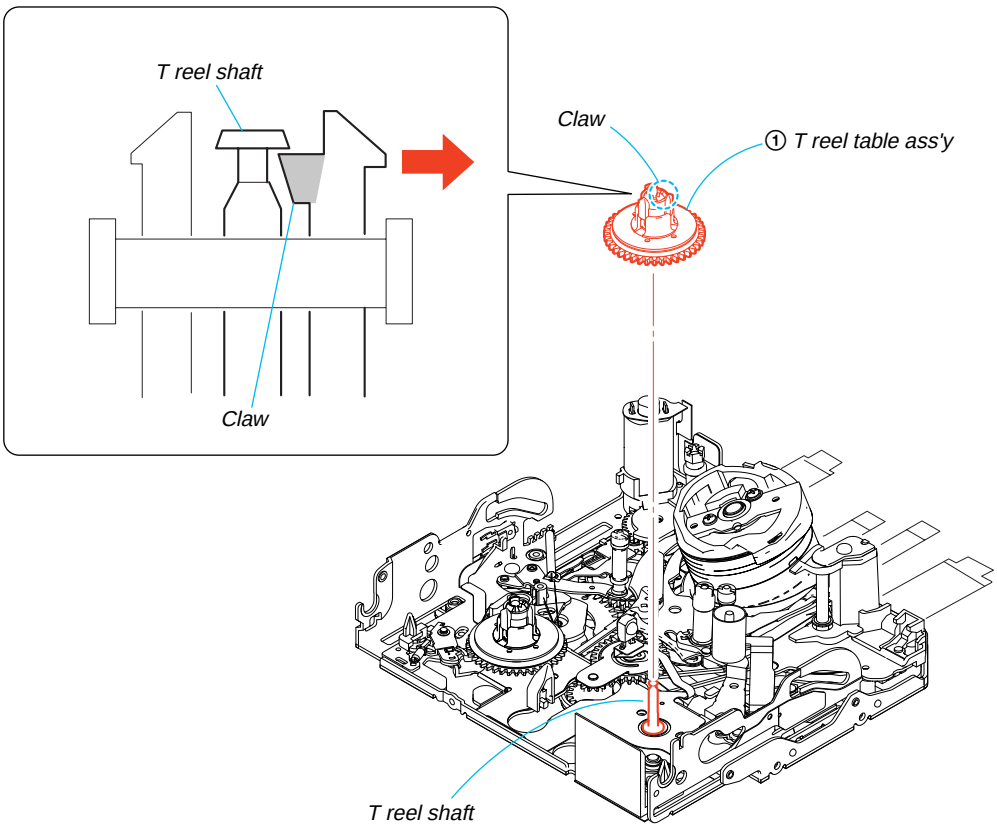
3-11. T-reel Table Ass'y

1. Removal procedure

1) While freeing the claw from the T-reel shaft in the direction of the arrow, remove the T-reel table ass'y ①.

2. Attachment procedure

1) Verify that the part that is going to be installed is the T-reel table ass'y. Then insert it into the T-reel shaft. While rotating it, snap it in. (Verify that it is locked.)



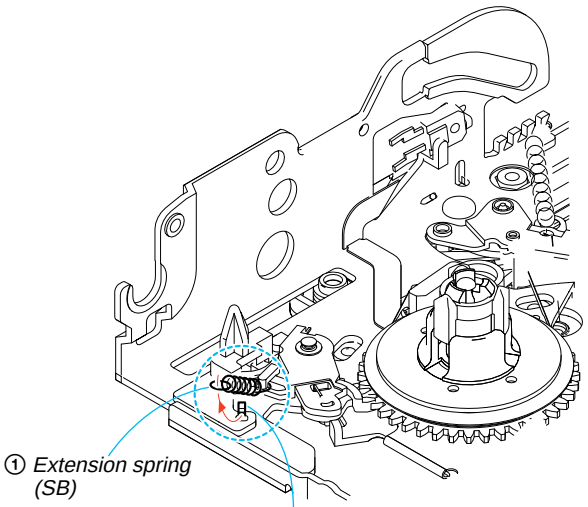
3-12. S Positioning

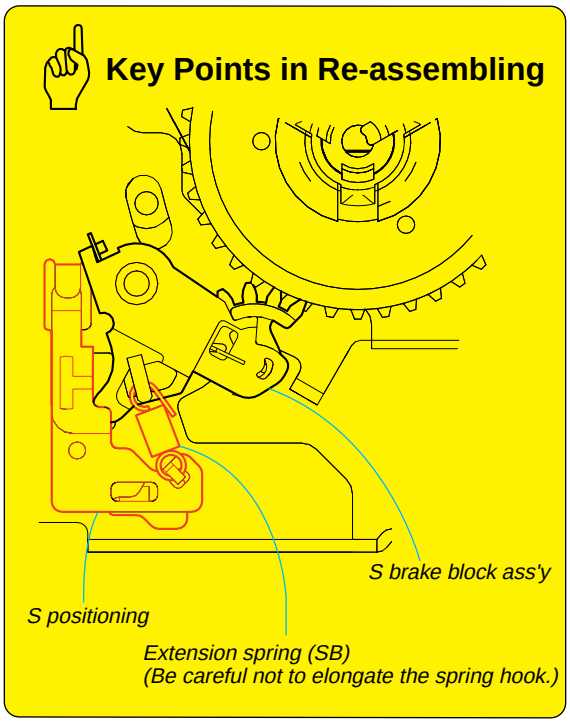
1. Removal procedure

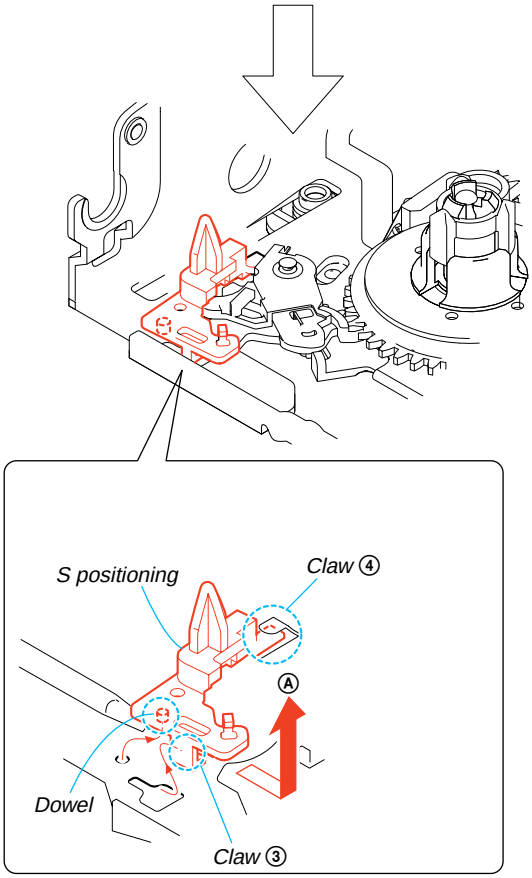
1) Remove the tension coil spring (SB) ① from the hook of the S positioning ②.
2) Rotate the S positioning in the direction of the arrow Ⓐ, and remove the claw ③ and disengage the dowel.
3) Remove the claw ④ and remove the S positioning ⑤.

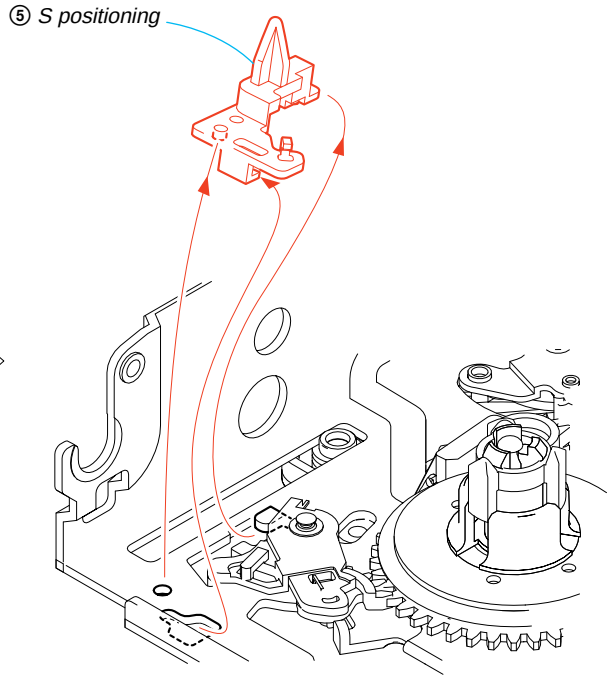
2. Attachment procedure

1) Insert the claw ④ of the S positioning ⑤ in the hole of the LS chassis.
2) Engage the claw ③ and the dowel.
3) Insert the tension coil spring (SB) ① into the hook of the S positioning ②.









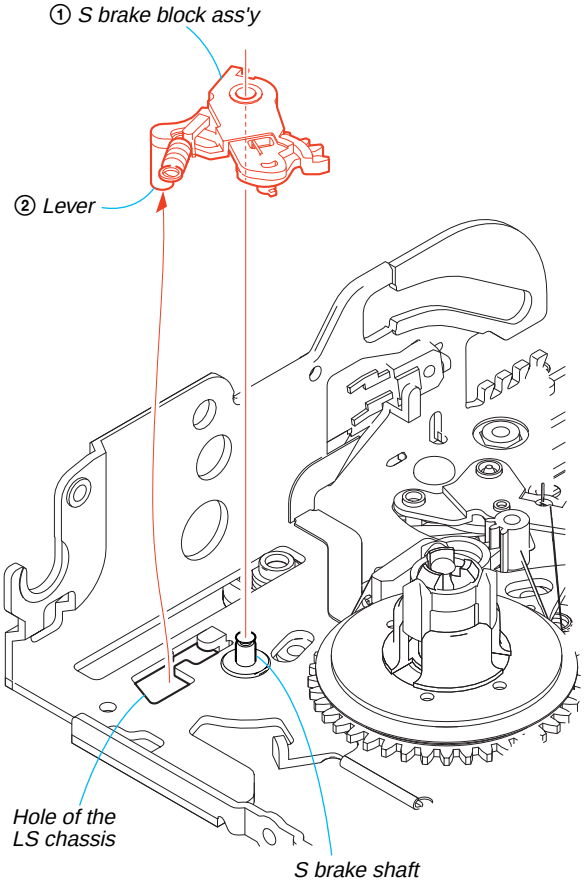
3-13. S Brake Block Ass'y

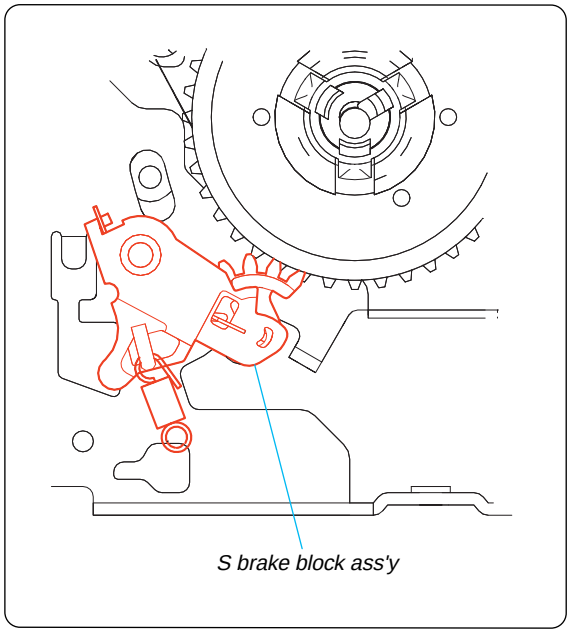
1. Removal procedure

1) Remove the S brake block ass'y ① from the S brake shaft.

2. Attachment procedure

1) Insert the lever ② of the S brake block ass'y into the hole of the LS chassis, and install the S brake block ass'y ① in the S brake shaft.





3-14. Tension Regulator Block Ass'y

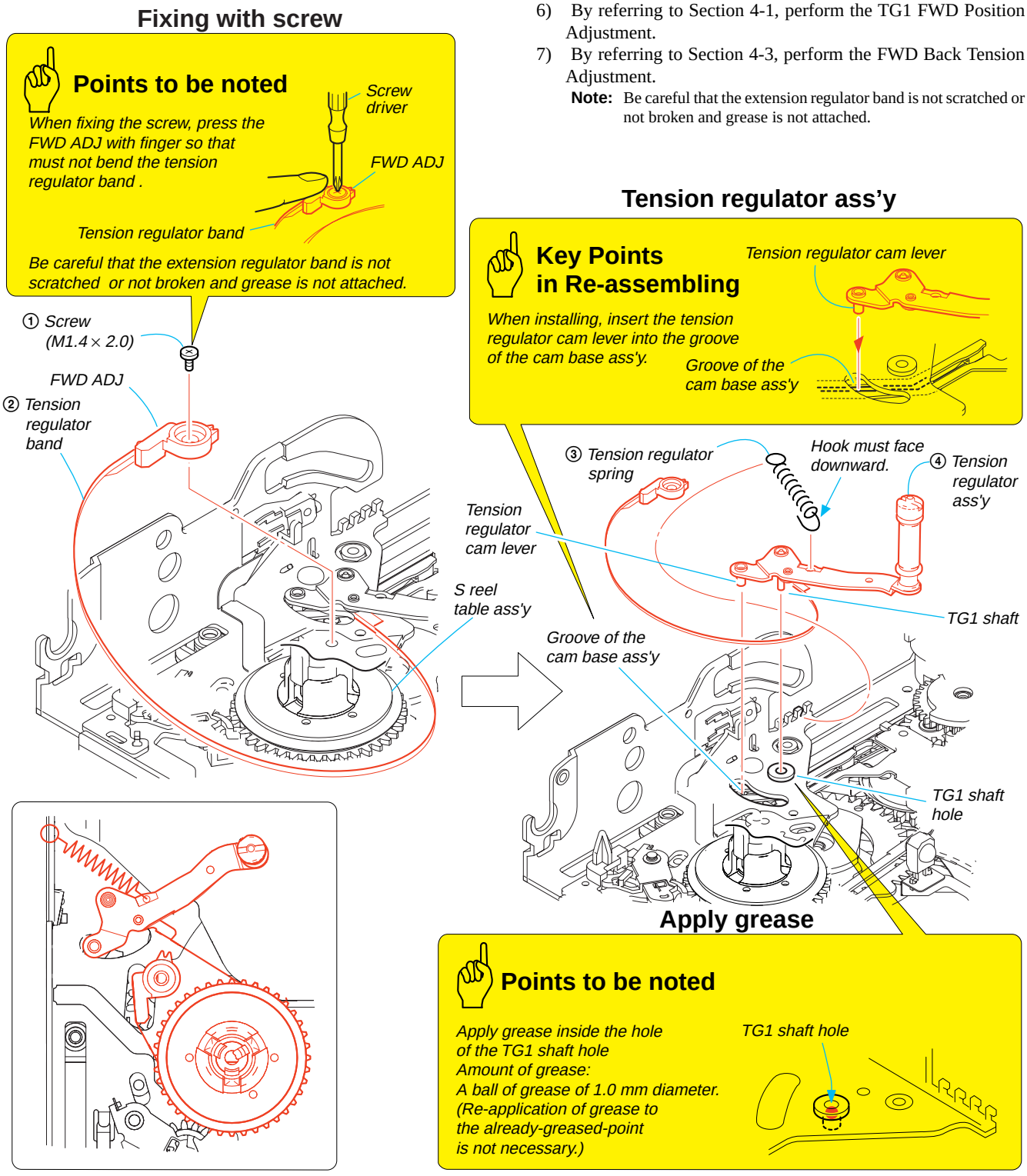
1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.0) ①.
2) Remove the tension regulator band ② from the S-reel table ass'y.
3) Remove the tension regulator spring ③.
   Note: Take a note where the tension regulator spring.
4) Remove the tension regulator block ass'y ④.

2. Attachment procedure

1) Apply grease into inside of the TG1 shaft hole.
   Amount of grease: A ball of grease of 1.0 mm diameter.
   Re-application of grease to the already-greased-point is not necessary.
2) While inserting the tension regulator cam lever into the groove of the cam base ass'y, insert the TG1 shaft into the TG1 shaft hole.
3) Hook the tension regulator spring ③ on the tension regulator ass'y ④ with the very end of the spring facing downward.
4) Hook the tension regulator spring ③ on the LS chassis.
   (The position that is taken a note when it is removed.)
5) Insert the tension regulator band ② into the groove of the S-reel table ass'y. While pushing the FWD ADJ with finger, fix it with the screw ① (special head screw M1.4 × 2.0).
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)
6) By referring to Section 4-1, perform the TG1 FWD Position Adjustment.
7) By referring to Section 4-3, perform the FWD Back Tension Adjustment.

Note: Be careful that the extension regulator band is not scratched or not broken and grease is not attached.



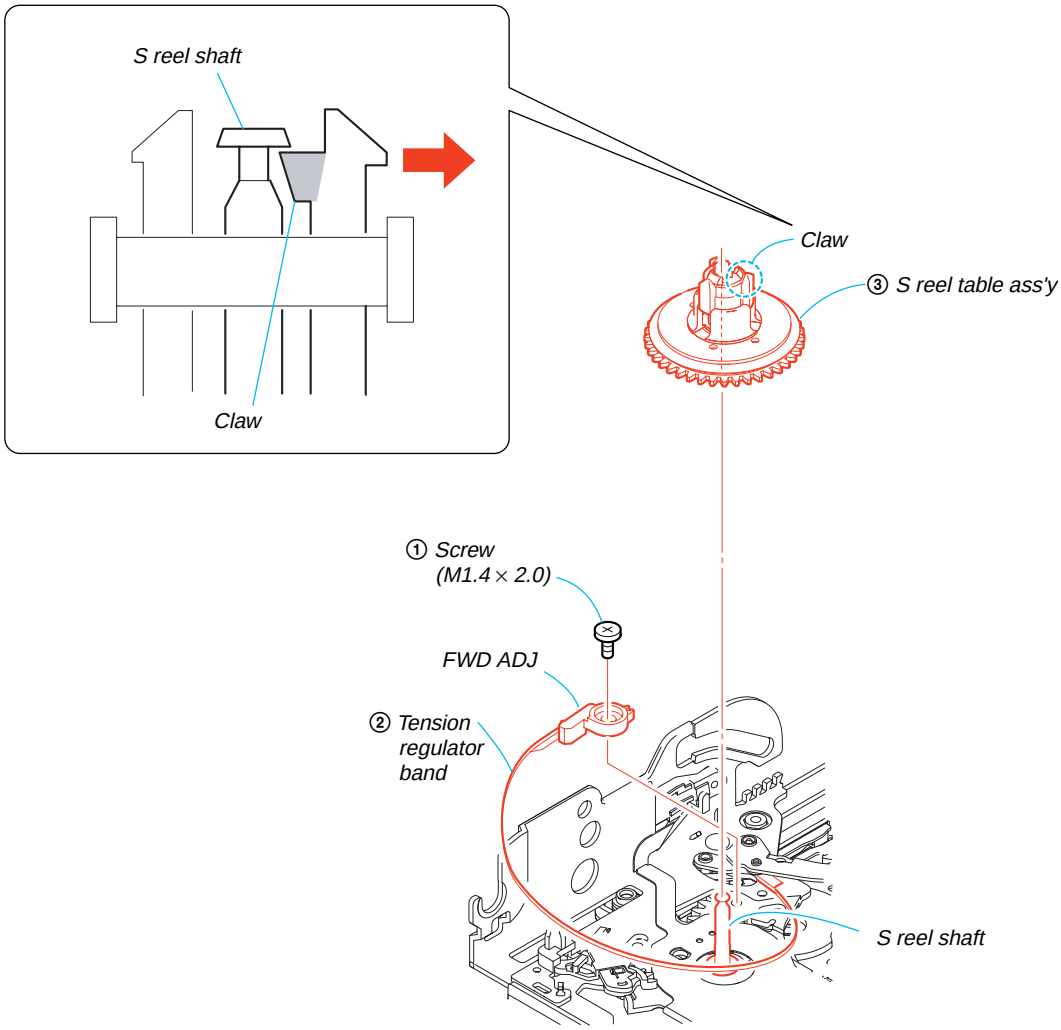
3-15. S Reel Table Ass'y

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 2.0) ① .
2) Remove the tension regulator band ② from the S-reel table ass'y.
3) While freeing the claw at the location in the direction of the arrow, remove the S-reel table ass'y ③ from the S reel shaft.

2. Attachment procedure

1) Insert the S-reel table ass'y ③ into the S-reel shaft. While rotating it, snap it in. (Verify that it is locked.)
2) Insert the tension regulator band into the groove of the S-reel table ass'y. While pushing the FWD ADJ with finger, fix it with the screw 1 (special head screw M1.4 × 2.0).
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)



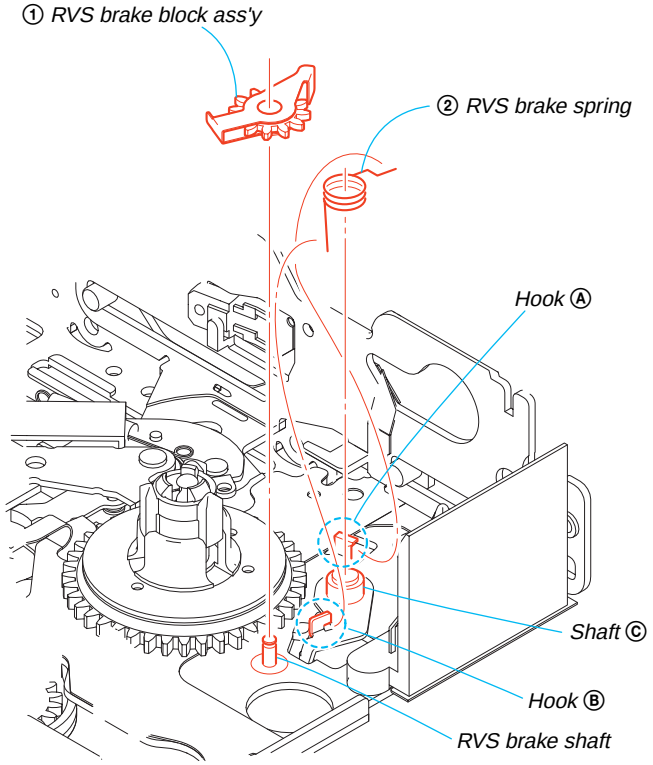
3-16. RVS Brake Ass'y

1. Removal procedure

1) Remove the RVS brake ass'y ① from the RVS brake shaft.
2) Remove the RVS brake spring ② from the hooks Ⓐ and Ⓑ.

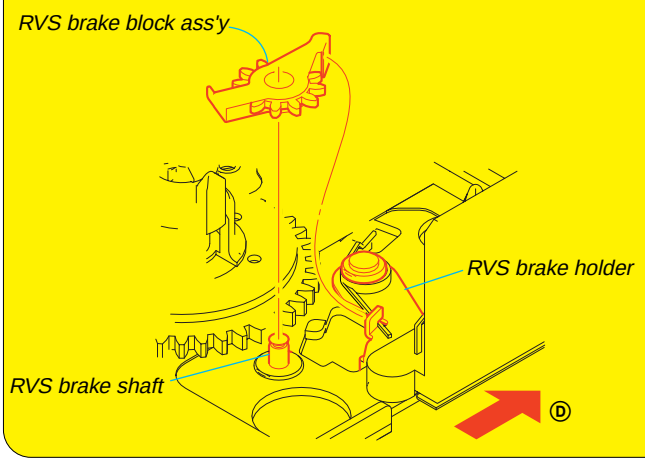
2. Attachment procedure

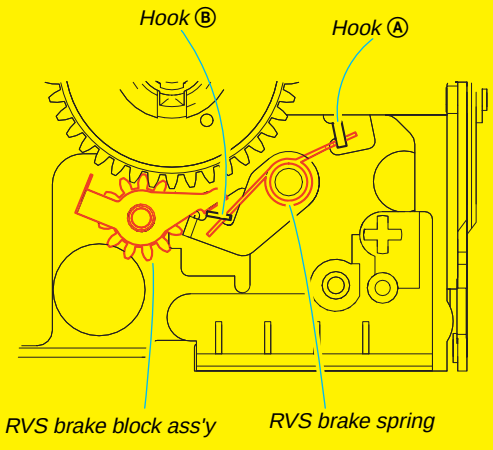
1) Install the RVS brake spring ② in the shaft Ⓒ, and engage the RVS brake spring ② on the hooks A and B.
2) Open the RVS brake holder in the direction of the arrow Ⓓ, and install the RVS brake ass'y ① into the RVS brake shaft.



RVS brake block ass'y

Key Points in Re-assembling





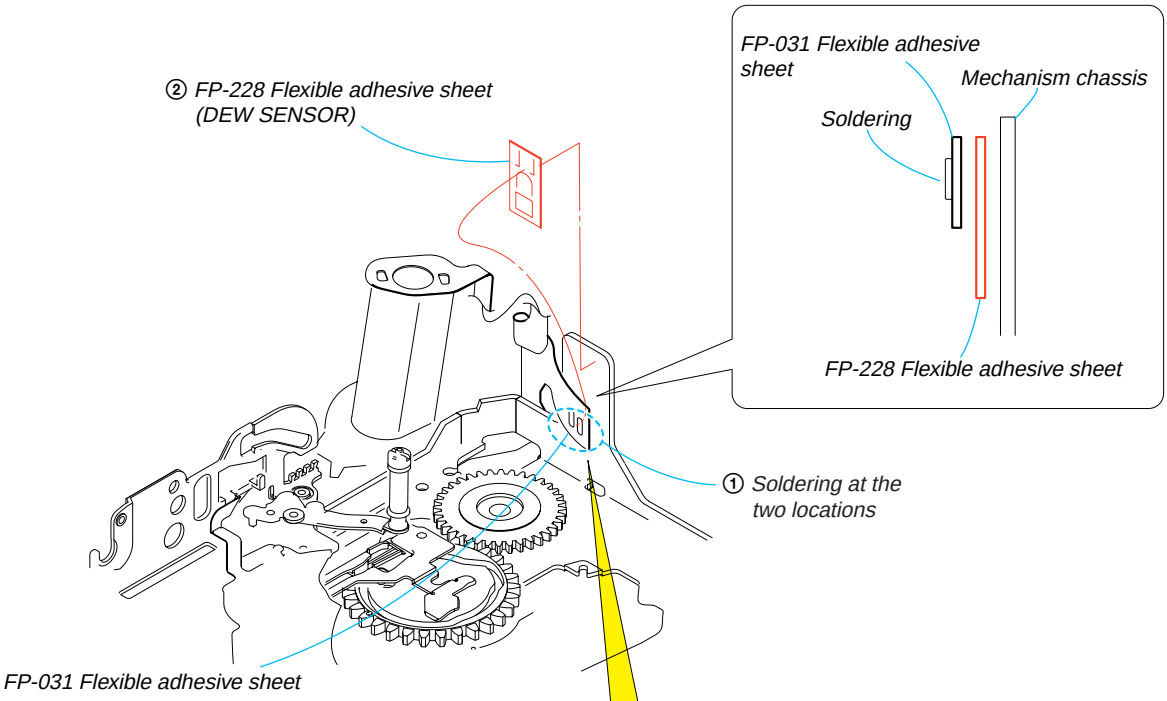
3-17. FP-228 Flexible Board

1. Removal procedure

1) Remove soldering at two locations ① on the FP-031 board and the FP-228 flexible board, and remove the FP-228 flexible board (DEW SENSOR) ② from the mechanism chassis.

2. Attachment procedure

1) Attach the FP-228 flexible board (DEW SENSOR) ② to the mechanism chassis and attach the FP-031 board to the FP-228 board.
2) Solder the terminal block at two locations ① on the FP-031 flexible board.



Soldering

Points to be noted

Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip : T1-1BC
Soldering iron tip temperature : 300 ±10 °C
Soldering iron tip contacting time: within 2 sec.
Be careful not to create the hollow soldering,
bridge formation, and the holder's claw must not be melt.

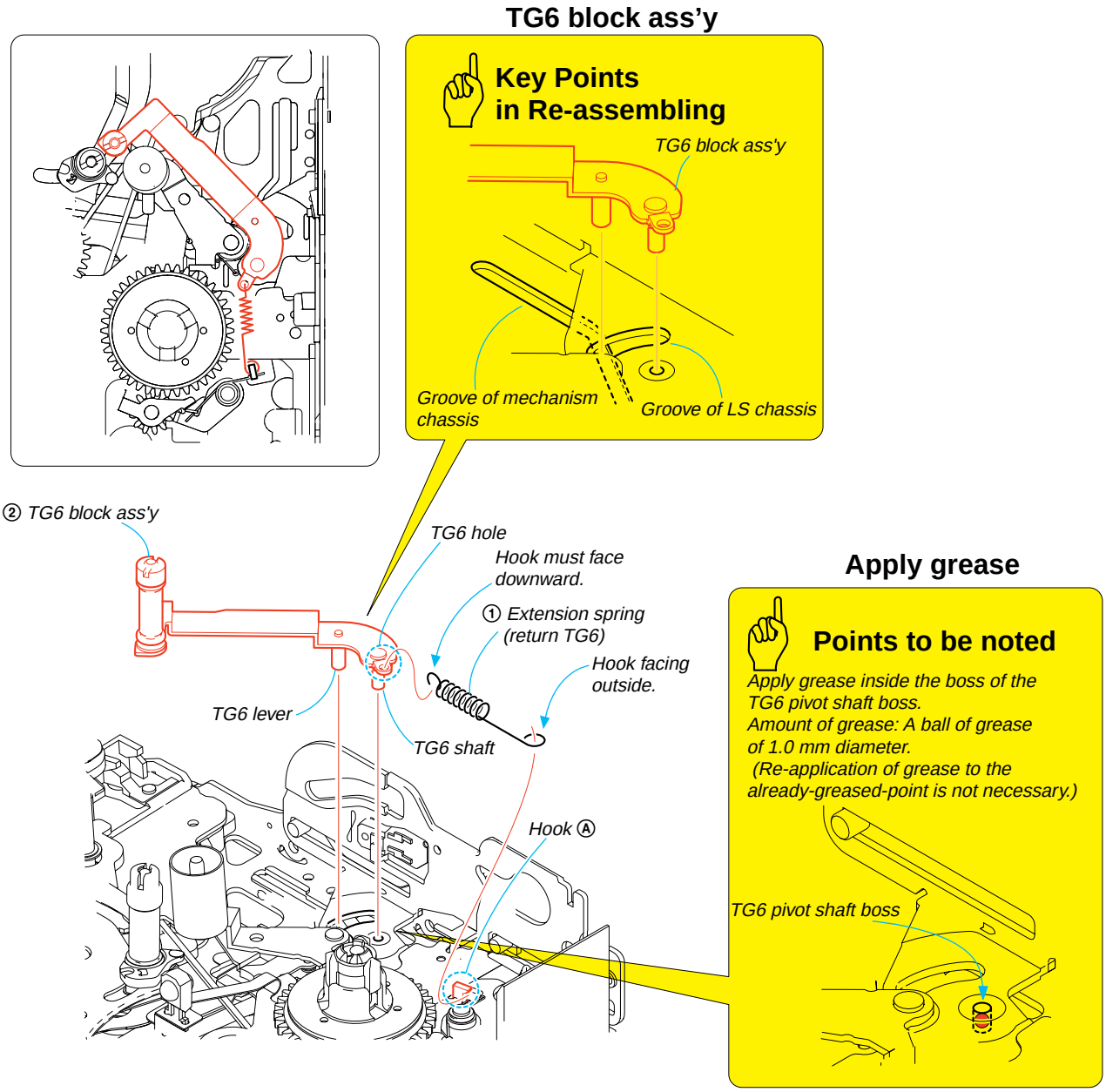
3-18. TG6 Block Ass'y

1. Removal procedure

1) Remove the extension spring (return TG6) ①.
2) Remove the TG6 block ass'y ②.

2. Attachment procedure

1) Apply grease inside the boss of the TG6 shaft hole.
   Amount of grease: A ball of grease of 1.0 mm diameter.
   Re-application of grease to the already-greased-point is not necessary.
2) Insert the TG6 shaft TG6 block ass'y ② in to the TG6 shaft hole. At the same time, insert the TG6 shaft lever into the groove of the LS chassis and that of the mechanism chassis.
3) Engage the extension spring (return TG6) ① on the hook Ⓐ and hole of the TG6.



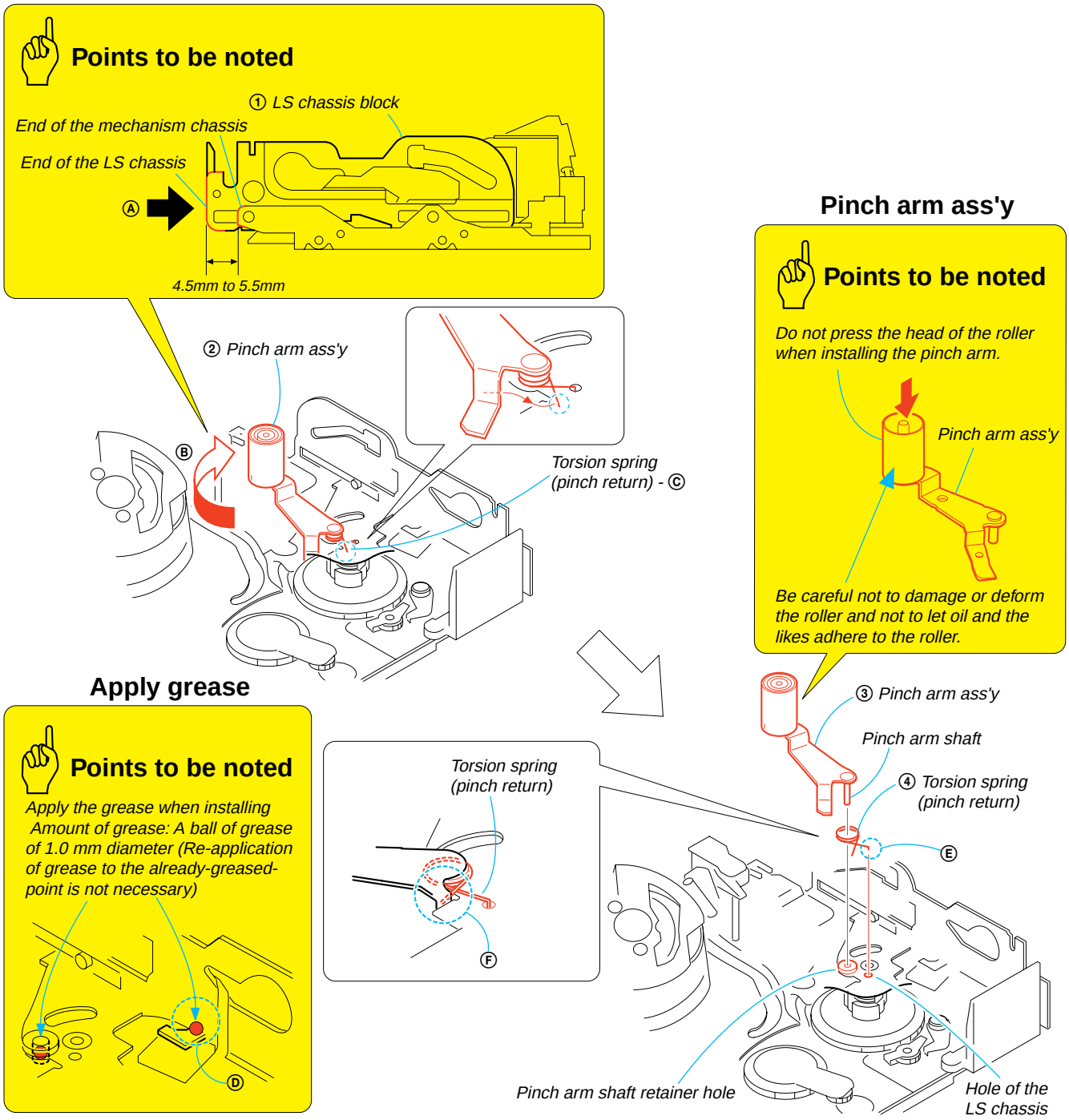
3-19. Pinch Arm Ass'y

1. Removal procedure

1) Move the LS chassis in the direction of arrow Ⓐ so that the distance between the end of the LS chassis and end of the mechanism chassis is in the range of 4.5 mm to 5.5 mm.
2) Rotate the pinch arm ass'y ② in the direction of arrow Ⓑ, and remove the torsion spring (pinch return) Ⓒ.
3) Remove the pinch arm ass'y ③ , and remove the torsion spring (pinch return) ④.

2. Attachment procedure

1) Apply grease on the pinch arm shaft retainer hole and the portion Ⓓ of the LS chassis.
   Amount of grease: A ball of grease of 1.0 mm diameter.
2) Move the LS chassis in the direction of arrow A so that the distance between the end of the LS chassis and end of the mechanism chassis is in the range of 4.5 mm to 5.5 mm.
3) Insert the portion Ⓔ of the torsion spring (pinch return) ④ into the hole of the LS chassis, and attach it to the pinch arm shaft retainer hole.
4) Install the pinch arm ass'y ③ in the pinch arm shaft retainer hole.
5) Hook the torsion spring (pinch return) ④ on the pinch arm ass'y ③ as shown in Ⓕ.



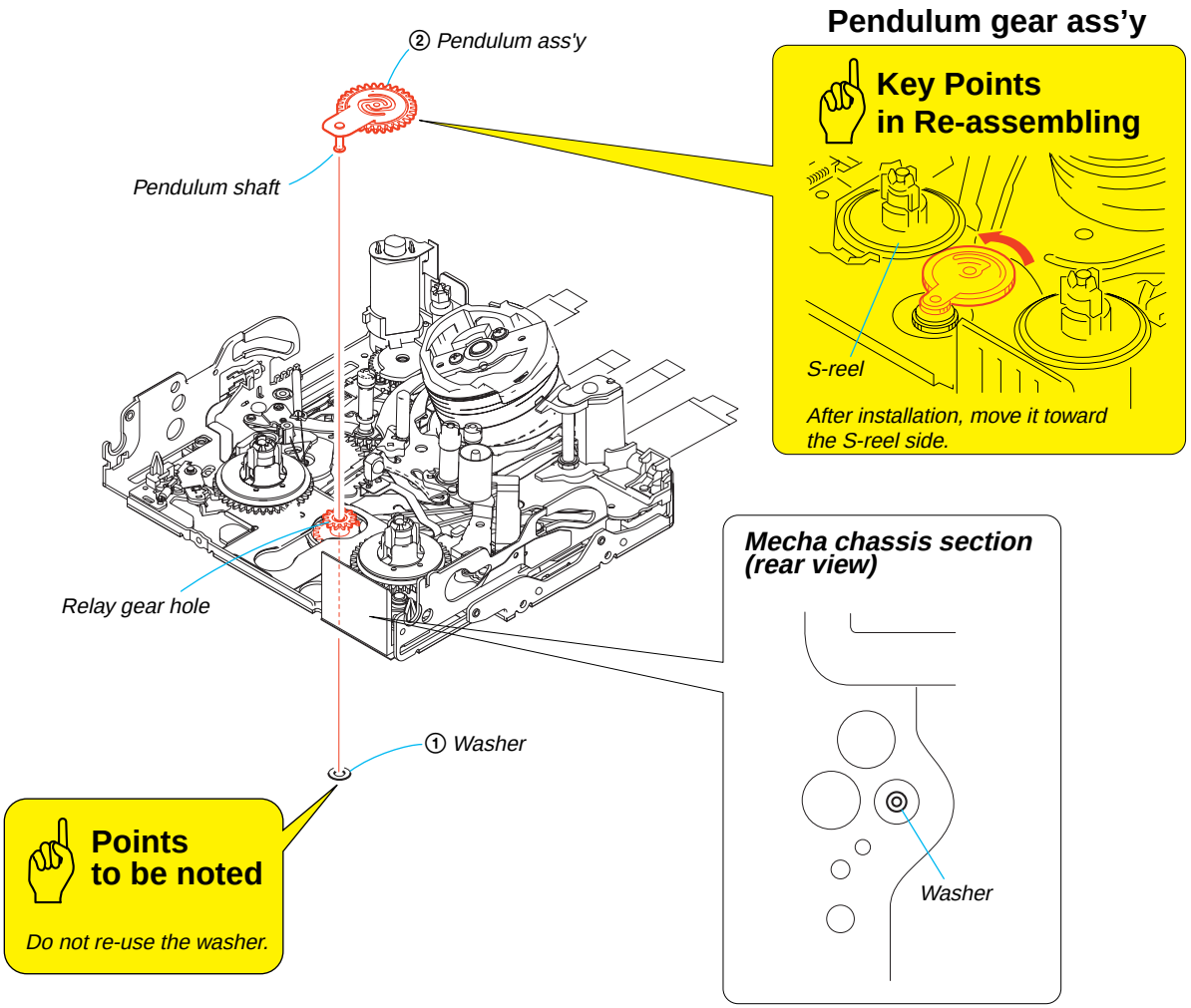
3-20. Pendulum Ass'y

1. Removal procedure

1) Remove the washer ① from the pendulum shaft.
2) Remove the pendulum ass'y ② from the relay gear hole.

2. Attachment procedure

1) Install the pendulum ass'y ② to the relay gear hole.
2) Install the washer ① to the pendulum shaft.
(Do not re-use the washer.)



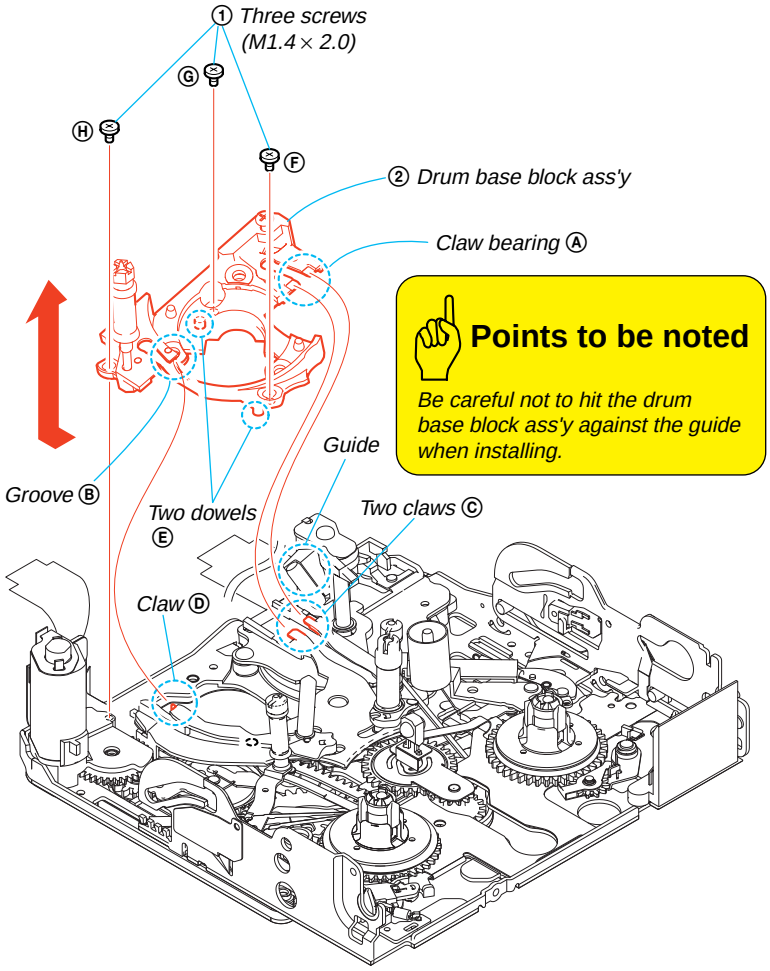
3-21. Drum Base Ass'y

1. Removal procedure

1) Enter the [ULE] mode.
2) Remove the three screws (special head screw M1.4 × 2.0) ①.
3) Remove the drum base ass'y ② in the direction of the arrow.

2. Attachment procedure

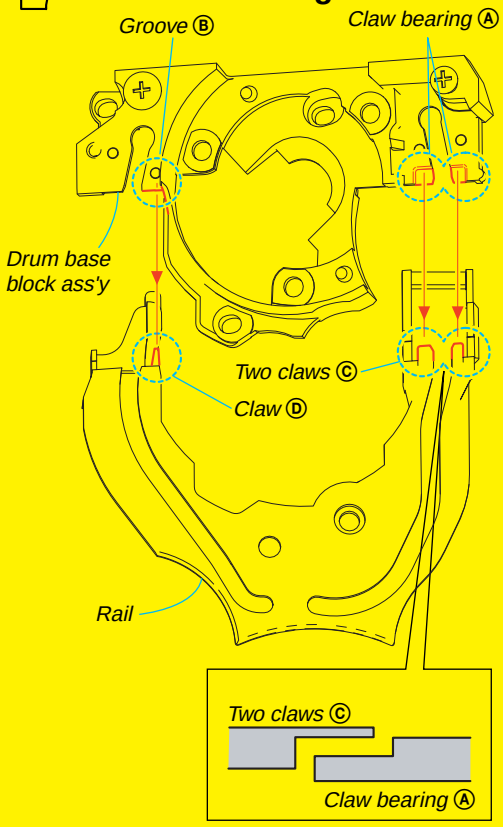
1) Install the claw bearing Ⓐ and then groove Ⓑ of the drum base ass'y ② in the claws Ⓒ in two locations and the claw Ⓓ of the rail, respectively.
2) Align the two dowels of the drum base ass'y at the Ⓔ position and install the drum base ass'y ②.
3) Install the three screws (special head screw M1.4 × 2.0) ① in the order of Ⓕ, Ⓖ and Ⓗ.
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)



Points to be noted

Be careful not to hit the drum base block ass'y against the guide when installing.

Key Points in Re-assembling



- *Be sure that the claws at two locations Ⓒ of the rail are placed on the claw bearing Ⓐ of the drum base block ass'y.*
- *Be sure that the claw Ⓓ of the rail is inserted inside the groove Ⓑ of the drum base block ass'y.*

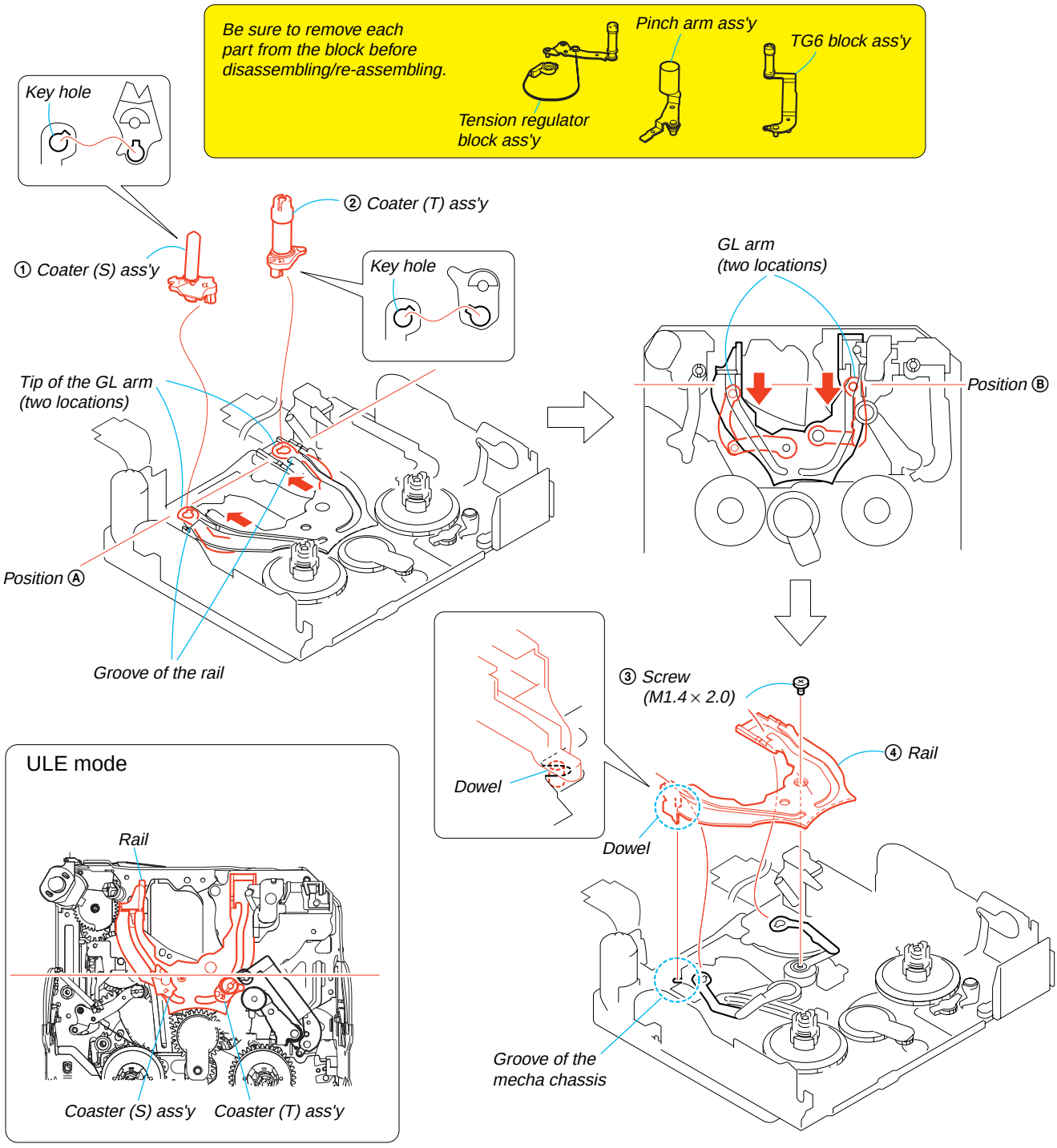
3-22. Coaster Ass'y, Rail

1. Removal procedure

1) Load the GL arms (two locations) until the tips of the arms reach the position Ⓐ.
2) While rotating the coaster (S) ass'y ① and the coaster (T) ass'y ②, remove them through the key hole at the tip of the GL arms (two locations).
3) Load the GL arms (two locations) until the tips of the arms reach the position Ⓑ.
4) Remove the screw (special head screw M1.4 × 2.0) ③, and remove the rail ④.

2. Attachment procedure

1) Set the dowel of the rail to the groove of the mecha chassis, and install the rail and install the screw (special head screw M1.4 × 2.0).
   Tightening torque: 0.04 ± 0.01 N•m (0.41 ± 0.1 kgf•cm)
2) Load the GL arms (two locations) until the tips of the arms reach the position Ⓐ.
3) While rotating the coaster (S) ass'y ① and the coaster (T) ass'y ②, install them in the key holes at the tips of the GL arms (two locations).
4) Return to the [ULE] mode.



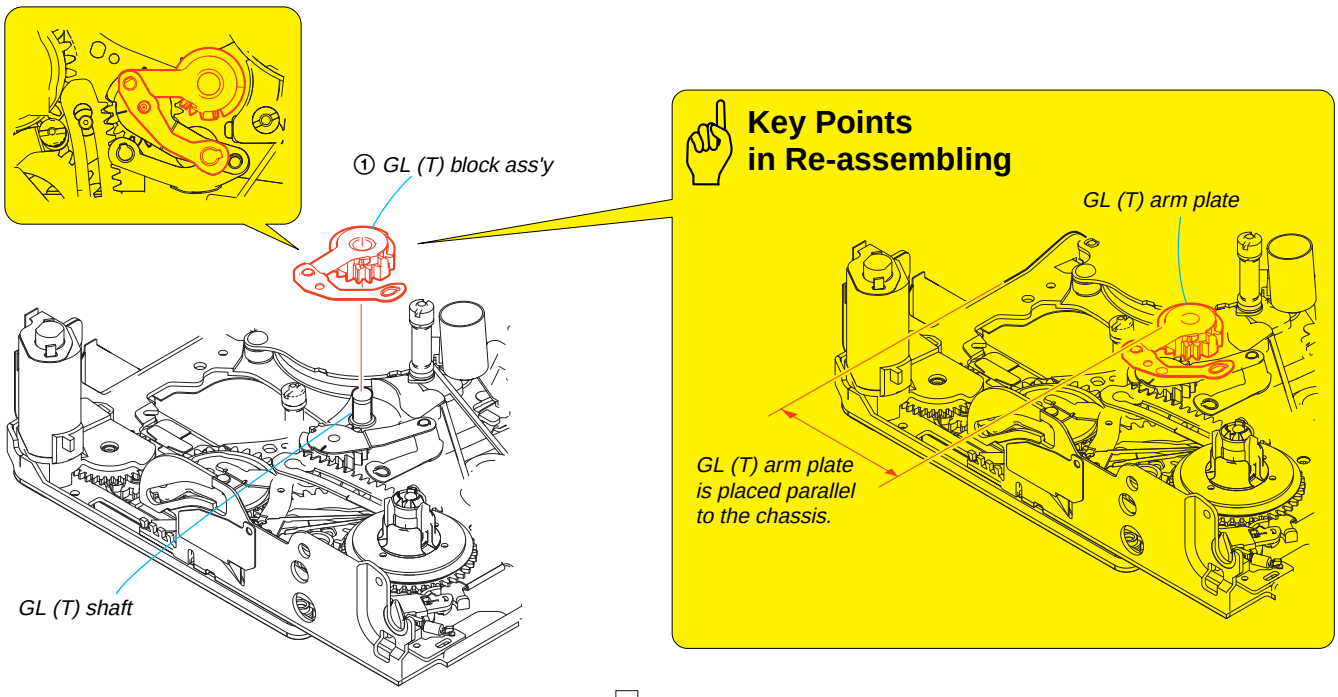
3-23. GL (T) Block Ass'y, GL Arm (S) Ass'y

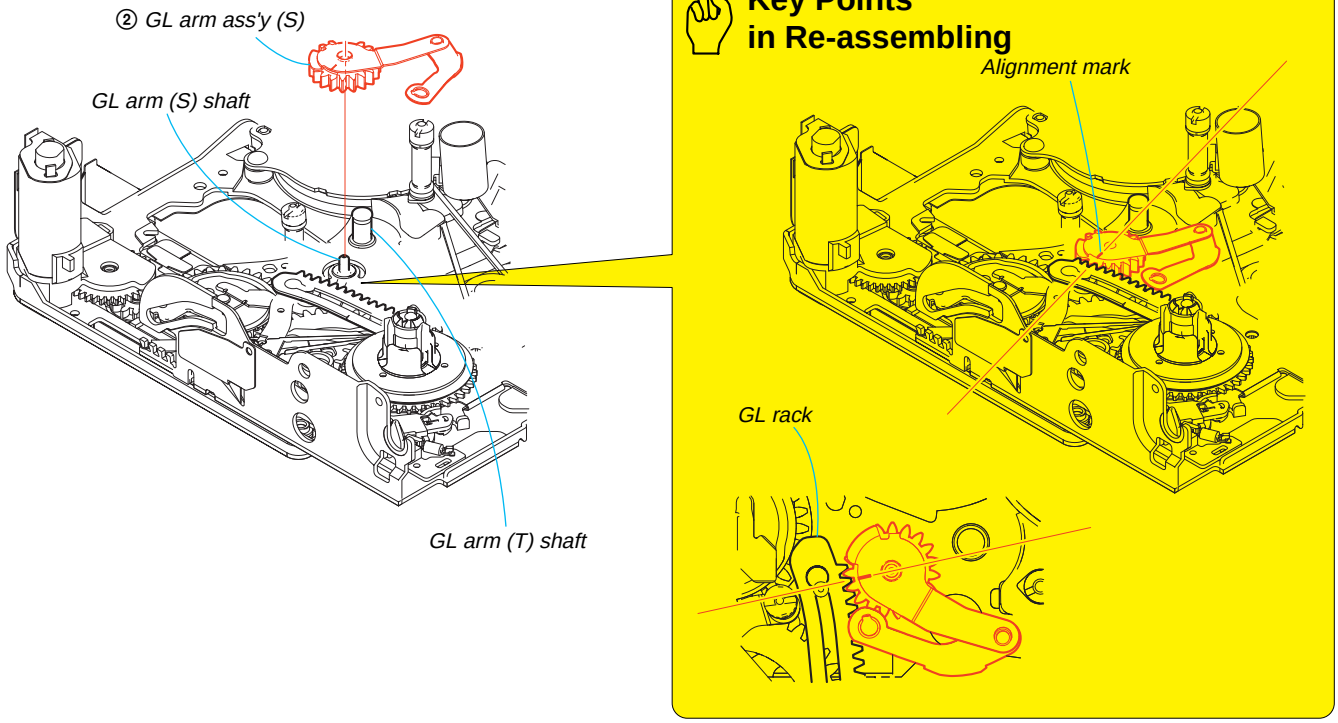
1. Removal

1) Remove the GL (T) block ass'y ① from the GL (T) shaft.
2) Remove the GL (S) block ass'y ② from the GL arm (S) shaft.

2. Attachment procedure

1) Enter the [ULE] mode.
2) Installing the GL arm (S) ass'y
   Install the GL arm (S) ass'y ② to the GL arm (S) shaft, while aligning the second gear of the GL rack with the phase alignment mark.
3) Installing the GL (T) block ass'y
   Install the GL (T) block ass'y ① to the GL (T) shaf, tin the way that the GL (T) arm plate of the GL (T) block ass'y ① is placed parallel to the chassis.





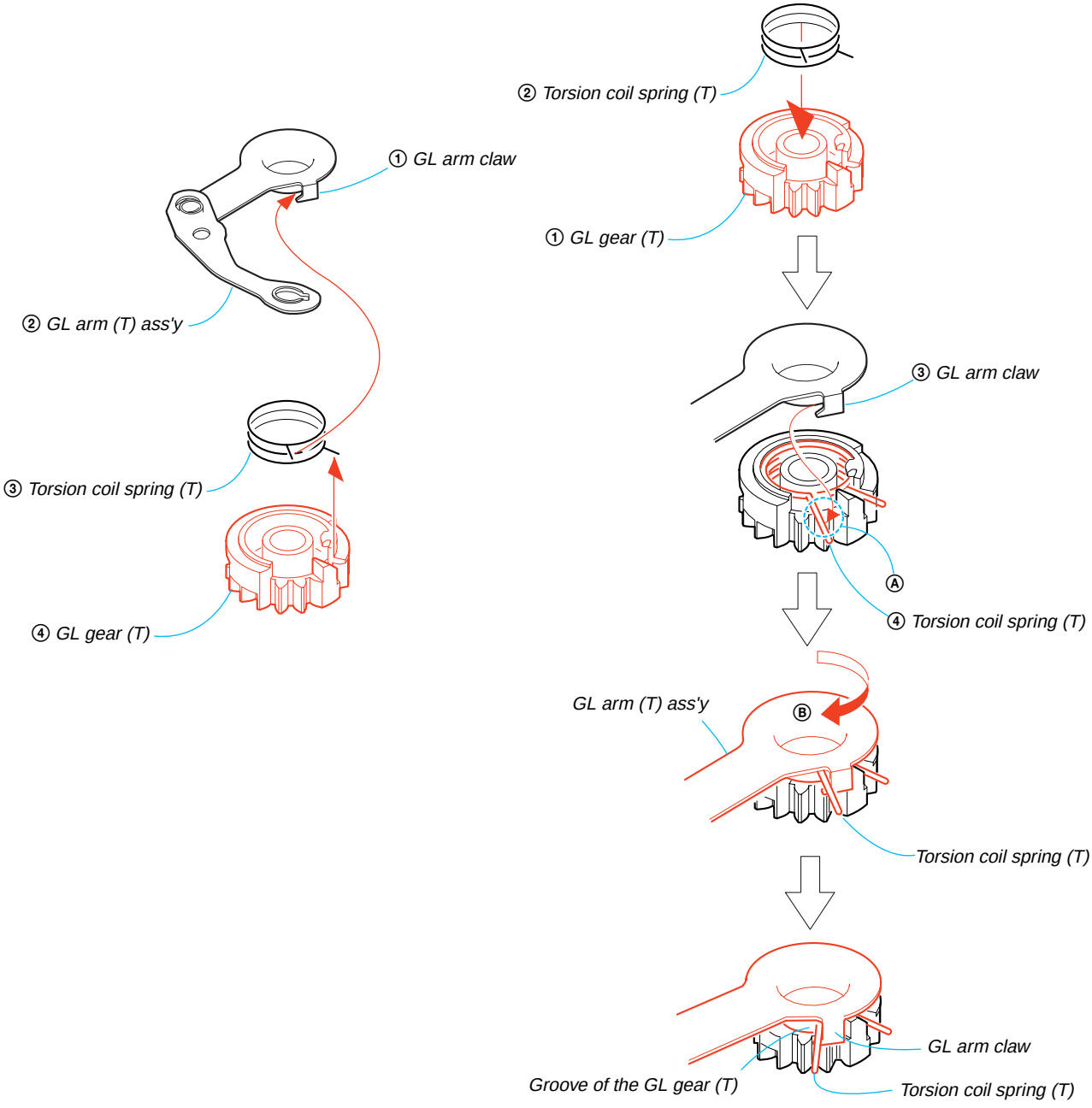
3-24. GL Gear (T)

1. Removal procedure

1) Remove the GL arm claw ① in the direction of the arrow.
2) Remove the GL arm (T) ass'y ②.
3) Remove the GL torsion coil spring (T) ③ from the GL gear (T) ④.

2. Attachment procedure

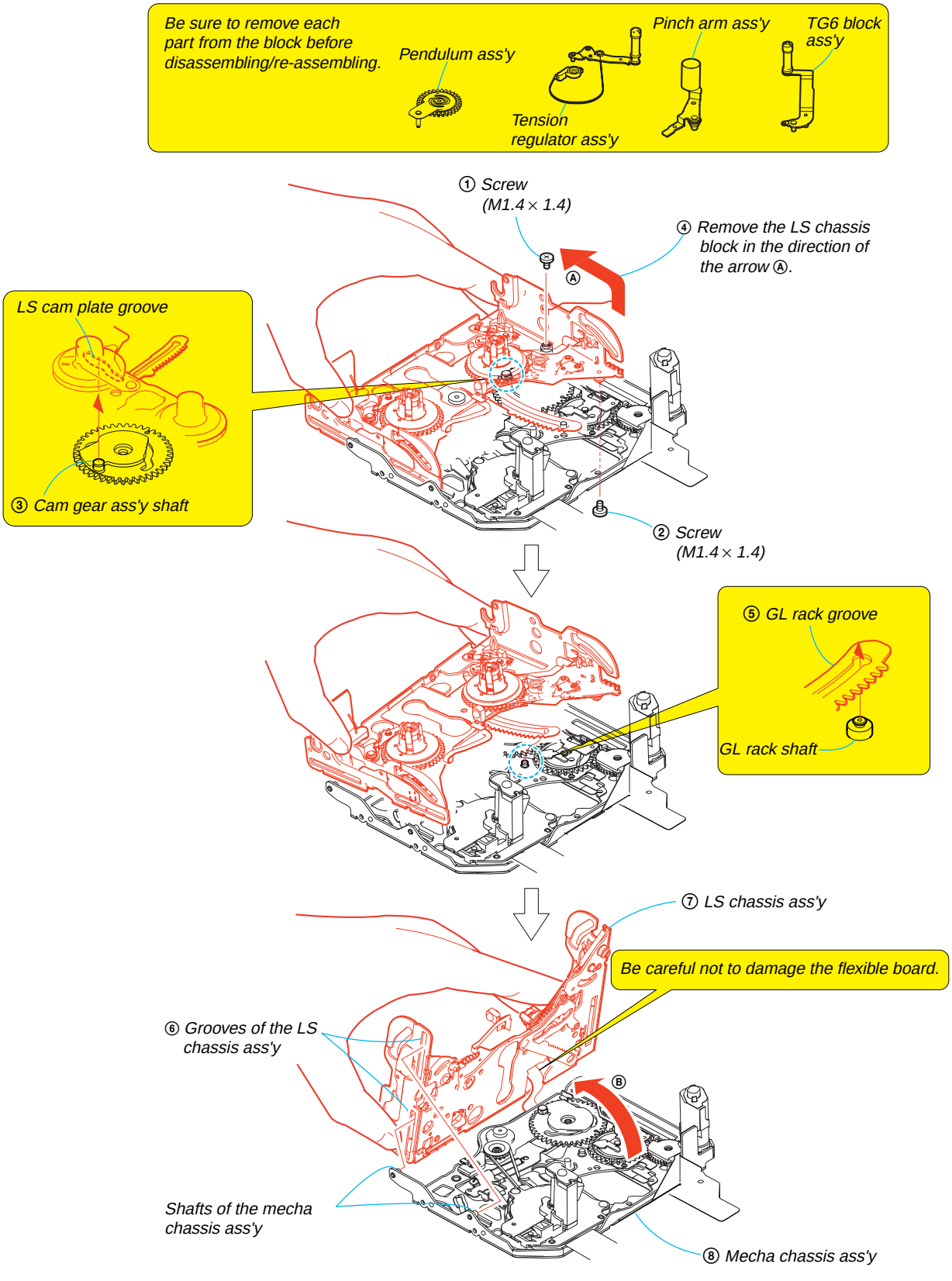
1) Install the torsion coil spring (T) ② in the GL gear (T) ①.
2) Engage the GL arm (T) claw ③ in the Ⓐ portion of the torsion coil spring (T).
3) Engage the GL arm (T) claw in the groove of the GL gear (T) by rotating the GL arm (T) ass'y in the direction of the arrow Ⓑ.



3-25. LS Chassis Block, Mechanism Chassis Block-1

1. Removal procedure

1) Enter the [ULE] mode.
2) Remove the screw (special head screw M1.4 × 1.4) ①.
3) Remove the screw (special head screw M1.4 × 1.4) ②.
4) Remove the cam gear ass'y shaft ③ from the LS cam plate groove of the LS chassis block.
5) Remove the LS chassis block ④ in the direction of the arrow Ⓐ.
6) Disengage the GL rack groove ⑤ of the LS chassis block from the GL rack shaft.
7) Disengage the grooves in two locations ⑥ of the LS chassis from the two shafts of the mechanism chassis.
8) Remove the LS chassis block ⑦ from the mechanism chassis block ⑧ in the direction of the arrow Ⓑ.



3-26. LS Chassis Block, Mechanism Chassis Block-2

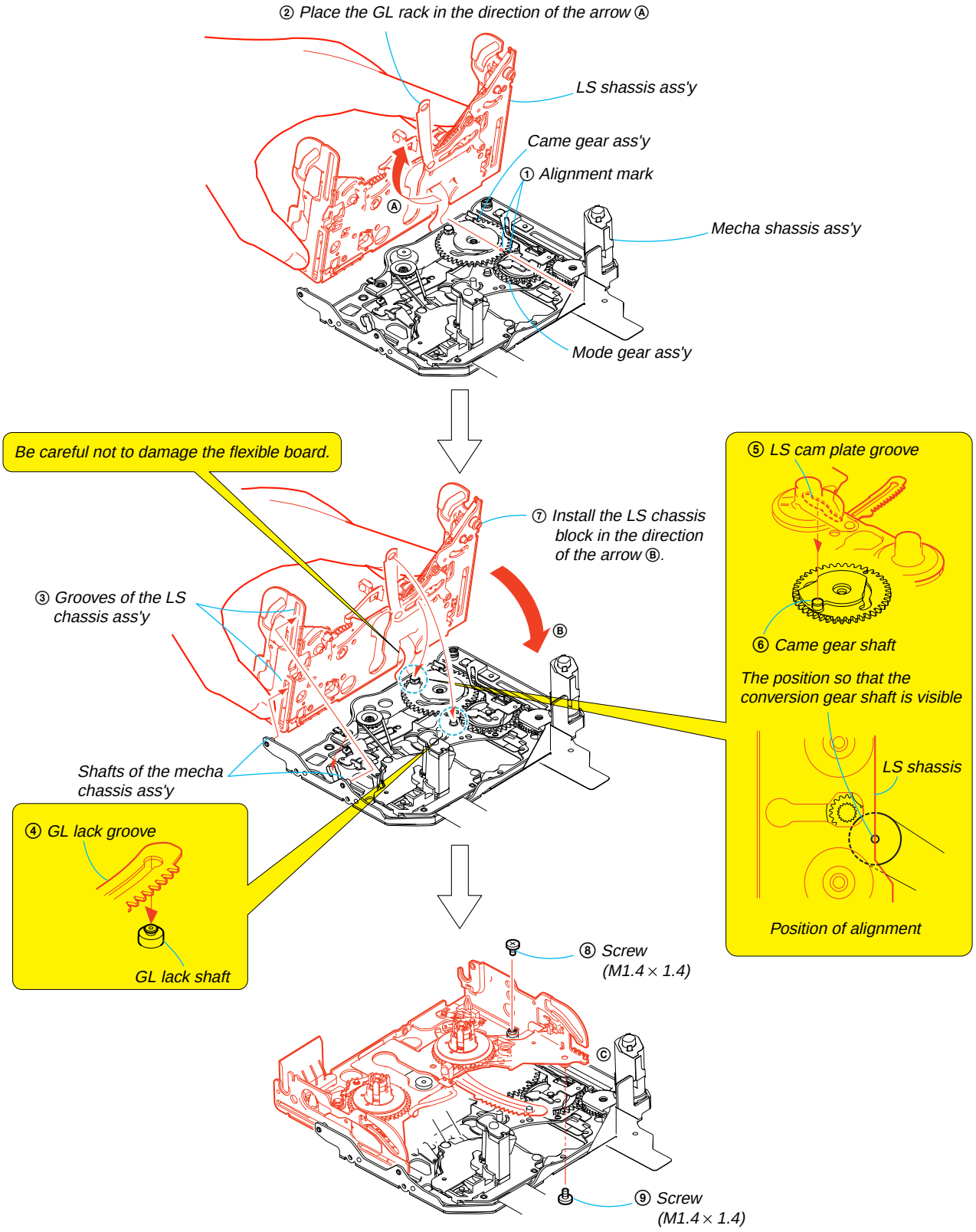
1. Attachment procedure

1) Enter the [ULE] mode.
2) Align the phase alignment mark ① of the cam gear ass'y and the mode gear ass'y of the mechanism chassis.
3) Place the GL rack ② in the direction of the arrow Ⓐ.
4) Insert the mechanism chassis shafts in two locations into the two grooves of the LS chassis block.
5) Insert the GL rack shaft in the GL rack groove ④.
6) Insert the cam gear shaft ⑥ in the LS cam plate groove ⑤.

Position of alignment

Slide the LS chassis to the position so that the conversion gear shaft is visible, and insert the cam gear shaft into the LS cam plate groove.

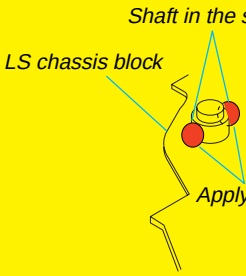
7) Install the LS chassis block ⑦ in the direction of the arrow Ⓑ. (Check if the LS chassis is installed securely in each groove or shaft.)
8) Install the screw (special head screw M1.4 × 1.4) ⑧.
   Tightening torque: 0.04 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)
9) Install the screw (special head screw M1.4 × 1.4) ⑨.
   Tightening torque: 0.04 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)



Apply grease

Points to be noted

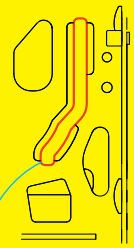
Apply the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter



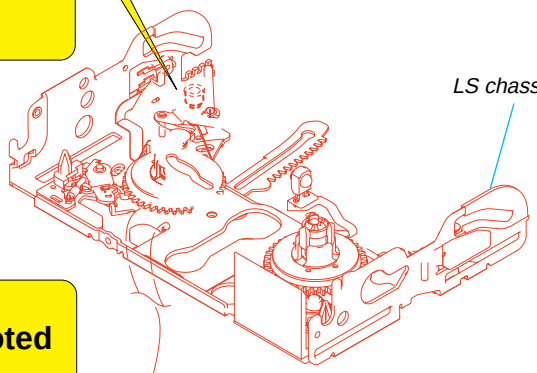
Apply grease

Points to be noted

Apply Suncall (FG-87HSR) when installing
Amount of Suncall: A ball of grease of 1.0 mm diameter



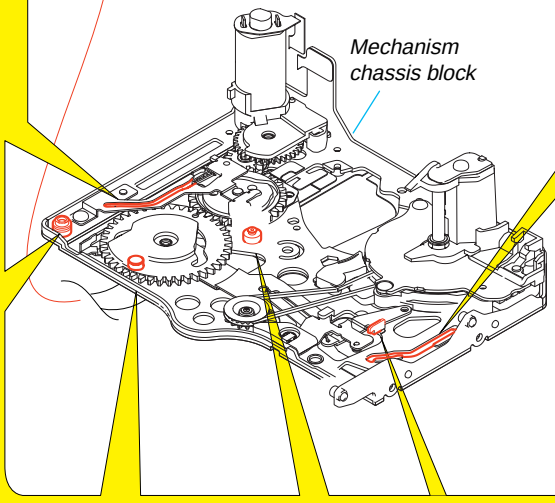
Apply Suncall on the side inside of the groove of the mechanism chassis block.

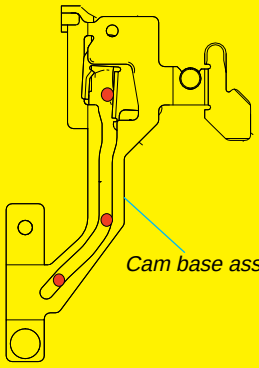


Apply grease

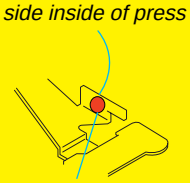
Points to be noted

Apply the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter

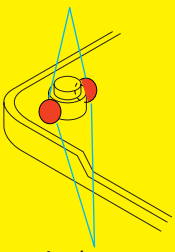


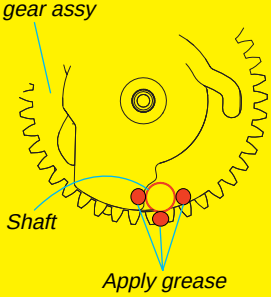


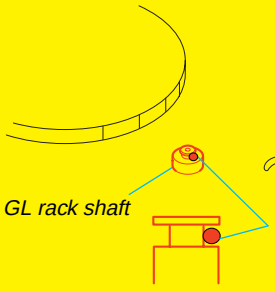
On the side inside of press arm



Apply grease







Apply grease on the sliding surface of the GL rack shaft and the GL rack groove.

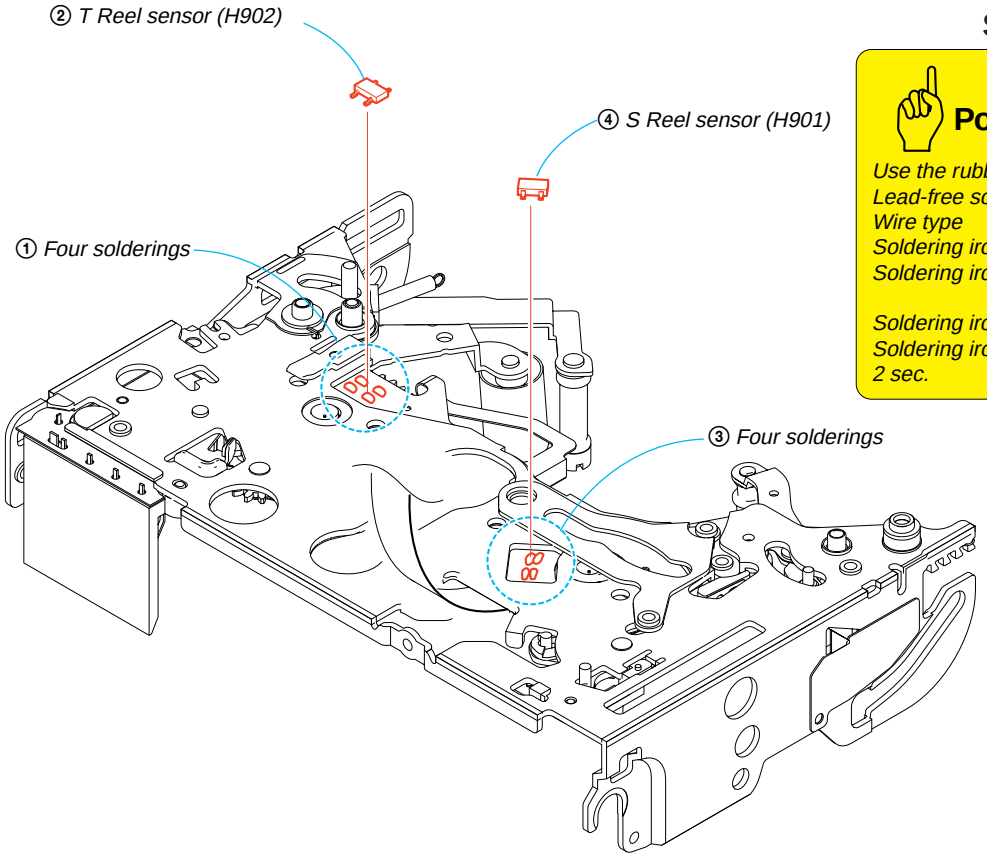
3-27. T Reel Sensor (H902), S Reel Sensor (H901)

1. Removal procedure

1) Remove soldering at the four locations ① of the T reel sensor, and remove the T reel sensor (H902) ② .
2) Remove soldering at the four locations ③ S reel sensor, and remove the S reel sensor (H901) ④ .

2. Attachment procedure

1) Solder four locations ③ S reel sensor and install the S reel sensor (H901) ④ in the FP-031 flexible board.
2) Solder four locations ① S reel sensor and install the T reel sensor (H902) ② in the FP-031 flexible board.



Soldering

Points to be noted

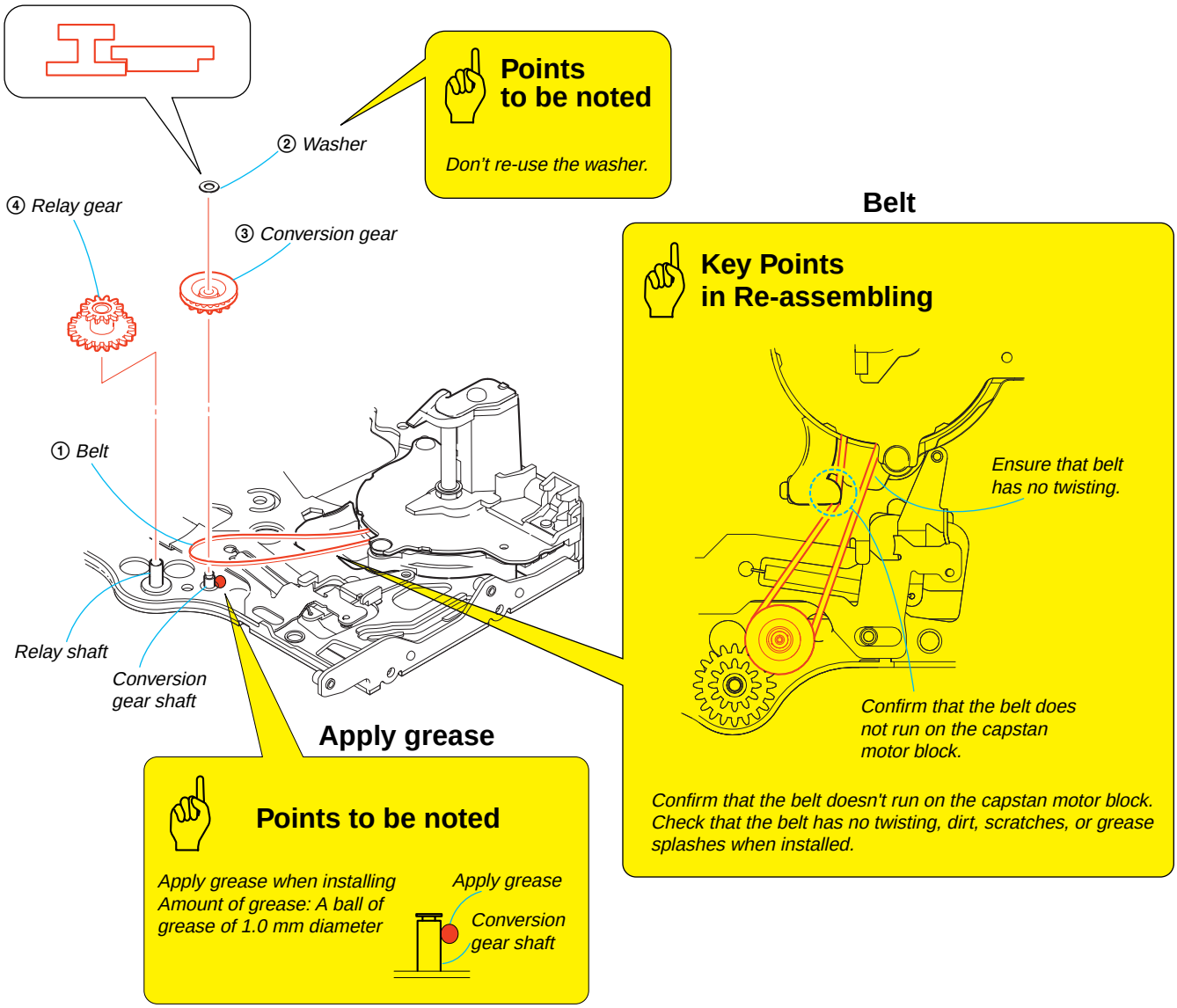
Use the rubber finger tip cover.
Lead-free solder
Wire type : ∆0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC

Soldering iron tip temperature: 300 ±10 ∞C
Soldering iron tip contacting time within 2 sec.

3-28. Relay Gear, Conversion Gear

1. Removal procedure
1) Remove the belt ① from the conversion gear.
2) Remove the washer ② from the conversion gear shaft.
3) Remove the conversion gear ③.
4) Remove the relay gear ④.

2. Attachment procedure
1) Install the relay gear ④ in the relay gear shaft.
2) Apply grease on the conversion gear shaft.
   Amount of grease: A ball of grease of 1.0 mm diameter.
3) Install the conversion gear ③ in the relay gear shaft.
4) Install the washer ② in the conversion gear shaft (Don't re-use the washer)
5) Hook the belt ① on the conversion gear and install it while rotating the conversion gear.



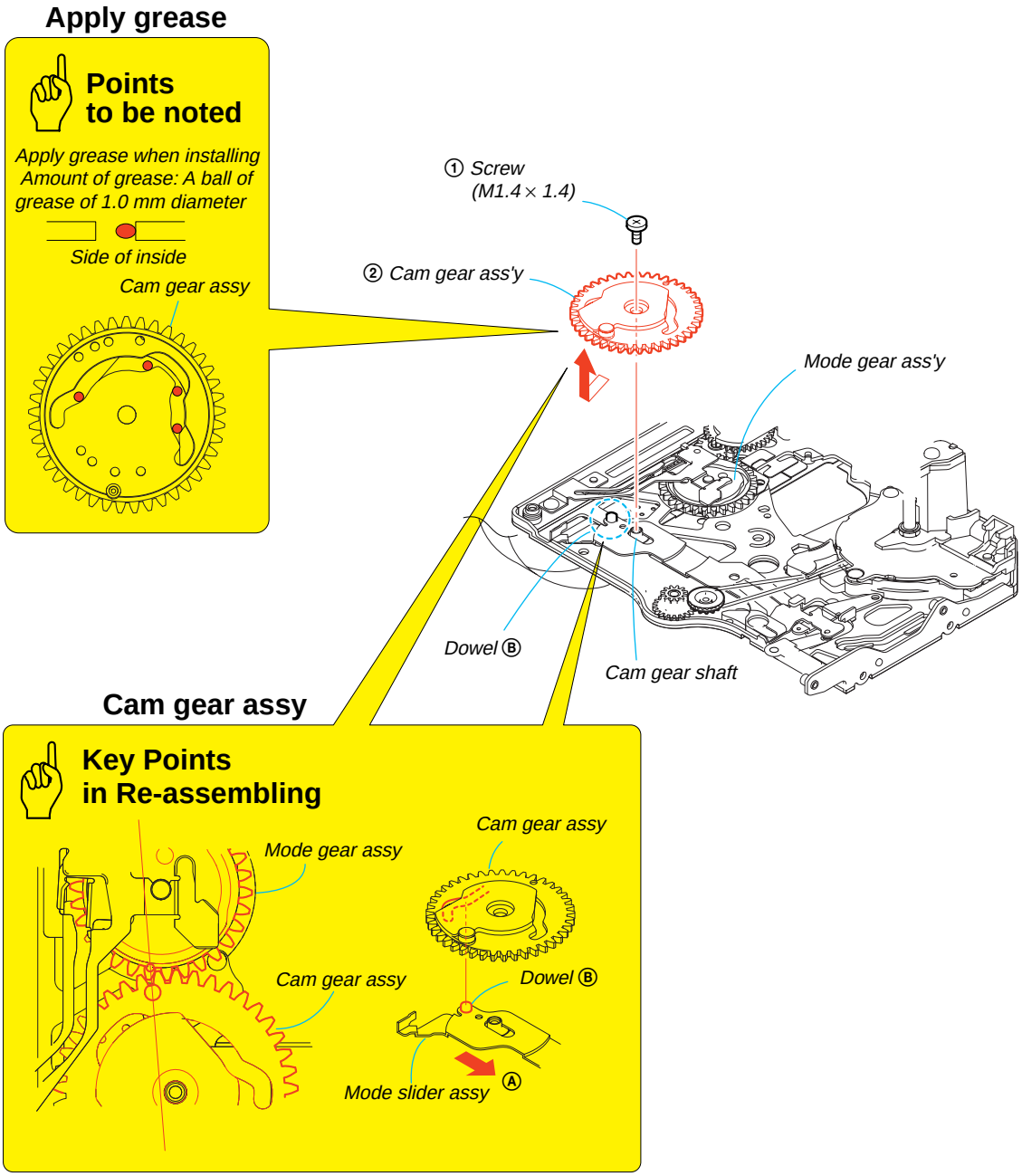
3-29. Cam Gear Ass'y

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 1.4) ①.
2) Remove the cam gear ass'y ② from the cam gear shaft.

2. Attachment procedure

1) Apply grease on the specified locations of the cam gear ass'y ②.
   Amount of grease: A ball of grease of 1.0 mm diameter.
2) Move the mode slider ass'y in the direction of arrow Ⓐ as far as it can go.
3) Align the gear phase of the mode gear ass'y and the cam gear ass'y ②.
4) Install the cam gear ass'y ② while engaging the dowel Ⓑ of the mode slider ass'y into the groove of the cam gear ass'y.
5) Install the screw (special head screw M1.4 × 1.4) ①.
   Tightening torque: 0.04 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)



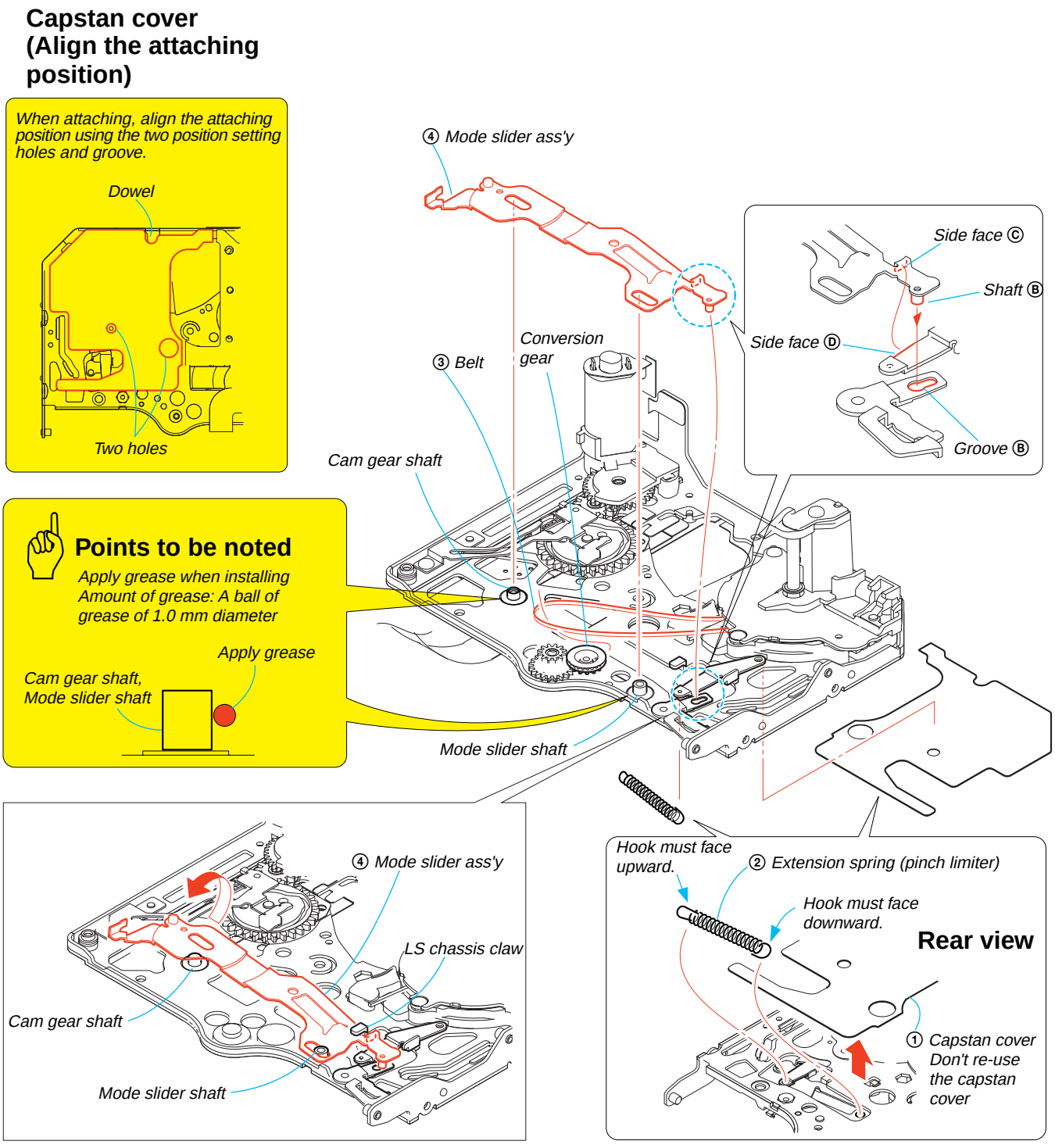
3-30.Mode Slider Ass'y

1. Removal procedure

1) Remove the capstan cover ① and remove the extension spring (pinch limiter) ②.
2) Remove the belt ③ from the conversion gear.
3) Remove the mode slider ass'y ④ from the cam gear shaft in the direction of the arrow.

2. Attachment procedure

1) Apply grease on the cam gear shaft and the mode slider shaft.
   Amount of grease: A ball of grease of 1.0 mm diameter.
2) Engage the shaft Ⓑ in the groove Ⓒ and install the mode slider ass'y ④ while aligning its side Ⓓ and Ⓔ engage it in the claw of the LS chassis, then install the mode slider ass'y ⑥.
3) Hook the belt ③ on the conversion gear and install it while rotating the conversion gear.
4) Install the tension coil spring (pinch limiter) ② while being careful of the orientation of the hook.
5) And attach the capstan cover ①. (Don't re-use the capstan cover.)



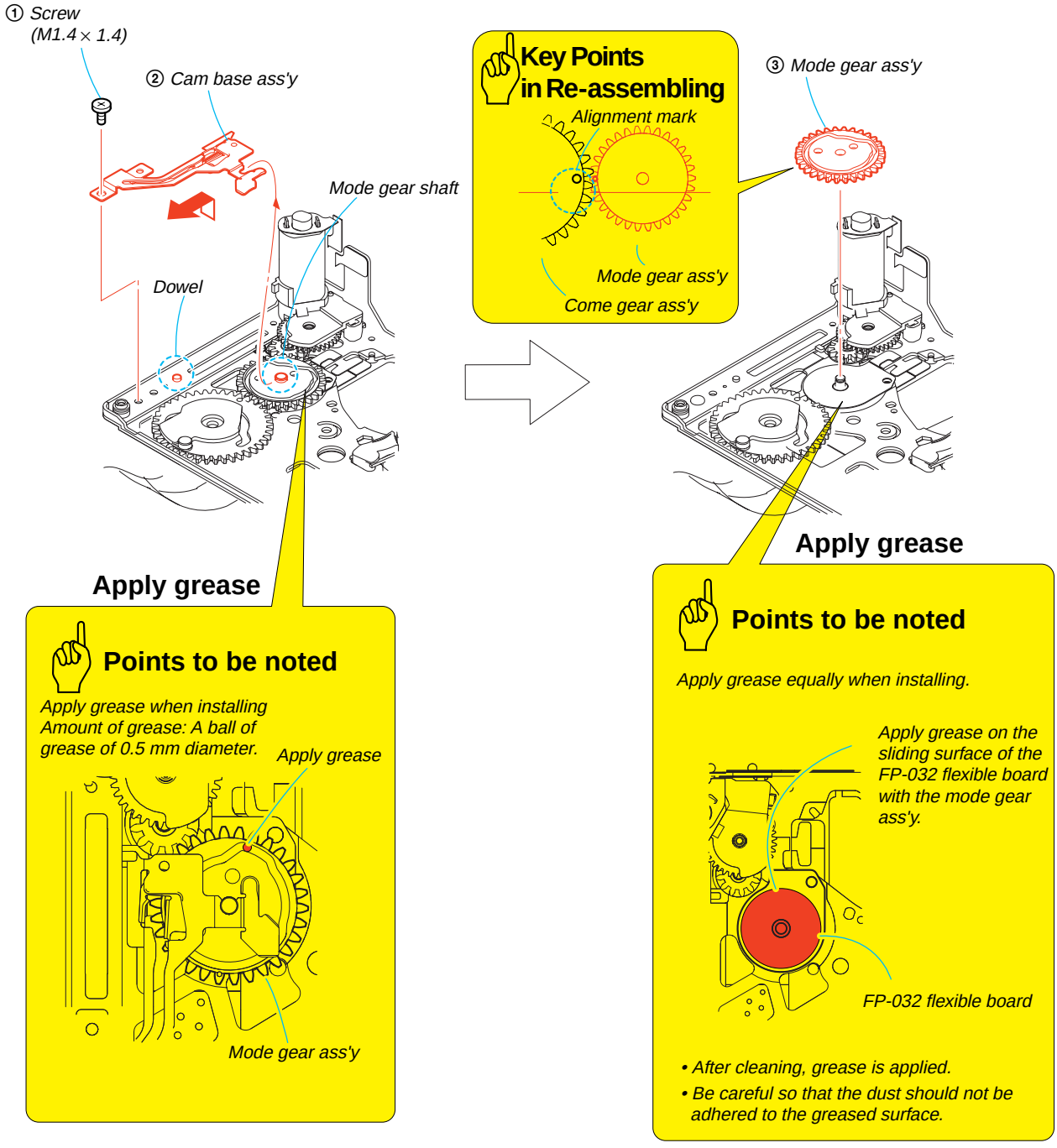
3-31. Cam Gear Ass'y, Mode Gear Ass'y

1. Removal procedure

1) Remove the screw (special head screw M1.4 × 1.4) ①.
2) Remove the dowel from the cam base ass'y ②. Slide the cam base ass'y ②, and remove the pin Ⓒ, and remove the cam base ass'y ②.
3) Remove the mode gear ass'y ③.

2. Attachment procedure

1) Apply grease equally on the sliding surface of the FP-032 flexible board and the mode gear ass'y.
2) Install the mode gear ass'y ③.
3) Install the cam base ass'y ② while engaging it in the pin Ⓒ and the dowel.
4) Install the screw (special head screw M1.4 × 1.4) ①.
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm))
5) Apply grease on the specified locations of the mode gear ass'y.
   Amount of grease: A ball of grease of 0.5 mm diameter.



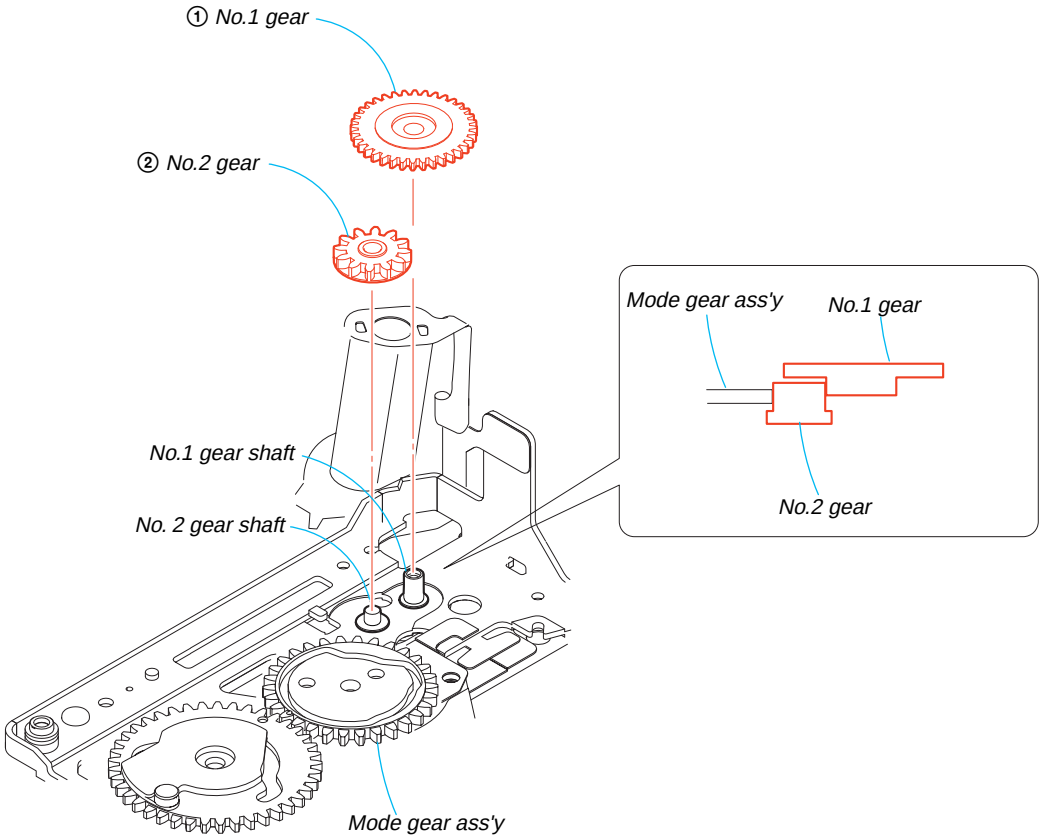
3-32. No. 1 Gear, No. 2 Gear

1. Removal procedure

1) Remove the No. 1 gear ① from the No. 1 gear shaft.
2) Remove the No. 2 gear ② from the No. 2 gear shaft.

2. Attachment procedure

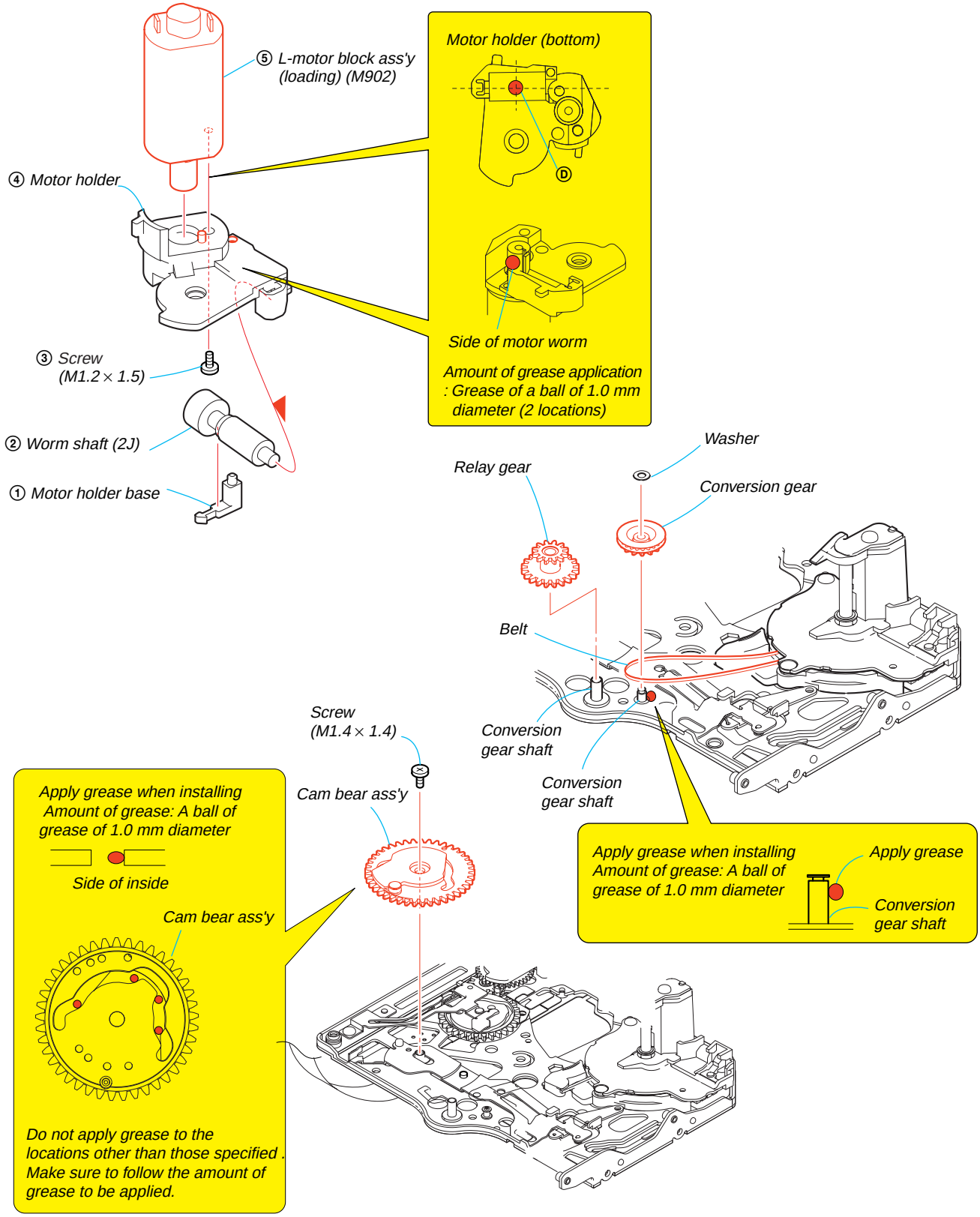
1) Install the No. 2 gear ② in the No. 2 gear shaft.
2) Install the No. 1 gear ① in the No. 1 gear shaft.



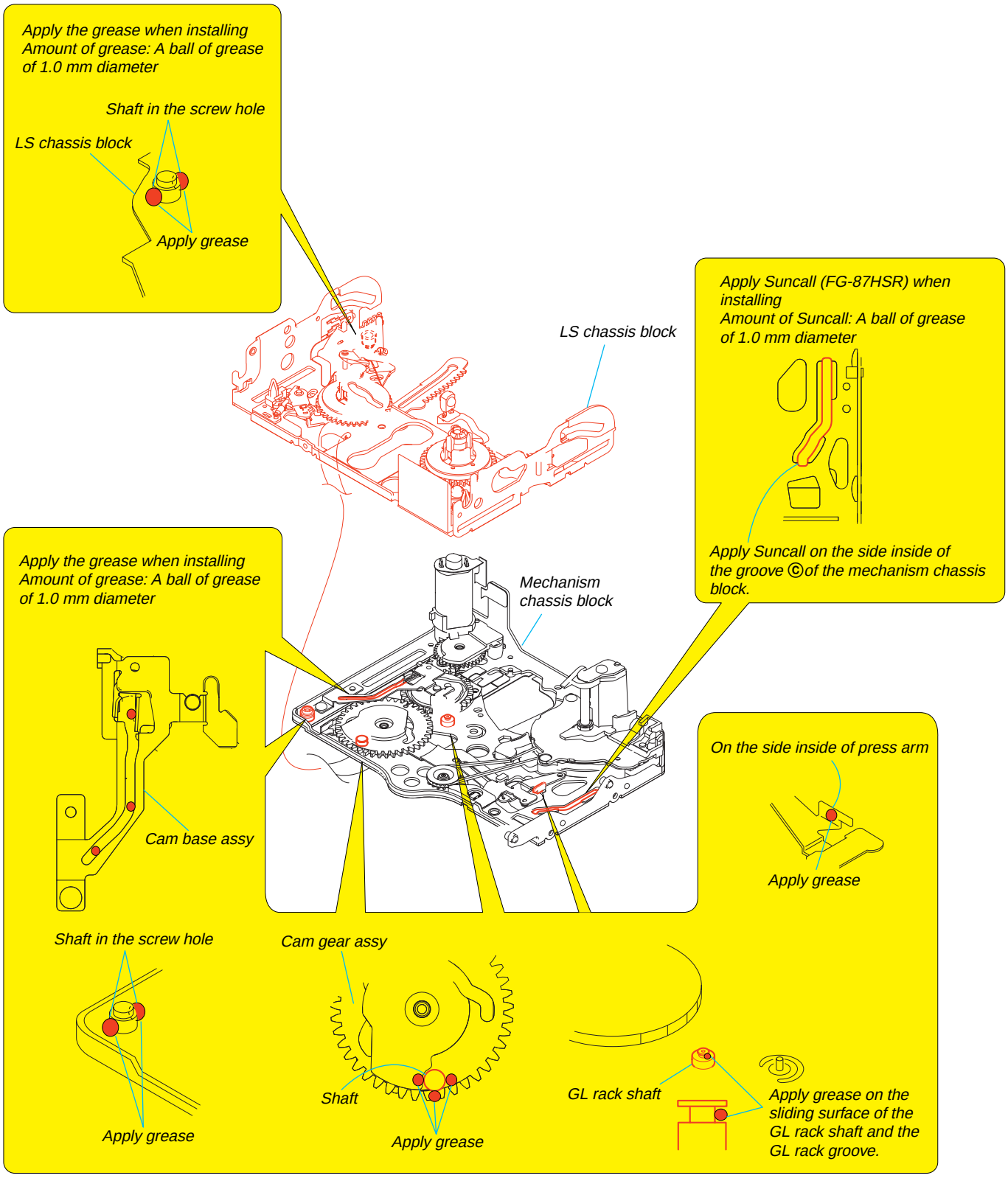
HELP

Application of grease, soldering method and precautions, and phase matching adjustment are compiled and below.

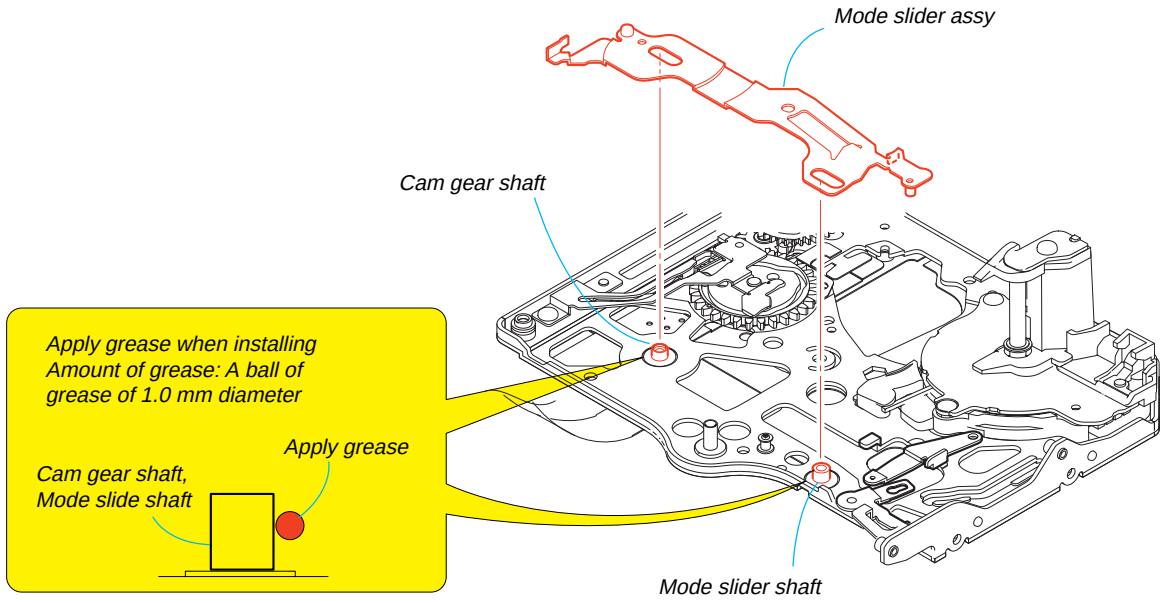
Apply grease (1)

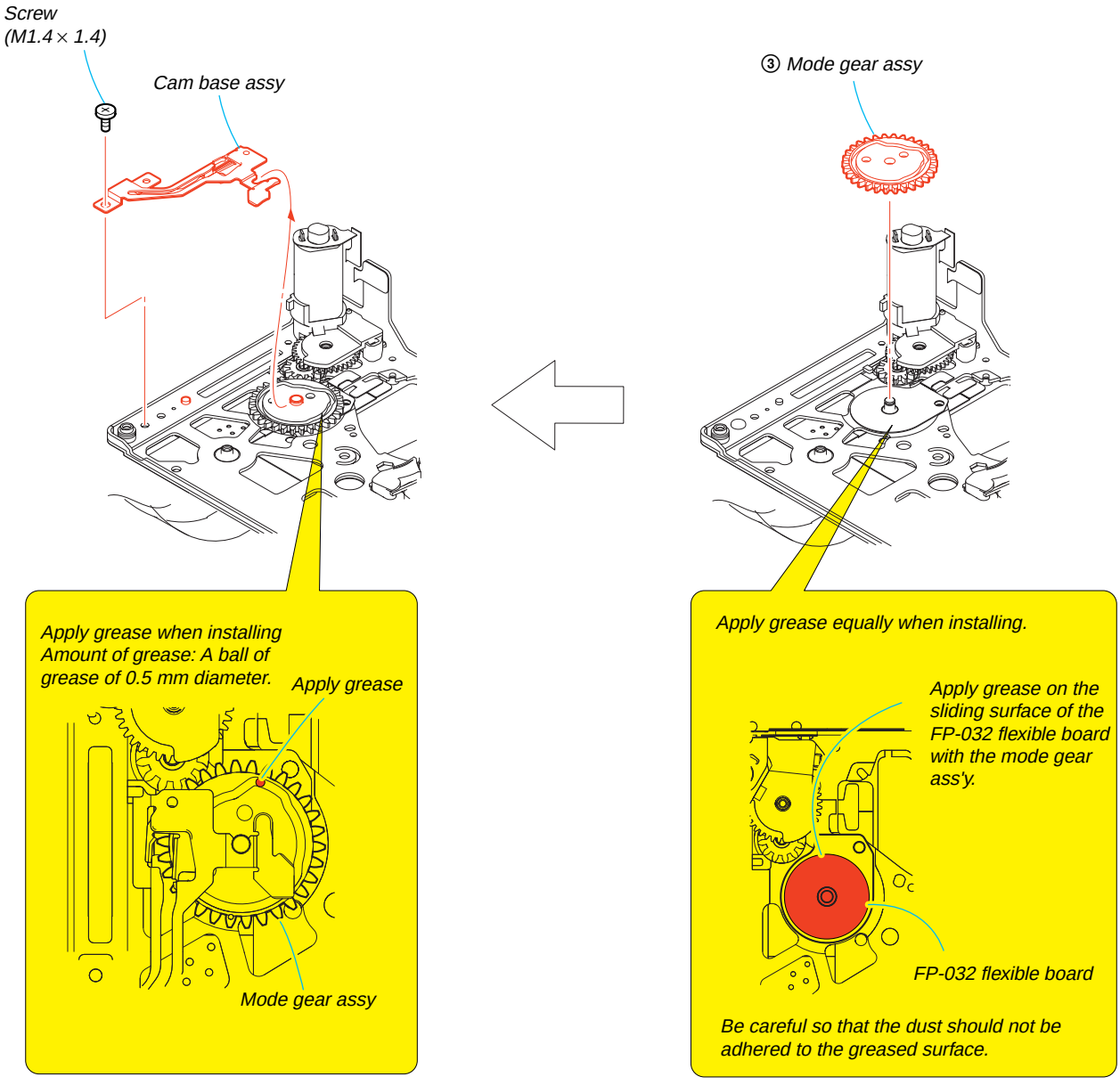


Apply grease (2)

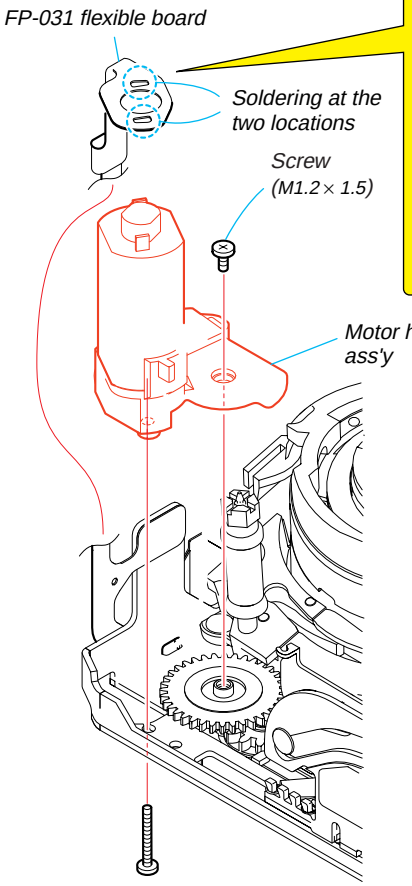


Apply grease (3)



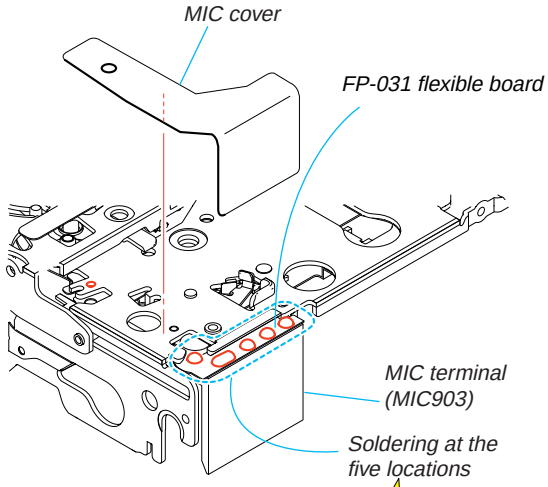


Soldering (1)

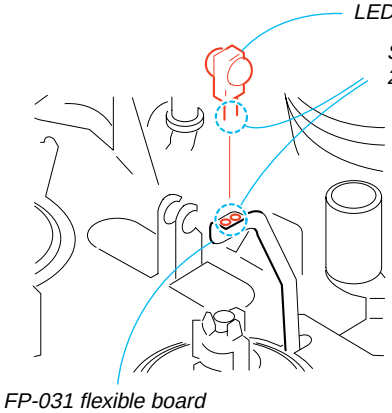


Lead-free solder
Wire type : ∅0.6
Temperature of the soldering iron tip : 320 °C
Contacting time of : within 2 sec.

- *Be careful not to create the hollow soldering, bridge formation, and the holder's claw must not be melt.*
- *Be careful not to damage the terminal due to attaching the soldering iron tip too long time.*



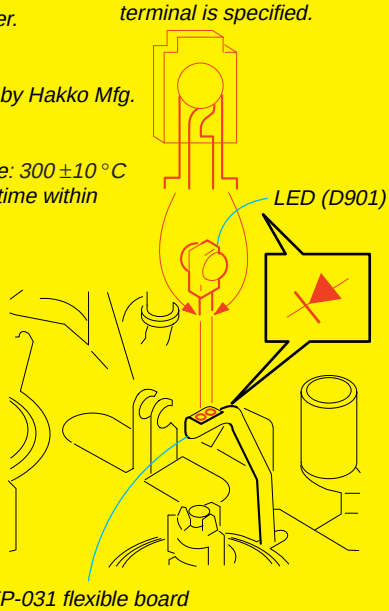
Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip : T1-1BC
Soldering iron tip temperature : 300 ±10 °C
Soldering iron tip contacting time: within 2 sec.
Be careful not to create the hollow soldering, Br, and the holder's claw must not be melt.



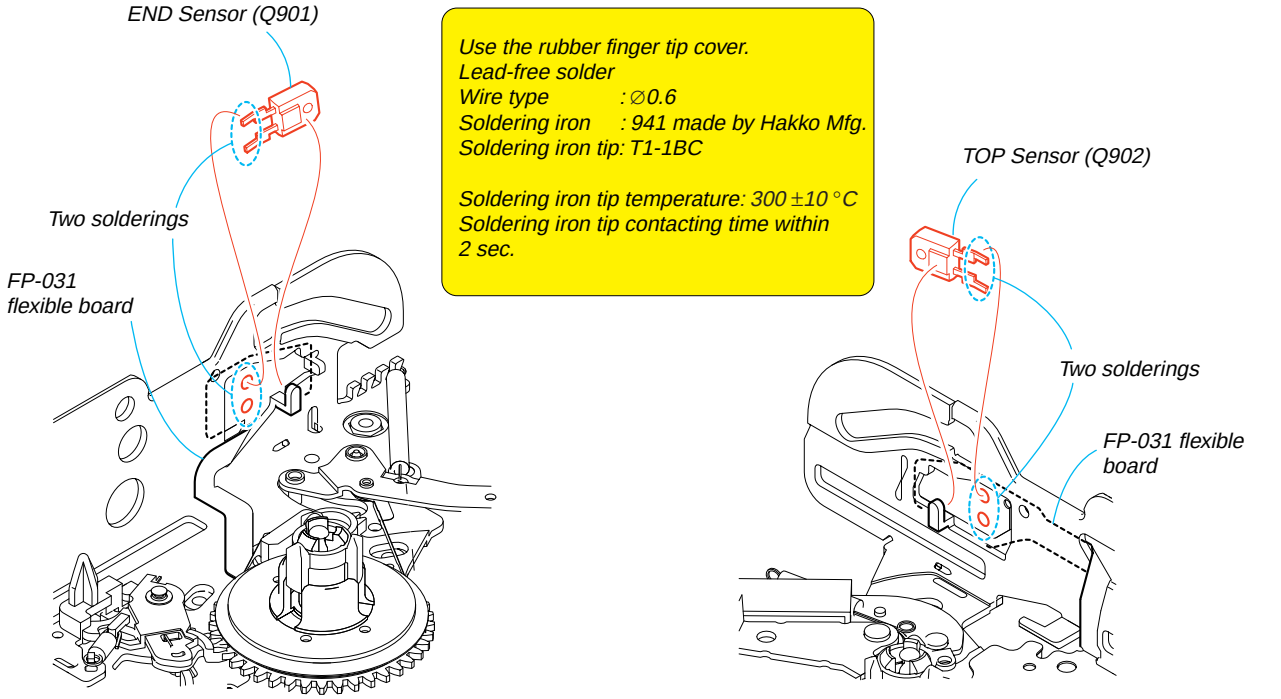
Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC

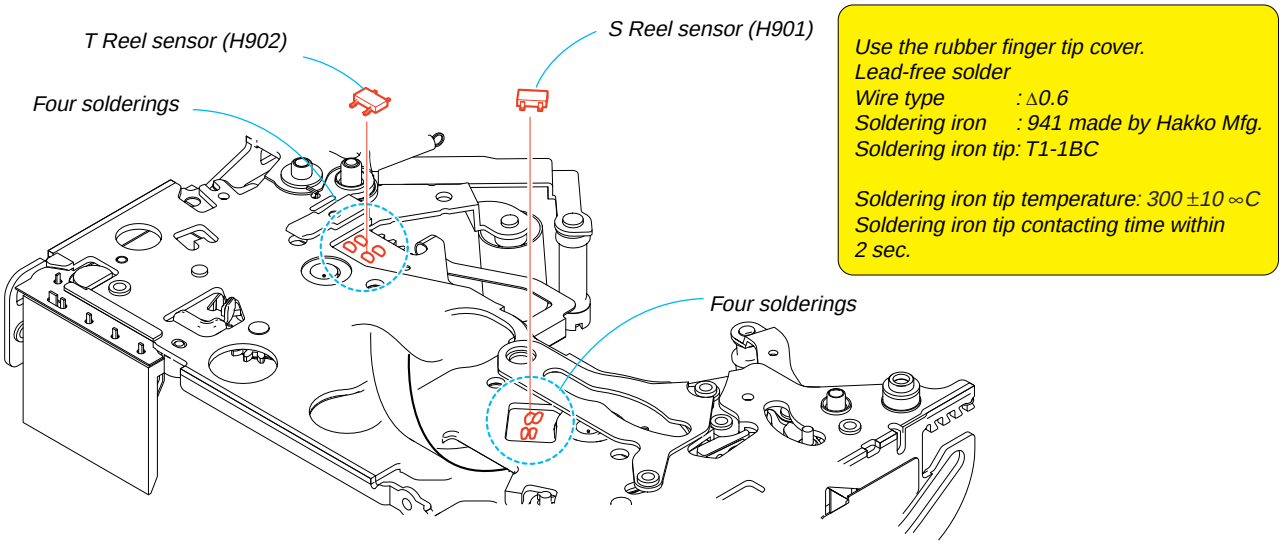
Soldering iron tip temperature: 300 ±10 °C
Soldering iron tip contacting time within 2 sec.

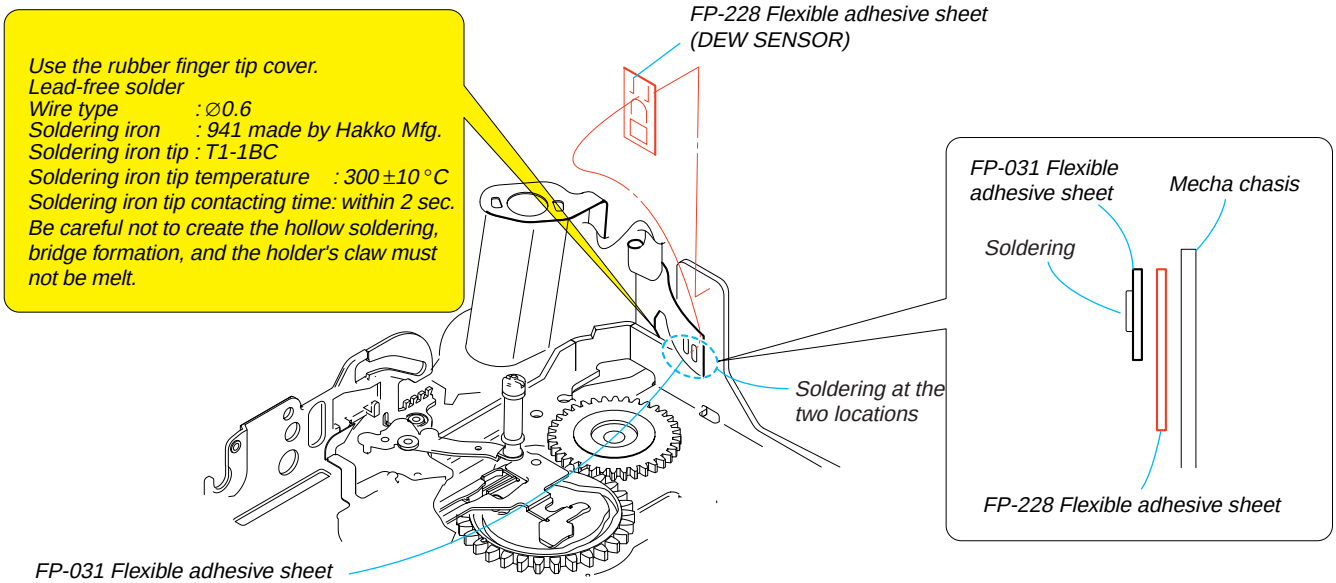
Direction of the terminal is specified.



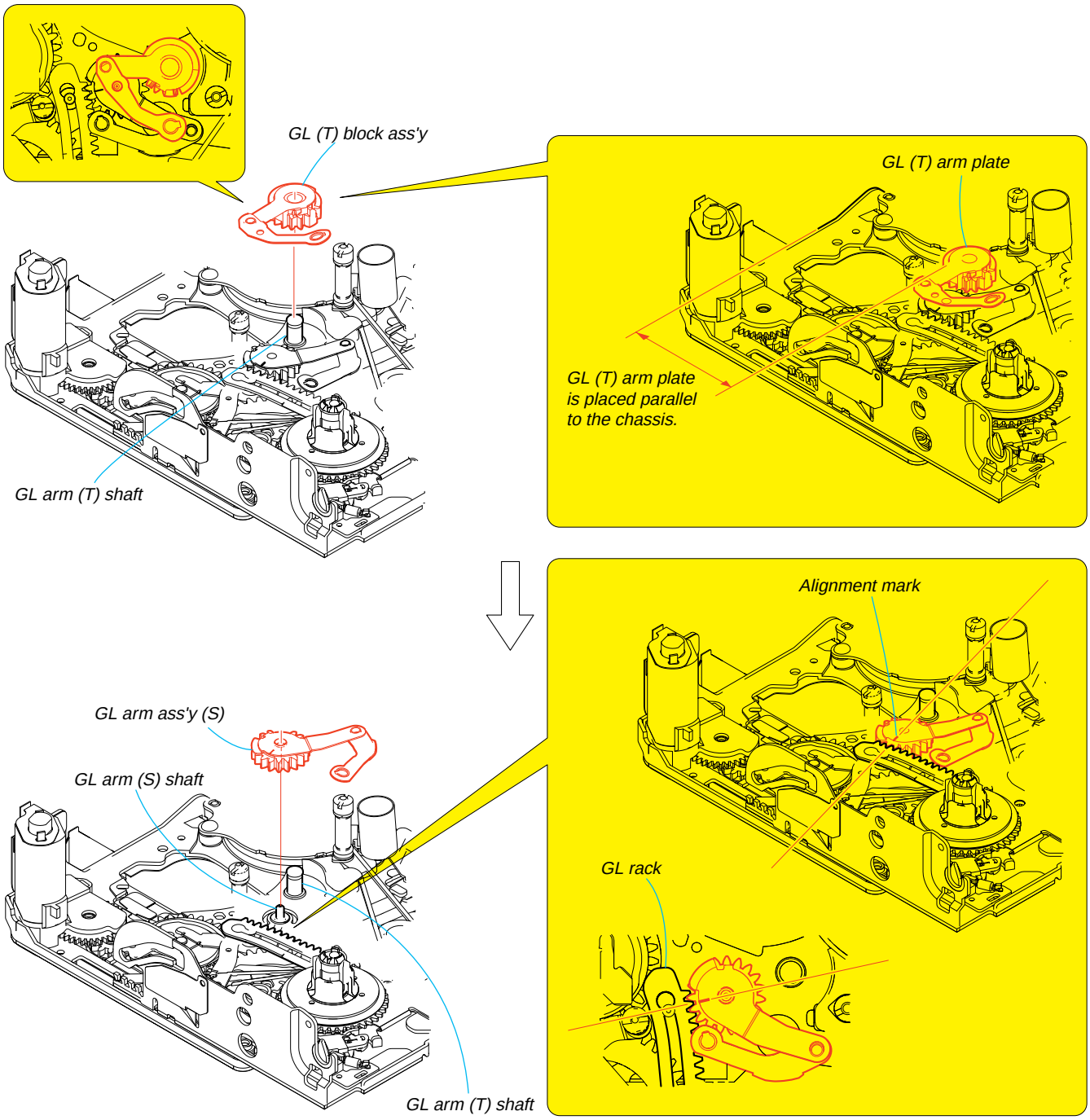
Soldering (2)

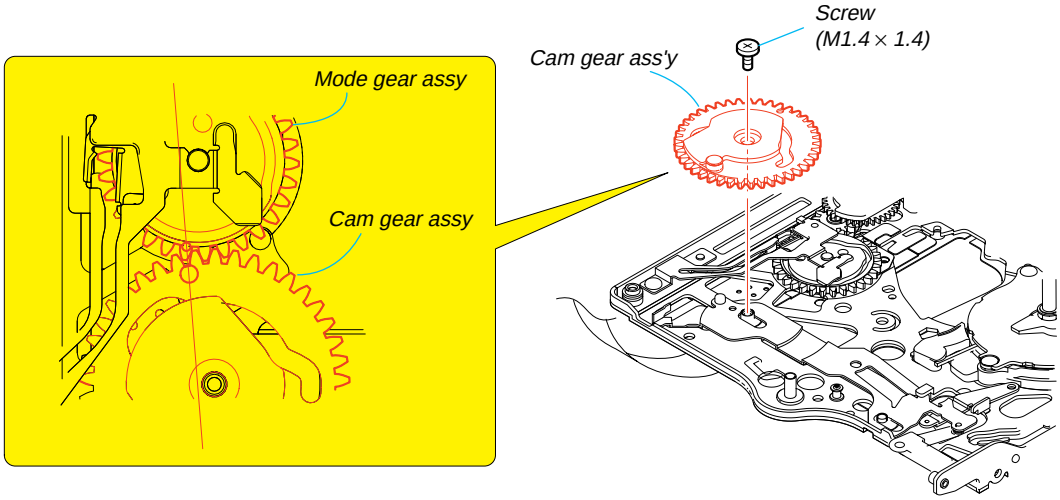

END Sensor (Q901)
Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC
Soldering iron tip temperature: 300 ±10 °C
Soldering iron tip contacting time within 2 sec.
Two solderings
FP-031 flexible board
TOP Sensor (Q902)
Two solderings
FP-031 flexible board


T Reel sensor (H902)
S Reel sensor (H901)
Four solderings
Use the rubber finger tip cover.
Lead-free solder
Wire type : ∆0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC
Soldering iron tip temperature: 300 ±10 ∞C
Soldering iron tip contacting time within 2 sec.
Four solderings


Use the rubber finger tip cover.
Lead-free solder
Wire type : ∅0.6
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip : T1-1BC
Soldering iron tip temperature : 300 ±10 °C
Soldering iron tip contacting time: within 2 sec.
Be careful not to create the hollow soldering, bridge formation, and the holder's claw must not be melt.
FP-228 Flexible adhesive sheet (DEW SENSOR)
Soldering at the two locations
FP-031 Flexible adhesive sheet
FP-031 Flexible adhesive sheet
Mecha chasis
Soldering
FP-228 Flexible adhesive sheet

Matching Phase





4. Adjustment

4-1. FWD Position Adjustment

Perform this adjustment after the tension regulator ass'y and the S-reel table ass'y are replaced or removed.
• TG1 FWD position adjustment
• FWD back tension adjustment (Refer to Page 6-125).

1) Enter the R/P mode and confirm the positions of TG1 guide and the TG2 guide.
   • Confirm that the distance between the flanges on the TG1 guide and the TG2 guide is 2 mm by inserting the block gauge or the pin gauge between them to measure. If the distance is not 2 mm, perform the following adjustment.

2) Loosen the screw and adjust the band adjuster so that the distance between the flanges on the TG1 guide and the TG2 guide becomes 2 mm using the adjustment screwdriver (Ref. No. J-7), and finally tighten the screw.
   Tightening torque: 0.06 ± 0.01 N•m (0.61 ± 0.1 kgf•cm)
   Note: When measuring the distance between guides by inserting the block gauge or pin gauge, be very careful not to damage the roller.

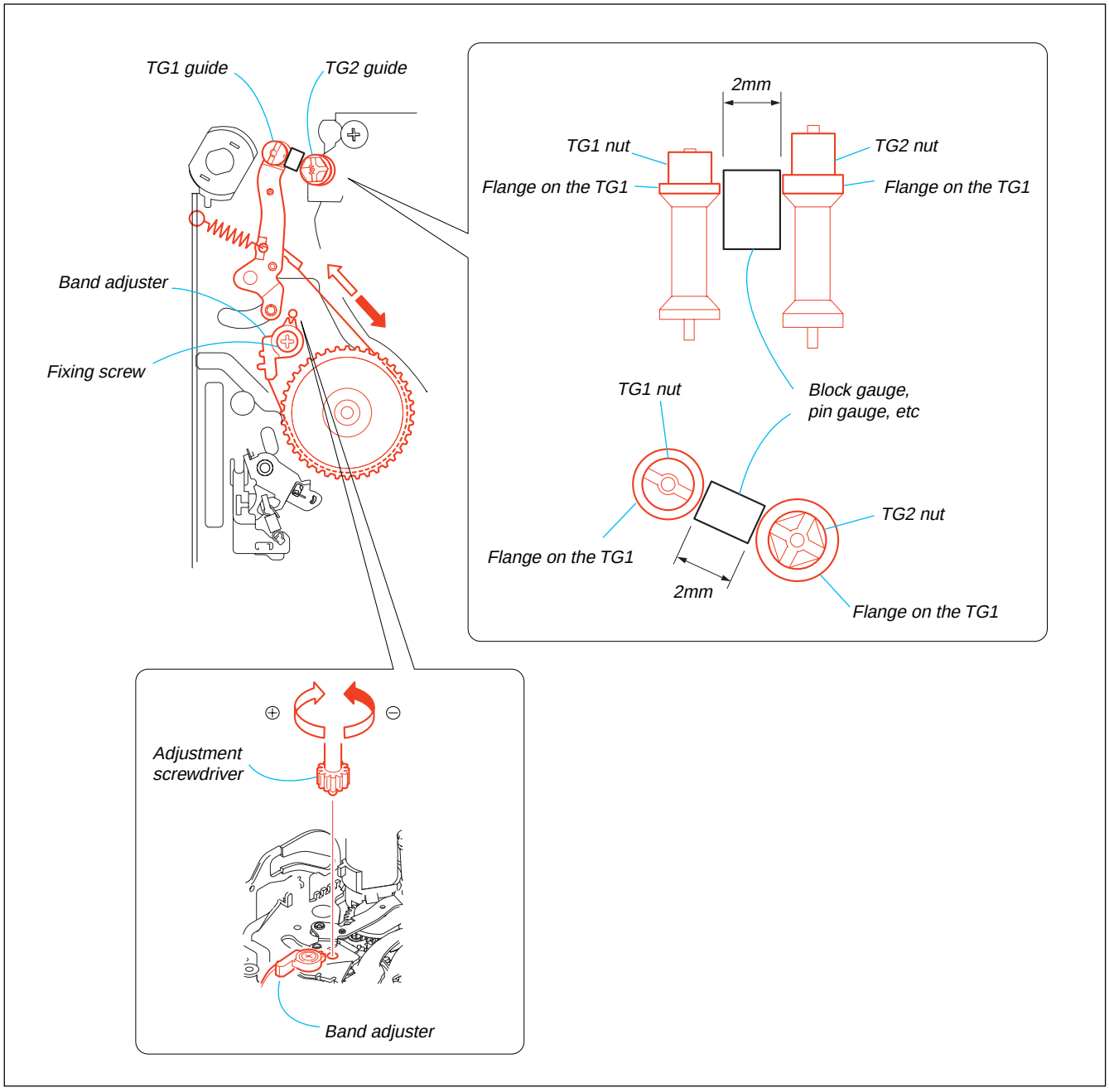


Fig. 6-2-4

4-2. LS Cam Adjustment

Adjustment procedure

1) Enter the FWD mode.
2) Loosen the cam plate fixing screws (special head screw M1.4 × 1.4) Ⓐ and Ⓑ by 90 degrees.
3) Pressing the center of the LS chassis block with the force of 10.0 ± 1.0N•m (102.0 ± 10.2kgf•cm) while holding the cam plate fixing screw (special head screw M1.4 × 1.4) Ⓑ with fingers.
4) While holding on the cam plate fixing screw (special head screw M1.4 × 1.4) Ⓑ, tighten the cam plate fixing screw (special head screw M1.4 × 1.4) Ⓐ.
   Tightening torque: 0.098 ± 0.01 N•m (1.00 ± 0.1 kgf•cm)
5) Tighten the cam plate fixing screw (special head screw M1.4 × 1.4) Ⓑ.
   Tightening torque: 0.098 ± 0.01 N•m (1.00 ± 0.1 kgf•cm)

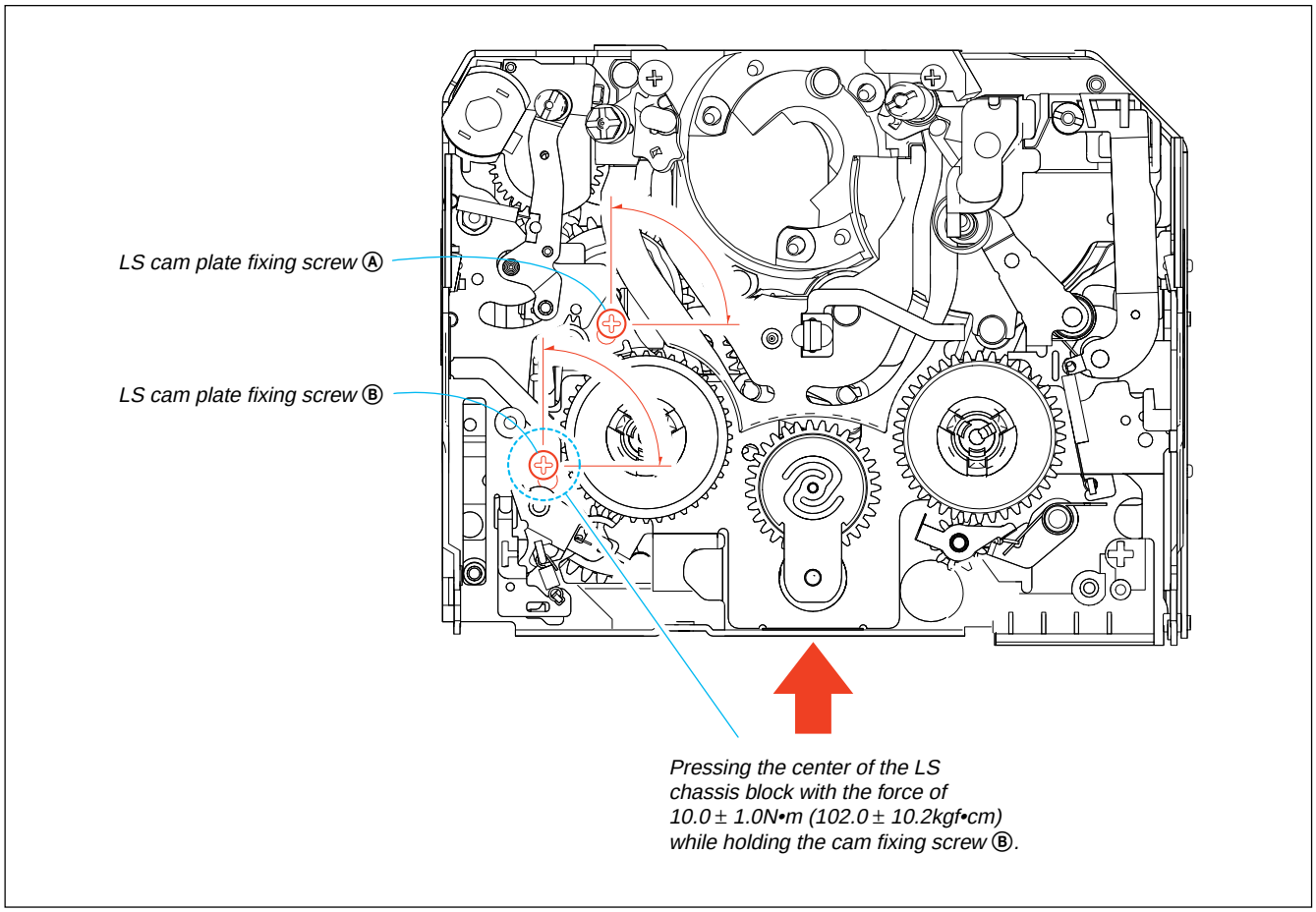
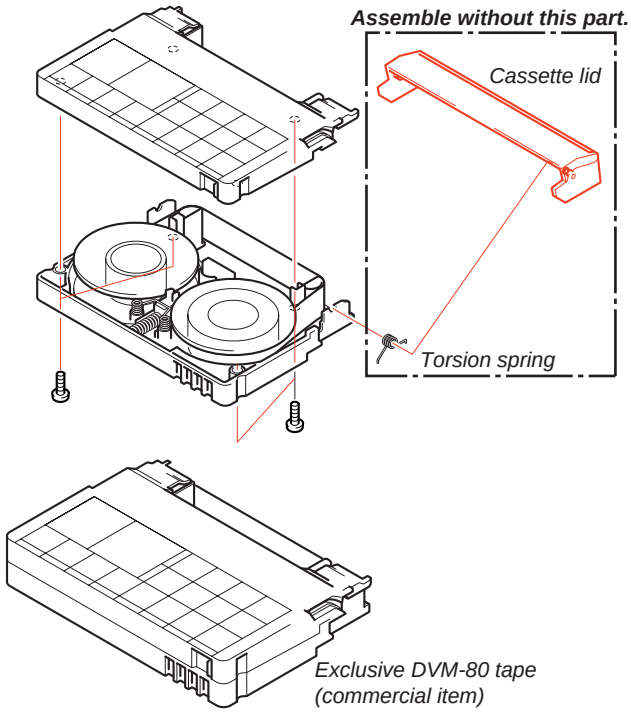


Fig. 6-2-5

4-3. Tape Path Adjustment

3-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to section 2-2.
2) Connect the adjustment remote commander (Ref. No. J-1, J-2) to the LANC terminal of the machine. Set the HOLD switch to ON. (Set the slide switch to SERVICE)
3) Connect an oscilloscope to TT-003 board CN1014 via the CPC-7 jig (J-6082-382-A).
   Channel 1: TT-003 board, CN1014 Pin ⑨ (Note)
   External trigger: TT-003 board, CN1014 Pin ⑪
   Note: Connect a 75 Ω resistor between pins ⑨ of CN1014 and ⑧ (GND).
   75 Ω resistor (Parts code: 1-247-804-11)
4) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
5) Select page: 0, address: 10 and set data: 00.
6) Select page: 3, address: 26 and set data: 31, and press the PAUSE (Write) button.
7) Select page: 3, address: 33 and set data: 08.
8) Confirm that the RF waveform on the scope is flat at both of the entrance side and the exit side. (Refer to Fig. 6-2-7A.)
   If the RF waveform is not flat either at the entrance side or the exit side (refer to Fig. 6-2-7 B and C), perform the adjustment of section "3-2. TG2/TG4 Guide Coarse Adjustment" and later.
9) Prepare an exclusive DVM-80 tape (commercial item). (Remove the lid of the cassette.)



10) When the required conditions of step 8) are satisfied, perform [Required Work upon Completion of Adjustment] as described below upon completion of adjustment/check.

[Required Work upon Completion of Adjustment]

1) Connect the adjustment remote commander (Ref. No. J-1, J-2) to the LANC terminal of the machine. Set the HOLD switch to ON. (Set the slide switch to SERVICE)
2) Select page: 0, address: 10 and set data: 00.
3) Select page: 3, address: 26 and set data: 00, and press the PAUSE (Write) button.
4) Select page: 3, address: 33 and set data: 00.

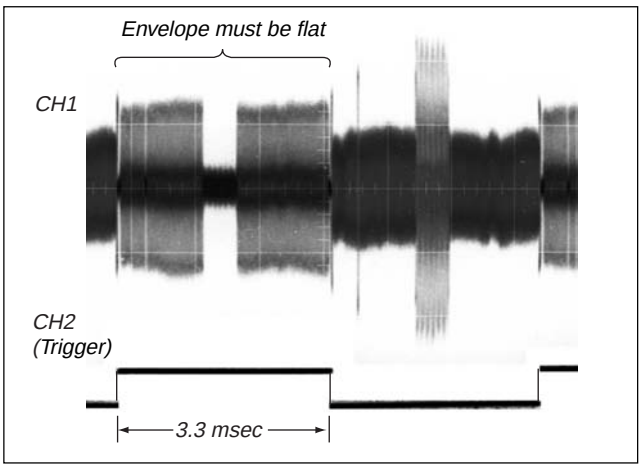


Fig. 6-2-6

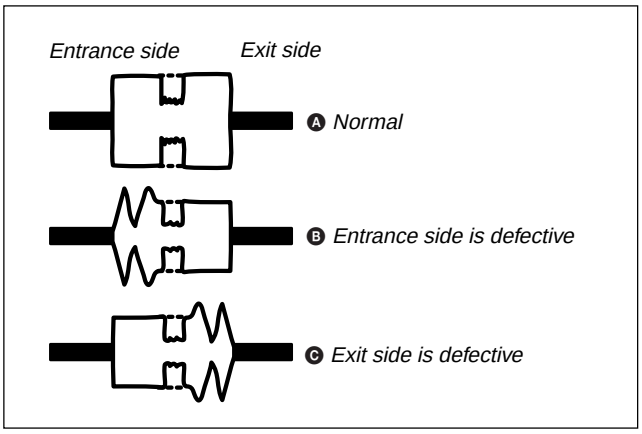


Fig. 6-2-7

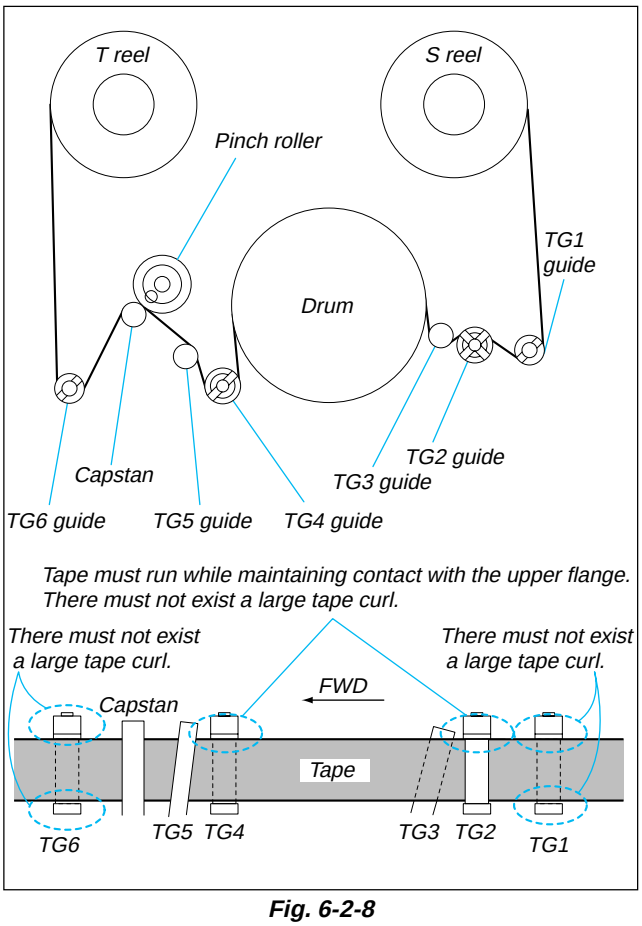


Fig. 6-2-8

3-2. TG2/TG4 Guide Coarse Adjustment

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
2) Adjust the TG2 and TG4 guides until the RF envelope waveform becomes flat. (Refer to Fig. 6-2-11.)

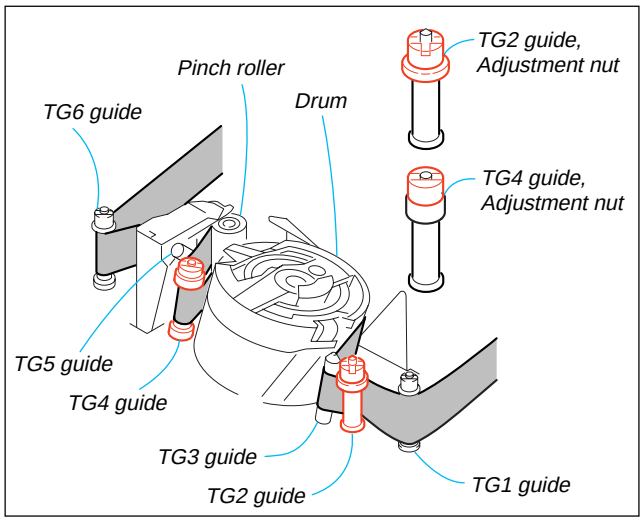


Fig. 6-2-9

3-3. FWD Back Tension Adjustment

1) Set the mini DV torque cassette (Ref. No. J-23) and establish the FWD mode.
2) Confirm that the S side torque cassette reading value is in the range as shown below.
   0.29 to 0.39 mN•m (3.0 to 4.0 gf•cm)
   If the measurement value does not satisfy the specifications, perform the following adjustment.
   - If the measurement value is higher than the specification: (Decreases the spring tension)
     Move the tension coil spring hook to another spring stay in the direction of Ⓑ.
   - If the measurement value is lower than the specification: (Increases the spring tension)
     Move the tension coil spring hook to another spring stay in the direction of Ⓐ.

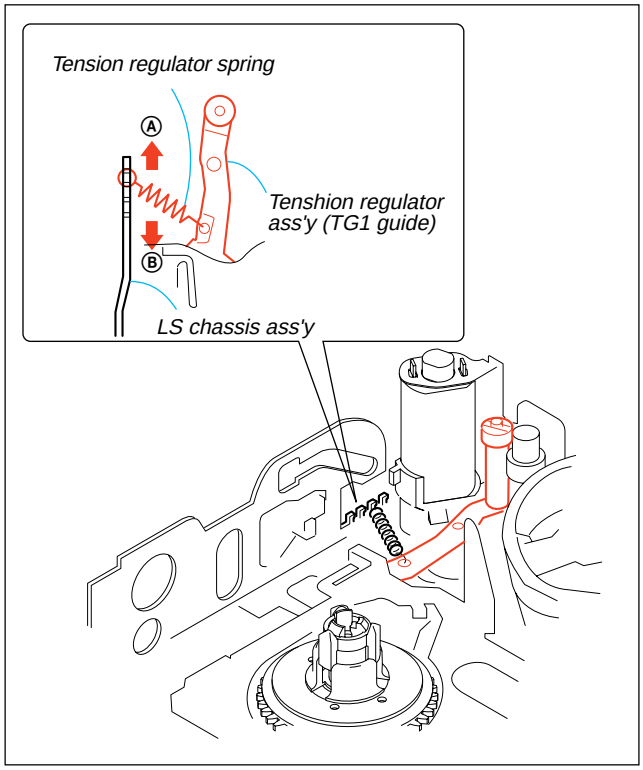


Fig. 6-2-10

3-4. TG2/TG4 Guide Fine Adjustment

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
2) Adjust the TG2 so that the RF envelope has the larger amplitude at the entrance side first, than adjust TG2 guide for flat amplitude. (Refer to Fig. 6-2-11.)
3) Adjust the TG4 so that the RF envelope has the larger amplitude at the exit side first, than adjust TG4 guide for flat amplitude. (Refer to Fig. 6-2-12.)

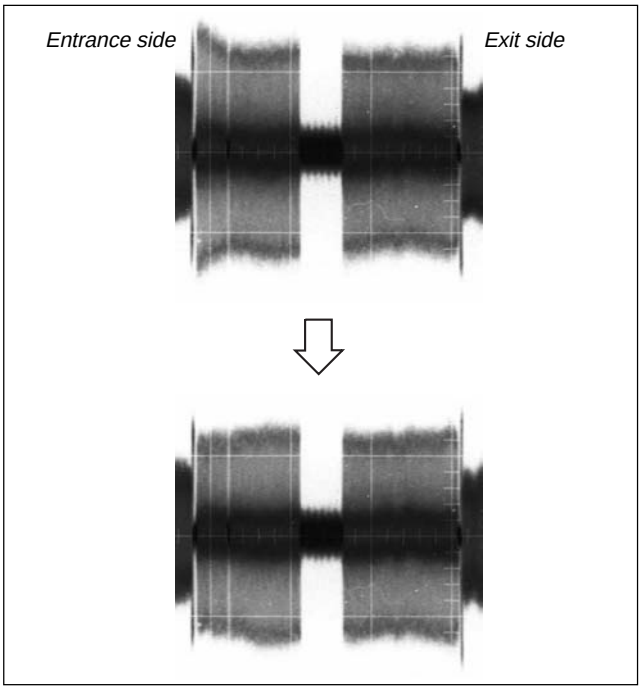


Fig. 6-2-11

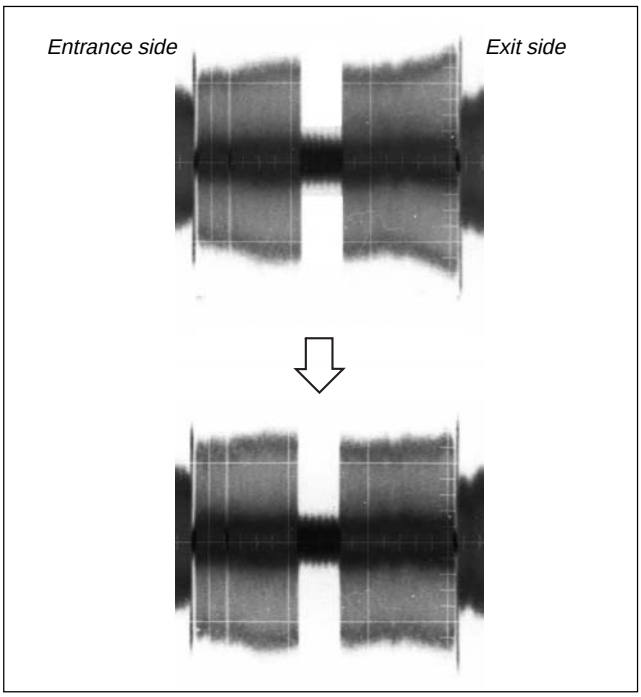


Fig. 6-2-12

3-5. TG1 Height Adjustment

1) Replay the tracking standard (XH2-1).
2) Confirm that the waveform of the tape path is flat.
   (Refer to Fig. 6-2-11, and 6-2-12.)
3) Confirm to see that there are gaps between top edge of the tape and the TG1 flange, and bottom edge and the TG1 flange.
   (Refer to Fig. 6-2-13.)
   If the top and/or the bottom edge of the tape contacts with TG1 flange, adjust the height of the TG1 so that there is gap between the edge of the tape and the flange.
   If the height of the TG1 is adjusted, check the entrance side of the tape path waveform (refer to Fig. 6-2-11, and 6-2-12). If there is any change in the entrance side of the tape path waveform, re-adjust the entrance side (TG2). (Refer to "3-4. TG2/TG4 Guide Fine Adjustment.)

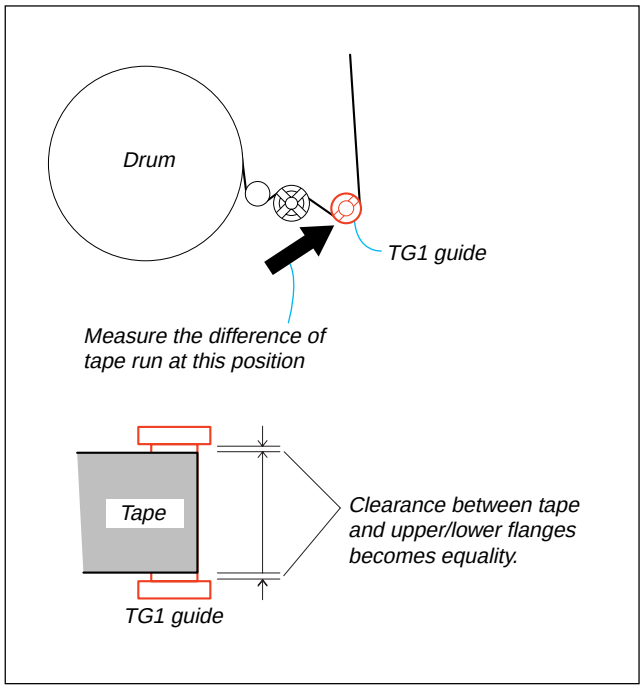


Fig. 6-2-13

3-6. TG6 Height Adjustment

Note: Perform "TG6 height adjustment" using the end segment of the tape which is within the last 5 minutes from the end of the thin DVM-80 tape (commercial item).
When using the DVM-80 (commercial item), use the modified one by removing the cassette rid (Refer to Page 6-124. Adjustment Preparation 9)).

1) Play back the tape (DVM-80) (commercial item).
2) Press the FF button to enter the CUE mode and measure the tape height after 5 seconds have elapsed. (Fig. 6-2-14)
3) Release your finger from the FF button and press the REW button to enter the REV mode.
   Measure the tape height after 3 seconds have elapsed.
4) Release your finger from the REW button.
5) Adjust the TG6 height so that the tape height in the CUE mode is the same as that in the REV mode.
   Adjust the TG6 height by rotating the adjustment nut of the TG6 guide in the following manner.
   - Tape height in the REV mode is higher ⟶ Rotate the adjustment nut clockwise
   - Tape height in the REV mode is lower ⟶ Rotate the adjustment nut counter-clockwise

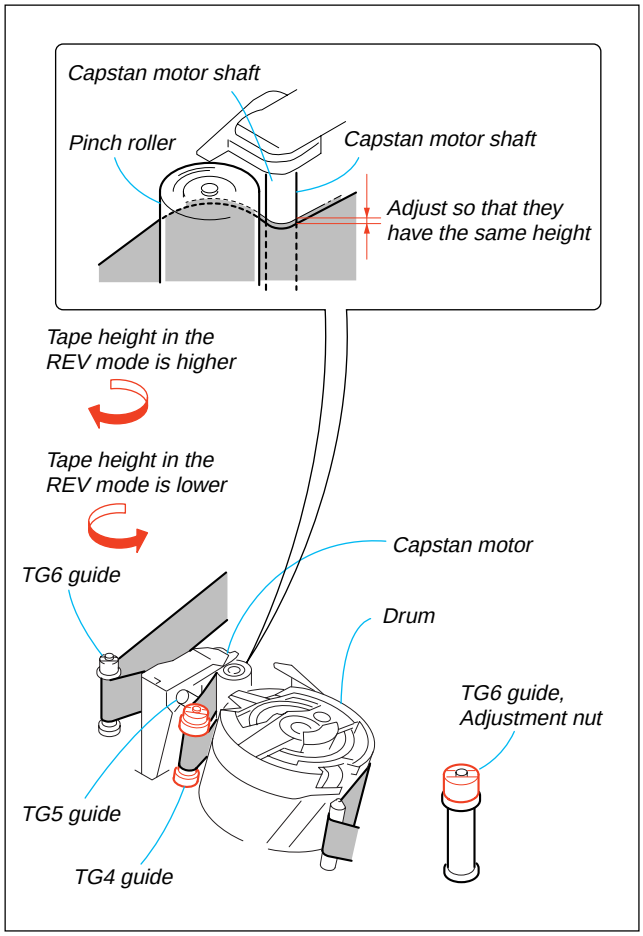


Fig. 6-2-14

6) Repeat the steps from 2 to 5 until the tape height in the CUE mode and REV mode becomes the same.

3-7. Tape Run Check

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13). Establish the CUE mode first then the REV mode. Confirm in the respective modes that there are no large tape curls at the upper flange of TG2 and TG4. Then confirm in the respective modes that there are no large tape curls at the upper and lower flanges of TG1 and TG6.

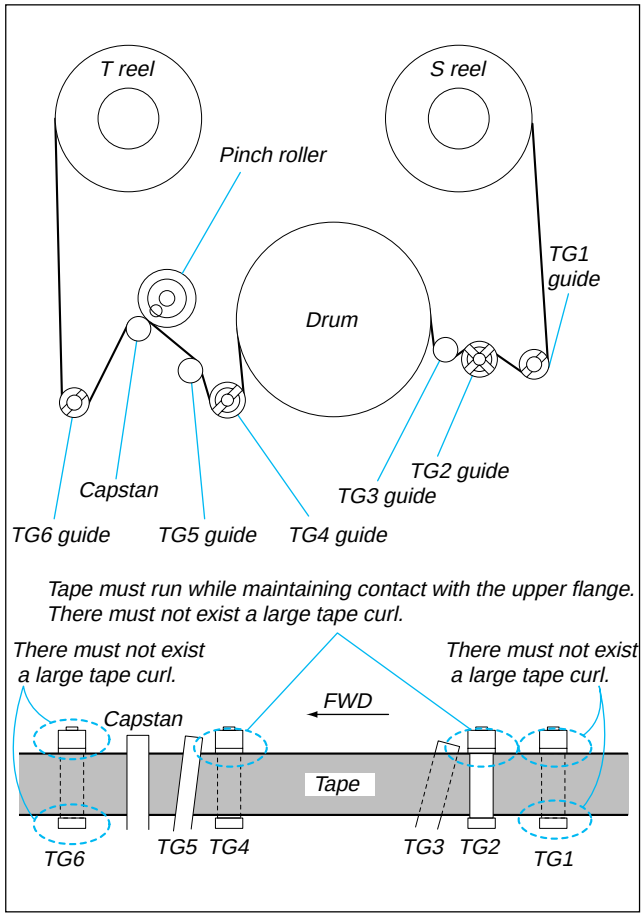


Fig. 6-2-15

3-8. Check upon Completion of Adjustment

1. Tracking Check

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
2) Establish the CUE (or REV) mode. Take the amplitude (A) in this mode as the 100% waveform amplitude. (Refer to Fig. 6-2-16.)
3) Establish the FWD mode. Confirm that the difference between the minimum (E min) and the maximum (E max) is less than 30%. (When taking the amplitude (A) in the CUE or REV mode as 100%)

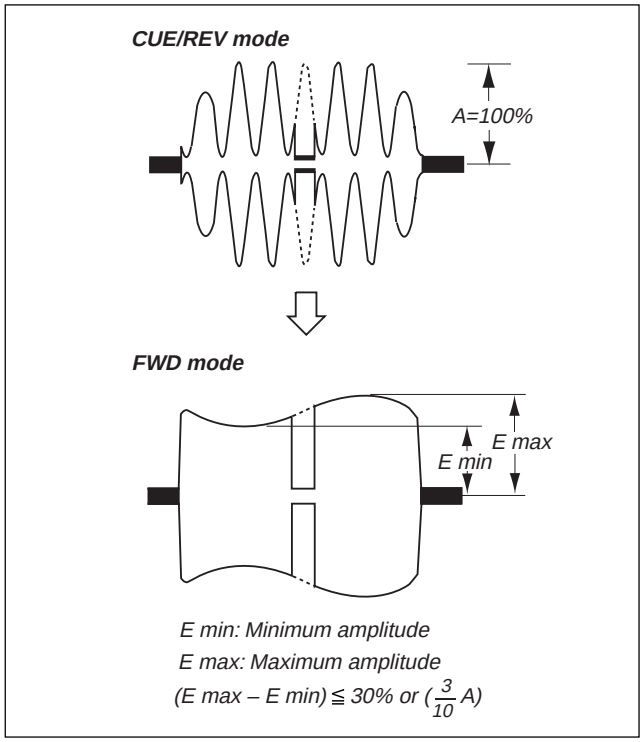


Fig. 6-2-16

4) Confirm that the RF waveform does not have excessive fluctuation of amplitude. (Fluctuation of amplitude should be 10% or less at both entrance side (B) and exit side (C), when taking the amplitude (A) in the CUE or REV mode as 100%)

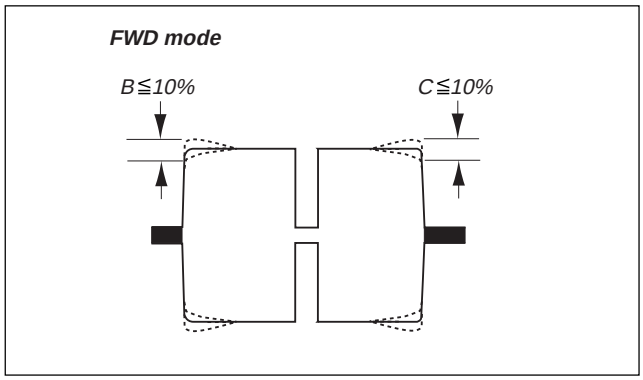


Fig. 6-2-17

2. CUE/REV Check

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
2) Establish the CUE mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively, when taking the amplitude (A) in the CUE or REV mode as 100%.
3) Establish the REV mode. Confirm that the pitches between the peaks of the RF waveform are equally spaced. Also confirm that the RF waveform amplitude at entrance side (B) and exit side (C) is 50% or more respectively.

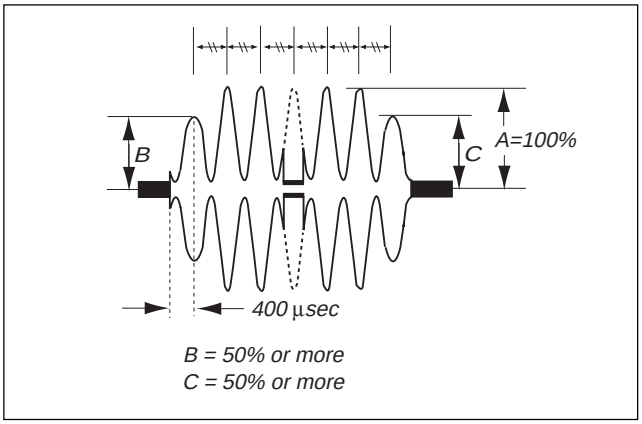


Fig. 6-2-18

3. Rise-up Check

1) Play back the tracking standard (XH 2-1) (Ref. No. J-13).
2) Change the modes from CUE mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from CUE mode to FWD.
3) Change the modes from REV mode (two seconds or more of REV and to the FWD within five seconds) to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from REV mode to FWD.
4) Change the modes from STOP mode to FWD. Confirm that the RF waveform rises up within two seconds when the mode is changed from STOP mode to FWD.

6-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

3-1-1. Precautions on Adjusting

Note: Before performing the adjustment, check the data of page: 0, address: 10 is "00". If not, select page: 0, address: 00, and set data "00".

1) The adjustments of this unit are performed in the VTR mode (PLAY/EDIT mode) or camera mode (CAMERA-TAPE mode).

3-1-2. Adjusting Connectors

The measuring point of the playback RF signal is CN1014 of TT-003 board. Connect the measuring instruments via the CPC-7 jig (J-6082-382-A). Refer to "MECHANISM SECTION ADJUSTMENT" for the measuring method. The following table lists the pin numbers and signal names of CN1014.

Pin No.	Signal Name	Pin No.	Signal Name
1	EVF_COM_DC	9	RF_MON
2	REG_GND	10	REG_GND
3	EXT_DA	11	SWP
4	EVF_VCO	12	FRRV
5	EVF_VG	13	REC_CRRT1_S
6	PSIG	14	REC_CRRT0_S
7	REG_GND	15	REC_CRRT1_C
8	REG_GND	16	REC_CRRT0_C

Table 6-3-1

3-1-3. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 6-3-1, and perform the adjustments.

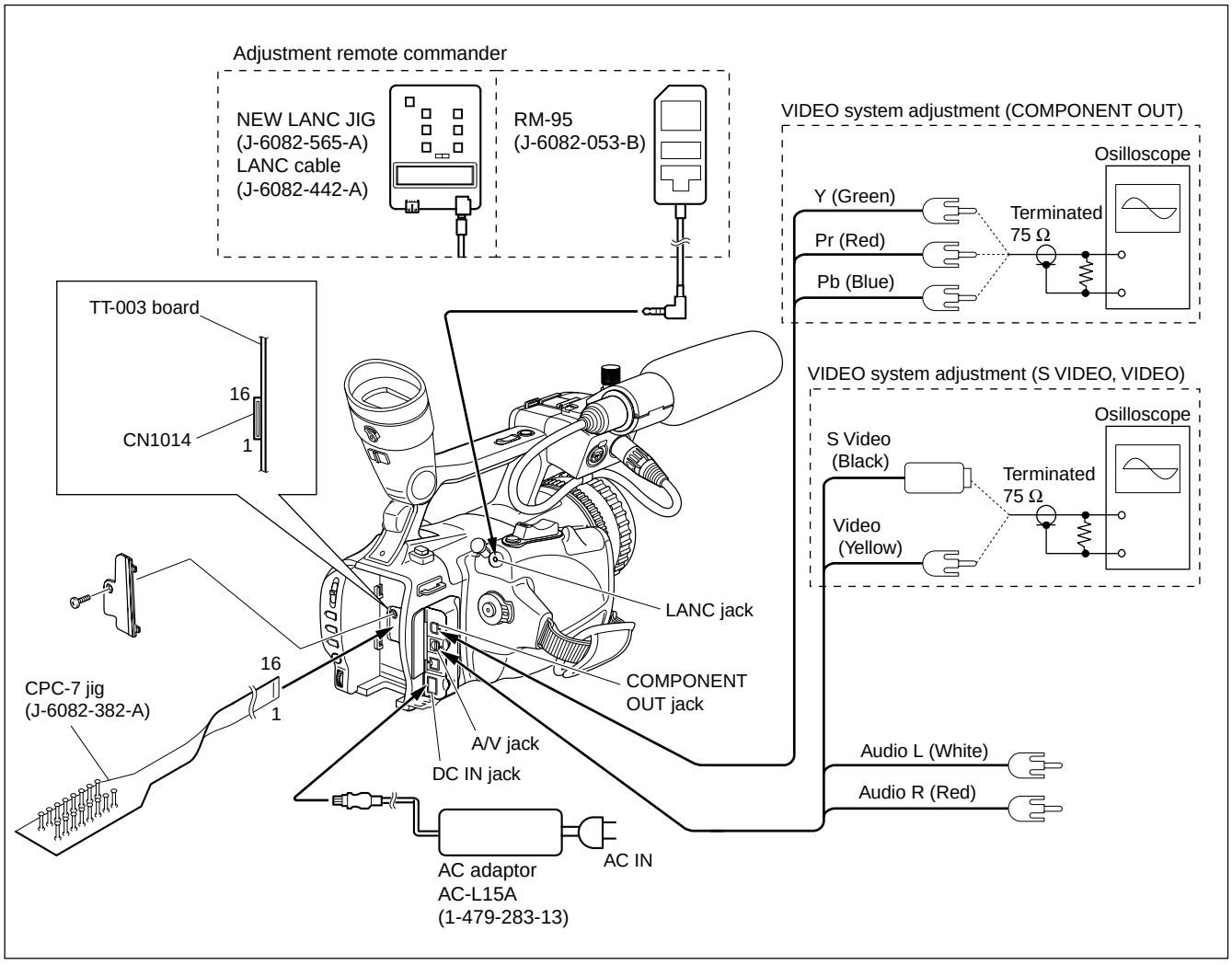


Fig. 6-3-1

3-1-4. Alignment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3(NTSC), XH5-3P(PAL))	Audio system adjustment
System operation check (XH5-5(NTSC), XH5-5P(PAL))	Operation check

Fig. 6-3-2 shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

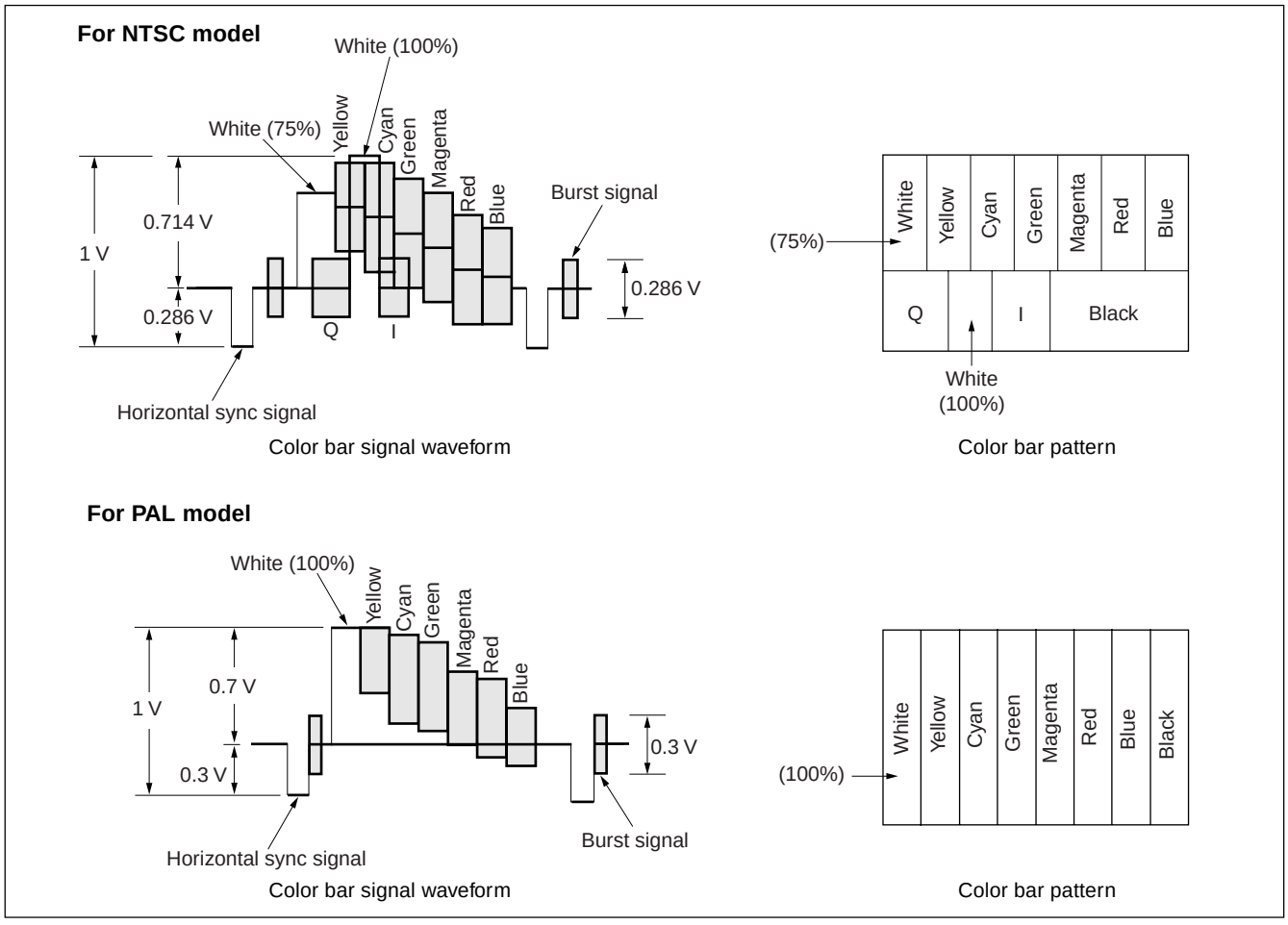


Fig. 6-3-2 Color bar signal of alignment tapes

3-1-5. Output Level and Impedance

Audio/Video output

10-pin connector
Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.286 Vp-p, 75 Ω (ohms), unbalanced (NTSC)
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced (PAL)
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), unbalanced PB/PR, CB/CR: +/- 350 mVp-p

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of EEPROM Data

If the EEPROM data is erased due to some reason, perform "1-2. INITIALIZATION OF EEPROM DATA ", of "6-1. CAMERA SECTION ADJUSTMENTS"

2. Node Unique ID No. Input

Note 1: Perform "2-2. Input of Serial No." if the data on page 13 has been cleared and original node unique ID No. is uncertain.
Usually, read the data on page 13 before repair, and write it after repair.

Note 2: If reading/writing data on pages 13, set data: 01 to page: 0, address: 10, and then select pages: 3. By this data setting, the pages 13 can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

2-1. Input of Company ID

Write the company ID to the EEPROM (nonvolatile memory).

Page	13
Address	04, 05, 06, 07, 08

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 71, and set data: 01, then press the PAUSE (Write) button.
3) Select page: 0, address: 10, and set data: 01.
4) Select page: 3 (13), and enter the following data.

Note 3: Each time the data is set, press the PAUSE (Write) button on the adjusting remote commander.

Address	Data
04	08
05	00
06	46
07	01
08	02

5) Select page: 0, address: 10, and set data: 00.
6) Select page: 3, address: 70, and set data: 10, then press the PAUSE (Write) button.
7) Select page: 3, address: 70, and check that the data changes to "11".
8) Select page: 0, address: 01, and set data: 00.

2-2. Input of Serial No.

Write the serial No. and model code to the EEPROM (nonvolatile memory).
In writing the serial No., a decimal number should be converted into a hexadecimal number

Page	13
Address	09, 0A, 0B

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 71, and set data: 01, then press the PAUSE (Write) button.
3) Read the serial No. from the model name label, and it is assumed to be D_1.
   Example: If serial No. is "77881",
   $D_1 = 77881$
4) From Table 6-3-2, obtain D_2 and H_1 that correspond to D_1.
   Example: If $D_1 = 77881$,
   $D_2 = D_1 - 65536 = 12345$
   $H_1 = FE$

D_1 (decimal)	D_2 (decimal)	H_1 (hexadecimal) (Service model code)
00001 to 65535	D_1	FE
65536 to 131071	$D_1 - 65536$	FE
131072 to196607	$D_1 - 131072$	FE
196608 to 262143	$D_1 - 196608$	FE
262144 to 327679	$D_1 - 262144$	FE
327680 to 393215	$D_1 - 327680$	FE
393216 to 458751	$D_1 - 393216$	FE
458752 to 524287	$D_1 - 458752$	FE
524288 to 589823	$D_1 - 524288$	FE
589824 to 655359	$D_1 - 589824$	FE
655360 to 720895	$D_1 - 655360$	FE
720896 to 786431	$D_1 - 720896$	FE
786432 to 851967	$D_1 - 786432$	FE
851968 to 917503	$D_1 - 851968$	FE
917504 to 983039	$D_1 - 917504$	FE
983040 to 999999	$D_1 - 983040$	FE

Table 6-3-2

5) Enter H_1 to address: 09 on page: 13.
   Example: If $H_1 = FE$,
   Select page: 0, address: 10, and set data: 01.
   Select page: 3 (13), address: 09, and set data: FE, then press the PAUSE (Write) button.
6) From Table 6-3-3, obtain the maximum decimal number less than D_2, and it is assumed to be D_3.
   Example: If $D_2 = 12345$.
   $D_3 = 12288$
7) From Table 6-3-3, obtain a hexadecimal number that corresponds to D_3, and it is assumed to be H_3.
   Example: If $D_3 = 12288$,
   $H_3 = 3000$
8) Caluculate D_4 using following equations (decimal caluculation). ($0 \leqq D_4 \leqq 225$)
   $D_4 = D_2 - D_3$
   Example: If $D_2 = 12345$ and $D_3 = 12288$,
   $D_4 = 12345 - 12288 = 57$
9) Convert D_4 into a hexadecimal number to obtain H_4. (See Table 6-4-1 "Hexadecimal - decimal conversion table" in 6-4. Service Mode)
   Example: If $D_4 = 57$,
   $H_4 = 39$
10) Enter higher two digits of H_3 to address: 0A on page: 13.
    Example: If $H_3 = 3000$,
    Select page: 0, address: 10, and set data: 01.
    Select page: 3 (13), address: 0A, and set data: 30, then press the PAUSE (Write) button.
11) Enter H_4 to address: 0B on page: 13.
    Example: If $H_4 = 39$,
    Select page: 0, address: 10, and set data: 01.
    Select page: 3 (13), address: 0B, and set data: 39, then press the PAUSE (Write) button.
12) Select page: 0, address: 10, and set data: 00.
13) Select page: 3, address: 70, and set data: 10, then press the PAUSE (Write) button.
14) Select page: 3, address: 70, and check that the data changes to "11".
15) Select page: 0, address: 01, and set data: 00.

D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Note: D_3: Decimal
H_3: Hexadecimal

Table 6-3-3

3-3. SERVO AND RF SYSTEM ADJUSTMENTS

Before perform the servo and RF system adjustments, check that the specified values of "Origin Oscillation check" of "1-3. CAMERA SYSTEM ADJUSTMENTS" is satisfied.
Check that the data of page: 0, address: 10 is "00". If not, select page: 0, address: 10, and set the data "00".

Adjusting Procedure:
1. CAP FG duty adjustment
2. Switching position adjustment
3. Error rate check

1. CAP FG Duty Adjustment (TT-003 board)

RadarW

Set the CAP FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur.

Mode	VTR stop (VCR mode)
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	16
Specified value	The data of page: 3, address: 03 is "00"

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting cassette.
2	0	01	01	
3	3	03	FF	
4	3	71	01	Press PAUSE (Write) button.
5	3	01	1B	Press PAUSE (Write) button.
6	3	02		Check the data changes in the following order "1B" → "2B" → "00"
7	3	03		Check the data is "00". (Note 2)
8	3	70	10	Press PAUSE (Write) button.
9	3	70		Check the data changes to "11".
10	0	01	00	

Note 2: If the data is "01", adjustment has errors or the mechanism deck is defective.
If the data is "80", the mechanism deck is in emergency state or the end of tape was detected.

2. Switching Position Adjustment (TT-003 board)

RadarW

Mode	VTR playback (VCR mode)
Signal	SW/OL standard (XH2-3)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified value	The data of page: 3, address: 03 is "00"

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL standard tape and enter the VTR stop mode.
2	0	01	01	
3	3	71	01	Press PAUSE (Write) button.
4	C	10	EE	Press PAUSE (Write) button.
5	3	03	FF	
6	3	21		Check the data is "02". (Note 2)
7	3	01	0D	Press PAUSE (Write) button.
8	3	02		Check the data changes to "00".
9	3	03		Check the data is "00". (Note 3)
10	3	70	10	Press PAUSE (Write) button.
11	3	70		Check the data changes to "11".
12	0	01	00	

Note 2: If the data is "72", the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.
If the data is "62", the tape end being played. After rewind the tape, perform step 5 and higher.

Note 3: If bit0 of the data is "1", the EVEN channel is defective.
If bit1 of the data is "1", the ODD channel is defective.
Contents of the defect is see written into page: C, address: 10 and 12. See following table.
(For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".)
If bit3 of the data is "1", the tape end being played, so rewind the tape and perform the adjustment again.

When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into Flash memory (IC2402) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2801

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into Flash memory (IC2402) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2802

3. Error Rate Check (TT-003 board) RadarW

Note: Check that the data of page: 0, address: 10 is "00".

3-1. Preparations before adjustments

Mode	Camera recording (CAMERA mode)
Subject	Arbitrary

Switch setting

1) REC FORMAT (Menu setting) ..... DV

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	0	10	01	
4	C (1C)	0D	C8	Press PAUSE (Write) button.
5	0	10	00	
6				Record the camera signal for 2 minutes.

3-2. Error Rate Check

Mode	VTR playback (VCR mode)
Subject	Recorded signal at "Preparations before adjustments"
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	1C
Adjustment Address	B3 to C8
Specified value	The data of page: 3, address: 03 is "00"

Note 1: If reading/writing data on pages 1C, set data: 01 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 1C can be selected.
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Initial Value of Page 1C: Address: B3 to C8

Address	Initial value	Address	Initial value	Address	Initial value
B3	00	BB	00	C3	80
B4	00	BC	00	C4	00
B5	00	BD	00	C5	00
B6	00	BE	00	C6	00
B7	00	BF	00	C7	00
B8	80	C0	00	C8	00
B9	00	C1	00		
BA	00	C2	00		

Table 6-3-4

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3				Check that the data of page: 1C, address: B3 to C8 is the initial value. (See Table 6-3-4)
4				Playback the recorded signal at "Preparations before adjustments".
5	3	03	FF	
6	3	01	40	Press PAUSE (Write) button.
7	3	02		Check the data changes to "00".
8	3	03		Check the data is "00". (Note 2)
9				Perform "Processing after Completing Adjustments".

Note 2: If the data is other than "00", Error rate is abnormal. For the contents of the abnormality, see the following table.

Data of page: 3, address: 03	Contents of defect
01	EVEN channel is abnormal.
02	ODD channel is abnormal.
03	EVEN channel and ODD channel are abnormal.

Note 3: If Error rate is abnormal, Check the use tape, clean the tape running surface. And after inputting initial values to page 1C: address: B3 to C8, perform re-adjustment. (See Table 6-3-4)

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	C (1C)	0D	00	Press PAUSE (Write) button.
4	0	10	00	
5	3	70	10	Press PAUSE (Write) button.
6	3	70		Check the data changes to "11".
7	0	01	00	

3-4. VIDEO SYSTEM ADJUSTMENTS

Before perform the video system adjustments, check that the specified values of "Origin Oscillation Check" of "1-3. CAMERA SYSTEM ADJUSTMENTS" is satisfied.
Check that the data of page: 0, address: 10 is "00".
If not, select page: 0, address: 10, and set the data "00".

Adjusting Procedure:

1. S VIDEO OUT Y level adjustment
2. S VIDEO OUT chroma level adjustment
3. VIDEO OUT level check
4. COMPONENT OUT Y level adjustment
5. COMPONENT OUT Pr level adjustment
6. COMPONENT OUT Pb level adjustment

1. S VIDEO, VIDEO OUT Adjustment

1-1. Preparations

Perform the following data setting before the "S VIDEO, VIDEO OUT Adjustment".

Order	Page	Address	Data	Procedure
1				Set the unit to VCR mode.
2	0	01	01	
3	3	71	01	Press PAUSE (Write) button.
4	0	10	01	
5	8 (18)	00	01	Press PAUSE (Write) button.
6	8 (18)	01	60	Press PAUSE (Write) button.
7	C (1C)	0F	10	Press PAUSE (Write) button.
8	8 (18)	06	55	Press PAUSE (Write) button.
9	8 (18)	04	C0	Press PAUSE (Write) button.
10	0	10	00	
11				Wait for 5 sec.
12	0	FF	3E	
13	B	00	02	
14	C	85		Check the data is "55".
15	B	00	00	
16	0	FF	00	

1-2. S VIDEO OUT Y Level Adjustment (TT-003 board)

Mode	VCR
Signal	No signal
Measurement Point	Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25 (NTSC) 85 (PAL)
Specified value	A = 1000 ± 14 mVp-p

Adjusting method:

Order	Page	Address	Data	Procedure
1				Perform "Preparations".
2	C	(NTSC) 25 (PAL) 85		Change the data and set the Y signal level (A) to the specified value.
3	C	(NTSC) 25 (PAL) 85		Press PAUSE (Write) button.
4				Perform "Processing after Complete Adjustment".

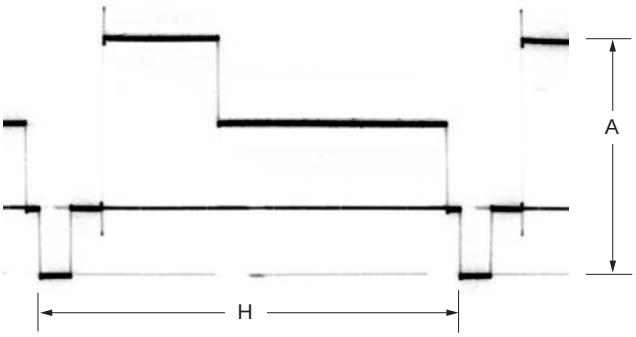


Fig. 6-3-3

1-3. S VIDEO OUT Chroma Level Adjustment (TT-003 board)

Mode	VCR
Signal	No signal
Measurement Point	Chroma signal terminal of S VIDEO plug of A/V jack (75 Ω terminated) External trigger: Y signal terminal of S VIDEO plug of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27 (NTSC) 86, 87 (PAL)
Specified value	Cr level: A = 714 ± 14 mVp-p (NTSC) A = 700 ± 14 mVp-p (PAL) Cb level: B = 714 ± 14 mVp-p (NTSC) B = 700 ± 14 mVp-p (PAL) Burst level: C = 286 ± 6 mVp-p (NTSC) C = 300 ± 6 mVp-p (PAL)

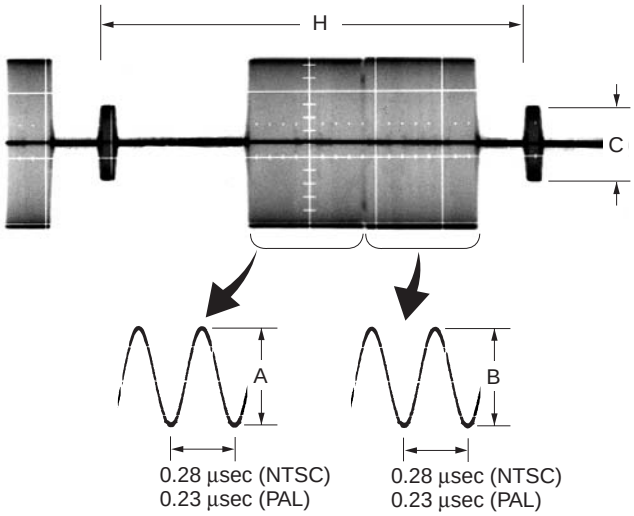


Fig. 6-3-4

Adjusting method:

Order	Page	Address	Data	Procedure
1				Peform “Preparations”.
2	C	(NTSC) 26 (PAL) 86		Change the data and set the Cr signal level (A) to the specified value.
3	C	(NTSC) 26 (PAL) 86		Press PAUSE (Write) button.
4	C	(NTSC) 27 (PAL) 87		Change the data and set the Cb signal level (B) to the specified value.
5	C	(NTSC) 27 (PAL) 87		Press PAUSE (Write) button.
6				Check the burst signal (C) to the specified value.
7				Perform “Processing after Complete Adjustment”.

1-4. VIDEO OUT Level Check (TT-003 board)

Mode	VCR
Signal	No signal
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified value	Sync level: A = 286 ± 18 mVp-p (NTSC) A = 300 ± 18 mVp-p (PAL) Burst level: B = 286 ± 18 mVp-p (NTSC) B = 300 ± 18 mVp-p (PAL)

Checking method:

Order	Page	Address	Data	Procedure
1				Peform “Preparations”
2				Check the sync signal level (A) to the specified value.
3				Check the burst signal level (B) to the specified value.
4				Perform “Processing after Complete Adjustment”.

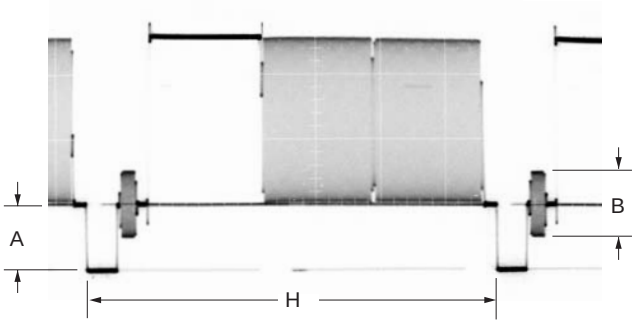


Fig. 6-3-5

1-5. Processing after Complete Adjustment

Perform the setting through the procedure mentioned below when you finish the “S VIDEO, VIDEO OUT Adjustment”.

Order	Page	Address	Data	Procedure
1	0	10	01	
2	C (1C)	0F	00	Press PAUSE (Write) button.
3	8 (18)	04	80	Press PAUSE (Write) button.
4	8 (18)	00	00	Press PAUSE (Write) button.
5	8 (18)	01	00	Press PAUSE (Write) button.
6	8 (18)	06	00	Press PAUSE (Write) button.
7	0	10	00	
8	3	70	10	Press PAUSE (Write) button.
9	3	70		Check the data changes to “11”.
10	0	01	00	

2. COMPONENT OUT Y Level Adjustment (TT-003 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Y signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	93
Specified value	Y level: A = 1000 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	0	10	01	
4	8 (18)	00		Set the bit value of bit7 is "1", and press PAUSE (Write) button. (Note)
5	0	10	00	
6	C	93		Change the data and set the Y signal level (A) to the specified value.
7	C	93		Press PAUSE (Write) button.
8				Check the sync signal (B, C) to the specified value.
9	0	10	01	
10	8 (18)	00		Set the bit value of bit7 is "0", and press PAUSE (Write) button. (Note)
11	0	10	00	
12	3	70	10	Press PAUSE (Write) button.
13	3	70		Check the data changes to "11".
14	0	01	00	

Note: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

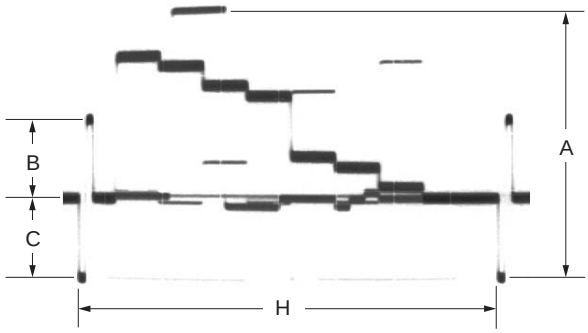


Fig. 6-3-6

3. COMPONENT OUT Pr Level Adjustment (TT-003 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Pr signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	95
Specified value	Pr level: A = 525 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	0	10	01	
4	8 (18)	00		Set the bit value of bit7 is "1", and press PAUSE (Write) button. (Note)
5	0	10	00	
6	C	95		Change the data and set the Pr signal level (A) to the specified value.
7	C	95		Press PAUSE (Write) button.
8				Check the sync signal (B, C) to the specified value.
9	0	10	01	
10	8 (18)	00		Set the bit value of bit7 is "0", and press PAUSE (Write) button. (Note)
11	0	10	00	
12	3	70	10	Press PAUSE (Write) button.
13	3	70		Check the data changes to "11".
14	0	01	00	

Note: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

Fig. 6-3-7

4. COMPONENT OUT Pb Level Adjustment (TT-003 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Pb signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	94
Specified value	Pb level: A = 525 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	0	10	01	
4	8 (18)	00		Set the bit value of bit7 is "1", and press PAUSE (Write) button. (Note)
5	0	10	00	
6	C	94		Change the data and set the Pb signal level (A) to the specified value.
7	C	94		Press PAUSE (Write) button.
8				Check the sync signal (B, C) to the specified value.
9	0	10	01	
10	8 (18)	00		Set the bit value of bit7 is "0", and press PAUSE (Write) button. (Note)
11	0	10	00	
12	3	70	10	Press PAUSE (Write) button.
13	3	70		Check the data changes to "11".
14	0	01	00	

Note: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

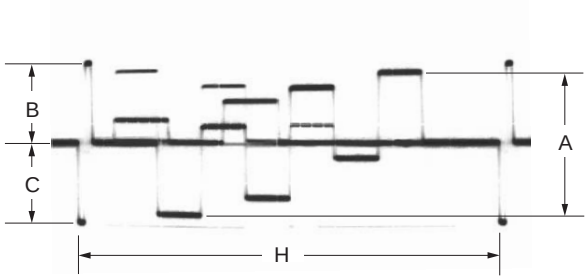


Fig. 6-3-8

3-5. AUDIO SYSTEM ADJUSTMENTS

[Connecting the measuring instruments for the audio]
Connect the audio system measuring instruments as shown in Fig. 6-3-9.

Menu setting (AUDIO SET menu)
XLR SET
1) AU. MAN GAIN ..... SEPARATE

Switch setting
1) REC CH SELECT switch CH1
2) AUTO/MAN switch (CH1/CH2) ..... AUTO
3) +48 V switch (CH1/CH2) ..... OFF

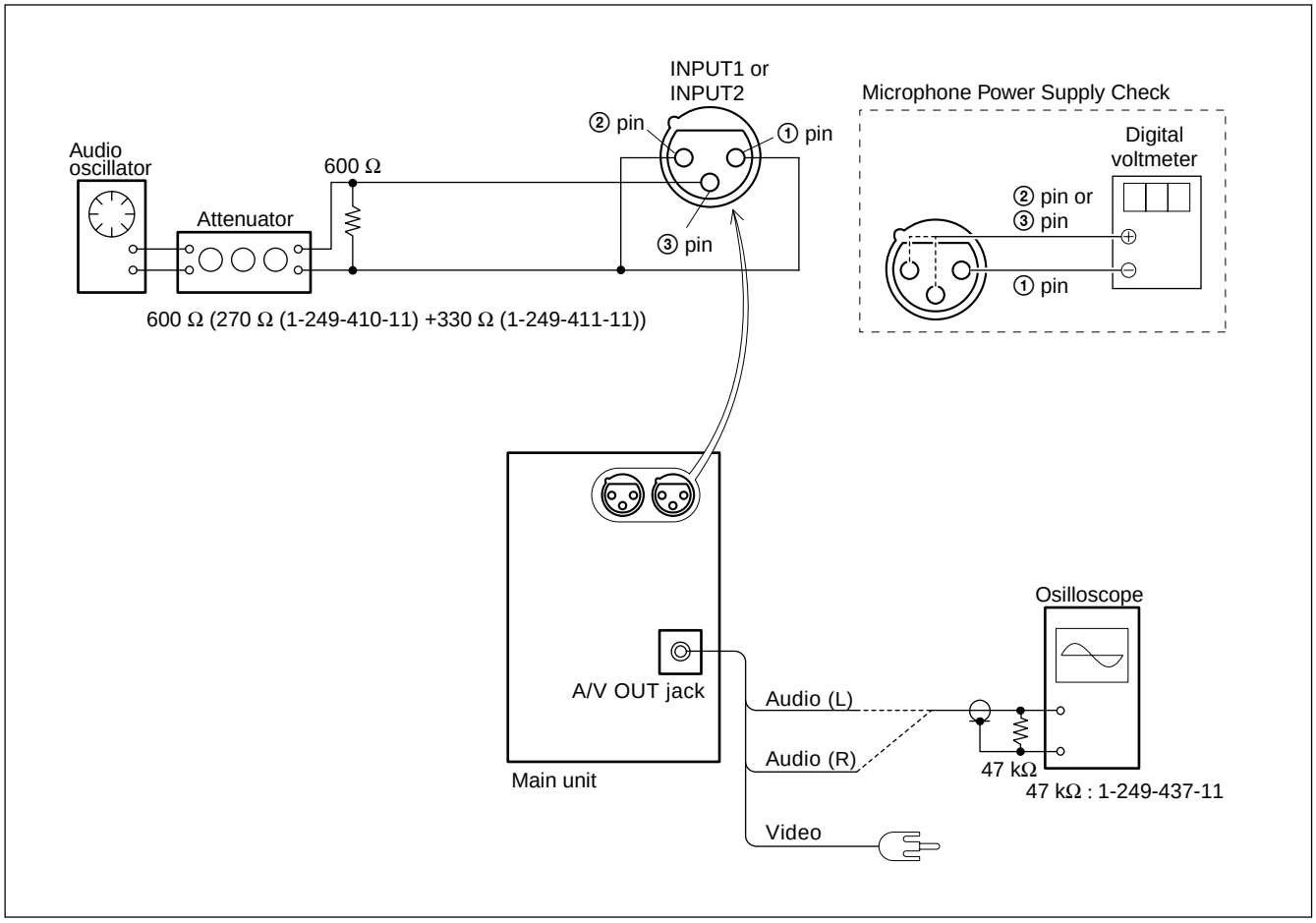


Fig. 6-3-9

1. Microphone Power Supply Check

Mode	CAMERA mode
Signal	No signal
Measurement Point	XLR terminal (INPUT1, INPUT2) + probe: pin ②, ③ – probe: pin ①
Measuring Instrument	Digital voltmeter
Specified value	A = 46.0 ± 3.0 V

Checking method:

1) Connect the + probe of digital voltmeter to the pin ② on the INPUT1.
2) Set the +48V switch (INPUT1) to "ON".
3) Check that the DC voltage (A) satisfies the specified value.
4) Connect the + probe of digital voltmeter to the pin ③ on the INPUT1.
5) Check that the DC voltage (A) satisfies the specified value.
6) Set the +48V switch (INPUT1) to "OFF".
7) For the INPUT2, perform checking in the same manner.

2. INPUT1 LINE Check

Mode	CAMERA mode
Signal	1 kHz, +3.47 Vp-p (+4 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio L terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)

XLR SET

1) INPUT1 LEVEL ..... LINE

Checking method:

1) Input 1 kHz, +3.47 Vp-p (+4 dBs) signal in the XLR terminal (INPUT1).
2) Check that the 1 kHz signal level is the specified value.

3. INPUT2 LINE Check

Mode	CAMERA mode
Signal	1 kHz, +3.47 Vp-p (+4 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)

XLR SET

1) INPUT2 LEVEL ..... LINE

Checking method:

1) Input 1 kHz, +3.47 Vp-p (+4 dBs) signal in the XLR terminal (INPUT2).
2) Check that the 1 kHz signal level is the specified value.

4. INPUT1 MIC Check

Mode	CAMERA mode
Signal	1 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio L terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT1 LEVEL ..... MIC

Checking method:
1) Input 1 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT1).
2) Check that the 1 kHz signal level is the specified value.

5. INPUT2 MIC Check

Mode	CAMERA mode
Signal	1 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT2 LEVEL ..... MIC

Checking method:
1) Input 1 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT2).
2) Check that the 1 kHz signal level is the specified value.

6. INPUT1 MIC ATT Check

Mode	CAMERA mode
Signal	1 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio L terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value (INPUT1 TRIM: 0 dB)	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)
Specified value (INPUT1 TRIM: –8 dB)	0.413 Vp-p to 0.654 Vp-p (–12.5 dBs ± 2 dB)
Specified value (INPUT1 TRIM: –16 dB)	0.164 Vp-p to 0.260 Vp-p (–20.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT1 LEVEL ..... MIC

Checking method:
1) Input 1 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT1).
2) Set the INPIT1 TRIM (AUDIO SET menu: XLR SET) to “0dB”.
3) Check that the 1 kHz signal level is the specified value.
4) Set the INPIT1 TRIM (AUDIO SET menu: XLR SET) to “–8dB”.
5) Check that the 1 kHz signal level is the specified value.
6) Set the INPIT1 TRIM (AUDIO SET menu: XLR SET) to “–16dB”.
7) Check that the 1 kHz signal level is the specified value.
8) Set the INPIT1 TRIM (AUDIO SET menu: XLR SET) to “0dB”.

7. INPUT2 MIC ATT Check

Mode	CAMERA mode
Signal	1 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value (INPUT2 TRIM: 0 dB)	1.037 Vp-p to 1.643 Vp-p (–4.5 dBs ± 2 dB)
Specified value (INPUT2 TRIM: –8 dB)	0.413 Vp-p to 0.654 Vp-p (–12.5 dBs ± 2 dB)
Specified value (INPUT2 TRIM: –16 dB)	0.164 Vp-p to 0.260 Vp-p (–20.5 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT2 LEVEL ..... MIC

Checking method:
1) Input 1 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT2).
2) Set the INPIT2 TRIM (AUDIO SET menu: XLR SET) to "0dB".
3) Check that the 1 kHz signal level is the specified value.
4) Set the INPIT2 TRIM (AUDIO SET menu: XLR SET) to "–8dB".
5) Check that the 1 kHz signal level is the specified value.
6) Set the INPIT2 TRIM (AUDIO SET menu: XLR SET) to "–16dB".
7) Check that the 1 kHz signal level is the specified value.
8) Set the INPIT2 TRIM (AUDIO SET menu: XLR SET) to "0dB".

8. INPUT1 LOW CUT Check

Mode	CAMERA mode
Signal	300 Hz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio L terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	0.437 Vp-p to 0.693 Vp-p (–12 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT1 LEVEL ..... MIC

Checking method:
1) Set the INPUT1 WIND (AUDIO SET menu: XLR SET) to "ON".
2) Input 300 Hz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT1).
3) Check that the 300 Hz signal level is the specified value.
4) Set the INPUT1 WIND (AUDIO SET menu: XLR SET) to "OFF".

9. INPUT2 LOW CUT Check

Mode	CAMERA mode
Signal	300 Hz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	0.437 Vp-p to 0.693 Vp-p (–12 dBs ± 2 dB)

Menu setting (AUDIO SET menu)
XLR SET
1) INPUT2 LEVEL ..... MIC

Checking method:
1) Set the INPUT2 WIND (AUDIO SET menu: XLR SET) to "ON".
2) Input 300 Hz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT2).
3) Check that the 300 Hz signal level is the specified value.
4) Set the INPUT2 WIND (AUDIO SET menu: XLR SET) to "OFF".

10. REC CH SELECT Check

Mode	CAMERA mode
Signal	1 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT1) 2 kHz, +2.19 mVp-p (–60 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio L and R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value (REC CH SELECT: CH1)	Audio L: 1 kHz signal Audio R: 2 kHz signal
Specified value (REC CH SELECT: CH1•CH2)	Audio L: 1 kHz signal Audio R: 1 kHz signal

Menu setting (AUDIO SET menu)

XLR SET

1) INPUT1 LEVEL ..... MIC
2) INPUT2 LEVEL ..... MIC

Checking method:

1) Input 1 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT1).
2) Input 2 kHz, +2.19 mVp-p (–60 dBs) signal in the XLR terminal (INPUT2).
3) Set the REC CH SELECT switch to “CH1”.
4) Check that the 1 kHz signal is output from the audio L terminal.
5) Check that the 2 kHz signal is output from the audio R terminal.
6) Set the REC CH SELECT switch to “CH1•CH2”.
7) Check that the 1 kHz signal is output from the audio L terminal.
8) Check that the 1 kHz signal is output from the audio R terminal.

6-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER (RM-95)

The adjustment remote commander (RM-95) is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander (RM-95) performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander (RM-95)

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander (RM-95) to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander (RM-95) will display as shown in Fig. 6-4-1.

Fig. 6-4-1

3) Operate the adjustment remote commander (RM-95) as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander (RM-95)

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. ADJUSTMENT REMOTE COMMANDER (NEW LANC JIG)

The adjustment remote commander (New LANC Jig) is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander (New LANC Jig) performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander (New LANC Jig))

1) Connect the adjustment remote commander (New LANC Jig) to the LANC terminal via the LANC cable (J-6082-442-A).
2) Set the slide switch of the adjustment remote commander (New LANC Jig) to "SERVICE" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander (New LANC Jig) will display as shown in Fig. 6-4-2.

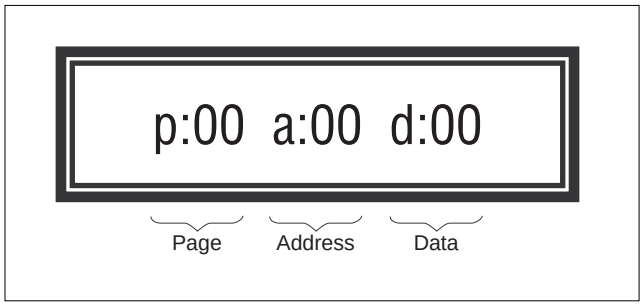


Fig. 6-4-2

3) Operate the adjustment remote commander (New LANC Jig) as follows.
   - Changing the page
     The page increases when the Page+ (►►) button is pressed, and decreases when the Page– (◄◄) button is pressed.
   - Changing the address
     The address increases when the ADD+ (►) button is pressed, and decreases when the ADD– (❚❚) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the Data+ button is pressed, and decreases when the Data– button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The Write (■) button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander (New LANC Jig)

Mishandling of the adjustment remote commander (New LANC Jig) may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-3. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table 6-4-1

4-4. SERVICE MODE

Note: Before performing the adjustment, check the data of page: 0, address: 10 is “00”. If not, select page: 0, address: 00, and set data “00”.

1. Setting the Test Mode

Page A	Address 10

Data	Function
00	Normal
01	Forced camera power ON (CAMERA mode)
02	Forced VTR power ON (VCR mode)
03	Forced camera + VTR power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page A, the data set will be recorded in the non-volatile memory by pressing the PAUSE (Write) button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4 Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE (Write) button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

2-1. Emergence Memory Address (Mechanism section)

Page C	Address F4 to FF

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB).
Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note: After completing adjustments, be sure to initialize the data of addresses F4 to FF to “00”.

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	71	01	Press PAUSE (Write) button.
3	3	03	FF	
4	3	01	37	Press PAUSE (Write) button.
5	3	02		Check the data changes to “00”.
6	3	03		Check the data changes to “00”.
7	3	70	10	Press PAUSE (Write) button.
8	3	70		Check the data changes to “11”.
9	0	01	01	

2-2. EMG Code (Emergency Code)

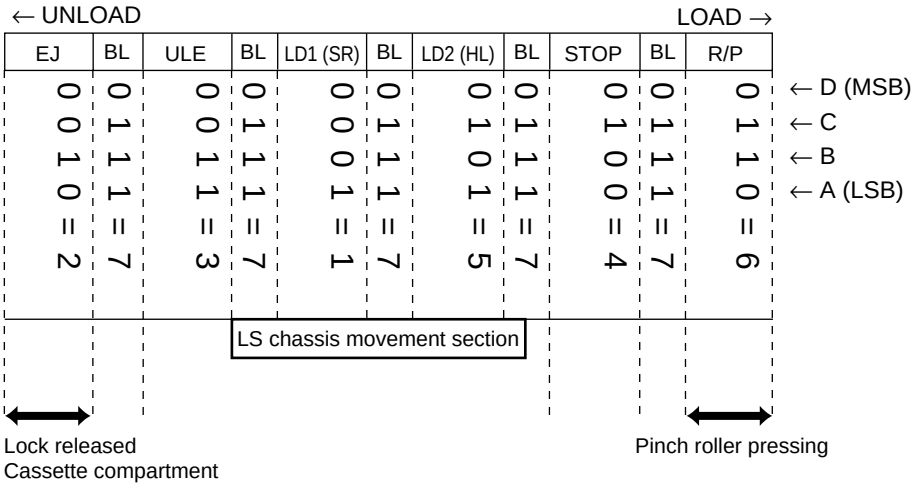
Codes corresponding to the errors which occur are written in C page, addresses F4, F8 and FC . The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-3. MSW Code

MSW when errors occur:
Information on MSW (mode SW) when errors occur
MSW when movement starts:
Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)
MSW of target of movement:
Information on target MSW of movement when the mechanism position is moved

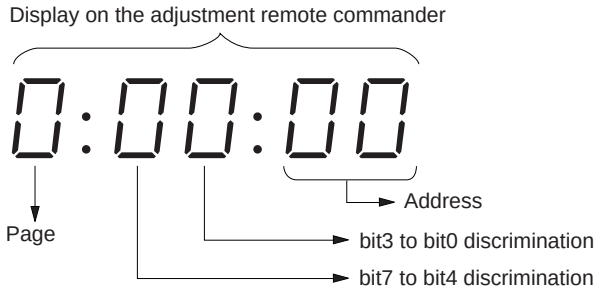
Mechanical Position



Position	Code	Contents
EJ	2	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	7	BLANK code, at the boundary between codes.
ULE	3	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
LD1 (SR)	1	When prepraing TOP load processing or when DEW is detected, rolling up tape by T reel is preformed at this position.
LD2 (HL)	5	When prepraing TOP load processing or when DEW is detected, rolling up tape by S reel is preformed at this position.
STOP	4	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	6	PB, REC, CUE, REVIEW, PAUSE, FF, REW positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is "1" or "0".



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (R)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

4. Jack Check (1)

Page 7	Address FF

Bit	Function	When bit value = 1	When bit value = 0
1	COMPONENT OUT jack (II-003 board CN9204)	Used	Not used

Using method:

1) Select page: 7, address: FF.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

5. Jack Check (2)

Page 7	Address FB

Bit	Function	When bit value = 1	When bit value = 0
0	A/V OUT jack (II-003 board CN9203)	Used	Not used

Using method:

1) Select page: 7, address: FB.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

6. Jack Check (3)

Page 3	Address 61

Bit	Function	When bit value = 1	When bit value = 0
6	HEADPHONES jack (FP-486 flexible J601)	Used	Not used

Using method:

1) Select page: 3, address: 61.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

7. Jack Check (4)

Page 3	Address CF

Bit	Function	When bit value = 1	When bit value = 0
0	HDMI OUT jack (HH-003 board CN7401)	Used	Not used

Using method:

1) Select page: 3, address: CF.
2) By discriminating the bit value of display data, the state of jack can be discriminated.

8. Switch Check (1)

Page 2	Address 81

Bit	Function	When bit value = 1	When bit value = 0
0	POWER-VCR (PS18500 block)	ON	OFF
1	POWER-CAMERA (PS18500 block)	ON	OFF
3	EJECT (FP-485 flexible S001)	ON	OFF
4	CC DOWN (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	DISPLAY/BATT INFO (RR-003 board S9602)	ON	OFF

Using method:

1) Select page: 2, address: 81.
2) By discriminating the bit value of display data, the state of switch can be discriminated.

9. Switch Check (2)

Page 7	Address 63 to 6B

Note: Check that the data of page: 0, address: 10 is “00”.

Using method:
1) Select page: 7, address: 63 to 6B.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 27	32 to 3A	4F to 58	73 to 7B	8B to B7	B8 to E6	E7 to FF
63 (KEY AD7) (IC3601 ⑬⑦)	ASSIGN 1 (CK18500 block) (S3001)	ASSIGN 2 (CK18500 block) (S3002)	ASSIGN 3 (CK18500 block) (S3003)	PUSH AUTO FOCUS (CK18500 block) (S3004)	EXPOSURE/ IRIS (CK18500 block) (S3006)	–	–	No key input
64 (KEY AD8) (IC3601 ⑬⑧)	PICTURE PROFILE (CF18500 block) (S4005)	STATUS CHECK (CF18500 block) (S4004)	ASSIGN 4 (RR-003) (S9608)	ASSIGN 5 (RR-003) (S9610)	ASSIGN 6 (RR-003) (S9612)	ZEBRA OFF (RR-003) (S9614)	ZEBRA 100 (RR-003) (S9614)	ZEBRA 70 (RR-003) (S9614)
65 (KEY AD0) (IC3601 ⑬⑨)	REC START/STOP (PS18500 block) (S1001)	–	–	–	–	–	–	No key input
66 (KEY AD1) (IC3601 ⑭⓪)	STOP (RR-003) (S9603)	REW (RR-003) (S9606)	REC (RR-003) (S9609, S9611)	PLAY (RR-003) (S9613)	FF (RR-003) (S9615)	SLOW (RR-003) (S9616)	–	No key input
67 (KEY AD2) (IC3601 ⑭①)	PHOTO/ EXPANDED FOCUS (PL18500 block) (S2001)	–	–	–	–	HANDLE ZOOM OFF (FP-483 flexible) (S303)	HANDLE ZOOM H (FP-483 flexible) (S303)	HANDLE ZOOM L (FP-483 flexible) (S303)
68 (KEY AD3) (IC3601 ⑭②)	REC START/STOP (FP-483 flexible)	HANDLE ZOOM WIDE (FP-483 flexible)	HANDLE ZOOM TELE (FP-483 flexible)	–	–	–	–	No key input
69 (KEY AD4) (IC3601 ⑭③)	FOCUS (CK18500 block) (S3005)	EXPANDED FOCUS (CK18500 block) (S3007)	PAUSE (RR-003) (S9604)	–	–	–	PANEL REVERSE (FP-487 flexible) (S701)	PANEL NORMAL (FP-487 flexible) (S701)
6A (KEY AD5) (IC3601 ⑭④)	SEL/ PUSH EXEC (CF18500 block) (S4008)	MENU (CF18500 block) (S4007)	GAIN (CF18500 block) (S4002)	SHUTTER SPEED (CF18500 block) (S4003)	WHT BAL (CF18500 block) (S4006)	AUTO LOCK HOLD (CF18500 block) (S4001)	AUTO LOCK LOCK (CF18500 block) (S4001)	AUTO LOCK MANUAL (CF18500 block) (S4001)
6B (KEY AD6) (IC3601 ⑭⑤)	VOLUME/ MEMORY + (RR-003) (S9605)	VOLUME/ MEMORY – (RR-003) (S9607)	–	–	–	–	PANEL CLOSE (FP-487 flexible) (S702)	PANEL OPEN (FP-487 flexible) (S702)

10. LED Check

Page 7	Address 00, 01 and 04

Note: Check that the data of page: 0, address: 10 is “00”.

Using method:

Order	Page	Address	Data	Procedure
1				Set the unit to CAMERA-TAPE mode.
2	7	01	90	
3	7	04	01	
4	7	00	01	Press PAUSE (Write) button.
5	7	02		Check the data changes to “01”.
6				Check that the following LED are lit. • REC LAMP • CHARGE • MS ACCESS
7	7	01	90	
8	7	04	00	
9	7	00	01	Press PAUSE (Write) button.
10	7	00	00	
11	7	01	00	
12	7	02		Check the data changes to “01”.

11. Record of Use Check (1)

Page 7	Address A4 to AF

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (RR-003 board BT9601) is removed.
Note 2: When the drum was replaced, initialize the drum rotation counted time.
Note 3: Check that the data of page: 0, address: 10 is “00”.

Address	Function		Remarks
A4	Power supplying	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
A5	time	Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
A6		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A7	(BCD code)	Minute	
A8	Drum rotation	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
A9	counted time	Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
AA		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
AB	(BCD code)	Minute	
AC	Tape run time	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
AD		Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
AE		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
AF	(BCD code)	Minute	

Using method:

1) The record of use data is displayed at page: 7, addresses: A4 to AF.

Initializing method:

Order	Page	Address	Data	Procedure
1	7	A4	00	Press PAUSE (Write) button.
2	7	A5	00	Press PAUSE (Write) button.
3	7	A6	00	Press PAUSE (Write) button.
4	7	A7	00	Press PAUSE (Write) button.
5	7	A8	00	Press PAUSE (Write) button.
6	7	A9	00	Press PAUSE (Write) button.
7	7	AA	00	Press PAUSE (Write) button.
8	7	AB	00	Press PAUSE (Write) button.
9	7	AC	00	Press PAUSE (Write) button.
10	7	AD	00	Press PAUSE (Write) button.
11	7	AE	00	Press PAUSE (Write) button.
12	7	AF	00	Press PAUSE (Write) button.

12. Record of Use Check (2)

Page 7	Address 90 to 95

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (RR-003 board BT9601) is removed.
Note 2: When the drum was replaced, initialize the drum rotation counted time.
Note 3: Check that the data of page: 0, address: 10 is "00".

Address	Function		Remarks
90	Eject count with tape	Count (H)	100000th place digit and 10000th place digit of Eject count (decimal digit)
91		Count (M)	1000th place digit and 100th place digit of Eject count (decimal digit)
92	(BCD code)	Count (L)	10th place digit and 1st place digit of Eject count (decimal digit)
93	Eject count without	Count (H)	100000th place digit and 10000th place digit of Eject count (decimal digit)
94	tape	Count (M)	1000th place digit and 100th place digit of Eject count (decimal digit)
95	(BCD code)	Count (L)	10th place digit and 1st place digit of Eject count (decimal digit)

Using method:
1) The record of use data is displayed at page: 7, addresses: 90 to 95.

Initializing method:

Order	Page	Address	Data	Procedure
1	7	90	00	Press PAUSE (Write) button.
2	7	91	00	Press PAUSE (Write) button.
3	7	92	00	Press PAUSE (Write) button.
4	7	93	00	Press PAUSE (Write) button.
5	7	94	00	Press PAUSE (Write) button.
6	7	95	00	Press PAUSE (Write) button.

13. Record of Use Check (3)

Page 7	Address C8 to CD

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (RR-003 board BT9601) is removed.
Note 2: Check that the data of page: 0, address 10 is “00”.

Address	Function		Remarks
C8	User initial power	Year	After setting the clock, set the date of power on next
C9	on date	Month	
CA	(BCD code)	Day	
CB	Final condensation	Year	
CC	occurrence date	Month	
CD	(BCD code)	Day	

Using method:
1) The record of use data is displayed at page: 7, addresses: C8 to CD.

14. Record of Self-diagnosis Check

Page 7	Address B0 to C6

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (RR-003 board BT9601) is removed.
Note 2: Check that the data of page: 0, address 10 is “00”.

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01” → “C”, “03” → “E”

Using method:
1) The past self-diagnosis codes are displayed at page: 7, address: BC to C6. Refer to “1-5. SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.

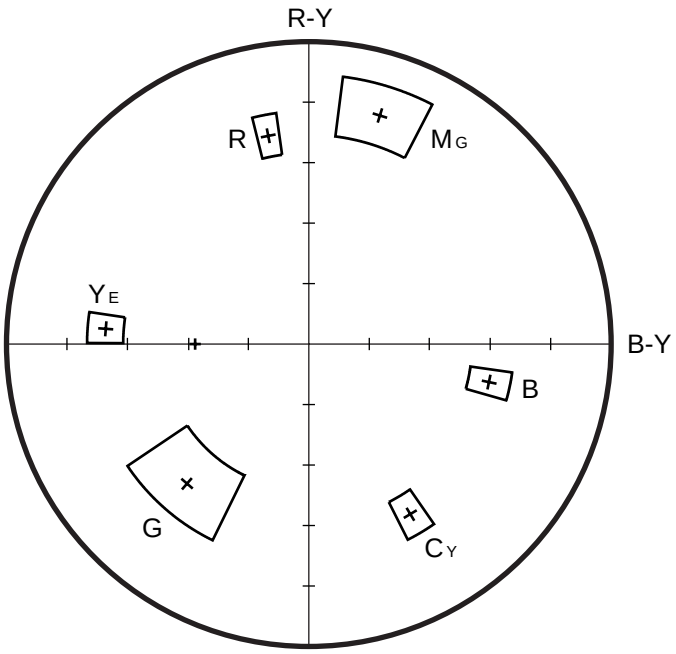
Initializing method:

Order	Page	Address	Data	Procedure
1	7	01	C0	
2	7	00	01	Press PAUSE button.
3	7	B0 to C6		Check that the data is “00”.
4	7	00	00	
5	7	01	00	

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

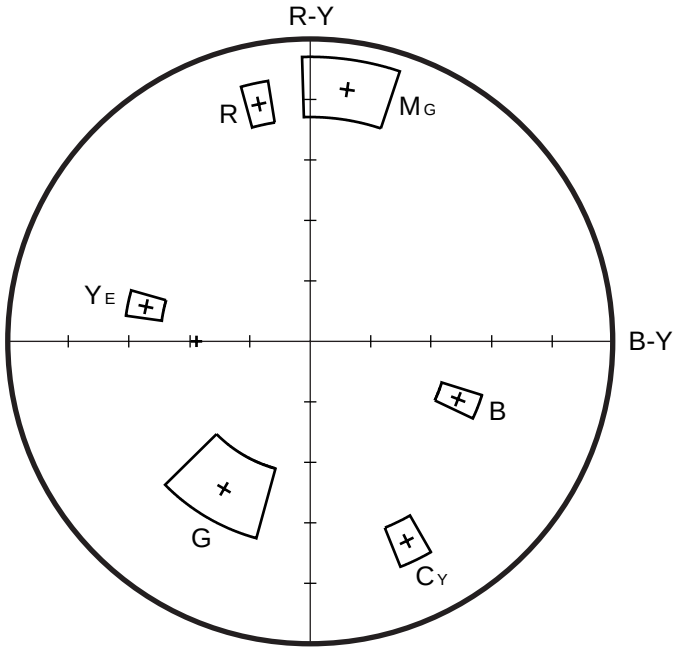
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For Indoor HD mode (NTSC model)



HVR-V1J/V1U/V1N

For Indoor SD mode (NTSC model)

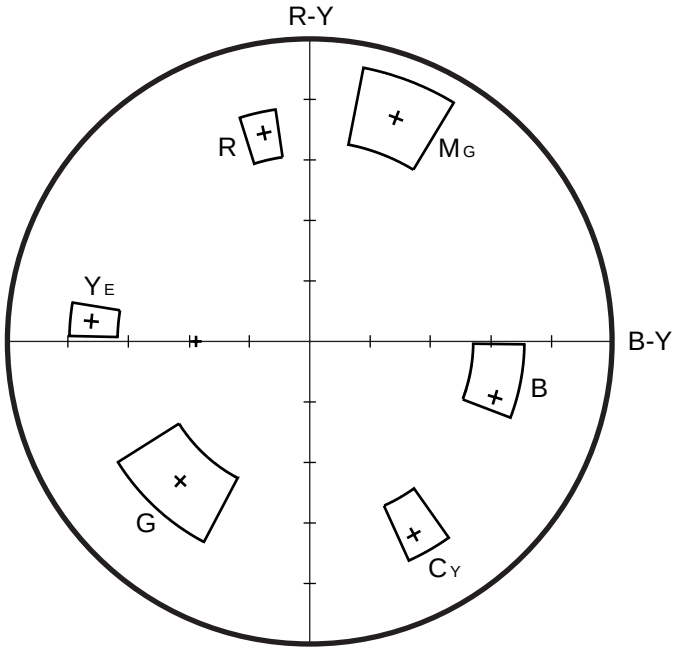


HVR-V1J/V1U/V1N

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

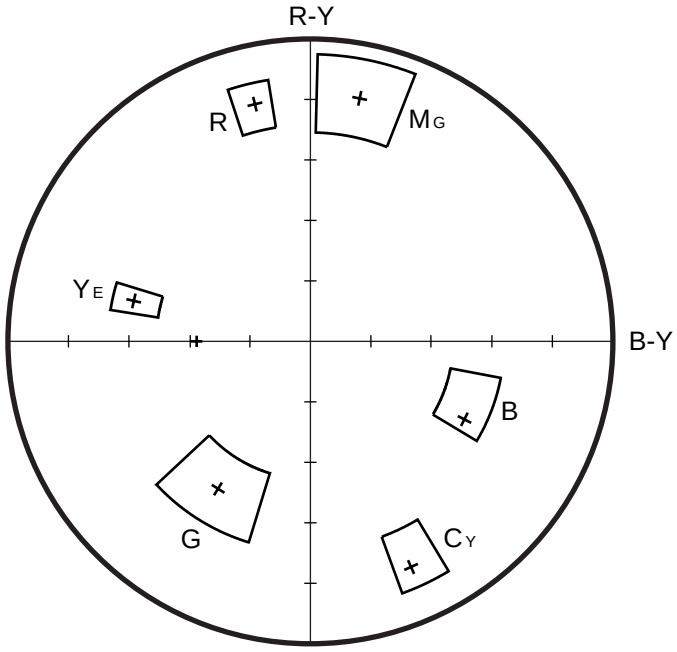
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For Outdoor HD mode (NTSC model)



HVR-V1J/V1U/V1N

For Outdoor SD mode (NTSC model)

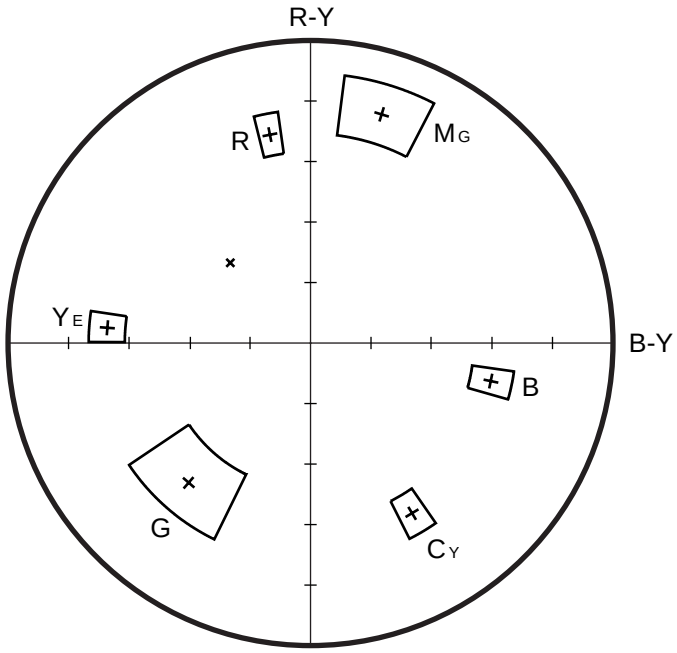


HVR-V1J/V1U/V1N

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

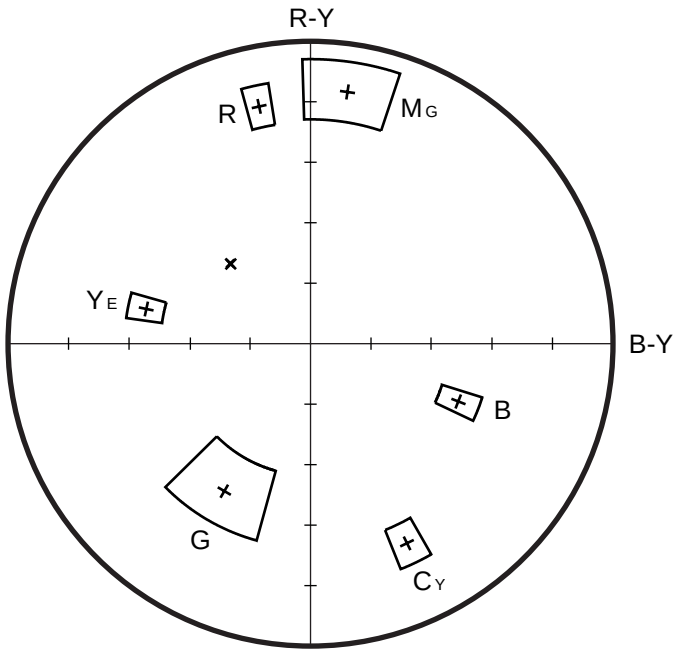
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For Indoor HD mode (PAL model)



HVR-V1E/V1P/V1C

For Indoor SD mode (PAL model)

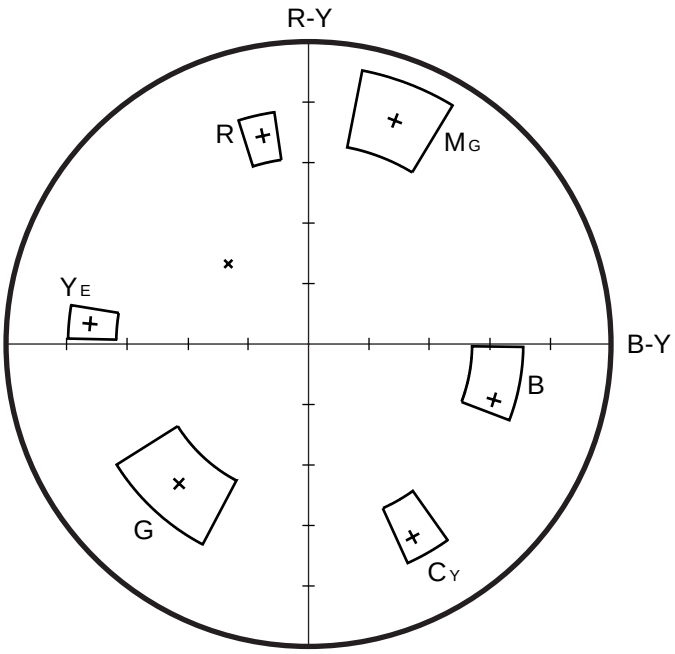


HVR-V1E/V1P/V1C

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

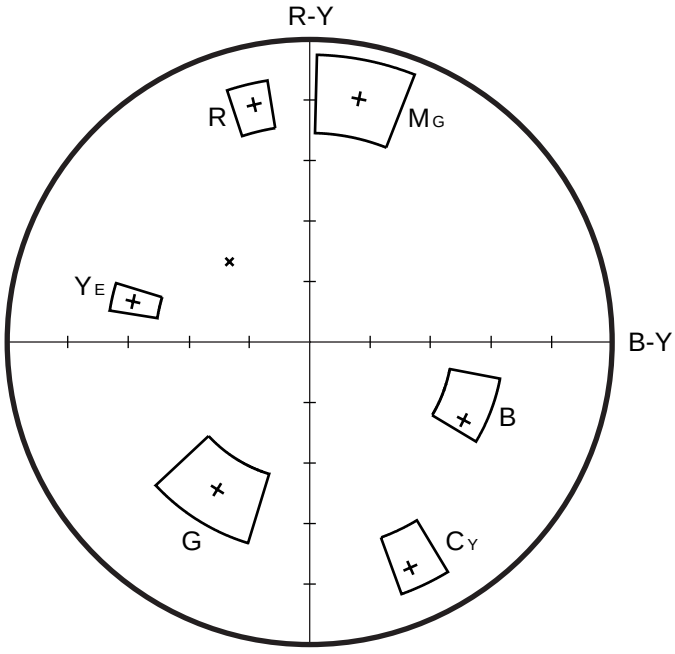
Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For Outdoor HD mode (PAL model)



HVR-V1E/V1P/V1C

For Outdoor SD mode (PAL model)



HVR-V1E/V1P/V1C

HVR-V1J/V1U/V1N/V1E/V1P/V1C

RMT-831

SONY

SERVICE MANUAL

Ver. 1.2 2007.07

US Model
Canadian Model
AEP Model
E Model
Chinese Model
Japanese Model

SUPPLEMENT-1

File this supplement with the service manual.
(DI07-032)

- **Addition of Models**
- **Change of Repair Parts**
- **Change of Board's Suffix No.**
- **Change of EVR Page table**
- **Addition of "How to read the sensitivity data of angular velocity sensor"**

- **Suffix No. of EE-006, GG-003, HH-003, II-003, JJ-004, NN-003, OO-003, PP-003, RR-003, UU-003, WW-003, XX-015 and ZZ-003 boards have been changed from 11 into 12.**
  About suffix No. 11 and 12, there are no changes of schematic diagram and printed wiring board.
- **Suffix No. of YY-003 and FP-484, FP-488 flexible boards have been changed from 11 into 12.**

• Addition of Models

New models were added to this camcorder series as following table.
However use this service manual for these new models due to same specifications as existing models.

Existing/additional models corresponding table

Existing Model	Additional Model
HVR-V1J	HVR-V1J/1
HVR-V1U	HVR-V1U/1
HVR-V1N	HVR-V1N/1
HVR-V1E	HVR-V1E/1
HVR-V1P	HVR-V1P/1
HVR-V1C	HVR-V1C/1

2007G0500-1
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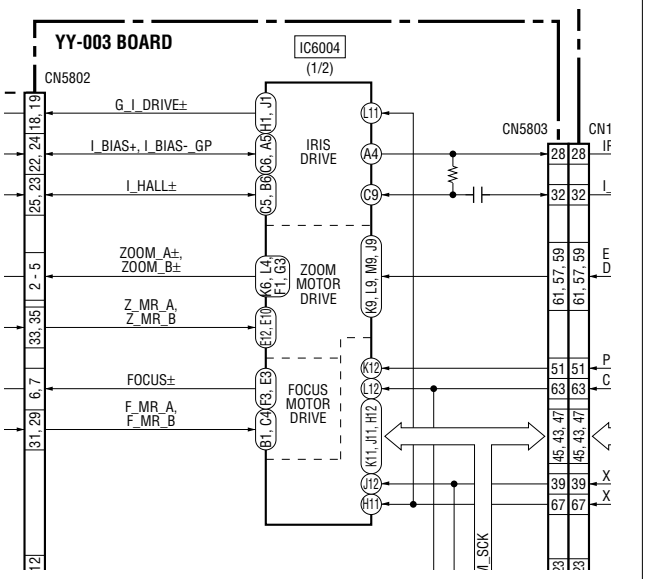
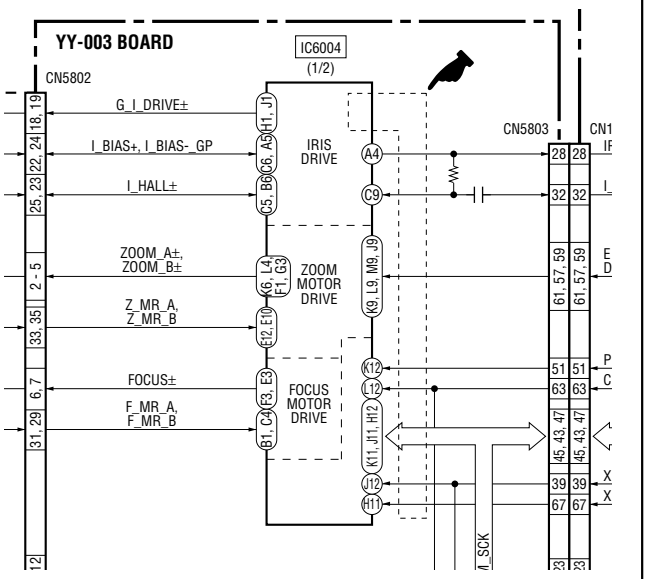
• Change of Repair Parts
• Change of Board's Suffix No.
☛ **: Points deleted portion.**

3. BLOCK DIAGRAMS

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

(Service manual page 3-1)

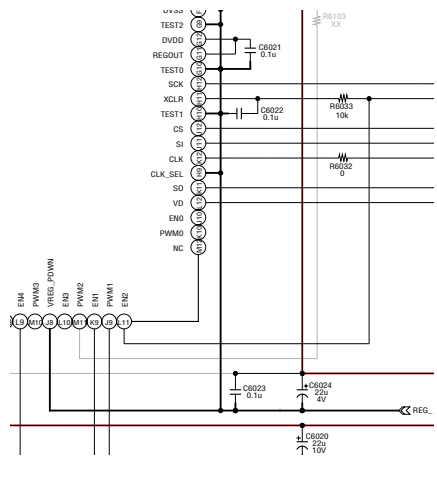
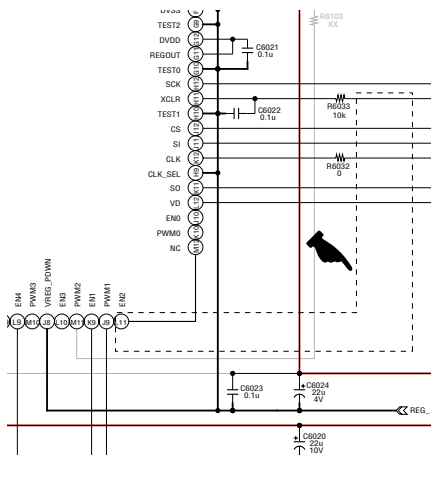
Suffix: -11 (YY-003 board)	Suffix: -12 (YY-003 board)
	

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS

YY-003 BOARD (1/2) (LENS DRIVE)

(Service manual page 4-24, Location K-14 to N-17))

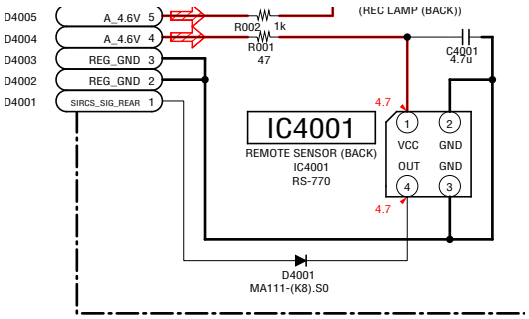
Suffix: -11	Suffix: -12
	

: Points deleted portion.
: Points changed portion.

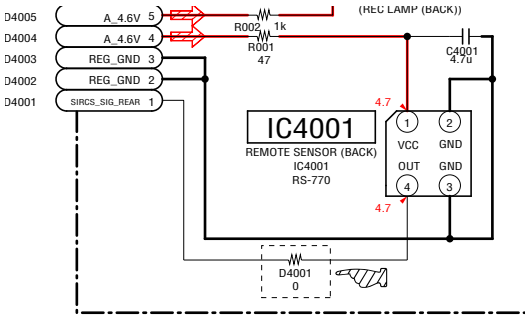
FP-484 FLEXIBLE BOARD (REMOTE SENSOR (BACK))

(Service manual page 4-32, Location F-2 to H-5)

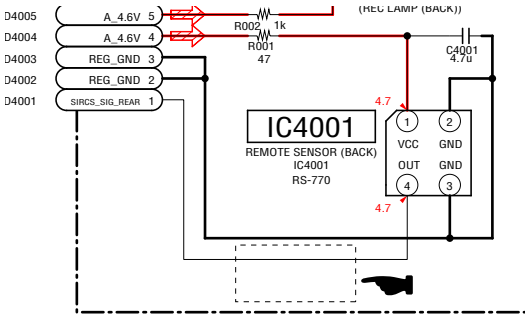
Former (Suffix: -11)



New (Suffix: -11)



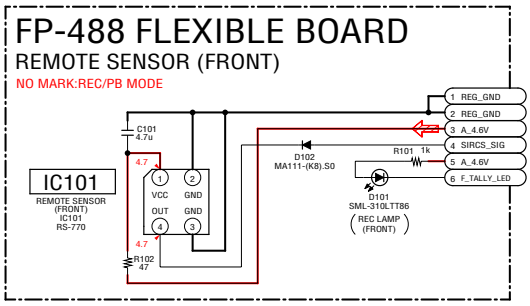
New (Suffix: -12)



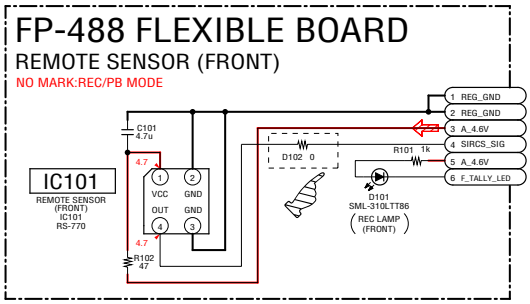
FP-488 FLEXIBLE BOARD (REMOTE SENSOR (FRONT))

(Service manual page 4-36, Location J-3 to L-7)

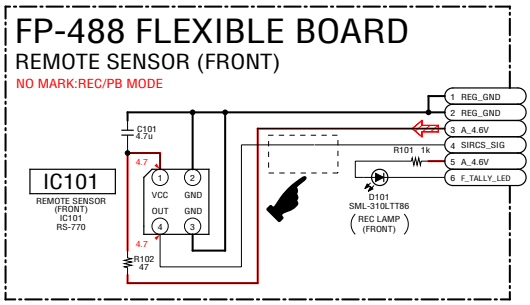
Former (Suffix: -11)



New (Suffix: -11)



New (Suffix: -12)

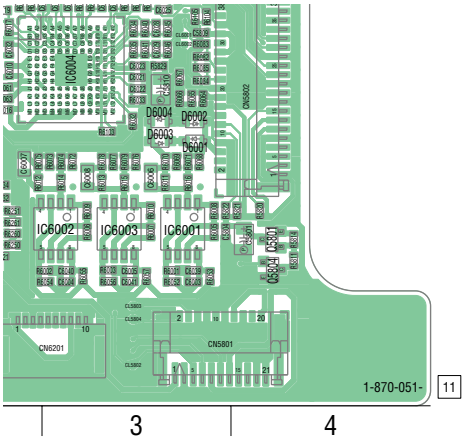
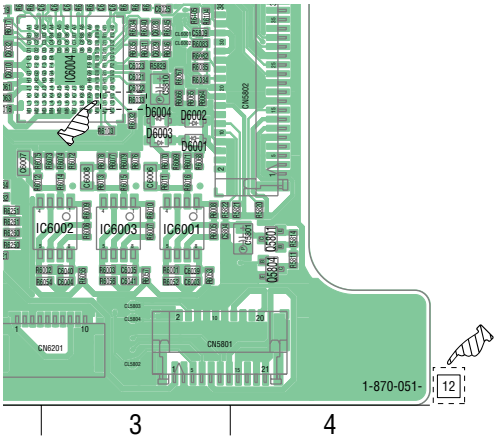


: Points deleted portion.
: Points changed portion.

4-3. PRINTED WIRING BOARDS

YY-003 BOARD (SIDE A)

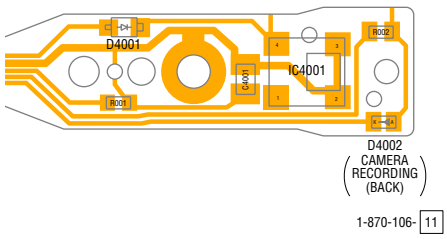
(Service manual page 4-50, Location B-3 to C-4)

Suffix: -11	Suffix: -12
	

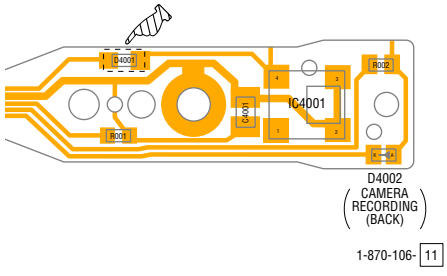
FP-484 FLEXIBLE BOARD

(Service manual page 4-58)

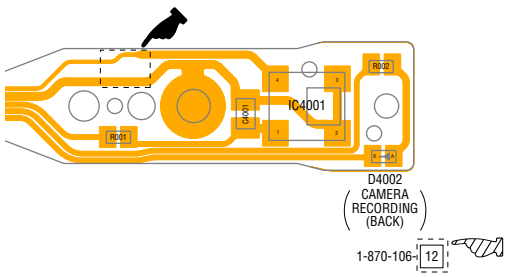
Former (Suffix: -11)



New (Suffix: -11)



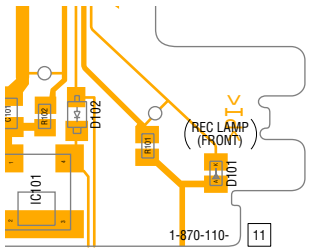
New (Suffix: -12)



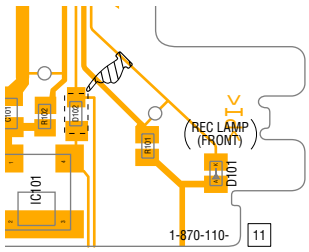
FP-488 FLEXIBLE BOARD

(Service manual page 4-61)

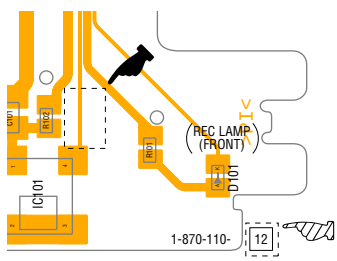
Former (Suffix: -11)



New (Suffix: -11)



New (Suffix: -12)



5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-4	102	A-1217-722-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)	102	A-1284-644-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)
	102	A-1217-723-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)	102	A-1284-645-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)
5-14	713	A-1080-997-A	MD (N100) SUB ASSY A	713	A-1156-601-A	MD (N110) SUB ASSY (S) A
5-15	756	X-2024-473-1	TABLE ASSY, S REEL	756	X-2067-290-1	TABLE ASSY, S REEL
	757	A-1083-007-B	BLOCK ASSY, TENSION REGULATOR	757	A-1132-279-A	REGULATOR BLOCK ASSY, TENSION
	760	X-2024-474-1	TABLE ASSY, T REEL	760	X-2067-291-1	TABLE ASSY, T REEL
	761	X-2024-476-1	ARM ASSY, PINCH	761	X-2067-295-4	ARM ASSY, PINCH
5-16	817	2-342-690-02	BASE, MOTOR HOLDER	817	2-637-947-01	BASE, MOTOR HOLDER
	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.*			***Note1:*** *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.*		

5-2. ELECTRICAL PARTS LIST

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-17		(Not supplied)	FP-031 FLEXIBLE BOARD ********** (This flexible board is included in MD (N100) sub assy A (A-1080-997-A).)		(Not supplied)	FP-031 FLEXIBLE BOARD ********** (This flexible board is included in MD (N110) sub assy (S) A (A-1156-601-A).)
5-17		(Not supplied)	FP-032 FLEXIBLE BOARD ********** (This flexible board with S903 is included in MD (N100) sub assy A (A-1080-997-A).)		(Not supplied)	FP-032 FLEXIBLE BOARD ********** (This flexible board with S903 is included in MD (N110) sub assy (S) A(A-1156-601-A).)
5-17		A-1217-228-A	FP-483 FLEXIBLE BOARD, COMPLETE ********** < SWITCH >		A-1217-228-A	FP-483 FLEXIBLE BOARD, COMPLETE ********** < SWITCH >
	S303	1-771-487-21	SWITCH, SLIDE (HANDLE ZOOM (H/L/OFF))	S303	1-771-487-11	SWITCH, SLIDE (HANDLE ZOOM (H/L/OFF))
5-18		A-1217-229-A	FP-484 FLEXIBLE BOARD, COMPLETE ********** < CONNECTOR >		A-1217-229-A	FP-484 FLEXIBLE BOARD, COMPLETE (Note 1) ********** < CONNECTOR >
	CN4001	1-817-543-51	CONNECTOR, FPC (ZIF) 27P	* CN4001	1-817-543-71	CONNECTOR, FPC (ZIF) 27P
			< DIODE >			< JUMPER RESISTOR >
	D4001	8-719-073-01	DIODE MA111-(K8).S0	D4001	1-216-295-91	SHORT CHIP 0 (Note 1, 2) (Suffix: -11) (Suffix: -12)
5-18		A-1217-233-A	FP-488 FLEXIBLE BOARD, COMPLETE ********** < DIODE >		A-1217-233-A	FP-488 FLEXIBLE BOARD, COMPLETE (Note 1) ********** < JUMPER RESISTOR >
	D102	8-719-073-01	DIODE MA111-(K8).S0	D102	1-216-295-91	SHORT CHIP 0 (Note 1, 2) (Suffix: -11) (Suffix: -12)
5-20		A-1227-577-A	JJ-004 BOARD, COMPLETE (SERVICE) ********** < SENSOR >		A-1227-577-A	JJ-004 BOARD, COMPLETE (SERVICE) ********** < SENSOR >
	* SE8001	1-479-022-51	SENSOR, ANGULAR VELOCITY (PITCH)	* SE8001	1-480-218-11	SENSOR, ANGULAR VELOCITY (PITCH)
5-21		A-1217-223-A	OO-003 BOARD, COMPLETE ********** < CONNECTOR >		A-1217-223-A	OO-003 BOARD, COMPLETE ********** < CONNECTOR >
	* CN6601	1-819-934-51	CONNECTOR, FPC (ZIF) 39P	CN6601	1-819-934-61	CONNECTOR, FPC (ZIF) 39P
	* CN6603	1-819-778-51	CONNECTOR, FPC (ZIF) 33P	* CN6603	1-819-778-61	CONNECTOR, FPC (ZIF) 33P

Note 1: If diode is mounted to the location of either D102 on the FP-488 flexible board or D4001 on the FP-484 flexible board, they may cause a problem.
In this case, replace both diodes with short chips or replace the flexible board with new type.

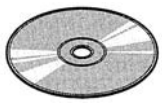
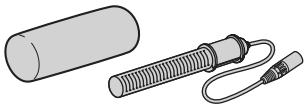
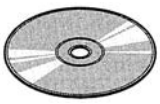
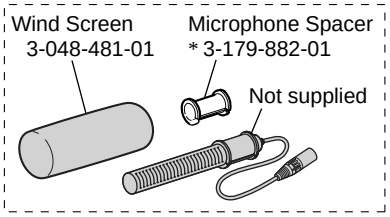
Note 2: Short chip is mounted to the location where D102 and D4001 are printed.

Page	Former			New		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
		A-1217-212-A	RR-003 BOARD, COMPLETE		A-1217-212-A	RR-003 BOARD, COMPLETE
			**********			**********
5-23			< CONNECTOR >			< CONNECTOR >
	* CN9601	1-819-781-51	CONNECTOR, FPC (ZIF) 45P	* CN9601	1-819-781-61	CONNECTOR, FPC (ZIF) 45P
			< SWITCH >			< SWITCH >
	S9614	1-771-487-21	SWITCH, SLIDE (ZEBRA (OFF/70/100))	S9614	1-771-487-11	SWITCH, SLIDE (ZEBRA (OFF/70/100))
5-24		A-1217-722-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)		A-1284-644-A	TT-003 BOARD, COMPLETE (SERVICE) (NTSC: V1J/V1U/V1N)
		A-1217-723-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)		A-1284-645-A	TT-003 BOARD, COMPLETE (SERVICE) (PAL: V1E/V1P/V1C)
			**********			**********
			< CONNECTOR >			< CONNECTOR >
5-27	* CN1001	1-819-934-51	CONNECTOR, FPC (ZIF) 39P	CN1001	1-819-934-61	CONNECTOR, FPC (ZIF) 39P
	CN1005	1-817-543-51	CONNECTOR, FPC (ZIF) 27P	* CN1005	1-817-543-71	CONNECTOR, FPC (ZIF) 27P
	* CN1007	1-819-781-51	CONNECTOR, FPC (ZIF) 45P	* CN1007	1-819-781-61	CONNECTOR, FPC (ZIF) 45P
			< IC >			< IC >
5-28	* IC3201	6-709-444-01	IC T6UL2XBG-0001 (EO2)	IC3201	6-711-003-01	IC T6UL2XBG-0002 (EO2)
	* IC4201	6-807-213-01	IC MB91195ABGL-G-228-ERE1	* IC4201	6-807-375-01	IC MB91195ABGL-G-233-ERE1
	* IC4401	6-807-176-01	IC MB91195ABGL-G-224-ERE1	* IC4401	6-807-305-01	IC MB91195ABGL-G-229-ERE1
			< RESISTOR >			< RESISTOR >
5-31	R3409	1-208-702-11	METAL CHIP 6.2K 0.5% 1/16W	R3409	1-208-906-81	METAL CHIP 6.2K 0.5% 1/16W
			< VIBRATOR >			< VIBRATOR >
5-33	X4401	1-767-205-21	VIBRATOR, CRYSTAL (20 MHz)	* X4401	1-767-205-81	VIBRATOR, CRYSTAL (20 MHz)
5-33		A-1217-213-A	UU-003 BOARD, COMPLETE		A-1217-213-A	UU-003 BOARD, COMPLETE
			**********			**********
			< CONNECTOR >			< CONNECTOR >
	CN8601	1-817-543-51	CONNECTOR, FPC (ZIF) 27P	* CN8601	1-817-543-71	CONNECTOR, FPC (ZIF) 27P
5-33		A-1217-214-A	WW-003 BOARD, COMPLETE		A-1217-214-A	WW-003 BOARD, COMPLETE
			**********			**********
			< CONNECTOR >			< CONNECTOR >
	CN9401	1-817-543-51	CONNECTOR, FPC (ZIF) 27P	* CN9401	1-817-543-71	CONNECTOR, FPC (ZIF) 27P
5-35		A-1217-224-A	XX-015 BOARD, COMPLETE		A-1217-224-A	XX-015 BOARD, COMPLETE
			**********			**********
	R8486	1-208-679-11	METAL CHIP 680 0.5% 1/16W	R8486	1-208-883-81	METAL CHIP 680 0.5% 1/16W
5-36		A-1217-225-A	YY-003 BOARD, COMPLETE		A-1217-225-A	YY-003 BOARD, COMPLETE
			**********			**********
			< CONNECTOR >			< CONNECTOR >
	* CN5801	1-817-560-51	CONNECTOR, FPC (ZIP) 21P	* CN5801	1-817-560-71	CONNECTOR, FPC (ZIP) 21P

• EXCEPT J MODEL

Checking supplied accessories.

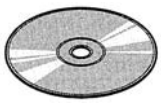
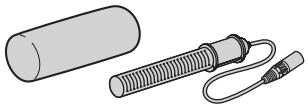
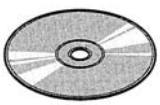
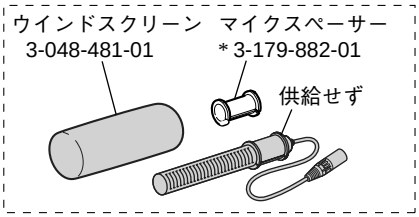
to J MODEL

Page	Former	New
5-38	 CD-ROM “Manuals for Digital HD Video Camera Recorder” 2-887-516-01  Wind Screen, Microphone 8-814-298-90 **Other accessories** 2-887-519-01 MANUAL, INSTRUCTION (PDF) (JAPANESE) (Note) 2-887-519-11 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (US, CND, E) (Note) 2-887-519-21 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note) 2-887-521-11 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (AEP, E) (Note) 2-887-521-21 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (SIMPLIFIED CHINESE) (CH) (Note) 2-887-521-31 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note) 2-887-521-41 MANUAL, INSTRUCTION (PDF) (SPANISH) (Note) 2-887-521-51 MANUAL, INSTRUCTION (PDF) (ITALIAN) (Note) 2-887-521-61 MANUAL, INSTRUCTION (PDF) (GERMAN) (Note)	 CD-ROM “Manuals for Digital HD Video Camera Recorder” 2-887-516-04  Wind Screen, Microphone 8-814-298-90 **Other accessories** 2-887-519-04 MANUAL, INSTRUCTION (PDF) (JAPANESE) (Note) 2-887-519-14 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (US, CND, E) (Note) 2-887-519-24 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note) 2-887-521-14 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (ENGLISH) (AEP, E) (Note) 2-887-521-24 MANUAL, INSTRUCTION (PRINTED MATERIAL/PDF) (SIMPLIFIED CHINESE) (CH) (Note) 2-887-521-34 MANUAL, INSTRUCTION (PDF) (FRENCH) (Note) 2-887-521-44 MANUAL, INSTRUCTION (PDF) (SPANISH) (Note) 2-887-521-54 MANUAL, INSTRUCTION (PDF) (ITALIAN) (Note) 2-887-521-64 MANUAL, INSTRUCTION (PDF) (GERMAN) (Note)

Note: INSTRUCTION MANUAL (PDF) of each language are included in CD-ROM “Manuals for Digital HD Video Camera Recorder”.

• J MODEL

付属品

ページ	旧	新
5-39	 CD-ROM 「Manuals for Digital HD Video Camera Recorder」 2-887-516-01  ウインドスクリーン, マイク 8-814-298-90 その他の付属品 2-887-519-01 取扱説明書 (印刷物/PDF) (日本語) (注) 2-887-519-11 取扱説明書 (PDF) (英語) (注) 2-887-519-21 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注) 2-887-521-11 取扱説明書 (PDF) (英語) (注) 2-887-521-21 取扱説明書 (PDF) (中国語 (簡体字)) (注) 2-887-521-31 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注) 2-887-521-41 取扱説明書 (PDF) (ｽﾍﾟｲﾝ語) (注) 2-887-521-51 取扱説明書 (PDF) (ｲﾀﾘｱ語) (注) 2-887-521-61 取扱説明書 (PDF) (ﾄﾞｲﾂ語) (注)	 CD-ROM 「Manuals for Digital HD Video Camera Recorder」 2-887-516-04  ウインドスクリーン, マイク 8-814-298-90 その他の付属品 2-887-519-04 取扱説明書 (印刷物/PDF) (日本語) (注) 2-887-519-14 取扱説明書 (PDF) (英語) (注) 2-887-519-24 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注) 2-887-521-14 取扱説明書 (PDF) (英語) (注) 2-887-521-24 取扱説明書 (PDF) (中国語 (簡体字)) (注) 2-887-521-34 取扱説明書 (PDF) (ﾌﾗﾝｽ語) (注) 2-887-521-44 取扱説明書 (PDF) (ｽﾍﾟｲﾝ語) (注) 2-887-521-54 取扱説明書 (PDF) (ｲﾀﾘｱ語) (注) 2-887-521-64 取扱説明書 (PDF) (ﾄﾞｲﾂ語) (注)

注：各言語の取扱説明書（PDF）は，CD-ROM「Manuals for Digital HD Video Camera Recorder」に含まれています。

• Change of EVR Page table

: Points changed portion.

6. ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

1-2. INITIALIZATION OF EVR DATA

1-2-1. Initialization of A, B, D, 1A, 1B Page Data

3. A Page table
(Service manual page 6-9)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
18	Fixed data-2		
19 to EF	Fixed data-1 (Initialized data)		
F0	Fixed data-2		
F1			
F2			
F3			

New Type

Address	Initial value		Remark
	NTSC	PAL	
18	Fixed data-2		
19 to 98	Fixed data-1 (Initialized data)		
99	Fixed data-2		
9A to EF	Fixed data-1 (Initialized data)		
F0	Fixed data-2		
F1			
F2			
F3			

5. D Page table
(Service manual page 6-9)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
30 to 56	Fixed data-1 (Initialized data)		
57	Fixed data-2		

New Type

Address	Initial value		Remark
	NTSC	PAL	
30 to 4B	Fixed data-1 (Initialized data)		
4C	Fixed data-2		
4D to 56	Fixed data-1 (Initialized data)		
57	Fixed data-2		

6. 1A Page table
(Service manual page 6-9)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 5E	Fixed data-1 (Initialized data)		
5F	Fixed data-2		
60 to FF	Fixed data-1 (Initialized data)		

☞ **: Points changed portion.**

1-2-2. Initialization of 8, 9, C, 13, 18, 1C, 1D Page Data

3. 8 Page table
(Service manual page 6-11)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 3D			Fixed data-1 (Initialized data)
3E			Fixed data-2
3F			
40 to 92			Fixed data-1 (Initialized data)
93			Fixed data-2
94			

New Type

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-2
01 to 3D			Fixed data-1 (Initialized data)
3E			Fixed data-2
3F			
40 to 45			Fixed data-1 (Initialized data)
46			Fixed data-2
47 to 92			Fixed data-1 (Initialized data)
93			Fixed data-2
94			

: **Points changed portion.**

1-2-3. Initialization of Camera Control Page Data

7. 8D Page table
(Service manual page 6-23)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 22	Fixed data-1 (Initialized data)		
23	Fixed data-2		
24			
25			
26			
27			
28, 29	Fixed data-1 (Initialized data)		
2A	Fixed data-2		
2B			
2C			
2D			
2E			
2F			
30 to 34	Fixed data-1 (Initialized data)		
35	Fixed data-2		
36			
37, 38	Fixed data-1 (Initialized data)		
39	Fixed data-2		
3A			
3B to 4B	Fixed data-1 (Initialized data)		
4C	Fixed data-2		
4D			
4E			
4F			
50			
51			
52 to 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59			
5A			
5B			
5C			
5D			
5E to 69	Fixed data-1 (Initialized data)		
6A	Fixed data-2		
6B			
6C			
6D to 6F	Fixed data-1 (Initialized data)		
70	Fixed data-2		
71			
72			
73 to 83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85			
86			
87			
88			
89			
8A to 8F	Fixed data-1 (Initialized data)		
90	Fixed data-2		
91			
92			
93			
94			
95			
96 to A1	Fixed data-1 (Initialized data)		
A2	Fixed data-2		
A3			
A4			
A5 to A7	Fixed data-1 (Initialized data)		
A8	Fixed data-2		
A9			
AA			
AB to BB	Fixed data-1 (Initialized data)		
BC	Fixed data-2		
BD			
BE			
BF			
C0			
C1			
C2 to C7	Fixed data-1 (Initialized data)		
C8	Fixed data-2		
C9			
CA			
CB			
CC			
CD			
CE to D9	Fixed data-1 (Initialized data)		
DA	Fixed data-2		
DB			
DC			
DD to DF	Fixed data-1 (Initialized data)		
E0	Fixed data-2		
E1			
E2			

– Continued on next page –

: **Points changed portion.**

Address	Initial value		Remark
	NTSC	PAL	
E3 to F3	Fixed data-1 (Initialized data)		
F4	Fixed data-2		
F5			
F6 to FB	Fixed data-1 (Initialized data)		
FC	Fixed data-2		
FD			
FE	Fixed data-1 (Initialized data)		
FF	Fixed data-2		

8. 8E Page table
(Service manual page 6-23)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 50	Fixed data-1 (Initialized data)		
51	Fixed data-2		
52			
53	Fixed data-1 (Initialized data)		
54	Fixed data-2		
55			
56, 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59			
5A			
5B			
5C			
5D			
5E			
5F			
60 to B7	Fixed data-1 (Initialized data)		
B8	Fixed data-2		
B9 to BF	Fixed data-1 (Initialized data)		
C0	Fixed data-2		
C1 to FF	Fixed data-1 (Initialized data)		

☞ : **Points changed portion.**

9. 8F Page table
(Service manual page 6-24)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 97	Fixed data-1 (Initialized data)		
98	Fixed data-2		
99 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark ☞
	NTSC	PAL	
00 to 17	Fixed data-1 (Initialized data)		
18	Fixed data-2		
19 to 1F	Fixed data-1 (Initialized data)		
20	Fixed data-2		
21	Fixed data-1 (Initialized data)		
22	Fixed data-2		
23			
24			
25, 26	Fixed data-1 (Initialized data)		
27	Fixed data-2		
28 to 73	Fixed data-1 (Initialized data)		
74	Fixed data-2		
75			
76 to 82	Fixed data-1 (Initialized data)		
83	Fixed data-2		
84			
85			
86			
87, 88	Fixed data-1 (Initialized data)		
89	Fixed data-2		
8A to 8E	Fixed data-1 (Initialized data)		
8F	Fixed data-2		
90 to 93	Fixed data-1 (Initialized data)		
94	Fixed data-2		
95 to 97	Fixed data-1 (Initialized data)		
98	Fixed data-2		
99 to F7	Fixed data-1 (Initialized data)		
F8	Fixed data-2		
F9 to FB	Fixed data-1 (Initialized data)		
FC	Fixed data-2		
FD			
FE			
FF	Fixed data-1 (Initialized data)		

14. AE Page table
(Service manual page 6-24)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85 to 8F	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark ☞
	NTSC	PAL	
00 to 0D	Fixed data-1 (Initialized data)		
0E	Fixed data-2		
0F			
10 to 53	Fixed data-1 (Initialized data)		
54	Fixed data-2		
55			
56 to 83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85 to 8F	Fixed data-1 (Initialized data)		

: **Points changed portion.**

15. AF Page table
(Service manual page 6-25)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00	Fixed data-2		
01 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00	Fixed data-2		
01 to 37	Fixed data-1 (Initialized data)		
38	Fixed data-2		
39			
3A			
3B			
3C			
3D to 4E	Fixed data-1 (Initialized data)		
4F	Fixed data-2		
50 to B5	Fixed data-1 (Initialized data)		
B6	Fixed data-2		
B7 to FF	Fixed data-1 (Initialized data)		

17. BF Page table
(Service manual page 6-25)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
46 to 71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73			
74 to AC	Fixed data-1 (Initialized data)		
AD	Fixed data-2		
AE			
AF			
B0			
B1 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
46 to 64	Fixed data-1 (Initialized data)		
65	Fixed data-2		
66	Fixed data-1 (Initialized data)		
67	Fixed data-2		
68	Fixed data-1 (Initialized data)		
69	Fixed data-2		
6A			
6B to 71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73			
74 to AC	Fixed data-1 (Initialized data)		
AD	Fixed data-2		
AE			
AF			
B0			
B1 to BF	Fixed data-1 (Initialized data)		
C0	Fixed data-2		
C1			
C2 to FF	Fixed data-1 (Initialized data)		

: **Points changed portion.**

18. C2 Page table
(Service manual page 6-26)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59 to 60	Fixed data-1 (Initialized data)		
61	Fixed data-2		
62			
63 to 6A	Fixed data-1 (Initialized data)		
6B	Fixed data-2		
6C to 72	Fixed data-1 (Initialized data)		
73	Fixed data-2		
74			
75 to 7A	Fixed data-1 (Initialized data)		
7B	Fixed data-2		
7C			
7D			
7E to 84	Fixed data-1 (Initialized data)		
85	Fixed data-2		
86			
87 to 8E	Fixed data-1 (Initialized data)		
8F	Fixed data-2		
90 to 9A	Fixed data-1 (Initialized data)		
9B	Fixed data-2		
9C			
9D			
9E			
9F			
A0 to BB	Fixed data-1 (Initialized data)		
BC	Fixed data-2		
BD to C0	Fixed data-1 (Initialized data)		
C1	Fixed data-2		
C2			
C3, C4	Fixed data-1 (Initialized data)		
C5	Fixed data-2		
C6 to CA	Fixed data-1 (Initialized data)		
CB	Fixed data-2		
CC, CD	Fixed data-1 (Initialized data)		
CE	Fixed data-2		
CF to D6	Fixed data-1 (Initialized data)		
D7	Fixed data-2		
D8 to F9	Fixed data-1 (Initialized data)		
FA	Fixed data-2		
FB			
FC to FF	Fixed data-1 (Initialized data)		

: **Points changed portion.**

19. C3 Page table
(Service manual page 6-26)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 02	Fixed data-1 (Initialized data)		
03	Fixed data-2		
04			
05 to 0B	Fixed data-1 (Initialized data)		
0C	Fixed data-2		
0D			
0E to 13	Fixed data-1 (Initialized data)		
14	Fixed data-2		
15			
16			
17 to 1C	Fixed data-1 (Initialized data)		
1D	Fixed data-2		
1E			
1F			
20 to 27	Fixed data-1 (Initialized data)		
28	Fixed data-2		
29 to 9F	Fixed data-1 (Initialized data)		
A0	Fixed data-2		
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			
B0			
B1			
B2 to BC	Fixed data-1 (Initialized data)		
BD	Fixed data-2		
BE to C2	Fixed data-1 (Initialized data)		
C3	Fixed data-2		
C4, C5	Fixed data-1 (Initialized data)		
C6	Fixed data-2		
C7			
C8	Fixed data-1 (Initialized data)		
C9	Fixed data-2		
CA			
CB			
CC			
CD, CE	Fixed data-1 (Initialized data)		
CF	Fixed data-2		
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2			
E3			
E4			
E5			
E6			
E7			
E8			
E9 to ED	Fixed data-1 (Initialized data)		
EE	Fixed data-2		
EF			
F0			
F1			
F2			
F3			
F4			
F5			
F6			
F7			
F8			
F9			
FA to FF	Fixed data-1 (Initialized data)		

: **Points changed portion.**

20. C4 Page table
(Service manual page 6-26)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 05	Fixed data-1 (Initialized data)		
06	Fixed data-2		
07 to 0E	Fixed data-1 (Initialized data)		
0F	Fixed data-2		
10	Fixed data-1 (Initialized data)		
11	Fixed data-2		
12			
13			
14			
15 to 1B	Fixed data-1 (Initialized data)		
1C	Fixed data-2		
1D			
1E to 20	Fixed data-1 (Initialized data)		
21	Fixed data-2		
22			
23			
24			
25	Fixed data-1 (Initialized data)		
26	Fixed data-2		
27			
28			
29			
2A			
2B			
2C			
2D			
2E			
2F			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
3A			
3B			
3C to 3E	Fixed data-1 (Initialized data)		
3F	Fixed data-2		
40			
41			
42 to 61	Fixed data-1 (Initialized data)		
62	Fixed data-2		
63			
64			
65			
66 to 6B	Fixed data-1 (Initialized data)		
6C	Fixed data-2		
6D			
6E			
6F, 70	Fixed data-1 (Initialized data)		
71	Fixed data-2		
72			
73			
74			
75	Fixed data-1 (Initialized data)		
76	Fixed data-2		
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
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86			
87			
88			
89			
8A			
8B			
8C			
8D			
8E			
8F			
90			
91			
92			

– Continued on next page –

: **Points changed portion.**

Address	Initial value NTSC	Initial value PAL	Remark
93			Fixed data-2
94			
95			
96			
97			
98			
99			
9A			
9B			
9C			
9D			
9E to A2			Fixed data-1 (Initialized data)
A3			Fixed data-2
A4			
A5			
A6			
A7 to A9			Fixed data-1 (Initialized data)
AA			Fixed data-2
AB			
AC			
AD			
AE			
AF			
B0 to B2			Fixed data-1 (Initialized data)
B3			Fixed data-2
B4			
B5			
B6			
B7			
B8			
B9 to BC			Fixed data-1 (Initialized data)
BD			Fixed data-2
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			

Address	Initial value NTSC	Initial value PAL	Remark
CF			Fixed data-2
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2			
E3			
E4			
E5			
E6			
E7			
E8			
E9			
EA			
EB			
EC			
ED			
EE			
EF			
F0			
F1			
F2			
F3			
F4			
F5			
F6			
F7			
F8			
F9			
FA			
FB			
FC			
FD			
FE			
FF			

– Continued on next page –

: **Points changed portion.**

21. C5 Page table
(Service manual page 6-26)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00	Fixed data-2		
01			
02			
03			
04			
05			
06			
07			
08			
09			
0A			
0B			
0C	Fixed data-1 (Initialized data)		
0D	Fixed data-2		
0E			
0F			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
1A			
1B			
1C			
1D			
1E			
1F			
20			
21			
22			
23			
24			
25			
26			
27			
28	Fixed data-2		
29			
2A			
2B			
2C			
2D			
2E			
2F			
30			
31			
32			
33			
34			
35 to 3F	Fixed data-1 (Initialized data)		
40	Fixed data-2		
41			
42			
43			
44			
45			
46			
47			
48			
49			
4A			
4B			
4C			
4D			
4E			
4F			
50			
51			
52 to 60	Fixed data-1 (Initialized data)		
61	Fixed data-2		
62			
63 to 69	Fixed data-1 (Initialized data)		
6A	Fixed data-2		
6B			
6C to 70	Fixed data-1 (Initialized data)		
71	Fixed data-2		
72	Fixed data-1 (Initialized data)		
73	Fixed data-2		
74			
75	Fixed data-1 (Initialized data)		
76	Fixed data-2		
77			
78	Fixed data-1 (Initialized data)		
79	Fixed data-2		

– Continued on next page –

: **Points changed portion.**

Address	Initial value		Remark
	NTSC	PAL	
7A	Fixed data-1 (Initialized data)		
7B	Fixed data-2		
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
8A			
8B			
8C			
8D			
8E			
8F			
90			
91	Fixed data-1 (Initialized data)		
92	Fixed data-2		
93			
94			
95	Fixed data-1 (Initialized data)		
96	Fixed data-2		
97	Fixed data-1 (Initialized data)		
98	Fixed data-2		
99			
9A to 9E	Fixed data-1 (Initialized data)		
9F	Fixed data-2		
A0			
A1			
A2			
A3 to A7	Fixed data-1 (Initialized data)		
A8	Fixed data-2		
A9			
AA to B1	Fixed data-1 (Initialized data)		
B2	Fixed data-2		
B3 to B9	Fixed data-1 (Initialized data)		
BA	Fixed data-2		
BB			
BC to C1	Fixed data-1 (Initialized data)		
C2	Fixed data-2		
C3	Fixed data-1 (Initialized data)		

Address	Initial value		Remark
	NTSC	PAL	
C4	Fixed data-2		
C5, C6	Fixed data-1 (Initialized data)		
C7	Fixed data-2		
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2 to E7	Fixed data-1 (Initialized data)		
E8	Fixed data-2		
E9 to F0	Fixed data-1 (Initialized data)		
F1	Fixed data-2		
F2 to F8	Fixed data-1 (Initialized data)		
F9	Fixed data-2		
FA			
FB to FF	Fixed data-1 (Initialized data)		

: **Points changed portion.**

22. C6 Page table
(Service manual page 6-26)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to DF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 02	Fixed data-1 (Initialized data)		
03	Fixed data-2		
04 to 07	Fixed data-1 (Initialized data)		
08	Fixed data-2		
09 to 0D	Fixed data-1 (Initialized data)		
0E	Fixed data-2		
0F to 11	Fixed data-1 (Initialized data)		
12	Fixed data-2		
13			
14			
15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17			
18			
19			
1A			
1B			
1C			
1D			
1E			
1F			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
2A			
2B			
2C			
2D			
2E			
2F			
30			
31			
32			
33	Fixed data-2		
34			
35			
36			
37			
38			
39			
3A			
3B			
3C			
3D			
3E to 42	Fixed data-1 (Initialized data)		
43	Fixed data-2		
44			
45			
46			
47 to 4B	Fixed data-1 (Initialized data)		
4C	Fixed data-2		
4D			
4E			
4F			
50 to 52	Fixed data-1 (Initialized data)		
53	Fixed data-2		
54			
55			
56			
57			
58			
59 to 5C	Fixed data-1 (Initialized data)		
5D	Fixed data-2		
5E			
5F			
60			
61			
62	Fixed data-1 (Initialized data)		
63	Fixed data-2		
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F			

– Continued on next page –

: **Points changed portion.**

Address	Initial value		Remark
	NTSC	PAL	
70	Fixed data-2		
71			
72			
73			
74			
75			
76			
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
8A			
8B			
8C			
8D			
8E			
8F			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
9A			
9B			
9C			
9D			
9E			
9F			

Address	Initial value		Remark
	NTSC	PAL	
A0	Fixed data-2		
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC	Fixed data-1 (Initialized data)		
AD	Fixed data-2		
AE			
AF			
B0			
B1			
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			

– Continued on next page –

: Points changed portion.

Address	Initial value		Remark
	NTSC	PAL	
D0	Fixed data-2		
D1			
D2			
D3			
D4			
D5 to DF	Fixed data-1 (Initialized data)		

: **Points changed portion.**

24. CD Page table
(Service manual page 6-27)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 6F	Fixed data-1 (Initialized data)		
70	Fixed data-2		
71			
72, 73	Fixed data-1 (Initialized data)		
74	Fixed data-2		
75			
76			
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84	Fixed data-1 (Initialized data)		
85	Fixed data-2		
86			
87 to 9F	Fixed data-1 (Initialized data)		
A0	Fixed data-2		
A1			
A2, A3	Fixed data-1 (Initialized data)		
A4	Fixed data-2		
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			
B0			
B1			
B2			
B3			
B4	Fixed data-1 (Initialized data)		
B5	Fixed data-2		
B6			
B7 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 0C	Fixed data-1 (Initialized data)		
0D	Fixed data-2		
0E to 2F	Fixed data-1 (Initialized data)		
30	Fixed data-2		
31	Fixed data-1 (Initialized data)		
32	Fixed data-2		
33			
34			
35			
36, 37	Fixed data-1 (Initialized data)		
38	Fixed data-2		
39	Fixed data-1 (Initialized data)		
3A	Fixed data-2		
3B			
3C			
3D			
3E to 4F	Fixed data-1 (Initialized data)		
50	Fixed data-2		
51 to 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59			
5A			
5B			
5C, 5D	Fixed data-1 (Initialized data)		
5E	Fixed data-2		
5F			
60			
61			
62, 63	Fixed data-1 (Initialized data)		
64	Fixed data-2		
65			
66			
67			
68 to 6F	Fixed data-1 (Initialized data)		
70	Fixed data-2		
71			
72			
73			
74			
75			

– Continued on next page –

: **Points changed portion.**

Address	Initial value		Remark
	NTSC	PAL	
76			Fixed data-2
77			
78			
79			
7A			
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			Fixed data-1 (Initialized data)
85			Fixed data-2
86			
87			Fixed data-2
88			
89			
8A			
8B			
8C, 8D			Fixed data-1 (Initialized data)
8E			Fixed data-2
8F			
90			
91			
92, 93			Fixed data-1 (Initialized data)
94			Fixed data-2
95			
96			
97			
98 to 9F			Fixed data-1 (Initialized data)
A0			
A1			
A2			
A3			
A4			Fixed data-2
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			

Address	Initial value		Remark
	NTSC	PAL	
AF			Fixed data-2
B0			
B1			
B2			
B3			
B4			Fixed data-1 (Initialized data)
B5			Fixed data-2
B6			
B7			
B8 to F5			Fixed data-1 (Initialized data)
F6			Fixed data-2
F7			Fixed data-1 (Initialized data)
F8			Fixed data-2
F9 to FF			Fixed data-1 (Initialized data)

: **Points changed portion.**

25. CE Page table
(Service manual page 6-28)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 07	Fixed data-1 (Initialized data)		
08	Fixed data-2		
09 to BC	Fixed data-1 (Initialized data)		
BD	Fixed data-2		
BE			
BF			
C0 to FF	Fixed data-1 (Initialized data)		

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 07	Fixed data-1 (Initialized data)		
08	Fixed data-2		
09 to 10	Fixed data-1 (Initialized data)		
11	Fixed data-2		
12	Fixed data-1 (Initialized data)		
13	Fixed data-2		
14, 15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17			
18	Fixed data-1 (Initialized data)		
19	Fixed data-2		
1A			
1B to 1E	Fixed data-1 (Initialized data)		
1F	Fixed data-2		
20	Fixed data-1 (Initialized data)		
21	Fixed data-2		
22	Fixed data-1 (Initialized data)		
23	Fixed data-2		
24			
25	Fixed data-1 (Initialized data)		
26	Fixed data-2		
27 to 2E	Fixed data-1 (Initialized data)		
2F	Fixed data-2		
30			
31			
32			
33			
34			
35	Fixed data-1 (Initialized data)		
36	Fixed data-2		
37	Fixed data-1 (Initialized data)		
38	Fixed data-2		
39 to 62	Fixed data-1 (Initialized data)		
63	Fixed data-2		
64			
65 to 68	Fixed data-1 (Initialized data)		
69	Fixed data-2		
6A			
6B, 6C	Fixed data-1 (Initialized data)		
6D	Fixed data-2		
6E			
6F to 83	Fixed data-1 (Initialized data)		
84	Fixed data-2		
85			
86 to 92	Fixed data-1 (Initialized data)		
93	Fixed data-2		
94 to 9B	Fixed data-1 (Initialized data)		
9C	Fixed data-2		
9D			
9E			
9F			
A0 to BC	Fixed data-1 (Initialized data)		
BD	Fixed data-2		
BE			
BF			
C0, C1	Fixed data-1 (Initialized data)		
C2	Fixed data-2		
C3	Fixed data-1 (Initialized data)		
C4	Fixed data-2		
C5			
C6	Fixed data-1 (Initialized data)		
C7	Fixed data-2		
C8 to CA	Fixed data-1 (Initialized data)		
CB	Fixed data-2		
CC, CD	Fixed data-1 (Initialized data)		
CE	Fixed data-2		
CF to FE	Fixed data-1 (Initialized data)		
FF	Fixed data-2		

☞ **: Points changed portion.**

1-2-4. Initialization of 7C, 7E, 7F Page Data

3. 7C Page table
(Service manual page 6-30)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 05			Fixed data-1 (Initialized data)
06			Fixed data-2
07			
08 to FF			Fixed data-1 (Initialized data)

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

4. 7E Page table
(Service manual page 6-30)

Former Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 10			Fixed data-1 (Initialized data)
11			Fixed data-2
12 to 3A			Fixed data-1 (Initialized data)
3B			Fixed data-2
3C			
3D			
3E			
3F			Fixed data-1 (Initialized data)
40			Fixed data-2
41 to 5F			Fixed data-1 (Initialized data)
60			Fixed data-2
61			
62 to B8			Fixed data-1 (Initialized data)
B9			Fixed data-2
BA, BB			Fixed data-1 (Initialized data)
BC			Fixed data-2
BD			
BE to C2			Fixed data-1 (Initialized data)
C3			Fixed data-2
C4 to F2			Fixed data-1 (Initialized data)
F3			Fixed data-2
F4 to FF			Fixed data-1 (Initialized data)

New Type

Address	Initial value		Remark
	NTSC	PAL	
00 to 10			Fixed data-1 (Initialized data)
11			Fixed data-2
12 to 23			Fixed data-1 (Initialized data)
24			Fixed data-2
25			
26			
27 to 3A			Fixed data-1 (Initialized data)
3B			Fixed data-2
3C			
3D			
3E			
3F			Fixed data-1 (Initialized data)
40			Fixed data-2
41 to 5F			Fixed data-1 (Initialized data)
60			Fixed data-2
61			
62 to B8			Fixed data-1 (Initialized data)
B9			Fixed data-2
BA, BB			Fixed data-1 (Initialized data)
BC			Fixed data-2
BD			
BE to C0			Fixed data-1 (Initialized data)
C1			Fixed data-2
C2			Fixed data-1 (Initialized data)
C3			Fixed data-2
C4 to EF			Fixed data-1 (Initialized data)
F0			Fixed data-2
F1			
F2			
F3			
F4 to FF			Fixed data-1 (Initialized data)

• Addition of “How to read the sensitivity data of angular velocity sensor”

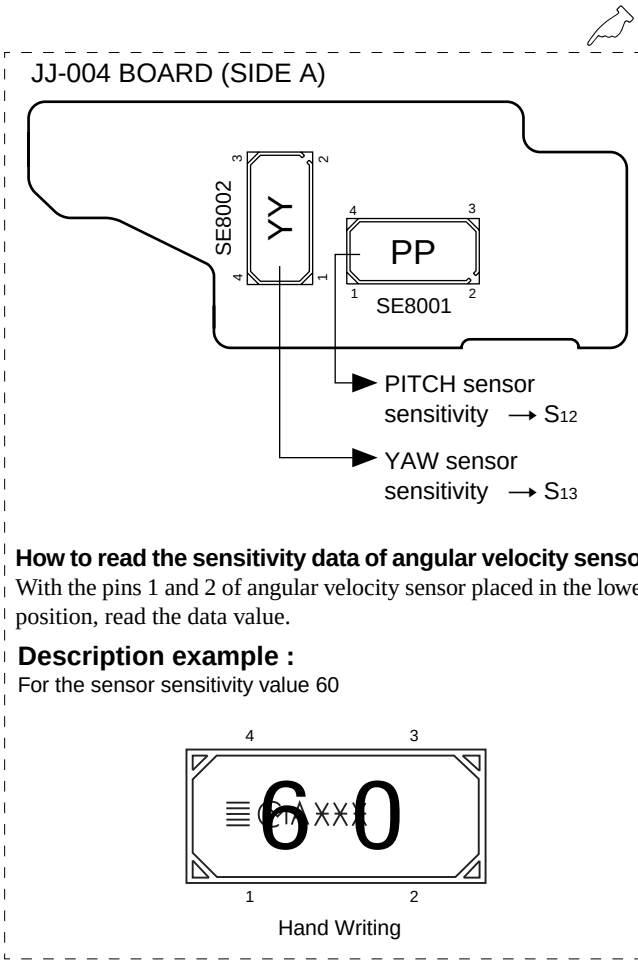
☞ **: Points added portion.**

1-3. CAMERA SYSTEM ADJUSTMENTS

32-1. Angular Velocity Sensor Sensitivity Adjustment (1) (Service manual page 6-57)

Preparation:

1) Read the PITCH sensor (SE8001 of JJ-004 board) sensitivity written on repair parts, and named this as S_{12}.



How to read the sensitivity data of angular velocity sensor

With the pins 1 and 2 of angular velocity sensor placed in the lower position, read the data value.

Description example :

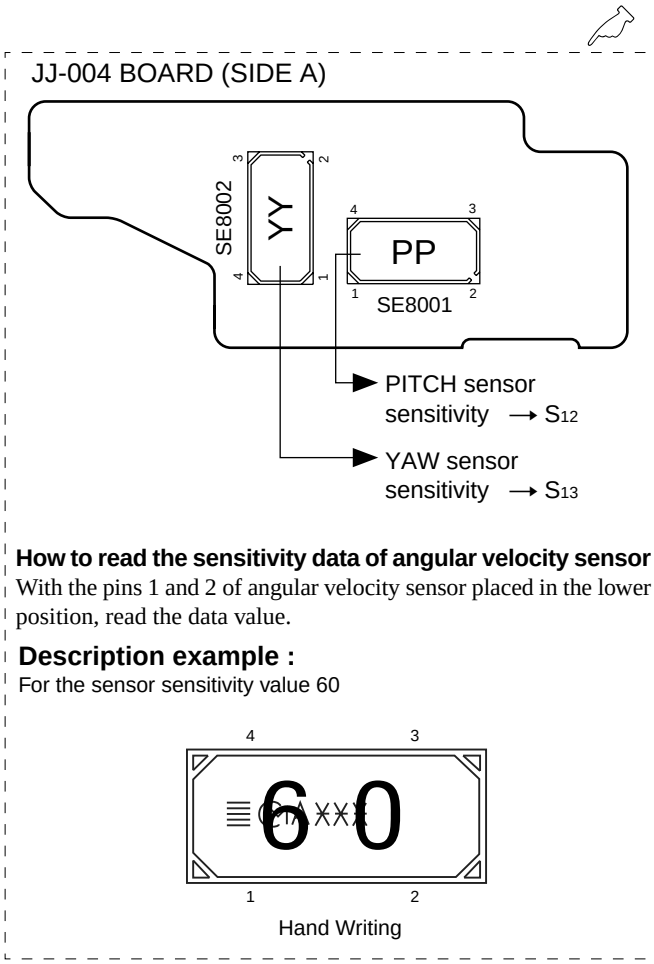
For the sensor sensitivity value 60

Hand Writing

32-2. Angular Velocity Sensor Sensitivity Adjustment (2) (Service manual page 6-58)

Preparation:

1) Read the YAW sensor (SE8002 of JJ-004 board) sensitivity written on repair parts, and named this as S_{13}.



How to read the sensitivity data of angular velocity sensor

With the pins 1 and 2 of angular velocity sensor placed in the lower position, read the data value.

Description example :

For the sensor sensitivity value 60

Hand Writing

SONY

2-887-519-**11**(1)

Digital HD Video Camera Recorder

Caméscope numérique HD

Operating Guide

Before operating the unit, please read this manual thoroughly, and retain it for future reference

The supplied CD-ROM includes Operating Guide for the HVR-V1 series. (Japanese, English, French, German, Italian, Spanish, and Simplified Chinese versions).
For more details, see “Using the CD-ROM Manual” on page 12.

Le CD-ROM fourni contient le mode d’emploi de la série HVR-V1 (en japonais, anglais, français, allemand, italien, espagnol et chinois simplifié). Pour de plus amples renseignements, consultez la section « Using the CD-ROM Manual » à la page 12.

HDV HDV 1080i

DVCAM

Mini DV Digital Video Cassette

InfoLITHIUM L SERIES

MEMORY STICK

HDMI

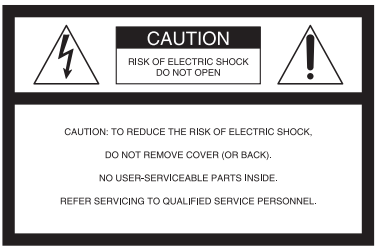
HVR-V1U/V1N

© 2006 Sony Corporation

WARNING

To reduce fire or shock hazard, do not expose the unit to rain or moisture.

For Customers in the U.S.A.



This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT SAFEGUARDS

For your protection, please read these safety instructions completely before operating the appliance, and keep this manual for future reference.
Carefully observe all warnings, precautions and instructions on the appliance, or the one described in the operating instructions and adhere to them.

Use

Power Sources

This set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of electrical power supplied to your home, consult your dealer or local power company. For those sets designed to operate from battery power, or other sources, refer to the operating instructions.

Polarization

This set may be equipped with a polarized ac power cord plug (a plug having one blade wider than the other).

This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to have a suitable outlet installed. Do not defeat the safety purpose of the polarized plug by forcing it in.

Overloading

Do not overload wall outlets, extension cords or convenience receptacles beyond their capacity, since this can result in fire or electric shock.

Object and Liquid Entry

Never push objects of any kind into the set through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the set.

Attachments

Do not use attachments not recommended by the manufacturer, as they may cause hazards.

Cleaning

Unplug the set from the wall outlet before cleaning or polishing it. Do not use liquid cleaners or aerosol cleaners. Use a cloth lightly dampened with water for cleaning the exterior of the set.

Installation

Water and Moisture

Do not use power-line operated sets near water – for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.

Power-Cord Protection

Route the power cord so that it is not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the plugs, receptacles, and the point where the cord exits from the appliance.

Accessories

Do not place the set on an unstable cart, stand, tripod, bracket, or table. The set may fall, causing serious injury to a child or an adult, and serious damage to the set. Use only a cart, stand, tripod, bracket, or table recommended by the manufacturer.

Ventilation

The slots and openings in the cabinet are provided for necessary ventilation. To ensure reliable operation of the set, and to protect it from overheating, these slots and openings must never be blocked or covered.

– Never cover the slots and openings with a cloth or other materials.
– Never block the slots and openings by placing the set on a bed, sofa, rug, or other similar surface.
– Never place the set in a confined space, such as a bookcase, or built-in cabinet, unless proper ventilation is provided.
– Do not place the set near or over a radiator or heat register, or where it is exposed to direct sunlight.

Lightning

For added protection for this set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the set due to lightning and power-line surges.

Service

Damage Requiring Service

Unplug the set from the wall outlet and refer servicing to qualified service personnel under the following conditions:

– When the power cord or plug is damaged or frayed.
– If liquid has been spilled or objects have fallen into the set.
– If the set has been exposed to rain or water.
– If the set has been subject to excessive shock by being dropped, or the cabinet has been damaged.
– If the set does not operate normally when following the operating instructions. Adjust only those controls that are specified in the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the set to normal operation.
– When the set exhibits a distinct change in performance – this indicates a need for service.

Servicing

Do not attempt to service the set yourself as opening or removing covers may expose you to dangerous voltage or other hazards.

Refer all servicing to qualified service personnel.

Replacement parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original parts.

Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check

Upon completion of any service or repairs to the set, ask the service technician to perform routine safety checks (as specified by the manufacturer) to determine that the set is in safe operating condition.

Read this first

English

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

CAUTION

Replace the battery with the specified type only. Otherwise, fire or injury may result.

For customers in the U.S.A. and CANADA

HVR-V1U only
RECYCLING LITHIUM-ION BATTERIES

Lithium-Ion batteries are recyclable. You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you.

For more information regarding recycling of rechargeable batteries, call toll free 1-800-822-8837, or visit http://www.rbrc.org/

Caution: Do not handle damaged or leaking Lithium-Ion batteries.

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. HVR-

Serial No.

Model No. AC-

No.

For customers in the U.S.A.

If you have any questions about this product, you may call:
Sony Customer Information Center 1-800-686-SONY (7669).
The number below is for the FCC related matters only.

Regulatory Information

Declaration of Conformity

Trade Name: SONY

Model No.: HVR-V1U

Responsible Party: Sony Electronics Inc.

Address: 16530 Via Esprillo, San Diego, CA 92127 U.S.A.

Telephone Number: 858-942-2230

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

The supplied interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Continued ➡

For the State of California, USA only

Perchlorate Material - special handling may apply, See
www.dtsc.ca.gov/hazardouswaste/perchlorate
Perchlorate Material: Lithium battery contains perchlorate.

français

AVERTISSEMENT

Pour réduire les risques d'incendie ou d'électrocution, tenir cet appareil à l'abri de la pluie et de l'humidité.

- Lorsque la pile au lithium s'affaiblit, la distance de fonctionnement de la télécommande peut baisser ou la télécommande risque de ne pas fonctionner du tout, Dans ce cas, remplacer la pile par une pile au lithium Sony CR2025. L'utilisation d'une autre pile peut entraîner un risque d'incendie ou d'explosion.

AVERTISSEMENT

Toute manipulation incorrecte de la pile pose un risque d'explosion. Ne pas recharger la pile, ne pas la démonter et ne pas la jeter au feu.

ATTENTION

Remplacez la batterie par une batterie du type spécifié uniquement. Sinon vous risquez de provoquer un incendie ou des blessures.

Pour la clientèle au Canada

RECYCLAGE DES ACCUMULATEURS AUX IONS DE LITHIUM

Les accumulateurs aux ions de lithium sont recyclables. Vous pouvez contribuer à préserver l'environnement en rapportant les piles usées dans un point de collection et recyclage le plus proche

Pour plus d'informations sur le recyclage des accumulateurs, téléphonez le numéro gratuit 1-800-822-8837 (Etats-Units et Canada uniquement), ou visitez http://www.rbrc.org/

Avertissement : Ne pas utiliser des accumulateurs aux ions de lithium qui sont endommagèes ou qui fuient.

Notes on use

Types of cassette you can use in your camcorder

Your camcorder is capable of recording in HDV, DVCAM and DV formats.
When recording in HDV/DV format, it is recommended to use mini DV cassettes.
When recording in DVCAM format, it is recommended to use mini DVCAM cassettes.
Mini DV cassettes with Cassette Memory are incompatible (p. 114).

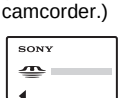
The HDV standards

- Digital high-definition (HD) video signals are recorded and played back on a DV format cassette.
- HDV signals are compressed in MPEG2 format, which is adopted in BS (broadcast satellite) digital and terrestrial digital HDTV broadcastings and in Blu-ray disc recorders.

Types of "Memory Stick" you can use in your camcorder

There are two sizes of "Memory Stick." You can use "Memory Stick Duo" marked with MEMORY STICK DUO or MEMORY STICK PRO DUO (p. 118).

"Memory Stick Duo"
(This size can be used with your camcorder.)



“Memory Stick”
(You cannot use it in your camcorder.)

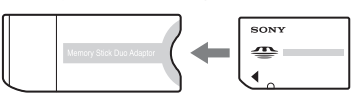
Notes

- You cannot use any type of memory card except “Memory Stick Duo.”
- “Memory Stick PRO” and “Memory Stick PRO Duo” can be used only with “Memory Stick PRO” compatible equipment.
- Do not attach a label or the like on a “Memory Stick Duo” or a Memory Stick Duo Adaptor.

When using a “Memory Stick Duo” with “Memory Stick” compatible equipment

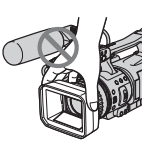
Be sure to insert the “Memory Stick Duo” into the Memory Stick Duo Adaptor.

Memory Stick Duo Adaptor

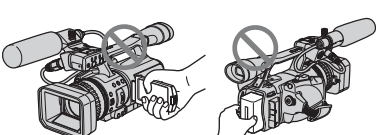


Using the camcorder

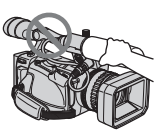
- Do not hold the camcorder by the following part.



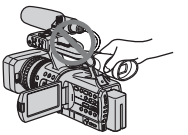
Lens hood



LCD panel Battery pack



Microphone



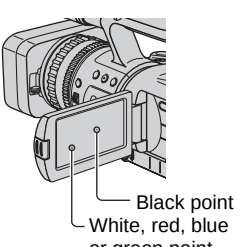
Viewfinder

Notes

- The camcorder is not dustproof, dripproof or waterproof.
  See “Maintenance and precautions” (p. 123).
- Before connecting your camcorder to another device with an HDMI cable, component video cable, USB or i.LINK cable, be sure to insert the connector plug the correct way, and not forcibly to avoid damaging the terminal, or cause a malfunction of your camcorder.

About menu items, LCD panel, viewfinder, and lens

- A menu item that is grayed out is not available under the current recording or playback conditions.
- The LCD screen and the viewfinder are manufactured using extremely high-precision technology, so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue, or green in color) that appear constantly on the LCD screen and the viewfinder. These points are normal results of the manufacturing process and do not affect the recording in any way.



Black point
White, red, blue or green point

- Exposing the LCD screen, the viewfinder, or the lens to direct sunlight for long periods of time may cause malfunctions.
- Do not aim at the sun. Doing so might cause your camcorder to malfunction. Take pictures of the sun only in low light conditions, such as at dusk.

On recording

- Before starting to record, test the recording function to make sure the picture and sound are recorded without any problems.
- Compensation for the contents of recordings cannot be provided, even if recording or playback is not possible due to a malfunction of the camcorder, storage media, etc.
- TV color systems differ depending on the countries/regions. To view your recordings on a TV, you need an NTSC system-based TV.
- Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the copyright laws.

On playing back HDV tapes on other devices

A tape recorded in the HDV format cannot be played back on a device that is not compatible with the HDV format.
Check the contents of tapes by playing them back on this camcorder prior to playing them back on other devices.

Notes on the icons used in this manual

HDV1080i Features available for the HDV format only.

DVCAM Features available for the DVCAM format only.

DV SP Features available for the DV SP format only.

i.LINK This function that can be used when i.LINK cable is connected.

USB This function that can be used when USB cable is connected.

About this manual

- The images of the LCD screen and the viewfinder used in this manual for illustration purposes are captured using a digital still camera, and therefore may appear different.
- The on-screen displays in each local language are used for illustrating the operating procedures. Change the screen language before using your camcorder if necessary (p. 23).
- Design and specifications of recording media and other accessories are subject to change without notice.

About the Carl Zeiss lens

Your camcorder is equipped with a Carl Zeiss lens, which was developed jointly by Carl Zeiss, in Germany, and Sony Corporation, and produces superior images. It adopts the MTF measurement system for video cameras and offers a quality typical of a Carl Zeiss lens. Also, the lens for your camcorder is T∗-coated to suppress unwanted reflections and faithfully reproduce colors.
MTF= Modulation Transfer Function. The number value indicates the amount of light from a subject coming into the lens.

Table of Contents

IMPORTANT SAFEGUARDS 3
Read this first 5
Using the CD-ROM Manual 12

Getting Started

Step 1: Checking supplied items 13
Step 2: Attaching the supplied microphone and the lens hood with lens cover 14
Step 3: Charging the battery pack 16
Step 4: Turning the power on and holding your camcorder properly 19
Step 5: Adjusting the LCD panel and viewfinder 20
Step 6: Setting the date and time 22
Step 7: Inserting a tape or a “Memory Stick Duo” 24

Recording/Playback

Recording 26
Playback 29
Changing the settings of your camcorder recordings 31
Adjusting the zoom 31
Adjusting the focus manually 32
Adjusting the EXPOSURE/IRIS 33
Adjusting to Natural Color (White balance) 37
Customizing the picture quality (Picture profile) 38
Adjusting the volume 42
Assigning the functions to the ASSIGN buttons 43
Focusing on a distant subject (Focus infinity) 44
Recording an index signal 44
Reviewing the most recently recorded scenes (Rec review) 45
Searching for the last scene of the most recent recording (End search) 45
Playing back the most recently recorded movies (Last scene review) 45
Using the Shot transition 46
Changing/checking the settings in your camcorder 48
Changing the screen 48
Displaying the settings in your camcorder (Status check) 48
Checking the remaining battery (Battery Info) 49

Locating a scene on a tape 50
Searching for a scene by date of recording (Date search) 50
Searching for a recording start point (Index search) 50
Playing the picture on a TV 52

Using the Menu

Using the menu items 57
Menu items 59
(CAMERA SET) menu 62
Settings to adjust your camcorder to the recording conditions (EXPOSURE/ IRIS/STEADYSHOT/BACK LIGHT, etc.)
(AUDIO SET) menu 68
Settings for the audio recording (DV AU. MODE/XLR SET, etc.)
(DISPLAY SET) menu 70
Display settings of the display and the viewfinder (MARKER/VF B.LIGHT/ DATA CODE, etc.)
(IN/OUT REC) menu 75
Recording settings, input and output settings (VCR HDV/DV/DV REC MODE/ DV WIDE REC/ DOWN CONVERT, etc.)
(TC/UB SET) menu 78
(TC PRESET/UB PRESET/TC LINK, etc.)
(MEMORY SET) menu 80
Settings for the “Memory Stick Duo” (QUALITY/ALL ERASE, etc.)
(OTHERS) menu 82
Settings while recording on a tape or other basic settings (USB SELECT/ QUICK REC/BEEP, etc.)

Dubbing/Editing

Dubbing to VCR, DVD/HDD device, etc. 85
Recording pictures from a VCR 89
Copying movies from tape to “Memory Stick Duo” as still images 91
Deleting recorded pictures from the “Memory Stick Duo” 92
Printing recorded images (PictBridge compliant printer) 93

Using a Computer

Connecting to a computer 95
Copying still images to a computer 95
Copying movies on a tape to a computer 98

Troubleshooting

Troubleshooting 101
Warning indicators and messages 110

Additional Information

Using your camcorder abroad 113
HDV format and recording/playback 114
Compatibility of the DVCAM/DV formats 116
About the “Memory Stick” 118
About the “InfoLITHIUM” battery pack 120
About i.LINK 121
Maintenance and precautions 123
Specifications 127

Quick Reference

Identifying parts and controls 131
Indicators for the LCD screen and viewfinder 137
Index 140

Using the CD-ROM Manual

English

The supplied CD-ROM includes versions of the Operating Guide for the HVR-V1 series in Japanese, English, French, German, Italian, Spanish, and Simplified Chinese in PDF format.

Preparation

The following program must be installed on your computer in order to read the Operating Guide contained on the CD-ROM.

• Adobe Reader Version 7.0 or higher

Tip

• If Adobe Reader is not installed, you can download it from the following URL: http://www.adobe.com/

Adobe and Adobe Reader are trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Reading the CD-ROM Manual

To read the Operating Guide contained on the CD-ROM, do the following.

1 Insert the CD-ROM in your CD-ROM drive.

A cover page appears automatically in your browser.
If it does not appear automatically in the browser, double-click on the index.htm file on the CD-ROM.

2 Select and click on the Operating Guide that you want to read.

This opens the PDF file of the Operating Guide.

Tip

• The files may not be displayed properly, depending on the version of Acrobat Reader. In such a case, install the latest version you can download from the URL mentioned in "Preparation" above.

français

Le CD-ROM fourni contient le mode d'emploi de la série HVR-V1 en format PDF en japonais, anglais, français, allemand, italien, espagnol et chinois simplifié.

Préparation

Le logiciel suivant doit être installé sur votre ordinateur afin d'être en mesure de lire le mode d'emploi qui se trouve sur le CD-ROM.

• Adobe Reader version 7.0 ou ultérieure

Conseil

• Si le logiciel Adobe Reader n'est pas installé, vous pouvez le télécharger à partir de l'adresse URL suivante : http://www.adobe.com/

Adobe et Adobe Reader sont des marques de commerce de Adobe Systems Incorporated aux États-Unis et/ou dans d'autres pays.

Lecture du manuel du CD-ROM

Pour lire le mode d'emploi qui se trouve sur le CD-ROM, procédez comme suit :

1 Insérez le CD-ROM dans votre lecteur de CD-ROM.

Une page de garde apparaît automatiquement dans votre navigateur.
Si cette page n'apparaît pas automatiquement, double-cliquez sur le fichier index.htm sur le CD-ROM.

2 Cliquez sur la version du mode d'emploi que vous désirez lire.

Le fichier PDF du mode d'emploi s'ouvrira alors.

Conseil

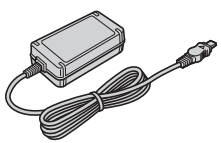
• Selon votre version de Adobe Reader, il se peut que les fichiers ne s'affichent pas correctement. En pareil cas, installez la plus récente version à partir de l'adresse URL indiquée dans la section « Préparation » ci-dessus.

Step 1: Checking supplied items

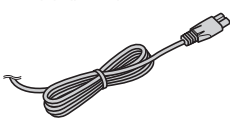
Make sure that you have following items supplied with your camcorder.
The number in the parentheses indicates the number of that item supplied.

- The cassette tape and “Memory Stick Duo” are not included. See page 24, 114 and 118 for compatible cassettes and “Memory Stick Duo” for your camcorder.

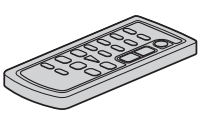
AC Adaptor (1) (p. 16)



Power cord (1) (p. 16)



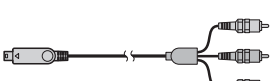
Wireless Remote Commander (1) (p. 136)



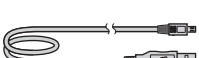
A button-type lithium battery is already installed.

A/V connecting cable (1) (p. 52, 85)

Component video cable (1) (p. 52)

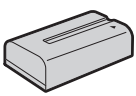


USB cable (1) (p. 93,95)

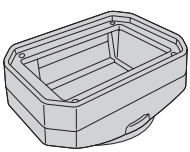


Large eyecup(1) (p. 21)

Rechargeable battery pack NP-F570 (1) (p. 16, 120)

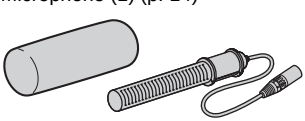


Lens hood with lens cover (1) (p. 15)



Wind Screen (1) (p. 14)

Microphone (1) (p. 14)

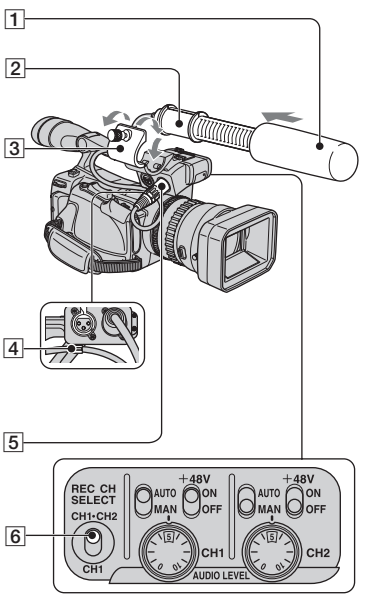


CD-ROM “Manuals for Digital HD Video Camera Recorder” (1) (p. 12)

Operating Guide (This manual) (1)

Step 2: Attaching the supplied microphone and the lens hood with lens cover

Attaching the supplied microphone



1 **Attach the wind screen [1] to the microphone [2].**

2 **Loosen the screw of the microphone holder [3] and open the cover.**

3 **Place the microphone into the holder with the model name facing upward, close the cover, and tighten the screw.**

4 **Connect the plug of the microphone to the INPUT1 jack [5].**

5 **Put the microphone cable into the cable holder [4].**

6 **Select the channel with the REC CH SELECT switch [6].**

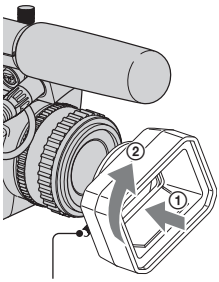
The REC CH SELECT switch positions and the channels to be used at the switch positions are shown in the table below.

REC CH SELECT switch position	Input jack	Channel to be used
CH1, CH2	INPUT1	Channel1 Channel2
	INPUT2	-
CH1	INPUT1	Channel1
	INPUT2	Channel2

Tips

- See page 42 for adjusting the volume.
- Set the +48V switch to ON when you use the supplied microphone.

Attaching lens hood with lens cover



Lens hood fixing screw

Align the marks on the lens hood to those on the camcorder, and turn the lens hood in the direction of the arrow. Tighten the lens hood fixing screw.

To remove the Lens hood with lens cover

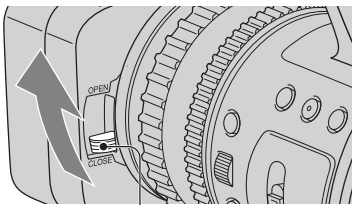
Loosen the lens hood fixing screw and turn the lens hood in the opposite direction of the arrow in the illustration above.

Tip

- If you attach, remove or adjust an 62mm (2 1/2in.) PL filter or MC protector, remove the lens hood.

To open the shutter of the Lens hood with lens cover

Move the lens cover lever up and down to open or close the lens cover.



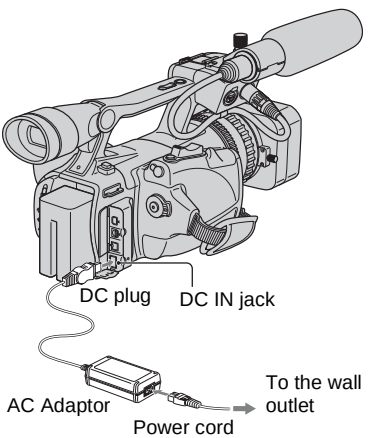
Move the lens cover lever to OPEN to open the lens cover, and move the lever to CLOSE to close the lens cover.

Step 3: Charging the battery pack

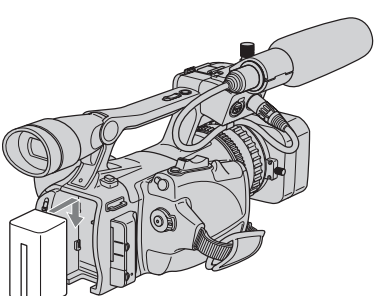
You can charge the battery by attaching the "InfoLITHIUM" battery pack (L series) to your camcorder.

Note

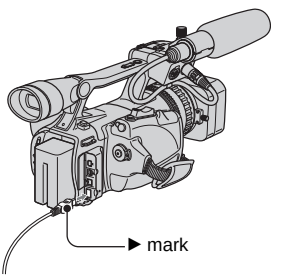
- You cannot use batteries other than the "InfoLITHIUM" battery pack (L series) (p. 120).



1 Press the battery pack and slide it down.



2 With the ▶ mark on the DC plug facing the cassette compartment, connect the AC Adaptor to the DC IN jack on your camcorder.

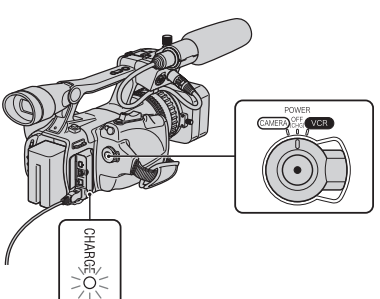


3 Connect the power cord to the AC Adaptor.

4 Connect the power cord to the wall outlet.

5 Set the POWER switch to OFF (CHG).

The CHARGE lamp lights up and charging starts.



After charging the battery

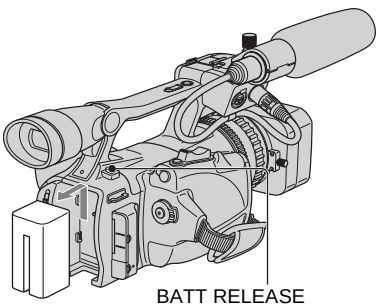
The CHARGE lamp turns off when the battery is fully charged. Disconnect the AC Adaptor from the DC IN jack.

Tip

- You can check the remaining battery with Battery info (p. 49).

To remove the battery pack

Slide the POWER switch to OFF (CHG). Push the BATT RELEASE (battery release) button and remove the battery pack.



BATT RELEASE (battery release) button

Charging time

Approximate time (min.) required when you fully charge a fully discharged battery pack.

Battery pack	Charging time
NP-F570 (supplied)	260
NP-F770	370
NP-F970	485

Note

- You cannot use the NP-F330 battery pack with this camcorder.

Recording time

Approximate time (min.) available when you use a fully charged battery pack.

Recording in the HDV format

Battery pack	Continuous recording time	Typical recording time*
NP-F570 (supplied)	135	80
	135	80
	135	80
NP-F770	280	165
	290	170
	280	165
NP-F970	415	235
	430	240
	415	235

Recording in the DVCAM (DV) format

Battery pack	Continuous recording time	Typical recording time*
NP-F570 (supplied)	135	85
	140	90
	135	85
NP-F770	290	175
	290	175
	290	175
NP-F970	430	255
	435	260
	430	255

Top: When the LCD backlight turns on.
Middle: When the LCD backlight turns off.
Bottom: Recording time when recording with the viewfinder while the LCD panel is closed.

* Typical recording time shows the time when you repeat recording start/stop, turning the power on/off and zooming.

Playing time

Approximate time (min.) available when you use a fully charged battery pack.

HDV format pictures

Battery pack	LCD panel opened*	LCD panel closed
NP-F570 (supplied)	200	200
NP-F770	410	410
NP-F970	620	620

DVCAM (DV) format pictures

Battery pack	LCD panel opened*	LCD panel closed
NP-F570 (supplied)	210	210
NP-F770	435	435
NP-F970	660	660

* When the LCD backlight turns on.

On the battery pack

- Before changing the battery pack, slide the POWER switch to OFF (CHG).
- The CHARGE lamp flashes during charging, or Battery Info (p. 49) will not be correctly displayed under the following conditions.
  - The battery pack is not attached correctly.
  - The battery pack is damaged.
  - The battery pack is worn-out (For Battery Info only).
- The power will not be supplied from the battery as long as the AC Adaptor is connected to the DC IN jack of your camcorder, even when the power cord is disconnected from the wall outlet.
- When attaching an optional video light, it is recommended that you use a NP-F970 battery pack.

On the charging/recording/playback time

- Times measured with the camcorder at 25 °C (77 °F) (10 to 30 °C (50 °F to 86 °F)) is recommended).
- The recording and playback time will be shorter when you use your camcorder in low temperatures.
- The recording and playback time will be shorter depending on the conditions under which you use your camcorder.

Using an outside power source

You can use the AC Adaptor to obtain AC. While you are using the AC Adaptor, the battery pack will not lose its charge even when it is attached to your camcorder.

Connect your camcorder as shown in Step3:Charging the battery pack (p. 16).

On the AC Adaptor

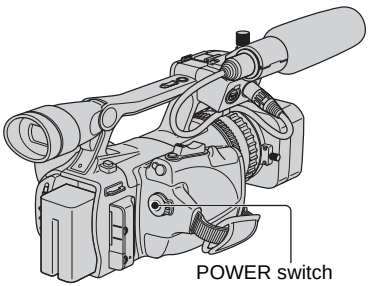
- Use the nearby wall outlet when using the AC Adaptor. Disconnect the AC Adaptor from the wall outlet immediately if any malfunction occurs while using your camcorder.
- Do not use the AC Adaptor placed in a narrow space, such as between a wall and furniture.
- Do not short-circuit the DC plug of the AC Adaptor or battery terminal with any metallic objects. This may cause a malfunction.

PRECAUTION

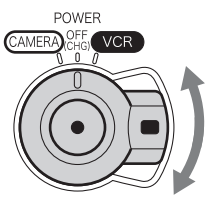
- Even if your camcorder is turned off, AC power (house current) is still supplied to it while connected to the wall outlet via the AC Adaptor.

Step 4: Turning the power on and holding your camcorder properly

To record or play back, slide the POWER switch to the respective direction.
When using it for the first time, [CLOCK SET] screen appears (p. 22).



1 While pressing the green button, set the POWER switch.



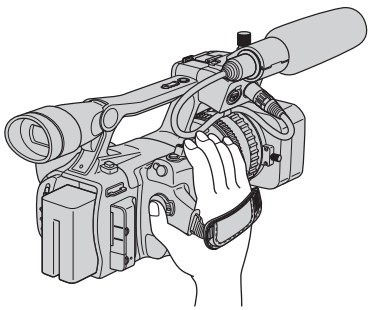
If the POWER switch is set to OFF (CHG), slide it while pressing the green button.

CAMERA: To record pictures.
VCR: To play or edit pictures.

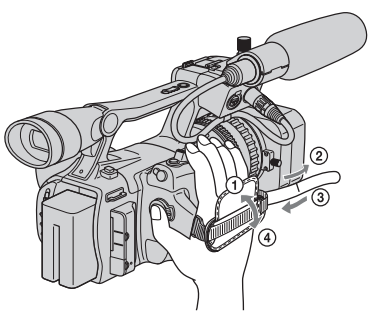
Note

- After you have set the date and time ([CLOCK SET], p. 22), the next time you turn on the power of your camcorder, the current date and time will be displayed on the LCD screen for a few seconds.

2 Hold the camcorder properly.



3 Ensure a good grip, then fasten the grip belt.



To turn off the power

Slide the POWER switch to OFF (CHG).

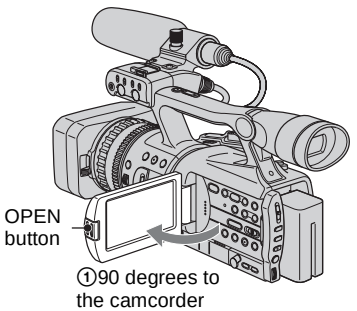
Note

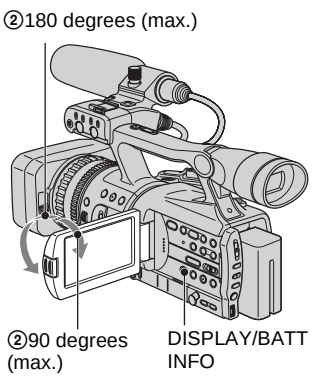
- If warning messages appear on the screen, follow the instructions (p. 111).

Step 5: Adjusting the LCD panel and viewfinder

The LCD panel

Open the LCD panel while pressing the OPEN button 90 degrees to the camcorder (①), then rotate it to the best angle to record or play (②).





Tips

- If you rotate the LCD panel 180 degrees toward the lens from the position ①, you can close the LCD panel with the LCD screen facing outward. This is convenient during playback operations.
- To close the LCD panel with the LCD screen inward, rotate the LCD panel to the position ①, and then close the LCD panel.

To turn off the LCD backlight to make the battery last longer

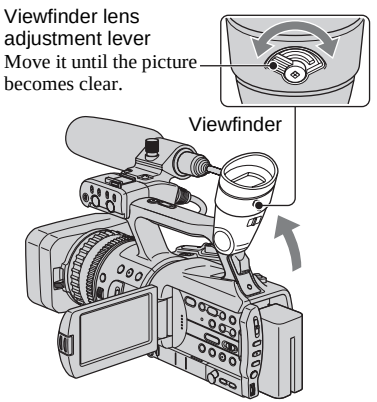
Press and hold the DISPLAY/BATT INFO button for a few seconds until LCD OFF appears. This setting is practical when you use your camcorder in bright conditions or where you want to save battery power. The recorded picture will not be affected by the setting. To turn on the LCD backlight, press and hold the DISPLAY/BATT INFO button for a few seconds until LCD OFF disappears.

Tip

- See [LCD BRIGHT] (p. 73) to adjust the brightness of the LCD screen.

The viewfinder

You can view pictures using the viewfinder to save the battery, or when the picture on the LCD screen is not clear.



Tips

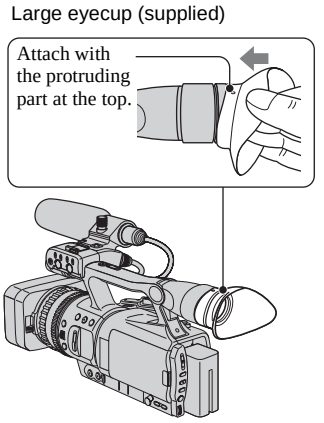
- You can adjust the brightness of the viewfinder backlight from [VF B.LIGHT] (p. 73).
- To display images both on the LCD display and in the viewfinder, set [VF POWERMODE] to [ON](p. 73).
- To display images in black and white in the viewfinder, set [VF COLOR] to [OFF](p. 73).

When the picture in the viewfinder is hard to see

If you cannot see the picture in the viewfinder clearly under bright circumstances, use the supplied large eyecup. To attach the large eyecup, stretch it slightly and align it with the eyecup groove in the viewfinder. You can attach the large eyecup facing either the right or left side.

Note

• Do not remove the pre-attached eyecup.

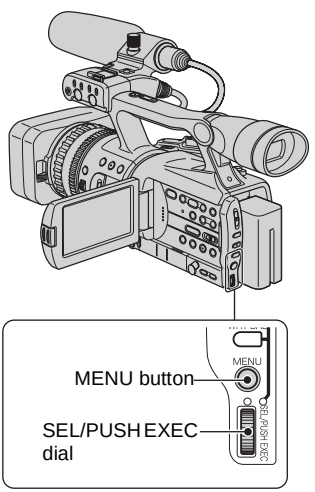


Step 6: Setting the date and time

Set the date and time when using this camcorder for the first time. If you do not set the date and time, [CLOCK SET] screen appears every time you turn on your camcorder or change the POWER switch position.

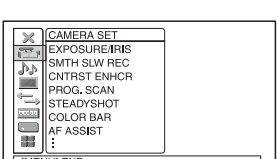
Tip

- If you do not use your camcorder for **about 3 months**, the built-in rechargeable battery gets discharged and the date and time settings may be cleared from the memory. In that case, charge the rechargeable battery and then set the date and time again (p. 125).

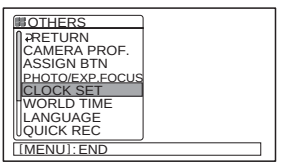


Skip to step **4** when you set the clock for the first time.

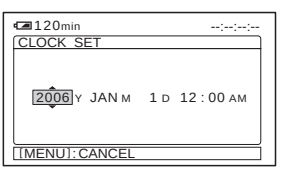
1 Press the MENU button.



2 Select (OTHERS) by turning the SEL/PUSH EXEC dial, then press the dial.

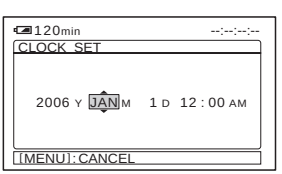


3 Select [CLOCK SET] by turning the SEL/PUSH EXEC dial, then press the dial.



4 Set [Y] (year) by turning the SEL/PUSH EXEC dial, then press the dial.

You can set any year up to the year 2079.



5 Set [M] (month), [D] (day), hour and minute, then press the dial.

The clock starts.
For midnight, set it to 12:00 AM.
For midday, set it to 12:00 PM.

Tip

- The date and time do not appear during recording, but they are automatically recorded on the tape, and can be displayed during playback ([DATA CODE] (p. 73)).

Changing the language setting

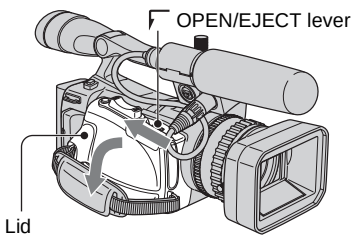
You can change the on-screen displays to show messages in a specified language. Select the screen language in [LANGUAGE] (p. 83).

Step 7: Inserting a tape or a “Memory Stick Duo”

Cassette tape

See page 114 for details of usable cassettes and prevention of accidental erasure.

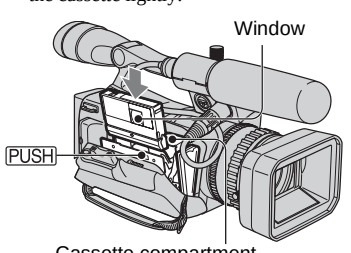
1 Slide and hold the ⌐ OPEN/EJECT lever in the direction of the arrow and open the lid.



The cassette compartment automatically comes out and opens up.

2 Insert a cassette with its window facing outwards, then press PUSH.

Push the center of the back of the cassette lightly.



The cassette compartment automatically slides back in.

Note

- Do not push the portion marked DO NOT PUSH while it is sliding in. It may cause a malfunction.

3 Close the lid.

Tip

- The recordable time varies depending on [DV REC MODE] (p. 75). DVCAM DV

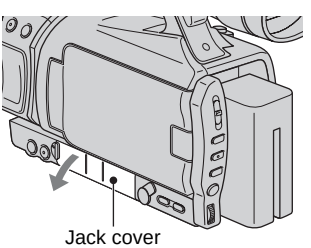
To eject the cassette

Open the lid following the same procedure as described in step **1** and remove the cassette.

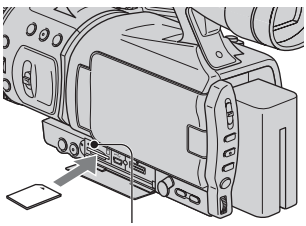
“Memory Stick Duo”

You can use only a “Memory Stick Duo” marked with MEMORY STICK DUO or MEMORY STICK PRO DUO (p. 118).

1 Open the jack cover.



2 Insert the “Memory Stick Duo” into the “Memory Stick Duo” slot in the right direction until it clicks.



Note

- If you insert the “Memory Stick Duo” into the slot in the wrong direction, the “Memory Stick Duo,” the “Memory Stick Duo” slot, or image data may be damaged.

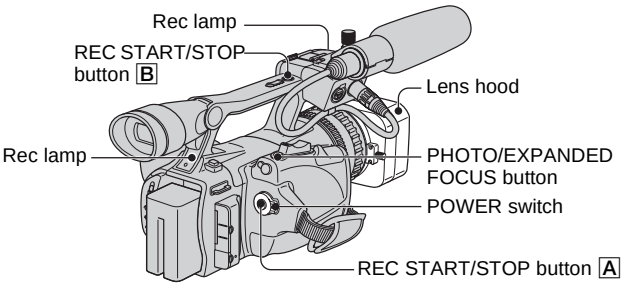
To eject a “Memory Stick Duo”

Lightly push the “Memory Stick Duo” once.

Notes

- When the access lamp is lit or flashing, your camcorder is reading/writing data. Do not shake or knock your camcorder, turn the power off, eject the “Memory Stick Duo,” or remove the battery pack. Otherwise, image data may be damaged.
- When inserting or ejecting the “Memory Stick Duo,” be careful with the “Memory Stick Duo” from popping out and dropping.

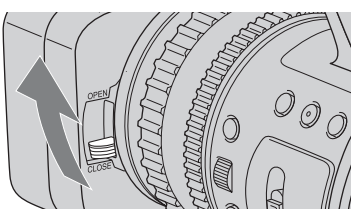
Recording



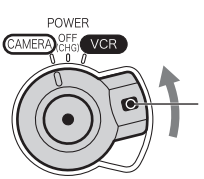
This camcorder records movies on tape and still images on “Memory Stick Duo.” The procedure for recording movies is below.

- This camcorder can record movies in HDV or DVCAM (DV) format. The factory setting is HDV format ([REC FORMAT] p. 75).

1 Open the shutter of the lens hood.

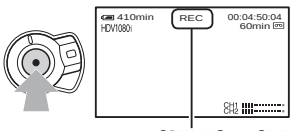


2 While pressing the green button, set the POWER switch to CAMERA.



If the POWER switch is set to OFF (CHG), slide it while pressing the green button.

3 Press the REC START/STOP button A (or B).



[STBY] → [REC]

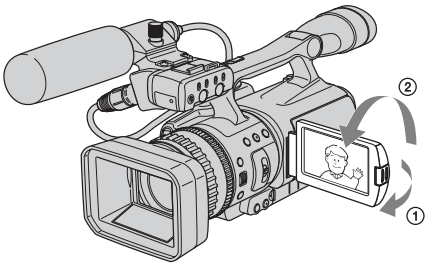
The Rec lamp lights up during recording.
To stop the movie recording, press the REC START/STOP button again.

Tips

- When recording in HDV format, the aspect ratio is fixed to 16:9. When recording in DVCAM (DV) format, you can switch the aspect ratio to 4:3 ([DV WIDE REC] p. 76).
- You can change the screen display during recording (p. 48).
- Indicators displayed on the screen during recording are shown on page 137.
- The recording lamp can be set to stay off ([REC LAMP] p. 84).
- You cannot record the movie on a “Memory Stick Duo”.

To record in mirror mode

Open the LCD panel 90 degrees to the camcorder (①), then rotate it 180 degrees toward the lens (②).



Tip

- A mirror-image of the subject appears on the LCD screen, but the recorded picture will be normal.

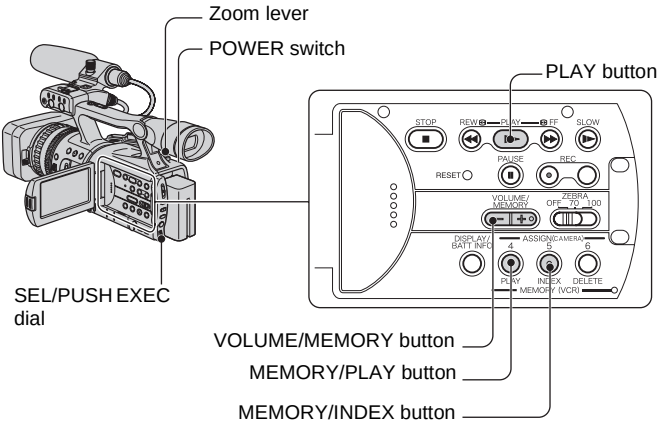
To record still images

Press the PHOTO/EXPANDED FOCUS button. The image is recorded on a “Memory Stick Duo.” Recording is complete when ▮▮▮▮▮▮▮▮ disappears. You can also record still images during movie recording.

Tips

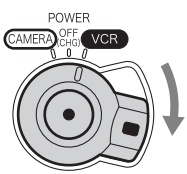
- When you are not recording a movie, you will hear the shutter click.
- The still image size is as follows:
  - When recording in HDV or DVCAM (DV) (16:9) format: 1.2M (1,440 × 810 dots)
  - When recording in DVCAM (DV) (4:3) format: 0.9M (1,080 × 810 dots)
- You can change the image quality and number of recordable images ([▣QUALITY] (p. 80)).
- Indicators displayed on the screen during shooting are shown on page 137.
- You can set the PHOTO/EXPANDED FOCUS button to start the expanded focus function as you press the button ([PHOTO/EXP.FOCUS] (p. 83)).

Playback



You can play back movies as follows.

1 While pressing the green button, set the POWER switch to VCR.



2 Start playing back.

Press ◄◄ (rewind) to go to the point you want to view, then press ► (play) to start playback.

- ■ : Stop
- ❚❚ : Pause (Press ► or ❚❚ again to restart the playback)
- ►► ◄◄ : Forward/Rewind
- ❙► : Slow

Notes

- Playback automatically stops if pause is engaged for more than 3 minutes.
- When playing back a tape recorded in the HDV and DVCAM (DV) formats and the signal switches between HDV and DVCAM (DV), the picture and sound disappear temporarily.
- You cannot play back the tape recorded in the HDV format on video cameras of the DVCAM (DV) format or mini-DV players.
- DV format tapes are played back on your camcorder only if they are recorded in the SP mode (DV SP appears on the screen). Tapes recorded in the LP mode are not played back.

- Time code and user bits are not displayed correctly unless time code and user bits are recorded on the tape, or the recorded time code is compatible with your camcorder.

Tips

- Indicators displayed on the screen during playback are shown on page 138.
- You can change the screen display during playback (p. 48).

To search for a scene while viewing a movie

Press ▶▶/◀◀ during playback (Picture Search). To view during fast forward press and hold ▶▶ and to view during rewind press and hold ◀◀ (Skip Scan).

Note

- Reverse picture search/skip scan is not possible with tapes recorded in HDV format.

To adjust the volume

Adjust using the VOLUME/MEMORY button.

To view still images

① Slide the POWER switch to VCR.

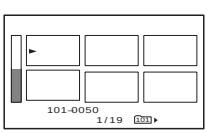
② Press the MEMORY/PLAY button.

③ Select still image that you want to look using the VOLUME/MEMORY button.
To stop viewing still images, press the MEMORY/PLAY button once more.

To display the list of still images (index screen)

① Slide the POWER switch to VCR.

② Press the MEMORY/INDEX button.

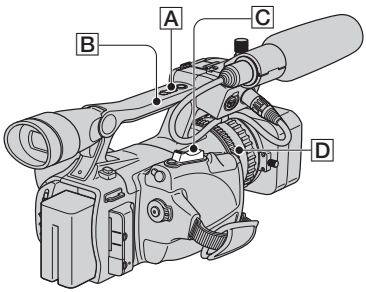


③ Select a picture by pressing the VOLUME/MEMORY button.
To display a single image, move ▶ to that image and press the MEMORY/PLAY button.

To stop displaying the list of still photos, press the MEMORY/INDEX button again.

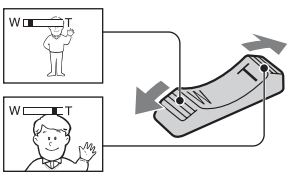
Changing the settings of your camcorder recordings

Adjusting the zoom



Move the power zoom lever C slightly for a slower zoom. Move it further for a faster zoom.

Wide view: (Wide angle)



Close view: (Telephoto)

Tips

- The minimum distance required between your camcorder and the subject for focus is about 1 cm (about 13/32 in.) for wide angle and about 80 cm (about 2 5/8 feet) for telephoto.
- The focus may not be adjusted at certain zoom positions if the subject is within 80 cm (about 2 5/8 feet) from your camcorder.
- When [FOCUS MACRO] is set to [OFF], you cannot focus on a subject within 80cm (about 2 5/8 feet) regardless of the zoom position (p. 64).
- Be sure to keep your finger on the power zoom lever. If you move your finger off the power zoom lever, the operation sound of the power zoom lever may also be recorded.

Using the handle zoom

① Set the handle zoom switch B to H (high) or L (low).

Tip

- You can set the zoom speed of the handle zoom lever in [HANDLE ZOOM] (p. 65).

② Press the handle zoom lever A to zoom in or out.

Notes

- You cannot adjust the zoom speed by pressing the handle zoom lever.
- You cannot use the handle zoom lever when the handle zoom switch B is set to OFF.
- You cannot change the zoom speed of the zoom lever C with the handle zoom switch B.

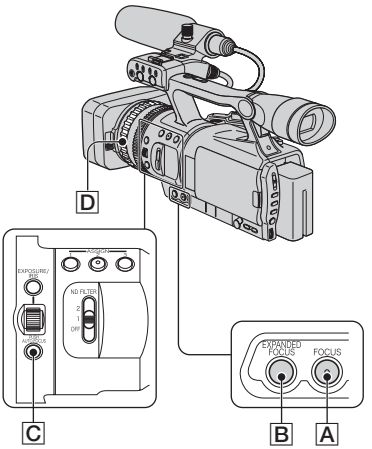
Using the zoom ring

You can zoom at the desired speed by turning the zoom ring D. Fine adjustment is also possible.

Note

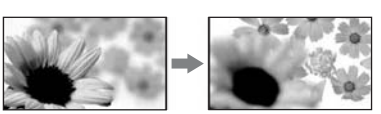
- Turn the zoom ring D at a reasonable speed. If you turn it too fast, the zoom speed may not catch up with the zoom ring rotating speed.

Adjusting the focus manually



You can adjust the focus manually for different recording conditions.
Use this function in the following cases.

– To record a subject behind a window covered with raindrops.
– To record horizontal stripes.
– To record a subject with little contrast between the subject and its background.
– When you want to focus on a subject in the background.



– To record a stationary subject using a tripod.

1 **During recording or standby, press the FOCUS button A.**

☞ appears.

2 **Rotate the focus ring D and adjust the focus.**

☞ changes to ▲ when the focus cannot be adjusted any farther. ☞ changes to 👤 when the focus cannot be adjusted any closer.

Tips

For focusing manually

- It is easier to focus on the subject when you use the zoom function. Move the power zoom lever towards T (telephoto) to adjust the focus, and then, towards W (wide angle) to adjust the zoom for recording.
- When you want to record a close-up image of a subject, move the power zoom lever towards W (wide angle) to fully magnify the image, then adjust the focus.

To restore automatic adjustment

Press the FOCUS button A once again. ☞ disappears and AUTO FOCUS is restored.

To use AUTO FOCUS temporarily (One push auto focus)

Record the subject while pressing and holding the PUSH AUTO FOCUS button C.
If you release the button, the setting returns to manual focusing.
Use this function to shift the focus on one subject to another. The scenes will shift smoothly.

Tip

- The focal distance information (for when it is dark and hard to adjust the focus) appears for about 3 seconds in the following cases. (It will not be displayed correctly if you are using a conversion lens (optional)).
  – When the focus mode is switched from automatic to manual.
  – When you rotate the focus ring.

To use the expanded focus (Expanded focus)

During standby, press the EXPANDED FOCUS button B.
[EXPANDED FOCUS] appears and the center of the screen is magnified by about 2.0 times (about 1.5 times during [PROG. SCAN]). It will be easier to confirm the focus setting during manual focusing. The screen returns to the original size when you push the button again.

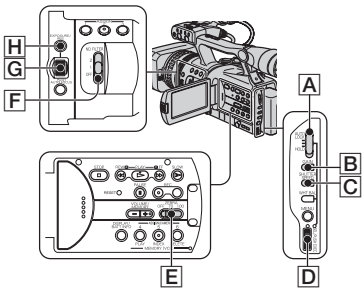
Note

- The image returns to the original size when you press the REC START/STOP button or the PHOTO/EXPANDED FOCUS button.

Tips

- You can select the type of a picture on EXPANDED FOCUS ([EXP.FOCUS TYPE] p. 71).
- Unless [REC CTL MODE] is set to [OFF], the following functions are disabled.
  – EXPANDED FOCUS button
  – ASSIGN button to which [ALLSCAN MODE] is assigned.

Adjusting the EXPOSURE/IRIS



You can adjust the brightness of a picture with the EXPOSURE/IRIS dial G.
You can assign any one of [EXPOSURE1] (the default setting), [EXPOSURE2], [IRIS] and [AE SHIFT] to the EXPOSURE/IRIS dial G from the menu (p. 62).

Tips

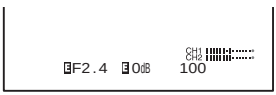
- Even if you open the aperture more than F2.8 (i.e. make the iris value smaller, such as F1.6) during EXPOSURE/IRIS setting, changing the zoom from wide to telephoto will change the iris to F2.8.
- When the EXPOSURE/IRIS dial is set to [EXPOSURE1] or [EXPOSURE2], E appears next to the values that can be set with the dial.

■ EXPOSURE1 (the default setting)

You can adjust the display brightness by adjusting the iris and gain (the shutter speed remains fixed).

The iris, gain and shutter speed are displayed on the screen.

Select this function if you want to adjust the brightness in a wide range.



Note

- The GAIN button and the SHUTTER SPEED button are inactive.

Tip

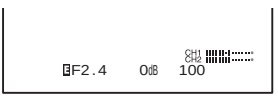
- This is handy for changing the brightness of the screen and setting the desired brightness by dial operation.

EXPOSURE2

You can adjust the display brightness by adjusting the iris (the gain and shutter speed remain fixed).

The iris, gain and shutter speed are displayed on the screen.

Select this function if you do not want fuzzy display caused by high-gain.



Note

- The GAIN button and the SHUTTER SPEED button are inactive.

Tip

- This is handy for changing the brightness of the screen and setting the desired brightness by dial operation.

IRIS

You can manually adjust the light volume of the light entering the lens between F1.6 and F11 or close the aperture.

As the iris is opened (smaller aperture values), the light volume increases or the iris is closed (larger aperture values), the light volume decreases. The current aperture value (F) appears on the screen.

Tips

- The range of focus, an important effect of the aperture, is called the depth of field. The depth of field gets shallower as the aperture is opened, and deeper as the aperture is closed. Use the aperture creatively to obtain the desired effect in your photography.
- This is handy for making the background blurred or sharp, or when you want to manually adjust the iris, gain or shutter speed on the screen.

AE SHIFT

You can slightly adjust the exposure between -7 (dark) and +7 (bright) during the auto recording. AS appears.

Notes

- [AE SHIFT] does not work when the exposure is manually set or the iris, gain and shutter speed are all set manually.
- This function is not effective when [HYPER GAIN] is set.

Tip

- You can adjust the AE SHIFT from the menu (p. 64).

---

1 During recording or standby, set the AUTO LOCK switch A to the center position to release the auto lock mode.

This operation is not required when AE SHIFT is assigned to the EXPOSURE/IRIS dial.

---

2 Press the EXPOSURE/IRIS button H.

The EXPOSURE/IRIS dial G will be effective.

3 Adjust the picture quality by turning the EXPOSURE/IRIS dial G.

Tip

- If you set the AUTO LOCK switch A to HOLD after manual adjustment, the manually adjusted items are saved.

To restore automatic adjustment

Press the EXPOSURE/IRIS button H, or set the AUTO LOCK switch A to AUTO LOCK.

Notes

- If you set the AUTO LOCK switch A to AUTO LOCK, other manually adjusted items (gain, shutter speed, white balance) also become temporarily automatic.
- As you shift the zoom from W (wide) to T (telephoto), the aperture value varies from F1.6 to F2.8.

Tips

- You can adjust the dial sensitivity of the EXPOSURE/IRIS dial G by selecting [EXPOSURE/IRIS] → [DIAL SENS](p. 62), and the dial operating direction by selecting [EXPOSURE/IRIS] → [DIAL ROTATE] (p. 62).
- Settings can also be checked by pressing the STATUS CHECK button (p. 48).
- See page 67 for [BACK LIGHT].

Adjusting the volume of light (ND filter)

You can record the subject clearly by using the ND filter when the recording environment is too bright.
There are 2 levels of ND filter setting. ND filter 1 reduces the volume of light to about 1/4, and ND filter 2 to about 1/16.
If ND_1 flashes during standby mode, set the ND FILTER switch F to 1 to turn on the ND_1 indicator. If ND_2 flashes, set the ND FILTER switch to 2 to turn on the ND_2 indicator. If ND_{OFF} flashes, set the ND FILTER switch to OFF to turn off the indicator.

Notes

- If you move the ND FILTER switch during recording, the picture and sound may be distorted.
- If you adjust the iris manually, no ND filter indicator will appear even if the ND filter should be activated.

Tip

- If you close the iris extensively when recording a bright subject, diffraction may occur, resulting in a fuzzy focus (this is a common phenomenon with video cameras). The ND filter suppresses this phenomenon and gives better recording results.

Displaying the zebra pattern to adjust the brightness

If there is a part of the screen where brightness is over a certain level, the part may appear excessively white when played back. By displaying the zebra pattern on such a part, you can be reminded to adjust the brightness before recording.
Select the brightness level to display the zebra pattern with the ZEBRA switch E, then the zebra pattern will appear.
Select the brilliance value from 70 or 100. If you select 70, the zebra pattern appears at the part with 70±5 % of the brilliance signal. If you select 100, the zebra pattern at the part with 100 % or more.

To hide the zebra pattern

• Set the ZEBRA switch E to OFF.

Note

• The zebra pattern is not recorded on the tape.

Tip

• This is convenient for adjusting the brightness while a histogram (p. 71) is displayed.

Adjusting the gain

You can adjust the gain manually when shooting blackish or dark objects if you do not want the AGC (auto gain control) to be activated.

① During recording or standby, set the AUTO LOCK switch A to the center position to release the auto lock.

② Press the GAIN button B.
The current gain value appears.

③ Adjust the gain by turning the SEL/PUSH EXEC dial D.
The gain can be adjusted between 0dB and 18dB by every 3dB.

Tip

• The gain value can be stored temporarily by setting the AUTO LOCK switch A to HOLD after the manual adjustment.

To restore automatic adjustment

Press the GAIN button B, or set the AUTO LOCK switch A to AUTO LOCK.

Note

• If you set the AUTO LOCK switch A to AUTO LOCK, other manually adjusted items (iris, shutter speed, white balance) also become temporarily automatic.

Adjusting the shutter speed

You can manually adjust and fix the shutter speed. Depending on the shutter speed, you can make the subject look still, or emphasize the fluidity of movement.

① During recording or standby, set the AUTO LOCK switch A to the center position to release the auto lock mode.

② Press the SHUTTER SPEED button C.

③ Adjust the shutter speed by turning the SEL/PUSH EXEC dial D.
You can set a shutter speed between 1/4 second and 1/10000 second.
The selected shutter speed appears on the screen. For example, if you select 1/100 second, [100] appears. The larger the number that appears on the screen, the faster the shutter speed.

Tips

• The shutter speed can be stored temporarily by setting the AUTO LOCK switch A to HOLD after the manual adjustment.

• When [PROG. SCAN] is set to [24], you can adjust the shutter speed in the range of 1/3 second to 1/10000 second.

To restore automatic adjustment

Press the SHUTTER SPEED button C, or set the AUTO LOCK switch A to AUTO LOCK.

Note

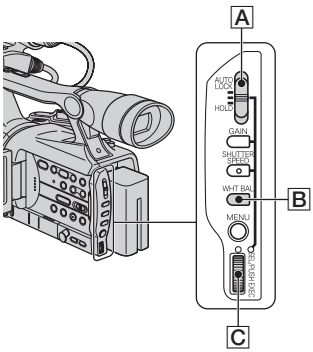
• If you set the AUTO LOCK switch A to AUTO LOCK, other manually adjusted items (iris, gain, white balance) also become temporarily automatic.

Tips

• It is difficult to focus automatically at a lower shutter speed. Manual focusing with your camcorder attached to a tripod is recommended.

• The picture may flicker or change colors under fluorescent lamps, sodium lamps, or mercury lamps.

Adjusting to Natural Color (White balance)



You can adjust the white balance according to the light of the recording environment. You can set two sets of white balance adjustment data separately in memory A and memory B for two different recording conditions with A and B. During recording, you can select the setup data with the SEL/PUSH EXEC dial. The setup data will be retained as long as it is not readjusted even if the power is disconnected.

1 During recording or standby, set the AUTO LOCK switch A to the center position to release the auto lock mode.

2 Press the WHT BAL button B.

3 Display desired item by turning the SEL/PUSH EXEC dial C, then press the dial.

The display changes. A → B → (Outdoor) → (Indoor)

Indicator	Shooting conditions
A (MEMORY A) B (MEMORY B)	• White balance values adjusted for light sources can be stored in memory A and memory B. Follow the steps below
(Outdoor)	• Recording a sunset/ sunrise, just after sunset, just before sunrise, neon signs, or fireworks. • Under daylight color fluorescent lamps
(Indoor)	• Under the lighting condition that changes quickly • Under strong light such as in a photography studio • Under sodium lamps or mercury lamps

Tip

- You can change the white balance value for (Outdoor) by pressing and turning the SEL/PUSH EXEC dial when (Outdoor) is selected. The value can be set between -7(bluish) and +7 (reddish). The default value is 0.

To save the adjusted white balance value in memory A or B

① Select A or B according to step 3 of "Adjusting to Natural Color (White Balance)."

② Shoot something white (such as a sheet of paper) full-screen under the same lighting conditions as the subject.

③ Press the SEL/PUSH EXEC dial C. Pressing the dial switches between blinking A and B.

When the white balance is adjusted, A or B stops blinking and remains on. The adjusted value is now saved in the selected A or B memory.

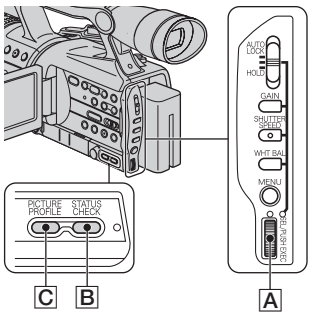
To restore the automatic white balance

Press the WHT BAL button B, or set the AUTO LOCK switch A to AUTO LOCK.

Note

- If you set the AUTO LOCK switch A to AUTO LOCK, other manually adjusted items (iris, gain, shutter speed) also become temporarily automatic.

Customizing the picture quality (Picture profile)



You can customize the picture quality by adjusting [COLOR LEVEL], [SHARPNESS], etc. You can set 6 different picture quality settings depending on the recording time of day, the weather, or the camera person, and store them in the memory.
Connect your camcorder to a TV or monitor, and adjust the picture quality while observing the picture on the TV or monitor screen.
At the default setting, [PP1] through [PP6] are registered with picture quality settings for the following recording conditions.

Picture profile number (setting name)	Recording condition
PP1 :PORTRAIT	Appropriate setting to record people
PP2 :CINEMA	Appropriate setting to record film-like pictures
PP3 :SUNSET	Appropriate setting to record sunset
PP4 :MONOTONE	Appropriate setting to record monotone pictures
PP5 :------	You can assign your own setting

Picture profile number (setting name)	Recording condition
PP6 :------	You can assign your own setting.

1 During standby, press the PICTURE PROFILE button C.

2 Select a picture profile number by turning the SEL/PUSH EXEC dial A, then press the dial.

You can shoot with the settings of the selected picture profile.

3 Select [OK] by turning the SEL/PUSH EXEC dial A.

To cancel the picture profile recording

Select [OFF] in step 2, then press the SEL/PUSH EXEC dial A.

To change the picture profile

You can change the settings in [PP1] through [PP6].

① Press the PICTURE PROFILE button C.

② Select the PICTURE PROFILE number by turning the SEL/PUSH EXEC dial A, then press the dial.

③ Select [SETTING] by turning the SEL/PUSH EXEC dial A, then press the dial.

④ Select an item to be adjusted by turning the SEL/PUSH EXEC dial A, then press the dial.

⑤ Adjust the picture quality by turning the SEL/PUSH EXEC dial A, then press the dial.

Item	Adjustment
[COLOR LEVEL]	–7 (low) to +7 (high) –8 (black and white)
[COLOR PHASE]	–7 (greenish) to +7 (reddish)
[SHARP-NESS]	0 (softer) to 15 (clearer)
[SKINTONE DTL]	To make wrinkles less noticeable by suppressing the outlines on the part of skin color. [TYPE1] (the color range recognized as a skin color is narrow) to [TYPE3] (the color range recognized as a skin color is wide) [OFF] no adjustment
[SKINTONE LVL]	To set the level of outline suppression performed by setting [SKINTONE DTL]. 1 (low suppression) - 6 (high suppression)
[WB SHIFT]	–7 (to make picture bluish) to +7 (to make white parts reddish)

Item	Adjustment
[KNEE POINT]	The starting point of video signal compression, set in order to prevent overexposed highlights by keeping the subject's high-brightness area signal within the dynamic range of your camcorder. [AUTO] To automatically set the knee point. [HIGH] To set a relatively high knee point. [MIDDLE] To set an average knee point. [LOW] To set a relatively low knee point.
[BLK COMPNSTN]	[OFF] Normal setting [STRETCH] To improve γ-curve characteristics in dark areas to enhance gradation in those areas. [COMPRESS] To controls γ-curve characteristics to produce solid black.

Item	Adjustment
[CINEMA-TONE GAMMA]	[OFF] Normal recording [TYPE1] A better tone scale than the standard video gamma reproduces natural intermediate colors between a skin color and neutral colors. A skin color will look lively when recorded with this setting. Further, the reproduction of extremely precise description of highlighted parts provides depth in pictures. [TYPE2] In addition to the features of [TYPE1], this setting is capable of extremely precise description of the entire exposure zone from shadowed parts to highlighted parts, which enables reproduction of a deeper black.
[CINEMA TONE COLOR]	[OFF] Normal setting [ON] Colors similar to film camera images. This is effective when used with [CINEMATONE GAMMA] This is also effective for black and white recording with [COLOR LEVEL] set to [-8]. In this case, the brightness level of a color image will vary.
[PROFILE NAME]	To name the set picture profiles [PP1] through [PP6] (p. 38)
[COPY]	To copy a picture profile setting to other picture profiles
[RESET]	To restore the default setting of the picture profile

⑥ Repeat steps 4 and 5 to adjust other items.

⑦ Select [⮐ RETURN] by turning the SEL/PUSH EXEC dial A, then press the dial.

⑧ Select [OK] by turning the SEL/PUSH EXEC dial A, then press the dial.
A picture profile indicator appears.

Note

- In the case of [TYPE3] of [SKINTONE DTL], the effect may also be applied to a color that is not a skin color.

To check the picture profile settings

During recording or during standby, press the STATUS CHECK button B (p. 48).

Tip

- You can assign picture profiles to the ASSIGN buttons and use them to turn the picture profiles on and off (p. 43).

To name the picture profile settings

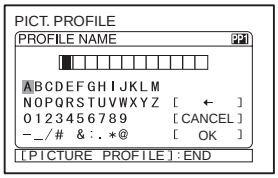
You can name on picture profile1~6.

① Press the PICTURE PROFILE button C.

② Select the picture profile that you want to name by turning the SEL/PUSH EXEC dial A, then press the dial.

③ Select [SETTING] → [PROFILE NAME] by the SEL/PUSH EXEC dial A.

④ Select a letter by turning the SEL/PUSH EXEC dial A, then press the dial.
Repeat this operation until a complete name is entered.



Tip

- Each name can be up to 12 characters long. Characters that can be used in profile names:
  - A~Z
  - 0~9
  - - _ / # & : . * @

⑤ Select [OK] by turning the SEL/PUSH EXEC dial A, then press the dial. The profile name is changed.

⑥ Select [⮐ RETURN] → [OK] by the SEL/PUSH EXEC dial A.

To copy the picture profile setting to other picture profiles

① Press the PICTURE PROFILE button C.

② Select the picture profile that you want to copy from by turning the SEL/PUSH EXEC dial A, then press the dial.

③ Select [SETTING] → [COPY] by SEL/PUSH EXEC dial A.

④ Select the number of the picture profile that you want to copy to by turning the SEL/PUSH EXEC dial A, then press the dial.

⑤ Select [YES] by turning the SEL/PUSH EXEC dial A, then press the dial.

⑥ Select [⮐ RETURN] → [OK] by the SEL/PUSH EXEC dial A.

To reset the picture profile settings

You can reset the picture profile settings by each picture profile number. You cannot reset all picture profile settings at once.

① Press the PICTURE PROFILE button C.

② Select the picture profile by turning the SEL/PUSH EXEC dial A, then press the dial.

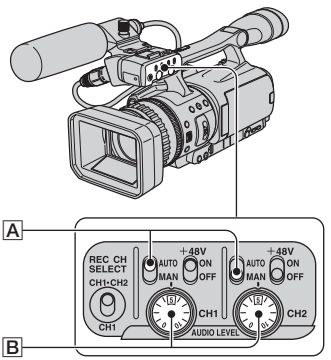
③ Select [SETTING] → [RESET] → [YES] → [⮐ RETURN] → [OK] by the SEL/PUSH EXEC dial A.

Adjusting the volume

You can adjust the volume of a microphone connected to INPUT1/INPUT2.

Tip

- You can find how to attach the supplied microphone on page 14.



1 Set the AUTO/MAN switch A of the channel to be adjusted to MAN.

♪M appears on the screen.

2 Turn the AUDIO LEVEL dial B to adjust the volume.

You can adjust the volume of the microphone connected to INPUT1 by CH1, and that of the microphone connected to INPUT2 by CH2.

To restore automatic adjustment

Set the AUTO/MAN switch A of the manually adjusted channel to AUTO.

Note

- If you are connecting a device other than a 48-V microphone, set the +48V switch to OFF. If you use the device while the +48V switch is set to ON, the device may be damaged.

Assigning the functions to the ASSIGN buttons

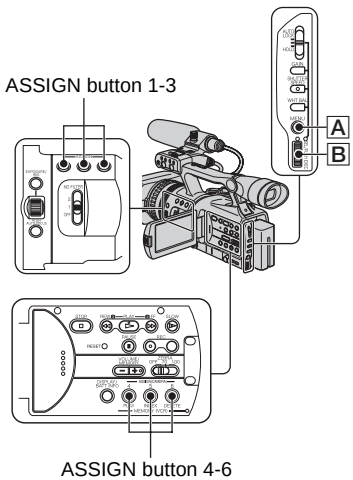
You may need to assign some functions to the ASSIGN buttons. You can assign a single function to each the ASSIGN button 1 to 6.

Functions you can assign to the ASSIGN buttons

- LAST SCN RVW (p. 45)
- MARKER (p. 71)
- HYPER GAIN (p. 67)
- D.EXTENDER (p. 67)
- ALLSCAN MODE (p. 72)
- FOCUS INFNTY (p. 44)
- REC REVIEW (p. 45)
- END SEARCH (p. 45)
- INDEX MARK (p. 44)
- PEAKING (p. 70)
- STEADYSHOT (p. 63)
- COLOR BAR (p. 63)
- FOCUS MACRO (p. 64)
- SPOTLIGHT (p. 67)
- BACK LIGHT (p. 67)
- FADER (p. 68)
- DISPLAY (p. 48)
- Picture profile (p. 38)
- SHOT TRANS (p. 46)

Note

- The ASSIGN buttons 4 to 6 are exclusively used for memory playback when the POWER switch is set to VCR, and cannot be used as ASSIGN buttons. You cannot assign functions to the ASSIGN buttons 4 to 6 while the POWER switch is set to VCR.



1 Press the MENU button A.

2 Select the (OTHERS) → [ASSIGN BTN] by the SEL/PUSH EXEC dial B.

3 Select the number of the ASSIGN button (ASSIGN 1-6, [SHOT TRANS]) you want to assign the function by turning the SEL/PUSH EXEC dial B, then press the dial.

- [------] is displayed at the number that no function is assigned.
- When you select [SHOT TRANS], select [YES], then proceed to step 6.

4 Select the function to be assigned by turning the SEL/PUSH EXEC dial B, then press the dial.

5 Select [OK] by turning the SEL/PUSH EXEC dial B, then press the dial.

6 Press the MENU button A to hide the menu.

Tips

- Shot transition is assigned to the ASSIGN buttons 1, 2 and 3 (p. 46). Cancel the shot transition assignment to return to the pre-setting assignment.
- To cancel the shot transition, select [SHOT TRANS] → [YES] in step 3.

Focusing on a distant subject (Focus infinity)

Note

- [FOCUS INFNTY] is only available during the manual focus. It is not available during the auto focus.

1 Assign [FOCUS INFNTY] to one of the ASSIGN buttons (p. 43).

2 Press the ASSIGN button assigned to [FOCUS INFNTY].

appears.

If you release the switch, it returns to manual focusing.

Use this function to record a distant subject when the focus is automatically set on a close subject.

Recording an index signal

If you make an index for a scene, you can easily search for the scene later (p. 50).

The index function will make it easier to check the transition of recording or edit your pictures using index signals.

1 Assign [INDEX MARK] to one of the ASSIGN buttons in advance (p. 43).

2 Press the ASSIGN button assigned to [INDEX MARK].

When pressed during recording

appears for about 7 seconds and an index signal is recorded.

When pressed during standby

flashes.

After you press the REC START/STOP button to start recording, appears for about 7 seconds and an index signal is recorded.

To cancel the operation

Before starting to record, press the ASSIGN button assigned to [INDEX MARK] again.

Note

- You cannot record an index signal on a recorded tape afterward.

Reviewing the most recently recorded scenes (Rec review)

You can view about 2 seconds of the scene recorded just before you stopped the tape. This is convenient during playback of the latest scene check.

1 Assign [REC REVIEW] to one of the ASSIGN buttons in advance. (p. 43).

2 Press the ASSIGN button assigned to [REC REVIEW] during standby mode.

The last 2 seconds (approx.) of the most recently recorded scene are played back. Then, your camcorder is set to standby.

Searching for the last scene of the most recent recording (End search)

Note

- End search will not work correctly when there is a blank section between recorded sections on the tape.

1 Assign [END SEARCH] to one of the ASSIGN button in advance(p. 43).

2 Press the ASSIGN button to which [END SEARCH] is assigned.

The last scene of the most recent recording played back for about 5 seconds, and the camcorder enters the standby mode at the point where the last recording has finished.

Note

- The End search function fill not work correctly when there is a blank section between recorded sections on the tape.

Playing back the most recently recorded movies (Last scene review)

You can let your camcorder to automatically rewind the tape to the beginning of the most recently recorded scene, play back to the end of the scene, then stop the playback.

1 Assign [LAST SCN RVW] to an ASSIGN button (p. 43).

2 During standby, press the ASSIGN button to which [LAST SCN RVW] is assigned.

[LAST SCN RVW] will be executed.

Note

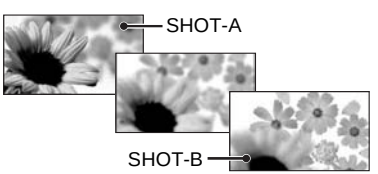
- If the recording time of the movie is short, [LAST SCN RVW] may not be executed correctly.

Tip

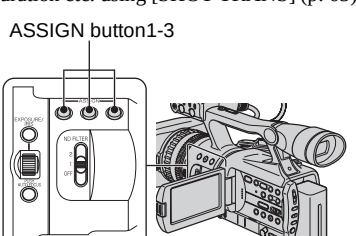
- If you press the ASSIGN button again during the last scene review, your camcorder plays back the last 5 seconds of the most recently recorded movie, then goes to standby at the end of the recording.

Using the Shot transition

You can register the settings of focus, zoom, iris, gain, shutter speed, and white balance, and then change the recording setting from the current one to the registered one, resulting in a smooth transition of scenes (Shot transition).
For example, you can shift the focus from closer objects to farther objects, or change the depth of field by adjusting the iris. In addition, you can develop scenes under different recording conditions smoothly. If you register the manual adjustment function of the white balance, the scenes will develop smoothly between objects indoor and those outdoor.
Use a tripod to avoid camera-shake.



You can set the transition curve and duration etc. using [SHOT TRANS] (p. 65).



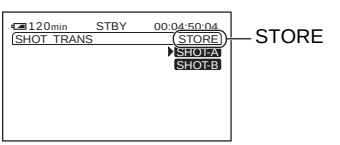
1 Assign [SHOT TRANS] to one of the ASSIGN buttons (p. 43).

Tip

- Shot transition is assigned to ASSIGN buttons 1, 2 and 3.

2 Store the settings (shot).

① Press the ASSIGN button 1 repeatedly to bring up the SHOT TRANSITION STORE screen.



② Adjust the desired items manually. See pages 31 to 37 for details on adjustment.

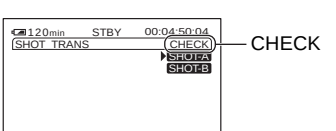
③ Press the ASSIGN button 2 for storing the setting in SHOT-A, or the ASSIGN button 3 for storing the setting in SHOT-B.

Note

- The setting values assigned to SHOT-A and SHOT-B are deleted when the POWER switch is set to OFF (CHG).

3 Check the stored settings.

① Press the ASSIGN button 1 repeatedly to bring up the SHOT TRANSITION CHECK screen.



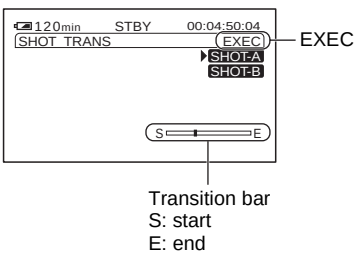
② Press the ASSIGN button 2 to check the SHOT-A. Press the ASSIGN button 3 to check the SHOT-B.
The selected setting will take effect on the picture on the screen. The focus, zoom, and so on, are automatically adjusted as stored in the setting.

Note

- You cannot check the transition time and curve set using [SHOT TRANS] (p. 65).

4 Record using the shot transition function.

① Press the ASSIGN button 1 repeatedly to bring up the SHOT TRANSITION EXEC screen.



② Press the REC START/STOP button.

③ Press the ASSIGN button 2 to record movie using the SHOT-A. Press the ASSIGN button 3 to record movie using the SHOT-B.
Pictures will be recorded with the settings that are changed automatically from the current ones to the stored ones.

Tip

- Press the ASSIGN button 1 repeatedly to cancel the SHOT TRANSITION.

Notes

- You cannot zoom, focus, or adjust manually while checking or activating the Shot transition.
- When you change [SHOT TRANS] (p. 65), press the ASSIGN button 1 repeatedly to exit the shot transition screen.
- You cannot return from the stored SHOT-A or SHOT-B settings to previous settings after you activate the shot transition during recording.
- If you press the following buttons during the shot transition operation, the operation is canceled:
  - PICTURE PROFILE
  - MENU
  - EXPANDED FOCUS
  - STATUS CHECK

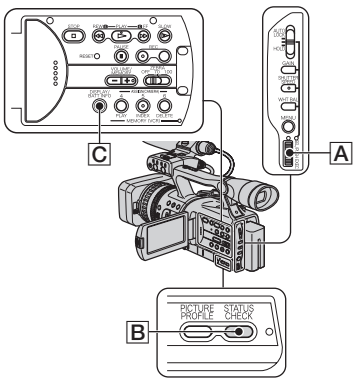
Tips

- You can also make a transition from saved SHOT-A to saved SHOT-B or vice versa. For example, to make a transition from SHOT-A to SHOT-B. Display the shot transition CHECK screen, press the ASSIGN button 2 and press the REC START/STOP button. Next, display the shot transition EXEC screen and press the ASSIGN button 3.
- You can rehearse the shot transition by pressing the ASSIGN button 2 or 3, in which the desired setting was stored, before pressing the REC START/STOP button in step 4.

To cancel the operation

Press the ASSIGN button 1 repeatedly to exit the shot transition screen.

Changing/checking the settings in your camcorder



Changing the screen

You can turn on and off the display of the time code, tape counter, and other information on the screen.

Press the DISPLAY/BATT INFO button C.

The screen indicators turn on (displayed) and off (undisplayed) as you press the button.
When the POWER switch is set to CAMERA, the screen changes (detailed display → simple display → no display) as you press the button.

Tip

- You can display the screen indicators during playback on a TV. Select [DISP OUTPUT], then [V-OUT/PANEL] (p. 74).

Displaying the settings in your camcorder (Status check)

You can check the setup value of the following items.

- Audio setup such as [DV AUDIO MIX] (p. 70)
- Output signal setup ([VCR HDV/DV], etc.) (p. 75)
- Functions assigned to the ASSIGN buttons (p. 43)
- Camera setup. (p. 62)
- Picture profile (p. 38)

1 Press the STATUS CHECK button B.

2 Turn the SEL/PUSH EXEC dial A to display the desired item.

When the POWER switch is set to CAMERA, the items appear in the following order:

AUDIO → OUTPUT → ASSIGN → CAMERA → PICT.PROFILE

When the POWER switch is set to VCR, the items appear in the following order:

AUDIO → OUTPUT → ASSIGN

Note

- When [PICT.PROFILE] is set to [OFF], the settings of PICTURE PROFILE are not displayed.

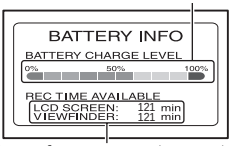
To turn off the setup value

- Press the STATUS CHECK button B.

Checking the remaining battery (Battery Info)

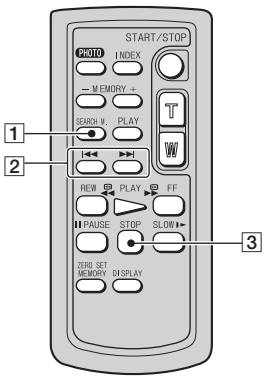
Set the POWER switch to OFF (CHG), then press the DISPLAY/BATT INFO button C. The approximate recordable time in the selected format and battery information appear for about 7 seconds. You can view the battery information for up to 20 seconds by pressing the button again while the information is displayed.

Remaining battery (approx.)



Recording capacity (approx.)

Locating a scene on a tape



Note

- See page 136 for details on how to use the Remote Commander.

Searching for a scene by date of recording (Date search)

You can locate the point where the recording date changes.

1 Set the POWER switch to VCR.

2 Press SEARCH M. 1 on the Remote Commander repeatedly to select [DATE SEARCH].

3 Press I◄◄ (previous)/►►I (next) 2 on the Remote Commander to select a recording date.

You can select the previous or the next date of the present point on the tape.

Playback starts automatically from the point where the date changes.

To cancel the operation

Press STOP 3 on the Remote Commander.

Notes

- If one day's recording is less than 2 minutes, your camcorder may not accurately find the point where the recording date changes.
- The Date search will not function correctly when there is a blank section between recorded sections on the tape.

Searching for a recording start point (Index search)

You can locate the point where an index signal is recorded (p. 44).

1 Set the POWER switch to VCR.

2 Press SEARCH M. 1 on the Remote Commander repeatedly to select [INDEX SEARCH].

3 Press I◄◄ (previous)/►►I (next) 2 on the Remote Commander to select an index point.

You can select the index signal of the point that you want to start playing back the tape.

Playback starts automatically from the point where the selected index signal is recorded.

To cancel the operation

Press STOP 6 on the Remote Commander.

Notes

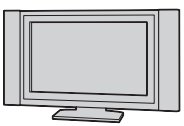
- If index recording is less than 2 minutes, your camcorder may not accurately find the index point.
- The Index search will not function correctly when there is a blank section between recorded sections on the tape.

Playing the picture on a TV

Connection methods and image quality differ depending on what type of TV is connected and connectors used.
Use the supplied AC Adaptor to obtain AC power (p. 16).
Refer also to the instruction manuals supplied with the device to be connected.

Selecting the connection method according to your TV type and connectors

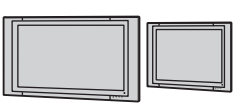
High definition TV



HD (high definition) image quality*
- An HDV formatted picture is played back as it is (HD image quality).
- A DVCAM (DV) formatted picture is played back as it is (SD image quality).

COMPONENT IN / AUDIO	HDMI	i.LINK (for HDV1080i)
A → (p. 53)	B → (p. 54)	C → (p. 54)

16:9 (wide) or 4:3 TV



SD (standard definition) image quality*
- An HDV formatted picture is down converted to DVCAM (DV) format (SD image quality) and played back.
- A DVCAM (DV) formatted picture is played back as it is (SD image quality).

COMPONENT IN / AUDIO	i.LINK	S VIDEO / VIDEO/AUDIO	VIDEO/AUDIO
D → (p. 55)	E → (p. 55)	F → (p. 56)	G → (p. 56)

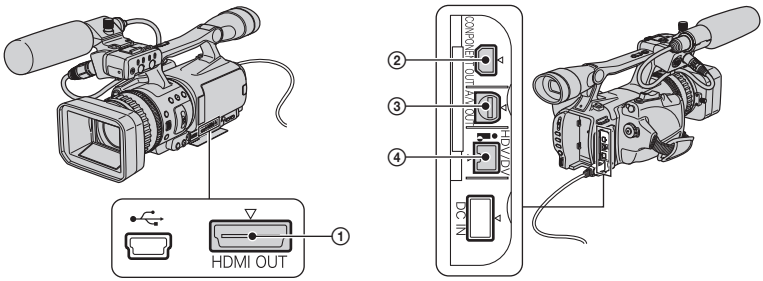
Notes

- Make all menu settings on your camcorder before connecting. The TV may not recognize the video signal properly when changing [VCR HDV/DV] and [i.LINK CONV] settings after connecting with an i.LINK cable.

* Pictures recorded in the DVCAM (DV) format are played back as SD (standard definition) images regardless of the connection.

Jacks on your camcorder

Open the jack cover and connect the cable.



Connecting to a high definition TV

: Signal flow

Type	Camcorder	Cable	TV	Menu Setting
A	②	Component video cable (supplied) (Green) Y (Blue) PB/CB (Red) PR/CR	COMPONENT VIDEO IN	(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75) [COMPONENT] → [1080i/480i] (p. 76)
	③	A/V connecting cable (supplied) (Red) (White) (Yellow)	AUDIO	

Note

- An A/V connecting cable is also needed to output audio signals. Connect the white and red plugs of the A/V connecting cable to the audio input jack of your TV.

: Signal flow

Type	Camcorder	Cable	TV	Menu Setting
B	①	HDMI cable (optional)	HDMI IN	(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75)

Notes

- **Use an HDMI cable with the HDMI logo.**
- Pictures in the DVCAM (DV) format are not output from the HDMI OUT jack, if copyright protection signals are recorded in the pictures.
- DVCAM (DV) format pictures input to the camcorder via i.LINK cable (p. 89) cannot be output.
- Your TVs may not function correctly (for example, no sound or image). Do not connect the HDMI OUT jack of your camcorder and HDMI OUT jack of the external device with the HDMI cable. This may cause a malfunction.

Tip

- HDMI (High Definition Multimedia Interface) is an interface to send both video and audio signals. Connecting HDMI OUT jack to an external device supplies high quality images and digital audio to you.

Type	Camcorder	Cable	TV	Menu Setting
C	④	i.LINK cable (optional)	i.LINK	(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75) [i.LINK CONV] → [OFF] (p. 77)

Notes

- **Your TV needs to have an i.LINK jack compatible with HDV1080i For details, confirm the specifications of your TV.**
- If your TV is not compatible with HDV1080i, connect your camcorder and TV with the supplied component video cable and A/V connecting cable as illustrated in A.
- The TV needs to be set so that it recognizes that the camcorder is connected. See the instruction manuals supplied with your TV.
- This camcorder has a 4-pin i.LINK terminal. Select a cable that fits the terminal on the device to be attached.

Connecting to a 16:9 (wide) or 4:3 TV

To set the aspect ratio according to the connected TV (16:9/4:3)

Change [DOWN CONVERT] setting to match your TV (p. 77).

Note

- When you play back a tape recorded in the DVCAM (DV) format on a 4:3 TV not compatible with the 16:9 signal, set [DV WIDE REC] to [OFF] on your camcorder when recording a picture (p. 76).

Tip

- When your TV is monaural (When your TV has only one audio input jack), connect the yellow plug of the A/V connecting cable to the video input jack and connect the white (left channel) or the red (right channel) plug to the audio input jack of your TV or VCR. When you want to play the sound in monaural mode, use a connecting cable for that purpose.

: Signal flow

Type	Camcorder	Cable	TV	Menu Setting
D	②	Component video cable (supplied): (Green) Y, (Blue) PB/CB, (Red) PR/CR	COMPONENT VIDEO IN	(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75) [COMPONENT] → [480i] (p. 76) [DOWN CONVERT] → [SQUEEZE]/[LETTER BOX]/[EDGE CROP]* (p. 77)
	③	A/V connecting cable (supplied): (Red), (White), (Yellow)	AUDIO	
E	④	i.LINK cable (optional)	i.LINK	(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75) [i.LINK CONV] → [ON] (p. 77)

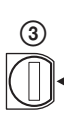
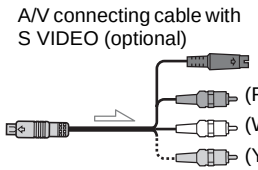
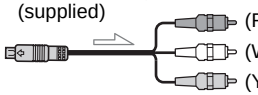
Note

- A/V connecting cable is also needed to output audio signals. Connect the white and red plugs of the A/V connecting cable to the audio input jack of your TV.

Notes

- The TV needs to be set so that it recognizes that the camcorder is connected. See the instruction manuals supplied with your TV.
- This camcorder has a 4-pin i.LINK terminal. Select a cable that fits the terminal on the device to be attached.

: Signal flow

Type	Camcorder	Cable	TV	Menu Setting
F				(IN/OUT REC) menu → [VCR HDV/DV] → [AUTO] (p. 75) [DOWN CONVERT] → [SQUEEZE]/[LETTER BOX]/[EDGE CROP]* (p. 77)
G				(IN/OUT REC) [VCR HDV/DV] → [AUTO] (p. 75) [DOWN CONVERT] → [SQUEEZE]/[LETTER BOX]/[EDGE CROP]* (p. 77)

Notes

- When connecting only an S VIDEO plug (S VIDEO channel), audio signals are not output. To output audio signals, connect the white and red plugs of the A/V connecting cable with an S VIDEO cable to the audio input jack of your TV.
- This connection produces higher resolution pictures compared with the A/V connecting cable (Type G).

* Change the settings according to the TV connected.

Notes

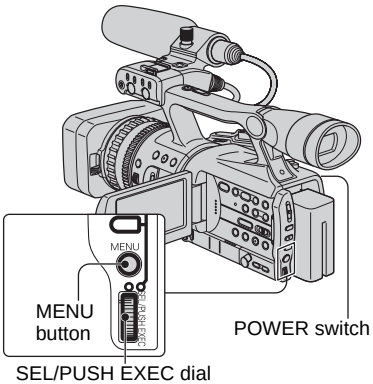
- If you connect your camcorder to your TV using more than one type of cable to output images from a jack other than the i.LINK jack, the order of priority of the output signals is as follows: HDMI → component video → S VIDEO → audio/video.
- See page 121 for the details of i.LINK.

When connecting to your TV via a VCR

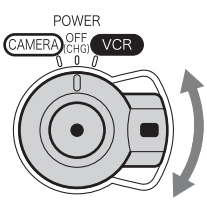
Select the connecting method on page 85 depending on the input jack of the VCR. Connect your camcorder to the LINE IN input on the VCR using the A/V connecting cable. Set the input selector on the VCR to LINE (VIDEO 1, VIDEO 2, etc.).

Using the menu items

You can change various settings or make detailed adjustments using the menu items displayed on the screen.

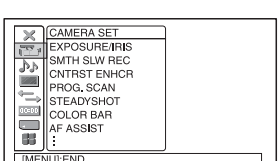


1 While pressing the green button, set the POWER switch.



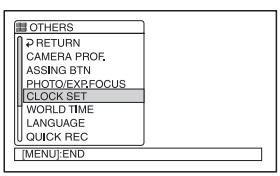
If the POWER switch is set to OFF (CHG), slide it while pressing the green button.

2 Press the MENU button to display the menu index screen.

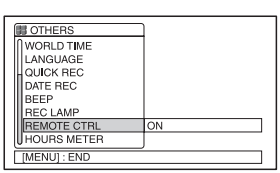


3 Select the icon of the desired menu by turning the SEL/PUSH EXEC dial, then press the dial.

CAMERA SET (p. 62)
AUDIO SET (p. 68)
DISPLAY SET (p. 70)
IN/OUT REC (p. 75)
TC/UB SET (p. 78)
MEMORY SET (p. 80)
OTHERS (p. 82)



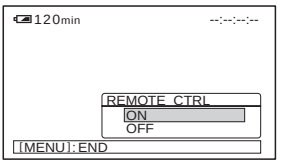
4 Select the desired item by turning the SEL/PUSH EXEC dial, then press the dial.



The available menu items vary depending on the power mode of your camcorder. Unavailable items will be grayed out.

Continued ➡

5 Select the desired setting by turning the SEL/PUSH EXEC dial, then press the dial.



6 Press the MENU button to hide the menu screen.

To return to the previous screen, select [RETURN].

Menu items

Available menu items (●) vary depending on the POWER switch position.

Position of POWER switch:	CAMERA	VCR
(CAMERA SET) menu (p. 62)		
EXPOSURE/IRIS	●	–
SMTH SLW REC	●	–
CNTRST ENHCR	●	–
PROG. SCAN	●	–
STEADYSHOT	●	–
COLOR BAR	●	–
AF ASSIST	●	–
FOCUS MACRO	●	–
AE SHIFT	●	–
AE RESPONSE	●	–
AGC LIMIT	●	–
AT IRIS LMT	●	–
ATW SENS	●	–
FLCKR REDUCE	●	–
HANDLE ZOOM	●	–
SHOT TRANS	●	–
INTERVAL REC	●	–
DV FRAME REC DVCAM DV	●	–
BACK LIGHT	●	–
SPOTLIGHT	●	–
HYPER GAIN	●	–
D.EXTENDER	●	–
FADER	●	–
(AUDIO SET) menu (p. 68)		
DV AU. MODE DVCAM DV	●	–
MIC NR	●	–
XLR SET	●	–
AUDIO CH SEL	–	●
DV AUDIO MIX DVCAM DV	–	●
(DISPLAY SET) menu (p. 70)		
PEAKING	●	–
HISTOGRAM	●	–
MARKER	●	–
EXP.FOCUS TYPE	●	–
ALLSCAN MODE	●	–
CAM DATA DSP	●	–
AU.LVL DISP	●	–
ZOOM DISPLAY	●	–
FOCUS DISP	●	–
SHUTTER DISP	●	–

Continued ➡

Position of POWER switch:	CAMERA	VCR
LCD BRIGHT	●	●
LCD COLOR	●	●
LCD BL LEVEL	●	●
VF B.LIGHT	●	●
VF COLOR	●	●
VF POWERMODE	●	●
DATA CODE	–	●
LETTER SIZE	●	●
REMAINING	●	●
DISP OUTPUT	●	●
(IN/OUT REC) menu (p. 75)		
REC FORMAT	●	–
VCR HDV/DV	–	●
DV REC MODE DVCAM DV	●	●
DV WIDE REC DVCAM DV	●	–
EXT REC CTRL	●	–
COMPONENT	●	●
i.LINK CONV	●	●
DOWN CONVERT	●	●
(TC/UB SET) menu (p. 78)		
TC PRESET	●	●
UB PRESET	●	●
TC FORMAT	●	●
TC RUN	●	●
TC MAKE	●	●
TC LINK	●	–
TC/UB DISP	●	●
UB TIME REC	●	●
(MEMORY SET) menu (p. 80)		
QUALITY	●	●
ALL ERASE	–	●
FORMAT	●	●
FILE NO.	●	●
NEW FOLDER	●	●
REC FOLDER	●	●
PB FOLDER	–	●
(OTHERS) (p. 82)		
CAMERA PROF.	●	●
ASSIGN BTN	●	●
PHOTO/EXP.FOCUS	●	●

Position of POWER switch:	CAMERA	VCR
CLOCK SET	●	●
WORLD TIME	●	●
LANGUAGE	●	●
USB SELECT	–	●
PB ZOOM	–	●
QUICK REC (HDV1080i)	●	–
DATE REC	●	–
BEEP	●	●
REC LAMP	●	–
REMOTE CTRL	●	●
HOURS METER	●	●

(CAMERA SET) menu

Settings to adjust your camcorder to the recording conditions (EXPOSURE/IRIS/ STEADYSHOT/BACK LIGHT, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the (CAMERA SET) by turning the SEL/ PUSH EXEC dial.

EXPOSURE/IRIS

■ DIAL ASSIGN

You can select assign settings with the EXPOSURE/IRIS dial from [EXPOSURE1] (the default settings), [EXPOSURE2], [IRIS] and [AE SHIFT](p. 33).

Note

- If you change the settings assigned to the EXPOSURE/IRIS dial, existing manual values are changed back to automatic values.

■ DIAL SENS

You can select the EXPOSURE/IRIS dial sensitivity from [HIGH], [MIDDLE] (the default settings) or [LOW].

■ DIAL ROTATE

You can select the rotation direction of the EXPOSURE/IRIS dial.

►NORMAL

You can change the screen brightness by turning the dial up.

OPPOSITE

You can change the screen brightness by turning the dial down.

SMTH SLW REC (Smooth slow recording)

Fast moving subjects and actions, which cannot be captured under the general recording conditions, can be recorded in smooth moving slow-motion.
This is useful for recording fast actions such as a golf or tennis swing.

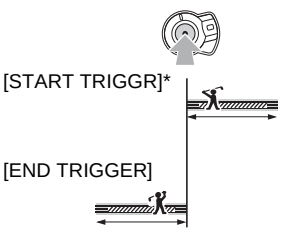
① Set [REC TIME].

Select the recording time from [3sec] (the default setting), [6sec] and [12sec].

The picture quality deteriorates as the recording time increases.

② Set [REC TIMING].

Select the recording timing from [START TRIGGR] and [END TRIGGER] to record the action after or before the REC START/ STOP button is pressed.



* The default setting is [START TRIGGR].

③ Start recording.

Select [EXECUTE], then press the REC START/STOP button on the [SMTH SLW REC] screen.

A slow-motion movie about 4 times longer than your [REC TIME] setting is recorded. Recording ends when [Recording...] disappears from the screen.

To cancel [SMTH SLW REC], press the MENU button

Notes

- Sounds cannot be recorded
- [SMTH SLW REC] settings are automatically canceled if you turn the power off and back on.
- The shutter speed is automatically set to 1/250 even if you set it to a speed slower than 1/250.
- The recording time may be shorter than the set time, depending on recording conditions.
- The image quality is lower than with the regular recording.

CNTRST ENHCR

When you set [CNTRST ENHCR] to [ON], high contrast images, such as backlit scene images, are detected and unexposed shadows of the images are automatically reduced (the default setting is [OFF]).

Note

- When you set [BACK LIGHT] to [ON], [CNTRST ENHCR] is temporarily turned off.

PROG. SCAN

You can record progressive movies with a vertical resolution of 1,080 lines.

►OFF

24 (24pSCAN)
Select to record 24 scenes per minute, which is the same as cinema films.

30 (30pSCAN)
Select to record 30 scenes per minute, which is the same as television commercials.

Note

- Recorded movies are converted to the 60i format and stored.

STEADYSHOT

■ ON/OFF

You can compensate for camera shake (the default setting is [ON]). Set [ON/OFF] to [OFF] (OFF) when using a tripod (optional), then the image becomes natural.

■ TYPE

You can select the type of the SteadyShot function that compensates for camera-shake.

HARD
Select to activate the SteadyShot function with stronger effect. This mode is not recommended for recording with camera pan, tilt technique.

►STANDARD
Select to activate the standard SteadyShot function.

SOFT
Select to activate the SteadyShot function so that it leaves a slight unsteadiness on the picture so the picture looks natural.

WIDE CONV.
Select when a wide conversion lens (optional) is attached. This mode is the most effective with Sony VCL-HG0862K wide conversion lens.

COLOR BAR

■ ON/OFF

You can display the color bar or record it on the tape by setting to [ON]. It is convenient to adjust the color on the connected monitor (the default setting is [OFF]).

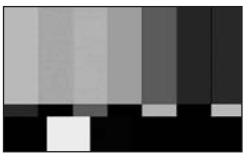
Note

- This is automatically set to [OFF] the next time you switch on the camcorder.

Press the MENU button → select the (CAMERA SET) by turning the SEL/PUSH EXEC dial.

■ TYPE

You can select the color bar type.



TYPE 1

TYPE 2

TYPE 3

■ TONE

When you set [ON/OFF] to [ON] and [TONE] to [ON], audio tone signals (1kHz: full bit -20dB) are output (the default setting is [OFF]).

AF ASSIST

When you set [AF ASSIST] to [ON], you can briefly focus manually by turning the focus ring during the auto focus. (the default setting is [OFF]).

FOCUS MACRO

Since the default setting is [ON], you can focus on a subject within 80 cm (about 2 5/8 feet). When [FOCUS MACRO] is set to [OFF] ( ), you cannot focus on a subject within 80 cm (about 2 5/8 feet) but you can easily find the focal point of a subject at 80 cm (about 2 5/8 feet) or further regardless of the zoom position.

AE SHIFT

You can adjust the exposure between -7 (dark) and +7 (bright) using the SEL/PUSH EXEC dial. AS and the setting value appear when [AE SHIFT] is set to anything other than the default setting.

Notes

- If you adjust all of the iris, gain, shutter speed manually, you cannot obtain the effect of [AE SHIFT].
- This function is not effective when [HYPER GAIN] is set.

AE RESPONSE

You can select the speed to adjust the exposure automatically, in accordance with the brightness of the subject. [FAST], [MIDDLE], and [SLOW] are available (the default setting is [FAST]).

AGC LIMIT

You can select the upper limit for the Auto Gain Control (AGC) from [OFF] (18dB, the default setting), [12dB], [6dB] or [0dB].

Note

- If you adjust the gain manually, you cannot obtain the effect of [AGC LIMIT].

AT IRIS LMT

You can select the highest iris value for the automatic adjustment from [F11] (the default settings), [F5.6], [F4].

Note

- If you adjust the iris manually, you cannot obtain the effect of [AT IRIS LMT].

ATW SENS

You can set the auto white balance for operation under a reddish light source such as an incandescent lamp or candle, or under a blueish light source such as in outdoor shade.

►INTELLIGENT

Adjustment is automatically performed to achieve a natural atmosphere according to the brightness of the scene.

HIGH

Redness or blueness will decrease.

MIDDLE

LOW

Redness or blueness will increase.

Notes

- This is only effective when white balance is adjusted automatically.
- [ATW SENS] is not effective under a clear sky or the sun.

FLCKR REDUCE

►ON

Select to record under normal conditions. Flickering of the screen under a light source such as fluorescent lamps will be reduced.

OFF

Select when you do not want to reduce flickering of the screen.

Note

- Flickering may not be reduced depending on the light sources.

HANDLE ZOOM

You can change the zoom speed of handle zoom switch positions H and L (p. 31).

■ H

You can select the zoom speed of position H of the handle zoom switch from 1 (slow) through 8 (fast) (the default setting is 6).

■ L

You can select the zoom speed of position L of the handle zoom switch from 1 (slow) through 8 (fast) (the default setting is 3).

SHOT TRANS

You can set [TRANS TIME], [TRANS CURVE], [START TIMER] and [REC LINK]. See page 46 for details on using the shot transition function.

■ TRANS TIME

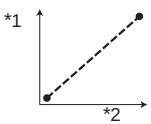
You can select transition time ([3.5sec] to [15.0sec], the default setting is [4.0sec]).

■ TRANS CURVE

You can select the transition curve. The transition curve changes as follows.
*1: parameter level
*2: transition of time

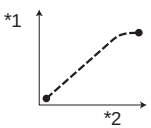
LINEAR

Make the transition linearly.



►SOFT STOP

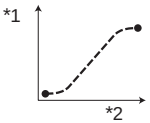
Make the transition slowly at the end.



Press the MENU button → select the (CAMERA SET) by turning the SEL/PUSH EXEC dial.

SOFT TRANS

Make the transition slowly at the beginning and end, and linearly in between.



Note

- You cannot change [TRANS TIME] and [TRANS CURVE] settings during store, check, or execution of [SHOT TRANS]. Cancel [SHOT TRANS] setting by pressing the ASSIGN button 1 several times before changing [TRANS TIME] or [TRANS CURVE] setting.

■ START TIMER

You can set the timer for starting the shot transition. You can select the time from [5sec], [10sec] and [20sec] (the default setting is [OFF]).

■ REC LINK

►OFF

Select not to start transition when the recording is started.

SHOT-A

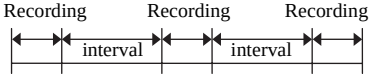
Select to start transition to SHOT-A when the recording is started.

SHOT-B

Select to start transition to SHOT-B when the recording is started.

INTERVAL REC

You can record a series of movies on a tape at regular intervals. This function is useful to observe things like cloud movements or daylight changes. The scenes run smoothly into each other when you play back the tape. Use the AC Adapter/Charger to obtain AC power for long recording.



① Select [ON/OFF] → [ON] with the SEL/PUSH EXEC dial.

② Perform the following step if you are changing the recording time from the default setting of [0.5sec]. If you are keeping the default recording time, go straight to step ③.

Select [REC TIME] → [0.5sec], [1sec], [1.5sec] or [2sec] with the SEL/PUSH EXEC dial.

③ Perform the following step if you are changing the interval time from the default setting of [30sec]. If you are keeping the default interval time, go straight to step ④.

Select [INTERVAL] → [30sec], [1min], [5min] or [10min]

④ Select [OK] with the SEL/PUSH EXEC dial.

⑤ Press the MENU button to hide the menu screen.

⑥ Press the REC START/STOP button.

The [INTERVAL REC] recording starts.

To cancel [INTERVAL REC], press the REC START/STOP button.

The operation of your camcorder differs depending on when you press the REC START/STOP button.

If you press the button during [INTERVAL REC] recording, the recording temporarily stops, then if you press it again, the [INTERVAL REC] recording restarts.

If you press the button during [INTERVAL REC] interval, the [INTERVAL REC] recording stops and regular recording starts, then if you press it again, regular recording stops. If you press the button once again, the [INTERVAL REC] recording restarts.

To cancel the [INTERVAL REC] recording, select [ON/OFF] → [OFF] with the SEL/PUSH EXEC dial.

Notes

- The recording time and interval time may differ slightly from the settings.
- If you focus manually, you can get sharp images even if the lighting changes.
- You can disable the operation sound by setting [BEEP] to [OFF] (p. 84).

DV FRAME REC DVCAM DV SP

You can record pictures with a stop-motion animated effect by alternately recording a few frames and then moving the subject a little. Operate your camcorder using the Remote Commander to prevent camera shake.

▶ OFF

Select to record in the standard recording mode.

ON ( )

Select to record pictures using the DV FRAME REC function.

① Select [ON] by the SEL/PUSH EXEC dial.

② Press the MENU button to hide the menu screen.

③ Press the REC START/STOP button.
A picture (approximately 6 frames) is recorded, and your camcorder enters the standby mode.

④ Move the subject and repeat step 3.

Note

- When you use frame recording continuously, the remaining tape time will not be indicated correctly.
- The last scene will be longer than other scenes.
- You cannot record index signals during frame recording.
- This is automatically set to [OFF] if you turn the power off and back on.

BACK LIGHT

When you set [BACK LIGHT] to [ON], is displayed and the back light function is enabled (the default setting is [OFF]).

Notes

- The back light function is canceled when you set [SPOTLIGHT] to [ON].
- You cannot use the back light function if 2 or more items out of iris, gain, and shutter speed are adjusted manually.

SPOTLIGHT

When you set [SPOTLIGHT] to [ON] ( ), you can reduce overexposed highlights on faces of people who are under strong light, such as on a stage, during recording (the default setting is [OFF]).

Notes

- The spotlight function is canceled when you set [BACK LIGHT] to [ON].
- You cannot use the spotlight function if 2 or more items out of iris, gain, and shutter speed are adjusted manually.

HYPER GAIN

When you set [HYPER GAIN] to [ON] (HYPER), you can increase the gain to about 36 dB (the default setting is [OFF]).

Notes

- During the hyper gain, you cannot use the following function.
  – [BACK LIGHT]
  – [SPOT LIGHT]
- During the hyper gain, the picture quality will be reduced due to noise.
- [HYPER GAIN] is automatically set to [OFF] if you turn the power off and back on.

Tip

- You are recommended to use this function with manual focus.

D.EXTENDER (Digital Extender)

When you set [D.EXTENDER] to [ON] ( ), the image is displayed about 1.5 times larger. The picture quality deteriorates due to the digital process. You can enlarge images of distant subjects such as wild birds (the default setting is [OFF]).

Note

- This is automatically set to [OFF] if you turn the power off and back on.

Press the MENU button → select the (CAMERA SET) by turning the SEL/PUSH EXEC dial.

FADER

You can record a transition with the following effects adding to the interval between scenes.

① Select the desired effect in [STBY] (during fading in) or [REC] (during fading out) mode.

② Press the REC START/STOP button.
The fader indicator stops flashing and disappears when the fade is complete.

To cancel before starting the operation, select [OFF] in step ①.
Once you press the REC START/STOP button, the setting is canceled.

Fading out Fading in

WHITE FADER

BLACK FADER

Note

- This is automatically set to [OFF] if you turn the power off and back on.

(AUDIO SET) menu

Settings for the audio recording (DV AU. MODE/XLR SET, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the (AUDIO SET) by turning the SEL/PUSH EXEC dial.

DV AU. MODE (DV Audio mode) DVCAM DV

►**FS32K (32k)**
Records in the 12-bit mode (2 stereo sounds).

FS48K (48k)
Records in the 16-bit mode (1 stereo sound with high quality).

Note

- When recording in the HDV format, sound is automatically recorded in the [FS48K] mode.

MIC NR

Since the default setting is [ON], noise input through the microphone is reduced.

XLR SET

■ **AU. MAN GAIN**
You can select whether the audio levels of channel 1 is linked with or separated from that of channel 2 when using an external microphone.

►**SEPARATE**
Select to record the sound in channel 1 separately from that in channel 2 (to use channel 1 and channel 2 as separate sound source).

LINKED
Select to record the sound in channel 1 and that in channel 2 (as a set, like stereo sound).
[appears on the status check screen.

Notes

- This function is effective only when the AUTO/MAN switches of both CH1and CH2 are set to MAN (p. 42).
- When [LINKED] is set, you can adjust the volume with the AUDIO LEVEL dial of CH1 (p. 42).

■ INPUT1 LEVEL

You can switch between microphone and line for input from the INPUT1 jack.

►MIC

Select to input audio signals from an external microphone through the INPUT1 jack.

MIC appears on the status check screen.

LINE

Select to input audio signals from an audio device through the INPUT1 jack.

LINE appears on the status check screen.

■ INPUT1 TRIM

You can adjust levels of signal input from the INPUT1 jack. This function is effective only when [INPUT1 LEVEL] is set to [MIC].

You can select from [0dB], [-8dB] and [-16dB] (the default setting is [0dB]).

■ INPUT1 WIND

This function is effective only when [INPUT1 LEVEL] is set to [MIC].

►OFF

Select to disable wind noise reduction.

ON

Select to enable wind noise reduction.

appears on the status check screen.

■ INPUT2 LEVEL

You can switch between microphone and line for input from the INPUT2 jack.

►MIC

Select to input audio signals from an external microphone through the INPUT2 jack.

MIC appears on the status check screen.

LINE

Select to input audio signals from an audio device through the INPUT2 jack.

LINE appears on the status check screen.

■ INPUT2 TRIM

You can adjust levels of signal input from the INPUT2 jack. This function is effective only when [INPUT2 LEVEL] is set to [MIC].

You can select from [0dB], [-8dB] and [-16dB] (the default setting is [0dB]).

■ INPUT2 WIND

This function is effective only when [INPUT2 LEVEL] is set to [MIC].

►OFF

Select to disable wind noise reduction.

ON

Select to enable wind noise reduction.

appears on the status check screen.

Tips

- The INPUT TRIM function adjusts the input level from an external microphone. When using a highly sensitive microphone or recording loud sound, set this to the minus side. When using a less sensitive microphone or recording quiet sound, set it to the plus side.
- When recording loud sound, the sound may be distorted at either the input point or the recording point. If it is distorted at the input point, adjust the sound using the INPUT TRIM function. If it is distorted at the recording point, lower the total volume level manually.
- If you set INPUT TRIM too far to the minus side, the microphone volume becomes too low, resulting in a poor signal to noise ratio.
- Test the effect of the INPUT TRIM function according to the microphone used or the sound field of the recording site before actual recording.

Press the MENU button → select the ♪ (AUDIO SET) by turning the SEL/PUSH EXEC dial.

AUDIO CH SEL

►**CH1,CH2**

Select to output sound of CH1 and CH2 from respective channels.

CH1

Select to output sound of CH1 from channel 1/2.

CH2

Select to output sound of CH2 from channel 1/2.

Tip

- When you select [CH1,CH2] and output from the stereo of your camcorder, sound is mixed sound of CH1 and CH2.

DV AUDIO MIX DVCAM DV SP

You can monitor the sound recorded on the tape with audio dubbing or 4ch microphone recording during playback.
You can select the channel from which the dubbed sound is outputted during playback.

►**CH1,CH2**

Select to output only the originally recorded sound (CH1, CH2).

MIX

Select to synthesize and output the originally recorded sound (CH1, CH2) and the sound added afterwards (CH3, CH4).

CH3,CH4

Select to output only the sound added afterwards.

(DISPLAY SET) menu

Display settings of the display and the viewfinder (MARKER/VF B.LIGHT/DATA CODE, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.
See page 57 for details on selecting menu items.

Press the MENU button → select the (DISPLAY SET) by turning the SEL/PUSH EXEC dial.

PEAKING

■ **ON/OFF**

When you set to [ON], the outline of the subject on the screen is enhanced for easier focusing. (the default setting is [OFF]).

■ **COLOR**

[WHITE], [RED], [YELLOW] are available for the outline color. (the default setting is [WHITE].)

■ **LEVEL**

[HIGH], [MIDDLE], [LOW] are available for the outline level. (the default setting is [MIDDLE].)

Note

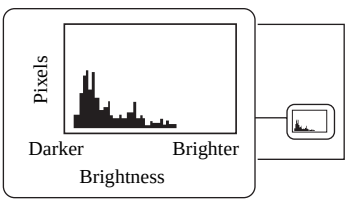
- The image with enhanced outline is not recorded on the tape.

Tip

- This makes focusing easier when used with expanded focus display (p. 33).

HISTOGRAM

When you set [HISTOGRAM] to [ON], [HISTOGRAM] (a graph to display a distribution of tones in your picture) window appears on the screen (the default setting is [OFF]).
This item is useful when you adjust exposure. You can adjust EXPOSURE/IRIS while checking [HISTOGRAM] window (p. 33). [HISTOGRAM] will not be recorded on a tape or "Memory Stick Duo."



Tips

- The left area on the graph shows the darker areas of the picture while the right area shows the brighter areas.
- If you set ZEBRA to 70 or 100, the guide is displayed (p. 35).

MARKER

When you set [ON/OFF] to [ON], you can display [CENTER], [ASPECT], [SAFETY ZONE] and [GUIDEFRAME] markers

■ ON/OFF

When you select [ON], markers are displayed (the default setting is [OFF]). The markers are not recorded

■ CENTER

When you set [CENTER] to [ON], the marker is displayed at the center of the screen (the default setting is [ON]).

■ ASPECT

You can select whether to display the markers at an aspect of [4:3], [13:9], [14:9] of [15:9] (the default setting is [OFF]).

■ SAFETY ZONE

When you select [80%] or [90%], the marker indicating the area that can be displayed on a regular home TV screen is displayed (the default setting is [OFF]).

■ GUIDEFRAME

When you set [GUIDEFRAME] to [ON], the marker for checking the horizontal and vertical positions of the subject is displayed (the default setting is [OFF]).

Notes

- Screen indicators are not output from the analog jacks when a marker is displayed.
- You can only display [14:9], [15:9] and [90%] when [ALLSCAN MODE] is set to [ON].
- When [DATE REC] is set to [ON], you cannot display markers.

Tips

- You can display all types of markers at the same time.
- You can obtain a balanced composition by positioning the subject at the cross points of the guideframe marker.
- Markers are displayed only on the LCD panel and viewfinder (they are not output from the jacks).

EXP.FOCUS TYPE

You can set a type of the expanded focus display.

►TYPE 1

Simply enlarges images.

Press the MENU button → select the (DISPLAY SET) by turning the SEL/PUSH EXEC dial.

TYPE 2

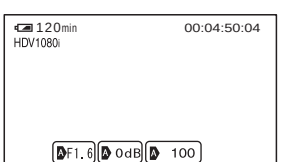
Enlarges and shows images in white and black.

ALLSCAN MODE

When you set [ALLSCAN MODE] to [ON], you can check the area surrounding the picture frame, which you cannot check on a TV screen (the default setting is [OFF]). During the simple all scan display, a black frame appears around the screen. Set to [OFF] to return to the previous screen.

CAM DATA DSP (Camera data display)

When you set [CAM DATA DSP] to [ON], the iris, shutter speed, and gain settings are constantly displayed (the default setting is [OFF]).

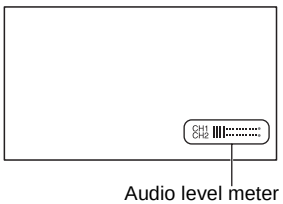


Tips

- When set to manual, the values are displayed regardless of the camera data display settings.
- indicates auto settings.
- The items displayed by setting [CAM DATA DSP] to [ON] are different from the items that will be displayed when [DATA CODE] is set to [CAMERA DATA] (p. 73).

AU.LVL DISP (Audio level display)

Since the default setting is [ON], the audio level meter is displayed.



ZOOM DISPLAY

►**BAR**

Select to indicate the zoom position with the bar display.

NUMBER

Select to indicate the zoom position in numbers (0 through 99).

FOCUS DISP

You can select how to display the focal distance during manual focus.

►**METER**

Select to display the focus value in meters.

FEET

Select to display the focus value in feet.

SHUTTER DISP

You can select how to display the shutter speed.

►**SECOND**

Select to display the shutter speed in seconds.

DEGREE

Select to display the shutter speed in degrees, where the shutter speed equivalent to the data reading cycle from the image sensor is displayed as 360°.

– When [PROG. SCAN] is set to [OFF], 1/60 is equal to 360°.
– When [PROG. SCAN] is set to [24], 1/24 is equal to 360°.
– When [PROG. SCAN] is set to [30], 1/30 is equal to 360°.

Note

• Shutter speeds displayed when [DATA CODE] is set to [CAMERA DATA] are always displayed in seconds

Tip

• Shutter speed slower than 360°are displayed in multiples of 360°, such as 360° × 2.

LCD BRIGHT

You can adjust the LCD bright intensity using the SEL/PUSH EXEC dial. The brightness of recorded pictures is not affected.

Tip

• You can also turn off the LCD backlight (p. 20).

LCD COLOR

You can adjust the LCD color intensity using the SEL/PUSH EXEC dial. The color of recorded pictures is not affected.

LCD BL LEVEL

You can adjust the brightness of the LCD screen's backlight.

►NORMAL

Standard brightness.

BRIGHT

Brightens the LCD screen.

Notes

• When you connect your camcorder to outside power sources, [LCD BL LEVEL] is automatically set to [BRIGHT].
• When you select [BRIGHT], the recordable time with the battery is slightly reduced.

VF B.LIGHT

You can adjust the brightness of the viewfinder.

►NORMAL

Standard brightness.

BRIGHT

Brightens the viewfinder screen.

Notes

• When you connect your camcorder to outside power sources, [BRIGHT] is automatically selected for the setting.
• When you select [BRIGHT], the recordable time with the battery is slightly reduced.

VF COLOR

►ON

Displays images in the viewfinder in color.

OFF

Displays images in the viewfinder in black and white.

VF POWERMODE

►AUTO

When the LCD screen is closed or during reverse shooting, the finder is lit.

ON

The LCD screen and finder are always lit.

DATA CODE

During playback, you can display the information (data code) recorded automatically at the time of recording is displayed.

Press the MENU button → select the (DISPLAY SET) by turning the SEL/PUSH EXEC dial.

►OFF

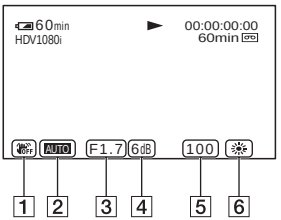
Data code is not displayed.

DATE

Displays the date and time.

CAMERA DATA

Displays camera setting data.



1 SteadyShot off

2 Exposure

AUTO is displayed when shooting with automatic adjustment of iris/gain/shutter speed, and MANUAL is displayed when shooting with manual adjustment.

3 Iris

CLOSE is displayed in the iris value display area when you manually set the iris value to the maximum.

4 Gain

5 Shutter speed

6 White balance

PWB is displayed when you play back images recorded using shot transition.

Notes

- The exposure adjustment value (0EV), the shutter speed, and the iris value appear when still images on a "Memory Stick Duo" are played back.
- In the DATE display, the date and time are displayed in the same area. If you record a picture without setting the clock, [---- -- --] and [--:--:--] will appear.

LETTER SIZE

►NORMAL

Select to display the menu screen at normal size.

2x

Select to display the selected menu item at double the normal height.

REMAINING

►AUTO

Displays the remaining tape indicator for about 8 seconds in situations such as those described below.

- When you set the POWER switch to VCR or CAMERA with a cassette inserted.
- When you press ► (Play) or the DISPLAY/BATT INFO button.

ON

Always displays the remaining tape indicator.

DISP OUTPUT

►LCD PANEL

Shows displays such as the time code on the LCD screen and in the viewfinder.

V-OUT/PANEL

Shows displays such as the time code on the TV screen, LCD screen, and in the viewfinder.

⇆ (IN/OUT REC) menu

Recording settings, input and output settings (VCR HDV/DV/DV REC MODE/ DV WIDE REC/ DOWN CONVERT, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the ⇆ (IN/OUT REC) by turning the SEL/PUSH EXEC dial.

REC FORMAT

You can select a recording format.

► **HDV1080i** (HDV1080i)
Records in the HDV1080i specification.

DV (DVCAM DV SP)
Records in the DVCAM (DV) format.
Set [DV REC MODE] when recording in DVCAM (DV) format.

Note

- When you output the recording picture using an i.LINK cable, set [i.LINK CONV] (p. 77) accordingly.

VCR HDV/DV

You can select the playback signal. Normally select [AUTO].
When your camcorder is connected to another device using an i.LINK cable, select the signal to input/output from the i HDV/DV interface (i.LINK). The selected signal is recorded or played back.

► **AUTO**
Switches the signals between HDV and DVCAM (DV) formats automatically when playing back a tape.
During i.LINK connection, switches the signals between HDV and DVCAM (DV) formats automatically, and inputs/outputs from the i HDV/DV interface (i.LINK).

HDV (HDV1080i)
Plays back only the portions recorded in HDV format.
During i.LINK connection, inputs/outputs only HDV formatted signals from the i HDV/DV interface (i.LINK), and records/plays back. You can also select this when connecting the camcorder to a computer, etc.

DV (DV)
Plays back only the portions recorded in DVCAM (DV) format.
During i.LINK connection, inputs/outputs only DVCAM (DV) formatted signals from the i HDV/DV interface (i.LINK), and records/plays back. You can also select this when connecting the camcorder to a computer, etc.

Notes

- Disconnect the i.LINK cable before changing [VCR HDV/DV] setting. Otherwise, the connected device, such as a VCR, may not be able to recognize the video signal from your camcorder.
- When [AUTO] is selected and the signal switches between HDV and DVCAM (DV) formats, the picture and sound are interrupted temporarily.
- When [i.LINK CONV] is set to [ON], pictures are output as follows:
  - at [AUTO], an HDV signal is converted to the DVCAM (DV) format and output; a DVCAM (DV) signal is output as it is.
  - at [HDV], an HDV signal is converted to the DVCAM (DV) format and output; a DVCAM (DV) signal is not output.
  - at [DV], a DVCAM (DV) signal is output as it is; an HDV signal is not output.

DV REC MODE (DV Recording mode) DVCAM DV SP

This function is effective only when [REC FORMAT] is set to [DV].

► **DVCAM** (DVCAM)
Records in the DVCAM format on a tape.

DV SP (DV SP)
Record in the SP (Standard Play) mode of the DV format to record for a longer time on a tape than in the DVCAM format.

Notes

- If you record in the DV SP mode, a mosaic-like disturbance of picture may appear or sound may be interrupted when you play back the tape on other camcorders or VCRs.
- When you mix recordings in the DVCAM mode and in the DV SP mode on one tape, the playback picture may be distorted or the time code may not be continued properly between the scenes.

DV WIDE REC DVCAM DV SP

You can select the aspect ratio for recording according to a type of your TV. Refer also to the instruction manuals supplied with your TV.

►ON
Records pictures in the size that matches the full screen of a 16:9 (wide) TV.

OFF (4:3)
Records pictures in the size that matches the full screen of a 4:3 TV.

Notes

- Set [DOWN CONVERT] correctly according to the TV connected for playback (p. 77).
- When you select HDV format, the image size is fixed to 16:9. You cannot record in 4:3 size.

EXT REC CTRL

You can connect your camcorder to an HDV/DVCAM/DV compatible device (digital HD video camera recorder, digital video camera recorder, hard disc recorder, etc.) with an i.LINK cable, and record movies on your camcorder and the connected device simultaneously, or continue recording from your camcorder to the connected device.
Refer also to the instruction manual supplied with the devices that you are connecting.

■ REC CTL MODE

►OFF
Select not to record on a connected device.

SYNCHRONOUS (EXT)
Select to record movies, sound and time code on a connected device in synchronization with your camcorder.

RELAY (EXT)
Select to record movies, sound and time code on a connected device when a tape on your camcorder reaches close to the end during recording.

■ STBY COMMAND

►REC PAUSE
Select to be able to stop recording on a connected device and set it to REC PAUSE using the recording stop operation of your camcorder.

STOP
Select to be able to stop recording on a connected device by setting it to STOP using the recording stop operation of your camcorder.

COMPONENT

You can select the type of connection when connecting your camcorder to a TV with the component input jack.

480i

Select when connecting your camcorder to a TV with the component input jack.

►1080i/480i

Select when connecting your camcorder to a TV that has the component input jack and is capable of displaying the 1080i signal.

i.LINK CONV

You can convert HDV format signals to DV format signals, and output the DV format signals from the i HDV/DV interface (i.LINK).

►OFF

Outputs the pictures from the i HDV/DV interface (i.LINK) in accordance with the settings in [REC FORMAT] and [VCR HDV/DV].

ON

Pictures in HDV format are converted to DV format, and pictures in DV format are output in DV format.

Notes

- For input signal via an i.LINK connection, see [VCR HDV/DV] (p. 75).
- Disconnect the i.LINK cable before setting [i.LINK CONV]. Otherwise, the connected video device may not be able to recognize the video signal from your camcorder.

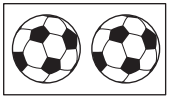
DOWN CONVERT

You can set an output video signal format for playing back movies recorded in the HDV format.
Use this function for the following outputs.
– COMPONENT (480i)
– S VIDEO
– AUDIO/VIDEO

►SQUEEZE

Select to output video signals to a 16:9 wide TV or compatible.

On 16:9 wide TV



On 16:9 compatible 4:3 TV

LETTER BOX

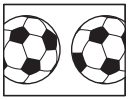
Select to output a video signal to a TV that is not 16:9 compatible.

On standard 4:3 TV

EDGE CROP

Select to output the central portion of an image with a ratio aspect of 4:3 by cropping the sides of the image.

On standard 4:3 TV



Notes

- When a movie recorded in the DVCAM (DV) format with [DV WIDE REC] set to [ON] is viewed on a standard 4:3 TV, the images may appear vertically compressed. In this case, set [DV WIDE REC] to [OFF] before recording.
- The i.LINK output becomes a [SQUEEZE] output

00:00 (TC/UB SET) menu

(TC PRESET/UB PRESET/TC LINK, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the 00:00 (TC/UB SET) by turning the SEL/PUSH EXEC dial.

TC PRESET

■ PRESET

You can preset the time code.

① Select [TC PRESET] by turning the SEL/PUSH EXEC dial, then press the dial.
② Select [PRESET] by turning the SEL/PUSH EXEC dial, then press the dial.
③ Select the first 2 digits by turning the SEL/PUSH EXEC dial, then press the dial. You can set the time code between 00:00:00:00 and 23:59:59:29.
④ Set other digits by repeating step ③.
⑤ Select [OK] by turning the SEL/PUSH EXEC dial, then press the dial.

■ RESET

You can reset the time code (00:00:00:00). Select [RESET] in step ① of the [PRESET].

UB PRESET

■ PRESET

You can preset the user bit.

① Select [UB PRESET] by turning the SEL/PUSH EXEC dial, then press the dial.
② Select [PRESET] by turning the SEL/PUSH EXEC dial, then press the dial.
③ Select the first 2 digits by turning the SEL/PUSH EXEC dial, then press the dial.
④ Set other digits by repeating step ③.
⑤ Select [OK] by turning the SEL/PUSH EXEC dial, then press the dial.

■ RESET

You can reset the time code (00:00:00:00). Select [RESET] in step ① of the [PRESET].

TC FORMAT

You can select the frame mode.

►AUTO
Select to set the frame mode automatically in accordance with the inserted cassette.

DF
Select to set the frame mode to the drop frame mode.

NDF
Select to set the frame mode to the non-drop frame mode.

What is drop frame?
Although 30 frames are considered as 1 second in time code processing, the actual frame frequency of an NTSC image signal is 29.97 frames/sec. As a result, the time code gradually lags behind real time as the recording gets longer. The drop frame function adjusts the time code to real time. In the drop frame process, the first 2 frames of each second are not recorded except in every tenth minute. Recording without the drop frame process is called non-drop frame recording.

TC RUN

You can select how the time code advances.

►REC RUN
Time code value advances only while recording. Select this when making the time code continuous at backspace editing.

FREE RUN
Time code value advances freely regardless of the camcorder's current operation mode. Select this when adjusting the discrepancy between time code value and real time.

TC MAKE

►REGENERATE

Select to make the time code continuous at backspace editing. Regardless of the [TC RUN] setting, the running mode is automatically set to [REC RUN].

PRESET

Select when you do not want to make the time code continuous at backspace editing.

TC LINK

You can synchronize the time codes of multiple HVR-V1E/V1Ps.
This function is useful for editing movies recorded by multiple camcorders.

① Decide which camcorder will generate a time code (main camcorder) and which camcorder will receive that time code (sub camcorder). Make sure a tape is loaded in the main camcorder.

② Set the POWER switches of the main and sub camcorders to CAMERA.

③ Connect the main camcorder to the sub camcorder with an i.LINK cable.

④ Set the menu items of the main and sub camcorders as follows:

- Set [TC RUN] to [FREE RUN]
- Set [TC MAKE] to [PRESET]
- Set the same [TC FORMAT] on both the main and sub camcorders (p. 78).

Set the sub camcorders as follows:

⑤ Select [TC/UB SET] → [TC LINK] with the SEL/PUSH EXEC dial.

⑥ A message “Synchronize TC with connected device?” is displayed. Select [YES] to synchronize the time code of the sub camcorder to the time code of the main camcorder.

Remove the i.LINK cable when synchronization is completed.

You can record movies with the synchronized time codes.

Notes

- If you want to execute [TC LINK] for more than three camcorders, repeat the steps for multiple sub camcorders with one main camcorder.
- Some frame shifting may occur over time after time code synchronization.
- Some frame shifting may occur if you turn the power off and back on. After turning the power off and back on, you are recommended to set [TC LINK] again.

TC/UB DISP

You can select the time code or the user bit to be displayed on the screen.

►TC

Select to display the time code (00:00:00:00).

U-BIT

Select to display the user bit (00 00 00 00).

UB TIME REC

►OFF

Select when you do not want to set the user bits to the real time clock.

ON

Select to set the user bits to the real time clock.

(MEMORY SET) menu

Settings for the "Memory Stick Duo" (QUALITY/ALL ERASE, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the (MEMORY SET) by turning the SEL/PUSH EXEC dial.

QUALITY

►**FINE** (FINE)

Records still images at the fine image quality level.

STANDARD (STD)

Records still images at the standard image quality level.

Capacity of the "Memory Stick Duo" (MB) and the number of recordable pictures

	1.2M 1440 × 810	0.9M 1080 × 810	VGA 640 × 480	0.2M 640 × 360
16MB	25	34	96	115
	60	80	240	240
32MB	51	69	190	240
	120	160	485	485
64MB	100	135	390	490
	240	325	980	980
128MB	205	280	780	980
	490	650	1970	1970
256MB	370	500	1400	1750
	890	1150	3550	3550
512MB	760	1000	2850	3600
	1800	2400	7200	7200
1GB	1550	2100	5900	7300
	3650	4900	14500	14500
2GB	3150	4300	12000	15000
	7500	10000	30000	30000
4GB	6300	8500	23500	29500
	14500	19500	59000	59000

Top: [FINE] is selected for image quality.
Bottom: [STANDARD] is selected for image quality.

* Recording: Image size fixed to [1.2M] in HDV or DVCAM (DV) format (16:9) and [0.9M] in DVCAM (DV) format (4:3).
Playback: Image size is fixed to [1.2M] in HDV format, [0.2M] in DVCAM (DV) format (16:9) and [VGA (0.3M)] in DVCAM (DV) format (4:3).

Note

- The specifications are for the "Memory Stick Duo" made by Sony Corporation. The number of recordable pictures varies depending on the recording environment.

Approximate data size of a picture (kB)

1.2M	0.9M	VGA	0.2M
600	450	150	130
260	190	60	60

Top: [FINE] is selected for image quality.
Bottom: [STANDARD] is selected for image quality

ALL ERASE

You can delete all the pictures on a "Memory Stick Duo" without image protection, or in the selected folder.

① Select [ALL FILES] or [CURRNT FOLDER].

[ALL FILES]: Deletes all the images on the "Memory Stick Duo."

[CURRNT FOLDER]: Deletes all the images in the selected folder.

② Select [YES] → [YES] by using the SEL/PUSH EXEC dial.

[Erasing all data...] is displayed. [Completed] is displayed when all unprotected images are deleted.

Notes

- Release the write protect tab on the "Memory Stick Duo" beforehand when using the "Memory Stick Duo" with the write-protect tab (p. 118).
- The folder will not be deleted even when you delete all the pictures in the folder.
- Do not do any of the following while [Erasing all data...] is displayed:
  - Operate the POWER switch/operation buttons.
  - Eject the "Memory Stick Duo."

FORMAT

You do not need to format the "Memory Stick Duo" since it is already formatted at the factory. If you want to format the "Memory Stick Duo," select [YES]→[YES].

Notes

- Do not do any of the following while [Formatting…] is displayed:
  - Operate the POWER switch/operation buttons.
  - Eject the "Memory Stick Duo."
- Formatting erases everything on the "Memory Stick Duo" including protected image data and newly created folders.

FILE NO.

►SERIES

Assigns file numbers in sequence even if the "Memory Stick Duo" is replaced with another one. The file number is reset when a new folder is created or the recording folder is replaced with another.

RESET

Resets the file number to 0001 each time the "Memory Stick Duo" is changed.

NEW FOLDER

When you select [YES], you can create a new folder (102MSDCF to 999MSDCF) on a "Memory Stick Duo." When a folder is full (a maximum of 9,999 images are stored), a new folder is automatically created.

Notes

- You cannot delete the created folders using your camcorder. You will have to format the "Memory Stick Duo" (p. 81), or delete them using your computer.
- The number of recordable pictures on a "Memory Stick Duo" may decrease as the number of folders increases.

REC FOLDER (Recording folder)

You can select the folder to be used for recording by turning the SEL/PUSH EXEC dial, then press the dial.

Tips

- As the default setting, pictures are saved in the 101MSDCF folder.
- Once you record a picture in a folder, the same folder will be set as the default folder for playback.

PB FOLDER (Playback folder)

You can select the playback folder by turning the SEL/PUSH EXEC dial, then press the dial.

(OTHERS) menu

Settings while recording on a tape or other basic settings (USB SELECT/QUICK REC/ BEEP, etc.)

The default settings are marked with ▶. The indicators in parentheses appear when the items are selected.

See page 57 for details on selecting menu items.

Press the MENU button → select the (OTHERS) by turning the SEL/PUSH EXEC dial.

CAMERA PROF. (Camera profile)

You can save up to 20 camera setting profiles on a "Memory Stick Duo" and 2 in your camcorder. Using these saved profiles let you quickly obtain suitable camera settings later. When using multiple camcorders of this model, you can save the setting on a "Memory Stick Duo" and load them into the other camcorders.

Tip

- The items that can be saved in the camera profile are set values of the menu, the picture profiles, and the buttons. You can save these set values all in the camera profile.

To save camera profile settings

① Select [SAVE] by the SEL/PUSH EXEC dial.

② Using the SEL/PUSH EXEC dial, select [MEMORY STICK] to save the settings on the "Memory Stick Duo" or [CAMERA] to save the settings in your camcorder.

③ Select [NEW FILE] or an existing profile name by turning the SEL/PUSH EXEC dial.

④ Select [YES] in the check screen by turning the SEL/PUSH EXEC dial. The camera profile settings are saved.

Tips

- If you select [NEW FILE] in [MEMORY STICK], the profile name is [MS01] (when saving the camera profile for the first time).
- If you select [NEW FILE] in [CAMERA], the profile name is [CAM1] or [CAM2].
- If you select an existing camera profile as a destination, the camera profile is overwritten.
- A camera profile saved on "Memory Stick Duo" cannot be viewed or edited on a computer.
- You can copy a camera profile by loading the camera profile stored in your camcorder and saving it onto a "Memory Stick Duo."

To change profile name

You can change the camera profile name.

① Select [PROFILE NAME] by the SEL/PUSH EXEC dial.

② Select the camera profile that you want to change the name by the SEL/PUSH EXEC dial.
[PROFILE NAME] screen appears.

③ Change the profile name by turning the SEL/PUSH EXEC dial.

Tip

- The method of inputting the name is the same as the method of setting the name of the picture profile (p. 41).

④ Select [OK] by turning the SEL/PUSH EXEC dial, then press the dial.
Profile name is changed.

To load camera profile settings

You can load the camera profile settings and use your camcorder with the settings.

① Select [LOAD] by the SEL/PUSH EXEC dial.

② Select the camera profile, from which you want to load the settings, by the SEL/PUSH EXEC dial.

③ Select [YES] in the check screen.
Your camcorder is restarted and the selected camera profile becomes effective.

Note

- You cannot load camera profile settings that have been saved by a different model of camcorder or edited on a computer.

■ To delete camera profile settings

① Select [DELETE] by the SEL/PUSH EXEC dial.
② Select the camera profile you want to delete by the SEL/PUSH EXEC dial.
③ Select [YES] in the check screen.

ASSIGN BTN

See page 43.

PHOTO/EXP.FOCUS

You can select a function to assign to the PHOTO/EXPANDED FOCUS button (p. 33).

▶PHOTO
Records a still image (p. 28).

EXP.FOCUS
The PHOTO/EXPANDED FOCUS button acts the same function as the EXPANDED FOCUS button (p. 33).

Note

- If [EXP.FOCUS] is selected, you cannot record still images with the main unit button. Please use the PHOTO button on the Remote Commander.

CLOCK SET

See page 22.

WORLD TIME

When you use your camcorder abroad, you can adjust the clock to the local time by setting the time difference with the SEL/PUSH EXEC dial.
When you set the time difference to 0, the clock returns to the original setting.

LANGUAGE

You can select the language to be used on the LCD screen.

Tip

- Your camcorder offers [ENG[SIMP]] (simplified English) in case that you cannot fine your native tongue among the options.

USB SELECT

You can connect the camcorder to a personal computer with a USB cable and view pictures on the “Memory Stick Duo” on the computer (p. 95). You can also connect the camcorder to a PictBridge compatible printer (p. 93) using this function.

▶ Memory Stick
Select to view pictures on a “Memory Stick Duo” on the computer or to export them to the computer.

PictBridge PRINT
Select to connect your camcorder to a PictBridge compatible printer to print out directly (p. 93).

PB ZOOM (Playback zoom)

When you set [PB ZOOM] to [ON], you can enlarge movie images about 1.1 to 5 times (still images about 1.5 to 5 times, the default setting is [OFF]). You can adjust the magnification with the zoom lever. To end the zoom, press the W side of the zoom lever.

Tip

- To move the zoom horizontally, press the SEL/PUSH EXEC dial, then turn the dial. To move the zoom vertically, press the SEL/PUSH EXEC dial one more time, then turn the dial.

QUICK REC HDV1080i

You can slightly reduce the recording start point time when resuming recording by turning the POWER switch from OFF (CHG) to CAMERA.

►OFF

It takes some time to restart recording from the state that the drum has stopped rotating, but the transition from the last recorded scene is smooth.

ON (Q.REC)

The time shortens slightly until recording restarts from the state that the drum has stopped rotating, but the transition from the last recorded scene may not be smooth. Select this when you do not want to miss a recording chance.

Tips

- If [QUICK REC] is set to [ON], the interval between scenes freezes for a moment (editing on your computer is recommended).
- When the camcorder is left in standby for more than about 3 minutes, your camcorder exits from standby (the drum stops rotating) to prevent tape wear and battery loss. Since the power does not turn off, you can restart recording by pressing the REC START/STOP button again.

DATE REC

►OFF

Select not to superimpose the date and time on the pictures.

ON

Select to superimpose the date and time on the pictures.

Tips

- When [DV WIDE REC] is set to [OFF], the date and time are displayed outside the 4:3 area but properly recorded on images.
- When you record in the HDV format, the date and time are displayed at different positions during recording and playback.

BEEP

►ON

Activates a melody when you start/stop recording.

OFF

Cancels the melody.

REC LAMP (Recording lamp)

The camera recording lamp will not light up during recording when you set this to [OFF] (the default setting is [ON]).

REMOTE CTRL (Remote control)

The default setting is [ON], allowing you to use the supplied Remote Commander (p. 136).

Tip

- Set to [OFF] to prevent your camcorder from responding to a command sent by another VCR remote control unit.

HOURS METER

You can display the cumulative operation time of your camcorder with the total hours of operation, drum rotation, tape running, or the total number of tape unthreading operations.

OPERATION

Select to display the total hours of operation in 10-hour increments.

DRUM RUN

Select to display the total hours of drum rotation in 10-hour increments.

TAPE RUN

Select to display the total hours of tape running in 10-hour increments.

THREADING

Select to display the total number of tape unthreading operation in 10-operation increments.

Dubbing to VCR, DVD/HDD device, etc.

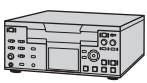
Connect your camcorder to the wall outlet using the supplied AC Adaptor for this operation (p. 16). Refer also to the instruction manuals supplied with the devices to be connected.

Connecting to external devices

The connection method and the image quality will differ depending on the VCR, DVD/HDD device and the connectors used.

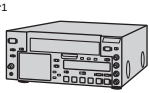
: Signal flow

Camcorder	Cable	External device
②	i.LINK cable (optional) — i.LINK	HDV1080i compatible device → **HD quality***1



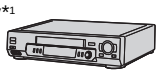
• i.LINK jack which is compatible with HDV1080i specification is required on the external device.

Camcorder	Cable	External device
②	i.LINK cable (optional) — i.LINK	AV device with i.LINK jack → **SD quality***1



Camcorder	Cable	External device
①	A/V connecting cable with S VIDEO (optional) — S VIDEO, (Red), (White), (Yellow), AUDIO, VIDEO	AV device with S VIDEO jack → **SD quality***1

Camcorder	Cable	External device
①	A/V connecting cable (supplied) — (Red), (White), (Yellow), AUDIO, VIDEO	AV device with audio/video jacks*2 → **SD quality***1



*1 Pictures recorded in the DVCAM (DV) format are dubbed in the SD (standard definition) quality, regardless of the connection.

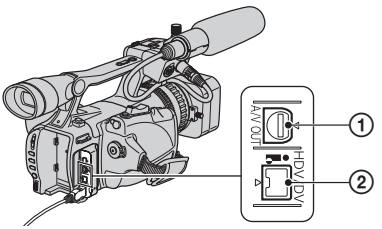
*2 When connecting your camcorder to a monaural device, connect the yellow plug of the A/V connecting cable to the video jack on the device, and connect the white (left channel) or red (right channel) plug to the audio jack on the device.

Note

• You cannot dub pictures using the HDMI cable.

Jacks on your camcorder

Open the jack cover and connect the cable.



Using an i.LINK cable (optional)

The dubbed format (HDV/DV) differs depending on the recording format or the format supported by the VCR/DVD device. See the table below for selecting the appropriate settings, and perform necessary menu setting.

Note

- Disconnect the i.LINK cable before changing these menu settings, otherwise the VCR/DVD device may not correctly identify the video signal.

Tip

- This camcorder has a 4-pin i.LINK terminal. Select a cable that fits the terminal on the device to be connected.

Copy format	Camcorder recording format	Format supported by the VCR/DVD device		Menu setting	
		HDV format*1	DVCAM (DV) format	[VCR HDV/DV] (p. 75)	[i.LINK CONV] (p. 77)
Copy HDV recording as HDV	HDV	HDV	–*3	[AUTO]	[OFF]
Convert HDV recording to DVCAM (DV)	HDV	DVCAM (DV)	DVCAM (DV)		[ON]
Copy DVCAM (DV) recording as DVCAM (DV)	DVCAM (DV)	DVCAM (DV)	DVCAM (DV)		[OFF]
When tape is recorded in both HDV and DVCAM (DV) format					
Convert both HDV and DVCAM (DV) format to DVCAM (DV)	HDV/ DVCAM (DV)	DVCAM (DV)	DVCAM (DV)	[AUTO]	[ON]
Copy only portions recorded in HDV format	HDV	HDV	–*3	[HDV]	[OFF]
	DVCAM (DV)	–*2	–*3		
Copy only portions recorded in DVCAM (DV) format	HDV	–*2	–*2	[DV]	[OFF]
	DVCAM (DV)	DVCAM (DV)	DVCAM (DV)		

*1 Recording device compliant with the HDV1080i specification.

*2 The tape advances, but no video or sound is recorded (blank).

*3 Picture is not recognized (no recording is made).

Notes

- When [VCR HDV/DV] is set to [AUTO], and the signal switches between HDV and DVCAM (DV) formats, the picture and sound are interrupted temporarily.
- When the recorder is HVR-V1U/V1N, set [VCR HDV/DV] to [AUTO] (p. 75).
- When the player and the recorder are both HDV1080i compatible devices such as HVR-V1U/V1N and connected with the i.LINK cable, after pausing or stopping and then resuming the recording, the images will be a bit choppy or rough at that point.
- Set [DISP OUTPUT] to [LCD PANEL] (the default setting) when connecting with an A/V connecting cable (p. 74).

When connecting with the A/V connecting cable with S VIDEO (optional)

Connect with S VIDEO jack instead of the video plug (yellow). This connection produces pictures more faithfully. This connection produces higher quality DVCAM (DV) format pictures. The audio will not be output when you connect with the S VIDEO cable alone.

Dubbing to another device

1 Prepare your camcorder for playback.

Insert the recorded cassette.
Slide the POWER switch to VCR.

Set [DOWN CONVERT] according to the playback device (TV, etc.) (p. 77).

2 Prepare your VCR/DVD device for recording.

When dubbing to the VCR, insert a cassette for recording.
When dubbing to the DVD recorder, insert a DVD for recording.

If your recording device has an input selector, set it to the appropriate input (such as video input1 and video input2).

3 Connect your VCR/DVD device to your camcorder as a recording device.

See page 85 for connection details.

4 Start playback on the camcorder, and recording on the VCR/DVD device.

Refer to the operating instructions supplied with your recording device for details.

5 When dubbing is complete, stop your camcorder and the VCR/DVD device.

Notes

- The following cannot be output via the i, HDV/DV interface (i.LINK):
  - Indicators
  - Titles that are recorded on other camcorder
- Pictures recorded in the HDV format are not output from the i, HDV/DV interface (i.LINK) jack during playback pause or in any playback mode other than normal playback.
- Note the following when connecting with an i.LINK cable:
  - The recorded picture becomes rough when a picture is paused on your camcorder while recording to a VCR/DVD device.
  - Data codes (date/time/camera settings data) may not be displayed or recorded depending on the device or application.
  - You cannot record the picture and sound separately.
- When dubbing to a DVD recorder from your camcorder in DVCAM (DV) format through an i.LINK cable, you may not operate your camcorder on your DVD recorder even its instruction manual says you can. If you can set the input mode to DV on your DVD recorder and can input/output pictures, follow the steps in "Dubbing to another device."

Tips

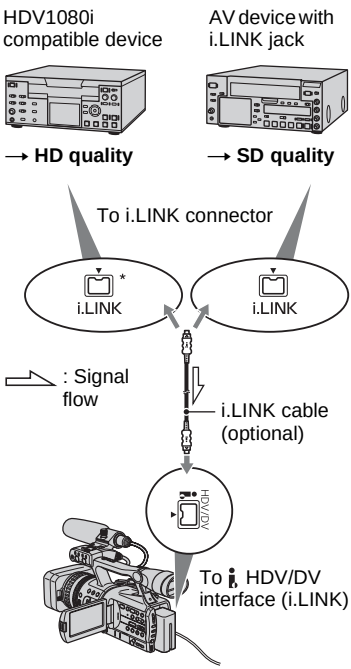
- To record the date/time and camera settings data when connected by the A/V connecting cable, display them on the screen.
- When you use an i.LINK cable, the video and sound signals are transmitted digitally, producing high quality pictures.
- When an i.LINK cable is connected, the format of the output signal (HDV OUT i.LINK or DV OUT i.LINK) will be indicated on the LCD screen of your camcorder.

Recording pictures from a VCR i.LINK

You can record pictures from a VCR on a tape. You can record a scene as a still image on a "Memory Stick Duo." You can record pictures in the HDV format by connecting an HDV1080i specification compatible device. Be sure to insert a cassette or a "Memory Stick Duo" for recording in your camcorder beforehand.
You can connect your camcorder to a VCR device using an i.LINK cable.
Connect your camcorder to the wall outlet using the supplied AC Adaptor for this operation (p. 16). Refer also to the instruction manuals supplied with the devices to be connected.

Notes

- You need an i.LINK cable for this operation.
- You cannot perform this operation with the A/V connecting cable.
- Your camcorder has a 4-pin i.LINK terminal. Select a cable that fits the terminal on the device to be attached.



* An i.LINK jack which is compatible with HDV1080i specification is required.

Recording movies

1 Set the POWER switch to VCR.

2 Set the input signal of your camcorder.

Set [VCR HDV/DV] to [AUTO] when recording from an HDV format compatible device.

Set [VCR HDV/DV] to [DV] or [AUTO] when recording from a DVCAM (DV) format compatible device (p. 75).

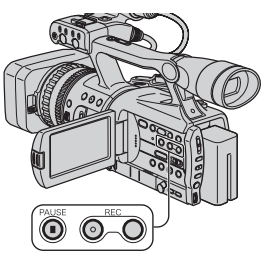
3 Connect your VCR as a player to your camcorder.

When an i.LINK cable is connected, the format of the input signal (HDV IN i.LINK or DV IN i.LINK) will be indicated on the LCD screen of your camcorder (This indicator may appear on the screen of the playback device, however, it will not be recorded).

4 Insert a cassette into the VCR.

5 Set your camcorder to recording pause.

While pressing II (PAUSE), press both ● REC (record) buttons simultaneously.



6 Start playing the cassette on your VCR.

The picture played on the VCR appears on the LCD screen of your camcorder.

7 Press II (PAUSE) again at the point you want to start recording.

8 Press ■ (STOP) to stop recording.

Notes

- You cannot record TV programs from the i.LINK HDV/DV interface (i.LINK).
- User bits are not recorded when dubbing from a DVCAM (DV) device via an i.LINK cable.
- You can record pictures from DV devices only in the DVCAM (DV) format.
- Note the following when connecting with an i.LINK cable:
  - The recorded picture becomes rough when a picture is paused on your camcorder while recording to a VCR.
  - You cannot record the picture and sound separately.
  - If you pause or stop the recording and restart it, the picture may not be recorded smoothly.

Tip

- When a 4:3 video signal is input, it appears with black bands on the right and left sides on the screen of your camcorder.

Recording still images

Be sure to insert a “Memory Stick Duo” for recording in your camcorder beforehand, and set [PHOTO/EXP.FOCUS] to [PHOTO] (the default setting) (p. 83).

1 Perform steps 1 to 4 in “Recording movies.”

2 Start playing the cassette.

The pictures on the VCR appear on the screen of your camcorder.

3 Press the PHOTO/EXPANDED FOCUS button at the scene you want to record.

Note

- Movies will be fixed to image size [1.2M] when playing back in the HDV format. Movies will be fixed to image size [0.2M] (16:9) or [VGA (0.3M)] (4:3) when playing back in the DVCAM (DV) format.

Copying movies from tape to "Memory Stick Duo" as still images

You can record still images on a "Memory Stick Duo." Be sure to insert a recorded tape and a "Memory Stick Duo" in your camcorder, and set [PHOTO/EXP.FOCUS] to [PHOTO] (the default setting) (p. 83) beforehand.

1 Set the POWER switch to the VCR.

2 Search and record the scene you want to record.

Press ► (play) to play back the tape, then press the PHOTO/EXPANDED FOCUS button at the scene you want to record.

Notes

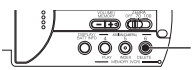
- The date and time at which the picture was recorded on the tape and the date and time at which the picture was stored on the "Memory Stick Duo" are recorded. On your camcorder, the date and time at which the picture was recorded on the tape are displayed. Camera setting data recorded on the tape cannot be stored on the "Memory Stick Duo."
- Movies will be fixed to image size [1.2M] when playing back in the HDV format. Movies will be fixed to image size [0.2M] (16:9) or [VGA (0.3M)] (4:3) when playing back in the DVCAM (DV) format.
- You cannot record still images while using [PB ZOOM] (p. 83).

Deleting recorded pictures from the “Memory Stick Duo”

1 Set the POWER switch to VCR.

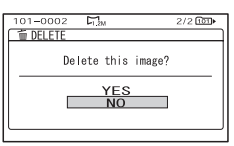
2 Playback a picture you want to delete (p. 30).

3 Press the MEMORY/DELETE button.



MEMORY/ DELETE

[Delete this image?] will be displayed.



4 Select [YES] by turning the SEL/ PUSH EXEC dial, then press the dial.
The picture is deleted.

Note

- The pictures cannot be restored once they are deleted.

Note

- Pictures cannot be deleted when a “Memory Stick Duo” with the write-protect tab is set to the write-protect position (p. 118), or when the selected picture is protected (p. 103).

Tips

- To delete images from the index screen, use the VOLUME/MEMORY button to move the ► mark to the images you want to and perform steps 3 and 4.
- To delete all pictures at once, select [ALL ERASE] (p. 80).

Printing recorded images (PictBridge compliant printer)

You can print out pictures using a PictBridge compliant printer without connecting the camcorder to a computer.

PictBridge

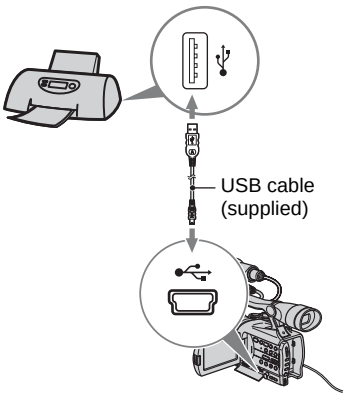
Connect the AC Adaptor to your camcorder to obtain power from the wall outlet.
Insert the “Memory Stick Duo”, containing still images into your camcorder and turn on the printer.

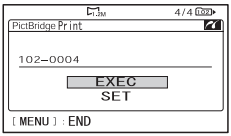
Connecting your camcorder to the printer

1 Set the POWER switch to VCR.

2 Press the MENU button, and select (OTHERS) menu → [USB SELECT] → [PictBridge PRINT] with the SEL/PUSH EXEC dial.

3 Connect the USB cable to the (USB) jacks of your camcorder and the printer.





One of the images stored on the “Memory Stick Duo” will be displayed.

Printing

1 Select the image you want to print with the VOLUME/MEMORY button.

2 Set the number of copies you want to print if necessary.

If you do not want to set the number, go to step 3 (the number will be automatically set to 1).

① Select [SET] → [COPIES] with the SEL/PUSH EXEC dial.
② Select the number by turning the SEL/PUSH EXEC dial, then press the dial.
③ Select [RETURN] by turning the SEL/PUSH EXEC dial, then press the dial.

The PictBridge selection screen appears again.

Tip

- You can set the number up to 20.

3 To print the date/time on the image, set as follows.

If you do not want to print the date/time, go to step 4.

Continued ➡

① Select [SET] → [DATE/TIME] → [DATE] or [DAY & TIME] with the SEL/PUSH EXEC dial.

② Select [↩ RETURN] by turning the SEL/PUSH EXEC dial, then press the dial.

The PictBridge selection screen appears again.

4 Select [EXEC] → [YES] with the SEL/PUSH EXEC dial.

When printing is finished, [Printing...] disappears and the image selection screen appears again.

Press the MENU button when printing is completed.

Notes

- We do not guarantee proper operation when a PictBridge incompatible device is connected.
- Refer also to the operating instructions for the printer to be used.
- Do not attempt the following operations when the printer is connected (is on the screen). The operations may not be performed properly.
  - Operate the POWER switch.
  - Disconnect the USB cable from the printer.
  - Remove the “Memory Stick Duo” from your camcorder.
- If the printer stops working, disconnect the USB cable, turn the printer off and on again and restart the operation from the beginning.
- Depending on your printer, the top, bottom or side edges may be cut. Particularly when printing a wide (16:9) image, the sides may be cut significantly.
- Some printer models may not support the date/time printing function. Refer to your printer’s operating instructions for details.
- We cannot guarantee the printing of images recorded with a device other than your camcorder.

Tip

- PictBridge is an industry standard established by the Camera & Imaging Products Association (CIPA). You can print still images without using a computer by connecting a printer directly to a digital video camera or digital still camera, regardless of model or manufacturer.

Connecting to a computer

When connecting your camcorder to a computer, the following operations are available:
Copying the still images on a “Memory Stick Duo” to the computer
→ p. 95

Copying the movie on a tape in the HDV format to the computer
→ p. 98

Copying the movie on a tape in the DVCAM (DV) format to the computer
→ p. 98

About connection

There are 2 ways to connect your camcorder to a computer:
– USB cable
To copy still images on a “Memory Stick Duo”
– i.LINK cable
To copy movies on a tape

Notes on connecting to a computer

- When you are using a USB cable or an i.LINK cable to connect your camcorder to a computer, make sure to connect the connector in the correct direction. If you insert the connector forcibly, it may be damaged, and cause a malfunction of your camcorder.
- You cannot do the following:
  – Copying pictures on a tape to a computer with a USB cable.
  – Copying pictures on a “Memory Stick Duo” to a computer with an i.LINK cable.
- Remove the USB cable according to the correct procedure when disconnecting it from the computer (p. 97).

Copying still images to a computer

System requirements

For Windows users

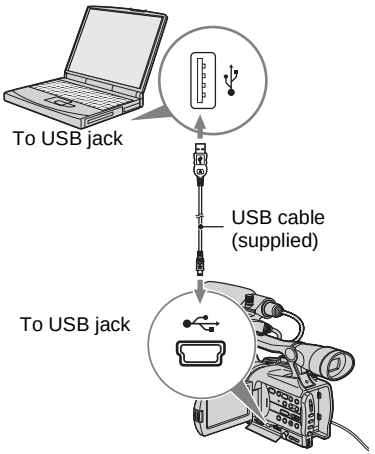
- OS: Windows 2000 Professional/Windows Millennium Edition/Windows XP Home Edition/Windows XP Professional
  Standard installation is required. Operation is not assured if the above OS has been upgraded.
- CPU: MMX Pentium 200MHz or faster
- Others: USB port (provided as standard).

For Macintosh users

- OS: Mac OS 9.1/9.2 or Mac OS X (v10.1/v10.2/v10.3/v10.4)
- Others: USB port (provided as standard).

Step:1 Using the USB cable

- You can do this operation with the standard driver on your computer. You do not need to install any software.
- If your computer has a Memory Stick slot, insert the “Memory Stick Duo” on which pictures are recorded into the Memory Stick Duo adaptor (optional), then insert it into the Memory Stick slot on your computer to copy still images to the computer.
- When using a “Memory Stick PRO Duo” and your computer is not compatible with it, connect your camcorder with the USB cable instead of using the Memory Stick slot on the computer.



- Do not connect your camcorder to the computer at this point.
- The computer may not recognize the camcorder if you connect them with the USB cable before turning on your camcorder.
- See page 98 for the recommended connection.

1 **Turn on the computer.**

Close down all applications running on the computer.

For Windows 2000/Windows XP

Log on as an Administrator.

2 **Insert a "Memory Stick Duo" into your camcorder.**

3 **Prepare the power source for your camcorder.**

Use the supplied AC Adaptor to obtain AC power (p. 16).

4 **Set the POWER switch to VCR.**

5 **Press the MENU button.**
The menu index screen is displayed.

6 **Select (OTHERS) → [USB SELECT] → [Memory Stick] with the SEL/PUSH EXEC dial (p. 83).**

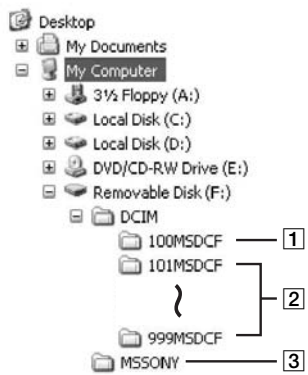
7 **Connect the USB cable to the (USB) jacks on your camcorder and your computer.**

It may take a while until your computer recognizes your camcorder for the first time.

Step:2 Copying the pictures

For Windows users

Double-click the [Removable Disk] icon displayed in [My Computer]. Then, drag and drop a picture in the folder onto the hard disk drive of your computer.



1 Folder containing image files recorded by other camcorders without the folder creation function (for playback only).

2 Folder containing image files recorded by your camcorder when no new folders have been created, only [101MSDCF] is displayed.

3 Folder containing movie data recorded by other camcorders without the folder creation function (for playback only)

Folder	File	Meaning
101MSDCF (up to 999MSDCF)	DSC0□□□□.JPG	Still image file

□□□□ are numbers between 0001 and 9999.

For Macintosh users

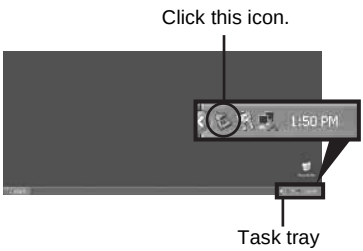
Double-click the drive icon, then drag and drop the desired picture file onto the hard disk of your computer.

Disconnecting the USB cable

For Windows users

If [USB CONNECTING] appears on the LCD screen, follow the procedure below to disconnect the USB cable.

① Click the [Unplug or eject hardware] icon on the task tray.



② Click [Safely remove USB Mass Storage Device-Drive].

③ Click [OK].

④ Disconnect the USB cable from the camcorder and computer.

If [USB CONNECTING] does not appear on the LCD screen, do only step ④.

Note

- Remove the USB cable according to the correct procedure, otherwise files in the "Memory Stick Duo" may not be updated correctly. Also, this may cause a malfunction of the "Memory Stick Duo."

For Macintosh users

① Close down all applications running on the computer.

② Drag and drop the drive icon on the desktop onto the [Trash] icon.

③ Disconnect the USB cable from the camcorder and computer.

Notes

- If you are using Mac OS X, turn off the computer before disconnecting the USB cable and ejecting the “Memory Stick Duo.”
- Do not disconnect the USB cable while the access lamp is lit.
- Make sure to disconnect the USB cable before turning off your camcorder.

Recommended connection

Observe the following points when connecting to ensure the camcorder operates correctly.

- Connect the camcorder to a computer via the USB cable. Make sure no other USB devices are connected to the computer.
- If your computer has a USB keyboard and a USB mouse as standard equipment, leave them connected and connect the camcorder to an available USB jack with the USB cable.
- Operation is not guaranteed if you connect two or more USB devices to the computer.
- Operation is not guaranteed if you connect the USB cable to the USB jack on a keyboard or USB hub.
- Make sure to connect the cable to the USB jack on the computer.
- Operation is not guaranteed even for the recommended environments.

Copying movies on a tape to a computer

Connect your camcorder to the computer with an i.LINK cable.
The computer needs to have an i.LINK connector and be installed with editing software that can copy video signals. The software required depends on the format of the recorded pictures and the format for copying to the computer (HDV or DVCAM (DV)) as shown in the table below.

Recorded format	Format for copying to the computer	Required software
HDV	HDV	Editing software capable of copying HDV signal
HDV	DVCAM (DV)	Editing software capable of copying DVCAM (DV) signal
DVCAM (DV)	DVCAM (DV)	Editing software capable of copying DVCAM (DV) signal

Notes

- You cannot copy movies using a USB cable.
- Refer to the operating instructions of the software for the details on image copying.
- Refer to the operating instructions of the editing software for the recommended connection.
- Some editing software on the computer may not work correctly.
- You cannot change format DVCAM (DV) to HDV.

The required menu settings vary depending on the recorded images and the format (HDV or DVCAM (DV)) to be copied to the computer.

Recorded format	Format for copying to the computer	Menu setting*
HDV	HDV	[VCR HDV/DV] → [HDV] [i.LINK CONV] → [OFF]

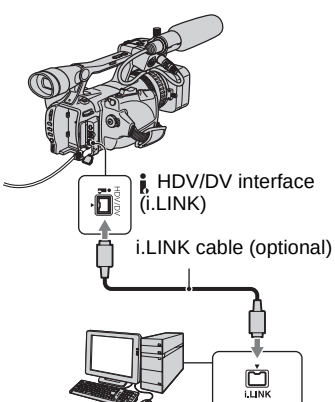
Recorded format	Format for copying to the computer	Menu setting*
HDV	DVCAM (DV)	[VCR HDV/DV] → [HDV] [i.LINK CONV] → [ON]
DVCAM (DV)	DVCAM (DV)	[VCR HDV/DV] → [DV] [i.LINK CONV] → [OFF]

* See page 57 for menu settings.

Tips

- To copy HDV format images as they are without changing their format, an HDV compatible environment is required. For details, refer to your software instruction manual or contact the software manufacturer.
- To play movies by a regular DVD player, you need to create DVD video in the SD format. the DVD video is not in the HDV format.

Step:1 Connect an i.LINK cable



Notes on connecting to the computer

- Connect the i.LINK cable to the computer first, then to your camcorder. Connecting in the opposite order may cause static electricity to build up, resulting in a malfunction of your camcorder.
- The computer may freeze or may not recognize the signal from your camcorder in the following situations.
  - Connecting your camcorder to a computer that does not support the video signal formats appearing on the LCD screen of your camcorder display (HDV or DVCAM (DV)).
  - Changing [VCR HDV/DV] (p. 75) and [i.LINK CONV] (p. 77) settings while connected with an i.LINK cable.
  - Changing [REC FORMAT] setting while connected with an i.LINK cable with the POWER switch set to CAMERA (p. 75).
  - Changing the POWER switch position while connected with an i.LINK cable.
- The format (HDV or DVCAM (DV)) of input/output signal appears on the LCD screen of your camcorder while connected with an i.LINK cable.

Step:2 Copying the movies

Use the supplied AC Adaptor to obtain AC power (p. 16).

① Prepare editing software (not provided).

② Turn on your computer.

③ Insert a tape into your camcorder and set the POWER switch to VCR.

④ Set the menu of your camcorder. The menu settings vary depending on the copying image.

⑤ Copy images to the computer with your software.

Notes

- If images are copied in HDV format but not recognized, your editing software may not support HDV format. Convert the images to DVCAM (DV) format according to step 4 and copy again.
- A tape recorded in DVCAM (DV) format cannot be copied to a computer in HDV format.

Tip

- When images recorded in HDV format are copied to a computer, the file size is about 2GB (almost the same as a DV file) for a 10-minute movie if the video compression format is MPEG2.

When copying the movie in the HDV format from the computer to your camcorder

Set [VCR HDV/DV] to [HDV] and [i.LINK CONV] to [OFF] (p. 75, 77).

Note

- To copy an HDV format movie edited on a computer back onto a tape in HDV format is possible so long as your editing software supports copying HDV movies onto tape. For details, contact the software manufacturer.

When copying the movie in the DVCAM (DV) format from the computer to your camcorder

Set [VCR HDV/DV] to [DV] (p. 75).

Troubleshooting

If you run into any problems using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer.

- Power sources/LCD screen/Remote Commander···p. 101
- Cassette tapes/"Memory Stick Duo"···p. 102
- Recording···p. 103
- Playback···p. 105
- Connecting to TV···p. 107
- Dubbing/Editing/Connecting to other devices···p. 108
- Connecting to a computer···p. 109

Power sources/LCD screen/Remote Commander

The power does not turn on or abruptly turns off.

- Attach a charged battery pack to the camcorder (p. 16).
- Use the AC Adaptor to connect to a wall outlet (p. 16).

The camcorder does not operate even when the power is set to on.

- Disconnect the AC Adaptor from the wall outlet or remove the battery pack, then reconnect it after about 1 minute.
- Press the RESET button (p. 134) using a sharp-pointed object.

The camcorder gets warm.

- The camcorder may get warmer while you use it. This is not a malfunction.

The CHARGE lamp does not light while the battery pack is being charged.

- Slide the POWER switch to OFF (CHG) (p. 16).
- Attach the battery pack to the camcorder correctly (p. 16).
- Connect the power cord to the wall outlet properly.
- The battery charge is completed (p. 16).

The CHARGE lamp flashes while the battery pack is being charged.

- Attach the battery pack to the camcorder correctly (p. 16). If the problem persists, disconnect the AC Adaptor from the wall outlet and contact your Sony dealer. The battery pack may be damaged.

The remaining battery time indicator does not indicate the correct time.

- Ambient temperature is too high or too low, or the battery pack has not been charged enough. This is not a malfunction.
- Fully charge the battery again. If the problem persists, the battery may be worn-out. Replace it with a new one (p. 16, 120).
- The indicated time may not be correct in certain circumstances. For example, when you open or close the LCD panel, it takes about 1 minute to display the correct remaining battery time.

Continued ➡

The battery pack discharges too quickly.

- Ambient temperature is too high or low, or the battery pack has not been charged enough. This is not a malfunction.
- Fully charge the battery again. If the problem persists, the battery may be worn-out. Replace it with a new one (p. 16, 120).

The picture remains on the LCD screen.

- This occurs if you disconnect the DC plug or remove the battery pack without turning off the power first. This is not a malfunction.

The picture in the viewfinder is not clear.

- Move the viewfinder lens adjustment lever until the picture appears clearly (p. 20).

The picture in the viewfinder has disappeared.

- If you change [VF POWERMODE] to [AUTO], the finder light remains off while the LCD panel is open (p. 73).

The supplied Remote Commander does not function.

- Set [REMOTE CTRL] to [ON] (p. 84).
- Remove any obstructions between the Remote Commander and the remote sensor.
- Keep strong light sources, such as sunlight or overhead lighting, away from the remote sensor, otherwise the Remote Commander may not function properly.
- Insert a fresh battery in the compartment with its +/– terminals matching those of the compartment (p. 136).

Another VCR malfunctions when you use the supplied Remote Commander.

- Select a commander mode other than VTR 2 for your VCR.
- Cover the sensor of your VCR with black paper.

Cassette tapes/“Memory Stick Duo”

The cassette cannot be ejected from the compartment.

- Make sure the power source (battery pack or AC Adaptor) is connected correctly (p. 16).
- Moisture condensation has occurred inside the camcorder (p. 123).

The Cassette Memory indicator or title display does not appear while using a cassette with Cassette Memory.

- This camcorder does not support Cassette Memory, so the indicator does not appear.

The remaining tape indicator is not displayed.

- Set [REMAINING] to [ON] to always display the remaining tape indicator (p. 74).

The cassette is noisier during rewinding or fast-forwarding.

- When using the AC Adaptor, rewind/fast forward speed increases (compared with battery operation) and therefore increases noise. This is not a malfunction.

You cannot delete pictures or format the "Memory Stick Duo."

- Release the lock on the write-protect tab of the "Memory Stick Duo" if there is one (p. 118).
- The pictures are protected. Release the protect function on your computer, etc.

Recording

The recording does not start when you press the REC START/STOP button.

- Slide the POWER switch to CAMERA (p. 26).
- The tape has reached the end. Rewind it, or insert a new cassette.
- Set the write-protect tab of the cassette to REC or insert a new cassette (p. 114).
- The tape is stuck to the drum due to moisture condensation. Remove the cassette and leave your camcorder for at least 1 hour, then re-insert the cassette (p. 123).

The handle zoom does not work.

- Set the handle zoom switch to H or L (p. 31).

You cannot record on the "Memory Stick Duo."

- Release the lock on the write-protect tab of the "Memory Stick Duo" if there is one (p. 118).
- The "Memory Stick Duo" is full. Delete unnecessary pictures recorded on the "Memory Stick Duo" (p. 92).
- Format the "Memory Stick Duo" on your camcorder (p. 81) or insert another "Memory Stick Duo" (p. 24).
- You cannot record still images on the "Memory Stick Duo" with:
  – While executing [FADER]
  – [SMTH SLW REC]
  – When the shutter speed is set to slower than 1/60
  – While checking/executing shot transition
  – When [PROG. SCAN] is set to [24] or [30]
- Set [PHOTO/EXP.FOCUS] to [PHOTO](p. 83).

You cannot record a smooth transition on a tape from the last recorded scene to the next.

- Perform End search (p. 45).
- Do not remove the cassette (the picture will be recorded continuously without a break even when you turn the power off).
- Do not record pictures in the HDV and DVCAM (DV) formats on the same tape.
- Do not record pictures in DVCAM mode and DV SP mode on the same tape. DVCAM DV SP
- When [QUICK REC] is set to [ON], you cannot record a smooth transition (p. 83). HDV1080i

The shutter sound is not heard when you record a still image.

- Set [BEEP] to [ON] (p. 84).
- There is no shutter sound while during movie shooting.

End search does not work.

- Do not eject the cassette after recording (p. 45).
- There is nothing recorded on the cassette.
- There is a blank section between recorded sections of the tape. This is not a malfunction.

Auto focus does not function.

- Press the FOCUS button to set to auto focus (p. 32).
- If auto focus is difficult to use, focus manually (p. 32).

Menu items are grayed out or does not work.

- You cannot select gray out display items in the current recording/playback situation.
- There are some functions you cannot activate simultaneously. The following list shows examples of unworkable combinations of functions and menu items.

Cannot use	Situation
[BACK LIGHT]	During manual adjustment of [EXPOSURE1] or [EXPOSURE2]. Two or more of iris, gain, and shutter speed are set manually.
[SPOT LIGHT]	During manual adjustment of [EXPOSURE1] or [EXPOSURE2]. Two or more of iris, gain, and shutter speed are set manually.
[AE SHIFT]	During manual adjustment of [EXPOSURE1] or [EXPOSURE2]. Iris, gain, and shutter speed are all set manually.
[REC CTL MODE] under [EXT REC CTRL]	One of [SMTH SLW REC], [INTERVAL REC] and [DV FRAME REC] is set to [ON].
[CNTRST ENHCR]	During [BACK LIGHT].
[D.EXTENDER]	During [SMTH SLW REC]. [PROG. SCAN] is set to [24] or [30].
[SMTH SLW REC]	[COLOR BAR] is set to [ON]. [PROG. SCAN] is set to [24] or [30].
[INTERVAL REC]	[PROG. SCAN] is set to [24] or [30].
[HISTOGRAM]	During [DATE REC]. [COLOR BAR] is set to [ON].
[MARKER]	During [DATE REC].
[CAMERA PROF.]	During recording, playback, tape forwarding/rewinding.
[ALLSCAN MODE]	[DATE REC] is set to [ON].
[DATE REC]	[ALLSCAN MODE] is set to [ON].

Shutter speed, gain, white balance or iris cannot be adjusted manually.

- Set the AUTO LOCK switch to the center position to release the auto lock mode.

Tiny spots in white, red, blue, or green appear on the screen.

- This phenomenon appears when using a slow shutter speed (p. 36). This is not a malfunction.

The subjects passing by the frame very fast appear crooked.

- This is called the focal plane phenomenon. This is not a malfunction. Because of the way that the image device (CMOS sensor) reads out image signals, the subjects passing by the frame rapidly might appear crooked depending on the recording conditions.

The screen picture is bright, and the subject does not appear on the screen.

- Cancel the BACK LIGHT function (p. 67).

The screen picture is dark, and the subject does not appear on the screen.

- Press and hold the DISPLAY/BATT INFO button for a few seconds to turn on the backlight (p. 20).

The picture appears too bright, or horizontal bands or changes in color occurs.

- This occurs when recording pictures under a fluorescent lamp, sodium lamp, or mercury lamp. This is not a malfunction.

Black bands appear when you record a TV screen or computer screen.

- This can be improved by changing the shutter speed (p. 36).

Fine patterns flicker, diagonal lines look jagged.

- Adjust [SHARPNESS] to [0] side (p. 39).

Playback

If you are playing back pictures stored on a “Memory Stick Duo,” refer also to the Cassette tapes/“Memory Stick Duo” section (p. 102).

You cannot play back tape.

- Slide the POWER switch to turn on the VCR.
- Rewind the tape (p. 29).

Image data stored on a "Memory Stick Duo" cannot be played back correctly.

- Image data cannot be played back if you have modified file names or folders, or have edited the data on a computer (In this case, the file name flashes). This is not a malfunction (p. 119).
- Pictures recorded on other devices may not be played back correctly. This is not a malfunction.

The data file name is displayed incorrectly, or flashing.

- The file is damaged.
- The file format is not supported on your camcorder (p. 118).
- Only the file name is displayed if the directory structure does not conform to the universal standard.

Horizontal lines appear on the picture. The displayed pictures are not clear or do not appear.

- Video head is dirty. Clean the head using the cleaning cassette (optional) (p. 124).

You cannot hear the sound recorded with 4CH MIC REC on another camcorder. DVCAM DV

- Set [DV AUDIO MIX] (p. 70).

No sound or only a low sound is heard.

- Turn up the volume (p. 30).
- Set [DV AUDIO MIX] (p. 70).
- Pictures recorded using [SMTH SLW REC] do not have sounds.

The picture or sound breaks off.

- The tape was recorded in both of the HDV and DVCAM (DV) formats. This is not a malfunction.

The movies freeze for a while, or the sound breaks off.

- This occurs if the tape or video head is dirty (p. 124).
- Use the Sony mini DV cassette.

"---" is displayed on the screen.

- The tape you are playing was recorded without setting the date and time.
- A blank section on the tape is being played.
- The data code on a tape with a scratch or noise cannot be read.

Noises appear and PAL or 50i is displayed on the screen.

- The tape was recorded in a TV color system other than that of your camcorder (NTSC). This is not a malfunction.

Date Search does not work correctly.

- Be sure to record more than 2 minutes after the date changed. If one day's recording is too short, your camcorder may not accurately find the point where the recording date changes.
- There is a blank section between recorded sections of the tape. This is not a malfunction.

No picture appears during End search, Rec review or Last scene review.

- The tape was recorded in both HDV and DVCAM (DV) formats. This is not a malfunction.

New sound added to a recorded tape on another camcorder is not heard.

DVCAM DV

- Adjust [DV AUDIO MIX] from [CH1,CH2] (original sound) side until the sound is heard appropriately (p. 70).

♪4ch-12b appears on the LCD screen.

- This appears when you play back a tape recorded on other recording devices using a 4ch microphone (4CH MIC REC). This camcorder does not comply with the 4ch microphone recording standard.

Connecting to TV

You cannot view the picture on the TV connected with the i.LINK cable.

- You cannot view the picture in the HD (high definition) quality on the TV if an i.LINK jack of the TV is not compatible with the HDV1080i specification (p. 52). Refer to the instruction manuals supplied with your TV.
- Down convert the pictures recorded in HDV format and play back in DVCAM (DV) format (SD image quality) (p. 77).
- Play back pictures using another connecting cable (p. 52).

You cannot hear the sound on the TV connected with the S VIDEO plug (S VIDEO channel) or component video plug.

- If you are using an S VIDEO plug or component video plug, make sure the red and white plugs of the A/V connecting cable are also connected (p. 52).

You cannot view the picture or hear the sound on the TV connected with the component video cable.

- Set [COMPONENT] according to the requirements of the connected device (p. 76).
- When you are using the component video cable, make sure the red and white plugs of the A/V connecting cable are connected (p. 52).

You cannot view the picture or hear the sound on the TV connected with the HDMI cable.

- Pictures in the HDV format are not output from the HDMI OUT jack, if copyright protection signals are recorded in the pictures.

Continued ➡

- DVCAM (DV) format pictures input to the camcorder via i.LINK cable (p. 89) cannot be output.
- This occurs if you record on a tape in both HDV and DVCAM (DV) formats. Disconnect and connect the HDMI cable, or slide the POWER switch to turn on your camcorder again.

The picture appears distorted on the 4:3 TV.

- This happens when viewing a picture recorded in the 16:9 (wide) mode on a 4:3 TV. Set [DOWN CONVERT] and play back the picture(p. 77).

Black zone appears at top and bottom of a 4:3 TV screen.

- This happens when viewing a picture recorded in the 16:9 (wide) mode on a 4:3 TV.
- This is not a malfunction.

Dubbing/Editing/Connecting to other devices

Pictures from connected devices cannot be zoomed.

- You cannot zoom pictures from connected devices on your camcorder.

Time code and other information appear on the display of the connected device.

- Set [DISP OUTPUT] to [LCD PANEL] while connected with an A/V connecting cable (p. 74).

You cannot dub correctly using the A/V connecting cable.

- The A/V connecting cable is not connected properly.
  Make sure that the A/V connecting cable is connected to the input jack of the other device for dubbing a picture from your camcorder.

When connected using an i.LINK cable, no picture appears on the monitor screen during dubbing.

- Set [VCR HDV/DV] according to the requirements of the connected device (p. 75).

You cannot add sound to the recorded tape.

- You cannot add sound to the recorded tape on this unit.

You cannot dub correctly using the HDMI cable.

- You cannot dub pictures using the HDMI cable.

Still pictures cannot be dubbed from a tape to a “Memory Stick Duo.”

- You cannot capture pictures at all or good-quality pictures from the tape that has been used repeatedly for recording.

When you copy a movie shot in wide (16:9) format using an i.LINK cable, the screen stretches vertically.

- You cannot output the aspect ratio setting using an i.LINK cable. Set the aspect ratio of the TV instead.
- Connect using an AV cable instead.

Connecting to a computer

The computer does not recognize your camcorder. USB i.LINK

- Disconnect the cable from the computer and camcorder, then connect it again securely.
- Disconnect USB devices other than the keyboard, the mouse, and the camcorder from the ψ (USB) jack on the computer.
- Disconnect the cable from the computer and camcorder, restart the computer, then connect them again correctly.

You cannot view or copy the video recorded on a tape on the computer. i.LINK

- Disconnect the cable from the computer, then connect it again.
- Connect the i.LINK cable because you cannot copy video with the USB cable.

You cannot view or copy still images recorded on a "Memory Stick Duo" on the computer screen. USB

- Insert a "Memory Stick Duo" in the correct direction, then push it all the way in.
- You cannot use an i.LINK cable. Connect the camcorder and the computer using the USB cable.
- Slide the POWER switch to turn on the VCR and set [USB SELECT] to [Memory Stick] (p. 83).
- The computer does not recognize the "Memory Stick Duo" during camcorder operations such as tape playback or editing. Finish any camcorder operations and then connect the camcorder to the computer again.
- Disconnect the USB device other than the keyboard, the mouse, and the camcorder from the ψ (USB) jack on the computer.

Your computer freezes.

- Set [VCR HDV/DV] correctly according to the connected device (p. 75).
- Disconnect the cable from your computer and camcorder. Reboot your computer, and connect your computer and camcorder following the steps in the correct order (p. 99).

Warning indicators and messages

Self-diagnosis display/Warning indicators

If indicators appear on the LCD screen or in the viewfinder, check the following. Some symptoms you can fix by yourself. If the problem persists even after you have tried a couple of times, contact your Sony dealer or local authorized Sony service facility.

C:(or E:) □□:□□ (Self-diagnosis display)

C:04:□□

- The battery pack is not an "InfoLITHIUM" battery pack. Use an "InfoLITHIUM" battery pack (p. 120).
- Connect the DC plug of the AC Adaptor to the DC IN jack of your camcorder securely (p. 16).

C:21:□□

- Moisture condensation has occurred. Remove the cassette and leave your camcorder for at least 1 hour, then re-insert the cassette (p. 123).

C:22:□□

- Clean the head using a cleaning cassette (optional) (p. 124).

C:31:□□ / C:32:□□

- Symptoms that are not described above have occurred. Remove and insert the cassette, then operate your camcorder again. Do not perform this procedure if moisture condensation has occurred (p. 123).
- Remove the power source. Reconnect it and operate your camcorder again.
- Change the cassette. Press the RESET button (p. 134), and operate your camcorder again.

E:61:□□ / E:62:□□

- Contact your Sony dealer or local authorized Sony service facility. Inform them of the 5-digit code, which starts from "E."

101-1001(Warning indicator pertaining to files)

- The file is damaged.
- The file is unreadable (p. 119).

(Battery level warning)

- The battery pack is nearly used up.
- Depending on the operating, environment, or battery conditions, may flash, even if there are approximately 5 to 10 minutes remaining.

(Moisture condensation warning)*

- Eject the cassette, remove the power source, and then leave it for about 1 hour with the cassette lid open (p. 123).

(Warning indicator pertaining to "Memory Stick Duo")

- A "Memory Stick Duo" is not inserted (p. 24).

(Warning indicators pertaining to "Memory Stick Duo" formatting)*

- The "Memory Stick Duo" is damaged.
- The "Memory Stick Duo" is not formatted correctly (p. 81, 118).

(Warning indicators pertaining to unsupported "Memory Stick Duo")

- A "Memory Stick Duo" that cannot be used in your camcorder is inserted (p. 118).

(Warning indicators pertaining to the tape)

Slow flashing:

- There is less than 5 minutes remaining on the tape.
- No cassette is inserted.*
- The write-protect tab on the cassette is set to lock (p. 114).*

Fast flashing:

- The tape has run out.*

⏏ (Eject cassette warning)*

Slow flashing:

- The write-protect tab on the cassette is set to lock (p. 114).

Fast flashing:

- Moisture condensation has occurred (p. 123).
- The self-diagnosis display code is displayed (p. 110).

(Warning indicator pertaining to the write-protect of the "Memory Stick Duo")*

- The write-protect tab on the "Memory Stick Duo" is set to lock (p. 118).

* You hear a melody when the warning indicators appear on the screen (p. 110).

Description of warning messages

If messages appear on the screen, follow the instructions.

■ Battery/Power

Use the "InfoLITHIUM" battery pack (p. 120)

■ Moisture condensation

⏏ Moisture condensation. Eject the cassette (p. 123)

Moisture condensation. Turn off for 1H. (p. 123)

■ Cassette/Tape

⏏ Reinsert the cassette. (p. 24)

- Check if the cassette is damaged.

⏏ The tape is locked - check the tab. (p. 114)

Cannot record due to copyright protection. (p. 114)

■ "Memory Stick Duo"

Incompatible type of Memory Stick.

- A type of "Memory Stick Duo" incompatible with your camcorder is inserted (p. 118).

Protected file.
Cannot delete.

- Cancel file protection using your computer.

Reinsert the Memory Stick. (p. 24, 118)

- Reinsert the "Memory Stick Duo" a few times. If even then the indicator flashes, the "Memory Stick Duo" might be damaged. Try with another "Memory Stick Duo."

This Memory Stick is not formatted correctly.

- Check the format, then format the "Memory Stick Duo" as necessary (p. 81, 118).

Memory Stick folders are full.

- You cannot create folders exceeding 999MSDCF. You cannot delete created folders using your camcorder.
- You will have to format the "Memory Stick Duo" (p. 81), or delete them using your computer.

Cannot record still images on Memory Stick.

- You cannot record still images in the following cases:
  – When the shutter speed is 1/60 or less
  – While using [FADER]
  – While using [SMTH SLW REC]
  – While checking or executing shot transition
  – While [PROG. SCAN] is set to [24] or [30].

■ PictBridge compliant printer

Check the connected device.

- Switch off the printer and switch it on again, then disconnect the USB cable and reconnect it.

Error. Cancel the task.

- Switch off the printer and switch it on again, then disconnect the USB cable and reconnect it.

■ Others

Change to correct tape format.

- The pictures cannot be played back because of an incompatible format.

No output image in "VCR HDV/DV". Change format.

- Stop playback or signal input, or change [VCR HDV/DV] setting (p. 75).

Dirty video head. Use a cleaning cassette. (p. 124)

Could not synchronize TC.

- Make sure that a tape is in the connected camcorder (p. 79).

Using your camcorder abroad

Power supply

You can use your camcorder in any country/region using the AC Adaptor supplied with your camcorder within the AC 100 V to 240 V, 50/60 Hz range. Use a commercially available AC plug adaptor [a], if necessary, depending on the design of the wall outlet [b].

AC-L15A [a] [b]

On TV color systems

Your camcorder is NTSC system, so its picture can only be viewed on an NTSC system TV with an AUDIO/VIDEO input jack.

System	Used in
NTSC	Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.
PAL	Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Hungary, Italy, Kuwait, Malaysia, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom, etc.
PAL - M	Brazil
PAL - N	Argentina, Paraguay, Uruguay.
SECAM	Bulgaria, France, Guiana, Iran, Iraq, Monaco, Russia, Ukraine, etc.

Viewing HDV format pictures recorded in HDV format HDV1080i

You need an HDV1080i compatible TV (or monitor) with a component jack and AUDIO/VIDEO input jack. A component video cable and A/V connecting cable are also needed.

Viewing DVCAM (DV) format pictures recorded in DVCAM (DV) format DVCAM DV

You need a TV with the AUDIO/VIDEO input jack. A connecting cable is also needed.

Simple setting of the clock by time difference

When you are abroad, you can easily adjust the clock to the local time by setting the time difference. Select [WORLD TIME], then set the time difference (p. 83).

HDV format and recording/playback

Your camcorder is capable of recording in HDV/DVCAM/DV formats.
It is recommended to use a cassette with the Mini DV mark to record in the HDV/DVCAM/DV format.
It is recommended to use a cassette with the DVCAM mark to record in the DVCAM format.
Your camcorder is not compatible with the Cassette Memory function.

What is the HDV format?

The HDV format is a video format developed to record and play back digital high definition (HD) video signals on a DV cassette.
Your camcorder adopts the Interlace mode with 1,080 effective scan lines of screen ruling (1080i, number of pixels 1,440 × 1,080 dots).
The video bit rate for recording is about 25 Mbps.
i.LINK is adopted for the digital interface, enabling a digital connection with an HDV compatible TV or computer.

- HDV signals are compressed in MPEG2 format, which is adopted in BS (broadcast satellite) digital, terrestrial digital HDTV broadcastings, in Blu-ray Disc recorders, etc.

Playback

- Your camcorder can play back pictures in both the DVCAM (DV) format and HDV1080i specification.
- Your camcorder can play back pictures recorded in the HDV 720/30p format, but cannot output it from the i, HDV/DV interface (i.LINK).

To prevent a blank section from being created on the tape

Go to the end of the recorded section using [END SEARCH] (p. 45) before you begin the next recording when you have played back the tape.

Copyright signal

■ When you play back

If the cassette you play back on your camcorder contains copyright signals, you cannot copy it to a tape in another video camera connected to your camcorder.

■ When you record

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software. [Cannot record due to copyright protection.] appears on the LCD screen, or on the viewfinder if you try to record such software. Your camcorder does not record copyright control signals on the tape when it records.

Audio mode

The DVCAM format has 2 audio modes.

- You cannot dub sound onto a recorded tape with your camcorder.

■ FS32K (12-bit) mode

The original sound is recorded in channels 1 and 2, and the new sound in channels 3 and 4. The balance between channels 1/2 and channels 3/4 can be adjusted by selecting [DV AUDIO MIX] in the menu settings during playback. If you select [MIX], the sounds of channel 1/2 and channel 3/ 4 are synthesized to be output.

■ FS48K (16-bit) mode

The original sound can be recorded in high quality using 2 channels. The audio mode can be indicated on the LCD screen or in the viewfinder.

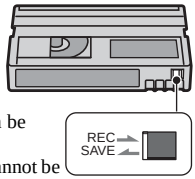
Notes on use

■ When not using your camcorder for a long time

Remove the cassette and store it.

■ To prevent accidental erasure

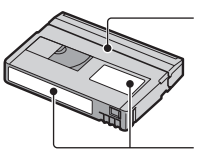
Slide the write-protect tab on the cassette to set it to SAVE.



REC: The cassette can be recorded.
SAVE: The cassette cannot be recorded (write-protected).

■ When labeling the cassette

Be sure to place the label only on the locations shown in the following illustration so as not to cause a malfunction of your camcorder.

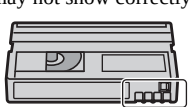


■ After using the cassette

Rewind the tape to the beginning to avoid distortion of the picture or the sound. The cassette should then be put in its case, and stored in an upright position.

■ When cleaning the gold-plated connector

Generally, clean the gold-plated connector on a cassette with a cotton-wool swab after every 10 times it has been ejected.
If the gold-plated connector on the cassette is dirty or dusty, the remaining tape indicator may not show correctly.



On Sony HDV1080i compliant TVs

HDV1080i

An HDV format compatible TV with the component input jack is required to view playback pictures recorded in the HDV format.

Compatibility of the DVCAM/DV formats

The DVCAM format was developed as a more reliable and higher-end format than the consumer DV format. Explained here are the differences, compatibility, and limitations on editing for the DVCAM and DV formats.

Differences between the DVCAM and DV formats

Specification	DVCAM	DV
TRACK Pitch	15 µm	10 µm
Audio sampling frequency	12 bit:32 kHz 16 bit:48 kHz	12 bit:32 kHz 16 bit:48 kHz 44.1 kHz 48 kHz
Audio recording mode*	Lock mode	Lock/Unlock mode

* There are 2 modes for audio recording, lock mode and unlock mode. In lock mode, the sampling frequencies of audio and video are synchronized. Therefore, lock mode is more effective than unlock mode in digital processing and smooth transition during audio editing.

Mini DVCAM and mini DV cassettes

The recording format of the picture is defined according to the recorder's format as described below.

Recorder's format	Cassette's format	Recording format
DVCAM	DVCAM DV	DVCAM
DV	DVCAM DV	DV

Notes

- This camcorder complies with the DVCAM format.Though mini DV cassettes can be used for recording, we recommend you use mini DVCAM cassettes to get the most out of the high reliability of the DVCAM format.
- The recording time of mini DV cassettes is 1/3 shorter than that indicated on mini DV cassettes when recorded in the DVCAM format.

Compatibility on playback

Tape	On DV video equipment	On DVCAM video equipment
DV formatted	Can be playback	Can be played back only when recorded in SP mode
DVCAM formatted	Can be played back on some equipment	Can be playback

Compatibility on editing using DV jacks

When this camcorder is connected to other digital video equipment using an i.LINK cable, the recording format of edited tapes is defined according to the source tape and the recorder's format as described below. Playback or editing using the edited tape may be limited depending on dubbing operation. Start dubbing after reading "Limitations on editing" (p. 115).

Source tape	Player's format	Recorder's format	Recording format
DV formatted (SP mode only)	DVCAM	DVCAM DV	DVCAM [1] DV
DV formatted	DV	DVCAM DV	DVCAM DV
DVCAM formatted [2]	DVCAM	DVCAM DV	DVCAM DV
DVCAM formatted [2]	DV [3]	DVCAM	DVCAM (Compatibility depends on models.)
		DV	DV

[1] When using mini DVCAM video equipment to perform DV dubbing of a tape recorded in DV format, the tape produced will be in the DVCAM format which the time code format will be partly misadjusted. (there will be no effect on the recorded picture except in certain cases.)

[2] If the tape that is to be dubbed is in the DVCAM format as in 1), the tape produced will be in the DVCAM format and the time code format will be partly misadjusted.

[3] Some mini DV video equipment may be able to play back a DVCAM-formatted tape. Even if the tape is played back, quality of the playback cannot be guaranteed. The time code format will be partly misadjusted.

Note

- If you use tapes as in 1) to 3) above for editing, the functions may be limited regardless of the format of players and recorders.

Limitations on editing

You may find the following limitations when editing a tape produced by dubbing or editing using the HDV/DV Interface (i.LINK) jack:

- Due to the difference in track pitch, you cannot record or edit on DV-formatted tapes using mini DVCAM video equipment.
- Depending on the DVCAM video equipment used, you may not be able to edit DVCAM formatted tapes if the audio recording mode is unlock mode. In this case, dub using audio/video jacks.

About the “Memory Stick”

A “Memory Stick” is a compact, portable IC recording medium with a large data capacity.
You can use only a “Memory Stick Duo,” which is about the half size of a standard “Memory Stick,” with your camcorder. However, we do not guarantee the operation of all types of “Memory Stick Duo” on your camcorder. (See the list below for more details.)

Types of “Memory Stick”	Recording/ Playback
“Memory Stick” (without MagicGate)	–
“Memory Stick Duo”*1 (without MagicGate)	○
“MagicGate Memory Stick”	–
“Memory Stick Duo”*1 (with MagicGate)	○*2*3
“MagicGate Memory Stick Duo” *1	○*3
“Memory Stick PRO”	–
“Memory Stick PRO Duo” *1	○*2*3

*1 A “Memory Stick Duo” is about half the size of a standard “Memory Stick.”

*2 The types of “Memory Stick” that support high speed data transfer. The speed of data transfer varies depending on the device to be used.

*3 “MagicGate” is a copyright protection technology that records and transfers the contents in an encrypted format. Note that data that uses “MagicGate” technology cannot be recorded or played on your camcorder.

- Still image format: Your camcorder compresses and records image data in the JPEG (Joint Photographic Experts Group) format. The file extension is “.JPG.”
- File names of still images:
  - 101- 0001: This file name appears on the screen of your camcorder.
  - DSC00001.JPG: This file name appears on the display of a computer.
- A “Memory Stick Duo” formatted by a computer (Windows OS/Mac OS) does not have guaranteed compatibility with your camcorder.
- Data read/write speed may vary depending on the combination of the “Memory Stick” and “Memory Stick” compliant product you use.
- This unit does not support high speed data transfer.

On a “Memory Stick Duo” with a write-protect tab

You can prevent accidental erasure of images when you slide the write-protect tab on the “Memory Stick Duo” with a small tapered object, to the write-protect position.

Notes on use

Damaged or lost image data will not be compensated for, and may occur in the following cases:

- If you eject the “Memory Stick Duo,” turn the power off on your camcorder, or remove the battery pack for replacement while your camcorder is reading or writing image files on the “Memory Stick Duo” (while the access lamp is lit or flashing).
- If you use the “Memory Stick Duo” near magnets or magnetic fields.

It is recommended you make a back-up of important data on the hard disk of a computer.

■ On handling a “Memory Stick”

Keep the following in mind when handling a “Memory Stick Duo.”

- Be careful not to apply excessive force when writing on a memo area on a “Memory Stick Duo.”
- Do not attach a label or the like on a “Memory Stick Duo” or a Memory Stick Duo adaptor.
- When you carry or store a “Memory Stick Duo,” put it in its case.
- Do not touch, or allow metallic objects to come into contact with the terminals.
- Do not bend, drop or apply strong force to the “Memory Stick Duo.”
- Do not disassemble or modify the “Memory Stick Duo.”
- Do not let the “Memory Stick Duo” get wet.
- Be careful to keep “Memory Stick Duo” media out of the reach of small children. There is danger that a child might swallow it.

- Do not insert anything other than a “Memory Stick Duo” into the “Memory Stick Duo” slot. Doing so may cause a malfunction.

■ On a location for use

Do not use or keep the “Memory Stick Duo” in the following locations.

- Places subject to extremely high temperature, such as a car parked outside in the summer.
- Places under direct sunlight.
- Places with extremely high humidity or subject to corrosive gases.

■ On the Memory Stick Duo adaptor

After inserting a “Memory Stick Duo” into the Memory Stick Duo adaptor, you can use it with a standard “Memory Stick” compliant device.

- When using a “Memory Stick Duo” with a “Memory Stick” compliant device, be sure to insert the “Memory Stick Duo” into a Memory Stick Duo adaptor.
- When inserting a “Memory Stick Duo” into a Memory Stick Duo adaptor, make sure the “Memory Stick Duo” is inserted facing in the correct direction, then insert it all the way in. Note that improper use may cause a malfunction. Also, if you force the “Memory Stick Duo” into the Memory Stick Duo adaptor in the wrong direction, it may be damaged.
- Do not insert a Memory Stick Duo adaptor without a “Memory Stick Duo” attached. Doing so may result in malfunctions of the unit.

■ On a “Memory Stick PRO Duo”

- The maximum memory capacity of a “Memory Stick PRO Duo” that can be used on your camcorder is 4 GB.

On image data compatibility

- Image data files recorded on a “Memory Stick Duo” by your camcorder conform to the “Design rule for Camera File system” universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association).
- On your camcorder, you cannot play back still images recorded on other devices (DCR-TRV900 or DSC-D700/D770) that do not conform to the universal standard (these models are not sold in some regions).
- If you cannot use a “Memory Stick Duo” that has been used with another device, format it with your camcorder (p. 81). Note that formatting erases all information on the “Memory Stick Duo.”
- You may not be able to play back images with your camcorder:
  - – When playing back image data modified on your computer.
  - – When playing back image data recorded with other devices.

About the “InfoLITHIUM” battery pack

This unit is compatible with an “InfoLITHIUM” battery pack (L series). Your camcorder operates only with an “InfoLITHIUM” battery pack. “InfoLITHIUM” L series battery packs have the InfoLITHIUM L mark.

What is an “InfoLITHIUM” battery pack?

An “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between your camcorder and an optional AC Adaptor/charger.
The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes.
With an AC Adaptor/charger, the remaining battery time and charging time appear.

To charge the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10 °C to 30 °C (50 °F to 86 °F) until the CHARGE lamp turns off. If you charge the battery pack outside of this temperature range, you may not be able to charge it efficiently.
- After charging is complete, disconnect the cable from the DC IN jack on your camcorder or remove the battery pack.

To use the battery pack effectively

- Battery pack performance decreases when the surrounding temperature is 10 °C (50 °F) or below, and the length of time you can use the battery pack becomes shorter. In that case, do one of the following to use the battery pack for a longer time.
  - Put the battery pack in a pocket to warm it up, and insert it in your camcorder right before you start taking shots.
  - Use a large capacity battery pack: NP-F770/F970 (optional).
- Frequent use of the LCD screen or a frequent playback, fast forward or rewind operation wears out the battery pack faster.
  We recommend using a large capacity battery pack: NP-F770/F970.
- Be sure to set the POWER switch to OFF (CHG) when not recording or playing back on your camcorder. The battery pack is also consumed when your camcorder is in recording standby or playback pause.
- Have spare battery packs ready for two or three times the expected recording time, and make trial recordings before making the actual recording.
- Do not expose the battery pack to water. The battery pack is not water resistant.

About the remaining battery time indicator

- When the power goes off even though the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again. Remaining battery time will be indicated correctly. Note, however, that the battery indication will not be restored if it is used in high temperatures for a long time, or if left in a fully charged state, or when the battery pack is frequently used. Use the remaining battery time indication as a rough guide only.
- The mark that indicates low battery flashes even if there are still 5 to 10 minutes of battery time remaining, depending on the operating conditions or ambient temperature.

About storage of the battery pack

- If the battery pack is not used for a long time, fully charge the battery pack and use it up on your camcorder once a year to maintain proper function. To store the battery pack, remove it from your camcorder and put it in a dry, cool place.
- To discharge the battery pack on your camcorder completely, leave your camcorder in tape recording standby until the power goes off (p. 19).

About battery life

- Battery capacity decreases over time and through repeated use. If decreased usage time between charges becomes significant, it is probably time to replace it with a new one.
- Each battery's life is governed by storage, operating and environmental conditions.

About i.LINK

The HDV/DV interface on this unit is an i.LINK-compliant interface. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for transferring digital video, digital audio, and other data to other i.LINK-compatible devices. You can also control other devices using the i.LINK.
i.LINK-compatible devices can be connected using an i.LINK cable. Possible applications are operations and data transactions with various digital AV devices.
When two or more i.LINK-compatible devices are daisy-chained with the unit, operation becomes possible from any device in the chain. Note that operation method may vary, or data transactions may not be possible, depending on specifications and characteristics of the connected devices.

Notes

- Normally, only one device can be connected to this unit with an i.LINK cable. When connecting this unit to an HDV/DV compatible device having two or more i, HDV/DV interfaces, refer to the operating instructions of the device to be connected.
- i.LINK is a more familiar term for the IEEE 1394 data transport bus proposed by Sony, and is a trademark approved by many corporations.
- IEEE 1394 is an international standard standardized by the Institute of Electrical and Electronics Engineers.

About the i.LINK Baud rate

i.LINK's maximum baud rate varies according to the device. There are 3 types.

S100 (approx. 100Mbps*)
S200 (approx. 200Mbps)
S400 (approx. 400Mbps)

The baud rate is listed under "Specifications" in the operating instructions of each piece of equipment. It is also indicated near the i.LINK interface on some devices.
The baud rate may differ from the indicated value when the unit is connected to a device with a different maximum baud rate.

*** What is Mbps?**

Mbps stands for "megabits per second," or the amount of data that can be sent or received in one second. For example, a baud rate of 100 Mbps means that 100 megabits of data can be sent in one second.

To use i.LINK functions on this unit

For details on how to dub when this unit is connected to other video devices having an i.LINK interface, see page 88.
This unit can also be connected to other i.LINK-compatible devices made by Sony (for example, a VAIO series personal computer) as well as to video devices. Some i.LINK compatible video devices, such as Digital Televisions, DVD, MICROMV or HDV recorders/players are not compatible with this unit. Before connecting to other devices, be sure to confirm whether the device is compatible with an HDV/DV device or not. For details on precautions and compatible application software, refer also to the operating instructions for the device to be connected.

Note

- When connecting a device with an i.LINK terminal to your camcorder via an i.LINK cable, switch off the device and unplug it from the power socket before plugging in or unplugging the i.LINK cable.

About the required i.LINK cable

Use the Sony i.LINK 4-pin-to-4-pin cable (during HDV/DVCAM (DV) dubbing).

Maintenance and precautions

On use and care

- Do not use or store the camcorder and accessories in the following locations.
  - Anywhere extremely hot or cold. Never leave them exposed to temperatures above 60 °C (140 °F), such as under direct sunlight, near heaters or in a car parked in the sun. They may malfunction or become deformed.
  - Near strong magnetic fields or mechanical vibration. The camcorder may malfunction.
  - Near strong radio waves or radiation. The camcorder may not be able to record properly.
  - Near AM receivers and video equipment. Noise may occur.
  - On a sandy beach or anywhere dusty. If sand or dust gets in your camcorder, it may malfunction. Sometimes this malfunction cannot be repaired.
  - Near windows or outdoors, where the LCD screen, the viewfinder, or the lens may be exposed to direct sunlight. This damages the inside of the viewfinder or the LCD screen.
  - Anywhere very humid.
- Operate your camcorder on DC 7.2 V (battery pack) or DC 8.4 V (AC Adaptor).
- For DC or AC operation, use the accessories recommended in these operating instructions.
- Do not let your camcorder get wet, for example, from rain or sea water. If your camcorder gets wet, it may malfunction. Sometimes this malfunction cannot be repaired.
- If any solid object or liquid gets inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling, disassembling, modifying, physical shock, or impact such as hammering, dropping or stepping on the product. Be particularly careful of the lens.
- Keep the POWER switch setting to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- When disconnecting the power cord, pull it by the plug and not the cord.
- Do not damage the power cord such as by placing anything heavy on it.
- Keep metal contacts clean.
- Keep the Remote Commander and button-type battery out of children's reach. If the battery is accidentally swallowed, consult a doctor immediately.
- If the battery electrolytic liquid has leaked,
  - consult your local authorized Sony service facility.
  - wash off any liquid that may have contacted your skin.
  - if any liquid gets in your eyes, wash with plenty of water and consult a doctor.

■ When not using your camcorder for a long time

- Periodically turn on the camcorder and play a cassette for about 3 minutes.
- Use up the battery pack completely before storing it.

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this state, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, [Moisture condensation. Eject the cassette] or [Moisture condensation. Turn off for 1H.] appears. The indicator will not appear when the moisture condenses on the lens.

■ If moisture condensation has occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about one hour with the cassette lid open. Your camcorder can be used again when both of the following conditions are met:

- The warning message does not appear when the power is turned on.
- Neither ⏏ nor ⏏ flashes when a cassette is inserted and the video operation buttons are pressed.

If moisture starts to condense, your camcorder sometimes cannot detect condensation. If this happens, the cassette is sometimes not ejected for 10 seconds after the cassette lid is opened. This is not a malfunction. Do not close the cassette lid until the cassette is ejected.

■ Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a humid place as shown below.

- When you bring your camcorder from a ski slope into a place warmed up by a heating device.
- When you bring your camcorder from an air conditioned car or room into a hot place outside.
- When you use your camcorder after a squall or a shower.
- When you use your camcorder in a hot and humid place.

■ How to avoid moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and seal it tightly. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about one hour).

Video head

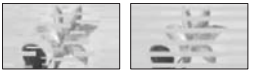
If you play back a tape recorded in HDV format, the image and sound may freeze for a while (about 0.5 seconds).
This occurs if the HDV signals cannot be recorded or played back correctly because of dirt on the tape or video head. Depending on the cassette, this fairly infrequently occurs even if the cassette is brand new or is not used a lot.
If this freezing point is created while playing back, you can solve this problem and see the pictures by rewinding after slightly forwarding. Such a freezing point cannot be recovered if it was created while recording.
To prevent such a problem, use the Sony mini DV cassette.

- If the following problem occurs, clean the video heads for 10 seconds with the Sony DVM-12CLD cleaning cassette (optional).
  - Playback pictures do not move.
  - Playback pictures do not appear.
  - The sound breaks off.
  - [⊗ Dirty video head. Use a cleaning cassette.] appears on the screen during recording.
  - The following phenomenon occurs in HDV format.

The playback screen pauses.

The playback screen goes blank. (Solid blue screen)

  - The following phenomenon occurs in DVCAM (DV) format.



Block-noise appears.

The playback screen goes blank.
(Solid blue screen)

- The video heads will be worn after long use. If you cannot obtain a clear image even after using a cleaning cassette (optional), the video heads may be worn out. Please contact your Sony dealer or local authorized Sony service facility to have the video heads replaced.

LCD screen

- Do not exert excessive pressure on the LCD screen, as it may cause damage.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

■ To clean the LCD screen

If fingerprints or dust make the LCD screen dirty, it is recommended you use a soft cloth to clean it. When you use the LCD Cleaning Kit (optional), do not apply the cleaning liquid directly to the LCD screen. Use cleaning paper moistened with the liquid.

On handling the casing

- If the casing is soiled, clean the camcorder body with a soft cloth lightly moistened with water, and then wipe the casing with a dry soft cloth.
- Avoid the following to avoid damage to the finish.
  - Using chemicals such as thinner, benzine, alcohol, chemical cloths, repellent, insecticide and sunscreen.
  - Handling with above substances on your hands.
  - Leaving the casing in contact with rubber or vinyl objects for a long period of time.

About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instances:
  - When there are fingerprints on the lens surface.
  - In hot or humid locations
  - When the lens is exposed to salty air such as at the seaside.
- Store in a well-ventilated location subject to little dirt or dust.
- To prevent mold, periodically clean the lens as described above. It is recommended that you operate your camcorder about once a month to keep it in optimum state for a long time.

On charging the pre-installed rechargeable battery

Your camcorder has a pre-installed rechargeable battery to retain the date, time, and other settings even when the POWER switch is set to OFF (CHG). The pre-installed rechargeable battery is always charged while your camcorder is connected to the wall outlet via the AC Adaptor or while the battery pack is inserted. The rechargeable battery will be fully discharged in about **3 months** if you do not use your camcorder at all without the AC Adaptor connected or the battery pack attached. Use your camcorder after charging the pre-installed rechargeable battery.
However, even if the pre-installed rechargeable battery is not charged, the camcorder operation will not be affected as long as you are not recording the date.

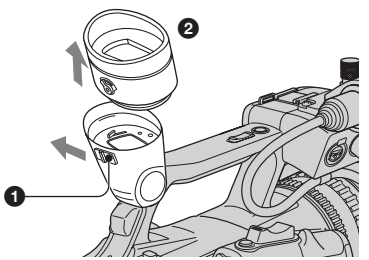
■ Procedures

Connect your camcorder to a wall outlet using the supplied AC Adaptor, and leave it with the POWER switch set to OFF (CHG) for more than 24 hours.

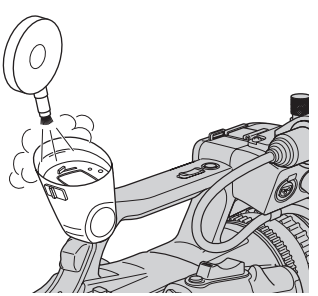
Removing dust from inside the viewfinder

1 Remove the viewfinder.

While sliding the viewfinder release lever to the left ❶, remove the viewfinder ❷.



2 Remove dust from inside the viewfinder and the part shown below with a blower.



3 Attach the viewfinder following the reverse procedure of step 1.

Specifications

System

Video recording system (HDV)
2 rotary heads, Helical scanning system
Video recording system (DVCAM (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
Fs48kHz (stereo)
transfer rate: 384 kbps
Audio recording system (DVCAM (DV))
Rotary heads, PCM system
Quantization: 12 bits
Fs32kHz (channel 1/2 stereo),
Quantization: 16 bits
Fs48kHz (channel 1/2 stereo)
Video signal
NTSC color, EIA standards
1080/60i specification
Usable cassette
Mini DV cassette with the Mini DV mark printed or Mini DVCAM cassette with DVCAM mark printed
Tape speed (HDV)
Approx. 18.812 mm/s
Tape speed (DVCAM)
Approx. 28.218 mm/s
Tape speed (DV SP)
Approx. 18.812 mm/s
Recording/playback time (HDV)
63 min (using a PHDVM-63DM cassette)
Recording/playback time (DVCAM)
41 min (using a PHDVM-63DM cassette)
Recording/playback time (DV SP)
63 min (using a PHDVM-63DM cassette)
Fast forward/rewind time
Approx. 2 min 40 s (using a PHDVM-63DM cassette and rechargeable battery pack)
Approx. 1 min 45 s (using a PHDVM-63DM cassette and AC Adaptor)
Viewfinder
Electric viewfinder (color, black and white)
Image device
4.5 mm (1/4 type) 3CMOS sensor
Recording Pixels (HDV/DV 16:9 still recording):
Max. 1.20 Mega (1 440 × 810) pixels *[2]
Gross: Approx. 1 120 000 pixels
Effective (movie, 16:9):
1 037 000 pixels
Effective (movie, 4:3):
778 000 pixels
Effective (still, 16:9):
1 037 000 pixels
Effective (still, 4:3):
778 000 pixels
Lens
Carl Zeiss Vario-Sonnar T*
20 × (Optical), Approx. 30 × (Digital, when [D.EXTENDER] is set to [ON])
Focal length
f=3.9 - 78 mm (5/32 ~ 3 1/8 in.)
When converted to a 35 mm still camera *[3]
37.4 - 748 mm (1 1/2 ~ 29 1/2 in.) (16:9),
45.7 - 914 mm (1 13/16 ~ 36 in.) (4:3)
F1.6 - 2.8
Filter diameter: 62 mm (2 1/2 in.)
Color temperature
Indoor (3 200 K),
Outdoor (5 800 K)

Continued ➡

Minimum illumination
4 lx (lux) (F 1.6)

*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 Still image resolution is obtained by the unique pixel array of Sony's ClearVid CMOS Sensor and image processing system (new Enhanced Imaging Processor).

*3 The focal length figures are actual figures resulting from wide angle pixel read out.

Output connectors

AUDIO/VIDEO output
10-pin connector
Video signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.286 Vp-p (burst signal), 75 Ω (ohms), unbalanced
Audio signal: 461 mV (at load impedance 47 kΩ (kilohms)), Output impedance with less than 2.2 kΩ (kilohms)

COMPONENT OUT jack
Y: 1 Vp-p, 75Ω (ohms), unbalanced PB/PR, CB/CR: +/- 350 mV, 75 Ω (ohms), unbalanced

HDMI OUT jack
TypeA (19-pin)

Input/Output connectors

LANC jack
Stereo mini-minijack (Ø 2.5 mm)

INPUT1/INPUT2 jack
XLR3-pin, female,
-60 dBu: 3kΩ (kilohms)
+4 dBu: 10kΩ (kilohms)
(0 dBu=0.775 Vrms)

USB jack
mini-B

HDV/DV jack
i.LINK interface (IEEE 1394, 4-pin connector S100)

LCD screen

Picture
8.8 cm (3.5 type, aspect ratio 16:9)

Total dot number
211 200 (960 × 220)

General

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

Average power consumption*
During camera recording using the viewfinder with normal brightness:
HDV recording 6.8 W
DVCAM (DV) recording 6.6 W
During camera recording using the LCD with normal brightness:
HDV recording 6.8 W
DVCAM (DV) recording 6.6 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.)
145 × 184 × 431 mm
(5 3/4 × 7 1/4 × 17 in.) (w/h/d)
including the projecting parts
145 × 184 × 431 mm
(5 3/4 × 7 1/4 × 17 in.) (w/h/d)
including the projecting parts with batterypack NP-F570

Mass (approx.)
1.5 kg (3 lb 6 oz) main unit only
1.9 kg (4 lb 2 oz) including the NP-F570 rechargeable battery pack, cassette (PHDVM-63DM), and lens hood with lens cover, microphone
Supplied accessories
See page 13.

* When using the supplied microphone

AC Adaptor AC-L15A

Power requirements
AC 100 - 240 V, 50/60 Hz
Current consumption
0.35 - 0.18 A
Power consumption
18 W
Output voltage
DC 8.4 V*
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Storage temperature
-20 °C to + 60 °C (-4 °F to + 140 °F)
Dimensions (approx.)
56 × 31 × 100 mm
(2 1/4 × 1 1/4 × 4 in.) (w/h/d)
excluding the projecting parts
Mass (approx.)
190 g (6.7 oz) excluding the power cord

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

Rechargeable batterypack NP-F570

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
15.8 Wh (2 200 mAh)
Dimensions (approx.)
38.4 × 20.6 × 70.8 mm
(1 9/16 × 13/16 × 2 7/8 in.) (w/h/d)
Mass (approx.)
100 g (3.5 oz)
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Type
Lithium ion

Design and specifications are subject to change without notice.

On trademarks

- "Memory Stick," " ," "Memory Stick Duo," "MEMORY STICK DUO," "Memory Stick PRO Duo," "MEMORY STICK PRO Duo," "MagicGate," "MAGICGATE," "MagicGate Memory Stick" and "MagicGate Memory Stick Duo" are trademarks of Sony Corporation.
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- i.LINK and are trademarks of Sony Corporation.
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- is a trademark.
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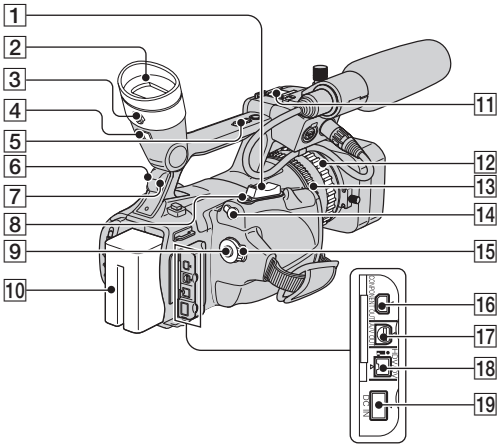
Identifying parts and controls

The numbers in ( ) are reference pages.



1 Zoom lever (31)

2 Viewfinder (20)

3 Viewfinder lens adjustment lever (20)

4 Viewfinder release lever (126)

5 Handle zoom lever (31)

6 Remote sensor (back) (136)

7 Rec lamp (back) (26)
The rec lamp flashes if the remaining tape or battery is low.

8 PHOTO/EXPANDED FOCUS button (28)

9 REC START/STOP button (26)

10 Battery pack (16)

11 Accessory shoe

12 Focus ring (32)

13 Zoom ring (31)

14 LANC jack
The LANC control jack is used for controlling the tape transport of video device and peripherals connected to it.

15 POWER switch (19)

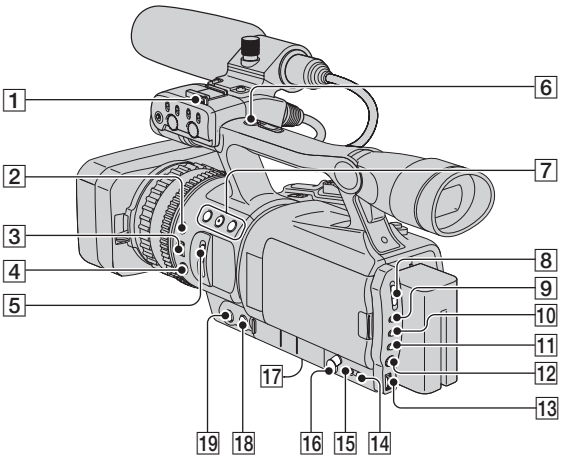
16 COMPONENT OUT jack (52)

17 A/V OUT jack (52)

18 HDV/DV jack (52)

19 DC IN jack (16)

Continued ➡



1 Hook for the shoulder strap (133)

2 EXPOSURE/IRIS button (33)

3 EXPOSURE/IRIS dial (33)

4 PUSH AUTO FOCUS button (32)

5 ND FILTER switch (1/2/OFF) (35)

6 REC START/STOP button (26)

7 ASSIGN buttons (1/2/3)*(43)

8 AUTO LOCK switch

9 GAIN button (36)

10 SHUTTER SPEED button (36)

11 WHT BAL (white balance) button (37)

12 MENU button (57)

13 SEL/PUSH EXEC dial (22)

14 STATUS CHECK button (48)

15 PICTURE PROFILE button (38)

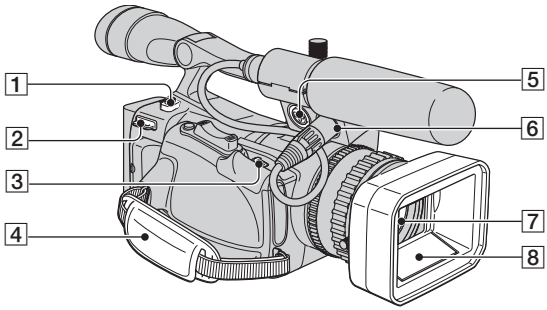
16 ∩ (headphones) jack
When you use headphones, the speaker on your camcorder is silent.

17 Tripod receptacle
Make sure that the length of the tripod screw is less than 5.5 mm (7/32 inch). Otherwise, you cannot attach the tripod securely, and it may damage your camcorder.

18 FOCUS button* (32)

19 EXPANDED FOCUS button (33)

* The ASSIGN button 2, FOCUS button, and SHUTTER SPEED button have raised tactile dots for your convenience in locating the buttons.



1 BATT RELEASE (battery release) button (17)

2 Hook for the shoulder strap (133)

3 ⌐ OPEN/EJECT lever (24)

4 Grip belt (19)

5 INPUT2 jack (14)

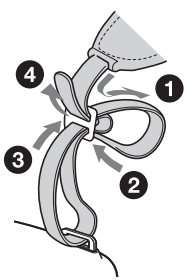
6 INPUT1 jack (14)

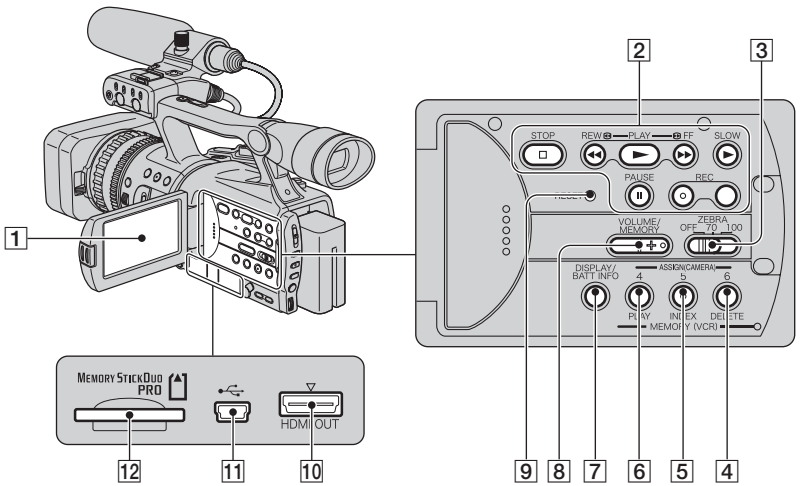
7 Lens (8)

8 Lens hood with lens cover (15)

To attach the shoulder strap

Attach the shoulder strap (optional) to the hooks for the shoulder strap.





1 LCD screen (20)

2 Video control buttons (REW, PLAY*, FF, PAUSE, STOP, SLOW, REC) (29)

3 ZEBRA switch (35)

4 ASSIGN 6, MEMORY/DELETE button (43, 92)

5 ASSIGN 5, MEMORY/INDEX button(29, 43)

6 ASSIGN 4, MEMORY/PLAY button (29, 43)

7 DISPLAY/BATT INFO button (48, 49)

8 VOLUME/MEMORY button* (30)

9 RESET button
If you press the RESET button, all settings including the clock setting (except the Picture profile and Camera profile settings) return to the default.

10 HDMI OUT jack (52)

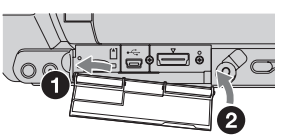
11 USB jack (93)

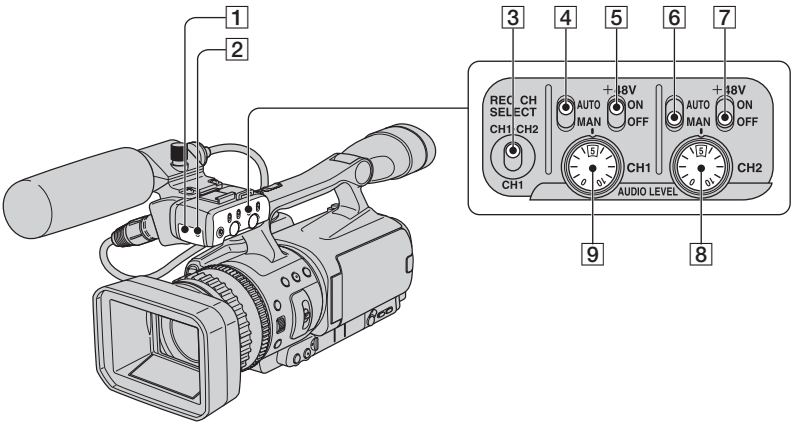
12 “Memory Stick Duo” slot (24)

* Each of the PLAY button, VOLUME/MEMORY button and MEMORY/INDEX button has a raised tactile dot (the INDEX button has it on the + side). Use it to identify the location of the buttons.

To attach the jack cover

Attach the jack cover as shown in the illustration.





1 Remote sensor (front) (136)

2 Rec lamp (front)
The rec lamp flashes if the remaining tape or battery is low.

3 REC CH SELECT switch (14)

4 CH1 AUTO/MAN switch (42)

5 CH1 +48V switch (42)

6 CH2 AUTO/MAN switch (42)

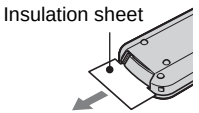
7 CH2 +48V switch (42)

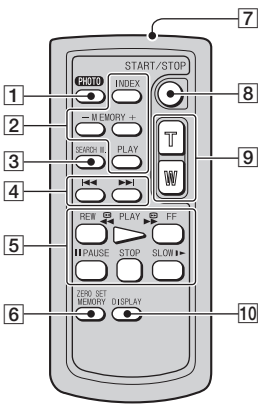
8 CH2 AUDIO LEVEL dial (42)

9 CH1 AUDIO LEVEL dial (42)

Remote Commander

Remove the insulation sheet before using the Remote Commander.





1 PHOTO (28)
The on-screen image when you press this button will be recorded onto the "Memory Stick Duo" as a still image.

2 Memory control buttons (Index, –/+, Memory/playback) (30)

3 SEARCH M. (50)

4 ⏮ ⏭

5 Video control buttons (Rewind, Playback, Fast-forward, Pause, Stop, Slow) (29)

6 ZERO SET MEMORY
This button is invalid with your camcorder.

7 Transmitter

8 START/STOP (26)

9 Power zoom (31)

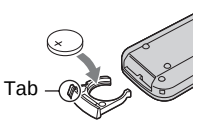
10 DISPLAY (48)

Notes

- Aim the Remote Commander towards the remote sensor to operate your camcorder.
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- When you are operating with the Remote Commander supplied with your camcorder, your VCR may also operate. In that case, select a commander mode other than VTR 2 for your VCR, or cover the sensor of your VCR with black paper.

To change the battery of the Remote Commander

① While pressing on the tab, inset your fingernail into the slit to pull out the battery case.
② Place a new battery with the + side facing up.
③ Insert the battery case back into the Remote Commander until it clicks.



WARNING

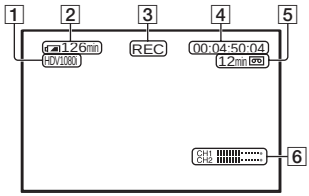
Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

- When the lithium battery becomes weak, the operating distance of the Remote Commander may shorten, or the Remote Commander may not function properly. In this case, replace the battery with a Sony CR2025 lithium battery. Use of another battery may present a risk of fire or explosion.

Indicators for the LCD screen and viewfinder

The numbers in ( ) are reference pages.
The indicators will not be recorded on the tape during recording.

Recording movies



1 Recording format (HDV1080i or DVCAM, DV SP) (75)

2 Remaining battery (approx.)

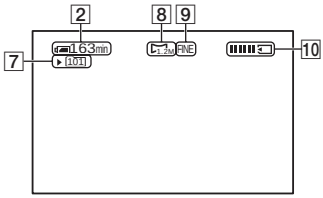
3 Recording status ([STBY] (standby) or [REC] (recording))

4 During recording:
Tape counter (hour: minute: second: frame)
During playback:
Time code (hour: minute: second: frame)

5 Recording capacity of the tape (approx.)

6 Audio level display (72)

Recording still images



7 Recording folder (81)

8 Image size (80)

9 Quality ([FINE] or [STD]) (80)

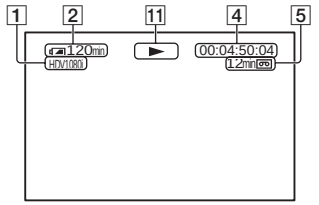
10 Recording indicator (28)

Data code during recording

The date/time during recording and the camera setting data will be recorded automatically. They do not appear on the screen during recording, but you can check them as [DATA CODE] during playback (73).

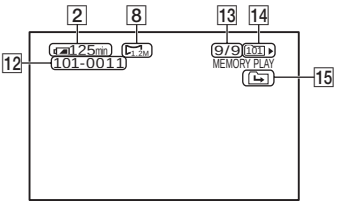
Continued ➡

Viewing movies



11 Tape transport indicator
Recording mode (DVCAM or DV SP) appears when a tape recorded in the DVCAM or DV SP format is played back.DV.
DVCAM DV

Viewing still images



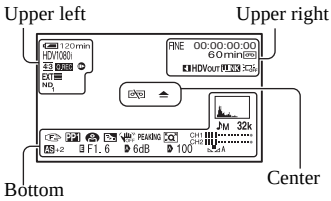
12 Data file name

13 Picture number/Total number of recorded pictures in the current playback folder

14 Playback folder (81)

15 Previous/Next folder icon
The , , appear when the first or last picture of the current folder is displayed and when there are multiple folders on the same “Memory Stick Duo.” You can move to Previous/Next folder with the VOLUME/MEMORY button.

Indicators when you made changes



Upper left

Indicator	Meaning
HDV1080i DVCAM DV SP	Recording format (75)
4:3	DV WIDE REC (76)*
Q.REC	QUICK REC (83)**
	DV FRAME REC (67)*
ND1 ND2 NDOFF	ND filter (35)
	INTERVAL REC (66)
EXT EXT	EXT REC CTRL (76)

Upper right

Indicator	Meaning
FINE STD	Still Image quality (80)
	INDEX MARK (44)
HDVIN DVIN	HDV input/ DV input (89)
HDVOUT DVOUT	HDV output/ DV output (88)
i.LINK	i.LINK connection (52, 85)
OFF	LCD backlight off (20)

Center

Indicator	Meaning
	Warning (110)

Bottom

Indicator	Meaning
	HISTOGRAM (71)
32k 48k	DV AU. MODE (DV Audio mode) (68)*
M	Manual volume control(42)
	Manual focus (32)
PP1 ~ PP6	Picture profile (38)
	SPOTLIGHT (67)
	Backlight (67)
OFF	SteadyShot off (63)
PEAKING	PEAKING (70)
	D.EXTENDER (67)
AS	AE SHIFT (64)
E	EXPOSURE/IRIS dial control (33)
	Auto setting (72)
A B	White balance (37)
24pSCAN 30pSCAN	PROG. SCAN (63)
OFF	FOCUS MACRO (64)
HYPER	HYPER GAIN (67)

* The settings can be made only for the pictures in the DVCAM (DV) format.

** The setting can be made only for the pictures in the HDV format.

Index

Numeric

1080i/480i....76
16:9 (wide) or 4:3 TV....52
480i....76
+48V switch 14, 42, 135

A

AC Adaptor 16
Access lamp....25
AE RESPONSE....64
AE SHIFT....34, 64, 104
AF ASSIST....64
AGC LIMIT 64
ALL ERASE....80
ALL FILES....80
ALLSCAN MODE....72, 104
ASPECT 71
ASSIGN BTN....83
ASSIGN buttons....43
AT IRIS LMT....64
ATW SENS 65
AUDIO CH SEL 70
AUDIO LEVEL dial 42
AUDIO SET menu 68
AUTO....78
AUTO LOCK switch....34
AUTO/MAN switch 42
AU. MAN GAIN....68
AU.LVL DISP (Audio level display)....72
A/V connecting cable 53, 85
A/V connecting cable with S VIDEO 56, 85
A/V OUT jack 53

B

BACK LIGHT....67, 104
BAR....72
BATT RELEASE (battery release) button 17
Battery
  Battery Info.... 49
  Battery pack.... 16
BEEP.... 84
BLACK FADER.... 68
BLK COMPNSTN.... 40
Button-type lithium battery 136

C

Cable holder.... 14
CAM DATA DSP (Camera data display).... 72
CAMERA DATA 74
CAMERA PROF. (Camera profile)..... 82, 104
CAMERA SET menu 62
Cassette
  Insert/Eject.... 24
  Tape 114
Cassette compartment..... 24
CD-ROM Manual 12
CH1.... 14
CH1 AUDIO LEVEL dial ... 42
CH1 AUTO/MAN switch.... 42
CH2.... 14
CH2 AUDIO LEVEL dial ... 42
CH2 AUTO/MAN switch.... 42
CHARGE lamp.... 16
Charging time 17
CINEMA.... 38
CINEMA TONE COLOR ... 40
CINEMATONE GAMMA 40
CLOCK SET.... 22, 83
CNTRST ENHCR..... 63, 104
COLOR BAR.... 63
COLOR LEVEL 39
COLOR PHASE 39
COMPONENT.... 76
COMPONENT OUT jack.... 53
Component video cable 53
Computer....95
Connect
  TV 52
  VCR 85
COPY 40
CURRNT FOLDER 80

D

DATA CODE....73
DATE 73
Date and time 23, 137
DATE REC 84, 104
Date search 50
DC IN jack 16
DC plug 16
DEGREE 73
Deleting camera profile settings 83
Deleting recorded pictures 92
DF....78
DIAL ASSIGN....62
DIAL ROTATE....62
DIAL SENS....62
DISP OUTPUT 74
DISPLAY SET menu 70
DISPLAY/BATT INFO button....20, 48, 49
DOWN CONVERT....77
DRUM RUN 84
Dubbing....85
DV 75
DV AUDIO MIX 70
DV AU. MODE (DV Audio mode)....68
DV format 75
DV FRAME REC....67
DV REC MODE (Recording mode)....75
DV SP....76
DV WIDE REC....76
DVCAM....75

D.EXTENDER (Digital Extender) 67, 104

E

EDGE CROP 77
End search.....45
END TRIGGER.....62
Expanded focus.....33
EXPOSURE.....33
EXPOSURE1.....33
EXPOSURE2.....34
EXPOSURE/IRIS 33, 62
EXPOSURE/IRIS button.....33
EXPOSURE/IRIS dial 33
EXP.FOCUS TYPE.....71
EXT REC CTRL 76

F

FADER 68
FILE NO. (File number).....81
FINE 80
FLCKR REDUCE 65
Focus.....32
FOCUS button 32
FOCUS DISP.....72
FOCUS INFNTY.....44
FOCUS MACRO.....64
Focus ring 32
Folder
NEW FOLDER 81
PB FOLDER (Playback folder) 81
REC FOLDER (Recording folder) 81
FORMAT.....81
FREE RUN 78
FS32K 68
FS48K 68

G

Gain 36
GAIN button 36
Grip belt 19
GUIDEFRAME 71

H

HANDLE ZOOM 65
Handle zoom 31
HD (high definition) image quality.....52
HDMI cable.....54
HDMI OUT jack 53
HDV 75
HDV format 113
HDV1080i.....75
HDV/DV interface 75
Headphones jack 132
High definition TV 52
HISTOGRAM 71, 104
Hook for the shoulder strap 132, 133
HOURS METER.....84
HYPER GAIN.....67

I

INDEX MARK 44
Index screen 30
Index search 50
Index signal 44
Indicators.....139
Indoor 37
“InfoLITHIUM” battery pack 120
INPUT1 .....14, 42
INPUT1 LEVEL 69
INPUT1 TRIM 69
INPUT1 WIND 69
INPUT2 .....14, 42
INPUT2 LEVEL 69
INPUT2 TRIM 69
INPUT2 WIND 69
Insulation sheet 136
INTELLIGENT 65
INTERVAL 66
INTERVAL REC 66, 104
IN/OUT REC menu 75
IRIS.....34
i.LINK 121
i.LINK cable 54, 89, 98
i.LINK CONV 52, 77

J

Jack cover 24
JPEG 118

K

KNEE POINT.....40

L

LANC jack.....131
LANGUAGE 83
Large eyecup 21
Last scene review 45
LAST SCN RVW 45
LCD 20
LCD backlight 20
LCD BL LEVEL 73
LCD BRIGHT 73
LCD COLOR.....73
Lens hood fixing screw 15
Lens hood with lens cover 15
LETTER BOX.....77
LETTER SIZE.....74
LINE 69
LINEAR 65
LINKED 68

M

Macintosh 95
Maintenance 123
MARKER 71, 104
MEMORY A 37
MEMORY B 37

MEMORY SET menu 80
Memory Stick 6, 83, 118
Memory Stick Duo 24, 118
Insert/Eject 24
Number of recordable pictures 80
Write-protect tab 118
Memory Stick Duo adaptor 119
"Memory Stick Duo" slot.....25
"Memory Stick PRO Duo" 119
MEMORY/DELETE button 92
MEMORY/INDEX button ...29
MEMORY/PLAY button 29
Menu
AUDIO SET menu 68
CAMERA SET menu....62
DISPLAY SET menu....70
IN/OUT REC menu.....75
MEMORY SET menu 80
Menu items.....59
OTHERS menu 82
TC/UB SET menu.....78
Using the menu 57
MENU button.....22
Menu items.....59
MIC 69
MIC NR.....68
Microphone 14
Microphone holder 14
Mirror mode 27
MIX 70
Moisture condensation 123
MONOTONE.....38
MPEG2.....100

N

ND filter 35
NDF.....78
NEW FOLDER..... 81
NTSC 106, 113
NUMBER 72

O

One push auto focus..... 32
OPEN button..... 20
OPEN/EJECT lever 24
OPERATION..... 84
OTHERS menu 82
Outdoor 37
Outside power source..... 18

P

PAL..... 113
PB FOLDER (Playback folder)..... 81
PB ZOOM (Playback zoom) 83
PEAKING..... 70
PHOTO/EXPANDED FOCUS button 26
PHOTO/EXP.FOCUS..... 83
PictBridge 93
PictBridge PRINT..... 83
Picture profile 38
PICTURE PROFILE button 38
Picture Search 30
PLAY button..... 29
Playback..... 29
Playing time 18
PORTRAIT..... 38
Power cord 16
POWER switch..... 19
Pre-installed rechargeable battery 125
PRESET..... 78
Print..... 93
Printing recorded images 93
PROFILE NAME 40
PROG. SCAN..... 63
PUSH AUTO FOCUS button.....32

Q

QUALITY 80
QUICK REC 83

R

REC CH SELECT switch 14
REC CTL MODE.....76, 104
REC FOLDER (Recording folder).....81
REC FORMAT 75
Rec lamp.....26
REC LAMP (Recording lamp) 84
REC PAUSE 76
Rec review.....45
REC RUN.....78
REC START/STOP button 26
REC TIME 62, 66
REC TIMING.....62
Recording 26
Recording time 17
REGENERATE.....79
RELAY.....76
REMAINING 74
Remaining battery 49
Remote Commander.....136
REMOTE CTRL (Remote control) 84
RESET.....40, 78
RESET button 134

S

S VIDEO jack.....52, 85
SAFETY ZONE 71
SD (standard definition) image quality 52
SEARCH M.....50
Self-diagnosis display 110

SEL/PUSH EXEC dial 22
SEPARATE 68
SHARPNESS.....39
SHOT TRANS.....46, 65
Shot transition.....46
Shoulder strap 133
SHUTTER DISP.....72
Shutter speed.....36
SHUTTER SPEED button....36
SKINTONE DTL.....39
SKINTONE LVL.....39
Skip Scan 30
SMTH SLW REC (Smooth slow recording) 62
SOFT STOP.....65
SOFT TRANS 65
Specifications.....127
SPOTLIGHT 67
SQUEEZE 77
STANDARD 80
START TRIGGR.....62
Status check 48
STATUS CHECK button 48
STBY COMMAND.....76
STEADYSHOT 63
Still images 28
STOP 76
SUNSET 38
Supplied items 13
SYNCHRONOUS 76
System Requirements
Macintosh 95
Windows.....95

T

Tape counter 137
TAPE RUN.....84
Tape ..... See Cassette
TC 79
TC FORMAT 78
TC LINK.....79
TC MAKE.....79
TC PRESET 78
TC RUN 78
TC/UB DISP 79
TC/UB SET menu 78
Telephoto 31
THREADING 84
Time code.....137
TONE 64
Trademark 130
TRANS CURVE 65
TRANS TIME.....65
Transmitter 136
Tripod receptacle.....132
Troubleshooting 101
TV 52
TV color systems 113

U

UB PRESET.....78
UB TIME REC.....79
U-BIT.....79
USB cable 93, 95
USB jack 93, 95
USB SELECT 83
Using the menu items.....57
Using your camcorder abroad 113

V

VCR HDV/DV 75
VF B.LIGHT 73
VF COLOR 73
VF POWER MODE.....73
Video control buttons.....134
Video head 124
Viewfinder 20
Viewfinder lens adjustment lever.....20
Viewfinder release lever 131
Volume.....30, 42
VOLUME/MEMORY button 29
V-OUT/PANEL.....74

W

Warning indicators 110
Warning messages 111
WB SHIFT.....39
White balance 37
WHITE FADER 68
WHT BAL button.....37
Wide angle.....31
WIDE CONV. 63
Wind screen 14
Windows.....95
WORLD TIME.....83
Write-protect tab.....114, 118

X

XLR SET 68

Z

Zebra.....36
ZEBRA switch.....36
Zoom.....31
ZOOM DISPLAY 72
Zoom lever.....31
Zoom ring 31

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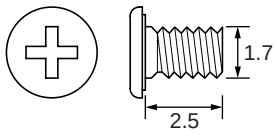
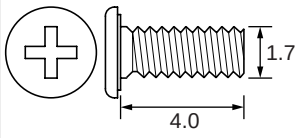
HARDWARE LIST (1/4)

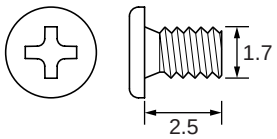
#1: M1.7 X 2.5
(Black)
2-635-562-11



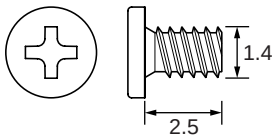
#2: M1.7 X 4.0
(Black)
2-635-562-31



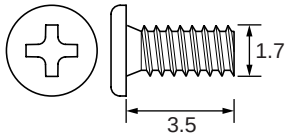
#3: M1.7 X 2.5
(Red)
2-660-401-01



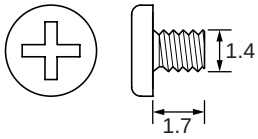
#4: M1.4 X 2.5 (Tapping)
(Dark Silver)
3-348-998-81



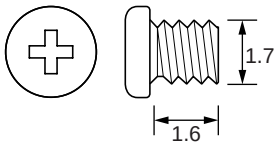
#5: M1.7 X 3.5 (Tapping)
(Black)
3-080-204-01



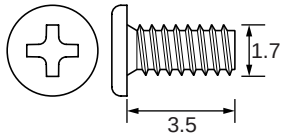
#6: M1.4 X 1.7
(Silver)
2-598-474-01



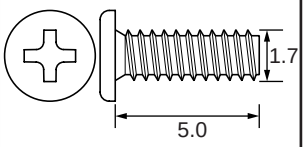
#7: M1.7 X 1.6
(Black)
7-627-552-18



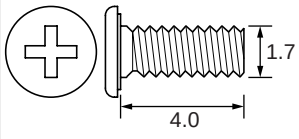
#8: M1.7 X 3.5 (Tapping)
(Silver)
3-078-890-01



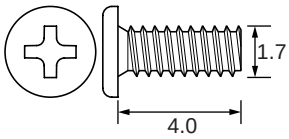
#9: M1.7 X 5.0 (Tapping)
(Silver)
3-078-890-21



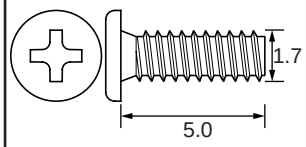
#10: M1.7 X 4.0
(Silver)
2-599-475-31



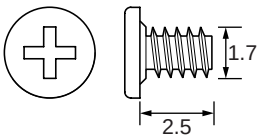
#11: M1.7 X 4.0 (Tapping)
(Silver)
3-078-890-11



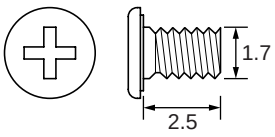
#12: M1.7 X 5.0 (Tapping)
(Black)
3-080-204-21



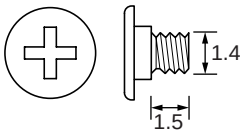
#13: M1.7 X 2.5 (Tapping)
(Silver)
3-085-397-01



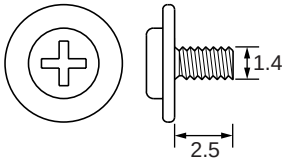
#14: M1.7 X 2.5
(Silver)
2-599-475-11



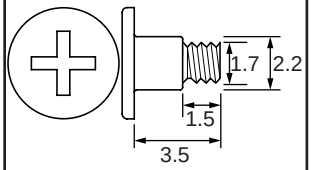
#15: M1.4 X 1.5
(Silver)
3-062-214-01



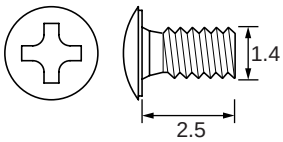
#16: M1.4 X 2.5
(Silver)
2-586-337-01



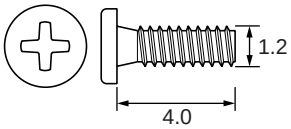
#17: M1.7 X 1.5
(Silver)
2-586-389-01



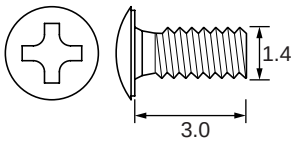
#18: M1.4 X 2.5
(Silver)
2-635-591-21



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

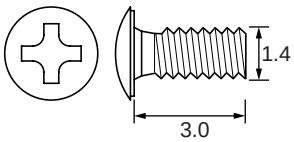


#20: M1.4 X 3.0
(Silver)
2-635-591-31

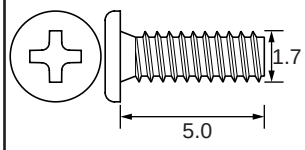


HARDWARE LIST (2/4)

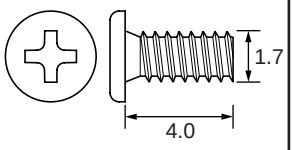
#21: M1.4 X 3.0
(Black)
2-662-396-21



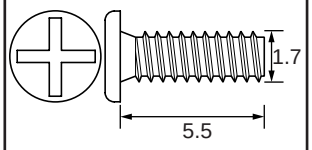
#22: M1.7 X 5.0 (Tapping)
(Silver)
3-083-261-01



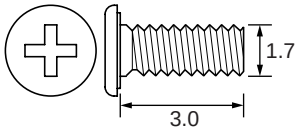
#23: M1.7 X 4.0 (Tapping)
(Black)
3-080-204-11



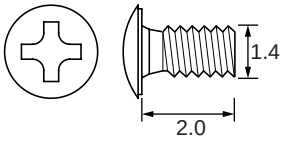
#24: B1.7 X 5.5 (Tapping)
(Black)
4-679-805-11



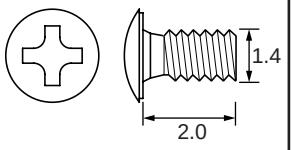
#25: M1.7 X 3.0
(Black)
2-635-562-21



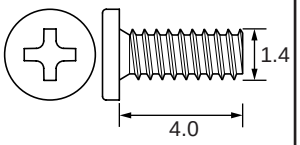
#26: M1.4 X 2.0
(Silver)
2-635-591-11



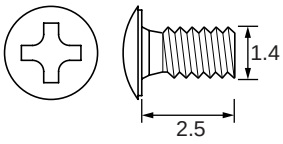
#27: M1.4 X 2.0
(Black)
2-662-396-11



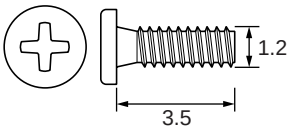
#28: M1.4 X 4.0 (Tapping)
(Dark Silver)
3-348-998-61



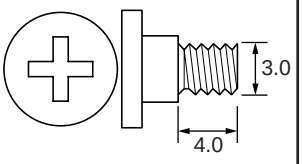
#29: M1.4 X 2.5
(Black)
2-662-396-01



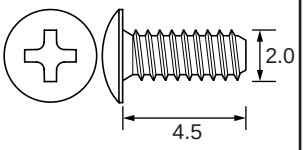
#30: M1.2 X 4.0 (Tapping)
(White)
3-086-156-11



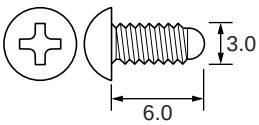
#31: M3.0 X 4.0
(Silver)
2-102-434-01



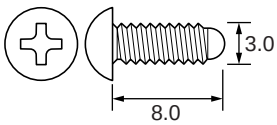
#32: M2.0 X 4.5 (Tapping)
(Silver)
2-102-498-01



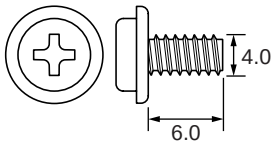
#33: M3.0 X 6.0
(Silver)
3-077-331-21



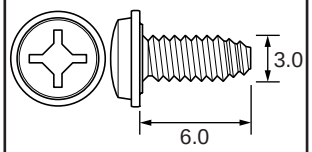
#34: M3.0 X 8.0
(Black)
3-077-331-41



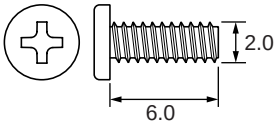
#35: M4.0 X 6.0 (Tapping)
(Silver)
3-975-291-02



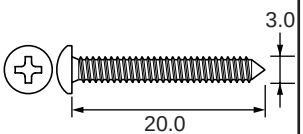
#36: M3.0 X 6.0
(Silver)
4-886-821-11



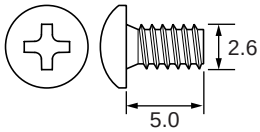
#37: M2.0 X 6.0 (Tapping)
(Black)
3-080-206-31



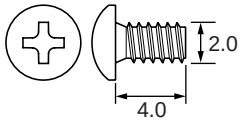
#38: M3.0 X 20.0 (Tapping)
(Silver)
7-685-651-79



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

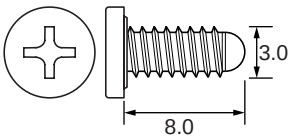


#40: M2.0 X 4.0 (Tapping)
(Silver)
7-685-851-04

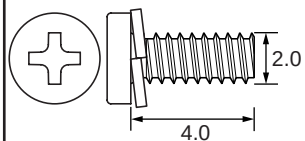


HARDWARE LIST (3/4)

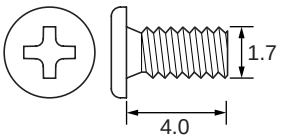
#41: M3.0 X 8.0 (Tapping)
(Silver)
3-065-748-01



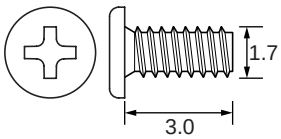
#42: M2.0 X 4.0 (Tapping)
(Silver)
7-628-253-00



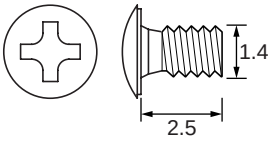
#43: M1.7 X 4.0
(Red)
2-660-401-31



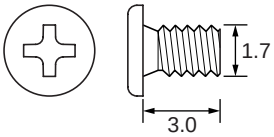
#44: M1.7 X 3.0 (Tapping)
(Silver)
3-078-890-61



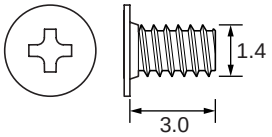
#45: M1.4 X 2.5
(Silver)
2-587-151-01



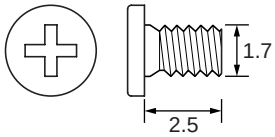
#46: M1.7 X 3.0
(Red)
2-660-401-11



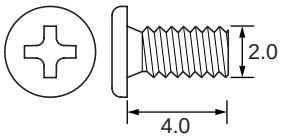
#47: M1.4 X 3.0 (Tapping)
(Silver)
2-665-774-01



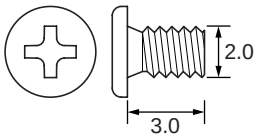
#48: M1.7 X 2.5
(Silver)
3-973-497-91



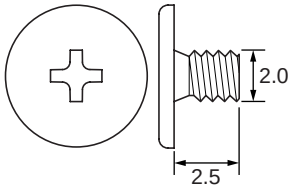
#49: M2.0 X 4.0
(Black)
2-630-005-31



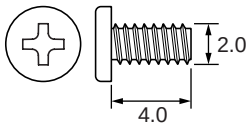
#50: M2.0 X 3.0
(Red)
2-891-494-11



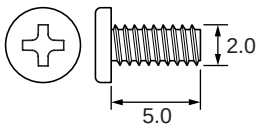
#51: M2.0 X 2.5
(Silver)
3-073-686-01



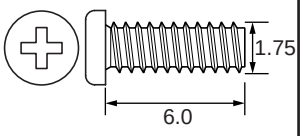
#52: M2.0 X 4.0 (Tapping)
(Black)
3-080-206-11



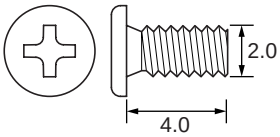
#53: M2.0 X 5.0 (Tapping)
(Black)
3-080-206-21



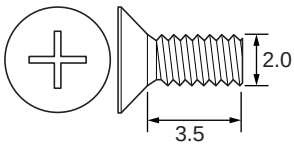
#54: M1.75 X 6.0 (Tapping)
(Black)
3-318-203-11



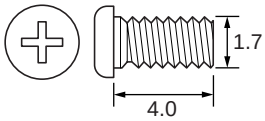
#55: M2.0 X 4.0
(Silver)
2-655-582-11



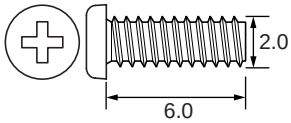
#56: M2.0 X 3.5
(Silver)
3-067-187-11



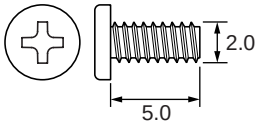
#57: M1.7 X 4.0
(Black)
7-627-852-18



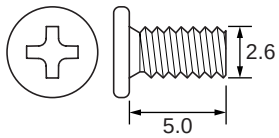
#58: M2.0 X 6.0 (Tapping)
(Silver)
3-719-408-11



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

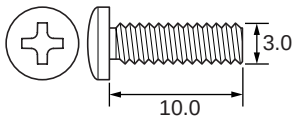


#60: M2.6 X 5.0
(Black)
3-061-062-11

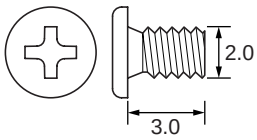


HARDWARE LIST (4/4)

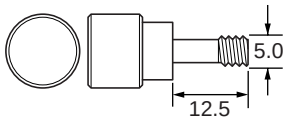
#61: M3.0 X 10.0
(Black)
7-682-549-09



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

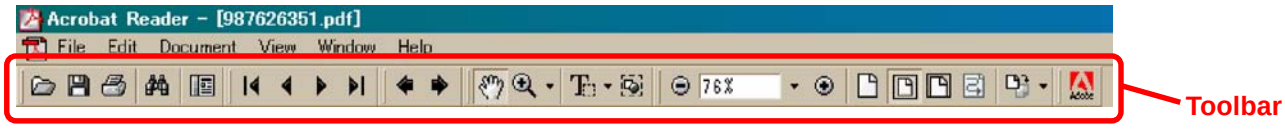


#63: M5.0 X 12.5
(Black)
3-060-811-21



ENGLISH | JAPANESE

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



Printing a text

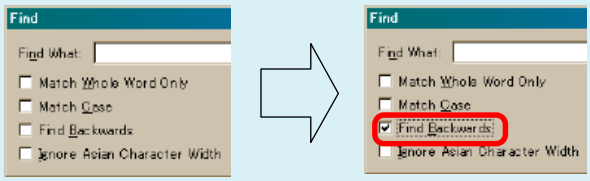
1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

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

Finding a text

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

Application to the Service Manual:
To execute "find" from current page toward the previous pages, select the check box "Find Backward" and then click the "Find".



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

Application to the Service Manual:
The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.
Note: The find function may not be applied to the Service Manual depending on the date of issue.

Switching a page

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

Reversing the screens displayed once

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

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

Moving with link

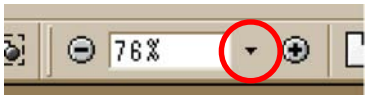
1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer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

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

Zooming or rotating the screen display

"Zoom in/out"

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



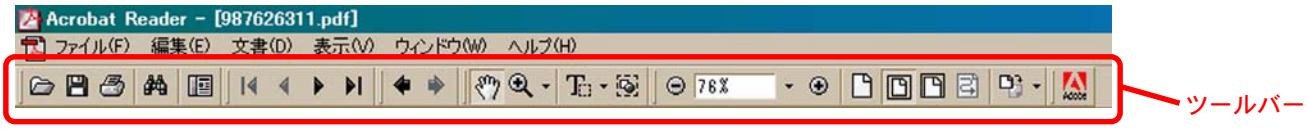
"Rotate"

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

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

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

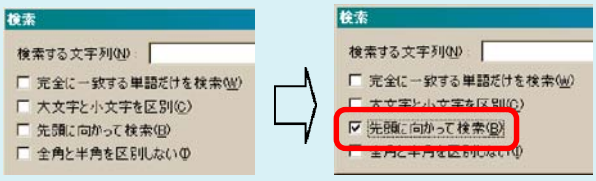
1. 印刷ボタンをクリックする。
2. プリンター、印刷範囲、印刷部数、および他のオプションを指定して「OK」をクリックする。

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

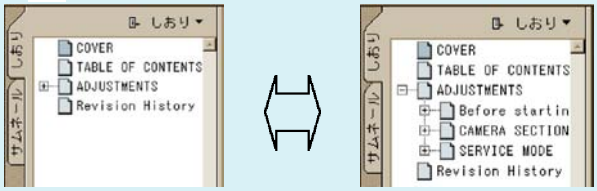
- 前の画面(操作)へ1つずつ逆戻りする場合、をクリックする。
- 戻した画面(操作)を1 つずつ前に進める場合、をクリックする。

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	2006.11	Official Release	—	—
1.1	2007.03	Correction-1 (C1)	• Correction of Repair Parts S.M. correction: Page 5-28	Yes
1.2	2007.07	Supplement-1 (S1 DI07-032)	• Addition of Models • Change of Repair Parts • Change of Board's Suffix No. • Change of EVR Page table • Addition of "How to read the sensitivity data of angular velocity sensor"	No
1.3	2007.09	Revised-1 (A1 DI07-103)	• Correction of the MSW Code S.M. revised: Page 6-150	Yes