

HVR-A1J/A1U/A1N/A1E/A1P/A1C

RMT-831

SERVICE MANUAL

Ver 1.1 2005.11

Revision History

How to use
Acrobat Reader



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

N MECHANISM (MDX-N101)

Link

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

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

Mini **DV** Digital Video Cassette

DIGITAL HD VIDEO CAMERA RECORDER

SONY®



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 (Fs 48 kHz, stereo) transfer rate: 384 kbps
Audio recording system (DVCAM (DV))	Rotary heads, PCM system Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal	NTSC color, EIA standards 1080/60i specification
Usable cassette	Mini DV cassette with the mini DV or Mini DVCAM cassette with the DVCAM mark printed
Tape speed (HDV)	Approx. 18.812 mm/s
Tape speed (DVCAM)	Approx. 28.218 mm/s
Tape speed (DVSP)	Approx. 18.812 mm/s
Recording/playback time (HDV)	63 min (using a PHDVM-63 DM cassette)
Recording/playback time (DVCAM)	41 min (using a PHDVM-63 DM cassette)
Recording/playback time (DV SP)	63 min (using a PHDVM-63 DM cassette)
Fast forward/rewind time	Approx. 2 min 40 s (using a PHDVM-63 DM cassette and rechargeable battery pack) Approx. 1 min 45 s (using a PHDVM-63 DM cassette and AC Adaptor)
Viewfinder	Electric viewfinder (color, black and white)
Image device	5.9 mm (1/3 type) CMOS sensor Gross: Approx. 2 969 000 pixels Effective (movie, 4:3): 1 486 000 pixels Effective (movie, 16:9): 1 983 000 pixels Effective (still, 4:3): 2 764 800 pixels Effective (still, 16:9): 2 073 600 pixels
Lens	Carl Zeiss Vario-Sonnar T* 10× (Optical), 40× (Digital)
Focal length	f=5.1 ~ 51.0 mm (7/32 ~ 2 1/8 in.) When converted to a 35 mm still camera In CAMERA-TAPE *2 : 41 ~ 480 mm (1 5/8 ~ 19 in.) (16:9), 50 ~ 590 mm (2 ~ 23 1/4 in.) (4:3) In CAMERA-TAPE when setting [FULL SCAN] to [ON]: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9), 49.3 ~ 493 mm (2 ~ 19 1/2 in.) (4:3) In CAMERA-MEMORY: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9),

	37 ~ 370 mm (1 1/2 ~ 14 5/8 in.) (4:3) F1.8 ~ 2.1 Filter diameter: 37 mm (1 1/2 in.)
Color temperature	[AUTO], [ONE PUSH], [INDOOR] (3 200 K), [OUTDOOR] (5 800 K)
Minimum illumination	7 lx (lux) (F 1.8) 0 lx (lux) (during NightShot function)*3
*1 "Exif" is a file format for still images, established by the JEITA (Japan Electronics and Information Technology Industries Association). Files in this format can have additional information such as your camcorder's setting information at the time of recording.	
*2 The focal length figures are actual figures resulting from wide angle pixel read-out.	
*3 Objects unable to be seen due to the dark can be shot with infrared lighting.	

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: 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: 525 mVp-p (75 % color-bar)
Headphones jack	Stereo minijack (Ø 3.5)

Input/Output connectors

MIC jack	Minijack, 0.388 mV low impedance with DC 2.5 to 3.0 V, output impedance 6.8 kΩ (kilohms) (Ø 3.5 mm), Stereo type
LANC jack	Stereo mini-minijack (Ø 2.5)
INPUT1/INPUT2 connectors	XLR3-pin, female, -60 dBu: 3 kΩ +4 dBu: 10 kΩ (0 dBu=0.775 Vrms)
USB jack	mini-B
HDV/DV jack	i.LINK Interface (IEEE 1394, 4-pin connector S100)

LCD screen

Picture	6.9 cm (2.7 type, aspect ratio 16:9)
Total dot number	123 200 (560 × 220)

General

Power requirements	DC 7.2 V (battery pack) DC 8.4 V (AC Adaptor)
Average power consumption (when using the battery pack)	During camera recording using the viewfinder with normal brightness with the XLR adaptor attached: HDV recording 6.4 W DVCAM (DV) recording 5.7 W During camera recording using the LCD with normal brightness with the XLR adaptor attached: HDV recording 6.6 W DVCAM (DV) recording 5.9 W

Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature (approx.)	-20 °C to + 60 °C (-4 °F to + 140 °F)
Dimensions (approx.)	71 × 103 × 191 mm (2 7/8 × 4 1/8 × 7 5/8 in.) (w/h/d) excluding the projecting parts
Mass (approx.)	670 g (1 lb 7 oz) main unit only 1.1 kg (2 lb 8 oz) including the NP-FM50 rechargeable battery pack, PHDVM-63DM cassette, lens hood with lens cover, XLR adaptor and microphone.
Supplied accessories	"Memory Stick Duo" 16MB (1) Memory Stick Duo Adaptor (1) AC Adaptor (1) Power cord (1) Lens hood with lens cover (1) Wireless Remote Commander (1) A/V connecting cable (1) Component video cable (1) USB cable (1) Shoulder Strap (1) XLR adaptor (1) Wind Screen (1) Microphone (1) Rechargeable battery pack NP-FM50 (1) Operating Guide (1) See page 5-40.

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 (approx.)	-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) main unit only

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

Rechargeable battery pack (NP-FM50)

Maximum output voltage	DC 8.4 V
Output voltage	DC 7.2 V
Capacity	8.5 Wh (1 180 mAh)
Dimensions (approx.)	38.2 × 20.5 × 55.6 mm (1 9/16 × 13/16 × 2 1/4 in.) (w/h/d)
Mass (approx.)	76 g (2.7 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.



HDV
HDV 1080i

DVCAMTM

MEMORY STICKTM

InfoLITHIUMTM **M**
SERIES

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
12ビットFs32kHz(ステレオ)
1、ステレオ2)

映像信号 16ビットFs48kHz(ステレオ)
NTSCカラー、EIA標準方式、
1080/60i方式

使用可能カセット ^{Mm} 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 5.9mm(1/3型)CMOSセンサー

総画素数：約297万画素

動画時有効画素数(4:3モード)：
約149万画素

動画時有効画素数(16:9モード)：
約198万画素

静止画時有効画素数(4:3モード)：
約276万画素

静止画時有効画素数(16:9モード)：
約207万画素

ズームレンズ カールツァイス バリオゾナー
T*

10倍(光学)、40倍(デジタル)

f=5.1 ~ 51.0mm

35mmカメラ換算では

「CAMERA-TAPE」時*2：
41 ~ 480mm(16:9モード)

(4:3モードでは50 ~ 590mm)

「CAMERA-TAPE」FULL

SCAN時：
40 ~ 400mm(16:9モード)

(4:3モードでは49.3 ~ 493

mm)

「CAMERA-MEMORY」時：
40 ~ 400mm(16:9モード)

(4:3モードでは37 ~ 370

mm)

F1.8 ~ 2.1

フィルター径37mm

色温度切り換え [AUTO]、[ONE PUSH]、
[INDOOR](3 200K)、
[OUTDOOR](5 800K)

最低被写体照度 15 lx(ルクス)(F1.8)
0 lx(ルクス)(NightShot時)

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

*2 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：1Vp-p、75Ω不平衡
Y出力 1Vp-p、75Ω不平衡
C出力 0.286Vp-p、75Ω

不平衡
音声：327mV(47kΩ負荷
時)、出力インピーダンス2.2

kΩ以下

COMPONENT Y：1Vp-p、75Ω不平衡

OUT端子 Pb/Pr、Cb/CR：525mVp-p
(75%カラーバー)

ヘッドホン端子 ステレオミニジャック(φ 3.5)

入/出力端子

MIC入力端子 ステレオミニジャック(φ 3.5)

LANC端子 ステレオミニミニジャック
(φ 2.5)

INPUT1/ XLR3ピン、凹

INPUT2端子 -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 6.9cm(2.7型、アスペクト比
16:9)

総ドット数 123 200ドット

横560×縦220

電源部、その他

電源電圧 バッテリー端子入力7.2V

DC端子入力8.4V

消費電力 ファインダー使用時、明るさ標準

(XLRアダプター装着時)：
HDV記録時6.4W

DVCAM(DV)記録時5.7W

液晶画面使用時、明るさ標準

(XLRアダプター装着時)：
HDV記録時6.6W

DVCAM(DV)記録時5.9W

動作温度 0℃ ~ +40℃

保存温度 -20℃ ~ +60℃

外形寸法 71×103×191mm

(最大突起部を除く)(幅×高さ×

奥行)

本体質量 約670g(本体のみ)

撮影時総質量 約1.1kg(バッテリー

NP-FM50、テープ(PHDVM-

63DM)、レンズカバー付きフ

ード、XLRアダプター、マイク含

む。)

付属品 “メモリースティック デュオ”

16MB(1)

メモリースティック デュオ

アダプター(1)

ACアダプター(1)

電源コード(1)

レンズカバー付きフード(1)

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)

XLRアダプター(1)

ウインドスクリーン(1)

マイク(1)

リチャージャブルバッテリー

パックNP-FM50(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)

ACアダプター AC-L15A

電源 AC100 ~ 240V、50/60Hz

消費電力 18W

定格出力 DC 8.4V *

動作温度 0℃ ~ +40℃

保存温度 -20℃ ~ +60℃

外形寸法 約56 × 31 × 100mm

(最大突起部をのぞく)(幅×高さ

×奥行)

質量 約190g(本体のみ)

リチャージャブルバッテリーパック NP-FM50

最大電圧 DC 8.4V

公称電圧 DC 7.2V

容量 8.5Wh(1 180mAh)

最大外形寸法 約38.2 × 20.5 × 55.6mm

(幅×高さ×奥行)

質量 約76g

使用温度 0℃ ~ +40℃

使用電池 Li-ion

本機の仕様および外観は、改良のため予告なく

変更することがありますが、ご了承ください。

Model information table

Model	HVR-A1J	HVR-A1U	HVR-A1N	HVR-A1E	HVR-A1P	HVR-A1C
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 \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

 : LEAD FREE MARK

Unleaded solder has the following characteristics.

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

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プ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もレッドフリーマークがプリントされていないものがあります）

 : レッドフリーマーク

無鉛半田には、以下の特性があります。

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

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* The color reproduction frame is shown on page 6-138 to 141.

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.

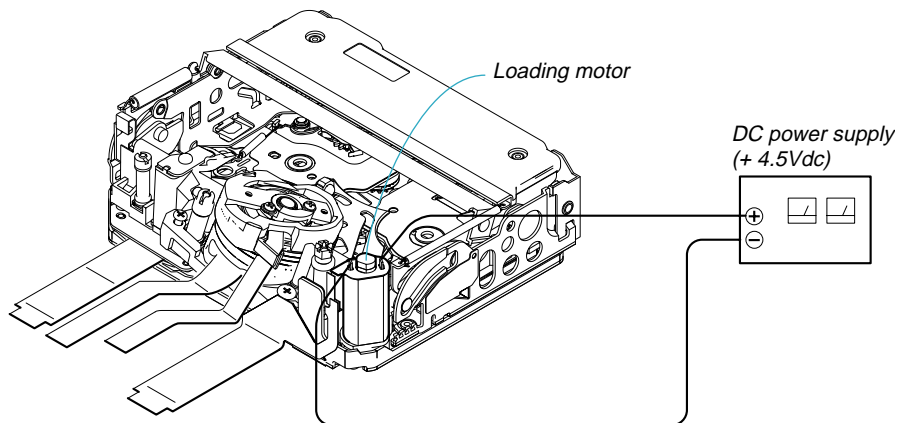
These following method is available to prevent this.

Method:

Use the AC power adaptor (AC-L15A/L15B).

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

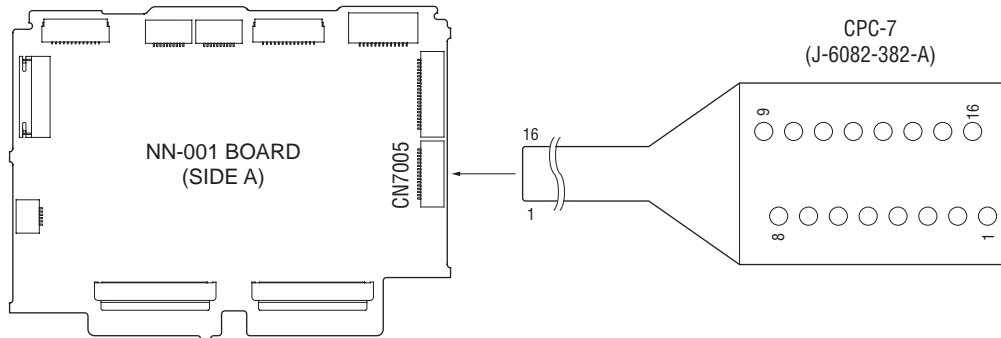
- 1) Select page: 0, address: 01, and set data:01.
- 2) Select page: A, address: 10, set data:02 and press the "PAUSE (Write)" button of the adjustment remote commander.

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 CN7005 of NN-001 board.



1-5. SELF-DIAGNOSIS FUNCTION

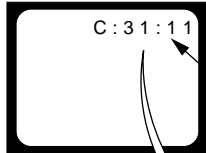
1-5-1. Self-diagnosis Function

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

1-5-2. Self-diagnosis Display

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

Viewfinder or LCD screen



Blinks at 3.2Hz

C : 3 1 : 1 1

Repaired by:

Block

Detailed Code

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

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

Refer to “1-5-3. Self-diagnosis Code Table”.

1-5-3. Self-diagnosis Code Table

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

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR sensor (Pin ⑱, ⑳ of CN7006 of NN-001 board) when focusing is performed when the focus ring is rotated in the focus manual mode and the focus motor drive circuit (IC7201 of NN-001 board) when the focusing is not performed.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom MR sensor (Pin ⑯, ⑰ of CN7006 of NN-001 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC7201 of NN-001 board) when zooming is not performed.
E	6 1	1 1	Focus lens initializing failure and zoom lens initializing failure occur simultaneously.	Inspect the flexible board for breakage or loose connection. If not faulty, inspect the focus and zoom motor drive circuit (IC7201 of NN-001 board).
E	6 2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE6802 of EE-001 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 (SE6801 of EE-001 board) peripheral circuits.

1-1. 修理時の電源供給について

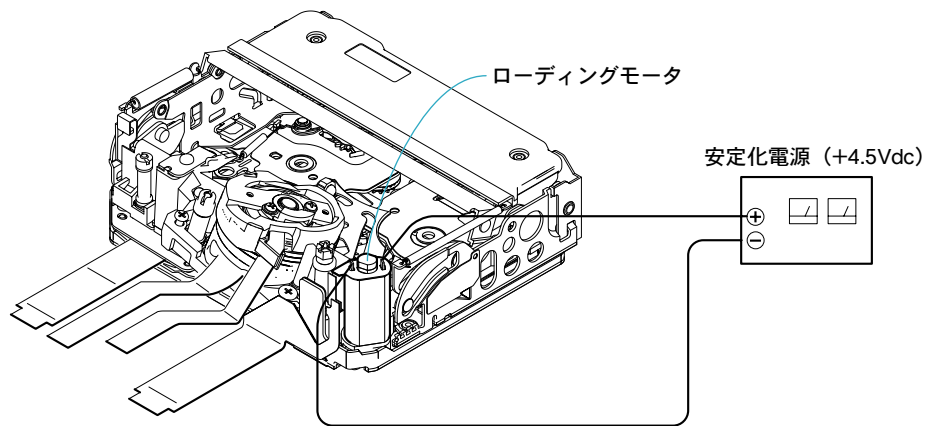
本機では、安定化電源（8.4Vdc）からバッテリー端子に電源を供給した場合、約10秒後にシャットオフし、動作しなくなります。これを避けるため、下記の方法を用いてください。

方法：

DC入力端子を使用する。（ACアダプタ（AC-L15A/L15Bなど）を使用する。）

1-2. イジェクトしない時のカセット取出し方法（強制イジェクト）

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



1-3. 強制電源ONモードの設定

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

1-3-1. 強制カメラ電源ONモードの設定

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

1-3-2. 強制VTR電源ONモードの設定

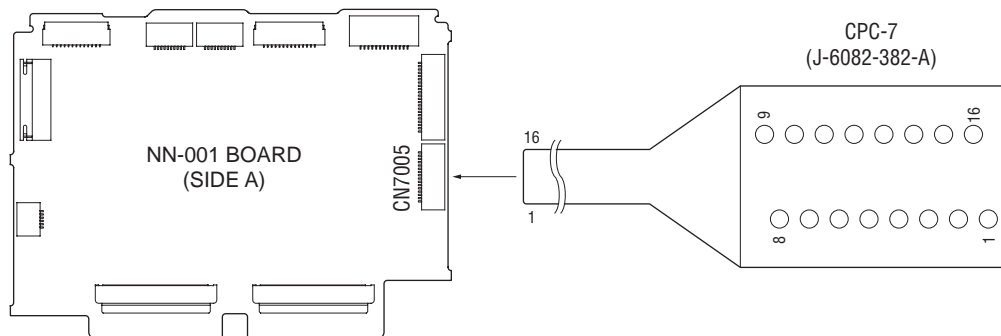
- 1) ページ：0，アドレス：01にデータ：01をセット。
- 2) ページ：A，アドレス：10にデータ：02をセットしPAUSE（Write）ボタンを押す。

1-3-3. 強制電源ONモードの解除

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

1-4. 使用サービス治具

CPC-7治具コネクタ (J-6082-382-A) をNN-001基板CN7005に接続します。



1-5. 自己診断機能

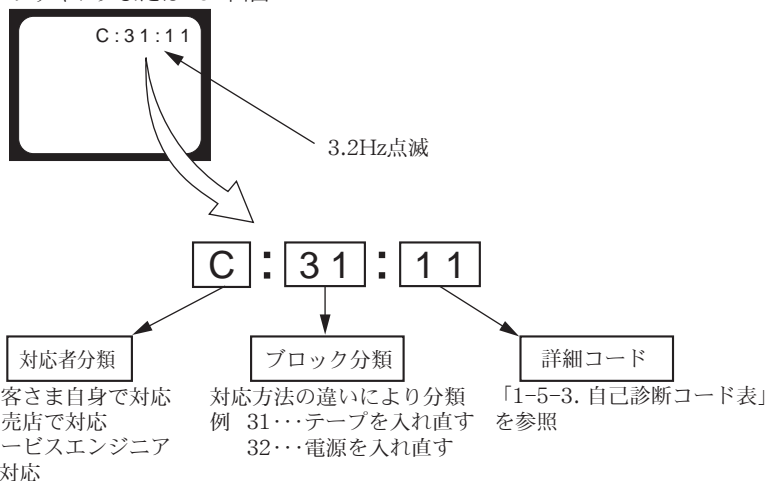
1-5-1. 自己診断機能について

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

1-5-2. 自己診断表示

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

ビューファインダまたはLCD画面



1-5-3. 自己診断コード表

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

自己診断コード			症状/状態	対応/方法
対応者	ブロック機能	詳細コード		
E	6 1	0 0	フォーカスが合いにくい (フォーカスの初期化ができない)	フォーカス手動モードでフォーカスリングを回した時、フォーカス動作をすればレンズブロックのフォーカスMRセンサ(NN-001基板CN7006 ⑱, ⑳ピン)を点検。フォーカス動作をしなければフォーカスモータドライブ回路(NN-001基板IC7201)を点検。
E	6 1	1 0	ズーム動作の異常(ズームレンズの初期化ができない)	ズームレバーを操作した時、ズーム動作をすればレンズブロックのズームMRセンサ(NN-001基板CN7006 ⑲, ⑳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(NN-001基板IC7201)を点検。
E	6 1	1 1	フォーカスレンズ初期化異常, ズームレンズ初期化異常の同時発生	フレキシブル基板の切れ, 半挿しを点検。 問題がなければフォーカス, ズームモータドライブ回路(NN-001基板IC7201)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(EE-001基板SE6802)周辺回路点検
E	6 2	0 1	手振れ補正が効きにくい (YAW角速度センサ出力張り付き)	YAW角速度センサ(EE-001基板SE6801)周辺回路点検

2. DISASSEMBLY

Link

• [DISASSEMBLY](#)

• [THE METHOD OF ATTACHMENT OF FP-248, FP-259 FLEXIBLE BOARD](#)

• [HELP](#)

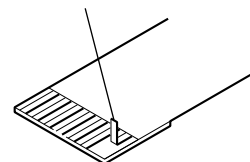
2. DISASSEMBLY

2. DISSASSEMBLY

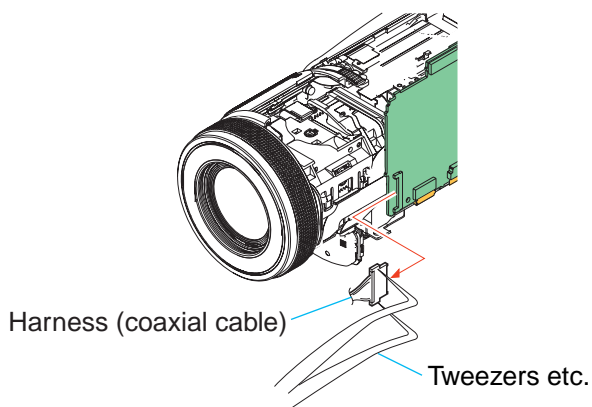
NOTE FOR REPAIR

- Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.
- When remove a connector, don't pull at wire of connector. It is possible that a wire is snapped.
- When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.

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



NOTE FOR DISCONNECTING THE HARNESS (COAXIAL CABLE)



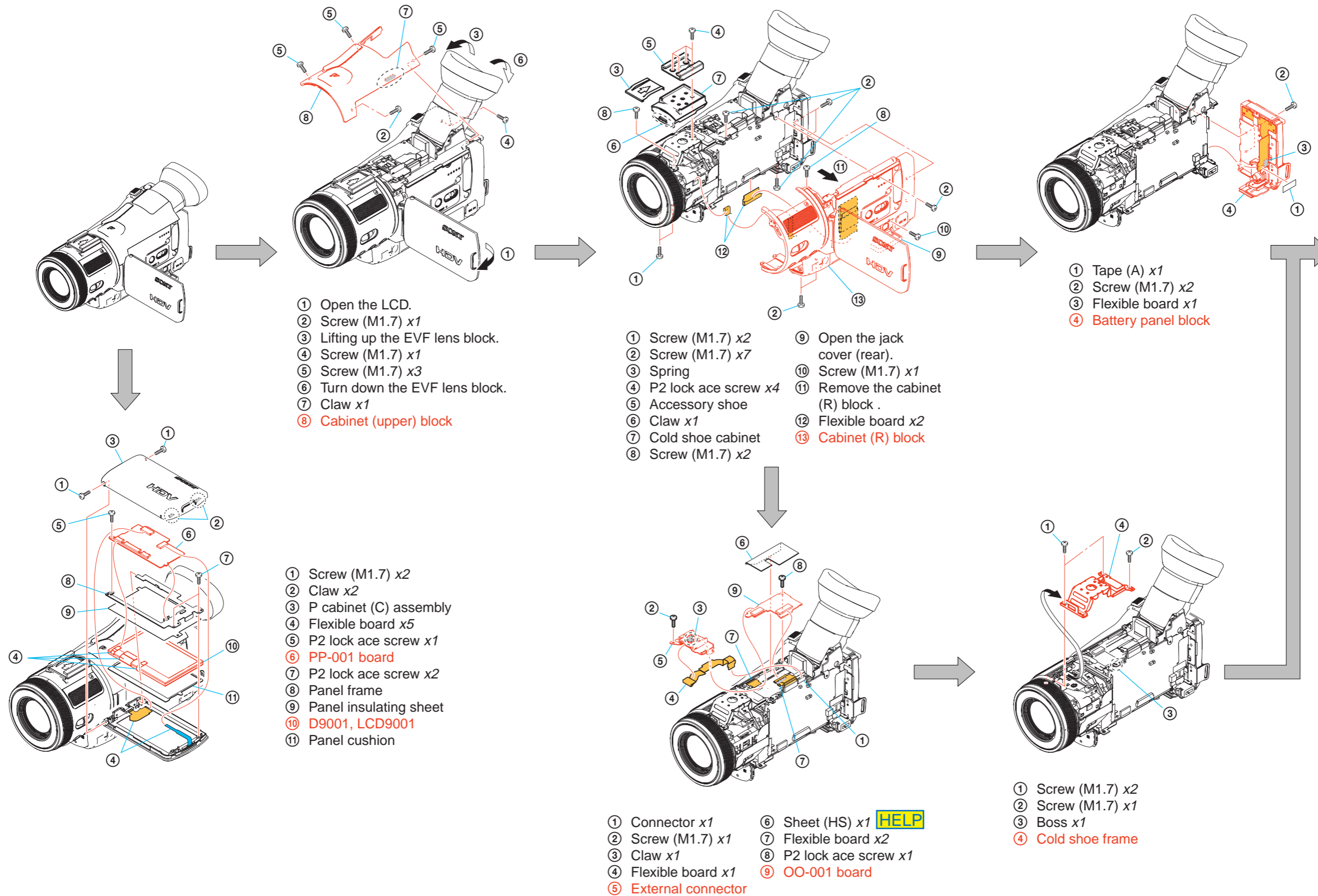
When disconnecting the harness (coaxial cable), do not pull the harness part but pull off the connector body with tweezers etc.

2. DISASSEMBLY

HELP

The following flow chart shows the disassembly procedure.

2-1. DISASSEMBLY

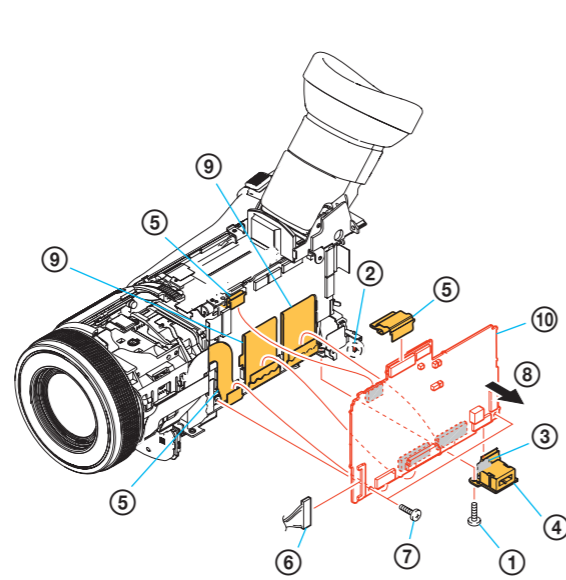


to Page 2-5

2. DISASSEMBLY

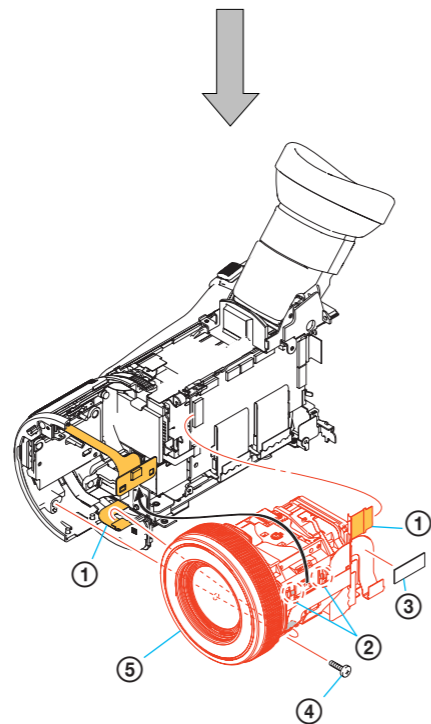
HELP

from Page 2-4

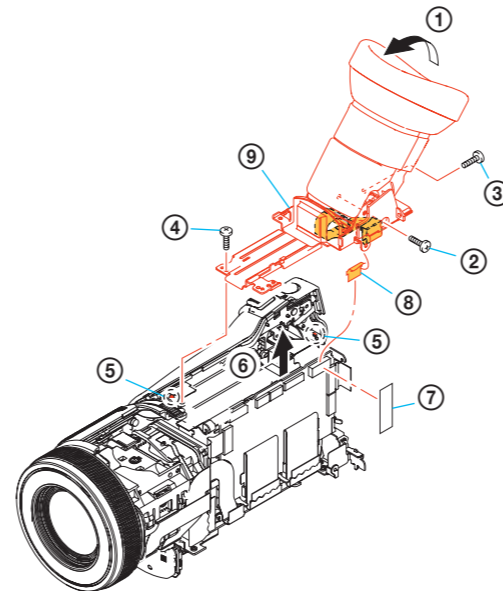


- ① P2 lock ace screw x1
- ② Claw x1
- ③ Flexible board x1
- ④ DC-IN connector section
- ⑤ Flexible board x3
- ⑥ Connector x1
- ⑦ P2 lock ace screw x2
- ⑧ Remove the TT board.
- ⑨ Flexible board x2
- ⑩ TT board

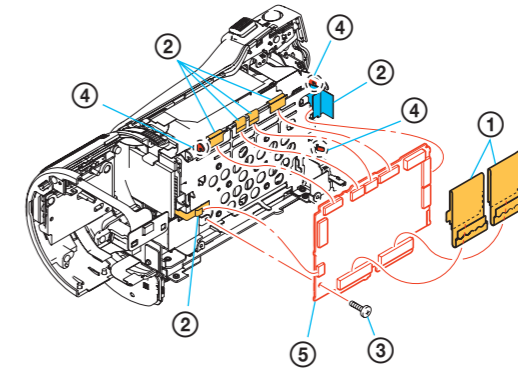
Refer to page 2-1
" Note for disconnecting the harness (coaxial cable) ".



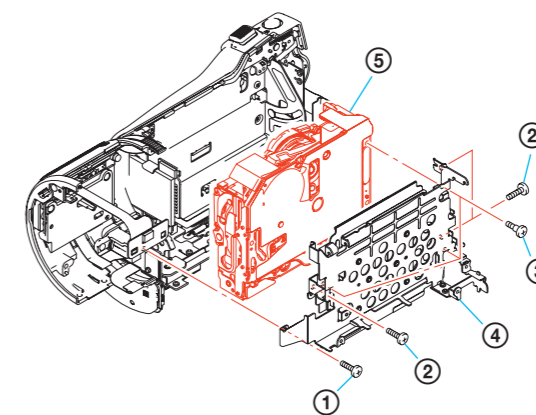
- ① Flexible board x2
- ② Claw x2
- ③ Tape (A) x1
- ④ P2 lock ace screw x1
- ⑤ Lens block assembly



- ① Lifting up the lens block.
- ② Screw (M1.7) x1
- ③ Screw (M1.7) x1
- ④ Screw (M1.7) x1
- ⑤ Boss x2
- ⑥ Remove the EVF lens block.
- ⑦ Tape (A) x1
- ⑧ Flexible board x1
- ⑨ EVF lens block



- ① Flexible board x2 **HELP**
- ② Flexible board x6
- ③ P2 lock ace screw x1
- ④ Hook x3
- ⑤ NN board

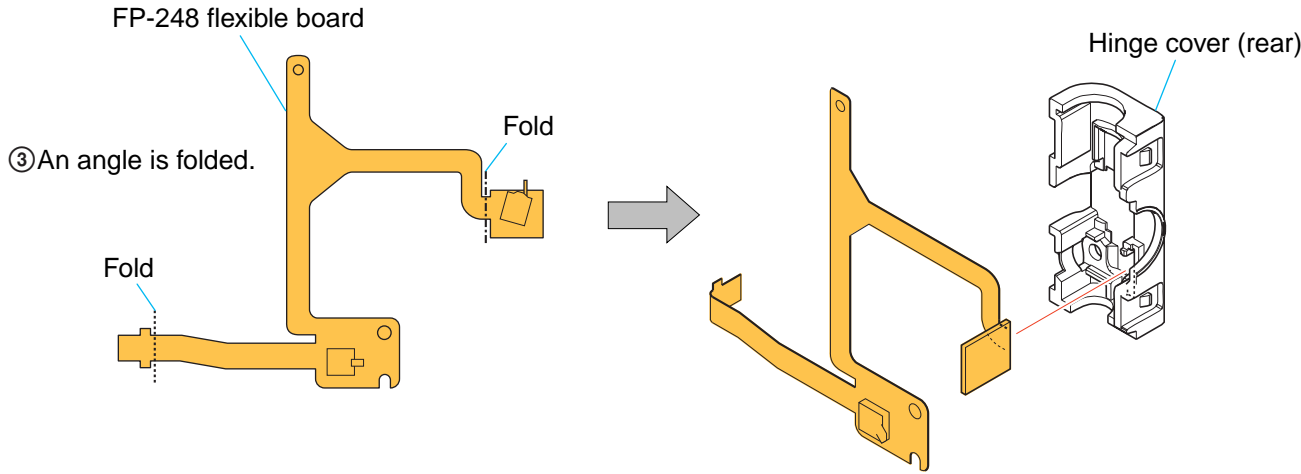


- ① Screw (M1.7) x1
- ② P2 lock ace screw x3
- ③ Screw (M1.4x1.5) x3
- ④ MD frame assembly
- ⑤ Mechanism deck

2. DISASSEMBLY

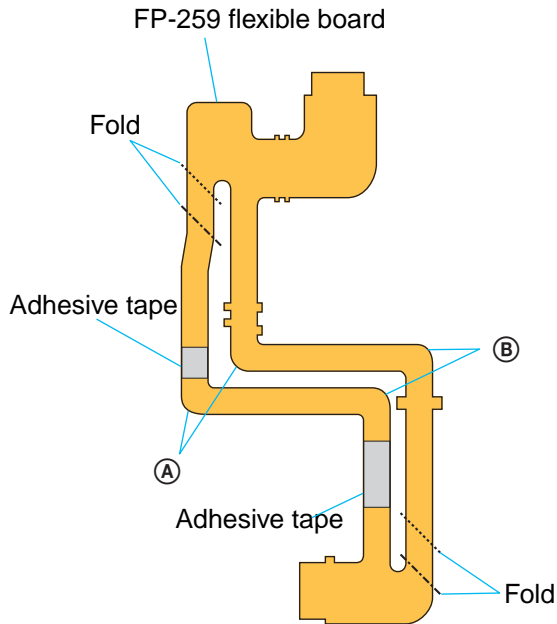
2-2. THE METHOD OF ATTACHMENT OF FP-248, FP-259 FLEXIBLE BOARD

– FP-248 FLEXIBLE BOARD –

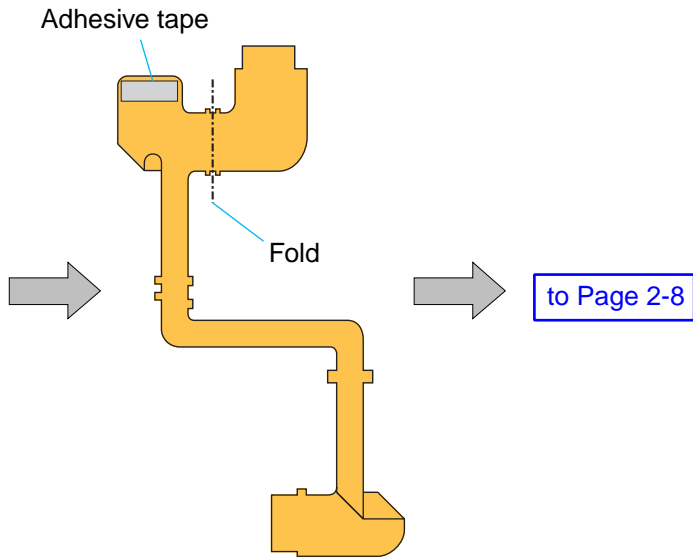


– FP-259 FLEXIBLE BOARD –

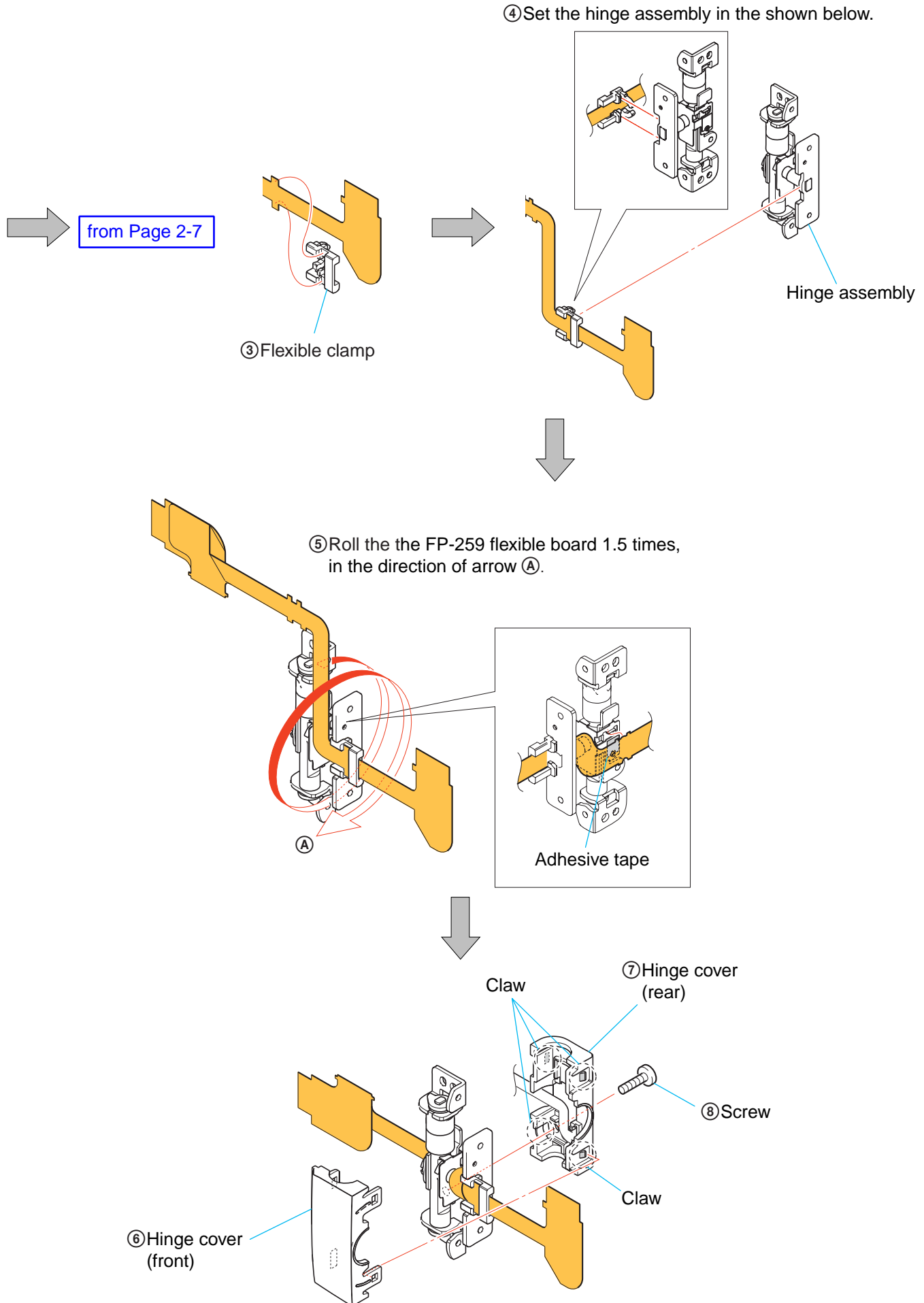
① The (A) and (A), (B) and (B) section are united and an angle is folded.



② An angle is folded.

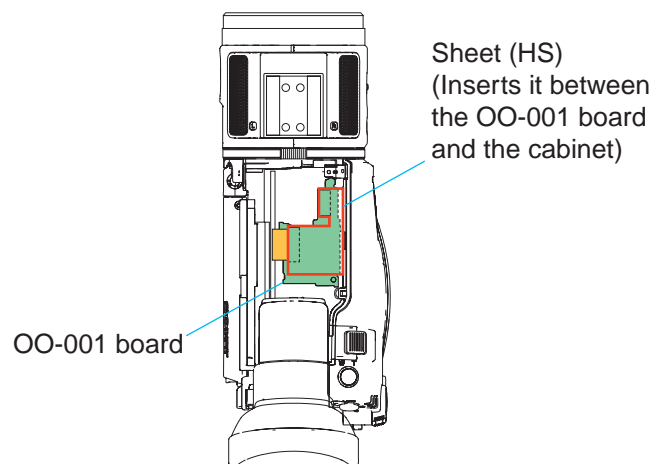
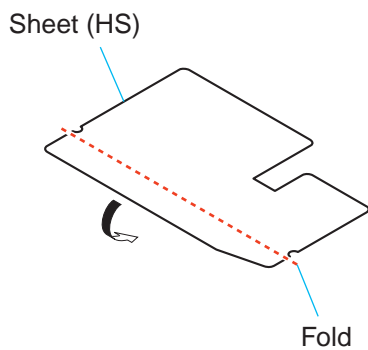
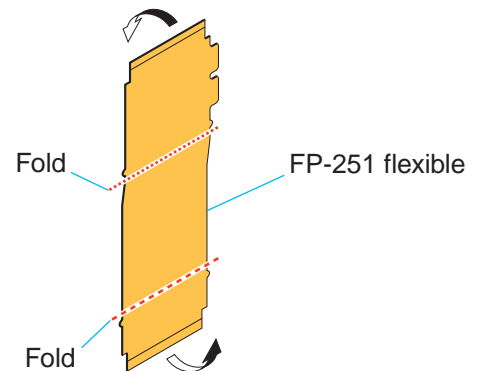
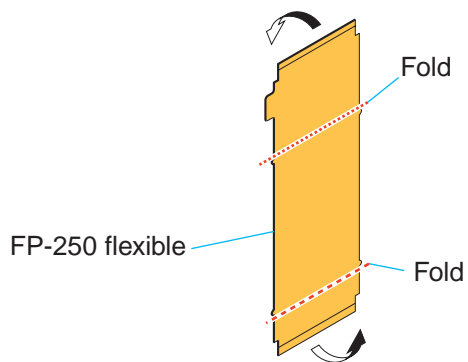
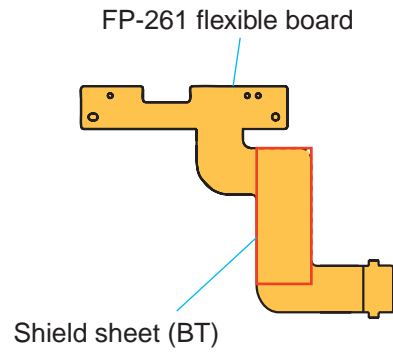
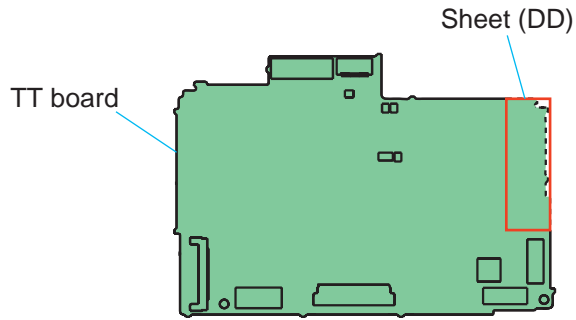


2. DISASSEMBLY



HELP

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



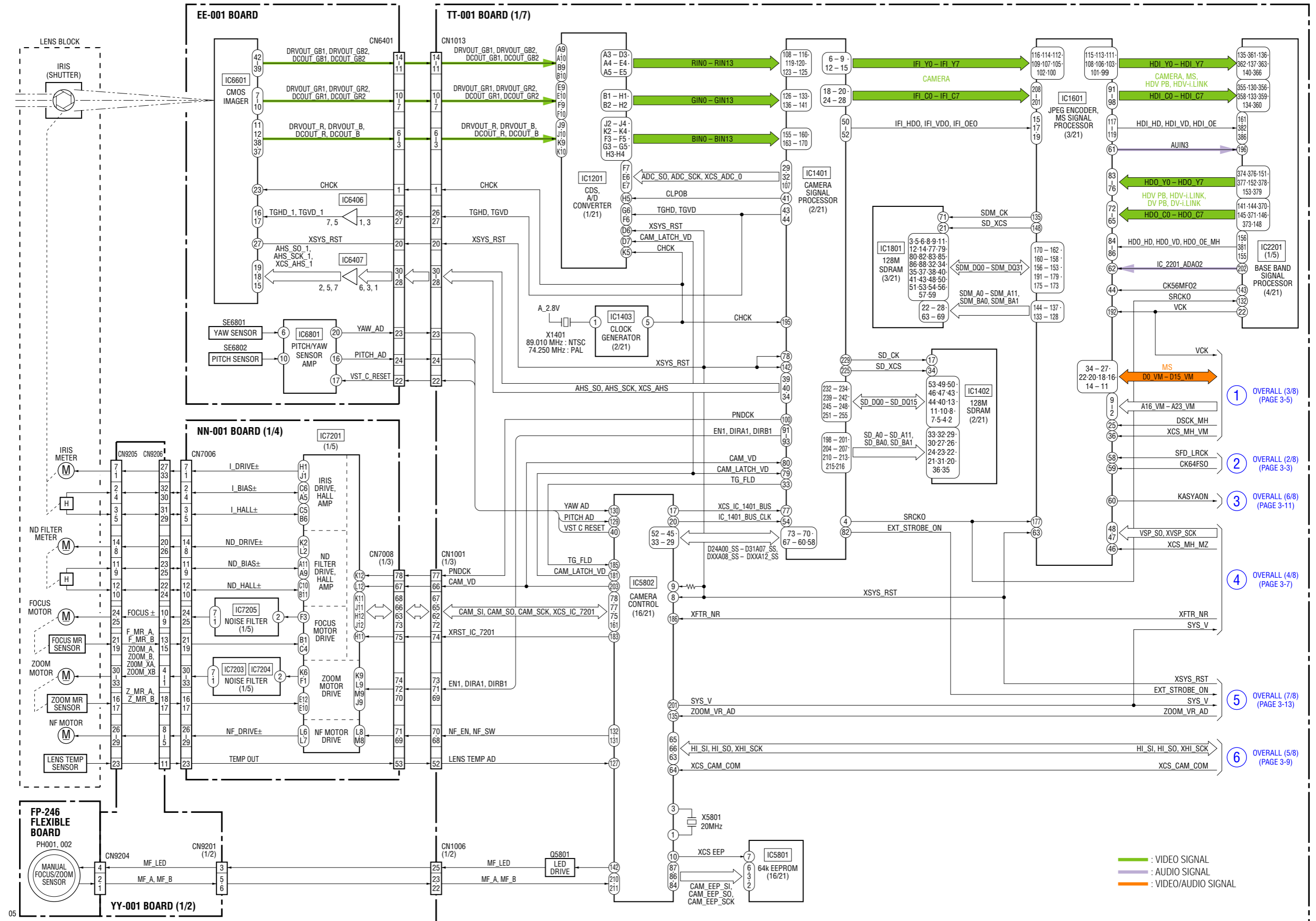
3. BLOCK DIAGRAMS

Link

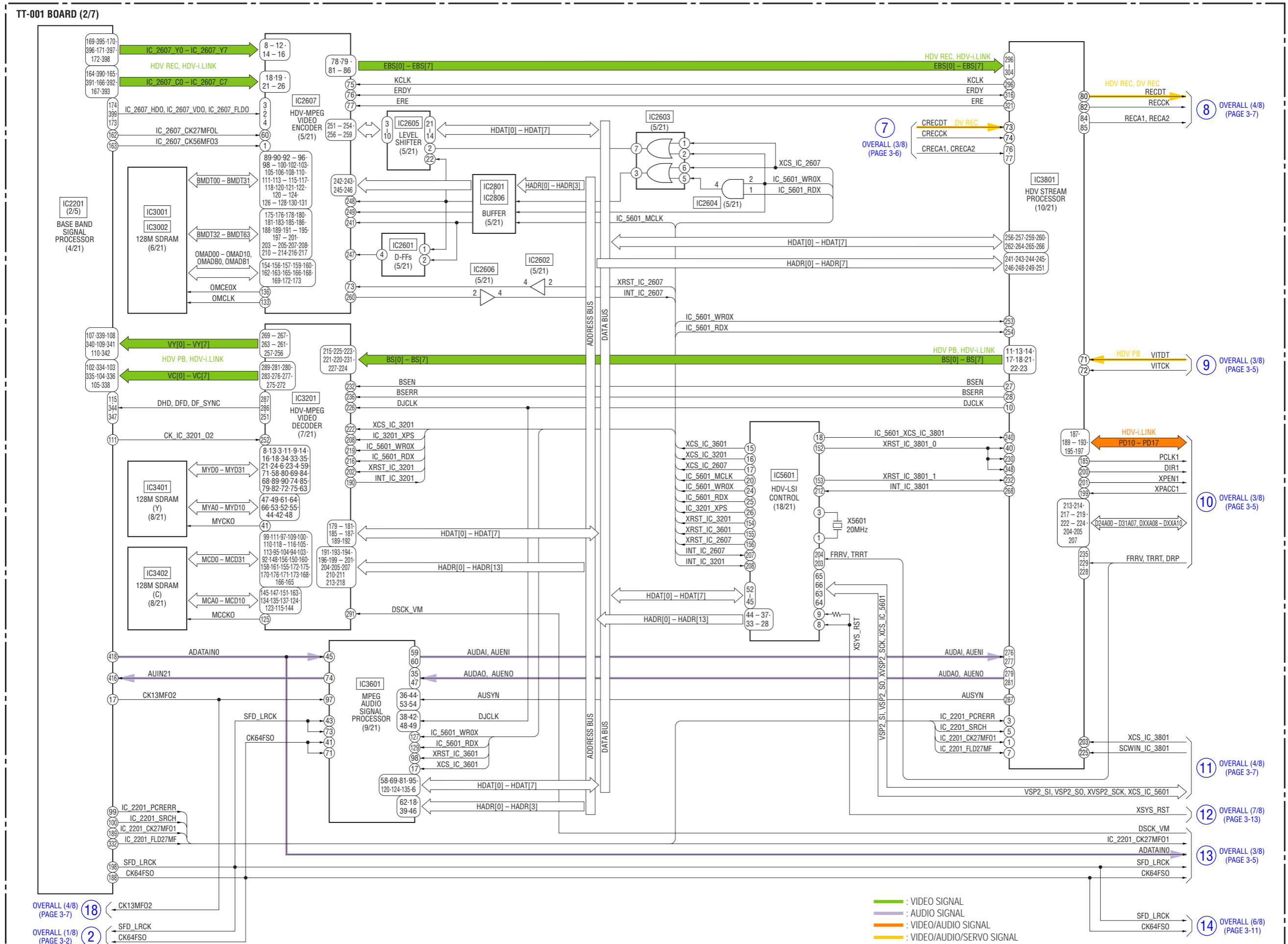
OVERALL BLOCK DIAGRAM (1/8)	OVERALL BLOCK DIAGRAM (8/8)
OVERALL BLOCK DIAGRAM (2/8)	POWER BLOCK DIAGRAM (1/5)
OVERALL BLOCK DIAGRAM (3/8)	POWER BLOCK DIAGRAM (2/5)
OVERALL BLOCK DIAGRAM (4/8)	POWER BLOCK DIAGRAM (3/5)
OVERALL BLOCK DIAGRAM (5/8)	POWER BLOCK DIAGRAM (4/5)
OVERALL BLOCK DIAGRAM (6/8)	POWER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

3. BLOCK DIAGRAMS

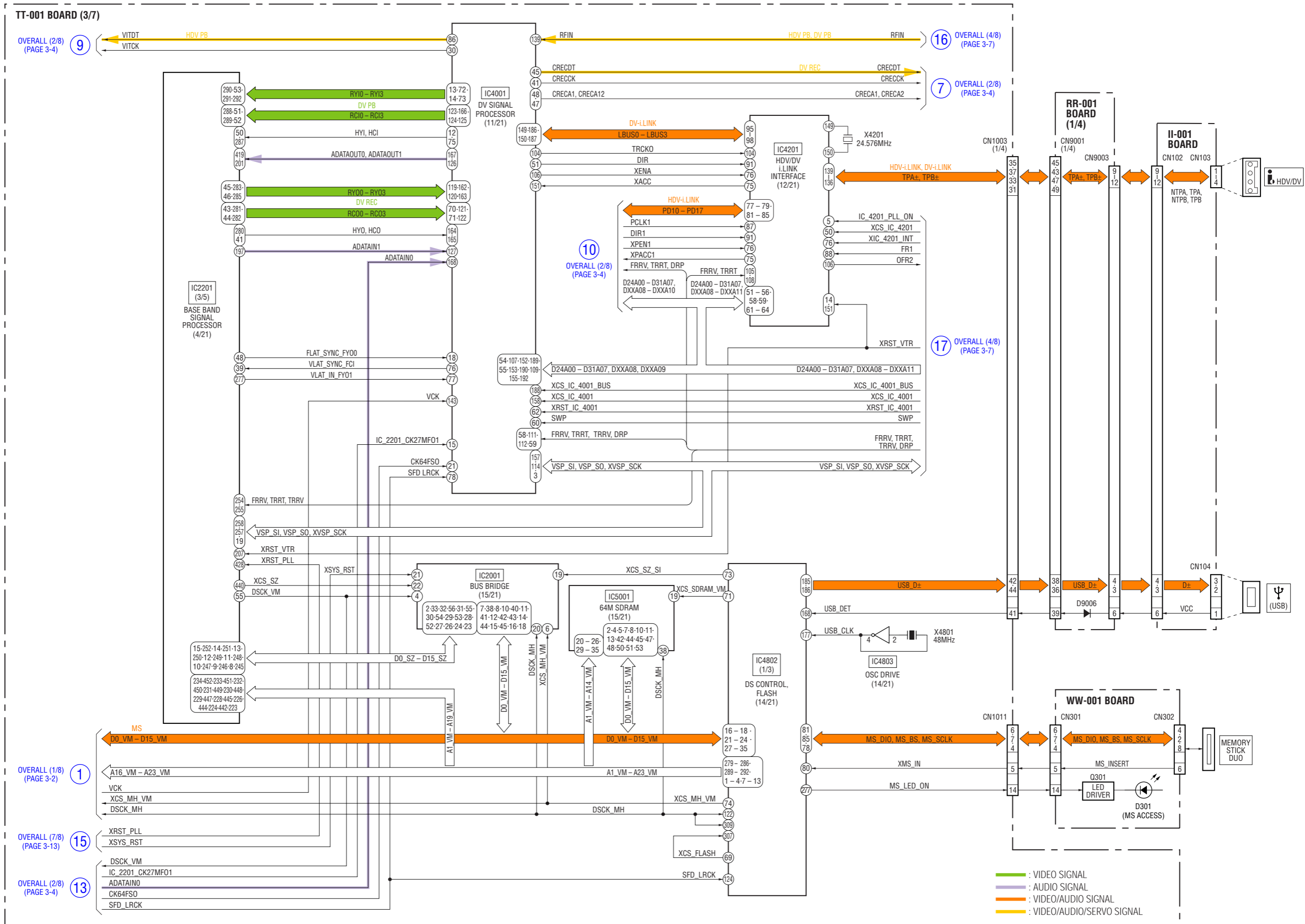
3-1. OVERALL BLOCK DIAGRAM (1/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



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

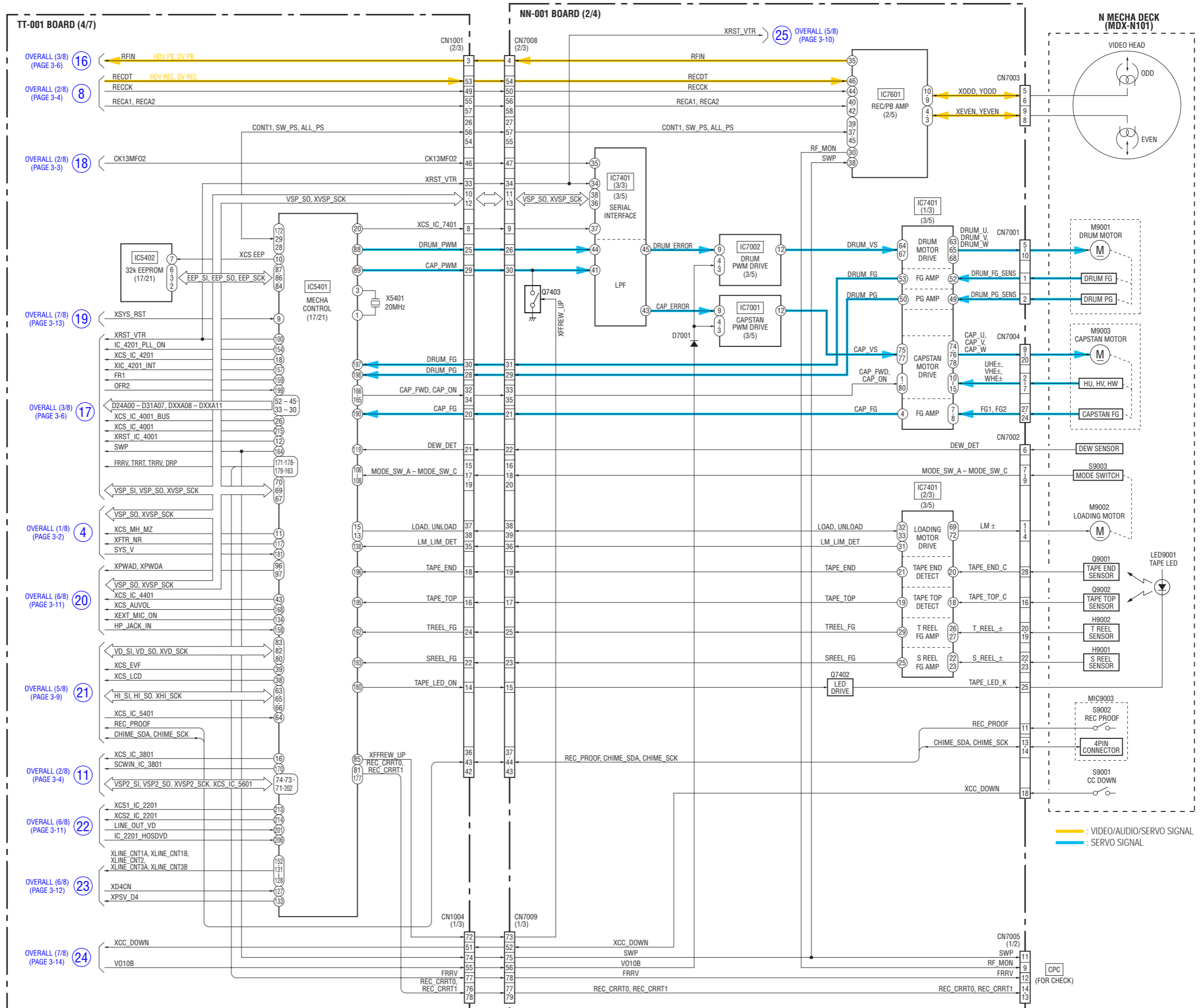


3-3. OVERALL BLOCK DIAGRAM (3/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.

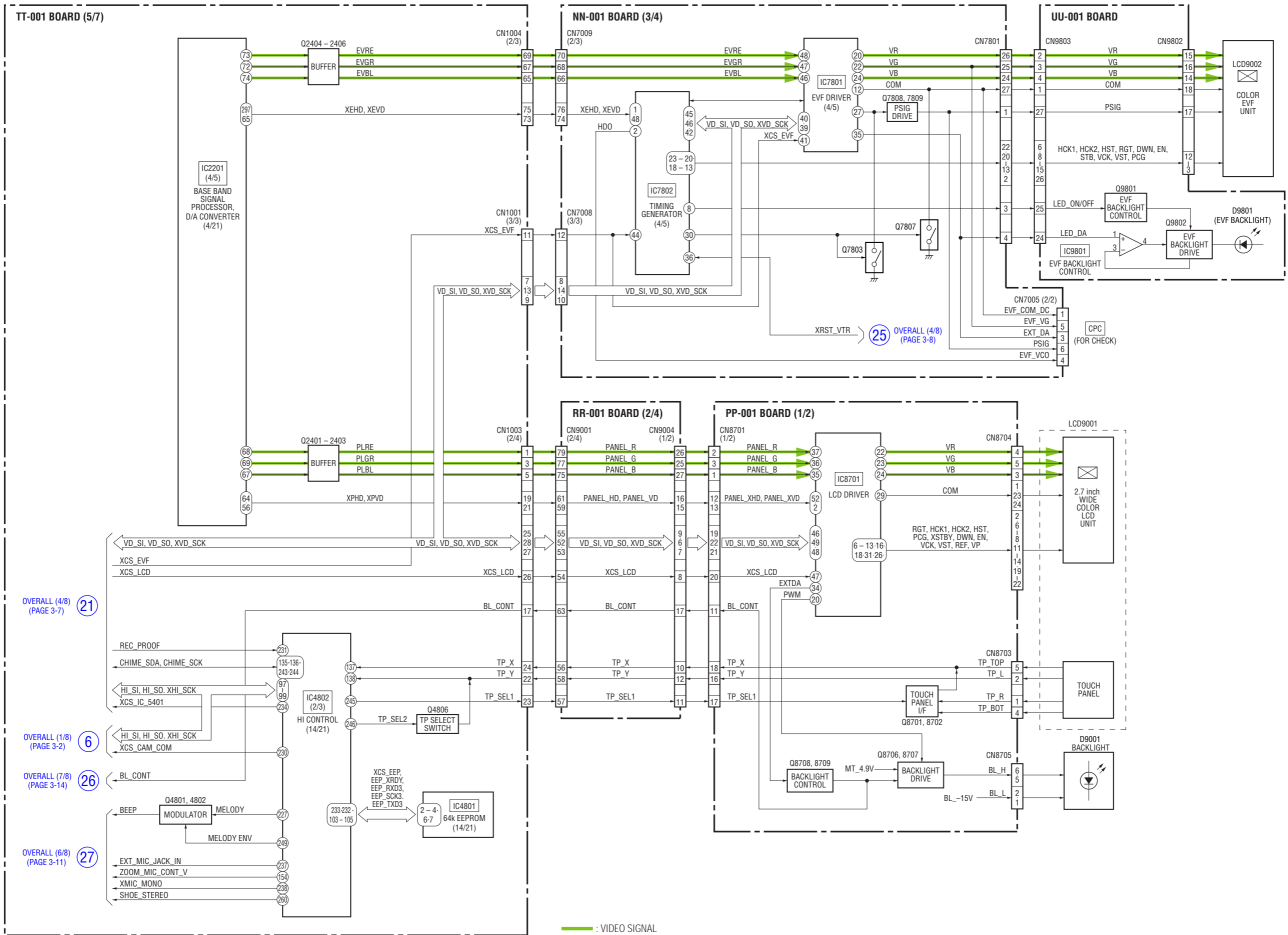


05

3-4. OVERALL BLOCK DIAGRAM (4/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.

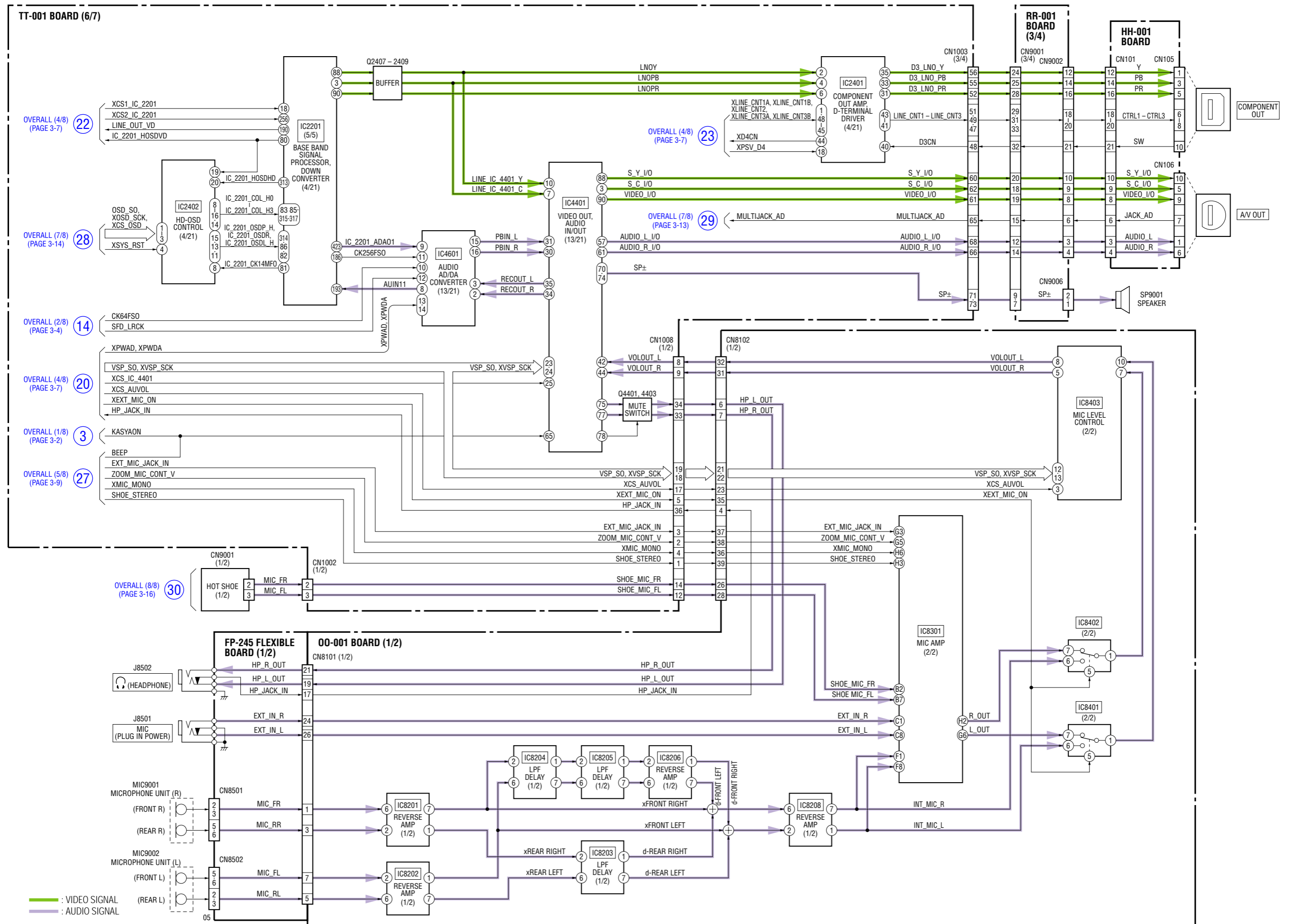


3-5. OVERALL BLOCK DIAGRAM (5/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.

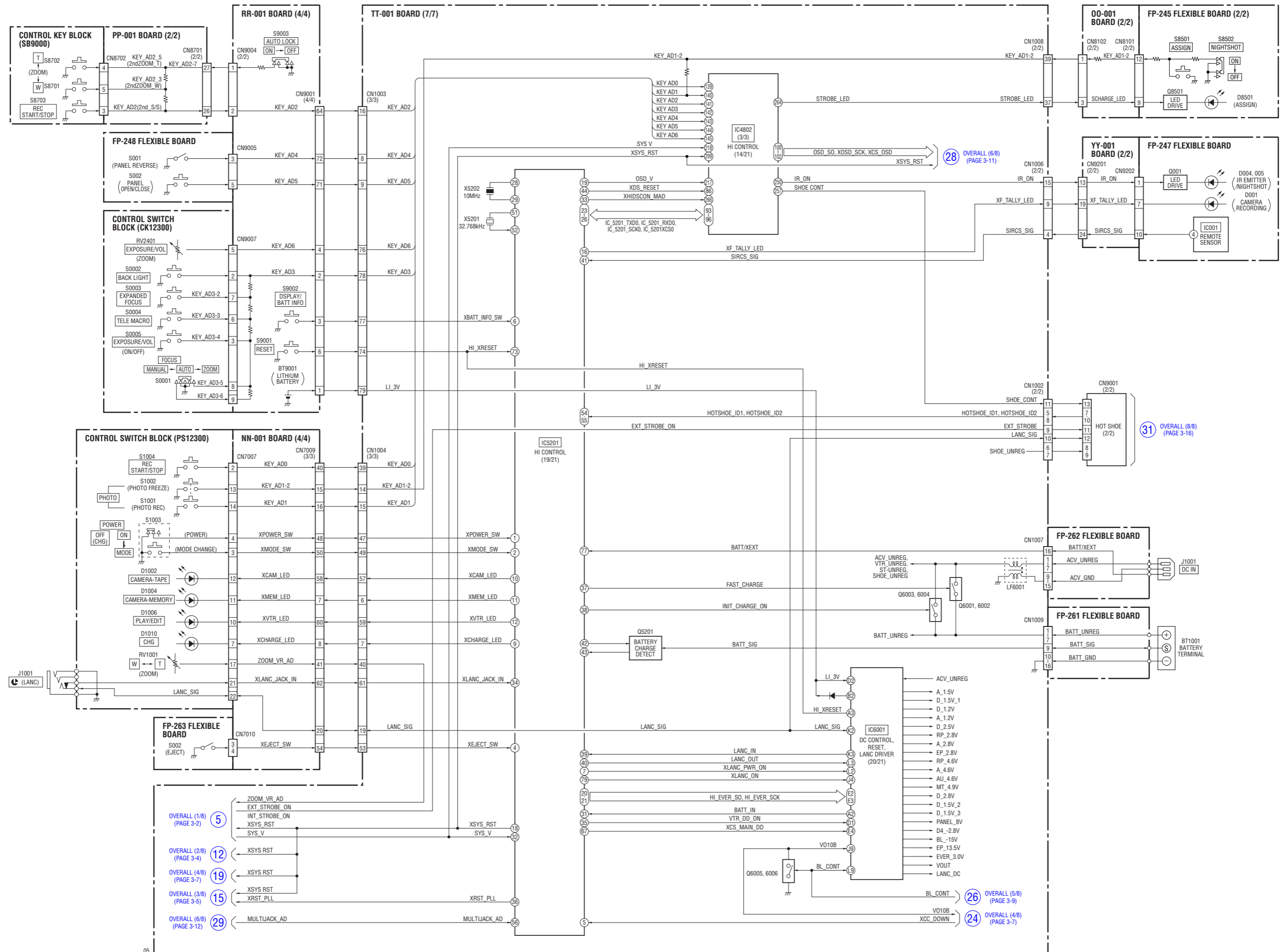


— : VIDEO SIGNAL

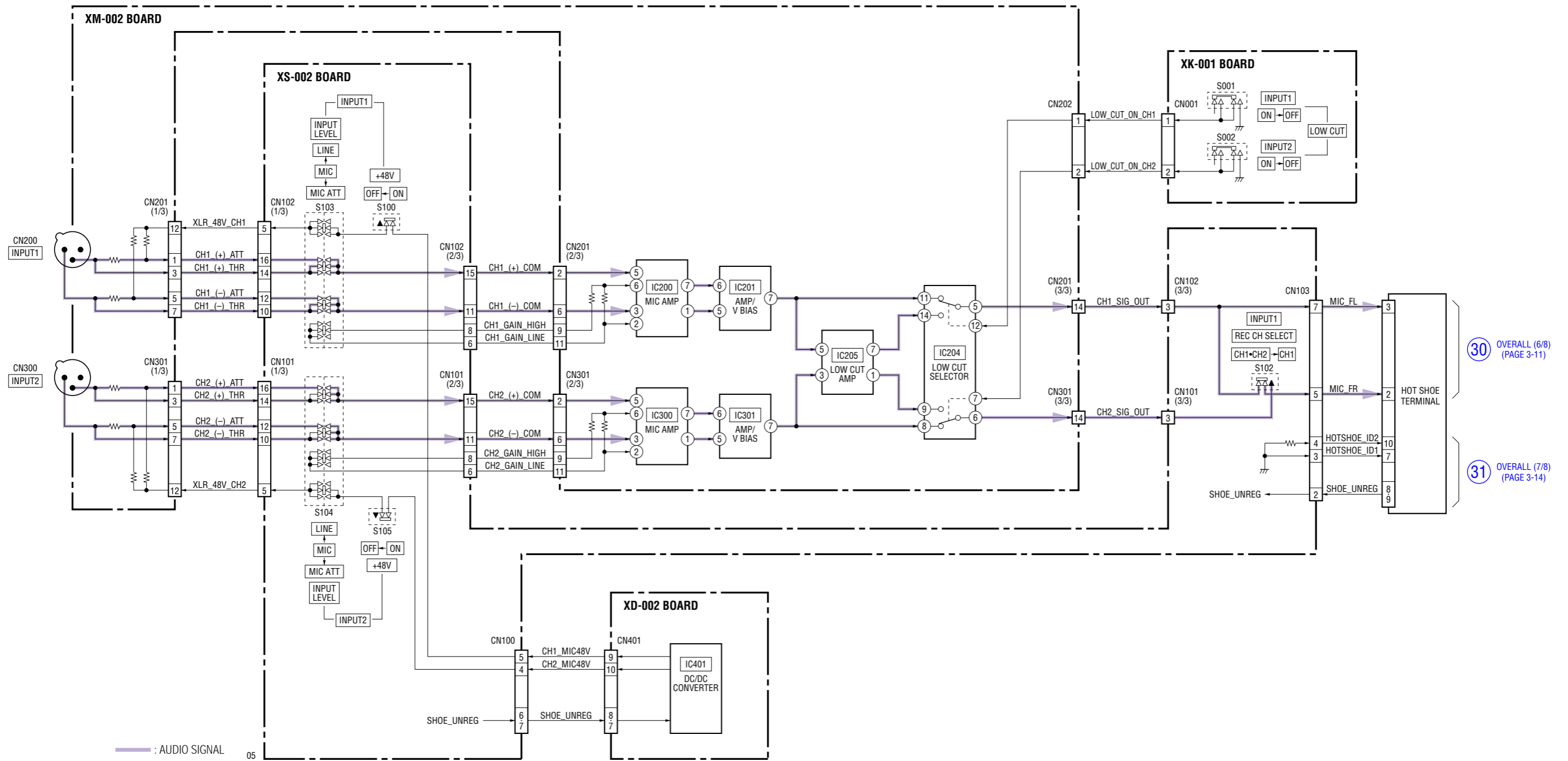
3-6. OVERALL BLOCK DIAGRAM (6/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



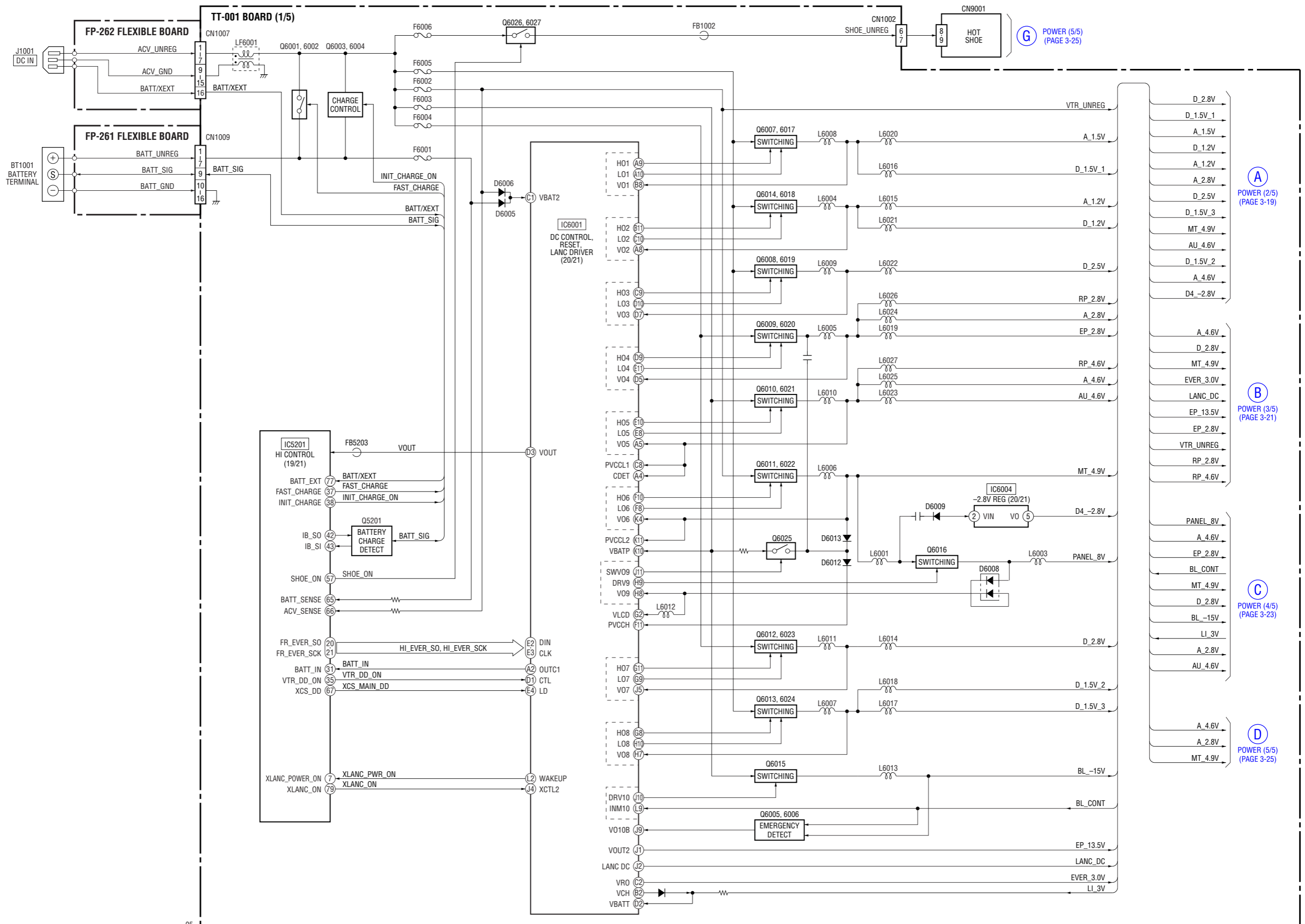
3-7. OVERALL BLOCK DIAGRAM (7/8) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



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

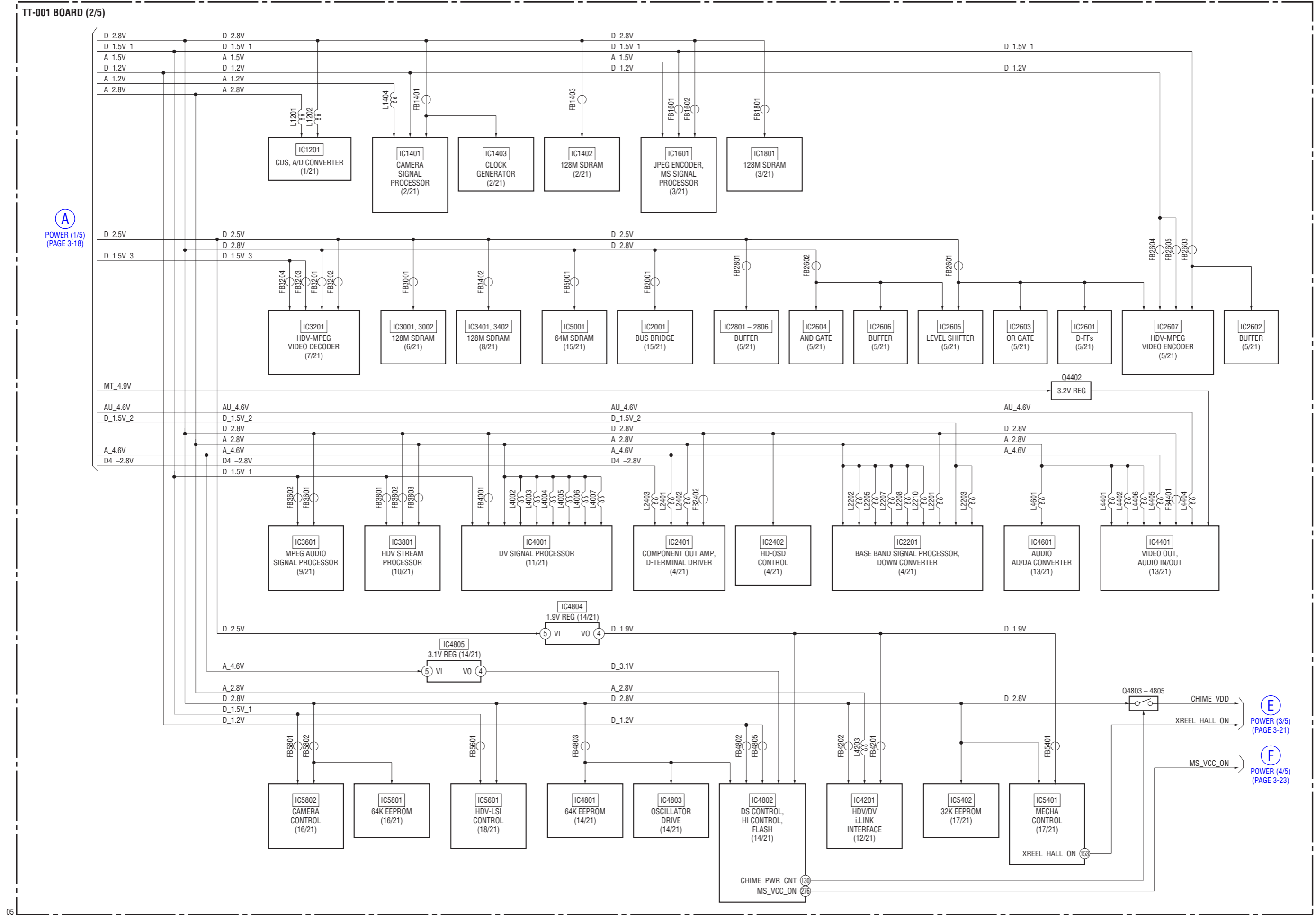


3-9. POWER BLOCK DIAGRAM (1/5) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



05

3-10.POWER BLOCK DIAGRAM (2/5) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.

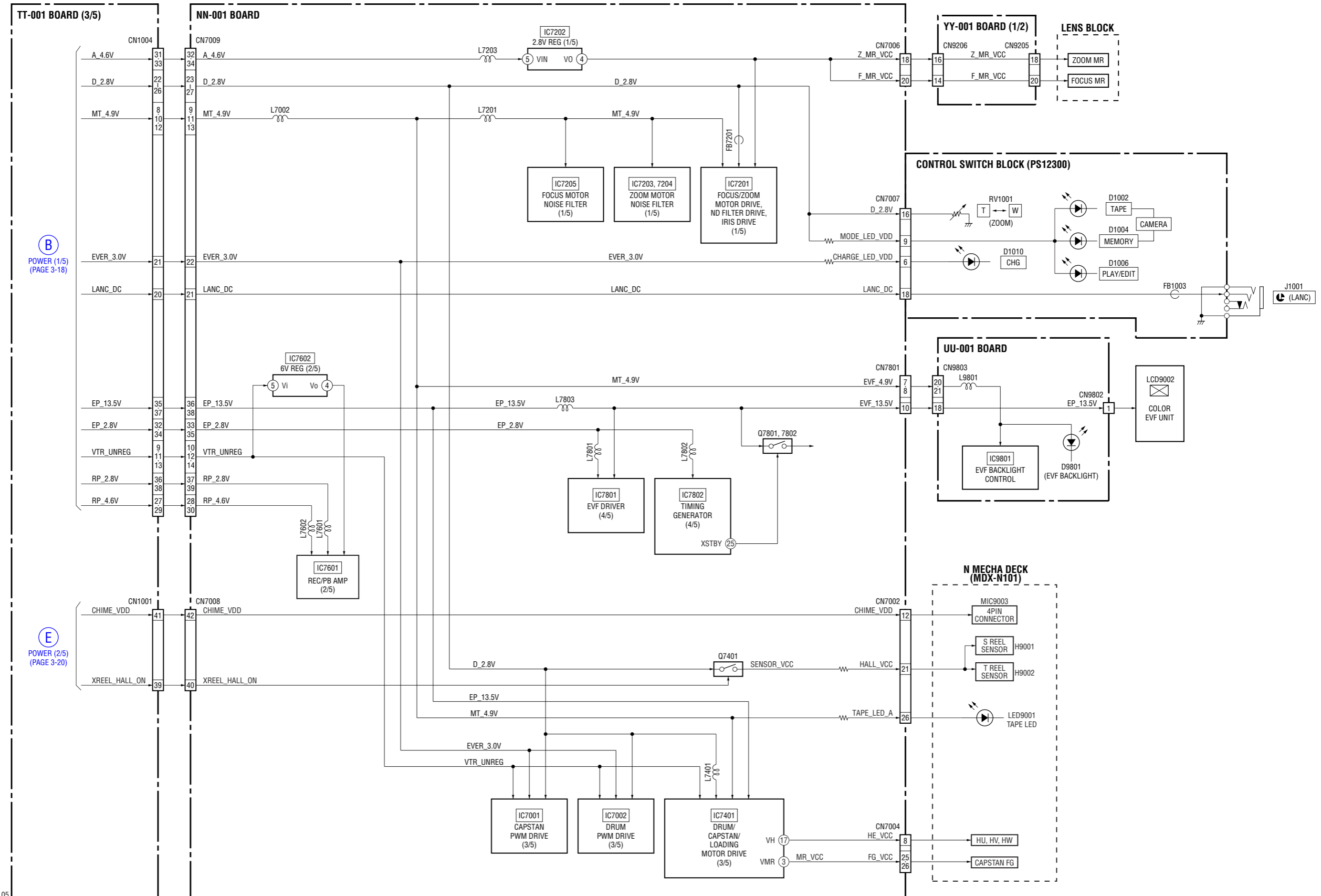


A
POWER (1/5)
(PAGE 3-18)

E
POWER (3/5)
(PAGE 3-21)

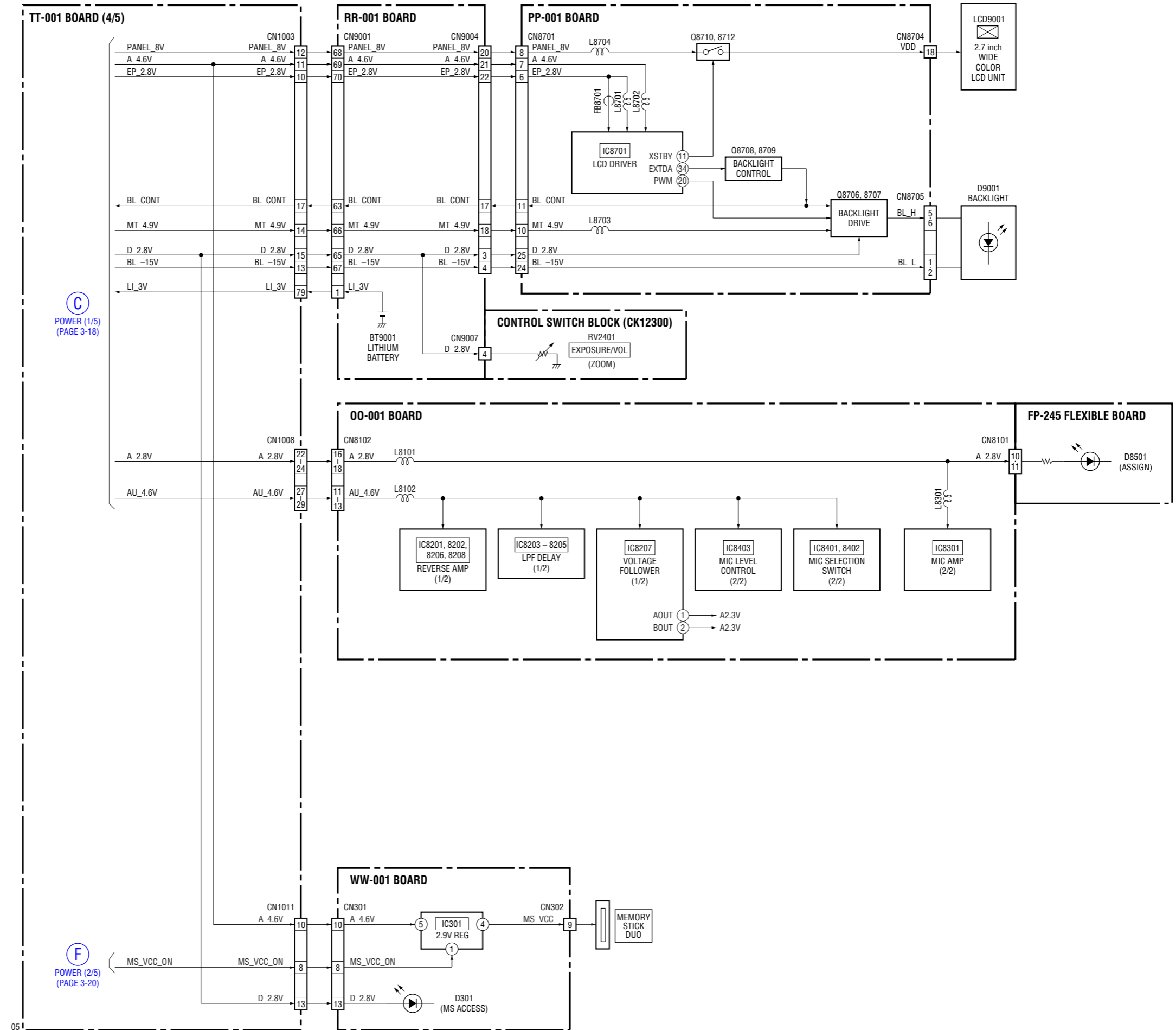
F
POWER (4/5)
(PAGE 3-23)

3-11. POWER BLOCK DIAGRAM (3/5) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



05

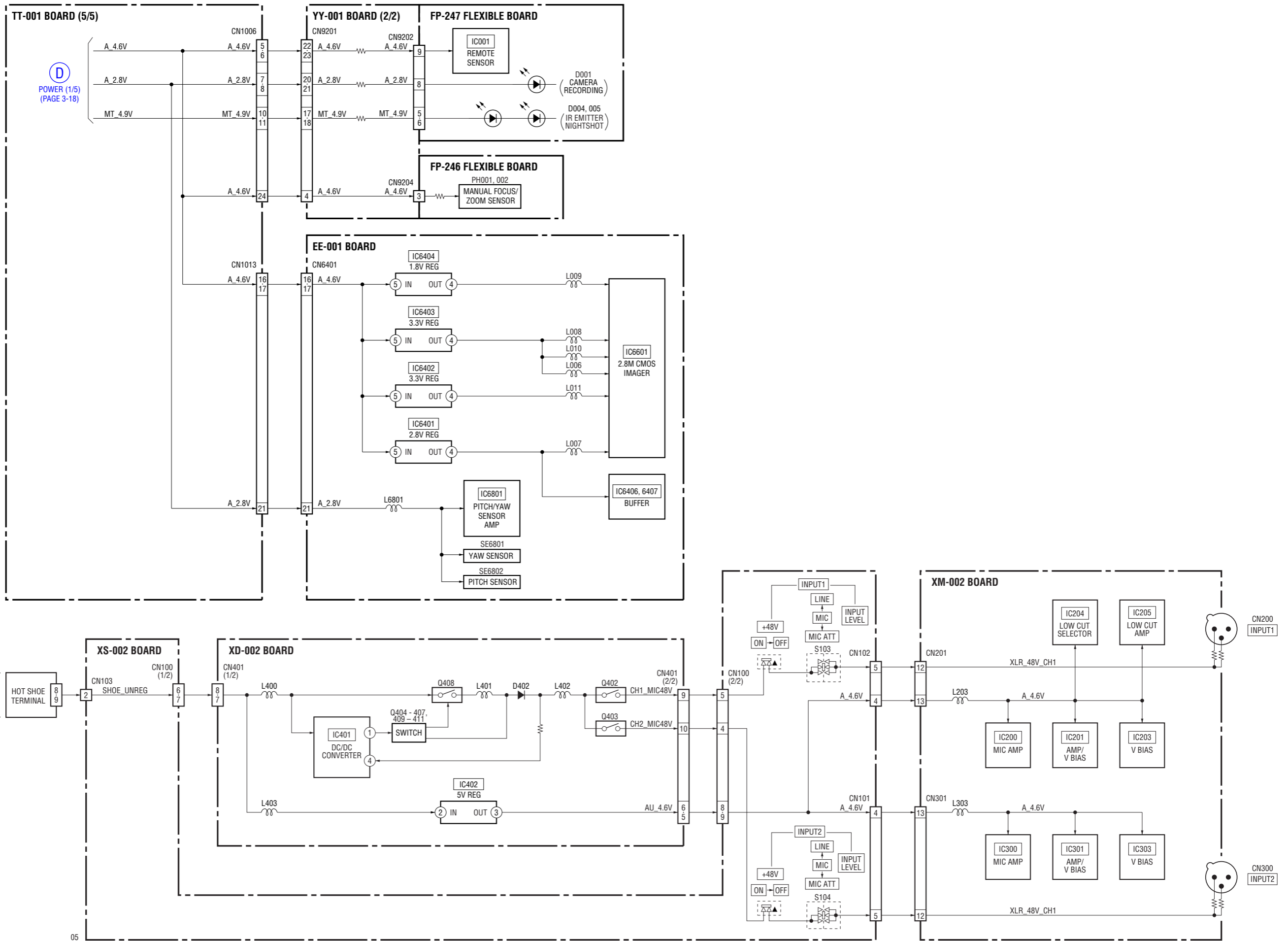
3-12. POWER BLOCK DIAGRAM (4/5) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



(C)
POWER (1/5)
(PAGE 3-18)

(F)
POWER (2/5)
(PAGE 3-20)

3-13. POWER BLOCK DIAGRAM (5/5) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.

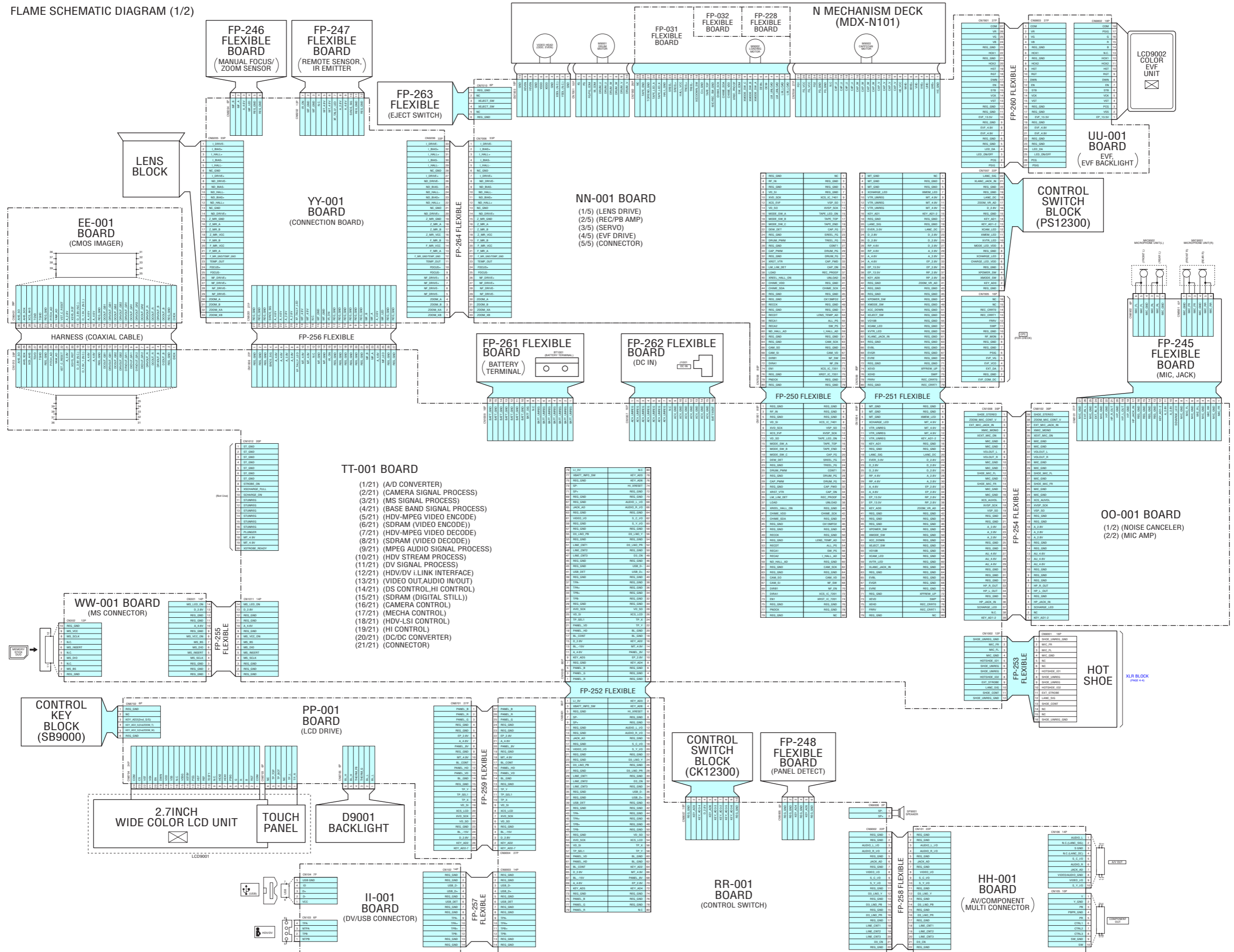


(G) POWER (1/5) (PAGE 3-18)

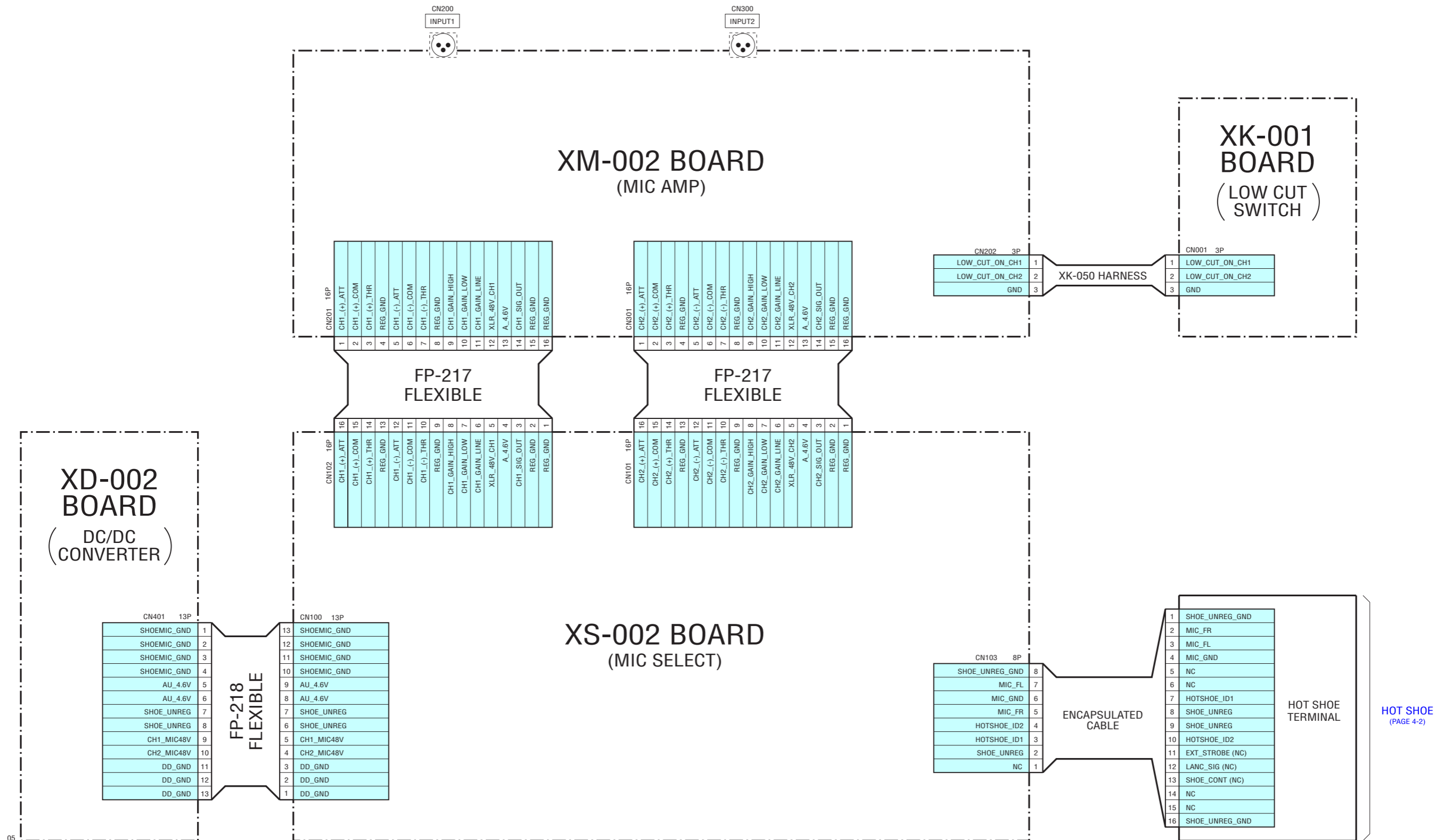
4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAMS

FLAME SCHEMATIC DIAGRAM (1/2)




FLAME SCHEMATIC DIAGRAM (2/2)



4-2. SCHEMATIC DIAGRAMS (1/2)

Link

TO (2/2) 

• EE-001 BOARD (CMOS IMAGER)	• TT-001 BOARD (15/21) (SDRAM (DIGITAL STILL))
• TT-001 BOARD (1/21) (A/D CONVERTER)	• TT-001 BOARD (16/21) (CAMERA CONTROL)
• TT-001 BOARD (2/21) (CAMERA SIGNAL PROCESS)	• TT-001 BOARD (17/21) (MECHA CONTROL)
• TT-001 BOARD (3/21) (MS SIGNAL PROCESS)	• TT-001 BOARD (18/21) (HDV-LSI CONTROL)
• TT-001 BOARD (4/21) (BASE BAND SIGNAL PROCESS)	• TT-001 BOARD (19/21) (HI CONTROL)
• TT-001 BOARD (5/21) (HDV-MPEG VIDEO ENCODE)	• TT-001 BOARD (20/21) (DC/DC CONVERTER)
• TT-001 BOARD (6/21) (SDRAM (VIDEO ENCODE))	• TT-001 BOARD (21/21) (CONNECTOR)
• TT-001 BOARD (7/21) (HDV-MPEG VIDEO DECODE)	• NN-001 BOARD (1/5) (LENS DRIVE)
• TT-001 BOARD (8/21) (SDRAM (VIDEO DECODE))	• NN-001 BOARD (2/5) (REC/PB AMP)
• TT-001 BOARD (9/21) (MPEG AUDIO SIGNAL PROCESS)	• NN-001 BOARD (3/5) (SERVO)
• TT-001 BOARD (10/21) (HDV STREAM PROCESS)	• NN-001 BOARD (4/5) (EVF DRIVE)
• TT-001 BOARD (11/21) (DV SIGNAL PROCESS)	• NN-001 BOARD (5/5) (CONNECTOR)
• TT-001 BOARD (12/21) (HDV/DV i. LINK INTERFACE)	• 00-001 BOARD (1/2) (NOISE CANCELER)
• TT-001 BOARD (13/21) (VIDEO OUT, AUDIO IN/OUT)	• 00-001 BOARD (2/2) (MIC AMP)
• TT-001 BOARD (14/21) (DS CONTROL, HI CONTROL)	• PP-001 BOARD (LCD DRIVE)

• COMMON NOTE FOR SCHEMATIC DIAGRAMS

• WAVEFORMS

4-2. SCHEMATIC DIAGRAMS (2/2)

▶ TO (1/2)

• RR-001 BOARD (CONTROL SWITCH)	• FP-253 FLEXIBLE BOARD (HOT SHOE)
• FP-248 FLEXIBLE BOARD (PANEL DETECT)	• FP-261 FLEXIBLE BOARD (BATTERY TERMINAL)
• HH-001 BOARD (A/V COMPONENT MULTI CONNECTOR)	• FP-262 FLEXIBLE BOARD (DC IN)
• II-001 BOARD (DV/USB CONNECTOR)	• FP-263 FLEXIBLE BOARD (EJECT SWITCH)
• WW-001 BOARD (MS CONNECTOR)	• FP-031, FP-032, FP-228 FLEXIBLE BOARD
• UU-001 BOARD (EVF, EVF BACKLIGHT)	• CONTROL SWITCH BLOCK (CK12300)
• YY-001 BOARD (CONNECTOR BOARD)	• CONTROL SWITCH BLOCK (PS12300)
• FP-246 FLEXIBLE BOARD (MANUAL FOCUS/ZOOM SENSOR)	• CONTROL KEY BLOCK (SB9000)
• FP-247 FLEXIBLE BOARD (REMOTE SENSOR, IR EMITTER)	• XM-002 BOARD (MIC AMP)
• FP-245 FLEXIBLE BOARD (MIC, JACK)	• XK-001 BOARD (LOW CUT SWITCH)
• FP-250, FP-251 FLEXIBLE BOARD (TT-NN EXTENSION BOARD)	• XD-002 BOARD (DC/DC CONVERTER)
• FP-252 FLEXIBLE BOARD (TT-RR EXTENSION BOARD)	• XS-002 BOARD (MIC SELECT)

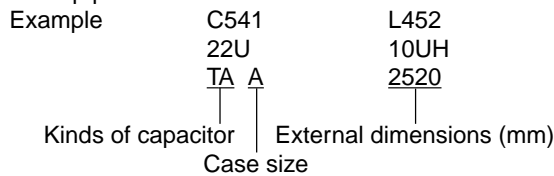
• COMMON NOTE FOR SCHEMATIC DIAGRAMS	• WAVEFORMS
--------------------------------------	-------------

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



- 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 \star 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
 $\text{XEDIT} \rightarrow \overline{\text{EDIT}}$ $\text{PB/XREC} \rightarrow \text{PB}/\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : not use circuit
- Circled numbers refer to waveforms.

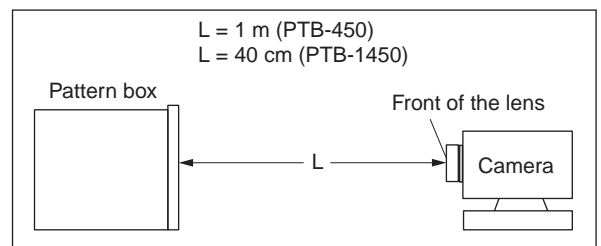
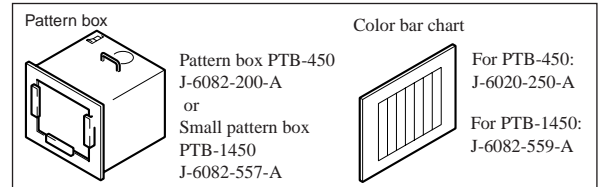
(Measuring conditions voltage and waveform)

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

Precautions for Replacement of Imager

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

1. Connection



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

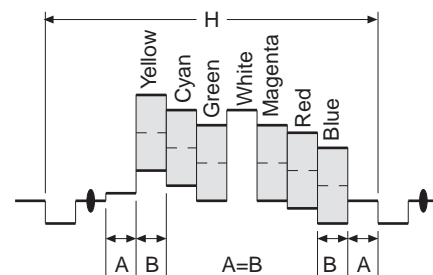


Fig. a (Video output terminal output waveform)

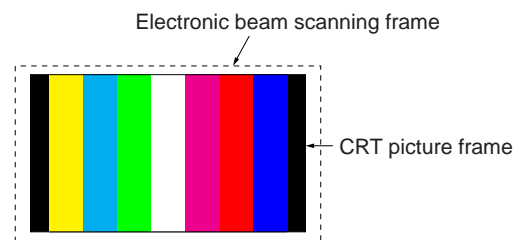


Fig.b (Picture on monitor TV)

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

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

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

(JAPANESE)

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、 $1/10\text{W}$ 以下。
 $\text{k}\Omega=1000\Omega$, $\text{M}\Omega=1000\text{k}\Omega$
- ・チップ部品交換時の注意
取り外した部品は再使用せず、未使用の部品をご使用ください。

タンタルコンデンサのマイナス側は熱に弱いため注意してください。

- ・チップ部品には下記のように表示したものがああります。

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 → EDIT PB/XREC → PB/REC
- ・ は不燃性抵抗。
- ・ はヒューズ抵抗。
- ・ はパネル表示名称。
- ・ はB+ライン。
- ・ はB-ライン。
- ・ はBライン (+, -) の入出力方向を示す。
- ・ は調整名称。
- ・ は未使用回路。
- ・○番号は、波形図の照合番号。

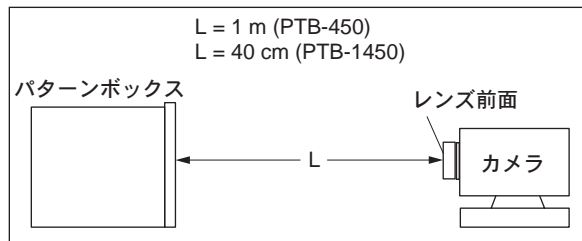
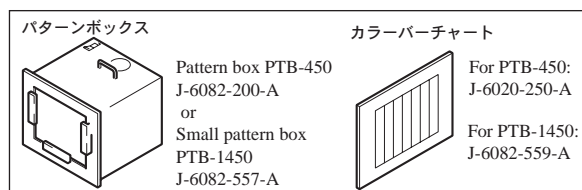
【電圧・波形測定条件ノート】

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

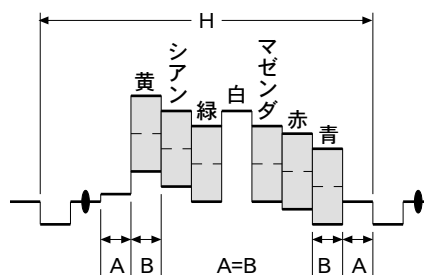
イメージ交換時の注意

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

1. 接続図

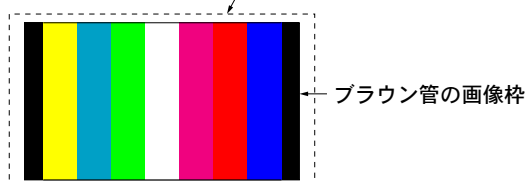


- 2. 図a及び図bの波形が得られるように画枠調整して下さい。



図a (映像入出力端子出力波形)

電子ビーム走査線



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。

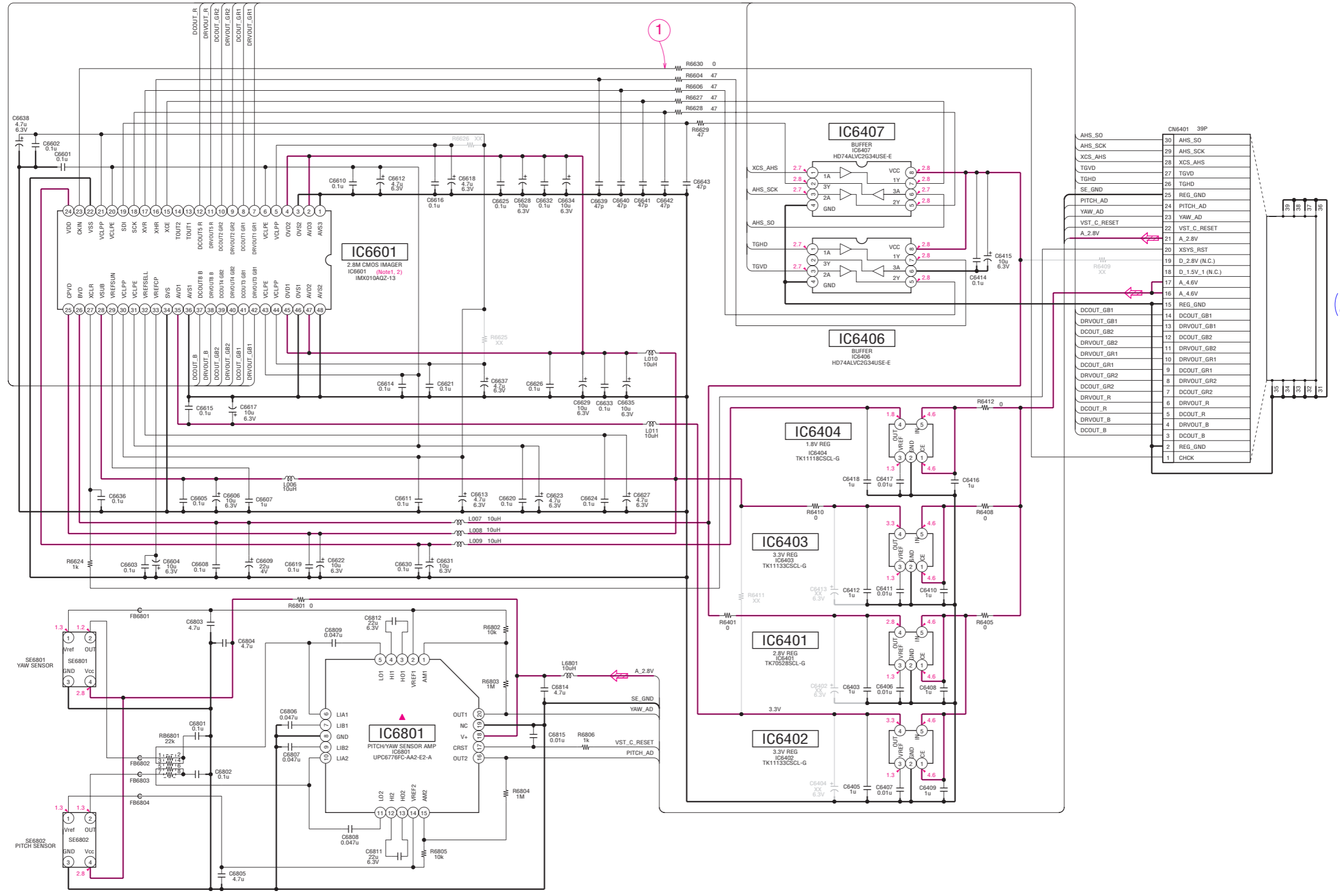
EE-001 BOARD

CMOS IMAGER

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

Note1: IC6601 is not included in EE-001 complete board.
Note2: Voltage and Waveform of mounted IC6601 on EE-001 board can not be measured, because this is mounted by side of the lens.

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



TT-001 (1/21)
CN1013
(THROUGH THE HARNESS (COAXIAL CABLE))
(PAGE 4-9)

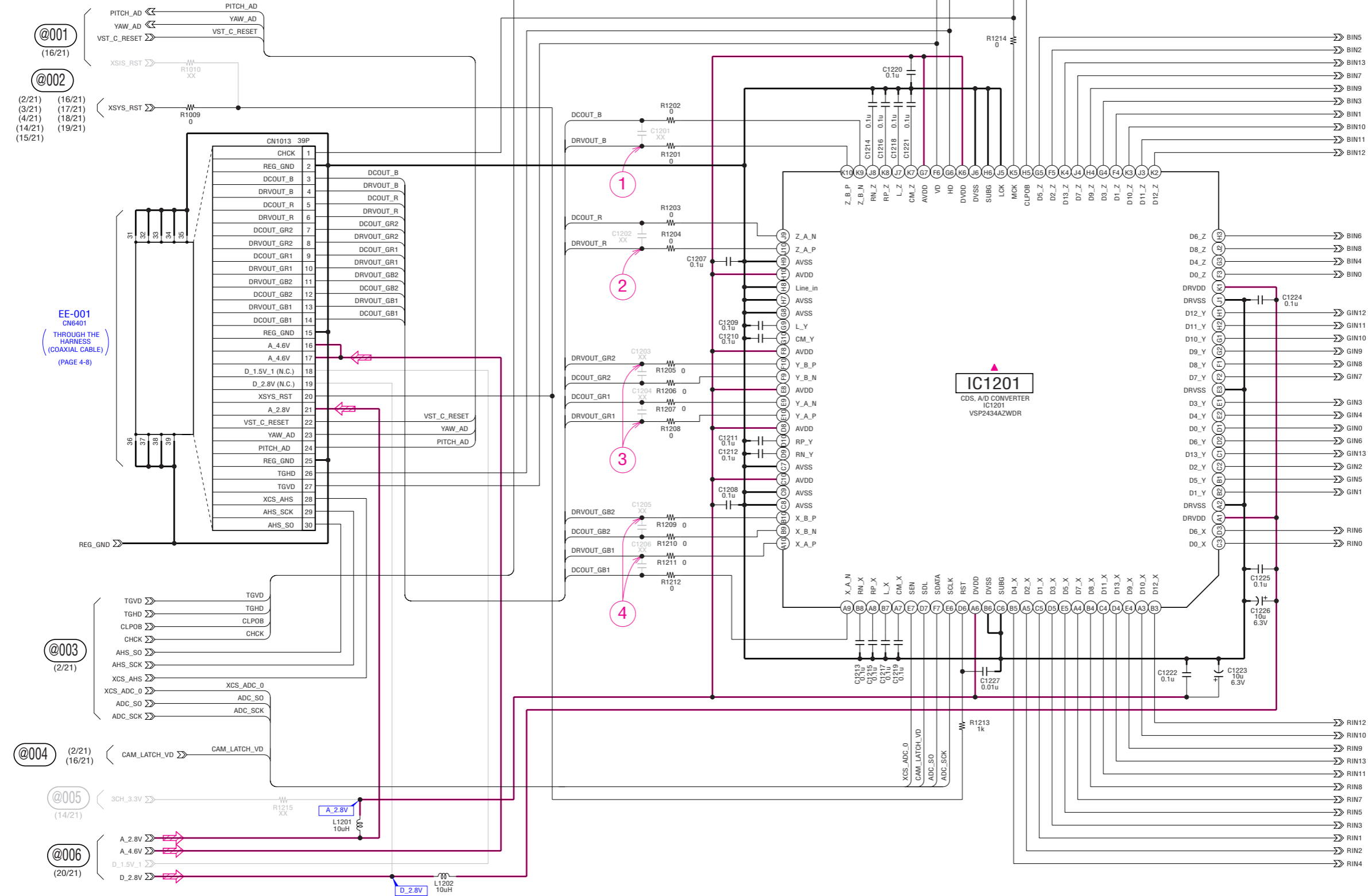
TT-001 BOARD (1/21)

A/D CONVERTER

XX MARK:NO MOUNT

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

A
B
C
D
E
F
G
H
I
J



@001 (16/21)

@002 (2/21) (16/21)
(3/21) (17/21)
(4/21) (18/21)
(14/21) (19/21)
(15/21)

EE-001 CN6401 THROUGH THE HARNESS (COAXIAL CABLE) (PAGE 4-8)

@003 (2/21)

@004 (2/21) (16/21)

@005 (14/21)

@006 (20/21)

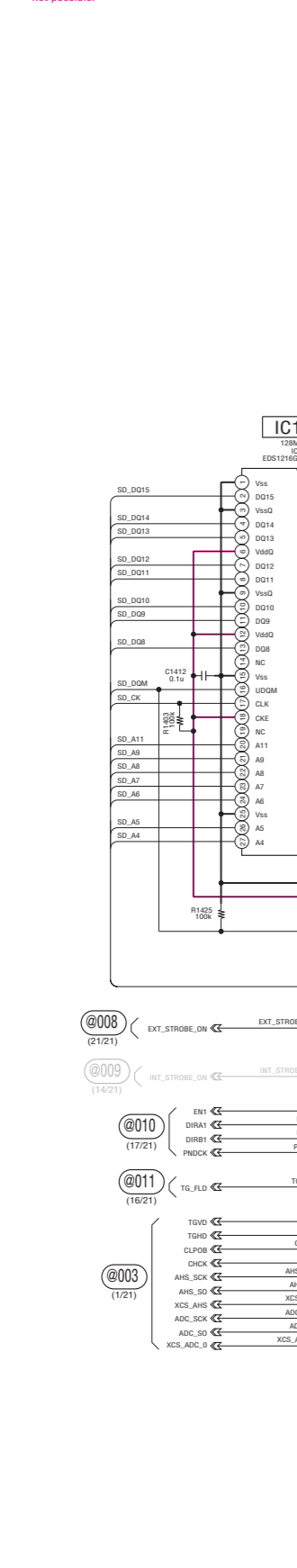
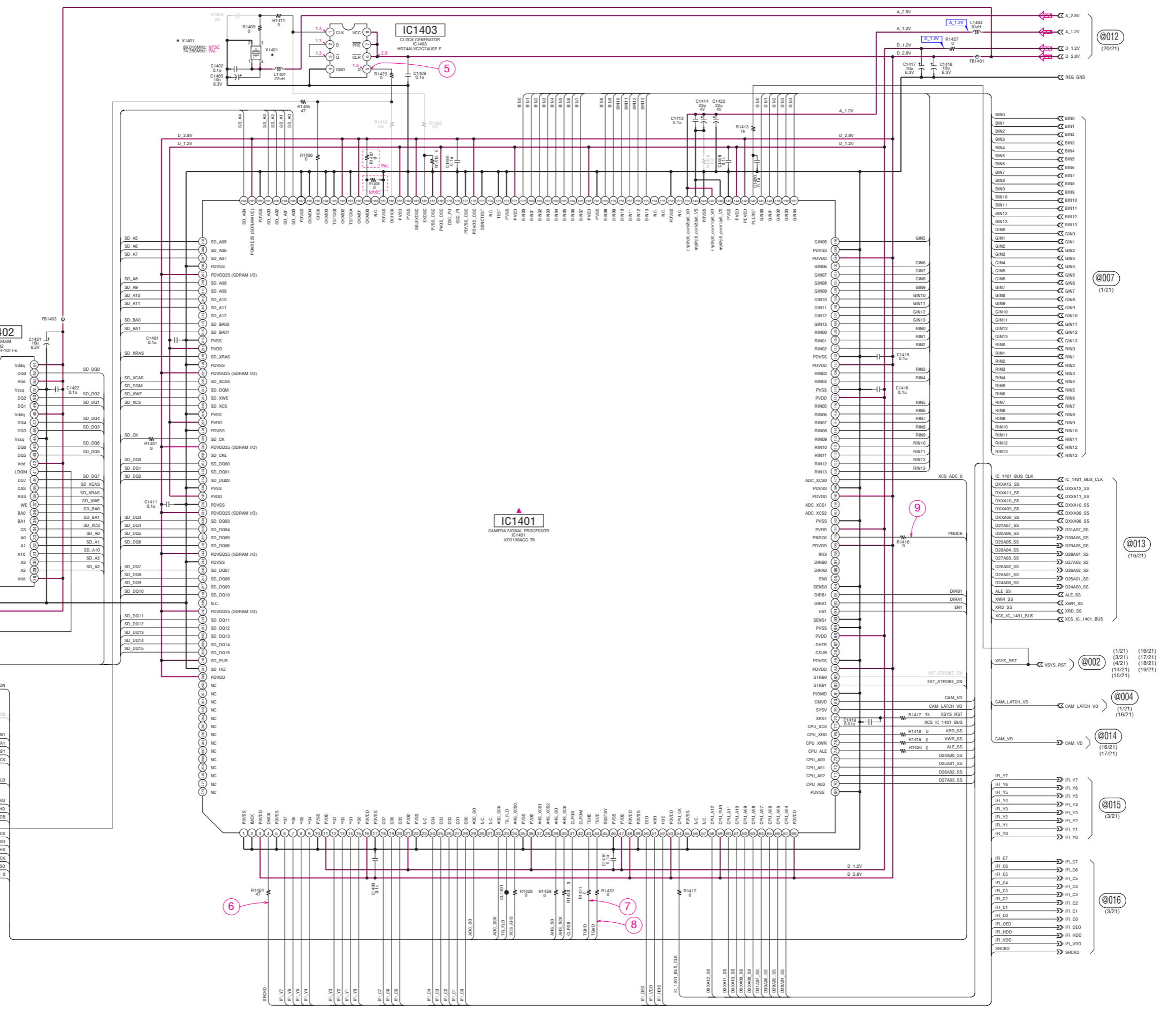
@007 (2/21)

TT-001 BOARD (2/21)

CAMERA SIGNAL PROCESS

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

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

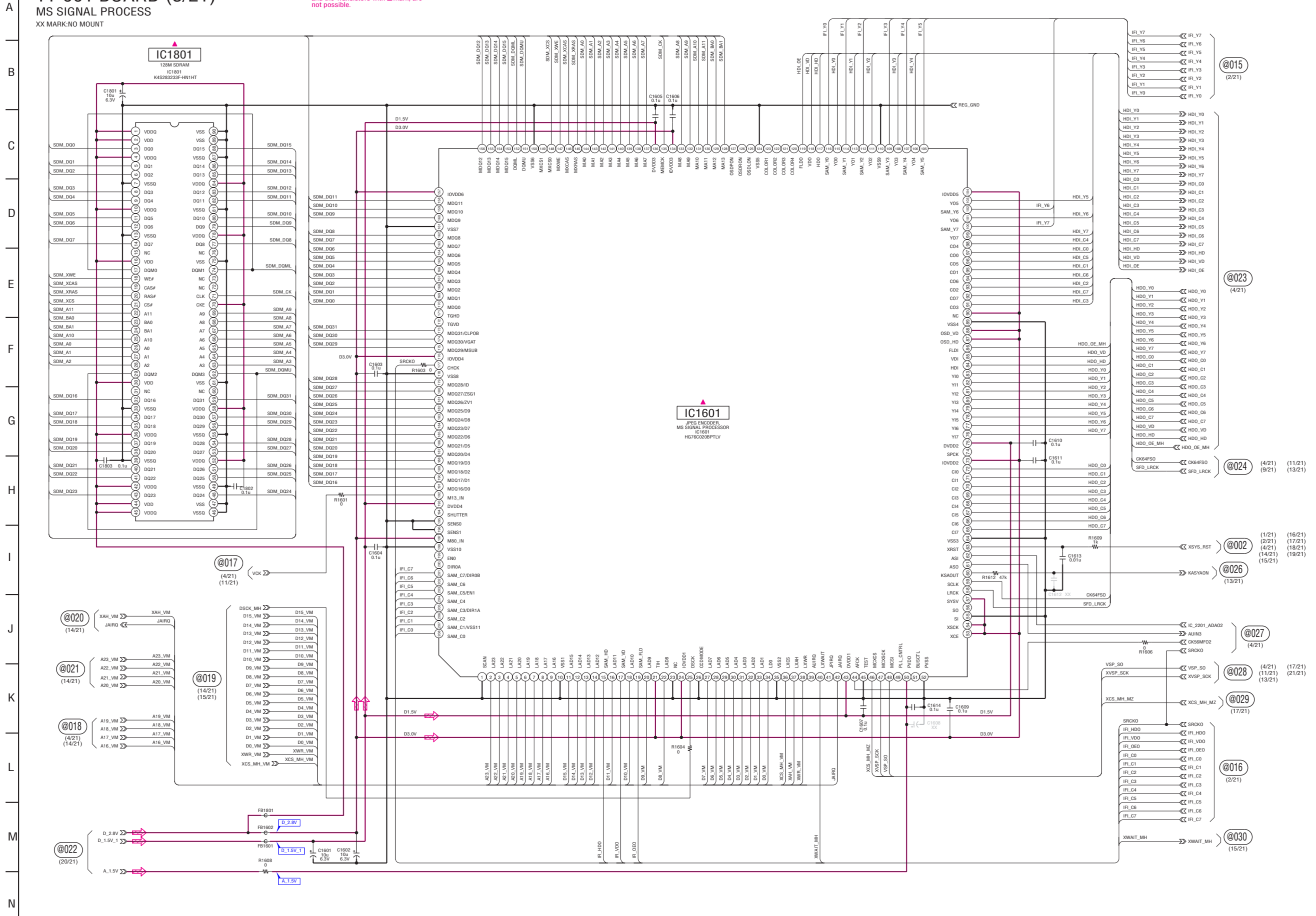


TT-001 BOARD (3/21)

MS SIGNAL PROCESS

XX MARK:NO MOUNT

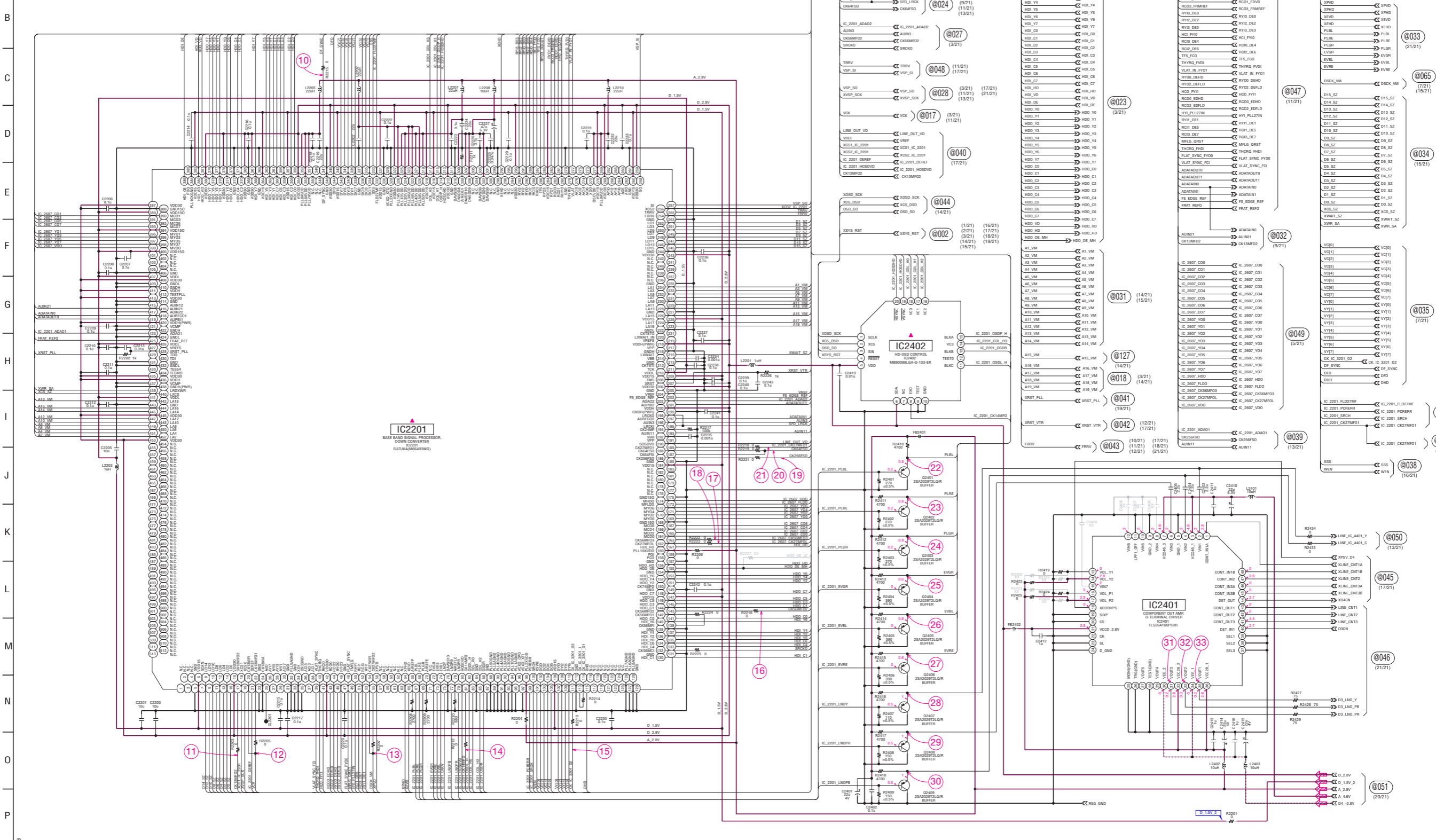
▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



TT-001 BOARD (4/21)
BASE BAND SIGNAL PROCESS

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

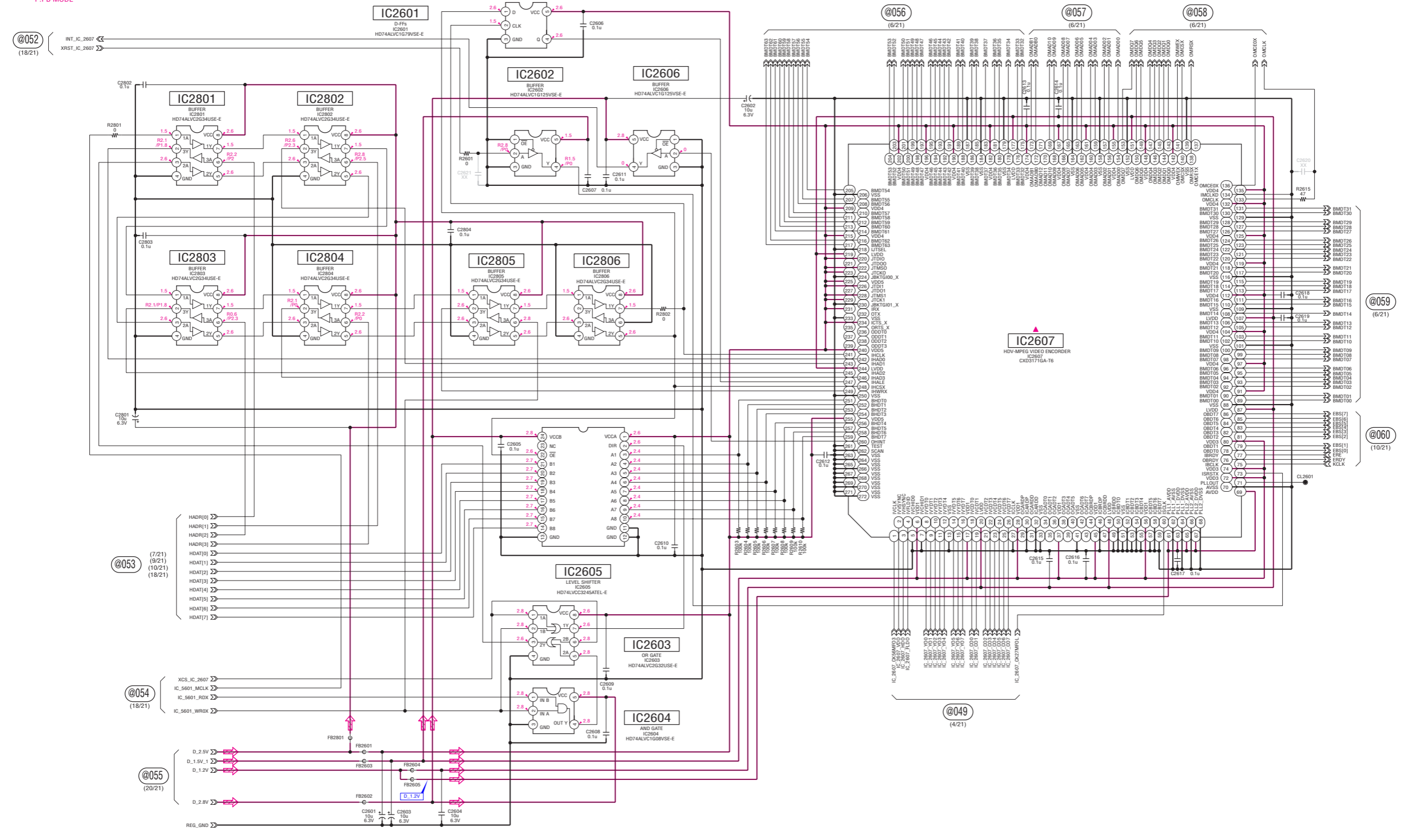
▲ Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.



TT-001 BOARD (5/21)
HDV-MPEG VIDEO ENCODE

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-001 BOARD (6/21)

SDRAM (VIDEO ENCODE)

XX MARK:NO MOUNT

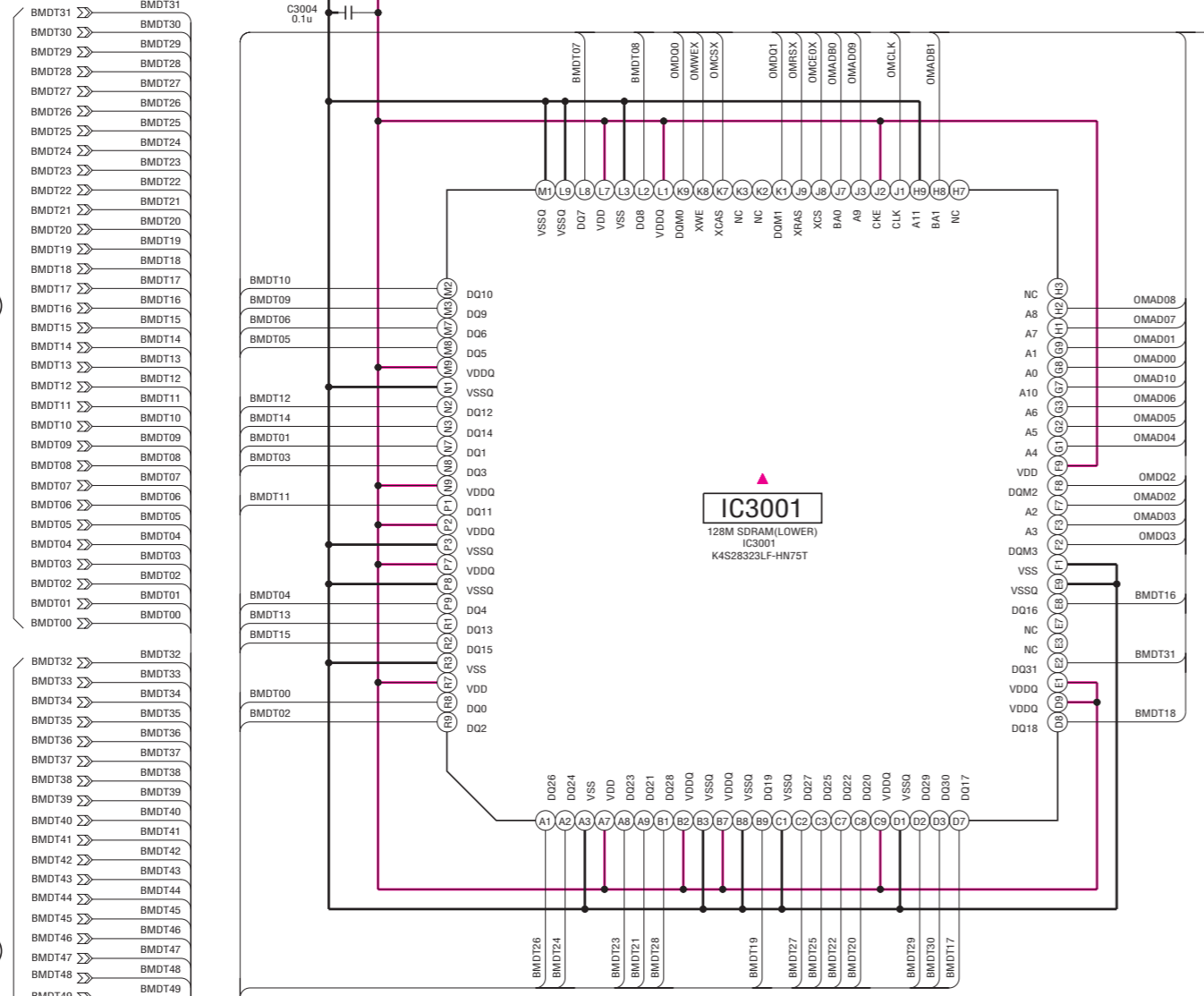
▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

A
B
C
D
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G
H
I
J
K

@061
(20/21)



@059
(5/21)



@056
(5/21)

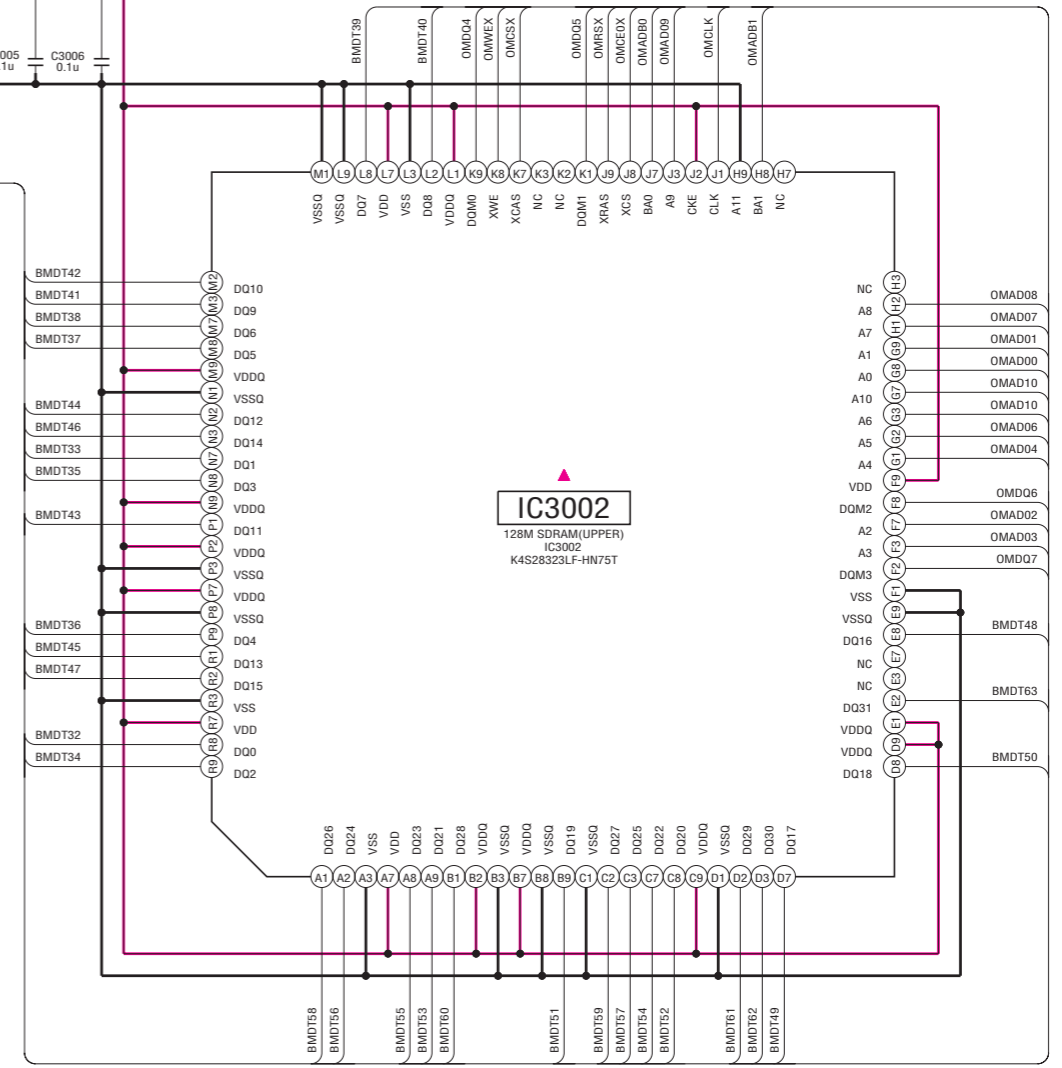
- BMDT31 >> BMDT31
- BMDT30 >> BMDT30
- BMDT29 >> BMDT29
- BMDT28 >> BMDT28
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- BMDT02 >> BMDT02
- BMDT01 >> BMDT01
- BMDT00 >> BMDT00
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- BMDT49 >> BMDT49
- BMDT50 >> BMDT50
- BMDT51 >> BMDT51
- BMDT52 >> BMDT52
- BMDT53 >> BMDT53
- BMDT54 >> BMDT54
- BMDT55 >> BMDT55
- BMDT56 >> BMDT56
- BMDT57 >> BMDT57
- BMDT58 >> BMDT58
- BMDT59 >> BMDT59
- BMDT60 >> BMDT60
- BMDT61 >> BMDT61
- BMDT62 >> BMDT62
- BMDT63 >> BMDT63

@057
(5/21)

- OMADB1 << OMADB1
- OMADB0 << OMADB0
- OMAD00 << OMAD00
- OMAD01 << OMAD01
- OMAD02 << OMAD02
- OMAD03 << OMAD03
- OMAD04 << OMAD04
- OMAD05 << OMAD05
- OMAD06 << OMAD06
- OMAD07 << OMAD07
- OMAD08 << OMAD08
- OMAD09 << OMAD09
- OMAD10 << OMAD10

@058
(5/21)

- OMDQ7 << OMDQ7
- OMDQ6 << OMDQ6
- OMDQ5 << OMDQ5
- OMDQ4 << OMDQ4
- OMDQ3 << OMDQ3
- OMDQ2 << OMDQ2
- OMDQ1 << OMDQ1
- OMDQ0 << OMDQ0
- OMWEX << OMWEX
- OMCSX << OMCSX
- OMRSX << OMRSX
- OMCEOX << OMCEOX
- OMCLK << OMCLK

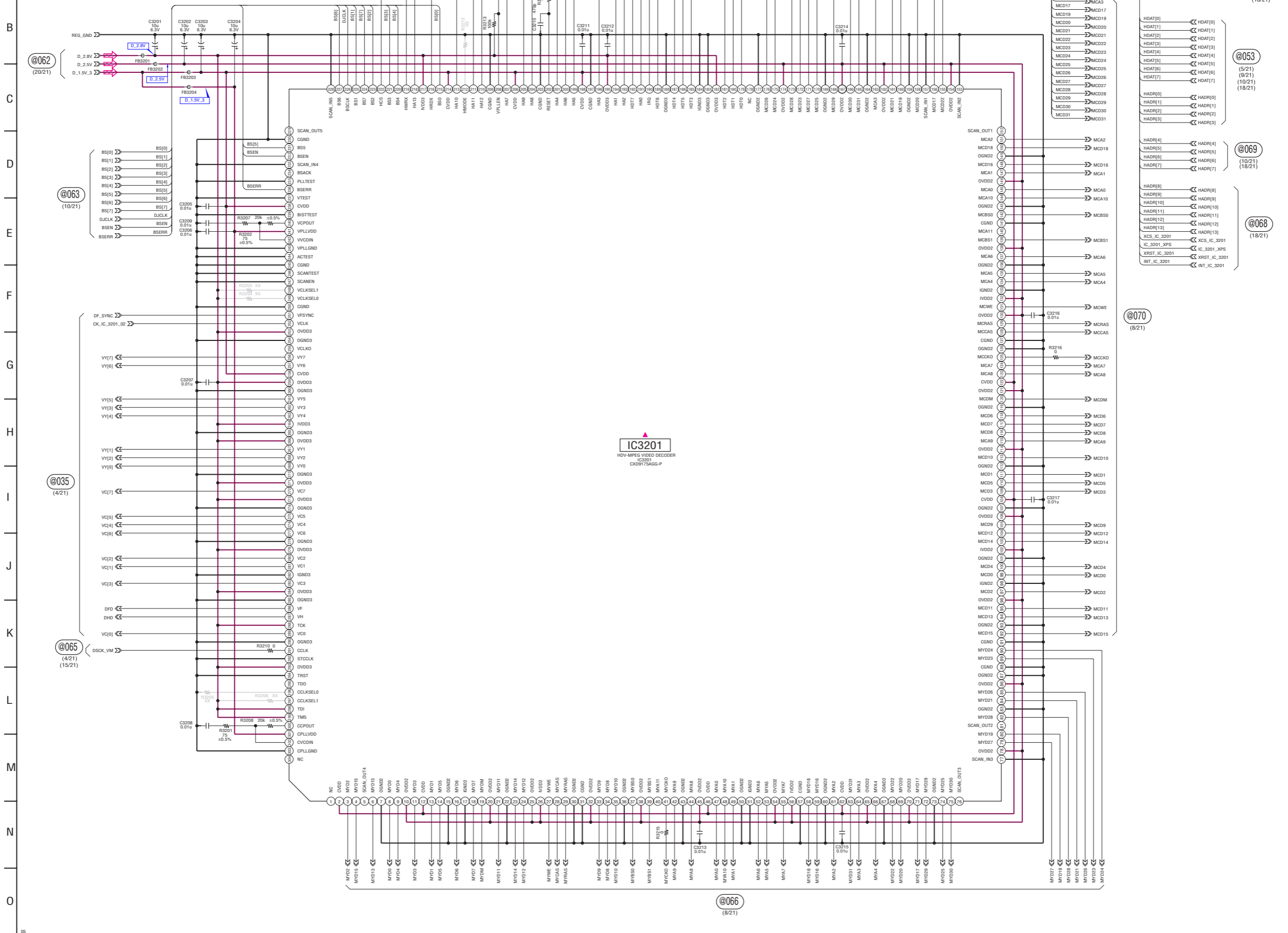


TT-001 BOARD (7/21)

HDV-MPEG VIDEO DECODE

XX MARK:NO MOUNT

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



TT-001 BOARD (8/21)

SDRAM (VIDEO DECODE)

XX MARK:NO MOUNT

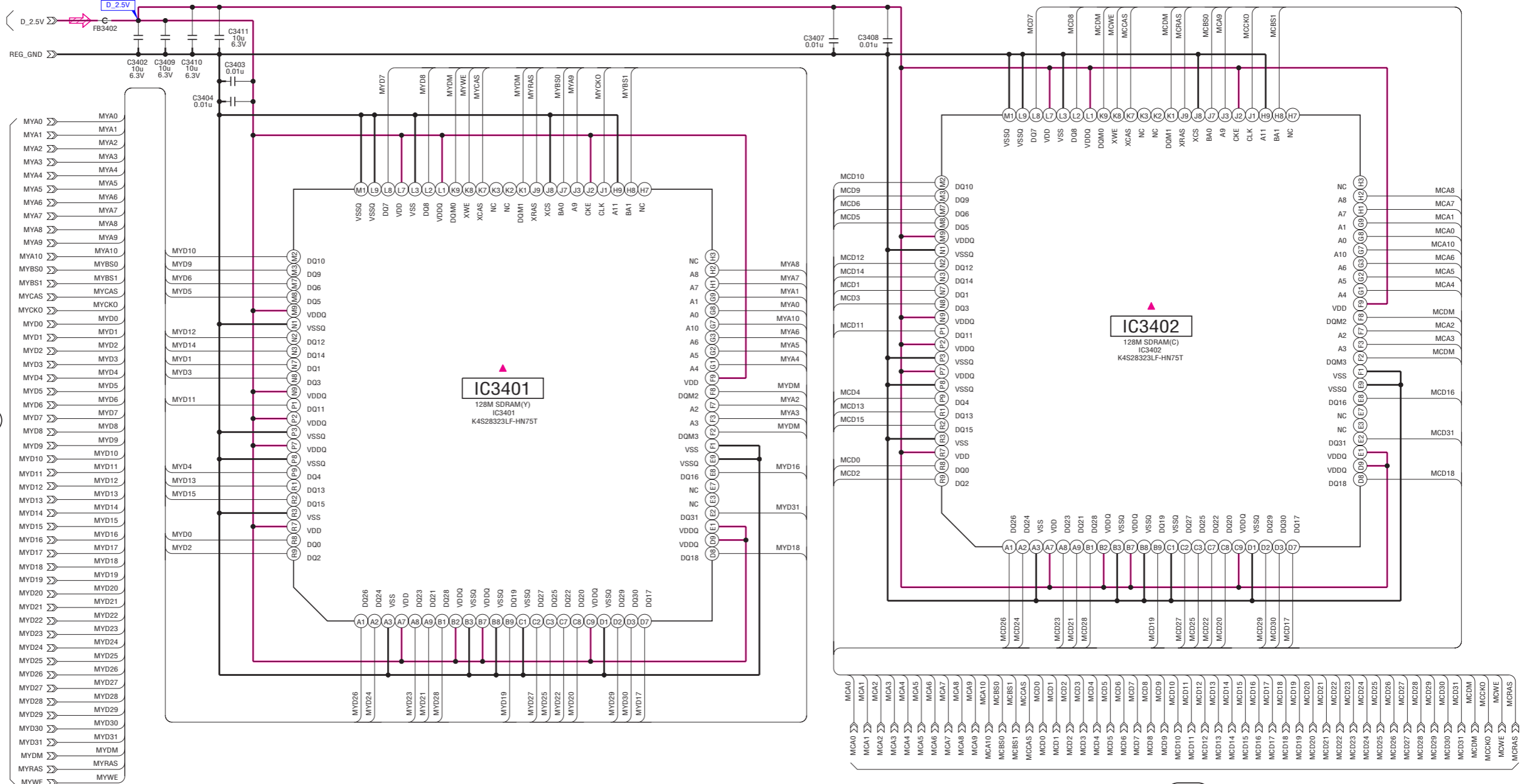
▲: Voltage measurement of the CSP ICs and the Transistors with ▲ mark, are not possible.

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@071
(20/21)

@066
(7/21)

@070
(7/21)



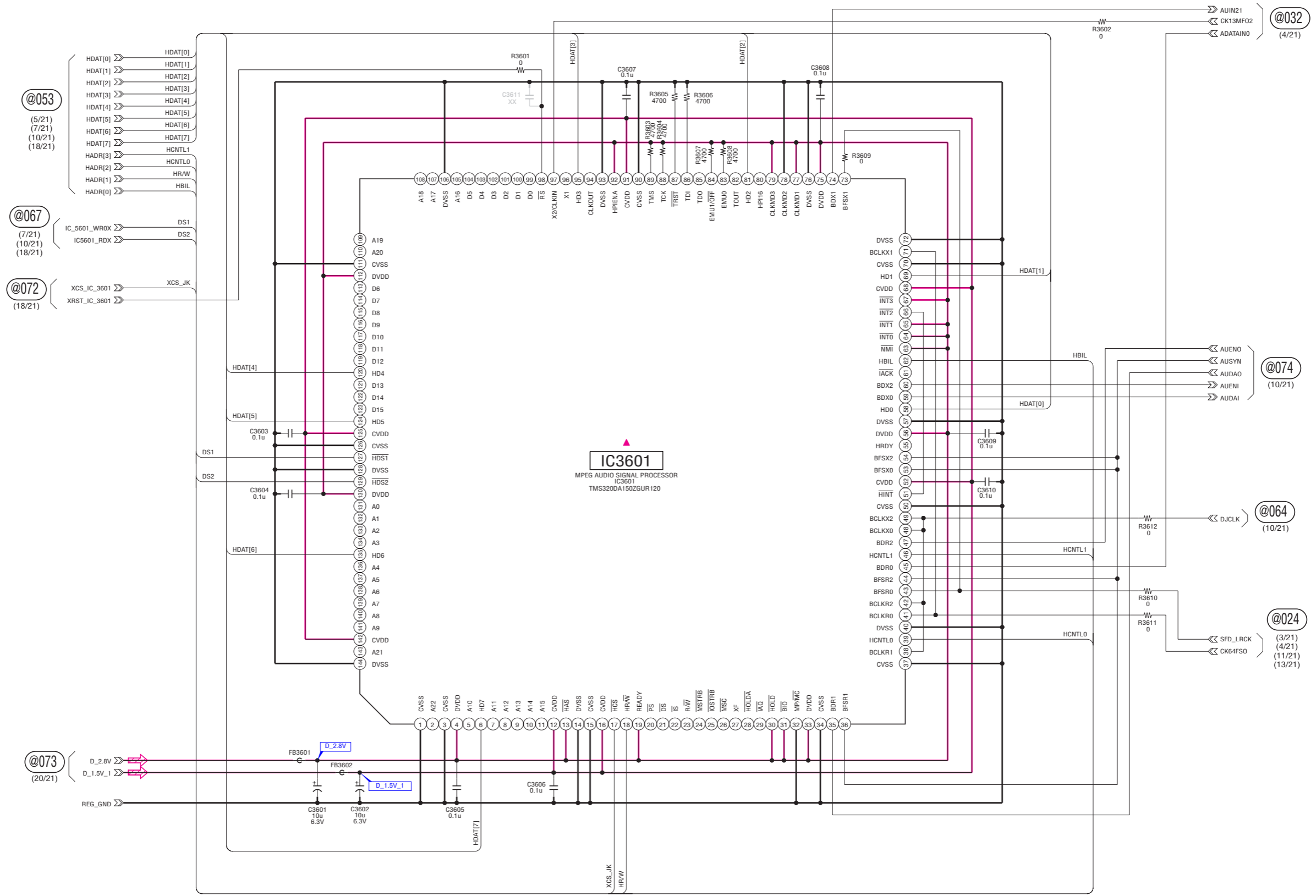
TT-001 BOARD (9/21)

MPEG AUDIO SIGNAL PROCESS

XX MARK:NO MOUNT

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

A
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K

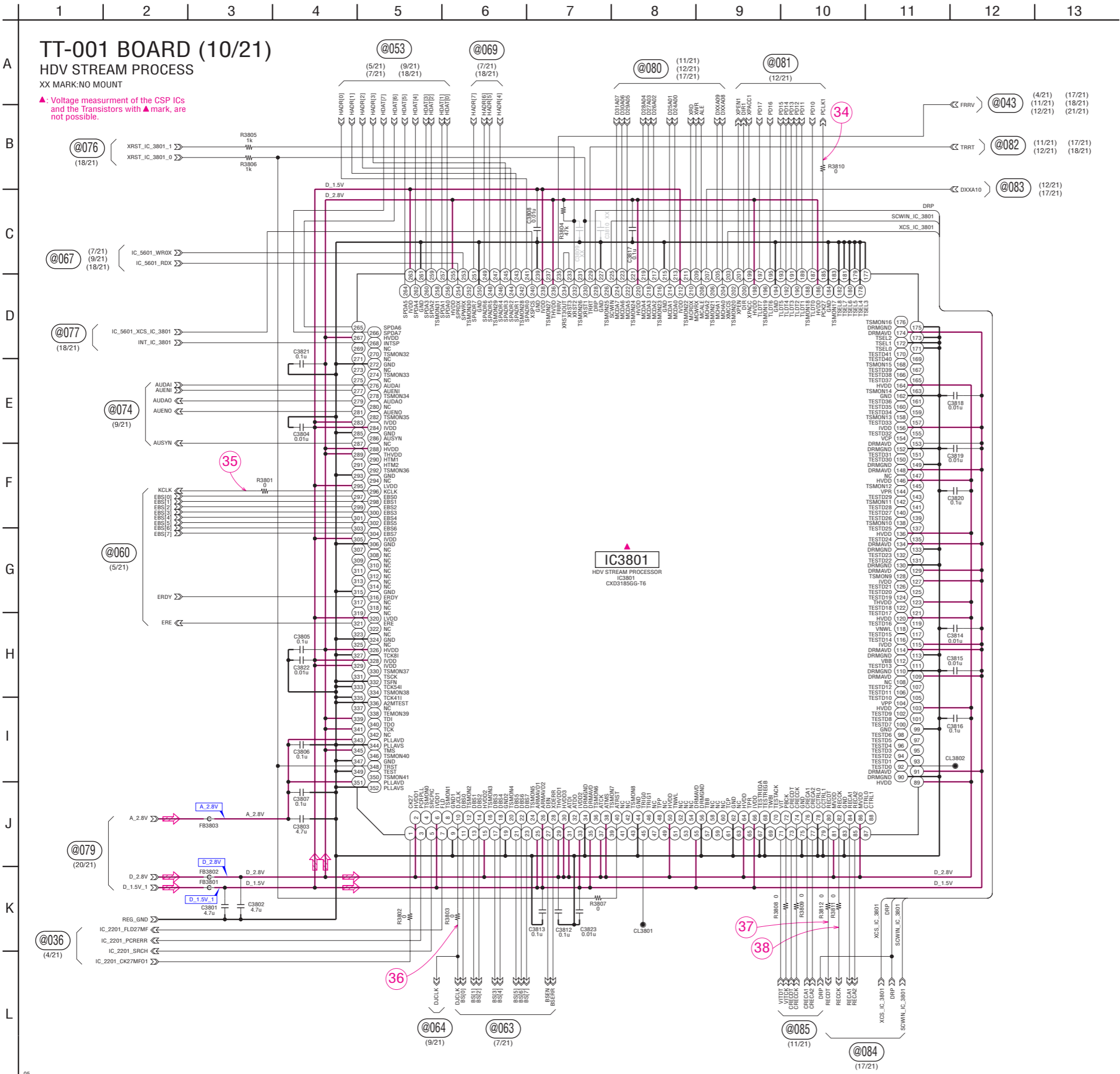


TT-001 BOARD (10/21)

HDV STREAM PROCESS

XX MARK:NO MOUNT

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

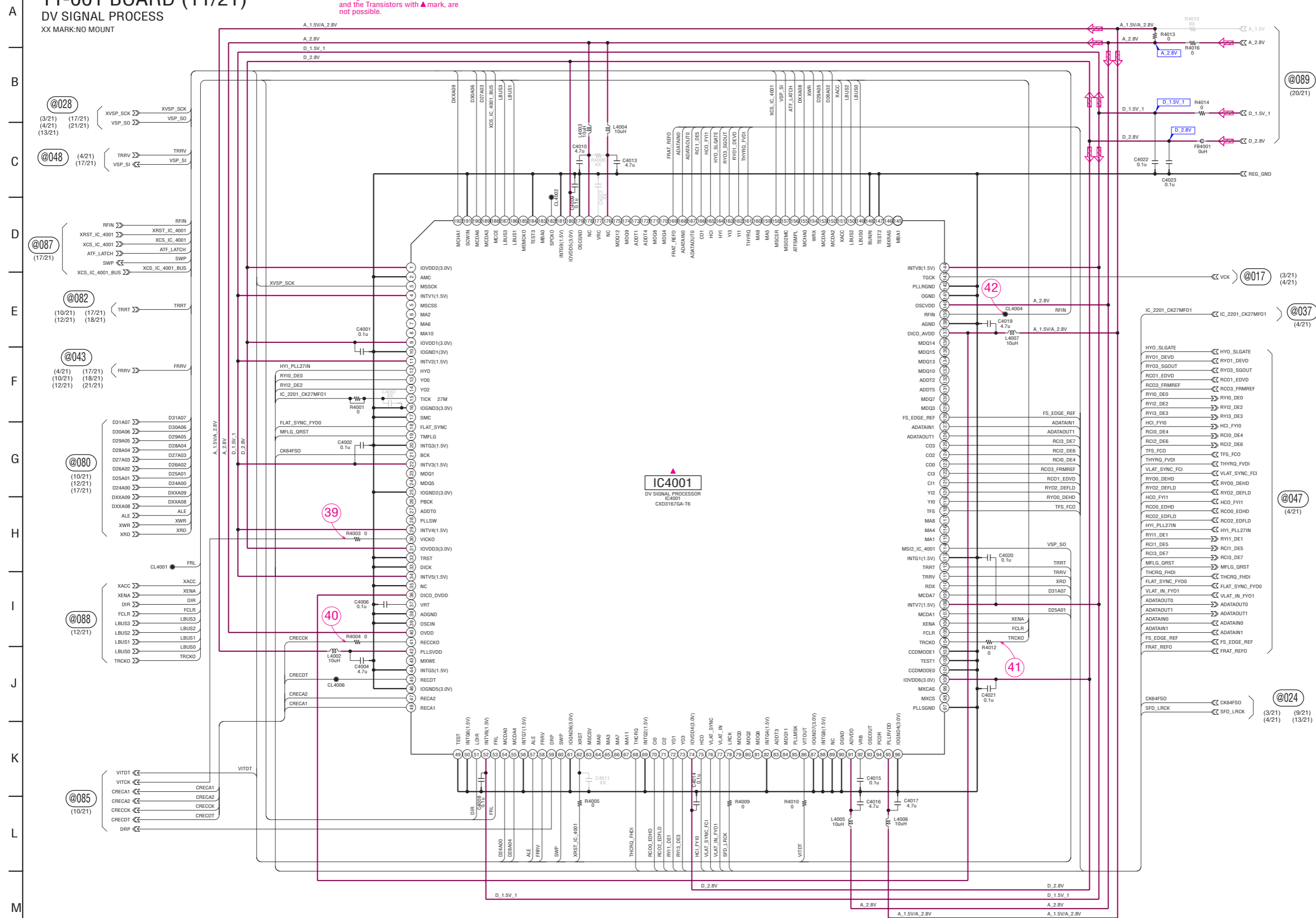


TT-001 BOARD (11/21)

DV SIGNAL PROCESS

XX MARK:NO MOUNT

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



- @028 (3/21) (17/21) (4/21) (21/21) (13/21) XVSP_SCK XVSP_SCK VSP_SI VSP_SI

- @048 (4/21) (17/21) TRRV TRRV VSP_SI VSP_SI

- @087 (17/21) RFIN RFIN XRST_IC_4001 XRST_IC_4001 XCS_IC_4001 XCS_IC_4001 ATF_LATCH ATF_LATCH SWP SWP XCS_IC_4001_BUS XCS_IC_4001_BUS

- @082 (10/21) (17/21) (12/21) (18/21) TRRT TRRT

- @043 (4/21) (17/21) (10/21) (18/21) (12/21) (21/21) FRRV FRRV

- @080 (10/21) (12/21) (17/21) D31A07 D31A07 D30A06 D30A06 D29A05 D29A05 D28A04 D28A04 D27A03 D27A03 D26A02 D26A02 D25A01 D25A01 D24A00 D24A00 DXXA09 DXXA09 DXXA08 DXXA08 ALE ALE XWR XWR XRD XRD

- @088 (12/21) XACC XACC XENA XENA DIR DIR FCLR FCLR LBUS3 LBUS3 LBUS2 LBUS2 LBUS1 LBUS1 LBUS0 LBUS0 TRCK0 TRCK0

- @085 (10/21) VITDT VITDT VITCK VITCK CRECA1 CRECA1 CRECA2 CRECA2 CRECK CRECK CRECDT CRECDT DRP DRP

@089 (20/21)

@017 (3/21) (4/21)

@037 (4/21)

@047 (4/21)

@024 (3/21) (9/21) (4/21) (13/21)

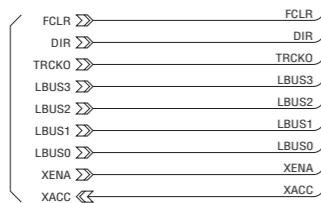
TT-001 BOARD (12/21)

HDV/DV i.LINK INTERFACE

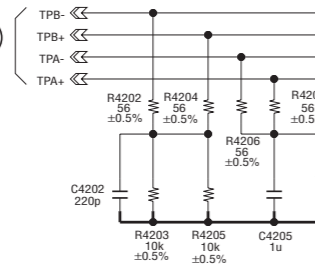
XX MARK:NO MOUNT

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

@088
(11/21)



@090
(21/21)



@091
(20/21)



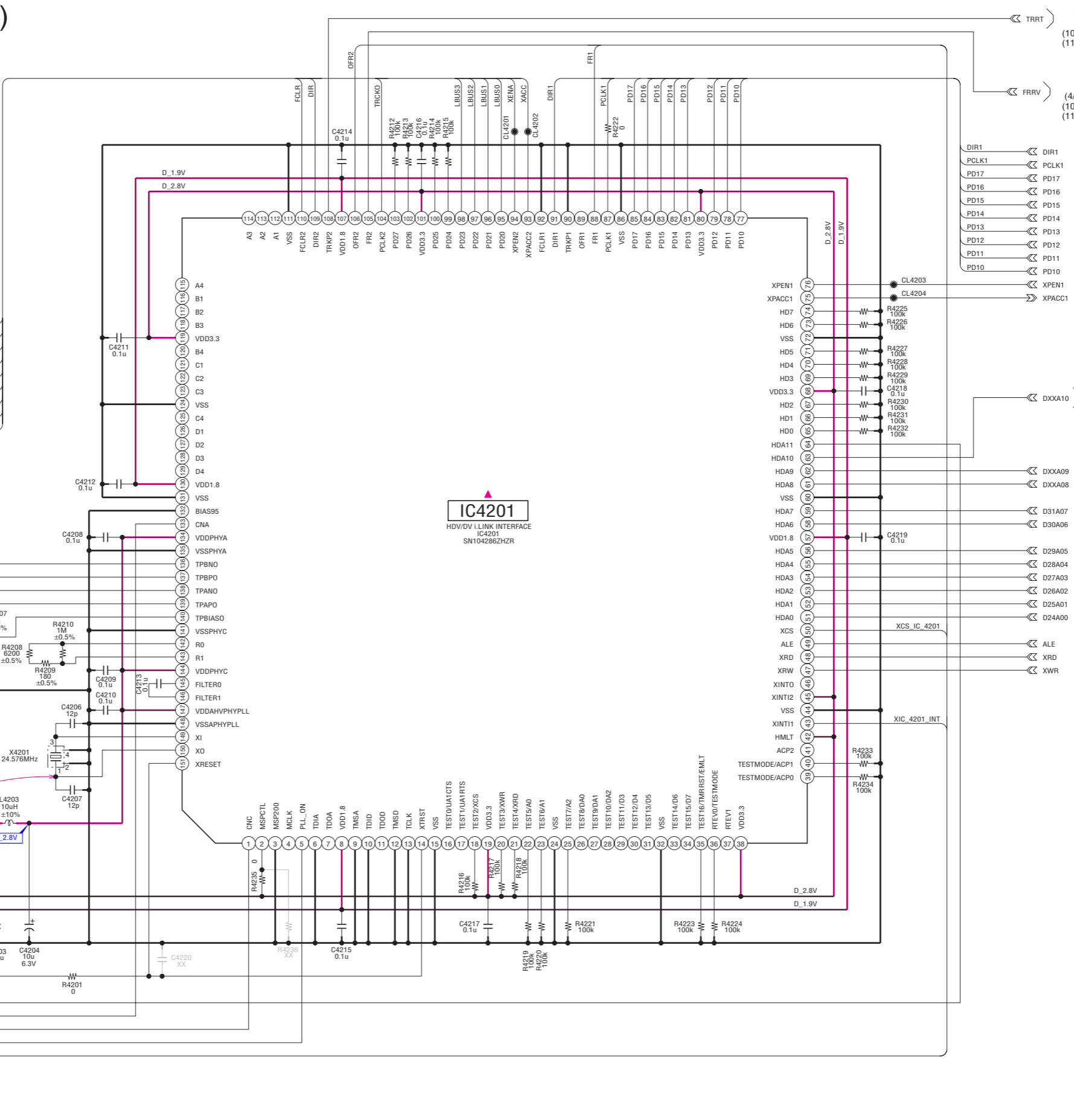
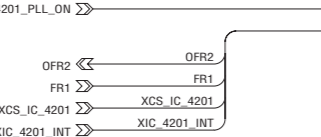
@092
(14/21)
(17/21)



@042
(4/21)
(17/21)



@126
(17/21)



@082
(10/21) (17/21)
(11/21) (18/21)

@043
(4/21) (17/21)
(10/21) (18/21)
(11/21) (21/21)

@081
(10/21)

@083
(10/21)
(17/21)

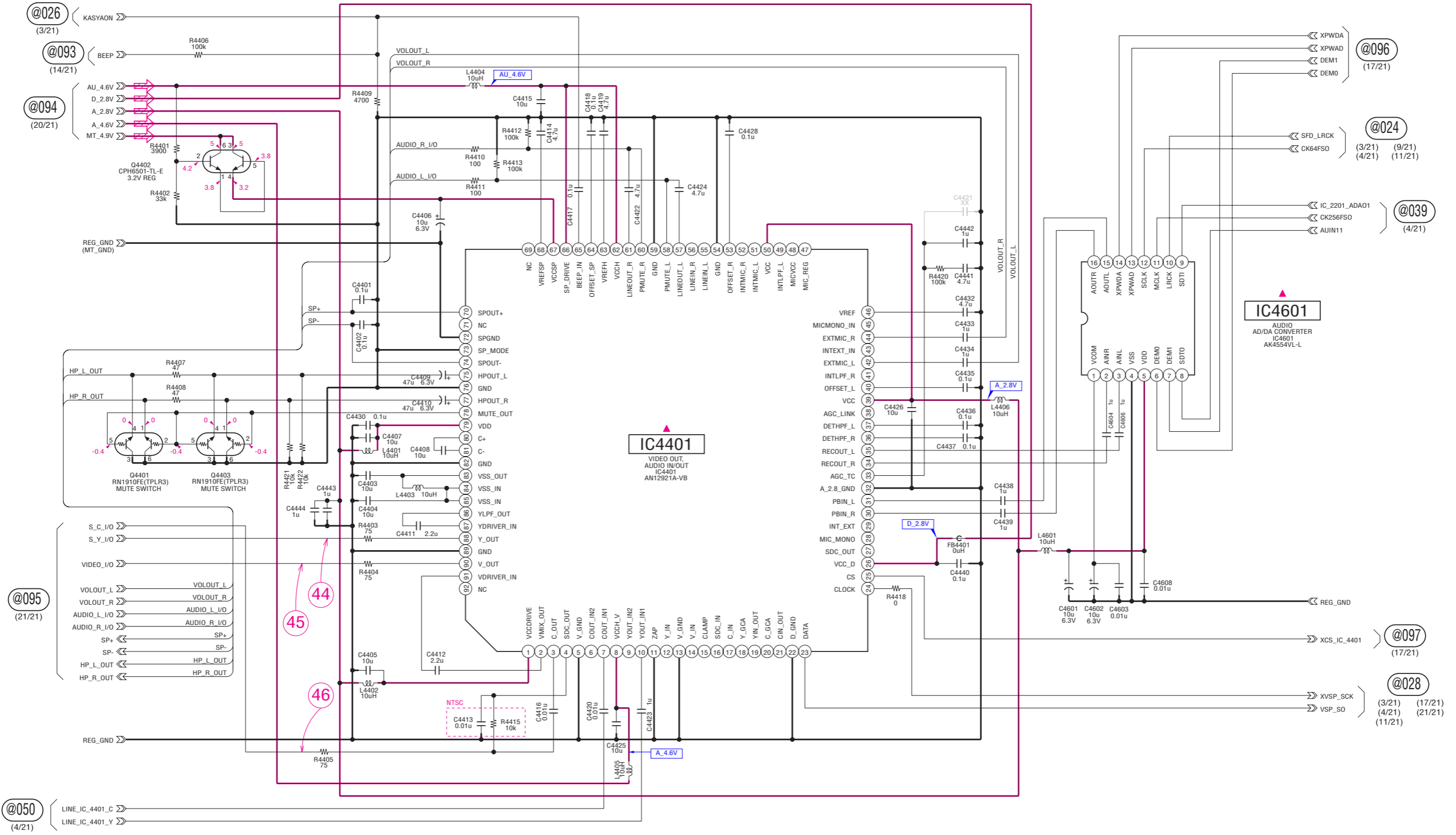
@080
(10/21)
(11/21)
(17/21)

TT-001 BOARD (13/21)

VIDEO OUT, AUDIO IN/OUT

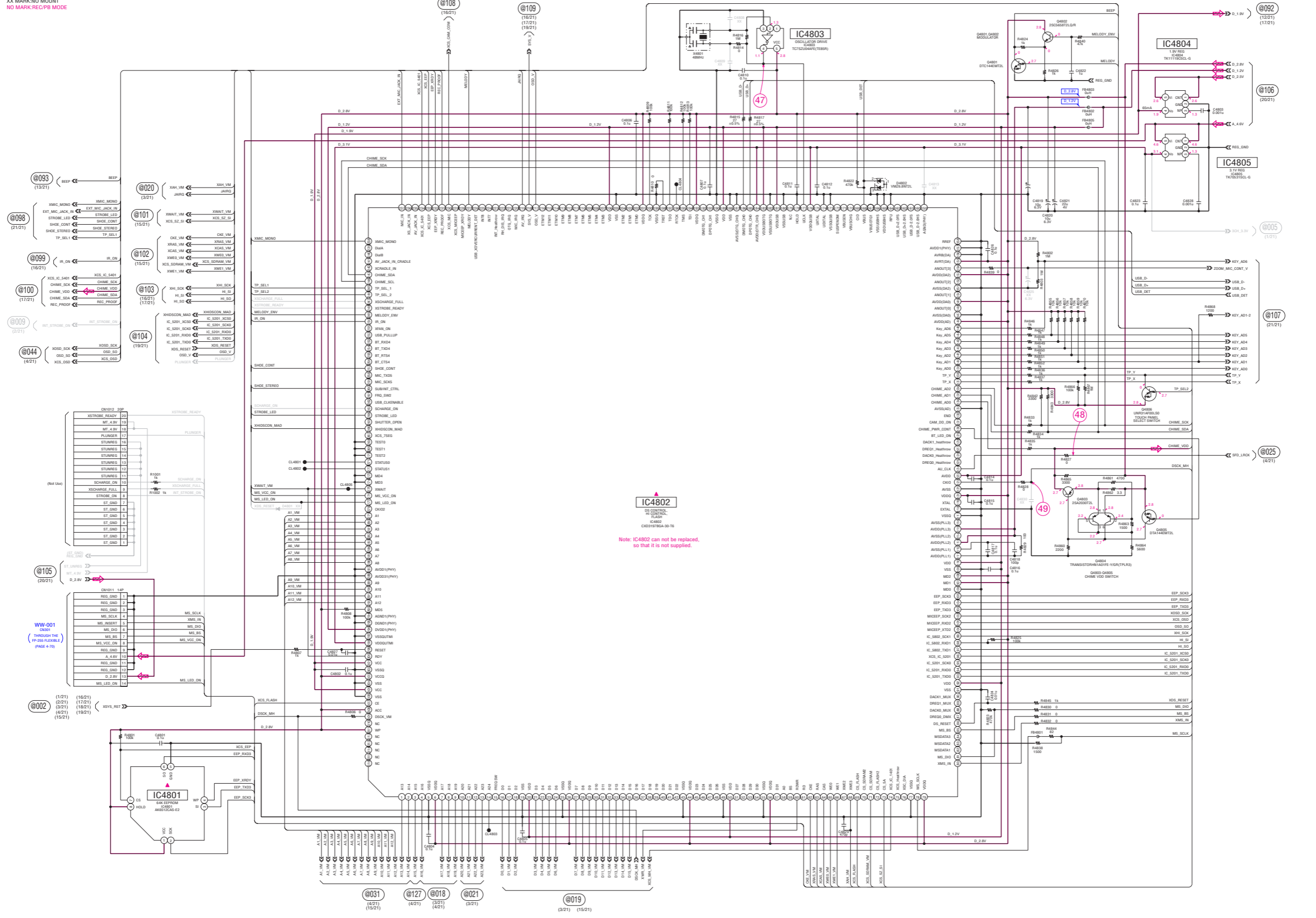
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

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



TT-001 BOARD (14/21)
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-001 BOARD (15/21)

SDRAM (DIGITAL STILL)

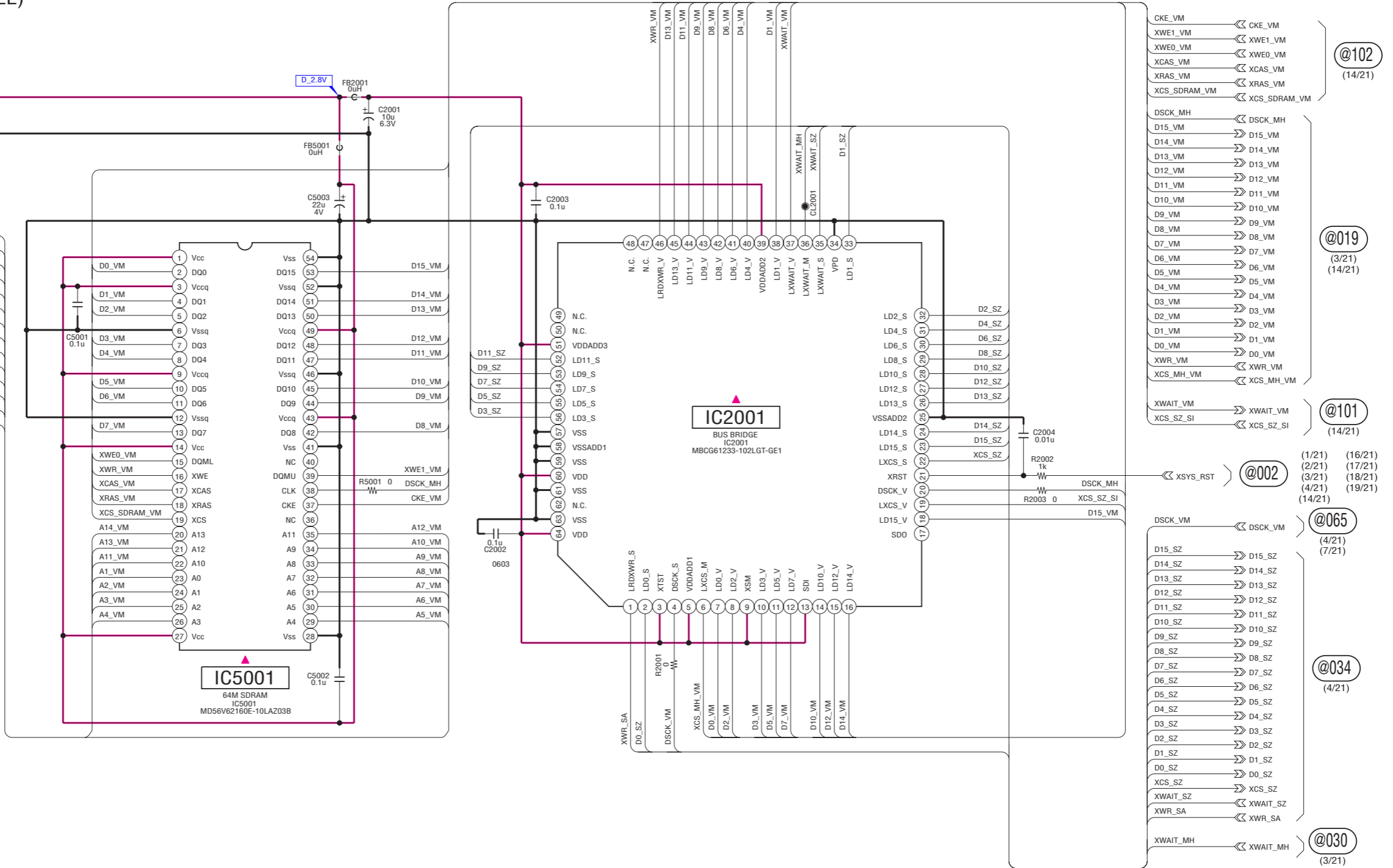
XX MARK:NO MOUNT

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

@110
(20/21)

@031
(4/21)
(14/21)

- A1_VM >> A1_VM
- A2_VM >> A2_VM
- A3_VM >> A3_VM
- A4_VM >> A4_VM
- A5_VM >> A5_VM
- A6_VM >> A6_VM
- A7_VM >> A7_VM
- A8_VM >> A8_VM
- A9_VM >> A9_VM
- A10_VM >> A10_VM
- A11_VM >> A11_VM
- A12_VM >> A12_VM
- A13_VM >> A13_VM
- A14_VM >> A14_VM



@102
(14/21)

@019
(3/21)
(14/21)

@101
(14/21)

@002
(1/21) (16/21)
(2/21) (17/21)
(3/21) (18/21)
(4/21) (19/21)
(14/21)

@065
(4/21)
(7/21)

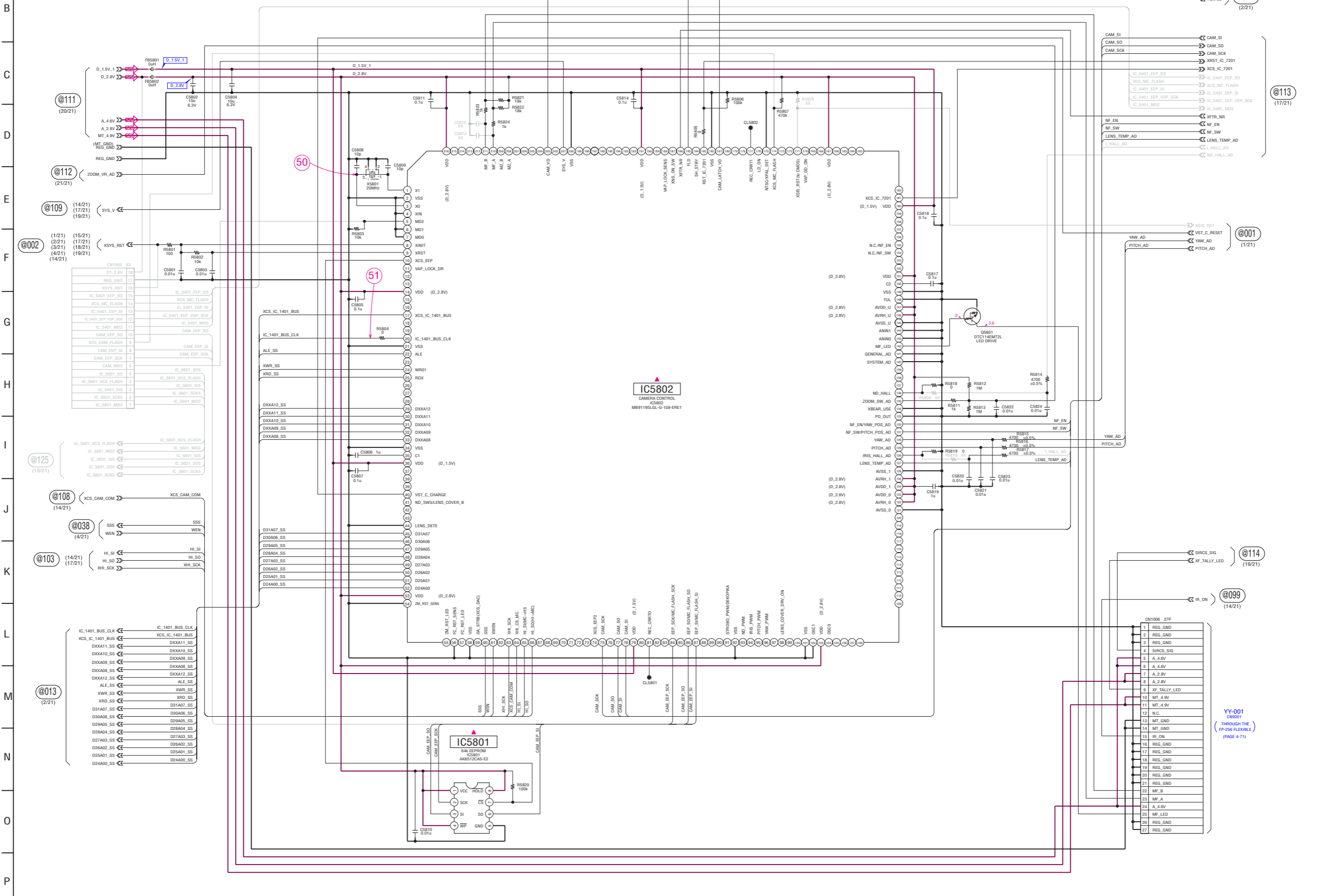
@034
(4/21)

@030
(3/21)

TT-001 BOARD (16/21)

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.

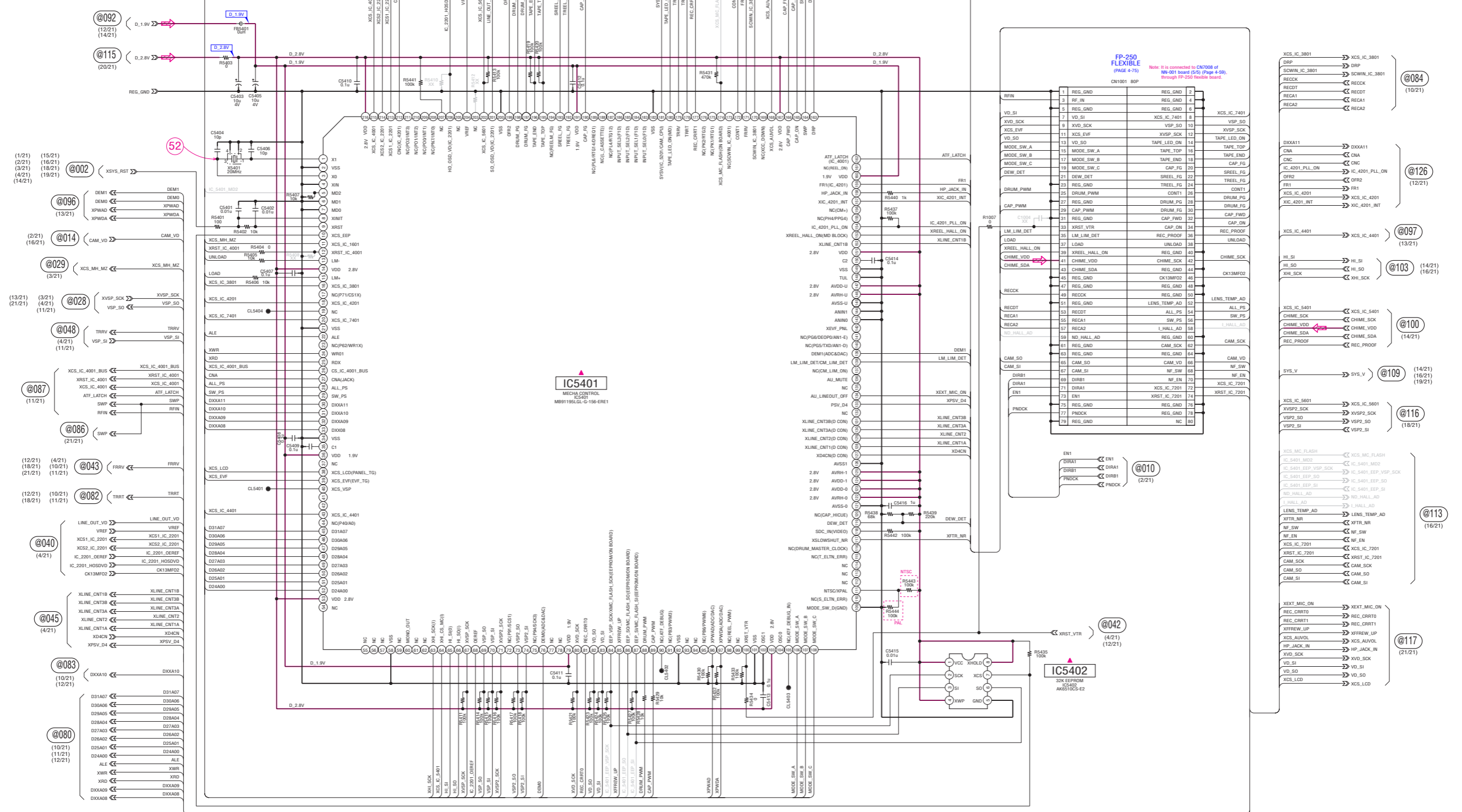


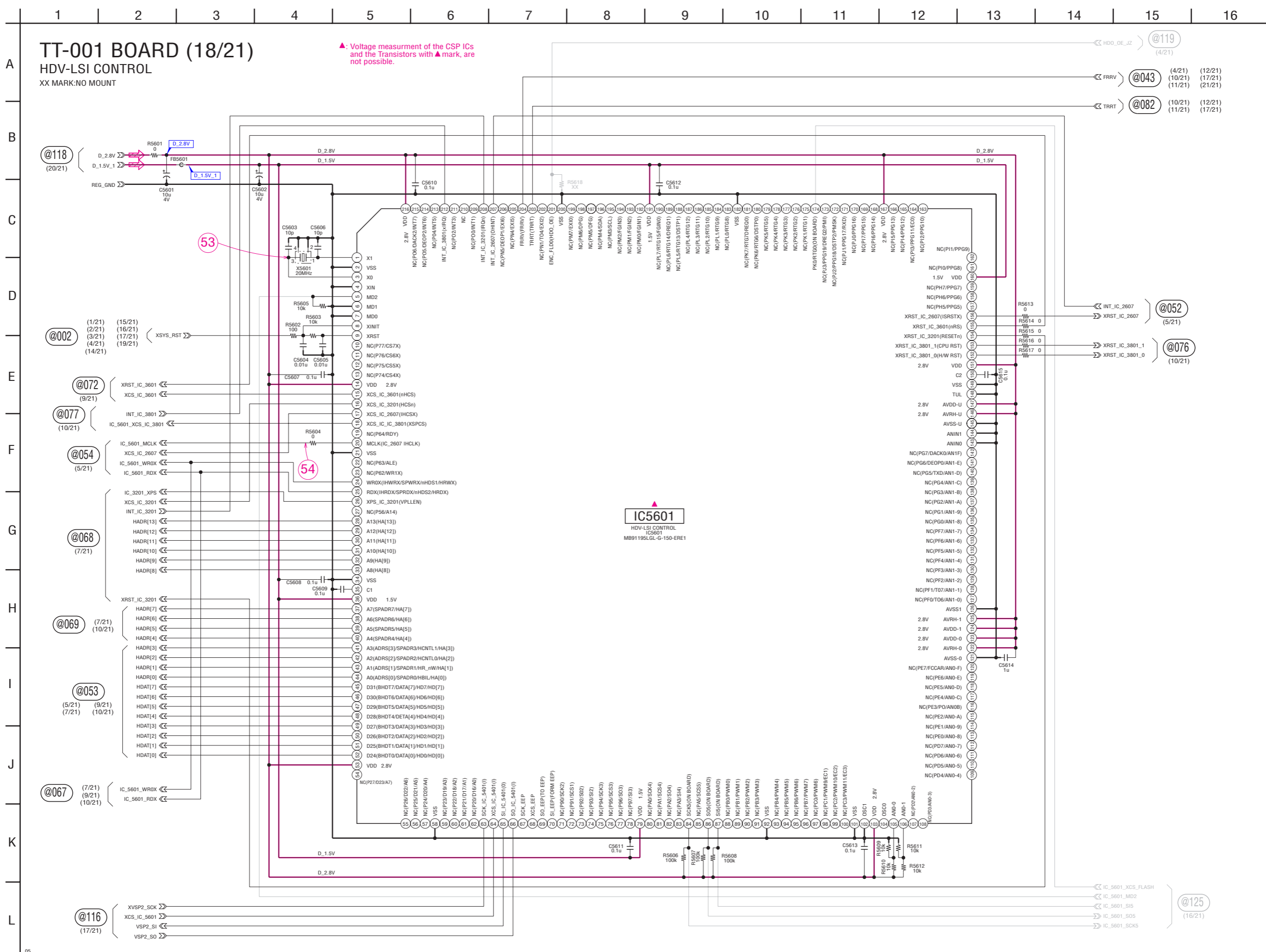
TT-001 BOARD (17/21)

MECHA CONTROL

XX MARK:NO MOUNT

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





TT-001 BOARD (18/21)
HDV-LSI CONTROL
 XX MARK:NO MOUNT

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

IC5601
 HDV-LSI CONTROL
 IC5601
 MB91195LGL-G-150-ER1

@118 (20/21)

@002 (1/21) (2/21) (3/21) (4/21) (14/21)

@072 (9/21)

@077 (10/21)

@054 (5/21)

@068 (7/21)

@069 (7/21) (10/21)

@053 (5/21) (9/21) (7/21) (10/21)

@067 (7/21) (9/21) (10/21)

@116 (17/21)

@119 (4/21)

@043 (4/21) (12/21) (10/21) (17/21) (11/21) (21/21)

@082 (10/21) (12/21) (11/21) (17/21)

@052 (5/21)

@076 (10/21)

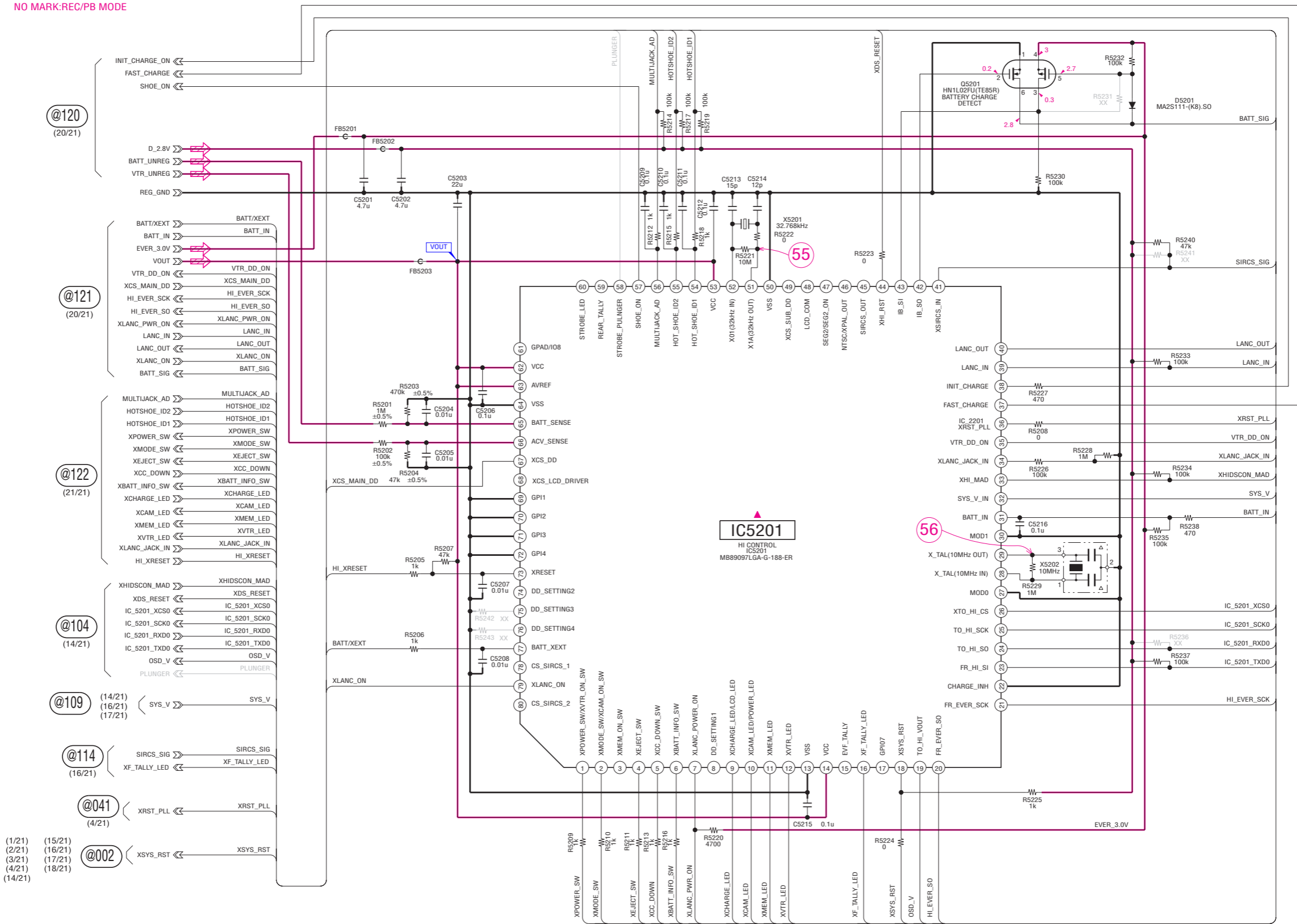
@125 (16/21)

TT-001 BOARD (19/21)

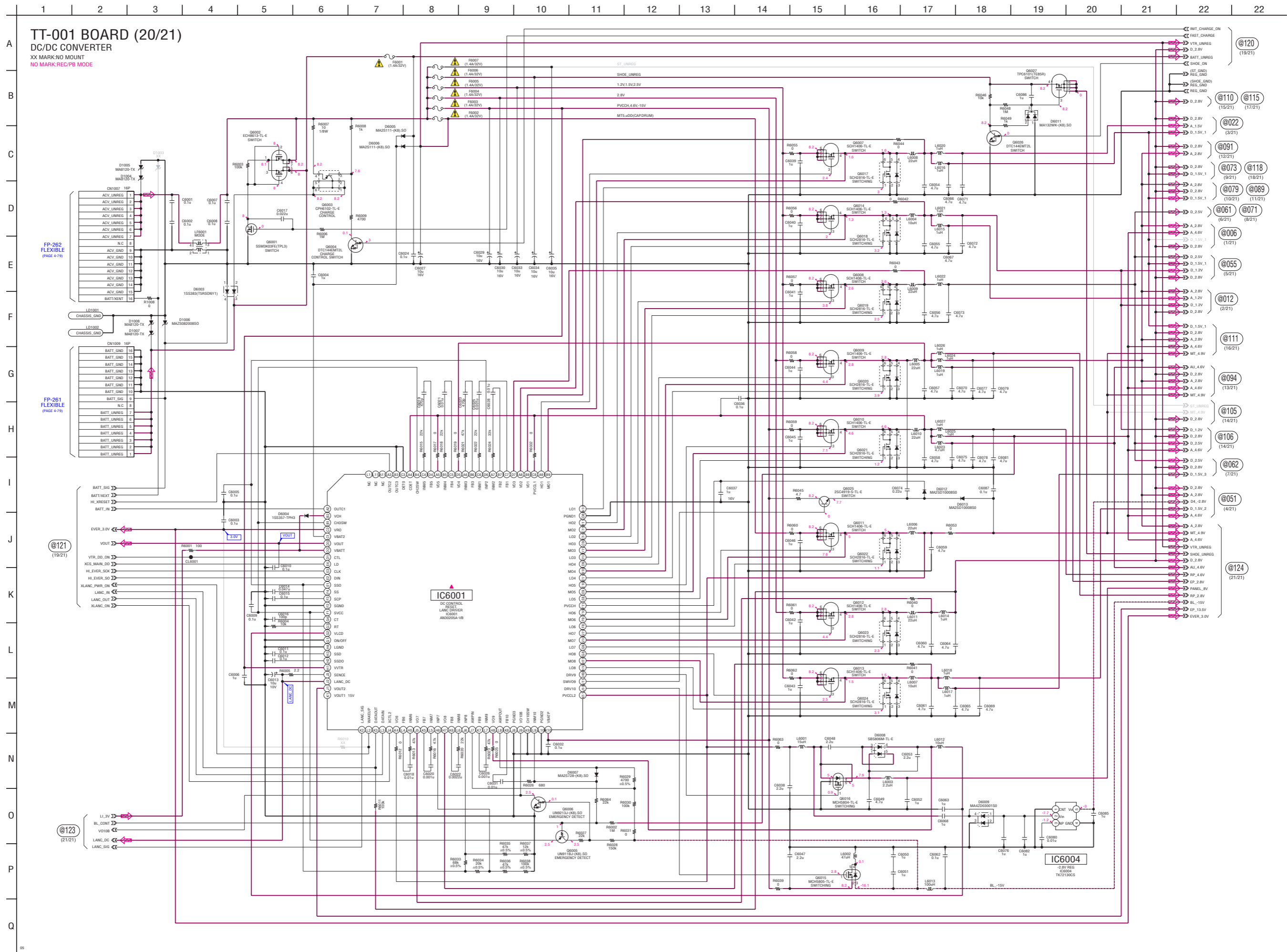
HI CONTROL
 XX MARK:NO MOUNT
 NO MARK:REC/PB MODE

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

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(1/21) (15/21)
 (2/21) (16/21)
 (3/21) (17/21)
 (4/21) (18/21)
 (14/21)



TT-001 BOARD (20/21)
DC/DC CONVERTER
 XX MARK:NO MOUNT
 NO MARK:REC/PB MODE

FP-262 FLEXIBLE (PAGE 4-7)

FP-261 FLEXIBLE (PAGE 4-7)

@121 (19/21)

@123 (21/21)

@120 (19/21)

@110 (15/21) @115 (17/21)

@022 (3/21)

@091 (12/21)

@073 @118 (9/21) (18/21)

@079 @089 (10/21) (11/21)

@061 @071 (8/21) (8/21)

@006 (11/21)

@055 (5/21)

@012 (2/21)

@111 (16/21)

@094 (13/21)

@105 (14/21)

@106 (14/21)

@062 (7/21)

@051 (4/21)

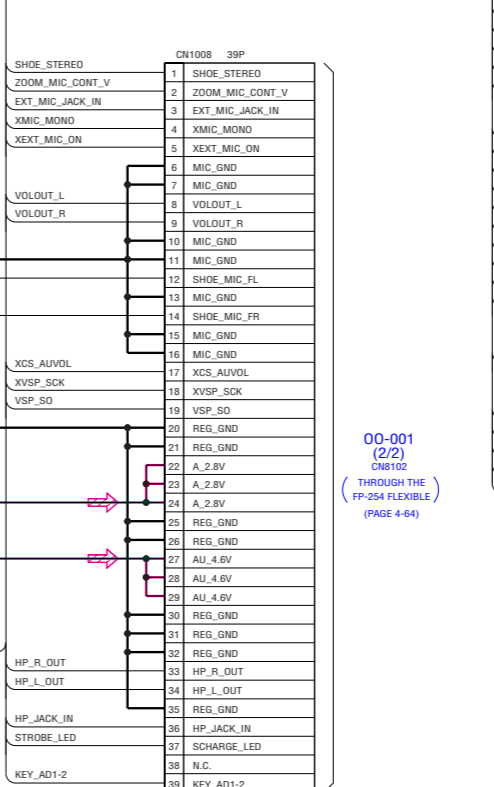
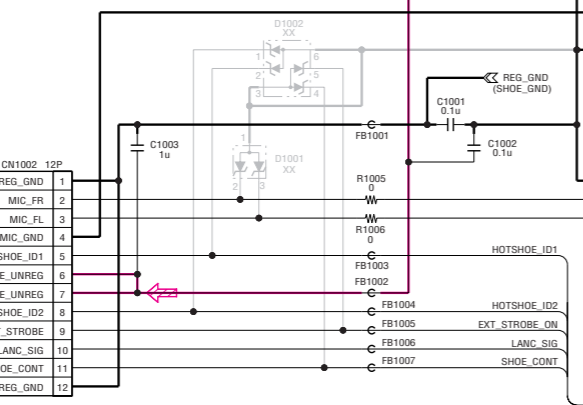
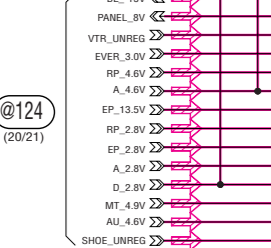
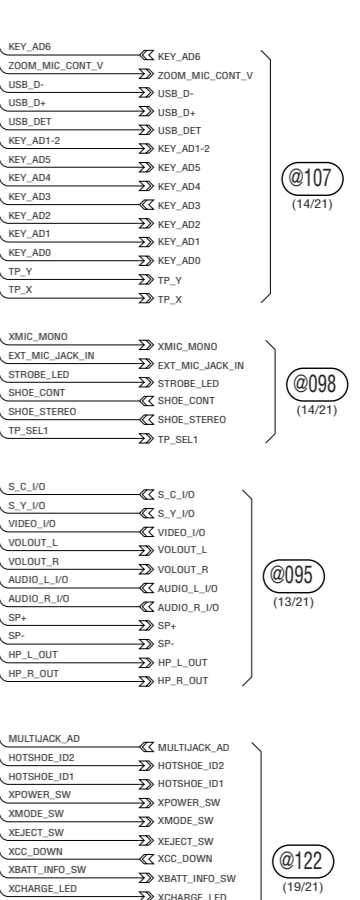
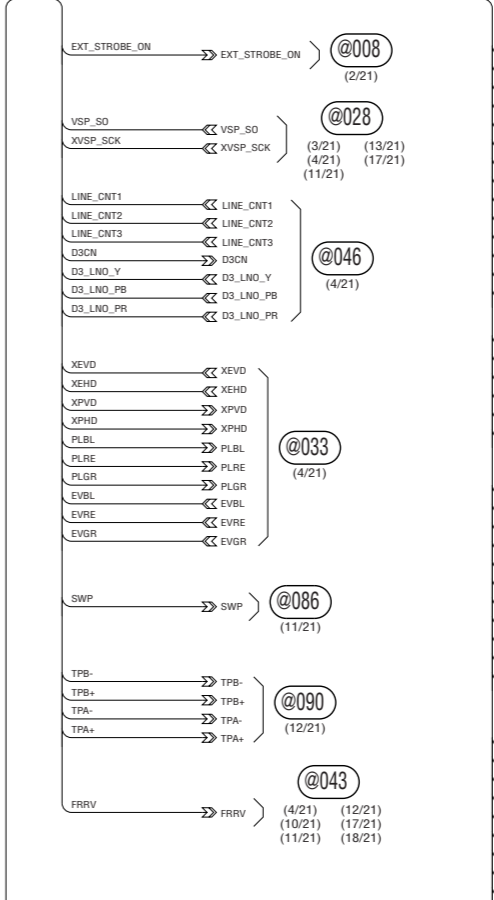
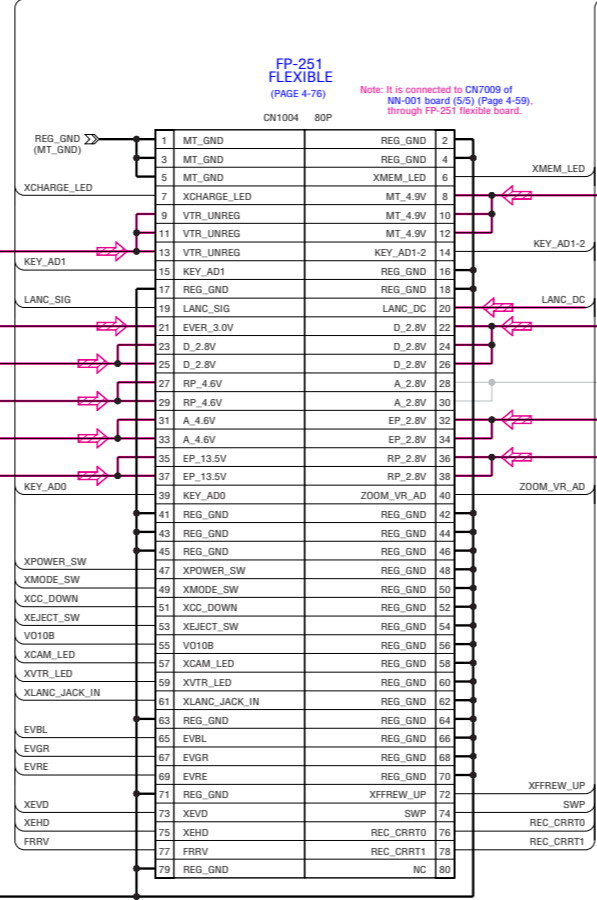
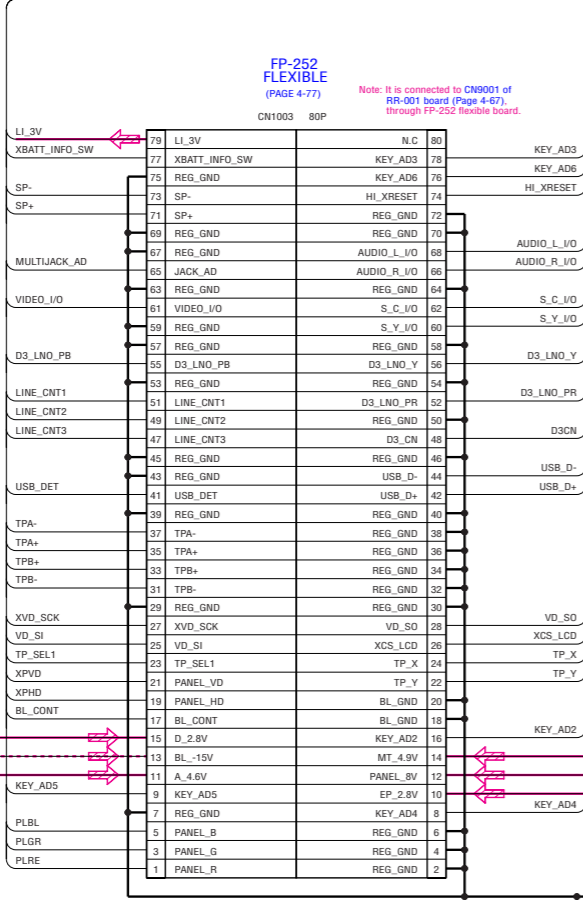
@124 (21/21)

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L

TT-001 BOARD (21/21)

CONNECTOR

XX MARK:NO MOUNT



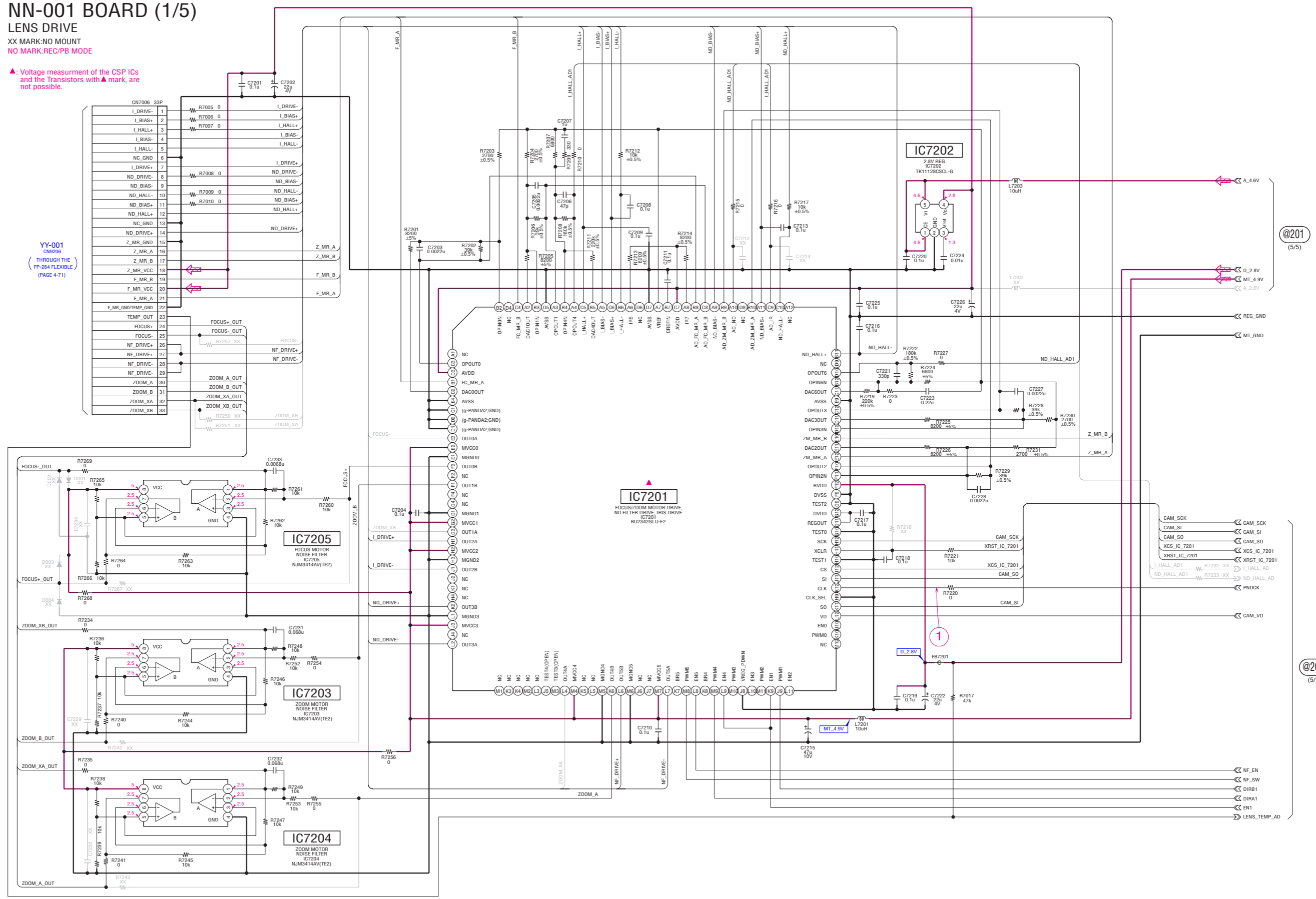
NN-001 BOARD (1/5)

LENS DRIVE

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

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

YY-001
CN9206
THROUGH THE
FP-264 FLEXIBLE
(PAGE 4-71)



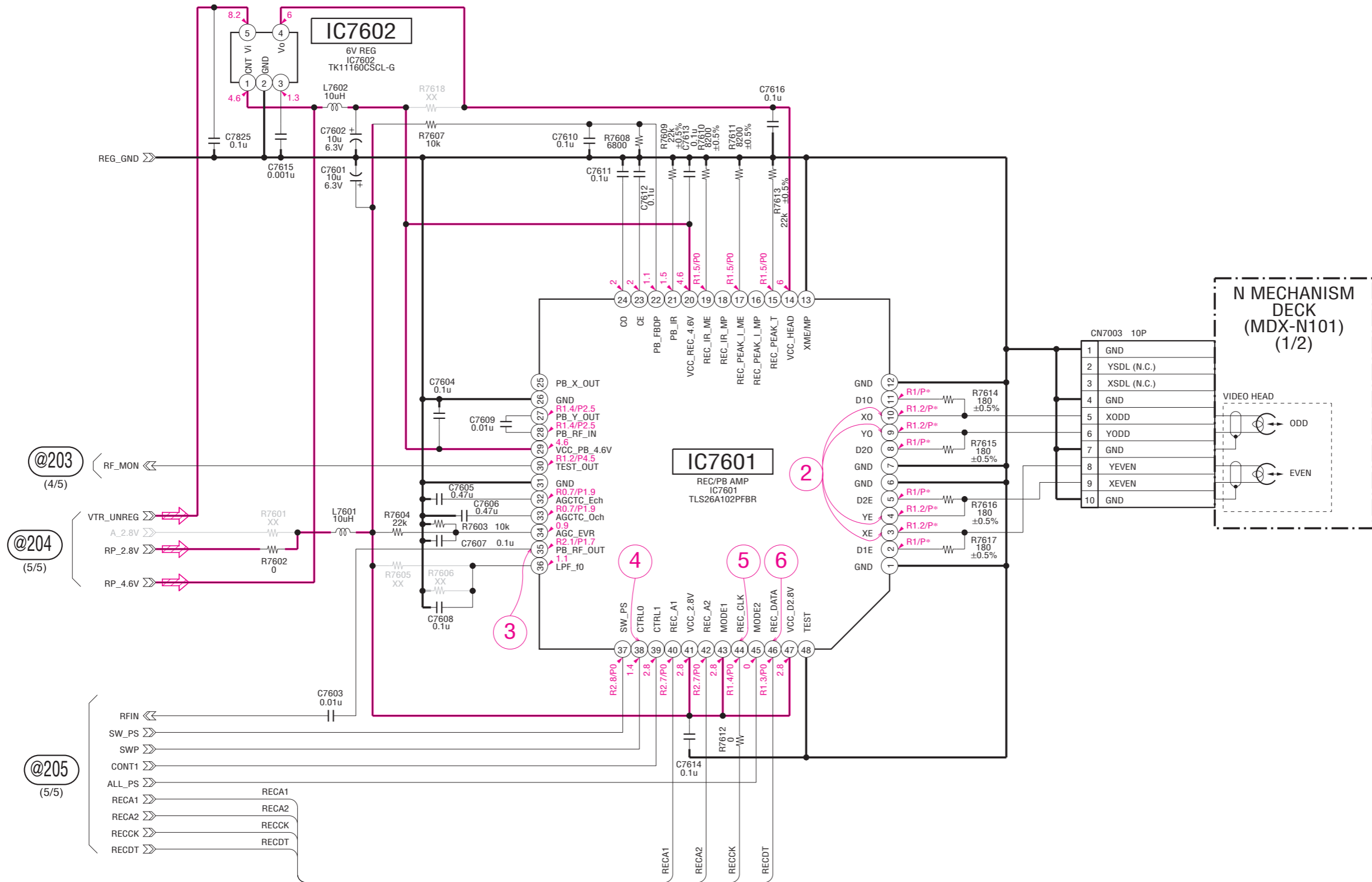
@201
(5/5)

@202
(5/5)

NN-001 BOARD (2/5)

REC/PB AMP

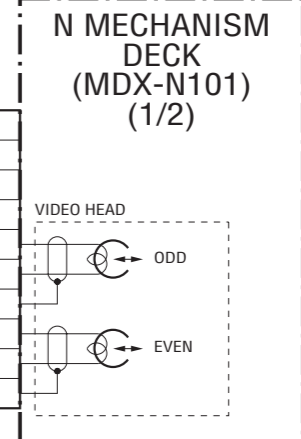
XX MARK:NO MOUNT
 NO MARK:REC/PB MODE
 R:REC MODE
 P:PB MODE
 *:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.



@203
(4/5)

@204
(5/5)

@205
(5/5)

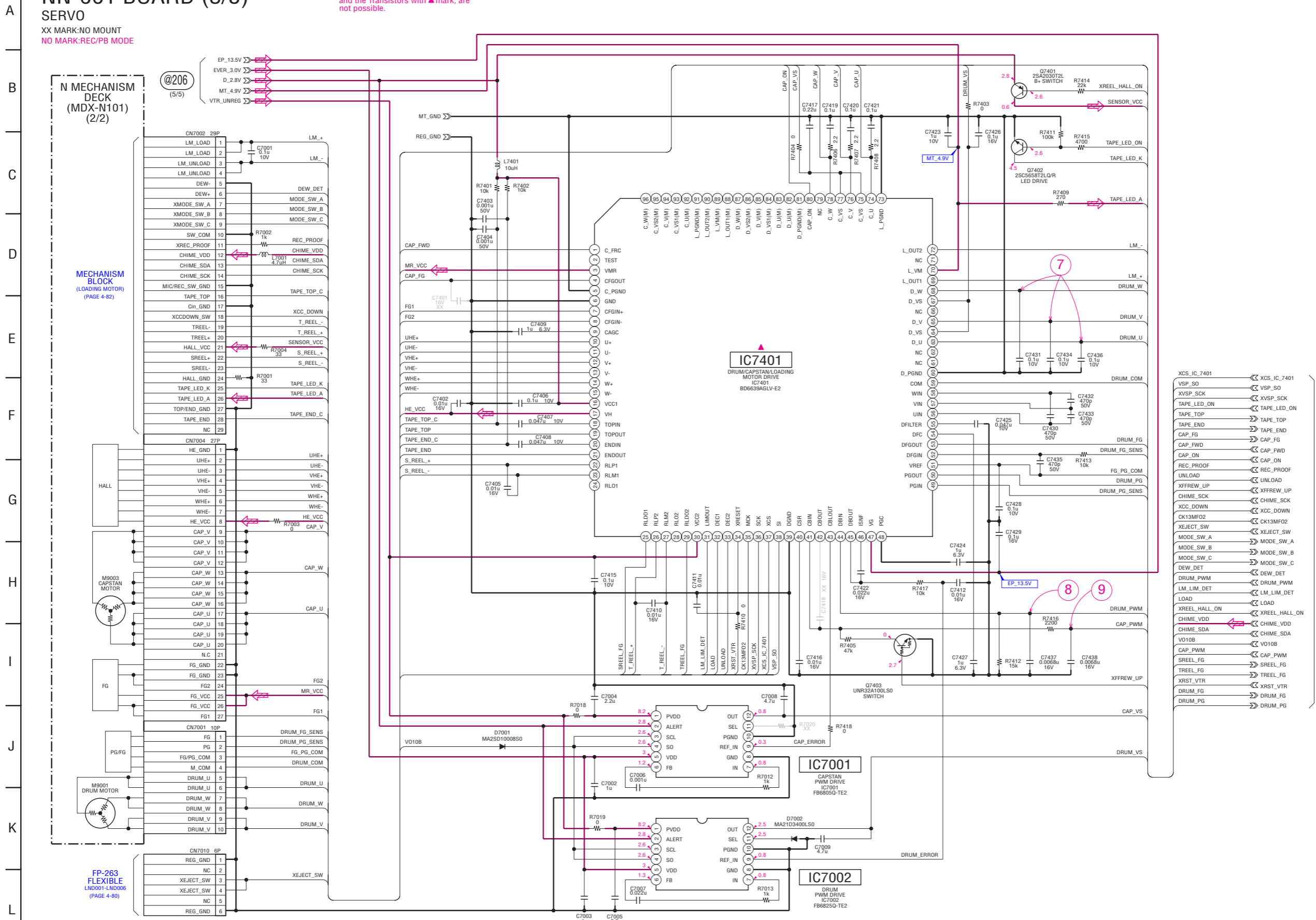


NN-001 BOARD (3/5)

SERVO

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

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



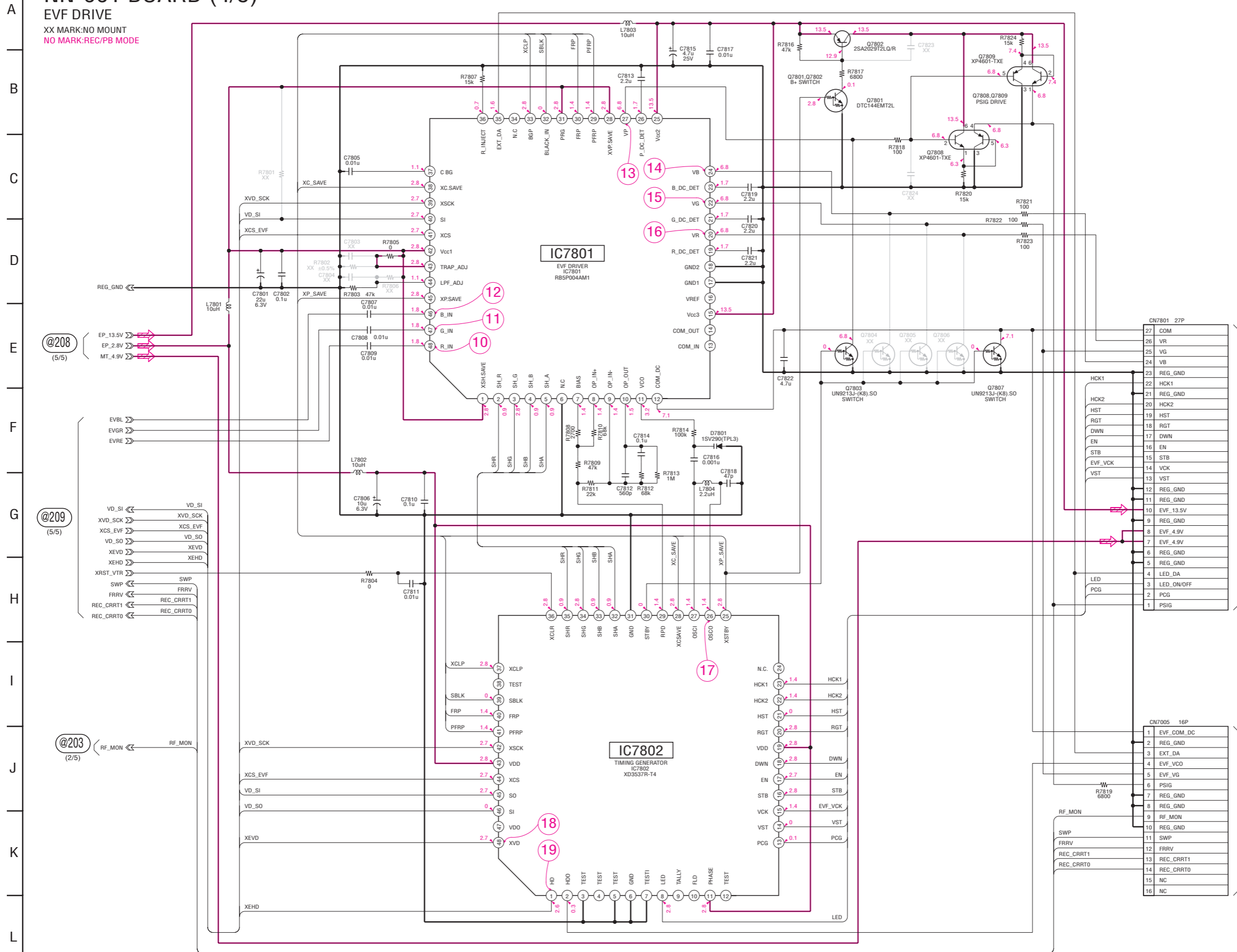
XCS_IC_7401

VSP_S0	↔	XCS_IC_7401
XVSP_SCK	↔	VSP_S0
XVSP_SCK	↔	XVSP_SCK
TAPE_LED_ON	↔	TAPE_LED_ON
TAPE_LED_ON	↔	TAPE_LED_ON
TAPE_TOP	↔	TAPE_TOP
TAPE_END	↔	TAPE_END
CAP_FG	↔	CAP_FG
CAP_FWD	↔	CAP_FWD
CAP_ON	↔	CAP_ON
REC_PROOF	↔	REC_PROOF
UNLOAD	↔	UNLOAD
XFREW_UP	↔	XFREW_UP
CHIME_SCK	↔	CHIME_SCK
XCC_DOWN	↔	XCC_DOWN
XCC_DOWN	↔	XCC_DOWN
CK13MF02	↔	CK13MF02
XEJECT_SW	↔	XEJECT_SW
MODE_SW_A	↔	MODE_SW_A
MODE_SW_B	↔	MODE_SW_B
MODE_SW_C	↔	MODE_SW_C
DEW_DET	↔	DEW_DET
DRUM_PWM	↔	DRUM_PWM
LM_LIM_DET	↔	LM_LIM_DET
LOAD	↔	LOAD
XREEL_HALL_ON	↔	XREEL_HALL_ON
CHIME_VDD	↔	CHIME_VDD
CHIME_SDA	↔	CHIME_SDA
VO10B	↔	VO10B
CAP_PWM	↔	CAP_PWM
SREEL_FG	↔	SREEL_FG
TREEL_FG	↔	TREEL_FG
XRST_VTR	↔	XRST_VTR
DRUM_FG	↔	DRUM_FG
DRUM_PG	↔	DRUM_PG

@207 (5/5)

NN-001 BOARD (4/5)

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



UU-001
 CN8903
 THROUGH THE
 FP-260 FLEXIBLE
 (PAGE 4-70)

CPG
 (FOR CHECK)

CN7801 27P	
27	COM
26	VR
25	VG
24	VB
23	REG_GND
22	HCK1
21	REG_GND
20	HCK2
19	HST
18	RGT
17	DWN
16	EN
15	STB
14	VCK
13	VST
12	REG_GND
11	REG_GND
10	EVF_13.5V
9	REG_GND
8	EVF_4.9V
7	EVF_4.9V
6	REG_GND
5	REG_GND
4	LED_DA
3	LED_ON/OFF
2	PCG
1	PSIG

CN7805 16P	
1	EVF_COM_DC
2	REG_GND
3	EXT_DA
4	EVF_VCO
5	EVF_VG
6	PSIG
7	REG_GND
8	REG_GND
9	RF_MON
10	REG_GND
11	SWP
12	FRRV
13	REC_CRRT1
14	REC_CRRT0
15	NC
16	NC

NN-001 BOARD (5/5)

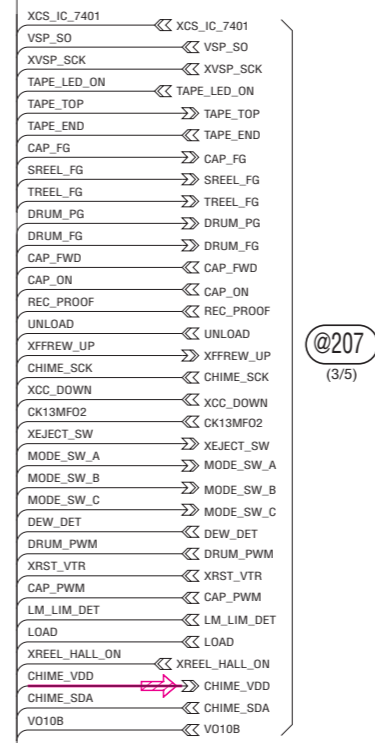
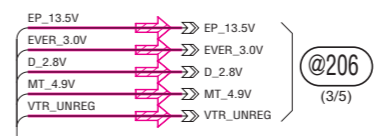
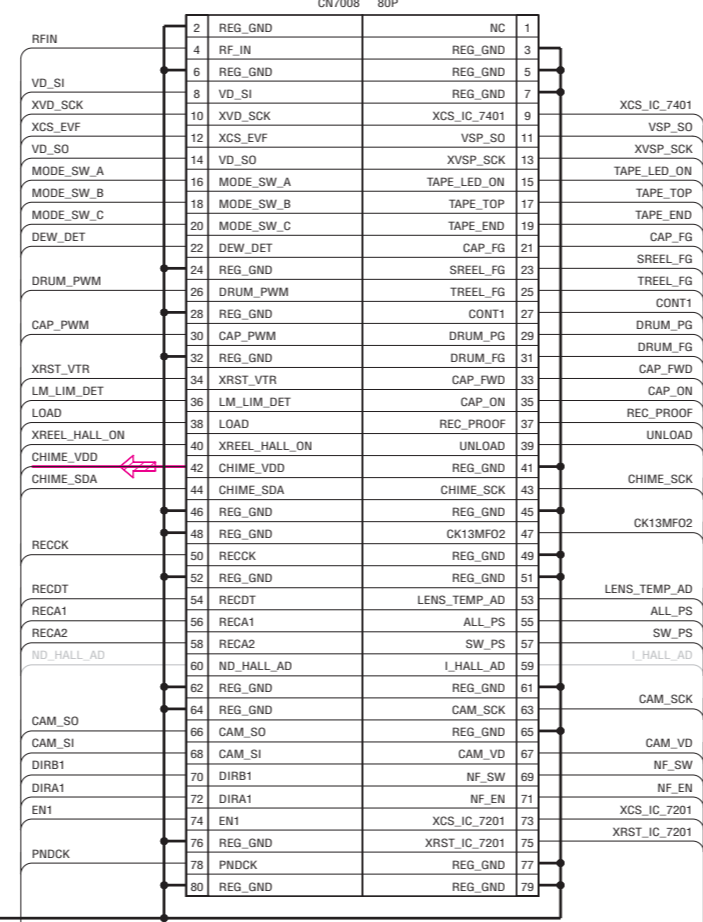
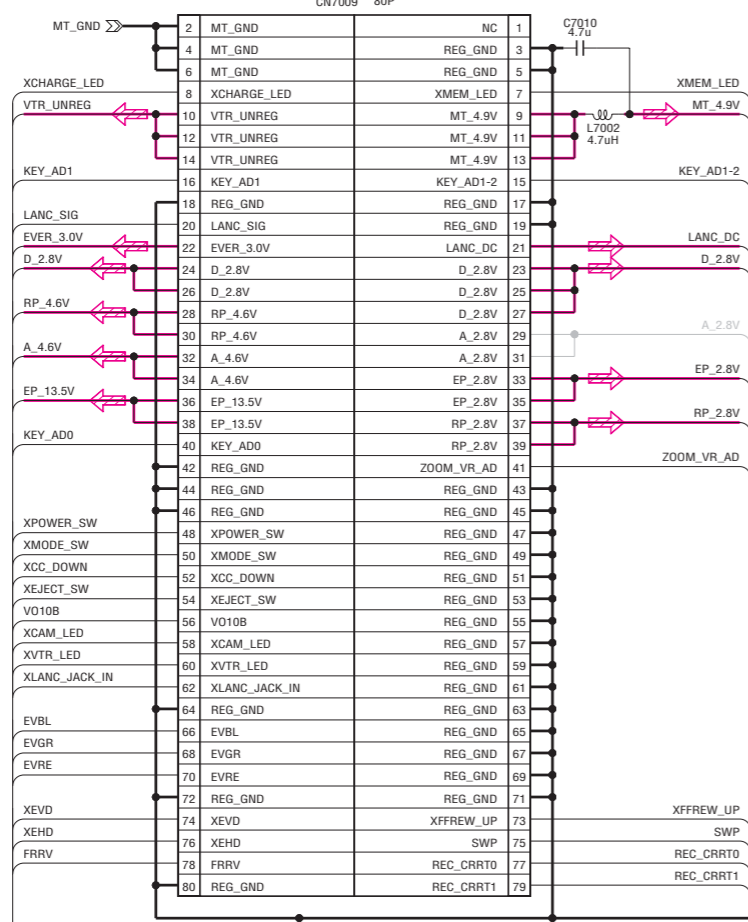
CONNECTOR
 XX MARK:NO MOUNT
 NO MARK:REC/PB MODE

FP-251 FLEXIBLE
 (PAGE 4-76)

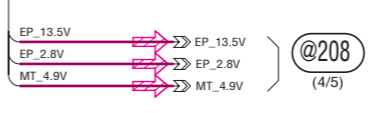
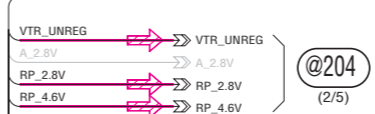
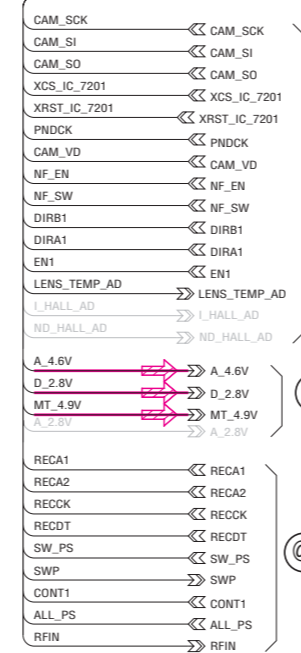
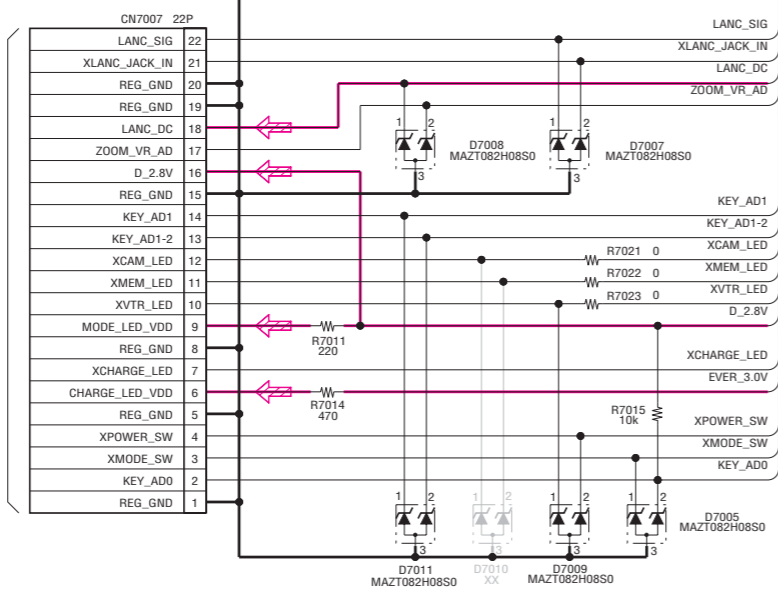
Note: It is connected to CN1004 of TT-001 board (21/21) (Page 4-49), through FP-251 flexible board.

FP-250 FLEXIBLE
 (PAGE 4-75)

Note: It is connected to CN1001 of TT-001 board (17/21) (Page 4-42), through FP-250 flexible board.



CONTROL SWITCH BLOCK (PS12300)
 (PAGE 4-84)

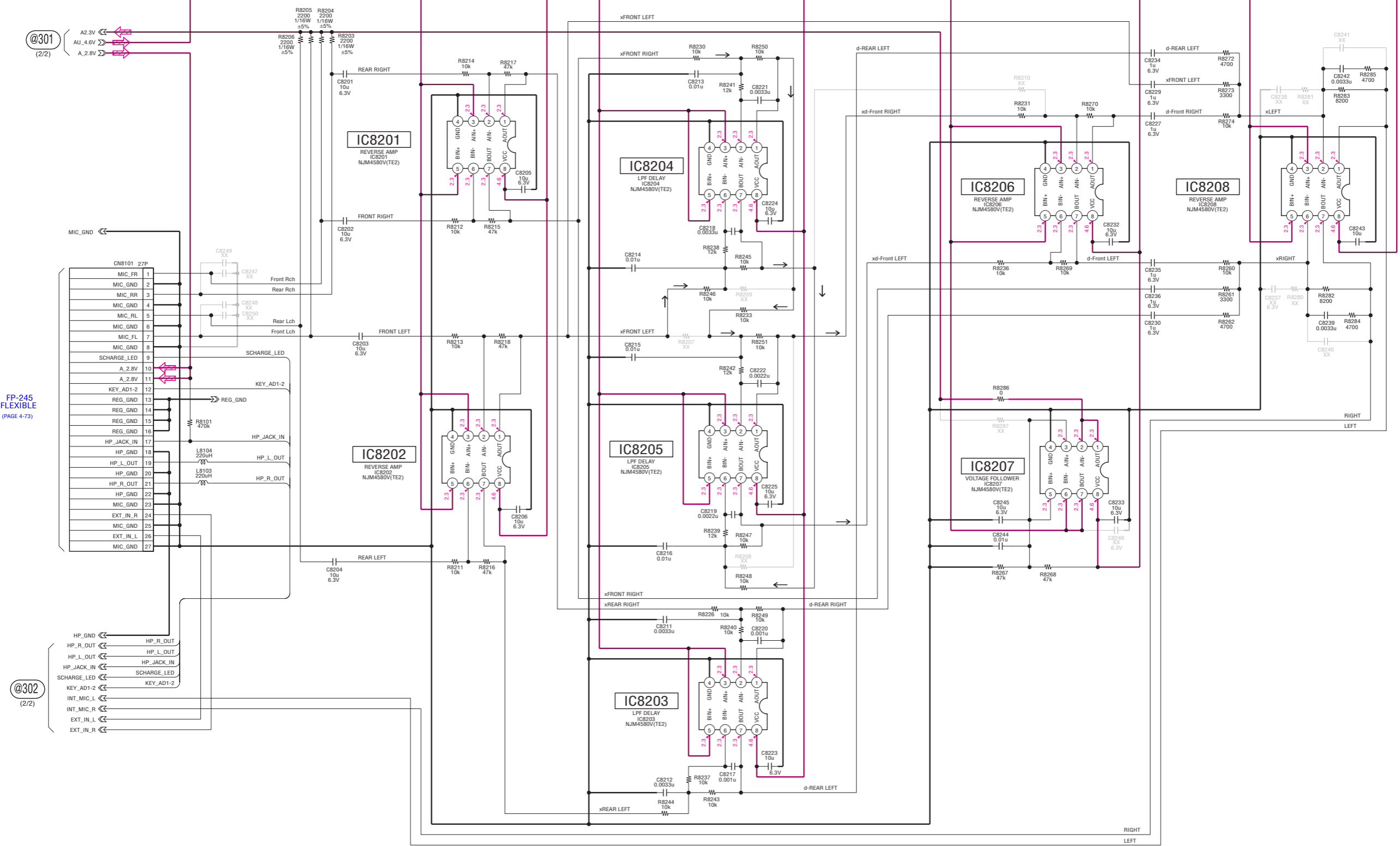


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00-001 BOARD (1/2)

NOISE CANCELER

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



@301 (2/2)

FP-245 FLEXIBLE (PAGE 4-73)

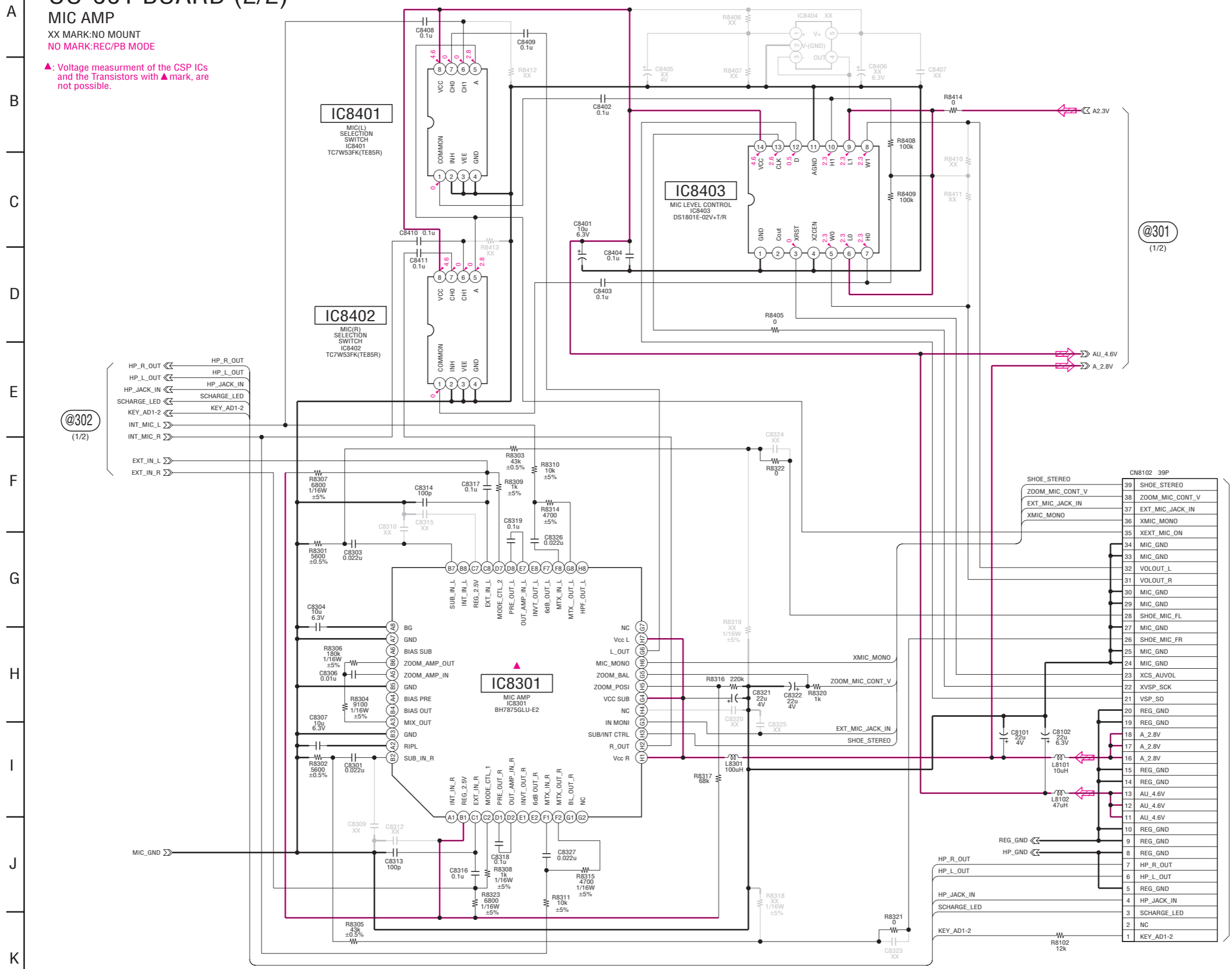
@302 (2/2)

00-001 BOARD (2/2)

MIC AMP

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

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



@302
(1/2)

@301
(1/2)

- HP_R_OUT << HP_R_OUT
- HP_L_OUT << HP_L_OUT
- HP_JACK_IN << HP_JACK_IN
- SCHARGE_LED << SCHARGE_LED
- KEY_AD1-2 << KEY_AD1-2
- INT_MIC_L << INT_MIC_L
- INT_MIC_R << INT_MIC_R
- EXT_IN_L >> EXT_IN_L
- EXT_IN_R >> EXT_IN_R

- | CN8102 39P | |
|------------|-----------------|
| 39 | SHOE_STEREO |
| 38 | ZOOM_MIC_CONT_V |
| 37 | EXT_MIC_JACK_IN |
| 36 | XMIC_MONO |
| 35 | XEXT_MIC_ON |
| 34 | MIC_GND |
| 33 | MIC_GND |
| 32 | VOLOUT_L |
| 31 | VOLOUT_R |
| 30 | MIC_GND |
| 29 | MIC_GND |
| 28 | SHOE_MIC_FL |
| 27 | MIC_GND |
| 26 | SHOE_MIC_FR |
| 25 | MIC_GND |
| 24 | MIC_GND |
| 23 | XCS_AUVOL |
| 22 | XVSP_SCK |
| 21 | VSP_SO |
| 20 | REG_GND |
| 19 | REG_GND |
| 18 | A_2.8V |
| 17 | A_2.8V |
| 16 | A_2.8V |
| 15 | REG_GND |
| 14 | REG_GND |
| 13 | AU_4.6V |
| 12 | AU_4.6V |
| 11 | AU_4.6V |
| 10 | REG_GND |
| 9 | REG_GND |
| 8 | REG_GND |
| 7 | HP_R_OUT |
| 6 | HP_L_OUT |
| 5 | REG_GND |
| 4 | HP_JACK_IN |
| 3 | SCHARGE_LED |
| 2 | NC |
| 1 | KEY_AD1-2 |

TT-001
(21/21)
CN1008
(THROUGH THE
FP-254 FLEXIBLE
(PAGE 4-50))

A
B
C
D
E
F
G
H
I
J

PP-001 BOARD

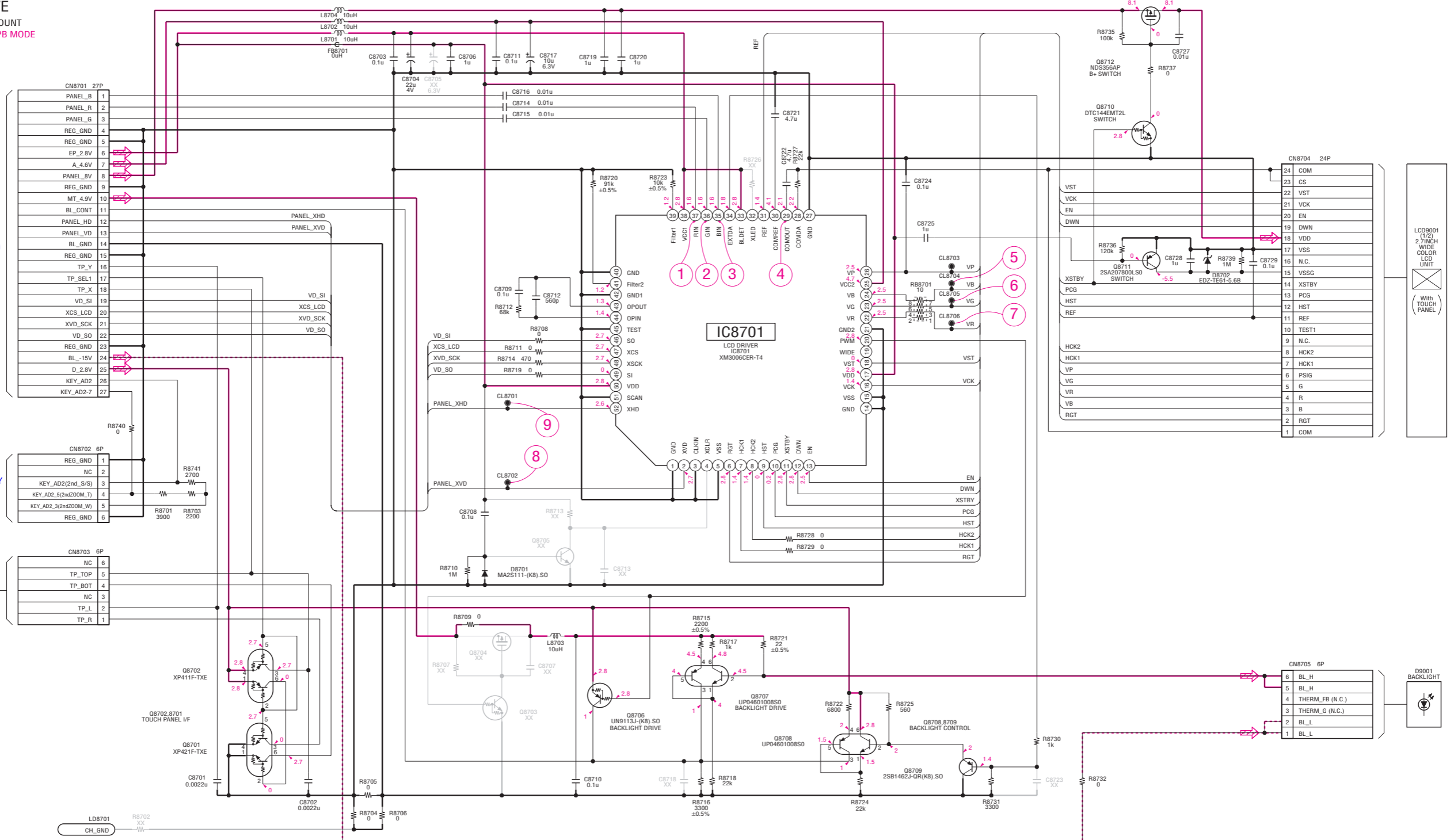
LCD DRIVE

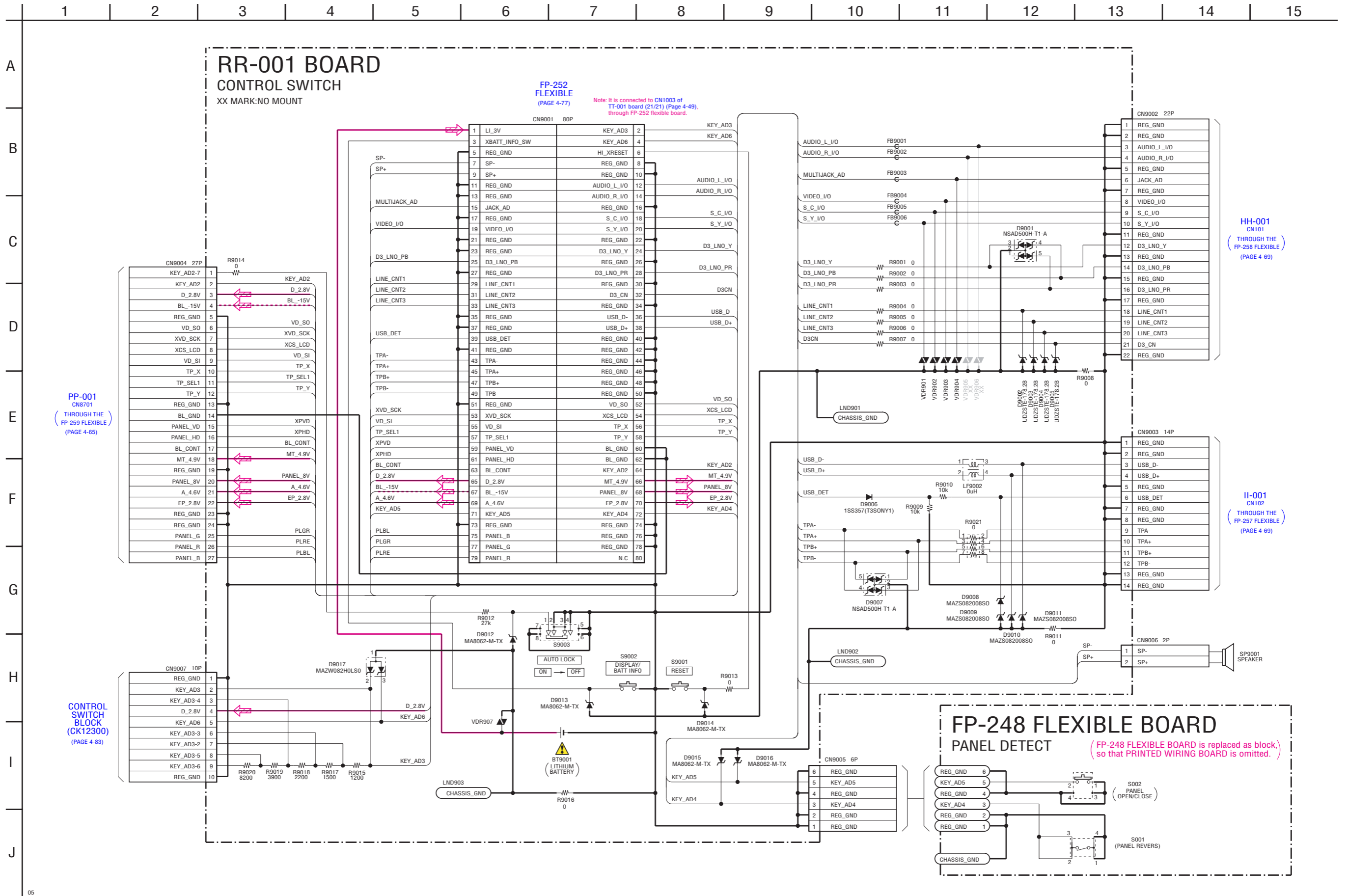
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

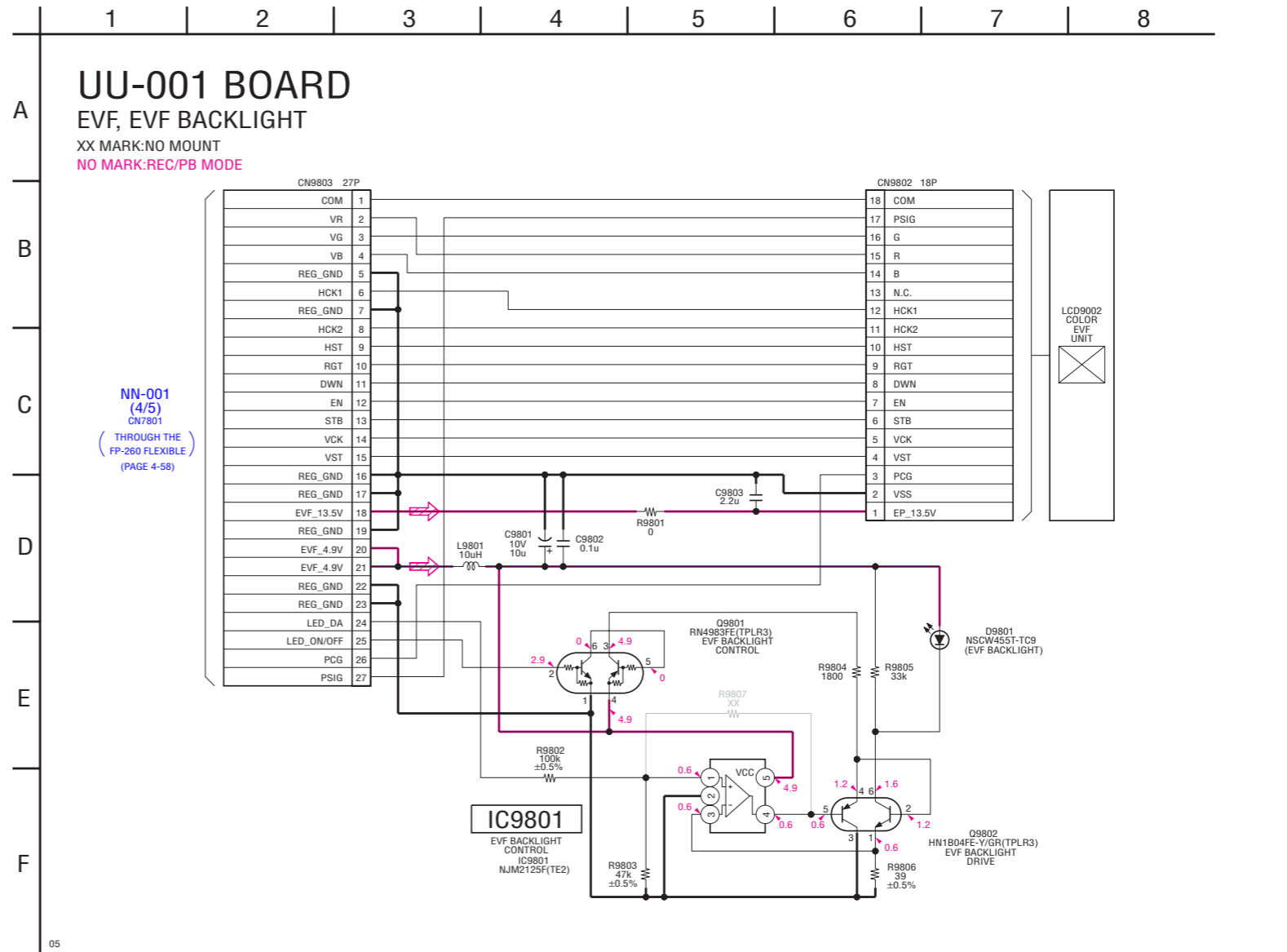
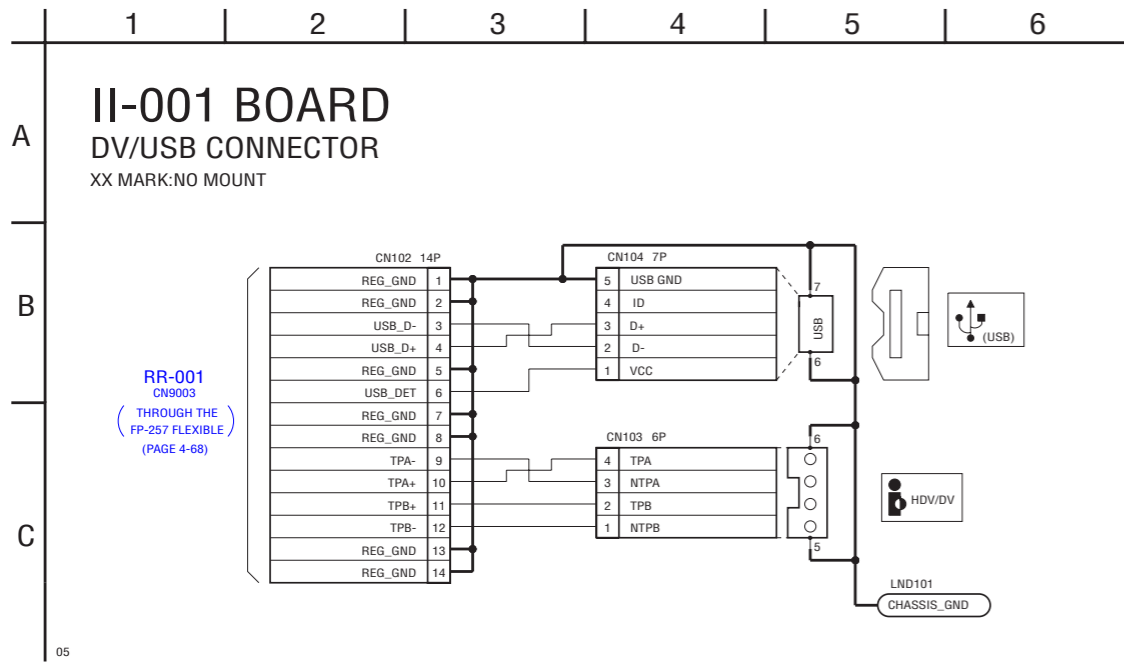
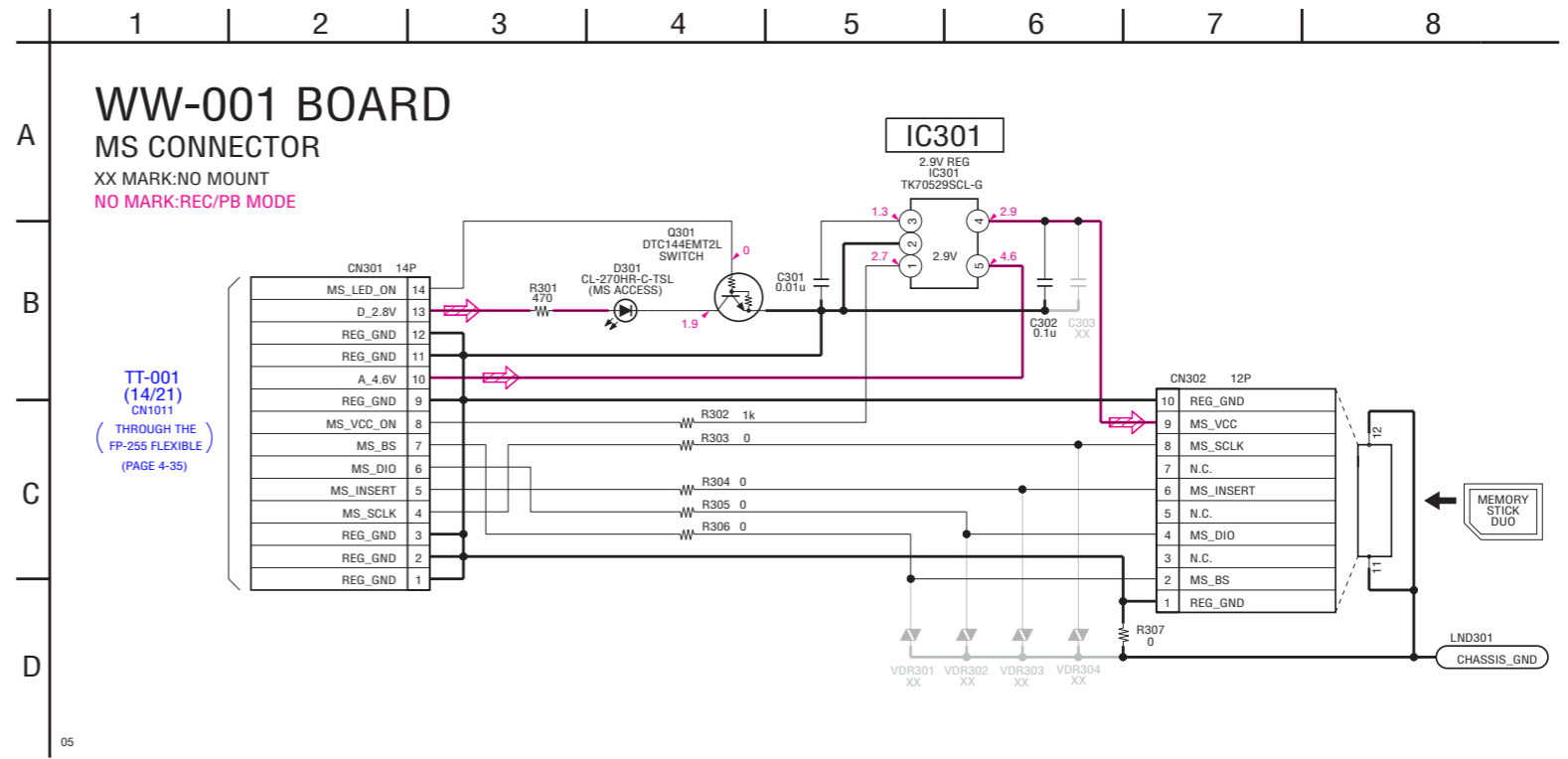
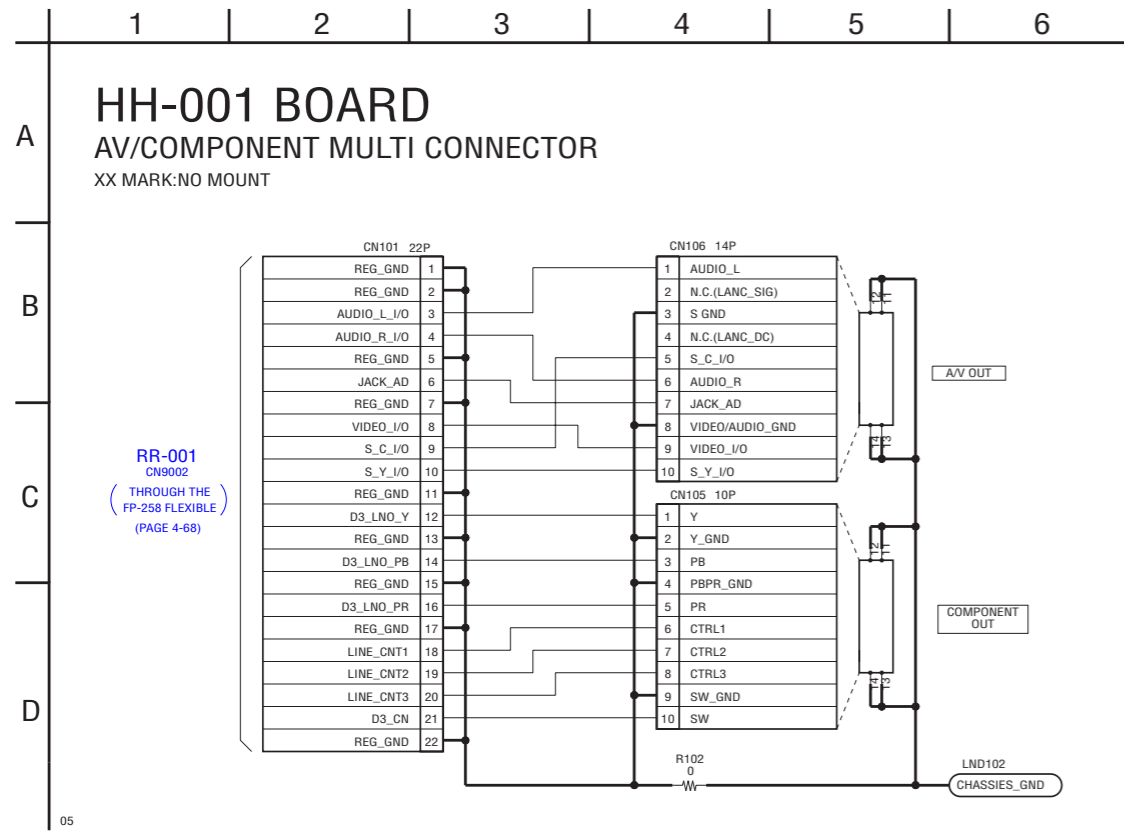
RR-001
CN9004
(THROUGH THE
FP-259 FLEXIBLE
(PAGE 4-67)

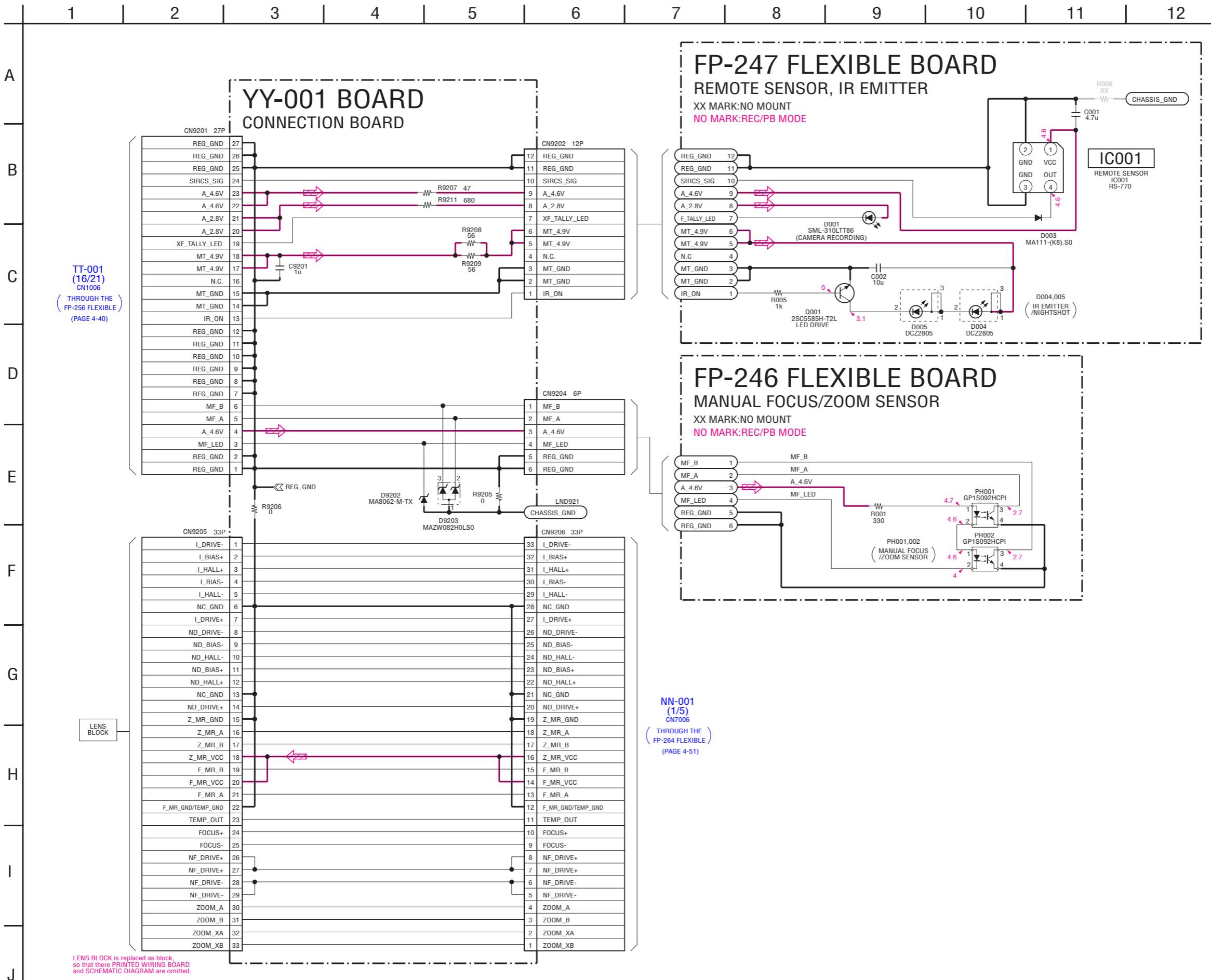
CONTROL KEY
BLOCK
(SB9000)
(PAGE 4-83)

LCD9001
(2/2)
TOUCH
PANEL
(With
LCD PANEL)









TT-001
(16/21)
CN1006
(THROUGH THE
FP-256 FLEXIBLE
PAGE 4-40)

LENS
BLOCK

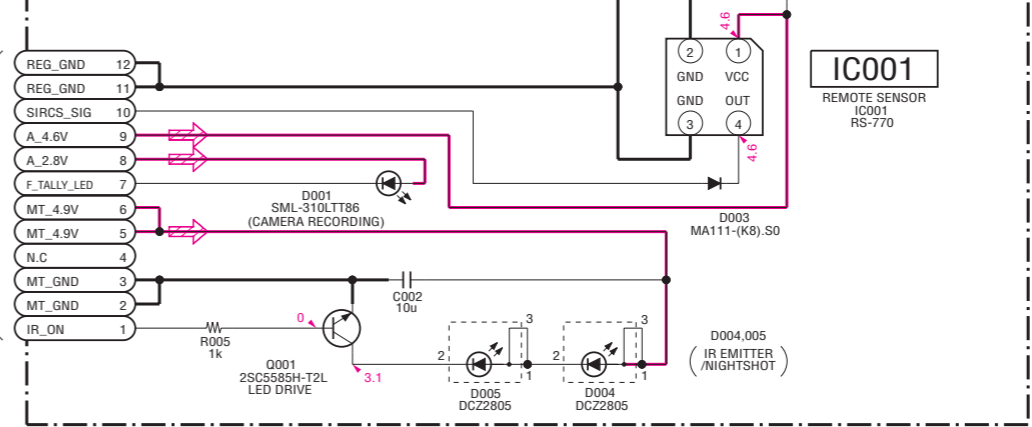
LENS BLOCK is replaced as block,
so that there PRINTED WIRING BOARD
and SCHEMATIC DIAGRAM are omitted.

NN-001
(1/5)
CN7006
(THROUGH THE
FP-264 FLEXIBLE
PAGE 4-51)

FP-247 FLEXIBLE BOARD

REMOTE SENSOR, IR EMITTER

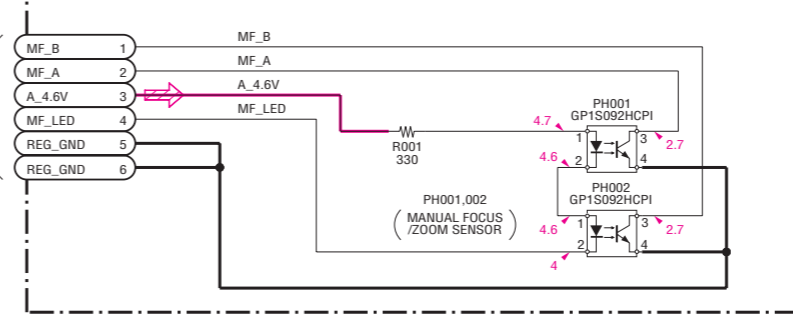
XX MARK:NO MOUNT
NO MARK:REC/PB MODE



FP-246 FLEXIBLE BOARD

MANUAL FOCUS/ZOOM SENSOR

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

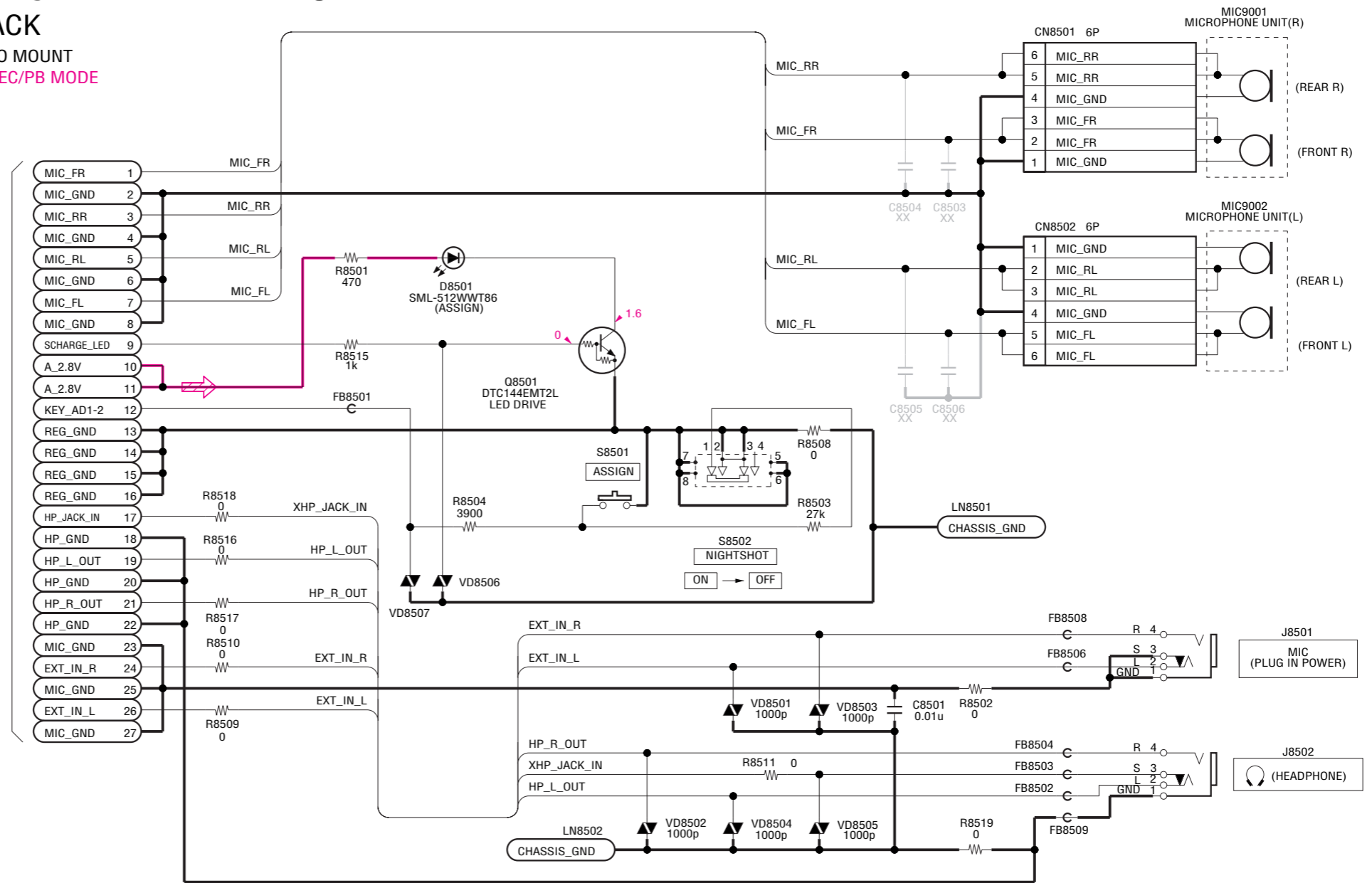


FP-245 FLEXIBLE BOARD

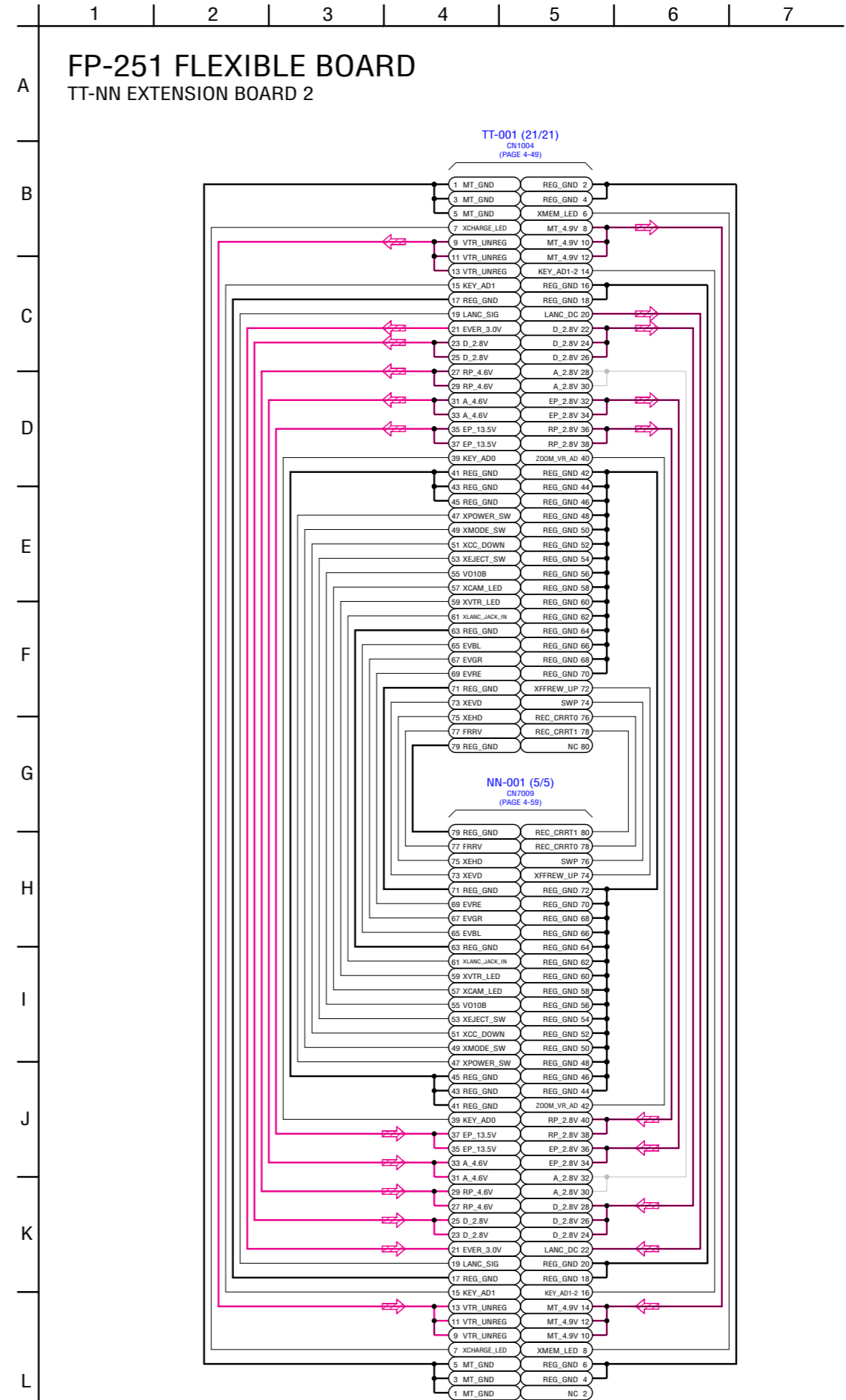
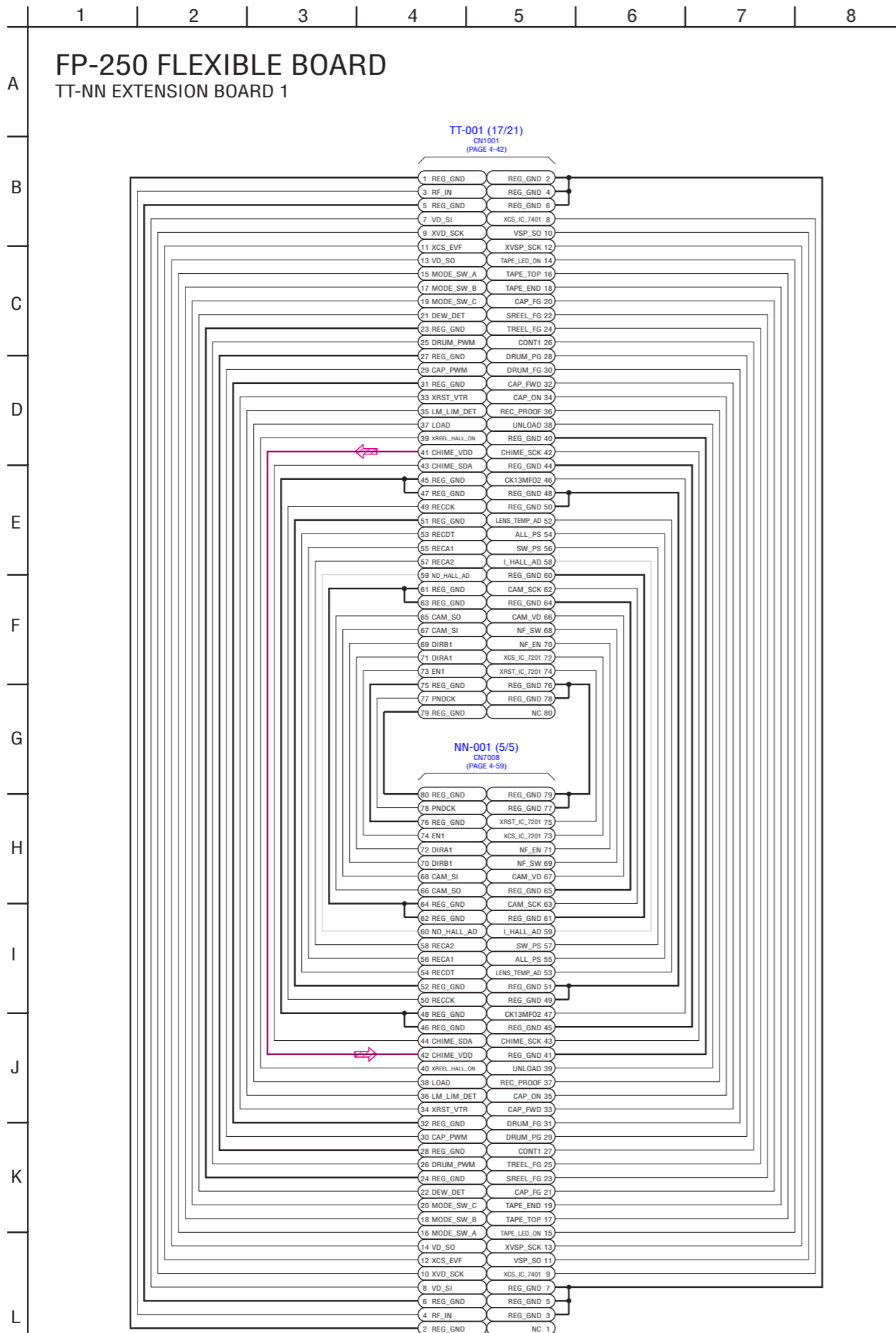
MIC, JACK

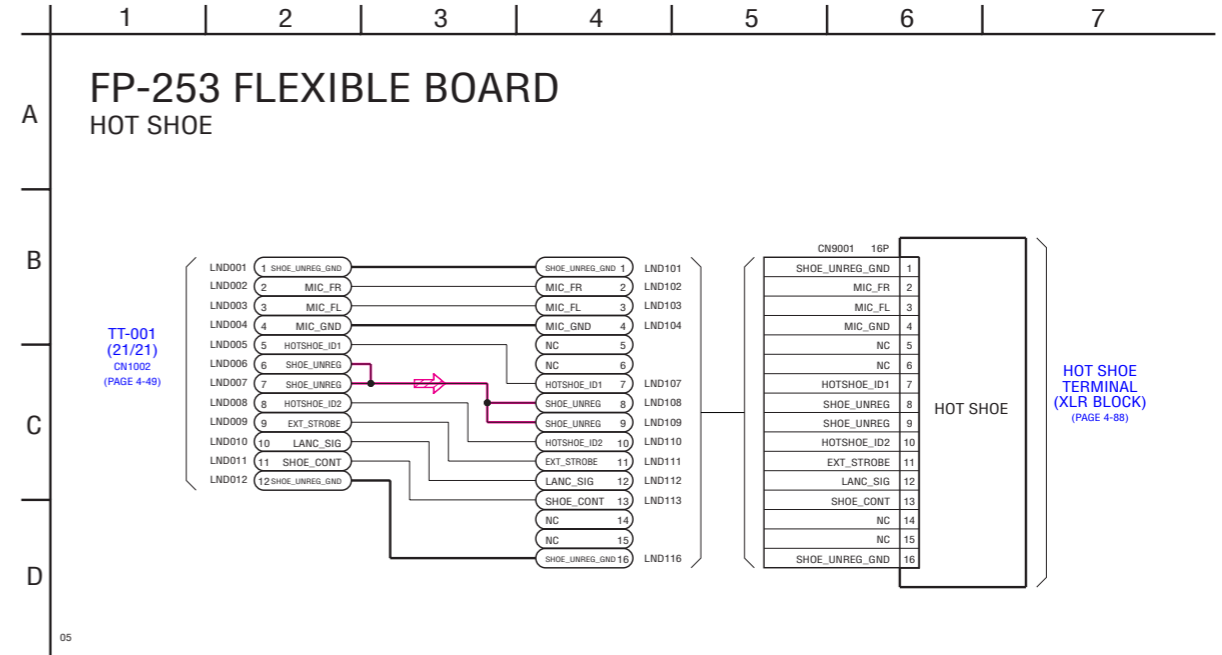
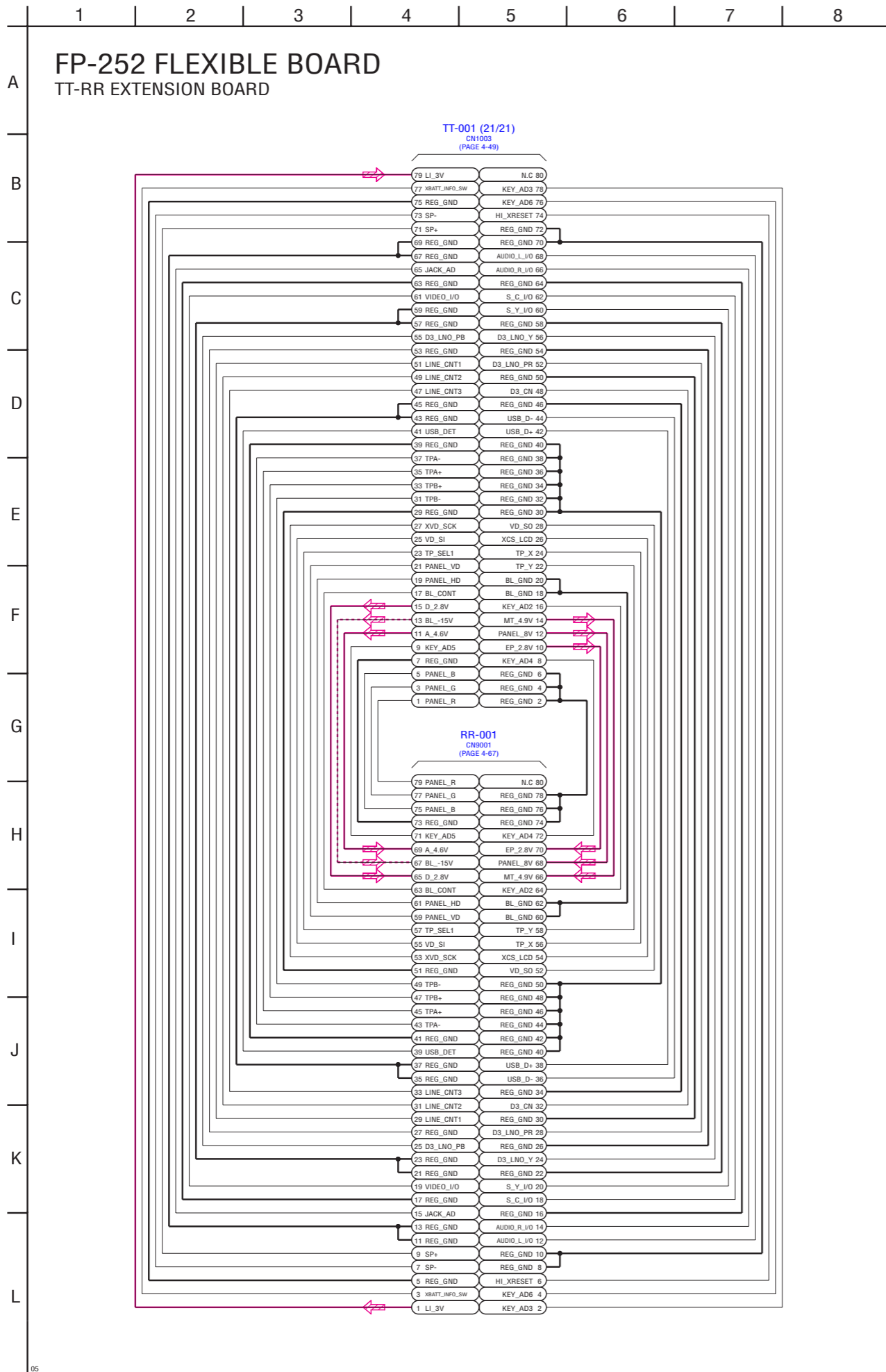
XX MARK:NO MOUNT
NO MARK:REC/PB MODE

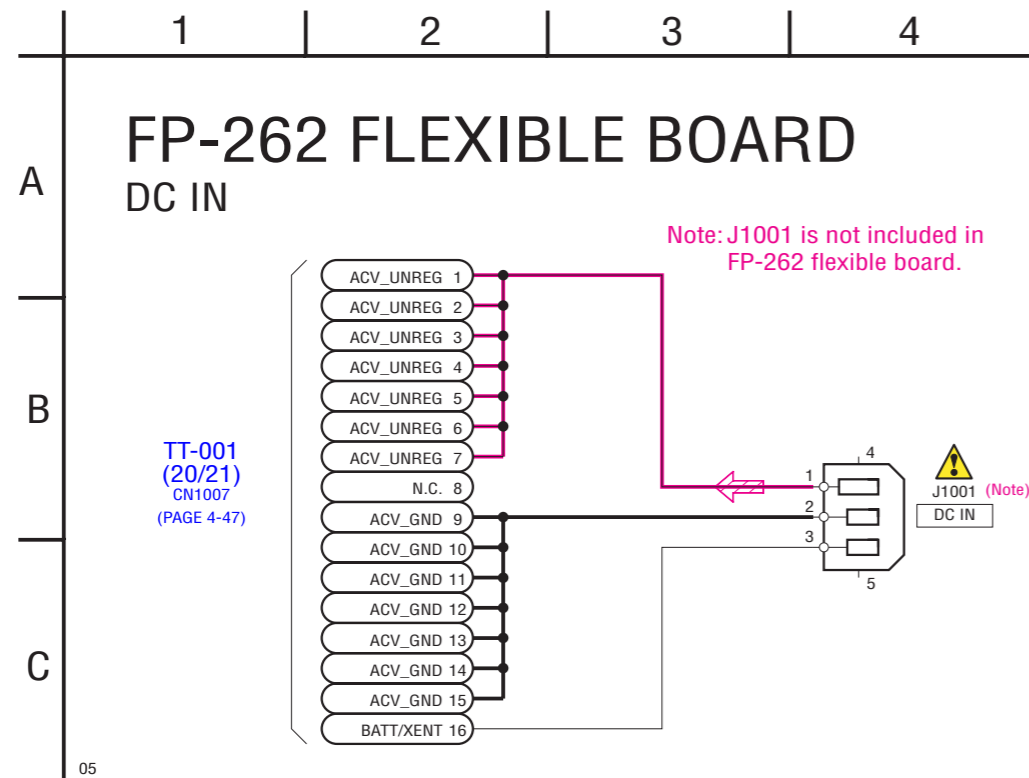
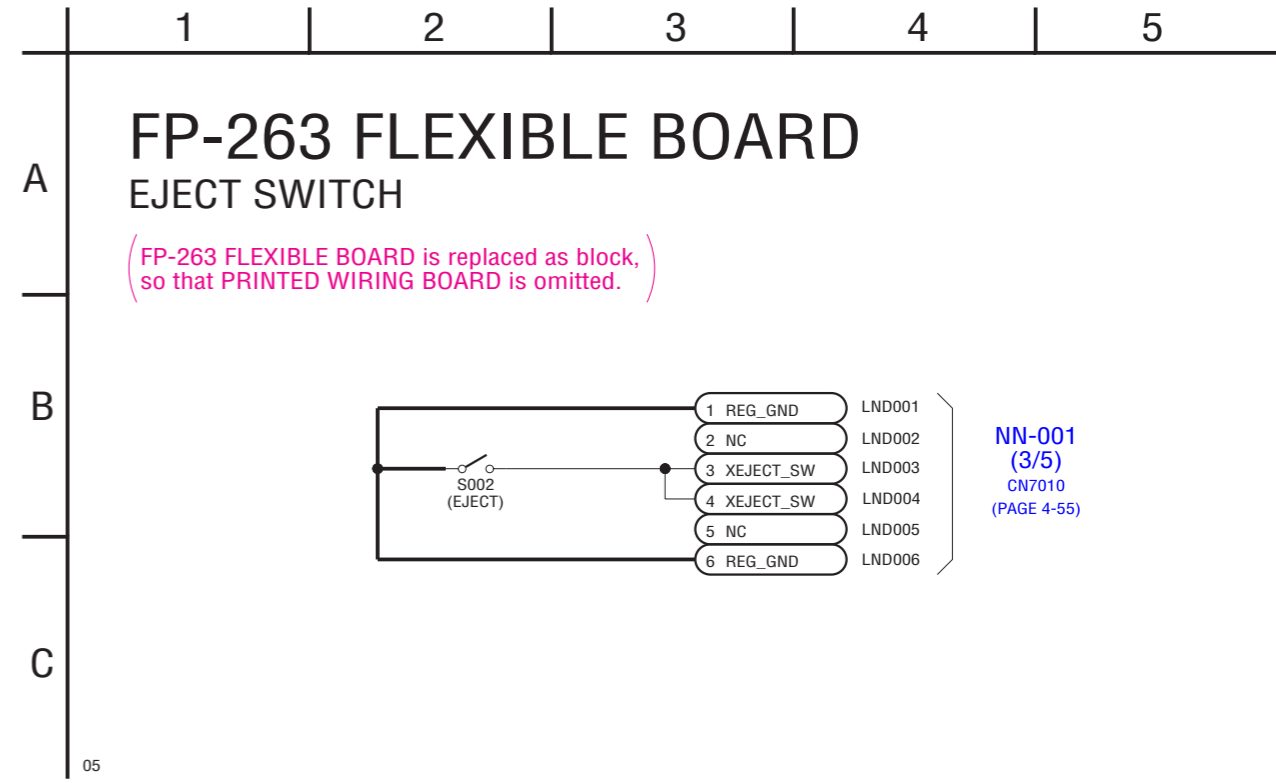
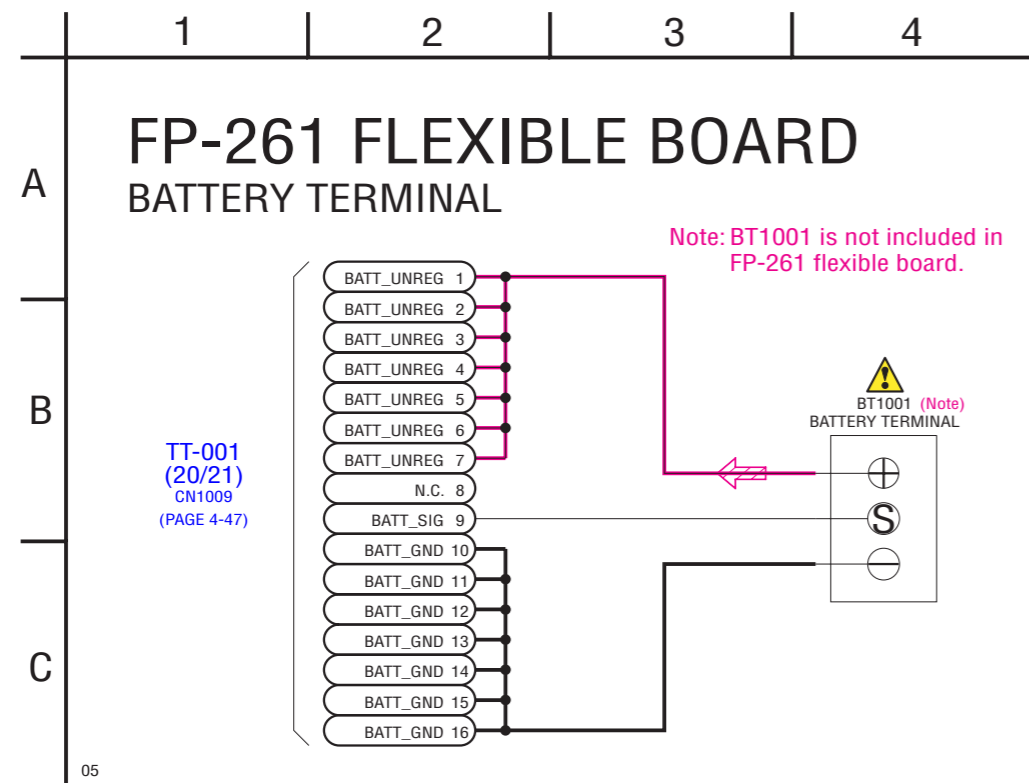
00-001
CN8101
(PAGE 4-61)

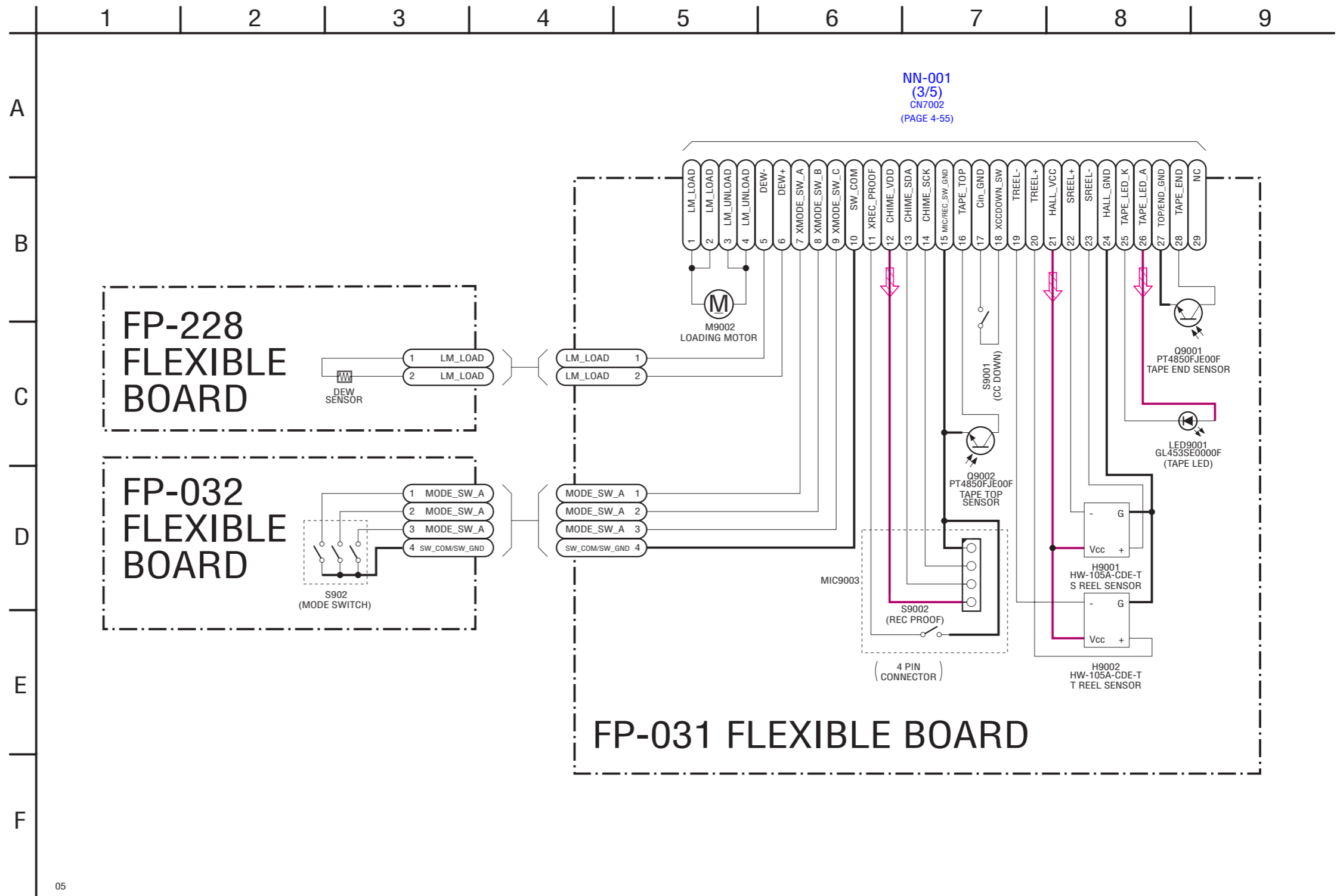


05



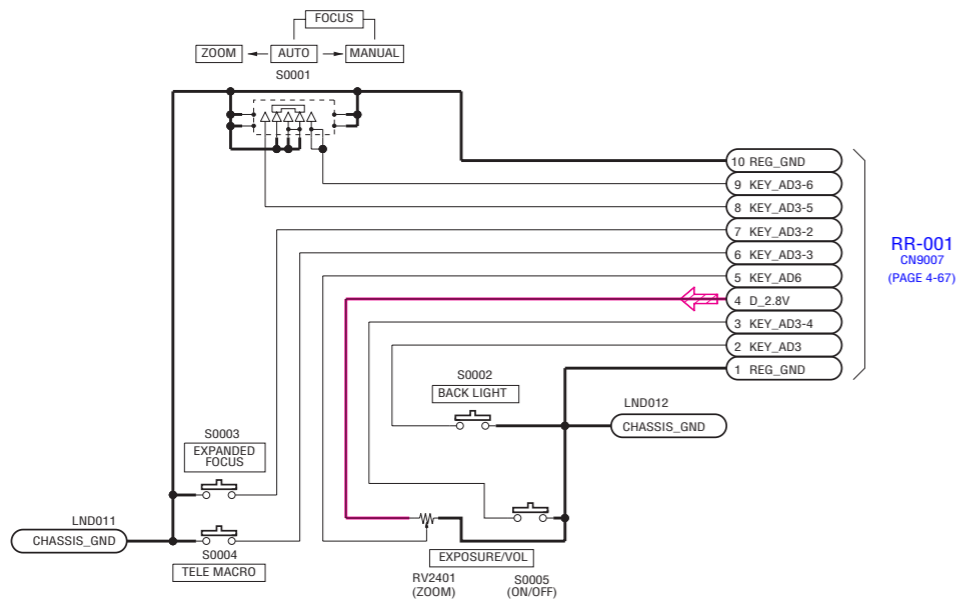






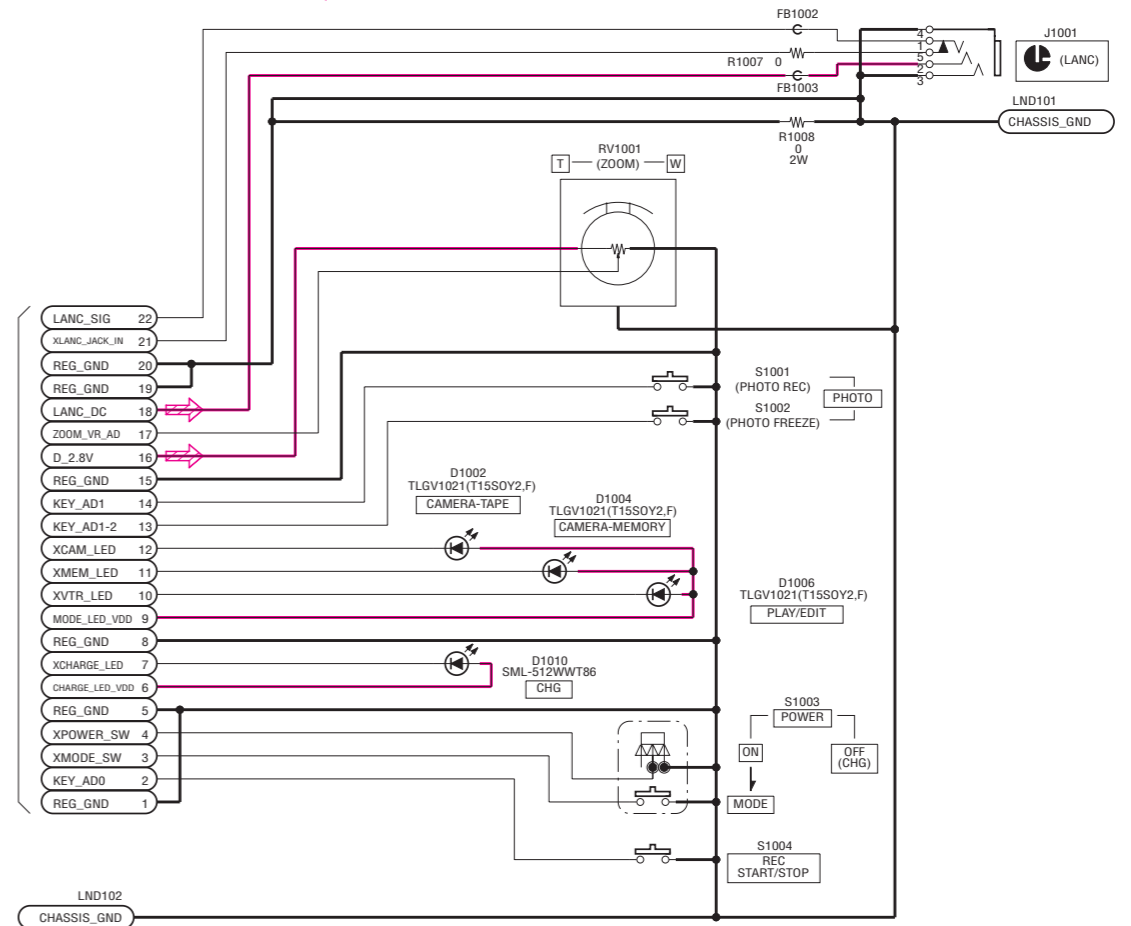
CONTROL SWITCH BLOCK (CK12300)

(CONTROL SWITCH BLOCK (CK12300) is replaced as block,
so that PRINTED WIRING BOARD is omitted.)



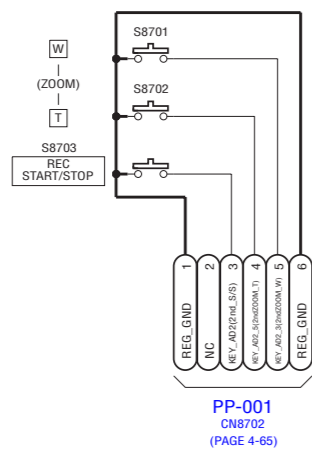
CONTROL SWITCH BLOCK (PS12300)

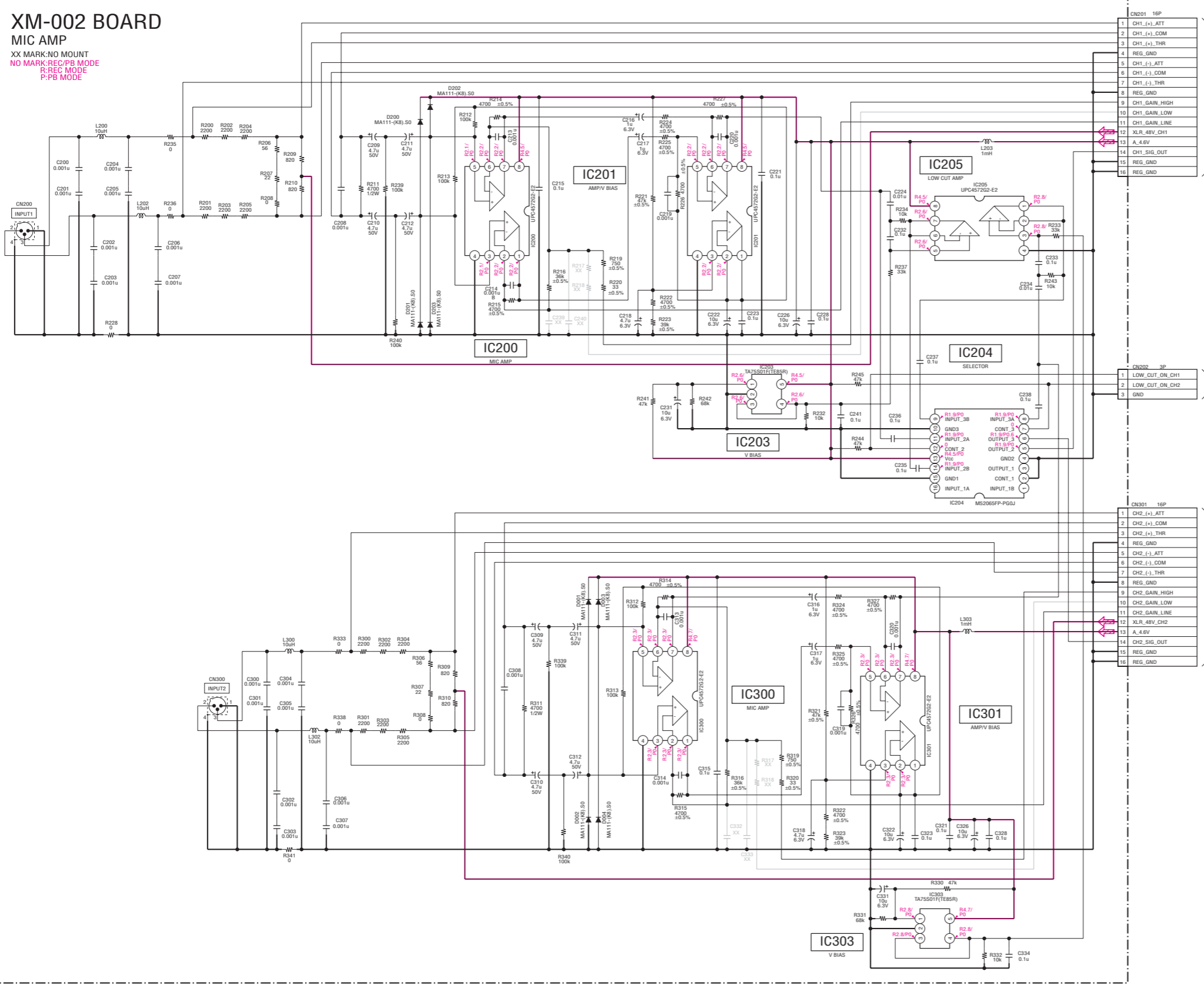
(CONTROL SWITCH BLOCK (PS12300) is replaced as block,
so that PRINTED WIRING BOARD is omitted.)



CONTROL KEY BLOCK (SB9000)

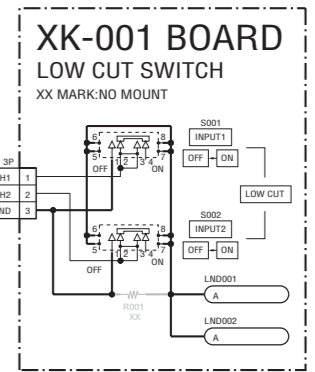
(CONTROL KEY BLOCK (SB9000) is replaced as block,
so that PRINTED WIRING BOARD is omitted.)

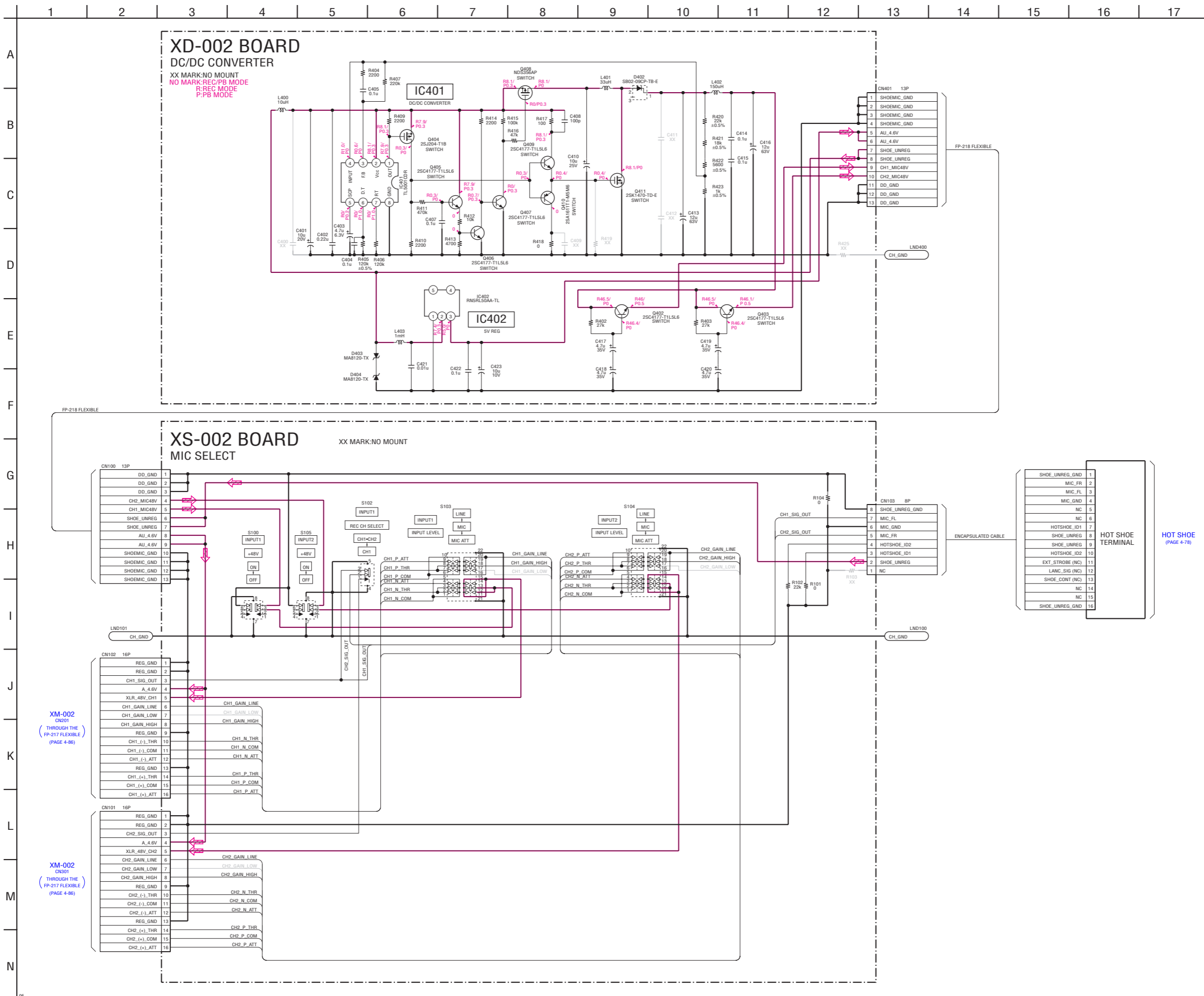




XS-002
CN202
(THROUGH THE
FP-217 FLEXIBLE)
(PAGE 4-87)

XS-002
CN301
(THROUGH THE
FP-217 FLEXIBLE)
(PAGE 4-87)





HOT SHOE
(PAGE 4-78)

XM-002
CA201
THROUGH THE
FP-217 FLEXIBLE
(PAGE 4-86)

XM-002
CA301
THROUGH THE
FP-217 FLEXIBLE
(PAGE 4-86)

4-3. PRINTED WIRING BOARDS

Link

• EE-001 BOARD	• FP-246 FLEXIBLE BOARD
• TT-001 BOARD (SIDE A)	• FP-247 FLEXIBLE BOARD
• TT-001 BOARD (SIDE B)	• FP-261 FLEXIBLE BOARD
• NN-001 BOARD (SIDE A)	• FP-262 FLEXIBLE BOARD
• NN-001 BOARD (SIDE B)	• FP-031, FP-032, FP-228 FLEXIBLE BOARD
• OO-001 BOARD	• FP-250 FLEXIBLE BOARD
• PP-001 BOARD	• FP-251 FLEXIBLE BOARD
• HH-001 BOARD	• FP-252 FLEXIBLE BOARD
• II-001 BOARD	• FP-253 FLEXIBLE BOARD
• RR-001 BOARD	• XM-002 BOARD
• WW-001 BOARD	• XK-001 BOARD
• UU-001 BOARD	• XD-002 BOARD
• YY-001 BOARD	• XS-002 BOARD
• FP-245 FLEXIBLE BOARD	




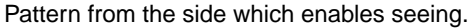
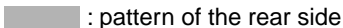

• COMMON NOTE FOR PRINTED WIRING BOARDS	
• WAVEFORMS	• MOUNTED PARTS LOCATION

4-3. PRINTED WIRING BOARDS

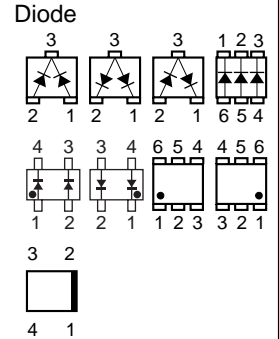
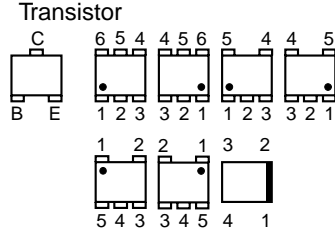
4-3. PRINTED WIRING BOARDS

(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.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
-  : panel designation





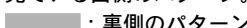

- Chip parts.



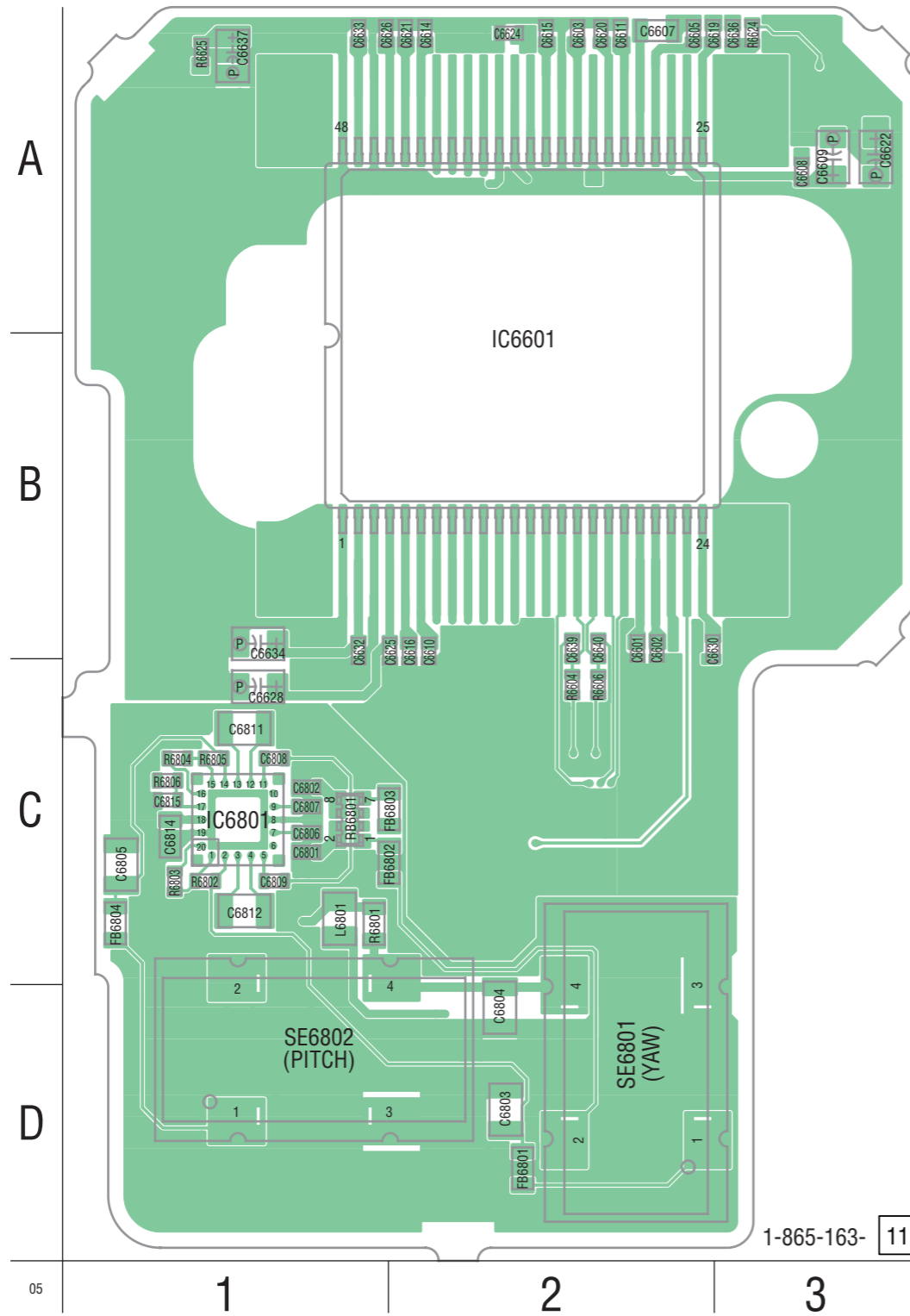
(JAPANESE)

プリント図共通ノート

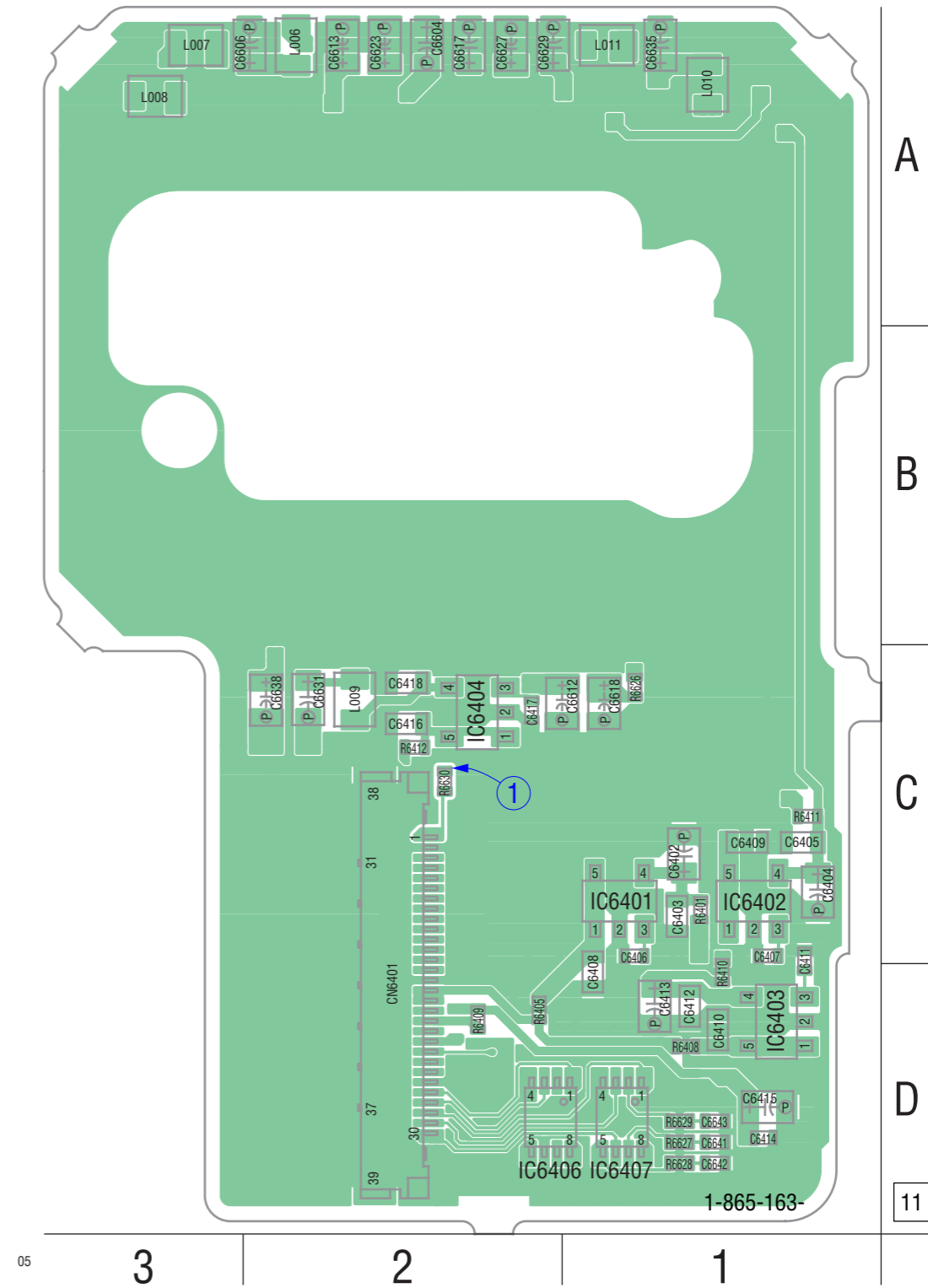
【プリント図ノート】

-  : 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。
- ○番号は波形図の照合番号。
- 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-001 BOARD (SIDE A)

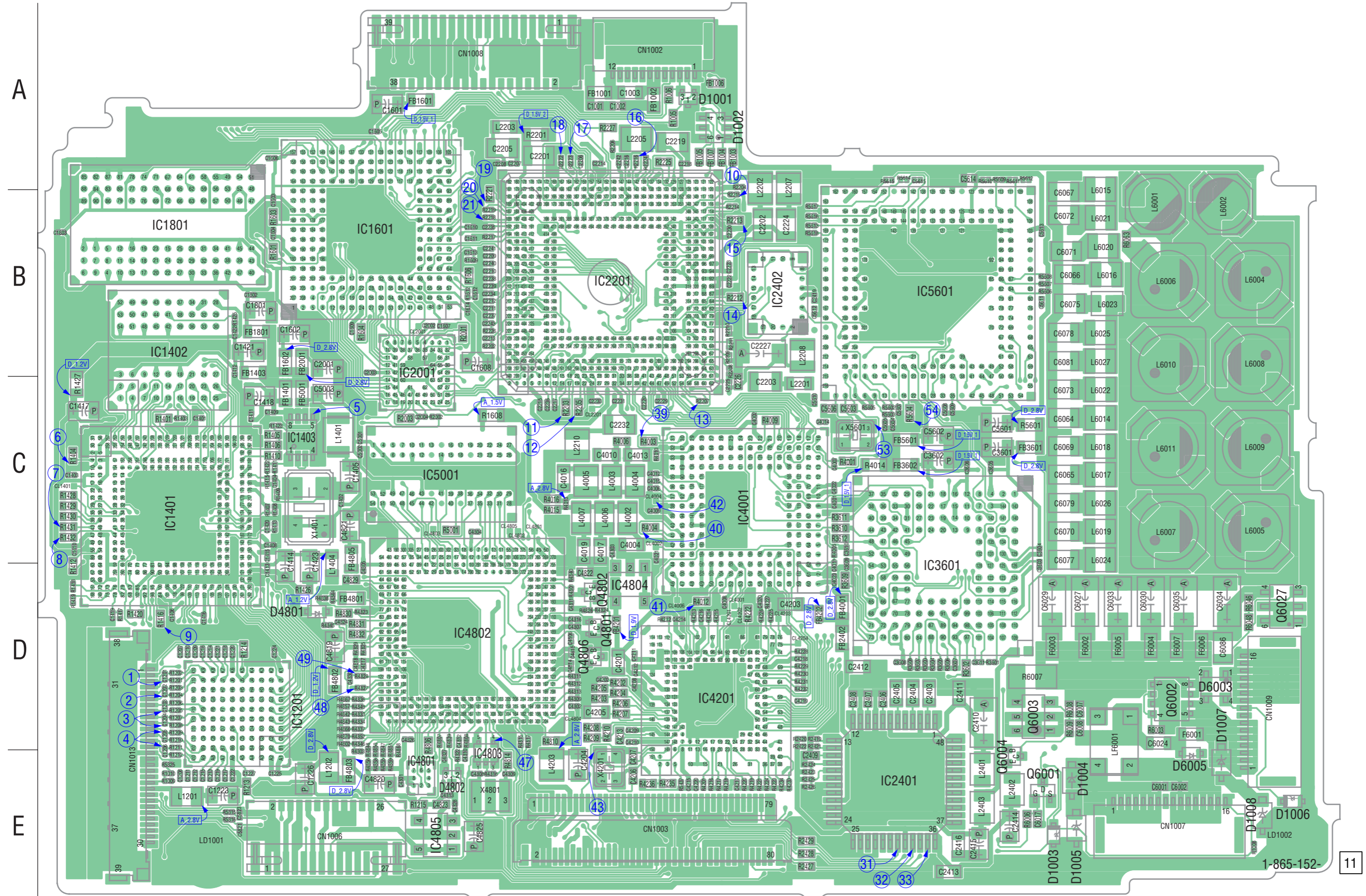


EE-001 BOARD (SIDE B)

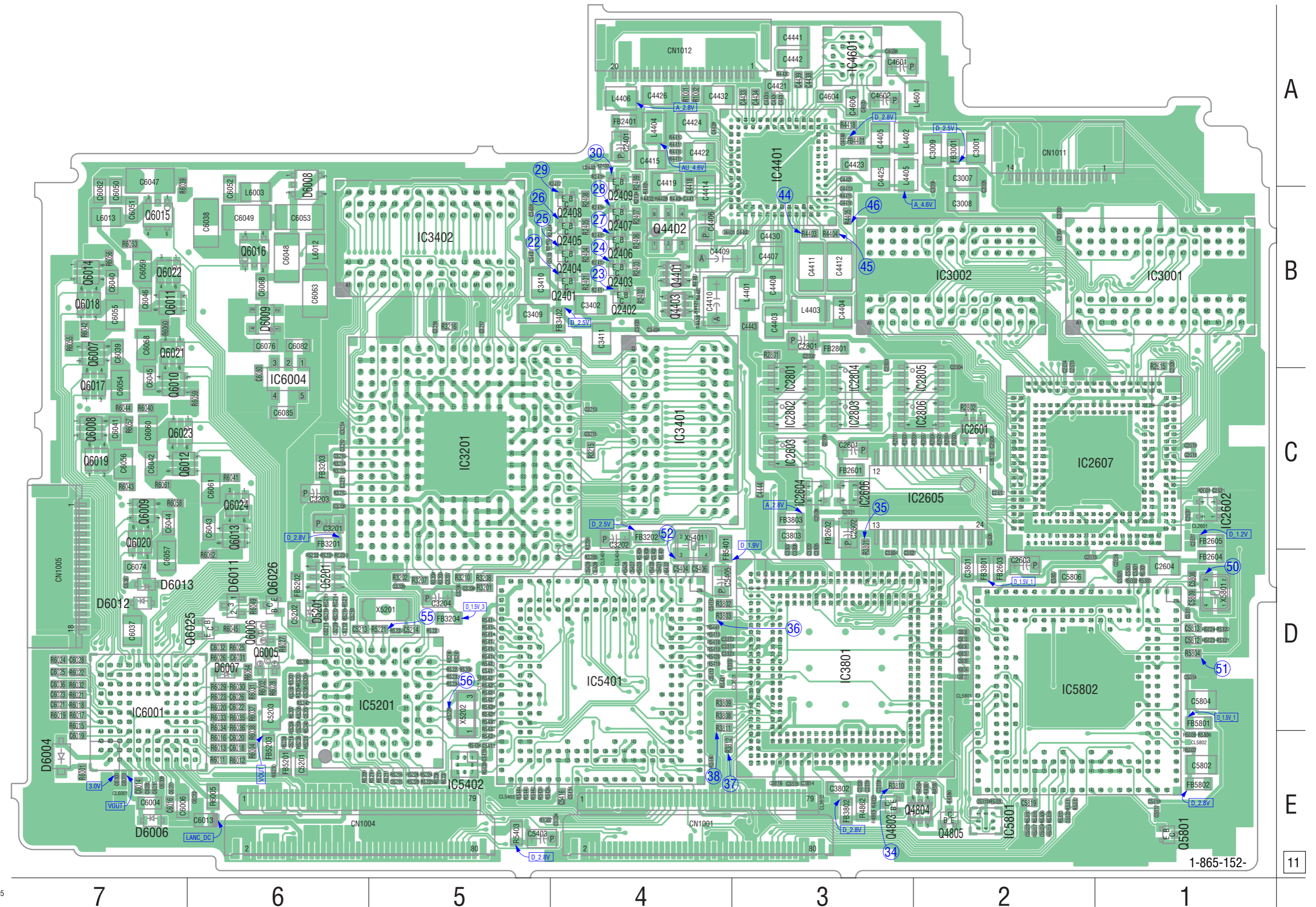


 : Uses unleaded solder.

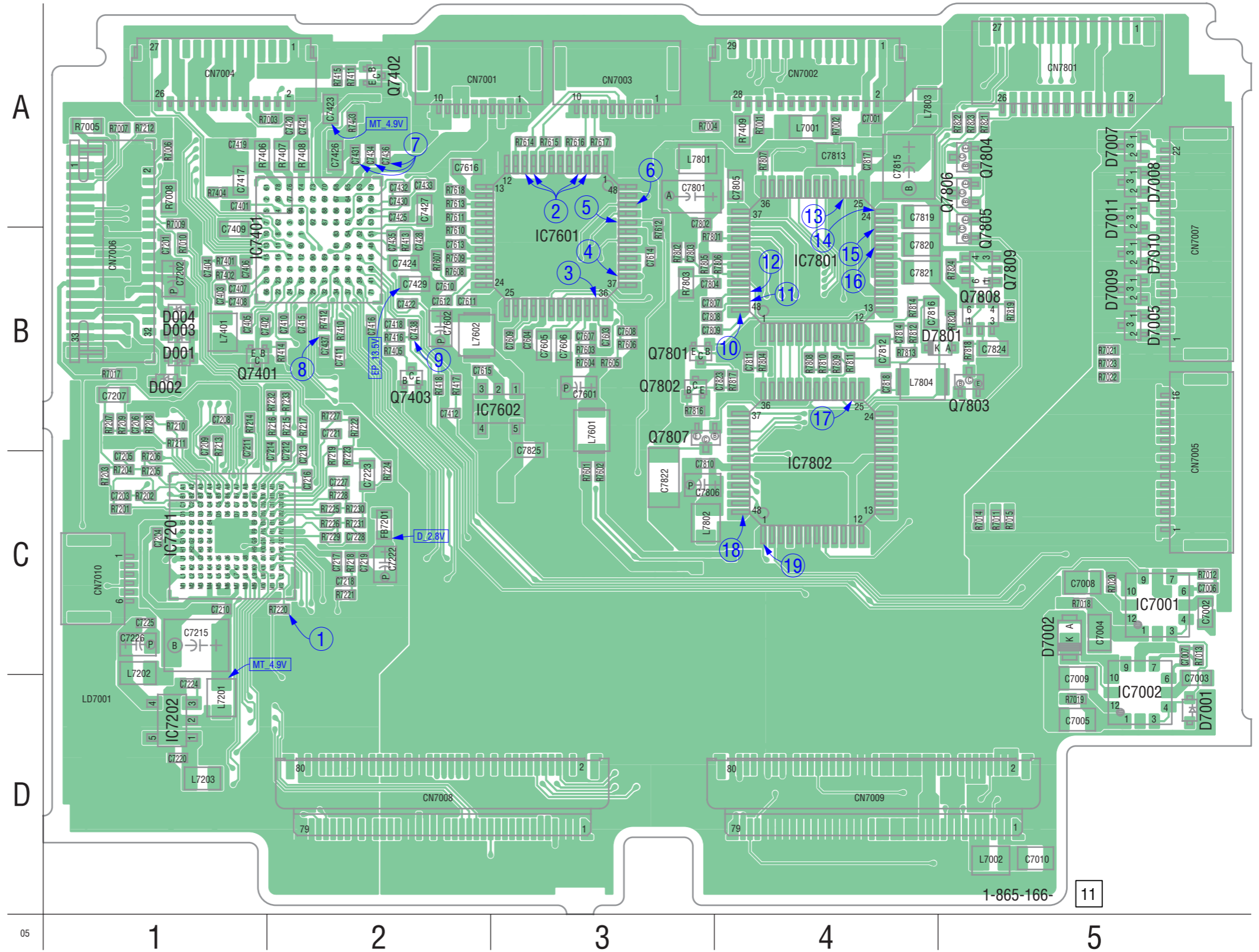
TT-001 BOARD (SIDE A)



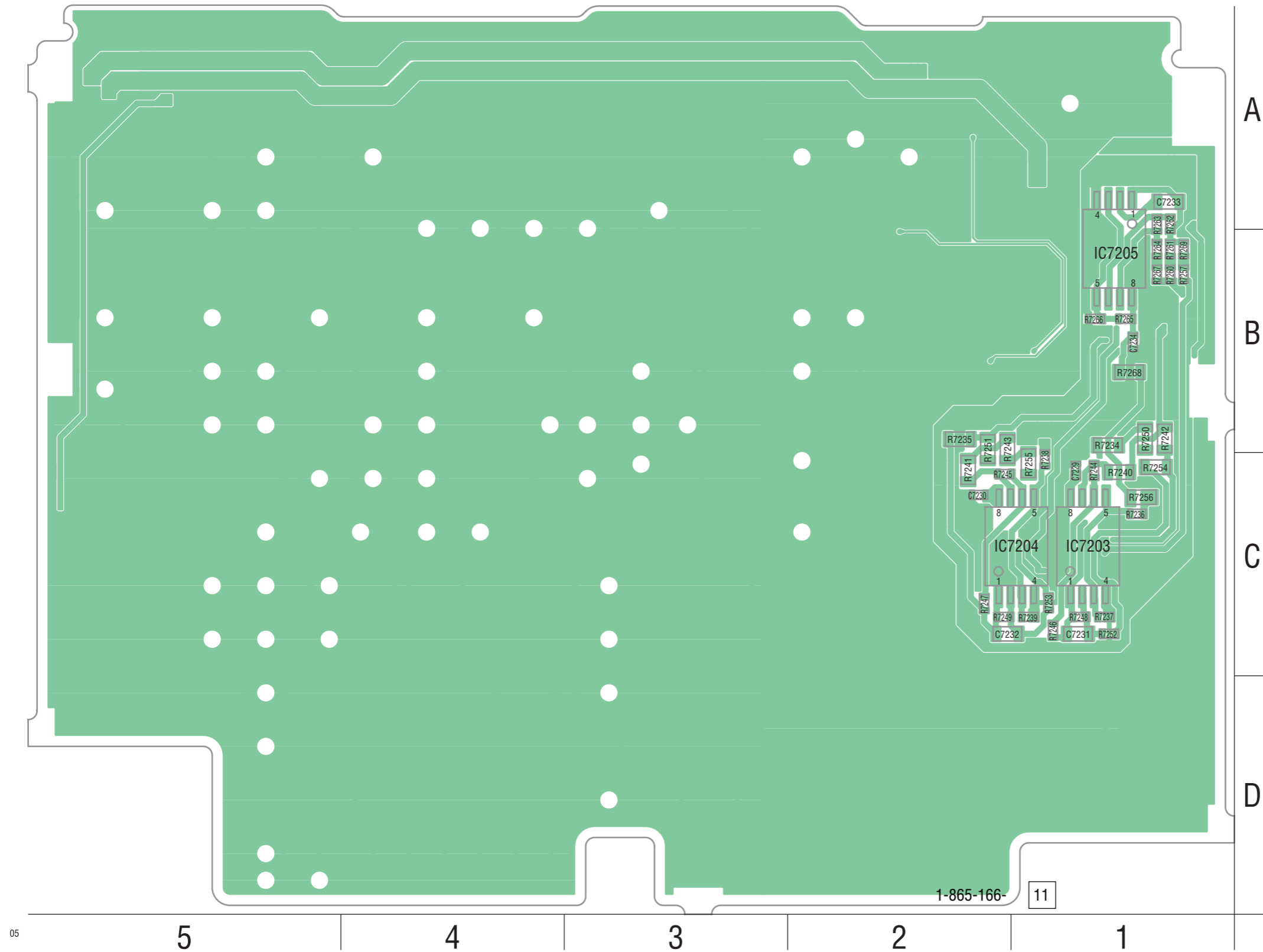
TT-001 BOARD (SIDE B)



NN-001 BOARD (SIDE A)



NN-001 BOARD (SIDE B)



05

5

4

3

2

1

A

B

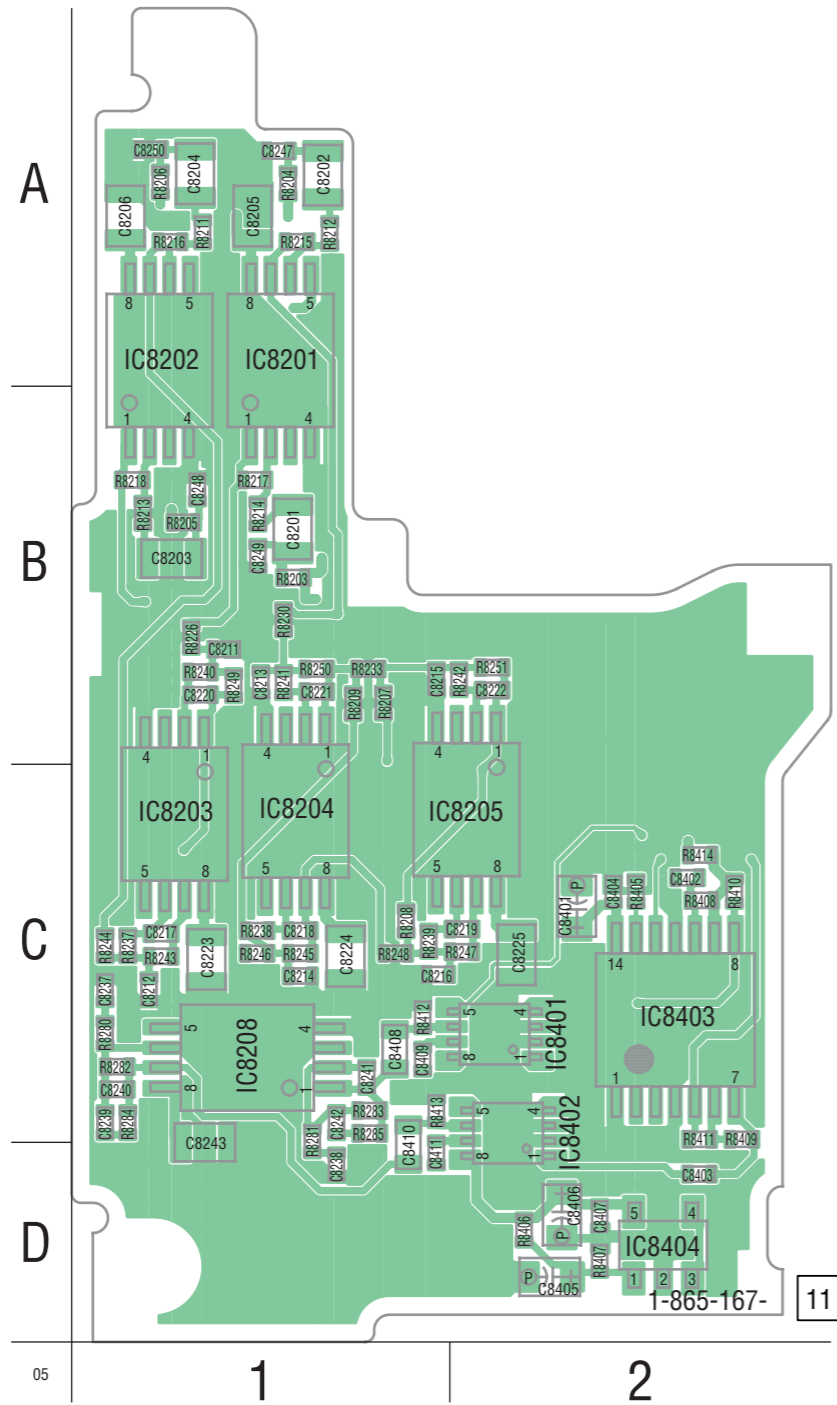
C

D

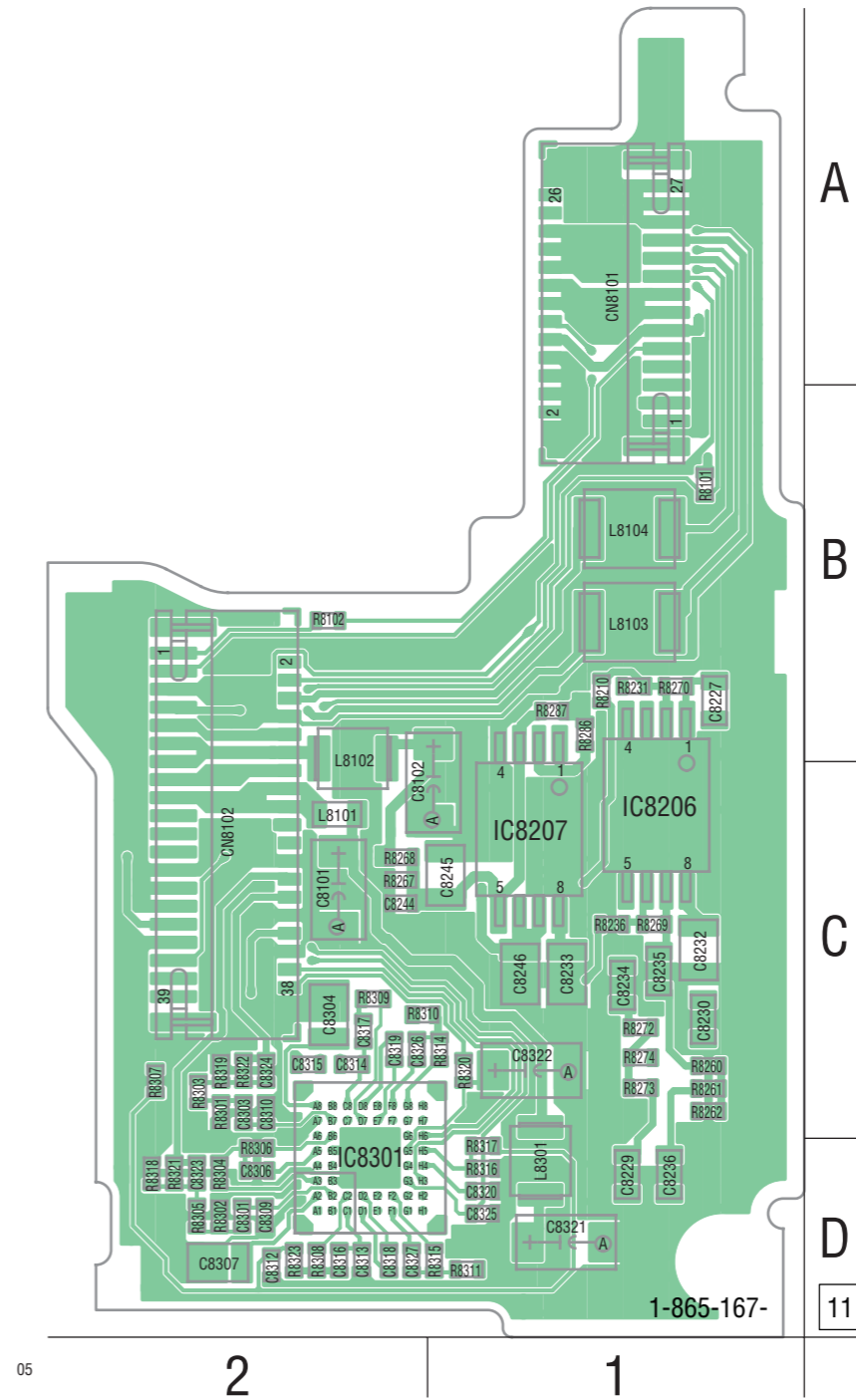
1-865-166-

11

OO-001 BOARD (SIDE A)

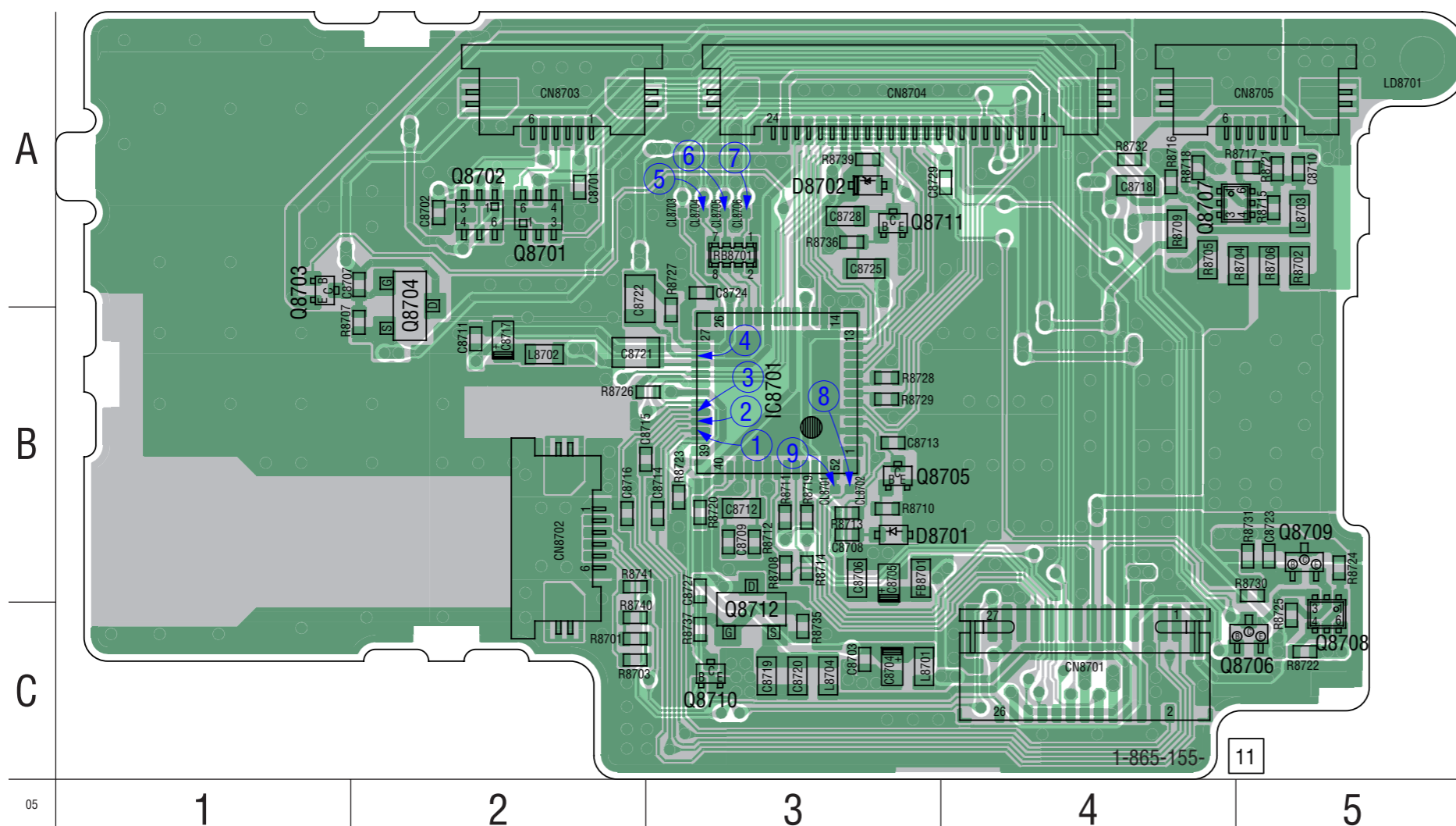


OO-001 BOARD (SIDE B)

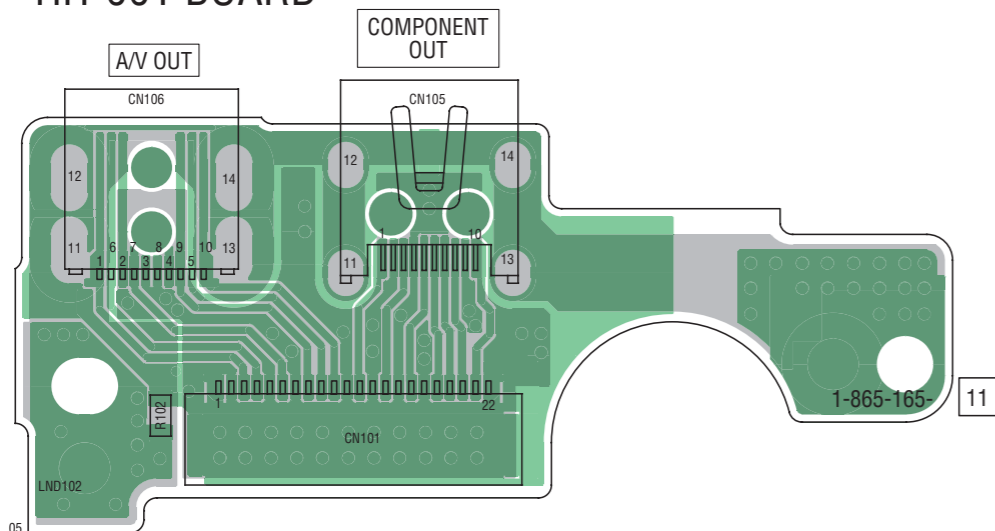


 : Uses unleaded solder.

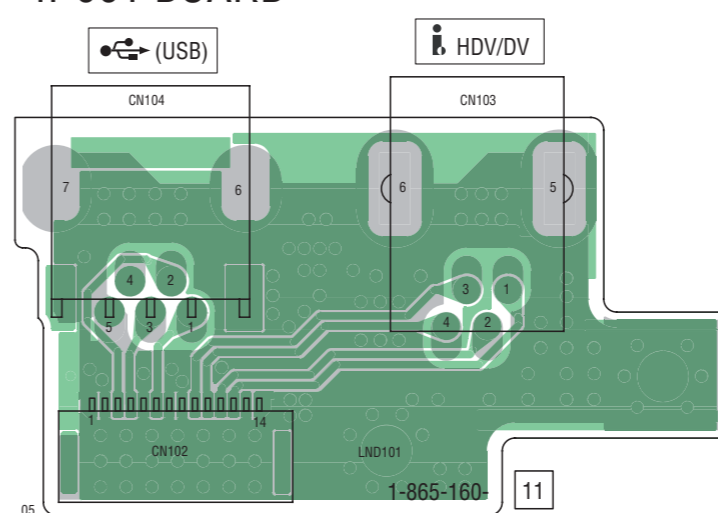
PP-001 BOARD




HH-001 BOARD

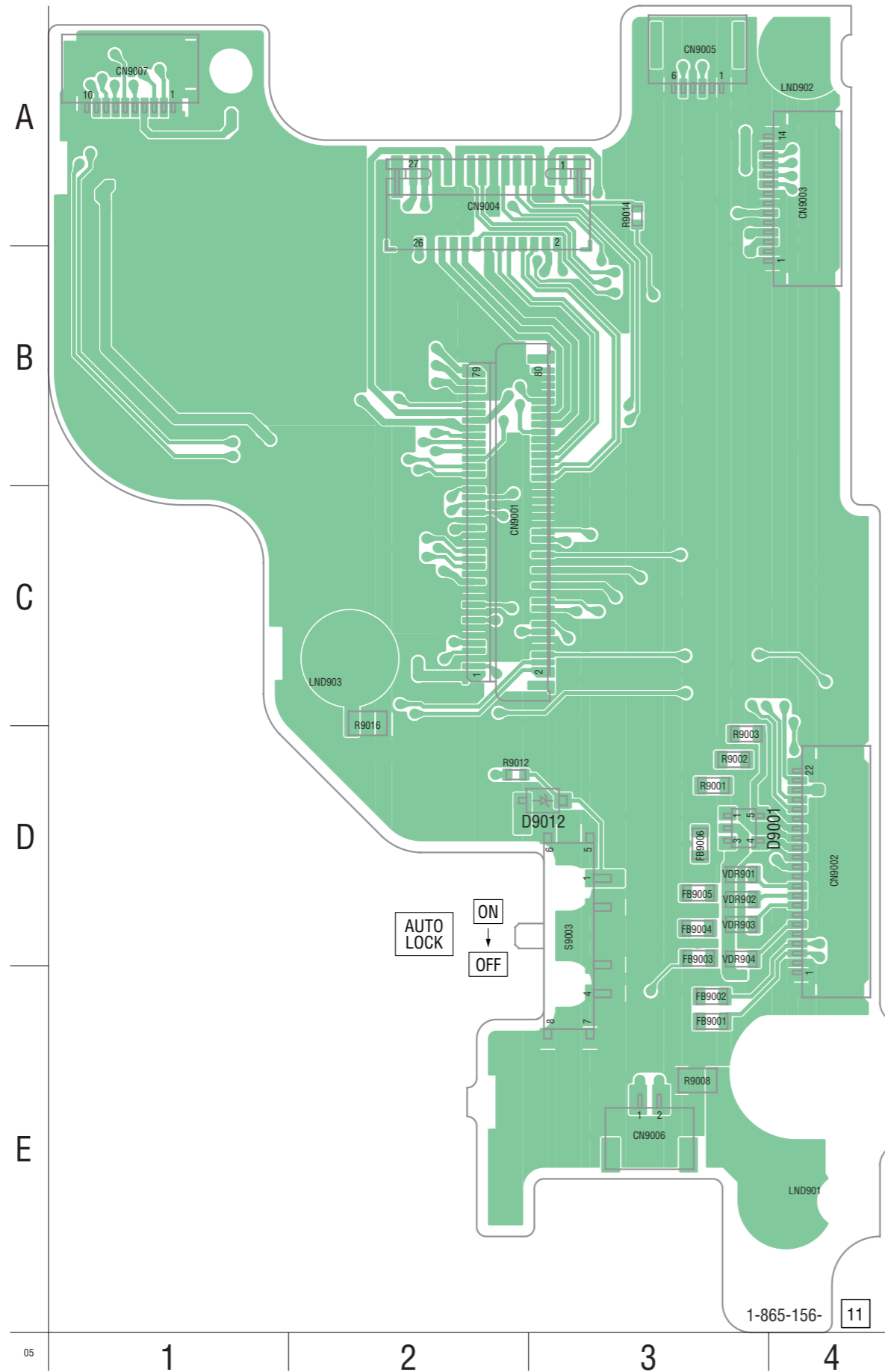


II-001 BOARD

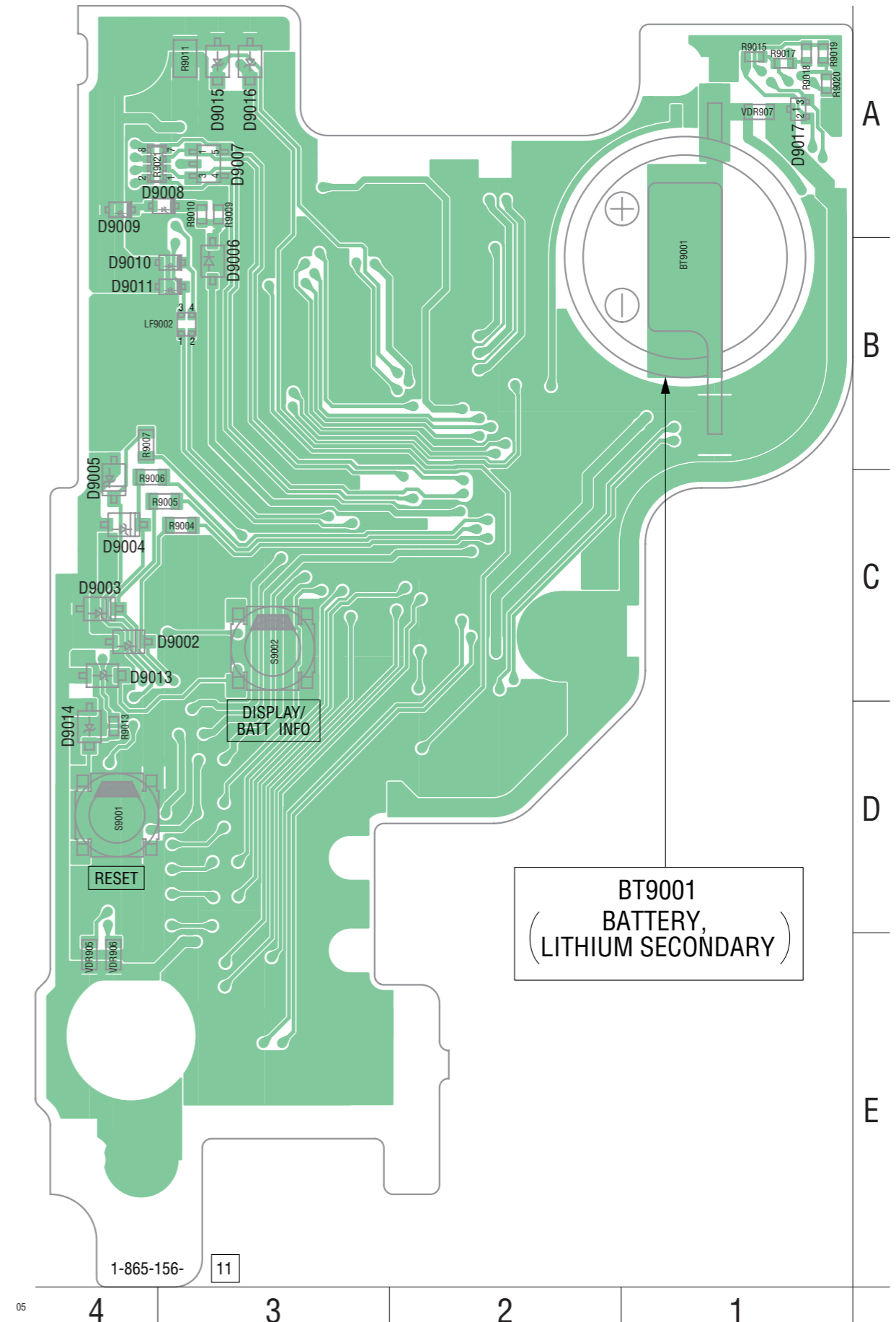


 : Uses unleaded solder.

RR-001 BOARD (SIDE A)

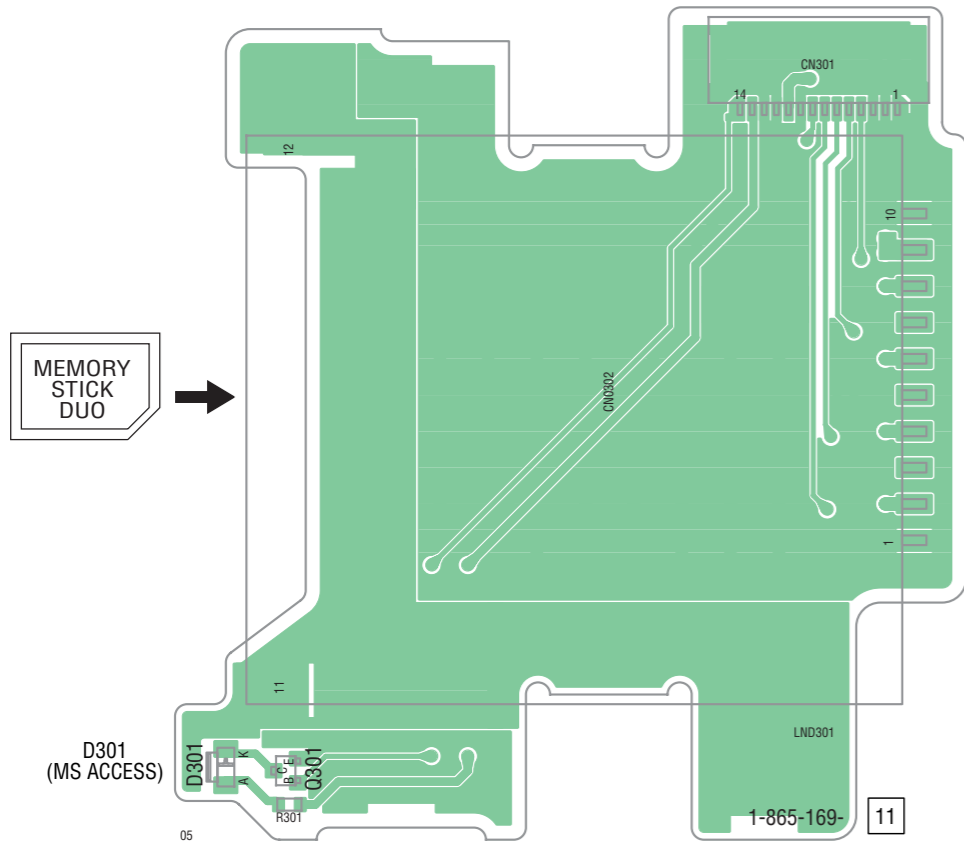


RR-001 BOARD (SIDE B)

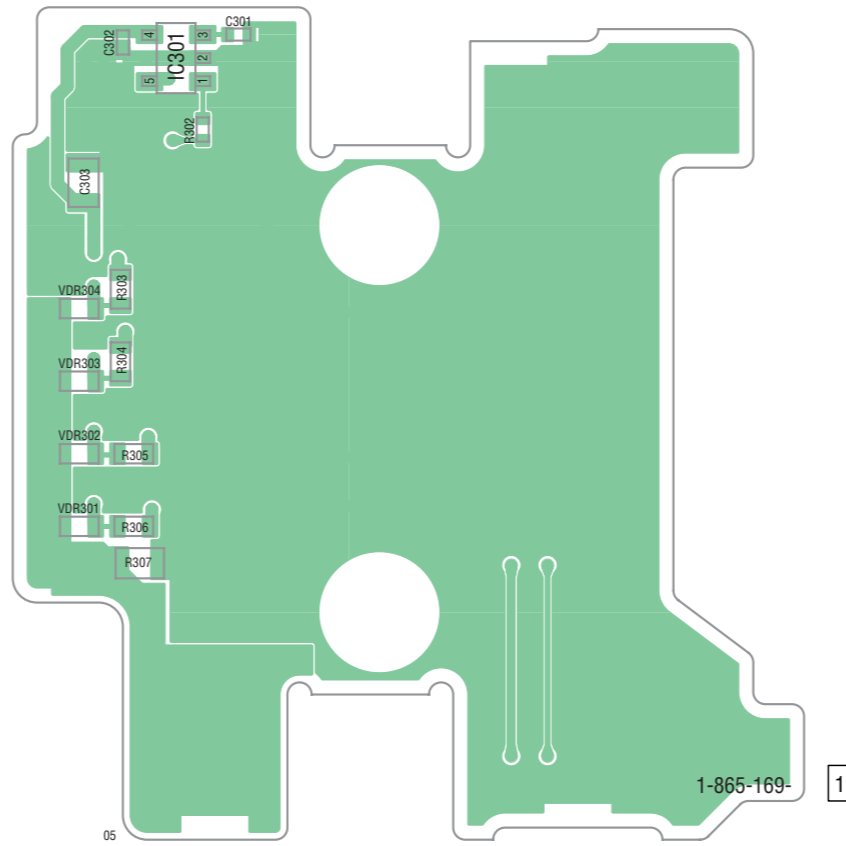


 : Uses unleaded solder.

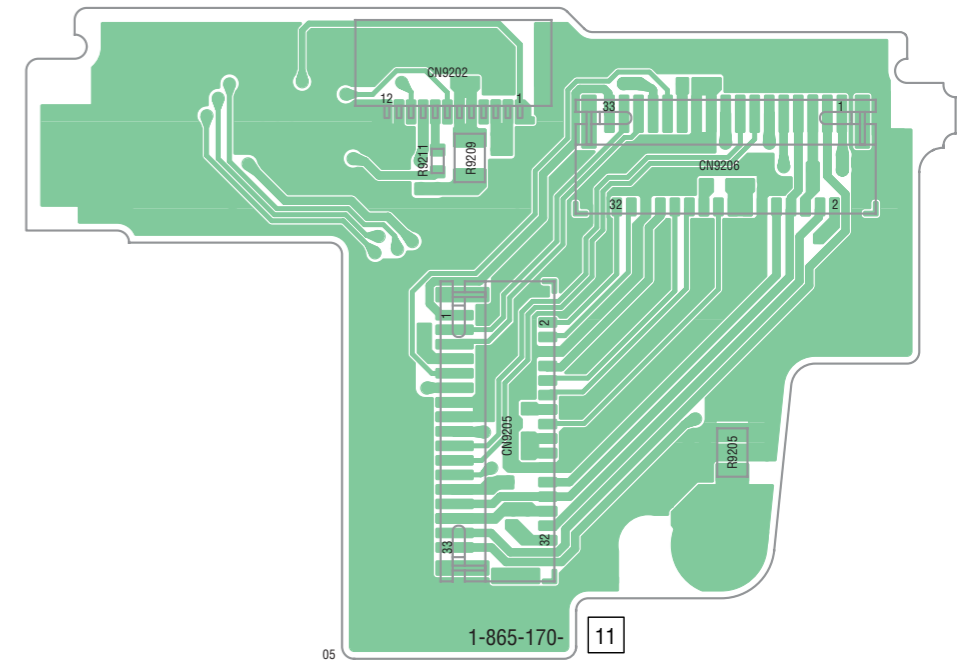
WW-001 BOARD (SIDE A)



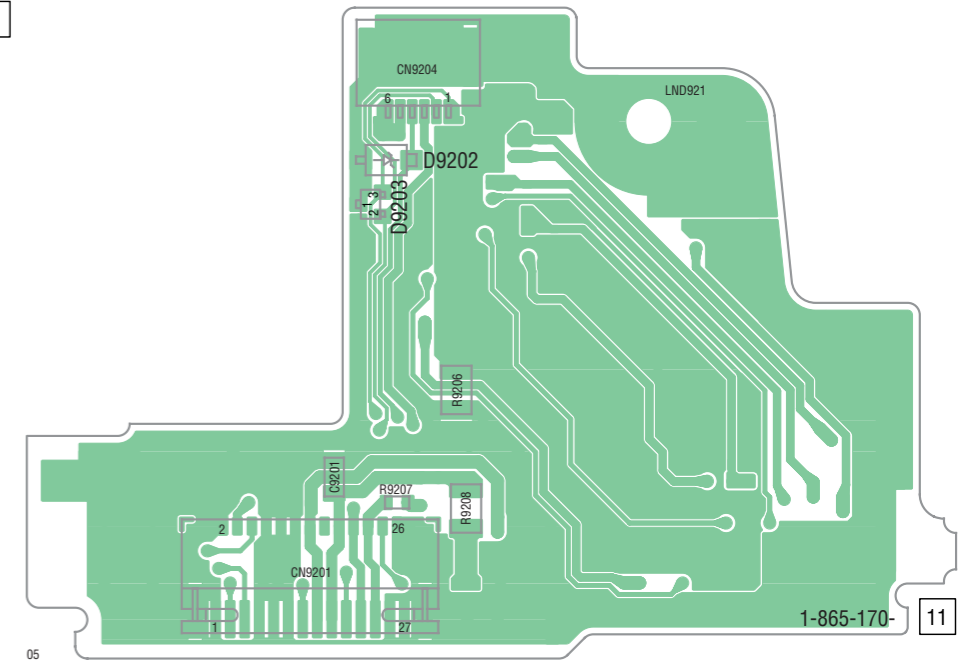
WW-001 BOARD (SIDE B)



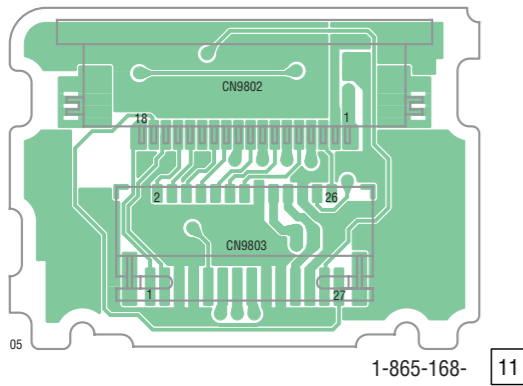
YY-001 BOARD (SIDE A)



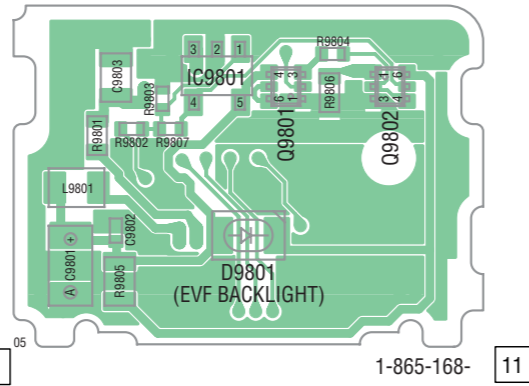
YY-001 BOARD (SIDE B)



UU-001 BOARD (SIDE A)



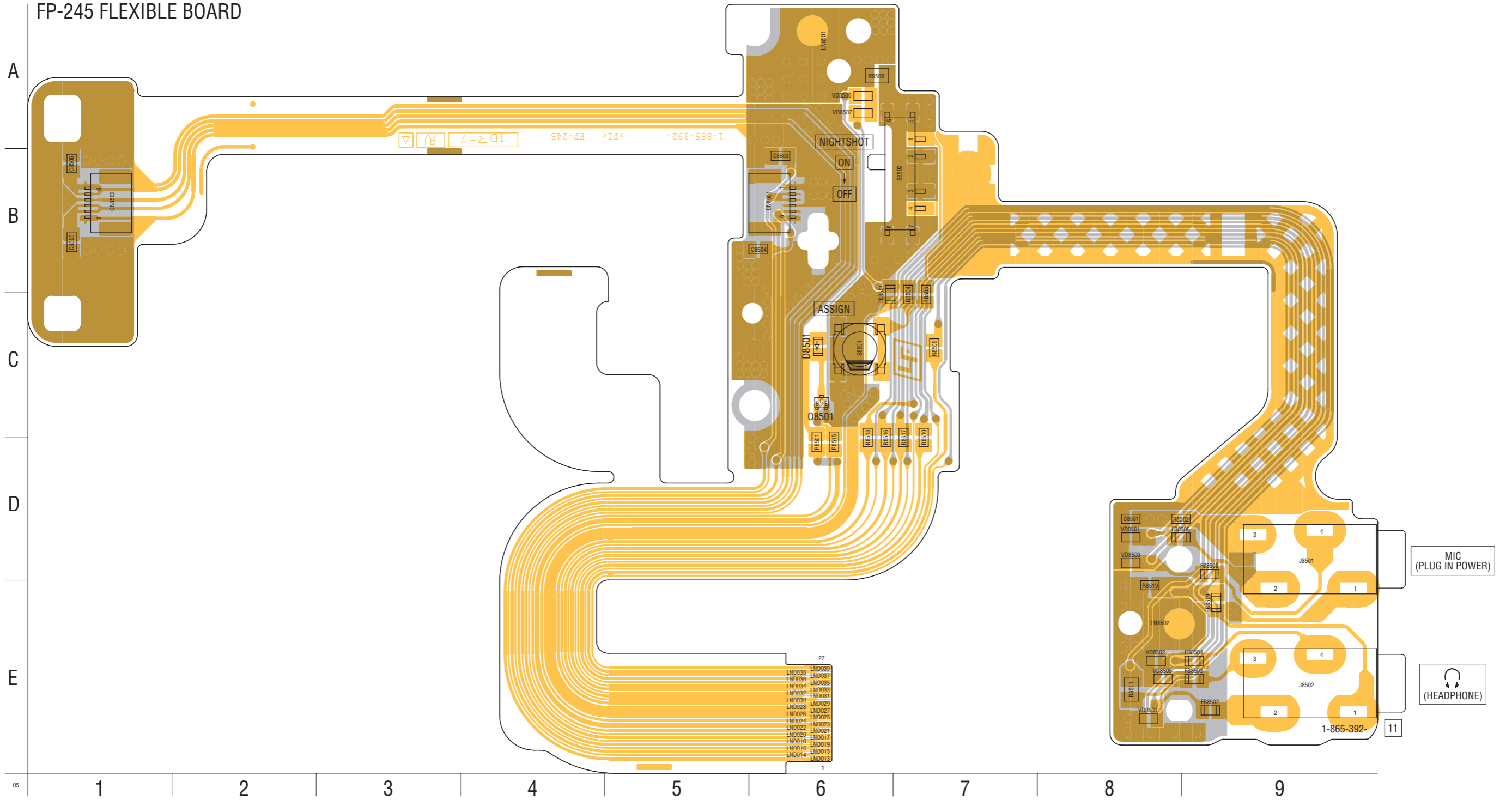
UU-001 BOARD (SIDE B)



FP-245 (2 layers)

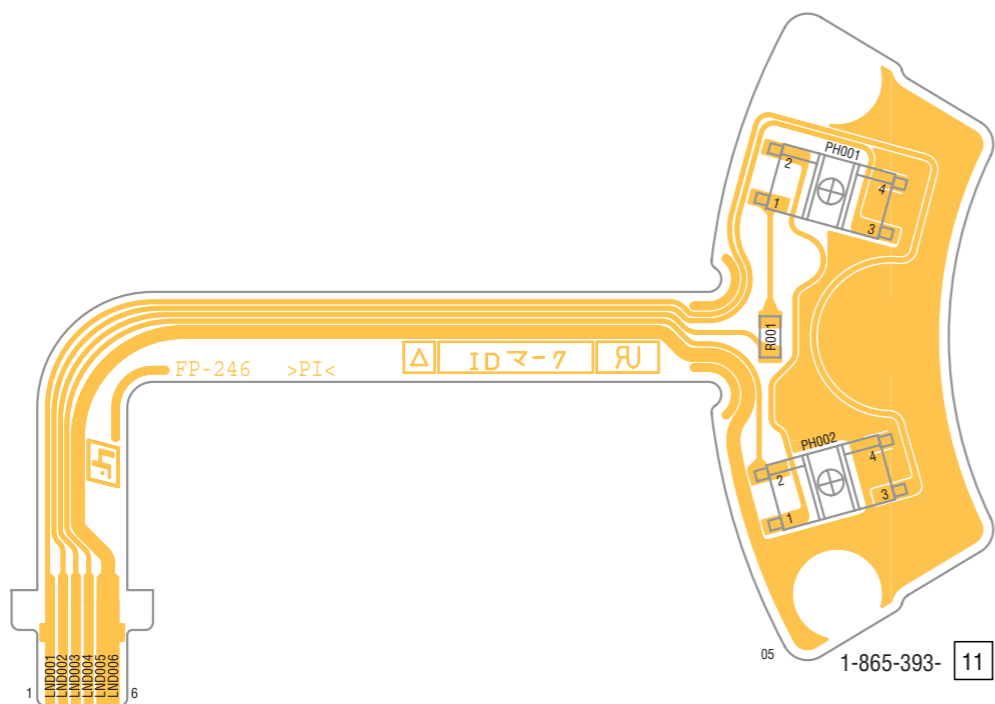
 : Uses unleaded solder.

FP-245 FLEXIBLE BOARD

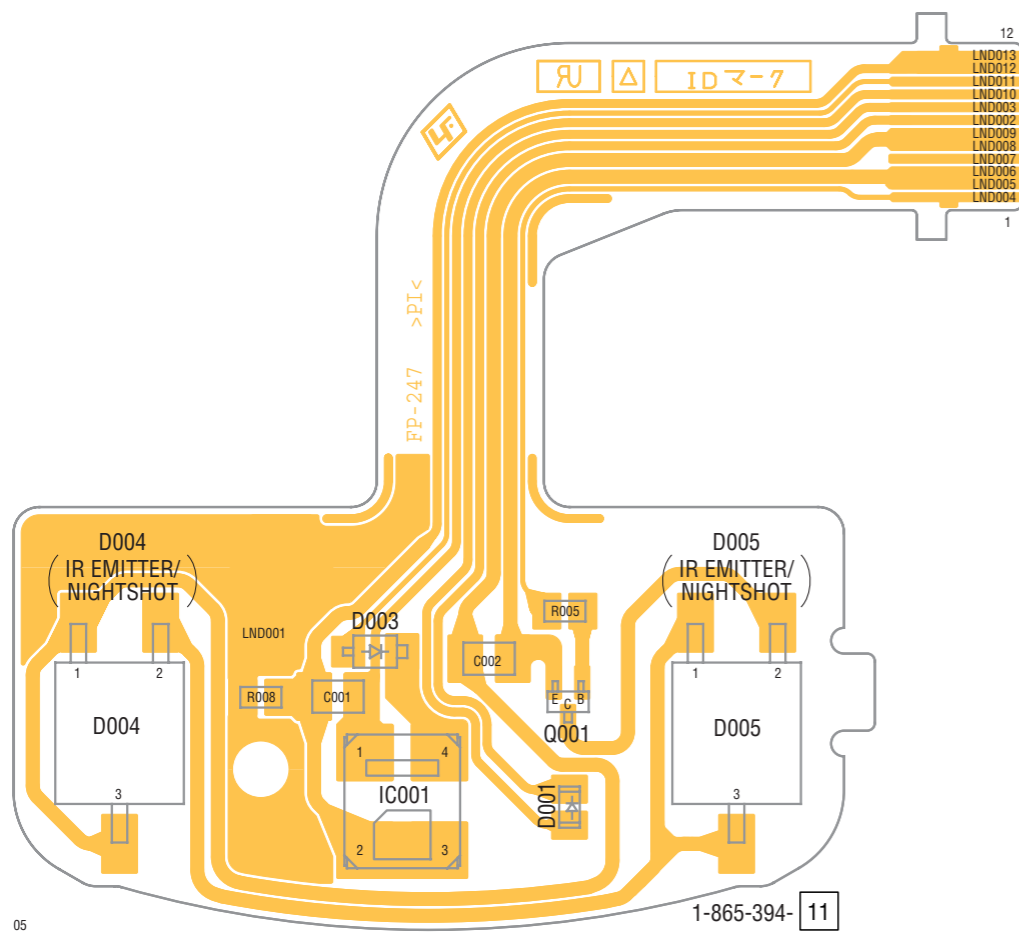


 : Uses unleaded solder.

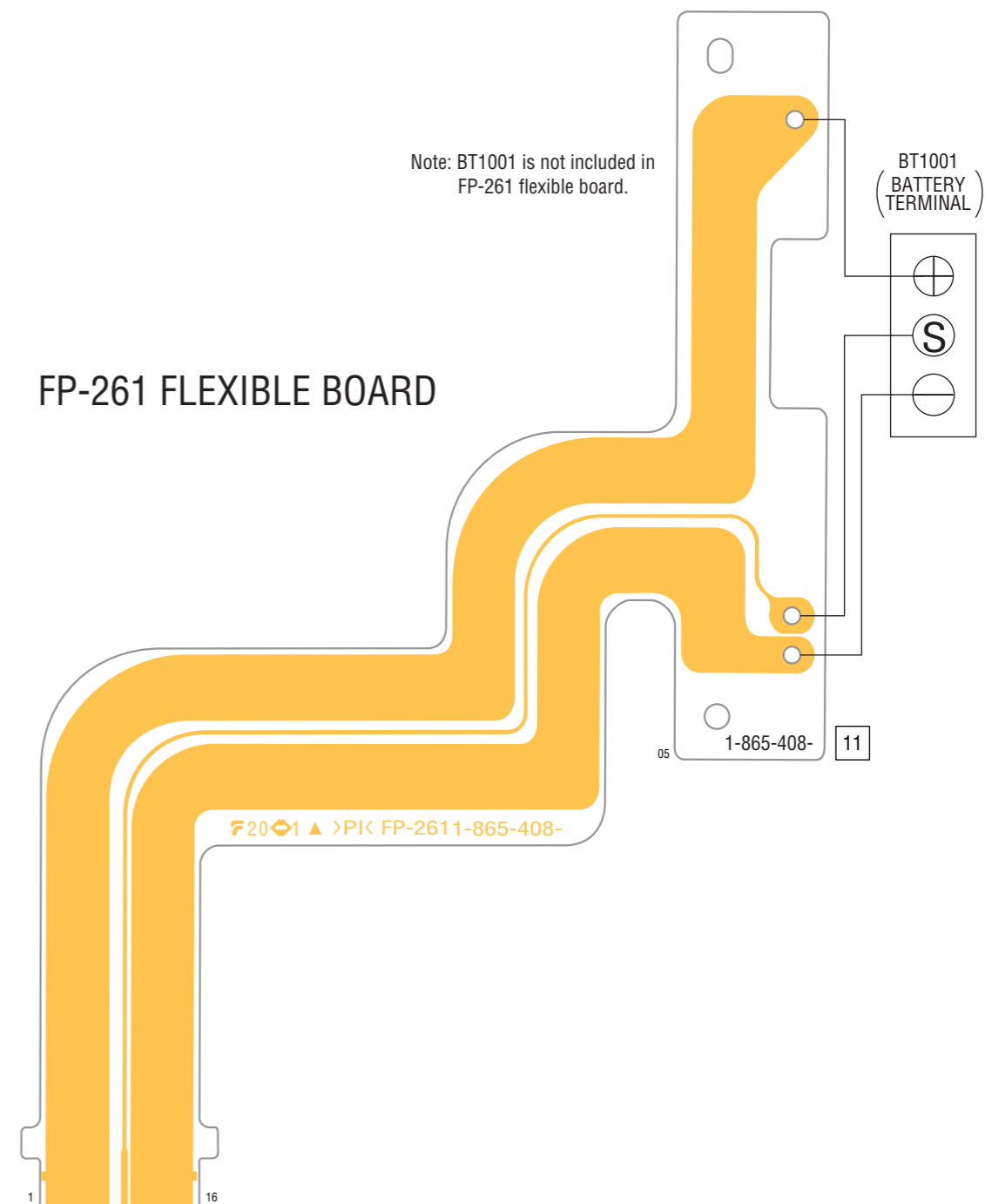
FP-246 FLEXIBLE BOARD



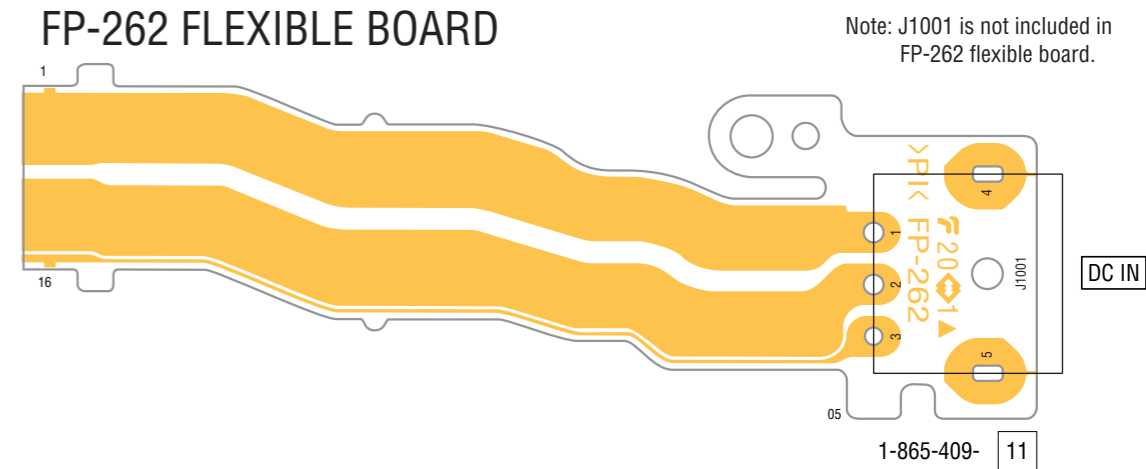
FP-247 FLEXIBLE BOARD



FP-261 FLEXIBLE BOARD

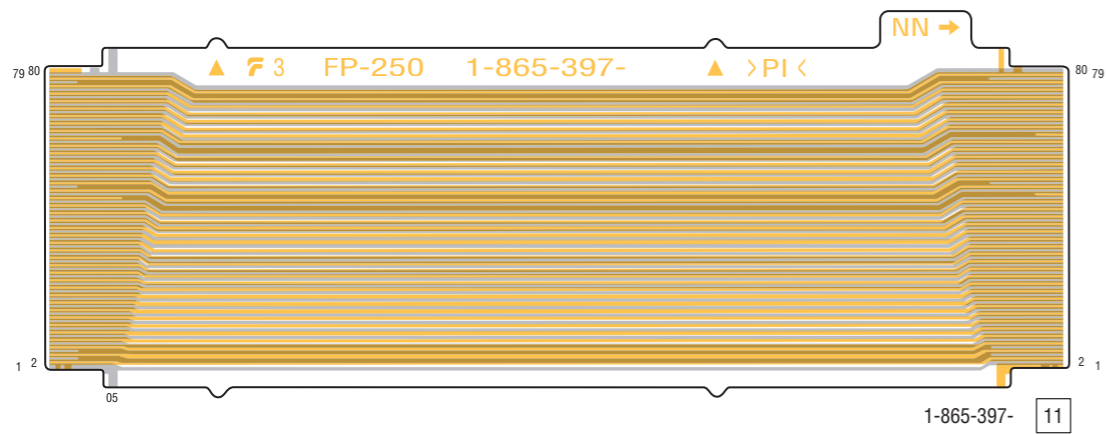


FP-262 FLEXIBLE BOARD

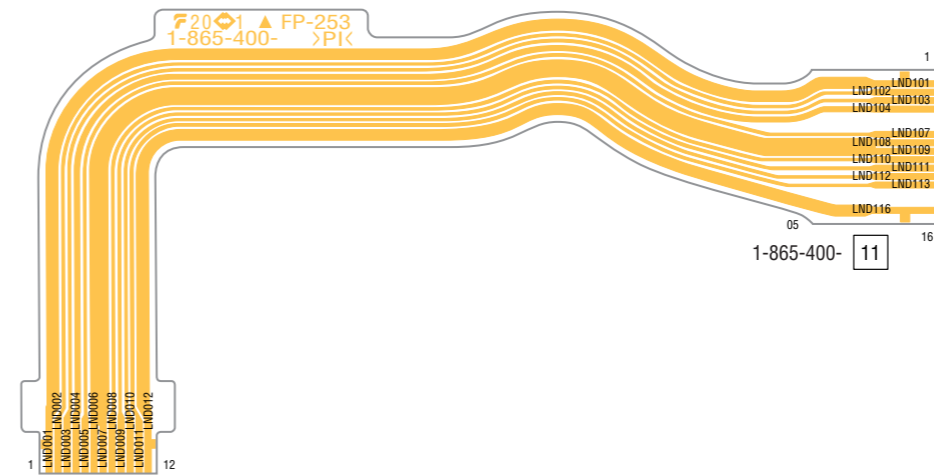


 : Uses unleaded solder.

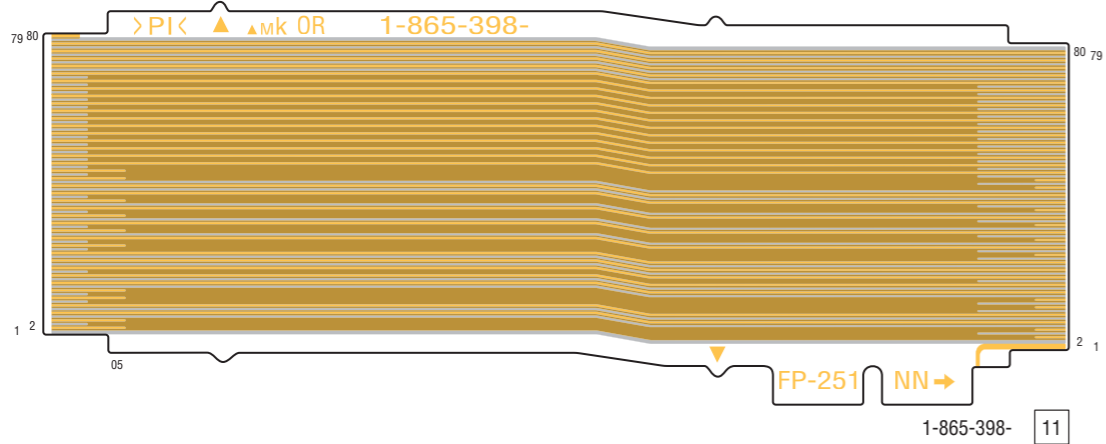
FP-250 FLEXIBLE BOARD



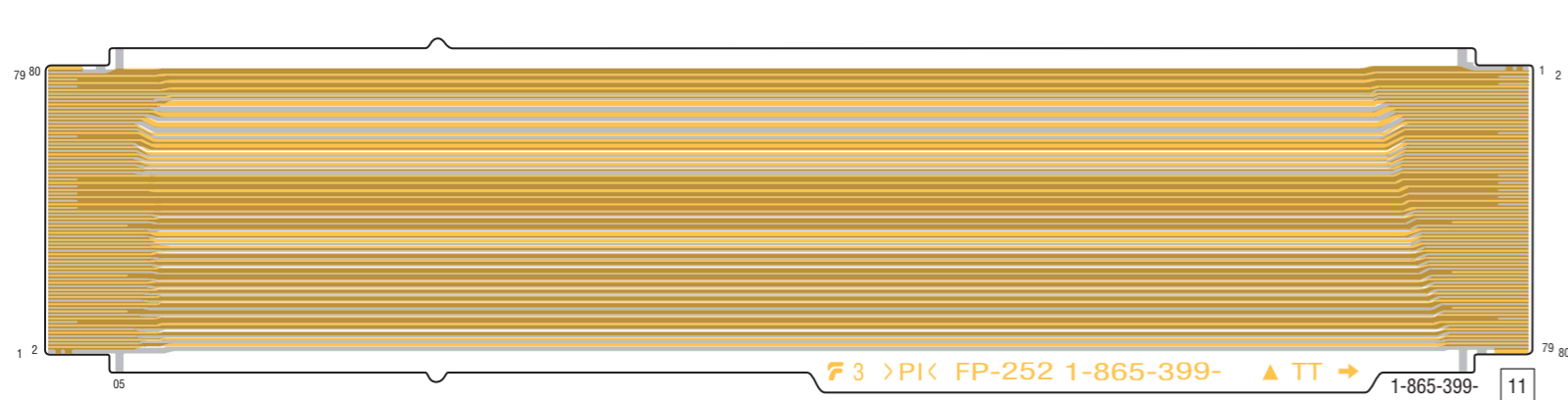
FP-253 FLEXIBLE BOARD




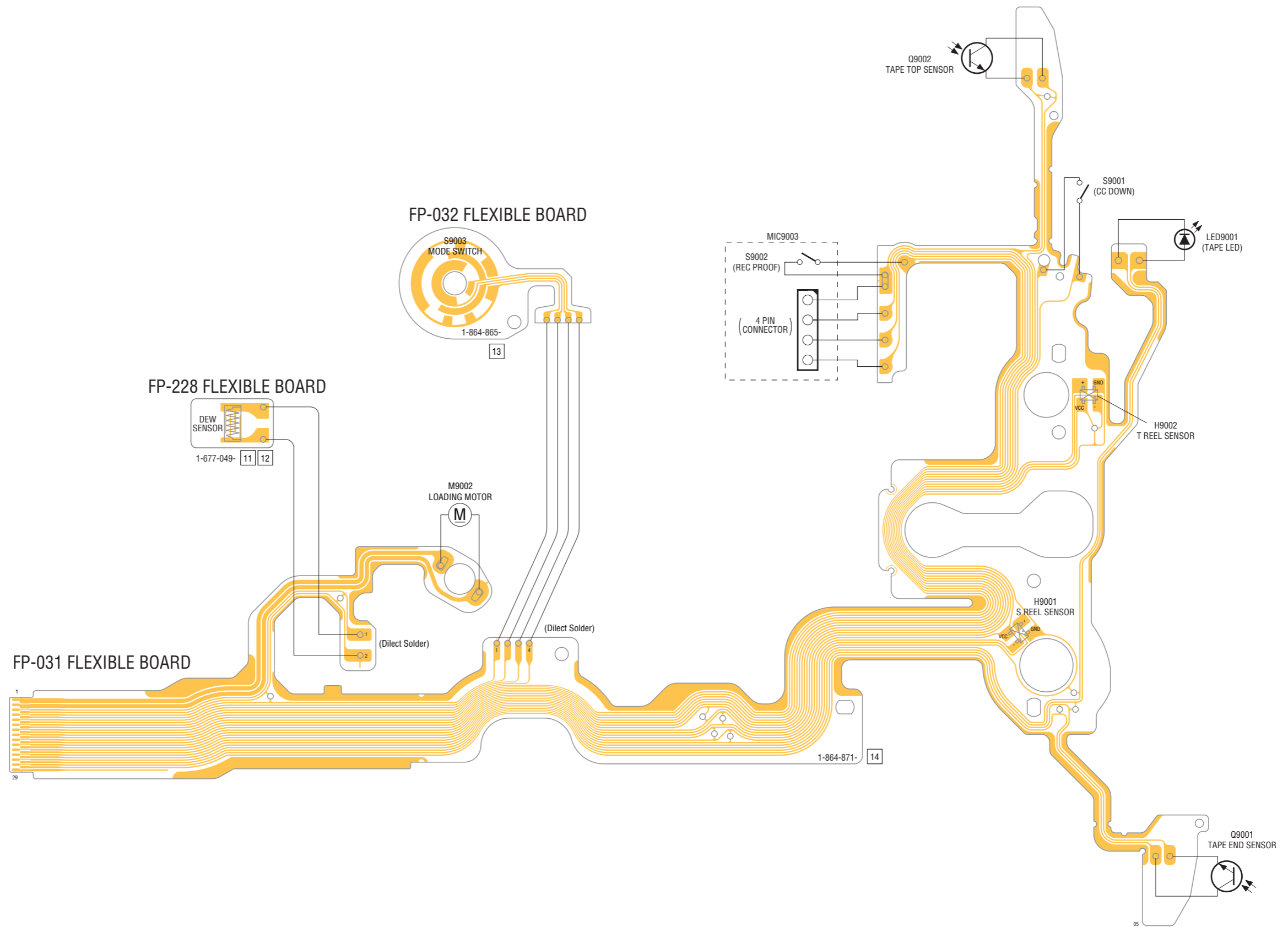
FP-251 FLEXIBLE BOARD



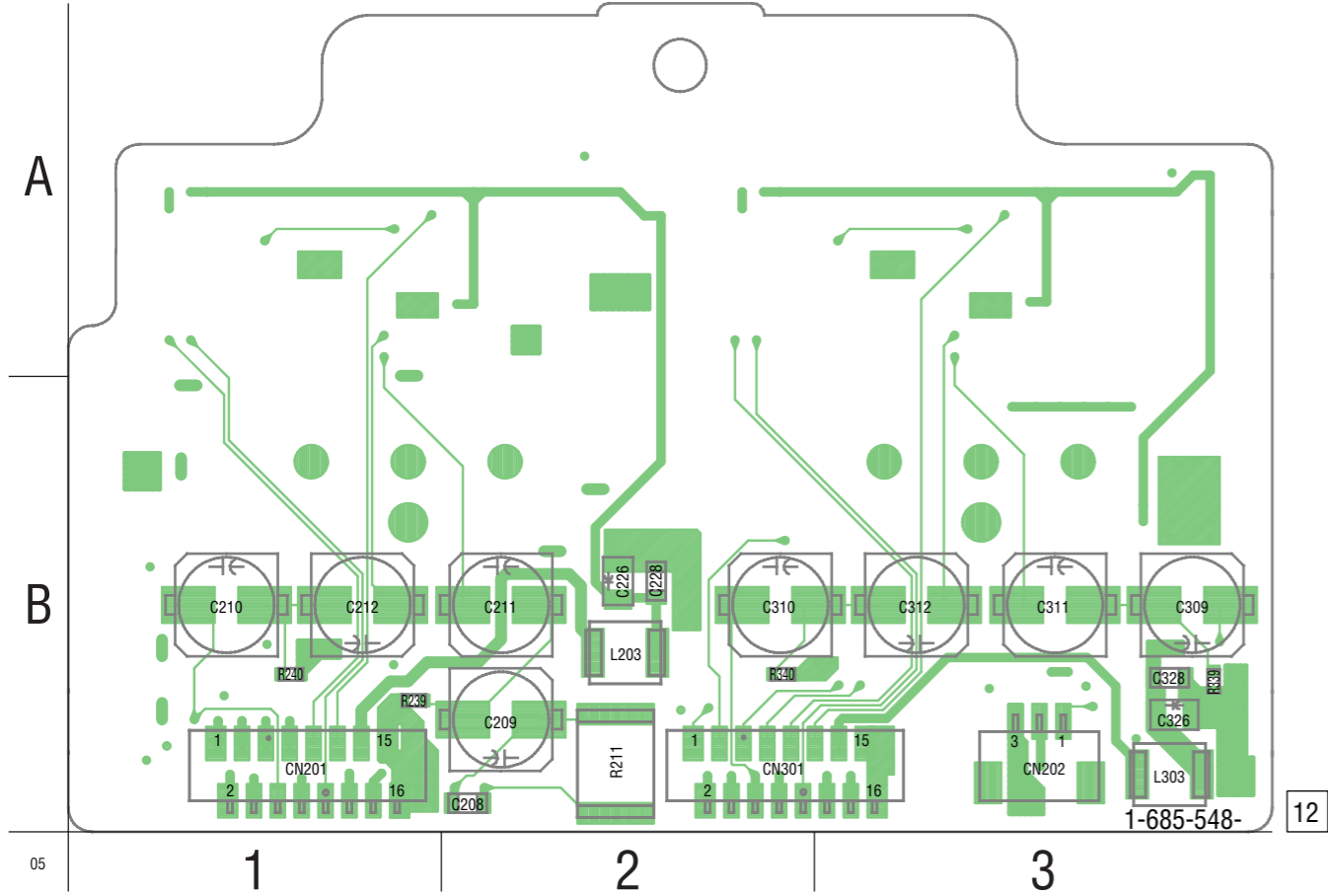
FP-252 FLEXIBLE BOARD



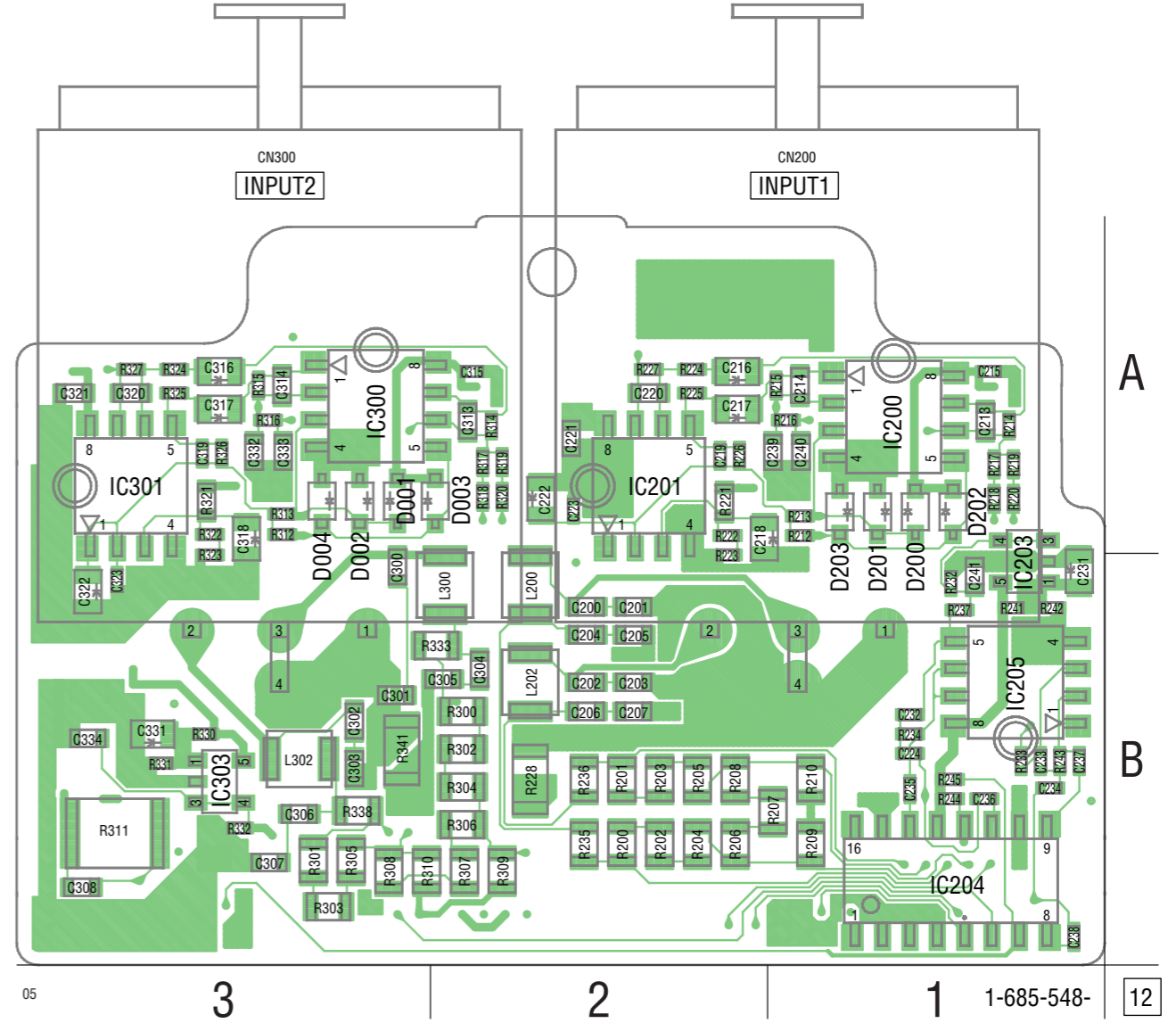
 : Uses unleaded solder.



XM-002 BOARD (SIDE A)

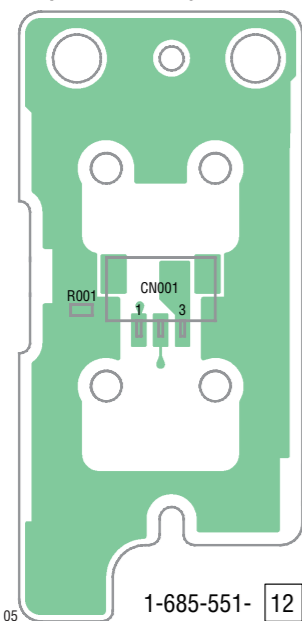


XM-002 BOARD (SIDE B)

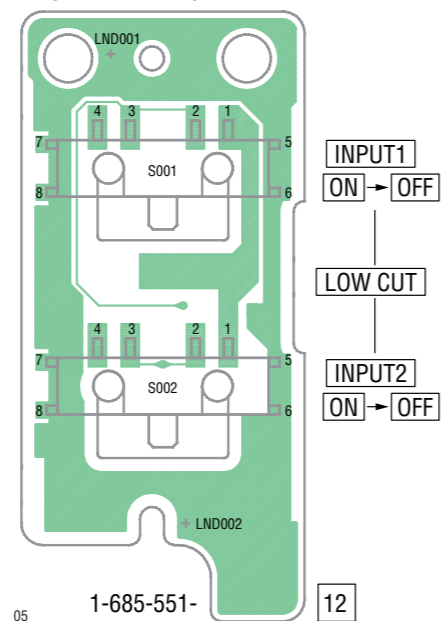


 : Uses unleaded solder.

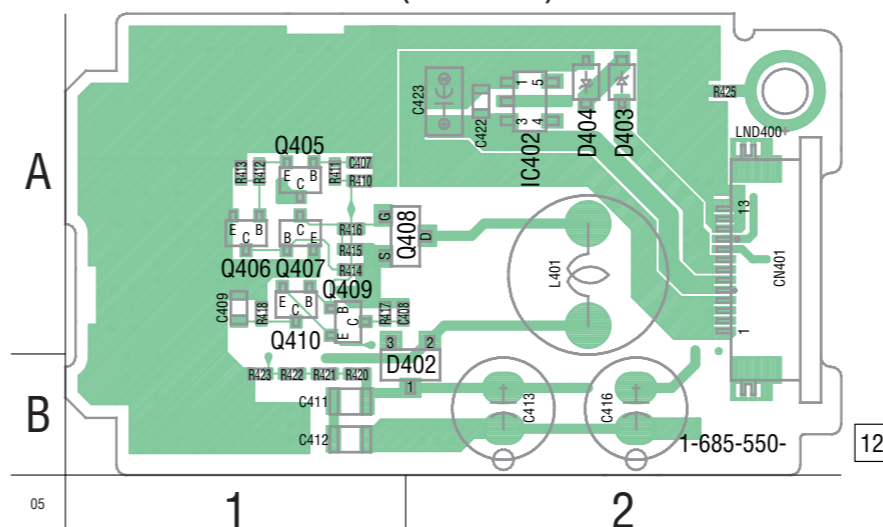
XK-001 BOARD
(SIDE A)



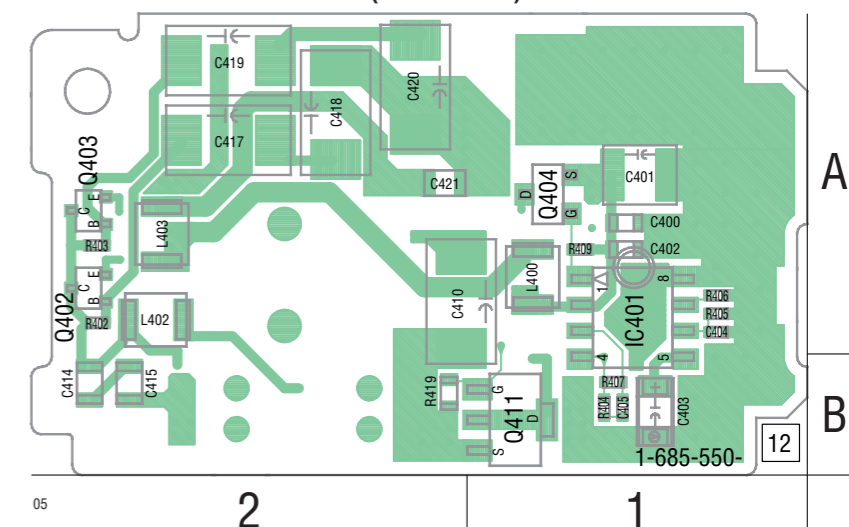
XK-001 BOARD
(SIDE B)



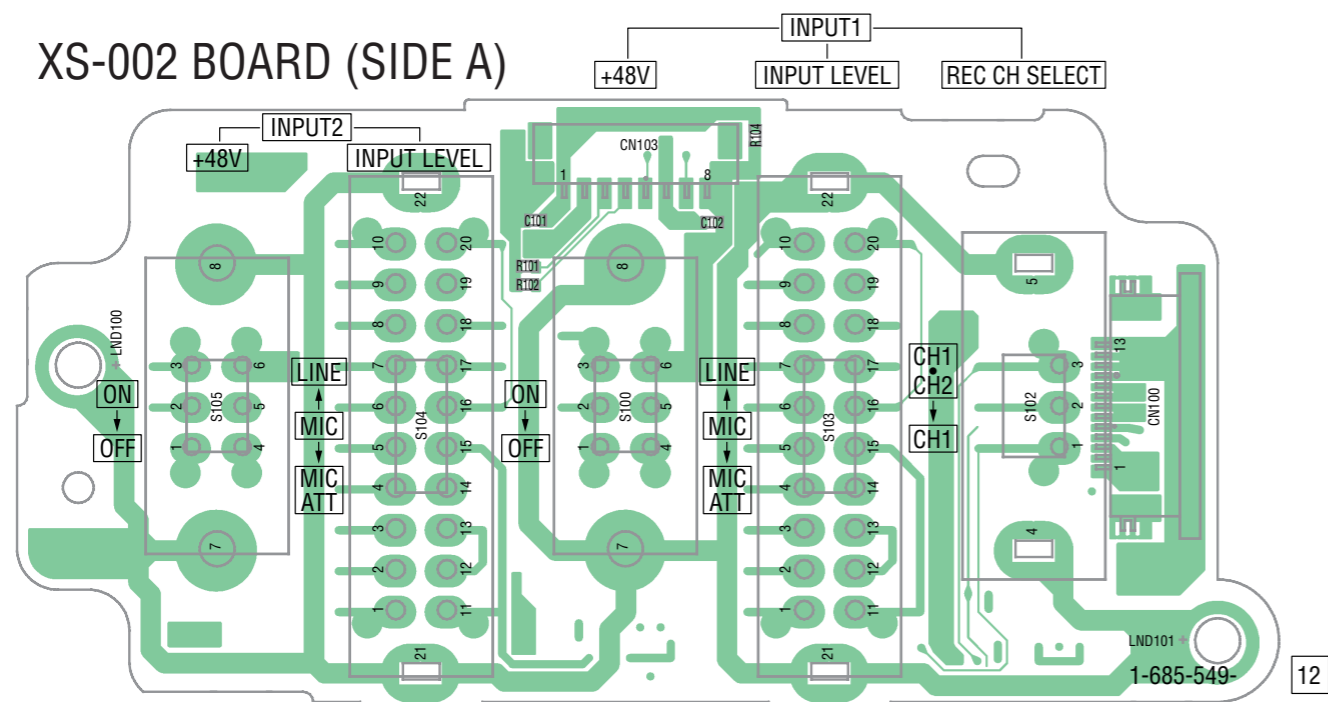
XD-002 BOARD (SIDE A)



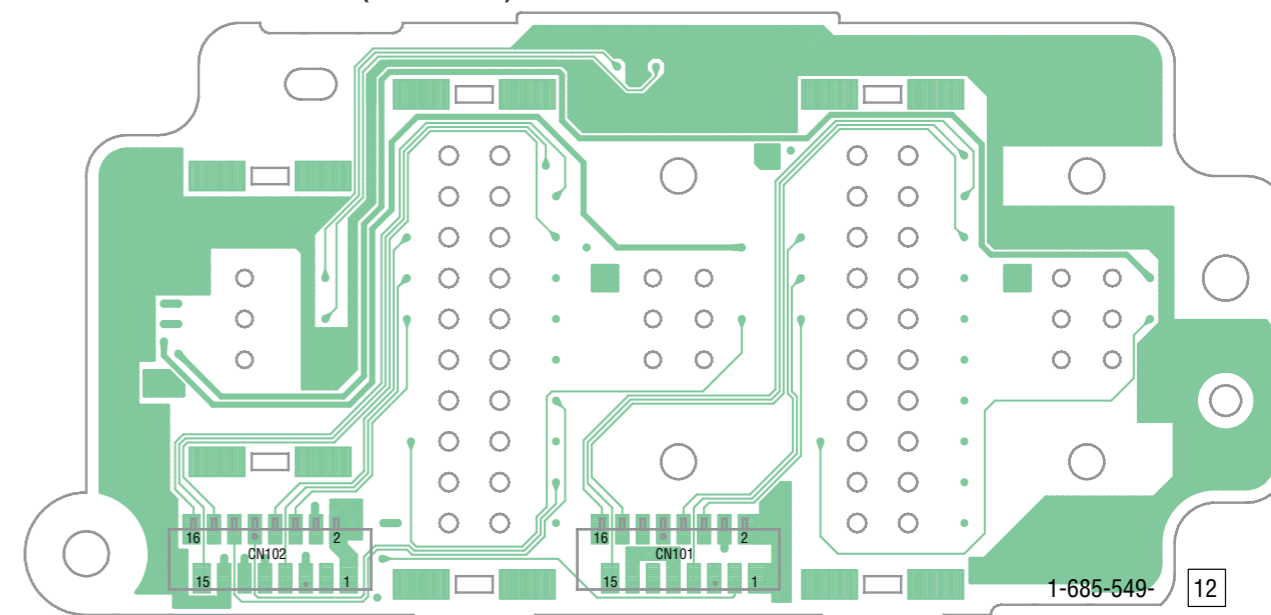
XD-002 BOARD (SIDE B)



XS-002 BOARD (SIDE A)



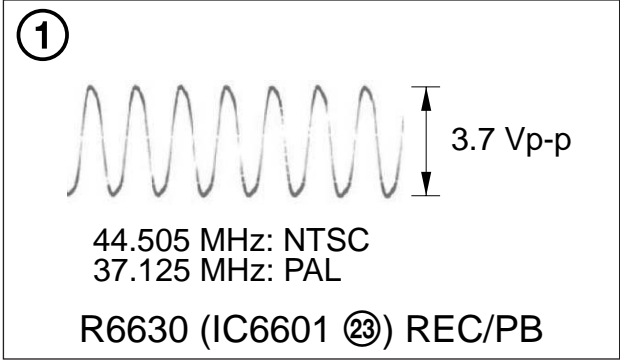
XS-002 BOARD (SIDE B)



4-3. PRINTED WIRING BOARDS

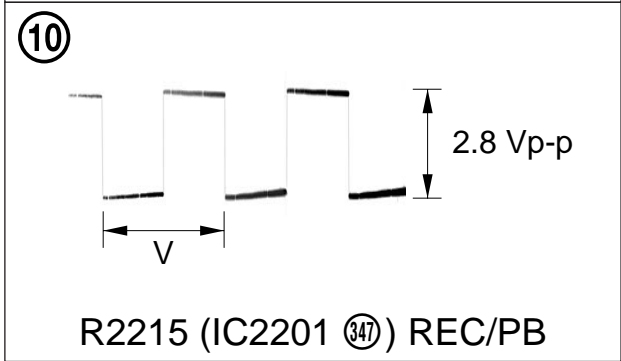
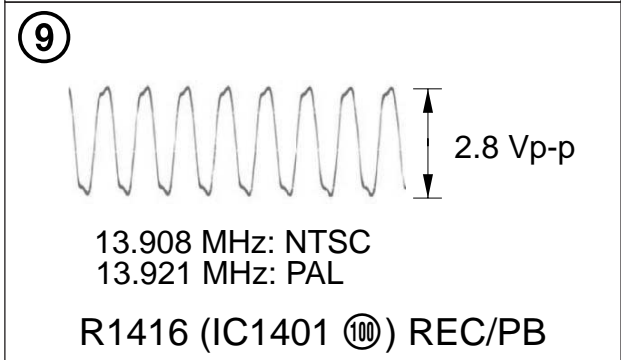
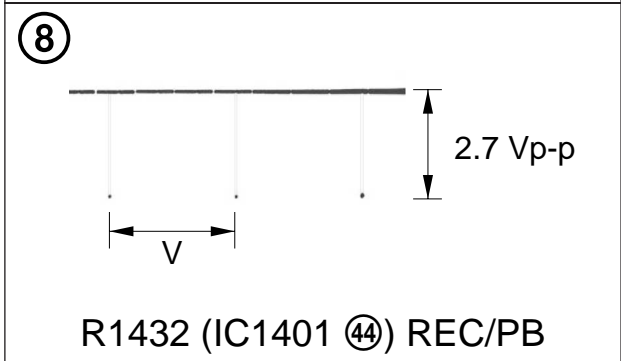
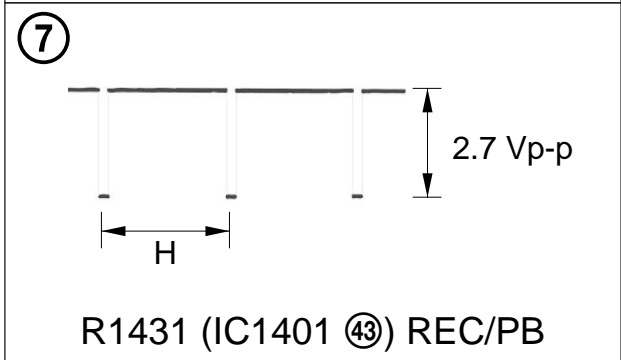
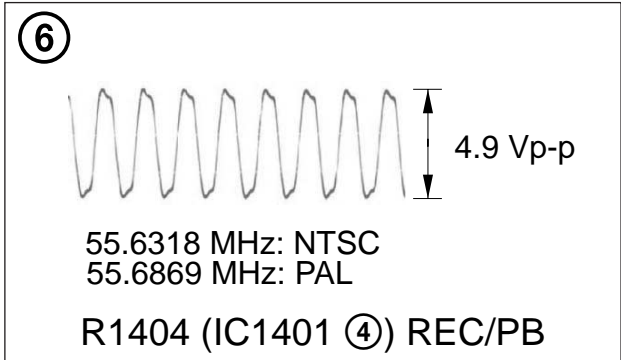
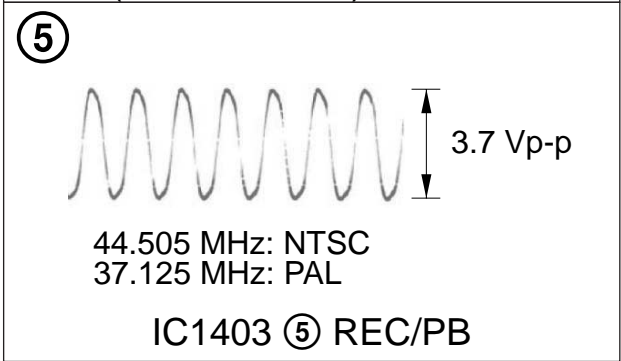
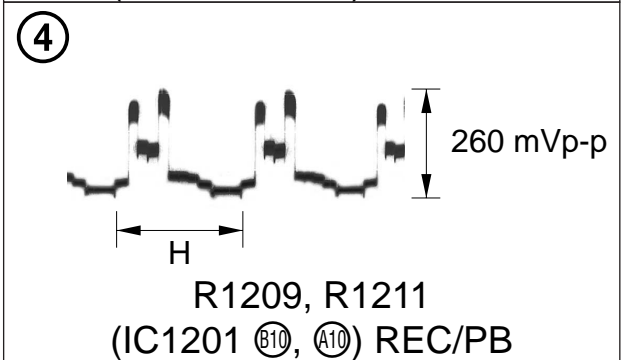
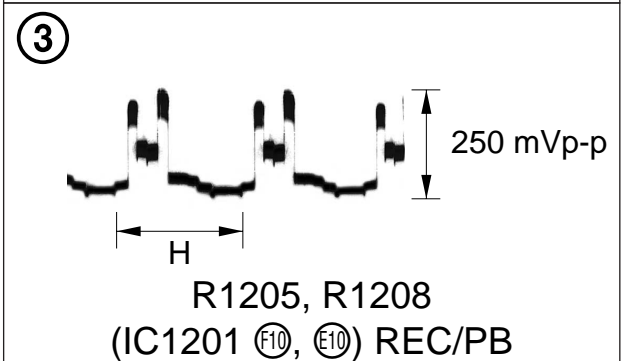
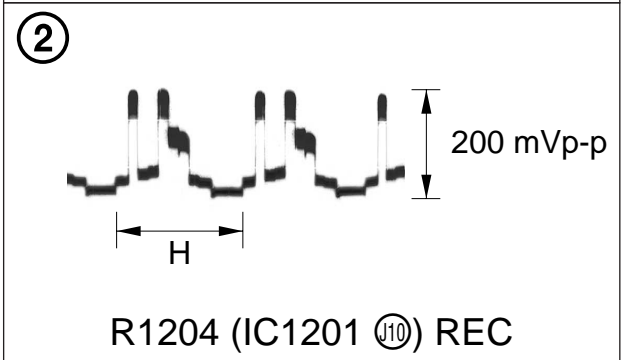
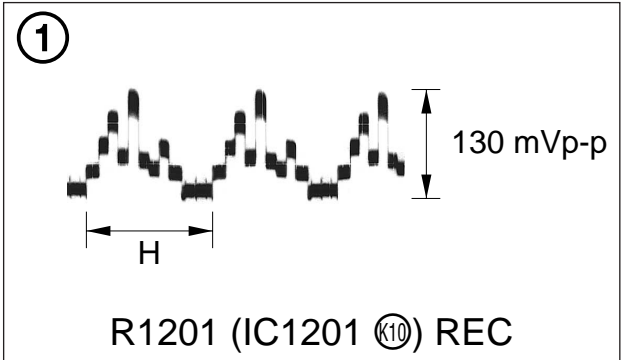
4-4. WAVEFORMS

EE-001 BOARD



4-3. PRINTED WIRING BOARDS

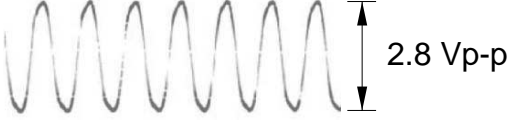
TT-001 BOARD (1/6)



4-3. PRINTED WIRING BOARDS

TT-001 BOARD (2/6)

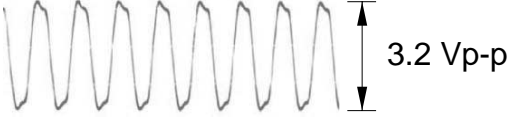
11



2.8 Vp-p
13.5 MHz

R2203 (IC2201 **17**) REC/PB

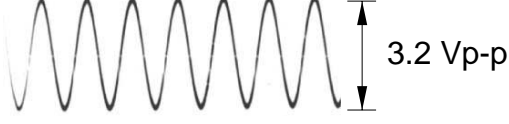
12



3.2 Vp-p
13.5 MHz

R2205 (IC2201 **22**) REC/PB

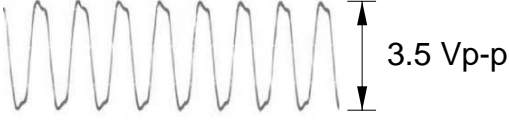
13



3.2 Vp-p
27 MHz

R2207 (IC2201 **55**) REC/PB

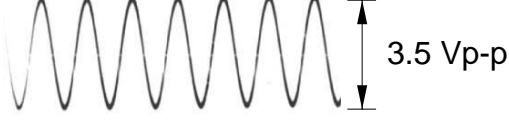
14



3.5 Vp-p
13.908 MHz: NTSC
13.921 MHz: PAL

R2212 (IC2201 **81**) REC/PB

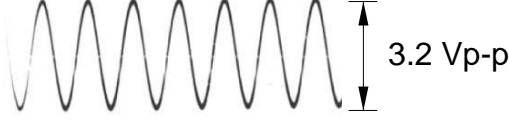
15



3.5 Vp-p
55.6318 MHz: NTSC
55.6869 MHz: PAL

R2213 (IC2201 **111**) REC/PB

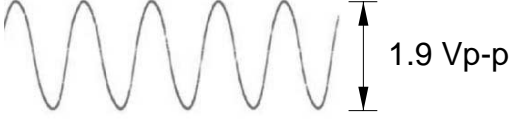
16



3.2 Vp-p
55.6318 MHz: NTSC
55.6869 MHz: PAL

R2216 (IC2201 **143**) REC/PB

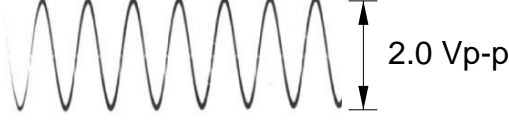
17



1.9 Vp-p
27 MHz

R2223 (IC2201 **162**) REC

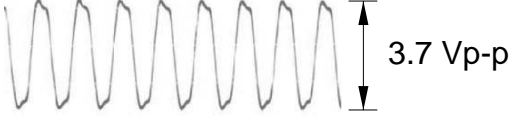
18



2.0 Vp-p
55.6318 MHz: NTSC
55.6869 MHz: PAL

R2222 (IC2201 **163**) REC


19



3.7 Vp-p
12.2879 MHz

R2221 (IC2201 **186**) REC/PB

20

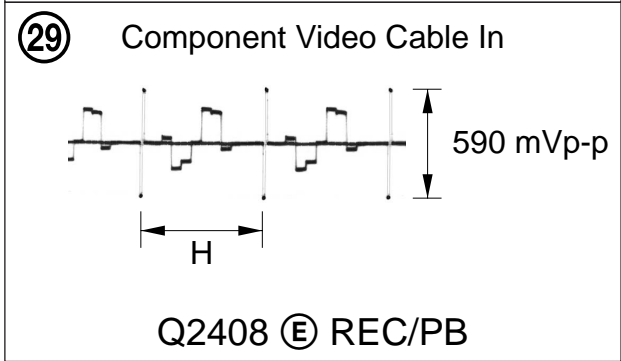
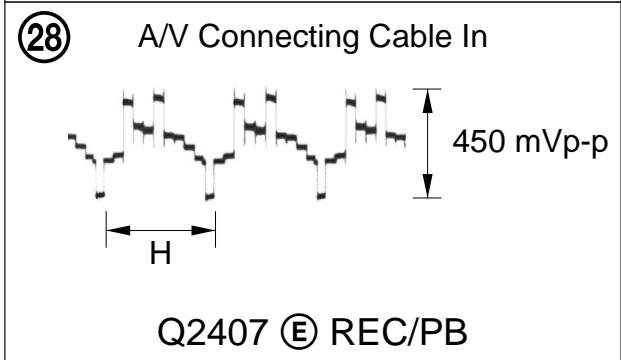
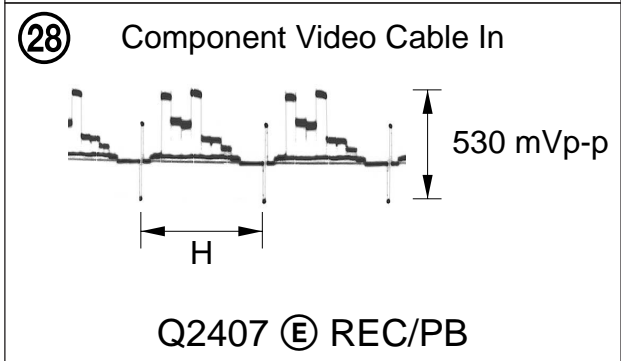
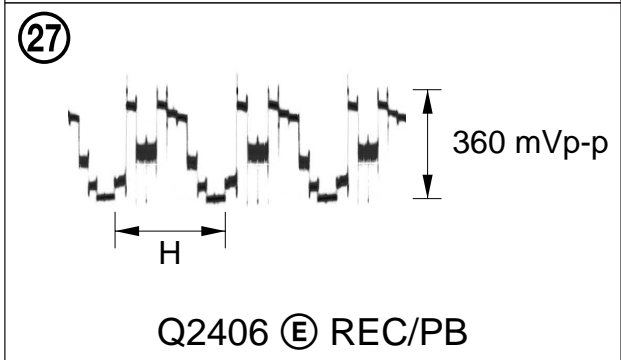
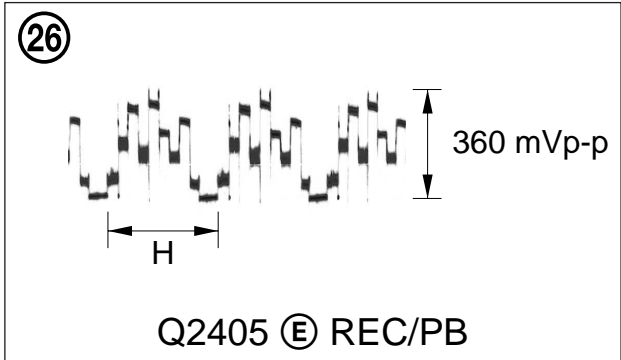
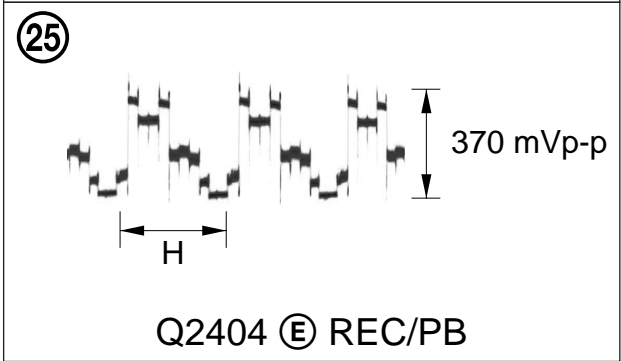
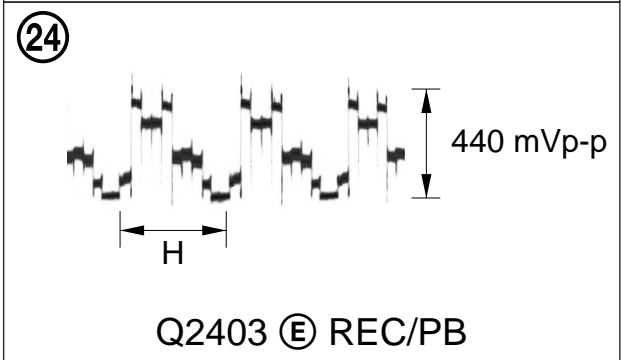
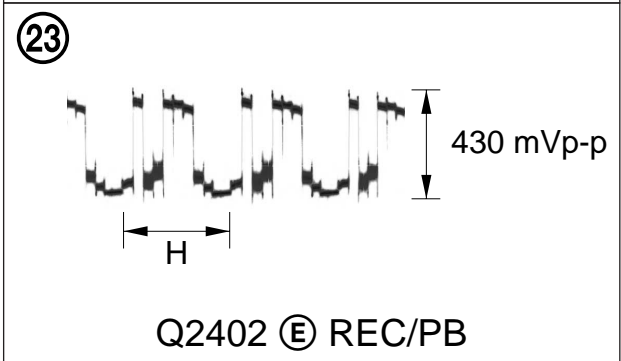
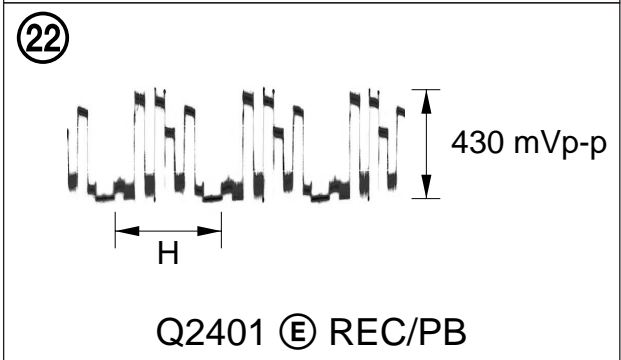
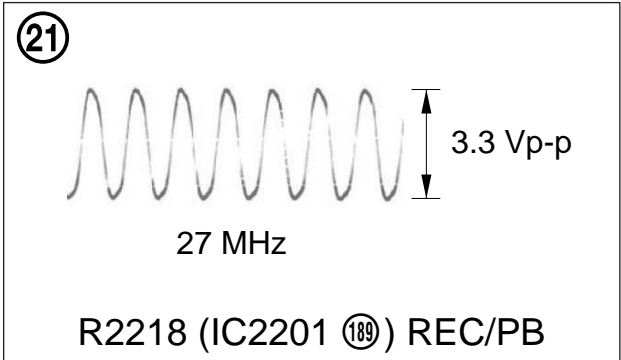


2.8 Vp-p
3.072 MHz

R2219 (IC2201 **188**) REC/PB

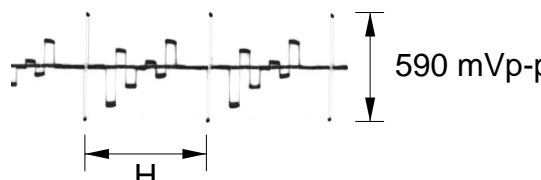
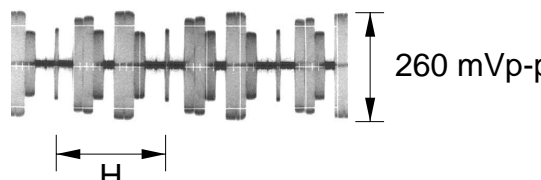
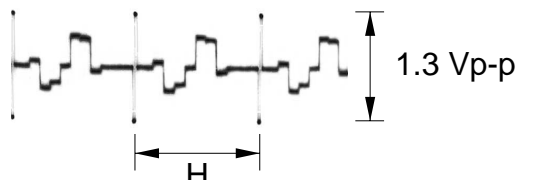
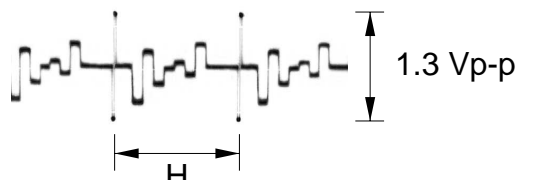
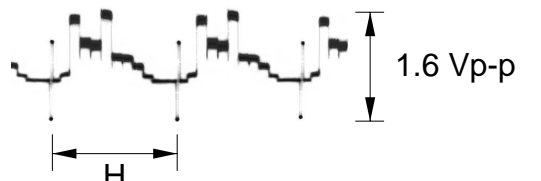
4-3. PRINTED WIRING BOARDS

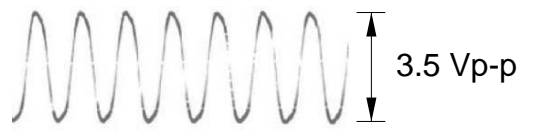


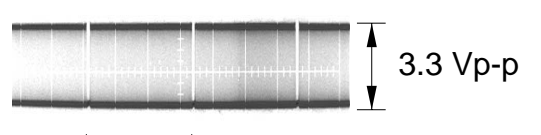
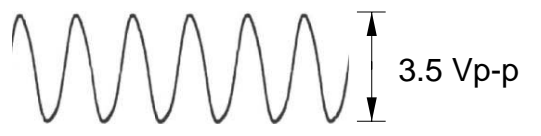
TT-001 BOARD (3/6)



4-3. PRINTED WIRING BOARDS

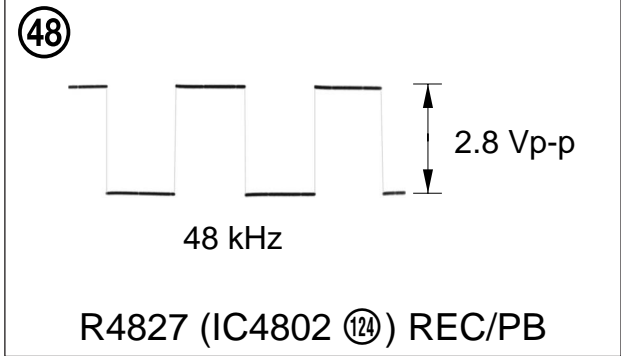
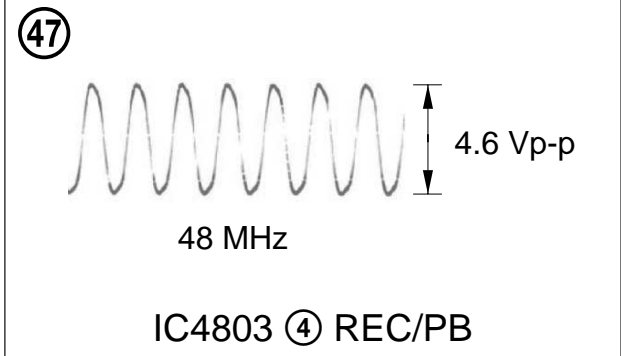
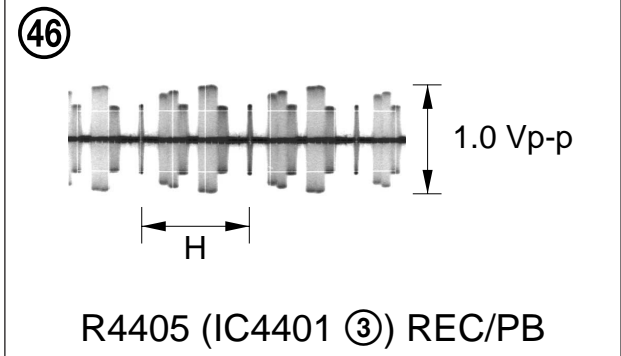
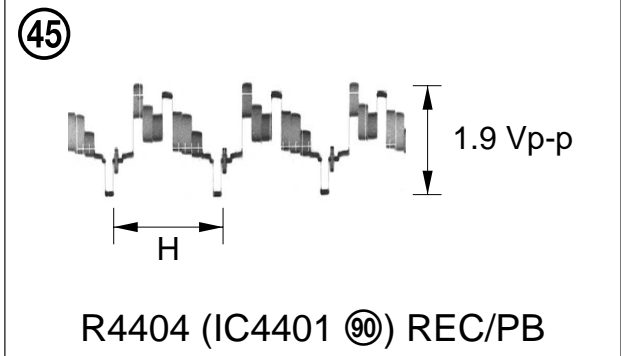
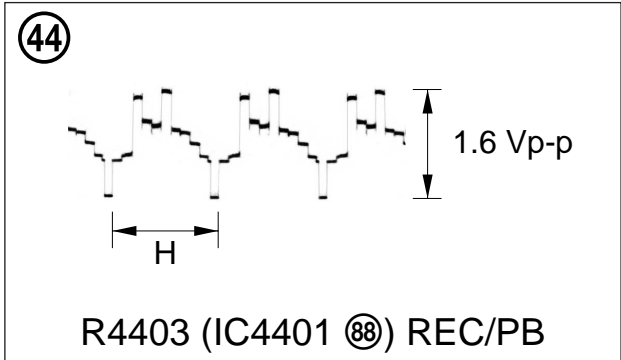
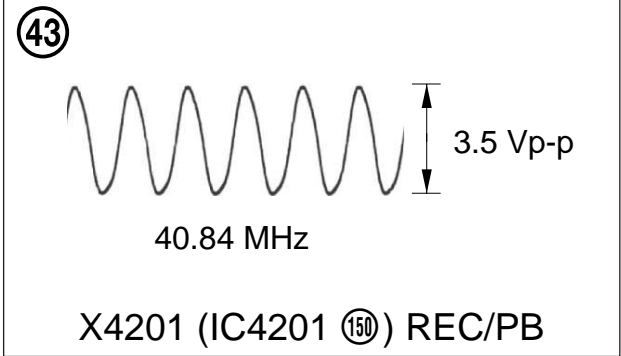
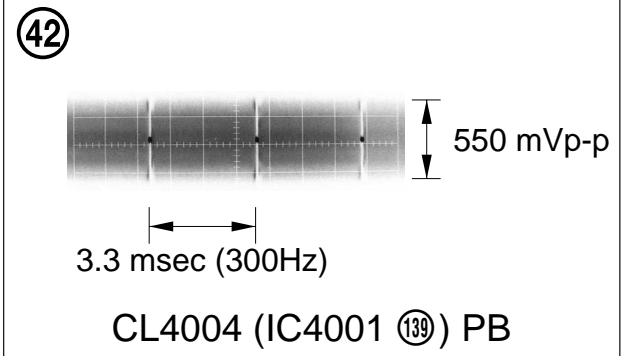
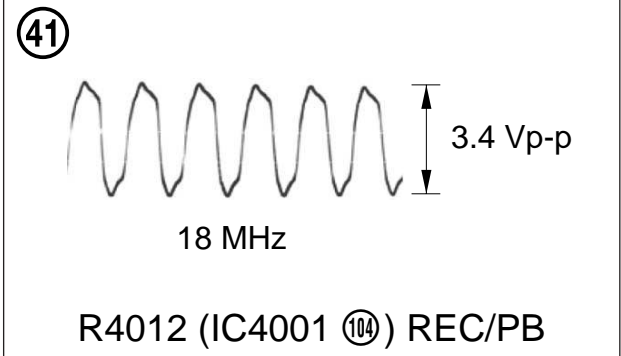
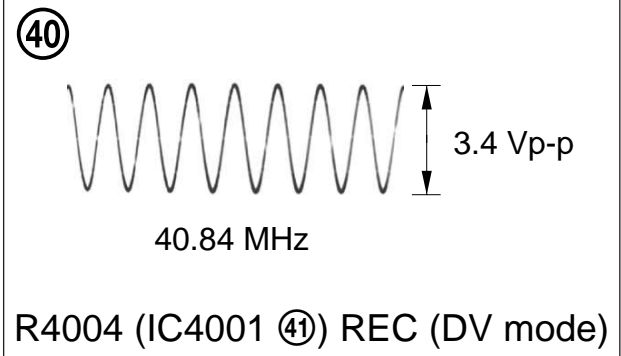
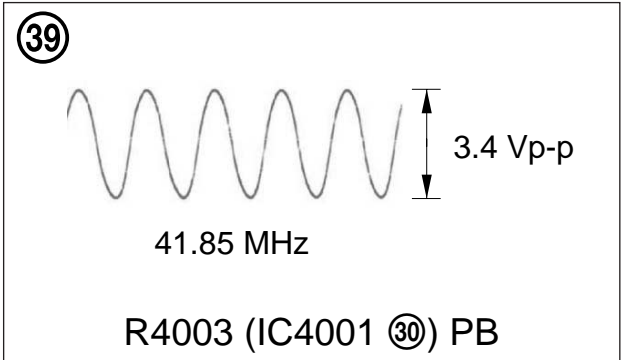
TT-001 BOARD (4/6)

<p>30 Component Video Cable In</p>  <p style="text-align: right;">590 mVp-p</p> <p style="text-align: center;">H</p> <p style="text-align: center;">Q2409 E REC/PB</p>
<p>30 A/V Connecting Cable In</p>  <p style="text-align: right;">260 mVp-p</p> <p style="text-align: center;">H</p> <p style="text-align: center;">Q2409 E REC/PB</p>
<p>31 Component Video Cable In</p>  <p style="text-align: right;">1.3 Vp-p</p> <p style="text-align: center;">H</p> <p style="text-align: center;">IC2401 31 REC/PB</p>
<p>32 Component Video Cable In</p>  <p style="text-align: right;">1.3 Vp-p</p> <p style="text-align: center;">H</p> <p style="text-align: center;">IC2401 33 REC/PB</p>
<p>33 Component Video Cable In</p>  <p style="text-align: right;">1.6 Vp-p</p> <p style="text-align: center;">H</p> <p style="text-align: center;">IC2401 35 REC/PB</p>

<p>34</p>  <p style="text-align: right;">3.5 Vp-p</p> <p style="text-align: center;">27 MHz</p> <p style="text-align: center;">R3810 (IC3801 185) REC/PB</p>
<p>35</p>  <p style="text-align: right;">2.0 Vp-p</p> <p style="text-align: center;">6.75 MHz</p> <p style="text-align: center;">R3801 (IC3801 296) REC</p>
<p>36</p>  <p style="text-align: right;">3.5 Vp-p</p> <p style="text-align: center;">6.75 MHz</p> <p style="text-align: center;">R3803 (IC3801 10) REC/PB</p>
<p>37</p>  <p style="text-align: right;">3.3 Vp-p</p> <p style="text-align: center;">3.3 msec (300Hz)</p> <p style="text-align: center;">R3812 (IC3801 80) REC</p>
<p>38</p>  <p style="text-align: right;">3.5 Vp-p</p> <p style="text-align: center;">40.84 MHz</p> <p style="text-align: center;">R3811 (IC3801 82) REC</p>

4-3. PRINTED WIRING BOARDS

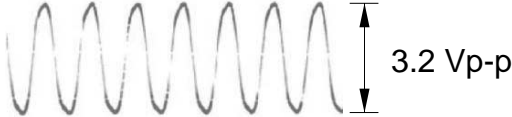
TT-001 BOARD (5/6)



4-3. PRINTED WIRING BOARDS

TT-001 BOARD (6/6)

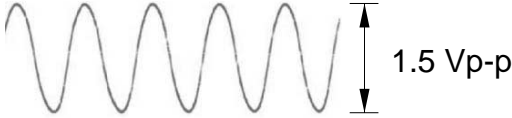
④⑨



3.2 Vp-p
27.8435 MHz

R4828 (IC4802 ⑫②) REC/PB

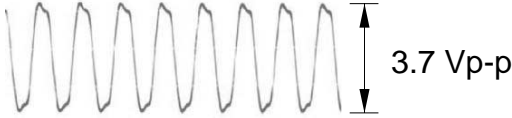
⑤⑩



1.5 Vp-p
20 MHz

X5801 (IC5802 ③) REC/PB

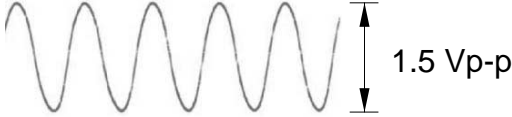
⑤①



3.7 Vp-p
20 MHz

R5804 (IC5802 ⑳) PB

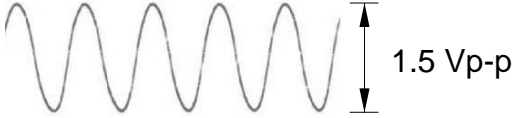
⑤②



1.5 Vp-p
20 MHz

X5401 (IC5401 ③) REC/PB

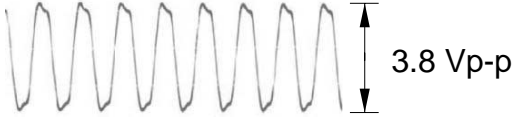
⑤③



1.5 Vp-p
20 MHz

X5601 (IC5601 ③) REC/PB

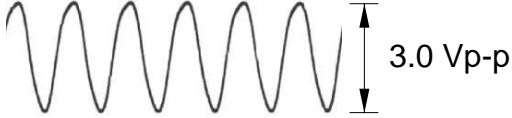
⑤④



3.8 Vp-p
13.3335 MHz

R5604 (IC5601 ⑳) PB

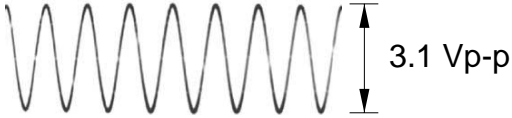
⑤⑤



3.0 Vp-p
32.768 kHz

X5201 (IC5201 ⑤①) REC/PB

⑤⑥



3.1 Vp-p
10 MHz

X5202 (IC5201 ⑳) REC/PB

4-3. PRINTED WIRING BOARDS

NN-001 BOARD (1/2)

①

2.8 Vp-p

13.908 MHz: NTSC
13.921 MHz: PAL

R7220 (IC7201 **Ⓚ12** REC/PB)

②

3.8 Vp-p

6.6 msec (150 Hz)

IC7601 **③, ④, ⑨, ⑩** REC

③

550 mVp-p

3.3 msec (300Hz)

IC7601 **③5** PB

④

2.8 Vp-p

6.6 msec (150Hz)

IC7601 **③8** REC/PB

⑤

3.2 Vp-p

40.84 MHz

IC7601 **④4** REC

⑥

3.3 Vp-p

3.3 msec (300Hz)

IC7601 **④6** REC

⑦

2.4 Vp-p

900 Hz

C7436, C7434, C7431
(IC7401 **⑥3, ⑥5, ⑥8**) REC/PB

⑧

150 mVp-p

13 μsec

C7437 (IC7401 **④4**) REC/PB

⑨

80 mVp-p

13 μsec

C7438 (IC7401 **④1**) REC/PB

⑩

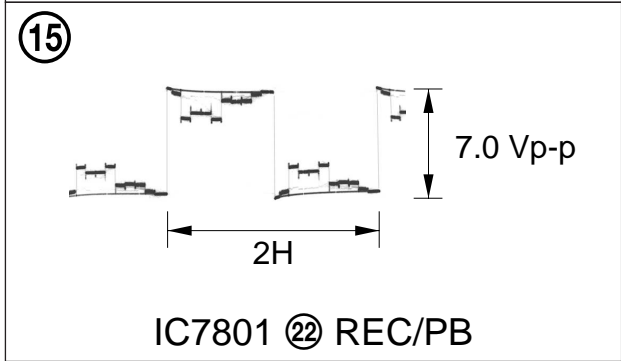
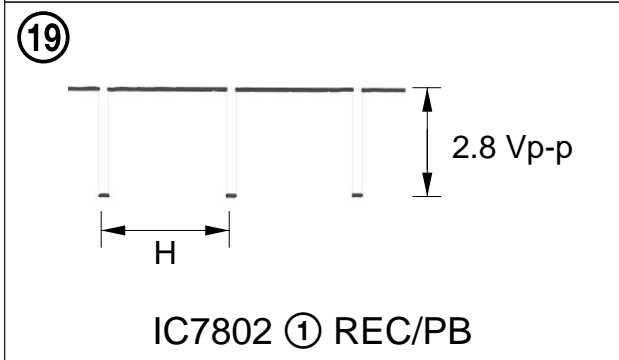
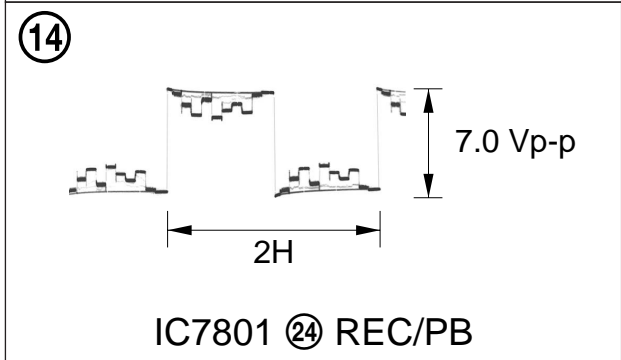
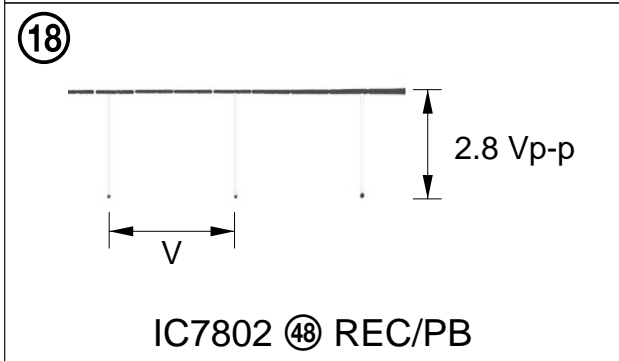
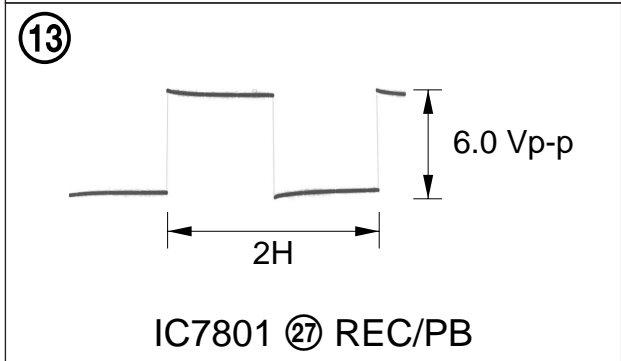
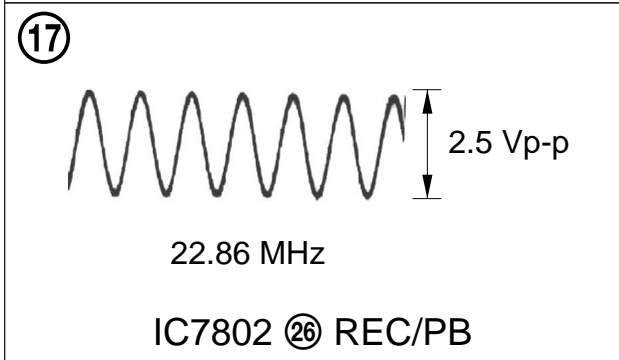
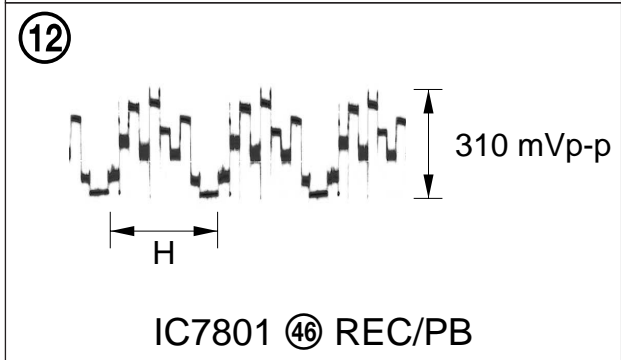
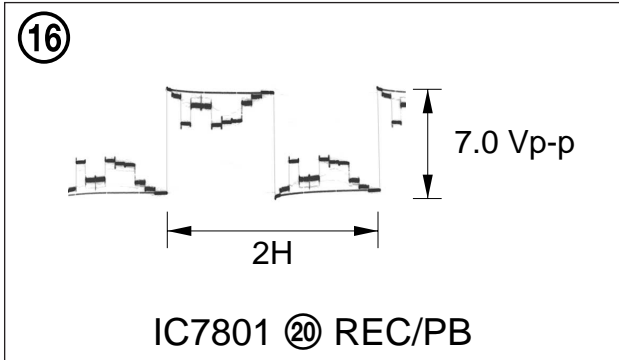
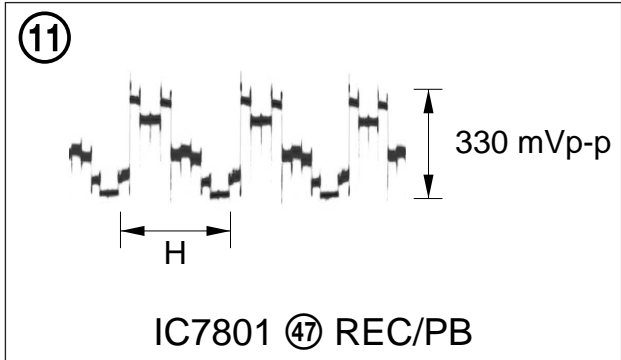
350 mVp-p

H

IC7801 **④8** REC/PB

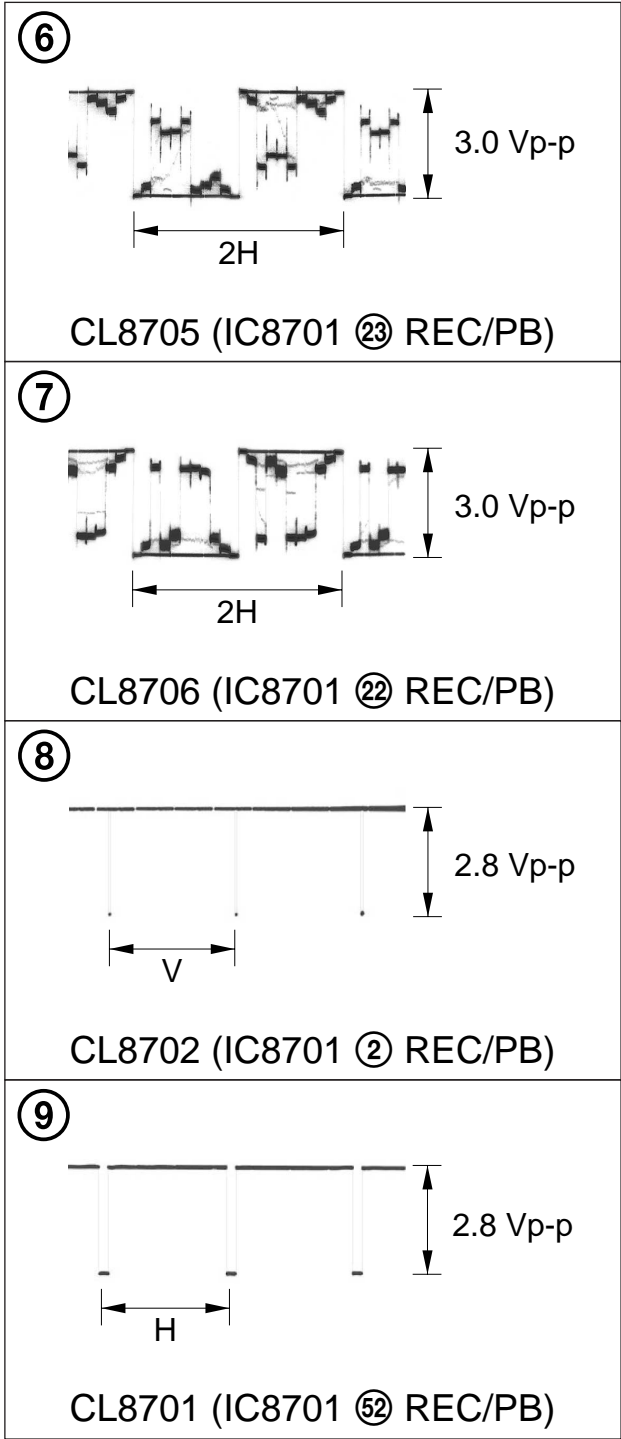
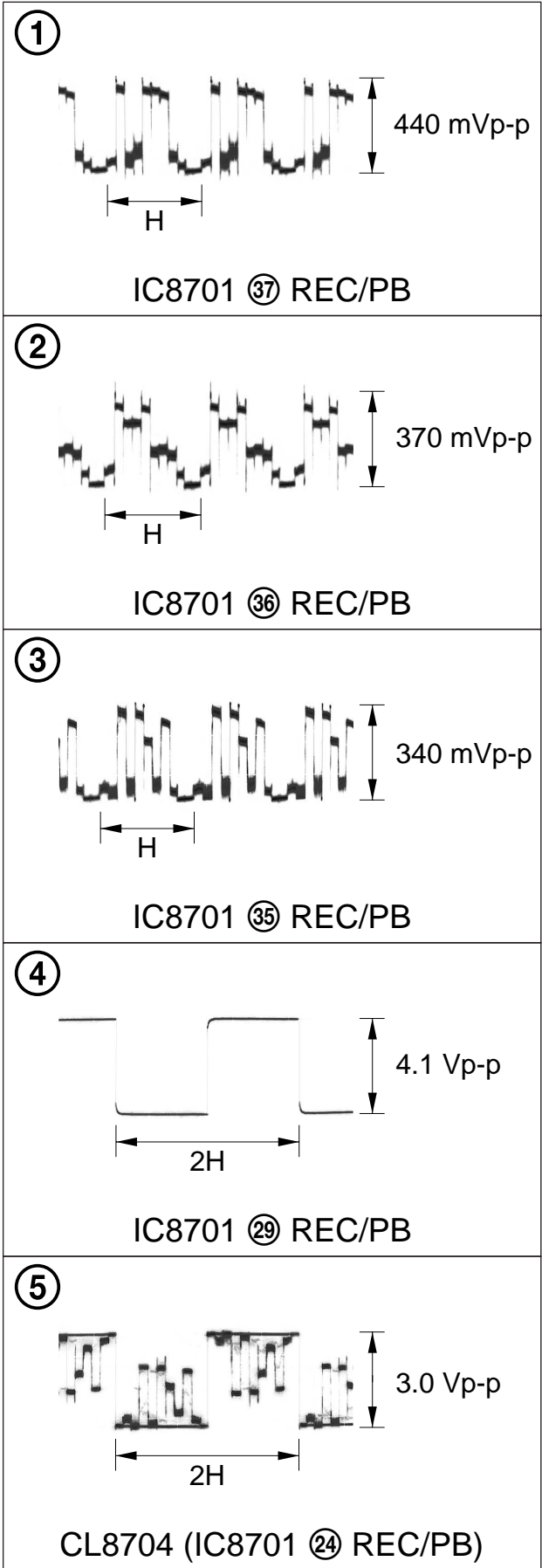
4-3. PRINTED WIRING BOARDS

NN-001 BOARD (2/2)



4-3. PRINTED WIRING BOARDS

PP-001 BOARD



4-3. PRINTED WIRING BOARDS

4-5. MOUNTED PARTS LOCATION

no mark : side A

* mark : side B

EE-001 BOARD

* C6403	C-1	IC6801	B-2
* C6405	C-1	IC6801	C-1
* C6406	C-1		
* C6407	C-1	* L006	A-2
* C6408	D-1	* L007	A-3
* C6409	C-1	* L008	A-3
* C6410	D-1	* L009	C-2
* C6411	C-1	* L010	A-1
* C6412	D-1	* L011	A-1
* C6414	D-1	L6801	C-1
* C6415	D-1		
* C6416	C-2	* R6401	C-1
* C6417	C-2	* R6405	D-2
* C6418	C-2	* R6408	D-1
C6601	B-2	* R6410	D-1
C6602	B-2	* R6412	C-2
C6603	A-2	R6604	C-2
* C6604	A-2	R6606	C-2
C6605	A-2	R6624	A-3
* C6606	A-3	* R6627	D-1
C6607	A-2	* R6628	D-1
C6608	A-3	* R6629	D-1
C6609	A-3	* R6630	C-2
C6610	B-2	R6801	C-1
C6611	A-2	R6802	C-1
* C6612	C-2	R6803	C-1
* C6613	A-2	R6804	C-1
C6614	A-2	R6805	C-1
C6615	A-2	R6806	C-1
C6616	B-2		
* C6617	A-2	RB6801	C-1
* C6618	C-1		
C6619	A-2	SE6801	C-2
C6620	A-2	SE6802	D-1
C6621	A-2		
C6622	A-3		
* C6623	A-2		
C6624	A-2		
C6625	B-2		
C6626	A-1		
* C6627	A-2		
C6628	C-1		
* C6629	A-2		
C6630	B-2		
* C6631	C-2		
C6632	B-1		
C6633	A-1		
C6634	B-1		
* C6635	A-1		
C6636	A-3		
C6637	A-1		
* C6638	C-2		
C6639	B-2		
C6640	B-2		
* C6641	D-1		
* C6642	D-1		
* C6643	D-1		
C6801	C-1		
C6802	C-1		
C6803	D-2		
C6804	D-2		
C6805	C-1		
C6806	C-1		
C6807	C-1		
C6808	C-1		
C6809	C-1		
C6811	C-1		
C6812	C-1		
C6814	C-1		
C6815	C-1		
* CN6401	D-2		
FB6801	D-2		
FB6802	C-1		
FB6803	C-1		
FB6804	C-1		
* IC6401	C-1		
* IC6402	C-1		
* IC6403	D-1		
* IC6404	C-2		
* IC6406	D-1		
* IC6407	D-1		

TT-001 BOARD

C1001	A-4	C2223	B-4	* C3407	B-5	* C4414	A-4
C1002	A-4	C2224	B-5	* C3408	B-5	* C4415	A-4
C1003	A-4	C2225	C-4	* C3409	B-5	* C4416	B-3
C1207	D-1	C2226	C-4	* C3410	B-5	* C4417	B-4
C1208	E-1	C2227	B-4	* C3411	B-4	* C4418	A-4
C1209	D-1	C2229	C-4	C3601	C-6	* C4419	A-4
C1210	D-1	C2230	B-4	C3602	C-5	* C4420	A-3
C1211	E-1	C2231	C-4	C3603	C-6	* C4422	A-4
C1212	E-1	C2232	C-4	C3604	C-6	* C4423	A-3
C1213	E-1	C2233	C-3	C3605	C-6	* C4424	A-4
C1214	D-1	C2234	B-3	C3606	C-5	* C4425	A-3
C1215	E-1	C2235	B-3	C3607	D-5	* C4426	A-4
C1216	D-1	C2236	C-3	C3608	D-5	* C4428	A-4
C1217	E-1	C2237	B-3	C3609	C-5	* C4430	B-3
C1218	D-1	C2238	B-3	C3610	C-5	* C4432	A-4
C1219	E-1	C2239	B-3	* C3801	D-2	* C4433	A-3
C1220	D-2	C2240	B-3	* C3802	E-3	* C4434	A-3
C1221	D-1	C2241	B-3	* C3803	C-3	* C4435	A-3
C1222	E-2	C2242	A-4	* C3804	D-3	* C4436	A-3
C1223	E-1	C2243	B-3	* C3805	C-3	* C4437	A-3
C1224	D-2	* C2401	A-4	* C3806	C-3	* C4438	A-3
C1225	E-2	* C2402	A-4	* C3807	C-3	* C4439	A-3
C1226	E-2	C2403	D-5	* C3808	D-2	* C4440	A-3
C1227	E-2	C2404	D-5	* C3812	D-4	* C4441	A-3
C1401	C-1	C2405	D-5	* C3813	D-4	* C4442	A-3
C1402	C-2	C2410	D-6	* C3814	E-3	* C4443	B-3
C1403	C-1	C2411	D-5	* C3815	E-3	* C4444	C-3
C1405	C-2	C2412	D-5	* C3816	E-3	* C4601	A-3
C1406	D-1	C2413	E-5	* C3817	D-2	* C4602	A-3
C1408	C-2	C2414	E-6	* C3818	E-3	* C4603	A-3
C1409	C-2	C2415	E-6	* C3819	E-3	* C4604	A-3
C1410	C-1	C2416	E-5	* C3820	E-3	* C4606	A-3
C1411	C-2	C2419	B-5	* C3821	D-3	* C4608	A-3
C1412	B-2	* C2601	C-3	* C3822	C-3	C4801	E-2
C1413	D-2	* C2602	C-3	* C3823	D-4	C4802	D-3
C1414	D-2	* C2603	D-2	C4001	C-5	C4803	C-4
C1415	C-2	* C2604	D-1	C4002	C-4	C4804	C-3
C1416	D-1	* C2605	C-2	C4004	C-4	C4805	C-2
C1417	C-1	* C2606	C-2	C4006	C-4	C4806	D-3
C1418	C-2	* C2607	C-1	C4008	D-4	C4807	D-3
C1419	D-1	* C2608	C-3	C4009	C-4	C4810	E-3
C1420	C-2	* C2609	C-3	C4010	C-4	C4811	D-3
C1421	B-2	* C2610	C-2	C4013	C-4	C4812	D-3
C1422	B-2	* C2611	C-3	C4014	C-5	C4814	D-3
C1423	D-2	* C2612	C-2	C4015	C-4	C4815	D-3
C1601	A-2	* C2613	B-2	C4016	C-3	C4816	D-3
C1602	B-2	* C2614	B-2	C4017	C-3	C4817	D-2
C1603	B-2	* C2615	D-2	C4019	C-3	C4818	D-2
C1604	B-2	* C2616	D-1	C4020	D-4	C4819	D-2
C1605	A-2	* C2617	C-1	C4021	C-4	C4820	E-2
C1606	A-2	* C2618	C-1	C4022	C-5	C4821	C-2
C1607	B-3	* C2619	C-1	C4023	D-5	C4822	D-3
C1609	B-2	* C2801	B-3	C4201	D-4	C4823	E-3
C1610	B-3	* C2802	B-3	C4202	D-4	C4824	D-2
C1611	B-3	* C2803	B-3	C4203	D-5	C4826	D-2
C1613	B-3	* C2804	B-2	C4204	E-3	C4827	E-3
C1614	B-3	* C3001	A-2	C4205	D-3	C4828	E-3
C1801	B-2	* C3003	B-2	C4206	E-4	C4829	D-2
C1802	B-2	* C3004	B-2	C4207	E-4	C5001	C-2
C1803	B-1	* C3005	A-2	C4208	D-4	C5002	C-2
C2001	B-2	* C3006	A-2	C4209	D-4	C5003	C-2
C2002	B-3	* C3007	A-2	C4210	D-4	* C5201	E-6
C2003	B-2	* C3008	B-2	C4211	D-4	* C5202	D-6
C2004	C-3	* C3009	A-2	C4212	D-4	* C5203	D-6
C2201	A-3	* C3201	C-6	C4213	D-4	* C5204	D-6
C2202	B-4	* C3202	C-4	C4214	D-4	* C5205	D-6
C2203	C-4	* C3203	C-6	C4215	E-4	* C5206	D-6
C2205	A-3	* C3204	D-5	C4216	D-4	* C5207	D-6
C2206	A-3	* C3205	C-6	C4217	E-4	* C5208	D-6
C2207	A-3	* C3206	D-5	C4218	D-5	* C5209	D-6
C2208	A-3	* C3207	D-5	C4219	D-5	* C5210	D-6
C2209	B-3	* C3208	D-5	* C4401	B-4	* C5211	D-6
C2210	B-3	* C3209	D-5	* C4402	B-3	* C5212	D-6
C2211	B-3	* C3210	C-6	* C4403	B-3	* C5213	D-6
C2212	B-3	* C3211	C-6	* C4404	B-3	* C5214	D-5
C2213	B-3	* C3212	C-6	* C4405	A-3	* C5215	E-5
C2214	A-3	* C3213	C-4	* C4406	B-4	* C5216	E-6
C2215	C-3	* C3214	C-6	* C4407	B-3	* C5401	D-4
C2216	A-4	* C3215	C-4	* C4408	B-3	* C5402	D-4
C2217	C-3	* C3216	B-5	* C4409	B-4	* C5403	E-5
C2218	A-4	* C3217	B-5	* C4410	B-4	* C5404	D-4
C2219	A-4	* C3402	B-4	* C4411	B-3	* C5405	D-4
C2220	C-4	* C3403	B-4	* C4412	B-3	* C5406	D-4
C2222	B-4	* C3404	B-4	* C4413	B-3	* C5407	D-4

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

* C5408 D-4	* C6041 C-7	FB1001 A-3	IC4802 D-3	Q4801 D-4	R1604 B-2
* C5409 D-4	* C6042 C-7	FB1002 A-4	IC4803 E-3	Q4802 D-4	R1606 B-3
* C5410 D-4	* C6043 C-6	FB1003 A-4	IC4804 D-4	* Q4803 E-3	R1608 C-3
* C5411 D-5	* C6044 C-7	FB1004 A-4	IC4805 E-3	* Q4804 E-2	R1609 B-3
* C5412 D-4	* C6045 C-7	FB1005 A-4	IC5001 C-3	* Q4805 E-2	R1612 B-3
* C5413 E-5	* C6046 B-7	FB1006 A-4	* IC5201 D-5	Q4806 D-3	R2001 B-3
* C5414 E-4	* C6047 A-7	FB1007 A-4	* IC5401 D-4	* Q5201 D-6	R2002 C-3
* C5415 E-5	* C6048 B-6	FB1401 C-2	* IC5402 E-5	* Q5801 E-1	R2003 C-2
* C5416 E-4	* C6049 B-6	FB1403 B-2	IC5601 B-5	Q6001 E-6	R2201 A-3
C5601 C-6	* C6050 A-7	FB1601 A-3	* IC5801 E-2	Q6002 D-7	R2202 B-3
C5602 C-5	* C6051 B-7	FB1602 B-2	* IC5802 D-2	Q6003 D-6	R2203 C-3
C5603 C-5	* C6052 A-6	FB1801 B-2	* IC6001 D-7	Q6004 E-6	R2204 A-4
C5604 C-5	* C6053 B-6	FB2001 B-2	IC6004 C-6	* Q6005 D-6	R2205 C-3
C5605 C-5	* C6054 C-7	* FB2401 A-4		* Q6006 D-6	R2206 A-4
C5606 C-5	* C6055 B-7	FB2402 D-5	L1201 E-1	* Q6007 B-7	R2207 C-4
C5607 C-5	* C6056 C-7	* FB2601 C-3	L1202 E-2	* Q6008 C-7	R2208 B-4
C5608 C-5	* C6057 D-7	* FB2602 C-3	L1401 C-2	* Q6009 C-7	R2209 B-4
C5609 C-5	* C6058 B-7	* FB2603 D-2	L1404 C-2	* Q6010 C-7	R2210 B-4
C5610 C-5	* C6059 B-7	* FB2604 D-1	L2201 C-5	* Q6011 B-7	R2211 B-4
C5611 B-6	* C6060 C-7	* FB2605 C-1	L2202 A-4	* Q6012 C-7	R2212 B-4
C5612 B-5	* C6061 C-6	* FB2801 B-3	L2203 A-3	* Q6013 C-6	R2213 B-4
C5613 B-6	* C6062 A-7	* FB3001 A-2	L2205 A-4	* Q6014 B-7	R2214 B-4
C5614 A-5	* C6063 B-6	* FB3201 C-6	L2207 A-5	* Q6015 B-7	R2215 A-4
C5615 A-5	C6064 C-6	* FB3202 C-4	L2208 B-5	* Q6016 B-6	R2216 A-4
* C5801 D-1	C6065 C-6	* FB3203 C-6	L2210 C-3	* Q6017 C-7	R2217 B-3
* C5802 E-1	C6066 B-6	* FB3204 D-5	L2401 E-6	* Q6018 B-7	R2218 B-3
* C5803 D-1	C6067 A-6	* FB3402 B-4	L2402 E-6	* Q6019 C-7	R2219 B-3
* C5804 D-1	* C6068 B-6	FB3601 C-6	L2403 E-6	* Q6020 C-7	R2221 A-3
* C5805 D-1	C6069 C-6	FB3602 C-5	L4002 C-4	* Q6021 B-7	R2222 A-3
* C5806 D-2	C6070 C-6	* FB3801 D-2	L4003 C-4	* Q6022 B-7	R2223 A-3
* C5807 D-2	C6071 B-6	* FB3802 E-3	L4004 C-4	* Q6023 C-7	R2224 A-4
* C5808 D-1	C6072 B-6	* FB3803 C-3	L4005 C-3	* Q6024 C-6	R2225 A-4
* C5809 D-1	C6073 C-6	FB4001 D-5	L4006 C-4	* Q6025 D-6	R2226 B-3
* C5810 E-2	* C6074 D-7	FB4201 D-4	L4007 C-3	* Q6026 D-6	* R2401 B-4
* C5811 D-1	C6075 B-6	FB4202 D-5	L4203 E-3	Q6027 D-7	* R2402 B-4
* C5814 D-1	* C6076 B-6	* FB4401 A-3	* L4401 B-3		* R2403 B-4
* C5817 E-1	C6077 C-6	FB4801 D-2	* L4402 A-3	* R1001 A-4	* R2404 B-4
* C5818 E-1	C6078 B-6	FB4802 D-2	* L4403 B-3	* R1002 A-4	* R2405 B-4
* C5819 E-2	C6079 C-6	* FB4803 E-2	* L4404 A-4	R1005 A-4	* R2406 B-4
* C5820 E-2	* C6080 B-6	FB4805 C-2	* L4405 A-3	R1006 A-4	* R2407 B-4
C5821 E-2	C6081 B-6	FB5001 C-2	* L4406 A-4	* R1007 E-5	* R2408 B-4
* C5822 E-2	* C6082 B-6	* FB5201 E-6	* L4601 A-2	R1008 E-7	* R2409 A-4
C5823 E-2	* C6085 C-6	* FB5202 D-6	L6001 A-6	R1009 E-1	* R2410 B-5
* C5824 E-2	C6086 D-7	* FB5203 E-6	L6002 A-7	R1201 D-1	* R2411 B-4
C6001 E-7	* C6087 D-7	* FB5401 C-4	* L6003 B-6	R1202 D-1	* R2412 B-4
C6002 E-7		FB5601 C-5	L6004 B-7	R1203 D-1	* R2413 B-5
* C6003 E-7	* CN1001 E-4	* FB5801 D-1	L6005 C-7	R1204 D-1	* R2414 B-5
* C6004 E-7	CN1002 A-4	* FB5802 E-1	L6006 B-7	R1205 D-1	* R2415 B-4
* C6005 E-7	CN1003 E-4		L6007 C-7	R1206 D-1	* R2416 B-4
* C6006 E-7	* CN1004 E-6	IC1201 D-2	L6008 B-7	R1207 D-1	* R2417 A-4
C6007 D-6	CN1006 E-2	IC1401 C-1	L6009 C-7	R1208 D-1	* R2418 A-4
C6008 D-6	CN1007 E-7	IC1402 B-1	L6010 B-7	R1209 D-1	R2419 D-5
* C6009 E-7	CN1008 A-3	IC1403 C-2	L6011 C-7	R1210 D-1	R2422 D-5
* C6010 E-7	CN1009 D-7	IC1601 B-2	* L6012 B-6	R1211 D-1	R2424 E-5
* C6011 E-7	* CN1011 A-2	IC1801 B-1	* L6013 B-7	R1212 E-1	R2425 E-5
* C6012 E-6	* CN1012 A-4	IC2001 B-3	L6014 C-6	R1213 E-2	R2427 E-5
* C6013 E-6	CN1013 E-1	IC2201 B-4	L6015 A-6	R1214 D-2	R2428 E-5
* C6014 E-7		IC2401 E-5	L6016 B-6	R1401 C-1	R2429 E-5
* C6015 E-7	D1004 E-6	IC2402 B-4	L6017 C-6	R1403 C-1	* R2433 A-4
* C6016 E-7	D1005 E-6	* IC2601 C-2	L6018 C-6	R1404 C-1	* R2434 B-4
C6017 E-6	D1006 E-7	* IC2602 C-1	L6019 C-6	R1405 C-2	* R2601 C-1
* C6018 E-6	D1007 D-7	* IC2603 C-3	L6020 B-6	R1406 C-2	* R2603 C-2
* C6019 E-7	D1008 E-7	* IC2604 C-3	L6021 B-6	R1407 C-2	* R2604 C-2
* C6020 E-6	D4802 E-3	* IC2605 C-2	L6022 C-6	R1408 C-2	* R2605 C-2
* C6021 D-7	* D5201 D-6	* IC2606 C-3	L6023 B-6	R1409 C-2	* R2606 C-2
* C6022 D-6	D6003 D-7	* IC2607 C-2	L6024 C-6	R1411 C-2	* R2607 C-2
* C6023 D-7	* D6004 E-7	* IC2801 C-3	L6025 B-6	R1412 D-1	* R2608 C-2
C6024 D-7	D6005 E-7	* IC2802 C-3	L6026 C-6	R1413 C-2	* R2609 C-3
* C6025 D-7	* D6006 E-7	* IC2803 C-3	L6027 B-6	R1415 C-2	* R2610 C-3
* C6026 D-6	* D6007 D-6	* IC2804 C-3		R1416 D-1	* R2615 B-1
C6027 D-6	* D6008 A-6	* IC2805 C-2	LF6001 D-6	R1417 D-1	* R2801 B-3
* C6028 D-7	* D6009 B-6	* IC2806 C-2		R1418 D-1	* R2802 C-2
C6029 D-6	* D6011 D-6	* IC3001 B-1	* Q2401 B-4	R1419 D-1	* R3201 D-5
C6030 D-6	* D6012 D-7	* IC3002 B-2	* Q2402 B-4	R1420 D-1	* R3202 D-5
* C6031 D-6	* D6013 D-7	* IC3201 C-5	* Q2403 B-4	R1423 C-2	* R3207 D-5
* C6032 D-6		* IC3401 C-4	* Q2404 B-4	R1425 B-2	* R3208 D-5
C6033 D-6	F6001 D-7	* IC3402 B-5	* Q2405 B-4	R1427 C-1	* R3210 D-5
C6034 D-7	F6002 D-6	IC3601 D-5	* Q2406 B-4	R1428 C-1	* R3213 C-6
C6035 D-7	F6003 D-6	* IC3801 D-3	* Q2407 B-4	R1429 C-1	* R3214 C-6
* C6036 D-7	F6004 D-6	IC4001 C-4	* Q2408 B-4	R1430 C-1	* R3215 C-4
* C6037 D-7	F6005 D-6	IC4201 D-4	* Q2409 B-4	R1431 C-1	* R3216 B-5
* C6038 B-6	F6006 D-7	* IC4401 A-3	* Q4401 B-4	R1432 C-1	R3601 D-6
* C6039 B-7	F6007 D-7	* IC4601 A-3	* Q4402 B-4	R1601 B-2	R3602 D-5
* C6040 B-7		IC4801 E-3	* Q4403 B-4	R1603 B-2	R3603 D-5

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

NN-001 BOARD

R3604	D-5	R4802	D-2	* R5225	E-5	* R5821	D-1	C7001	A-4	C7612	B-2
R3605	D-5	R4803	E-2	* R5226	E-5	* R5822	D-1	C7002	C-5	C7613	B-2
R3606	D-5	R4806	D-3	* R5227	D-5	* R5823	D-1	C7003	D-5	C7614	B-3
R3607	D-5	R4807	D-3	* R5228	E-5	* R5824	D-1	C7004	C-5	C7615	B-2
R3608	D-5	R4808	D-3	* R5229	D-5	* R6001	E-7	C7005	D-5	C7616	A-2
R3609	D-5	R4809	D-3	* R5230	D-6	* R6002	D-6	C7006	C-5	C7801	A-3
R3610	C-5	R4810	D-3	* R5232	D-6	R6003	D-6	C7007	C-5	C7802	A-3
R3611	C-5	R4811	D-3	* R5233	D-5	* R6004	E-6	C7008	C-5	C7805	A-4
R3612	C-5	R4812	D-3	* R5234	D-5	* R6005	E-6	C7009	D-5	C7806	C-3
* R3801	C-3	R4813	D-3	* R5235	E-6	R6006	E-6	C7010	D-5	C7807	B-3
* R3802	D-4	R4814	E-3	* R5237	E-5	R6007	D-6	C7201	B-1	C7808	B-3
* R3803	D-4	R4815	D-3	* R5238	E-6	R6008	D-6	C7202	B-1	C7809	B-3
* R3804	D-2	R4816	E-3	* R5240	D-5	R6009	D-6	C7203	C-1	C7810	C-3
* R3805	D-2	R4817	D-3	* R5401	D-4	* R6011	E-6	C7204	C-1	C7811	B-4
* R3806	D-2	R4822	E-3	* R5402	D-4	* R6012	E-6	C7205	C-1	C7812	B-4
* R3807	D-4	R4823	D-2	* R5403	E-5	* R6013	E-6	C7206	B-1	C7813	A-4
* R3808	D-4	R4824	D-3	* R5404	D-4	* R6015	D-7	C7207	B-1	C7814	B-4
* R3809	D-4	R4825	D-2	* R5405	D-4	* R6016	E-6	C7208	B-1	C7815	A-4
* R3810	E-3	R4826	D-3	* R5406	D-4	* R6017	D-7	C7209	B-1	C7816	B-4
* R3811	D-4	R4827	D-2	* R5407	D-4	* R6018	D-7	C7210	C-1	C7817	A-4
* R3812	E-4	R4828	D-2	* R5411	D-5	* R6019	D-7	C7211	B-1	C7818	B-4
R4001	C-5	R4829	D-2	* R5413	D-4	* R6020	D-6	C7213	C-2	C7819	A-4
R4003	C-4	R4830	D-2	* R5414	D-5	* R6021	D-7	C7215	C-1	C7820	B-4
R4004	C-4	R4831	D-2	* R5415	D-5	* R6022	D-7	C7216	C-2	C7821	B-4
R4005	C-5	R4832	D-2	* R5416	D-5	* R6023	D-6	C7217	C-2	C7822	C-3
R4009	C-4	R4833	D-2	* R5417	D-5	* R6024	D-7	C7218	C-2	C7825	C-3
R4010	C-4	R4834	D-2	* R5418	D-5	* R6025	D-6	C7219	C-2		
R4012	D-4	* R4835	E-3	* R5419	D-4	* R6026	D-6	C7220	D-1	CN7001	A-2
R4013	C-3	R4836	D-2	* R5420	D-4	* R6027	D-6	C7221	B-2	CN7002	A-4
R4014	C-5	R4837	D-2	* R5421	D-5	* R6028	D-6	C7222	C-2	CN7003	A-3
R4016	C-3	R4838	D-2	* R5423	D-5	* R6029	D-6	C7223	C-2	CN7004	A-1
R4201	E-4	R4839	D-3	* R5424	D-5	* R6030	D-6	C7224	D-1	CN7005	C-5
R4202	D-4	R4840	D-3	* R5425	D-5	* R6031	D-6	C7225	C-1	CN7006	B-1
R4203	D-3	R4842	D-2	* R5427	D-5	* R6032	D-7	C7226	C-1	CN7007	B-5
R4204	D-4	R4843	D-2	* R5428	D-5	* R6033	D-6	C7227	C-2	CN7008	D-2
R4205	D-3	R4844	D-2	* R5429	D-5	* R6034	D-6	C7228	C-2	CN7009	D-4
R4206	D-4	R4845	D-2	* R5430	D-5	* R6035	D-6	* C7231	C-1	CN7010	C-1
R4207	D-4	R4846	D-2	* R5431	D-4	* R6036	D-6	* C7232	C-2	CN7801	A-5
R4208	D-3	R4847	E-2	* R5432	D-5	* R6037	D-6	* C7233	A-1		
R4209	D-3	R4848	E-2	* R5433	E-5	* R6038	D-6	C7402	B-2	D7001	D-5
R4210	D-4	R4849	D-2	* R5434	E-5	* R6039	A-7	C7403	B-1	D7002	C-5
R4212	D-4	R4850	E-2	* R5435	E-5	* R6040	C-7	C7404	B-1	D7005	B-5
R4213	D-4	R4851	E-2	R5437	E-4	* R6041	C-6	C7405	B-1	D7007	A-5
R4214	D-4	R4852	D-2	* R5438	E-5	* R6042	B-7	C7406	B-1	D7008	A-5
R4215	D-4	R4855	E-2	* R5439	E-5	* R6043	C-7	C7407	B-1	D7009	B-5
R4216	E-4	R4856	E-2	* R5440	E-4	* R6044	C-7	C7408	B-1	D7011	A-5
R4217	E-4	R4857	D-2	* R5441	D-4	* R6045	D-6	C7409	B-1	D7801	B-5
R4218	E-4	R4858	E-2	* R5442	E-5	R6046	D-7	C7410	B-2		
R4219	E-4	R4859	E-2	* R5443	E-5	R6048	D-7	C7411	B-2	FB7201	C-2
R4220	E-4	* R4860	E-2	* R5444	E-5	* R6049	D-6	C7412	B-2		
R4221	E-4	* R4861	E-2	R5601	C-6	* R6053	B-7	C7415	B-2	IC7001	C-5
R4222	D-4	* R4862	E-3	R5602	C-5	* R6055	B-7	C7416	B-2	IC7002	D-5
R4223	E-4	* R4863	E-2	R5603	C-5	* R6056	B-7	C7417	A-1	IC7201	C-1
R4224	E-4	* R4864	E-2	R5604	C-5	* R6057	C-7	C7419	A-1	IC7202	D-1
R4225	D-4	* R4865	E-3	R5605	C-5	* R6058	C-7	C7420	A-2	* IC7203	C-1
R4226	D-4	R4866	D-2	R5606	B-6	* R6059	C-6	C7421	A-2	* IC7204	C-2
R4227	D-4	R4867	D-2	R5607	B-6	* R6060	B-7	C7422	B-2	* IC7205	B-1
R4228	D-5	R4868	E-2	R5608	B-6	* R6061	C-7	C7423	A-2	IC7401	B-1
R4229	D-5	R4870	D-2	R5609	A-6	* R6062	D-6	C7424	B-2	IC7602	B-3
R4230	D-5	R5001	C-3	R5610	A-6	R6063	B-6	C7425	A-2	IC7601	B-3
R4231	D-5	* R5201	D-6	R5611	A-6	* R6064	D-6	C7426	A-2	IC7801	B-4
R4232	D-5	* R5202	D-6	R5612	A-6			C7427	A-2	IC7802	C-4
R4233	E-5	* R5203	D-6	R5613	B-5	X1401	C-2	C7428	B-2		
R4234	E-4	* R5204	D-6	R5614	A-5	X4201	E-4	C7429	B-2	L7001	A-4
R4235	E-4	* R5205	D-6	R5615	A-5	X4801	E-3	C7430	A-2	L7002	D-5
* R4401	A-4	* R5206	D-6	R5616	B-5	* X5201	D-5	C7431	A-2	L7201	D-1
* R4402	B-4	* R5207	D-6	R5617	B-5	* X5202	D-5	C7432	A-2	L7203	D-1
* R4403	B-3	* R5208	D-5	* R5801	D-1	* X5401	C-4	C7433	A-2	L7401	B-1
* R4404	B-3	* R5209	E-6	* R5802	D-1	* X5601	C-5	C7434	A-2	L7601	B-3
* R4405	B-3	* R5210	E-5	* R5803	D-1	* X5801	D-1	C7435	B-2	L7602	B-2
* R4406	B-4	* R5211	E-5	* R5804	D-1			C7436	A-2	L7801	A-3
* R4407	B-4	* R5212	D-6	* R5805	E-1			C7437	B-2	L7802	C-3
* R4408	B-4	* R5213	E-5	* R5806	E-1			C7438	B-2	L7803	A-4
* R4409	B-4	* R5214	D-6	* R5807	E-1			C7601	B-3	L7804	B-4
* R4410	A-4	* R5215	D-6	* R5811	E-2			C7602	B-2		
* R4411	A-4	* R5216	E-5	* R5812	E-2			C7603	B-3	Q7401	B-1
* R4412	A-4	* R5217	D-6	* R5813	E-2			C7604	B-3	Q7402	A-2
* R4413	A-4	* R5218	D-6	* R5814	E-2			C7605	B-3	Q7403	B-2
* R4415	B-3	* R5219	D-6	R5815	E-2			C7606	B-3	Q7801	B-3
* R4418	A-3	* R5220	E-6	R5816	E-2			C7607	B-3	Q7802	B-3
* R4420	A-3	* R5221	D-5	* R5817	E-2			C7608	B-3	Q7803	B-5
* R4421	B-3	* R5222	D-5	* R5818	E-2			C7609	B-3	Q7807	B-3
* R4422	B-4	* R5223	D-5	* R5819	E-2			C7610	B-2	Q7808	B-5
R4801	D-3	* R5224	E-5	* R5820	E-2			C7611	B-2	Q7809	B-5

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

OO-001 BOARD

PP-001 BOARD

R7001 A-4	R7406 A-1	* C8101 C-2	R8203 B-1	C8701 A-2	R8740 C-2
R7002 A-4	R7407 A-2	* C8102 C-2	R8204 A-1	C8702 A-2	R8741 B-2
R7003 A-2	R7408 A-2	C8201 B-1	R8205 C-1	C8703 C-3	
R7004 A-3	R7409 A-4	C8202 A-1	R8206 A-1	C8704 C-3	RB8701 A-3
R7005 A-1	R7410 B-2	C8203 B-1	R8211 A-1	C8706 B-3	
R7006 A-1	R7411 A-2	C8204 A-1	R8212 A-1	C8708 B-3	
R7007 A-1	R7412 B-2	C8205 A-1	R8213 B-1	C8709 B-3	
R7008 A-1	R7413 B-2	C8206 A-1	R8214 B-1	C8710 A-5	
R7009 A-1	R7414 B-2	C8211 B-1	R8215 A-1	C8711 B-2	
R7010 B-1	R7415 A-2	C8212 C-1	R8216 A-1	C8712 B-3	
R7011 C-5	R7416 B-2	C8213 B-1	R8217 B-1	C8714 B-3	
R7012 C-5	R7417 B-2	C8214 C-1	R8218 B-1	C8715 B-3	
R7013 C-5	R7418 B-2	C8215 B-1	R8226 B-1	C8716 B-2	
R7014 C-5	R7602 C-3	C8216 C-1	R8230 B-1	C8717 B-2	
R7015 C-5	R7603 B-3	* C8217 C-1	* R8231 B-1	C8719 C-3	
R7017 B-1	R7604 B-3	C8218 C-1	R8233 B-1	C8720 C-3	
R7018 C-5	R7607 B-2	C8219 C-2	* R8236 C-1	C8721 B-2	
R7019 D-5	R7608 B-2	C8220 B-1	R8237 C-1	C8722 A-2	
R7021 B-5	R7609 B-2	C8221 B-1	R8238 C-1	C8724 A-3	
R7022 B-5	R7610 B-2	C8222 B-2	R8239 C-1	C8725 A-3	
R7023 B-5	R7611 A-2	C8223 C-1	R8240 B-1	C8727 B-3	
R7201 C-1	R7612 B-3	C8224 C-1	R8241 B-1	C8728 A-3	
R7202 C-1	R7613 A-2	C8225 C-2	R8242 B-2	C8729 A-4	
R7203 C-1	R7614 A-3	* C8227 B-1	R8243 C-1		
R7204 C-1	R7615 A-3	* C8229 D-1	R8244 C-1	CN8701 C-4	
R7205 C-1	R7616 A-3	* C8230 C-1	R8245 C-1	CN8702 B-2	
R7206 C-1	R7617 A-3	* C8232 C-1	R8246 C-1	CN8703 A-2	
R7207 B-1	R7803 B-3	* C8233 C-1	R8247 C-2	CN8704 A-3	
R7208 B-1	R7804 B-4	* C8234 C-1	R8248 C-1	CN8705 A-5	
R7209 B-1	R7805 B-3	* C8235 C-1	R8249 B-1		
R7210 B-1	R7807 A-4	* C8236 D-1	R8250 B-1	D8701 B-3	
R7211 B-1	R7808 B-4	C8239 C-1	R8251 B-2	D8702 A-3	
R7212 A-1	R7809 B-4	C8242 C-1	* R8260 C-1		
R7213 B-1	R7810 B-4	C8243 C-1	* R8261 C-1	FB8701 B-3	
R7214 B-1	R7811 B-4	* C8244 C-2	* R8262 C-1		
R7215 B-2	R7812 B-4	* C8245 C-1	* R8267 C-2	IC8701 B-3	
R7216 B-2	R7813 B-4	* C8301 D-2	* R8268 C-2		
R7217 B-2	R7814 B-4	* C8303 C-2	* R8269 C-1	L8701 C-3	
R7219 C-2	R7816 B-3	* C8304 C-2	* R8270 B-1	L8702 B-2	
R7220 C-2	R7817 B-4	* C8306 D-2	* R8272 C-1	L8703 A-5	
R7221 C-2	R7818 B-5	* C8307 D-2	* R8273 C-1	L8704 C-3	
R7222 B-2	R7819 B-5	* C8313 D-2	* R8274 C-1		
R7223 C-2	R7820 B-5	* C8314 C-2	R8282 C-1	Q8701 A-2	
R7224 C-2	R7821 A-5	* C8316 D-2	R8283 C-1	Q8702 A-2	
R7225 C-2	R7822 A-5	* C8317 C-2	R8284 C-1	Q8706 C-5	
R7226 C-2	R7823 A-5	* C8318 D-2	R8285 C-1	Q8707 A-4	
R7227 B-2	R7824 B-5	* C8319 C-2	* R8286 B-1	Q8708 C-5	
R7228 C-2		* C8321 D-1	* R8301 C-2	Q8709 B-5	
R7229 C-2		* C8322 C-1	* R8302 D-2	Q8710 C-3	
R7230 C-2		* C8326 C-2	* R8303 C-2	Q8711 A-3	
R7231 C-2		* C8327 D-2	* R8304 D-2	Q8712 C-3	
* R7234 B-1		C8401 C-2	* R8305 D-2		
* R7235 B-2		C8402 C-2	* R8306 D-2	R8701 C-2	
* R7236 C-1		C8403 D-2	* R8307 C-2	R8703 C-2	
* R7237 C-1		C8404 C-2	* R8308 D-2	R8704 A-5	
* R7238 C-1		C8408 C-1	* R8309 C-2	R8705 A-4	
* R7239 C-1		C8409 C-1	* R8310 C-1	R8706 A-5	
* R7240 C-1		C8410 C-2	* R8311 D-1	R8708 B-3	
* R7241 C-2		C8411 C-1	* R8314 C-1	R8709 A-4	
* R7244 C-1			* R8315 D-1	R8710 B-3	
* R7245 C-2			* R8316 D-1	R8711 B-3	
* R7246 C-1		* CN8101 A-1	* R8317 D-1	R8712 B-3	
* R7247 C-2		* CN8102 C-2	* R8320 C-1	R8714 B-3	
* R7248 C-1			* R8321 D-2	R8715 A-5	
* R7249 C-2		IC8201 A-1	* R8322 C-2	R8716 A-4	
* R7252 C-1		IC8202 A-1	* R8323 D-2	R8717 A-5	
* R7253 C-1		IC8203 C-1	R8405 C-2	R8718 A-4	
* R7254 C-1		IC8204 C-1	R8408 C-2	R8719 B-3	
* R7255 C-1		IC8205 C-2	R8409 C-2	R8720 B-3	
* R7256 C-1		* IC8206 C-1	R8414 C-2	R8721 A-5	
* R7260 B-1		* IC8207 C-1		R8722 C-5	
* R7261 B-1		IC8208 C-1		R8723 B-3	
* R7262 A-1		* IC8301 D-2		R8724 B-5	
* R7263 A-1		IC8401 C-2		R8725 C-5	
* R7264 B-1		IC8402 C-2		R8727 A-3	
* R7265 B-1		IC8403 C-2		R8728 B-3	
* R7266 B-1				R8729 B-3	
* R7268 B-1		* L8101 C-2		R8730 B-5	
* R7269 B-1		* L8102 C-2		R8731 B-5	
R7401 B-1		* L8103 B-1		R8732 A-4	
R7402 B-1		* L8104 B-1		R8735 C-3	
R7403 A-2		* L8301 D-1		R8736 A-3	
R7404 A-1				R8737 C-3	
R7405 B-2		* R8101 B-1		R8739 A-3	
		* R8102 B-2			

4-3. PRINTED WIRING BOARDS

no mark : side A

* mark : side B

RR-001 BOARD

* BT9001 B-1

CN9001 C-2
CN9002 C-4
CN9003 A-4
CN9004 A-2
CN9005 A-3
CN9006 E-3
CN9007 A-1

D9001 D-4
* D9002 C-3
* D9003 C-4
* D9004 C-4
* D9005 B-4
* D9006 B-3
* D9007 A-3
* D9008 A-3
* D9009 A-4
* D9010 B-4
* D9011 B-4
D9012 D-3
* D9013 C-3
* D9014 D-4
* D9015 A-3
* D9016 A-3
* D9017 A-1

FB9001 E-3
FB9002 E-3
FB9003 D-3
FB9004 D-3
FB9005 D-3
FB9006 D-3

* LF9002 B-3

R9001 D-3
R9002 D-3
R9003 D-3
* R9004 C-3
* R9005 C-3
* R9006 C-3
* R9007 B-4
R9008 E-3
* R9009 A-3
* R9010 A-3
* R9011 A-3
R9012 D-2
* R9013 D-4
R9014 A-3
* R9015 A-1
R9016 C-2
* R9017 A-1
* R9018 A-1
* R9019 A-1
* R9020 A-1
* R9021 A-3

* S9001 D-4
* S9002 C-3
S9003 D-3

VDR901 D-3
VDR902 D-3
VDR903 D-3
VDR904 D-3
* VDR907 E-4

FP-245 FLEXIBLE BOARD

C8501 D-8

CN8501 B-6
CN8502 B-1

D8501 C-6

FB8501 C-6
FB8502 E-9
FB8503 E-9
FB8504 E-9
FB8506 D-8
FB8508 D-9
FB8509 E-9

J8501 D-9
J8502 E-9

Q8501 C-6

R8501 D-6
R8502 D-8
R8503 B-7
R8504 B-7
R8508 A-6
R8509 C-7
R8510 D-7
R8511 E-8
R8515 D-6
R8516 D-6
R8517 D-7
R8518 D-6
R8519 E-8

S8501 C-6
S8502 B-7

VD8501 D-8
VD8502 F-8
VD8503 D-8
VD8504 E-8
VD8505 E-8
VD8506 A-6
VD8507 A-6

* C200 B-2
* C201 B-2
* C202 B-2
* C203 B-2
* C204 B-2
* C205 B-2
* C206 B-2
* C207 B-2
C208 B-2
C209 B-2
C210 B-1
C211 B-2
C212 B-1
* C213 A-1
* C214 A-1
* C215 A-1
* C216 A-2
* C217 A-2
* C218 A-2
* C219 A-2
* C220 A-2
* C221 A-2
* C222 A-2
* C223 A-2
* C224 B-1
C226 B-2
C228 B-2
* C231 B-1
* C232 B-1
* C233 B-1
* C234 B-1
* C235 B-1
* C236 B-1
* C237 B-1
* C238 B-1
* C241 B-1
* C300 B-3
* C301 B-3
* C302 B-3
* C303 B-3
* C304 B-2
* C305 B-2
* C306 B-3
* C307 B-3
* C308 B-3
C309 B-3
C310 B-2
C311 B-3
C312 B-3
* C313 A-2
* C314 A-3
* C315 A-2
* C316 A-3
* C317 A-3
* C318 A-3
* C319 A-3
* C320 A-3
* C321 A-3
* C322 B-3
* C323 B-3
C326 B-3
C328 B-3
* C331 B-3
* C334 B-3

* CN200 A-1
CN201 B-1
CN202 B-3
* CN300 A-3
CN301 B-2

* D001 A-3
* D002 A-3
* D003 A-2
* D004 A-3
* D200 A-1
* D201 A-1
* D202 A-1
* D203 A-1

* IC200 A-1
* IC201 A-2
* IC203 B-1
* IC204 B-1

* IC205 B-1
* IC300 A-3
* IC301 A-3
* IC303 B-3

* L200 B-2
* L202 B-2
L203 B-2
* L300 B-2
* L302 B-3
L303 B-3

* R200 B-2
* R201 B-2
* R202 B-2
* R203 B-2
* R204 B-2
* R205 B-2
* R206 B-2
* R207 B-1
* R208 B-2
* R209 B-1
* R210 B-1
* R211 B-2
* R212 A-1
* R213 A-1
* R214 A-1
* R215 A-1
* R216 A-1
* R219 A-1
* R220 A-1
* R221 A-2
* R222 A-2
* R223 A-2
* R224 A-2
* R225 A-2
* R226 A-2
* R227 A-2
* R228 B-2
* R232 B-1
* R233 B-1
* R234 B-1
* R235 B-2
* R236 B-2
* R237 B-1
R239 B-1
R240 B-1
* R241 B-1
* R242 B-1
* R243 B-1
* R244 B-1
* R245 B-1
* R300 B-2
* R301 B-3
* R302 B-2
* R303 B-3
* R304 B-2
* R305 B-3
* R306 B-2
* R307 B-2
* R308 B-3
* R309 B-2
* R310 B-3
* R311 B-3
* R312 A-3
* R313 A-3
* R314 A-2
* R315 A-3
* R316 A-3
* R319 A-2
* R320 A-2
* R321 A-3
* R322 A-3
* R323 A-3
* R324 A-3
* R325 A-3
* R326 A-3
* R327 A-3
* R330 B-3
* R331 B-3
* R332 B-3
* R333 B-2
* R338 B-3
R339 B-3

R340 B-2
* R341 B-3

XD-002 BOARD

* C401 A-1
* C402 A-1
* C403 B-1
* C404 A-1
* C405 B-1
C407 A-1
C408 A-1
* C410 A-2
C413 B-2
* C414 B-2
* C415 B-2
C416 B-2
* C417 A-2
* C418 A-2
* C419 A-2
* C420 A-2
* C421 A-2
C422 A-2
C423 A-2

CN401 A-2

D402 B-2
D403 A-2
D404 A-2


* IC401 A-1
IC402 A-2

* L400 A-1
L401 A-2
* L402 A-2
* L403 A-2

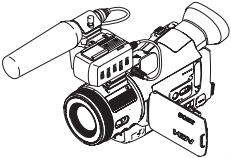
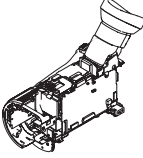
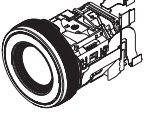
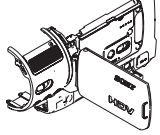
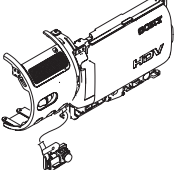
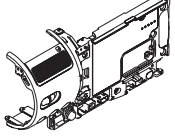
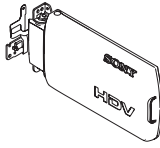
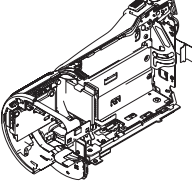
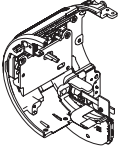
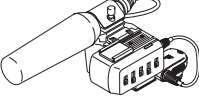
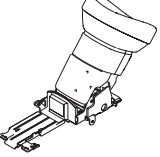
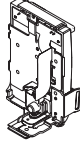
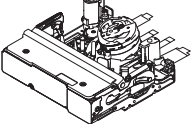
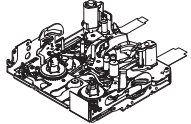
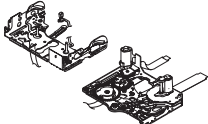
* Q402 A-2
* Q403 A-2
* Q404 A-1
Q405 A-1
Q406 A-1
Q407 A-1
Q408 A-1
Q409 A-1
Q410 A-1
* Q411 B-1

* R402 A-2
* R403 A-2
* R404 B-1
* R405 A-1
* R406 A-1
* R407 B-1
* R409 A-1
R410 A-1
R411 A-1
R412 A-1
R413 A-1
R414 A-1
R415 A-1
R416 A-1
R417 A-1
R418 A-1
R420 B-1
R421 B-1
R422 B-1
R423 B-1

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	 B	 C	 D
OVERALL ASSEMBLY	MD FRAME BLOCK	LENS BLOCK ASSEMBLY	CABINET (R) BLOCK-1
 E	 F	 G	 H
CABINET (R) BLOCK-2	CABINET (R) BLOCK ASSEMBLY (E)	LCD BLOCK ASSEMBLY	CABINET (G) BLOCK
 I	 J	 K	 L
LENS CABINET (L) ASSEMBLY	XLR BLOCK ASSEMBLY	EVF BLOCK ASSEMBLY	BATTERY PANEL BLOCK ASSEMBLY
 M	 N	 O	
MECHANISM DECK SECTION	LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-1	LS/MECHANICAL CHASSIS BLOCK ASSEMBLY-2	

5. REPAIR PARTS LIST (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

ELECTRICAL PARTS LIST

ACCESSORIES

• EE-001 BOARD C	• FP-262 FLEXIBLE BOARD B	• UU-001 BOARD K
• FP-031 FLEXIBLE BOARD O	• FP-263 FLEXIBLE BOARD H	• WW-001 BOARD H
• FP-032 FLEXIBLE BOARD O	• HH-001 BOARD F	• XD-002 BOARD J
• FP-228 FLEXIBLE BOARD O	• II-001 BOARD F	• XK-001 BOARD J
• FP-245 FLEXIBLE BOARD I	• NN-001 BOARD B	• XM-002 BOARD J
• FP-246 FLEXIBLE BOARD C	• OO-001 BOARD B	• XS-002 BOARD J
• FP-247 FLEXIBLE BOARD I	• PP-001 BOARD G	• YY-001 BOARD C
• FP-248 FLEXIBLE BOARD G	• RR-001 BOARD F	
• FP-261 FLEXIBLE BOARD L	• TT-001 BOARD B	

5. REPAIR PARTS LIST

5. REPAIR PARTS LIST

(ENGLISH)

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:
uF: μ F
- COILS
uH: μ H
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

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

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

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

(JAPANESE)

【使用上の注意】

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

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

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

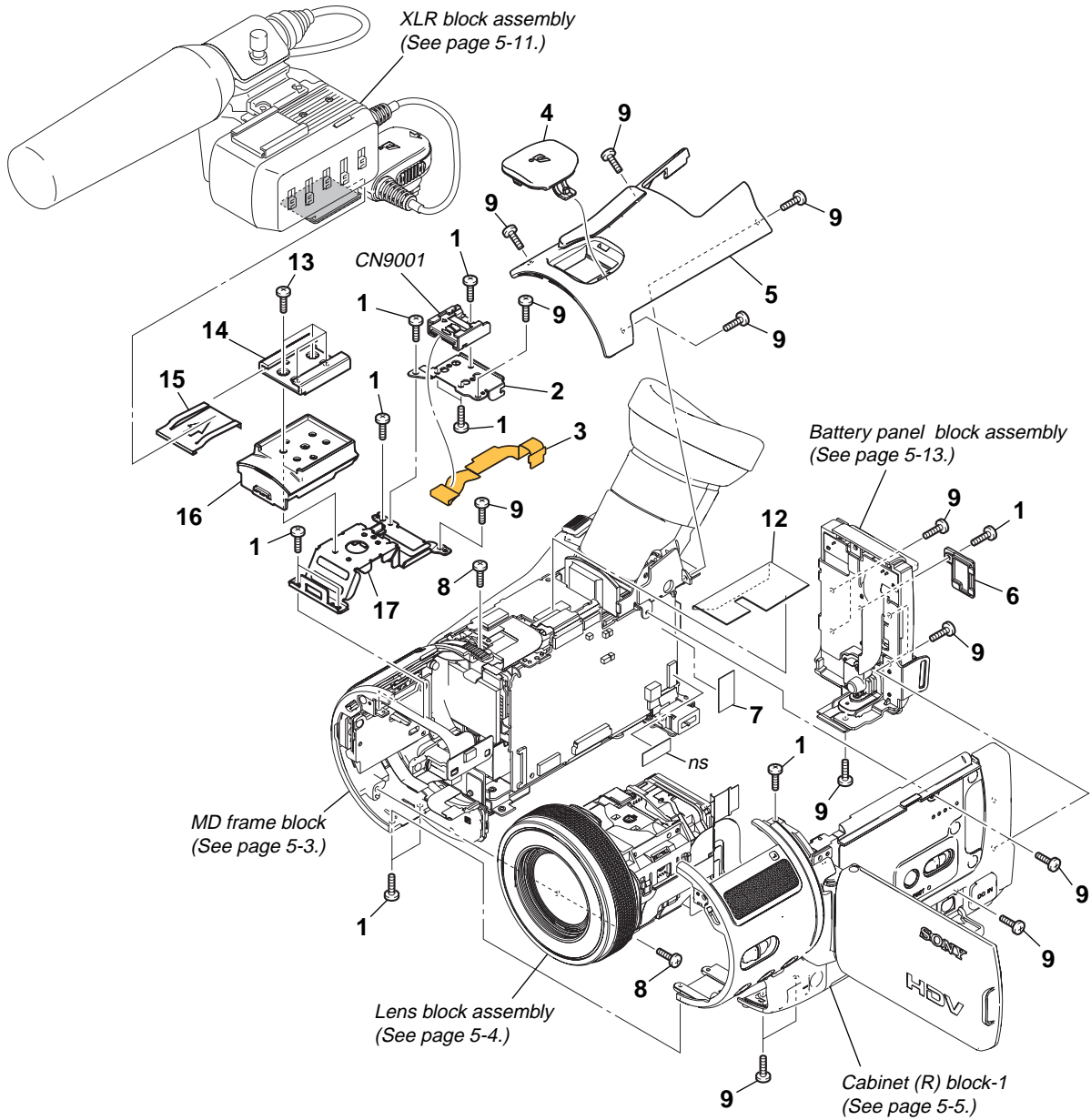
- Abbreviation
AR : Argentine model
AUS : Australian model
BR : Brazilian model
CH : Chinese model
CND : Canadian model
EE : East European model
HK : Hong Kong model
J : Japanese model
JE : Tourist model
KR : Korea model
NE : North European model

5. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

5-1-1. OVERALL ASSEMBLY

ns: not supplied

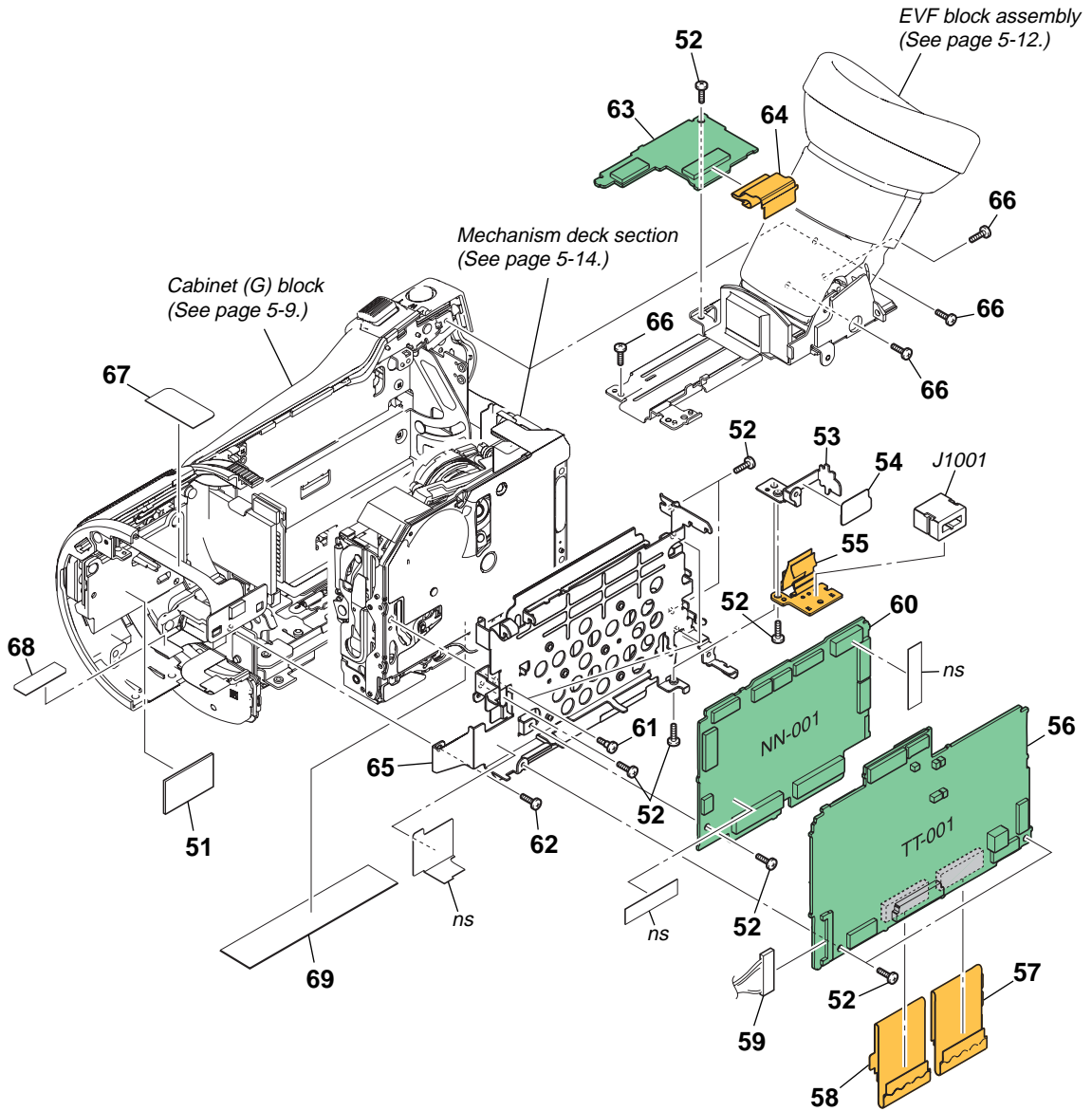


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	2-635-562-11	SCREW (M1.7)	9	2-635-562-31	SCREW (M1.7)
2	2-633-526-01	FRAME, SHOE	12	2-636-395-01	SHEET (HS)
3	1-865-400-11	FP-253 FLEXIBLE BOARD	13	3-080-202-31	SCREW (M2), LOCK ACE, P2
4	2-633-525-21	COVER, SHOE	14	3-069-286-21	SHOE, ACCESSORY
5	X-2059-616-1	CABINET (UPPER) ASSY	15	3-688-754-11	SPRING
6	2-633-531-01	LID, CPC	16	2-634-289-01	CABINET, COLD SHOE
7	2-633-544-01	SHEET (DD)	17	2-634-290-01	FRAME, COLD SHOE
8	3-989-735-11	SCREW (M1.7), LOCK ACE, P2	CN9001	1-818-890-11	CONNECTOR, EXTERNAL (HOT SHOE)

5. REPAIR PARTS LIST

5-1-2. MD FRAME BLOCK

ns: not supplied



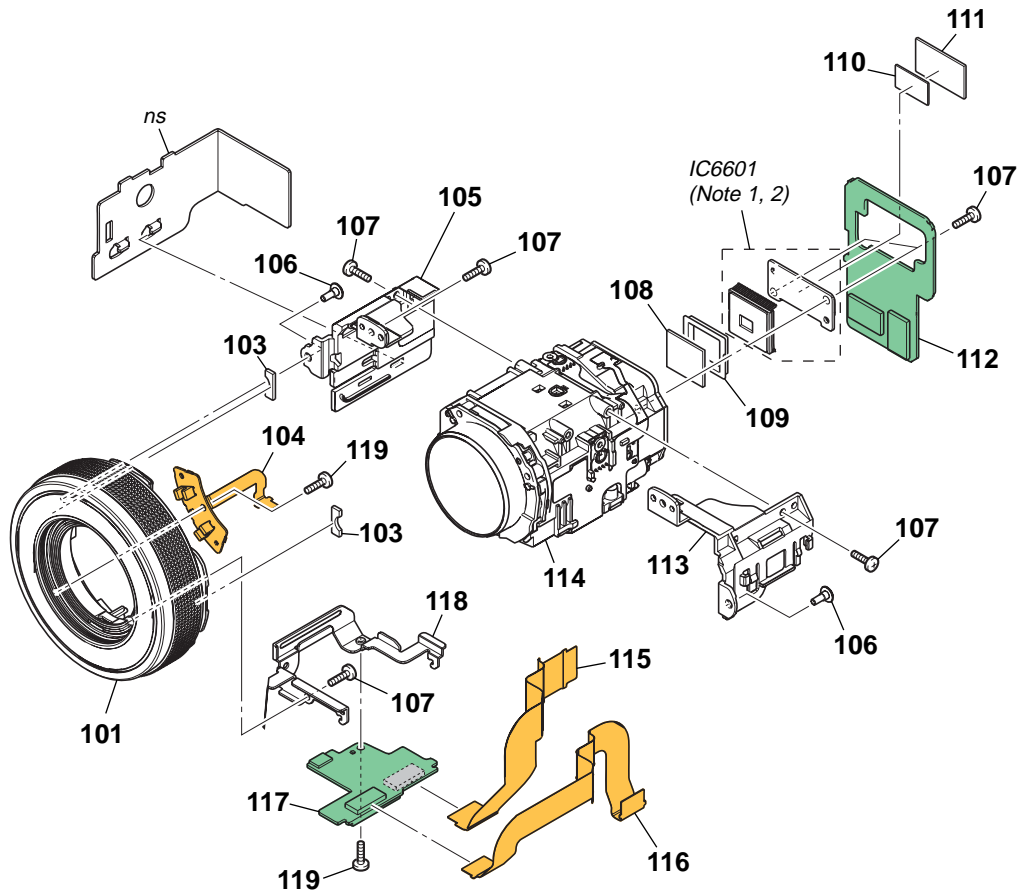
• Refer to page 5-1 for mark \triangle .

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
51	2-633-539-01	SHEET (EEL), RADIATION	60	A-1110-910-A	NN-001 BOARD, COMPLETE
52	3-989-735-11	SCREW (M1.7), LOCK ACE, P2	61	3-062-214-01	SCREW (M1.4X1.5)
53	2-633-536-01	RETAINER, DC	62	2-635-562-31	SCREW (M1.7)
54	2-633-538-01	SHEET (DC)	63	A-1152-151-A	OO-001 BOARD, COMPLETE
55	1-865-409-11	FP-262 FLEXIBLE BOARD	64	1-865-401-11	FP-254 FLEXIBLE BOARD
56	A-1147-144-A	TT-001 BOARD, COMPLETE (SERVICE) (NTSC: A1J/A1U/A1N)	65	X-2059-604-1	FRAME ASSY, MD
56	A-1147-145-A	TT-001 BOARD, COMPLETE (SERVICE) (PAL: A1E/A1P/A1C)	66	2-635-562-11	SCREW (M1.7)
57	1-865-398-11	FP-251 FLEXIBLE BOARD	67	2-633-530-01	SHEET, LENS PROTECTION
58	1-865-397-11	FP-250 FLEXIBLE BOARD	68	2-633-545-01	SHEET (249)
59	1-963-577-11	HARNESS (COAXIAL CABLE)	69	2-582-961-01	LEBEL (N), LS
			\triangle J1001	1-817-361-11	DC-IN CONNECTOR (DC IN)

5. REPAIR PARTS LIST

5-1-3. LENS BLOCK ASSEMBLY

ns: not supplied



Note 1: IC6601 は、マウント済EE-001基板には含まれません。

Note 2: イメージャの交換時は4-6ページの“イメージャ交換時の注意”を必ずお読みください。

Note 1: IC6601 is not included in EE-001 complete board.

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

Ref. No.	Part No.	Description
101	X-2059-618-1	CABINET ASSY, MF
103	2-633-556-01	SHEET (MF), VIBRATION PROOF
104	A-1110-905-A	FP-246 BOARD, COMPLETE
105	2-633-552-01	FRAME (L), LENS
106	3-069-937-11	TAPPING (B1.7X3.5), HEAD
107	3-080-204-21	SCREW, TAPPING, P2
108	1-788-292-11	FILTER BLOCK, OPTICAL
109	2-629-086-01	RUBBER (871), SEAL
110	2-633-557-01	SHEET (EE), RADIATION
111	2-634-204-01	SHEET (EEM), RADIATION

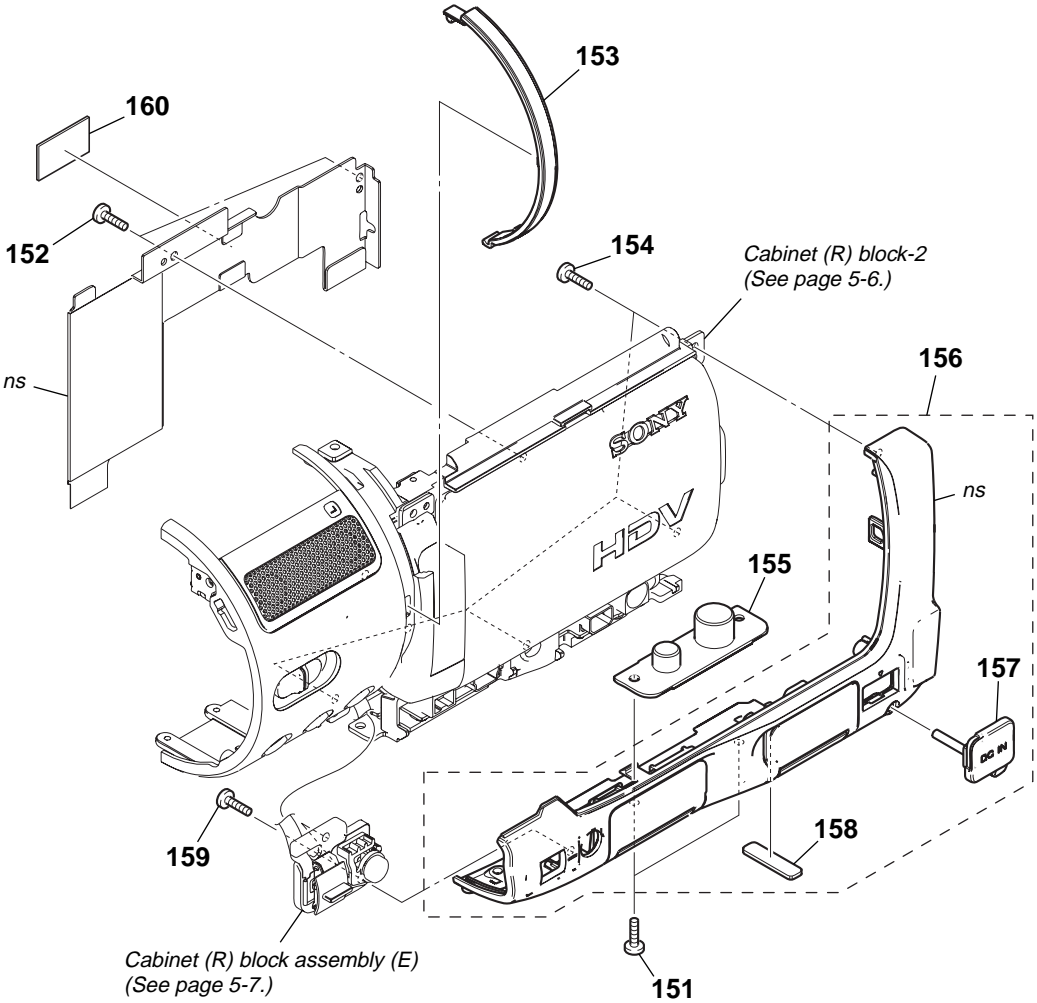
Ref. No.	Part No.	Description
112	A-1110-896-A	EE-001 BOARD, COMPLETE
113	2-633-554-01	FRAME (R), LENS
114	8-848-793-01	DEVICE, LENS LSV-871A
115	1-865-411-11	FP-264 FLEXIBLE BOARD
116	1-865-403-11	FP-256 FLEXIBLE BOARD
117	A-1110-903-A	YY-001 BOARD, COMPLETE
118	2-633-555-01	FRAME, YY
119	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
IC6601	A-1092-569-A	CMOS BLOCK ASSY (CMOS IMAGER)

(Note 1, 2)

5. REPAIR PARTS LIST

5-1-4. CABINET (R) BLOCK-1

ns: not supplied

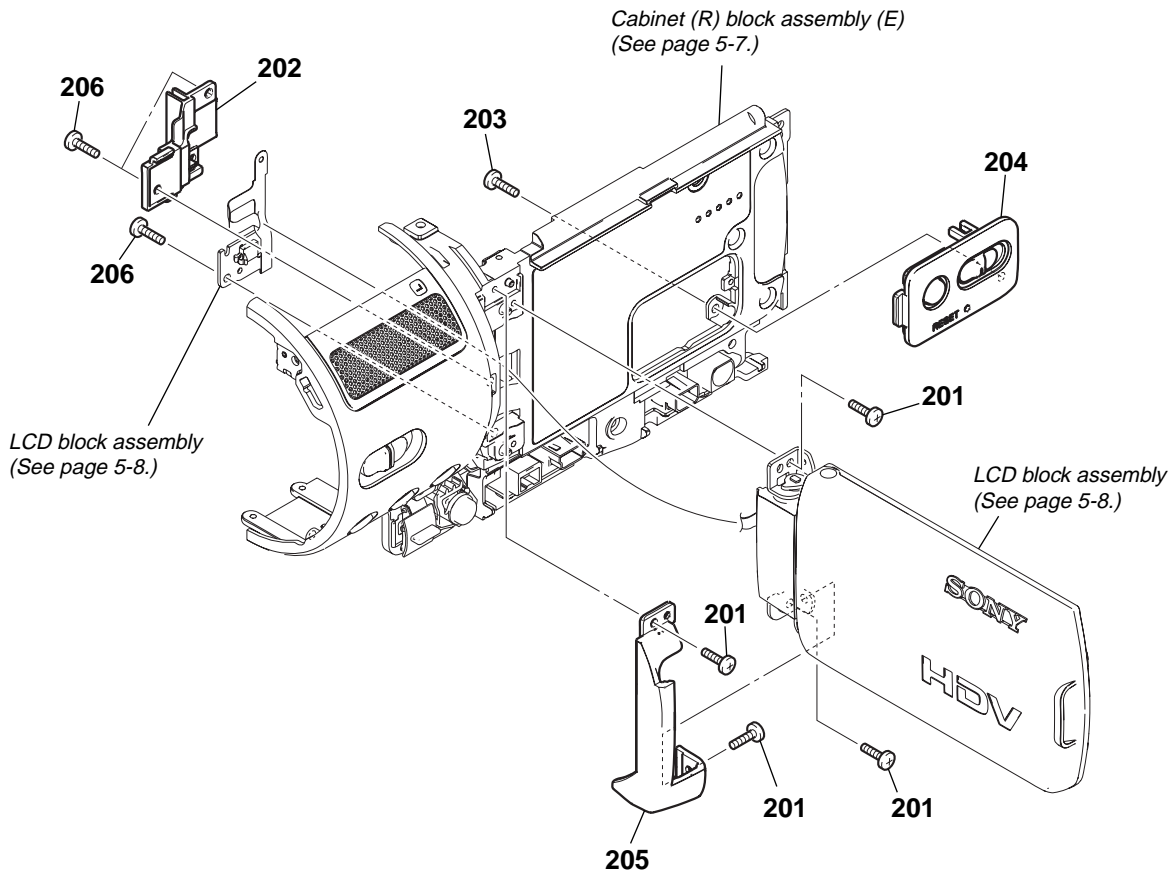


Ref. No.	Part No.	Description
151	2-635-562-31	SCREW (M1.7)
152	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
153	2-633-627-01	RING (R), ORNAMENTAL
154	3-078-890-01	SCREW, TAPPING
155	2-633-630-01	SCREW, TRIPOD

Ref. No.	Part No.	Description
156	X-2059-634-1	CABINET (R) ASSY, JACK
157	2-633-621-01	COVER, DC JACK
158	2-633-620-01	FOOT, RUBBER
159	3-080-204-21	SCREW, TAPPING, P2
160	2-633-539-01	SHEET (EEL), RADIATION

5. REPAIR PARTS LIST

5-1-5. CABINET (R) BLOCK-2



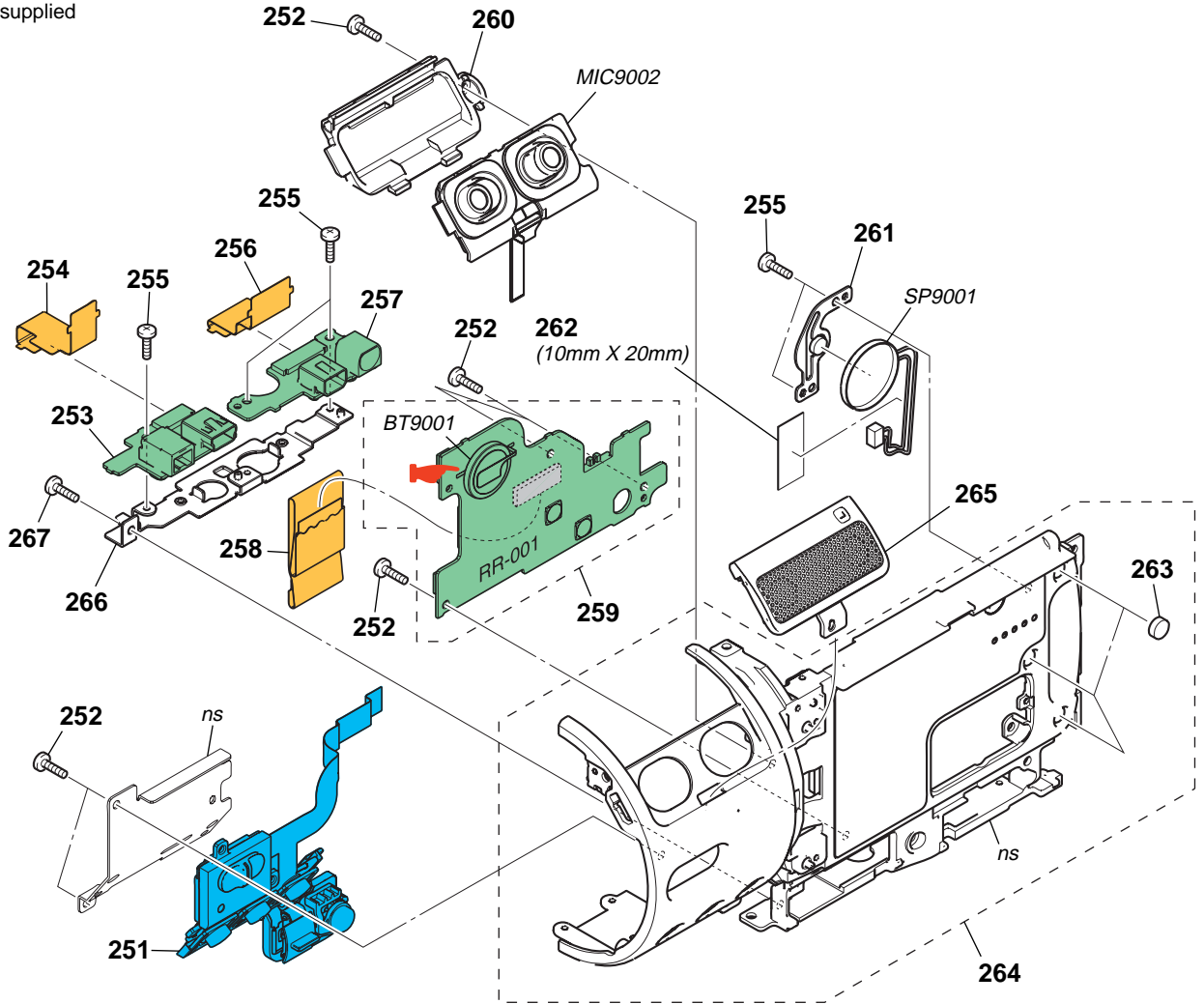
Ref. No.	Part No.	Description
201	2-635-562-31	SCREW (M1.7)
202	2-633-631-01	GUARD (R), HINGE FLEXIBLE
203	3-078-890-01	SCREW, TAPPING

Ref. No.	Part No.	Description
204	X-2059-633-1	BUTTON ASSY, R (BLACK)
205	2-633-646-21	COVER (R), HINGE
206	3-989-735-11	SCREW (M1.7), LOCK ACE, P2

5. REPAIR PARTS LIST

5-1-6. CABINET (R) BLOCK ASSEMBLY (E)

ns: not supplied



BT9001(BATTERY, LITHIUM SECONDARY)
Board on the mount position (See page 4-103).

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。

CAUTION

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

CAUTION 1:
262番のテープ(F) (3-070-529-01)は、T0.25ヒメロン(3-076-631-01)を切って使用。

CAUTION 1 :
For the part of 262 : TAPE (F) (3-070-529-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

• Refer to page 5-1 for mark △.

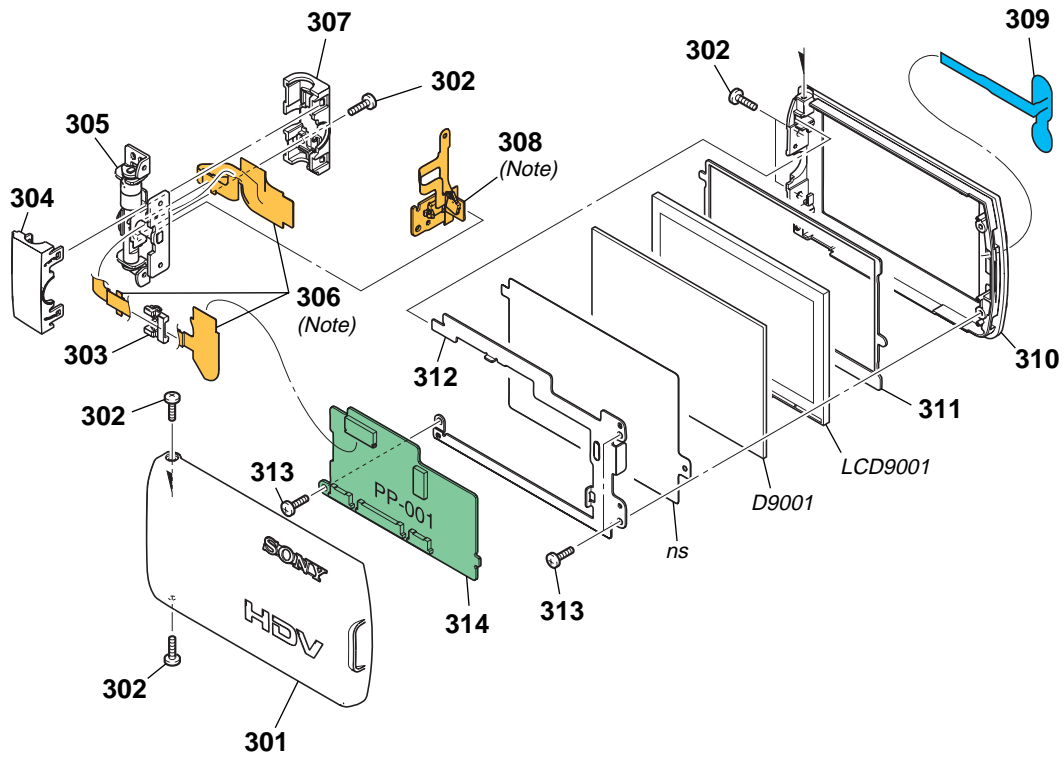
Ref. No.	Part No.	Description
251	1-479-180-11	SWITCH BLOCK, CONTROL (CK12300)
252	2-635-562-11	SCREW (M1.7)
253	A-1110-898-A	II-001 BOARD, COMPLETE
254	1-865-404-11	FP-257 FLEXIBLE BOARD
255	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
256	1-865-405-11	FP-258 FLEXIBLE BOARD
257	A-1115-409-A	HH-001 BOARD, COMPLETE
258	1-865-399-11	FP-252 FLEXIBLE BOARD
259	A-1110-900-A	RR-001 BOARD, COMPLETE
260	X-2059-716-1	CASE (R) ASSY, MICROPHONE

Ref. No.	Part No.	Description
261	X-2059-628-1	RETAINER ASSY, SPEAKER
262	CAUTION 1	TAPE (F)
263	2-633-604-01	CUSHION, CABINET (R)
264	X-2059-636-1	CABINET (R) ASSY
265	X-2059-626-1	BASE (L) ASSY, MICROPHONE
266	2-633-628-01	HOLDER, PC BOARD
267	2-635-562-31	SCREW (M1.7)
△BT9001	1-756-128-11	BATTERY, LITHIUM (SECONDARY)
MIC9002	1-542-628-11	MICROPHONE UNIT (MIC12300)
SP9001	1-825-260-21	LOUD SPEAKER (1.6CM)

5. REPAIR PARTS LIST

5-1-7. LCD BLOCK ASSEMBLY

ns: not supplied



Note: Be sure to read "2-2. The Method of Attachment FP-248, FP-259 Flexible Board" on page 2-7, 8.

Note: 2-7, 8ページの“2-2, FP-248, FP-259フレキシブル基板の取り付け方”を必ずお読み下さい。

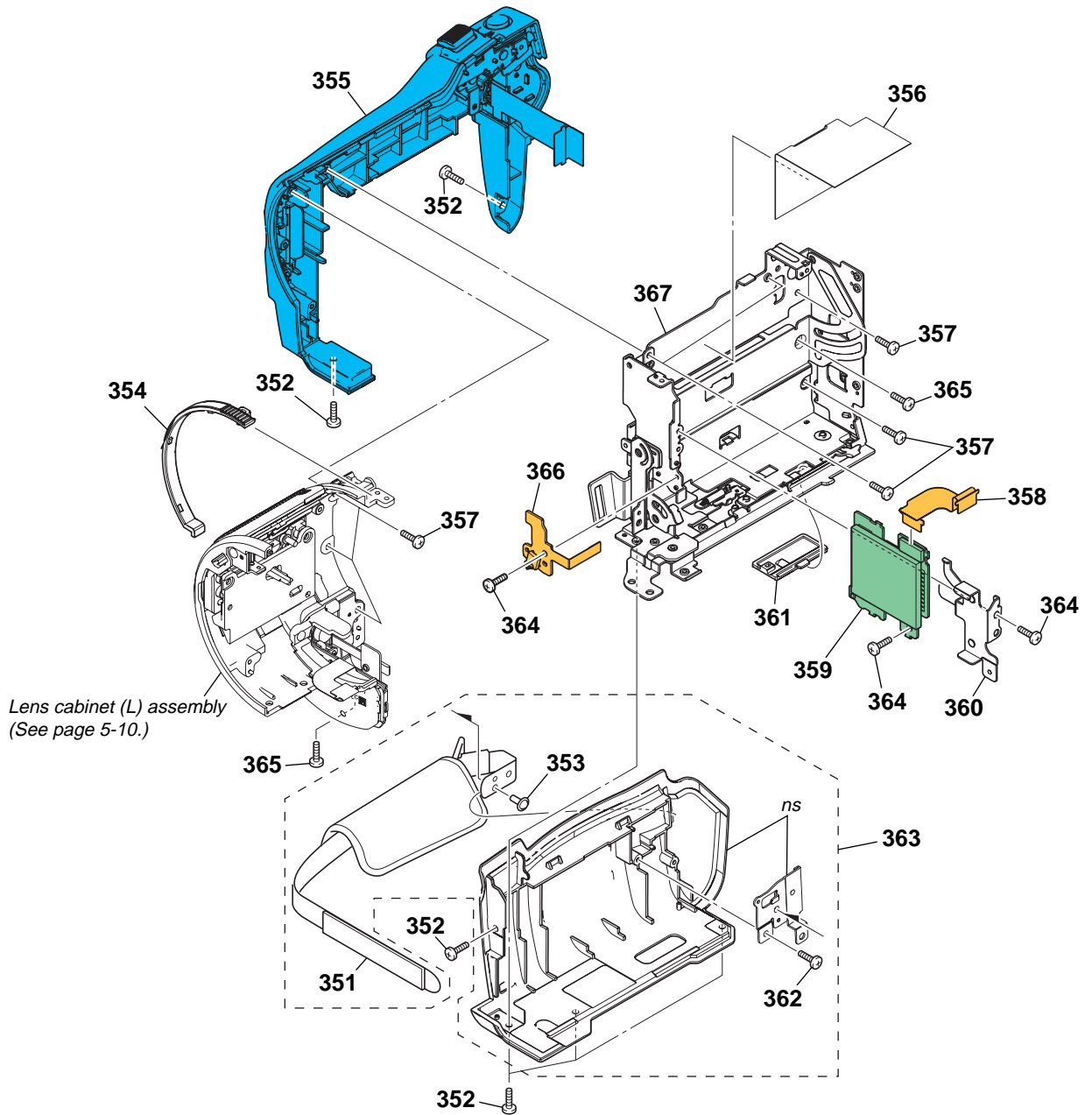
Ref. No.	Part No.	Description
301	X-2059-644-1	CABINET (C) ASSY, P
302	2-635-562-11	SCREW (M1.7)
303	2-633-643-01	CLAMP, FLEXIBLE
304	2-633-644-21	COVER (FRONT), HINGE
305	X-2059-620-1	HINGE ASSY
306	1-865-406-11	FP-259 FLEXIBLE BOARD (Note)
307	2-633-645-01	COVER (REAR), HINGE
308	1-865-395-21	FP-248 FLEXIBLE BOARD (Note)

Ref. No.	Part No.	Description
309	1-479-063-21	KEY BLOCK, CONTROL (SB9000)
310	2-633-639-31	CABINET (M), P
311	2-633-640-01	CUSHION, PANEL
312	2-633-642-01	FRAME, PANEL
313	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
314	A-1110-899-A	PP-001 BOARD, COMPLETE
D9001	1-478-929-11	BLOCK, LIGHT GUIDE PLATE (2.7)
LCD9001	A-1083-763-A	TP BLOCK ASSY 27STGU

5. REPAIR PARTS LIST

5-1-8. CABINET (G) BLOCK

ns: not supplied

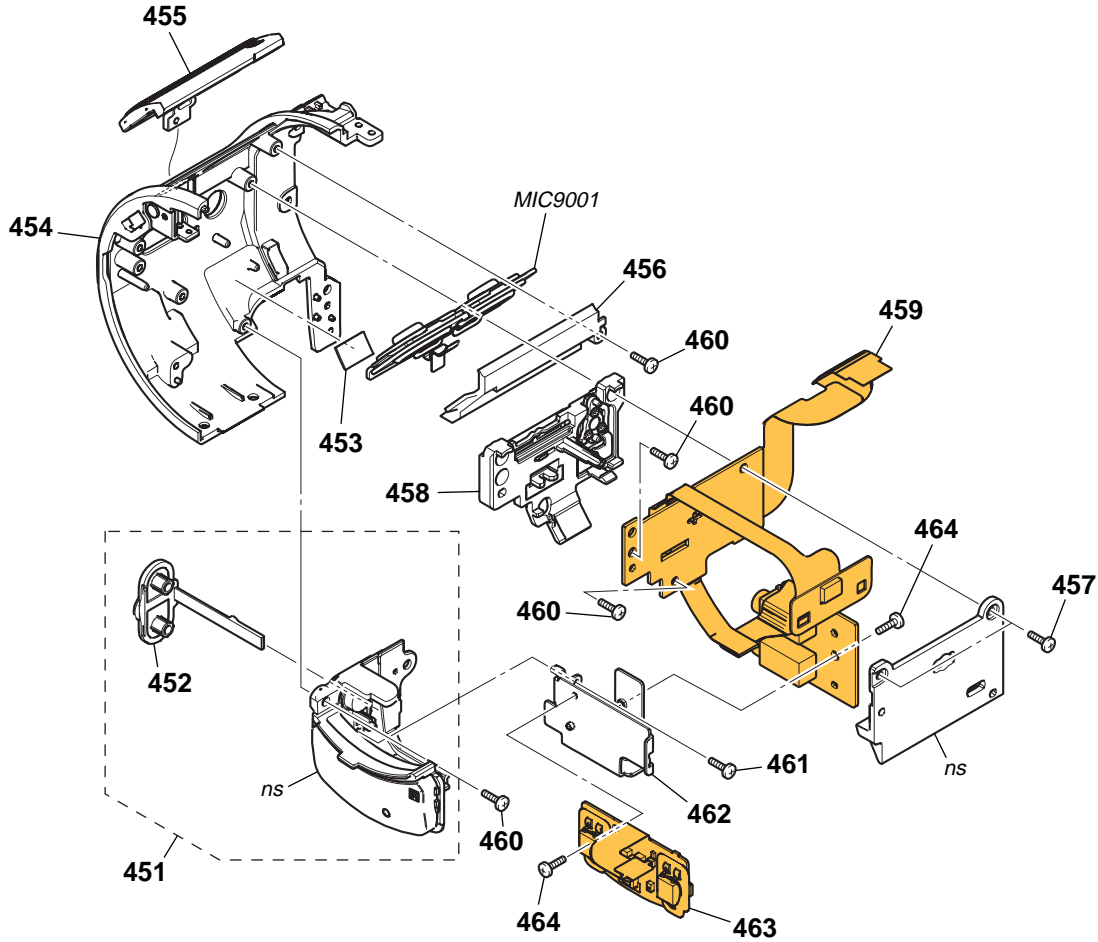


Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
351	2-055-815-01	BELT, GRIP	360	2-633-533-01	PLATE, MS PC BOARD FIXED
352	2-635-562-11	SCREW (M1.7)	361	3-080-471-11	KNOB, EJECT
353	3-082-266-01	PAN-HEAD SCREW WITH SEAT (M2)	362	3-080-204-01	SCREW, TAPPING, P2
354	2-633-529-01	RING (L), ORNAMENTAL	363	X-2059-612-1	CABINET (G) ASSY
355	1-479-101-21	SWITCH BLOCK, CONTROL (PS12300)	364	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
356	2-633-542-01	SHEET (CS)	365	2-635-562-31	SCREW (M1.7)
357	3-080-204-21	SCREW, TAPPING, P2	366	1-865-410-21	FP-263 FLEXIBLE BOARD
358	1-865-402-11	FP-255 FLEXIBLE BOARD	367	X-2059-608-2	FRAME ASSY, CS
359	A-1110-902-A	WW-001 BOARD, COMPLETE			

5. REPAIR PARTS LIST

5-1-9. LENS CABINET (L) ASSEMBLY

ns: not supplied



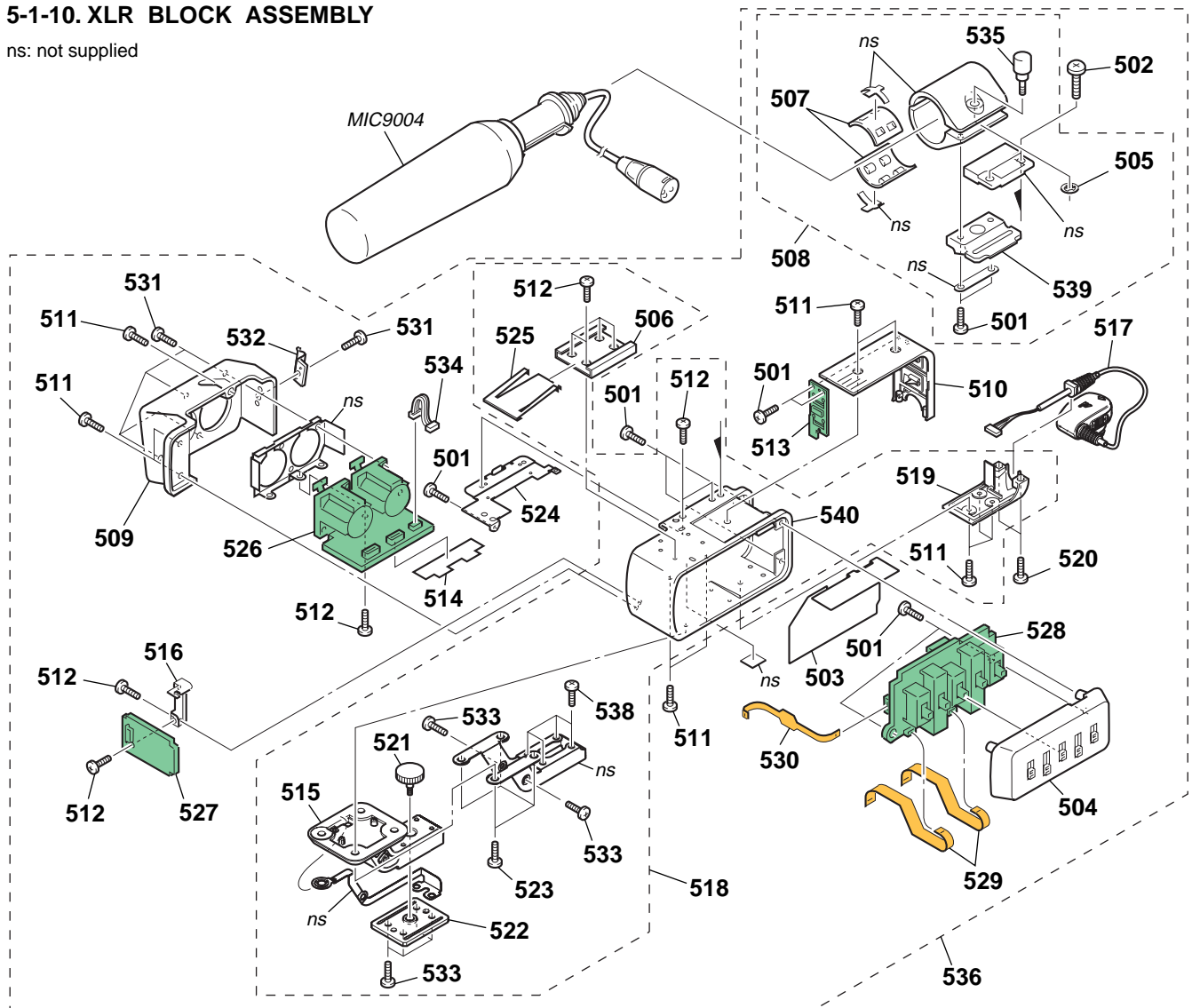
Ref. No.	Part No.	Description
451	X-2059-611-1	BASE ASSY, R WINDOW
452	2-633-523-01	COVER, M JACK
453	2-633-537-01	SHEET, L RADIATION
454	X-2059-615-1	CABINET (L) ASSY (D), LENS
455	X-2059-607-1	BASE (R) ASSY, MICROPHONE
456	X-2059-715-1	CASE (L) ASSY, MICROPHONE
457	2-635-562-31	SCREW (M1.7)
458	X-2059-606-1	BUTTON ASSY, L

Ref. No.	Part No.	Description
459	A-1110-904-A	FP-245 BOARD, COMPLETE
460	2-635-562-11	SCREW (M1.7)
461	3-078-890-01	SCREW, TAPPING
462	2-633-532-01	PLATE, NS FLEXIBLE FIXED
463	A-1110-906-A	FP-247 BOARD, COMPLETE
464	3-989-735-11	SCREW (M1.7), LOCK ACE, P2
MIC9001	1-542-628-21	MICROPHONE UNIT (MIC12300)

5. REPAIR PARTS LIST

5-1-10. XLR BLOCK ASSEMBLY

ns: not supplied

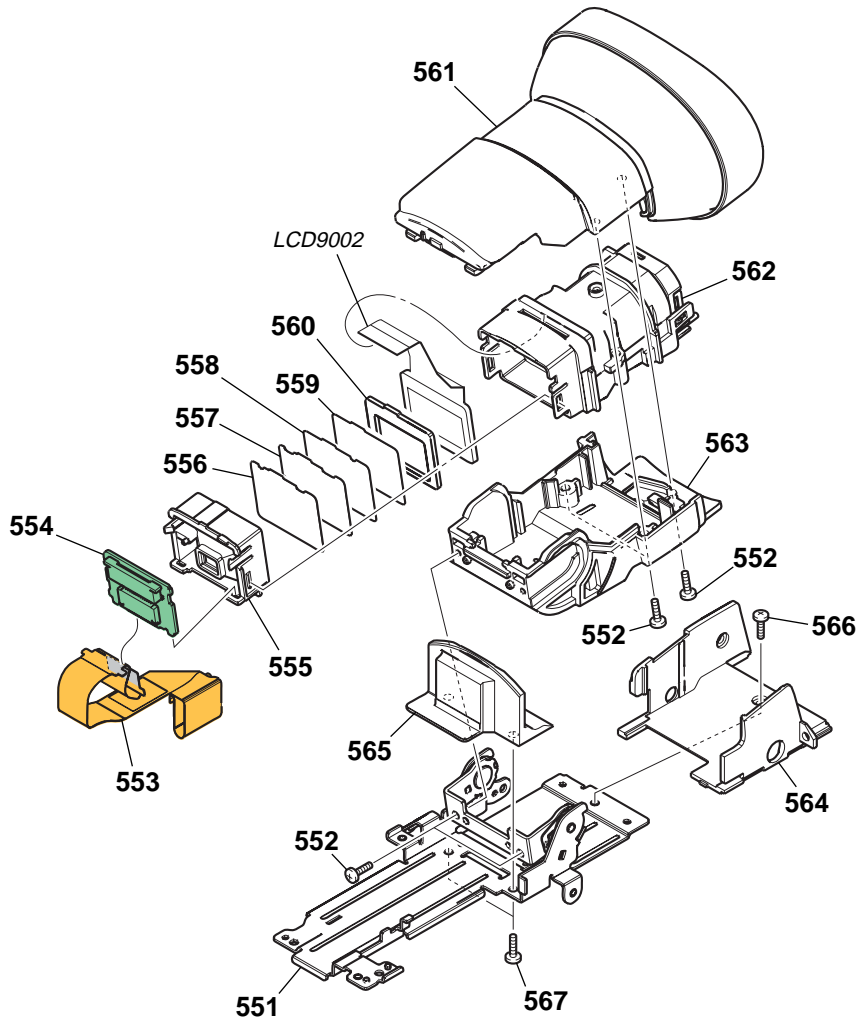


Ref. No.	Part No.	Description
	501	3-080-205-21 SCREW, TAPPING, P2
	502	7-682-549-09 SCREW +B 3X10
*	503	3-060-814-01 INSULATED PLATE, SW
	504	X-3950-603-3 CABINET (L) ASSY, HANDLE
	505	3-165-904-01 WASHER, SCREW STOPPER
	506	3-069-286-01 SHOE, ACCESSORY
	507	3-608-303-01 RUBBER
	508	X-3950-604-5 HOLDER ASSY, MICROPHONE
	509	3-060-813-02 CABINET (R), HANDLE
	510	X-3952-786-1 REAR SUB ASSY, XL CABINET
	511	3-080-203-21 SCREW (M2), LOCK ACE, P2
	512	3-080-202-21 SCREW (M2), LOCK ACE, P2
	513	A-7078-396-A XK-001 BOARD, COMPLETE
*	514	3-063-408-01 SHEET, XLR
	515	2-634-635-01 FOOT (91020), XL
*	516	3-060-815-01 BRACKET, DD
	517	1-830-646-11 CABLE, ENCAPSULATED
	518	X-2059-768-1 CABINET (CENTER) ASSY (91020)
	519	3-077-773-01 BOTTOM, XL CABINET
	520	3-080-204-11 SCREW, TAPPING, P2

Ref. No.	Part No.	Description
	521	3-077-767-01 XL KNOB
	522	3-077-768-11 XL SHOE PLATE
	523	2-067-459-01 SCREW (M2.6 (EG))
	524	3-064-629-01 RETAINER (UPPER) D, HOLDER
	525	3-688-754-11 SPRING
	526	A-7078-393-A XM-002 BOARD, COMPLETE
	527	A-7078-395-A XD-002 BOARD, COMPLETE
	528	A-7078-394-A XS-002 BOARD, COMPLETE
	529	1-678-052-11 FP-217 FLEXIBLE BOARD
	530	1-678-053-11 FP-218 FLEXIBLE BOARD
	531	3-061-062-11 BOLT (M2.6)
*	532	3-678-684-00 HOLDER, CABLE
	533	3-080-206-21 SCREW, TAPPING, P2
	534	1-961-917-11 HARNESS (XK-050)
	535	3-060-811-21 SCREW (M5)
	536	A-1133-621-A XLR BLOCK ASSY
	538	3-080-206-11 SCREW, TAPPING, P2
	539	3-060-810-01 BASE, MICROPHONE HOLDER
	540	3-077-765-11 XL CABINET CENTER
	MIC9004	8-814-298-90 MICROPHONE ECM-NV1

5. REPAIR PARTS LIST

5-1-11. EVF BLOCK ASSEMBLY



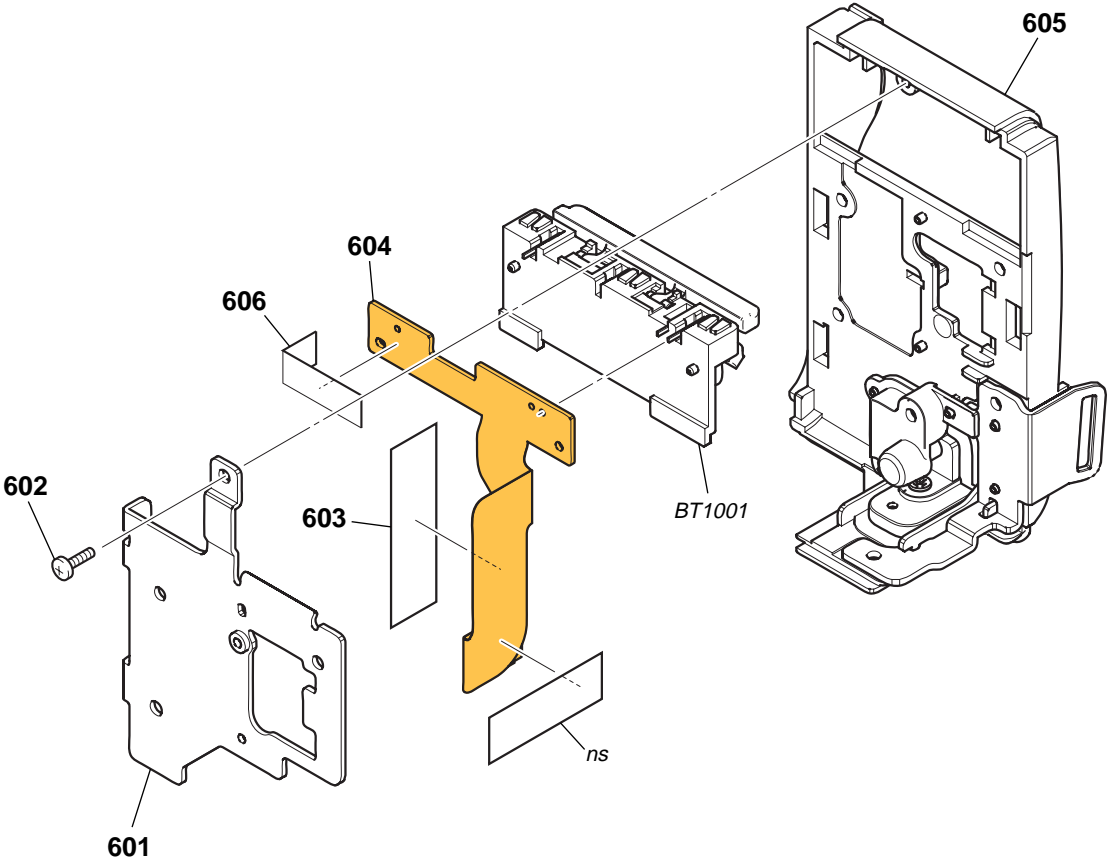
Ref. No.	Part No.	Description
551	X-2059-622-1	BASE ASSY, VF
552	3-080-204-21	SCREW, TAPPING, P2
553	1-865-407-11	FP-260 FLEXIBLE BOARD
554	A-1110-901-A	UU-001 BOARD, COMPLETE
555	2-633-598-01	GUIDE, LAMP
556	2-633-595-01	SHEET (2), VF DIFFUSION
557	2-633-597-01	SHEET (2), VF PRISM
558	2-633-596-01	SHEET (1), VF PRISM
559	2-633-594-01	SHEET (1), VF DIFFUSION

Ref. No.	Part No.	Description
560	2-633-601-01	CUSHION, VF LCD
561	X-2059-635-1	CABINET (UPPER) ASSY, VF
562	X-2059-623-1	LENS ASSY, VF
563	X-2059-627-2	CABINET (LOWER) ASSY, VF
564	2-633-600-01	COVER (2), VF BASE
565	2-633-599-01	COVER (1), VF BASE
566	2-635-562-11	SCREW (M1.7)
567	3-078-890-01	SCREW, TAPPING
LCD9002	8-753-210-99	LCX068AK-1

5. REPAIR PARTS LIST

5-1-12. BATTERY PANEL BLOCK ASSEMBLY

ns: not supplied



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

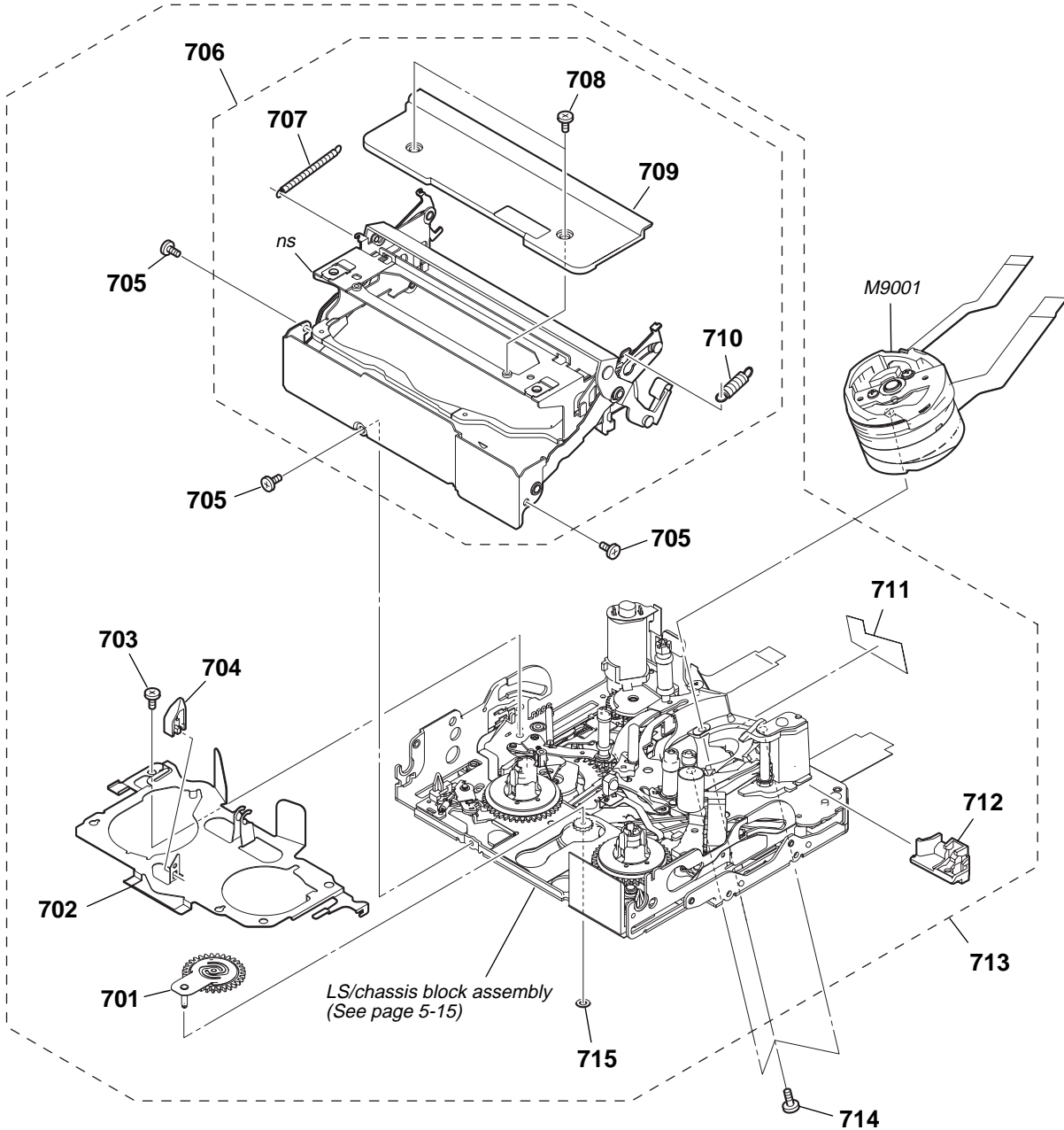
Ref. No.	Part No.	Description
601	2-633-659-01	RETAINER, BT TERMINAL
602	3-078-890-01	SCREW, TAPPING
603	2-636-046-01	SHEET (BT), SHIELD
604	1-865-408-11	FP-261 FLEXIBLE BOARD

Ref. No.	Part No.	Description
605	X-2059-640-1	PANEL ASSY, BATTERY
606	2-636-582-01	SHEET, BT INSULATING
\triangle BT1001	1-694-990-11	BATTERY TERMINAL BOARD

5. REPAIR PARTS LIST

5-1-13 MECHANISM DECK SECTION

ns : not supplied



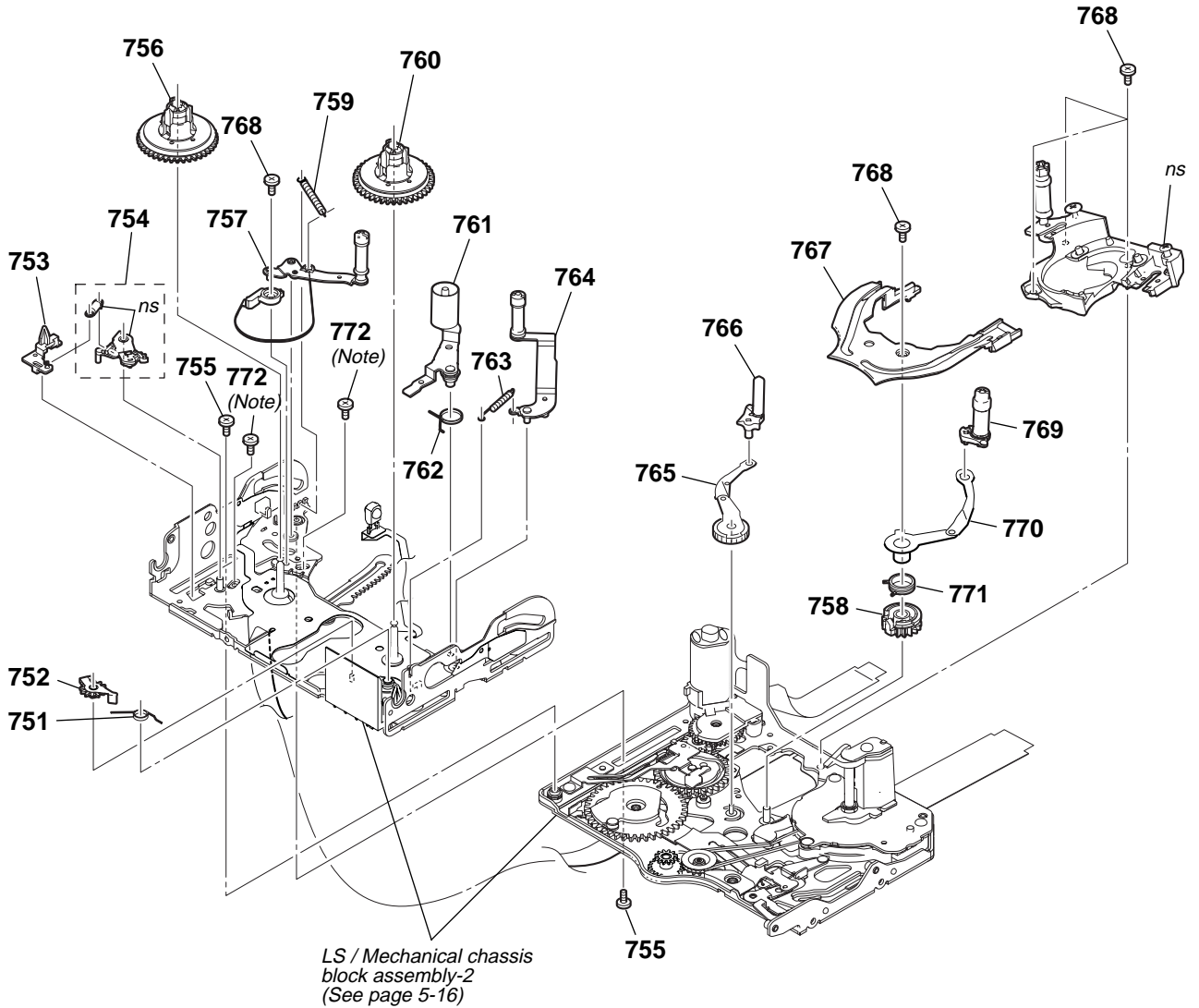
Ref. No.	Part No.	Description
701	X-2024-478-1	PENDULUM ASSY
702	2-342-917-02	LED BASE
703	7-627-850-77	SCREW PRECISION +P M1.4X1.8 TYPE3
704	3-079-366-11	RELEASE, REEL LOCK
705	3-703-816-08	SCREW (M1.4X1.4), SPECIAL HEAD
706	X-2024-450-1	COMPARTMENT ASSY, CASSETTE
707	2-342-926-01	SPRING (ARM S), TENSION COIL
708	2-546-417-01	SCREW (M1.4)

Ref. No.	Part No.	Description
709	2-342-933-01	PLATE, TOP
710	2-342-927-01	SPRING (ARM T), TENSION COIL
711	2-541-585-01	SHEET, FLEXIBLE ADHESIVE
712	2-342-918-01	TG6 CATCHER
713	A-1080-997-A	MD (N100) SUB ASSY A
714	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
715	3-315-414-31	WASHER
M9001	A-1137-055-A	DRUM (DEH-33D-R) (SERVICE)

5. REPAIR PARTS LIST

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

ns : not supplied



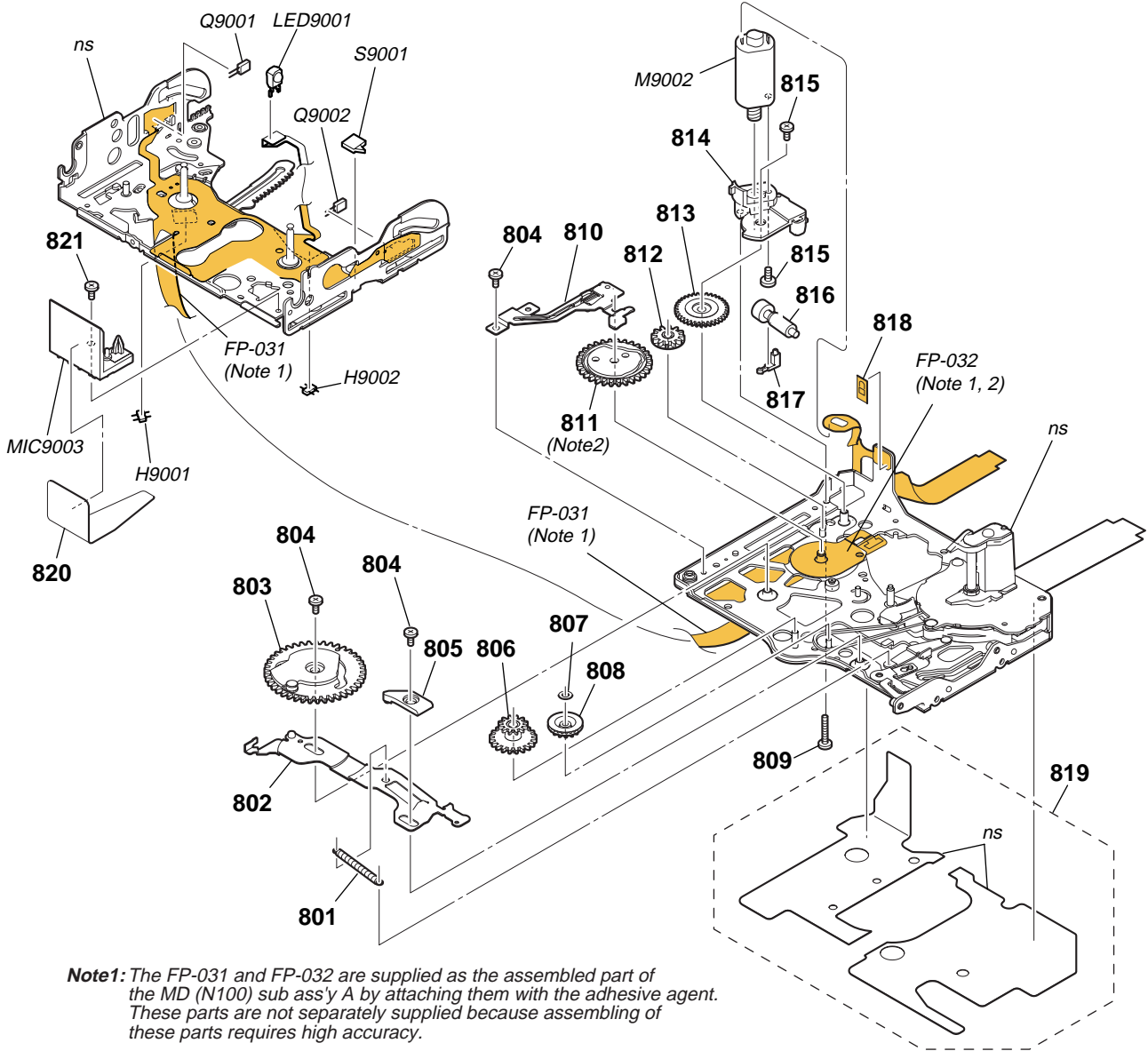
Note: These two screws are the fixing screws of the LS cam plate.
 These two fixing screws are used for adjusting the LS cam plate position.
 (refer to 4-2. LS cam adjustment of DV mechanical adjustment manual IX)

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

5. REPAIR PARTS LIST

5-1-15. 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 (S9003) 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	Ref. No.	Part No.	Description
801	2-342-624-01	SPRING (PINCH LIMITTER), EXTEN	816	2-342-689-01	WORM SHAFT (2J)
802	X-2024-463-1	SLIDER ASSY, MODE	817	2-342-690-01	BASE, MOTOR HOLDER
803	X-2024-462-1	GEAR ASSY, CAM	818	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
804	3-075-097-11	SCREW (M1.4X1.4), SPECIAL HEAD	819	2-342-686-01	COVER, CAPSTAN
805	2-342-625-01	RETAINER, LEVER EJ	820	2-541-984-01	MIC COVER
806	2-342-621-01	GEAR, RELAY	821	3-703-816-13	SCREW (M1.4X2.0), SPECIAL HEAD
807	3-315-414-31	WASHER	H9001	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
808	2-342-620-01	GEAR, CONVERSION	H9002	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
809	3-084-377-01	HEAD (SCREW M1.2)	LED9001	6-500-652-01	DIODE GL453SE000F (TAPE LED)
810	X-2024-460-1	BASE ASSY, CAM	M9002	X-2024-464-1	MOTOR ASSY (LOADING)
811	X-2024-461-1	GEAR ASSY, MODE	MIC9003	1-818-576-11	PIN, CONNECTOR (WITH DETECTION SWITCH)
812	2-342-615-01	GEAR,NO.2	S9001	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)
813	2-342-691-01	GEAR,NO.1	Q9001	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)
814	2-342-688-01	MOTOR HOLDER	Q9002	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)
815	3-895-822-71	SCREW (M1.2X2), SPECIAL, 0			

5-2. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	A-1110-896-A	EE-001 BOARD, COMPLETE ***** (IC6601 is not included in this complete board.) < CAPACITOR >			
C6403	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6638	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V
C6405	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6639	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C6406	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V	C6640	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C6407	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V	C6641	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C6408	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V			
C6409	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6642	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C6410	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6643	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C6411	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V	C6801	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6412	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6802	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6414	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	C6803	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C6415	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	C6804	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C6416	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6805	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C6417	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V	C6806	1-119-923-11	CERAMIC CHIP 0.047uF 10% 10V
C6418	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	C6807	1-119-923-11	CERAMIC CHIP 0.047uF 10% 10V
C6601	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	C6808	1-119-923-11	CERAMIC CHIP 0.047uF 10% 10V
C6602	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V			
C6603	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	C6809	1-119-923-11	CERAMIC CHIP 0.047uF 10% 10V
C6604	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	C6811	1-100-611-91	CERAMIC CHIP 22uF 20% 6.3V
C6605	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	C6812	1-100-611-91	CERAMIC CHIP 22uF 20% 6.3V
C6606	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	C6814	1-100-507-91	CERAMIC CHIP 4.7uF 20% 6.3V
C6607	1-165-908-11	CERAMIC CHIP 1uF 10% 10V	C6815	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C6608	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V			
C6609	1-127-895-91	TANTAL. CHIP 22uF 20% 4V	< CONNECTOR >		
C6610	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	CN6401	1-819-361-21	CONNECTOR, COAXIAL (RECEPTACLE)
C6611	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V			
C6612	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V	< FERRITE BEAD >		
C6613	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V	FB6801	1-469-179-21	INDUCTOR, FERRITE BEAD
C6614	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	FB6802	1-469-179-21	INDUCTOR, FERRITE BEAD
C6615	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	FB6803	1-469-179-21	INDUCTOR, FERRITE BEAD
C6616	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	FB6804	1-469-179-21	INDUCTOR, FERRITE BEAD
C6617	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V			
C6618	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V	< IC >		
C6619	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6401	6-706-966-01	IC TK70528SCL-G
C6620	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6402	6-702-302-01	IC TK11133CSCL-G
C6621	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6403	6-702-302-01	IC TK11133CSCL-G
C6622	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	IC6404	6-702-300-01	IC TK11118CSCL-G
C6623	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V	IC6406	6-706-689-01	IC HD74ALVC2G34USE-E
C6624	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6407	6-706-689-01	IC HD74ALVC2G34USE-E
C6625	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6601	A-1092-569-A	CMOS BLOCK ASSY (CMOS IMAGER) (Note)
C6626	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	IC6801	6-707-333-01	IC NJM3230SE7
C6627	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V			
C6628	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	< COIL >		
C6629	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	L006	1-414-771-91	INDUCTOR 10uH
C6630	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	L007	1-414-771-91	INDUCTOR 10uH
C6631	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	L008	1-414-771-91	INDUCTOR 10uH
C6632	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	L009	1-414-771-91	INDUCTOR 10uH
C6633	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	L010	1-414-771-91	INDUCTOR 10uH
C6634	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	L011	1-414-771-91	INDUCTOR 10uH
C6635	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V	L6801	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH
C6636	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V			
C6637	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V	< RESISTOR >		
			R6401	1-218-990-81	SHORT CHIP 0
			R6405	1-218-990-81	SHORT CHIP 0
			R6408	1-218-990-81	SHORT CHIP 0
			R6410	1-218-990-81	SHORT CHIP 0
			R6412	1-218-990-81	SHORT CHIP 0

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

Note: イメージャの交換時は4-6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。

EE-001	FP-031	FP-032	FP-228	FP-245
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Ref. No.	Part No.	Description			
R6604	1-218-937-11	RES-CHIP	47	5%	1/16W
R6606	1-218-937-11	RES-CHIP	47	5%	1/16W
R6624	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6627	1-218-937-11	RES-CHIP	47	5%	1/16W
R6628	1-218-937-11	RES-CHIP	47	5%	1/16W
R6629	1-218-937-11	RES-CHIP	47	5%	1/16W
R6630	1-218-990-81	SHORT CHIP	0		
R6801	1-216-864-11	SHORT CHIP	0		
R6802	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6803	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6804	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6805	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6806	1-218-953-11	RES-CHIP	1K	5%	1/16W
< COMPOSITION CIRCUIT BLOCK >					
RB6801	1-234-379-21	RES, NETWORK	22K (1005 x4)		
< SENSOR >					
SE6801	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW SENSOR)			
SE6802	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH SENSOR)			
(Not supplied) FP-031 FLEXIBLE BOARD					

(This flexible board is included in MD (N100) SUB ASSY A (A-1080-997-A))					
< HOLE ELEMENT >					
H9001	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)			
H9002	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)			
< LED >					
LED9001	6-500-652-01	DIODE GL453SE0000F (TAPE LED)			
< CONNECTOR >					
MIC9003	1-818-576-11	PIN, CONNECTOR (WITH DETECTION SWITCH)			
< TRANSISTOR >					
Q9001	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE END)			
Q9002	6-550-672-01	TRANSISTOR PT4850FJE00F (TAPE TOP)			
< SWITCH >					
S9001	1-786-448-22	SWITCH, PUSH (1 KEY) (CC DOWN)			
(Not supplied) FP-032 FLEXIBLE BOARD					

(This flexible board with S9003 is included in MD (N100) SUB ASSY A (A-1080-997-A))					
1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)				

Ref. No.	Part No.	Description			
	A-1110-904-A	FP-245 BOARD, COMPLETE			

< CAPACITOR >					
C8501	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
< CONNECTOR >					
CN8501	1-816-654-31	FFC/FPC CONNECTOR (LIF) 6P			
CN8502	1-816-654-31	FFC/FPC CONNECTOR (LIF) 6P			
< DIODE >					
D8501	6-500-252-01	DIODE SML-512WWT86 (ASSIGN)			
< FERRITE BEAD >					
FB8501	1-400-619-11	BEAD, FERRITE (CHIP) (1608)			
FB8502	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB8503	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB8504	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB8506	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB8508	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB8509	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
< JACK >					
J8501	1-691-737-41	JACK (SMALL TYPE) (MIC)			
J8502	1-569-950-41	JACK (SMALL TYPE) (HEADPHONE)			
< TRANSISTOR >					
Q8501	6-550-119-01	TRANSISTOR	DTC144EMT2L		
< RESISTOR >					
R8501	1-216-817-11	METAL CHIP	470	5%	1/10W
R8502	1-216-864-11	SHORT CHIP	0		
R8503	1-216-838-11	METAL CHIP	27K	5%	1/10W
R8504	1-216-828-11	METAL CHIP	3.9K	5%	1/10W
R8508	1-216-295-91	SHORT CHIP	0		
R8509	1-216-864-11	SHORT CHIP	0		
R8510	1-216-864-11	SHORT CHIP	0		
R8511	1-216-295-91	SHORT CHIP	0		
R8515	1-216-821-11	METAL CHIP	1K	5%	1/10W
R8516	1-216-864-11	SHORT CHIP	0		
R8517	1-216-864-11	SHORT CHIP	0		
R8518	1-216-864-11	SHORT CHIP	0		
R8519	1-216-864-11	SHORT CHIP	0		
< SWITCH >					
S8501	1-771-138-82	SWITCH, KEY BOARD (ASSIGN)			
S8502	1-786-367-11	SWITCH, SLIDE (NIGHTSHOT)			
< VARISTOR >					
VD8501	1-801-862-11	VARISTOR, CHIP (1608)			
VD8502	1-801-862-11	VARISTOR, CHIP (1608)			
VD8503	1-801-862-11	VARISTOR, CHIP (1608)			
VD8504	1-801-862-11	VARISTOR, CHIP (1608)			
VD8505	1-801-862-11	VARISTOR, CHIP (1608)			
VD8506	1-801-862-11	VARISTOR, CHIP (1608)			
VD8507	1-801-862-11	VARISTOR, CHIP (1608)			

FP-246

FP-247

FP-248

FP-261

FP-262

FP-263

HH-001

II-001

NN-001

Ref. No.	Part No.	Description
	A-1110-905-A	FP-246 BOARD, COMPLETE *****
		< PHOTO INTERRUPTER >
PH001	8-749-016-83	IC GP1S092HCPI
PH002	8-749-016-83	IC GP1S092HCPI
		< RESISTOR >
R001	1-216-815-11	METAL CHIP 330 5% 1/10W
	A-1110-906-A	FP-247 BOARD, COMPLETE *****
		< CAPACITOR >
C001	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C002	1-137-710-11	CERAMIC CHIP 10uF 20% 6.3V
		< DIODE >
D001	8-719-064-07	DIODE SML-310LTT86 (CAMERA RECORDING)
D003	8-719-073-01	DIODE MA111-(K8).S0
D004	8-719-079-78	DIODE DCZ2805 (IR EMITTER/NIGHTSHOT)
D005	8-719-079-78	DIODE DCZ2805 (IR EMITTER/NIGHTSHOT)
		< IC >
IC001	6-600-163-01	IC RS-770
		< TRANSISTOR >
Q001	8-729-049-92	TRANSISTOR 2SC5585H-T2L
		< RESISTOR >
R005	1-216-821-11	METAL CHIP 1K 5% 1/10W
	1-865-395-21	FP-248 FLEXIBLE BOARD ***** (S001 and S002 are not supplied, but there are included in this flexible board.)
	1-865-408-11	FP-261 FLEXIBLE BOARD ***** (BT1001 is not included in this flexible board.)
		< BATTERY TERMINAL >
△ BT1001	1-694-990-11	BATTERY TERMINAL BOARD
	1-865-409-11	FP-262 FLEXIBLE BOARD ***** (J1001 is not included in this flexible board.)
		< JACK >
△ J1001	1-817-361-11	DC-IN CONNECTOR (DC IN)
	1-865-410-21	FP-263 FLEXIBLE BOARD ***** (S002 is not supplied, but it is included in this flexible board.)

Ref. No.	Part No.	Description
	A-1115-409-A	HH-001 BOARD, COMPLETE *****
		< CONNECTOR >
CN101	1-816-649-31	FFC/FPC CONNECTOR (LIF) 22P
CN105	1-818-607-12	CONNECTOR, SQUARE TYPE 10P (COMPONENT OUT)
CN106	1-815-794-21	CONNECTOR (MULTIPLE) (A/V OUT)
		< RESISTOR >
R102	1-216-864-11	SHORT CHIP 0
	A-1110-898-A	II-001 BOARD, COMPLETE *****
		< CONNECTOR >
CN102	1-816-645-31	FFC/FPC CONNECTOR (LIF) 14P
CN103	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (HDV/DV)
CN104	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB)
	A-1110-910-A	NN-001 BOARD, COMPLETE *****
		< CAPACITOR >
C7001	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7002	1-100-352-91	CERAMIC CHIP 1uF 20% 16V
C7003	1-100-352-91	CERAMIC CHIP 1uF 20% 16V
C7004	1-125-889-91	CERAMIC CHIP 2.2uF 10% 10V
C7005	1-125-889-91	CERAMIC CHIP 2.2uF 10% 10V
C7006	1-164-937-11	CERAMIC CHIP 0.001uF 10% 50V
C7007	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V
C7008	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C7009	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C7010	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C7201	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7202	1-127-895-91	TANTAL. CHIP 22uF 20% 4V
C7203	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 50V
C7204	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7205	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 50V
C7206	1-164-866-11	CERAMIC CHIP 47PF 5% 50V
C7207	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V
C7208	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7209	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7210	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7211	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7213	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7215	1-137-934-91	TANTAL. CHIP 47uF 20% 10V
C7216	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7217	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7218	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7219	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7220	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C7221	1-164-930-11	CERAMIC CHIP 330PF 5% 16V
C7222	1-127-895-91	TANTAL. CHIP 22uF 20% 4V
C7223	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V
C7224	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C7225	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V

• Refer to page 5-1 for mark △.

NN-001

Ref. No.	Part No.	Description			
C7226	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C7227	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C7228	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C7231	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C7232	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C7233	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C7402	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7403	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C7404	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C7405	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7407	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C7408	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C7409	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7410	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7411	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7412	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7415	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7416	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7417	1-127-715-01	CERAMIC CHIP	0.22uF	10%	16V
C7419	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7420	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7421	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7422	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C7423	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C7424	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7425	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C7426	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7427	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7428	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7429	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7430	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C7431	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7432	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C7433	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C7434	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7435	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C7436	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7437	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C7438	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C7601	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C7602	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C7603	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7605	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C7606	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C7607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7609	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7611	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7612	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7615	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C7616	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7801	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description			
C7802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C7806	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C7807	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7808	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7809	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7811	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7812	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C7813	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7814	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7815	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C7816	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C7817	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C7818	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C7819	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7820	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7821	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7822	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C7825	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
< CONNECTOR >					
CN7001	1-817-705-11	CONNECTOR, FPC (LIF (NON-ZIF)) 10P			
CN7002	1-818-818-11	CONNECTOR, FPC (ZIF) 29P			
CN7003	1-817-705-11	CONNECTOR, FPC (LIF (NON-ZIF)) 10P			
CN7004	1-817-829-11	CONNECTOR, FPC (ZIF) 27P			
CN7005	1-816-646-31	FFC/FPC CONNECTOR (LIF) 16P			
CN7006	1-815-333-11	CONNECTOR, FPC (ZIF) 33P			
CN7007	1-816-649-31	FFC/FPC CONNECTOR (LIF) 22P			
CN7008	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN7009	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN7010	1-816-654-31	FFC/FPC CONNECTOR (LIF) 6P			
CN7801	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
< DIODE >					
D7001	8-719-085-53	DIODE MA2SD10008S0			
D7002	6-501-125-01	DIODE MA21D3400LS0			
D7005	8-719-075-15	DIODE MAZT082H08S0			
D7007	8-719-075-15	DIODE MAZT082H08S0			
D7008	8-719-075-15	DIODE MAZT082H08S0			
D7009	8-719-075-15	DIODE MAZT082H08S0			
D7011	8-719-075-15	DIODE MAZT082H08S0			
D7801	8-719-084-47	DIODE 1SV290 (TPL3)			
< FERRITE BEAD >					
FB7201	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
< IC >					
IC7001	6-707-401-01	IC FB6805Q-TE2			
IC7002	6-707-633-01	IC FB6825Q-TE2			
IC7201	6-705-568-01	IC BU2342GLU-E2			
IC7202	6-704-149-01	IC TK11128CSCL-G			
IC7203	8-759-359-49	IC NJM3414AV (TE2)			
IC7204	8-759-359-49	IC NJM3414AV (TE2)			
IC7205	8-759-359-49	IC NJM3414AV (TE2)			
IC7401	6-707-428-01	IC BD6639AGLV-E2			
IC7601	6-707-432-01	IC TLS26A102PFBR			
IC7602	6-703-228-01	IC TK11160CSCL-G			

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description			
IC7801	8-759-660-93	IC RB5P004AM2	R7209	1-218-947-11	RES-CHIP	330	5%	1/16W
IC7802	8-753-229-41	IC CXD3537R-T4	R7210	1-218-990-81	SHORT CHIP	0		
		< COIL >	R7211	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
L7001	1-400-202-21	INDUCTOR 4.7uH	R7212	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
L7002	1-414-770-91	INDUCTOR 4.7uH	R7213	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
L7201	1-414-771-91	INDUCTOR 10uH	R7214	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
L7203	1-469-757-21	INDUCTOR 10uH	R7215	1-218-990-81	SHORT CHIP	0		
L7401	1-414-771-91	INDUCTOR 10uH	R7216	1-218-990-81	SHORT CHIP	0		
L7601	1-469-525-91	INDUCTOR 10uH	R7217	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
L7602	1-469-525-91	INDUCTOR 10uH	R7219	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
L7801	1-414-771-91	INDUCTOR 10uH	R7220	1-218-990-81	SHORT CHIP	0		
L7802	1-414-771-91	INDUCTOR 10uH	R7221	1-218-965-11	RES-CHIP	10K	5%	1/16W
L7803	1-414-771-91	INDUCTOR 10uH	R7222	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
L7804	1-414-248-11	INDUCTOR 2.2uH	R7223	1-218-990-81	SHORT CHIP	0		
		< TRANSISTOR >	R7224	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
Q7401	6-550-174-01	TRANSISTOR 2SA2030T2L	R7225	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
Q7402	6-550-237-01	TRANSISTOR 2SC5658T2LQ/R	R7226	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
Q7403	6-550-242-01	TRANSISTOR DTC114EMT2L	R7227	1-218-990-81	SHORT CHIP	0		
Q7801	6-550-119-01	TRANSISTOR DTC144EMT2L	R7228	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
Q7802	6-550-232-01	TRANSISTOR 2SA2029T2LQ/R	R7229	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
Q7803	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	R7230	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
Q7807	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	R7231	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
Q7808	8-729-427-74	TRANSISTOR XP4601	R7234	1-216-864-11	SHORT CHIP	0		
Q7809	8-729-427-74	TRANSISTOR XP4601	R7235	1-216-864-11	SHORT CHIP	0		
		< RESISTOR >	R7236	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7001	1-218-935-11	RES-CHIP 33 5% 1/16W	R7237	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7002	1-218-953-11	RES-CHIP 1K 5% 1/16W	R7238	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7003	1-218-990-81	SHORT CHIP 0	R7239	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7004	1-218-935-11	RES-CHIP 33 5% 1/16W	R7240	1-216-864-11	SHORT CHIP	0		
R7005	1-216-864-11	SHORT CHIP 0	R7241	1-216-864-11	SHORT CHIP	0		
R7006	1-218-990-81	SHORT CHIP 0	R7244	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7007	1-218-990-81	SHORT CHIP 0	R7245	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7008	1-216-864-11	SHORT CHIP 0	R7246	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7009	1-218-990-81	SHORT CHIP 0	R7247	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7010	1-218-990-81	SHORT CHIP 0	R7248	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7011	1-218-945-11	RES-CHIP 220 5% 1/16W	R7249	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7012	1-218-953-11	RES-CHIP 1K 5% 1/16W	R7252	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7013	1-218-953-11	RES-CHIP 1K 5% 1/16W	R7253	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7014	1-218-949-11	RES-CHIP 470 5% 1/16W	R7254	1-216-864-11	SHORT CHIP	0		
R7015	1-218-965-11	RES-CHIP 10K 5% 1/16W	R7255	1-216-864-11	SHORT CHIP	0		
R7017	1-218-973-11	RES-CHIP 47K 5% 1/16W	R7256	1-216-864-11	SHORT CHIP	0		
R7018	1-218-990-81	SHORT CHIP 0	R7260	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7019	1-218-990-81	SHORT CHIP 0	R7261	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7021	1-218-990-81	SHORT CHIP 0	R7262	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7022	1-218-990-81	SHORT CHIP 0	R7263	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7023	1-218-990-81	SHORT CHIP 0	R7264	1-218-990-81	SHORT CHIP	0		
R7201	1-218-964-11	RES-CHIP 8.2K 5% 1/16W	R7265	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7202	1-208-721-11	METAL CHIP 39K 0.5% 1/16W	R7266	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7203	1-218-958-11	RES-CHIP 2.7K 5% 1/16W	R7268	1-216-864-11	SHORT CHIP	0		
R7204	1-218-958-11	RES-CHIP 2.7K 5% 1/16W	R7269	1-218-990-81	SHORT CHIP	0		
R7205	1-218-964-11	RES-CHIP 8.2K 5% 1/16W	R7401	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7206	1-208-721-11	METAL CHIP 39K 0.5% 1/16W	R7402	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7207	1-218-963-11	RES-CHIP 6.8K 5% 1/16W	R7403	1-218-990-81	SHORT CHIP	0		
R7208	1-208-941-11	METAL CHIP 180K 0.5% 1/16W	R7404	1-218-990-81	SHORT CHIP	0		
			R7405	1-218-973-11	RES-CHIP	47K	5%	1/16W
			R7406	1-216-789-11	METAL CHIP	2.2	5%	1/10W
			R7407	1-216-789-11	METAL CHIP	2.2	5%	1/10W

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Ref. No.	Part No.	Description			
R7408	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R7409	1-216-814-11	METAL CHIP	270	5%	1/10W
R7410	1-218-990-81	SHORT CHIP	0		
R7411	1-218-977-11	RES-CHIP	100K	5%	1/16W
R7412	1-218-967-11	RES-CHIP	15K	5%	1/16W
R7413	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7414	1-218-969-11	RES-CHIP	22K	5%	1/16W
R7415	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R7416	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R7417	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7418	1-218-990-81	SHORT CHIP	0		
R7602	1-218-990-81	SHORT CHIP	0		
R7603	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7604	1-218-969-11	RES-CHIP	22K	5%	1/16W
R7607	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7608	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R7609	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R7610	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R7611	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R7612	1-218-990-81	SHORT CHIP	0		
R7613	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R7614	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R7615	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R7616	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R7617	1-208-869-11	METAL CHIP	180	0.5%	1/16W
R7803	1-216-841-11	METAL CHIP	47K	5%	1/10W
R7804	1-218-990-81	SHORT CHIP	0		
R7805	1-218-990-81	SHORT CHIP	0		
R7807	1-218-967-11	RES-CHIP	15K	5%	1/16W
R7808	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R7809	1-218-973-11	RES-CHIP	47K	5%	1/16W
R7810	1-218-975-11	RES-CHIP	68K	5%	1/16W
R7811	1-218-969-11	RES-CHIP	22K	5%	1/16W
R7812	1-218-975-11	RES-CHIP	68K	5%	1/16W
R7813	1-218-989-11	RES-CHIP	1M	5%	1/16W
R7814	1-218-977-11	RES-CHIP	100K	5%	1/16W
R7816	1-218-973-11	RES-CHIP	47K	5%	1/16W
R7817	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R7818	1-218-941-81	RES-CHIP	100	5%	1/16W
R7819	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R7820	1-218-967-11	RES-CHIP	15K	5%	1/16W
R7821	1-218-941-81	RES-CHIP	100	5%	1/16W
R7822	1-218-941-81	RES-CHIP	100	5%	1/16W
R7823	1-218-941-81	RES-CHIP	100	5%	1/16W
R7824	1-218-967-11	RES-CHIP	15K	5%	1/16W
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< CAPACITOR >					
C8101	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C8102	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C8201	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8202	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8203	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8204	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8205	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			
C8206	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8211	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8212	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8213	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8214	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8215	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8216	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8217	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8218	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8219	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C8220	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8221	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8222	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C8223	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8224	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8225	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8227	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8229	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8230	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8232	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8233	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8234	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8235	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8236	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C8239	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8242	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C8243	1-100-733-91	CERAMIC CHIP	10uF	20%	6.3V
C8244	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8245	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8301	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8303	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8304	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8306	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8307	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C8313	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C8314	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C8316	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8317	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8318	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8319	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8321	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C8322	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C8326	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8327	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8401	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8403	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8408	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8410	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8411	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
< CONNECTOR >					
CN8101	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
CN8102	1-816-057-11	CONNECTOR, FPC (ZIF) 39P			

Ref. No.	Part No.	Description
< IC >		
IC8201	8-759-422-21	IC NJM4580V (TE2)
IC8202	8-759-422-21	IC NJM4580V (TE2)
IC8203	8-759-422-21	IC NJM4580V (TE2)
IC8204	8-759-422-21	IC NJM4580V (TE2)
IC8205	8-759-422-21	IC NJM4580V (TE2)
IC8206	8-759-422-21	IC NJM4580V (TE2)
IC8207	8-759-422-21	IC NJM4580V (TE2)
IC8208	8-759-422-21	IC NJM4580V (TE2)
IC8301	6-707-725-01	IC BH7875GLU-E2
IC8401	8-759-675-54	IC TC7W53FK (TE85R)
IC8402	8-759-675-54	IC TC7W53FK (TE85R)
IC8403	6-701-112-01	IC DS1801E-02V+T/R
< COIL >		
L8101	1-400-137-11	INDUCTOR 10uH
L8102	1-469-527-91	INDUCTOR 47uH
L8103	1-414-406-11	INDUCTOR 220uH
L8104	1-414-406-11	INDUCTOR 220uH
L8301	1-469-528-91	INDUCTOR 100uH
< RESISTOR >		
R8101	1-218-985-11	RES-CHIP 470K 5% 1/16W
R8102	1-218-966-11	RES-CHIP 12K 5% 1/16W
R8203	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R8204	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R8205	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R8206	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R8211	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8212	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8213	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8214	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8215	1-208-927-11	METAL CHIP 47K 0.5% 1/16W
R8216	1-208-927-11	METAL CHIP 47K 0.5% 1/16W
R8217	1-208-927-11	METAL CHIP 47K 0.5% 1/16W
R8218	1-208-927-11	METAL CHIP 47K 0.5% 1/16W
R8226	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8230	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8231	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8233	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8236	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8237	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8238	1-208-709-11	METAL CHIP 12K 0.5% 1/16W
R8239	1-208-709-11	METAL CHIP 12K 0.5% 1/16W
R8240	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8241	1-208-709-11	METAL CHIP 12K 0.5% 1/16W
R8242	1-208-709-11	METAL CHIP 12K 0.5% 1/16W
R8243	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8244	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8245	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8246	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8247	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8248	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8249	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8250	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8251	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R8260	1-208-911-11	METAL CHIP 10K 0.5% 1/16W

Ref. No.	Part No.	Description			
R8261	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R8262	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8267	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8268	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8269	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8270	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8272	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8273	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R8274	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8282	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R8283	1-208-909-11	METAL CHIP	8.2K	0.5%	1/16W
R8284	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8285	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8286	1-218-990-81	SHORT CHIP	0		
R8301	1-208-905-11	METAL CHIP	5.6K	0.5%	1/16W
R8302	1-208-905-11	METAL CHIP	5.6K	0.5%	1/16W
R8303	1-218-886-11	METAL CHIP	43K	0.5%	1/10W
R8304	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R8305	1-218-886-11	METAL CHIP	43K	0.5%	1/10W
R8306	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R8307	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R8308	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8309	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8310	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8311	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8314	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8315	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8316	1-218-981-11	RES-CHIP	220K	5%	1/16W
R8317	1-218-975-11	RES-CHIP	68K	5%	1/16W
R8320	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8321	1-218-990-81	SHORT CHIP	0		
R8322	1-218-990-81	SHORT CHIP	0		
R8323	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R8405	1-218-990-81	SHORT CHIP	0		
R8408	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8409	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8414	1-218-990-81	SHORT CHIP	0		



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< CAPACITOR >					
C8701	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C8702	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C8703	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8704	1-165-799-11	TANTAL. CHIP	22uF	20%	4V
C8706	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C8708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8709	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8710	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8712	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C8714	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8715	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8716	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8717	1-137-700-11	TANTAL. CHIP	10uF	20%	6.3V
C8719	1-165-908-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description			
C8720	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C8721	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8722	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8724	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8725	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C8727	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C8728	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C8729	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
< CONNECTOR >					
CN8701	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
* CN8702	1-794-322-51	CONNECTOR, FFC/FPC (ZIF) 6P			
* CN8703	1-794-322-51	CONNECTOR, FFC/FPC (ZIF) 6P			
* CN8704	1-785-905-51	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN8705	1-794-322-51	CONNECTOR, FFC/FPC (ZIF) 6P			
< DIODE >					
D8701	8-719-056-23	DIODE MA2S111-(K8).SO			
D8702	8-719-074-67	DIODE EDZ-TE61-5.6B			
< FERRITE BEAD >					
FB8701	1-414-760-21	FERRITE, EMI (SMD) (1608)			
< IC >					
IC8701	8-753-229-95	IC CXM3006CER-T4			
< COIL >					
L8701	1-400-137-11	INDUCTOR	10uH		
L8702	1-400-137-11	INDUCTOR	10uH		
L8703	1-400-137-11	INDUCTOR	10uH		
L8704	1-400-137-11	INDUCTOR	10uH		
< TRANSISTOR >					
Q8701	8-729-427-67	TRANSISTOR	XP421F-TXE		
Q8702	8-729-427-37	TRANSISTOR	XP411F-TXE		
Q8706	8-729-037-61	TRANSISTOR	UN9113J-(TX).SO		
Q8707	8-729-054-48	TRANSISTOR	UP04601008S0		
Q8708	8-729-054-48	TRANSISTOR	UP04601008S0		
Q8709	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q8710	6-550-119-01	TRANSISTOR	DTC144EMT2L		
Q8711	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R		
Q8712	8-729-041-23	TRANSISTOR	NDS356AP		
< RESISTOR >					
R8701	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R8703	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R8704	1-216-864-11	SHORT CHIP	0		
R8705	1-216-864-11	SHORT CHIP	0		
R8706	1-216-864-11	SHORT CHIP	0		
R8708	1-218-990-81	SHORT CHIP	0		
R8709	1-216-864-11	SHORT CHIP	0		
R8710	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8711	1-218-990-81	SHORT CHIP	0		
R8712	1-218-975-11	RES-CHIP	68K	5%	1/16W
R8714	1-218-949-11	RES-CHIP	470	5%	1/16W
R8715	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R8716	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W
R8717	1-218-953-11	RES-CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description			
R8718	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8719	1-218-990-81	SHORT CHIP	0		
R8720	1-208-934-11	METAL CHIP	91K	0.5%	1/16W
R8721	1-208-643-11	METAL CHIP	22	0.5%	1/16W
R8722	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R8723	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R8724	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8725	1-218-950-11	RES-CHIP	560	5%	1/16W
R8727	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8728	1-218-990-81	SHORT CHIP	0		
R8729	1-218-990-81	SHORT CHIP	0		
R8730	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8731	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R8732	1-218-990-81	SHORT CHIP	0		
R8735	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8736	1-218-978-11	RES-CHIP	120K	5%	1/16W
R8737	1-218-990-81	SHORT CHIP	0		
R8739	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8740	1-218-990-81	SHORT CHIP	0		
R8741	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
< COMPOSITION CIRCUIT BLOCK >					
RB8701	1-234-369-21	RES, NETWORK	10 (1005 x4)		
A-1110-900-A RR-001 BOARD, COMPLETE *****					
< BATTERY >					
△ BT9001	1-756-128-11	BATTERY, LITHIUM (SECONDARY)			
< CONNECTOR >					
CN9001	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN9002	1-816-649-31	FFC/FPC CONNECTOR (LIF) 22P			
CN9003	1-816-645-31	FFC/FPC CONNECTOR (LIF) 14P			
CN9004	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
CN9005	1-816-654-31	FFC/FPC CONNECTOR (LIF) 6P			
CN9006	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P			
CN9007	1-817-705-11	CONNECTOR, FPC (LIF (NON-ZIF)) 10P			
< DIODE >					
D9001	6-500-750-01	DIODE NSAD500H-T1-A			
D9002	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9003	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9004	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9005	8-719-056-85	DIODE UDZ-TE-17-8.2B			
D9006	8-719-078-02	DIODE 1SS357 (T3SONY1)			
D9007	6-500-750-01	DIODE NSAD500H-T1-A			
D9008	8-719-056-61	DIODE MAZS082008SO			
D9009	8-719-056-61	DIODE MAZS082008SO			
D9010	8-719-056-61	DIODE MAZS082008SO			
D9011	8-719-056-61	DIODE MAZS082008SO			
D9012	8-719-422-64	DIODE MA8062-M			
D9013	8-719-422-64	DIODE MA8062-M			
D9014	8-719-422-64	DIODE MA8062-M			
D9015	8-719-422-64	DIODE MA8062-M			
D9016	8-719-422-64	DIODE MA8062-M			

• Refer to page 5-1 for mark △.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
D9017	6-500-289-01	DIODE MAZW082H0LS0	C1002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< FERRITE BEAD >	C1003	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
FB9001	1-414-760-21	BEAD, FERRITE (CHIP) (1608)	C1207	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
FB9002	1-414-760-21	BEAD, FERRITE (CHIP) (1608)	C1208	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
FB9003	1-500-444-11	FERRITE, EMI (SMD) (1608)	C1209	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
FB9004	1-500-444-11	FERRITE, EMI (SMD) (1608)	C1210	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
FB9005	1-500-444-11	FERRITE, EMI (SMD) (1608)	C1211	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
FB9006	1-500-444-11	FERRITE, EMI (SMD) (1608)	C1212	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
		< LINE FILTER >	C1213	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
LF9002	1-456-583-11	COMMON MODE CHOKE COIL	C1214	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
		< RESISTOR >	C1215	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
R9001	1-216-864-11	SHORT CHIP	0					
R9002	1-216-864-11	SHORT CHIP	0					
R9003	1-216-864-11	SHORT CHIP	0					
R9004	1-218-864-11	SHORT CHIP	0					
R9005	1-216-864-11	SHORT CHIP	0					
R9006	1-216-864-11	SHORT CHIP	0					
R9007	1-216-864-11	SHORT CHIP	0					
R9008	1-216-295-91	SHORT CHIP	0					
R9009	1-218-965-11	RES-CHIP	10K	5%	1/16W			
R9010	1-218-965-11	RES-CHIP	10K	5%	1/16W			
R9011	1-216-295-91	SHORT CHIP	0					
R9012	1-218-970-11	RES-CHIP	27K	5%	1/16W			
R9013	1-218-990-81	SHORT CHIP	0					
R9014	1-218-990-81	SHORT CHIP	0					
R9015	1-218-954-11	RES-CHIP	1.2K	5%	1/16W			
R9016	1-216-295-91	SHORT CHIP	0					
R9017	1-218-955-11	RES-CHIP	1.5K	5%	1/16W			
R9018	1-218-957-11	RES-CHIP	2.2K	5%	1/16W			
R9019	1-218-960-11	RES-CHIP	3.9K	5%	1/16W			
R9020	1-218-964-11	RES-CHIP	8.2K	5%	1/16W			
R9021	1-234-400-21	CONDUCTOR, NETWORK (2010 x4)						
		< SWITCH >						
S9001	1-771-138-82	SWITCH, KEY BOARD (RESET)						
S9002	1-771-138-82	SWITCH, KEY BOARD (DISPLAY/BATT INFO)						
S9003	1-771-731-21	SWITCH, SLIDE (AUTO LOCK)						
		< VARISTOR >						
VDR901	1-803-974-21	VARISTOR, CHIP (1608)						
VDR902	1-803-974-21	VARISTOR, CHIP (1608)						
VDR903	1-803-974-21	VARISTOR, CHIP (1608)						
VDR904	1-803-974-21	VARISTOR, CHIP (1608)						
VDR907	1-801-862-11	VARISTOR, CHIP (1608)						
A-1147-144-A	TT-001 BOARD, COMPLETE (SERVICE)							
	(NTSC: A1J/A1U/A1N)							
A-1147-145-A	TT-001 BOARD, COMPLETE (SERVICE)							
	(PAL: A1E/A1P/A1C)							

	< CAPACITOR >							
C1001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V			
C1002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V			
C1003	1-165-908-11	CERAMIC CHIP	1uF	10%	10V			
C1207	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1208	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1209	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1210	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1211	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1212	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1213	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1214	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1215	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1216	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1217	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1218	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1219	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1220	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1221	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1222	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1223	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1224	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1225	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1226	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1227	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V			
C1401	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1402	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1403	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1405	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1406	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1408	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1409	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1410	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1411	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1412	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1413	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1414	1-127-895-91	TANTAL. CHIP	22uF	20%	4V			
C1415	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1416	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1417	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1418	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1419	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V			
C1420	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1421	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1422	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1423	1-127-895-91	TANTAL. CHIP	22uF	20%	4V			
C1601	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1602	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1603	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1604	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1605	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1606	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1607	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1609	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1610	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1611	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1613	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V			
C1614	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			
C1801	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V			
C1802	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V			

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Ref. No.	Part No.	Description			
C1803	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2001	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2002	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2003	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2004	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C2201	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C2202	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C2203	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C2205	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C2206	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2207	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2208	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2209	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2210	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2211	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2212	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2213	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C2214	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2215	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2216	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2217	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2218	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2219	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C2220	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2222	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2223	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2224	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C2225	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2226	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C2227	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C2229	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2230	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2231	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2232	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C2233	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2234	1-128-627-91	CERAMIC CHIP	0.001uF	10%	16V
C2235	1-128-627-91	CERAMIC CHIP	0.001uF	10%	16V
C2236	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2237	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2238	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2239	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2240	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2241	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2242	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2243	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2401	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2402	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2403	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2404	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2405	1-165-884-91	CERAMIC CHIP	2.2uF	10%	6.3V
C2410	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C2411	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2412	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2413	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C2414	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2415	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2416	1-165-908-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description			
C2419	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C2601	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2602	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2603	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2604	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C2605	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2606	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2607	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2608	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2609	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2610	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2611	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2612	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2613	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2614	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2615	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2616	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2617	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2618	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2619	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2801	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2802	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2803	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C2804	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3001	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3003	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3004	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3005	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3006	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3007	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3008	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3009	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3201	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3202	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3203	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3204	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3205	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3206	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3207	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3208	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3209	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3210	1-128-625-91	CERAMIC CHIP	470PF	10%	16V
C3211	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3212	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3213	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3214	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3215	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3216	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3217	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3402	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3403	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3404	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3407	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3408	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3409	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3410	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3411	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3601	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description					Ref. No.	Part No.	Description			
C3602	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V		C4212	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3603	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4213	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3604	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4214	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3605	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4215	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3606	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4216	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3607	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4217	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3608	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4218	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3609	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4219	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3610	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4401	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3801	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4402	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3802	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4403	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3803	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4404	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3804	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4405	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3805	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4406	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3806	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4407	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3807	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4408	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C3808	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4409	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C3812	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4410	1-100-539-91	TANTAL. CHIP	47uF	20%	6.3V
C3813	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4411	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C3814	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4412	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C3815	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4413	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3816	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4414	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3817	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4415	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C3818	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4416	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3819	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4417	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C3820	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4418	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3821	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4419	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C3822	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4420	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C3823	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V		C4422	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4001	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4423	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C4002	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4424	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4004	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4425	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C4006	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4426	1-165-989-11	CERAMIC CHIP	10uF	10%	6.3V
C4008	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4428	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4009	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4430	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C4010	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4432	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4013	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4433	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4014	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4434	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4015	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4435	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4016	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4436	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4017	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4437	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4019	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4438	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4020	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4439	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4021	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4440	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4022	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4441	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4023	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4442	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C4201	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4443	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4202	1-128-623-91	CERAMIC CHIP	220PF	10%	16V		C4444	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4203	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V		C4601	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C4204	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V		C4602	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C4205	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V		C4603	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4206	1-164-852-11	CERAMIC CHIP	12PF	5%	50V		C4604	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4207	1-164-852-11	CERAMIC CHIP	12PF	5%	50V		C4606	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C4208	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4608	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4209	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4801	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4210	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4802	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4211	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V		C4803	1-128-627-91	CERAMIC CHIP	0.001uF	10%	16V

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Ref. No.	Part No.	Description			
C4804	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4805	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4806	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4807	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4810	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4811	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4812	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4814	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4815	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4816	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4817	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4818	1-128-617-91	CERAMIC CHIP	100PF	5%	25V
C4819	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C4820	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C4821	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4822	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C4823	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4824	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4826	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C4827	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C4828	1-128-627-91	CERAMIC CHIP	0.001uF	10%	16V
C4829	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C5001	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5002	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5003	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C5201	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C5202	1-100-507-91	CERAMIC CHIP	4.7uF	20%	6.3V
C5203	1-100-611-91	CERAMIC CHIP	22uF	20%	6.3V
C5204	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5205	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5206	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5207	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5208	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5209	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5210	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5211	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5212	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5213	1-164-854-11	CERAMIC CHIP	15PF	5%	50V
C5214	1-164-852-11	CERAMIC CHIP	12PF	5%	50V
C5215	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5216	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5401	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5402	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5403	1-165-982-11	TANTAL. CHIP	10uF	20%	4V
C5404	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5405	1-165-982-11	TANTAL. CHIP	10uF	20%	4V
C5406	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5407	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5408	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5409	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5410	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5411	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5412	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5413	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5414	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5415	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5416	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V

Ref. No.	Part No.	Description			
C5601	1-165-982-11	TANTAL. CHIP	10uF	20%	4V
C5602	1-165-982-11	TANTAL. CHIP	10uF	20%	4V
C5603	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5604	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5605	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5606	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5607	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5608	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5609	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5610	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5611	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5612	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5613	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5614	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C5615	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5801	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5802	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5803	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5804	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5805	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5806	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C5807	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5808	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5809	1-117-748-81	CERAMIC CHIP	10PF	0.1PF	16V
C5810	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5811	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5814	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5817	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5818	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C5819	1-100-506-91	CERAMIC CHIP	1uF	20%	6.3V
C5820	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5821	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5822	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5823	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C5824	1-128-632-91	CERAMIC CHIP	0.01uF	10%	6.3V
C6001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6003	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6004	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6005	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6006	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6007	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6008	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6009	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6010	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6011	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6012	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6013	1-100-902-91	TANTAL. CHIP	10uF	20%	10V
C6014	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C6015	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
C6016	1-164-931-11	CERAMIC CHIP	100PF	10%	50V
C6017	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C6018	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6019	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C6020	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6021	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6022	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C6023	1-164-935-11	CERAMIC CHIP	470PF	10%	50V

Ref. No.	Part No.	Description			
C6024	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C6025	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6026	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C6027	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6028	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6029	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6030	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6031	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C6032	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6033	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6034	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6035	1-137-910-11	TANTAL. CHIP	10uF	20%	16V
C6036	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6037	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C6038	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C6039	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6040	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6041	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6042	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6043	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6044	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6045	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6046	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6047	1-115-565-11	CERAMIC CHIP	2.2uF	10%	10V
C6048	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C6049	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C6050	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C6051	1-100-352-91	CERAMIC CHIP	1uF	20%	16V
C6052	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6053	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C6054	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6055	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6056	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6057	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6058	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6059	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6060	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6061	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6062	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C6063	1-113-677-11	CERAMIC CHIP	1uF		25V
C6064	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6065	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6066	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6067	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6068	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6069	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6070	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6071	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6072	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6073	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6074	1-127-715-91	CERAMIC CHIP	0.22uF	10%	16V
C6075	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6076	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6077	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6078	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6079	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6080	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			
C6081	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C6082	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C6085	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6086	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C6087	1-100-504-91	CERAMIC CHIP	0.1uF	20%	6.3V
< CONNECTOR >					
CN1001	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN1002	1-816-644-31	FFC/FPC CONNECTOR (LIF) 12P			
CN1003	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN1004	1-817-920-11	CONNECTOR, FPC (ZIF) 80P			
CN1006	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
CN1007	1-816-646-31	FFC/FPC CONNECTOR (LIF) 16P			
CN1008	1-816-057-11	CONNECTOR, FPC (ZIF) 39P			
CN1009	1-816-646-31	FFC/FPC CONNECTOR (LIF) 16P			
CN1011	1-816-645-31	FFC/FPC CONNECTOR (LIF) 14P			
CN1012	1-818-046-11	FFC/CONNECTOR, FPC (LIF (NON-ZIF)) 20P			
CN1013	1-819-361-21	CONNECTOR, COAXIAL (RECEPTACLE)			
< DIODE >					
D1004	8-719-158-49	DIODE RD12SB2			
D1005	8-719-158-49	DIODE RD12SB2			
D1006	8-719-056-61	DIODE MAZS082008SO			
D1007	8-719-158-49	DIODE RD12SB2			
D1008	8-719-158-49	DIODE RD12SB2			
D4802	6-500-776-01	DIODE MAZW068H0LSO			
D5201	8-719-056-23	DIODE MA2S111-(K8).SO			
D6003	8-719-081-19	DIODE 1SS383 (T5RSONY1)			
D6004	8-719-027-76	DIODE 1SS357-TPH3			
D6005	8-719-056-23	DIODE MA2S111-(K8).SO			
D6006	8-719-056-23	DIODE MA2S111-(K8).SO			
D6007	8-719-046-85	DIODE MA2S728			
D6008	8-719-085-52	DIODE SBS806M-TL-E			
D6009	8-719-074-08	DIODE MA4ZD03001SO			
D6011	8-719-421-67	DIODE MA132WK			
D6012	8-719-085-53	DIODE MA2SD10008SO			
D6013	8-719-085-53	DIODE MA2SD10008SO			
< FUSE >					
△F6001	1-576-406-21	FUSE (1.4A/32V)			
△F6002	1-576-406-21	FUSE (1.4A/32V)			
△F6003	1-576-406-21	FUSE (1.4A/32V)			
△F6004	1-576-406-21	FUSE (1.4A/32V)			
△F6005	1-576-406-21	FUSE (1.4A/32V)			
△F6006	1-576-406-21	FUSE (1.4A/32V)			
△F6007	1-576-406-21	FUSE (1.4A/32V)			
< FERRITE BEAD >					
FB1001	1-400-382-11	EMI FERRITE (SMD) (1608)			
FB1002	1-400-382-11	EMI FERRITE (SMD) (1608)			
FB1003	1-400-823-11	EMI FERRITE (SMD) (1005)			
FB1004	1-400-823-11	EMI FERRITE (SMD) (1005)			
FB1005	1-400-823-11	EMI FERRITE (SMD) (1005)			
FB1006	1-400-823-11	EMI FERRITE (SMD) (1005)			
FB1007	1-400-823-11	EMI FERRITE (SMD) (1005)			
FB1401	1-414-445-11	BEAD, FERRITE (CHIP) (1608)			
FB1403	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			
FB1601	1-414-760-21	BEAD, FERRITE (CHIP) (1608)			

• Refer to page 5-1 for mark △.

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Ref. No.	Part No.	Description
FB1602	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
FB1801	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2001	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
FB2401	1-414-445-11	FERRITE, EMI (SMD) (1608)
FB2402	1-414-445-11	FERRITE, EMI (SMD) (1608)
FB2601	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2602	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2603	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2604	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2605	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB2801	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3001	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3201	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3202	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3203	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3204	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3402	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3601	1-469-676-22	BEAD, FERRITE (CHIP) (1608)
FB3602	1-469-676-22	BEAD, FERRITE (CHIP) (1608)
FB3801	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3802	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB3803	1-414-445-11	BEAD, FERRITE (CHIP) (1608)
FB4001	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB4201	1-400-823-11	EMI FERRITE (SMD) (1005)
FB4202	1-400-823-11	EMI FERRITE (SMD) (1005)
FB4401	1-400-461-21	FERRITE, EMI (SMD) (1005)
FB4801	1-500-284-21	INDUCTOR, FERRITE BEAD
FB4802	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB4803	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB4805	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5001	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
FB5201	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5202	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5203	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5401	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5601	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5801	1-414-760-21	FERRITE, EMI (SMD) (1608)
FB5802	1-414-760-21	FERRITE, EMI (SMD) (1608)
< IC >		
IC1201	6-708-280-01	IC VSP2434AZWDR
IC1401	8-753-239-12	IC CXD3190AGG-T6
IC1402	6-706-287-01	IC EDS1216GABH-10TT-E
IC1403	6-708-135-01	IC HD74ALVC2G74USE-E
IC1601	6-701-986-01	IC HG76C020BPTLV
IC1801	6-706-186-01	IC K4S283233F-HN1HT
IC2001	6-708-168-01	IC MBCG61233-102LGT-G-ERE1
IC2201	6-706-045-01	IC SUZUKA (M66493WG)
IC2401	6-708-108-01	IC TLS26A100PFBR
IC2402	6-805-387-01	IC MB90099LGA-G-133-ER
IC2601	6-706-687-01	IC HD74ALVC1G79VSE-E
IC2602	6-705-881-01	IC HD74ALVC1G125VSE-E
IC2603	6-706-688-01	IC HD74ALVC2G32USE-E
IC2604	6-706-686-01	IC HD74ALVC1G08VSE-E
IC2605	6-705-883-01	IC HD74LVCC3245ATEL-E
IC2606	6-705-881-01	IC HD74ALVC1G125VSE-E
IC2607	8-753-231-00	IC CXD3171GA-T6

Ref. No.	Part No.	Description
IC2801	6-706-689-01	IC HD74ALVC2G34USE-E
IC2802	6-706-689-01	IC HD74ALVC2G34USE-E
IC2803	6-706-689-01	IC HD74ALVC2G34USE-E
IC2804	6-706-689-01	IC HD74ALVC2G34USE-E
IC2805	6-706-689-01	IC HD74ALVC2G34USE-E
IC2806	6-706-689-01	IC HD74ALVC2G34USE-E
IC3001	6-707-559-01	IC K4S28323LF-HN75T
IC3002	6-707-559-01	IC K4S28323LF-HN75T
IC3201	6-804-470-01	IC CXD9175AGG-P
IC3401	6-707-559-01	IC K4S28323LF-HN75T
IC3402	6-707-559-01	IC K4S28323LF-HN75T
IC3601	6-706-068-02	IC TMS320DA150ZGUR120
IC3801	8-753-231-06	IC CXD3185GG-T6
IC4001	8-752-421-65	IC CXD3167GA-T6
IC4201	6-705-546-01	IC SN104286ZHZR
IC4401	6-707-435-01	IC AN12921A-VB
IC4601	6-707-330-01	IC AK4554VL-L
IC4801	6-704-974-01	IC AK6512CAS-E2
IC4802	(Not supplied)	IC CXD3197BGA-30-T6
IC4803	6-702-708-01	IC TC7SZU04AFE (TE85R)
IC4804	8-759-652-10	IC TK11119SCL
IC4805	6-706-967-01	IC TK70531SCL-G
IC5001	6-702-058-01	IC MD56V62160E-10LAZ03B
IC5201	6-805-059-01	IC MB89097LGA-G-188-ER
IC5401	6-805-953-01	IC MB91195LGL-G-156-ERE1
IC5402	6-704-973-01	IC AK6510CS-E2
IC5601	6-805-689-01	IC MB91195LGL-G-150-ERE1
IC5801	6-704-974-01	IC AK6512CAS-E2
IC5802	6-805-945-01	IC MB91195LGL-G-158-ERE1
IC6001	6-706-539-01	IC AN30205A-VB
IC6004	6-708-133-01	IC TK72130CSCL-G
< COIL >		
L1201	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH
L1202	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH
L1401	1-414-755-11	INDUCTOR 22uH
L1404	1-400-137-11	INDUCTOR 10uH
L2201	1-412-979-21	INDUCTOR 1uH
L2202	1-469-557-21	INDUCTOR 22uH
L2203	1-412-979-21	INDUCTOR 1uH
L2205	1-469-557-21	INDUCTOR 22uH
L2207	1-469-557-21	INDUCTOR 22uH
L2208	1-469-555-21	INDUCTOR 10uH
L2210	1-469-557-21	INDUCTOR 22uH
L2401	1-414-771-91	INDUCTOR 10uH
L2402	1-414-771-91	INDUCTOR 10uH
L2403	1-414-771-91	INDUCTOR 10uH
L4002	1-469-570-11	INDUCTOR 10uH
L4003	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH
L4004	1-400-588-11	INDUCTOR, LAMINATE CHIP 10uH
L4005	1-469-555-21	INDUCTOR 10uH
L4006	1-469-570-11	INDUCTOR 10uH
L4007	1-469-570-11	INDUCTOR 10uH
L4203	1-469-555-21	INDUCTOR 10uH
L4401	1-414-771-91	INDUCTOR 10uH
L4402	1-414-771-91	INDUCTOR 10uH
L4403	1-469-525-91	INDUCTOR 10uH
L4404	1-414-771-91	INDUCTOR 10uH

Ref. No.	Part No.	Description		Ref. No.	Part No.	Description			
L4405	1-414-771-91	INDUCTOR	10uH	Q6003	8-729-043-60	TRANSISTOR	CPH6102-TL-E		
L4406	1-414-771-91	INDUCTOR	10uH	Q6004	6-550-119-01	TRANSISTOR	DTC144EMT2L		
L4601	1-414-771-91	INDUCTOR	10uH	Q6005	6-550-006-01	TRANSISTOR	UN911BJ-(K8).S0		
L6001	1-456-497-11	INDUCTOR	15uH	Q6006	8-729-037-74	TRANSISTOR	UN9213J-(TX).S0		
L6002	1-456-498-11	INDUCTOR	47uH	Q6007	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6003	1-469-844-11	INDUCTOR	2.2uH	Q6008	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6004	1-456-136-21	INDUCTOR	10uH	Q6009	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6005	1-456-137-11	INDUCTOR	22uH	Q6010	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6006	1-456-137-11	INDUCTOR	22uH	Q6011	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6007	1-456-136-21	INDUCTOR	10uH	Q6012	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6008	1-456-137-11	INDUCTOR	22uH	Q6013	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6009	1-456-137-11	INDUCTOR	22uH	Q6014	6-550-714-01	TRANSISTOR	SCH1406-TL-E		
L6010	1-456-137-11	INDUCTOR	22uH	Q6015	8-729-056-72	TRANSISTOR	MCH5805-TL-E		
L6011	1-456-137-11	INDUCTOR	22uH	Q6016	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
L6012	1-469-757-21	INDUCTOR	10uH	Q6017	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6013	1-469-847-11	INDUCTOR	100uH	Q6018	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6014	1-469-549-21	INDUCTOR	1uH	Q6019	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6015	1-469-549-21	INDUCTOR	1uH	Q6020	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6016	1-469-549-21	INDUCTOR	1uH	Q6021	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6017	1-469-549-21	INDUCTOR	1uH	Q6022	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6018	1-469-549-21	INDUCTOR	1uH	Q6023	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6019	1-469-549-21	INDUCTOR	1uH	Q6024	6-550-713-01	TRANSISTOR	SCH2816-TL-E		
L6020	1-469-549-21	INDUCTOR	1uH	Q6025	8-729-049-25	TRANSISTOR	2SC5376F-B (TPL3)		
L6021	1-469-549-21	INDUCTOR	1uH	Q6026	6-550-119-01	TRANSISTOR	DTC144EMT2L		
L6022	1-469-549-21	INDUCTOR	1uH	Q6027	8-729-056-19	TRANSISTOR	TPC6101 (TE85R)		
L6023	1-414-770-91	INDUCTOR	4.7uH			< RESISTOR >			
L6024	1-469-549-21	INDUCTOR	1uH	R1001	1-218-953-11	RES-CHIP	1K	5%	1/16W
L6025	1-469-549-21	INDUCTOR	1uH	R1002	1-218-953-11	RES-CHIP	1K	5%	1/16W
L6026	1-469-549-21	INDUCTOR	1uH	R1005	1-218-990-81	SHORT CHIP	0		
L6027	1-469-549-21	INDUCTOR	1uH	R1006	1-218-990-81	SHORT CHIP	0		
		< LINE FILTER >		R1007	1-694-535-91	SHORT CHIP	0		
LF6001	1-411-957-11	FILTER, COMMON MODE		R1008	1-694-535-91	SHORT CHIP	0		
		< TRANSISTOR >		R1009	1-694-535-91	SHORT CHIP	0		
Q2401	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1201	1-694-535-91	SHORT CHIP	0		
Q2402	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1202	1-694-535-91	SHORT CHIP	0		
Q2403	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1203	1-694-535-91	SHORT CHIP	0		
Q2404	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1204	1-694-535-91	SHORT CHIP	0		
Q2405	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1205	1-694-535-91	SHORT CHIP	0		
Q2406	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1206	1-694-535-91	SHORT CHIP	0		
Q2407	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1207	1-694-535-91	SHORT CHIP	0		
Q2408	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1208	1-694-535-91	SHORT CHIP	0		
Q2409	6-550-232-01	TRANSISTOR	2SA2029T2LQ/R	R1209	1-694-535-91	SHORT CHIP	0		
Q4401	8-729-054-52	TRANSISTOR	UP04216008S0	R1210	1-694-535-91	SHORT CHIP	0		
Q4402	8-729-056-73	TRANSISTOR	CPH6501-TL-E	R1211	1-694-535-91	SHORT CHIP	0		
Q4403	8-729-054-52	TRANSISTOR	UP04216008S0	R1212	1-694-535-91	SHORT CHIP	0		
Q4801	6-550-119-01	TRANSISTOR	DTC144EMT2L	R1213	1-218-953-11	RES-CHIP	1K	5%	1/16W
Q4802	6-550-237-01	TRANSISTOR	2SC5658T2LQ/R	R1214	1-218-990-81	SHORT CHIP	0		
Q4803	6-550-174-01	TRANSISTOR	2SA2030T2L	R1401	1-218-990-81	SHORT CHIP	0		
Q4804	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR (TPLR3)	R1403	1-240-718-91	METAL CHIP	100K	5%	1/20W
Q4805	6-550-239-01	TRANSISTOR	DTA144EMT2L	R1404	1-218-937-11	RES-CHIP	47	5%	1/16W
Q4806	6-551-338-01	TRANSISTOR	UNR31AF00LS0	R1405	1-218-937-11	RES-CHIP	47	5%	1/16W
Q5201	8-729-041-43	TRANSISTOR	HN1L02FU (TE85R)	R1406	1-218-990-81	SHORT CHIP	0		
Q5801	6-550-242-01	TRANSISTOR	DTC114EMT2L	R1407	1-694-535-91	SHORT CHIP	0 (PAL: A1E/A1P/A1C)		
Q6001	8-729-047-68	TRANSISTOR	SSM3K03FE (TPL3)	R1408	1-694-535-91	SHORT CHIP	0 (NTSC: A1J/A1U/A1N)		
Q6002	6-550-707-01	TRANSISTOR	ECH8613-TL-E	R1409	1-694-535-91	SHORT CHIP	0		
				R1411	1-694-535-91	SHORT CHIP	0		

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Ref. No.	Part No.	Description			
R1412	1-218-990-81	SHORT CHIP	0		
R1413	1-240-695-91	METAL CHIP	1K	5%	1/20W
R1415	1-694-535-91	SHORT CHIP	0		
R1416	1-218-990-81	SHORT CHIP	0		
R1417	1-240-695-91	METAL CHIP	1K	5%	1/20W
R1418	1-694-535-91	SHORT CHIP	0		
R1419	1-694-535-91	SHORT CHIP	0		
R1420	1-218-990-81	SHORT CHIP	0		
R1423	1-694-535-91	SHORT CHIP	0		
R1425	1-240-718-91	METAL CHIP	100K	5%	1/20W
R1427	1-216-864-11	SHORT CHIP	0		
R1428	1-218-990-81	SHORT CHIP	0		
R1429	1-218-990-81	SHORT CHIP	0		
R1430	1-218-990-81	SHORT CHIP	0		
R1431	1-218-990-81	SHORT CHIP	0		
R1432	1-218-990-81	SHORT CHIP	0		
R1601	1-218-990-81	SHORT CHIP	0		
R1603	1-218-990-81	SHORT CHIP	0		
R1604	1-218-990-81	SHORT CHIP	0		
R1606	1-218-990-81	SHORT CHIP	0		
R1608	1-216-864-11	SHORT CHIP	0		
R1609	1-240-695-91	METAL CHIP	1K	5%	1/20W
R1612	1-240-714-91	METAL CHIP	47K	5%	1/20W
R2001	1-218-990-81	SHORT CHIP	0		
R2002	1-240-695-91	METAL CHIP	1K	5%	1/20W
R2003	1-218-990-81	SHORT CHIP	0		
R2201	1-216-864-11	SHORT CHIP	0		
R2202	1-240-695-91	METAL CHIP	1K	5%	1/20W
R2203	1-218-990-81	SHORT CHIP	0		
R2204	1-694-535-91	SHORT CHIP	0		
R2205	1-218-990-81	SHORT CHIP	0		
R2206	1-694-535-91	SHORT CHIP	0		
R2207	1-694-535-91	SHORT CHIP	0		
R2208	1-240-700-91	METAL CHIP	2.7K	5%	1/20W
R2209	1-240-700-91	METAL CHIP	2.7K	5%	1/20W
R2210	1-240-693-91	METAL CHIP	680	5%	1/20W
R2211	1-240-695-91	METAL CHIP	1K	5%	1/20W
R2212	1-218-990-81	SHORT CHIP	0		
R2213	1-218-990-81	SHORT CHIP	0		
R2214	1-694-535-91	SHORT CHIP	0		
R2215	1-694-535-91	SHORT CHIP	0		
R2216	1-694-535-91	SHORT CHIP	0		
R2217	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2218	1-694-535-91	SHORT CHIP	0		
R2219	1-694-535-91	SHORT CHIP	0		
R2221	1-218-990-81	SHORT CHIP	0		
R2222	1-694-535-91	SHORT CHIP	0		
R2223	1-694-535-91	SHORT CHIP	0		
R2224	1-694-535-91	SHORT CHIP	0		
R2225	1-218-990-81	SHORT CHIP	0		
R2226	1-240-695-91	METAL CHIP	1K	5%	1/20W
R2401	1-208-873-81	METAL CHIP	270	0.5%	1/16W
R2402	1-208-873-81	METAL CHIP	270	0.5%	1/16W
R2403	1-208-873-81	METAL CHIP	270	0.5%	1/16W
R2404	1-218-948-11	RES-CHIP	390	5%	1/16W
R2405	1-218-948-11	RES-CHIP	390	5%	1/16W
R2406	1-218-948-11	RES-CHIP	390	5%	1/16W
R2407	1-208-864-81	METAL CHIP	110	0.5%	1/16W

Ref. No.	Part No.	Description			
R2408	1-208-663-11	METAL CHIP	150	0.5%	1/16W
R2409	1-208-663-11	METAL CHIP	150	0.5%	1/16W
R2410	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2411	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2412	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2413	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2414	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2415	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2416	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2417	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2418	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R2419	1-694-535-91	SHORT CHIP	0		
R2422	1-694-535-91	SHORT CHIP	0		
R2424	1-694-535-91	SHORT CHIP	0		
R2425	1-694-535-91	SHORT CHIP	0		
R2427	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2428	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2429	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R2433	1-694-535-91	SHORT CHIP	0		
R2434	1-694-535-91	SHORT CHIP	0		
R2601	1-694-535-91	SHORT CHIP	0		
R2603	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2604	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2605	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2606	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2607	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2608	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2609	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2610	1-240-718-91	METAL CHIP	100K	5%	1/20W
R2615	1-218-937-11	RES-CHIP	47	5%	1/16W
R2801	1-218-990-81	SHORT CHIP	0		
R2802	1-218-990-81	SHORT CHIP	0		
R3201	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R3202	1-208-860-81	METAL CHIP	75	0.5%	1/16W
R3207	1-208-918-81	METAL CHIP	20K	0.5%	1/16W
R3208	1-208-918-81	METAL CHIP	20K	0.5%	1/16W
R3210	1-218-990-81	SHORT CHIP	0		
R3213	1-240-718-91	METAL CHIP	100K	5%	1/20W
R3214	1-240-695-91	METAL CHIP	1K	5%	1/20W
R3215	1-218-990-81	SHORT CHIP	0		
R3216	1-218-990-81	SHORT CHIP	0		
R3601	1-694-535-91	SHORT CHIP	0		
R3602	1-218-990-81	SHORT CHIP	0		
R3603	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3604	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3605	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3606	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3607	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3608	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3609	1-218-990-81	SHORT CHIP	0		
R3610	1-218-990-81	SHORT CHIP	0		
R3611	1-218-990-81	SHORT CHIP	0		
R3612	1-218-990-81	SHORT CHIP	0		
R3801	1-218-990-81	SHORT CHIP	0		
R3802	1-218-990-81	SHORT CHIP	0		
R3803	1-218-990-81	SHORT CHIP	0		
R3804	1-240-714-91	METAL CHIP	47K	5%	1/20W

Ref. No.	Part No.	Description				Ref. No.	Part No.	Description			
R3805	1-240-695-91	METAL CHIP	1K	5%	1/20W	R4407	1-240-679-91	METAL CHIP	47	5%	1/20W
R3806	1-240-695-91	METAL CHIP	1K	5%	1/20W	R4408	1-240-679-91	METAL CHIP	47	5%	1/20W
R3807	1-694-535-91	SHORT CHIP	0								
R3808	1-218-990-81	SHORT CHIP	0			R4409	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R3809	1-218-990-81	SHORT CHIP	0			R4410	1-240-683-91	METAL CHIP	100	5%	1/20W
						R4411	1-240-683-91	METAL CHIP	100	5%	1/20W
R3810	1-218-990-81	SHORT CHIP	0			R4412	1-240-718-91	METAL CHIP	100K	5%	1/20W
R3811	1-218-990-81	SHORT CHIP	0			R4413	1-240-718-91	METAL CHIP	100K	5%	1/20W
R3812	1-218-990-81	SHORT CHIP	0								
R4001	1-218-990-81	SHORT CHIP	0			R4415	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4003	1-218-990-81	SHORT CHIP	0								(NTSC: A1J/A1U/A1N)
						R4418	1-218-990-81	SHORT CHIP	0		
R4004	1-218-990-81	SHORT CHIP	0			R4420	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4005	1-694-535-91	SHORT CHIP	0			R4421	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4009	1-218-990-81	SHORT CHIP	0			R4422	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4010	1-694-535-91	SHORT CHIP	0								
R4012	1-218-990-81	SHORT CHIP	0			R4801	1-240-718-91	METAL CHIP	100K	5%	1/20W
						R4802	1-240-729-91	METAL CHIP	1M	5%	1/20W
R4013	1-694-535-91	SHORT CHIP	0			R4803	1-240-729-91	METAL CHIP	1M	5%	1/20W
R4014	1-216-864-11	SHORT CHIP	0			R4806	1-218-990-81	SHORT CHIP	0		
R4016	1-218-990-81	SHORT CHIP	0			R4807	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4201	1-694-535-91	SHORT CHIP	0								
R4202	1-218-938-11	RES-CHIP	56	5%	1/16W	R4808	1-240-718-91	METAL CHIP	100K	5%	1/20W
						R4809	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4203	1-208-911-11	METAL CHIP	10K	0.5%	1/16W	R4810	1-218-990-81	SHORT CHIP	0		
R4204	1-218-938-11	RES-CHIP	56	5%	1/16W	R4811	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4205	1-208-911-11	METAL CHIP	10K	0.5%	1/16W	R4812	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4206	1-218-938-11	RES-CHIP	56	5%	1/16W						
R4207	1-218-938-11	RES-CHIP	56	5%	1/16W	R4813	1-240-718-91	METAL CHIP	100K	5%	1/20W
						R4814	1-218-990-81	SHORT CHIP	0		
R4208	1-208-702-11	METAL CHIP	6.2K	0.5%	1/16W	R4815	1-240-746-11	METAL CHIP	27	0.5%	1/20W
R4209	1-208-869-11	METAL CHIP	180	0.5%	1/16W	R4816	1-240-729-91	METAL CHIP	1M	5%	1/20W
R4210	1-218-989-11	RES-CHIP	1M	5%	1/16W	R4817	1-240-746-11	METAL CHIP	27	0.5%	1/20W
R4212	1-240-718-91	METAL CHIP	100K	5%	1/20W						
R4213	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4822	1-240-726-91	METAL CHIP	470K	5%	1/20W
						R4823	1-240-726-91	METAL CHIP	470K	5%	1/20W
R4214	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4824	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4215	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4825	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4216	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4826	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4217	1-240-718-91	METAL CHIP	100K	5%	1/20W						
R4218	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4827	1-694-535-91	SHORT CHIP	0		
						R4828	1-694-535-91	SHORT CHIP	0		
R4219	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4829	1-240-683-91	METAL CHIP	100	5%	1/20W
R4220	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4830	1-218-990-81	SHORT CHIP	0		
R4221	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4831	1-218-990-81	SHORT CHIP	0		
R4222	1-218-990-81	SHORT CHIP	0								
R4223	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4832	1-218-990-81	SHORT CHIP	0		
						R4833	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4224	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4834	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4225	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4835	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4226	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4836	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4227	1-240-718-91	METAL CHIP	100K	5%	1/20W						
R4228	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4837	1-240-695-91	METAL CHIP	1K	5%	1/20W
						R4838	1-240-697-91	METAL CHIP	1.5K	5%	1/20W
R4229	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4839	1-694-535-91	SHORT CHIP	0		
R4230	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4840	1-240-714-91	METAL CHIP	47K	5%	1/20W
R4231	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4842	1-240-701-91	METAL CHIP	3.3K	5%	1/20W
R4232	1-240-718-91	METAL CHIP	100K	5%	1/20W						
R4233	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4843	1-240-701-91	METAL CHIP	3.3K	5%	1/20W
						R4844	1-240-682-91	METAL CHIP	82	5%	1/20W
R4234	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4845	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4235	1-218-990-81	SHORT CHIP	0			R4846	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4401	1-240-702-91	METAL CHIP	3.9K	5%	1/20W	R4847	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4402	1-240-713-91	METAL CHIP	33K	5%	1/20W						
R4403	1-220-169-11	RES-CHIP	75	5%	1/16W	R4848	1-240-695-91	METAL CHIP	1K	5%	1/20W
						R4849	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4404	1-220-169-11	RES-CHIP	75	5%	1/16W	R4850	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4405	1-220-169-11	RES-CHIP	75	5%	1/16W	R4851	1-240-695-91	METAL CHIP	1K	5%	1/20W
R4406	1-240-718-91	METAL CHIP	100K	5%	1/20W	R4852	1-240-695-91	METAL CHIP	1K	5%	1/20W

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Ref. No.	Part No.	Description			
R4855	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4856	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4857	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4858	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4859	1-240-707-91	METAL CHIP	10K	5%	1/20W
R4860	1-240-699-91	METAL CHIP	2.2K	5%	1/20W
R4861	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R4862	1-216-791-11	METAL CHIP	3.3	5%	1/10W
R4863	1-240-697-91	METAL CHIP	1.5K	5%	1/20W
R4864	1-240-704-91	METAL CHIP	5.6K	5%	1/20W
R4865	1-240-701-91	METAL CHIP	3.3K	5%	1/20W
R4866	1-240-718-91	METAL CHIP	100K	5%	1/20W
R4867	1-240-729-91	METAL CHIP	1M	5%	1/20W
R4868	1-240-696-91	METAL CHIP	1.2K	5%	1/20W
R4870	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5001	1-218-990-81	SHORT CHIP	0		
R5201	1-245-581-11	METAL CHIP	1M	0.5%	1/20W
R5202	1-240-830-11	METAL CHIP	100K	0.5%	1/20W
R5203	1-245-601-11	METAL CHIP	470K	0.5%	1/20W
R5204	1-240-822-11	METAL CHIP	47K	0.5%	1/20W
R5205	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5206	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5207	1-240-714-91	METAL CHIP	47K	5%	1/20W
R5208	1-694-535-91	SHORT CHIP	0		
R5209	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5210	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5211	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5212	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5213	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5214	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5215	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5216	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5217	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5218	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5219	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5220	1-240-703-91	METAL CHIP	4.7K	5%	1/20W
R5221	1-245-604-11	METAL CHIP	10M	5%	1/16W
R5222	1-694-535-91	SHORT CHIP	0		
R5223	1-694-535-91	SHORT CHIP	0		
R5224	1-694-535-91	SHORT CHIP	0		
R5225	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5226	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5227	1-240-691-91	METAL CHIP	470	5%	1/20W
R5228	1-240-729-91	METAL CHIP	1M	5%	1/20W
R5229	1-240-729-91	METAL CHIP	1M	5%	1/20W
R5230	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5232	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5233	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5234	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5235	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5237	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5238	1-240-691-91	METAL CHIP	470	5%	1/20W
R5240	1-240-714-91	METAL CHIP	47K	5%	1/20W
R5401	1-240-683-91	METAL CHIP	100	5%	1/20W
R5402	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5403	1-216-864-11	SHORT CHIP	0		
R5404	1-694-535-91	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R5405	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5406	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5407	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5411	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5413	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5414	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5415	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5416	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5417	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5418	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5419	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5420	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5421	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5423	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5424	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5425	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5427	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5428	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5429	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5430	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5431	1-240-726-91	METAL CHIP	470K	5%	1/20W
R5432	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5433	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5434	1-694-535-91	SHORT CHIP	0		
R5435	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5437	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5438	1-240-716-91	METAL CHIP	68K	5%	1/20W
R5439	1-240-722-91	METAL CHIP	220K	5%	1/20W
R5440	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5441	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5442	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5443	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5444	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5601	1-216-864-11	SHORT CHIP	0		
R5602	1-240-683-91	METAL CHIP	100	5%	1/20W
R5603	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5604	1-218-990-81	SHORT CHIP	0		
R5605	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5606	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5607	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5608	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5609	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5610	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5611	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5612	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5613	1-694-535-91	SHORT CHIP	0		
R5614	1-694-535-91	SHORT CHIP	0		
R5615	1-694-535-91	SHORT CHIP	0		
R5616	1-694-535-91	SHORT CHIP	0		
R5617	1-694-535-91	SHORT CHIP	0		
R5801	1-240-683-91	METAL CHIP	100	5%	1/20W
R5802	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5803	1-240-707-91	METAL CHIP	10K	5%	1/20W
R5804	1-218-990-81	SHORT CHIP	0		
R5805	1-694-535-91	SHORT CHIP	0		
R5806	1-240-718-91	METAL CHIP	100K	5%	1/20W

(NTSC: A1J/A1U/A1N)
(PAL: A1E/A1P/A1C)

Ref. No.	Part No.	Description			
R5807	1-240-726-91	METAL CHIP	470K	5%	1/20W
R5811	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5812	1-240-729-91	METAL CHIP	1M	5%	1/20W
R5813	1-240-729-91	METAL CHIP	1M	5%	1/20W
R5814	1-240-800-11	METAL CHIP	4.7K	0.5%	1/20W
R5815	1-240-800-11	METAL CHIP	4.7K	0.5%	1/20W
R5816	1-240-800-11	METAL CHIP	4.7K	0.5%	1/20W
R5817	1-240-800-11	METAL CHIP	4.7K	0.5%	1/20W
R5818	1-694-535-91	SHORT CHIP	0		
R5819	1-694-535-91	SHORT CHIP	0		
R5820	1-240-718-91	METAL CHIP	100K	5%	1/20W
R5821	1-240-710-91	METAL CHIP	18K	5%	1/20W
R5822	1-240-710-91	METAL CHIP	18K	5%	1/20W
R5823	1-240-695-91	METAL CHIP	1K	5%	1/20W
R5824	1-240-695-91	METAL CHIP	1K	5%	1/20W
R6001	1-218-941-81	RES-CHIP	100	5%	1/16W
R6002	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6003	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6004	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R6005	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R6006	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6007	1-216-150-91	RES-CHIP	10	5%	1/8W
R6008	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6009	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6011	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6012	1-218-990-81	SHORT CHIP	0		
R6013	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6015	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6016	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6017	1-218-990-81	SHORT CHIP	0		
R6018	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6019	1-218-990-81	SHORT CHIP	0		
R6020	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6021	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6022	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6023	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6024	1-218-971-11	RES-CHIP	33K	5%	1/16W
R6025	1-218-990-81	SHORT CHIP	0		
R6026	1-218-951-11	RES-CHIP	680	5%	1/16W
R6027	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6028	1-218-979-11	RES-CHIP	150K	5%	1/16W
R6029	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R6030	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6031	1-218-990-81	SHORT CHIP	0		
R6032	1-218-990-81	SHORT CHIP	0		
R6033	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R6034	1-208-918-81	METAL CHIP	20K	0.5%	1/16W
R6035	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R6036	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R6037	1-208-709-11	METAL CHIP	12K	0.5%	1/16W
R6038	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R6039	1-218-990-81	SHORT CHIP	0		
R6040	1-218-990-81	SHORT CHIP	0		
R6041	1-218-990-81	SHORT CHIP	0		
R6042	1-218-990-81	SHORT CHIP	0		
R6043	1-218-990-81	SHORT CHIP	0		
R6044	1-218-990-81	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R6045	1-220-803-81	RES-CHIP	4.7	5%	1/16W
R6046	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6048	1-218-989-11	RES-CHIP	1M	5%	1/16W
R6049	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6053	1-218-990-81	SHORT CHIP	0		
R6055	1-218-990-81	SHORT CHIP	0		
R6056	1-218-990-81	SHORT CHIP	0		
R6057	1-218-990-81	SHORT CHIP	0		
R6058	1-218-990-81	SHORT CHIP	0		
R6059	1-218-990-81	SHORT CHIP	0		
R6060	1-218-990-81	SHORT CHIP	0		
R6061	1-218-990-81	SHORT CHIP	0		
R6062	1-218-990-81	SHORT CHIP	0		
R6063	1-218-990-81	SHORT CHIP	0		
R6064	1-218-969-11	RES-CHIP	22K	5%	1/16W
< VIBRATOR >					
X1401	1-813-427-21	OSCILLATOR, CRYSTAL (89.010MHz)			
(NTSC: A1J/A1U/A1N)					
X1401	1-813-428-11	OSCILLATOR, CRYSTAL (74.250MHz)			
(PAL: A1E/A1P/A1C)					
X4201	1-795-921-11	VIBRATOR, CRYSTAL (24.576MHz)			
X4801	1-781-620-21	VIBRATOR, CERAMIC (48MHz)			
X5201	1-795-602-11	VIBRATOR, CRYSTAL (32.768kHz)			
X5202	1-795-244-11	VIBRATOR, CERAMIC (10MHz)			
X5401	1-795-920-11	VIBRATOR, CRYSTAL (20MHz)			
X5601	1-795-920-11	VIBRATOR, CRYSTAL (20MHz)			
X5801	1-795-920-11	VIBRATOR, CRYSTAL (20MHz)			
A-1110-901-A UU-001 BOARD, COMPLETE *****					
< CAPACITOR >					
C9801	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C9802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C9803	1-164-505-11	CERAMIC CHIP	2.2uF		16V
< CONNECTOR >					
CN9802	1-691-356-21	CONNECTOR, FFC/FPC (ZIF) 18P			
CN9803	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
< DIODE >					
D9801	6-501-154-01	DIODE NSCW455AT-TY5 (EVF BACKLIGHT)			
< IC >					
IC9801	8-759-581-11	IC NJM2125F (TE2)			
< COIL >					
L9801	1-414-771-91	INDUCTOR	10uH		
< TRANSISTOR >					
Q9801	8-729-054-48	TRANSISTOR	UP04601008S0		
Q9802	8-729-054-48	TRANSISTOR	UP04601008S0		
< RESISTOR >					
R9801	1-216-864-11	SHORT CHIP	0		
R9802	1-208-935-11	METAL CHIP	100K	0.5%	1/16W

UU-001 **WW-001** **XD-002**

Ref. No.	Part No.	Description			
R9803	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R9804	1-218-956-11	RES-CHIP	1.8K	5%	1/16W
R9805	1-216-085-91	RES-CHIP	33K	5%	1/10W
R9806	1-211-983-11	METAL CHIP	39	0.5%	1/10W
A-1110-902-A WW-001 BOARD, COMPLETE					

< CAPACITOR >					
C301	1-164-943-81	CERAMIC CHIP	0.01uF	10%	16V
C302	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
< CONNECTOR >					
CN301	1-816-645-31	FFC/FPC CONNECTOR (LIF) 14P			
CN0302	1-817-827-11	MEMORY STICK DUO CONNECTOR			
< DIODE >					
D301	6-500-604-01	DIODE CL-270HR-C-TSL (MS ACCESS)			
< IC >					
IC301	6-706-965-01	IC TK70529SCL-G			
< TRANSISTOR >					
Q301	6-550-119-01	TRANSISTOR	DTC144EMT2L		
< RESISTOR >					
R301	1-218-949-11	RES-CHIP	470	5%	1/16W
R302	1-218-953-11	RES-CHIP	1K	5%	1/16W
R303	1-216-864-11	SHORT CHIP	0		
R304	1-216-864-11	SHORT CHIP	0		
R305	1-216-864-11	SHORT CHIP	0		
R306	1-216-864-11	SHORT CHIP	0		
R307	1-216-295-91	SHORT CHIP	0		
A-7078-395-A XD-002 BOARD, COMPLETE					

< CAPACITOR >					
C401	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C402	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C403	1-109-935-11	TANTAL. CHIP	4.7uF	20%	6.3V
C404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C407	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C408	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C410	1-104-919-11	TANTAL. CHIP	10uF	20%	25V
C413	1-110-618-11	ELECT	12uF	20%	63V
C414	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C415	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C416	1-110-618-11	ELECT	12uF	20%	63V
C417	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C418	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C419	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C420	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C421	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

Ref. No.	Part No.	Description			
C422	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C423	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
< CONNECTOR >					
CN401	1-766-343-21	CONNECTOR, FFC/FPC 13P			
< DIODE >					
D402	8-719-987-21	DIODE SB02-09CP-TB-E			
D403	8-719-158-49	DIODE RD12SB2			
D404	8-719-158-49	DIODE RD12SB2			
< IC >					
IC401	8-759-521-35	IC TL5001CD			
IC402	8-759-478-03	IC RN5RL50AA-TL			
< COIL >					
L400	1-412-058-11	INDUCTOR	10uH		
L401	1-416-906-11	INDUCTOR	33uH		
L402	1-414-405-11	INDUCTOR	150uH		
L403	1-414-854-11	INDUCTOR	1mH		
< TRANSISTOR >					
Q402	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q403	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q404	8-729-033-65	TRANSISTOR	2SJ204-T1B		
Q405	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q406	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q407	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q408	8-729-041-23	TRANSISTOR	NDS356AP		
Q409	8-729-117-32	TRANSISTOR	2SC4177-L6		
Q410	8-729-140-63	TRANSISTOR	2SA1611-M5M6		
Q411	8-729-042-92	TRANSISTOR	2SK1470-TD-E		
< RESISTOR >					
R402	1-218-970-11	RES-CHIP	27K	5%	1/16W
R403	1-218-970-11	RES-CHIP	27K	5%	1/16W
R404	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R405	1-218-978-11	RES-CHIP	120K	5%	1/16W
R406	1-218-978-11	RES-CHIP	120K	5%	1/16W
R407	1-218-981-11	RES-CHIP	220K	5%	1/16W
R409	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R410	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R411	1-218-985-11	RES-CHIP	470K	5%	1/16W
R412	1-218-965-11	RES-CHIP	10K	5%	1/16W
R413	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R414	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R415	1-218-977-11	RES-CHIP	100K	5%	1/16W
R416	1-218-973-11	RES-CHIP	47K	5%	1/16W
R417	1-218-941-81	RES-CHIP	100	5%	1/16W
R418	1-218-990-81	SHORT CHIP	0		
R420	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R421	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R422	1-208-905-11	METAL CHIP	5.6K	0.5%	1/16W
R423	1-208-683-11	METAL CHIP	1K	0.5%	1/16W

Ref. No.	Part No.	Description
	A-7078-396-A	XK-001 BOARD, COMPLETE *****
		< CONNECTOR >
CN001	1-785-946-21	CONNECTOR 3P < SWITCH >
S001	1-762-650-21	SWITCH, SLIDE (LOW CUT-INPUT1)
S002	1-762-650-21	SWITCH, SLIDE (LOW CUT-INPUT2)
	A-7078-393-A	XM-002 BOARD, COMPLETE *****
		< CAPACITOR >
C200	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C201	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C202	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C203	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C204	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C205	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C206	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C207	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C208	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C209	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C210	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C211	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C212	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C213	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C214	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C215	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C216	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V
C217	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V
C218	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V
C219	1-164-937-11	CERAMIC CHIP 0.001uF 10% 50V
C220	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C221	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C222	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C223	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C224	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C226	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C228	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C231	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C232	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C233	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C234	1-164-943-81	CERAMIC CHIP 0.01uF 10% 16V
C235	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C236	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C237	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C238	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C241	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C300	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C301	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C303	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C304	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C305	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C306	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V

Ref. No.	Part No.	Description
C307	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C308	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C309	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C310	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C311	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C312	1-128-996-11	ELECT CHIP 4.7uF 20% 50V
C313	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C314	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C315	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C316	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V
C317	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V
C318	1-125-926-91	TANTAL. CHIP 4.7uF 20% 6.3V
C319	1-164-937-11	CERAMIC CHIP 0.001uF 10% 50V
C320	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V
C321	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C322	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C323	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C326	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C328	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C331	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C334	1-164-156-11	CERAMIC CHIP 0.1uF 25V
		< CONNECTOR >
CN200	1-568-006-11	CONNECTOR, XLR TYPE 3P (INPUT1)
CN201	1-779-332-11	CONNECTOR, FFC/FPC 16P
CN202	1-785-946-21	CONNECTOR 3P
CN300	1-568-006-11	CONNECTOR, XLR TYPE 3P (INPUT2)
CN301	1-779-332-11	CONNECTOR, FFC/FPC 16P
		< DIODE >
D001	8-719-073-01	DIODE MA111-(K8).SO
D002	8-719-073-01	DIODE MA111-(K8).SO
D003	8-719-073-01	DIODE MA111-(K8).SO
D004	8-719-073-01	DIODE MA111-(K8).SO
D200	8-719-073-01	DIODE MA111-(K8).SO
D201	8-719-073-01	DIODE MA111-(K8).SO
D202	8-719-073-01	DIODE MA111-(K8).SO
D203	8-719-073-01	DIODE MA111-(K8).SO
		< IC >
IC200	8-759-111-56	IC uPC4572G2
IC201	8-759-111-56	IC uPC4572G2
IC203	8-759-075-66	IC TA75S01F
IC204	6-702-589-01	IC M52065FP-PG0J
IC205	8-759-111-56	IC uPC4572G2
IC300	8-759-111-56	IC uPC4572G2
IC301	8-759-111-56	IC uPC4572G2
IC303	8-759-075-66	IC TA75S01F
		< COIL >
L200	1-414-398-11	INDUCTOR 10uH
L202	1-414-398-11	INDUCTOR 10uH
L203	1-414-854-11	INDUCTOR 1mH
L300	1-414-398-11	INDUCTOR 10uH
L302	1-414-398-11	INDUCTOR 10uH
L303	1-414-854-11	INDUCTOR 1mH

Ref. No.	Part No.	Description			
		< RESISTOR >			
R200	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R201	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R202	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R203	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R204	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R205	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R206	1-216-019-00	RES-CHIP	56	5%	1/10W
R207	1-216-009-91	RES-CHIP	22	5%	1/10W
R208	1-216-295-91	SHORT CHIP	0		
R209	1-216-047-91	RES-CHIP	820	5%	1/10W
R210	1-216-047-91	RES-CHIP	820	5%	1/10W
R211	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R212	1-218-977-11	RES-CHIP	100K	5%	1/16W
R213	1-218-977-11	RES-CHIP	100K	5%	1/16W
R214	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R215	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R216	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R219	1-208-884-81	METAL CHIP	750	0.5%	1/16W
R220	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R221	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R222	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R223	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R224	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R225	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R226	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R227	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R228	1-216-296-11	SHORT CHIP	0		
R232	1-218-965-11	RES-CHIP	10K	5%	1/16W
R233	1-218-971-11	RES-CHIP	33K	5%	1/16W
R234	1-218-965-11	RES-CHIP	10K	5%	1/16W
R235	1-216-295-91	SHORT CHIP	0		
R236	1-216-295-91	SHORT CHIP	0		
R237	1-218-971-11	RES-CHIP	33K	5%	1/16W
R239	1-218-977-11	RES-CHIP	100K	5%	1/16W
R240	1-218-977-11	RES-CHIP	100K	5%	1/16W
R241	1-218-973-11	RES-CHIP	47K	5%	1/16W
R242	1-218-975-11	RES-CHIP	68K	5%	1/16W
R243	1-218-965-11	RES-CHIP	10K	5%	1/16W
R244	1-218-973-11	RES-CHIP	47K	5%	1/16W
R245	1-218-973-11	RES-CHIP	47K	5%	1/16W
R300	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R301	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R302	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R303	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R304	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R305	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R306	1-216-019-00	RES-CHIP	56	5%	1/10W
R307	1-216-009-91	RES-CHIP	22	5%	1/10W
R308	1-216-295-91	SHORT CHIP	0		
R309	1-216-047-91	RES-CHIP	820	5%	1/10W
R310	1-216-047-91	RES-CHIP	820	5%	1/10W
R311	1-220-222-11	METAL CHIP	4.7K	5%	1/2W
R312	1-218-977-11	RES-CHIP	100K	5%	1/16W
R313	1-218-977-11	RES-CHIP	100K	5%	1/16W
R314	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R315	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W

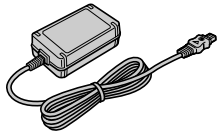
Ref. No.	Part No.	Description			
R316	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R319	1-208-884-81	METAL CHIP	750	0.5%	1/16W
R320	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R321	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R322	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R323	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R324	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R325	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R326	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R327	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R330	1-218-973-11	RES-CHIP	47K	5%	1/16W
R331	1-218-975-11	RES-CHIP	68K	5%	1/16W
R332	1-218-965-11	RES-CHIP	10K	5%	1/16W
R333	1-216-295-91	SHORT CHIP	0		
R338	1-216-295-91	SHORT CHIP	0		
R339	1-218-977-11	RES-CHIP	100K	5%	1/16W
R340	1-218-977-11	RES-CHIP	100K	5%	1/16W
R341	1-216-296-11	SHORT CHIP	0		
A-7078-394-A XS-002 BOARD, COMPLETE *****					
		< CONNECTOR >			
CN100	1-766-343-21	CONNECTOR, FFC/FPC 13P			
CN101	1-779-332-11	CONNECTOR, FFC/FPC 16P			
CN102	1-779-332-11	CONNECTOR, FFC/FPC 16P			
CN103	1-779-806-21	CONNECTOR 8P			
		< RESISTOR >			
R101	1-218-990-81	SHORT CHIP	0		
R102	1-218-969-11	RES-CHIP	22K	5%	1/16W
R104	1-218-990-81	SHORT CHIP	0		
		< SWITCH >			
S100	1-571-640-11	SWITCH, SLIDE (+48V-INPUT1)			
S102	1-762-824-11	SWITCH, SLIDE (REC CH SELECT-INPUT1)			
S103	1-762-825-11	SWITCH, SLIDE (INPUT LEVEL-INPUT1)			
S104	1-762-825-11	SWITCH, SLIDE (INPUT LEVEL-INPUT2)			
S105	1-571-640-11	SWITCH, SLIDE (+48V-INPUT2)			
A-1110-903-A YY-001 BOARD, COMPLETE *****					
		< CAPACITOR >			
C9201	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
		< CONNECTOR >			
CN9201	1-794-410-11	CONNECTOR, FPC (ZIF) 27P			
CN9202	1-816-644-31	FFC/FPC CONNECTOR (LIF) 12P			
CN9204	1-816-654-31	FFC/FPC CONNECTOR (LIF) 6P			
CN9205	1-815-333-11	CONNECTOR, FPC (ZIF) 33P			
CN9206	1-815-333-11	CONNECTOR, FPC (ZIF) 33P			
		< DIODE >			
D9202	8-719-422-64	DIODE MA8062-M			
D9203	6-500-289-01	DIODE MAZW082H0LS0			

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
		< RESISTOR >			
R9205	1-216-295-91	SHORT CHIP	0		
R9206	1-216-295-91	SHORT CHIP	0		
R9207	1-218-937-11	RES-CHIP	47	5%	1/16W
R9208	1-216-019-00	RES-CHIP	56	5%	1/10W
R9209	1-216-019-00	RES-CHIP	56	5%	1/10W
R9211	1-218-951-11	RES-CHIP	680	5%	1/16W

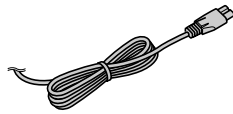
• E MODEL

Checking supplied accessories.

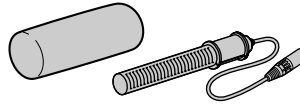
to J MODEL



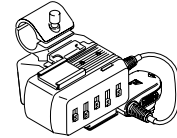
AC Adaptor (1)
(AC-L15A/L15B)
1-479-283-13



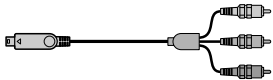
Power cord (1)
△ 1-782-476-51 (CH)
△ 1-790-107-42 (US, CND)
△ 1-823-946-12 (AEP, E)



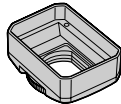
Wind Screen (1)
Microphone (1)
8-814-298-90



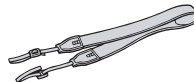
XLR adaptor (1)
A-1133-621-A



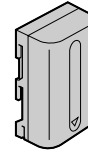
Component video cable (1)
1-829-414-21



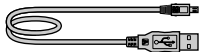
Lens hood with lens cover (1)
2-632-971-01
Use the lens hood to record under strong light, such as under the sun.



Shoulder Strap (1)
2-629-892-01



Rechargeable battery pack
NP-FM50 (1)
(not supplied)



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

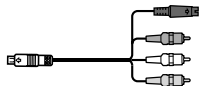


Wireless Remote Commander (1)
RMT-831
1-478-495-41
A button-type lithium battery is already installed.

Other accessories

- 2-639-667-11 MANUAL, INSTRUCTION (ENGLISH) (A1U/A1N)
- 2-639-667-21 MANUAL, INSTRUCTION (FRENCH) (A1U)
- 2-639-668-11 MANUAL, INSTRUCTION (ENGLISH) (A1E/A1P)
- 2-639-668-21 MANUAL, INSTRUCTION (FRENCH) (A1E)
- 2-639-668-31 MANUAL, INSTRUCTION (SPANISH) (A1E)

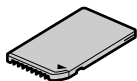
- 2-639-668-41 MANUAL, INSTRUCTION (ITALIAN) (A1E)
- 2-639-668-51 MANUAL, INSTRUCTION (GERMAN) (A1E)
- 2-639-668-61 MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (A1C)



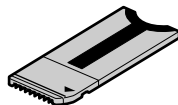
A/V connecting cable (1)
1-823-156-13



Conversion 2P adaptor (1)
△ 1-569-008-21 (E)



"Memory Stick Duo" 16MB (1)
(not supplied)

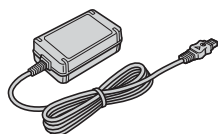


Memory Stick Duo adaptor (1)
(not supplied)

• Refer to page 5-1 for mark △.

● J MODEL

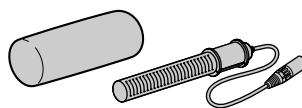
付属品



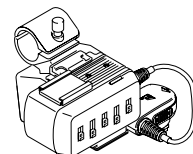
ACアダプター (1)
(AC-L15A/L15B)
△1-479-283-13



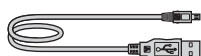
電源コード (1)
△ 1-790-732-71



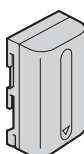
ウインドスクリーン (1)
マイク (1)
8-814-298-90



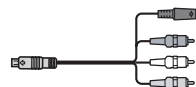
XLRアダプター (1)
A-1133-621-A



USBケーブル (1)
1-829-868-31



リチャージャブル
バッテリーパック (1)
NP-FM50

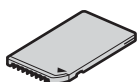


AV接続ケーブル (1)
1-823-156-13



ワイヤレスリモコン (1)
RMT-831
1-478-495-41

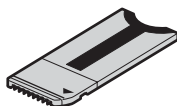
ボタン型リチウム電池があらかじめ
取り付けられています。



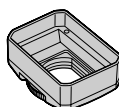
“メモリスティック デュオ”
16MB (1)



コンポーネント
ビデオケーブル (1)
1-829-414-21



メモリスティック デュオ
アダプター (1)



レンズカバー付きフード (1)
2-632-971-01
晴れた日の屋外など強い光源の
ある場所で取り付けます。

図面
番号

部品コード 部品名
2-639-667-01 取扱説明書

● △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 EEPROM 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
- XLR ADAPTOR ADJUSTMENTS

• SERVICE MODE

- ADJUSTMENT REMOTE COMMANDER (RM-95)
- ADJUSTMENT REMOTE COMMANDER (NEW LANC JIG)
- DATA PROCESS
- SERVICE MODE

SECTION 6 ADJUSTMENTS

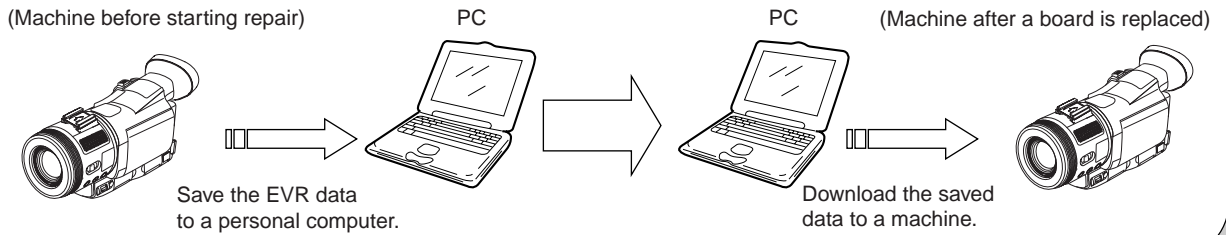
1. Before starting adjustments

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

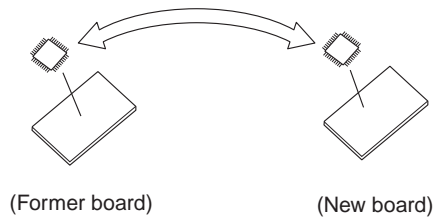
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



Procedure 2

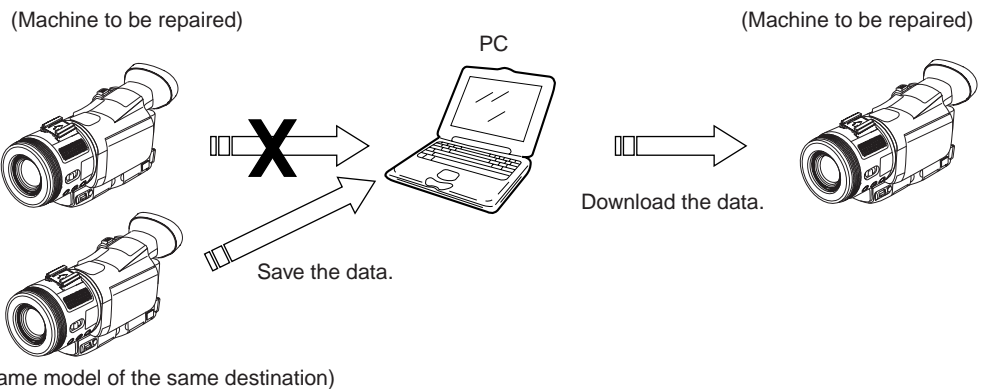
Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.



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	LCD block LCD9001 (LCD panel, Touch panel)	LCD block D9001 (Back light LED)	EVF block LCD9002 (LCD panel)	PS12300 block (Control switch block (zoom lever))	Mechanism deck (Note 1)	Mechanism deck M9001 (Drum assembly) (Note 1)	Mechanism deck MD block	EE-001 board IC6601 (CMOS imager)	EE-001 board SE6801, 6802 (YAW, PITCH sensor)	TT-001 board IC1403, X1401 (Clock generator)	TT-001 board IC1201 (CDS, A/D converter)	TT-001 board IC2201 (Base band signal process, etc)	TT-001 board IC4001 (DV signal process)	TT-001 board IC4401 (Video IN/OUT)	TT-001 board IC2401 (Component out AMP)	NN-001 board IC7601 (REC/PB AMP)	NN-001 board IC7801 (EVF driver)	NN-001 board IC7802 (Timing generator (EVF))	LUU-001 board D9801 (Back light (EVF))	PP-001 board IC8701 (LCD driver, Timing generator (LCD))	
Initialization of EEPROM data	Initialization of A, B, D, 1A, 1B page data																						
	Initialization of 8, C, 13, 18, 1C page data																						
	Initialization of 9, 1D page data																						
	Initialization of F, 63 to 6F page data																						
Camera	Origin oscillation check												●										
	HALL adj.	●																					
	MR adj.	●																					
	Image sensor output 2ch matching adj.									●			●										
	Flange back and zoom lever center adj.	●			●																		
	F No. & ND light quality standard data input	●																					
	Mechanical shutter adj.	●																					
	Auto white balance standard data input																						
	LV standard data input																						
	Auto white balance adj.																						
	Color reproduction adj.																						
	PCGM standard data input																						
	MAX GAIN adj.																						
	White defect Adj.																						
Black defect Adj.	●																						
Steadyshot check												●											
EVF	VCO adj.																						
	Back light adj.																			●	●		
	PSIG level adj.																			●	●		
	V-COM level adj.																			●	●		
	RGB AMP adj.																			●	●		
	Contrast adj.																			●	●		
LCD	White balance adj.				●																		
	LCD automatic adj.														●								●
	V-COM adj.		●																				●
	Transmissive mode white balance adj.		●	●																			●
	Reflective mode white balance adj.		●																				●
Mechanism	Touch panel adj.		●																				●
Mechanism	Tape path adj.							●	●	●													
System control	Node unique 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						Supporting
		EE-001 board	TT-001 board	NN-001 board	UU-001 board	PP-001 board	TT-001 board	
Initialization of EEPROM data	Initialization of A, B, D, 1A, 1B page data		●				●	
	Initialization of 8, C, 13, 18, 1C page data		●				●	
	Initialization of 9, 1D page data		●				●	
	Initialization of F, 63 to 6F page data		●				●	
Camera	Origin oscillation check		●					
	HALL adj.		●				●	●
	MR adj.		●				●	●
	Image sensor output 2ch matching adj.	●	●				●	●
	Flange back and zoom lever center adj.	●	●				●	●
	F No. & ND light quality standard data input		●				●	●
	Mechanical shutter adj.		●				●	●
	Auto white balance standard data input	●	●				●	●
	LV standard data input	●	●				●	●
	Auto white balance adj.	●	●				●	●
	Color reproduction adj.	●	●				●	●
	PCGM standard data input	●	●				●	●
	MAX GAIN adj.	●	●				●	●
	White defect Adj.	●	●				●	●
	Black defect Adj.	●	●				●	●
Steadyshot check	●	●				●	●	
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.		●			●	●	●
Mechanism	Touch panel adj.		●			●	●	
Mechanism	Tape path adj.		●			●	●	
System control	Node unique 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 “Image Sensor Output 2ch Matching Adjustment”.

Note 3: IC4802 (HI/DS control with built-in flash memory) on the TT-001 board cannot be replaced.

1-2. List of service tools

- Oscilloscope
- Digital voltmeter
- Audio generator
- Color monitor
- Frequency counter
- Audio attenuator
- Vectorscope
- Audio level meter


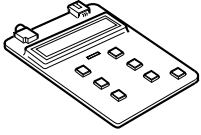

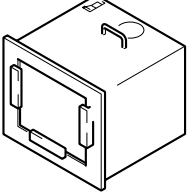
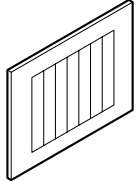
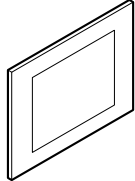
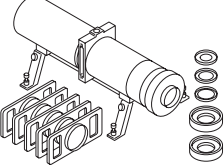
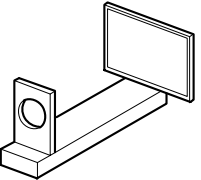
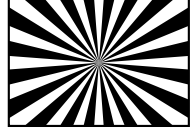
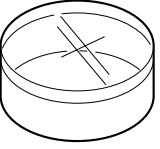
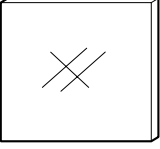
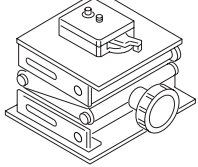
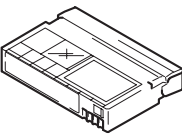
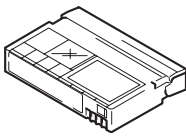
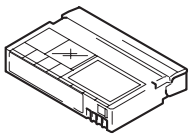
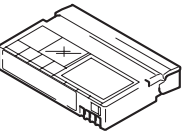
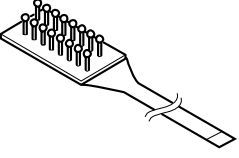
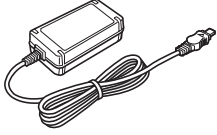
<p>J-1</p>  <p>Adjustment remote commander (RM-95) J-6082-053-B</p>	<p>J-2</p>  <p>Adjustment remote commander (NEW LANC JIG) J-6082-565-A</p>	<p>J-3</p>  <p>LANC cable J-6082-442-A</p>
<p>J-4</p>  <p>Pattern box PTB-450 J-6082-200-A or Small pattern box PTB-1450 J-6082-557-A</p>	<p>J-5</p>  <p>Color bar chart For PTB-450: J-6020-250-A For PTB-1450: J-6082-559-A</p>	<p>J-6</p>  <p>Clear chart For PTB-450: J-6080-621-A For PTB-1450: J-6082-560-A</p>
<p>J-7</p>  <p>Minipattern box J-6082-353-B</p>	<p>J-8</p>  <p>Flange back adjustment jig J-6082-563-A</p>	<p>J-9</p>  <p>Siemens star chart J-6080-875-A</p>
<p>J-10</p>  <p>Filter for color temperature correction (C14) J-6080-058-A</p>	<p>J-11</p>  <p>ND filter 1.0 J-6080-808-A ND filter 0.4 J-6080-806-A ND filter 0.1 J-6080-807-A</p>	<p>J-12</p>  <p>Camera table J-6082-384-A</p>
<p>J-13</p>  <p>Tracking standard (XH2-1) 8-967-997-01</p>	<p>J-14</p>  <p>SW/OL standard (XH2-3) 8-967-997-11</p>	<p>J-15</p>  <p>Audio operation check for NTSC (XH5-3) 8-967-997-51 for PAL (XH5-3P) 8-967-997-55</p>
<p>J-16</p>  <p>System operation check for NTSC (XH5-5) 8-967-997-61 for PAL (XH5-5P) 8-967-997-66</p>	<p>J-17</p>  <p>CPC-7 jig J-6082-382-A</p>	<p>J-18</p>  <p>AC power adaptor 1-479-283-13</p>

Fig. 6-1-1 (1)


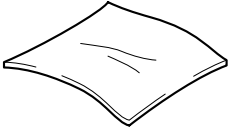
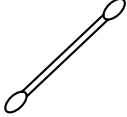
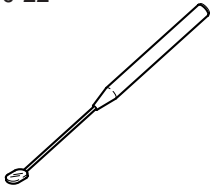
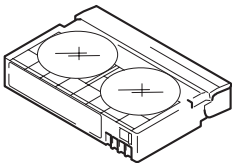
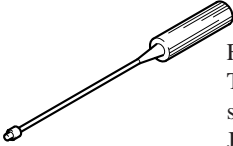

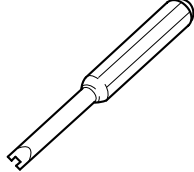
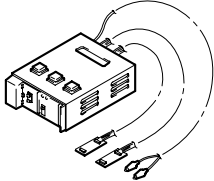
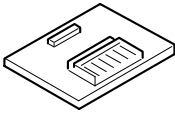
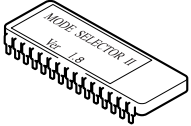
<p>J-19</p>  <p>Cleaning fluid Y-2031-001-0</p>	<p>J-20</p>  <p>Wiping cloth 7-741-900-53</p>	<p>J-21</p>  <p>Super-fine applicator (made by Nippon Applicator (P752D))</p>
<p>J-22</p>  <p>Mirror (small oval type) J-6080-840-A</p>	<p>J-23</p>  <p>Mini DV torque cassette J-6082-360-A</p>	<p>J-24</p>  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

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.

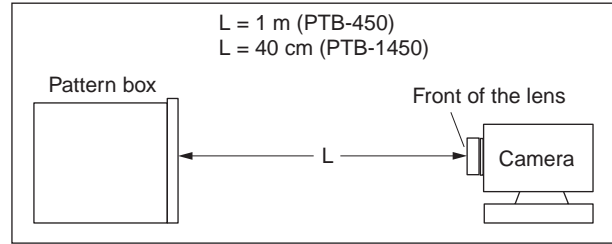


Fig. 6-1-2

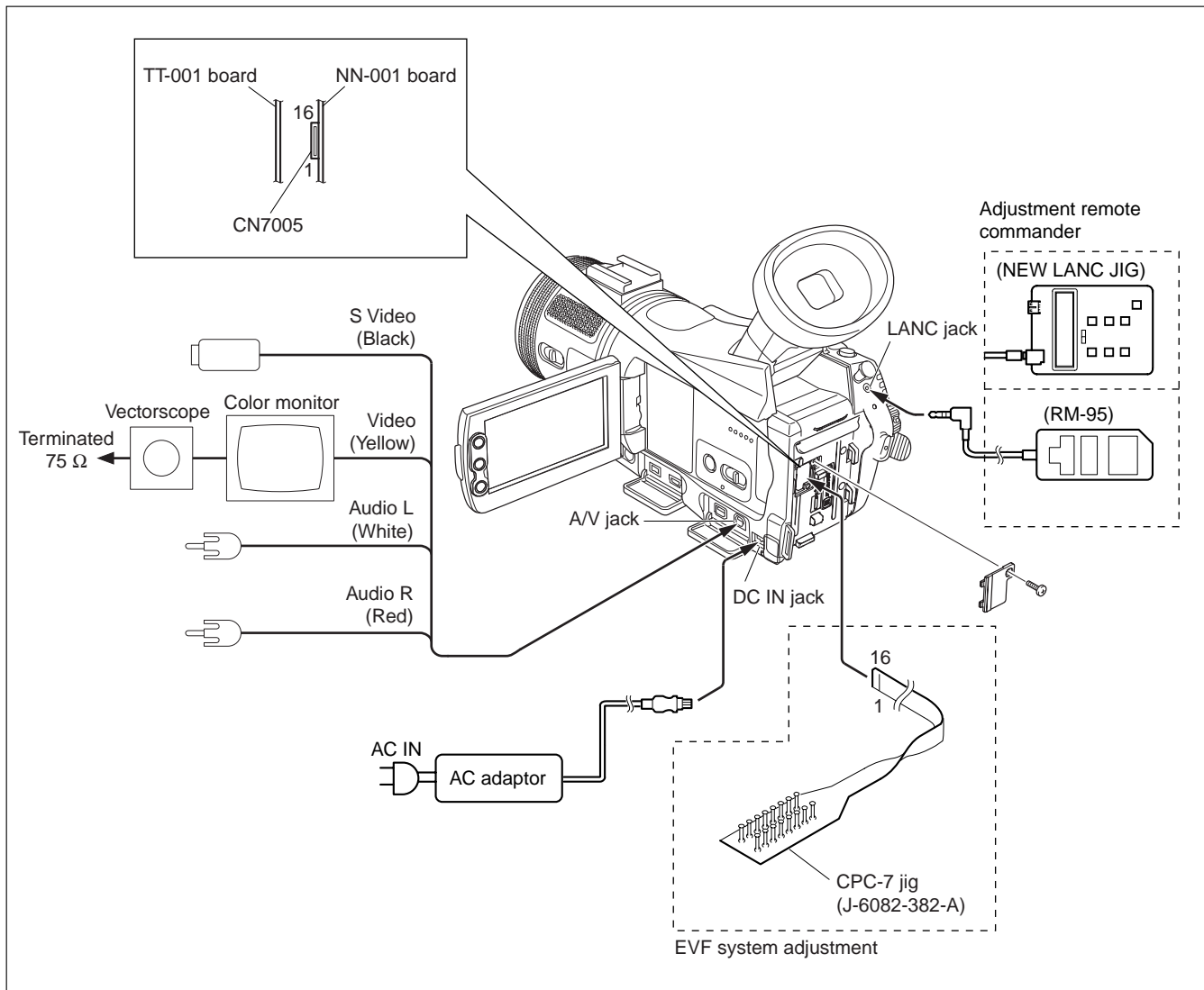


Fig. 6-1-3

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 (PS12300 block)	CAMERA-TAPE	12. CINEMATONE γ	OFF
2. BACK LIGHT (CK12300 block)	OFF	13. CINEFRAME	OFF
3. FOCUS switch (CK12300 block)	MANUAL	14. WB SHIFT (MENU setting)	0
4. EXPOSE switch (CK12300 block)	AUTO	15. COLOR SLOWS (MENU setting)	OFF
5. NIGHT SHOT switch (FP-245 flexible)	OFF	16. DIGITAL ZOOM (MENU setting)	OFF
6. PROGRAM AE (MENU setting)	AUTO	17. STEADY SHOT (MENU setting)	OFF
7. SPOT METER (MENU setting)	AUTO	18. DIGITAL EFFECT (MENU setting)	OFF
8. WHITE BAL. (MENU setting)	AUTO	19. PICTURE EFFECT (MENU setting)	OFF
9. SHUTTR SPEED	AUTO	20. DEMO MODE (MENU setting)	OFF
10. AE SHIFT (MENU setting)	0	21. REC FORMAT (MENU setting)	HDV 1080i
11. CAMERA COLOR	CENTER		

2. Order of Adjustments

Basically carry out adjustments in the order given.

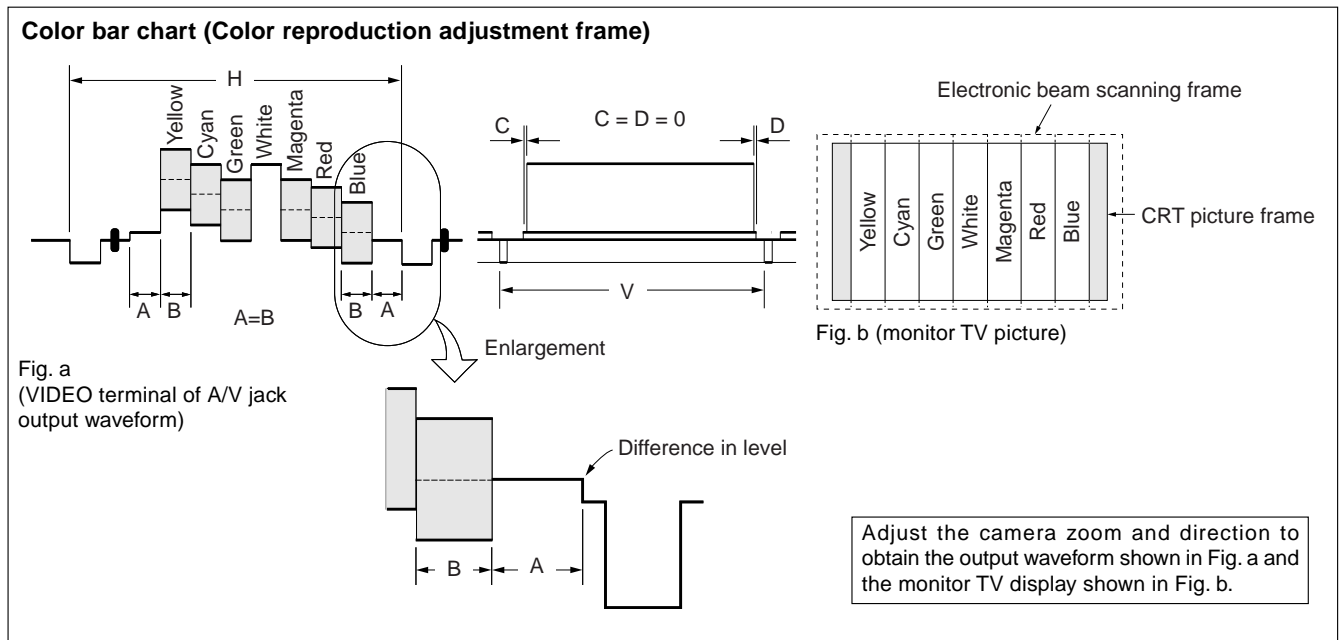


Fig. 6-1-4

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 (All white frame)
Remove the color bar chart from pattern box and insert a clear chart in its place. (Then adjust the zoom to TELE side from WIDE side, and stop it when the black frame of the chart disappears.)
- 3) Chart for flange back adjustment
Join together a piece of white A0 size paper (1189mm × 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.

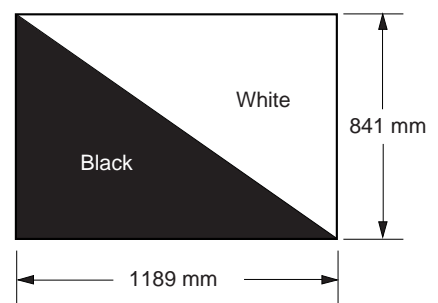


Fig. 6-1-5

1-2. INITIALIZATION OF EEPROM DATA

Note 1: Pages used for the EEPROM consists of 26 pages. There are 8, 9, A to D, F, 13, 18, 1A to 1D, 63 to 6F pages.

Note 2: When reading or writing the 13, 18, 1A, 1B, 1C or 1D page data, select page: 0, address: 10, and set data: 01, then select 3, 8, A, B, C or D page. The 13, 18, 1A, 1B, 1C or 1D page can be chosen by this data setting. After reading or writing, reset the data or page: 0, address: 10 to "00".

Note 3: When reading or writing the 63 to 6F page data, select page: 0, address: 10, and set data: 06, then select 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, or F page. The 63, 64, 65, 66, 67, 68, 69, 6A, 6B, 6C, 6D, 6E, or 6F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

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
- 2) Touch panel adjustment

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 80: NTSC model 81: 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 8F	Fixed data-1 (Initialized data)		
90	E8	EB	Touch panel adj.
91	10	0D	
92	D4	C7	
93	18	25	
94 to F0	Fixed data-1 (Initialized data)		
F1	Fixed data-2		
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 13	Fixed data-1 (Initialized data)		
14	Fixed data-2		
15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17 to 27	Fixed data-1 (Initialized data)		
28	Fixed data-2		
29			
2A			
2B			
2C			
2D			
2E			
2F			
30			
31 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, C, 13, 18, 1C Page Data

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

Note1: If “Initialization of Pages 8, C, 13, 18, 1C” is executed, all data on pages 8, C, 13, 18, 1C are initialized. (Only an individual page cannot be initialized)

Note2 : If the 8, C, 13, 18, 1C page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of 8, C, 13, 18, 1C 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	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

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, C, 18, 1C Page Data”

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

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

If the 8, C, 13, 18, 1C 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 8, C, set data: 00 to page: 0, address: 10, and then select pages 8, C.
- 3) If modification of data on pages 13, 18, 1C, set data: 01 to page: 0, address: 10, and then select pages 3, 8, C.
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: 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) 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, C, 13, 18, 1C page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	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, 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	Fixed data-2		
01 to 11	Fixed data-1 (Initialized data)		
12	Fixed data-2		
13 to 78	Fixed data-1 (Initialized data)		
79	Fixed data-2		
7A			
7B			
7C, 7D	Fixed data-1 (Initialized data)		
7E	Fixed data-2		
7F to FF	Fixed data-1 (Initialized data)		

4. 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	2A	–	S VIDEO OUT chroma level adj.
27	2A	–	(NTSC)/Fixed data-1 (PAL)
28 to 31	Fixed data-1 (Initialized data)		
32	53	53	Back light adj. (EVF)
33	9D	9D	
34	80	80	VCO adj. (EVF)
35	80	80	
36	A9	A9	V-COM level adj. (EVF)
37	8E	8E	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 41	Fixed data-1 (Initialized data)		
42	Fixed data-2		
43, 44	Fixed data-1 (Initialized data)		
45	6C	6C	LCD automatic adj. (VCO)
46	78	78	
47	B7	B7	V-COM adj.
48 to 4A	Fixed data-1 (Initialized data)		
4B	80	80	Transmissive mode white balance adj.
4C	80	80	
4D	66	66	LCD automatic adj. (Contrast)
4E to 6F	Fixed data-1 (Initialized data)		
70	99	99	Reflective mode white balance adj.
71	8E	8E	
72 to 76	Fixed data-1 (Initialized data)		
77	38	38	Contrast adj. (EVF)
78 to 81	Fixed data-1 (Initialized data)		
82	75	75	COMPONENT OUT Y level adj.
83	36	36	COMPONENT OUT Pr level adj.

Address	Initial value		Remark
	NTSC	PAL	
84	36	36	COMPONENT OUT Pb level adj.
85	–	70	Fixed data-1 (NTSC)/ S VIDEO OUT Y level adj. (PAL)
86	–	2A	Fixed data-1 (NTSC)/ S VIDEO OUT chroma level adj. (PAL)
87	–	2A	
88 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	

5. 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	
DA			Fixed data-1 (Initialized data)
DB			Fixed data-2
DC			
DD to FF			Fixed data-1 (Initialized 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-2
0D			
0E			
0F			
10			
11			
12			
13			
14 to 23			Fixed data-1 (Initialized data)
24			Fixed data-2
25			
26 to B8			Fixed data-1 (Initialized data)
B9			Fixed data-2
BA to C0			Fixed data-1 (Initialized data)
C1			Fixed data-2
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0 to D7			Fixed data-1 (Initialized data)
D8			Fixed data-2
D9			

6. 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 08			Fixed data-1 (Initialized data)
09			Fixed data-2
0A			Fixed data-1 (Initialized data)
0B			Fixed data-2
0C to 12			Fixed data-1 (Initialized data)
13			Fixed data-2
14			Fixed data-1 (Initialized data)
15			Fixed data-2
16, 17			Fixed data-1 (Initialized data)
18			Fixed data-2
19			
1A			
1B			
1C			
1D			Fixed data-1 (Initialized data)
1E			Fixed data-2
1F to 76			Fixed data-1 (Initialized data)
77			Fixed data-2
78			Fixed data-1 (Initialized data)
79			Fixed data-2
7A to FF			Fixed data-1 (Initialized data)

7. 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 5F			Fixed data-1 (Initialized data)
60			Fixed data-2
61			
62 to 68			Fixed data-1 (Initialized data)
69			Fixed data-2
6A			
6B 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)

1-2-2. Initialization of 9, 1D Page Data

1. Initializing of 9, 1D Page Data

Note1: If “Initialization of Pages 9, 1D” is executed, all data on pages 9, 1D are initialized. (Only an individual page cannot be initialized)

Note2 : If the 9, 1D page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of 9, 1D page data

Adjustment Page	9
Adjustment Address	10 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	00	
4	3	80	04	Press PAUSE (Write) button.
5	3	80		Check the data changes to “14”.
6				Perform “Modification of 9, 1D Page Data”

2. Modification of 9, 1D Page Data

If the 9, 1D 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 9, set data: 00 to page: 0, address: 10, and then select pages 9.
- 3) If modification of data on pages 1D, set data: 01 to page: 0, address: 10, and then select pages D.

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: 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 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 9, 1D page data:

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

3. 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 9, 1D Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of 9, 1D Page Data”)

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

4. 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 9, 1D Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of 9, 1D Page Data”)

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

1-2-3. Initialization of F, 63 to 6F Page Data

1. Initializing of F, 63 to 6F Page Data

Note 1: If “Initialization of Pages F, 63 to 6F” is executed, all data on pages F, 63 to 6F are initialized. (Only an individual page cannot be initialized)

Note 2: If the F, 63 to 6F page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of F, 63 to 6F page data
- 2) Camera system adjustment

Adjustment Page	F
Adjustment Address	00 to FF
Adjustment Page	63
Adjustment Address	00 to FF
Adjustment Page	64
Adjustment Address	00 to FF
Adjustment Page	65
Adjustment Address	00 to FF
Adjustment Page	66
Adjustment Address	00 to FF
Adjustment Page	67
Adjustment Address	00 to FF
Adjustment Page	68
Adjustment Address	00 to FF
Adjustment Page	69
Adjustment Address	00 to FF
Adjustment Page	6A
Adjustment Address	00 to FF
Adjustment Page	6B
Adjustment Address	00 to FF
Adjustment Page	6C
Adjustment Address	00 to FF
Adjustment Page	6D
Adjustment Address	00 to FF
Adjustment Page	6E
Adjustment Address	00 to FF
Adjustment Page	6F
Adjustment Address	10 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. 2D: NTSC model 2F: PAL model
4	6	03	02	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 F, 63 to 6F Page Data”

2. Modification of F, 63 to 6F Page Data

If the F, 63 to 6F 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 F, set data: 00 to page: 0, address: 10, and then select pages F.
- 3) If modification of data on pages 63 to 6F, set data: 06 to page: 0, address: 10, and then select pages 3 to F.
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: 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 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 F, 63 to 6F page data:

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

3. F 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 F, 63 to 6F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of F, 63 to 6F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-2
01 to 14			Fixed data-1 (Initialized data)
15			Fixed data-2
16			
17 to 8B			Fixed data-1 (Initialized data)
8C			Fixed data-2
8D to 8F			Fixed data-1 (Initialized data)
90			Fixed data-2
91			Fixed data-1 (Initialized data)
92			Fixed data-2
93 to 95			Fixed data-1 (Initialized data)
96			Fixed data-2
97			Fixed data-1 (Initialized data)
98			Fixed data-2
99			Fixed data-1 (Initialized data)
9A			Fixed data-2
9B to A2			Fixed data-1 (Initialized data)
A3			Fixed data-2
A4 to B0			Fixed data-1 (Initialized data)
B1			Fixed data-2
B2 to BA			Fixed data-1 (Initialized data)
BB			Fixed data-2
BC, BD			Fixed data-1 (Initialized data)
BE			Fixed data-2
BF to FF			Fixed data-1 (Initialized data)

4. 63 Page table

Note 1: If reading/writing data on pages 63, set data: 06 to page: 0, address: 10, and then select pages: 3. By this data setting, the pages 63 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 F, 63 to 6F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of F, 63 to 6F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 2C			Fixed data-1 (Initialized data)
2D			Fixed data-2
2E to 3B			Fixed data-1 (Initialized data)
3C			Fixed data-2
3D to 54			Fixed data-1 (Initialized data)
55			Fixed data-2
56 to 5C			Fixed data-1 (Initialized data)
5D			Fixed data-2
5E to 6D			Fixed data-1 (Initialized data)
6E			Fixed data-2
6F to 86			Fixed data-1 (Initialized data)
87			Fixed data-2
88 to 8D			Fixed data-1 (Initialized data)
8E			Fixed data-2
8F to 9A			Fixed data-1 (Initialized data)
9B			Fixed data-2
9C			
9D, 9E			Fixed data-1 (Initialized data)
9F			Fixed data-2
A0 to A6			Fixed data-1 (Initialized data)
A7			Fixed data-2
A8 to FF			Fixed data-1 (Initialized data)

5. 64 Page table

Note 1: If reading/writing data on pages 64, set data: 06 to page: 0, address: 10, and then select pages: 4. By this data setting, the pages 64 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 F, 63 to 6F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of F, 63 to 6F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 1F	Fixed data-1 (Initialized data)		
20	Fixed data-2		
21			
22			
23			
24			
25			
26			
27			
28 to 2F	Fixed data-1 (Initialized data)		
30	Fixed data-2		
31			
32			
33			
34			
35			
36			
37			
38			
39			
3A			
3B			
3C			
3D			
3E			
3F			
40 to 49	Fixed data-1 (Initialized data)		
4A	Fixed data-2		
4B			
4C			
4D			
4E			
4F			
50			
51			
52			
53			
54			
55			
56			
57			

Address	Initial value		Remark
	NTSC	PAL	
58	Fixed data-2		
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			Fixed data-2
6A			
6B			
6C			
6D			
6E			
6F			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
7A			
7B			
7C, 7D	Fixed data-1 (Initialized data)		
7E	Fixed data-2		
7F			
80			
81			
82			
83			
84			
85			
86			
87			

64 Page table

Address	Initial value		Remark
	NTSC	PAL	
88			
89			
8A			
8B			
8C			
8D			
8E			
8F			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			Fixed data-2
9A			
9B			
9C			
9D			
9E			
9F			
A0			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA to CF			Fixed data-1 (Initialized data)
D0			
D1			
D2			Fixed data-2
D3			
D4 to D7			Fixed data-1 (Initialized data)
D8			
D9			Fixed data-2
DA to E7			Fixed data-1 (Initialized data)
E8			Fixed data-2
E9 to EC			Fixed data-1 (Initialized data)
ED			Fixed data-2
EE to FD			Fixed data-1 (Initialized data)

Address	Initial value		Remark
	NTSC	PAL	
FE			
FF			Fixed data-2

6. 65 Page table

Note 1: If reading/writing data on pages 65 set data: 06 to page: 0, address: 10, and then select pages: 5. By this data setting, the pages 65 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 F, 63 to 6F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of F, 63 to 6F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-2
01 to 04			Fixed data-1 (Initialized data)
05			Fixed data-2
06 to 08			Fixed data-1 (Initialized data)
09			Fixed data-2
0A to 1F			Fixed data-1 (Initialized data)
20			Fixed data-2
21			Fixed data-1 (Initialized data)
22			Fixed data-2
23 to 2F			Fixed data-1 (Initialized data)
30			Fixed data-2
31			Fixed data-2
32 to 37			Fixed data-1 (Initialized data)
38			Fixed data-2
39 to 3D			Fixed data-1 (Initialized data)
3E			Fixed data-2
3F			Fixed data-2
40 to 48			Fixed data-1 (Initialized data)
49			Fixed data-2
4A, 4B			Fixed data-1 (Initialized data)
4C			Fixed data-2
4D			Fixed data-2
4E to 5E			Fixed data-1 (Initialized data)
5F			Fixed data-2
60 to 73			Fixed data-1 (Initialized data)
74			Fixed data-2
75			Fixed data-1 (Initialized data)
76			Fixed data-2
77 to 81			Fixed data-1 (Initialized data)
82			Fixed data-2
83			Fixed data-2
84			Fixed data-2
85 to 87			Fixed data-1 (Initialized data)
88			Fixed data-2
89			Fixed data-1 (Initialized data)
8A			Fixed data-2
8B			Fixed data-2
8C			Fixed data-2
8D			Fixed data-2
8E			Fixed data-2
8F			Fixed data-2

Address	Initial value		Remark
	NTSC	PAL	
90			Fixed data-2
91, 92			Fixed data-1 (Initialized data)
93			Fixed data-2
94 to BC			Fixed data-1 (Initialized data)
BD			Fixed data-2
BE, BF			Fixed data-1 (Initialized data)
C0			Fixed data-2
C1, C2			Fixed data-1 (Initialized data)
C3			Fixed data-2
C4 to DA			Fixed data-1 (Initialized data)
DB			Fixed data-2
DC			Fixed data-2
DD			Fixed data-2
DE			Fixed data-2
DF			Fixed data-1 (Initialized data)
E0			Fixed data-2
E1			Fixed data-2
E2 to E7			Fixed data-1 (Initialized data)
E8			Fixed data-2
E9			Fixed data-2
EA			Fixed data-2
EB			Fixed data-1 (Initialized data)
EC			Fixed data-2
ED			Fixed data-2
EE			Fixed data-2
EF to F5			Fixed data-1 (Initialized data)
F6			Fixed data-2
F7 to F9			Fixed data-1 (Initialized data)
FA			Fixed data-2
FB			Fixed data-2
FC			Fixed data-2
FD			Fixed data-2
FE, FF			Fixed data-1 (Initialized data)

7. 66 Page table

Note 1: If reading/writing data on pages 66, set data: 06 to page: 0, address: 10, and then select pages: 6. By this data setting, the pages 66 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			Fixed data-1 (Initialized data)
10			Fixed data-2
11			
12			
13			
14			
15 to 17			Fixed data-1 (Initialized data)
18			Fixed data-2
19			
1A to 21			Fixed data-1 (Initialized data)
22			Fixed data-2
23			
24			
25			
26			
27			
28 to 2F			Fixed data-1 (Initialized data)
30			Fixed data-2
31			
32 to 39			Fixed data-1 (Initialized data)
3A			Fixed data-2
3B			
3C			
3D			
3E			
3F			
40 to 47			Fixed data-1 (Initialized data)
48			Fixed data-2
49			
4A to 51			Fixed data-1 (Initialized data)
52			Fixed data-2
53			
54			
55			
56			
57			Fixed data-1 (Initialized data)
58 to 5F			
60			Fixed data-2
61			
62 to 69			Fixed data-1 (Initialized data)
6A			Fixed data-2

Address	Initial value		Remark
	NTSC	PAL	
6B			Fixed data-2
6C			
6D			
6E			
6F			
70 to 77			Fixed data-1 (Initialized data)
78			Fixed data-2
79			
7A to 81			Fixed data-1 (Initialized data)
82			Fixed data-2
83			
84			
85			
86			
87			
88 to B7			Fixed data-1 (Initialized data)
B8			Fixed data-2
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0 to DF			Fixed data-1 (Initialized data)
E0			Fixed data-2
E1			
E2			
E3			
E4			
E5			
E6			
E7			
E8			
E9			
EA			
EB			Fixed data-1 (Initialized data)
EC			
ED			Fixed data-2
EE			
EF			Fixed data-1 (Initialized data)
F0			
F1			Fixed data-1 (Initialized data)
F2			Fixed data-2
F3			Fixed data-1 (Initialized data)
F4			Fixed data-2
F5			Fixed data-1 (Initialized data)
F6			Fixed data-2

66 Page table

Address	Initial value		Remark
	NTSC	PAL	
F7			Fixed data-1 (Initialized data)
F8			Fixed data-2
F9			Fixed data-1 (Initialized data)
FA			Fixed data-2
FB			Fixed data-1 (Initialized data)
FC			Fixed data-2
FD			Fixed data-1 (Initialized data)
FE			Fixed data-2
FF			Fixed data-1 (Initialized data)

8. 67 Page table

Note 1: If reading/writing data on pages 67, set data: 06 to page: 0, address: 10, and then select pages: 7. By this data setting, the pages 67 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to AF			Fixed data-1 (Initialized data)
B0			Fixed data-2
B1			Fixed data-1 (Initialized data)
B2			Fixed data-2
B3 to C0			Fixed data-1 (Initialized data)
C1			Fixed data-2
C2 to C6			Fixed data-1 (Initialized data)
C7			Fixed data-2
C8 to FF			Fixed data-1 (Initialized data)

9. 68 Page table

Note 1: If reading/writing data on pages 68, set data: 06 to page: 0, address: 10, and then select pages: 8. By this data setting, the pages 68 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

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

10. 69 Page table

Note 1: If reading/writing data on pages 69 set data: 06 to page: 0, address: 10, and then select pages: 9. By this data setting, the pages 69 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 02			Fixed data-1 (Initialized data)
03			Fixed data-2
04 to FF			Fixed data-1 (Initialized data)

11. 6A Page table

Note 1: If reading/writing data on pages 6A, set data: 06 to page: 0, address: 10, and then select pages: A. By this data setting, the pages 6A 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 07			Fixed data-1 (Initialized data)
08			Fixed data-2
09			
0A			
0B to 0E			Fixed data-1 (Initialized data)
0F			Fixed data-2
10 to 18			Fixed data-1 (Initialized data)
19			Fixed data-2
1A to 2F			Fixed data-1 (Initialized data)
30			Fixed data-2
31			
32 to 35			Fixed data-1 (Initialized data)
36			Fixed data-2
37			
38 to 42			Fixed data-1 (Initialized data)
43			Fixed data-2
44 to 8D			Fixed data-1 (Initialized data)
8E			Fixed data-2
8F to BE			Fixed data-1 (Initialized data)
BF			Fixed data-2
C0 to FF			Fixed data-1 (Initialized data)

12. 6B Page table

Note 1: If reading/writing data on pages 6B, set data: 06 to page: 0, address: 10, and then select pages: B. By this data setting, the pages 6B 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 0D			Fixed data-1 (Initialized data)
0E			Fixed data-2
0F to 13			Fixed data-1 (Initialized data)
14	00	00	Emergency memory address (Camera section)
15	00	00	
16	00	00	
17	00	00	
18 to 38			Fixed data-1 (Initialized data)
39			Fixed data-2
3A			Fixed data-1 (Initialized data)
3B			Fixed data-2
3C			Fixed data-1 (Initialized data)
3D			Fixed data-2
3E			Fixed data-1 (Initialized data)
3F			Fixed data-2
40 to 50			Fixed data-1 (Initialized data)
51			Fixed data-2
52 to 59			Fixed data-1 (Initialized data)
5A			Fixed data-2
5B			
5C to 84			Fixed data-1 (Initialized data)
85			Fixed data-2
86 to 99			Fixed data-1 (Initialized data)
9A			Fixed data-2
9B			
9C to 9F			Fixed data-1 (Initialized data)
A0			Fixed data-2
A1 to A4			Fixed data-1 (Initialized data)
A5			Fixed data-2
A6 to BA			Fixed data-1 (Initialized data)
BB			Fixed data-2
BC to C7			Fixed data-1 (Initialized data)
C8			Fixed data-2
C9			
CA			Fixed data-1 (Initialized data)
CB			Fixed data-2
CC			
CD to FF			Fixed data-1 (Initialized data)

13. 6C Page table

Note 1: If reading/writing data on pages 6C, set data: 06 to page: 0, address: 10, and then select pages: C. By this data setting, the pages 6C 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 1B			Fixed data-1 (Initialized data)
1C			Fixed data-2
1D			
1E			
1F			Fixed data-1 (Initialized data)
20			Fixed data-2
21			
22			
23 to 3C			Fixed data-1 (Initialized data)
3D			Fixed data-2
3E			
3F to 73			Fixed data-1 (Initialized data)
74			Fixed data-2
75			
76			
77			
78			
79			
7A			
7B			
7C to AC			Fixed data-1 (Initialized data)
AD			Fixed data-2
AE			
AF			
B0			
B1			
B2			
B3			
B4			
B5			
B6 to BB			Fixed data-1 (Initialized data)
BC			Fixed data-2
BD			
BE			
BF to C4			Fixed data-1 (Initialized data)
C5			Fixed data-2
C6			
C7 to FF			Fixed data-1 (Initialized data) 6 F

14. 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 36			Fixed data-1 (Initialized data)
37			Fixed data-2
38 to 3F			Fixed data-1 (Initialized data)
40			Fixed data-2
41			Fixed data-1 (Initialized data)
42			Fixed data-2
43			Fixed data-1 (Initialized data)
44			Fixed data-2
45			
46			Fixed data-1 (Initialized data)
47			Fixed data-2
48			Fixed data-1 (Initialized data)
49			Fixed data-2
4A			
4B			
4C			Fixed data-1 (Initialized data)
4D			Fixed data-2
4E			
4F to 70			Fixed data-1 (Initialized data)
71			Fixed data-2
72 to 88			Fixed data-1 (Initialized data)
89			Fixed data-2
8A			
8B to AE			Fixed data-1 (Initialized data)
AF			Fixed data-2
B0 to E2			Fixed data-1 (Initialized data)
E3			Fixed data-2
E4 to FF			Fixed data-1 (Initialized data)

15. 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00	1C	1C	AWB standard data input
01	30	30	
02	05	05	
03	90	90	
04	1C	1C	
05	30	30	
06	05	05	
07	90	90	
08	1C	1C	
09	30	30	
0A	05	05	
0B	90	90	
0C	1C	1C	
0D	30	30	
0E	05	05	
0F	90	90	
10	11	11	AWB adj.
11	30	30	
12	09	09	
13	A0	A0	
14	11	11	
15	30	30	
16	09	09	
17	A0	A0	
18	11	11	
19	30	30	
1A	09	09	
1B	A0	A0	
1C	11	11	Color reproduction adj.
1D	30	30	
1E	09	09	
1F	A0	A0	
20	F4	F4	
21	F4	F4	
22	27	27	
23	24	24	
24	E8	E8	
25	E6	E6	
26	22	22	
27	27	27	

Address	Initial value		Remark
	NTSC	PAL	
28	F4	F4	Color reproduction adj.
29	F4	F4	
2A	27	27	
2B	24	24	
2C	E8	E8	
2D	E6	E6	
2E	22	22	
2F	27	27	
30	F4	F4	
31	F4	F4	
32	27	27	
33	24	24	
34	E8	E8	
35	E6	E6	
36	22	22	
37	27	27	
38	F4	F4	
39	F4	F4	
3A	27	27	
3B	24	24	
3C	E8	E8	
3D	E6	E6	
3E	22	22	
3F	27	27	
40 to 5F	Fixed data-1 (Initialized data)		Fixed data-2
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F			
70			
71			
72			
73			
74			
75			
76			

6E Page table

Address	Initial value		Remark
	NTSC	PAL	
77			Fixed data-2
78			Fixed data-1 (Initialized data)
79			Fixed data-2
7A			
7B			
7C			
7D			
7E			
7F			
80 to FF			Fixed data-1 (Initialized data)

16. 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 F, 63 to 6F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of F, 63 to 6F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10			Fixed data-1 (Initialized data)
11	80	80	Flange back and zoom key center adj.
12			Fixed data-1 (Initialized data)
13	55	55	HALL adj.
14	70	70	
15	56	56	
16	78	78	
17	19	19	
18	28	28	
19	D8	D8	
1A	28	28	
1B	D8	D8	F No. and ND light quality standard data input
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	LV standard data input
26	00	00	
27	00	00	Max gain adj.
28	00	00	
29	00	00	Fixed data-1 (Initialized data)
2A	33	33	
2B	80	80	PCGM standard data input
2C	A0	A0	
2D			
2E	20	20	
2F	00	00	
30	00	00	
31	00	00	
32	00	00	
33	00	00	
34	00	00	
35	00	00	
36	20	20	

6F Page table

Address	Initial value		Remark
	NTSC	PAL	
37	00	00	PCGM standard data input
38	00	00	
39	00	00	
3A	00	00	
3B	00	00	
3C	00	00	
3D	00	00	
3E	20	20	
3F	00	00	
40 to 47	Fixed data-1 (Initialized data)		
48	11	11	Flange back and zoom lever center adj.
49	80	80	
4A	53	53	
4B	EE	EE	
4C	23	23	
4D	67	67	
4E	00	00	
4F	00	00	
50	00	00	
51	00	00	
52	7F	7F	
53	19	19	
54	00	00	
55	32	32	
56	00	00	
57	06	06	
58	00	00	MR adj./Flange back and zoom lever center adj.
59	Fixed data-1 (Initialized data)		
5A	80	80	MR adj.
5B	80	80	
5C	80	80	
5D	80	80	
5E	40	40	
5F	C0	C0	
60	40	40	
61	C0	C0	
62	40	40	
63	C0	C0	
64	40	40	
65	C0	C0	
66 to 71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73	Fixed data-2		
74, 75	Fixed data-1 (Initialized data)		
76	60	4D	Mechanical shutter adj.
77	00	00	

Address	Initial value		Remark	
	NTSC	PAL		
78	45	38	Mechanical shutter adj.	
79	00	00		
7A	38	30		
7B	00	00		
7C	30	28		
7D	00	00		
7E	28	20		
7F	00	00		
80	40	40		
81	50	50		
82	50	50		
83	50	50		
84	30	30		
85	1E	1E		
86	80	80		
87	80	80		
88	80	80		
89	80	80		
8A	80	80		
8B	80	80		
8C to B7	Fixed data-1 (Initialized data)			
B8	00	00		Image sensor output 2ch matching adj.
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		
CD	00	00		
CE	00	00		
CF	00	00		
D0	00	00		
D1	00	00		
D2	00	00		

6F Page table

Address	Initial value		Remark
	NTSC	PAL	
D3	00	00	Image sensor output 2ch matching adj.
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	
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	
F4	00	00	
F5	00	00	
F6	00	00	
F7 to FB	Fixed data-1 (Initialized data)		
FC	2C	2C	AWB adj.
FD	C0	C0	
FE	59	59	
FF	00	00	

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-001 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	Pin ⑤ of IC1403 on TT-001 board
Measuring Instrument	Frequency counter
Specified value	f = 44505000 ± 895 Hz (NTSC) f = 37125000 ± 745 Hz (PAL)

Switch setting

1) POWER CAMERA-TAPE mode

Checking method:

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

TT-001 BOARD (SIDE A)

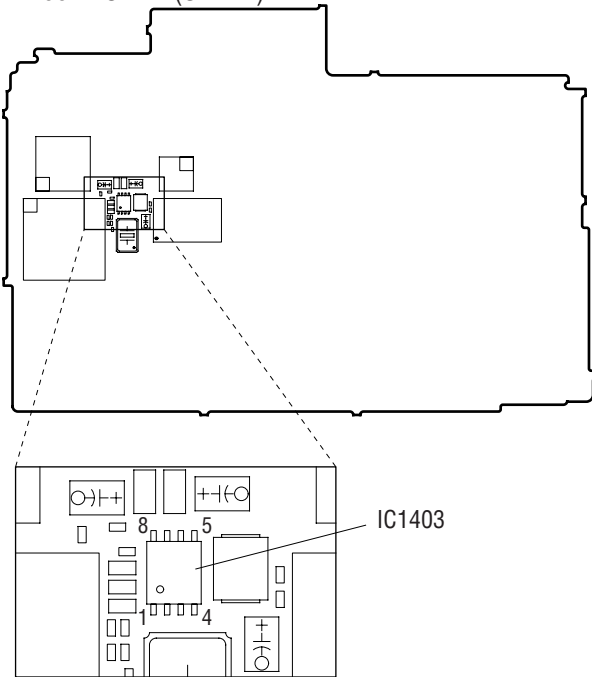


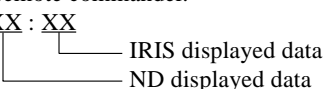
Fig. 6-1-6

2. 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	Displayed data of page: 1 (Note 1)
Measuring Instrument	Adjusting remote commander
Adjustment Page	6F
Adjustment Address	13 to 1B
Specified value 1	D6 to DA
Specified value 2	26 to 2A
Specified value 3	D6 to DA
Specified value 4	26 to 2A

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

1 : XX : XX


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".

Switch setting

1) POWER CAMERA-TAPE mode

Adjusting method:

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

Note 3: The adjustment data will be automatically input to page: 6F, address: 13 to 1B.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	
2	6	01	01	Press PAUSE (Write) button.
3	6	01	03	Press PAUSE (Write) button.
4	1			Check that the IRIS displayed data (Note 1) satisfied the specified value 1.
5	6	01	01	Press PAUSE (Write) button.
6	1			Check that the IRIS displayed data (Note 1) satisfied the specified value 2.
7	6	01	6B	Press PAUSE (Write) button.
8	6	01	69	Press PAUSE (Write) button.
9	1			Check that the ND displayed data (Note 1) satisfied the specified value 3.
10	6	01	6B	Press PAUSE (Write) button.
11	1			Check that the ND displayed data (Note 1) satisfied the specified value 4.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	03	00	
3	0	01	00	

3. 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	58, 5A to 65
Specified value 1	40 to C0
Specified value 2	03 to 78
Specified value 3	88 to FD

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-TAPE 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	0	10	06	
5	F (6F)	5A 5B 5C 5D		Check that the data of each address satisfied the specified value 1.
6	F (6F)	5E 60 62 64		Check that the data of each address satisfied the specified value 2.
7	F (6F)	5F 61 63 65		Check that the data of each address satisfied the specified value 3.
8	0	10	00	

Note 5: The adjustment data will be automatically input to page: 6F, address: 58, 5A to 65.

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	01	00	Press PAUSE (Write) button.
4	0	01	00	

4. Image Sensor Output 2ch Matching Adjustment



Correct the dispersion of between the left-right channels of CMOS imager.

Subject	Clear chart (All white) (Note 1)
Adjustment Page	6F
Adjustment Address	B8 to F6

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

Note 2: If reading/writing data on pages 6F, set data: 06 to page: 0, address: 10, and then select pages: 6. 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) ZOOM TELE end
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL

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	D6	02	
6	6	01	F5	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: B8 to F6.

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	6	D0	00	
5	6	D6	00	
6	0	01	00	

5. Flange Back and Zoom Lever Center Adjustment

RadarW (Using the minipattern box or flange back adjustment 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, 48 to 58
Specified value	Data of page: 6F, address: 57 is "00" to "09" Data of page: 6, address: 0C is "00"

Note 1: Dark Siemens star chart.

Note 2: Perform "HALL Adjustment", "MR Adjustment" and "Image Sensor Output 2ch Matching 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.

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) COLOR SLOW S (Menu setting) OFF
- 4) REC FORMAT (Menu setting) HDV1080i

Preparation (Using the minipattern box)

1) The minipattern box is installed as shown in the following figure.

Note 7: 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.

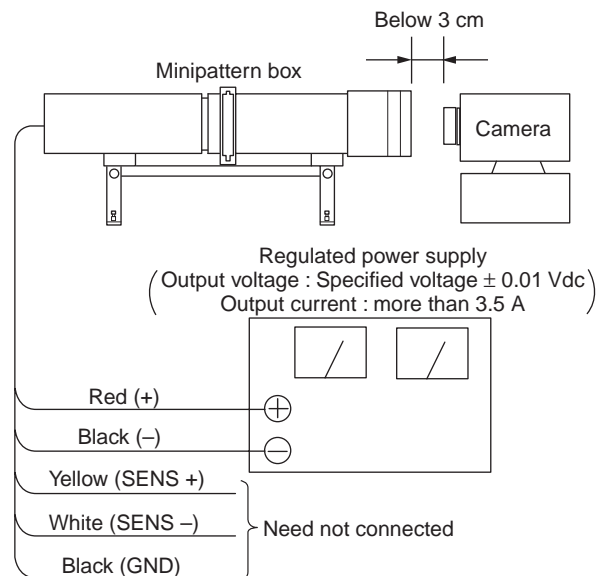


Fig. 6-1-7

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.

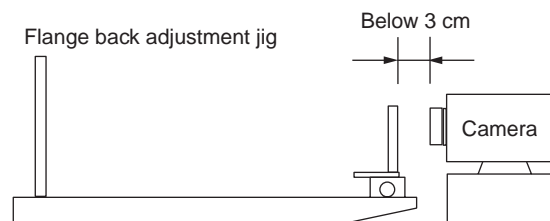


Fig. 6-1-8

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	4D	40	
3	6	64	04	
4	0	10	06	
5	B (6B)	0D		Set the bit value of bit3 is "1", and press PAUSE (Write) button. (Note 8)
6	0	10	00	
7	6	14	83	
8	6	01	13	Press PAUSE (Write) button.
9				Wait for 2 seconds.
10	6	01	27	Press PAUSE (Write) button. (Note 9)
11	6	02		Check the data changes to "01".
12	6	0C		Check the data is "00".
13	0	10	06	
14	F (6F)	57		Check the data is "00" to "09".
15	0	10	00	

Note 8: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

Note 9: The adjustment data will be automatically input to page: 6F, address: 11, 48 to 58.

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	01	00	Press PAUSE (Write) button.
4	6	14	00	
5	6	4D	00	
6	6	64	00	
7	0	10	06	
8	B (6B)	0D		Set the bit value of bit3 is "0", and press PAUSE (Write) button. (Note 8)
9	0	10	00	
10	0	01	00	
11				Perform "Flange Back Check".

6. Flange Back and Zoom Lever Center 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.

6-1. 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, 48 to 58
Specified value	Data of page: 6F, address: 57 is "00" to "09" Data of page: 6, address: 0C is "00"

Note 1: Perform "HALL Adjustment", "MR Adjustment" and "Image Sensor Output 2ch Matching 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.

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) COLOR SLOW S (Menu setting) OFF
- 4) 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	4D	40	
3	6	64	04	
4	0	10	06	
5	B (6B)	0D		Set the bit value of bit3 is "1", and press PAUSE (Write) button. (Note 6)
6	0	10	00	
7	6	14	83	
8	6	01	13	Press PAUSE (Write) button.
9				Wait for 2 seconds.
10	6	01	15	Press PAUSE (Write) button. (Note 7)
11	6	02		Check the data changes to "01".
12	6	0C		Check the data is "00".
13	0	10	06	
14	F (6F)	57		Check the data is "00" to "09".
15	0	10	00	

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

Note 7: The adjustment data will be automatically input to page: 6F, address: 11, 48 to 58.

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	01	00	Press PAUSE (Write) button.
4	6	14	00	
5	6	4D	00	
6	6	64	00	
7	0	10	06	
8	B (6B)	0D		Set the bit value of bit3 is "0", and press PAUSE (Write) button. (Note 6)
9	0	10	00	
10	0	01	00	
11				Perform "Flange Back Adjustment (2)".

6-2. 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	48 to 58
Specified value	Data of page: 6F, address: 57 is “00” to “09” 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) COLOR SLOW S (Menu setting) OFF
- 4) 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	4D	40	
3	6	64	04	
4	6	14	83	
5	6	01	13	Press PAUSE (Write) button.
6				Wait for 2 seconds.
7				Place ND filter on the lens so that the optimum image is obtain.
8	6	01	29	Press PAUSE (Write) button. (Note 5)
9	6	02		Check the data changes to “01”.
10	6	0C		Check the data is “00”.
11	0	10	06	
12	F (6F)	57		Check the data is “00” to “09”.
13	0	10	00	

Note 5: The adjustment data will be automatically input to page: 6F, address: 48 to 58.

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	01	00	Press PAUSE (Write) button.
4	6	14	00	
5	6	4D	00	
6	6	64	00	
7	0	01	00	
8				Perform “Flange Back Check”.

7. 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-TAPE mode
- 2) NIGHT SHOT 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	6	64	04	
5				Shoot the chart with the zoom TELE end.
6	6	2C	02	
7				Check that the lens is focused.
8				Shoot the chart with the zoom WIDE end.
9				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	
5	6	64	00	

8. 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-TAPE mode
- 2) NIGHT SHOT 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	6	64	04	
5				Shoot the Siemens star with the zoom TELE end.
6				Turn on the auto focus.
7	0	03	0F	
8	1			Check that the lens is focused. (Note 2)
9	6	21	10	
10				Shoot the Siemens star with the zoom WIDE end.
11				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	6	64	04	
6	0	03	00	

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



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

Adjustment Page	6F
Adjustment Address	1C to 29

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".

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: 6F, address: 1C to 29.

Note 2: Press the PAUSE (Write) button of the adjustment remote commander each time to set data.

Address	Data	
	NTSC	PAL
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

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

10. Mechanical Shutter Adjustment

Adjust the close time and loss time every F number of the mechanical shutter and the high-speed shutter correction value to correct the luminous exposure.

Adjustment Page	6F
Adjustment Address	76 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".

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: 6F, address: 76 to 8B.

Note 2: Press the PAUSE (Write) button of the adjustment remote commander each time to set data.

Address	Data	
	NTSC	PAL
76	96	7D
77	00	00
78	68	56
79	00	00
7A	50	43
7B	00	00
7C	40	35
7D	00	00
7E	33	2A
7F	00	83
80	54	53
81	5F	60
82	5D	5D
83	55	55
84	4A	49
85	20	20
86	80	80
87	80	80
88	80	80
89	80	80
8A	80	80
8B	80	80

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

11. Picture Frame Setting (All white frame)

Subject	Clear chart (All white frame) (1 m (PTB-450) or 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	Only the clear chart must be shot (entire screen is white).

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

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Setting method:

Order	Page	Address	Data	Procedure
1				Shoot a clear chart in the center of screen with the zoom at WIDE end.
2	6	90	70	
3	6	91	02	
4	6	92	00	
5	6	93	46	
6	6	01	79	Press PAUSE (Write) button.
7				Check that the entire screen is white.
8				In the following adjustment, if the “All white frame” is used, adjust the clear chart to this position.

Processing after Completing Adjustment:

Reset the data setting after the adjustment finished.

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	

12. Auto White Balance Standard Data Input

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

Subject	Clear chart (All white frame)
Adjustment Page	6E
Adjustment Address	00 to 0F

Note 1: Perform “F No. & ND Light Quality Standard Data Input” before this adjustment.

Note 2: 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 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “11. Picture Frame Setting (All White Frame)”
2	0	01	01	
3	6	4D	40	
4				Wait for 2 seconds.
5	6	01	43	Press PAUSE (Write) button.
6	6	01	41	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: 6E, address: 00 to 0F.

Processing after Completing Adjustment:

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

13. LV Standard Data Input **RadarW**

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

Subject	Clear chart (All white frame)
Measurement Point	Displayed data of page: 1 (Note 4)
Measuring Instrument	Adjusting remote commander
Adjustment Page	6F
Adjustment Address	2A, 2B
Specified Value	0FE0 to 1020

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.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

_____ Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “11. Picture Frame Setting (All White Frame)”
2	0	01	01	
3	6	4D	40	
4	6	C9	10	
5				Wait for 6 seconds.
6	6	01	0D	Press PAUSE (Write) button. (Note 5)
7	6	02		Check the data changes to “01”.
8	0	03	1E	
9	1			Check that the displayed data (Note 4) satisfied the specified value.

Note 5: The adjustment data will be automatically input to page: 6F, address: 2A, 2B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	4D	00	
2	6	C9	00	
3	6	01	00	Press PAUSE (Write) button.
4	0	03	00	
5	0	01	00	

14. Auto White Balance Adjustment **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 (All white frame)	
Filter	Filter C14 for color temperature correction	
Adjustment Page	6E	6F
Adjustment Address	10 to 1F	FC to FF

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 6E, 6F, set data: 06 to page: 0, address: 10, and then select pages: E, F. By this data setting, the pages 6E, 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “11. Picture Frame Setting (All White Frame)”
2				Place the C14 filter on the lens.
3	0	01	01	
4	6	4D	40	
5				Wait for 2 seconds.
6	0	10	06	
7	F (6F)	FC	2C	Press PAUSE (Write) button.
8	F (6F)	FD	C0	Press PAUSE (Write) button.
9	F (6F)	FE	59	Press PAUSE (Write) button.
10	F (6F)	FF	00	Press PAUSE (Write) button.
11	0	10	00	
12	6	01	47	Press PAUSE (Write) button.
13	6	01	45	Press PAUSE (Write) button. (Note 4)
14	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: 6E, address: 10 to 1F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	4D	00	
2	6	01	00	Press PAUSE (Write) button.
3	0	01	00	
4				Remove the C14 filter on the lens.

15. Picture Frame Setting (Color reproduction adjustment frame)

Subject	Color bar chart (Color reproduction adjustment frame) (1 m (PTB-450) or 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu Setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

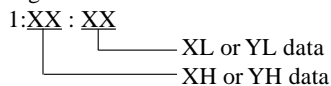
Setting method:

Order	Page	Address	Data	Procedure
1	6	4D	40	
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.



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	4D	40	
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	4D	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

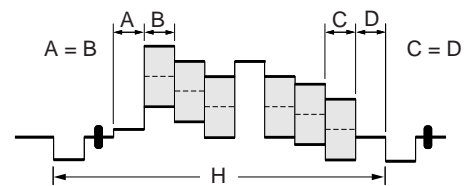


Fig. 6-1-9

2. Vertical period

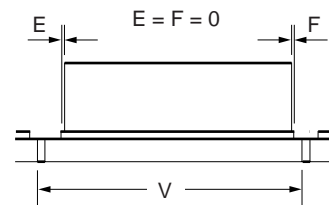


Fig. 6-1-10

Check on the monitor TV (Underscanned mode)

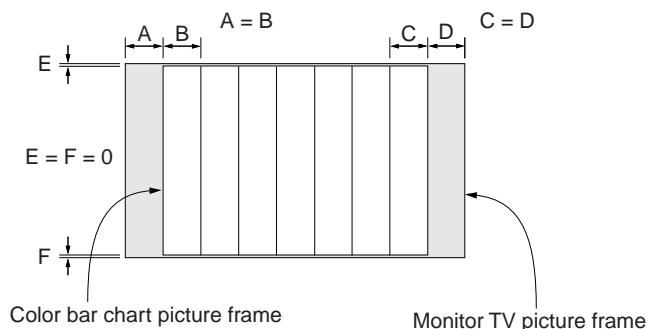


Fig. 6-1-11

16. Color Reproduction Adjustment **RadarW**

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	6E
Adjustment Address	20 to 3F

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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Color Reproduction Adjustment Frame". If not, Perform "15. Picture Frame Setting (Color Reproduction Adjustment Frame)".
2	0	01	01	
3	6	4D	40	
4	0	10	06	
*5	F (6F)	2C		(*NTSC model only) Note down the data.
*6	F (6F)	2C	B8	(*NTSC model only) Press PAUSE (Write) button.
7	6 (66)	11		Set the bit value of bit0 is "0", and press PAUSE (Write) button. (Note 3)
8	0	10	00	
9	F	50	36	Press PAUSE (Write) button.
10	6	1F	10	
11	6	15	92	
*12	6	14	84	(*NTSC model only)
13	6	C9	10	
14	6	9E	00	
15	6	9D	37	
16	6	01	61	Press PAUSE (Write) button. (Note 4)
17	6	02		Check the data changes to "01".

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

Note 4: The adjustment data will be automatically input to page: 6E, address: 20 to 3F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	10	06	
*2	F (6F)	2C		(*NTSC model only) Set data noted down at step 5, and press PAUSE (Write) button.
3	6 (66)	11		Set the bit value of bit0 is "1", and press PAUSE (Write) button. (Note 3)
4	0	10	00	
5	F	50	3E	Press PAUSE (Write) button.
6	6	01	00	Press PAUSE (Write) button.
*7	6	14	00	(*NTSC model only)
8	6	15	00	
9	6	1F	00	
10	6	4D	00	
11	6	9D	00	
12	6	C9	00	
13	0	01	00	

17. Color Reproduction Check (Indoor HD) **RadarW**

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 4)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	All color luminance points should settle within each color reproduction frame.	bit15 is "1"

Note 1: Perform "Color Reproduction 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.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

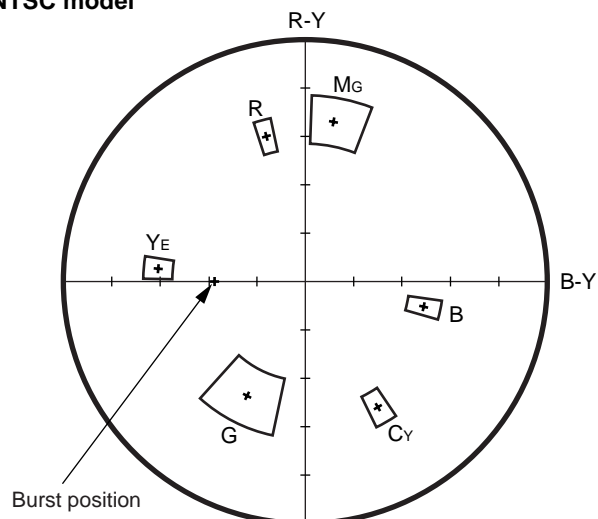
1:XX:XX

Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

NTSC model



PAL model

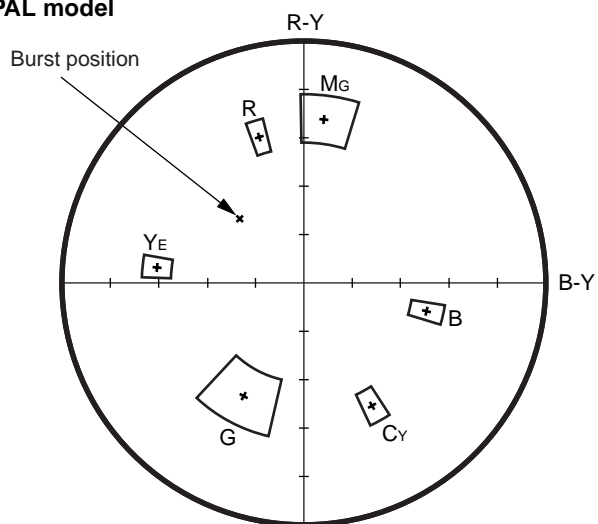


Fig. 6-1-12

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Color Reproduction Adjustment Frame". If not, Perform "15. Picture Frame Setting (Color Reproduction Adjustment Frame)".
2	0	01	01	
3	6	4D	40	
4	6	1F	10	
*5	0	10	06	(*NTSC model only)
*6	F (6F)	2C		(*NTSC model only) Note down the data.
*7	F (6F)	2C	B8	(*NTSC model only) Press PAUSE (Write) button.
*8	0	10	00	(*NTSC model only)
9	F	50	36	Press PAUSE (Write) button.
10	6	15	92	
*11	6	14	84	(*NTSC model only)
12	6	C9	10	
13	6	9E	00	
14	6	9D	37	
15	0	03	33	
16	6	01	4D	Press PAUSE (Write) button.
17	6	02		Check the data changes to "01".
18	1			Check that bit15 of the display data (Note 4) is "1". (Note 5)
19				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
20				Check that the each color luminance point is in each color reproduction frame.

Note 5: When bit15 of the display data is "1", the display data is "8000" to "FFFF".

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
*1	0	10	06	(*NTSC model only)
*2	F (6F)	2C		(*NTSC model only) Set data noted down at step 6, and press PAUSE (Write) button.
*3	0	10	00	(*NTSC model only)
4	F	50	3E	Press PAUSE (Write) button.
5	6	01	00	Press PAUSE (Write) button.
*6	6	14	00	(*NTSC model only)
7	6	15	00	
8	6	1F	00	
9	6	4D	00	
10	6	9D	00	
11	6	C9	00	
12	0	03	00	
13	0	01	00	

18. Color Reproduction Check (Indoor SD) **RadarW**

Subject	Color bar chart (Color reproduction adjustment frame)	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 4)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	All color luminance points should settle within each color reproduction frame.	bit15 is "1"

Note 1: Perform "Color Reproduction 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.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

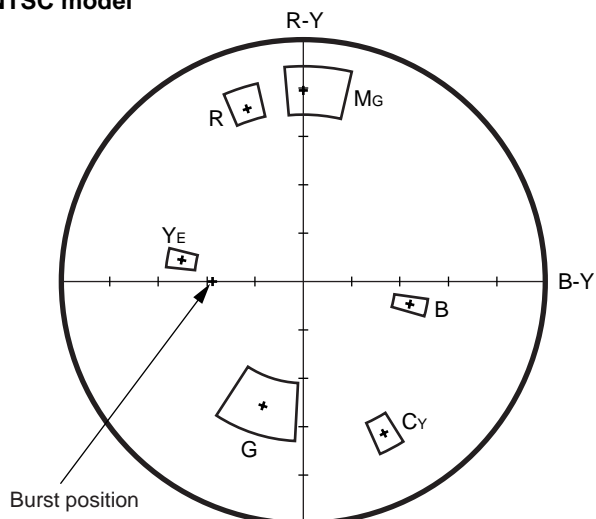
1:XX:XX

Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL

NTSC model



PAL model

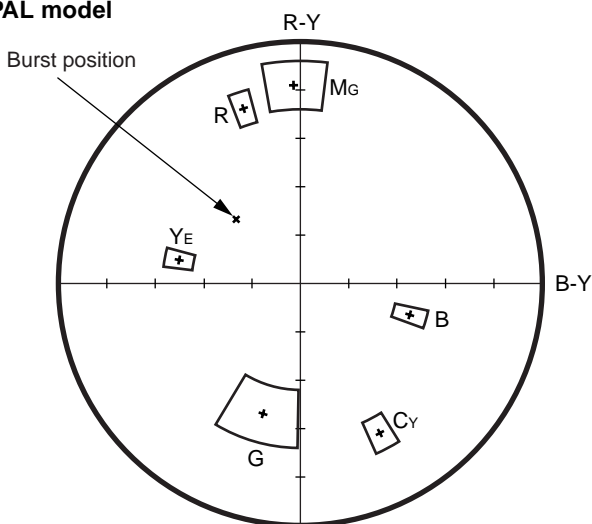


Fig. 6-1-13

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Color Reproduction Adjustment Frame". If not, Perform "15. Picture Frame Setting (Color Reproduction Adjustment Frame)".
2	0	01	01	
3	7	01	BE	
4	7	00	01	Press PAUSE (Write) button.
5	7	01	B3	
6	7	00	01	Press PAUSE (Write) button.
7	6	4D	40	
8	6	1F	10	
*9	0	10	06	(*NTSC model only)
*10	F (6F)	2C		(*NTSC model only) Note down the data.
*11	F (6F)	2C	B8	(*NTSC model only) Press PAUSE (Write) button.
*12	0	10	00	(*NTSC model only)
13	F	50	36	Press PAUSE (Write) button.
14	6	15	92	
*15	6	14	84	(*NTSC model only)
16	6	C9	10	
17	6	9E	00	
18	6	9D	37	
19	0	03	33	
20	6	01	4D	Press PAUSE (Write) button.
21	6	02		Check the data changes to "01".
22	1			Check that bit15 of the display data (Note 4) is "1". (Note 5)
23				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
24				Check that the each color luminance point is in each color reproduction frame.

Note 5: When bit15 of the display data is "1", the display data is "8000" to "FFFF".

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
*1	0	10	06	(*NTSC model only)
*2	F (6F)	2C		(*NTSC model only) Set data noted down at step 10, and press PAUSE (Write) button.
*3	0	10	00	(*NTSC model only)
4	F	50	3E	Press PAUSE (Write) button.
5	6	01	00	Press PAUSE (Write) button.
*6	6	14	00	(*NTSC model only)
7	6	15	00	
8	6	1F	00	
9	6	4D	00	
10	6	9D	00	
11	6	C9	00	
12	7	01	BD	
13	7	00	01	Press PAUSE (Write) button.
14	0	03	00	
15	0	01	00	

19. Color Reproduction Check (Outdoor HD) **RadarW**

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature correction	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 4)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	All color luminance points should settle within each color reproduction frame.	bit15 is "1"

Note 1: Perform "Color Reproduction 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.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

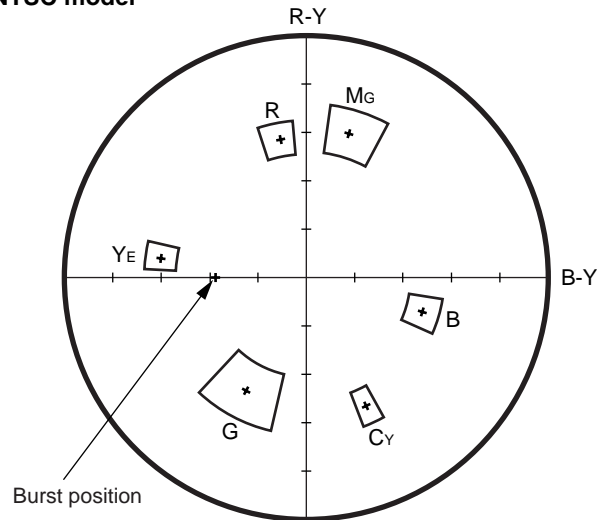
1:XX:XX

Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

NTSC model



PAL model

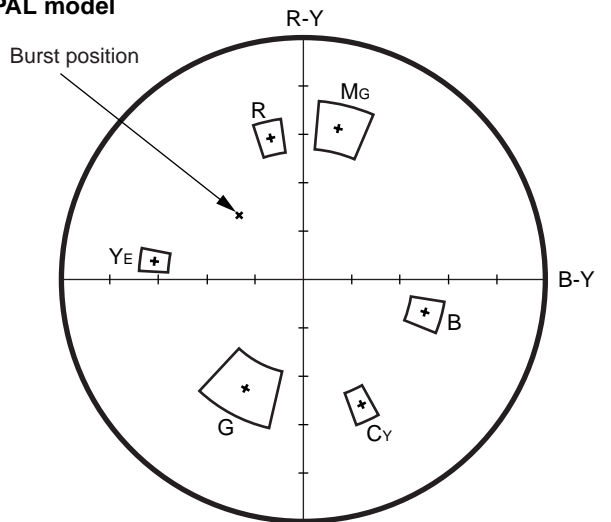


Fig. 6-1-14

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Color Reproduction Adjustment Frame". If not, Perform "15. Picture Frame Setting (Color Reproduction Adjustment Frame)".
2				Place the C14 filter on the lens.
3	0	01	01	
4	6	4D	40	
5	6	1F	10	
6	6	15		Set the following data 8B: NTSC model 92: PAL model
*7	0	10	06	(*NTSC model only)
*8	F (6F)	2C		(*NTSC model only) Note down the data.
*9	F (6F)	2C	A0	(*NTSC model only) Press PAUSE (Write) button.
*10	0	10	00	(*NTSC model only)
*11	6	14	83	(*NTSC model only)
12	6	C9	10	
13	6	9E	00	
14	6	9D	37	
15	0	03	33	
16	6	01	3D	Press PAUSE (Write) button.
17	6	02		Check the data changes to "01".
18	1			Check that bit15 of the display data (Note 4) is "1". (Note 5)
19				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
20				Check that the each color luminance point is in each color reproduction frame.

Note 5: When bit15 of the display data is "1", the display data is "8000" to "FFFF".

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
*1	0	10	06	(*NTSC model only)
*2	F (6F)	2C		(*NTSC model only) Set data noted down at step 8, and press PAUSE (Write) button.
*3	0	10	00	(*NTSC model only)
4	6	01	00	Press PAUSE (Write) button.
*5	6	14	00	(*NTSC model only)
6	6	15	00	
7	6	1F	00	
8	6	4D	00	
9	6	9D	00	
10	6	C9	00	
11	0	03	00	
12	0	01	00	
13				Remove the C14 filter on the lens.

20. Color Reproduction Check (Outdoor SD) **RadarW**

Subject	Color bar chart (Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature correction	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 4)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	All color luminance points should settle within each color reproduction frame.	bit15 is "1"

Note 1: Perform "Color Reproduction 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.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

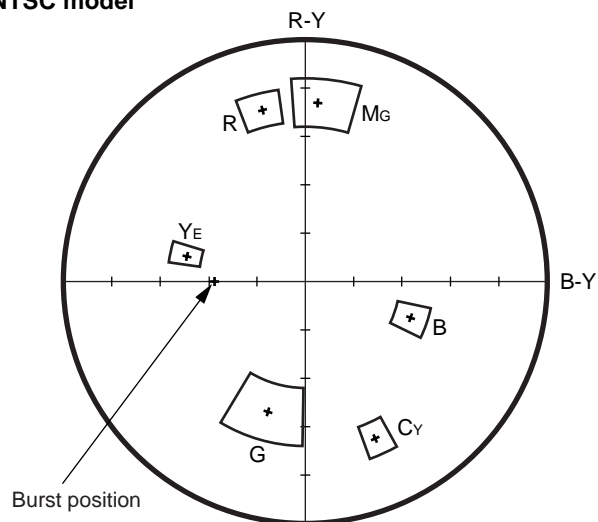
1:XX:XX

Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL

NTSC model



PAL model

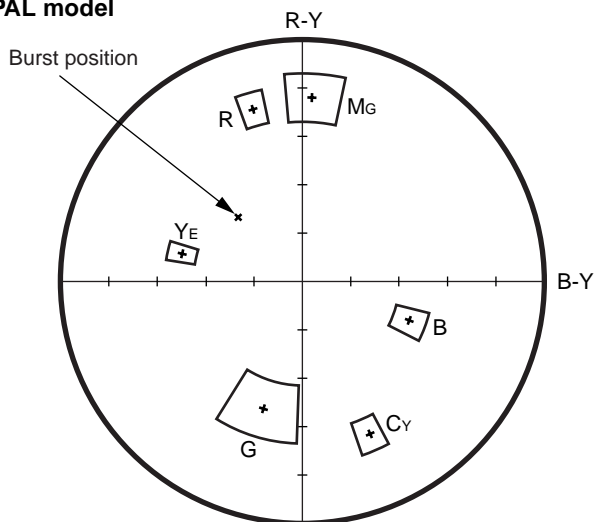


Fig. 6-1-15

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is "Color Reproduction Adjustment Frame". If not, Perform "15. Picture Frame Setting (Color Reproduction Adjustment Frame)".
2				Place the C14 filter on the lens.
3	0	01	01	
4	7	01	BE	
5	7	00	01	Press PAUSE (Write) button.
6	7	01	B3	
7	7	00	01	Press PAUSE (Write) button.
8	6	4D	40	
9	6	1F	10	
10	6	15		Set the following data 8B: NTSC model 92: PAL model
*11	0	10	06	(*NTSC model only)
*12	F (6F)	2C		(*NTSC model only) Note down the data.
*13	F (6F)	2C	A0	(*NTSC model only) Press PAUSE (Write) button.
*14	0	10	00	(*NTSC model only)
*15	6	14	83	(*NTSC model only)
16	6	C9	10	
17	6	9E	00	
18	6	9D	37	
19	0	03	33	
20	6	01	3D	Press PAUSE (Write) button.
21	6	02		Check the data changes to "01".
22	1			Check that bit15 of the display data (Note 4) is "1". (Note 5)
23				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
24				Check that the each color luminance point is in each color reproduction frame.

Note 5: When bit15 of the display data is "1", the display data is "8000" to "FFFF".

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
*1	0	10	06	(*NTSC model only)
*2	F (6F)	2C		(*NTSC model only) Set data noted down at step 12, and press PAUSE (Write) button.
*3	0	10	00	(*NTSC model only)
4	6	01	00	Press PAUSE (Write) button.
*5	6	14	00	(*NTSC model only)
6	6	15	00	
7	6	1F	00	
8	6	4D	00	
9	6	9D	00	
10	6	C9	00	
11	7	01	BD	
12	7	00	01	Press PAUSE (Write) button.
13	0	03	00	
14	0	01	00	
15				Remove the C14 filter on the lens.

21. PCGM Standard Data Input **RadarW**

Adjust the matrix coefficient for compensating the variation in spectral sensitivity, to carry out presumed detection of the light source for AWB.

Adjustment Page	6F
Adjustment Address	2E to 3F

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".

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: 6F, address: 2E to 3F.

Note 2: Press the PAUSE (Write) button of the adjustment remote commander each time to set data.

Address	Data	
	NTSC	PAL
2E	1F	1F
2F	64	64
30	FF	FF
31	3E	3E
32	00	00
33	23	23
34	01	01
35	CF	CF
36	1E	1E
37	1B	1B
38	00	00
39	F9	F9
3A	00	00
3B	84	84
3C	FF	FF
3D	A4	A4
3E	1F	1F
3F	8B	8B

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

22. Auto White Balance Check

Subject	Clear chart (All white frame)
Filter	ND filter 1.0, 0.4 and 0.1
Measurement Point	Displayed data of page: 1 (Note 3)
Measuring Instrument	Adjusting remote commander
Specified Value	8000 to 8BC0

Note 1: Perform “Auto White Balance Adjustment” and “Color Reproduction Adjustment” before this adjustment.

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

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

1:XX:XX

└───┘ Displayed data

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF
- 5) FOCUS (Menu setting) MANUAL
- 6) REC FORMAT (Menu setting) HDV1080i

Checking method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is “All White Frame”. If not, perform “11. Picture Frame Setting (All White Frame)”
2	0	10	06	
3	9 (69)	06	84	Press PAUSE (Write) button.
4	0	10	00	
5	6	4D	40	
6	6	CA		Set the bit value of bit0 is “1”. (Note 4)
7	6	C9	10	
Outdoor white balance check				
8	6	01	4F	Press PAUSE (Write) button.
9	0	03	33	
10	1			Check that bit15 of the display data (Note 3) is “1”. (Note 5)
11	6	01	00	Press PAUSE (Write) button.
Indoor white balance check				
12	6	01	0F	Press PAUSE (Write) button.
13	1			Check that bit15 of the display data (Note 3) is “1”. (Note 5)
14	6	01	00	Press PAUSE (Write) button.
InOut data check				
15				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
16	6	C9	11	
17	6	30	07	
18	0	03	06	
19	1			Check that the displayed data (Note 3) satisfied the specified value.
20	6	30	00	
21	6	C9	00	
22				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

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

Note 5: When bit15 of the display data is “1”, the display data is “8000” to “FFFF”.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	03	00	
2	6	4D	00	
3	6	CA		Set the bit value of bit0 is “0”.
4	0	10	06	
5	9 (69)	06	14	Press PAUSE (Write) button.
6	0	10	00	

23. Picture Frame Setting (Center frame)

Subject	Clear chart (Center frame) (1 m (PTB-450) or 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. 6-1-16)

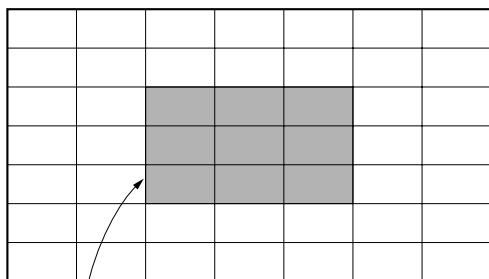
Note: Check that the data of page: 0, address: 10 is “00”.

Switch setting

- 1) POWER CAMERA-TAPE mode
- 2) NIGHT SHOT OFF
- 3) ZOOM WIDE end
- 4) DIGITAL ZOOM (Menu setting) OFF
- 5) STEADY SHOT (Menu setting) OFF
- 6) FOCUS (Menu Setting) MANUAL

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	06	
4	B (6B)	05	91	Press PAUSE (Write) button.
5				Check that a clear chart is shot in larger size than nine grids in the center of frame shown on the screen.
6	B (6B)	05	00	Press PAUSE (Write) button.
7	0	10	00	
8	0	01	00	
9				In the following adjustment, if the “Center frame” is used, adjust the clear chart to this position.



A clear chart must be shot in larger size than central nine grids.

Fig.6-1-16

24. 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	6F
Adjustment Address	2C

Note 1: Perform “Flange Back Adjustment” 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-TAPE mode
- 2) NIGHT SHOT OFF
- 3) ZOOM WIDE end
- 4) DIGITAL ZOOM (Menu setting) OFF
- 5) STEADY SHOT (Menu setting) OFF
- 6) FOCUS (Menu setting) MANUAL
- 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	4D	40	
4	6	C9	10	
5	6	D0		Set the following data 2C: NTSC model 1F: PAL model
6	6	D1	00	
7	6	01	6F	Press PAUSE (Write) button. (Note 4)
8	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: 6F, address: 2C.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	4D	00	
2	6	C9	00	
3	6	01	00	Press PAUSE (Write) button.
4	0	01	00	

25. White Defect Adjustment **RadarW**

Defect 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-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	0D		Check the data is "04".
3	0	10	06	
4	B (6B)	41	10	Press PAUSE (Write) button.
5	0	10	00	
6	6	D0	06	
7	6	01	21	Press PAUSE (Write) button.
8	6	02		Check the data changes to "01".
9	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	10	06	
3	B (6B)	41	10	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

26. White Defect Adjustment (FD white point)

RadarW

Defect white defective pixels (FD white point) of CMOS image sensor.

Subject	Not required
---------	--------------

Note 1: Perform "White 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-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	0D		Check the data is "04".
3	0	10	06	
4	B (6B)	41	02	Press PAUSE (Write) button.
5	0	10	00	
6	6	D0	0C	
7	6	01	21	Press PAUSE (Write) button.
8	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	10	06	
3	B (6B)	41	10	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

27. White Defect Check

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: D8 is "00" to "07"

Note 1: Perform "White 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-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	0D		Check the data is "04".
3	0	10	06	
4	B (6B)	41	40	Press PAUSE (Write) button.
5	0	10	00	
6	6	D0	04	
7	6	01	21	Press PAUSE (Write) button.
8	6	02		Check the data changes to "01".
9	6	D1		Check the data is "00".
10	6	D2		Check the data is "00" to "07".

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE (Write) button.
2	0	10	06	
3	B (6B)	41	10	Press PAUSE (Write) button.
4	0	10	00	
5	0	01	00	

28. Black Defect Adjustment **RadarW**

Defect 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 Adjustment” 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-TAPE mode

Adjusting method:

Order	Page	Address	Data	Procedure
1				Turn off the power and turn on again.
2	0	01	01	
3	6	0D		Check the data is “04”
4	6	9C	01	
5	6	8C	04	
6	6	2C	01	
7	6	90	00	
8	6	91	04	
9	6	92	00	
10	6	93	10	
11	6	01	79	Press PAUSE (Write) button.
12	6	15	90	
13				Wait for 1 second.
14				Check that the entire screen is white.
15	0	10	06	
16	9 (69)	1C	04	Press PAUSE (Write) button.
17	0	10	00	
18	6	D7	7F	
19	6	D0	01	
20	6	01	21	Press PAUSE (Write) button.
21	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	9C	00	
3	6	8C	00	
4	6	2C	00	
5	6	90	00	
6	6	91	00	
7	6	92	00	
8	6	93	00	
9	6	01	79	Press PAUSE (Write) button.
10	6	15	00	
11	6	D7	00	
12	6	D0	00	
13	0	10	06	
14	9 (69)	1C	44	Press PAUSE (Write) button.
15	0	10	00	
16	0	01	00	

29. Steady Shot Check

Precautions on the Parts Replacement

There are two types of repair parts.

Type A ECN-03MA

Type B ECN-03MB

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.

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.

Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 1)
Measuring Instrument	Adjusting remote commander
Specified value	PITCH data: 2680 to 5080 YAW data: 2680 to 5080

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

1 : XX : XX

————— Displayed data

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

Switch setting

- 1) ZOOM TELE end
- 2) STEADY SHOT (Menu setting) ON

Checking method:

Order	Page	Address	Data	Procedure
PITCH sensor output check (SE6802 of EE-001 board)				
1	0	03	11	
2	1			With the set in still state, check that the displayed data (Note 1) satisfies the PITCH data specified value.
YAW sensor output check (SE6801 of EE-001 board)				
3	0	03	12	
4	1			With the set in still state, check that the displayed data (Note 1) satisfies the YAW data specified value.
5	0	03	00	
Steady shot operation check				
6				Shake the set vertically and horizontally to check that the steady shot function operates normally.

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 CN7005 of the NN-001 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 CN7005.

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
6	PSIG	14	REC_CRRT0
7	REG_GND	15	NC
8	REG_GND	16	NC

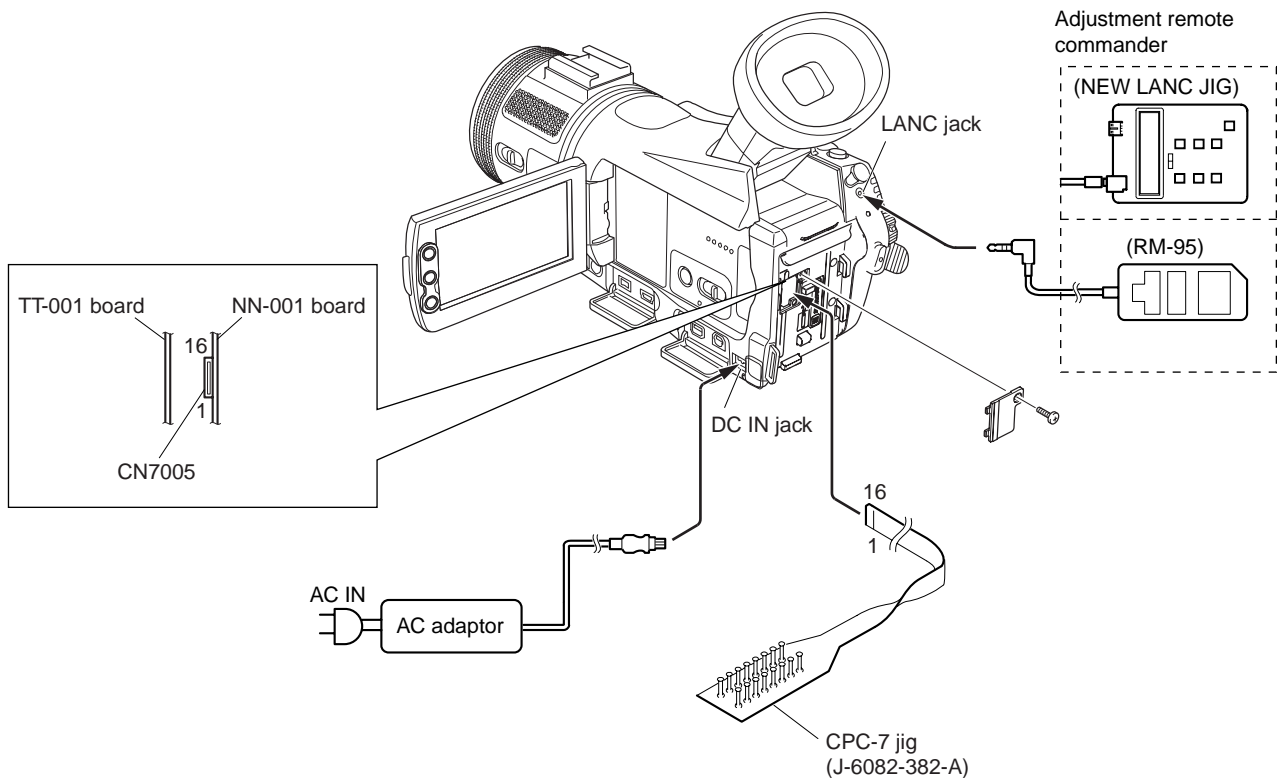


Fig. 6-1-17

1. VCO Adjustment (NN-001 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 CN7005 (EVF_VCO) on NN-001 board
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	34, 35
Specified Value	$f = 15734 \pm 30$ Hz (NTSC) $f = 15625 \pm 30$ 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	C	34		Change the data and set the frequency (f) to the specified value.
3	C	34		Press PAUSE (Write) button.
4	C	34		Read the data and this data is named D_{34} .
5				Convert D_{34} to decimal notation, and obtain D_{34}' . (Note 2)
6				Calculate D_{35}' using following equations. (decimal calculation) $D_{35}' = D_{34}' + 21$
7				Convert D_{35}' to a hexadecimal number, and obtain D_{35} . (Note 2, 3)
8	C	35	D_{35}	Press PAUSE (Write) button.
9	0	01	00	

Adjusting method for PAL model:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	35		Change the data and set the frequency (f) to the specified value.
3	C	35		Press PAUSE (Write) button.
4	C	35		Read the data and this data is named D_{35} .
5				Convert D_{35} to decimal notation, and obtain D_{35}' . (Note 2)
6				Calculate D_{34}' using following equations. (decimal calculation) $D_{34}' = D_{35}' - 21$
7				Convert D_{34}' to a hexadecimal number, and obtain D_{34} . (Note 2, 3)
8	C	34	D_{34}	Press PAUSE (Write) button.
9	0	01	00	

2. Back Light Adjustment (NN-001 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 CN7005 (EXT_DA) on NN-001 board
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	32, 33
Specified Value	NORMAL mode: A = 1.00 ± 0.05 Vdc BRIGHT mode: B = 1.65 ± 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	C	32		Change the data and set the DC voltage (A) to the specified value of NORMAL mode.
3	C	32		Press PAUSE (Write) button.
4	C	33		Change the data and set the DC voltage (B) to the specified value of BRIGHT mode.
5	C	33		Press PAUSE (Write) button.
6	0	01	00	

3. PSIG Level Adjustment (NN-001 board)

Set the uniformity improvement signal level to an appropriate level.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑥ of CN7005 (PSIG) on NN-001 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	C	39		Change the data and set the PSIG signal level (A) to the specified value. (The data should be "00" to "7F".)
3	C	39		Press PAUSE (Write) button.
4	0	01	00	

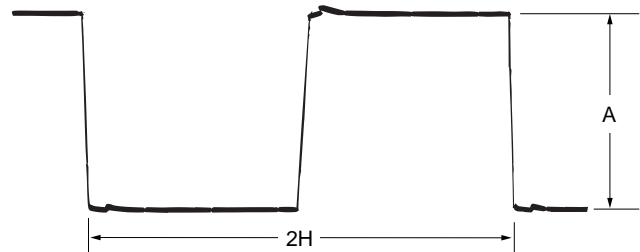


Fig. 6-1-18

4. V-COM Level Adjustment (NN-001 board)

Set the opposed voltage to drive LCD panel to an appropriate level.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ① of CN7005 (EVF_COM_DC) on NN-001 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	C	36		Change the data and set the DC voltage (A) to the specified value. (The data should be “80” to “BF”.)
3	C	36		Press PAUSE (Write) button.
4	0	01	00	

5. RGB AMP Adjustment (NN-001 board)

Set the D Range of the RGB decoder for driving the LCD to the specified value.

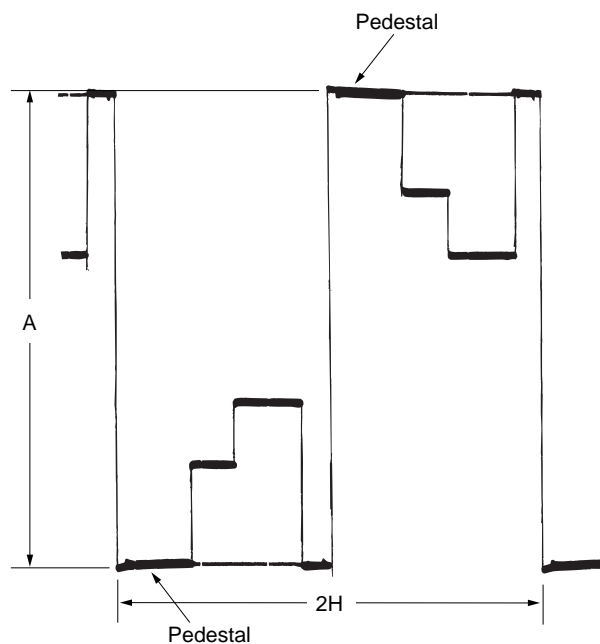
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑤ of CN7005 (EVF_VG) on NN-001 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	C	37		Change the data and set the voltage (A) to the specified value.
3	C	37		Press PAUSE (Write) button.
4	0	01	00	



A: Between the reversed waveform pedestal and non-reversed waveform pedestal

Fig. 6-1-19

6. Contrast Adjustment (NN-001 board)

Set the video signal level for driving the LCD to the specified value.

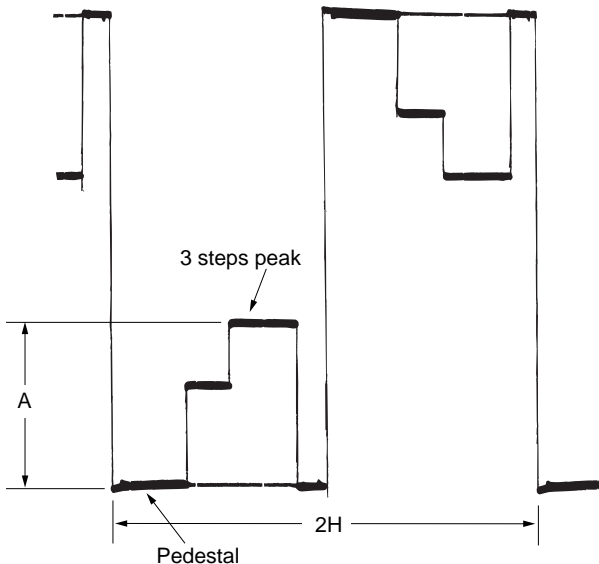
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑤ of CN7005 (EVF_VG) on NN-001 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	3C, 77
Specified Value	$A = 2.70 \pm 0.05$ 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	C	77		Change the data and set the voltage (A) to the specified value. (The data should be "00" to "7F".)
3	C	77		Press PAUSE (Write) button.
4	C	77		Read the data and this data is named D ₇₇ .
5	C	3C	D ₇₇	Press PAUSE (Write) button.
6	0	01	00	



A: Between the pedestal and 3 steps peak

Fig. 6-1-20

7. White Balance Adjustment (NN-001 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. IC7801

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	3A	80	Press PAUSE (Write) button.
3	C	3B	80	Press PAUSE (Write) button.
4				Check that the EVF screen is not colored. If not colored, proceed to step 6.
5	C	3A 3B		Change the data so that the EVF screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE (Write) button each time to set the data.

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-001 board)



This adjustment does the following items automatically.

VCO Adjustment

Contrast Adjustment

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	45, 46 (VCO Adjustment) 4D (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	01	5A	Press PAUSE (Write) button. (Note 4)
3	3	02		Check the data changes to "00".
4	3	03		Check the data is "02". (Note 2)
5	C	45		Read the data and this data is named D ₄₅ .
6				Convert D ₄₅ to decimal notation, and obtain D ₄₅ '. (Note 3)
7				Calculate D ₄₆ ' using following equations. (decimal calculation) $D_{46}' = D_{45}' + 10$
8				Convert D ₄₆ ' to a hexadecimal number, and obtain D ₄₆ . (Note 3)
9	C	46	D ₄₆	Press PAUSE (Write) button.
10	C	4D		Read the data and this data is named D _{4D} .
11	C	76	D _{4D}	Press PAUSE (Write) button.
12	3	03	00	
13	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	01	5A	Press PAUSE (Write) button. (Note 5)
3	3	02		Check the data changes to "00".
4	3	03		Check the data is "02". (Note 2)
5	C	46		Read the data and this data is named D ₄₆ .
6				Convert D ₄₆ to decimal notation, and obtain D ₄₆ '. (Note 3)
7				Calculate D ₄₅ ' using following equations. (decimal calculation) $D_{45}' = D_{46}' - 10$
8				Convert D ₄₅ ' to a hexadecimal number, and obtain D ₄₅ . (Note 3)
9	C	45	D ₄₅	Press PAUSE (Write) button.
10	C	4D		Read the data and this data is named D _{4D} .
11	C	76	D _{4D}	Press PAUSE (Write) button.
12	3	03	00	
13	0	01	00	

Note 5: The adjustment data will be automatically input to page: C, address: 46 and 4D.

2. V-COM Adjustment (PP-001 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 (PLAY/EDIT 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	C	56	0D	Press PAUSE (Write) button.
3	C	47		Change the data so that brightness of the section A and section B is equal.
4	C	47		Subtract 4 from the data.
5	C	47		Press PAUSE (Write) button.
6	C	56	C5	Press PAUSE (Write) button.
7	0	01	00	

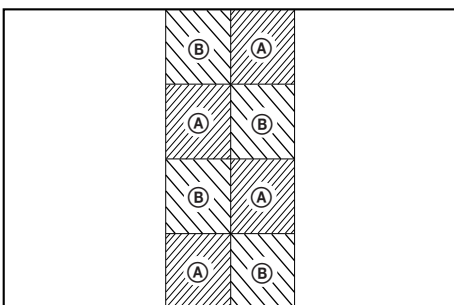


Fig. 6-1-21

3. Transmissive Mode White Balance Adjustment (PP-001 board)

Correct the white balance at transmissive mode.

If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT 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. IC8701

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	4B	80	Press PAUSE (Write) button.
3	C	4C	80	Press PAUSE (Write) button.
4				Check that the LCD screen is not colored. If not colored, proceed to step 6.
5	C	4B 4C		Change the data so that the LCD screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE (Write) button each time to set the data.

4. Reflective Mode White Balance Adjustment **RadarW** (PP-001 board)

Correct the white balance at reflective mode.
If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT 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	01	66	Press PAUSE (Write) button. (Note 2)
7	3	02		Check the data changes to “00”.
8	3	03		Check the data is “02”. (Note 4)
9	3	03	00	
10	3	01	67	Press PAUSE (Write) button. (Note 3)
11	3	02		Check the data changes to “00”.
12	3	03		Check the data is “02”. (Note 4)
13	3	03	00	
14	3	C4	00	
15	3	C5	00	
16	3	0C	00	Press PAUSE (Write) button.
17	3	22	00	Press PAUSE (Write) button.
18	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. Touch Panel Adjustment

Adjust the calibration of touch panel.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	A
Adjustment Address	90 to 93

Note 1: This adjustment should be carried out upon completion of “LCD Automatic Adjustment”.

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

Note 3: Check that a Memory Stick Duo is not insteted.

Note 4: Check that the LCD panel is not reverse mode.

Note 5: Adjustment must be performed while observing the LCD screen from the front.

Preparation:

Order	Page	Address	Data	Procedure
1	5	01	01	
2	5	05	00	
3	5	06	A2	
4	5	07	00	
5	5	08	00	
6	5	09	00	
7	5	0A	FF	
8	5	0B	00	
9	5	0C	00	
10	5	0D	00	
11	5	0E	01	
12	5	00	01	Press PAUSE (Write) button.
13				Check that the touch panel adjustment screen is displayed.
14				Perform “Adjusting method”.

Adjusting method:

- 1) Using a ball-point pen etc., push the center of “×” indicated in the part A.
- 2) Using a ball-point pen etc., push the center of “×” indicated in the part B.
- 3) Using a ball-point pen etc., push the center of “×” indicated in the part C.

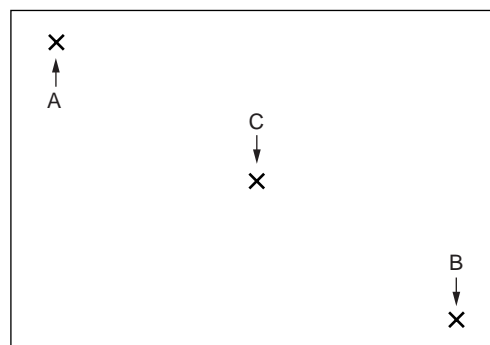



Fig. 6-1-22

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: Be 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 careful not to move the oil seal. If the oil seal is moved, oil will leak.

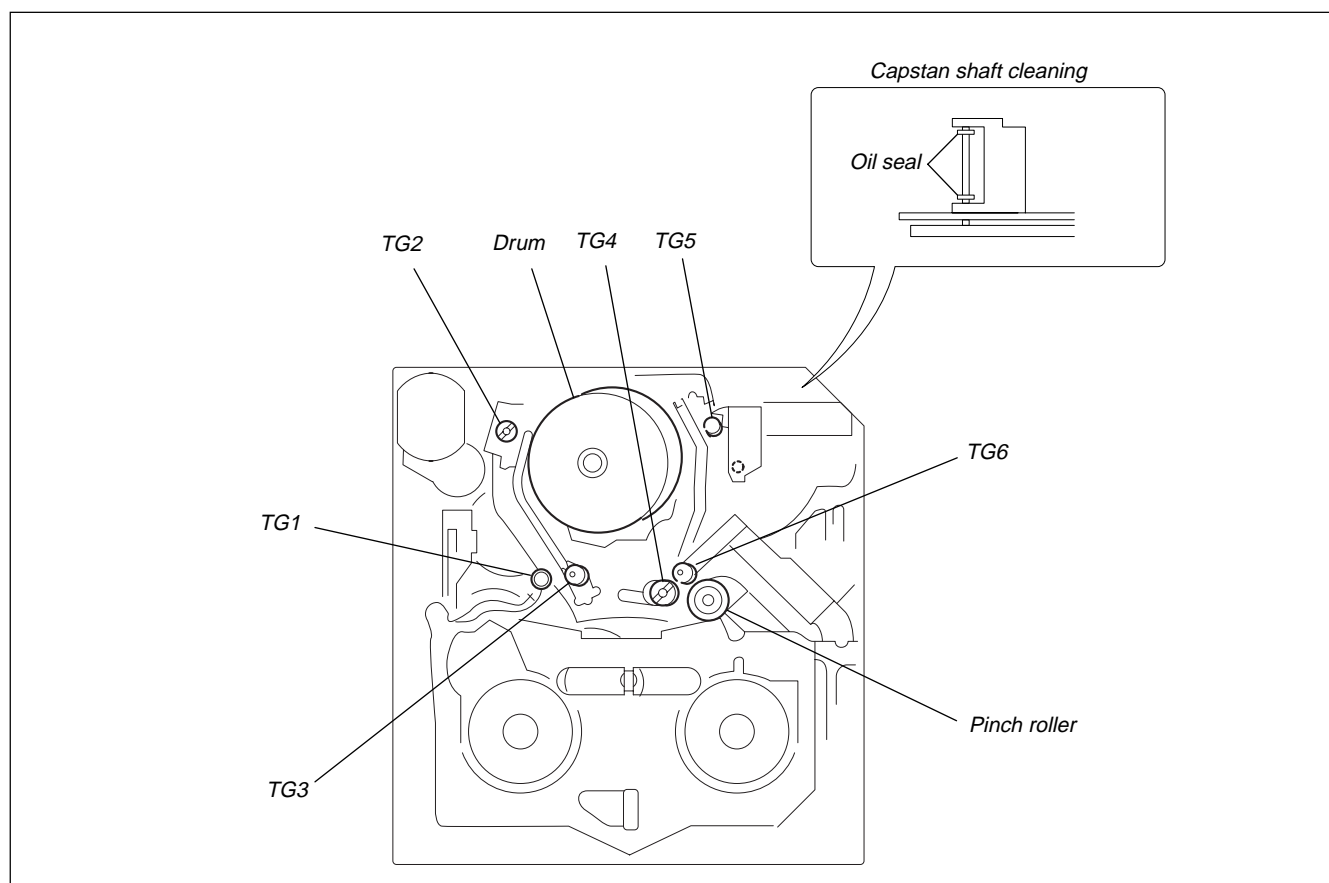


Fig. 6-2-1

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.

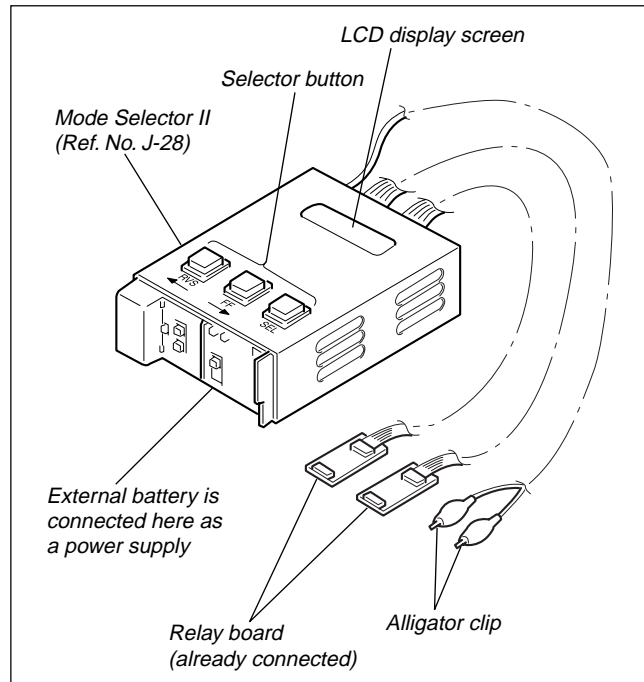


Fig. 6-2-2

Mode Selector II (J-6082-282-B) connection diagram

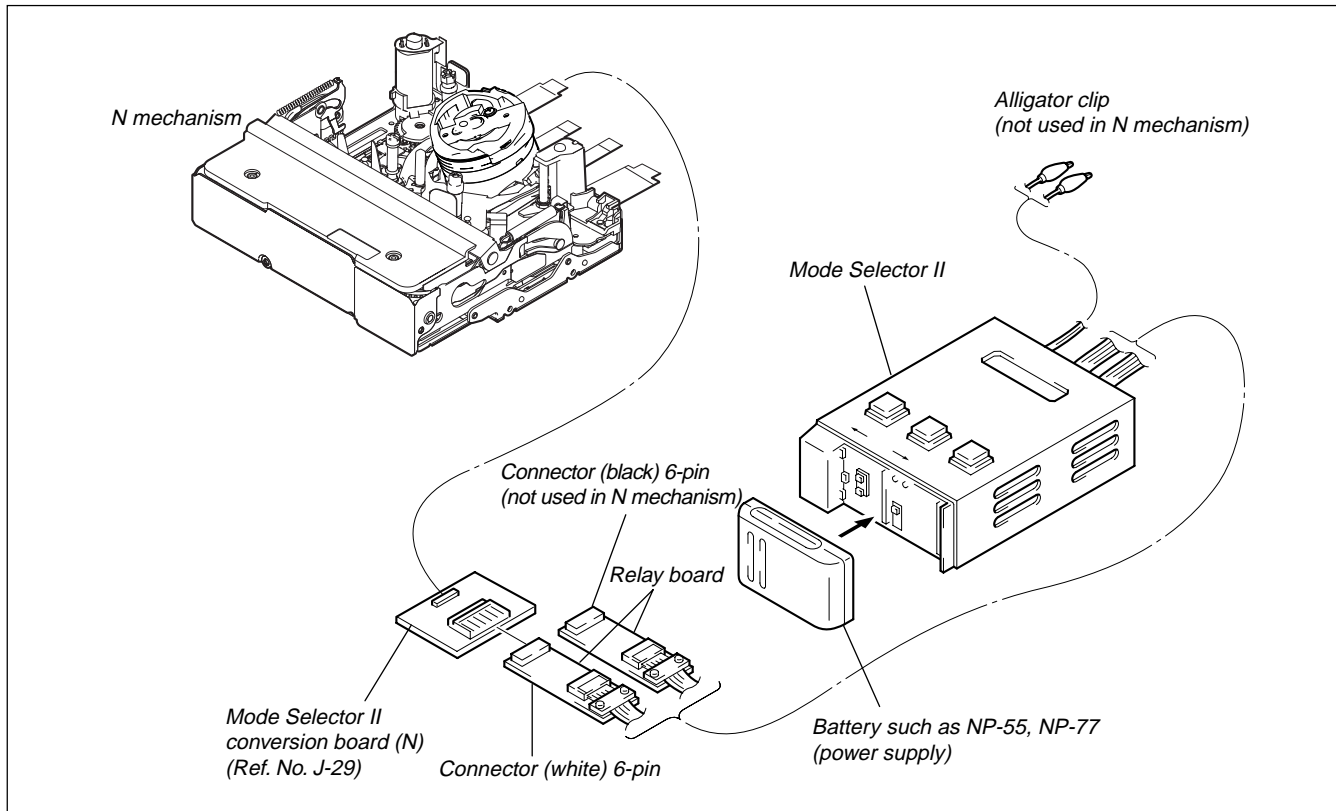
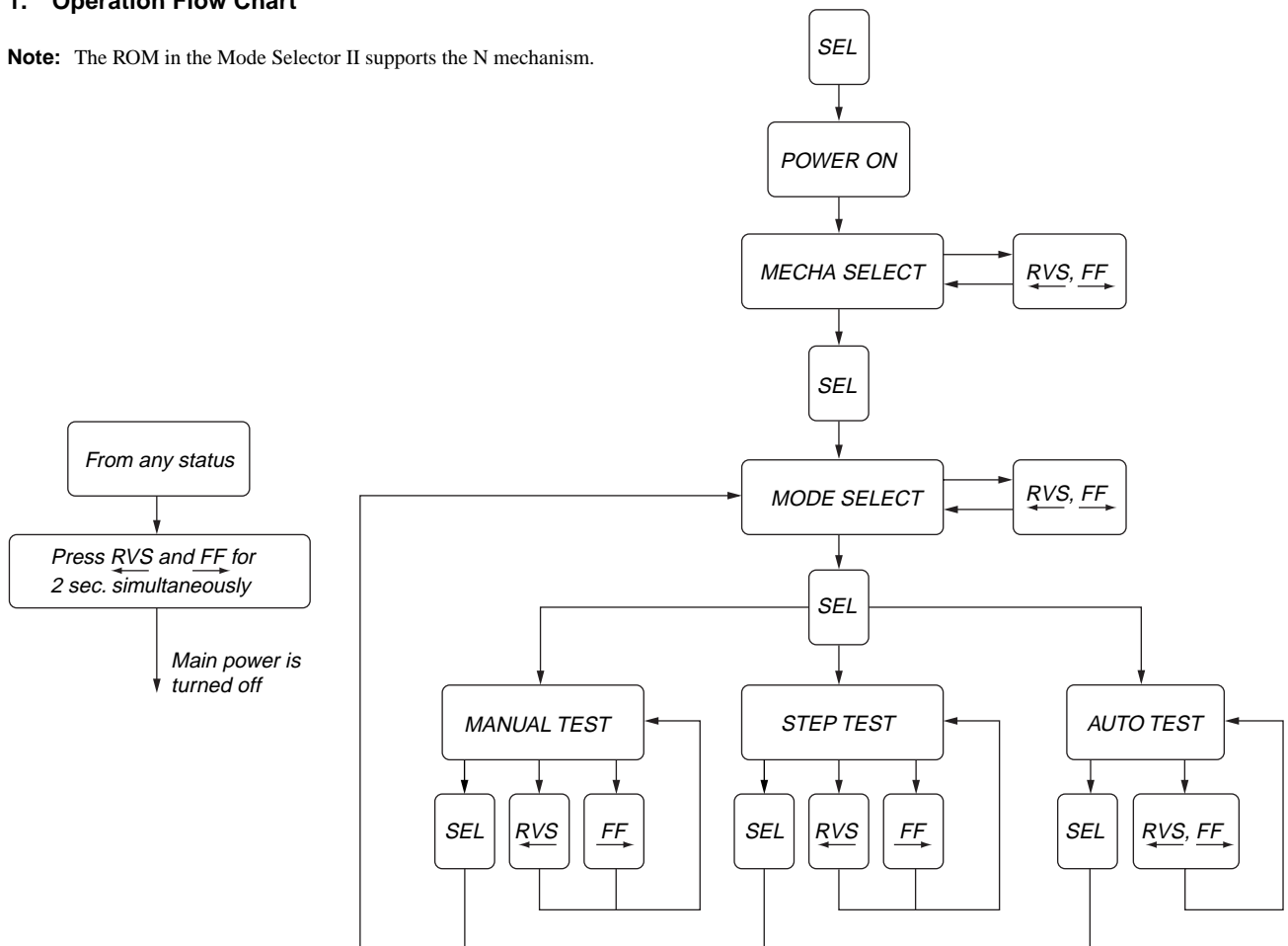


Fig. 6-2-3

2-4-2. Operation

1. Operation Flow Chart

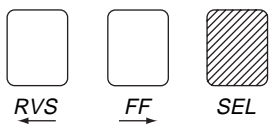
Note: The ROM in the Mode Selector II supports the N mechanism.



2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.

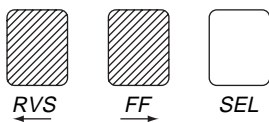
Press the SEL button.



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.

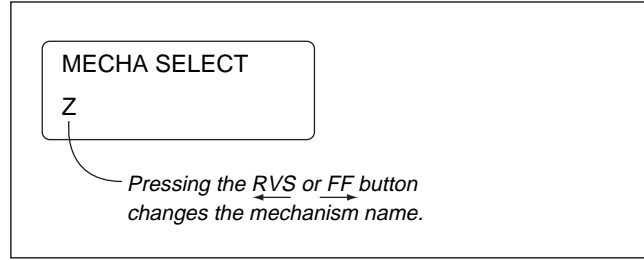


Fig. A

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.

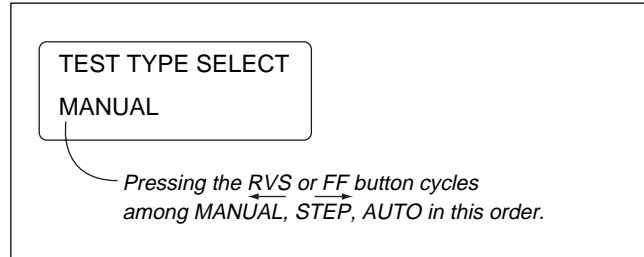


Fig. B

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.

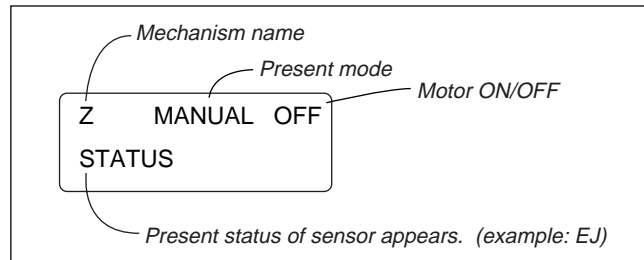


Fig. C

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.

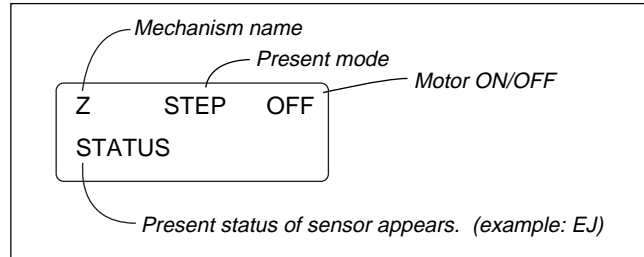


Fig. D

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.

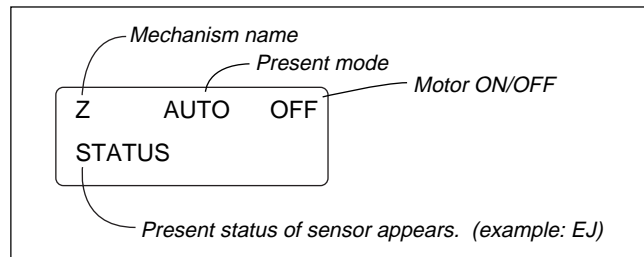


Fig. E

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

MD name			N Mechanism (Display: Z)	
Code	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.

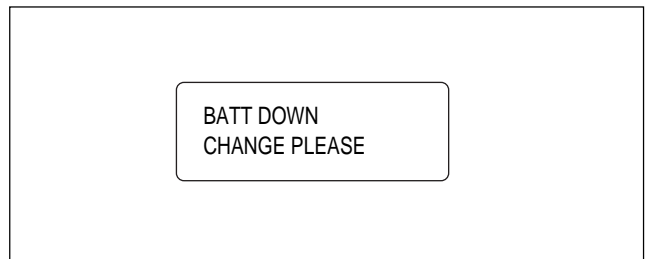
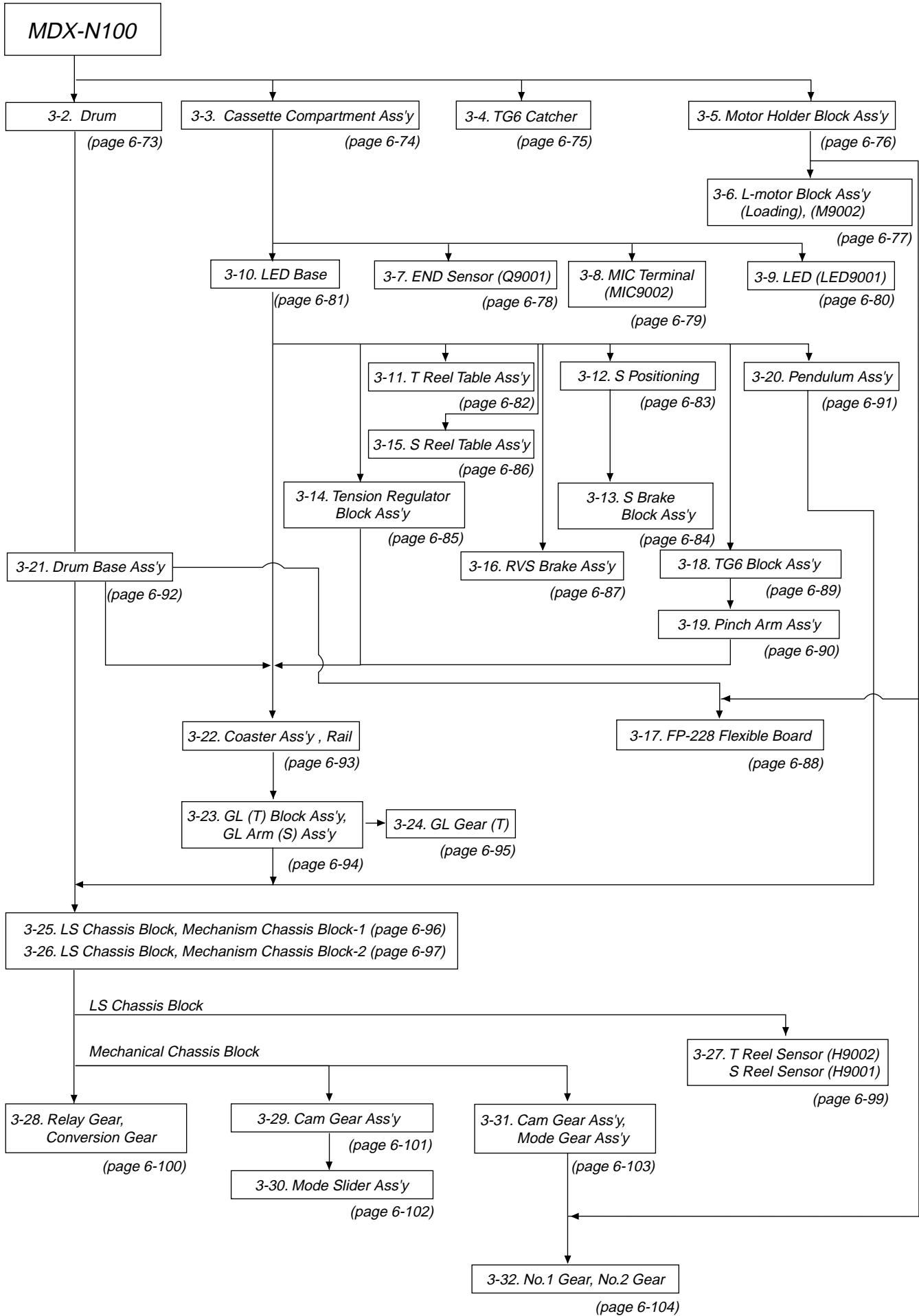


Fig. F

3. Check, Adjustment and Replacement of Mechanical Parts



3-1. Flowchart of Replacement of Mechanical Parts



3-2. Drum

1. Removal procedure

- 1) Enter the [ULE] mode.
- 2) Peel away the portion ① 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.)

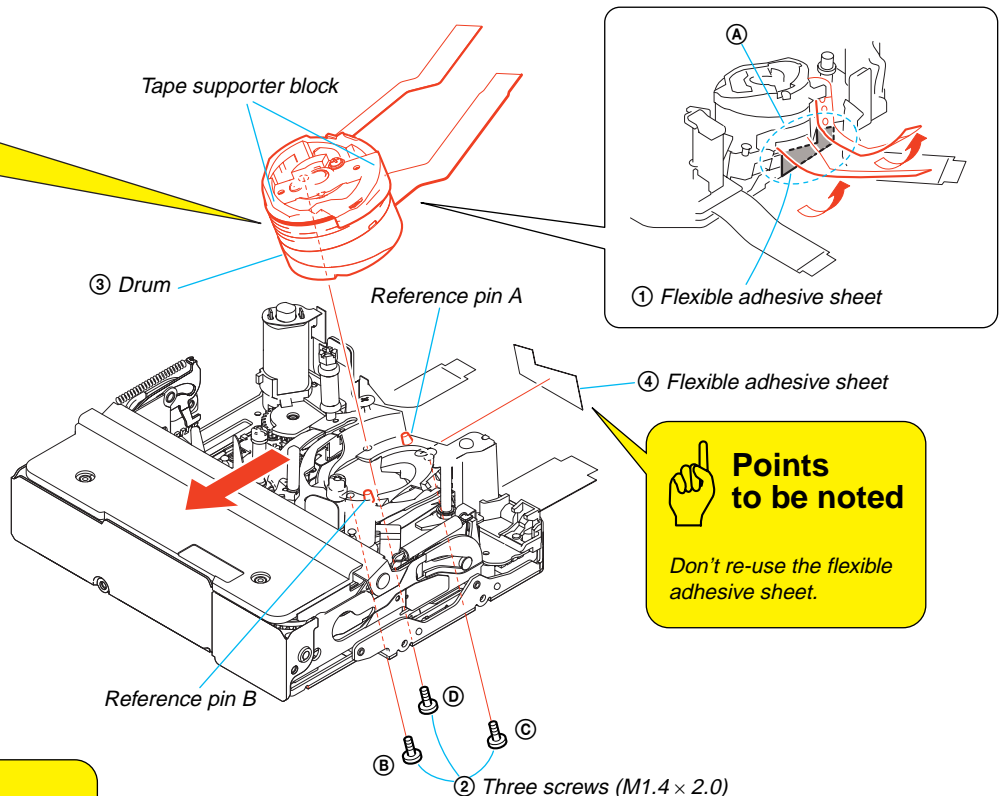
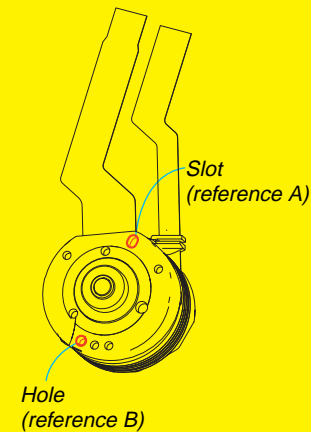
2. Attachment procedure

- 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 ②, ③ and ④.
Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \times 0.1 \text{ kgf}\cdot\text{cm}$)
- 5) Attach the portion ① 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)

Key Points in Re-assembling

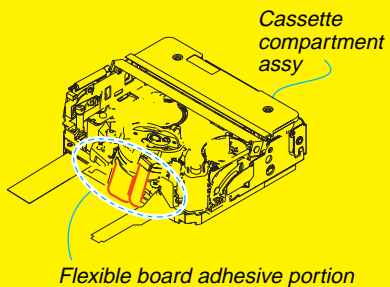
Drum (rear view)



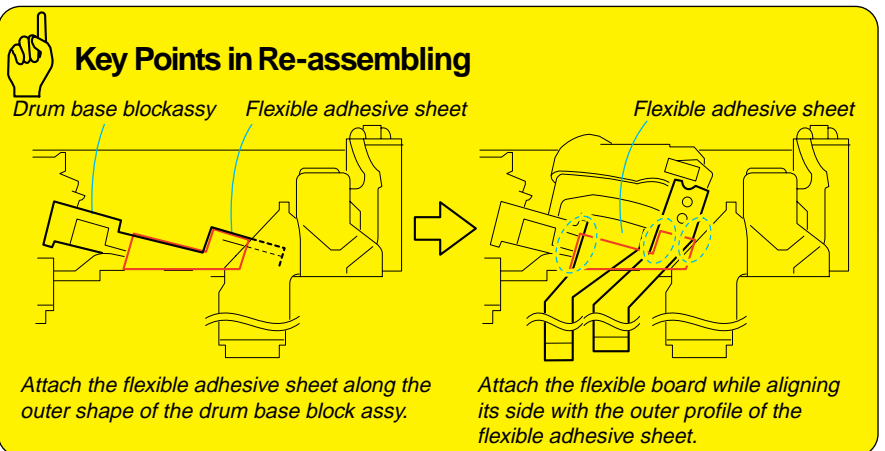
HOW TO PLACE THE MECHANISM

Points to be noted

After the flexible board is attached to the flexible adhesive sheet, place the flexible board, that is folded up, at the rear of the mechanism chassis to prevent the adhered portion from peeling away.



Flexible adhesive sheet attachment position



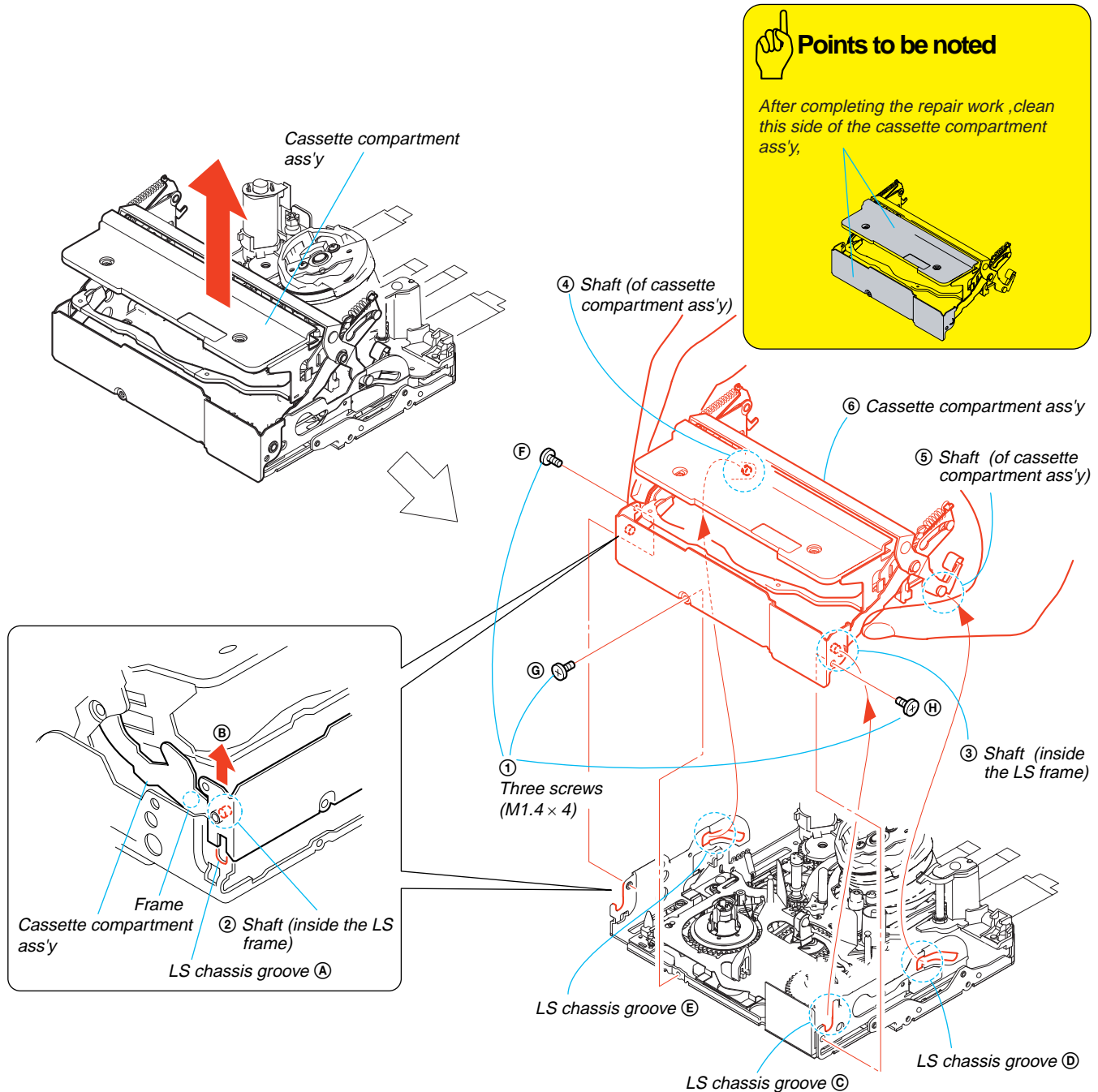
3-3. Cassette Compartment Ass'y

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 ① of the LS chassis in the direction of the arrow ③.
- 4) Remove the shaft ③ inside the LS frame from the groove ④ of the LS chassis.
- 5) Remove the cassette compartment ass'y shafts ④ and ⑤ from the LS chassis grooves ⑤ and ⑥. 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 ⑥ and ⑤.
 - 3) While pushing the LS frame inward, install the shafts ③ and ② inside the LS frame into the grooves ④ and ① of the LS chassis.
 - 4) Install the three screws (special head screw M1.4 × 1.4) ① in the order of ⑦, ⑧ and ⑨.
- Tightening torque: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)



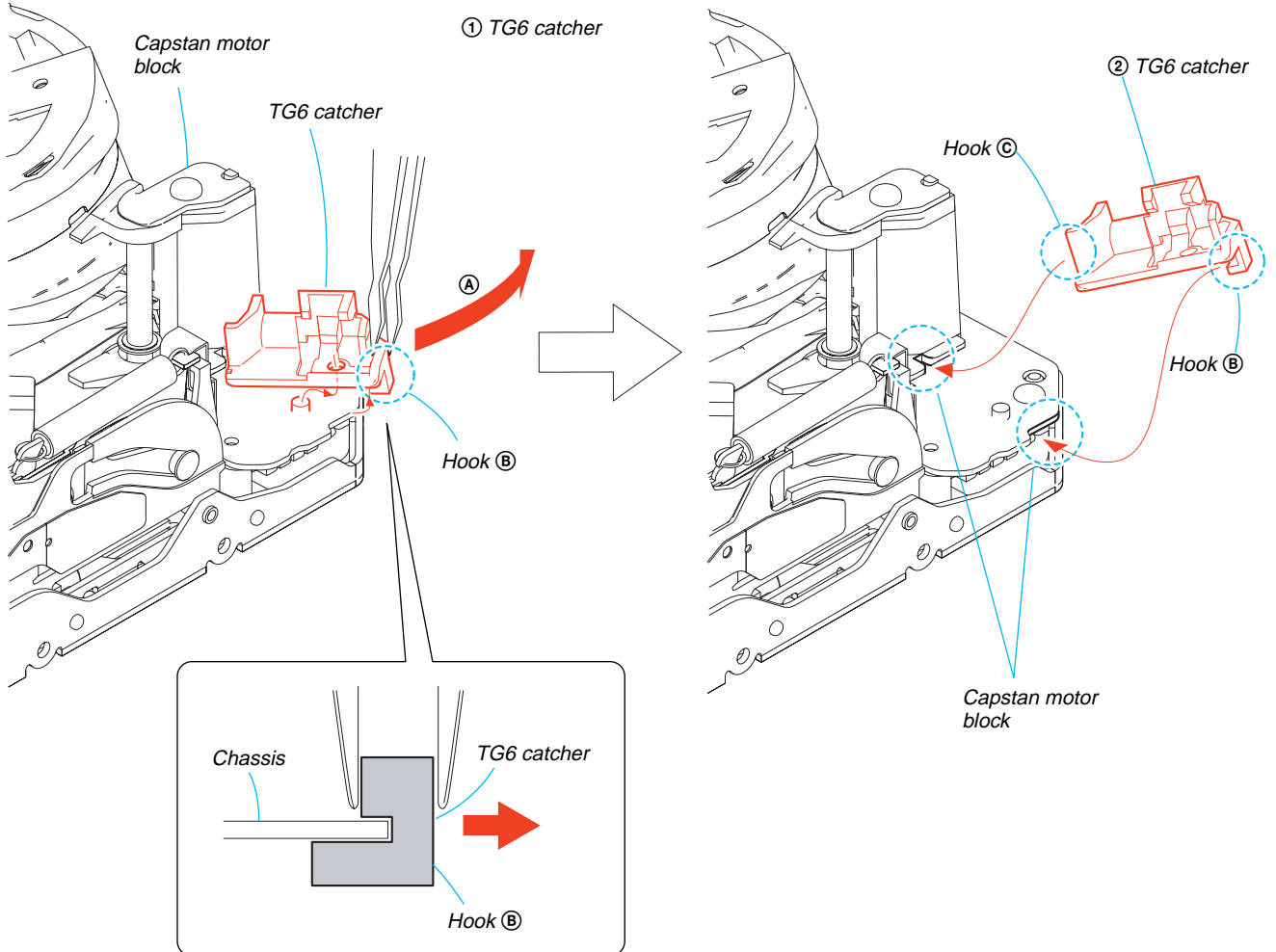
3-4. TG6 Catcher

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 ④ and install the motor holder block ass'y (loading) ⑤.
- 2) Install the screw (special head screw M1.2 × 1.5) ④.
Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 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: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \pm 0.1 \text{ kgf}\cdot\text{cm}$)

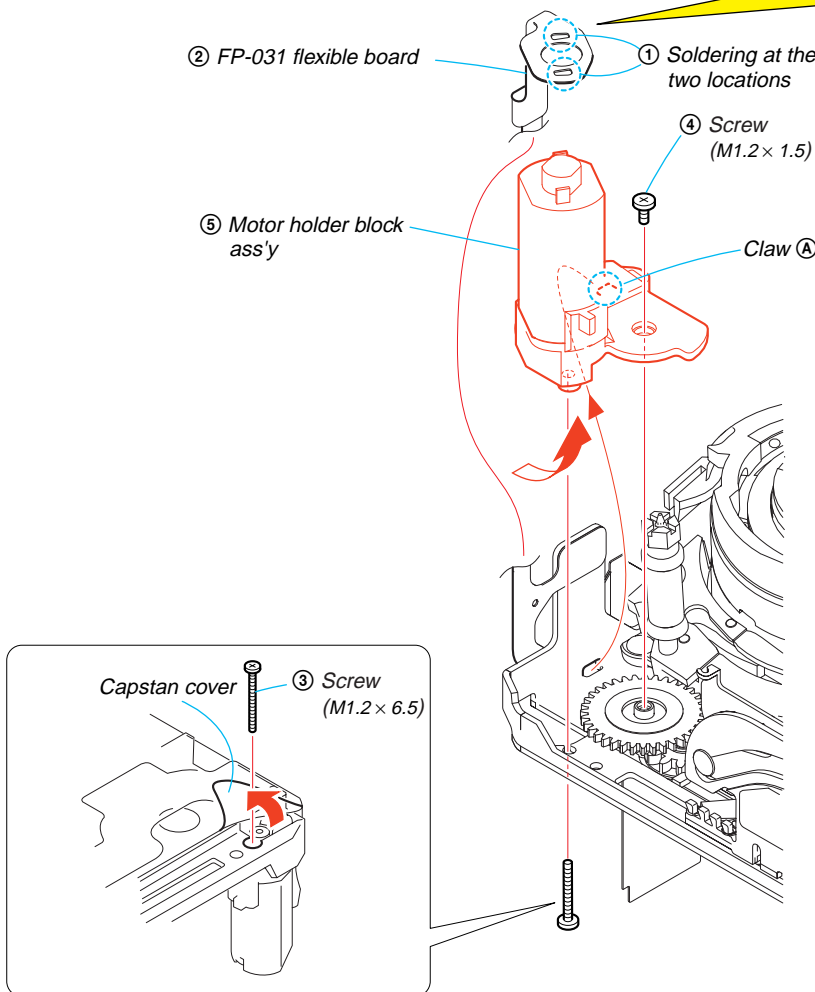
Soldering



Points to be noted

Lead-free solder
Wire type : $\varnothing 0.6$
Temperature of the soldering iron tip : 320°C
Contacting time of : within 2 sec.

- Be careful not to create the hollow soldering, Br, 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.



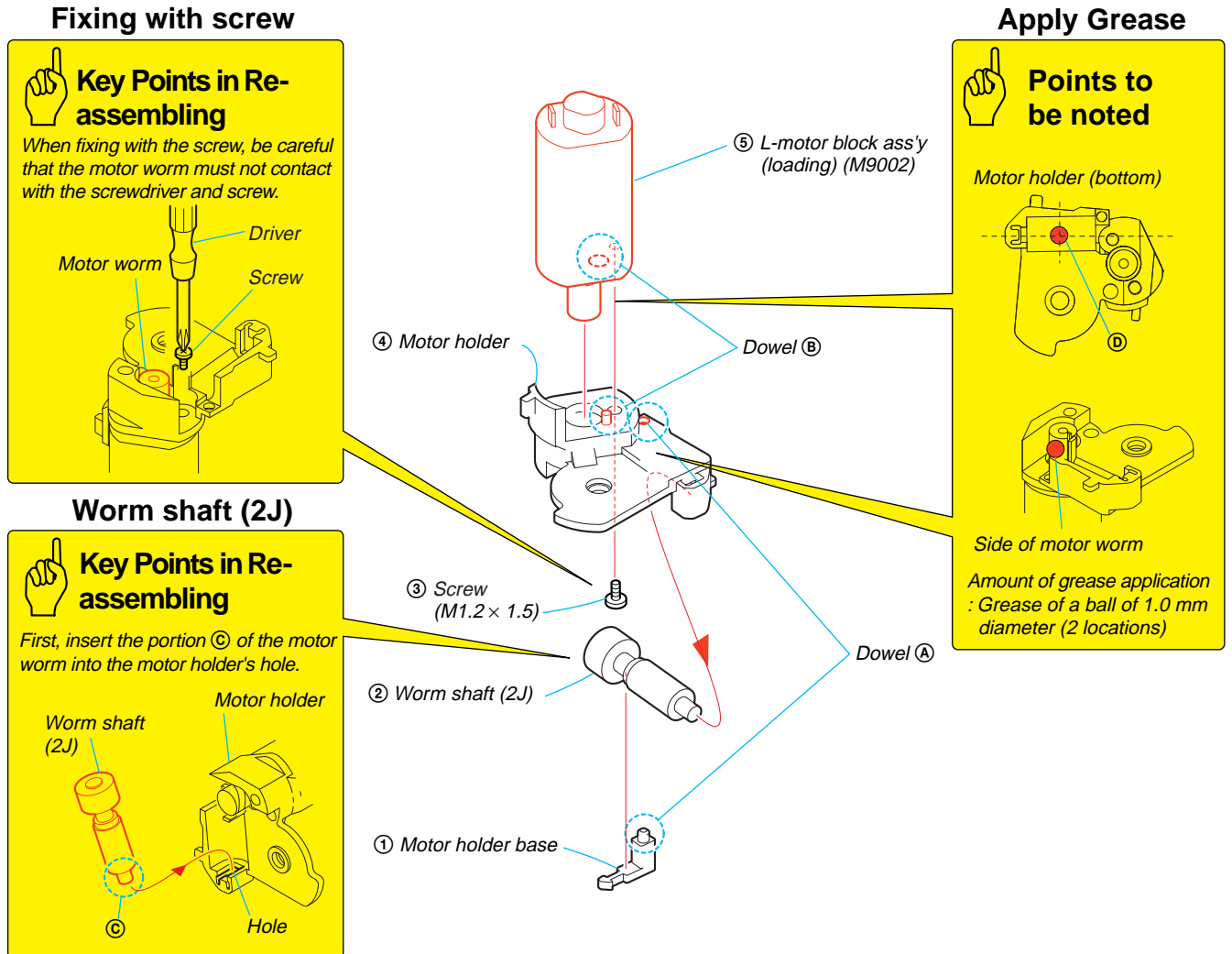
3-6. L-motor Block Ass'y (Loading) (M9002)

1. Removal procedure

- 1) Release the dowel (A), 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) (M9002) (5) from the motor holder (4).

2. Attachment procedure

- 1) Align the L-motor block ass'y (loading) (M9002) (5) with the dowel (B), 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: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 2) Apply the grease as much as a ball of 1.0 mm diameter on the portion (D) 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 (A) and install the motor holder base (1).



3-7. END Sensor (Q9001)

1. Removal procedure

- 1) Remove soldering at the two locations ① of the END sensor (Q9001).
- 2) Disengage the claw ② and the END sensor (Q9001) ③.
- 3) Remove soldering at the two locations ④ of the TOP sensor (Q9002).
- 4) Disengage the claw ⑤ and the TOP sensor (Q9002) ⑥.

2. Attachment procedure

- 1) Engage the TOP sensor (Q9002) ⑥ in the claw ⑤.
- 2) Solder two locations ④ of the TOP sensor (Q9002) and install the TOP sensor (Q9002) ⑥ in the FP-031 flexible board.
- 3) Engage the END sensor (Q9001) ③ in the claw ②.
- 4) Solder two locations ① of the END sensor (Q9001) and install the END sensor (Q9001) ③ in the FP-031 flexible board.

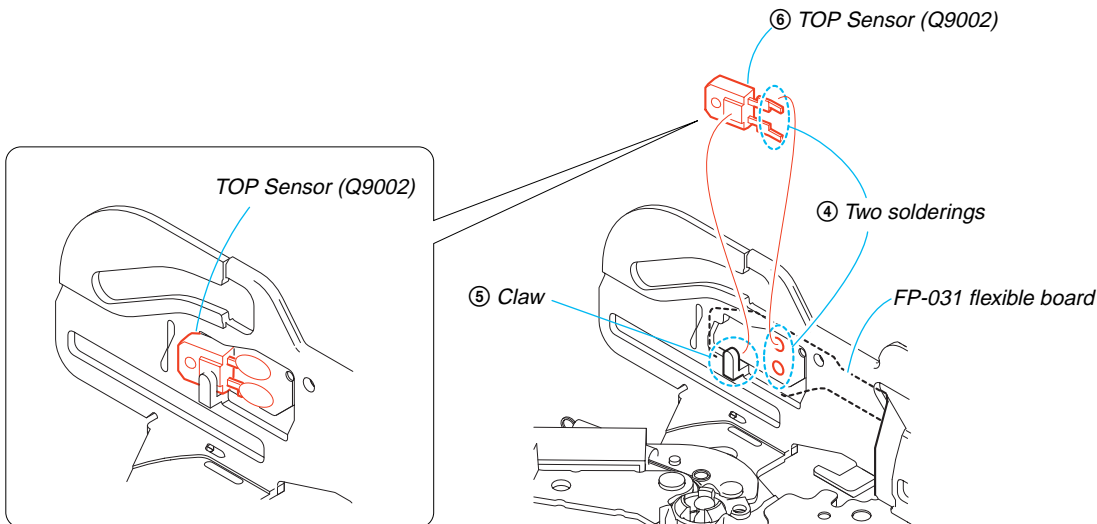
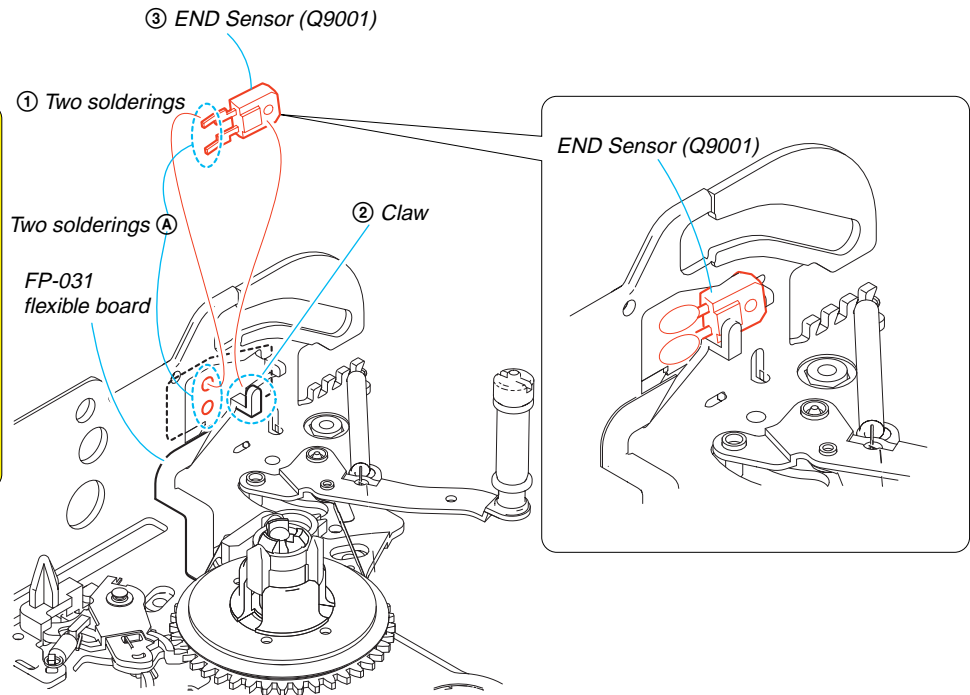
Soldering



Points to be noted

Use the rubber finger tip cover.
Lead-free solder
Wire type : $\varnothing 0.6$
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip: T1-1BC

Soldering iron tip temperature: $300 \pm 10^\circ\text{C}$
Soldering iron tip contacting time within 2 sec.



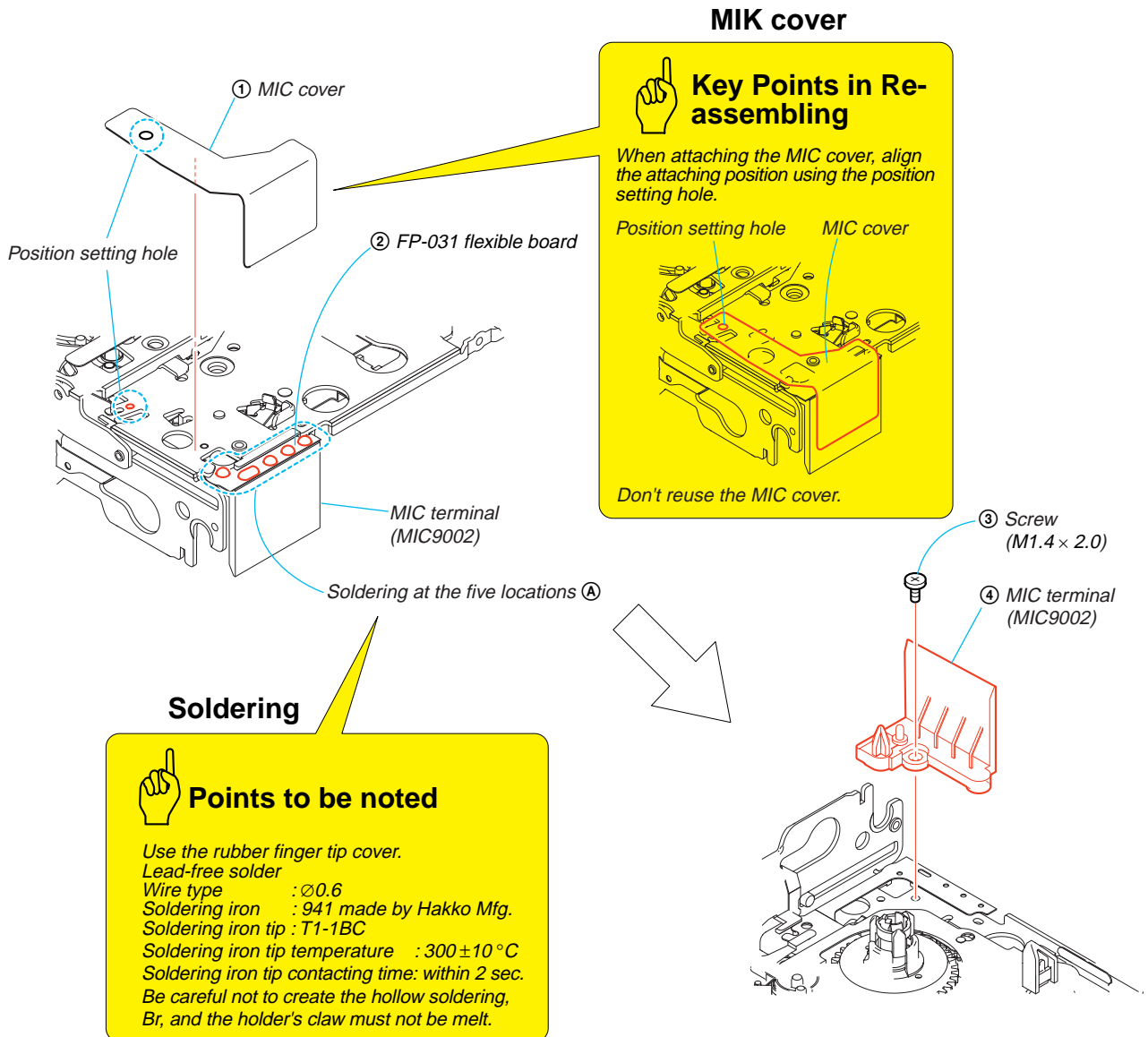
3-8. MIC terminal (MIC9002)

1. Removal procedure

- 1) Enter the [ULE] mode.
- 2) Peel away the MIC cover ①.
- 3) Remove soldering at the five locations ①, and remove the FP-031 flexible board ② from the MIC terminal (MIC9002) ④.
- 4) Remove the screw (special head screw M1.4 × 2.0) ③, and remove the MIC terminal (MIC9002) ④.

2. Attachment procedure

- 1) While pressing the top of the MIC terminal (MIC9002) ④, fix it with the screw (special head screw M1.4 × 2.0) ③.
Tightening torque: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 2) Remove soldering at the five locations ①, and install the FP-031 flexible board ② to the MIC terminal (MIC9002) ④.
- 3) Align the position setting hole with the hold and attach the MIC cover.
(Don't reuse the MIC cover.)



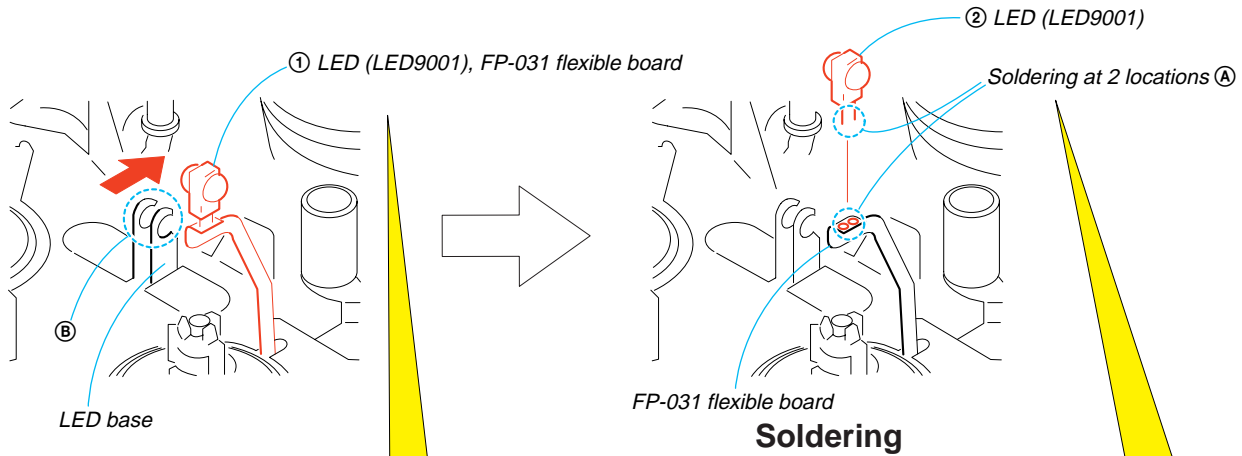
3-9. LED (LED9001)

1. Removal procedure

- 1) Remove the LED (LED9001) and the FP-031 flexible board ① from the LED base.
- 2) Remove soldering at the two locations ①, and remove the LED (LED9001) ②.

2. Attachment procedure

- 1) Remove soldering at the two locations ①, and install the LED (LED9001) ② in the FP-031 flexible board.
- 2) Roll up the FP-031 flexible board under the LED (LED9001) ① with fingertip, and insert the LED top head into the portion ② of the LED base. Then route the flexible board in the specified position.



LED (LED9001), FP-031 flexible board



Key Points in Re-assembling

- There must be no solder crack.
- There must be no scars and no stains.
- The flexible board must not have any breakdown.
- The retainer plate and LED block must not have any deformation.



Points to be noted

Direction of the terminal is specified.

Use the rubber finger tip cover.

Lead-free solder

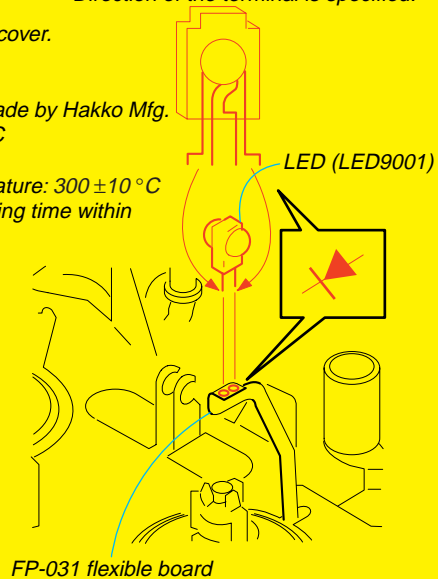
Wire type : $\varnothing 0.6$

Soldering iron : 941 made by Hakko Mfg.

Soldering iron tip: T1-1BC

Soldering iron tip temperature: $300 \pm 10^\circ\text{C}$

Soldering iron tip contacting time within 2 sec.



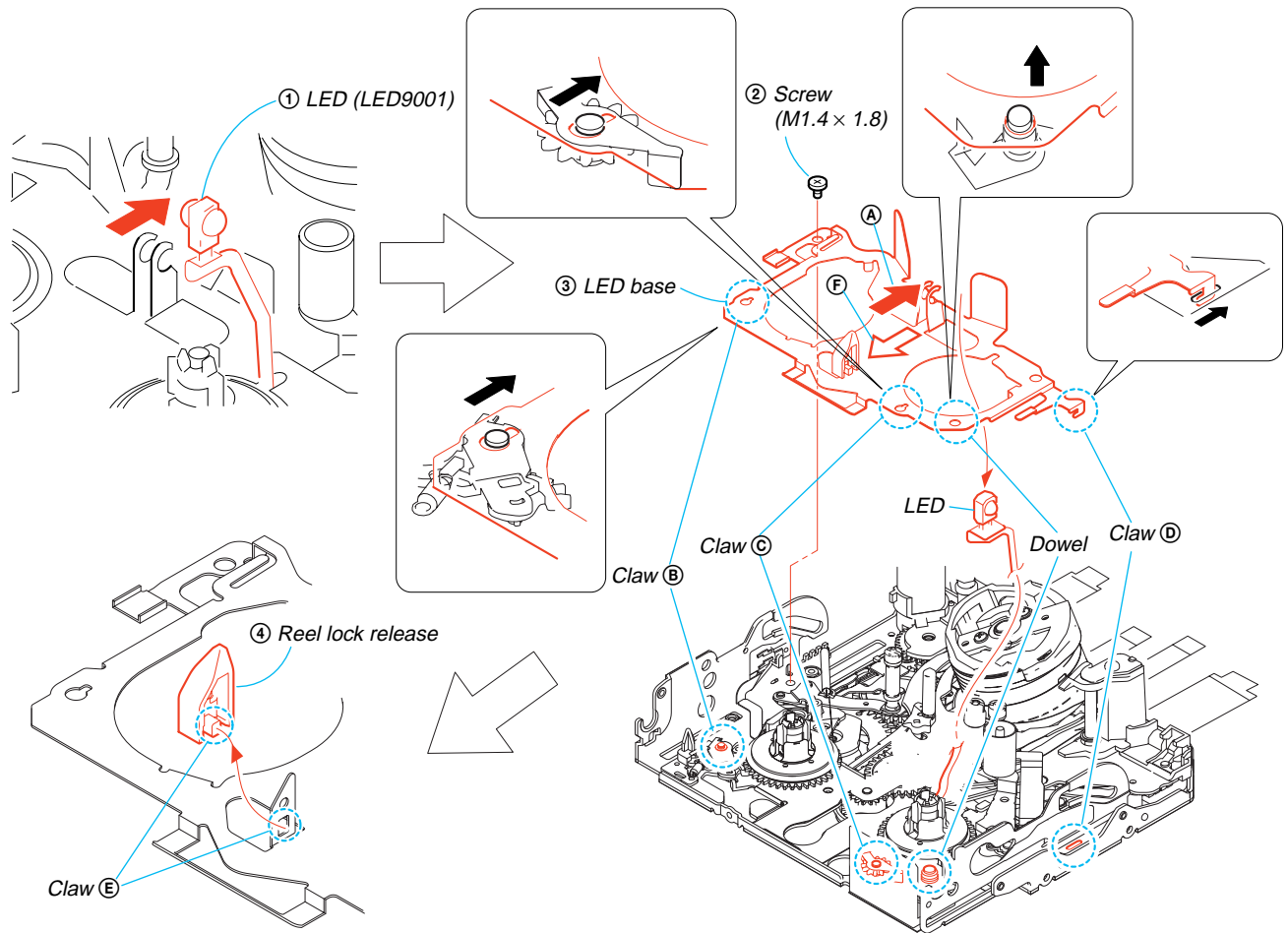
3-10. LED Base

1. Removal procedure

- 1) Remove the LED (LED9001) 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 ④, and disengage the three claws at ⑤, ⑥ and ⑦.
- 5) While freeing the LED from the LED base ③, remove the LED base ③.
- 6) Disengage the claw ⑧ and remove the Reel Lock Cancel.

2. Attachment procedure

- 1) Install the Reel Lock Cancel.
- 2) While passing the LED (LED9001) 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 ⑤ and ⑥, then slide the LED base ③ in the direction of the arrow ④, and engage the three claws ⑤, ⑥ and ⑦, and the dowel.
- 4) Install the screw (precision screw M1.4 × 1.8) ②.
Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 5) Install the LED (LED9001) 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.

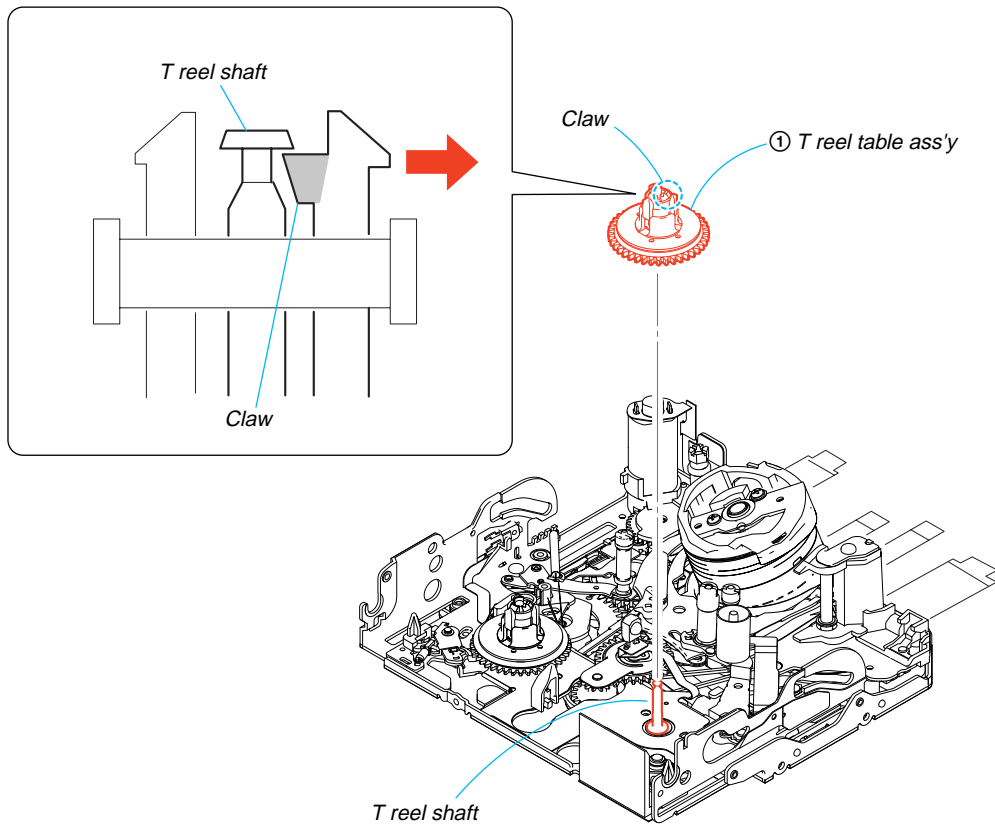
3-11. T-reel Table Ass'y

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

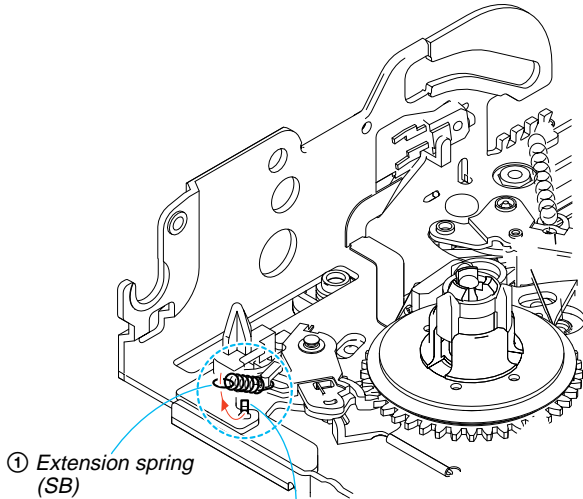
- 1) Verify that the part that is going to be installed is the T-reel table ass'y. Then insert it into the T-reel shaft. While rotating it, snap it in. (Verify that it is locked.)



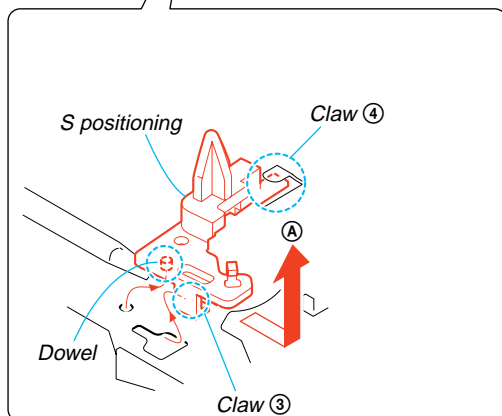
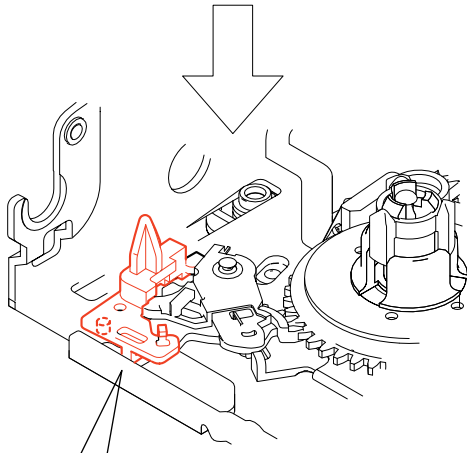
3-12. S Positioning

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 (A), and remove the claw ③ and disengage the dowel.
- 3) Remove the claw ④ and remove the S positioning ⑤.

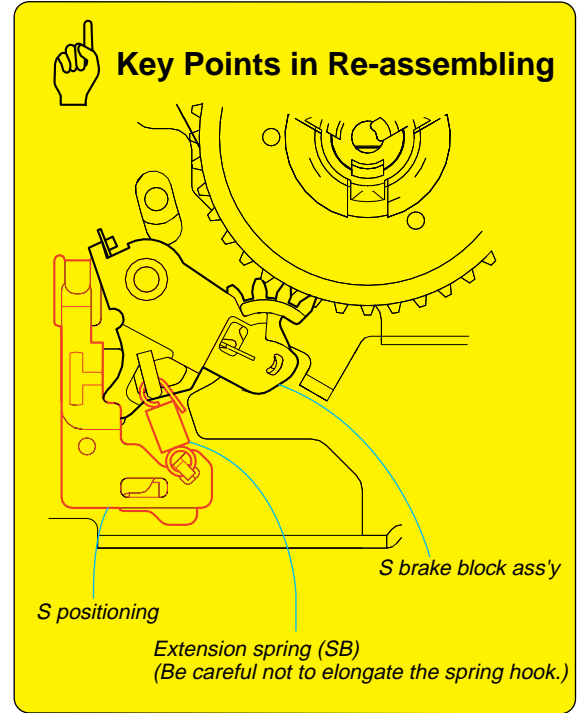


② Hook of the S positioning

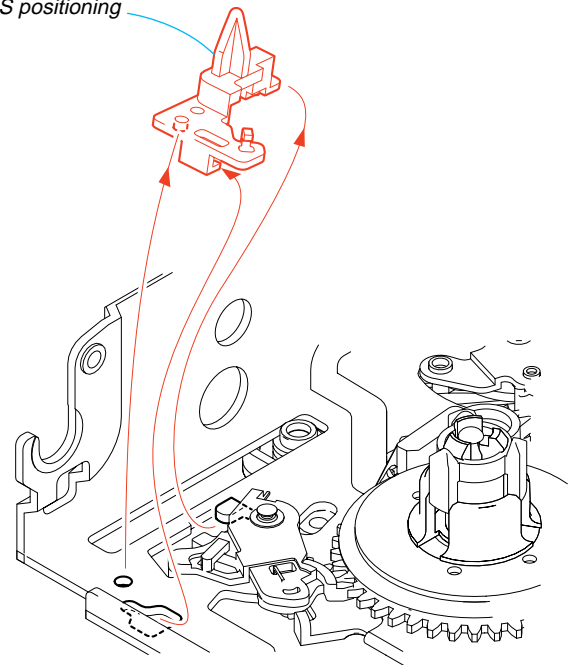


2. Attachment procedure

- 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.



⑤ S positioning



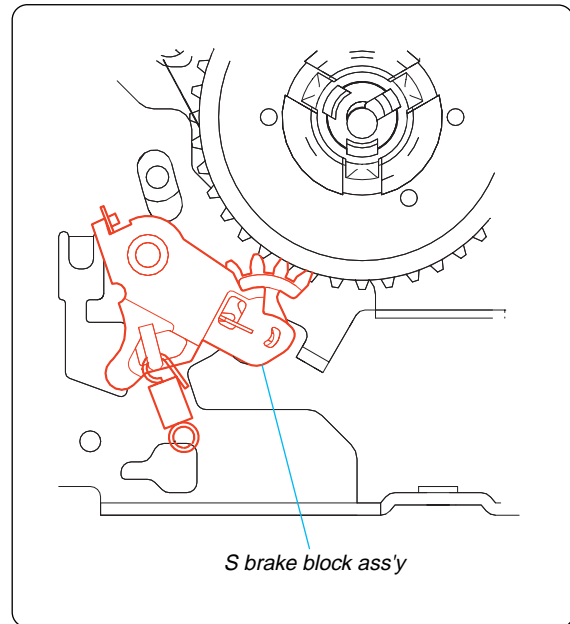
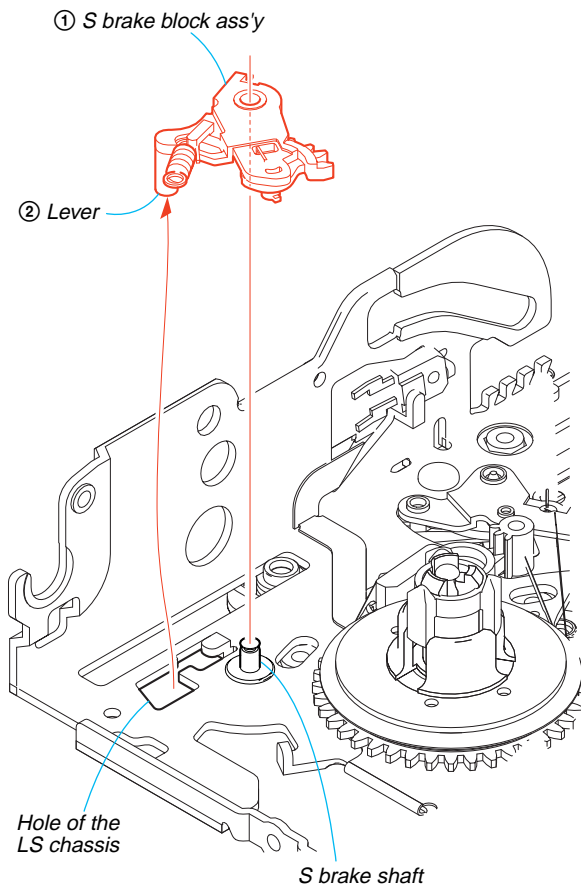
3-13. S Brake Block Ass'y

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

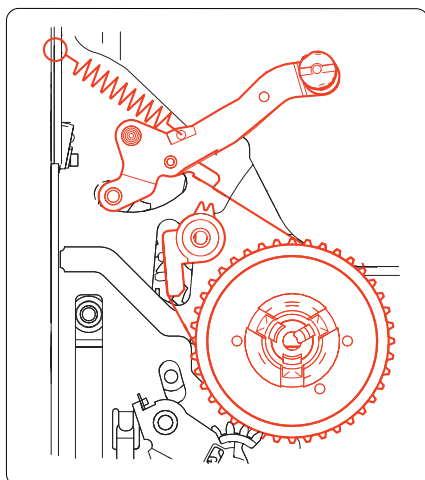
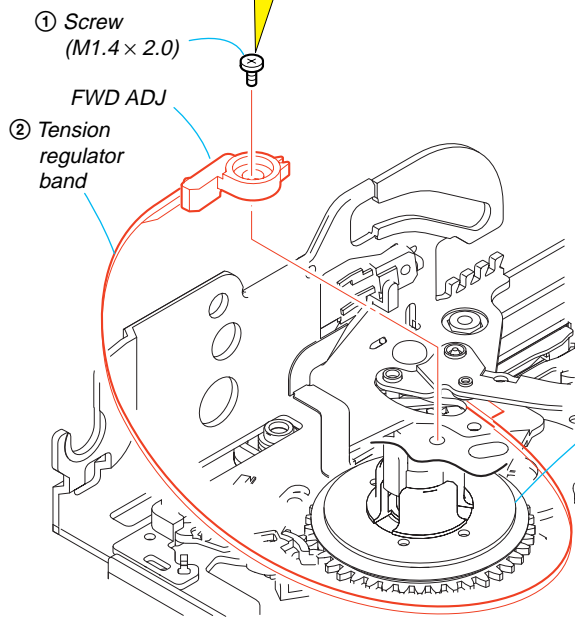
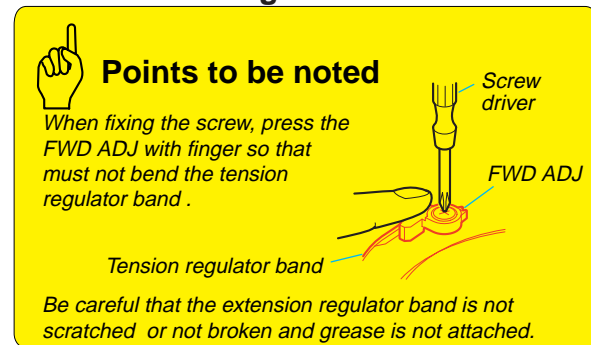
- 1) Remove the screw (special head screw M1.4 × 2.0) ①.
- 2) Remove the tension regulator band ② from the S-reel table ass'y.
- 3) Remove the tension regulator spring ③.
Note: Take a note where the tension regulator spring.
- 4) Remove the tension regulator block ass'y ④.

2. Attachment procedure

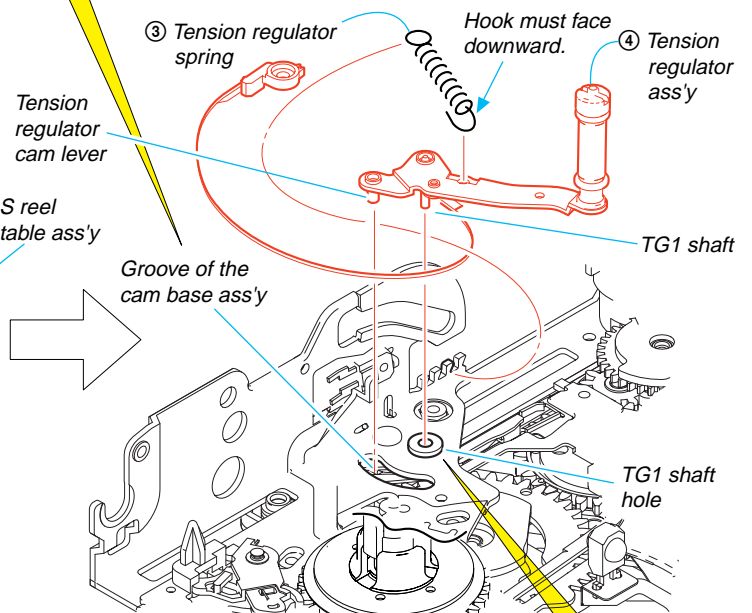
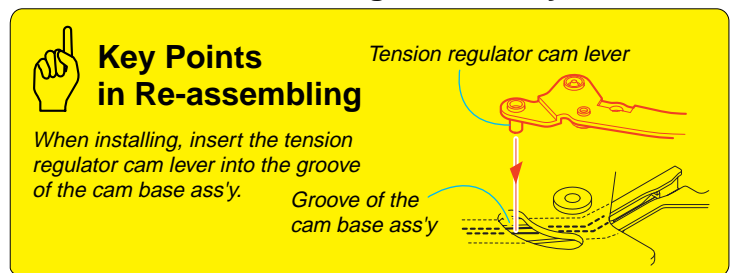
- 1) Apply grease into inside of the TG1 shaft hole.
Amount of grease: A ball of grease of 1.0 mm diameter.
Re-application of grease to the already-greased-point is not necessary.
- 2) While inserting the tension regulator cam lever into the groove of the cam base ass'y, insert the TG1 shaft into the 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: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 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.

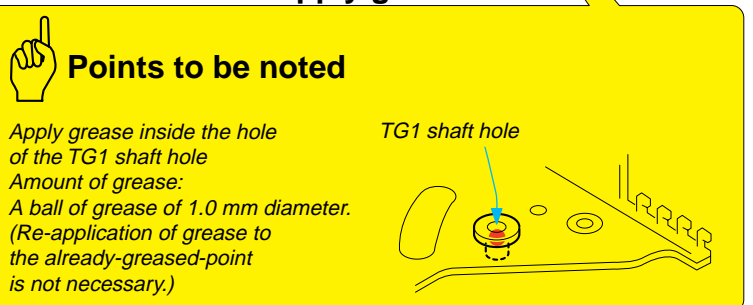
Fixing with screw



Tension regulator ass'y



Apply grease



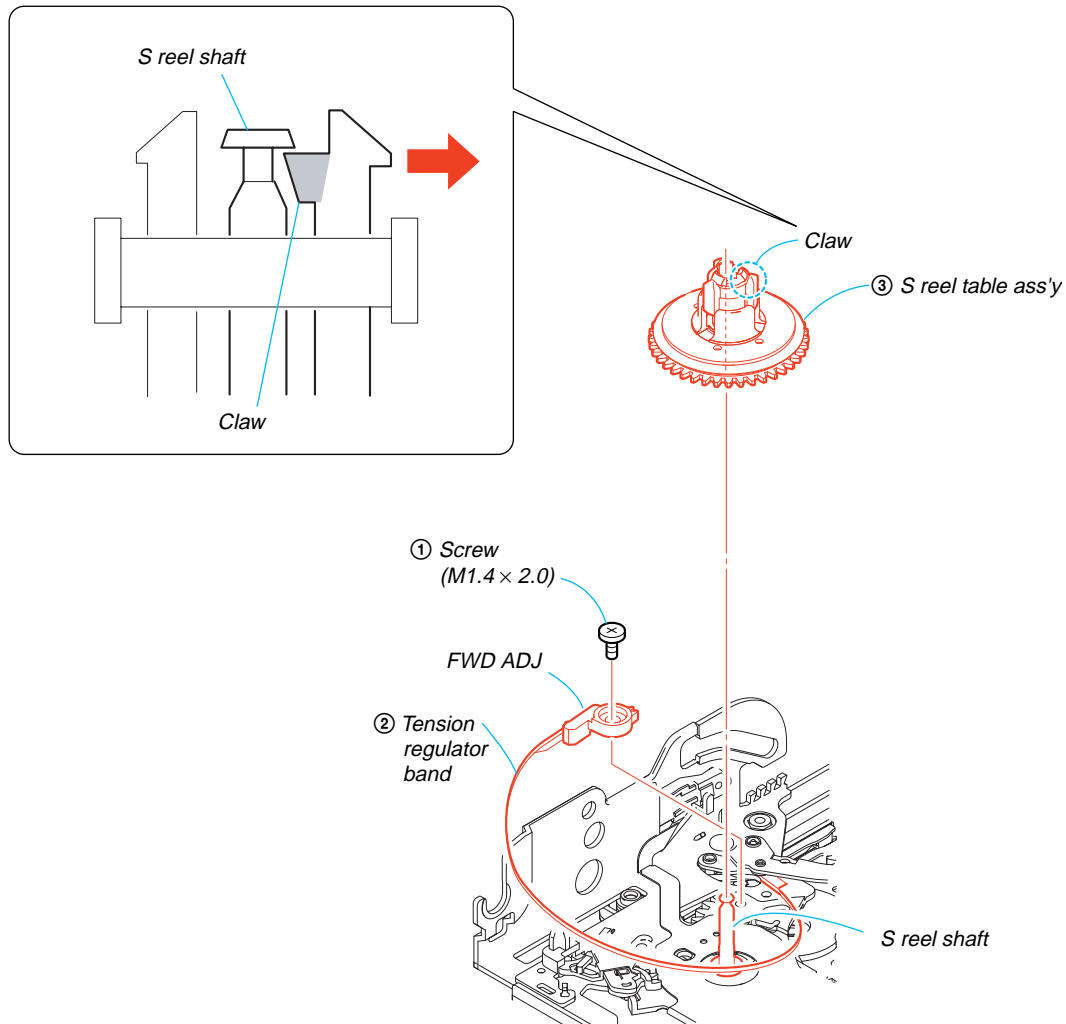
3-15. S Reel Table Ass'y

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: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)



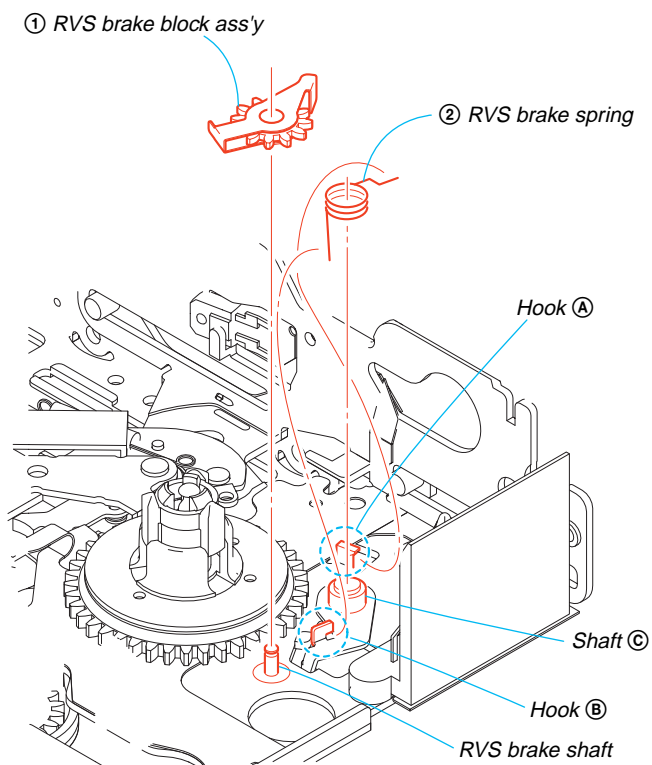
3-16. RVS Brake Ass'y

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 A and B.

2. Attachment procedure

- 1) Install the RVS brake spring ② in the shaft C, 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 D, and install the RVS brake ass'y ① into the RVS brake shaft.



RVS brake block ass'y

Key Points in Re-assembling

RVS brake block ass'y

RVS brake holder

RVS brake shaft

Hook B

Hook A

RVS brake block ass'y

RVS brake spring

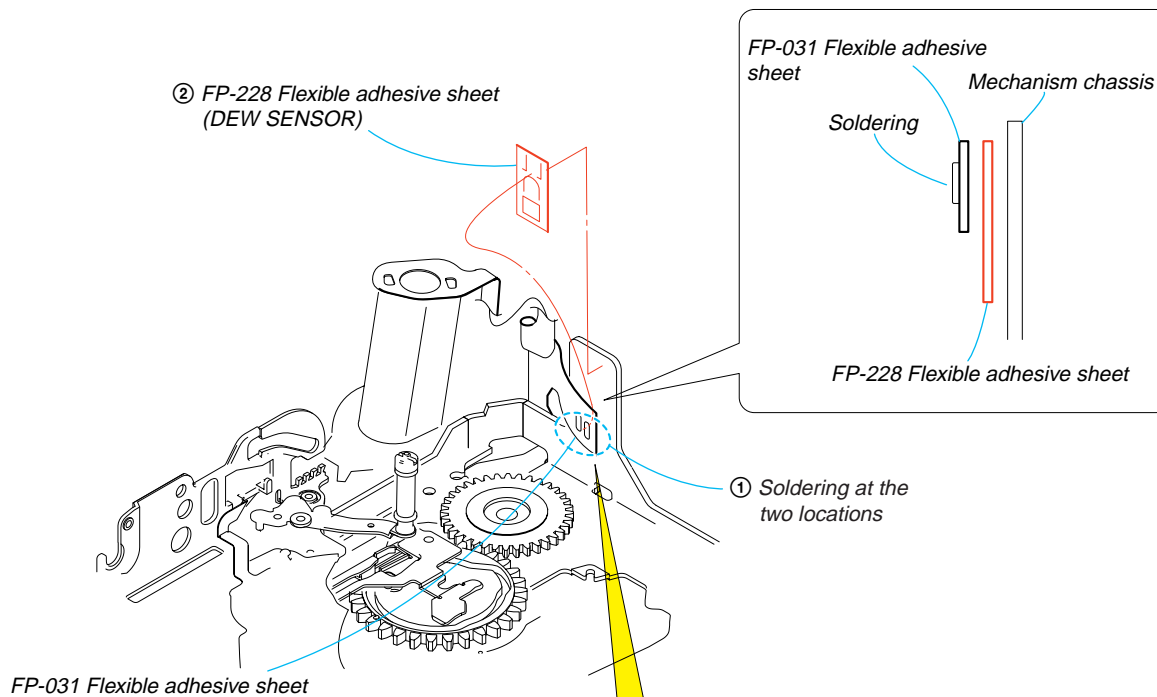
3-17. FP-228 Flexible Board

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 : $\varnothing 0.6$
Soldering iron : 941 made by Hakko Mfg.
Soldering iron tip : T1-1BC
Soldering iron tip temperature : $300 \pm 10^{\circ}\text{C}$
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.

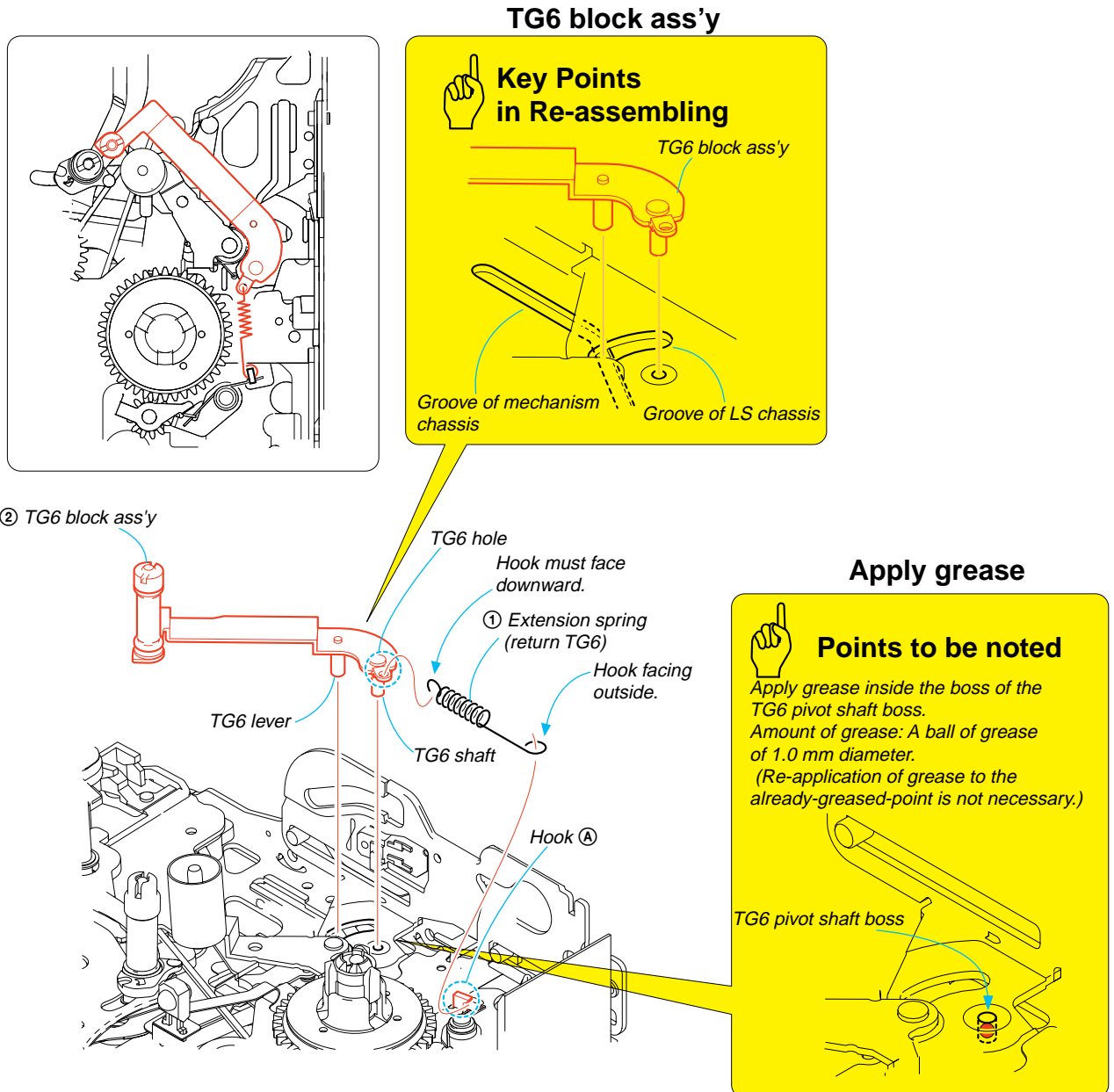
3-18. TG6 Block Ass'y

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 ① and hole of the TG6.



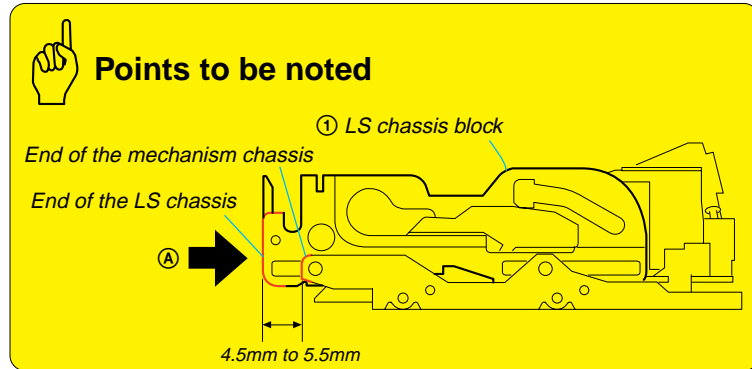
3-19. Pinch Arm Ass'y

1. Removal procedure

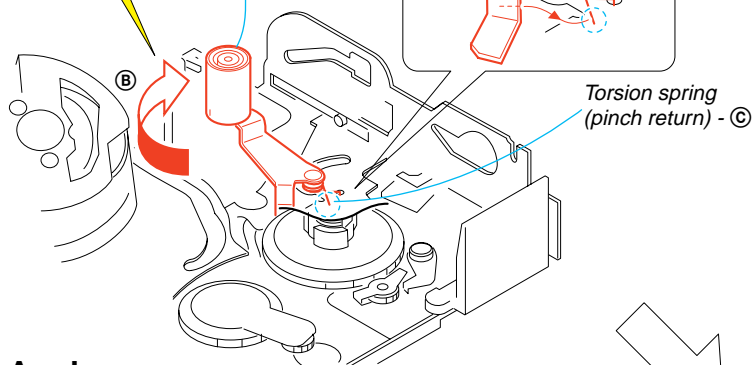
- 1) Move the LS chassis in the direction of arrow **(A)** so that the distance between the end of the LS chassis and end of the mechanism chassis is in the range of 4.5 mm to 5.5 mm.
- 2) Rotate the pinch arm ass'y **(2)** in the direction of arrow **(B)**, and remove the torsion spring (pinch return) **(C)**.
- 3) Remove the pinch arm ass'y **(3)**, and remove the torsion spring (pinch return) **(4)**.

2. Attachment procedure

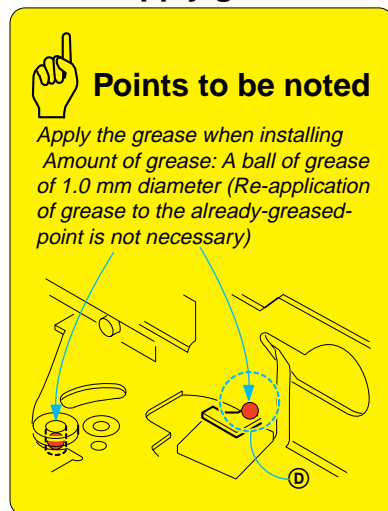
- 1) Apply grease on the pinch arm shaft retainer hole and the portion **(D)** of the LS chassis.
Amount of grease: A ball of grease of 1.0 mm diameter.
- 2) Move the LS chassis in the direction of arrow **(A)** so that the distance between the end of the LS chassis and end of the mechanism chassis is in the range of 4.5 mm to 5.5 mm.
- 3) Insert the portion **(E)** 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 **(F)**.



(2) Pinch arm ass'y



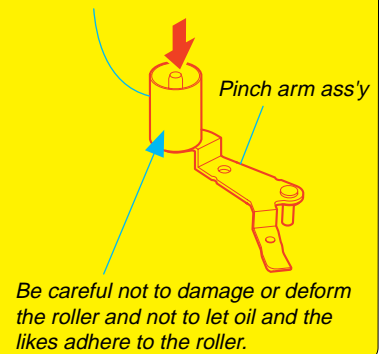
Apply grease



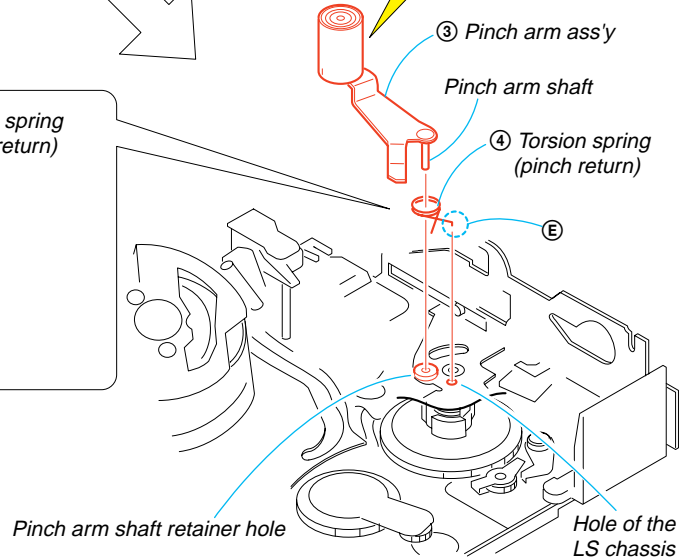
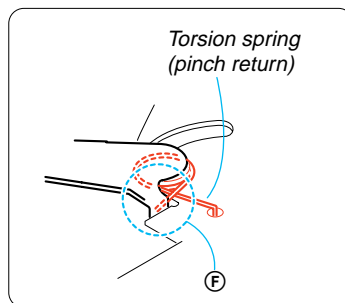
Pinch arm ass'y



Do not press the head of the roller when installing the pinch arm.



Be careful not to damage or deform the roller and not to let oil and the likes adhere to the roller.



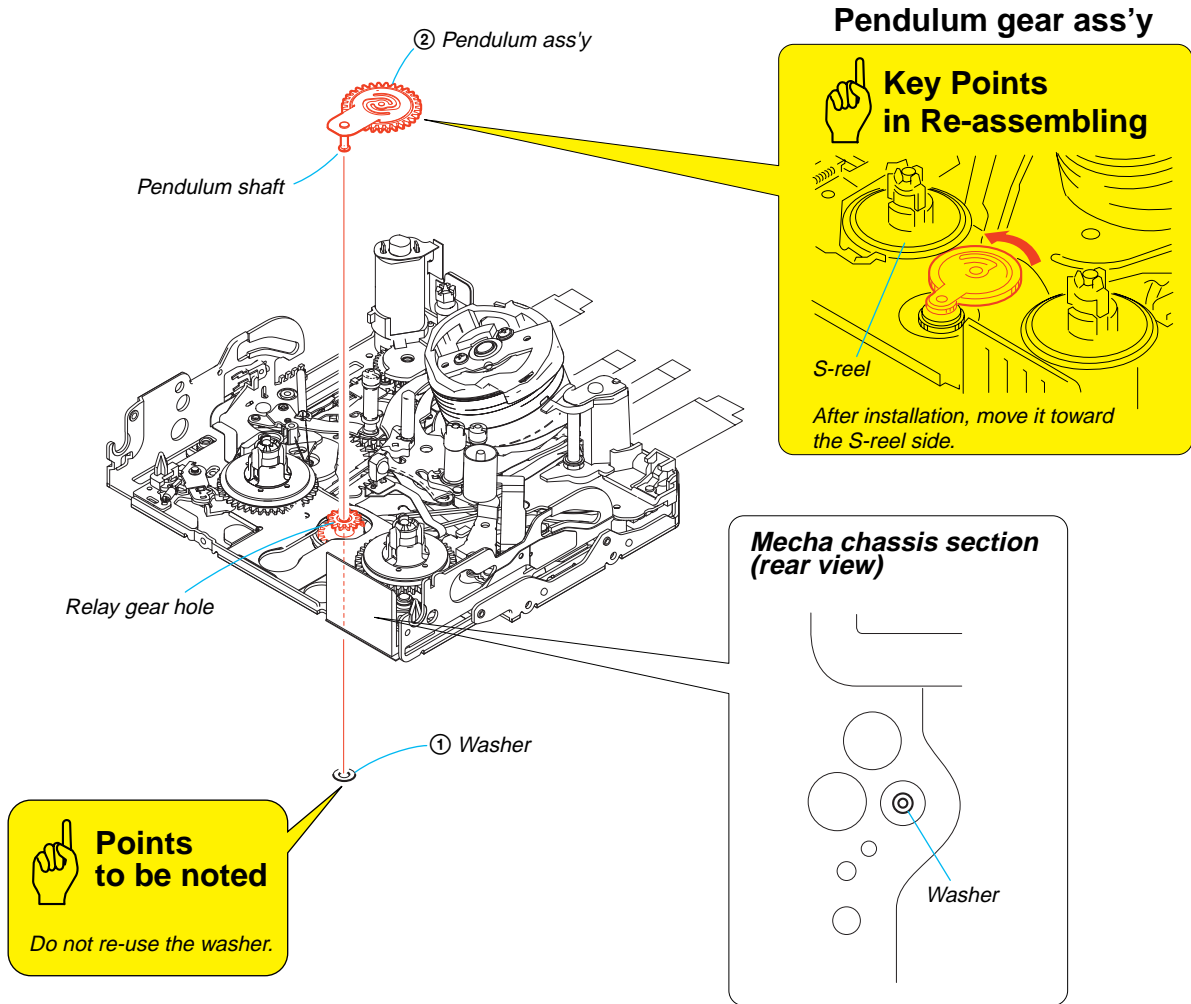
3-20. Pendulum Ass'y

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.)



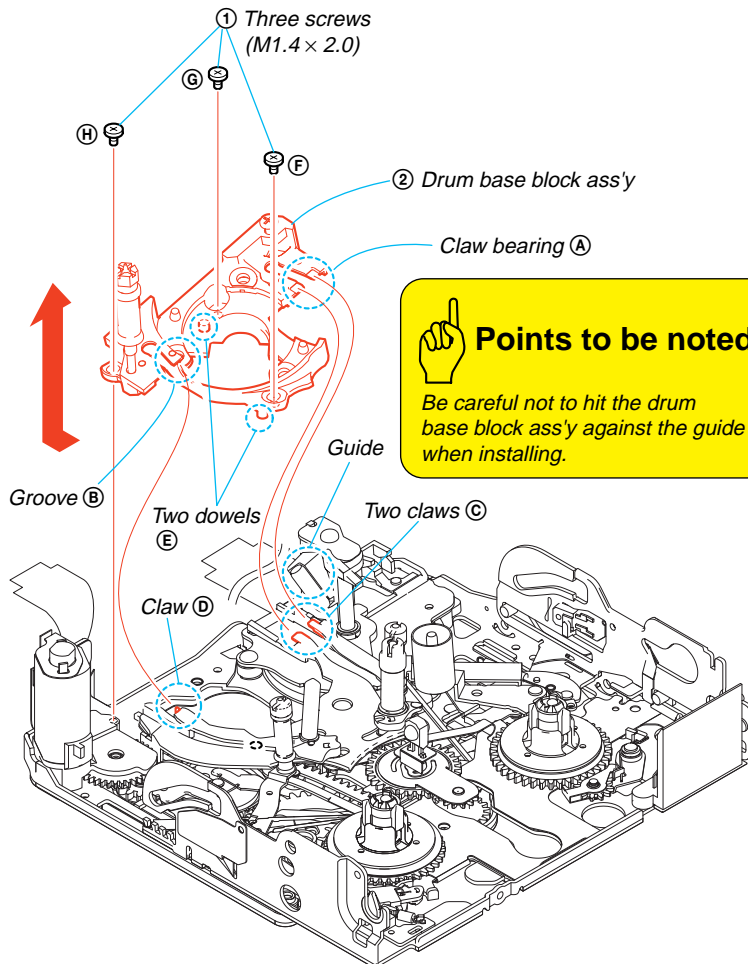
3-21. Drum Base Ass'y

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.

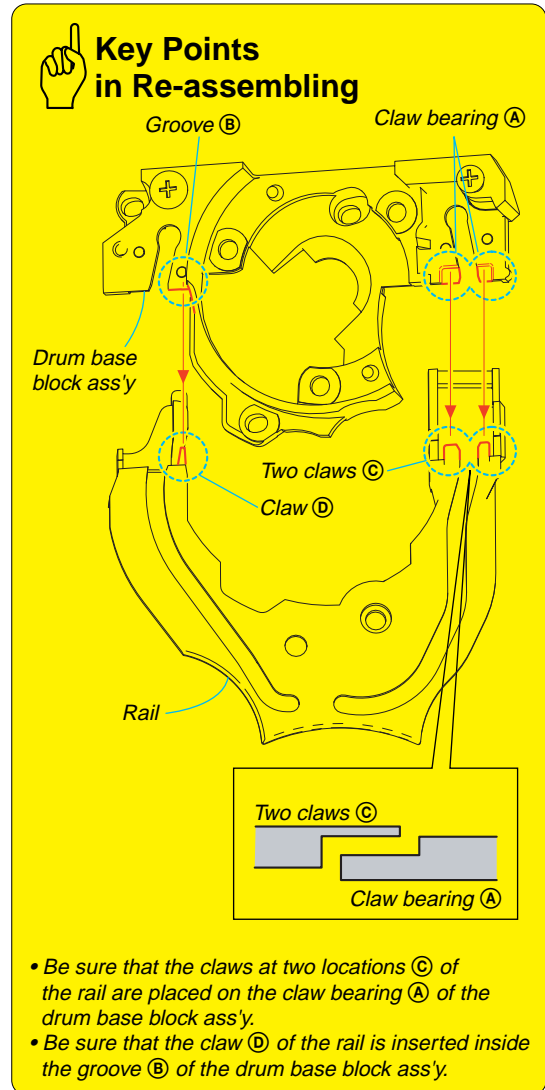
2. Attachment procedure

- 1) Install the claw bearing ① and then groove ② of the drum base ass'y in the claws ③ in two locations and the claw ④ of the rail, respectively.
- 2) Align the two dowels of the drum base ass'y at the ⑤ 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 ⑥, ⑦ and ⑧.
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.



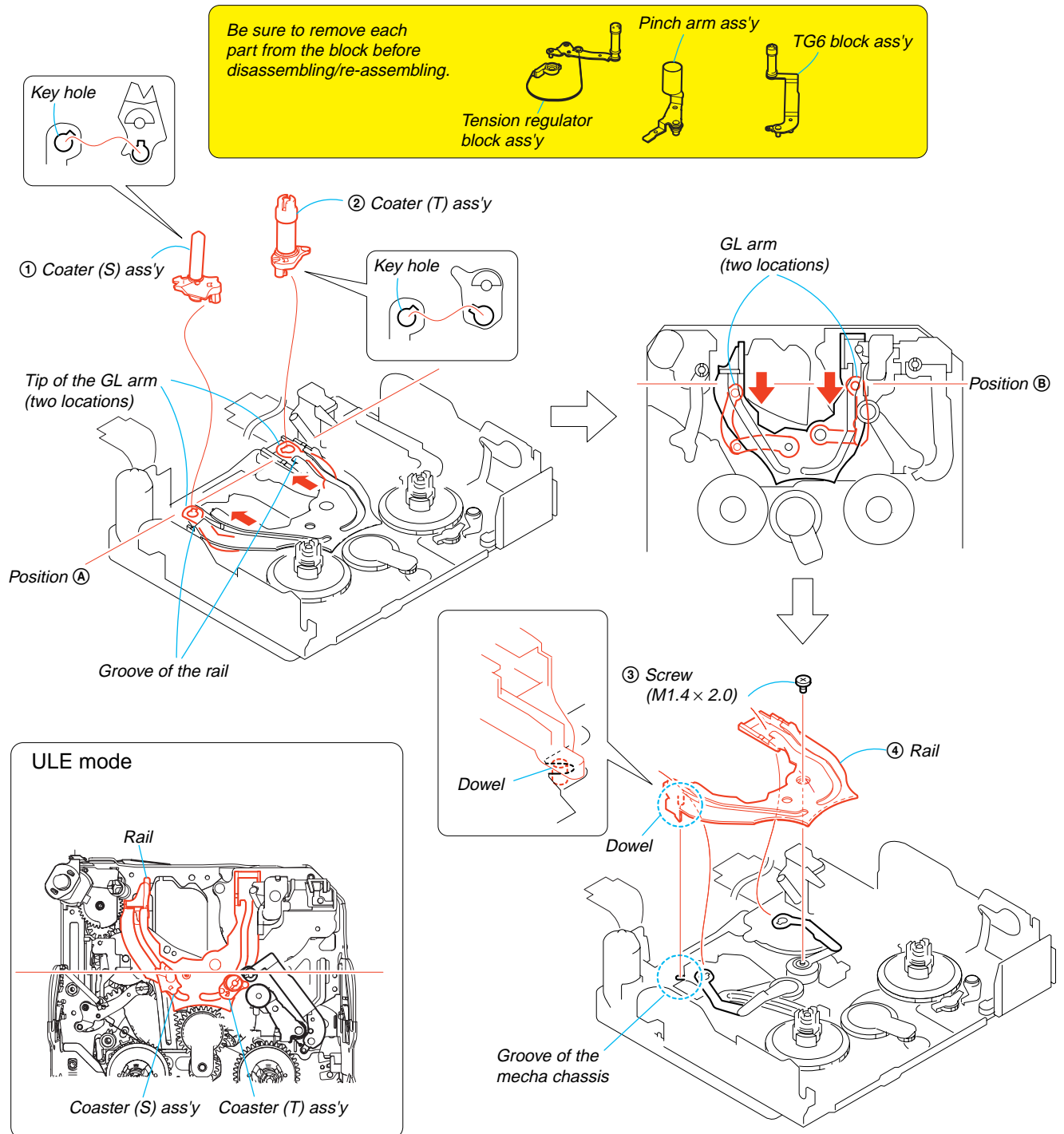
3-22. Coaster Ass'y, Rail

1. Removal procedure

- 1) Load the GL arms (two locations) until the tips of the arms reach the position ①.
- 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 ②.
- 4) Remove the screw (special head screw M1.4 × 2.0) ③, and remove the rail ④.

2. Attachment procedure

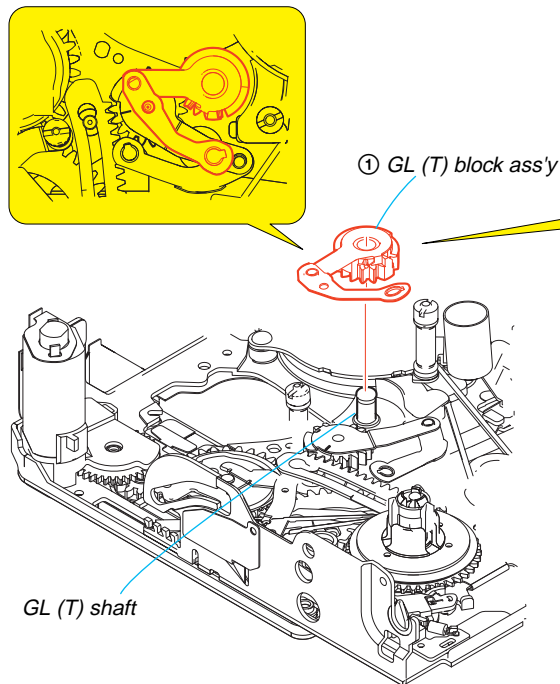
- 1) Set the dowel of the rail to the groove of the mecha chassis, and install the rail and install the screw (special head screw M1.4 × 2.0).
Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.41 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 2) Load the GL arms (two locations) until the tips of the arms reach the position ①.
- 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

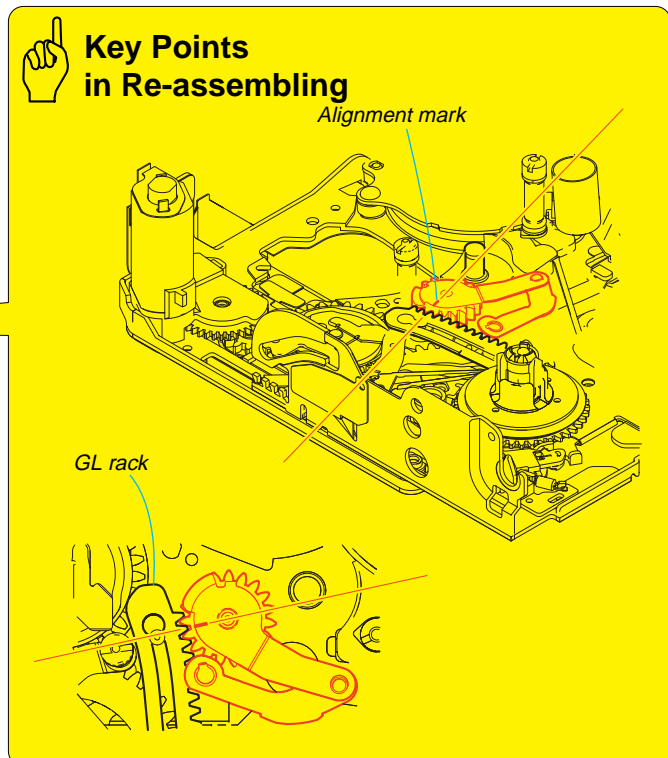
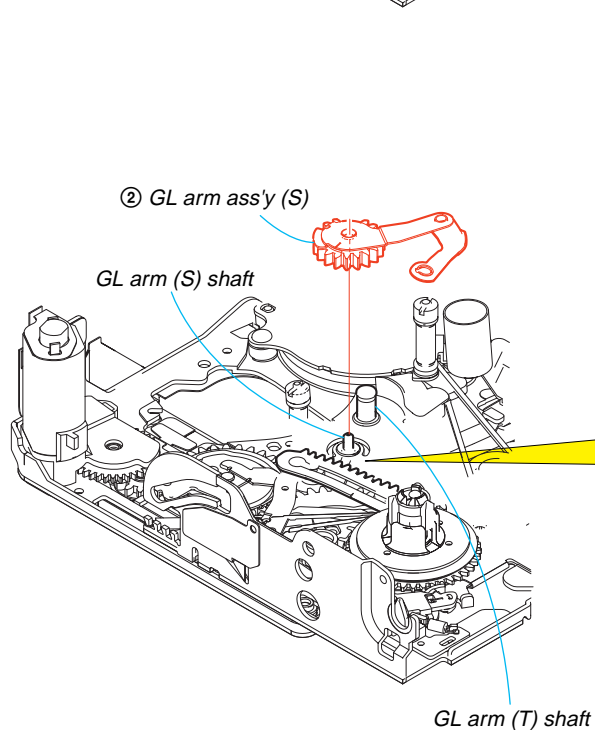
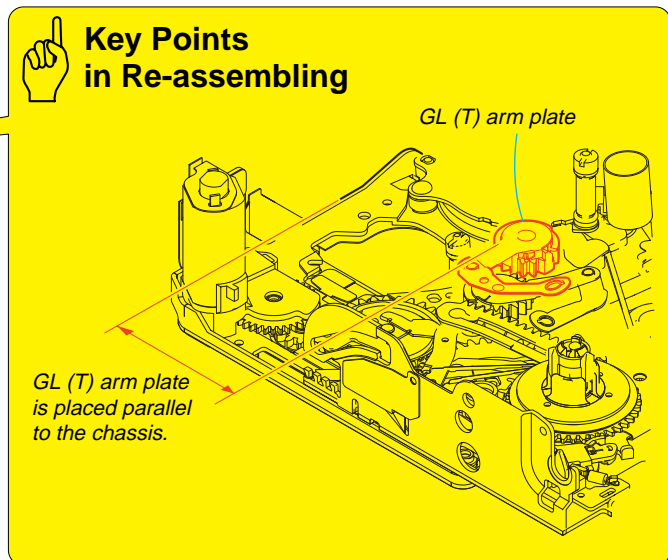
1. Removal

- 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

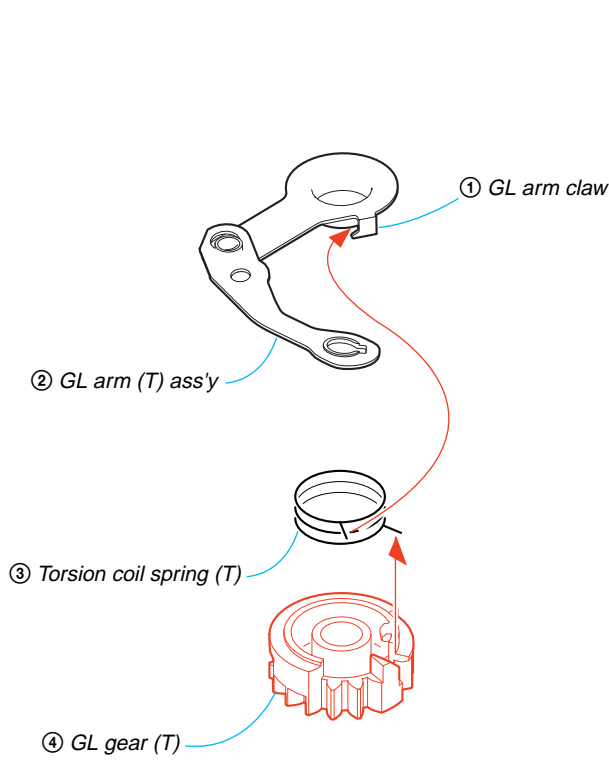
- 1) Enter the **ULE** mode.
- 2) Installing the GL arm (S) ass'y
Install the GL arm (S) ass'y ② to the GL arm (S) shaft, while aligning the second gear of the GL rack with the phase alignment mark.
- 3) Installing the GL (T) block ass'y
Install the GL (T) block ass'y ① to the GL (T) shaft, in the way 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)

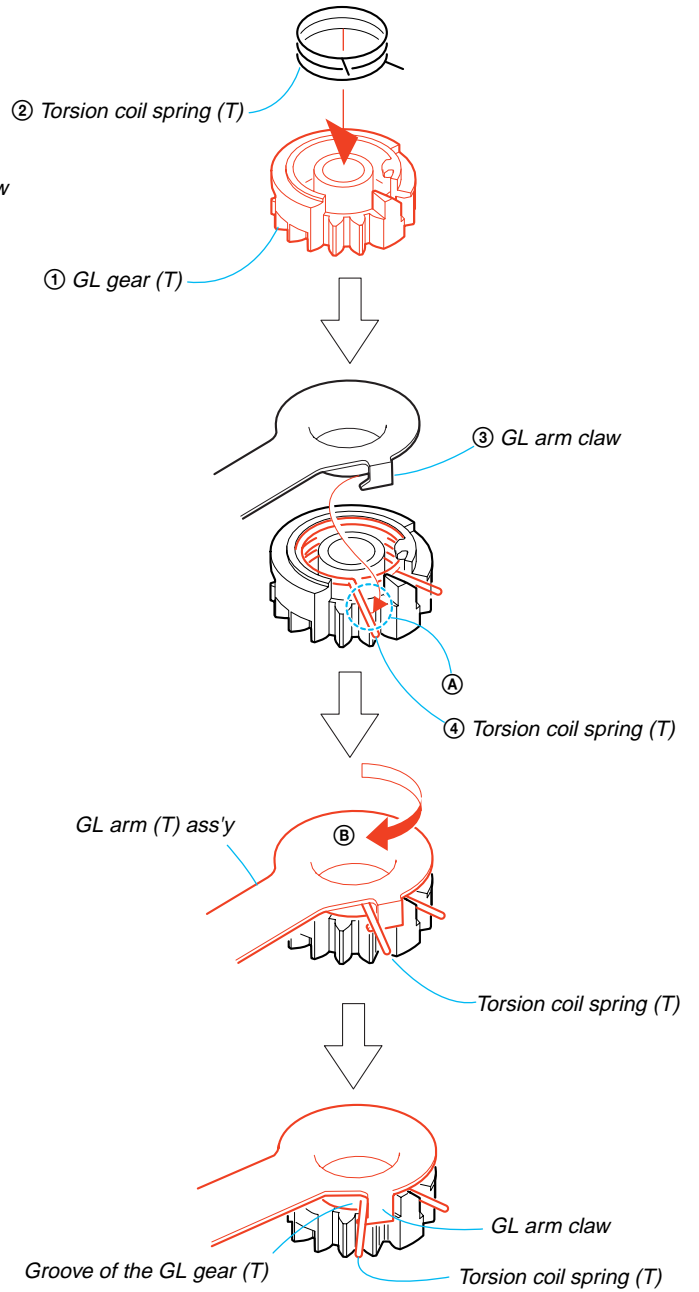
1. Removal procedure

- 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

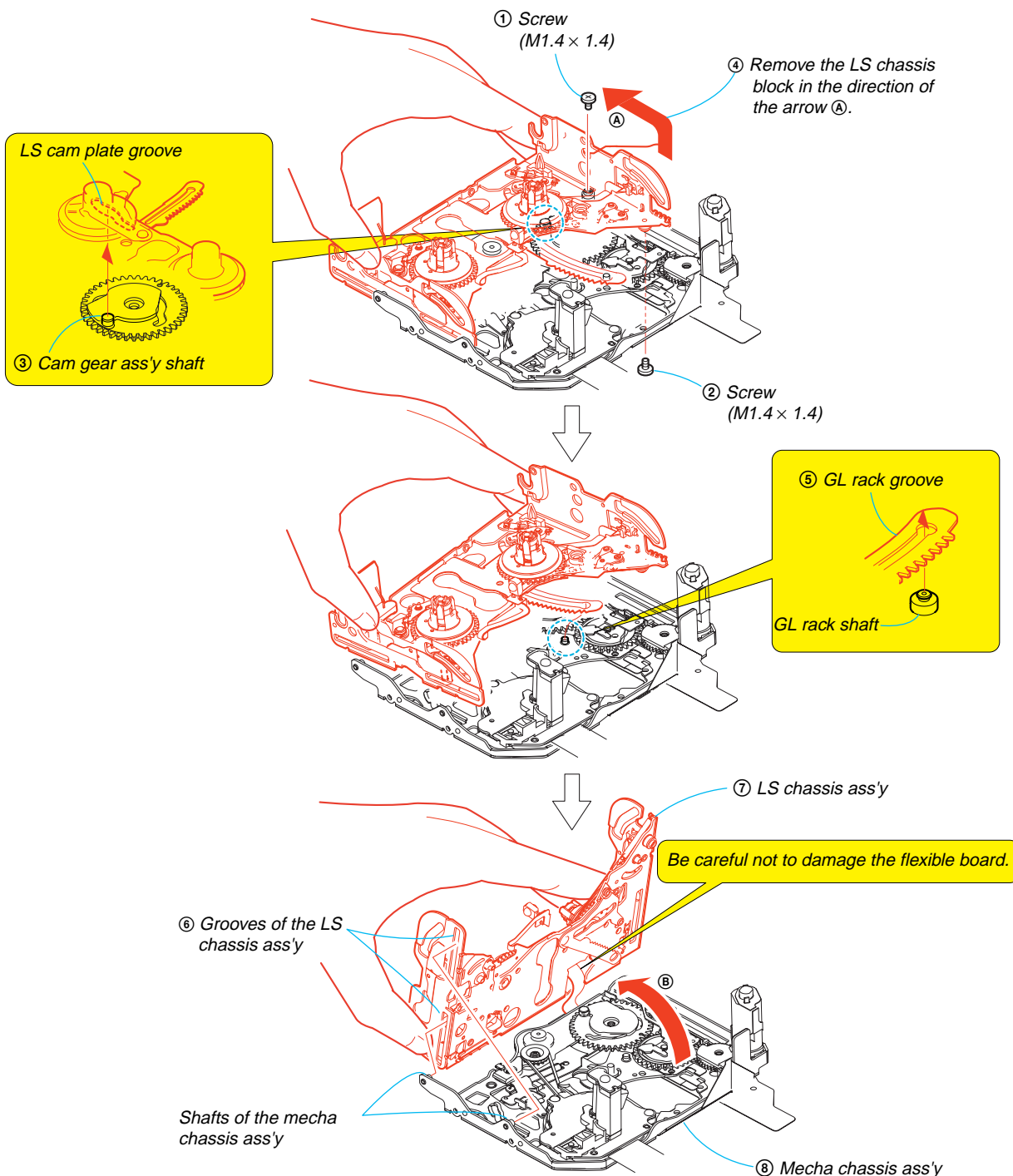
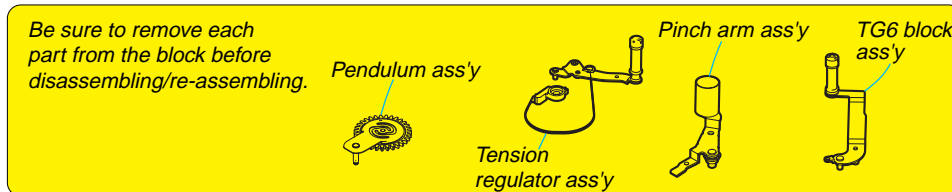
- 1) Install the torsion coil spring (T) ② in the GL gear (T) ①.
- 2) Engage the GL arm (T) claw ③ in the (A) portion of the torsion coil spring (T).
- 3) Engage the GL arm (T) claw in the groove of the GL gear (T) by rotating the GL arm (T) ass'y in the direction of the arrow (B).



3-25. LS Chassis Block, Mechanism Chassis Block-1

1. Removal procedure

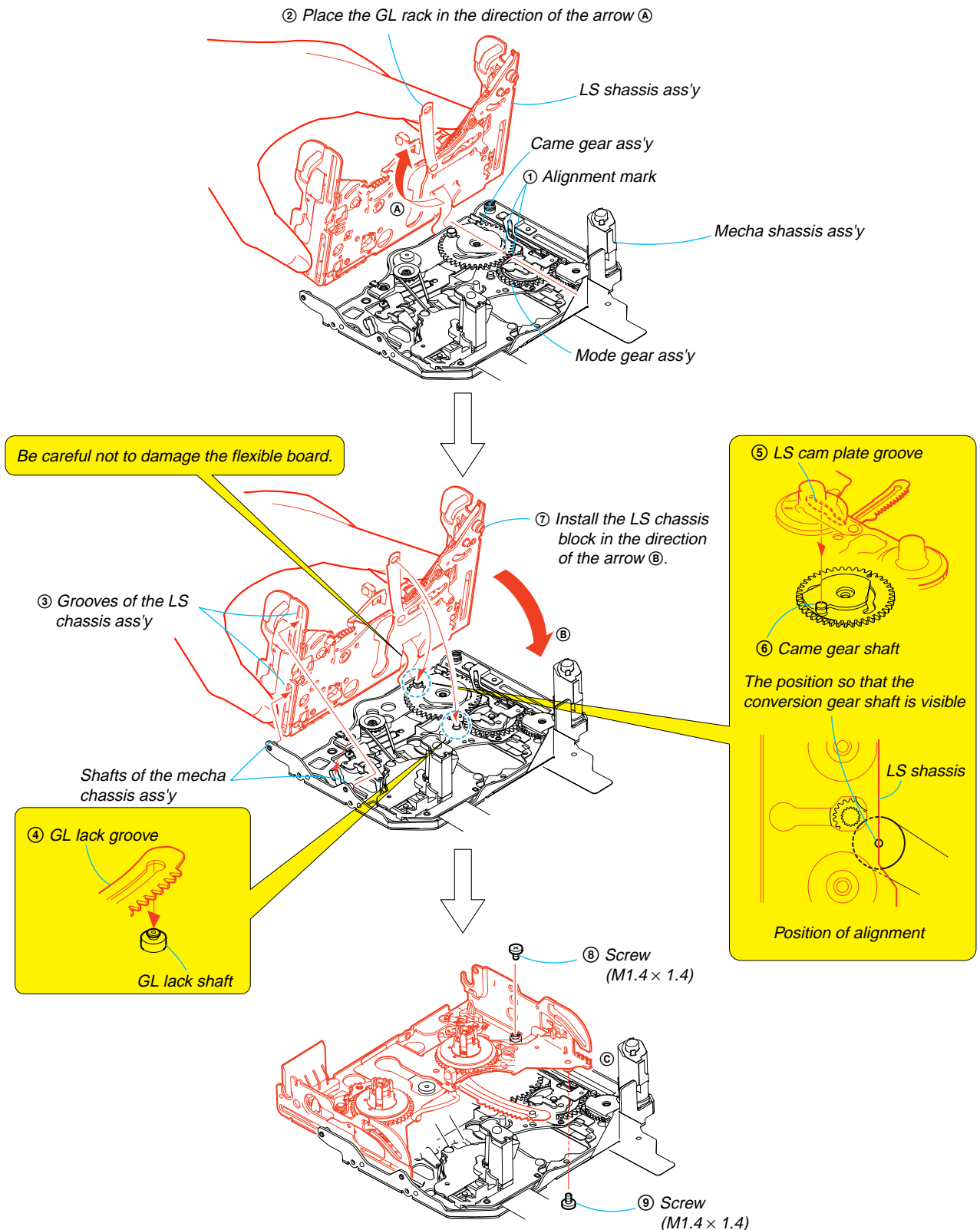
- 1) Enter the **ULE** mode.
- 2) Remove the screw (special head screw M1.4 × 1.4) ①.
- 3) Remove the screw (special head screw M1.4 × 1.4) ②.
- 4) Remove the cam gear ass'y shaft ③ from the LS cam plate groove of the LS chassis block.
- 5) Remove the LS chassis block ④ in the direction of the arrow **A**.
- 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 **B**.



3-26. LS Chassis Block, Mechanism Chassis Block-2

1. Attachment procedure

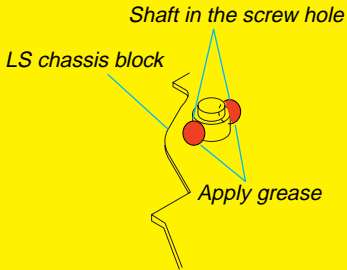
- 1) Enter the **ULE** mode.
 - 2) Align the phase alignment mark ① of the cam gear ass'y and the mode gear ass'y of the mechanism chassis.
 - 3) Place the GL rack ② in the direction of the arrow ①.
 - 4) Insert the mechanism chassis shafts in two locations into the two grooves of the LS chassis block.
 - 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 ②. (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: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
 - 9) Install the screw (special head screw M1.4 × 1.4) ⑨. Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)



Apply grease

Points to be noted

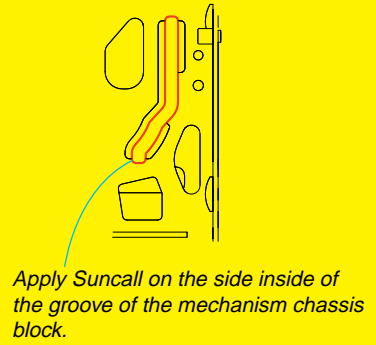
Apply the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter



Apply grease

Points to be noted

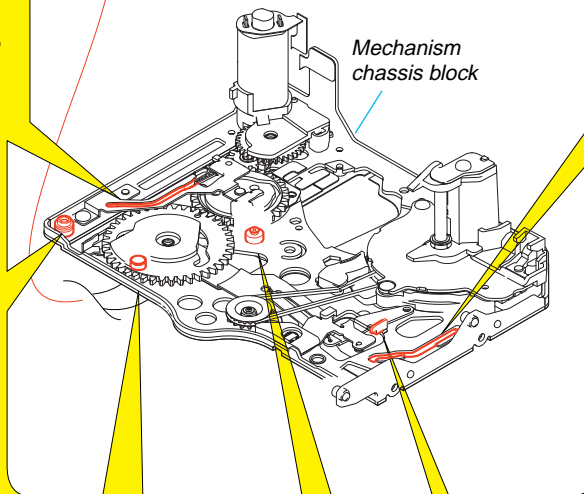
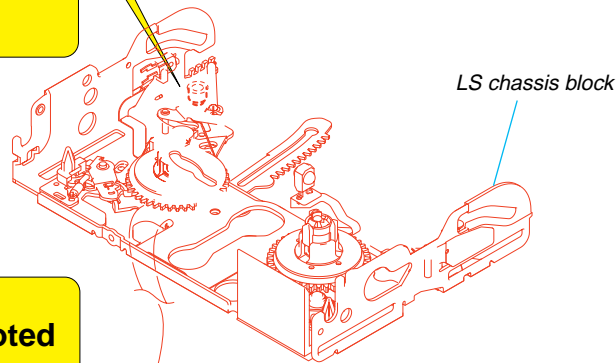
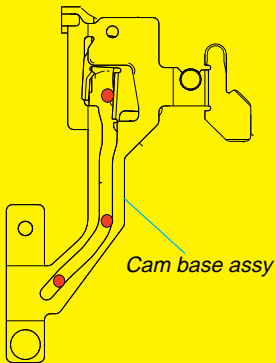
Apply Suncall (FG-87HSR) when installing
Amount of Suncall: A ball of grease of 1.0 mm diameter



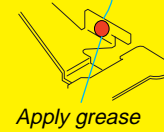
Apply grease

Points to be noted

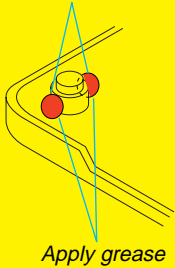
Apply the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter



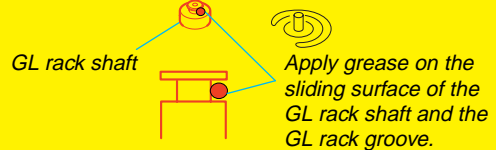
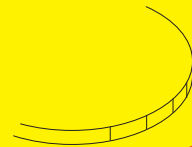
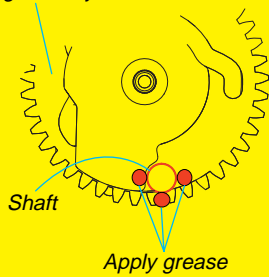
On the side inside of press arm



Shaft in the screw hole



Cam gear assy



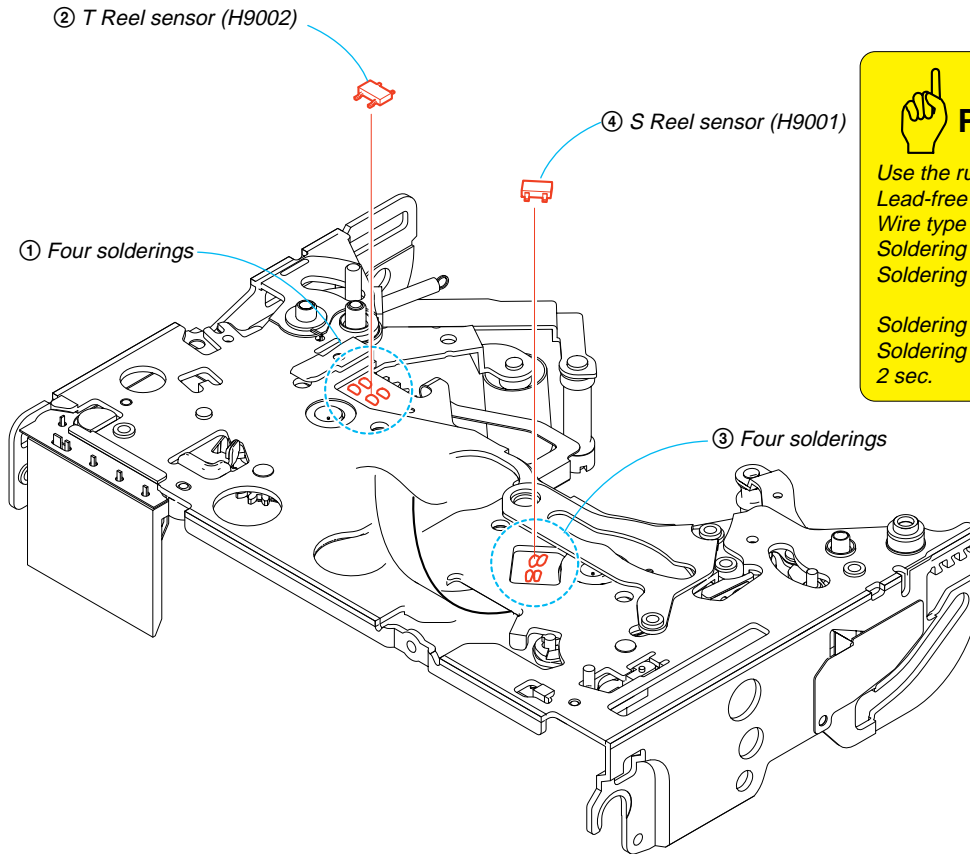
3-27. T Reel Sensor (H9002), S Reel Sensor (H9001)

1. Removal procedure

- 1) Remove soldering at the four locations ① of the T reel sensor, and remove the T reel sensor (H9002) ②.
- 2) Remove soldering at the four locations ③ S reel sensor, and remove the S reel sensor (H9001) ④.

2. Attachment procedure

- 1) Solder four locations ③ S reel sensor and install the S reel sensor (H9001) ④ in the FP-031 flexible board.
- 2) Solder four locations ① S reel sensor and install the T reel sensor (H9002) ② in the FP-031 flexible board.



Soldering



Points to be noted

Use the rubber finger tip cover.

Lead-free solder

Wire type : $\Delta 0.6$

Soldering iron : 941 made by Hakko Mfg.

Soldering iron tip: T1-1BC

Soldering iron tip temperature: $300 \pm 10 \text{ }^\circ\text{C}$

Soldering iron tip contacting time within 2 sec.

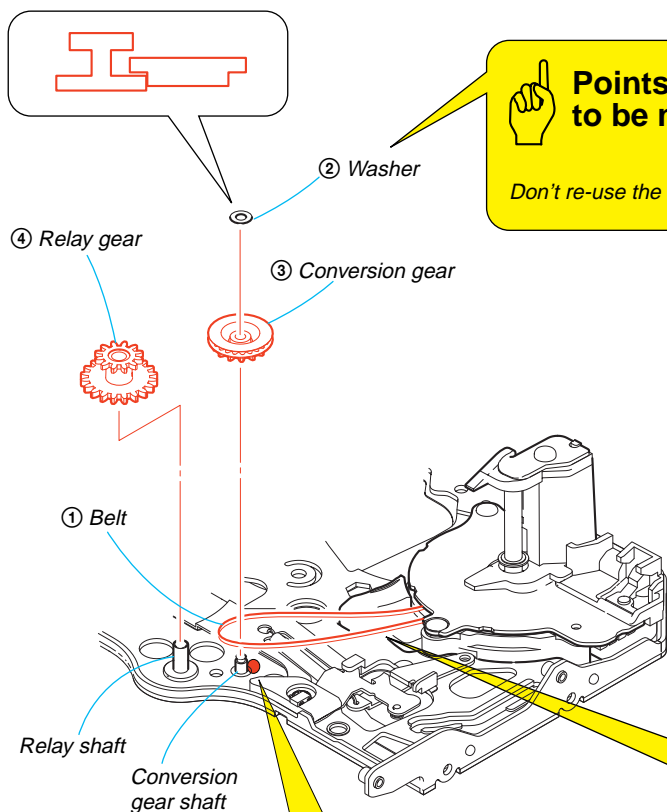
3-28. Relay Gear, Conversion Gear

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.

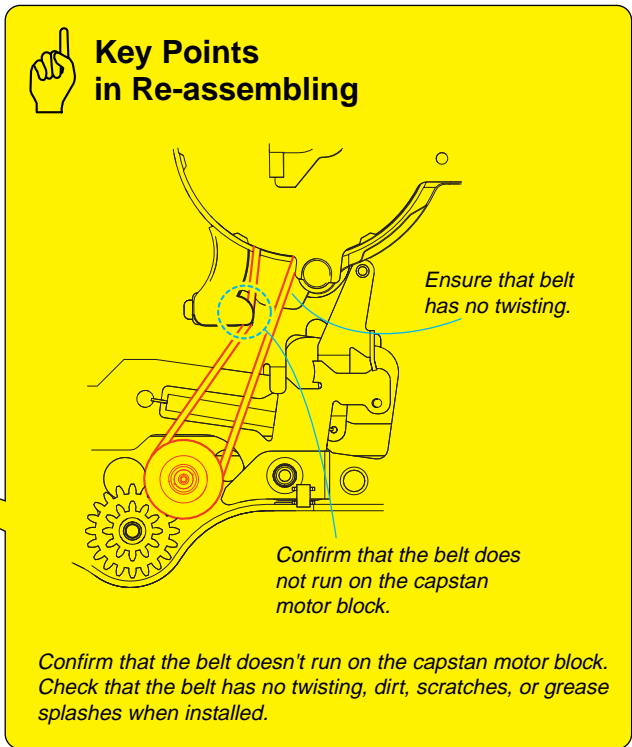
2. Attachment procedure

- 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.



Points to be noted
Don't re-use the washer.

Belt



Points to be noted
Apply grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter
Apply grease
Conversion gear shaft

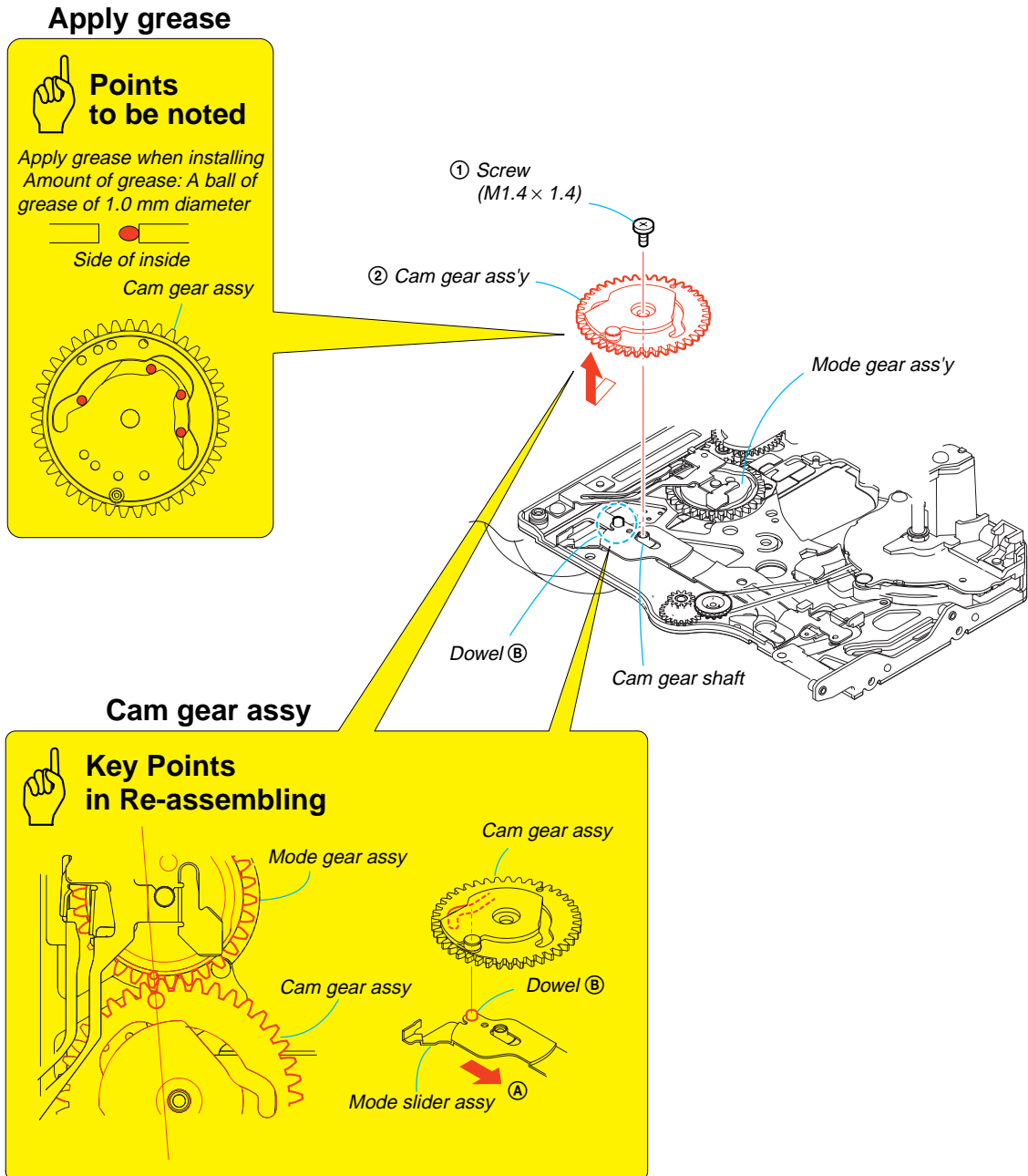
3-29. Cam Gear Ass'y

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 ④ 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 ⑤ 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: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)



3-30.Mode Slider Ass'y

1. Removal procedure

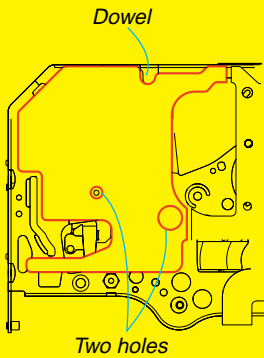
- 1) Remove the capstan cover ① and remove the extension spring (pinch limiter) ②.
- 2) Remove the belt ③ from the conversion gear.
- 3) Remove the screw (special head screw M1.4 × 1.4) ④.
- 4) Remove the EJ lever retainer ⑤ from the mode slide shaft.
- 5) Remove the mode slider ass'y ⑥ from the cam 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 ⑧ in the groove ⑦ and install the mode slider ass'y ⑥ while aligning its side ① and ② engage it in the claw of the LS chassis, then install the mode slider ass'y ⑥.
- 3) Install the EJ lever retainer ⑤ while engaging the dowel ④.
- 4) Install the screw (special head screw M1.4 × 1.4) ④.
Tightening torque: $0.04 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 5) Hook the belt ③ on the conversion gear and install it while rotating the conversion gear.
- 6) Install the tension coil spring (pinch limiter) ② while being careful of the orientation of the hook.
- 7) And attach the capstan cover ①. (Don't re-use the capstan cover.)

Capstan cover (Align the attaching position)

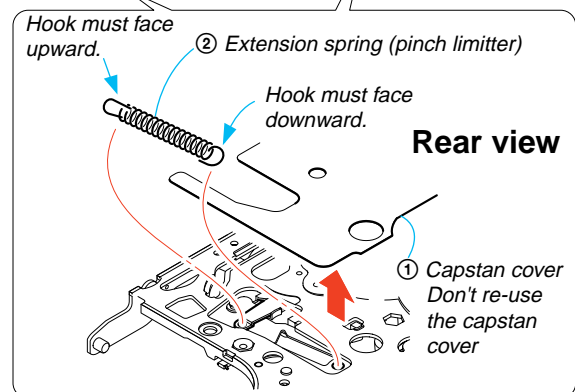
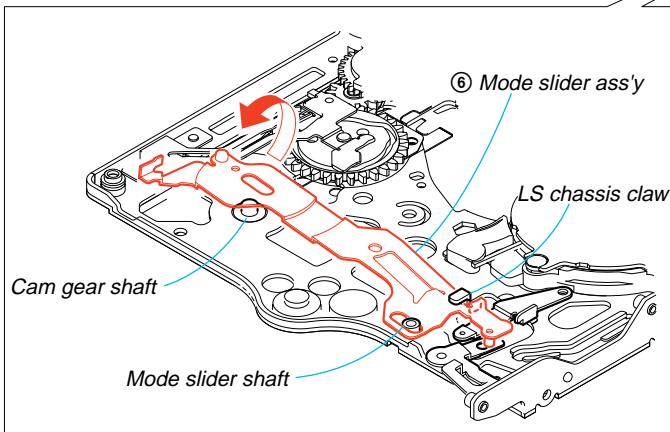
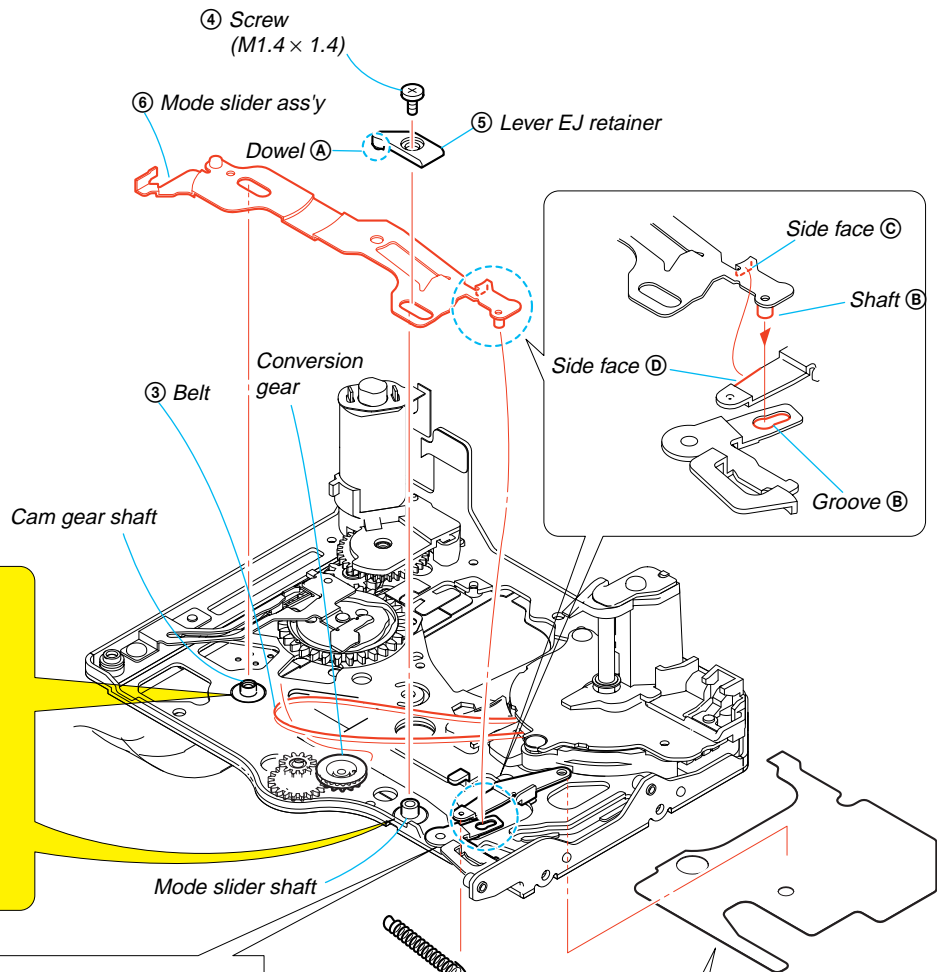
When attaching, align the attaching position using the two position setting holes and groove.



Points to be noted

Apply grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter

Apply grease
Cam gear shaft,
Mode slider shaft



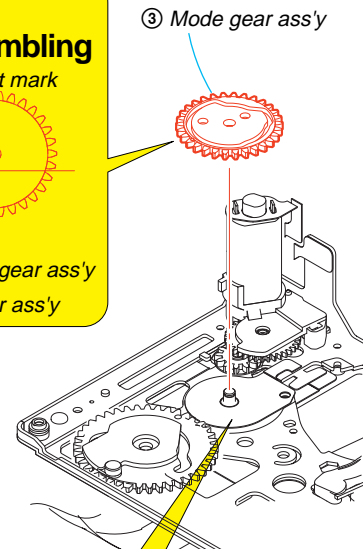
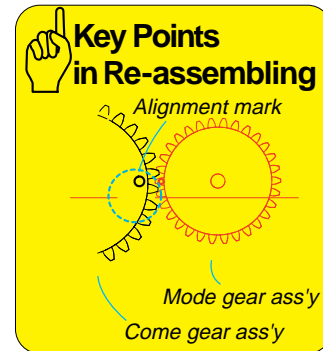
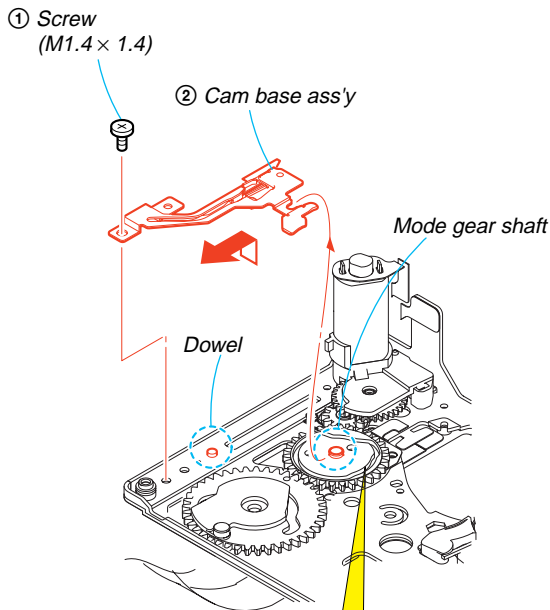
3-31. Cam Gear Ass'y, Mode Gear Ass'y

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 ③, and remove the cam base ass'y ②.
- 3) Remove the mode gear ass'y ③.

2. Attachment procedure

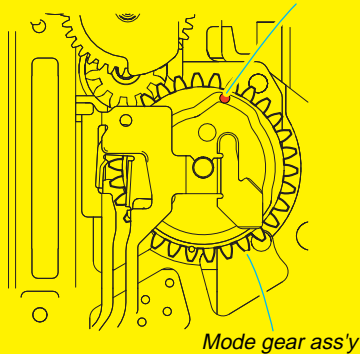
- 1) Apply grease equally on the sliding surface of the FP-032 flexible board and the mode gear ass'y.
- 2) Install the mode gear ass'y ③.
- 3) Install the cam base ass'y ② while engaging it in the pin ③ and the dowel.
- 4) Install the screw (special head screw M1.4 × 1.4) ①.
Tightening torque: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
- 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.



Apply grease

Points to be noted

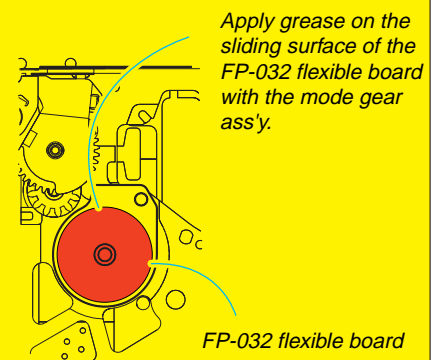
Apply grease when installing
Amount of grease: A ball of grease of 0.5 mm diameter.



Apply grease

Points to be noted

Apply grease equally when installing.



- After cleaning, grease is applied.
- Be careful so that the dust should not be adhered to the greased surface.

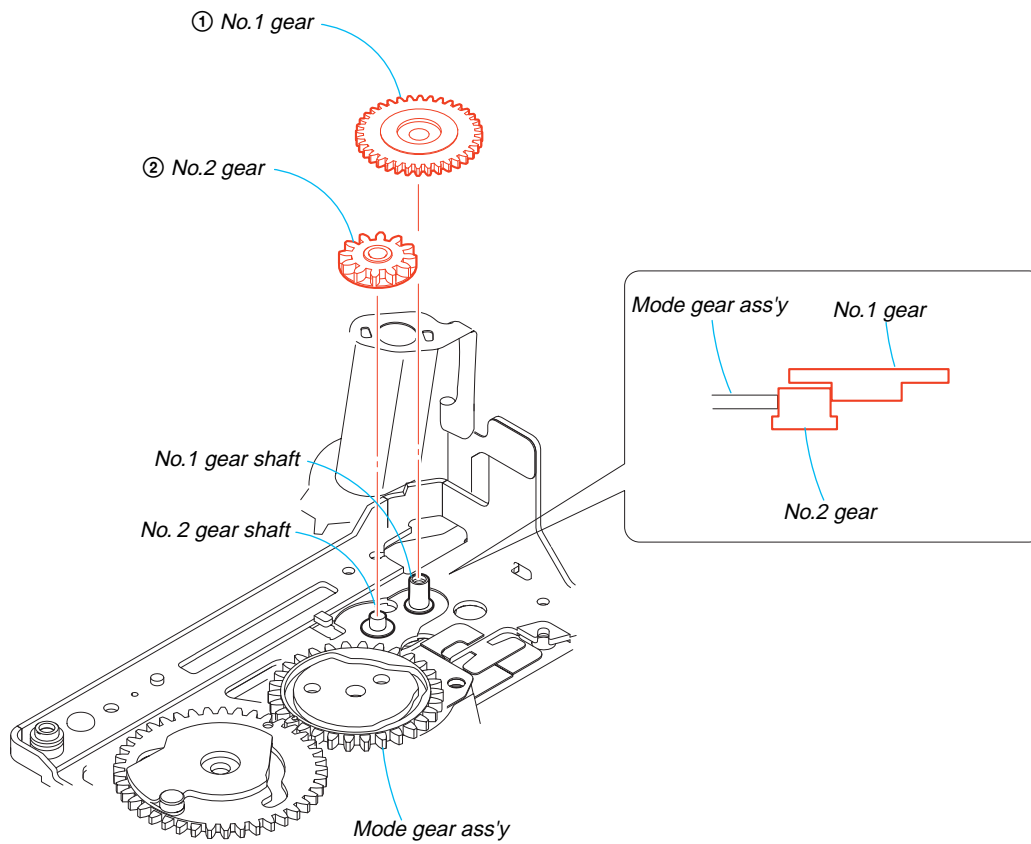
3-32. No. 1 Gear, No. 2 Gear

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

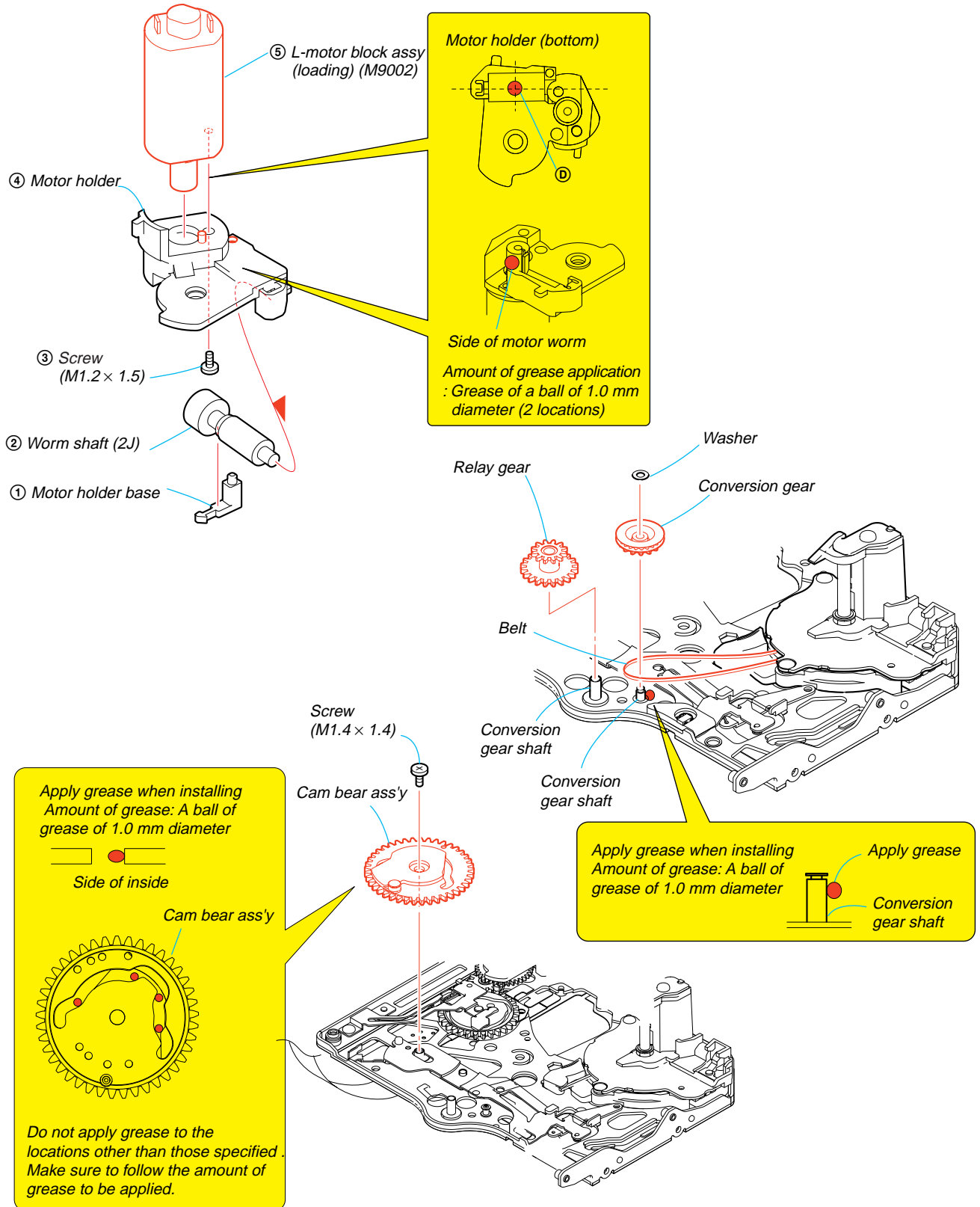
- 1) Install the No. 2 gear ② in the No. 2 gear shaft.
- 2) Install the No. 1 gear ① in the No. 1 gear shaft.



HELP

Application of grease, soldering method and precautions, and phase matching adjustment are compiled and below.

Apply grease (1)



Apply grease (2)

Apply the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter

Shaft in the screw hole

LS chassis block

Apply grease

LS chassis block

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 the grease when installing
Amount of grease: A ball of grease of 1.0 mm diameter

Cam base assy

Mechanism chassis block

On the side inside of press arm

Apply grease

Shaft in the screw hole

Cam gear assy

Apply grease

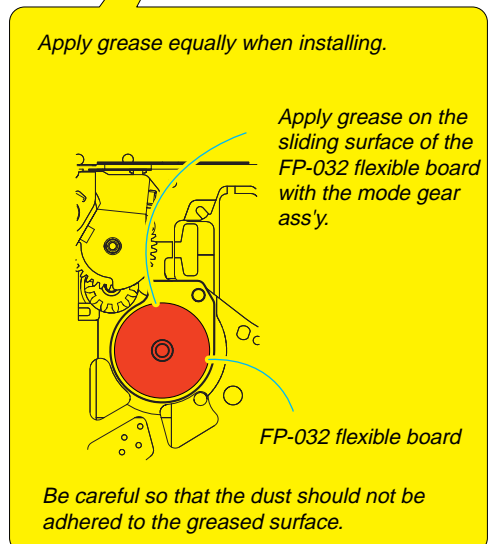
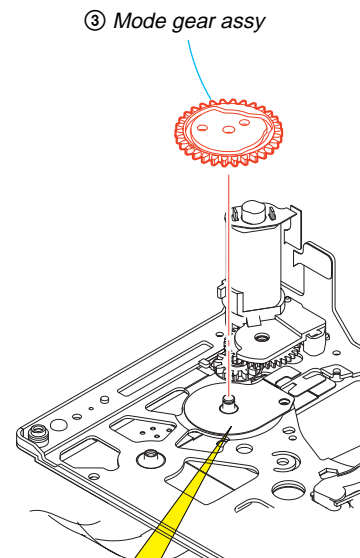
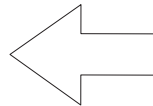
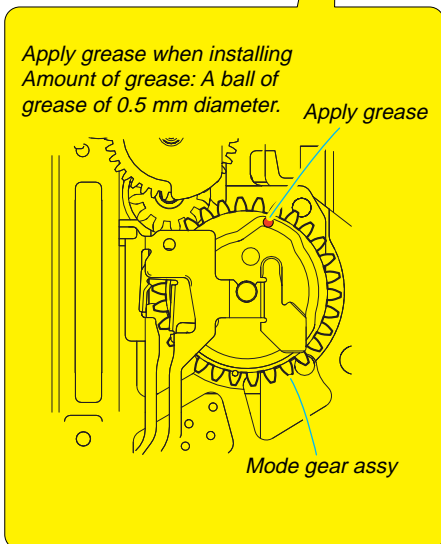
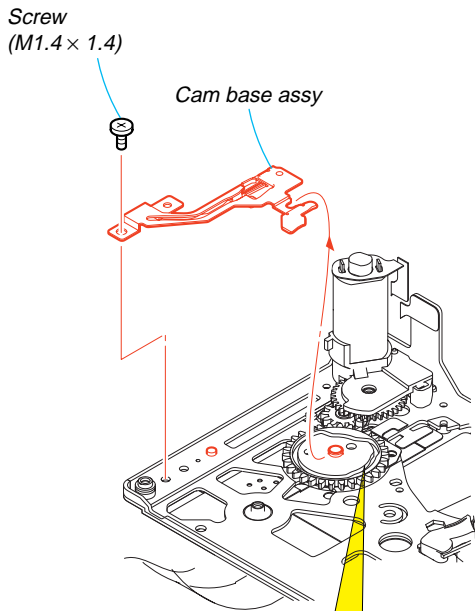
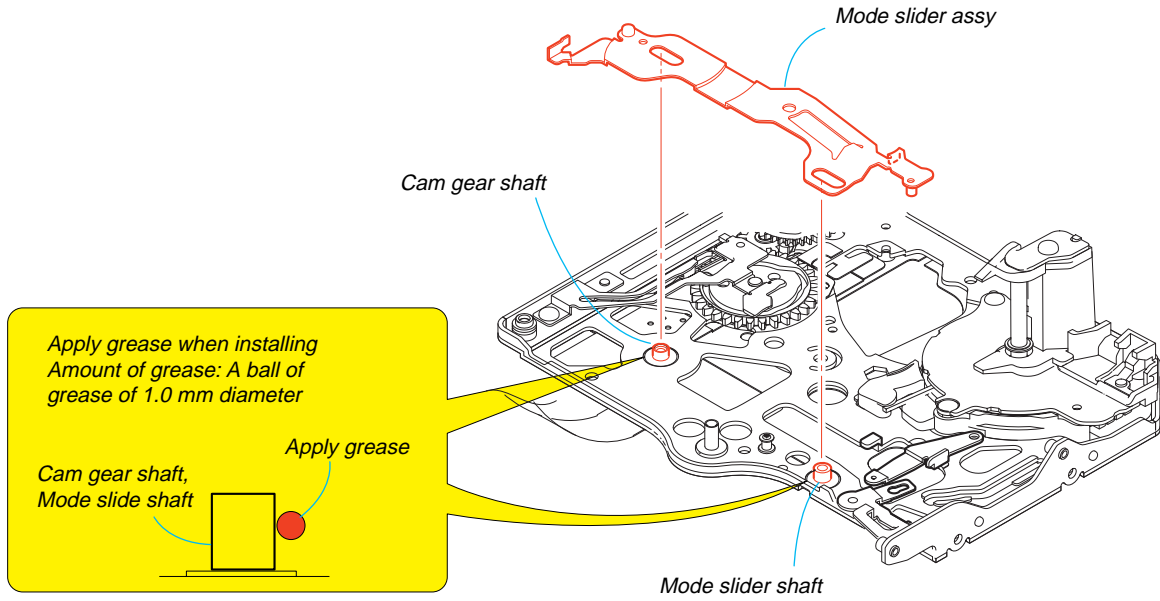
Shaft

Apply grease

GL rack shaft

Apply grease on the sliding surface of the GL rack shaft and the GL rack groove.

Apply grease (3)



Soldering (1)

FP-031 flexible board

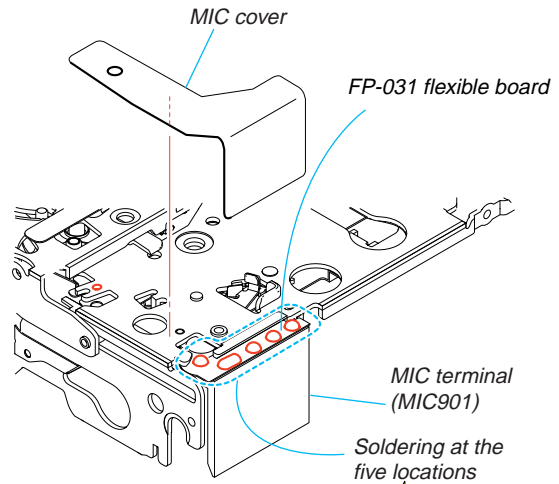
Soldering at the two locations

Screw (M1.2 x 1.5)

Motor holder block ass'y

Lead-free solder
 Wire type : $\varnothing 0.6$
 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 : $\varnothing 0.6$
 Soldering iron : 941 made by Hakko Mfg.
 Soldering iron tip : T1-1BC
 Soldering iron tip temperature : $300 \pm 10^{\circ}\text{C}$
 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.

LED (LED9001)

Soldering at 2 locations

FP-031 flexible board

Use the rubber finger tip cover.
 Lead-free solder
 Wire type : $\varnothing 0.6$
 Soldering iron : 941 made by Hakko Mfg.
 Soldering iron tip: T1-1BC

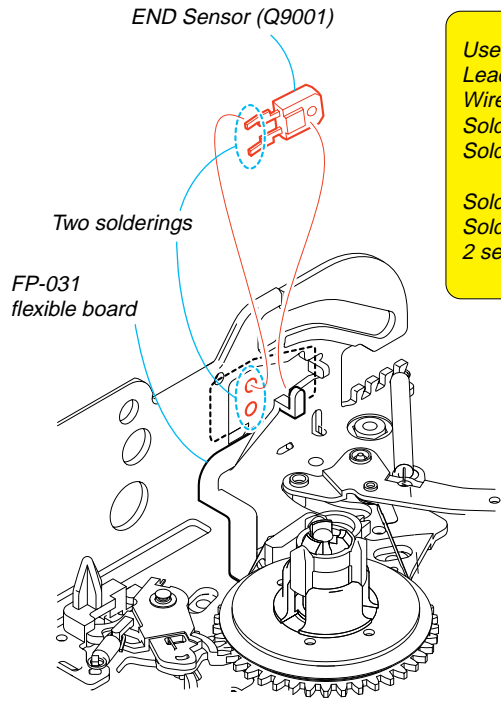
Soldering iron tip temperature: $300 \pm 10^{\circ}\text{C}$
 Soldering iron tip contacting time within 2 sec.

Direction of the terminal is specified.

LED (LED9001)

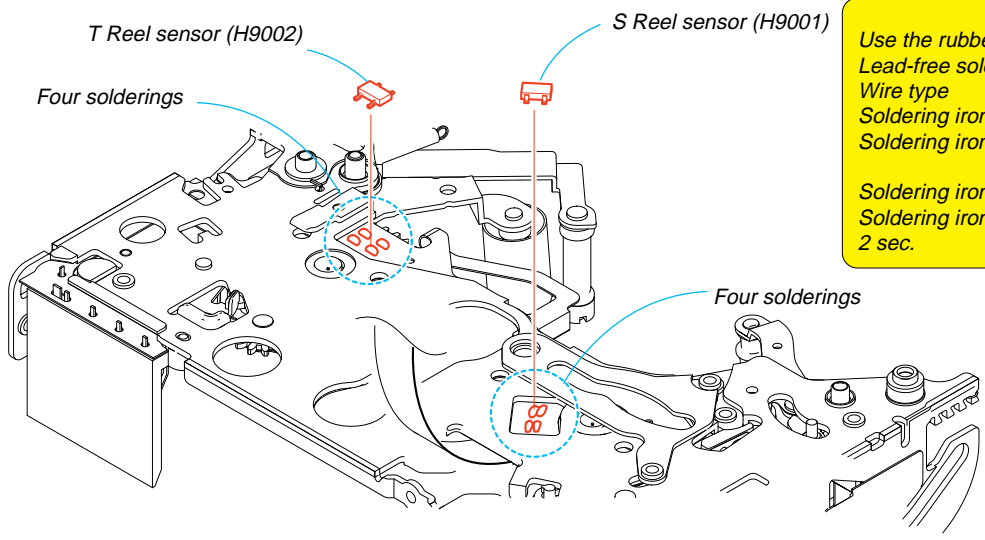
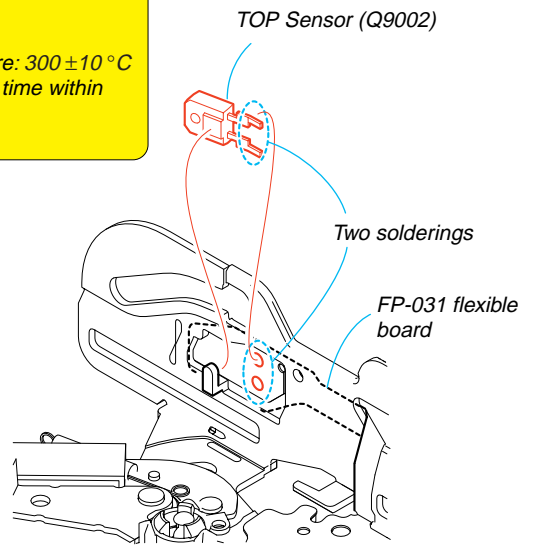
FP-031 flexible board

Soldering (2)



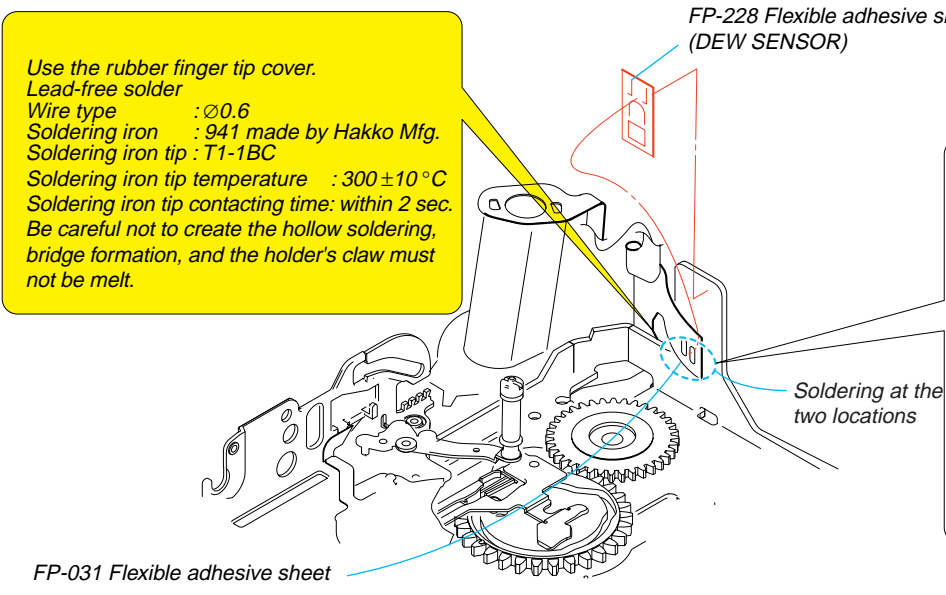
Use the rubber finger tip cover.
 Lead-free solder
 Wire type : $\varnothing 0.6$
 Soldering iron : 941 made by Hakko Mfg.
 Soldering iron tip: T1-1BC

Soldering iron tip temperature: $300 \pm 10^{\circ}\text{C}$
 Soldering iron tip contacting time within 2 sec.

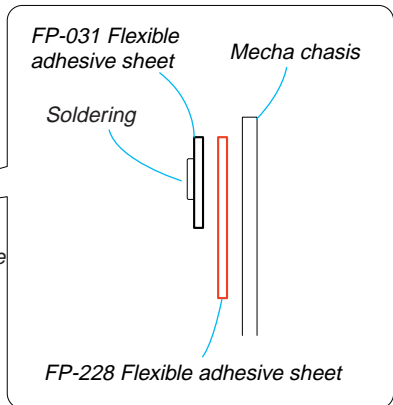


Use the rubber finger tip cover.
 Lead-free solder
 Wire type : $\Delta 0.6$
 Soldering iron : 941 made by Hakko Mfg.
 Soldering iron tip: T1-1BC

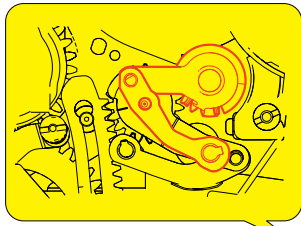
Soldering iron tip temperature: $300 \pm 10^{\circ}\text{C}$
 Soldering iron tip contacting time within 2 sec.



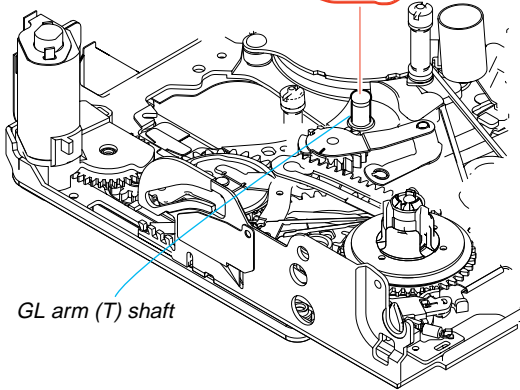
Use the rubber finger tip cover.
 Lead-free solder
 Wire type : $\varnothing 0.6$
 Soldering iron : 941 made by Hakko Mfg.
 Soldering iron tip : T1-1BC
 Soldering iron tip temperature : $300 \pm 10^{\circ}\text{C}$
 Soldering iron tip contacting time: within 2 sec.
 Be careful not to create the hollow soldering, bridge formation, and the holder's claw must not be melt.



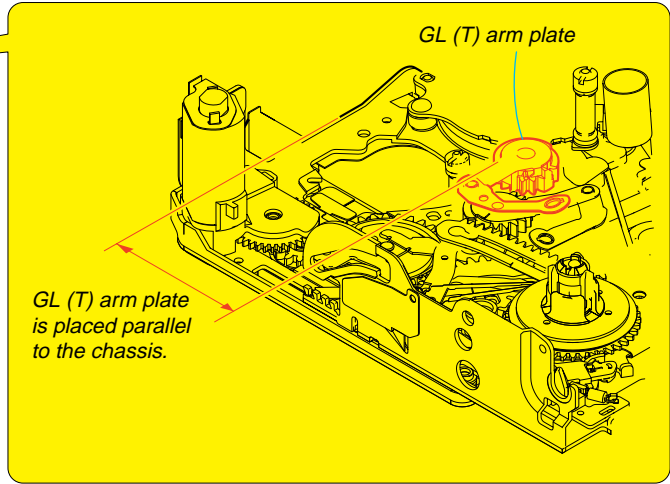
Matching Phase



GL (T) block ass'y

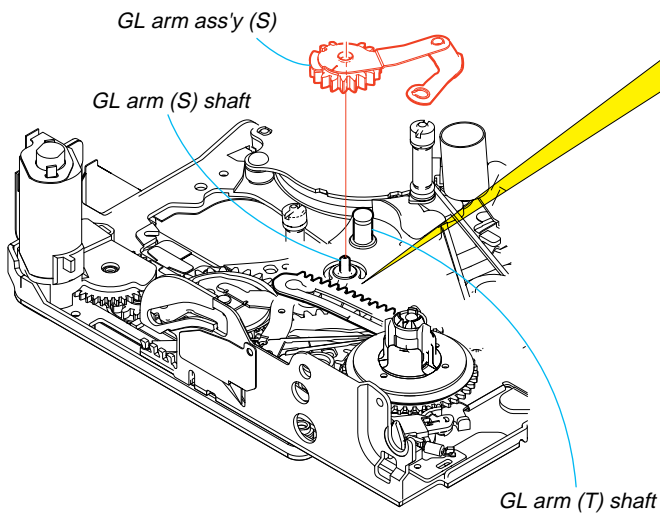
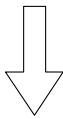


GL arm (T) shaft



GL (T) arm plate

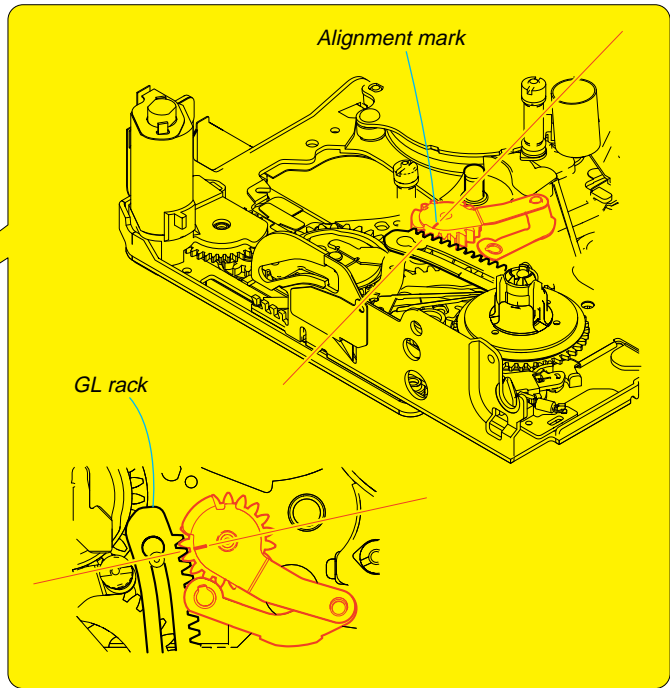
GL (T) arm plate is placed parallel to the chassis.



GL arm ass'y (S)

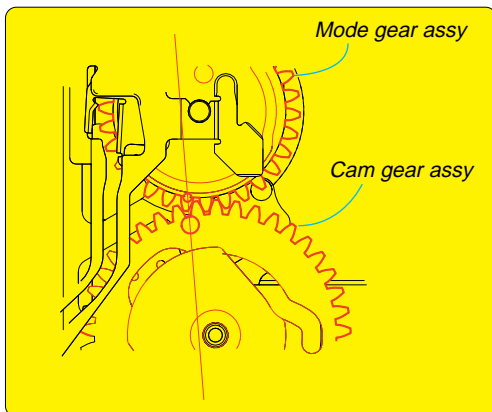
GL arm (S) shaft

GL arm (T) shaft



Alignment mark

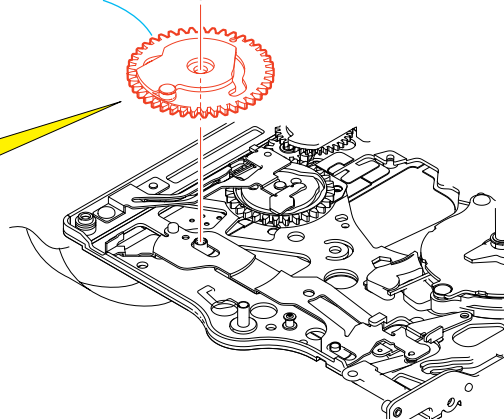
GL rack



Mode gear ass'y

Cam gear ass'y

Cam gear ass'y
Screw (M1.4 x 1.4)



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 6-108).

- 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: $0.06 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.61 \pm 0.1 \text{ kgf}\cdot\text{cm}$)

Note: When measuring the distance between guides by inserting the block gauge or pin gauge, be very careful not to damage the roller.

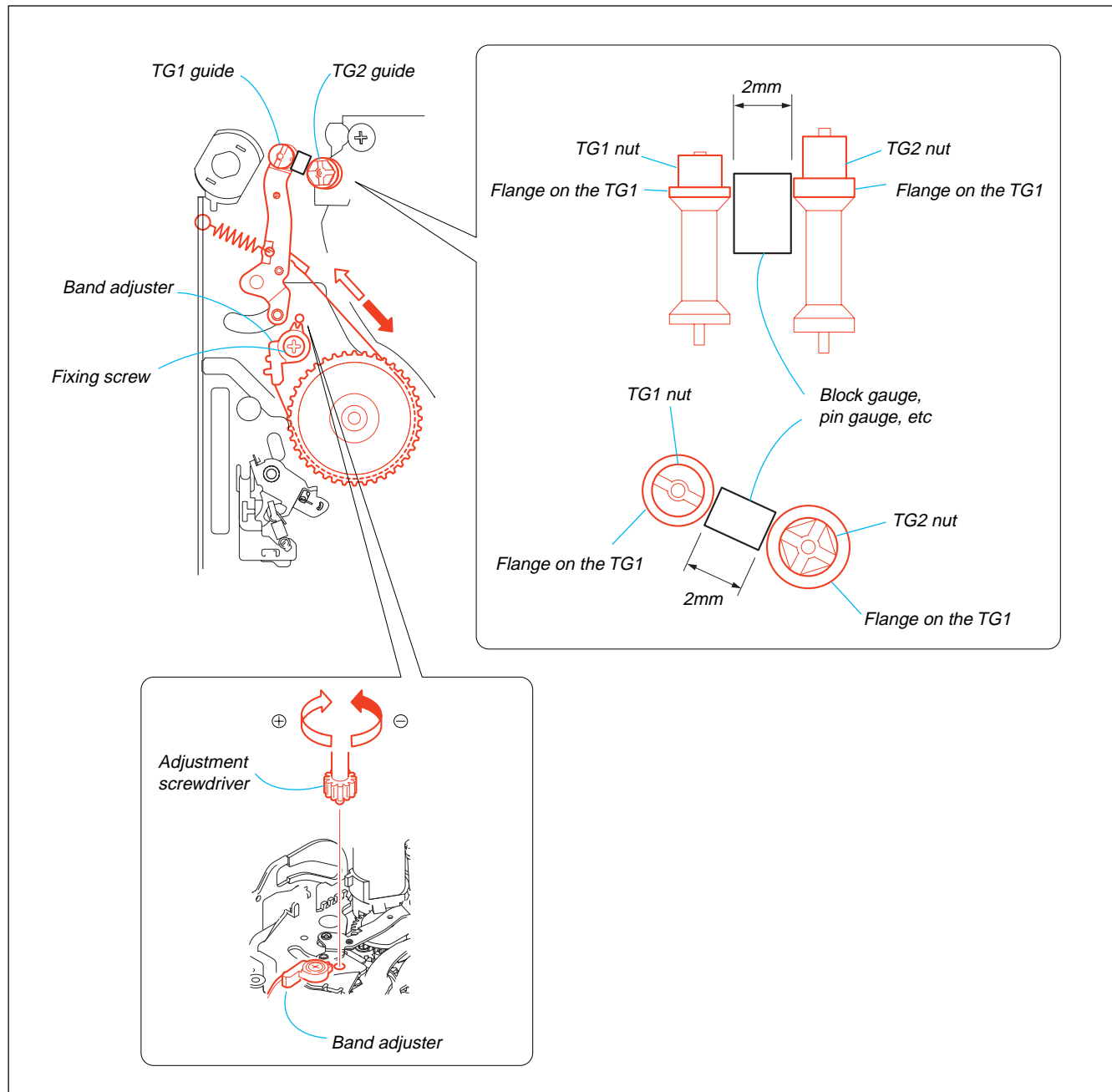


Fig. 6-2-4

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) **(A)** and **(B)** by 90 degrees.
- 3) Pressing the center of the LS chassis block with the force of $10.0 \pm 1.0\text{N}\cdot\text{m}$ ($102.0 \pm 10.2\text{kgf}\cdot\text{cm}$) while holding the cam plate fixing screw (special head screw M1.4 × 1.4) **(B)** with fingers.
- 4) While holding on the cam plate fixing screw (special head screw M1.4 × 1.4) **(B)**, tighten the cam plate fixing screw (special head screw M1.4 × 1.4) **(A)**.
Tightening torque: $0.098 \pm 0.01\text{N}\cdot\text{m}$ ($1.00 \pm 0.1\text{kgf}\cdot\text{cm}$)
- 5) Tighten the cam plate fixing screw (special head screw M1.4 × 1.4) **(B)**.
Tightening torque: $0.098 \pm 0.01\text{N}\cdot\text{m}$ ($1.00 \pm 0.1\text{kgf}\cdot\text{cm}$)

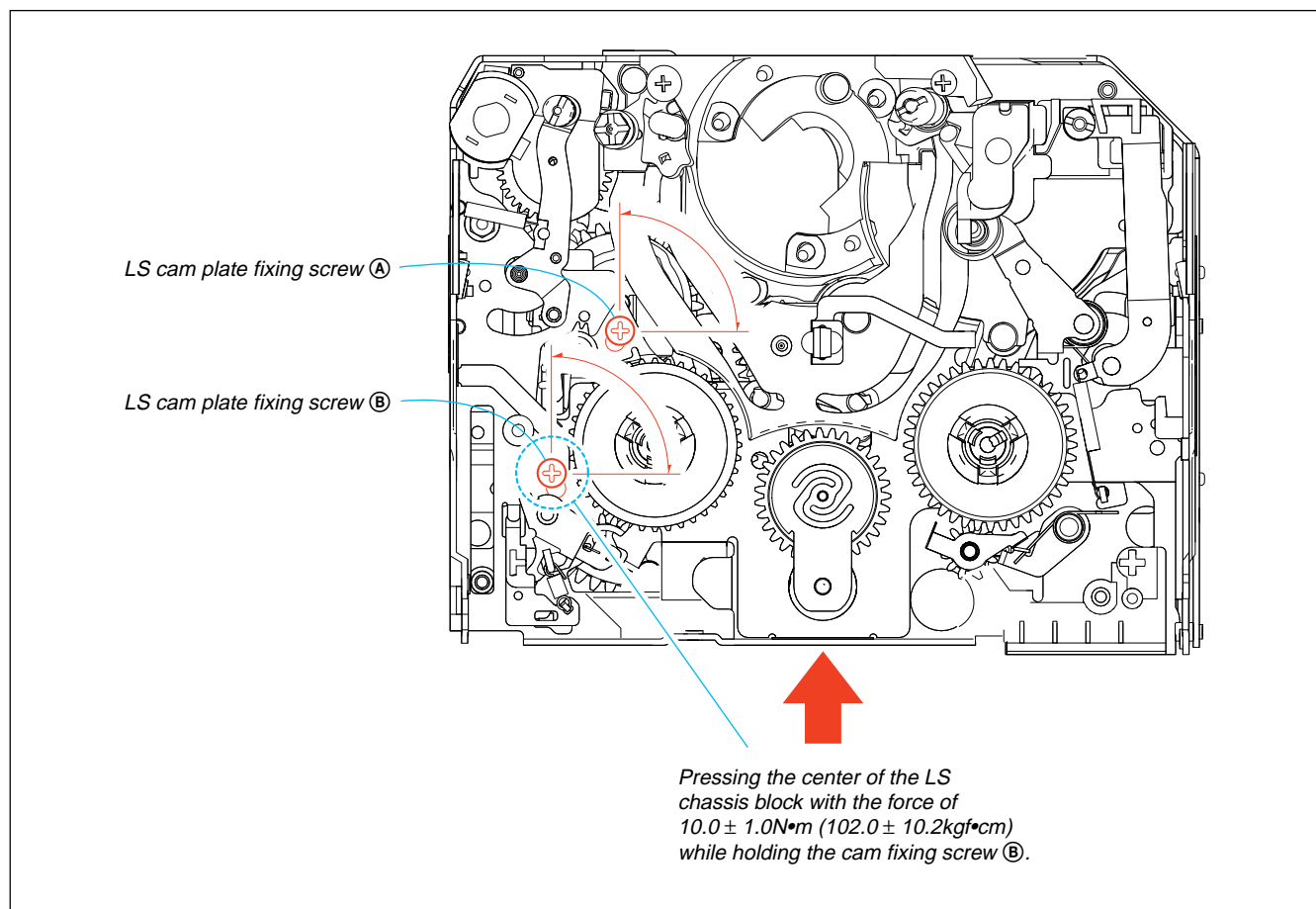


Fig. 6-2-5

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 NN-001 board CN7005 via the CPC-7 jig (J-6082-382-A).

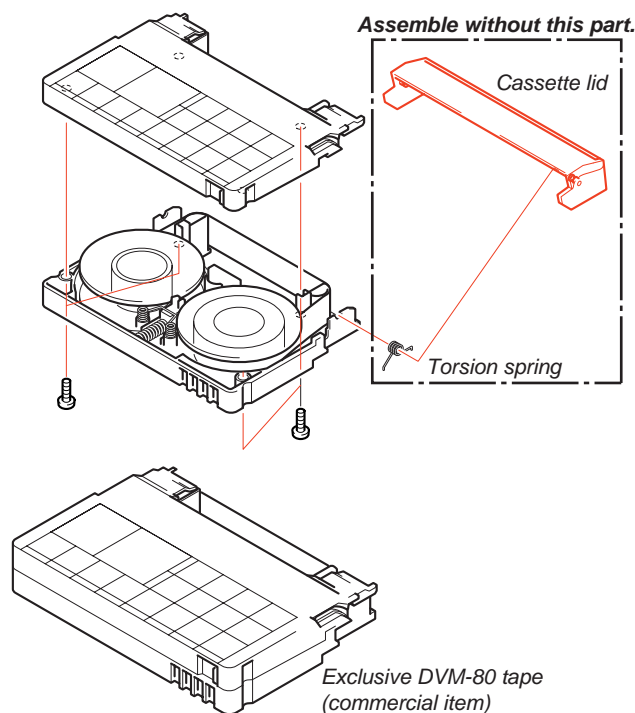
Channel 1: NN-001 board, CN7005 Pin ⑨ (Note)

External trigger: NN-001 board, CN7005 Pin ⑩

Note: Connect a 75 Ω resistor between pins ⑨ of CN7005 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.

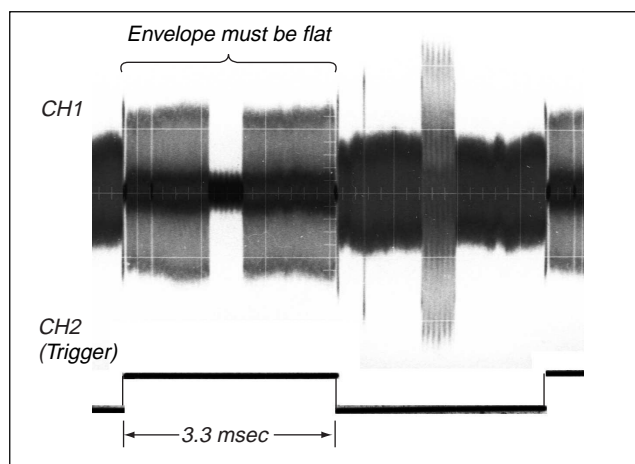


Fig. 6-2-6

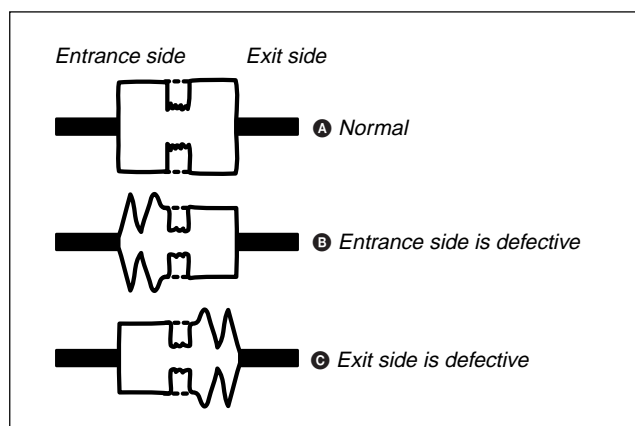


Fig. 6-2-7

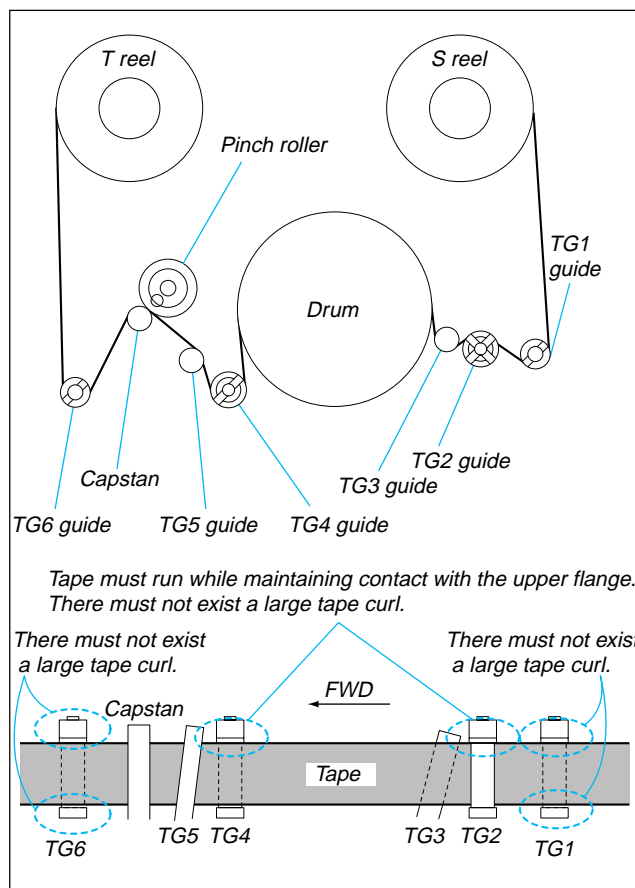


Fig. 6-2-8

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.)

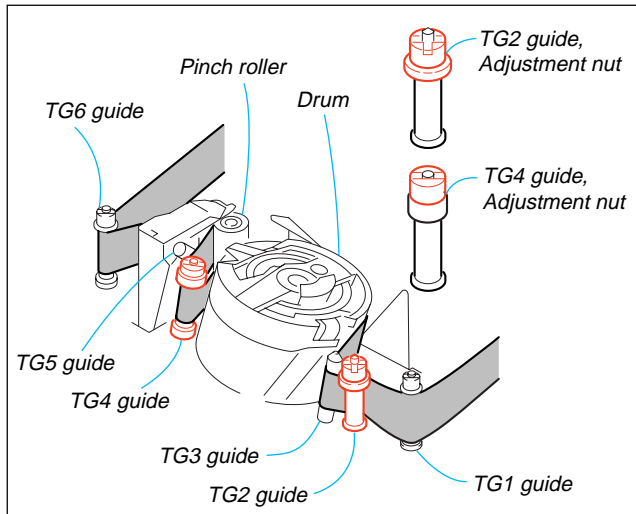


Fig. 6-2-9

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 **(B)**.
 - 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 **(A)**.

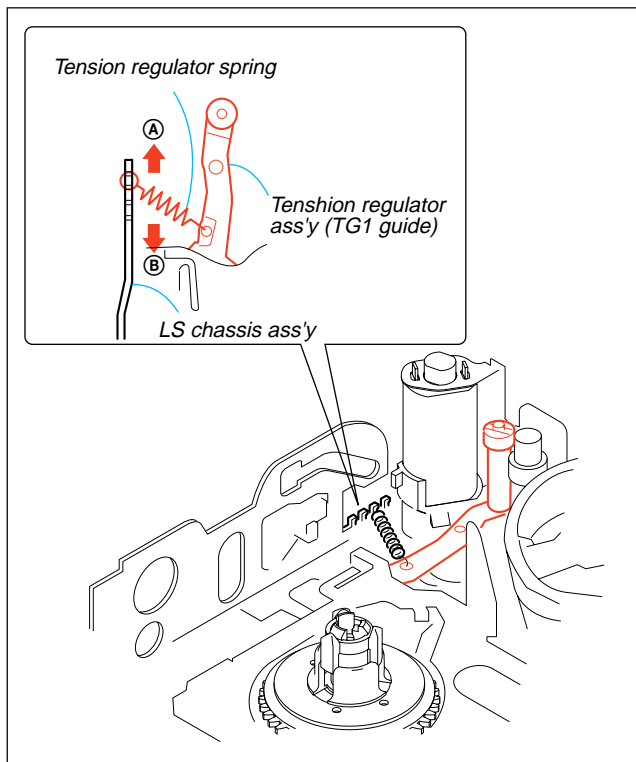


Fig. 6-2-10

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, then 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, then adjust TG4 guide for flat amplitude. (Refer to Fig. 6-2-12.)

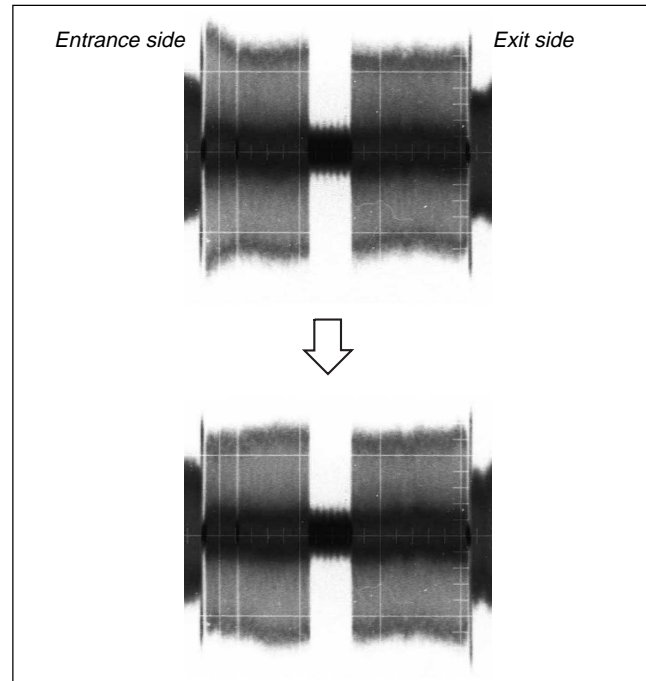


Fig. 6-2-11

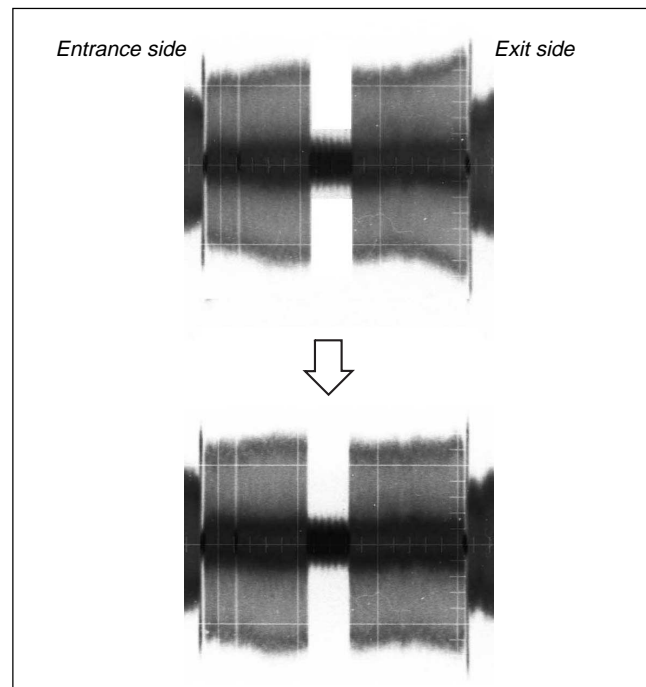


Fig. 6-2-12

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.”)

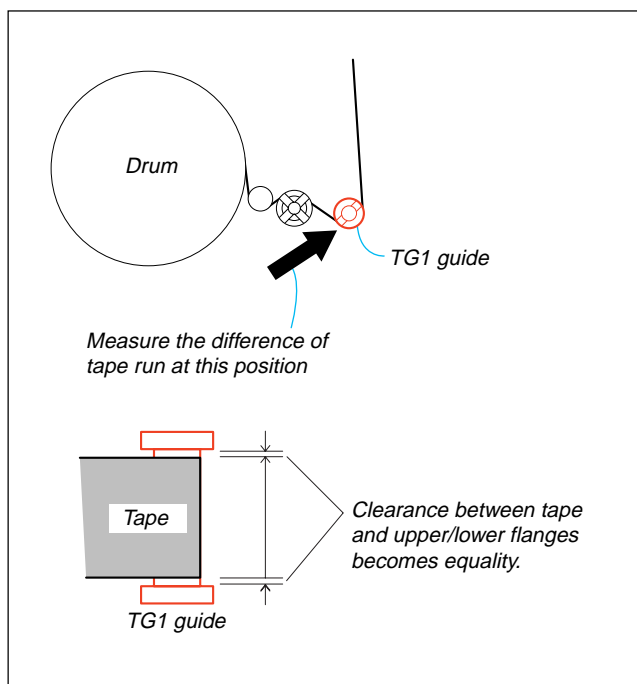


Fig. 6-2-13

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 6-107. 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

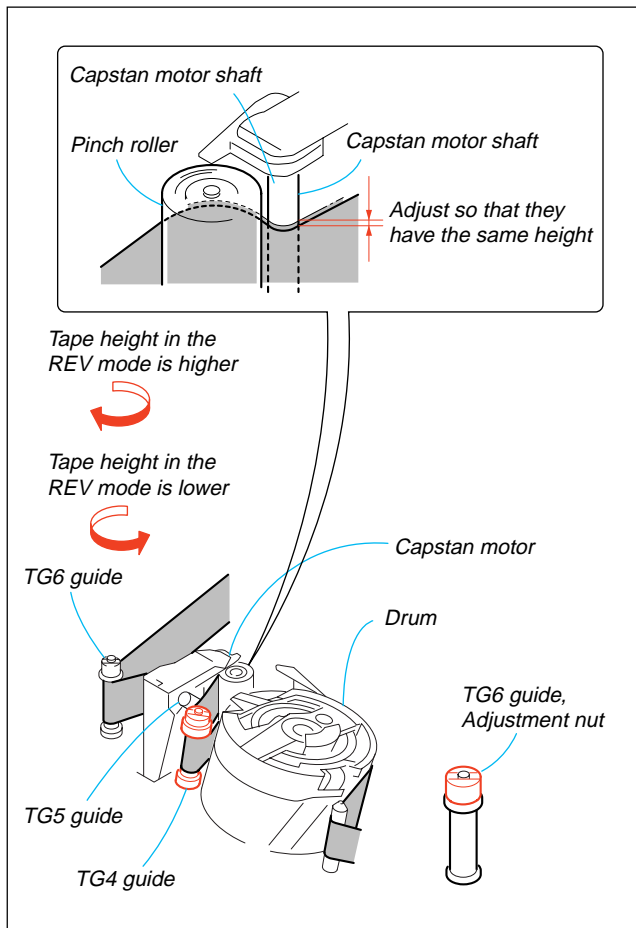


Fig. 6-2-14

- 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.

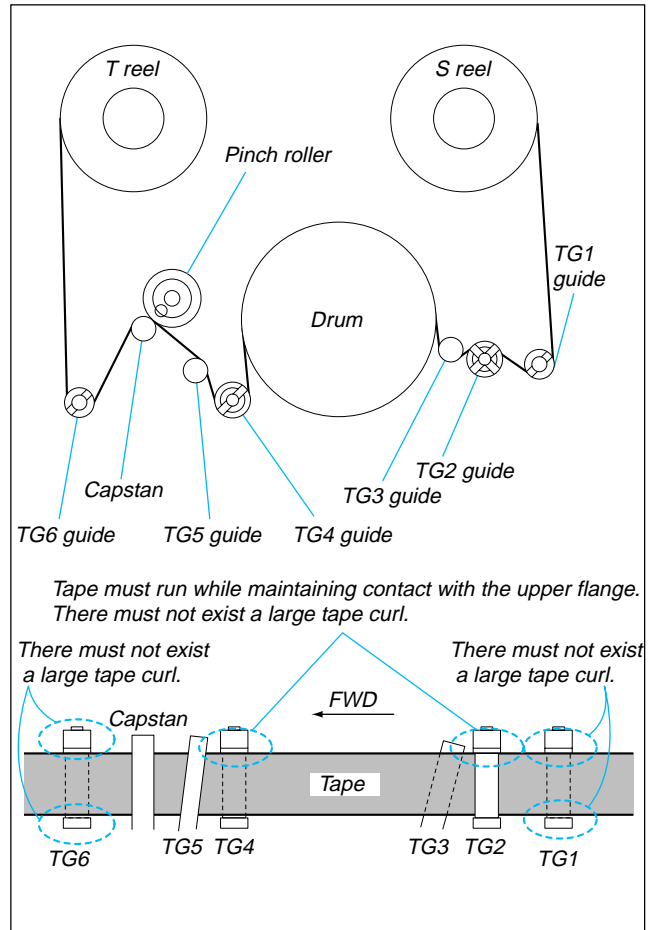


Fig. 6-2-15

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%)

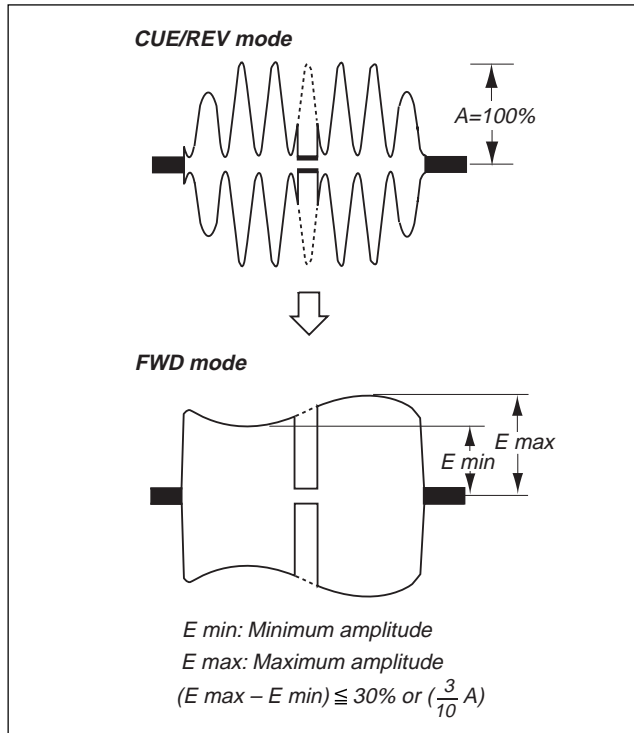


Fig. 6-2-16

- 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%)

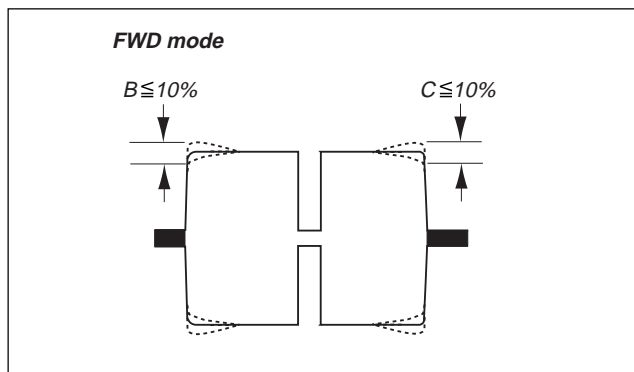


Fig. 6-2-17

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.

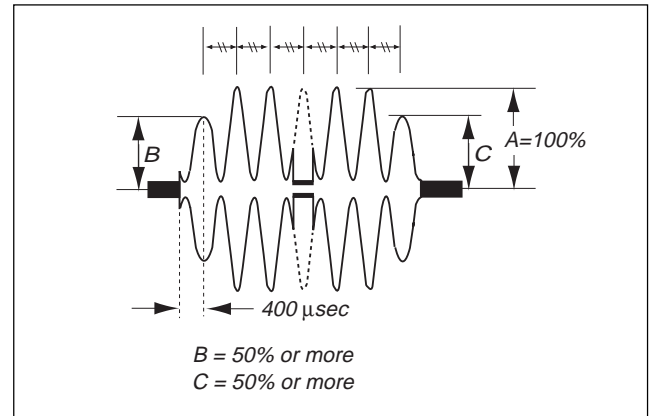


Fig. 6-2-18

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 CN7005 of NN-001 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 CN7005.

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
6	PSIG	14	REC_CRRT0
7	REG_GND	15	NC
8	REG_GND	16	NC

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.

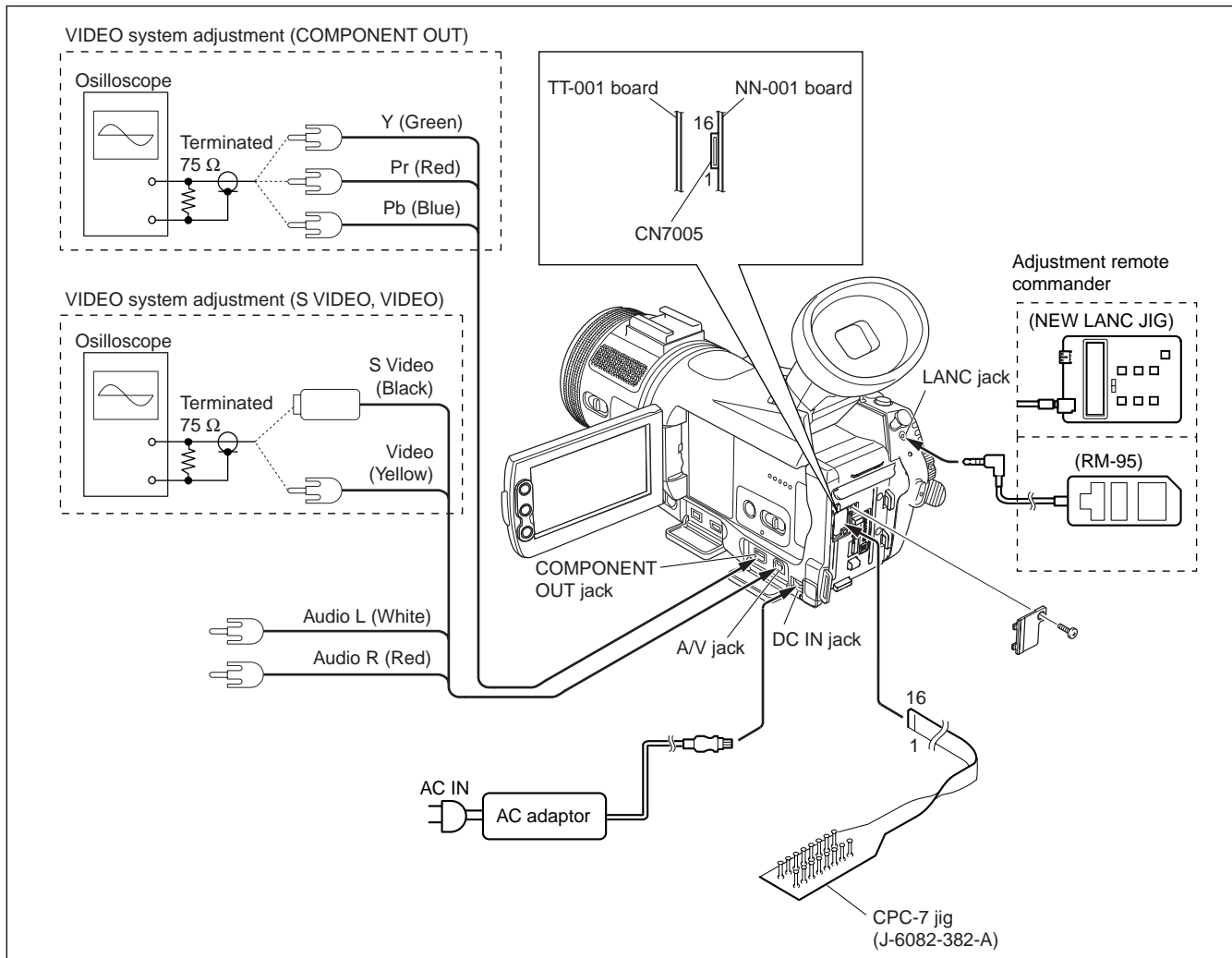


Fig. 6-3-1

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)

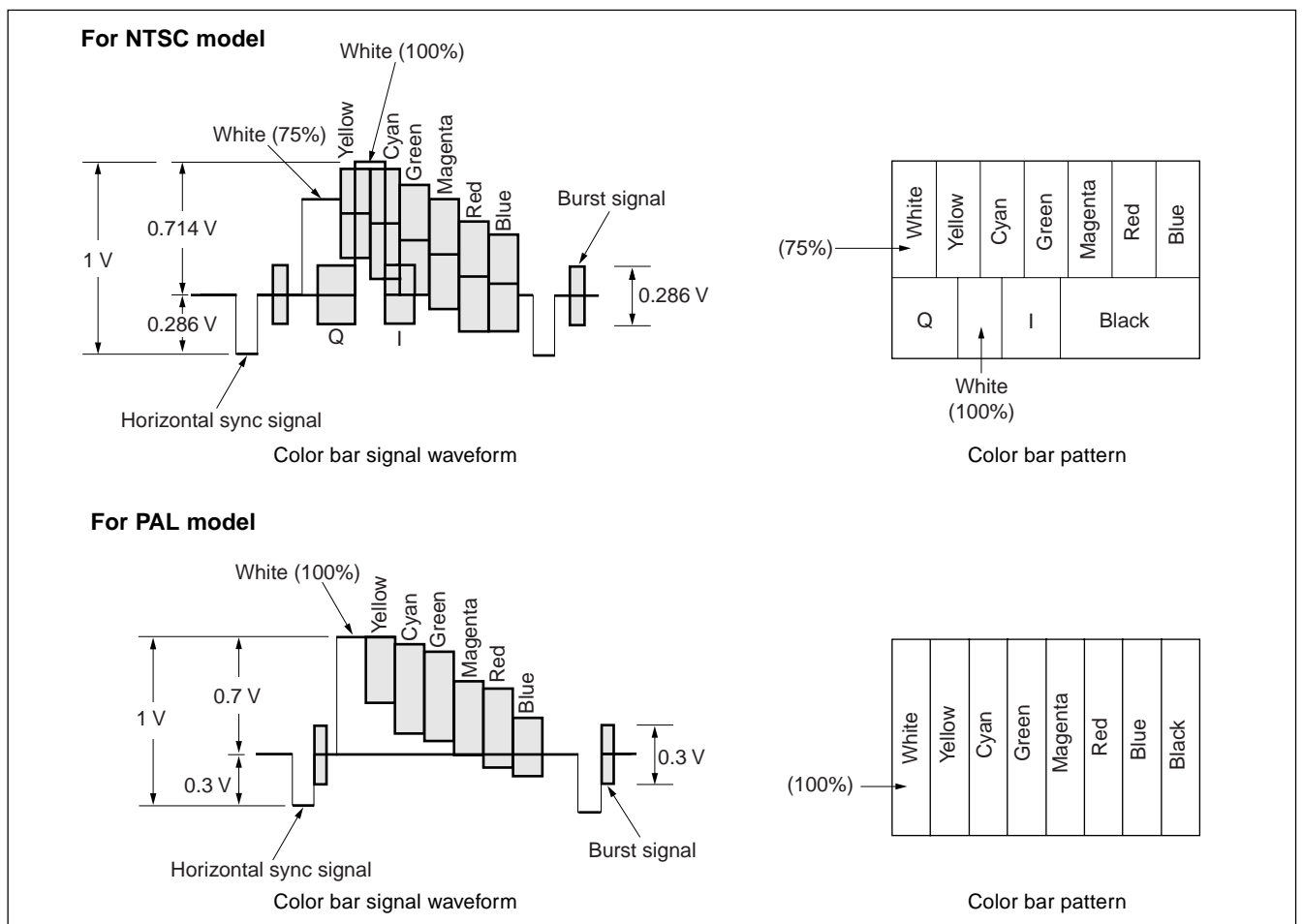


Fig. 6-3-2 Color bar signal of alignment tapes

3-1-5. Output Level and Impedance

Video output

A/V jack

Video signal: 1 Vp-p, 75 Ω unbalanced, sync negative

S video output

A/V jack

Luminance signal: 1 Vp-p, 75 Ω unbalanced, sync negative

Chrominance signal: 0.286 Vp-p, 75Ω unbalanced (NTSC)
: 0.300 Vp-p, 75Ω unbalanced (PAL)

Audio output

A/V jack

Output level: 327mV (at load impedance 47 kΩ)

Output impedance: Below 2.2 kΩ

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: 0, address: 10, and set data: 01.
- 3) 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

- 4) Select page: 0, address: 10, and set data: 00.
- 5) 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) Read the serial No. from the model name label, and it is assumed to be D_1 .
Example: If serial No. is “77881”,
 $D_1 = 77881$
- 3) 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 to 196607	$D_1 - 131072$	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

- 4) 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.
- 5) From Table 6-3-3, obtain the maximum decimal number less than D_2 , and it is assumed to be D_3 .
Example: If $D_2 = 12345$,
 $D_3 = 12288$
- 6) From Table 6-3-3, obtain a hexadecimal number that corresponds to D_3 , and it is assumed to be H_3 .
Example: If $D_3 = 12288$,
 $H_3 = 3000$
- 7) Calculate D_4 using following equations (decimal calculation). ($0 \leq D_4 \leq 225$)
 $D_4 = D_2 - D_3$
Example: If $D_2 = 12345$ and $D_3 = 12288$,
 $D_4 = 12345 - 12288 = 57$
- 8) 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 $D_4 = 57$,
 $H_4 = 39$
- 9) 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.
- 10) 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.
- 11) Select page: 0, address: 10, and set data: 00.
- 12) 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: D₃: Decimal
H₃: 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-001 board)



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 (PLAY/EDIT 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	01	1B	Press PAUSE (Write) button.
4	3	02		Check the data changes in the following order "1B" → "2B" → "00"
5	3	03		Check the data is "00". (Note 2)
6	0	01	00	

Note 2: If the data is "01", adjustment has errors or the mechanism deck is defective.

2. Switching Position Adjustment (TT-001 board)



Mode	VTR playback (PLAY/EDIT 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	C	10	EE	Press PAUSE (Write) button.
4	3	21		Check the data is "02". (Note 2)
5	3	01	0D	Press PAUSE (Write) button.
6	3	02		Check the data changes to "00".
7	3	03		Check the data is "00". (Note 3)
8	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 EEP ROM (IC5402) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC4001

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEP ROM (IC5402) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC4001

3. Error Rate Check (TT-001 board)

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

3-1. Preparations before adjustments

Mode	Camera recording (CAMERA-TAPE mode)
Subject	Arbitrary

Switch setting

1) REC FORMAT (Menu setting)DV

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	7	01	78	
3	7	00	01	Press PAUSE (Write) button.
4				Record the camera signal for 2 minutes.

3-2. Error Rate Check

Mode	VTR playback (PLAY/EDIT 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				Check that the data of page: 1C, address: B3 to C8 is the initial value. (See Table 6-3-4)
3				Playback the recorded signal at "Preparations before adjustments".
4	3	01	40	Press PAUSE (Write) button.
5	3	02		Check the data changes to "00".
6	3	03		Check the data is "00". (Note 2)
7				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	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 OUT Y Level Adjustment (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
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

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	0C	02	Press PAUSE (Write) button.
3				Wait for 5 sec.
4	3	11		Check the bit value of bit5 is "1". (Note 2)
5	C	(NTSC) 25		Change the data and set the Y signal level (A) to the specified value.
		(PAL) 85		
6	C	(NTSC) 25		Press PAUSE (Write) button.
		(PAL) 85		
7	3	0C	00	Press PAUSE (Write) button.
8	0	01	00	

Note 2: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

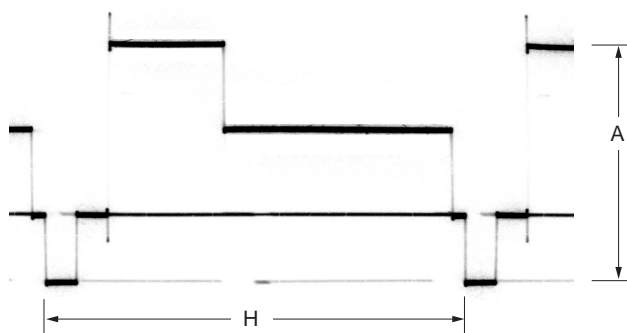


Fig. 6-3-3

2. S VIDEO OUT Chroma Level Adjustment (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
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)

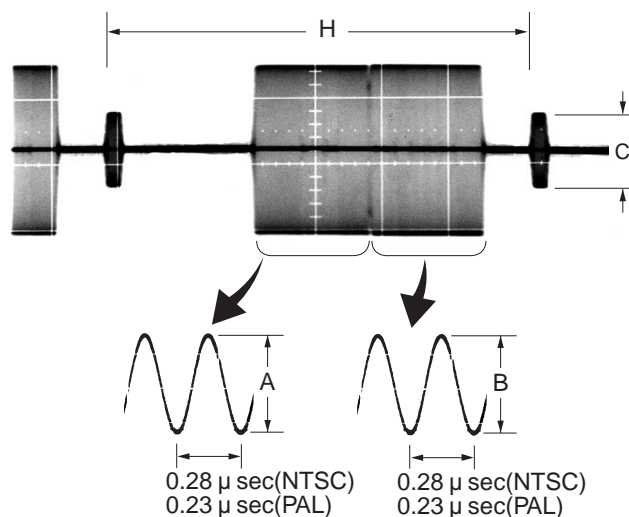


Fig. 6-3-4

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	0C	02	Press PAUSE (Write) button.
3				Wait for 5 sec.
4	3	11		Check the bit value of bit5 is “1”. (Note 2)
5	C	(NTSC) 26		Change the data and set the Cr signal level (A) to the specified value.
		(PAL) 86		
6	C	(NTSC) 26		Press PAUSE (Write) button.
		(PAL) 86		
7	C	(NTSC) 27		Change the data and set the Cb signal level (B) to the specified value.
		(PAL) 87		
8	C	(NTSC) 27		Press PAUSE (Write) button.
		(PAL) 87		
9				Check the burst signal (C) to the specified value.
10	3	0C	00	
11	0	01	00	

Note 2: For the bit values, refer to “6-4. SERVICE MODE”, “4-4. 3. Bit value discrimination”.

3. VIDEO OUT Level Check (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
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)

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

Checking method:

Order	Page	Address	Data	Procedure
1	3	0C	02	
2				Wait for 5 sec.
3	3	11		Check the bit value of bit5 is "1". (Note 2)
4				Check the sync signal level (A) to the specified value.
5				Check the burst signal level (B) to the specified value.
6	3	0C	00	

Note 2: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

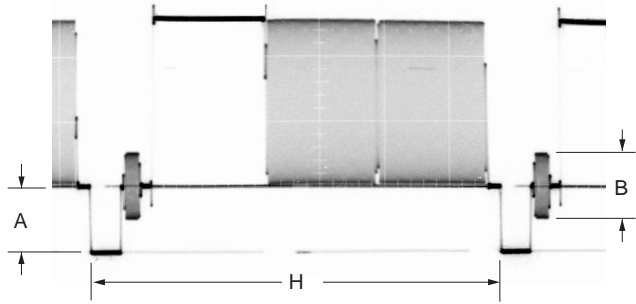


Fig. 6-3-5

4. COMPONENT OUT Y Level Adjustment (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Y signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	82
Specified value	Y level: A = 1000 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

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

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	8 (18)	01		Set the bit value of bit2 is "1", and press PAUSE (Write) button.
4	0	10	00	
5	C	82		Change the data and set the Y signal level (A) to the specified value.
6	C	82		Press PAUSE (Write) button.
7				Check the sync signal (B, C) to the specified value.
8	0	10	01	
9	8 (18)	01		Set the bit value of bit2 is "0", and press PAUSE (Write) button.
10	0	10	00	
11	0	01	00	

Note 2: For the bit values, refer to "6-4. SERVICE MODE", "4-4. 3. Bit value discrimination".

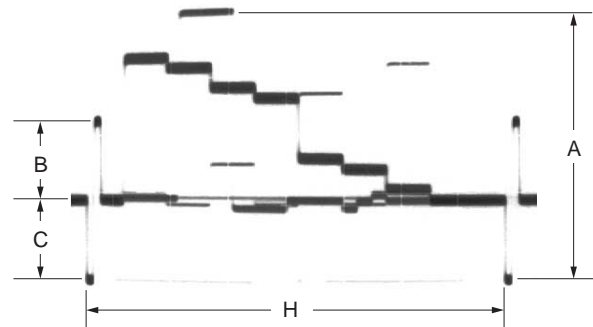


Fig. 6-3-6

5. COMPONENT OUT Pr Level Adjustment (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Pr signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	83
Specified value	Pr level: A = 525 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

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

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	8 (18)	01		Set the bit value of bit2 is “1”, and press PAUSE (Write) button.
4	0	10	00	
5	C	83		Change the data and set the Pr signal level (A) to the specified value.
6	C	83		Press PAUSE (Write) button.
7				Check the sync signal (B, C) to the specified value.
8	0	10	01	
9	8 (18)	01		Set the bit value of bit2 is “0”, and press PAUSE (Write) button.
10	0	10	00	
11	0	01	00	

Note 2: For the bit values, refer to “6-4. SERVICE MODE”, “4-4. 3. Bit value discrimination”.

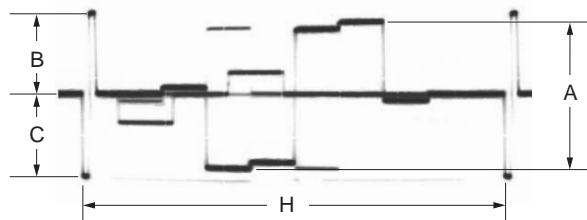


Fig. 6-3-7

6. COMPONENT OUT Pb Level Adjustment (TT-001 board)

Mode	CAMERA-TAPE
Subject	Arbitrary
Measurement Point	Pb signal terminal of COMPONENT OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	84
Specified value	Pb level: A = 525 ± 10 mVp-p Sync level: B = C = 300 ± 10 mVp-p

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

Switch setting:

1) REC FORMAT (Menu setting) HDV1080i

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	8 (18)	01		Set the bit value of bit2 is “1”, and press PAUSE (Write) button.
4	0	10	00	
5	C	84		Change the data and set the Pb signal level (A) to the specified value.
6	C	84		Press PAUSE (Write) button.
7				Check the sync signal (B, C) to the specified value.
8	0	10	01	
9	8 (18)	01		Set the bit value of bit2 is “0”, and press PAUSE (Write) button.
10	0	10	00	
11	0	01	00	

Note 2: For the bit values, refer to “6-4. SERVICE MODE”, “4-4. 3. Bit value discrimination”.

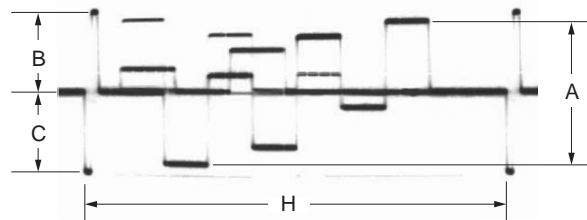


Fig. 6-3-8

3-5. AUDIO SYSTEM ADJUSTMENTS

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-9.

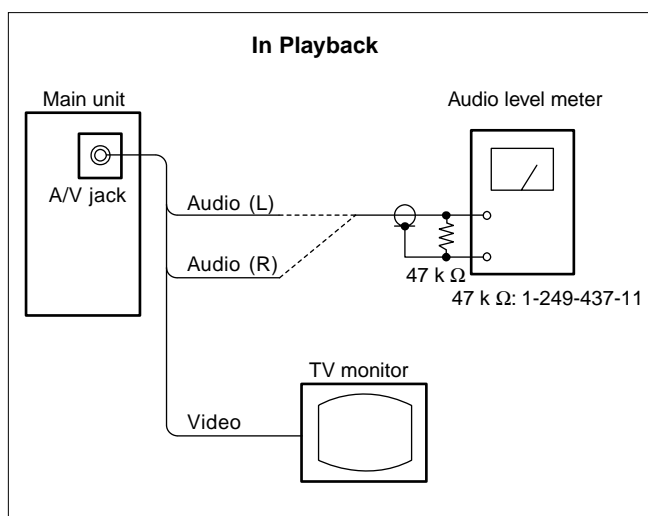


Fig. 6-3-9

1. Playback Level Check

Mode	VTR playback (PLAY/EDIT mode)
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, $+3.0 \pm 2.0$ dBs 48 kHz mode: 1 kHz, $+3.0 \pm 2.0$ dBs 44.1 kHz mode: The 7.35 kHz signal level during EMP OFF is $+2.0 \pm 2.0$ dBs. The 7.35 kHz signal level during EMP ON is -6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

- 1) Check that the playback signal level is the specified value.

3-6. XLR ADAPTOR ADJUSTMENTS

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments as shown in Fig. 6-3-10.

Menu setting

XLR SET

- 1) AU. CH1 LEVEL AUTO
- 2) AU. CH2 LEVEL AUTO

Switch setting (XLR adaptor)

- 1) LOW CUT: INPUT1 OFF
- 2) LOW CUT: INPUT2 OFF

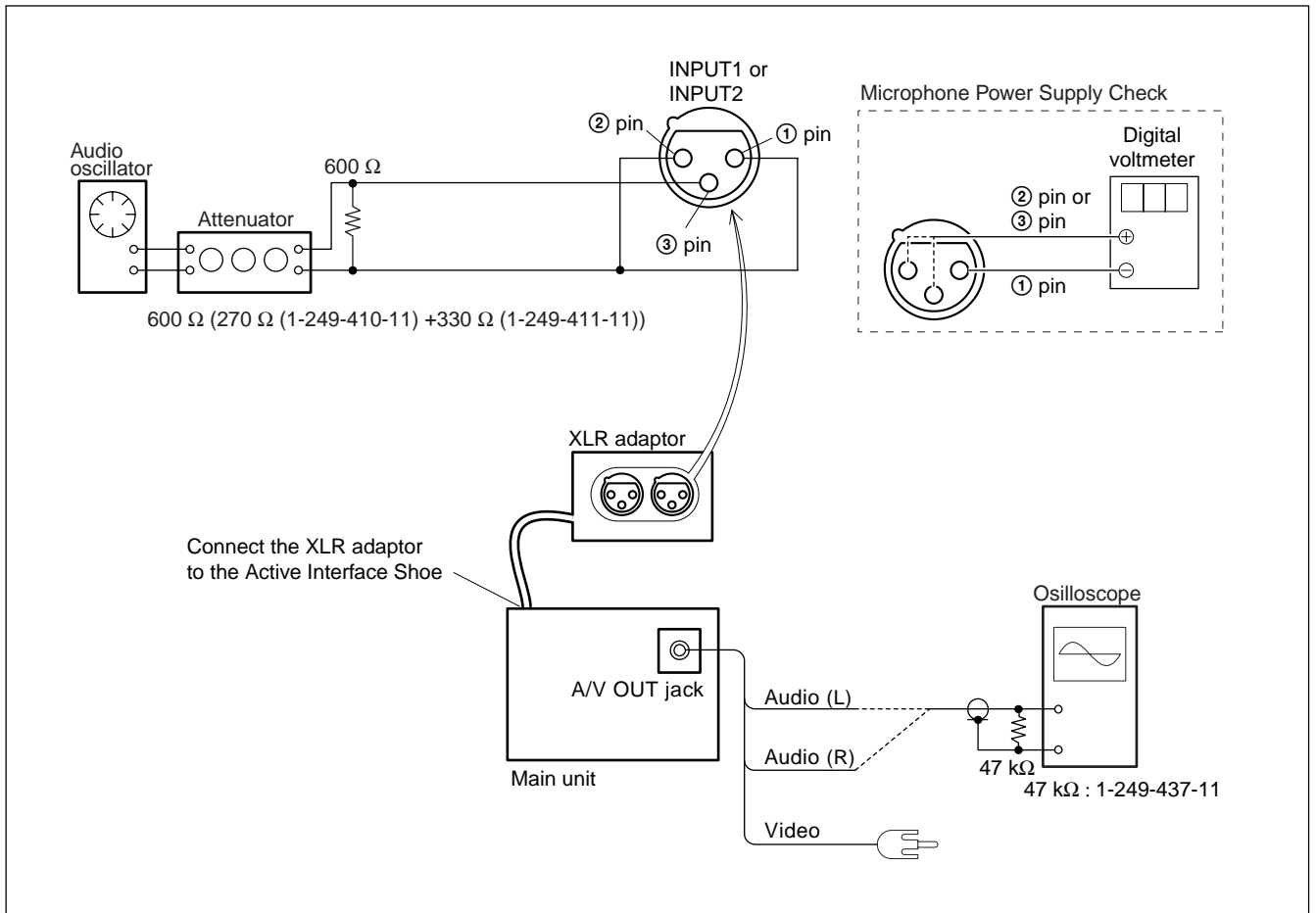


Fig. 6-3-10

1. XLR Adaptor Detect Check

Mode	CAMERA-TAPE mode
Signal	No signal
Measurement Point	Adjustment remote commander
Measuring Instrument	
Specified value	Data of page: 7 address: 09 is "09"

Checking method:

- 1) Connect the XLR adaptor to the Active Interface Shoe.
- 2) Select page: 7, address: 09, and check that the data is "09".

2. Microphone Power Supply Check

Mode	CAMERA-TAPE mode
Signal	No signal
Measurement Point	XLR adaptor (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.

3. INPUT1 LINE Check

Mode	CAMERA-TAPE 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 1.646 Vp-p (-4.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT1: INPUT LEVEL LINE
- 3) INPUT1: +48V OFF

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.

4. INPUT1 MIC Check

Mode	CAMERA-TAPE 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	0.519 Vp-p to 0.828 Vp-p (-10.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT1: INPUT LEVEL MIC
- 3) INPUT1: +48V OFF

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. INPUT1 MIC ATT Check

Mode	CAMERA-TAPE mode
Signal	1 kHz, +21.9 mVp-p (-40 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio L terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	0.519 Vp-p to 0.828 Vp-p (-10.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT1: INPUT LEVEL MIC ATT
- 3) INPUT1: +48V OFF

Checking method:

- 1) Input 1 kHz, +21.9 mVp-p (-40 dBs) signal in the XLR terminal (INPUT1).
- 2) Check that the 1 kHz signal level is the specified value.

6. INPUT1 LOW CUT Check

Mode	CAMERA-TAPE 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	0.260 Vp-p to 0.417 Vp-p (-16.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT1: INPUT LEVEL MIC
- 3) INPUT1: +48V OFF

Checking method:

- 1) Set the LOW CUT switch (INPUT1) 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 LOW CUT switch (INPUT1) to "OFF".

7. REC CH SELECT Check

Mode	CAMERA-TAPE mode
Signal	1 kHz, +2.19 mVp-p (-60 dBs) signal: XLR terminal (INPUT1)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	0.519 Vp-p to 0.828 Vp-p (-10.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1•CH2
- 2) INPUT1: INPUT LEVEL MIC
- 3) INPUT1: +48V OFF

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.

8. INPUT2 LINE Check

Mode	CAMERA-TAPE mode
Signal	1 kHz, +3.48 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 1.646 Vp-p (-4.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT2: INPUT LEVEL LINE
- 3) INPUT2: +48V OFF

Checking method:

- 1) Input 1 kHz, +3.48 Vp-p (+4 dBs) signal in the XLR terminal (INPUT2).
- 2) Check that the 1 kHz signal level is the specified value.

9. INPUT2 MIC Check

Mode	CAMERA-TAPE 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	0.519 Vp-p to 0.828 Vp-p (-10.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT2: INPUT LEVEL MIC
- 3) INPUT2: +48V OFF

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.

10. INPUT2 MIC ATT Check

Mode	CAMERA-TAPE mode
Signal	1 kHz, +21.9 mVp-p (-40 dBs) signal: XLR terminal (INPUT2)
Measurement Point	Audio R terminal of A/V OUT jack
Measuring Instrument	Oscilloscope
Specified value	0.519 Vp-p to 0.828 Vp-p (-10.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT2: INPUT LEVEL MIC ATT
- 3) INPUT2: +48V OFF

Checking method:

- 1) Input 1 kHz, +21.9 mVp-p (-40 dBs) signal in the XLR terminal (INPUT2).
- 2) Check that the 1 kHz signal level is the specified value.

11. INPUT2 LOW CUT Check

Mode	CAMERA-TAPE 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	0.260 Vp-p to 0.417 Vp-p (-16.5 dBs ± 2 dB)

Switch setting (XLR adaptor)

- 1) INPUT1: REC CH SELECT CH1
- 2) INPUT2: INPUT LEVEL MIC
- 3) INPUT2: +48V OFF

Checking method:

- 1) Set the LOW CUT switch (INPUT2) 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 LOW CUT switch (INPUT2) to "OFF".

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.

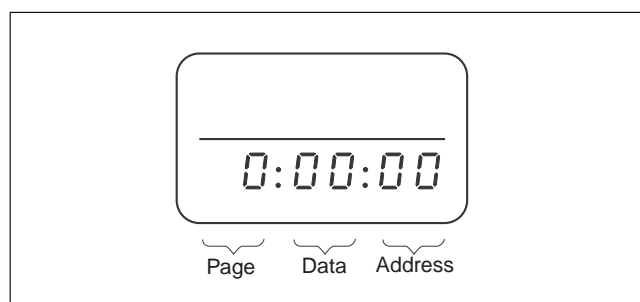


Fig. 6-4-1

- 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.

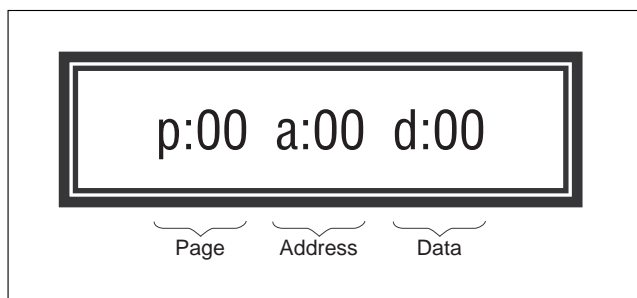


Fig. 6-4-2

- 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 ②																
Lower digit of hexadecimal Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (<i>F</i>)	B (<i>b</i>)	C (<i>c</i>)	D (<i>d</i>)	E (<i>E</i>)	F (<i>F</i>)
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 (<i>F</i>)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (<i>b</i>)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (<i>c</i>)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (<i>d</i>)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (<i>E</i>)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (<i>F</i>)	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 (*b**d*);
 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-TAPE mode)
02	Forced VTR power ON (PLAY/EDIT mode)
03	Forced camera + VTR power ON
05	Forced memory power ON (CAMERA-MEMORY mode)

- 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. Emergency Memory Address (Camera section)

Page 6B	Address 14 to 17
---------	------------------

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

Address	Contents
14	EMG code when first error occurs
15	EMG code when second error occurs
16	EMG code when third error occurs
17	EMG code when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (14 to 17). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (14). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (15).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (17).

Note: After completing adjustments, be sure to initialize the data of addresses 14 to 17 to "00".

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	FD	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	

2-2. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in 6B page, addresses 14 to 17. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error

2-3. 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	01	37	Press PAUSE (Write) button.
3	3	02		Check the data changes to "00".
4	0	01	00	

2-4. 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

2-5. MSW Code

MSW when errors occur:

Information on MSW (mode SW) when errors occur

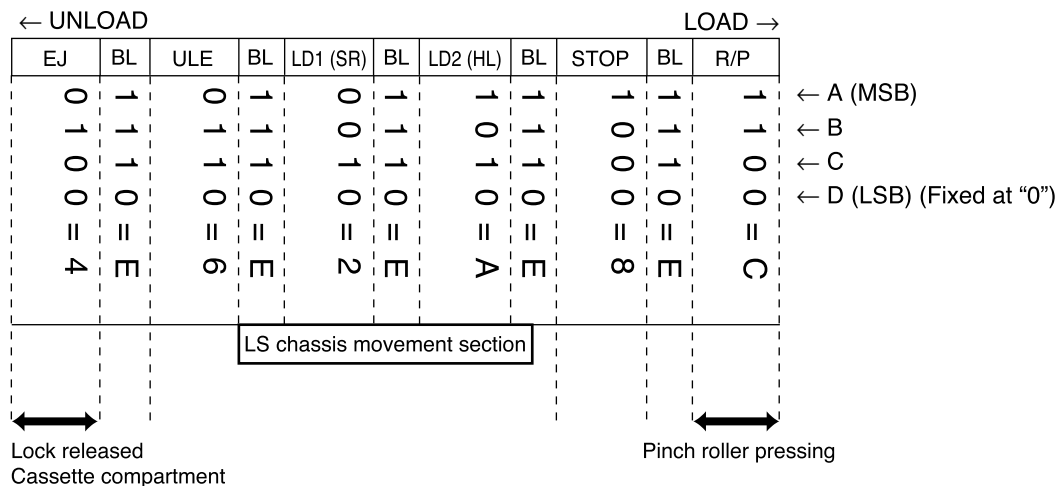
MSW when movement starts:

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

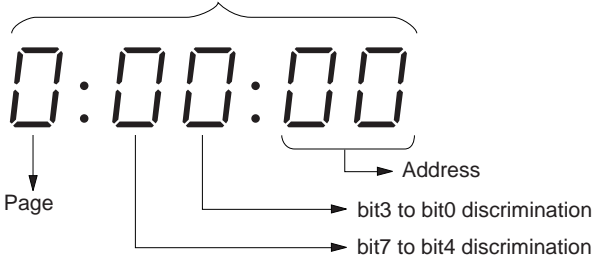


Position	Code	Contents
EJ	4	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	E	BLANK code, at the boundary between codes.
ULE	6	EJECT completion position. when the cassette is ejected, 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)	2	When prepraing TOP load processing or when DEW is detected, rolling up tape by T reel is preformed at this position.
LD2 (HL)	A	When prepraing TOP load processing or when DEW is detected, rolling up tape by S reel is preformed at this position.
STOP	8	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	C	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. Use the table below to discriminate if the bit value is "1" or "0".

Display on the adjustment remote commander



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column (A), and those from bit 3 to bit 0 from column (B).

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
(A) 8	1	0	0	0
9	1	0	0	1
A (A)	1	0	1	0
B (B)	1	0	1	1
C (C)	1	1	0	0
D (D)	1	1	0	1
(B) E (E)	1	1	1	0
F (F)	1	1	1	1

4. Jack Check (1)

Page 7	Address F9
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	COMPONENT OUT jack (HH-001 board CN105)	Used	Not used

Using method:

- 1) Select page: 7, address: F9.
- 2) By discriminating the bit value of display data, the state of jack can be discriminated.

5. Jack Check (2)

Page 7	Address F3
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	A/V OUT jack (HH-001 board CN106)	Used	Not used

Using method:

- 1) Select page: 7, address: F3.
- 2) By discriminating the bit value of display data, the state of jack can be discriminated.

6. Jack Check (3)

Page 7	Address F4
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
2	COMPONENT OUT jack (HH-001 board CN105)	Used	Not used
3	MIC jack (FP-245 flexible J8501)	Mono	Stereo

Using method:

- 1) Select page: 7, address: F4.
- 2) By discriminating the bit value of display data, the state of jack can be discriminated.

7. Switch Check (1)

Page 2	Address 81
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	POWER (PS12300 block)	ON	OFF
1	MODE CHANGE (PS12300 block)	ON	OFF
3	EJECT (FP-263 flexible S002)	ON	OFF
4	CC DOWN (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	DISP/BATT INFO (RR-001 board S9002)	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.

8. Switch Check (2)

Page 7	Address F4
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
4	REC PROOF SW (Mechanism chassis)	SAVE	REC

Using method:

- 1) Select page: 7, address: F4.
- 2) By discriminating the bit value of display data, the state of switch can be discriminated.

9. Switch Check (3)

Page 7	Address 65 to 6B
--------	------------------

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

Using method:

- 1) Select page: 7, address: 65 to 6B.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 27	28 to 44	45 to 64	65 to 8A	8B to B7	B8 to E6	E7 to FF
65 (KEY AD0) (IC4802 ⑬)	REC START/STOP (PS12300 block) (S1004)	-	-	-	-	-	-	No key input
66 (KEY AD1) (IC4802 ⑭)	PHOTO (REC) (PS12300 block) (S1001)	PHOTO (FREEZE) (PS12300 block) (S1002)				ASSIGN (FP-245 flexible) (S8501)	NIGHT SHOT ON (FP-245 flexible) (S8502)	NIGHT SHOT OFF (FP-245 flexible) (S8502)
67 (KEY AD2) (IC4802 ⑮)	REC START/STOP (SB9000 block) (S8703)		ZOOM WIDE (SB9000 block) (S8701)		ZOOM TELE (SB9000 block) (S8702)		AUTO LOCK ON (RR-001 board) (S9003)	AUTO LOCK OFF (RR-001 board) (S9003)
68 (KEY AD3) (IC4802 ⑯)	BACK LIGHT (CK12300 block) (S0002)	EXPANDED FOCUS (CK12300 block) (S0003)	TELE MACRO (CK12300 block) (S0004)	EXPOSURE button (CK12300 block) (S0005)	MANUAL ZOOM (CK12300 block) (S0001)	MANUAL FOCUS (CK12300 block) (S0001)	-	AUTO FOCUS (CK12300 block) (S0001)
69 (KEY AD4) (IC4802 ⑰)	PANEL REVERSE (FP-248 flexible) (S001)	-	-	-	-	-	-	PANEL NORMAL (FP-248 flexible) (S001)
6A (KEY AD5) (IC4802 ⑱)	PANEL CLOSE (FP-248 flexible) (S002)	-	-	-	-	-	-	PANEL OPEN (FP-248 flexible) (S002)
6B (KEY AD6) (IC4802 ⑲)	DOWN ← EXPOSURE lever → UP (CK12300 block) (RV2401)							

10. LED, IR Light 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				Check that the all LED are lit, and that the IR light is lit.
6	7	01	90	
7	7	04	00	
8	7	00	01	Press PAUSE (Write) button.
9	7	00	00	
10	7	01	00	

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-001 board BT9001) 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 time (BCD code)	Hour (H) 100000th place digit and 10000th place digit of counted time (decimal digit)
A5		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		Minute
A8	Drum rotation counted time (BCD code)	Hour (H) 100000th place digit and 10000th place digit of counted time (decimal digit)
A9		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		Minute
AC	Tape run time (BCD code)	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		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-001 board BT9001) 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 (BCD code)	Count (H) 10000th place digit and 1000th place digit of Eject count (decimal digit)
91		Count (M) 1000th place digit and 100th place digit of Eject count (decimal digit)
92		Count (L) 10th place digit and 1st place digit of Eject count (decimal digit)
93	Eject count without tape (BCD code)	Count (H) 10000th place digit and 1000th place digit of Eject count (decimal digit)
94		Count (M) 1000th place digit and 100th place digit of Eject count (decimal digit)
95		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-001 board BT9001) is removed.

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

Address	Function	Remarks
C8	User initial power	After setting the clock, set the date of power on next
C9	on date	
CA	(BCD code)	
CB	Final condensation	
CC	occurrence date	
CD	(BCD code)	

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-001 board BT9001) 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.

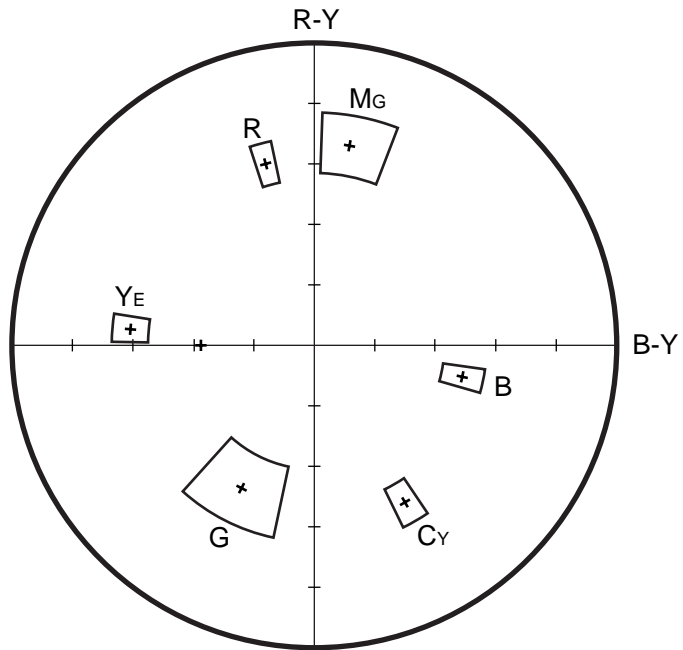
Initializing method:

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.

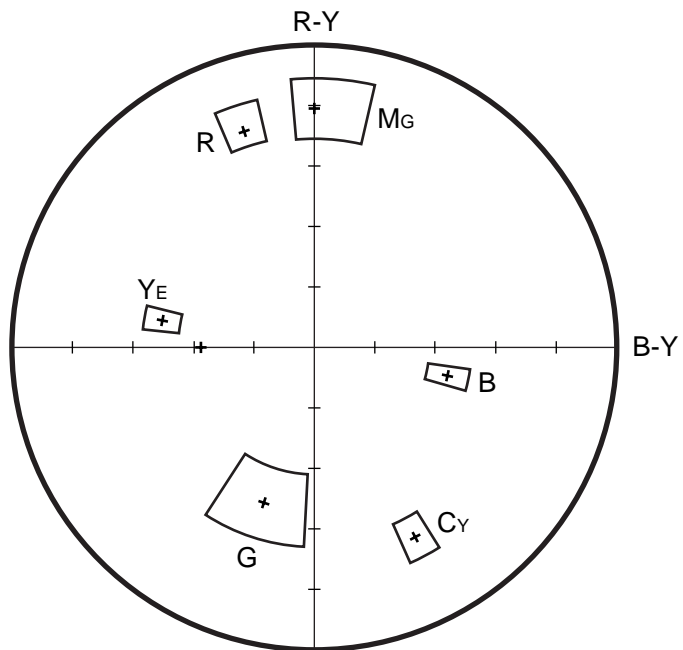
For Indoor HD mode (NTSC model)



HVR-A1J/A1U/A1N



For Indoor SD mode (NTSC model)



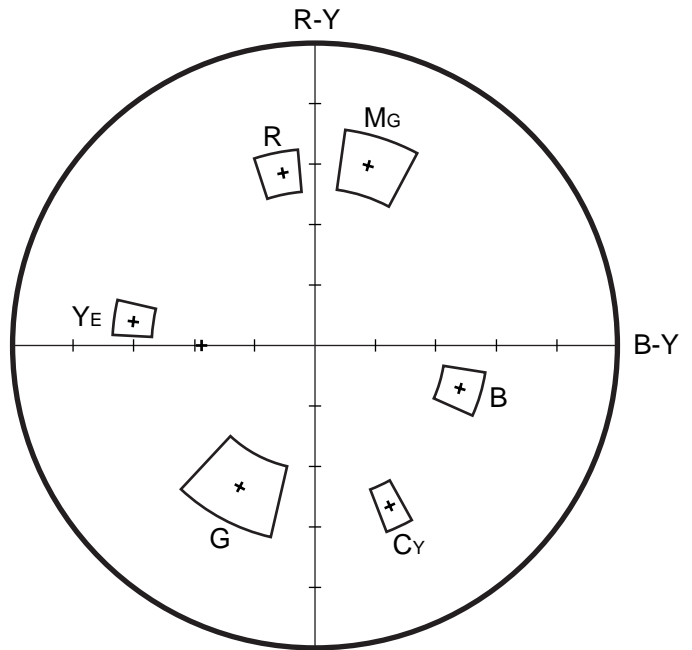
HVR-A1J/A1U/A1N



FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

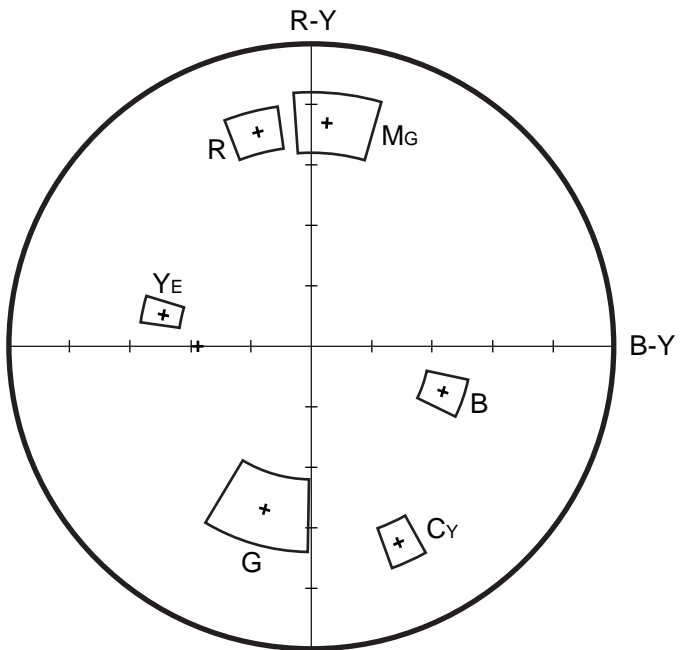
For Outdoor HD mode (NTSC model)



HVR-A1J/A1U/A1N



For Outdoor SD mode (NTSC model)



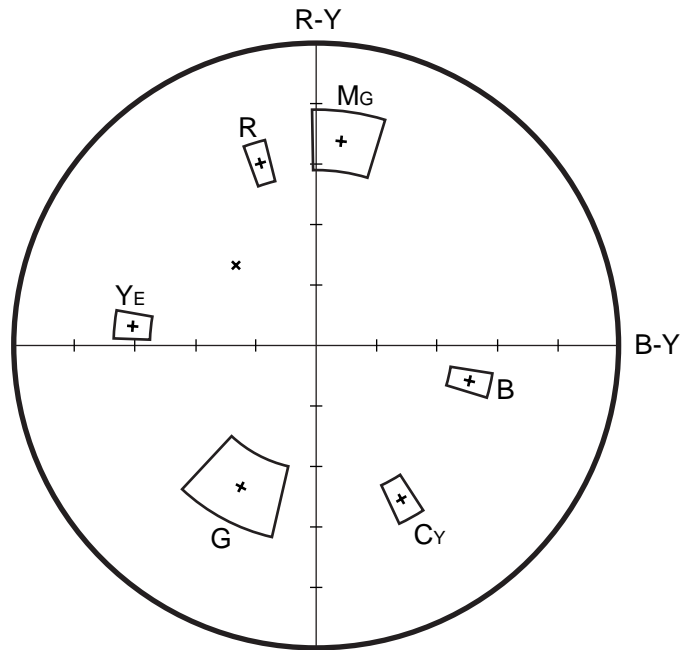
HVR-A1J/A1U/A1N



FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

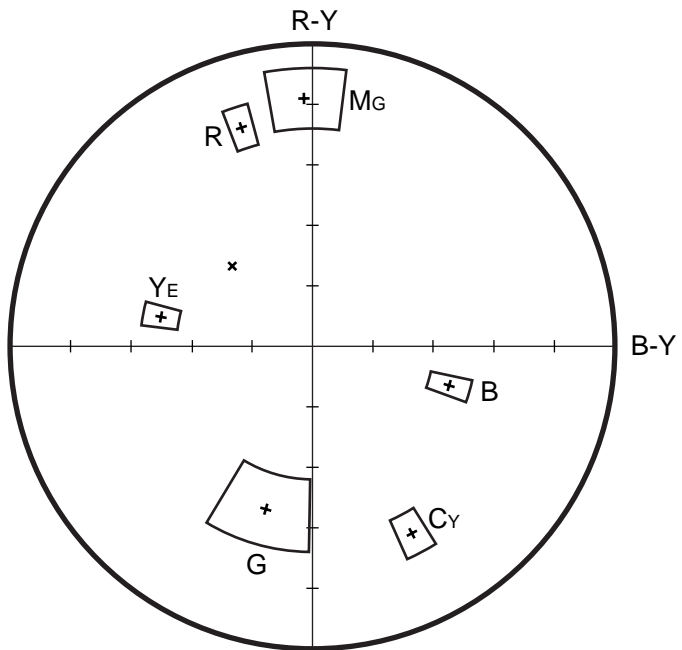
For Indoor HD mode (PAL model)



HVR-A1E/A1P/A1C



For Indoor SD mode (PAL model)



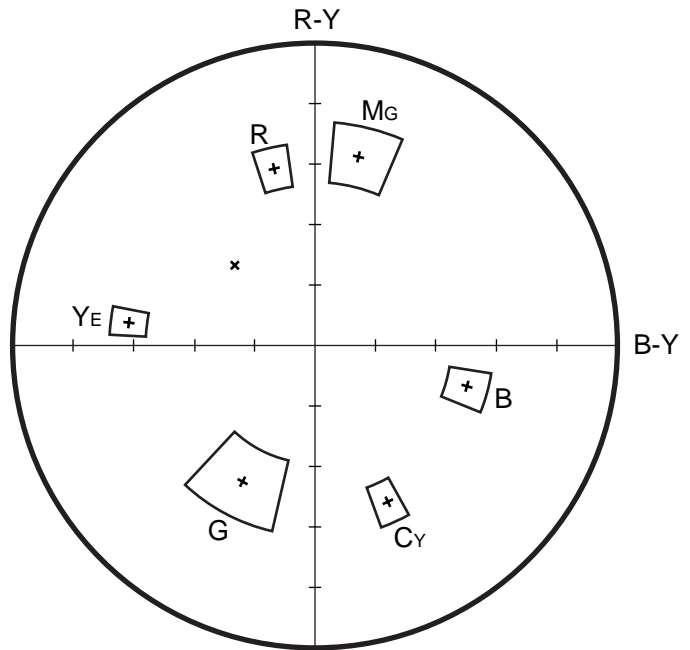
HVR-A1E/A1P/A1C



FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

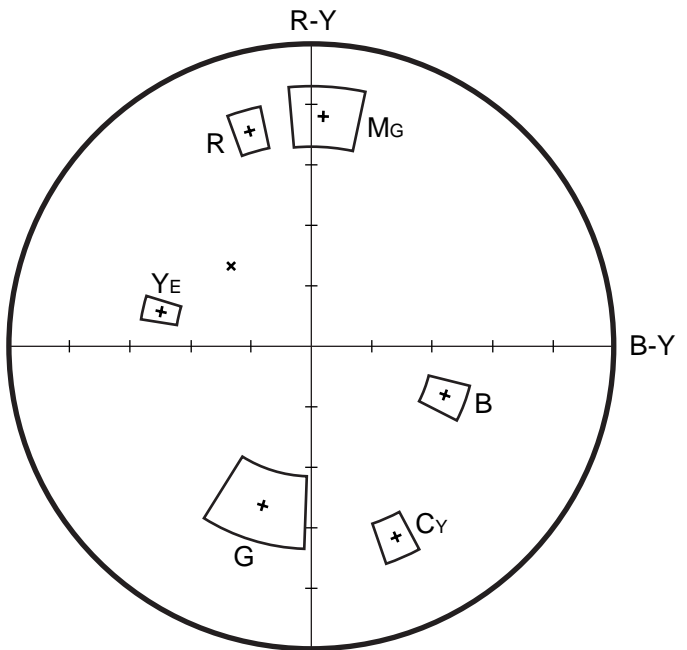
For Outdoor HD mode (PAL model)



HVR-A1E/A1P/A1C



For Outdoor SD mode (PAL model)



HVR-A1E/A1P/A1C



Digital HD Video Camera Recorder

Operating Guide

Before operating the unit, please read this manual thoroughly,
and retain it for future reference.

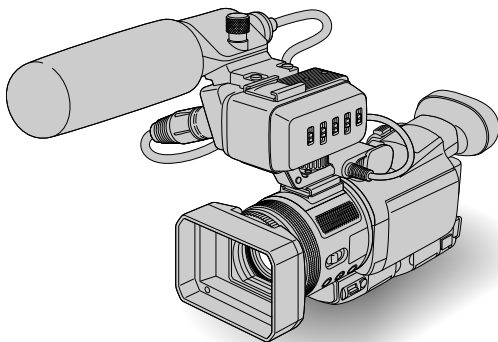
HDV
HDV 1080i

DVCAM™

Mini **DV** Digital
Video
Cassette


MEMORY STICK™


InfoLITHIUM™ **M**
SERIES



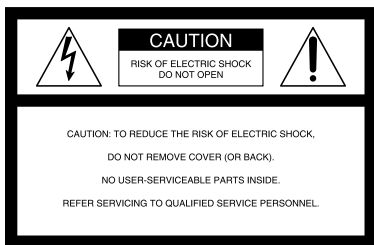
HVR-A1U/A1N

Read this first

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



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.

For customers in the U.S.A. and CANADA

HVR-A1U 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.rbrbc.org/>



Caution: Do not handle damaged or leaking Lithium-Ion batteries.

“Memory Stick”

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.

This Class B digital apparatus complies with Canadian ICES-003.

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- _____

Serial 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-A1U

Responsible Party: Sony Electronics Inc.

Address: 16450 W. Bernardo Dr, San Diego, CA 92127 U.S.A.

Telephone No.: 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.

Notes on use

On the 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.103).

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 (p.103).

Read this first (Continued)

On the 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. 107).

“Memory Stick Duo” (Size used with this unit)



“Memory Stick”
(You cannot use it in your camcorder.)



- 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.

When using a “Memory Stick Duo” with “Memory Stick” compatible equipment

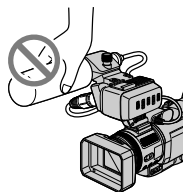
Be sure to insert the “Memory Stick Duo” into the supplied Memory Stick Duo Adaptor.

Memory Stick Duo Adaptor



On using the camcorder

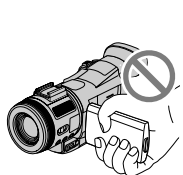
- Do not hold the camcorder by the following parts.



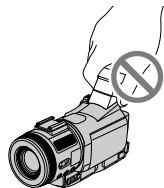
Microphone



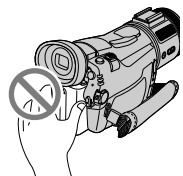
XLR Adaptor



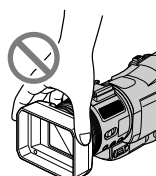
LCD panel



Viewfinder



Battery pack

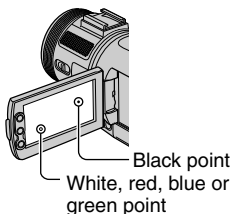


Lens hood with lens cover

- The camcorder is not dustproofed, dripproofed or waterproofed. See “Maintenance and precautions” (p. 111).
- Before connecting your camcorder to another device with a component video cable, USB or i.LINK cable, be sure to insert the connector plug in the proper direction. If you insert the connector plug forcibly in the wrong direction, the terminal may be damaged, or this may cause a malfunction of your camcorder.

On the 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.



- 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.

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. The screen appears blue.

Check the contents of tapes by playing them back on this camcorder prior to playing them back on other devices.

On 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.

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

Note 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.

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Recording

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- To fix the brightness or the exposure of the picture manually (EXPOSURE/AE SHIFT)
- To record in dark places (NightShot)
- To make the subject stand out clearer (TELE MACRO)
- To use the AUTO LOCK switch
- To adjust the focus manually
- To enlarge and focus on the image (Expanded focus)
- To adjust the exposure for backlit subjects
- To record in mirror mode
- To use a tripod

Playback







- To use PB zoom
- To adjust the movie volume

Recording/playback

- To check the remaining battery (Battery Info)
- You can assign functions to the ASSIGN button
- To turn off the operation confirmation beep

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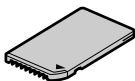
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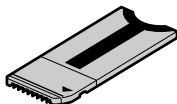
Step 1: Checking supplied items

Make sure that you have following items supplied with your camcorder. The number in the parentheses indicates the number of that item supplied.

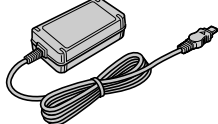
"Memory Stick Duo" 16MB (1) (p. 17, 107)



Memory Stick Duo Adaptor (1) (p. 108)



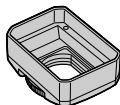
AC Adaptor (1) (p. 10)



Power cord (1) (p. 10)

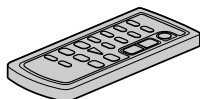


Lens hood with lens cover (1) (p. 20, 118)



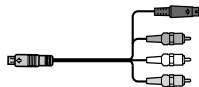
Use the lens hood to record under strong light, such as under the sun.

Wireless Remote Commander (1) (p. 32)

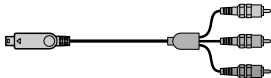


A button-type lithium battery is already installed.

A/V connecting cable (1) (p. 33, 69)



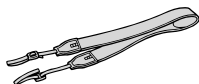
Component video cable (1) (p. 33, 34)



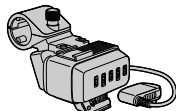
USB cable (1) (p. 78)



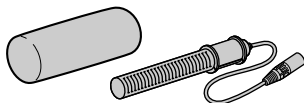
Shoulder Strap (1) (p. 118)



XLR adaptor (1) (p. 19)



Wind Screen (1),
Microphone (1) (p. 19)

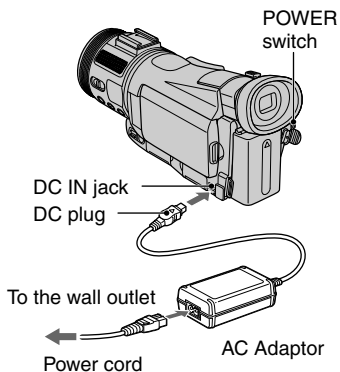


Rechargeable battery pack NP-FM50 (1) (p. 10, 109)

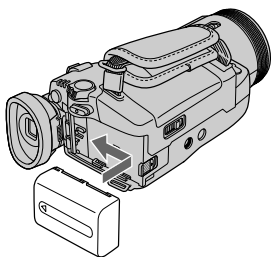
Operating Guide (This manual) (1)

Step 2: Charging the battery pack

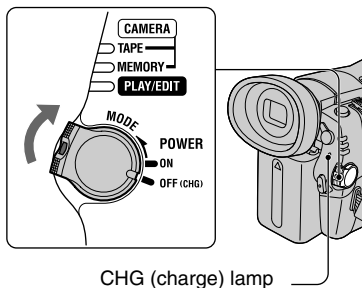
You can charge the “InfoLITHIUM” battery pack (M series) (p. 109) after attaching it to your camcorder.



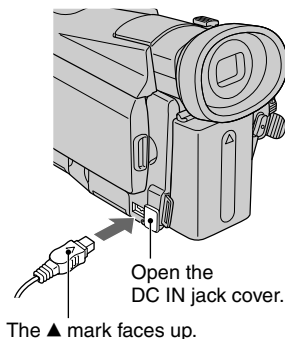
- 1** Attach the battery pack by sliding it in the direction of the arrow until it clicks.



- 2** Slide the **POWER** switch up to **OFF (CHG)**. (The default setting.)



- 3** Connect the **AC Adaptor** to the **DC IN jack** of your camcorder. Be sure that the **▲** mark on the **DC plug** is facing up.



4 Connect the power cord to the AC Adaptor and the wall outlet.

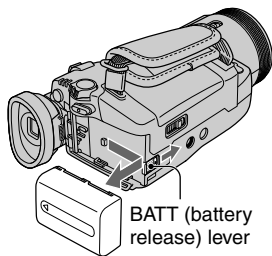
The CHG (charge) lamp lights up and charging starts.

5 The CHG (charge) lamp turns off when the battery is fully charged. Disconnect the AC Adaptor from the DC IN jack on your camcorder and the DC plug.

Disconnect the AC Adaptor from the DC IN jack holding both the camcorder and the DC plug.

To remove the battery pack

Slide the POWER switch up to OFF (CHG). Slide the BATT (battery release) lever and remove the battery pack.



When storing the battery pack

Fully discharge the battery before storing it for an extended period (p. 109).

To use an outside power source

You can operate your camcorder using the power from the wall outlet by making the same connections as you do when charging the battery pack. The battery pack will not lose its charge in this case.

Charging time

Approximate time (min.) required when you fully charge a fully discharged battery pack.

Battery pack	Charging time
NP-FM50 (supplied)	150
NP-QM71D	260
NP-QM91D	360

Recording time

Approximate time (min.) available when you use a fully charged battery pack.

Recording in the HDV format (with the XLR adaptor attached)

Battery pack	Continuous recording time*	Typical recording time*
NP-FM50 (supplied)	70	35
	75	40
	70	35
NP-QM71D	175	95
	190	105
	180	100
NP-QM91D	270	150
	290	160
	280	155

Recording in the DVCAM (DV) format (with the XLR adaptor attached)

Battery pack	Continuous recording time*	Typical recording time*
NP-FM50 (supplied)	80	40
	90	50
	80	40
NP-QM71D	200	110
	220	120
	205	110
NP-QM91D	300	165
	330	180
	315	175

Step 2: Charging the battery pack (Continued)

- * 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-FM50 (supplied)	100	110
NP-QM71D	240	275
NP-QM91D	365	420

DVCAM (DV) format pictures

Battery pack	LCD panel opened*	LCD panel closed
NP-FM50 (supplied)	125	145
NP-QM71D	305	355
NP-QM91D	465	535

* When the LCD backlight turns on.

On the battery pack

- Before changing the battery pack, slide the POWER switch up to OFF (CHG).
- The CHG (charge) lamp flashes during charging, or the battery information (p. 27) 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 fully discharged. (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.

- Use the supplied or optional Sony "InfoLITHIUM" battery pack (M series). You cannot use the battery pack NP-FM30 with your camcorder.
- When attaching an optional video light, it is recommended that you use a NP-QM71D or NP-QM91D 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.

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.

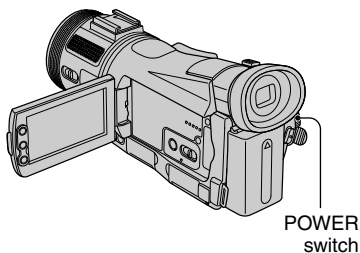
PRECAUTION

- Even if your camcorder is turned off, AC power (mains) is still supplied to it while connected to the wall outlet via the AC Adaptor.

Step 3: Turning the power on and holding your camcorder firmly

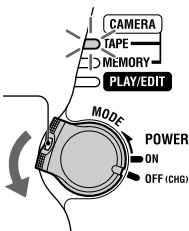
To record or play back, slide the POWER switch repeatedly to turn on the respective lamp.

When using it for the first time, the [CLOCK SET] screen appears (p. 16).



- 1 Slide the POWER switch repeatedly in the direction of the arrow to turn on the respective lamp.

If the POWER switch is set to OFF (CHG), slide it down while pressing the green button.



Lamps that light up

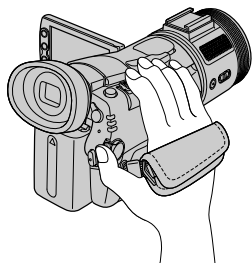
CAMERA-TAPE: To record on a tape.

CAMERA-MEMORY: To record on a "Memory Stick Duo."

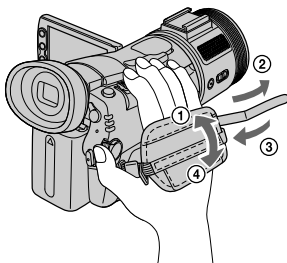
PLAY/EDIT: To play or edit pictures.

- When you slide the POWER switch from OFF (CHG) to CAMERA-TAPE or CAMERA-MEMORY, the current date and time will be displayed on the LCD screen for about 5 seconds.

- 2 Hold the camcorder correctly.



- 3 Ensure a good grip, then fasten the grip belt.



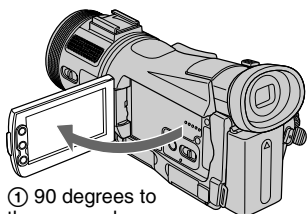
To turn off the power

Slide the POWER switch up to OFF (CHG).

Step 4: Adjusting the LCD panel and viewfinder

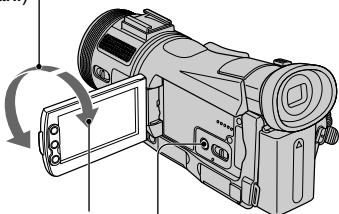
The LCD panel

Open the LCD panel 90 degrees to the camcorder (①), then rotate it to the best angle to record or play (②).



① 90 degrees to the camcorder

② 180 degrees (max.)



② 90 degrees (max.)

DISPLAY/BATT INFO

- Do not press the buttons beside the LCD frame accidentally when you open or adjust the LCD panel.
- If you rotate the LCD panel 180 degrees to the lens side from the status ①, you can close the LCD panel with the LCD screen facing out. This is convenient during playback operations.
- When closing the LCD panel, rotate the LCD panel as illustrated in ①, and then close the LCD panel facing inward.

To turn off the LCD backlight to make the battery last longer

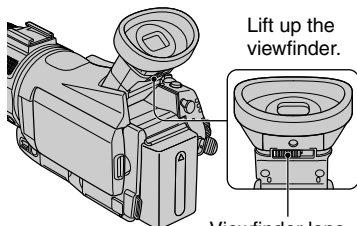
Press and hold DISPLAY/BATT INFO for a few seconds until LCD_{OFF} appears.

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 DISPLAY/BATT INFO for a few seconds until LCD_{OFF} disappears.

- See [LCD BRIGHT] (p. 60) to adjust the brightness of the LCD screen.

The viewfinder

You can view images using the viewfinder with the LCD panel closed. The battery will last longer than when using the LCD panel.



Lift up the viewfinder.

Viewfinder lens adjustment lever
Move it until the picture is clear.

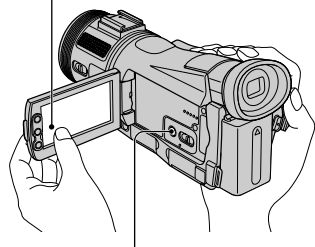
- You can adjust the brightness of the viewfinder backlight by selecting VIEW (STANDARD SET) → [LCD/VF SET] → [VF B.LIGHT] (p. 60).
- To display the picture on both the LCD panel and the viewfinder during recording, touch VIEW (STANDARD SET) → [LCD/VF SET] → [VF POWER] → [ON] (p. 60).
- To display the picture in black and white on the viewfinder, touch VIEW (STANDARD SET) → [LCD/VF SET] → [VF COLOR] → [OFF] (p.60).

Step 5: Using the touch panel

You can play back recorded pictures (p. 23), or change the settings (p. 38) using the touch panel.

Place your hand on the rear side of the LCD panel to support it. Then, touch the buttons displayed on the screen.

Touch the button on the LCD screen.



DISPLAY/BATT INFO

- Perform the same actions as explained above when you press the buttons on the LCD frame.
- Be careful not to press buttons on the LCD frame accidentally while using the touch panel.

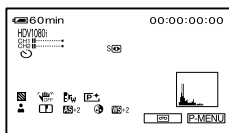
To hide the screen indicators

Press DISPLAY/BATT INFO to toggle the screen data (such as time code, etc).

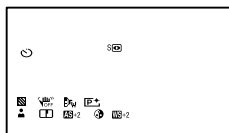
When the POWER switch is set to CAMERA-TAPE or CAMERA-MEMORY, the indicator changes from detailed display → simple display → no display.

When the POWER switch is set to PLAY/EDIT, the display turns on and off.

Detailed display



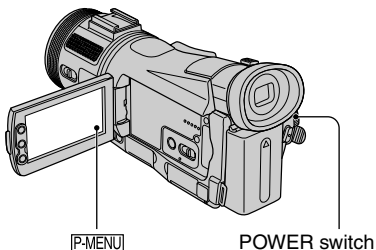
Simple display



Step 6: Setting the date and time

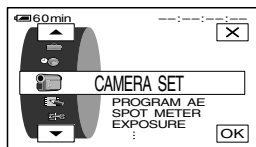
Set the date and time when using this camcorder for the first time. If you do not set the date and time, the [CLOCK SET] screen appears every time you turn on your camcorder or change the POWER switch position.

- 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. 113).

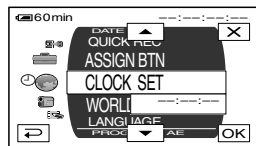


Skip to step 4 when you set the clock for the first time.

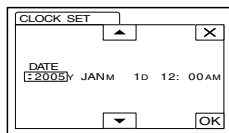
1 Touch **P-MENU** → [MENU].



2 Select **(TIME/LANGU.)** menu with **▲/▼**, then touch **OK**.

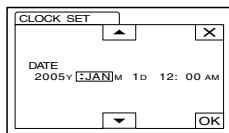


3 Select **[CLOCK SET]** with **▲/▼**, then touch **OK**.



4 Set **[Y]** (year) with **▲/▼**, then touch **OK**.

You can set any year up to the year 2079.



5 Set **[M]** (month), **[D]** (day), hour and minute, then touch **OK**.

The clock starts.


For midnight, set it to 12:00 AM.


For midday, set it to 12:00 PM.

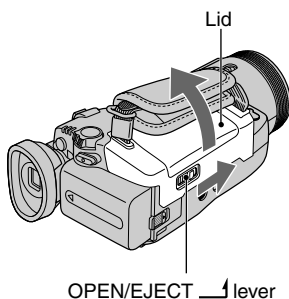
Step 7: Inserting a tape or a “Memory Stick Duo”

Cassette tape


See 103 for details of usable cassettes and prevention of accidental erasure.

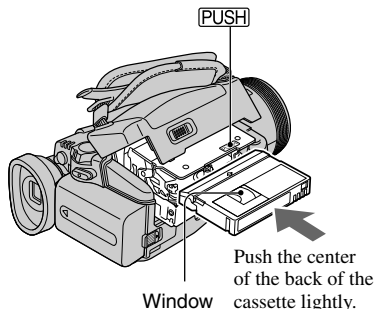
- The recordable time varies depending on [ REC MODE] (p. 57). **DVCAM DV SP**

- 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** .



The cassette compartment automatically slides back in. Do not force the cassette into the compartment. This may cause a malfunction.

- 3** Close the lid.

To eject the cassette

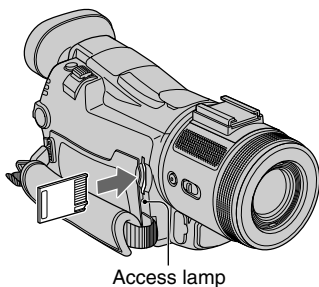
Open the lid following the same procedure as described in step 1 and remove the cassette.

“Memory Stick Duo”

You can use only a “Memory Stick Duo” marked with **MEMORY STICK DUO** or **MEMORY STICK PRO DUO** (p. 107).

- The number of recordable pictures varies depending on the image quality or the image size. For details, see page 50.

Insert the “Memory Stick Duo” into the “Memory Stick Duo” slot in the right direction until it clicks.



- If you force 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”

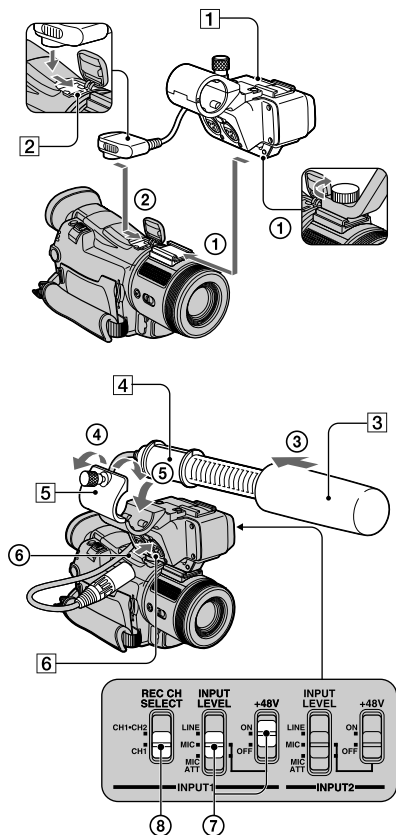
Lightly push the “Memory Stick Duo” in once.

- 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.
- Make sure that the “Memory Stick Duo” does not pop up and drop off when inserting and removing it from your camcorder.

Step 8: Installing the supplied microphone and hood with lens cover

Installing the supplied microphone

Install the supplied XLR adaptor and microphone. You can receive the desired audio quality.



1 Attach the XLR adaptor **1** to the accessory shoe on the camcorder and tighten the screw of the XLR adaptor.

2 Connect the plug of the XLR adaptor to the Active Interface Shoe **2** of the camcorder.

3 Attach the wind screen **3** to the microphone **4**.

4 Loosen the microphone holder **5** screw and open the cover.

5 Place the microphone into the holder with the model name (ECM-NV1) facing upward, close the cover, and tighten the screw.

6 Connect the plug of the microphone to the INPUT1 connector **6**.

7 Set the INPUT LEVEL selector to MIC or MIC ATT.

When the selector is set to MIC ATT, you can reduce the volume by about 20dB.

Set the +48V switch to ON.

Step 8: Installing the supplied microphone and hood with lens cover (Continued)

8 Select the channel with the REC CH SELECT switch.

Used channels according to the position of the REC CH SELECT switch are as follows:

The position of the REC CH SELECT switch	Audio input through	The audio is recorded on
CH1, CH2	INPUT1	Channel 1
		Channel 2
	INPUT2	-
CH1	INPUT1	Channel 1
	INPUT2	Channel 2

- We recommend that you set [MIC NR] to [OFF] in the menu setting in the following cases.
 - When you use the external microphone at a distance from the camcorder.
 - When the REC CH SELECT switch is set to CH1 and you will not input from the INPUT2 connector.
 - When you set the INPUT LEVEL selector to LINE.
- If you use equipment other than a 48-V microphone with the +48V switch set to ON, a malfunction of the equipment may occur. When you connect equipment other than a 48-V microphone, set it to OFF.
- When the wind is blowing hard and the audio is input via the INPUT1 connector, set INPUT1 of the LOW CUT switch to ON. Set INPUT2 to ON when the audio is input via the INPUT2 connector. The sound of wind is reduced.
- When you connect equipment other than a microphone, set the +48V switch to OFF and the INPUT LEVEL selector to LINE.
- When using an external microphone, use a simple full-screen or underscan monitor and make sure that the wind screen does not appear on the screen.

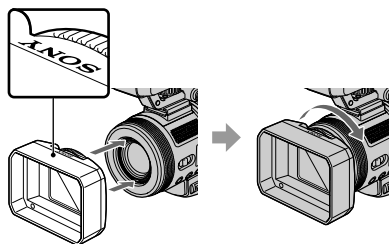
When detaching the XLR adaptor

Unplug the connector plug of the XLR adaptor from the Active Interface Shoe beforehand. Detach the XLR adaptor after having loosened the screw of the XLR adaptor.

- When you unplug the microphone plug, unplug it while holding the PUSH button down.

Attaching the supplied lens hood with lens cover

Insert hooks on the lens hood with lens cover to the holes on the camcorder. Turn the hood fixing screw in the direction of the arrow.



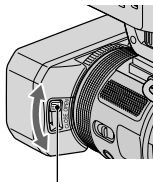
To remove the lens hood

Loosen the lens hood fixing screw by turning it in the opposite direction of the arrow in the illustration above.

- You cannot attach a filter (optional) with the lens hood with lens cover on.

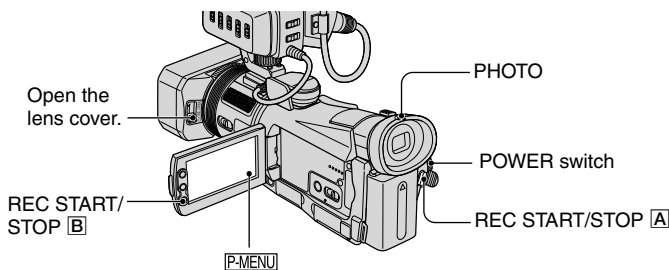
To open and close the lens cover

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.

Recording



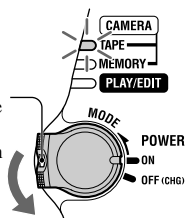
- 1 Slide the **POWER** switch in the direction of the arrow repeatedly to turn on the respective lamp to select a recording medium.

Movies on tape: The CAMERA-TAPE lamp lights up.

Still images on “Memory Stick Duo”: The CAMERA-MEMORY lamp lights up.*

* The image size ratio is set by default to 4:3.

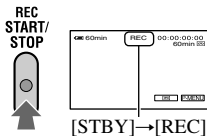
If the **POWER** switch is set to **OFF (CHG)**, slide it down while pressing the green button.



- 2 Start recording.

Movies

Press **REC START/STOP [A]** (or **[B]**).

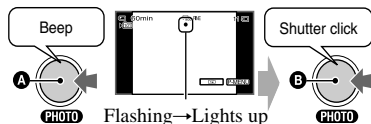


To stop the movie recording, press **REC START/STOP** again.

- The pictures are recorded in the HDV format in the default setting (p. 57).

Still images

Press and hold **PHOTO** lightly to adjust the focus (A), then press it fully (B).



A shutter sound is heard. When **||||** disappears, the image has been recorded

- You can record a still image on a “Memory Stick Duo,” while recording movies on a tape or in standby mode by pressing **PHOTO** deeply. Still images will be fixed to image size [1440 × 810] in the HDV format, [1080 × 810] (4:3) or [1440 × 810] (16:9) in the DVCAM (DV) format.

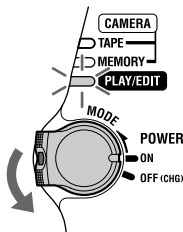
To check the latest recording on a “Memory Stick Duo”

Touch . To delete the picture, touch → [YES]. Touch to return to the standby mode.

- See page 50 for the image size.



Playback

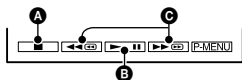
- 1 Slide the POWER switch in the direction of the arrow repeatedly to turn on the PLAY/EDIT lamp.



- 2 Start playing back.

Movies


Touch , then touch  to start playback.

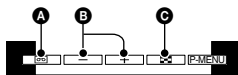


- A Stop
- B Play/Pause toggles as you touch it.*
- C Rewind/Fast forward


* Playback automatically stops if pause is engaged for more than 3 minutes.

Still images

Touch . The most recently recorded image is displayed.







- A Tape playback
- B Previous/Next
- C Index screen display


•  is not displayed when a “Memory Stick Duo” is not inserted or no image files exist in it.

To adjust the volume


Move the EXPOSURE/VOL lever up and down to adjust the volume (p. 27).





To search for a scene during playback

Touch and hold / during playback (Picture Search), or / while fast forwarding or rewinding the tape (Skip Scan).

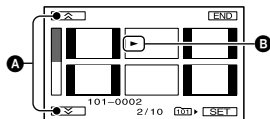
• You can play back in various modes ( VAR. SPD PB], p. 56).

To display pictures on a “Memory Stick Duo” on the Index screen

Touch . Touch the picture you want to display in the single display mode. To view pictures in other folders, touch

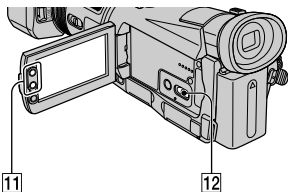
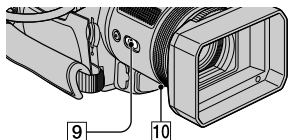
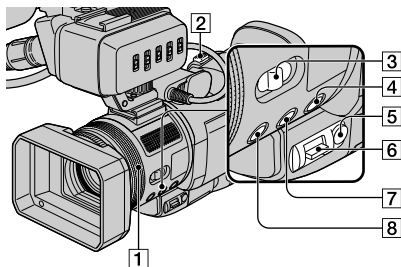
 →  → [PB FOLDER], select a folder with /, then touch  (p. 52).

Index display screen



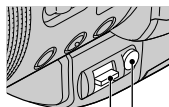
- A Previous/Next 6 pictures
- B The picture displayed before switching to the index screen.

Functions used for recording/playback, etc.



- You cannot change the zoom speed with the zoom buttons [1] on the LCD frame.
- The minimum distance required between your camcorder and the subject to get a sharp focus is about 1 cm (about 1/2 in.) for wide angle and about 80 cm (about 2 5/8 ft.) for telephoto.
- You can set [DIGITAL ZOOM] if you want to zoom to a level greater than 10 × (p. 48).
- Zooming may not be able to catch up the rotating speed of the ring if it is rotated too fast.

To fix the brightness or the exposure of the picture manually (EXPOSURE/AE SHIFT) [5] [6]



EXPOSURE/VOL lever
EXPOSURE button

You can adjust the brightness or exposure of a picture manually with the EXPOSURE/VOL lever [6]. Set the AUTO LOCK switch to OFF beforehand (p. 25).

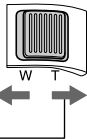
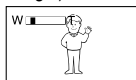
- ① Select the setting for the EXPOSURE/VOL lever with [EXPOSURE LEVER] (p. 49).
You can assign [EXPOSURE] (p. 44) or [AE SHIFT] (p. 45).
 - ② Press EXPOSURE button [5].
The assigned setting becomes manual.
 - ③ Move the EXPOSURE/VOL lever up or down to adjust the setting.
You can set the same menu items as with the menu screen.
- To return to the automatic mode, press the EXPOSURE button again.

Recording

To use zoom [1] [2] [3] [11]

Move the power zoom lever [2] slightly for a slower zoom. Move it further for a faster zoom.

Wider range of view:
(Wide angle)



Close view: (Telephoto)

- When using the zoom ring [1], set the FOCUS/ZOOM switch [3] to ZOOM and rotate it at the desired speed (Ⓞ appears).

To record in dark places (NightShot) [9]

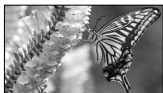
Set the NIGHTSHOT switch [9] to ON. (Ⓞ and [NIGHTSHOT] appear.)

- To record an image brighter, use Super NightShot function (p. 47). To record an image more faithful to the original colors, use Color Slow Shutter function (p. 47).

- The NightShot and Super NightShot function use infrared light. Therefore, do not cover the infrared port [10] with your fingers or other objects and remove the supplied lens hood with lens cover or the conversions lens (optional).
- Adjust the focus manually (p. 25) when it is hard to focus automatically.
- Do not use these functions in bright places. This may cause a malfunction.

To make the subject stand out clearer (TELE MACRO) [8]

Press TELE MACRO [8]. **T** appears and the zoom moves to the top of the T (Telephoto) side automatically and allows for recording subjects at a close distance, down to about 48 cm (19 in.). This is useful to shoot small subjects, such as flowers or insects.



To cancel, press TELE MACRO again, or zoom to wide-angle (W side).

- When recording a distant subject, it may be difficult to focus on and take time for focusing.
- Adjust the focus manually (p. 25) when it is hard to focus automatically.

To use the AUTO LOCK switch [12]

You can set up the following settings manually with the AUTO LOCK switch [12] to OFF. The settings return to the automatic mode with the switch ON.

- [SPOT METER]
- [EXPOSURE]
- [PROGRAM AE]
- [WHITE BAL.]
- [SHUTTR SPEED]
- Settings adjusted while the AUTO LOCK switch is OFF are retained when it is set to ON, and will be restored when set to OFF again.
- Set the AUTO LOCK switch to ON when using the external flash (optional).

To adjust the focus manually.... [1][3]

- ① Set the FOCUS/ZOOM switch [3] to MANUAL (M appears).
- ② Rotate the focus ring [1] to adjust the focus.

To adjust the focus automatically, set the FOCUS/ZOOM switch to AUTO.

- You can also use this function when changing the subject to be focused intentionally.
- M changes to ▲ when the focus cannot be adjusted any farther. M changes to ▼ when the focus cannot be adjusted any closer.
- It is easier to focus on the subject by moving the power zoom lever [2] towards T (telephoto) to adjust the focus, then towards W (wide angle) to adjust the zoom for recording. When you want to record a subject at close range, move the power zoom lever to W (wide angle), then adjust the focus.

To enlarge and focus on the image (Expanded focus) [3][7]

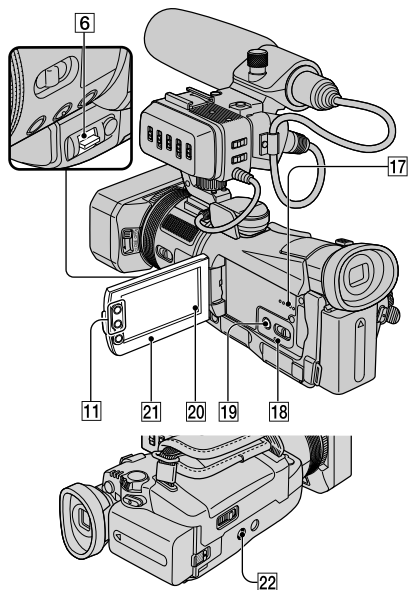
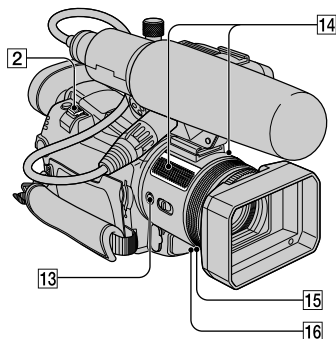
- ① Set the FOCUS/ZOOM switch [3] to MANUAL in standby mode.
- ② Press EXPANDED FOCUS [7] to double the size of the picture. When you finish focusing, the screen automatically returns to the normal picture display.

To cancel the expanded focus, press EXPANDED FOCUS again.

To adjust the exposure for backlit subjects [4]

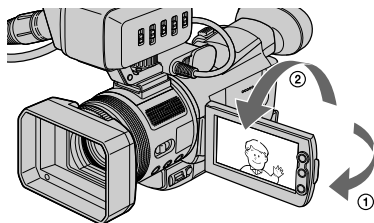
To adjust the exposure for backlit subjects, press BACK LIGHT [4] to display B. To cancel the back light function, press BACK LIGHT again.

Functions used for recording/playback, etc. (Continued)



To record in mirror mode 21

Open the LCD panel 21 90 degrees to the camcorder (1), then rotate it 180 degrees to the lens side (2).



- A mirror-image of the subject appears on the LCD screen, but the picture will be normal when recorded.

To use a tripod 22

Attach the tripod (optional: the length of the screw must be less than 5.5 mm (7/32 in.) to the tripod receptacle 22 using a tripod screw.

- Remove the tripod when taking out the cassette.

Playback

To use PB zoom 2 11

You can magnify still pictures on the “Memory Stick Duo” from about 1.5 to 5 times the original size.


Magnification can be adjusted with the power zoom lever 2 or the zoom buttons 11 on the LCD frame.

- 1 Play back the picture you want to magnify.
- 2 Magnify the picture with T (Telephoto).
- 3 Touch the screen at the point you want to display in the center of the displayed frame.
- 4 Adjust the magnification with W (Wide angle)/T (Telephoto).

To cancel, touch [END].

To adjust the movie volume 6

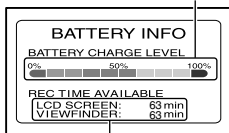
Move the EXPOSURE/VOL lever [6] up or down to adjust the volume. Move the lever up to increase the volume and move it down to decrease the volume.

- You can also adjust the volume by touching  (STANDARD SET)→[VOLUME] (p.58).

Recording/playback**To check the remaining battery (Battery Info) 19**

Set the POWER switch up to OFF (CHG), then press DISPLAY/BATT INFO [19]. The approximate recordable time in the selected format and battery information appear for about 7 seconds. By pressing DISPLAY/BATT INFO, you can view the battery information for up to 20 seconds while it is displayed.

Remaining battery (approx.)



Recording capacity (approx.)

You can assign functions to the ASSIGN button..... 13

Use [ASSIGN BTN] (p. 66) to assign functions.

To turn off the operation confirmation beep 20

See [BEEP] (p. 65) to set the operation beep.

To initialize the settings 18

Press RESET [18] to initialize all the settings, including the setting of the date and time.

(Menu items customized on Personal Menu are not initialized.)

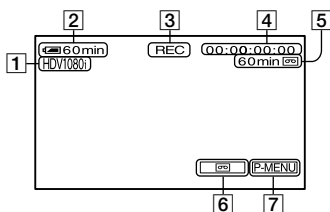
Other part names and functions

- 14 Internal stereo microphone
When an external microphone is connected, the audio input from the external microphone takes precedence over others.
- 15 REC lamp
The REC lamp lights up in red during recording (p. 65).
- 16 Remote sensor
Point the Remote Commander (p. 32) towards the remote sensor to operate your camcorder.
- 17 Speaker
Sounds come out from the speaker.
 - For how to adjust the volume, see page 23.

Indicators displayed during recording/playback

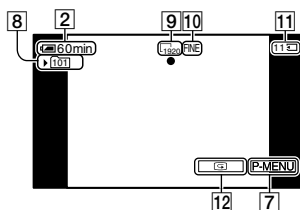
Recording movies

In the CAMERA-TAPE mode



- 1 Recording format (HDV1080i or DVCAM DV SP) (57)
- 2 Remaining battery (approx.)
- 3 Recording status ([STBY] (standby) or [REC] (recording))
- 4 Time code or user bits
- 5 Recording capacity of the tape (approx.) (65)
- 6 END SEARCH/Rec review display switch button (31)
- 7 Personal Menu button (38)

Recording still images



- 8 Recording folder (52)
- 9 Image size (50)
- 10 Quality ([FINE] or [STD]) (49)
- 11 “Memory Stick Duo” indicator and the number of images that can be recorded (approx.)
- 12 Review button (22)

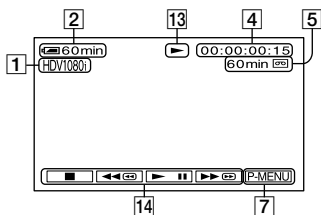
Data code during playback

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 (p. 64).

() is a reference page.

The indicators during recording will not be recorded.

Viewing movies

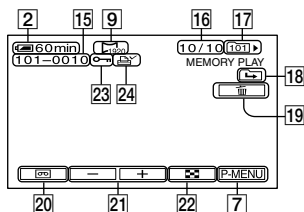


13 Tape transport indicator

14 Video operation buttons (23)

- When playing back a tape recorded in the HDV and DVCAM (DV) formats, and the signal switches between HDV and DVCAM (DV) formats, 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-DVCAM (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.

Viewing still images



15 Data file name

16 Picture number/Total number of recorded pictures in the current playback folder

17 Playback folder (52)

18 Previous/Next folder icon

The following indicators 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."

Touch to move to the previous folder.

Touch to move to the next folder.

Touch to move to either the previous or the next folder.

19 Image delete button (74)

20 Tape playback select button (23)

21 Previous/Next image button (23)

22 Index screen display button (23)

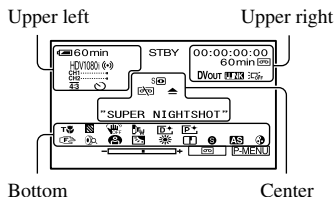
23 Image protection mark (74)

24 Print mark (75)

Indicators displayed during recording/playback (Continued)

Indicators when you made changes

You can check the [DISP GUIDE] (p. 62) to check the function of each indicator that appears on the LCD screen.



Upper left

Indicator	Meaning
HDV1080i DVCAM DV SP	Recording format (57)
(↔)	EXT SUR MIC (59)
NS32k NS48k 32k 48k	AUDIO MODE (58)*
2/2-ST	4-channel microphone recording standard (92)
BRK	Continuous photo recording (49)
DVCAM DV SP	Recording mode (57)*
☺	Self-timer recording (48)
4:3	WIDE SELECT (58)*
📷	Interval photo recording (54)
🔦	Flash light (46)
📊	Recording level meter (59)

Upper right

Indicator	Meaning
HDVIn DVIn	HDV input/DV input (72)
HDVout DVout	HDV output/DV output (33, 71)

iLINK	i.LINK connection (33, 71, 72)
📄 📄 ↺	Slide show (52)
📺 OFF	LCD backlight off (14)

Center

Indicator	Meaning
📷	NightShot (24)
S📷	Super NightShot (47)
📷	Color Slow Shutter (47)
🔗	PictBridge connecting (75)
🚨	Warning (98)

Bottom

Indicator	Meaning
AS	AE SHIFT (45)
WS	WB SHIFT (46)
🖼️	Picture effect (53)
🖼️	Digital effect (53)
👁️ 📏 👤	Manual focus (25)
👤 📷	PROGRAM AE (43)
📷	Sharpness (44)
📺	Backlight (25)
☀️ 🌞 📷	White balance (44)
📷	SteadyShot off (48)
📷	Zebra (47)
T📷	TELE MACRO (25)
🌈	CAMERA COLOR (45)
🔍	Zoom ring (24)
S	Shutter speed (45)
DV In DV Out	CONV. LENS (48)
PEAKING	PEAKING (46)

* The settings can be made only for the pictures in the DVCAM (DV) format.

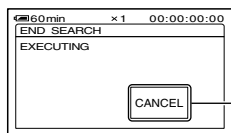
Searching for the starting point

Make sure that the CAMERA-TAPE lamp lights up (p. 22).

Searching for the last scene of the most recent recording (END SEARCH)

END SEARCH will not work once you eject the cassette after you have recorded on the tape.

Touch  → .



Touch here to cancel the operation.

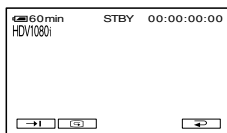
The last scene of the most recent recording is played back for about 5 seconds, and the camcorder enters the standby mode at the point where the last recording has finished.

- END SEARCH will not work correctly when there is a blank section between recorded sections on the tape.
- You can also select [END SEARCH] from the menu. When the PLAY/EDIT lamp lights up, select the [END SEARCH] shortcut in Personal Menu (p. 38).

Reviewing the most recently recorded scenes (Rec review)

You can view about 2 seconds of the scene recorded just before you stopped the tape.

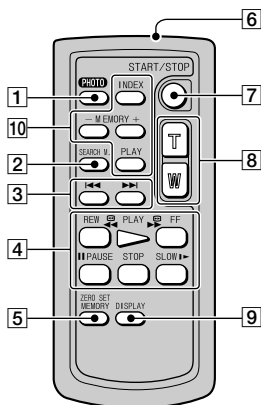
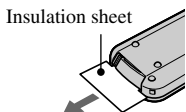
Touch  → .



The last 2 seconds (approx.) of the most recently recorded scene are played back. Then, your camcorder is set to the standby.

Remote Commander

Remove the insulation sheet before using the Remote Commander.



1 PHOTO (p. 22)

The on-screen image when you press this button will be recorded as a still image.

2 SEARCH M. (p. 32)

3 ◀▶

4 Video control buttons (Rewind, Playback, Fast-forward, Pause, Stop, Slow) (p. 23)

5 ZERO SET MEMORY

This button is invalid with your camcorder.

6 Transmitter

7 REC START/STOP (p. 22)

8 Power zoom (p. 24)

9 DISPLAY (p. 15)

10 Memory control buttons (Index, -/+, Memory playback) (p. 23)

- Aim the Remote Commander towards the remote sensor to operate your camcorder (p. 27).
- To change the battery, see page 114.

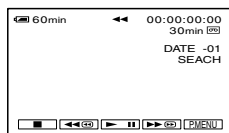
Searching for a scene by date of recording (Date search)

You can locate the point where the recording date changes.

1 Slide the POWER switch down to turn on the PLAY/EDIT lamp.

2 Press SEARCH M. [2].

3 Press ◀◀(previous)/▶▶(next) [3] to select a recording date.



To cancel the operation

Press STOP [4].

- The Date search will not function correctly when there is a blank section between recorded sections on the tape.

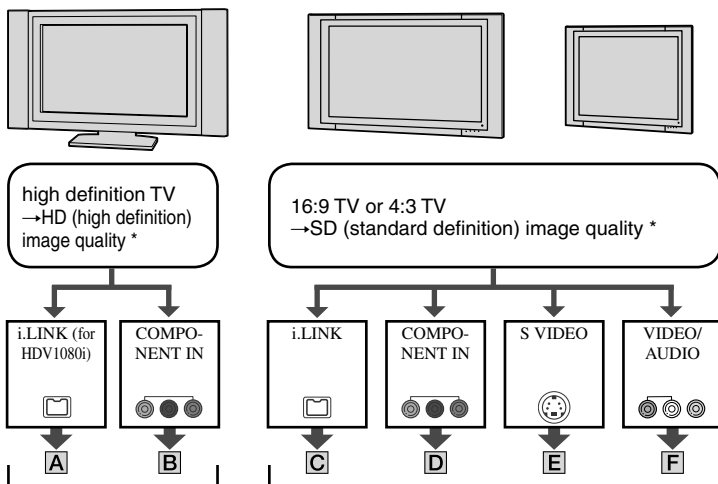
Connecting to a TV for viewing

Connection methods and image quality will differ depending on what TV to be connected and connectors used.

Use the supplied AC Adaptor as the power source (p. 10).

See page 36 for “Notes on Connection” and refer also to the instruction manuals supplied with the devices to be connected.

Select connection method depending on what TV to be connected with and connectors the TV is equipped with.



See page 34 for connecting methods.
See page 36 for notes on connection.

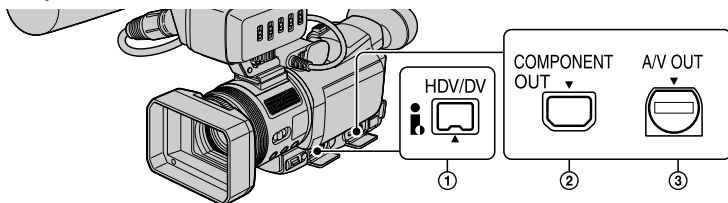
See page 34 for connecting method **C** and 35 for connecting method **D**, **E** and **F**.
See page 36 for notes on connection.

- Set the menu on your camcorder before connection. 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 (optional).


* Pictures recorded in the DVCAM (DV) format is played back as SD (standard definition) images regardless of connection.

Jacks on your camcorder

Open the jack cover and connect the cable.



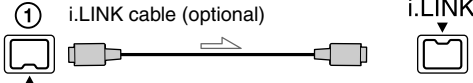
Connecting to a TV for viewing (Continued)

 : Signal flow


Type	Camcorder	Cable	TV	Menu Setting
------	-----------	-------	----	--------------

A

① i.LINK cable (optional)



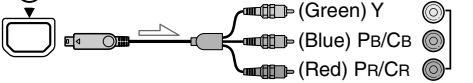
i.LINK

 (STANDARD SET)

[VCR HDV/DV] →
[AUTO] (p. 57)
[i.LINK CONV] →
[OFF] (p.61)

B

② Component video cable (supplied)

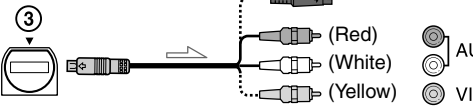


(Green) Y
(Blue) PB/CB
(Red) PR/CR

COMPONENT VIDEO IN

A/V connecting cable (supplied)


③



(Red)
(White)
(Yellow)

AUDIO
VIDEO

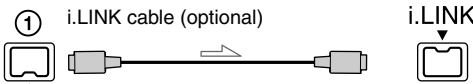
Do not connect the S video plug and the video plug (yellow).

 (STANDARD SET)


[VCR HDV/DV] →
[AUTO] (p. 57)
[COMPONENT]*
(p. 60)

C

① i.LINK cable (optional)



i.LINK

 (STANDARD SET)

[VCR HDV/DV] →
[AUTO] (p. 57)
[i.LINK CONV] →
[ON (HDV→DV)]
(p. 61)
[DOWN CONVERT]*
(p. 61)

* Change the settings depending on the TV connected.

➡: Signal flow

Type	Camcorder	Cable	TV	Menu Setting
------	-----------	-------	----	--------------

D

Component video cable (supplied)

COMPONENT VIDEO IN

- (Green) Y
- (Blue) PB/CB
- (Red) PR/CR

A/V connecting cable (supplied)

AUDIO

VIDEO

Do not connect the S video plug and the video plug (yellow).

(STANDARD SET)

[VCR HDV/DV] → [AUTO] (p. 57)

[COMPONENT]* (p. 60)

[DOWN CONVERT]* (p. 61)

E

A/V connecting cable (supplied)

S VIDEO

AUDIO

VIDEO

Do not connect the video plug (yellow).

(STANDARD SET)

[VCR HDV/DV] → [AUTO] (p. 57)

[DOWN CONVERT]* (p. 61)

F

A/V connecting cable (supplied)

AUDIO

VIDEO

Do not connect the S video plug.

(STANDARD SET)

[VCR HDV/DV] → [AUTO] (p. 57)

[DOWN CONVERT]* (p. 61)

* Change the settings depending on the TV connected.


Notes on Connection

Type	Notes
A	<ul style="list-style-type: none">Requires HDV1080i specification connectors. Consult your TV manufacturer for details. See page 104 for a list of supported devices.The TV needs to be set so that it recognizes that the camcorder is connected. Refer to the instruction manuals supplied with your TV.
B	<ul style="list-style-type: none">When connecting only with the component video cable (supplied), audio signals are not output. To output audio signals, connect the white and red plugs of the A/V connecting cable (supplied) to the audio input jack of your TV.Pictures in the DVCAM (DV) format are not output from the COMPONENT OUT jack, if copyright protection signals are recorded in the pictures.
C	<ul style="list-style-type: none">The TV needs to be set so that it recognizes that the camcorder is connected. Refer to the instruction manuals supplied with your TV.
D	<ul style="list-style-type: none">When connecting only with the component video cable (supplied), audio signals are not output. To output audio signals, connect the white and red plugs of the A/V connecting cable (supplied) to the audio input jack of your TV.Pictures in the DVCAM (DV) format are not output from the COMPONENT OUT jack, if copyright protection signals are recorded in the pictures.
E	<ul style="list-style-type: none">When connecting only S VIDEO plug, audio signals are not output. To output audio signals, connect the white and red plugs of the A/V connecting cable (supplied) to the audio input jack of your TV.This connection produces high resolution pictures compared with A/V connecting cable (Type F).
F	

- 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:
component video → S video → audio/video
- See page 110 for the details of i.LINK.

To set the aspect ratio according to the connected TV (16:9/4:3)

Change the [DOWN CONVERT] setting depending on your TV (p. 61).

- 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 [ WIDE SELECT] to [4:3] on your camcorder when recording a picture (p.58).

When your TV is connected to a VCR

Select the connecting method on page 69 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 (supplied). Set the input selector on the VCR to LINE (VIDEO 1, VIDEO 2, etc.).


When your TV is monaural (When your TV has only one audio input jack)

Connect the yellow plug of the A/V connecting cable (supplied) to the video input jack and connect the white or the red 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 (optional) for that purpose.

Using the menu items

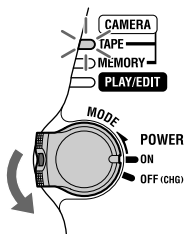
Follow the instructions below to use each of the menu items listed after this page.

1 Slide the POWER switch down to turn on the respective lamp.

CAMERA-TAPE lamp:  settings on a tape

CAMERA- MEMORY lamp:  settings on a "Memory Stick Duo"

PLAY/EDIT lamp: settings for viewing/editing




2 Touch the LCD screen to select the menu item.

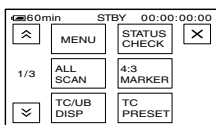
Unavailable items will be grayed out.

■ To use the short-cuts of Personal Menu



On Personal Menu, short-cuts for frequently used menu items are added.


- You can customize Personal Menu as you like (p. 67).

① Touch .



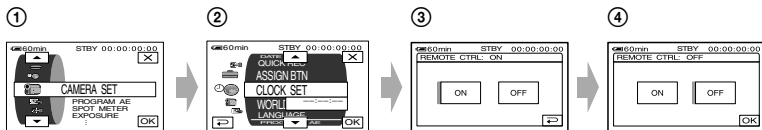
② Touch the desired item.

If the desired item is not displayed on the screen, touch / until the item is displayed.

③ Select the desired setting, then touch .

■ To use menu items




You can customize menu items that are not added to Personal Menu.



① Touch  → .

The menu index screen appears.

② Select the desired menu.

Touch / to select the item, then touch . (The process in step ③ is the same as that in step ②.)

③ Select the desired item.

- You can also touch the item directly to select it.

④ Customize the item.

After finishing the settings, touch → (close) to hide the menu screen.

If you decide not to change the setting, touch to return to the previous screen.

Menu items

- The menu items available for the operation (●) differ depending on where the lit lamp for the POWER switch is positioned.

Position of lamp:

TAPE



MEMORY

PLAY/EDIT

CAMERA SET menu (p. 43)

	TAPE	MEMORY	PLAY/EDIT
PROGRAM AE	●	●	—
SPOT METER	●	●	—
EXPOSURE	●	●	—
WHITE BAL.	●	●	—
SHARPNESS	●	●	—
SHUTTR SPEED	●	—	—
AUTO SHUTTER	●	—	—
AE SHIFT	●	●	—
CAMERA COLOR	●	●	—
CINEMATONE γ	●	—	—
CINEFRAME	●	—	—
WB SHIFT	●	●	—
ATW SENS	●	●	—
BLACK STRTCH	●	—	—
SPOT FOCUS	●	●	—
PEAKING	●	●	—
FLASH SET	—	●	—
SUPER NS	●	—	—
NS LIGHT	●	●	—
COLOR SLOW S	●	—	—
ZEBRA	●	●	—
HISTOGRAM	●	●	—
SELF-TIMER	●	●	—
DIGITAL ZOOM	●	—	—
STEADYSHOT	●	—	—
CONV. LENS	●	—	—
SETUP DVCAM DV 	●	—	—
FULL SCAN	●	—	—
EXPOSURE LEVER	●	●	—

MEMORY SET menu (p. 49)


STILL SET	—	●	●
 ALL ERASE	—	—	●
 FORMAT	—	●	●
FILE NO.	—	●	●
NEW FOLDER	—	●	●
REC FOLDER	—	●	●
PB FOLDER	—	—	●

Position of lamp: TAPE MEMORY PLAY/EDIT



 **PICT.APPLI. menu** (p. 52)

	TAPE	MEMORY	PLAY/EDIT
FADER	●	—	—
SLIDE SHOW	—	—	●
D. EFFECT	●	—	●
PICT. EFFECT	●	—	●
INT.REC-STL	—	●	—
SHOT TRANS	●	—	—
PictBridge PRINT	—	—	●

 **EDIT/PLAY menu** (p. 56)

 VAR. SPD PB	—	—	●
 REC CTRL	—	—	●
END SEARCH	●	—	●

 **STANDARD SET menu** (p. 57)

VCR HDV/DV	—	—	●
REC FORMAT	●	—	—
DV SET DVCAM DV 	●	—	●
VOLUME	●	●	●
AUDIO CH SEL	—	—	●
MIC NR	●	—	—
MIC LEVEL	●	—	—
EXT SUR MIC	●	—	—
XLR SET	●	—	—
LCD/VF SET	●	●	●
COMPONENT	●	●	●
i.LINK CONV	●	—	●
DOWN CONVERT	●	—	●
USB SELECT	—	—	●
DISP GUIDE	●	●	●
STATUS CHECK	●	—	●
TC/UB SET	●	—	●
MARKER SET	●	●	—
COLOR BAR	●	—	—
DATA CODE	—	—	●
 REMAINING	●	—	●
REMOTE CTRL	●	●	●
REC LAMP	●	●	—
BEEP	●	●	●

Menu items (Continued)

	Position of lamp:		
	TAPE	MEMORY	PLAY/EDIT
DISP OUTPUT	●	●	●
MENU ROTATE	●	●	●
CALIBRATION	—	—	●
DATE REC	●	—	—
QUICK REC HDV1080i	●	—	—
ASSIGN BTN	●	●	●

TIME/LANGU. menu (p. 66)

CLOCK SET	●	●	●
WORLD TIME	●	●	●
LANGUAGE	●	●	●

CAMERA SET menu

Settings to adjust your camcorder to the recording conditions (SPOT METER/WHITE BAL./STEADYSHOT, etc.)

The default settings are marked with ►.
The indicators in parentheses appear when the items are selected.

See page 38 for details on selecting menu items.

PROGRAM AE

You can record pictures effectively in various situations with the [PROGRAM AE] function. Set the AUTO LOCK switch to OFF beforehand (p. 25).

► AUTO

Select to automatically record pictures effectively without the [PROGRAM AE] function.

SPOTLIGHT* (☹)



Select to prevent people's faces from appearing excessively white when subjects are lit by strong light.

PORTRAIT (Soft portrait) (☹)



Select to bring out the subject such as people or flowers while creating a soft background.

BEACH&SKI* (☹)



Select to prevent people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

SUNSET&MOON** (☹)



Select to maintain the atmosphere of situations such as sunsets, general night views or fireworks.

LANDSCAPE** (▲)

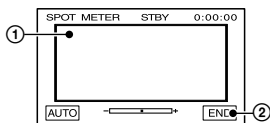


Select to shoot distant subjects clearly. This setting also prevents your camcorder from focusing on glass or metal mesh in windows that comes in between the camcorder and the subject.

- Items with one asterisk (*) are set not to focus on nearby subjects. Items with two asterisks (**) are set to focus only on distant subjects.

SPOT METER (Flexible spot meter)

You can adjust and fix the exposure to the subject, so that it is recorded in suitable brightness even when there is strong contrast between the subject and the background, such as subjects in the spotlight on stage. Set the AUTO LOCK switch to OFF beforehand (p. 25).



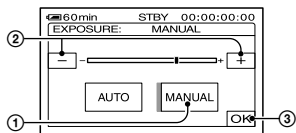
- 1 Touch the point where you want to fix and adjust the exposure on the screen.
←→ appears.
- 2 Touch [END].

To return the setting to automatic exposure, touch [AUTO]→[END].

- If you set [SPOT METER], [EXPOSURE] is set to [MANUAL] automatically.

EXPOSURE

You can fix the brightness of a picture manually. When recording indoors on a clear day, for instance, you can avoid backlight shadows on people next to the window by fixing the exposure to that of the wall side of the room. Set the AUTO LOCK switch to OFF beforehand (p.25).



- ① Touch [MANUAL].
- ② Adjust the exposure by touching / .
- ③ Touch [OK].
 appears.

To return the setting to automatic exposure, touch [AUTO] → [OK].

- You can also adjust the exposure with the EXPOSURE/VOL lever assigned to [EXPOSURE] (p. 24).

WHITE BAL. (White balance)

You can adjust the color balance to the brightness of the recording environment. Set the AUTO LOCK switch to OFF beforehand (p. 25).

▶ AUTO

The white balance is adjusted automatically.

OUTDOOR (☀)

The white balance is adjusted to be appropriate for the following recording conditions:

- Outdoors
- Night views, neon signs and fireworks
- Sunrise or sunset
- Under daylight fluorescent lamps

INDOOR (☾)

The white balance is adjusted to be appropriate for the following recording conditions:

- Indoors

- At party scenes or studios where the lighting conditions change quickly
- Under the video lamps of those at a studio, or under sodium lamps or incandescent-like color lamps

ONE PUSH (📷)

The white balance will be adjusted according to the ambient light.

- ① Touch [ONE PUSH].
- ② Frame a white object such as a piece of paper, to fill the screen under the same lighting conditions as you will shoot the subject.
- ③ Touch [📷].

flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing.

You can also adjust the white balance with the ASSIGN button assigned to [ONE PUSH WB] (p.66).

- Keep framing a white object while is flashing quickly.
- flashes slowly if white balance could not be set.
- If keeps flashing even after you have touched [OK], set [WHITE BAL.] to [AUTO].

- When you have changed the battery pack while [AUTO] is selected, select [AUTO] and aim your camcorder at a nearby white object for about 10 seconds for better color balance adjustment.
- Redo the [ONE PUSH] procedure if you change the [PROGRAM AE] settings, or bring your camcorder outdoors from inside the house, or vice versa.
- To adjust the white balance under white or cool white fluorescent lamps, set [WHITE BAL.] to [AUTO], or follow the procedure when using [ONE PUSH].

SHARPNESS

You can adjust the sharpness of the image outline with / . appears when the sharpness is anything other than the default setting.



SHUTTR SPEED

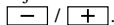
You can manually adjust and fix the shutter speed for your convenience. Depending on the shutter speed, you can make the subject look still, or on the contrary, emphasize the fluidity of movement. Set the AUTO LOCK switch to OFF beforehand (p. 25).

► AUTO



Select to adjust the shutter speed automatically.

MANUAL

Adjust the shutter speed using



You can select a shutter speed between 1/10000 second and 1/4 second.

Slower  125, 180, 250  Faster





- For example, if you select 1/100 second, [100] appears on the screen.
- When shooting a bright subject, setting the shutter speed to a faster value is recommended.
- At a slow shutter speed, automatic focus may be lost. Use a tripod and adjust the focus manually.
- When recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp, horizontal bands may appear in the screen or color discrepancies may occur depending on the shutter speed.

AUTO SHUTTER




Automatically activates the electronic shutter to adjust the shutter speed when recording in bright conditions if you set it to [ON] (the default setting).

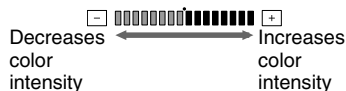
AE SHIFT

When the [EXPOSURE] (p. 44) is set to [AUTO], you can adjust the exposure using  (dark)/ (bright). **AS** and the setting value appear when [AE SHIFT] is anything other than the default setting.

- You can also adjust the exposure with the EXPOSURE/VOL lever assigned to [AE SHIFT] (p. 24).

CAMERA COLOR

You can adjust the color intensity with  / .  appears when [CAMERA COLOR] is anything other than the default setting.



CINEMATONE

► OFF

Do not set this function.

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.

CINEFRAME

► OFF

Do not set this function.

CINEFRAME30

Pictures are recorded with a cinema-like atmosphere. This produces a smoother feeling than [CINEFRAME24].

CINEFRAME24

Pictures are recorded with the atmosphere of 24 frames per second adapted by film recording.

- If you select [CINEFRAME30] or [CINEFRAME24] and set the shutter speed to 1/30 or slower, the shutter speed is automatically reset to 1/60.

WB SHIFT (White Balance Shift)

You can adjust the white balance to the desired setting using \square / \square .

WS and the setting value are displayed when [WB SHIFT] is anything other than the default setting.

- When the white balance is set to a lower value, pictures appear bluish, and when set to a higher value, pictures appear reddish.

ATW SENS

To set the auto white balance operation under a reddish light source such as an incandescent lamp or candle, or under a bluish 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

Reddishness or blueishness is reduced.

MIDDLE

Between [HIGH] and [LOW].

LOW

Reddishness or blueishness is increased.

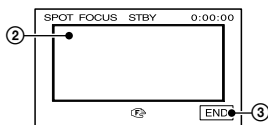
- [ATW SENS] is not effective under a clear sky or the sun.

BLACK STRTCH

When you set [BLACK STRTCH] to [ON], raise the Y curve characteristics of the dark part so that the gradation of the dark part is reproduced better.

SPOT FOCUS

You can select and adjust the focal point to aim it at a subject not located in the center of the screen.



- ① Set the FOCUS/ZOOM switch to MANUAL (p. 25).
- ② Touch the subject on the screen.
- ③ Touch [END].

To adjust the focus automatically, set the FOCUS/ZOOM switch to AUTO.

PEAKING

The outline of the subject on the screen is enhanced for easier focusing. You can set the outline color displayed on the screen during peaking. If you change the default setting, **PEAKING** is displayed on the screen.

► OFF

Do not set this function.

WHITE

Makes the outline color white.

RED

Makes the outline color red.

YELLOW

Makes the outline color yellow.

- The peaking is not recorded on the tape.
- If [ZEBRA] is set while [PEAKING] is in use, [PEAKING] is canceled.

FLASH SET

■ FLASH MODE

► ON

Trigger the flash (optional) regardless of the brightness of the surroundings.

ON \odot

Trigger the flash (optional) regardless of the brightness of the surroundings. The flash goes off prematurely to reduce the red-eye phenomenon.

AUTO

Trigger the flash (optional) automatically.

AUTO 

Trigger the flash (optional) automatically. The flash goes off prematurely to reduce the red-eye phenomenon.


FLASH LEVEL**HIGH**($\$+$)

Makes the flash level higher.

► NORMAL($\$$)**LOW**($\$-$)

Makes the flash level lower.

SUPER NS (Super NightShot)

The picture will be recorded at a maximum of 16 times the sensitivity of NightShot recording if you set [SUPER NS] to [ON] while the NIGHTSHOT switch (p. 24) is also set to ON.  and ["SUPER NIGHTSHOT"] appear on the screen.

To return to the normal setting, set the NIGHTSHOT switch to OFF.

- Do not use NightShot/[SUPER NS] in bright places. This may cause a malfunction.
- Do not cover the infrared port with your fingers or other object.
- Remove the lens cover with hood (supplied) or the conversion lens (optional).
- Adjust the focus manually (p. 25) when it is hard to focus automatically.
- The shutter speed of your camcorder changes depending on the brightness. The motion of the picture may slow down at this time.

NS LIGHT (NightShot Light)


When using either the NightShot (p. 24) or [SUPER NS] (p.47) function to record, you can record clearer pictures by setting [NS LIGHT], which emits infrared light (invisible), to [ON] (the default setting).

- Do not cover the infrared port with your fingers or other objects.

- Remove the lens cover with hood (supplied) or the conversion lens (optional).
- The maximum shooting distance using [NS LIGHT] is about 3 m (10 ft.).

COLOR SLOW S
(Color Slow Shutter)


When you set [COLOR SLOW S] to [ON], you can record an image brighter in color even in dark places.

 and [COLOR SLOW SHUTTER] appear on the screen.

To cancel [COLOR SLOW S], touch [OFF].

- Adjust the focus manually (p. 25) when it is hard to focus automatically.
- The shutter speed of your camcorder changes depending on the brightness. The motion of the picture may slow down at this time.

ZEBRA

This is useful as a guide when adjusting the brightness. When you change the default setting,  is displayed. The zebra pattern is not recorded.

► OFF

The zebra pattern is not displayed.

70

The zebra pattern appears at a screen brightness level of about 70 IRE.

100

The zebra pattern appears at a screen brightness level of about 100 IRE or higher.

- Portions of the screen where brightness is about 100 IRE or above may appear overexposed.
- The zebra pattern is diagonal stripes that appear in portions of the screen where brightness is at a preset level.
- If [PEAKING] is set while [ZEBRA] is in use, [ZEBRA] is canceled.

HISTOGRAM

When you set [HISTOGRAM] to [ON], the [HISTOGRAM] (a graph to display a distribution of tones in your picture) window appears on the screen. This item is useful when you adjust exposure. You can adjust [EXPOSURE] or [AE SHIFT] checking the [HISTOGRAM] window. The histogram will not be recorded on a tape or "Memory Stick Duo." You can also set it with the ASSIGN button assigned to [HISTOGRAM] (p. 27).



- The left area on the graph shows the darker areas of the picture while the right area shows the brighter areas.

SELF-TIMER

The self-timer starts recording after about 10 seconds.

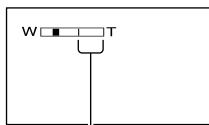
- ① Touch **P-MENU** → [MENU] → [SELF-TIMER] → [ON] → [OK].
⓪ appears.
- ② Press REC START/STOP to record movies, or PHOTO to record still images.
To cancel the count down, touch [RESET].

To cancel the self-timer, select [OFF] in step ①.

- You can also use the self-timer with the Remote Commander (p. 32).
- There is a short-cut in **P-MENU** (p. 38) when the POWER switch is set to CAMERA-MEMORY.

DIGITAL ZOOM

You can select the maximum zoom level in case you want to zoom to a level greater than 10 × (the default setting) while recording on a tape. Note that the image quality decreases when you are using the digital zoom.



The right side of the bar shows the digital zooming factor. The zooming zone appears when you select the zooming level.

▶ OFF

Up to 10 × zoom is performed optically.

20 ×

Up to 10 × zoom is performed optically, and after that, up to 20 × zoom is performed digitally.

40 ×

Up to 10 × zoom is performed optically, and after that, up to 40 × zoom is performed digitally.

STEADYSHOT

You can compensate for camera shake (the default setting is [ON]).

Set [STEADYSHOT] to [OFF] (🚫) when using a tripod (optional), then the image becomes natural.

You can also set it with the ASSIGN button assigned to [STEADYSHOT] (p. 27).

CONV. LENS

When using an optional conversion lens, use this function to record using the optimum compensation for camera shake for each lens.

▶ OFF

Select this when the conversion lens (optional) is not used.

WIDE CONV. (B_W)

Select this to use the wide conversion lens (optional).

TELE CONV. (B_T)

Select this to use the tele conversion lens (optional).

SETUP DVCAM DV SP

▶ 0%

Record in the system at the 0% setup level.

7.5%

Record in the system at the 7.5% setup level.

- When [REC FORMAT] is [HDV1080i], it becomes [0%] automatically.

FULL SCAN

When you set [OFF] to the [STEADYSHOT], it is possible to record it at any time by all pixels regardless of the zoom position.

▶ OFF

Do not set this function.

ON

It displays it by all pixels display.

EXPOSURE LEVER

You can assign the operating and setting functions of the EXPOSURE/VOL lever and EXPOSURE button (p. 24).

▶ EXPOSURE

Select to adjust [EXPOSURE] with the EXPOSURE/VOL lever.

AE SHIFT

Select to adjust [AE SHIFT] with the EXPOSURE/VOL lever.

MEMORY SET menu

Settings for the "Memory Stick Duo" (BURST/QUALITY/IMAGE SIZE/ALL ERASE/NEW FOLDER, etc.)

The default settings are marked with ▶. The indicators in parentheses appear when the items are selected.

See page 38 for details on selecting menu items.

STILL SET

■ BURST

You can record several still images one after another by pressing PHOTO.

▶ OFF

Select this when not recording continuously.

NORMAL (☐)

Records from 3 (1920 × 1440 image size), 5 (1440 × 1080 image size) to 25 (640 × 480 image size) images continuously at about 0.5 second intervals.

The maximum number of images are recorded when you press and hold PHOTO fully.

EXP. BRKTG (BRK)

Records 3 images consecutively with different exposures at about 0.5 second intervals. You can compare the 3 images and select an image recorded at the best exposure.

- The flash will not function during continuous photo recording.
- The maximum number of images will be recorded in the self-timer mode or when you are operating with the Remote Commander.
- [EXP. BRKTG] will not function when you have space for fewer than 3 images remaining on the "Memory Stick Duo."
- When you set wide (16:9) ratio of the screen you can record 3 images (1920 × 1080 image size) continuously.

■ QUALITY

▶ FINE (FINE)

Records still images at the fine image quality level.

STANDARD (STD)

Records still images at the standard image quality level.

IMAGE SIZE

▶ 1920 × 1440 (L1920)

Records still images clearly.

1920 × 1080 (L1920)

Records still images clearly in the wide (16:9) ratio.

1440 × 1080 (L1440)

Allows you to record more still images in relatively clear quality.

640 × 480 (L640)

Allows for the maximum number of images to be recorded.

Capacity of the “Memory Stick Duo” (MB) and the number of recordable pictures

When the POWER switch is set to CAMERA-MEMORY

	1920 × 1440 L1920	1920 × 1080 L1920	1440 × 1080 L1440	640 × 480 L640
16MB (supplied)	11 26	14 34	19 43	96 240
32MB	22 54	29 69	39 88	190 485
64MB	45 105	59 135	78 175	390 980
128MB	91 215	115 280	155 355	780 1970
256MB	165 395	215 500	280 640	1400 3550
512MB	335 800	435 1000	570 1300	2850 7200
1GB	680 1600	890 2100	1150 2650	5900 14500
2GB	1400 3350	1800 4300	2400 5500	12000 30000

When the POWER switch is set to CAMERA-TAPE or PLAY/EDIT*

	1440 × 810 L1440	1080 × 810 L1080	640 × 480 L640	640 × 360 L640
16MB (supplied)	25 60	34 80	96 240	115 240
32MB	51 120	69 160	190 485	240 485
64MB	100 240	135 325	390 980	490 980
128MB	205 490	280 650	780 1970	980 1970
256MB	370 890	500 1150	1400 3550	1750 3550
512MB	760 1800	1000 2400	2850 7200	3600 7200
1GB	1550 3650	2100 4900	5900 14500	7300 14500
2GB	3150 7500	4300 10000	12000 30000	15000 30000

* The image size is fixed as follows:

- Images recorded with the POWER switch set to CAMERA-TAPE are 1440 × 810 when in HDV format or DVCAM (DV) format (16:9), and 1080 × 810 when in DVCAM (DV) format (4:3).
- Images recorded with the POWER switch set to PLAY/EDIT are 1440 × 810 when in HDV format, 640 × 360 when in DVCAM (DV) format (16:9), and 640 × 480 when in DVCAM (DV) format (4:3).
- The number of recordable pictures is shown in the table. [FINE] is on top, and [STANDARD] is on the bottom.
- When using the “Memory Stick Duo” made by Sony Corporation. The number of recordable pictures varies depending on the recording environment.

Approximate image size of a picture (kB)

4:3 picture

1920 × 1440	1440 × 1080	1080 × 810	640 × 480
1380	800	450	150
580	350	190	60

16:9 picture

1920 × 1080	1440 × 810	640 × 360
1060	600	130
450	260	60

- The table shows the approximate number of still images that can be taken for each image size. [FINE] is on top, and [STANDARD] is on the bottom.

ALL ERASE

Deletes all the pictures on a “Memory Stick Duo” without image protection, or in the selected folder.

- Select [ALL FILES] or [CURRENT FOLDER].
[ALL FILES]: Deletes all the images on the “Memory Stick Duo.”
[CURRENT FOLDER]: Deletes all the images in the selected folder.
- Touch [YES] twice → [X].

- Cancel image protection on the “Memory Stick Duo” beforehand when using the “Memory Stick Duo” with the write-protect tab (p. 107).
- 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

“Memory Stick Duo” has been formatted at the factory, and does not require formatting.

To execute formatting, touch [YES] twice → [X].

Formatting is completed, and all the images will be deleted.

- 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

You can create a new folder (102MSDCF to 999MSDCF) on a “Memory Stick Duo.” When a folder is full (a maximum of 9999 images are stored) a new folder is automatically created.

Touch [YES] → [X].

- You cannot delete the created folders using your camcorder. You will have to format the “Memory Stick Duo” (p. 51), or delete them using your computer.
- The number of recordable pictures on a “Memory Stick Duo” may decrease as the number of folders increases.

MEMORY SET menu (Continued)

REC FOLDER (Recording folder)

Select the folder to be used for recording with /, then touch .

- 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)

Select the playback folder with /, then touch .

PICT.APPLI. menu

Special effects on pictures or additional functions on recording/playback (SLIDE SHOW/PICT. EFFECT, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 38 for details on selecting menu items.

FADER

You can add the following effects to currently recording pictures.

- ① Select the desired effect, then touch .
- ② Press REC START/STOP.

The fader indicator stops flashing and disappears when the fade is complete.

To cancel the operation, touch [OFF] in step ①.



WHITE FADER



BLACK FADER



MOSAIC FADER



MONOTONE

When fading in, the picture gradually changes from black-and-white to color. When fading out, it gradually changes from color to black-and-white.

SLIDE SHOW

Plays back the images stored on a "Memory Stick Duo," or in a folder in sequence (slide show).

- ① Touch [SET] → [PB FOLDER].
- ② Select [ALL FILES (all)] or [CURRNT FOLDER (T)], then touch [OK].
If you select [CURRNT FOLDER (T)], all the images in the current playback folder selected in [PB FOLDER] (p. 52) are played back in sequence.
- ③ Touch [REPEAT].
- ④ Select [ON] or [OFF], then [OK].
To repeat the slide show, select [ON] (C).
To execute the slide show only once, select [OFF].
- ⑤ Touch [END] → [START].

To cancel [SLIDE SHOW], touch [END].
To pause, touch [PAUSE].

- You can select the first picture for the slide show with [-]/[+] before touching [START].

D. EFFECT (Digital effect)

You can add digital effects to your recordings.

- ① Touch the desired effect.
- ② Adjust the effect with [-]/[+], then touch [OK].
When you select [STILL], the image when you touch [STILL] is saved as a still image.

Effect	Items to adjust
STILL	The degree of transparency of the still image you want to superimpose on a movie.
FLASH	The interval of frame-by-frame playback.
TRAIL	The fade time of the incidental image.
OLD MOVIE*	No adjustment necessary.

* Available during recording only.

- ③ Touch [OK].
[E+] appears.

To cancel [D. EFFECT], touch [OFF] in step ①.

STILL

Records a movie while superimposing it on a previously recorded still image.



FLASH (flash motion)

Records a movie with a serial-still-image effect (strobe effect).

TRAIL

Records a picture so that an incidental image like a trail is left.

OLD MOVIE

Adds an old movie effect with a sepia hue to pictures.

- You cannot record pictures edited using special effects on the tape in your camcorder.
- You cannot add effects to externally input pictures. The playback pictures edited with digital effects are output via the i.LINK/HDV/DV Interface (i.LINK) jack without effect control.
- You can save pictures edited using special effects on a “Memory Stick Duo” (p. 73) or record them on another tape (p. 69).

PICT. EFFECT (Picture effect)

You can add special effects to a picture during recording or playback. [E+] appears.

► OFF

Does not use [PICT. EFFECT] setting.

SKNTON DETAIL

Makes skin texture look more smoother and more appealing.*

NEG.ART



The color and brightness are reversed.

SEPIA

Pictures appear in sepia.

B&W

Pictures appear in black and white.

SOLARIZE



Pictures appear as an illustration with strong contrast.

PASTEL




Pictures appear as a pale pastel drawing.*

MOSAIC



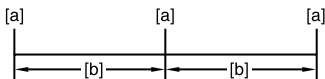
Pictures appear mosaic-patterned.*

* Available during recording only.

- While using the back light function, you cannot select [SKNTON DETAIL]. And when you use the back light function with [PICT.EFFECT] set to [SKNTON DETAIL], the [SKNTON DETAIL] will be canceled.
- You cannot add effects to externally input pictures. The playback pictures edited with picture effects are output via the  HDV/DV Interface (i.LINK) jack without effect control.
- You can also record pictures edited using special effects on another tape (p. 69).


INT.REC-STL (Interval photo recording)

You can record still images on the “Memory Stick Duo” at a selected interval. This function is useful to observe the movement of clouds or the changes in daylight, etc.



[a]: Recording

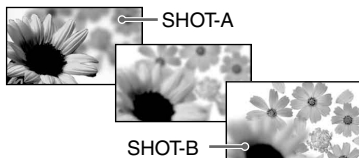
[b]: Interval

- ① Touch [SET] → a desired interval time (1, 5 or 10 minutes) → [OK] → [ON] → [OK] → [X].
- ② Press PHOTO fully.
 stops flashing and the interval still image recording starts.

To cancel [INT.REC-STL], select [OFF] in step ①.

SHOT TRANS

You can register the settings of focus and zoom and then change the recording setting from the current one to the registered one, resulting in a smooth transition of scenes (Shot transition).



STORE

Set the zoom (p. 24) and focus (p. 25) at the desired setting and press [STORE-A]. [SHOT-A] flashes and will be registered. Register [STORE-B] as well.

EXEC

Touch [NEXT]→[EXEC-A] or [EXEC-B] and the recording setting changes to the registered one. Touch [BACK] to register again or touch [END] to finish the operation.

By touching [SET] on the [EXEC] screen, you can select [TRANS TIME], [TRANS CURVE] or [REC LINK], and you can use the start timer.

TRANS TIME

Select transition time (2 to 15 seconds). (The default setting is 4 seconds.)

TRANS CURVE

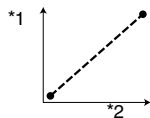
Select the transition curve. The transition curve changes as follows.

*1: parameter level

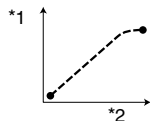
*2: transition of time

LINEAR

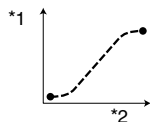
Make the transition linearly.

**SOFT STOP**

Make the transition slowly at the end.

**SOFT TRANS**

Make the transition slowly at the beginning and end, and linearly in between.

**START TIMER**

Set the timer to start the shot transition.

OFF

The timer is not used.

5 sec

Start the shot transition after 5 seconds.

10 sec

Start the shot transition after 10 seconds.

20 sec

Start the shot transition after 20 seconds.

REC LINK**OFF**

Not change when the recording starts.

SHOT-A

Change to SHOT-A when recording starts.

SHOT-B

Change to SHOT-B when recording starts.

- You cannot select [SHOT TRANS] while recording.
- If you register [SHOT TRANS], the [WHITE BAL.] setting is also registered at the same time.
- The recording angle varies during [SHOT TRANS].
- Use the tripod because [STEADYSHOT] does not function.

PictBridge PRINT

See page 75.

EDIT/PLAY menu

Settings for editing or playing back in various modes (VAR.SPD PB/END SEARCH, etc.)









The default settings are marked with ►.
The indicators in parentheses appear when the items are selected.

See page 38 for details on selecting menu items.


VAR.SPD PB (Various speed playback)



You can play back in various modes while viewing movies.


- ① Touch the following buttons during playback.


To	Touch
change the playback direction*	 (frame)
play back slowly**	 To reverse direction :  (frame) →  DVCAM DV 
play back frame by frame	 (frame) during playback pause. To reverse direction:  (frame) during frame playback. DVCAM DV 

* Horizontal lines may appear at the top, bottom, or in the center of the screen. This is not a malfunction.

** Pictures output from the  HDV/DV Interface (i.LINK) jack cannot be played back smoothly in slow mode.

- ② Touch  → .

To return to the normal playback mode, touch  (Play/Pause) twice (once from frame playback).

- You will not hear the recorded sound. You may see mosaic-like images of the previously played picture.
- Pictures in the HDV format are not output from the  HDV/DV Interface (i.LINK) jack when they are paused or played back in other than normal playback mode.

- Pictures in the HDV format may appear distorted during:
 - Picture search
 - Reverse playback

REC CTRL (Movie recording control)

See page 72.

END SEARCH

EXEC

The most recently recorded picture is played back for about 5 seconds and then stops automatically.

CANCEL

Stops [END SEARCH].



STANDARD SET menu

Settings while recording on a tape or other basic settings (REC MODE/MULTI-SOUND/LCD/VF SET/DISP OUTPUT, etc.)

The default settings are marked with ►. The indicators in parentheses appear when the items are selected.

See page 38 for details on selecting menu items.

VCR HDV/DV

Select the playback signal. Normally select [AUTO].

When the camcorder is connected to another device using an i.LINK cable (optional), select the signal to be input/output from the HDV/DV Interface (i.LINK) jack. The selected signal is recorded or played back.

►AUTO

Select this to play back signals by switching the format between HDV and DVCAM (DV) automatically.

For an i.LINK connection, select this to record/play back signals input/output from the HDV/DV Interface (i.LINK) jack by switching the format between HDV and DVCAM (DV) automatically.

HDV

Select this to play back the signals in the HDV format only.

For an i.LINK connection, select this to record/play back the input/output signals in the HDV format only. Select this when connecting the camcorder to a computer, etc.

DV

Select this to play back the signals in the DVCAM (DV) format only.

For an i.LINK connection, select this to record/play back the input/output signals in the DVCAM (DV) format only. Select this when connecting the camcorder to a computer, etc.

- Disconnect the i.LINK cable (optional) before setting [VCR HDV/DV]. Otherwise, the connected device such as a VCR may not be able to recognize the video signal from this camcorder.

- When [AUTO] is selected and the signal switches between HDV and DVCAM (DV) formats, the picture and sound disappear temporarily.
- When [i.LINK CONV] is set to [ON (HDV→DV)], pictures are output as follows:
 - at [AUTO], an HDV signal is converted to the DVCAM (DV) format and output; a DV signal is output as it is.
 - at [HDV], an HDV signal is converted to the DV format and output; a DV signal is not output.
 - at [DV], a DV signal is output as it is; an HDV signal is not output.

REC FORMAT

You can select a recording format.

► HDV1080i (HDV1080i)

Record in the HDV1080i specification.

DV (DVCAM DV)

Record in the DVCAM (DV) format.

In addition, you need to set [REC MODE] below.

- When you output the picture during recording simultaneously to a connected device using an i.LINK cable (optional), also set [i.LINK CONV] accordingly.

DV SET

This function is effective when [REC FORMAT] is set to [DV].

REC MODE (Recording mode)

► DVCAM (DVCAM)

Record in the DVCAM format on the tape.

DV SP (DV)

Record in SP (Standard Play) mode of the DV format to record for a longer time on the tape than in the DVCAM format.

- 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.

WIDE SELECT

You can select the picture size for the TV to be connected. Refer also to the instruction manuals supplied with your TV.

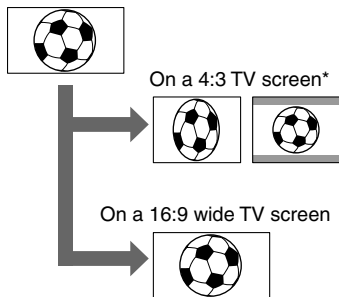
▶ 16:9 WIDE

You can record the picture for the full screen.

4:3 (4:3)

You can record the picture for the normal screen.

On the LCD screen or viewfinder when setting to [16:9 WIDE]



- * The playback picture may look different depending on the TV connected.
- A recorded [16:9 WIDE] image played back on a 4:3 TV has the same width as the original but is cropped horizontally. For better viewing on the 4:3 TV, set [WIDE SELECT] to [4:3] on your camcorder when recording a picture.

AUDIO MODE

▶ FS32K (NS32k)

Records in the 12-bit mode (4 stereo sounds).

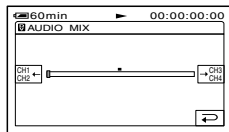
FS48K (NS48k)

Records in the 16-bit mode (2 stereo sounds with high quality).

- [FS48K] is selected automatically in the HDV format.
- **NS** does not appear when the DVCAM standard is met (p. 105).

AUDIO MIX

You can monitor the sound recorded on the tape using another device with audio dubbing during playback.



Touch $\left[\begin{smallmatrix} \text{CH1} \\ \text{CH2} \end{smallmatrix} \right] +$ / $\left[\begin{smallmatrix} \text{CH3} \\ \text{CH4} \end{smallmatrix} \right]$ to adjust the balance of the original sound (CH1, CH2) and the sound recorded afterwards (CH3, CH4), then touch [OK].

- The original sound (CH1, CH2) is output at the default setting.

VOLUME

Touch $\left[- \right]$ / $\left[+ \right]$ to adjust the volume. You can also adjust the volume with the EXPOSURE/VOL lever (p. 27).

AUDIO CH SEL

▶ CH1, CH2

Play back the CH1/CH2 audios from each channel.

CH1

Play back the CH1 sound in channels 1/2.

CH2

Play back the CH2 sound in channels 1/2.

- When you set [AUDIO CH SEL] to [CH1, CH2] and play back the audios with the camcorder which has speaker, the audios are mixed.

MIC NR

► ON

Reduce noise from the microphone.

OFF

Deactivate this function.



MIC LEVEL

You can adjust the recording sound level manually.

► AUTO

Adjust the recording sound level automatically.

MANUAL

Touch  /  to adjust the recording sound level during recording or standby.

The recording sound level adjustment bars appear on the screen. The recording sound level increases as the bar goes to the right. The recording level meter appears when the default setting is changed.

- Use headphones to monitor the sound when adjusting it.
- The limiter in your camcorder enables recording with reduced distortion, even if you set the recording level too high in the [MANUAL] setting. For best results, adjust the recording level so as to avoid exceeding 0dB.
- When checking the detailed information of audio settings, select [STATUS CHECK] (p. 62). You can also check [MIC LEVEL] during [AUTO].

EXT SUR MIC (External surround microphone)

► WIDE STEREO ((◁▷))

Records 2 channel sound with more presence by connecting a microphone (optional).

STEREO

Records the stereo sound normally.

- You need a compatible accessory such as the ECM-HQP1 microphone (optional) to record the sound in the [WIDE STEREO] setting.

- Sound is recorded in the [STEREO] setting if the microphone is not connected, even if another setting is selected.

XLR SET



You can select this setting when using an extension microphone.

■ AU.CH1 LEVEL

► AUTO

Adjust the recording CH1 level automatically.

MANUAL



Adjust the recording level of CH1 by touching  / .

■ AU.CH2 LEVEL

► AUTO

Adjust the recording CH2 level automatically.

MANUAL

Adjust the recording level of CH2 by touching  / .

- If you change the default settings, the input level meter is displayed on the screen.


■ AU.MAN GAIN

You can select whether the Audio level of channel 1 is linked with or separated from channel 2 when using an external microphone.

► SEPARATE

Record the sound in channel 1 separately from that in channel 2 (Audio level separated).

LINKED

Select to record the sound in channel 1 and that in channel 2 as a set, like stereo sound (Audio level linked).  appears on the [STATUS CHECK], [AU.CH1 LEVEL] and [AU.CH2 LEVEL] display.

- This function is effective when [AU.CH1 LEVEL] or [AU.CH2 LEVEL] is set to [MANUAL].




- If either the CH1 or CH2 setting is changed to [AUTO] or [MANUAL], the other setting is automatically changed to the same setting.

LCD/VF SET

The recorded picture will not be affected by this operation.

■ LCD BRIGHT

You can adjust the brightness of the LCD screen.

- ① Adjust the brightness with  / .
- ② Touch .

- You can also turn off the LCD backlight (p.14).

■ LCD BL LEVEL

You can adjust the brightness of the LCD screen's backlight.

▶ NORMAL



Standard brightness.

BRIGHT

Brightens the LCD screen.

- When you connect your camcorder to outside power sources, [BRIGHT] is automatically selected for the setting.
- When you select [BRIGHT], battery life is slightly reduced during recording.

■ LCD COLOR

You can adjust the color on the LCD screen with  / .



■ VF B.LIGHT

You can adjust the brightness of the viewfinder.

▶ NORMAL

Standard brightness.

BRIGHT

Brightens the viewfinder screen.

- When you connect your camcorder to outside power sources, [BRIGHT] is automatically selected for the setting.

- When you select [ON], the battery life is slightly reduced during recording.

■ VF POWER

▶ AUTO

The picture is not displayed in viewfinder when the LCD panel is open.

ON

The picture is displayed in viewfinder when the LCD panel is open.

- When you select [ON], the battery life is slightly reduced during recording.

■ VF COLOR

▶ ON


Display pictures in the viewfinder in color.

OFF

Display pictures in the viewfinder in black and white.

■ ALLSCAN MODE HDV1080i

When you set [ALLSCAN MODE] to [ON], you can check the area surrounding the picture frame. During the simple all scan display, a black frame appears around the screen. Set to [OFF] to return to the previous screen.

- When this function is activated, pictures are output in the interlace letter box except for the HDV signals from the COMPONENT OUT and  HDV/DV Interface (i.LINK) jacks.
- The default setting is [OFF].

COMPONENT

Select the input signal when connecting your camcorder to a TV with the component input jack.

480i

Select when connecting your camcorder to a TV compatible with 480i.

480p/480i

Select when connecting your camcorder to a TV compatible with 480p/480i.

► 1080i/480i

Select when connecting your camcorder to a TV compatible with 1080i.

- Video signals cannot be output via the **i**HDV/DV Interface (i.LINK) jack when [i.LINK CONV] is set to [ON (HDV→DV)] and [480p/480i] is selected during component video output.

i.LINK CONV

When the POWER switch is set to CAMERA-TAPE, this setting is effective only when [HDV1080i] is selected in [REC FORMAT]. When the POWER switch is set to PLAY/EDIT, this setting is effective only when [AUTO] or [HDV] is selected in [VCR HDV/DV].

► OFF

Select to output the pictures from the **i**HDV/DV Interface (i.LINK) jack in accordance with the [REC FORMAT] and [VCR HDV/DV] settings.

ON (HDV→DV)

Select to always output the pictures in the DVCAM (DV) format from the **i**HDV/DV Interface (i.LINK) jack.

- See [VCR HDV/DV] for information about an input signal via an i.LINK connection (p. 57).
- Disconnect the i.LINK cable (optional) before setting [i.LINK CONV]. Otherwise, the connected video device may not be able to recognize the video signal from this camcorder.

DOWN CONVERT

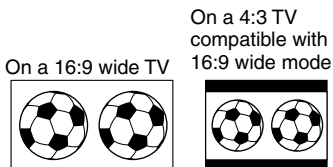
Select the picture format to be output when you play back the tape recorded in the HDV format.

This setting is effective for the following output:

- component output (at 480p/480i)
- S video
- audio/video
- i.LINK (When setting to [ON (HDV → DV)] in [i.LINK CONV])

► SQUEZE

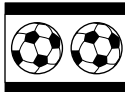
Output signals to a 16:9 wide TV or a TV compatible with 16:9 wide mode.



LETTER BOX

Output signals to a TV that is not compatible with 16:9 wide mode.

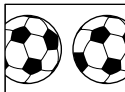
On a 4:3 standard TV



EDGE CROP

Display the center of the picture in 4:3 aspect ratio by cropping the both sides of the picture.

On a 4:3 standard TV



- When you view pictures that were recorded in the DVCAM (DV) format with [WIDE SELECT] set to [16:9 WIDE] on a 4:3 standard TV, pictures may appear as they are in height, but are compressed in width depending on the TV. If you view the recorded pictures on such type of 4:3 standard TV, set [WIDE SELECT] to [4:3] before recording.

USB SELECT

Select [USB SELECT] to view pictures on a computer via the USB cable (supplied) (p. 78), or connect your camcorder to a PictBridge compliant printer. (p. 75)

▶ MEMORY STICK

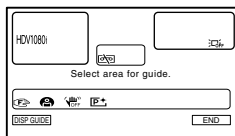
Select to view pictures in the “Memory Stick Duo.”

PictBridge PRINT

See page 75.

DISP GUIDE

You can easily check the meaning of each indicator that appears on the LCD screen.



If you touch the area including the indicator that you want to check, the meanings of the indicators are listed on the screen. If you cannot find the indicator you want, toggle with \uparrow/\downarrow to search for it. To return to the area selection screen, touch \square . To finish operation, touch [END].

- The display items vary depending on the setting details.

STATUS CHECK

You can check the setup value of the following items. You can also check it with the ASSIGN button assigned to [STATUS CHECK] (p.27).

– AUDIO

Audio setup such as \square AUDIO MIX (p. 58)

– OUTPUT

Output signal setup such as [VCR HDV/DV] (when the POWER switch is set to PLAY/EDIT) (p. 57)

– ASSIGN

Functions assigned to the ASSIGN button (p. 27) and EXPOSURE/VOL lever (p. 49)

– HOURS METER

The cumulative operation time of your camcorder will be displayed with the total hours of operation, drum rotation, tape running, or the total number of tape unthreading operations.

OPERATION

Displays the total hours of operation in 10-hour increments.

DRUM RUN

Displays the total hours of drum rotation in 10-hour increments.

TAPE RUN

Displays the total hours of tape running in 10-hour increments.

THREADING

Displays the total number of tape unthreading operations in 10-operation increments.

TC/UB SET

The time code of this camcorder can be preset. You can reset or preset the time code even during recording.

■ TC/UB DISP

You can change the time value between the time code and user bits.

TC:[00:00:00:00] or [00:00:00:00]

U-BIT:[00 00 00 00]

■ TC PRESET

You can preset or reset the time code.

① Select the first 2 digits by touching \uparrow/\downarrow and touch [OK], and set up the other digits.

② The confirmation screen appears and touch [OK].

To cancel the setting, touch [CANCEL] in step ②.

• To reset the time code (00:00:00:00), touch [RESET] in step ①.

• Set a time code between 00:00:00:00 and 23:59:59:29.

■ UB PRESET

You can preset or reset the user bit.

① Select the first 2 digits by touching \uparrow/\downarrow and touch [OK], and set up the other digits.

② The confirmation screen appears and touch [OK].

To cancel the setting, touch [CANCEL] in step ②.

• To reset the user bit (00 00 00 00), touch [RESET] in step ①.

- The time code and user bits cannot be displayed properly if the tape does not have time code and/or user bits recordings or if the time code was recorded using a non-compatible method.
- When you input HDV format signal via i.LINK connection, the user-bits of the input video are written on this camera, however, they are not displayed during dubbing.

■ TC FORMAT

You can set up the recording mode for the time code.

▶ AUTO

Select the mode automatically in accordance with the inserted cassette.

DF

Select the drop frame mode.

NDF

Select the non-drop frame mode.

- If you record onto a new cassette with the camcorder in [AUTO] (the default setting), the recorded time code is [NDF].
- If [TC MAKE] is set to [PRESET] with the camcorder in [AUTO] (the default setting), the recorded time code is [NDF] regardless of the previously recorded method.

■ TC RUN

You can set how the time code advances mode.

▶ REC RUN

Advance the time code value only while recording. Select this when making the time code continuous at backspace editing.

FREE RUN

Advance the time code freely regardless of the camcorder's current operation mode.

The time code starts running once this setting is selected.

■ TC MAKE

▶ REGENERATE

Make the time code continuous at backspace editing. Regardless of the [TC RUN] setting, the running mode is automatically set to [REC RUN].

PRESET

You do not want to make the time code continuous at backspace editing.

■ UB TIME REC

▶ OFF

You do not want to set the user bits to the real time clock.

ON

Set the user bits to the real time clock.

Drop frame mode

In the NTSC standard, the time code value is based on 30 frames per second, but the exact video frame frequency is in fact 29.97 frames per second. Consequently the time code value will deviate from the real time when recording for long time. Drop frame mode corrects for this by skipping 2 frame counts at the beginning of every minute which is not a multiple of 10. In non-drop frame mode, however, no frame counts are omitted, and there is a gradual deviation of the time code from the real time.

- If you start recording when there is no video input signal via an i.LINK connection, the time code may not proceed correctly.
- If you record HDV and DVCAM (DV) mixed, the time code may be initialized at the backspace editing.
- If you play back the tape recorded in HDV and DVCAM (DV) mixed, the time code may not match the picture at the backspace editing.
- When recording in the HDV format, discrepancy of 3 frames at the maximum may occur.
- User-bit values appear at every 3 frames for the tape recorded in the HDV format.
- When you input HDV format signal via i.LINK connection, the user-bits are copied, however, they are not regenerated.

MARKER SET

You can select the type of marker to be displayed on the screen. Select whether each type is displayed or not by selecting [ON] or [OFF]. You can display more than one type of marker at the same time.

- The marker display does not affect recording in any way.

■ CENTER MARKER

Select to display the marker at the center of the screen. (It is set to [ON] in the default setting.)



■ 4:3 MARKER

Select to display the frame indicating the 4:3 aspect ratio.



- Marker [4:3] is not displayed when recording on the 4:3 mode in the DVCAM (DV) format.

■ SAFETY ZONE

Select to display the frame indicating the range that can be received by a standard TV for domestic use (80%).



■ GUIDEFRAME

You can display the frame and check that the subject is horizontal or vertical by setting [GUIDEFAME] to [ON]. The frame is not recorded.



- Pointing the subject at the cross point of the guide frame makes a balanced composition.
- Markers are displayed only on the LCD panel and viewfinder. (They are not output from the jacks.)
- Screen indicators are not output from the analog jacks when a marker is displayed.
- You can display all markers together by selecting [ON].

COLOR BAR

You can display the color bar or record it on the tape by setting [COLOR BAR] to [ON]. It is convenient to adjust the color on the monitor connected. You can also set it with the ASSIGN button assigned to [COLOR BAR] (p.27).

▶ OFF

Color bar is not displayed.

ON

Color bar is displayed.

- ① Touch [SET] → [TYPE1] (the default setting) or [TYPE2] → [OK].
- ② Touch [ON] → [OK] → [X].

TYPE1

The following color bar appears.



TYPE2

The following color bar appears.



DATA CODE

During playback, displays the information recorded automatically (data code) during recording.

▶ OFF

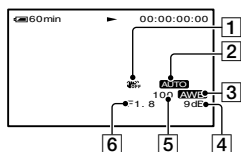
Do not displayed.

DATE/TIME

Displays the date and time.

CAMERA DATA


Displays camera setting data.



- 1 SteadyShot off*
- 2 Exposure*
- 3 White balance*
- 4 Gain*
- 5 Shutter speed

6 Aperture value

* Appears only during tape playback.

- The exposure adjustment value (0EV), a shutter speed, and the aperture value appear when still images on a “Memory Stick Duo” are played back.
-  appears for a picture recorded using a flash.
- In the DATE/TIME data display, the date and time are displayed in the same area. If you record a picture without setting the clock, [--- ---] and [---:---:---] will appear.

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 PLAY/EDIT or CAMERA-TAPE with a cassette inserted.
- When you touch  (Play/Pause).

ON

Always displays the remaining tape indicator.

REMOTE CTRL (Remote control)

The default setting is [ON], allowing you to use the Remote Commander (p. 32).

- Set to [OFF] to prevent your camcorder from responding to a command sent by another VCR remote control unit.

REC LAMP

The camera recording lamp will not light up during recording when you set this to [OFF]. (The default setting is [ON].)

BEEP**▶ ON**

A melody sounds when you start/stop recording, or operate the touch panel.

OFF

Cancels the melody.


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.

MENU ROTATE**▶ NORMAL**

Scrolls the menu items downwards by touching .

OPPOSITE

Scrolls the menu items upwards by touching .

CALIBRATION

See page 113.

DATE REC**▶ OFF**

You do not want to superimpose the date and time on the pictures.

ON

Superimpose the date and time directly on the pictures when recording.

- Even though the date/time indication on the screen is affected by the signal of zebra or peaking, it is recorded without influenced by zebra or peaking.

QUICK REC HDV1080i**▶ 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

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.

- When the camcorder is left in recording standby for more than about 3 minutes, your camcorder exits the recording standby mode (the drum stops rotating) to prevent tape wear and battery loss. Since the power does not turn off, you can restart recording by pressing REC START/STOP again.

ASSIGN BTN

You can assign one of the following functions to the ASSIGN button (p. 27).

►NO ASSIGN

Do not assign the following functions to the ASSIGN button.

STATUS CHECK

See page 62.

STEADYSHOT

See page 48.

ONE PUSH WB

See page 44.

- It is effective when [WHITE BAL.] (p. 44) is set to [ONE PUSH].

HISTOGRAM

See page p. 48.

COLOR BAR

See page 64.



(CLOCK SET/WORLD TIME/LANGUAGE)

See page 38 for details on selecting menu items.

CLOCK SET

See page 16.

WORLD TIME

When using your camcorder abroad, you can set the time difference by touching  / , the clock will be adjusted in accordance with the time difference.

If you set the time difference to 0, the clock returns to the originally set time.

LANGUAGE

You can select the language to be used on the LCD screen.

For HVR-A1U:

You can select from English, Simplified English, or Canadian-French.

For HVR-A1N:

You can select from English, Simplified English, Latin American Spanish, Brazilian-Portuguese, Traditional-Chinese, Thai, or Korean.

- Your camcorder offers [ENG[SIMP]] (simplified English) for when you cannot find your native tongue among the options.

Customizing Personal Menu

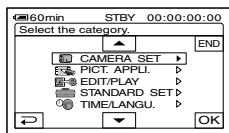
You can add desired menu items to Personal Menu, and customize Personal Menu settings for each POWER switch position. This is convenient if you add frequently used menu items to Personal Menu.

Adding a menu item

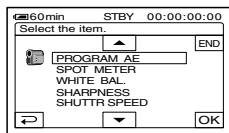
You can add up to 28 menu items for each POWER switch position. Delete a less important menu item, if you want to add more.

- 1 Touch [P-MENU] → [P-MENU SET UP] → [ADD].

If the desired menu item is not displayed, touch \uparrow/\downarrow .



- 2 Touch \uparrow/\downarrow to select a menu category, then touch [OK].



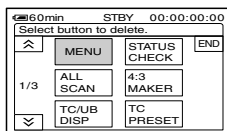
- 3 Touch \uparrow/\downarrow to select a menu item, then touch [OK] → [YES] → [X].

The menu item is added to the end of list.

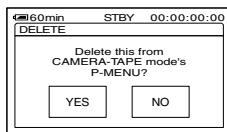
Deleting a menu item

- 1 Touch [P-MENU] → [P-MENU SET UP] → [DELETE].

If the desired menu item is not displayed, touch \uparrow/\downarrow .



- 2 Touch the menu item that you want to delete.



- 3 Touch [YES] → [X].

- You cannot delete [MENU] and [P-MENU SET UP].

Customizing Personal Menu (Continued)

Arranging the order of menu items displayed on Personal Menu

- 1 Touch **[P-MENU]** → **[P-MENU SET UP]**
→ **[SORT]**.

If the desired menu item is not displayed, touch **[↕]**/**[↕]**.

- 2 Touch the menu item you want to move.

- 3 Touch **[▲]**/**[▼]** to move the menu item to the desired place.

- 4 Touch **[OK]**.

To sort more items, repeat steps 2 to 4.

- 5 Touch **[END]** → **[X]**.

- You cannot move [P-MENU SET UP].

Initializing the Personal Menu settings (Reset)

- Touch **[P-MENU]** → **[P-MENU SET UP]**
→ **[RESET]** → **[YES]** → **[YES]** → **[X]**.

If the desired menu item is not displayed,
touch **[↕]**/**[↕]**.








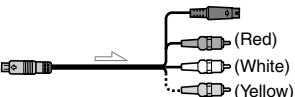


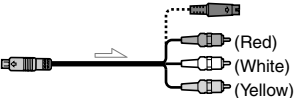

Dubbing to another device such as a VCR, DVD recorder, etc.

Use the supplied AC Adaptor as the power source (p. 10).
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 video equipment and the connectors used.

 : Signal flow

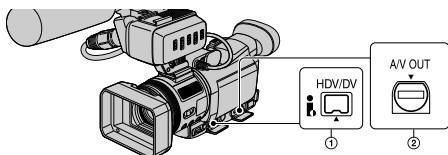
Camcorder	Cable	External device
<p>①</p> 	<p>i.LINK cable (optional)</p>  <p>i.LINK jack which is compatible with HDV1080i specification is required.</p>	<p>HDV1080i compatible device →HD quality *1</p> 
<p>①</p> 	<p>i.LINK cable (optional)</p> 	<p>AV device with i.LINK jack →SD quality *1</p> 
<p>②</p> 	<p>A/V connecting cable (supplied)</p>  <p>Do not connect the video plug (yellow).</p>	<p>S VIDEO AUDIO VIDEO</p> <p>AV device with S VIDEO jack →SD quality *1</p> 
<p>②</p> 	<p>A/V connecting cable (supplied)</p>  <p>Do not connect the S video plug.</p>	<p>A/V device with audio/video jacks *2 →SD quality *1</p> 

*1 Pictures recorded in the DVCAM (DV) format is played back as SD (standard definition) images regardless of 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 the white or red plug to the audio jack on the device.

Jacks on your camcorder

Open the jack cover and connect the cable.



Using an i.LINK cable (optional)

The dubbed format (HDV or DVCAM (DV)) differs depending on the video recording format or recording equipment format. Select the required settings from the table below and make the menu settings.

- Disconnect the i.LINK cable (optional) before changing these menu settings, otherwise the video equipment may not correctly identify the video signal.

Copy format	Camcorder recording format	Recording equipment format		Menu setting	
		HDV format* ¹	DVCAM (DV) format	[VCR HDV/DV] (p.57)	[i.LINK CONV] (p.61)
Copy HDV recording as HDV	HDV	HDV	_ * ³		[OFF]
Convert HDV recording to DVCAM (DV)	HDV	DVCAM (DV)	DVCAM (DV)	[AUTO]	[ON (HDV → DV)]
Copy 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/DV	DVCAM (DV)	DVCAM (DV)	[AUTO]	[ON (HDV → DV)]
Copy only portions recorded in HDV format	HDV	HDV	_ * ³		
	DVCAM (DV)	_ * ²	_ * ³	[HDV]	[OFF]
Copy only portions recorded in DVCAM (DV) format	HDV	_ * ²	_ * ²		
	DVCAM (DV)	DVCAM (DV)	DVCAM (DV)	[DV]	[OFF]

*¹ Equipment compliant with the HDV1080i specification.

*² Results in a copy without an image (video nor sound is copied).

*³ Picture is not recognized (no recording is made).

- When [VCR HDV/DV] is set to [AUTO] and the signal switches between HDV and DVCAM (DV), the picture and sound disappear temporarily.
- When the recorder is an HVR-A1U/A1N, set [VCR HDV/DV] also on the recording device to [AUTO] (p. 57).
- If the player and the recorder are both HVR-A1U/A1N or HDV1080i compatible device and connected with the i.LINK cable (optional), pictures are not continued smoothly after recording pause or stop.
- See page 105 for the DVCAM (DV) format.

When connecting with the A/V connecting cable with S VIDEO (supplied)

Connect with the S plug instead of the video plug (yellow). This connection produces pictures more faithfully and higher quality DVCAM (DV) format pictures. The audio will not be output when you connect with the S video plug alone.

Dubbing to another device

1 Prepare your camcorder for playback.

Insert the recorded cassette.
Slide the POWER switch down to turn on the PLAY/EDIT lamp.

Set [DOWN CONVERT] according to the playback device (TV, etc.) (p. 61).

2 Prepare your VCR 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, video input2, etc.).

3 Connect your VCR to your camcorder as a recording device.





See page 69 for connection details.

- Set [DISP OUTPUT] to [LCD PANEL] (default setting) when connecting with an A/V connecting cable (supplied) (p. 65).

4 Start the playback on your camcorder, and record it on the VCR.

Refer to the operating instructions supplied with your recording device for details.

5 When the dubbing is finished, stop your camcorder and the VCR.

- The following cannot be output via the  HDV/DV interface (i.LINK) jack:
 - Indicators
 - Pictures edited with [PICT. EFFECT] (p. 53) or [D. EFFECT] (p. 53).
 - Titles that are recorded on other camcorder.
- To record the date/time and camera settings data when connected by the A/V connecting cable (supplied), display them on the screen (p. 64).
- Pictures recorded in the HDV format are not output from the  HDV/DV Interface (i.LINK) jack during playback pause or in playback modes other than normal playback.
- Note the following when connecting with an i.LINK cable (optional):
 - The recorded picture becomes rough when a picture is paused on your camcorder while recording to a VCR.
 - Data code (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 you use an i.LINK cable (optional), the video and sound signals are transmitted digitally, producing high quality pictures.
- When i.LINK cable (optional) is connected, the format of the output signal (**HDVout ** or **DVout **) will be indicated on the LCD screen of your camcorder.

Recording pictures from a VCR **i.LINK**

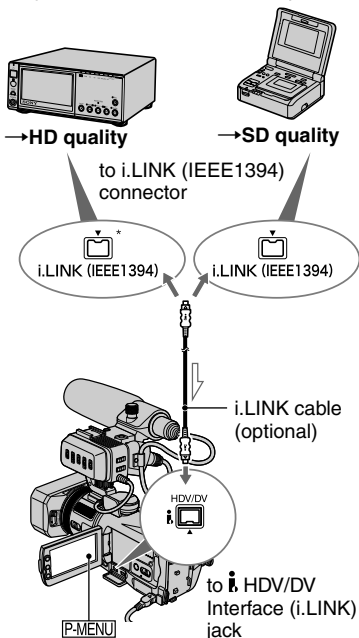
You can record pictures from a VCR on a tape. You can record a scene as a still image on a "Memory Stick Duo."

Be sure to insert a cassette or a "Memory Stick Duo" for recording in your camcorder beforehand.

- You need an i.LINK cable (optional) for this operation. You cannot record pictures from any jack other than i.HDV/DV Interface (i.LINK) jack.

HDV1080i compatible device

AV device with i.LINK jack



⤴:Signal flow

* i.LINK jack which is compatible with HDV1080i specification is required.

Recording movies

- 1** Slide the **POWER** switch down to turn on the **PLAY/EDIT** lamp.
- 2** Set the input signal of your camcorder.

Set [VCR HDV/DV] to [AUTO] when recording from an HDV1080i format compatible device.

Set [VCR HDV/DV] to [DVCAM (DV)] or [AUTO] when recording from a DVCAM (DV) format compatible device (p. 57).

- 3** Connect your VCR as a player to your camcorder.

- When i.LINK cable (optional) is connected, the format of the input signal (**HDV i.LINK** or **DV i.LINK**) will be indicated on the LCD screen of your camcorder. (This indicator may appear on the screen of the playback device, however, they will not be recorded.)

- 4** Insert the cassette into the VCR.

- 5** Operate your camcorder to record movies.


Touch [P-MENU] → [REC CTRL] → [REC PAUSE].

- 6** Start playing the cassette on your VCR.


The picture played on the connected device appears on the LCD screen of your camcorder.

7 Touch [REC START] at the point you want to start recording.

8 Stop recording.

When recording on a tape, touch  (stop) or [REC PAUSE].

9 Touch  → .

- You cannot record TV programs from the  i.LINK interface (i.LINK) jack.
- You can record pictures from DVCAM (DV) devices only in the DVCAM (DV) format.
- Note the following when connecting with an i.LINK cable (optional):
 - 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.
- 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

1 Perform steps 1 to 4 in “Recording movies.”

2 Play the video you want to record.

The pictures on the VCR appear on the screen of your camcorder.


3 Press PHOTO lightly at the scene you want to record. Check the image and press it fully.

Dubbing pictures from a tape to a “Memory Stick Duo”

You can record still images on a “Memory Stick Duo.” Make sure you have a recorded tape and a “Memory Stick Duo” inserted into your camcorder.

1 Slide the POWER switch down to turn on the PLAY/EDIT lamp.

2 Search and record the scene you want to record.

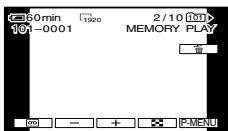
Touch  (play) to play back the tape, then press PHOTO lightly at the scene you want to record. Check the image and press it fully.

- The data code recorded on the tape cannot be recorded on the “Memory Stick Duo.” The time and date the picture is copied on the “Memory Stick Duo” will be recorded.
- Still images will be fixed to image size [1440 × 810] when playing back in the HDV format. Still images will be fixed to image size [640 × 360] (16:9) or [640 × 480] (4:3) when playing back in the DVCAM (DV) format.

Deleting recorded pictures from the “Memory Stick Duo”

1 Slide the **POWER** switch down to turn on the **PLAY/EDIT** lamp.

2 Touch **MEMORY**.



3 Select a picture you want to delete with **-**/**+**.

- To delete all pictures at once, select **[ALL ERASE]** (p. 51).

4 Touch **[YES]**.

- The pictures cannot be restored once they are deleted.

- You can delete pictures on the index screen (p. 23). You can easily search for the picture to be deleted by displaying 6 pictures at once. Touch **[SET]** → **[DELETE]** → the picture you want to delete → **[OK]** → **[YES]**.
- Pictures cannot be deleted when a “Memory Stick Duo” with the write-protect tab is set to the write-protect position (p. 107), or when the selected picture is protected (p. 74).

Marking images on the “Memory Stick Duo” with specific information (Image protection/Print mark)

When you are using a “Memory Stick Duo” with the write-protect tab, make sure the write-protect tab on the “Memory Stick Duo” is not set to the write-protect position (p. 107).

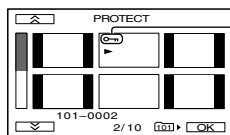
Preventing accidental erasure (Image protection)

You can select and mark images to prevent accidental erasure.

1 Slide the **POWER** switch down to turn on the **PLAY/EDIT** lamp.

2 Touch **MEMORY** → **[PROTECT]**.

3 Touch the image that you want to protect.



[KEY] appears.

4 Touch **[OK]** → **[END]**.


- To cancel image protection, touch the image again to cancel image protection in step 3.

Selecting still images for printing (Print mark)

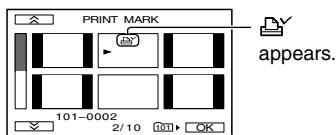
The DPOF (Digital Print Order Format) standard is used to select images for printing on your camcorder.

By marking images that you want to print out, you do not need to reselect them when you print them out. (You cannot specify the number of printouts.)

1 Slide the **POWER** switch down to turn on the **PLAY/EDIT** lamp.

2 Touch **MEMORY** →  → **SET** → **[PRINT MARK]**.

3 Touch the image that you want to print out later.



4 Touch **OK** → **[END]**.

- To cancel Print mark, touch the image again to cancel Print mark in step 3.
- Do not mark images on your camcorder if the “Memory Stick Duo” already has some images with the Print mark put on using other devices. This may change the information of the images with the Print mark put on using the other device.

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 your camcorder to the AC Adaptor to supply power from the wall outlet.

Insert the “Memory Stick Duo” on which still images are stored into your camcorder and turn on the power of the printer.


Connect your camcorder to the printer

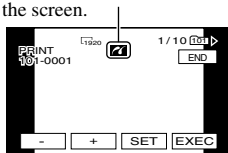
1 Slide the **POWER** switch down to turn on the **PLAY/EDIT** lamp.

2 Touch **P-MENU** → **[MENU]** →  (**STANDARD SET**) → **[USB SELECT]** → **[PictBridge PRINT]** → **OK** → .

3 Connect the  (**USB**) jack of your camcorder to the printer using the USB cable (supplied).

4 Touch  (**PICT. APPLI.**) → **[PictBridge PRINT]**.

When connection is complete,  (PictBridge connecting) appears on the screen.



One of the images stored on the “Memory Stick Duo” will be displayed.

- We cannot guarantee the operation of models that are not PictBridge compatible.

Printing



1 Select the image to be printed with /.

2 Touch →[COPIES].

3 Select the number of copies to be printed with /.

You can set a maximum of 20 copies of one image to be printed.


4 Touch →[END].

To print the date on the image, touch →[DATE/TIME]→[DATE] or [DAY&TIME]→.

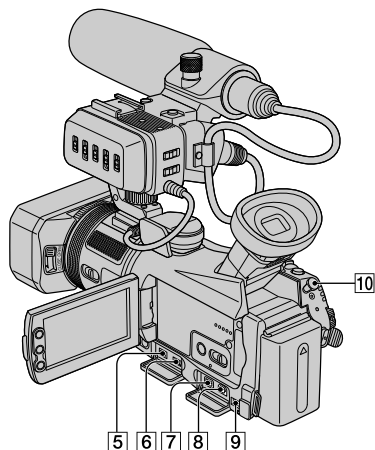
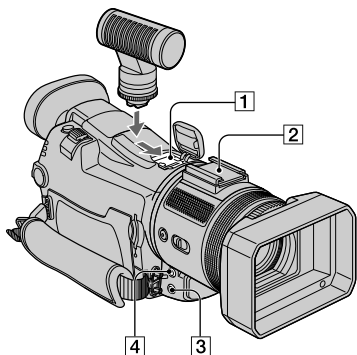
5 Touch [EXEC]→[YES].

When printing is finished, [Printing...] disappears and the image selection screen appears again.

Touch [END] when printing is completed.

- beginning.
 - If you print a still image recorded with a 16:9 ratio, left and right ends of the image may be cut off.
 - Some printer models may not support the date 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.
 - 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.
-
- Refer also to the operating instructions for the printer to be used.
 - Do not attempt the following operations when  is on the screen. The operations may not be performed properly.
 - Operating the POWER switch.
 - Disconnect the USB cable (supplied) from the printer.
 - Removing the "Memory Stick Duo" from your camcorder.
 - If the printer stops working, disconnect the USB cable (supplied), turn the printer off and on again and restart the operation from the

Jacks to connect external devices



- 1 ...Open the shoe cover.
3 - 10 ...Open the jack cover.

1 Active Interface Shoe i Active Interface Shoe

The Active Interface Shoe supplies power to optional accessories such as a video light, a flash, or a microphone. The accessory can be turned on or off as you operate the POWER switch on your camcorder. Refer to the operating instructions supplied with your accessory for details.

- When you connect an accessory, open the shoe cover.

- The Active Interface Shoe has a safety device for fixing the installed accessory securely. To connect an accessory, press down and push it to the end, and then tighten the screw. To remove an accessory, loosen the screw, and then press down and pull out the accessory.
- Connecting with an external device wears out the battery pack faster.
- When an external microphone (optional) is connected, it takes precedence over the internal microphone (p. 27).

2 Accessory shoe (p.19)

3 (headphones) jack (green)

- When you use headphones, the speaker on your camcorder is silent.

4 MIC (PLUG IN POWER) jack (red)

- This jack works as an input jack for an external microphone as well as a power-supply jack for a plug-in-power microphone. When an external microphone (optional) is connected, it takes precedence over the internal microphone (p.27).

5 iHDV/DV Interface (i.LINK) jack (p. 69)

6 (USB) jack (p. 75, 78)

7 COMPONENT OUT jack (p. 33)

8 A/V (audio/video) OUT jack (p. 33, 69)

9 DC IN jack (p. 10)

10 LANC jack (blue)

- The LANC control jack is used for controlling the tape transport of video devices and peripherals connected to it.

Connecting to a computer

When connecting your camcorder to the computer, you can operate the followings:

- Copy the still images on a “Memory Stick Duo” to the computer
→ p. 78
- Copy the movie in the HDV format on a tape to the computer
→ p. 81
- Copy the movie in the DVCAM (DV) format on a tape to the computer
→ p. 81

About connection

There are 2 ways to connect your camcorder to a computer:

- USB cable (supplied)
When copying pictures on a “Memory Stick Duo”
- i.LINK cable (optional)
When copying pictures on a tape

Notes on connecting to a computer

- When you are using a USB cable (supplied) or an i.LINK cable (optional) to connect your camcorder to a computer, make sure you insert the connector in the correct direction. If you insert the connector forcibly, it may be damaged, and causes a malfunction of your camcorder.
- You cannot do the followings:
 - Copying pictures on a tape to a computer with a USB cable (supplied).
 - Copying pictures on a “Memory Stick Duo” to a computer with an i.LINK cable (optional).
- Remove the USB cable according to the correct procedure when disconnecting it from the computer (p. 80).

Copying still images to a computer

System requirements

For Windows users

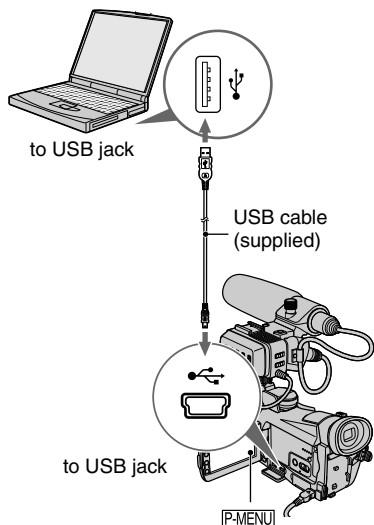
- OS: Windows 2000 Professional/Windows Millennium Edition/Windows XP Home Edition/Windows XP Professional
Standard installation is required. Operation is not assured if the above OS has been upgraded.
- CPU: MMX Pentium 200MHz or faster
- Others: USB port (This must be provided as standard)

For Macintosh users

- OS: Mac OS 9.1/9.2 or Mac OS X (v10.1/v10.2/v10.3)
- Others: USB port (This must be provided as standard)

Using the USB cable (supplied)

- You can do this operation with the standard driver of your computer. You do not need to install a 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 (supplied), 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 (supplied) 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 (supplied) before turning on your camcorder.
- Refer to 81 page 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 Administrators.

2 Insert a “Memory Stick Duo” into your camcorder.

3 Prepare the power source for your camcorder.

Use the supplied AC Adaptor as the power source (p. 10).

4 Slide the POWER switch down to turn on the PLAY/EDIT lamp.

5 Touch **P-MENU** → **[MENU]** → (STANDARD SET) → **[USB SELECT]** → **[MEMORY STICK]** → **[OK]**.

6 Connect the USB cable (supplied) to the USB jack on your camcorder.

7 Connect the other end of the USB cable to the USB jack on your computer.

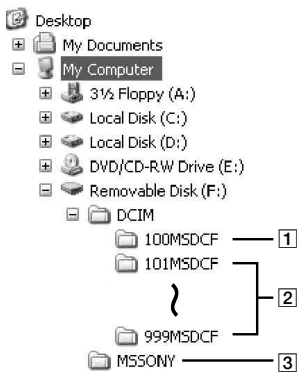
[USB CONNECT] appears on the LCD screen of your camcorder.

It may take some time for the computer to recognize the camcorder when you connect the USB cable for the first time.

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 using other camcorders without the folder creation function (for playback only).
- 2 Folder containing image files recorded with your camcorder
When no new folders have been created, only [101MSDCF] is displayed.
- 3 Folder containing movie data recorded using other camcorders without the folder creation function (for playback only).

Folder	File	Meaning
101MSDCF (up to 999MSDCF)	DSC0□□□□ □.JPG	Still image file
□□□□ stands for any number between 0001 and 9999.		

For Macintosh users

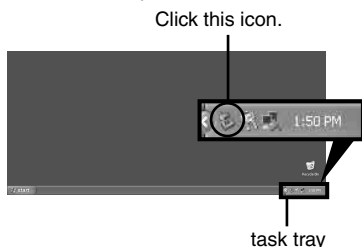
Double-click the drive icon, then drag and drop the desired picture file onto the hard disk of your computer.

Disconnecting the USB cable (supplied)

For Windows users

If [USB CONNECT] 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 CONNECT] does not appear on the LCD screen, do only step 4 above.

- 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.”

Copying movies on a tape to the computer

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 (supplied) from the camcorder and computer.
- 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 (supplied) before turning off your camcorder.

Recommended connection

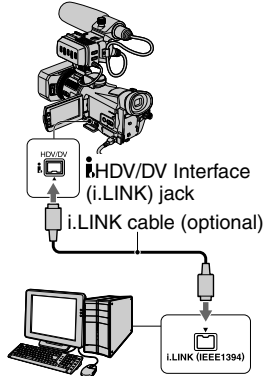
Connect as shown in the following illustrations to operate the camcorder correctly.

- Connect the camcorder to a computer via the USB cable (supplied). 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 (supplied).
- 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 on all the recommended environments.



Connect your camcorder to the computer with an i.LINK cable (optional). The computer needs to be provided with an i.LINK connector and be installed with editing software that can copy HDV 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.

Format for copying to the computer	Recorded format	Required software
HDV	HDV	Editing software capable of copying HDV signal
DVCAM (DV)	HDV	Editing software capable of copying DVCAM (DV) signal
DVCAM (DV)	DVCAM (DV)	Editing software capable of copying DVCAM (DV) signal

- Refer to the operating instructions of the software for the details on image copying.
- Refer to the operational instruction of the editing software for the recommended connection.
- Some editing software on the computer may not work correctly.



Notes on connecting to the computer

- Connect the i.LINK cable (optional) 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 hang up or may not recognize the signal from your camcorder in the following situation.
 - Making the following setup to connect your camcorder to a computer that does not support the video signal formats that appear on the LCD screen of your camcorder display (HDV or DVCAM (DV)).
 - Changing the [VCR HDV/DV] and [i.LINK CONV] settings on the  (STANDARD SET) menu while connecting with an i.LINK cable (optional).
 - Changing the [REC FORMAT] setting on the  (STANDARD SET) menu while connecting with an i.LINK cable (optional) with the POWER switch set to CAMERA-TAPE.
 - Changing the POWER switch position while connecting with an i.LINK cable (optional).
- The format (HDV or DVCAM (DV)) of input/output signal appears on the LCD screen of your camcorder while connecting with an i.LINK cable (optional).

When setting up your camcorder


The menu settings required depend on the format of the recorded pictures and the format for copying.

Copied format to the computer	Menu setting* ¹	Recorded format
HDV	[VCR HDV/DV] →[HDV] [i.LINK CONV] →[OFF]	HDV
DVCAM (DV)	[VCR HDV/DV] →[HDV] [i.LINK CONV] →[ON (HDV→DV)]	HDV
DVCAM (DV)	[VCR HDV/DV] →[DV] [i.LINK CONV] →[OFF]	DVCAM (DV)

*¹See page 57 for [VCR HDV/DV] and 61 for [i.LINK CONV].

- A tape recorded in the DVCAM (DV) format cannot be copied in the HDV format to a computer.

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] on the  (STANDARD SET) menu to copy an HDV format tape in the DVCAM (DV) format (p. 57, 61).

When copying the movie in the DVCAM (DV) format from the computer to your camcorder

- Set [VCR HDV/DV] to [DV] on the  (STANDARD SET) menu (p. 57).

Troubleshooting

If you run into any problems using your camcorder, use the following table to troubleshoot the problem. If the problem persists, remove the power source and contact your Sony dealer.

Overall operations

The power does not turn on.

- The battery pack is discharged, running low, or not attached to the camcorder.
- Attach a charged battery pack to the camcorder (p. 10).
- Use the AC Adaptor to connect to a wall outlet (p. 10).

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. If the functions still do not work, press the RESET button (p. 27) using a sharp-pointed object. (If you press the RESET button, all settings, including the clock setting, are reset, except the Personal Menu items.)

The camcorder gets warm.

- The camcorder may get warmer while you use it. This is not a malfunction.

Batteries/Power sources

The power abruptly turns off.

- Turn on the power again (p. 13), or use the AC Adaptor.
- Charge the battery pack (p. 10).

The CHG (charge) lamp does not light while the battery pack is being charged.

- Slide the POWER switch up to OFF (CHG) (p. 10).
- Attach the battery pack to the camcorder correctly (p. 10).
- No power is supplied from the wall outlet. (p. 10).
- The battery charge is completed (p. 10).

The CHG (charge) lamp flashes while the battery pack is being charged.

- Attach the battery pack to the camcorder correctly (p. 10). If the problem persists, disconnect the AC Adaptor from the wall outlet and contact your Sony dealer. The battery pack may be damaged.

The power turns off frequently although the remaining battery time indicator indicates that the battery pack has enough power to operate.

- A problem has occurred in the remaining battery time indicator, or the battery pack has not been charged enough. Fully charge the battery again to correct the indication (p. 10).

The remaining battery time indicator does not indicate the correct time.

- The temperature of the environment 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, replace the battery pack with a new one. It may be damaged (p. 10, 109).
 - The indicated time may not be correct depending on the environment of use. When you open or close the LCD panel, it takes about 1 minute to display the correct remaining battery time.
-

The battery pack is quickly discharged.

- The temperature of the environment 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, replace the battery pack with a new one. It may be damaged (p. 10, 109).
-

A problem occurs when the camcorder is connected to the AC Adaptor.

- Turn off the power, and disconnect the AC Adaptor from the wall outlet. Then, connect it again.
-

LCD screen/viewfinder

An unknown indicator appears on the screen.

- Refer to the indicator list (p. 98).
-

The picture remains on the LCD screen.

- This occurs if you disconnect the AC Adaptor from the wall outlet or remove the battery pack without turning off the power first. This is not a malfunction.
-

The buttons do not appear on the touch panel.

- Touch the LCD screen lightly.
 - Press DISPLAY/BATT INFO on your camcorder (or DISPLAY on the Remote Commander) (p. 15).
-

The buttons on the touch panel do not work correctly or do not work at all.

- Adjust the screen ([CALIBRATION]) (p. 113).
-

The picture in the viewfinder is not clear.

- Use the viewfinder lens adjustment lever to adjust the lens (p. 14).
-

The picture in the viewfinder has disappeared.

- Close the LCD panel. The picture is not displayed in the viewfinder when the LCD panel is open (p. 14, 60).

- Set [VF POWER] of [LCD/VF SET] to [ON] to display the picture in the viewfinder regardless of whether the LCD panel is open or closed (p. 60).

Cassette tapes

The cassette cannot be ejected from the compartment.

- Make sure the power source (battery pack or AC Adaptor) is connected correctly (p. 10).
- Remove the battery pack from the camcorder, then attach it again (p. 11).
- Attach a charged battery pack to the camcorder (p. 10).


The cassette is not ejected even when the cassette lid is open.

- Moisture condensation is starting in your camcorder (p. 112).

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. 65).

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.

“Memory Stick Duo”

You cannot operate functions using the “Memory Stick Duo.”

- Slide the POWER switch down to turn on the CAMERA-MEMORY or PLAY/EDIT lamp (p. 13).
- Insert a “Memory Stick Duo” into your camcorder (p. 17).
- If you use a “Memory Stick Duo” formatted on a computer, format it on your camcorder (p. 51).

Pictures cannot be deleted.

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
- Cancel image protection on the picture (p. 74).
- The maximum number of pictures that you can delete at one time is 100.

You cannot delete all pictures at once.

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
- Cancel image protection on the pictures (p. 74).

You cannot format the “Memory Stick Duo.”

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
-

Image protection cannot be applied.

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
 - Perform the operation again on the index screen (p. 74).
-

You cannot mark pictures for print.

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
 - Perform the operation again on the index screen (p. 75).
 - The maximum number of pictures you can mark for print is 999.
-

The data file name is not indicated correctly.

- Only the file name is displayed if the directory structure does not conform to the universal standard.
 - The file is damaged.
 - The file format is not supported on your camcorder (p. 107).
-

The data file name flashes.

- The file is damaged.
 - The file format is not supported on your camcorder (p. 107).
-

Recording

Refer also to “Adjusting the image during recording” (p. 88) and “Memory Stick Duo” section (p. 85).

The tape does not start when you press REC START/STOP.

- Slide the POWER switch down to turn on the CAMERA-TAPE lamp (p. 22).
 - The tape has reached the end. Rewind it, or insert a new cassette.
 - Set the write-protect tab to REC or insert a new cassette (p. 104).
 - 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. 112).
-

The zoom does not function.

- You cannot use the zoom while executing [SHOT TRANS].
-

You cannot record on the “Memory Stick Duo.”

- Release the lock on the write-protect tab of the “Memory Stick Duo.” (p. 107)
- The capacity is full. Delete unnecessary pictures recorded on the “Memory Stick Duo.” (p. 74)

- Format the “Memory Stick Duo” on your camcorder or insert another “Memory Stick Duo.” (p. 51)
- You cannot record movies with this unit on the “Memory Stick Duo.”
- When the POWER switch is set to CAMERA-TAPE, you cannot record still images on the “Memory Stick Duo” with:
 - [PICT. EFFECT]
 - [D. EFFECT]
 - [COLOR SLOW S]
 - [SUPER NS]
 - When [SHUTTR SPEED] is set to less than 1/30
 - While executing [FADER]
 - [COLOR BAR]
 - [CINEFRAME]

The recording angle differs depending on the POWER switch setting position.

- The recording angle when the POWER switch is set to CAMERA-MEMORY is wider than when it is set to CAMERA-TAPE.


You cannot record a smooth transition on a tape from the last recorded scene to the next.

- Note the following.
 - Perform END SEARCH. (p. 31).
 - 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.
 - You may not be able to record a smooth transition on a tape when [QUICK REC] is turned on.

The shutter sound is not heard when you record a still image.

- Set [BEEP] to [ON] (p. 65).

The external flash (optional) does not work.

- The power of the flash is not turned on, or the flash is not attached correctly.
- You cannot use the flash function together with:
 - [BURST] of [STILL SET]
 - When the POWER switch is set to CAMERA-TAPE
- You cannot use the flash even if [FLASH MODE] of [FLASH SET] is set to [AUTO] or [AUTO ].
 - [SPOT LIGHT], [SUNSET&MOON] or [LANDSCAPE] in [PROGRAM AE]
 - [SPOT METER]/when [EXPOSURE] is set to [MANUAL]

END SEARCH does not work.

- The cassette was ejected after recording (p. 31).
- The cassette is new and has nothing recorded.

END SEARCH does not work correctly.

- There is a blank section in the beginning or middle of the tape. This is not a malfunction.

Adjusting the image during recording

Refer also to “Menu” (p. 92).

The TELE MACRO button does not function.

- You cannot use the TELE MACRO function together with:
 - [PROGRAM AE]
 - When recording a movie on a tape.
 - [COLOR BAR]
-

The auto focus does not function.

- Set the FOCUS/ZOOM switch to AUTO to enable auto focus (p. 25).
 - The recording conditions are not suitable for auto focus. Adjust the focus manually (p. 25).
-

The focus does not function.

- You cannot operate focus while executing [SHOT TRANS].
-

[STEADYSHOT] does not function.

- Set [STEADYSHOT] to [ON].
 - You cannot use [STEADYSHOT] while using [SHOT TRANS].
-

The BACK LIGHT function does not function.

- Set [STEADYSHOT] to [ON].
 - The BACK LIGHT function is canceled when you select [SPOT METER] (p. 43).
 - You cannot use the BACK LIGHT function when the exposure is anything other than the automatic mode.
-

[DIGITAL ZOOM] does not function.

- You cannot use [DIGITAL ZOOM] together with:
 - TELE MACRO
 - While using [SHOT TRANS]
-

Tiny spots in white, red, blue, or green appear on the screen.

- The spots appear when you are recording in [SUPER NS] or [COLOR SLOW S]. This is not a malfunction.

The subjects passing by the frame might appear crooked.

- This is called the focal plane phenomenon. This is not a malfunction. Because of the way the image device (CMOS sensor) reads out image signals, the subjects passing by the frame rapidly might crooked depending on the recording conditions.

The color of the picture is not correctly displayed.

- Deactivate the NightShot function (p. 24).

The picture appears too dark on the screen, and the subject does not appear on the screen.

- The LCD backlight is turned off. Press and hold DISPLAY/BATT INFO for a few seconds to turn on the backlight (p. 14).

The picture appears bright, horizontal bands appear, or changes in color occurs.

- This occurs when recording pictures under a fluorescent lamp, sodium lamp, or mercury lamp. This is not a malfunction. Cancel [PROGRAM AE] (p.43) to lessen the symptom.

Black bands appear when you record a TV screen or computer screen.

- Set [STEADYSHOT] to [OFF] (p. 48).

Tiny spots in white appear on the screen.

- The spots appear at a slower shutter speed. This is not a malfunction.

Picture appears too bright on the screen, and the subject does not appear on the screen.

- Cancel the BACK LIGHT function (p. 25).

Playback

If you are playing back the pictures stored on a “Memory Stick Duo,” refer also to the “Memory Stick Duo” section (p. 85).

You cannot play back the tape.

- Slide the POWER switch down to turn on the PLAY/EDIT lamp.
- Rewind the tape (p. 23).

Cannot play back in reverse direction.

- Reverse playback is not possible with the tape recorded in the HDV format.

The pictures stored on a “Memory Stick Duo” are not played back in the actual size or aspect ratio.

- Pictures recorded on other devices may not appear in the actual size. This is not a malfunction.
-

Image data stored on a “Memory Stick Duo” cannot be played back.

- You cannot see movies recorded with other camcorder on the “Memory Stick Duo.”
 - Image data cannot be played back if you have modified files or folders, or have edited the data on a computer. (The file name flashes in that case.) This is not a malfunction (p. 108).
 - Pictures recorded on other devices may not be played back. This is not a malfunction (p. 108).
-


Horizontal lines appear on the picture. The displayed pictures are not clear or do not appear.

- Clean the head using the cleaning cassette (optional) (p. 112).
-


You cannot hear the sound recorded with 4CH MIC REC on another camcorder. DVCAM DV

- Adjust [ AUDIO MIX] (p. 58).
-

Fine patterns flicker, diagonal lines look jagged.

- Adjust [SHARPNESS] to the  (soften) side during recording (p. 44).
-

No sound or only a low sound is heard.

- Turn up the volume (p. 23).
 - Adjust [ AUDIO MIX] from the [CH3, CH4] (additional sound) side until the sound is heard appropriately (p. 58).
 - When you are using an S VIDEO plug or component video cable (supplied), make sure the red and white plugs of the A/V connecting cable are connected as well (p. 33).
-

The time code does not return to 00:00:00:00 even if the tape was rewound to the beginning of recording.

- The time code at the beginning of recording may not appear correctly, however, this is not a malfunction. If you start playback, both time code and picture are displayed correctly from the beginning.
-

User-bits are not displayed correctly during fast-forward and rewinding.

- User-bits are not displayed correctly if the video signal is HDV without user-bits recorded and dubbed via i.LINK connection. [-- -- -- --] appears during playback, and [00 00 00 00] during fast-forward/rewinding.

The picture or sound breaks off.

- The tape was recorded in both HDV and DVCAM (DV) formats. This is not a malfunction.

The sound breaks off.

- Clean the head using the cleaning cassette (optional) (p. 112).

“---” 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 (p. 102).

Date Search does not work correctly.

- If one day's recording is less than 2 minutes, your camcorder may not accurately find the point where the recording date changes.
- There is a blank section in the beginning or middle of the tape. This is not a malfunction.


No picture appears during **END SEARCH or **Rec Review**.**

- The tape was recorded in both HDV and DVCAM (DV) formats. This is not a malfunction.




Cannot view the picture on the TV connected with the **i.LINK cable (optional).**

- You cannot view the picture in the HD (high definition) quality on the TV which is not compatible with the HDV1080i specification (p. 33). Refer to the instruction manuals supplied with your TV.

Cannot view the picture or hear the sound on the TV connected with the component video cable (supplied).

- Set [COMPONENT] on the  (STANDARD SET) menu according to the requirements of the connected device (p. 60).
- When you are using the component video cable (supplied), make sure the red and white plugs of the A/V connecting cable are connected (p. 33).

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] on the  (STANDARD SET) menu (p. 61) and play back the picture.
- Before recording, select [DV SET] from the  (STANDARD SET) menu and set [ WIDE SELECT] to [4:3] (p. 58).

2/2-ST 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.

Remote Commander

The supplied Remote Commander does not function.

- Set [REMOTE CTRL] to [ON] (p. 65).
- Remove any obstructions between the Remote Commander and the remote sensor.
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Insert a new battery. Insert a battery into the battery holder with the +/- polarities correctly matching the +/- marks (p. 114).
- Remove the conversion lens (optional) as the remote sensor may be obstructed by it.
- You cannot use the ZERO SET MEMORY button with your camcorder.

Another VCR malfunctions when you use the supplied Remote Commander.

- Select a commander mode other than VTR 2 for your VCR, or cover the sensor of your VCR with black paper.

Menu

Menu items are grayed out.

- You cannot select grayed items in the current recording/playback situation.

You cannot use [PROGRAM AE].

- You cannot use [PROGRAM AE] together with:
 - NightShot
 - [COLOR BAR]
 - [OLD MOVIE] of [D.EFFECT]
 - TELE MACRO
 - [COLOR SLOW S]
 - When the AUTO LOCK switch is set to ON (p. 25)

You cannot use [SPOT METER].

- You cannot use [SPOT METER] together with:
 - NightShot
 - [COLOR BAR]
 - [COLOR SLOW S]
 - When the AUTO LOCK switch is set to ON (p. 25)
- If you set [PROGRAM AE], [SPOT METER] is automatically set to [AUTO].

You cannot adjust [EXPOSURE] manually.

- You cannot adjust the exposure manually with:
 - NightShot
 - [COLOR SLOW S]
 - [COLOR BAR]
 - When the AUTO LOCK switch is set to ON (p. 25)
- If you set [PROGRAM AE], [EXPOSURE] is canceled.

[WHITE BAL.] does not function.

- You cannot use [WHITE BAL.] together with:
 - NightShot
 - [COLOR BAR]
 - When the AUTO LOCK switch is set to ON (p. 25)

You cannot adjust [SHARPNESS].

- You cannot adjust [SHARPNESS] with [COLOR BAR].

[SHUTTR SPEED] cannot be adjusted manually.

- You cannot adjust [SHUTTR SPEED] with:
 - NightShot
 - [PROGRAM AE]
 - [COLOR BAR]
 - [COLOR SLOW S]
 - [OLD MOVIE] of [D. EFFECT]
 - [SPOT METER]
 - When [EXPOSURE] is anything other than [AUTO]
 - When the POWER switch is set to CAMERA-MEMORY
 - When the AUTO LOCK switch is set to ON (p. 25)
- When [CINEFRAME] is set, the shutter speed cannot be adjusted to 1/30 second or less.
- When [PROGRAM AE] is set, [SHUTTR SPEED] returns to [AUTO].

[AE SHIFT] cannot be operated.

- You cannot use [AE SHIFT] together with:
 - [COLOR BAR]
 - When [EXPOSURE] is anything other than [AUTO]


You cannot use [SPOT FOCUS].

- You cannot use [SPOT FOCUS] together with:
 - [PROGRAM AE]
 - [COLOR BAR]
 - When the FOCUS/ZOOM switch is set to AUTO

You cannot use [COLOR SLOW S].

- You cannot use [COLOR SLOW S] together with:
 - [FADER]
 - [D. EFFECT]
 - [PROGRAM AE]
 - [SHUTTR SPEED]
 - [COLOR BAR]
 - NightShot
 - [SPOT METER]
 - When [EXPOSURE] is anything other than [AUTO]
 - [CINEFRAME]
-

[HISTOGRAM] is not displayed.

- [HISTOGRAM] is not displayed in the following.
 - While using expanded focus
 - While using [DATE REC]
 -  indicator appears and [HISTOGRAM] is not displayed in the following.
 - While using [DIGITAL ZOOM]
 - While using [D.EFFECT]
 - [COLOR BAR]
-

You cannot use [FADER].

- You cannot use [FADER] together with:
 - [SELF-TIMER]
 - [COLOR SLOW S]
 - [D. EFFECT]
 - [COLOR BAR]
 - [SUPER NS]
-

You cannot use [SUPER NS].

- You cannot use [SUPER NS] when you set [CINEFRAME].
-

You cannot use [FULL SCAN].

- Set [STEADYSHOT] to [OFF].
-

You cannot use [D. EFFECT].

- You cannot use [D. EFFECT] together with:
 - [COLOR SLOW S]
 - [FADER]
 - When [SHUTTR SPEED] is set to less than 1/30
 - [COLOR BAR]
 - [SUPER NS]
 - [CINEFRAME]
- You cannot use [OLD MOVIE] together with:
 - [PICT. EFFECT]
 - When [SHUTTR SPEED] is set to [MANUAL]

- [PROGRAM AE]
- When [ WIDE SELECT] of [DV SET] is set to [4:3]

You cannot use [PICT. EFFECT].

- You cannot use [PICT. EFFECT] together with:
 - [COLOR BAR]
 - [OLD MOVIE] of [D. EFFECT]
- [PICT. EFFECT] cannot be set to [SKNTON DETAIL] while using the BACK LIGHT function.

You cannot use [SHOT TRANS].

- You cannot use [SHOT TRANS] together with:
 - NightShot
 - [COLOR BAR]

Dubbing/Editing/Connecting to other devices

Pictures from connected devices are not displayed on the LCD screen or the viewfinder.

- Set [DISP OUTPUT] to [LCD PANEL] (p. 65).
- You cannot input a signal to your camcorder if you press DISPLAY/BATT INFO while [DISP OUTPUT] is set to [V-OUT/PANEL] (p. 65).

Pictures from connected devices cannot be zoomed.

- You cannot zoom the 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. 65).

You cannot dub correctly using the A/V connecting cable. DVCAM DV

- You cannot input externally from a device connected with 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 another device for dubbing a picture from your camcorder.

When connected using an i.LINK cable (optional), no picture appears on the monitor screen during dubbing.


- Set [VCR HDV/DV] on the  (STANDARD SET) menu according to the requirements of the connected device (p. 57).

You cannot add sound to the recorded tape.

- You cannot add sound to the recorded tape on this unit.
-

New sound added to a recorded tape on another camcorder is not heard.

DVCAM DV 

- Adjust [ AUDIO MIX] from the [CH1, CH2] (original sound) side until the sound is heard appropriately (p. 58).
-

Still pictures cannot be dubbed from a tape to a “Memory Stick Duo.”


- You cannot record or a distorted picture may be recorded if the tape has been used repeatedly for recording.
-

You cannot input pictures.

- You cannot input pictures while [DISP OUTPUT] is set to [V-OUT/PANEL] (p. 65).
 - You cannot input pictures if you press DISPLAY/BATT INFO.
-

Connecting to a computer

The computer does not recognize your camcorder.

- 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  (USB) jack on the computer.
 - Disconnect the cable from the computer and camcorder, restart the computer, then connect them again correctly.
-

You cannot monitor video that the camcorder is capturing.

- Disconnect the cable from the computer, turn on the camcorder, then connect it again.
-

You cannot view the video recorded on a tape on the computer.

- Disconnect the cable from the computer, then connect it again.
 - Connect the i.LINK cable (optional) because you cannot copy pictures with the USB cable (supplied).
-

You cannot view the video and still images recorded on a “Memory Stick Duo” on the computer.

- Insert a “Memory Stick Duo” in the correct direction, then push it all the way in.
- You cannot use an i.LINK cable (optional). Connect the camcorder and the computer using the USB cable (supplied).
- The computer does not recognize the “Memory Stick Duo” during camcorder operations such as tape playback or editing. Finish any camcorder operations before connecting the camcorder to the computer.
- Slide the POWER switch down to turn on the PLAY/EDIT lamp, then set [USB SELECT] to [MEMORY STICK].

[Removable Disk] does not appear on the computer screen. [USB]

- Slide the POWER switch down to turn on the PLAY/EDIT lamp, then set [USB SELECT] to [MEMORY STICK].
- Insert a “Memory Stick Duo” into your camcorder.
- Disconnect the USB device other than the keyboard, the mouse, and the camcorder from the Ψ (USB) jack on the computer.
- The computer does not recognize the “Memory Stick Duo” during camcorder operations such as tape playback or editing. Finish camcorder operations before connecting the camcorder to the computer.

You cannot copy video and still images to the computer. [USB]

- Display pictures recorded on a “Memory Stick Duo” with the following procedures for the Windows computer.
 - 1 Double-click [My Computer].
 - 2 Double-click the icon for the newly recognized drive [Removable Disk]. It may take some time until the drive is recognized.
 - 3 Double-click the desired image file.

The file copied from the computer is not copied to the “Memory Stick Duo.”

- The USB cable (supplied) is not removed with the right procedure. Connect your camcorder to the computer and transfer the data (p. 78).

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. 109).
- Connect the DC plug of the AC Adaptor to the DC IN jack of your camcorder securely (p. 10).

C:21:□□

- Moisture condensation has occurred. Remove the cassette and leave your camcorder for at least 1 hour, then re-insert the cassette (p. 112).

C:22:□□

- Clean the head using a cleaning cassette (optional) (p. 112).

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 starts to condense (p. 112).
- Remove the power source. Reconnect it again and operate your camcorder again.
- Change the cassette. Press RESET (p. 27), and operate your camcorder again.


E:61:□□ / E:62:□□ / E:91:□□

- 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. 107).

(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. 112).

(Warning indicator pertaining to “Memory Stick Duo”)

- “Memory Stick Duo” is not inserted (p. 17).

(Warning indicators pertaining to “Memory Stick Duo”)*

- The “Memory Stick Duo” is damaged.
- The “Memory Stick Duo” is not formatted correctly (p. 51).

(Warning indicator pertaining to incompatible “Memory Stick Duo”)*

- An incompatible “Memory Stick Duo” is inserted (p. 107).

(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. 104).*

Fast flashing:

- The tape has run out.*

▲ (Eject cassette warning)*
Slow flashing:

- The write-protect tab on the cassette is set to lock (p.104).

Fast flashing:

- Moisture condensation has occurred (p. 112).
- The self-diagnosis display code is displayed (p. 98).

🔒 (Warning indicator pertaining to image deletion)*

- The image is protected (p. 74).

🔒🔒 (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. 107).

⚡ (Warning indicator pertaining to the flash)
Slow flashing:

- Still charging

📷 (Warning indicator pertaining to camera-shake warning)

- The amount of lights is not sufficient, so camera-shake easily occurs. Use the flash.
- The camcorder is unsteady, so camera-shake easily occurs. Hold the camcorder steady with both hands and shoot the image. However, note that the camera-shake warning indicator does not disappear.

* You hear a melody when the warning indicators appear on the screen ([BEEP], p. 65).

Description of warning messages

If messages appear on the screen, follow the instructions.

■ Battery

Use the “InfoLITHIUM” battery pack (p. 109).

Battery level is low.

- Change the battery (p. 10, 109).

Old battery. Use a new one (p. 109).

▲Re-attach the power source (p. 10).

■ Moisture condensation

📷▲Moisture condensation. Eject the cassette (p. 112).

📷▲Moisture condensation. Turn off for 1H (p. 112).

■ Cassette/Tape

📷📷Insert a cassette (p. 17).

▲Reinsert the cassette.

- Check if the cassette is damaged.

📷📷▲The tape is locked - check the tab (p. 104).

📷📷The tape has reached the end.

- Rewind or change the tape.

■ “Memory Stick Duo”


 **Insert a Memory Stick** (p. 17).

 **Reinsert the Memory Stick.**

- 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 is a read-only Memory Stick.

- Insert a writable “Memory Stick Duo.”
-

 **Incompatible type of Memory Stick.**


- A type of “Memory Stick Duo” incompatible with your camcorder is inserted (p. 107).
-

 **This Memory Stick is not formatted correctly.**

- Check the format, then format the “Memory Stick Duo” as necessary (p. 51, 107).
-

Cannot record. The Memory Stick is full.

- Delete unnecessary images (p. 74).
-

 **The Memory Stick is locked.**
Check the tab (p. 107).

Cannot playback. Reinsert the Memory Stick (p. 17).

Cannot record. Reinsert the Memory Stick (p. 17).

No file.

- No file is recorded or there is no readable file on the “Memory Stick Duo.”
-

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. 51), or delete them using your computer.
-

Cannot record still images on Memory Stick (p. 86).

■ **PictBridge compliant printer**

Check the connected device.

- Switch off the printer and switch it on again, then disconnect the USB cable (supplied) and reconnect it.
-

Connect the camcorder to a PictBridge compatible printer.

- Switch off the printer and switch it on again, then disconnect the USB cable (supplied) and reconnect it.
-

Error. Cancel the task.

- Check the printer.
-

Cannot print. Check the printer.

- Switch off the printer and switch it on again, then disconnect the USB cable (supplied) and reconnect it.
-

■ Flash

Charging... Cannot record still images.

- You are trying to record a still image while charging the flash (optional)

■ Others

Cannot record due to copyright protection (p. 103).

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 the playback or signal input, or change the [VCR HDV/DV] setting (p. 57).

⊗ Dirty video head. Use a cleaning cassette (p. 112).

Invalid in AUTO LOCK mode (p. 25).

Using your camcorder abroad

Power supply

You can use your camcorder in any countries/regions 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 an NTSC systembased camcorder. If you want to view the playback picture on a TV, it must be an NTSC system-based TV (see following list).

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.

Viewing DVCAM (DV) format pictures DVCAM DV SP

You need the TV with the AUDIO/VIDEO input jack.

Simple setting of the clock by time difference

You can easily set the clock to the local time by setting a time difference when using your camcorder abroad. Select [WORLD TIME] in the (TIME/LANGU.) menu, then set the time difference (p. 66).

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 cassettes with Cassette Memory.

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 1080 effective scan lines of screen ruling (1080i, number of pixels 1440 × 1080 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.

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) jack.

To prevent a blank section from being made on the tape

Go to the end of the recorded section using END SEARCH (p. 31) 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 [**A** 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.

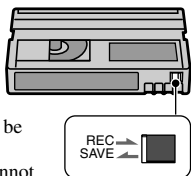
Notes on use

■ 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**.

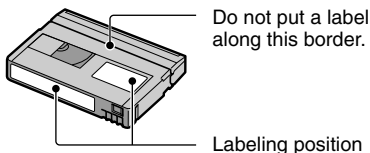


REC: The cassette can be recorded.

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.

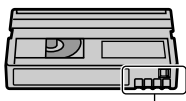


■ After using the cassette

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 be indicated correctly.



Gold-plated connector

On HDV1080i specification compliant TVs HDV1080i

An HDV format compatible TV with the component input jack is required to view playback pictures recorded in the HDV format. See the table below for the main 2004/05 models.

Sony TV models

KLV-32M1, KLV-23M1, KLV-S23A10, KLV-S19A10, KDE55XBR950, KDE-50XS955, KDE-42XS955, KDE-37XS955, KE-42M1, KDF-60XS655, KDF-55XS655, KDF-60WE655, KDF-55WE655, KDF-50WE655, KDF-42WE655, KF-50WE620, KF-42WE620, KDS-70Q006, KDS-R60A10, KDS-R50A10, KDF-E60A20, KDF-E55A20, KDF-E50A10, KDF-E42A10, KD-34XBR960, KD-34XS955, KD-30XS955, KD-36XS955, KV-34HS420, KV-30HS420, KV-36HS420, KV-32HS420, KV-27HS420, KD-32XS945, KDF-57WS655, KDP-51WS655, KP-57WS520, KP-51WS520, KP-46WT520, KDL32XBR950, KLV-L32MRX1, KLV-32M1, KE-MX42N1, KE-MX42K1, KE-MX42S1, KE-MX42A1, KE-MX42M1, KE-MX32N1, KE-MX32K1, KE-MX32S1, KE-MX32A1, KE-MX32M1, KE-P42M1, KE-MV42A1, KE-MV42M1, KV-DA32M84, KV-DA32M94, KV-DA32M86, KV-DA32M66, KV-DA32M64, KV-DA32M36, KV-DA32K94L, KV-DA32K94B, KV-DA34M80, KV-DA34X80, KV-DA34N90, KV-DA34M81, KV-DA34M86, KV-DA34M61, KV-DA34M80, KV-DA34M50, KV-DA29M80, KV-DA29MX80, KV-DA29N90, KV-DA29M90, KV-DA29M81, KV-DA29M86, KV-DA29M61, KV-DA29M60, KV-DA29M80, KV-DA29M50, KV-DA29M31, KV-DA29K90L, KV-DA29K90B, KP-FW51M90A, KP-FW46M90A, KP-FW46X90A, KP-FX43M90A, KDF-60WE610K, KDF-50WE610K, KDF-42WE610K, KF-WS60M90, KF-WE50M90, KF-WE42M90, KDF-60WF655K, KDF-55WF655K, KS-R60A10, KS-R50A10, KF-E50A10, KF-E42A10, KDS-R60A10, KDS-R50A10, KDF-E50A10, KDF-E42A10

As of 1st of August, 2005

- Some models are not available depending on the country or region.

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	Unlock mode
Time code	Drop frame system or Non-drop frame system (SMPTE time code)	Drop frame System only

* There are 2 modes for audio recording, lock mode and unlock mode. In lock mode, the sampling frequencies of audio and video are synchronized. In unlock mode, which the consumer DV format adopts, the 2 sampling frequencies are independent. 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

- 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 played back	Can be played back only when recorded in SP mode
DVCAM formatted	Can be played back on some equipment	Can be played back

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. 106).

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.

- 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 i.LINK/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 data capacity that exceeds the capacity of a floppy disk. You can use only a “Memory Stick Duo,” which is about the half size of a standard “Memory Stick” in your camcorder. However, appearance on the list below does not guarantee the operation of all types of “Memory Stick Duo” in your camcorder.

Types of “Memory Stick”	Recording/ Playback
“Memory Stick”(without MagicGate)	—
“Memory Stick Duo”(without MagicGate) ¹	○
“MagicGate Memory Stick”	—
“Memory Stick Duo” (with MagicGate) ¹	○ ^{2*3}
“MagicGate Memory Stick Duo” ¹	○ ³
“Memory Stick PRO”	—
“Memory Stick PRO Duo” ¹	○ ^{2*3}

¹A “Memory Stick Duo” is about half the size of a standard “Memory Stick.”

²The 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.

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. The “Memory Stick Duo” supplied with your camcorder is not equipped with a write-protect tab.

Notes on use

Image data may be damaged in the following cases. Compensation for damaged image data will not be made.

- 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.

About the “Memory Stick” (Continued)

■ 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 (supplied)

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 damage the device. Also, if you force the “Memory Stick Duo” into the “Memory Stick Duo” slot in the wrong direction, the “Memory Stick Duo” slot may be damaged.
- Do not insert anything other than a “Memory Stick Duo” into the “Memory Stick Duo” slot. Doing so may cause a malfunction.
- 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 2 GB.
- This unit does not support high speed data transfer.


On image data compatibility

- Image data files recorded on a “Memory Stick Duo” by your camcorder conform to the Design Rule for Camera File Systems 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. 51). 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 (M series). Your camcorder operates only with an “InfoLITHIUM” battery pack. “InfoLITHIUM” M series battery packs have the  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 (optional), 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 CHG (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-

QM71D/QM91D (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-QM71D/QM91D (optional).
- 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. The indication on the 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 guide to the approximate shooting time.
- 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 and environment.

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.

About battery life

- The battery life is limited. Battery capacity drops little by little as you use it more and more, and as time passes. When the available battery time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Please buy a new battery pack.
- The battery life varies depending on how it is stored and the operating conditions and environment for each battery pack.

About i.LINK

The i.LINK HDV/DV Interface (i.LINK) jack 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 (optional). Possible applications are operations and data transactions with various digital AV devices.

When two or more i.LINK-compatible devices are connected to this unit in a daisy chain, operations and data transactions are possible with not only the device that this unit is connected to but also with other devices via the directly connected device. Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the device to be connected. Also, operations and data transactions may not be possible on some connected devices.

- Normally, only one device can be connected to this unit with the i.LINK cable (optional). When connecting this unit to an HDV/DV-compatible device having two or more DVCAM (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 three types.

S100 (approx. 100Mbps*)

S200 (approx. 200Mbps)

S400 (approx. 400Mbps)

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.

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 69.

This unit can also be connected to other i.LINK compatible devices made by Sony (e.g. a VAIO series personal computer) as well as to video devices.

Before connecting this unit to your computer, make sure that application software supported by this unit is already installed on your computer.

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/DVCAM (DV) device or not. For details on precautions and compatible application software, refer also to the operating instructions for the device to be connected.

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 (Continued)

- 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

- Occasionally turn it on and let it run such as by playing back tapes 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 if [] or [] does not appear when the power is turned on again.

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 prevent 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

- When the video head becomes dirty, you cannot record pictures normally, or distorted picture or sound is played back.
- If the following problem occurs, clean the video heads for 10 seconds with the Sony DVM-12CLD cleaning cassette (optional).
 - Mosaic-pattern noise appears on the playback picture or the screen is displayed in blue.



- A part of playback pictures does not move.
- Playback pictures do not move.
- Playback pictures do not appear or the sound breaks off.
- [  Dirty video head. Use a cleaning cassette.] appears on the screen during recording.
- The video head suffers from wear after long use. If you cannot obtain a clear image even after using a cleaning cassette, it might be because the video head is worn. Please contact

your Sony dealer or local authorized Sony service facility to have the video head 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.

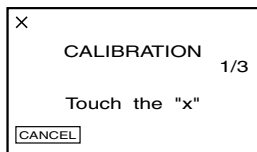
■ To clean the LCD screen

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 adjustment of the LCD screen (CALIBRATION)

The buttons on the touch panel may not work correctly. If this happens, follow the procedure below. It is recommended you connect your camcorder to the wall outlet using the supplied AC Adaptor during the operation.

- ① Slide the POWER switch down to turn on the PLAY/EDIT lamp.
- ② Disconnect cables other than that of the AC Adaptor from your camcorder, then eject the cassette and “Memory Stick Duo” from your camcorder.
- ③ Touch [P-MENU] → [MENU] →  (STANDARD SET) → [CALIBRATION] → [OK].



- ④ Touch the “x” displayed on the screen with the corner of the supplied “Memory Stick Duo” or the like.

Touch [CANCEL] to cancel.

The position of the “x” changes. If you did not press the right spot, start from step ④ again.

- You cannot calibrate the LCD screen if it is rotated.

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, benzene, 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.

To charge 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

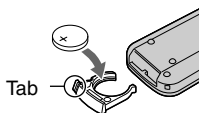
not use your camcorder at all without the AC Adaptor connected or the battery pack attached. However, even if the pre-installed rechargeable battery is not charged, the camcorder operation will not be affected as long as you are not recording the date.

■ 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.

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.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
Discard used batteries according to the manufacturer's instructions.

- 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.

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 (Fs 48 kHz, stereo) transfer rate: 384 kbps
Audio recording system (DVCAM (DV))	Rotary heads, PCM system Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal	NTSC color, EIA standards 1080/60i specification
Usable cassette	Mini DV cassette with the Mini DV or Mini DVCAM cassette with the 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-63 DM cassette)
Recording/playback time (DVCAM)	41 min (using a PHDVM-63 DM cassette)
Recording/playback time (DV SP)	63 min (using a PHDVM-63 DM cassette)
Fast forward/rewind time	Approx. 2 min 40 s (using a PHDVM-63 DM cassette and rechargeable battery pack) Approx. 1 min 45 s (using a PHDVM-63 DM cassette and AC Adaptor)
Viewfinder	Electric viewfinder (color, black and white)

Image device	5.9 mm (1/3 type) CMOS sensor Gross: Approx. 2 969 000 pixels Effective (movie, 4:3): 1 486 000 pixels Effective (movie, 16:9): 1 983 000 pixels Effective (still, 4:3): 2 764 800 pixels Effective (still, 16:9): 2 073 600 pixels
Lens	Carl Zeiss Vario-Sonnar T* 10 × (Optical), 40 × (Digital)
Focal length	f=5.1 ~ 51.0 mm (7/32 ~ 2 1/8 in.) When converted to a 35 mm still camera In CAMERA-TAPE *2: 41 ~ 480 mm (1 5/8 ~ 19 in.) (16:9), 50 ~ 590 mm (2 ~ 23 1/4 in.) (4:3) In CAMERA-TAPE when setting [FULL SCAN] to [ON]: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9), 49.3 ~ 493 mm (2 ~ 19 1/2 in.) (4:3) In CAMERA-MEMORY: 40 ~ 400 mm (1 5/8 ~ 15 3/4 in.) (16:9), 37 ~ 370 mm (1 1/2 ~ 14 5/8 in.) (4:3) F1.8 ~ 2.1 Filter diameter: 37 mm (1 1/2 in.)
Color temperature	[AUTO], [ONE PUSH], [INDOOR] (3 200 K), [OUTDOOR] (5 800 K)
Minimum illumination	7 lx (lux) (F 1.8) 0 lx (lux) (during NightShot function)*3

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

*2The focal length figures are actual figures resulting from wide angle pixel read-out.

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

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: 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: 525 mVp-p (75 % color-bar)
Headphones jack	Stereo minijack (Ø 3.5)

Input/Output connectors

MIC jack	Minijack, 0.388 mV low impedance with DC 2.5 to 3.0 V, output impedance 6.8 kΩ (kilohms) (Ø 3.5 mm), Stereo type
LANC jack	Stereo mini-minijack (Ø 2.5)
INPUT1/ INPUT2 connectors	XLR3-pin, female, -60 dBu: 3 kΩ +4 dBu: 10 kΩ (0 dBu=0.775 Vrms)
USB jack	mini-B
i.LINK/DV jack	i.LINK Interface (IEEE 1394, 4-pin connector S100)

LCD screen

Picture	6.9 cm (2.7 type, aspect ratio 16:9)
Total dot number	123 200 (560 × 220)

Specifications (Continued)

General

Power requirements	DC 7.2 V (battery pack) DC 8.4 V (AC Adaptor)
Average power consumption (when using the battery pack)	During camera recording using the viewfinder with normal brightness with the XLR adaptor attached: HDV recording 6.4 W DVCAM (DV) recording 5.7 W During camera recording using the LCD with normal brightness with the XLR adaptor attached: HDV recording 6.6 W DVCAM (DV) recording 5.9 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.)	71 × 103 × 191 mm (2 7/8 × 4 1/8 × 7 5/8 in.) (w/h/d) excluding the projecting parts
Mass (approx.)	670 g (1 lb 7 oz) main unit only 1.1 kg (2 lb 8 oz) including the NP-FM50 rechargeable battery pack, PHDVM-63DM cassette, lens hood with lens cover, XLR adaptor and microphone.
Supplied accessories	See page 9.

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) main unit only

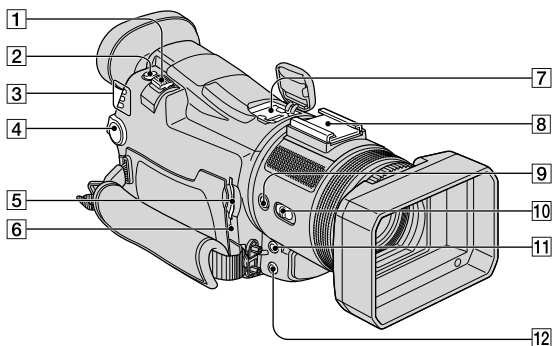
* See the label on the AC Adaptor for other specifications.



Rechargeable battery pack (NP-FM50)

Maximum output voltage	DC 8.4 V
Output voltage	DC 7.2 V
Capacity	8.5 Wh (1 180 mAh)
Dimensions (approx.)	38.2 × 20.5 × 55.6 mm (1 9/16 × 13/16 × 2 1/4 in.) (w/h/d)
Mass (approx.)	76 g (2.7 oz)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Type	Lithium ion

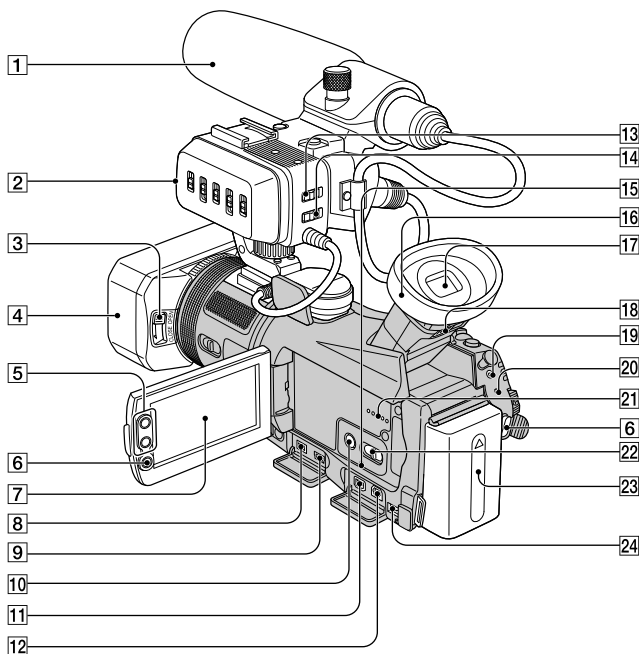
Design and specifications are subject to change without notice.

Identifying parts and controls



- 1 Power zoom lever (24)
- 2 PHOTO button (22)
- 3 CAMERA-TAPE, CAMERA-MEMORY, PLAY/EDIT mode lamps (13)
- 4 POWER switch (13)
- 5 "Memory Stick Duo" slot (17)
- 6 Access lamp (17, 107)
- 7 Active Interface Shoe  (77)
- 8 Accessory shoe (19)
- 9 ASSIGN button (27)
- 10 NIGHTSHOT switch (24)
- 11 MIC (PLUG IN POWER) jack (77)
- 12  (headphones) jack (77)

Identifying parts and controls (Continued)

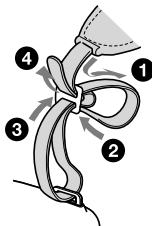


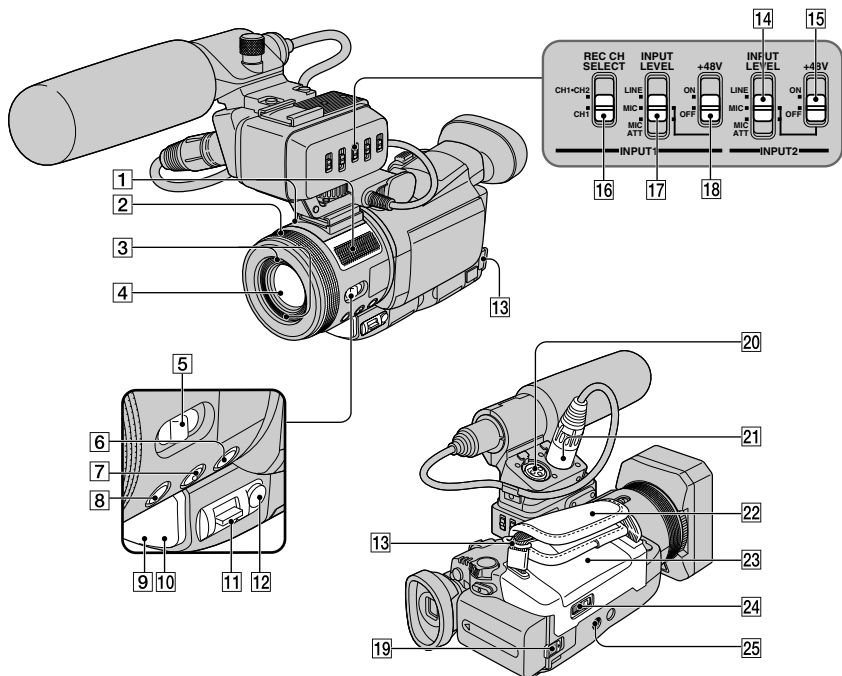
- 1 Microphone (19)
- 2 XLR adaptor (19)
- 3 Lens cover lever (20)
- 4 Lens hood with lens cover (9, 20)
- 5 Zoom buttons (24)
- 6 REC START/STOP button (22)
- 7 LCD screen/touch panel (5, 15)
- 8 i.LINK/HDV/DV Interface (i.LINK) jack (77)
- 9 USB (USB) jack (77)
- 10 DISPLAY/BATT INFO button (27)
- 11 COMPONENT OUT jack (77)
- 12 A/V OUT jack (77)
- 13 INPUT1 LOW CUT switch (20)
- 14 INPUT2 LOW CUT switch (20)
- 15 RESET button (27)
- 16 Eyecup
- 17 Viewfinder (14)
- 18 Viewfinder lens adjustment lever (14)
- 19 LANC jack (77)
- 20 CHG (charge) lamp (10)
- 21 Speaker (27)

- 22 AUTO LOCK switch (25)
- 23 Battery pack (10)
- 24 DC IN jack (77)

Attaching the shoulder strap

Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.





- 1 Internal stereo microphone (27)
- 2 Zoom ring/focus ring (24, 25)
- 3 Holes for the lens hood
- 4 Lens (Carl Zeiss Lens) (5)
- 5 FOCUS/ZOOM switch (24, 25)
- 6 BACK LIGHT button (25)
- 7 EXPANDED FOCUS button (25)
- 8 TELE MACRO button (25)
- 9 Camera recording lamp (27)
- 10 Remote sensor (27)
- 11 EXPOSURE/VOL lever (24)
- 12 EXPOSURE button (24)
- 13 Hooks for the shoulder strap (118)
- 14 INPUT2 INPUT LEVEL Selector (19)
- 15 INPUT2 +48V switch (19)
- 16 INPUT1 REC CH SELECT switch (19)
- 17 INPUT1 INPUT LEVEL Selector (19)
- 18 INPUT1 +48V switch (19)
- 19 BATT (battery release) lever (11)
- 20 INPUT2 connector (19)
- 21 INPUT1 connector (19)
- 22 Grip belt (13)
- 23 Cassette compartment lid (17)
- 24 OPEN/EJECT lever (17)
- 25 Tripod receptacle (26)

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[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:

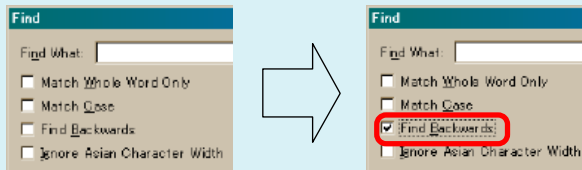
To set a range to be printed within a page, select the graphic selection tool  and drag on the page to enclose a range to be printed, and then click the Print button.

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 Backwards" and then click the "Find".







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

Application to the Service Manual:



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

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

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.

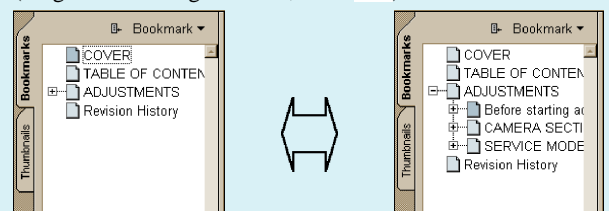
Moving with link

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.

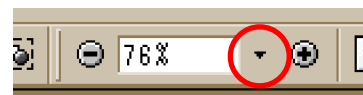
(To go back to original state, click )




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.



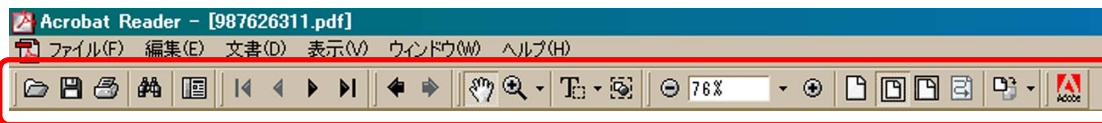
"Rotate"

- 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.


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




文章を印刷する

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

印刷の応用：

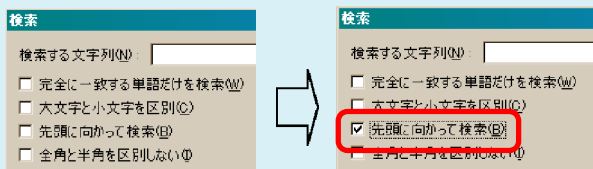
ページ内で印刷したい範囲を設定するには、グラフィック選択ツールを選択し、ページ上をドラッグして印刷したい範囲を囲ってから印刷ボタンをクリックする。

文章内を検索する

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

サービスマニュアルへの応用：

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







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

サービスマニュアルへの応用：



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

注意:発行年月日によって検索できない場合もあります。

ページを切り換える

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






一度表示した画面へ逆戻りする

- 前の画面(操作)へ1つずつ逆戻りする場合は、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は、をクリックする。

サービスマニュアルへの応用：

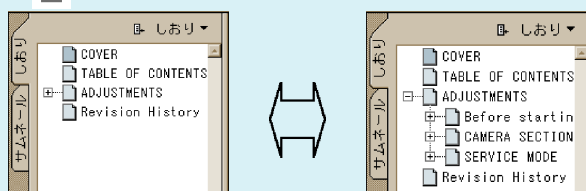
回路図とプリント図を行き来できるので電圧チェックに便利です。

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：

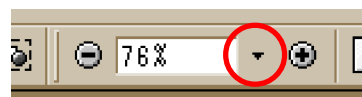
しおりパレット上の項目(テキスト)をクリックするとリンク先へ移動することができる。また、「+」をクリックすると隠れている項目を表示することができる。(「-」をクリックすると元に戻る)




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	2005.08	Official Release	—	—
1.1	2005.11	Correction-1 (C1)	<ul style="list-style-type: none">• Correction of Schematic Diagrams• Correction of Repair Parts S.M. correction: Page 4-39 , Page 4-78 , Page 4-87 , Page 5-40	Yes