

MVC-CD1000

SERVICE MANUAL

Level 2

Ver 1.0 2000.07

Self Diagnosis
Supported model

Mavica

COMPACT
disc
Recordable

InfoLITHIUM™
SERIES



US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Japanese Model

This service manual contains information for Japanese model as well.

On the SY-060 board and the DDX-G2000 COMPLETE ASSEMBLY (Including the MD-082 Board)

This service manual provides the information on the premise of the circuit board replacement service and not intended repair inside the SY-062 board in case of trouble. It is also premised that the mechanism deck DDX-G2000 COMPLETE ASSEMBLY (including the MD-082 board) shall be exchanged as an assembly in case of trouble.

Therefore, disassembling procedure and exploded view of the DDX-G2000 COMPLETE ASSEMBLY are not shown. The block diagram, schematic diagram, printed wiring board and electrical parts list of the SY-062 board are also not shown.

Note that the following pages are lacking intentionally.

SY-062 board

Block diagram	Page 3-19 to 3-22
Schematic diagram	Page 4-15 to 4-22
Printed wiring board	Page 4-11 to 4-14
Electrical parts list	Page 6-16 to 6-18

DDX-G2000 COMPLETE ASSEMBLY

Disassembly	Page 2-12 to 2-13
Exploded view	Page 6-8

MD-082 board

Block diagram	Page 3-23 to 3-28
Schematic diagram	Page 4-27 to 4-36
Printed wiring board	Page 4-23 to 4-26
Electrical parts list	Page 6-11 to 6-16

The above-described information is shown in service manual Level 3.

SPECIFICATIONS

System

Image device
1/2.7 type color CCD

Lens

10× zoom lens
f = 1/4 – 2 3/8 in (6.0 – 60.0 mm) (1 9/16 – 15 3/8 in (39 – 390 mm) when converted into a 35 mm still camera)
F = 2.8

Exposure control

Automatic exposure

White balance

Automatic, Indoor, Outdoor, One-push

Data compression system

Movie: MPEG1
Still:
JPEG, TIFF, GIF (in TEXT mode)
Audio (with still image):
MPEG AUDIO (Monaural)

Recording medium

8 cm CD-R

Flash

Recommended recording distance:
23 5/8 in to 8 1/3 feet (0.6 m to 2.5 m)

Drive

Read: Maximum ×8
Write: ×4

Readout

Noncontact optical readout (using semiconductor laser)

Laser

Wavelength: 777 to 787 nm
NA: 0.5
Maximum output: 23 mW
Emission duration: 600 ns

Input and Output connector

A/V OUT (MONO) jack (Monaural)

Minijack Video:
1 V_{p-p}, 75Ω, unbalanced, sync negative
Audio: 327 mV (at a 47 kΩ load)
Output impedance: 2.2 kΩ

DIGITAL I/O jack

4-pin connector

External flash jack

Minijack

LCD screen

LCD panel

TFT (Thin Film Transistor active matrix) drive

LCD size

2.5 type

Total number of dots

123 200 (560×220) dots

Viewfinder

LCD panel

TFT (Thin Film Transistor active matrix) drive

Total number of dots

180 000 (800×225) dots

— Continued on next page —

DIGITAL STILL CAMERA

SONY®

General

Application

Sony battery pack NP-F550

Power requirements

8.4 V

Power consumption (During shooting)

4.9 W (When using the LCD screen)

4.5 W (When using the viewfinder)

Operation temperature

32 °F to 104 °F (0 °C to 40 °C)

Storage temperature

-4 °F to +140 °F (-20 °C to +60 °C)

Maximum dimensions

5 1/2×5 1/4×8 3/8 in
(137×131×212 mm) (w/h/d)

Mass

Approx. 35 oz (990 g)
(including battery, disc and lens cap, etc.)

Built-in microphone

Electret condenser microphone

Built-in speaker

Dynamic speaker

AC-L10A/L10B/L10C

AC power adaptor

Power requirements

100 V to 240 V AC,
50/60 Hz

Rated output voltage

DC 8.4 V, 1.5 A in operating mode

Operation temperature

32 °F to 104 °F (0 °C to 40 °C)

Storage temperature

-4 °F to +140 °F (-20 °C to +60 °C)

Maximum dimensions

5×1 9/16×2 1/2 in
(125×39×62 mm) (w/h/d)

Mass

Approx. 10 oz (280 g)

NP-F550 battery pack

Used battery

Lithium ion battery

Maximum voltage

DC 8.4 V

Nominal voltage

DC 7.2 V

Capacity

10.8 Wh (1 500 mAh)

Accessories

AC-L10A/L10B/L10C

AC power adaptor (1)

Power cord (mains lead) (1)

NP-F550 battery pack (1)

A/V connecting cable (1)

USB cable (1)

8 cm CD adaptor (1)

Mavica disc (5)

Shoulder strap (1)

Lens cap (1)

Lens cap strap (1)

CD-ROM (3)

Operating instructions (3)

Design and specifications are subject to change without notice.

CAUTION

Use of controls or adjustments or performance procedures other than those specified herein may result in hazardous radiation exposure.

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

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.

TABLE OF CONTENTS

<p>SERVICE NOTE 6</p> <p>1. GENERAL</p> <p>Getting started</p> <p style="padding-left: 20px;">Identifying the parts 1-1</p> <p style="padding-left: 20px;">Preparing the power supply 1-1</p> <p style="padding-left: 20px;">Setting the date and time 1-2</p> <p style="padding-left: 20px;">Inserting a disc 1-3</p> <p>Basic operations</p> <p>▶ Recording</p> <p style="padding-left: 20px;">Initializing a disc (INITIALIZE) 1-3</p> <p style="padding-left: 20px;">Recording still images 1-4</p> <p style="padding-left: 20px;">Recording moving images 1-5</p> <p>▶ Playback</p> <p style="padding-left: 20px;">Playing back still images 1-5</p> <p style="padding-left: 20px;">Playing back moving images 1-6</p> <p style="padding-left: 20px;">Viewing images using a personal computer 1-6</p> <p style="padding-left: 20px;">Image file storage destinations and image file names 1-9</p> <p>Advanced operations</p> <p>Before performing advanced operations</p> <p style="padding-left: 20px;">How to use the PLAY/STILL/MOVIE selector 1-9</p> <p style="padding-left: 20px;">How to use the control button 1-9</p> <p style="padding-left: 20px;">How to change the menu settings 1-10</p> <p>▶ Various recording</p> <p style="padding-left: 20px;">Setting the image size (IMAGE SIZE) 1-11</p> <p style="padding-left: 20px;">Recording still images for e-mail (E-MAIL) 1-11</p> <p style="padding-left: 20px;">Adding audio files to still images (VOICE) 1-11</p> <p style="padding-left: 20px;">Recording text documents (TEXT) 1-11</p> <p style="padding-left: 20px;">Recording uncompressed images (TIFF) 1-11</p> <p style="padding-left: 20px;">Recording images in macro 1-12</p> <p style="padding-left: 20px;">Focusing manually 1-12</p> <p style="padding-left: 20px;">Using the PROGRAM AE function 1-12</p> <p style="padding-left: 20px;">Using the Spot light–metering function 1-12</p> <p style="padding-left: 20px;">Adjusting the exposure (EXPOSURE) 1-12</p> <p style="padding-left: 20px;">Adjusting the white balance (WHITE BALANCE) 1-12</p> <p style="padding-left: 20px;">Recording the date and time on the still image (DATE/TIME) · 1-13</p> <p style="padding-left: 20px;">Enjoying picture effects (PICTURE EFFECT) 1-13</p> <p>▶ Various playback</p> <p style="padding-left: 20px;">Playing back six images at once (INDEX) 1-13</p> <p style="padding-left: 20px;">Enlarging a part of the still image (Zoom and trimming) ··· 1-13</p> <p style="padding-left: 20px;">Rotating a still image (ROTATE) 1-14</p> <p style="padding-left: 20px;">Playing back the still images in order (SLIDE SHOW) ····· 1-14</p> <p style="padding-left: 20px;">Viewing images on a TV screen 1-14</p> <p>▶ Editing</p> <p style="padding-left: 20px;">Preventing accidental erasure (PROTECT) 1-14</p> <p style="padding-left: 20px;">Deleting images (DELETE) 1-14</p> <p style="padding-left: 20px;">Changing the recorded still image size (RESIZE) 1-15</p> <p style="padding-left: 20px;">Selecting still images to print (PRINT MARK) 1-15</p> <p>Additional information</p> <p style="padding-left: 20px;">Precautions 1-15</p> <p style="padding-left: 20px;">On discs 1-16</p> <p style="padding-left: 20px;">Using your camera abroad 1-16</p> <p style="padding-left: 20px;">Troubleshooting 1-16</p> <p style="padding-left: 20px;">Warning and notice messages 1-17</p> <p style="padding-left: 20px;">Self-diagnosis display 1-17</p> <p style="padding-left: 20px;">LCD screen/viewfinder indicators 1-18</p> <p>2. DISASSEMBLY</p> <p>2-1. LCD SECTION (PK-051 BOARD) 2-2</p> <p>2-2. CABINET (UPPER) SECTION 2-3</p> <p>2-3. FLASH UNIT 2-3</p> <p>2-4. EVF SECTION 2-4</p> <p>2-5. CABINET (F) SECTION, CABINET (CENTER) SECTION 2-5</p> <p>2-6. LENS BLOCK ASSEMBLY, CONTROL SWITCH BLOCK (FS52K), CONTROL SWITCH BLOCK (JK52K) 2-5</p>	<p>2-7. CONTROL SWITCH BLOCK (ZM52K) 2-6</p> <p>2-8. VP-051, SE-115 BOARDS 2-6</p> <p>2-9. SY-060, VC-246 BOARDS 2-7</p> <p>2-10. MECHANISM DECK (DDX-G2000 COMPLETE ASSEMBLY), CONTROL SWITCH BLOCK (AJ52K) ·· 2-8</p> <p>2-11. LID CABINET SECTION, CONTROL SWITCH BLOCK (MP52K) 2-9</p> <p>2-12. CD-272 BOARD, LENS ASSEMBLY, VAP ASSEMBLY ·· 2-9</p> <p>2-13. CIRCUIT BOARDS LOCATION 2-10</p> <p>2-14. FLEXIBLE BOARDS LOCATION 2-11</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Disassembling procedure of Mechanism deck (DDX-G2000 COMPLETE ASSEMBLY) are not shown. Pages 2-12 and 2-13 are not shown.</p> </div> <p>3. BLOCK DIAGRAMS</p> <p>3-1. OVERALL BLOCK DIAGRAM-1 3-1</p> <p style="padding-left: 20px;">OVERALL BLOCK DIAGRAM-2 3-3</p> <p>3-2. STEADY SHOT BLOCK DIAGRAM 3-5</p> <p>3-3. MODE CONTROL BLOCK DIAGRAM 3-7</p> <p>3-4. LCD BLOCK DIAGRAM 3-9</p> <p>3-5. EVF BLOCK DIAGRAM 3-11</p> <p>3-6. POWER BLOCK DIAGRAM-1 3-13</p> <p style="padding-left: 20px;">POWER BLOCK DIAGRAM-2 3-15</p> <p style="padding-left: 20px;">POWER BLOCK DIAGRAM-3 3-17</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Functional block diagrams are not shown. Pages from 3-19 to 3-28 are not shown.</p> </div> <p>4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS</p> <p>4-1. FRAME SCHEMATIC DIAGRAM (1/2) 4-1</p> <p style="padding-left: 20px;">FRAME SCHEMATIC DIAGRAM (2/2) 4-3</p> <p>4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS 4-5</p> <ul style="list-style-type: none"> • CD-272 (CCD IMAGER) PRINTED WIRING BOARD 4-7 • CD-272 (CCD IMAGER) SCHEMATIC DIAGRAM 4-9 • CONTROL SWITCH BLOCK (JK52K, FS52K) SCHEMATIC DIAGRAM 4-10 <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Schematic diagram and printed wiring board of the SY-062 and MD-082 boards are not shown. Pages from 4-11 to 4-36 are not shown.</p> </div> <ul style="list-style-type: none"> • MK-015 (EYE SENSOR) PRINTED WIRING BOARD 4-37 • MK-015 (EYE SENSOR) SCHEMATIC DIAGRAM 4-38 • VC-246 (LENS DRIVE, VIDEO AMP, BUS SWITCH, LINE/SPEAKER AMP, HI CONTROL, DC/DC CONVERTER-1,2) PRINTED WIRING BOARD 4-39 • VC-246 (LENS DRIVE)(1/8) SCHEMATIC DIAGRAM 4-43 • VC-246 (VIDEO AMP)(2/8) SCHEMATIC DIAGRAM 4-45 • VC-246 (CAMERA/MD INTERFACE)(3/8) SCHEMATIC DIAGRAM 4-47 • VC-246 (LINE/SPEAKER AMP)(4/8) SCHEMATIC DIAGRAM 4-49 • VC-246 (HI CONTROL)(5/8) SCHEMATIC DIAGRAM 4-51 • VC-246 (DC/DC CONVERTER-1)(6/8) SCHEMATIC DIAGRAM 4-53 • VC-246 (DC/DC CONVERTER-2)(7/8) SCHEMATIC DIAGRAM 4-55
--	--

• VC-246 (CONNECTOR)(8/8)	
SCHEMATIC DIAGRAM	4-57
• VP-051 (STEADY SHOT, LENS MOTOR DRIVE)	
PRINTED WIRING BOARD	4-59
• VP-051 (STEADY SHOT, LENS MOTOR DRIVE)	
SCHEMATIC DIAGRAM	4-61
• SE-115 (PITCH/YAW SENSOR)	
PRINTED WIRING BOARD	4-63
• SE-115 (PITCH/YAW SENSOR)	
SCHEMATIC DIAGRAM	4-65
• SW-342 (USER CONTROL)	
PRINTED WIRING BOARD	4-67
• SW-342 (USER CONTROL),	
CONTROL SWITCH BLOCK (LC52K)	
SCHEMATIC DIAGRAMS	4-69
• PK-051 (LCD DRIVE, BACK-LIGHT,	
TIMING GENERATOR)	
PRINTED WIRING BOARD	4-71
• PK-051 (LCD DRIVE, BACK-LIGHT)(1/2)	
SCHEMATIC DIAGRAM	4-75
• PK-051 (TIMING GENERATOR)(2/2)	
SCHEMATIC DIAGRAM	4-77
• LB-066 (BACK-LIGHT)	
PRINTED WIRING BOARD	4-79
• LB-066 (BACK-LIGHT)	
SCHEMATIC DIAGRAM	4-80
• VF-144 (LCD DRIVE, TIMING GENERATOR)	
PRINTED WIRING BOARD	4-81
• VF-144 (LCD DRIVE)(1/2)	
SCHEMATIC DIAGRAM	4-83
• VF-144 (TIMING GENERATOR)(2/2)	
SCHEMATIC DIAGRAM	4-85
• CONTROL SWITCH BLOCK	
(AE52K, ZM52K, AJ52K, MP52K)	
SCHEMATIC DIAGRAM	4-87
4-3. WAVEFORMS	4-89
4-4. MOUNTED PARTS LOCATION	4-94

5. ADJUSTMENTS

1. Before Starting Adjustment	5-1
1-1. Adjusting items when replacing main parts and boards ..	5-2
5-1. ADJUSTMENT	5-3
1-1. PREPARATIONS BEFORE ADJUSTMENT	5-3
1-1-1. List of Service Tools	5-3
1-1-2. Preparations	5-4
1-1-3. Discharging of the Flashlight Power Supply	5-5
1-1-4. Precaution	5-7
1. Setting the Switch	5-7
2. Order of Adjustments	5-7
3. Subjects	5-7
1-2. INITIALIZATION OF B, D, E, F, 7 PAGE DATA	5-8
1-2-1. INITIALIZATION OF D PAGE DATA	5-8
1. Initializing the D Page Data	5-8
2. Modification of D Page Data	5-8
3. D Page Table	5-8
1-2-2. Initializing the B, E, F, 7 Page Data	5-9
1. Initializing the B, E, F, 7 Page Data	5-9
2. Modification of B, E, F, 7 Page Data	5-9
3. F Page Table	5-10
4. 7 Page Table	5-11
5. E Page Table	5-12
6. B Page Table	5-12
1-3. VIDEO SYSTEM ADJUSTMENTS	5-13
1. Video Output Level Adjustment (VC-246 board)	5-13
1-4. CAMERA SYSTEM ADJUSTMENTS	5-14
1. Zoom Key Center Adjustment	5-14

2. HALL Adjustment	5-14
3. Flange Back Adjustment (Using Minipattern Box)	5-15
4. Flange Back Adjustment	
(Using Flange Back Adjustment Chart)	5-16
4-1. Flange Back Adjustment (1)	5-16
4-2. Flange Back Adjustment (2)	5-16
5. Flange Back Check	5-17
6. F No. Standard Data Input	5-17
7. Mechanical Shutter Adjustment	5-17
8. Picture Frame Setting	5-18
9. Light Level Adjustment and ND Shutter Check	5-19
10. Mixed Color Cancel Adjustment	5-19
11. Auto White Balance Standard Data Input	5-20
12. White Balance ND Filter Compensation	5-20
13. Auto White Balance Adjustment	5-21
14. Color Reproduction Adjustment (ND Filter OFF)	5-21
15. Color Reproduction Adjustment (ND Filter ON)	5-22
16. Color Reproduction Check	5-23
17. White Balance Check	5-24
18. Strobe White Balance Adjustment	5-25
19. Strobe Light Level and White Balance Check	5-25
20. CCD Black Defect Compensation	5-26
21. CCD White Defect Compensation	5-26
22. Steady shot adjustment	5-27
22-1. Steady Shot Adjustment (1)	5-27
22-2. Steady Shot Adjustment (2)	5-28
1-5. LCD SYSTEM ADJUSTMENT	5-29
1. LCD Initial Data Input	5-29
2. VCO Adjustment (PK-051 board)	5-30
3. D Range Adjustment (PK-051 board)	5-30
4. Bright Adjustment (PK-051 board)	5-31
5. Contrast Adjustment (PK-051 board)	5-31
6. Color Adjustment (PK-051 board)	5-32
7. V-COM Level Adjustment (PK-051 board)	5-32
8. V-COM Adjustment (PK-051 board)	5-33
9. White Balance Adjustment (PK-051 board)	5-33
1-6. COLOR ELECTRONIC VIEWFINDER SYSTEM	
ADJUSTMENT	5-34
1. Initial Data Input	5-34
2. VCO Adjustment (VF-144 board)	5-35
3. Bright Adjustment (VF-144 board)	5-35
4. Contrast Adjustment (VF-144 board)	5-36
5. Backlight Consumption Current Adjustment	
(VF-144 board)	5-36
6. White Balance Adjustment (VF-144 board)	5-37
7. Eye Sensor Adjustment (VF-144 board)	5-37
1-7. SYSTEM CONTROL SYSTEM ADJUSTMENT	5-38
1. Battery End Adjustment (VC-246 board)	5-38
2. Serial No. Input	5-39
5-2. SERVICE MODE	5-40
2-1. ADJUSTMENT REMOTE COMMANDER	5-40
1. Using the Adjustment Remote Commander	5-40
2. Precautions Upon Using the Adjustment Remote	
Commander	5-40
2-2. DATA PROCESS	5-41
2-3. SERVICE MODE	5-42
1. Setting the Test Mode	5-42
2. Bit Value Discrimination	5-42
3. Emergency Memory Address of Flash Unit	5-42
4. Record of Use check	5-43
5. Self Diagnosis Log check	5-43
6. Switch check (1)	5-44
7. Switch check (2)	5-44
8. LED check	5-44
9. Position sensor check (VP-051 board PH201)	5-45
10. VAP (Active prism actuator) lock check	5-45

6. REPAIR PARTS LIST

6-1. EXPLODED VIEWS 6-1
6-1-1.OVERALL SECTION 6-1
6-1-2.CABINET (UPPER) SECTION 6-2
6-1-3.EVF SECTION 6-3
6-1-4.CABINET (F) SECTION 6-4
6-1-5.LENS SECTION 6-5
6-1-6.CABINET (CENTER) SECTION 6-6
6-1-7.LID CABINET SECTION 6-7

Exploded view and parts list of DDX-G2000 COMPLETE ASSEMBLY are not shown. Page 6-8 is not shown.

6-2. ELECTRICAL PARTS LIST 6-9

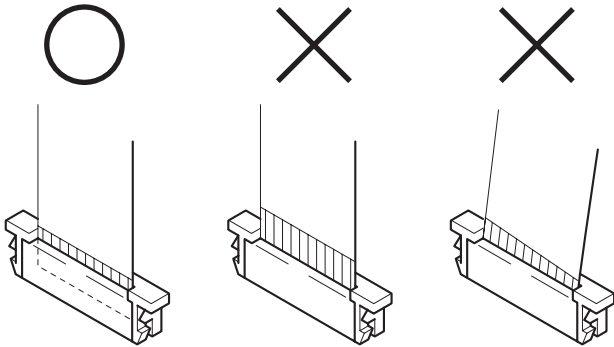
Electrical parts list of the SY-062 and MD-082 boards are not shown. Pages from 6-11 to 6-18 are not shown.

* Color reproduction frame is shown on page 199.

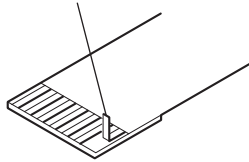
SERVICE NOTE

• NOTE FOR REPAIR

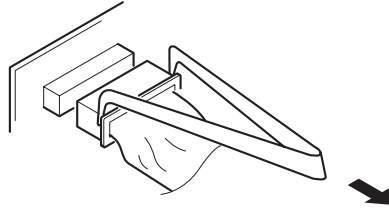
Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



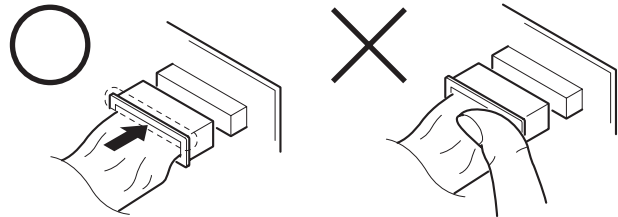
Cut and remove the part of gilt which comes off at the point.
(Take care that there are some pieces of gilt left inside)



When remove a connector, don't pull at wire of connector.
Be in danger of the snapping of a wire.



When installing a connector, don't press down at wire of connector.
Be in danger of the snapping of a wire.

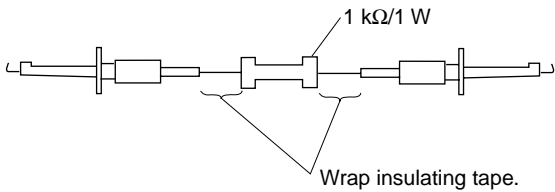


[Discharging of the FLASH unit's charging capacitor]

The charging capacitor of the FLASH unit is charged up to the maximum 300 V potential.
There is a danger of electric shock by this high voltage when the capacitor is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the MVC-CD1000 is simply turned off. Therefore, the remaining voltage must be discharged as described below.

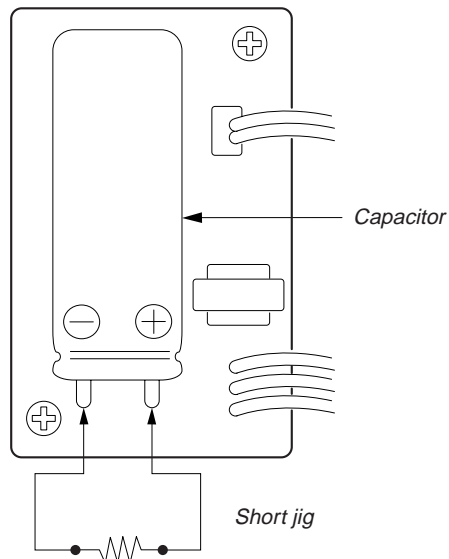
Preparing the Short Jig

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



Discharging the Capacitor

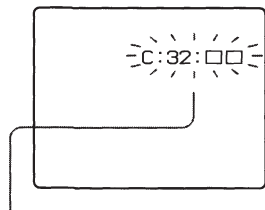
Short circuits between the positive and the negative terminals of charged capacitor with the short jig about 10 seconds.



[Description on Self-diagnosis Display]

Self-diagnosis display

The camera has a self-diagnosis display. This function displays the camera condition with five-digits (a combination of a letter and figures) on the LCD screen. If this occurs check the following code chart. The five-digit display informs you of the camera current condition. The last two digits (indicated by □□) will differ depending on the state of the camera.



Self-diagnosis display

- C: □□: □□
The contents which can be handled by customer, are displayed.
- E: □□: □□
The contents which can be handled by engineer, are displayed.

Display Code	Countermeasure	Cause	Caution Display During Error
C:32:01	Change the disk and turn off the main power then back on.	Defective base unit.	DRIVE ERROR
C:13:01	Replace the CD-R disk.	<ul style="list-style-type: none"> • The type of CD-R disk that cannot be used by this machine, is inserted. • Data is damaged. 	DISK ERROR
E:91:01	Checking of flash unit or replacement of flash unit	*2 Abnormality when flash is being charged.	Flash LED Flash display Flashing at 3.2 Hz
*1 E:61:00	Checking of lens drive circuit	When failed in the focus initialization.	—
*1 E:61:10			

Note: The error code is cleared if the battery is removed, except defective flash, unit.

*1 : The error display is given in two ways.

*2 : When the flash charging failed, Page:D, Address:67, Data:04 are written.

After repair, be sure to write Page:D, Address:67, Data:00.

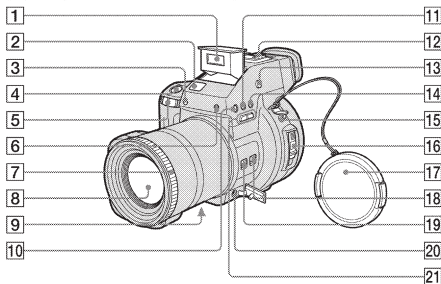
SECTION 1 GENERAL

This section is extracted from instruction manual.

Getting started

Identifying the parts

See the pages in parentheses for details of operation.

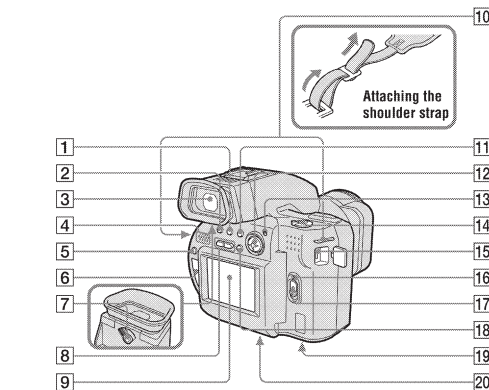
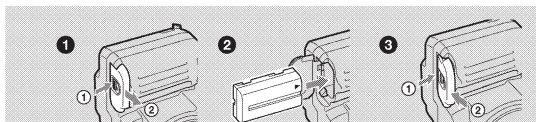


- | | |
|---|--|
| 1 Flash (22) | 12 Accessory shoe |
| 2 Built-in microphone
Do not touch while recording. | 13 OPEN (FLASH) button (22) |
| 3 Self-timer lamp/Recording lamp (22, 24) | 14 (One-push white balance) button (53) |
| 4 Shutter button (18, 24) | 15 (External flash) jack |
| 5 Zoom lever (20) | 16 Disc cover OPEN lever (15) |
| 6 Photocell window for flash
Do not block while recording. | 17 Lens cap (supplied) |
| 7 Focus ring (50) | 18 STEADY SHOT ON/OFF switch (21) |
| 8 Lens | 19 FOCUS AUTO/MANUAL switch (50) |
| 9 DIGITAL I/O jack (34) | 20 A/V OUT (MONO) jack (59)
Audio output is monaural. |
| 10 PROGRAM AE button (51) | 21 PROGRAM AE +/- buttons (51) |

Preparing the power supply

Installing the battery pack

Your camera operates only with the NP-F550 (supplied) "InfoLITHIUM" battery pack* (L series).



- | | |
|--|---|
| 1 (Macro) button (50) | 14 PLAY/STILL/MOVIE selector (40) |
| 2 (Flash) button (22) | 15 DC IN jack (9, 11) |
| 3 Viewfinder (19) | 16 POWER ON/OFF (CHG) lamp (9) |
| 4 Speaker | 17 POWER switch (12) |
| 5 DISPLAY button (21) | 18 LCD (ON/OFF) button (19) |
| 6 Disc window | 19 Battery cover/PUSH button (bottom surface) (8) |
| 7 Viewfinder adjustment lever (19) | 20 Tripod receptacle (bottom surface)
Use a tripod with a screw length of less than 7/32 inch (6.5 mm). You will be unable to firmly secure the camera to tripods having longer screws, and may damage the camera. |
| 8 VOLUME+/- buttons (27) | |
| 9 LCD screen | |
| 10 Hooks for strap | |
| 11 SPOT METER button (52) | |
| 12 Control button (40) | |
| 13 ACCESS lamp (18)
Do not shake or strike the camera while the ACCESS lamp is lit. | |



Auto power-off function

If you do not operate the camera for about three minutes during recording, the camera turns off automatically to prevent wearing down the battery pack. To use the camera again, slide the POWER switch downward to turn on the camera again.

Charging time

Battery pack	Full charge (min.)	Normal charge (min.)
NP-F550 (supplied)	Approx. 210	Approx. 150

Approximate time to charge a completely discharged battery pack using the AC-L10A/L10B/L10C AC power adaptor. (Lower temperatures require a longer charging time.)

Battery life and number of images that can be recorded/played back

STILL mode recording/playback

	Battery pack	Battery life (min.)	Number of images
Continuous recording*	NP-F550 (supplied)	Approx. 100 (90)	Approx. 1100 (1000)
Continuous playback**	NP-F550 (supplied)	Approx. 120 (110)	Approx. 1000 (900)

Approximate battery life and number of images that can be recorded/played back with a fully charged battery pack at a temperature of 77 °F (25 °C), 640×480 image size and in NORMAL recording mode. Numbers in parentheses indicate the time when you use a normally charged battery pack.

* Recording at about 5-second intervals

** Playing back single images continuously at about 7-second intervals

MOVIE mode recording

	Battery pack	Battery life (min.)
Continuous recording	NP-F550 (supplied)	Approx. 120 (110)

Approximate time that can be recorded with a fully charged battery pack at a temperature of 77 °F (25 °C) and 160×112 image size. Numbers in parentheses indicate the time when you use a normally charged battery pack.

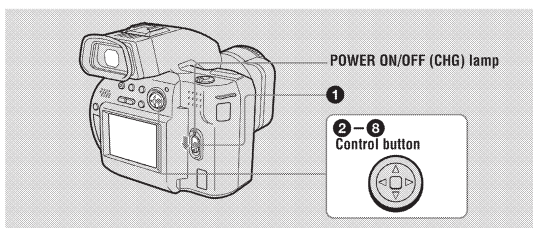
Notes

- The battery life and number of images will be decreased when using at low temperature, using the flash, turning the power on/off frequently, or using the zoom.
- The number of images shown on tables above is as a guide. The number may be smaller depending on conditions.
- If sufficient battery remaining time is indicated but the battery power runs out, fully charge the battery using the full charge procedure.

10

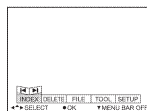
Setting the date and time

When you first use your camera, set the date and time. If these are not set, the CLOCK SET screen appears whenever you turn on your camera for recording.

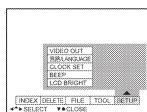


- Slide the POWER switch downward to turn on the power. The POWER ON/OFF (CHG) (green) lamp lights up.

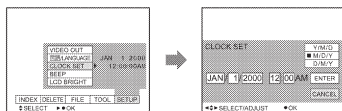
- Press **▲** on the control button. The menu bar appears on the LCD screen or on the viewfinder.



- Select [SETUP] with **▶** on the control button, then press the center **■**.



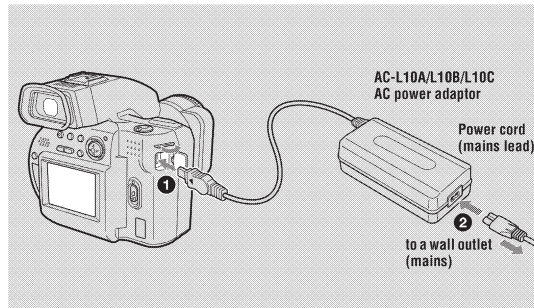
- Select [CLOCK SET] with **▲/▼** on the control button, then press the center **■**.



12

- Do not short the DC plug of the AC power adaptor with a metallic object, as this may cause malfunction.
- Do not expose the battery pack to water.

Using the AC power adaptor

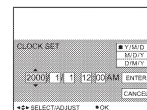


- Open the DC IN cover and connect the DC connecting plug to the DC IN jack of your camera with the **▲** mark facing up.
- Connect the power cord (mains lead) to the AC power adaptor and then to a wall outlet (mains).

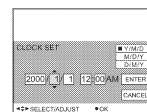
Using a car battery

Use Sony DC adaptor/charger.

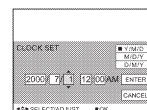
- Select the desired date display format with **▲/▼** on the control button, then press the center **■**.
Select from [Y/M/D] (year/month/day), [M/D/Y] (month/day/year), or [D/M/Y] (day/month/year).



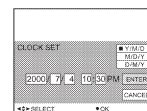
- Select the year, month, day, hour or minute item you want to set with **◀/▶** on the control button. The item to be set is indicated with **▲/▼**.



- Set the numeric value with **▲/▼** on the control button, then press the center **■** to enter it. After entering the number, **▲/▼** moves to the next item. If you selected [D/M/Y] in step 5, set the time on a 24-hour cycle.



- Select [ENTER] with **▶** on the control button, then press the center **■** at the desired moment to begin clock movement. The date and time are entered.



To cancel the date and time setting

Select [CANCEL] with **▲/▼/◀/▶** on the control button, then press the center **■**.

Getting started

Getting started

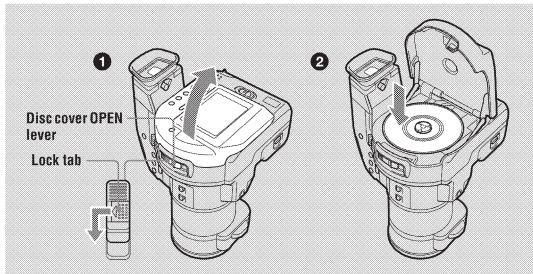
11

13

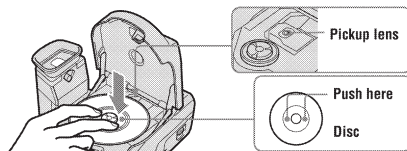
Inserting a disc



You can use only the 8 cm CD-Rs that have this mark.



- 1 While sliding the lock tab to the left, slide down the disc cover OPEN lever.**
Open the disc cover by your hand after the cover is unlocked.
- 2 Place a disc with the blue side down.**
Push down the center of the disc until it clicks. When installing, do not push with too much force and do not touch the pickup lens.



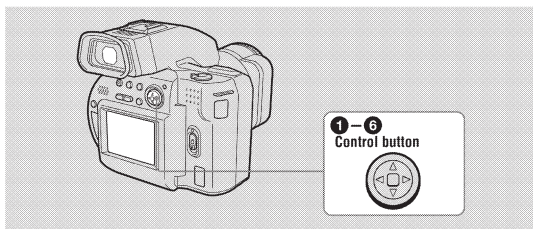
- 3 Close the disc cover.**

14

Basic operations ▶ Recording

Initializing a disc (INITIALIZE)

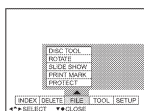
When you use a new disc, you have to initialize the disc. Slide the POWER switch downward to turn on the power before initializing a disc.



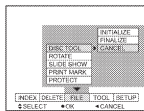
- 1 Press ▲ on the control button.**
The menu bar appears on the LCD screen or on the viewfinder.



- 2 Select [FILE] with ▶ on the control button, then press the center ■.**



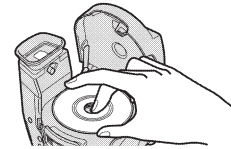
- 3 Select [DISC TOOL] with ▲ on the control button, then press the center ■.**



16

Removing the disc

While sliding the lock tab to the left, slide down the disc cover OPEN lever, and open the disc cover after the cover is unlocked. Then, remove the disc as illustrated below.



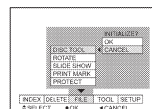
Notes

- Before removing the disc, be sure to check that the disc is not rotating.
- Do not open the disc cover while the ACCESS lamp is lit. Otherwise, the recorded image may be damaged or the disc may become unusable.

Getting started

15

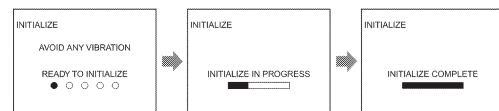
- 4 Select [INITIALIZE] with ▲ on the control button, then press the center ■.**



- 5 Select [OK] with ▲ on the control button, then press the center ■.**
"PLACE ON LEVEL SURFACE" appears on the LCD screen or on the viewfinder. Be sure to avoid any vibration during the initialization in step 6.



- 6 Select [OK] with ▲ on the control button, then press the center ■.**
Initialization starts.



To cancel the initialization

Select [CANCEL] with ▼ on the control button, then press the center ■.

What is initialization?

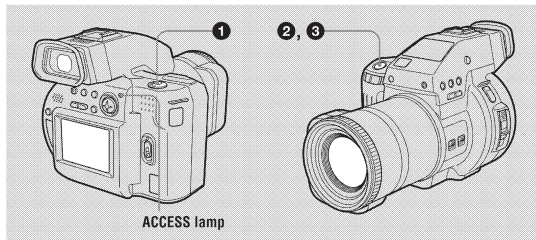
The initialization is required to record images on a disc. In case that you have executed the finalization (page 29) to view images on a CD-ROM drive, you can record images on the disc if you execute the initialization again. Images previously recorded will remain on the disc.

▶ Recording

17

Recording still images

To record still images, slide the POWER switch downward to turn on the power and insert a disc.



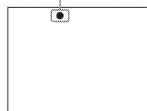
1 Set the PLAY/STILL/MOVIE selector to STILL.

2 Press and hold the shutter button halfway down and check the image.

While the AE lock indicator (green) is flashing, the image is frozen, however, the image is not yet recorded. When the camera finishes the automatic adjustments*, the AE lock indicator lights up and the camera is ready for recording.

To cancel the recording, release the shutter button.

AE lock indicator



3 Press the shutter button fully down.

The shutter clicks and the image is recorded on the disc. After "RECORDING" goes off, you can do another recording.

* The exposure and focus are automatically adjusted. The focus is not automatically adjusted when the camera is in manual focus mode.

For the number of images you can record on a disc

See page 47.

18

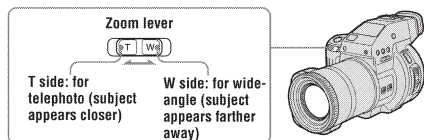
Adjusting the brightness of the LCD screen

Adjust the brightness with the [LCD BRIGHT] item in the menu settings (page 46). This adjustment does not affect the brightness of the images recorded on the disc.

Checking the last recorded image (Review)

Clear the menu bar (page 41), and press ◀ on the control button. To return to the normal recording mode, press lightly on the shutter button or select [RETURN] with ◀▶ on the control button and then press the center ■. To delete the image, select [DELETE] on the review screen with ◀▶ on the control button, then press the center ■. And select [OK] with ▲ on the control button, then press the center ■. However, even if you delete images, the disc remaining space does not increase.

Using the zoom feature



If you cannot get a sharp focus on a close subject

Slide the zoom lever to the W side and move closer to the subject until the focus is sharp.

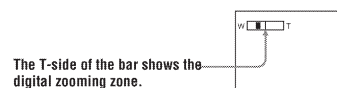
Minimum focal distance to the subject

W side: About 9 7/8 inches (25 cm) or more
T side: About 31 1/2 inches (80 cm) or more

To record even closer subjects, see page 50.

Digital zoom function

This camera has a digital zoom function. Digital zoom enlarges the image by digital processing, and it starts to function when the zoom exceeds 10x.



The T-side of the bar shows the digital zooming zone.

20

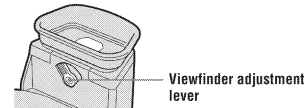
While the image is being recorded on a disc, the ACCESS lamp lights. When this lamp is lit, do not shake or strike the camera. Also, do not turn the power off, or not remove the battery pack/disc. Otherwise, an image data breakdown may occur or the disc may become unusable.

Notes

- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- When recording bright subjects, the color of the LCD screen or the viewfinder may change after the AE is locked, however, this will not affect the recorded image.
- After you change the disc, it may take about ten seconds to get ready for recording.

Recording images with the viewfinder

Adjust the viewfinder adjustment lever until the image appears clearly within the viewfinder, then record the image.

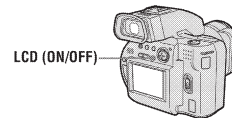


Note

The viewfinder display is automatically turned off when your face is not near the viewfinder.

To turn off the LCD screen

Press LCD (ON/OFF) to turn off the LCD screen. The battery life will be longer.



Notes

- You cannot turn off the LCD screen when the demonstration is being executed (page 46).
- When both the LCD screen and viewfinder displays are turned off, only the following will operate: LCD (ON/OFF) button, POWER switch, the PLAY/STILL/MOVIE selector, FOCUS AUTO/MANUAL switch, STEADY SHOT ON/OFF switch, focus ring, and shutter button.

▶ Recording

19

Using digital zoom

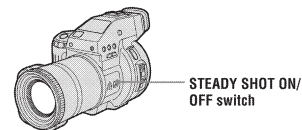
- The maximum zoom magnification is 20x.
- Digital zooming may deteriorate the picture quality. When digital zoom is not necessary, set [DIGITAL ZOOM] to [OFF] in the menu settings (page 45).


Note

Digital zoom does not work for moving images.

Activating the SteadyShot function

When the SteadyShot function is working, the camera compensates for camera-shake.



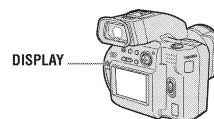
Set the STEADY SHOT ON/OFF switch to ON. The  (SteadyShot) indicator appears on the LCD screen or on the viewfinder.

Notes


- The SteadyShot function will not correct excessive camera-shake.
- If you use a wide conversion lens (optional), this lens may influence the SteadyShot function.

LCD screen or viewfinder indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 75 for a detailed description of the indicators.



Notes

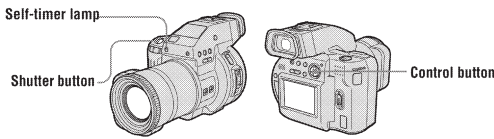
- You cannot turn off the  (self-timer) indicator and some of the indicators used in advanced operations.
- The indicators on the LCD screen or on the viewfinder are not recorded.

▶ Recording

21

Using the self-timer

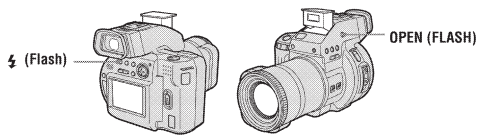
When you use the self-timer function, the subject is recorded 10 seconds after you press the shutter button.



Select on the LCD screen with on the control button, then press the center . The (self-timer) indicator appears on the LCD screen or on the viewfinder, and the subject is recorded 10 seconds after you press the shutter button. The self-timer lamp flashes after you press the shutter button until the image is recorded.

Recording images with the flash

Press OPEN (FLASH) to pop up the flash. The initial setting is AUTO (no indication). In this mode, the flash automatically strobes when the surroundings become dark. When you change the flash mode, press (Flash) repeatedly so that the flash mode indicator appears on the LCD screen or on the viewfinder. This setting can be set only when the flash is popped up.



Set the PLAY/STILL/MOVIE selector to STILL. Each time you press the button, the indicator changes as follows.

(No indication) → → → → (No indication)

Auto red-eye reduction : The flash preparatively strobes before recording to reduce the red-eye phenomenon.

Forced flash : The flash strobes regardless of the surrounding brightness.

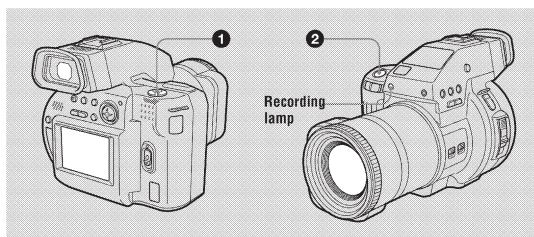
No flash : The flash does not strobe.

You can change the amount of the flash light with [FLASH LEVEL] in the menu settings (page 45).

Recording moving images

Moving images with audio are recorded in MPEG format.

To record moving images, slide the POWER switch downward to turn on the power and insert a disc.



1 Set the PLAY/STILL/MOVIE selector to MOVIE.

2 Press the shutter button fully down.

“REC” appears on the LCD screen or on the viewfinder, and the image and sound are recorded on the disc. The recording lamp lights up during recording.

If you press the shutter button momentarily

The image and sound are recorded for 5 seconds. The recording time can be set to 10 or 15 seconds with [REC TIME SET] in the menu settings (page 44).

If you hold the shutter button down

The image and sound are recorded while the shutter button is held down for up to 60 seconds. However, when [IMAGE SIZE] in the menu settings is set to [320 (HQ)] or [320×240], the maximum recording time is 15 seconds (page 47).

Adjusting the brightness of the LCD screen, zooming or using the self-timer

See page 20 to 22.

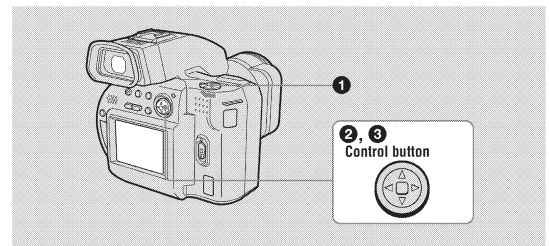
LCD screen or viewfinder indicators during recording

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. These indicators are not recorded. See page 75 for a detailed description of the indicators.

Notes

- The recommended shooting distance is 23 5/8 inches to 8 1/3 feet (0.6 to 2.5 m).
- Attaching a conversion lens (optional) may block the light from the flash and the recorded image may be eclipsed.
- You cannot use the built-in flash and an external strobe at the same time.
- The indicator appears when the flash is not popped up under situations that you should use the flash.
- Auto red-eye reduction may not produce the desired red-eye reduction effects depending on individual differences, the distance to the subject, if the subject does not see the pre-strobe, or other conditions. In addition, red-eye reduction effects are also difficult to obtain if you select a slow shutter speed in shutter priority mode of the PROGRAM AE function.
- The flash effect is not obtained easily when you use forced flash in a bright location.

Playing backs still images



1 Set the PLAY/STILL/MOVIE selector to PLAY.

The last recorded image (still or moving) appears on the LCD screen or on the viewfinder.

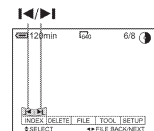
2 Press on the control button to display the menu bar on the LCD screen or on the viewfinder.

3 Select the desired still image with the control button.

Press / on the control button to select / on the LCD screen or on the viewfinder, then press .

: To display the preceding image.

: To display the next image.



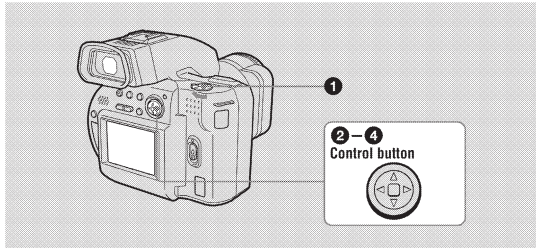
When the menu bar is not displayed

You can directly select and play back the image with / on the control button.

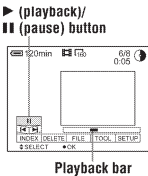
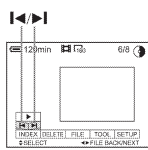
LCD screen or viewfinder indicators during still image playback

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 76 for a detailed description of the indicators.

Playing back moving images



- 1 **Set the PLAY/STILL/MOVIE selector to PLAY.**
The last recorded image (still or moving) appears on the LCD screen or on the viewfinder.
- 2 **Press ▲ on the control button to display the menu bar on the LCD screen or on the viewfinder.**
- 3 **Select the desired moving image with the control button.**
Moving images are displayed one size smaller than still images.
Press ▲▼◀▶ on the control button to select [◀▶] on the LCD screen or on the viewfinder, then press
◀▶: To display the preceding image.
▶▶: To display the next image.
- 4 **Select the ▶ (playback) button on the LCD screen or on the viewfinder with ▲ on the control button, then press the center ■.**
The moving image and sound are played back.
During playback, ▶ (playback) changes to || (pause).



26

Viewing images using a personal computer

You can view data with your camera on a personal computer and attach it to e-mail. This section describes the general method for viewing images on a personal computer. Be sure to also see the operation manuals for your personal computer and application software.

For Windows users

- A **Viewing images with a CD-ROM drive (page 33)**
Finalize the disc beforehand (page 29).

- B **Viewing images with a personal computer connected with the USB cable (page 33)**

You do not need to finalize the disc. You have to install the USB driver and the software, DirectCD included in the supplied CD-ROM. For details on DirectCD, refer to the software operating instructions of DirectCD.

- C **Viewing images using a CD-R/CD-RW drive (page 37)**

You do not need to finalize the disc. You have to install the software, DirectCD included in the supplied CD-ROM.

For Macintosh users

- A **Viewing images with a CD-ROM drive (page 37)**

Finalize the disc beforehand (page 29). You have to install the driver, Adaptec UDF Volume Access included in the supplied CD-ROM.

Notes on using your personal computer

Software

- Data recorded with your camera is stored in the following formats. Make sure that applications that support these file formats are installed on your personal computer.
 - Still image (except TEXT mode and uncompressed mode): JPEG format
 - Moving image/Voice memo: MPEG format
 - Uncompressed mode still image: TIFF format
 - Still image in TEXT mode: GIF format.
- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using the supplied retouch software from your personal computer to the camera, the image format will differ so the "FILE ERROR" message may appear and you may be unable to open the file.

28

To pause playback

Select || (pause) on the LCD screen or on the viewfinder with ▲▼◀▶ on the control button, then press the center ■.

When the menu bar is not displayed

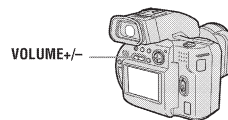
You can directly select the image with ◀▶ on the control button, and play back the image and sound by pressing the center ■. When you press the center ■ during playback, playback is paused.

Moving images recorded with the image of [320 (HQ)]

The images are displayed over the entire screen in steps 3 and 4.

Adjusting the volume of the built-in speaker

Press VOLUME+/- to adjust the volume.



LCD screen or viewfinder indicators during moving image playback

Press DISPLAY to turn on/off the indicators on the LCD screen or on the viewfinder. See page 76 for a detailed description of the indicators.

▶ Playback

▶ Playback

Communications with your personal computer

Communications between your camera and your personal computer may not recover after recovering from Suspend, or Sleep.

- Windows and Windows NT, ActiveMovie, DirectShow are either registered trademarks or trademarks of Microsoft Corporation in the United States and /or other countries.
- Macintosh and Mac OS, QuickTime are trademarks of Apple Computer, Inc.
- DirectCD is a trademark of Adaptec, Inc.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

Preparing for viewing images on CD-ROM drives (FINALIZE)

You can play back the disc recorded with this camera on CD-ROM drives. You have to execute the finalization before viewing images on a CD-ROM drive. A disc that has not been executed the finalization cannot be read with CD-ROM drives.

What is finalization?

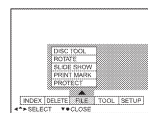
- The finalization is required to view images on a CD-ROM drive.
- You can record new images on the finalized disc if you execute the initialization on it again. You have to execute the finalization to view new images on a CD-ROM drive. Each time you execute the finalization, approximate 13.5 MB of the disc will decrease. We recommend that you execute the finalization onto compiled data at a time.
- You can execute the finalization onto the disc later, even if you remove it from the camera.

Executing the finalization

- 1 **Press ▲ on the control button.**
The menu bar appears on the LCD screen or on the viewfinder.

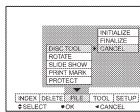


- 2 **Select [FILE] with ▶ on the control button, then press the center ■.**

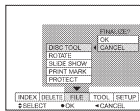


29

- 3 Select [DISC TOOL] with ▲ on the control button, then press the center ■.



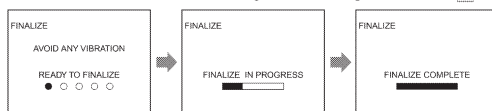
- 4 Select [FINALIZE] with ▲ on the control button, then press the center ■.



- 5 Select [OK] with ▲ on the control button, then press the center ■. "PLACE ON LEVEL SURFACE" appears on the LCD screen or on the viewfinder. Be sure to avoid any vibration during the finalization.



- 6 Select [OK] with ▲ on the control button, then press the center ■. Finalization starts and the disc remaining indicator changes from ③ to ④.



To cancel the finalization

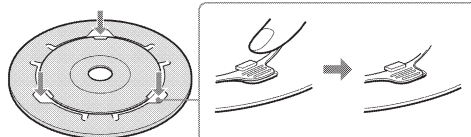
Select [CANCEL] with ▼ on the control button, then press the center ■. Once the finalization starts, you cannot cancel it.

Notes

- It takes for about one minute to execute the finalization. Do not shake or jar the camera during this operation. Place the camera on a stable surface during the finalization.
- When you execute the finalization, we recommend that you use an external power source (page 11).

30

- 3 Check that the disc is set correctly in the grooves of the adaptor, that all the tabs are even with the surface of the adaptor, and that the disc is not protrude from the adaptor.



If the tabs protrude, press them back down into place. Otherwise, it may cause malfunction of your disc drive.

Notes

- The supplied adaptor may not be used with your disc drive. For details, refer to the operating instructions of the disc drive.
- Use the adaptor at a low-speed (8-speed or lower).
- Do not place the adaptor under direct sunlight or near the heat.
- The adaptor is only used with Mavica discs. This cannot be used with other 8 cm CD-ROMs.

Viewing images on a Windows computer

Recommended Windows environment

OS: Microsoft Windows 98, Windows 98SE
Standard installation is required.
Operation is not assured in an environment upgraded from:
Windows 3.1, Windows 95 to Windows 98 or
Windows 98 to Windows 98SE
CPU: MMX Pentium 200 MHz or faster
The USB connector must be provided as standard.
ActiveMovie (DirectShow) must be installed (to play back moving pictures)

Notes

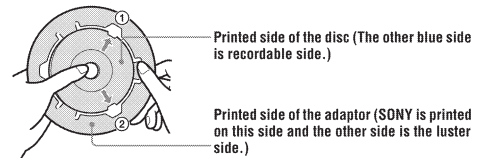
- Operations are not guaranteed if you connect two or more USB equipment to a single personal computer at the same time (except for the USB keyboard and mouse which are provided as standard), or when using a hub.
- Depending on the type of USB equipment that is used simultaneously, some equipment may not operate.
- Operations are not guaranteed for all the recommended computer environments mentioned above.

32

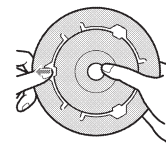
Using the supplied 8 cm CD adaptor

When your disc drive does not conform to 8 cm CD or is an upright type, use the supplied 8 cm CD adaptor.

- 1 Slide the disc into the inner groove and under two of the tabs on the inner circle of adaptor in the numbered order.



- 2 Pull the third tab out away from the disc and the disc will slip into place. Release the third tab and the disc will be held firmly in place.



▶ Playback

A Viewing images with a CD-ROM drive

Finalize the disc beforehand (page 29).

For Windows 98 users

- Start up your personal computer and insert the disc into the CD-ROM drive of your personal computer.
- Open [My Computer] and double click the drive recognizing the camera (Example: [CD-ROM (D:)]).
- Double-click the desired data file.

B Viewing images with a personal computer connected with the USB cable

Once you install DirectCD included in the supplied CD-ROM, you do not need to finalize the disc to view images on the disc. You can exchange data between the camera and a computer using the supplied USB cable and CD-ROMs.

Installing the USB driver

Before connecting your camera to your personal computer, install the USB driver to the computer. The USB driver is contained in the supplied CD-ROM (SPVD-001).

For Windows 98 users

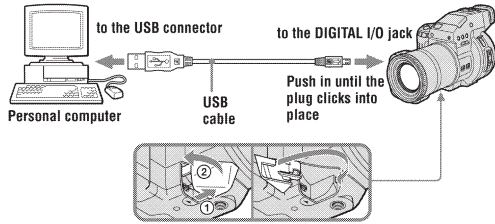
- Turn on your personal computer and allow Windows 98 to load.
- Insert the supplied CD-ROM (SPVD-001) in the CD-ROM drive of your personal computer
If the setup screen of DirectCD appears, click [Finish] on the screen.

▶ Playback

31

33

- 3** Connect the DIGITAL I/O jack on your camera with the USB connector on your personal computer using the supplied USB cable.



- 4** Insert a disc into your camera, connect the AC power adaptor and turn on your camera. "PC MODE" appears on the LCD screen or on the viewfinder of your camera and the camera is set to communication standby mode. Your personal computer recognizes the camera, and the Windows 98 Add Hardware Wizard starts.

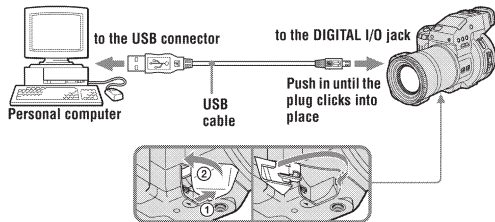
- 5** Follow the on-screen messages to specify the CD-ROM drive and install the USB driver.

- ① Check that the Add Hardware Wizard is displayed, then click [Next].



34

- 2** Connect the DIGITAL I/O jack on your camera with the USB connector on your personal computer using the supplied USB cable.



- 3** Insert a disc into your camera, connect the AC power adaptor to your camera and then to a wall outlet (mains), and turn on the power of your camera. "PC MODE" appears on the LCD screen or on the viewfinder of the camera.

- 4** Open [My Computer] on Windows 98 and double click the newly recognized drive. (Example: [Removable Disk (D:)]) The folders inside the disc are displayed.

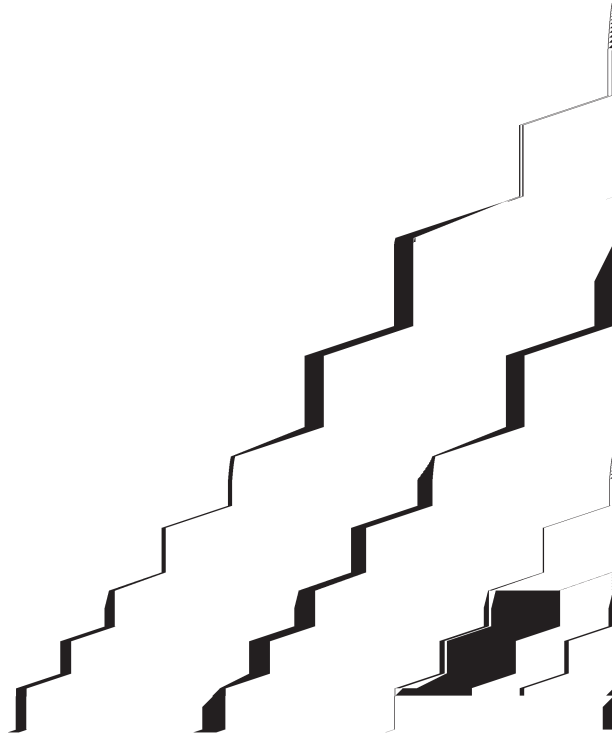
- 5** Select and double-click the desired image/sound file from the folder. For the detailed folder and file name, see "Image file storage destinations and image file names" (page 39).

Desired file type	Double-click in this folder
Still image	"Dcim" folder → "100msdcf" folder** → Image file
Moving image*	"Mssony" folder → "Moml0001" folder** → Image file
Audio*	"Mssony" folder → "Momlv100" folder** → Audio file
E-mail image Tiff image (uncompressed)	"Mssony" folder → "Imcif100" folder** → Image file

* Copying a file to the hard disk of your personal computer before viewing is recommended. If you play back the file directly from the "disc," the image and sound may break off.

** When these file names are described in capital letters to distinguish the small letter "l" and the number "1," these are shown as follows: 100MSDCF, MOML0001, MOMLV100, IMCIF100.

36



Copying a file in the disc to a personal computer

Select the desired file, and drag it to the desired drive or folder.

Copying a file in a personal computer to a disc

Once you install DirectCD included in the supplied CD-ROM, you can select the desired file, and drag it to the disc. To view a image with this camera, the file name format must be as follows, "DSC0□□□□.JPG". For details, see "Image file storage destinations and image file names" (page 39).

Viewing images using a CD-R/CD-RW drive

You do not need to finalize the disc. You have to install DirectCD included in the supplied CD-ROM. For details on DirectCD, refer to the software operating instructions of DirectCD.

Viewing images on a Macintosh computer

Recommended Macintosh environment

Macintosh computer with the Mac OS 8.5.1/8.6/9.0 standard installation. However, note that the update to Mac OS 9.0 should be used for the following models.

- iMac with the Mac OS 8.6 standard installation and a slot loading type CD-ROM drive
- iBook or G4 with the Mac OS 8.6 standard installation

QuickTime 3.2 or newer must be installed (to play back moving pictures).

Note

Operations are not guaranteed for all the recommended computer environments mentioned above.

Viewing images with a CD-ROM drive

Finalize the disc beforehand (page 29). You have to install the driver, Adaptec UDF Volume Access included in the supplied CD-ROM (SPVD-001).

For Macintosh users

- 1 Start up your personal computer and allow the Mac OS to load.
- 2 Insert the supplied CD-ROM (SPVD-001) in the CD-ROM drive of your personal computer.
- 3 Double-click the CD-ROM drive icon to open the window.
- 4 Double-click the icon of the hard disk containing the OS to open the window.

▶ Playback

37

- 5 Move the driver, "Adaptec UDF Volume Access" from the window opened in step 3 to "System Folder" folder in the window opened in step 4 (drag and drop).
- 6 When "Put these items into the Extensions folder?" appears, click "OK."
- 7 Restart your personal computer.

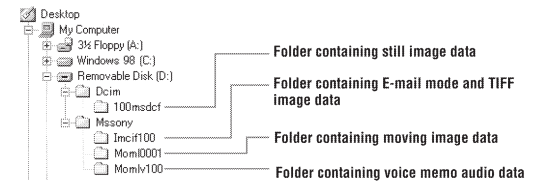
Viewing images

- 1 Start up your personal computer and insert the disc into the CD-ROM drive of your personal computer.
- 2 Double click the disc folder.
- 3 Double-click the desired data file.

Image file storage destinations and image file names

Image files recorded with your camera are grouped in folders by recording mode. Images in a disc have different file names. The meanings of the file names are as follows. □□□□ stands for any number within the range from 0001 to 9999.

For Windows 98 users (The drive recognizing the camera is [D:].)



Folder	File	Meaning
100msdcf	DSC0□□□□.JPG	• Still image file recorded normally • Still image file recorded in E-MAIL mode (page 48) • Still image file recorded in VOICE mode (page 48)
	TXT0□□□□.GIF	• Still image file recorded in TEXT mode (page 49)
Imcif100	DSC0□□□□.JPG	• Small-size image file recorded in E-MAIL mode (page 48)
	DSC0□□□□.TIF	• Uncompressed image file recorded in TIFF mode (page 49)
Moml0001	MOV0□□□□.MPG	• Moving image file
Momlv100	DSC0□□□□.MPG	• Audio file recorded in VOICE mode (page 48)

The numerical portion of the following files are the same.

- An image file recorded in E-MAIL mode and its corresponding small-size image file
- An uncompressed image file recorded in TIFF mode and its corresponding image file
- An image file recorded in VOICE mode and its corresponding audio file

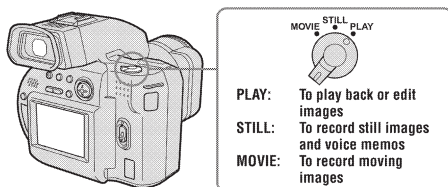
Advanced operations

Before performing advanced operations

This section describes the basic control methods that are frequently used for "Advanced operations."

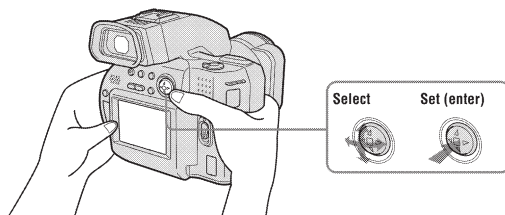
How to use the PLAY/STILL/MOVIE selector

The PLAY/STILL/MOVIE selector selects whether you can use your camera to record or to play back and edit images. Set the selector as follows before starting to operate your camera.

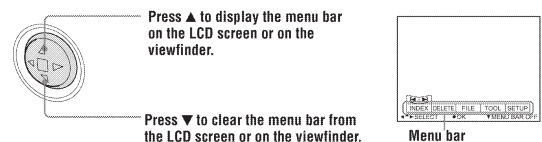


How to use the control button

The control button is used to select the buttons, images and menus displayed on the LCD screen or on the viewfinder of your camera and modify the settings. The operation methods that are frequently used for "Advanced operations" are described below.



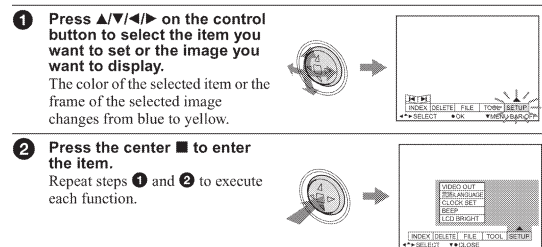
Turning on/off the operation buttons (menu bar) on the LCD screen or on the viewfinder



Note

You cannot clear the menu bar on the INDEX screen (page 56).

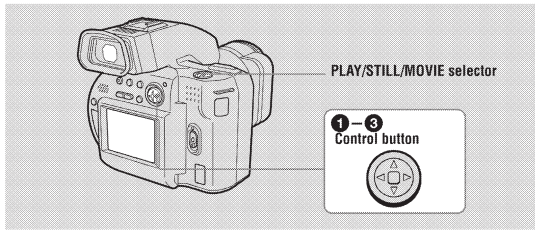
Selecting items or images on the LCD screen or on the viewfinder



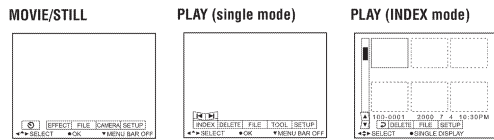
The "Advanced operations" section of this manual refers to selecting and entering items by the above procedure as "Select [item name]."

How to change the menu settings

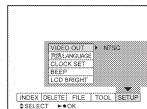
Some of the advanced operations for your camera are executed by selecting menu items displayed on the LCD screen or on the viewfinder with the control button.



- Press **▲** on the control button to display the menu bar. The menu bar appears as follows according to the position of the PLAY/STILL/MOVIE selector.



- Select the desired item with **▲/▼/◀/▶** on the control button, then press the center **■**. The color of the selected item changes from blue to yellow, and when you press the center **■**, the settings that can be set for that item are displayed.



- Select the desired setting with **▲/▼/◀/▶** on the control button, then press the center **■**.

To cancel the setup

Press **▼** on the control button repeatedly until the LCD screen or on the viewfinder returns to the menu bar display in step 1. To clear the menu bar, press **▼** again.

42

Item	Setting	Description	PLAY/STILL/MOVIE selector
POS. SENSOR	ON	Plays back images recorded with the camera on its side (vertical images) as vertical images. This function does not work for images recorded in TEXT mode.	STILL
	■ OFF	When you point the camera upward or downward for shooting, set this to OFF to prevent improper horizontal/vertical judgement.	
FILE NUMBER	SERIES	Assigns numbers to files in sequence even if the disc is changed.	MOVIE STILL
	■ NORMAL	Resets the file number that starts from 0001 each time the disc is changed.	
IMAGE SIZE	■ 1600×1200 1600 (3:2) 1024×768 640×480	Selects the image size when recording still images.	STILL
	320 (HQ) 320×240 ■ 160×112	Selects the MPEG image size or quality when recording moving images.	MOVIE
REC MODE	TIFF	Records a TIFF (uncompressed) file in addition to the JPEG format.	STILL
	TEXT	Records a GIF file in black-and-white.	
	VOICE	Records an audio file (with a still image) in addition to the JPEG file.	
	E-MAIL	Records a small-size (320×240) JPEG file in addition to the selected image size.	
	■ NORMAL	Records a JPEG file in the selected image size.	
REC TIME SET	15 sec 10 sec ■ 5 sec	Selects the recording time for moving images.	MOVIE
ROTATE (in single mode only)	—	Rotates the still image.	PLAY

44

Menu settings

Menu items that can be modified differ depending on the position of the PLAY/STILL/MOVIE selector. The LCD screen or viewfinder shows only the items you can operate at the moment. Initial settings are indicated with **■**.

⌚ (self-timer)

Records with the self-timer (page 22).

EFFECT

Item	Setting	Description	PLAY/STILL/MOVIE selector
P. EFFECT	SOLARIZE	Sets the image special effects (page 55).	MOVIE STILL
	B&W		
	SEPIA		
	NEG.ART ■ OFF		
DATE/TIME	DAY & TIME	Sets whether to insert the date and time into the image (page 54).	STILL
	DATE		
	■ OFF		

FILE

Item-1	Item-2	Setting	Description	PLAY/STILL/MOVIE selector
DISC TOOL	INITIALIZE	OK	Initializes a disc (page 14).	MOVIE STILL PLAY
		CANCEL	Cancels the initialization of a disc.	
	FINALIZE	OK	Allows you to view images recorded with this camera on a CD-ROM drive (page 29).	
		CANCEL	Cancels the finalization.	
	CANCEL	—	Goes back to the [DISC TOOL] item.	

Before performing advanced operations

43

Item	Setting	Description	PLAY/STILL/MOVIE selector
SLIDE SHOW (Only in PLAY (single) mode)	INTERVAL	Sets the slide show interval. ■ 5 sec/10 sec/30 sec/1 min	PLAY
	REPEAT	A slide show can be repeated for up to approx. 20 minutes. ■ ON/OFF	
	START	Starts the slide show.	
	CANCEL	Cancels the slide show settings or execution.	
PRINT MARK	ON	Marks the still images to be printed (page 62).	PLAY
	■ OFF	Removes the print mark of the still images.	
PROTECT	ON	Protects images against accidental erasure (page 60).	PLAY
	■ OFF	Releases protection of images.	

CAMERA

Item	Setting	Description	PLAY/STILL/MOVIE selector
DIGITAL ZOOM	■ ON	Uses digital zoom.	STILL
	OFF	Does not use digital zoom.	
SHARPNESS	+2 to -2	Adjusts the sharpness of the image. The [] indicator appears (except when the setting is 0).	STILL
FLASH LEVEL	HIGH	Makes the flash level higher than normal.	STILL
	■ NORMAL	Normal setting.	
	LOW	Makes the flash level lower than normal.	
EXPOSURE	+2.0EV to -2.0EV	Adjusts the exposure.	MOVIE STILL

TOOL (Only in PLAY (single) mode)

Item	Setting	Description	PLAY/STILL/MOVIE selector
RESIZE	1600×1200 1024×768 640×480 CANCEL	Changes the recorded image size (page 62).	PLAY

Before performing advanced operations

45

SETUP

Item	Setting	Description	PLAY/STILL/MOVIE selector
DEMO	■ STBY/ON OFF	Displayed only when you use the AC power adaptor in MOVIE or STILL mode. When [ON] is selected, a demonstration will start if you do not operate your camera for about 10 minutes. To stop the demonstration, turn off your camera. Select [ON] to make the demonstration appear again.	MOVIE STILL
VIDEO OUT	NTSC PAL	Sets the video output signal to NTSC mode (e.g., Japan, the USA). Sets the video output signal to PAL mode (e.g., Europe).	MOVIE STILL PLAY
言語 / LANGUAGE	■ ENGLISH 日本語 / JPN	Displays the menu items in English. Displays the menu items in Japanese.	MOVIE STILL PLAY
CLOCK SET	—	Sets the date and time (page 12).	MOVIE STILL PLAY
BEEP	SHUTTER ■ ON OFF	Turns off the beep only. (The shutter sound is heard when you press the shutter button.) Turns on the beep/shutter sound (when you press the control button/shutter button). Turns off the beep/shutter sound.	MOVIE STILL PLAY
LCD BRIGHT	■■■■■	Adjusts the LCD screen brightness using +/- on the LCD screen.	MOVIE STILL PLAY

INDEX (Only in PLAY (single) mode)

Displays six images at a time (PLAY (INDEX) mode) (page 56).

DELETE

Setting	Description	PLAY/STILL/MOVIE selector
OK	Deletes the displayed image.	PLAY
CANCEL	Cancels deleting of the image.	

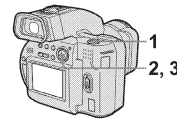
↶ (Return) (Only in PLAY (INDEX) mode)

Returns to PLAY (single) mode.

46

▶ Various recording

Setting the image size (IMAGE SIZE)



- 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.
- 2 Select [FILE] and then [IMAGE SIZE] from the menu.
- 3 Select the desired image size.

Still image sizes:
1600×1200, 1600 (3:2)*,
1024×768, 640×480

* The image is recorded in the ratio of three to two to fit the printing paper size.

Moving image sizes:
320 (HQ)*, 320×240, 160×112
* High Quality mode

The number of images or the time that you can record on a disc

Image size	Number of images or time*
1600×1200	Approx. 160
1600 (3:2)	Approx. 170
1024×768	Approx. 350
640×480	Approx. 1080
320 (HQ)	Approx. 370 (15)** sec
320×240	Approx. 1400 (15)** sec
160×112	Approx. 5100 (60)** sec

* When [REC MODE] is set to [NORMAL].

** Numbers in parentheses indicate the maximum time in a continuous recording.

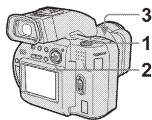
Notes

- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- The number of images recordable on a disc may decrease depending on conditions.

▶ Various recording

Recording still images for e-mail (E-MAIL)

The E-MAIL mode records a small-size (320×240) image at the same time as a still image. Small-size images are convenient for e-mail transmission, etc.



- 1 Set the PLAY/STILL/MOVIE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [E-MAIL] from the menu.
- 3 Record the image.

The number of images that you can record on a disc in E-MAIL mode

Image size	Number of images
1600×1200	Approx. 140
1600 (3:2)	Approx. 150
1024×768	Approx. 300
640×480	Approx. 730

To return to normal recording mode

Select [NORMAL] in step 2.

Adding audio files to still images (VOICE)



- 1 Set the PLAY/STILL/MOVIE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [VOICE] from the menu.
- 3 Record the image. If you press and release the shutter button, sound is recorded for five seconds. If you hold down the shutter button, sound is recorded until you release the shutter button for up to 40 seconds.

The number of images that you can record on a disc in VOICE mode

Image size	Number of images
1600×1200	Approx. 130
1600 (3:2)	Approx. 150
1024×768	Approx. 270
640×480	Approx. 620

To return to normal recording mode

Select [NORMAL] in step 2.

Recording text documents (TEXT)

Text is recorded in black and white GIF format to provide a clearer image.



- 1 Set the PLAY/STILL/MOVIE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [TEXT] from the menu.
- 3 Record the image.

The number of images that you can record on a disc in TEXT mode

Image size	Number of images
1600×1200	Approx. 1370
1600 (3:2)	Approx. 1450
1024×768	Approx. 1510
640×480	Approx. 1570

To return to normal recording mode

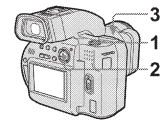
Select [NORMAL] in step 2.

Notes

- If the subject is not evenly illuminated, you may be unable to record a clear image.
- Writing and reading data take more time than normal recording.
- The image will be displayed in monochrome in TEXT mode.

Recording uncompressed images (TIFF)

This mode simultaneously records still images in both TIFF format (uncompressed) and JPEG format (compressed).



- 1 Set the PLAY/STILL/MOVIE selector to STILL.
- 2 Select [FILE], [REC MODE], and then [TIFF] from the menu.
- 3 Record the image.

The number of images that you can record on a disc in TIFF mode

Image size	Number of images
1600×1200	Approx. 20
1600 (3:2)	Approx. 22

To return to normal recording mode

Select [NORMAL] in step 2.

Notes

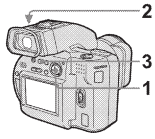
- JPEG images are recorded in the image size selected by the [IMAGE SIZE] menu. TIFF images are recorded in [1600×1200] size other than when [1600 (3:2)] is selected.
- Writing data takes more time than in normal recording. It will take for about 40 seconds.

▶ Various recording

48

49

Recording images in macro



- 1 Set the **PLAY/STILL/MOVIE selector** to **MOVIE** or **STILL**.
- 2 Set the **FOCUS AUTO/MANUAL switch** to **AUTO**.
- 3 Press **W** (macro).
The **W** (macro) indicator appears on the LCD screen or on the viewfinder.
With the zoom lever set to the **W** side, you can shoot a subject that is about 13/16 inch (2 cm) away from the lens surface in macro mode.

To return to normal recording mode

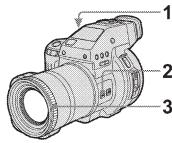
Press **W** again. The **W** indicator disappears.

Notes

- You cannot record images in macro with the following **PROGRAM AE** modes:
—Landscape mode
—Panfocus mode
- You cannot record images in macro if the **W** indicator appears.

Focusing manually

Normally the focus is automatically adjusted. The manual focus function is convenient to focus the subject such as under dark situations.



- 1 Set the **PLAY/STILL/MOVIE selector** to **MOVIE** or **STILL**.
- 2 Set the **FOCUS AUTO/MANUAL switch** to **MANUAL**.
The **M** (manual focus) indicator appears on the LCD screen or on the viewfinder.
- 3 Turn the focus ring to achieve a sharp focus.

When you shoot still images, the image on the LCD screen or on the viewfinder is enlarged (double*) and the focal point information appears while the focus is being adjusted. After adjusting, the image returns to normal size. The range is from 13/16 inch (2 cm) to ∞ (infinity).

* When using the digital zoom function, the enlarged image will be less than double size.

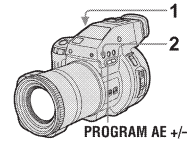
To reactivate auto focusing

Set the **FOCUS AUTO/MANUAL switch** to **AUTO**.

Notes

- Focal point information may not completely show the correct distance. Use the information as a guide.
- Focal point information does not show the correct distance when attaching the conversion lens.
- If you shoot a subject within 31 1/2 inches (0.8 m) while the zoom lever is set to **T** side, you cannot get a clear focus. In such cases, the focal point information flashes. Move the zoom lever to the **W** side until the indicator stops flashing.
- You cannot adjust the focus manually if you have selected the **Panfocus** mode in the **PROGRAM AE** function.

Using the PROGRAM AE function



- 1 Set the **PLAY/STILL/MOVIE selector** to **MOVIE** or **STILL**.
- 2 Press **PROGRAM AE +/-** repeatedly to select the desired **PROGRAM AE** mode.

Aperture priority mode

For making the subject stand out against an unclear background or providing a larger in-focus range. Press **PROGRAM AE +/-** repeatedly to select an aperture value in 9 steps from **F2.8** to **F11**.

Shutter speed priority mode

For recording a sharp picture of a fast-moving subject or recording the flow of motion of a moving subject. Press **PROGRAM AE +/-** repeatedly to select a shutter speed in 17 steps from **8"** to **1/500** when recording a still image, or in 11 steps from **1/8** to **1/500** when recording a moving image.

Twilight mode

Suppresses the blurring of colors of a bright subject in a dark place so that you can record the subject without losing the dark atmosphere of the surroundings.

Various recording

50

Twilight plus mode

Increases the effectiveness of the twilight mode function.

Landscape mode

Focuses only on a distant subject to record landscapes, etc.

Panfocus mode

Changes the focus quickly and simply from a close subject to a distant subject.

To cancel PROGRAM AE

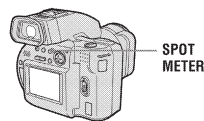
Press **PROGRAM AE** repeatedly until the indicator on the LCD screen or on the viewfinder goes out.

Notes

- You can focus only on distant subjects in Landscape mode.
- In Panfocus mode, the zoom position is set to the **W** side and focus is fixed.
- When you record in Twilight plus mode, we recommend that you use a tripod to prevent shaking.
- Set the forced flash **⚡** when you use the flash in the following modes:
—Twilight mode
—Twilight plus mode
—Landscape mode
- You cannot use the **PROGRAM AE** function when **[REC MODE]** is set to **[TEXT]**.
- If the setting is not appropriate in Aperture priority mode and Shutter speed priority mode, the setting value indicator on the LCD screen or on the viewfinder flashes when you press the shutter button. In this case, reset the value.
- If you select a slow shutter speed in Twilight plus mode or select Shutter speed priority mode, the image may not be clear.

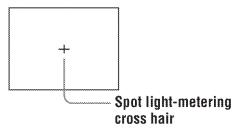
Using the Spot light-metering function

Select this mode when there is backlight or when there is strong contrast between the subject and the background, etc.

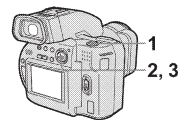


Press **SPOT METER** to activate the spot light-metering function. Position the point you want to record at the spot light-metering cross hair.

LCD screen/viewfinder



Adjusting the exposure (EXPOSURE)



- 1 Set the **PLAY/STILL/MOVIE selector** to **MOVIE** or **STILL**.
- 2 Select **[CAMERA]** and then **[EXPOSURE]** from the menu.
- 3 Select the desired exposure value.

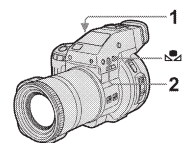
Adjust the exposure value while checking the brightness of the background. You can select values ranging from **+2.0 EV** to **-2.0 EV** in steps of 1/3 EV.

Note

If a subject is under extremely bright or dark situations, or the flash is used, the exposure adjustment may not be effective.

Adjusting the white balance (WHITE BALANCE)

Normally the white balance is automatically adjusted.



- 1 Set the **PLAY/STILL/MOVIE selector** to **MOVIE** or **STILL**.
- 2 Press **WHITE BALANCE** repeatedly to select the desired white balance setting.

IN DOOR (☀)

- Places where the lighting condition changes quickly
- Under bright lighting such as photography studios
- Under sodium or mercury lamps

OUT DOOR (🌅)

Recording a sunrise/sunset, night scene, neon signs, or fireworks

One-push white balance (🌞)

Adjusting the white balance depending on the light source

AUTO (No indicator)

Adjusts the white balance automatically



To shoot in one-push white balance mode

- 1 Press **WHITE BALANCE** repeatedly until the **🌞** indicator appears.

Various recording

52





53

- ② Shoot a white object such as paper full under the same situation you will shoot.
- ③ Press . The  indicator flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing.

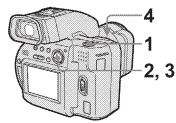
To reactivate auto adjustment

Select [AUTO] in step 2.

Notes

- Select [AUTO] when shooting with fluorescent lighting.
- The  indicator means:
 - Slow flashing: white balance is not set.
 - Quick flashing: white balance is being adjusted (after you pressed .
 - Lit steady: white balance has been set.
- If the  indicator keeps flashing even when you press , record in automatic white balance mode.

Recording the date and time on the still image (DATE/TIME)



- 1 Set the PLAY/STILL/MOVIE selector to STILL.
- 2 Select [EFFECT] and then [DATE/TIME] from the menu.
- 3 Select the date and time.
 - DAY & TIME**
Imposes the date, hour, and minute.
 - DATE**
Imposes the year, month, and day.
 - OFF**
Does not impose the date and time.
- 4 Record the image. The date and time do not appear on the LCD screen or on the viewfinder during shooting, these appear during playback only.



Enjoying picture effects (PICTURE EFFECT)



- 1 Set the PLAY/STILL/MOVIE selector to MOVIE or STILL.
- 2 Select [EFFECT] and then [P. EFFECT] from the menu. Select the desired mode.
 - SOLARIZE**
The light contrast is clearer and the picture looks like an illustration.
 - B&W**
The picture is monochrome (black and white).
 - SEPIA**
The picture is sepia-toned like an old photograph.
 - NEG.ART**
The color and brightness of the picture are reversed as in a negative.
 - OFF**
Does not use the picture effect function.

To cancel picture effect

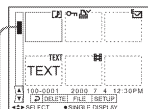
Select [OFF] in step 2.

► Various playback

Playing back six images at once (INDEX)








- 1 Set the PLAY/STILL/MOVIE selector to PLAY.
- 2 Select [INDEX] on the LCD screen or on the viewfinder. Six images are displayed at once (index screen).





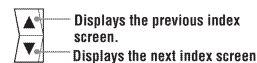
This shows the position of the currently displayed images relative to all the recorded images.

The following marks are displayed on each image according to the image type and settings.


-  : Moving image file
-  : Voice memo file
-  : E-mail file
-  : Print mark
-  : Protect mark
- TEXT: TEXT file
- TIFF: TIFF mark
- (No mark): Normal recording (no settings)

To display the next (previous) index screen

Select / at the lower-left on the LCD screen or on the viewfinder.



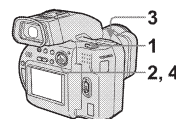
To return to normal playback (single image)





- Select the desired image with the control button.
- Select  (Return).

Note


Images shot in TEXT mode cannot be displayed on the INDEX screen.

Enlarging a part of the still image (Zoom and trimming)



- 1 Set the PLAY/STILL/MOVIE selector to PLAY.
- 2 Display the image to be enlarged.
- 3 Zoom in/out the image with the zoom lever. The zoom scaling indicator appears on the LCD screen or on the viewfinder.
- 4 Press the control button repeatedly to trim the image.
 - : The image moves downward
 - : The image moves upward
 - : The image moves rightward
 - : The image moves leftward

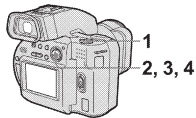
To return to the normal size

Zoom out with the zoom lever until the zoom scaling indicator ($\times 1.1$) disappears from the screen, or simply press the center .

To record an enlarged image (trimming)

- ① Enlarge the image.
- ② Press the shutter button. The image is recorded at 640×480 size and the image on the LCD screen or on the viewfinder returns to the normal size after recording.

Rotating a still image (ROTATE)



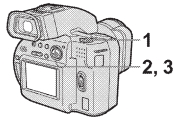
- 1 Set the PLAY/STILL/MOVIE selector to PLAY.
- 2 Display the image to rotate.
- 3 Select [FILE] and then [ROTATE] from the menu.
- 4 Rotate the image clockwise or counterclockwise, then select [RETURN].

Notes

- You may not be able to rotate protected images or images recorded with other equipment.
- Also, when viewing images on a personal computer, the image rotation information may not be reflected depending on the application software.
- You cannot rotate protected or uncompressed images, or images recorded in TEXT mode.
- If you rotate an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to rotate an image.

Playing back the still images in order (SLIDE SHOW)

This function is useful for checking the recorded images or for presentations, etc.



- 1 Set the PLAY/STILL/MOVIE selector to PLAY.
- 2 Select [FILE] and then [SLIDE SHOW] from the menu.

INTERVAL

You can select from 1 min (one minute), 30 sec (30 seconds), 10 sec (10 seconds), or 5 sec (5 seconds).

REPEAT

ON: Plays back images in a continuous loop (approximately 20 minutes) until [RETURN] is selected.
OFF: After all images have been played back, the slide show ends.

- 3 Select [START] with the control button. The slide show begins.

To cancel the slide show

Select [CANCEL] in step 2 or 3.

To skip to the next/previous image during the slide show

Select [4] or [1] at the lower-left on the screen.

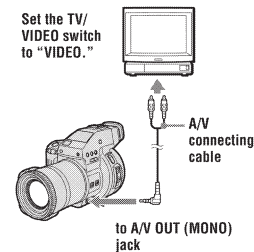
Notes

- The interval setting time may vary depending on the image size.
- When [REPEAT] is set to [ON], the slide show does not end until all the images played back, even if it takes more than 20 minutes.

Viewing images on a TV screen

You can view images recorded onto a disc on a TV.

Set the TV/VIDEO switch to "VIDEO."



- 1 Connect the A/V connecting cable to the A/V OUT (MONO) jack of your camera and to the audio/video input jacks of the TV.

If your TV has stereo type input jacks, connect the audio plug of the A/V connecting cable to the Lch jack.

- 2 Turn on the TV and start playback on your camera. The playback image appears on the TV screen.

Note

You cannot use a TV that has an antenna (aerial) connector only.

▼ Various playback

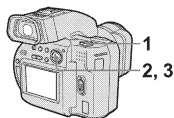
58

59

▶ Editing

Preventing accidental erasure (PROTECT)

The (protect) indicator appears on protected images.



In single mode

- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be protected.
- 2 Select [FILE], [PROTECT], and then [ON] from the menu. The displayed image is protected and the indicator appears.

To release protection

Select [OFF] in step 2.

In INDEX mode

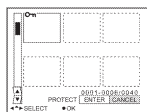
- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.
- 2 Select [FILE], [PROTECT], and then [ALL] or [SELECT] from the menu.

- 3 When you select [ALL]

Select [ON]. All the images in the disc are protected.

When you select [SELECT]

Select all the images to be protected with the control button, then select [ENTER]. The selected images are protected.



To release protection

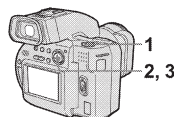
If you selected [ALL] in step 2, select [OFF]. If you selected [SELECT] in step 2, select the images to be unprotected with the control button, then select [ENTER].

Notes

- If you protect an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to protect an image.

Deleting images (DELETE)

Protected images cannot be deleted.



In single mode

- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the image to be deleted.
- 2 Select [DELETE] and then [OK] from the menu. The image is deleted.

In INDEX mode

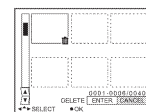
- 1 Set the PLAY/STILL/MOVIE selector to PLAY, then display the INDEX screen.
- 2 Select [DELETE] and then [ALL] or [SELECT] from the menu.

- 3 When you select [ALL]

Select [ENTER]. All the unprotected images are deleted.

When you select [SELECT]

Select all the images to be deleted with the control button, then select [ENTER]. The (delete) indicator appears on the selected images and these images are deleted.



To cancel deleting

Select [CANCEL] in step 2 or 3.

Notes

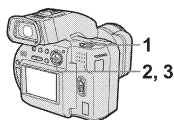
- You can delete images recorded on a disc, however, even if you delete images, the disc remaining space does not increase.
- If you delete an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to delete an image.
- If the lower four-digit file number of an image is the same as the number of the selected image, that image also will be deleted.

▼ Editing

60

61

Changing the recorded still image size (RESIZE)



- 1 Set the **PLAY/STILL/MOVIE** selector to **PLAY**, then display the image of which you want to change the size.
- 2 Select **[TOOL]** and then **[RESIZE]** from the menu.
- 3 Select the desired size. 1600×1200, 1024×768, 640×480. The resized image is recorded and the image on the LCD screen or on the viewfinder returns to the previous size after recording.

To cancel changing the size

Select **[CANCEL]** in step 3.

Notes

- When you change from a small size to a large size, the picture quality deteriorates.
- The original image is retained even after resizing.
- You cannot change the size of images recorded in **TEXT** mode, uncompressed image, or moving pictures.
- If you resize an image, the disc space will decrease.
- If the disc space is not sufficient, you may not be able to resize an image.
- The resized image is recorded as the newest file.

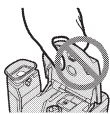
62

Additional information

Precautions

On handling the camera

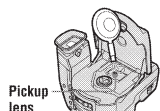
Do not carry the camera by holding the disc cover



Do not touch the rotating disc
This may cause serious injuries.

On pickup lens cleaning

When the pickup lens is dirty and the camera cannot read any image, clean the pickup lens using a commercially available blower.



On cleaning

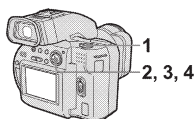
Cleaning the LCD screen or viewfinder

Wipe the screen surface with a cleaning cloth (not supplied) or an LCD cleaning kit (not supplied) to remove fingerprints, dust, etc.


64

Selecting still images to print (PRINT MARK)

You can mark a print mark on still images recorded with your camera. This mark is convenient when you have images printed at a shop that conforms with the DPOF (Digital Print Order Format) standard.



In single mode

- 1 Set the **PLAY/STILL/MOVIE** selector to **PLAY** and display the image you want to print.
- 2 Select **[FILE]**, **[PRINT MARK]**, and then **[ON]** from the menu. The  (print mark) is marked on the displayed image.

To remove the print mark

Select **[OFF]** in step 2.

In INDEX mode

- 1 Set the **PLAY/STILL/MOVIE** selector to **PLAY**, then display the **INDEX** screen.
- 2 Select **[FILE]**, **[PRINT MARK]**, and then **[SELECT]** from the menu.
- 3 Select the images to be marked with the control button.

Cleaning the camera surface

Clean the camera surface with a soft cloth slightly moistened with water, then wipe the surface dry. Do not use any type of solvent such as thinner, alcohol or benzene as this may damage the finish or the casing.

After using your camera at the seashore or other dusty locations
Clean your camera carefully. Otherwise, the salty air may corrode the metal fittings or dust may enter the inside of your camera, causing a malfunction.

On operating temperature

Your camera is designed for use between the temperatures of 32 °F to 104 °F (0 °C to 40 °C). Recording in extremely cold or hot places that exceed this range is not recommended.


On moisture condensation

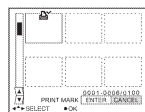
If the camera is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense inside or outside the camera. Should this occur, "DISC ERROR" appears and the camera will not operate properly.

Moisture condensation occurs easily when:

- The camera is brought from a cold location such as a ski slope into a warmly heated room.
- The camera is taken from an air-conditioned room or car interior to the hot outdoors, etc.

4 Select [ENTER].


The  marks on the selected images change from green to white.



To remove selected print marks

Select the images to be removed in step 3 with the control button, then select **[ENTER]**.

To remove all the print marks

Select **[FILE]**, **[PRINT MARK]**, **[ALL]**, and then **[OFF]** from the menu. The  marks on all images are removed.

Notes

- You cannot mark a print mark on moving images or **TEXT** mode images.
- If you mark an image recorded in **TIFF** mode with a print mark, only the uncompressed image is printed, and the **JPEG** image recorded at the same time is not printed.
- If you mark an image with a print mark, the disc space will decrease.
- If the disc space is not sufficient, you may not mark an image with a print mark.

How to prevent moisture condensation

When bringing the camera from a cold place to a warm place, seal the camera in a plastic bag and allow it to adapt to conditions at the new location over a period of time (about an hour).

If moisture condensation occurs

Turn off the camera and wait about an hour for the moisture to evaporate. Note that if you attempt to record with moisture remaining inside the camera lens, you will be unable to record clear images.

On pickup lens

Do not touch the pickup lens inside the disc cover. And do not open the disc cover except when inserting or removing a disc to keep dust out.

On AC power adaptor

- Unplug the unit from the wall outlet (mains) when you are not using the unit for a long time. To disconnect the power cord (mains lead), pull it out by the plug. Never pull the power cord (mains lead) itself.
- Do not operate the unit with a damaged cord (mains lead) or if the unit has been dropped or damaged.
- Do not bend the power cord (mains lead) forcibly, or place a heavy object on it. This will damage the cord (mains lead) and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.

- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
 - Extremely hot or cold
 - Dusty or dirty
 - Very humid
 - Vibrating

On battery pack

- Use only the specified charger with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 140 °F (60 °C), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the camera securely.
- Charging while some capacity remains does not affect the original battery capacity.

63

65

On vanadium-lithium battery

Your camera is supplied with a vanadium-lithium battery installed so as to retain the date and time, etc., regardless of the setting of the POWER switch. The vanadium-lithium battery is always charged as long as you are using your camera. The battery, however, will get discharged gradually if you do not use your camera. It will be completely discharged in about six months if you do not use your camera at all. Even if the vanadium-lithium battery is not charged, it will not affect the camera operation. To retain the date and time, etc., charge the battery if the battery is discharged.

Charging the vanadium-lithium battery:

- Connect your camera to house current (mains) using the AC power adaptor supplied with your camera, and leave your camera with the power turned off for more than 24 hours.
- Or install the fully charged battery pack in your camera, and leave your camera with the power turned off for more than 24 hours.

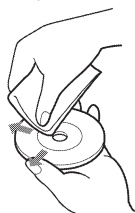
If any problem occurs, unplug your camera and contact your nearest Sony dealer.

On discs

Be sure to use only 8 cm CD-Rs. You cannot read or write data on other type discs that does not correspond to this camera.

On cleaning

- Do not clean a disc using a cleaner before recording. Use a commercially available blower to remove dust.
- If fingerprints, dust, drop of water, or oil makes the blue side of a disc dirty, the camera may not properly record an image on the disc. You should handle a disc with a lot of care.
- If a disc does become dirty, wipe it in a straight line from center to edge with a soft dry cloth or a soft cloth lightly moistened with a mild detergent solution. You can use a commercially available CD cleaner.



- Do not use any solvent (benzene, thinner, static protection product, record cleaner, etc.) to clean a disc.

Notes

- Do not remove the disc while reading or writing data.
- Data may be damaged if:
 - You remove the disc or turn off the power while reading or writing data.
 - You use the camera in a location subject to the effects of static electricity or noise.
- Do not attach any material on the surface of a disc. This causes a nonuniform rotating speed and this may cause a malfunction of the camera.
- You can write only on the label surface of a disc. When you write, use only a felt-tip marker and do not touch it until it is in dry state, and do not heat it. Do not use a sharp-pointed tool, such as a ballpoint pen.
- Hold a disc at the edges while pressing the center hole lightly. Do not touch the blue side of a disc.



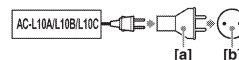
- When you carry or store a disc, put it in its case.
- Do not strike, bend or drop a disc.
- Do not rub the edge of a disc.
- If you play back the disc on which any image has not been recorded using a CD-ROM drive, the CD-ROM drive may malfunction or the disc may be scratched.

Using your camera abroad

Power sources

You can use your camera in any country or area with the supplied battery charger within 100 V to 240 V AC, 50/60 Hz. Use a commercially available AC plug adaptor [a], if

necessary, depending on the design of the wall outlet (mains) [b].



Watching the playback picture on TV

If you want to view the playback picture on a TV, you need a TV having a video input jack and a video connecting cable. The color system of the TV must be the same as that of your digital still camera. TV color systems differ from country to country. Check the following list:

NTSC system countries

Bahama Islands, Bolivia, Canada, Central America, Chile, Columbia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system countries

Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country

Brazil

PAL-N system countries

Argentina, Paraguay, Uruguay

SECAM system countries

Bulgaria, Czech Republic, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Additional information

Troubleshooting

If you experience trouble with your camera, first check the following items. Should your camera still not operate properly after you have made these checks, consult your Sony dealer or local authorized Sony service facility. If code displays (C:□□:□□) appear on the LCD screen or on the viewfinder, the self-diagnosis display function is working (page 73).

Symptom	Cause and/or Solution
Your camera does not work.	<ul style="list-style-type: none"> • You are not using an "InfoLITHIUM" battery pack. <ul style="list-style-type: none"> → Use an "InfoLITHIUM" battery pack (page 8). • The disc is not inserted properly. <ul style="list-style-type: none"> → Remove the disc, and insert it again (page 14). • The battery level is too low. (The indicator appears.) <ul style="list-style-type: none"> → Charge the battery pack (page 9). • The AC power adaptor is not connected securely. <ul style="list-style-type: none"> → Connect it securely to the DC IN jack and a wall outlet (mains) (page 9, 11). • The malfunction occurs inside the camera. <ul style="list-style-type: none"> → Turn off the power, and turn on after one minute, then check that the camera works properly.
Your camera cannot record images.	<ul style="list-style-type: none"> • The PLAY/STILL/MOVIE selector is set to PLAY. <ul style="list-style-type: none"> → Set it to MOVIE or STILL (page 18, 24). • No disc has been inserted into your camera. <ul style="list-style-type: none"> → Insert a disc (page 14). • The disc has not been initialized. <ul style="list-style-type: none"> → Initialize the disc (page 14).
The picture is noisy.	<ul style="list-style-type: none"> • Your camera is placed near a TV or other equipment that uses strong magnets. <ul style="list-style-type: none"> → Move your camera away from the TV, etc.
The picture is too dark.	<ul style="list-style-type: none"> • You are shooting a subject with a light source behind the subject. <ul style="list-style-type: none"> → Adjust the exposure (page 53). • The brightness of the LCD screen is too low. <ul style="list-style-type: none"> → Adjust the brightness of the LCD screen (page 20).

Symptom	Cause and/or Solution
The flash does not work.	<ul style="list-style-type: none"> • The flash is set to . <ul style="list-style-type: none"> → Set the flash to (no indication), or (page 22). • The camera is in one of the following PROGRAM AE modes: Twilight, Twilight plus, or Landscape. <ul style="list-style-type: none"> → Cancel the PROGRAM AE function or set the flash to (page 22, 51). • The PLAY/STILL/MOVIE selector is set to MOVIE. <ul style="list-style-type: none"> → Set it to STILL. • The flash is not popped up. <ul style="list-style-type: none"> → Pop up the flash (page 22).
The date and time are recorded incorrectly.	<ul style="list-style-type: none"> • The date and time are not set correctly. <ul style="list-style-type: none"> → Set the correct date and time (page 12).
Vertical streaks appear when you are shooting a very bright subject.	<ul style="list-style-type: none"> • This is called the smear phenomenon. <ul style="list-style-type: none"> → This is not a malfunction.
The battery life is short.	<ul style="list-style-type: none"> • You are recording/playing back images under extremely cold temperatures. • The battery pack is not charged enough. <ul style="list-style-type: none"> → Charge the battery pack fully. • The battery pack is dead. <ul style="list-style-type: none"> → Replace the battery pack with a new one.
The indication of the battery remaining time is not proper.	<ul style="list-style-type: none"> • You are using the camera for many hours under extremely hot or cold temperatures. • The battery pack is dead. <ul style="list-style-type: none"> → Replace the battery pack with a new one (page 8). • The battery level is too low. <ul style="list-style-type: none"> → Install the charged battery pack (page 8, 9).
The power is immediately turned off even if the battery remaining indicator indicates that the battery level is sufficient.	<ul style="list-style-type: none"> • — <ul style="list-style-type: none"> → Charge the battery pack about one hour after the normal charge is complete (page 9).
The zoom does not work.	<ul style="list-style-type: none"> • PROGRAM AE is set to the Panfocuss mode. <ul style="list-style-type: none"> → Cancel the Panfocuss mode (page 51).
Digital zoom does not function.	<ul style="list-style-type: none"> • You cannot use digital zoom to record moving pictures.


Additional information

Symptom	Cause and/or Solution
The image is in monochrome.	<ul style="list-style-type: none"> You shot the image in TEXT mode. <ul style="list-style-type: none"> → Cancel the TEXT mode (page 49). The picture effect is set to the B&W mode. <ul style="list-style-type: none"> → Cancel the B&W mode (page 55).
The image cannot be played back on the CD-ROM drive of your personal computer.	<ul style="list-style-type: none"> The disc has not been finalized. <ul style="list-style-type: none"> → Finalize the disc (page 14). An error occurs during recording by vibration. <ul style="list-style-type: none"> → Possibly, you may be able to play back images if you connect the camera to your personal computer with the USB cable. The CD-ROM drive does not correspond to the packet-write system. <ul style="list-style-type: none"> → Consult the personal computer or the CD-ROM drive manufacturer. — <ul style="list-style-type: none"> → Consult the personal computer or software manufacturer.
Your camera cannot delete an image.	<ul style="list-style-type: none"> The disc has not been initialized. <ul style="list-style-type: none"> → Initialize the disc (page 14). The disc remaining capacity is not sufficient. <ul style="list-style-type: none"> → This is not a malfunction. The image is protected. <ul style="list-style-type: none"> → Cancel the protection (page 60).
The power turns off suddenly.	<ul style="list-style-type: none"> With the PLAY/STILL/MOVIE selector set to STILL or MOVIE, if you do not operate the camera for about three minutes while the power is on, the camera turns off automatically to prevent wearing down the battery pack. <ul style="list-style-type: none"> → Turn on the camera. The battery pack is discharged. <ul style="list-style-type: none"> → Replace it with a charged battery pack.
The image does not appear on the TV screen.	<ul style="list-style-type: none"> The VIDEO OUT setting of your camera is incorrect. <ul style="list-style-type: none"> → Change the setting (page 46).
The slide show function stops automatically.	<ul style="list-style-type: none"> The slide show function stops after about 20 minutes. <ul style="list-style-type: none"> → To continue the slide show, select [START] again (page 58).
You cannot use the PROGRAM AE function.	<ul style="list-style-type: none"> The camera is set to TEXT mode. <ul style="list-style-type: none"> → Cancel the TEXT mode (page 49).


70

Warning and notice messages

Various messages appear on the LCD screen or on the viewfinder. Check the corresponding descriptions in the following list.


Message	Meaning
COVER OPEN	The disc cover is opened.
NO DISC	No disc has been inserted.
DRIVE ERROR	There is trouble with the disc drive or disc.
DISC ERROR	<ul style="list-style-type: none"> An unusable disc is inserted. There is trouble with the disc. A moisture condensation has occurred inside the camera.
DISC PROTECT	The disc was protected with a computer.
DIRECTORY ERROR	The same directory exists.
NOT ENOUGH DISC SPACE	The remaining capacity of the disc is not enough to operate other than executing the finalization.
NOT INITIALIZED	Since the disc has not been initialized, the camera cannot record any image on the disc.
ALREADY INITIALIZED	It is not necessary to execute the initialization, the disc was initialized.
ALREADY FINALIZED	It is not necessary to execute the finalization, the disc was finalized.
NO FILE	No image has been recorded on the disc.
FILE ERROR	Trouble has occurred during playback.
IMAGE SIZE OVER	You tried to play back images with an image size larger than the maximum playback size of this camera.
INVALID OPERATION	You try to play back the image recorded with other equipment.
FILE PROTECT	The image is protected.
for "InfoLITHIUM" battery only	The battery is not the "InfoLITHIUM" type.
NOT ENOUGH BATTERY	The battery level is too low to execute the initialization or finalization.
	The battery level is too low.

72

Symptom	Cause and/or Solution
The  button does not work.	<ul style="list-style-type: none"> The camera is in manual focus mode. <ul style="list-style-type: none"> → Set it to auto focus mode (page 50). PROGRAM AE is set to the Panfocus mode. <ul style="list-style-type: none"> → Cancel the Panfocus mode (page 51).
You cannot resize the image.	<ul style="list-style-type: none"> This function does not work on a moving image nor on a TEXT image.
You cannot mark an image with the print mark.	<ul style="list-style-type: none"> The print mark cannot be marked on a moving image nor on a TEXT image.
Your personal computer does not recognize your camera.	<ul style="list-style-type: none"> The camera is turned off. <ul style="list-style-type: none"> → Turn on the camera. The battery level is low. <ul style="list-style-type: none"> → Use the AC power adaptor (page 11). The USB cable is not connected firmly. <ul style="list-style-type: none"> → Disconnect the USB cable, and connect it again firmly. Make sure that "PC MODE" is displayed on the LCD screen or on the viewfinder (page 34). The USB connectors on your personal computer are connected to other equipment besides the keyboard, the mouse, and your camera. <ul style="list-style-type: none"> → Disconnect the USB cables except for the ones connected to the keyboard, the mouse, and your camera (page 34).
The shutter cannot be released when using an external flash (not supplied).	<ul style="list-style-type: none"> The battery of the external flash is dead. <ul style="list-style-type: none"> → Replace the battery with a new one or remove the external flash from the camera.









71

Self-diagnosis display

Your camera has a self-diagnosis display. This function displays the camera condition on the LCD screen or on the viewfinder with a combination of a letter and four digits of numbers. If this appears, check the following code chart. The code informs you of the camera's current condition. The last two digits (indicated by ) will differ depending on the state of the camera.



Self-diagnosis display

- C:    
 - You can repair the camera yourself.
- E:    
 - Contact your Sony dealer or local authorized Sony service facility.

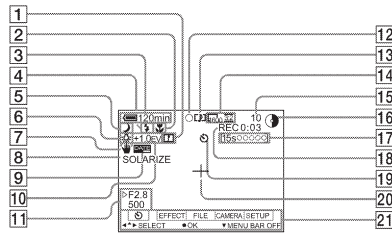
Code	Cause and/or Corrective Action
C:32:□□	<ul style="list-style-type: none"> There is trouble with the disc drive. <ul style="list-style-type: none"> → Turn the power off and on again.
C:13:□□	<ul style="list-style-type: none"> A disc not compatible with this camera is inserted. <ul style="list-style-type: none"> → Change the disc (page 14).
E:61:□□ E:91:□□	<ul style="list-style-type: none"> A camera malfunction that you cannot repair has occurred. <ul style="list-style-type: none"> → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit service code (example: E:61:10).

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

73

LCD screen/viewfinder indicators

The indicators during recording

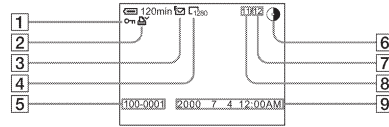


- | | |
|--|--|
| 1 Sharpness indicator | 16 Remaining disc capacity indicator
This indicator changes to after executing the finalization. |
| 2 Focus mode indicator/Macro indicator | 17 Recording time indicator |
| 3 Battery remaining indicator | 18 Self-diagnosis function indicator/Recording time indicator |
| 4 Flash level indicator/Flash mode indicator | 19 Self-timer indicator |
| 5 PROGRAM AE indicator/Zoom indicator | 20 Spot light-metering indicator |
| 6 White balance indicator | 21 Menu bar and guide menu
They appear by pressing on the control button and disappear by pressing . |
| 7 SteadyShot indicator | |
| 8 Picture effect indicator | |
| 9 Date and time indicator | |
| 10 EV level indicator | |
| 11 Iris/Shutter speed indicator | |
| 12 AE lock indicator/Focus lock indicator | |
| 13 Recording mode indicator | |
| 14 Image size indicator | |
| 15 Number of recorded images | |

Additional information

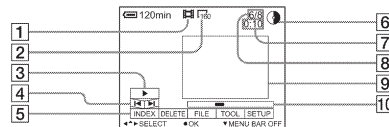
75

The indicators during still image playback



- | | |
|--|---|
| 1 Protect indicator/Zoom scaling indicator | 6 Remaining disc capacity indicator |
| 2 Print mark of the playback image | 7 Number of stored images on a disc |
| 3 Recording mode of the playback image | 8 Image number |
| 4 Image size indicator | 9 Recording date of the playback image* |
| 5 File name* | |
- * When the menu bar is displayed, this indicator disappears from the screen.

The indicators during moving image playback

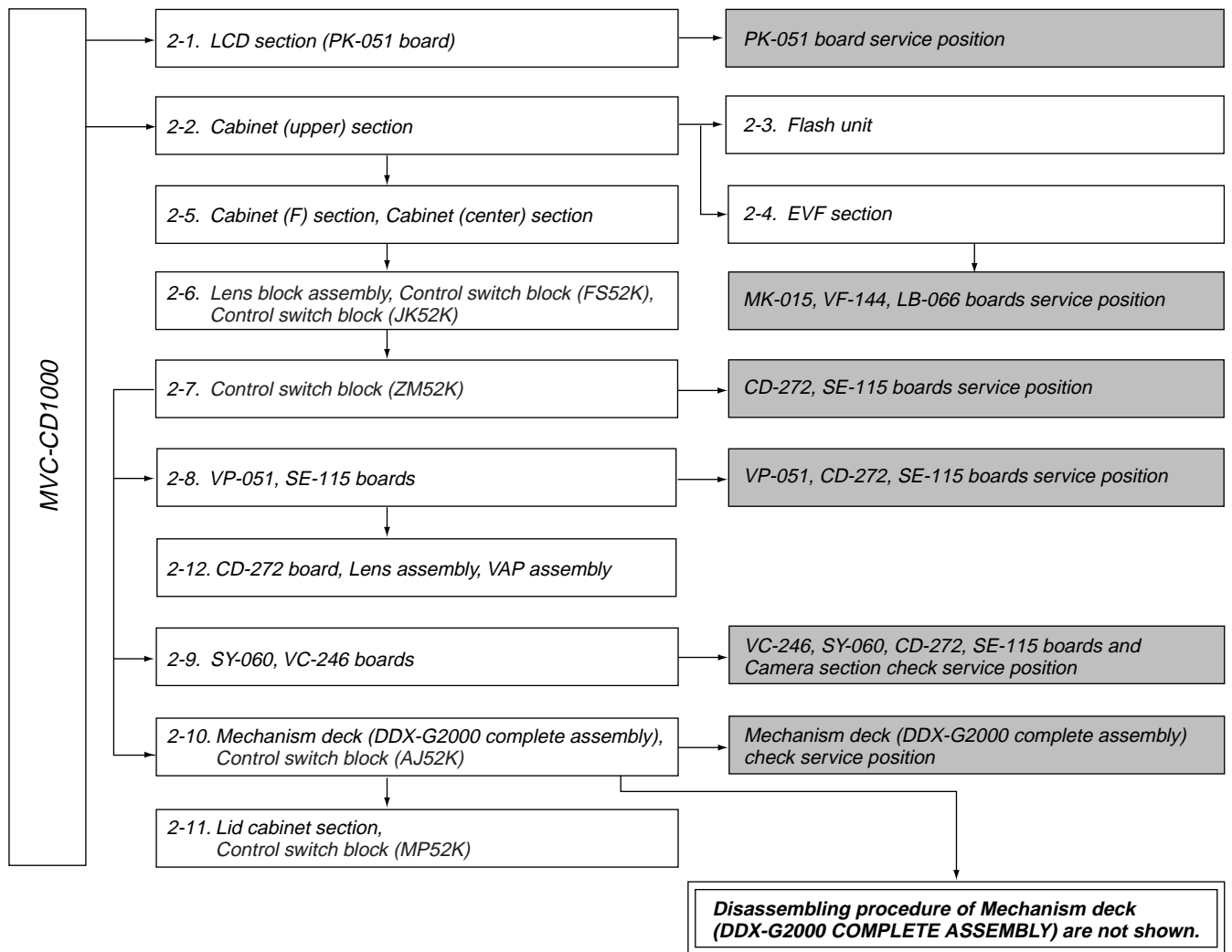


- | | |
|--|--|
| 1 Moving image file indicator | 8 Image number/number of stored images on a disc |
| 2 Image size indicator | 9 Playback image |
| 3 Playback button
▶ is displayed during stop, and during playback. | 10 Playback bar |
| 4 Image searching buttons | |
| 5 Menu bar and guide menu | |
| 6 Remaining disc capacity indicator | |
| 7 Counter | |

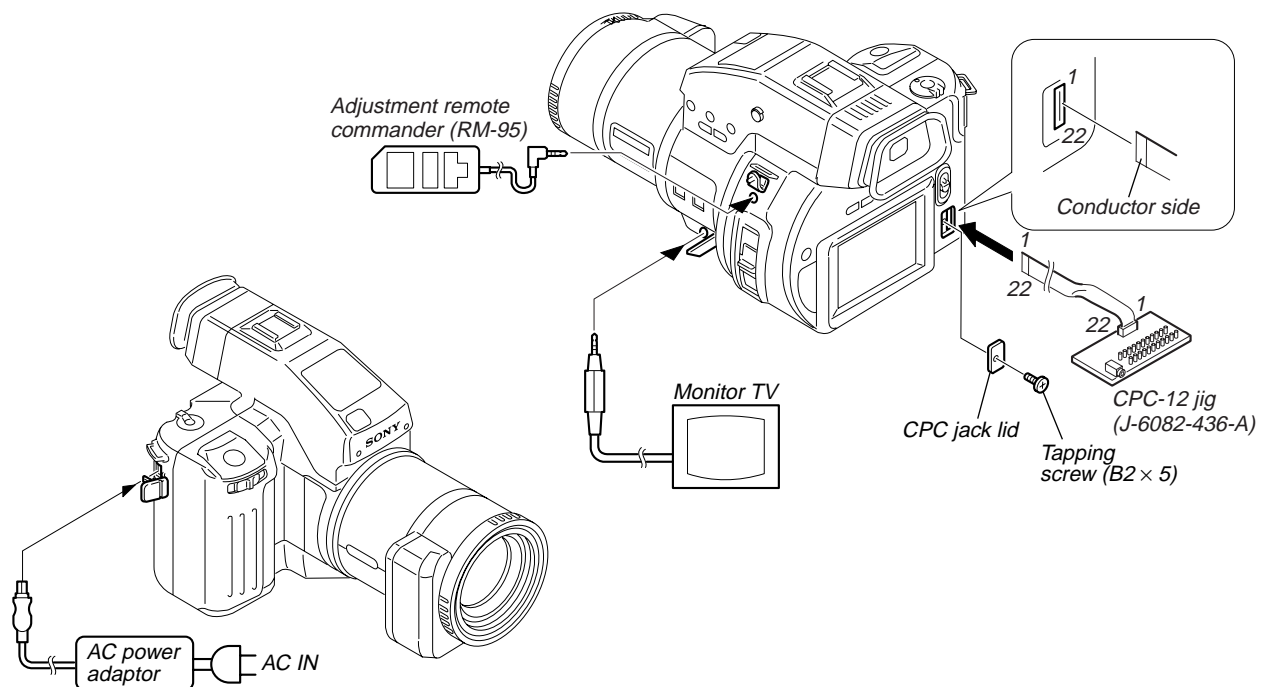
76

SECTION 2 DISASSEMBLY

The following flow chart shows the disassembly procedure.

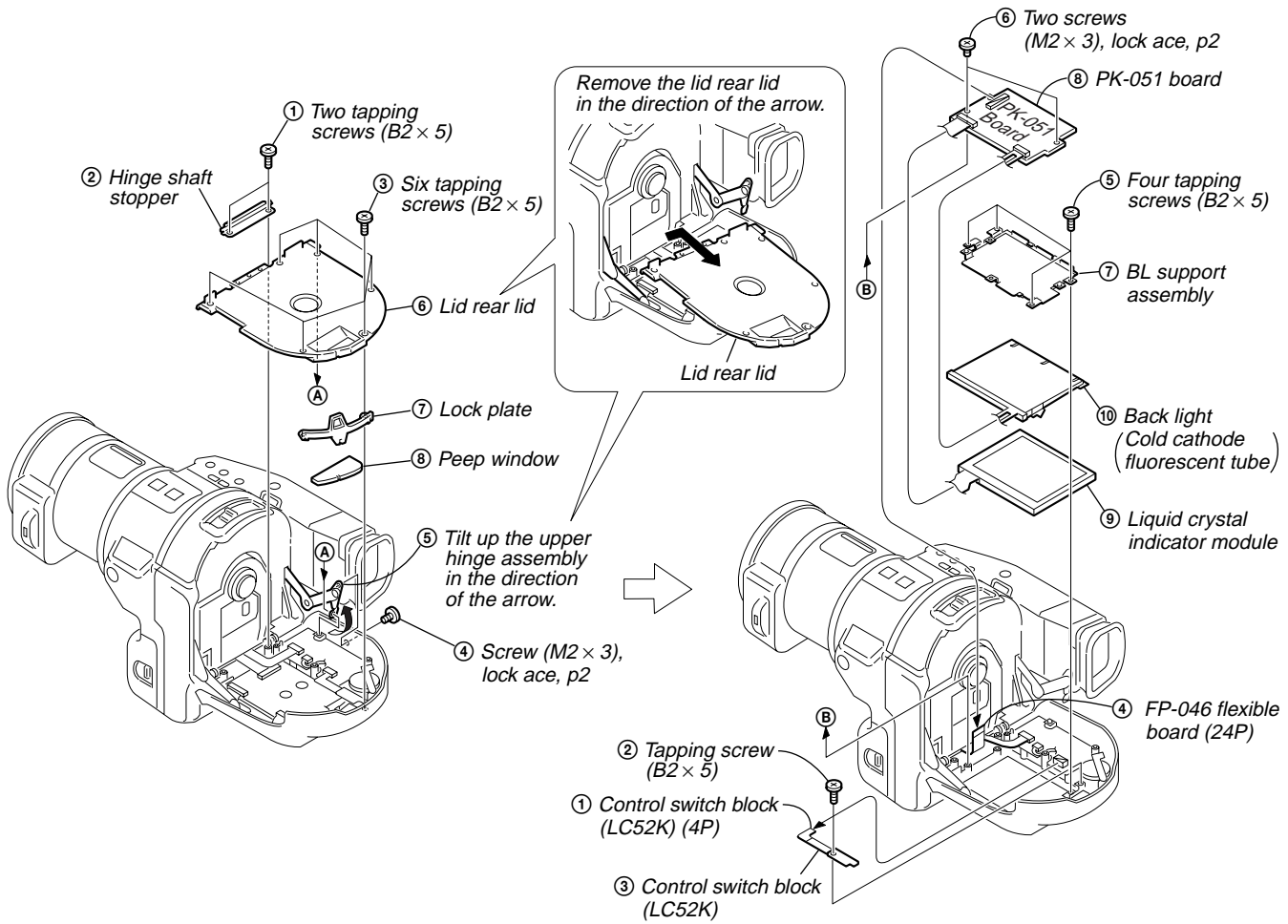


[CONNECTION OF THE EQUIPMENT]

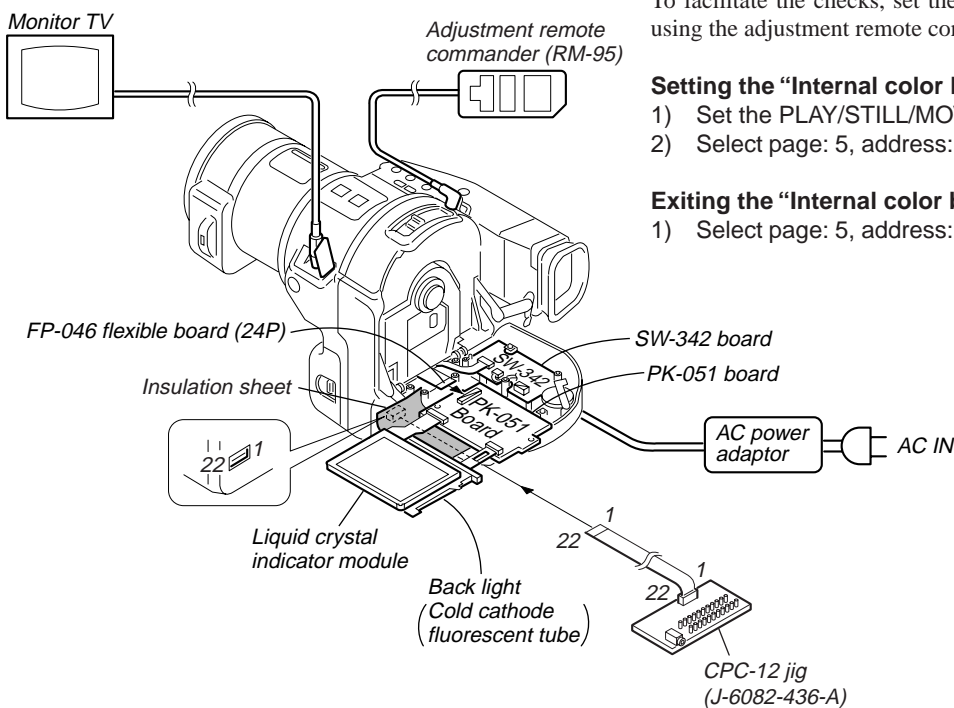


NOTE: Follow the disassembly procedure in the numerical order given.

2-1. LCD SECTION (PK-051 BOARD)



[PK-051 BOARD SERVICE POSITION]



Setup before LCD section check

To facilitate the checks, set the "Internal color bar signal" mode using the adjustment remote control before LCD section check.

Setting the "Internal color bar signal" mode.

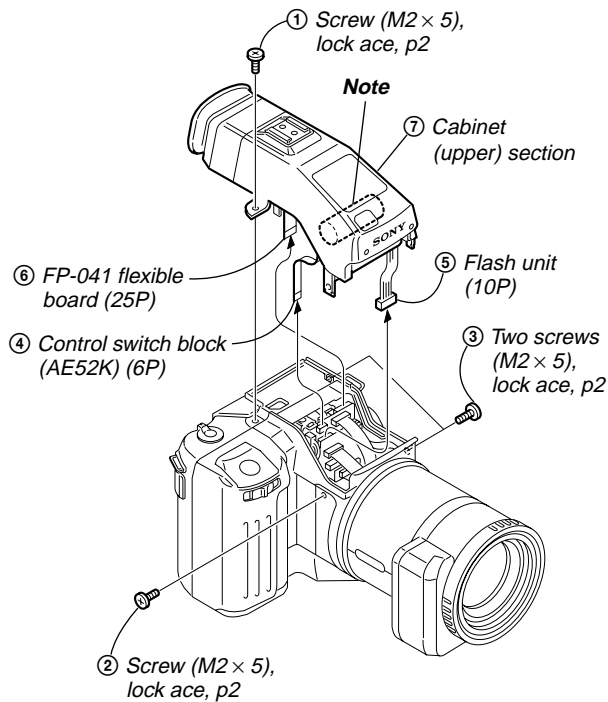
- 1) Set the PLAY/STILL/MOVIE switch to "PLAY".
- 2) Select page: 5, address: F1, and set data: 04.

Exiting the "Internal color bar signal" mode.

- 1) Select page: 5, address: F1, and set data: 00.

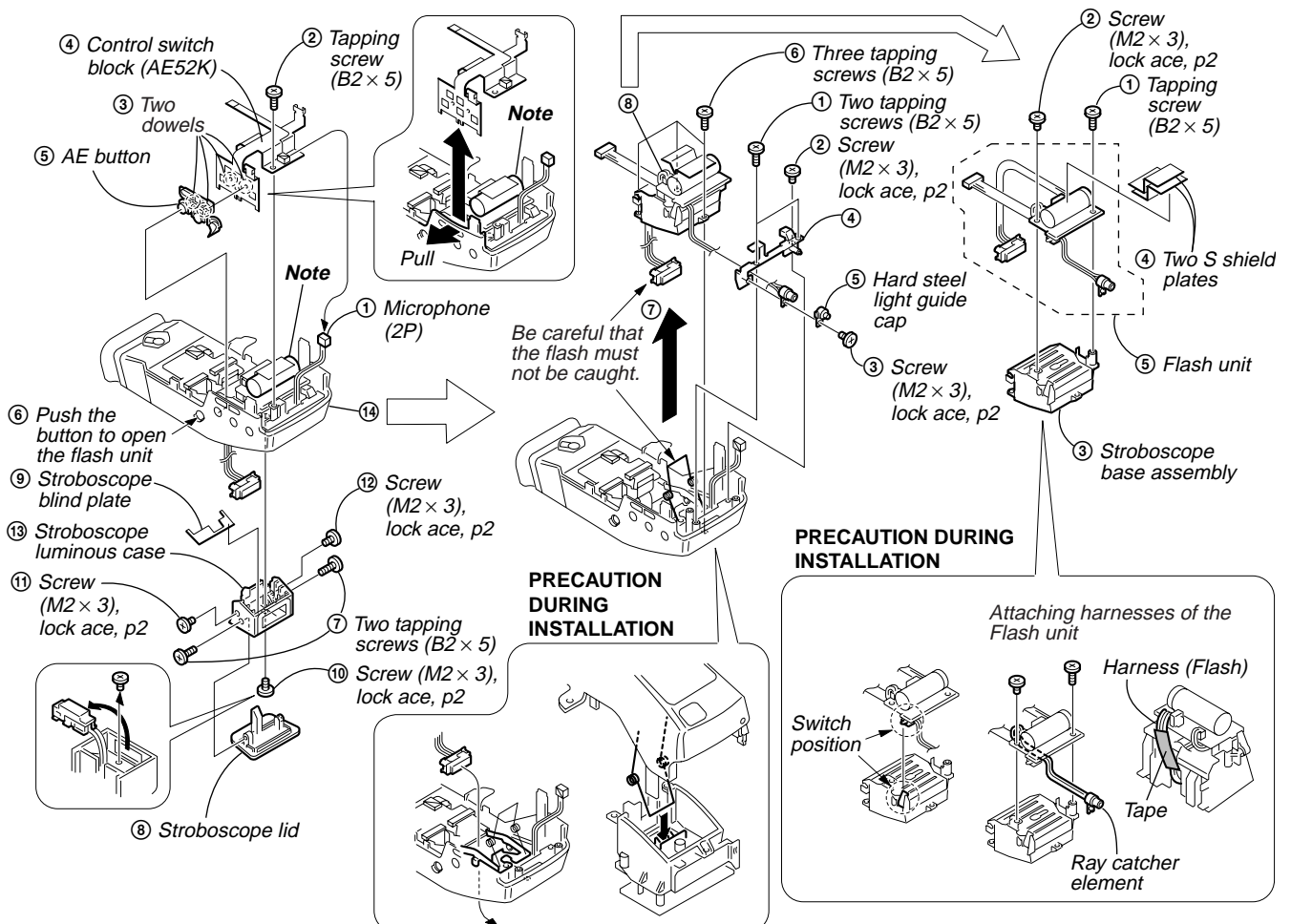
2-2. CABINET (UPPER) SECTION

Note: The built-in charging capacitor inside the FLASH unit is charged to the maximum of 300V.
There is a danger of electric shock due to the high voltage when the capacitor is touched by bare hand.
Discharge the voltage remained in the capacitor, referring to the Service Note (See page 6).

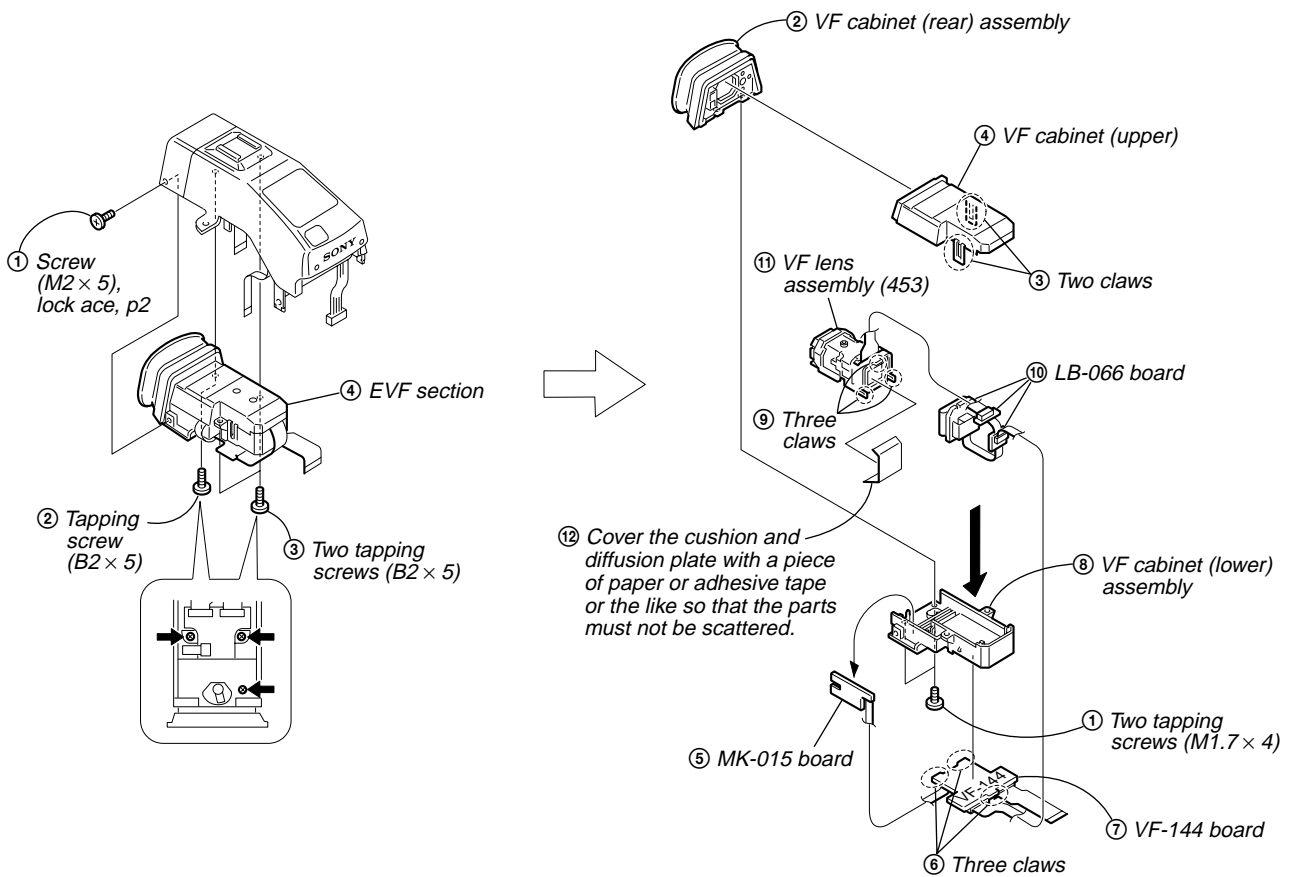


2-3. FLASH UNIT

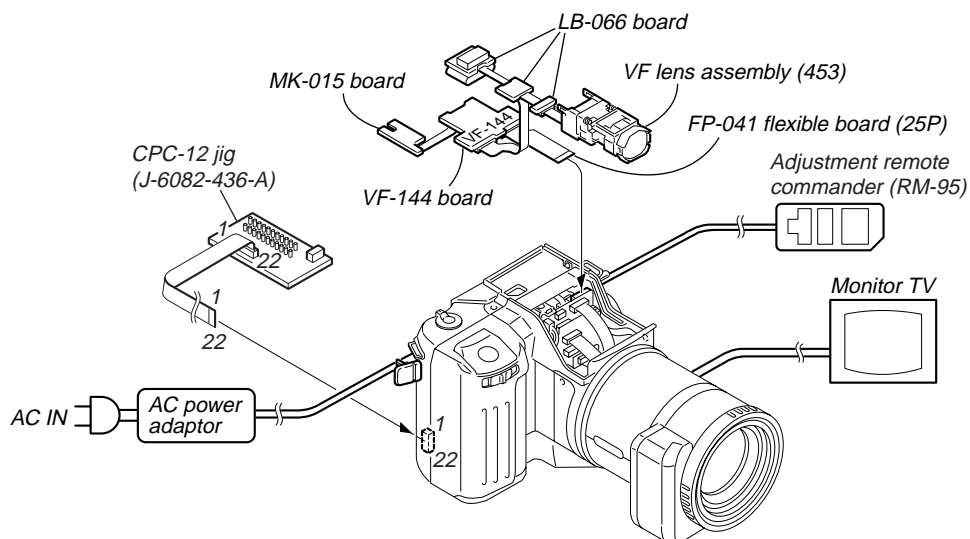
Note: The built-in charging capacitor inside the FLASH unit is charged to the maximum of 300V.
There is a danger of electric shock due to the high voltage when the capacitor is touched by bare hand.
Discharge the voltage remained in the capacitor, referring to the Service Note (See page 6).



2-4. EVF SECTION



[MK-015, VF-144, LB-066 BOARDS SERVICE POSITION]



Setup before EVF section check

To facilitate the checks, set the "Internal color bar signal" mode using the adjustment remote control before EVF section check.

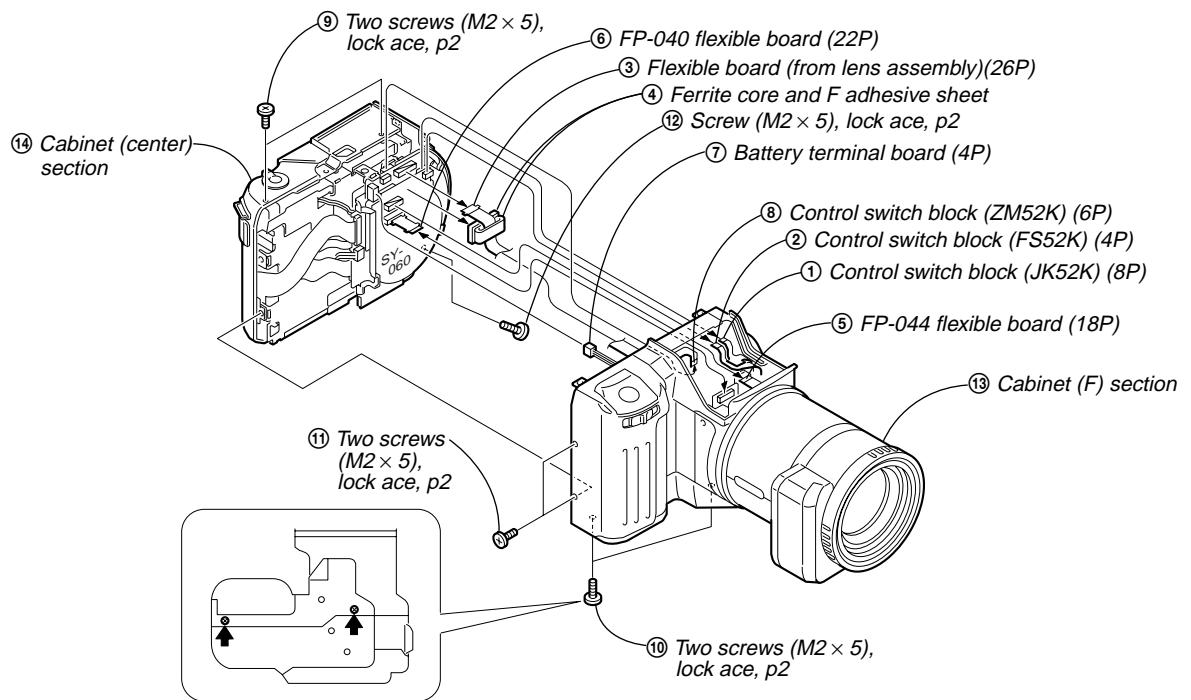
Setting the "Internal color bar signal" mode.

- 1) Set the PLAY/STILL/MOVIE switch to "PLAY".
- 2) Select page: 5, address: F1, and set data: 04.

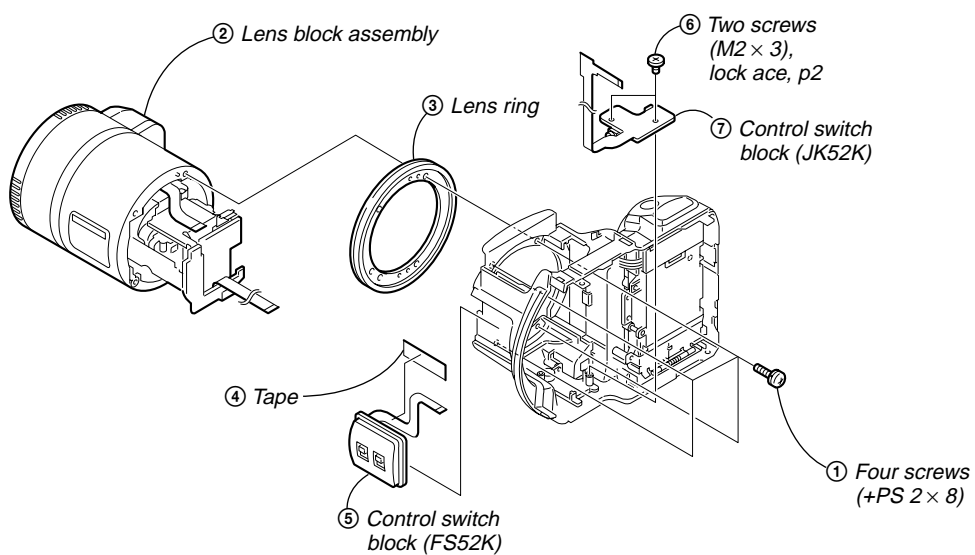
Exiting the "Internal color bar signal" mode.

- 1) Select page: 5, address: F1, and set data: 00.

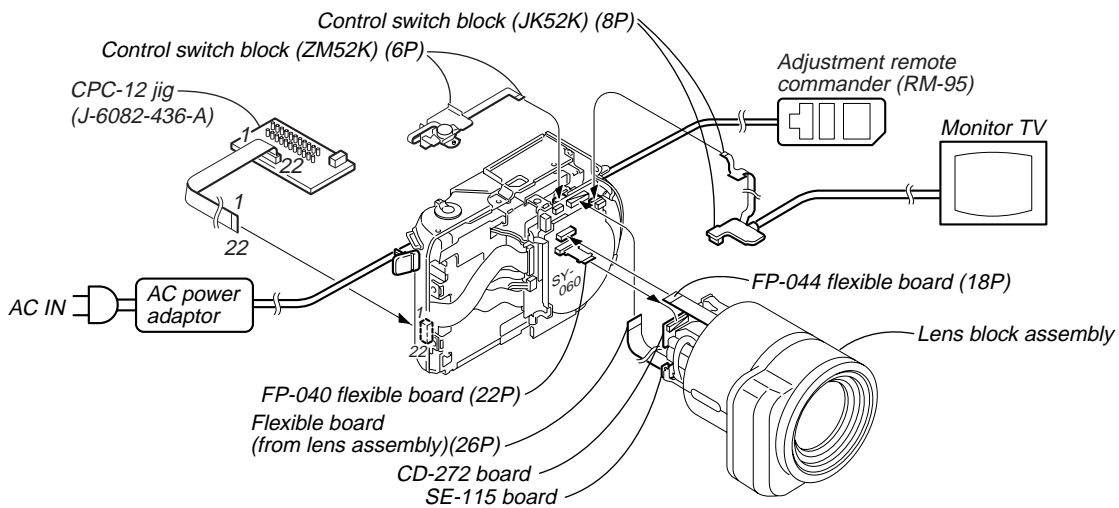
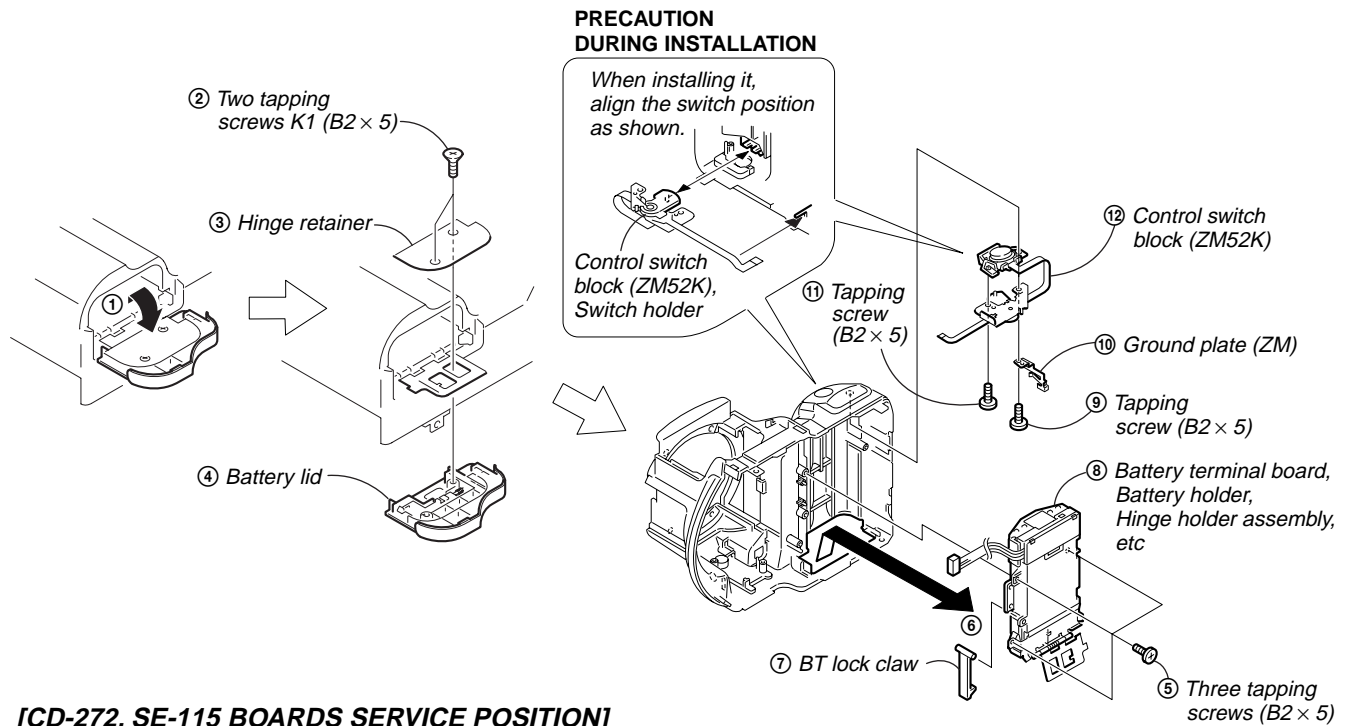
2-5. CABINET (F) SECTION, CABINET (CENTER) SECTION



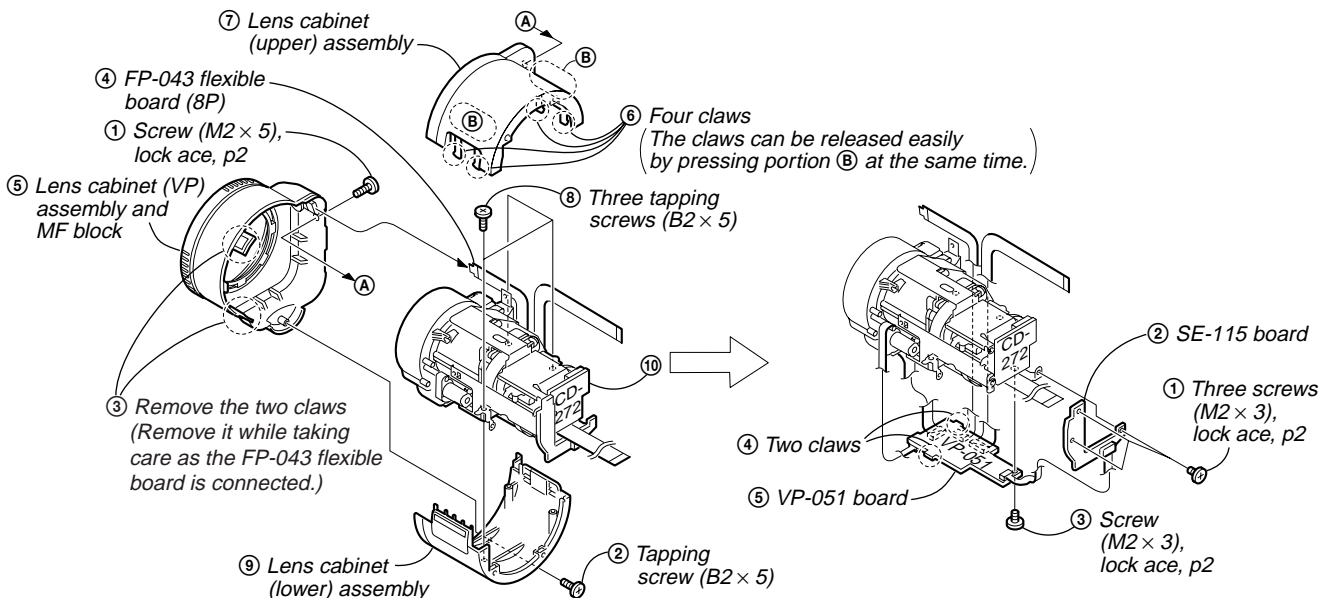
2-6. LENS BLOCK ASSEMBLY, CONTROL SWITCH BLOCK (FS52K), CONTROL SWITCH BLOCK (JK52K)



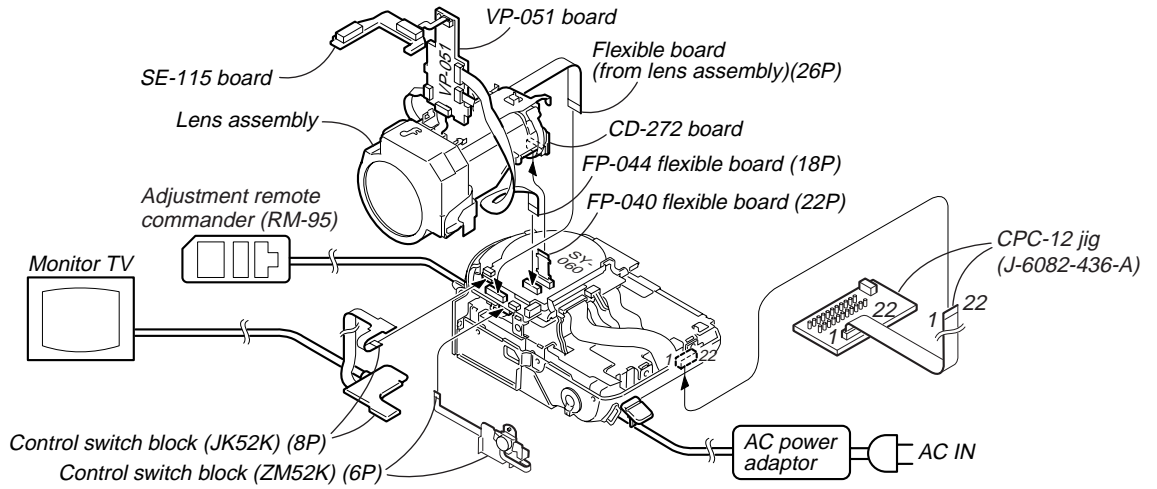
2-7. CONTROL SWITCH BLOCK (ZM52K)



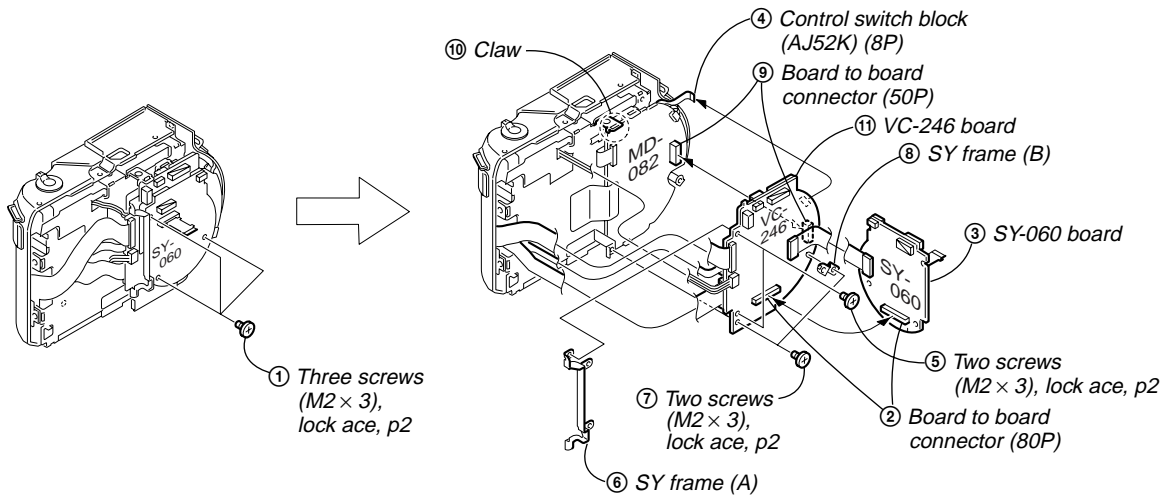
2-8. VP-051, SE-115 BOARDS



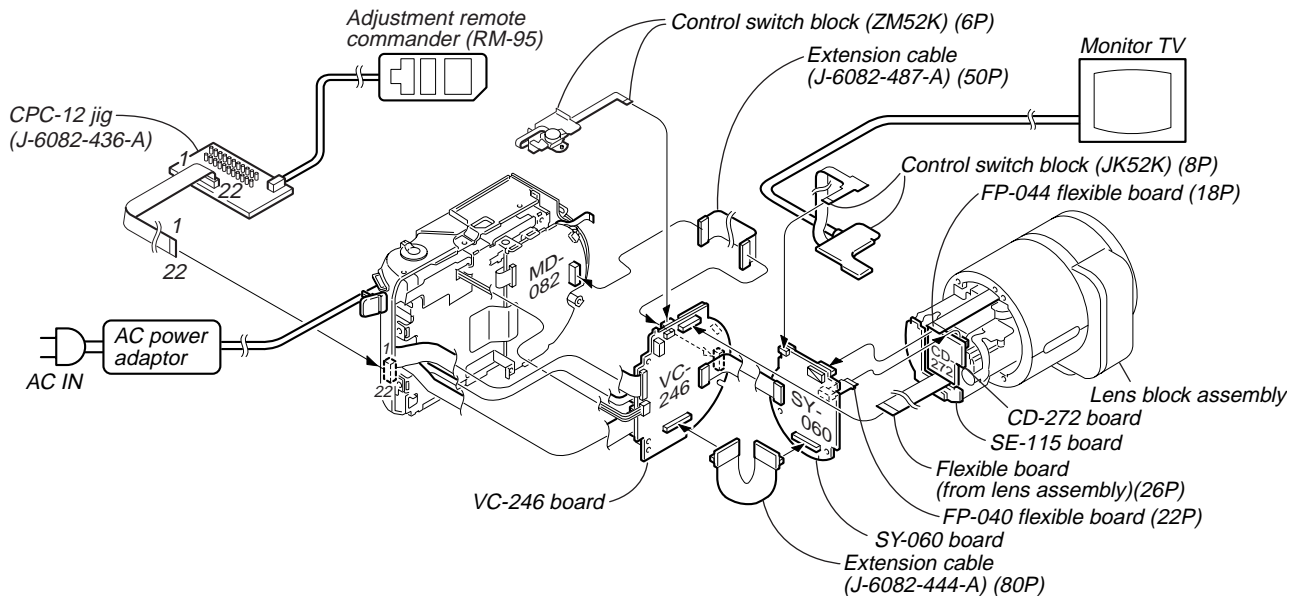
[VP-051, CD-272, SE-115 BOARDS SERVICE POSITION]



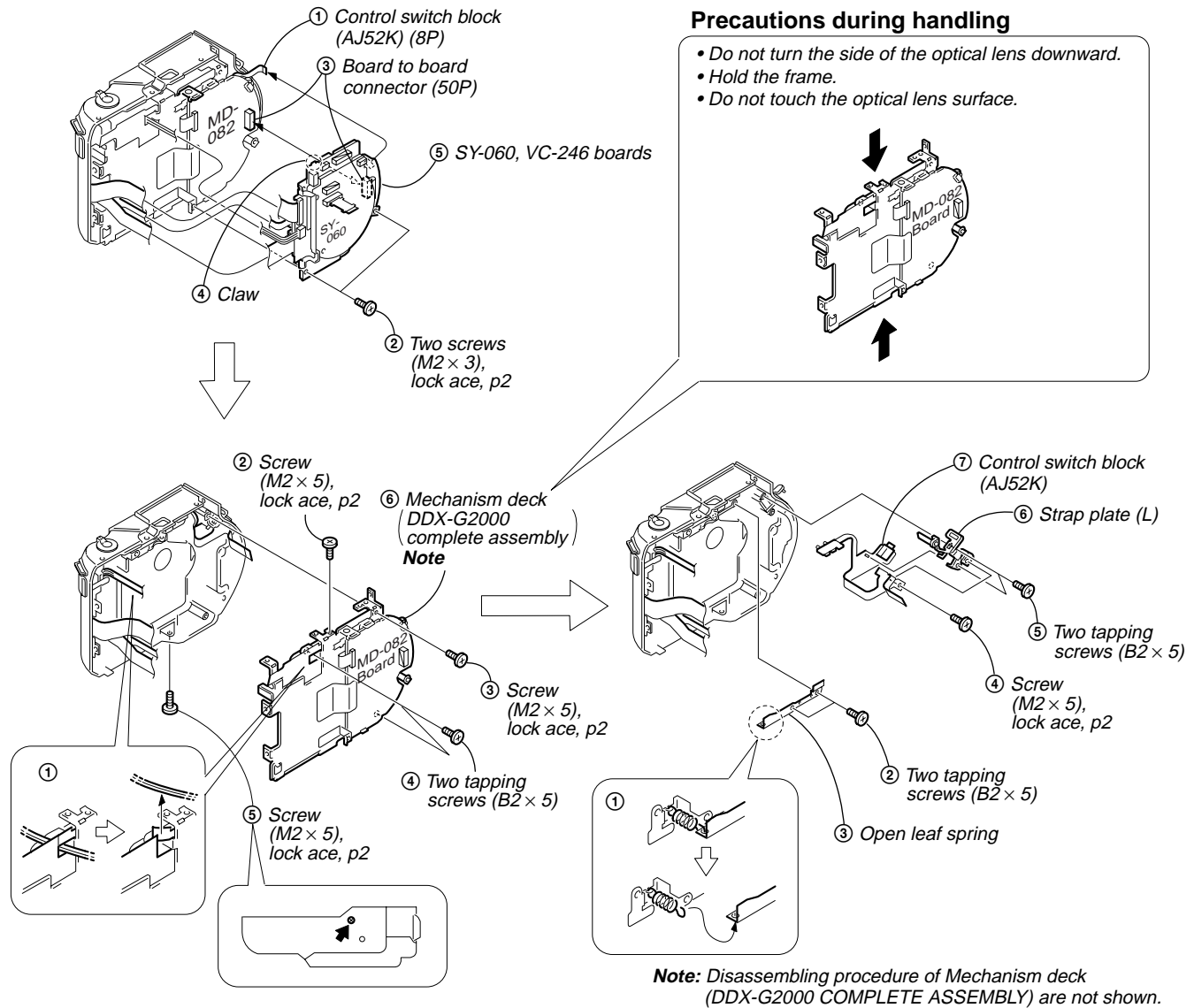
2-9. SY-060, VC-246 BOARDS



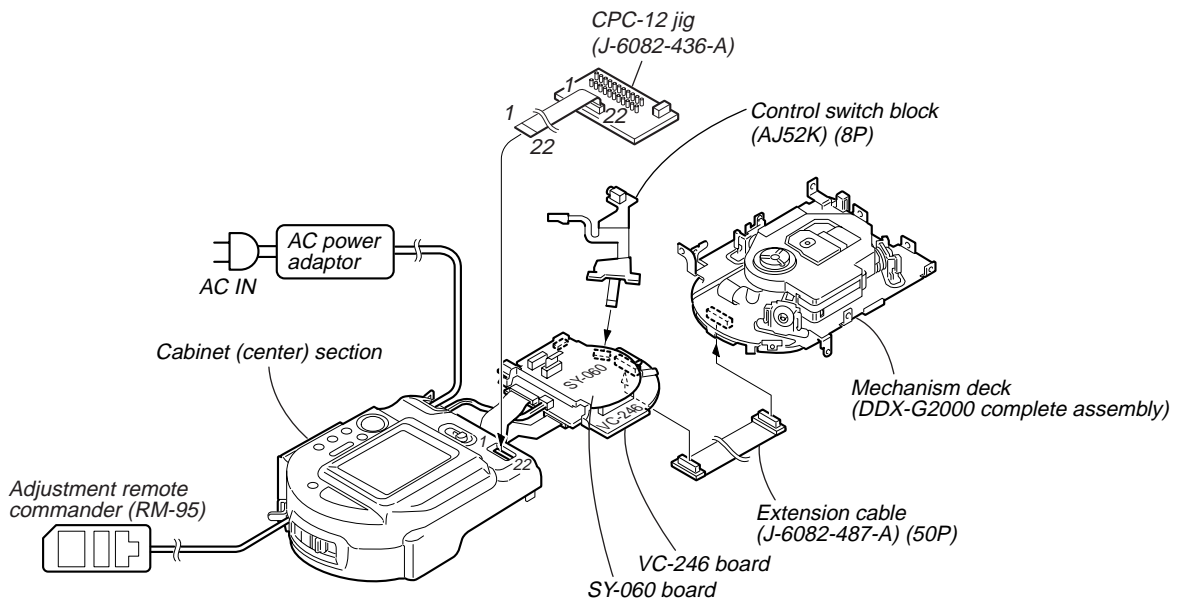
[VC-246, SY-060, CD-272, SE-115 BOARDS AND CAMERA SECTION CHECK SERVICE POSITION]



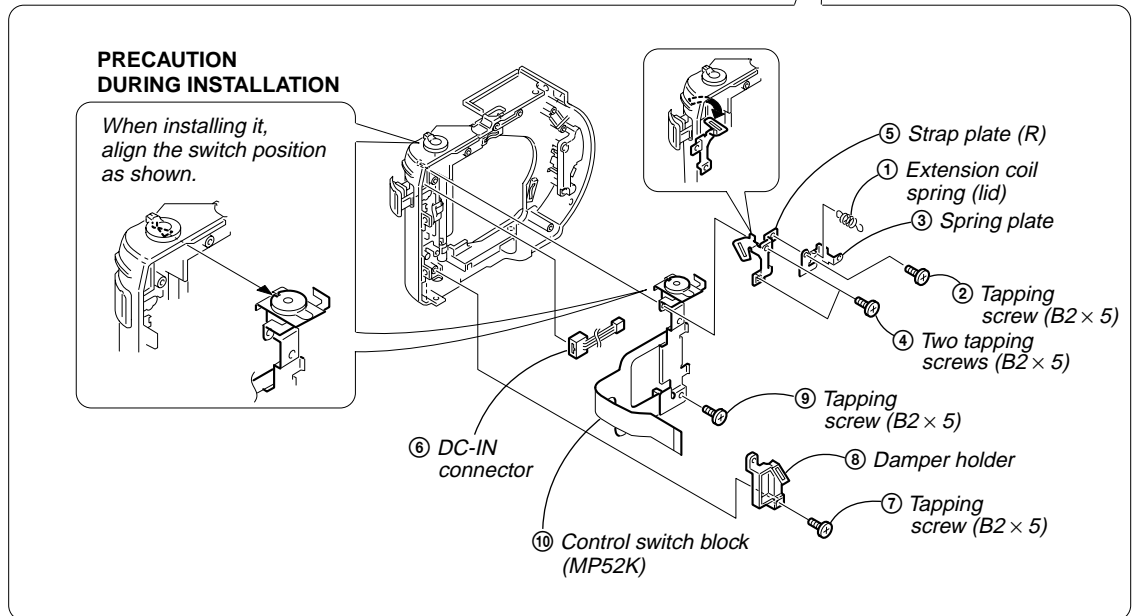
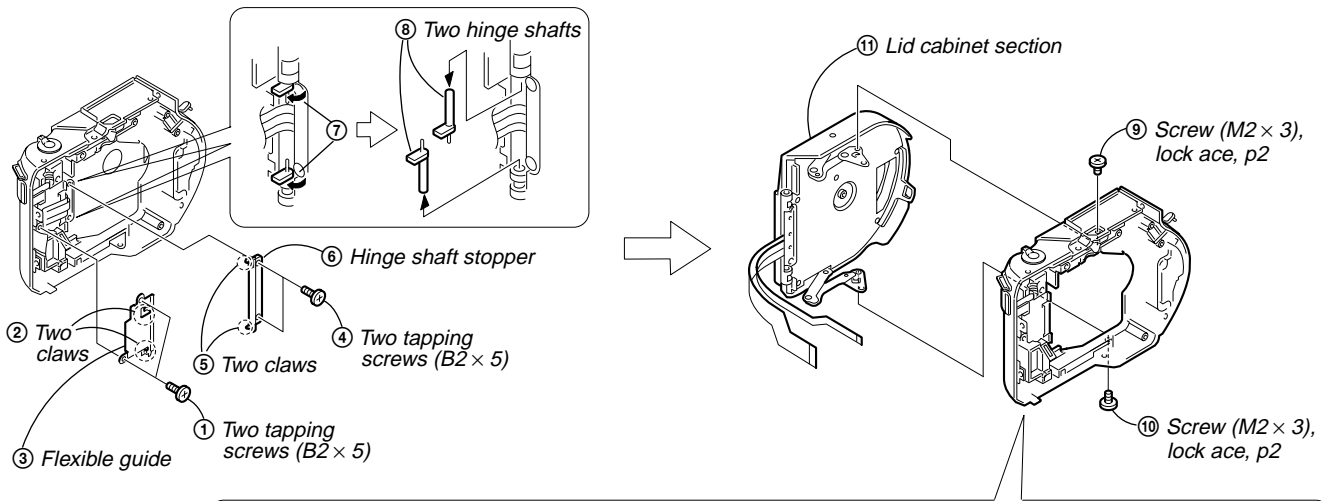
2-10. MECHANISM DECK (DDX-G2000 COMPLETE ASSEMBLY), CONTROL SWITCH BLOCK (AJ52K)



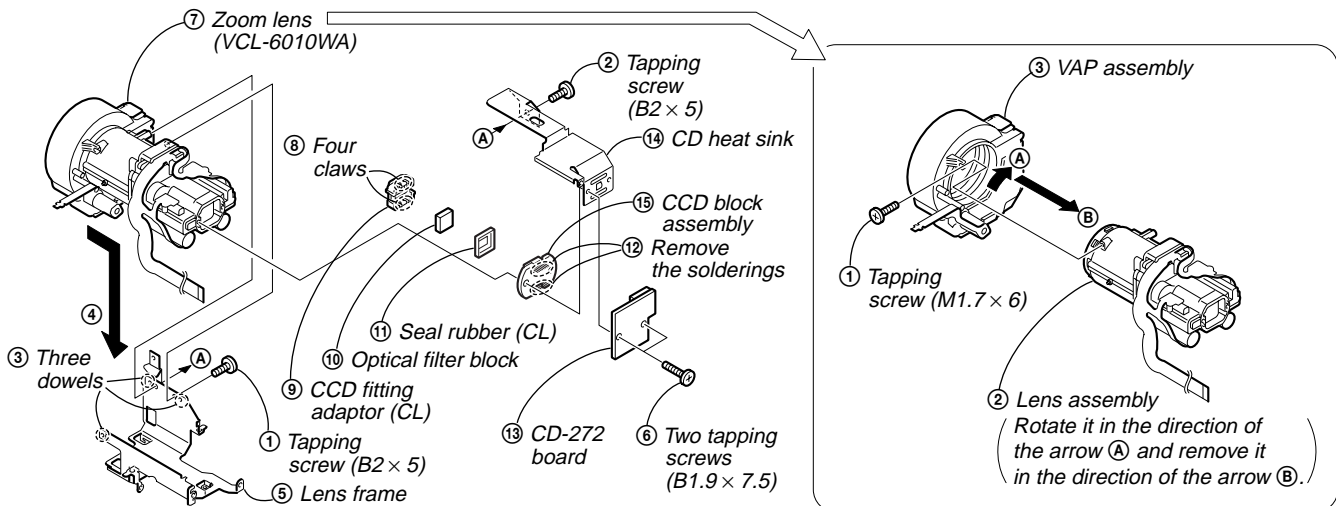
[MECHANISM DECK (DDX-G2000 COMPLETE ASSEMBLY) CHECK SERVICE POSITION]



2-11. LID CABINET SECTION, CONTROL SWITCH BLOCK (MP52K)

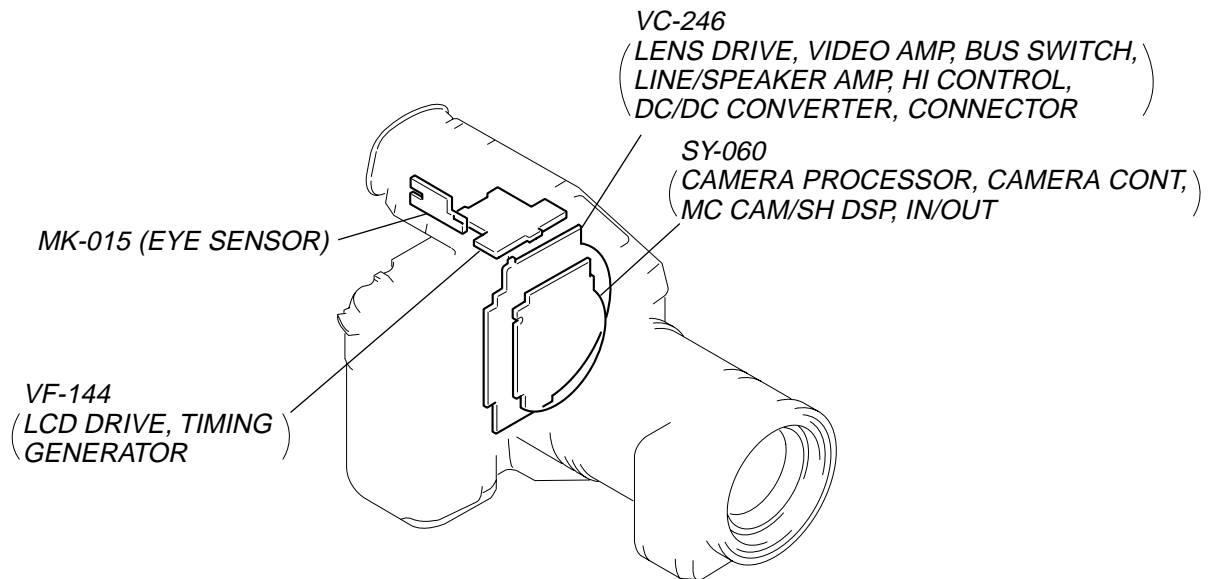
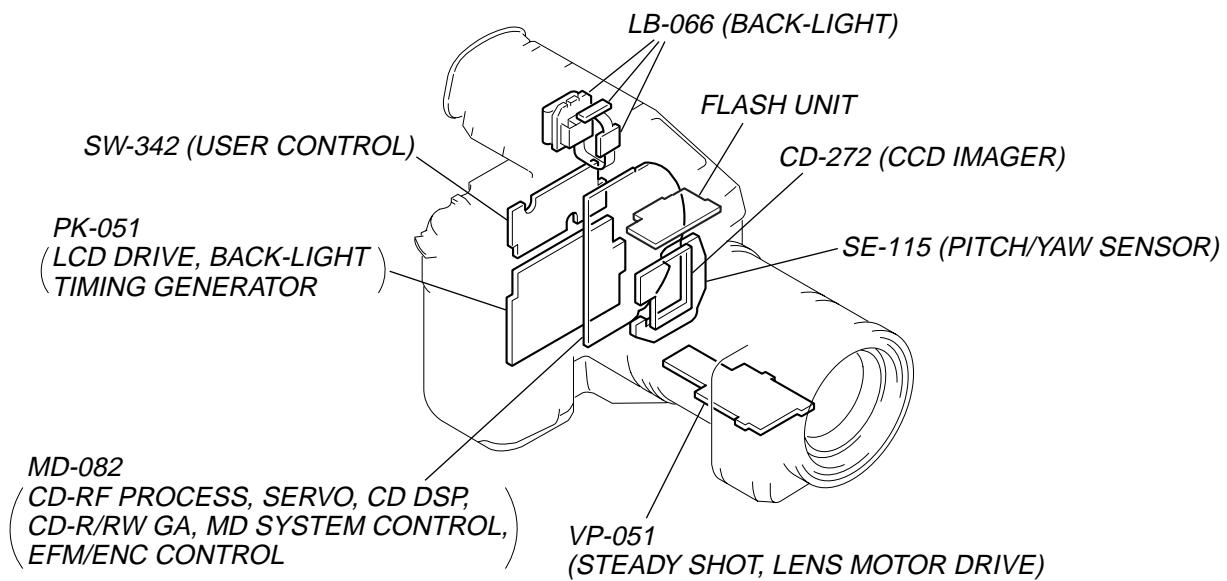


2-12. CD-272 BOARD, LENS ASSEMBLY, VAP ASSEMBLY



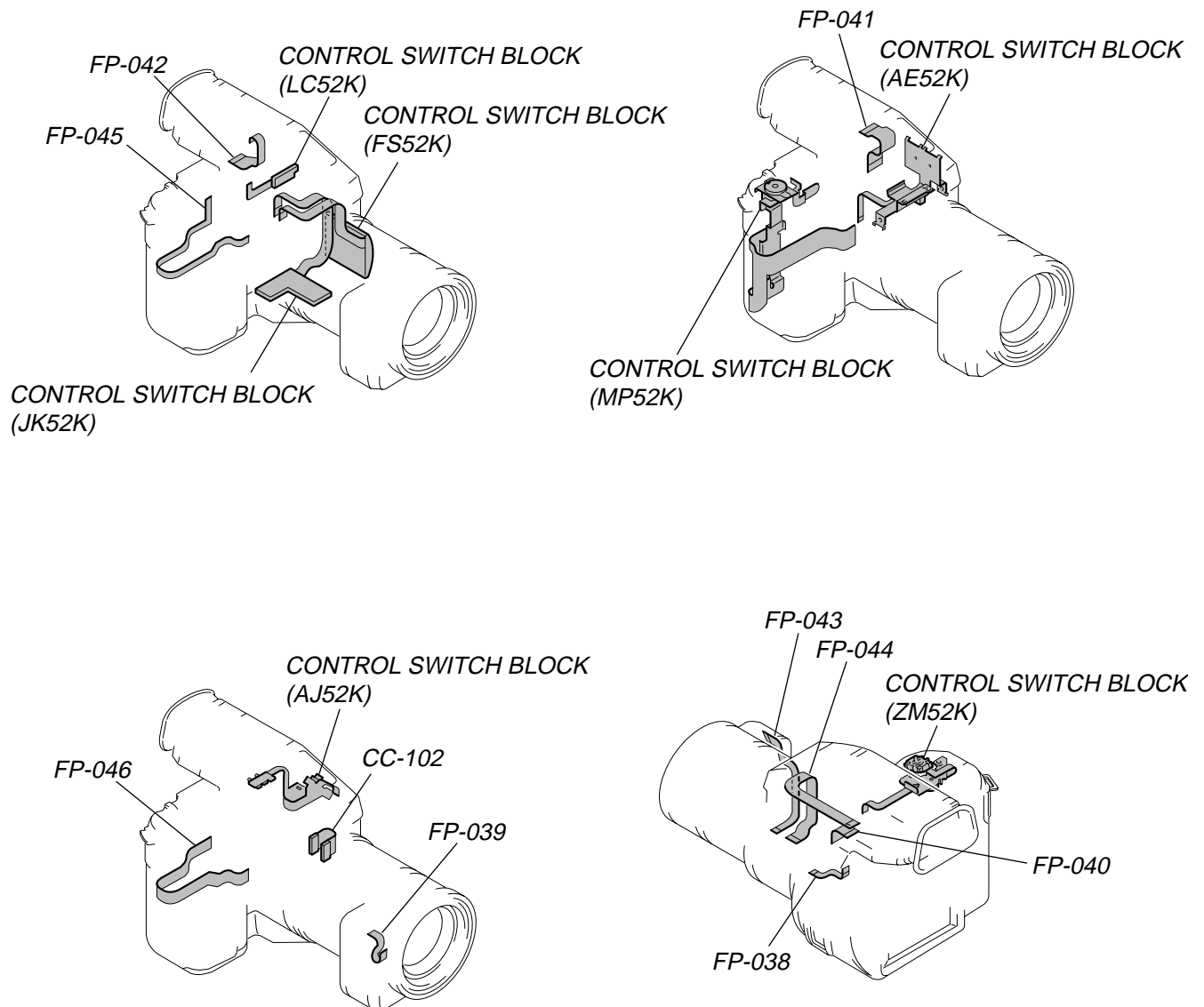
2-13. CIRCUIT BOARDS LOCATION

The circuit boards contained in the zoom lens are not shown.



2-14. FLEXIBLE BOARDS LOCATION

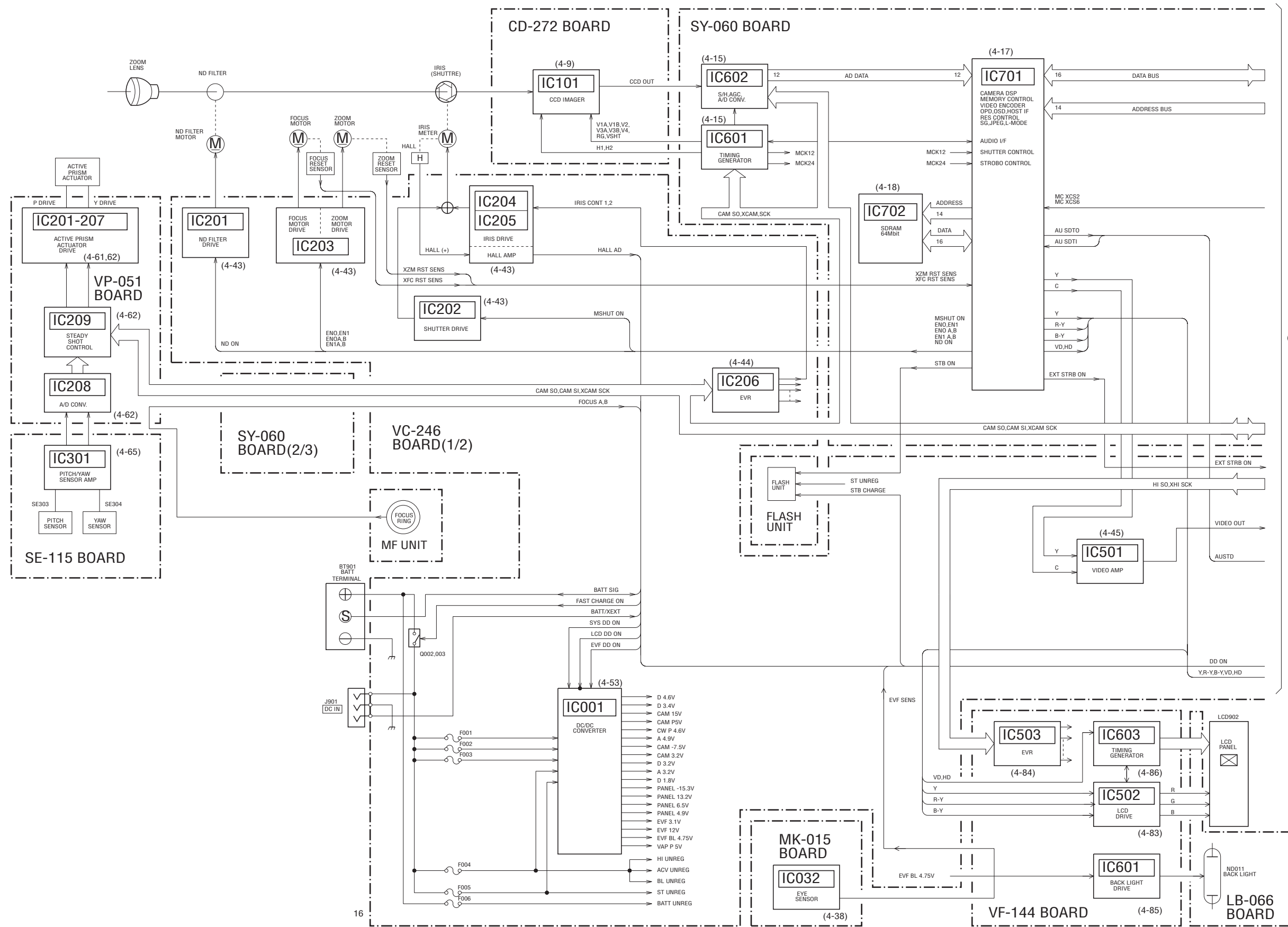
The flexible boards contained in the mechanism deck and that in the zoom lens are not shown.



Disassembling procedure of Mechanism deck (DDX-G2000 COMPLETE ASSEMBLY) are not shown. Pages 2-12 and 2-13 are not shown.

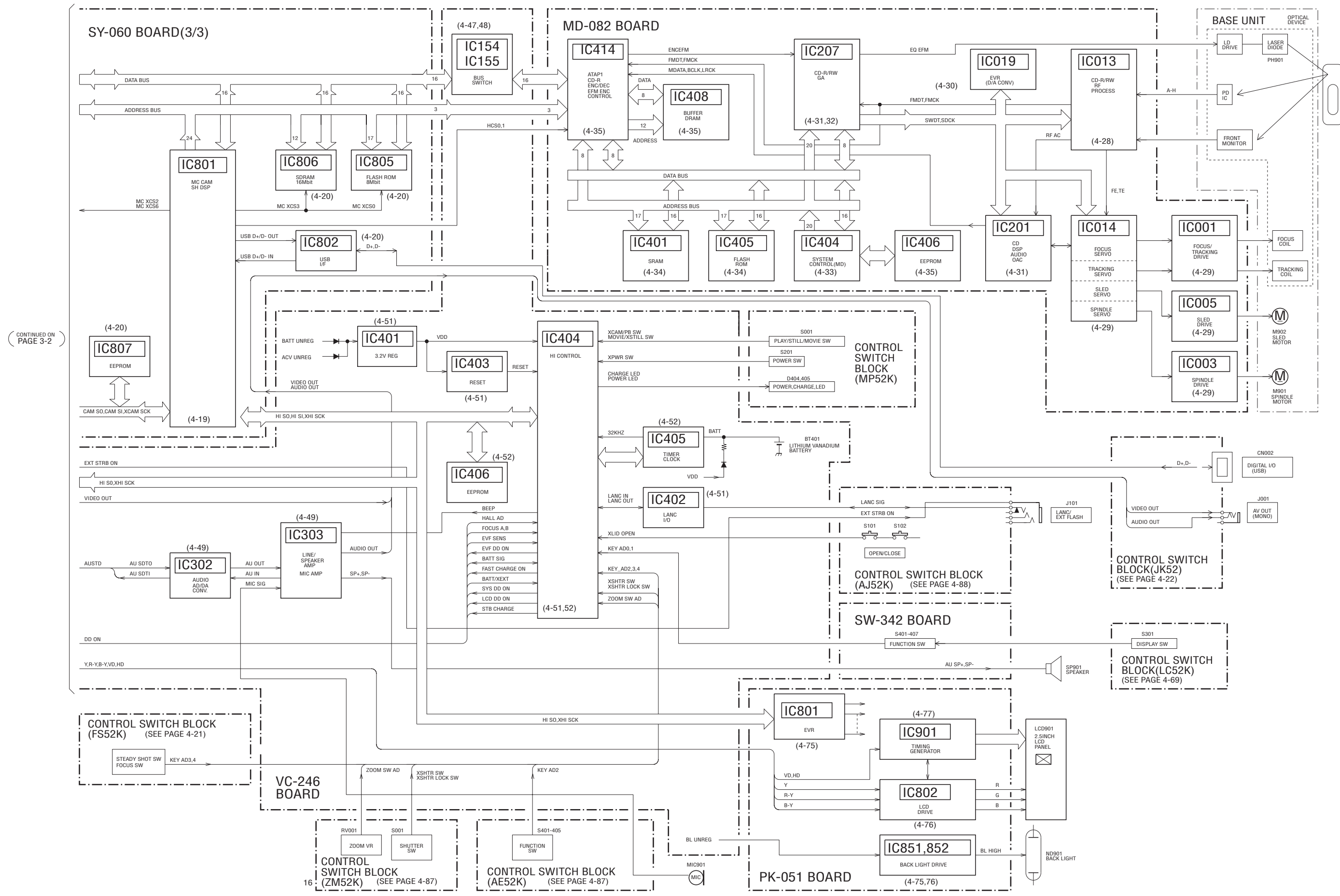
SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM-1 (): Page No. shown in () indicates the page to refer on the schematic diagram.



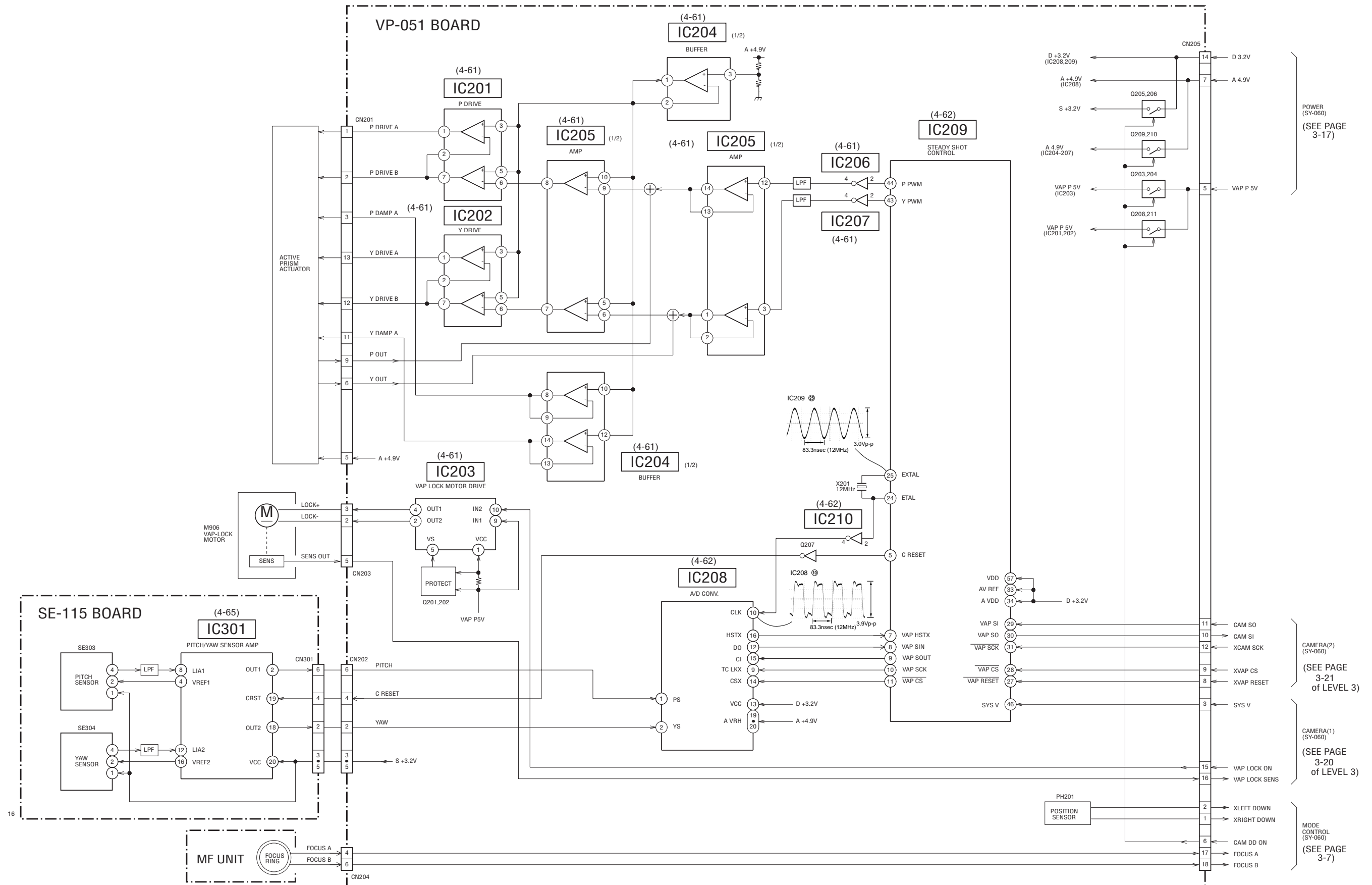
CONTINUED ON
(SEE PAGE
3-3)

OVERALL BLOCK DIAGRAM-2 () : Page No. shown in () indicates the page to refer on the schematic diagram.

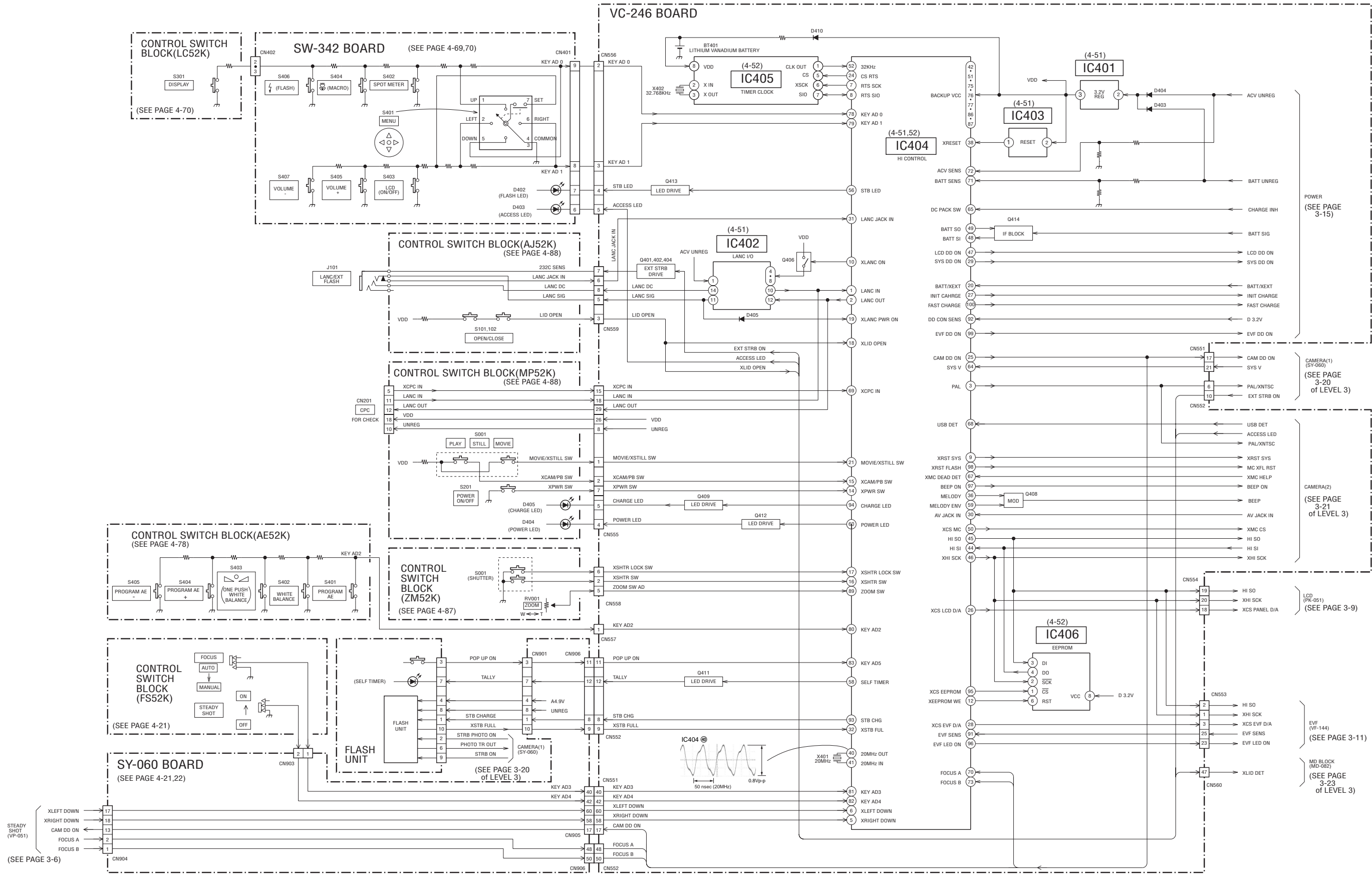


(CONTINUED ON PAGE 3-2)

3-2. STEADY SHOT BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.

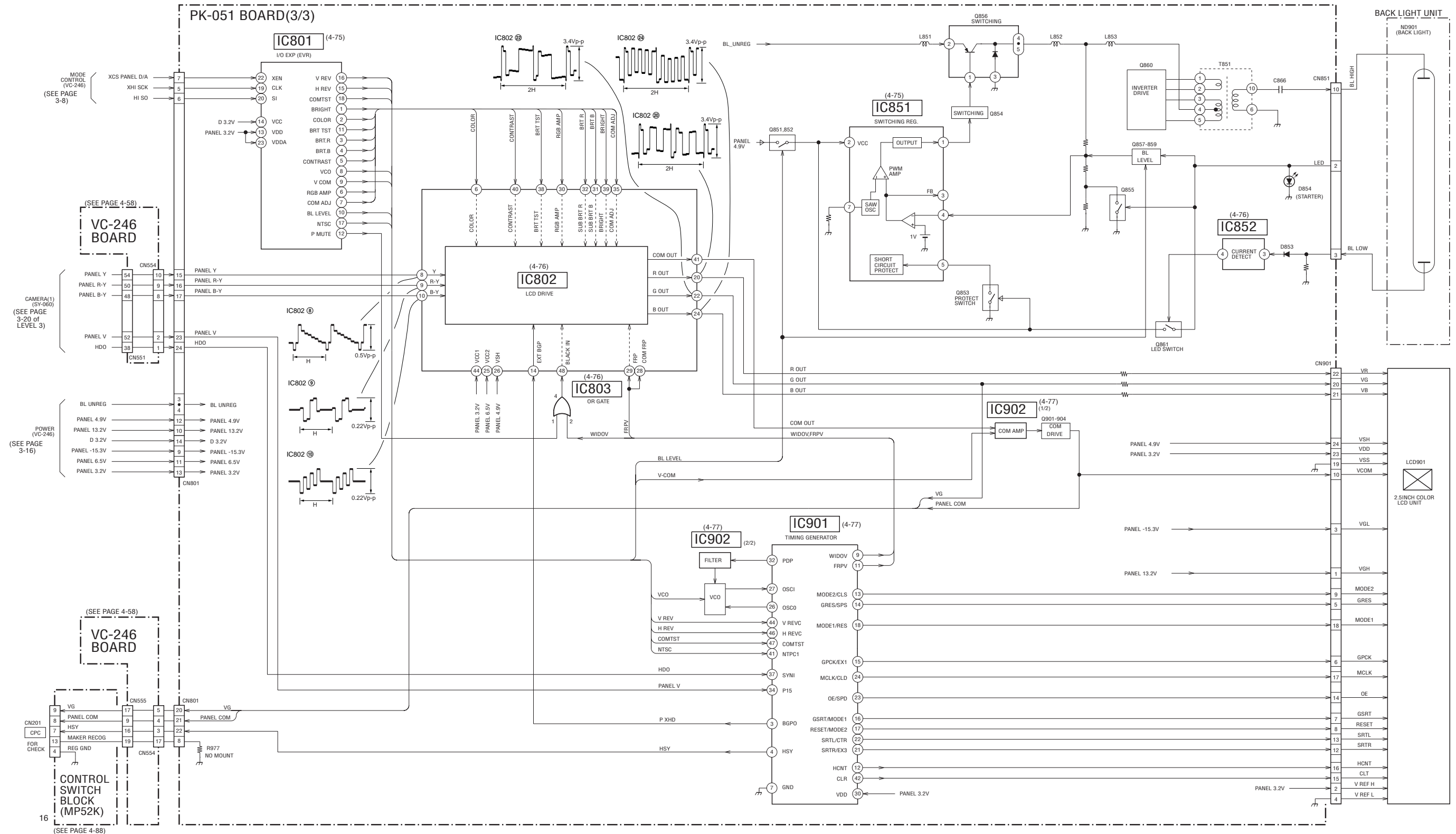


3-3. MODE CONTROL BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.

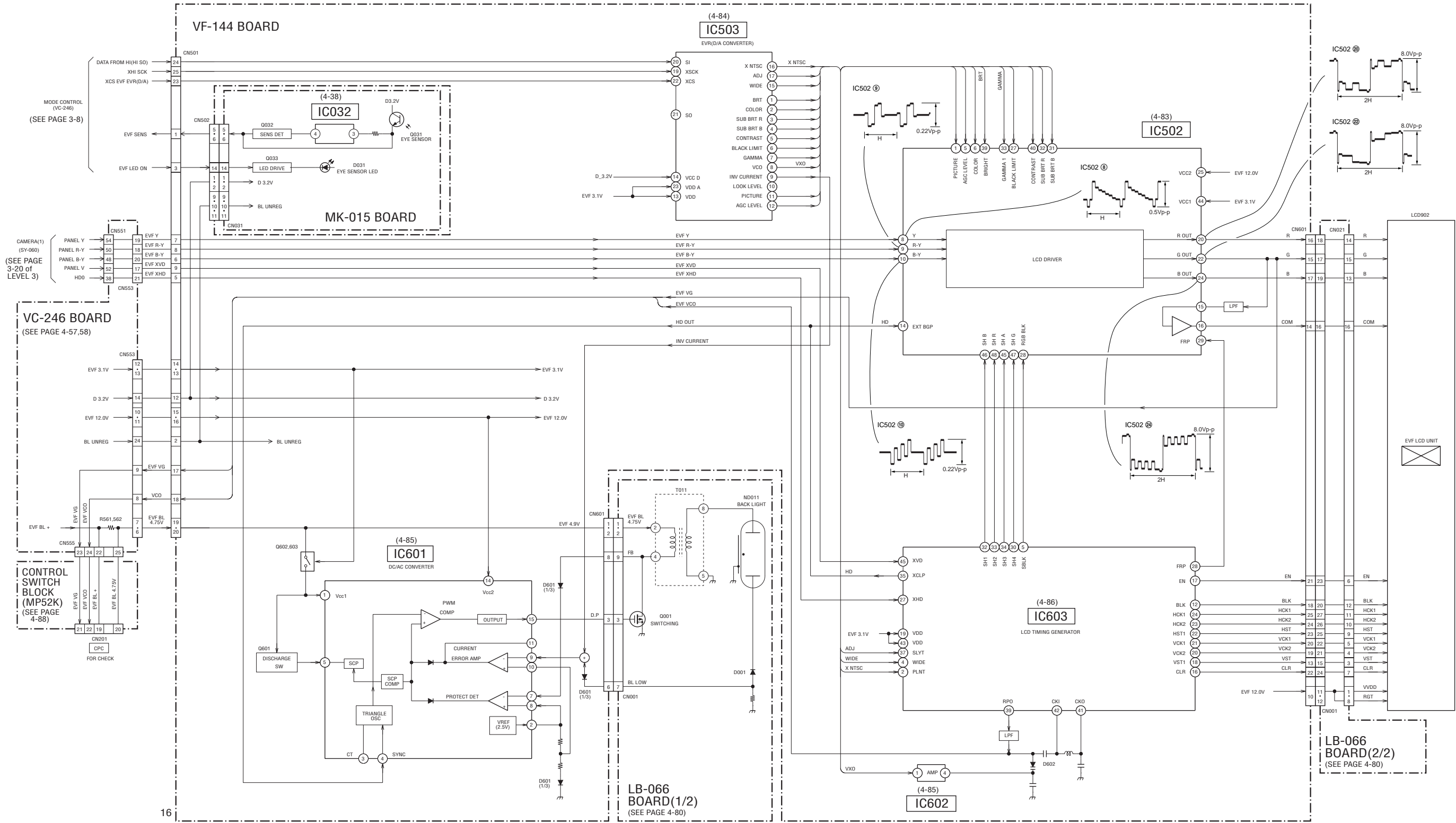


(SEE PAGE 3-6)

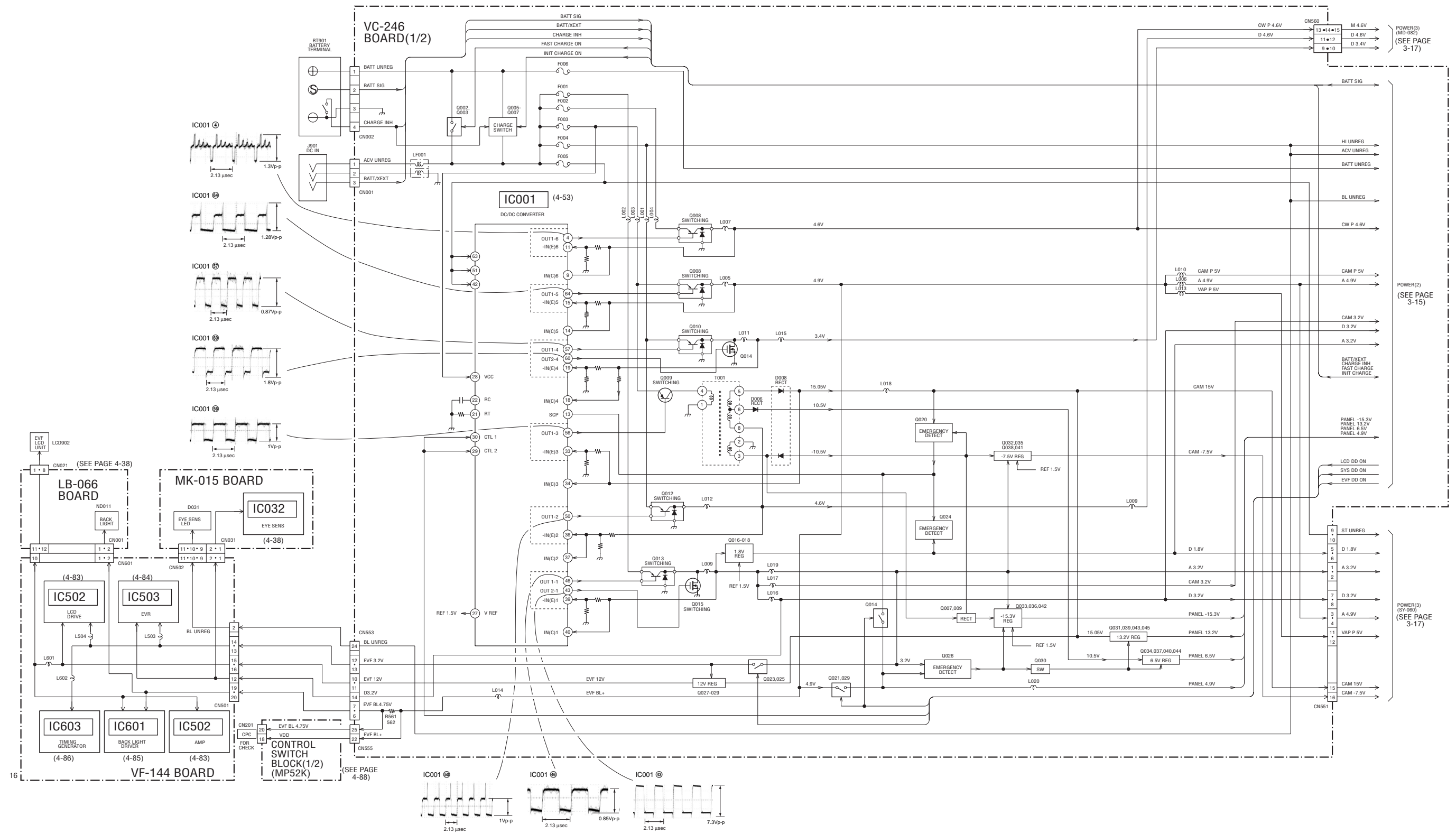
3-4. LCD BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.



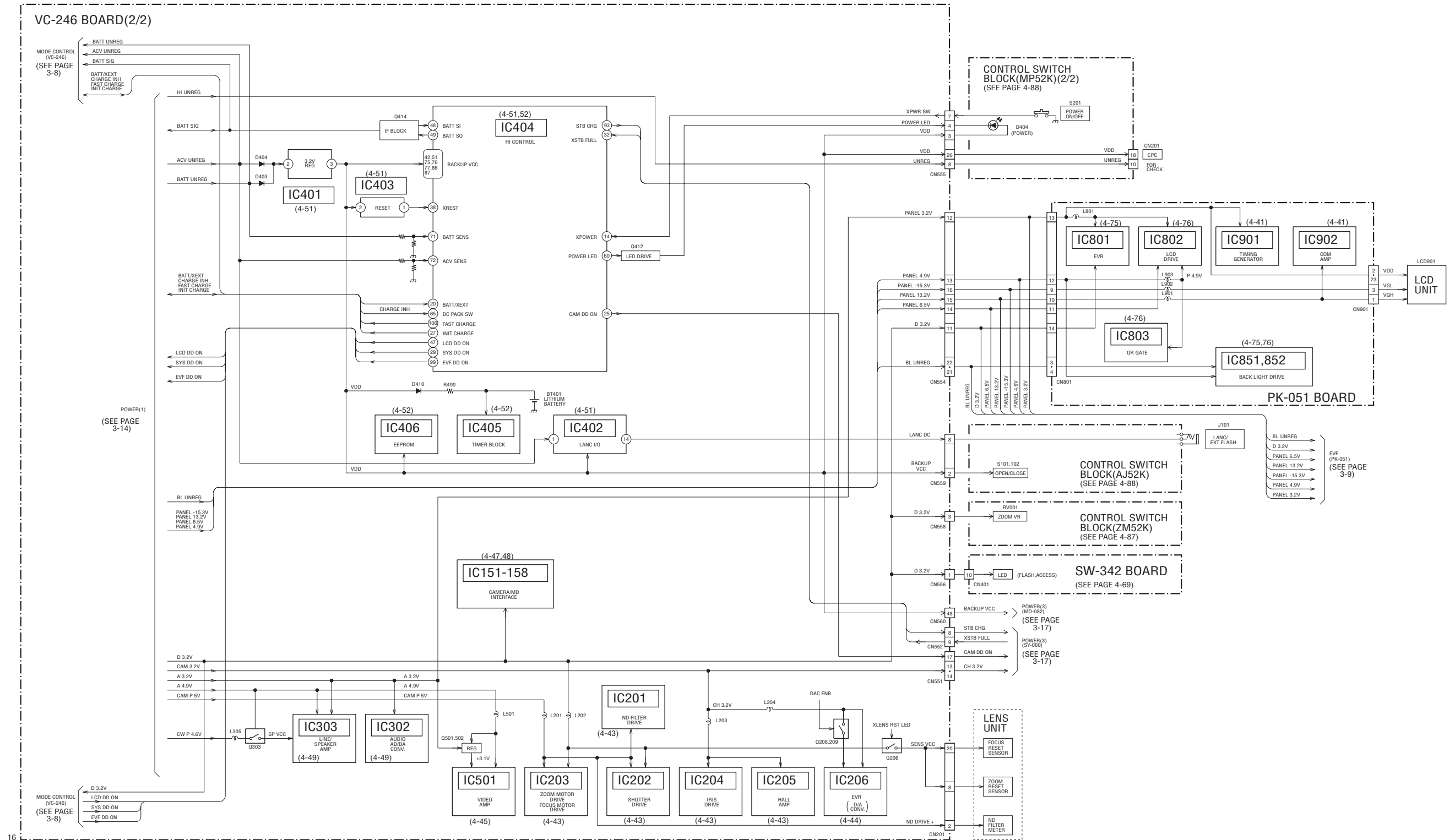
3-5. EVF BLOCK DIAGRAM () : Page No. shown in () indicates the page to refer on the schematic diagram.



3-6. POWER BLOCK DIAGRAM-1 () : Page No. shown in () indicates the page to refer on the schematic diagram.

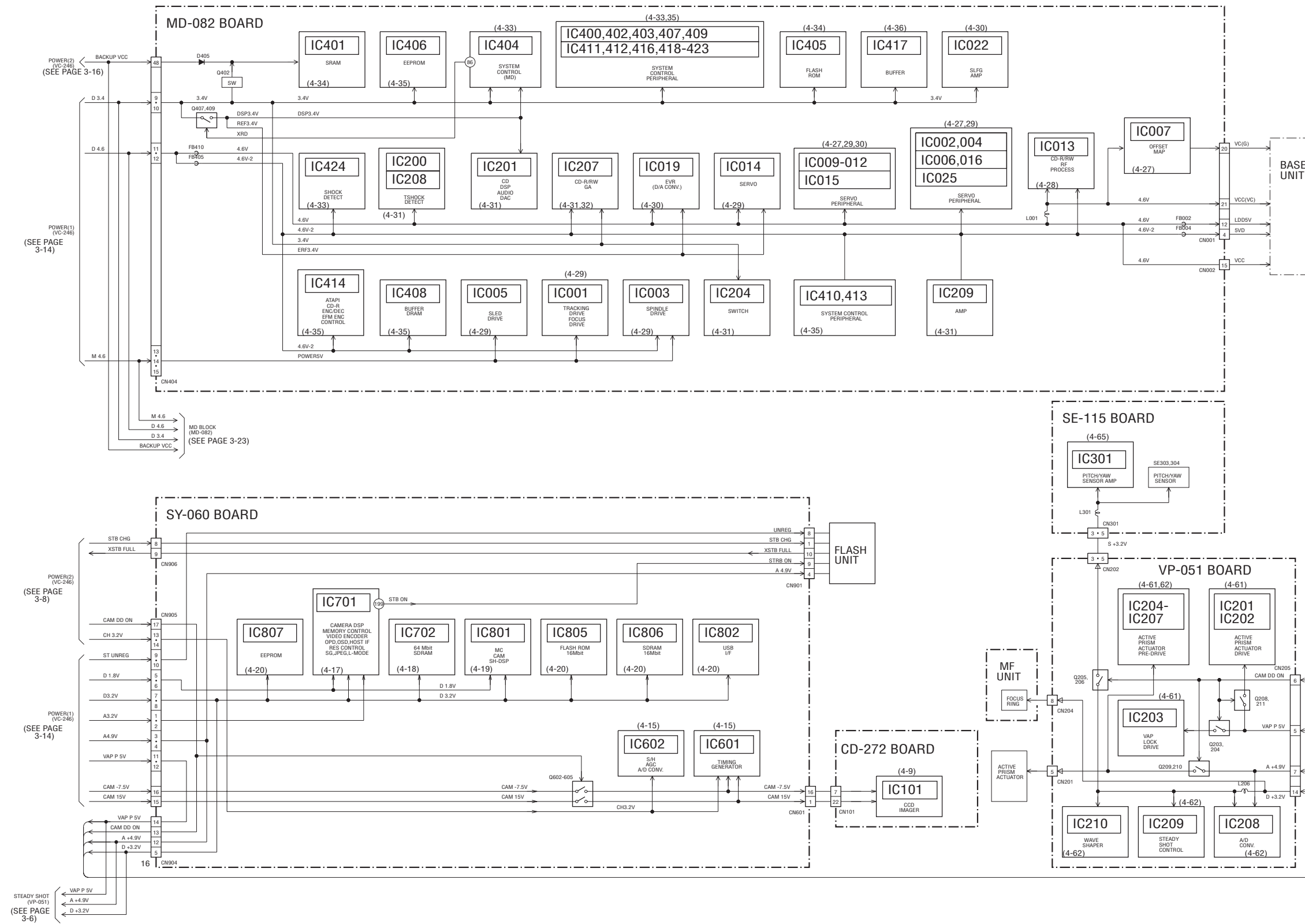


POWER BLOCK DIAGRAM-2 () : Page No. shown in () indicates the page to refer on the schematic diagram.



16

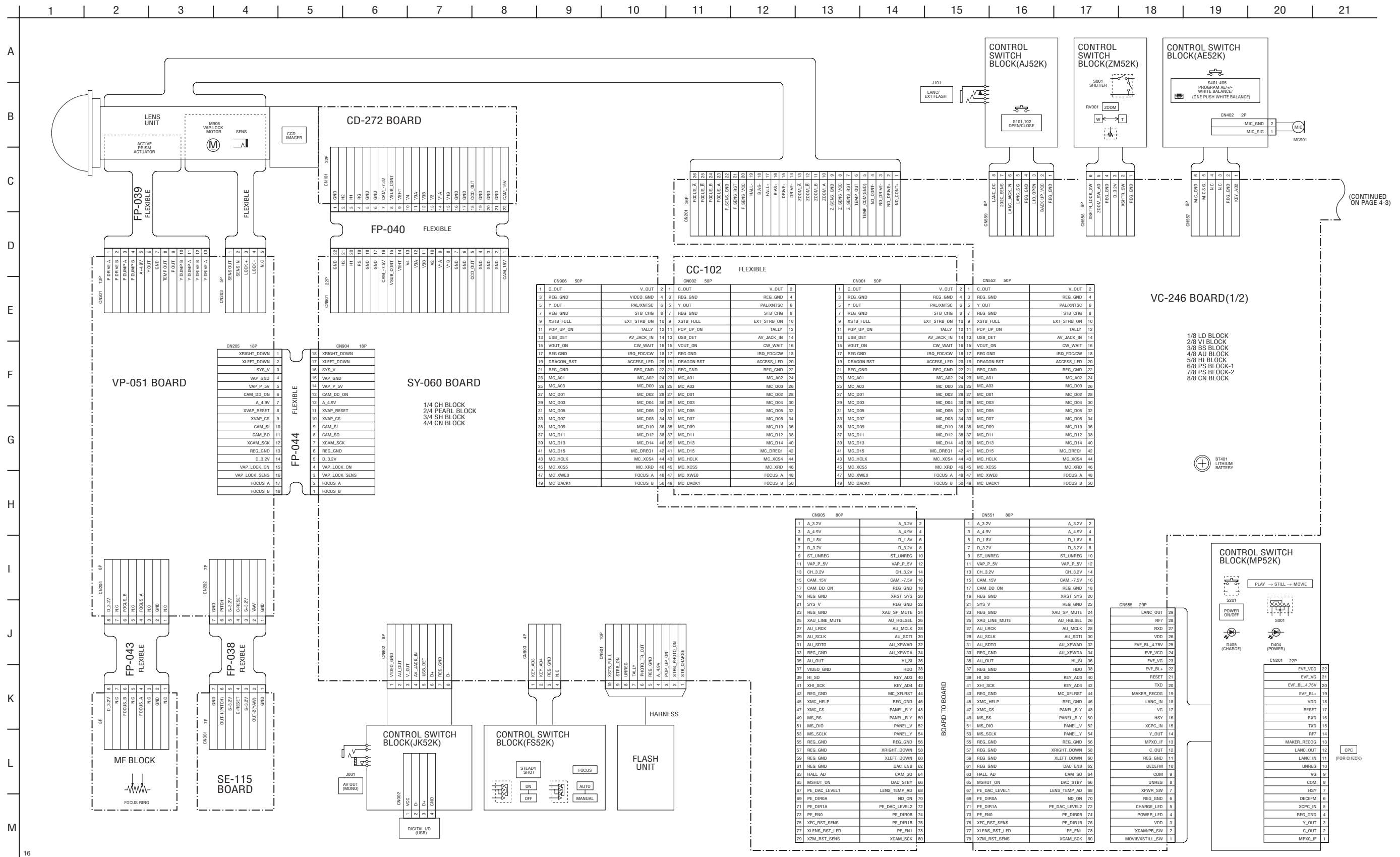
POWER BLOCK DIAGRAM-3 () : Page No. shown in () indicates the page to refer on the schematic diagram.



**Camera block diagrams and MD block diagrams are not shown.
Pages from 3-19 to 3-28 are not shown.**

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)



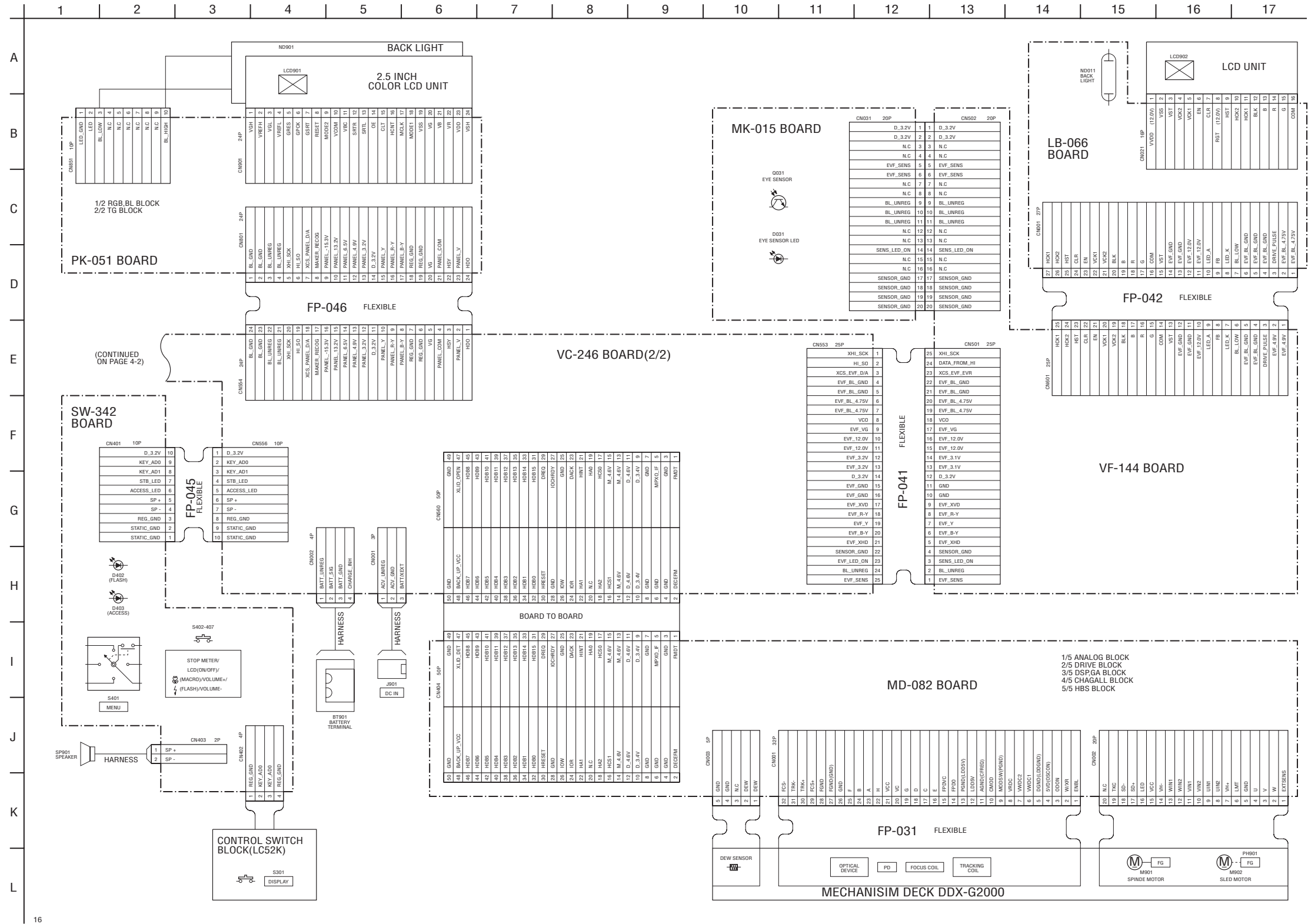
(CONTINUED ON PAGE 4-3)

1/8 LD BLOCK
2/8 VI BLOCK
3/8 BS BLOCK
4/8 AU BLOCK
5/8 HI BLOCK
6/8 PS BLOCK-1
7/8 PS BLOCK-2
8/8 CN BLOCK



CPC (FOR CHECK)

FRAME SCHEMATIC DIAGRAM (2/2)

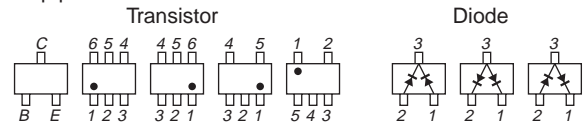


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

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

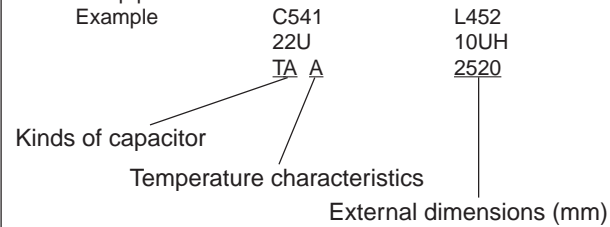
(For printed wiring boards)

- Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\mu\text{F}$. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W 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.



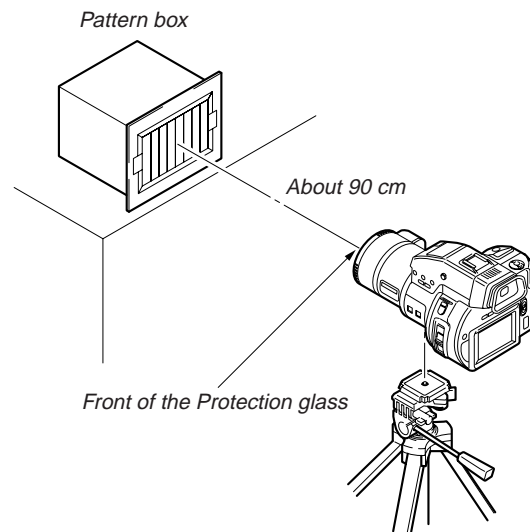
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
In such cases, the unused circuits may be indicated.
 - Parts with \star differ according to the model/destination.
Refer to the mount table for each function.
 - All variable and adjustable resistors have characteristic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

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

(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 M Ω input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.)*

1. Connection



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

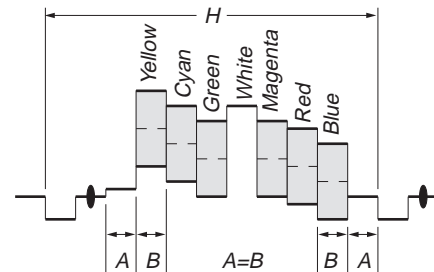


Fig. a (Video output terminal output waveform)

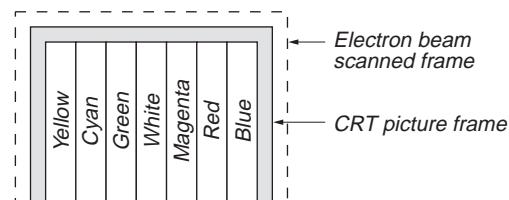


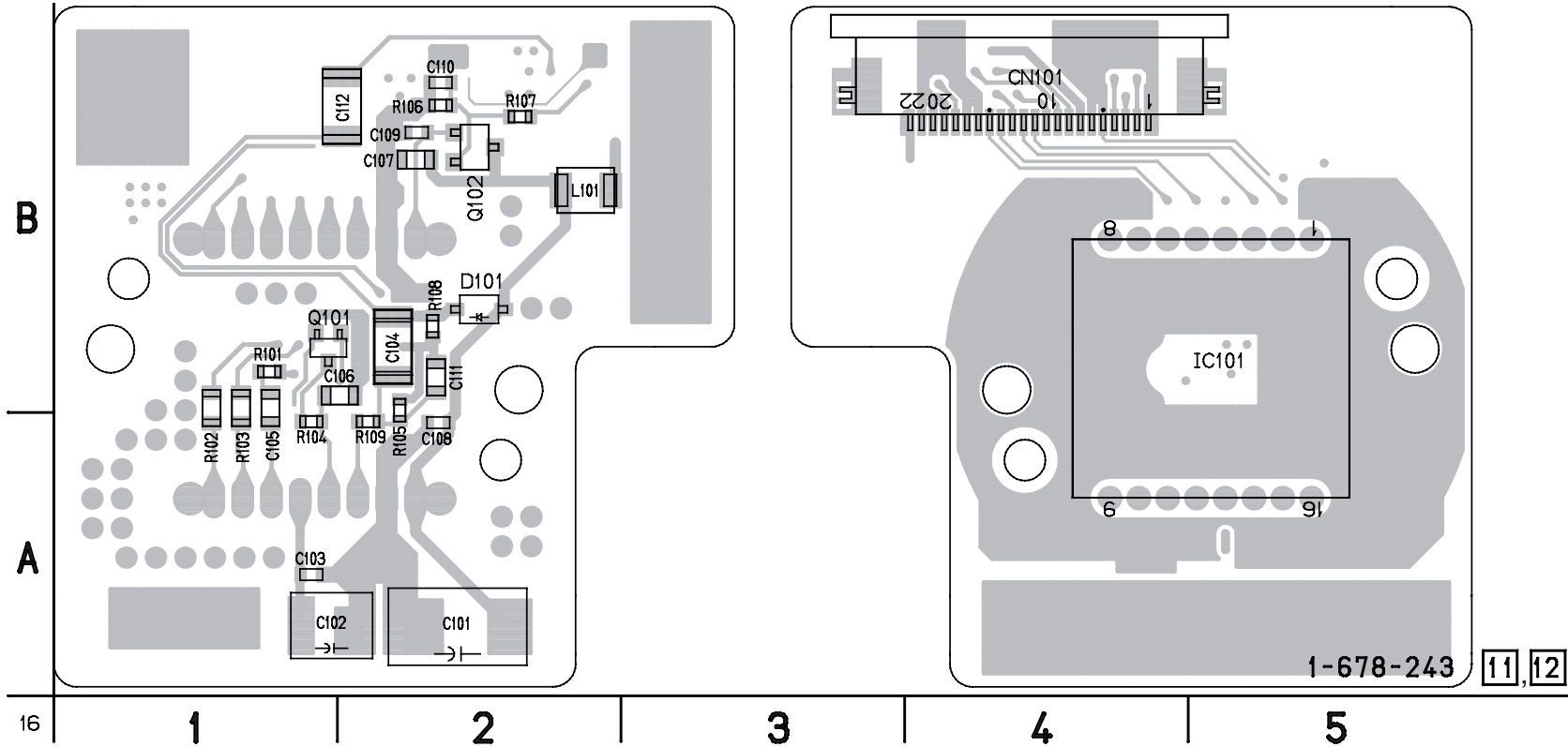
Fig. b (Picture on monitor TV)

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

CD-272 (CCD IMAGER) PRINTED WIRING BOARD
 — Ref. No. CD-272 Board; 1,000 Series —

CD-272 BOARD
 (SIDE A)

CD-272 BOARD
 (SIDE B)



For printed wiring boards

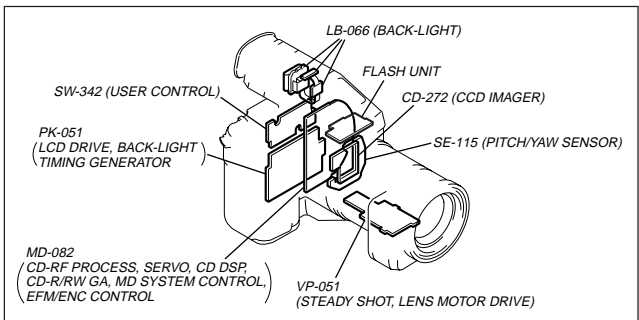
- Refer to page 4-94 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

• Chip parts

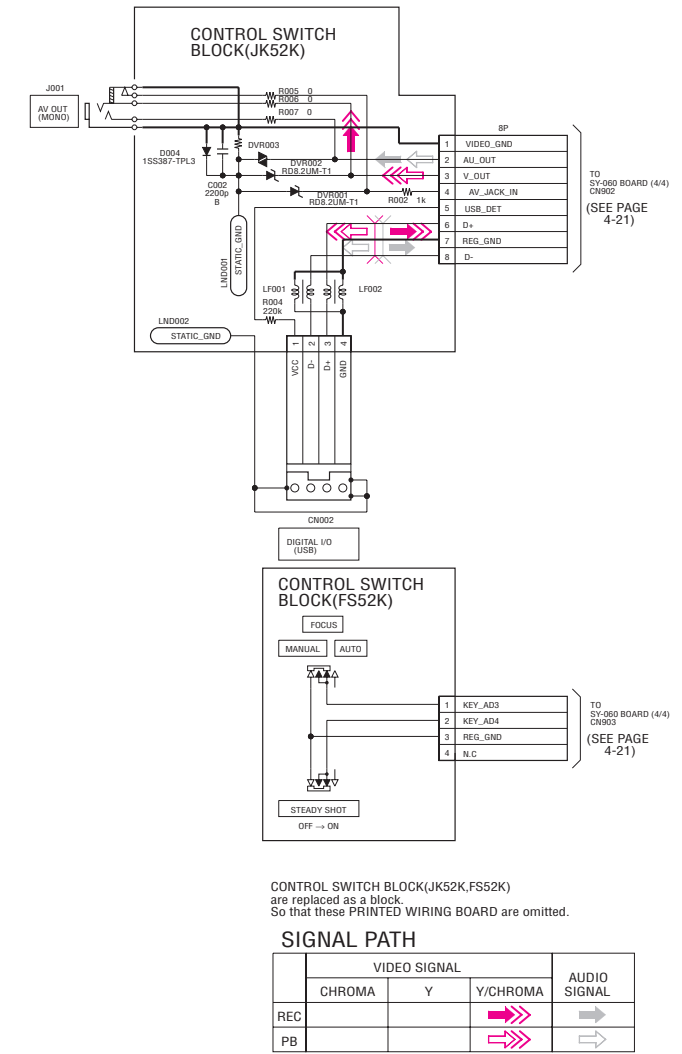
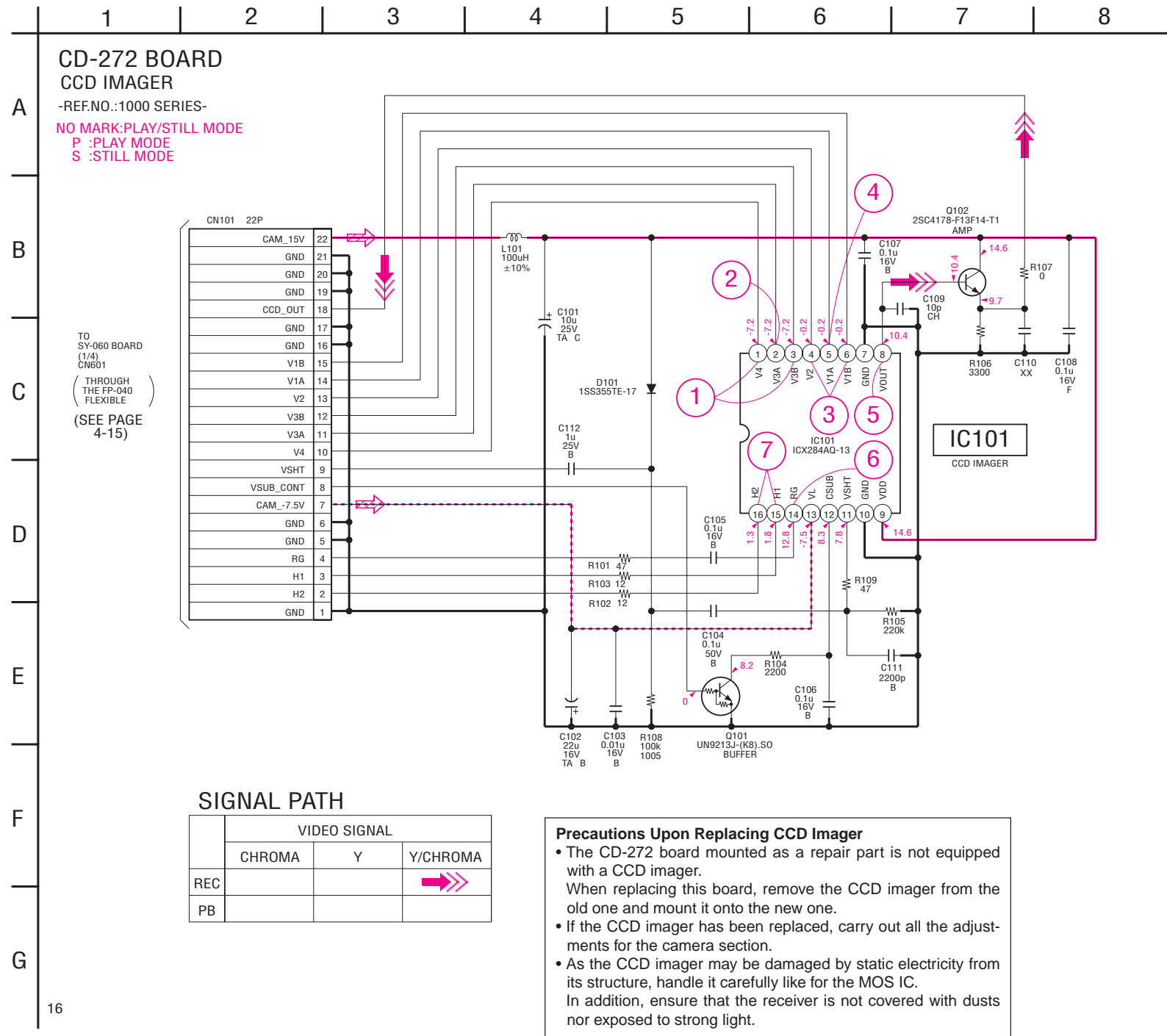
Transistor



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



For schematic diagram
 • Refer to page 4-89 for waveforms.



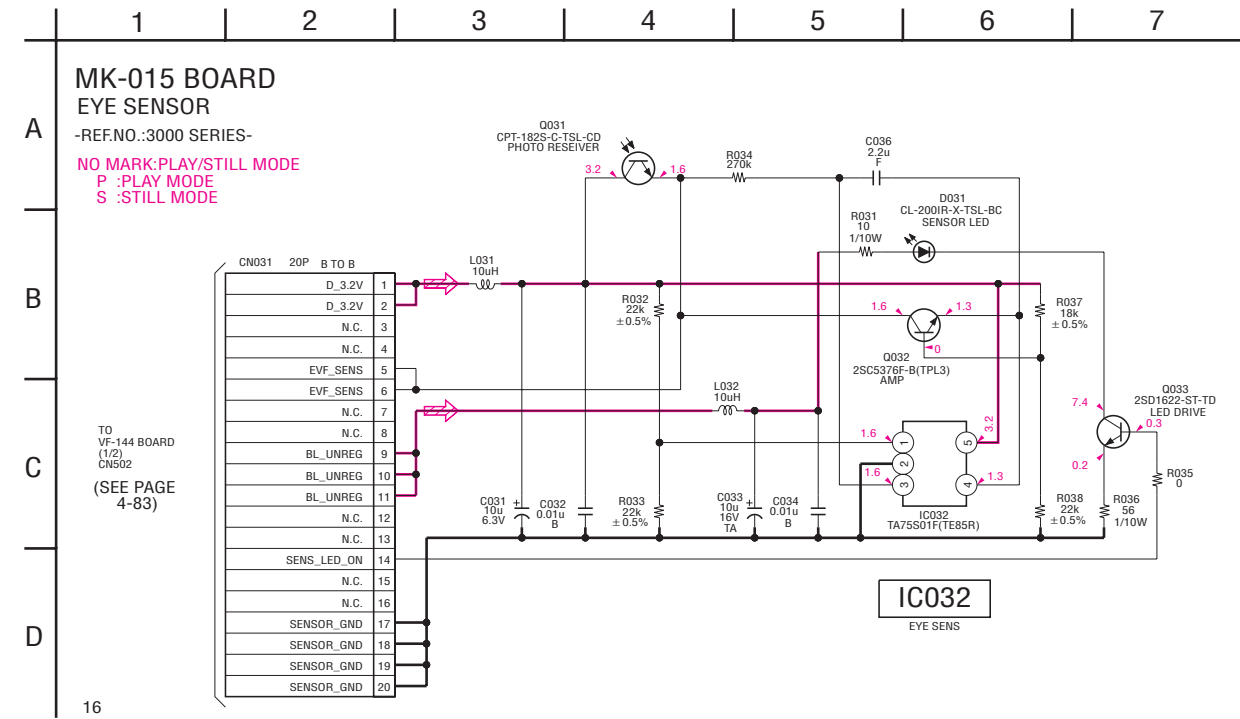
Schematic diagram and printed wiring board of the SY-060 and MD-082 boards are not shown.
Pages from 4-11 to 4-36 are not shown.

MK-015 (EYE SENSOR) PRINTED WIRING BOARD

— Ref. No. MK-015 Board: 3,000 Series —

MK-015 BOARD (SIDE A)

MK-015 BOARD (SIDE B)

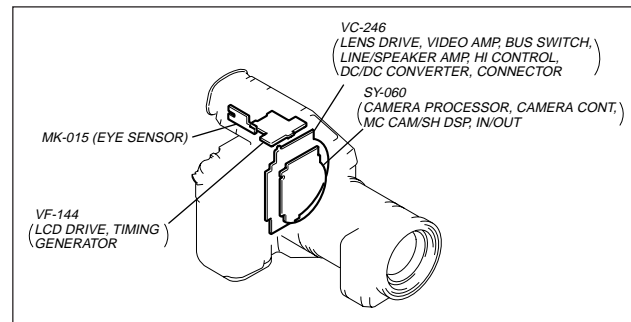


For printed wiring boards

- Refer to page 4-94 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

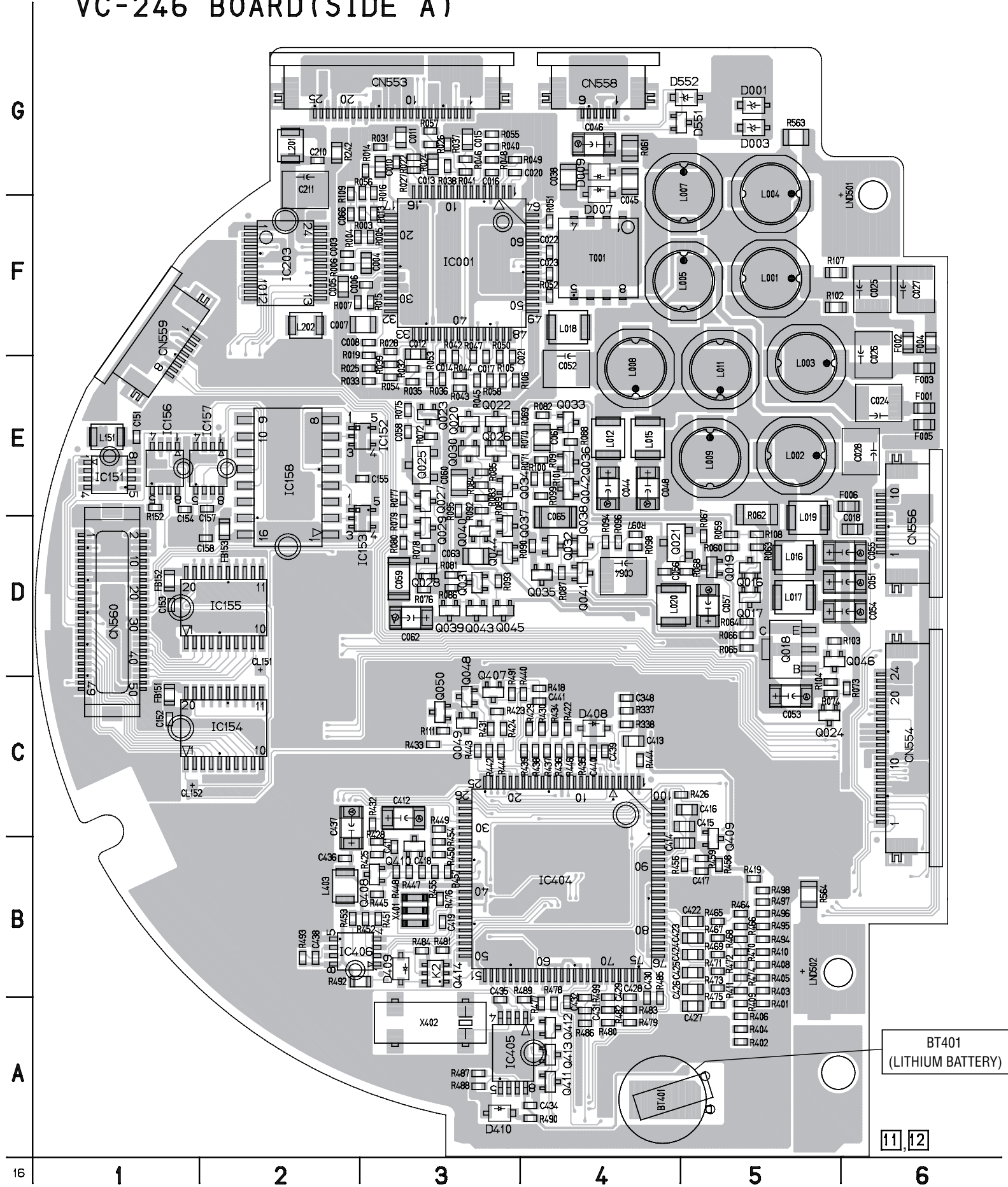
- Chip parts

Transistor



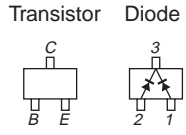
There are a few cases that the part printed on this diagram isn't mounted in this model.

VC-246 BOARD (SIDE A)

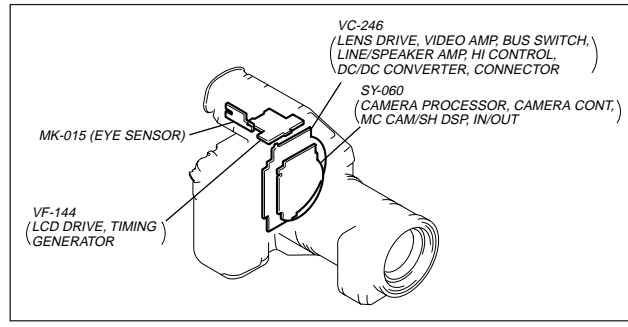


For printed wiring boards

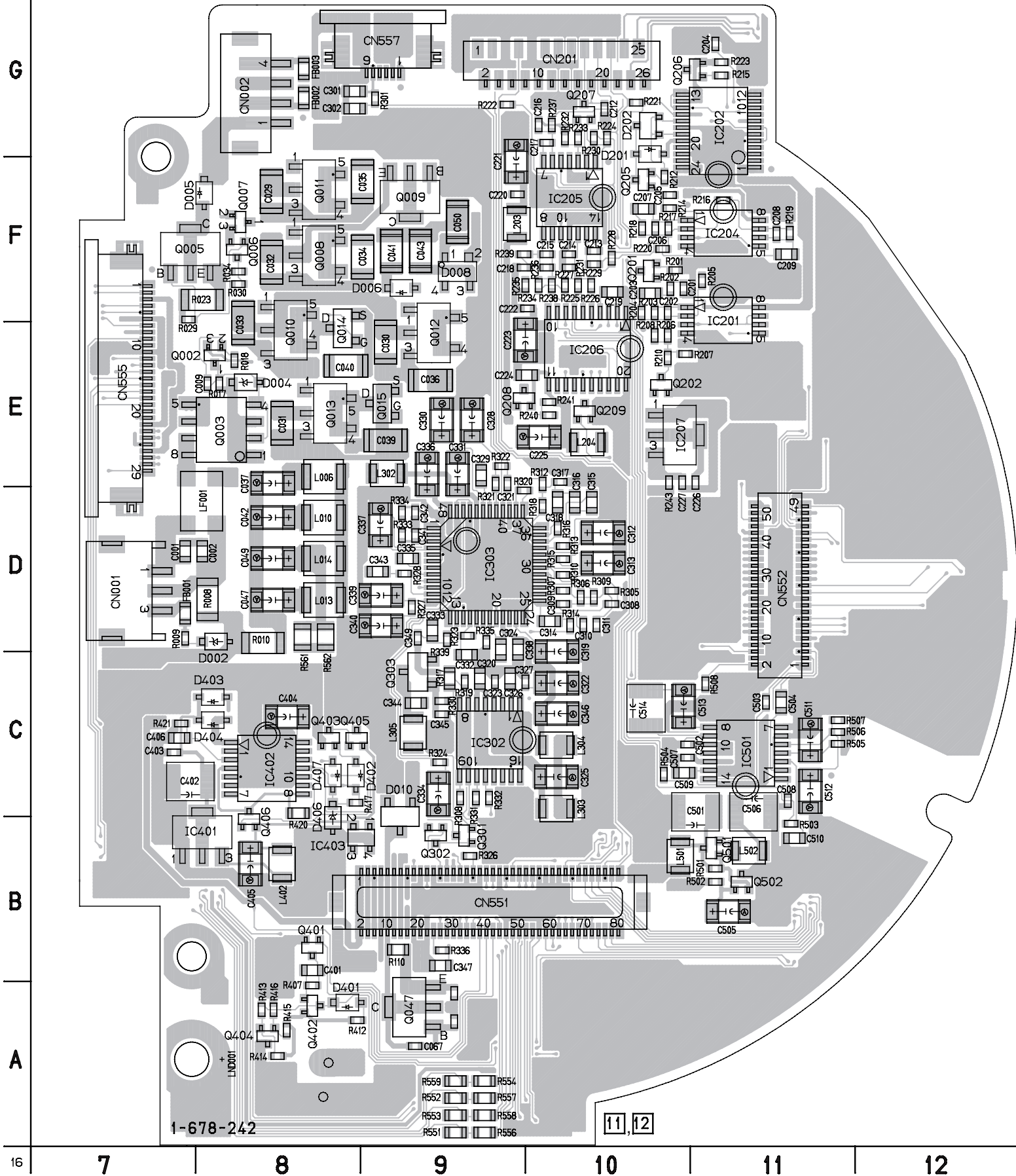
- Refer to pages 4-94, 95 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts



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



VC-246 BOARD (SIDE B)



LENS DRIVE, VIDEO AMP, BUS SWITCH, LINE/SPEAKER AMP, HI CONTROL, DC/DC CONVERTER-1,2

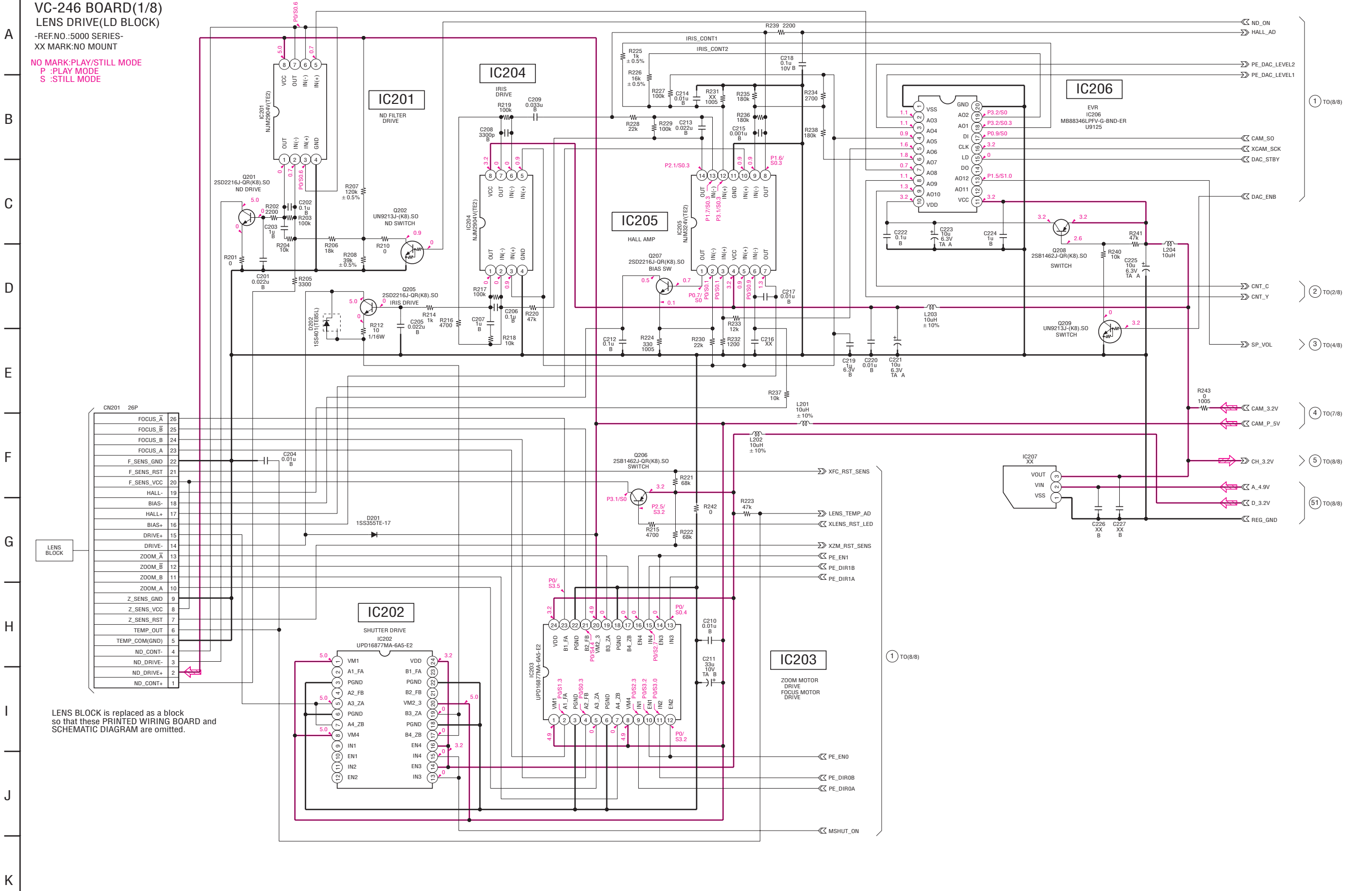
VC-246

For schematic diagram
• Refer to page 4-39 for printed wiring board.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

VC-246 BOARD(1/8)
LENS DRIVE(LD BLOCK)

-REF.NO.:5000 SERIES-
XX MARK:NO MOUNT
NO MARK:PLAY/STILL MODE
P :PLAY MODE
S :STILL MODE

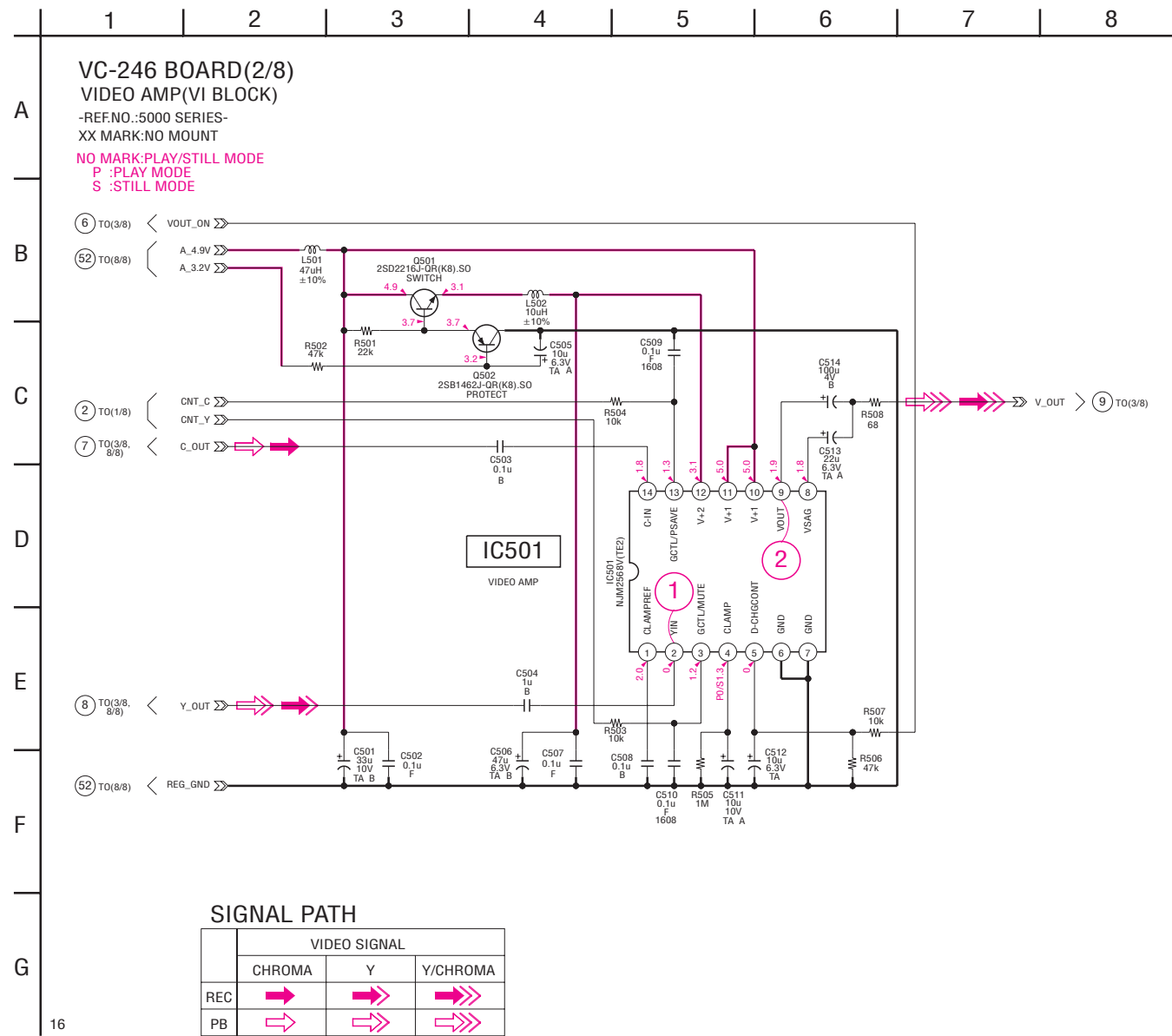


CN201	26P
FOCUS_A	26
FOCUS_B	25
FOCUS_B	24
FOCUS_A	23
F_SENS_GND	22
F_SENS_RST	21
F_SENS_VCC	20
HALL-	19
BIAS-	18
HALL+	17
BIAS+	16
DRIVE+	15
DRIVE-	14
ZOOM_A	13
ZOOM_B	12
ZOOM_B	11
ZOOM_A	10
Z_SENS_GND	9
Z_SENS_VCC	8
Z_SENS_RST	7
TEMP_OUT	6
TEMP_COM(GND)	5
ND_CONT-	4
ND_DRIVE-	3
ND_DRIVE+	2
ND_CONT+	1

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

For schematic diagram

- Refer to page 4-39 for printed wiring board.
- Refer to page 4-89 for waveforms.



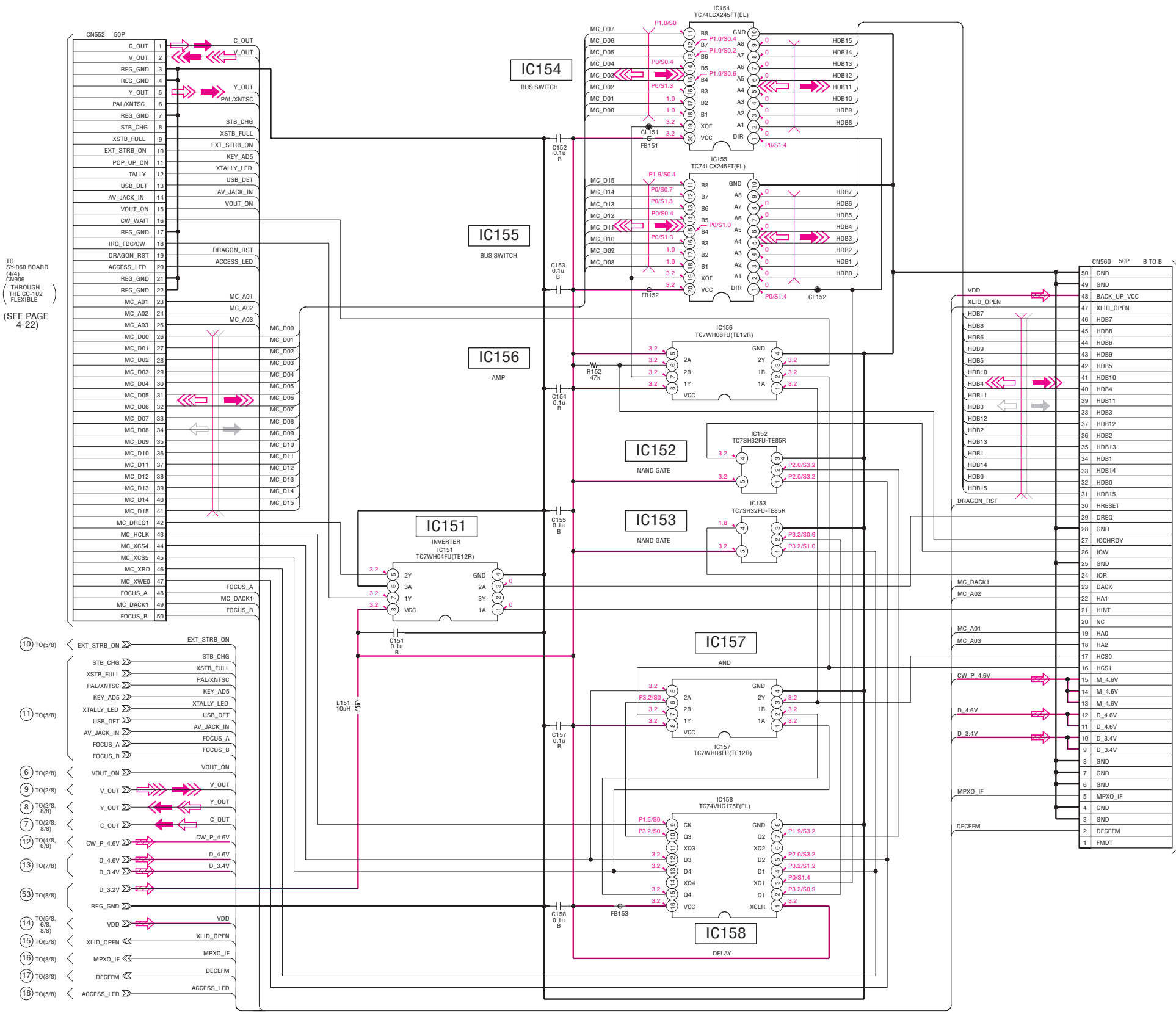
16

For schematic diagram
 • Refer to page 4-39 for printed wiring board.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

VC-246 BOARD(3/8)
 CAMERA/MD INTERFACE
 (BS BLOCK)
 -REF.NO.:5000 SERIES-
 XX MARK:NO MOUNT
 NO MARK:PLAY/STILL MODE
 P :PLAY MODE
 S :STILL MODE

A
 B
 C
 D
 E
 F
 G
 H
 I
 J
 K
 L



TO SY-060 BOARD (4/4) CN906 THROUGH THE GC-102 FLEXIBLE (SEE PAGE 4-22)

TO MD-082 BOARD(5/5) CN404 (SEE PAGE 4-36)

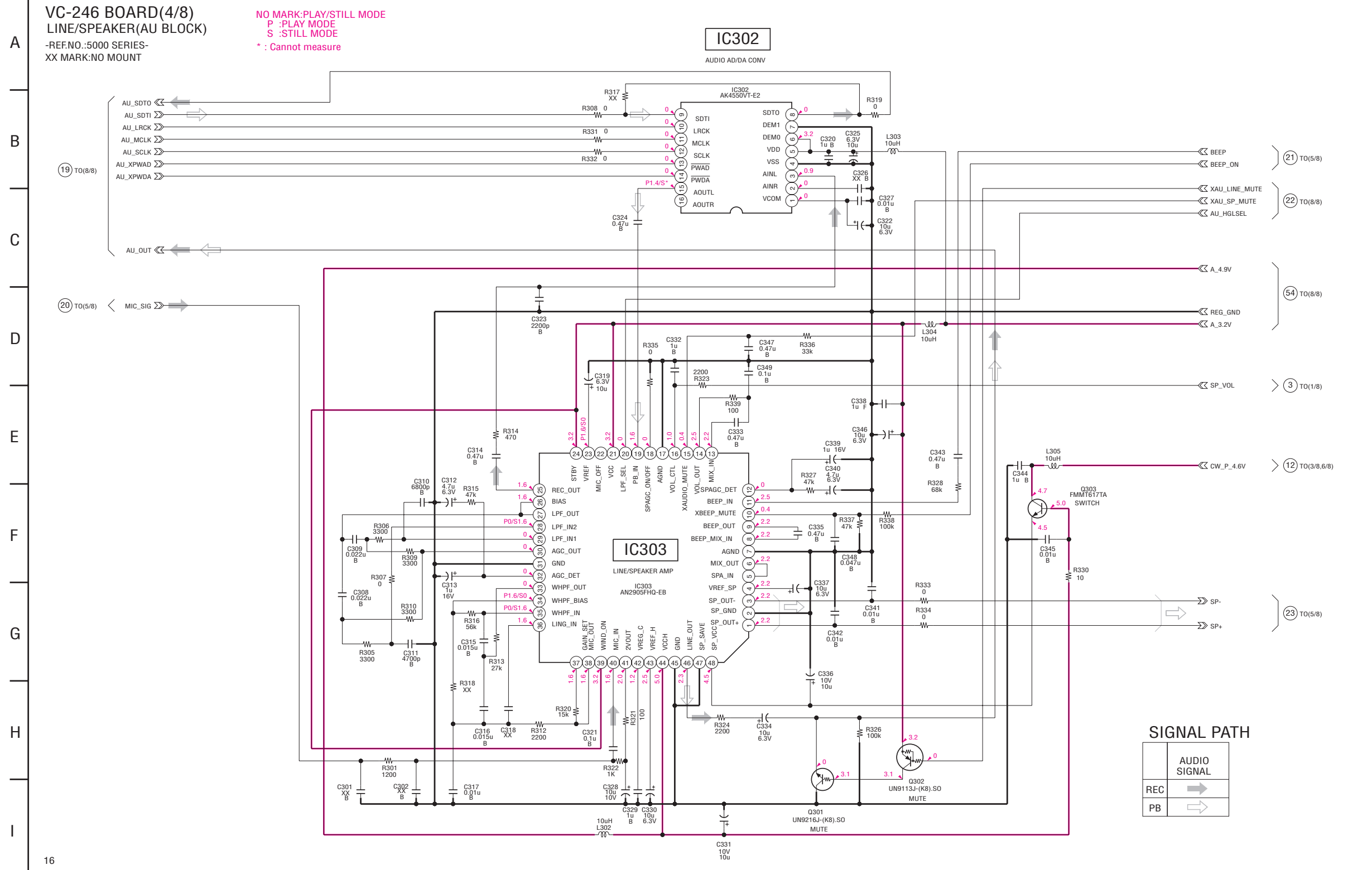
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→	→
PB	→	→	→	→

For schematic diagram

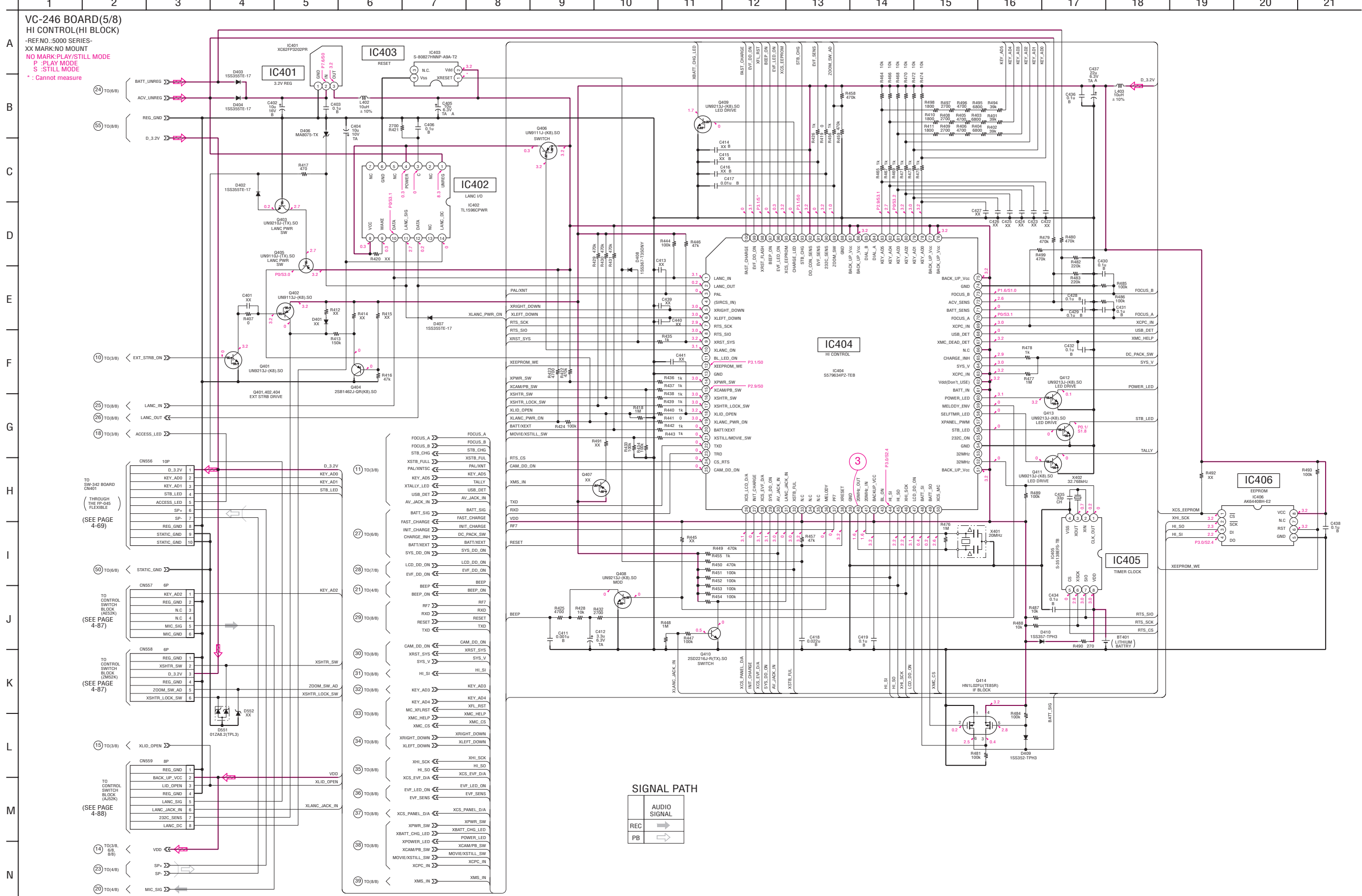
• Refer to page 4-39 for printed wiring board.

1 2 3 4 5 6 7 8 9 10 11 12 13 14



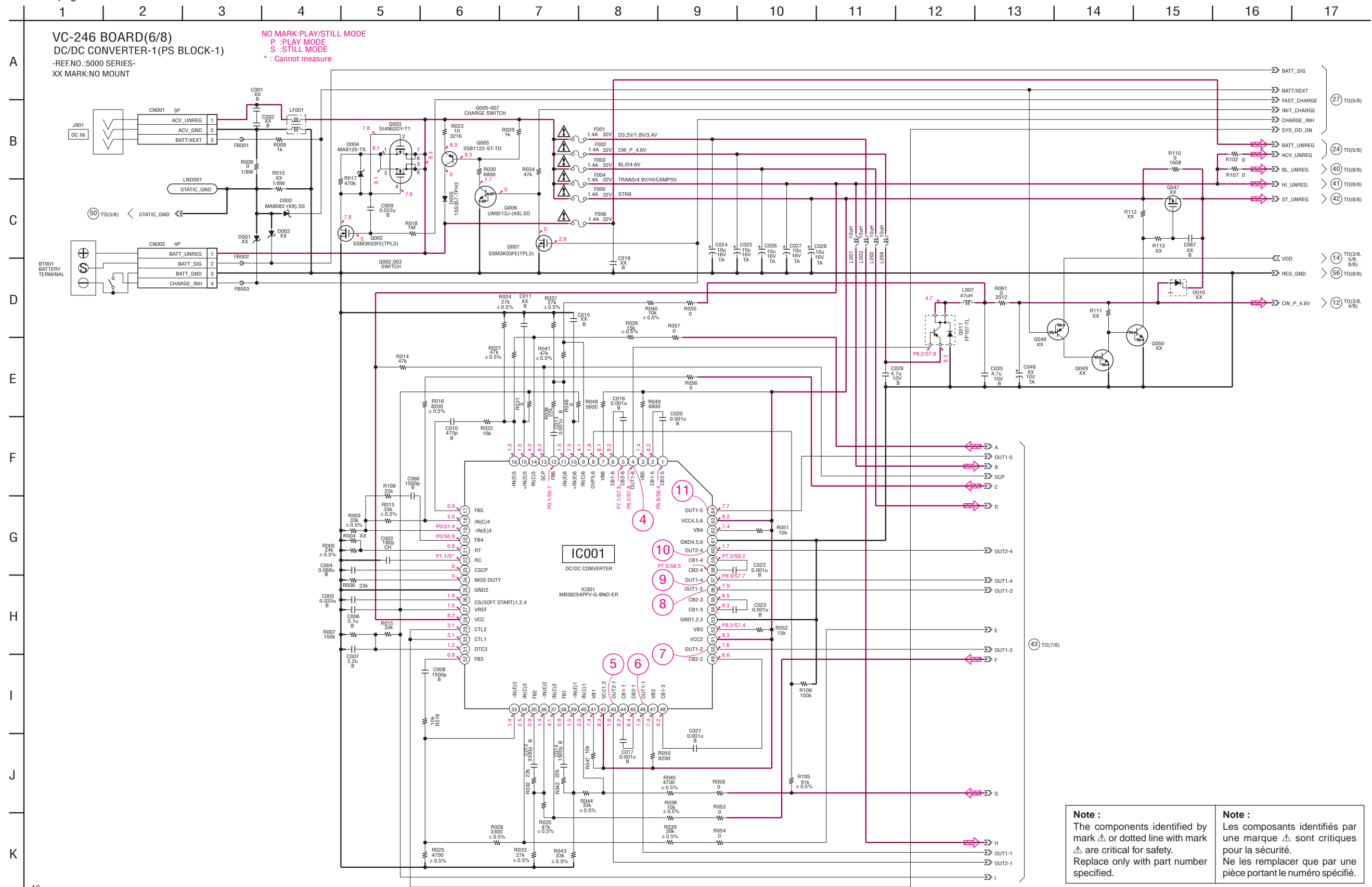
16

For schematic diagram
• Refer to page 4-39 for printed wiring board.
• Refer to page 4-89 for waveform.



For schematic diagram

- Refer to page 4-39 for printed wiring board.
- Refer to page 4-89 for waveforms.

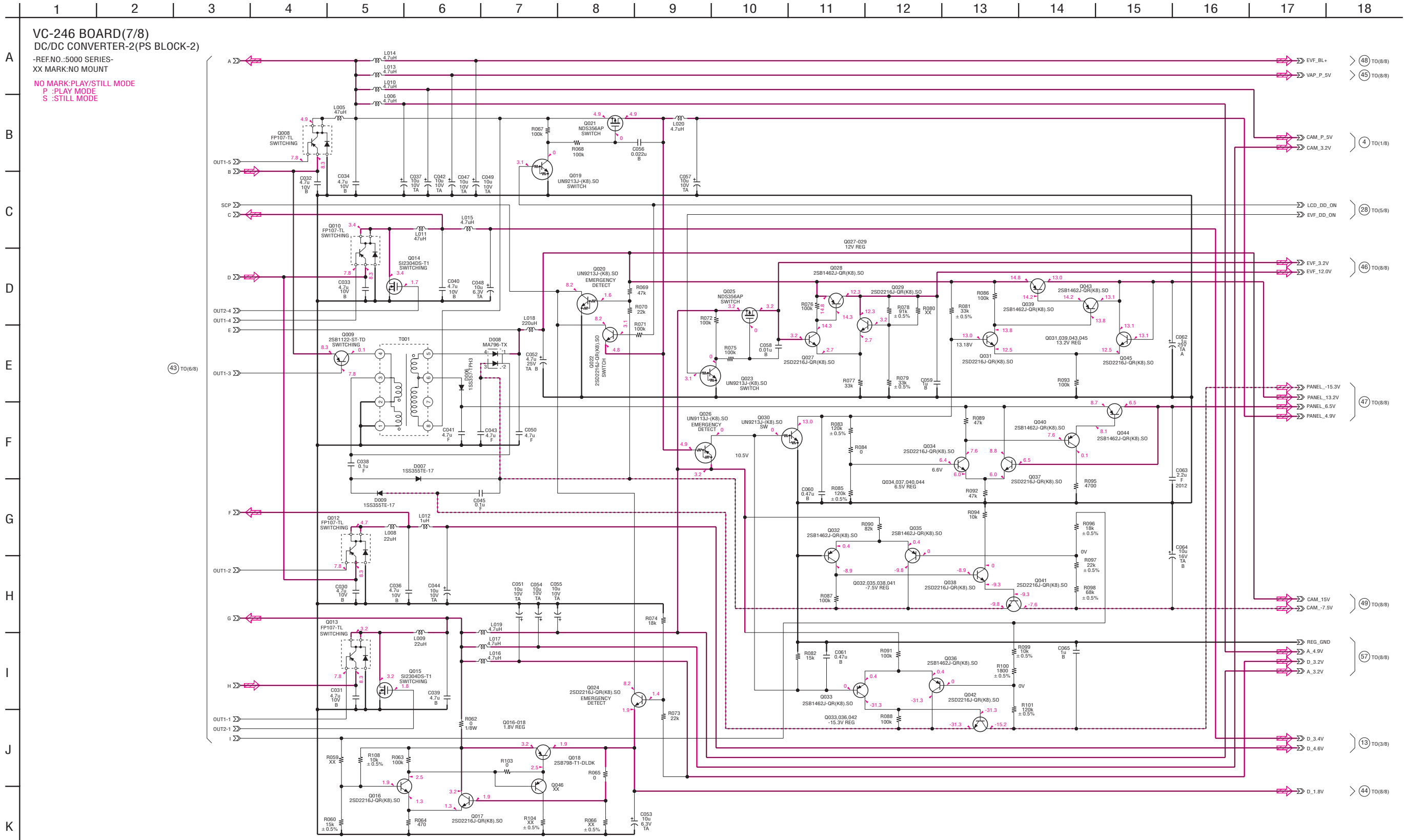


Note :
 The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

For schematic diagram

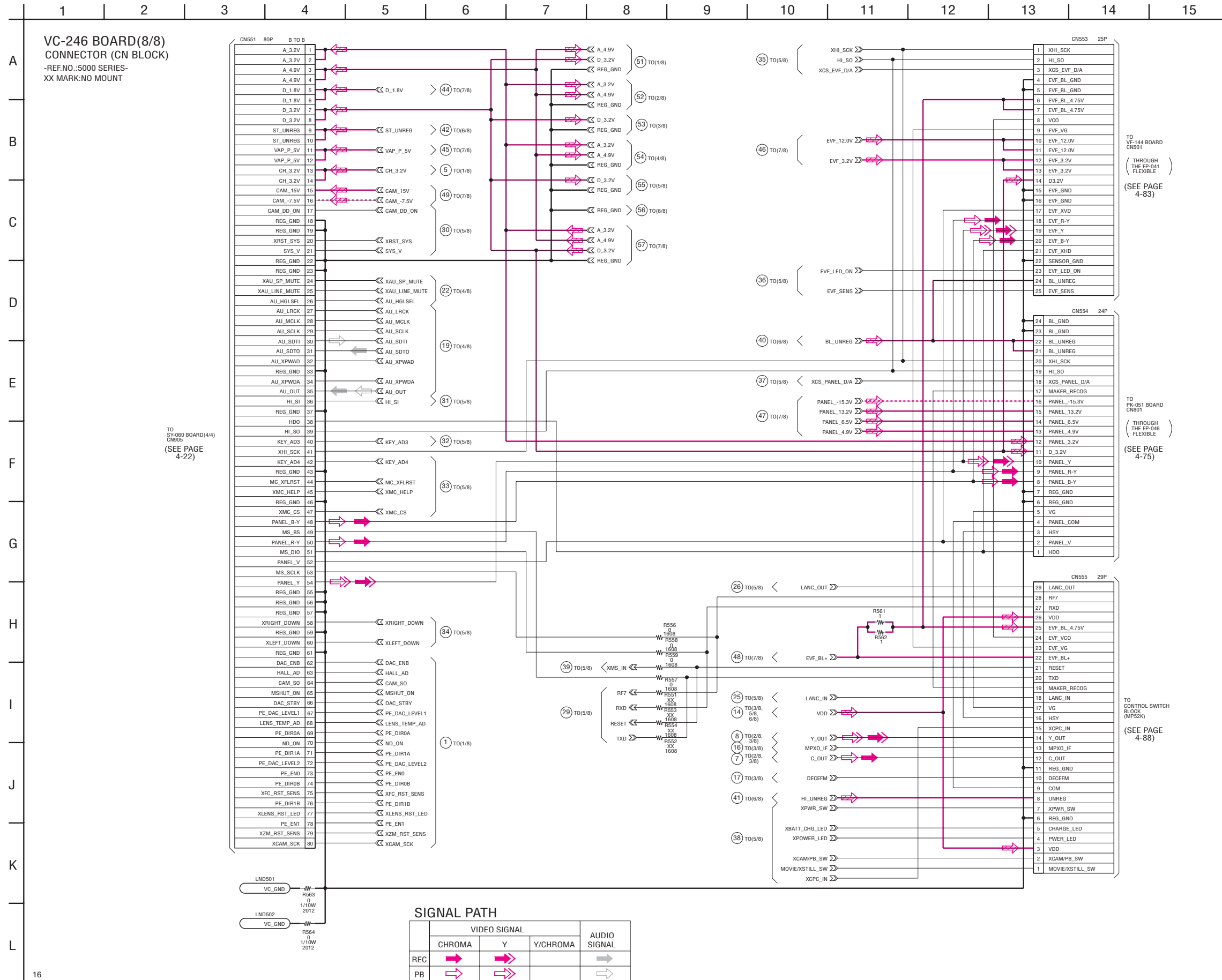
Refer to page 4-39 for printed wiring board.



VC-246 BOARD(7/8)
 DC/DC CONVERTER-2(PS BLOCK-2)
 -REF.NO.:5000 SERIES-
 XX MARK:NO MOUNT
 NO MARK:PLAY/STILL MODE
 P :PLAY MODE
 S :STILL MODE

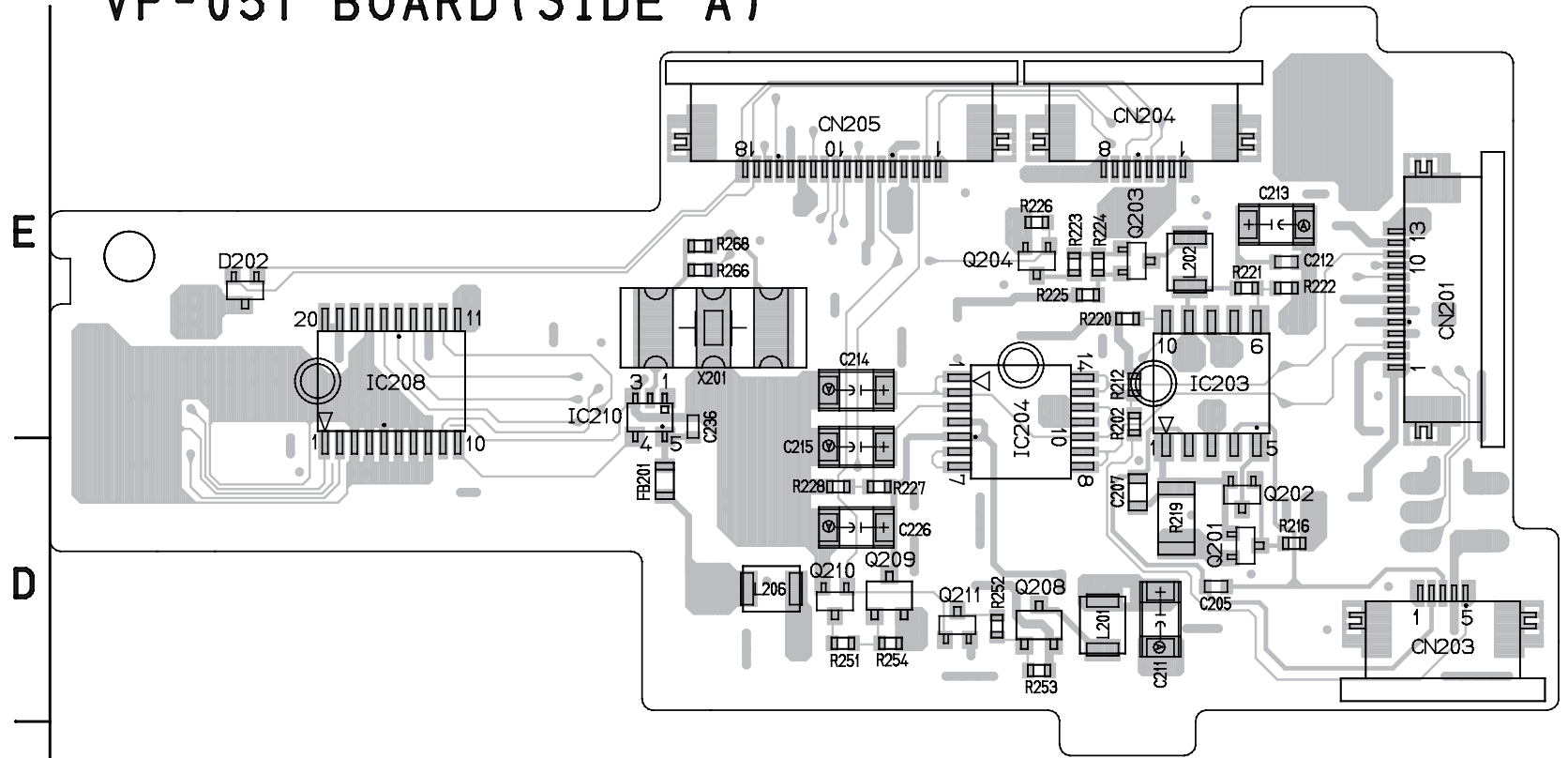
For schematic diagram

• Refer to page 4-39 for printed wiring board.

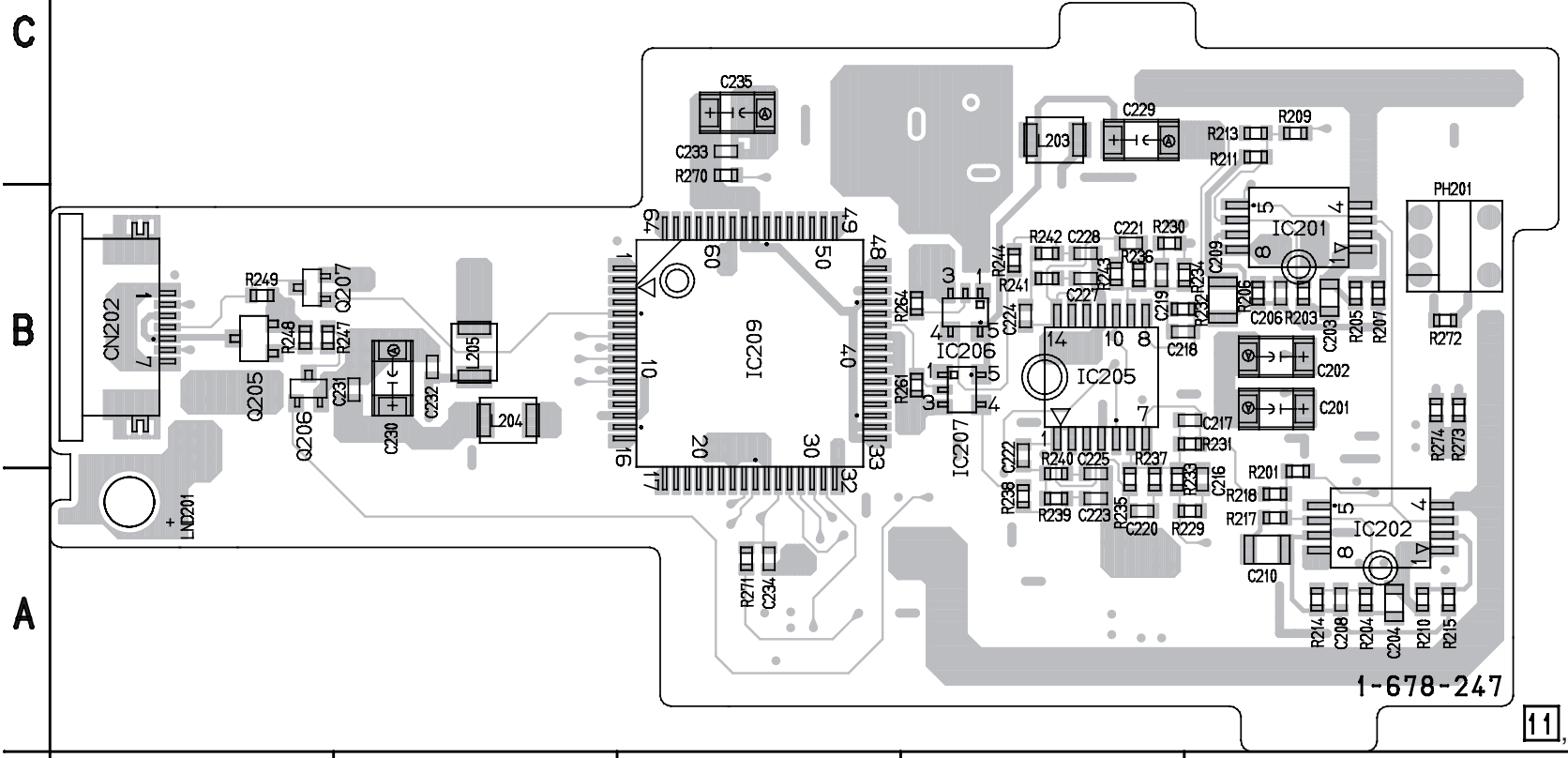


VP-051 (STEADY SHOT, LENS MOTOR DRIVE) PRINTED WIRING BOARD
 — Ref. No. VP-051 Board; 6,000 Series —

VP-051 BOARD (SIDE A)



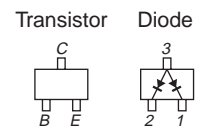
VP-051 BOARD (SIDE B)



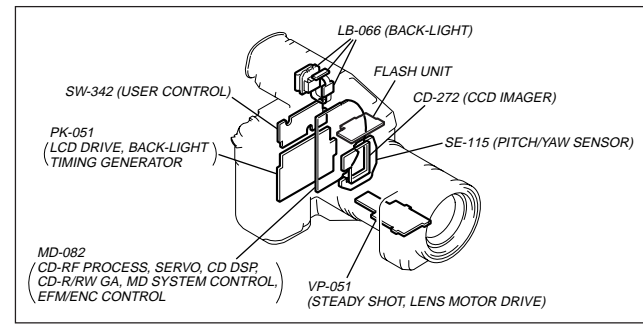
For printed wiring boards

- Refer to page 4-95 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

• Chip parts



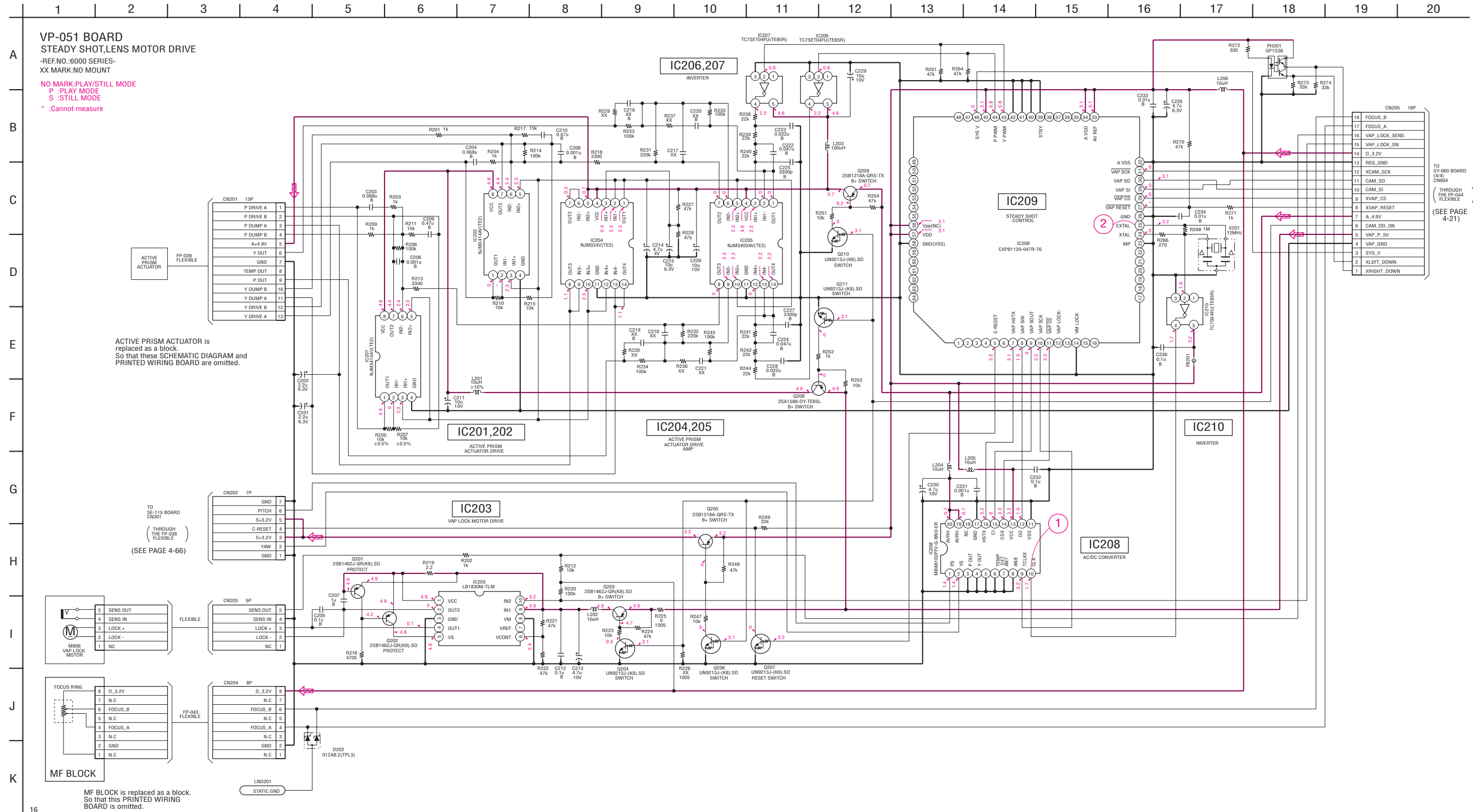
There are a few cases that the part printed on this diagram isn't mounted in this model.



1-678-247

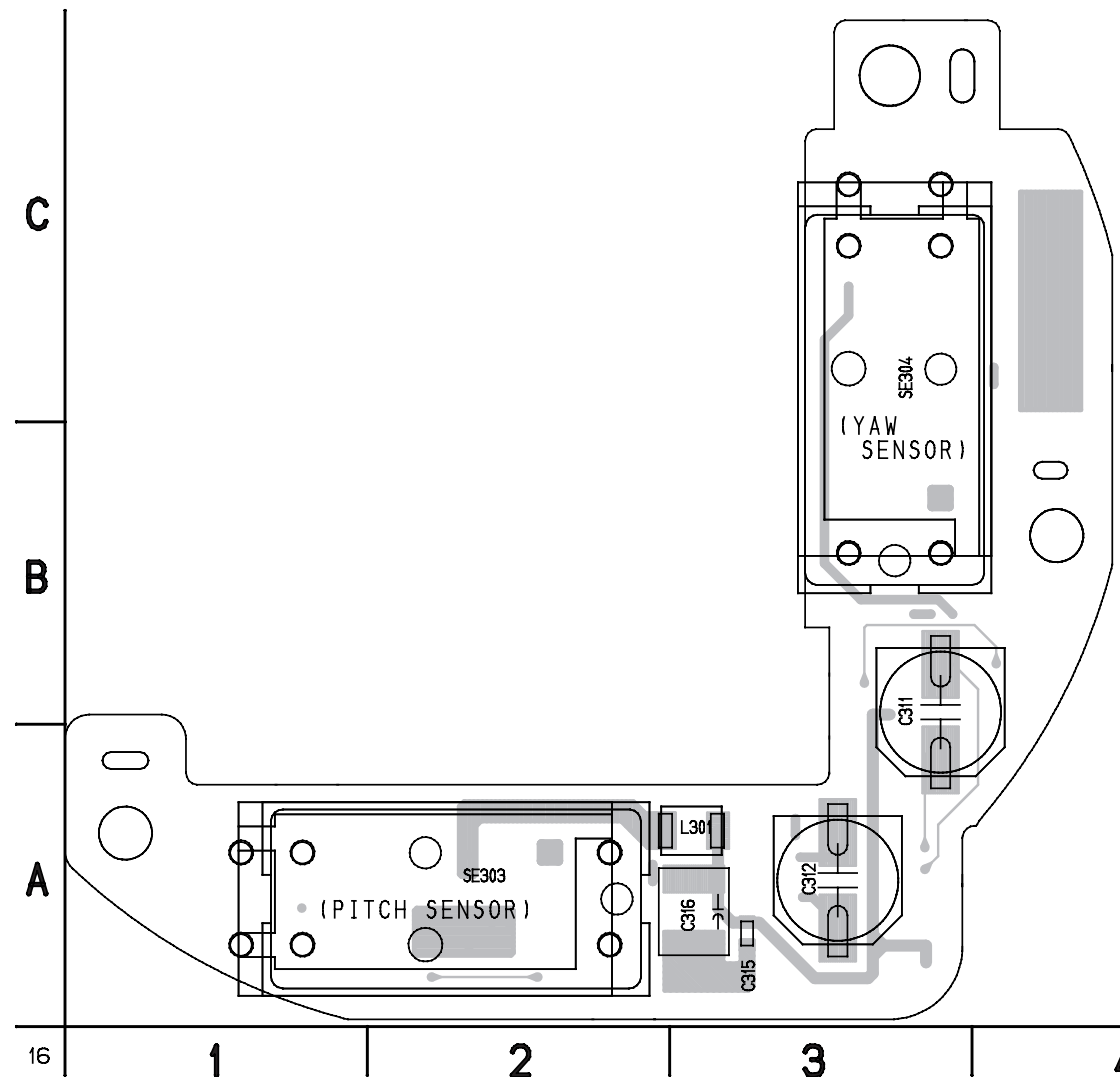
11 12

For schematic diagram
• Refer to page 4-90 for waveforms.

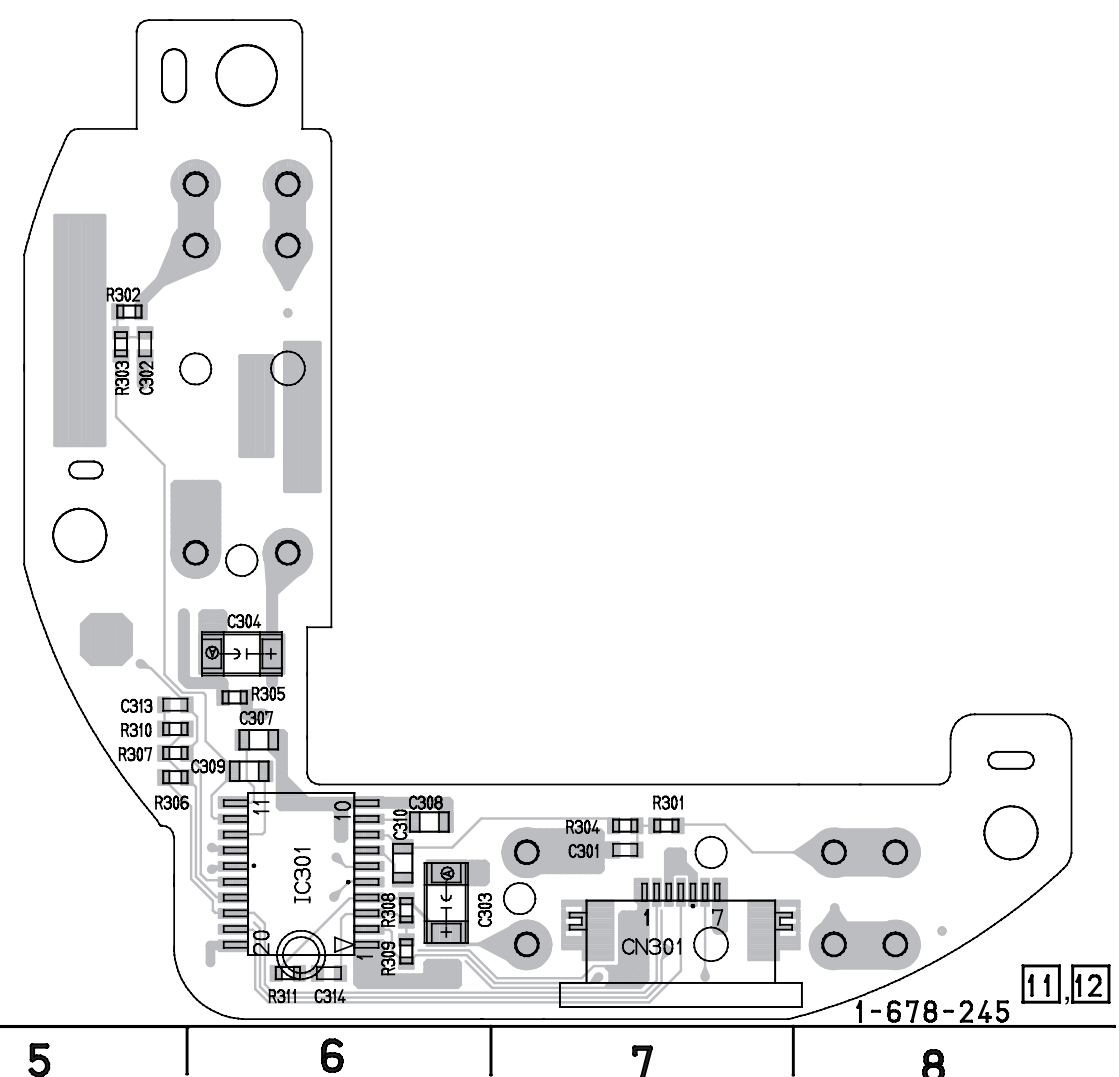


SE-115 (PITCH/YAW SENSOR) PRINTED WIRING BOARD
 — Ref. No. SE-115 Board; 4,000 Series —

SE-115 BOARD (SIDE A)



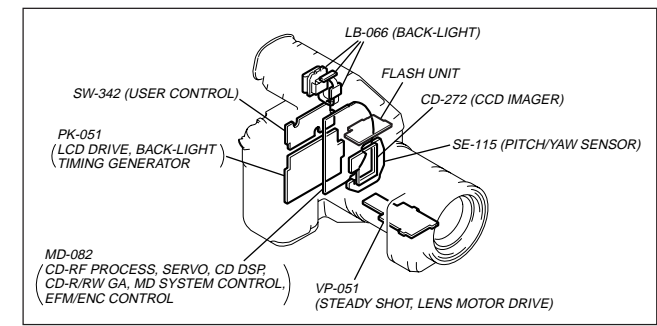
SE-115 BOARD (SIDE B)

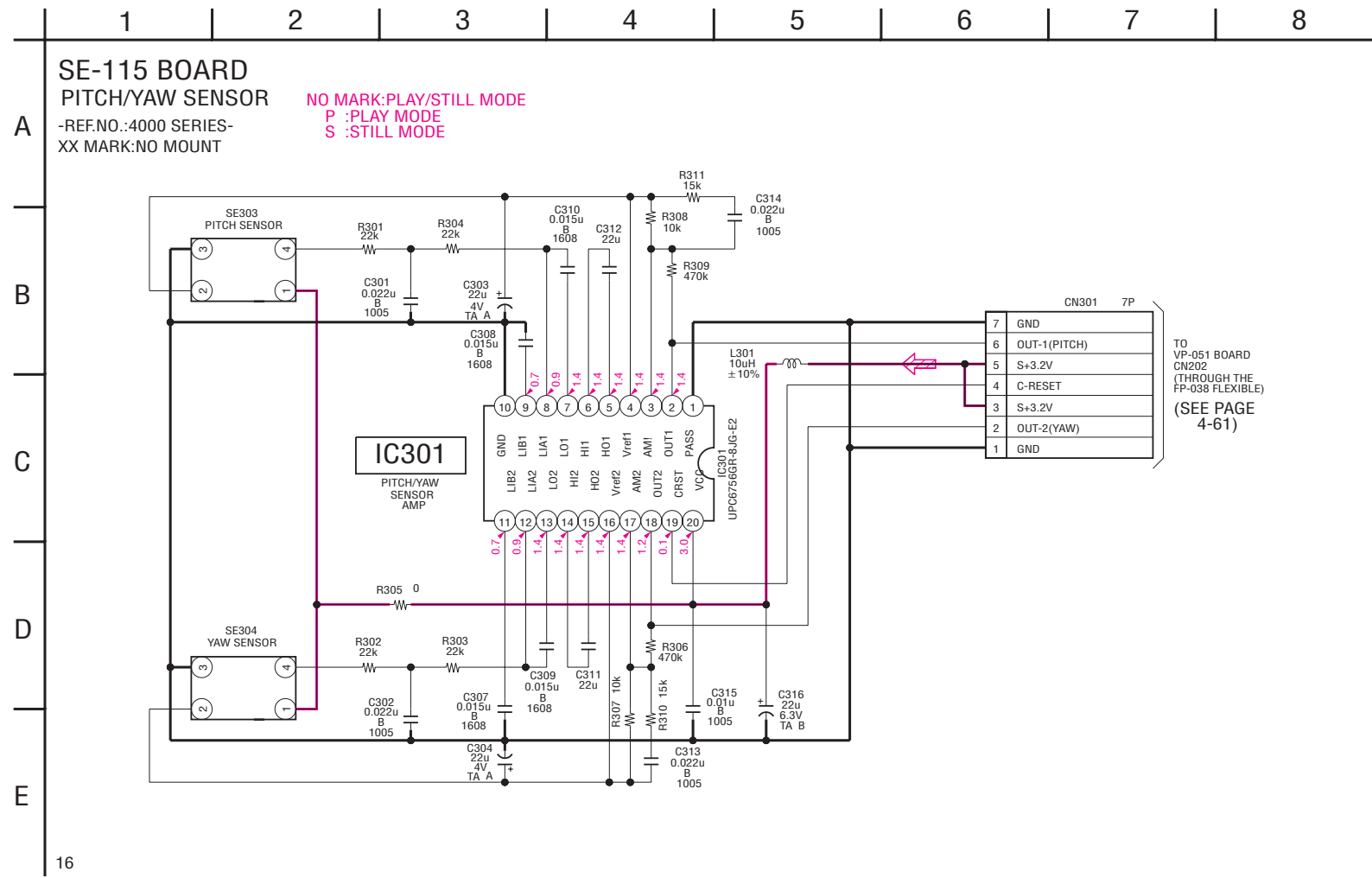


For printed wiring boards

- Refer to page 4-96 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

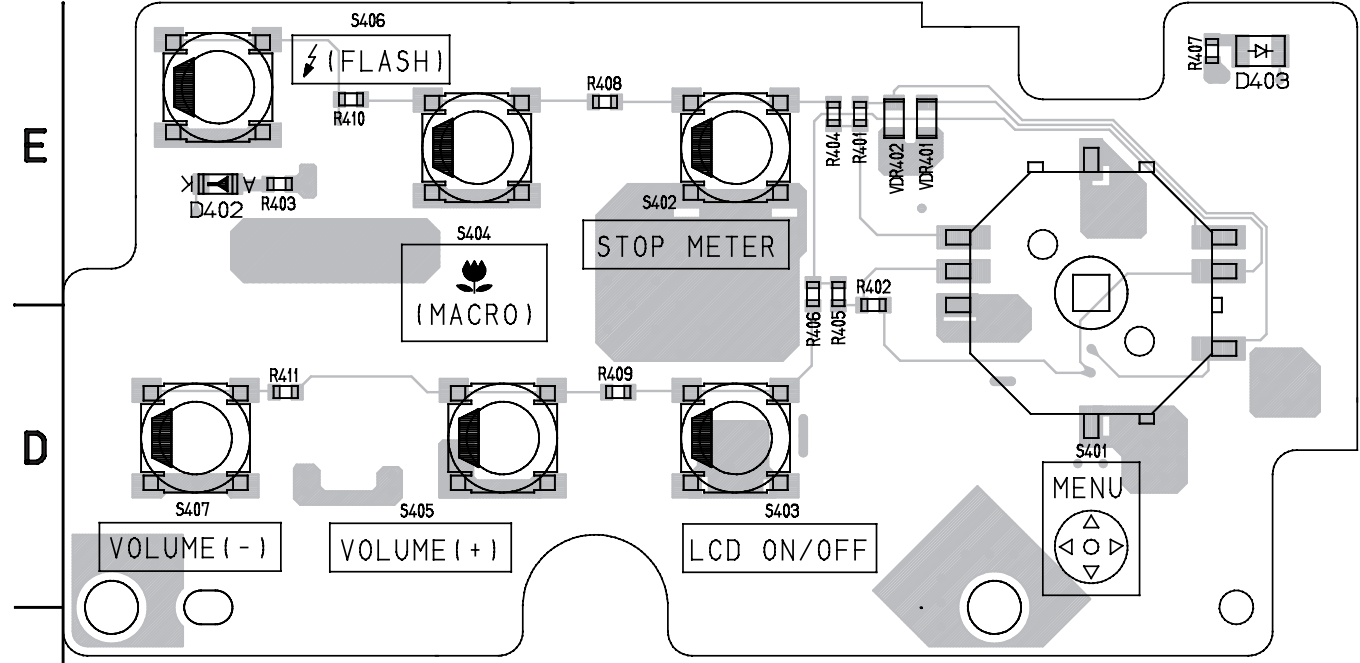
There are a few cases that the part printed on this diagram isn't mounted in this model.



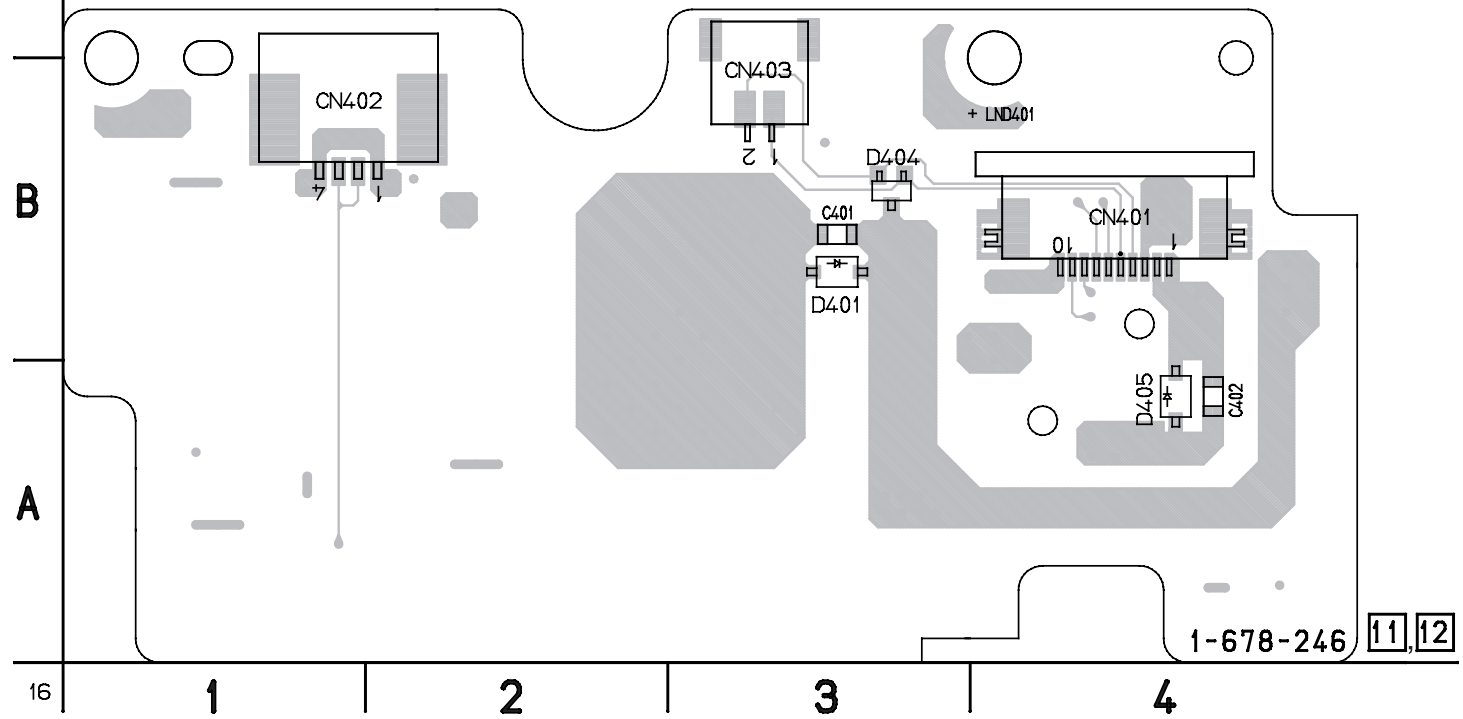


SW-342 (USER CONTROL) PRINTED WIRING BOARD
 — Ref. No. SW-342 Board; 4,000 Series —

SW-342 BOARD (SIDE A)



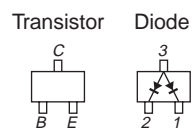
SW-342 BOARD (SIDE B)



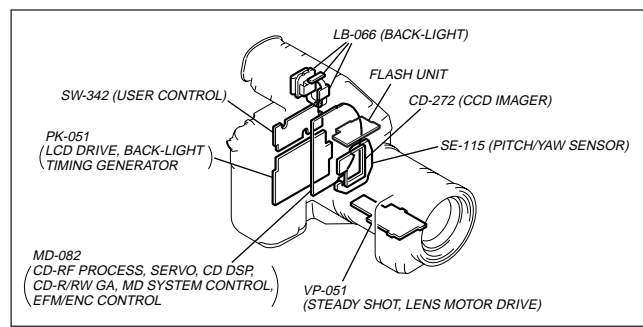
For printed wiring boards

- Refer to page 4-96 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

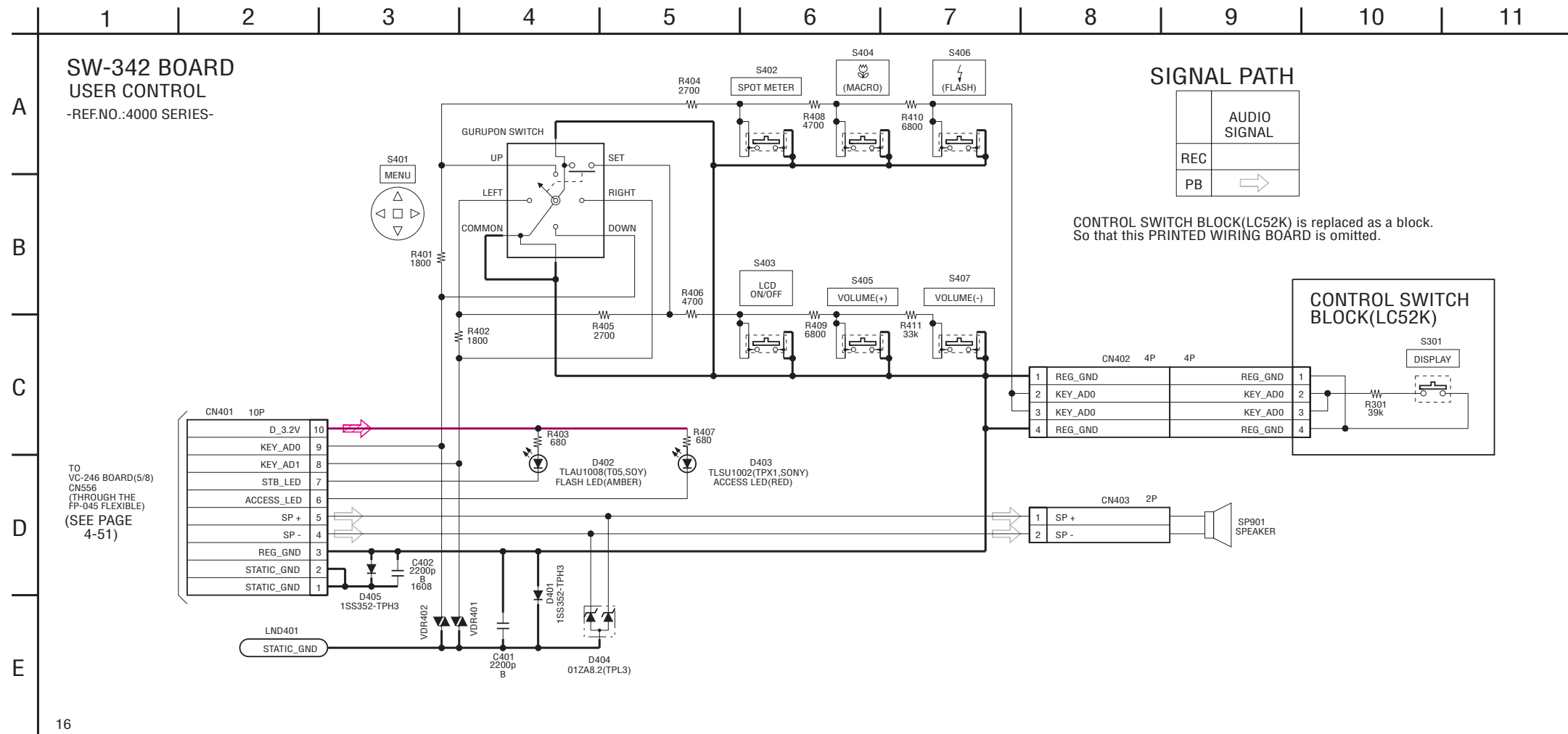
• Chip parts



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

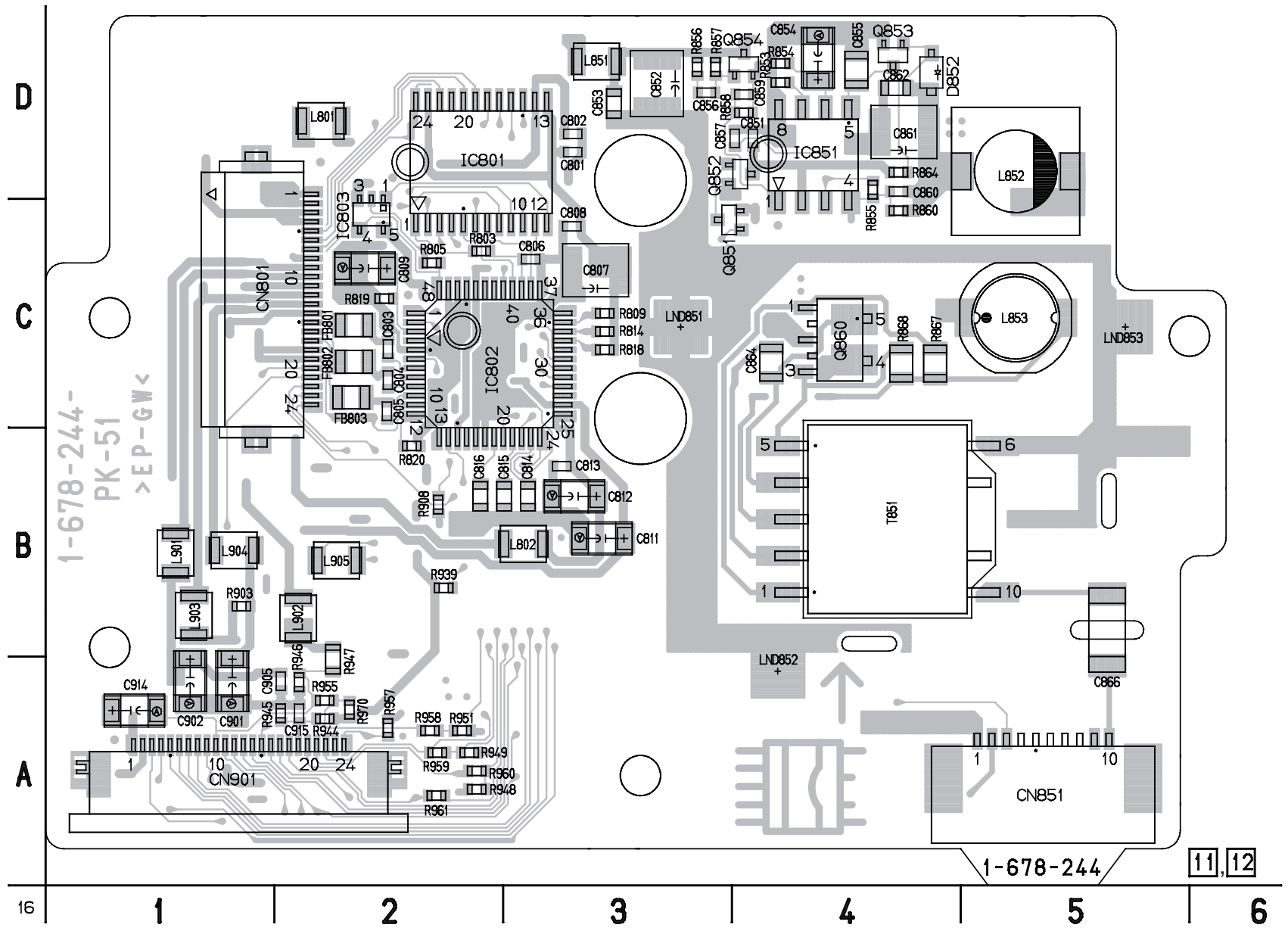


1-678-246 [11] [12]



PK-051 (LCD DRIVE, BACK-LIGHT, TIMING GENERATOR) PRINTED WIRING BOARD
 — Ref. No. PK-051 Board; 3,000 Series —

PK-051 BOARD (SIDE A)

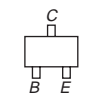


For printed wiring boards

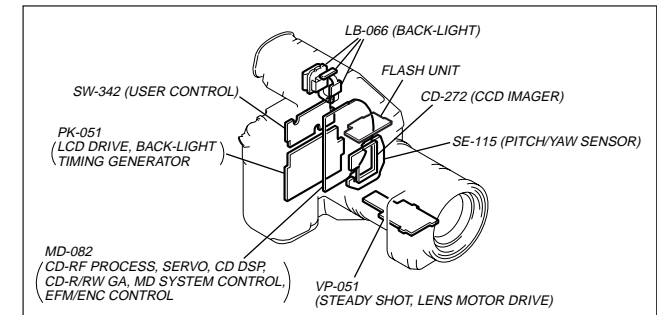
- Refer to page 4-96 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

• Chip parts

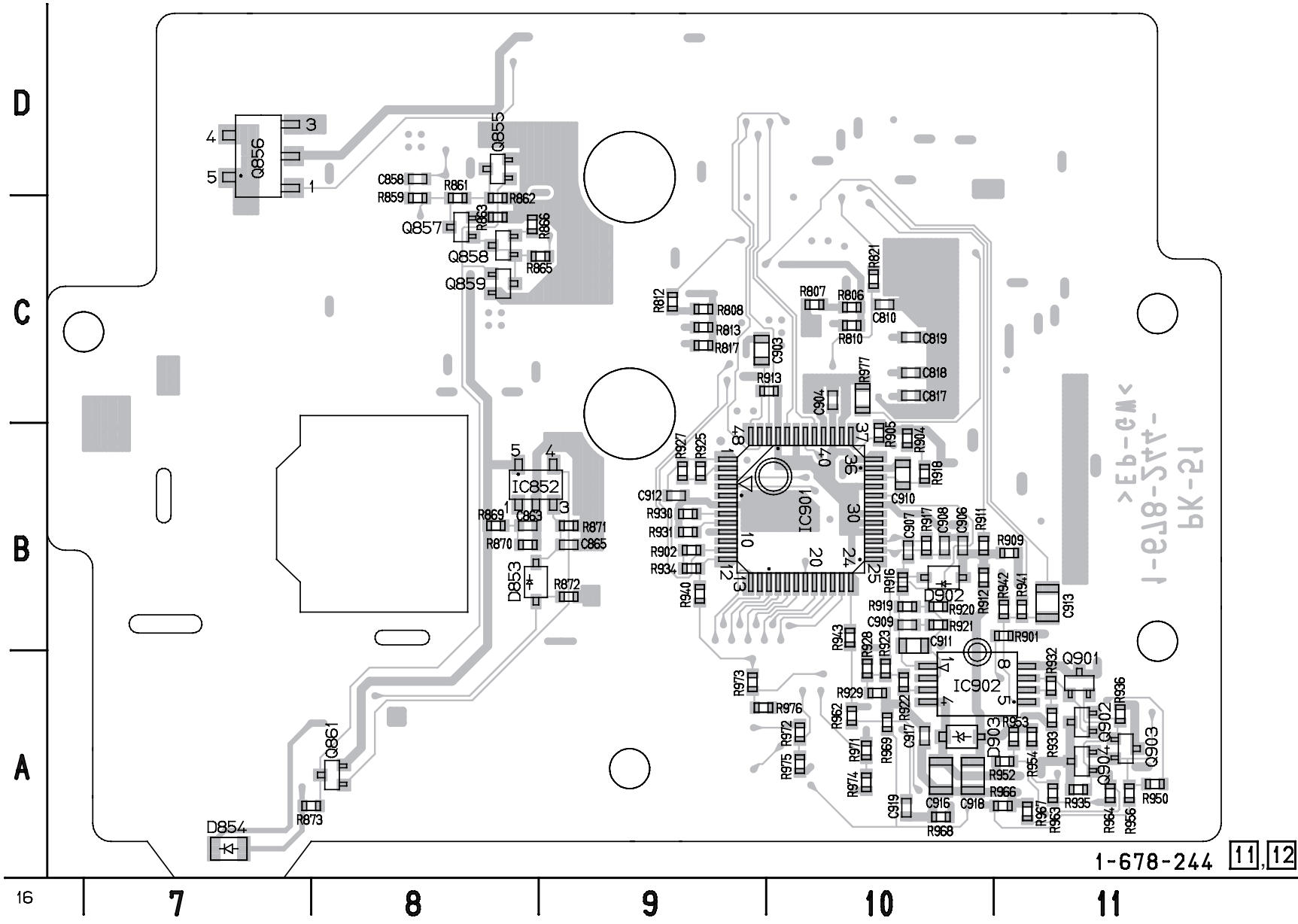
Transistor



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



PK-051 BOARD (SIDE B)



For schematic diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-90 for waveforms.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

PK-051 BOARD(1/2)
LCD DRIVE, BACK-LIGHT (RGB, BL BLOCK)

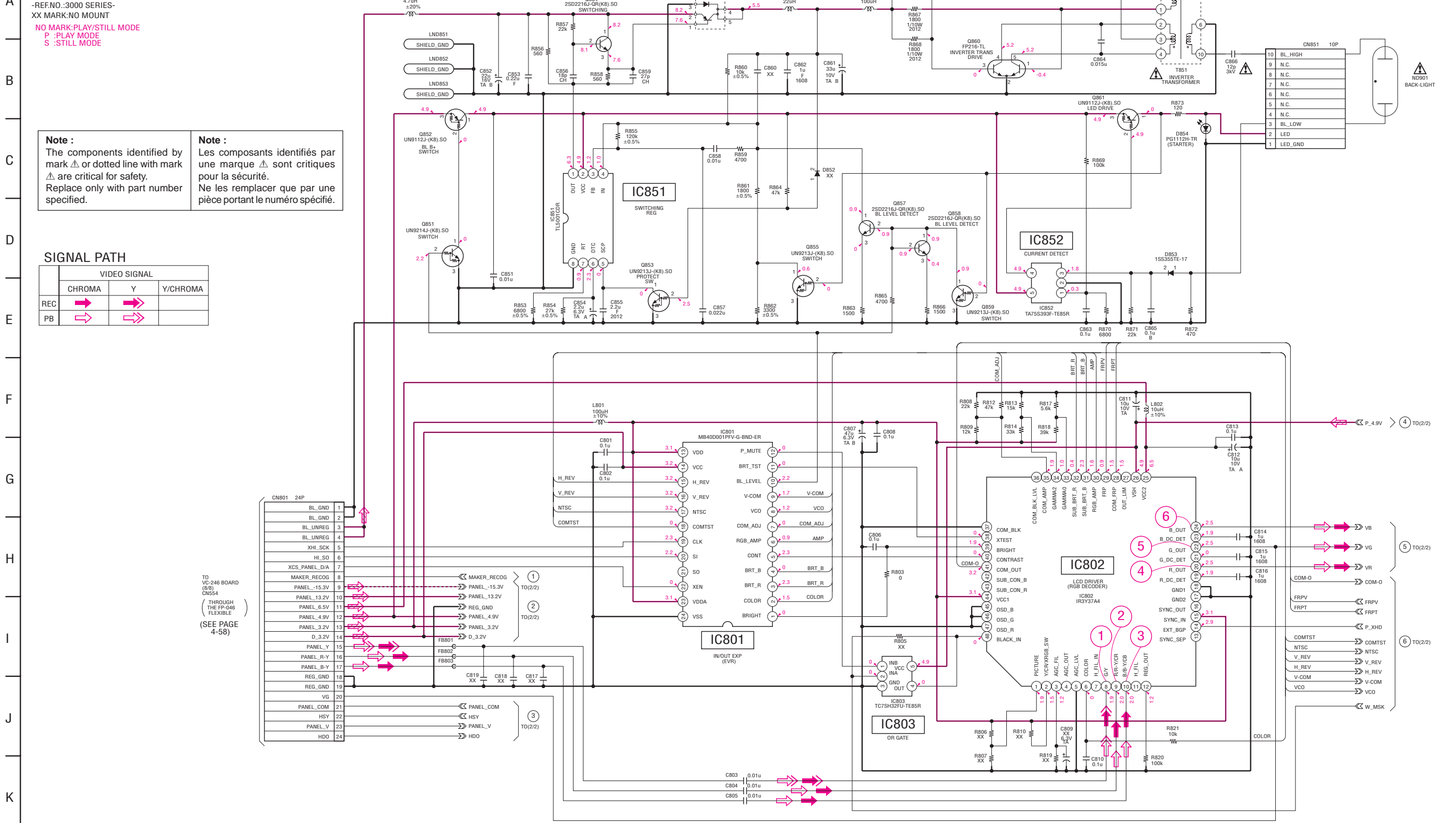
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:PLAY/STILL MODE
P :PLAY MODE
S :STILL MODE

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

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

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	→	→	
PB	→	→	



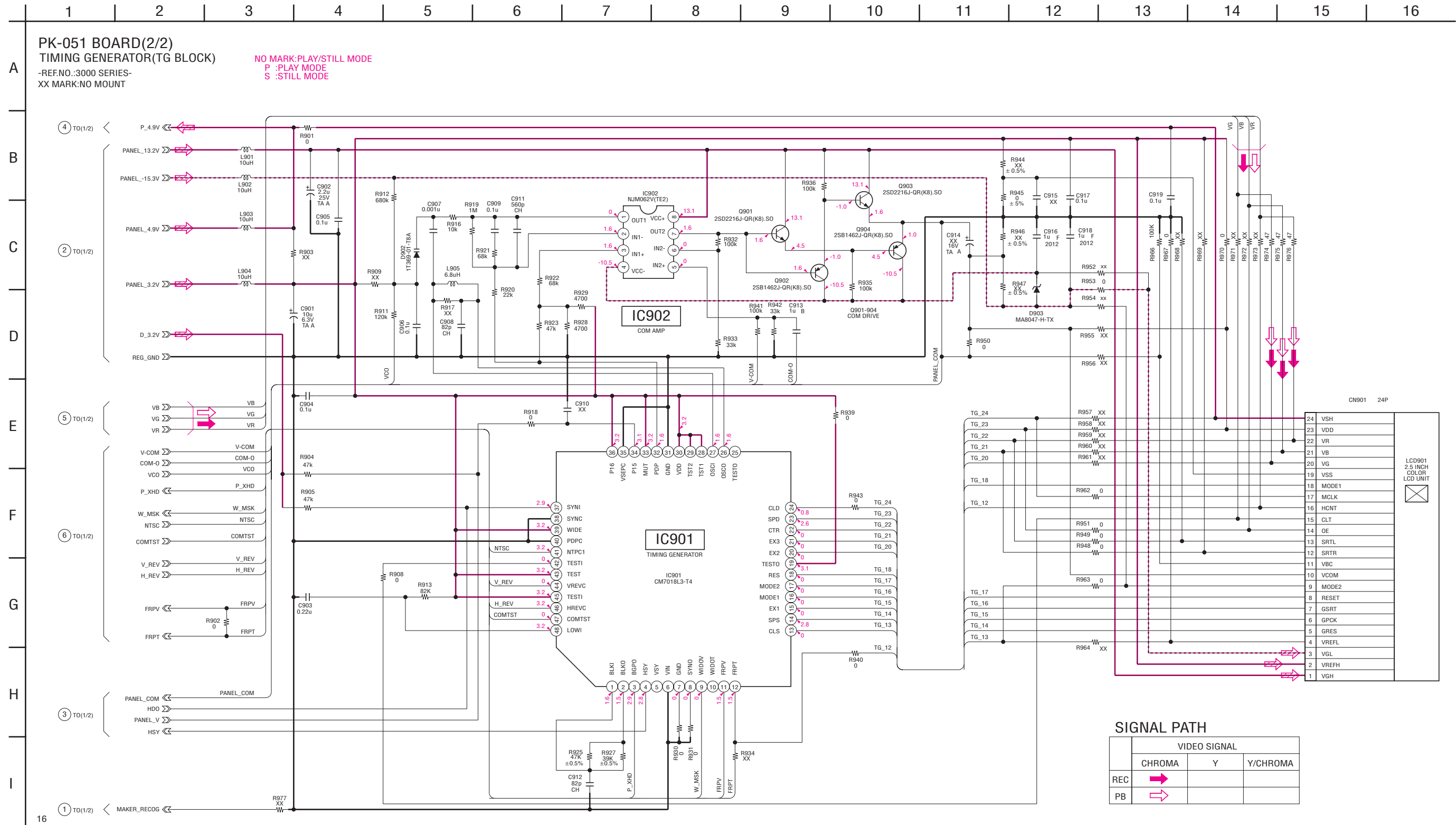
TO VC-246 BOARD (3/8) CN54 THROUGH THE FP-046 FLEXIBLE (SEE PAGE 4-58)

CN801 24P	Signal	Notes
1	BL_GND	
2	BL_GND	
3	BL_UNREG	
4	BL_UNREG	
5	XHI_SCK	
6	HI_SD	
7	XCS_PANEL_D/A	
8	MAKER_REC0G	MAKER_REC0G
9	PANEL_-15.3V	PANEL_-15.3V TO(2/2)
10	PANEL_13.2V	PANEL_13.2V TO(2/2)
11	PANEL_6.5V	REG_GND
12	PANEL_4.9V	PANEL_4.9V
13	PANEL_3.2V	PANEL_3.2V
14	D_3.2V	D_3.2V
15	PANEL_Y	FB801
16	PANEL_R-Y	FB802
17	PANEL_B-Y	FB803
18	REG_GND	
19	REG_GND	
20	VG	
21	PANEL_COM1	PANEL_COM
22	HSY	HSY
23	PANEL_V	PANEL_V
24	HDD	HDD TO(2/2)

CN851 10P	Signal
10	BL_HIGH
9	N.C.
8	N.C.
7	N.C.
6	N.C.
5	N.C.
4	N.C.
3	BL_LOW
2	LED
1	LED_GND

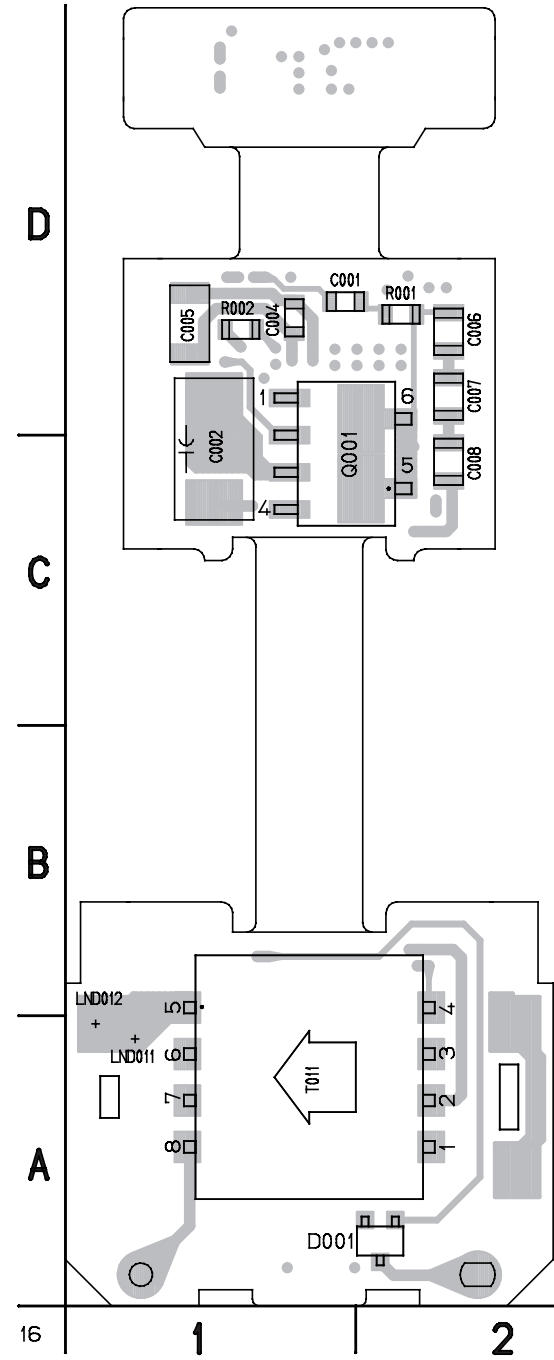
For schematic diagram

• Refer to page 4-71 for printed wiring board.

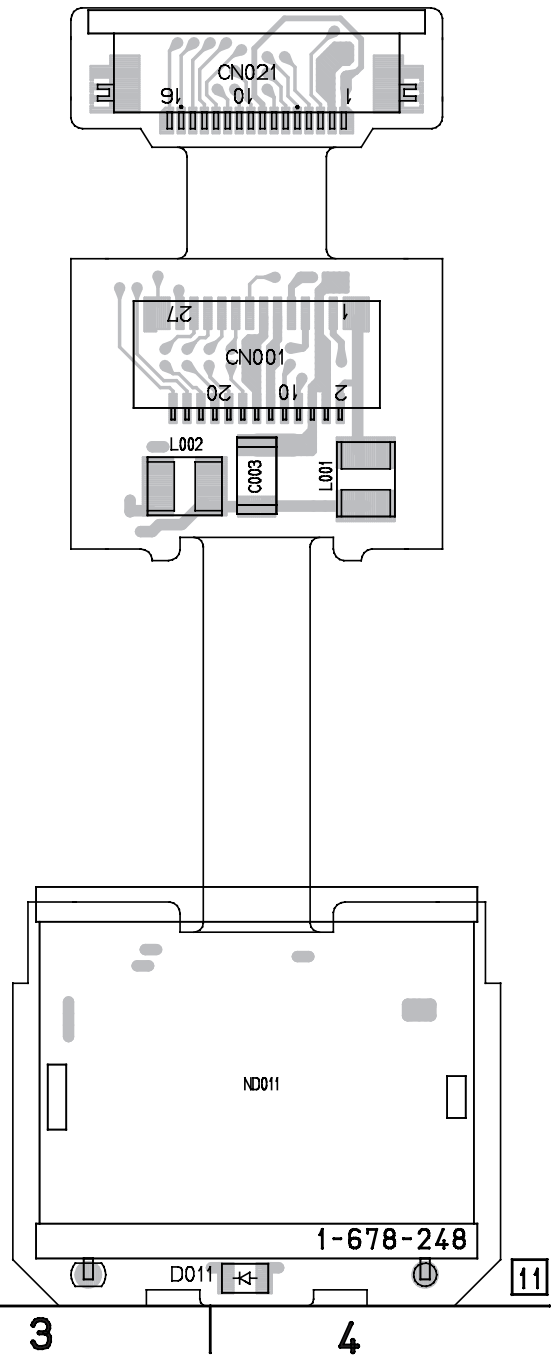


LB-066 (BACK-LIGHT) PRINTED WIRING BOARD
 — Ref. No. LB-066 Board; 1,000 Series —

**LB-066 BOARD
(SIDE A)**



**LB-066 BOARD
(SIDE B)**



For printed wiring boards

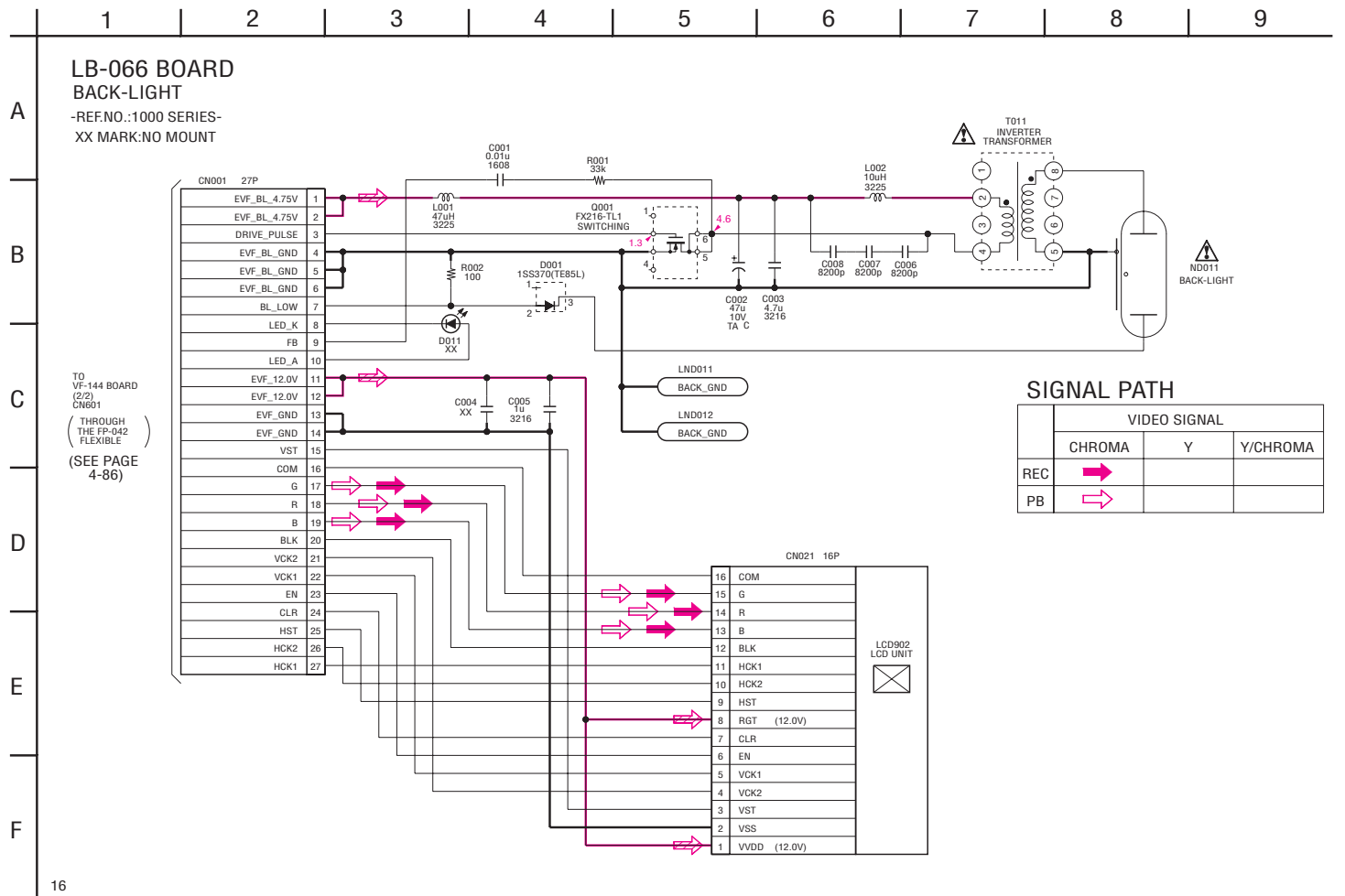
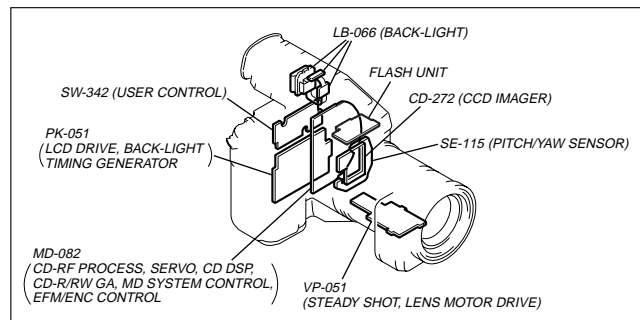
- Refer to page 4-97 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

• Chip parts

Transistor



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



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

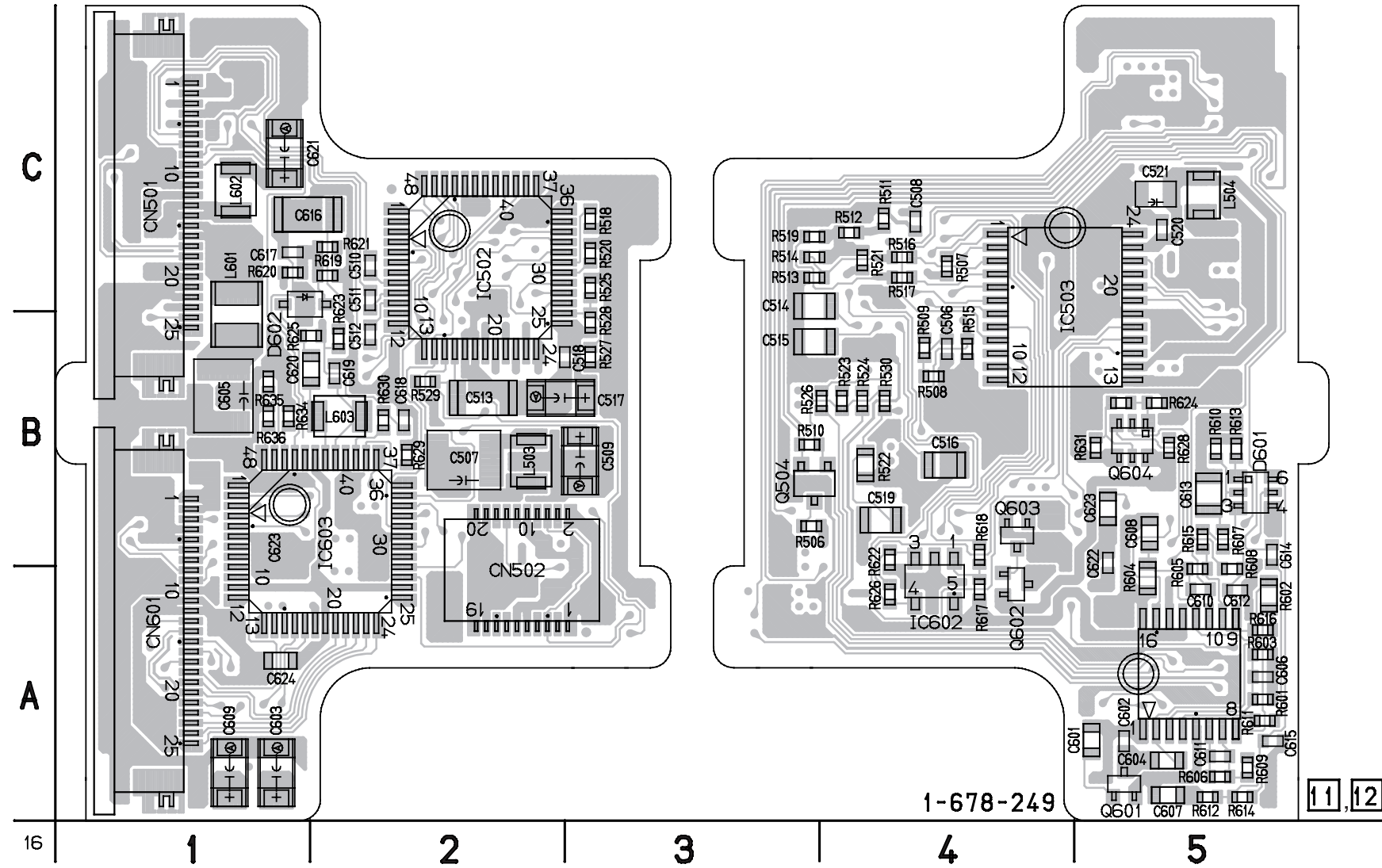
Note :
 Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

VF-144 (LCD DRIVE, TIMING GENERATOR) PRINTED WIRING BOARD

— Ref. No. VF-144 Board; 6,000 Series —

VF-144 BOARD
(SIDE A)

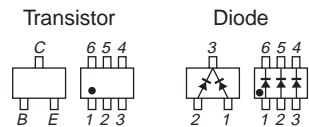
VF-144 BOARD
(SIDE B)



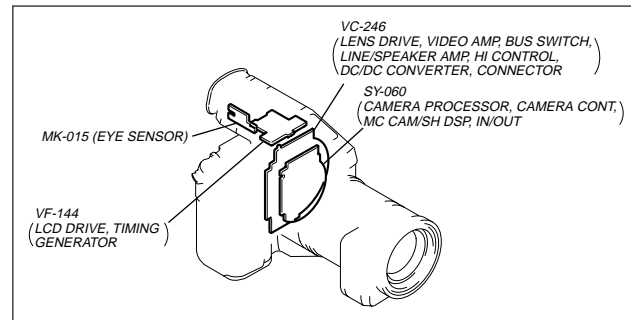
For printed wiring boards

- Refer to page 4-97 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

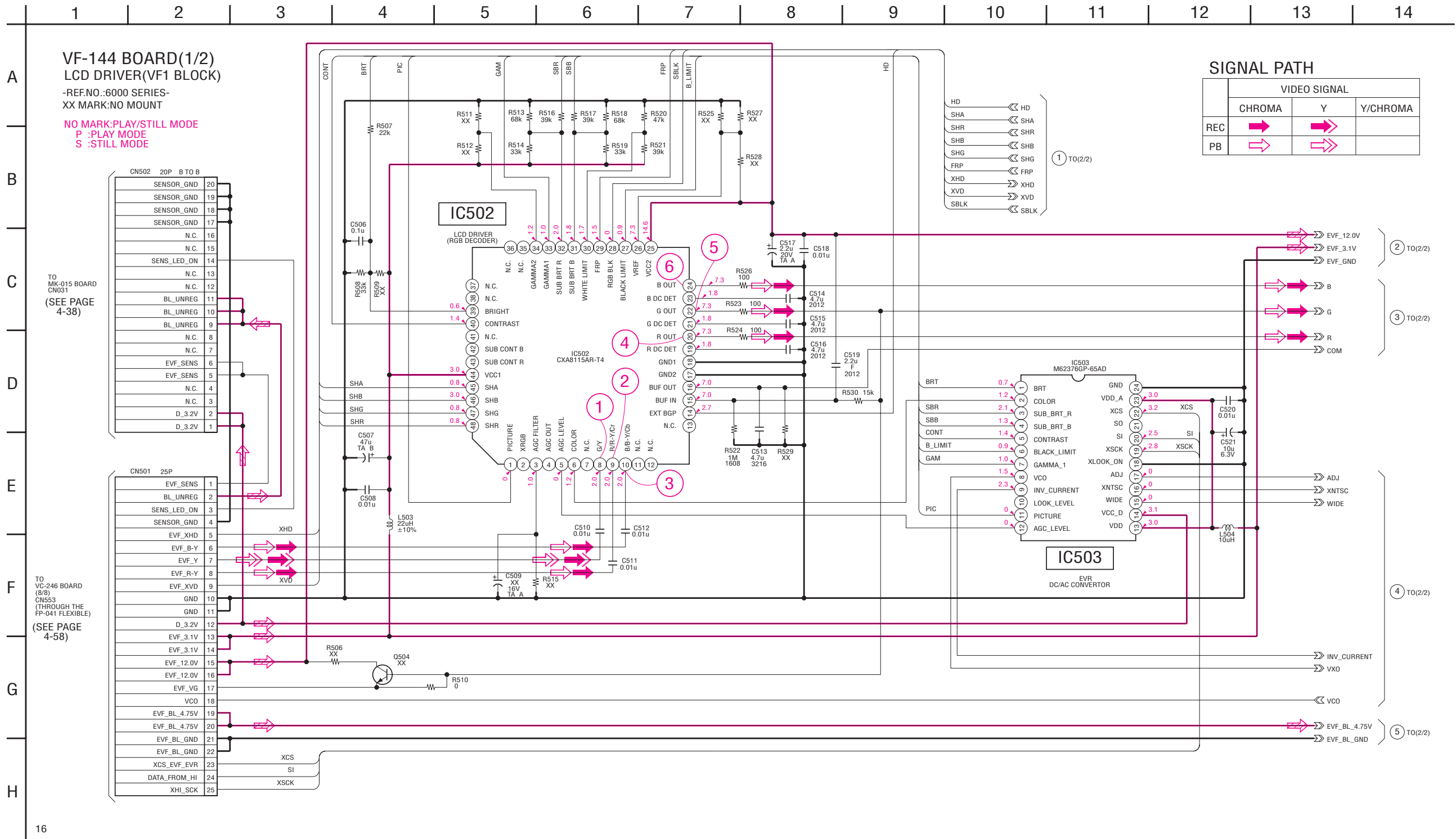
• Chip parts



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



For schematic diagram
 • Refer to page 4-81 for printed wiring board.
 • Refer to page 4-90 for waveforms.



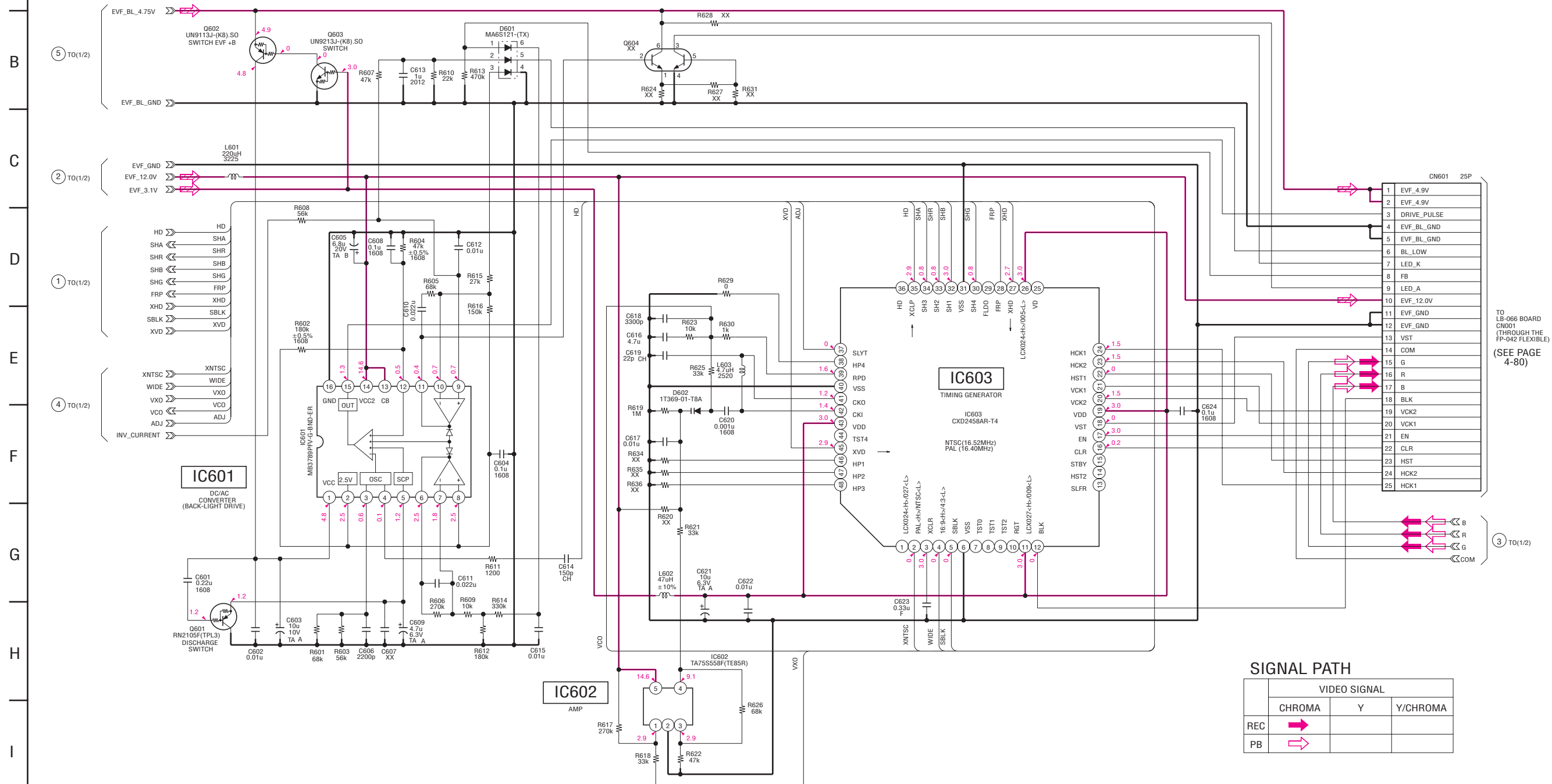
For schematic diagram

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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

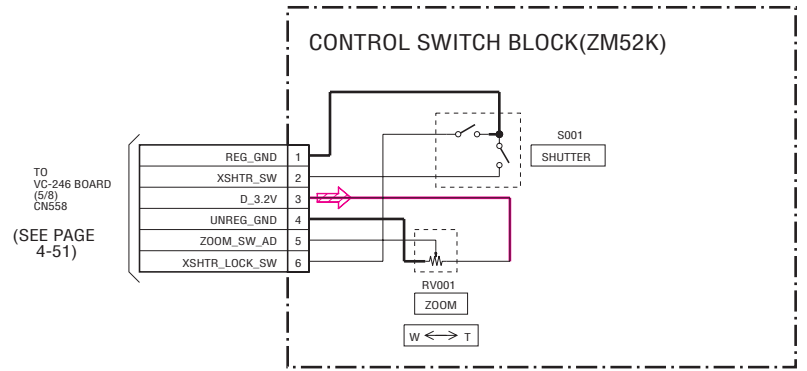
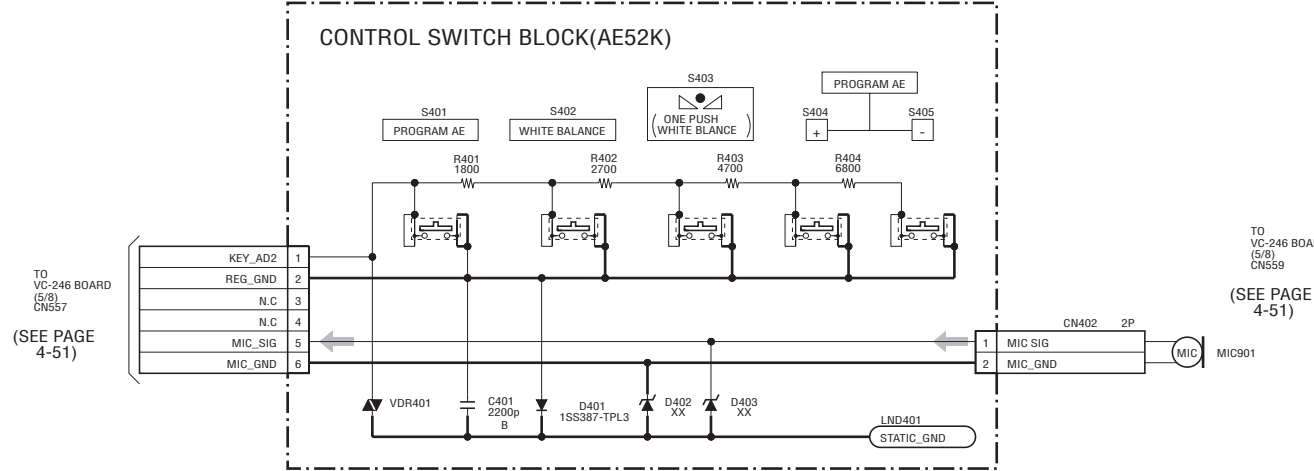
VF-144 BOARD(2/2)
TIMING GENERATOR(VF2 BLOCK)
 -REF.NO.:6000 SERIES-
 -XX MARK:NO MOUNT

NO MARK:PLAY/STILL MODE
 P :PLAY MODE
 S :STILL MODE



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

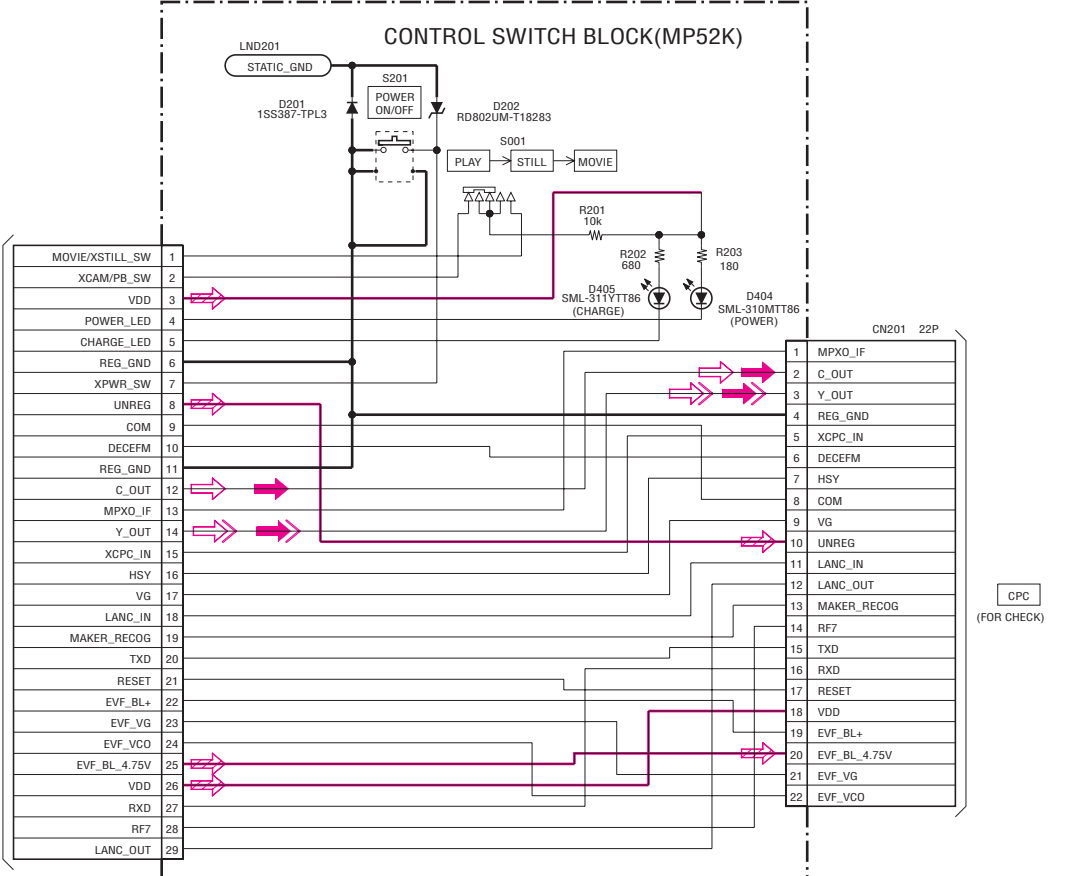
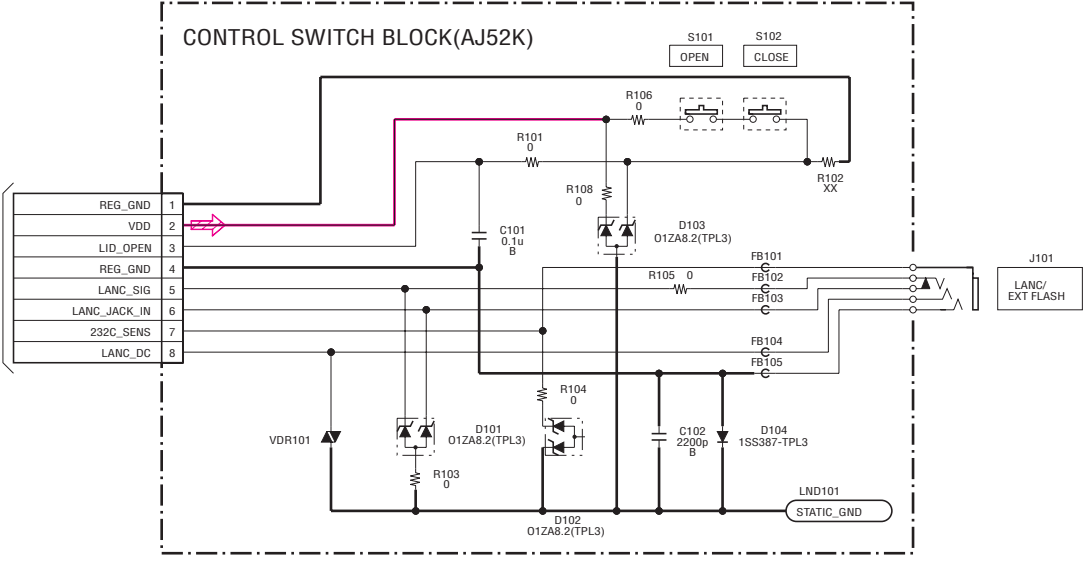
A
B
C
D
E
F
G
H
I
J



SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→		→
PB	↔	↔		

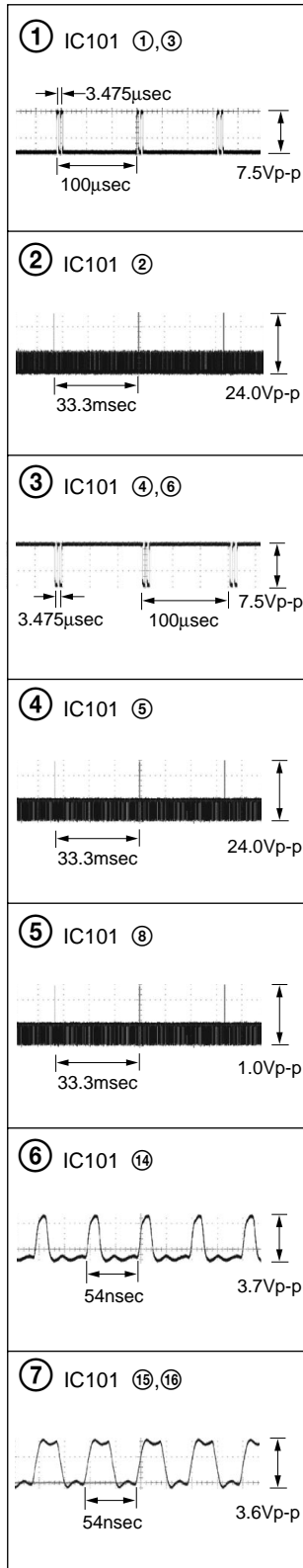
CONTROL SWITCH BLOCK(AE52K,ZM52K,AJ52K,MP52K) are replaced as a block. So that these PRINTED WIRING BOARDS are omitted.



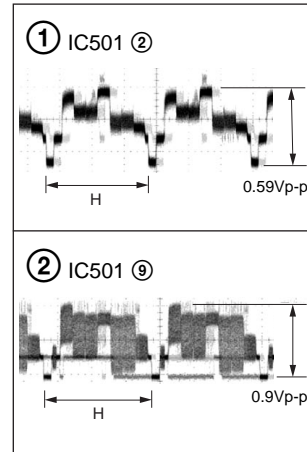
CPC (FOR CHECK)

4-3. WAVEFORMS

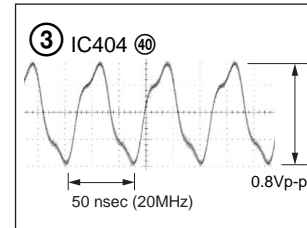
CD-272 BOARD



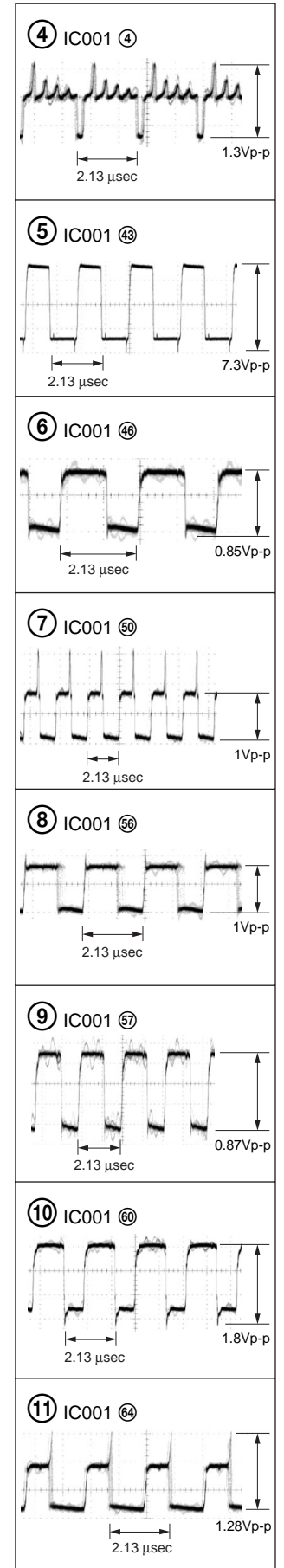
VC-246 BOARD (2/8)



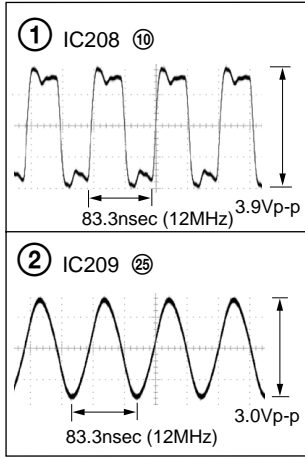
VC-246 BOARD (5/8)



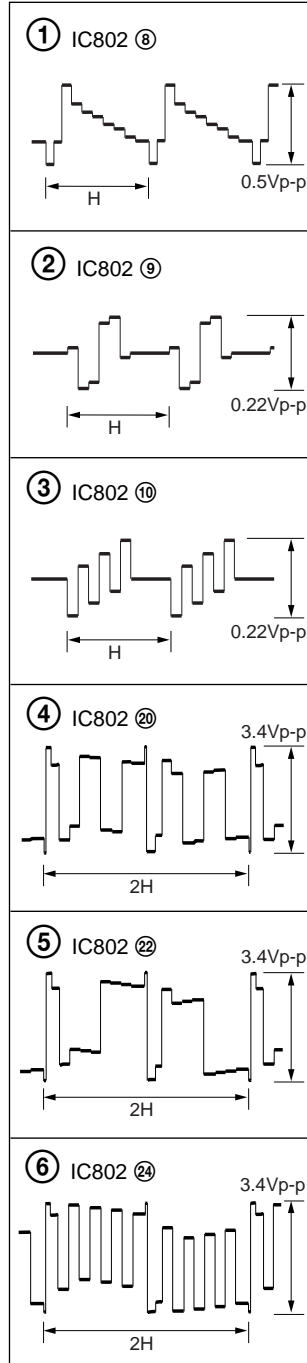
VC-246 BOARD (6/8)



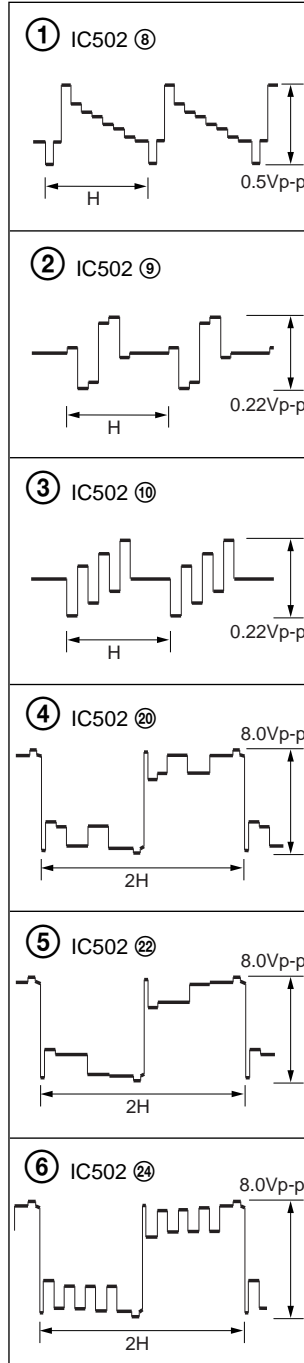
VP-051 BOARD
REC/PB



PK-051 BOARD (1/2)



VF-144 BOARD (1/2)



**Waveforms and parts location of the SY-060
and MD-082 boards are not shown.
Pages from 4-91 to 4-93 are not shown.**

4-4. MOUNTED PARTS LOCATION

CD-272 BOARD (SIDE A)

C101 A-2
C102 A-1
C103 A-1
C104 B-2
C105 A-1
C106 B-1
C107 B-2
C108 A-2
C109 B-2
C110 B-2
C111 B-2
C112 B-1

D101 B-2
L101 B-2

Q101 B-1
Q102 B-2

R101 B-1
R102 A-1
R103 A-1
R104 A-1
R105 A-2
R106 B-2
R107 B-2
R108 B-2
R109 A-2

CD-272 BOARD (SIDE B)

CN101 B-4
IC101 A-5

MK-015 BOARD (SIDE A)

C036 A-2
D031 A-3
IC032 A-2
Q031 A-3
Q032 A-2
Q033 A-2
R031 A-2
R034 A-2
R035 A-2
R036 A-2
R037 A-2
R038 A-2

MK-015 BOARD (SIDE B)

C031 A-5
C032 A-5
C033 A-5
C034 A-5
CN031 C-6
L031 A-5
L032 A-5
R032 A-5
R033 A-5

VC-246 BOARD (SIDE A)

BT401 A-4
C003 F-2
C004 F-2
C005 F-2
C006 F-2
C007 F-2
C008 F-2
C010 G-3
C011 G-3
C012 F-3
C013 G-3
C014 E-3
C015 G-3
C016 G-3
C017 E-3
C018 D-6
C020 G-3
C021 F-3
C022 F-4
C023 F-4
C024 E-6
C025 F-6
C026 E-6
C027 F-6
C028 E-6
C038 G-4
C044 E-4
C045 G-4
C046 G-4
C048 E-4
C051 D-6
C052 E-4
C053 C-5
C054 D-6
C055 D-6
C056 D-4
C057 D-5
C058 E-3
C059 D-3
C060 E-3
C061 E-4
C062 D-3
C063 D-3
C064 D-4
C065 D-4
C066 F-2
C151 E-1
C152 C-1
C153 D-1
C154 E-1
C155 E-2
C157 E-1
C158 D-2
C210 G-2
C211 F-2
C348 C-4
C411 B-3
C412 C-3
C413 C-4
C414 B-5
C415 C-5
C416 C-5
C417 B-5
C418 B-3
C419 B-3
C422 B-5
C423 B-5
C424 B-5
C425 B-5
C426 B-5
C427 A-5
C429 A-4
C430 A-4
C431 A-4
C432 A-4
C434 A-4
C435 A-3
C436 B-2
C437 C-2
C438 B-2
C439 C-4
C440 C-4
C441 C-4

CN553 G-2
CN554 C-6
CN556 D-6
CN558 G-4
CN559 F-1
CN560 D-1
D001 G-5
D003 G-5
D007 F-4
D009 G-4
D408 C-4
D409 B-3
D410 A-3
D551 G-4
D552 G-4
F001 E-6
F002 F-6
F003 E-6
F004 F-6
F005 E-6
F006 E-6
FB151 C-1
FB152 D-1
FB153 D-2
IC001 F-3
IC151 E-1
IC152 E-2
IC153 E-2
IC154 C-2
IC155 D-2
IC156 E-1
IC157 E-2
IC158 E-2
IC203 F-2
IC404 B-4
IC405 A-3
IC406 B-2
L001 F-5
L002 E-5
L003 E-5
L004 G-5
L005 F-5
L007 G-4
L008 E-4
L009 E-5
L011 E-5
L012 E-4
L015 E-4
L016 D-5
L017 D-5
L018 D-5
L018 F-4
L019 D-5
L020 D-4
L151 E-1
L201 G-2
L202 F-2
L403 B-2
Q016 D-5
Q017 D-5
Q019 D-5
Q020 E-3
Q021 D-4
Q022 E-3
Q023 E-3
Q024 C-5
Q025 E-3
Q026 E-3
Q027 E-3
Q028 D-3
Q029 D-3
Q030 E-3
Q031 D-3
Q032 D-4
Q033 E-4
Q034 E-3
Q035 D-4
Q036 E-4

Q037 D-3
Q038 D-4
Q039 D-3
Q040 D-3
Q042 E-4
Q043 D-3
Q044 D-3
Q045 D-3
Q046 D-5
Q048 C-3
Q049 C-3
Q050 C-3
Q407 C-3
Q408 B-3
Q409 B-5
Q410 B-3
Q411 A-4
Q412 A-4
Q413 A-4
Q414 B-3
R003 F-2
R004 F-2
R005 F-2
R006 F-2
R007 F-2
R013 F-3
R014 G-2
R015 F-2
R016 G-3
R019 E-3
R022 G-3
R024 G-3
R025 E-3
R026 G-3
R027 G-3
R028 F-3
R031 G-3
R032 E-3
R033 E-3
R035 E-3
R036 E-3
R037 G-3
R038 G-3
R039 E-3
R040 G-3
R041 G-3
R042 F-3
R043 E-3
R044 E-3
R045 E-3
R046 G-3
R047 F-3
R048 G-3
R049 G-3
R050 F-3
R051 F-4
R052 F-4
R053 E-3
R054 E-3
R055 G-3
R056 G-2
R057 G-3
R058 E-3
R059 D-5
R060 D-5
R061 G-4
R061 G-4
R062 D-5
R063 D-5
R064 D-5
R065 D-5
R066 D-5
R067 D-5
R068 D-5
R069 E-3
R070 E-3
R071 E-3
R072 E-3
R073 C-6
R074 C-5
R075 E-3
R076 D-3
R077 E-3

R078 D-3
R079 D-3
R080 D-3
R081 D-3
R082 E-4
R083 E-3
R084 E-3
R085 E-3
R086 D-3
R087 D-4
R088 E-4
R089 E-3
R090 D-3
R091 E-4
R092 E-3
R093 D-3
R094 D-4
R095 E-3
R096 D-4
R097 D-4
R098 D-4
R099 E-4
R100 E-4
R101 E-4
R102 F-5
R103 D-5
R104 C-5
R105 E-3
R106 E-3
R107 F-5
R108 D-5
R109 G-2
R111 C-3
R152 E-1
R242 G-2
R337 C-4
R338 C-4
R401 A-5
R402 A-5
R403 B-5
R404 A-5
R405 B-5
R406 A-5
R408 B-5
R409 A-5
R410 B-5
R411 B-5
R418 C-4
R419 B-5
R422 C-4
R423 C-3
R424 C-3
R425 B-3
R426 C-5
R428 B-3
R429 C-4
R430 C-4
R431 C-3
R432 C-3
R433 C-3
R434 C-4
R435 C-4
R436 C-4
R437 C-4
R438 C-4
R439 C-4
R440 C-3
R441 C-3
R442 C-3
R443 C-3
R444 C-4
R445 B-3
R446 C-4
R447 B-3
R448 B-3
R449 C-3
R450 B-3
R451 B-3
R453 B-2
R454 B-3
R455 B-3
R456 B-5
R458 B-5
R459 B-5

R464 B-5
R465 B-5
R466 B-5
R467 B-5
R468 B-5
R469 B-5
R470 B-5
R471 B-5
R472 B-5
R473 B-5
R474 B-5
R475 A-5
R476 B-3
R477 A-4
R478 A-4
R479 A-4
R480 A-4
R481 B-3
R482 A-4
R483 A-4
R484 B-3
R485 A-4
R486 A-4
R487 A-3
R488 A-3
R489 A-4
R490 A-4
R491 C-3
R492 B-2
R493 B-2
R494 B-5
R495 B-5
R496 B-5
R497 B-5
R498 B-5
R499 A-4
R563 G-5
R564 B-5
T001 F-4
X401 B-3
X402 A-3

VC-246 BOARD (SIDE B)

C001	D-7	C344	C-9
C002	D-8	C345	C-9
C009	E-8	C346	C-10
C013	E-8	C347	B-9
C029	F-8	C349	D-9
C030	E-9	C401	B-8
C032	F-8	C402	C-7
C033	E-8	C403	C-7
C034	F-8	C404	C-8
C035	F-8	C405	B-8
C036	E-9	C406	C-7
C037	D-8	C501	C-11
C039	E-9	C502	C-10
C040	E-8	C503	C-11
C041	F-9	C504	C-11
C042	D-8	C505	B-11
C043	F-9	C506	C-11
C047	D-8	C507	C-10
C049	D-8	C508	C-11
C050	F-9	C509	C-10
C067	A-9	C510	B-11
C201	F-10	C511	C-11
C202	F-10	C512	C-11
C203	F-10	C513	C-10
C204	G-11	C514	C-10
C205	F-10		
C206	F-10	CN001	D-7
C207	F-10	CN002	G-8
C208	F-11	CN201	G-10
C209	F-11	CN551	B-9
C212	G-10	CN552	D-11
C213	F-10	CN555	E-7
C214	F-10	CN557	G-9
C215	F-10		
C216	G-10	D002	C-8
C217	G-10	D004	E-8
C218	F-9	D005	F-7
C219	F-10	D006	F-9
C220	F-9	D008	F-9
C221	F-9	D010	B-9
C222	F-9	D201	F-10
C223	E-9	D202	G-10
C224	E-9	D401	A-8
C225	E-10	D402	C-8
C226	D-10	D403	C-8
C227	D-10	D404	C-8
C301	G-8	D406	B-8
C302	G-8	D407	C-8
C308	D-10		
C309	D-10	FB001	D-7
C310	D-10	FB002	G-8
C311	D-10	FB003	G-8
C312	D-10		
C313	D-10	FL001	D-8
C314	D-10		
C315	D-10	IC201	F-11
C316	D-10	IC202	G-11
C317	D-10	IC204	F-11
C318	D-10	IC205	F-10
C319	C-10	IC206	E-10
C320	C-9	IC207	E-10
C321	D-9	IC302	C-9
C322	C-10	IC303	D-9
C323	C-9	IC401	B-8
C324	C-9	IC402	C-8
C325	C-10	IC403	B-8
C326	C-9	IC501	C-11
C327	C-9		
C328	E-9	L006	D-8
C329	E-9	L010	D-8
C330	E-9	L013	D-8
C331	E-9	L014	D-8
C332	C-9	L203	F-9
C333	D-9	L204	E-10
C334	C-9	L302	E-9
C335	D-9	L303	C-10
C336	E-9	L304	C-10
C337	D-9	L305	C-9
C338	C-9	L402	B-8
C339	D-9	L501	B-10
C340	D-9	L502	B-11
C341	D-9		
C342	D-9	Q002	E-8
C343	D-9	Q003	E-8

VP-051 BOARD (SIDE A)

R308	C-9
R309	D-10
R310	D-10
R312	D-10
R313	D-10
R314	D-10
R315	D-10
R316	D-10
R317	C-9
R318	D-10
R319	C-9
R320	D-9
R321	D-9
R322	E-9
R323	D-9
R324	C-9
R326	B-9
R327	D-9
R328	D-9
R330	C-9
R331	C-9
R332	C-9
R333	D-9
R334	D-9
R335	D-9
R336	B-9
R407	A-8
R412	A-8
R413	A-8
R414	A-8
R415	A-8
R416	A-8
R417	C-8
R420	B-8
R421	C-7
R501	B-11
R502	B-11
R503	B-11
R504	C-10
R505	C-11
R506	C-11
R507	C-11
R508	C-11
R551	A-9
R552	A-9
R553	A-9
R554	A-9
R556	A-9
R557	A-9
R558	A-9
R559	A-9
R561	D-8
R562	D-8

C205	D-5
C207	D-4
C211	D-4
C212	E-5
C213	E-5
C214	E-3
C215	D-3
C226	D-3
C236	E-3
CN201	E-5
CN203	D-5
CN204	E-4
CN205	E-3
D202	E-1
FB201	D-3
IC203	E-5
IC204	E-4
IC208	E-2
IC210	E-3
L201	D-4
L202	E-4
L206	D-3
Q201	D-5
Q202	D-5
Q203	E-4
Q204	E-4
Q208	D-4
Q209	D-3
Q210	D-3
Q211	D-4
R202	E-4
R212	E-4
R216	D-5
R219	D-4
R220	E-4
R221	E-5
R222	E-5
R223	E-4
R224	E-4
R225	E-4
R226	E-4
R227	D-3
R228	D-3
R251	D-3
R252	D-4
R253	D-4
R254	D-3
R266	E-3
R268	E-3
X201	E-3

VP-051 BOARD (SIDE B)

C201	B-5
C202	B-5
C203	B-5
C204	A-5
C206	B-5
C208	A-5
C210	A-5
C216	A-5
C217	B-4
C218	B-4
C219	B-4
C220	A-4
C221	B-4
C222	B-4
C223	A-4
C224	B-4
C225	A-4
C227	B-4
C228	B-4
C229	C-4
C230	B-2
C231	B-2
C232	B-2
C233	C-3
C234	A-3
C235	C-3
CN202	B-1
IC201	B-5
IC202	A-5
IC205	B-4
IC206	B-4
IC207	B-4
IC209	B-3
L203	C-4
L204	B-2
L205	B-2
PH201	B-5
Q205	B-1
Q206	B-1
Q207	B-1
R201	A-5
R203	B-5
R204	A-5
R205	B-5
R206	B-5
R207	B-5
R209	B-5
R210	A-5
R211	C-5
R213	C-5
R214	A-5
R215	A-5

R217	A-5
R218	A-5
R229	A-4
R230	B-4
R231	B-4
R232	B-4
R233	A-4
R234	B-4
R235	A-4
R236	B-4
R237	A-4
R238	A-4
R239	A-4
R240	A-4
R241	B-4
R242	B-4
R243	B-4
R244	B-4
R247	B-1
R248	B-1
R249	B-1
R261	B-4
R264	B-4
R270	C-3
R271	A-3
R272	B-5
R273	B-5
R274	B-5

SE-115 BOARD (SIDE A)

C311 B-3
 C312 A-3
 C315 A-3
 C316 A-3

 L301 A-3

 SE301 A-2
 SE302 B-3
 SE303 A-2
 SE304 B-3

SE-115 BOARD (SIDE B)

C301 A-7
 C302 C-1
 C303 A-6
 C304 B-6
 C307 A-6
 C308 A-6
 C309 A-6
 C310 A-6
 C313 B-6
 C314 A-6

 CN301 A-7

 IC301 A-6

 R301 A-7
 R302 C-1
 R303 C-1
 R304 A-7
 R305 B-6
 R306 A-6
 R307 A-6
 R308 A-6
 R309 A-6
 R310 A-6
 R311 A-6

SW-342 BOARD (SIDE A)

D402 E-1
 D403 E-4

 R401 E-3
 R402 E-3
 R403 E-1
 R404 E-3
 R405 E-3
 R406 E-3
 R407 E-4
 R408 E-2
 R409 D-2
 R410 E-1
 R411 D-1

S401 D-4
 S402 E-3
 S403 D-3
 S404 E-2
 S405 D-2
 S406 E-1
 S407 D-1

 VDR401 E-3
 VDR402 E-3

SW-342 BOARD (SIDE B)

C401 B-3
 C402 A-4

 CN401 B-4
 CN402 B-1
 CN403 B-3

 D401 B-3
 D404 B-3
 D405 A-4

PK-051 BOARD (SIDE A)

C801 D-3
 C802 D-3
 C803 C-2
 C804 C-2
 C805 C-2
 C806 C-3
 C807 C-3
 C808 C-3
 C809 C-2
 C811 B-3
 C812 B-3
 C813 B-3
 C814 B-3
 C815 B-3
 C816 B-2
 C851 D-4
 C852 D-3
 C853 D-3
 C854 D-4
 C855 D-4
 C856 D-3
 C857 D-4
 C859 D-4
 C860 D-4
 C861 D-4
 C862 D-4
 C864 C-4
 C866 B-5
 C901 A-1
 C902 A-1
 C905 A-2
 C914 A-1
 C915 A-2

 CN801 C-1
 CN851 A-5
 CN901 A-1

 D852 D-4

 FB801 C-2
 FB802 C-2
 FB803 C-2

 IC801 D-2
 IC802 C-2
 IC803 C-2
 IC851 D-4

 L801 D-2
 L802 B-3
 L851 D-3
 L852 D-5
 L853 C-5
 L901 B-1
 L902 B-2
 L903 B-1
 L904 B-1
 L905 B-2

 Q851 C-4
 Q852 D-4
 Q853 D-4
 Q854 D-4
 Q860 C-4

 R803 C-2
 R805 C-2
 R809 C-3
 R814 C-3
 R818 C-3
 R819 C-2
 R820 B-2
 R853 D-4
 R854 D-4
 R855 D-4
 R856 D-3
 R858 D-4
 R860 D-4
 R864 D-4
 R867 C-4
 R868 C-4
 R903 B-1
 R908 B-2
 R939 B-2
 R944 A-2

R945 A-2
 R946 A-2
 R947 A-2
 R948 A-2
 R949 A-2
 R951 A-2
 R955 A-2
 R957 A-2
 R958 A-2
 R959 A-2
 R960 A-2
 R961 A-2
 R970 A-2

T851 B-4

PK-051 BOARD (SIDE B)

C810 C-10
 C817 C-10
 C818 C-10
 C819 C-10
 C858 D-8
 C863 B-8
 C865 B-9
 C903 C-9
 C904 C-10
 C906 B-10
 C907 B-10
 C908 B-10
 C909 B-10
 C910 B-10
 C911 B-10
 C912 B-9
 C913 B-11
 C916 A-10
 C917 A-10
 C918 A-10
 C919 A-10

 D853 B-8
 D854 A-7
 D902 B-10
 D903 A-10

IC852 B-8
 IC901 B-10
 IC902 A-10

Q855 D-8
 Q856 D-7
 Q857 C-8
 Q858 C-8
 Q859 C-8
 Q861 A-8
 Q901 A-11
 Q902 A-11
 Q903 A-11
 Q904 A-11

R806 C-10
 R807 C-10
 R808 C-9
 R810 C-10
 R812 C-9
 R813 C-9
 R817 C-9
 R821 C-10
 R859 C-8
 R861 C-8
 R862 C-8
 R863 C-8
 R865 C-8
 R866 C-8
 R869 B-8
 R870 B-8
 R871 B-9
 R872 B-9
 R873 A-8
 R901 B-11
 R902 B-9
 R904 B-10
 R905 B-10
 R909 B-11
 R911 B-10
 R912 B-10
 R913 C-9
 R916 B-10
 R917 B-10
 R918 B-10
 R919 B-10
 R920 B-10
 R921 B-10
 R922 A-10
 R923 A-10
 R925 B-9
 R927 B-9
 R928 A-10
 R929 A-10
 R930 B-9
 R931 B-9
 R932 A-11
 R933 A-11
 R934 B-9

R935 A-11
 R936 A-11
 R940 B-9
 R941 B-11
 R942 B-11
 R943 B-10
 R950 A-11
 R952 A-11
 R953 A-11
 R954 A-11
 R956 A-11
 R962 A-10
 R963 A-11
 R964 A-11
 R966 A-11
 R967 A-11
 R968 A-10
 R969 A-10
 R971 A-10
 R972 A-10
 R973 A-9
 R974 A-10
 R975 A-10
 R976 A-9
 R977 C-10

LB-066 BOARD (SIDE A)

C001 D-1
 C002 C-1
 C004 D-1
 C005 D-1
 C006 D-2
 C007 D-2
 C008 C-2

D001 A-2

Q001 C-1

R001 D-2

R002 D-1

T011 A-1

LB-066 BOARD (SIDE B)

C003 C-4

CN001 D-4

CN021 D-4

D011 A-3

L001 C-4

L002 C-3

ND011 A-3

VF-144 BOARD (SIDE A)

C507 B-2
 C509 B-3
 C510 C-2
 C511 C-2
 C512 B-2
 C513 B-2
 C517 B-2
 C518 B-2
 C603 A-1
 C605 B-1
 C609 A-1
 C616 C-1
 C617 C-1
 C618 B-2
 C619 B-2
 C620 B-1
 C621 C-1
 C624 A-1

CN501 C-1

CN502 A-2

CN601 A-1

D602 B-1

IC502 C-2

IC603 B-2

L503 B-2

L601 C-1

L602 C-1

L603 B-2

R518 C-3

R520 C-3

R525 C-3

R527 B-2

R528 B-2

R529 B-2

R619 C-2

R620 C-1

R621 C-2

R623 B-2

R625 B-1

R629 B-2

R630 B-2

R634 B-1

R635 B-1

R636 B-1

VF-144 BOARD (SIDE B)

C506 B-4
 C508 C-4
 C514 B-3
 C515 B-3
 C516 B-4
 C519 B-4
 C520 C-5
 C521 C-5
 C601 A-5
 C602 A-5
 C604 A-5
 C606 A-5
 C607 A-5
 C608 B-5
 C610 A-5
 C611 A-5
 C612 A-5
 C613 B-5
 C614 B-5
 C615 A-5
 C622 A-5
 C623 B-5

D601 B-5

IC503 B-4

IC602 A-4

L504 C-5

Q504 B-3

Q601 A-5

Q602 A-4

Q603 B-4

Q604 B-5

R506 B-3

R507 C-4

R508 B-4

R509 B-4

R510 B-3

R511 C-4

R512 C-4

R513 C-3

R514 C-3

R515 B-4

R516 C-4

R517 C-4

R519 C-3

R521 C-4

R522 B-4
 R523 B-4
 R524 B-4
 R526 B-3
 R530 B-4
 R601 A-5
 R602 A-5
 R603 A-5
 R604 A-5
 R605 A-5
 R606 A-5
 R607 B-5
 R608 A-5
 R609 A-5
 R610 B-5
 R611 A-5
 R612 A-5
 R613 B-5
 R614 A-5
 R615 B-5
 R616 A-5
 R617 A-4
 R618 B-4
 R622 A-4
 R624 B-5
 R626 A-4
 R628 B-5
 R631 B-5

SECTION 5 ADJUSTMENTS

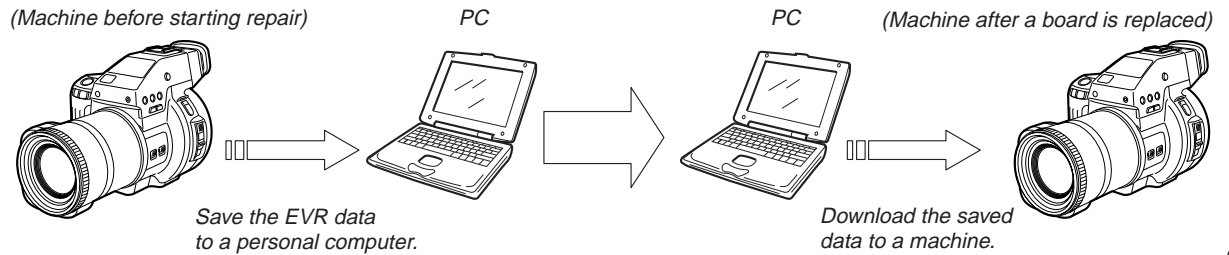
1. Before Starting Adjustment

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.

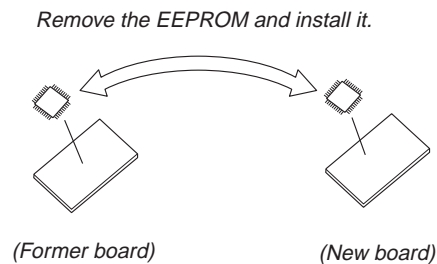
Procedure 2

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



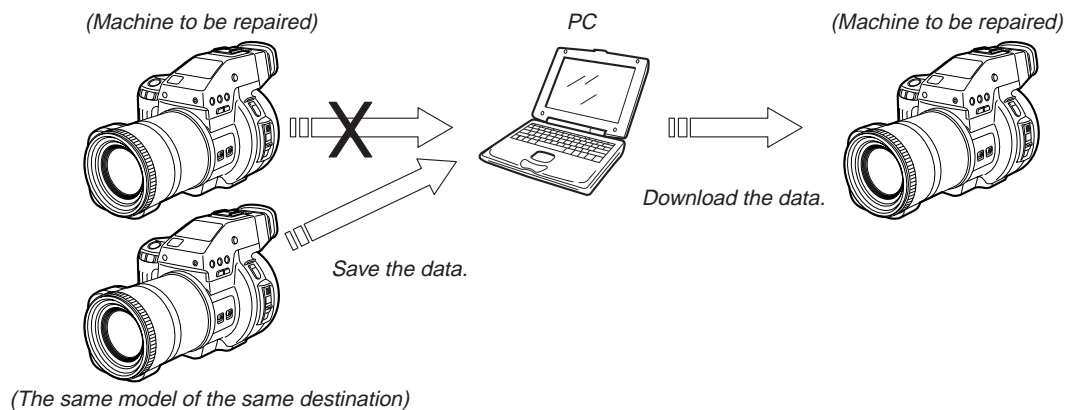
Procedure 2

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



Procedure 3

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



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-2 for the items to be checked.)

5-1. ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of Service Tools

- Oscilloscope
- Color monitor
- Vectorscope
- AC power adapter
- Regulated power supply
- Digital voltmeter
- Frequency counter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	Pattern box PTB-450	J-6082-200-A	
J-3	Color chart for pattern box	J-6020-250-A	
J-4	Siemens star chart	J-6080-875-A	For checking the flange back
J-5	Adjustment remote commander (RM-95 upgraded) Note	J-6082-053-B	
J-6	Clear chart for pattern box	J-6080-621-A	
J-7	CPC-12 jig (22P, 0.5mm)	J-6082-436-A	For connecting the measuring instruments and the adjustment remote commander
J-8	Extension cable (80P, 0.5mm)	J-6082-444-A	For extension between the SY-060 board (CN905) and VC-246 board (CN551)
J-9	Extension cable (50P, 0.5mm)	J-6082-487-A	For extension between the VC-246 board (CN560) and MD-082 board (CN404)
J-10	Alignment disk	J-6082-512-A	For Base unit inspection
J-11	Picture Gear Ver. 4.1 Lite		Picture management software For checking the recorded picture
J-12	Personal computer with Windows95/98 installed		For checking the recorded picture
J-13	Power code	J-6082-223-A	For the battery end adjustment
J-14	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-15	Camera table	J-6082-384-A	For adjusting the flange back

Note: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), The pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

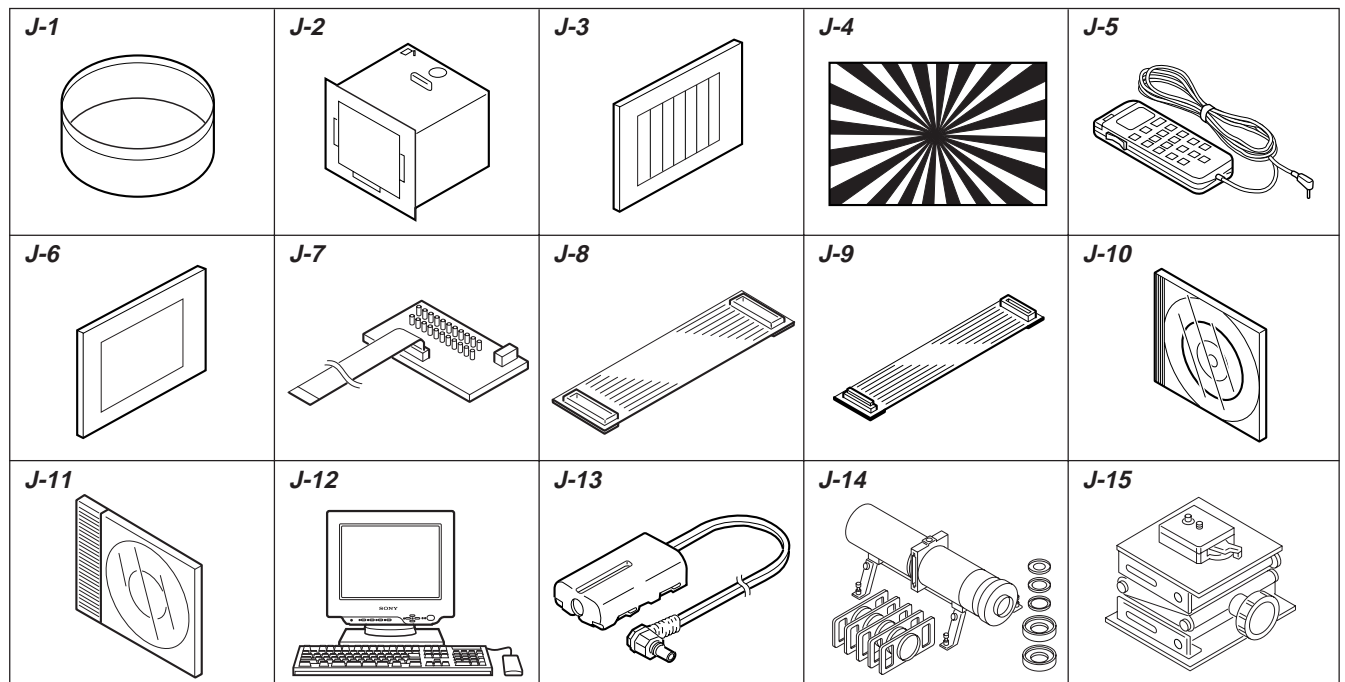


Fig. 5-1-1.

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note 2: When performing only the adjustments, the lens block and boards need not be disassembled.

- 1) Connect the equipment for adjustments according to Fig. 5-1-5.
- 2) Connect the adjustment remote commander to the following connector or jack.
 - CN201 of the control switch block (MP52K) via CPC-12 jig (J-6082-436-A)
 - LANC jack

Note 3: Setting the “Forced Power ON Mode (Forced STILL Mode)”

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

The above procedure will enable the power (STILL mode) to be turned on. After completing adjustments, be sure to exit the “Forced Power ON Mode”.

Note 4: Setting the “Forced Power ON Mode (Forced PLAY Mode)”

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

The above procedure will enable the power (PLAY mode) to be turned on. After completing adjustments, be sure to exit the “Forced Power ON Mode”.

Note 5: Setting the “Forced Power ON Mode (Forced MOVIE Mode)”

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 03, and press the PAUSE button of the adjustment remote commander.

The above procedure will enable the power (MOVIE mode) to be turned on. After completing adjustments, be sure to exit the “Forced Power ON Mode”.

Note 6: Exiting the “Forced Power ON Mode”

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

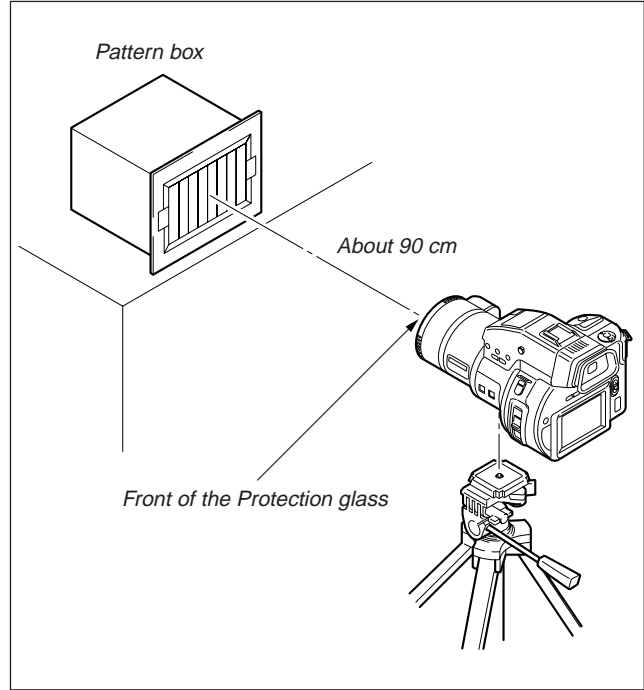


Fig. 5-1-2.

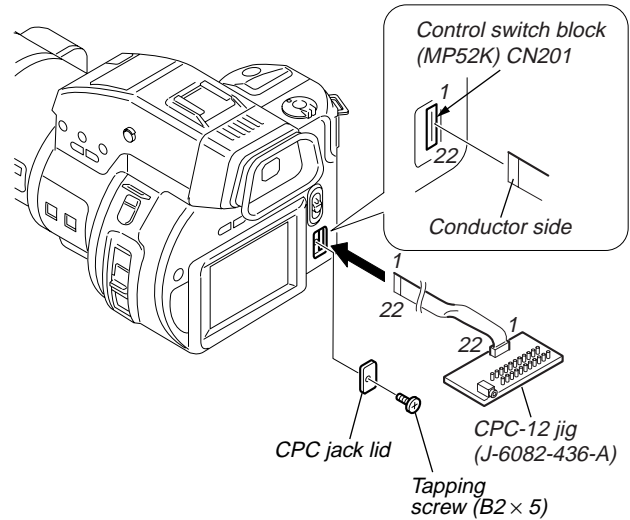


Fig. 5-1-3.

1-1-3. Discharging of the Flashlight Power Supply

The capacitor which is used as power supply of flashlight is charged with 200 V to 300 V voltage. Discharge this voltage before starting adjustments in order to protect service engineers from electric shock during adjustment.

Discharge procedure

1. Press the FLASH button (SW-342 board S406) and turn off the FLASH LED (SW-342 board D402).
2. Fabricate the discharging jig as shown in Fig. 5-1-4 locally by yourself. Connect the discharging jig to the positive (+) and negative (-) terminal of the flash voltage charge capacitor. Allow ten seconds to discharge the voltage.

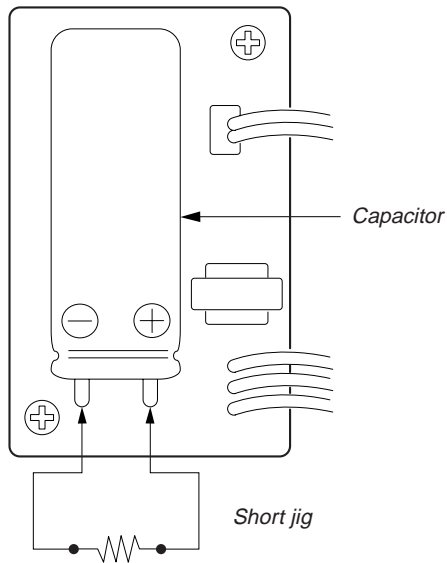


Fig. 5-1-4.

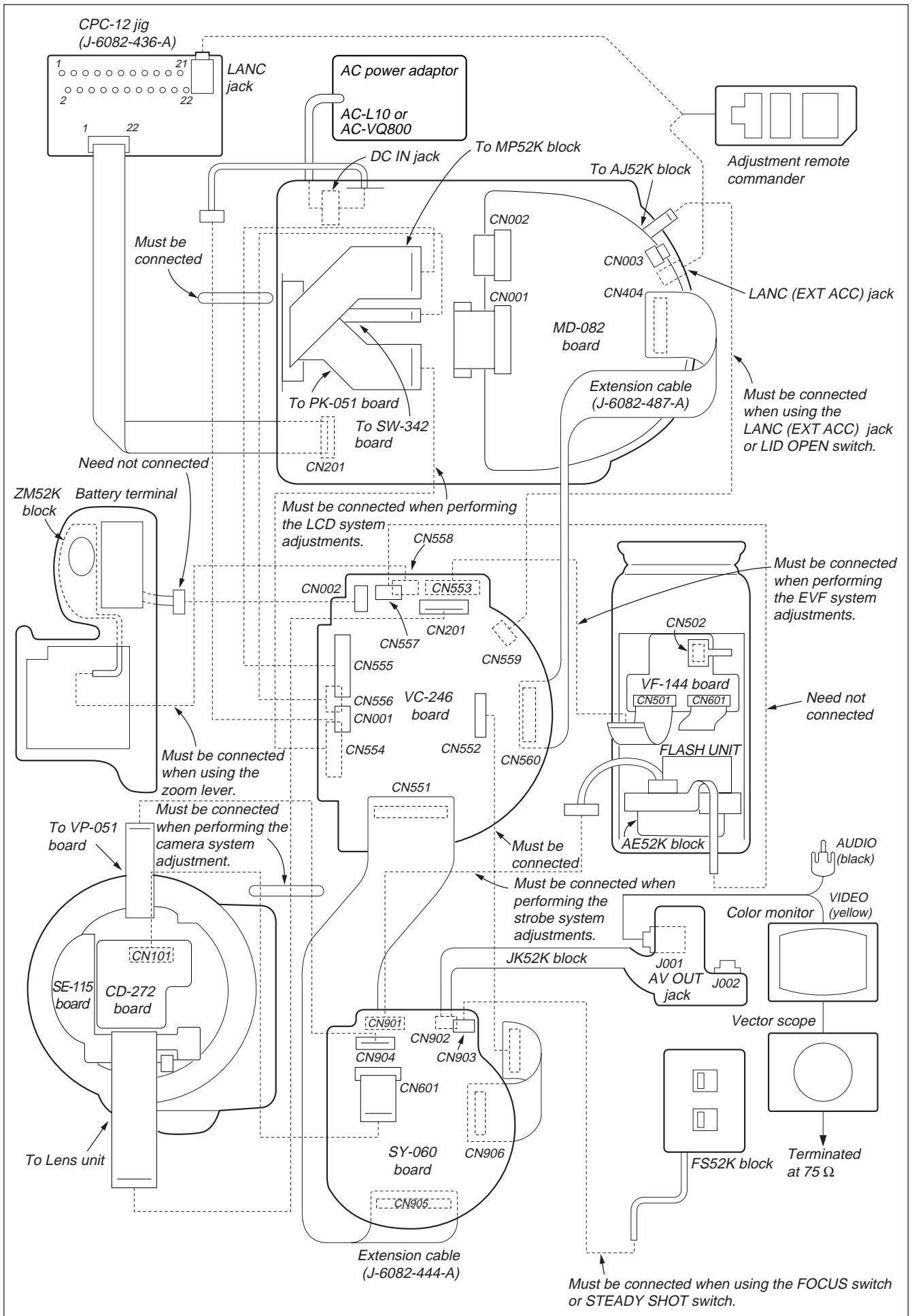


Fig. 5-1-5.

1-1-4. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

- | | | | |
|--------------------------------------|--------|-------------------------------------|----------------------------|
| 1. DEMO MODE (SETUP menu) | OFF | 7. PROGRAM AE (AE52K block) | AUTO |
| 2. DIGITAL ZOOM (CAMERA menu) | OFF | | (No mark indicated on LCD) |
| 3. WHITE BALANCE (AE52K block) | AUTO | 8. MACRO (SW342 board) | OFF |
| 4. FLASH LEVEL (CAMERA menu) | NORMAL | 9. FOCUS (CF52K block) | MANUAL |
| 5. EXPOSURE (CAMERA menu) | 0EV | 10. STEADY SHOT (CF52K block) | OFF |
| 6. P. EFFECT (EFFECT menu) | OFF | 11. DISPLAY (LC52K block) | OFF |

2. Order of Adjustments

Basically carry out adjustments in the order given.

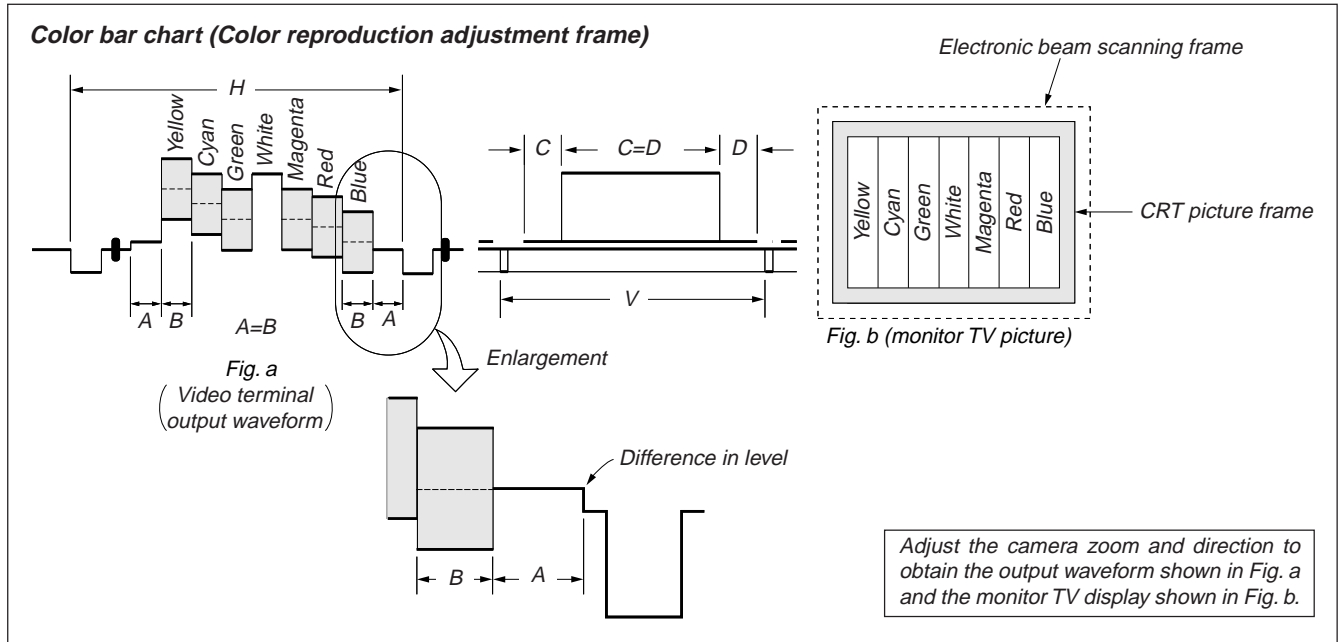


Fig. 5-1-6.

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. 5-1-6. (Standard picture frame)
- 2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
- 3) Flange back adjustment chart
Make the chart shown in Fig. 5-1-7 using A0 size (1189 mm × 841 mm) black and white vellum paper.

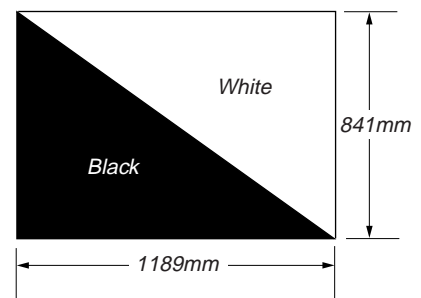


Fig. 5-1-7.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF B, D, E, F, 7 PAGE DATA

1-2-1. INITIALIZATION OF D PAGE DATA

Note: The data of the EEPROM (IC406) as a repair part has already been initialized. Therefore, perform “1. Initializing the D Page Data” only when the D page data is erased due to some reason.

1. Initializing the D Page Data

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

- 1) Modification of D page data
- 2) LCD system adjustments
- 3) Color viewfinder system adjustments
- 4) Battery end adjustments

Adjusting page	D
Adjusting Address	10 to EF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 03, and set data: 07.
- 3) Select page: 2, address: 00, and set data: 2D.
- 4) Select page: 2, address: 01, set data: 2D, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 2, address: 02, and check that the data changes to “01”.
- 6) Perform “Modification of D Page Data”.

2. Modification of D Page Data

If the D 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) 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 camera may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. D Page Table

Note1: Fixed data-1: Initialized data. (Refer to “1. Initializing the D Page Data”.)

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

Address	Initial value		Remark
00 to 0F			
10	00		Test mode
11 to 62			Fixed data-1 (Initialized data)
63			Fixed data-2 (Modified data. Copy the data built in the same model.)
64 to 66			Fixed data-1 (Initialized data)
67	00		Flash unit emergency
68 to 6B			Fixed data-1 (Initialized data)
6C	00		Recording counter
6D	00		
6E	00		
6F	00		Recording counter/MC CAM (SY-060 board IC801) emergency
70 to 88			Fixed data-1 (Initialized data)
89	80		Zoom key center adj.
8A to 8F			Fixed data-1 (Initialized data)
90	80		Battery end adj.
91	88		
92	AD		
93	C2		
94	CD		
95 to 97			Fixed data-1 (Initialized data)
98 to A1			Fixed data-2 (Modified data. Copy the data built in the same model.)
A2 to A4			Fixed data-1 (Initialized data)
A5			Fixed data-2 (Modified data. Copy the data built in the same model.)
A6			
A7			
A8 to BC			Fixed data-1 (Initialized data)
BD			Fixed data-2
BE to BF			Fixed data-1 (Initialized data)
C0			Fixed data-2
C1	80		White balance adj. (EVF)
C2	80		
C3			Fixed data-1
C4			
C5	60		VCO adj. (NTSC) (EVF)
C6	B0		Backlight consumption current adj. (EVF)
C7 to C8			Fixed data-1
C9	98		Bright adj. (NTSC) (EVF)
CA	80		Contrast adj. (NTSC) (EVF)
CB	98		Bright adj. (PAL) (EVF)
CC	80		Contrast adj. (PAL) (EVF)
CD	50		VCO adj. (PAL) (EVF)
CE to CF			Fixed data-1 (Initialized data)
D0	AA		Bright adj. (LCD)

Address	Remark	
	Initial value	
D1	60	Color adj. (LCD)
D2	A8	White balance adj. (LCD)
D3	7A	
D4	C8	Contrast adj. (LCD)
D5	8A	D range adj.(LCD)
D6	7C	V-COM level adj.(LCD)
D7	6F	VCO adj. (LCD)(NTSC)
D8	8A	V-COM adj.(LCD)
D9	5F	Fixed data (DC BL LEVEL(LCD))
DA to DB		Fixed data-1 (Initialized data)
DC	9A	Fixed data(AC BL LEVEL(LCD))
DD	6F	VCO adj. (LCD)(PAL)
DE		Fixed data-1
DF		
E0 to EB		Fixed data-1 (Initialized data)
EC	22	Eye sensor adj. (EVF)
ED to EF		Fixed data-1 (Initialized data)

Table. 5-1-2.

1-2-2. Initializing the B, E, F, 7 Page Data

Note: The data of the EEPROM (IC807) as a repair part has already been initialized. Therefore, perform “1. Initializing the B, E, F, 7 Page Data” only when the B, E, F, 7 page data is erased due to some reason.

1. Initializing the B, E, F, 7 Page Data

Note1: If “Initializing the B, E, F, 7 Page Data” is performed, all data of the B page, E page, F page and 7 page will be initialized. (It is impossible to initialize a single page.)

Note2: If the B, E, F, 7 Page data has been initialized, “Modification of B, E, F, 7 Page Data” and following adjustments need to be performed again.

- 1) Video system adjustments
- 2) Camera system adjustments

Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	7
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	B
Adjusting Address	00 to FF

Initializing Method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 03, and set data: 07.
- 3) Select page: 6, address: 00, and set data: 2D.
- 4) Select page: 6, address: 01, set data: 2D, and press the PAUSE button.
- 5) Select page: 6, address: 02, and check that the data changes to “01”.
- 6) Perform “Modification of B, E, F, 7 Page Data”.

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

If the B, E, F, 7 Page data has been initialized, change the data of the “Fixed data-2” address shown in the following tables by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) 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 camera may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of B, E, F, 7 Page data

- 1) Select page: 2, address: 00, and set data: 29.
- 2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

3. F Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the B, E, F, 7 Page Data”.)

Fixed data-2: Modified data. (Refer to “2. Modification of B, E, F, 7 Page Data”.)

Address	Initial value	Remark
00 to 0F		
10 to 13		Fixed data-1 (Initialized data)
14	12	Flange back adj.
15	A8	
16	38	
17	08	
18	17	
19	67	
1A	00	
1B	00	
1C	00	
1D	00	
1E	41	
1F	00	
20	20	
21	20	
22	20	
23	44	
24	0A	
25	00	
26	85	Light level Adj.
27		Fixed data-1 (Initialized data)
28	94	Light level Adj.
29	47	F No. standard data input
2A	41	
2B	3D	
2C	3D	
2D		Fixed data-1 (Initialized data)
2E	80	Hall adj.
2F	93	
30 to 33		Fixed data-1 (Initialized data)
34	15	Hall adj.
35	7C	
36 to 39		Fixed data-1 (Initialized data)
3A	2F	AWB standard data input
3B	37	
3C	40	
3D	D0	
3E		Fixed data-1 (Initialized data)
3F	B5	Auto white balance adj.
40	43	
41	03	Color reproduction adj. (ND Filter OFF)
42	E9	
43	63	
44	83	
45	D5	
46	FE	
47	73	
48	45	
49 to 4C		Fixed data-1 (Initialized data)

Address	Initial value	Remark
4D	27	Strobe white balance adj.
4E	77	
4F	00	White balance ND filter compensation
50	00	
51	03	Color reproduction adj. (ND Filter ON)
52	E9	
53	63	
54	83	
55	D5	
56	FE	
57	73	
58	45	
59	00	AWB standard data input
5A	14	Mechanical shutter adj.
5B		Fixed data-1 (Initialized data)
5C	63	Color reproduction adj. (ND Filter OFF)
5D	83	
5E	03	
5F	E9	
60	63	Color reproduction adj. (ND Filter ON)
61	83	
62	03	
63	E9	
64	10	Strobe white balance adj.
65	61	Video output level adj.
66	61	
67 to 68		Fixed data-1 (Initialized data)
69	01	Strobe white balance adj.
6A	09	
6B	00	
6C	0B	Mechanical shutter adj.
6D	C2	
6E	09	
6F	42	
70	06	
71	C2	
72	05	
73	C2	
74	04	
75	C2	
76	33	
77	33	
78	33	
79	33	
7A	33	
7B	33	
7C	33	
7D	33	
7E	33	
7F	33	
80	00	Auto white balance adj.
81 to 9F		Fixed data-1 (Initialized data)
A0	00	Mixed color cancel adj.
A1	00	
A2	00	
A3	00	

Address	Initial value	Remark
A4 to AB		Fixed data-1 (Initialized data)
AC	80	Steady shot adj.
AD	80	
AE to FF		Fixed data-1 (Initialized data)

Table. 5-1-3.

4. 7 Page Table

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

Address	Initial value	Remark
00 to 5F		Fixed data-1 (Initialized data)
60	0F	CCD black defect compensation
61	FF	
62	0F	
63	FF	
64	0F	
65	FF	
66	0F	
67	FF	
68	0F	
69	FF	
6A	0F	
6B	FF	
6C	0F	
6D	FF	
6E	0F	
6F	FF	
70	0F	
71	FF	
72	0F	
73	FF	
74	0F	
75	FF	
76	0F	
77	FF	
78	0F	
79	FF	
7A	0F	
7B	FF	
7C	0F	
7D	FF	
7E	0F	
7F	FF	
80	0F	
81	FF	
82	0F	
83	FF	
84	0F	
85	FF	
86	0F	
87	FF	
88	0F	CCD white defect compensation
89	FF	
8A	0F	
8B	FF	
8C	0F	
8D	FF	
8E	0F	
8F	FF	
90	0F	
91	FF	

Address	Initial value	Remark
92	0F	CCD white defect compensation
93	FF	
94	0F	
95	FF	
96	0F	
97	FF	
98	0F	
99	FF	
9A	0F	
9B	FF	
9C	0F	
9D	FF	
9E	0F	
9F	FF	
A0	0F	
A1	FF	
A2	0F	
A3	FF	
A4	0F	
A5	FF	
A6	0F	
A7	FF	
A8	0F	
A9	FF	
AA	0F	
AB	FF	
AC	0F	
AD	FF	
AE	0F	
AF	FF	
B0 to FF		Fixed data-1 (Initialized data)

Table. 5-1-4.

5. E Page Table

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

Address	Remark
00 to FF	Fixed data-1

Table. 5-1-5.

6. B Page Table

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

Address	Initial value	Remark
00 to 31		Fixed data-1
32	00	Serial No. input
33	00	
34	00	
35	00	
36	00	
37	00	
38 to FF		Fixed data-1

Table. 5-1-6.

1-3. VIDEO SYSTEM ADJUSTMENTS

1. Video Output Level Adjustment (VC-246 board)

Adjust the sync level and burst level of the composite video signal output.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Video terminal of AV OUT jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	65, 66
Specified Value	Sync level: A=286 \pm 5 mV (NTSC mode) A=300 \pm 5 mV (PAL mode) Burst level: B=286 \pm 5 mV (NTSC mode) B=300 \pm 5 mV (PAL mode)

Menu setting:

- 1) VIDEO OUT of SET UP menu
..... NTSC (NTSC mode)
..... PAL (PAL mode)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 04.
- 3) Select page: F, address: 65, change the data and set the sync level (A) to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: F, address: 66, change the data and set the burst level (B) to the specified value.
- 6) Press the PAUSE button.
- 7) Select page: 5, address: F1, and set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

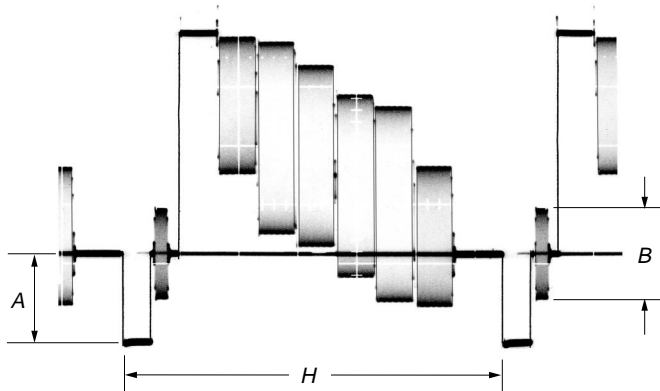


Fig. 5-1-8.

1-4. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

Data setting during camera system adjustments:

Perform the following data setting before the camera system adjustments.

- 1) Select page: 0, address: 01, and set data: 01.
- 2) After writing down the original data of the following addresses, input the following data.

Page	Address	Data
E	43	10
E	8F	00
B	75	00

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

After completing the camera system adjustments, release the data setting.

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select the above addresses, and input the original data written down at step 2).

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

- 3) Select page: 0, address: 01, and set data: 00.

1. Zoom Key Center Adjustment

Set the A/D value center of the microprocessor to the center voltage of the zoom key.

If deviated, the zoom lens operates of itself ,even if the zoom key is the center position.

Mode	STILL
Subject	Arbitrary
Measurement Point	Display data of page: 2, address: 5C
Measuring Instrument	Adjustment remote commander
Adjustment Page	D
Adjustment Address	89

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

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 2, address: 5C, read the data, and this data is named D_{5C} .
- 3) Select page: D, address: 89, set the following data.
 D_{5C} (When $6C \leq D_{5C} \leq 8A$)
 $6C$ (When $5D \leq D_{5C} < 6C$)
 $8A$ (When $8A < D_{5C} \leq 99$)

Note: When $D_{5C} < 5D$ or $99 < D_{5C}$, the zoom key is defective.

- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 0, address: 01, and set data: 00.

2. HALL Adjustment

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

Mode	STILL
Subject	All black (Cover the lens with a black cap)
Measurement Point	Display data of page 1 (Note 1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	2E, 2F, 34, 35
Specified Value	13 to 17 during IRIS OPEN 7B to 7F during IRIS CLOSE

Note 1: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX


Note 2: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 94, and set data: 15.
- 3) Select page: 6, address: 95, and set data: 7D.
- 4) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjustment remote commander. (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 2E, 2F, 34 and 35.)
- 5) Select page: 6, address: 02, and check that the data is “01”.
- 6) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

- 1) Select page: 0, address: 03, and set data: 03.
- 2) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
- 3) Select page: 1, and check that the display data (Note1) during IRIS OPEN satisfies the specified value.
- 4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
- 5) Select page: 1, and check that the display data during IRIS CLOSE satisfies the specified value.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 94, and set data: 00.
- 3) Select page: 6, address: 95, and set data: 00.
- 4) Select page: 0, address: 03, and set data: 00.
- 5) Select page: 0, address: 01, and set data: 00.

3. Flange Back Adjustment (Using Minipattern Box)

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

Mode	STILL
Subject	Siemens star chart with ND filter for the minipattern box (Note 1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note 1: Dark Siemens star chart.

Note 2: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Preparations before adjustments:

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

Note: the attachment lenses are not used.

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

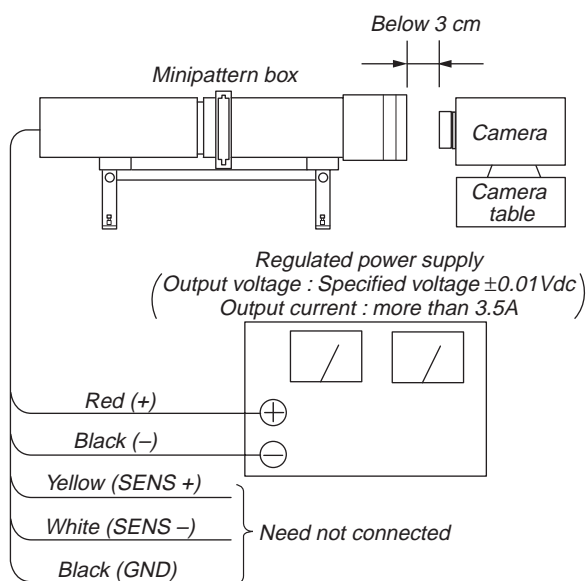


Fig. 5-1-9.

Adjusting method:

- 1) Install the minipattern box so that the distance between it and the front of the lens of the camera is less than 3cm.
- 2) Make the height of the minipattern box and the camera equal.
- 3) Check that the output voltage of the regulated power supply is the specified voltage.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Check that the center of the Siemens star chart and the center of the exposure screen coincide.
- 6) Check that the data of page: F, address: 14 to 25 is the initial value (See table below).

Address	Data	Address	Data	Address	Data
14	12	1B	00	22	20
15	A8	1C	00	23	44
16	38	1D	00	24	0A
17	08	1E	41	25	00
18	17	1F	00		
19	67	20	20		
1A	00	21	20		

- 7) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 6, address: 01, set data: 27, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 14 to 25.)
- 9) Select page: 6, address: 02, and check that the data is changed to "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Perform "Flange Back Check".

4. Flange Back Adjustment (Using Flange Back Adjustment Chart)

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

4-1. Flange Back Adjustment (1)

Mode	STILL
Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Check that the center of the chart for the flange back adjustment and the center of the exposure screen coincide.
- 3) Check that the data of page: F, address: 14 to 25 is the initial value (See table below).

Address	Data	Address	Data	Address	Data
14	12	1B	00	22	20
15	A8	1C	00	23	44
16	38	1D	00	24	0A
17	08	1E	41	25	00
18	17	1F	00		
19	67	20	20		
1A	00	21	20		

- 4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 6, address: 01, set data: 15, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 14 to 25.)
- 6) Select page: 6, address: 02, and check that the data is changed to "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Perform "Flange Back Adjustment (2)".

4-2. Flange Back Adjustment (2)

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

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note: Make the lens horizontal and perform this adjustment.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
- 3) Select page: 6, address: 02, and check that the data is "00".
- 4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
- 5) Place a ND filter on the lens so that the optimum image is obtain.
- 6) Select page: 6, address: 01, set data: 29, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 14 to 25.)
- 7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn off the power and turn on again.
- 3) Perform "Flange Back Check".

5. Flange Back Check

Mode	STILL
Subject	Siemens star (2.0 m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	The lens is focused.

Switch setting:

- 1) FOCUS AUTO

Checking method:

- 1) Place the Siemens star 2.0m 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.
- 3) Shoot the Siemens star with the zoom TELE end.
- 4) Select page: 5, address: F1, and set data: FF.
- 5) Observe the TV monitor and check that the lens is focused.
- 6) Select page: 6, address: 2C, and set data: 01.
- 7) Shoot the Siemens star with the zoom WIDE end.
- 8) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 2C, and set data: 00.
- 2) Select page: 5, address: F1, and set data: 00.

6. F No. Standard Data Input

Compensate the unevenness of the iris meter sensitivity.

Mode	STILL
Subject	Clear chart (All white)
Adjustment Page	F
Adjustment Address	29 to 2C

Note 1: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: After the power is turned on, this adjustment can be done only once.

Adjusting method:

- 1) Shoot the clear chart with the zoom WIDE end.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: E, address: 51, after noting down the data, set data: FF, and press the PAUSE button.
- 4) Select page: 6, address: 01, set data: BB, and press the PAUSE button of the adjustment remote commander.
(The F No. standard data input is performed and the adjustment data is stored in page: F, address: 29 to 2C.)
- 5) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: E, address: 51, set the data noted down at step 3), and press the PAUSE button.
- 3) Select page: 0, address: 01, and set data: 00.

7. Mechanical Shutter Adjustment

Adjust the period which the mechanical shutter is closed, and compensate the exposure.

Mode	STILL
Subject	Clear chart (All white) (10 cm from the front of the lens)
Adjustment Page	F
Adjustment Address	5A, 6C to 7F

Note 1: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: Install the clear chart at a distance of about 10 cm from the front of the lens. (It is recommended.)

Adjusting method:

- 1) Shoot the clear chart with the zoom WIDE end.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 6, address: 01, set data: AD, and press the PAUSE button of the adjustment remote commander.
(The mechanical shutter adjustment is performed and the adjustment data is stored in page: F, address: 5A, 6C to 7F.)
- 4) Select page: 6, address: 02, and check that the data changes to "01".
- 5) Select page: 6, address: AB, and check the data.
00: Normal
01 to FF: Defective

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 01, and set data: 00.

8. Picture Frame Setting

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame) About 90 cm from the front of the protection glass
Measurement Point	Video output terminal of AV OUT jack
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Note 1: Display data of page 1 of the adjustment remote commander.

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

Setting method:

- 1) Select page: 5, address: F1, and set data: FF.
- 2) Adjust the zoom and the camera direction, and set the picture frame to the specified position.
- 3) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".
- 4) Select page: 0, address: 03, and set data: 18.
- 5) Select page: 1, and note down the XH data and XL data. (Note1)
- 6) Select page: 0, address: 03, and set data: 22.
- 7) Select page: 1, and note down the YH data and YL data. (Note1)
- 8) Select page: 5, address: F1, and set data: 00.

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.

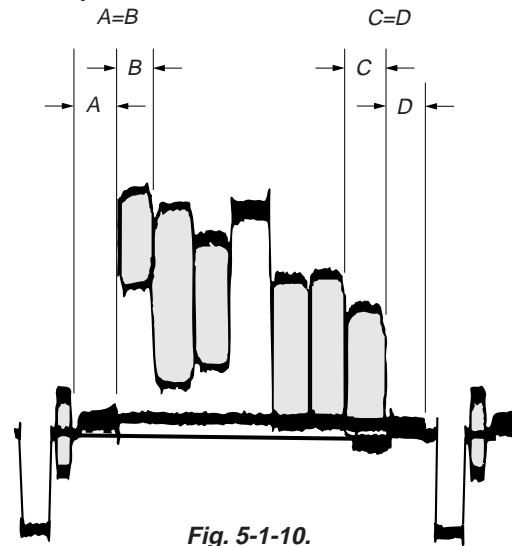
- 1) Select page: 6, address: 90, and set data: XL. (Note 2)
- 2) Select page: 6, address: 91, and set data: XH. (Note 2)
- 3) Select page: 6, address: 92, and set data: YL. (Note 3)
- 4) Select page: 6, address: 93, and set data: YH. (Note 3)
- 5) Select page: 6, address: 01, set data: 79, and press the PAUSE button and wait for 1 second.
- 6) Select page: 6, address: 2C, and set data: 01.
- 7) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: The data noted down at step 5) .of the "Setting method".

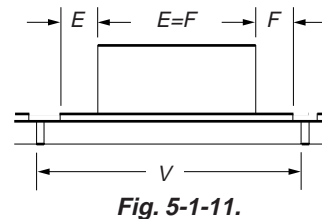
Note 3: The data noted down at step 7) .of the "Setting method".

Check on an oscilloscope

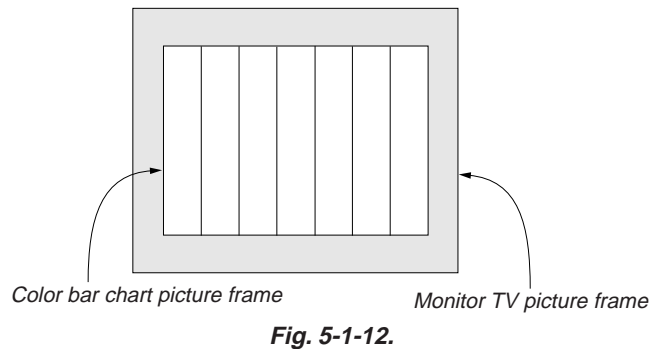
1. Horizontal period



2. Vertical period



Check on the monitor TV (Underscanned mode)




9. Light Level Adjustment and ND Shutter Check

Adjust the standard LV value.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note 2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	26, 28
Specified Value	AE level 1: 0FE0 to 1020 AE level 2: Bellow 1100

Note 1: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX


Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 01, set data: 0D, and press the PAUSE button of the adjustment remote commander.
(The light level adjustment is performed and the adjustment data is stored in page: F, address: 26, 28.)
- 3) Select page: 6, address: 02, and check that the data is “01”.
 - AE level 1 Check
 - 4) Select page: 0, address: 03, and set data: 06.
 - 5) Select page: 1, and check that the display data (Note2) satisfies the AE level 1 specified value.
 - AE level 2 Check
 - 6) Select page: E, address: 41, set data: 6B, and press the PAUSE button.
 - 7) Select page: 6, address: 1C, and set data: 03.
 - 8) Select page: 1, and check that the display data (Note2) satisfies the AE level 2 specified value.

Processing after Completing Adjustments:

- 1) Select page: E, address: 41, set data: 6A, and press the PAUSE button.
- 2) Select page: 6, address: 1C, and set data: 00.
- 3) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 03, and set data: 00.
- 5) Select page: 0, address: 01, and set data: 00.

10. Mixed Color Cancel Adjustment

Perform the mixed color cancel adjustment using the each data of the color bars.

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	A0 to A3

Note 1: This adjustment should be carried out upon completion of “Light Level Adjustment and ND Shutter Check”.

Note 2: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Check that the picture frame is set to the specified position.
(Refer to “8. Picture Frame Setting”.)
- 3) Select page: 6, address: 01, set data: D7, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 6, address: 01, set data: D5, and press the PAUSE button.
(The mixed color cancel adjustment is performed and the adjustment data is stored in page: F, address: A0 to A3.)
- Note:** Observe the TV monitor and check that a vertical line is indicated inside each color zone.
- 5) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 01, and set data: 00.

11. Auto White Balance Standard Data Input

Adjust the white balance standard data at 3200 K.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3A to 3D, 59

Note 1: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 2: After the power is turned on, this adjustment can be done only once.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 01, set data: 0B, and press the PAUSE button.
(The auto white balance standard data input is performed and the adjustment data is stored in page: F, address: 3A to 3D, 59)
- 4) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 2) Select page: 0, address: 01, and set data: 00.

12. White Balance ND Filter Compensation

Compensate the white balance deviation when ND filter is ON.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	4F, 50

Note 1: This adjustment should be carried out upon completion of "Auto White Balance Standard Data Input".

Note 2: If the data of page: 6, address: 02 is "01", select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 3: After the power is turned on, this adjustment can be done only once.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 27, after noting down the data, set data: 80, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 6, address: 1C, set data: 03, and wait for 1 second.
- 4) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 6, address: 01, set data: 09, and press the PAUSE button.
(The white balance ND filter compensation is performed and the adjustment data is stored in page: F, address: 4F, 50.)
- 6) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

- 1) Select page: 6, address: 1C, set data: 00.
- 2) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 3) Select page: F, address: 27, set the data noted down at step 2) of "Adjusting method", and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.

13. Auto White Balance Adjustment

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


Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note 2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	3F, 40, 80
Specified Value	R ratio: 2760 to 28A0 B ratio: 5DE0 to 5F20

Note 1: This adjustment should be carried out upon completion of “Auto White Balance Standard Data Input” and “White Balance ND Filter compensation”.

Note 2: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 3: After the power is turned on, this adjustment can be done only once.

Note 4: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX


Adjusting method:

- Place the C14 filter for color temperature correction on the lens.
- Select page: 0, address: 01, and set data: 01.
- Select page: F, address: 49 to 4C, and note down the data of each address.
- Input the following data to page: F, addresses: 49 to 4C.

Address	49	4A	4B	4C
Data	28	00	5E	80

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

- Select page: 6, address: 01, set data: A7, and press the PAUSE button.
- Select page: 6, address: 01, set data: A5, and press the PAUSE button. (The auto white balance adjustment is performed and the adjustment data is stored in page: F, address: 3F, 40 and 80.)
- Select page: 6, address: 02, and check that the data is “01”.
- Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- Select page: 0, address: 03, and set data: 04.
- Select page: 1, and check that the display data (Note 4) satisfies the R ratio specified value.
- Select page: 0, address: 03, and set data: 05.
- Select page: 1, and check that the display data (Note 4) satisfies the B ratio specified value.
- Select page: F, address: 49 to 4C, and input the data noted down at step 3).

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

Processing after Completing Adjustments:

- Select page: 0, address: 03, and set data: 00.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 0, address: 01, and set data: 00

14. Color Reproduction Adjustment (ND Filter OFF)

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

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	41 to 48, 5C to 5F

Note 1: This adjustment should be carried out upon completion of “Auto White Balance Standard Data Input” and “Auto White Balance Adjustment”.

Note 2: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Note 3: After the power is turned on, this adjustment can be done only once.

Adjusting method:

- Select page: 0, address: 01, and set data: 01.
- Check that the picture frame is set to the specified position. (Refer to “8. Picture Frame Setting”.)
- Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button.
- Select page: 6, address: 01, set data: AB, and press the PAUSE button.
- Select page: 6, address: 12, set data: 80, and wait for 1 seconds.
- Select page: 6, address: 12, set data: 00, and wait for 2 seconds.
- Select page: 6, address: 01, set data: A9, and press the PAUSE button.
(The color reproduction adjustment is performed and the adjustment data is stored in page: F, address: 41 to 48, 5C to 5F.)
- Note:** Observe the TV monitor and check that a sign “□” is indicated inside each color zone.
- Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: B, address: 67, set the data noted down at step 3), and press the PAUSE button.
- Select page: 0, address: 01, and set data: 00

15. Color Reproduction Adjustment (ND Filter ON)

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

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	51 to 58, 60 to 63

Note 1: This adjustment should be carried out upon completion of “Auto White Balance Standard Data Input”, “Auto White Balance Adjustment” and “White Balance ND Filter Compensation”.

Note 2: If the data of page: 6, address: 02 is “01”, select page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 27, after noting down the data, set data: 80, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button.
- 4) Check that the picture frame is set to the specified position. (Refer to “8. Picture Frame Setting”.)
- 5) Select page: 6, address: 1C, set data: 03, wait for 1 second.
- 6) Select page: 6, address: 01, set data: C3, and press the PAUSE button
- 7) Select page: 6, address: 12, set data: 80, and wait for 1 seconds.
- 8) Select page: 6, address: 12, set data: 00, and wait for 2 seconds.
- 9) Select page: 6, address: 01, set data: C1, and press the PAUSE button.
(The color reproduction adjustment is performed and the adjustment data is stored in page: F, address: 51 to 58, 60 to 63.)

Note: Observe the TV monitor and check that a sign “□” is indicated inside each color zone.

- 10) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 1C, and set data: 00
- 3) Select page: F, address: 27, set the data noted down at step 2) of “Adjusting method”, and press the PAUSE button.
- 4) Select page: B, address: 67, set the data noted down at step 3) of “Adjusting method”, and press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00

16. Color Reproduction Check

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal of AV OUT jack
Measuring Instrument	NTSC vectorscope (NTSC mode) PAL vectorscope (PAL mode)
Specified Value	Each center of all color luminance points should settle within each color reproduction frame.

Menu setting:

- 1) VIDEO OUT of SET UP menu
..... NTSC (NTSC mode)
..... PAL (PAL mode)

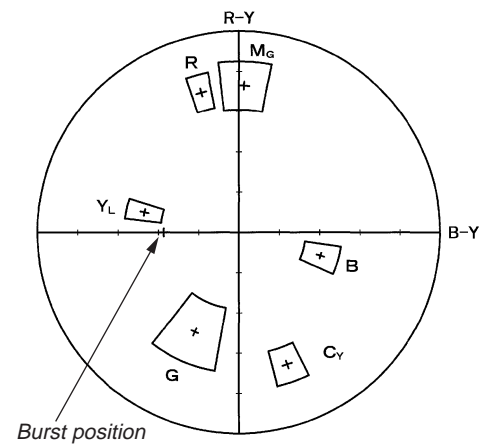
Checking method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: FF.
- 3) Check that the picture frame is set to the specified position. (Refer to "8. Picture Frame Setting".)
- 4) Select page: B, address: 67, after noting down the data, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 6, address: 10, and set data: 01.
- 6) Select page: E, address: 52, after noting down the data, set data: 0A, and press the PAUSE button.
- ND filter OFF color reproduction check
- 7) Select page: 6, address: 01, set data: 0F, and press the PAUSE button.
- 8) Select page: 6, address: 12, set data: 80, and wait for 1 seconds.
- 9) Select page: 6, address: 12, set data: 00, and wait for 2 seconds.
- 10) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
- 11) Check that each center of all color luminance points is settled in each color reproduction frame.
- ND filter ON color reproduction check
- 12) Select page: F, address: 27, after noting down the data, set data: 80, and press the PAUSE button.
- 13) Select page: 6, address: 1C, set data: 03, and wait for 1 second.
- 14) Select page: 6, address: 12, set data: 80, and wait for 1 seconds.
- 15) Select page: 6, address: 12, set data: 00, and wait for 2 seconds.
- 16) Check that each center of all color luminance points is settled in each color reproduction frame.
- 17) Select page: F, address: 27, after noted down at step 12), and press the PAUSE button.

Processing after Completing Adjustments:

- 1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 1C, and set data: 00.
- 3) Select page: 6, address: 10, and set data: 00.
- 4) Select page: E, address: 52, set the data noted down at step 6) of "Checking method", and press the PAUSE button.
- 5) Select page: B, address: 67, set the data noted down at step 4) of "Checking method", and press the PAUSE button.
- 6) Select page: 5, address: F1, and set data: 00.
- 7) Select page: 0, address: 01, and set data: 00.

For NTSC mode



For PAL mode

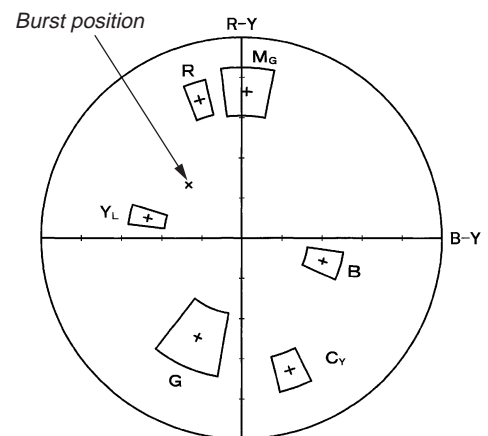


Fig. 5-1-13.

17. White Balance Check

Mode	STILL	
Subject	Clear chart (Color reproduction adjustment frame)	
Measurement Point	Display data of page 1 (Note 2)	Video output terminal of AV OUT jack
Measuring Instrument	Adjustment remote commander	Vectorscope
Specified Value	R ratio: 3E00 to 4200 B ratio: 3E00 to 4200	Fig. 5-1-14. A to B

Note 1: Refer to "8. Picture Frame setting" for XH, XL, YH and YL.

Note 2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX


Checking method:

- 1) Check that the lens is not covered with any filter.
Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 90, and set data: XL. (Note1)
- 3) Select page: 6, address: 91, and set data: XH. (Note1)
- 4) Select page: 6, address: 92, and set data: YL. (Note1)
- 5) Select page: 6, address: 93, and set data: YH. (Note1)
- 6) Select page: 6, address: 6C, and set data: 01.
- 7) Select page: 6, address: 01, set data: 79, and press the PAUSE button, and wait for 1 second.
- 8) Select page: 6, address: 2C, and set data: 01.

• INDOOR (ND filter OFF) data check

- 9) Select page: E, address: 52, after noting down the data, set data: 0E, and press the PAUSE button.
- 10) Select page: 6, address: 01, set data: 0F, and press the PAUSE button.
- 11) Select page: 0, address: 03, and set data: 04.
- 12) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
- 13) Select page: 0, address: 03, and set data: 05.
- 14) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.

• INDOOR (ND filter ON) data check

- 15) Select page: F, address: 27, after noting down the data, set data: 80, and press the PAUSE button.
- 16) Select page: 6, address: 1C, set data: 03, and wait for 1 second.
- 17) Select page: 0, address: 03, and set data: 04.
- 18) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
- 19) Select page: 0, address: 03, and set data: 05.
- 20) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.
- 21) Select page: F, address: 27, set the data noted down at step 14), and press the PAUSE button.
- 22) Select page: 6, address: 1C, set data: 00, and wait for 1 second.

• INDOOR luminance point check

- 23) Select page: 0, address: 03, and set data: 00.
- 24) Check that the center of the white luminance point is within the circle shown Fig. 5-1-14. (A).

• OUTDOOR luminance point check

- 25) Place the C14 filter on the lens.
- 26) Select page: 0, address: 01, and set data: 01.
- 27) Select page: E, address: 4B, after noting down the data, set data: 20, and press the PAUSE button.
- 28) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
- 29) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-14. (B).

Processing after Completing Adjustments:

- 1) Select page: E, address: 4B, set the data noted down at step 27), and press the PAUSE button.
- 2) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 3) Select page: 6, address: 6C, and set data: 00.
- 4) Select page: E, address: 52, set the data noted down at step 9) of "Checking method", and press the PAUSE button.
- 5) Select page: 0, address: 01, and set data: 00.

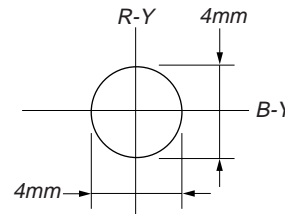


Fig. 5-1-14 (A).

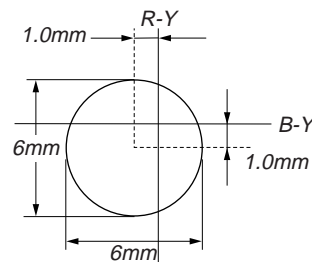


Fig. 5-1-14 (B).

18. Strobe White Balance Adjustment

Adjust the white balance when the strobe light flashes.

Mode	STILL
Subject	A plate which reflection rate is 18 % (1.0m from the front of the lens)
Adjustment Page	F
Adjustment Address	4D, 4E, 64, 69, 6A, 6B

Note 1: Perform this adjustment in the dark room or use a dark box.

Note 2: Any light other than the strobe light should not light up the plate.

Note 3: This adjustment should be carried out upon completion of "HALL Adjustment", "Flange Back Adjustment", "Light Level Adjustment" and "Auto White Balance Adjustment".

Note 4: After the power is turned on, this adjustment can be done only once.

Switch setting:

- FLASH ON
- FLASH emitter OPEN

Adjusting method:

- Select page: 0, address: 01, and set data: 01.
- Select page: 6, address: 90, and set data: 00.
- Select page: 6, address: 91, and set data: 00.
- Select page: 6, address: 92, and set data: 00.
- Select page: 6, address: 93, and set data: C0.
- Select page: 6, address: 6C, and set data: 01.
- Select page: 6, address: 2C, and set data: 01.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button. (Check the flashing of the strobe light.)
- Select page: 6, address: 02, and check that the data is "01". (Note5)
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button. (Check the flashing of the strobe light.)
- Select page: 6, address: 02, and check that the data is "01". (Note5)
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: B9, and press the PAUSE button.
- Check the flashing of the strobe light.
Note5:The strobe white balance adjustment is performed and the adjustment data is stored in page: F, address: 4D, 4E, 64, 69, 6A and 6B.)
- Select page: 6, address: 02, and check that the data is "01". (Note5)

Processing after Completing Adjustments:

- Select page: 6, address: 2C, and set data: 00.
- Select page: 6, address: 93, and set data: 00.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 6C, and set data: 00.
- Select page: 0, address: 01, and set data: 00.
- Perform "Strobe Light Level and White Balance Check".

Note: Don't turn off the power.

19. Strobe Light Level and White Balance Check

Check the light level regulation and the white balance when the strobe light flashes.

Mode	STILL
Subject	A plate which reflection rate is 18% (1.0 m from the front of the lens) (Note 1)
Measurement Point	Display data of page: 1
Measuring Instrument	Adjustment remote commander
Specified value	Y level data: 60 to 94 (Note 4) R-Y data: FA to FF or 00 to 06 (Note 5) B-Y data: FA to FF or 00 to 06 (Note 5)

Note 1: Perform this adjustment in the dark room or use a dark box.

Note 2: Any light other than the strobe light should not light up the plate.

Note 3: This adjustment should be carried out upon completion of "HALL Adjustment", "Flange Back Adjustment", "Light Level Adjustment", "Auto White Balance Adjustment" and "Strobe White Balance Adjustment".

Note 4: Display data of page: F, address: 64 of the adjustment remote commander.

F : XX : 64
 └─→ Y level data

Note 5: Display data of page 1 of the adjustment remote commander.

1 : XX : XX
 └─→ B-Y data
 └─→ R-Y data

Switch setting:

- FLASH ON
- FLASH emitter OPEN

Checking method:

- Select page: 0, address: 01, and set data: 01.
- Select page: 6, address: 90, and set data: 00.
- Select page: 6, address: 91, and set data: 00.
- Select page: 6, address: 92, and set data: 00.
- Select page: 6, address: 93, and set data: C0.
- Select page: 6, address: 6C, and set data: 01.
- Select page: 6, address: 2C, and set data: 01.
- Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- Select page: 6, address: 01, set data: 67, and press the PAUSE button.
- Check the flashing of the strobe light.
- Select page: 6, address: 02, and check that the data is "01".
- Select page: F, address: 64, and check that the Y level data satisfies the specified value. (Note4)
- Select page: 0, address: 03, and set data: 02.
- Select page: 1, and check that the R-Y data and B-Y data satisfy the specified value respectively.(Note5)

Processing after Completing Adjustments:

- Select page: 0, address: 03, and set data: 00.
- Select page: 6, address: 2C, and set data: 00.
- Select page: 6, address: 93, and set data: 00.
- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- Select page: 6, address: 6C, and set data: 00.
- Select page: 0, address: 01, and set data: 00.

20. CCD Black Defect Compensation

Mode	STILL
Subject	Clear chart (25 cm from the front of the lens) (Note 1)
Adjustment Page	7
Adjustment Address	60 to 87

Note 1: Check that there are no dust, no dirt and no reflection on the clear chart.

Note 2: Any subject other than the clear chart should not be in the screen.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: DF, after noting down the data, set data: 4C, and press the PAUSE button.
- 3) Select page: 6, address: 2C, and set data: 01.
- 4) Select page: 6, address: 90, and set data: 00.
- 5) Select page: 6, address: 91, and set data: 03.
- 6) Select page: 6, address: 92, and set data: 00.
- 7) Select page: 6, address: 93, and set data: 00.
- 8) Select page: 6, address: 6C, and set data: 01.
- 9) Select page: 6, address: 01, set data: 79, and press the PAUSE button.
- 10) Select page: 6, address: 30, set data: 01, and press the PAUSE button and wait for 4 seconds.
- 11) Select page: 6, address: 01, set data: 8D, and press the PAUSE button.
(The CCD black defect compensation is performed and the adjustment data is stored in page: 7, address: 60 to 87.)
- 12) Select page: 6, address: 02, and check that the data changes to "01".
- 13) Select page: 6, address: 55, and check the data.
00 to 0A : Normal
0B to FF : Defective
- 14) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 15) Select page: F, address: DF, set data: 5A, and press the PAUSE button.
- 16) Select page: 6, address: 01, set data: 89, and press the PAUSE button. (Black defect check)
- 17) Select page: 6, address: 02, and check that the data changes to "01".
- 18) Select page: 6, address: 55, and check the data.
00 : Normal
01 to FF : Defective

Processing after Completing Adjustments:

- 1) Select page: F, address: DF, set the data noted down at step 2), and press the PAUSE button.
- 2) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 3) Select page: 6, address: 2C, and set data: 00.
- 4) Select page: 6, address: 30, and set data: 00.
- 5) Select page: 6, address: 91, and set data: 00.
- 6) Select page: 6, address: 6C, and set data: 00.
- 7) Select page: 0, address: 01, and set data: 00.

21. CCD White Defect Compensation

Mode	STILL
Subject	Clear chart (25 cm from the front of the lens) (Note 1)
Adjustment Page	7
Adjustment Address	88 to AF

Note 1: Check that there are no dust, no dirt and no reflection on the clear chart.

Note 2: Any subject other than the clear chart should not be in the screen.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: DE, after noting down the data, set data: 1E, and press the PAUSE button.
- 3) Select page: F, address: E3, after noting down the data, set data: 08, and press the PAUSE button.
- 4) Select page: 6, address: 01, set data: 8B, and press the PAUSE button.
(The CCD white defect compensation is performed and the adjustment data is stored in page: 7, address: 88 to AF.)
- 5) Select page: 6, address: 02, and check that the data changes to "01".
- 6) Select page: 6, address: 55, and check the data.
00 to 7F : Normal
80 to FF : Defective
- 7) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 8) Select page: F, address: DE, set data: 0F, and press the PAUSE button.
- 9) Select page: F, address: E3, set data: A0, and press the PAUSE button.
- 10) Select page: 6, address: 01, set data: 87, and press the PAUSE button. (White defect check)
- 11) Select page: 6, address: 02, and check that the data changes to "01".
- 12) Select page: 6, address: 55, and check the data.
00 : Normal
01 to FF : Defective

Processing after Completing Adjustments:

- 1) Select page: F, address: DE, set the data noted down at step 2), and press the PAUSE button.
- 2) Select page: F, address: E3, set the data noted down at step 3), and press the PAUSE button.
- 3) Select page: 6, address: 01, and set data: 00, and press the PAUSE button.
- 4) Select page: 0, address: 01, and set data: 00.

22. Steady shot adjustment

- Perform the steady shot adjustment only when replacing the angular velocity sensor. When the microprocessor, circuit, etc. malfunctions, do not perform this adjustment but check operations only.
- Record the sensitivity label of the angular velocity sensor (repair part), including to which side of the board it was attached to, etc. If it has been attached incorrectly, the image will move up and down or to the left and right during steady shot operation. Be sure to take note of this.

Precautions on the Parts Replacement

There are two types of repair parts.

Type A 3AB0

Type B 3AB1

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, re-adjust according to the adjusting method after replacement.

Precautions on Angular Velocity Sensor

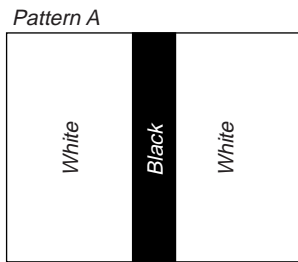
The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Switch setting:

- 1) Steady Shot (FRONT SW block) ON

22-1. Steady Shot Adjustment (1)

Subject	Pattern A (1.5m from the front of the protection glass)
Measurement Point	Video output terminal of AV OUT jack
Measuring Instrument	Oscilloscope (H period)
Adjustment Page	F
Adjustment Address	AD



A4 size (297mm × 210mm)

Fig. 5-1-15.

Adjusting method:

- 1) Expose pattern A with the zoom TELE end.
- 2) Adjust the inclination of the camera so that the vertical black line comes to the center of the screen.
- 3) Select page: 0, address: 01, and set data: 01.
- 4) Select page: B, address: FF, set data: 08, and press the pause button of the adjustment remote commander.
- 5) Turn off the HOLD switch of the adjustment remote commander.
- 6) Adjust to the falling edge of the waveform with vertical scale on the oscilloscope. (Oscilloscope is H period).
- 7) Turn on the HOLD switch.
- 8) Select page: B, address: FF, set data: 09, and press the pause button of the adjustment remote commander.
At this time, measure the moving amount t_1 (μsec) of the falling edge of the waveform.
- 9) Turn off the HOLD switch.
- 10) Obtain D_{AD} ' using the following equation (decimal calculation).
 $D_{AD}' = (4.0/t_1) \times [1.01 / (\text{Yaw sensor sensitivity})] \times 94$
Note: The Yaw sensor sensitivity (SE304) of SE-115 board is labeled only on the repair part.
- 11) Raise D_{AD}' to a whole number, convert it to a hexadecimal digit and take this as D_{AD} . (Refer to Table 5-2-1. "Hexadecimal - Decimal conversion table" of "5-2. SERVICE MODE".)
- 12) Turn on the HOLD switch.
- 13) Select page: F, address: AD, set data: D_{AD} , and press the pause button of the adjustment remote commander.
- 14) Select page: B, address: FF, set data: 08, and press the pause button.

Processing after Completing Adjustments:

- 1) Select page: 0, address: 01, and set data: 00.
- 2) Turn off the HOLD switch.
- 3) Check that the steady shot operation is performed normally.

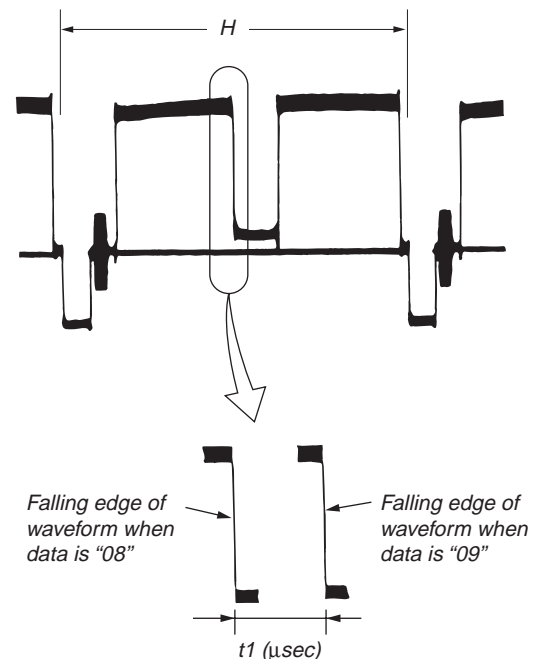
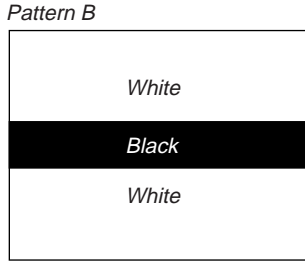


Fig. 5-1-16.

22-2. Steady Shot Adjustment (2)

Subject	Pattern B (1.5m from the front of the protection glass)
Measurement Point	Video output terminal of AV OUT jack
Measuring Instrument	Oscilloscope (V period)
Adjustment Page	F
Adjustment Address	AC



A4 size (297mm × 210mm)

Fig. 5-1-17.

Adjusting method:

- Expose pattern B with the zoom TELE end.
- Adjust the inclination of the camera so that the horizontal black line comes to the center of the screen.
- Select page: 0, address: 01, and set data: 01.
- Select page: B, address: FE, set data: 08, and press the pause button of the adjustment remote commander.
- Turn off the HOLD switch of the adjustment remote commander.
- Adjust to the falling edge of the waveform with vertical scale on the oscilloscope. (Oscilloscope is V period).
- Turn on the HOLD switch.
- Select page: B, address: FE, set data: 09, and press the pause button of the adjustment remote commander.
At this time, measure the moving amount t_2 (msec) of the falling edge of the waveform.
- Turn off the HOLD switch.
- Obtain D_{AC}' using the following equation (decimal calculation).
$$D_{AC}' = (2.5/t_2) \times [1.00 / (\text{Pitch sensor sensitivity})] \times 104$$

Note: The pitch sensor sensitivity (SE303) of SE-115 board is labeled only on the repair part.
- Raise D_{AC}' to a whole number, convert it to a hexadecimal digit and take this as D_{AC} . (Refer to Table 5-2-1. "Hexadecimal - Decimal conversion table" of "5-2. SERVICE MODE".)
- Turn on the HOLD switch.
- Select page: F, address: AC, set data: D_{AC} , and press the pause button of the adjustment remote commander.
- Select page: B, address: FE, set data: 08, and press the pause button.

Processing after Completing Adjustments:

- Select page: 0, address: 01, and set data: 00.
- Turn off the HOLD switch.
- Check that the steady shot operation is performed normally.

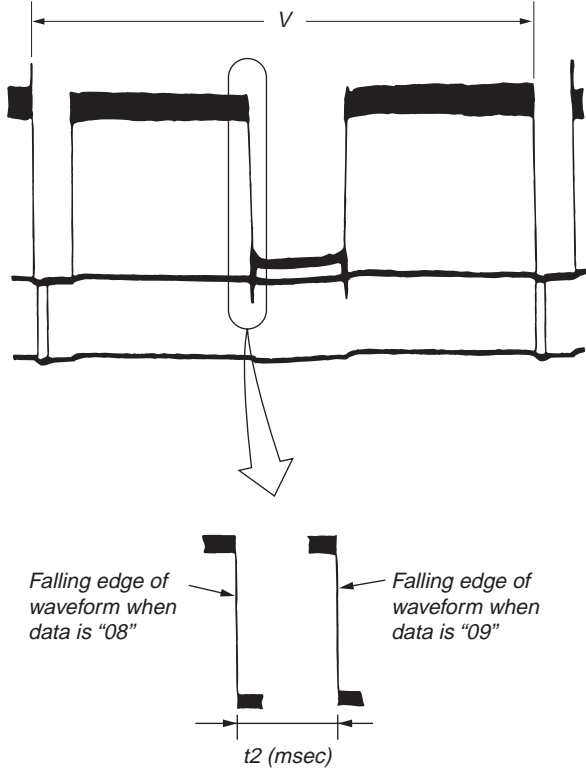


Fig. 5-1-18.

1-5. LCD SYSTEM ADJUSTMENT

Before perform the LCD system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT (Menu) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN201 of the control switch block (MP52K).

Connect the Measuring Instruments via the CPC-12 jig (J-6082-436-A).

The following table shows the Pin No. and signal name of CN201 of the control switch block (MP52K).

Pin No.	Signal Name	Pin No.	Signal Name
1	MPX0 IF	12	LANC OUT
2	C OUT	13	MAKER RECOG
3	Y OUT	14	PF7
4	REG GND	15	TXD
5	XCPC IN	16	RXD
6	DEC EFM	17	RESET
7	HSY	18	VDD
8	COM	19	EVF BL+
9	VG	20	EVF BL 4.75 V
10	UNREG	21	EVF VG
11	LANC IN	22	EVF VCO

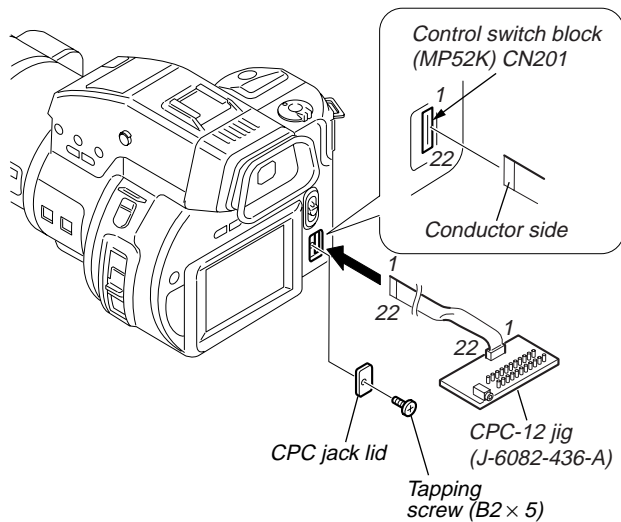


Fig. 5-1-19.

1. LCD Initial Data Input

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	D0 to D9, DC to DF

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, and input the data in the following table.
Note: Press the PAUSE button of the adjustment remote commander each time to set the data.
- 3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
D0	AA	Bright adj.
D1	60	Color adj.
D2	A8	White balance adj.
D3	7A	White balance adj.
D4	C8	Contrast adj.
D5	8A	D range adj.
D6	7C	V-COM level adj.
D7	6F	VCO adj. (NTSC)
D8	8A	V-COM adj.
D9	5F	Fixed data
DC	9A	Fixed data
DD	6F	VCO adj. (PAL)
DE	13	Fixed data
DF	00	Fixed data

2. VCO Adjustment (PK-051 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑦ of CN201 of control switch block (MP52K)(HSY)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	D7 (NTSC) DD (PAL)
Specified Value	$f = 15734 \pm 30$ Hz (NTSC) $f = 16175 \pm 30$ Hz (PAL)

Menu setting:

VIDEO OUT of SET UP menu NTSC
(This adjustment must be performed in NTSC mode, so don't set the menu setting to "PAL".)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F0, set data: 01.
- 3) Select page: D, address: D7, change the data and set the HSY frequency (f) to the NTSC specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: D, address: DD, change the data and set the HSY frequency (f) to the PAL specified value.
- 6) Press the PAUSE button.
- 7) Select page: 5, address: F0, set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

3. D Range Adjustment (PK-051 board)

Set the D range of the LCD driver to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN201 of control switch block (MP52K)(VG) External trigger: Pin ⑧ of CN201 of control switch block (MP52K)(COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D5
Specified Value	$A = 2.52 \pm 0.05$ V

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 03.
- 3) Select page: D, address: D5, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 5, address: F1, set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

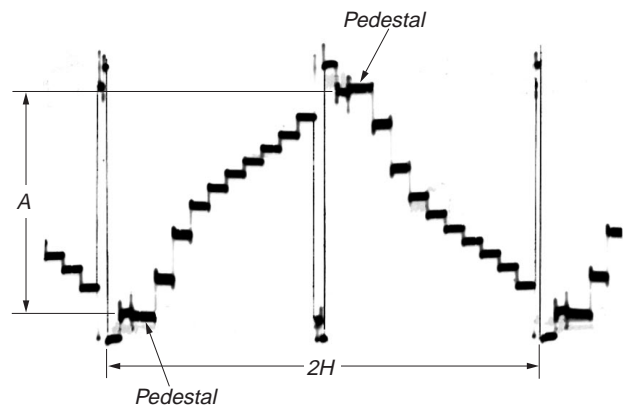


Fig. 5-1-20.

4. Bright Adjustment (PK-051 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN201 of control switch block (MP52K)(VG) External trigger: Pin ⑧ of CN201 of control switch block (MP52K)(COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D0
Specified Value	$A = 1.32 \pm 0.05V$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 03.
- 3) Select page: 2, address: 10, set data: 01.
- 4) Select page: D, address: D0, change the data and set the voltage (A) between the pedestal and GAMMA1 limiter level to the specified value.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 2, address: 10, set data: 00.
- 7) Select page: 5, address: F1, set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

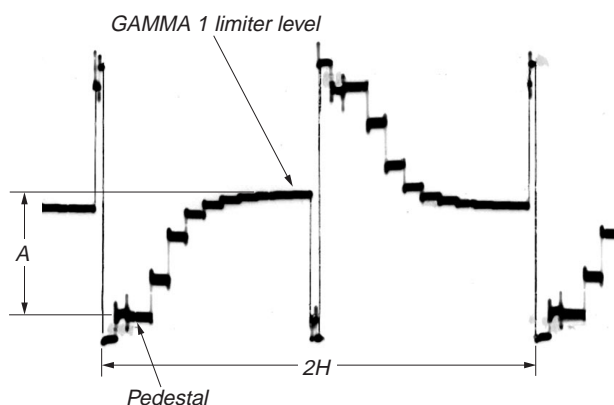


Fig. 5-1-21.

5. Contrast Adjustment (PK-051 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN201 of control switch block (MP52K)(VG) External trigger: Pin ⑧ of CN201 of control switch block (MP52K)(COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D4
Specified Value	$A = 2.35 \pm 0.07V$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 03.
- 3) Select page: D, address: D4, change the data and set the voltage (A) between the pedestal and 10 steps peak to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 5, address: F1, set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

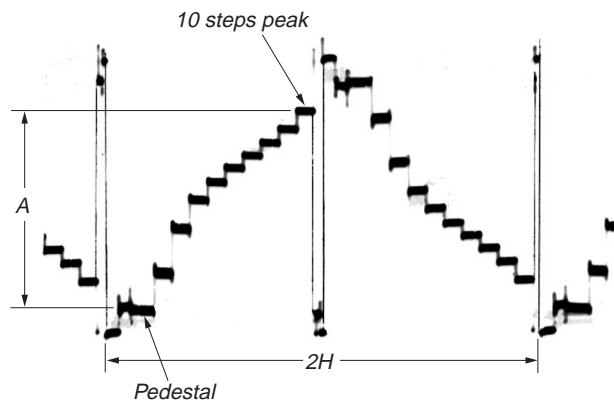


Fig. 5-1-22.

6. Color Adjustment (PK-051 board)

Set the color saturation to the standard value. If deviated, the color will be too dark or light.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑨ of CN201 of control switch block (MP52K)(VG) External trigger: Pin ⑧ of CN201 of control switch block (MP52K)(COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D1
Specified Value	$A = 356 \pm 50\text{mV}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 04.
- 3) Select page: D, address: D1, change the data and set the voltage (A) between the white 100% (Reference level) and green to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 5, address: F1, set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

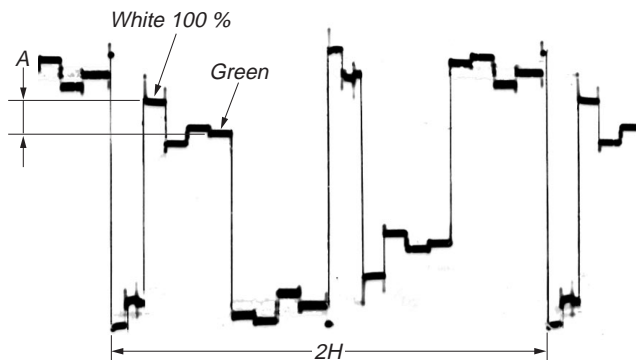


Fig. 5-1-23.

7. V-COM Level Adjustment (PK-051 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑧ of CN201 of control switch block (MP52K)(COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	D6
Specified Value	$A = 5.42 \pm 0.05\text{V}$

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: D6, change the data and set the V-COM signal level (A) to the specified value.
- 3) Press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.

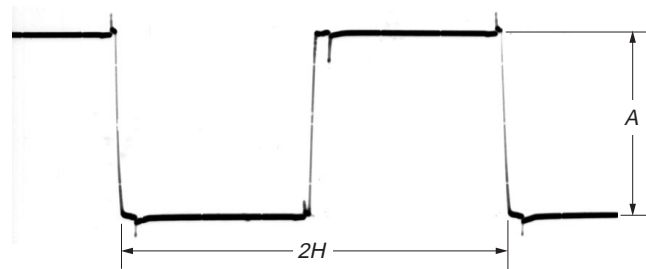


Fig. 5-1-24.

8. V-COM Adjustment (PK-051 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	D8
Specified Value	The brightness difference between the section A and section B is minimum.

Note: Perform “Bright Adjustment” and “Contrast Adjustment” before this adjustment.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 02.
- 3) Select page: 2, address: 10, set data: 02.
- 4) Select page: D, address: D8, change the data so that the brightness of the section A and that of the section B is equal.
- 5) Press the PAUSE button of the adjustment remote commander.
- 6) Select page: 5, address: F1, set data: 00.
- 7) Select page: 2, address: 10, set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

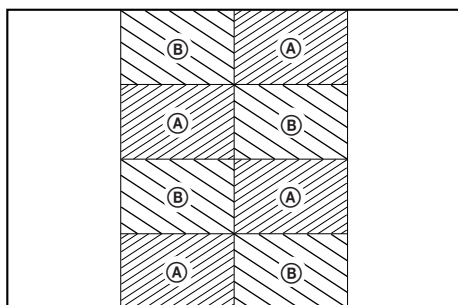


Fig. 5-1-25.

9. White Balance Adjustment (PK-051 board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	D2, D3
Specified Value	The LCD screen should not be colored.

Note 1: Use the AC power adaptor during this adjustment.

Note 2: Check the white balance only when replacing the following parts.

- If necessary, adjust them.
1. LCD panel
 2. Light induction plate
 3. IC802

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 02.
- 3) Select page: D, address: D2 and D3, set the data to the initial value.

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

	Address	
	D2	D3
Data	A8	7A

- 4) Check that the LCD screen is not colored. If colored, change the data of page: D, address: D2 and D3 so that the LCD screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 5, address: F1, set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

1-6. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Before perform the color electronic viewfinder system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note3: Cover the lens of the viewfinder with a white paper, or perform the following data setting. (Except for the eye sensor adjustment.)

Data setting during viewfinder system adjustments:

Perform the following data setting before the viewfinder system adjustments. (Except for the eye sensor adjustment.)

1) Select page: 2, address: 11, and set data: 80.

After completing the viewfinder system adjustments, release the data setting.

1) Select page: 2, address: 11, and set data: 00.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN201 of the control switch block (MP52K).

Connect the Measuring Instruments via the CPC-12 jig (J-6082-436-A).

The following table shows the Pin No. and signal name of CN201 of the control switch block (MP52K).

Pin No.	Signal Name	Pin No.	Signal Name
1	MPX0 IF	12	LANC OUT
2	C OUT	13	MAKER RECOG
3	Y OUT	14	PF7
4	REG GND	15	TXD
5	XCPC IN	16	RXD
6	DEC EFM	17	RESET
7	HSY	18	VDD
8	COM	19	EVF BL+
9	VG	20	EVF BL 4.75 V
10	UNREG	21	EVF VG
11	LANC IN	22	EVF VCO

Table 5-1-7.

1. Initial Data Input

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	C0 to CD

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.

2) Select page: D, and input the data in the following table.

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

3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
C0	72	Fixed data
C1	80	White balance adj.
C2	80	White balance adj.
C3	48	Fixed data
C4	48	Fixed data
C5	60	VCO adj. (NTSC)
C6	B0	Backlight consumption current adj.
C7	00	Fixed data
C8	00	Fixed data
C9	98	Bright adj. (NTSC)
CA	80	Contrast adj. (NTSC)
CB	98	Bright adj. (PAL)
CC	80	Contrast adj. (PAL)
CD	50	VCO adj. (PAL)

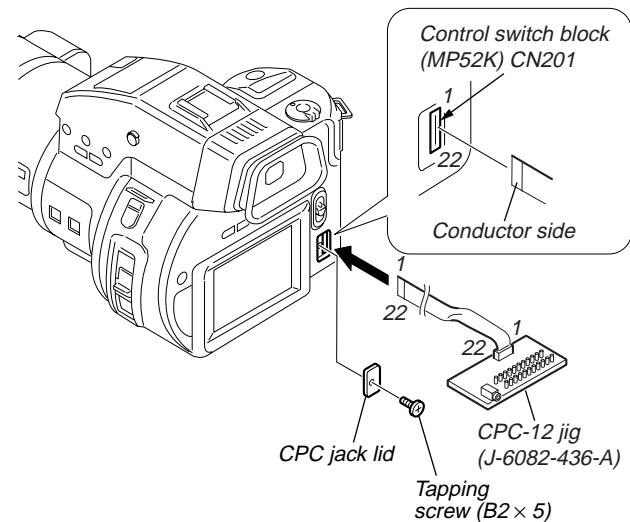


Fig. 5-1-26.

2. VCO Adjustment (VF-144 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ② of CN201 of control switch block (MP52K)(EVF VCO)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Page	D
Adjustment Address	C5 (NTSC) CD (PAL)
Specified Value	A = 1.70 ± 0.10V

Menu setting:

VIDEO OUT of SET UP menu NTSC
(This adjustment must be performed in NTSC mode, so don't set the menu setting to "PAL".)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Check the GND level of the oscilloscope.
- 3) Select page: D, address: C5, change the data and set the VCO output voltage (A) to the NTSC specified value.
- 4) Press the PAUSE button.
- 5) Select page: D, address: C5, read the data, and this data is named D_{C5} .
- 6) Convert D_{C5} to decimal notation, and obtain D_{C5}' . (Refer to Table 5-2-1. Hexadecimal-decimal Conversion Table.)
- 7) Calculate D_{CD}' using following equation (Decimal calculation). Convert it to a hexadecimal number, and input to page: D, address: D_{CD} .
$$D_{CD}' = D_{C5}' - 17$$
- 8) Press the PAUSE button.
- 9) Select page: 0, address: 01, and set data: 00.

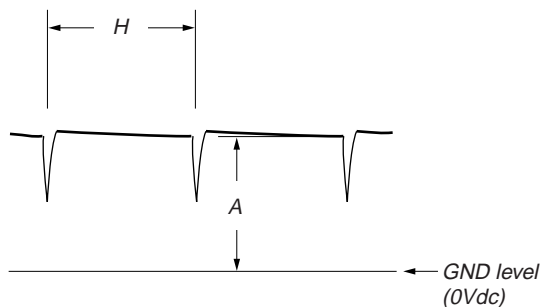


Fig. 5-1-27.

3. Bright Adjustment (VF-144 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ② of CN201 of control switch block (MP52K)(EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	C9 (NTSC) CB (PAL)
Specified Value	A = 7.02 ± 0.1V

Note: This adjustment and "Contrast Adjustment" must be repeated alternately until both specifications are satisfied simultaneously (called tracking adjustment).

Menu setting:

VIDEO OUT of SET UP menu NTSC
(This adjustment must be performed in NTSC mode, so don't set the menu setting to "PAL".)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 03.
- 3) Select page: D, address: C9, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
- 4) Press the PAUSE button.
- 5) Select page: D, address: CB, set same data as address: C9 and press the PAUSE button.
- 6) Select page: 5, address: F1, set data: 00.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Check that the specified value of the "Contrast Adjustment" is satisfied at this time. If it is found that the specified value is not satisfied, perform "Contrast Adjustment" again, then perform "Bright Adjustment" once again.

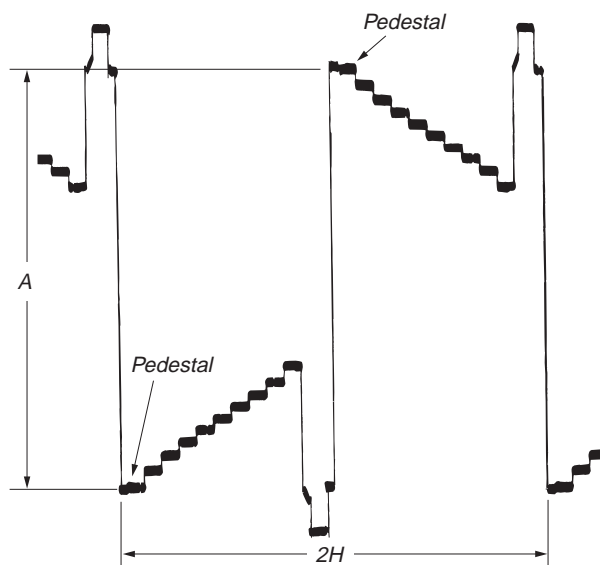


Fig. 5-1-28.

4. Contrast Adjustment (VF-144 board)

Set the power supply voltage for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin ⑳ of CN201 of control switch block (MP52K)(EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	CA (NTSC) CC (PAL)
Specified Value	A = $2.12 \pm 0.10\text{V}$ (NTSC) A = $2.30 \pm 0.10\text{V}$ (PAL)

Menu setting:

VIDEO OUT of SET UP menu NTSC
(This adjustment must be performed in NTSC mode, so don't set the menu setting to "PAL".)

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 03.
- 3) Select page: D, address: CA, change the data and set the voltage (A) between the pedestal and 10 steps peak to the NTSC specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: D, address: CC, change the data and set the voltage (A) between the pedestal and 10 steps peak to the PAL specified value.
- 6) Press the PAUSE button.
- 7) Select page: 5, address: F1, set data: 00.
- 8) Select page: 0, address: 01, and set data: 00.

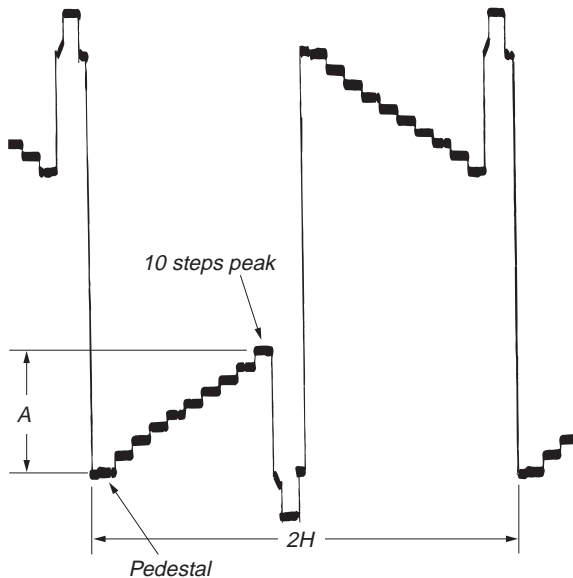


Fig. 5-1-29.

5. Backlight Consumption Current Adjustment (VF-144 board)

Set the backlight luminance and color temperature. If deviated, the image may become dark or bright.

Mode	PLAY
Signal	Arbitrary
Measurement Point	+ Probe: Pin ⑲ of CN201 of control switch block (MP52K) (EVF BL+) – Probe: Pin ⑳ of CN201 of control switch block (MP52K) (EVF BL 4.75V)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	C6
Specified Value	A= $20.0 \pm 1.0\text{mVdc}$

Note: Adjust 30 seconds after running on the power supply.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, and set data: 02.
- 3) Select page: D, address: C6, change the data and set the voltage difference (A) between Pin ⑲ of CN201 (EVF BL+) and Pin ⑳ of CN201 (EVF BL 4.75V) to the specified value
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 5, address: F1, and set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

6. White Balance Adjustment (VF-144 board)

Correct the white balance.

If deviated, the EVF screen color cannot be reproduced.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	C1, C2
Specified Value	The EVF screen should not be colored.

Note: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC502

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 5, address: F1, set data: 02.
- 3) Select page: D, address: C1 and C2, set the data to the initial value.

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

Address	C1	C2
Data	80	80

- 4) Check that the EVF screen is not colored. If colored, change the data of page: D, address: C1 and C2 so that the EVF screen is not colored.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

- 5) Select page: 5, address: F1, set data: 00.
- 6) Select page: 0, address: 01, and set data: 00.

7. Eye Sensor Adjustment (VF-144 board)

Adjust the eye sensor, and maintain at the level at which the backlight is AUTO ON.

Mode	Camera
Subject	Arbitrary
Measurement Point	Display data of page 2, address: 82
Measuring Instrument	
Adjustment Page	D
Adjustment Address	EC
Specified Value	0A (15cm away) 0E (8cm away)

Note1: Do not perform this adjustment in strong light or under lights.

Note2: During this adjustment release the data setting for the viewfinder. Select page: 2, address: 11, and set data: 00.

Adjustment preparation:

- 1) Prepare a 30cm × 30cm gray paper, and place it 10 cm away from the EVF lens.

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Place the gray paper 10cm away from the EVF lens.
- 3) Select page: 2, address: 82, read the data, and this data is named D_{ref} .
- 4) Convert D_{ref} to decimal notation, and obtain D_{ref}' . (Refer to Table 5-2-1. Hexadecimal-decimal Conversion Table.).
- 5) Calculate D_{EC}' using following equation (Decimal calculation). convert it to a hexadecimal number, and input to page: D, address: EC.

$$D_{EC}' = D_{ref}' - 10$$
- 6) Press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.

Checking method:

- 1) Place the gray paper 15cm away from the EVF lens.
- 2) Select page: 2, address: 41, and check that the data is "0A".
- 3) Place the gray paper 8cm away from the EVF lens.
- 4) Select page: 2, address: 41, and check that the data is "0E".

1-7. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Battery End Adjustment (VC-246 board)

Check the battery end voltage.

Mode	STILL
Subject	All black (Cover the lens with a black cap)
Measurement Point	Display data of page: 2, address: 52
Measuring Instrument	Adjustment remote commander
Adjustment Page	D
Adjustment Address	90 to 94

Switch setting:

FOCUS MANUAL
STEADY SHOT OFF

Connection:

- 1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-30.

Adjusting method:

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is $6.1 \pm 0.1\text{Vdc}$.
- 2) Turn off the power supply.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Turn on the power supply.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is $5.50 \pm 0.01\text{Vdc}$.
- 7) Select page: 2, address: 52, read the data, and this data is named Dref.
- 8) Select page: D, address: 90, set data: Dref, and press the PAUSE button of the adjustment remote commander.
- 9) Convert Dref to decimal notation, and obtain Dref'. (Refer to Table 5-2-1. "Hexadecimal-decimal conversion table" of "5-2. Service mode")
- 10) Calculate D_{91}' , D_{92}' , D_{93}' , and D_{94}' using following equations (decimal calculation), convert it to a hexadecimal number, and input each adjustment address.

Address: 91 $D_{91}' = \text{Dref}' + 5$

Address: 92 $D_{92}' = \text{Dref}' + 23$

Address: 93 $D_{93}' = \text{Dref}' + 44$

Address: 94 $D_{94}' = \text{Dref}' + 55$

Note: After setting each data, be sure to press the PAUSE button.

- 11) Select page: 0, address: 01, and set data: 00.

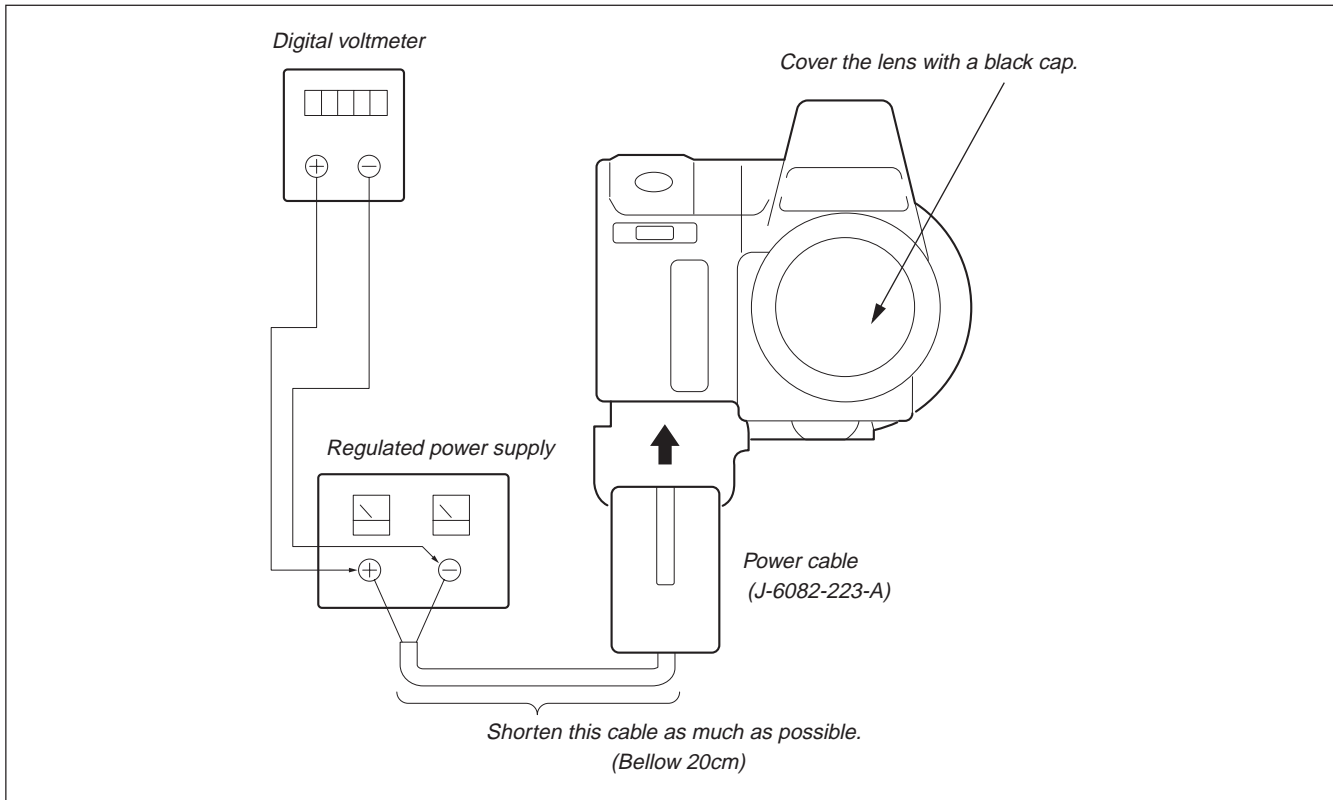


Fig. 5-1-30.

2. Serial No. Input

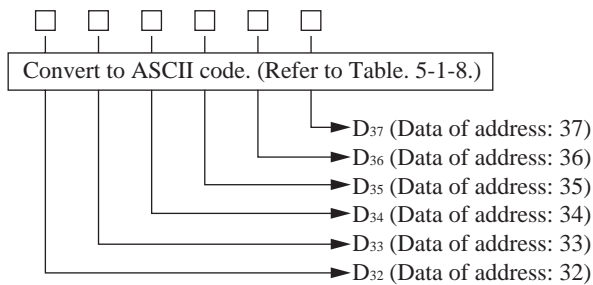
Write the serial No. in the EEPROM (nonvolatile memory). Convert the serial No. on the name plate from decimal to ASCII code, and write in the EEPROM.

Page	B
Address	32 to 37

Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Read the 6-digit serial No. on the name plate, and convert each digit to ASCII code, and obtain D₃₂, D₃₃, D₃₄, D₃₅, D₃₆ and D₃₇. (See below.)

6-digit serial No.



Example: If the serial No. is 123456.

D₃₂ = 31
 D₃₃ = 32
 D₃₄ = 33
 D₃₅ = 34
 D₃₆ = 35
 D₃₇ = 36

- 2) Input D₃₂, D₃₃, D₃₄, D₃₅, D₃₆ and D₃₇ to each address of page: B.
Note: After setting each data, be sure to press the PAUSE button.
- 3) Select page: 0, address: 01, and set data: 00.

Digit	0	1	2	3	4	5	6	7	8	9
ASCII Code	30	31	32	33	34	35	36	37	38	39

Table. 5-1-8.

5-2. SERVICE MODE

2-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander 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

- 1) Connect the adjustment remote commander to the following connector or jack.
 - CN201 of the control switch block (MP52K) via CPC-12 jig (J-6082-436-A)
 - LANC (EXT ACC) jack
- 2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-2-1.



Fig. 5-2-1.

- 3) Operate the adjustment remote commander 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 (B, D, E, F, 7 page) 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 once.

2. Precautions Upon Using the Adjustment Remote Commander

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.

2-2. 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 (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis () shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point “189” of ① and ② in the above table is the corresponding decimal number.

Table. 5-2-1.

2-3. SERVICE MODE

1. Setting the Test Mode

Page D	Address 10
--------	------------

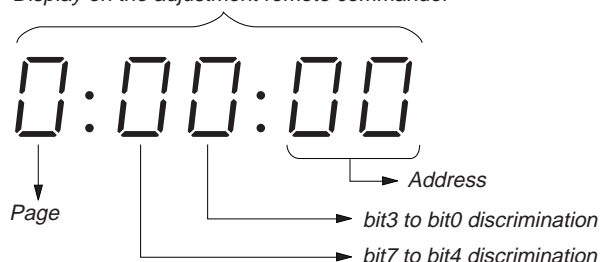
Data	Function
00	Normal
01	Forced STILL mode power ON
02	Forced PLAY mode power ON
03	Forced MOVIE mode power ON

- Before setting the data, select page: 0, address: 01, and set data: 01.
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE 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.
- After completing adjustments/repairs, be sure to return the data of this address to "00", and press the PAUSE button of the adjustment remote commander.
Select page: 0, address: 01, and set data: 00.

2. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for following items. Use the table below to discriminate if the bit value is "1" or "0".

Display on the adjustment remote commander



Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ 8	1	0	0	0
9	1	0	0	1
A (F)	1	0	1	0
B (b)	1	0	1	1
C (c)	1	1	0	0
D (d)	1	1	0	1
Ⓑ E (E)	1	1	1	0
F (F)	1	1	1	1

Example: If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

3. Emergency Memory Address of Flash Unit

Page D	Address 67
--------	------------

Data	Function
00	No error
04	Flash unit emergency

Using method:

- 1) When emergency occurs in the flash unit, the data corresponding to the error is written in the address
Note: When replacing the flash unit, initialize this data.

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 67, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

4. Record of Use check

Page D	Address 6C to 6F
--------	------------------

Address	Function	Remarks
6C	Recording counter (Hexadecimal)	Counter data 1
6D		Counter data 2
6E		Counter data 3
6F	Recording counter (Hexadecimal) / MC CAM emergency	Counter data 4 Note: When this data is "80" to "FF", the MC CAM (SY-060 board IC801) is abnormal.

Note: When replacing the floppy disk drive unit, initialize these data.

Using method:

- 1) The recording counter data is displayed at page: D, addresses: 6C to 6F. These data are named D_{6C}, D_{6D}, D_{6E} and D_{6F} respectively.
- 2) Convert D_{6C}, D_{6D}, D_{6E} and D_{6F} to decimal notation, and obtain D_{6C}' , D_{6D}' , D_{6E}' and D_{6F}' .
(Refer to Table 5-2-1. "Hexadecimal-decimal conversion table")
- 3) Calculate the recording counter (N) using following equation.
(Decimal calculation)

$$N = D_{6C}' + D_{6D}' \times 256 + D_{6E}' \times 65536 + D_{6F}' \times 16777216$$

Initializing method:

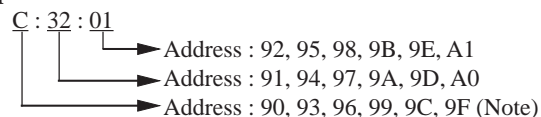
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 6C to 6F, and write data: 00 to each address.
Note: Press the PAUSE button of the adjustment remote commander each time to set the data.
- 3) Select page: 0, address: 01, and set data: 00.

5. Self Diagnosis Log check

Page 2	Address 90 to A2
--------	------------------

Address	Function
90	1st error occurrence code
91	
92	
93	2nd error occurrence code
94	
95	
96	3rd error occurrence code
97	
98	
99	4th error occurrence code
9A	
9B	
9C	5th error occurrence code
9D	
9E	
9F	6th error occurrence code
A0	
A1	
A2	Numbers of error occurrence (0 to 6)

Example:



Note: "C" → "01"
"E" → "03"

Using method:

- 1) The self diagnosis log is displayed at page: 2, addresses: 90 to A2.
Note: This data will be erased when the battery or DC power supply is removed.

6. Switch check (1)

Page 2	Address 43
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
0	XPOWER SW (MP52K block S201)	OFF	ON
1	XCAM/PLAY SW (MP52K block S001)	PLAY	CAMERA
2	SHUTTR SW (ZM52K block)	OFF	ON
3	XSHUTTER LOCK SW (ZM52K block)	OFF	ON
4	LID OPEN SW (AJ52K block S101, 102)	IN	OUT
5			
6			
7	XSTILL/MOVIE SW (MP52K block S001)	MOVIE	STILL

Using method:

- 1) Select page: 2, address: 43.
- 2) By discriminating the bit value of display data, the state of the switches can be discriminated.

7. Switch check (2)

Page 2	Address 54 to 59
--------	------------------

Using method:

- 1) Select page: 2, address: 54 to 59.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data						
	00 to 14	15 to 3B	3C to 64	65 to 90	91 to BD	BE to E9	EA to FF
54 (KEY AD0) (IC404 ㉘)	CONTROL DOWN (S401) (SW-342 board)	CONTROL UP (S401) (SW-342 board)	SPOT METER (S402) (SW-342 board)	MACRO (S404) (SW-342 board)	FLASH (S406) (SW-342 board)	DISPLAY (S301) (LC52K block)	No key input
55 (KEY AD1) (IC404 ㉙)	CONTROL RIGHT (S401) (SW-342 board)	CONTROL LEFT (S401) (SW-342 board)	CONTROL SET (S401) (SW-342 board)	LCD (ON/OFF) (S403) (SW-342 board)	VOLUME + (S405) (SW-342 board)	VOLUME - (S407) (SW-342 board)	No key input
56 (KEY AD2) (IC404 ㉚)	PROGRAM AE (S401) (AE52K block)	WHITE BALANCE (S402) (AE52K block)	WHITE BALANCE PUSH AUTO (S403) (AE52K block)	+ (S404) (AE52K block)	- (S405) (AE52K block)		No key input
57 (KEY AD3) (IC404 ㉛)						FOCUS MANUAL (FS52K block)	FOCUS AUTO (FS52K block)
58 (KEY AD4) (IC404 ㉜)						STEADY SHOT OFF (FS52K block)	STEADY SHOT ON (FS52K block)
59 (KEY AD5) (IC404 ㉝)						POP-UP ON (Flash unit)	POP-UP OFF (Flash unit)

8. LED check

Page 2	Address 06	Bit1
--------	------------	------

Using method:

- 1) Select page: 2, address: 06, and set the bit value of Bit1 to "1".
- 2) Check that all LED are lit. (Except for the ACCESS LED)
- 3) Select page: 2, address: 06, and set the bit value of Bit1 to "0".

9. Position sensor check (VP-051 board PH201)

Page 2	Address 42	Bit0, Bit1
--------	------------	------------

Using method:

- 1) Install the camera in the normal condition.
- 2) Select page: 2, address: 42, and check the bit value of Bit0 is "1" and that of Bit1 is "1".
- 3) Install the camera so that the right side (EXT ACC / LANC jack side) is faced toward the bottom.
- 4) Select page: 2, address: 42, and check the bit value of Bit0 is "0" and that of Bit1 is "1".
- 5) Install the camera so that the left side (DC IN jack side) is faced toward the bottom.
- 6) Select page: 2, address: 42, and check the bit value of Bit0 is "1" and that of Bit1 is "0".

10. VAP (Active prism actuator) lock check

Page 1

Using method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: FE, and set data: 01.
- 3) Select page: F, address: FF, and set data: 24.
- 4) Set the PLAYER/STILL/MOVIE switch to PLAY position.
- 5) Select page: 1, and check the display.
1: 00: 01 Normal (VAP lock ON)
1: FF: FF Defective
- 6) Set the PLAYER/STILL/MOVIE switch to STILL position.
- 7) Select page: 1, and check the display.
1: 00: 00 Normal (VAP lock OFF)

Processing after check:

- 1) Select page: F, address: FE, and set data: 00.
- 2) Select page: F, address: FF, and set data: 00.
- 3) Select page: 0, address: 01, and set data: 00.

SECTION 6 REPAIR PARTS LIST

6-1. EXPLODED VIEWS

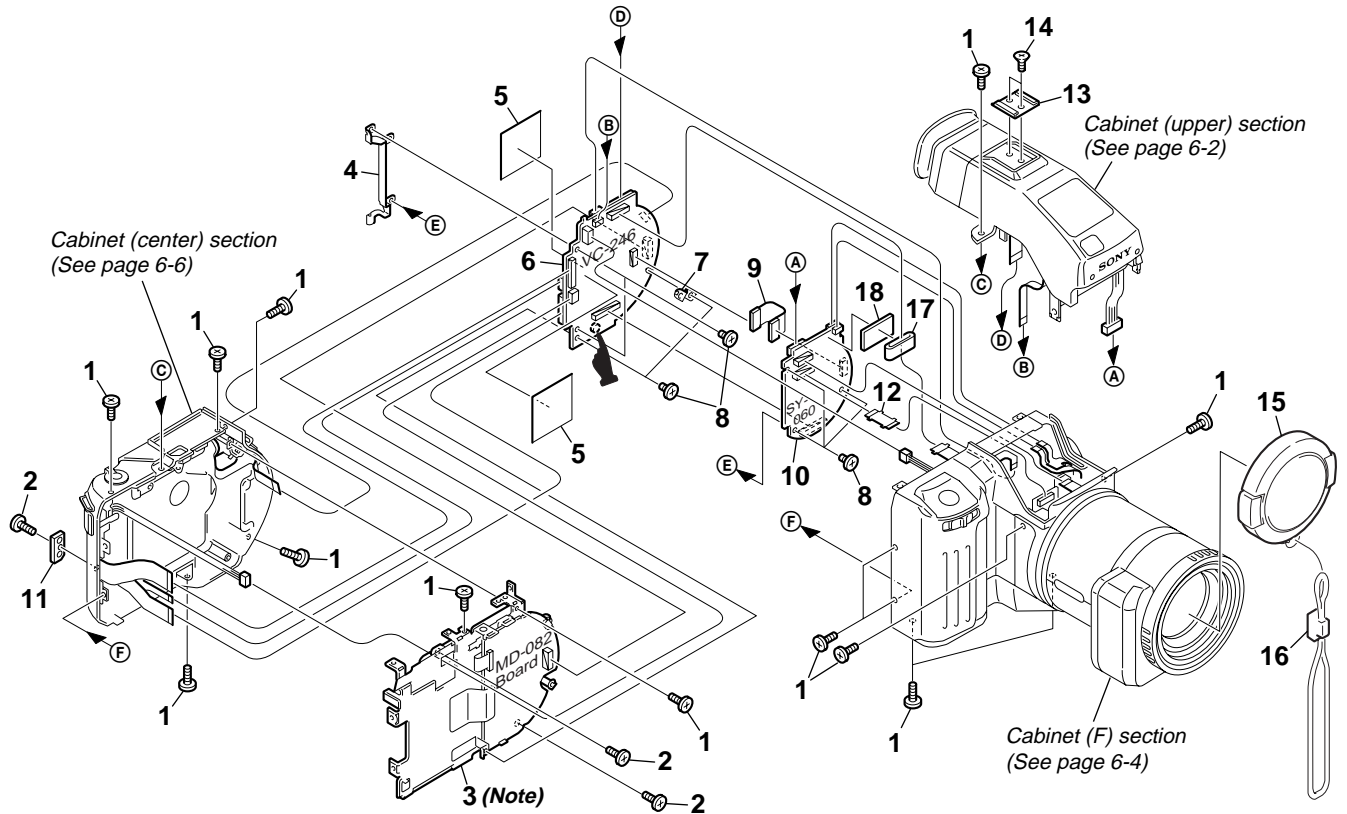
NOTE:

- -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.
- Abbreviation
 CND : Canadian model.
 AUS : Australian model.
 J : Japanese model.

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.

6-1-1. OVERALL SECTION



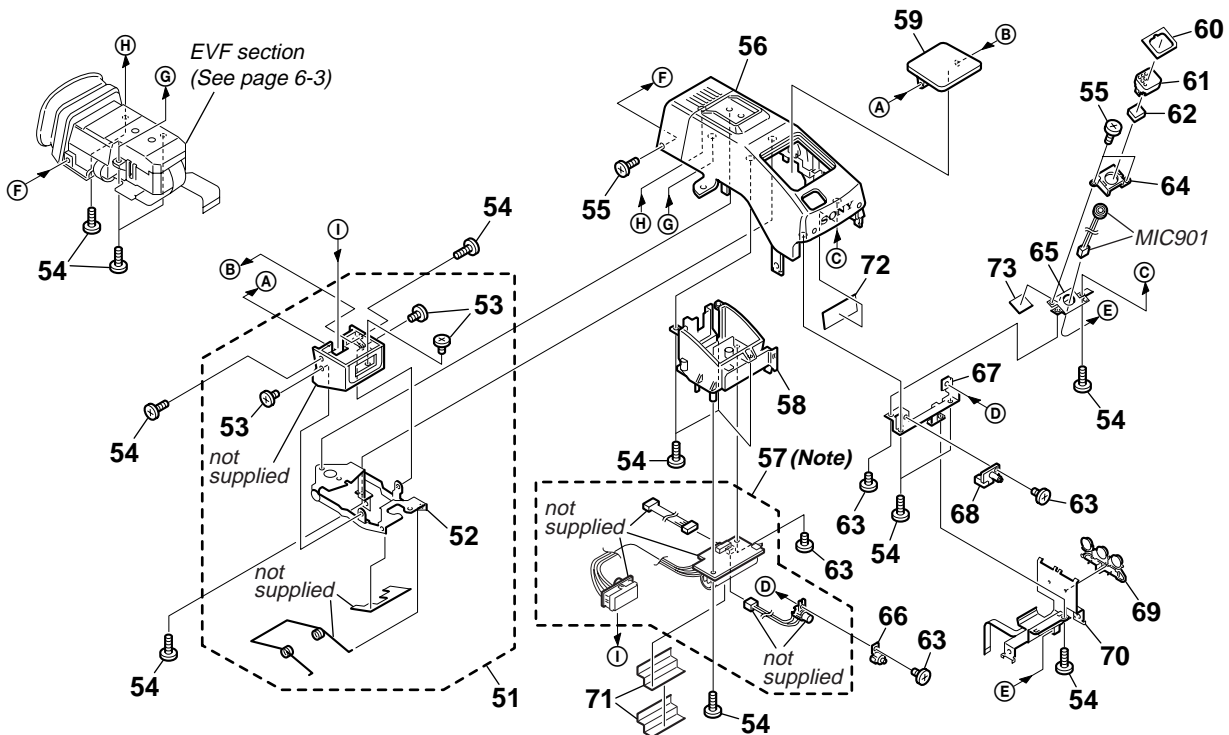
: BT401(Lithium battery) VC board on the mount position. (See page 4-40)

Note: When handling this part, refer to "Disassembly" Section 2-10 [MECHANISM DECK (DDX-G2000 COMPLETE ASSEMBLY), CONTROL SWITCH BLOCK (AJ52K)] on page 2-8.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-968-729-31	SCREW (M2), LOCK ACE, P2		10	A-7074-575-A	SY-060 BOARD, COMPLETE (FOR SERVICE)	
2	3-948-339-01	SCREW, TAPPING		11	3-062-407-01	LID, CPC JACK	
3	A-7010-804-A	DDX-G2000 COMPLETE ASSY (FOR SERVICE)		12	1-678-230-12	FP-040 FLEXIBLE BOARD	
* 4	3-062-403-01	FRAME (A), SY		13	3-724-511-31	SHOE, ACCESSORY	
5	3-062-992-01	PLATE, VC SHIELD		14	3-063-356-01	SCREW (2X3.5)	
6	A-7074-574-A	VC-246 BOARD, COMPLETE (FOR SERVICE)		15	X-3950-691-1	CAP ASSY, LENS	
* 7	3-062-404-01	FRAME (B), SY		16	3-062-043-01	STRING, CAP	
8	3-968-729-51	SCREW (M2), LOCK ACE, P2		17	1-500-294-11	CORE, FERRITE	
9	1-678-237-21	CC-102 FLEXIBLE BOARD		* 18	3-063-953-01	SHEET, F ADHESIVE	

Exploded view and parts list of DDX-G2000 COMPLETE ASSEMBLY are not shown. Page 6-8 is not shown.

6-1-2. CABINET (UPPER) SECTION



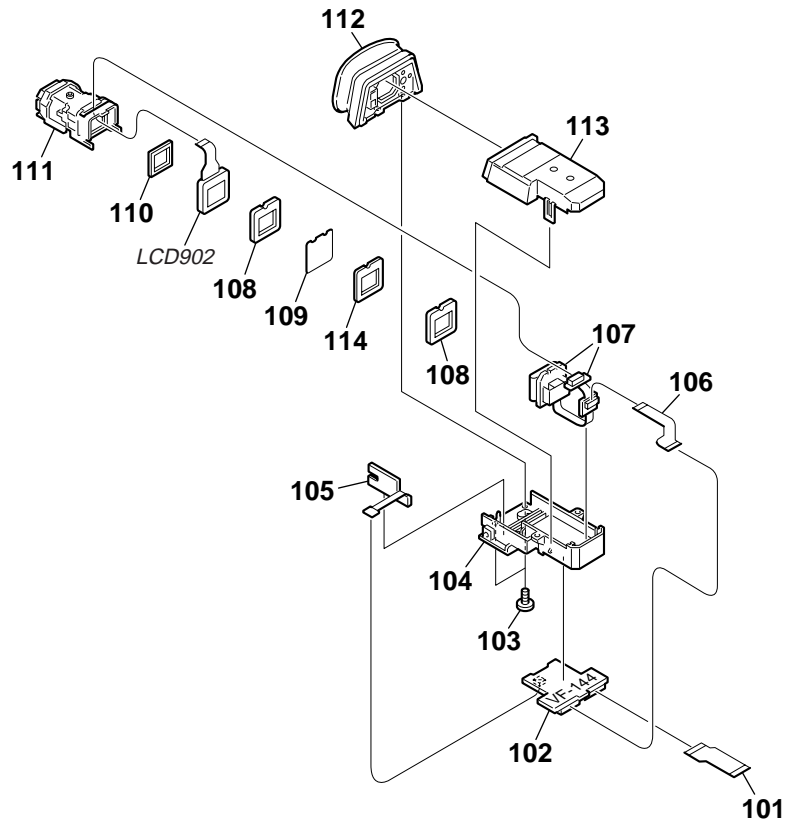
Note: The built-in charging capacitor inside the FLASH unit is charged to the maximum of 300V. There is a danger of electric shock due to the high voltage when the capacitor is touched by bare hand. Discharge the voltage remained in the capacitor, referring to the Service Note (See page 6).

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	X-3950-788-1	CASE ASSY, LUMINOUS		63	3-968-729-51	SCREW (M2), LOCK ACE, P2	
52	X-3950-789-1	FRAME ASSY, SHOE		64	3-062-440-01	FRAME, MICROPHONE	
53	3-968-729-61	SCREW (M2X3), LOCK ACE, P2		65	3-062-435-01	RETAINER, MICROPHONE	
54	3-948-339-01	SCREW, TAPPING		66	3-062-436-01	CAP,HARD STEEL LIGHT GUIDE	
55	3-968-729-31	SCREW (M2), LOCK ACE, P2		67	3-062-437-01	HOLDER, HARD STEEL	
56	X-3950-787-1	CABINET (UPPER) ASSY		68	3-062-438-01	PLATE, TALLY LIGHT GUIDE	
△57	1-476-055-11	FLASH UNIT		69	3-062-441-01	BUTTON, AE	
58	X-3950-790-1	BASE ASSY, STROBOSCOPE		70	1-476-050-11	SWITCH BLOCK, CONTROL (AE52K)	
59	3-062-439-01	LID,STROBOSCOPE		71	3-062-991-01	PLATE, S SHIELD	
60	3-062-434-01	RUBBER, MICROPHONE		72	3-064-534-01	SEAL(S), ELECTROSTATIC	
61	3-062-433-01	GRILLE, MICROPHONE		73	3-062-299-01	SHEET, MICROPHONE	
62	3-062-442-01	SPONGE, MICROPHONE		MIC901	1-542-312-11	MICROPHONE	

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

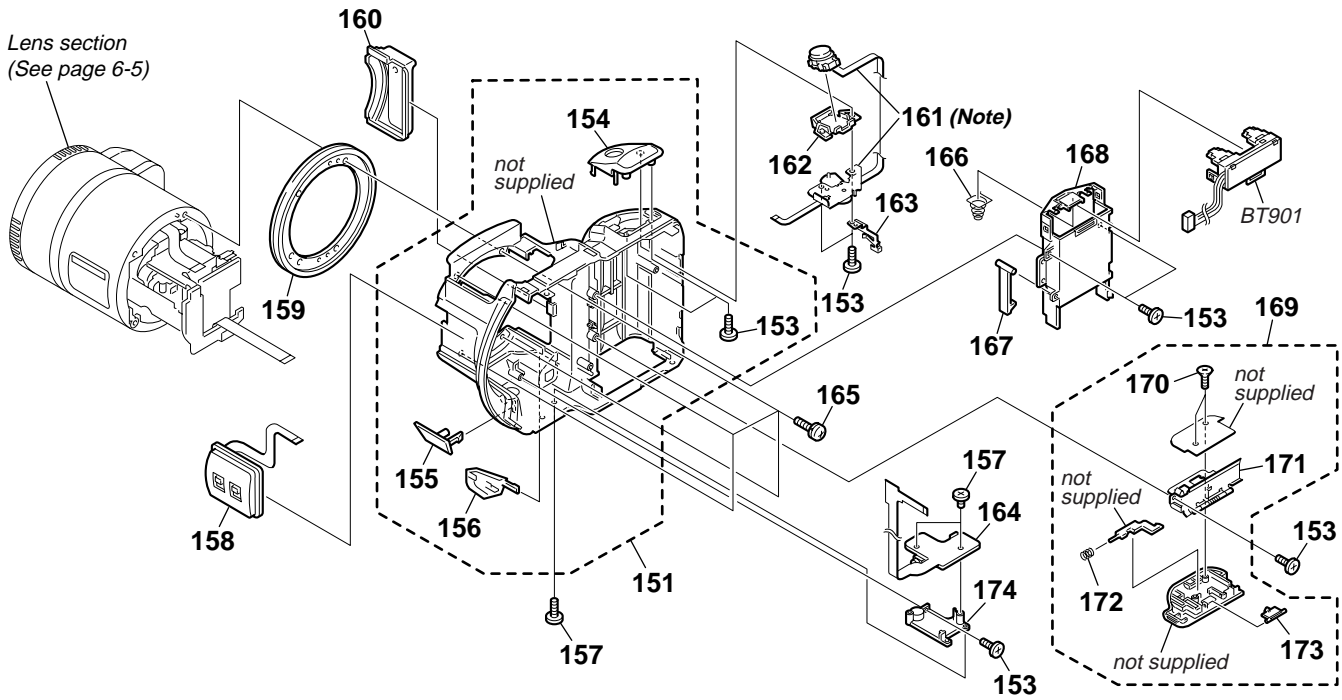
Note :
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-3. EVF SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	1-678-231-11	FP-041 FLEXIBLE BOARD		109	3-055-276-01	ILLUMINATOR (455), BL	
102	A-7074-501-A	VF-144 BOARD, COMPLETE		110	3-960-302-01	CUSHION (1), LCD	
103	3-713-791-01	SCREW (M1.7X4), TAPPING, P2		111	X-3949-883-1	LENS ASSY (453), VF	
104	X-3950-793-1	CABINET (LOWER) ASSY, VF		112	X-3950-792-1	CABINET (REAR) ASSY, VF	
105	A-7074-502-A	MK-015 BOARD, COMPLETE		113	3-062-463-01	CABINET (UPPER), VF	
106	1-678-232-11	FP-042 FLEXIBLE BOARD		* 114	3-064-194-01	SPACER, LCD	
107	A-7067-265-A	LB-066 BOARD, COMPLETE		LCD902	8-753-023-51	LCX027AK-J	
108	3-055-277-01	CUSHION (455), LCD					

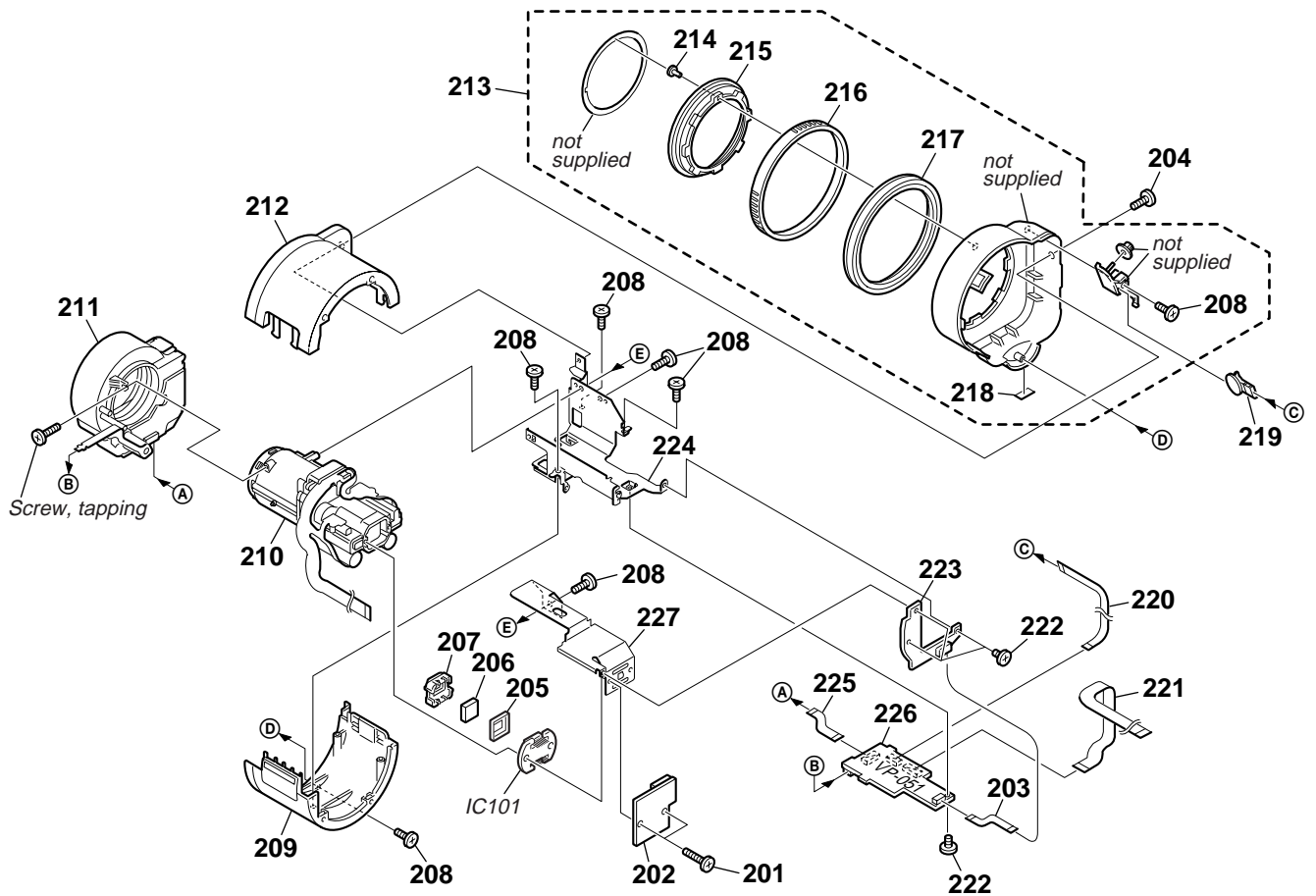
6-1-4. CABINET (F) SECTION



Note: When attaching this part, refer to "Disassembly" Section 2-7 [CONTROL SWITCH BLOCK (ZM52K)] on page 2-6 to perform positioning.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
151	X-3950-778-1	CABINET (F) ASSY		164	1-476-048-11	SWITCH BLOCK, CONTROL (JK52K)	
153	3-948-339-01	SCREW, TAPPING		165	7-628-253-35	SCREW +PS 2X8	
154	3-062-360-01	CABINET (C)		166	3-969-380-11	SPRING, BATTERY	
155	3-062-365-01	COVER, AV		167	3-052-574-01	CLAW, BT LOCK	
156	3-062-364-01	COVER, USB		* 168	3-058-746-01	HOLDER, BATTERY	
157	3-968-729-51	SCREW (M2), LOCK ACE, P2		169	X-3950-779-1	LID ASSY, BATTERY	
158	1-476-054-11	SWITCH BLOCK, CONTROL (FS52K)		170	3-736-363-41	TAPPING	
159	3-062-347-01	RING, LENS		171	X-3950-246-1	HOLDER ASSY, HINGE	
160	3-062-346-01	CABINET (D)		172	3-058-802-01	SPRING, B LOCK	
161	1-476-053-11	SWITCH BLOCK, CONTROL (ZM52K)		173	3-058-748-01	KNOB, B LOCK	
162	3-062-345-01	HOLDER, SWITCH		174	3-062-348-01	SCREW, TRIPOD	
163	3-062-349-01	PLATE (ZM), GROUND		BT901	1-694-297-21	TERMINAL BOARD, BATTERY	

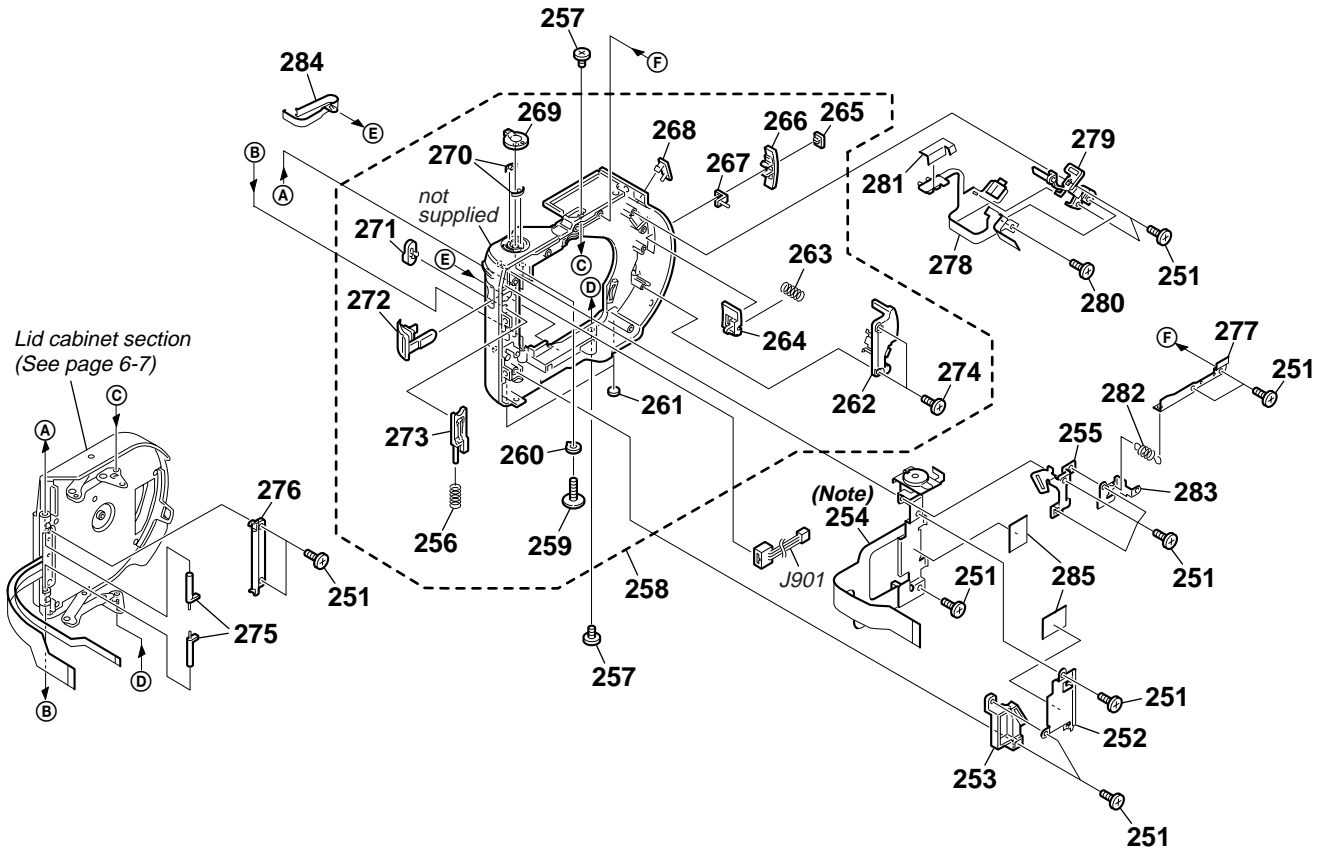
6-1-5. LENS SECTION



Be sure to read "Precautions Upon Replacing CCD Imager" on page 4-9 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	3-947-268-11	TITE (2), +B TAPPING (P)		215	3-965-098-01	SCREW	
202	A-7067-263-A	CD-272 BOARD, COMPLETE		216	3-062-356-01	RUBBER, MF	
203	1-678-228-11	FP-038 FLEXIBLE BOARD		217	3-062-355-01	RING, MF	
204	3-968-729-31	SCREW (M2), LOCK ACE, P2		218	3-062-357-01	FOOT (LENS), RUBBER	
205	3-060-714-01	RUBBER (CL), SEAL		219	1-418-068-11	MF BLOCK	
206	1-758-436-11	FILTER BLOCK, OPTICAL		220	1-678-233-11	FP-043 FLEXIBLE BOARD	
207	3-058-032-01	ADAPTOR (CL), CCD FITTING		221	1-678-234-11	FP-044 FLEXIBLE BOARD	
208	3-948-339-01	SCREW, TAPPING		222	3-968-729-51	SCREW (M2), LOCK ACE, P2	
209	X-3950-776-1	CABINET (LOWER) ASSY, LENS		223	A-7067-264-A	SE-115 BOARD, COMPLETE	
210	3-709-576-01	LENS ASSY		224	3-062-350-01	FRAME, LENS	
211	3-709-575-01	VAP ASSY		225	1-678-229-11	FP-039 FLEXIBLE BOARD	
212	X-3950-775-1	CABINET (UPPER) ASSY, LENS		226	A-7067-266-A	VP-051 BOARD, COMPLETE	
213	X-3950-777-1	CABINET (VP) ASSY, LENS		* 227	3-063-588-01	HEAT SINK, CD	
214	3-965-060-01	PIN, MF FIXED		IC101	A-7031-092-A	CCD BLOCK ASSY (CCD IMAGER)	

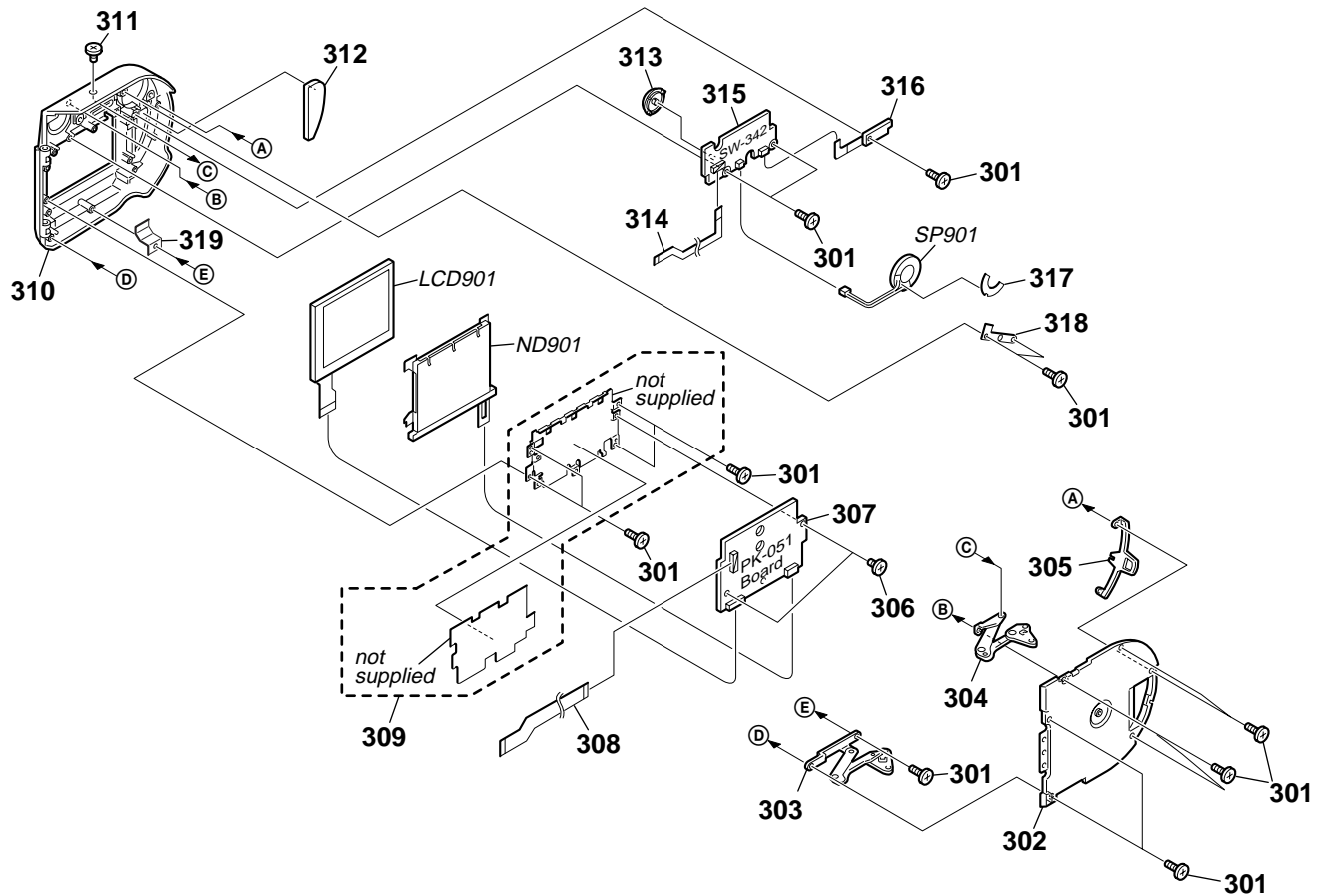
6-1-6. CABINET (CENTER) SECTION



Note: When attaching this part, refer to "Disassembly" Section 2-11 [LID CABINET SECTION, CONTROL SWITCH BLOCK (MP52K)] on page 2-9 to perform positioning.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	3-948-339-01	SCREW, TAPPING		269	3-062-424-01	LEVER, MODE	
252	3-062-408-01	GUIDE, FLEXIBLE		270	X-3946-488-1	SPRING ASSY, AE LEAF	
253	3-062-410-01	HOLDER, DAMPER		271	3-052-536-02	BUTTON, POWER	
254	1-476-047-11	SWITCH BLOCK, CONTROL (MP52K)		272	3-062-427-01	LID, DC JACK	
255	3-062-406-01	PLATE (R), STRAP		273	3-062-425-01	HOLDER, POWER BUTTON	
256	3-053-141-01	SPRING, POWER		274	3-948-339-41	SCREW, TAPPING	
257	3-968-729-61	SCREW (M2X3), LOCK ACE, P2		275	3-062-343-01	SHAFT, HINGE	
258	X-3950-785-1	CABINET (CENTER) ASSY		276	3-062-344-01	STOPPER, HINGE SHAFT	
259	3-355-424-21	SCREW, TAPPING		277	3-062-409-01	SPRING, OPEN LEAF	
260	3-054-990-01	SLEEVE		278	1-476-049-11	SWITCH BLOCK, CONTROL (AJ52K)	
261	3-051-124-01	FOOT, RUBBER		279	3-062-405-01	PLATE (L), STRAP	
262	X-3950-784-1	LOCK ASSY, LID		280	3-968-729-31	SCREW (M2), LOCK ACE, P2	
263	3-062-423-01	SPRING, COMPRESSION		* 281	3-064-541-01	SHEET, GROUND	
264	3-062-420-01	GUIDE, LOCK LEVER		282	3-063-841-01	SPRING (LID), EXTENSION COIL	
265	3-062-421-01	LEVER, STOPPER		283	3-063-840-01	PLATE, SPRING	
266	3-062-419-01	LEVER, LOCK		284	3-063-845-01	SPRING (B), OPEN PLATE	
267	3-062-422-01	SLIDER, STOPPER		* 285	3-064-356-01	FILM, ELECTROSTATIC	
268	3-062-428-01	LID, ACC JACK		J901	1-794-045-41	CONNECTOR, DC-IN	

6-1-7. LID CABINET SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
301	3-948-339-01	SCREW, TAPPING		312	3-062-383-01	WINDOW, PEEP	
302	3-062-374-01	LID, LID REAR		313	3-062-377-01	BUTTON (CW), FUNCTION	
303	X-3950-783-1	HINGE ASSY, LOWER		314	1-678-235-11	FP-045 FLEXIBLE BOARD	
304	X-3950-780-1	HINGE ASSY, UPPER		315	A-7074-499-A	SW-342 BOARD, COMPLETE	
305	3-062-375-01	PLATE, LOCK		316	1-476-051-11	SWITCH BLOCK, CONTROL (LC52K)	
306	3-968-729-51	SCREW (M2), LOCK ACE, P2		* 317	3-056-047-01	INSULATED PLATE, SP	
307	A-7067-268-A	PK-051 BOARD, COMPLETE		* 318	3-062-372-01	RETAINER, SPEAKER	
308	1-678-236-11	FP-046 FLEXIBLE BOARD		* 319	3-065-078-01	SHEET (CW), LCD ELECTROSTATIC	
* 309	X-3950-855-1	SUPPORT ASSY, BL		LCD901	1-803-860-21	INDICATOR MODULE LIQUID CRYSTAL (CA)	
310	X-3950-781-1	CABINET ASSY, LID		△ND901	1-517-751-21	TUBE, FLUORESCENT,COLD CATHODE	
311	3-968-729-61	SCREW (M2X3), LOCK ACE, P2		SP901	1-529-590-11	SPEAKER (2.0CM)	

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

6-2. ELECTRICAL PARTS LIST

NOTE:

- 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.
- -XX, -X mean standardized parts, so they may have some difference 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.
- CAPACITORS:
uF: µF

- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: µH
- SEMICONDUCTORS
In each case, u: µ, for example:
uA...: µA..., uPA..., µPA...,
uPB..., µPB..., uPC..., µPC...,
uPD..., µPD...

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

The components identified by mark 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.

- Abbreviation
CND : Canadian model.
AUS : Australian model.
J : Japanese model.

Ref. No.	Part No.	Description	Remarks
	A-7067-263-A	CD-272 BOARD, COMPLETE ***** (Ref.No;1000Series) (IC101 is not included in this completed board)	
< CAPACITOR >			
C101	1-104-919-11	TANTAL. CHIP 10uF	20% 25V
C102	1-119-751-11	TANTAL. CHIP 22uF	20% 16V
C103	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C104	1-104-329-11	CERAMIC CHIP 0.1uF	10% 50V
C105	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C106	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C107	1-107-826-11	CERAMIC CHIP 0.1uF	10% 16V
C108	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C109	1-164-850-11	CERAMIC CHIP 10PF	0.50PF 16V
C111	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C112	1-125-827-91	CERAMIC CHIP 1uF	10% 25V
< CONNECTOR >			
CN101	1-766-352-21	CONNECTOR, FFC/FPC 22P	
< DIODE >			
D101	8-719-988-61	DIODE 1SS355TE-17	
< IC >			
IC101	A-7031-092-A	CCD BLOCK ASSY (CCD IMAGER)	
< COIL >			
L101	1-469-528-91	INDUCTOR 100uH	
< TRANSISTOR >			
Q101	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q102	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1	
< RESISTOR >			
R101	1-218-937-11	RES-CHIP 47	5% 1/16W
R102	1-216-798-11	RES-CHIP 12	5% 1/16W
R103	1-216-798-11	RES-CHIP 12	5% 1/16W
R104	1-218-957-11	RES-CHIP 2.2K	5% 1/16W
R105	1-218-981-11	RES-CHIP 220K	5% 1/16W

Ref. No.	Part No.	Description	Remarks
R106	1-218-959-11	RES-CHIP 3.3K	5% 1/16W
R107	1-218-990-11	SHORT 0	
R108	1-218-977-11	RES-CHIP 100K	5% 1/16W
R109	1-218-937-11	RES-CHIP 47	5% 1/16W
A-7067-265-A LB-066 BOARD, COMPLETE ***** (Ref.No;1000Series)			
< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C002	1-113-642-11	TANTAL. CHIP 47uF	20% 10V
C003	1-115-566-11	CERAMIC CHIP 4.7uF	10% 10V
C005	1-107-682-11	CERAMIC CHIP 1uF	10% 16V
C006	1-163-020-00	CERAMIC CHIP 0.0082uF	10% 50V
C007	1-163-020-00	CERAMIC CHIP 0.0082uF	10% 50V
C008	1-163-020-00	CERAMIC CHIP 0.0082uF	10% 50V
< CONNECTOR >			
CN001	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P	
CN021	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P	
< DIODE >			
D001	8-719-056-49	DIODE 1SS370(TE85L)	
< COIL >			
L001	1-412-031-11	INDUCTOR CHIP 47uH	
L002	1-412-029-11	INDUCTOR CHIP 10uH	
< FLUORESCENT INDICATOR >			
Δ ND011	1-517-758-11	TUBE, FLUORESCENT (0.55 INCH)	
< TRANSISTOR >			
Q001	8-729-039-24	TRANSISTOR FX216-TL1	
< RESISTOR >			
R001	1-216-839-11	METAL CHIP 33K	5% 1/16W
R002	1-216-809-11	METAL CHIP 100	5% 1/16W
< TRANSFORMER >			
Δ T011	1-426-848-51	TRANSFORMER, INVERTER	

Be sure to read "Precautions Upon Replacing CCD Imager" on page 4-9 when changing the CCD imager.

MD-082

SY-060

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
	—————	MD-082 BOARD, COMPLETE (FOR SERVICE) ***** (Ref.No;2000Series)	
<hr/>			

**Electrical parts list of the MD-082 and SY-060 boards are not shown.
Pages from 6-11 to 6-18 are not shown.**

A-7074-575-A		SY-060 BOARD, COMPLETE (FOR SERVICE) ***** (Ref.No;4000Series)	
<hr/>			

Ref. No.	Part No.	Description	Remarks
	A-7074-502-A	MK-015 BOARD, COMPLETE ***** (Ref.No;3000Series)	
		< CAPACITOR >	
C031	1-117-919-11	TANTAL. CHIP 10uF	20% 6.3V
C032	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C033	1-104-913-11	TANTAL. CHIP 10uF	20% 16V
C034	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C036	1-164-337-11	CERAMIC CHIP 2.2uF	16V
		< CONNECTOR >	
CN031	1-778-590-21	CONNECTOR, BOARD TO BOARD 20P	
		< DIODE >	
D031	8-719-060-95	DIODE CL-200IR-X-TSL-BC	
		< IC >	
IC032	8-759-075-66	IC TA75S01F(TE85R)	
		< COIL >	
L031	1-414-771-91	INDUCTOR CHIP 10uH	
L032	1-414-771-91	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q031	8-729-040-26	TRANSISTOR CPT-182S-C-TSL-CD	
Q032	8-729-049-25	TRANSISTOR 2SC5376F-B(TPL3)	
Q033	8-729-822-05	TRANSISTOR 2SD1622-ST-TD	
		< RESISTOR >	
R031	1-216-001-00	METAL CHIP 10	5% 1/10W
R032	1-208-715-11	METAL CHIP 22K	0.5% 1/16W
R033	1-208-715-11	METAL CHIP 22K	0.5% 1/16W
R034	1-218-982-11	RES-CHIP 270K	5% 1/16W
R035	1-218-990-11	SHORT 0	
R036	1-216-019-00	METAL CHIP 56	5% 1/10W
R037	1-208-713-11	METAL CHIP 18K	0.5% 1/16W
R038	1-208-715-11	METAL CHIP 22K	0.5% 1/16W

A-7067-268-A PK-051 BOARD, COMPLETE

(Ref.No;3000Series)

Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >	
C801	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C802	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C803	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C804	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C805	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C806	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C807	1-110-569-11	TANTAL. CHIP 47uF	20% 6.3V
C808	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C810	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C811	1-104-851-11	TANTAL. CHIP 10uF	20% 10V
C812	1-104-851-11	TANTAL. CHIP 10uF	20% 10V
C813	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C814	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C815	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C816	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V

Ref. No.	Part No.	Description	Remarks
C851	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C852	1-119-751-11	TANTAL. CHIP 22uF	20% 16V
C853	1-165-128-11	CERAMIC CHIP 0.22uF	16V
C854	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V
C855	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C856	1-164-856-81	CERAMIC CHIP 18PF	5% 16V
C857	1-107-819-11	CERAMIC CHIP 0.022uF	10% 16V
C858	1-164-943-11	CERAMIC CHIP 0.01uF	10% 16V
C859	1-164-860-11	CERAMIC CHIP 27PF	5% 16V
C861	1-113-682-11	TANTAL. CHIP 33uF	20% 10V
C862	1-115-156-11	CERAMIC CHIP 1uF	10V
C863	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C864	1-164-657-11	CERAMIC CHIP 0.015uF	10% 50V
C865	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
△C866	1-131-959-91	CERAMIC CHIP 12PF	10% 3KV
C901	1-135-259-11	TANTAL. CHIP 10uF	20% 6.3V
C902	1-113-986-11	TANTAL. CHIP 2.2uF	20% 25V
C903	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C904	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C905	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C906	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C907	1-164-937-11	CERAMIC CHIP 0.001uF	10% 16V
C908	1-164-872-11	CERAMIC CHIP 82PF	5% 16V
C909	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C911	1-164-739-11	CERAMIC CHIP 560PF	5% 50V
C912	1-164-872-11	CERAMIC CHIP 82PF	5% 16V
C913	1-109-982-11	CERAMIC CHIP 1uF	10% 10V
C916	1-164-346-11	CERAMIC CHIP 1uF	16V
C917	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
C918	1-164-346-11	CERAMIC CHIP 1uF	16V
C919	1-125-777-11	CERAMIC CHIP 0.1uF	10% 10V
		< CONNECTOR >	
* CN801	1-774-261-11	CONNECTOR, FFC (ZIF) 24P	
CN851	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P	
CN901	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P	
		< DIODE >	
D853	8-719-988-61	DIODE 1SS355TE-17	
D854	8-719-062-44	DIODE PG1112H-TR	
D902	8-713-102-80	DIODE 1T369-01-T8A	
D903	8-719-976-96	DIODE MA8047-H-TX	

Ref. No.	Part No.	Description	Remarks
		< FERRITE BEAD >	
FB801	1-414-234-22	INDUCTOR CHIP 0UH	
FB802	1-414-234-22	INDUCTOR CHIP 0UH	
FB803	1-414-234-22	INDUCTOR CHIP 0UH	

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC801	8-759-364-05	IC MB40D001PFV-G-BND-ER	
IC802	8-759-539-27	IC IR3Y37A4	
IC803	8-759-196-97	IC TC7SH32FU-TE85R	
IC851	8-759-521-35	IC TL5001CDR	
IC852	8-759-075-70	IC TA75S393F-TE85R	
IC901	8-759-524-61	IC CM7018L3-T4	
IC902	8-759-327-01	IC NJM062V(TE2)	

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

PK-051

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< COIL >							
L801	1-469-528-91	INDUCTOR	100uH	R868	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
L802	1-469-525-91	INDUCTOR	10uH	R869	1-218-977-11	RES-CHIP	100K 5% 1/16W
L851	1-469-524-91	INDUCTOR	4.7uH	R870	1-218-963-11	RES-CHIP	6.8K 5% 1/16W
L852	1-424-674-11	INDUCTOR	22uH	R871	1-218-969-11	RES-CHIP	22K 5% 1/16W
L853	1-419-387-21	INDUCTOR	100uH	R872	1-218-949-11	RES-CHIP	470 5% 1/16W
L901	1-469-525-91	INDUCTOR	10uH	R873	1-218-942-11	RES-CHIP	120 5% 1/16W
L902	1-469-525-91	INDUCTOR	10uH	R901	1-218-990-11	SHORT	0
L903	1-469-525-91	INDUCTOR	10uH	R902	1-218-990-11	SHORT	0
L904	1-469-525-91	INDUCTOR	10uH	R904	1-218-973-11	RES-CHIP	47K 5% 1/16W
L905	1-412-949-21	INDUCTOR	6.8uH	R905	1-218-973-11	RES-CHIP	47K 5% 1/16W
< TRANSISTOR >							
Q851	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO	R908	1-218-990-11	SHORT	0
Q852	8-729-042-59	TRANSISTOR	UN9112J-(K8).SO	R911	1-218-978-11	RES-CHIP	120K 5% 1/16W
Q853	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	R912	1-218-987-11	RES-CHIP	680K 5% 1/16W
Q854	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R913	1-218-976-11	RES-CHIP	82K 5% 1/16W
Q855	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	R916	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q856	8-729-823-84	TRANSISTOR	FP102-TL	R918	1-218-990-11	SHORT	0
Q857	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R919	1-218-989-11	RES-CHIP	1M 5% 1/16W
Q858	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R920	1-218-969-11	RES-CHIP	22K 5% 1/16W
Q859	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	R921	1-218-975-11	RES-CHIP	68K 5% 1/16W
Q860	8-729-039-43	TRANSISTOR	FP216-TL	R922	1-218-975-11	RES-CHIP	68K 5% 1/16W
Q861	8-729-042-59	TRANSISTOR	UN9112J-(K8).SO	R923	1-218-973-11	RES-CHIP	47K 5% 1/16W
Q901	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R925	1-208-927-11	METAL CHIP	47K 0.5% 1/16W
Q902	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO	R927	1-208-721-11	METAL CHIP	39K 0.5% 1/16W
Q903	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R928	1-218-961-11	RES-CHIP	4.7K 5% 1/16W
Q904	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO	R929	1-218-961-11	RES-CHIP	4.7K 5% 1/16W
< RESISTOR >							
R803	1-218-990-11	SHORT	0	R930	1-218-990-11	SHORT	0
R808	1-218-969-11	RES-CHIP	22K 5% 1/16W	R931	1-218-990-11	SHORT	0
R809	1-218-966-11	RES-CHIP	12K 5% 1/16W	R932	1-218-977-11	RES-CHIP	100K 5% 1/16W
R812	1-218-973-11	RES-CHIP	47K 5% 1/16W	R933	1-218-971-11	RES-CHIP	33K 5% 1/16W
R813	1-218-967-11	RES-CHIP	15K 5% 1/16W	R935	1-218-977-11	RES-CHIP	100K 5% 1/16W
R814	1-218-971-11	RES-CHIP	33K 5% 1/16W	R936	1-218-977-11	RES-CHIP	100K 5% 1/16W
R817	1-218-962-11	RES-CHIP	5.6K 5% 1/16W	R939	1-218-990-11	SHORT	0
R818	1-218-972-11	RES-CHIP	39K 5% 1/16W	R940	1-218-990-11	SHORT	0
R820	1-218-977-11	RES-CHIP	100K 5% 1/16W	R941	1-218-977-11	RES-CHIP	100K 5% 1/16W
R821	1-218-965-11	RES-CHIP	10K 5% 1/16W	R942	1-218-971-11	RES-CHIP	33K 5% 1/16W
R853	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W	R943	1-218-990-11	SHORT	0
R854	1-218-970-11	METAL CHIP	27K 0.5% 1/16W	R945	1-218-990-11	SHORT	0
R855	1-218-978-11	METAL CHIP	120K 0.5% 1/16W	R948	1-218-990-11	SHORT	0
R856	1-218-950-11	RES-CHIP	560 5% 1/16W	R949	1-218-990-11	SHORT	0
R857	1-218-969-11	RES-CHIP	22K 5% 1/16W	R950	1-218-990-11	SHORT	0
R858	1-218-950-11	RES-CHIP	560 5% 1/16W	R951	1-218-990-11	SHORT	0
R859	1-218-961-11	RES-CHIP	4.7K 5% 1/16W	R953	1-218-990-11	SHORT	0
R860	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R962	1-218-990-11	SHORT	0
R861	1-208-689-11	METAL CHIP	1.8K 0.5% 1/16W	R963	1-218-990-11	SHORT	0
R862	1-208-695-11	METAL CHIP	3.3K 0.5% 1/16W	R966	1-218-977-11	RES-CHIP	100K 5% 1/16W
R863	1-218-955-11	RES-CHIP	1.5K 5% 1/16W	R967	1-218-990-11	SHORT	0
R864	1-218-973-11	RES-CHIP	47K 5% 1/16W	R970	1-218-990-11	SHORT	0
R865	1-218-961-11	RES-CHIP	4.7K 5% 1/16W	R974	1-218-937-11	RES-CHIP	47 5% 1/16W
R866	1-218-955-11	RES-CHIP	1.5K 5% 1/16W	R975	1-218-937-11	RES-CHIP	47 5% 1/16W
R867	1-216-055-00	METAL CHIP	1.8K 5% 1/10W	R976	1-218-937-11	RES-CHIP	47 5% 1/16W
				< TRANSFORMER >			
				△ T851	1-435-226-11	TRANSFORMER, INVERTER	

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
A-7067-264-A	SE-115 BOARD, COMPLETE	*****	(Ref.No;4000Series)			< CONNECTOR >	
		< CAPACITOR >		CN401	1-766-340-21	CONNECTOR, FFC/FPC 10P	
				CN402	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	
				CN403	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P	
						< DIODE >	
C301	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	D401	8-719-016-74	DIODE 1SS352-TPH3	
C302	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	D402	8-719-070-93	DIODE TLAU1008(T05,SOY)	
C303	1-104-847-11	TANTAL. CHIP	22uF 20% 4V	D403	8-719-061-82	DIODE TLSU1002(TPX1,SONY)	
C304	1-104-847-11	TANTAL. CHIP	22uF 20% 4V	D404	8-719-062-16	DIODE 01ZA8.2(TPL3)	
C307	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	D405	8-719-016-74	DIODE 1SS352-TPH3	
C308	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V			< RESISTOR >	
C309	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	R401	1-218-956-11	RES-CHIP 1.8K 5% 1/16W	
C310	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	R402	1-218-956-11	RES-CHIP 1.8K 5% 1/16W	
C311	1-110-666-11	ELECT CHIP	22uF 20% 6.3V	R403	1-218-951-11	RES-CHIP 680 5% 1/16W	
C312	1-110-666-11	ELECT CHIP	22uF 20% 6.3V	R404	1-218-958-11	RES-CHIP 2.7K 5% 1/16W	
C313	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	R405	1-218-958-11	RES-CHIP 2.7K 5% 1/16W	
C314	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	R406	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
C315	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	R407	1-218-951-11	RES-CHIP 680 5% 1/16W	
C316	1-104-852-11	TANTAL. CHIP	22uF 20% 6.3V	R408	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
		< CONNECTOR >		R409	1-218-963-11	RES-CHIP 6.8K 5% 1/16W	
CN301	1-766-337-21	CONNECTOR, FFC/FPC 7P		R410	1-218-963-11	RES-CHIP 6.8K 5% 1/16W	
		< IC >		R411	1-218-971-11	RES-CHIP 33K 5% 1/16W	
IC301	8-759-489-19	IC uPC6756GR-8JG-E2				< SWITCH >	
		< COIL >		S401	1-771-688-21	SWITCH, TACTILE (MENU)	
L301	1-469-525-91	INDUCTOR 10uH		S402	1-771-138-61	SWITCH, KEY BOARD (SPOT METER)	
		< RESISTOR >		S403	1-771-138-61	SWITCH, KEY BOARD (DISPLAY)	
R301	1-218-969-11	RES-CHIP 22K 5% 1/16W		S404	1-771-138-61	SWITCH, KEY BOARD (MACRO)	
R302	1-218-969-11	RES-CHIP 22K 5% 1/16W		S405	1-771-138-61	SWITCH, KEY BOARD (VOLUME+)	
R303	1-218-969-11	RES-CHIP 22K 5% 1/16W		S406	1-771-138-61	SWITCH, KEY BOARD (FLASH)	
R304	1-218-969-11	RES-CHIP 22K 5% 1/16W		S407	1-771-138-61	SWITCH, KEY BOARD (VOLUME-)	
R305	1-218-990-11	SHORT 0				< VARISTOR >	
R306	1-218-985-11	RES-CHIP 470K 5% 1/16W		VDR401	1-801-922-21	VARISTOR, CHIP	
R307	1-218-965-11	RES-CHIP 10K 5% 1/16W		VDR402	1-801-922-21	VARISTOR, CHIP	
R308	1-218-965-11	RES-CHIP 10K 5% 1/16W					
R309	1-218-985-11	RES-CHIP 470K 5% 1/16W					
R310	1-218-967-11	RES-CHIP 15K 5% 1/16W					
R311	1-218-967-11	RES-CHIP 15K 5% 1/16W					
		< SENSOR >					
SE303	1-418-252-31	SENSOR, ANGULAR VELOCITY (PITCH)					
SE304	1-418-252-41	SENSOR, ANGULAR VELOCITY (YAW)					
A-7074-499-A	SW-342 BOARD, COMPLETE	*****	(Ref.No;4000Series)			A-7074-574-A VC-246 BOARD, COMPLETE (FOR SERVICE)	*****
		< CAPACITOR >					(Ref.No;5000Series)
						< BATTERY >	
C401	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V	BT401	1-756-102-11	BATTERY, LITHIUM SECONDARY	
C402	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V			< CAPACITOR >	
				C003	1-164-880-11	CERAMIC CHIP 180PF 5% 16V	
				C004	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	
				C005	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	
				C006	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V	
				C007	1-125-838-11	CERAMIC CHIP 2.2uF 10% 6.3V	
				C008	1-164-938-11	CERAMIC CHIP 0.0015uF 10% 16V	
				C009	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V	
				C010	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
				C012	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
				C013	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	

VC-246

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C014	1-164-938-11	CERAMIC CHIP	0.0015uF 10% 16V	C205	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
C016	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C206	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C017	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C207	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C020	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C208	1-164-940-11	CERAMIC CHIP	0.0033uF 10% 16V
C021	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C209	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V
C022	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C210	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C023	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	C211	1-113-682-11	TANTAL. CHIP	33uF 20% 10V
C024	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C212	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C025	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C213	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
C026	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C214	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C027	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C215	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V
C028	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C217	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C029	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C218	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C030	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C219	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C031	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C220	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C032	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C221	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C033	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C222	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C034	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C223	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C035	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C224	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C036	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C225	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C037	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C308	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
C038	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C309	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V
C039	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C310	1-164-942-11	CERAMIC CHIP	0.0068uF 10% 16V
C040	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	C311	1-164-941-11	CERAMIC CHIP	0.0047uF 10% 16V
C041	1-164-506-11	CERAMIC CHIP	4.7uF 16V	C312	1-135-181-21	TANTALUM CHIP	4.7uF 20% 6.3V
C042	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C313	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C043	1-164-506-11	CERAMIC CHIP	4.7uF 16V	C314	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C044	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C315	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V
C045	1-165-319-11	CERAMIC CHIP	0.1uF 50V	C316	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V
C047	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C317	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C048	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C319	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C049	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C320	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C050	1-164-506-11	CERAMIC CHIP	4.7uF 16V	C321	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V
C051	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C322	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C052	1-113-987-11	TANTAL. CHIP	4.7uF 20% 25V	C323	1-164-939-11	CERAMIC CHIP	0.0022uF 10% 16V
C053	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C324	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C054	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C325	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C055	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C327	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C056	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	C328	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
C057	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C329	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C058	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C330	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C059	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C331	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
C060	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C332	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C061	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C333	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C062	1-135-177-21	TANTALUM CHIP	1uF 20% 20V	C334	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C063	1-164-505-11	CERAMIC CHIP	2.2uF 16V	C335	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C064	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	C336	1-104-851-11	TANTAL. CHIP	10uF 20% 10V
C065	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C337	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C066	1-164-938-11	CERAMIC CHIP	0.0015uF 10% 16V	C338	1-115-156-11	CERAMIC CHIP	1uF 10% 10V
C151	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C339	1-135-177-21	TANTALUM CHIP	1uF 20% 20V
C152	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C340	1-135-181-21	TANTALUM CHIP	4.7uF 20% 6.3V
C153	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C341	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C154	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C342	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C155	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C343	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C157	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C344	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V
C158	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C345	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V
C201	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	C346	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C202	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	C347	1-117-863-11	CERAMIC CHIP	0.47uF 10% 6.3V
C203	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	C348	1-119-923-81	CERAMIC CHIP	0.047uF 10% 10V
C204	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	C349	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C402	1-104-913-11	TANTAL. CHIP	10uF 20% 16V	D008	8-719-027-77	DIODE MA796-TX	
C403	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	D009	8-719-988-61	DIODE 1SS355TE-17	
C404	1-104-851-11	TANTAL. CHIP	10uF 10% 10V	D201	8-719-988-61	DIODE 1SS355TE-17	
C405	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	D202	8-719-075-62	DIODE 1SS401(TE85L)	
C406	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	D402	8-719-988-61	DIODE 1SS355TE-17	
C411	1-164-937-11	CERAMIC CHIP	0.001uF 10% 16V	D403	8-719-988-61	DIODE 1SS355TE-17	
C412	1-104-912-11	TANTAL. CHIP	3.3uF 20% 6.3V	D404	8-719-988-61	DIODE 1SS355TE-17	
C417	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	D406	8-719-422-70	DIODE MA8075-TX	
C418	1-107-819-11	CERAMIC CHIP	0.022uF 10% 16V	D407	8-719-988-61	DIODE 1SS355TE-17	
C419	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	D408	8-719-049-09	DIODE 1SS367-T3SONY	
C428	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	D409	8-719-016-74	DIODE 1SS352-TPH3	
C429	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	D410	8-719-027-76	DIODE 1SS357-TPH3	
C430	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	D551	8-719-062-16	DIODE 01ZA8.2(TPL3)	
C431	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V			< FUSE >	
C432	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V				
C434	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	△F001	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C435	1-164-862-11	CERAMIC CHIP	33PF 5% 16V	△F002	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C436	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	△F003	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C437	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V	△F004	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C438	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	△F005	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C501	1-113-682-11	TANTAL. CHIP	33uF 20% 10V	△F006	1-576-406-21	FUSE, MICRO (1608) (1.4A/32V)	
C502	1-107-820-11	CERAMIC CHIP	0.1uF 16V			< FERRITE BEAD >	
C503	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V				
C504	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	FB001	1-414-228-11	INDUCTOR CHIP 0UH	
C505	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	FB002	1-414-228-11	INDUCTOR CHIP 0UH	
C506	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V	FB003	1-414-228-11	INDUCTOR CHIP 0UH	
C507	1-107-820-11	CERAMIC CHIP	0.1uF 16V	FB151	1-414-228-11	INDUCTOR CHIP 0UH	
C508	1-125-777-11	CERAMIC CHIP	0.1uF 10% 10V	FB152	1-414-228-11	INDUCTOR CHIP 0UH	
C509	1-164-156-11	CERAMIC CHIP	0.1uF 25V				
C510	1-164-156-11	CERAMIC CHIP	0.1uF 25V	FB153	1-414-228-11	INDUCTOR CHIP 0UH	
C511	1-104-851-11	TANTAL. CHIP	10uF 20% 10V			< IC >	
C512	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	IC001	8-759-491-22	IC MB3825APFV-G-BND-ER	
C513	1-119-750-11	TANTAL. CHIP	22uF 20% 6.3V	IC151	8-759-531-92	IC TC7WH04FU(TE12R)	
C514	1-127-569-91	TANTAL. CHIP	100uF 20% 4V	IC152	8-759-196-97	IC TC7SH32FU-TE85R	
		< CONNECTOR >		IC153	8-759-196-97	IC TC7SH32FU-TE85R	
* CN001	1-580-056-21	PIN, CONNECTOR (SMD) 3P		IC154	8-759-392-77	IC TC74LCX245FT(EL)	
CN002	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD)4P		IC155	8-759-392-77	IC TC74LCX245FT(EL)	
CN201	1-779-337-11	CONNECTOR, FFC/FPC 26P		IC156	8-759-566-06	IC TC7WH08FU(TE12R)	
CN551	1-785-829-21	CONNECTOR, BOARD TO BOARD 80P		IC157	8-759-566-06	IC TC7WH08FU(TE12R)	
CN552	1-778-592-21	CONNECTOR, BOARD TO BOARD 50P		IC158	8-759-186-57	IC TC74VHC175F(EL)	
CN553	1-766-355-21	CONNECTOR, FFC/FPC 25P		IC201	8-759-337-40	IC NJM2904V(TE2)	
CN554	1-766-354-21	CONNECTOR, FFC/FPC 24P		IC202	8-759-637-96	IC uPD16877MA-6A5-E2	
CN555	1-766-359-21	CONNECTOR, FFC/FPC 29P		IC203	8-759-637-96	IC uPD16877MA-6A5-E2	
CN556	1-766-340-21	CONNECTOR, FFC/FPC 10P		IC204	8-759-337-40	IC NJM2904V(TE2)	
CN557	1-766-336-21	CONNECTOR, FFC/FPC 6P		IC205	8-759-444-87	IC NJM324V(TE2)	
CN558	1-766-336-21	CONNECTOR, FFC/FPC 6P		IC206	8-759-426-25	IC MB88346LPFV-G-BND-ER	
CN559	1-766-644-21	CONNECTOR, FFC/FPC 8P		IC302	8-759-647-71	IC AK4550VT-E2	
CN560	1-785-479-21	CONNECTOR, BOARD TO BOARD 50P		IC303	8-759-655-17	IC AN2905FHQ-EB	
		< DIODE >		IC401	8-759-565-67	IC XC62FP3202PR	
D002	8-719-073-03	DIODE MA8082-(K8).S0		IC402	8-759-642-45	IC TL1596CPWR	
D004	8-719-158-49	DIODE MA8120-TX		IC403	8-759-525-51	IC S-80827HNNP-A9A-T2	
D005	8-719-027-76	DIODE 1SS357-TPH3		IC404	8-759-685-12	IC S579634PZ-TEB	
D006	8-719-027-76	DIODE 1SS357-TPH3		IC405	8-759-538-14	IC S-3513BEFS-TB	
D007	8-719-988-61	DIODE 1SS355TE-17		IC406	8-759-566-20	IC AK6440BH-E2	
				IC501	8-759-652-45	IC NJM2568V(TE2)	

Note :

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

Note :

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< COIL >					
L001	1-416-668-11	INDUCTOR	10uH	Q023	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
L002	1-416-668-11	INDUCTOR	10uH	Q024	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L003	1-416-668-11	INDUCTOR	10uH	Q025	8-729-041-23	TRANSISTOR	NDS356AP
L004	1-416-668-11	INDUCTOR	10uH	Q026	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO
L005	1-419-368-21	INDUCTOR	47uH	Q027	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L006	1-412-056-11	INDUCTOR	4.7uH	Q028	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L007	1-419-368-21	INDUCTOR	47uH	Q029	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L008	1-416-669-11	INDUCTOR	22uH	Q030	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
L009	1-416-669-11	INDUCTOR	22uH	Q031	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L010	1-412-056-11	INDUCTOR	4.7uH	Q032	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L011	1-419-368-21	INDUCTOR	47uH	Q033	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L012	1-414-392-21	INDUCTOR	1uH	Q034	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L013	1-412-056-11	INDUCTOR	4.7uH	Q035	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L014	1-412-056-11	INDUCTOR	4.7uH	Q036	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L015	1-412-056-11	INDUCTOR	4.7uH	Q037	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L016	1-412-056-11	INDUCTOR	4.7uH	Q038	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L017	1-412-056-11	INDUCTOR	4.7uH	Q039	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L018	1-414-406-11	INDUCTOR	220uH	Q040	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L019	1-412-056-11	INDUCTOR	4.7uH	Q041	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L020	1-412-056-11	INDUCTOR	4.7uH	Q042	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L151	1-469-525-91	INDUCTOR	10uH	Q043	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L201	1-469-525-91	INDUCTOR	10uH	Q044	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L202	1-469-525-91	INDUCTOR	10uH	Q045	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L203	1-469-525-91	INDUCTOR	10uH	Q201	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L204	1-469-525-91	INDUCTOR	10uH	Q202	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
L302	1-469-525-91	INDUCTOR	10uH	Q205	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L303	1-469-525-91	INDUCTOR	10uH	Q206	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L304	1-469-525-91	INDUCTOR	10uH	Q207	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
L305	1-469-525-91	INDUCTOR	10uH	Q208	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
L402	1-469-525-91	INDUCTOR	10uH	Q209	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
L403	1-469-525-91	INDUCTOR	10uH	Q301	8-729-042-74	TRANSISTOR	UN9216J-(K8).SO
L501	1-469-527-91	INDUCTOR	47uH	Q302	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO
L502	1-469-525-91	INDUCTOR	10uH	Q303	8-729-041-51	TRANSISTOR	FMMT617TA
		< LINE FILTER >		Q401	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
LF001	1-411-957-11	FILTER, COMMON MODE		Q402	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO
		< TRANSISTOR >		Q403	8-729-037-71	TRANSISTOR	UN9210J-(TX).SO
Q002	8-729-047-68	TRANSISTOR	SSM3K03FE(TPL3)	Q404	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
Q003	8-729-046-77	TRANSISTOR	SI4963DY-T1	Q405	8-729-037-58	TRANSISTOR	UN9110J-(TX).SO
Q005	8-729-804-41	TRANSISTOR	2SB1122-ST-TD	Q406	8-729-042-58	TRANSISTOR	UN9111J-(K8).SO
Q006	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	Q408	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q007	8-729-047-68	TRANSISTOR	SSM3K03FE(TPL3)	Q409	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q008	8-729-033-14	TRANSISTOR	FP107-TL	Q410	8-729-037-92	TRANSISTOR	2SD2216J-R(TX).SO
Q009	8-729-804-41	TRANSISTOR	2SB1122-ST-TD	Q411	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q010	8-729-033-14	TRANSISTOR	FP107-TL	Q412	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q011	8-729-033-14	TRANSISTOR	FP107-TL	Q413	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q012	8-729-033-14	TRANSISTOR	FP107-TL	Q414	8-729-041-43	TRANSISTOR	HN1L02FU(TE85R)
Q013	8-729-033-14	TRANSISTOR	FP107-TL	Q501	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO
Q014	8-729-044-58	TRANSISTOR	SI2304DS-T1	Q502	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
Q015	8-729-044-58	TRANSISTOR	SI2304DS-T1			< RESISTOR >	
Q016	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R003	1-208-719-11	METAL CHIP	33K 0.5% 1/16W
Q017	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R005	1-208-920-81	METAL CHIP	24K 0.5% 1/16W
Q018	8-729-101-07	TRANSISTOR	2SB798-T1-DLTK	R006	1-218-971-11	RES-CHIP	33K 5% 1/16W
Q019	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	R007	1-218-979-11	RES-CHIP	150K 5% 1/16W
Q020	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	R008	1-216-296-91	SHORT	0
Q021	8-729-041-23	TRANSISTOR	NDS356AP	R009	1-218-953-11	RES-CHIP	1K 5% 1/16W
Q022	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO	R013	1-208-719-11	METAL CHIP	33K 0.5% 1/16W
				R014	1-218-973-11	RES-CHIP	47K 5% 1/16W
				R015	1-218-971-11	RES-CHIP	33K 5% 1/16W
				R016	1-208-909-11	METAL CHIP	8.2K 0.5% 1/16W

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R017	1-218-985-11	RES-CHIP	470K	5%	1/16W	R082	1-218-967-11	RES-CHIP	15K	5%	1/16W
R018	1-218-989-11	RES-CHIP	1M	5%	1/16W	R083	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R019	1-218-965-11	RES-CHIP	10K	5%	1/16W	R084	1-218-990-11	SHORT	0		
R022	1-218-965-11	RES-CHIP	10K	5%	1/16W	R085	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R023	1-216-150-91	RES-CHIP	10	5%	1/8W	R086	1-218-977-11	RES-CHIP	100K	5%	1/16W
R024	1-218-970-11	METAL CHIP	27K	0.5%	1/16W	R087	1-218-977-11	RES-CHIP	100K	5%	1/16W
R025	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W	R088	1-218-977-11	RES-CHIP	100K	5%	1/16W
R026	1-208-711-11	METAL CHIP	15K	0.5%	1/16W	R089	1-218-973-11	RES-CHIP	47K	5%	1/16W
R027	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R090	1-208-933-11	METAL CHIP	82K	0.5%	1/16W
R028	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W	R091	1-218-977-11	RES-CHIP	100K	5%	1/16W
R029	1-218-953-11	RES-CHIP	1K	5%	1/16W	R092	1-218-973-11	RES-CHIP	47K	5%	1/16W
R030	1-218-963-11	RES-CHIP	6.8K	5%	1/16W	R093	1-218-977-11	RES-CHIP	100K	5%	1/16W
R031	1-218-990-11	SHORT	0			R094	1-218-965-11	RES-CHIP	10K	5%	1/16W
R032	1-218-969-11	RES-CHIP	22K	5%	1/16W	R095	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R033	1-218-970-11	METAL CHIP	27K	0.5%	1/16W	R096	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R034	1-218-973-11	RES-CHIP	47K	5%	1/16W	R097	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R035	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R098	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R036	1-208-707-11	METAL CHIP	10K	0.5%	1/16W	R099	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R037	1-218-970-11	METAL CHIP	27K	0.5%	1/16W	R100	1-208-689-11	METAL CHIP	1.8K	0.5%	1/16W
R038	1-218-969-11	RES-CHIP	22K	5%	1/16W	R101	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R039	1-208-721-11	METAL CHIP	39K	0.5%	1/16W	R102	1-216-864-11	METAL CHIP	0	5%	1/16W
R040	1-208-707-11	METAL CHIP	10K	0.5%	1/16W	R103	1-218-990-11	SHORT	0		
R041	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R105	1-220-206-11	METAL CHIP	91K	0.5%	1/16W
R042	1-218-969-11	RES-CHIP	22K	5%	1/16W	R106	1-218-977-11	RES-CHIP	100K	5%	1/16W
R043	1-208-719-11	METAL CHIP	33K	0.5%	1/16W	R107	1-216-864-11	METAL CHIP	0	5%	1/16W
R044	1-208-719-11	METAL CHIP	33K	0.5%	1/16W	R108	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R045	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W	R109	1-218-969-11	RES-CHIP	22K	5%	1/16W
R046	1-218-990-11	SHORT	0			R110	1-216-864-11	METAL CHIP	0	5%	1/16W
R047	1-218-965-11	RES-CHIP	10K	5%	1/16W	R152	1-218-973-11	RES-CHIP	47K	5%	1/16W
R048	1-218-962-11	RES-CHIP	5.6K	5%	1/16W	R201	1-218-990-11	SHORT	0		
R049	1-218-963-11	RES-CHIP	6.8K	5%	1/16W	R202	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R050	1-218-964-11	RES-CHIP	8.2K	5%	1/16W	R203	1-218-977-11	RES-CHIP	100K	5%	1/16W
R051	1-218-965-11	RES-CHIP	10K	5%	1/16W	R204	1-218-965-11	RES-CHIP	10K	5%	1/16W
R052	1-218-967-11	RES-CHIP	15K	5%	1/16W	R205	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R053	1-218-990-11	SHORT	0			R206	1-218-968-11	RES-CHIP	18K	5%	1/16W
R054	1-218-990-11	SHORT	0			R207	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R055	1-218-990-11	SHORT	0			R208	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R056	1-218-990-11	SHORT	0			R210	1-218-990-11	SHORT	0		
R057	1-218-990-11	SHORT	0			R212	1-218-929-11	RES-CHIP	10	5%	1/16W
R058	1-218-990-11	SHORT	0			R214	1-218-953-11	RES-CHIP	1K	5%	1/16W
R060	1-208-711-11	METAL CHIP	15K	0.5%	1/16W	R215	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R061	1-216-295-11	SHORT	0			R216	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R062	1-216-296-91	SHORT	0			R217	1-218-977-11	RES-CHIP	100K	5%	1/16W
R063	1-218-977-11	RES-CHIP	100K	5%	1/16W	R218	1-218-965-11	RES-CHIP	10K	5%	1/16W
R064	1-218-949-11	RES-CHIP	470	5%	1/16W	R219	1-218-977-11	RES-CHIP	100K	5%	1/16W
R065	1-218-990-11	SHORT	0			R220	1-218-973-11	RES-CHIP	47K	5%	1/16W
R067	1-218-977-11	RES-CHIP	100K	5%	1/16W	R221	1-218-975-11	RES-CHIP	68K	5%	1/16W
R068	1-218-977-11	RES-CHIP	100K	5%	1/16W	R222	1-218-975-11	RES-CHIP	68K	5%	1/16W
R069	1-218-973-11	RES-CHIP	47K	5%	1/16W	R223	1-218-973-11	RES-CHIP	47K	5%	1/16W
R070	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R224	1-218-947-11	RES-CHIP	330	5%	1/16W
R071	1-218-977-11	RES-CHIP	100K	5%	1/16W	R225	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R072	1-218-977-11	RES-CHIP	100K	5%	1/16W	R226	1-208-712-11	METAL CHIP	16K	0.5%	1/16W
R073	1-218-969-11	RES-CHIP	22K	5%	1/16W	R227	1-218-977-11	RES-CHIP	100K	5%	1/16W
R074	1-218-968-11	RES-CHIP	18K	5%	1/16W	R228	1-218-969-11	RES-CHIP	22K	5%	1/16W
R075	1-218-977-11	RES-CHIP	100K	5%	1/16W	R229	1-218-977-11	RES-CHIP	100K	5%	1/16W
R076	1-218-977-11	RES-CHIP	100K	5%	1/16W	R230	1-218-969-11	RES-CHIP	22K	5%	1/16W
R077	1-218-971-11	RES-CHIP	33K	5%	1/16W	R232	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R078	1-220-206-11	METAL CHIP	91K	0.5%	1/16W	R233	1-218-966-11	RES-CHIP	12K	5%	1/16W
R079	1-208-719-11	METAL CHIP	33K	0.5%	1/16W	R234	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R081	1-208-719-11	METAL CHIP	33K	0.5%	1/16W	R235	1-218-980-11	RES-CHIP	180K	5%	1/16W

VC-246

Ref. No.	Part No.	Description		Remarks	Ref. No.	Part No.	Description		Remarks		
R236	1-218-980-11	RES-CHIP	180K	5%	1/16W	R426	1-218-953-11	RES-CHIP	1K	5%	1/16W
R237	1-218-965-11	RES-CHIP	10K	5%	1/16W	R428	1-218-965-11	RES-CHIP	10K	5%	1/16W
R238	1-218-980-11	RES-CHIP	180K	5%	1/16W	R429	1-218-985-11	RES-CHIP	470K	5%	1/16W
R239	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R430	1-218-985-11	RES-CHIP	470K	5%	1/16W
R240	1-218-965-11	RES-CHIP	10K	5%	1/16W	R431	1-218-985-11	RES-CHIP	470K	5%	1/16W
R241	1-218-973-11	RES-CHIP	47K	5%	1/16W	R432	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R242	1-216-864-11	METAL CHIP	0	5%	1/16W	R433	1-218-977-11	RES-CHIP	100K	5%	1/16W
R243	1-218-990-11	SHORT	0			R434	1-218-977-11	RES-CHIP	100K	5%	1/16W
R301	1-218-954-11	RES-CHIP	1.2K	5%	1/16W	R435	1-218-953-11	RES-CHIP	1K	5%	1/16W
R305	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	R436	1-218-953-11	RES-CHIP	1K	5%	1/16W
R306	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	R437	1-218-953-11	RES-CHIP	1K	5%	1/16W
R307	1-218-990-11	SHORT	0			R438	1-218-953-11	RES-CHIP	1K	5%	1/16W
R308	1-218-990-11	SHORT	0			R439	1-218-953-11	RES-CHIP	1K	5%	1/16W
R309	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	R440	1-218-953-11	RES-CHIP	1K	5%	1/16W
R310	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	R441	1-218-990-11	SHORT	0		
R312	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R442	1-218-953-11	RES-CHIP	1K	5%	1/16W
R313	1-218-970-11	RES-CHIP	27K	5%	1/16W	R443	1-218-953-11	RES-CHIP	1K	5%	1/16W
R314	1-218-949-11	RES-CHIP	470	5%	1/16W	R444	1-218-977-11	RES-CHIP	100K	5%	1/16W
R315	1-218-973-11	RES-CHIP	47K	5%	1/16W	R446	1-218-973-11	RES-CHIP	47K	5%	1/16W
R316	1-218-974-11	RES-CHIP	56K	5%	1/16W	R447	1-218-977-11	RES-CHIP	100K	5%	1/16W
R319	1-218-990-11	SHORT	0			R448	1-218-989-11	RES-CHIP	1M	5%	1/16W
R320	1-218-967-11	RES-CHIP	15K	5%	1/16W	R449	1-218-985-11	RES-CHIP	470K	5%	1/16W
R321	1-218-941-11	RES-CHIP	100	5%	1/16W	R450	1-218-985-11	RES-CHIP	470K	5%	1/16W
R322	1-218-953-11	RES-CHIP	1K	5%	1/16W	R451	1-218-977-11	RES-CHIP	100K	5%	1/16W
R323	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R452	1-218-977-11	RES-CHIP	100K	5%	1/16W
R324	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R453	1-218-977-11	RES-CHIP	100K	5%	1/16W
R326	1-218-977-11	RES-CHIP	100K	5%	1/16W	R454	1-218-977-11	RES-CHIP	100K	5%	1/16W
R327	1-218-973-11	RES-CHIP	47K	5%	1/16W	R455	1-218-953-11	RES-CHIP	1K	5%	1/16W
R328	1-218-975-11	RES-CHIP	68K	5%	1/16W	R456	1-218-953-11	RES-CHIP	1K	5%	1/16W
R330	1-218-929-11	RES-CHIP	10	5%	1/16W	R457	1-218-973-11	RES-CHIP	47K	5%	1/16W
R331	1-218-990-11	SHORT	0			R458	1-218-985-11	RES-CHIP	470K	5%	1/16W
R332	1-218-990-11	SHORT	0			R459	1-218-985-11	RES-CHIP	470K	5%	1/16W
R333	1-218-990-11	SHORT	0			R464	1-218-965-11	RES-CHIP	10K	5%	1/16W
R334	1-218-990-11	SHORT	0			R465	1-218-953-11	RES-CHIP	1K	5%	1/16W
R335	1-218-990-11	SHORT	0			R466	1-218-965-11	RES-CHIP	10K	5%	1/16W
R336	1-218-971-11	RES-CHIP	33K	5%	1/16W	R467	1-218-953-11	RES-CHIP	1K	5%	1/16W
R337	1-218-973-11	RES-CHIP	47K	5%	1/16W	R468	1-218-965-11	RES-CHIP	10K	5%	1/16W
R338	1-218-977-11	RES-CHIP	100K	5%	1/16W	R469	1-218-953-11	RES-CHIP	1K	5%	1/16W
R339	1-218-941-11	RES-CHIP	100	5%	1/16W	R470	1-218-965-11	RES-CHIP	10K	5%	1/16W
R401	1-218-972-11	RES-CHIP	39K	5%	1/16W	R471	1-218-953-11	RES-CHIP	1K	5%	1/16W
R402	1-218-972-11	RES-CHIP	39K	5%	1/16W	R472	1-218-965-11	RES-CHIP	10K	5%	1/16W
R403	1-218-963-11	RES-CHIP	6.8K	5%	1/16W	R473	1-218-953-11	RES-CHIP	1K	5%	1/16W
R404	1-218-963-11	RES-CHIP	6.8K	5%	1/16W	R474	1-218-965-11	RES-CHIP	10K	5%	1/16W
R405	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R475	1-218-953-11	RES-CHIP	1K	5%	1/16W
R406	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R476	1-218-989-11	RES-CHIP	1M	5%	1/16W
R407	1-218-990-11	SHORT	0			R477	1-218-989-11	RES-CHIP	1M	5%	1/16W
R408	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R478	1-218-953-11	RES-CHIP	1K	5%	1/16W
R409	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R479	1-218-985-11	RES-CHIP	470K	5%	1/16W
R410	1-218-956-11	RES-CHIP	1.8K	5%	1/16W	R480	1-218-985-11	RES-CHIP	470K	5%	1/16W
R411	1-218-956-11	RES-CHIP	1.8K	5%	1/16W	R481	1-218-977-11	RES-CHIP	100K	5%	1/16W
R413	1-218-979-11	RES-CHIP	150K	5%	1/16W	R482	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R416	1-218-973-11	RES-CHIP	47K	5%	1/16W	R483	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R417	1-218-949-11	RES-CHIP	470	5%	1/16W	R484	1-218-977-11	RES-CHIP	100K	5%	1/16W
R418	1-218-989-11	RES-CHIP	1M	5%	1/16W	R485	1-218-977-11	RES-CHIP	100K	5%	1/16W
R419	1-218-990-11	SHORT	0			R486	1-218-977-11	RES-CHIP	100K	5%	1/16W
R421	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R487	1-218-965-11	RES-CHIP	10K	5%	1/16W
R422	1-218-985-11	RES-CHIP	470K	5%	1/16W	R488	1-218-965-11	RES-CHIP	10K	5%	1/16W
R423	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R489	1-218-977-11	RES-CHIP	100K	5%	1/16W
R424	1-218-977-11	RES-CHIP	100K	5%	1/16W	R490	1-218-946-11	RES-CHIP	270	5%	1/16W
R425	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R493	1-218-977-11	RES-CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R494	1-218-972-11	RES-CHIP	39K 5% 1/16W	C606	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 16V	
R495	1-218-963-11	RES-CHIP	6.8K 5% 1/16W	C608	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R496	1-218-961-11	RES-CHIP	4.7K 5% 1/16W	C609	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
R497	1-218-958-11	RES-CHIP	2.7K 5% 1/16W	C610	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V	
R498	1-218-956-11	RES-CHIP	1.8K 5% 1/16W	C611	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V	
R499	1-218-985-11	RES-CHIP	470K 5% 1/16W	C612	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
R501	1-218-969-11	RES-CHIP	22K 5% 1/16W	C613	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
R502	1-218-973-11	RES-CHIP	47K 5% 1/16W	C614	1-164-878-11	CERAMIC CHIP 150PF 5% 16V	
R503	1-218-965-11	RES-CHIP	10K 5% 1/16W	C615	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
R504	1-218-965-11	RES-CHIP	10K 5% 1/16W	C616	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V	
R505	1-218-989-11	RES-CHIP	1M 5% 1/16W	C617	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
R506	1-218-973-11	RES-CHIP	47K 5% 1/16W	C618	1-164-940-11	CERAMIC CHIP 0.0033uF 10% 16V	
R507	1-218-965-11	RES-CHIP	10K 5% 1/16W	C619	1-164-858-11	CERAMIC CHIP 22PF 5% 16V	
R508	1-218-939-11	RES-CHIP	68 5% 1/16W	C620	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
R556	1-216-864-11	METAL CHIP	0 5% 1/16W	C621	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
R557	1-216-864-11	METAL CHIP	0 5% 1/16W	C622	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V	
R558	1-216-864-11	METAL CHIP	0 5% 1/16W	C623	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
R559	1-216-864-11	METAL CHIP	0 5% 1/16W	C624	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R561	1-217-671-11	METAL CHIP	1 5% 1/10W			< CONNECTOR >	
R562	1-217-671-11	METAL CHIP	1 5% 1/10W				
R563	1-216-295-11	SHORT	0	CN501	1-691-363-21	CONNECTOR, FFC/FPC (ZIF) 25P	
R564	1-216-295-11	SHORT	0	CN502	1-778-595-21	CONNECTOR, BOARD TO BOARD 20P	
		< TRANSFORMER >		CN601	1-766-355-21	CONNECTOR, FFC/FPC 25P	
T001	1-429-565-21	TRANSFORMER, CONVERTER				< DIODE >	
		< VIBRATOR >		D601	8-719-043-70	DIODE MA6S121-(TX)	
X401	1-767-980-21	VIBRATOR, CERAMIC (20MHZ)		D602	8-713-102-80	DIODE 1T369-01-T8A	
X402	1-760-458-21	VIBRATOR, CRYSTAL (32.768KHZ)				< IC >	
				IC502	8-759-546-65	IC CXA8115AR-T4	
				IC503	8-759-364-05	IC M62376GP-65AD	
				IC601	8-759-097-75	IC MB3789PFV-G-BND-ER	
				IC602	8-759-198-34	IC TA75S558F(TE85R)	
				IC603	8-752-392-33	IC CXD2458AR-T4	
						< COIL >	
		< CAPACITOR >		L503	1-469-526-91	INDUCTOR 22uH	
C506	1-107-820-11	CERAMIC CHIP	0.1uF 16V	L504	1-414-771-91	INDUCTOR CHIP 10uH	
C507	1-110-569-11	TANTAL. CHIP	47uF 20% 6.3V	L601	1-412-033-11	INDUCTOR CHIP 220uH	
C508	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	L602	1-469-527-91	INDUCTOR 47uH	
C510	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	L603	1-412-947-11	INDUCTOR 4.7uH	
C511	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V			< TRANSISTOR >	
C512	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	Q601	8-729-045-84	TRANSISTOR RN2105F(TPL3)	
C513	1-115-566-11	CERAMIC CHIP	4.7uF 10% 10V	Q602	8-729-037-61	TRANSISTOR UN9113J-(K8).SO	
C514	1-127-760-11	CERAMIC CHIP	4.7uF 10% 6.3V	Q603	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
C515	1-127-760-11	CERAMIC CHIP	4.7uF 10% 6.3V			< RESISTOR >	
C516	1-127-760-11	CERAMIC CHIP	4.7uF 10% 6.3V	R507	1-218-969-11	RES-CHIP 22K 5% 1/16W	
C517	1-104-915-11	TANTAL. CHIP	2.2uF 20% 20V	R508	1-218-971-11	RES-CHIP 33K 5% 1/16W	
C518	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	R510	1-218-990-11	SHORT 0	
C519	1-164-505-11	CERAMIC CHIP	2.2uF 16V	R513	1-218-975-11	RES-CHIP 68K 5% 1/16W	
C520	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	R514	1-218-971-11	RES-CHIP 33K 5% 1/16W	
C521	1-117-919-11	TANTAL. CHIP	10uF 20% 6.3V	R516	1-218-972-11	RES-CHIP 39K 5% 1/16W	
C601	1-115-467-11	CERAMIC CHIP	0.22uF 10% 10V	R517	1-218-972-11	RES-CHIP 39K 5% 1/16W	
C602	1-164-943-11	CERAMIC CHIP	0.01uF 10% 16V	R518	1-218-975-11	RES-CHIP 68K 5% 1/16W	
C603	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	R519	1-218-971-11	RES-CHIP 33K 5% 1/16W	
C604	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	R520	1-218-973-11	RES-CHIP 47K 5% 1/16W	
C605	1-104-916-11	TANTAL. CHIP	6.8uF 20% 20V				

A-7074-501-A VF-144 BOARD, COMPLETE

 (Ref.No;6000Series)

Ref. No.	Part No.	Description	Remarks
R521	1-218-972-11	RES-CHIP 39K 5%	1/16W
R522	1-216-857-11	METAL CHIP 1M 5%	1/16W
R523	1-218-941-11	RES-CHIP 100 5%	1/16W
R524	1-218-941-11	RES-CHIP 100 5%	1/16W
R526	1-218-941-11	RES-CHIP 100 5%	1/16W
R530	1-218-967-11	RES-CHIP 15K 5%	1/16W
R601	1-218-975-11	RES-CHIP 68K 5%	1/16W
R602	1-218-901-11	METAL CHIP 180K 0.5%	1/16W
R603	1-218-974-11	RES-CHIP 56K 5%	1/16W
R604	1-218-887-11	METAL CHIP 47K 0.5%	1/16W
R605	1-218-975-11	RES-CHIP 68K 5%	1/16W
R606	1-218-982-11	RES-CHIP 270K 5%	1/16W
R607	1-218-973-11	RES-CHIP 47K 5%	1/16W
R608	1-218-974-11	RES-CHIP 56K 5%	1/16W
R609	1-218-965-11	RES-CHIP 10K 5%	1/16W
R610	1-218-969-11	RES-CHIP 22K 5%	1/16W
R611	1-218-954-11	RES-CHIP 1.2K 5%	1/16W
R612	1-218-980-11	RES-CHIP 180K 5%	1/16W
R613	1-218-985-11	RES-CHIP 470K 5%	1/16W
R614	1-218-983-11	RES-CHIP 330K 5%	1/16W
R615	1-218-970-11	RES-CHIP 27K 5%	1/16W
R616	1-218-979-11	RES-CHIP 150K 5%	1/16W
R617	1-218-982-11	RES-CHIP 270K 5%	1/16W
R618	1-218-971-11	RES-CHIP 33K 5%	1/16W
R619	1-218-989-11	RES-CHIP 1M 5%	1/16W
R621	1-218-971-11	RES-CHIP 33K 5%	1/16W
R622	1-218-973-11	RES-CHIP 47K 5%	1/16W
R623	1-218-965-11	RES-CHIP 10K 5%	1/16W
R625	1-218-971-11	RES-CHIP 33K 5%	1/16W
R626	1-218-975-11	RES-CHIP 68K 5%	1/16W
R629	1-218-990-11	SHORT 0	
R630	1-218-953-11	RES-CHIP 1K 5%	1/16W
A-7067-266-A VP-051 BOARD, COMPLETE			

(Ref.No;6000Series)			
8-749-018-05	PHOTO INTERRUPTER GP1S36		
< CAPACITOR >			
C201	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V
C202	1-135-149-21	TANTALUM CHIP 2.2uF 20%	10V
C203	1-110-563-11	CERAMIC CHIP 0.068uF 10%	16V
C204	1-110-563-11	CERAMIC CHIP 0.068uF 10%	16V
C205	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C206	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V
C207	1-125-837-91	CERAMIC CHIP 1uF 10%	6.3V
C208	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V
C209	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C210	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V
C211	1-104-851-11	TANTAL. CHIP 10uF 20%	10V
C212	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C213	1-135-210-11	TANTALUM CHIP 4.7uF 20%	10V
C214	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V
C215	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C222	1-119-923-81	CERAMIC CHIP 0.047uF 10%	10V
C223	1-107-819-11	CERAMIC CHIP 0.022uF 10%	16V
C224	1-119-923-81	CERAMIC CHIP 0.047uF 10%	10V
C225	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C226	1-104-851-11	TANTAL. CHIP 10uF 20%	10V

Ref. No.	Part No.	Description	Remarks
C227	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C228	1-107-819-11	CERAMIC CHIP 0.022uF 10%	16V
C229	1-104-851-11	TANTAL. CHIP 10uF 20%	10V
C230	1-135-210-11	TANTALUM CHIP 4.7uF 20%	10V
C231	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V
C232	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C233	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C234	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C235	1-135-181-21	TANTALUM CHIP 4.7uF 20%	6.3V
C236	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
< CONNECTOR >			
CN201	1-766-343-21	CONNECTOR, FFC/FPC 13P	
CN202	1-766-337-21	CONNECTOR, FFC/FPC 7P	
CN203	1-766-335-21	CONNECTOR, FFC/FPC 5P	
CN204	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN205	1-766-348-21	CONNECTOR, FFC/FPC 18P	
< DIODE >			
D202	8-719-062-16	DIODE 01ZA8.2(TPL3)	
< FERRITE BEAD >			
FB201	1-414-228-11	INDUCTOR CHIP 0UH	
< IC >			
IC201	8-759-359-49	IC NJM3414AV(TE2)	
IC202	8-759-359-49	IC NJM3414AV(TE2)	
IC203	8-759-823-51	IC LB1830M-TLM	
IC204	8-759-444-87	IC NJM324V(TE2)	
IC205	8-759-058-45	IC NJM3403AV(TE2)	
IC206	8-759-478-92	IC TC7SET04FU(TE85R)	
IC207	8-759-478-92	IC TC7SET04FU(TE85R)	
IC208	8-759-248-78	IC MB88102PFV-G-BND-ER	
IC209	8-752-900-84	IC CXP81120-047R-T6	
IC210	8-759-058-58	IC TC7S04FU(TE85R)	
< COIL >			
L201	1-469-525-91	INDUCTOR 10uH	
L202	1-469-525-91	INDUCTOR 10uH	
L203	1-469-528-91	INDUCTOR 100uH	
L204	1-469-525-91	INDUCTOR 10uH	
L205	1-469-525-91	INDUCTOR 10uH	
L206	1-469-525-91	INDUCTOR 10uH	
< TRANSISTOR >			
Q201	8-729-042-26	TRANSISTOR 2SB1462J-QR(K8).SO	
Q202	8-729-042-26	TRANSISTOR 2SB1462J-QR(K8).SO	
Q203	8-729-042-26	TRANSISTOR 2SB1462J-QR(K8).SO	
Q204	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q205	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	
Q206	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q207	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q208	8-729-013-31	TRANSISTOR 2SA1588-OY-TE85L	
Q209	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	
Q210	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q211	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	

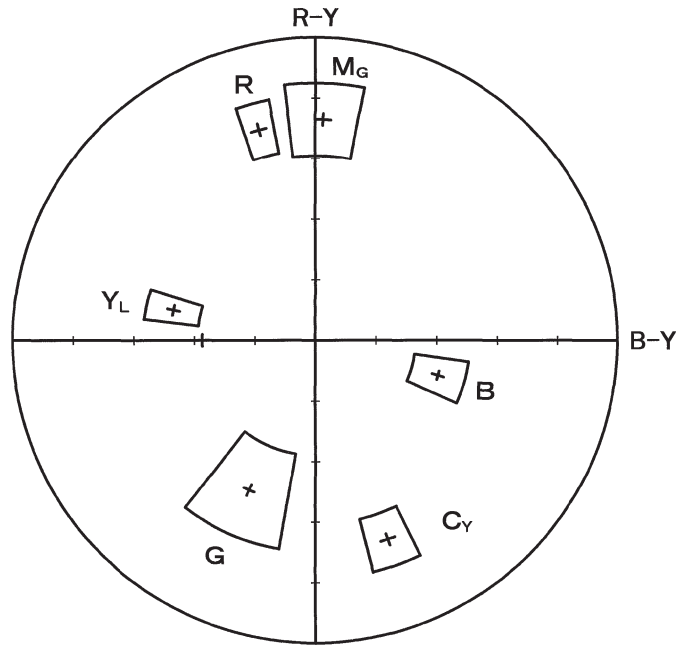
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< RESISTOR >				ACCESSORIES *****			
R201	1-208-683-11	METAL CHIP	1K 0.5% 1/16W				
R202	1-218-953-11	RES-CHIP	1K 5% 1/16W	△	1-475-599-11	ADAPTOR, AC	
R203	1-208-683-11	METAL CHIP	1K 0.5% 1/16W	△	1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
R204	1-208-683-11	METAL CHIP	1K 0.5% 1/16W	△	1-569-008-21	ADAPTOR, CONVERSION 2P (E)	
R205	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	△	1-769-608-11	CORD, POWER (AEP,E)	
				△	1-696-819-11	CORD, POWER (AUS)	
R206	1-218-977-11	RES-CHIP	100K 5% 1/16W				
R207	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	△	1-783-374-11	CORD, POWER (UK)	
R209	1-208-683-11	METAL CHIP	1K 0.5% 1/16W		1-783-738-31	CORD, CONNECTION (AV CABLE)(1.5m)	
R210	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	△	1-790-073-11	CORD, POWER 2P (J)	
R211	1-218-967-11	RES-CHIP	15K 5% 1/16W	△	1-790-107-22	CORD, POWER (US,CND)	
					1-792-623-21	CABLE, USB	
R212	1-218-965-11	RES-CHIP	10K 5% 1/16W		3-060-457-01	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(JAPANESE)(J)	
R213	1-208-695-11	METAL CHIP	3.3K 0.5% 1/16W		3-060-457-11	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(ENGLISH)(US,CND,UK,E,AUS)	
R214	1-218-977-11	RES-CHIP	100K 5% 1/16W		3-060-457-21	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(FRENCH)(CND)	
R215	1-208-707-11	METAL CHIP	10K 0.5% 1/16W		3-060-457-31	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(TRADITIONAL CHINESE)(E)	
R216	1-218-961-11	RES-CHIP	4.7K 5% 1/16W		3-060-458-11	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(ENGLISH/RUSSIAN)(AEP)	
R217	1-218-967-11	RES-CHIP	15K 5% 1/16W		3-060-458-21	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(FRENCH/GERMAN)(AEP)	
R218	1-208-695-11	METAL CHIP	3.3K 0.5% 1/16W		3-060-458-31	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(ITALIAN/DUTCH)(AEP)	
R219	1-216-134-00	METAL CHIP	2.2 5% 1/8W		3-060-458-41	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(SPANISH/PORTUGUESE)(AEP,E)	
R220	1-218-977-11	RES-CHIP	100K 5% 1/16W		3-060-458-51	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(POLISH/SWEDISH)(AEP)	
R221	1-218-973-11	RES-CHIP	47K 5% 1/16W		3-060-458-61	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(ARABIC/PERSIAN)(E)	
R222	1-218-973-11	RES-CHIP	47K 5% 1/16W		3-060-458-71	MANUAL, INSTRUCTION (PICTURE GEAR 4.1 LITE)(SIMPLIFIED CHINESE)(E)	
R223	1-218-965-11	RES-CHIP	10K 5% 1/16W		3-060-476-01	DISK, SYSTEM	
R224	1-218-973-11	RES-CHIP	47K 5% 1/16W		3-060-716-01	SOFT (2000), BUNDLE	
R225	1-218-990-11	SHORT	0		3-062-043-01	STRING, CAP	
R227	1-208-927-11	METAL CHIP	47K 0.5% 1/16W		3-062-473-01	MANUAL, INSTRUCTION (JAPANESE) (J)	
R228	1-208-927-11	METAL CHIP	47K 0.5% 1/16W		3-062-473-11	MANUAL, INSTRUCTION (ENGLISH)(EXCEPT:J)	
R231	1-208-943-11	METAL CHIP	220K 0.5% 1/16W		3-062-473-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (CND,AEP)	
R232	1-208-943-11	METAL CHIP	220K 0.5% 1/16W		3-062-473-31	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)(AEP,E)	
R233	1-208-935-11	METAL CHIP	100K 0.5% 1/16W		3-062-473-41	MANUAL, INSTRUCTION (ITALIAN/DUTCH) (AEP)	
R234	1-208-935-11	METAL CHIP	100K 0.5% 1/16W		3-062-473-51	MANUAL, INSTRUCTION (CHINESE(SIMPLIFIED/TRADITIONAL))(E)	
R235	1-208-935-11	METAL CHIP	100K 0.5% 1/16W		3-062-473-61	MANUAL, INSTRUCTION (SWEDISH/RUSSIAN) (AEP)	
R238	1-218-969-11	RES-CHIP	22K 5% 1/16W		3-062-473-71	MANUAL, INSTRUCTION (ARABIC)(E)	
R239	1-218-969-11	RES-CHIP	22K 5% 1/16W		3-062-474-01	MANUAL, INSTRUCTION (DIRECT CD) (JAPANESE) (J)	
R240	1-218-969-11	RES-CHIP	22K 5% 1/16W		3-062-474-11	MANUAL, INSTRUCTION (DIRECT CD) (ENGLISH)(EXCEPT:J)	
R241	1-218-969-11	RES-CHIP	22K 5% 1/16W		3-062-474-21	MANUAL, INSTRUCTION (DIRECT CD) (FRENCH/GERMAN)(CND,AEP)	
R242	1-218-969-11	RES-CHIP	22K 5% 1/16W				
R243	1-208-935-11	METAL CHIP	100K 0.5% 1/16W				
R244	1-218-969-11	RES-CHIP	22K 5% 1/16W				
R247	1-218-965-11	RES-CHIP	10K 5% 1/16W				
R248	1-218-973-11	RES-CHIP	47K 5% 1/16W				
R249	1-218-969-11	RES-CHIP	22K 5% 1/16W				
R251	1-218-965-11	RES-CHIP	10K 5% 1/16W				
R252	1-218-953-11	RES-CHIP	1K 5% 1/16W				
R253	1-218-965-11	RES-CHIP	10K 5% 1/16W				
R254	1-218-973-11	RES-CHIP	47K 5% 1/16W				
R261	1-218-973-11	RES-CHIP	47K 5% 1/16W				
R264	1-218-973-11	RES-CHIP	47K 5% 1/16W				
R266	1-218-946-11	RES-CHIP	270 5% 1/16W				
R268	1-218-989-11	RES-CHIP	1M 5% 1/16W				
R270	1-218-973-11	RES-CHIP	47K 5% 1/16W				
R271	1-218-953-11	RES-CHIP	1K 5% 1/16W				
R272	1-218-947-11	RES-CHIP	330 5% 1/16W				
R273	1-218-971-11	RES-CHIP	33K 5% 1/16W				
R274	1-218-971-11	RES-CHIP	33K 5% 1/16W				
< VIBRATOR >							
X201	1-579-553-11	VIBRATOR (12MHz)					

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

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
	3-062-474-31	MANUAL, INSTRUCTION (DIRECT CD) (SPANISH/PORTUGUESE)(AEP,E)	
	3-062-474-41	MANUAL, INSTRUCTION (DIRECT CD) (ITALIAN/DUTCH)(AEP)	
	3-062-474-51	MANUAL, INSTRUCTION (DIRECT CD) (CHINESE(SIMPLIFIED/TRADITIONAL))(E)	
	3-062-474-61	MANUAL, INSTRUCTION (DIRECT CD) (SWEDISH/RUSSIAN)(AEP)	
	3-062-474-71	MANUAL, INSTRUCTION (DIRECT CD)(ARABIC) (E)	
	3-062-875-01	INSTRUCTION (FOR SAFETY)(JAPANESE)(J)	
	3-063-034-01	SPV-001 (12cm CD)	
	3-063-085-01	ADAPTOR, D (8cm CD)	
	3-987-015-01	BELT (S), SHOULDER	
	X-3950-691-1	CAP ASSY, LENS	

〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

For NTSC mode

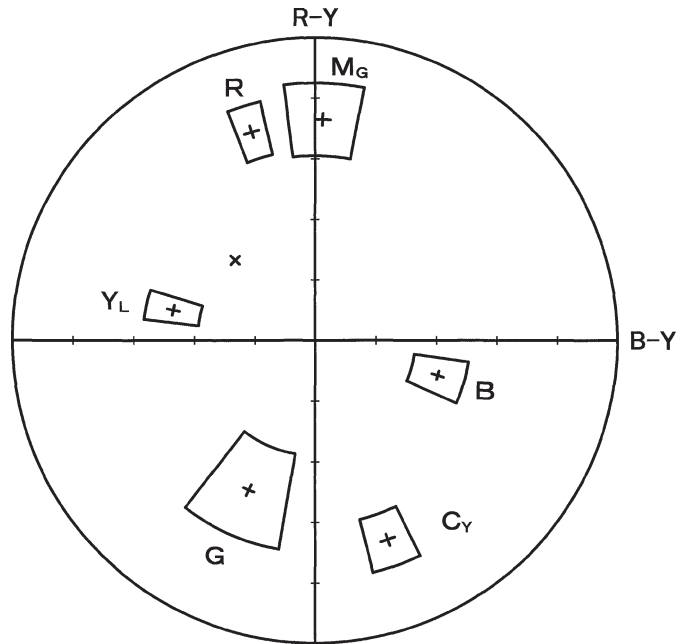


MVC-CD1000

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.



For PAL mode



MVC-CD1000



