Canon Digital Imaging Product

SERVICE MANUAL

PowerShot G5

Digital Camera

English Edition

Photo Products Service Administration Division
First Edition 2003

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, and repair of the products.

Corrections

This manual could include typographical errors or technical inaccuracies due to improvements or changes in the products. When changes occur in applicable products or in the content of this manual, Canon will release service information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon may issue new editions of this manual.

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SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine CANON replacement parts.
   Especially critical parts in the power circuit block should not be replaced with other makes.
   Critical parts are marked with ⚠ in the schematic diagrams.
2. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
4. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
   4-1 Leakage Current Cold Check
      1) Unplug the AC cord and connect a jumper between the two prongs on the plug.
      2) Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ. When the exposed metal does not have a return path to the chassis, the reading must be ∞.
   4-2 Leakage Current Hot Check
      1) Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
      2) Connect a 1.5KΩ 10 watt resistor, paralleled by 0.15μF capacitor, between each exposed metallic parts on the unit and a good earth ground such as a water pipe, as shown in the figure below.
      3) Use an AC voltmeter, with 1000Ω/volt or more sensitivity, to measure the potential across the resistor.
      4) Check all exposed metallic parts of the cover (Cable connection, Handle bracket, metallic cabinet. Screwheads, Metallic overlays, etc), and measure the voltage at each point.
      5) Reverse the AC plug in the AC outlet and repeat each of the above measurements.
      6) The potential at any point should not exceed 0.75V RMS.
         A leakage current tester (FLUKE MODEL : 8000A equivalent) may be used to make the hot checks.
         Leakage current must not exceed 0.5 milliamp.
         In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and corrective action must be taken before returning the instrument to the customer.

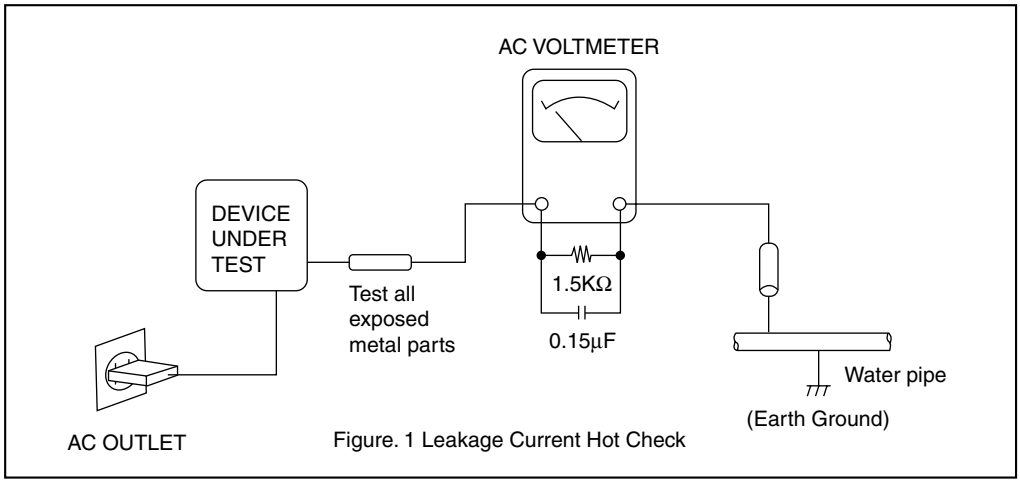


Figure. 1 Leakage Current Hot Check

CHAPTER 1. GENERAL DESCRIPTION OF PRODUCT

CONTENTS

1 Development Background

1-1 Development Objectives

The PowerShot G series was developed for providing virtually the same performance as a single-lens reflex camera in a compact camera, and it has received resounding support from artistically-oriented advanced amateurs looking for picture quality and functionality.
The PowerShot G3, which went on sale in the fall of 2002, was a product designed as the flagship model of the PowerShot series by incorporating enhancements in picture quality and functionality such as a 4x zoom lens, Digital Imaging Processor (DIGIC), and second-curtain synchronization. Furthermore, we plan to introduce a new 5-megapixel CCD into this product design for launching a new PowerShot G5 model with higher image quality in the PowerShot G series in the summer of 2003.

1-2 Product Concept

As the top model in the PowerShot G3 series, **the PowerShot G5 aims to be top class in all major aspects of camera performance** - picture quality, functions, and appearance. The PowerShot G5 will carry the functions and design of the PowerShot G3, but will sport a black body and replace the CCD with one having approximately five million effective pixels in the camera unit.

★ New features unique to the PS G5 (Spring 2003 model)
● Updated features from the PS G3
○ Improved features from the PS G3 PS: PowerShot

High Image Quality

★ High-precision, approx. 5.0M camera effective pixels CCD (Total of approx. 5.3M pixels)
★ Maximum recording pixels of still image : 2592 x 1944

○ High definition and fast processing with the Digital Imaging Processor "DIGIC"
○ High-speed AF and high-definition AE/AWB based on iSAPS technology
○ IO sensor enhances precision of AF, AE and AWB
○ Fine color reproduction owing to primary color filters
○ High-resolution large-aperture 4x zoom lens (35-140 mm : 35 mm film equivalent, f/2.0-3.0, Retractable)
○ High-precision white balance (Auto + Six preset positions + Two custom positions)
○ Iris type aperture enables multi-stop iris control and elegant blur
○ Wide range of ISO-equivalent speed settings including the high image quality ISO 50 (AUTO / ISO 50/100/200/400 equivalent)
○ Noise reduction function reduces noise with slow shutter speed
○ Exif 2.2 (Exif Print) compliant

Full Features

★ Digital zoom function with continuously changing angle of view
(Approx. 4.1x : Maximum of approx. 16x when used in combination with the optical zoom)

○ Macro function focuses close to 5 cm (wide-end) and 15 cm (telephoto-end)
○ Two types of AF control system (Single / Continuous)
○ AF range can be set arbitrarily
○ On/Off selection of AF-assist Beam available
○ Three types of metering function (evaluative metering, center-weighted average metering and spot metering (Linked to focus frame/Fix to center))
○ Insertion of neutral density (ND) filter makes it possible to produce blur effects and to take flash photos in macro mode
○ From 15-second to 1/2,000-second shutter speeds
○ Built-in flash with 3 flashing modes (Auto, on and off) with combination of red-eye reduction (Flash range: 70 cm - 5.0 m (W), 70 cm - 4.0 m (T) - When ISO speed is set to 100 equivalent)
○ Manually adjustable flash strength (Both of internal and external flash)
○ First-curtain sync and second-curtain sync selectable flash
○ External flash can be used
○ Slave function of external flash units can be used
○ 12 types of shooting modes (including two custom positions)
○ 6 photo effect positions (Vivid, Neutral, Low sharpening, Sepia, Black and White + Custom)
○ Two bracketing functions (AE /Focus)
○ Choice of high speed mode (Approx. 2.0 shots/sec.) or normal mode (Approx. 1.5 shots/sec.) in continuous shooting (Under LCD monitor off conditions)
○ Interval shooting function for fixed-point observation over long periods

◯ Self-timer function for 2 or 10 seconds
◯ Wireless delay (On time / 2 sec. delay / 10 sec. delay)
◯ Settable display times for rec review (Off, 2 to 10 seconds) (Images can be erased during display)
◯ RAW mode recording can be selected during rec review
◯ Total of 13 image quality modes (recording pixels (4) x compression (3) + RAW)
◯ Two types of recording pixels for movie mode (QVGA/QQVGA)
◯ Manual setting functions designed to meet user needs (Focus, Shutter speed and Aperture value, Flash output, Exposure compensation)
◯ AF, AE and FE lock function
◯ Magnified replay for convenient image confirmation (from approx. 2x to 10x zoom) (Also available during rec-review)
◯ IO sensor automatically detects vertical or horizontal photography
◯ Histogram displays during rec-review and replay
◯ Sound memos of up to 60 seconds can be appended during replay
◯ Long movie recording with audio (internal microphone and speaker, max. of 3 minutes)
◯ First frame, Last frame, Next frame, Previous frame, Fast forward and Rewind available during movie replay
◯ Unwanted scenes can be deleted in movie replay mode (image and audio)
◯ Direct Print function compatible (Card Photo Printers and Bubble Jet printers)
◯ Supports DPOF format slide-shows and image transfers
◯ My Camera function (Customizable of Start-up image, Start-up sound, operation sound, self-timer sound and shutter sound on-camera content can also be created.)
◯ FAT12 / FAT16 and FAT32 support

Ease of Operation

★ Computer connections with Picture Transfer Protocol (PTP) support (5 new function)

◯ Real image type 4x optical viewfinder (diopter adjustable)
◯ Vari-angle LCD monitor
◯ 1.8 inch low-temperature poly-silicon TFT LCD monitor with thin and low power consumption back light
◯ Manual focus setting equipped with focus fine-tuning function
◯ A grip molded into body of camera and a strap attached to the camera at both ends allow user to hold camera securely
◯ User interface makes a diverse set of functions easy to understand (Main dial, Independent mode dial, Mode lever, Function button ... etc)
◯ Change to shooting mode by pressing the shutter button halfway (in replay mode)
◯ Reset of all settings by one-touch operation
◯ High-speed image feed on replay
◯ Index replay (9-images)
◯ Complies with the CF Type II standard, allowing use of high-capacity storage media
◯ USB Interface with multi-use connector (mini-B jack)
◯ Selectable video output format (NTSC/PAL)
◯ Twelve languages international support UI
◯ Volume setting available for each operation sound
◯ Large capacity lithium-ion rechargeable battery

High Grade Exterior

Refer to 1-3 Desigh Concept

★ Black body that symbolizes "High level"

System Accessories

★ Lithium-ion battery charger that can also be used with EOS DIGITAL (CB-5L)
★ Battery pack charger that can also be used with Canon digital video camcorders (CG-570)

○ Tele-converter (with up to 245 mm photography available (35 mm film equivalent)
○ Wide converter (with up to 24.5 mm photography available (35 mm film equivalent)
○ Support for EOS-type EX Speedlites (including the MR-14EX, MT-24EX)
○ Various Speedlite accessories (Such as transmitters and camera shoe cord 2) can be used
○ Car battery kit (Optional) can be used

Software Applications

Win: Windows Mac: Macintosh

● Full feature application software

-ZoomBrowser EX (Win) / ImageBrowser (Mac) enables customized image control and display
-Photorecord (Win) for easy layout and printing of many pictures
-PhotoStitch (Win/Mac) for creating panoramic pictures with precision
-RemoteCapture (Win/Mac) or remote picture-taking through a PC
-File Viewer Utility (Win/Mac) for converting RAW images
-Twain driver / WIA driver (Win)
-USB Mounter (Mac) that allows the system to handle the camera as a card reader *1
-Well-established third-party software
  -Apple QuickTime (Win) (for movie replay)
  -ArcSoft PhotoStudio (Win/Mac) (for still image processing/editing)
  -ArcSoft VideoImpression (Win/Mac) (for movie processing/editing)

*1 The USB Mounter cannot be used from the models supporting the full PTP (Products to be marketed from spring, 2003.)

1-3 Design Concept

>>Black body for sharp appearance

Black body to enhance appearance as the advanced model of the PowerShot G3 (advancement to five megapixels)
--> Providing a sleek, sharp-looking image as a better high-performance camera

-Black body
The body uses the aluminum cover from the PowerShot G3 to keep the metallic feel and adds a black alumite finish for sense of elegance.

-Metal parts for accenting the black body
A diamond cut finish has been applied to the mode dial and aluminum ring at the lens edge to enhance the metallic feel. The metallic accents in the black body give the camera a more striking black appearance.

>>Carrying the same operating features as the G3

Carrying over the large grip, main dial, independent power lever, and other operating features of the PowerShot G3

-Main dial
Superior feel for Av/Tv/MF operations
Optimized dial position, angle, and shape

-Independent mode lever
Lever shape with comfortable operating feel and two-position system for smooth switching between shooting and replay

-Slanted zoom/release button
Slanting has been applied to the entire lever section for a natural fitting of the finger on the zoom/release button when holding the camera.

-Holding
Large grip for easy fitting of fingers

1-4 PowerShot G5 and PowerShot G3 Specifications' Comparison

			PowerShot G5	PowerShot G3
Image sensor (CCD)			Camera effective pixels : Approx. 5 M (Total pixels: Approx. 5.3 M)	Camera effective pixels : Approx. 4 M (Total pixels: Approx. 4.1 M)
Color filter			Primary color filter (Beyer type)	<--
Lens	Focal length (35mm film equivalent)		35 - 140 mm	<--
	f/number		f/2.0 - f/3.0	<--
	Optical zoom		4x	<--
	Focusing range (from tip of the lens)	Normal	50 cm - infinity	<--
		Macro	5 - 50 cm(W)、15 - 50 cm(T)	<--
Optical viewfinder		Type	Real-image zoom viewfinder	<--
		Dioptric adjustment	O (-3 ～ +1 (1/m))	
LCD monitor			1.8 inch low-temperature polycrystalline sillicon TFT color LCD (Approx. 118K-pixels)	<--
Focusing	Focusing frame		Continuous / Single 1-point AF (Any position is available)	<--
	Manual focus		O	<--
	AF lock		O	<--
	AF-assist beam On/Off		O	<--
Exposure control	Metering modes		Evaluation / Center-weighted averaging / Spot (Metering frame when Spot : Center / focusing frame linked)	<--
	Exposure control methods		Program AE / Shutter-priority AE / Aperture-priority AE / Manual	<--
	AE lock		O	<--
	Exposure compensation		+/- 2 EV in 1/3-step increments	<--
	Sensitivity (ISO film speed)		AUTO / ISO 50/100/200/400 equivalent	<--
	ND Filter		O	<--
White balance			Auto + Pre-set (Daylight / Cloudy / Tungsten / Fluorescent / Fluorescent H / Flash) + Custom (2positions)	<--
Shutter		Type	Mechanical shutter + electronic shutter	<--
		Speed	15 - 1/2,000 sec.	<--
Aperture		Type	Iris type aperture	<--
		f/number	f/2.0 - 8.0 (W), f/3.0 - 8.0 (T)	<--
Flash	Operation modes		(Auto / flash On / flash Off) x (Red-eye reduction On/Off)	<--
	Flash range		70 cm - 5.0 m (W), 70 cm - 4.0 m (T) (ISO 100 equivalent)	<--
	Flash exposure compensation		+/- 2 EV in 1/3-step increments	<--
	Manual flash output setting		3 steps	<--
	FE lock		O	<--
	Slow-sync.		O	<--
	Second curtain		O	<--

			PowerShot G5	PowerShot G3
Shooting specifications	Shooting modes		AUTO / Creative zone (Program/ Shutter speed priority/ Aperture priority/ Manual/ Custom1/Custom2) / Programmed image control zone (Portrait/ Landscape/ Night Scene/ Stitch Assist/ Movie)	<--
	Digital zoom		Approx. 4.1x	Approx. 3.6x
	Photo effects		Vivid / Neutral / Low sharpening / Sepia / Black & White / Custom	<--
	Image quality adjusment		Contrast, Sharpness, Saturation	<--
	Noise reduction		O	<--
	Focus bracketing		O	<--
	AEB (Auto Exposure Bracketing)		O	<--
	Review		O	<--
	Continuous shooting		High speed (Approx. 2.0 shots/sec.) Normal (Approx. 1.5 shots/sec.) <Large x Fine, LCD monitor off>	High speed (Approx. 2.5 shots/sec.) / Normal (Approx. 1.5 shots/sec.) <Large x Fine, LCD monitor off>
	Intervalometer		O	<--
	Self-timer		Operates with approx. 2/10 sec. Count-down.	<--
	Wireless control		On time / 2 sec. Delay / 10 sec. Delay	<--
	Operation from PC		O	<--
Recording specifications	Storage media		CompactFlash card (Type Ⅰ or Type Ⅱ)	<--
	File format	Still	Design rule for Camera File system, DPOF(Ver. 1.1) compliant	<--
		Movie	AVI	<--
	Recording format	Still	JPEG (Exif 2.2 compliant) / RAW	<--
		Movie	Image: Motion JPEG Audio: WAVE (Monaural)	<--
	Number of recording pixels	Still	(L) 2592 x 1944、(M1) 1600 x 1200 (M2) 1024 x 768、(S) 640 x 480	(L) 2272 x 1704 (M1) 1600 x 1200 (M2) 1024 x 768 (S) 640 x 480
		Movie	(QVGA) 320 x 240 Approx. 3 min. at 15 fps (QQVGA) 160 x 120 Approx. 3 min. at 15 fps	<--
Replay specifications	Play modes		Single / Index (9 thumbnail images) / Magnification / Movie	<--
	Still	Magnification	2 - 10x	<--
		Automatic V/H detection	O (By IO sensor)	<--
		Histogram	O (With warning "out of saturation")	<--
		Sound memos	The max. record/play time is approx. 60 sec	<--
		DPOF	Print Order / Slide show / Image transfer	<--
		Camera direct print	CP-100/CP-10, CP-200/ CP-300, BJ printers with direct print support (free trimming)	CP-100/CP-10, BJ 895PD/535PD (free trimming)
	Movie	Special replay	Next frame, Previous frame, Fast forward, Rewind, First frame and Last frame	<--
		Editing	Unnecessary scenes can be erased.	<--
Languages			12 languages (English, German, French, Dutch, Danish, Finnish, Italian, Norwegian, Swedish, Spanish, Simplified Chinese and Japanese)	<--
My Camera settings			Start-up image/ Start-up sound/ Shutter sound/ Operation sound and Self-timer sound (Creation of on-camera content)	<--
Interface			USB, Audio / Video output	<--

			PowerShot G5	PowerShot G3
Power supplies	Power sources	Primary batteries	-	<--
		Secondary batteries	Rechargeable Lithium-ion battery (BP-511/512)	<--
		AC Adapter	Compact Power Adapter (CA-560)	<--
		Car Battery Adapter	Car Battery Cable Kit (CR-560) / Car Battery Cable(CB-570) + Car Battery Charger(CG-570) *	CR-560
		Battery charger	CB-5L / CG-560 / CG-570 * (Refer to Fig 2-2 Battery Charging System (p1-12))	CG-560
	Battery performance	Number of shots	Approx. 450 shots (LCD monitor ON) Approx. 1,050 shots (LCD monitor OFF)	<--
		Replay time	Approx. 360 min.	<--
Dimensions (W x H x D)			121.0 x 73.9 x 69.9 mm	<--
Weight (camera body only)			Approx. 410 g	<--

* New CB-570, CB-5L and CG-570 products can also be used with the PowerShot G3

2 Features

2-1 High Image Quality

-High-precision, approx. 5-effective-megapixel CCD (Total of approx. 5.3 megapixels)
Number of recording pixels <still image>: 2592 x 1944

The PowerShot G5 incorporates a CCD sensor with approx. 5.0-mega camera effective pixels in camera mode (total of approx. 5.3-mega pixels), giving it the greatest number of pixels in the compact camera class. This CCD adopts narrower pixel pitch in order to achieve a size almost as small as that of the Power-Shot G3's CCD. High sensitivity and a high S/N are nonetheless achieved by the newly developed structure and driving system of CCD.
Table 2-1* shows the calculated resolution for each print size, given that the PowerShot G5 will use 2592 x 1944 recording pixels in large mode. As a result, 5 x 7"(cabinet) size will, for example, produce a print with a resolutions of 6.4 lp/mm, which is close to the limits of visual acuity in humans. Even A3 size will produce a print with a practical resolution of 2.5 lp/mm.

Print Size (W x H) Unit : mm	A3 Size (297 x 420)	A4 Size (210 x 297)	5X7" (cabinet) Size (165 x 120)	Post card Size (148 x 100)	Service (E) Size (120 x 82)	Card Size (86 x 254)
						
Resolution (Unit : lp/mm)	2.5	3.6	6.4	7.2	8.9	12.4

Table 2-1 Print Size and Resolutions Produced by thePowerShot G5 (Calculated Values)

* The resolutions indicated are derived from the number of pixels in the CCD; in actual practice, these resolutions will be affected by the printer resolution.
* A couple composed of a white and black line is counted as one.

	W x H (Pixel)
Large	2592 x 1944
Medium 1	1600 x 1200
Medium 2	1024 x 768
Small	640 x 480

Table 2-2 Recording Pixels by the PowerShot G5

2-2 Full Features

- Digital zoom function with continuously changing angle of view (Maximum of approximately 16x when used in combination with the optical zoom)

The digital zoom magnification of the PowerShot G5 increases from approx. 3.6x, employed on PowerShot G3 to approx. 4.1x owing to employment of 5M-pixel CCD. The field of view can be adjusted to a maximum of approx. 16x (35 mm film equivalent: 35 - 567 mm) by combining the approx. 4.1x digital zoom magnification to the optical 4x zoom lens.

In addition, because it is essential that the image zooms in smoothly on the LCD monitor when using the digital zoom feature, there are several dozen image capturing positions for the monitor display. In light of practical considerations, there are 6 positions, including both end positions, at which zooming can actually stop.

Magnification (Optical ×Digital)	Focal length (35 mm film equivalent)	Capturing pixels	
5.1x	177 mm	2048 x 1536	①
Capturing images with several positions for display			
6.5x	227 mm	1600 x 1200	②
Capturing images with several positions for display			
8.1x	284 mm	1280 x 960	③
Capturing images with several positions for display			
10x	354 mm	1024 x 768	④
Capturing images with several positions for display			
12x	436 mm	832 x 624	⑤
Capturing images with several positions for display			
16x	567 mm	640 x 480	⑥

* When digital zoom is used, the optical zoom is always set at tele-photo end.

Table 2-3 Focal length and capturing pixels of digital zoom

In the PowerShot G5, the functions provided by "DIGIC" allow digital zoom and optical zoom to be performed at equivalent zoom speeds, so that there is no difference that is noticeable in actual use.

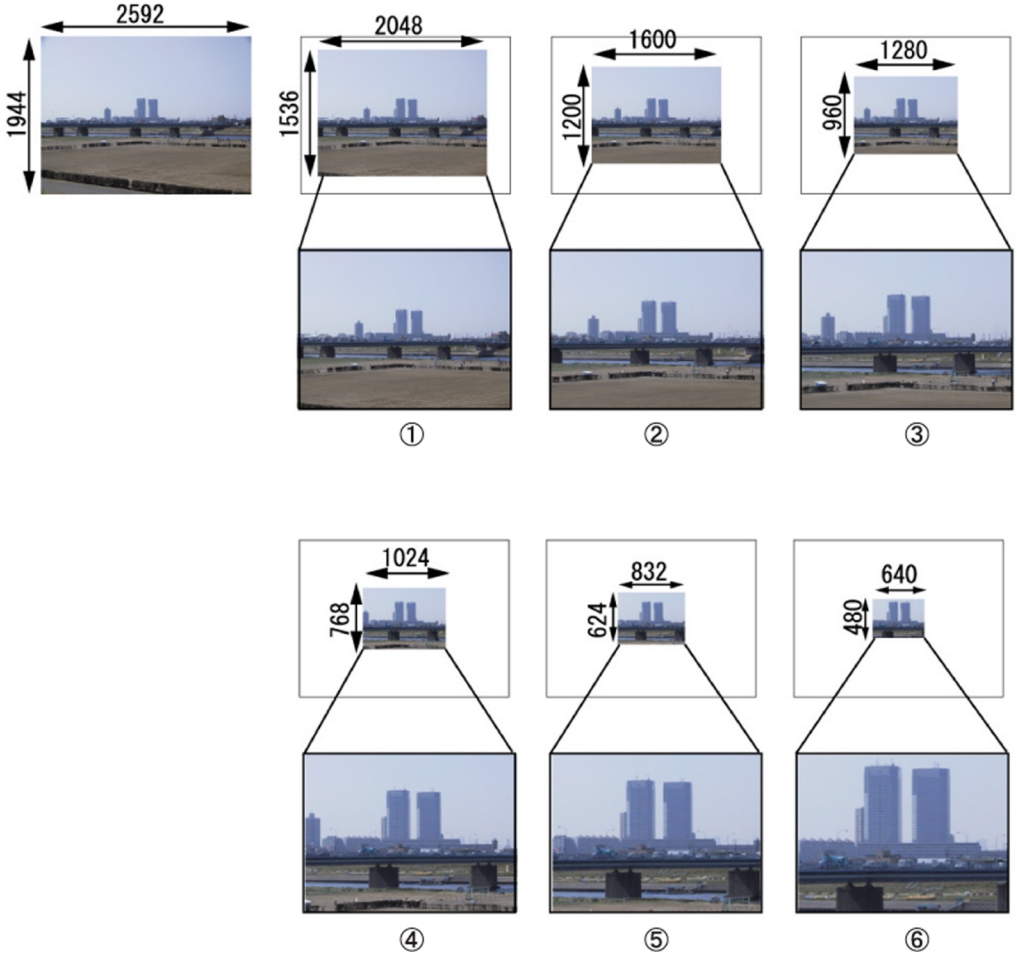


Fig. 2-1 Conceptual diagram of Digital Zoom

2-3 Ease of Operation

-Computer connection with Picture Transfer Protocol (PTP) support (5 new function)

Because the PowerShot G3 supports PTP, a standard protocol, driver-less image communications with computers are possible when combined with recent operating systems (Windows XP or Mac OS X (version 10.1/10.2)).
Futhermore computer-controlled camera functions have been added to the PowerShot G5 (Additional functions are shown below in bold).

-View images on the camera using the PC
-Transfer images from the camera to a PC
-Delete images on the camera using the PC
-Remote Capture (Shooting from PC)
-Transfer images from the PC to the camera
-My Camera function settings
-Format the CF card
-Settings such as the “Date” and “owner”

2-4 System Accessories

- Lithium-Ion Battery Charger (CB-5L) sharing compatibility with EOS DIGITAL

The PowerShot G5 battery pack (for rechargeable lithium-ion battery: BP-511/512) is compatible with the PowerShot G2/G3, and the Battery Charger (CB-5L) developed for the EOS DIGITAL can also be used.

- Battery Charger (CG-570) sharing compatibility with Canon digital video camcorders

The PowerShot G5 battery pack (BP-511/512) can also be used with the Battery Charger (CG-570) developed for Canon digital video camcorders.
With the CG-570 charger, batteries are charged by using with the Compact Power Adapter (CA-560/570) or Car Battery Cable (CB-570). Although the CG-570 is more compact than the CG-560 Battery Adapter, the CG-570 does not have a rapid-charge function or power supply function to the camera like the CG-560.

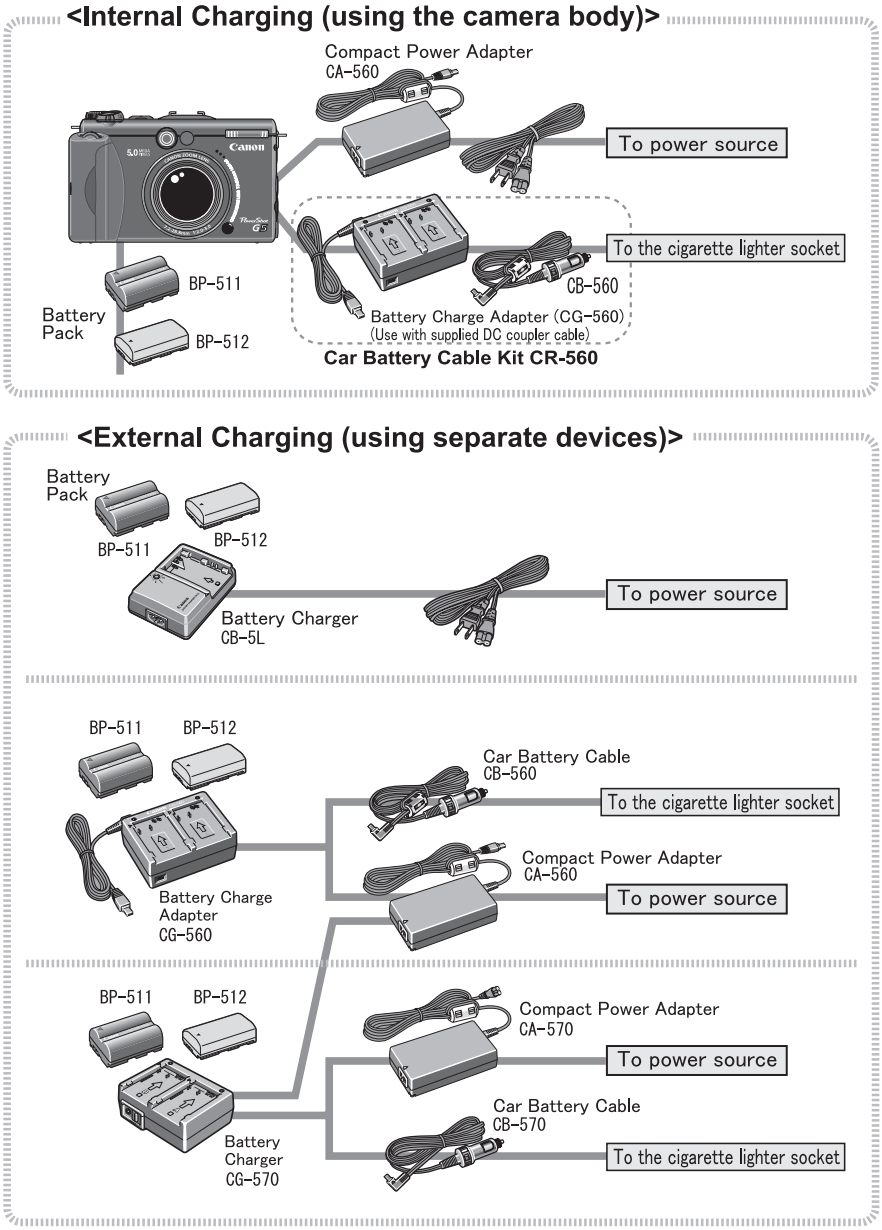


Fig. 2-2 Battery Charging System

3 Exterior

3-1 Exterior Photos

Photo 3-1 PowerShot G5 Front

Photo 3-2 PowerShot G5 Back

Photo 3-3 PowerShot G5 setup Tele-converter

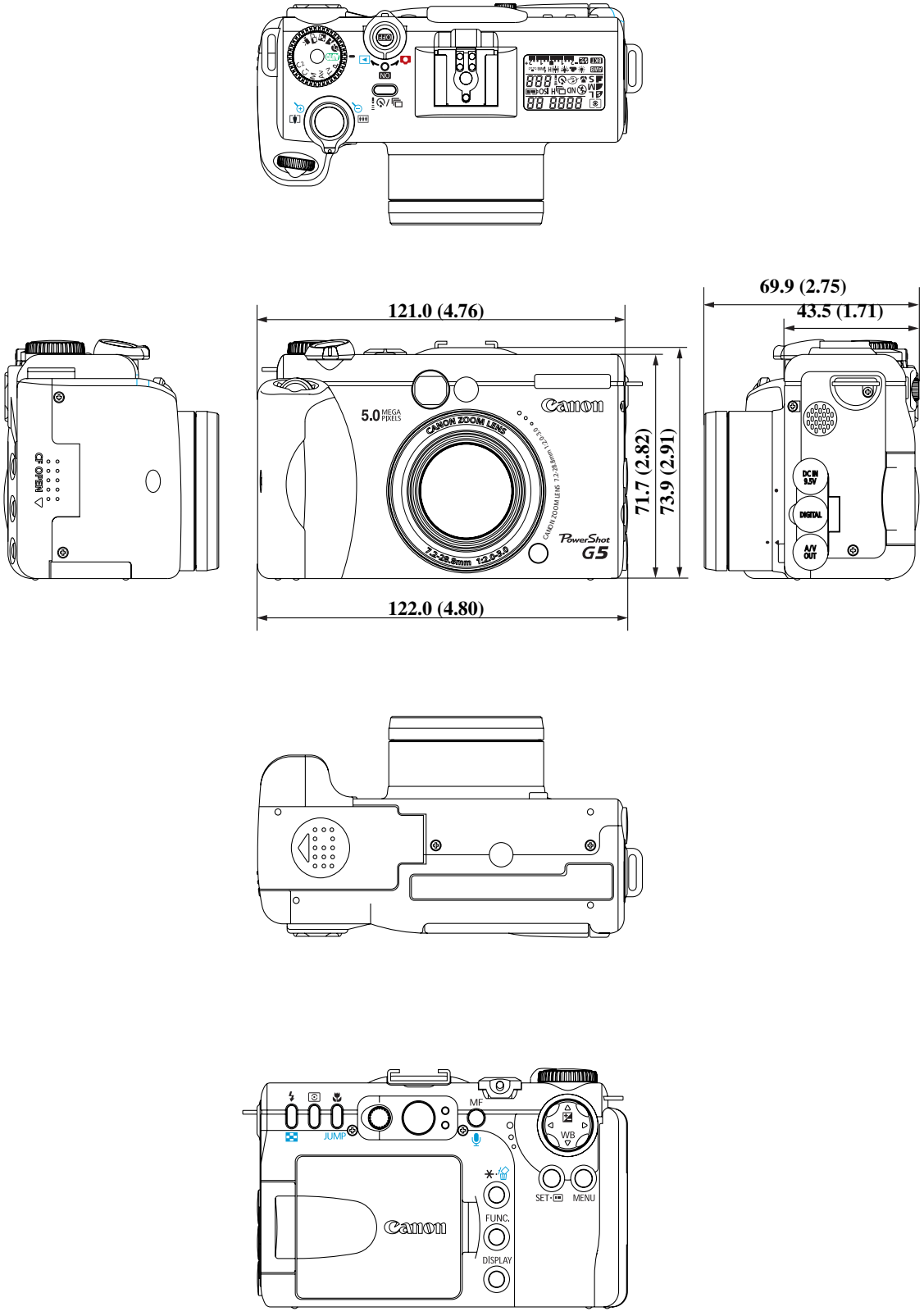
Photo 3-4 PowerShot G5 setup Wide Converter

Photo 3-5 Setup Speedlite 550EX

Photo 3-6 Setup Macro Ring Lite MR-14EX

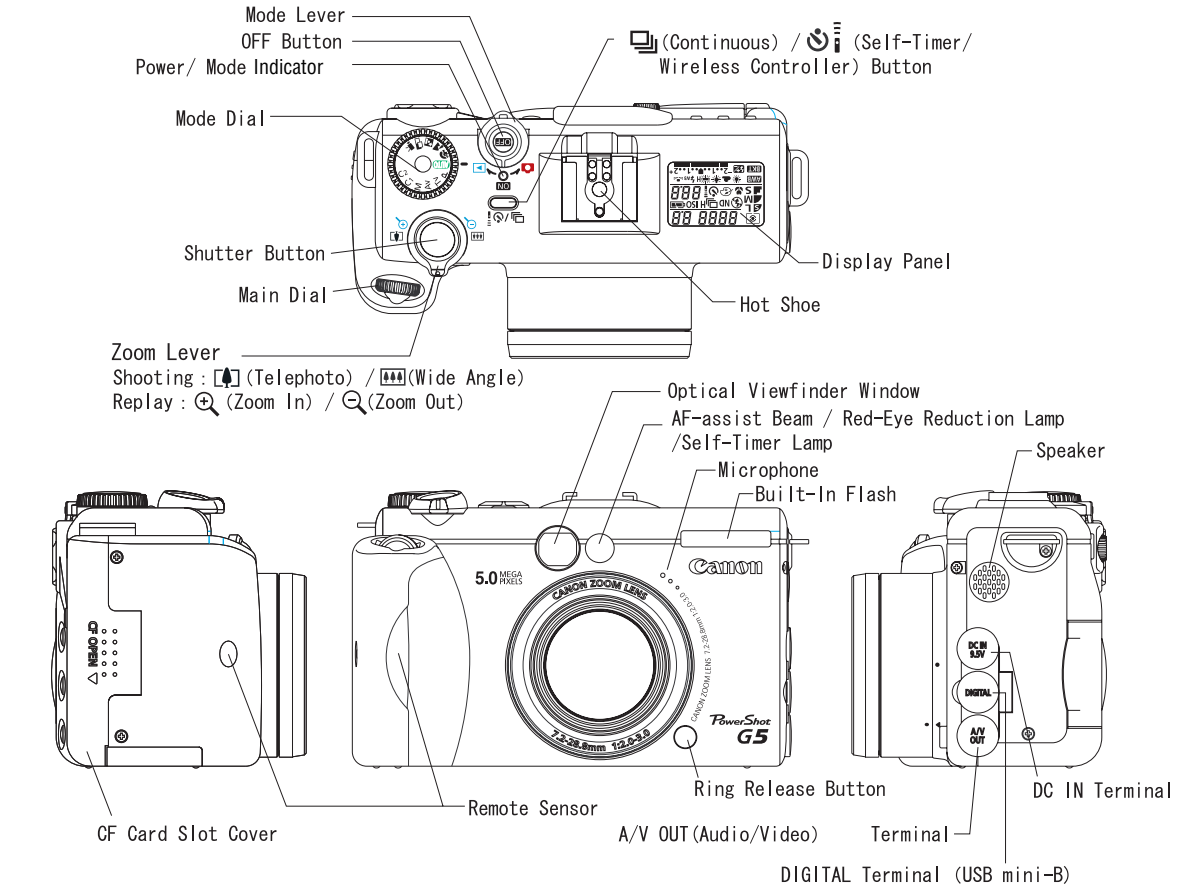
Photo 3-6 Setup Macro Twin Lite MT-24EX

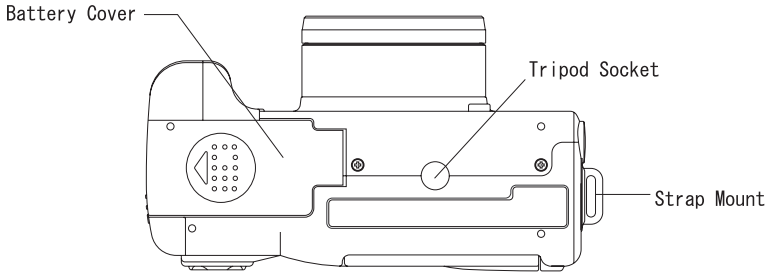
3-2 6-dimensional diagram

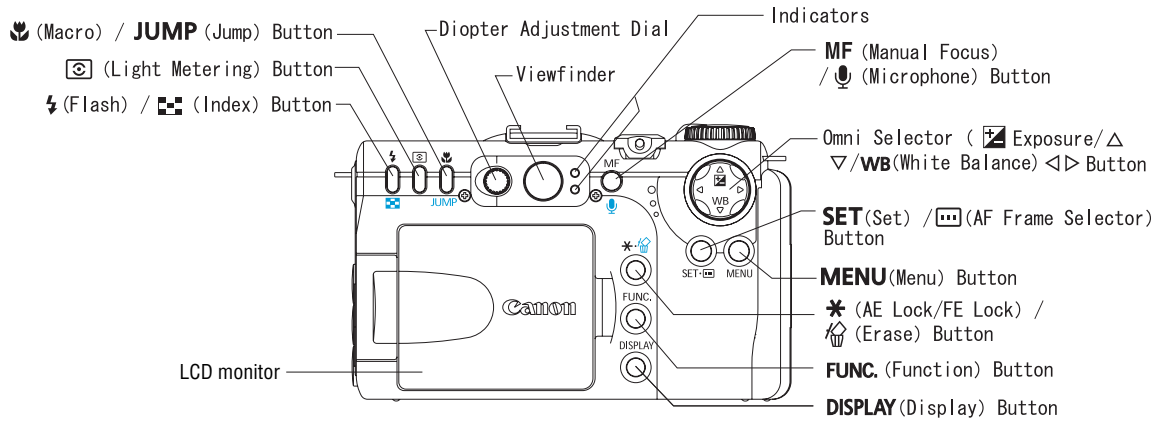


Unit: mm (inch)

3-3 Nomenclature







>Rec.Menu

Flash Sync
>1st>curtain
>2nd>curtain

Spot AE Point
>Center
>AF Point

Slow Synchro
>On
>Off

ND filter
>On
>Off

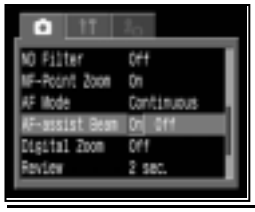
Flash Adjust
>Auto
>Manual

MF>Point Zoom
>On
>Off

Red>eye
>On
>Off

AF Mode
>Continuous
>Single

Cont. Shooting
(Standard)
(High speed)



AF>assist Beam
>On
>Off

Self>timer
>10seconds
>2 seconds

Digital Zoom
>On
>Off

Wireless Delay
>0 seconds
>2 seconds
>10 seconds

Review
>Off
>2 sec. to 10 sec.

Intervalometer

>>

Save Settings

>>

>Replay Menu

Protect

>>


Rotate

>>

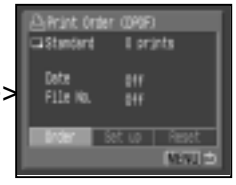

Erase all

>>


Slide Show

>>


Print Order

>>


Transfer Order

>>


>My Camera Menu

>Theme
>Start-up Image
>Start-up Sound
>Operation Sound
>Selftimer Sound
>Shutter Sound

>Set up Menu

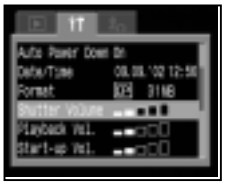
Beep
>On
>Off

LCD Brightness
>Nomal
>Bright

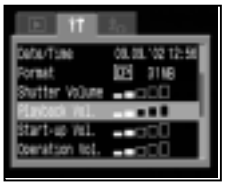
Auto Power Down
>On
>Off

Date/Time
>>


Format
>>

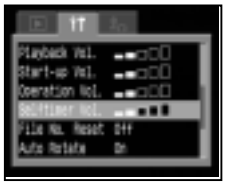
Shutter Volume
>Off to 5



Playback Vol.(Replay)
>Off to 5

Start>up Vol.
>Off to 5

Operation Vol.
>Off to 5

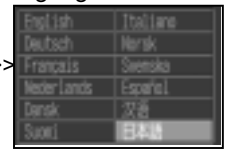


Selftimer Vol.
>Off to 5

File No.Reset
>On
>Off

Auto Rotate
>On
>Off

Distance Units
>m/cm
>ft/in

Language
>>


Video System
>NTSC
>PAL

4 Specifications

4-1 Camera Specifications

■ Image sensor (CCD)	
Camera effective pixels	Approx. 5.0 M pixels
Total pixels	Approx. 5.3 M pixels
Transfer method	Interline
Chip size	1/1.8 in.
Aspect ratio	4:3
Filter type	Primary color filter (Beyer type)
■ Lens	
Focal length	7.2 (W) - 28.8 (T) mm (35mm film equivalent: 35 (W) - 140 (T) mm)
f/number	f/2.0 (W) - f/3.0 (T)
Lens construction	8 elements in 7 groups (including 2 aspherical lens)
Optical zoom	4x
Focusing range	Normal : 50 cm (1.6 ft.) - infinity
(from tip of the lens)	Macro : 5 - 50 cm (2.0 in. - 1.6 ft.) (W), 15 - 50 cm (5.9 in. - 1.6 ft.) (T)
	Manual focus: 5 cm (2.0 in.) - infinity (W), 15 cm (5.9 in.) - infinity (T)
Area of photograph	75 x 55 mm (3.0 x 2.2 in.) (W), 56 x 42 mm (2.2 x 1.7 in.) (T)*
(at the closest focal distance)	* When Close-up lens 250D (58 mm) is attached: T : 37 x 28 mm (1.5 x 1.1 in.)
Magnification of photograph	
(at the closest focal distance)	0.49x (W), 0.63x (T), 0.94x (with Close-up lens) (35mm film equivalent)
■ Optical viewfinder	
Type	Real-image zoom viewfinder
Picture coverage	Approx. 83 %
Eyepoint	15 mm
Dioptric adjustment	-3 ~ +11/m (dpt)
■ LCD monitor	
Type	Low-temperature polycrystalline silicon TFT color LCD
Effective pixels	Approx. 118 K pixels
Display size	46 mm diagonal (1.8 in.)
Picture coverage	100 %
Brightness	2 steps (Normal/High)
■ Focusing	
Control system	TTL Autofocus (Continuous / Single)
Manual focus	Available
Focusing frame	1-point AF (Any position is available)
Focusing range	Normal / Macro
AF lock	Available
AF-assist beam On/Off	Available

■ Exposure control

Metering methods	Evaluation / Center-weighted averaging / Spot (Metering frame with Spot mode: Center / Focusing frame linked)
Exposure control methods	Program AE/ Shutter-priority AE/ Aperture-priority AE/ Manual
AE lock	Available
Exposure compensation	+/- 2 EV in 1/3-step increments
Sensitivity (Equivalent film speed)	AUTO / ISO 50/100/200/400 equivalent (Camera automatically sets optimum speed when "AUTO" is selected.)
On/Off selection of ND (Neutral Density) Filter	Available (On: Approx. 3 steps light of reduction)

■ White balance

Modes	TTL auto / Pre-set (Daylight / Cloudy / Tungsten / Fluorescent / Fluorescent H / Flash) / Custom (2 positions)

■ Shutter and aperture

Shutter type	Mechanical shutter and electronic shutter
Aperture type	Iris type aperture
Shutter speed	15 - 1/2,000 sec. ・1.3 sec. or more shutter speed is only available in Shutter speed-priority AE or Manual mode. ・When aperture range is set in Aperture-priority mode or Manual mode, the relation between shutter speed and aperture value is as shown in the table below.

Zoom position	f/number availability Shutter speed	
	15 - 1/1,250	15 - 1/2,000
(W)	- f/3.5	f/4.0-
(T)	- f/5.0	f/5.6-

f/number	f/2.0 - 8.0 (W), f/3.0 - 8.0 (T)

■ Flash (Built-in)

Operation modes	(Auto / On / Off) × (Red-eye reduction On / Off)
Flash range	70 cm - 5.0 m (2.3 - 16.5 ft.) (W), 70 cm - 4.0 m (2.3 - 13.1 ft.) (T) (When ISO speed is set to 100 equivalent.)
Flash sync speed	1/60 - 1/250 sec. (15 - 1/250 sec. when in Shutter priority AE or manual mode.)
Recycling time (Full flash)	10 sec. or less (battery voltage = 7.4V)
Flash exposure compensation	+/- 2 EV in 1/3-step increments
Manual flash output setting	3 steps (strong [100 % flash] / normal / low)
FE lock	Available
Slow-sync.	Available
Second curtain	Available

■ Flash (External)

Flash contacts	Sync-terminals at accessory shoe
Recommended flashes	Canon SPEEDLITE 220EX, 380EX, 420EX, 550EX Macro-Ring-Light MR-14EX Macro-Twin-Light MT-24EX
Flash exposure compensation	+/- 2 EV in 1/3-step increments
FE lock	Available
Slow-sync.	Available
Second curtain	Available

■ Shooting specifications

Shooting modes
AUTO / Creative zone (Program / Shutter speed priority / Aperture priority / Manual / Custom1 / Custom2) / Programmed image control zone (Portrait / Landscape / Night Scene / Stitch Assist / Movie)

Shooting functions

Digital zoom
Approx. 4.1x (Maximum of approx. 16x zoom is available when combined with optical zoom.)

Photo effects
Vivid / Neutral / Low sharpening / Sepia / Black & White / Custom effect

Image quality adjustment
Contrast, Sharpness, Saturation (Can be set in the custom photo effect.)

Noise reduction
When shutter speed is set between 1.3 sec and 15 sec. .

Bracketing
Available

Focus Bracketing
Shooting of 3 images continuously while automatically shifting focal points.
(Shifting range can be set to "large", "medium" or "small".)

AEB (Auto Exposure Bracketing)
Shooting of 3 images bracketed automatically within the set range.
(The images can be bracketed up to +/- 2 steps at 1/3-step increments. If exposure compensation is also set, the bracketing range will center on the exposure compensation setting value.)

Review
Off / 2-10 sec. (1 sec. increments)
Recording format can be changed from JPEG to RAW, while reviewing an image.

Camera start-up time / Release time lag

Mode	Finder	Camera start-up	Release time lag
Shooting	LCD monitor On (Start-up display On)	3.8 sec.	0.1 sec. or less
	LCD monitor On (Start-up display Off)	3.8 sec.	0.1 sec. or less
	LCD monitor Off (Start-up display Off)	3.0 sec.	0.1 sec. or less
Replay	Start-up display On	2.8 sec.	-
	Start-up display Off	2.4 sec.	-

Shooting interval
2.0 sec. (Single, LCD monitor On) / 2.2 sec. (Continuous, LCD monitor On) / 2.2 sec. (Single, LCD monitor Off)

* Focus : Normal, Wide

* The actual shooting interval time consists of the shutter speed time added to the above times.

Continuous shooting

Speed mode selection
High speed* / Normal speed
It is not possible to check images while shooting continuously in High speed.

Speed
High speed: Approx. 2.0 shots/sec. Normal :Approx. 1.5 shots/sec.
(Large / Fine mode and LCD monitor is Off)

Number of shots

		Recording pixels / Compression		
		SF	F	N
Number of shots	L	6	11	21
	M1	15	26	51
	M2	25	44	83
	S	57	94	129
	RAW	3		

The above data shows the maximum number of shots for each recording pixels and compression setting.
Despite achieving the maximum number of shots, continuous shooting is still available. However the shooting speed is reduced.

Intervalometer
Interval time : Approx. 1-60 min (1 min. increments)
Number of shots : 2-100 images (Maximum number of shots vary according to the CF card capacity.)

Self-timer
Operates with approx. 2 sec. or approx. 10 sec. count-down.

Wireless control
Available (Playback is available too)
(On time / 2 sec. delay / 10 sec. delay)

Operation from PC
Shooting operation is possible with the use of "RemoteCapture" software when the camera is connected to the PC.

■ Recording specifications

<Still image>

File format: Design rule for Camera File system
Digital Print Order Format (DPOF) Version 1.1 compliant

Image recording format: JPEG(Exif 2.2) / RAW

JPEG compression mode: Super Fine / Fine / Normal

Number of recording pixels: Large: 2592 x 1944, Medium 1: 1600 x 1200, Medium 2: 1024 x 768, Small: 640 x 480

Recording capacity

	L/SF	L/F	L/N	M1/SF	M1/F	M1/N	M2/SF	M2/F	M2/N	S/SF	S/F	S/N	RAW
File Size (KB)	2503	1395	695	1002	558	278	570	320	170	249	150	84	4725
FC-8M	2	4	10	7	13	26	12	23	42	29	47	83	0
FC-16M	5	10	21	14	26	52	25	46	84	58	94	165	2
FC-32M	11	21	43	30	54	108	53	94	174	120	196	337	5
FC-64M	24	43	88	61	109	217	107	189	349	241	393	676	12
FC-128M	49	88	176	122	219	435	215	379	700	482	788	1355	25
FC-256MH	99	177	355	246	440	868	431	762	1390	962	1563	2720	51
MD-340	138	247	495	343	614	1213	597	1065	1898	1323	2183	3640	72
MD-512	207	368	728	512	910	1726	886	1561	2733	1929	2981	4686	109
MD-1GB	409	728	1426	993	1726	3280	1726	2982	4687	3645	5468	8202	219

*The above data is measured under Canon's testing standard and may vary depending on the scene, subjects or camera settings.

<Movie>

File format: AVI

Recording format: Image Motion JPEG Audio WAVE (Monaural)

Number of recording pixels: QVGA 320 x 240 QQVGA 160 x 120

Frame rate / Recording time

	Frame rate (fps)	Recording time (min)*
320 x 240	15	3
160 x 120	15	3

* The maximum recording time with an individual movie clip.
* The CF card is required to contain the fixed space or over.

Recording capacity

	320 240	160 120
File Size (KB)	330	120
FC-8M	21"	58"
FC-16M	44"	118"
FC-32M	91"	242"
FC-64M	183"	486"
FC-128M	368"	973"
FC-256MH	735"	1954"
MD-340	1015"	2729"
MD-512	1490"	3644"
MD-1GB	2733"	6562"

* The above data is measured under Canon's testing standard and may vary depending on the scene, subjects or camera settings.

<Common>

Storage media: CompactFlash™ (CF) card (Type Ⅰ or Type Ⅱ)

Format: FAT12 / FAT16 and FAT32

* When formating with the camera, it automatically selects FAT12 and FAT16 according to the capacity of the CF card. When the capacity of the CF card is 2GB or over, FAT32 is selected.

■ Replay specifications

Replay modes	Single / Index (9 thumbnail images) / Magnification / Movie
<Still image>	
Magnification	Approx. 2 - 10x
Automatic vertical/horizontal detection	Available (Owing to IO sensor) * Images are displayed vertically or horizontally according to the camera's shooting position.
Image rotation	Rotates image to 90-degree or 270-degree * Replays according to the LCD monitor and video output settings.
Histogram	Displays brightness allocation of image. (Available during review.)
Sound memos	Maximum of 60 sec. sound recording and sound replaying per image.
Slide show	Interval time : 3-10 sec. / 15 sec. / 30 sec. / Manual * The slide show function only plays images selected with the DPOF settings (with checkmarks). Repeat : On/Off
DPOF	Print order / Slide show / Image transfer
Direct print	Card photo printers : CP-100, CP-10, CP-200, CP-300 BJ printers with Direct print support : (for Japan) BJ 895PD, BJ 535PD, PIXUS 50i, PIXUS 450i, PIXUS 470PD (for overseas) S830D, S530D, i70, i450, i470D
<Movie>	
Special replay	First frame / Last frame / Next frame / Previous frame / Fast forward / Rewind
Editing	Unnecessary frames can be erased. (Refer to "Erasing mode".)

■ Erasing specifications

Erasing modes	Still images: Single image / All images * The image data recorded with the Design rule for Camera File system's format can be erased. However, protected images cannot be erased. Movie : Part of movie* / All of movie * Can be erased from start-point to mid-point or from mid-point to end- point with the movie editing function. Furthermore, frames can be erased both from start-point to mid-point and from mid-point to end-point simultaneously.
Protection	Erase prohibited (Setting in replay mode.)

■ Interface

Computer I/F	USB* (mini-B jack) * All procedures performed with a connection to a USB 2.0 compliant board are not guaranteed.
Communication setting	PTP
Video out	NTSC/PAL
Audio out	Monaural

■ Others

Languages	12 languages are available for menu and messages. English, German, French, Dutch, Danish, Finnish, Italian, Norwegian, Swedish, Spanish, Simplified Chinese and Japanese
My Camera settings	
Selectable items	Start-up image, Start-up sound, Shutter sound, Operation sound and Self-timer sound *Each item can be created by users with the camera.

Specifications

Items	File size	specifications		
Start-up image	20 KB	320x240 pixels, JPEG file with 4: 2 : 0 or 4: 2 :2, Aspect ratio of 4: 3		
Start-up sound	10.9 KB	WAVE (monaural) 8bit	11 kHz : 1.0 sec. or less	8 kHz : 1.3 sec. or less
Shutter sound	3.36 KB		11 kHz : 0.3 sec. or less	8 kHz : 0.4 sec. or less
Operation sound	3.36 KB		11 kHz : 0.3 sec. or less	8 kHz : 0.4 sec. or less
Self-timer sound	21.7 KB		11 kHz : 2.0 sec. or less	8 kHz : 2.0 sec. or less

■ Power supplies

Primary batteries	Not usable
Secondary batteries	Rechargeable Lithium-ion battery (BP-511/512)
AC adapter	Compact Power Adapter (CA-560)
Car battery adapter	Car Battery Cable Kit (CR-560)
Sub-battery	Coin-type secondary Lithium battery (CR-2025)
Battery performance	
Number of shots	LCD monitor On : Approx. 450 shots LCD monitor Off : Approx. 1,050 shots Under Canon standard conditions: Using BP-511. Normal temperature (23°C). LCD viewfinder is On. Shoot images at wide angle and at telephoto end alternately with 20 seconds intervals. Use flash at every fourth shot. Turn camera off and on at every eight shot.
Replay time	Approx. 360 min. Under Canon standard conditions: Using BP-511. Normal temperature (23°C). Repeat replay automatically at a speed of 1 image per 3 seconds. Factory default brightness setting.
Battery Charging time	
Inside the camera	Use of CA-560 Adequate charge for use (Approx. 90 %) : Approx. 80 min Full charge (100 %) : Approx. 200 min Use of CR-560 (CG-560 + CB-560) Adequate charge for use (Approx. 90 %) : Approx. 80 min Full charge (100 %) : Approx. 200 min
Charger	Use of CB-5L Adequate charge for use (Approx. 90 %) : Approx. 90 min Full charge (100 %) : Approx. 150 min Use of CG-560 + CA-560 / CG-560 + CB-560 Adequate charge for use (Approx. 95 %) : Approx. 80 min Full charge (100 %) : Approx. 170 min Use of CG-570 + CA-560 / CG-570 + CA-570 / CG-570 + CB-570 Adequate charge for use (Approx. 90 %) : Approx. 95 min Full charge (100 %) : Approx. 125 min
Power-saving function On/Off	Available Shooting mode: Powers down approx. 3 minutes after last operation. Replaying mode: Powers down approx. 5 minutes after last operation. Does not power down in Slide Show mode. Printer connection: Powers down approx. 5 minutes after last operation. PC connection: Does not power down even if the power-saving function is On.

■ Camera specifications

Operating temperature	0 - 40°C
Operating humidity	10 - 90 %
Dimensions (W x H x D)	121.0 x 73.9 x 69.9 mm (4.76 x 2.91 x 2.75 in.) (Excluding protrusions)
Weight	Approx. 410 g (14.5 oz) (Camera body only)

4-2 Function's Availability and Data memory in Each Shooting Mode

		Creative						Auto	Image1			Image2	
		C2	C1	M	Av	Tv	P	Auto	Land-scape	Night	Portrait	Stitch	Movie
Exposure compensation	±0	□	□	D	D			D	D	D	D	D	D
	～±2	□	□	×	○			×	○	○	○	△	○
White balance	Auto	□	□	D				D	D	D	D	D	D
	Daylight	□	□	○				×	○	○	○	△	○
	Cloudy	□	□	○				×	○	○	○	△	○
	Tungsten	□	□	○				×	○	○	○	△	○
	Fluorescent	□	□	○				×	○	○	○	△	○
	Fluorescent H	□	□	○				×	○	○	○	△	○
	Flash	□	□	○				×	○	○	○	△	×
	Custom1 *1	□	□	○				×	○	○	○	△	○
	Custom2 *1	□	□	○				×	○	○	○	△	○
Drive *2	Single shot	□	□	D				D	D			D	D
	Cintinuous (Normal)	□	□	○				×	○			×	×
	Cintinuous (High-speed)	□	□	○				×	○			×	×
	Self-timer (2 sec)	□	□	○				○	○			○	○
	Self-timer (10 sec)	□	□	○				○	○			○	○
Sensitivity (Equivalent film speed)	AUTO	□	□	★	○			D	Best	Best	Best	D	D
	ISO 50	□	□	D				×	×			×	×
	ISO 100	□	□	○				×	×			×	×
	ISO 200	□	□	○				×	×			×	×
	ISO 400	□	□	○				×	×			×	×
Photo effect	Off	□	□	D				D	D	D	D	D	D
	Vivid	□	□	○				×	○	○	○	△	○
	Neutral	□	□	○				×	○	○	○	△	○
	Low sharpening	□	□	○				×	○	○	○	△	○
	Sepia	□	□	○				×	○	○	○	△	○
	Black & White	□	□	○				×	○	○	○	△	○
	Custom *3	□	□	○				×	×			×	×
Bracketing	Off	□	□	D				D	D			D	D
	AEB *4	□	□	★	○			×	×			×	×
	Focus *5	□	□	○				×	×			×	×
Flash exposure	±0	□	□	×	D			D	D	D	D	D	×
	～±2	□	□	×	○			×	○	○	○	△	×
Manual setting of flash output (Built-in)	Under	□	□	D			×	×	×			×	×
	Middle	□	□	○			×	×	×			×	×
	Over	□	□	○			×	×	×			×	×
Manual setting of flash output (External)	1/16	□	□	D			×	×	×			×	×
	～Full	□	□	○			×	×	×			×	×
Number of recording pixels (Still image)	L	□	□	D				D	D			D	×
	M1	□	□	○				○	○			△	×
	M2	□	□	○				○	○			△	×
	S	□	□	○				○	○			△	×
	RAW	□	□	○				×	×			×	×
Number of recording pixels (Movie)	320x240	×											D
	160x120	×											○
JPEG compression mode	Super Fine	□	□	○				○	○			△	×
	Fine	□	□	D				D	D			D	×
	Normal	□	□	○				○	○			△	×
Metering methods	Evaluation	□	□	D				Best	Best	Best	Best	Best	Best
	Center-weighted averaging	□	□	○				×	×			×	×
	Spot	□	□	○				×	×			×	×
Av, Tv setting *6	Av	□	□	○		×	×	×	×			×	×
	Tv	□	□	○	×		×	×	×			×	×
Program-shift		□	□	×	○	○	○	×	×			×	×
AE/FE lock	Off	□	□	×	○	○	○	×	×			×	×
Zoom position *7	Optical (Wide)	□	□	D									
	Optical (Other)	□	□	○								△	○
	Digital zoom	□	□	○								×	×
AF range	Normal	□	□	D				D	D	D	D	D	D
	Macro	□	□	○				○	×	○	○	○	○
Focus methods	AF	□	□	D				D	D	D	D	D	D
	MF	□	□	○				×	○	○	○	○	○
MF distance		□	□	○				×	○	○	○	○	○
AF frame	Center	□	□	D				D	D	D	D	D	D
	Off-center	□	□	○				×	×	×	×	×	×
AF frame (Macro)	Center	□	□	D				D	D	D	D	D	D
	Off-center	□	□	○				×	×	×	×	×	×
Flash	Auto	□	□	×			○	D	○	D	D	×	×
	Flash On	□	□	○			○	×	○	○	○	△	×
	Flash Off	□	□	D			D	○	D	○	○	D	×
	External	□	□	○								×	×
Display of EVF	OVF	□	□	○								★	★
	EVF only	□	□	D									
	EVF+INFO	□	□	○									
Stitch dimension selection	Left	×										D	×
	Right	×										△	×
	Up	×										△	×
	Down	×										△	×
	2 x 2	×										△	×

Explanatory notes

·The PLAY ⇔ REC switch set is maintained regardless of the color of the cell.

·Modes that do not have a separation line between them have the same settings. (The △ mark simply means that settings can only be selected for the first image in stitch assist mode. Settings are common.)

<Cell color>

■ The setting is memorized. (Dose not reset by changing to the mode that does not remember settings or power-off)

□ Resets when switching to a mode that does not share the setting.

<Cell description>

□ The setting follows the registered shooting mode.
D Default value
D? Default varies according to region.
○ Selectable
× Not selectable
△ Only the first shot in stitch assist can be selected.
★ If the mode is selected with a suitable value, D is set. If the value is changed afterwards it is effective in subsequent modes. If the value is not changed, it is also effective in subsequent modes.
Best The camera sets the optimal value.
* Item values with an asterisk(*) next to them are the default value.

※ The value that can be set in C1 and C2 (custom mode) follows the registered shooting mode. (Default mode = P)
※ MF, Digital zoom and AE/FE lock are not available with the LCD monitor off.
※ The photo effect sepia and Black & White are not available when switching between white balance settings.
※ All items in this chart are locked in for the first image and cannnot be changed for subsequent shots.

*1 A custom white balance cannot be set in stitch assist mode. The data obtained with the custom white balance function is common to all modes.
*2 "Self-timer 2/10 sec" and "Continuous normal/high-speed" are set by menu.
*3 Contrast/Sharpness/Saturation: -1/0/+1 (Default = 0) The value is memorized.
*4 AEB step: 1/3～2 step (Default = +1 step) The value is memorized.
*5 Shifting width: large/medium/small (Default = small) The value is memorized.
*6 Default value of Av/Tv : F4.0, 1/125
*7 When returning from power-saving or after closing the CF card and/or battery cover, modes that do not memorize the zoom position return to their former position.

REC MENU

		Creative						Auto	Image1			Image2	
		C2	C1	M	Av	Tv	P	Auto	Land-scape	Night	Portrait	Stitch	Movie
Flash	First curtain	□	□	D				D	D	D	D	D	×
	Second curtain	□	□	○				×	×	×	×	×	×
Slow synchro	On	□	□	×	○	×	○	×	D	D	×	△	×
	Off	□	□	D	D	D	D	D	×	×	D	D	×
Auto adjusting the flash output	On	□	□	×	D		D	D					×
	Off	□	□	D	○		×	×					×
Red-eye reduction	On	□	□	D									×
	Off	□	□	○								△	×
Continuous shooting mode	Normal speed	□	□	D				D				×	×
	High speed	□	□	○				×				×	×
Self-timer	2 sec.	□	□	○								△	
	10 sec.	□	□	D									
Wireless controler	0 sec.	□	□	○								△	
	2 sec.	□	□	D									
	10 sec.	□	□	○								△	
Metering frame with Spot mode	Center	□	□	D				D					
	AF frame linked	□	□	○				×					
ND filter	On	□	□	○				×					
	Off	□	□	D				D					
MF magnification	On	□	□	D				×				×	×
	Off	□	□	○				D				D	D
AF control mode	Continuous	□	□	D									D
	Single	□	□	○								△	×
AF-assist beam	On	□	□	D									
	Off	□	□	○								△	
Digital zoom	On	□	□	○								×	×
	Off	□	□	D								×	×
Review	Off	□	□	○								△	×
	2 sec.	□	□	D									×
	~10 sec.	□	□	○								△	×
Intervalometer	Number of shots (2 shot)	□	□	○				×					
	Interval time (1 sec)	□	□	○				×					
Custom registration *1	Registration : C1	D	D	D				×					
	Registration : C2	○	○	○				×					

※ All items in this chart are locked in for the first image and cannnot be changed for subsequent shots.
*1 The values that can be set in C1,C2 (custom mode) depend on the registered shooting mode.
(Default mode = P)

Explanatory notes

·The PLAY ⇔ REC switch set is maintained regardless of the color of the cell.

·Modes that do not have a separation line between them have the same settings.
(The △ mark simply means that settings can only be selected for the first image in stitch assist mode. Settings are common.)

<Cell color>
The setting is memorized.
(Dose not reset by changing to the mode that does not remember settings or power-off)

□ Resets when switching to a mode that does not share the setting.

<Cell description>
□ The setting follows the registered shooting mode.
D Default value
D? Default varies according to region.
○ Selectable
× Not selectable
△ Only the first shot in stitch assist can be selected.
★ If the mode is selected with a suitable value, D is set.
If the value is changed afterwards it is effective in subsequent modes.
If the value is not changed, it is also effective in subsequent modes.
Best The camera sets the optimal value.
* Item values with an asterisk(*) next to them are the default value.

SETUP MENU

		Creative						Auto	Image1			Image2	
		C2	C1	M	Av	Tv	P	Auto	Land-scape	Night	Portrait	Stitch	Movie
Beep	On	D											
	Off	○										△	
LCD brightness	Normal	D											
	Bright	○										△	
Auto power down	On	D											
	Off	○										△	
Date/Time		○										△	
Date style	m/d/y*,d/m/y,y/m/d	○										△	
CF card formatting		○										×	
Shutter sound vol.	0,1,2*,3,4,5	○										△	
Replay sound vol.	0,1,2*,3,4,5	○										△	
Start-up sound vol.	0,1,2*,3,4,5	○										△	
Operation sound vol.	0,1,2*,3,4,5	○										△	
Self-timer sound vol.	0,1,2*,3,4,5	○										△	
File No. reset	On	○										△	
	Off	D											
Auto rotate	On	D											×
	Off	○										△	D
Distance units	m/cm	D											
	ft/in	○										△	
Language		D?										△	
Video system	NTSC	D?										△	
	PAL	D?										△	

※ All items in this chart are locked in for the first image and cannnot be changed for subsequent shots.

Settings vary according to region as follows:

Region	Japan	USA	Europe	Oceania
Language	Japanese	English	English	English
Video	NTSC	NTSC	PAL	PAL
Date style	YYMMDD	MMDDYY	DDMMYY	DDMMYY

·The time is not set before shipping.

4-3 Playback Compatibility

				Replay Cameras																
				PS 350	PS A5/ A5 Z	PS Pro70	PS A50	PS S10 PS S20	PS G1 PS Pro90 IS	ID 200 ID 300	IXY D PS A20 PS A10	PS G2 PS S40 PS S30	PS A200 PS A100	EOS D30 D60	EOS 1Ds EOS 1D	PS A40 PS A30 ID 300a ID 200a PS A60	PS S45 PS G3 PS S50	ID 320 PS A70 PS S400 PS A300	PS SD100	**PS G5**
Image taking Cameras	Canon	PS 350	CIFF	○	○	○	○	○	×	×	×	×	×	×	×	×	×	×	×	×
		PS A5/A5 Z	CIFF	△	○*1	○*1	○*1	○*1	×	×	×	×	×	×	×	×	×	×	×	×
		PS Pro70	CIFF	△	○*2	○*1	○*1	○*1	×	×	×	×	×	×	×	×	×	×	×	×
		PS A50	CIFF	△	○*2	○*1	○*1	○*1	×	×	×	×	×	×	×	×	×	×	×	×
			DCF	×	×	×	○*1	○*1	○*1	○*1	○*1	○*1	○*1	○*1	○*7	○*1	○*1	○*1	×	○*1
		PS S10/S20	DCF (Still)	×	×	×	○*3	○	○	○	○	○	○	○	○*7	○	○	○	×	○
		PS G1 PS Pro90 IS	DCF (Still)	×	×	×	○*1*3	○*1	○	○*1	○*1	○	○*1	○	○*7	○*1	○	○*1	×	○
			(Movie)	×	×	×	▲	▲	○	○*5	▲	○	○*5	▲	▲	○*5	○	○	×	○
		IXY DIGITAL 200/300	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○*7	○	○	○	×	○
			(Movie)	×	×	×	▲	▲	○*6	○	▲	○	○*5*6	▲	▲	○	○	○	×	○
		IXY D/PS A10/A20	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○*7	○	○	○	×	○
		PS G2 PS S40/S30	DCF (Still)	×	×	×	○*1*3	○*1	○	○*1	○*1	○	○*1	○	○*7	○*1	○	○*1	×	○
			(Movie)	×	×	×	▲	▲	○*5 *6	○*5*6	▲	○	○*5*6	▲	▲	○*5*6	○	○	×	○
		PS A200/A100	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○*7	○	○	○	×	○
			(Movie)	×	×	×	▲	▲	○*6	○*5	▲	○	○	▲	▲	○	○	○	×	○
		ID 200a/300a	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○*7	○	○	○	×	○
			(Movie)	×	×	×	▲	▲	○*6	○	▲	○	○*5*6	▲	▲	○	○	○	×	○
		EOS D30/D60/1D	DCF (Still)	×	×	×	○*1*3	○*1	○	○*1	○*1	○	○*1	○	○*7	○*1	○	○*1	×	○
		EOS 1Ds	DCF (Still)	×	×	×	○*1*3*4	○*4	○*4	○*4	○*4	○*4	○*4	○*4	○*7	○*4	○*4	○*4	×	○
		PS A40/A30 PS A60	DCF (Still)	×	×	×	○	○	○	○	○	○	○	○	○*7	○	○	○	×	○
			(Movie)	×	×	×	▲	▲	○*6	○*5	▲	○	○*5*6	▲	▲	○	○	○	×	○
		PS S45/G3 PSS50/**G5**	DCF (Still)	×	×	×	○*1*3	○*1	○	○*1	○*1	○	○*1	○	○*7	○*1	○	○*1	×	○
			(Movie)	×	×	×	▲	▲	○*5*6	○*5*6	▲	○*5*6	○*5*6	▲	▲	○*5*6	○	○	×	○
		ID 320/PS A70 PS S400/A300	DCF (Still)	×	×	×	○*3	○	○	○	○	○	○	○	○*7	○	○	○	×	○
			(Movie)	×	×	×	▲	▲	○*5*6	○*5*6	▲	○*5*6	○*5*6	▲	▲	○*5*6	○	○	×	○
		PS SD100	DCF (Still)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×
			(Movie)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	×
	Other campany	DCF that uses CF card	DCF (Still)	×	×	×	○*3	○*4	○*4	○*4	○*4	○*4	○*4	○*4	○*7	○*4	○*4	○*4	×	○*8
			(Movie)	×	×	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	×	▲
		DCF that uses SD memory card	DCF (Still)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○*4	×
			(Movie)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
		DCF that uses other media	DCF (Still)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
			(Movie)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

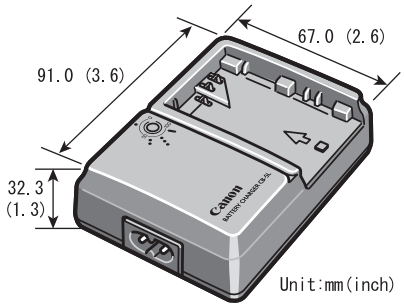
○ : Replayable
△ : Not replayable when RAW image
▲ : Thumbnail replays when movie
× : Not replayable

*1 : Thumbnail displays of RAW image
*2 : Thumbnail displays of RAW image / JPEG file replays up to 1024×768 pixels
*3 : JPEG file replays up to 1632×1232 pixels / (Thumbnail displays when more than 1632×1232 pixels)
*4 : JPEG file replays up to 3200×2400 pixels / (Thumbnail displays when more than 3200×2400 pixels)
*5 : Not replay when file size exceeds fixed capacity
*6 : Not replay when movie's play time exceeds time limit
*7 : Thumbnail displays
*8 : JPEG file replays up to 4064×3048 pixels / (Thumbnail displays when more than 4064×3048 pixels)

4-4 Accessory Specifications

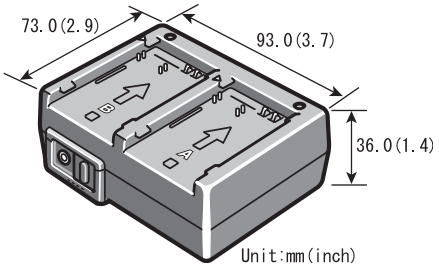
-Battery Charger (CB-5L)

Use for	: BP-511 / BP-512
Rated input	: AC 100 - 240V (50/60 Hz)
Rated output	: DC 8.4 V
Charging time	: Approx. 90 min.
Operating temperature	: 0 - 40℃
Dimensions	: 67.0 x 32.3 x 91.0 mm (2.6 x 1.3 x 3.6 in.)
Weight	: Approx. 105 g (3.7 oz.) When the code is not connected.



-Battery Charger (CG-570)

Use for	: BP-511 / BP-512
Rated input	: (with CA-560) DC 9.5 V (2.7 A) (with CA-570) DC 8.4 V (1.5 A) (with CB-570) DC 12 V / 24 V
Rated output	: DC 8.4 V / 1.45 A
Charging time	: Approx. 95 min.
Operating temperature	: 0 - 40℃
Dimensions	: 73.0 x 93.0 x 36.0 mm (2.9 x 3.7 x 1.4 in.)
Weight	: Approx. 130 g (4.6 oz.)

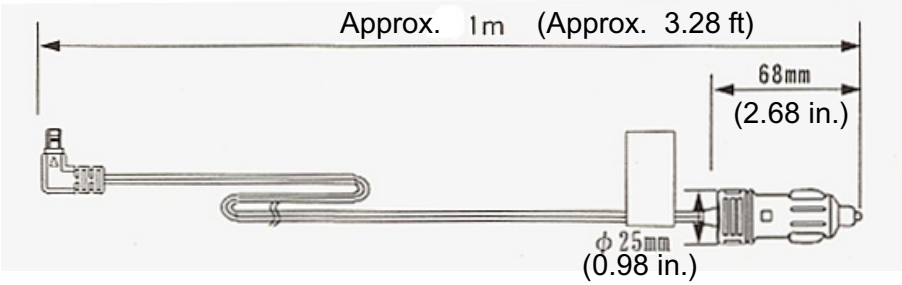


-Compact power adapter (CA-570)

Use for	: BP-511 / BP-512
Rated input	: AC 100 - 240V (50/60 Hz) 29 VA (100 V) - 39 VA (240 V) : for Japan - 17 W : for international
Rated output	: DC 8.4 V / 1.5 A
Charging time	: Approx. 95 min. (when charging with CG-570)
Operating temperature	: 0 - 40℃
Dimensions	: 52.0 x 90.0 x 29.0 mm (2.0 x 3.5 x 1.1 in.)
Weight	: Approx. 135 g (4.8 oz.) When the code is not connected.

-Car battery cable (CB-570)

Dimensions	: Refer to the bellow figure
Weight	: Approx. 65 g (2.3 oz.)



5 System

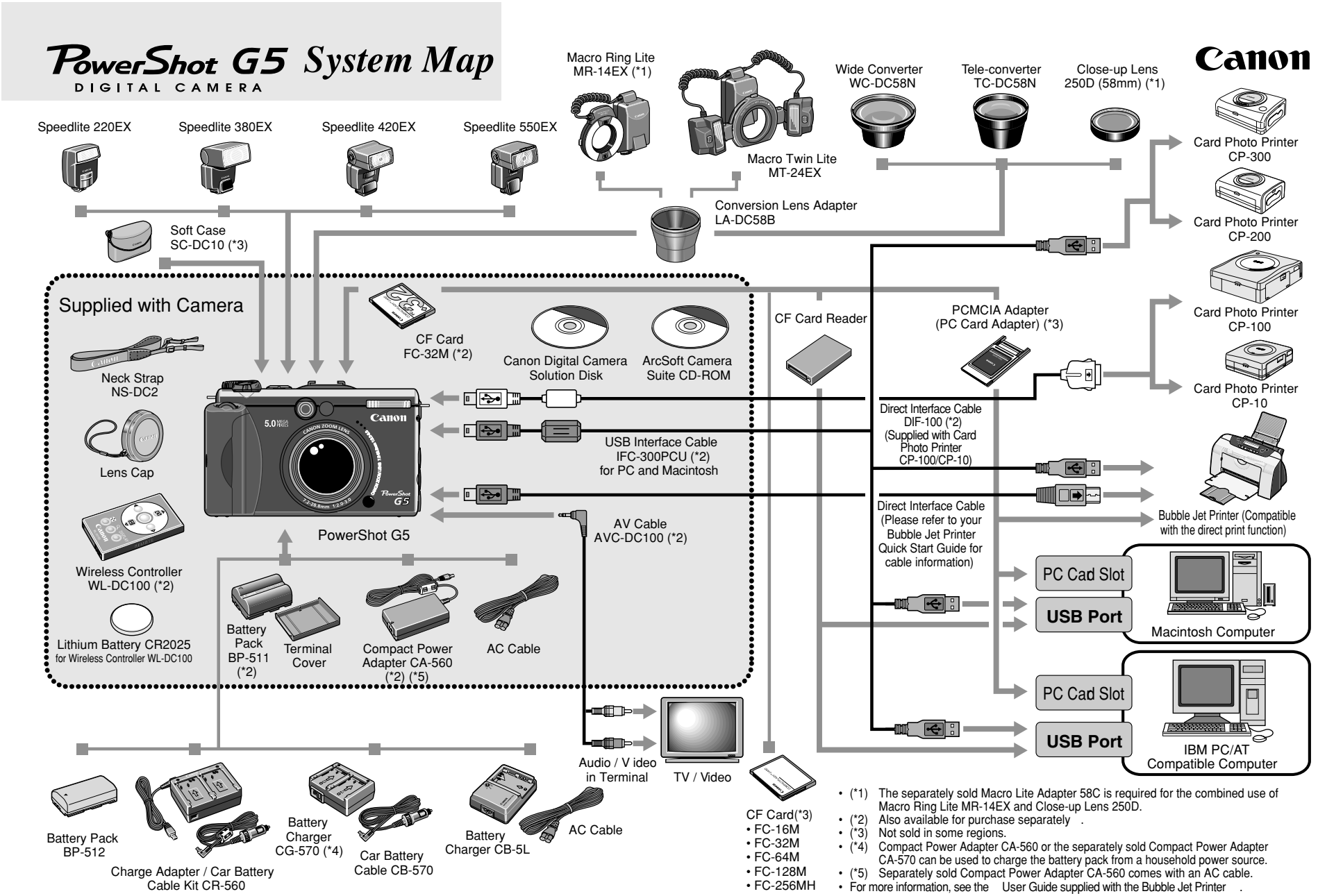
5-1Accessories compatibility

	PS G3 **PSG5**	PS SD100	PS A 300 PS A 200 PS A100	PS S 400	PS A 70 PS A 60	PS S50 PS S45 PS S40 PS S30	I D 320 I D 200a I D 200	I D 300a I D 300	PS A40 PS A30 PS A20 PS A10	PS G2	IXY DIGITAL	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 PS A5 Z PS A50
<Battery>																
NB-5H	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-	O
NB-4H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-
NB-1L/1LH	-	-	-	O	-	-	O	O	-	-	O	-	-	-	-	-
BP-511	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
BP-512	O	-	-	-	-	-	-	-	-	O	-	-	-	-	-	-
NB4-100	-	-	O*1	-	O	-	-	-	O	-	-	-	-	-	-	-
NB-2L	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
NB-3L	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				*1: 2 sets of 2 batteries (4 battery packages).												
<Adapter/Charger>																
CA-PS100/100E	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-	O
CA-PS200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-
CA-PS300	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-
CA-PS500	-	O	-	O	-(O)*2	-	O	O	-(O)*2	-	O	-	-	-	-	-
CA-560	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
CA-PS700	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
CR-560	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
CA-PS800	-	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-
CB-2L/2LE	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-
CB-2LS/2LSE	-	-	-	O	-	-	O	O	-	-	-	-	-	-	-	-
CB-3AH	-	-	O*3	-	O	-	-	-	O	-	-	-	-	-	-	-
CBK100	-	-	O*3	-	O	-	-	-	O	-	-	-	-	-	-	-
CB-2LT/CB-2LTE	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
CB-2LU/2LUE	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CBC-NB1	-	-	-	O	-	-	O	O	-	-	-	-	-	-	-	-
CBC-NB2	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
CB-5L	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
CA-570 + CG-570	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
				*2: It is possible to use by inserting the adapter's DC plug in the jack of PS A40/A30/A20/A10 cameras directly without using DC coupler.												
<DC Coupler>				*3: 4 batteries (2 set of 2) can be recharged.												
DR-100/100A	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-	O
DR-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-
DR-300	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-
DR-500	-	-	-	O	-	-	O	O	-	-	-	-	-	-	-	-
DR-700	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
DR-900	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	PS G3 **PS G5**	PS SD100	PS A300 PS A200 PS A100	PS S400	PS A70 PS A60	PS S50 PS S45 PS S40 PS S30	I D 320 I D 200a I D 200	I D 300a I D 300	PS A40 PS A30 PS A20 PS A10	PS G2	IXY DIGITAL	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 PS A5 Z PS A50
<Lens Accesory>																
WC-DC58	-	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
WC-DC52	-	-	-	-	O	-	-	-	O	-	-	-	-	-	-	-
WC-DC58N	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC-DC58	-	-	-	-	-	-	-	-	-	O	-	-	O	-	-	-
TC-DC58N	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
250D 58mm	O	-	-	-	-	-	-	-	-	O	-	-	O	-	-	-
500D 58mm	-	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-
250D 52mm	-	-	-	-	O	-	-	-	O	-	-	-	-	-	-	-
LA-DC58	-	-	-	-	-	-	-	-	-	O	-	-	O	-	-	-
LA-DC52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LA-DC58N	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LH-DC58	-	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-
TC-DC52	-	-	-	-	O	-	-	-	O	-	-	-	-	-	-	-
LA-DC52B	-	-	-	-	-	-	-	-	O	-	-	-	-	-	-	-
LA-DC52C	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-	-
<Speed Light>																
220EX	O	-	-	-	-	-	-	-	-	O	-	O	O	-	O	-
380EX	O	-	-	-	-	-	-	-	-	O	-	O	O	-	O	-
550EX	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
420EX	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
(MR-14EX)	O	-	-	-	-	-	-	-	-	O	-	-	-	-	-	-
(MT-24EX)	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<Remote Switch>																
WL-DC100	O	-	-	-	-	-	-	-	-	O	-	O	O	-	-	-
RS-8N3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-
<Cable/Others>																
VC-100	-	-	-	-	-	-	-	-	O(A30/A20)	-	-	-	-	O	O	O
VC-200	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-
AVC-DC100	O	O	-	O	O	O	-	O	O(A40)	O	-	O	O	-	-	-
AVC-DC200	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-
IFC-100PCS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	O
IFC-100MC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	O
IFC-200PCS	-	-	-	-	-	-	-	-	-	-	-	O	O	O	-	-
IFC-200PCU		-	-	-	-	-	O	-	-	O	O	O	O	O	-	-
IFC-200MC	-	-	-	-	-	-	-	-	-	-	-	O	O	O	-	-
IFC-300PCU	O	O	O	O	O	O	-	O	O	-	-	-	-	-	-	-
AD-PC98	-	-	-	-	-	-	-	-	-	-	-	O	O	O	O	O
DIF-100	O	O	O	O	O	O	-	O	O	O	-	-	-	-	-	-
DIF-200	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-
DIF-B100	O	O	O	O	O	O	-	O	O	O	-	-	-	-	-	-
DIF-B200	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-

	PS G3 **PS G5**	PS SD100	PS A300 PS A200 PS A100	PS S400	PS A70 PS A60	PS S50 PS S45 PS S40 PS S30	I D 320 I D 200a I D 200	I D 300a I D 300	PS A40 PS A30 PS A20 PS A10	PS G2	IXY DIGITAL	PS Pro 90 IS	PS G1	PS S10 PS S20	PS Pro70	PS A5 PS A5 Z PS A50
<Case>																
SC-PS100	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-	O
SC-PS300	-	-	-	-	-	-	O(200a/200)	-	-	-	O	-	-	-	-	-
SC-PS400	-	-	-	-	-	-	-	-	-	-	-	-	O	-	-	-
SC-PS500	-	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-
SC-PS600	-	-	-	-	O	-	-	-	O	-	-	-	-	-	-	-
SC-PS700	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-	-
SHC-PS200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O	-
SHC-PS300	-	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-
SC-PS800	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
SC-PS900	-	-	O	-	-	O	-	-	-	-	-	-	-	-	-	-
IXC-200A/B	-	-	-	O	-	-	O	-	-	-	O	-	-	-	-	-
IXC-300A/B	-	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-
IXC-220A/B/S	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SC-DC10	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<All Wether Case / Water Proof Case>																
AW-PS100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O(A5)
AW-PS110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	O(A5Z/A50)
AW-PS200	-	-	-	-	-	-	-	-	-	-	O	-	-	-	-	-
WP-DC100	-	-	-	-	-	-	-	O(300)	-	-	-	-	-	-	-	-
WP-DC200	-	-	-	-	-	-	-	-	O(A20/A10)	-	-	-	-	-	-	-
WP-DC300	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-
WP-DC200s	-	-	-	-	-	-	-	-	O	-	-	-	-	-	-	-
WP-DC400	-	-	O(A200/A100)	-	-	-	-	-	-	-	-	-	-	-	-	-
WP-DC500	-	-	-	-	-	-	-	O(300a)	-	-	-	-	-	-	-	-
WP-DC600	-	-	-	-	-	-	O	-	-	-	-	-	-	-	-	-
WP-DC700	-	-	-	-	O	-	-	-	-	-	-	-	-	-	-	-
WP-DC800	-	-	-	O	-	-	-	-	-	-	-	-	-	-	-	-
WP-DC10	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-

5-2 System Diagram



CHAPTER 2. TECHNICAL DESCRIPTION

CONTENTS

1. Functions of each unit

1.1 MAIN PCB ASS'Y

1) Driving the CCD Sensor.
2) Conversion of the image signal from the analog signal to the digital signal.
3) Controlling the power supply and the system by CPU. (Refer to Sections 2.1 and 2.2.)
4) Image processing, and reading and writing the image signal to and from the CF card using DSP. (Refer to Section 2.2.2.)
5) Video output. (Refer to Section 2.2.2.)
6) Microphone input and sound output. (Refer to Section 2.2.3.)

1.2 DC/DC CONVERTER PCB ASS'Y

1) Power supply drive (DC/DC converter).
2) Battery charging control circuit.

1.3 LCD PCB ASS'Y

1) Image display.
2) Backlight for LCD drive.

1.4 TOP MODULE UNIT

1) Operation switch, operation display and finder LED.

1.5 EF FPC

1) Flash control.

1.6 STJ PCB ASS'Y

1) Flash drive and charging circuit for the flash.

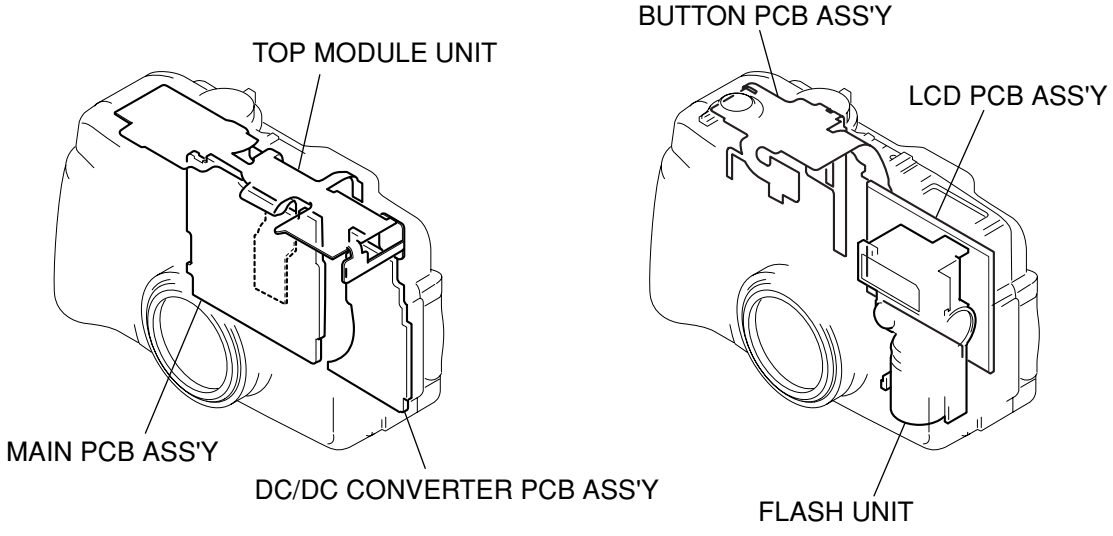


Fig. 1

2. Outline of Circuits

2.1 Power Supply Control

The power supply is controlled by the CPU and DSP mounted on the MAIN PCB ASS'Y.

2.1.1 Power Supply Block Diagram

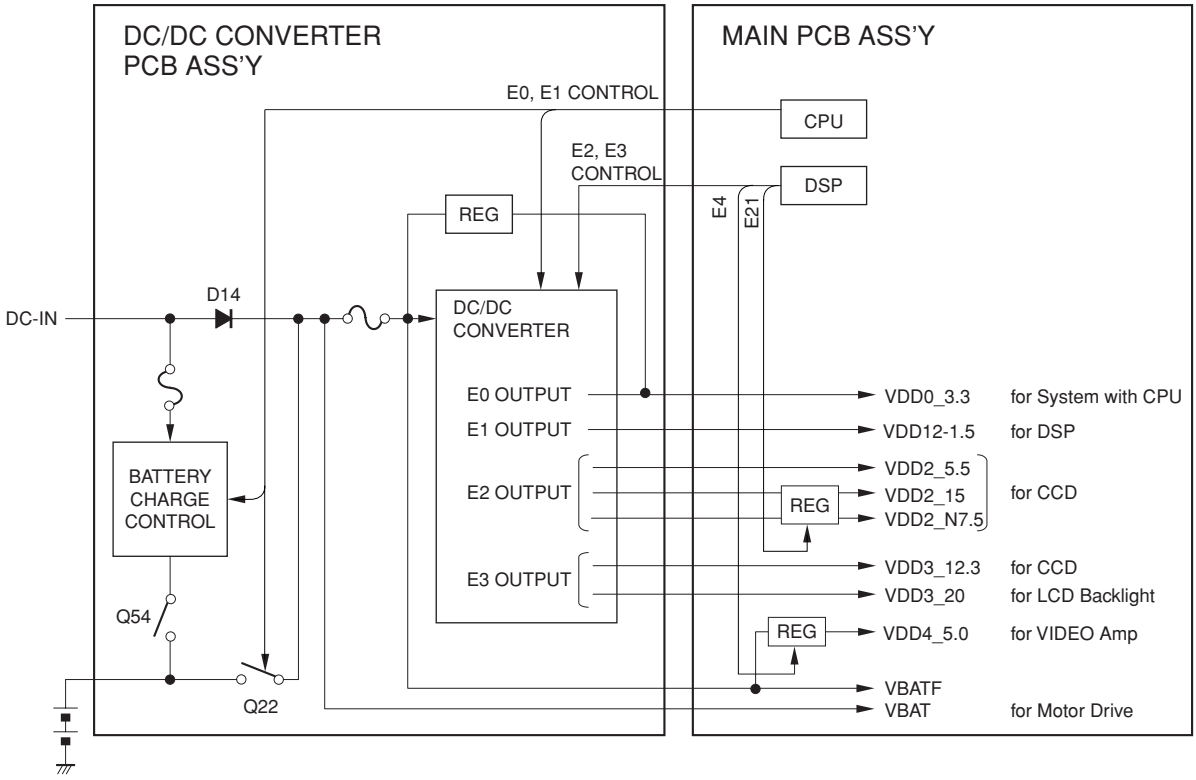
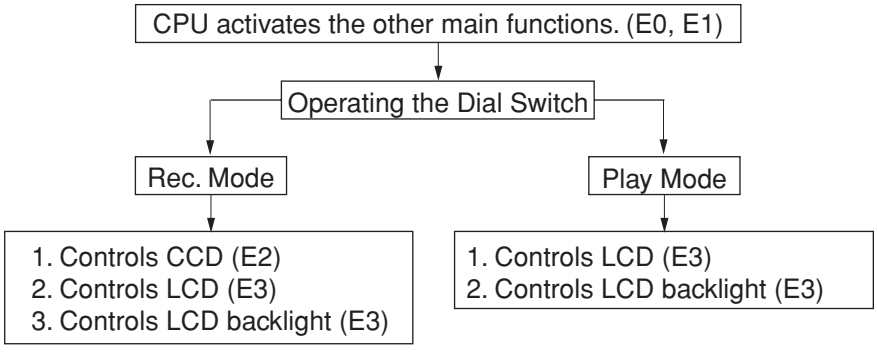


Fig. 2 Power System Block Diagram

2.1.2 Power Supply Control Sequence

1) In the case of either "Battery is Installed" or External Power is Supplied to "DC-IN" connector;



2) In case that Dial Switch is in "LOCK" position when "Battery is Installed";

Battery charging operation starts when external power is supplied to "DC-IN" connector.

2.2 Signal Processing

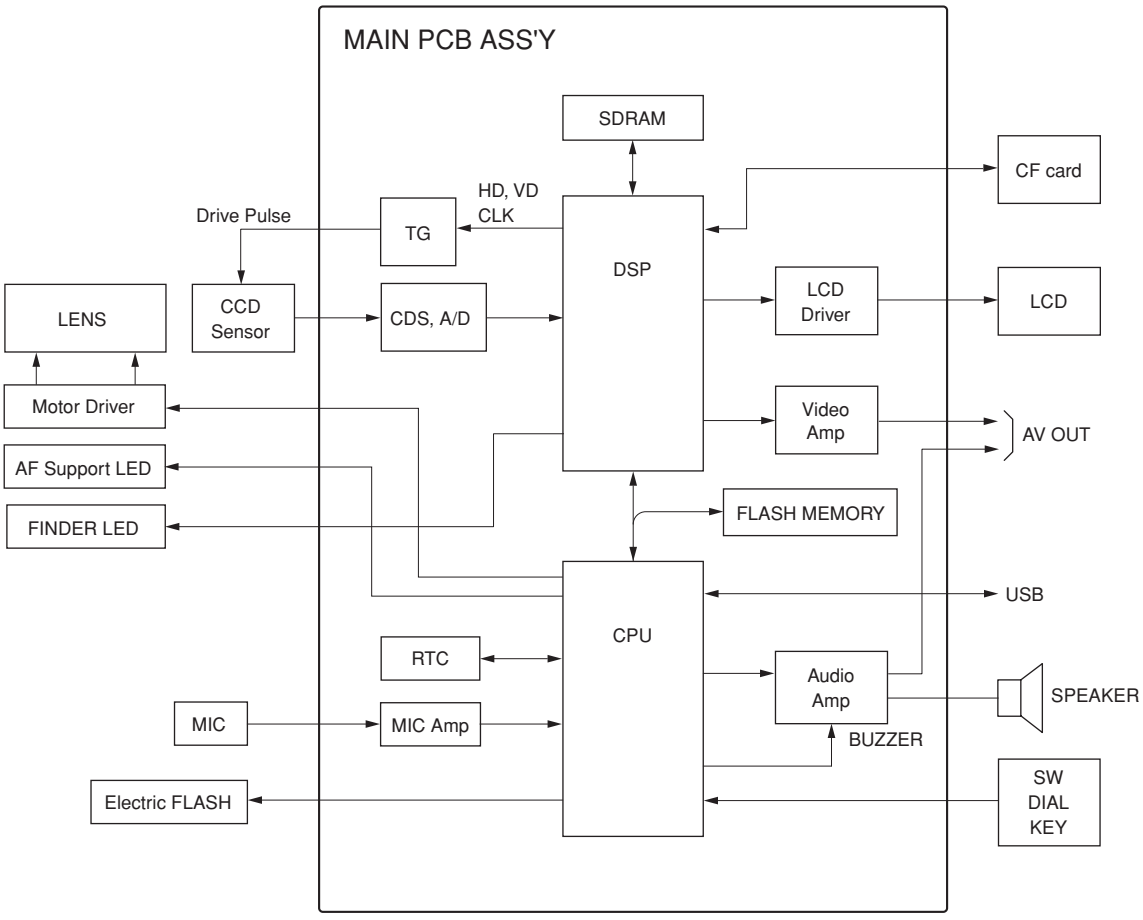


Fig. 3 Signal System Block Diagram

2.2.1 System Control

The CPU on the MAIN PCB ASS'Y controls the lens (motor, shutter), microphone input, operation switch receiver, USB communication and flowing circuits.

- TG: Creation of the CCD drive pulse
- CDS, A/D: CCD signal processing and conversion of the digital data
- LCD Driver: Driving the LCD
- FLASH MEMORY: Firmware and adjustment data memory
- DSP: Picture processing
- RTC: Clock count for watch
- AF Support LED: AF auxiliary, self-timer and red-eye protection also serves as a lamp
- Electric Flash: Flash and charging circuit

2.2.2 Picture Processing

1) The drive pulse of the CCD sensor is created by both clock from DSP and TG that is operated by sync. signal.
   The picture signal by the drive pulse is output from CCD sensor.
   The output signal of the CCD picture is converted to the signal processing and the digital data by the CDS and A/D converter, and is sent to the DSP.

2) The DSP circuit performs the following signal processing.
   - Processes the picture data (using the SDRAM).
   - Writes and reads the picture data to and from the CF card.
   - Outputs the picture data to the CPU.
   - Outputs analog video signal to the LCD and VIDEO OUT.

3) The video signal that is supplied form the DSP is controlled by the LCD driver and is displayed on the LCD. The video amplifier is activated when the AV jack is inserted to the video jack and drives the video signal in 75 Ω.

2.2.3 Audio Processing (Recording and Playback Functions)

1) During recording of moving picture
   - Audio signal of microphone is converted to digital data by CPU and is recorded.

2) During playback, it is converted back to analog audio signal by CPU and is output from speaker and AV jack.

3. Troubleshooting

3.1 When an Error Code is Displayed

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the table below.

[NOTE]

- The error code is displayed on the Display Panel (B/W LCD PANEL).
- Adjustments must be performed after the part has been replaced. For details, see "CH.3 3. Adjustments"

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E02	AF TIME OUT	AF processing did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
		The focus lens was not driven.	MAIN PCB ASS'Y
			OPTICAL UNIT
E03	EF TIME OUT	Auto Flash Control did not end within the specified time.	MAIN PCB ASS'Y
			OPTICAL UNIT
E09	JPEG DMA TIME OUT	JPEG processing did not end within the specified time.	MAIN PCB ASS'Y
E14	UNKNOWN	When an error of unknown cause occurs.	UNKNOWN
E16	IMAGING TIME OUT	Communications between the CPU and peripheral ICs did not end within the specified time during or after photography in the EVF mode.	MAIN PCB ASS'Y
LENS	ZOOM LENS ERROR	Feeding out of the lens barrel did not end within the specified time after the power was turned ON.	MAIN PCB ASS'Y
			OPTICAL UNIT
		Detection of the zoom PI (photo-interrupter) failed.	OPTICAL UNIT
			MAIN PCB ASS'Y
			The lens barrel is fed out with the lens cap attached → Remedy: Remove the lens cap, and restart the camera.
		The zoom position error was detected.	OPTICAL UNIT
			MAIN PCB ASS'Y
			Either zoom movement is obstructed by some external cause, or there was some unintentional camera zoom movement. → Remedy: Restart the camera.

Error Code	Name	Occurrence Conditions	Cause and Probable Faulty Part
E23	CF NO SPACE	When the CF becomes full during writing of photographed images to CF, writing is repeatedly performed with the JPEG compression ratio successively increased to reduce the size of the image file until it can be successfully written to CF. This error occurs when writing of the JPEG image file fails after 10 retries at increasingly higher compression ratios. * The same applies in the case of the Micro Drive.	MAIN PCB ASS'Y
E24	POWER ON ERROR	The power of the imaging circuit on the MAIN PCB ASS'Y was not detected.	MAIN PCB ASS'Y
			DC/DC CONVERTER PCB ASS'Y
		The power of the LCD PCB ASS'Y was not detected.	LCD PCB ASS'Y
			HINGE UNIT
E25	FOCUS PI ERROR	Detection of the focus PI (photo-interrupter) failed.	OPTICAL UNIT
			MAIN PCB ASS'Y
E26	CAPTURE TIME OUT	Writing of the photograph image to SDRAM did not end within the specified time.	MAIN PCB ASS'Y
E27	CF WRITE TIME OVER	Free area could not be secured in the buffer for the photograph image within the specified time in the continuous shooting mode.	CF CARD/MICRO DRIVE
			MAIN PCB ASS'Y
E30	POWER OFF ERROR	The camera power was turned OFF while the image was being recorded to the CF Card/Micro Drive (while the green LED was blinking). (The error code is displayed when the camera is next turned ON.) * This error may occur after E23.	The battery or DC plug was removed while the image was being recorded to the CF Card/Micro Drive. → Remedy: Restart the camera.
E50	CF FORMAT ERROR	The CF Card/Micro Drive could not be formatted properly.	CF CARD/MICRO DRIVE
E52	QUICK REVIEW ERROR	Review of the photograph image failed.	MAIN PCB ASS'Y

3.2 When a Problem Occurs

[Remedy]

- Check for any abnormalities in the mounting of probable faulty parts or connector connections referring to the table below.
- Try replacing probable faulty parts referring to the table below.

[NOTE]

- Adjustments must be performed after the part has been replaced. For details, see “CH.3 3. Adjustments”

Problem (when an error code is not displayed)	Cause and Probable Faulty Part
The camera does not work.	DC/DC CONVERTER PCB ASS’Y
	MAIN PCB ASS’Y
	MAIN DIAL BRUSH
	TOP MODULE UNIT
	BATTERY BOX MAIN UNIT
	BATTERY EJECT SPRING
	POWER LEAD
The image is not displayed on the LCD Monitor.	HINGE UNIT
	MAIN PCB ASS’Y
	EF FPC
	LCD PANEL
	LCD PCB ASS’Y
	BACK LIGHT UNIT
The image is not reversed even if the LCD Monitor is rotated.	HINGE UNIT
	LCD PCB ASS’Y
	MAIN PCB ASS’Y
The photograph image is abnormal.	OPTICAL UNIT
	MAIN PCB ASS’Y
The zoom does not function.	OPTICAL UNIT
	MAIN PCB ASS’Y
	ZOOM BRUSH
	TOP MODULE UNIT
The Display Panel (B/W LCD) is strange.	B/W LCD PANEL
	CONTACT RUBBER
	TOP MODULE UNIT
	MAIN PCB ASS’Y
The Built-in Flash does not fire.	STJ PCB ASS’Y
	DC/DC CONVERTER PCB ASS’Y
	TOP MODULE UNIT

Problem (when an error code is not displayed)	Cause and Probable Faulty Part
The External Flash does not fire.	EF FPC
	ACC. SHOE FPC
	ACC. CONTACT UNIT
	ACC. SHOE PIN
	ACC. DETECT PLATE
Video output is strange.	STJ PCB ASS'Y
	MAIN PCB ASS'Y
Communications with the personal computer is not possible.	STJ PCB ASS'Y
	MAIN PCB ASS'Y
The CF card or Micro Drive is not recognized.	CF CARD/MICRO DRIVE
	CF UNIT
	MAIN PCB ASS'Y
Sound cannot be recorded.	MIC. UNIT
	STJ PCB ASS'Y
	MAIN PCB ASS'Y
Shutter sound/Sound is not played back.	SPEAKER UNIT
	DC/DC CONVERTER PCB ASS'Y
	MAIN PCB ASS'Y
Operations from the Wireless Controller are not accepted.	HV FPC
	EF FPC
	MAIN PCB ASS'Y
Buttons do not work.	EF FPC
	TOP MODULE UNIT
	MAIN PCB ASS'Y
The Mode dial does not work.	MODE DIAL BRUSH
	TOP MODULE UNIT
	MAIN PCB ASS'Y
The date setting is not held in memory.	BATTERY BOX MAIN UNIT
	DATE LEAD
	HV FPC
	EF FPC
	MAIN PCB ASS'Y
Battery charge error	DC/DC CONVERTER PCB ASS'Y

CHAPTER 3. REPAIR INSTRUCTION

CONTENTS

3. Adjustments

1. Before Starting the Repair Work

Be sure to read the following precaution before starting the repair work.

1.1 Precaution on Flash High Tension Circuit

- When the FRONT COVER UNIT is removed, be sure to discharge the main capacitor. (Discharging resistor: 1 kΩ, approx. 5 W.)
- First contact the GND ⊖ terminal of the main capacitor with the discharging resistor. Then contact the positive ⊕ terminal of the main capacitor.

CAUTION:
Be careful of electric shock because the circuit is the high tension circuit.

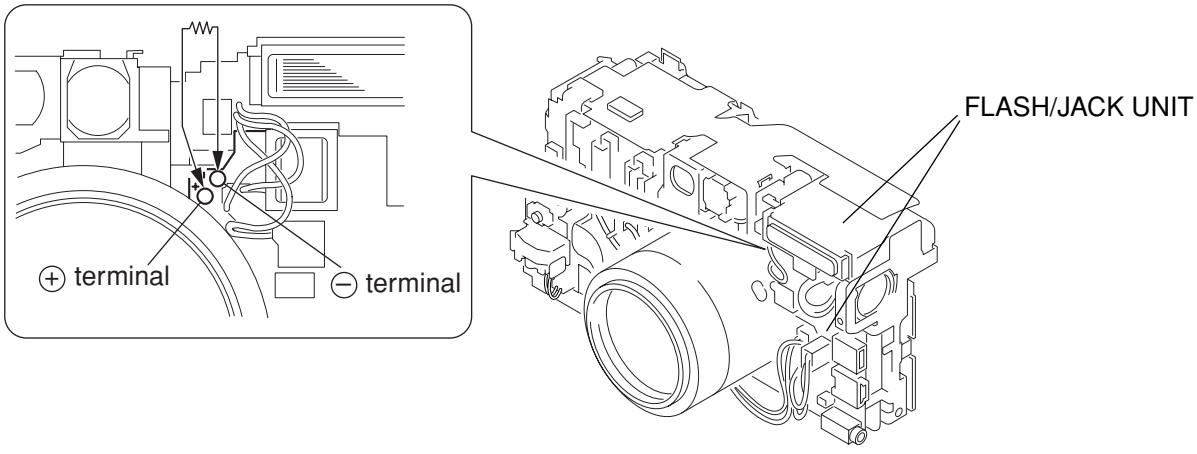


Fig. 3-1 Precaution on flash high tension circuit

1.2 List of Tools

The following tools are used for the re-assembling during service.

(1) List of tools

New	Name of tools	Part No.	Remarks
	Screwdriver (Local Purchase)		
	Tweezers (Local Purchase)		
	Soldering iron (Local Purchase)		

1.3 List of Supplies

The following supplies are used for the re-assembling during service.

(1) List of supplies

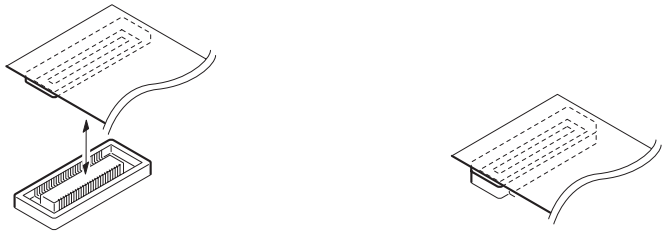
New	Name of supplies	Part No.	Remarks
	ADHESIVE TAPE, SONY T4000	CY4-6012-000	Fixing the flexible cable
	DIA BOND No.1663G	CY9-8129-000	Attaching the parts together
	INSULATION TAPE 3M No.56	CY4-6018-000	Used for SIDE COVER FRAME
	LOGENEST RAMBDA A-74	CY9-8102-000	Used when exchanging MODE DIAL, ZOOM LEVER UNIT
	THREE BOND 1401C	CY9-8011-000	ACC. SHOE
	Solder (Local Purchase)		

1.4 Flexible Connectors

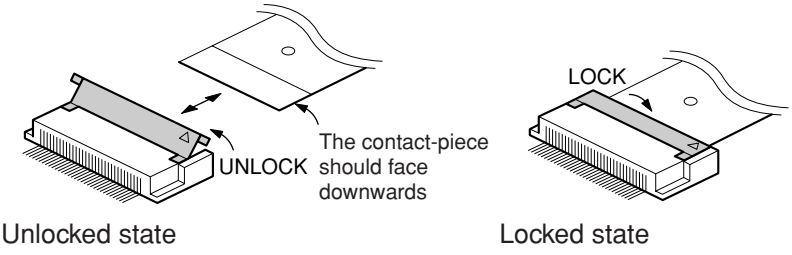
This product uses the five types of the flexible connectors.

① Type A

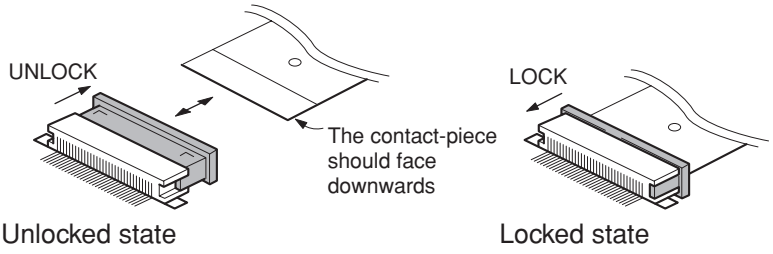
② Type B



③ Type C



④ Type D



⑤ Type E

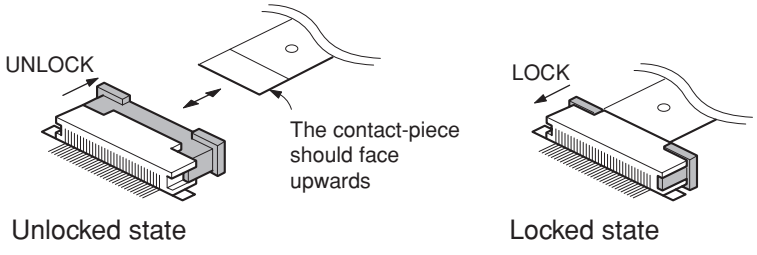


Fig. 3-2 Flexible connectors

CAUTIONS:

1. For the connectors of Type C, Type D and Type E, set them to the unlocked state before removing and inserting flexible card. After flexible card is inserted, set them to the locked state.
2. The flexible card is equipped with the holes as shown. Use them for removal and insertion by inserting the tweezers into them as required.

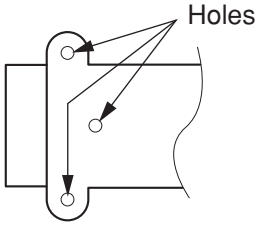
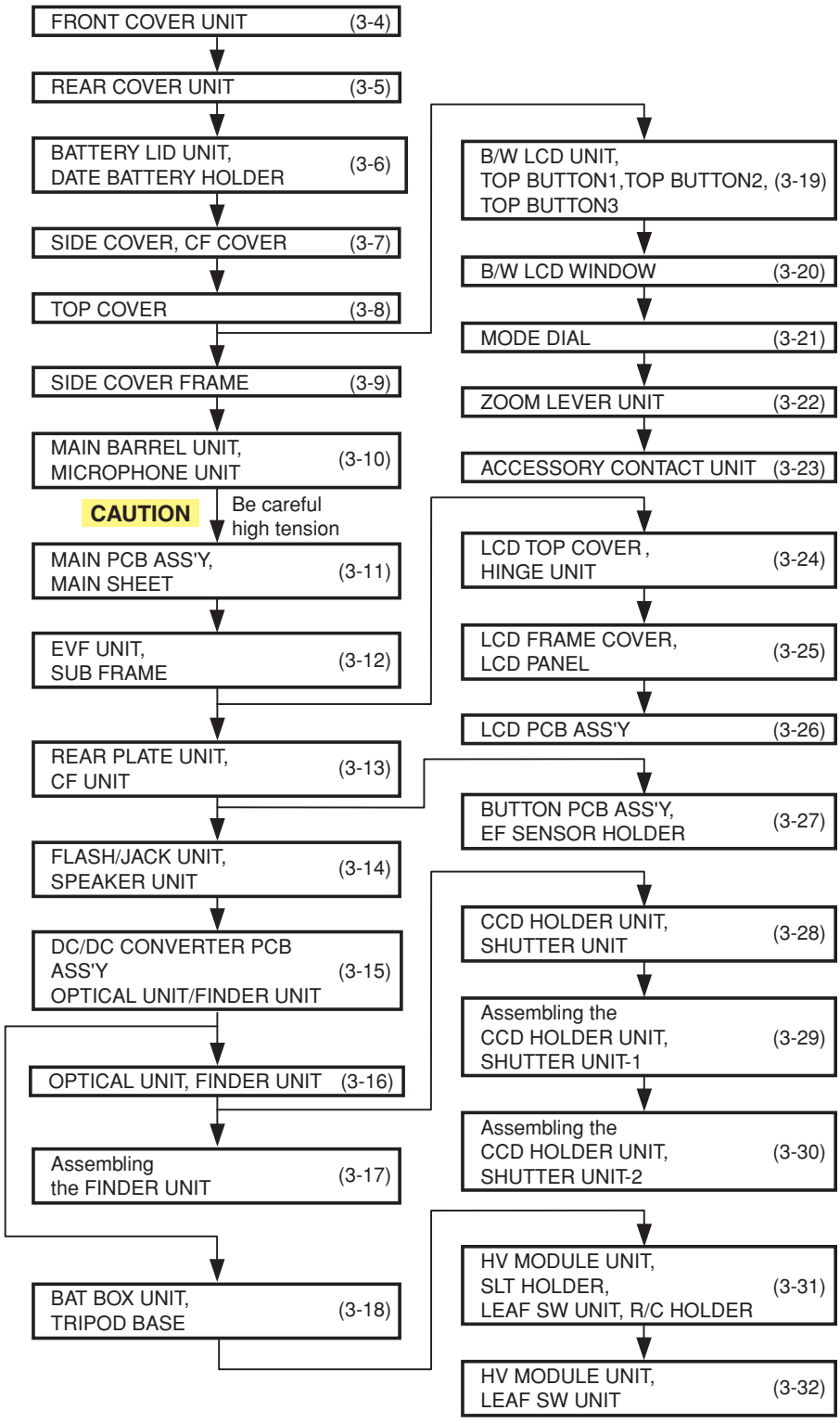


Fig. 3-3 Holes for removal

2. Disassembly/Assembly

2.1 Procedure

Disassembling procedure of PowerShot G5 is shown by the following flowchart.
Reverse the disassembling procedure to reassemble them. ∗ The pages to refer are shown in parenthesis ( ).



2.2 Removal of Main Parts/Units

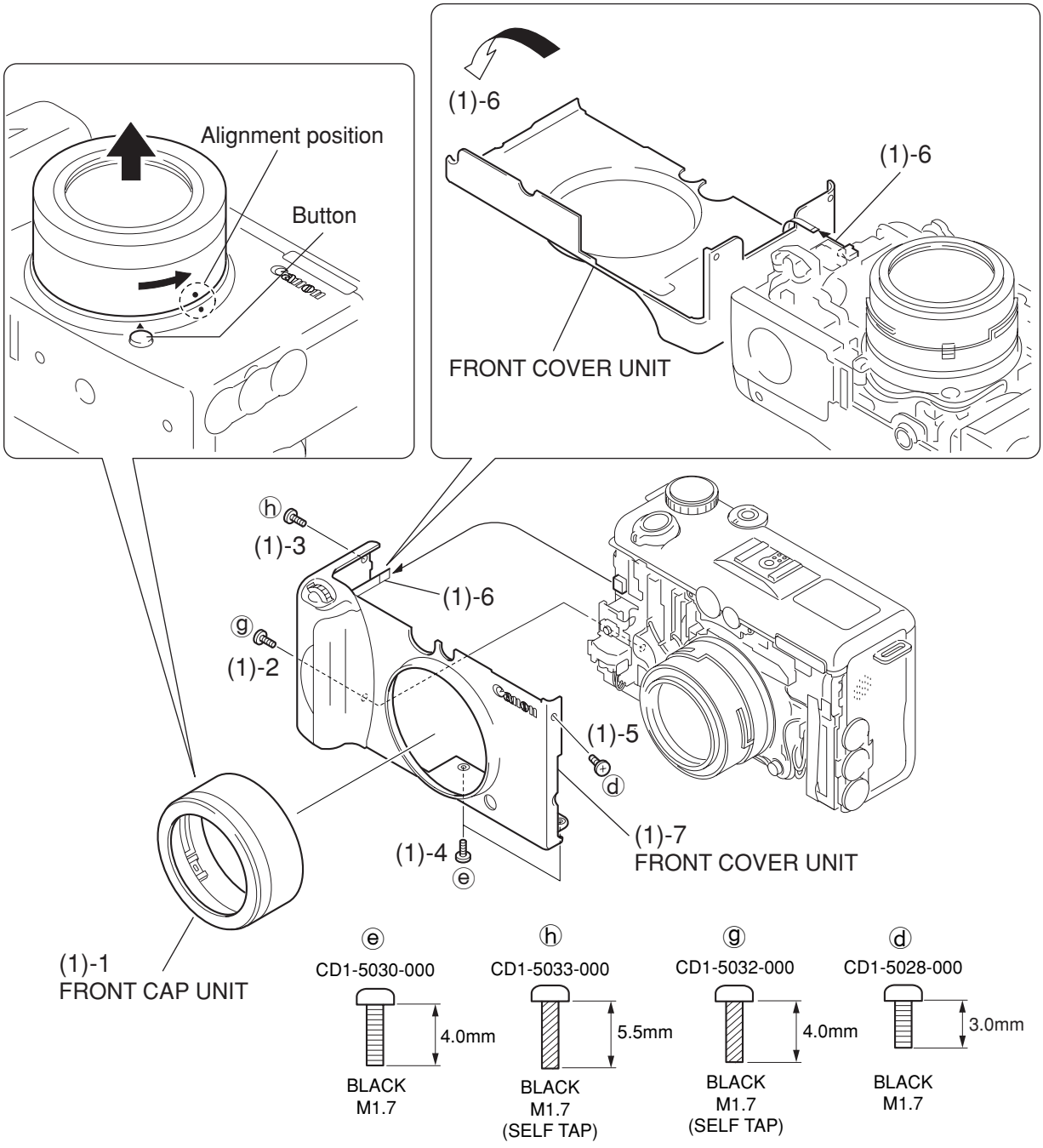
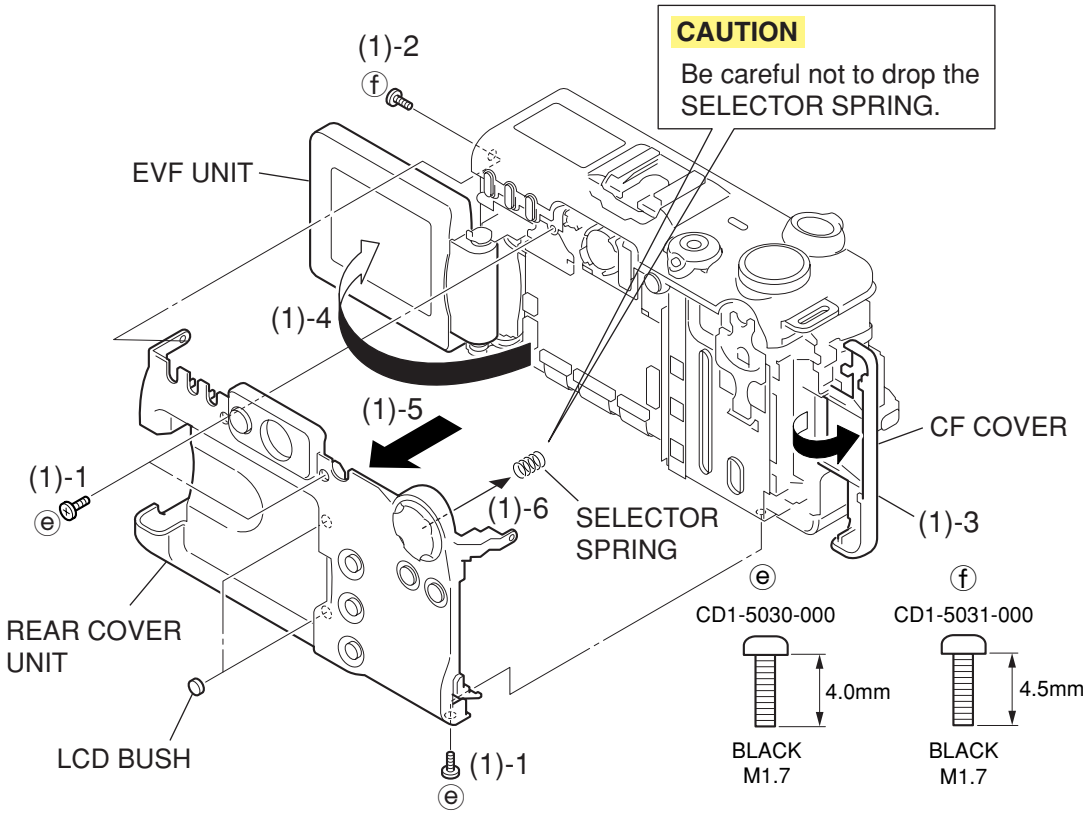


Fig. 3-4 FRONT COVER UNIT

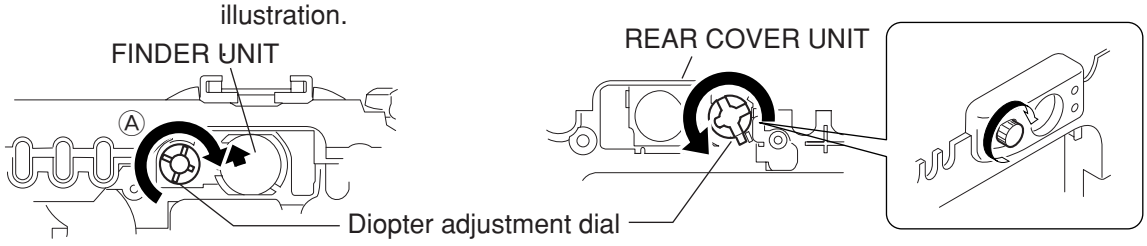
2.2.1 FRONT COVER UNIT

(1) FRONT COVER UNIT

1. While pushing the button, rotate the FRONT CAP UNIT to the alignment position, and remove the FRONT CAP UNIT.
2. Remove the screw of ⓖ.
3. Remove the screw of ⓗ.
4. Remove the two screws of ⓔ.
5. Remove the screw of ⓓ.
6. Turn over the FRONT COVER UNIT in the direction of the arrow and remove the flexible cable.
7. Remove the FRONT COVER UNIT.



NOTE (Assembling) When installing the main body and the REAR COVER UNIT do as follows. Install them after each diopter adjustment dial of the FINDER UNIT and the REAR COVER UNIT are aligned to the angles specified as shown in the illustration.



Rotate the diopter adjustment dial in the direction of mark Ⓐ as far as it can go. When it reaches the deep end, return it slightly.

Rotate the diopter adjustment dial as far as it can go.

Fig. 3-5 REAR COVER UNIT

2.2.2 REAR COVER UNIT

(1) REAR COVER UNIT

1. Remove the three screws of ⓔ.
2. Remove the screw of ⓕ.
3. Open the CF COVER.
4. Open the EVF UNIT.
5. Remove the REAR COVER UNIT from the main body.
6. Remove the SELECTOR SPRING from REAR COVER UNIT.

CAUTION

Be careful not to drop the SELECTOR SPRING.

NOTE (Assembling)

When installing the main body and the REAR COVER UNIT do as follows. Install them after each diopter adjustment dial of the FINDER UNIT and the REAR COVER UNIT are aligned to the angles specified as shown in the illustration.

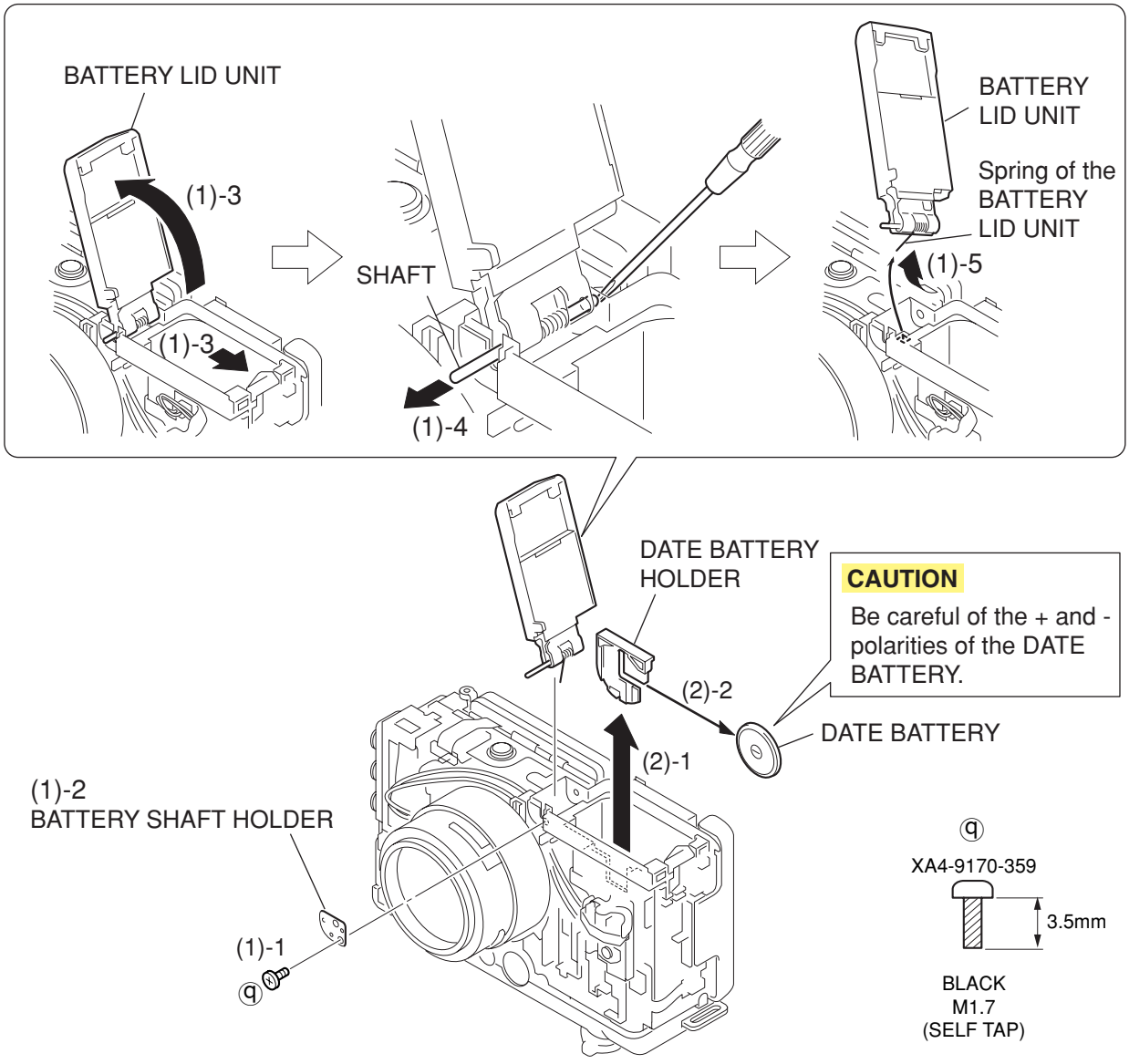


Fig. 3-6 BATTERY LID UNIT, DATE BATTERY HOLDER

2.2.3 BATTERY LID UNIT, DATE BATTERY HOLDER

(1) BATTERY LID UNIT

1. Remove the screw of ⓠ.
2. Remove the BATTERY SHAFT HOLDER.
3. Release the lock by sliding the BATTERY LID HOLDER, and open it.
4. Push out the shaft of the BATTERY LID UNIT with the thin flat-head screwdriver.
5. While taking care of the spring of the BATTERY LID UNIT not to be bent, remove the BATTERY LID UNIT by twisting in the direction of the arrow.

(2) DATE BATTERY HOLDER

1. Pull out the DATE BATTERY HOLDER.
2. Remove the DATE BATTERY from the DATE BATTERY HOLDER.

CAUTION

Be careful of the + and - polarities of the DATE BATTERY.

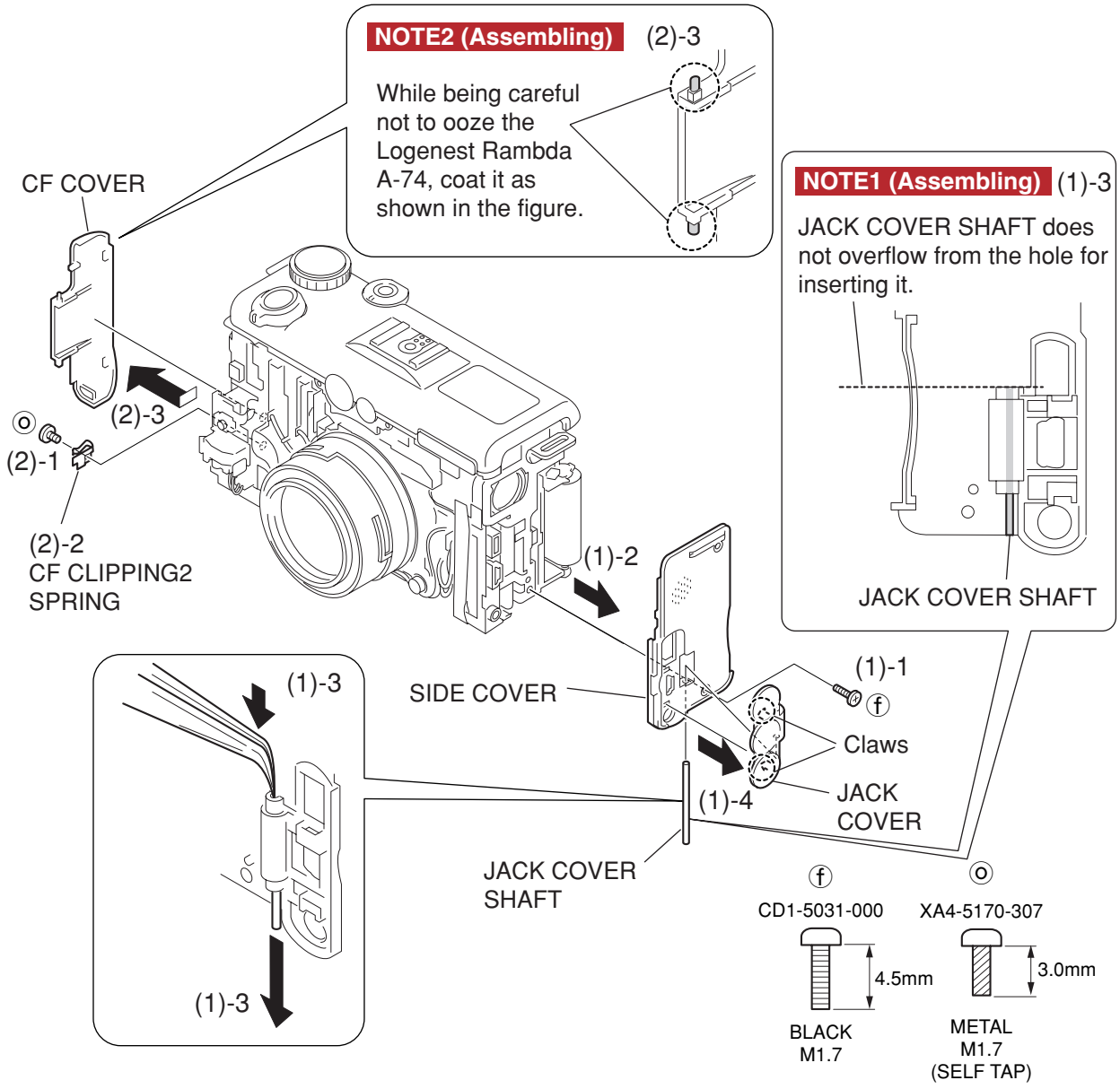


Fig. 3-7 SIDE COVER, CF COVER

2.2.4 SIDE COVER, CF COVER

(1) SIDE COVER

1. Remove the screw of ⓕ.
2. Remove the SIDE COVER.
3. Push out the JACK COVER SHAFT with the thin stick like tweezers, and pull out the JACK COVER SHAFT.
4. Remove the two claws and remove the JACK COVER.

NOTE1 (Assembling)

JACK COVER SHAFT is not overflow from the hole for inserting it (a dashed line).

(2) CF COVER

1. Remove the screw of ⓞ.
2. Remove the CF CLIPPING2 SPRING.
3. Remove the CF COVER in the direction of arrow.

NOTE2 (Assembling)

While being careful not to ooze the Logenest Rambda A-74, coat it as shown in the figure.

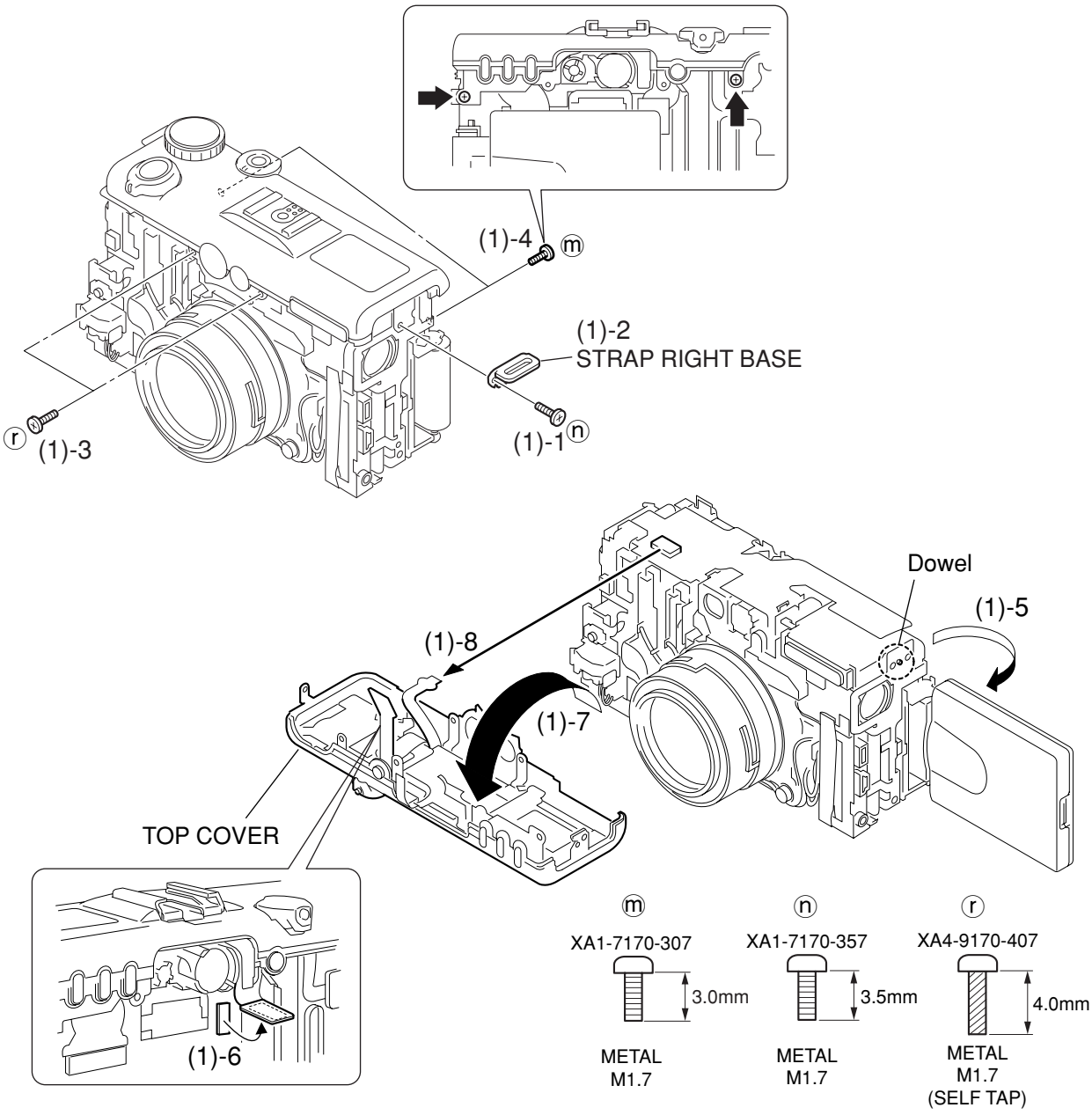


Fig. 3-8 TOP COVER

2.2.5 TOP COVER

(1) TOP COVER

1. Remove the screw of ⓝ.
2. Remove the STRAP RIGHT BASE.
3. Remove the two screws of ⓡ.
4. Remove the two screws of ⓜ.
5. Open the EVF UNIT.
6. Disconnect the connector of the B/W LCD UNIT.
7. Remove the dowel and turn over the TOP COVER in the direction of arrow.
8. Remove the flexible board from the TOP COVER UNIT, and remove the TOP COVER from the main body.

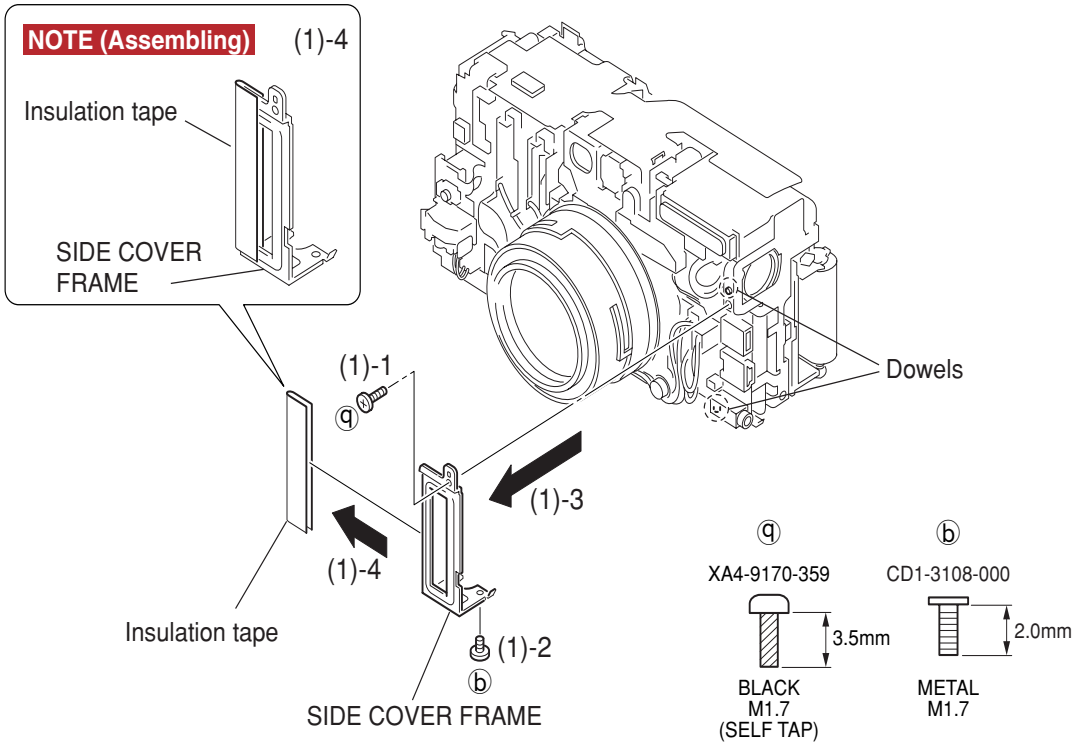


Fig. 3-9 SIDE COVER FRAME

2.2.6 SIDE COVER FRAME

(1) SIDE COVER FRAME

1. Remove the screw of ⓠ.
2. Remove the screw of ⓑ.
3. Remove the two dowels and remove the SIDE COVER FRAME.
4. Peel off the Insulation tape.

NOTE (Assembling)

Attach the Insulation tape as shown in the illustration.

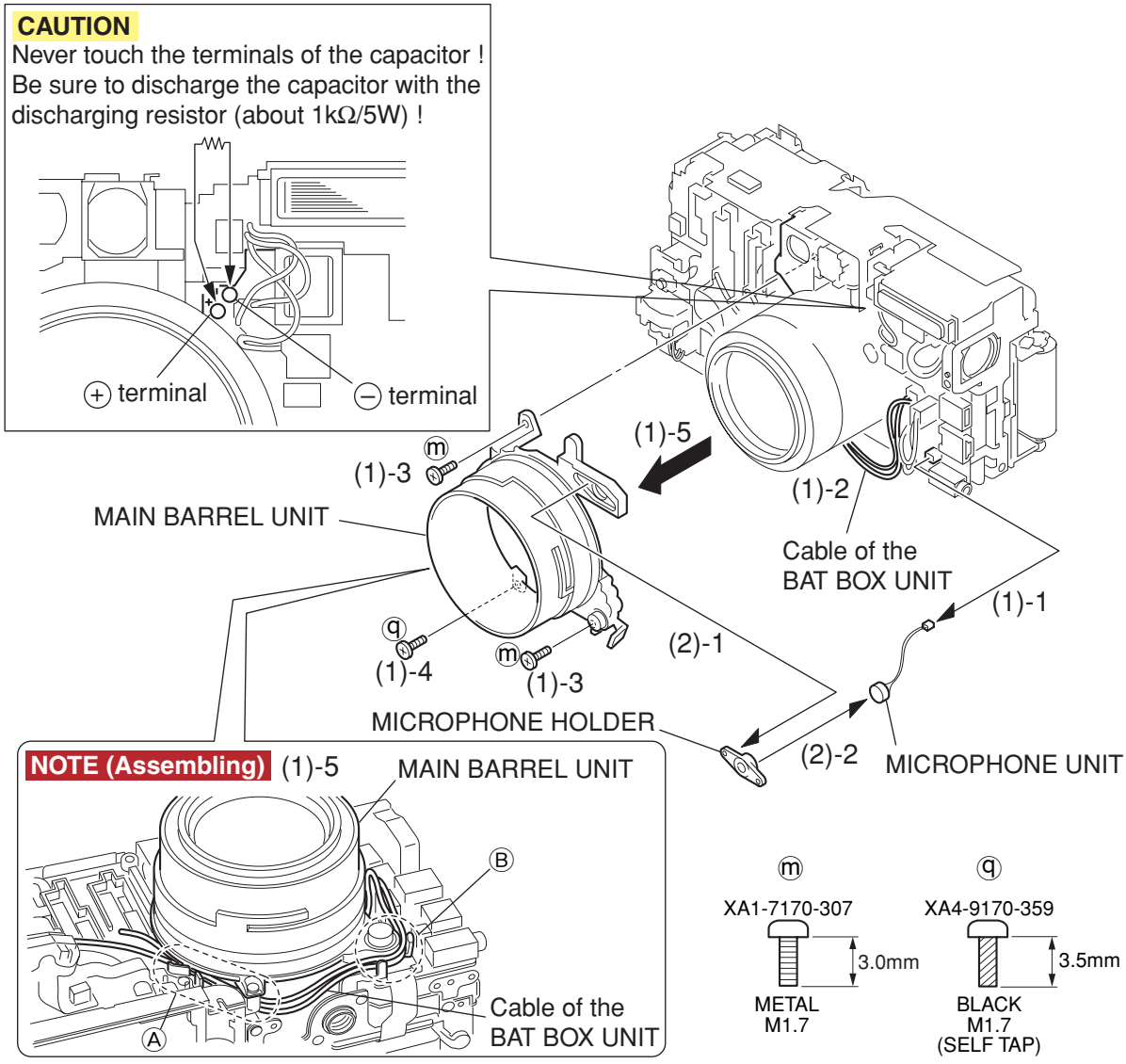


Fig. 3-10 MAIN BARREL UNIT, MICROPHONE UNIT

2.2.7 MAIN BARREL UNIT, MICROPHONE UNIT

(1) MAIN BARREL UNIT

1. Remove the cable of the MICROPHONE UNIT.
2. Remove the cable of the BAT BOX UNIT from the groove of the MAIN BARREL UNIT.
3. Remove the two screws of ⓜ.
4. Remove the screw of ⓠ.
5. Remove the MAIN BARREL UNIT.

CAUTION

Remove it with utmost care not to touch the terminal of the capacitor.

NOTE (Assembling)

When installing the MAIN BARREL UNIT, route the cable underneath the MAIN BARREL UNIT at Ⓐ , and hook on the groove of the MAIN BARREL UNIT at Ⓑ .

(2) MICROPHONE UNIT

1. Remove the cable of the MICROPHONE HOLDER and the MICROPHONE UNIT from the MAIN BARREL UNIT.
2. Remove the cable of the MICROPHONE UNIT from the MICROPHONE HOLDER.

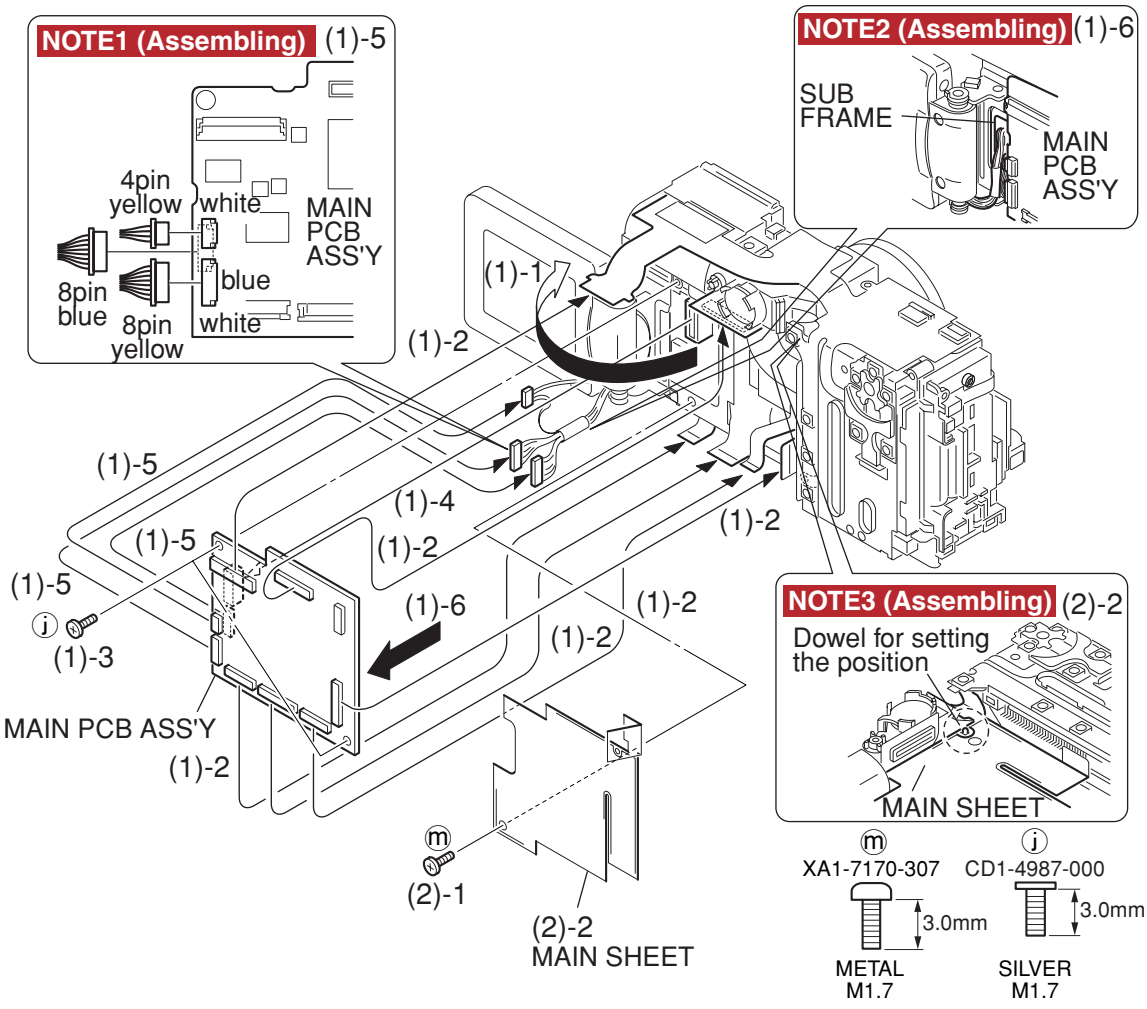


Fig. 3-11 MAIN PCB ASS'Y, MAIN SHEET

2.2.8 MAIN PCB ASS'Y, MAIN SHEET

(1) MAIN PCB ASS'Y

1. Open the EVF UNIT in the direction of the arrow.
2. Remove the connector of the CF UNIT, the three flexible boards of the OPTICAL UNIT, the flexible board of the BUTTON PCB ASS'Y and the MAIN/FLASH FPC.
3. Remove the two screws of ⓙ.
4. Disconnect the connector of the DC/DC CONVERTER PCB ASS'Y.
5. Remove the three cables from the EVF UNIT.
6. Remove the MAIN PCB ASS'Y.

NOTE1 (Assembling)

Insert the two 8-pin cables from the EVF UNIT into the connector of the MAIN PCB ASS'Y as shown in the illustration.

NOTE2 (Assembling)

Push cables coming from the EVF UNIT into the space between the SUB FRAME, and the MAIN PCB ASS'Y.

(2) MAIN SHEET

1. Remove the screw of ⓜ.
2. Remove the MAIN SHEET.

NOTE3 (Assembling)

When installing the MAIN SHEET, align the MAIN SHEET with the dowel used for position setting.

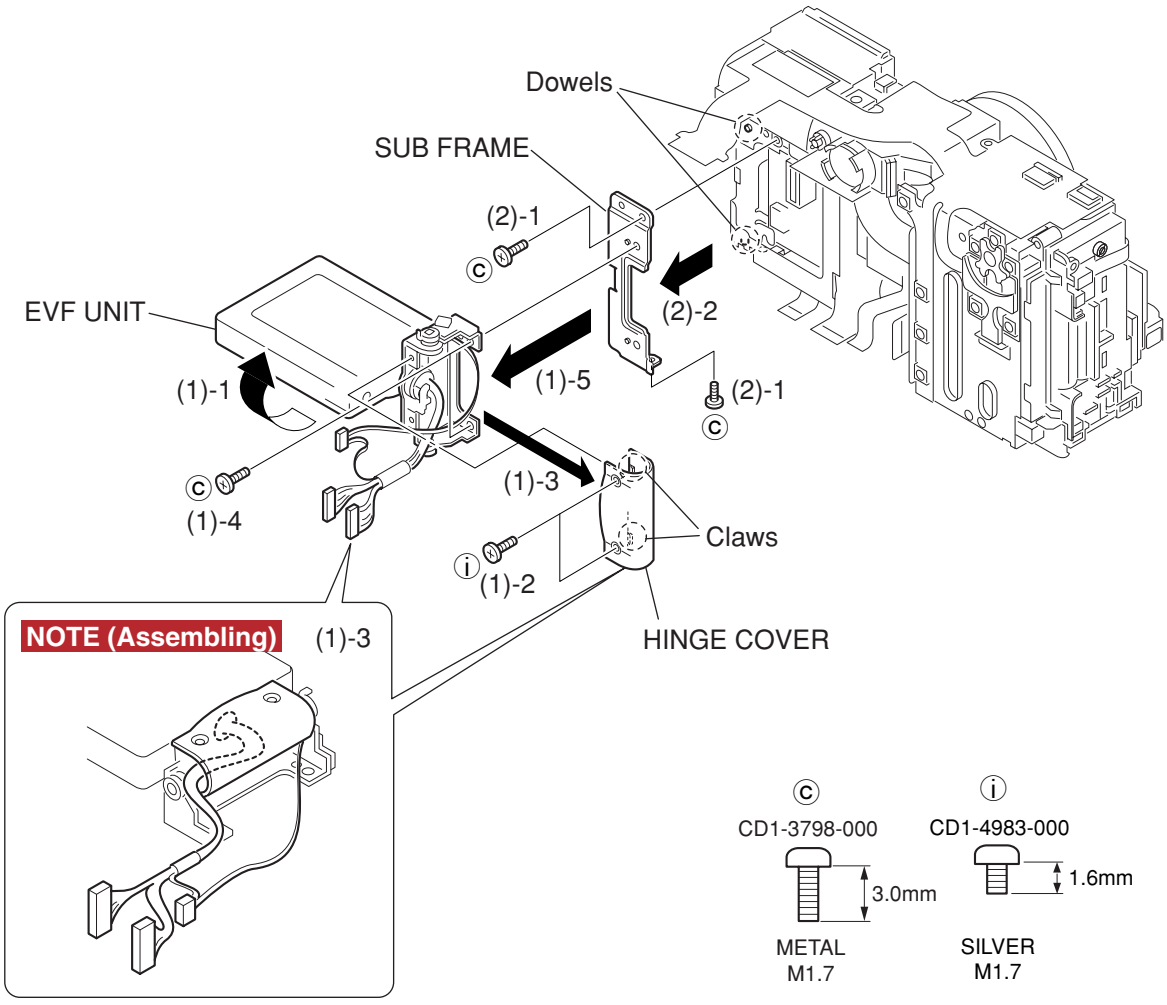


Fig. 3-12 EVF UNIT. SUB FRAME

2.2.9 EVF UNIT, SUB FRAME

(1) EVF UNIT

1. Rotate the EVF UNIT by the 90 degrees in the direction of the arrow.
2. Remove the two screws of ⓘ.
3. Remove the two claws and remove the HINGE COVER.
4. Remove the two screws of ⓒ.
5. Remove the EVF UNIT.

NOTE (Assembling)

When installing HINGE COVER, take out the two 8-pin cables from the space between the HINGE COVER and HINGE UNIT as shown in the illustration.

(2) SUB FRAME

1. Remove the two screws of ⓒ.
2. Remove the two dowels and remove the SUB FRAME.

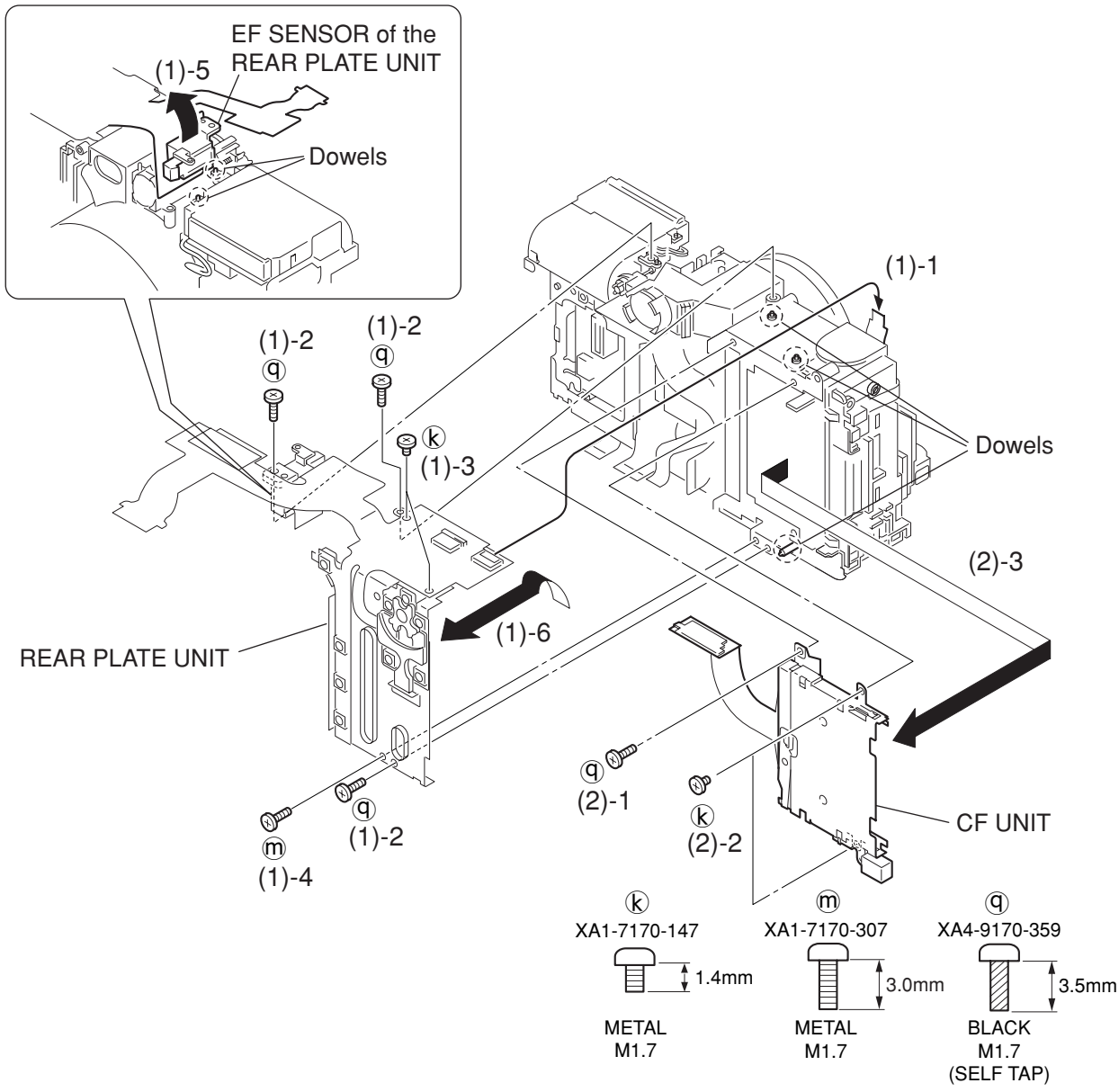


Fig. 3-13 REAR PLATE UNIT, CF UNIT

2.2.10 REAR PLATE UNIT, CF UNIT

(1) REAR PLATE UNIT

1. Remove the flexible board of the HV MODULE UNIT.
2. Remove the three screws of ⓠ.
3. Remove the two screws of ⓚ.
4. Remove the screw of ⓜ.
5. Remove the two dowels and pull out the EF sensor of the REAR PLATE UNIT.
6. Remove the three dowels and remove the REAR PLATE UNIT in the direction of the the arrow.

(2) CF UNIT

1. Remove the screw of ⓠ.
2. Remove the two screws of ⓚ.
3. Remove the CF UNIT.

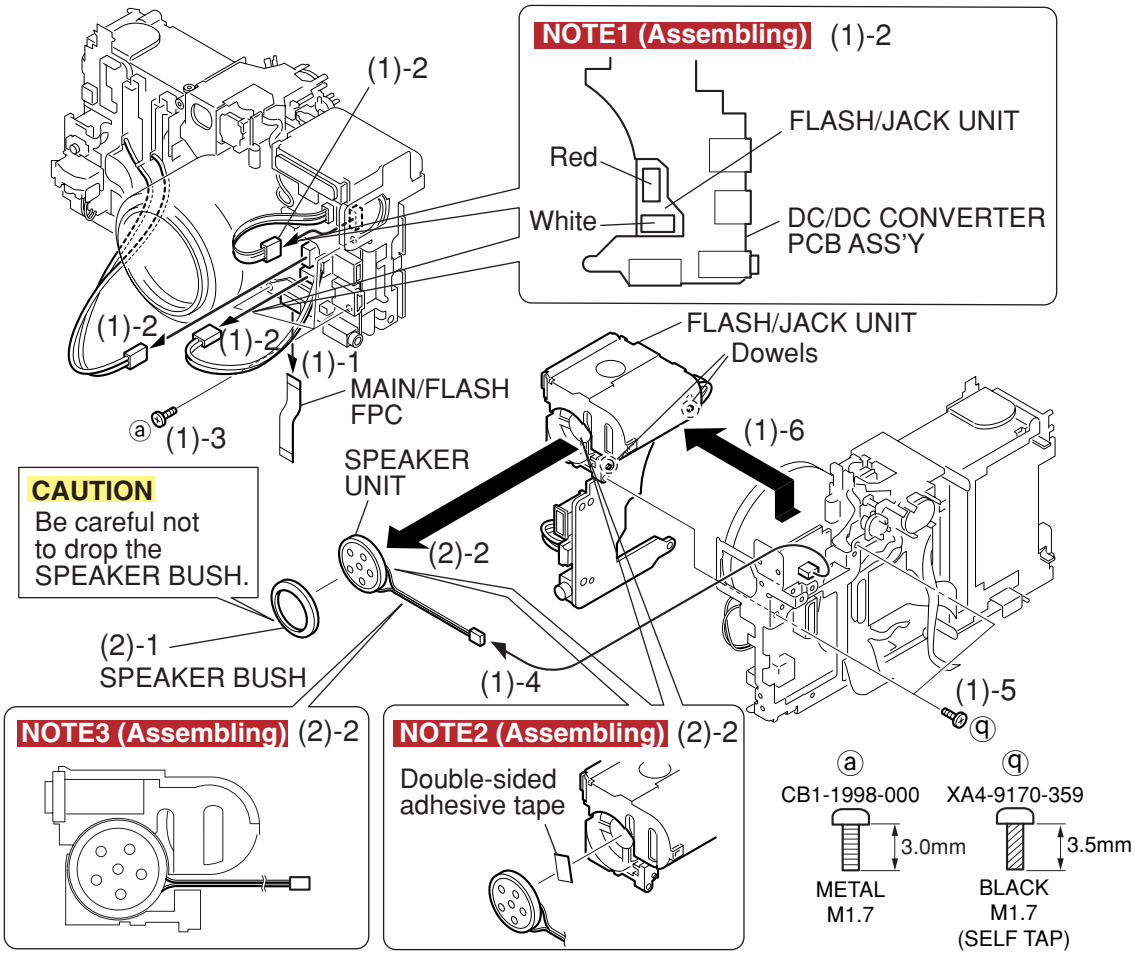


Fig. 3-14 FLASH/JACK UNIT, SPEAKER UNIT

2.2.11 FLASH/JACK UNIT, SPEAKER UNIT

(1) FLASH/JACK UNIT

1. Remove the MAIN/FLASH FPC.
2. Remove the cable of the BAT BOX UNIT and two cables of the FLASH/JACK UNIT.
3. Remove the three screws of ⓐ.
4. Remove the cable of the SPEAKER UNIT.
5. Remove the two screws of ⓠ.
6. Remove the two dowels and raise FLASH/JACK UNIT. Then push out the FLASH/JACK UNIT to the front and remove the FLASH/JACK UNIT.

NOTE1 (Assembling)

Insert the cable coming from the BAT BOX UNIT to the red connector. Insert the cable coming from the FLASH/JACK UNIT to the white connector.

(2) SPEAKER UNIT

1. Remove the SPEAKER BUSH.
2. Remove the SPEAKER UNIT from the FLASH/JACK UNIT.

CAUTION

Be careful not to drop the SPEAKER BUSH.

NOTE2 (Assembling)

Attach the double-sided adhesive tape at the position as shown in the illustration and install the SPEAKER UNIT.

NOTE3 (Assembling)

Route the cable of the SPEAKER UNIT as shown in the illustration.

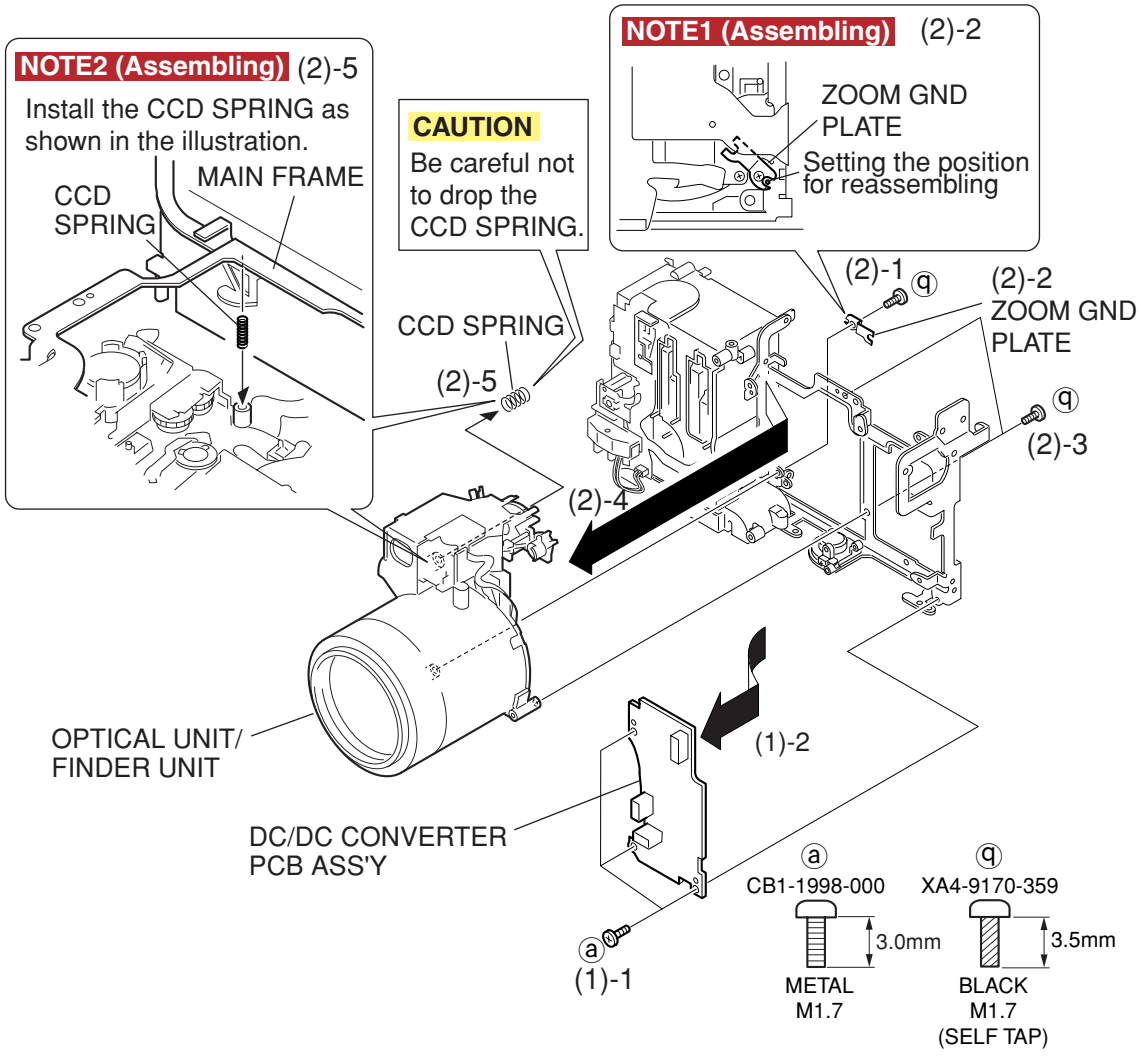


Fig. 3-15 DC/DC CONVERTER PCB ASS'Y, OPTICAL UNIT/FINDER UNIT

2.2.12 DC/DC CONVERTER PCB ASS'Y, OPTICAL UNIT/FINDER UNIT

(1) DC/DC CONVERTER PCB ASS'Y

1. Remove the three screws of ⓐ.
2. Slant the DC/DC CONVERTER PCB ASS'Y in the direction of the arrow, and remove it.

(2) OPTICAL UNIT/FINDER UNIT

1. Remove the screw of ⓠ.
2. Remove the ZOOM GND PLATE.
3. Remove the two screws of ⓠ.
4. Remove the OPTICAL UNIT/FINDER UNIT to the direction of the arrow.
5. Remove the CCD SPRING from the OPTICAL UNIT/FINDER UNIT.

CAUTION

Be careful not to drop the CCD SPRING.

NOTE1 (Assembling)

When installing the ZOOM GND PLATE, align it with the mark used for position setting of the MAIN FRAME.

NOTE2 (Assembling)

Insert the CCD SPRING in the OPTICAL UNIT/FINDER UNIT, and hold it down with the MAIN FRAME.

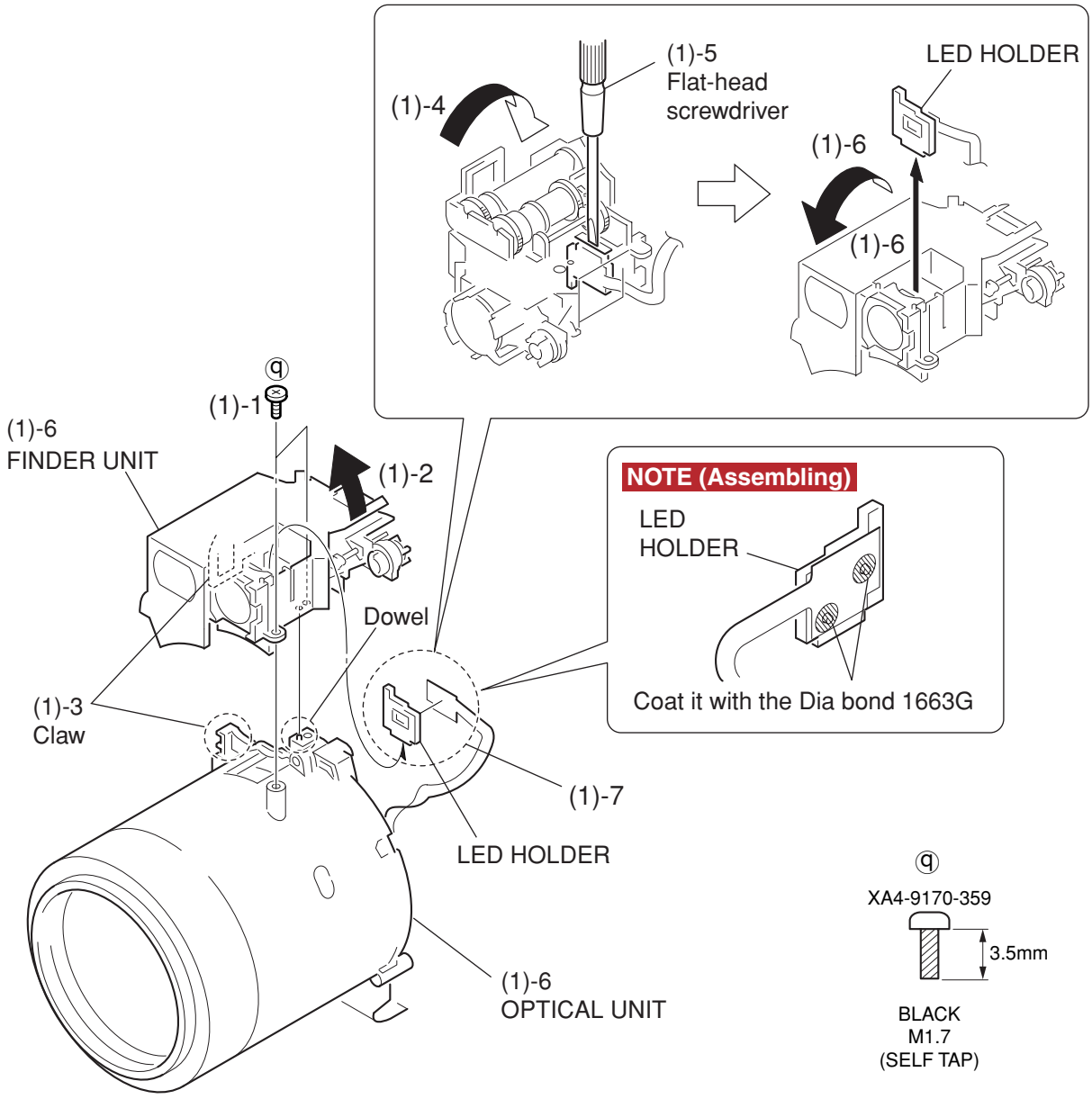


Fig. 3-16 OPTICAL UNIT, FINDER UNIT

2.2.13 OPTICAL UNIT, FINDER UNIT

(1) OPTICAL UNIT, FINDER UNIT

1. Remove the two screws of ⓠ.
2. Slant the FINDER UNIT in the direction of the arrow, and remove the dowel.
3. Remove the claw on the opposite side.
4. Turn over the FINDER UNIT in the direction of the arrow.
5. Push out the LED HOLDER with the use of flat-head screwdriver.
6. Turn over the FINDER UNIT again, pull out the LED HOLDER and remove the FINDER UNIT from the OPTICAL UNIT.
7. Peel off the portion fixed by the Dia bond, and remove the LED HOLDER from the flexible board.

NOTE (Assembling)

Align the two dowels of the LED HOLDER with the position setting hole of the flexible board and coat it with the Dia bond 1663G as shown in the figure.

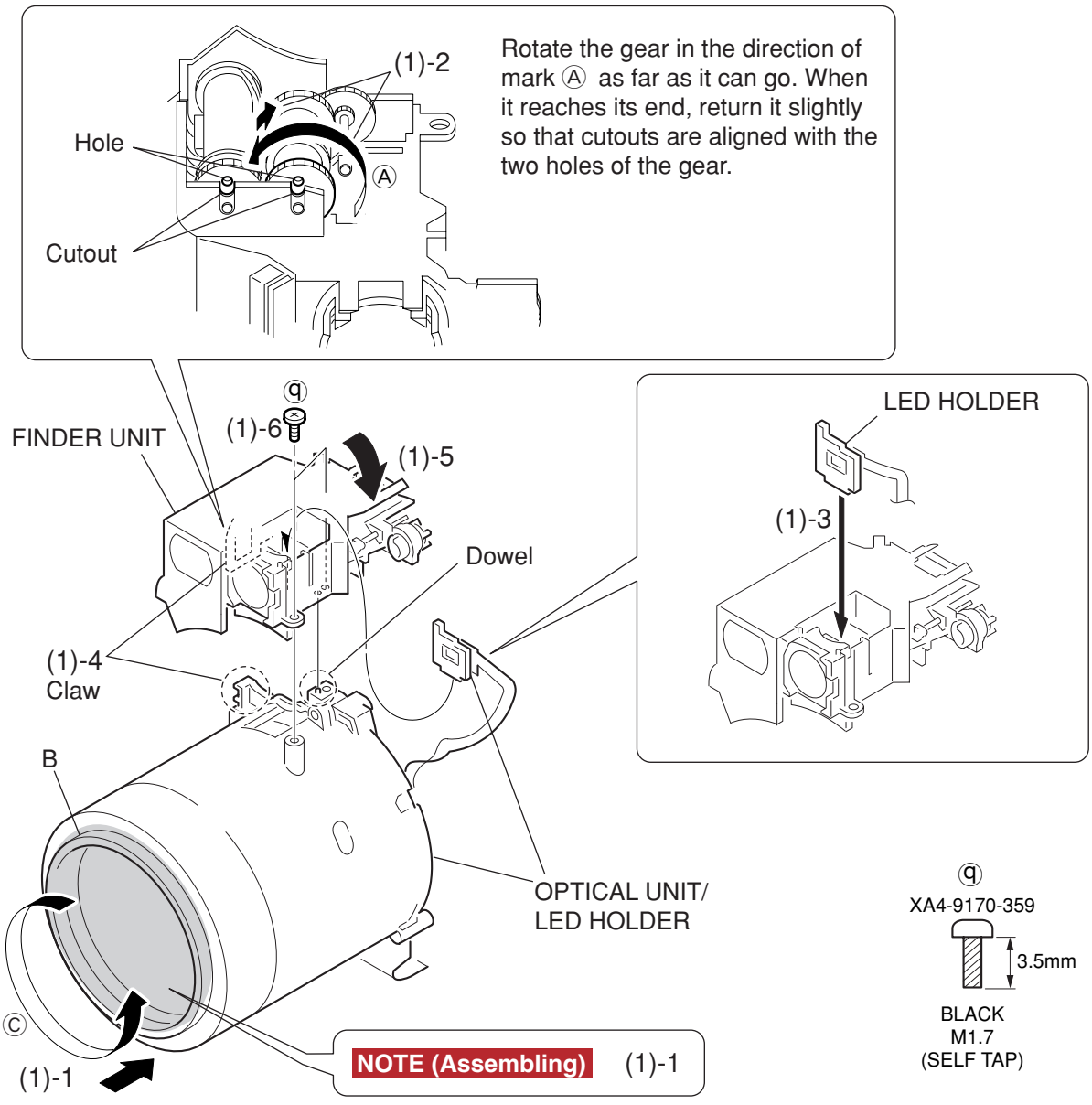


Fig. 3-17 Assembling the FINDER UNIT

2.2.14 Assembling the FINDER UNIT

(1) FINDER UNIT

1. Set the OPTICAL UNIT in the retracted position.
2. Rotated the gear in the direction of mark Ⓐ as far as it can go. When it reaches its end, return it slightly so that cutouts are aligned with the two holes of the gear.
3. Insert the LED HOLDER to the FINDER UNIT.
4. Install the claw.
5. Install the dowel in the opposite side.
6. Install the two screws of ⓠ.

NOTE (Assembling)

If the OPTICAL UNIT is not set in the retracted position, remove the CCD HOLDER UNIT (refer to page 3-28) and rotate the portion B of the OPTICAL UNIT in the direction of mark Ⓒ with hands until the OPTICAL UNIT is set in the retracted position.

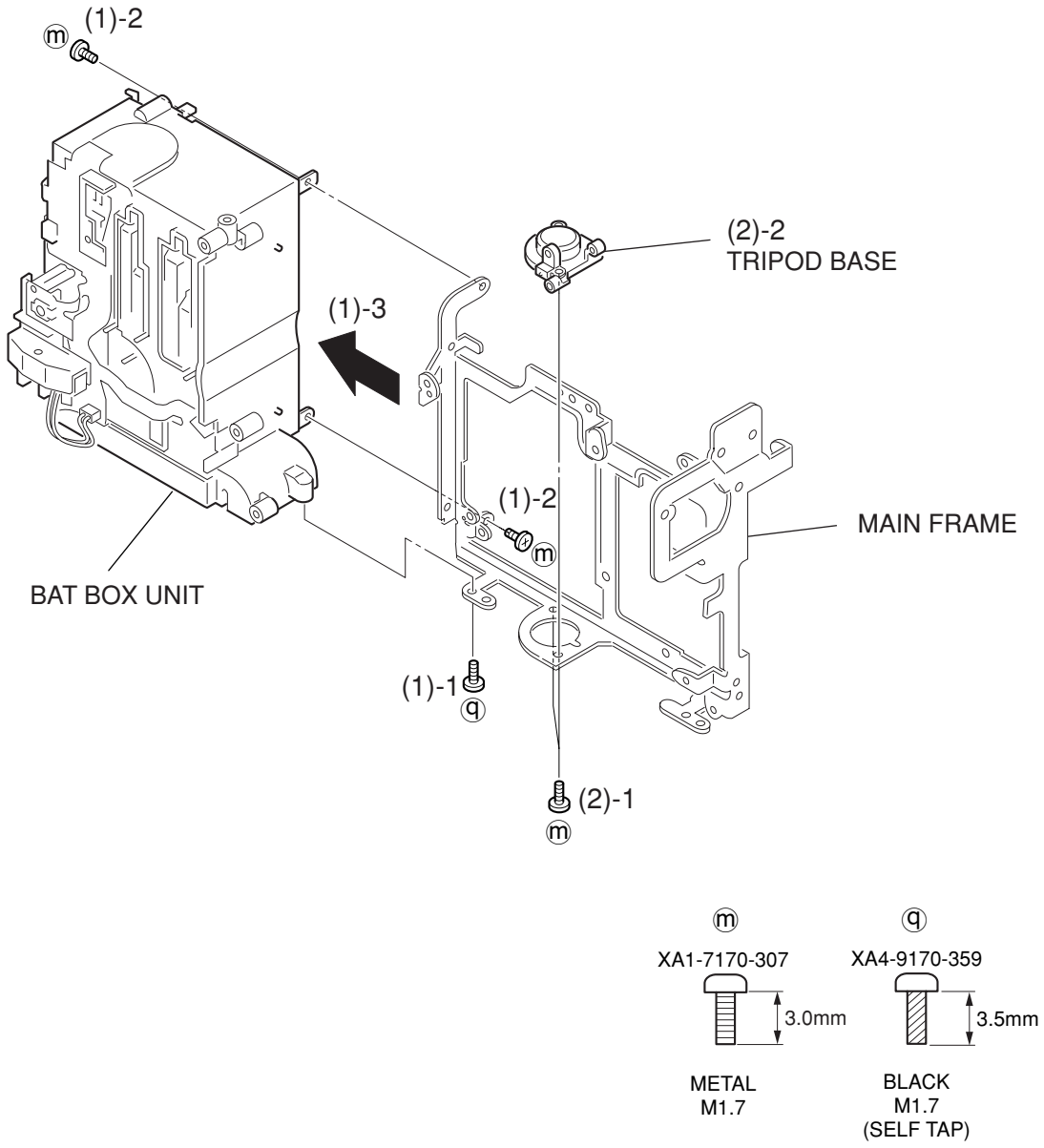


Fig. 3-18 BAT BOX UNIT, TRIPOD BASE

2.2.15 BAT BOX UNIT, TRIPOD BASE

(1) BAT BOX UNIT

1. Remove the screw of ⓠ.
2. Remove the two screws of ⓜ.
3. Remove the BAT BOX UNIT.

(2) TRIPOD BASE

1. Remove the two screws of ⓜ.
2. Remove the TRIPOD BASE from the MAIN FRAME.

2.3 Disassembly of Main Units

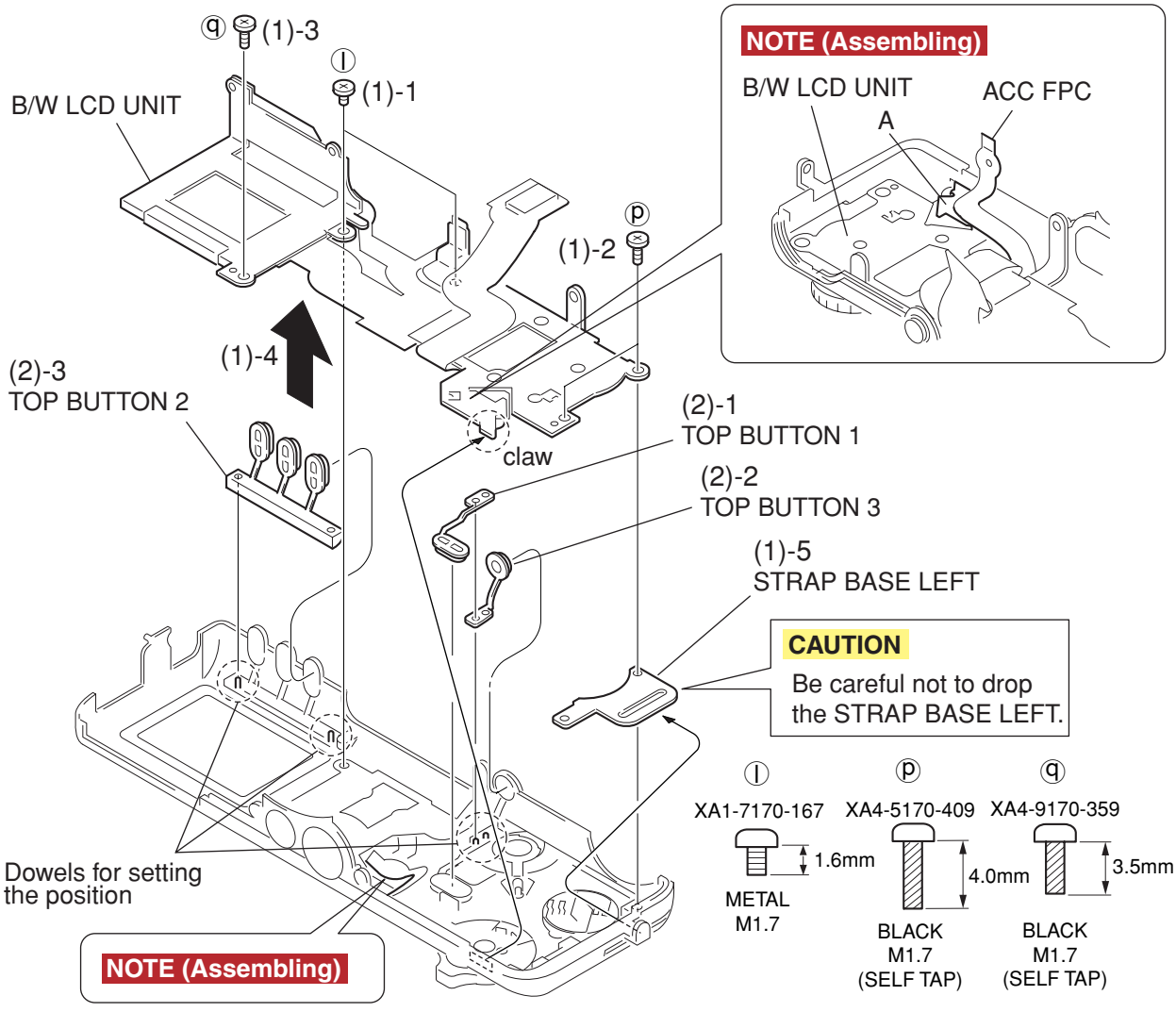


Fig. 3-19 B/W LCD UNIT, TOP BUTTON 1, TOP BUTTON 2, TOP BUTTON 3

2.3.1 TOP COVER

2.3.1.1 B/W LCD UNIT, TOP BUTTON 1, TOP BUTTON 2, TOP BUTTON 3

(1) B/W LCD UNIT

1. Remove the two screws of Ⓘ.
2. Remove the two screws of ⓟ.
3. Remove the screw of ⓠ.
4. Remove the claw and remove the B/W LCD UNIT.
5. Remove the STRAP BASE LEFT.

CAUTION

Be careful not to drop the STRAP BASE LEFT.

NOTE (Assembling)

Be careful that the ACC FPC must not be positioned under the portion A of the B/W LCD UNIT.

(2) TOP BUTTON 1,TOP BUTTON 2, TOP BUTTON 3

1. Remove the TOP BUTTON1.
2. Remove the TOP BUTTON3.
3. Remove the TOP BUTTON2.

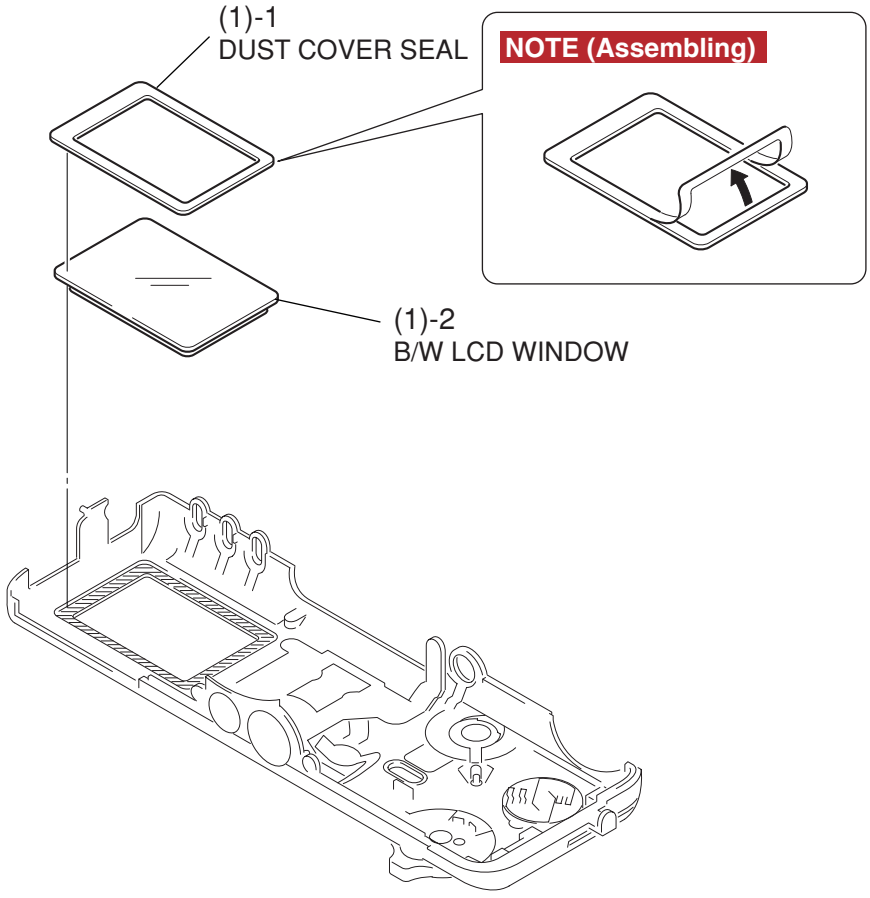


Fig. 3-20 B/W LCD WINDOW

2.3.1.2 B/W LCD WINDOW

(1) B/W LCD WINDOW

1. Peel off the DUST COVER SEAL.
2. Remove the B/W LCD WINDOW.

NOTE (Assembling)

Install the DUST COVER SEAL as shown in the illustration.

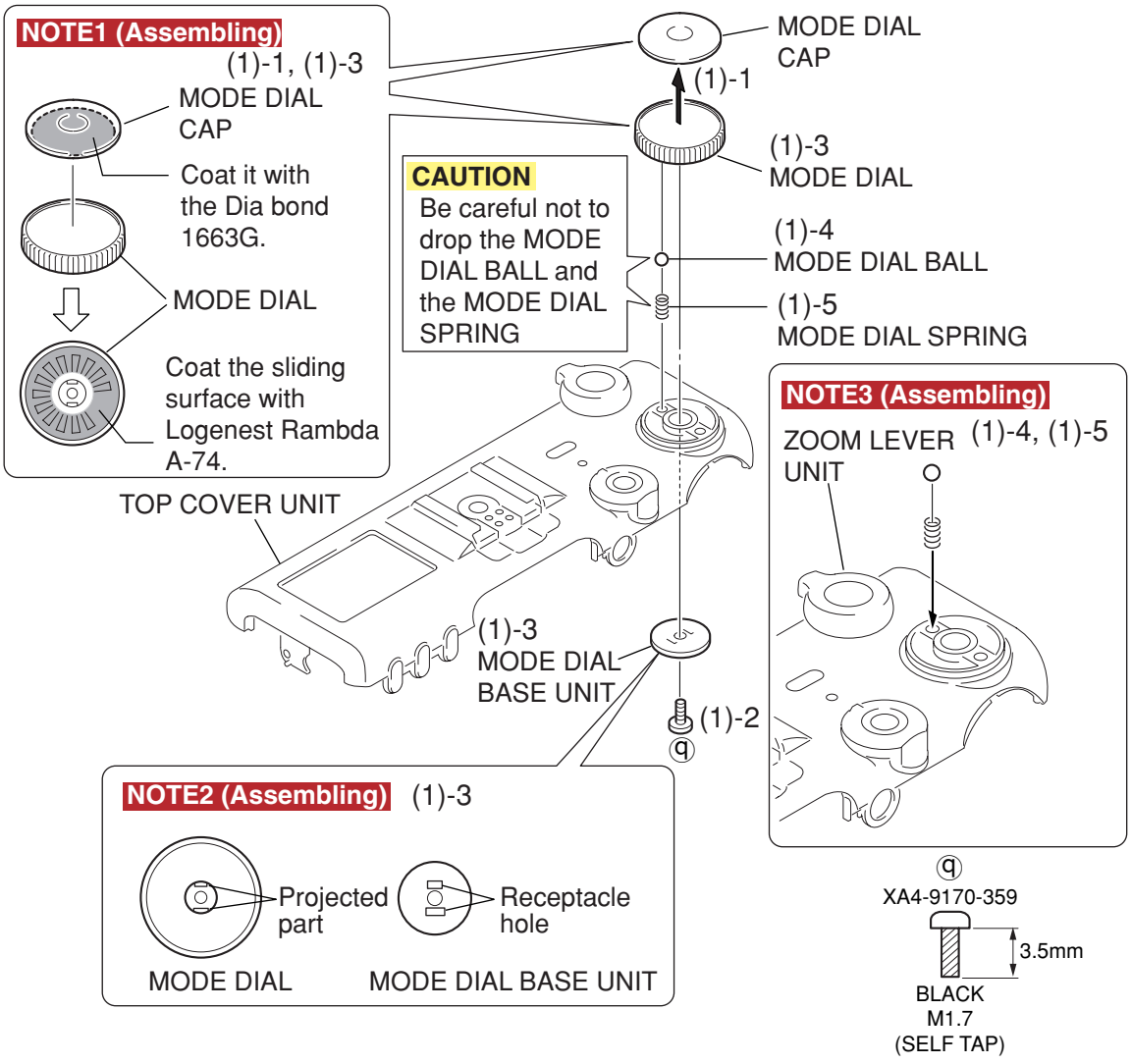


Fig. 3-21 MODE DIAL

2.3.1.3 MODE DIAL

(1) MODE DIAL

1. Peel off the MODE DIAL CAP from the MODE DIAL.
2. Remove the screw of ⓠ.
3. Remove the MODE DIAL BASE UNIT, then remove the MODE DIAL from the TOP COVER UNIT.
4. Remove the MODE DIAL BALL.
5. Remove the MODE DIAL SPRING.

CAUTION

Be careful not to drop the MODE DIAL BALL and the MODE DIAL SPRING.

NOTE1 (Assembling)

Attach the MODE DIAL and the MODE DIAL CAP with Dia bond, and coat the sliding surface of the MODE DIAL with Logenest Rambda A-74.

NOTE2 (Assembling)

Align the large hole and small hole of the receptacle with the large projection and small projection of the projected part, and install the MODE DIAL.

NOTE3 (Assembling)

Insert the MODE DIAL SPRING into the hole at the side of the ZOOM LEVER UNIT, and place the MODE DIAL BALL on top of it as shown in the illustration.

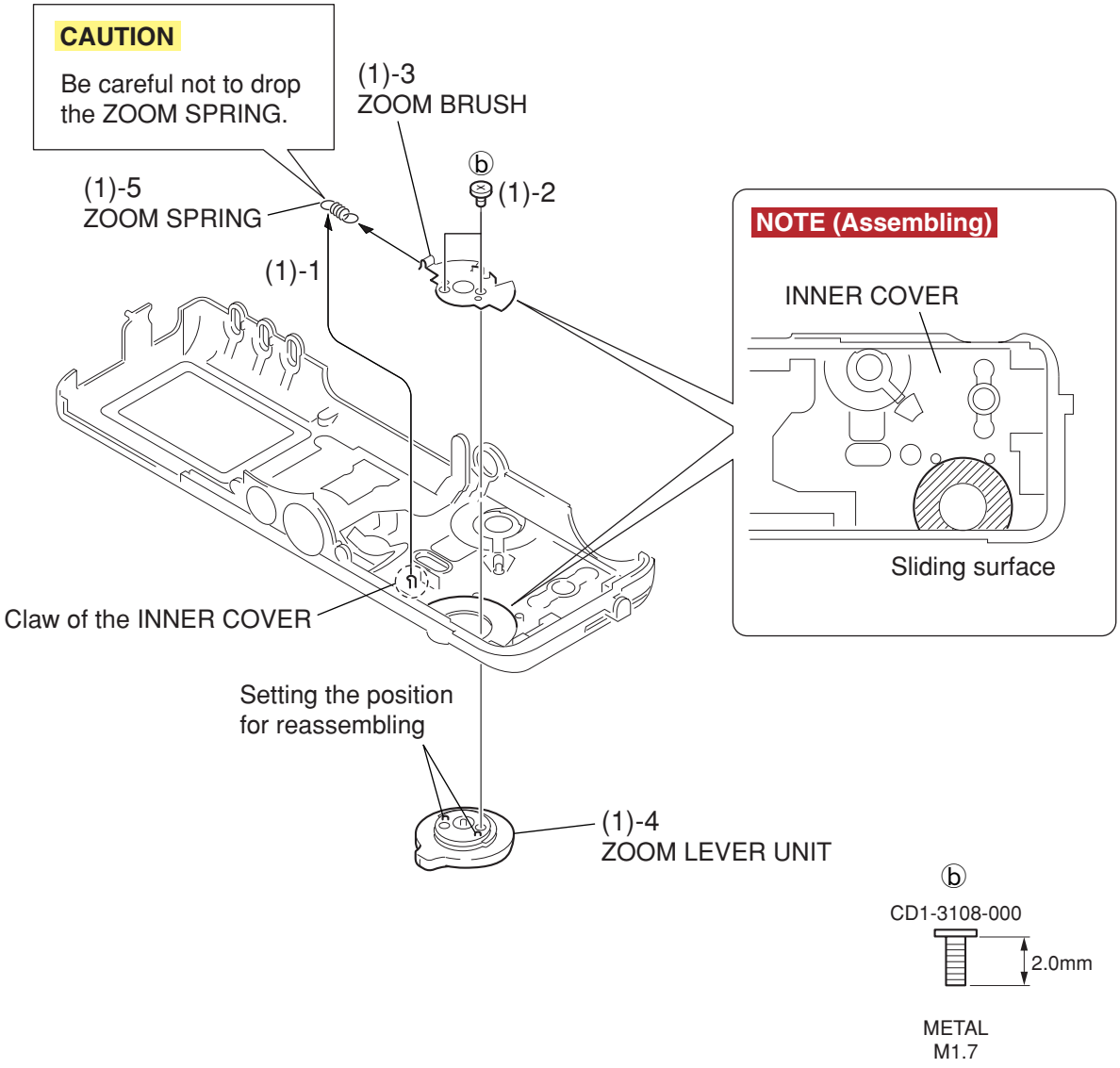


Fig. 3-22 ZOOM LEVER UNIT

2.3.1.4 ZOOM LEVER UNIT

(1) ZOOM LEVER UNIT

1. Remove the ZOOM SPRING from the claw of the INNER COVER.
2. Remove the two screws of ⓑ.
3. Remove the ZOOM BRUSH and the ZOOM SPRING from the INNER COVER.
4. Remove the ZOOM LEVER UNIT.
5. Remove the ZOOM SPRING from the ZOOM BRUSH.

CAUTION

Be careful not to drop the ZOOM SPRING.

NOTE (Assembling)

Coat the sliding surface of the ZOOM BRUSH and INNER COVER with Logenest Rambda A-74 as shown in the illustration.

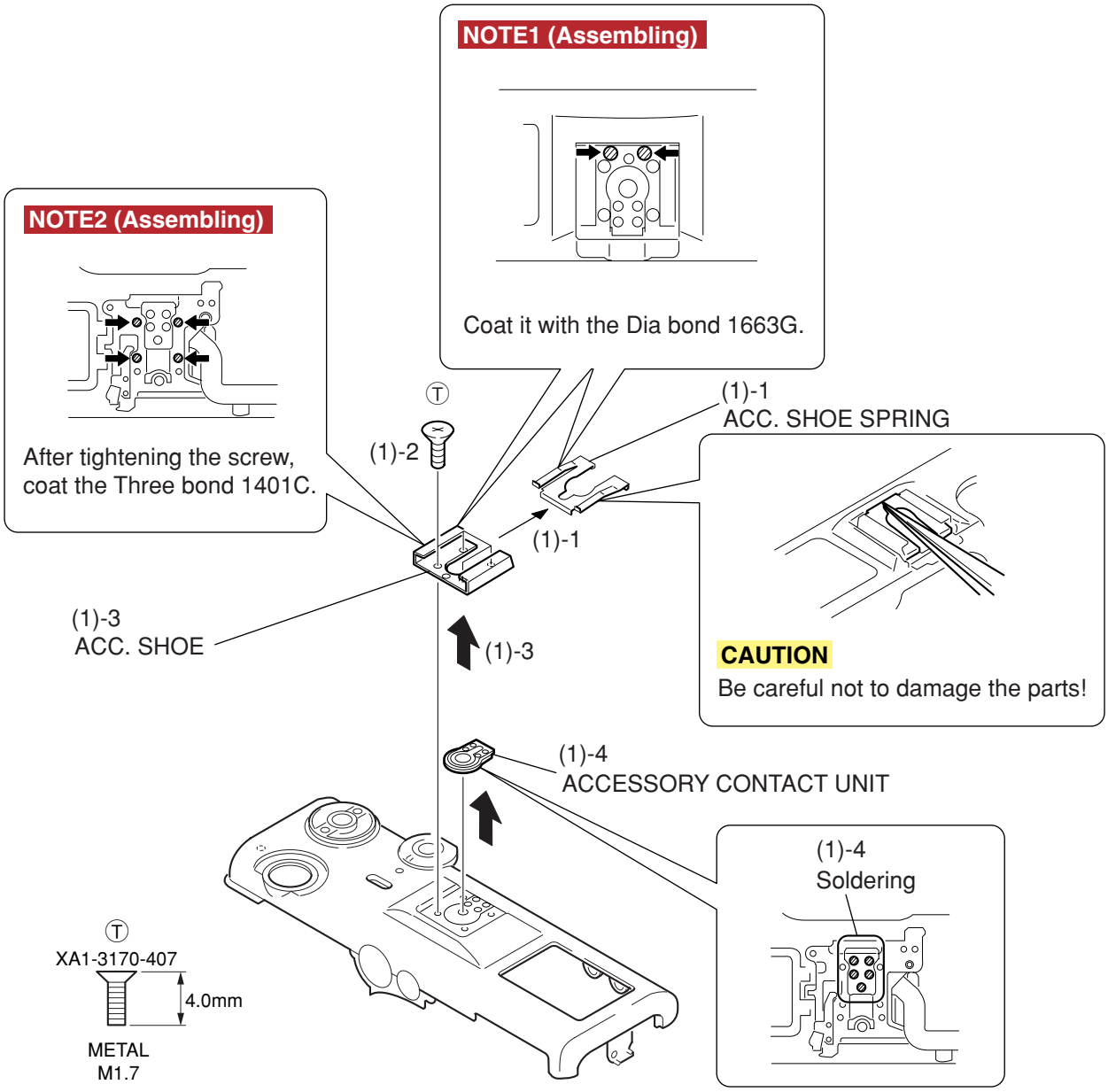


Fig. 3-23 ACCESSORY CONTACT UNIT

2.3.1.5 ACCESSORY CONTACT UNIT

(1) ACC. SHOE, ACC. SHOE SPRING

1. Insert a pair of tweezers under the ACC. SHOE SPRING and remove it.

CAUTION

Be careful not to damage the parts!

NOTE1 (Assembling)

Coat the Dia bond 1663G as shown in the figure.

2. Remove the four screws of Ⓣ.
3. Remove the ACC. SHOE.

NOTE2 (Assembling)

Coat the Three bond 1401C as shown in the figure.

4. Remove the five solderings and remove the ACCESSORY CONTACT UNIT.

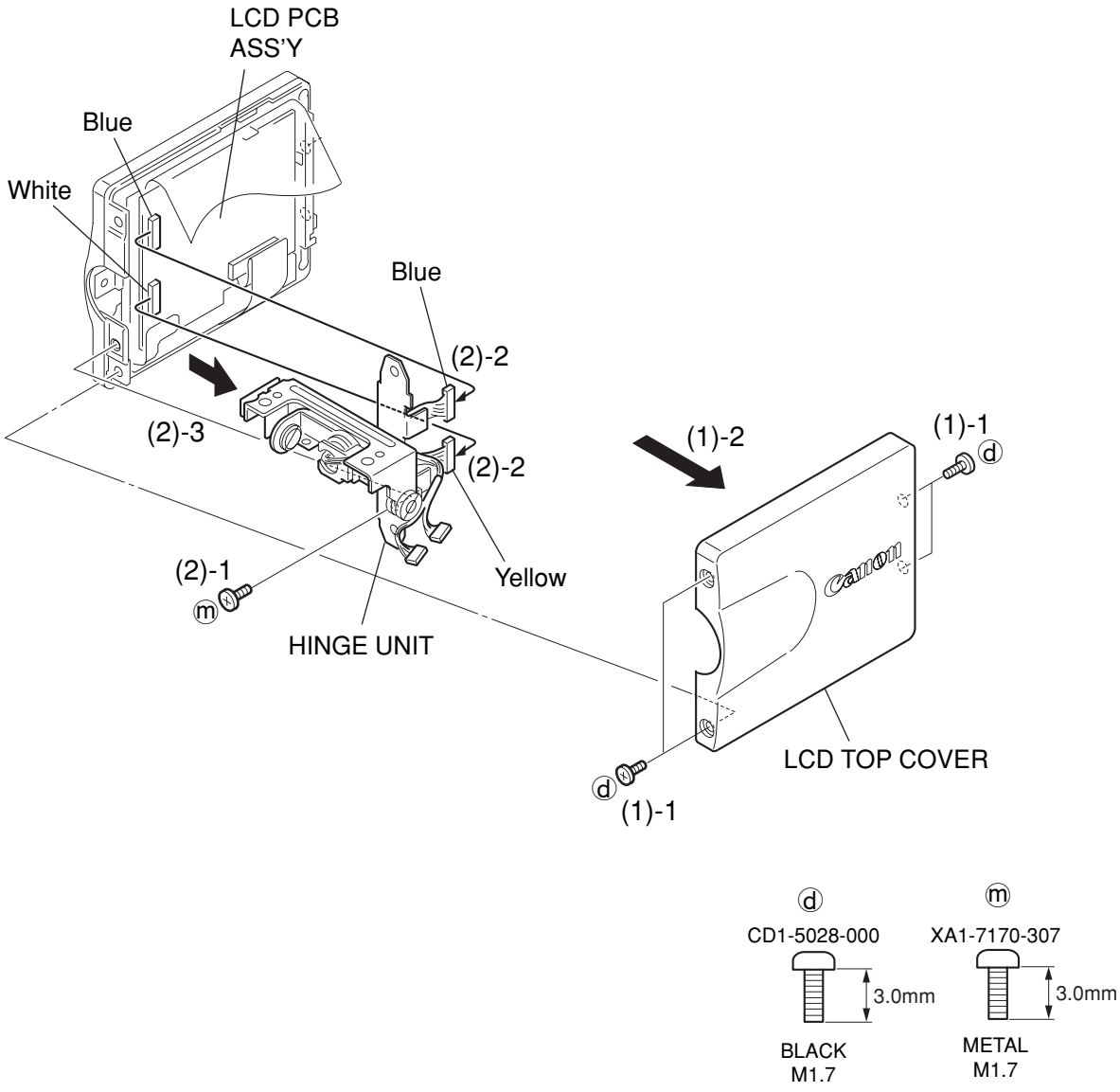


Fig. 3-24 LCD TOP COVER, HINGE UNIT

2.3.2 EVF UNIT

2.3.2.1 LCD TOP COVER, HINGE UNIT

(1) LCD TOP COVER

1. Remove the four screws of ⓓ.
2. Remove the LCD TOP COVER.

(2) HINGE UNIT

1. Remove the screw of ⓜ.
2. Remove the cable of the HINGE UNIT (Two places).
3. Remove the HINGE UNIT.

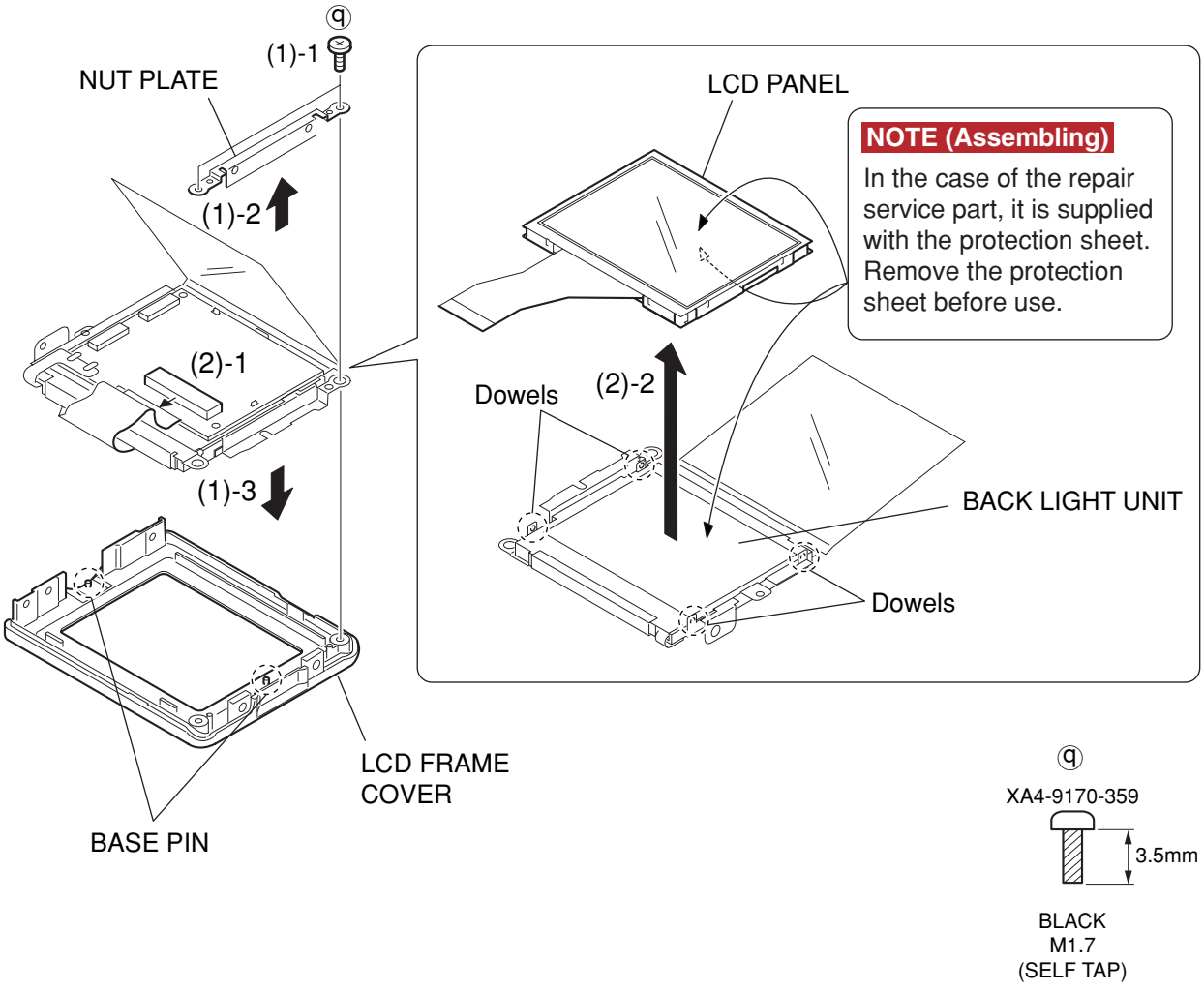


Fig. 3-25 LCD FRAME COVER, LCD PANEL

2.3.2.2 LCD FRAME COVER, LCD PANEL

(1) LCD FRAME COVER

1. Remove the two screws of ⓠ.
2. Remove the NUT PLATE.
3. Remove the LCD FRAME COVER from the LCD PANEL.

(2) LCD PANEL

1. Remove the flexible board of the LCD PANEL.
2. Remove the four dowels, then remove the LCD PANEL.

NOTE (Assembling)

In the case of the repair service part, it is supplied with the protection sheet. Remove the protection sheet before use.

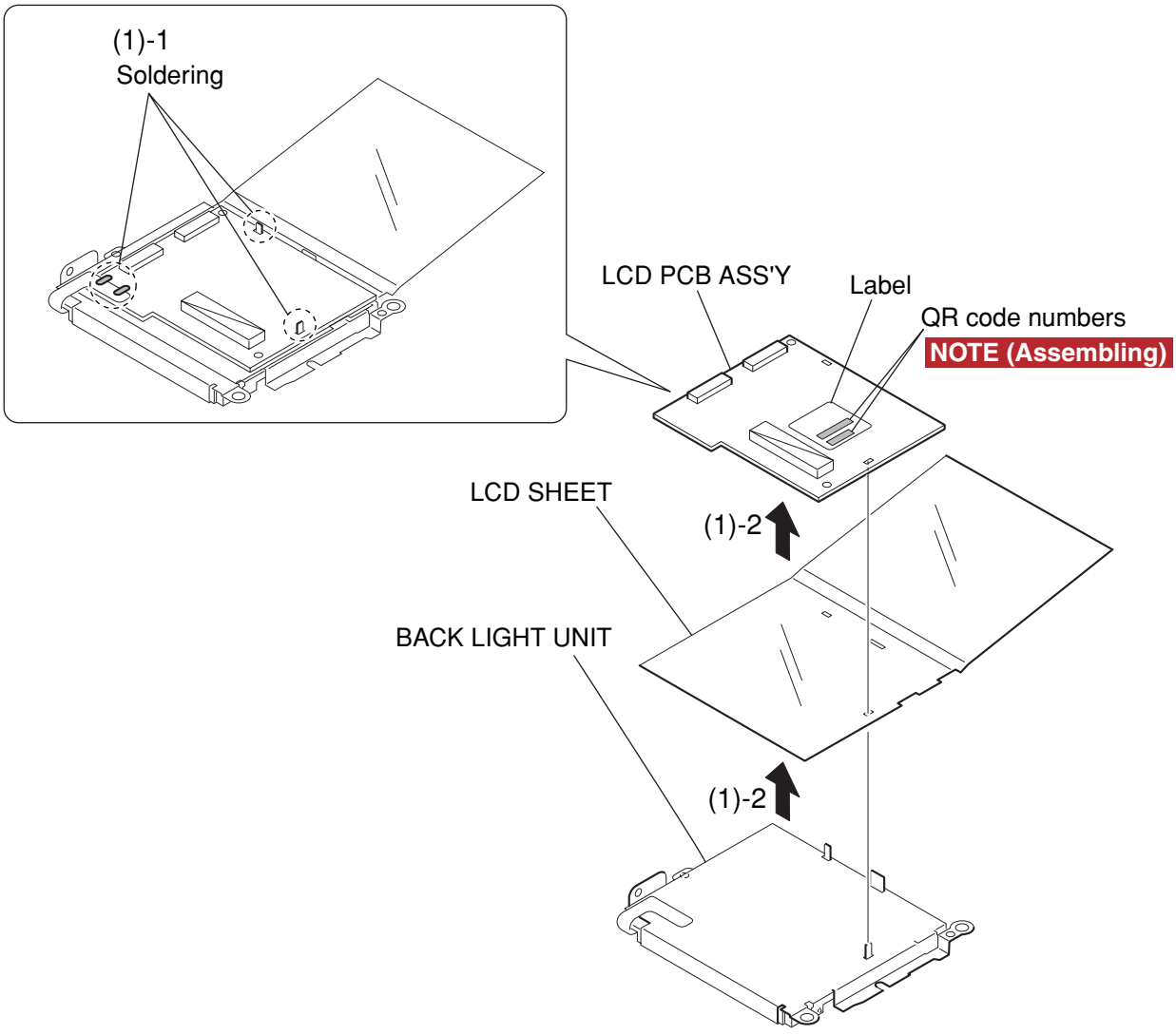


Fig. 3-26 LCD PCB ASS'Y

2.3.2.3 LCD PCB ASS'Y

(1) LCD PCB ASS'Y

1. Remove the soldering (Four places).
2. Remove the LCD PCB ASS'Y and the LCD SHEET from the BACK LIGHT UNIT.

NOTE (Assembling)

When LCD PCB ASS'Y is going to replace, take note of the two QR code numbers (10 digit and 8 digit hexadecimal numbers) of the replacement LCD PCB ASS'Y without fail. (* The QR code numbers are important information when making the LCD adjustment.)

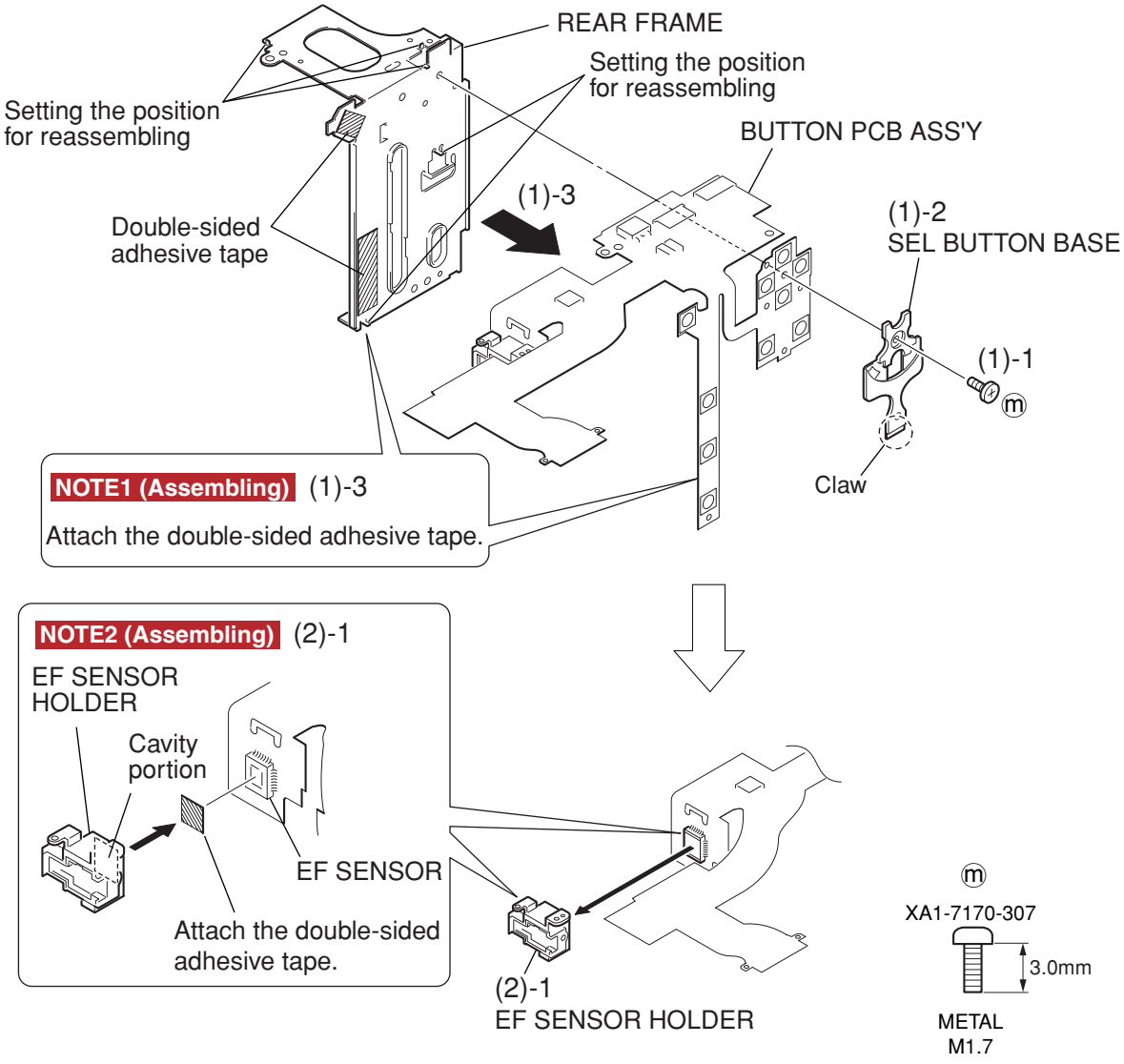


Fig. 3-27 BUTTON PCB ASS'Y, EF SENSOR HOLDER

2.3.3 REAR PLATE UNIT

2.3.3.1 BUTTON PCB ASS'Y, EF SENSOR HOLDER

(1) BUTTON PCB ASS'Y

1. Remove the screw of ⓜ.
2. Remove the claw, then remove the SEL. BUTTON BASE.
3. While peeling off the double-sided adhesive tape, remove the BUTTON PCB ASS'Y from the REAR FRAME.

NOTE1 (Assembling)

Attach the two double-sided adhesive tapes on the REAR FRAME as shown in the illustration.

(2) EF SENSOR HOLDER

1. While peeling off the double-sided adhesive tape, remove the EF SENSOR HOLDER.

NOTE2 (Assembling)

When installing the EF SENSOR HOLDER, attach the double-sided adhesive tape first on the EF SENSOR, then align the cavity portion of the EF SENSOR HOLDER with the EF SENSOR of the BUTTON PCB ASS'Y as shown in the illustration.

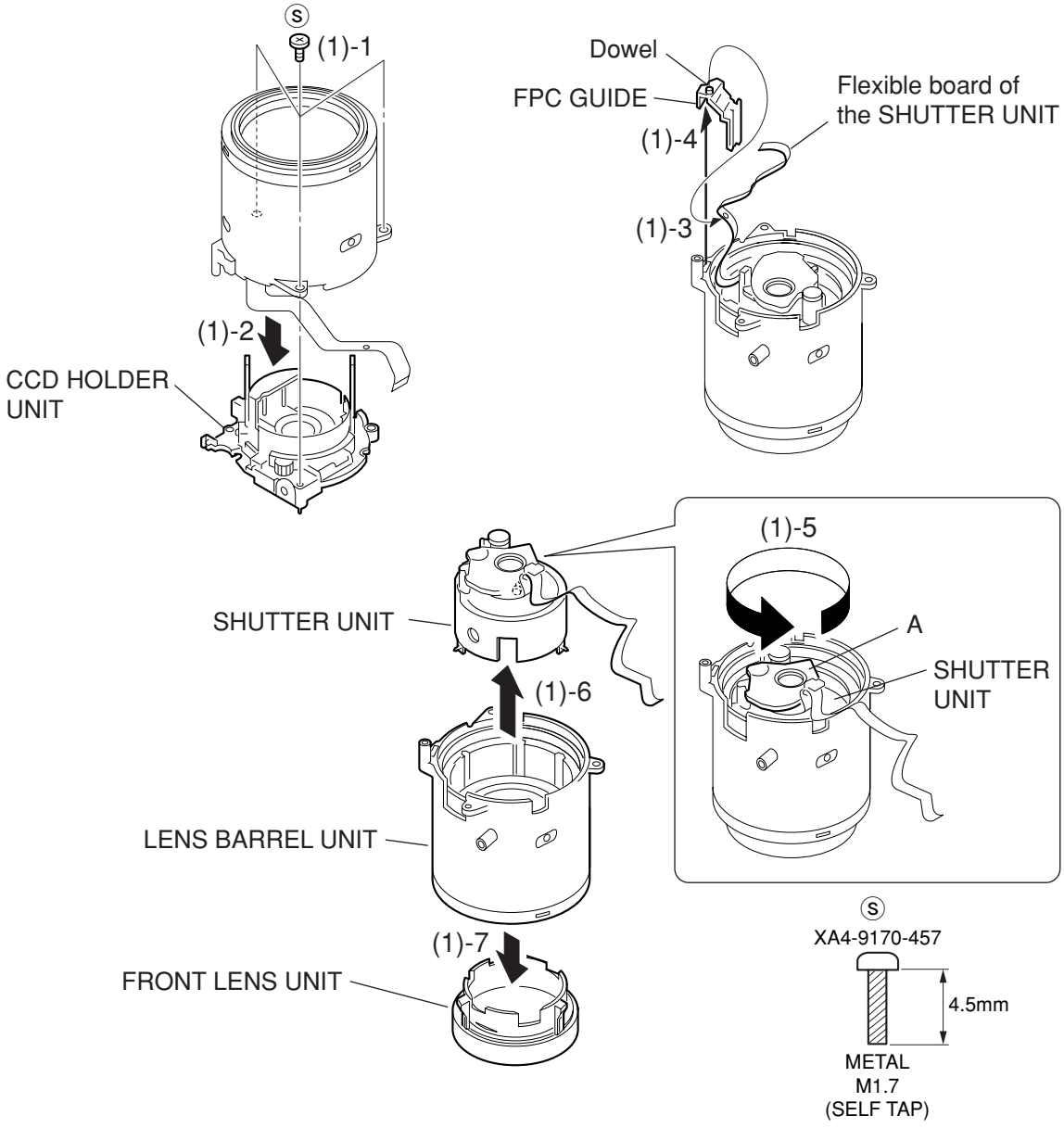


Fig. 3-28 CCD HOLDER,SHUTTER UNIT

2.3.4 CCD HOLDER, SHUTTER UNIT

2.3.4.1 CCD HOLDER, SHUTTER UNIT

(1) CCD HOLDER,SHUTTER UNIT

1. Remove the three screws of Ⓢ.
2. Remove the the CCD HOLDER UNIT.
3. Remove the flexible board of the SHUTTER UNIT from the dowel of the FPC GUIDE .
4. Remove the FPC GUIDE.
5. Pinches the SHUTTER UNIT with fingers at marked by A, and rotate the SHUTTER UNIT as far as it can go in the direction of the arrow.
6. Remove the SHUTTER UNIT.
7. Remove the FRONT LENS UNIT from the LENS BARREL UNIT.

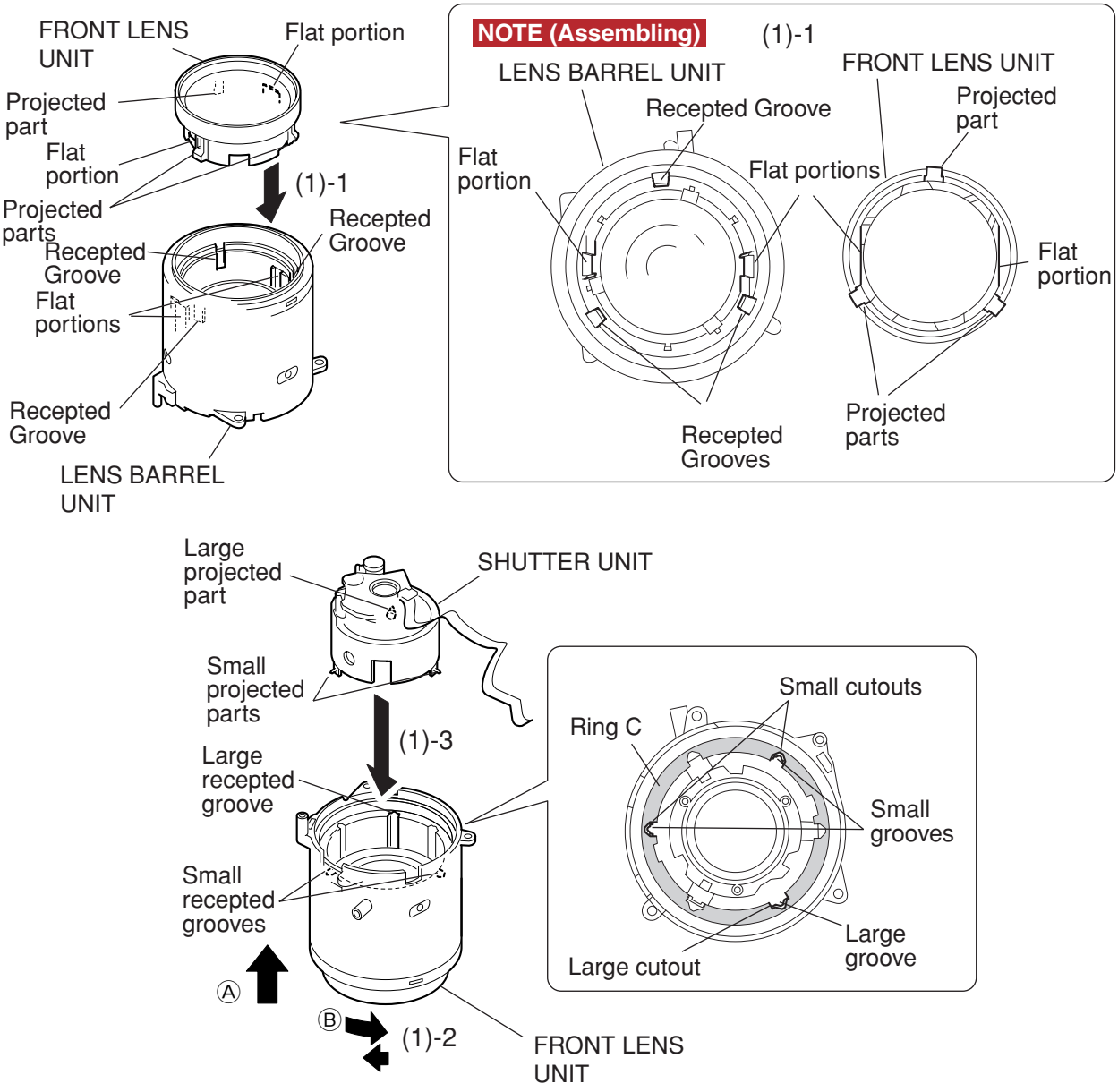


Fig. 3-29 Assembling the CCD HOLDER,SHUTTER UNIT-1

2.3.4.2 Assembling the CCD HOLDER, SHUTTER UNIT-1

(1) Assembling the CCD HOLDER,SHUTTER UNIT-1

1. Place the FRONT LENS UNIT on top of the LENS BARREL UNIT.
2. While pushing the FRONT LENS UNIT in the direction of mark Ⓐ and rotating it in the direction of mark Ⓑ as far as it can go. When it reaches the end, return it about 2 degrees so that the three cutouts of the ring C are aligned with the three grooves of the ring at the end.
3. Align the large groove and small groove of the receptacle with the large projection and small projection of the projected part, and insert the SHUTTER UNIT.

NOTE (Assembling)

When placing the FRONT LENS UNIT on top of the LENS BARREL UNIT, align the three projections of the FRONT LENS UNIT with the three grooves of the LENS BARREL UNIT. And at the same align the two flat portions of the FRONT LENS UNIT with the two flat portions of the LENS BARREL UNIT.

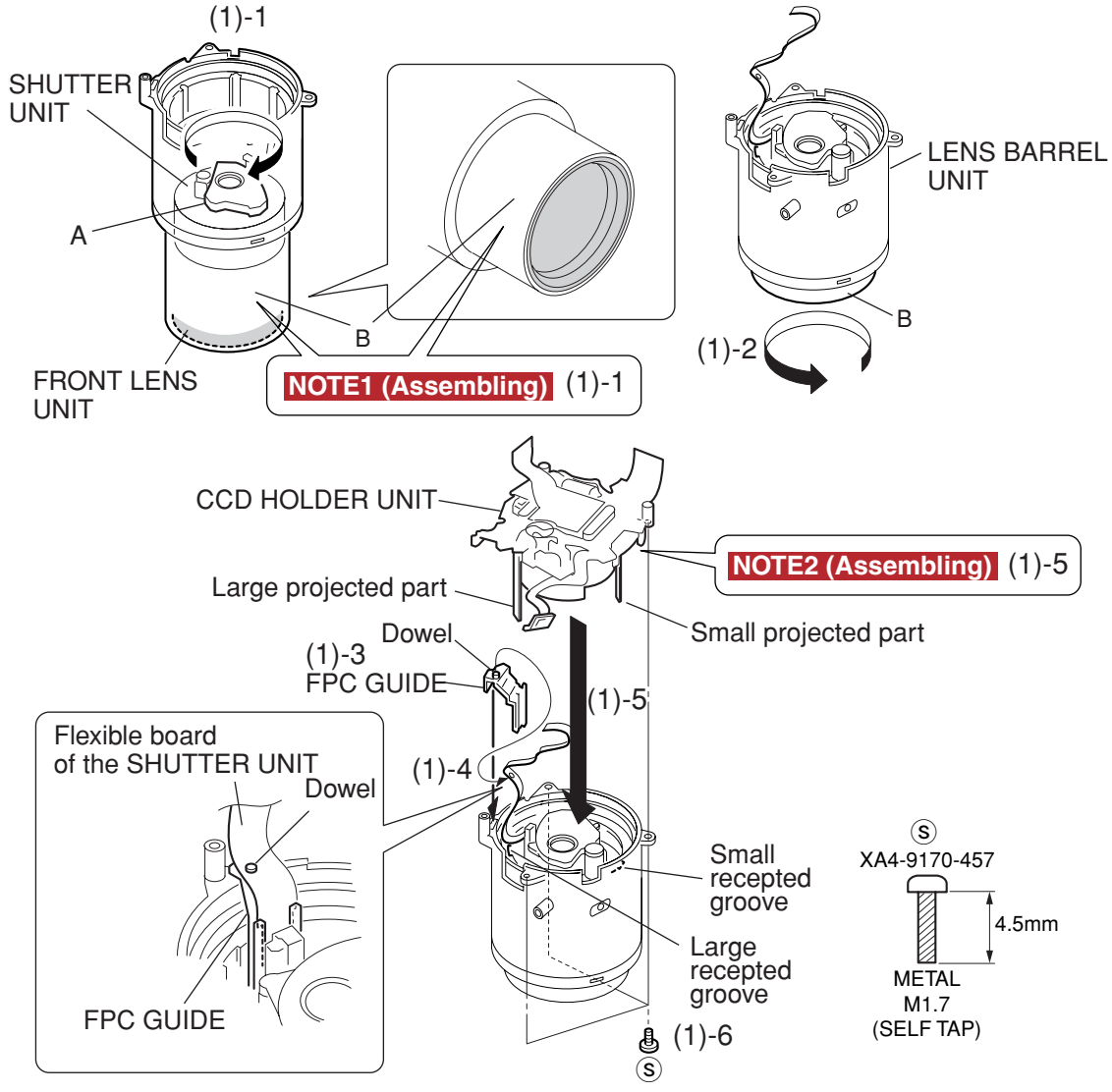


Fig.3-30 Assembling the CCD HOLDER,SHUTTER UNIT-2

2.3.4.3 Assembling the CCD HOLDER, SHUTTER UNIT-2

(1) Assembling the CCD HOLDER,SHUTTER UNIT-2

1. Hold the portion A and rotate it in the direction of the arrow as far as it can go.
2. Rotate the portion B of the LENS BARREL UNIT in the direction of the arrow as far as it can go.
3. Install the FPC GUIDE.
4. Align the SHUTTER UNIT with the dowel used for position setting.
5. Align the large hole and small hole of the receptacle with the large projection and small projection of the projected part, and insert the CCD HOLDER UNIT.
6. Install the three screws of Ⓢ.

NOTE1 (Assembling)

When the SHUTTER UNIT is rotated, the portion B of the LENS BARREL UNIT will project. Do not care about the projection and keep rotating it. When it is rotated as far as it can go, the FRONT LENS UNIT enters into the portion B of the LENS BARREL UNIT.

NOTE2 (Assembling)

When installing, use the original CCD HOLDER UNIT that has been removed from the original OPTICAL UNIT.

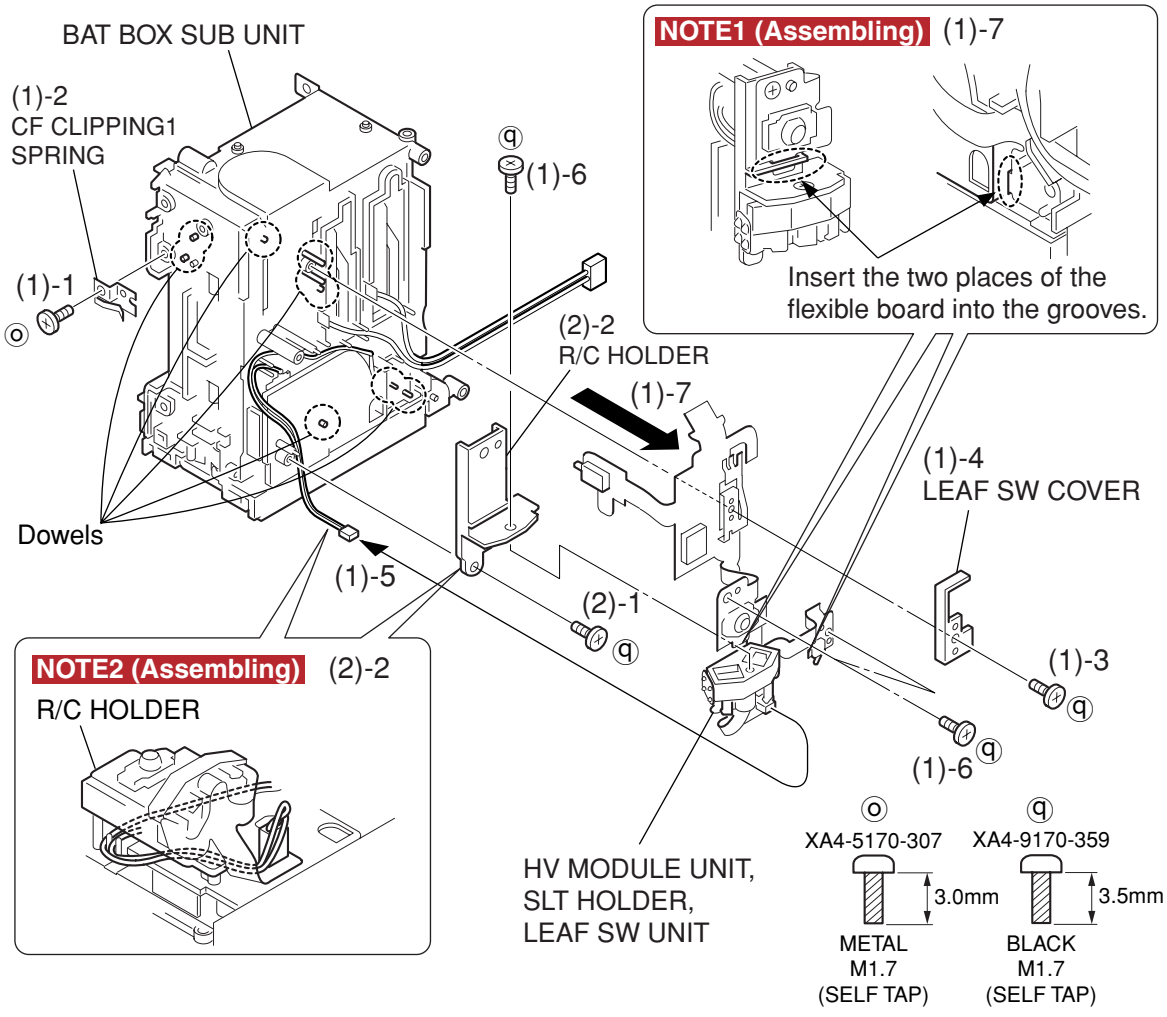


Fig. 3-31 HV MODULE UNIT, SLT HOLDER, LEAF SW UNIT, R/C HOLDER

2.3.5 BAT BOX UNIT

2.3.5.1 HV MODULE UNIT, SLT HOLDER, LEAF SW UNIT, R/C HOLDER

(1) HV MODULE UNIT, SLT HOLDER, LEAF SW UNIT

1. Remove the screw of ⓞ.
2. Remove the CF CLIPPING1 SPRING.
3. Remove the screw of ⓠ.
4. Remove the LEAF SW COVER.
5. Remove the cable of the BAT BOX SUB UNIT.
6. Remove the three screws of ⓠ.
7. Remove the nine dowels, then remove the HV MODULE UNIT, SLT HOLDER and LEAF SW UNIT.

NOTE1 (Assembling)

When installing the HV MODULE UNIT, SLT HOLDER and LEAF SW UNIT, insert the flexible board of the HV MODULE UNIT into the grooves of the R/C HOLDER (Two places).

(2) R/C HOLDER

1. Remove the screw of ⓠ.
2. Remove the R/C HOLDER.

NOTE2 (Assembling)

Route the cable of the BATTERY BOX SUB UNIT so that it passes the back side of the R/C HOLDER as shown in the illustration.

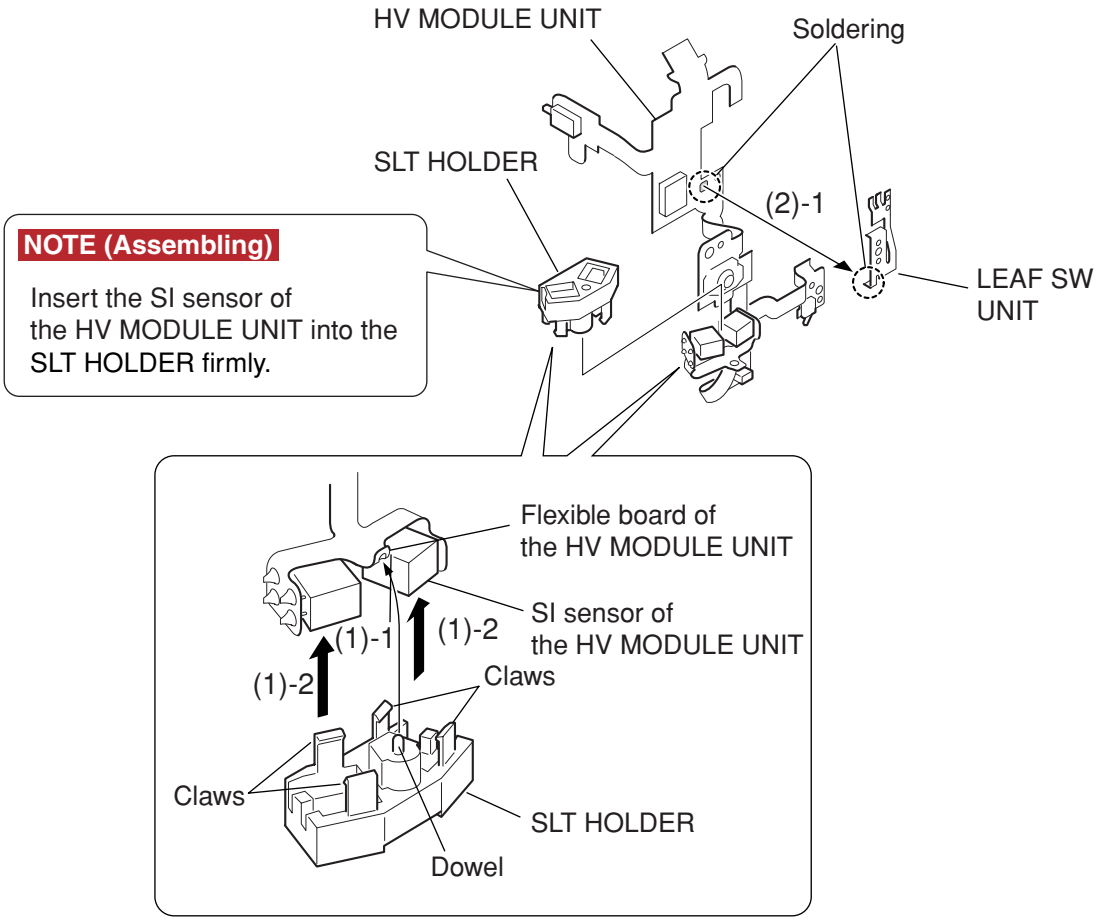


Fig. 3-32 HV MODULE UNIT, LEAF SW UNIT

2.3.5.2 HV MODULE UNIT, LEAF SW UNIT

(1) HV MODULE UNIT

1. Remove the flexible board of the HV MODULE UNIT from the dowel.
2. Remove the four claws, then remove the SLT HOLDER from the SI sensor of the HV MODULE UNIT.

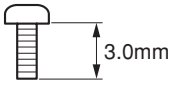
NOTE (Assembling)

Insert the SI sensor of the HV MODULE UNIT into the SLT HOLDER firmly.

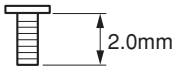
(2) LEAF SW UNIT

1. Remove the soldering, then remove the LEAF SW UNIT from the HV MODULE UNIT.

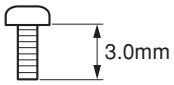
2.4 Screw List

ⓐ
CB1-1998-000


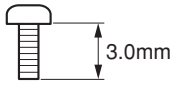
METAL
M1.7

ⓑ
CD1-3108-000


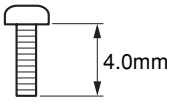
METAL
M1.7

ⓒ
CD1-3798-000


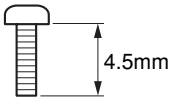
METAL
M1.7

ⓓ
CD1-5028-000


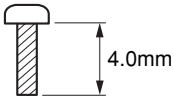
BLACK
M1.7

ⓔ
CD1-5030-000


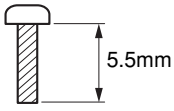
BLACK
M1.7

ⓕ
CD1-5031-000


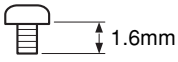
BLACK
M1.7

ⓖ
CD1-5032-000


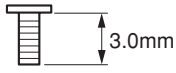
BLACK
M1.7
(SELF TAP)

ⓗ
CD1-5033-000


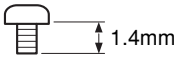
BLACK
M1.7
(SELF TAP)

ⓘ
CD1-4983-000


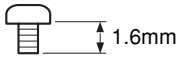
SILVER
M1.7

ⓙ
CD1-4987-000


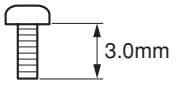
SILVER
M1.7

ⓚ
XA1-7170-147


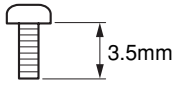
METAL
M1.7

ⓛ
XA1-7170-167


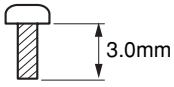
METAL
M1.7

ⓜ
XA1-7170-307


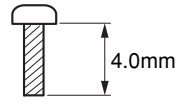
METAL
M1.7

ⓝ
XA1-7170-357


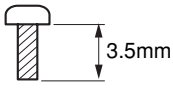
METAL
M1.7

ⓞ
XA4-5170-307


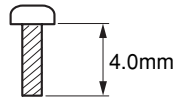
METAL
M1.7
(SELF TAP)

ⓟ
XA4-5170-409


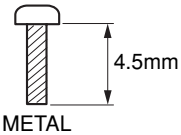
BLACK
M1.7
(SELF TAP)

ⓠ
XA4-9170-359


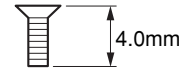
BLACK
M1.7
(SELF TAP)

ⓡ
XA4-9170-407


METAL
M1.7
(SELF TAP)

ⓢ
XA4-9170-457


METAL
M1.7
(SELF TAP)

Ⓣ
XA1-3170-407


METAL
M1.7

3. Adjustments

3.1 Replacement Parts and Adjustment Items

PowerShot G5 requires electrical adjustments when certain parts are replaced.
The table below indicates the adjustments required for the respective part replacements.
For all other parts not listed below, no electrical adjustments are necessary after replacement.

Adjustment Items / Replacement Part	CCD Adjustment	Optical Unit Adjustment	Imaging Process Adjustment	Color Adjustment	Pixel Dot Adjustment	LCD Adjustment	Flash Adjustment
BATTERY BOX UNIT							
DC/DC CONV. UNIT							
OPTICAL UNIT	● #1	● #2	● #3	● #4	● #5		● #6
FLASH UNIT							●
MAIN PCB ASS'Y	○	○	○	○	○	○	○
LCD PCB ASS'Y						●	
LCD PANEL							
BACK LIGHT UNIT							

● : Adjustment is necessary after replacement.
○ : Adjustment is necessary after replacement.
(Adjustment is not necessary, only if the adjustment data has been saved and then transferred after the part is replaced.)
Blank : Adjustment is unnecessary.

* When OPTICAL UNIT is replaced, adjust certainly at the procedure as below.

#1. CCD Adjustment

#2. Optical Unit Adjustment

#3. Imaging Process Adjustment

#4. Color Adjustment

#5. Pixel Dot Adjustment

#6. Flash Adjustment

3.2 Adjustment Tools

The following tools are required for electrical adjustment.

DESCRIPTION	PARTS NO.	REMARKS
PC/AT-Compatible Machine (Windows 2000 or 98 pre-installed Model, USB port)	—	Local purchase
SERVICE MANUAL (CD-ROM)	CY8-4386-031	
ADJUSTMENT SOFTWARE	—	Download
Compact Power Adapter CA-560	—	Enclosed in Merchandise
AC Cable	—	Enclosed in Merchandise
INTERFACE CABLE IFC-300PCU	—	(or Local purchase)
Brightness Box (light source A)	—	(Verified with EF-5000)
Color Viewer (5600° K)	DY9-2039-100	
Color Bar Chart	DY9-2002-000	
18% Gray Chart	CY4-6016-000	
Auto Focus Chart	—	Attached to "SERVICE MANUAL (CD-ROM)" 2types *2
W-10 Filter *1	CY9-1556-000	
C-2 Filter	CY9-1561-000	
C-12 Filter	CY9-1555-000	
FL-W Filter	CY9-1557-000	
ND-4 Filter	CY9-1553-000	
ND-8 Filter	CY9-1554-000	
Light-Shielding Cloth (500 × 500 or larger)	—	Local purchase
Tripod	—	Local purchase
Reference Camera	—	Merchandise
Speedlite 420EX	—	Merchandise
Gray. jpg File	—	
DIGITAL CAMERA SolutionDisk	—	Enclosed in Merchandise

*1 2pcs. required.
*2 The file containing "How to print out" and Chart for print-out is in the Service Manual APPENDIX.

3.3 Before Starting Electrical Adjustments

3.3.1 TWAIN Driver Installation

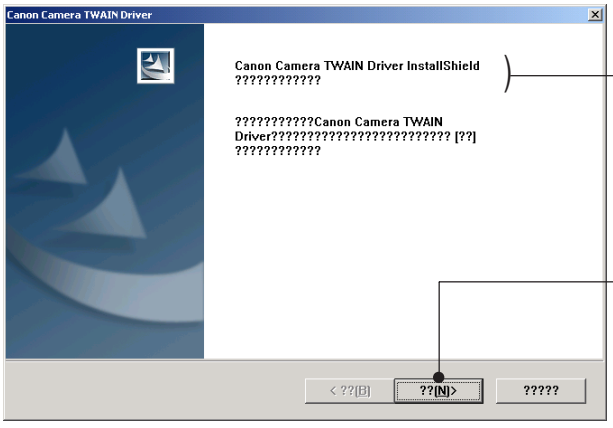
Install the USB Driver for Adjustment in the CD-ROM to PC.
("This Adjustment Software" is impossible when the RS-232C TWAIN driver is used.)

3.3.2 Factory Mode Driver Installation

After downloading and extracting Factory Mode Driver, double-click Setup.exe (\Factory Mode Driver\Win 2000_98\Setup.exe) to install it.

If InstallShield Wizard appears as shown in the first picture below, install the TWAIN (Factory Mode) Driver by following the instructions.

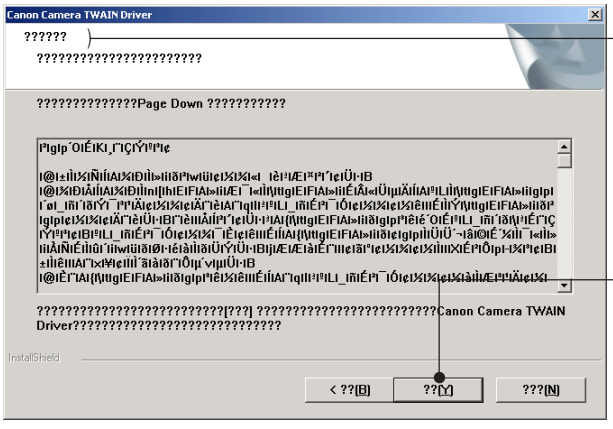
1



The InstallShield Wizard will install TWAIN Driver on your computer.

Click the "??[N]>" button.

2

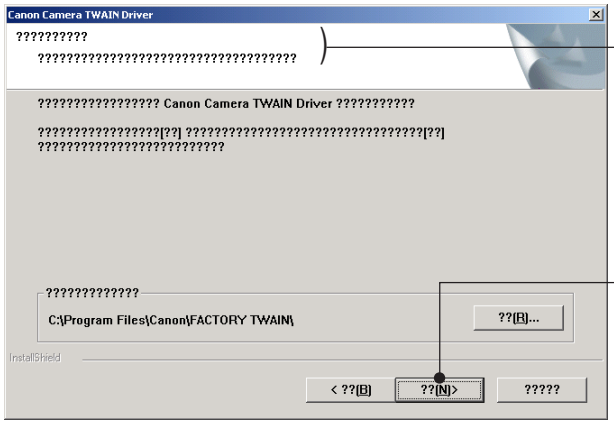


License Agreement

See the file "Service Manual/English/Ch6/License.pdf" for the contents of the License.

Click the "??[Y]" button.

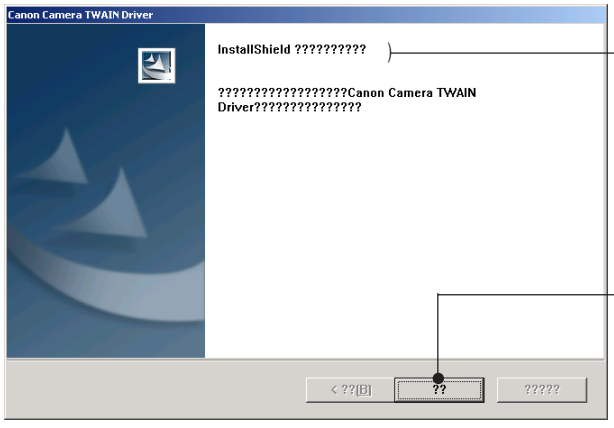
3



Choose Destination Location
Select folder where Setup will install files.

Click the "??[N]>" button.

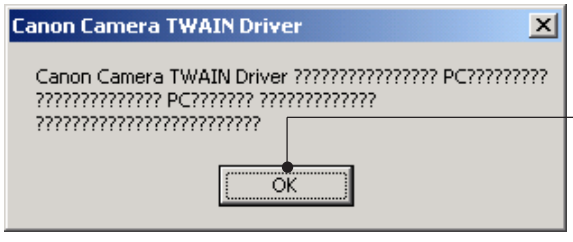
4



InstallShield Wizard Complete

Click the "??" button.

5



Click the "OK" button.

Installing TWAIN (Factory Mode) Driver is completed.

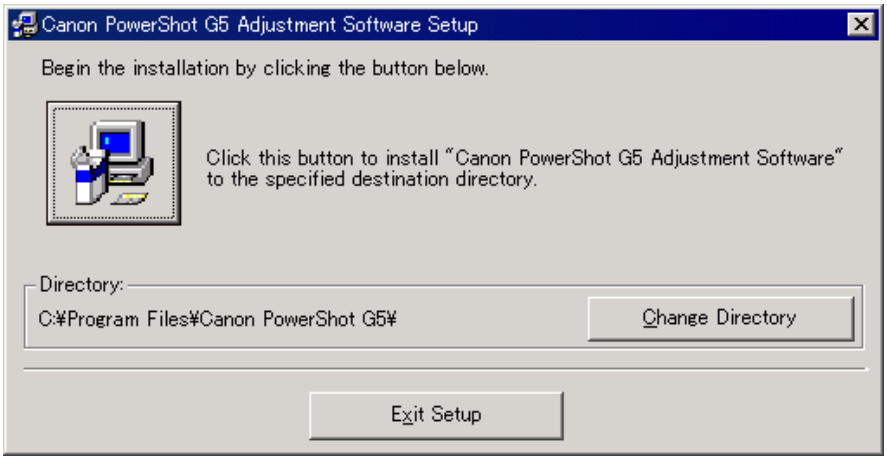
If you cannot install Factory Mode Driver in above procedure, install it in the following procedure.

1. Change the camera to Factory mode.
2. Install Wizard of new hardware starts up.
3. Select the option that directly chooses the driver's place.
4. Choose CAP_FACT.INF
   (Factory Mode Driver\Win2000_98\Win_2k98\CAP_FACT.INF).
5. Installment starts. When the Wizard finishes, the installment finishes.

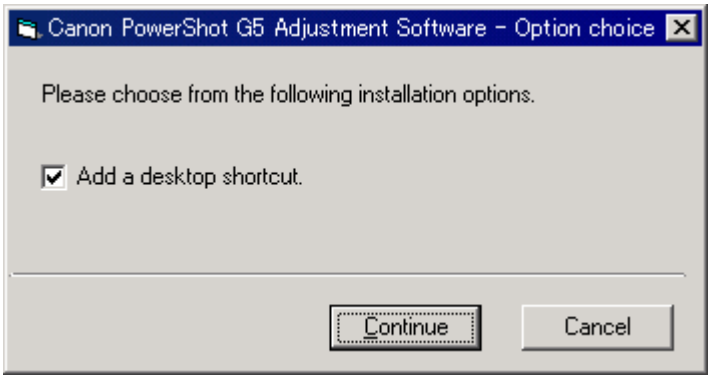
3.3.3 Adjustment Software Installation

1. After downloading and extracting Adjustment Software, double-click Setup.exe to install it.
   (Adjustment Softwares are different according to the model of camera that you are going to adjust.)
2. When the dialog box below appears, click the “OK” button.

3. When the dialog box below appears, click the  button. (Software installation will then begin.)



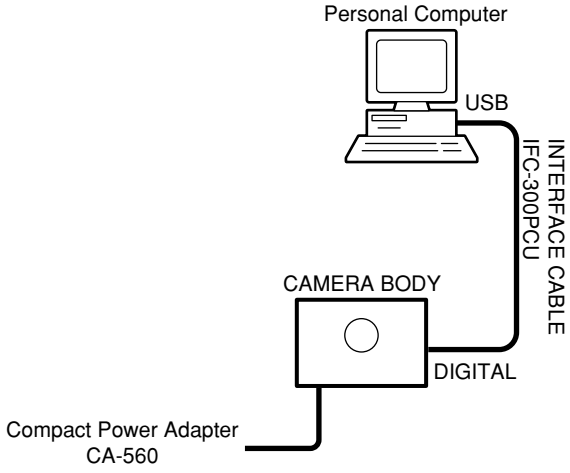
4. When the dialog box below appears, click the “Continue” button.
   (In the case that you do not add a shortcut on desktop, remove clicking from the check box.)



3.3.4 Preparation

Before starting up the Adjustment Software, follow the preparatory steps below:

1. Obtain all the tools necessary for the adjustment.
2. Connect the Camera to the Power Source with the Compact Power Adapter CA-560 & AC Cable.
3. Set the Replay Mode on the camera and turn on.
4. Set the Communication Mode to Normal.



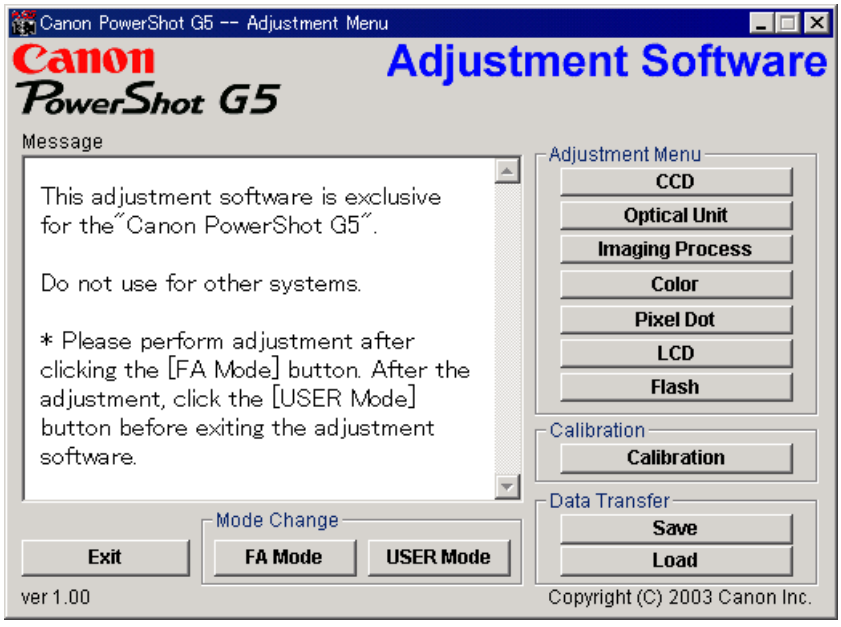
5. Connect the Camera's Digital terminal to the PC's USB Port with INTERFACE CABLE IFC-300 PCU.
6. Turn on the camera.
   Note: Perform the preparation in the following order otherwise the camera won't work properly.

3.3.5 Starting up the Adjustment Software

After completing the preparatory steps, click Start and move the cursor to Program; then select Canon Digital Camera and click PowerShot G5 Adjustment.

3.3.6 Menu Window

When the Adjustment Software starts up, the Menu Window below will appear.



3.3.7 How to Use the Adjustment Software

■ Mode change
This camera uses normally PTP for communication with PC. Because calibration and adjustment become impossible depending on the condition of PTP, select the TWAIN mode of the PTP before starting calibration and adjustment.
- "FA Mode" button: This button is used to change the mode from the USER mode to the FA mode. (PTP to TWAIN)

* Before starting calibration and adjustment, be sure to set the FA mode.
- "USER Mode" button: This button is used to change the mode from the FA mode to the USER mode. (TWAIN to PTP)

* When calibration and adjustment are completed, be sure to change the mode to the USER mode before quitting the software.

■ Calibration/Adjustment
For starting, click the button related with calibration/adjustment.
* Whenever you use your light source for the adjustment for the first time, be sure to click the "Calibration" Button.

■ Quitting the Adjustment Software
Click the "Exit" button.

■ Saving or Loading data
- "Save" button : This button saves all adjustment data stored on the camera in text format.
- "Load" button : This button loads all adjustment data saved in text format to the camera.

■ Notes
- If the adjustment fails, a message indicating the failure will appear on each product. If this happens, do the adjustment again.
- The Adjustment Software is dedicated only to Canon Digital Camera PowerShot G5. Never use it for any other camera.
- The Windows2000 or 98 must be pre-installed on the computer that is equipped with the USB terminal.

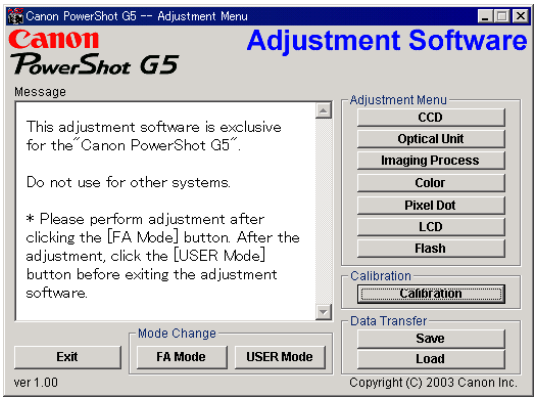
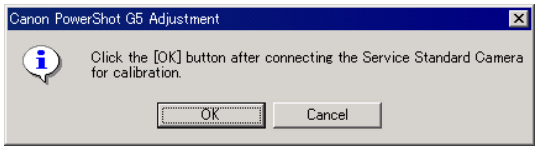
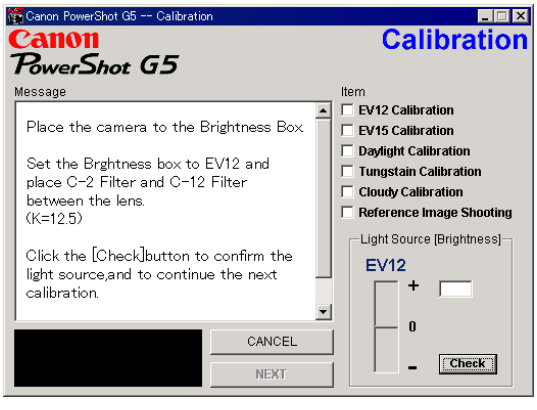
* Operations on the other Operating Systems such as Windows95, Windows XP and others are not guaranteed. (Because Windows95 does not support USB.)

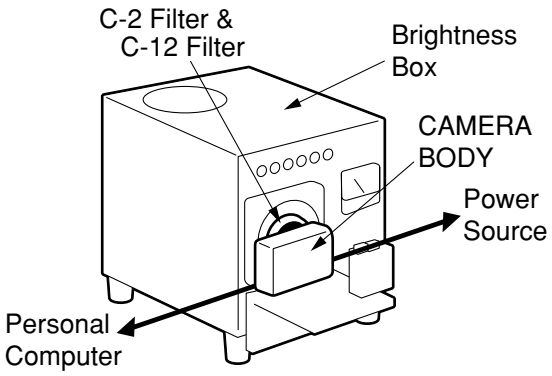
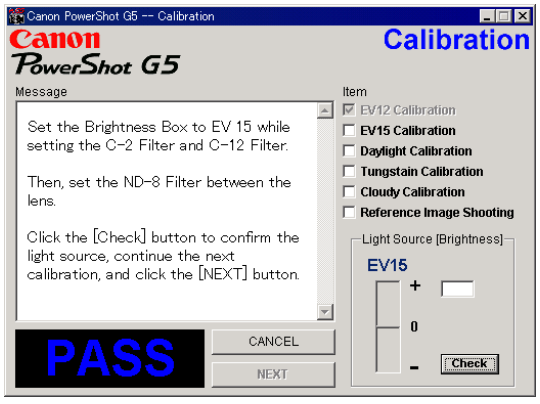
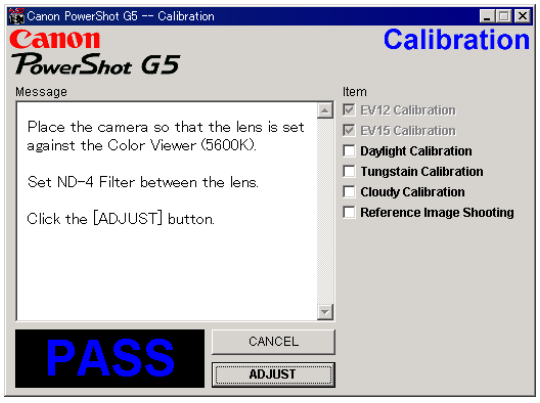
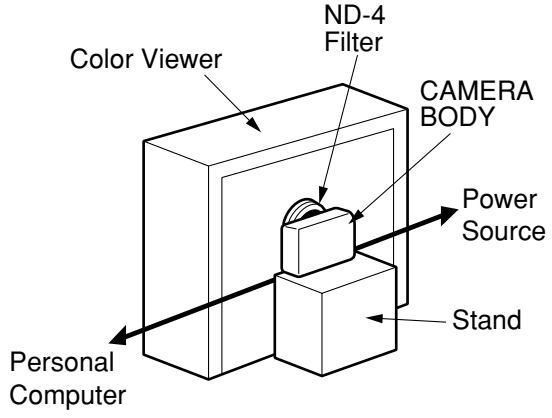
3.4 Calibration

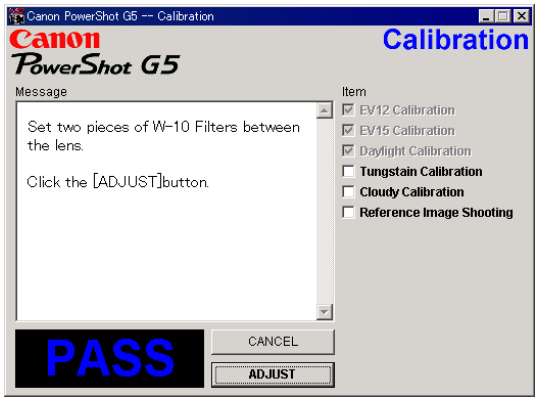
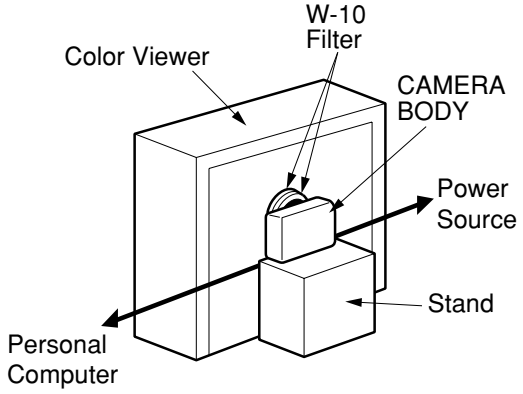
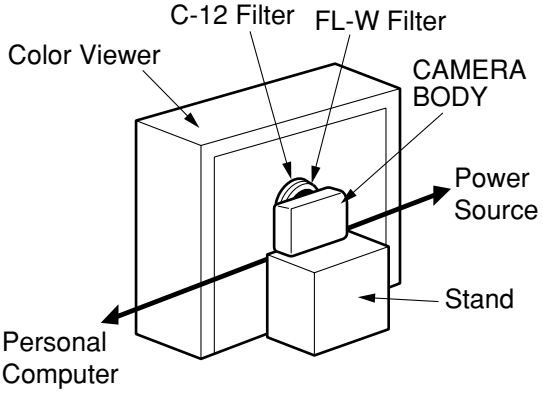
3.4.1 Calibration

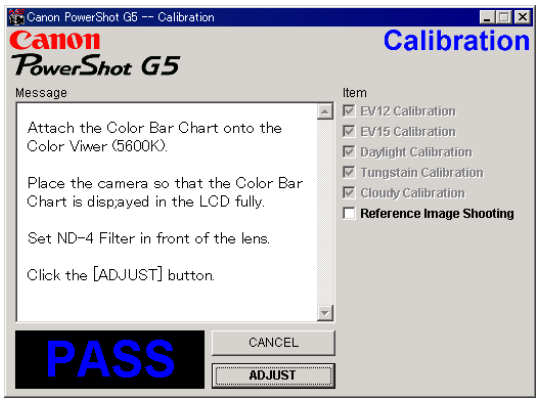
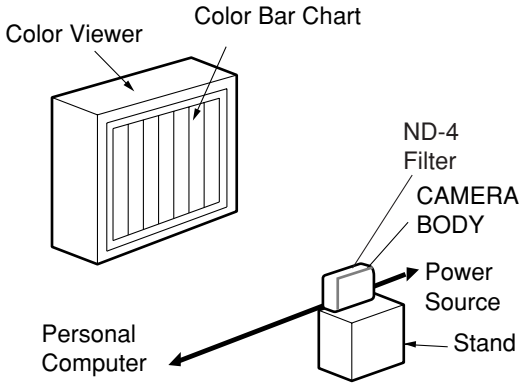
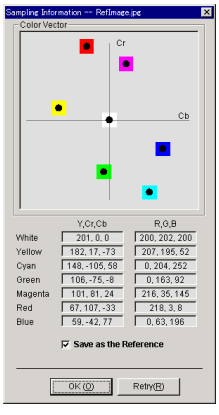
■ Tools Used

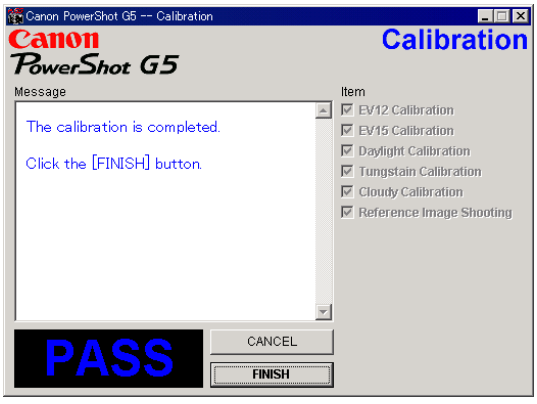
- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- Color Viewer (5600° K)
- Color Bar Chart
- W-10 Filter (2pcs.)
- C-2 Filter
- C-12 Filter
- FL-W Filter
- ND-4 Filter
- ND-8 Filter
- Reference Camera (Merchandise)
- DIGITAL CAMERA SolutionDisk

1	Click the “Calibration” button.	
2	1. When the message on the right appears, check that the reference camera (Merchandise) is connected to the computer. 2. Click the “OK” button.	
3	When the message on the right appears, go to 4.	

4	1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-2 Filter and the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “Check” button. 4. Check the Brightness level if it is within 0 ± 5. * If not, calibrate the Brightness Box until it becomes within 0 ± 5. 5. Click the “NEXT” button.	
5	1. When the message on the right appears, Set the Brightness Box to EV15 and attach the ND-8 Filter while setting the C-2 Filter and the C-12 Filter between the lens. 2. Click the “Check” button. 3. Check the Brightness level if it is within 0 ± 5. * If not, calibrate the Brightness Box until it becomes within 0 ± 5. 4. Click the “NEXT” button.	
6	When the message on the right appears go to 7.	
7	1. Attach the ND-4 Filters between the Lens and the Color Viewer. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	

8	When the message on the right appears go to 9.	
9	1. Remove the ND-4 Filter. 2. Attach the two W-10 Filters between the Lens and the Color Viewer. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	
10	When the message on the right appears go to 11.	
11	1. Remove the two W-10 Filters. 2. Attach the C-12 and the FL-W Filter between the Lens and the Color Viewer. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	

12	When the message on the right appears go to 13.	
13	1. Attach the Color Bar Chart to the Color Viewer. 2. Place the camera so that the Viewing image of the color bar chart is the full of LCD with the ND-4 Filter attached. 3. Click the “ADJUST” button.	
14	1. Shift a frame on the display screen with a mouse to choose a color of color bar. 2. Click the “Sampling” button.	
15	Check “Save as the Reference”, and click the “OK” button to store the data.	

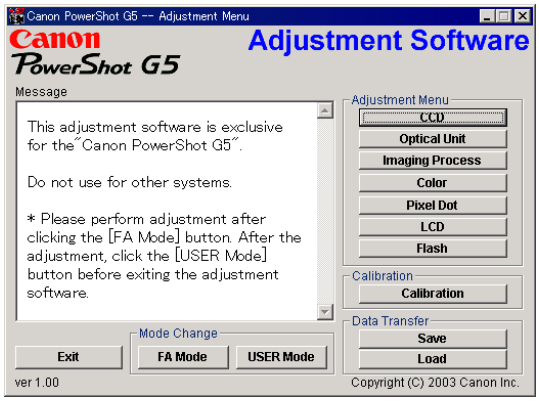
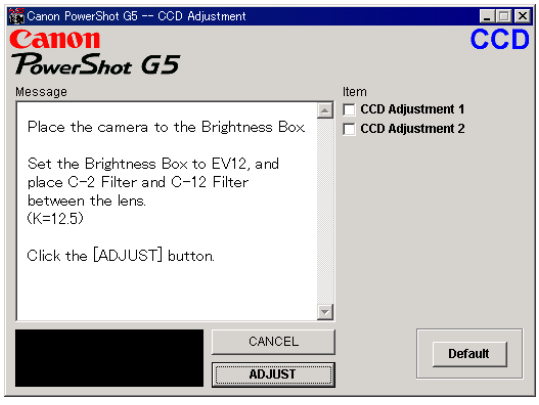
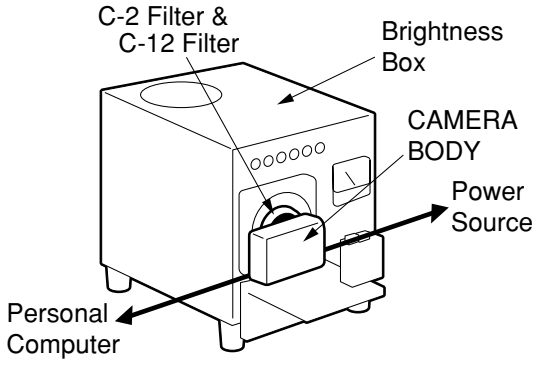
16	When the message on the right appears, click the "FINISH" button. (This ends the "Calibration".)	

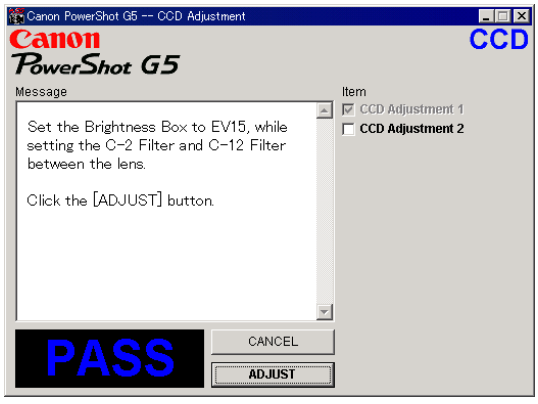
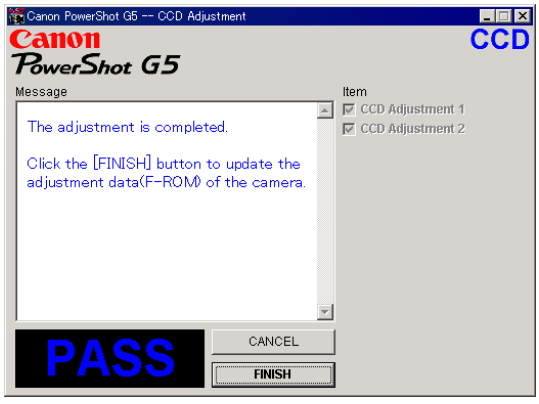
3.5 Adjustment Procedure

3.5.1 CCD Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Brightness Box (light source A)
- C-2 Filter
- C-12 Filter
- DIGITAL CAMERA SolutionDisk

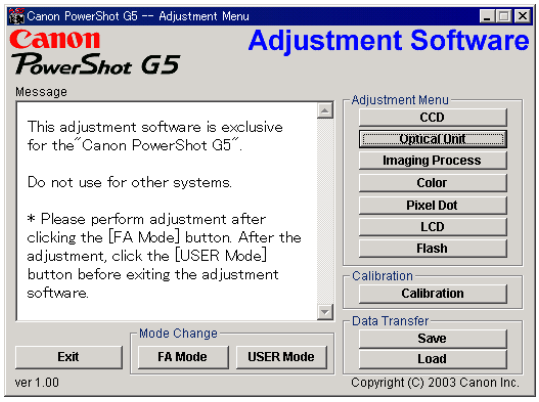
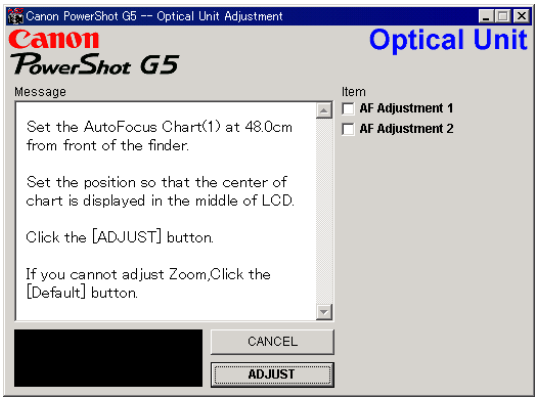
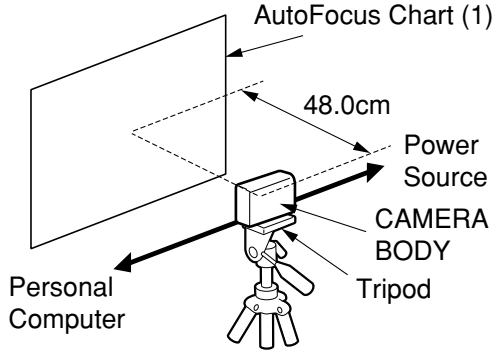
1	Click the “CCD” button.	
2	When the message on the right appears, go to 3.	
3	1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-2 Filter and the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button.	

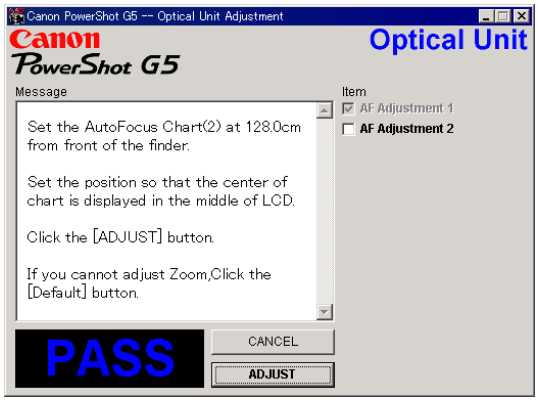
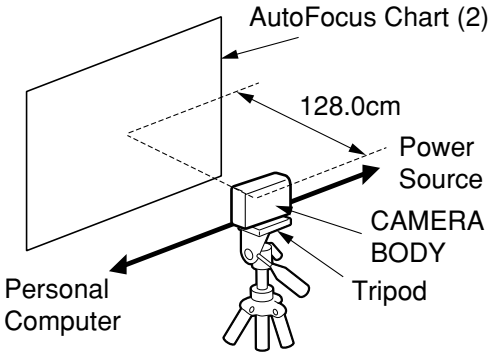
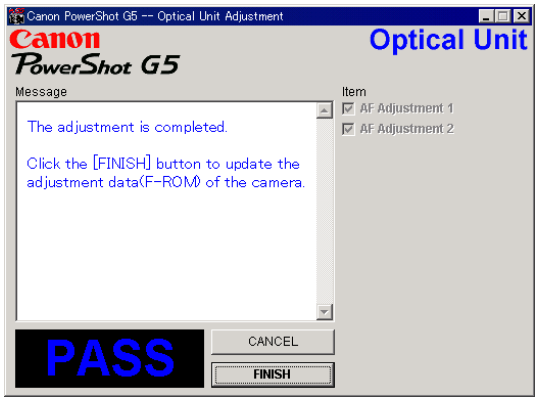
4	When the message on the right appears, set the Brightness Box to EV15 while setting the C-2 Filter and the C-12 Filter between the lens. Click the “ADJUST” button.	
5	When the message on the right appears, click the “FINISH” button. (This ends the “CCD” Adjustment.)	

3.5.2 Optical Unit Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- AutoFocus Chart (2 types)
- Tripod
- DIGITAL CAMERA SolutionDisk

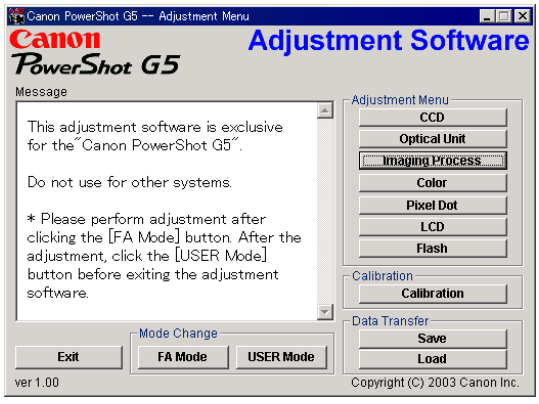
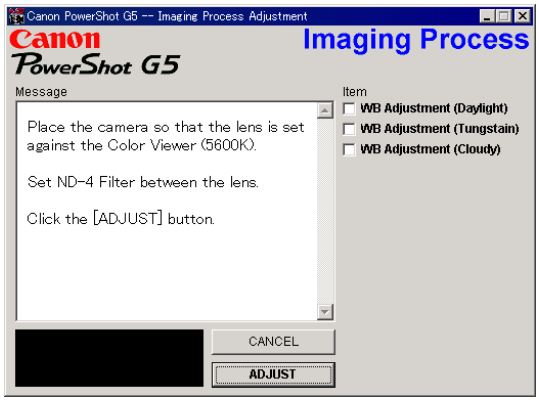
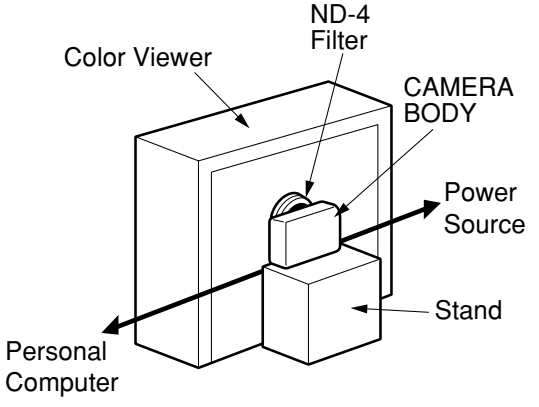
1	Click the "Optical Unit" button.	
2	When the message on the right appears, go to 3.	
3	1. Place the Auto Focus Chart (1) at 48.0cm away from the front of the camera finder. * Place the Auto Focus Chart on a plain color wall or equivalent. * Adjust the light so that the brightness of the chart will be about EV8.5. 2. Adjust the position of the camera finely so that the center of the Auto Focus Chart is aligned with the center of the LCD. 3. Click the "ADJUST" button.	

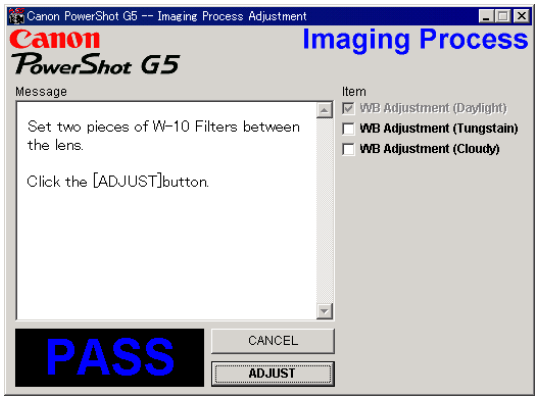
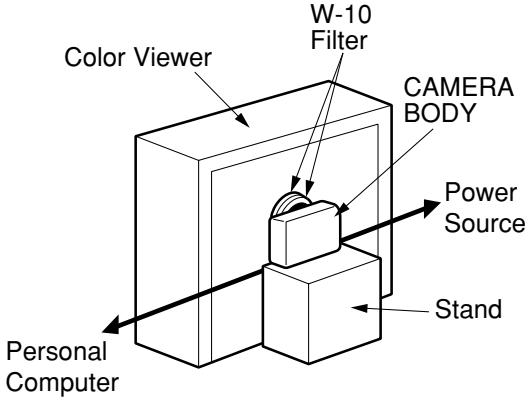
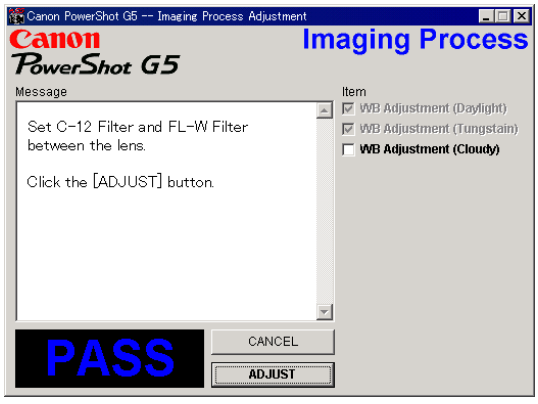
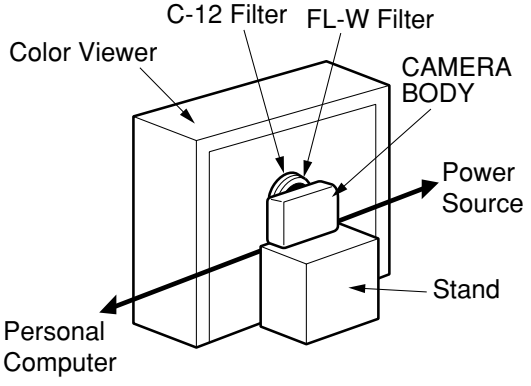
4	When the message on the right appears, go to 5.	
5	1. Place the Auto Focus Chart (2) at 128.0cm away from the front of the camera finder. * Place the Auto Focus Chart on a plain color wall or equivalent. * Adjust the light so that the brightness of the chart will be about EV8.5. 2. Adjust the position of the camera finely so that the center of the Auto Focus Chart is aligned with the center of the LCD. 3. Click the “ADJUST” button.	
6	When the message on the right appears, click the “FINISH” button. (This ends the “Optical Unit” Adjustment)	

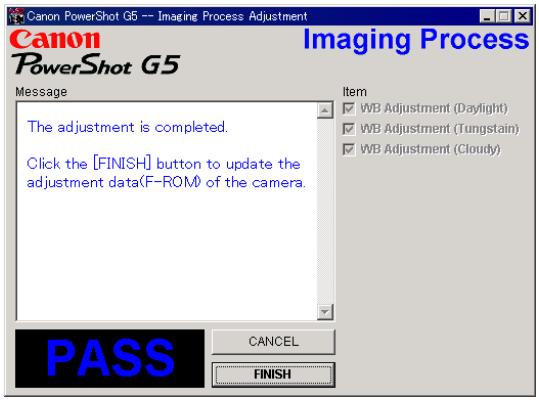
3.5.3 Imaging Process Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Color Viewer (5600° K)
- W-10 Filter (2 pcs.)
- C-12 Filter
- FL-W Filter
- ND-4 Filter
- DIGITAL CAMERA SolutionDisk

1	Click the “Imaging Process” button.	
2	When the message on the right appears, go to 3.	
3	1. Attach the ND-4 Filters between the Lens and the Color Viewer. 2. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	

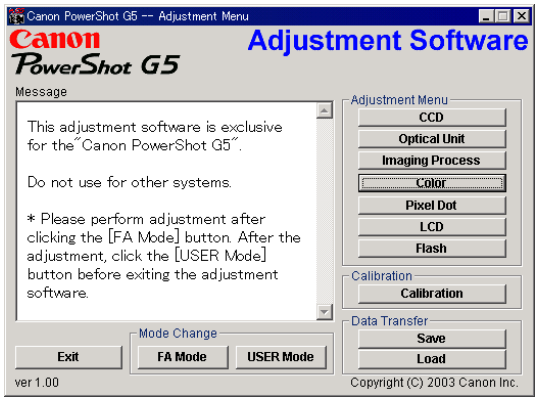
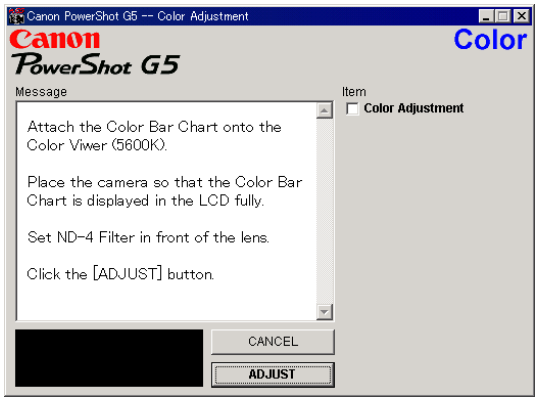
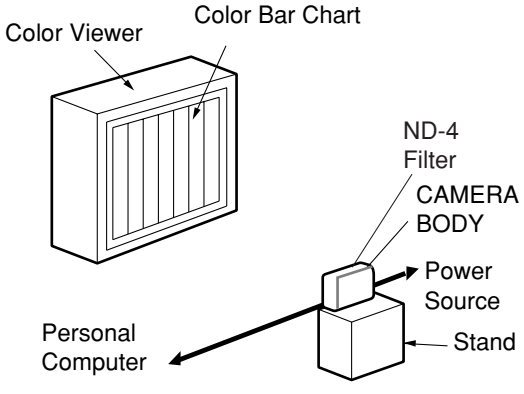
4	When the message on the right appears, go to 5.	
5	1. Remove the ND-4 Filter. 2. Attach the two W-10 Filters between the Lens and the Color Viewer. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	
6	When the message on the right appears, go to 7.	
7	1. Remove the W-10 Filter. 2. Attach the C-12 and FL-W Filters between the Lens and the Color Viewer. Place the camera so that the lens is set against the center part of the Color Viewer. 3. Click the “ADJUST” button.	

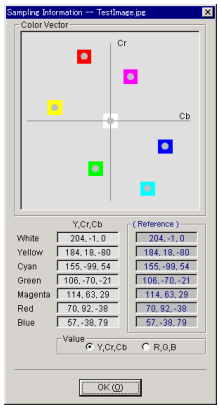
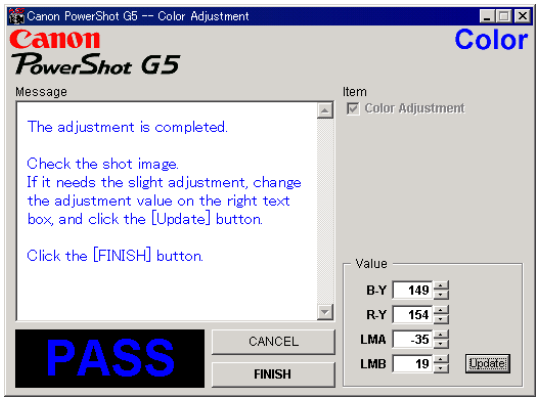
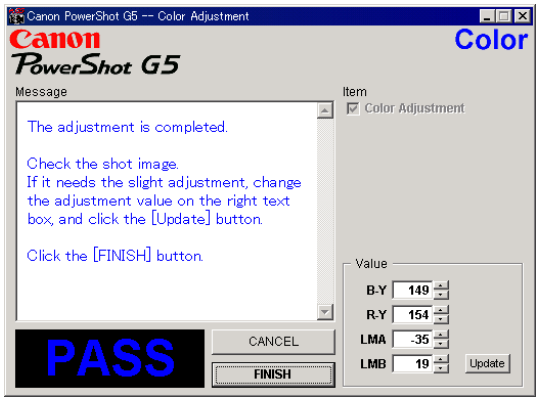
8	When the message on the right appears, click the “FINISH” button. (This ends the “Imaging Process” Adjustment.)	

3.5.4 Color Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-PS560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Color Viewer (5600° K)
- Color Bar Chart
- ND-4 Filter
- DIGITAL CAMERA SolutionDisk

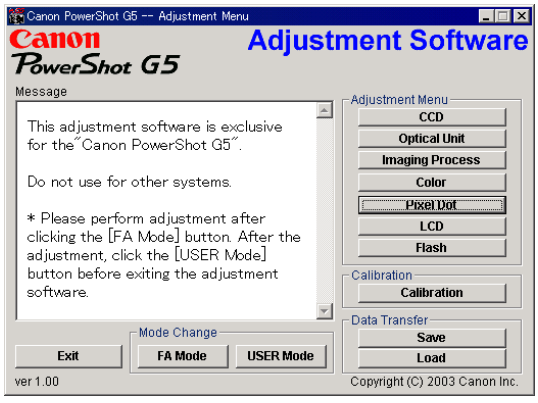
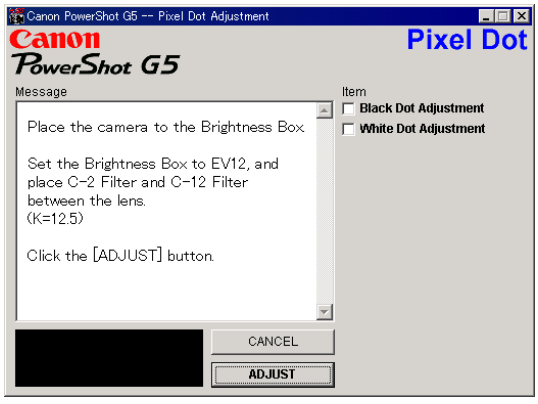
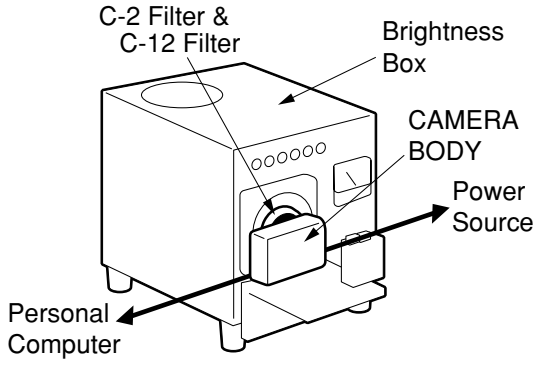
1	Click the "Color" button.	
2	When the message on the right appears, go to 3.	
3	1. Attach the Color Bar Chart to the Color Viewer. 2. Place the camera so that the Viewing image of the color bar chart is the full of LCD with the ND-4 Filter attached. 3. Click the "ADJUST" button.	

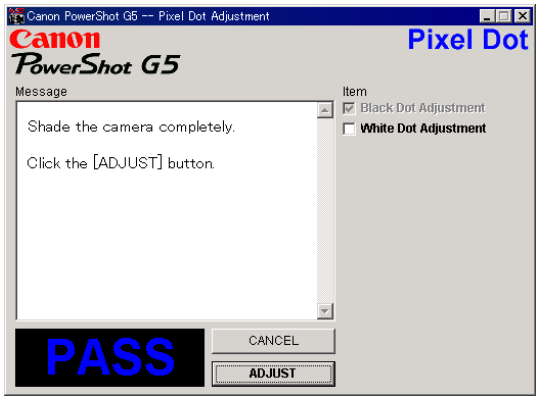
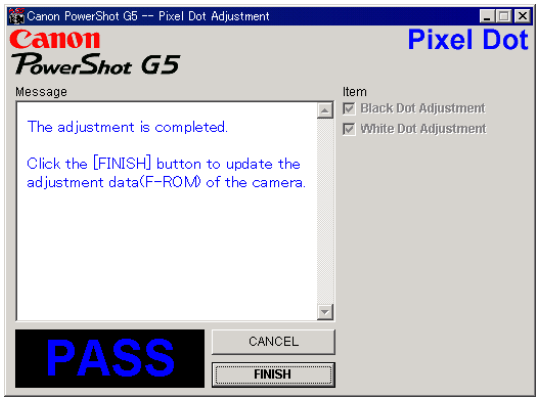
4	1. Shift a frame on the displayed screen with a mouse to choose a color of color bar. 2. Click the “Sampling” button.	
5	Check “Yellow and Red”, and click the “OK” button. If these data are within specification, go to 7. * Specification Ave_Cr = Reference Camera ± 10 Ave_Cb = Reference Camera ± 10	
6	1. Confirm to see that the image on the PC monitor satisfies the specifications. 2. If the image on the PC monitor does not satisfy the specifications, change the data using UP, DOWN button or change the data directly by typing the data in the text box. Then click the “UPDATE” button.	
7	When the adjustment is completed, click the “FINISH” button. (This ends the “Color” Adjustment.)	

3.5.5 Pixel Dot Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Brightness Box (Light source A)
- C-2 Filter
- C-12 Filter
- Light-Shielding Cloth (500 × 500 or larger)
- DIGITAL CAMERA SolutionDisk

1	Click the “Pixel Dot” button.	
2	When the message on the right appears, go to 3.	
3	1. Place the camera so that lens is set against the light source surface of the Brightness Box via the C-2 Filter and the C-12 Filter. 2. Set the Brightness Box to EV12. 3. Click the “ADJUST” button.	

4	1. When the message on the right appears, cover the camera with the Light-Shielding Cloth so that the no light reasons the CCD. 2. Click the “ADJUST” button.	
5	When the message on the right appears, click the “FINISH” button. (This ends the “Pixel Dot” Adjustment.)	

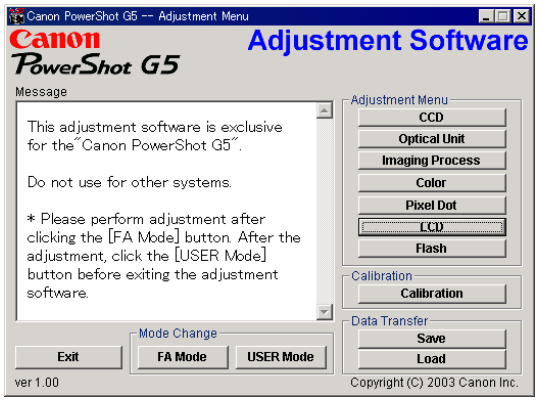
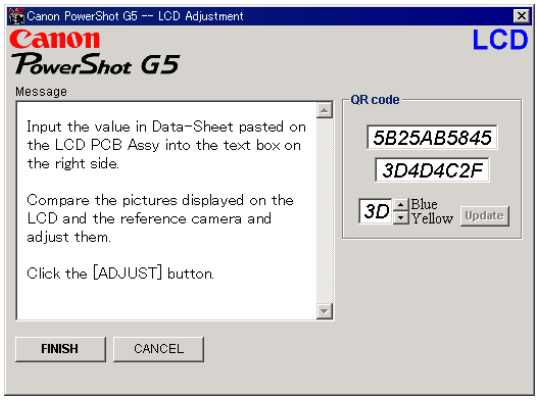
3.5.6 LCD Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- Reference Camera (Merchandise)
- DIGITAL CAMERA SolutionDisk

■ Preparation

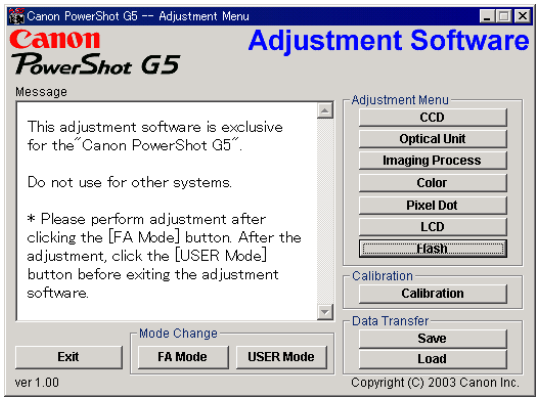
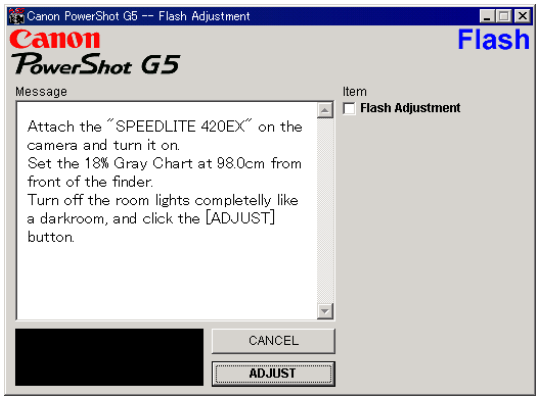
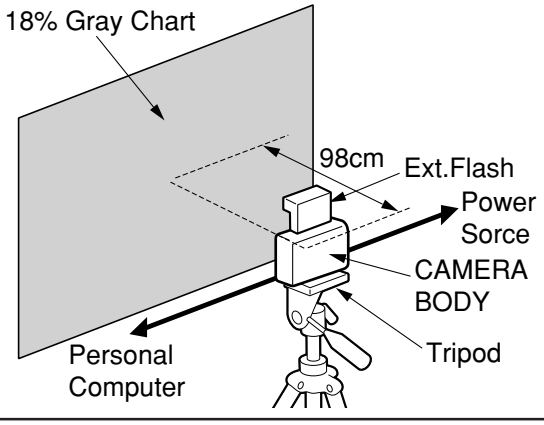
1. Insert the blank CF Card into the reference camera.
2. Connect the reference camera with the PC.
3. Add the “Gray.jpeg” image to the CF card of the refernce camera using Zoom Browser EX. (Gray.jpg is in the folder of Adjustment Software downloaded.)
4. Finish the ZoomBrowser EX.
5. Disconnect the reference camera from the PC, and display the “Gray.jpg” image in PLAY mode.

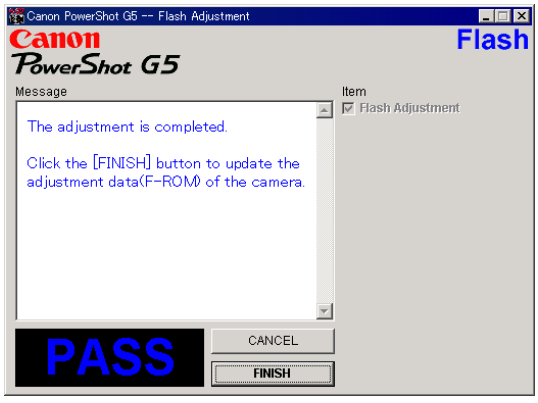
1	Click the “LCD” button.	
2	1. When the message on the right appears, enter in the text boxes the data written on the data-sheet is attached to the JAL PCB ASS’Y. Click the “Update” button. 2. Compare the image with that of the reference camera. If it has a different color tint. adjust it by repeating clicking the Yellow/Blue button and the “Update” button alternately. 3. Click the “FINISH” button. (This ends the “LCD” Adjustment.)	

3.5.7 Flash Adjustment

■ Tools Used

- Personal Computer
- SERVICE MANUAL (CD-ROM)
- ADJUSTMENT SOFTWARE
- Compact Power Adapter CA-560
- AC Cable
- INTERFACE CABLE IFC-300PCU
- 18% Gray Chart
- Tripod
- DIGITAL CAMERA SolutionDisk

1	Click the “Flash” button.	
2	When the message on the right appears, go to 3.	
3	Attach “Speedlite 420EX” on the camera, and turn it on. Set 18% Gray Chart 98cm from the finder front. Make the room as dark as a darkroom. Click the “ADJUST” button.	

4	When the message on the right appears, click the "FINISH" button. (This ends the "Flash" Adjustment.)	

3.5.8 Checking of sound recording/output

It is not required to adjust the recording/output (volume, etc.) of sound.
Check the camera if the sound is recorded/play-backed properly.

CHAPTER 4. PARTS CATALOG

CONTENTS

CLASS凡例

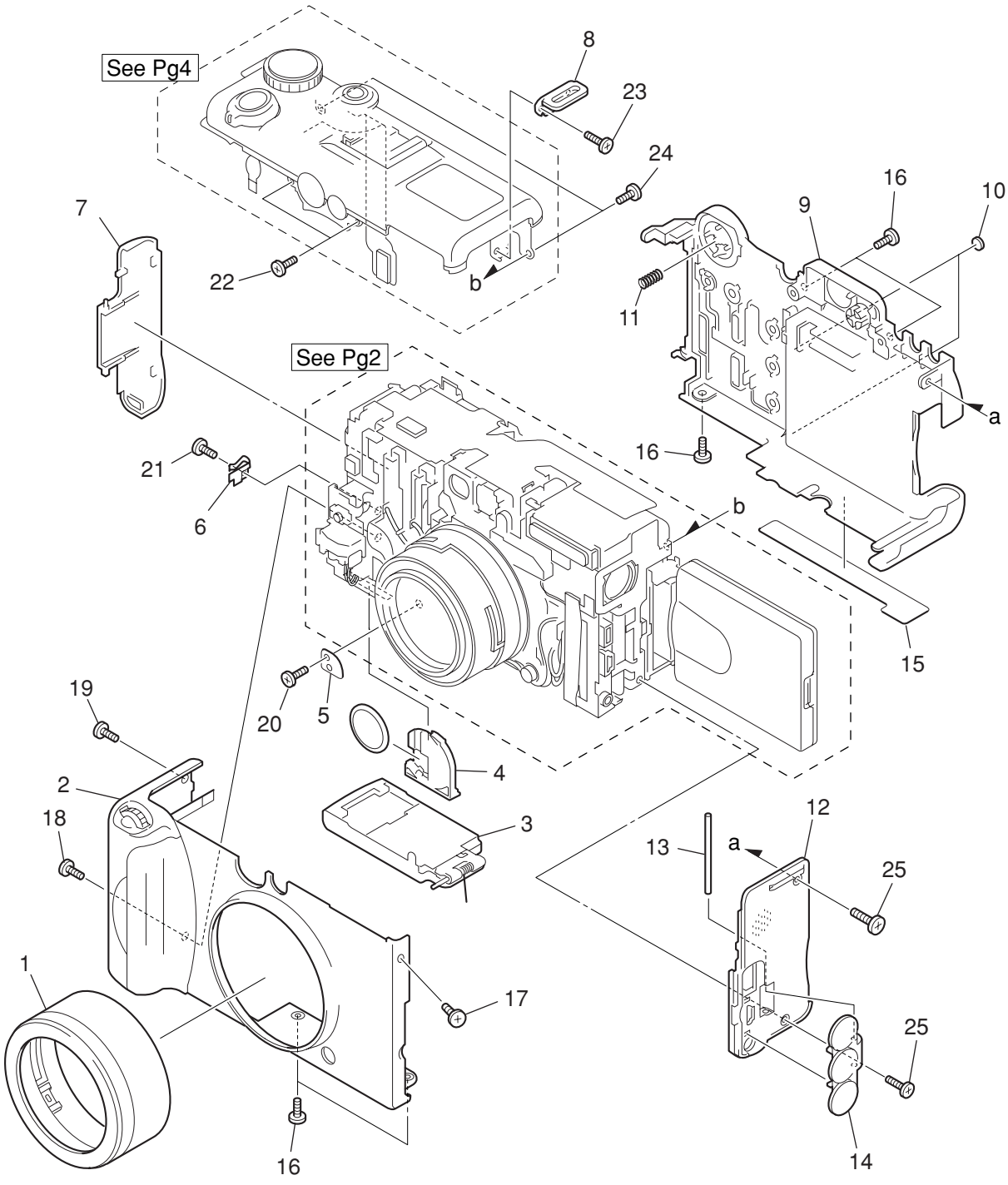
A: 使用頻度　高
B: 使用頻度　中
C: 使用頻度　低
D: 安全規格部品
E: 消耗部品
F: 標準ネジ、ワッシャー
S: 供給制限品
Y: サービス工具

Category of CLASS

A: Frequency of use: High
B: Frequency of use: Middle
C: Frequency of use: Low
D: Safety-related critical parts
E: Consumable parts
F: Standard screws and washers
S: Supply of the parts is limited
Y: Service Tools

Pg1

CASING PARTS SECTION

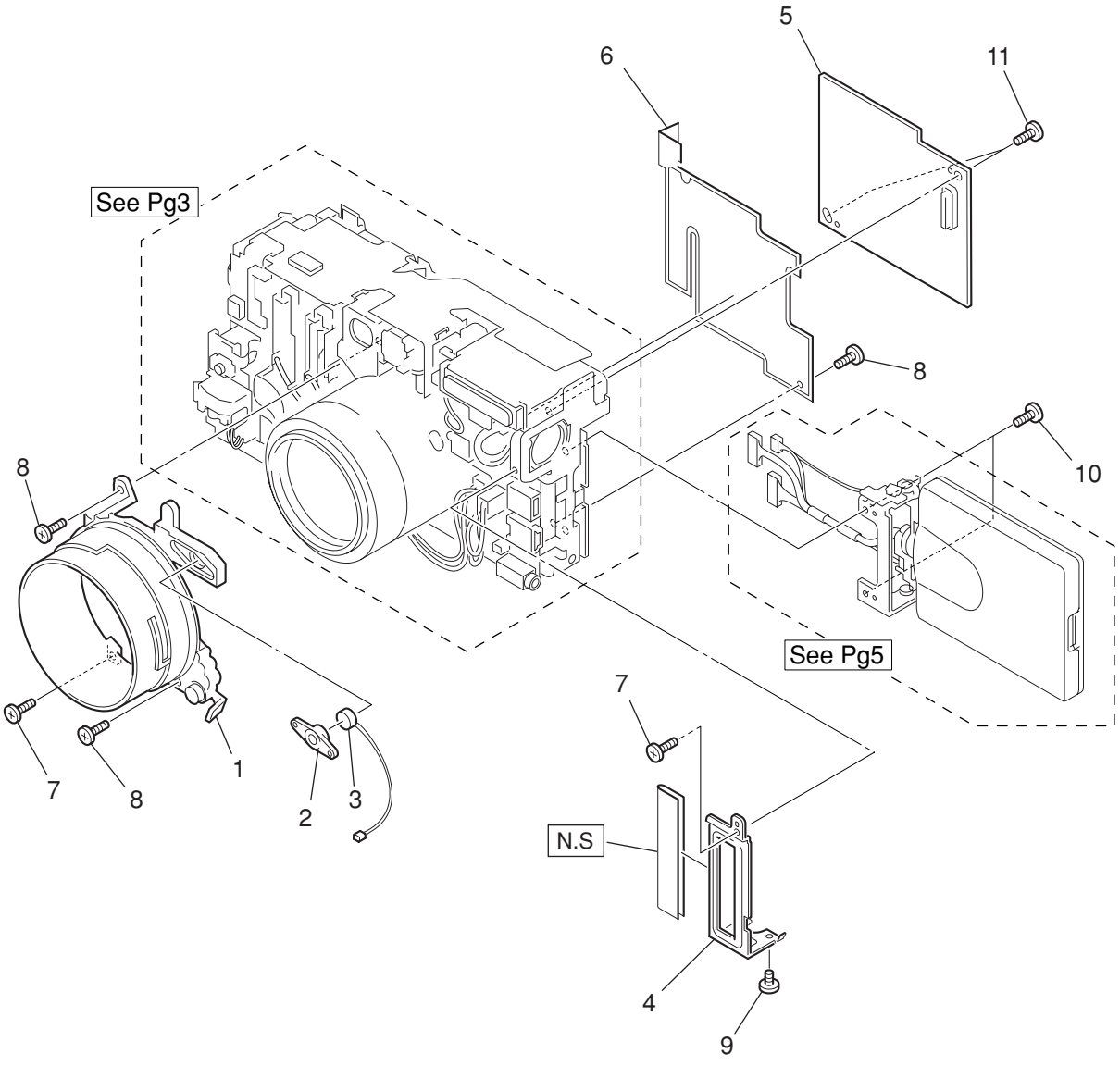


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CM1-1618-000	B	1	FRONT CAP UNIT	
2	CM1-1607-000	B	1	FRONT COVER UNIT	
3	CM1-1617-000	B	1	BATTERY LID UNIT	
4	CD1-3264-000	B	1	HOLDER, DATE BATTERY	
5	CD1-4778-000	C	1	HOLDER, BATTERY SHAFT	
6	CD1-4782-000	C	1	SPRING, CF CLIPPING 2	
7	CD1-5010-000	B	1	COVER, CF	
8	CD1-4837-000	B	1	BASE, STRAP RIGHT	
9	CM1-1604-000	B	1	REAR COVER UNIT	
10	CD1-5004-000	B	2	BUSH, LCD	
11	CS8-5211-000	C	1	SPRING, SELECTOR	
12	CD1-4995-000	B	1	COVER, SIDE	
13	CS8-3256-000	C	1	SHAFT, JACK COVER	
14	CD1-5007-000	B	1	COVER, JACK	
15	CY1-6290-000	B	1	PLATE, BODY NUMBER (J)	(FOR JAPAN) #13111xxxxx
	CY1-6291-000	B	1	PLATE, BODY NUMBER (N)	(FOR USA, CANADA) #13211xxxxx
	CY1-6292-000	B	1	PLATE, BODY NUMBER (E)	(FOR EUROPE, ASIA) #13311xxxxx
	CY1-6296-000	B	1	PLATE, BODY NUMBER (CH)	(FOR CHINA) #13651 xxxxx
16	CD1-5030-000	C	5	SCREW	
17	CD1-5028-000	C	1	SCREW	
18	CD1-5032-000	C	1	SCREW	
19	CD1-5033-000	C	1	SCREW	
20	XA4-9170-359	F	1	SCREW	
21	XA4-5170-307	F	1	SCREW	
22	XA4-9170-407	F	2	SCREW	
23	XA1-7170-357	F	1	SCREW	
24	XA1-7170-307	F	2	SCREW	
25	CD1-5031-000	C	2	SCREW	

Pg2

INTERNAL PARTS SECTION-1

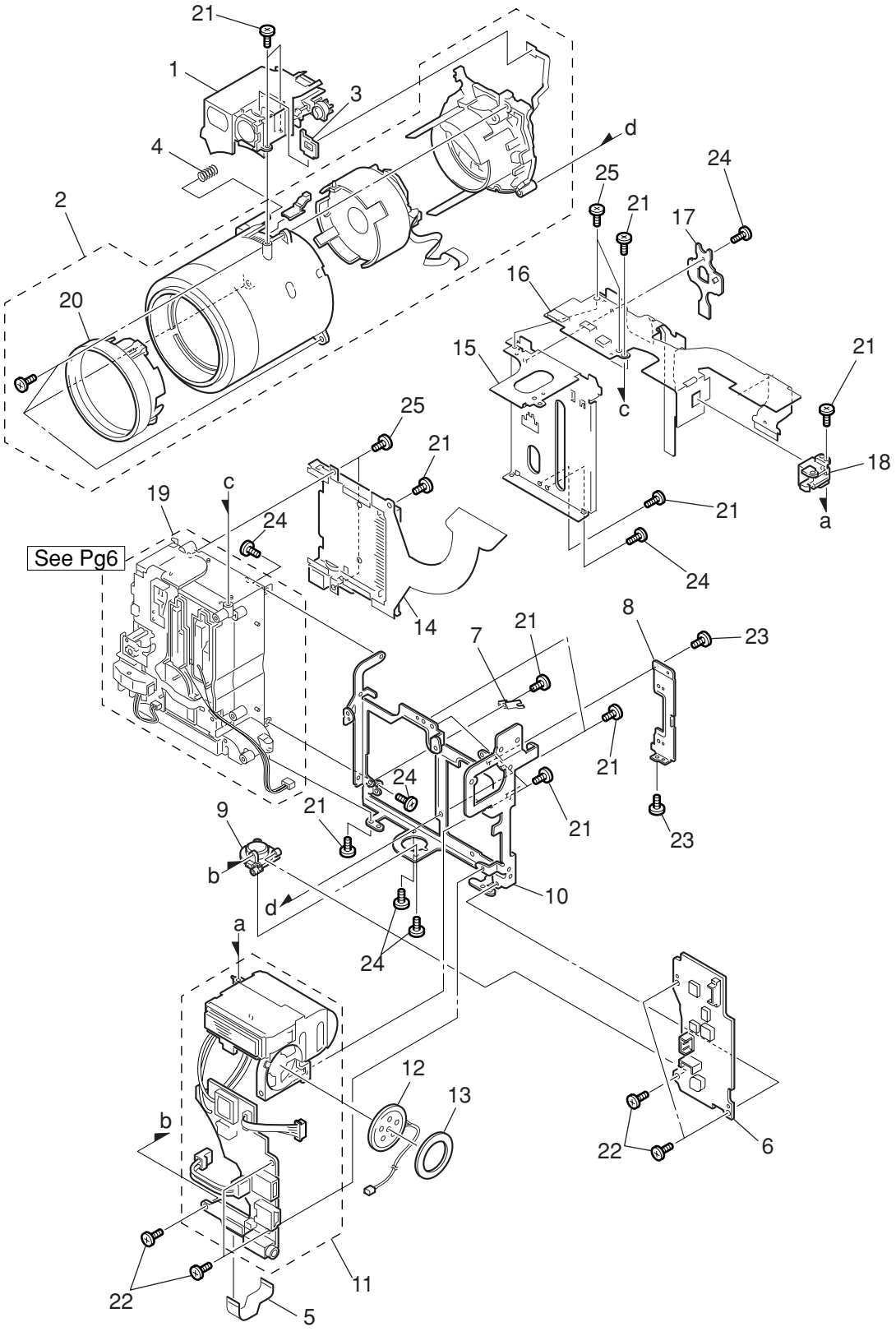


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CM1-1615-000	C	1	MAIN BARREL UNIT	
2	CD1-3213-000	C	1	HOLDER, MICROPHONE	
3	CM1-1564-010	C	1	MICROPHONE UNIT	
4	CD1-4850-000	C	1	FRAME, SIDE COVER	
5	CM1-1619-000	C	1	PCB ASS'Y, MAIN	
6	CD1-4911-000	C	1	SHEET, MAIN	
7	XA4-9170-359	F	2	SCREW	
8	XA1-7170-307	F	3	SCREW	
9	CD1-3108-000	C	1	SCREW	
10	CD1-3798-000	C	2	SCREW	
11	CD1-4987-000	C	2	SCREW	

Pg3

INTERNAL PARTS SECTION-2

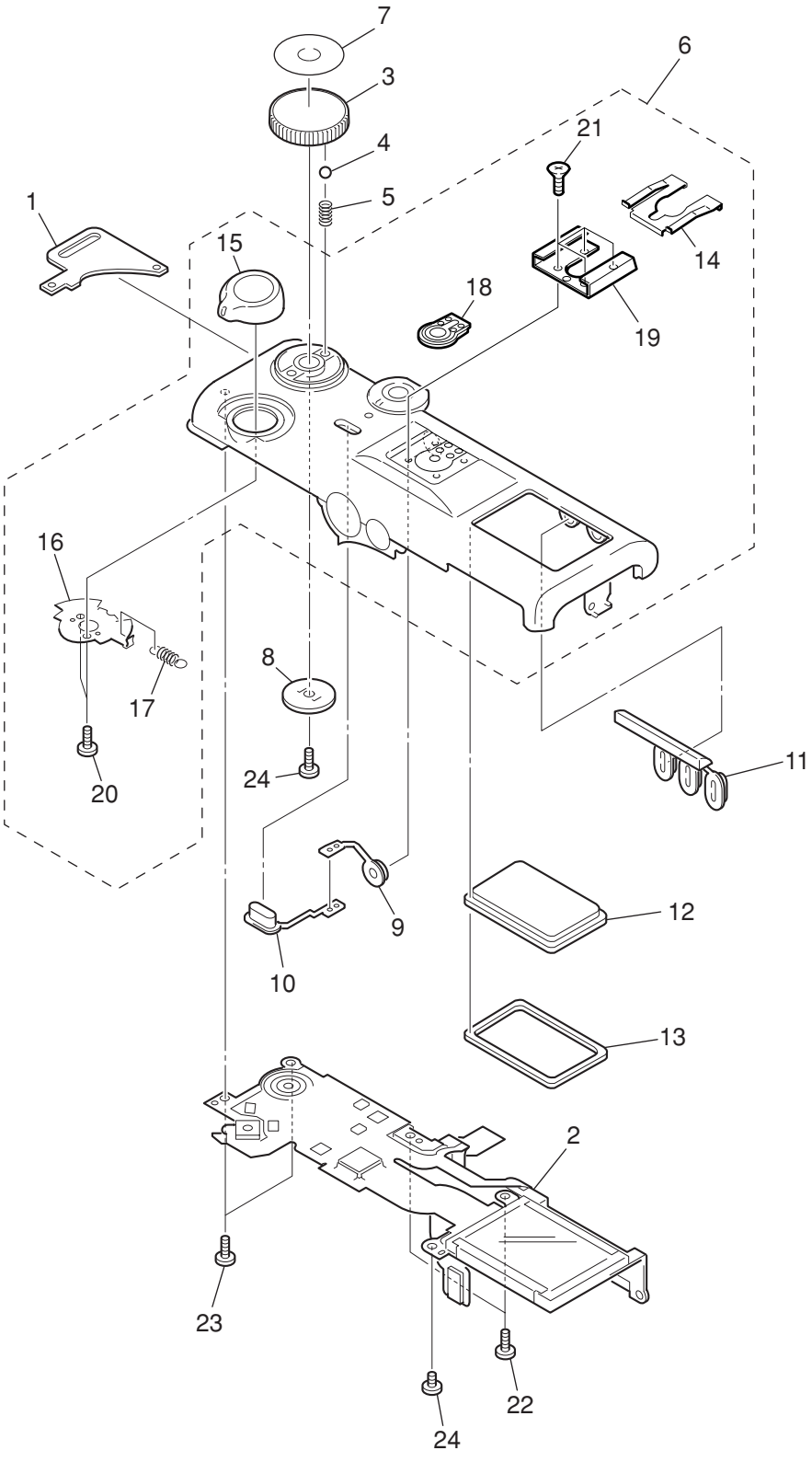


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CM1-1463-000	B	1	FINDER UNIT	
2	CM1-1602-000	B	1	OPTICAL UNIT	
3	CD1-3869-000	C	1	HOLDER, LED	
4	CS8-5209-000	C	1	SPRING, CCD	
5	CK1-0670-000	C	1	FPC, MAIN/FLASH	
6	CM1-1632-000	C	1	PCB ASS'Y, DC/DC CONVERTER	
7	CD1-4433-000	C	1	PLATE, ZOOM GND	
8	CD1-4838-000	C	1	FRAME, SUB	
9	CD1-4844-010	C	1	BASE, TRIPOD	
10	CD1-4748-000	C	1	FRAME, MAIN	
11	CM1-1473-010	C	1	FLASH/JACK UNIT	
12	CM1-1631-000	C	1	SPEAKER UNIT	
13	CD1-4848-000	C	1	BUSH, SPEAKER	
14	CM1-1641-000	C	1	CF UNIT	
15	CD1-4765-000	C	1	FRAME, REAR	
16	CM1-1638-000	C	1	PCB ASS'Y, BUTTON	
17	CD1-4762-000	C	1	BASE, SEL. BUTTON	
18	CD1-4812-000	C	1	HOLDER, EF SENSOR	
19	CM1-1614-000	C	1	BAT BOX UNIT	
20	CM1-1642-000	B	1	FRONT LENS UNIT	
21	XA4-9170-359	F	12	SCREW	
22	CB1-1998-000	C	6	SCREW	
23	CD1-3798-000	C	2	SCREW	
24	XA1-7170-307	F	6	SCREW	
25	XA1-7170-147	F	4	SCREW	

Pg4

TOP COVER SECTION



PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-4836-000	B	1	BASE, STRAP LEFT	
2	CM1-1608-000	C	1	B/W LCD UNIT	
3	CD1-5019-000	B	1	DIAL, MODE	
4	XG8-1500-591	C	1	BALL, MODE DIAL	
5	CS8-5292-000	C	1	SPRING, MODE DIAL	
6	CM1-1610-000	B	1	TOP COVER UNIT	
7	CD1-5018-000	B	1	CAP, MODE DIAL	
8	CL1-1106-000	C	1	MODE DIAL BASE UNIT	
9	CD1-5027-000	B	1	BUTTON, TOP3	
10	CD1-5024-000	B	1	BUTTON, TOP1	
11	CD1-5025-000	B	1	BUTTON, TOP2	
12	CD1-4826-000	B	1	WINDOW, B/W LCD	
13	CD1-4824-000	C	1	SEAL, DUST COVER	
14	CA1-9328-000	C	1	SPRING, ACCESSORY SHOE	
15	CM1-1611-000	B	1	ZOOM LEVER UNIT	
16	CD1-4846-000	C	1	BRUSH, ZOOM	
17	CS8-5293-000	C	1	SPRING, ZOOM	
18	CB1-6258-000	B	1	ACCESSORY CONTACT UNIT	
19	CA1-6504-000	C	1	SHOE, ACCESSORY	
20	CD1-3108-000	C	2	SCREW	
21	XA1-3170-407	F	4	SCREW	
22	XA1-7170-167	F	2	SCREW	
23	XA4-5170-409	F	2	SCREW	
24	XA4-9170-359	F	2	SCREW	

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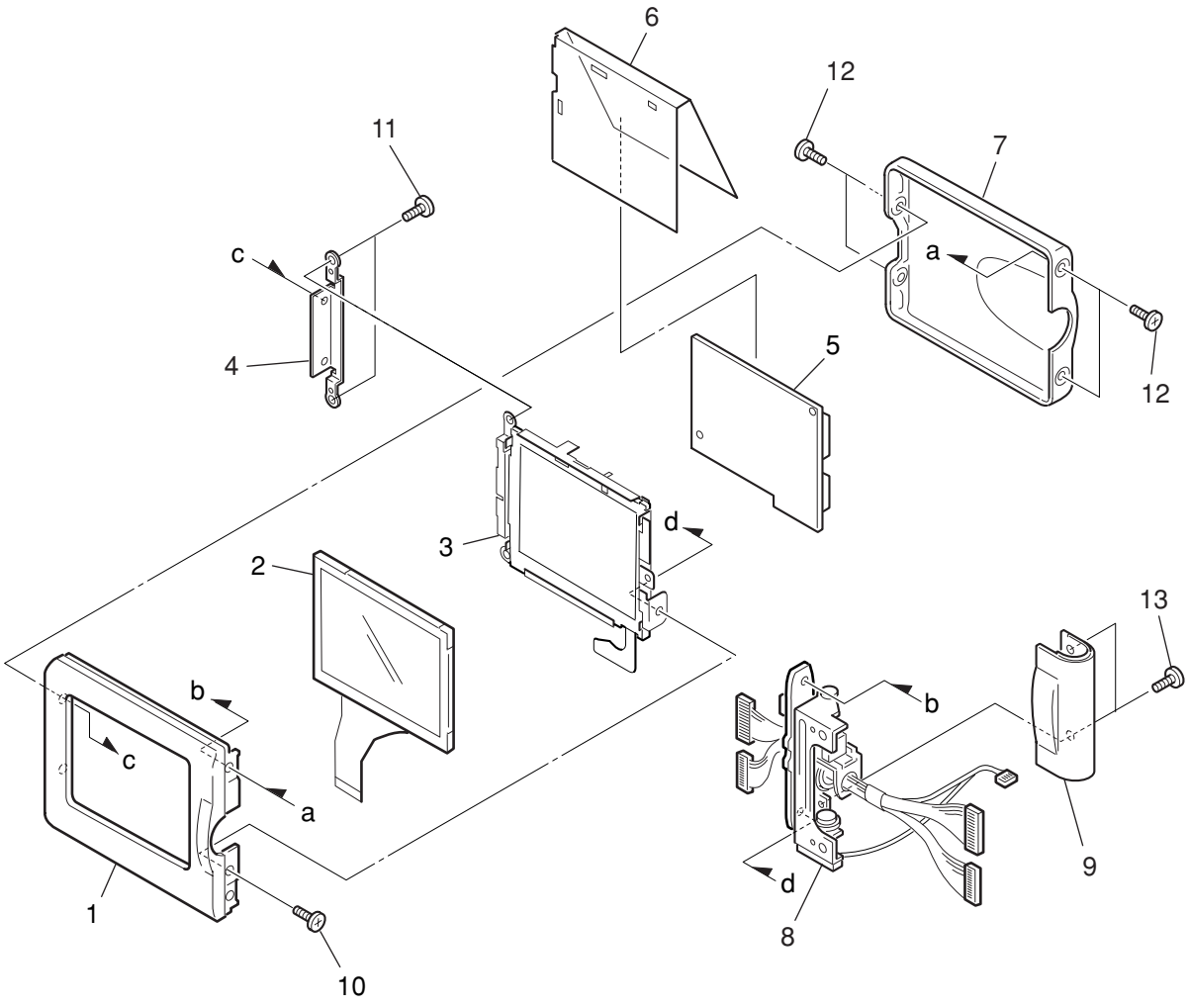
EVF UNIT SECTION

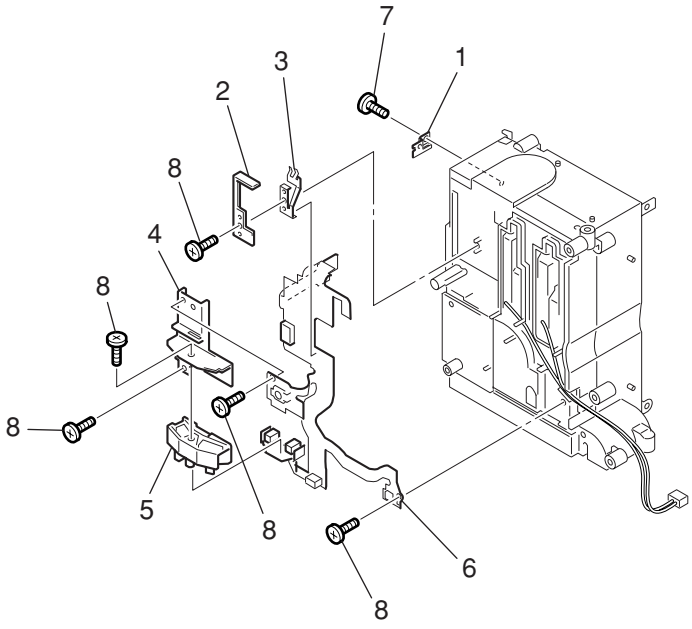


PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-5001-000	B	1	COVER, LCD FRAME	
2	WG2-5219-000	C	1	PANEL, LCD	
	WG2-5219-001	C	1	PANEL, LCD (SELECTION)	
3	CM1-1572-000	C	1	BACK LIGHT UNIT	
4	CD1-4751-000	C	1	PLATE, NUT	
5	CM1-1490-010	C	1	PCB ASS'Y, LCD	
6	CD1-4752-000	C	1	SHEET, LCD	
7	CD1-5002-000	B	1	COVER, LCD TOP	
8	CM1-1621-000	C	1	HINGE UNIT	
9	CD1-5003-000	B	1	COVER, HINGE	
10	XA1-7170-307	F	1	SCREW	
11	XA4-9170-359	F	2	SCREW	
12	CD1-5028-000	C	4	SCREW	
13	CD1-4983-000	C	2	SCREW	

Pg6

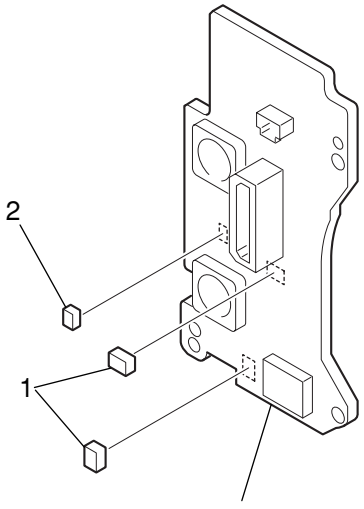
BATTERY BOX UNIT SECTION



PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CD1-4781-000	C	1	SPRING, CF CLIPPING 1	
2	CD1-4795-000	C	1	COVER, LEAF SW	
3	CL1-1107-000	C	1	LEAF SW UNIT	
4	CD1-4796-000	C	1	HOLDER, R/C	
5	CD1-4299-000	C	1	HOLDER, SLT	
6	CM1-1639-000	C	1	HV MODULE UNIT	
7	XA4-5170-307	F	1	SCREW	
8	XA4-9170-359	F	5	SCREW	

Fuse

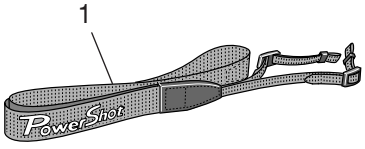


PARTS LIST

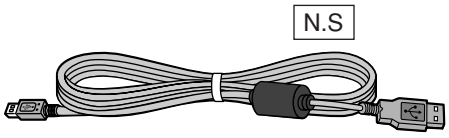
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY4-6073-000	D	2	FUSE, DAITO KMC20	F11, F12
2	CY4-6074-000	D	1	FUSE, MATSU. DENKI UNHS206	F13

Accessories-1

Neck Strap
NS-DC2

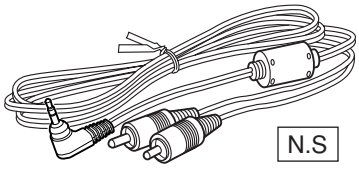


USB Interface Cable
IFC-300PCU



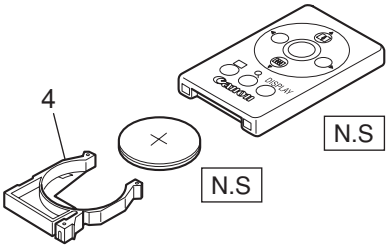
Lens Cap

AV Cable AVC-DC100

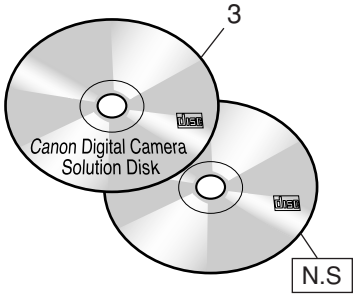


CF Card FC-32M

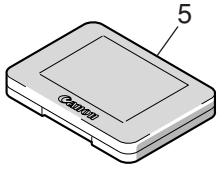
Wireless Controller WL-DC100



Canon Digital Camera Solution Disk, ArcSoft camera Suite Disk



CF CASE



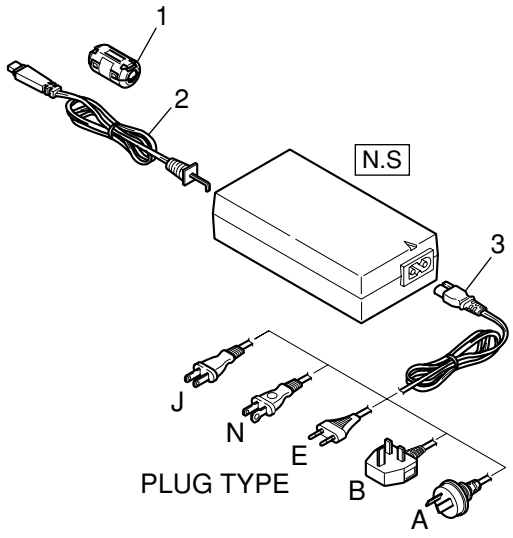
N.S : N.S Stand for No Stock (Product available)

PARTS LIST

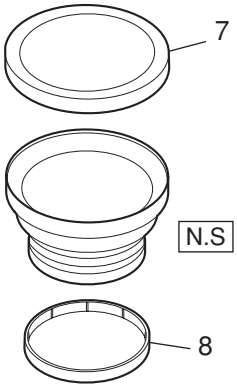
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	C84-1157-000	B	1	STRAP, NECK	
2	C84-1156-000	B	1	LENS CAP UNIT	
3	C84-1168-000	S	1	CD-ROM, SOLUTION VER.13.0 (J/E)	FOR JAPAN
	C84-1169-000	S	1	CD-ROM, SOLUTION VER.13.0 (E/F/S)	FOR USA, CANADA
	C84-1170-000	S	1	CD-ROM, SOLUTION VER.13.0 (J/E/C)	FOR ASIA, AUSTRALIA
4	CY1-6074-000	B	1	HOLDER, BATTERY	
5	FC2-9610-000	B	1	CASE, CF	

Accessories-2

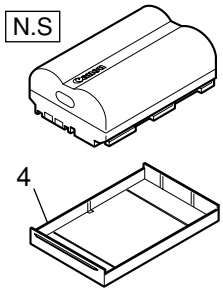
Compact Power Adapter CA-560



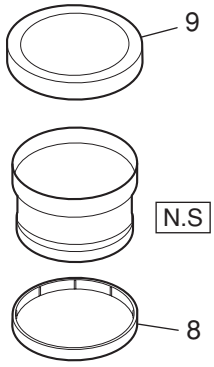
Wide Converter WC-DC58N



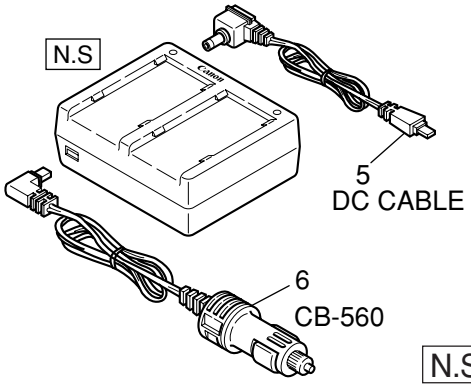
Battery Pack BP-511



Tele Converter TC-DC58N



Charger Adapter/Car Battery Cable Kit CR-560



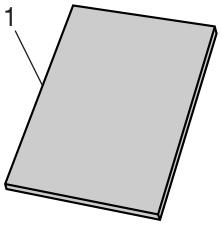
N.S : N.S Stand for No Stock (Product available)

PARTS LIST

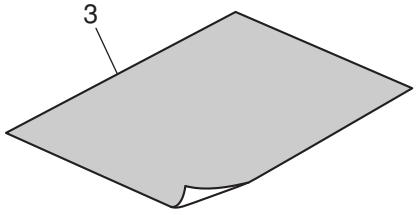
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	D89-0900-000	C	1	CORE, FERRITE	
2	DY4-4763-000	C	1	CORD, DC	
3	D82-0641-000	C	1	CABLE, AC (J)	FOR JAPAN
	D82-0642-000	C	1	CABLE, AC (N)	FOR USA, CANADA
	D82-0643-000	C	1	CABLE, AC (E)	FOR EUROPE, ASIA
	D82-0644-000	C	1	CABLE, AC (B)	FOR ASIA
	D82-0645-000	C	1	CABLE, AC (A)	FOR AUSTRALIA
4	DY1-8242-000	C	1	COVER, TERMINAL BP-511/BP522	
5	DY1-8244-000	C	1	DC CABLE	
6	DY1-8243-000	C	1	CAR BATTERY CABLE CB-560	
7	CD1-4929-000	B	1	CAP, FRONT	
8	CD1-4931-000	B	1	CAP, REAR	
9	CD1-4933-000	B	1	CAP, FRONT	

Accessories-3

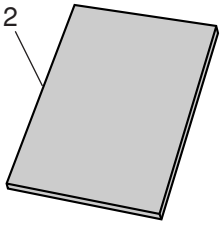
Camera User Guide



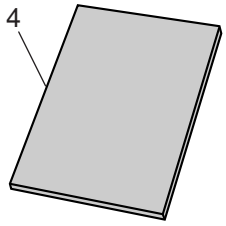
System Map



Software Starter Guide



Quick Start Guide

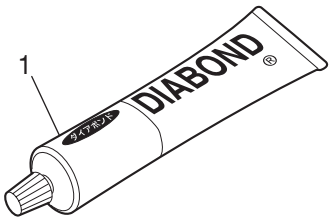


PARTS LIST

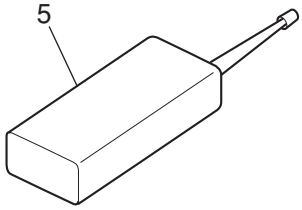
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CDI-E075-000	S	1	I.BOOK (E) PS G5	FOR USA, CANADA, ASIA, AUSTRALIA
	CDI-F064-000	S	1	I.BOOK (F) PS G5	FOR CANADA
	CDI-J066-000	S	1	I.BOOK (J) PS G5	FOR JAPAN
	CDI-S065-000	S	1	I.BOOK (S) PS G5	FOR USA
2	CDI-E089-000	S	1	SOFTWARE GUIDE (E) VER.13.0	FOR USA, CANADA, ASIA, AUSTRALIA
	CDI-F078-000	S	1	SOFTWARE GUIDE (F) VER.13.0	FOR CANADA
	CDI-J080-000	S	1	SOFTWARE GUIDE (J) VER.13.0	FOR JAPAN
	CDI-S078-000	S	1	SOFTWARE GUIDE (S) VER.13.0	FOR USA
3	CDI-E076-000	S	1	SYSTEM MAP (E) PS G5	FOR USA, CANADA, ASIA, AUSTRALIA
	CDI-F066-000	S	1	SYSTEM MAP (F) PS G5	FOR CANADA
	CDI-J067-000	S	1	SYSTEM MAP (J) PS G5	FOR JAPAN
	CDI-S066-000	S	1	SYSTEM MAP (S) PS G5	FOR USA
4	CDI-E077-000	S	1	QUICK START GUIDE (E)	FOR USA, CANADA, ASIA, AUSTRALIA
	CDI-F066-000	S	1	QUICK START GUIDE (F)	FOR CANADA
	CDI-J068-000	S	1	QUICK START GUIDE (J)	FOR JAPAN
	CDI-S067-000	S	1	QUICK START GUIDE (S)	FOR USA

Service Tools-1

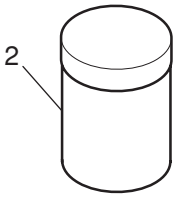
DIA BOND NO.1663G BLACK



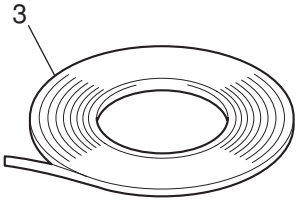
Three Bond 1401C



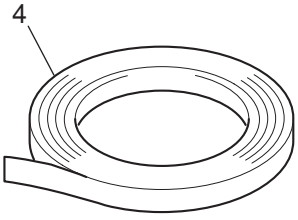
LOGENEST RAMBDA A-74



Adhesive Tape SONY T4000



Adhesive Tape 3M NO.56

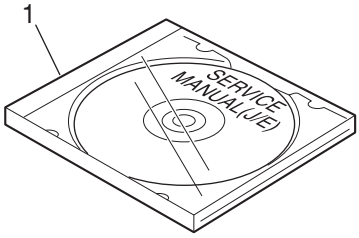


PARTS LIST

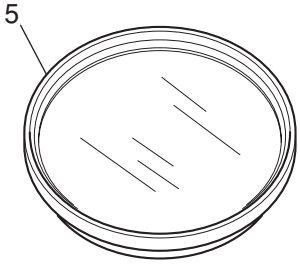
SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY9-8129-000	Y	1	BOND, DIA BOND NO.1663G BLACK	200ml
2	CY9-8102-000	Y	1	LUBE, LOGENEST RAMBDA A-74	80g
3	CY4-6012-000	Y	1	ADHESIVE TAPE, SONY T4000	6mm x 50m Roll
4	CY4-6018-000	Y	1	ADHESIVE TAPE, 3M NO.56	
5	CY9-8011-000	Y	1	BOND, THREE BOND 1401C	200g

Service Tools-2

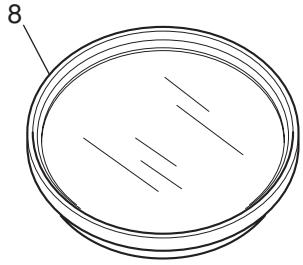
Service Manual CD-ROM



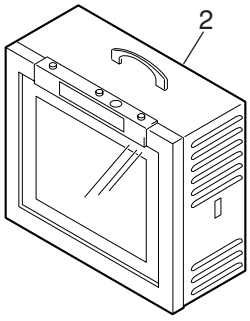
C-12 Filter



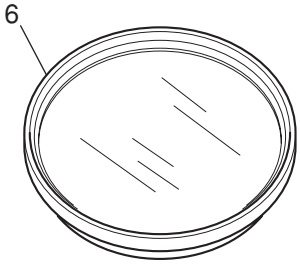
ND-2 Filter



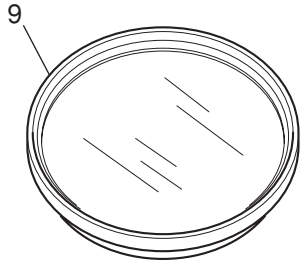
Color Viewer (5600° K)



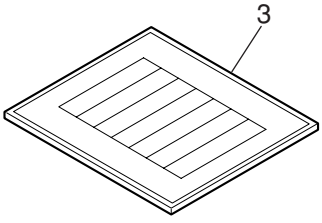
W-10 Filter



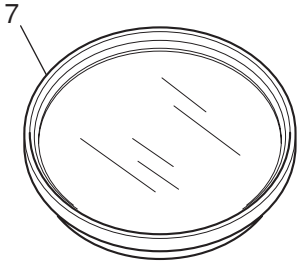
ND-4 Filter



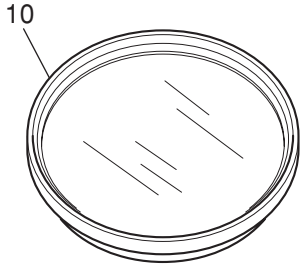
Standard Color Bar Chart



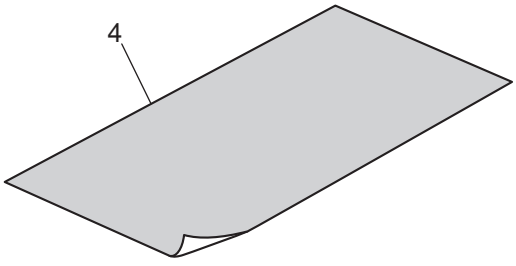
FL-W Filter



ND-8 Filter



18% Gray Chart



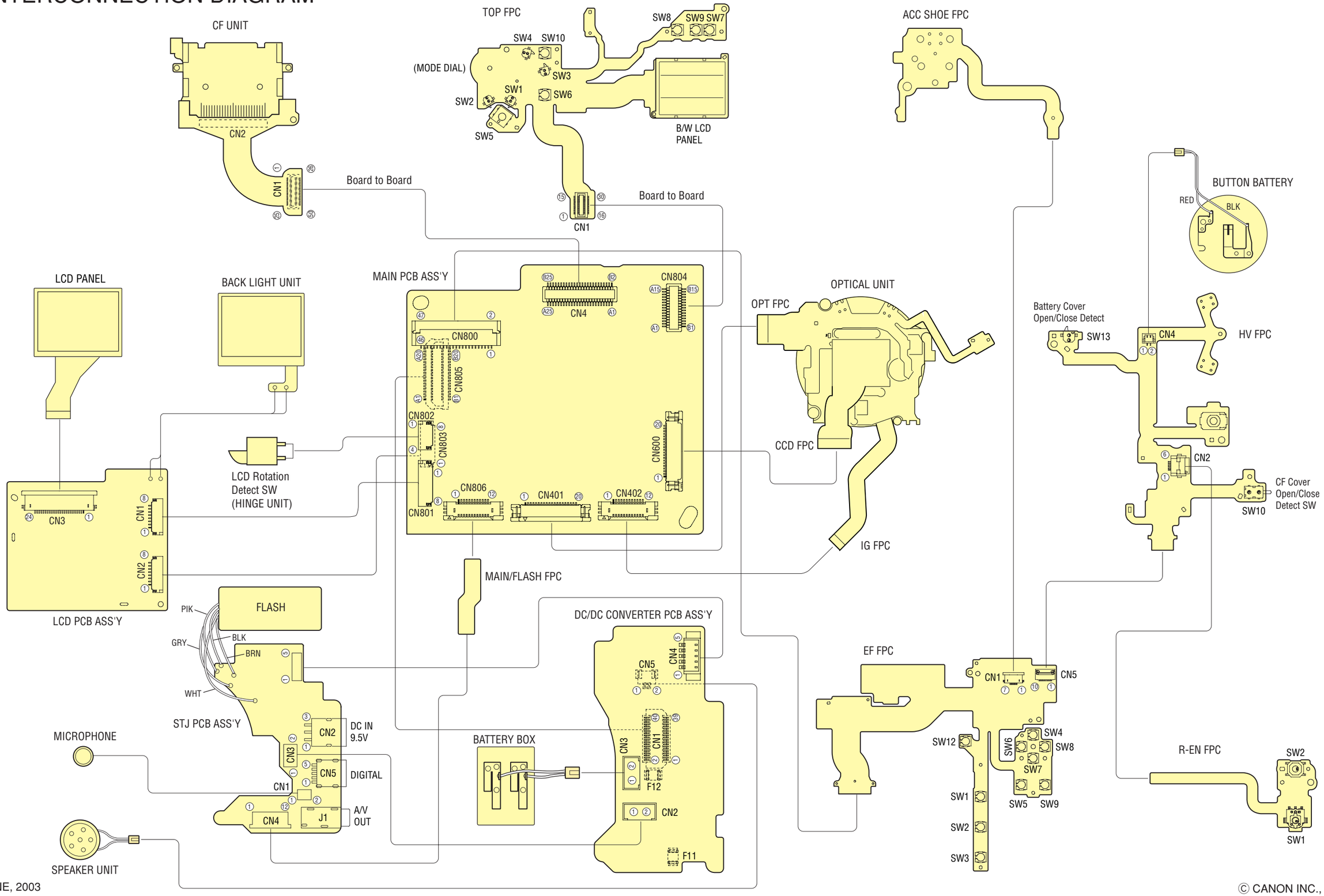
PARTS LIST

SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	CY8-4386-031	Y	1	CD-ROM, SERVICE MANUAL (J/E)	
2	DY9-2039-100	Y	1	COLOR VIEWER 5600K	
3	DY9-2002-000	Y	1	COLOR BAR CHART	
4	CY4-6016-000	Y	1	CHART, 18% GRAY	
5	DY9-2029-000	Y	1	FILTER, C-12	
6	CY9-1543-000	Y	1	FILTER, W-10	
7	CY9-1550-000	Y	1	FILTER, FL-W	
8	CY9-1552-000	Y	1	FILTER, ND-2	
9	CY9-1553-000	Y	1	FILTER, ND-4	
10	CY9-1554-000	Y	1	FILTER, ND-8	

CHAPTER 5. DIAGRAMS

CONTENTS

1. INTERCONNECTION DIAGRAM



CONNECTORS

MAIN PCB ASS'Y

CN4	
A1	GND
A2	/CD2
A3	D10
A4	/IOIS16
A5	D09
A6	D02
A7	D08
A8	D01
A9	/STSCHG
A10	D00
A11	GND
A12	A00
A13	/CE1
A14	D15
A15	D07
A16	D14
A17	D06
A18	D13
A19	D05
A20	D12
A21	D04
A22	D11
A23	D03
A24	/CD1
A25	GND
B1	/REG
B2	A01
B3	/INPACK
B4	A02
B5	/WAIT
B6	A03
B7	RESET
B8	A04
B9	/VS2
B10	A05
B11	VCC
B12	A06
B13	VCC
B14	VCC
B15	IREQ
B16	A07
B17	/WE
B18	A08
B19	/IOWR
B20	A09
B21	/IORD
B22	/OE
B23	/VS1
B24	A10
B25	/CE2

CN401	
1	PI_ZM_LED0
2	PI_ZM_RST0
3	COMZ
4	PI_ZM_LED1
5	PI_ZM_RST1
6	W_LEDK
7	W_LEDA
8	PI_FOC_RST
9	PI_FOC_LED
10	COMF
11	FOCA+
12	FOCA-
13	FOCB+
14	FOCB-
15	CCD-THM0
16	CCDTHM1
17	ZMA+
18	ZMB+
19	ZMA-
20	ZMB-

CN402	
1	MECH_THM0
2	MECH_THM1
3	IRISB+
4	IRISA-
5	IRISA+
6	IRISB-
7	ND+
8	ND-
9	SHT+
10	SHT+
11	SHT-
12	SHT-

CN600	
1	VOUT
2	GND
3	VDD
4	RG
5	H2B
6	H1B
7	GND
8	SUB
9	CSUB
10	VL
11	H1A
12	H2A
13	V1
14	V2
15	V3A
16	V3B
17	V4
18	V5A
19	V5B
20	V6

CN800	
1	MATSW7
2	MATCOM1
3	MATSW8
4	MATCOM3
5	MATSW6
6	MATSW1
7	MATSW4
8	MATSW3
9	MATSW2
10	MATSW5
11	ROT_ENC[0]
12	ROT_ENC[1]
13	REMOTE
14	REG5.0V(by vbat)
15	CFOPEN
16	SLANT_OUT[0]
17	SLANT_OUT[1]
18	SLANT_REF
19	VDD10-3.3
20	VDD10-3.3
21	SLANT_EN
22	Vlitium
23	GND
24	BATOPEN
25	BAT_THRM
26	STROBO_STP
27	Not Connected
28	STRB_DET_SW
29	XTRIG
30	GND
31	GND
32	REG5.0V(E2)
33	REG5.0V(E2)
34	CSEFO
35	EFAD
36	CSEF1
37	GND
38	MOSI
39	MISO
40	DAC1
41	DAC2
42	/SPCR
43	SDAC_VCC
44	OSC
45	BCLK
46	SCLK
47	SENSE

CN801	
1	LCD_20V
2	LCD_12.3V
3	VDD0
4	GND
5	GND
6	Serial_CLK
7	Serial_D2I
8	LCD_CONT_CS

CN802	
1	BASE_P_DET
2	MATCOM4
3	ROT_DET
4	MATCOM4

CN803	
1	ADDALAT(EX[23])
2	P_DET02
3	CSYNC
4	GND
5	Y+S
6	GND
7	R-Y
8	B-Y

CN804	
B1	AFLED01
B2	MATSW8
B3	MATSW5
B4	MATSW6
B5	PWR_OFF
B6	Not Connected
B7	MATCOM1
B8	MATSW1
B9	MATSW2
B10	MATSW7
B11	MATSW4
B12	MATSW3
B13	PB_ON
B14	REC_ON
B15	MATCOM2
A1	AFLED21
A2	AMLED22
A3	PWR_LED01
A4	PWR_LED02
A5	OLC_BKLT[0]
A6	OLC_BKLT[1]
A7	OLC_VDD
A8	/OLC_RST
A9	OLC_SCK
A10	OLC_SDAT
A11	/OLC_CS
A12	OLC_C/D
A13	GND
A14	GND
A15	GND

CN805	
A1	VBAT
A2	VBAT
A3	DC_J_DET
A4	H2CHG
A5	VDD0-3.3
A6	VDD0-3.3
A7	GND
A8	GND
A9	VDD2-15.3
A10	VDD2-5.5
A11	VDD2-5.5
A12	GND
A13	GND
A14	BAT_SENSE
A15	GND
A16	/E0LAT
A17	E12LAT
A18	OSC(EF2STJ)
A19	IGBT(EF2STJ)
A20	GND
B1	VBAT
B2	SENSE(STJ2EF)
B3	CHG
B4	I_SENSE
B5	VDD0-3.3
B6	GND
B7	VDD12-1.5
B8	VDD12-1.5
B9	GND
B10	Not Connected
B11	Not Connected
B12	VDD2-N7.9
B13	VDD3-12.3
B14	VDD3-20.0
B15	GND
B16	E2LAT
B17	E3LAT
B18	GND
B19	SP+
B20	SP-

CN806	
1	MIC_GND
2	MIC_IN
3	AUDIO_GND
4	Line_out
5	Video_GND
6	Video_OUT
7	Not Connected
8	AV_J_DET
9	GND
10	D+
11	D-
12	VBUS

DC/DC CONVERTER PCB ASS'Y

CN1	
1	VBAT
2	VBAT
3	DC_J_DET
4	H2CHG
5	VDD0-3.3
6	VDD0-3.3
7	GND
8	GND
9	VDD2-15.3
10	VDD2-5.5
11	VDD2-5.5
12	GND
13	GND
14	BAT_SENSE
15	GND
16	/E0LAT
17	E1LAT
18	OSC
19	IGBT
20	GND
21	VBAT
22	SENSE
23	CHG
24	I_SENSE
25	VDD0-3.3
26	GND
27	VDD12-1.5
28	VDD12-1.5
29	GND
30	Not connected
31	Not connected
32	VDD2-7.9
33	VDD3-12.3
34	VDD3-20
35	GND
36	E2LAT
37	E3LAT
38	GND
39	SP+
40	SP-

CN2	
1	ACADPT_IN
2	GND

CN3	
1	BATT_IN
2	GND

CN4	
1	GMD
2	OSC
3	SENSE
4	VBAT
5	IGBT

CN5	
1	SP+
2	SP-

CF UNIT

CN1	
1	/REG
2	A01
3	/INPACK
4	A02
5	/WAIT
6	A03
7	RESET
8	A04
9	Not connected
10	A05
11	VCC(/CSEL)
12	A06
13	VCC
14	VCC
15	IREQ
16	A07
17	/WE
18	A08
19	/IOWR
20	A09
21	/IORD
22	/OE
23	Not connected
24	A10
25	/CE2
26	GND
27	/CD2
28	D10
29	/IOIS16
30	D09
31	D02
32	D08
33	D01
34	Not connected
35	D00
36	/SPKR(GND)
37	A00
38	/CE1
39	D15
40	D07
41	D14
42	D06
43	D13
44	D05
45	D12
46	D04
47	D11
48	D03
49	/CD1
50	GND

CN2	
1	GND
2	D03
3	D04
4	D05
5	D06
6	D07
7	/CE1
8	A10
9	/OE
10	A09
11	A08
12	A07
13	VCC
14	A06
15	A05
16	A04
17	A03
18	A02
19	A01
20	A00
21	D00
22	D01
23	D02
24	/IOIS16
25	/CD2
26	/CD1
27	D11
28	D12
29	D13
30	D14
31	D15
32	/CE2
33	Not connected
34	/IORD
35	/IOWR
36	/WE
37	IREQ
38	VCC
39	VCC(/CSEL)
40	Not connected
41	RESET
42	/WAIT
43	/INPACK
44	/REG
45	GND(/SPKR)
46	Not connected
47	D08
48	D09
49	D10
50	GND

EF FLEX BOARD

CN1	
1	EF_XGND
2	AVEF
3	EF_STSP
4	EF_ID
5	EF_CCC
6	EF_X
7	STRB_SW

CN5	
1	MATCOM_1
2	MARSW_6
3	MATSW_5
4	ROT_ENC[0]
5	ROT_ENC[1]
6	REMOTE
7	REG5.0V(by vbat)
8	CFOPEN
9	GND
10	GND
11	A_SLT_2
12	A_SLT_1
13	B_SLT_1
14	B_SLT_2
15	VDD10-3.3V
16	VDD10-3.3V
17	GND
18	GND
19	Vlitium
20	BATOPEN
21	BATT_THRM

HV FLEX BOARD

CN2	
1	ROT_ENC[0]
2	GND
3	ROT_ENC[1]
4	GND
5	PONG_SW_COM
6	PONG_SW_SW

CN4	
1	GND
2	Vlitium

TOP FLEX

CN1	
1	AFLED[01]
2	MATSW[8]
3	MATSW[5]
4	MATSW[6]
5	PWR_OFF
6	Not connected
7	MATCOM[1]
8	MATSW[1]
9	MATSW[2]
10	MATSW[7]
11	MATSW[4]
12	MATSW[3]
13	PB_ON
14	REC_ON
15	MATCOM[2]
16	AFLED[21]
17	AFLED[22]
18	PWR_LED01
19	PWR_LED02
20	Not connected
21	Not connected
22	OLC_VDD
23	/OLC_RST
24	SCK
25	SDAT
26	/OLC_CS
27	OLC_C/D
28	GND
29	GND
30	GND

STJ PCB ASS'Y

CN1	
1	MIC_IN
2	MIC_GND

CN2	
1	V_IN
2	GND

CN3	
1	GND
2	V_IN

CN4	
1	VBUS
2	D-
3	D+
4	GND
5	AV_J_DET
6	Not connected
7	VIDEO_OUT
8	Video_GND
9	LINE_OUT
10	AUDIO_GND
11	MIC_IN
12	MIC_GND

CN5	
1	V_BUS
2	D-
3	D+
4	Not connected
5	UV_GND

LCD BOARD

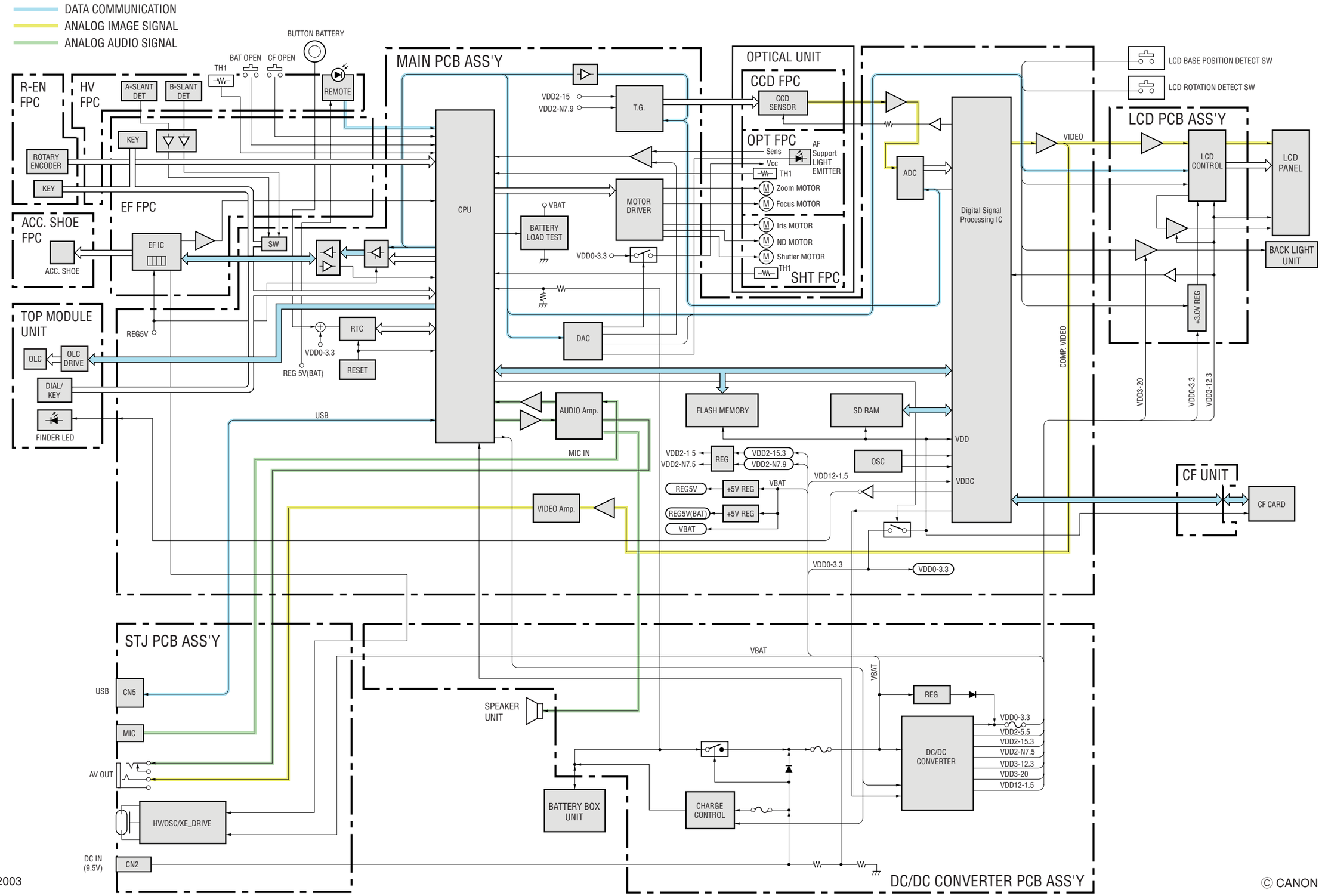
CN1	
1	LCD_20V
2	LCD_12.3V
3	VDD0
4	GND
5	GND
6	Serial_CLK
7	Serial_D2L
8	LCD_CONT_CS

CN2	
1	ADDALAT
2	P_DET02
3	CSYNC
4	GND
5	Y+S
6	GND
7	R-Y
8	B-Y

CN3	
1	Not connected
2	RGT
3	BLUE
4	RED
5	GREEN
6	PSIG
7	HCK1
8	HCK2
9	CEXT/REXT
10	Not connected
11	REF
12	HST
13	WIDE
14	VDD
15	VSSG
16	VDDG
17	VSS
18	VDD
19	DWN
20	EN
21	VCK
22	VST
23	COM
24	Not connected

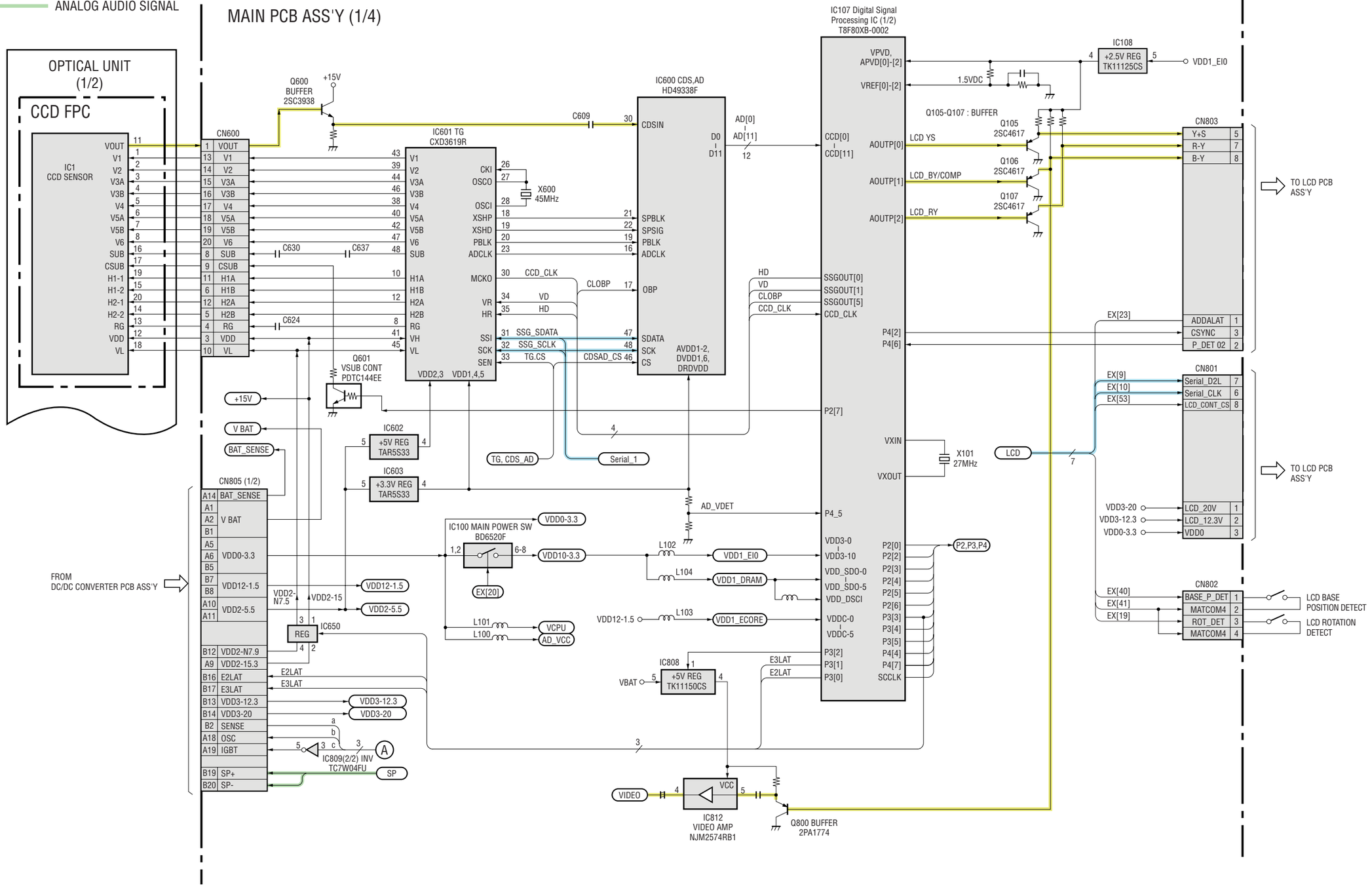
2. BLOCK DIAGRAMS

2.1 OVERALL



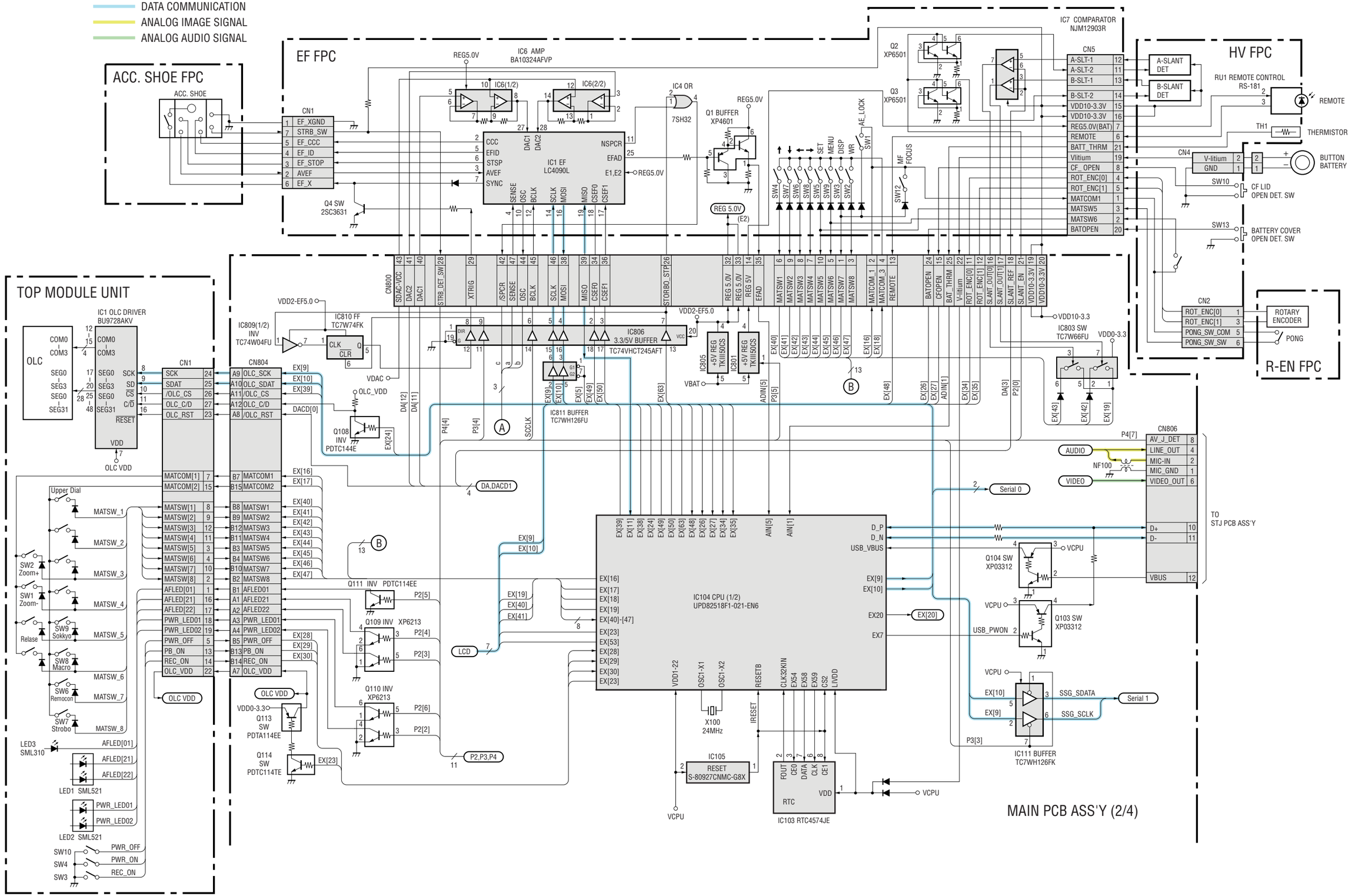
2.2 MAIN PCB ASS'Y (1/4)

DATA COMMUNICATION
ANALOG IMAGE SIGNAL
ANALOG AUDIO SIGNAL



2.3 MAIN PCB ASS'Y (2/4)

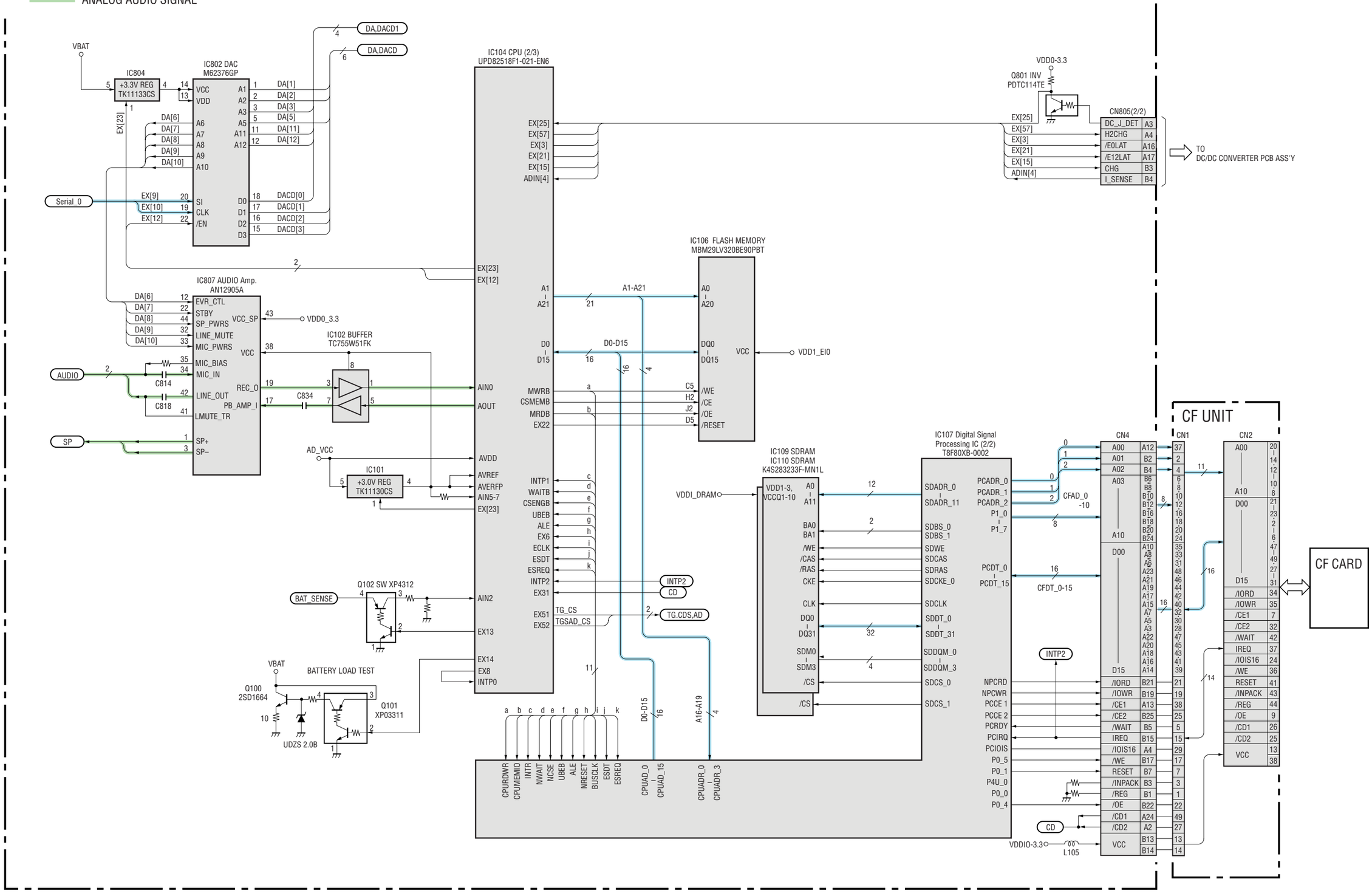
DATA COMMUNICATION
ANALOG IMAGE SIGNAL
ANALOG AUDIO SIGNAL



2.4 MAIN PCB ASS'Y (3/4)

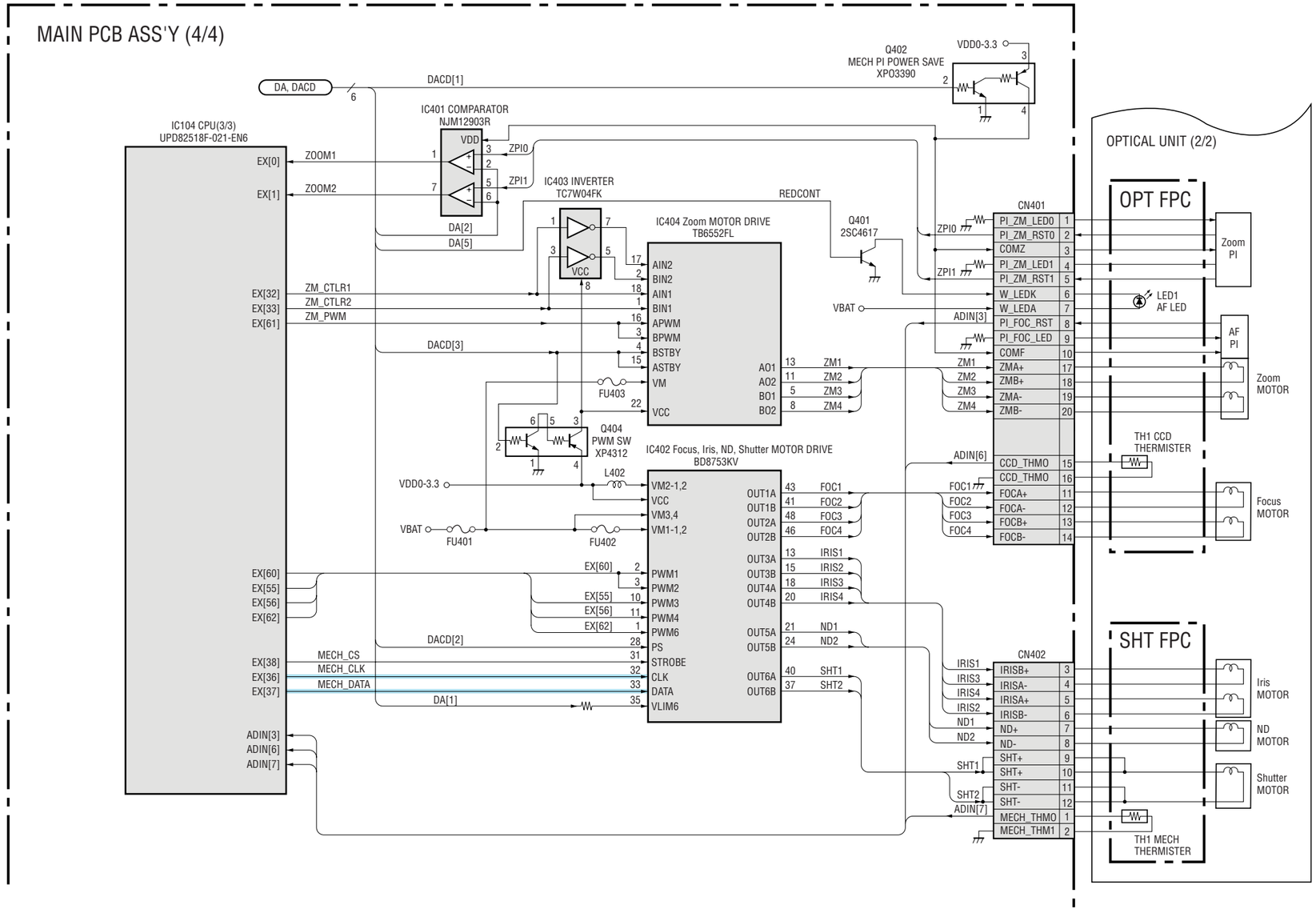
DATA COMMUNICATION
ANALOG AUDIO SIGNAL

MAIN PCB ASS'Y (3/4)



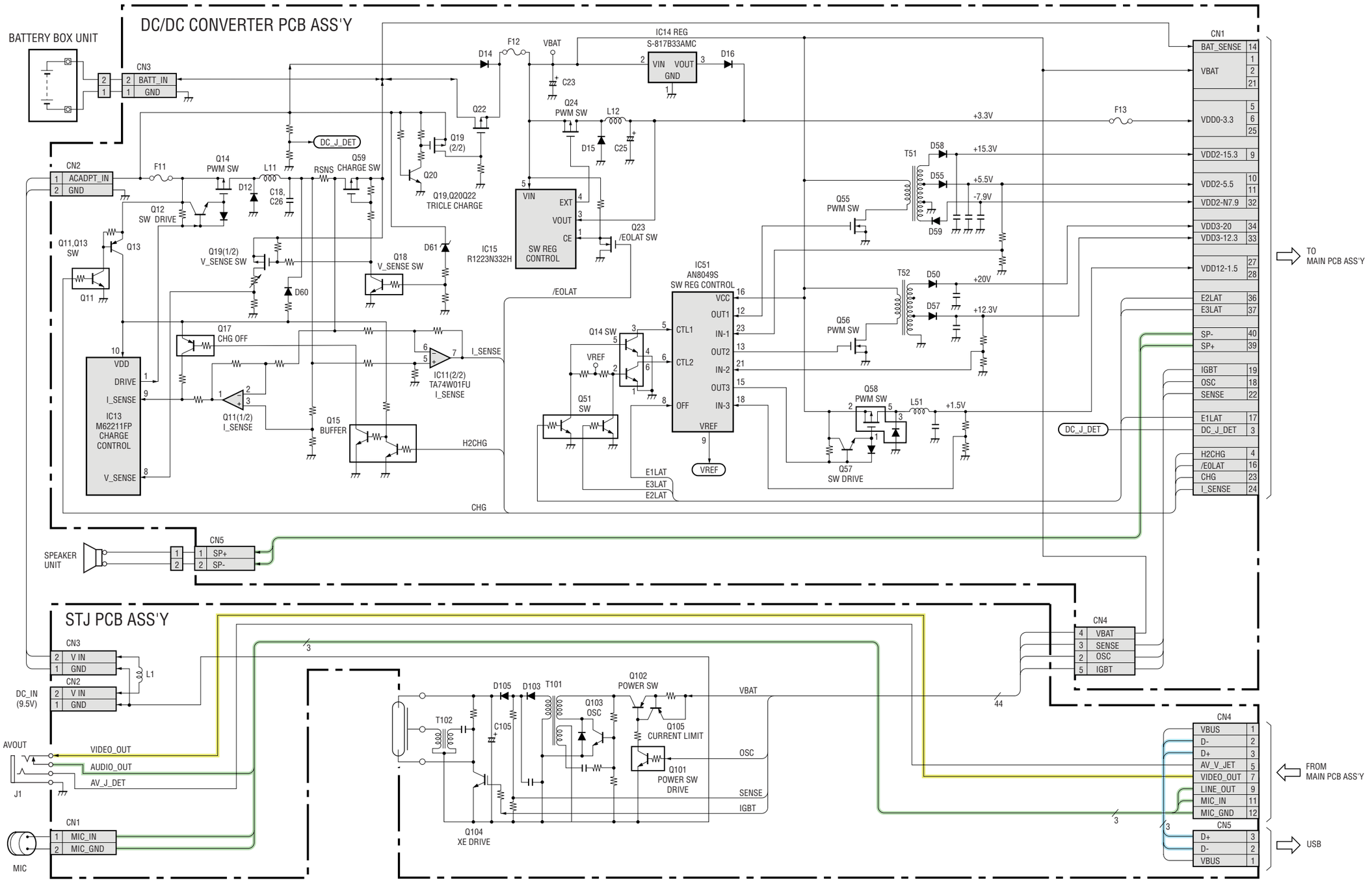
2.5 MAIN PCB ASS'Y (4/4)

DATA COMMUNICATION

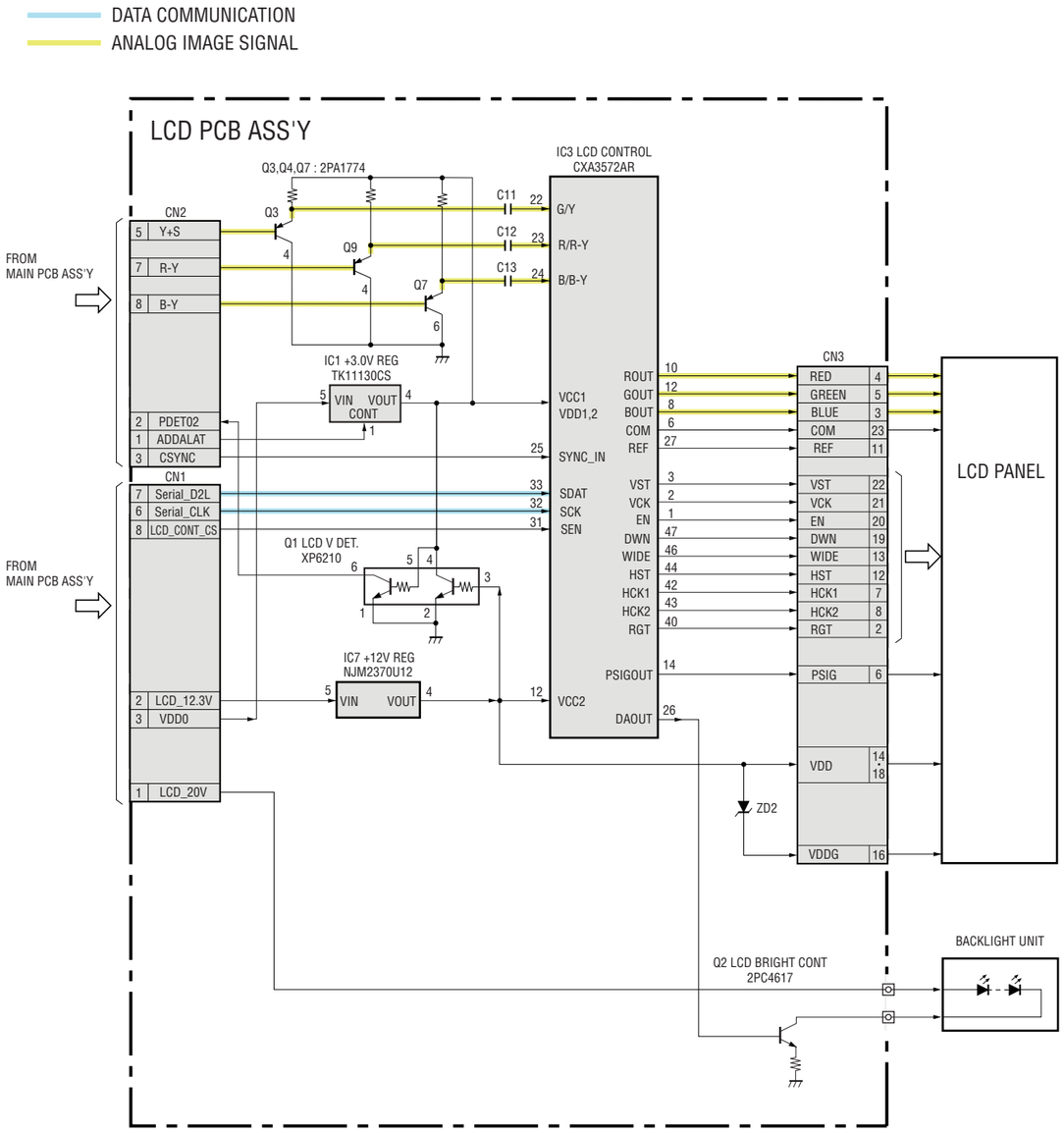


2.6 DC/DC CONVERTER PCB ASS'Y

DATA COMMUNICATION
ANALOG IMAGE SIGNAL
ANALOG AUDIO SIGNAL



2.7 LCD PCB ASS'Y



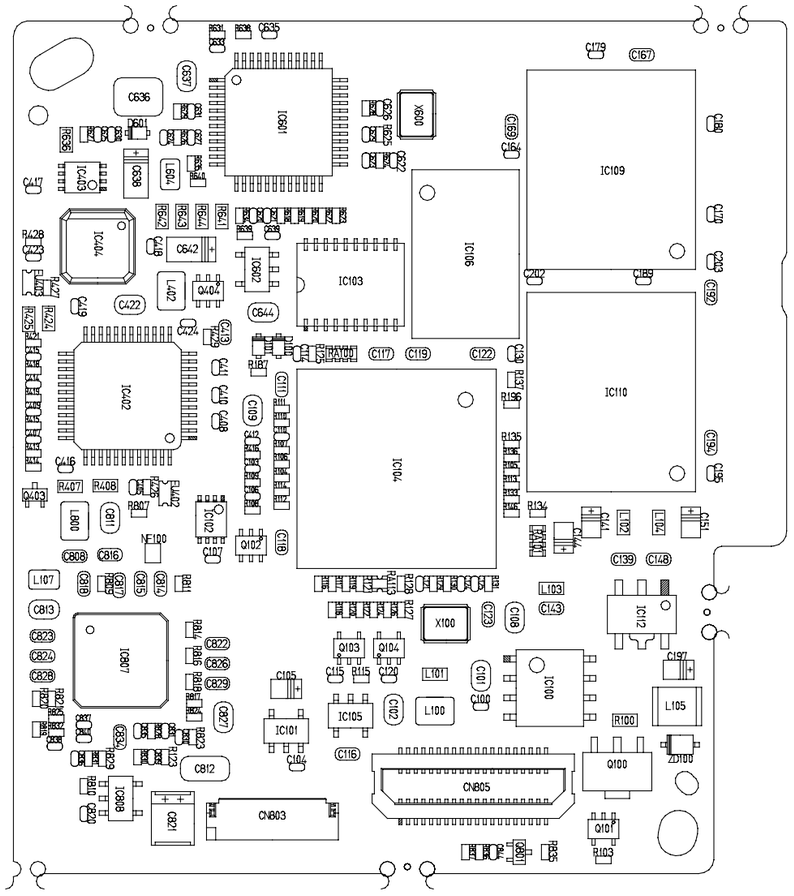
2.8 Abbreviation in Block Diagrams

Abbreviation	Nominal name	Description
ADC	Analog-to-Digital (A/D) Converter	
AE	Automatic Exposure control	
AF	Automatic Focussing control	
AND	Logic AND circuit	
R-Y/B-Y		Color difference signals of TV system
BPF	Band-Pass Filter	
BUFFER	Buffer circuit	
C	Chrominance signal	Color component signal of TV system
CCD	Charge-Coupled Device	CCD imager
CDS	Correlated Double Sampling system	
COMP.VIDEO	Composite video signal	
COMPARATOR	Voltage comparator	
CPU	Central Processing Unit	
DAC	Digital-to-Analog (D/A) Converter	
DRAM	Dynamic Random Access Memory	Memory with which read and write are freely possible.
DSP	Digital Signal Processing	Typically DSP device
EEPROM	Electrically Erasable PROM	PROM that is electrically erasable.
EVF	Electronic View Finder	
FET	Field Effect Transistor	
FLASH MEMORY		Non-volatile memory with which write and read are freely possible.
HPF	High-Pass Filter	
I/F	InterFace	The circuit that interconnects 2 devices or circuits.
IGBT	Insulated Gate Bipolar Transistor	Conductivity-modulation type FET transistor
INV.	Logic Inverter circuit	
IR	InfraRed ray	
IRIS	Iris	
LCD	Liquid Crystal Device	Typically LCD display
LED	Light Emitting Diode	Typically LED display
LPF	Low-Pass Filter	
NTSC	National Television System Committees	NTSC color TV system developed in USA
OP Amp	OPerational Amplifier	
OR	Logic OR circuit	
OSC	OSCillator	
PAL	Phase Alternating by Line	PAL color TV system developed in Germany
PLL	Phase Locked Loop	
PROM	Programmable Read Only Memory	Non-volatile memory in which program can be written.
PWM	Pulse Width Modulation	
REG.	REGulated power supply	
RTC	Real Time Clock	Reference clock oscillator
SDRAM	Synchronous Dynamic RAM	DRAM whose bus interface is synchronous.
SECAM	SEquential Colour À Mémoire	SECAM color TV system developed in France
SW REG	SWitching REGulator	Switching type regulated power supply device
TG	Timing Generator	
USB	Universal Serial Bus	USB type serial data communication system
VCO	Voltage Controlled Oscillator	
VCXO	Voltage Controlled X'tal Oscillator	
XE	Xenon Tube	
Y	Y-signal	Luminance component signal of TV system

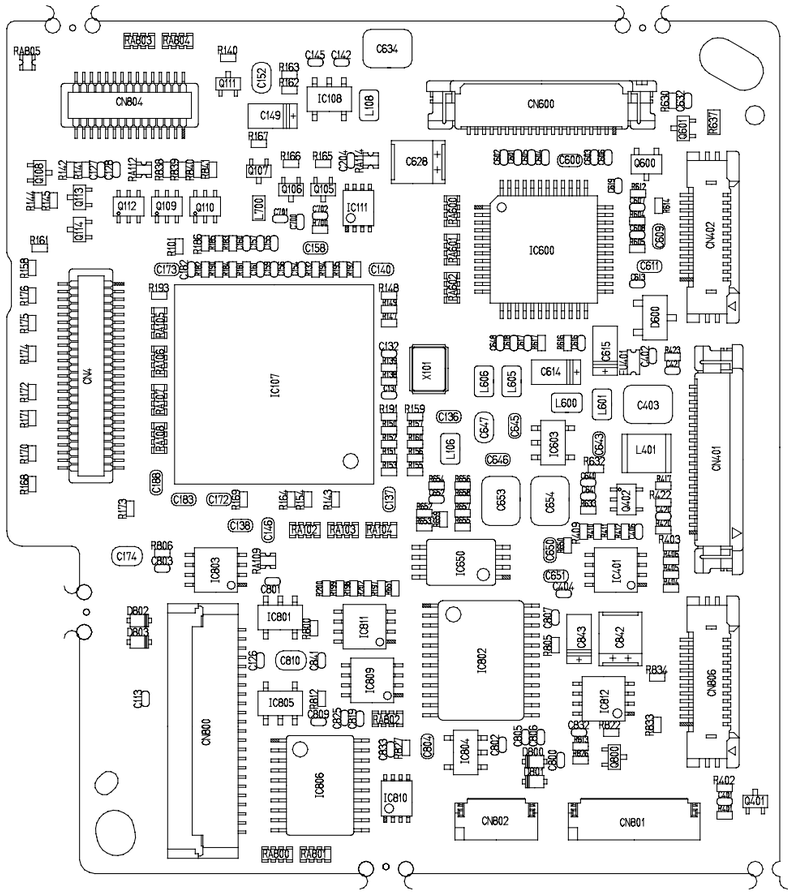
3. P.C.B. DIAGRAMS

3.1 MAIN PCB ASS'Y

MAIN PCB ASS'Y (SOLDERING SIDE)

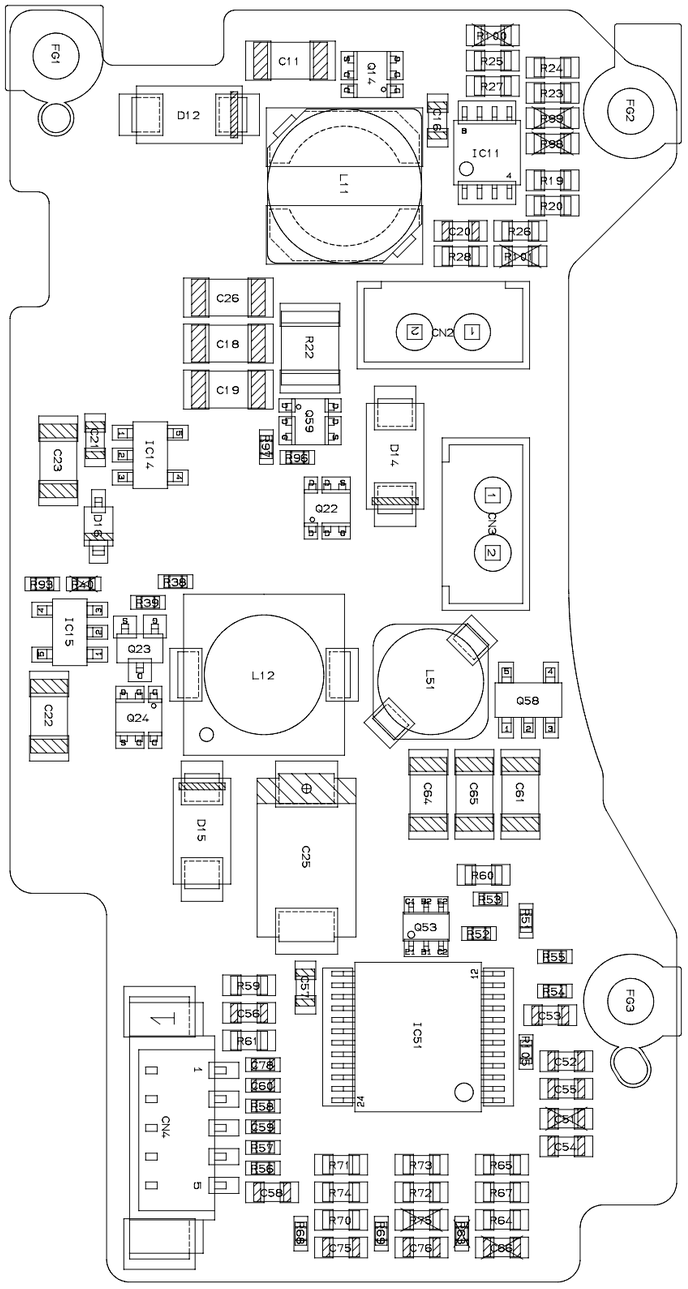


MAIN PCB ASS'Y (COMPONENT SIDE)

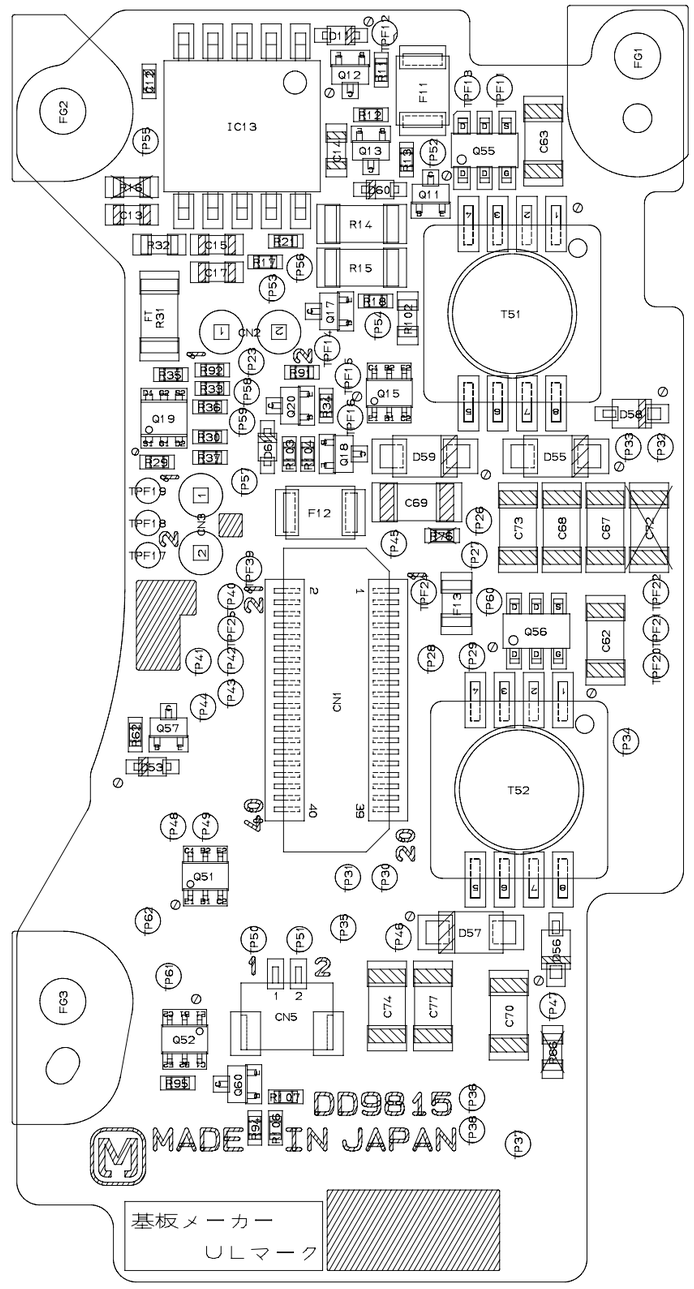


3.2 DC/DC CONVERTER PCB ASS'Y

DC/DC CONVERTER PCB ASS'Y (SOLDERING SIDE)

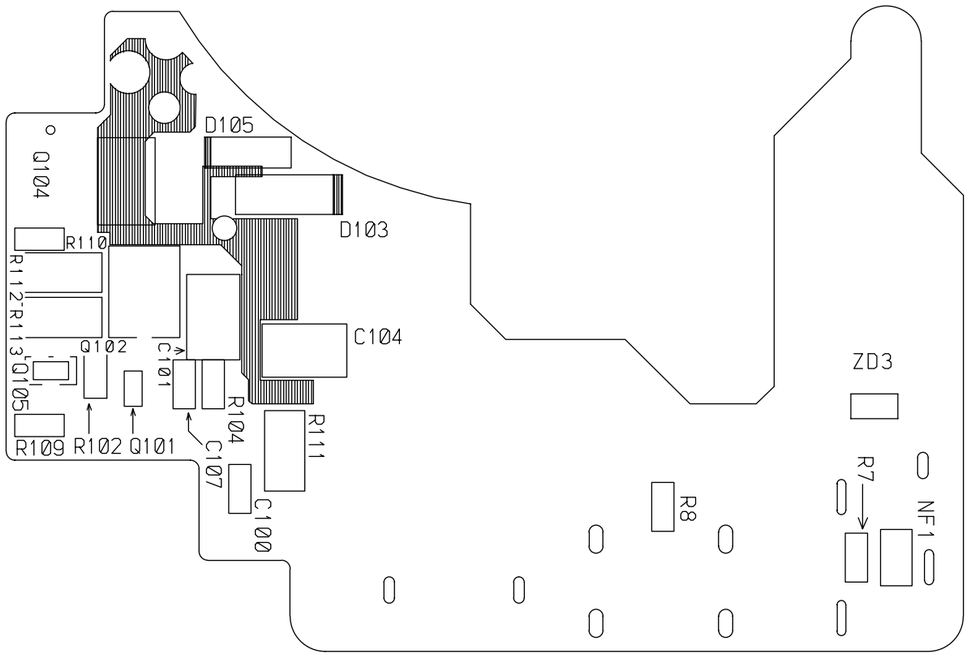


DC/DC CONVERTER PCB ASS'Y (COMPONENT SIDE)

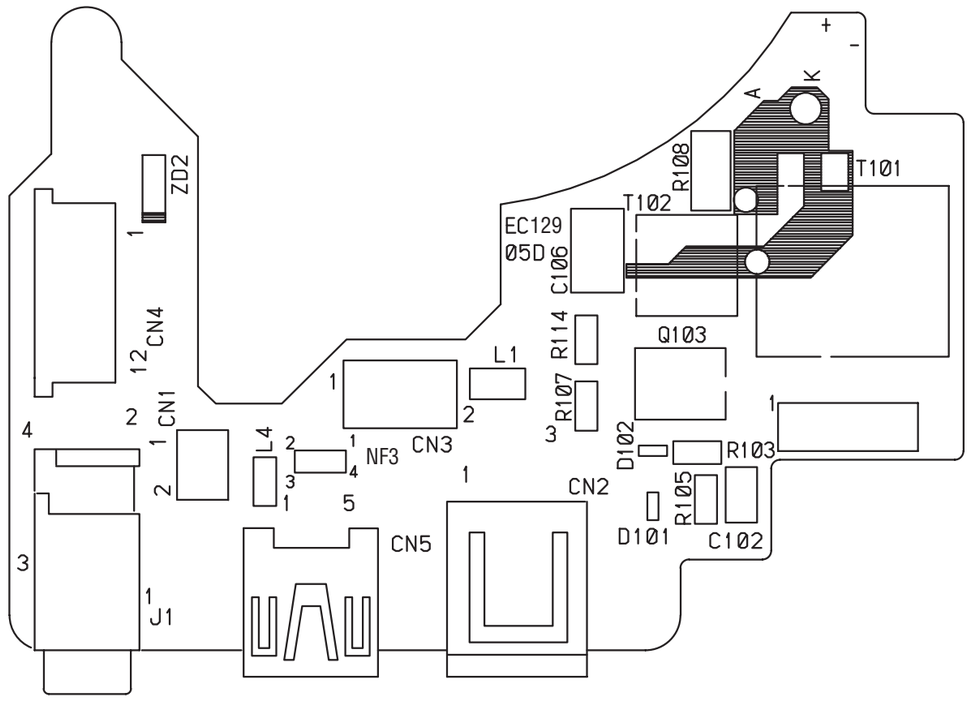


3.3 STJ PCB ASS'Y

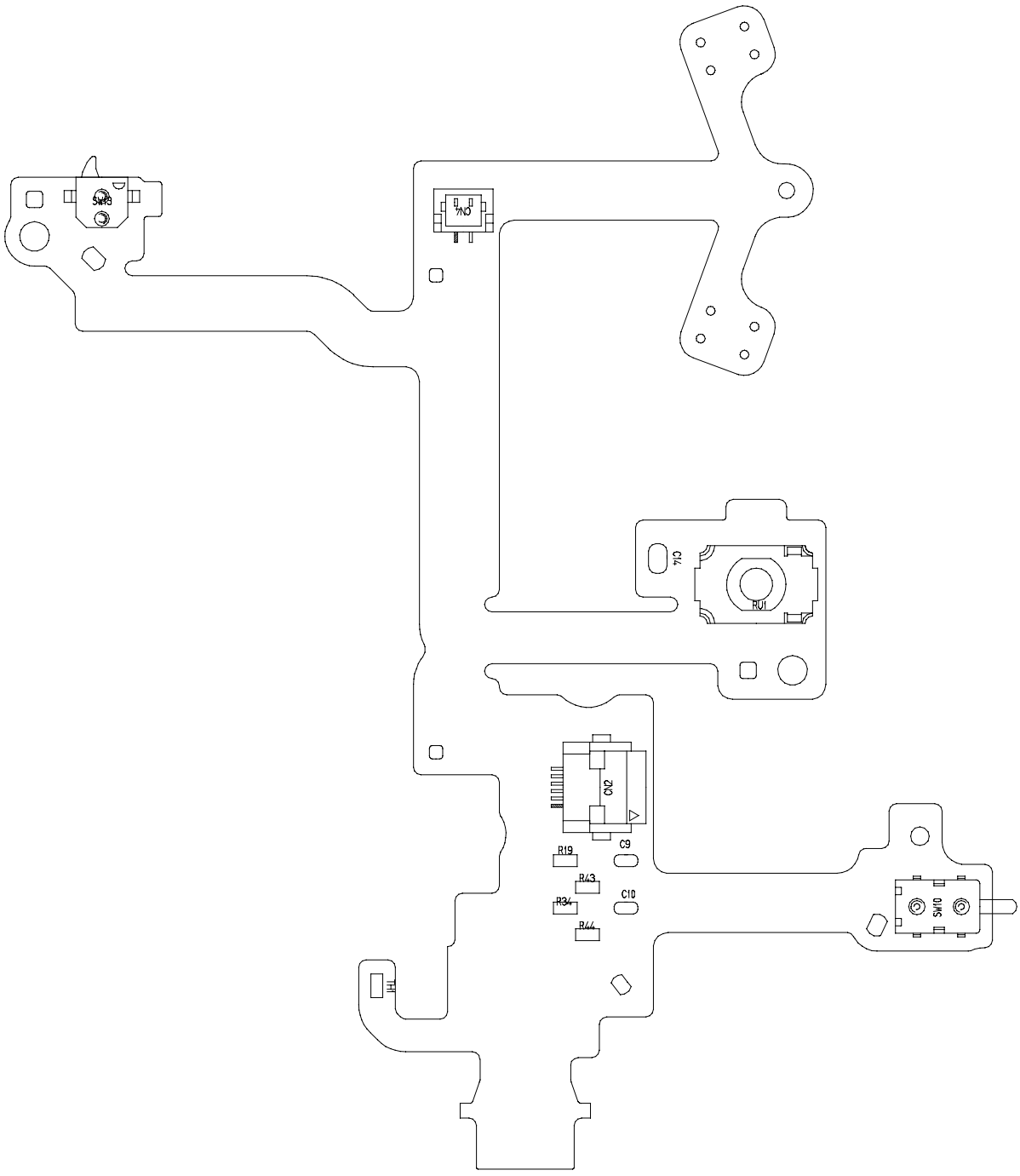
STJ PCB ASS'Y (SOLDERING SIDE)



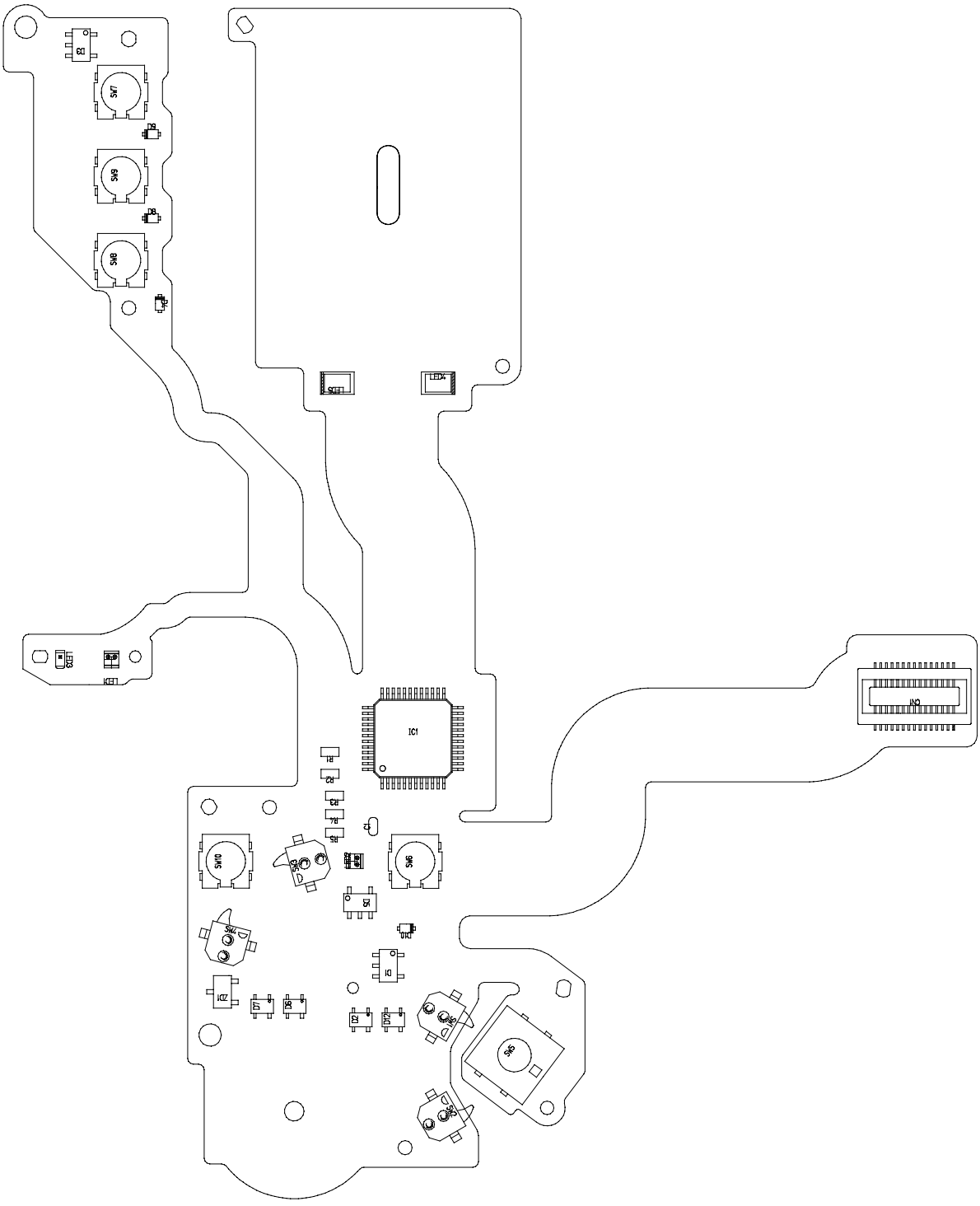
STJ PCB ASS'Y (COMPONENT SIDE)



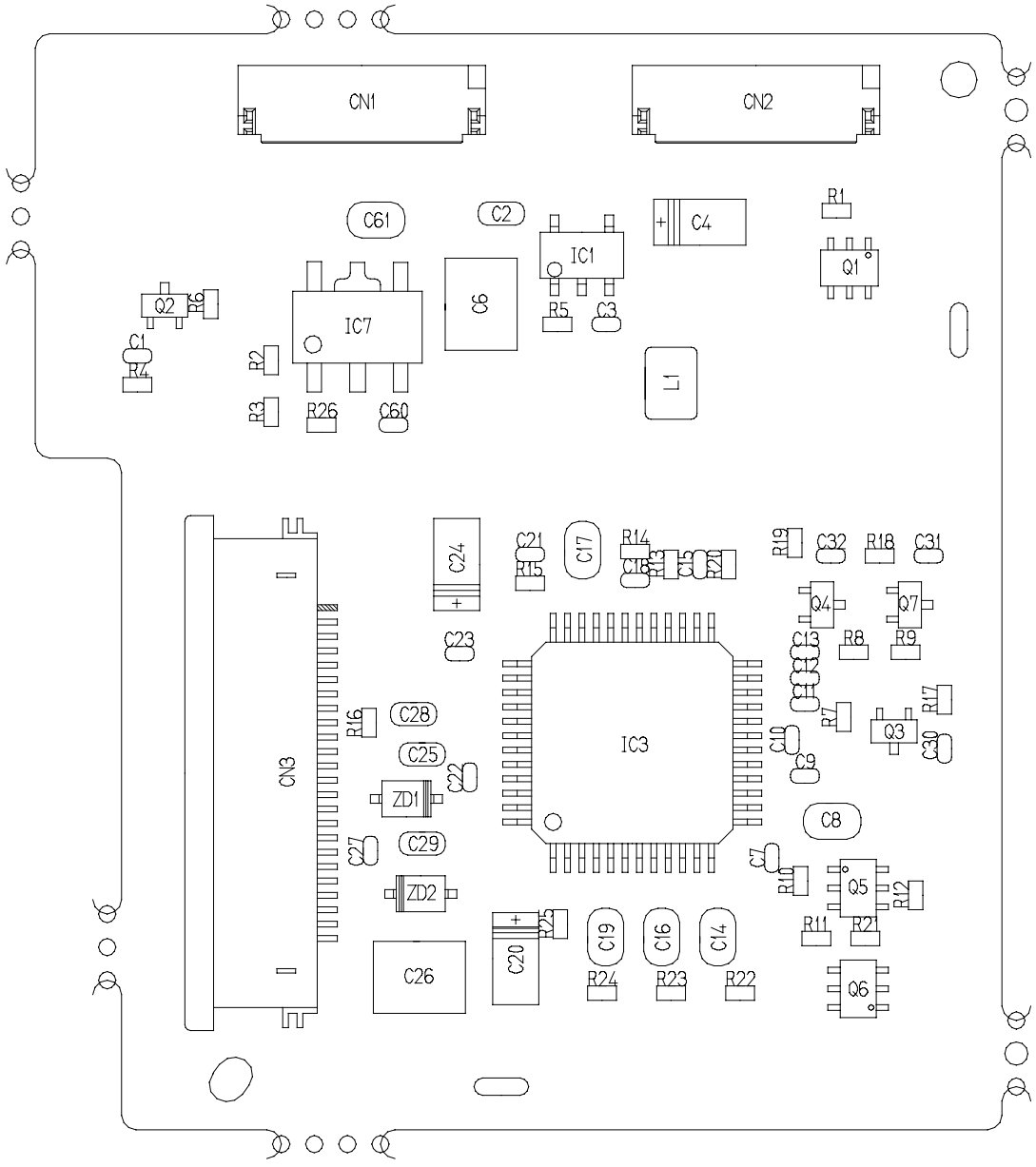
3.4 HV MODULE UNIT



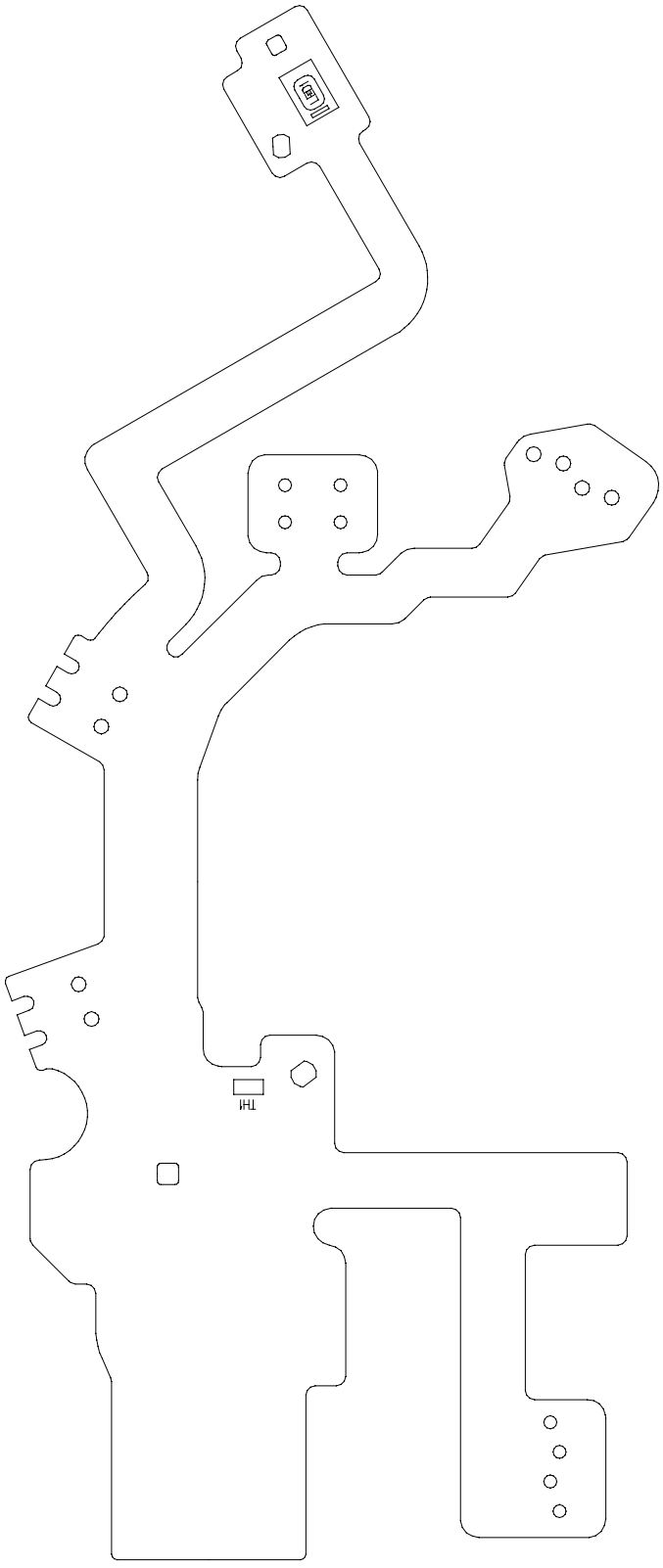
3.5 TOP MODULE UNIT



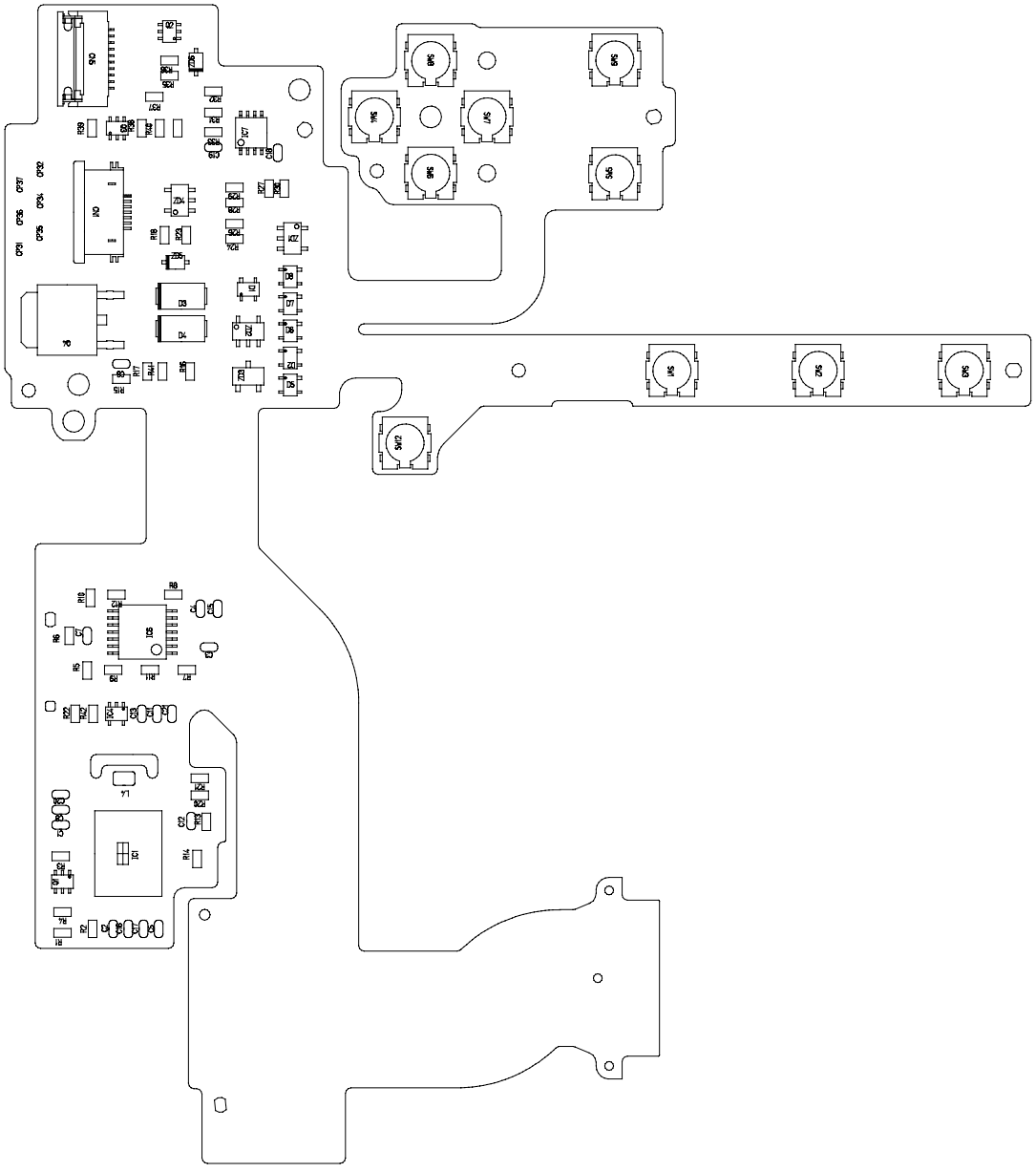
3.6 LCD PCB ASS'Y



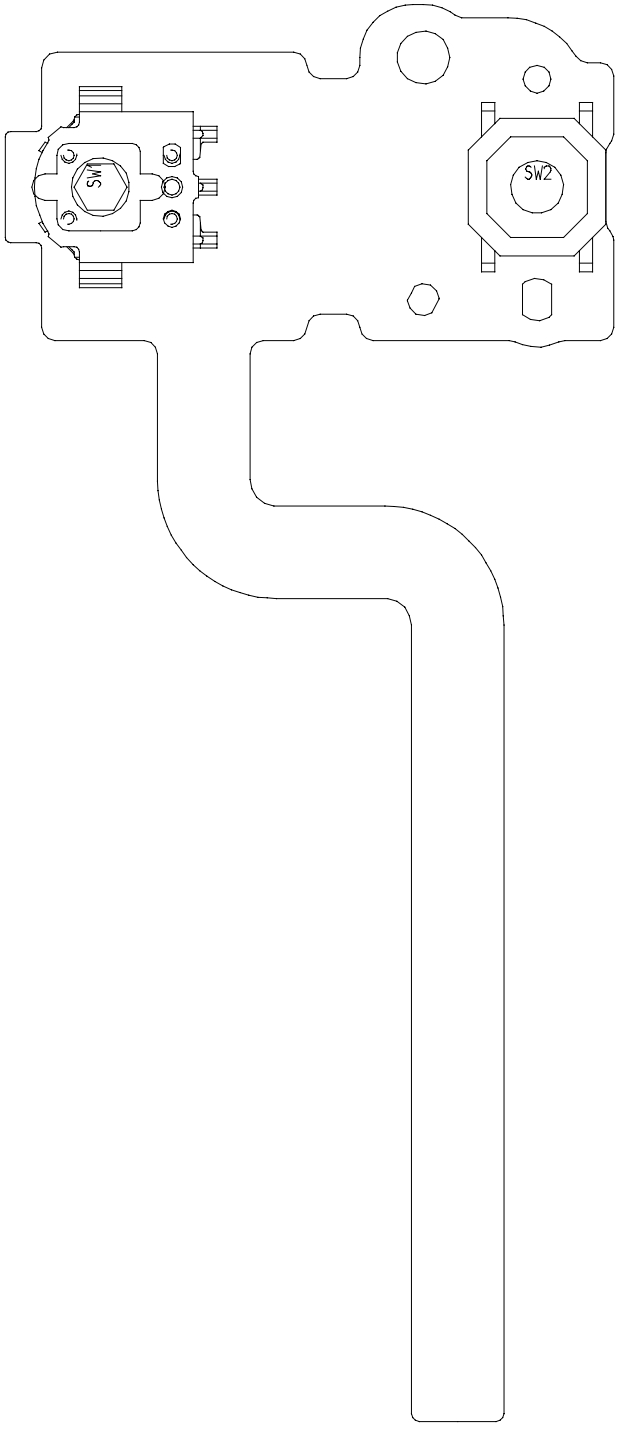
3.7 OPTICAL FLX



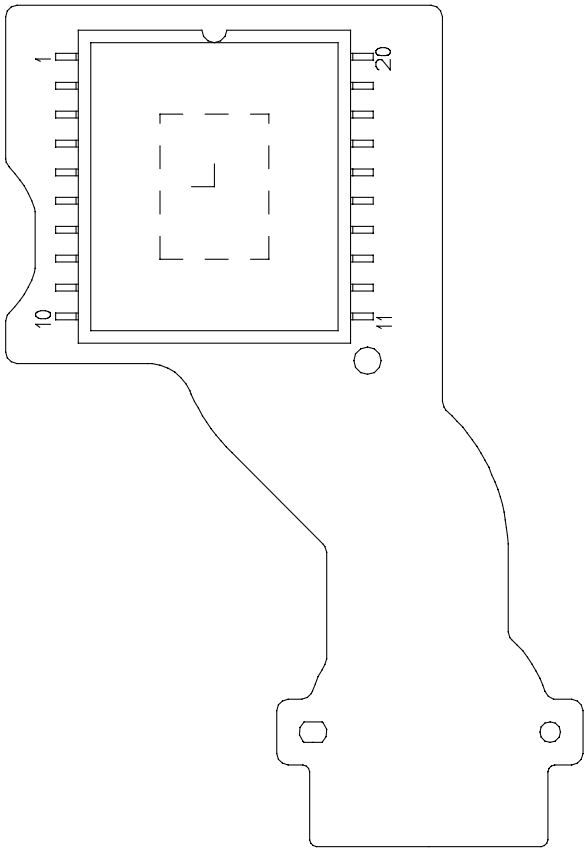
3.8 EF FLX



3.9 R_EN FLX



3.10 CCD FLX



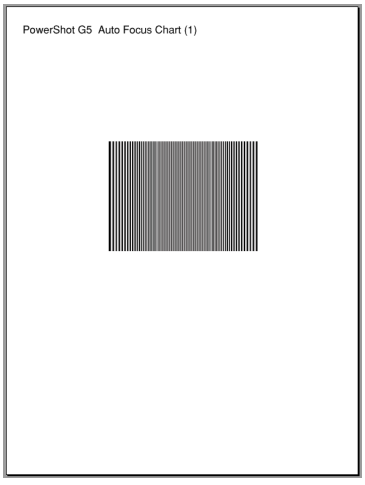
How to print out the Auto Focus Chart

< Procedures >

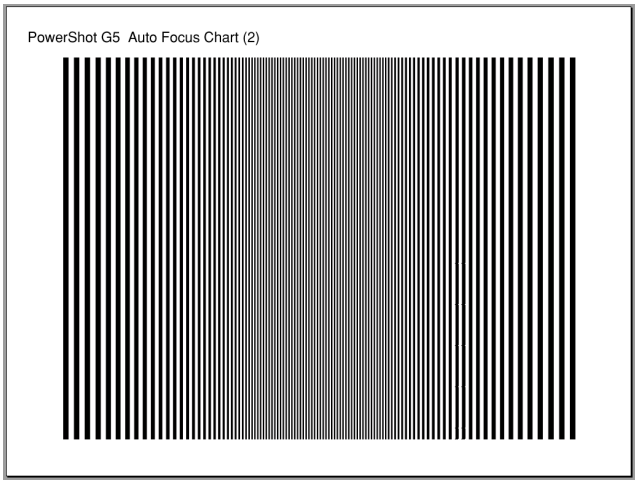
1. Click “ Print” of the Menu Bar.

2. Remove clicking from “Shrink oversized pages to paper size” and “Expand small pages to paper size”, and then print on A4 or legal. (A3 can be used.)

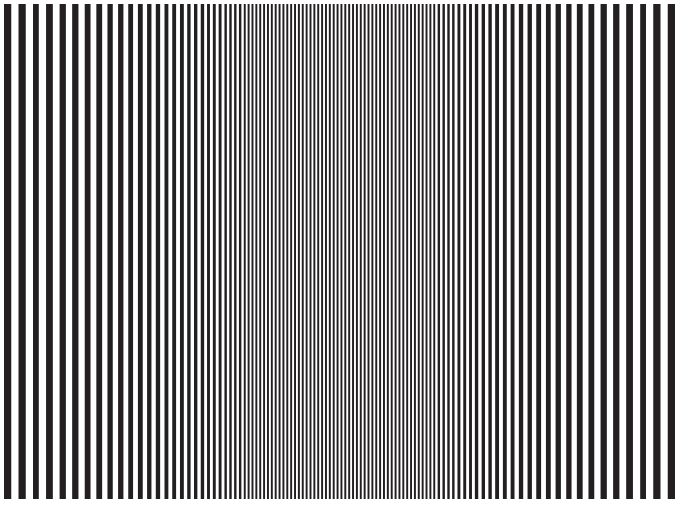
< Auto Focus Chart (1) >



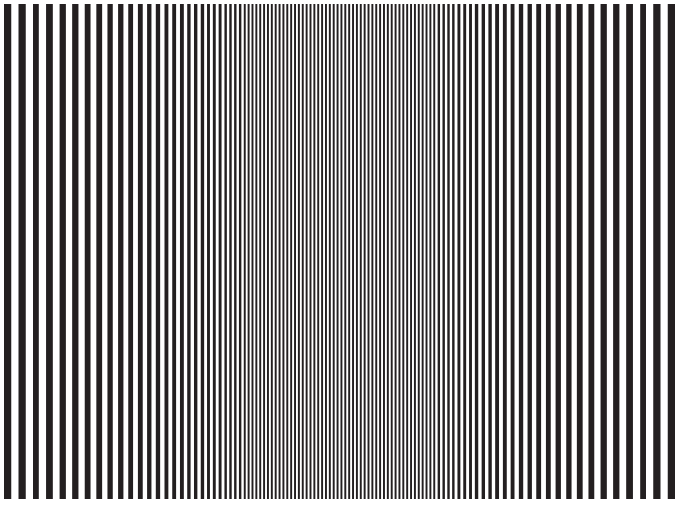
< Auto Focus Chart (2) >



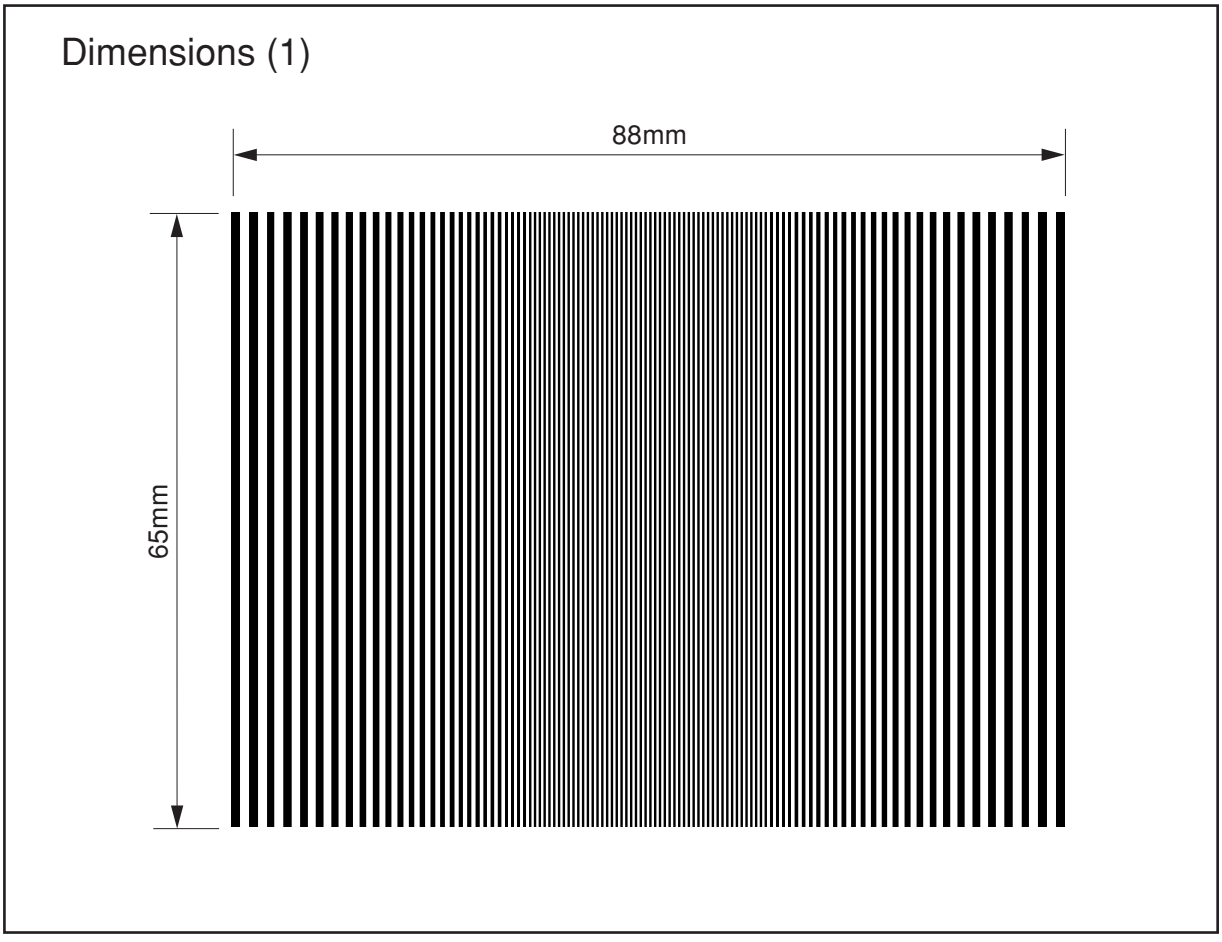
PowerShot G5 Auto Focus Chart (1)



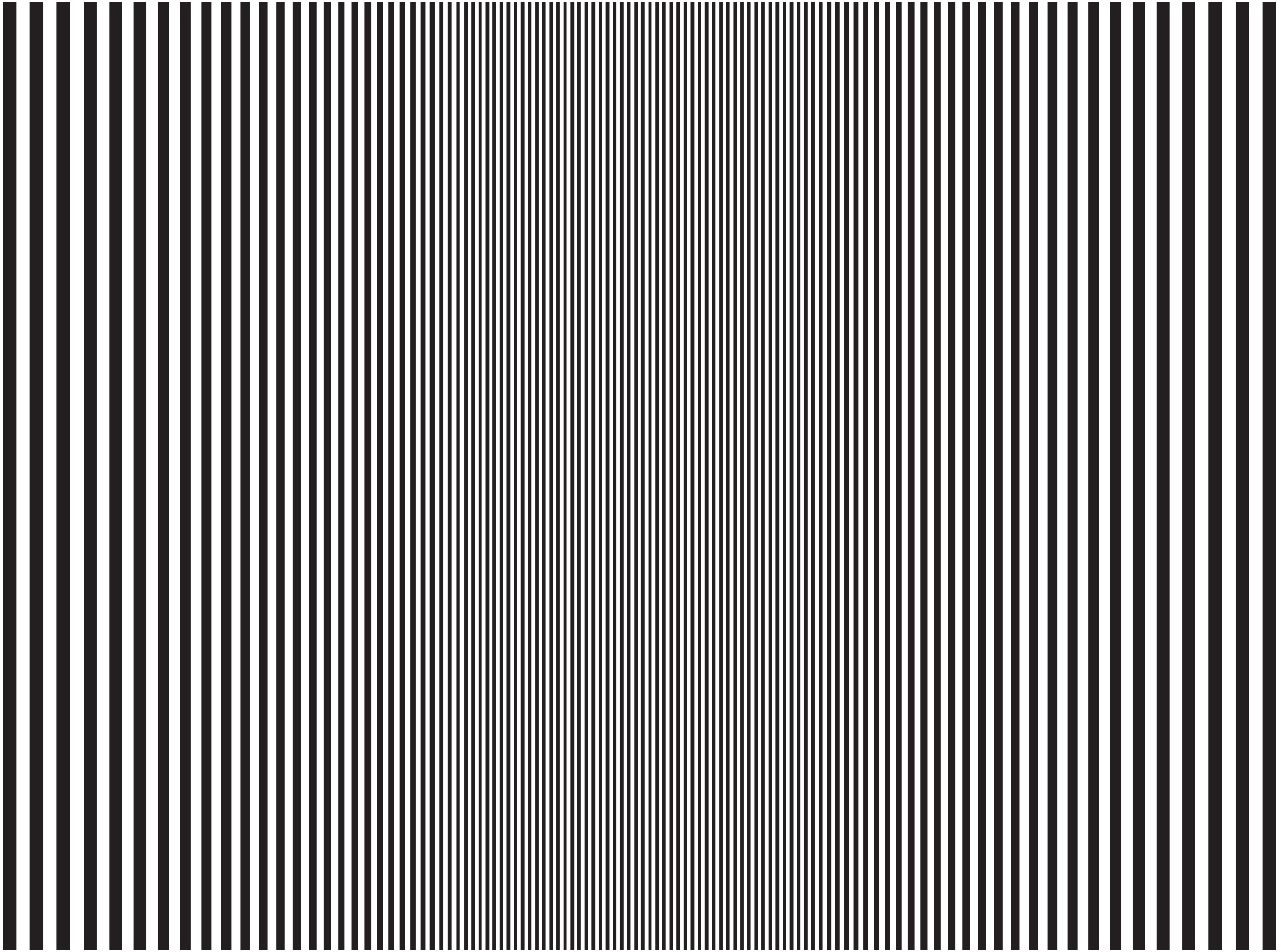
PowerShot G5 Auto Focus Chart (1)



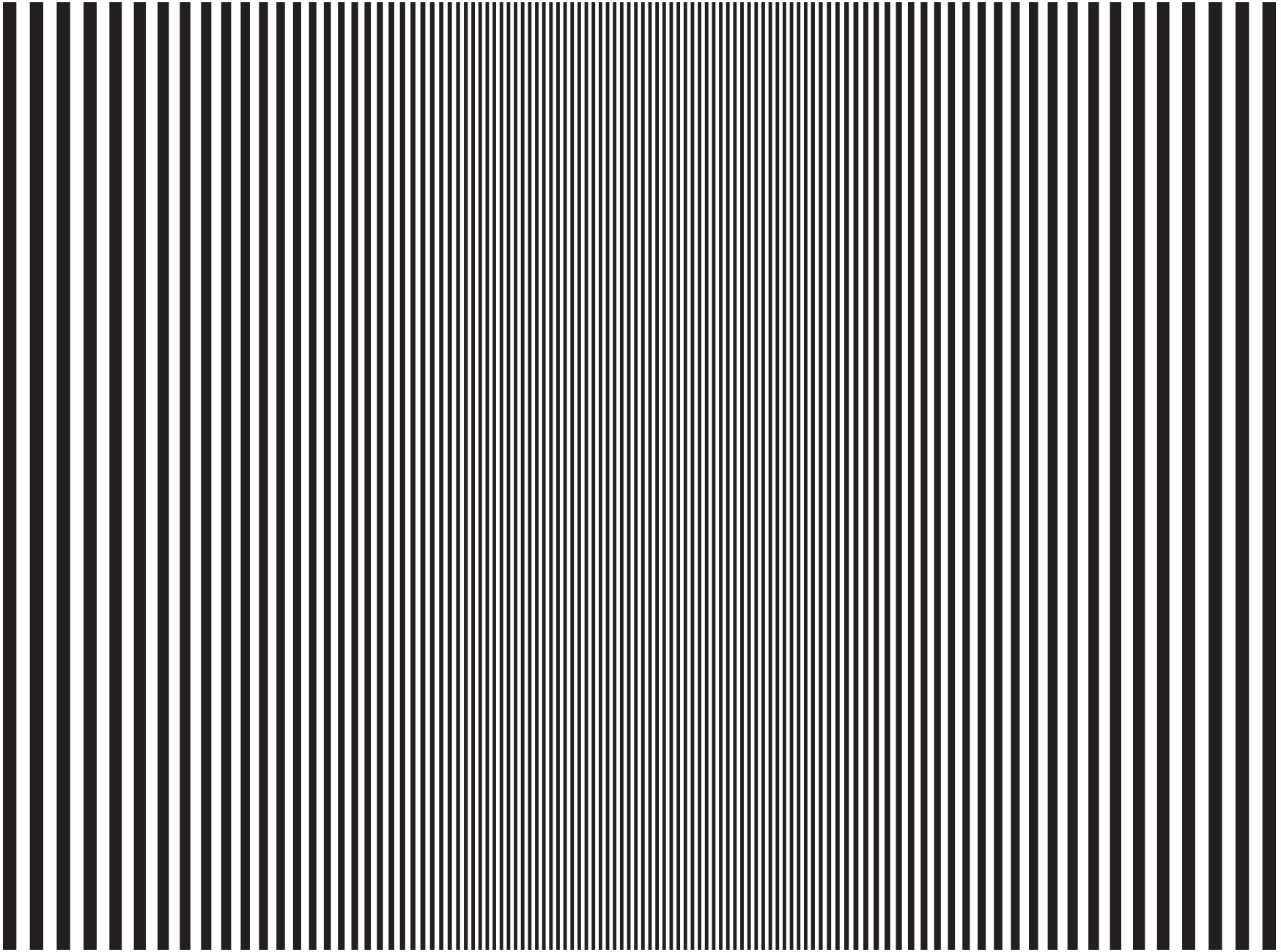
AF Chart Dimensions (1)



PowerShot G5 Auto Focus Chart (2)



PowerShot G5 Auto Focus Chart (2)



AF Chart Dimensions (2)